

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended September 30, 2022

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number: 001-41446

ADTRAN Holdings, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

901 Explorer Boulevard

Huntsville, Alabama

(Address of principal executive offices)

87-2164282

(I.R.S. Employer
Identification No.)

35806-2807

(Zip Code)

Registrant's telephone number, including area code: (256) 963-8000

N/A

(Former name, Former address and former fiscal year, if changed since last report)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, Par Value \$0.01 per share	ADTN	The NASDAQ Global Select Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
Emerging growth company	<input type="checkbox"/>		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒
As of November 7, 2022, the registrant had 77,655,939 shares of common stock, \$0.01 par value per share, outstanding.

ADTRAN Holdings, Inc.

Quarterly Report on Form 10-Q
For the Three and Nine Months Ended September 30, 2022

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GLOSSARY OF SELECTED TERMS

Below are certain acronyms, concepts and defined terms commonly used in our industry and in this Quarterly Report on Form 10-Q, along with their meanings:

Acronym/Concept/ Defined Term	Meaning
ALM	Active line monitoring
DPLTA	Domination and Profit and Loss Transfer Agreement
DSO	Days Sales Outstanding
ERP	Enterprise Resource Planning Software
E.U.	European Union
EURIBOR	Euro Interbank Offered Rate
LAN	Local Area Network
MSO	Multiple System Operator
ODM	Original Design Manufacturing
OLT	Optical Line Terminal
SaaS	Software as a Service
SEC	Securities and Exchange Commission
Service Provider	Entity that provides voice, data or video services to consumers and businesses
SMB	Small and Mid-Sized Business
SOFR	Secured Overnight Financing Rate
SI	Person or company that specializes in bringing together component subsystems into a whole and ensuring that those subsystems function together
U.K.	United Kingdom
U.S.	United States of America
VAR	Value-Added Reseller
WAN	Wide Area Network

GENERAL

On July 8, 2022, Acorn MergeCo, Inc. (“Merger Sub”), a Delaware corporation and wholly-owned direct subsidiary of ADTRAN Holdings, Inc. (f/k/a Acorn HoldCo, Inc.), merged with and into ADTRAN, Inc., with ADTRAN, Inc. surviving the merger as a wholly-owned direct subsidiary of ADTRAN Holdings, Inc. (the “Merger”). The Merger was consummated pursuant to the Business Combination Agreement, dated as of August 30, 2021 (the “Business Combination Agreement”), by and among ADTRAN Holdings, Inc., ADTRAN, Inc., ADVA Optical Networking SE, a company organized and existing under the laws of Germany (“ADVA”), and Merger Sub. In accordance with the Business Combination Agreement, ADTRAN Holdings, Inc. made a public offer to exchange each issued and outstanding no-par value bearer share of ADVA for 0.8244 shares of common stock, par value \$0.01 per share (the “Company Common Stock”), of ADTRAN Holdings, Inc. (the “Exchange Offer” and, together with the Merger, the “Business Combination”). On July 15, 2022 (the “Exchange Offer Settlement Date”), ADTRAN Holdings, Inc. completed the Exchange Offer, in which ADTRAN Holdings, Inc. acquired 33,957,538 million bearer shares of ADVA, or 65.43% of ADVA’s outstanding bearer shares as of the Exchange Offer Settlement Date, in exchange for the issuance of an aggregate of 27,994,595 million shares of Company Common Stock. On October 18, 2022, the Board of Directors of the Company and the management board of ADVA agreed on a final draft of a domination and profit and loss transfer agreement (the “DPLTA”) between the Company, as the controlling company, and ADVA, as the controlled company. The parties’ execution of the DPLTA remains subject to approval of the DPLTA by shareholders of ADVA with 75% of the votes cast in an extraordinary general meeting, which is scheduled to be held on November 30, 2022. If and when signed, effectiveness of the DPLTA is subject to the subsequent registration of the DPLTA with the commercial register (Handelsregister) of the local court (Amtsgericht) at the registered offices of ADVA, with such effectiveness to occur no earlier than January 1, 2023. The Company currently holds 33,957,538 shares of ADVA, representing 65.35% of ADVA’s outstanding shares on September 30, 2022.

Unless the context otherwise indicates or requires, references in this Quarterly Report on Form 10-Q to “ADTRAN,” the “Company,” “we,” “us” and “our” refer to ADTRAN Holdings, Inc. and its consolidated subsidiaries prior to the Merger on July 8, 2022, and to ADTRAN Holdings, Inc. and its consolidated subsidiaries following the Merger.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on behalf of ADTRAN. ADTRAN and its representatives may from time to time make written or oral forward-looking statements, including statements contained in this report, our other filings with the Securities and Exchange Commission (the “SEC”) and other communications with our stockholders. Any statement that does not directly relate to a historical or current fact is a forward-looking statement. Generally, the words, “believe,” “expect,” “intend,” “estimate,” “anticipate,” “will,” “may,” “could” and similar expressions identify forward-looking statements. We caution you that any forward-looking statements made by us or on our behalf are subject to uncertainties and other factors that could affect the accuracy of such statements. The following are some of the risks that could affect our financial performance or could cause actual results to differ materially from those expressed or implied in our forward-looking statements:

Risks related to the Business Combination and DPLTA

- We may fail to realize the anticipated strategic and financial benefits sought from the Business Combination.
- We may experience operational challenges, negative synergies and loss of customers.
- While we have agreed on a final draft of a DPLTA with ADVA, we may not be successful in entering into the DPLTA or the effectiveness of a DPLTA may be delayed as a result of litigation or otherwise, which may have an adverse effect on the ability to realize synergies and cost reductions and the market value of our shares.
- If a DPLTA with ADVA is approved by ADVA’s shareholders and becomes effective, the terms of the DPLTA, once effective, may have a material adverse effect on our financial results and condition.
- We are exposed to additional litigation risk and uncertainty with respect to the remaining minority shareholders of ADVA.
- Negative publicity related to post-closing integration measures, may adversely affect us.
- We have incurred and expect to continue to incur significant transaction fees and costs in connection with the Business Combination and post-closing integration efforts.
- We incurred a substantial amount of indebtedness in connection with the Business Combination. Our failure to meet our debt service obligations could have a material adverse effect on our business, financial condition and results of operations.
- Risks relating to the business of ADVA may have a significant adverse impact on our business and financial performance.
- We may be unable to successfully retain and motivate our personnel, including personnel at ADVA.

- The terms of our and ADVA's credit agreements restrict our current and future operations, particularly our ability to respond to changes or to take certain actions.
- We may be unable to successfully and effectively manage and integrate acquisitions, divestitures and other significant transactions, which could harm our operating results, business and prospects.

Risks related to our financial results and Company success

- Our revenue for a particular period can be difficult to predict, and a shortfall in revenue may harm our operating results.
- The lengthy sales and approval process required by service providers for new products could result in fluctuations in our revenue.
- We depend heavily on sales to certain customers; the loss of any of these customers would significantly reduce our revenue and net income.
- Our exposure to the credit risks of our customers and distributors may make it difficult to collect accounts receivable and could adversely affect our operating results, financial condition and cash flows.
- We expect gross margins to vary over time, and our levels of product and services gross margins may not be sustainable.
- Our strategy of outsourcing a portion of our manufacturing requirements to subcontractors located in various international regions may result in us not meeting our cost, quality or performance standards.
- Our dependence on a limited number of suppliers for certain raw materials, key components and ODM products, combined with supply shortages, have prevented and may continue to prevent us from delivering our products on a timely basis, which has had and may continue to have a material adverse effect on operating results and could have a material adverse effect on customer relations.
- We compete in markets that have become increasingly competitive, which may result in reduced gross profit margins and market share.
- Our estimates regarding future warranty obligations may change due to product failure rates, installation and shipment volumes, field service repair obligations and other rework costs incurred in correcting product failures. If our estimates change, our liability for warranty obligations may increase or decrease, impacting future cost of revenue.
- Managing our inventory is complex and may include write-downs of excess or obsolete inventory.
- The continuing growth of our international operations could expose us to additional risks, increase our costs and adversely affect our operating results, financial condition and cash flows.
- Our success depends on attracting and retaining key personnel.
- If we fail to manage our exposure to worldwide financial and securities markets successfully, our operating results and financial statements could be materially impacted.
- The terms of the credit agreement governing our senior credit facility restrict our current and future operations, particularly our ability to respond to changes or to take certain actions.
- We are exposed to adverse currency exchange rate fluctuations in jurisdictions where we transact in local currency, which could harm our financial results and cash flows.
- We will require a significant amount of cash to service our indebtedness, our potential payment obligations to ADVA shareholders under the proposed DPLTA, and other obligations.
- We could be required to recognize impairment charges related to goodwill and other intangible assets.

Risks related to COVID-19

- The ongoing COVID-19 pandemic has impacted and may continue to impact our business, results of operations, financial condition and cash flows, particularly our supply chain and workforce.

Risks related to our control environment

- Breaches of our information systems and cyber-attacks could compromise our intellectual property and cause significant damage to our business and reputation.
- If we fail to maintain proper and effective internal controls over financial reporting we could have a material weakness in those internal controls, that if not remediated, could materially adversely affect us.

Risks related to the telecommunications industry

- We must continue to update and improve our products and develop new products to compete and to keep pace with improvements in communications technology.
- Our failure or the failure of our contract manufacturers to comply with applicable environmental regulations could adversely impact our results of operations.
- If our products do not interoperate with our customers' networks, installations may be delayed or canceled, which could harm our business.
- We engage in research and development activities to develop new, innovative solutions and to improve the application of developed technologies, and as a consequence may miss certain market opportunities enjoyed by larger companies with substantially greater research and development efforts and which may focus on more leading-edge development.
- Our strategy of outsourcing a portion of our manufacturing requirements to subcontractors located in various international regions may result in us not meeting our cost, quality or performance standards.
- Our failure to maintain rights to intellectual property used in our business could adversely affect the development, functionality and commercial value of our products.
- Software under license from third parties for use in certain of our products may not continue to be available to us on commercially reasonable terms.
- Our use of open source software could impose limitations on our ability to commercialize our products.
- We may incur liabilities or become subject to litigation that would have a material effect on our business.
- If we are unable to successfully develop and maintain relationships with SIs, service providers and enterprise VARs, our revenue may be negatively affected.

Risks related to the regulatory environments in which we do business

- We are subject to complex and evolving U.S. and foreign laws, regulations and standards governing the conduct of our business. Violations of these laws and regulations may harm our business, subject us to penalties and to other adverse consequences.
- Changes in trade policy in the U.S. and other countries, specifically the U.K. and China, including the imposition of additional tariffs and the resulting consequences, may adversely impact our gross profits, gross margins, results of operations and financial condition.
- New or revised tax regulations, changes in our effective tax rate, recognition of a valuation allowance or assessments arising from tax audits may have an adverse impact on our results.
- Central Banks' monetary policy actions could increase our costs of borrowing money and negatively impact our financial condition and future operations.
- Expectations relating to environmental, social and governance considerations expose the Company to potential liabilities, increased costs, reputational harm, and other adverse effects on the Company's business.

The foregoing list of risks is not exclusive. For a more detailed description of the risk factors associated with our business, see Part I, Item 1A of the Company's Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on February 25, 2022 (the "2021 Form 10-K"), as well as the risk factors set forth in Part II, Item 1A of this Quarterly Report on Form 10-Q. We caution investors that other factors may prove to be important in the future in affecting our operating results. New factors emerge from time to time, and it is not possible for us to predict all of these factors, nor can we assess the impact each factor, or a combination of factors, may have on our business.

You are further cautioned not to place undue reliance on these forward-looking statements because they speak only of our views as of the date that the statements were made. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

PART I. FINANCIAL INFORMATION
ITEM 1. FINANCIAL STATEMENTS

ADTRAN Holdings, Inc.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)
(In thousands, except per share amounts)

	September 30, 2022	December 31, 2021
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 111,099	\$ 56,603
Restricted cash	—	215
Short-term investments (includes \$803 and \$350 of available-for-sale securities as of September 30, 2022 and December 31, 2021, respectively, reported at fair value)	803	350
Accounts receivable, less allowance for credit losses of \$218 and \$0 as of September 30, 2022 and December 31, 2021, respectively	302,401	158,742
Other receivables	14,350	11,228
Inventory, net	416,163	139,891
Prepaid expenses and other current assets	30,739	9,296
Total Current Assets	875,555	376,325
Property, plant and equipment, net	104,577	55,766
Deferred tax assets, net	—	9,079
Goodwill	357,869	6,968
Intangibles, net	393,575	19,293
Other non-current assets	56,347	30,971
Long-term investments (includes \$27,860 and \$29,717 of available-for-sale securities as of September 30, 2022 and December 31, 2021, respectively, reported at fair value)	50,131	70,615
Total Assets	\$ 1,838,054	\$ 569,017
LIABILITIES AND EQUITY		
Current Liabilities		
Accounts payable	\$ 276,026	\$ 102,489
Revolving credit agreements outstanding	84,503	—
Notes payable	29,782	—
Unearned revenue	40,993	17,737
Accrued expenses and other liabilities	25,554	13,673
Accrued wages and benefits	41,595	14,900
Income tax payable, net	26,838	6,560
Total Current Liabilities	525,291	155,359
Deferred tax liabilities, net	36,884	—
Non-current unearned revenue	18,269	9,271
Pension liability	16,220	11,402
Deferred compensation liability	25,376	31,383
Non-current lease obligations	21,490	3,269
Other non-current liabilities	9,697	1,231
Total Liabilities	653,227	211,915
Equity		
Common stock, par value \$0.01 per share; 200,000 shares authorized; 77,619 shares issued and outstanding as of September 30, 2022 and 79,652 shares issued and 49,063 shares outstanding as of December 31, 2021	776	797
Additional paid-in capital	883,210	288,946
Accumulated other comprehensive loss	(40,288)	(11,914)
Retained earnings	31,535	740,820
Treasury stock at cost: 197 and 30,590 shares as of September 30, 2022 and December 31, 2021, respectively	(4,083)	(661,547)
Non-controlling interest	313,677	—
Total Equity	1,184,827	357,102
Total Liabilities and Equity	\$ 1,838,054	\$ 569,017

See accompanying notes to condensed consolidated financial statements.

ADTRAN Holdings, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF LOSS
(Unaudited)
(In thousands, except per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Revenue				
Network Solutions	\$ 304,940	\$ 120,767	\$ 599,306	\$ 360,025
Services & Support	35,769	17,314	67,959	48,821
Total Revenue	340,709	138,081	667,265	408,846
Cost of Revenue				
Network Solutions	222,606	81,029	413,180	216,044
Services & Support	15,076	9,379	34,236	28,860
Total Cost of Revenue	237,682	90,408	447,416	244,904
Gross Profit	103,027	47,673	219,849	163,942
Selling, general and administrative expenses	74,880	30,972	130,646	89,273
Research and development expenses	59,196	26,759	112,187	82,131
Asset impairment	16,969	—	16,969	—
Operating Loss	(48,018)	(10,058)	(39,953)	(7,462)
Interest and dividend income	347	344	768	887
Interest expense	(1,303)	(6)	(1,427)	(18)
Net investment (loss) gain	(2,691)	(63)	(10,752)	2,942
Other income, net	2,494	648	2,949	2,673
Loss Before Income Taxes	(49,171)	(9,135)	(48,415)	(978)
Income tax benefit (expense)	4,312	(1,292)	4,572	(3,467)
Net Loss	\$ (44,859)	\$ (10,427)	\$ (43,843)	\$ (4,445)
Less: Net Loss attributable to non-controlling interest	(2,925)	—	(2,925)	—
Net Loss attributable to ADTRAN Holdings, Inc.	\$ (41,934)	\$ (10,427)	\$ (40,918)	\$ (4,445)
Weighted average shares outstanding – basic	73,036	48,609	57,175	48,470
Weighted average shares outstanding – diluted	73,036	48,609	57,175	48,470
Loss per common share attributable to ADTRAN Holdings, Inc. – basic	\$ (0.57)	\$ (0.21)	\$ (0.72)	\$ (0.09)
Loss per common share attributable to ADTRAN Holdings, Inc. – diluted	\$ (0.57)	\$ (0.21)	\$ (0.72)	\$ (0.09)

See accompanying notes to condensed consolidated financial statements.

ADTRAN Holdings, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(Unaudited)
(In thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Net Loss	\$ (44,859)	\$ (10,427)	\$ (43,843)	\$ (4,445)
Other Comprehensive Loss, net of tax				
Net unrealized loss on available-for-sale securities	(396)	(61)	(1,320)	(348)
Defined benefit plan adjustments	(118)	124	(218)	435
Foreign currency translation loss	(23,172)	(1,389)	(26,930)	(2,914)
Other Comprehensive Loss, net of tax	(23,686)	(1,326)	(28,468)	(2,827)
Less: Comprehensive Loss attributable to non-controlling interest, net of tax	(94)	—	(94)	—
Comprehensive Loss attributable to ADTRAN Holdings, Inc., net of tax	\$ (68,451)	\$ (11,753)	\$ (72,217)	\$ (7,272)

See accompanying notes to condensed consolidated financial statements.

ADTRAN Holdings, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Unaudited)
(In thousands, except per share amounts)

	Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Non- controlling interest	Total Equity
Balance as of December 31, 2021	79,652	\$ 797	\$ 288,946	\$ 740,820	\$ (661,547)	\$ (11,914)	\$ -	\$ 357,102
Net loss	—	—	—	(1,127)	—	—	—	(1,127)
Other comprehensive loss, net of tax	—	—	—	—	—	(1,642)	—	(1,642)
Dividend payments (\$0.09 per share)	—	—	—	(4,438)	—	—	—	(4,438)
Dividends accrued on unvested RSUs	—	—	—	32	—	—	—	32
Deferred compensation adjustments, net of tax	—	—	—	—	(18)	—	—	(18)
PSUs, RSUs and restricted stock vested	—	—	—	(895)	841	—	—	(54)
Stock options exercised	—	—	—	(143)	711	—	—	568
Stock-based compensation expense	—	—	1,893	—	—	—	—	1,893
Balance as of March 31, 2022	79,652	\$ 797	\$ 290,839	\$ 734,249	\$ (660,013)	\$ (13,556)	\$ —	\$ 352,316
Net income	—	—	—	2,143	—	—	—	2,143
Other comprehensive loss, net of tax	—	—	—	—	—	(3,140)	—	(3,140)
Dividend payments (\$0.09 per share)	—	—	—	(4,439)	—	—	—	(4,439)
Dividends accrued on unvested RSUs	—	—	—	(23)	—	—	—	(23)
Deferred compensation adjustments, net of tax	—	—	—	—	24	—	—	24
PSUs, RSUs and restricted stock vested	—	—	—	(90)	(210)	—	—	(300)
Stock options exercised	—	—	—	(19)	87	—	—	68
Stock-based compensation expense	—	—	1,888	—	—	—	—	1,888
Balance as of June 30, 2022	79,652	\$ 797	\$ 292,727	\$ 731,821	\$ (660,112)	\$ (16,696)	\$ —	\$ 348,537
Net loss	—	—	—	(41,934)	—	—	(2,925)	(44,859)
Acquisition of ADVA	27,995	280	577,980	—	—	—	316,415	894,675
Retirement of treasury stock	(30,330)	(303)	—	(655,761)	656,064	—	—	—
Other comprehensive loss, net of tax	—	—	—	—	—	(23,592)	(94)	(23,686)
Dividend payments (\$0.09 per share)	—	—	—	(6,982)	—	—	—	(6,982)
Deferred compensation adjustments, net of tax	—	—	—	—	(35)	—	—	(35)
ADTRAN RSUs and restricted stock vested	4	—	—	(40)	—	—	—	(40)
ADTRAN stock options exercised	298	2	—	4,431	—	—	—	4,433
ADTRAN stock-based compensation expense	—	—	11,195	—	—	—	—	11,195
Reclassification of ADVA stock options	—	—	187	—	—	—	99	286
ADVA stock options exercised	—	—	236	—	—	—	129	365
ADVA stock-based compensation expense	—	—	885	—	—	—	53	938
Balance as of September 30, 2022	77,619	\$ 776	\$ 883,210	\$ 31,535	\$ (4,083)	\$ (40,288)	\$ 313,677	\$ 1,184,827

See accompanying notes to condensed consolidated financial statements.

ADTRAN Holdings, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(Unaudited)
(In thousands, except per share amounts)

	Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total Equity
Balance as of December 31, 2020	79,652	\$ 797	\$ 281,466	\$ 781,813	\$ (679,493)	\$ (11,639)	\$ 372,944
Net income	—	—	—	896	—	—	896
Other comprehensive loss, net of tax	—	—	—	—	—	(1,956)	(1,956)
Dividend payments (\$0.09 per share)	—	—	—	(4,361)	—	—	(4,361)
Dividends accrued on unvested RSUs	—	—	—	(68)	—	—	(68)
Deferred compensation adjustments, net of tax	—	—	—	—	(50)	—	(50)
PSUs, RSUs and restricted stock vested	—	—	—	(1,683)	1,602	—	(81)
Stock options exercised	—	—	—	(476)	1,720	—	1,244
Stock-based compensation expense	—	—	1,807	—	—	—	1,807
Balance as of March 31, 2021	79,652	\$ 797	\$ 283,273	\$ 776,121	\$ (676,221)	\$ (13,595)	\$ 370,375
Net income	—	—	—	5,086	—	—	5,086
Other comprehensive income, net of tax	—	—	—	—	—	455	455
Dividend payments (\$0.09 per share)	—	—	—	(4,374)	—	—	(4,374)
Dividends accrued on unvested RSUs	—	—	—	(128)	—	—	(128)
Deferred compensation adjustments, net of tax	—	—	—	—	(12)	—	(12)
PSUs, RSUs and restricted stock vested	—	—	—	(32)	29	—	(3)
Stock options exercised	—	—	—	(619)	2,927	—	2,308
Stock-based compensation expense	—	—	1,808	—	—	—	1,808
Balance as of June 30, 2021	79,652	\$ 797	\$ 285,081	\$ 776,054	\$ (673,277)	\$ (13,140)	\$ 375,515
Net loss	—	—	—	(10,427)	—	—	(10,427)
Other comprehensive loss, net of tax	—	—	—	—	—	(1,326)	(1,326)
Dividend payments (\$0.09 per share)	—	—	—	(4,389)	—	—	(4,389)
Dividends accrued on unvested RSUs	—	—	—	2	—	—	2
Deferred compensation adjustments, net of tax	—	—	—	—	(12)	—	(12)
PSUs, RSUs and restricted stock vested	—	—	—	(185)	174	—	(11)
Stock options exercised	—	—	—	(657)	3,216	—	2,559
Stock-based compensation expense	—	—	1,842	—	—	—	1,842
Balance as of September 30, 2021	79,652	\$ 797	\$ 286,923	\$ 760,398	\$ (669,899)	\$ (14,466)	\$ 363,753

See accompanying notes to condensed consolidated financial statements.

ADTRAN Holdings, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(In thousands)

	Nine Months Ended September 30,	
	2022	2021
Cash flows from operating activities:		
Net loss	\$ (43,843)	\$ (4,445)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation and amortization	34,783	12,246
Asset impairment	16,969	—
Amortization of debt issuance cost	200	—
Loss (gain) on investments, net	10,395	(3,320)
Stock-based compensation expense	15,912	5,457
Deferred income taxes	(26,366)	437
Other, net	32	89
Inventory reserves	(6,681)	(4,789)
Changes in operating assets and liabilities:		
Accounts receivable, net	(34,535)	(26,346)
Other receivables	(2,154)	11,152
Inventory	(76,293)	2,120
Prepaid expenses, other current assets and other assets	610	(8,514)
Accounts payable	70,381	29,614
Accrued expenses and other liabilities	(23,005)	10,392
Income taxes payable, net	20,862	4,798
Net cash (used in) provided by operating activities	(42,733)	28,891
Cash flows from investing activities:		
Purchases of property, plant and equipment	(10,141)	(3,572)
Proceeds from sales and maturities of available-for-sale investments	30,474	28,305
Purchases of available-for-sale investments	(22,215)	(28,853)
Proceeds from beneficial interests in securitized accounts receivable	1,294	—
Proceeds from disposals of property, plant and equipment	12	—
Insurance proceeds received	—	500
Acquisition of business, net of cash acquired	43,957	—
Net cash provided by (used in) investing activities	43,381	(3,620)
Cash flows from financing activities:		
Tax withholdings related to stock-based compensation settlements	(515)	(113)
Proceeds from stock option exercises	5,434	6,111
Dividend payments	(15,859)	(13,124)
Proceeds from draw on revolving credit agreements	133,141	—
Repayment of revolving credit agreements	(48,000)	—
Payment of debt issuance cost	(3,015)	—
Repayment of notes payable	(10,057)	—
Net cash provided by (used in) financing activities	61,129	(7,126)
Net increase in cash, cash equivalents and restricted cash	61,777	18,145
Effect of exchange rate changes	(7,496)	(2,719)
Cash, cash equivalents and restricted cash, beginning of period	56,818	60,179
Cash, cash equivalents and restricted cash, end of period	\$ 111,099	\$ 75,605
Supplemental disclosure of cash financing activities:		
Cash paid for interest	\$ 633	\$ —
Supplemental disclosure of non-cash investing activities:		
Right-of-use assets obtained in exchange for lease obligations	\$ 904	\$ 1,833
Purchases of property, plant and equipment included in accounts payable	\$ 1,037	\$ 100
ADVA common shares exchanged in acquisition	\$ 565,491	\$ —
ADVA options assumed in acquisition	\$ 12,769	\$ —
Non-controlling interest related to ADVA	\$ 316,415	\$ —

See accompanying notes to condensed consolidated financial statements.

ADTRAN Holdings, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

GENERAL

On July 8, 2022, Acorn MergeCo, Inc. (“Merger Sub”), a Delaware corporation and wholly-owned direct subsidiary of ADTRAN Holdings, Inc. (f/k/a Acorn HoldCo, Inc.), merged with and into ADTRAN, Inc., with ADTRAN, Inc. surviving the merger as a wholly-owned direct subsidiary of ADTRAN Holdings, Inc. (the “Merger”). The Merger was consummated pursuant to the Business Combination Agreement, dated as of August 30, 2021 (the “Business Combination Agreement”), by and among ADTRAN Holdings, Inc., ADTRAN, Inc., ADVA Optical Networking SE, a company organized and existing under the laws of Germany (“ADVA”), and Merger Sub. In accordance with the Business Combination Agreement, ADTRAN Holdings, Inc. made a public offer to exchange each issued and outstanding no-par value bearer share of ADVA for 0.8244 shares of common stock, par value \$0.01 per share (the “Company Common Stock”), of ADTRAN Holdings, Inc. (the “Exchange Offer” and, together with the Merger, the “Business Combination”). On July 15, 2022 (the “Exchange Offer Settlement Date”), ADTRAN Holdings, Inc. completed the Exchange Offer, in which ADTRAN Holdings, Inc. acquired 34.0 million bearer shares of ADVA, or 65.43% of ADVA’s outstanding bearer shares as of the Exchange Offer Settlement Date, in exchange for the issuance of an aggregate of 28.0 million shares of Company Common Stock. See Note 2 for additional information.

On October 18, 2022, the Board of Directors of the Company and the management board of ADVA agreed on a final draft of a domination and profit and loss transfer agreement (the “DPLTA”) between the Company, as the controlling company, and ADVA, as the controlled company. The parties’ execution of the DPLTA remains subject to approval of the DPLTA by shareholders of ADVA with 75% of the votes cast in an extraordinary general meeting, which is scheduled to be held on November 30, 2022. If and when signed, effectiveness of the DPLTA is subject to the subsequent registration of the DPLTA with the commercial register (Handelsregister) of the local court (Amtsgericht) at the registered offices of ADVA, with such effectiveness to occur no earlier than January 1, 2023. The Company currently holds 33,957,538 shares of ADVA, representing 65.35% of ADVA’s outstanding shares on September 30, 2022. Unless the context otherwise indicates or requires, references in this Quarterly Report on Form 10-Q to “ADTRAN,” the “Company,” “we,” “us” and “our” refer to ADTRAN, Inc. and its consolidated subsidiaries prior to the Merger on July 8, 2022, and to ADTRAN Holdings, Inc. and its consolidated subsidiaries following the Merger.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The accompanying unaudited Condensed Consolidated Financial Statements of ADTRAN Holdings, Inc. and its subsidiaries have been prepared pursuant to the rules and regulations of the SEC applicable to interim financial information presented in Quarterly Reports on Form 10-Q. Accordingly, certain information and notes required by generally accepted accounting principles in the United States of America (“U.S. GAAP”) for complete financial statements are not included herein. Certain prior year amounts have been reclassified to conform to the current period presentation. The December 31, 2021 Condensed Consolidated Balance Sheet is derived from audited financial statements but does not include all disclosures required by U.S. GAAP.

In the opinion of management, all adjustments necessary to fairly state these interim statements have been recorded and are of a normal and recurring nature. The results of operations for an interim period are not necessarily indicative of the results for the full year. The interim financial statements should be read in conjunction with the consolidated financial statements and notes thereto included in ADTRAN, Inc. Annual Report on Form 10-K for the year ended December 31, 2021, filed with the SEC on February 25, 2022.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expense during the reporting period. Significant estimates include allowance for credit losses on accounts receivable and contract assets, excess and obsolete inventory reserves, warranty reserves, customer rebates, determination and accrual of the deferred revenue related to performance obligations under contracts with customers, estimated costs to complete obligations associated with deferred and accrued revenues and network installations, estimated income tax provision and income tax contingencies, fair value of stock-based compensation, assessment of goodwill and other intangibles for impairment, estimated lives of intangible assets, estimated pension liability and fair value of investments. Actual amounts could differ significantly from these estimates.

We assessed certain accounting matters that generally require consideration of forecasted financial information in context with the information reasonably available to us and the unknown future impacts of the SARS-CoV-2 coronavirus/COVID-19 global pandemic (or variants of the SARS-CoV-2 coronavirus), supply chain constraints, inflationary pressures, the energy crisis, currency fluctuations and political tensions as of September 30, 2022 and through the date of this report. The accounting matters assessed included, but were not limited to, the allowance for credit losses, stock-based compensation, carrying value of goodwill, intangibles and other long-lived assets, financial assets, valuation allowances for tax assets, revenue recognition and costs of revenue. Future conditions related to the magnitude and duration of the COVID-19 pandemic, as well as other factors, including supply chain constraints and inflationary pressures could result in further impacts to the Company's consolidated financial statements in future reporting periods.

Recently Adopted Accounting Pronouncements

In October 2021, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2021-08, Business Combinations (Topic 805) Accounting for Contract Assets and Contract Liabilities from Contracts with Customers, which would require an acquirer to recognize and measure acquired contract assets and contract liabilities in a manner consistent with how the acquiree recognized and measured them in its pre-acquisition financial statements in accordance with Topic 606, Revenue Recognition. The Company early adopted ASU 2021-08 on July 1, 2022 and the standard was applied retrospectively beginning with January 1, 2022. The effect of the adoption of this standard on the Company's Condensed Consolidated Financial Statements as of the date of this report is included in Note 2 of the Notes to Condensed Consolidated Financial Statements.

Recent Accounting Pronouncements Not Yet Adopted

There are currently no accounting pronouncements not yet adopted that had a material effect on the Condensed Consolidated Financial Statements.

2. BUSINESS COMBINATION

ADVA Optical Networking SE

On August 30, 2021, ADTRAN and ADVA, entered into a Business Combination Agreement, pursuant to which both companies agreed to combine their respective businesses and each become subsidiaries of a new holding company, ADTRAN Holdings, Inc. (formerly known as Acorn HoldCo, Inc.) which was formed as a wholly-owned subsidiary of ADTRAN in order to consummate the transactions under the Business Combination Agreement. Under the terms of the Business Combination Agreement, on July 8, 2022, Acorn MergeCo, Inc, a Delaware corporation and wholly-owned direct subsidiary of the Company, merged with and into ADTRAN Holdings, Inc. with ADTRAN Holdings, Inc. surviving the Business Combination as a wholly-owned direct subsidiary of the Company.

Additionally, pursuant to the Business Combination Agreement, the Company made a public offer to exchange each issued and outstanding no-par value bearer share of ADVA for 0.8244 shares of Company Common Stock, par value \$0.01 per share of the Company. The Exchange Offer was settled on Exchange Offer Settlement Date, on which date the Company acquired 33,957,538 bearer shares of ADVA, or 65.43% of ADVA's outstanding bearer shares as of the Exchange Offer Settlement Date, in exchange for the issuance of an aggregate of 27,994,595 shares of Company Common Stock. Additionally, pursuant to the Business Combination Agreement, ADVA stock option holders were entitled to have their ADVA stock options assumed by ADTRAN Holdings, Inc. (applying the exchange ratio in the Business Combination Agreement), thereafter representing options to acquire stock of ADTRAN, Inc. The fair value of the ADVA stock options assumed by ADTRAN, Inc. was \$12.8 million, estimated using the Monte Carlo method.

ADTRAN, Inc. and ADVA became subsidiaries of ADTRAN Holdings, Inc. as a result of the Business Combination. ADTRAN was determined to be the accounting acquirer of ADVA based on ADTRAN shareholders' majority equity stake in the combined company, the composition of the board of directors and senior management of the combined company, among other factors. The Business Combination of ADVA has been accounted for using the acquisition method of accounting as per the provisions of Accounting Standards Codification 805, "Business Combinations" ("ASC 805"). The Business Combination Agreement used a fixed exchange ratio of Company Common Stock for ADVA shares of common stock, which resulted in a 36% equity stake for ADVA stockholders and 64% equity stake for ADTRAN stockholders in the post-closing combined company (calculated on a fully diluted basis and utilizing the tender of 65.43% of ADVA's current issued and outstanding share capital). Therefore, ADTRAN shareholders continue to hold a majority interest in the combined company after the Business Combination was completed. Additionally, the Board of Directors is comprised of six members from ADTRAN and three members from ADVA; the current ADTRAN chief executive officer acts as the chairman of the Board of Directors and the former ADVA chief executive officer as the vice chairman of the Board of Directors. Additionally, the current ADTRAN chief executive officer and ADTRAN chief financial officer hold these positions within the combined company. After these and other considerations as outlined in ASC 805, ADTRAN represents the accounting acquirer.

The following table summarizes the purchase price for the ADVA business combination:

<i>(In thousands, except shares, share price and exchange ratio)</i>		Purchase Price
ADVA shares exchanged		33,957,538
Exchange ratio		0.8244
ADTRAN Holdings, Inc. shares issued		27,994,595
ADTRAN Holdings, Inc. share price on July 15, 2022	\$	20.20
Purchase price paid for ADVA shares	\$	565,491
Equity compensation (1)	\$	12,769
Total purchase price	\$	578,260

(1) Represents the portion of replacement share-based payment awards that relates to pre-combination vesting.

Assets acquired and liabilities assumed were recognized at their respective fair values as of July 15, 2022. The following table summarizes the preliminary purchase price allocation for each major class of assets acquired and liabilities assumed in the acquisition of ADVA (in thousands):

<i>(In thousands)</i>		
Total purchase price	\$	578,260
Non-controlling interest	\$	316,415
Net Assets:		
Cash and cash equivalents	\$	44,003
Accounts receivable		114,659
Other receivables		1,457
Inventory		200,532
Prepaid expenses and other current assets		29,474
Property plant and equipment		52,796
Deferred tax assets		1,599
Intangibles		405,385
Other non-current assets		30,588
Accounts payable		(98,587)
Current unearned revenue		(26,047)
Accrued expenses and other liabilities		(59,600)
Current portion of notes payable		(25,254)
Income tax payable		(1,400)
Non-current unearned revenue		(11,498)
Pension liability		(6,820)
Other non-current liabilities		(6,094)
Non-current portion of revolving credit agreements and notes payable		(15,250)
Non-current lease obligations		(20,046)
Deferred tax liabilities		(74,379)
Total net assets acquired	\$	535,518
Goodwill	\$	359,157

The allocation of the purchase price and fair value assessment of goodwill, property, plant and equipment, intangible assets, inventory, deferred tax assets, and deferred tax liabilities is preliminary as a result of ongoing valuation procedures on the assets acquired and liabilities assumed. The acquisition accounting is subject to revision once the Company receives final information. It is possible that the final assessment of fair value may differ materially from the preliminary assessment. If the final assessment differs from this preliminary assessment, the measurement period adjustments will be recorded in the period in which they are determined as if they had been completed at the acquisition date.

The preliminary fair value of the assets acquired include accounts receivable of \$114.7 million and other receivables of \$1.5 million. The unpaid principal balance under these receivables is \$118.5 million and \$1.5 million, respectively. The difference between the fair value and the unpaid principal balance primarily represents amounts expected to be uncollectible.

The fair value of the intangible assets acquired as of the acquisition date:

<i>(In thousands)</i>	Estimated-average useful life (in years) ⁽¹⁾	Fair value	Income Statement Amortization Classification
Developed technology	8.5	\$ 293,530	Cost of revenue - Network Solutions
Backlog	1.4	52,165	Cost of revenue - Network Solutions and Services & Support
Customer relationships	10.5	32,704	Selling, general and administrative expenses
Trade name	2.8	26,986	Selling, general and administrative expenses
Total		\$ 405,385	

⁽¹⁾ Determination of the weighted average period of the individual categories of intangible assets was based on the nature of the applicable intangible asset and the expected future cash flows to be derived from the intangible asset. Amortization of intangible assets with definite lives is recognized over the period of time the assets are expected to contribute to future cash flows.

Goodwill represents the excess of the purchase price over the fair value of the net tangible and intangible assets acquired. Based on preliminary estimates, the ADVA acquisition resulted in the recognition of goodwill of \$359.2 million, which the Company believes is attributable to the value driven by the Company's expected growth of the business, synergies, and expanded market and product opportunities. Goodwill created as a result of the ADVA acquisition is not deductible for tax purposes.

After the Business Combination, the chief operating decision maker assessed and will continue to assess the Company's performance and allocate resources to its two segments (1) Network Solutions and (2) Services & Support. Based on preliminary estimates, the goodwill resulting from the Business Combination of \$270.6 million was allocated to the Network Solutions segment, and \$88.6 million was allocated to the Services & Support segment. See Note 18 of the Notes to Condensed Consolidated Financial Statements, included in Part I, Item 1 of this report for more information about the Company's segments.

As of the acquisition date, the fair value of the non-controlling interest was approximately \$316.4 million and determined using a market approach. As a portion of ADVA shares will remain trading after the Business Combination, the non-controlling interest was calculated using 17,941,496 ADVA shares held by non-controlling interest multiplied by the ADVA closing share price of €17.58 (\$17.64 using the July 15, 2022 EUR to USD conversion rate of \$1.00318) on July 15, 2022.

The Company included the financial results of ADVA in its consolidated financial statements since July 15, 2022, the acquisition date. The net revenue and net loss from the ADVA business since July 15, 2022, were \$163.8 million and \$8.4 million, respectively, which are included in the Company's Condensed Consolidated Statement of Loss. The net loss attributable to non-controlling interest from the ADVA business for the three and nine months ended September 30, 2022 was \$2.9 million.

As of September 30, 2022, the Company has incurred \$25.2 million of transaction costs related to the Business Combination, of which \$10.6 million and \$5.1 million were incurred during the three months ended September 30, 2022 and 2021, respectively and \$13.3 million and \$6.4 million were incurred during the nine months ended September, 30 2022 and 2021, respectively. The Company expects to incur an estimated \$1.1 million of additional transaction costs related to the Business Combination. These transaction costs are recorded in selling, general and administrative expense in the Condensed Consolidated Statements of Loss.

Supplemental Pro Forma Information (Unaudited)

The unaudited pro forma financial information in the table below summarizes the combined results of operations for ADTRAN and ADVA as though the Business Combination had occurred on January 1, 2021. The pro forma amounts have been adjusted for differences in basis of accounting which are determined before taking into effect the impacts of purchase accounting and Business Combination accounting impacts.

The following unaudited pro forma information is presented for illustrative purposes only. It is not necessarily indicative of the results of operations of future periods, the results of operations that actually would have been realized had the entities been a single company as of January 1, 2021, or the future operating results of the combined entities. The unaudited pro forma information does not give effect to the potential impact of current financial conditions, regulatory matters or any anticipated synergies, operating efficiencies or cost savings that may be associated with the acquisition. The unaudited pro forma information also does not include any integration costs or remaining future transaction costs that the Company may incur related to the acquisition as part of combining the operations of the companies.

(In thousands)	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2022	2021	2022	2021
Revenue	\$ 368,192	\$ 317,067	\$ 1,053,510	\$ 942,003
Net income (loss)	\$ (48,084)	\$ (44,154)	\$ (60,494)	\$ (133,321)

3. CASH, CASH EQUIVALENTS AND RESTRICTED CASH

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the Condensed Consolidated Balance Sheets that sum to the total of the same such amounts shown in the Condensed Consolidated Statements of Cash Flows:

(In thousands)	As of	As of
	September 30, 2022	December 31, 2021
Cash and cash equivalents	\$ 111,099	\$ 56,603
Restricted cash	—	215
Cash, cash equivalents and restricted cash	\$ 111,099	\$ 56,818

4. REVENUE

The following is a description of the principal activities from which revenue is generated by reportable segment:

Network Solutions Segment - Includes hardware and software products that enable a digital future.

Services & Support Segment - Includes network design, implementation, maintenance and cloud-hosted services supporting the Company's Subscriber, Access and Aggregation, and Optical Networking Solutions.

Revenue by Category

In addition to the Company's reportable segments, revenue is also reported for the following three categories – Subscriber Solutions, Access & Aggregation Solutions and Optical Networking Solutions.

Prior to the Business Combination with ADVA on July 15, 2022, ADTRAN reported revenue across the following three categories: (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products. Following the Business Combination with ADVA, we have recast these revenues such that ADTRAN's former Access & Aggregation revenue is combined with a portion of the applicable ADVA solutions to create Access & Aggregation Solutions, ADTRAN's former Subscriber Solutions & Experience revenue is combined with a portion of the applicable ADVA solutions to create Subscriber Solutions, and the revenue from Traditional & Other products is now included in the applicable Access & Aggregation Solutions or Subscriber Solutions category. Optical Networking Solutions is a new revenue category added to represent a meaningful portion of ADVA's portfolio.

Our Subscriber Solutions portfolio is used by service providers to terminate their access services infrastructure at the customer premises while providing an immersive and interactive experience for residential, business and wholesale subscribers. This revenue category includes hardware- and software-based products and services. These solutions include fiber termination solutions for residential, business and wholesale subscribers, Wi-Fi access solutions for residential and business subscribers, Ethernet switching and network edge virtualization solutions for business subscribers, and cloud software solutions covering a mix of subscriber types.

Our Access & Aggregation Solutions are solutions that are used by communications service providers to connect residential subscribers, business subscribers and mobile radio networks to the service providers' metro network, primarily through fiber-based connectivity. This revenue category includes hardware- and software-based products and services. Our solutions within this category are a mix of fiber access and aggregation platforms, precision network synchronization and timing solutions, and access orchestration solutions that ensure highly reliable and efficient network performance.

Our Optical Networking Solutions are used by communications service providers, internet content providers and large-scale enterprises to securely interconnect metro and regional networks over fiber. This revenue category includes hardware- and software-based products and services. Our solutions within this category include open optical terminals, open line systems, optical subsystems and modules, network infrastructure assurance systems, and automation platforms that are used to build high-scale, secure and assured optical networks.

The following tables disaggregate revenue by reportable segment and revenue category. Prior year amounts presented below have been reclassified to conform to the current period revenue category presentation:

(In thousands)	Three Months Ended					
	September 30, 2022			September 30, 2021		
	Network Solutions	Services & Support	Total	Network Solutions	Services & Support	Total
Subscriber Solutions	\$ 125,338	\$ 8,337	\$ 133,675	\$ 42,704	\$ 4,163	\$ 46,867
Access & Aggregation Solutions	76,591	11,598	88,189	78,063	13,151	91,214
Optical Networking Solutions	103,011	15,834	118,845	—	—	—
Total	\$ 304,940	\$ 35,769	\$ 340,709	\$ 120,767	\$ 17,314	\$ 138,081

(In thousands)	Nine Months Ended					
	September 30, 2022			September 30, 2021		
	Network Solutions	Services & Support	Total	Network Solutions	Services & Support	Total
Subscriber Solutions	\$ 252,899	\$ 17,248	\$ 270,147	\$ 140,257	\$ 12,232	\$ 152,489
Access & Aggregation Solutions	243,396	34,877	278,273	219,768	36,589	256,357
Optical Networking Solutions	103,011	15,834	118,845	—	—	—
Total	\$ 599,306	\$ 67,959	\$ 667,265	\$ 360,025	\$ 48,821	\$ 408,846

The aggregate amount of transaction price allocated to remaining performance obligations that have not been satisfied as of September 30, 2022 and December 31, 2021 related to contractual maintenance agreements, contractual SaaS and subscription services, and hardware contracts that exceed one year in duration amounted to \$276.5 million and \$101.1 million, respectively. As of September 30, 2022, approximately 82% is expected to be recognized over the next 12 months and the remainder recognized thereafter. The majority of the Company's remaining performance obligations at September 30, 2022 are related to contracts or orders that have an original expected duration of one year or less, for which the Company is electing to utilize the practical expedient available within the guidance, and are excluded from the transaction price related to these future obligations. The Company will generally satisfy the remaining performance obligations as we transfer control of the products ordered or services to our customers, excluding maintenance services, which are satisfied over time.

The following table provides information about receivables, contract assets and unearned revenue from contracts with customers:

<i>(In thousands)</i>	As of September 30, 2022	As of December 31, 2021
Accounts receivable, net	\$ 302,401	\$ 158,742
Contract assets ⁽¹⁾	\$ 1,790	\$ 464
Unearned revenue	\$ 40,993	\$ 17,737
Non-current unearned revenue	\$ 18,269	\$ 9,271

(1) Included in other receivables on the Condensed Consolidated Balance Sheets.

The Company is party to a receivables purchase agreement with a financial institution (the “Factor”). Pursuant to the terms of the arrangement, the Company, on a revolving basis, sells to the Factor certain of its accounts receivable balances without recourse. On each sale date, the Factor retains from the sale price a default reserve, up to a required balance, which are held by the Factor in a reserve account and pledged to the Company. The Factor is entitled to withdraw from the reserve account the sale price of a defaulted receivable. As of September 30, 2022, accounts receivable totaling \$16.1 million were sold, of which \$1.3 million was retained by the Factor in the reserve account. The balance in the reserve account is included in other assets on the Condensed Consolidated Balance Sheets. As of September 30, 2022, the Company has an allowance for doubtful accounts related to factored accounts receivable totaling \$0.1 million. As of September 30, 2022, accounts receivables include \$31.1 million related to the existing sale of receivables for which the transfer of the receivable has not taken place. The cost of receivables purchase agreement is included in interest expense in the Condensed Consolidated Statements of Loss and totaled \$0.3 million for the three and nine months ended September 30, 2022.

Of the outstanding unearned revenue balances as of December 31, 2021, \$2.8 million and \$12.3 million was recognized as revenue during the three and nine months ended September 30, 2022, respectively. Of the \$14.1 million of outstanding unearned revenue balances as of December 31, 2020, \$2.0 million and \$9.8 million was recognized as revenue during the three and nine months ended September 30, 2021, respectively.

Accounts Receivable

The Company records accounts receivable in the normal course of business as products are shipped or services are performed and invoiced, but payment has not yet been remitted by the customer. Accounts receivable balances are considered past due when payment has not been received by the date indicated on the relevant invoice or based on agreed upon terms between the customer and the Company.

As of September 30, 2022 and December 31, 2021, the Company’s outstanding accounts receivable balance was \$302.4 million, and \$158.7 million, respectively. The Company assessed the need for an allowance for credit losses related to its outstanding accounts receivable using the historical loss-rate method as well as assessing asset-specific risks. The assessment of asset-specific risks included the evaluation of relevant available information, from internal and external sources, relating to current conditions that may affect a customer’s ability to pay, such as the customer’s current financial condition, credit rating by geographic location, as provided by a third party and/or by customer, if needed, and the overall macro-economic conditions in which the customer operates. The Company pooled assets by geographic location to determine if an allowance should be applied to its accounts receivable balance, assessing the specific country risk rating and overall economics of that particular country. If elevated risk existed, or customer specific risk indicated the accounts receivable balance was at risk, the Company further analyzed the need for an allowance related to specific accounts receivable balances. Additionally, the Company determined that significant changes to customer country risk rating from period-to-period and from the end of the prior year to the end of the current quarter would require further review and analysis by the Company.

The allowance for credit losses was \$0.2 million as of September 30, 2022 related to accounts receivable. No allowance for credit losses was recorded as of December 31, 2021 related to accounts receivable.

Contract Assets

The Company records contract assets when it has recognized revenue but has not yet billed the customer. As of September 30, 2022 and December 31, 2021, the Company's outstanding contract asset balance was \$1.8 million and \$0.5 million, respectively, which is included in other receivables on the Consolidated Balance Sheets. The Company assessed the need for an allowance for credit losses related to its outstanding contract assets using the historical loss-rate method as well as asset-specific risks. The Company's historical losses related to contract assets receivable have been immaterial as evidenced by historical write-offs due to collectability. Asset-specific risk included the evaluation of relevant available information, from internal and external sources, relating to current conditions that may affect a customer's ability to pay once invoiced, such as the customer's financial condition, credit rating by geographic location as provided by a third party and/or by customer, if needed, and the overall macro-economic conditions in which the customer operates. The Company pooled assets by geographic location to determine if an allowance should be applied to its contract asset balance, assessing the specific country risk rating and the overall economics of that particular country. If elevated risk existed, or customer specific risk indicated the contract balance was at risk, the Company further analyzed the need for an allowance related to specific customer balances. Additionally, the Company determined that significant changes to customer country risk rating from period-to-period and from the end of the prior year to the end of the current quarter would be subject to further review and analysis by the Company.

No allowance for credit losses was recorded for the year ended September 30, 2022 and December 31, 2021 related to contract assets.

5. INCOME TAXES

The Company's effective tax rate changed from an expense of 14.1% of pre-tax income for the three months ended September 30, 2021, to a benefit of 8.8% of pre-tax income for the three months ended September 30, 2022 and changed from an expense of 354.5% of pre-tax income for the nine months ended September 30, 2021, to a benefit of 9.4% of pre-tax income for the nine months ended September 30, 2022. The change in the effective tax rate for the three and nine months ended September 30, 2022, was driven primarily by a change in our estimated tax rate as a result of the closing of the Business Combination with ADVA during the third quarter of 2022, the requirement to begin capitalizing Research and Development expenses for U.S. tax purposes beginning in 2022 as previously passed as part of the Tax Cuts and Jobs Act in December 2017 and the associated impact of those changes on our previously established valuation allowance.

The Company continually reviews the adequacy of its valuation allowance and recognizes the benefits of deferred tax assets only as the assessment indicates that it is more likely than not that the deferred tax assets will be recognized in accordance with ASC 740, Income Taxes. As of September 30, 2022, the Company had net deferred tax assets totaling \$29.2 million, and a valuation allowance totaling \$66.1 million against those deferred tax assets. The remaining \$36.9 million in deferred tax liabilities are primarily related to purchase price intangibles from the Business Combination closed with ADVA during the third quarter of 2022. During the nine months ended September 30, 2022, the total change in the valuation allowance against our domestic and international deferred tax assets was recorded in the amount of \$15.8 million and \$0.2 million, respectively. Our assessment of the realizability of our deferred tax assets includes the evaluation of historical operating results as well as the evaluation of evidence which requires significant judgment, including the evaluation of our three-year cumulative income position, future taxable income projections and tax planning strategies. Should management's conclusion change in the future and an additional valuation allowance, or a partial or full release of the valuation allowance becomes necessary, it may have a material effect on our consolidated financial statements.

Supplemental balance sheet information related to deferred tax assets (liabilities) is as follows:

(In thousands)	As of September 30, 2022		
	Deferred Tax Assets (Liabilities)	Valuation Allowance	Deferred Tax Liabilities, net
Domestic	\$ 68,723	\$ (64,054)	\$ 4,669
International	(39,493)	(2,060)	(41,553)
Total	\$ 29,230	\$ (66,114)	\$ (36,884)

(In thousands)	As of December 31, 2021		
	Deferred Tax Assets	Valuation Allowance	Deferred Tax Assets, net
Domestic	\$ 48,265	\$ (48,265)	\$ —
International	11,378	(2,299)	9,079
Total	\$ 59,643	\$ (50,564)	\$ 9,079

6. STOCK-BASED COMPENSATION

For the three months ended September 30, 2022 and 2021, stock-based compensation expense was \$12.1 million and \$1.8 million, respectively. For the nine months ended September 30, 2022 and 2021, stock-based compensation expense was \$15.9 million and \$5.5 million, respectively.

PSUs, RSUs and Restricted Stock - ADTRAN Holdings, Inc.

The following table summarizes the RSUs and restricted stock outstanding as of December 31, 2021 and September 30, 2022 and the changes that occurred during the nine months ended September 30, 2022:

	Number of Shares (in thousands)	Weighted Avg. Grant Date Fair Value (per share)
Unvested RSUs and restricted stock outstanding, December 31, 2021	1,930	\$ 14.11
RSUs and restricted stock granted	545	\$ 19.96
RSUs and restricted stock vested	(20)	\$ 13.67
RSUs and restricted stock forfeited	(46)	\$ 14.18
Unvested RSUs and restricted stock outstanding, September 30, 2022	2,409	\$ 17.36

During each of the nine months ended September 30, 2022 and 2021, the Company granted 0.3 million performance-based PSUs to its executive officers and certain employees. The grant-date fair value of these performance-based awards was based on the closing price of the Company's stock on the date of grant. These awards vest over one-year, two-year and three-year periods, respectively, subject to the grantee's continued employment, with the ability to earn shares in a range of 0% to 142.8% of the awarded number of PSUs based on the achievement of defined performance targets. Equity-based compensation expense with respect to these awards may be adjusted over the vesting period to reflect the probability of achievement of performance targets defined in the award agreements. Pursuant to the Business Combination, the unearned performance-based PSUs converted to time-based RSUs which was treated as an award modification during the third quarter of 2022. This resulted in incremental compensation and unrecognized compensation expense totaling \$17.8 million of which \$8.9 million was recognized during the three months ended September 30, 2022 and the remainder will be recognized over the remaining service period of 0.3 years. Unrecognized compensation expense will be adjusted for actual forfeitures.

Pursuant to the Business Combination, 0.3 million shares of market-based PSU awards converted to time-based RSU's awards which was treated as an award modification during the third quarter of 2022. Given that the fair value of these awards after the modification was less than the fair value of the awards immediately before the modification, no incremental compensation expense was recognized. The Company continued to recognize compensation expense based on the award's original grant date fair value. As of September 30, 2022, there was \$2.1 million of unrecognized compensation expense related to these awards which will be recognized over the weighted average remaining service period of 1.1 years.

The fair value of RSUs and restricted stock is equal to the closing price of its stock on the date of grant. The fair value of PSUs with market conditions is calculated using a Monte Carlo simulation valuation method.

As of September 30, 2022, total unrecognized compensation expense related to non-vested market-based RSUs and restricted stock was approximately \$24.6 million, which will be recognized over the remaining weighted-average period of 1.6 years.

As of September 30, 2022, 3.4 million shares were available for issuance under stockholder-approved equity plans.

Stock Options - ADTRAN Holdings, Inc.

The following table summarizes ADTRAN Holdings, Inc. stock options outstanding as of December 31, 2021 and September 30, 2022 and the changes that occurred during the nine months ended September 30, 2022:

	Number of Stock Options (in thousands)	Weighted Avg. Exercise Price (per share)	Weighted Avg. Remaining Contractual Life (in years)	Aggregate Intrinsic Value (in thousands)
Stock options outstanding, December 31, 2021	1,721	\$ 19.37	2.4	\$ 6,669
ADVA stock options replaced by ADTRAN Holdings stock options ⁽¹⁾	1,980	\$ 11.16		
Stock options exercised	(439)	\$ 16.16		
Stock options forfeited	(12)	\$ 11.08		
Stock options expired	(70)	\$ 26.38		
Stock options outstanding, September 30, 2022	3,180	\$ 14.58	3.5	\$ 17,839
Stock options exercisable, September 30, 2022	1,627	\$ 16.85	2.0	\$ 6,375

⁽¹⁾Each ADVA stock option surrendered was exchanged for 0.8244 ADTRAN Holdings stock options.

As of September 30, 2022, there was \$9.0 million of unrecognized compensation expense related to stock options which will be recognized over the remaining weighted-average period of 2.7 years.

Pursuant to the Business Combination, which closed on July 15, 2022, ADVA stock option holders were entitled to have their ADVA stock options assumed by ADTRAN Holdings (applying the exchange ratio in the Business Combination Agreement), thereafter representing options to acquire stock of ADTRAN Holdings. The maximum number of shares of ADTRAN Holdings stock potentially issuable upon such assumption was 2.1 million shares. The period in which such options could be assumed ended July 22, 2022. A total of 2.0 million shares of ADTRAN Holdings stock are subject to assumed ADVA options. The determination of the fair value of stock options assumed by ADTRAN Holdings was estimated using the Monte Carlo method and is affected by its stock price, as well as assumptions regarding a number of complex and subjective variables that may have a significant impact on the fair value estimate. The stock option pricing model requires the use of several assumptions that impact the fair value estimate. These variables include, but are not limited to, the volatility of the Company's stock price and employee exercise behaviors.

All of the options were previously issued at exercise prices that approximated fair market value at the date of grant.

The aggregate intrinsic value of stock options represents the total pre-tax intrinsic value (the difference between ADTRAN's closing stock price on the last trading day of the quarter and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on September 30, 2022. The amount of aggregate intrinsic value was \$17.8 million as of September 30, 2022 and will change based on the fair market value of ADTRAN's stock. The total pre-tax intrinsic value of options exercised during the nine months ended September 30, 2022 was \$3.4 million.

Stock Options - ADVA Optical Networking SE

The following table summarizes ADVA Optical Networking SE stock options outstanding as of July 15, 2022 (the Business Combination closing date) and September 30, 2022 and the changes that occurred between July 15, 2022 and September 30, 2022:

	Number of Stock Options (in thousands)	Weighted Avg. Exercise Price (per share)	Weighted Avg. Remaining Contractual Life (in years)	Aggregate Intrinsic Value (in thousands)
Stock options outstanding, July 15, 2022	2,745	\$ 9.09	4.6	\$ 27,205
Stock options exercised	(56)	\$ 6.79		
ADVA stock options replaced by ADTRAN Holdings stock options ⁽¹⁾	(2,403)	\$ 9.25		
Stock options forfeited	(4)	\$ 7.91		
Stock options outstanding, September 30, 2022	282	\$ 8.45	3.9	\$ 2,976
Stock options exercisable, September 30, 2022	32	\$ 7.72	1.2	\$ 363

⁽¹⁾ Each ADVA stock option surrendered was exchanged for 0.8244 ADTRAN Holdings stock options.

As of September 30, 2022, there was \$0.3 million of unrecognized compensation expense related to stock options which will be recognized over the remaining weighted-average period of 1.1 years.

All of the options were previously issued at exercise prices that approximated fair market value at the date of grant.

The aggregate intrinsic value of stock options represents the total pre-tax intrinsic value (the difference between ADVA's closing stock price on the last trading day of the quarter and the exercise price, multiplied by the number of in-the-money options) that would have been received by the option holders had all option holders exercised their options on September 30, 2022. The amount of aggregate intrinsic value was \$3.0 million as of September 30, 2022 and will change based on the fair market value of ADVA's stock. The total pre-tax intrinsic value of options exercised during the period July 15, 2022 through September 30, 2022 was \$0.7 million.

7. INVESTMENTS

Debt Securities and Other Investments

The following debt securities and other investments were included on the Condensed Consolidated Balance Sheets and recorded at fair value:

(In thousands)	As of September 30, 2022			
	Amortized Cost	Gross Unrealized		Fair Value
		Gains	Losses	
Corporate bonds	\$ 9,358	\$ —	\$ (374)	\$ 8,984
Municipal fixed-rate bonds	1,411	—	(54)	1,357
Asset-backed bonds	2,988	—	(77)	2,911
Mortgage/Agency-backed bonds	4,720	—	(280)	4,440
U.S. government bonds	11,231	—	(642)	10,589
Foreign government bonds	409	—	(27)	382
Available-for-sale debt securities held at fair value	\$ 30,117	\$ —	\$ (1,454)	\$ 28,663

(In thousands)	As of December 31, 2021			
	Amortized Cost	Gross Unrealized		Fair Value
		Gains	Losses	
Corporate bonds	\$ 10,776	\$ 6	\$ (35)	\$ 10,747
Municipal fixed-rate bonds	1,553	2	(4)	1,551
Asset-backed bonds	322	3	(3)	322
Mortgage/Agency-backed bonds	4,754	15	(33)	4,736
U.S. government bonds	12,251	12	(92)	12,171
Foreign government bonds	543	—	(4)	539
Available-for-sale debt securities held at fair value	\$ 30,199	\$ 38	\$ (171)	\$ 30,066

The contractual maturities related to debt securities and other investments were as follows:

(In thousands)	As of September 30, 2022					
	Corporate bonds	Municipal fixed-rate bonds	Asset-backed bonds	Mortgage/Agency-backed bonds	U.S. government bonds	Foreign government bonds
Less than one year	\$ 96	\$ 525	\$ —	\$ 182	\$ —	\$ —
One to two years	5,371	722	95	464	7,421	275
Two to three years	3,517	110	715	1,321	2,889	107
Three to five years	—	—	1,306	166	279	—
Five to ten years	—	—	382	810	—	—
More than ten years	—	—	413	1,497	—	—
Total	\$ 8,984	\$ 1,357	\$ 2,911	\$ 4,440	\$ 10,589	\$ 382

Actual maturities may differ from contractual maturities as some borrowers have the right to call or prepay obligations with or without call or prepayment penalties.

Realized gains and losses on sales of debt securities are computed under the specific identification method. The following table presents the gross realized gains and losses related to its debt securities:

(In thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Gross realized gain on debt securities	\$ 1	\$ 22	\$ 14	\$ 206
Gross realized loss on debt securities	(116)	(17)	(242)	(53)
Total (loss) gain recognized, net	\$ (115)	\$ 5	\$ (228)	\$ 153

Income generated from available-for-sale debt securities was recorded as interest and dividend income in the Condensed Consolidated Statements of Loss. No allowance for credit losses was recorded for the nine months ended September 30, 2022 and 2021 related to available-for-sale debt securities. The Company's investment policy provides limitations for issuer concentration, which limits, at the time of purchase, the concentration in any one issuer to 5% of the market value of its total investment portfolio. The Company did not purchase any available-for-sale debt security with credit deterioration during the nine months ended September 30, 2022.

Realized and unrealized gains and losses related to marketable equity securities were as follows:

(In thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Realized (loss) gain on equity securities sold	\$ (1,358)	\$ —	\$ (1,675)	\$ (55)
Unrealized (loss) gain on equity securities held	(1,217)	(68)	(8,849)	2,844
Total (loss) gain recognized, net	\$ (2,575)	\$ (68)	\$ (10,524)	\$ 2,789

Income generated from marketable equity securities was recorded as interest and dividend income in the Condensed Consolidated Statements of Loss. U.S. GAAP establishes a three-level valuation hierarchy based upon observable and unobservable inputs for fair value measurement of financial instruments:

- Level 1 – Observable outputs; values based on unadjusted quoted prices for identical assets or liabilities in an active market;
- Level 2 – Significant inputs that are observable; values based on quoted prices in markets that are not active or model inputs that are observable either directly or indirectly;
- Level 3 – Significant unobservable inputs; values based on prices or valuation techniques that require inputs that are both unobservable and significant to the overall fair value measurement. These inputs could include information supplied by investees.

The Company's cash equivalents and investments held at fair value are categorized into this hierarchy as follows:

		Fair Value Measurements as of September 30, 2022 Using		
		Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<i>(In thousands)</i>	Fair Value			
Cash equivalents				
Money market funds	\$ 698	\$ 698	\$ —	\$ —
Available-for-sale debt securities				
Corporate bonds	8,984	—	8,984	—
Municipal fixed-rate bonds	1,357	—	1,357	—
Asset-backed bonds	2,911	—	2,911	—
Mortgage/Agency-backed bonds	4,440	—	4,440	—
U.S. government bonds	10,589	10,589	—	—
Foreign government securities	382	—	382	—
Marketable equity securities				
Marketable equity securities – various industries	760	760	—	—
Deferred compensation plan assets	21,511	21,511	—	—
Total	\$ 51,632	\$ 33,558	\$ 18,074	\$ —

		Fair Value Measurements as of December 31, 2021 Using		
		Quoted Prices in Active Market for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<i>(In thousands)</i>	Fair Value			
Cash equivalents				
Money market funds	\$ 652	\$ 652	\$ —	\$ —
Available-for-sale debt securities				
Corporate bonds	10,747	—	10,747	—
Municipal fixed-rate bonds	1,551	—	1,551	—
Asset-backed bonds	322	—	322	—
Mortgage/Agency-backed bonds	4,736	—	4,736	—
U.S. government bonds	12,171	12,171	—	—
Foreign government bonds	539	—	539	—
Marketable equity securities				
Marketable equity securities – various industries	12,606	12,606	—	—
Deferred compensation plan assets	26,935	26,935	—	—
Total	\$ 70,259	\$ 52,364	\$ 17,895	\$ —

The fair value of its Level 2 securities is calculated using a weighted average market price for each security. Market prices are obtained from a variety of industry standard data providers, large financial institutions and other third-party sources. These multiple market prices are used as inputs into a distribution-curve-based algorithm to determine the daily market value of each security.

8. INVENTORY

Inventory consisted of the following:

<i>(In thousands)</i>	As of September 30, 2022	As of December 31, 2021
Raw materials	\$ 177,554	\$ 74,709
Work in process	10,625	2,143
Finished goods	227,984	63,039
Total inventory, net	\$ 416,163	\$ 139,891

Inventory reserves are established for estimated excess and obsolete inventory equal to the difference between the cost of the inventory and the estimated net realizable value of the inventory based on estimated reserve percentages, which considers historical usage, known trends, inventory age and market conditions. As of September 30, 2022 and December 31, 2021, inventory reserves were \$51.3 million and \$44.6 million, respectively.

9. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consisted of the following:

<i>(In thousands)</i>	As of September 30, 2022	As of December 31, 2021
Engineering and other equipment	\$ 162,445	\$ 134,771
Building	80,807	68,157
Computer hardware and software	79,990	72,274
Building and land improvements	40,132	35,578
Furniture and fixtures	20,891	19,917
Land	5,298	4,575
Other assets	4,835	—
Total property, plant and equipment	394,398	335,272
Less: accumulated depreciation	(289,821)	(279,506)
Total property, plant and equipment, net	\$ 104,577	\$ 55,766

Long-lived assets used in operations are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable and the undiscounted cash flows estimated to be generated by the asset are less than the asset's carrying value. In connection with the planned integration of information technology following the Business Combination, we determined that certain projects no longer fit our needs. As a result the Company recognized impairment charges of \$17.0 million during the three and nine months ended September 30, 2022 related to capitalized implementation costs for a cloud computing arrangement. The impairment charges were determined based on actual costs incurred.

Depreciation expense was \$7.1 million and \$3.0 million for the three months ended September 30, 2022 and 2021, respectively, and \$12.6 million and \$9.1 million for the nine months ended September 30, 2022 and 2021, respectively, which is recorded in cost of revenue, selling, general and administrative expenses and research and development expenses in the Condensed Consolidated Statements of Loss.

10. GOODWILL

The changes in the carrying amount of goodwill for the nine months ended September 30, 2022 are as follows:

<i>(In thousands)</i>	Network Solutions	Services & Support	Total
As of December 31, 2021	\$ 6,568	\$ 400	\$ 6,968
Goodwill from Business Combination with ADVA	270,568	88,589	359,157
Foreign currency translation adjustments	(6,220)	(2,036)	(8,256)
As of September 30, 2022	\$ 270,916	\$ 86,953	\$ 357,869

Goodwill represents the excess purchase price over the fair value of net assets acquired. We qualitatively assess the carrying value of goodwill each reporting period for events or circumstance changes that would more likely than not reduce the fair value of the reporting unit below its carrying amount. Based on its assessment of certain qualitative factors such as macro-economic conditions, industry and market considerations, costs factors and overall financial performance, management concluded that no such events or circumstance changes were identified that would suggest that the fair value of the goodwill was more likely than not greater than its carrying amount as of September 30, 2022. No impairment of goodwill was recorded during the three and nine months ended September 30, 2022 and 2021.

11. INTANGIBLE ASSETS

Intangible assets consisted of the following:

(In thousands)	Weighted Average Useful Life (in years)	As of September 30, 2022			As of December 31, 2021		
		Gross Carrying Amount	Accumulated Amortization	Net Book Value	Gross Carrying Amount	Accumulated Amortization	Net Book Value
Customer relationships	10.9	\$ 52,139	\$ (11,207)	\$ 40,932	\$ 20,796	\$ (9,906)	\$ 10,890
Backlog	1.4	50,966	(9,325)	41,641	—	—	—
Developed technology	8.5	294,983	(11,565)	283,418	8,200	(3,683)	4,517
Licensed technology	9.0	5,900	(2,977)	2,923	5,900	(2,486)	3,414
Licensing agreements	8.5	560	(280)	280	560	(225)	335
Patents	7.3	500	(414)	86	500	(363)	137
Trade names	2.8	26,575	(2,280)	24,295	210	(210)	—
Total		\$ 431,623	\$ (38,048)	\$ 393,575	\$ 36,166	\$ (16,873)	\$ 19,293

The Company evaluates the carrying value of intangible assets whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable and the undiscounted cash flows estimated to be generated by the asset are less than the asset's carrying value. Due to the current economic environment, particularly related to COVID-19, the Company assessed impairment triggers related to intangible assets during each financial period in 2022 and 2021. As a result, no quantitative impairment test of long-lived assets was performed as of September 30, 2022 and 2021, and no impairment losses of intangible assets were recorded during the three and nine months ended September 30, 2022 and 2021.

Amortization expense was \$20.4 million and \$1.0 million in the three months ended September 30, 2022 and 2021, respectively, and \$22.2 million and \$3.1 million in the nine months ended September 30, 2022 and 2021, respectively, and was included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Condensed Consolidated Statements of Loss.

Estimated future amortization expense of intangible assets was as follows:

(In thousands)	As of September 30, 2022
2022	\$ 23,691
2023	75,677
2024	53,021
2025	42,623
2026	39,505
Thereafter	159,058
Total	\$ 393,575

12. LEASES

We have operating leases for office space, automobiles and various other equipment in the U.S. and in certain international locations. Other contracts, such as manufacturing agreements and service agreements, are reviewed to determine if they contain potential embedded leases. These other contracts are specifically reviewed to determine whether we have the right to substantially all of the economic benefit from the use of any specified assets or the right to direct the use of any specified assets, either of which would indicate the existence of a lease.

As of September 30, 2022, our operating leases had remaining lease terms ranging from one month to seventy-eight months, some of which included options to extend the leases for up to five years, and some of which included options to terminate the leases within three months. For those leases that are reasonably assured to be renewed, we have included the option to extend as part of our right of use asset and lease liability. Supplemental balance sheet information related to operating leases is as follows:

<i>(In thousands)</i>	Classification	September 30, 2022	December 31, 2021
Assets			
Operating lease asset	Other assets	\$ 28,081	\$ 4,922
Total lease asset		\$ 28,081	\$ 4,922
Liabilities			
Current operating lease liability	Accrued expenses	\$ 6,604	\$ 1,730
Non-current operating lease liability	Non-current lease obligations	21,490	3,269
Total lease liability		\$ 28,094	\$ 4,999

Leases with an initial term of 12 months or less are not recorded on the balance sheet and the lease expense for these leases is recognized on a straight-line basis over the lease term. Lease expense related to these short-term leases was less than \$0.1 million for the three and nine months ended September 30, 2022 and 2021, and is included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Condensed Consolidated Statements of Loss. Lease expense related to variable lease payments that do not depend on an index or rate, such as real estate taxes and insurance reimbursements, was \$0.2 million and \$0.1 million for the three months ended September 30, 2022 and 2021, respectively, and \$0.5 million and \$0.4 million for the nine months ended September 30, 2022 and 2021, respectively. For lease agreements entered into or reassessed after the adoption of Topic 842, we elected to not separate lease and non-lease components. Our lease agreements do not contain any material residual value guarantees.

The components of lease expense included in the Condensed Consolidated Statements of Loss were as follows:

<i>(In thousands)</i>	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Selling, general and administrative expenses	\$ 1,444	\$ 196	\$ 1,704	\$ 645
Research and development expenses	228	261	719	815
Cost of sales	20	14	59	38
Total operating lease expense	\$ 1,692	\$ 471	\$ 2,482	\$ 1,498

As of September 30, 2022 and December 31, 2021, operating lease liabilities included on the Condensed Consolidated Balance Sheets by future maturity were as follows:

<i>(In thousands)</i>	September 30, 2022	December 31, 2021
2022	\$ 2,209	\$ 1,767
2023	8,421	1,419
2024	7,098	1,188
2025	5,838	710
2026	3,354	—
Thereafter	5,107	—
Total lease payments	32,027	5,084
Less: Interest	(3,933)	(85)
Present value of lease liabilities	\$ 28,094	\$ 4,999

Future operating lease payments include \$4.5 million related to options to extend lease terms that are reasonably certain of being exercised. There are material legally binding leases that have not yet commenced.

An incremental borrowing rate is used based on information available at the commencement date in determining the present value of lease payments. The incremental borrowing rate is determined on a portfolio basis by grouping leases with similar terms, as well as grouping leases based on a U.S. dollar or Euro functional currency. The following table provides information about our weighted average lease terms and weighted average discount rates:

	As of September 30, 2022
Weighted average remaining lease term (in years)	
Operating leases with USD functional currency	1.6
Operating leases with Euro functional currency	4.5
Weighted average discount rate	
Operating leases with USD functional currency	3.93%
Operating leases with Euro functional currency	4.05%

For the nine months ended September 30, 2022 and 2021, the Company used \$2.3 million and \$1.4 million of cash in operating activities related to operating leases, respectively.

Net Investment in Sales-Type Leases

We are the lessor in sales-type lease arrangements for network equipment, which consisted of the following:

(In thousands)	As of September 30, 2022	As of December 31, 2021
Current minimum lease payments receivable ⁽¹⁾	\$ 11	\$ 92
Non-current minimum lease payments receivable ⁽²⁾	—	4
Total minimum lease payments receivable	11	96
Less: Current unearned revenue ⁽¹⁾	5	70
Less: Non-current unearned revenue ⁽²⁾	—	1
Net investment in sales-type leases	\$ 6	\$ 25

⁽¹⁾ Included in other receivables on the Condensed Consolidated Balance Sheets.

⁽²⁾ Included in other assets on the Condensed Consolidated Balance Sheets.

13. REVOLVING CREDIT AGREEMENTS

The carrying amounts of the Company's revolving credit agreements in its Condensed Consolidated Balance Sheets were as follows:

(In thousands)	As of September 30, 2022	As of December 31, 2021
Wells Fargo credit agreement	\$ 60,000	\$ —
Nord/LB revolving line of credit	14,702	—
Syndicated credit agreement working capital line of credit	9,801	—
Wells Fargo revolving credit agreement	—	—
Cadence revolving credit agreement	—	—
Total revolving credit agreements	\$ 84,503	\$ —

As of September 30, 2022, the weighted average interest rate on our revolving credit agreements was 4.05%

Wells Fargo Credit Agreement

On July 18, 2022, ADTRAN Holdings, Inc. and ADTRAN, Inc., as the borrower, entered into a credit agreement with a syndicate of banks, including Wells Fargo Bank, National Association, as administrative agent (“Administrative Agent”), and the other lenders named therein (the “Credit Agreement”). The Credit Agreement allows for borrowings of up to \$100 million in aggregate principal amount, subject to being increased to up to \$400 million in aggregate principal amount upon the Company or Borrower’s execution of a DPLTA with ADVA or a parent of ADVA, among other conditions (the “Senior Credit Facilities Increase”). On October 18, 2022, the Board of Directors of the Company, and the management board of ADVA, agreed on a final draft of a DPLTA between the Company, as the controlling company, and ADVA, as the controlled company. See Note 21 of the Notes to Condensed Consolidated Financial Statements for further information.

The Credit Agreement replaced the Cadence Revolving Credit Agreement and the Wells Fargo Revolving Credit Agreement. In connection with the entry into the Credit Agreement, all outstanding borrowings under such credit agreements have been repaid and the agreements terminated.

As of September 30, 2022, ADTRAN, Inc.'s borrowings under the revolving line of credit were \$60.0 million in tranches that mature during the fourth quarter of 2022 and can either be repaid or borrowed again for a one month, three month or six month period. In addition, we may issue up to \$25 million in letters of credit against our \$100 million dollar total facility. As of September 30, 2022, we had a total of \$16.0 million in letters of credit with ADTRAN, Inc. outstanding against our eligible borrowings, leaving a net amount of \$24.0 million available for future borrowings. Any future credit extensions under the Credit Agreement are subject to customary conditions precedent. The proceeds of any loans are expected to be used for general corporate purposes and to pay a portion of the Exchange Offer consideration.

All U.S. borrowings under the Credit Agreement (other than swingline loans, which will bear interest at the Base Rate (as defined below)) will bear interest, at the Company's option, at a rate per annum equal to (A)(i) the highest of (a) the federal funds rate (i.e., for any day, the rate per annum equal to the weighted average of the rates on overnight federal funds transactions with members of the Federal Reserve System, as published by the Federal Reserve Bank of New York on the business day next succeeding such day) plus $\frac{1}{2}$ of 1%, (b) the prime commercial lending rate of the Administrative Agent, as established from time to time at its principal U.S. office (which such rate is an index or base rate and will not necessarily be its lowest or best rate charged to its customers or other banks), and (c) the daily Adjusted Term SOFR (as defined in the Credit Agreement) for a one-month tenor plus 1%, plus (ii) the applicable rate, ranging from 0.5% to 1.25% (the "Base Rate"), or (B) the sum of the Adjusted Term SOFR (as defined in the Credit Agreement) plus the applicable rate, ranging from 1.4% to 2.15%, provided that such sum is subject to a 0.0% floor (such loans utilizing this interest rate, "SOFR Loans"). All E.U. borrowings under the Credit Agreement (other than swingline loans) will bear interest at a rate per annum equal to the sum of the Euro Interbank Offered Rate as administered by the European Money Markets Institute (or a comparable or successor administrator approved by the Administrative Agent) plus the applicable rate, ranging from 1.5% to 2.25%, provided that such sum is subject to a 0.0% floor (such loans utilizing this interest rate, "EURIBOR Loans"). The applicable rate is based on the consolidated net leverage ratio of the Company and its subsidiaries as determined pursuant to the terms of the Credit Agreement. Default interest is 2.00% per annum in excess of the rate otherwise applicable in the case of any overdue principal or any other overdue amount.

In addition to paying interest on outstanding principal under the Credit Agreement, the Company is required to pay a commitment fee to the lenders under the Credit Agreement in respect of unutilized revolving loan commitments and an additional commitment ticking fee at a rate of 0.25% on the commitment amounts of each lender until the earliest of (i) the date of the Senior Credit Facilities Increase, (ii) the Company's voluntary termination of the credit facility commitment, and (iii) December 31, 2023. The Company is also required to pay a participation fee to the Administrative Agent for the account of each lender with respect to the Company's participations in letters of credit at the then applicable rate for SOFR Loans.

The Credit Agreement permits the Company to prepay any or all of the outstanding loans or to reduce the commitments under the Credit Agreement without incurring premiums or penalties (except breakage costs with respect to SOFR Loans and EURIBOR Loans). The Credit Agreement contains customary affirmative and negative covenants, including incurrence covenants and certain other limitations on the ability of the Company and the Company's subsidiaries to incur additional debt, guarantee other obligations, grant liens on assets, make investments, dispose of assets, pay dividends or other payments on capital stock, make restricted payments, engage in mergers or consolidations, engage in transactions with affiliates, modify its organizational documents, and enter into certain restrictive agreements. It also contains customary events of default (subject to customary cure periods and materiality thresholds). Furthermore, the Credit Agreement requires that the consolidated total net leverage ratio (as defined in the Credit Agreement) of the Company and its subsidiaries tested on the last day of each fiscal quarter not exceed 3.25 to 1.0 through September 30, 2024 and 2.75 to 1.00 from December 31, 2024 and thereafter, subject to certain exceptions. The Credit Agreement also requires that the consolidated interest coverage ratio (as defined in the Credit Agreement) of the Company and its subsidiaries tested on the last day of each fiscal quarter not fall below 3.00 to 1.00. As of September 30, 2022, the Company was in compliance with all material covenants. The Credit Agreement matures in July 2027 but provides the Company with an option to request extensions subject to customary conditions.

Finally, pursuant to a Collateral Agreement, dated as of July 18, 2022, among the Company, ADTRAN, Inc. and the Administrative Agent, ADTRAN, Inc.'s obligations under the Credit Agreement are secured by substantially all of the assets of ADTRAN, Inc. and the Company. In addition, the Company has guaranteed ADTRAN, Inc.'s obligations under the Credit Agreement pursuant to a Guaranty Agreement, dated as of July 18, 2022, by ADTRAN, Inc. and the Company in favor of the Administrative Agent.

Nord/LB Revolving Line of Credit

August 8, 2022, ADVA entered into a \$14.7 million revolving line of credit with Norddeutsche Landesbank - Girozentrale (Nord/LB) that bears interest of Euro Short Term Rate + 1.4% and which matures in August 2023. During the term of the loan, ADVA is obligated to maintain an adjusted net debt to cover ratio that is equal to or less than 2.75. As of September 30, 2022, The Company was in compliance with the adjusted net debt to cover ratio. The revolving line of credit grants Nord/LB a lien on assets of any kind which come into the possession of ADVA. Assets of any kind includes goods, foreign exchange, securities including interest, annuity and

profit notes, collective securities deposits, subscription rights, checks, bills of exchange, bills of lading, storage and loading slips. As of September 30, 2022, ADVA's borrowings under the revolving line of credit were \$14.7 million, with no amounts available for future borrowings.

Syndicated Credit Agreement Working Capital Line of Credit

In September 2018, ADVA entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow up to \$9.8 million as part of a working capital line of credit. The interest rate for the working capital line of credit is adjusted periodically based on a defined leverage ratio and is currently EURIBOR plus 1.35% as of September 30, 2022. The working capital line of credit matures in September 2023. As of September 30, 2022, borrowings under the working capital line of credit totaled \$9.8 million, with no amounts available for future borrowings.

Prior Wells Fargo Revolving Credit Agreement

On April 1, 2022, ADTRAN, Inc. entered into a Credit Agreement and related Revolving Line of Credit Note (together, the "Prior Wells Revolving Credit Agreement") in favor of Wells Fargo Bank, National Association, as lender (the "Wells Lender"). The Wells Revolving Credit Agreement provided the Company with a \$25.0 million secured revolving credit facility. During the first nine months of 2022, the Company made draws totaling \$10.0 million under the Prior Wells Revolving Credit Agreement all of which had been repaid as of September 30, 2022. The Wells Fargo Credit Agreement replaced the Prior Wells Fargo Revolving Credit Agreement and all outstanding borrowings have been repaid and the prior agreement was terminated.

Prior Cadence Revolving Credit Agreement

On May 19, 2022, ADTRAN, Inc., as borrower, modified its Revolving Credit and Security Agreement and related Promissory Note (together, the "Cadence Revolving Credit Agreement") with Cadence Bank, N.A., as lender (the "Cadence Lender"). The modified Prior Cadence Revolving Credit Agreement provided the Company with a \$25.0 million secured revolving credit facility. During the first nine months of 2022, the Company made draws totaling \$18.0 million under the Prior Cadence Revolving Credit Agreement all of which had been repaid as of September 30, 2022. The Wells Fargo Credit Agreement replaced the Prior Cadence Revolving Credit Agreement and all outstanding borrowings have been repaid and the prior agreement was terminated.

14. NOTES PAYABLE

The carrying amounts of the Company's notes payable in its Condensed Consolidated Balance Sheets were as follows:

<i>(In thousands)</i>	Fair Value as of September 30, 2022	Carrying Value as of September 30, 2022	Carrying Value as of December 31, 2021
Syndicated credit agreement note payable	\$ 29,611	\$ 29,782	\$ —
Deutsche Bank term loan	—	—	—
Total Notes Payable	\$ 29,611	\$ 29,782	\$ —

Syndicated Credit Agreement Note Payable

In September 2018, ADVA entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow \$63.7 million. The interest rate for the note payable is adjusted periodically based on a defined leverage ratio and is currently EURIBOR plus 1.35% as of September 30, 2022. The note payable matures in September 2023.

Deutsche Bank Term Loan

In October 2019, ADVA entered into a \$9.8 million revolving line of credit with Deutsche Bank that bears interest of EURIBOR plus 1.1%. The line of credit matured in September 2022 and was repaid as of September 30, 2022.

15. EMPLOYEE BENEFIT PLANS

We maintain defined benefit pension plans covering employees in certain foreign countries. Pension benefit plan obligations are based on various assumptions used by its actuaries in calculating these amounts. These assumptions include discount rates, compensation rate increases, expected return on plan assets, retirement rates and mortality rates. Actual results that differ from the assumptions and changes in assumptions could affect future expenses and obligations. The Company's net pension liability totaled \$16.2 million and \$11.4 million as of September 30, 2022 and December 31, 2021, respectively.

The following table summarizes the components of net periodic pension cost related to a defined benefit pension plan covering employees in certain foreign countries:

(In thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Service cost	\$ 478	\$ 307	\$ 981	\$ 931
Interest cost	204	84	638	257
Expected return on plan assets	(465)	(460)	(1,384)	(1,396)
Amortization of actuarial losses	81	272	254	825
Net periodic pension cost	\$ 298	\$ 203	\$ 489	\$ 617

The components of net periodic pension cost, other than the service cost component, are included in other income, net in the Condensed Consolidated Statements of Loss. Service cost is included in cost of revenue, selling, general and administrative expenses and research and development expenses in the Condensed Consolidated Statements of Loss. The Company made contributions to the defined benefit pension plans totaling \$1.2 million during the nine months ending September 30, 2022. Contributions to the defined benefit pension plans for the remainder of 2022 will be limited to benefit payments to retirees which are paid out of the operating cash flows of the Company and are expected to be approximately \$0.6 million.

16. EQUITY

Non-Controlling Interest

Non-controlling interest represents the equity interest in ADVA held by holders other than the Company. On July 15, 2022, upon the closing of the Business Combination, the ADVA stockholders' equity ownership percentage in ADVA was 34.57%. The Company has consolidated the financial position and results of operations of ADVA and reflected the proportionate interest held by the ADVA stockholders as non-controlling interest in the accompanying Condensed Consolidated Balance Sheet. As of September 30, 2022, the ADVA stockholders' equity ownership percentage in ADVA was 34.65%.

Stock Repurchase Program

During the nine months ended September 30, 2022, the Company did not repurchase any shares of Company Common Stock and there is no current authorization to repurchase Company Common Stock.

Accumulated Other Comprehensive Loss

The following tables present the changes in accumulated other comprehensive loss, net of tax, by component:

(In thousands)	Three Months Ended September 30, 2022				
	Unrealized (Losses) Gains on Available- for-Sale Securities	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	ASU 2018-02 Adoption	Total
Balance as of June 30, 2022	\$ (1,476)	\$ (5,713)	\$ (9,892)	\$ 385	\$ (16,696)
Other comprehensive loss before reclassifications	(254)	—	(23,172)	—	(23,426)
Amounts reclassified from accumulated other comprehensive (loss) income	(142)	(118)	—	—	(260)
Net current period other comprehensive (loss) income	(396)	(118)	(23,172)	—	(23,686)
Less: Comprehensive Loss attributable to non-controlling interest, net of tax	—	—	(94)	—	(94)
Balance as of September 30, 2022	\$ (1,872)	\$ (5,831)	\$ (32,970)	\$ 385	\$ (40,288)

Three Months Ended September 30, 2021

(In thousands)	Unrealized Gains (Losses) on				
	Available-for-Sale Securities	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	ASU 2018-02 Adoption	Total
Balance as of June 30, 2021	\$ (255)	\$ (9,310)	\$ (3,960)	\$ 385	\$ (13,140)
Other comprehensive loss before reclassifications	(29)	—	(1,389)	—	(1,418)
Amounts reclassified from accumulated other comprehensive (loss) income	(32)	124	—	—	92
Net current period other comprehensive (loss) income	(61)	124	(1,389)	—	(1,326)
Balance as of September 30, 2021	\$ (316)	\$ (9,186)	\$ (5,349)	\$ 385	\$ (14,466)

Nine Months Ended September 30, 2022

(In thousands)	Unrealized Gains (Losses) on				
	Available-for-Sale Securities	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	ASU 2018-02 Adoption	Total
As of December 31, 2021	\$ (552)	\$ (5,613)	\$ (6,134)	\$ 385	\$ (11,914)
Other comprehensive loss before reclassifications	(1,818)	—	(26,930)	—	(28,748)
Amounts reclassified from accumulated other comprehensive income (loss)	498	(218)	—	—	280
Net current period other comprehensive loss	(1,320)	(218)	(26,930)	—	(28,468)
Less: Comprehensive Loss attributable to non-controlling interest, net of tax	—	—	(94)	—	(94)
As of September 30, 2022	\$ (1,872)	\$ (5,831)	\$ (32,970)	\$ 385	\$ (40,288)

Nine Months Ended September 30, 2021

(In thousands)	Unrealized Gains (Losses) on				
	Available-for-Sale Securities	Defined Benefit Plan Adjustments	Foreign Currency Adjustments	ASU 2018-02 Adoption	Total
As of December 31, 2020	\$ 32	\$ (9,621)	\$ (2,435)	\$ 385	\$ (11,639)
Other comprehensive loss before reclassifications	(358)	—	(2,914)	—	(3,272)
Amounts reclassified from accumulated other comprehensive income	10	435	—	—	445
Net current period other comprehensive (loss) income	(348)	435	(2,914)	—	(2,827)
As of September 30, 2021	\$ (316)	\$ (9,186)	\$ (5,349)	\$ 385	\$ (14,466)

The following tables present the details of reclassifications out of accumulated other comprehensive loss:

Three Months Ended September 30, 2022		
(In thousands)	Amount Reclassified from Accumulated Other Comprehensive (Loss) Income	Affected Line Item in the Statement Where Net (Loss) Income Is Presented
Unrealized gain (loss) on available-for-sale securities:		
Net realized loss on sales of securities	\$ 187	Net investment (loss) gain
Defined benefit plan adjustments – actuarial loss	171	(1)
Total reclassifications for the period, before tax	358	
Tax benefit	(98)	
Total reclassifications for the period, net of tax	\$ 260	

- (1) A part of the computation of net periodic pension cost, which is included in other income, net in the Condensed Consolidated Statements of Loss.

Three Months Ended September 30, 2021		
(In thousands)	Amount Reclassified from Accumulated Other Comprehensive (Loss) Income	Affected Line Item in the Statement Where Net (Loss) Income Is Presented
Unrealized gain (loss) on available-for-sale securities:		
Net realized loss on sales of securities	\$ 42	Net investment (loss) gain
Defined benefit plan adjustments – actuarial gain	(180)	(1)
Total reclassifications for the period, before tax	(138)	
Tax expense	46	
Total reclassifications for the period, net of tax	\$ (92)	

- (1) A part of the computation of net periodic pension cost, which is included in other income, net in the Condensed Consolidated Statements of Loss.

Nine Months Ended September 30, 2022		
(In thousands)	Amount Reclassified from Accumulated Other Comprehensive (Loss) Income	Affected Line Item in the Statement Where Net (Loss) Income Is Presented
Unrealized gain (loss) on available-for-sale securities:		
Net realized gain on sales of securities	\$ (655)	Net investment (loss) gain
Defined benefit plan adjustments – actuarial loss	316	(1)
Total reclassifications for the period, before tax	(339)	
Tax expense	59	
Total reclassifications for the period, net of tax	\$ (280)	

- (1) A part of the computation of net periodic pension cost, which is included in other income, net in the Condensed Consolidated Statements of Loss.

	Nine Months Ended September 30, 2021	
	Amount Reclassified from Accumulated Other Comprehensive (Loss) Income	Affected Line Item in the Statement Where Net (Loss) Income Is Presented
<i>(In thousands)</i>		
Unrealized gain (loss) on available-for-sale securities:		
Net realized gain on sales of securities	\$ (13)	Net investment (loss) gain
Defined benefit plan adjustments – actuarial gain	(630) ⁽¹⁾	
Total reclassifications for the period, before tax	(643)	
Tax expense	198	
Total reclassifications for the period, net of tax	\$ (445)	

⁽¹⁾ A part of the computation of net periodic pension cost, which is included in other income, net in the Condensed Consolidated Statements of Loss.

The following tables present the tax effects related to the change in each component of other comprehensive loss:

	Three Months Ended September 30, 2022			Three Months Ended September 30, 2021		
	Before- Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount	Before- Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
<i>(In thousands)</i>						
Unrealized loss on available-for-sale securities	\$ (334)	\$ 80	\$ (254)	\$ (38)	\$ 9	\$ (29)
Reclassification adjustment for amounts related to available-for-sale investments included in net loss	(187)	45	(142)	(42)	10	(32)
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net (loss) gain	(171)	53	(118)	180	(56)	124
Foreign currency translation adjustments	(23,172)	—	(23,172)	(1,389)	—	(1,389)
Total Other Comprehensive Loss	\$ (23,864)	\$ 178	\$ (23,686)	\$ (1,289)	\$ (37)	\$ (1,326)

	Nine Months Ended September 30, 2022			Nine Months Ended September 30, 2021		
	Before- Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount	Before- Tax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
<i>(In thousands)</i>						
Unrealized loss on available-for-sale securities	\$ (2,392)	\$ 574	\$ (1,818)	\$ (471)	\$ 113	\$ (358)
Reclassification adjustment for amounts related to available-for-sale investments included in net gain	655	(157)	498	13	(3)	10
Reclassification adjustment for amounts related to defined benefit plan adjustments included in net (loss) gain	(316)	98	(218)	630	(195)	435
Foreign currency translation adjustments	(26,930)	—	(26,930)	(2,914)	—	(2,914)
Total Other Comprehensive Loss	\$ (28,983)	\$ 515	\$ (28,468)	\$ (2,742)	\$ (85)	\$ (2,827)

17. LOSS PER SHARE

The calculation of basic and diluted loss per share is as follows:

<i>(In thousands, except per share amounts)</i>	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Numerator				
Net loss attributable to ADTRAN Holdings, Inc.	\$ (41,934)	\$ (10,427)	\$ (40,918)	\$ (4,445)
Denominator				
Weighted average number of shares – basic	73,036	48,609	57,175	48,470
Effect of dilutive securities				
Stock options	—	—	—	—
PSUs, RSUs and restricted stock	—	—	—	—
Weighted average number of shares – diluted	73,036	48,609	57,175	48,470
Loss per share attributable to ADTRAN Holdings, Inc. – basic	\$ (0.57)	\$ (0.21)	\$ (0.72)	\$ (0.09)
Loss per share attributable to ADTRAN Holdings, Inc. – diluted	\$ (0.57)	\$ (0.21)	\$ (0.72)	\$ (0.09)

For the three months ended September 30, 2022 and 2021, four thousand and less than one thousand shares, respectively, and for the nine months ended September 30, 2022 and 2021, four thousand shares of unvested PSUs, RSUs and restricted stock were excluded from the calculation of diluted earnings per share due to their anti-dilutive effect.

For the three months ended September 30, 2022 and 2021, 0.1 million and 0.2 million stock options, respectively, and for the nine months ended September 30, 2022 and 2021, 0.2 million and 0.4 million stock options, respectively, were outstanding but were not included in the computation of diluted earnings per share. These stock options were excluded because their exercise prices were greater than the average market price of the common shares during the applicable period, making them anti-dilutive under the treasury stock method.

18. SEGMENT INFORMATION

The chief operating decision maker regularly reviews the Company's financial performance based on two reportable segments: (1) Network Solutions and (2) Services & Support.

The Network Solutions segment includes hardware and software products that enable a digital future. The Company's cloud-managed Wi-Fi gateways, virtualization software, and switches provide a mix of wired and wireless connectivity at the customer premises. In addition, its Carrier Ethernet products support a variety of applications at the network edge ranging from mobile backhaul to connecting enterprise customers ("Subscriber Solutions"). The Company's portfolio includes products for multi-gigabit service delivery over fiber or alternative media to homes and businesses. The Company supports traditional chassis-based network solutions, such as the Total Access 5000 and hiX 5600. The Company accelerates the industry's transition to open, disaggregated fiber access solutions with our SDX Series. Data is aggregated via its XG400 product family and synchronized by its Oscilloquartz offerings ("Access and Aggregation Solutions"). All resulting traffic requires transport through fiber-based networks as supported by its FSP 3000 and MicroMux product families while the underlying infrastructure is monitored by its ALM product offering ("Optical Networking Solutions"). The Company's customers can use its Mosaic and Ensemble software suites to manage and orchestrate its complete portfolio of subscriber solutions, access and aggregation solutions and optical networking solutions. The Mosaic and Ensemble software suites includes a mix of orchestration and management solutions that simplify the deployment and virtualization of next generation fiber networks.

The Services & Support segment offers a comprehensive portfolio of network design, implementation, maintenance and cloud-hosted services supporting its Subscriber, Access and Aggregation, and Optical Networking Solutions. These services assist operators in the deployment of multi-vendor networks while reducing their cost to maintain these networks. The cloud-hosted services include a suite of SaaS applications under its Mosaic One platform that manages end-to-end network and service optimization for both fiber access infrastructure and mesh Wi-Fi connectivity. We back these services with a global support organization that offers on-site and off-site support services with varying SLAs. By pairing the Company's network solutions with its global services and support organization, customers can turn to the Company as their single turnkey partner to assist with the deployment and maintenance of modern fiber-based networks to connect homes, businesses and datacenters with the metro or network core.

The performance of these segments is evaluated based on revenue, gross profit and gross margin; therefore, selling, general and administrative expenses, research and development expenses, interest and dividend income, interest expense, net investment (loss) gain, other income, net and income tax benefit (expense) are reported on a Company-wide basis only. There is no inter-segment revenue. Asset information by reportable segment is not produced and, therefore, is not reported.

The following tables present information about the revenue and gross profit of its reportable segments:

<i>(In thousands)</i>	Three Months Ended			
	September 30, 2022		September 30, 2021	
	Revenue	Gross Profit	Revenue	Gross Profit
Network Solutions	\$ 304,940	\$ 82,334	\$ 120,767	\$ 39,738
Services & Support	35,769	20,693	17,314	7,935
Total	\$ 340,709	\$ 103,027	\$ 138,081	\$ 47,673

<i>(In thousands)</i>	Nine Months Ended			
	September 30, 2022		September 30, 2021	
	Revenue	Gross Profit	Revenue	Gross Profit
Network Solutions	\$ 599,306	\$ 186,126	\$ 360,025	\$ 143,981
Services & Support	67,959	33,723	48,821	19,961
Total	\$ 667,265	\$ 219,849	\$ 408,846	\$ 163,942

Revenue by Category

In addition to its reportable segments, revenue is also reported for the following three categories – Subscriber Solutions, Access & Aggregation Solutions, and Optical Networking Solutions.

Prior to the Business Combination with ADVA on July 15, 2022, ADTRAN reported revenue across the following three categories: (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products. Following the Business Combination with ADVA, we have recast these revenues such that ADTRAN's former Access & Aggregation revenue is combined with a portion of the applicable ADVA solutions to create Access & Aggregation Solutions, ADTRAN's former Subscriber Solutions & Experience revenue is combined with a portion of the applicable ADVA solutions to create Subscriber Solutions, and the revenue from Traditional & Other products is now included in the applicable Access & Aggregation Solutions or Subscriber Solutions category. Optical Networking Solutions is a new revenue category added to represent a meaningful portion of ADVA's portfolio.

Our Subscriber Solutions portfolio is used by service providers to terminate their access services infrastructure at the customer premises while providing an immersive and interactive experience for residential, business and wholesale subscribers. This revenue category includes hardware- and software-based products and services. These solutions include fiber termination solutions for residential, business and wholesale subscribers, Wi-Fi access solutions for residential and business subscribers, Ethernet switching and network edge virtualization solutions for business subscribers, and cloud software solutions covering a mix of subscriber types.

Our Access & Aggregation Solutions are solutions that are used by communications service providers to connect residential subscribers, business subscribers and mobile radio networks to the service providers' metro network, primarily through fiber-based connectivity. This revenue category includes hardware- and software-based products and services. Our solutions within this category are a mix of fiber access and aggregation platforms, precision network synchronization and timing solutions, and access orchestration solutions that ensure highly reliable and efficient network performance.

Our Optical Networking Solutions are used by communications service providers, internet content providers and large-scale enterprises to securely interconnect metro and regional networks over fiber. This revenue category includes hardware- and software-based products and services. Our solutions within this category include open optical terminals, open line systems, optical subsystems and modules, network infrastructure assurance systems, and automation platforms that are used to build high-scale, secure and assured optical networks.

The table below presents revenue information by category. Prior year amounts presented below have been reclassified to conform to the current period revenue category presentation:

<i>(In thousands)</i>	Three Months Ended		Nine Months Ended	
	September 30,		September 30,	
	2022	2021	2022	2021
Subscriber Solutions	\$ 133,675	\$ 46,867	\$ 270,147	\$ 152,489
Access & Aggregation Solutions	88,189	91,214	278,273	256,357
Optical Networking Solutions	118,845	—	118,845	—
Total	\$ 340,709	\$ 138,081	\$ 667,265	\$ 408,846

Revenue by Geographic Area

The following table presents revenue information by geographic area:

(In thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
United States	\$ 169,669	\$ 91,868	\$ 374,470	\$ 273,009
United Kingdom	64,234	12,504	123,477	34,006
Germany	46,569	17,782	71,945	50,737
Other international	60,237	15,927	97,373	51,094
Total	\$ 340,709	\$ 138,081	\$ 667,265	\$ 408,846

19. LIABILITY FOR WARRANTY RETURNS

The Company's products generally include warranties of 90 days to five years for product defects. The Company accrues for warranty returns at the time of product shipment based on its historical return rate and estimate of the cost to repair or replace the defective products. The Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of its component suppliers. The increasing complexity of the Company's products may cause warranty incidences, when they arise, to be more costly. Estimates regarding future warranty obligations may change due to product failure rates, material usage and other rework costs incurred in correcting a product failure. In addition, from time to time, specific warranty accruals may be recorded if unforeseen problems arise. Should the Company's actual experience relative to these factors be worse than its estimates, the Company will be required to record additional warranty expense. The liability for warranty obligations totaled \$8.6 million and \$5.4 million as of September 30, 2022 and December 31, 2021, respectively, and is included in accrued expenses and other liabilities in the Condensed Consolidated Balance Sheets. During the three months ended September 30, 2021, the Company had a net reversal of prior provisions related to warranty expirations the impact of which is reflected in the table below. The warranty expense and write-off activity for the three and nine months ended September 30, 2022 and 2021 are summarized as follows:

(In thousands)	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Balance at beginning of period	\$ 4,842	\$ 5,997	\$ 5,403	\$ 7,146
Plus: ADVA acquisition	3,756	—	3,756	—
Plus: Amounts charged to cost and expenses	616	472	1,727	253
Less: Deductions	(613)	(822)	(2,285)	(1,752)
Balance at end of period	\$ 8,601	\$ 5,647	\$ 8,601	\$ 5,647

20. COMMITMENTS AND CONTINGENCIES

Legal Matters

From time to time we are subject to or otherwise involved in various lawsuits, claims, investigations and legal proceedings that arise out of or are incidental to the conduct of our business (collectively, "Legal Matters"), including those relating to employment matters, patent rights, regulatory compliance matters, stockholder claims, and contractual and other commercial disputes. Such Legal Matters, even if not meritorious, could result in the expenditure of significant financial and managerial resources. Additionally, an unfavorable outcome in a legal matter, including in a patent dispute, could require the Company to pay damages, entitle claimants to other relief, such as royalties, or could prevent the Company from selling some of its products in certain jurisdictions. At this time, we are unable to predict the outcome of or estimate the possible loss or range of loss, if any, associated with such legal matters.

Performance Bonds

Certain contracts, customers and jurisdictions in which we do business require us to provide various guarantees of performance such as bid bonds, performance bonds and customs bonds. As of September 30, 2022 and December 31, 2021, we had commitments related to these bonds totaling \$21.1 million and \$22.9 million, respectively, which expire at various dates through April 2025. In general we would only be liable for the amount of these guarantees in the event of default under each contract, the probability of which we believe is remote.

Purchase Commitments

We purchase components from a variety of suppliers and use contract manufacturers to provide manufacturing services for our products. Our inventory purchase commitments are for short-term product manufacturing requirements as well as for commitments to suppliers to secure manufacturing capacity. Certain of our inventory purchase commitments with contract manufacturers and suppliers relate to arrangements to secure supply and pricing for certain product components for multi-year periods. As of September 30, 2022, purchase commitments totaled \$454.1 million.

Investment Commitment

We have committed to invest up to an aggregate of \$5.0 million in a private equity fund, of which \$4.9 million has been invested as of September 30, 2022.

21. SUBSEQUENT EVENTS

Dividend Approval

On November 7, 2022, the Company announced that its Board of Directors declared a quarterly cash dividend of \$0.09 per common share to be paid to the Company's stockholders of record as of the close of business on November 22, 2022. The payment date will be December 6, 2022 in the aggregate amount of approximately \$7.0 million.

Assumed ADVA Options

Pursuant to the Business Combination which closed on July 15, 2022, ADVA stock option holders were entitled to have their ADVA stock options assumed by ADTRAN Holdings, Inc. (applying the exchange ratio in the Business Combination Agreement), thereafter representing options to acquire stock of ADTRAN Holdings, Inc. The period in which such options could be assumed ended July 22, 2022. However, that period was subsequently extended and a total of 0.1 million shares of ADTRAN Holdings, Inc. stock are subject to additional assumed ADVA options. The fair value of the stock options assumed by ADTRAN Holdings, Inc. will be estimated using a Black-Scholes model. The valuation of this component of consideration is not yet complete.

Approval of Proposed Domination and Profit and Loss Transfer Agreement

On October 18, 2022, the Board of Directors of the Company and the management board of ADVA, agreed on a final draft of a domination and profit and loss transfer agreement (the "DPLTA") between the Company, as the controlling company, and ADVA, as the controlled company. The parties' execution of the DPLTA remains subject to the approval of the DPLTA by shareholders of ADVA with 75% of the votes cast in an extraordinary general meeting, which is scheduled to be held on November 30, 2022. The Company currently holds 33,957,538 shares of ADVA, representing 65.35% of ADVA's outstanding shares as of September 30, 2022.

Subject to the approval of the DPLTA shareholders and the subsequent registration of the DPLTA with the commercial register of the local court at ADVA's registered offices, the Company will offer, at the election of each shareholder of ADVA (other than the Company), (i) to acquire the shares of such shareholder for a compensation (*Abfindung*) of EUR 17.21 per share pursuant to Sec. 305 German Stock Corporation Akt (*Aktiengesetz*, "AktG"), or (ii) to pay such shareholder a fixed annual recurring compensation payment (*Ausgleichszahlung*) pursuant to Sec. 304 AktG in an amount of EUR 0.59 (EUR 0.52 net under the current taxation regime), subject to adjustment prior to execution of the DPLTA due to changes in interest rates and borrowing costs prior to November 30, 2022, which is the reference date for the valuation of ADVA shares ("Annual Recurring Compensation").

The amount of the Annual Recurring Compensation payment of EUR 0.59 (EUR 0.52 net) is determined on the basis of a rounded annuity interest rate (*Verrentungszinssatz*) of 3.00% and still subject to an adjustment in case of a change of interest rates and borrowing costs prior to November 30, 2022 which is the reference date for the valuation. An increase of borrowing costs could lead to an increase of the Annual Recurring Compensation payment. The potential increase ranges from EUR 0.62 (EUR 0.54 net), if the annuity interest rate is increased by 25 basis points to 3.25%, up to an Annual Recurring Compensation payment at the amount of EUR 1.00 (EUR 0.87 net), if the annuity interest rate is increased by 250 basis points to 5.50%.

Board Approval Purchase of ADVA Common Stock

On October 18, 2022, the Company's Board of Directors authorized the Company to purchase additional shares of ADVA through open market purchases not to exceed 15,346,544 shares.

Foreign Currency Hedging Agreement

On November 3, 2022, the Company entered into a Euro/U.S. dollar cross-currency swap arrangement (the “Swap”) with Wells Fargo Bank, N.A. (the “Hedge Counterparty”). The Swap, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, enable the Company to convert a portion of its Euro denominated payment obligations under the proposed DPLTA into U.S. Dollars. Under the Swap, the Company will exchange an aggregate notional amount of \$160.0 million U.S. dollars for Euros at a daily fixed forward rate ranging from \$0.98286 to \$1.03290. The aggregate amount of \$160.0 million will be divided into eight quarterly tranches of \$20.0 million. The Company, at its sole discretion, may exchange all or part of each tranche on any given day within the applicable quarter; provided, however, that it must exchange the full tranche by the end of such quarter. The Swap may be accelerated or terminated early for a number of reasons, including but not limited to (i) non-payment by the Company or the Hedge Counterparty, (ii) breach of representation or warranty or covenant by either party or (iii) insolvency or bankruptcy of either party.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with the consolidated financial statements and the related notes that appear in Part I, Item 1 of this document. In addition, the following discussion should be read in conjunction with our audited consolidated financial statements for the year ended December 31, 2021, Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations, Part I, Item 1, Business, and Item 1A, Risk Factors, included in 2021 Form 10-K for the year ended December 31, 2021, filed with the SEC on February 25, 2022.

This discussion is designed to provide the reader with information that will assist in understanding our Condensed Consolidated Financial Statements, the changes in certain key items in those financial statements from period to period, and the primary factors that accounted for those changes, as well as how certain accounting principles affect our Condensed Consolidated Financial Statements. See "Cautionary Note Regarding Forward-Looking Statements" on page 3 of this report for a description of important factors that could cause actual results to differ from expected results. See also Part I, Item 1A, Risk Factors, of the 2021 Form 10-K and Part II, Item 1A, Risk Factors of this Form 10-Q.

Unless the context otherwise indicates or requires, references in this Quarterly Report on Form 10-Q to "ADTRAN", the "Company," "we," "us" and "our" refer to ADTRAN Holdings, Inc. and its consolidated subsidiaries for periods subsequent to the Merger and to ADTRAN, Inc. and its consolidated subsidiaries for periods prior to the Merger. The prior period results do not include the results of ADVA prior to the Merger.

OVERVIEW

The Company is a leading global provider of networking and communications platforms, software, systems and services focused on the broadband access market, serving a diverse domestic and international customer base in multiple countries that includes Tier-1, -2 and -3 service providers, alternative service providers, such as utilities, municipalities and fiber overbuilders, cable/MSOs, SMBs and distributed enterprises. Our innovative solutions and services enable voice, data, video and internet-communications across a variety of network infrastructures and are currently in use by millions worldwide. We support our customers through our direct global sales organization and our distribution networks. Our success depends upon our ability to increase unit volume and market share through the introduction of new products and succeeding generations of products having optimal selling prices and increased functionality as compared to both the prior generation of a product and to the products of competitors in order to gain market share. To service our customers and grow revenue, we are continually conducting research and developing new products addressing customer needs and testing those products for the specific requirements of the particular customers. We offer a broad portfolio of flexible software and hardware network solutions and services that enable service providers to meet today's service demands, while enabling them to transition to the fully converged, scalable, highly-automated, cloud-controlled voice, data, internet and video network of the future. In addition to our corporate headquarters in Huntsville, Alabama, we have sales and research and development facilities in strategic global locations.

ADTRAN Holdings, Inc. solely owns ADTRAN, Inc. and is the majority shareholder of ADVA Optical Networking SE ("ADVA"). ADTRAN is a leading global provider of open, disaggregated networking and communications solutions. ADVA is a global provider of network solutions for data, storage, voice and video services. The combined technology portfolio can best address current and future requirements, especially regarding the convergence of solutions at the network edge. Additional information on each of the companies is provided below:

- ADTRAN, Inc. is a leading global provider of open, disaggregated networking and communications solutions that enable voice, data, video, and internet communications across any network infrastructure. Its award-winning end-to-end fiber broadband solutions portfolio spans from OLTs to in-home services and intelligent SaaS solutions. These solutions empower communications service providers to manage and scale services to meet the needs of their customers. ADTRAN, Inc. serves customers in over 60 countries.
- ADVA is a global provider of open networking solutions with over 25 years of experience in optical networking, carrier Ethernet access and network synchronization. ADVA has led the industry for over two decades with open and secure networking solutions that carefully balance space, power and cost. Founded in 1994 in Germany, ADVA has continually pushed the boundaries of innovation, working side-by-side with leading enterprises and service providers to develop technology that meets real-world demands. From open optical line systems, open terminals and pluggable multiplexers to programmable cloud access, encryption and precise timing, ADVA is committed to developing solutions that help its customers succeed.

BUSINESS COMBINATION WITH ADVA

On August 30, 2021, ADTRAN, Inc. and ADVA, entered into a Business Combination Agreement, pursuant to which both companies agreed to combine their respective businesses and each become subsidiaries of a new holding company, ADTRAN Holdings, Inc. (formerly known as Acorn HoldCo, Inc.) which was formed as a wholly-owned subsidiary of ADTRAN in order to consummate the

transactions under the Business Combination Agreement. Under the terms of the Business Combination Agreement on July 8, 2022, Acorn MergeCo, Inc., a Delaware corporation and wholly-owned direct subsidiary of the Company, merged with and into ADTRAN, with ADTRAN surviving the merger as a wholly-owned direct subsidiary of the Company.

Additionally, pursuant to the Business Combination Agreement, the Company made a public offer to exchange each issued and outstanding no-par value bearer share of ADVA for 0.8244 shares of common stock, par value \$0.01 per share, of the Company ("Company Common Stock"). The Exchange Offer was settled on July 15, 2022, on which date the Company acquired 33,957,538 bearer shares of ADVA, or 65.43% of ADVA's outstanding bearer shares as of the Exchange Offer Settlement Date, in exchange for the issuance of an aggregate of 27,994,595 shares of Company Common Stock. Additionally, pursuant to the Business Combination Agreement, ADVA stock option holders were entitled to have their ADVA stock options assumed by ADTRAN Holdings, Inc. (applying the exchange ratio in the Business Combination Agreement), thereafter representing options to acquire stock of ADTRAN Holdings, Inc. The fair value of the ADVA stock options assumed by ADTRAN Holdings, Inc. was \$12.8 million, estimated using the binomial lattice model.

ADTRAN, Inc. and ADVA became subsidiaries of ADTRAN Holdings, Inc. as a result of the Business Combination. ADTRAN was determined to be the accounting acquirer of ADVA based on ADTRAN shareholders' majority equity stake in the combined company, and the composition of the Board of Directors and senior management of the combined company, among other factors. The Company accounted for the acquisition of ADVA as a business combination under ASC 805.

On October 18, 2022, the Board of Directors of ADTRAN Holdings, Inc. and the management board of ADVA, agreed on a final draft of a domination and profit and loss transfer agreement (the "DPLTA") between the Company, as the controlling company, and ADVA, as the controlled company. The parties' execution of the DPLTA remains subject to the approval of the DPLTA by shareholders of ADVA with 75% of the votes cast in an extraordinary general meeting, which is scheduled to be held on November 30, 2022. The Company currently holds 33,957,538 shares of ADVA, representing 65.35% of ADVA's outstanding shares as of September 30, 2022.

Subject to the approval of the DPLTA by ADVA shareholders and the subsequent registration of the DPLTA with the commercial register of the local court at ADVA's registered offices, ADTRAN Holdings, Inc. will offer, at the election of each shareholder of ADVA (other than the Company), (i) to acquire the shares of such shareholder for a compensation (*Abfindung*) of EUR 17.21 per share pursuant to Sec. 305 of the German Stock Corporation Akt (*Aktiengesetz*, "AktG"), or (ii) to pay such shareholder an annual recurring compensation payment (*Ausgleichszahlung*) pursuant to Sec. 304 of the AktG in an amount of EUR 0.59 (EUR 0.52 net under the current taxation regime), subject to adjustment prior to execution of the DPLTA due to changes in interest rates and borrowing costs prior to November 30, 2022, which is the reference date for the valuation of ADVA shares ("Annual Recurring Compensation").

The amount of the Annual Recurring Compensation payment of EUR 0.59 (EUR 0.52 net) is determined on the basis of a rounded annuity interest rate (*Verrentungszinssatz*) of 3.00% and is still subject to an adjustment in case of a change of interest rates and borrowing costs prior to November 30, 2022 which is the reference date for the valuation. An increase of borrowing costs could lead to an increase of the Annual Recurring Compensation payment. The potential increase ranges from EUR 0.62 (EUR 0.54 net), if the annuity interest rate is increased by 25 basis points to 3.25%, up to an Annual Recurring Compensation payment of EUR 1.00 (EUR 0.87 net), if the annuity interest rate is increased by 250 basis points to 5.50%.

During the three months ended September 30, 2022, we recognized \$10.6 million of transaction costs. We expect to incur an estimated \$1.1 million of additional transaction costs related to the Business Combination and we will continue to incur integration costs and costs associated with the implementation, if any, of a DPLTA, during the remainder of the year and such costs are expected to be material.

FINANCIAL PERFORMANCE AND TRENDS

The Company ended the third quarter of 2022 with a year-over-year revenue increase of 146.7% as compared to the three months ended September 30, 2021, driven by increased volume of sales activity due to the Business Combination with ADVA and to service provider customers. During the third quarter of 2022, the Company had two 10% revenue customers, one U.S. service provider customer, and one international service provider customer. Our year-over-year domestic revenue increased by 84.7%, driven by increased sales volume due to the Business Combination with ADVA and an increased sales volume of residential gateways and optical network terminals in our Network Solutions segment. Internationally, our revenue increased by 270.1% compared to the prior year period, primarily driven by increased volume of sales activity due to the Business Combination with ADVA and increased shipments to a Tier-1 network operator in Europe. We experienced strong demand for our solutions in the first nine months of 2022 and achieved significant year-over-year bookings growth. Bookings are defined as orders received for a product or service during a fiscal period that will be delivered or performed sometime in the future and is a forward looking metric that we utilize to help us understand future revenue growth for the Company. Bookings are generally subject to modification and or cancellation per the terms of the order. A substantial portion of our shipments in any fiscal period relates to orders received and shipped within that fiscal period for customers under agreements containing nonbinding purchase commitments. Our increase in demand comes from service providers planning to deploy our fiber access platforms, in-home service delivery platforms and SaaS applications. We expect this growth to accelerate. During 2021 and continuing in 2022, we secured several Tier-1 next-generation fiber customers, and previously announced Tier-1 fiber customers significantly increased their bookings for our fiber access platforms. Although we expect our revenue growth and profitability in the near-term to continue to

be negatively impacted by supply chain issues, our outlook continues to strengthen given the increased demand for our products and our expectation of an improving supply chain over the longer term.

In March 2020, the World Health Organization declared the novel coronavirus ("COVID-19") outbreak a global pandemic. The SARS-CoV-2 coronavirus (or variants of the SARS-CoV-2 coronavirus) continues to spread throughout the U.S. and the world and has resulted in authorities implementing varying measures to contain the virus. Although vaccines have been approved and continue to be distributed, it cannot be predicted how long it will take before market conditions return to normal and there can be no assurance that the economic recovery will occur or offset the uncertainty and instability triggered by the pandemic. New and potentially more contagious variants of the COVID-19 virus may develop in various countries, including in regions in which we have significant operations. The COVID-19 variants could further amplify the impact of the pandemic. While we are unable to accurately predict the full impact that the COVID-19 global pandemic will have on our results of operations, financial condition, liquidity and cash flows due to numerous uncertainties, including the duration and severity of the pandemic and containment measures, our compliance with these measures has impacted our day-to-day operations and could disrupt our business and operations, as well as that of our key customers, suppliers and other counterparties, for an indefinite period of time. We have experienced a significant impact to our supply chain given COVID-19 and the related global semiconductor chip shortage, including delays in supply chain deliveries, extended lead times and shortages of some key components, some raw material cost increases and slowdowns at certain production facilities. We have also had to increase our volume of inventory to ensure supply continuity during the pandemic. In addition, we have experienced significant increases in freight-related costs due to global shipping disruptions. Starting in the third quarter of 2021 and continuing into 2022, the Company has incurred supply chain constraint expenses, including price inflation for certain electronic components, semiconductor chips and transportation related costs, which have lowered our gross margins and decreased our profitability. While throughout the pandemic we have seen increased demand in networking requirements and utilization due to social distancing guidelines issued by governments, as well as COVID-19 related reductions in travel and infrastructure expenses, it is possible that we could experience some slowdown in demand, further supply chain issues and an increased impact from the ongoing semiconductor shortage and shortages of certain other key components as the pandemic continues. If the impacts of this shortage are more severe than we expect, it could result in longer lead times, inventory supply challenges and further increased costs, all of which could result in the deterioration of our results, potentially for a longer period than currently anticipated. To support the health and well-being of our employees, customers, partners and communities, many of our employees are working remotely or on a hybrid schedule as of the date of filing this report. Additionally, there is risk that a number of our employees may become infected with COVID-19, including our key personnel. In addition, actions that have been taken and that may be taken by the Company, its customers, suppliers and counterparties in response to the pandemic, including the implementation of alternative work arrangements for certain employees, as well as the impacts to our supply chain, including delays in supply chain deliveries and the related global semiconductor chip shortage, have delayed and may continue to delay the timing of some orders and expected deliveries. Lastly, even after the COVID-19 pandemic has subsided, we may continue to experience adverse impacts to our business as a result of any economic recession that has occurred or may occur in the future as a result of the COVID-19 pandemic or other factors.

In addition to the Company's reportable segments, revenue is also reported for the following three categories – Subscriber Solutions, Access & Aggregation Solutions, and Optical Networking Solutions.

Prior to the Business Combination with ADVA on July 15, 2022, ADTRAN reported revenue across the following three categories: (1) Access & Aggregation, (2) Subscriber Solutions & Experience and (3) Traditional & Other Products. Following the Business Combination with ADVA, we have recast these revenues such that ADTRAN's former Access & Aggregation revenue is combined with a portion of the applicable ADVA solutions to create Access & Aggregation Solutions, ADTRAN's former Subscriber Solutions & Experience revenue is combined with a portion of the applicable ADVA solutions to create Subscriber Solutions, and the revenue from Traditional & Other products is now included in the applicable Access & Aggregation Solutions or Subscriber Solutions category. Optical Networking Solutions is a new revenue category added to represent a meaningful portion of ADVA's portfolio.

Our Subscriber Solutions portfolio is used by service providers to terminate their access services infrastructure at the customer premises while providing an immersive and interactive experience for residential, business and wholesale subscribers. This revenue category includes hardware- and software-based products and services. These solutions include fiber termination solutions for residential, business and wholesale subscribers, Wi-Fi access solutions for residential and business subscribers, Ethernet switching and network edge virtualization solutions for business subscribers, and cloud software solutions covering a mix of subscriber types.

Our Access & Aggregation Solutions are solutions that are used by communications service providers to connect residential subscribers, business subscribers and mobile radio networks to the service providers' metro network, primarily through fiber-based connectivity. This revenue category includes hardware- and software-based products and services. Our solutions within this category are a mix of fiber access and aggregation platforms, precision network synchronization and timing solutions, and access orchestration solutions that ensure highly reliable and efficient network performance.

Our Optical Networking Solutions are used by communications service providers, internet content providers and large-scale enterprises to securely interconnect metro and regional networks over fiber. This revenue category includes hardware- and software-based products and services. Our solutions within this category include open optical terminals, open line systems, optical subsystems and modules,

network infrastructure assurance systems, and automation platforms that are used to build high-scale, secure and assured optical networks.

Our operating results have fluctuated, and may continue to fluctuate, on a quarterly basis due to several factors, including customer order activity, supply chain constraints, component availability, backlog, the Company's consolidation, purchase accounting, and integration with ADVA. A substantial portion of our shipments in any fiscal period relates to orders received and shipped within that fiscal period for customers under agreements containing non-binding purchase commitments. Further, a significant percentage of orders require delivery within a few days requiring us to maintain higher inventory levels. These factors normally result in a varying order backlog and limited order flow visibility; however, with the current global supply chain and transportation constraints, and limited availability of semiconductor chips and other components of our products, we have experienced and may continue to experience extended lead times, increased logistics intervals and costs, and lower volume of products deliveries, which has had and may continue to have a material adverse effect on our operating results and could have a material adverse effect on customer relations and our financial condition. Operating expenses are relatively fixed in the short term; therefore, a shortfall in quarterly revenues could significantly impact our financial results in a given quarter.

Our operating results may also fluctuate as a result of a number of other factors, including a decline in general economic and market conditions, specifically the decline that initially resulted from the COVID-19 pandemic and that may recur and foreign currency exchange rate movements, inflation, regional conflicts, increased competition, customer order patterns, changes in product and services mix, timing differences between price decreases and product cost reductions, product warranty returns, expediting costs, tariffs and announcements of new products by us or our competitors. Specifically, we expect inflationary pressures on input costs, such as raw materials and labor, and distribution costs to increase. We continue to support our customer demand for our products by working with our suppliers, contract manufacturers, distributors, and customers to address and to limit the disruption to our operations and order fulfillment. Our attempts to offset these cost pressures, such as through increases in the selling prices of some of our products and services, may not be successful and could negatively affect our operating results. Additionally, maintaining sufficient inventory levels to assure prompt delivery of our products increases the amount of inventory that may become obsolete and increases the risk that the obsolescence of this inventory may have an adverse effect on our business and operating results. Also, not maintaining sufficient inventory levels to assure prompt delivery of our products may cause us to incur expediting costs to meet customer delivery requirements, which may negatively impact our operating results.

We are exposed to changes in foreign currencies relative to the U.S. dollar, which are references to the differences between the foreign-exchange rates we use to convert the financial results of our international operations from local currencies and non-U.S. dollar denominated functional currencies into U.S. dollars for financial reporting purposes. This impact of foreign-exchange rate changes is calculated based on the difference between the current period's currency exchange rates and that of the comparable prior period. Our primary exposures to foreign currency exchange rate movements are with our European subsidiaries, whose functional currency is the Euro, our Australian subsidiary, whose functional currency is the Australian dollar, and our U.K. subsidiary, who transacts in the British pound sterling with a U.S. dollar functional currency. As a result of our global operations, our revenue, gross margins, operating expense and operating income in some international markets have been and may continue to be affected by foreign currency fluctuations.

Our historical financial performance is not necessarily a meaningful indicator of future results, and in general, management expects that our financial results may vary from period to period. Factors that could materially affect our business, financial condition or operating results are included in Part I, Item 1A of the 2021 Form 10-K and Part II, Item 1A of this Form 10-Q.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

There have been no material changes to our critical accounting policies and estimates from those disclosed in our 2021 Form 10-K.

EFFECT OF RECENT ACCOUNTING PRONOUNCEMENTS

See Note 1 of the Notes to Condensed Consolidated Financial Statements included in Part I, Item 1 of this report for a full description of recent accounting pronouncements, including the expected dates of adoption and estimated effects on results of operations and financial condition, which is incorporated herein by reference.

RESULTS OF OPERATIONS – THREE AND NINE MONTHS ENDED SEPTEMBER 30, 2022 COMPARED TO THE THREE AND NINE MONTHS ENDED SEPTEMBER 30, 2021

The following table presents selected financial information derived from our Condensed Consolidated Statements of Loss expressed as a percentage of revenue for the periods indicated. Amounts may not foot due to rounding.

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2022	2021	2022	2021
Revenue				
Network Solutions	89.5 %	87.5 %	89.8 %	88.1 %
Services & Support	10.5	12.5	10.2	11.9
Total Revenue	100.0	100.0	100.0	100.0
Cost of Revenue				
Network Solutions	65.3	58.7	61.9	52.8
Services & Support	4.4	6.8	5.1	7.1
Total Cost of Revenue	69.8	65.5	67.1	59.9
Gross Profit	30.2	34.5	32.9	40.1
Selling, general and administrative expenses	22.0	22.4	19.6	21.8
Research and development expenses	17.4	19.4	16.8	20.1
Asset impairment	5.0	—	2.5	—
Operating Loss	(14.1)	(7.3)	(6.0)	(1.8)
Interest and dividend income	0.1	0.2	0.1	0.2
Interest expense	(0.4)	—	(0.2)	—
Net investment (loss) gain	(0.8)	—	(1.6)	0.7
Other income, net	0.7	0.5	0.4	0.7
Loss Before Income Taxes	(14.4)	(6.6)	(7.3)	(0.2)
Income tax benefit (expense)	1.3	(0.9)	0.7	(0.8)
Net Loss	(13.2) %	(7.6) %	(6.6) %	(1.1) %

REVENUE

Our revenue increased 146.7% from \$138.1 million for the three months ended September 30, 2021 to \$340.7 million for the three months ended September 30, 2022 and increased 63.2% from \$408.8 million for the nine months ended September 30, 2021 to \$667.3 million for the nine months ended September 30, 2022. The increase in revenue for the three and nine months ended September 30, 2022 is primarily attributable to a \$163.8 million increase in volume of sales activity due to the Business Combination with ADVA and a \$38.8 million and \$94.6 million increase in volume of sales activity related to our ADTRAN, Inc. operations, respectively. The increase in revenue by category for the three months ended September 30, 2022 was primarily attributable to a \$118.8 million increase in Optical Networking Solutions products due to the Business Combination with ADVA, a \$86.8 million increase in Subscriber Solutions products, partially offset by a \$3.0 million decrease in Access & Aggregation Solutions revenue. The increase in revenue by category for the nine months ended September 30, 2022 was attributable to a \$118.8 million increase in Optical Networking Solutions products due to the Business Combination with ADVA, a \$117.7 million increase in Subscriber Solutions products, and a \$21.9 million increase in Access & Aggregation Solutions revenue. Although our revenue increased, supply of semiconductor chips and other components of our products has become constrained resulting in extended lead times and increased costs. Transportation constraints, including shortages for both air and surface freight, as well as labor shortages in the transportation industry, have also affected the timing and the cost of obtaining raw materials and production supplies. Although our revenue growth and profitability in the near-term may be impacted by these global supply chain issues, our longer term outlook continues to strengthen given our progress with new customer opportunities and the increased customer demand.

Network Solutions segment revenue increased 152.5% from \$120.8 million for the three months ended September 30, 2021 to \$304.9 million for the three months ended September 30, 2022 and increased 66.5% from \$360.0 million for the nine months ended September 30, 2021 to \$599.3 million for the nine months ended September 30, 2022. The increase in revenue for the three months ended September 30, 2022 was due primarily to the increase of \$143.4 million in volume of sales activity due to the Business Combination with ADVA and an increase of \$55.1 million in Subscriber Solutions products in our ADTRAN, Inc. operations. The increase in revenue for the nine months ended September 30, 2022 was due to the Business Combination with ADVA and increases in all revenue categories in our ADTRAN, Inc. operations.

Services & Support segment revenue increased 106.6% from \$17.3 million for the three months ended September 30, 2021 to \$35.8 million for the three months ended September 30, 2022 and increased 39.2% from \$48.8 million for the nine months ended September 30, 2021 to \$68.0 million for the nine months ended September 30, 2022. The increase in revenue for the three and nine

months ended September 30, 2022 was primarily attributable to the increase of \$20.4 million in volume of sales activity from the Business Combination with ADVA partially offset by a \$2.6 million decrease in revenue for Access & Aggregation Solutions products in our ADTRAN, Inc. operations.

International revenue, which is defined as revenue generated from the Network Solutions and Services & Support segments provided to a customer outside of the U.S., increased by 270.1% from \$46.2 million for the three months ended September 30, 2021 to \$171.0 million for the three months ended September 30, 2022 and increased by 115.5% from \$135.8 million for the nine months ended September 30, 2021 to \$292.8 million for the nine months ended September 30, 2022. International revenue, as a percentage of total revenue, increased from 33.5% for the three months ended September 30, 2021 to 50.2% for the three months ended September 30, 2022 and increased from 33.2% for the nine months ended September 30, 2021 to 43.9% for the nine months ended September 30, 2022 was primarily attributable to the increase in volume of \$113.2 million in sales activity from the Business Combination with ADVA and increased shipments to a Tier-1 network operator and multiple alternative network operators in Europe. While international revenue has increased to approximately 50% of total revenues for the three months ended September 30, 2022, the mix of our Network Solutions and Services & Support segments as a percentage of total international revenue remains relatively linear. For the three and nine months ended September 30, 2022 as compared to the three and nine months ended September 30, 2021, changes in foreign currencies relative to the U.S dollar decreased our net sales by approximately \$15.5 million and \$34.4 million, respectively.

Our ADTRAN, Inc. international revenue is largely focused on broadband infrastructure and is consequently affected by the decisions of our customers as to timing for installation of new technologies, expansion of their networks and/or network upgrades. Our international customers must make these decisions in the regulatory and political environment in which they operate – both nationally and in some instances, regionally – whether of a multi-country region or a more local region within a country. Consequently, while we expect the global trend towards deployment of more robust broadband speeds and access to continue creating additional market opportunities for us, the factors described above may result in pressure on revenue and operating income. Our ADVA international revenue is largely focused on the manufacture and selling of networking solutions that are based on three core areas of expertise: fiber-optic transmission technology (cloud interconnect), cloud access technology for rapid creation of innovative services around the network edge and solutions for precise timing and synchronization of networks. In addition, ADVA's international operations offers a comprehensive portfolio of network design, implementation and maintenance services to assist operators in the deployment of market-leading networks while reducing their cost to maintain these networks.

COST OF REVENUE

As a percentage of revenue, cost of revenue increased from 65.5% for the three months ended September 30, 2021 to 69.8% for the three months ended September 30, 2022 and increased from 59.9% for the nine months ended September 30, 2021 to 67.1% for the nine months ended September 30, 2022. For the three and nine months ended September 30, 2022, the increase was primarily attributable to \$25.5 million in acquisition related expenses, amortizations, and adjustments consisting of intangible amortization of backlog, developed technology and fair value adjustments to inventory costs that flow through to cost of revenue as a result of the Business Combination with ADVA as well as supply chain constraint related expenses and to a lesser extent changes in customer and product mix and a regional revenue shift in our ADTRAN, Inc. operations. For the three and nine months ended September 30, 2022, as compared to the three and nine months ended September 30, 2021, changes in foreign currencies relative to the U.S. dollar decreased our cost of revenue by approximately \$2.9 million and \$6.7 million, respectively. See additional information related to amortization lives and expense in Notes 2 and 11 of Notes to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this report.

Network Solutions cost of revenue, as a percentage of that segment's revenue, increased from 67.1% for the three months ended September 30, 2021 to 73.0% for the three months ended September 30, 2022 and increased from 60.0% for the nine months ended September 30, 2021 to 68.9% for the nine months ended September 30, 2022. The increase in cost of revenue as a percentage of revenue for the three and nine months ended September 30, 2022 was primarily attributable to acquisition related expenses, amortizations and adjustments consisting of intangible amortization of backlog, developed technology and fair value adjustments to inventory costs that flow through to cost of revenue as a result of the Business Combination with ADVA as well as supply chain constraint related expenses and to a lesser extent changes in customer and product mix and a regional revenue shift in our ADTRAN, Inc. operations.

Services & Support cost of revenue, as a percentage of that segment's revenue, decreased from 54.2% for the three months ended September 30, 2021 to 42.1% for the three months ended September 30, 2022 and decreased from 59.1% for the nine months ended September 30, 2021 to 50.4% for the nine months ended September 30, 2022. The decrease in cost of revenue as a percentage of revenue for the three and nine months ended September 30, 2022 was primarily attributable to customer mix and changes in Services & Support mix as a result of the Business Combination with ADVA.

Services & Support revenue is comprised of network planning and implementation, maintenance, support and cloud-based management services, with network planning and implementation being the largest and fastest growing component in the long-term. Compared to our other services, such as maintenance, support and cloud-based management services, our network planning and implementation services typically utilize a higher percentage of internal and subcontracted engineers, professionals and contractors to perform the work for customers. The additional costs incurred to perform these infrastructure and labor-intensive services inherently result in lower

average gross margins as compared to maintenance and support services. Within the Services & Support segment, we do expect variability in gross margins from quarter-to-quarter based on the mix of the services recognized.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES

As a percentage of revenue, selling, general and administrative expenses decreased from 22.4% for the three months ended September 30, 2021 to 22.0% for the three months ended September 30, 2022 and decreased from 21.8% for the nine months ended September 30, 2021 to 19.6% for the nine months ended September 30, 2022. Selling, general and administrative expenses as a percentage of revenue will generally fluctuate whenever there is a significant fluctuation in revenue for the periods being compared.

Selling, general and administrative expenses increased 141.8% from \$31.0 million for the three months ended September 30, 2021 to \$74.9 million for the three months ended September 30, 2022 and increased 46.3% from \$89.3 million for the nine months ended September 30, 2021 to \$130.6 million for the nine months ended September 30, 2022. The increase in selling, general and administrative expenses for the three and nine months ended September 30, 2022 was primarily attributable to increased expenses related to the Business Combination with ADVA such as employee-related costs due to an increase in the number of employees, amortization of intangible assets, depreciation of property, plant and equipment and transactions costs. For the three and nine months ended September 30, 2022 as compared to the three and nine months ended September 30, 2021, changes in foreign currencies relative to the U.S dollar decreased our selling, general and administrative expenses by approximately \$1.8 million and \$4.6 million, respectively.

RESEARCH AND DEVELOPMENT EXPENSES

As a percentage of revenue, research and development expenses decreased from 19.4% for the three months ended September 30, 2021 to 17.4% for the three months ended September 30, 2022 and decreased from 20.1% for the nine months ended September 30, 2021 to 16.8% for the nine months ended September 30, 2022. Research and development expenses as a percentage of revenue will fluctuate whenever there are incremental product development activities or significant fluctuations in revenue for the periods being compared.

Research and development expenses increased 121.2% from \$26.8 million for the three months ended September 30, 2021 to \$59.2 million for the three months ended September 30, 2022 and increased 36.6% from \$82.1 million for the nine months ended September 30, 2021 to \$112.2 million for the nine months ended September 30, 2022. The increase in research and development expenses for the three and nine months ended September 30, 2022 was primarily attributable to increased expenses related to the Business Combination with ADVA such as employee-related costs due to an increase in the number of employees, amortization of intangible assets and depreciation of property, plant and equipment. For the three and nine months ended September 30, 2022 as compared to the three and nine months ended September 30, 2021, changes in foreign currencies relative to the U.S. dollar decreased our research and development expenses by approximately \$1.9 million and \$4.8 million, respectively.

ADVA has arrangements with governmental entities for the purposes of obtaining funding for research and development activities. The Company classifies government grants received under these arrangements as a reduction to research and development expense incurred. For the three and nine months ended September 30, 2022, the Company recognized \$0.3 million as a reduction of research and development expense.

We expect to continue to incur research and development expenses in connection with our new and existing products. We continually evaluate new product opportunities and engage in significant research and product development efforts, which provides for new product development, enhancement of existing products and product cost reductions. We may incur significant research and development expenses prior to the receipt of revenue from a major new product group.

ASSET IMPAIRMENT

In connection with the planned integration of information technology following the Business Combination, we determined that certain projects no longer fit our needs. As a result the Company recognized impairment charges of \$17.0 million during the three and nine months ended September 30, 2022 related to capitalized implementation costs for a cloud computing arrangement. There were no asset impairments recognized during the three and nine months ended September 30, 2021. See Note 9 of Notes to the Condensed Consolidated Financial Statements included in Part I, Item 1 of this report for additional information.

INTEREST AND DIVIDEND INCOME

Interest and dividend income was \$0.3 million for the three months ended September 30, 2022 and 2021 and decreased 13.4% from \$0.9 million for the nine months ended September 30, 2021 to \$0.8 million for the nine months ended September 30, 2022. Interest and dividend income was down due to a decrease in the investment balance for the nine months ended September 30, 2022. Our total long-term investments decreased from \$83.9 million as of September 30, 2021 to \$50.1 million as of September 30, 2022.

INTEREST EXPENSE

Interest expense increased from less than \$0.1 million for the three months ended September 30, 2021 to \$1.3 million for the three months ended September 30, 2022. Interest expense increased from less than \$0.1 million for the nine months ended September 30, 2021 to \$1.4 million for the nine months ended September 30, 2022. The increase in interest expense during the three and nine months ended September 30, 2022 was primarily related to an increase in assumed debt associated with the Business Combination with ADVA and the new Wells Fargo Credit Agreement. See Note 13 and Note 14 of the Notes to Condensed Consolidated Financial Statements, included in Part I, Item 1 of this report.

NET INVESTMENT (LOSS) GAIN

We recognized a net investment loss of \$0.1 million and \$2.7 million for the three months ended September 30, 2021 and 2022, respectively and recognized a net investment gain of \$2.9 million and a net investment loss of \$10.8 million for the nine months ended September 30, 2021 and 2022, respectively. The fluctuations in our net investments were primarily attributable to changes in the fair value of our securities recognized during the period. We expect that any future market volatility could result in continued fluctuations in our investment portfolio. See Note 7 of the Notes to Condensed Consolidated Financial Statements, included in Part I, Item 1 of this report, and “Investing Activities” in “Liquidity and Capital Resources” below for additional information.

OTHER INCOME, NET

Other income, net, which primarily consisted of gains and losses on foreign currency transactions and income from excess material sales, increased from income of \$0.6 million for the three months ended September 30, 2021 to income of \$2.5 million for the three months ended September 30, 2022 and increased from income of \$2.7 million for the nine months ended September 30, 2021 to income of \$2.9 million for the nine months ended September 30, 2022.

INCOME TAX EXPENSE (BENEFIT)

Our effective tax rate changed from an expense of 14.1% of pre-tax income for the three months ended September 30, 2021, to a benefit of 8.8% of pre-tax income for the three months ended September 30, 2022 and changed from an expense of 354.5% of pre-tax income for the nine months ended September 30, 2021, to a benefit of 9.4% of pre-tax income for the nine months ended September 30, 2022. The change in the effective tax rate for the three and nine months ended September 30, 2022, was driven primarily by a change in our estimated tax rate as a result of the closing of the Business Combination with ADVA during the third quarter of 2022, the requirement to begin capitalizing Research and Development expenses for U.S. tax purposes beginning in 2022 as previously passed as part of the Tax Cuts and Jobs Act in December 2017 and the associated impact of those changes on our previously established valuation allowance.

NET LOSS ATTRIBUTABLE TO ADTRAN HOLDINGS, INC.

As a result of the above factors, net loss attributable to ADTRAN Holdings, Inc. increased from \$10.4 million for the three months ended September 30, 2021 to \$41.9 million for the three months ended September 30, 2022 and increased from \$4.4 million for the nine months ended September 30, 2021 to \$40.9 million for the nine months ended September 30, 2022.

LIQUIDITY AND CAPITAL RESOURCES

Liquidity

We have historically financed, our ongoing business with existing cash, investments and cash flow from operations. In the current supply environment we also expect to utilize our credit arrangements to manage our working capital needs. We have used, and expect to continue to use, existing cash, investments, credit arrangements and cash generated from operations for working capital, business acquisitions, shareholder dividends and other general corporate purposes, including product development activities to enhance our existing products and develop new products, expand our sales and marketing activities and fund capital expenditures. As of September 30, 2022, the Company has incurred \$25.2 million of transaction costs related to the Business Combination and expects to incur an estimated \$1.1 million of additional transaction costs. We believe that our cash and cash equivalents, investments, cash generated from operations and access to funds under the new Wells Fargo credit facility (described below) will be adequate to meet our operating and capital needs for at least the next 12 months.

As of September 30, 2022, cash on hand was \$111.1 million and short-term investments were \$0.8 million, which resulted in available short-term liquidity of \$111.9 million, of which \$77.0 million was held by our foreign subsidiaries. As of December 31, 2021, cash on hand was \$56.6 million and short-term investments were \$0.4 million, which resulted in available short-term liquidity of \$57.0 million, of which \$47.7 million was held by our foreign subsidiaries. Generally, we intend to permanently reinvest funds held outside the U.S., except to the extent that any of these funds can be repatriated without withholding tax.

Operating Activities

Net cash used in operating activities of \$42.7 million during the nine months ended September 30, 2022 decreased by \$71.6 million compared to net cash provided of \$28.9 million during the nine months ended September 30, 2021. This decrease was primarily due to net cash outflows from working capital, specifically, an inventory build related to component availability, an increase in accounts receivables and transaction costs related to the Business Combination partially offset by an increase in the average number of days payable to our trade suppliers. Additional details related to our working capital and its drivers are discussed below.

Net accounts receivable increased 90.5% from \$158.7 million as of December 31, 2021 to \$302.4 million as of September 30, 2022. There was an allowance for credit losses of \$0.2 million as of September 30, 2022 and no allowance for credit losses as of December 31, 2021. The increase in net accounts receivable was due primarily to the increase in sales volume related to the Business Combination with ADVA and an increase in sales volume in our ADTRAN, Inc. operations. Quarterly accounts receivable DSO decreased from 95 days as of December 31, 2021 to 82 days as of September 30, 2022. The decrease in DSO was due to customer and geographical mix associated with the Business Combination with ADVA and timing of sales within the quarter.

Other receivables increased 27.8% from \$11.2 million as of December 31, 2021 to \$14.4 million as of September 30, 2022. The increase in other receivables was primarily attributable to an increase in prepaid taxes associated with Business Combination with ADVA and contract assets partially offset by a decrease in our receivables for sales of raw materials and reclaimed duty drawbacks.

Quarterly inventory turnover was 3.0 turns as of December 31, 2021 and 3.1 turns as of September 30, 2022, respectively. Inventory increased 197.5% from \$139.9 million as of December 31, 2021 to \$416.2 million as of September 30, 2022. The increase in inventory was due to Business Combination with ADVA and strategic inventory buffer purchases given extended component lead times and availability constraints as well as new product ramp ups to ensure supply continuity. We expect inventory levels to fluctuate as we attempt to maintain sufficient inventory in response to supply chain uncertainties.

Accounts payable increased 169.3% from \$102.5 million as of December 31, 2021 to \$276.0 million as of September 30, 2022. The increase in accounts payable was primarily due to the increase in volume of operating costs associated with the Business Combination with ADVA, additional purchases of raw material inventory and extended payment terms. Accounts payable will fluctuate due to variations in the timing of the receipt of inventory, supplies and services and our subsequent payments for these purchases.

Investing Activities

Capital expenditures totaled approximately \$10.1 million and \$3.6 million for the nine months ended September 30, 2022 and 2021, respectively. These expenditures were primarily used to purchase manufacturing and test equipment, software, computer hardware and building improvements.

Our combined short-term and long-term investments decreased \$20.1 million from \$71.0 million as of December 31, 2021 to \$50.9 million as of September 30, 2022. This decrease reflects the impact of the sale of portions of our equity and fixed income investments and the net unrealized and realized gains and losses on our investments.

We typically invest all available cash not required for immediate use in operations, primarily in securities that we believe bear minimal risk of loss. See Note 7 of the Notes to Condensed Consolidated Financial Statements included in Part I, Item 1 of this report for additional information.

As of September 30, 2022, our corporate bonds, municipal bonds, asset-backed bonds, mortgage/agency bonds, U.S. government bonds and other government bonds were classified as available-for-sale and had a combined duration of 1.71 years with an average Standard & Poor's credit rating of AA-. Because our investment portfolio has a high-quality rating and contractual maturities of short duration, we are able to obtain prices for these bonds derived from observable market inputs, or for similar securities traded in an active market, on a daily basis.

Our long-term investments decreased 29.0% from \$70.6 million as of December 31, 2021 to \$50.1 million as of September 30, 2022. Our investments include various marketable equity securities classified as long-term investments with a fair market value of \$0.8 million and \$12.6 million as of September 30, 2022 and December 31, 2021, respectively. Long-term investments as of September 30, 2022 and December 31, 2021 also included \$21.5 million and \$26.9 million, respectively, related to our deferred compensation plans.

Financing Activities

Dividends

During the nine month periods ended September 30, 2022 and 2021, we paid dividends totaling \$15.9 million and \$13.1 million, respectively. The continued payment of dividends is at the discretion of the Company's Board of Directors and is subject to general business conditions and ongoing financial results of the Company.

Stock Option Exercises

To accommodate employee stock option exercises, the Company issued 0.4 million and 0.1 million shares of common stock and treasury stock which resulted in proceeds of \$4.8 million and \$2.6 million during the three months ended September 30, 2022 and 2021, respectively and issued 0.4 and 0.4 million shares of common stock and treasury stock which resulted in proceeds of \$5.4 million and \$6.1 million during the nine months ended September 30, 2022 and 2021, respectively.

Off-Balance Sheet Arrangements

We do not have off-balance sheet financing arrangements and have not engaged in any related party transactions or arrangements with unconsolidated entities or other persons that are reasonably likely to materially affect liquidity or the availability of or requirements for capital resources.

Cash Requirements

The following table summarizes the Company's material short- and long-term cash requirements from known obligations pursuant to certain contracts and commitments as of September 30, 2022, as well as an estimate of the timing in which such obligations and payments are expected to be satisfied.

<i>(In thousands)</i>	Total	2022	2023	2024	2025	2026	After 2026
Wells Fargo credit agreement ⁽¹⁾	\$ 60,000	\$ —	\$ 60,000	\$ —	\$ —	\$ —	\$ —
Nord/LB revolving line of credit ⁽²⁾	14,702	—	14,702	—	—	—	—
Syndicated credit agreement working capital line of credit ⁽³⁾	9,801	—	9,801	—	—	—	—
Syndicated credit agreement note payable ⁽⁴⁾	29,782	7,351	22,431	—	—	—	—
Purchase obligations ⁽⁵⁾	454,143	218,792	226,130	8,852	192	166	11
Operating lease obligations ⁽⁶⁾	32,027	2,209	8,421	7,098	5,838	3,354	5,107
Business combination transaction costs ⁽⁷⁾	1,144	1,144	—	—	—	—	—
Totals	\$ 601,599	\$ 229,496	\$ 341,485	\$ 15,950	\$ 6,030	\$ 3,520	\$ 5,118

(1) See description below.

(2) See description below.

(3) See description below.

(4) See description below.

(5) We have purchase obligations related to open purchase orders to our contract manufacturers, ODMs, component suppliers, service partners and other vendors. The settlement of our purchase obligations will occur at various dates beginning in 2022 and going through 2027. See Note 20 of the Notes to Condensed Consolidated Financial Statements, included in Part I, Item 1 of this report for more information.

(6) We have operating leases for office space, automobiles and various other equipment in the U.S. and in certain international locations. Our operating leases had remaining lease terms ranging from one month to 75 months as of September 30, 2022.

(7) Pursuant to the Business Combination Agreement, the Company is bearing the transaction costs of the Business Combination attributable to the Company. For additional information on the Business Combination, see Note 2 of Notes to Condensed Consolidated Financial Statements included in Part I, Item 1 of this report.

New Wells Fargo Credit Agreement

On July 18, 2022, ADTRAN Holdings, Inc. and ADTRAN, Inc., as the borrower, entered into a credit agreement with a syndicate of banks, including Wells Fargo Bank, National Association, as administrative agent ("Administrative Agent"), and the other lenders named therein (the "Credit Agreement"). The Credit Agreement allows for borrowings of up to \$100 million in aggregate principal amount, subject to being increased to up to \$400 million in aggregate principal amount upon the Company or Borrower's execution of a DPLTA with ADVA or a parent of ADVA, among other conditions (the "Senior Credit Facilities Increase"). On October 18, 2022, the Board of Directors of the Company, and the management board of ADVA, agreed on a final draft of a DPLTA between the Company, as the controlling company, and ADVA, as the controlled company. See Note 21 of the Notes to Condensed Consolidated Financial Statements for further information.

As of September 30, 2022, ADTRAN, Inc.'s borrowings under the revolving line of credit were \$60.0 million in tranches that mature during the fourth quarter of 2022 and can either be repaid or borrowed again for a one month, three month or six month period. In addition, we may issue up to \$25 million in letters of credit against our \$100 million dollar total facility. As of September 30, 2022, we had a total of \$16.0 million in letters of credit with ADTRAN, Inc. outstanding against our eligible borrowings, leaving a net amount of \$24.0 million available for future borrowings. Any future credit extensions under the Credit Agreement are subject to customary conditions precedent. The proceeds of any loans are expected to be used for general corporate purposes and to pay a portion of the Exchange Offer consideration.

All U.S. borrowings under the Credit Agreement (other than swingline loans, which will bear interest at the Base Rate (as defined below)) will bear interest, at the Company's option, at a rate per annum equal to (A)(i) the highest of (a) the federal funds rate (i.e., for any day, the rate per annum equal to the weighted average of the rates on overnight federal funds transactions with members of the Federal Reserve System, as published by the Federal Reserve Bank of New York on the business day next succeeding such day) plus ½ of 1%, (b) the prime commercial lending rate of the Administrative Agent, as established from time to time at its principal U.S. office (which such rate is an index or base rate and will not necessarily be its lowest or best rate charged to its customers or other banks), and (c) the daily Adjusted Term SOFR (as defined in the Credit Agreement) for a one-month tenor plus 1%, plus (ii) the applicable rate, ranging from 0.5% to 1.25% (the "Base Rate"), or (B) the sum of the Adjusted Term SOFR (as defined in the Credit Agreement) plus the applicable rate, ranging from 1.4% to 2.15%, provided that such sum is subject to a 0.0% floor (such loans utilizing this interest rate, "SOFR Loans"). All E.U. borrowings under the Credit Agreement (other than swingline loans) will bear interest at a rate per annum equal to the sum of the Euro Interbank Offered Rate as administered by the European Money Markets Institute (or a comparable or successor administrator approved by the Administrative Agent) plus the applicable rate, ranging from 1.5% to 2.25%, provided that such sum is subject to a 0.0% floor (such loans utilizing this interest rate, "EURIBOR Loans"). The applicable rate is based on the consolidated net leverage ratio of the Company and its subsidiaries as determined pursuant to the terms of the Credit Agreement. Default interest is 2.00% per annum in excess of the rate otherwise applicable in the case of any overdue principal or any other overdue amount.

In addition to paying interest on outstanding principal under the Credit Agreement, the Company is required to pay a commitment fee to the lenders under the Credit Agreement in respect of unutilized revolving loan commitments and an additional commitment ticking fee at a rate of 0.25% on the commitment amounts of each lender until the earliest of (i) the date of the Senior Credit Facilities Increase, (ii) the Company's voluntary termination of the credit facility commitment, and (iii) December 31, 2023. The Company is also required to pay a participation fee to the Administrative Agent for the account of each lender with respect to the Company's participations in letters of credit at the then applicable rate for SOFR Loans.

The Credit Agreement permits the Company to prepay any or all of the outstanding loans or to reduce the commitments under the Credit Agreement without incurring premiums or penalties (except breakage costs with respect to SOFR Loans and EURIBOR Loans). The Credit Agreement contains customary affirmative and negative covenants, including incurrence covenants and certain other limitations on the ability of the Company and the Company's subsidiaries to incur additional debt, guarantee other obligations, grant liens on assets, make investments, dispose of assets, pay dividends or other payments on capital stock, make restricted payments, engage in mergers or consolidations, engage in transactions with affiliates, modify its organizational documents, and enter into certain restrictive agreements. It also contains customary events of default (subject to customary cure periods and materiality thresholds). Furthermore, the Credit Agreement requires that the Consolidated Total Net Leverage Ratio (as defined in the Credit Agreement) of the Company and its subsidiaries tested on the last day of each fiscal quarter not exceed 3.25 to 1.0 through September 30, 2024 and 2.75 to 1.00 from December 31, 2024 and thereafter, subject to certain exceptions. The Credit Agreement also requires that the Consolidated Interest Coverage Ratio (as defined in the Credit Agreement) of the Company and its subsidiaries tested on the last day of each fiscal quarter not fall below 3.00 to 1.00. The Credit Agreement matures in July 2027 but provides the Company with an option to request extensions subject to customary conditions.

Finally, pursuant to a Collateral Agreement, dated as of July 18, 2022, among the Company, ADTRAN, Inc. and the Administrative Agent, ADTRAN, Inc.'s obligations under the Credit Agreement are secured by substantially all of the assets of ADTRAN, Inc. and the Company. In addition, the Company has guaranteed ADTRAN, Inc.'s obligations under the Credit Agreement pursuant to a Guaranty Agreement, dated as of July 18, 2022, by ADTRAN, Inc. and the Company in favor of the Administrative Agent.

Nord/LB Revolving Line of Credit

On August 8, 2022, ADVA entered into a \$14.7 million revolving line of credit with Norddeutsche Landesbank - Girozentrale (Nord/LB) that bears interest of Euro Short Term Rate + 1.4% and which matures in August 2023. During the term of the loan, ADVA is obligated to maintain an adjusted net debt to cover ratio that is equal to or less than 2.75. The revolving line of credit grants Nord/LB a lien on assets of any kind which come into the possession of ADVA. Assets of any kind includes goods, foreign exchange, securities including interest, annuity and profit notes, collective securities deposits, subscription rights, checks, bills of exchange, bills of lading, storage and loading slips. As of September 30, 2022, ADVA's borrowings under the revolving line of credit were \$14.7 million.

Syndicated Credit Agreement Working Capital Line of Credit

In September 2018, ADVA entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow up to \$9.8 million as part of a working capital line of credit. The interest rate for the working capital line of credit is adjusted periodically based on a defined leverage ratio and is currently EURIBOR plus 1.35% as of September 30, 2022. The working capital line of credit matures in September 2023. As of September 30, 2022, borrowings under the working capital line of credit totaled \$9.8 million.

Syndicated Credit Agreement Note Payable

In September 2018, ADVA entered into a syndicated credit agreement with Bayerische Landesbank and Deutsche Bank AG Branch German Business to borrow \$63.7 million. The interest rate for the note payable is adjusted periodically based on a defined leverage ratio and is currently EURIBOR plus 1.35% as of September 30, 2022. The note payable matures in September 2023.

Proposed Domination and Profit and Loss Transfer Agreement

On October 18, 2022, the Board of Directors of the Company and the management board of ADVA agreed on a final draft of a DPLTA between the Company, as the controlling company, and ADVA, as the controlled company. The parties' execution of the DPLTA remains subject to approval of the DPLTA by shareholders of ADVA with 75% of the votes cast in an extraordinary general meeting, which is scheduled to be held on November 30, 2022. If and when signed, effectiveness of the DPLTA is subject to the subsequent registration of the DPLTA with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) at the registered offices of ADVA, with such effectiveness to occur no earlier than January 1, 2023.

Pursuant to Sections 302 *et seq.* of the German Stock Corporation Act, under the proposed DPLTA, we would be obligated to compensate any annual net loss of ADVA. Additionally, pursuant to the terms of the proposed DPLTA, each ADVA shareholder (other than the Company) will be offered to elect either (1) to remain an ADVA shareholder and receive from us an Annual Recurring Compensation payment, or (2) to receive Exit Compensation. Assuming all of the minority holders of currently outstanding ADVA shares were to elect the second option, the Company would be obligated to make aggregate Exit Compensation payments of approximately EUR 309.8 million (or approximately \$303.6 million at the exchange rate in effect on September 30, 2022). Shareholders electing the first option of Annual Recurring Compensation may later elect the second option. Our obligation to pay Annual Recurring Compensation under the proposed DPLTA would lead to a continuing payment obligation, which would amount to approximately \$10.4 million per year assuming none of the minority ADVA shareholders were to elect Exit Compensation and no adjustment is made to the Annual Recurring Compensation Payment Amount between now and November 30, 2022. Any such adjustments could materially increase the amount of the Annual Recurring Compensation Payment Amount. The amount of this Annual Recurring Compensation payment obligation pursuant to the proposed DPLTA could exceed the amount of dividends that otherwise might be distributed by ADVA to minority shareholders and would even have to be paid if ADVA incurs losses, which could have a material adverse impact on our financial results and financial condition.

Other Cash Requirements

We have committed to invest up to an aggregate of \$5.0 million in a private equity fund, of which \$4.9 million has been invested as of September 30, 2022.

During the nine months ended September 30, 2022, there have been no other material changes in cash requirements from those discussed in the 2021 Form 10-K other than the Company's commitments and contingencies that were assumed due to the Business Combination with ADVA that occurred on July 15, 2022.

Performance Bonds

Certain contracts, customers and jurisdictions in which we do business require us to provide various guarantees of performance such as bid bonds, performance bonds and customs bonds. As of September 30, 2022 and December 31, 2021, we had commitments related to these bonds totaling \$21.1 million and \$22.9 million, respectively, which expire at various dates through April 2025. In general we would only be liable for the amount of these guarantees in the event of default under each contract, the probability of which we believe is remote.

Critical Accounting Policies and Estimates

An accounting policy is deemed to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made, if different estimates reasonably could have been used or if changes in the accounting estimate that are reasonably likely to occur could materially impact the results of financial operations. Several accounting policies, as described in Note 1 of Notes to the Consolidated Financial Statements included in Part I, Item 1 of this report, require material subjective or complex judgment and have a significant impact on our financial condition and results of operations, as applicable.

We believe the critical accounting policies affect our more significant judgments and estimates used in the preparation of our Condensed Consolidated Financial Statements. During the nine months ended September 30, 2022, there were no significant changes to our critical accounting policies and estimates as described in the financial statements contained in the 2021 Form 10-K.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to financial market risks, including changes in foreign currency rates, prices of marketable equity and fixed-income securities. In addition, the ongoing global pandemic raises the possibility of an extended economic downturn and has caused volatility in financial markets. The primary objective of the large majority of our investment activities is to preserve principal while at the same time achieving appropriate yields without significantly increasing risk. To achieve this objective, a majority of our marketable securities are investment grade, fixed-rate bonds and municipal money market instruments denominated in U.S. dollars. Our investment policy provides limitations for issuer concentration, by restricting, at the time of purchase, the concentration in any one issuer to 5% of the market value of our total investment portfolio.

We maintain depository investments with certain financial institutions. Although these depository investments may exceed government insured depository limits, we have evaluated the creditworthiness of these financial institutions and determined the risk of material financial loss due to exposure of such credit risk to be minimal. As of September 30, 2022, \$105.9 million of our cash and cash equivalents, primarily certain domestic money market funds and foreign depository accounts, were in excess of government provided insured depository limits.

As of September 30, 2022, approximately \$30.0 million of our cash and investments may be directly affected by changes in interest rates. As of September 30, 2022, we held \$1.4 million of cash and variable-rate investments where a change in interest rates would impact our interest income. A hypothetical 50 basis point decline in interest rates as of September 30, 2022, assuming all other variables remain constant, would reduce annualized interest income on our cash and investments by less than \$0.1 million. In addition, we held \$28.7 million of fixed-rate bonds whose fair values may be directly affected by a change in interest rates. A hypothetical 50 basis point increase in interest rates as of September 30, 2022, assuming all other variables remain constant, would reduce the fair value of our fixed-rate bonds by approximately \$0.2 million.

We are exposed to changes in foreign currency exchange rates to the extent that such changes affect our revenue and gross margin on revenue derived from some international customers, other operating expenses, and assets and liabilities held in non-functional currencies related to our foreign subsidiaries. Our primary exposures to foreign currency exchange rate movements are with our European subsidiaries including our majority ownership of ADVA, whose functional currency is the Euro, our Australian subsidiary, whose functional currency is the Australian dollar, and our U.K. subsidiary, who transacts in the British pound sterling with a U.S. dollar functional currency. Our revenue is primarily denominated in the respective local or functional currency of the subsidiary and paid in that subsidiary's functional currency or certain other local currency. The majority of our global supply chain payments are in U.S. dollars and some of our operating expenses are invoiced and paid in certain local currencies (approximately 33.1% and 22.8% of total operating expense for the three and nine months ended September 30, 2022, respectively). Therefore, our revenues, gross margins, operating expenses and operating income (loss) are all subject to foreign currency fluctuations. As a result, changes in currency exchange rates could cause variations in our operating income (loss).

We have certain customers who are invoiced or suppliers that we pay in a non-functional currency; therefore, changes in the monetary exchange rates to the entity's functional currency may adversely affect our results of operations and financial condition. To manage the volatility relating to these typical business exposures, we may enter into various derivative transactions, when appropriate. We do not hold or issue derivative instruments for trading or other speculative purposes. For balances as of September 30, 2022, all non-functional currencies billed would result in a combined hypothetical gain or loss of \$12.3 million if the U.S. dollar weakened or strengthened 10% against the billing currencies. All non-functional currencies invoiced by suppliers would result in a combined hypothetical gain or loss of \$4.6 million if the U.S. dollar weakened or strengthened 10% against the billing currencies. This change represents an increase in the amount of hypothetical gain or loss compared to prior periods and is mainly due to an increase in U.S. dollar denominated billings in a non-U.S. dollar denominated subsidiary. Although we do not currently hold any derivative instruments (other than the Swap as defined in Part II, Item 5 of this Quarterly Report on Form 10-Q), any gain or loss would be partially mitigated by any derivative instruments held.

As of September 30, 2022, we had certain material contracts subject to currency revaluation, including accounts receivable, accounts payable and lease liabilities, denominated in foreign currencies. As of September 30, 2022, we had 39 forward rate contracts outstanding with a fair value of \$0.7 million.

For further information about the fair value of our investments as of September 30, 2022, see Note 7 of the Notes to Condensed Consolidated Financial Statements included in Part I, Item 1 of this report.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to provide reasonable assurance that the information required to be disclosed by us in reports that we file or submit under the Securities Exchange Act of 1934, as amended (the “Exchange Act”), is recorded, processed, summarized and reported within the time periods specified in the rules and forms promulgated by the SEC, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Because of the inherent limitations to the effectiveness of any system of disclosure controls and procedures, no evaluation of disclosure controls and procedures can provide absolute assurance that all control issues, if any, with a company have been prevented or detected on a timely basis. Even disclosure controls and procedures determined to be effective can only provide reasonable assurance that their objectives are achieved.

As of the end of the period covered by this report, an evaluation was carried out by management, including our Chief Executive Officer and our Chief Financial Officer, of the effectiveness of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) promulgated under the Exchange Act. Based on that evaluation, which excluded the impact of the acquisition of a controlling equity stake in ADVA discussed below, our Chief Executive Officer and our Chief Financial Officer concluded that, as of the end of the period covered by this report, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting.

On July 15, 2022, the Company acquired 33,957,538 bearer shares of ADVA, or 65.43% of ADVA’s outstanding bearer shares as of such date, as further described in Note 2 of the Notes to the Condensed Consolidated Financial Statements. At September 30, 2022, ADVA’s assets represented approximately 66.0% of our consolidated assets. For the three and nine months ended September 30, 2022, ADVA’s revenues represented approximately 48.1% and 24.6% of our consolidated revenues, respectively, and loss before income taxes represented approximately 23.3% and 23.7% of our consolidated loss before income taxes, respectively. As permitted by SEC guidance, we currently exclude ADVA in our evaluation of internal controls over financial reporting and related disclosure controls and procedures for the first year after the Business Combination. However, we are in the process of extending our oversight and monitoring processes that support our internal control over financial reporting and disclosure controls and procedures to include ADVA’s operations. There were no other changes in the Company’s internal control over financial reporting that occurred during the most recent fiscal quarter covered by this report that have materially affected, or are reasonably likely to materially affect, its internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time we are subject to or otherwise involved in various lawsuits, claims, investigations and legal proceedings that arise out of or are incidental to the conduct of our business (collectively, “Legal Matters”), including those relating to employment matters, patent rights, regulatory compliance matters, stockholder claims, and contractual and other commercial disputes. Such Legal Matters, even if not meritorious, could result in the expenditure of significant financial and managerial resources. Additionally, an unfavorable outcome in a Legal Matter, including in a patent dispute, could require the Company to pay damages, entitle claimants to other relief, such as royalties, or could prevent the Company from selling some of its products in certain jurisdictions. At this time, we are unable to predict the outcome of or estimate the possible loss or range of loss, if any, associated with these Legal Matters.

ITEM 1A. RISK FACTORS

A list of factors that could materially affect our business, financial condition or operating results is described in Part I, Item 1A, “Risk Factors” in the 2021 Form 10-K. There have been no material changes to our risk factors from those disclosed in Part I, Item 1A, “Risk Factors” in the 2021 Form 10-K, other than as described in the risk factors below.

We may fail to realize the anticipated strategic and financial benefits sought from the Business Combination.

We may not realize all of the anticipated benefits of the Business Combination. The success of the Business Combination will depend on, among other things, our ability to combine our business with ADVA’s business in a manner that facilitates growth as a provider of fiber networking solutions and realizes anticipated cost savings. We believe that the Business Combination will provide an opportunity for revenue growth in optical transport solutions, fiber access solutions and subscriber solutions.

Additionally, our ability to realize anticipated benefits of the Business Combination could be affected by a number of other factors, including: the need for greater than expected cash or other financial resources or management time in order to integrate ADVA; increases in other expenses related to the Business Combination, including restructuring and other exit costs; the timing and impact of purchase accounting adjustments; accounting for IFRS to US GAAP adjustments; difficulties in employee or management integration; our ability to enter into and the timing of effectiveness of a DPLTA; and unanticipated liabilities associated with the Business Combination. Any potential cost-saving opportunities may take several years following the Business Combination to implement, and any results of these actions may not be realized for several years thereafter, if at all.

However, we must successfully combine the business in a manner that permits these anticipated benefits to be realized. In addition, we must achieve the anticipated growth and cost savings without adversely affecting current revenues and investments in future growth. Further, providing integrated fiber networking solutions can be highly complex and can involve the design, development, implementation and operation of new solutions and the transitioning of clients from traditional platforms to new platforms. If we are not able to effectively provide different solutions and successfully achieve the growth and cost savings objectives, the anticipated benefits of the Business Combination may not be realized fully, or at all, or may take longer to realize than expected.

We may experience operational challenges, negative synergies and loss of customers.

Integrating the operations and personnel of the ADTRAN and ADVA businesses involves complex operational, technological and personnel-related challenges. This process will be time-consuming and expensive, and it may disrupt our business. Difficulties in the integration of the business, which may result in significant costs and delays, include:

- managing a significantly larger company;
- integrating and unifying the offerings and services available to customers and coordinating distribution and marketing efforts;
- coordinating corporate and administrative infrastructures and harmonizing insurance coverage;
- unanticipated issues in coordinating accounting, information technology, communications, administration and other systems;
- difficulty addressing possible differences in corporate cultures and management philosophies;
- challenges associated with converting ADVA’s financial reporting from IFRS to accounting principles generally accepted in the U.S. (U.S. GAAP) and compliance with the Sarbanes-Oxley Act of 2002, as amended, and the rules promulgated thereunder by the SEC;
- legal and regulatory compliance;

- creating and implementing uniform standards, controls, procedures and policies;
- litigation relating to the transactions contemplated by a reorganization, including shareholder litigation;
- diversion of management's attention from other operations;
- maintaining existing agreements and relationships with customers, distributors, providers and vendors and avoiding delays in entering into new agreements with prospective customers, distributors, providers and vendors;
- realizing the benefits from our restructuring programs;
- unforeseen and unexpected liabilities related to the Business Combination, including the risk that certain executive officers may be subject to additional fiduciary duties and liability;
- identifying and eliminating redundant and underperforming functions and assets;
- effecting actions that may be required in connection with obtaining regulatory approvals; and
- a deterioration of credit ratings.

The Company may lose customers or its share of customers' business as entities that were customers of both ADTRAN and AVDA seek to diversify their suppliers of services and products.

While we have agreed on a final draft of a DPLTA with ADVA, we may not be successful in entering into the DPLTA, and the effectiveness of a DPLTA may be delayed as a result of litigation or otherwise, which may have an adverse effect on the ability to realize synergies and cost reductions and the market value of our shares.

On October 18, 2022, the Board of Directors of the Company and the management board of ADVA agreed on a final draft of a domination and profit and loss transfer agreement within the meaning of Sec. 291 para. 1 of the German Stock Corporation Act (*Aktiengesetz*) (a "DPLTA"), between the Company, as the controlling company, and ADVA, as the controlled company. The parties' execution of the DPLTA remains subject to the approval of the DPLTA by shareholders of ADVA with 75% of the votes cast in an extraordinary general meeting, which meeting is scheduled to be held on November 30, 2022. Additionally, effectiveness of the DPLTA will be subject to registration of the DPLTA with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) at the registered offices of ADVA, with such effectiveness to occur no earlier than January 1, 2023. If the approval of the DPLTA is contested or its effectiveness is delayed as a result of litigation or otherwise or does not occur, we may be unable to initiate any transactions or measures that are disadvantageous to ADVA unless we provide adequate compensation to ADVA. If the disadvantage caused by any transaction or other measure cannot be assessed or compensated, we will be prohibited from initiating such transaction or measure. Accordingly, the lack of a DPLTA may preclude us from implementing certain transactions related to the integration of ADVA with our business, including realizing synergies. The failure to realize synergies may lead to a decline of the value of our shares.

Furthermore, if entry into a DPLTA with ADVA is delayed or does not occur, we will be prevented from increasing the aggregate principal amount available under our Credit Agreement from \$100 million to \$400 million. This lack of access to additional capital could have a material adverse effect on our financial condition.

We may enter into a DPLTA with ADVA, which may have a material adverse effect on our financial results and condition.

On October 18, 2022, the Board of Directors of the Company and the management board of ADVA agreed on a final draft of a DPLTA, the execution of which is subject to ADVA shareholder approval and the effectiveness of which is subject registration of the DPLTA with the commercial register of the local court at ADVA's registered offices. In the event that we are able to enter into a DPLTA with ADVA and the DPLTA becomes effective, the DPLTA would allow us to issue binding instructions to the management board of ADVA, which could be disadvantageous to ADVA and result in a decline in the business and earnings power of ADVA. This could have a material adverse effect on the assets, financial position and income of ADVA, which in turn could have a material adverse effect on our financial condition.

Furthermore, pursuant to Sections 302 *et seq.* of the German Stock Corporation Act, under the proposed DPLTA, we would be obligated to compensate any annual net loss of ADVA. Additionally, pursuant to the terms of the proposed DPLTA, each ADVA shareholder (other than the Company) will be offered to elect either (1) to remain an ADVA shareholder and receive from us an Annual Recurring Compensation payment or (2) to receive Exit Compensation. Assuming all of the minority holders of currently outstanding ADVA shares were to elect the second option, the Company would be obligated to make aggregate Exit Compensation payments of approximately EUR 309.8 million (or approximately \$303.6 million at the exchange rate in effect on September 30, 2022). Shareholders electing the first option of Annual Recurring Compensation may later elect the second option for as long as the offer for the Exit Compensation is open. Our obligation to pay annual Recurring Compensation under the proposed DPLTA would lead to a continuing payment obligation, which would amount to approximately \$10.4 million per year assuming none of the minority ADVA shareholders

were to elect Exit Compensation and no adjustment is made to the Annual Recurring Compensation Payment Amount between now and November 30, 2022. Any such adjustments could materially increase the amount of the Annual Recurring Compensation Payment Amount. The amount of this Annual Recurring Compensation payment obligation pursuant to the proposed DPLTA could exceed the amount of dividends that otherwise might be distributed by ADVA to minority shareholders and would even have to be paid if ADVA incurs losses, which could have a material adverse impact on our financial results and financial condition.

We are exposed to additional litigation risk and uncertainty with respect to the remaining minority shareholders of ADVA.

As a result of the Business Combination, we continue to be exposed to litigation risk and uncertainty associated with the remaining minority shareholders of ADVA. Our willingness and/or ability to acquire all issued and outstanding shares of ADVA, and the timing of any such potential acquisition, is uncertain. In addition, the terms of the proposed DPLTA, if we enter into the proposed DPLTA with ADVA, including the adequacy of compensation payments to minority ADVA shareholders under the terms of the DPLTA, are likely to be challenged by minority shareholders of ADVA by initiating court-led appraisal proceedings under German law. We cannot rule out that the competent court in such appraisal proceeding may adjudicate higher Exit Compensation or Annual Recurring Compensation payment obligations (in each case, including interest thereon) than agreed upon in a DPLTA, the financial impact and timing of which is uncertain.

Negative publicity related to integration measures may adversely affect us.

Political and public sentiment in connection with the Business Combination and associated post-closing integration measures may result in a significant amount of adverse press coverage and other adverse public statements affecting the parties to the Business Combination. Adverse press coverage and public statements, whether or not driven by political or popular sentiment, may also result in legal claims or in investigations by regulators, legislators and law enforcement officials. Responding to these investigations and lawsuits, regardless of the ultimate outcome of the proceedings, can divert the time and effort of senior management from operating the business. Addressing any adverse publicity, governmental scrutiny or enforcement or other legal proceedings could be time-consuming and expensive and, regardless of the factual basis for the assertions being made, could have a negative impact on the reputation of the Company, ADVA and ADTRAN, Inc., on the morale and performance of their employees and on the relationships with regulators, suppliers and customers. It may also have a negative impact on our ability to take timely advantage of various business and market opportunities. The direct and indirect effects of negative publicity, and the demands of responding to and addressing it, may have a material adverse effect on the Company's businesses and cash flows, financial condition and results of operations

We have incurred and expect to continue to incur significant transaction fees and costs in connection with the Business Combination and post-closing integration efforts.

We have incurred and expect to continue to incur a number of significant non-recurring implementation and restructuring costs associated with combining the operations of ADTRAN and ADVA. In addition, we have incurred significant banking, legal, accounting and other transaction fees and costs related to the Business Combination. As of September 30, 2022, we have incurred \$25.2 million of transaction costs related to the Business Combination and expect to incur an estimated \$1.1 million of additional transaction costs related to the Business Combination.

Additional costs substantially in excess of currently anticipated costs may also be incurred in connection with the integration of the businesses of ADTRAN and ADVA.

Any cost savings or other efficiencies related to the integration of the businesses that could offset these transaction- and combination-related costs over time may not be achieved in the near term, or at all. In addition, the timeline in which cost savings are expected to be realized is lengthy and may not be achieved. Failure to realize these synergies and cost reductions and other efficiencies in a timely manner or at all could have a material adverse effect on our business and cash flows, financial condition and results of operations.

We incurred a substantial amount of indebtedness in connection with the Business Combination. Our failure to meet our debt service obligations could have a material adverse effect on our business, financial condition and results of operations.

Subsequent to the closing of the Business Combination, we entered into a new credit facility providing for borrowings of up to \$100 million subject to being increased up to \$400 million, and under which we have currently incurred \$60.0 million amount of indebtedness. Additionally, subsequent to the closing of the Business Combination, ADVA entered into a new revolving line of credit providing for borrowings of up to \$14.7 million and under which ADVA has currently incurred \$14.7 million amount of indebtedness. Our increased indebtedness could adversely affect our operations and liquidity. Our level of indebtedness could, among other things:

- make it more difficult for us to pay or refinance our debts as they become due during adverse economic and industry conditions because we may not have sufficient cash flows to make its scheduled debt payments;

- cause us to use a larger portion of our cash flow to fund interest and principal payments, reducing the availability of cash to fund working capital, capital expenditures, research and development and other business activities;
- limit our ability to take advantage of significant business opportunities, such as acquisition opportunities, and to react to changes in market or industry conditions;
- cause us to be more vulnerable to general adverse economic and industry conditions;
- cause us to be disadvantaged compared to competitors with less leverage; and
- limit our ability to borrow additional money in the future to fund working capital, capital expenditures, research and development and other general corporate purposes.

Our ability to satisfy our debt obligations and renew the credit facility is dependent upon our future performance and other risk factors discussed in this section. However, there can be no assurance that we will be able to manage any of these risks successfully. In addition, the credit agreement governing our indebtedness contain restrictive covenants that limit our ability to engage in activities that may be in our long-term best interest. Our failure to comply with those covenants could result in an event of default that, if not cured or waived, could result in the acceleration of all its debt.

We may also incur additional long-term debt and working capital lines of credit to meet future financing needs, which would increase our total indebtedness. Although the terms of its existing and future credit agreements and of the indentures governing its debt contain restrictions on the incurrence of additional debt, including secured debt, these restrictions are subject to a number of important exceptions and debt incurred in compliance with these restrictions could be substantial. If we or our restricted subsidiaries incur significant additional debt, the related risks that we face could intensify.

Risks relating to the businesses of ADVA may have a significant adverse impact on our business and financial performance.

Due to the size and geographic reach of our operations following the completion of the Business Combination, a wide range of factors could materially affect our operations and financial performance. In addition to the risks described herein, the risks relating to ADVA's business described in ADVA's Risk and Opportunity Report under the Combined Management Report in ADVA's 2021 Annual Report and 2022 Six-Month Report, which can be found at <https://www.adva.com/en/about-us/investors/financial-results/financial-reports>, may significantly impact our business and financial performance.

We may be unable to successfully retain and motivate our personnel, including personnel at ADVA.

The success of the Business Combination will depend, in part, on our ability to retain the talents and dedication of key employees, including key decision-makers, currently employed by ADTRAN, Inc. and ADVA. Such employees may decide not to remain with us as a result of the Business Combination. If key employees terminate their employment, or if an insufficient number of employees are retained to maintain effective operations, our business activities may be adversely affected and management's attention may be diverted from successfully integrating ADTRAN and ADVA to hiring suitable replacements, all of which may cause our business to deteriorate. We may not be able to locate suitable replacements for any key employees who leave or offer employment to potential replacements on reasonable terms. In addition, we may not be able to motivate certain key employees due to organizational changes, reassignments of responsibilities, the perceived lack of appropriate opportunities for advancement or other reasons. If we fail to successfully retain and motivate the employees of ADTRAN and/or ADVA, relevant capabilities and expertise may be lost which may have an adverse effect on our cash flows, financial condition, results of operations and the business operations in general.

The terms of our and ADVA's credit agreements restrict our current and future operations, particularly our ability to respond to changes or to take certain actions.

Our Credit Agreement, ADVA's syndicated credit agreements with Bayerische Landesbank and Deutsche Bank AG Branch, and ADVA's revolving line of credit with Norddeutsche Landesbank - Girozentrale contain a number of restrictive covenants that impose significant operating and financial restrictions on us and/or our subsidiaries and may limit our ability to engage in acts that may be in our long-term best interest, including restrictions on our and/or our subsidiaries' ability to:

- incur additional indebtedness and guarantee indebtedness;
- pay dividends or make other distributions or repurchase or redeem capital stock;
- prepay, redeem or repurchase certain debt;
- issue certain preferred stock or similar equity securities;
- make loans and investments;

- sell assets;
- incur liens;
- enter into transactions with affiliates;
- alter the businesses we conduct; and
- consolidate, merge or sell all or substantially all of our assets.

In addition, the restrictive covenants in such credit facilities require us and/or our subsidiaries to maintain specified financial ratios and satisfy other financial condition tests. Our ability to meet those financial ratios and tests can be affected by events beyond our control, and we may be unable to meet them.

A breach of the covenants or restrictions under such credit facilities could result in an event of default. Such a default may allow the creditors to accelerate the related debt and may result in the acceleration of any other debt to which a cross-acceleration or cross-default provision applies. In addition, an event of default under such credit facilities would permit the lenders to terminate all commitments to extend further credit under the applicable facility. Furthermore, if we were unable to repay the amounts due and payable under such credit facilities, those lenders could proceed against the collateral granted them to secure that indebtedness. In the event our lenders or noteholders accelerate the repayment of our borrowings, we and our subsidiaries may not have sufficient assets to repay that indebtedness. As a result of these restrictions, we may be:

- limited in how we conduct our business;
- unable to raise additional debt or equity financing to operate during general economic or business downturns; and
- unable to compete effectively or to take advantage of new business opportunities.

These restrictions may affect our ability to grow in accordance with our strategy. In addition, our financial results, our substantial indebtedness and our credit ratings could adversely affect the availability and terms of our financing.

We may be unable to successfully and effectively manage and integrate acquisitions, divestitures and other significant transactions, which could harm our operating results, business and prospects.

As part of our business strategy, including and in addition to the acquisition of a majority equity stake in ADVA upon the closing of the Exchange Offer, we frequently engage in discussions with third parties regarding possible investments, acquisitions, strategic alliances, joint ventures, divestitures and outsourcing arrangements, and we enter into agreements relating to such transactions in order to further our business objectives. In order to pursue this strategy successfully, we must identify suitable candidates, successfully complete transactions, some of which may be large and complex, and manage post-closing issues such as the integration of acquired companies or employees and the divestiture of combined businesses, operations and employees. Integration, divestiture and other risks of these transactions can be more pronounced in larger and more complicated transactions, or if multiple transactions are pursued simultaneously. If we fail to identify and successfully complete transactions that further our strategic objectives, we may be required to expend resources to develop products and technology internally. This may put us at a competitive disadvantage and we may be adversely affected by negative market perceptions, any of which may have a material adverse effect on our revenue, gross margin and profitability.

Integration and divestiture issues are complex, time-consuming and expensive and, without proper planning and implementation, could significantly disrupt our business. The challenges involved in integrating and divesting include:

- combining service and product offerings and entering into new markets in which we are not experienced;
- convincing customers and distributors that any such transaction will not diminish client service standards or business focus, preventing customers and distributors from deferring purchasing decisions or switching to other suppliers or service providers (which could result in additional obligations to address customer uncertainty), and coordinating service, sales, marketing and distribution efforts;
- consolidating and rationalizing corporate information technology infrastructure, which may include multiple legacy systems from various acquisitions and integrating software code;
- minimizing the diversion of management attention from ongoing business concerns;
- persuading employees that business cultures are compatible, maintaining employee morale and retaining key employees, integrating employees into our company, correctly estimating employee benefit costs and implementing restructuring programs;

- coordinating and combining administrative, service, manufacturing, research and development and other operations, subsidiaries, facilities and relationships with third parties in accordance with local laws and other obligations while maintaining adequate standards, controls and procedures;
- our responsibility for the liabilities of the businesses we acquire, some of which we may not anticipate, including costs of third-party advisors to resolve disputes;
- achieving savings from supply chain and administration integration; and
- efficiently divesting combined business operations which may cause increased costs as divested businesses are de-integrated from embedded systems and operations.

We evaluate and enter into these types of transactions on an ongoing basis. We may not fully realize all of the anticipated benefits of any transaction and the time frame for achieving benefits of a transaction may depend partially upon the actions of employees, suppliers or other third parties. In addition, the pricing and other terms of our contracts for these transactions require us to make estimates and assumptions at the time we enter into these contracts, and, during the course of our due diligence, we may not identify all of the factors necessary to estimate costs accurately. Any increased or unexpected costs, unanticipated delays or failure to achieve contractual obligations could make these agreements less profitable or unprofitable.

Managing these types of transactions requires varying levels of management resources, which may divert our attention from other business operations. These transactions could result in significant costs and expenses and charges to earnings, including those related to severance pay, early retirement costs, employee benefit costs, asset impairment charges, charges from the elimination of duplicative facilities and contracts, in-process research and development charges, inventory adjustments, assumed litigation, regulatory compliance and other liabilities, legal, accounting and financial advisory fees and required payments to executive officers and key employees under retention plans. Moreover, we could incur additional depreciation and amortization expense over the useful lives of certain assets acquired in connection with these transactions, and, to the extent that the value of goodwill or intangible assets with indefinite lives acquired in connection with a transaction becomes impaired, we may be required to incur additional material charges relating to the impairment of those assets. In order to complete an acquisition, we may issue common shares, potentially creating dilution for existing shareholders, or borrow funds, which could affect our financial condition, results of operations and potentially our credit ratings. Any prior or future downgrades in our credit rating associated with a transaction could adversely affect our ability to borrow and our borrowing cost, and result in more restrictive borrowing terms. In addition, our effective tax rate on an ongoing basis is uncertain, and such transactions could impact our effective tax rate. We also may experience risks relating to the challenges and costs of closing a transaction and the risk that an announced transaction may not close. As a result, any completed, pending or future transactions may contribute to financial results that differ materially from the investment community's expectations.

We expect gross margins to vary over time, and our levels of product and services gross margins may not be sustainable.

Our level of gross margins may not be sustainable and has been and may continue to be adversely affected by numerous factors, including:

- changes in customer, geographic or product or services mix, including software and the mix of configurations and professional services revenue within each product segment;
- mix of domestic versus international revenue;
- introduction of new products by competitors, including products with price-performance advantages;
- our ability to reduce product cost;
- increases in labor or material cost, including increases in material costs resulting from inflation or tariffs;
- foreign currency exchange rate movements;
- expediting costs incurred to meet customer delivery requirements;
- excess inventory and inventory holding charges;
- excess and obsolescence charges;
- changes in shipment volume;
- our ability to absorb fixed manufacturing costs during short-term fluctuations in customer demand;
- loss of cost savings due to changes in component pricing or charges incurred due to inventory holding periods if parts ordering does not correctly anticipate product demand;
- lower than expected benefits from value engineering;

- increased price competition, including competitors from Asia, specifically China;
- changes in distribution channels;
- increased warranty cost;
- liquidated damages costs relating to customer contractual terms;
- our ability to manage the impact of foreign currency exchange rate fluctuations relating to our revenue or cost of revenue;
- slowdowns, recessions, economic instability, political unrest, armed conflicts (such as the ongoing military conflict in Ukraine), or outbreaks of disease, such as the COVID-19 pandemic, around the world; and
- Business Combination purchase price allocations.

For example, since the third quarter of 2021 and continuing to date into 2022, we have incurred and may continue to incur supply chain constraint expenses, including price inflation for certain electronic components, semiconductor chips and transportation related costs, which have lowered our gross margins and decreased our profitability.

Our strategy of outsourcing a portion of our manufacturing requirements to subcontractors located in various international regions may result in us not meeting our cost, quality or performance standards.

We are heavily dependent on subcontractors for the assembly and testing of certain printed circuit board assemblies, subassemblies, chassis, enclosures and equipment shelves, and the purchase of some raw materials used in such assemblies. This reliance involves several risks, including the unavailability of, or interruptions in, access to certain process technologies and reduced control over product quality, delivery schedules, transportation, manufacturing yields and costs. We may not be able to provide product order volumes to our subcontractors that are high enough to achieve sufficient cost savings. If shipments fall below forecasted levels, we may incur increased costs or be required to take ownership of excess inventory. Changes in international tariff structures could adversely impact our product costs. We also have experienced and expect to continue to experience increased inflationary pressures on input costs, such as, raw materials, labor and distribution costs. Our attempts to offset these cost pressures, such as through increases in the selling prices of some of our products and services, may not be successful and could negatively affect our operating results. In addition, a significant component of maintaining cost competitiveness is the ability of our subcontractors to adjust their costs to compensate for possible adverse exchange rate movements. To the extent that the subcontractors are unable to do so, and we are unable to procure alternative product supplies, then our competitiveness and results of operations could be adversely impaired. These risks may be exacerbated by economic, regulatory or political changes or uncertainties, terrorist actions, acts of war, the effects of climate change, natural disasters or pandemics in the foreign countries in which our subcontractors are located.

To date, we believe that we have successfully managed the risks of our dependence on these subcontractors through a variety of efforts, which include seeking and developing alternative subcontractors while maintaining existing relationships; however, we cannot be assured that delays in product deliveries will not occur in the future because of shortages resulting from this limited number of subcontractors or from the financial or other difficulties of these parties. Our inability to develop alternative subcontractors if and as required in the future, or the need to undertake required retraining and other activities related to establishing and developing a new subcontractor relationship, could result in delays or reductions in product shipments which, in turn, could have a negative effect on our customer relationships and operating results.

Our dependence on a limited number of suppliers for certain raw materials, key components and ODM products, combined with supply shortages, have prevented and may continue to prevent us from delivering our products on a timely basis, which has had and may continue to have a material adverse effect on operating results and could have a material adverse effect on customer relations.

Certain raw materials and key components used in our products are currently available from only one source, and others are available from only a limited number of sources. The availability of these raw materials and supplies may be subject to market forces beyond our control, such as inflation, merger and acquisition activity of our suppliers and consolidation in some segments of our supplier base. We have experienced and expect to continue to experience increased inflationary pressures on input costs, such as, raw materials, supplies, labor and distribution costs to increase. Our attempts to offset these cost pressures, through increases in the selling prices of some of our products, may not be successful and could negatively affect our operating results. In addition, from time to time, there may not be sufficient quantities of raw materials and supplies in the marketplace to meet customer demand. For example, wafer foundries that support chipmakers have not invested enough in recent years to increase capacities to the levels need to support demand from all of their customers and wafers have a long lead time for production, in some cases in excess of 30 weeks, which has led to a recent shortage in chip supplies. Many companies utilize the same raw materials and supplies that we do in the production of their products. Companies with more resources than our own may have a competitive advantage in obtaining raw materials and supplies due to greater buying power. These factors have resulted in reduced supply, higher prices of raw materials and delays in the receipt of certain of our key components, which in turn has generated increased costs, lower margins and delays in product delivery, with a corresponding adverse effect on revenue. Delays in product deliveries and corresponding product price increases may likewise have an adverse effect on

customer relationships. We attempt to manage these risks through developing alternative sources, by staging inventories at strategic locations, through engineering efforts designed to obviate the necessity of certain components and by building long-term relationships and close contact with each of our key suppliers; however, we cannot assure that delays in or failures of deliveries of key components, either to us or to our contract manufacturers, and consequent delays in product deliveries, will not continue to occur in the future. In addition, our supply chain challenges are forcing us to devote a substantial portion of our research and development expenses to redesign existing products, reducing our capacity to develop new products. For a discussion of the impact of the COVID-19 pandemic on our supply chain, see “- The ongoing COVID-19 pandemic has impacted and may continue to impact our business, results of operations and financial condition, particularly our supply chain and workforce.”

The continuing growth of our international operations could expose us to additional risks, increase our costs and adversely affect our operating results, financial condition and cash flows.

We are expanding our presence in international markets, which represented 50.2% and 33.5% of our net revenue for the three months ended September 30, 2022 and 2021, respectively, and 43.9% and 33.2% of our revenue for the nine months ended September 30, 2022 and 2021, respectively, and as a result, we anticipate increased revenue and operating costs in these markets. This international expansion has increased and may continue to increase our operational risks and impact our results of operations, including:

- exposure to unfavorable commercial terms in certain countries;
- the time and cost to staff and manage foreign operations, including the time and cost to maintain good relationships with employee associations and work councils;
- exposure to unfavorable commercial terms in certain countries;
- the time and cost to ensure adequate business interruption controls, processes and facilities;
- the time and cost to manage and evolve financial reporting systems, maintain effective financial disclosure controls and procedures, and comply with corporate governance requirements in multiple jurisdictions;
- the cost to collect accounts receivable and extension of collection periods;
- the cost and potential disruption of facilities transitions required in some business acquisitions;
- risks as a result of less regulation of patents or other safeguards of intellectual property in certain countries;
- the potential impact of adverse tax, customs regulations and transfer-pricing issues;
- exposure to increased price competition from additional competitors in some countries;
- exposure to global social, political and economic instability, changes in economic conditions and foreign currency exchange rate movements;
- potential exposure to liability or damage of reputation resulting from a higher incidence of corruption or unethical business practices in some countries;
- potential regulations on data protection, regarding the collection, use, disclosure and security of data;
- potential trade protection measures, export compliance issues, domestic preference procurement requirements, qualification to transact business and additional regulatory requirements;
- potential exposure to natural disasters, epidemics and pandemics (and government regulations in response thereto) and acts of war or terrorism; and
- potential exposure to ongoing military conflict in Ukraine. The U.S. and certain other countries imposed sanctions on Russia and could impose further sanctions against it, which could damage or disrupt international commerce and the global economy. Other potential consequences include, but are not limited to, a heightened risk of cyber-warfare, biological warfare or nuclear warfare, growth in the number of popular uprisings in the region, increased political discontent, especially in the regions most affected by the conflict or economic sanctions, continued displacement of persons to regions close to the areas of conflict and an increase in the number of refugees, among other unforeseen social and humanitarian effects which could impact our business, customers, and suppliers.

If we are unable to successfully address the potential risks associated with our overall international expansion, our operating results, financial condition and cash flows may be negatively impacted.

We are exposed to adverse currency exchange rate fluctuations in jurisdictions where we transact in local currency, which could harm our financial results and cash flows.

We are exposed to changes in foreign currencies relative to the U.S. dollar, which are references to the differences between the foreign-exchange rates we use to convert the financial results of our international operations from local currencies into U.S. dollars for financial reporting purposes. This impact of foreign-exchange rate changes is calculated based on the difference between the current period's currency exchange rates and that of the comparable prior period. Our primary exposures to foreign currency exchange rate movements are with our German subsidiaries, whose functional currency is the Euro, our Australian subsidiary, whose functional currency is the Australian dollar, and our U.K. subsidiary, who transacts in the British pound sterling with a U.S. dollar functional currency. As a result of our global operations, our revenue, gross margins, operating expense and operating income in some international markets have been and may continue to be affected by foreign currency fluctuations.

We will require a significant amount of cash to service our indebtedness, our potential payment obligations to ADVA shareholders under the proposed DPLTA, and other obligations.

Our ability to generate cash depends on many factors beyond our control and any failure to service our outstanding indebtedness could harm our business, financial condition and results of operations. Furthermore, subject to approval of ADVA's shareholders and the registration of the DPLTA with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) at the registered offices of ADVA, we may enter into a DPLTA with ADVA. In the event the DPLTA becomes effective, we would be obligated to compensate any annual net loss of ADVA. Additionally, pursuant to the terms of the proposed DPLTA, each ADVA shareholder (other than the Company) will be offered to elect either (1) to remain an ADVA shareholder and receive from us an Annual Recurring Compensation payment, or (2) to receive Exit Compensation. Assuming all of the minority holders of currently outstanding ADVA shares were to elect the second option, the Company would be obligated to make aggregate Exit Compensation payments of approximately EUR 309.8 million (or approximately \$303.4 million at the exchange rate in effect on September 30, 2022). Shareholders electing the first option of Annual Recurring Compensation may later elect the second option. Our obligation to pay Annual Recurring Compensation under the proposed DPLTA would lead to a continuing payment obligation, which would amount to approximately \$10.4 per year assuming none of the minority ADVA shareholders were to elect Exit Compensation and no adjustment is made to the Annual Recurring Compensation Payment Amount between now and November 30, 2022. Any such adjustments could materially increase the amount of the Annual Recurring Compensation Payment Amount. The amount of this Annual Recurring Compensation payment obligation pursuant to the proposed DPLTA could exceed the amount of dividends that otherwise might be distributed by ADVA to minority shareholders and would even have to be paid if ADVA incurs losses. Any failure to satisfy our payment obligations under the proposed DPLTA could harm our business, financial condition and results of operations.

Our ability to make payments on and to refinance our indebtedness, to cover our payment obligations under the proposed DPLTA, and to fund working capital needs and planned capital expenditures will depend on our ability to generate cash in the future. This, to a certain extent, is subject to general economic, financial, competitive, business, legislative, regulatory and other factors that are beyond our control. If our business does not generate sufficient cash flow from operations or if future borrowings are not available to us in an amount sufficient to enable us and our subsidiaries to pay our indebtedness or to fund our other liquidity needs, we may need to refinance all or a portion of our indebtedness on or before the maturity thereof, sell assets, reduce or delay capital investments or seek to raise additional capital, any of which could have a material adverse effect on us.

In addition, we may not be able to affect any of these actions, if necessary, on commercially reasonable terms or at all. Our ability to restructure or refinance our indebtedness will depend on the condition of the capital markets and our financial condition at such time. Any refinancing of our debt could be at higher interest rates and may require us to comply with more onerous covenants, which could further restrict our business operations. The terms of existing or future debt instruments or preferred stock may limit or prevent us from taking any of these actions. In addition, any failure to make scheduled payments of interest and principal on our outstanding indebtedness or dividend payments on our outstanding shares of preferred stock would likely result in a reduction of our credit rating, which could harm our ability to incur additional indebtedness or otherwise raise capital on commercially reasonable terms or at all. Our inability to generate sufficient cash flow to satisfy our debt service, payment obligations to ADVA shareholders under the proposed DPLTA, and other obligations, or to refinance or restructure our obligations on commercially reasonable terms or at all, would have an adverse effect, which could be material, on our business, financial condition and results of operations.

We could be required to recognize impairment charges related to goodwill and other intangible assets.

The Business Combination added a significant amount of goodwill and other intangible assets to our consolidated balance sheet. In accordance with U.S. GAAP, management periodically assesses these assets to determine if they are impaired. Significant negative industry or economic trends, disruptions to our business, the inability to effectively integrate acquired businesses, the underperformance of our business as compared to management's initial expectations, unexpected significant changes or planned changes in use of the assets, divestitures, and market capitalization declines may impair goodwill and other intangible assets. Any charges relating to such impairments could materially adversely affect our business, financial condition and results of operations in the periods recognized.

Breaches of our information systems and cyber-attacks could compromise our intellectual property and cause significant damage to our business and reputation.

We maintain sensitive data on our information systems and the networks of third-party providers, including intellectual property, financial data and proprietary or confidential business information relating to our business, customers, suppliers, and business partners. We also produce networking equipment solutions and software used by network operators to ensure security and reliability in their management and transmission of data. Our customers, particularly those in regulated industries, are increasingly focused on the security features of our technology solutions. Maintaining the security of information sensitive to us and our business partners is critical to our business and reputation. We rely upon several internal business processes and information systems to support key operations and financial functions, and the efficient operation of these processes and systems is critical. Companies are increasingly subjected to cyber-attacks and other attempts to gain unauthorized access. We have a comprehensive approach to cybersecurity, which includes prevention, detection, containment, and response. Our layered defense approach encompasses proactive security monitoring of our global infrastructure by both internal solutions and multiple third-party Security Operation Centers. Additionally, we routinely perform patch management, vulnerability scans, penetration tests and continuous monitoring across our entire enterprise. Our security policy framework includes meaningful and enforceable Information Security policies and procedures. The cybersecurity program is aligned with our mission and business objectives, reviewed periodically for improvements, and is supported by experienced and certified security professionals. This is supplemented by an information security awareness program spanning our global workforce. Despite this, our network and storage applications and those systems and applications maintained by our third-party providers may be targeted by cyber-attacks or potentially breached due to operator error, fraudulent activity, or other system disruptions. For example, although we did not identify indicators of compromise in response to the Log4j2.x vulnerability, we cannot absolutely assure that future vulnerabilities or malware attacks will not be successful in breaching our system and in turn, materially impact our business. Unauthorized access or disclosure of our information could compromise our intellectual property and expose sensitive business information. Our information systems are designed to appropriate industry standards and resiliently engineered to reduce downtime in the event of power outages, weather or climate events and cybersecurity issues. These risks, as well as the number and frequency of cybersecurity events globally, may also be heightened during times of geopolitical tension or instability between countries, including, for example, the ongoing military conflict in Ukraine, from which a number of recent cybersecurity events have been alleged to have originated. We carry cybersecurity insurance policies meant to limit our risk and exposure should one of these cybersecurity issues occur. However, a significant failure of our systems due to these issues could result in significant remediation costs, disrupt business operations, and divert management attention, which could result in harm to our business reputation, operating results, financial condition, and cash flows.

As part of our due diligence and integration planning process, the Company's cybersecurity team has conducted a review of ADVA's cybersecurity program. Additionally, prior to any integration of facilities, networks, or systems, we expect to conduct an enterprise-wide vulnerability assessment to determine if additional security measures are required. As part of the integration plan, the Company intends to expand its current cybersecurity program to cover all ADVA's global infrastructure and adopt any mature cybersecurity practices already in place. A significant failure of our review and integration of ADVA's cybersecurity program could expose us to penalties for failing to comply with the E.U.'s General Data Protection Regulation as well as result in significant remediation costs and a disruption to our operations.

Central Banks' monetary policy actions could increase our costs of borrowing money and negatively impact our financial condition and future operations.

Market interest rates are rising and are expected to continue to rise across the yield curve. Depending on future inflation rates, the rise of nominal interest rates may produce a rise in real interest rates. Higher interest rates resulting from tightening monetary policy are expected to increase credit costs and decrease credit availability. Increases in interest rates could increase our costs of borrowing money under certain of our debt facilities with variable interest rates, which would negatively impact our financial condition and future operations.

Expectations relating to environmental, social and governance considerations expose the Company to potential liabilities, increased costs, reputational harm, and other adverse effects on the Company's business.

Many governments, regulators, investors, employees, customers and other stakeholders are increasingly focused on environmental, social and governance considerations relating to businesses, including climate change and greenhouse gas emissions, human and civil rights, and diversity, equity and inclusion. In addition, we may make statements about our environmental, social and governance goals and initiatives through our website, press statements and other communications. Responding to these environmental, social and governance considerations and implementation of these goals and initiatives involves risks and uncertainties, requires investments, and depends in part on third-party performance or data that is outside of our control. Any failure, or perceived failure, by us to achieve our targets, further our initiatives, adhere to our public statements, comply with federal, state or international environmental, social and governance laws and regulations, or meet evolving and varied stakeholder expectations and standards could result in legal and regulatory proceedings against us and materially adversely affect our business, reputation, results of operations, financial condition and stock price.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

During the nine months ended September 30, 2022, we did not repurchase any shares of our common stock. As of September 30, 2022, there is no current authorization to repurchase common stock.

ITEM 5. OTHER INFORMATION

On November 3, 2022, the Company entered into a Euro/U.S. dollar cross-currency swap arrangement (the “Swap”) with Wells Fargo Bank, N.A. (the “Hedge Counterparty”). The Swap, which is governed by the provisions of an ISDA Master Agreement (including schedules thereto and transaction confirmations that supplement such agreement) entered into between the Company and the Hedge Counterparty, enable the Company to convert a portion of its Euro denominated payment obligations under the proposed DPLTA into U.S. Dollars. Under the Swap, the Company will exchange an aggregate notional amount of \$160.0 million U.S. dollars for Euros at a daily fixed forward rate ranging from \$0.98286 to \$1.03290. The aggregate amount of \$160.0 million will be divided into eight quarterly tranches of \$20 million. The Company, at its sole discretion, may exchange all or part of each tranche on any given day within the applicable quarter; provided, however, that it must exchange the full tranche by the end of such quarter. The Swap may be accelerated or terminated early for a number of reasons, including but not limited to (i) non-payment by the Company or the Hedge Counterparty, (ii) breach of representation or warranty or covenant by either party, or (iii) insolvency or bankruptcy of either party.

ITEM 6. EXHIBITS

Exhibits.

<u>Exhibit No.</u>	Description
3.1	<u>Amended and Restated Certificate of Incorporation of ADTRAN Holdings, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed July 8, 2022)</u>
3.2	<u>Amended and Restated Bylaws of ADTRAN Holdings, Inc. (incorporated by reference to Exhibit 3.2 to the Company's Form 8-K filed July 8, 2022)</u>
10.1	<u>Credit Agreement dated July 18, 2022, by and among ADTRAN Holdings, Inc. and ADTRAN, Inc. as borrowers, in favor of Wells Fargo Bank, National Association as lender (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed July 22, 2022)</u>
10.2	<u>Collateral Agreement dated July 18, 2022, by and among ADTRAN Holdings, Inc., ADTRAN, Inc., and Wells Fargo Bank, National Association (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed July 22, 2022)</u>
10.3	<u>Guaranty Agreement dated July 18, 2022, by and between ADTRAN Holdings, Inc. and ADTRAN, Inc. in favor of Wells Fargo Bank, National Association (incorporated by reference to Exhibit 10.3 to the Company's Form 8-K filed July 22, 2022)</u>
10.4*	<u>Syndicated Credit Agreement Note Payable, date September 23, 2018, by and among ADVA Optical Networking SE, Bayerische Landesbank, and Deutsche Bank AG non-binding English translation</u>
10.5	<u>Settlement Agreement, dated August 4, 2022, by and between ADVA Optical Networking SE and Brian Protiva (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed September 30, 2022)</u>
10.6†	<u>Employment Agreement dated July 13, 2022 by and between Thomas R. Stanton and ADTRAN Holdings, Inc. (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed July 15, 2022)</u>
10.7†	<u>ADTRAN, Inc. Amended and Restated Variable Incentive Compensation Plan (incorporated by reference to Exhibit 10.8 to the Company's Form 10-Q filed August 5, 2022)</u>
31*	<u>Rule 13a-14(a)/15d-14(a) Certifications</u>
32*	<u>Section 1350 Certifications</u>
101	The following financial statements from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2022, formatted in Inline XBRL: (i) Condensed Consolidated Balance Sheets as of September 30, 2022 and December 31, 2021; (ii) Condensed Consolidated Statements of Loss for the three and nine months ended September 30, 2022 and 2021; (iii) Condensed Consolidated Statements of Comprehensive Loss for the three and nine months ended September 30, 2022 and 2021; (iv) Condensed Consolidated Statements of Changes in Stockholders' Equity for the three and nine months ended September 30, 2022 and 2021; (v) Condensed Consolidated Statements of Cash Flows for the nine months ended September 30, 2022 and 2021; and (vi) Notes to Condensed Consolidated Financial Statements
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Filed herewith.

† Represents a management compensation plan or arrangement

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ADTRAN Holdings, Inc.
(Registrant)

Date: November 9, 2022

/s/ Michael Foliano

Michael Foliano
Chief Financial Officer
(Duly Authorized Officer and Principal Financial
Officer)

Non-Binding English Translation

September 25, 2018

ADVA Optical Networking SE

(as borrower)

and

Bavarian State Bank and

Deutsche Bank AG branch Germany business

(as Mandated Lead Arrangers, Bookrunners and Joint coordinators)

the financial institutions named in the loan agreement

(as lenders)

and

Deutsche Bank Luxembourg S.A.

(as agent)

SYNOPSIS LOAN AGREEMENT

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This Syndicated **LOAN AGREEMENT** (the "Credit Agreement") was entered into between

- (1) ADVA Optical Networking SE with its registered office in Meiningen, entered in the commercial register of the district court of Jena under HRB 508155 as parent company, borrower Initial Guarantor (the "Company" or the "Borrower"),
- (2) the Bayerische Landesbank and Deutsche Bank AG branch Germany business as Bookrunners and joint coordinators and together with Norddeutsche Landesbank - Girozentrale - as Mandated Lead Arrangers and Commerzbank Aktiengesellschaft, DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main and IKB Deutsche Industriebank AG as Lead Arrangers (together with the Mandated Lead Arrangers, the "Arrangers"),
- (3) the FINANCIAL INSTITUTIONS listed in Exhibit 1 (Initial Lenders) as initial Lenders (the "Initial Lenders") are listed, and
- (4) Deutsche Bank Luxembourg SA as Agent (as defined below).

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Credit Agreement, the terms defined below have the meanings assigned to them, unless the context otherwise indicates:

"Financial liabilities to be redeemed" means the financial liabilities specified in Part 2 of Schedule 3 (Financial liabilities to be redeemed) .

"Agent" means Deutsche Bank Luxembourg SA or a successor designated as Agent pursuant to Clause 27.13 (Change of Agent) .

"Initial Guarantors" means the Company and ADVA Optical Networking North America, Inc. and ADVA Optical Networking Ltd. after the Guarantee Agreement has been signed.

"Defaulting Lender" means any Lender who

(a) defaults in providing the Loans pursuant to Clause 5.3 (Accessing and Providing the Loans) or notifies the Agent that it will not honor its obligation to provide such Loans unless it fails to do so

(i) the default is due to an administrative or technical disruption for which the creditor concerned is not responsible and he fulfills his obligation within three (3) bank working days, or

(ii) the lender concerned the existence of its obligation to denies the provision of credit in good faith,

(b) contested or declared adherence to a Funding Document Not wanting to comply with regulations, or

(c) is insolvent or overindebted according to the legal system applicable to him, or insolvency proceedings or comparable proceedings in a foreign legal system have been opened against his assets.

"Outstanding Sub-Line of Credit Amount" means, with respect to a Sub-Line of Credit and a Sub- Line of Credit, the sum (calculated by the Sub-Line of Credit) of the principal amounts of the following outstanding under the Sub-Line of Credit (but not under an Umbrella Facility). Amounts in EUR

(a) the nominal amount of each overdraft facility and each short-term loan (less available balances held at the respective sub-credit bank accounts of the borrower),

(b) the maximum amount (notional amount) of any guarantee, bond or bond letter of credit and

(c) the total amount of the sub-credit bank drawdown (excluding interest and similar charges) under any other form of funding provided under this sub-credit line was granted,

in each case as reasonably determined by the relevant sub-credit bank in accordance with normal banking practice in its reasonable discretion.

"Application for payment" means an application essentially in the form of the sample in Annex 4 (*application for payment sample*), with which the payment of a loan is requested.

"Business Day" means, in relation to the determination of EURIBOR and payments in EUR, each TARGET day and otherwise (ii) each day on which credit institutions in Luxembourg and Munich are open for business required under this Credit Agreement.

"Affiliation Agreement" means any agreement for the affiliation of a Guarantor pursuant to Clause 26.2 (joining guarantors).

"Existing Financial Indebtedness" means the Financial Indebtedness specified in Part 1 of Schedule 3 (*Existing Financial Indebtedness*) .

"Existing Guarantee" means any Guarantee listed in Part 1 of Schedule 3 (Existing financial liabilities) is listed.

"Working Credit" means the loans originated under the Working Capital Line.

"Working Lender" means any Lender that has made a commitment to lend under the Working Capital Line of Credit or as provided in Section 2.2 (Upgrade Option). Section 2.3 (Termination and Increase of Loan Commitments), Section 25.1 (Transfer of Underwriters Interests) or Section 32.4 (Replacement of Lenders) and has not ceased to be a Working Capital Lender under this Loan Agreement.

"Working Line of Credit" means the line of credit made available pursuant to Section 2.1(b) (Loan Commitments) .

"Calculation Date" has the meaning given to that term in Clause 22.1 (Definitions) .

"Budget" means the Group's consolidated 3-year budget for the current year financial year and the continuation of this planning for the following financial years, based on the applicable accounting regulations, a detailed forecast for the Profit and Loss Account, Balance Sheet, Cash Flow Statement and Investment Planning and contain detailed information on the forecast and the investment planning on which the planning premises are based, with corresponding explanations.

"Compliance Certificate" has the meaning given to that term in Clause 21.3 (Compliance Certificates) .

"Loan" means any cash drawing made or to be made against a Line of Credit or the amount then outstanding under such cash drawing.

"Maturity Date" means the date five (5) years after the execution of this Credit Agreement.

"Permitted Acquisitions" means

(a) the establishment of a legal entity limiting the liability of its shareholders Person according to European or respective national law ("corporation") or the acquisition of such a corporation as a shell company or

(b) the acquisition of a company or shares in a company (including 50% or less of the share capital and voting rights in a company) or (if the acquisition is made by a limited liability company whose sole purpose is the completion of such acquisition) the acquisition one business or company, provided in each case that the consideration to be paid for the purchase (including costs and expenses)

(i) together with the expenses (including costs and expenses) for other Permitted Acquisitions under this paragraph (b) and investments in joint ventures total no more than EUR 50,000,000 (or foreign currency equivalent) during the term of the Credit Agreement and thereof

(ii) not more than EUR 20,000,000 (or the equivalent in other currencies) in the aggregate during the term of the loan agreement for the acquisition of shares of 50% or less of the share or common capital and voting rights and investments in joint ventures, together with the expenses (including costs and expenses).

"Permitted Financial Liabilities" means

(a) Financial liabilities from the financing documents,

(b) the Existing Financial Liabilities (including those related to Existing guarantees) as well as, up to the day of the first payment, the to be redeemed financial liabilities,

(c) Financial Liabilities from Permitted Loans and Permitted assumption of liability,

(d) Financial liabilities related to derivative transactions entered into in the ordinary course of business and not for speculative purposes,

(e) Financial liabilities one after the date of the first payment by way of a Permitted acquisition acquired company if (x) existing at the time the company was acquired, (y) not as a result of the acquisition have been increased or extended and (z) within six (6) months of the execution of the be redeemed

(f) Financial liabilities arising from leases and hire-purchase agreements relating to vehicles, premises, equipment or computers and from sale and leaseback transactions up to an aggregate total value of EUR 10,000,000 or the equivalent in other currencies at any time during the term of this loan agreement,

(g) Financial liabilities of Non-Debtors up to an aggregate value of EUR 10,000,000 or the equivalent in other currencies at any time during the term of this Credit Agreement, and

(h) other financial liabilities up to an aggregate total value of EUR 10,000,000 or the equivalent in other currencies at any time during the term of this loan agreement.

"Permitted Assumptions of Liability" means

(a) Assumptions of liability under the financing documents (including any maximum amount guarantees issued) as well as those that exist at the time the contract is concluded and are listed in Annex 11 (Existing grants of credit and assumptions of liability),

(b) Assumption of liability by a group company for an obligated party,

(c) Assumption of liability by one non-obligor for another non-obligor obligated,

(d) Assumptions of liability by an Obligor for a Non- Obligor up to an aggregated total value of EUR 10,000,000 or the equivalent in other currencies at any time during the term of the Credit Agreement (existing assumptions of liability for Non- Obligor at the conclusion of this Credit Agreement are excluded from the amount limit, already Permitted Assumptions of Liability under paragraph (a) of this Definition),

(e) Assumptions of liability that constitute a Permitted Financial Liability,

(f) Assumption of liability in the ordinary course of business for third parties, and

(g) other assumptions of liability up to a total aggregate value of Permitted Loans pursuant to paragraph (g) of the definition "Permitted Loans" of EUR 5,000,000 or the equivalent in other currencies at any time during the term of the Loan Agreement.

"Permitted Credit Grants" means

(a) the credit lines existing at the time of entering into this Agreement, which are set out in Appendix 11 (Existing Loans and Guarantees),

(b) Loans from a group company to an obligor,

(c) Loans between group companies that are both non-obligors,

(d) Loans from an obligor to a non-obligor if the claims outstanding under such loans total an aggregate amount of EUR 20,000,000 or the equivalent in other currencies at any time during the term exceed this credit agreement (except for the amount restrictions are existing loans at the time this loan agreement is concluded Non-Obligated those already Permitted under paragraph (a) of this Definition constitute credit grants),

(e) Loans constituting a Permitted Financial Liability,

(f) Loans to third parties in the ordinary course of business (including Supplier credits, granting of payment terms, usual employee loans), and

(g) other loan originations which, together with the Permitted Indemnities referred to in paragraph (g) of the definition "Permitted Indemnities", do not exceed the aggregate total value of EUR 5,000,000 or foreign currency equivalent at any time during the term of the Loan Agreement.

"Permitted Collateral" means

- (a) customary (also extended) retention of title, arising by operation of law Liens and other security rights or rights of reservation as well as offsetting or set-off agreements under German law and comparable rights under foreign law (each within the scope of the normal business operations of a group company)
- (b) all customary liens that arise under the general terms and conditions of the banks or savings banks with which a group company maintains bank connections in the ordinary course of business,
- (c) Collateral in connection with semi-retirement obligations pursuant to Section 8a Partial Retirement Act or with value credits in accordance with Section 7e of the Social Security Code IV in each case connection with the business operations of a group company,
- (d) Collateral over a after the date of the first disbursement by a Group company acquired assets if (i) these on already existed at the time the asset was acquired, (ii) the secured liabilities have not increased as a result of the acquisition and (iii) these are canceled within six (6) months of the completion of the acquisition,
- (e) Collateral on the leased assets of a group company due to Leases subject to paragraph (f) of the Definition "Allowed Financial liabilities" are allowed,
- (f) Collateral in connection with a Permitted Sale, in particular in Together with factoring or similar programs to the extent customary in the industry permitted under paragraph (f) of the "Permitted Disposals" definition,
- (g) Collateral provided as part of investment financing by a group company at the expense of the investment being financed, whereby the total amount of the financial liabilities secured in this way may not exceed the amount of EUR 10,000,000 or the equivalent in other currencies at any time during the term of this loan agreement,
- (h) a (no longer valid) land charge entered in the land register of Dreißigacker of the district court of Meiningen under sheet 777, serial no. 1 in favor of Bayerische Hypo- und Vereinsbank AG, which has already approved the deletion and a (no longer valid) land charge entered in the land register of Dreizigacker of the district court of Meiningen under sheet 777, running number 2 in favor of the IKB Deutsche Industriebank AG, which has also already approved the deletion and
- (i) other collateral if and as long as the value of such collateral or the financial liabilities secured in this respect does not exceed an aggregate amount of up to EUR 2,000,000 or the equivalent in other currencies at any time during the term of this loan agreement.

"Permitted Disposals" means

- (a) Sales in the ordinary course of business and on terms that stand up to a third-party comparison (with the exception of company shares and industrial property rights),
- (b) Sale of assets at market value in exchange for equivalent or similar assets,

- (c) Sale of assets that are no longer required for the business Market value and at conditions that stand up to a third-party comparison,
- (d) Disposals made as a result of a Permitted Collateral,
- (e) Sales within the group to an obligation or between Group companies, both of which are non-obligated,
- (f) Sales of accounts receivable (including factoring), provided that the buyer assumes the full risk of default (excluding any deductible)), up to an aggregate total value of EUR 20,000,000 or the equivalent in other currencies at any time during the term of this credit agreement,
- (g) Disposals of assets from an Obligor to a Non-Obligationer on arm's length terms and not exceeding an aggregate total selling price of (i) EUR 10,000,000 or the equivalent in other currencies per financial year of the Company, and (ii) not exceed EUR 25,000,000 or its equivalent in other currencies at any time during the term of this Credit Agreement, and
- (h) other disposals of Group assets aggregated up to a total purchase price of EUR 10,000,000 or the equivalent in other currencies in one financial year.

"Permitted Payments" means

- (a) arm's length payments for directors' salaries and Employees, remuneration for members of the supervisory board and advisory board,
- (b) Payments resulting from a share repurchase provided that the Group's cash balance at the quarter-end following the payment is not less than a minimum of EUR 20,000,000 (or the equivalent in other currencies) and provided that such repurchase is to take place at the initiative of the Board of Directors , there is no reason for termination, and
- (c) Dividends, distributions and other payments to shareholders of the Company where permitted by law and required by a resolution of the General Meeting and provided that if such payment is made by virtue of the Initiative of the Board of Directors should take place, the Board of Directors adopting a resolution on a only proposes such a payment to the general meeting if there is no reason for termination.

"EUR" means euros.

"EURIBOR" means

- (a) the interbank money market rate of the European Money Markets Institute (or any other organization which undertakes the administration of the EURIBOR), which is published on the Thomson Reuters page "EURIBOR01" (or an equivalent page which replaces it for the purpose of publishing this money market rate).) for the relevant Interest Period (prior to any correction, recalculation or redisplay by the Administrator) on the 11.00 a.m. (Brussels) Interest Determination Deadline ("Screen Rate"),
- (b) (to the extent that on an Interest Fixing Date at the relevant time the interest rate referred to under (a) is not for the relevant Interest Period on the relevant Thomson Reuters page is displayed) the Interpolated Interest Rate,

(c) (to the extent that there is no Interest Rate or no Interest Rate for the relevant Interest Period on the applicable Thomson Reuters page is displayed and the Interpolated Interest Rate cannot be determined), the Screen Rate for a one-month replacement interest period (and if the interest period of the relevant loan is longer, it shall be deemed to be reduced accordingly),

(d) (to the extent that the Interest Period of the relevant Loan after application of the foregoing Paragraph (c) is either the applicable Replacement Interest Period or a shorter period and, in either case, no Screen Rate under Paragraph (a) is available and none Interpolated Interest Rate can be calculated) the latest applicable Screen Rate for a period equal to the Interest Period of the relevant loan originating on a date not more than 10 days prior to the relevant Quoting Date or if there is no such latest Screen Rate there, the interpolated Historical screen rate for a period equal to the interest period of the relevant loan or

(e) (to the extent that paragraph (d) above is applicable and no Interpolated Historical Screen Rate is available) the Reference Interest Rate or, if no Reference Bank or only one Reference Bank reports (or reports late) a Reference Interest Rate and therefore no Reference Interest Rate is also available, then the EURIBOR applies to the relevant Loan as unavailable and Clause 12.2 (Alternative Method of Calculation) applies for the relevant Interest Period for the relevant Loan.

referred to as "**FATCA**".

(a) Sections 1471 to 1474 of the IRC or any related regulation,

(b) any treaty, law, regulation enacted in any other jurisdiction or with an intergovernmental agreement between the United States and any other jurisdiction and which (respectively) implement any law or regulation referred to in paragraph (a) above allow or

(c) any agreement to implement in paragraph (a) or (b) above mentioned agreement, law or regulation with the United States Internal Revenue Service, the United States government, or any governmental agency or tax authority in any other jurisdiction.

"**FATCA Deduction**" means a FATCA required deduction or withholding from a payment pursuant to a Finance Document.

"**FATCA Exempt Party**" means a party entitled to receive payments without a FATCA Deduction.

"**FATCA Effective Date**" is

(a) in relation to a "withholdable payment" within the meaning of Section 1473(1)(A)(i) of IRC (relating to interest payments and certain other payments from sources within the United States) on 1 July 2014,

(b) in relation to a "withholdable payment" within the meaning of Section 1473(1)(A)(ii) of the IRC (referring to "gross proceeds" on the disposal of assets earning interest from sources within of the USA, refers) January 1, 2019 or

(c) in relation to a "pass thru payment" within the meaning of Section 1471(d)(7) of IRC, which does not fall within the scope of paragraphs (a) above or (b) falls, January 1, 2019,

or such other date as may be determined subsequent to the date of this Loan Agreement as a result of a change in FATCA from which such payment may be subject to a deduction or withholding specified in FATCA.

"Funding Documents" means this Credit Agreement, the Guarantee Agreement, any Transfer Agreement, any Accession Agreement, any Maximum Amount Guarantee, any Disbursement Request, any Renewal Request, any Compliance Certificate, any Fee Agreement, any Sub-Credit Agreement, any Agreement to Modify the foregoing Agreements, and any documents issued by the Agent and the Company shall be referred to as the "Financing Document".

"Financial Parties" means the arrangers, the lenders, the sub-lenders, and the agent.

"Financial liabilities" means any liability

- (a) funds borrowed,
- (b) an acceptance, bill of exchange discount, guarantee or letter of credit,
- (c) a promissory note or a debenture or other securitized debt instrument,
- (d) Lease agreements and hire-purchase agreements to the extent that they are to be accounted for as finance leases under the applicable IFRS regulations (although those lease agreements and hire-purchase agreements which are accounted for as operating leases under the IFRS regulations before January 1, 2019, also after January 1 continue to be accounted for as operating leases in 2019),
- (e) receivables sold or discounted (including factoring unless the Buyer assumes full default risk),
- (f) Derivative transactions with financial institutions (where the amount of the respective to calculate the liability on the basis of the current market price (mark to market value) or to apply the actual settlement amount),
- (g) Recourse obligations based on a guarantee, bond, letter of credit or other guarantee issued by a credit institution for financial liabilities,
- (h) Advance payments or deferrals received, insofar as these take place outside of the ordinary course of business,
- (i) Transactions, provided they are conducted in accordance with the applicable accounting principles of the Borrower to be classified as a financial liability and
- (j) a guarantee or other assumption of liability regarding losses from a transaction mentioned in (a) to (i) (without double counting).

"Guarantors" means the Initial Guarantors and any other Group Companies after joining as Guarantor to the Guarantee Agreement or this Credit Agreement.

"Warranty Agreement" means the warranty agreement dated September 25, 2018 between Agent, Company, ADVA Optical Networking North America, Inc. and ADVA Optical Networking Ltd. and any other group company that joins this guarantee agreement as an additional guarantor in connection with this credit agreement.

"Fee Agreements" means the Fees Agreement dated September 25, 2018 between the Arrangers and the Company, the Agent Fees Agreement dated September 25, 2018 between the Agent and the Company. September and any other agreement between the Company and one or more financial parties regarding fees in connection with this Credit Agreement.

"Fiscal Year" means the fiscal year of the Company beginning on January 1st of each year and ending on December 31st of the same year.

"Group" means the society and their subsidiaries and **"Group Companies"** means the respective companies belonging to the group.

"Assumption of Liability" means any guarantee, suretyship, indemnity, hard letter of comfort (ie involving an obligation to furnish or indemnify a third party), assumption of debt, assumption of debt or other assumption of liability.

"Holding Company" means, in relation to a company, any company of which the first-named company is a subsidiary.

"Maximum Amount Guarantee" has the meaning given to that term in Clause 6.9(b) (Umbrella Schemes).

"Interpolated Historical Screen Rate" means, in relation to a Loan, the Interest Rate (rounded to the same number of decimal places as the two relevant Screen Rates) resulting from a linear interpolation between:

- (a) the last applicable Screen Rate for the longest period of time (for which this Screen rate is available) that is shorter than the interest period of the relevant loan and
- (b) the last applicable Screen Rate for the shortest period of time (for which this Screen installment is available) that is longer than the interest period of the relevant loan, in each case for euros and in each case on a day that is no more than 10 days before the quotation day.

"Interpolated Interest Rate" means in relation to that applicable to a Loan EURIBOR the value, which is the arithmetic mean between

- (a) that for the longest interest period shorter than that chosen for the loan interest period and
- (b) that for the shortest interest period longer than that chosen for the loan interest period,

applicable Interbank Money Market Rate as displayed from time to time on the Interest Determination Date on the Thomson Reuters page "EURIBOR01" (or any equivalent page which replaces it for the purpose of publishing such Money Market Rate) at 11.00 am (Brussels) on the Interest Determination Date.

"Joint Venture" means a company in which a group company holds 50% of the company shares or voting rights.

"Underlying Interest" has the meaning given to that term in Clause 25.1 (*Transfer of Underlying Interests*).

"Underwriting Ratio" means, at the Relevant Time, the proportion of a Lender's commitment to the total of all Lenders' commitments to that line of credit.

"Change of control" means a change in the group of shareholders, according to which a person or a group of persons acting in concert (acting in concert) directly or indirectly holds more than 30% of the shares or voting rights in the company.

"Lender" means the Initial Lenders in their capacity as Lenders and the additional persons who acceded to this Loan Agreement as Lenders pursuant to Section 2.2 (*Upgrade Option*), Section 2.3 (*Termination and Increase of Loan Commitments*) and Section 25.1 (*Transfer of Underwriters Interests*) are and have not ceased to be a Lender under this Credit Agreement.

"Line of Credit A" means the line of credit made available pursuant to Section 2.1(a) (*Credit Commitments*).

"Lines of Credit" means Line of Credit A and the Working Capital Line of Credit.

"Loan Commitment" means in respect of a Line of Credit

(a) in relation to an Initial Lender, the amount specified for it in Schedule 1 (*Initial Lenders*) plus the amounts due to it pursuant to Clause 25.1 (*Transfer of Syndicate Shares*) or pursuant to Section 2.2 (*option to increase*), item 2.3 (*termination and increase of loan commitments*) or item 32.4 (*replacement of lenders*) amounts assumed by them and

(b) with respect to any other Lender, those transferred to it pursuant to Clause 25.1 (Transfer of Underwriters' Interests) or pursuant to Clause 2.2 (Upgrade Option), Clause 2.3 (Termination and Increase of Loan Commitments) or Clause 32.4 (Replacement of Lenders) amounts assumed by him less amounts transferred by him to a third party,

in each case less the amounts transferred by him to a third party in accordance with Section 25.1 (Transfer of Syndicated Shares) and the terminated part of the loan commitment.

"Reason for Termination" means a reason for termination as set out in Section 24.1 (*Reason for Termination*).

"Termination Conditions" means a circumstance which would lead to a reason for termination according to Section 24.1 (Reasons for Termination) at the end of a possible healing period.

"Local Lender" has the meaning given to that definition in Clause 6.9 (Umbrella Lines) .

"Local Borrower" has the meaning given to that definition in Clause 6.9 (Umbrella Lines) .

"Majority of Lenders" means Lenders

(a) whose total loan commitments are at least 66 2/3% of all loan commitments Lender amount or

(b) when the lending commitments of all lenders whose lending commitments immediately prior to the reduction totaled at least 66 2/3% of the lending commitments of all lenders have been reduced to zero.

"Non-Obligor" means any Group Company that is not an Obligor.

"Renewal Request" means a request substantially in the form of the template in Attachment 5 (*Prolongation Request Template*) notifying a new interest period for a Loan under Credit Line A.

"Quotation Date" means in relation to any period for which an Interest Rate is to be determined, the day two TARGET DAYS prior to the first day of such period, unless this is not in accordance with market practice in the European interbank market; in this case, the quoting day will be determined by the agent in accordance with market practice in the European interbank market (whereby, in the event that quotes are usually published on several days, the quoting day will be the last of those days).

"Legal Restrictions" means

- (a) the principle that remedies may be granted or refused at the discretion of a court and the limitation of enforcement actions by bankruptcy laws, the right of appeal or other laws affecting creditors' rights generally;
- (b) the statute of limitations on claims and defenses of set-off or counterclaim;
- (c) comparable legal principles, rights and remedies under the law of other applicable jurisdictions; and
- (d) any other matter set forth in the Legal Opinions accompanying the Finance Documents as limitations or caveats to legal matters of general application.

"Reference Banks" means any credit institution designated by the Agent in consultation with and approved by the Company under this Credit Agreement.

"Reference interest rate" means the arithmetic mean (rounded up to the fourth decimal place) of the asking rates pa quoted to the agent by at least two of the reference banks by 10 a.m. on the interest fixing date, at which the reference banks offered deposits in EUR on the interbank market in Frankfurt am Main (if at or around 10:00 a.m. on that day, no quote is given, or only one of the reference banks quotes, then there is no reference interest rate for the relevant interest period).

"Reputable Accountant" means an accounting firm that is appropriately resourced in terms of experience, size, skill, and quality of work.

"Rollover Loan" means the refinancing of an drawn Working Capital Loan (i) on the last day of the Interest Period applicable to the Working Capital Loan, and (ii) with another loan of equal or lesser amount.

"Sanctions" has the meaning given to such definition in Clause 20.1(n) (*Anti-Corruption, Sanctions, Anti-Money Laundering Provisions*) .

"Sanctioned Person" has the meaning given to that definition in Clause 20.1(n) (*Anti- Corruption, Sanctions, Anti-Money Laundering Provisions*) .

"Sanctioned Countries" has the meaning given to such definition in Section 20.1(n) (*Anti- Corruption, Sanctions, Anti-Money Laundering Provisions*) .

"Collateral" means all liens, land charges, security transfers, assignments by way of security and other real securities as well as corresponding security rights under foreign law.

"Taxes" means any tax, levy, duty or other charge or withholding of a similar nature (including related ancillary tax benefits).

"First Payout Date" means the date on which any Line of Credit is first drawn.

"TARGET2" means the "Trans-European Automated Real-Time Gross Settlement Express Transfer System" payment system with a common platform, which became operational on November 19, 2007.

"TARGET day" means each day on which TARGET2 is available for payments in EUR.

"Subsidiaries" means any person who is (i) a majority-owned company within the meaning of Section 16 AktG, (ii) a dependent company within the meaning of Section 17 AktG, or (iii) a subsidiary of a company within the meaning of (i) or (ii) this definition.

"Transfer Agreement" means any transfer agreement in the form of Exhibit 12 (Model Transfer and Accession Agreement) by which a Lender transfers all or part of an Underwriter Interest to another person.

"Umbrella Line" has the meaning given to that term in Clause 6.9(a) (*Umbrella Lines*) .

"Conversion amount" means the amount in EUR that results if an amount in a foreign currency is exchanged at the reference exchange rate for foreign exchange (purchase EUR, sale foreign currency) provided by the respective sub-credit bank ("**exchange rate**") is converted into EUR.

"Sales Tax" means:

(a) any tax levied in accordance with Council Directive 2006/112/EC of 28 November 2006 on the common system of value added tax; and

(b) any other tax of a similar nature, whether levied in any Member State of the European Union as a substitute for, or in addition to, any such tax under paragraph (a) above or elsewhere.

"Sub-Lender" means (in that capacity) a Lender or an Affiliate of a Lender.

"Sub-Line of Credit" means any bilateral line of credit provided by a Sub-Line of Credit under this Credit Agreement.

"Sub-Line of Credit Commitment" means, in relation to a Sub-Line of Credit Bank and Sub-Line of Credit, the amount in EUR that the Sub-Line of Credit has agreed to make available under the Sub-Line of Credit, to the extent that such amount has not been terminated or reduced pursuant to this Agreement or the Sub-Line of Credit Documents.

"Sub-Credit Agreement" means any agreement for the provision of a Sub-Credit Line.

"USD" means United States Dollars.

"Affiliate" means a subsidiary or a Holding company of any person and any other subsidiary thereof holding company

"Sub-Line of Credit Availability Date" means, in relation to a Sub-Line of Credit, the date on which the Sub-Line of Credit is first drawn. This day must be a bank working day during the availability period.

"Availability Period" means

(a) in relation to Line of Credit A, the period referred to in Section 5.1 (b) (*Availability*)

and

(b) with regard to the working capital credit line, the period specified in Section 5.1 (c) (*Availability*)

"Available Line of Credit" means, in relation to a Line of Credit, the aggregate of all Available Commitments of Credit from Lenders participating in that Line of Credit.

"Available Credit Commitment" means, in relation to a Line of Credit, a Lender's credit commitment (uncancelled or lapsed) less the aggregate amounts

(a) its interests in loans disbursed and outstanding under this facility and

(b) in the case of the working capital line of credit, the amount of its sub-line of credit commitment.

For purposes of calculating the Available Credit Commitment, the Available Credit Commitment (i) by the amount of all under the relevant Credit Facility before or on loan still to be paid out on the day of payment and a sub-credit line commitment in EUR With respect to each new Sub-Line of Credit outstanding by or on the requested Pay Date must be made available, reduced and (ii) by the amount of all under these Credit line to be repaid before or on the payment date as well as effective, terminated or expired sub-credit line around the appropriate commitment.

"Available Sub-Line Commitment" means the amount of a Sub-Line Commitment of a Sub- Line of Credit less the Outstanding Sub-Line Amount of such Sub-Line of Credit and the Notional Amounts of the Maximum Amount Guarantees supporting the Umbrella Lines collateral provided by branches or affiliated companies of this sub-credit bank.

For purposes of calculating the Available Sub-Line of Credit Commitment, the Available Sub- Line of Credit Commitment amount shall be reduced by (i) the notional amounts of the Maximum Amount Guarantees required to be provided by or on the Availability Date of the Sub-Line of Credit and (ii) the amount of any Sub-Line of Credit commitments made under such Sub-Line of Credit or maximum amount guarantees to be returned or expired on the availability date.

"Obligor" means the Borrower and any Guarantor.

"Leverage Ratio" has the meaning given to it in Clause 22.1 (Definitions) .

"Prepayment Penalty" means an indemnity to be determined by the relevant Lender in the event of early repayment during an ongoing Interest Period, equal to the difference between (a) the interest owed by the Borrower (pursuant to 9 (Interest rates)), but without the margin for the remaining term of the interest period and (b) the return that results for the respective lender from a hypothetical reinvestment of the repaid amount on the interbank market with the same term.

"Significant group company" means each group company based on the most recent consolidated financial statements made available under this loan agreement contributes at least 7.5% to the Group's EBITDA (calculated in accordance with Section 22 (Financial Measures) on a consolidated basis) or to the Group's

total assets on a consolidated basis. Group companies that meet these requirements as of June 30, 2018 are those listed in Appendix 16 (Major Group Companies).

"Significant Adverse Impact" means an Event that has a Material Adverse Effect has effect on

(a) the economic, asset, earnings or financial position of an Obligor or of the Group as a whole (although any future reason for termination under Paragraph (c) of Section 24.1 (Reasons for Termination) does not in itself constitute a case of this Paragraph (a)),

(b) the ability of an obligor to meet its payment obligations under the to comply with financing documents, taking into account the total financial resources of the group, which this obligated party has in due time are available (including insurance payments), or

(c) (subject to Legal Restrictions) the validity or enforceability of any Finance Document or the claims and rights of the Financial Parties (collectively) under any Finance Document (which is not cured within fifteen (15) banking days of Company becoming aware).

"Material Termination Cause" means a Termination Cause as set out in paragraph (a) (*non-payment*), (f) (*cross-default*), (g) (*insolvency*), (h) (*insolvency proceedings, moratorium, liquidation and other proceedings*) or (i) (*enforcement measures*) of para. 24.1 (*Reasons for Termination*).

"Competitor" means any person whose main business activity largely corresponds to that of the Group (**"Relevant Person"**) or a person with a Relevant Person within the meaning of §§ 15ff. AktG affiliated company, each with the exception of:

(a) lenders and

(b) such companies affiliated with a relevant person that are managed independently of the relevant person or in respect of which appropriate measures and procedures are in place designed to prevent the exchange of operational information, and insofar as they are included in the list in Appendix 17 (competitor blacklist), which the company may update once a year by naming other competitors who meet the above criteria.

"Interest Determination Date" means the time two (2) Banking Days prior to the start of each Interest Period on which the Agent shall determine the Interest Rate for the following Interest Period Clause 9.7 (interest fixing date).

1.2 Interpretation

Unless this credit agreement expressly states otherwise or the context indicates otherwise, the following rules of interpretation shall apply.

(a) Any reference to borrower, guarantor, arranger, lender, agent, sub-credit bank, etc. also includes their respective universal or individual successors in the rights and obligations under this Loan Agreement or any other financing document.

(b) Any reference to a statutory requirement means, unless expressly provided otherwise, the statutory requirement, as amended from time to time, or successor statutory requirement, in effect after the execution of this Loan Agreement.

(c) Any reference to a contract or a provision in a contract means, unless expressly stated otherwise, the contract or the contractual provision as amended from time to time, including all modifications (however far-reaching), amendments and supersedes Contracts or contractual provisions made after the date of signing this Credit Agreement.

(d) Any reference to a person means an entity, an individual, or a partnership.

(e) The Company will ensure that Obligors who are not parties to this Loan Agreement comply with their obligations under this Loan Agreement and will make the acknowledgments and representations required of them under this Loan Agreement on their behalf. The Obligors entering into this Credit Agreement make the acknowledgments and representations for themselves and are bound to comply with the applicable obligations hereunder.

(f) A cash deposit means in respect of a guarantee or a liability the deposit of an amount in the currency of the guarantee (or the liability) to an interest-bearing one in the name of the debtor account if the following requirements are met:

(i) the account is held with the creditor to whom cash deposit is paid,

(ii) until no more amounts are owed under the guarantee or the liability, the account may only be used to make payments required under the terms of this Agreement relating to the guarantee or the liability are due and

(iii) the obligor has provided the creditor or the creditor with a first-ranking security over the account in a form and content that is satisfactory to him.

(g) An Outstanding Sub-Line Amount is deemed to be repaid or prepaid when:

(i) cash collateral is provided for the Outstanding Sub-Line Amount;

(ii) the sub-credit facility is reduced or terminated, or

(iii) the sub-credit bank has reasonably satisfied itself that it no longer has any further obligations under the sub-credit line,

and the amount of redemption or early redemption under paragraphs (i) and (ii) above is equal to the amount of the Cash Margin or Reduction.

(h) Paragraph (g) applies mutatis mutandis to the amounts outstanding under an Umbrella Line.

(i) An amount borrowed also includes any amount drawn under a sub-line of credit.

(j) Headings in this Credit Agreement are for convenience only and should not be considered in the interpretation.

(k) A reason for termination exists as long as it has not been remedied or waived. A reason for termination exists as long as it has not been waived.

(l) Third party means persons or companies that do not constitute a group company.

2. LOAN COMMITMENTS

2.1 Loan Commitments

The lenders undertake to pro-rata in proportion and up to the amount of their Credit commitments, the following credit lines in accordance with this credit agreement To make available:

- (a) the company a credit line A up to a total of EUR 65,000,000 and
- (b) the company a working capital credit line up to a total of EUR 10,000,000.

2.2 Increase Option

(a) The Company may make up to three (3) increases in the Working Capital Credit Facility totaling up to EUR 50,000 during the period of availability of the Working Capital Facility no later than twenty (20) banking days prior to the date on which the requested increase is to take effect (the "Increase Record Date") .000 by submitting a raise request to the agent.

(b) Each request for an increase is irrevocable and must contain the following information:

- (i) the Increase Date, which must be six (6) months before the Final Maturity Date,
- (ii) the amount of the desired increase in a minimum amount of EUR 10,000,000 in total (together with the increases made up to that point) but not more than EUR 50,000,000 and
- (iii) a confirmation that no reason for termination has occurred or would occur as a result of the increase.

(c) The company will initially offer the lenders the opportunity to participate in the increased working capital credit line in accordance with their respective consortium quotas under the credit lines. The Agent will promptly forward the increase request to the Lenders along with the amount of each Lender's potential share.

(d) Each Lender shall notify the Agent within ten (10) business days of the Agent's receipt of the increase request whether or not it (i) wishes to participate in the Increased Working Capital Line of Credit and (ii) generally agrees (subject to its credit approval and other qualifications) , more than its share of the increased syndicate ratio under the lines of credit to take over the working capital credit line in the event that not all lenders want to participate in accordance with their syndicated quota. No lender is obligated to participate in an increase in the working capital line of credit.

(e) The agent will promptly notify the Company to what extent the lenders wish to participate in the increased working capital facility.

(f) If a lender has declared within the above period that it does not want to participate in the increase in the working capital line of credit, or not to the extent of its consortium quota under the credit lines, or if there is no corresponding response within the above period, the amount promised by no lender will be paid was offered to those lenders who have agreed to participate. If this amount is not paid in full by those lenders within a further five (5) banking days, the Company may offer

other banks or financial institutions to participate in the increased working capital credit line in the amount of the remaining amount.

(g) Each lender and each potential new lender pursuant to paragraph (f) will commit to the Agent its participation in the increased working capital line of credit in the form of an increase commitment pursuant to Schedule 8 (Increase Commitment) and therein, to the extent that it is not already a lender, accede to the Credit Agreement as a working capital lender .

(h) An increase in loan commitments will become effective on the Increase Record Date, or if later, on the date on which the following conditions are met if the agent

(i) has countersigned an increase commitment corresponding to paragraph (g) and signed by the participating or acceding lenders and the company and

(ii) has successfully completed all necessary know-your-customer checks in relation to the joining lenders.

(i) An increase in loan commitments effective under paragraph (h) will result in:

(i) the credit commitments in relation to the working capital credit line increase by the amount specified in the increase commitment,

(ii) each newly acceding lender is contractual in relation to the borrower and the other financial parties and vice versa as if it were of been early to lenders under this loan agreement, and

(iii) the credit commitments of the lenders who do not participate in the increase in the working capital credit line remain unchanged.

(j) The agent will inform the company and the lenders of the amounts of the increased loan commitments due to them immediately after the increase has taken effect.

2.3 Termination and Increase of Loan Commitments

(a) If a Lender becomes a Defaulting Lender, the Company may terminate that Lender's Available Credit Commitment, if the Lender is then a Defaulting Lender, upon written notice to the Agent. The agent will immediately inform the lenders about this.

(b) After terminating a Defaulting Lender's loan commitment, the Company may, by giving written notice to the Agent, request that the relevant line of credit up to the amount of the Defaulting Lender's terminated loan commitments be replaced by a loan commitment from another lender to be named by the Company and acceptable to the Agent or other acceptable means bank or financial institution (the "Replacement Lender") willing to assume all of the obligations associated with accepting a loan commitment pursuant to a Lender's Finance Documents.

(c) The obligated parties hereby declare that the guarantee agreement existing at the time a substitute lender enters the contract includes the claims of the substitute lender from the increased loan commitment.

(d) The increase in loan commitments will take effect with

(i) Countersigned by the replacement lender essentially in the Form of the sample in Appendix 13 (sample of the loan commitment confirmation Substitute Lender) signed and Credit approval confirmation by the agent and

(ii) if the replacement lender is not a lender at the time of entry, the successful completion of all know-your-customer checks by the agent.

(e) By submitting the Loan Commitment Confirmation, the Substitute Lender confirms the Agent's authority to sign on its behalf all contract modifications and waivers made by the Lenders in accordance with this Loan Agreement prior to the effective date of its entry into this Loan Agreement.

2.4 Rights and Obligations of Financial Parties

(a) The financial parties are neither joint debtors nor joint creditors. Each financial party can assert its claims against the borrower independently of the other financial parties, unless otherwise stated in this loan agreement.

(b) If one of the financial parties violates their obligations under this loan agreement, the borrower can only assert rights against them. The obligations of the borrower towards the other financial parties remain unaffected by such a breach of duty.

3. USES

3.1 Credit Line A

Credit line A may only be used to refinance the financial liabilities to be redeemed.

3.2 Working Capital Line of Credit

The Working Capital Line of Credit may only be used to refinance Existing Financial Indebtedness and to cover general operational financing needs (including the financing of Permitted Acquisitions and to cover and (re) financing of transaction costs in connection with this credit agreement).

3.3 Inspection Authority

Lenders have the right, but not the obligation, to check that the loans are being used as intended.

4. PAYMENT REQUIREMENTS

4.1 General Withdrawal Requirements

(a) The lenders are only obliged to participate in the initial disbursement of a loan in accordance with Section 5.3 (request and provision of the loan) for the disbursement of a loan if the (Requirements for Payout) have been submitted to the Agent in a form and content reasonably satisfactory to the Agent. The Agent will promptly notify the Company and Lenders as soon as this is the case.

(b) Unless a majority of the Lenders instructs the Agent otherwise in writing prior to the Agent making the notice referred to in paragraph (a), the Lenders authorize (but have no obligation to)

the Agent to make such notice. The Agent shall not be liable for any damages, costs, expenses or otherwise as a result of the issuance of this notice.

- (c) Notwithstanding paragraph (a), a loan will only be disbursed if in the case of a Rollover Loan,
 - (i) no termination has been given for cause of termination pursuant to Clause 24.2 (Lenders' Rights) and no Material Termination Reason exists; or
 - (ii) in the case of any other Loan, no event of termination exists or would occur as a result of the disbursement and all representations to be made pursuant to Clause 20.2 (Making and Repeating the Representations) (unless already otherwise qualified, in material respects) are correct.

4.2 Waiver

A Disbursement Condition shall also be deemed to have been met if Lenders have requested its fulfillment in accordance with Clause 32.2 (Amendments and Waivers) have renounced.

5. OBTAINING LOANS

5.1 Availability

- (a) Credit line A and the working capital credit line can be used in the form of loans within the framework of the available credit commitments up to the amount of the respective available credit line.
- (b) Credit line A can be drawn from the date of signing this credit agreement until December 31, 2018 at the latest. Parts of credit line A that are not used when the availability expires automatically expire.
- (c) The Working Capital Line of Credit is available from the date of signing of this Credit Agreement until three (3) months prior to the Final Maturity Date.

5.2 Amounts and number of draws

- (a) minimum amounts
 - (i) Loans under Credit Line A can only be drawn down in an amount or in partial amounts of at least EUR 10,000,000 (and an integer multiple of EUR 1,000,000) and only in EUR.
 - (ii) Loans under the working capital line of credit can only be drawn down in minimum amounts of EUR 1,000,000 and, if greater, higher integer multiples of EUR 500,000 and only in EUR.
- (b) Number of draws
 - (i) No more than three (3) loans under Line of Credit A may be outstanding at any one time.
 - (ii) No more than ten (10) loans may be outstanding under the Working Capital Line of Credit at any one time.

5.3 Access and Delivery of the Loans

(a) The provision of a loan is only possible after proof of fulfillment of the disbursement requirements according to Section 4 (disbursement requirements) .

The retrieval takes place through an irrevocable payment request addressed to the agent and in compliance with the requirements of Section 5.1 (availability) and 5.2 (amounts and number of drawings), by natural persons registered in the commercial register who are authorized to represent the company in an authorized number or in the form Annex 6 (sample power of attorney for claims) has been signed by an effectively authorized person and no later than the third (3) bank working day before the desired payment day, which must be a bank working day, by 11 a.m. (or one bank working day before the desired day of the first payment, the must be a bank working day, by 11:00 a.m.) must be received by the agent in the original, as a pdf file or by fax (on request with the original submitted later). A separate disbursement request must be used for each request for a loan.

(b) The agent will immediately inform each lender in writing or electronically upon receipt of a proper payment request and request the amount due to the respective lender after his loan commitment. Subject to Clause 4.1 (General payment requirements) and Clause 5.3 (Settlement) , each lender is obliged to make the requested amount available on the date on the account specified by the agent for this purpose.

6. SUB-CREDIT LINES

6.1 Provision of sub-credit lines

(a) Each Working Capital Lender (and each of its Affiliates pursuant to Section 6.6 (Affiliates as a Sub -Line of Credit)) may provide to the Borrower (and also other Group Companies pursuant to Section 6.7 (Affiliates as a Sub-Line Borrower)) in consultation with the Agent under its Provide available credit commitment for the working capital line of credit a sub- line of credit to draw on short-term fixed-rate loans, each with a term of up to 12 months, cash advances on current account or letters of credit (including letters of credit). No lender (and according to

(b) Clause 6.6 (Affiliated companies as sub -credit bank (none of its Affiliates) is obliged to provide a sub-credit line. A sub-credit line may not be provided if the sub-credit line commitment of this sub-credit line together with all other sub-credit line commitments of all sub-credit banks amounts to EUR 10,000,000 would exceed.

(c) The provision of a sub-credit line by a sub-credit bank requires that the agent is no later than three (3) banking days before the availability date of the Sub-credit line A written request from the respective borrower for the provision of a sub-credit line in the form set out in Annex 7 (sample sub-credit request) has received.

(d) (e) The Agent will notify the Company, the Sub-Line of Credit and the other Working Capital Line of Credit lenders of the provision of each Sub-Line of Credit. The respective sub-credit line is to be set up in EUR. Any utilization of the sub-credit line in a foreign currency (including USD), which is offered by the respective sub-credit bank within the framework of this sub-credit line, is possible after consultation with the respective sub-credit bank.

6.2 Conditions of the sub-credit lines

- (a) The sub-credit banks are free to agree the conditions of the sub-credit lines with the respective borrowers within the scope of what is customary in the market, unless otherwise stipulated in this clause 6 (sub-credits) .
- (b) Each sub-credit agreement:
 - (i) may only allow the Borrower or an Affiliate of the Lender pursuant to Clause 6.7 (Affiliates as Borrowers of a Sub-Line of Credit) to use the Sub-Line of Credit,
 - (ii) shall not allow the amount of the Sub-Line of Credit Commitment to exceed the amount of the Sub-Line of Credit Bank's Available Credit Commitment for the Working capital line of credit (before deducting the relevant sub-credit line from the available loan commitment) exceeds
 - (iii) may not to the borrower to overdraw the sub-credit line commitment, allow the amount of
 - (iv) shall provide that no drawings may be made under the Sub-Line of Credit if (i) there is cause for termination and (ii) the Agent (at the direction of a majority of Lenders) within five (5) Banking days (A) after the agent was informed that a drawing request had been submitted, objected to a further drawing (except for the use of an overdraft facility), and/or (B), in the case of an overdraft facility, after the agent became aware of the existence of the reason for termination has informed that the sub- credit line is blocked. Notwithstanding this provision, further rights of the sub- credit bank can be agreed within the framework of the sub-credit agreement if there is a reason for termination and
- (v) must determine that no later than the Final Maturity Date (or such date that the applicable sub-credit bank's (or its Affiliate's) Affiliate's (or its Affiliates') Working Capital Line of Credit Commitment is zero for reasons other than the expiration of the Working Capital Line of Credit Availability Period) (A) the Loan Commitments for the Sub-Line of Credit are zero, (B) all amounts outstanding under the Sub-Line of Credit (including interest and other charges) are repaid, guarantees are returned or cash-backed, and (C) undrawn Sub-Lines of Credit expire.
- (c) The company or the respective borrower ensures that the sum of the loans outstanding under a sub-credit line does not exceed the available credit line at any time.
- (d) The terms of this Credit Agreement supersede the terms of any sub-credit agreement.
- (e) The company will notify the agent in writing in advance of the change or cancellation of a sub-credit line.

6.3 Rights and obligations of sub-credit banks

- (a) Sub-credit banks act on their own account and are entitled to agree on and collect interest, fees and commissions in relation to the sub-credit lines they have extended at normal market conditions.
- (b) Each sub-credit bank is obliged to provide the agent with all information upon request regarding sub-credit lines (including outstanding sub-credit line amounts, but excluding the price conditions). Of the Agent notifies lenders of the balances of all sub-credit lines upon request.

(c) Each sub-credit bank is only liable to the other lenders for intent and gross negligence.

6.4 Repayment of Sub-Credit Lines

(a) A sub-credit line is only available until the end of its term in accordance with the provisions of the relevant sub-credit agreement or after its termination in accordance with the provisions of this credit agreement, but no later than the final maturity date.

(b) No sub-credit bank may terminate a sub-credit line prematurely or prematurely Demand repayment of any Outstanding Sub-Line Amount unless

(i) the working capital line of credit commitment has been canceled in full or all Working capital loans have been terminated in full or are otherwise due for repayment in full in accordance with the provisions of this loan agreement,

(ii) it has become unlawful under any applicable jurisdiction for the sub-credit bank to perform its obligations under this Credit Agreement as contemplated or to disburse or maintain its interest in its sub-credit facility; or

(iii) the Outstanding Sub-Line of Credit Amount (if any) under this Sub-Line of Credit may be refinanced by drawing down the Working Capital Line of Credit. For the purposes of determining whether an Outstanding Sub-Line of Credit Amount may be refinanced by drawing down the Working Capital Line of Credit, the Available Credit Commitment of the Sub-Line of Credit Lender (in consideration of Section 6.6(a) (Affiliates as Sub-Line of Credit)) with respect to the Working Line of Credit shall be as of Increase the Outstanding Sub-Line Amount to be Refinanced. Utilization of the working capital credit line pursuant to this Section 6.4(b)(iii) (unless Section 6.4(b)(i) applies) does not preclude the existence of a reason for termination and can be made independently of Section 5.2 (b) (amounts and drawing number) take place. Upon payment of the loan intended for refinancing:

(A) Each Working Party Lender will participate in such Loan in an amount (as determined by the Agent) that will result in the aggregate amount of its interests in the then outstanding Loans being in the same proportion to the aggregate amount of the loan stands as his loan approval to his working capital line of credit commitment; and

(B) the relevant sub-credit line is deemed to have been terminated.

(c) The Company will promptly notify the Agent when an Under-Loan has been fully and definitively repaid.

6.5 Modifications to Sub-Lending Agreements

Sub- credit agreement modifications or waivers with respect to a sub-credit agreement require the consent of the other financial parties only if the contractual modification or waiver relates to a matter that would require a modification or waiver under this Credit Agreement. In this case, the provisions of Section 32.2 (Amendments and Waivers) applicable to amendments or waivers under this Credit Agreement shall apply.

6.6 Affiliates as Sub-Credit bank

(a) Affiliated companies may also act as sub-credit banks in compliance with the provisions of this credit agreement with a working capital lender. A Working Capital Lender and its Affiliate are treated as a single lender for purposes of this Loan Agreement whose lending commitment is equal to that Lender's lending commitment with respect to the Working Capital Line of Credit. To calculate the Available Credit Commitment with respect to a Lender, the amount of its Affiliates' Sub-Committed Line of Credit shall be deducted.

(b) To the extent that this Loan Agreement or other Financing Document provides for an obligation of a Sub-Lender and the Sub-Lender is an Affiliate of the Working Capital Lender and is not a party to this Credit Agreement, the Working Capital Lender shall ensure that its Affiliate fulfills such obligation.

6.7 Affiliates as Borrowers of a Sub-Line of Credit

(a) Other Group companies can also act as borrowers of a sub-credit line, subject to compliance with the provisions of this credit agreement. In this case, a reference in a financing document to a borrower includes such group companies.

(b) The Company must ensure that any other group company which, pursuant to paragraph (a), acts as a borrower under a sub-credit facility without being a party to the relevant sub-credit agreement, complies with the terms and obligations under the relevant sub-credit agreement.

6.8 Compliance with loan commitments

Regardless of the other terms of this Credit Agreement, each Working capital lenders ensure that their loan commitments are respected Working capital line of credit is not less than:

- (a) its sub-line of credit commitments; and
- (b) its Affiliate's sub-line of credit commitments.

6.9 Umbrella Lines

(a) Subsidiaries of the Company (each a "Local Borrower") may obtain bilateral lines of credit from Affiliates or branches of a Sub-Lender (each a "Local Lender") under the applicable Sub-Lender's Available Sub-Line of Credit Commitment in the form of

- (i) Cash advances (on current account),
- (ii) short term fixed rate loans, and
- (iii) Guarantee credits (including letters of credit) in a currency chosen in consultation with the Local Lender ("Umbrella Lines").

(c) The Umbrella Lines must be fully guaranteed by a maximum amount guarantee from the Company ("Maximum Amount Guarantee"). The Maximum Amount Guarantee must be in English and denominated in EUR to the Local Lender and (if it is not a Lender) to the Lender of which it is an Affiliate. be addressed and essentially the pattern in Appendix 9 (Maximum amount guarantee example) .

(d) The sub-credit line commitment of the relevant sub-credit bank is deemed to have been utilized in the amount of the nominal amount of the maximum amount guarantee. The respective nominal amount of the maximum amount guarantee together with the nominal amounts of all other maximum amount guarantees may not exceed an aggregated amount of EUR 10,000,000 at any time.

(e) No sub-credit bank or its branch and no company Affiliated with a sub-credit bank is required to provide umbrella lines.

(f) The following also applies to the conditions of the umbrella lines:

(h) subject to the provisions below apply to the Umbrella does not govern the terms of this Loan Agreement, but only the terms agreed between the Local Lender and the relevant Local Borrower,

(ii) the conditions of an umbrella line, in particular the amount of interest to be paid, commissions, guarantee fees and other costs can be freely agreed between the local lender and the respective local Borrowers are negotiated, but must be customary in the market,

(iii) each Umbrella Facility must provide for a Local Lender's right of termination or Local Borrower's obligation to prepay all outstanding amounts and redeem or cash other borrowings if the credit commitment relating to the Working Capital Line of Credit and/or Sub-Line of Credit is terminated or expire automatically and all claims made under this credit agreement become due for early repayment in full.

(g) The Company will ensure that the Umbrella Credit Agreement does not conflict with the terms of this Credit Agreement.

6.10 Loss Relief Among Working Capital Lenders

(a) For the purposes of this Clause 6.10, a Working Lender's "Receivables" are :

(i) that Working Lender's receivables from the Borrower under the Working Line of Credit (along with any interest, commissions and fees) and those charged by him pursuant to this sub-credit lines provided under the Credit Agreement (along with all interest, commissions and charges); and

(ii) the claims of such Working Capital Lender, its branch or any of its Affiliates against the Company under a Cap Guarantee in connection with the Umbrella Lines; in each case to the exclusion of contingent liabilities. Claims by a working capital lender, one of its branches or an affiliated company under a maximum guarantee are not contingent liabilities for this purpose if and to the extent that they relate to umbrella lines that are due shortly after termination of this loan agreement.

(b) In the event of insolvency proceedings against the Borrower's assets, termination pursuant to Section 24.2 (Lenders' Rights) , or if after the Final Maturity Date in respect of any claim under the Working Capital Line of Credit, Sub-Line of Credit and/or Maximum Amount Guarantee for a period of at least five (5) bank working days in arrears, the working capital lenders will bring their outstanding debts to such a level by assigning their claims and making appropriate compensation payments in the amount of the nominal amounts of the respective claims in EUR that for each

working capital lender the total amount of his outstanding debts in the ratio to the total amount of all outstanding debts, which is the ratio of the amount of its loan commitment for the working capital line to the total loan commitment of all working capital lenders. If and to the extent that a Maximum Amount Guarantee secures claims of a Lender's Affiliate, such Lender shall be subject to:

(c) ensure the necessary assignment of claims from the maximum amount guarantee. The Agent will perform the calculations required for settlement under this paragraph (b) upon submission of the necessary information by the Working Capital Lender (in the case of sub-credits and umbrella lines in foreign currency, the relevant conversion amount applies).

(d) Initially, there is no balance settlement for contingent liabilities of the working capital lenders. In particular, outstanding guarantees under sub-credit lines or umbrella lines are not taken into account when calculating outstanding amounts.

(e) If three (3) months after the settlement of a balance has been made, the basis of its calculation has changed (e.g. due to clearing of balances, payments from a sub-credit bank or a local lender in connection with an umbrella line under a guarantee facility), the balances balance again taking into account this change.

(e) The Agent will calculate new balances in accordance with paragraphs (b) through (d) above on a quarterly basis on the last day of each calendar quarter and for as long as outstanding balances are reported to it by the Working Capital Lenders and will notify the Working Capital Lenders.

(f) A working capital lender's loan commitment may not be exceeded by the settlement of accounts pursuant to paragraphs (b) through (e) above.

(g) The decisive point in time for the settlement of the balance is the point in time of the opening of insolvency proceedings, termination or default in accordance with paragraph (b), subject to subsequent adjustments in accordance with paragraphs (d) and (e). The original relevant date pursuant to paragraph (b) is also relevant for the conversion of outstanding amounts in foreign currency into EUR. Subsequent currency fluctuations are not taken into account.

(h) If, for legal reasons, a balance cannot be settled with effect on the borrower or third parties, the working capital lenders are obliged to bring about a corresponding result internally.

(i) The Company expressly and irrevocably agrees to this Section 6.10.

7. TERM AND REFUNDS

7.1 Duration

The credit lines have a term from the date of signing this loan agreement to the final maturity date.

7.2 Repayments

The loans are to be repaid as follows:

- (a) loans drawn under Line of Credit A on each of the subsequent amortization dates in the amounts specified below Repayment rate in EUR: repayment date 06/30/2019 amortization rate EUR 3,000,000 12/30/2019 06/30/2020 EUR 3,000,000 EUR 3,000,000 12/30/2020 EUR 3,000,000

06/30/2021 EUR 7,500,000 12/30/2021 EUR 7,500,000 06/30/2022 EUR 7,500,000 12/30/2022 EUR 7,500,000 06/30/2023 EUR 7,500,000 Maturity Date Any balance and

- (b) Borrowings drawn under the Working Capital Line of Credit at the end of each Interest Period and no later than the Final Maturity Date. 7.3 Billing

If a loan under the Working Capital Line of Credit ("New Loan") is to be paid off on the same date that another such loan ("Maturing Loan") is to be repaid and the New Loan is to be used in whole or in part to refinance the Maturing Loan, the borrower's claim for payment of the new loan is offset against each lender's claim for a pro rata repayment of the loan due. If the loan due exceeds the new loan, the borrower only has to repay the difference in cash. If the new loan exceeds the loan due, the lenders of the working capital line of credit are only obliged to pay out the difference in cash.

8. EARLY REPAYMENT

8.1 Voluntary Early Repayments

(a) Voluntary early repayments of the loans are possible at the end of an interest period in the amount of at least EUR 500,000 or in the amount of any higher amount that represents a whole multiple of EUR 100,000. The Borrower will make a voluntary early repayment stating the amount five (5) Announce banking days in advance. The announcement cannot be made under conditions. After the announcement has been made, there is an obligation to make early repayment in the amount of the announced amount.

(b) A loan under Line of Credit A may be repaid no earlier than the expiry of the Line of Credit A availability period or at the point in time when the Line of Credit A commitment is zero, whichever is earlier. The loan commitment for credit line A is not revived by the repayment and credit line A may not be used again.

8.2 Illegality

Insofar as it becomes unlawful or unlawful for a lender to fulfill its obligations under a financing document under the relevant legal provisions or official orders,

- (a) the Lender shall promptly notify the Agent thereof,
- (b) Lender is entitled to increase its Available Credit Commitment and Available terminate sub-credit line commitment and
- (c) the lender is entitled:
 - (i) its interests in the loans in full at the end of a Interest Period, or ,if earlier, the day on which Notice to the Agent is specified by the Lender (and which is no earlier than the last day of any time limit that may be required). to make repayment due and
 - (ii) the Outstanding Sub-Line Amounts provided by that Lender or any Affiliate of that Lender to which date that this lender has stated in the information to the agent (and which is at the earliest the last day of any deadline that may have to be observed). repayment due, after which the borrower has to ensure that the outstanding amounts are covered under the umbrella lines provided by the Local Lenders have provided on the day that these lenders in the information provided to the Agent (and which is no earlier than the last day of any grace period that may be

required) will be repaid and commitments under those Umbrella Lines will be terminated on that date.

8.3 Change of Control

(a) Upon (i) the occurrence of a change of control; or (ii) the disposal of all or substantially all of the Group's assets, each lender shall, subject to paragraph (b) below, be entitled to any work done by him (or any person with affiliated companies) granted loan commitments and terminate sub-credit line commitments in whole or in part and:

(A) its interests in the loans in full at the end of a interest period due;

(B) call for repayment of the Outstanding Sub-Line Amounts provided by such Lender or an Affiliate of such Lender, whereupon the Borrower shall ensure repayment of the outstanding amounts under the Umbrella Lines provided by the Local Lenders, and the commitments under these Umbrella Lines are terminated on that date.

(b) In the event of a change of control, the company must inform the agent and the agent the lenders immediately. The lender and the company undertake to negotiate in good faith for a period of 20 banking days from receipt of the notification by the agent about the continuation of the contract despite the change of control, possibly on changed contract terms. During this Negotiation Period, neither Lender shall have the right to exercise any of its rights under paragraph (a) nor any obligation to make any new loans or drawdowns. Only after the negotiation period has expired without result is each lender entitled to exercise his rights under paragraph (a) with a period of notice of a further 20 bank working days and a corresponding message to the agent (which the agent must immediately forward to the company).

8.4 Mandatory special repayments

Borrower has amounts equal to 100% of the net proceeds (i.e Gross proceeds of sale less costs associated with the transaction and taxes applicable to the proceeds of sale) received by a Group company as consideration in connection with the sale of fixed assets outside the ordinary course of business (excluding sales pursuant to paragraphs (b), (d), (e), (f) and (g) of the definition "Permitted Sales"), for a repayment pursuant to Section 8.7 (Redemption Offsetting) , insofar as these exceed a total amount of EUR 2,500,000 in a financial year and not within nine (9) months after the cash inflow into investments in the Group's assets (or within fifteen (15) months if a commitment to do so is made within six (6) months).

8.5 Notification

The borrower will notify the agent immediately as soon as he becomes aware of circumstances triggering a mandatory special repayment within the meaning of Clause 8.3 (change of control) and Clause 8.4 (mandatory special repayments) .

8.6 Due date

The mandatory special repayment is due ten (10) bank working days after the occurrence of the event triggering the mandatory special repayment according to Section 8.4 (mandatory special repayments) or after the end of the period provided for the reinvestment.

8.7 Amortization Settlement

(a) Voluntary early repayments will count towards the credit line and repayment installments determined by the Company prior to repayment. If no determination is made, they will be applied pro rata to all outstanding loans and outstanding sub-credit line amounts. The amounts are distributed proportionately to the outstanding amounts of the lenders participating in the relevant credit line.

(b) Mandatory special repayments are offset as follows:

(i) first to repay outstanding loans under credit line A in reverse order of maturities,

(ii) then on the working capital loans in the following order:

(A) first to repay outstanding loans under the working capital line of credit,

(B) then to cancel Loan Commitments still available for the working capital line of credit and

(C) finally, to repay the Outstanding Sub-Line Amounts and drawdowns under the Umbrella Facility and then to cancel any Available Sub-Line Commitments. If there are several loans under a credit line, all loans granted under the respective credit line are offset pro rata in proportion to the consortium shares of the lenders, unless otherwise specified in this credit agreement.

8.8 Interest and Fees

Voluntary early repayments and mandatory special repayments pursuant to Section 8 (Early Repayment) are to be made together with the interest, commissions, fees and other amounts owed (e.g. early repayment penalties) due on them.

8.9 Revaluation

A mandatory special repayment results in the immediate termination of the underlying loan commitments in the corresponding amount after offsetting in accordance with Section 8.7(b) (repayment offsetting). Insofar as the working capital loan was repaid in a manner other than in accordance with Clause 8.7(b) (repayment offsetting), revaluation is permitted.

8.10 Cancellation of Loan Commitments

(a) Available credit commitments for each line of credit may be withdrawn in whole or in part by the borrower at any time with five (5) bank business days' notice in minimum amounts of EUR 500,000 or a higher multiple of EUR 100,000 at the end of an interest period without a prepayment penalty be terminated. The credit commitments of the lenders involved are reduced pro rata as a result.

(b) Available credit commitments for Line of Credit A may be canceled no earlier than the expiry of the Line of Credit A availability period or when the credit commitment for Credit Line A is zero, whichever is earlier.

(c) The Borrower shall ensure that the sum of the outstanding loans and sub-credit lines made available under a line of credit at no time exceeds the available line of credit and, if necessary, will prepay loans and terminate sub-credit lines.

8.11 Termination of Loan Commitments by an Individual Lender

If at any time the borrower is in accordance with a lender Clause 14.2 (net tax clause) to pay an increased amount, according to Clause 14.3 (tax exemption) to refund or exemption from taxes (each without general taxes of the lender) or according to Clause 15 (cost increase) to pay increased costs etc , the borrower may, provided the circumstance giving rise to the obligation to pay the increased amount, refund or exemption from tax or payment increased costs, etc., terminate the credit commitments and sub-credit commitments of the relevant lender by written notice to the agent and the relevant lender. Upon receipt of the notification by the agent or on the later repayment date specified in the notification (which in the case of loans may not be after the end of the current interest period(s)), the borrower is obliged to do so immediately

(a)(b) such Lender's interests in the Loans together with any accrued interest and other payable under the Finance Documents repay amounts the Outstanding Sub-Line Amounts of the Sub-Lines that this Lender or an Affiliate of such Lender has provided repayment, and

(c) ensure that the amounts outstanding under the umbrella lines provided by the Local Lenders are repaid and the commitments under those umbrella lines are terminated as of that date.

8.12 Prepayment Penalty

For voluntary early repayments and mandatory special repayments in accordance with Section 8 (Early repayment) that are not paid at the end of an interest period, an early repayment penalty is payable to each lender, unless the mandatory special repayment is made on the basis of Section 8.2 (illegality).

9. INTEREST RATES

9.1 Interest Rate

The interest rate for the loans granted under a credit line is the percentage pa for a certain interest period, which is made up of

(a) the EURIBOR applicable to the relevant Interest Period

(b) the Initial Margin pursuant to Section 9.2 (Initial Margin) or the applicable Margin after a Margin Adjustment pursuant to Section 9.3 (Margin Adjustment) to Section 9.6 (Error Margin Determination) .

If the EURIBOR is less than zero (0) percent pa, the EURIBOR is zero (0) percent pa as agreed.

9.2 Initial Margin

The initial margin is

(a) for loans under credit line A 1.50% pa and

(b) for loans under the working capital credit line 1.20% pa

9.3 Margin Adjustment

From the filing of the Compliance Certificate for the last quarter of 2018 (ending 31. December 2018) and subject to Sections 9.5 to 9.6, the applicable margin is calculated according to the table below depending on the gearing ratio (calculated according to Section 22 (financial ratio) and proven by submitting the respective compliance certificate according to Section 21.3 (Compliance Certificate)) determined :

Gearing Applicable Margin Loans under Tran A (in basis points p.a.) Applicable Margin Loans under the Working Capital Line of Credit (in basis points p.a.)

Greater than or equal to 2,50:1 170 140

Greater than or equal to 2,00:1 but less than 2,50:1 160 130

Greater than or equal to 1,50:1 but less than 2,00:1 150 120

Greater than or equal to 1,00:1 but less than 1,50:1 140 110

Greater than or equal to 0,50:1 but less than 1,00:1 135 105

Lower 0,50:1 130 100

9.4 Adjustment Time

After the conditions for a margin adjustment according to Section 9.3 (margin adjustment) , the margin for each loan is adjusted at the beginning of the next interest period, which begins after submission of the respective compliance certificate or, if there is not at least five (5) banking days between them, on the expiration of five (5) banking days after submission of the compliance certificate (for the first time with the compliance certificate in relation to the financial statements for the financial year 2018). If there is no interest period due to the lack of utilization of the working capital line of credit, the margin adjustment is made for the purpose of calculating the commitment fee Item 13.1 (provision commission) at the beginning of the calendar quarter following the submission of the compliance certificate.

9.5 Margin Increase

If and as long as there is a reason for termination or if the Compliance Certificate is not submitted or is not submitted on time, the respective highest margin according to the table in Section 9.3 (margin adjustment) applies (plus, only if there is a material reason for termination and if there is a Reason for termination according to Section 24.1(d) (Other obligations) due to non-submission or late submission of the Compliance Certificate 1% pa). If the reason for termination is demonstrably cured or a waiver is issued or the compliance certificate is submitted later, the margin will be adjusted to the actual level of indebtedness no later than three (3) bank working days after healing has occurred or the waiver has been issued in accordance with Section 9.3 (margin adjustment) . corresponding margin adjusted. The right of the lenders to terminate under this credit agreement remains unaffected by a margin increase.

9.6 Incorrect margin determination

If the audited consolidated financial statements show that the Group's gearing ratio was incorrectly stated in a compliance certificate and the margin was therefore wrongly reduced, increased or not adjusted, the agent has the right to retrospectively adjust the margin by the difference. The difference is to be paid by the Borrower to the Agent within three (3) business days after delivery of the Consolidated Financial Statements. If the Consolidated Financial Statements indicate that a lower margin should have been applied for a period of time, subsequent interest payments will be reduced by the amount necessary to place the Lender and the Borrower in the position in which they would have been if the correct margin had been applied. Payments to lenders are reduced under this rule only to lenders who were already lenders during the period in which the erroneous margin was applied.

9.7 Interest Fixing Date

At each interest rate date, the agent determines the interest rate for the following interest rate period and communicates it to the borrower and lenders.

9.8 Maturity and Calculations of Interest

- (a) Interest is calculated based on actual elapsed days divided by 360 (including but excluding the first day of an interest period).
- (b) Interest on loans under a Line of Credit is payable on the last day of each Interest Period for that Interest Period, however, for Interest Periods longer than six months in duration, interest is payable on account at the end of the sixth month for the previous six (6) months to pay.

9.9 Billing

The agent will send an interest statement to the borrower well in advance of the interest due date.

10. DEFAULT INTEREST

- (a) The borrower is in arrears without the need for a reminder if he fails to make the payments owed under this credit agreement or not in full on the day they are due.
- (b) For the duration of the delay in payment, the borrower owes default interest on the outstanding loan amount and on all other amounts, with the exception of interest, at the applicable interest rate pursuant to Section 9 (Interest rates) plus 100 basis points pa. The lenders are entitled to claim further damages close. The borrower is entitled to prove that such damage has not occurred or only to a lesser extent.
- (c) The right of the financial parties to claim compensation for the damage caused by the delay in paying interest in accordance with the statutory provisions remains unaffected.

11. INTEREST PERIODS

11.1 Interest

The borrower is obligated to pay interest on the outstanding loan amounts in accordance with the following provisions.

11.2 Interest Periods

The interest periods are three (3) or six (6) months at the borrower's option. The borrower shall inform the agent in writing and irrevocably of the choice of the interest period as part of his disbursement request or (if it is a loan already granted under credit line A) as part of his prolongation request by 9:30 a.m. on the third (3rd) bank working day at the latest before the start of the next interest period. If the borrower does not exercise his option in time by submitting an application for extension, the interest period is three (3) months. A shorter period may be chosen for the first or last interest period after consultation with the agent.

11.3 Exercising the Right to Choose

The borrower must exercise his right to choose pursuant to Clause 11.2 (Interest Periods) in such a way that an interest period for sufficient amounts also ends at each repayment date pursuant to Clause 7.2

(Repayment) . For this purpose, an interest period with a shorter period of time than provided for in Section 11.2 (Interest Periods) can also be selected after prior consultation with the agent.

11.4 Commencement and End of Interest Periods

The first interest period begins at the beginning of the day of disbursement of the relevant loan (inclusive) and ends on the last day of the relevant interest period (not included). Each subsequent Interest Period begins at the beginning of the last day of the preceding Interest Period (inclusive) and ends on the last day of the relevant Interest Period (not included). If the last day of an interest period is not a bank working day, the interest period is deemed to have ended at the end of the next bank working day, unless the next bank working day falls in the next calendar month; in this case, the interest period is deemed to have ended on the bank working day immediately preceding the last day of the interest period.

11.5 Consolidation of Loans

If multiple loans under Line of Credit A have interest periods ending on the same date, those loans will be consolidated and treated as a single loan beginning with the following interest period, unless the borrower exercises their election as provided Clause 11.2 (interest periods) otherwise.

12. MARKET DISTURBANCE, ALTERNATIVE METHOD OF CALCULATION

12.1 Market Disruption

The agent will notify the borrower immediately if one or more lenders, whose loan commitments alone or together amount to at least 35%, have informed the agent by 10:00 a.m. at the latest on the interest rate fixing day that their respective refinancing costs for the following interest rate period have been reduced by the respective EURIBOR not be covered. In this case, Section 12.2 (alternative calculation method) applies.

12.2 Alternative Calculation Method

(a) If this Clause 12.2 applies, the interest owed to each Lender for its Underwriter Part shall be the applicable Margin pursuant to Clause 9 (Interest Rates) plus the interest rate notified to the Agent by the relevant Lender in respect of the relevant Interest Period as the Interest Rate to which he can refinance himself in the market. If this refinancing interest rate is less than zero (0)% pa, a refinancing interest rate of zero (0)% pa is applied.

(b) The parties to this Credit Agreement will enter into negotiations for a maximum of 30 days with the aim of agreeing on an alternative calculation of interest (including an alternative arrangement for the refinancing of the affected loan disbursements, the applicable interest rate and the interest period) (e.g. the money market interest rate offered by German banks). If the parties mutually determine an alternative calculation method, this shall apply to all affected payouts as long as the market disruption pursuant to Section 12.1 (Market Disruption Event) persists – otherwise the interest rate reported under paragraph (a) shall remain for the relevant period.

13. COMMISSIONS AND FEES

13.1 Commitment Fee

The Borrower shall pay to the Agent (for onward transmission to the Lenders) a Commitment Fee of 35% of the applicable Margin on a Lender's Available Loan Commitment for the duration of the Available Period, accruing on or after the third Banking Day following the execution of this Loan Agreement or on the earlier of Date of the first payment and due and payable subsequently at the end of a calendar quarter and for the terminated part of a loan commitment upon termination. The commitment commission is calculated based on the number of days elapsed and a 360-day year.

13.2 Utilization Fee

The Borrower pays to the Agent (on behalf of the Lenders) on the drawn and uncanceled portion of the Loan Commitment relating to the A lender's working capital line of credit charges a utilization fee depending on the amount the utilization of the working capital credit line according to the following table (each excluding the utilization by setting up a sub-credit line, which, regardless of its utilization, is expressly only used for the purposes of this Section 13.2 in the calculations of the amount of the utilization of the credit commitment in relation to the working capital credit line and the available credit commitment in relation to the working capital credit line are disregarded):

Amount of utilization in relationship to the Loan commitment (minus the established sub-credit lines)
Utilization commission (in basis points pa)

$\leq 33 \frac{1}{3} \%$ und $> 0 \%$

10

$> 33 \frac{1}{3} \%$ und $\leq 66 \frac{2}{3} \%$

20

$> 66 \frac{2}{3} \%$

30

The utilization fee is due and payable in arrears at the end of an interest period.

13.3 Participation Fee

The Borrower pays each Initial Lender a Participation Fee pursuant to a separate agreement.

13.4 Agent's Commission

The borrower pays to the agent (for its own account) an agent's commission according to a separate agreement.

14. TAXES

14.1 Definitions

(a) In this contract, the following terms have the following meanings:

"Protected Party" means a Financial Party that is or will be subject to any liability in connection with any amount received or to be received pursuant to a Finance Document (or any amount deemed to be

received or to be received for Tax Purposes) or a payment for or due to Taxes has to pay or will have to pay.

"Qualified Lender" means a Lender who is commercially The beneficiary of interest payments due to a loan disbursement in are payable to that lender as part of a financing document and which:

- (i) the loan is sufficient through a permanent establishment in Germany; or
- (ii) is an Eligible Lender;

"Tax Credit" means a credit, reduction, remission or refund of any tax.

"Tax Deduction" means a deduction or withholding from a payment under a Finance Document made for or on account of Tax, other than a FATCA Deduction.

"Tax Payment" means either an increase in a payment made by an Obligor to a Financial Party under Section 14.2 (Tax Net Clause) or a payment under Section 14.3 (Tax Exemption).

"Eligible Lender" means a Lender that:

- (iii) for the purposes of the double taxation treaty as in a treaty state is treated as a resident;
- (iv) does not conduct business in Germany through a permanent establishment to which that Lender's interest in the Loan is attributable.

"Treaty State" means a state that has entered into a double taxation agreement (a "Double Taxation Agreement") with Germany that provides for total exemption from taxes levied in Germany on interest.

- (c) Unless there is an indication to the contrary, in this Clause 14.1 "determined" refers to a determination made in the sole discretion of the person making the determination.

14.2 Tax Net Clause

(a) Each Obligor shall make the payments it owes without any tax deduction, unless a tax deduction is required by law.

(b) The Company shall promptly notify the Agent that an Obligor is required to deduct tax (or that there has been a change in the rate of tax or base applicable to the withholding of tax) upon becoming aware thereof. Likewise, a Lender shall notify the Agent if it becomes aware of any payment to be made to that Lender. If the agent if a notice to the effect is received from a lender, he shall notify the Company and the Obligor concerned.

(c) If an obligation is required by law to make a deduction of tax, the payment to be made by that obligation shall be increased by such an amount that the amount paid (after any deduction of tax has been made) equals the amount that would have been made had the deduction not been required would have been.

(d) A payment shall not be increased pursuant to paragraph (c) above as a result of a withholding tax imposed by Germany if, at the time the Payment:

(i) the payment could have been made to the applicable Lender with no tax deduction had it been a Qualified Lender but the applicable Lender was not a Qualified Lender at that time Lender is (any longer) and is not a result of any event occurring after the time it became Lender under this Agreement

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change (or change in interpretation, administrative practice or application) statutory regulation or one double tax treaty is a published administrative practice published tax benefit of a competent tax authority; or

(ii) the applicable Lender is an Eligible Lender and the Obligor making the payment can demonstrate that payment to the Lender could have been made without the tax deduction had such Lender complied with its obligations under paragraph (g) below.

(e)

(f) If an Obligor is required to make a Withholding Tax, it shall make the Withholding Tax and any payment required in connection with such Withholding Tax within the time limits required by law and to the lowest amount required by law. Within thirty days of the making of any tax deduction or payment required in connection with such tax deduction, the withholding agent shall provide to the agent, on behalf of the financial party entitled to the payment, evidence reasonably satisfactory to that financial party that the tax has been deducted or (if applicable) that all relevant payments have been made to the appropriate taxing authority.

(g) A Treaty Eligible Lender and any Obligor making a payment to which that Treaty Eligible Lender is entitled will cooperate to comply with the procedural and formal requirements necessary for such Obligor to make the applicable payment without withholding tax.

14.3 Tax Exemption

(a) The Company shall pay (within three Banking Days upon request of the Agent) to a Protected Party an amount equal to any loss, liability or other charge which the Protected Party determines that it shall (directly or indirectly) owe him or her has suffered or will suffer for or as a result of any tax in connection with a Finance Document.

(b) Paragraph (a) above does not apply:

(i) on taxes paid against a finance party:

(A) determined under the laws of the jurisdiction in which such Financial Party has its registered office or, if different, the jurisdiction or jurisdictions in which such Financial Party is considered to be tax resident; or

(B) be determined under the laws of the State in which the permanent establishment of that financial party for amounts received or to be received in that country, if the tax on the net income received or

receivable of this Financial Party charged or calculated on the basis of such net amount (other than such amounts deemed to be received or to be received only by such Financial Party); or

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(ii) to the extent that losses, liabilities or costs:

(A) be offset by an increased payment in accordance with Clause 14.2 (net tax clause) ;

(B) would have been offset by an increased payment under Section

14.2 (Net Tax Clause) , but were not offset solely because one of the exceptions in paragraph (d) of Section 14.2 (tax net clause) applied; or

(C) based on a FATCA deduction to be made by a party.

(c) A Protected Party who is making or intends to make a claim under paragraph (a) above shall promptly notify the Agent of the circumstance which will give rise to or has given rise to the claim: to inform, whereupon the agent has to inform the company.

(d) A Protected Party shall notify the Agent of receipt of payment from an Obligor under this Section 14.3.

14.4 Tax Credits

If an Obligor makes a tax payment and the relevant Financial Party determines that:

(a) a tax credit with an increased payment of which that tax payment is one forms part of, is related to a tax payment or a tax deduction as a result of which the tax payment had to be made; and

(b) the financial party or a company with which there is an income tax group (or a comparable institution under foreign law) has received and used this tax credit, the financial party has to pay the relevant obligor an amount which (after making the payment) according to the financial party's determination (taking into account the tax credit of a company with which there is an income tax group (or a comparable institution under foreign law)) into a position in which the finance party would be if the obligor had not had to pay the tax.

14.5 Confirmation of Lender Status

Each Lender who becomes a party to this Agreement after the conclusion of this Agreement shall indicate in the assignment agreement it signs to become a party as Lender, for the benefit of the Agent and without liability to any Obligor, which of the following categories it falls into:

(j) not a Qualified Lender;

(ii) Qualified Lender (but not an Eligible Lender); or

(iii) Eligible Lender.

If a New Lender fails to declare its status in accordance with this Clause 14.5, such Lender will, for purposes of this Agreement (including by any Obligor), until then do so treated as if it is not a Qualified Lender until it notifies the Agent which category it falls into (the Agent shall notify the Company upon receipt of such

notification). For the avoidance of doubt, failure by a Lender to comply with the provisions of this Clause 14.5 will not void a Transfer Agreement.

14.6 Stamp Duty

The Company shall, upon request, indemnify, within three Banking Days, any Finance Party against all costs, losses and liabilities incurred by that Finance Party in connection with stamp duty, registration duty or similar tax in respect of a Finance Document in an Obligor Jurisdiction and which are not based on a transfer of a consortium share are based.

14.7 Sales Tax

(a) Any sums payable by a party to a finance party under any Finance Document that are, in whole or in part, consideration for a service for the purposes of VAT law are free of any sales tax that may be applicable to that service; accordingly, subject to paragraph (b) below, if VAT is or becomes due on a performance by a Finance Party to another party to a Finance Document, that Finance Party shall have an amount to the extent that it is required to remit VAT to the appropriate taxing authority payable in the amount of sales tax (in addition to and concurrent with the payment of any other consideration for that service) (and the relevant financial party shall promptly issue a proper sales tax invoice to the relevant party).

(b) Occurs upon a delivery by one financial party (the "Performer") to another Financial Party (the "Beneficiary") in connection with a Finance Document VAT and is a party other than the Beneficiary ("Relevant Party") in accordance with the terms of the applicable Finance Document to pay an amount equal to Obligated to provide consideration for the service in question (instead of being obliged to reimburse or indemnify the recipient of the service):

(i) the Relevant Party shall pay to the Performer, to the extent that the Performer is required to pay VAT to the relevant taxing authority, an additional (and concurrent with the payment of the relevant amount) an amount equal to the VAT. The service recipient pays (to the extent this paragraph (i) applies) to the Relevant Party promptly an amount equal to any credit or refund from the relevant taxing authority that the Recipient reasonably determines relates to the sales tax that was to be charged on the relevant Service; and

(ii) the Relevant Party shall promptly, upon request by the Recipient, to the extent that the Recipient is required to pay sales tax to the relevant taxing authority, pay an amount equal to the sales tax that is levied on the relevant Service, but only to the extent that the Service Recipient reasonably determines that it is not entitled to a VAT credit or refund from the relevant taxing authority.

(c) To the extent that a Finance Document provides that a party is obligated to to reimburse or indemnify the financial party for costs or expenses, the relevant party shall reimburse or indemnify the Finance Party in full for such cost or expense, including that portion attributable to VAT, unless the Finance Party reasonably determines that it is entitled to a credit or refund of the relevant VAT from the relevant tax authority.

(d) All references in this Section 14.7 to a party include (to the extent relevant and unless the context otherwise indicates) in the event that a party is treated as a member of a VAT group, references to the person who at that time in accordance with the group-related provisions in Article 11 of

Council Directive 2006/112/EC, as amended (or in the version implemented by the relevant Member State of the European Union), is treated as the supplier or, where applicable, the recipient of the supply or service, so that a Reference to a party is to be construed as a reference to the relevant party or the relevant group or tax group to which the party belongs at the relevant time for sales tax purposes, or to the statutory representative or controlling company of this group or tax group.

- (e) With regard to a delivery or service provided by a finance party for a party within the framework of a financing document, the relevant party must, upon reasonable request of a finance party, immediately provide this finance party with information on the VAT registration of the party and transmit all other information relating to the VAT declaration obligations of the financial party with regard to the delivery or service in question can reasonably be required.
- (f) No obligor is obligated to pay sales tax amounts under the preceding paragraphs insofar as the sales tax was triggered by a financial party waiving a sales tax exemption and the obligor is not entitled to deduct input tax.

14.8 FATCA Information

(a) Subject to paragraph (c) below, either party shall, at the reasonable request of another party, within ten (10) business days

(i) to confirm to the other party whether

(a) they are a FATCA Exempt Party; or

(b) is not a FATCA Exempt Party,

(ii) provide that other party with all forms, documents and other information related to its FATCA

status that that other party reasonably needs to comply with FATCA regulations by such other party requests and

(iii) provide that other party with any forms, documents and other information related to its status that that other party reasonably requests for that other party to comply with any other law, regulation or obligation under information sharing procedures. in the from

(c) If a party certifies to another party pursuant to paragraph (a) above that it is a FATCA Exempt Party and provides that party subsequently determines that it is not or no longer a FATCA Exempt Party, that party shall notify the other party thereof as soon as practicable.

(d) Paragraph (a) above will not compel any Financial Party and paragraph (a)(iii) above will not compel any other party to take any action that, in its reasonable discretion, would or could constitute a violation of

(k) a law or regulation,

(ii) a duty of loyalty or

(iii) a confidentiality obligation.

(d) If a party fails to confirm whether or not it is a FATCA Exempt Party or to provide any forms, documents or other information requested under paragraph (a)(i) or (a)(ii) above (for the avoidance of doubt : this also applies if paragraph (c) above applies), for the purposes of (and making payments under) the Finance Documents, the relevant party will be treated as not being a FATCA Exempted Party until it has received the requested confirmation or provides the requested forms, documents or other information.

14.9 FATCA Deduction

(a)

(b) Each party shall be entitled to make any FATCA deductions required by FATCA and any other payments required in connection with the relevant FATCA deduction; neither party is obligated to increase any payment from which it makes a corresponding FATCA deduction or otherwise compensate the recipient of the payment for the relevant FATCA deduction. Once a party becomes aware that it is required to make a FATCA deduction (or that the tax rate or basis of assessment of the relevant FATCA deduction has changed), it shall notify the party to whom it is making payment and the Company and immediately notify the agent who will then notify the other financial parties.

15. INCREASE IN COSTS

In this clause 15 means

"Basel II" means the framework "International Convergence of Capital Measurements and Requirements, Revised Framework, Comprehensive Version" published by the Basel Committee on Banking Supervision in June 2004, as amended, but excluding changes due to Basel III. "Basel III"

- (a) the agreements on capital requirements, leverage limits and liquidity standards contained in the framework adopted by the Baseler Committee on Banking Supervision in December 2010 and from (i) "Basel III: A global regulatory framework for more resilient banks and banking systems" (Basel III: A global regulatory framework for more resilient banks and banking systems), (ii) "Basel III: International Framework Agreement on Measurement, standards and monitoring in relation to liquidity risk" (Basel III:
- (b) International framework for liquidity risk measurement, standards and monitoring) and (iii) the "Guidance for national authorities for the implementation of the countercyclical capital buffer" ("Guidance for national authorities operating the countercyclical capital buffer") (in its most recent version), the regulations published by the Basel Committee on Banking Supervision in November 2011 "Global systemically important banks: valuation methodology and requirements for the additional loss absorbing capacity - Framework Regulation" (Global important banks: assessment methodology and the additional loss absorbency requirement – Rules text) in the applicable version,
- (c) Regulation (EU) No. 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activities of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV) and

- (d) any other guidance or standard issued by the Basel Committee on Banking Supervision in connection with "Basel III" and any other regulation (of the legislature, a regulator, a financial party or a financial party Affiliate) that implements Basel III.

15.1 Cost Increase

If, after entering into this Credit Agreement, the waiver or amendment of a to a Lender applicable legislation (including Basel III, or such Laws and regulations that implement or apply Basel III) or their changed interpretation by a public authority, a court or another competent official acting body and/or the compliance of the same by a lender has the consequence that

- (a) the costs incurred by a lender or an affiliated company through the granting of a loan, e.g. from the refinancing of a loan, increase,
- (b) a Lender or any Affiliate thereof forfeits interest or other income under this Loan Agreement; or
- (c) an amount owed to a lender or one associated with him Company is payable under this loan agreement, or the rate of return of a lender reduced from (the "Cost Increases") the Lender concerned will, promptly after becoming aware of this and making the decision to require reimbursement of such cost increases from the Borrower, notify the Borrower in writing through the Agent. The Borrower shall pay the relevant Lender, on behalf of the Lender, within five (5) business days of the Agent's written request, amounts corresponding to such cost increases (excluding such cost increases relating to a period of more than 180 days prior to the assertion of the cost increase relate). The plausibility of the cost increases must be checked in a comprehensible manner for the borrower, whereby the lender in question is not obliged to disclose circumstances and documents that are confidential.

15.2 Exceptions to Reimbursement

Clause 15.1 (cost increase) does not apply to cost increases,

- (a) which the Borrower is already obligated to refund or exempt in full under Section 14.3 (Tax Exemption) (or would have been obligated had none of the exceptions in Section 14.3 (Tax Exemption) applied) or which have been otherwise compensated under this Credit Agreement ,
- (b) attributable to a FATCA deduction to be made by a party,
- (c) which are related to the implementation and application of Basel II (in the version at the conclusion of this loan agreement), unless they result from an amendment to Basel II, in particular with the implementation and application of Basel III (or such laws and regulations that implement or apply Basel III),
- (d) which are related to the implementation and application of Basel III, provided that the information required to calculate the cost increase lenders on the day of signing this loan agreement were available; or
- (e) caused by breaches by the financial parties of their legal or contractual obligations.

16. DAMAGES REDUCTION

(a) The lender concerned will make reasonable efforts to keep the disadvantages arising for the borrower from section 8.2 (illegality), section 14 (taxes) or section 15 (increase in costs) as low as possible. In particular, if this is possible without detriment to him, he will transfer the rights and obligations under this credit agreement to an affiliated company or a branch in another country.

(b) All obligations of the obligated party from the financing documents remain unaffected by paragraph (a).

17. OTHER INDEMNIFICATION OBLIGATIONS

17.1 Currency Exemption

(a) If one is from an Obligor under a Funding Document, a decision or sum due from a judgment (a "Sum") by the currency in which the sum is to be paid (the "First Currency") to another currency (the "Secondary Currency") must be converted in order to:

(i) to assert or register a claim against the obligor; or

(ii) a decision or judgment in respect of a judicial or initiate or enforce arbitration proceedings, the obligor must, within five (5) banking days of the request of the financial party to whom the sum is owed, indemnify it against all costs, losses and any liability arising as a result of the conversion, including the discrepancies between (A) the exchange rate at which the sum was converted from the first currency to the second currency and (B) the exchange rate or rates available to that financial party when it received the sum.

(a) Each Obligor waives any right it may have to pay amounts owed under the Finance Documents in a currency or unit of currency other than that specified in the Finance Documents.

17.2 Indemnification Obligations

The Company shall, upon request, indemnify (or arrange for an obligor to indemnify) any Financial Party within five (5) Business Days from all costs, losses and liabilities incurred by it as a result of any of the following circumstances arises:

(a) occurrence of a reason for termination,

(b) an Obligor's failure to pay any amount owed under a Funding Document when due, including costs, losses and obligations arising under Clause 28 (Distribution of Payments, Settlement) ;

(c) Refinancing or entering into agreements to refinance their Participation in a loan by the borrower in a Request for Disbursement has been requested but has not been granted due to one or more provisions of this Credit Agreement (unless for reasons attributable to the Lenders) or

(d) failure to prepay a Loan (or part of a Loan) pursuant to a Prepayment Notice issued by the Borrower.

17.3 Agent Release

The obligated are jointly and severally obliged to release the agent immediately from

(a) all costs, losses and liabilities incurred by the (reasonably acting) Agents arise due to the following measures:

(h) Investigating events that he has reason to believe constitute grounds for termination or

(ii) Acting in response to or in reliance on any communication, request or instruction which he reasonably believes is genuine, truthful and duly authorized or

(iii) engagement of attorneys permitted under this Credit Agreement;
auditors, tax advisors or other professional advisors or experts and

(b) all costs, losses and liabilities incurred by the Agent (other than as a result of the Agent's gross negligence or willful misconduct) in acting as (reasonable) agent under the Finance Documents.

18. COSTS AND EXPENSES

(a) The Company will reimburse the Arrangers or Agent for all reasonable external consultants' fees (including attorneys' fees with caps previously agreed with the Company) and other reasonable out-of-pocket expenses incurred by the Arrangers or Agent in connection with the preparation, negotiation and amendment and legal review of the Finance Documents (including the legal opinions obtained in this regard) and the syndication, provided that these have been previously agreed with the company in each individual case.

(b) If an Obligor requests a waiver or contract modification, or if a contract modification is required under Clause 32.3 (Replacement of the Reference Interest Rate), the Company will reimburse the Agent within five (5) days of the agent's request for all reasonable external costs and costs previously agreed with the Company out-of-pocket expenses (including capped attorneys' fees previously agreed with Company) incurred by the Agent in connection with the waiver or contract modification; substitute.

(c) The Company shall reimburse any Finance Party, within five (5) days of its request, for all costs and expenses (including attorneys' fees) incurred by the Finance Party in enforcing (including examining) its rights under the Finance Documents.

19. WARRANTIES

19.1 Warranty and Indemnification Obligation

Each Obligor party to this Credit Agreement:

(a) guarantees - irrevocably and unconditionally and jointly and severally - by way of a separate promise to pay each Financial Party, to pay such Financial Party any principal, interest, costs, expenses or other amounts arising out of or relating to the Finance Documents that are not paid in full and irrevocably by the Borrower have been made; such payment shall be made within five (5) Banking Days upon written request by a Financial Party (or the Agent on its behalf) (stating the amount required by the relevant Obligor and confirming that such amount is principal, interest, costs, expenses or other amounts arising out of or in connection with the Financing Documents which have not yet been paid in full and irrevocably by the Borrower); and

(b) undertakes - irrevocably and unconditionally as well as jointly and severally - to any Finance Party to indemnify that Finance Party against any costs, losses or liabilities incurred by the Finance Party

because any obligation of the Borrower under or in connection with any Finance Document or any obligation guaranteed by the Borrower is or becomes unenforceable, void or unlawful. The amount of the cost, loss or liability shall be equal to the amount that the financial party would otherwise be entitled to receive (reimbursement of positive interest); such claim shall be due within five (5) Banking Days upon written request by the relevant Financial Party (or the agent on its behalf).

For the avoidance of doubt, this guarantee and indemnification obligation is not a first- demand guarantee and, in particular, receipt of any such written request shall not waive the rights and/or defenses that the affected Obligor may have with respect to any Financial Party (or Agent in on his behalf) may be entitled to any payment required under this warranty and indemnification obligation.

19.2 Surviving and Independent Warranty and Indemnification

(a) This guarantee and indemnification obligation are independent and separate from the Borrower's obligations and as a continuing guarantee and indemnification obligation, extending (notwithstanding any intervening payment or full or partial performance) to the ultimate balance payable by the Borrower pursuant to the Finance Documents , to watch.

(b) The Guarantee and indemnification obligation extends to any additional obligations of the Borrower arising out of any modification, novation, amendment, renewal, rewrite or replace any Finance documents, in particular an extension or increase of a facility or the addition of a new facility under a financing document

19.3 Resurgence

Where a payment by an Obligor or discharge of an obligation by a Financial Party (whether in respect of an Obligor's obligations, a security for those obligations or otherwise) is challenged or reduced as a result of bankruptcy or a similar event, so:

(a) the liability of the obligor shall continue as if such payment, exemption, rescission or reduction has not taken place; and

(b) each financial party shall be entitled to collect the value or amount of such security or payment from any Obligor as if the payment, discharge, avoidance or reduction had not occurred.

19.4 Excluded Objections and Defenses

(a) Any Obligor's obligations under this Clause 19 shall be governed by any act, omission or other circumstance relating to the Borrower's principal liability (or contemplated principal liability) which would reduce, prejudice or relieve any of its obligations under this Clause 19 , not touched. This also applies to defenses by the principal debtor or rights to contest or set-off by the borrower.

(b) The obligations of each Obligor under this Clause 19 are independent of any other security or guarantee held by the Financial Parties may have been provided or may be provided in the future. In particular, each Obligor's obligations under this Clause 19 shall not be affected by:

(i) the discharge of another obligation of its obligations or in relation to its obligations under or in connection with a financing document, its deferral, waiver thereof or any consent in relation thereto;

(ii) of adoption, of modification, of comparison, of exchange, of renewal or waiver of rights against an obligation or any other person or in relation to any security in the property of any obligated or another person as well as the refusal or failure to bring about the conditions necessary for such rights to be effective or to assert or enforce such rights or failure to obtain the full value of any security;

(iii) any incapacity or lack of power, authority or legal personality of any other Obligor or its dissolution or deterioration of its financial condition; or

(vi) any unenforceability, illegality or invalidity of any obligation of another Obligor to a Finance Document. out

(c) For the avoidance of doubt, nothing in this Clause 19 shall preclude any objections or defenses that an Obligor (solely in its capacity as Guarantor) may raise against a Financial Party on the grounds that the Guarantee and indemnification obligation are not lawful, effective, legally binding and enforceable represent obligations on his part.

19.5 Immediate Recourse

No Financial Party (or any trustee or agent on its behalf) shall have any obligation prior to bringing any claim against any Obligor under this Clause 19 first to take action against another person or to enforce other rights or securities against another person or to demand payment from another person. This applies notwithstanding anything to the contrary in any Finance Document.

19.6 Use of Funds

As long as not all amounts that the obligated from or in connection with the Financing Documents, if any, are or will be payable, have been paid irrevocably and in full, any Finance Party (or any trustee or agent on their behalf):

- (a) refrain from giving any other monies, securities or rights to these financial party (or any fiduciary or agent on its behalf) holds or has received, use or enforce, or may use and enforce in such manner and order as it sees fit (whether against these amounts or otherwise), and no Obligor is entitled to the benefit of such funds, securities or rights; and
- (b) deposit in an interest-bearing suspense account any monies received from, or as a result of, an obligor's liability under this Clause 19.

19.7 Deferral of Obligor Rights

As long as not all amounts that the obligated from or in connection with the Financing Documents, if any, are or will be payable, have been irrevocably paid in full and provided the Agent does not object Instructions are given, no Obligor will exercise any rights conferred on it by virtue of the performance of its obligations under the Finance Documents or as a result of any action hereunder clause 19 or any liability hereunder you may be entitled to and are directed to:

- (a) Release by an Obligor;
- (b) Compensation by another guarantor of an Obligor's obligations under the Financing Documents;
- (c) exercising a right of set-off against an obligation; and or

- (d) the right (whether in whole or in part and whether by subrogation or otherwise) to benefit from any rights of any Finance Party under the Finance Documents or any other guarantee or security made by any Finance Party under or in connection with the Finance Documents were granted to draw. To the extent that an Obligor receives any benefit, payment or distribution in respect of such rights, the Obligor shall have such benefit to hold such payment or distribution in trust for the Financial Party to the extent necessary to collect all amounts arising out of or in payable in connection with the Financing Documents by the Obligors to the Financial Party may be or may be payable in full; the obligor shall promptly pay or transfer them to the Agent or act at the Agent's direction for use in accordance with Clause 28 (Distribution of Payments, Settlement of Balances).

19.8 Additional Security

This guarantee is in addition to any other guarantee or guarantee now or hereafter held by any financial party and is not affected in any way by such other guarantee or guarantee.

20. REPRESENTATIONS

20.1 Representations

Each Obligor (and the Company in relation to the other Obligors who are not party to this Credit Agreement) hereby (and where expressly referred to, on behalf of its affiliates) makes the following representations:

- (a) existence of the group companies. In the legal form evident from their respective company names, the obligated parties are duly founded and legally existing companies with the right to dispose of their assets in the ordinary course of business and to conduct their business in the current manner.
- (b) Binding Commitments. All subject to legal restrictions
 - (i) the obligations assumed by the Obligors in the Financing Documents are lawful, legally binding and enforceable,
 - (ii) the choice of law of German law in the Finance Documents to which the relevant Obligor is a party is recognized and enforceable in the jurisdiction under which an Obligor was formed and
 - (iii) any judgment rendered in the jurisdiction of the Federal Republic of Germany relating to the Finance Documents to which the Obligor is a party will be recognized and enforceable in the jurisdiction under which the Obligor was incorporated.
- (c) No Breach of Duty. The conclusion of the financing documents and the implementation of the legal transactions and legal acts provided therein, including the fulfillment of any obligations, do not violate any material legal or contractual obligations or duties (subject to the legal restrictions in each case) or contractual obligations (including those under the Articles of Association, Articles of association or other rules of procedure) of the obligated.
- (d) Authorization. The obliged entities are entitled to conclude the financing documents to which they are party and to carry out the legal transactions and legal acts provided for therein. All necessary (in particular corporate law) Approvals, approvals, applications or registrations are available or have taken place or will be available or have taken place in good time.

(e) Permissions and Permissions.

(i) All permissions required

(A) to make it an obligation to enable it to lawfully enter into Finance Documents and to exercise and/or perform its rights and obligations under the Finance Documents.

(B) for the Finance Documents to which an Obligor is a party to be admissible in evidence under the jurisdiction under which it is incorporated, have been obtained or effected and are effective.

(ii) All permits necessary for the business operations of the Obligors and the Material Group Companies have been obtained and are effective.

(iii) Each Obligor and each Material Group Company shall have title or effective interest in, or all necessary rights, licenses, permits and approvals to use, the assets and intellectual property rights to continue the business as it is then executed, unless the absence of which is not material Adverse effect result.

(e) Insolvency. No application was made for the opening of insolvency proceedings or comparable proceedings under a foreign legal system regarding the assets of an obligated party or a material group company. There is no obligated party and no significant group company

There is a reason for insolvency in accordance with §§ 17 or 19 of the InsO or a comparable provision of a foreign legal system applicable to a material group company and no enforcement is pursued in the amount of more than EUR 2,500,000.

(f) No stamp duty or registration required. Under the jurisdiction under which an Obligor is formed, no stamp duty or similar tax or duty is payable in connection with the completion of the Finance Documents or any legal transactions and legal acts contemplated therein, and there is no registration requirement or other legal obligation to officially register the Finance Documents.

(g) No reason for termination.

(i) There is no reason for termination.

(ii) At the time of signing this Credit Agreement and on the date of the first disbursement under this Credit Agreement, there is no reason for termination and no termination event.

(h) Information.

(i) All information and documents essential for their credit decision were made available to the Initial Lenders.

(ii) All documents and written information provided to the agent or other financial party are correct in all material respects.

(iii) To the extent that opinions or expectations are expressed or financial forecasts and predictions are made in the documents, they are the result of careful examination by the authors and are based on assumptions and current information that are realistic at the time of preparation.

(iv) No event or circumstance has occurred which would render the documents and information referred to in sub-paragraph (ii) incorrect or misleading in any material respect.

(j) Careful accounting. The agent as a disbursement requirement according to Part 1 of Appendix 2 (disbursement requirements) or the lenders last according to Paragraph (a) of Section 21.1 (Regular Financial Information) and the most recent quarterly reports of the Group and Group companies submitted in accordance with Paragraph (b) of Section 21.1 (Regular Financial Information) are accurate and in compliance with the applicable accounting principles (including applicable valuation principles) have been created and communicate on the respective balance sheet date a (essentially in the case of unaudited financial statements or quarterly reports) picture of the assets, Financial position and results of operations of the group. Since the deadline of the last delivered Financial Statements no material adverse impact has occurred.

(k) litigation. There are no legal disputes, judicial or official proceedings of a civil, administrative, tax or other nature pending against the obligated or material group companies which, based on reasonable assessment, are likely to be to the detriment of them be decided and in that case would most likely have a Material Adverse Effect.

(l) group structure. The group organizational chart provided to the agent as a payout requirement pursuant to Part 1 of Schedule 2 (Payout Requirements) represents an accurate and up-to-date overview of the group.

(m) tax deduction. All payments owed under the Credit Agreement can be made without tax deduction to Eligible Lenders.

(n) Anti-Corruption, Sanctions and Money Laundering Provisions.

(j) Subject to subparagraph (ii) below

(A) Neither an Obligor nor, to the best of our knowledge, the obligated party, one of their board members or one of their Employee,

(i)

(ii) are the subject of (or involved in actions against) Sanctions (would be violated) imposed by the US Office of Foreign Assets Control of the US Department of Treasury ("OFAC") and the Office of Export Enforcement of the US Department of Commerce ("OEE") or equivalent sanctions or measures imposed by the United States, the Federal Republic of Germany, the EU or the UN (hereinafter collectively and including the US Foreign and Corrupt Practices Act 1977 and the UK Bribery Act 2010 or any other applicable anti-bribery and anti-corruption laws, "Sanctions") and is owned 50% or more by, or otherwise controlled by, or acting on behalf of, one or more persons who are the subject of Sanctions (collectively, "Sanctioned Persons") , or is located or organized in any country or territory which is subject to sanctions (in particular, but not limited to, Cuba, Sudan, Syria, Iran, North Korea and the Crimea region of Ukraine, collectively "Sanctioned Countries").

(B) To the best of the Obligors' knowledge and belief, no action or investigation by any governmental or regulatory authority has been taken in the last seven years and will not be taken against any Obligor or, to the best of their knowledge, any of their Conducted or threatened by any director or any of their employees in connection with alleged violations of anti-bribery and anti-corruption laws.

(ii) The obligated parties make the representation under (i) only insofar as this does not give rise to any liability under applicable anti-boycott provisions for any of the persons named under (i) (including Regulation (EC) 2271/96 as amended by Regulation (EC) 807/2003). , and Section 7 Ordinance on the Implementation of the Foreign Trade Act (Foreign Trade Ordinance)).

(iii) The Obligors will not make the representation under (i) to any Financial Party to the extent that doing so would give rise to liability under any applicable anti-boycott provisions (including Regulation (EC) 2271/96 as amended by Regulation (EC) 807/2003). , and Section 7 Ordinance on the Implementation of the Foreign Trade Act (Foreign Trade Ordinance).

(iv) The Obligors confirm to the best of their knowledge that

(a) they all regulations applicable to them to prevent the comply with money laundering and the financing of terrorism and have implemented appropriate measures to ensure compliance with the regulations applicable to them to prevent money laundering and the financing of terrorism; and

(B) no proceedings are for violations of the applicable to them Anti-Money Laundering Regulations and terrorist financing are pending or specifically threatened

(o) collateral. No collateral is encumbered with the assets of the Obligated Persons or other group companies, with the exception of the Permitted Collateral and the conclusion of the financing documents, the fulfillment of their obligations and their execution by the Obligated Persons do not result in an obligation of an Obligor or a Group Company to provide any security other than the Permitted Collateral to order.

(p) Financial liabilities: There are no financial liabilities of group companies except the permitted financial liabilities.

(q) Pari Passu. The obligations of the Obligors to pay under the Finance Documents shall at all times rank at least pari passu with third party payment obligations not secured by collateral, except for obligations which, in the event of bankruptcy or otherwise by operation of law, have priority.

(r) insurance coverage. All assets of the obligated and essential group companies that are necessary for the operation are effectively insured against damage and loss to the extent customary in the industry.

(s) Market conditions. Each group company has only entered into contracts with third parties on terms customary in the market ("at arm's length terms"), whereby customary market conditions are to be determined with the due diligence of a prudent and conscientious businessman.

20.2 Making and Repeating Representations

(a) The representations to be made under this Section 20 will be made on the date of signing of this Credit Agreement.

(b) The representations made under paragraphs (a) (Existence of Group Companies) through (d) (Eligibility), (e) (i) and (ii) (Permissions and Permissions) and (h)(i) (No Reason for Termination) and the subsections (ii) and (iii) of paragraphs (i) (Information) through (j) (Prudent Accounting)

of Section 20.1 (Representations) are provided by the Obligors (and by the Company for the other Obligors that are not parties to this Facility Agreement are or will be) on the date of accession in the event of a later accession by an Obligor to this Credit Agreement or the

Guarantee contract, repeated when submitting each payment request and each time a prolongation request is submitted.

(c) In the event that an application for a renewal with regard to a new Interest Period is not submitted, the aforementioned representations shall be deemed repeated by each Obligor on the first day of the new Interest Period.

(d) Any representations made after the date of signing of this Credit Agreement will be made with reference to the circumstances and facts then in existence.

21. INFORMATION OBLIGATIONS

21.1 Periodic Financial Information

The company will inform the lenders regularly via the agent about the development of the economic situation of the group and, if applicable, each obligated party and submit the following documents to the agent (for forwarding to the lenders) immediately and without being asked:

(a) Annual financial statements and bank overview: Immediately after preparation, but no later than 150 days after the end of each financial year (or in the case of the audited annual financial statements of ADVA Optical Networking Ltd., no later than 240 days after the end of the financial year, whereby the annual financial statements in unaudited form already no later than 150 days after the end of the financial year must be submitted) must be submitted:

(i) audited consolidated financial statements and audited individual financial statements of the company (including balance sheet, income statement, cash flow statement with notes and management report, if required by law),

(ii)

(iii) Current bank analysis for the group (broken down by credit type, Borrowers, maturities, repayment modalities and collateral), and unconsolidated and, where available, consolidated financial statements (including balance sheet, income statement and Cash flow statement) of all other obligated parties, in each case to the extent available or legally required in certified form.

(b) quarterly reports. Immediately upon preparation, but no later than 60 days after the end of each quarter, a consolidated unaudited quarterly report (including balance sheet, profit and loss account and cash flow statement) of the company for the second quarter and a consolidated balance sheet and profit and loss account for the first and third quarter of each fiscal year. The report must include a target/actual comparison with the same period of the previous year.

(c) Budget. Budget signed by a number of natural persons authorized to represent the company registered in the commercial register, which must be reasonably prepared in a form acceptable to the agent and must be submitted no later than 30 days after the start of each financial year.

21.2 Change in Accounting

(a) The Company ensures that all financial statements to be submitted pursuant to Section

21.1 (Regular Financial Information) are prepared in accordance with the same accounting,

recognition or valuation policies (including the exercise of election rights) underlying the financial statements provided to the Agent as a disbursement condition pursuant to Part 1 of Schedule 2 (Disbursement Conditions) , unless promptly notifying the Agent in writing about a change in their accounting, recognition and valuation methods or the exercise of the option rights in the annual financial statements or quarterly reports to be submitted (compared to the financial statements provided to the agent as a disbursement requirement in accordance with Part 1 of Appendix 2 (Disbursement Requirements)) and provides the lenders significant changes, a reconciliation statement satisfactory to the agent explaining the economic impact of the new methods is available from a Chartered Accountant (except for changes relating to the reclassification of operating leases as finance leases due to of the IFRS regulations that will apply after January 1, 2019).

(b) At the request of the Agent (acting at the direction of a majority of the Lenders), the Borrower and the Lenders shall for a period not exceeding three (3) Weeks of negotiations on an adjustment of the key financial figure in accordance with Section 22 (financial indicator) and the margin adjustment according to clause 9.3 (margin adjustment) (except for changes regarding the reclassification of operating leases as finance leases due to the IFRS regulations, which will apply after January 1, 2019). If no agreement is reached within this period or before the end of the current quarter, the financial ratio and the calculation of the leverage ratio for the margin adjustment will continue to be calculated based on the previous accounting, recognition and measurement methods. In this case, the borrowers are obliged to continue a pro forma account based on the previous accounting, recognition and valuation methods.

21.3 Compliance Certificate

The company will provide the agent with each quarterly report and each consolidated financial statement, for the first time together with the annual financial statements as of December 31, 2018, an audit certificate signed by a number of natural persons who are authorized to represent the company (but at least one member of the Management Board) entered in the commercial register ("Compliance Certificate") in the form of the model in Annex 10 (model compliance certificate) with the addition of sufficiently detailed calculations, which

(a) confirms compliance with the financial ratio specified in Section 22 (financial ratio) and shows the gearing required for an adjustment of the margin

(b) reports the amounts that the Company reports in accordance with the IFRS rules effective before January 1, 2019 for the purpose of calculating the financial ratio in accordance with paragraph 22 (Financial ratio) and the margin adjustment in accordance with Clause 9.3 (margin adjustment) has qualified as an operating lease and which, according to the IFRS regulations that will apply after January 1, 2019, will qualify as a finance lease and

(c) additionally if submitted together with the audited consolidated financial statements of the company

(i) a list of significant Group companies and

(ii) a calculation showing that the warranty coverage according to para.

23.18 (Warranty Coverage, Joining of Guarantors) is complied with and which is accompanied by a confirmation from the Company's auditors that the list and the individual calculations are correct.

21.4 Other information, bank meeting

The obligated are (each for forwarding to the lenders) to the agent in case of paragraph (a) at the same time and in all other cases immediately, but in any case no later than five (5) banking days after becoming aware

- (a) all written information about their financial circumstances that a Obligor makes generally available to other lenders,
- (b) any other written information that the Agent (or a Lender through the Agent) reasonably requests. about the economic or financial situation of the group, the course of business, the annual accounts and interim reports to be submitted by the obligated parties and the budget (in text form) as well as explanation of this information by natural persons authorized to represent the company in a number of authorized representatives in a meeting with representatives of the lenders (max once in each financial year),
- (c) any other information and disclosure that a lender (about the Agents) reasonably to the financial and economic circumstances of obligated and the group requests,
- (d) Information regarding any material judicial, arbitration or regulatory proceeding against a Group company become pending, provided that these with predominant probability could have a negative outcome and this one could have a material adverse effect,
- (e) Information about (i) the existence of a reason for termination or termination, (ii) or changes in the composition of the board of directors company or the management of an obliged entity and (iii) change of financial year of the obligated,
- (f) Information about the initiation of insolvency proceedings or similar Proceedings in a jurisdiction other than the Federal Republic of Germany in relation to a member of the group, and
- (g) at the request of a finance party (via the agent), all information, documents and evidence that the relevant finance party reasonably requires in order to comply with its legal or regulatory obligations to identify a borrower and a beneficial owner (including but not limited to section 18 KWG and pursuant to the other provisions of the Money Laundering Act, the Banking Act and Section 154 of the Tax Code or comparable provisions in other applicable legal systems).

22. FINANCIAL INDICATOR

22.1 Definitions

"Calculation Date" means March 31, June 30, September 30 and December 31 of each year during the term of this Credit Agreement beginning on December 31 of December 2018.

"Financial debt" means (without double counting) all liabilities of Group companies (excluding those from derivative transactions) to banks plus liabilities

- (a) acceptances,

- (b) sold or discounted receivables (e.g. fake factoring), unless recourse against a group company is excluded (if there is limited liability/recourse in the case of the sale of receivables without fundamental recourse against a group company, this amount is classified as financial debt to record (deductible))
- (c) repurchase agreements,
- (d) Borrowing on the capital market, promissory note loan, commercial Paper (including promissory notes, bonds, commercial paper, any other debenture or other securitized debt instrument),
- (e) Finance lease transactions to the extent that they are accounted for as finance leases under the applicable IFRS rules (although those leases and hire-purchase agreements that were accounted for as operating leases under the IFRS rules before January 1, 2019 will continue to be accounted for after January 1, 2019 can be accounted for as operating leases), and
- (f) other interest-bearing on-balance-sheet financial liabilities (excluding provisions) that have the economic effect of borrowing.

"EBITDA" means operating income reported

- (a) plus write-downs on financial assets,
- (b)
- (c) plus amortization of goodwill, plus depreciation of intangible assets and property, plant and equipment.

"Leverage" means the ratio of financial debt to EBITDA.

22.2 Financial Covenant

The company guarantees that the leverage ratio of 2.75 will not be exceeded on each calculation date during the term of this loan agreement.

22.3 Calculation and Verification

(a) The Financial Covenant is calculated on each Calculation Date subject to paragraph (c) on the basis of the Company's consolidated financial statements in accordance with Clause 21.1 (Periodic Financial Information) .

(b)

(c) The key financial figure is made up of earnings figures and/or balance sheet figures. Earnings figures and the interest and redemption payments always relate to the rolling period of twelve (12) months ending on the respective calculation date, the balance sheet figures to the value on the calculation date. If a company or business is bought or sold during a 12-month period, for purposes of calculating the financial ratio, the Contribution of this company or company to the EBITDA and to Group financial indebtedness as if the acquisition or sale had taken place on the first day of the 12-month period.

(c) The company will demonstrate compliance with the key financial figure by submitting the compliance certificates in accordance with Section 21.3 (Compliance Certificate). If the

compliance certificate to be confirmed by the auditor shows that a previous compliance certificate was not applicable, the compliance certificate confirmed by the auditor is decisive.

23. GENERAL CONDITIONS

23.1 Permissions

Each Obligor (and the Company in relation to the other Obligors who are not party to this Loan Agreement) warrant that they have obtained all permissions required by the jurisdiction in which they are incorporated from time to time to:

- (a) to be able to fulfill their obligations under the financing documents;
- (b) the effectiveness and enforceability of the financing documents and their ensure admission as evidence; and
- (c) to operate their business operations in the form exercised, promptly obtain, comply with and do whatever is necessary to ensure that they remain in force, in each case to the extent that breach of such permit requirement would have a Material Adverse Effect.

23.2 Compliance with Laws and Contractual Obligations

Each Obligor (and the Company in relation to the other Obligors who are not party to this loan agreement) warrant that

- (a) the laws and regulations applicable to the obligated parties and significant administrative and judicial orders; and
- (b) the obligations of the obligated party from material contracts with third parties or other binding agreements be complied with to the extent that breaching them would have a material adverse effect.

23.3 Anti- Corruption, Sanctions and Money Laundering Provisions

(a) Each Obligor (and the Company in respect of the other Obligors who are not parties to this Loan Agreement) warrant (subject to paragraph (b) below)

(i) not to use, lend or otherwise use, directly or indirectly, the proceeds generated under this Credit Agreement for any purpose that violates any applicable sanctions would constitute, but solely for this in this purpose specified in the credit agreement or to a natural or legal person as a loan or in any other way exclusively for the purpose specified in this credit agreement to make available and

(ii) conduct its business in accordance with applicable sanctions, anti-corruption and money laundering regulations and implement and maintain policies, procedures and controls that ensure compliance by the obliged entities with applicable sanctions, anti-corruption and money laundering regulations.

- (c) The obligations under paragraph (a) above apply only to an Obligor or to a Financial Party to the extent that this does not result in a violation of applicable anti-boycott regulations (including Regulation (EC) 2271/96 as amended by Regulation (EC) 807). /2003, and § 7 Ordinance on the Implementation of the Foreign Trade Act (Foreign Trade Ordinance)).

23.4 Corporate Structural Measures

Each Obligor (and the Company in relation to the other Group companies that are not parties to this Credit Agreement) warrants that no Group company will effect a merger, demerger, change of legal form, accrual or other corporate structural measure, unless it is such corporate reorganization in relation to (i) one or more Obligors (where the Company has an interest, this must be the remaining Company), or (ii) one or more Non-Obligors and payments or other dispositions resulting therefrom are made only for the benefit of other Group Members.

23.5 Change of Business

Each Obligor (and the Company in respect of the other Obligors not party to this Credit Agreement) will ensure that no Obligor will materially alter or cease to operate its business, except as otherwise permitted under the Credit Agreement Measure.

23.6 Acquisitions and Joint Ventures

Each Obligor (and the Company in relation to the other group companies that are not parties to this Credit Agreement) warrants that no group company will acquire shares, companies or parts of companies, establish new companies or invest in existing companies outside the group, with the exception of Permitted Acquisitions.

23.7 Obligation to Maintain Intellectual Property Rights

Each Obligor (and the Company, in respect of the other Obligors not party to this Loan Agreement) agrees to maintain all intellectual property rights necessary for the conduct of the Obligor's business, to defend against infringement and to have record keeping obligations related thereto (e.g. requesting required registrations, submitting required documents and paying required fees).

23.8 Pari Passu Clause

Each Obligor (and the Company in respect of the other Obligors not party to this Loan Agreement) warrants that its obligations under the Financing Documents will at all times rank at least par with unencumbered third party obligations other than obligations , which are to be fulfilled as a matter of priority in the event of insolvency or otherwise by operation of law.

23.9 Negative Declaration

Each Obligor (and the Company in relation to the other Group Companies which are not parties to this Loan Agreement) warrant that no Group Company will post or agree to any Collateral or allow any Collateral to remain in place, other than Permitted Collateral.

23.10 Sale of Property

Each Obligor (and the Company in respect of the other Group companies that are not parties to this Credit Agreement) warrant that no Group company will dispose of any assets other than Permitted Disposals.

23.11 Normal Market Conditions

Each Obligor (and the Company in relation to the other Group companies that are not party to this Credit Agreement) vouch that no Group Company enters into contracts with third parties or transact business

that deviate significantly from normal market conditions and thus do not stand up to third-party comparison, es unless the group company could not recognize this when concluding the contract or transaction when applying the due diligence of a prudent businessman.

23.12 Lending and Assumption of Liability

Each Obligor (and the Company in relation to the other Group companies that are not parties to this Credit Agreement) will ensure that no Group Company grants or maintains any credit, guarantee, surety or other assumption of liability for the liabilities of third parties, other than Permitted Credit Grants and Permitted Assumptions of Liability.

23.13 Payments to shareholders and related parties

Each Obligor (and the Company in relation to the other group companies that are not parties to this Credit Agreement) will ensure that no group company will distribute any dividends or other payment or benefit to any direct or indirect shareholder or partner of the Company or any related party Person Makes Payments Except Permitted.

23.14 Financial Liabilities

Each Obligor (and the Company, in relation to the other Group companies that are not parties to this Credit Agreement) warrant that no Group Company will enter into or maintain any financial liabilities (including finance leases and sale and leaseback transactions), except as permitted financial liabilities.

23.15 Insurance

Each Obligor (and the Company in relation to the other Obligors or Significant group companies that are not parties to this credit agreement) are responsible for ensuring that the obligated parties and significant group companies take out or maintain the insurance policies that are necessary for their business operations and are customary in the industry and will provide evidence of this to the agent at his request.

23.16 COMI

The company guarantees that no obliged entity will relocate its registered office or its center of main interest (COMI) to another country.

23.17 Use of Credit Funds

The company is responsible for the intended use of the loans and claims under the sub-credit lines in accordance with this credit agreement.

23.18 Warranty Coverage, Accession by Guarantors

The Company warrants that as of the date of this Credit Agreement (based on EBITDA and total assets as of June 30, 2018) and thereafter within 45 days of the submission of the Consolidated Financial Statements pursuant to paragraph (a) of Section 21.1 (Regular Financial Information) , Group companies, their EBITDA (calculated according to Section 22 (Financial ratio)) or total assets (each on a consolidated basis) represent at least 75% of the consolidated Group EBITDA (calculated in accordance with Section 22 (Financial ratio)) or total assets of the Group on a consolidated basis (each based on the consolidated financial statements of the Company) , are guarantors in connection with this credit agreement or, if necessary, accede to this credit agreement or the guarantee agreement as guarantors in accordance with

Section 26.2 (Accession of Guarantors , whereby, to the extent necessary to comply with the obligation under this Section 23.18, first of all Material Group Companies and, to the extent still necessary ,others thereafter Group Companies of this credit agreement or the guarantee agreement as guarantors should join.

23.19 Subsequent Condition, Legal Opinion

The Company warrants that within 60 days of the date of the first disbursement, a legal opinion (in a form and form and content reasonably satisfactory to the Agent) will be obtained from the Borrower's Legal Counsel under Georgia law recognizing the Choice of Law Clause and of the place of jurisdiction clause of the guarantee contract and for the recognition and enforceability of a German judgment in connection with the guarantee contract.

24. TERMINATION

24.1 Reasons for Termination

Any of the following events and circumstances constitute grounds for termination:

- (a) Non-Payment: An Obligor fails to make any payment due under a Funding Document when due unless the non-payment is due to a technical or administrative error and is corrected within three (3) bank working days after the due date.
- (b)
- (c) Improper use: A loan used or a claim under a sub-credit line is used for a purpose other than that specified in Section 3 (Purposes) and, to the extent that this can be remedied, not remedied within fifteen (15) banking days after the Company has become aware or has been notified by the Agent.

Financial ratio: The financial ratio according to clause 22 (financial ratio) is not met.

- (d) Other Obligations: Any other obligation contained in the Finance Documents (other than as set forth in paragraphs (a) (non-payment) through (c) (financial ratio)) is not complied with by an Obligor and, to the extent that the fulfillment of the relevant obligation can be rectified, is not rectified or rectified within fifteen (15) banking days after the Obligor became aware of it or the Agent notified the Obligor.
- (e) Representations: Any representation to be made or repeated or deemed to be repeated by the Company or an Obligor under any Finance Document is materially incorrect or misleading at the time made and, subject to the representations pursuant to Section 20.1 (Representations) (i) (Information) and paragraph (j) (Prudent Accounting) , to the extent that it can be cured, is not cured within fifteen (15) banking days of the Obligor become knowledgeably or notifying the Obligor by the Agent.
- (f) Cross default: A financial liability of an obligated party or a material group company is not paid when it falls due and within a payment period granted; a creditor of an obligated party or a material group company is entitled to terminate a financial liability vis-à-vis an obligated party or a material group company extraordinarily early or a corresponding termination is already effective unless the affected financial liabilities of all affected obligated parties and significant group companies do not exceed a total of EUR 7,500,000 or the equivalent in other currencies.

(g) Insolvency:

(i) In the case of an obligated party or a material group company that was founded under German law or has its center of main interests (COMI) in Germany, there is a ground for insolvency pursuant to Sections 17 or 19 of the Insolvency Code.

(ii) An Obligor or a Material Group Company has generally ceased or announced that it will make payments on its debt.

(iii) An Obligor or a Material Group Company, due to financial difficulties, enters into negotiations with one or more of its creditors of financial liabilities with the aim of generally restructuring its liabilities.

(iv) In respect of an Obligor or a Material Group Company which is not incorporated under the laws of Germany and does not have its center of principal interest (COMI) in Germany, an event occurs which gives rise to the circumstances set out in paragraph (i) above designated events.

(h) Bankruptcy Proceedings, Moratorium, Liquidation and Other Proceedings: About the An application for the opening of insolvency proceedings or similar was filed against the assets of an obligated party or a significant group company Proceedings in accordance with a foreign legal system (unless one of Application made by a third party is obviously abusive and will be rejected or withdrawn within fifteen (15) banking days), provisional insolvency measures taken, or insolvency proceedings, moratorium, other debtor protection or similar proceedings opened in a relevant jurisdiction (or the opening of insolvency proceedings or a comparable one). proceedings under a foreign legal system were dismissed for lack of assets) or liquidation proceedings were applied for or initiated.

(i) Foreclosure measures: Foreclosure measures or a corresponding measure (but not the mere threat thereof) will be taken against the assets of an Obligor or a Material Group Company in respect of an outstanding amount of more than EUR 3,500,000 in an individual case or the equivalent in other currencies and not within fifteen (15) bank working days after an obligated party has become aware of it again or temporarily suspended.

(j) Unlawfulness, Invalidity: A Finance Party's right under a Finance Document is not effective or unenforceable or the performance of any obligation under the Finance Documents is unlawful for an Obligor and this will not be cured within five (5) banking days of an Obligor's knowledge.

(k) Acknowledgment of a Funding Document: An Obligor does not acknowledge, contest or dispute its obligations under a Funding Document.

(l) Legal Disputes: A legal dispute, judicial or administrative proceeding of a civil, administrative, tax or other nature is pending against an Obligor or a Material Group Company which will most likely have a Material Adverse Effect.

(m) Expropriation: An expropriation is initiated in respect of an Obligor's or Material Group Company's property that could result in a Material Adverse Effect.

(n) Cessation of business operations: an obliged entity ceases its business operations or substantial parts of its business operations.

(o) Material Adverse Impact: A circumstance exists which results in a Material Adverse Impact.

24.2 Rights of Lenders

After there is a reason for termination according to Section 24.1 (reasons for termination)

- (a) the lenders are not obliged to make further payments and
- (b) the agent is obligated at the direction of the majority of lenders
- (h) the loan commitments made under this Credit Agreement and Sub-credit line commitments and all other obligations of terminate Financial Parties in whole or in part; and or (ii) the immediate repayment of outstanding loans together with the interest accrued on each and all others under this credit agreement to demand amounts due; and or

(iii) Demand immediate repayment of the Outstanding Sub-Line Amounts.

24.3 Obligations of the Borrower

After termination, the borrower is obliged to

- (a) immediately, but no later than within three (3) bank working days in the to repay any loans and other outstanding sums referred to in the notice of termination and paid to him and all interest thereon, Commissions, fees and other to the lenders in accordance with the Funding documents to pay amounts owed and
- (b) to pay a prepayment penalty if the loan is not repaid at the end of an interest period.

25. TRANSFER OF UNDERTAKING SHAREHOLDINGS

25.1 Transfer of Undergraduate Shares

(a) Each Lender may, with the consent of the Company, (i) assign its rights in whole or in part, or (ii) assign and transfer its rights and obligations in whole or in part by way of underwriting, in each case those under this Loan Agreement in respect of each of its loan commitments together with its pro rata Rights and obligations from the remaining financing documents ("consortium share")) and in each case to other financial institutions, banks and, in the event of a material reason for termination, to a fund or other person who regularly issues loans, securities or other financial investments or invested in or incorporated for that purpose (each, a "Permitted New Lender"). A competitor is under any circumstances an Approved New Lender.

(b) Consent shall not be unreasonably withheld and is not required in the event of an assignment or transfer (if each is a Permitted New Lender) (i) to another Lender, (ii) to a Lender Affiliate, or (iii) during the existence of a reason for termination. The Company's consent shall be deemed to have been given unless it has expressly objected within ten (10) banking days after the existing lender has requested its consent.

(c) For each transfer (except in the cases of paragraph (b) (i) and (ii) the accepting lender shall pay a transfer fee of EUR 3,500 to the agent.

(d) A consortium share is transferred to a lender by concluding a transfer agreement between the transferring lender, the accepting lender and the agent, essentially in the form of the template in Annex 12 (model transfer and accession agreement). The other parties to this Loan Agreement, subject to the

conditions set out in Section 25.1(a) required approvals already today or at the time of their accession to this credit agreement irrevocably their consent to the contract accession. The assignment is effective only if the Agent is approved by the Permitted New Lender written confirmation (in form and content satisfactory to the Agent) that the Permitted New Lender assumes the same obligations to the other Financial Parties that it would have had it been an Initial Lender.

- (d) If a measure taken by the financial parties under this Section 25 results in a payment obligation on the part of an obligated party under Section 14 (Taxes) or Section 15 (Cost increase), the obligation under Section 14 (Taxes) or Section 15 (increase in costs) justified payment obligation, if the Obligation to pay without the action of the Financial Parties under this Clause 25 would not have arisen.
- (e) Both the transfer and the assignment will be effective only if the Agent has completed all necessary customer identification procedures or comparable identification procedures under all applicable laws and regulations in connection with an assignment or transfer, as applicable, under this Section 25; the agent will notify the parties concerned of the completion of these procedures without undue delay.

25.2 Security Interests in Underwriters / Transfer of Economic Risk

Any Lender may, without the consent or notice of the Company or any other Obligor, exercise its rights under or in connection with the Finance Documents securing claims on any member of the European System of Central Banks (e.g. the Deutsche Bundesbank), the European Investment Bank or any other supranational bank, a credit institution, the Kreditanstalt für Wiederaufbau (KfW) or another development bank, a financial services institution, a financial company, an insurance company, a pension scheme, a pension fund or a special-purpose vehicle established by the aforementioned institutions for the purpose of securitizing loan claims or to create other security rights thereto or to insure the economic risk of the granting of the loan - including any associated collateral, if applicable - in whole or in part with a third party or on third parties, through credit derivatives the, under asset-backed securities transactions or through loan sub-participations, provided that such action will not relieve the relevant lender of its obligations under the Financing Documents. The refinancing institute is in no way restricted in the realization of the collateral. In the event of assignment or transfer of Rights to the Deutsche Bundesbank, the borrower will provide balance sheet figures and/or a self-assessment to the Deutsche Bundesbank upon request.

26. ACCESSION OR WITHDRAWAL OF GUARANTORS

26.1 Transfers by Obligors

No Obligor is entitled to transfer or pledge to third parties its rights and obligations under this Credit Agreement or the Guarantee Agreement.

26.2 Joining of Guarantors

- (a) A group company can join this credit agreement or the guarantee agreement as a guarantor if
 - (i) they have a membership agreement essentially in the form of the sample attached 14 (model accession agreement guarantors) or the model attached to the guarantee agreement and

(ii) all admission requirements according to Part 2 of Appendix 2 (disbursement requirements) or corresponding accession requirements under the guarantee agreement in relation to the acceding group company are met.

- (c) The obligated parties give their irrevocable consent to the accession to the contract already today or at the time of their accession to this credit agreement; the financial parties authorize the agent to enter into the accession agreement on their behalf.

26.3 Retirement of Guarantors

"Sale to Third Party" means any sale of a Guarantor to a person who is not a Group Company, provided such sale is a Permitted Sale or is approved by a majority of Lenders.

- (a) In the event of a sale to a third party, the company can request that a guarantor (with the exception of the company) from this loan agreement or .
- (b) The agent must accept a resignation request and the company and the Notify lenders when
- (i) in the case of a sale to third parties, the company has confirmed to the agent in accordance with the withdrawal request that a sale to third parties has taken place,
- (ii) no termination event exists or would result from the resignation (and the Company does so to the Agent pursuant to the has confirmed the request to leave) and
- (iii) in the event of withdrawal, no payments are due from the guarantor in accordance with clause 19 (guarantees) or the respective guarantee contract.
- (c) The resignation becomes effective upon acceptance by the agent, but in the case of a sale to a third party only upon completion of the sale, so that the relevant group company remains guarantor up to this point. Upon the consummation of the third party sale or other exit, the relevant group company is no longer a guarantor and has no rights or obligations under the financing documents as guarantor.

27. RIGHTS AND OBLIGATIONS OF AGENT AND OTHER PARTIES

27.1 Order

Each Lender engages the Agent pursuant to and in connection with the Finance Documents.

27.2 Power of Attorney

Each lender grants the agent power of attorney to make all declarations and in to receive, to exercise rights and to take actions, insofar as this is for the performance of the duties assigned to the Agent by the Financing Documents is necessary or expedient and for this purpose releases the Agent from the

Restrictions of § 181 BGB, insofar as this is legally permissible; any lender who cannot grant this exemption, the agent will be informed immediately. The agent is entitled to grant sub-authorizations to the same extent.

27.3 Directions of Majority of Lenders

(a) Except as otherwise provided in a Finance Document, (i) the Agent shall exercise or refrain from exercising any rights, powers and discretions it may have as Agent as directed by a majority of the Lenders and (ii) the Agent shall have no liability for Acts or omissions done or done at the direction of the majority of lenders.

(b) Unless otherwise provided in a Finance Document, all instructions of the majority of Lenders are binding on all Lenders.

(c) The agent is authorized

(i) instructions or clarification of any of the majority of lenders to request instructions as to whether and how he exercises his rights, powers and exercise discretion or refrain from doing so and may remain inactive until he has received corresponding instructions or clarifications and

(ii) require the lenders to provide sufficient security with regard to the costs, expenses, damages or liabilities (including any sales tax that may be incurred) that may arise in connection with the fulfillment of the instruction before the execution of an instruction and can refrain from following an instruction from the majority of the lender (or, where relevant, all lenders) until he has received the security he requested.

(d) In the absence of direction from a majority of the Lenders (or, as applicable, all Lenders or a group of Lenders), the Agent may act or refrain from acting in what is believed to be the best interests of the Lenders. The Agent will not take any legal action on their behalf without the consent of a financial party.

27.4 Agent's Obligations

(a) The agent's tasks are purely technical and administrative in nature. The Agent has no obligations to the Financial Parties other than those expressly assumed in this Loan Agreement and the other Financing Documents, if any.

(b) Subject to the provisions of paragraph (c), the agent of a party will promptly forward the original or copy of any document received on its behalf from another party.

(c) Notwithstanding the provisions of Section 25 (Transfer of Underlying Interests) , paragraph (b) shall not apply to transfer agreements.

(d) Except as expressly provided in any Finance Document, the Agent shall have no obligation to review or verify the adequacy, completeness or accuracy of any documents it transmits to any other party.

(e) If the agent

(j) with reference to this Credit Agreement, a notice from a receives party describing the circumstances of a termination event and advising that this constitutes an event of termination, or

(ii) becomes aware of any non-payment of principal, interest or fees or other charges owed to any financial party (other than the Agent) under this Credit Agreement, he will immediately notify the other financial parties.

- (e) The Agent is under no obligation to monitor or investigate whether a Termination Event has occurred. It must not be assumed that the agent is aware of the occurrence of a termination event.

27.5 The Arrangers

Except as expressly provided otherwise in the Finance Documents, the Arrangers have no obligations to any other party in connection with the Finance Documents.

27.6 No Fiduciary Duties

(a) Nothing in this Credit Agreement appoints the Agent or the Arrangers as a fiduciary of any other person. The agent and the arranger have no duty of care towards another person.

(b) Neither the Agent nor the Arrangers or sub-credit lenders (or any Affiliate of such sub-credit lender) shall be under any obligation to account to any other financial party for any amount due on their behalf or any profits derived therefrom.

27.7 Doing Business with the Group

The Agent, Arrangers and Sub-Lending Banks (or an Affiliate of any such Sub-Lending Bank) may accept deposits from, make loans to, and generally have a banking or other business relationship with any Group Company.

27.8 Agent's Rights and Discretion

(a) The agent can

(i) rely on any representation, communication or document which he believes to be genuine, accurate and signed by an authorized signatory; and

(ii) rely on any statement made by a director, authorized signatory, or employee of any person regarding matters which may reasonably be believed to be within his or her knowledge or control.

(c) The agent may accept, insofar as he is in his capacity as an agent for the Lender has not received notice to the contrary no event of termination has occurred, unless he is actually aware of the occurrence of a non-payment pursuant to Section 24.1(a) (Non-Payment) ,

(ii) if it receives instructions pursuant to Clause 27.3 (Instructions of the Majority of Lenders) and these have not been withdrawn, that the conditions required by the Finance Documents for the execution of such instruction have occurred,

(iii) neither party nor required under this Credit Agreement group of lenders has exercised its rights, authority or discretion and

(iv) any notification or request by the Company (other than a request for payment or a request for renewal) is also made for the other Obligor with their knowledge and consent.

(c) The Agent may retain, pay and rely on attorneys, accountants, surveyors or other advisers in connection with the Finance Documents and shall not be liable for any damages, costs or losses to any person, depreciation or other liability arising out of its reliance on them . In addition, the Agent may from

time to time seek the advice or services of lawyers, accountants, appraisers and other professional advisers or experts (including the services of lawyers acting as independent (and thus separate from any lawyers retained by the Lenders) advisors to the Agent , to the extent that the Agent deems it necessary.

(d) The Agent may perform its duties under the Finance Documents through employees and representatives and shall not be liable for any damage caused by their misconduct or omission unless caused by the Agent's willful misconduct or gross negligence.

(e) The Agent shall have the right, in its sole discretion, to disclose to any party to this Credit Agreement any information which it reasonably believes it has received in its capacity as Agent. In this respect, the obligated parties release the agent and the other financial parties from banking secrecy.

(f) The Agent shall have the right not to take any action which in its opinion violates any law, regulation, confidentiality obligation or may give rise to a duty of care.

(g) The Agent shall not be authorized to represent the Lender in any litigation or arbitration relating to the Finance Documents without the prior consent of the relevant Lender.

27.9 Accuracy and Completeness, Credit Check

The Agent has no obligation to any Lender to verify the accuracy or completeness of any documentation submitted to it or any other information provided by any person, whether or not such information was circulated by the Agent. In particular, each lender is solely responsible for assessing the borrower's creditworthiness and the legal validity and enforceability of the financing documents.

27.10 Reimbursement of Expenses, Release

(a) Upon the agent's request for payment, the lenders will reimburse the agent for all reasonable external costs incurred in connection with the preparation and legal review of the financing documents and the fulfillment of his other duties as an agent, insofar as they have not been reimbursed by the borrower. The agent will prove the costs incurred to the lenders at their request. He can demand reasonable advances from the lenders.

(b) The Lenders shall indemnify the Agent, at the Agent's request, for any claim made against the Agent in connection with any Financing Document.

(c) Lenders are liable to the agent in proportion to their respective loan commitments. Joint and several liability of the lenders is excluded.

27.11 Agent Liability

The agent is only responsible for intent and gross negligence.

27.12 Agent's Working Hours

(a) Any amount payable to the Agent pursuant to Section 18 (Costs and Expenses), Section 17.3 (Agent Indemnification) or Section 27.10 (Reimbursement of Expenses, Indemnification) , as the case may be, shall include the cost of using the time or other resources of the include Agents and shall be calculated on the basis of reasonable daily or hourly rates made known by the Agent to the Lenders and the Company

and shall be in addition to any fees paid or payable to the Agent pursuant to Section 13.4 (Agent's Commission) .

(b) The Agent may under this Clause 27.12 only recover such expenses from the Company or any group company as to the cause and amount of which it has previously agreed with the Company and which has agreed to be reimbursed.

27.13 Change of Agent

The Agent may at any time terminate the order placed by the Lenders pursuant to Clause 27.1 (Order) . The termination must be declared in writing to the lenders and the borrower with a notice period of 30 days. After hearing the company, the lenders can revoke the order at any time by resolution. The decision will take effect 30 days after it is made. The majority of lenders may appoint a successor with the consent of the company (which shall not be unreasonably withheld). If he does not appoint a successor or does not appoint a successor within 20 days, the previous agent may, with the consent of the Company (which may not be unreasonably withheld) appoint a successor. The incumbent agent is relieved of his obligations under this Credit Agreement if a successor is named and the named successor has accepted his appointment as agent. The previous agent must hand over to the new agent all documents that are necessary for the fulfillment of his duties. The new agent takes over all the rights and obligations of the previous agent from the financing agreements. The other parties to this loan agreement already agree to this contract takeover by the successor. The parties to this Credit Agreement will cooperate in all actions necessary for such change of agent. The borrower shall bear the costs incurred in connection with the change of agent.

27.14 Termination of Agent Due to FATCA

The Agent must terminate the engagement given to it by the Lenders pursuant to Clause

27.1 (Appointment) pursuant to Clause 27.13 (Change of Agent) (and the Agent shall make all reasonable efforts to find a successor pursuant to clause 6 of Clause 27.13 (Change of Agent). Agent(s)) if three months prior to the earliest FATCA Effective Date applicable to payments made to the Agent under the Finance Documents or any time thereafter

(a) the Agent fails to comply with a request by a Party pursuant to Clause 14.8 (FATCA Information) and the Company or a Lender reasonably believes that the Agent is not, or will not be, a FATCA Exempt Party on or after the FATCA Effective Date,

(b) it is apparent from the information provided by the agent pursuant to Clause 14.8 (FATCA Information) that the agent is not or will not be (any longer) a FATCA Exempt Party on or after the FATCA Effective Date; or

(c) the Agent notifies the Borrower and the Lenders that it is not or will not be a FATCA Exempt Party on or after the FATCA Effective Date, and (in each such case) Company or a Lender reasonably believes that a party will need to make a FATCA Withholding that would not be necessary if the Agent were a FATCA Exempt Party and Company or such Lender requests the Agent to do so to terminate the order given to him by the Lenders pursuant to Clause 27.1 (Order) .

27.15 Confidentiality

(a) In terms of acting as a representative of the financial parties, the agent's relevant department is treated as a separate organizational unit from its other units and departments.

(b) If another internal entity of the Agent receives certain information, that entity may treat it as confidential and the Agent need not be held responsible for having knowledge of it.

27.16 Role of Reference Banks

No Reference Bank shall be liable for its actions under or in connection with the Funding Documents or for the Ask Rates it quotes in determining the Reference Interest Rate, unless it acted with intent or gross negligence. No party (other than the relevant Reference Bank) may initiate any proceeding against any officer, employee or agent of any Reference Bank with respect to any action taken against such Reference Bank or for any act or omission of any kind by such officer, employee or agent in connection with any Funding Document or any Initiate quoting of the claim due to a reference bank. An officer, employee or agent of any reference bank may rely on this clause

27.16 pursuant to section 328 paragraph 1 of the German Civil Code (genuine qualifying contract for the benefit of third parties) .

A reference bank that is not a party may invoke this Section 27.16, Clause 32.2 (d) (Changes to Waivers) and Section 34 (Confidentiality of Refinancing Costs and Asking Rates) pursuant to Section 328 Paragraph 1 BGB (genuine qualifying contract in favor of third parties) .

28. DISTRIBUTION OF PAYMENTS; BALANCING

28.1 Distribution of Payments

Except as otherwise provided in a Finance Document, all Obligor and Lender payments (except under a sub-credit agreement) shall be made through the Agent. The agent will forward incoming payments to the respective entitled parties in compliance with the provisions of clause

29.5 (order of repayment) and subject to receipt by the agent on the correct value date.

28.2 Repayments, interest payments etc.

Amounts repaid under the individual credit lines (including voluntary early repayments and mandatory special repayments), interest, commitment commission, etc. are to be distributed among the lenders according to their respective claims.

28.3 Recovery

If the agent has paid an amount to another party but has not received the amount itself, the receiving party will immediately refund the amount plus interest to the agent upon a corresponding request. The amount of interest corresponds to the agent's refinancing costs from the time the agent pays out until the day the agent recovers the amount.

28.4 Settlement

(a) If at any time a lender (the "Beneficiary") receives a payment in derogation of Section 29 (Payments and Order of Payment) in respect of its claims under this Loan Agreement or otherwise (e.g., by offsetting) those claims from funds of an obligor are to be repaid (the "received amount"), the following applies:

(i)

(ii) the recipient will inform the agent immediately, but no later than three (3) bank working days after receipt, of the amount received and the circumstances of receipt, the agent determines whether the amount received exceeds the amount that the recipient would have received if the amount received pursuant to clause 29.5 (Order of repayment) paid to the agent and paid by him according to clause 28.1 (distribution of payments) would have been distributed, and (iii) at the Agent's request, the Recipient shall within five (5) Bank Business Days, forward to the Agent an amount ("Settlement Amount") equal to the amount received less the amount determined by the Agent to be due to the Recipient.

(b) The debt to the Recipient shall be deemed settled only to the extent due to the Recipient and the Agent shall distribute the Settlement Amount among the remaining Lenders in accordance with Clause 29.5 (Order of Repayment) .

(c) If the amount received is to be returned by the recipient, the lenders benefiting from this Clause 28.4 must repay to the recipient the amounts distributed to them plus pro rata interest to be paid by the recipient. The claims of the lenders are deemed not to have been met in the amount of the repaid amounts.

(d) The provisions of this clause 28.4 do not apply in the event that a recipient receives payments as a result of court or arbitration proceedings in which the other financial parties have not participated despite being asked to do so.

28.5 Applicability

This Section 28 (Distribution of Payments; Balance Settlement) shall not apply to amounts that

(a)

(i) (ii) a sub-credit bank under a sub-credit line, a Local Lender under an umbrella line, and a Lender or a Local Lender under a Maximum Amount Guarantee prior to giving notice of termination under Section 24(Termination) . Upon giving notice of termination pursuant to Section 24 (Termination) , this Section 28 (Distribution of Payments; Settlement) shall also apply to such amounts provided that the Lender of which Affiliate the applicable Local Lender is the Lender Beneficiary.

29. PAYMENTS AND ORDER OF PAYMENT

29.1 Currency

All payments under this credit agreement will be made in EUR.

29.2 Maturity

If a payment is due on a day that is not a bank working day, the due date is the next bank working day, unless this falls in the next calendar month; in this case, the due date is the immediately preceding bank working day.

29.3 Paying Agent

- (a) All payments by the obligated parties in favor of the lenders are made to an account to be designated by the agent.
- (b) All payments in connection with the sub-credit lines are made to an account designated by the respective sub-credit bank.
- (c) Payments made in deviation from the aforementioned provisions have no repayment effect.

29.4 Settlement Accounts

The borrower is obliged to ensure that there are sufficient funds on the account specified in Section 29.3 (Paying Agent) on the respective due date in order to offset the amounts due resulting from the loan agreement. The agent is entitled to debit the amounts due from the accounts. The Borrower hereby grants the Agent the necessary direct debit authorizations.

29.5 Order of Redemption

If one payment is not sufficient, all claims due at the time of payment To meet financial parties, their claims will be repaid in the following order, unless otherwise provided in this Credit Agreement:

- (a) reimbursement of costs and expenses,
- (b) fees and commissions,
- (c) Interest charges,
- (d) repayment of outstanding loans under credit line A in reverse order of maturities,
- (e) Working capital loans in the following order:
 - (i)
 - (ii) Initially to repay outstanding loans under the working capital line of credit then to cancel Loan Commitments still available for the Working capital line of credit and
 - (iii) finally, to repay the Outstanding Sub-Line Amounts and drawdowns under the Umbrella Facility and then to cancel any Available Sub-Line Commitments. If several claims have the same priority, offsetting takes place in the ratio of the amounts claimed by the financial parties to one another, unless otherwise stipulated in this loan agreement.

29.6 Change in Billing

The financial parties are entitled to change the aforementioned clearing order at any time.

30. OFFSET

The obligated parties are oanaly entitled to assert offsetting and retention rights against the payment claims of the financial parties on the basis of this credit agreement if and to the extent that the counterclaims between them and the financial parties are undisputed or have been legally established.

31. NOTICES AND REPRESENTATION

31.1 Notices

(a) All notices in connection with this Credit Agreement shall be in writing on the Obligor's side to or through the Company and on the Financial Party's side to or through the Agent. They must either be handed over personally or sent by letter, fax or pdf file to the following addresses or to the different addresses notified in writing by the parties at a later date:

For the financial parties:

Deutsche Bank Luxembourg SA

e.g. Attn: Alexey Alert / Joerg Frahs

Email: Alexey.alert@db.com / joerg.frahs@db.com

Fax no.: +352 421 22 95 9480 / +352 421 22 95 5780

For the obligated:

ADVA Optical Networking SE

e.g. Hd. Christian Rieder / Steven Williams

Email: crierder@advaoptical.com / swilliams@advaoptical.com

Fax: +49 89 890665 22931

(b)

(c) Unless expressly agreed otherwise in this Loan Agreement, each party's correspondence with the Financial Parties, potential future lenders, an Obligor and/or any external advisors to the Financial Parties may also be conducted via email or a data room such as Debtdomain; however, this does not apply to legally binding declarations of intent (such as termination, requests for payment, requests for extension or determination of interest periods), unless these are attached to the e-mail as a duly signed pdf file. The parties expressly agree that this e-mail traffic may also be unencrypted. The financial parties are not liable for any consequences arising from the use of unencrypted e-mails, including the unintentional disclosure of confidential information. However, this does not apply if a financial party sends an unencrypted e-mail with content that the borrower has prohibited in writing from being passed on by unencrypted e-mail or if the knowledge of an unauthorized person is due to the fact that the respective financial party in sending the e-mail has intentionally or grossly negligently violated his duty of care.

31.2 Representation of Obligors

The obligated parties hereby commission the company to safeguard their interests in connection with the financing documents and hereby authorize it to make and receive all declarations required for this, to exercise rights and to take actions. For this purpose, the obligated release the company from the restrictions of § 181 BGB. The company is entitled to grant sub-authorizations to the same extent.

32. MODIFICATIONS AND WAIVERS

32.1 Voting

(a) Lenders shall pass their resolutions by the votes of a majority of Lenders, unless unanimity or another majority is required by Clause 32.2 (Changes and Waivers) or Clause 32.3 (Replacement of Reference Interest Rate) or any other provision of a Finance Document. Where a Lender has sub-interested a third party (a "Sub-Participant") in one of its Underwriters' Interests and has notified the Agent in writing that it is sub-interested and the amount of such sub-interest therein, such Lender may exercise its voting rights

in respect of its Underwriter's Interest in which the sub-participation exists, other than to exercise its voting rights with respect to the remaining underwriter interest.

- (b) If a Lender does not notify the Agent within ten (10) business days whether it consents to a waiver or modification of this Loan Agreement, its Underwriter Interest shall not be taken into account for the purposes of calculating whether the required majorities have been reached. This also applies in the case of a unanimity requirement.
- (c) As long as a Lender is a Defaulting Lender, the Defaulting Lender's Commitments are reduced by its Syndicated Share of its Available Commitments when weighting votes.

32.2 Amendments and Waivers

(a) The Agent may (after the prior consent of the parties referred to in this Section 32.2 required majority of Lenders) with the Borrower and other Obligors party to this Credit Agreement, agree on behalf of the Financial Parties amendments and supplements to this Credit Agreement and waive the exercise of any rights or compliance with any obligations under this Credit Agreement.

(b) The issuance of a waiver of termination upon cause for termination requires a written request by the borrower, (subject to paragraph (c)) a resolution passed by a majority of the lenders, and the written waiver of the agent.

(c) Subject to paragraph (e) and Clause 32.3 (Replacement of Reference Rate) , waivers and contract modifications with respect to the Lenders require the prior approval of all Lenders

(i) the definition of "Majority of Lenders" and any other change in the Majorities required for Resolution, including this Section 32.2 ,

(ii) a change of currency in which a payment is made under one financing document is to be provided,

(iii) a waiver or deferral of interest and principal payments (except for special principal payments) and any change in a repayment date pursuant to Section

7.2 (Repayment),

(iv) a reduction in Margin, to the extent not already provided for in this Credit Agreement, the amount of Fees or any other amount payable to a Lender,

(v) the increase of a credit line (other than an increase in accordance with Section 2.2 (Increase Option)), the granting of an additional credit line or an extension of the availability period,

(vi) an opt-out or accession of a Guarantor, except in accordance with Clause 23.18 (Guarantee Coverage, Accession of Guarantors) or Clause 26.3 (withdrawal of guarantors),

(vii) an amendment to Section 2.4 (Rights and Obligations of Financial Parties), Section 8.2 (Illegality), Section 8.3 (Change of Control), Section 8.7 (Repayment offsetting), Section 23.3 (Anti-Corruption, Sanctions and Money Laundering Provisions), Section 25 (Transfer of Syndicate Shares),

Section 33 (Disclosure of information) or Section 35.2 (Applicable law and place of jurisdiction),

(viii) a change in the order or repayment in accordance with Clause 29.5 (order of repayment)

- (ix) an amendment or waiver of any provision requiring the approval of all lenders,
- (iv) a change in clause 19 (guarantees) or pursuant to clause 23.18 (guarantee coverage, entering into guarantors) warranties; or
- (v) a release of the guarantees granted pursuant to Section 23.18 (Guarantee Coverage, Submission of Guarantors) or as a disbursement condition pursuant to Part 1 Clause 2(b) of Schedule 2 (Disbursement Conditions) .
- (d) Any modification or waiver relating to the rights of the Arrangers, the Agent, a sub-credit bank or a reference bank requires the consent of such party.
- (e) In principle, each sub-credit bank makes its own decisions about the details of the processing of a sub-credit line, the assertion of related reclaims or its continuation, but always in accordance with the provisions of this credit agreement.

32.3 Replacement of Reference Interest Rate

(a) Subject to the provisions of paragraph (d) of Clause 32.2 (Modifications and Waivers) , if a Substitution Event has occurred, the Agent (acting at the direction of a majority of the Lenders) and the Company may agree to a modification of the Loan Agreement or a waiver of any requirements of the Loan Agreement be made regarding the following content of the regulation:

- (i) Using a substitute interbank rate instead of the screen rate and
- (ii)
- (A) adapting any provisions of a Finance Document to the use of this replacement interbank rate,
- (B) Adjustment of the financing documents to the extent that the Substitute interbank rate for interest calculations under the credit agreement can be used.
- (C) Introduction of market practices relevant to the replacement interbank rate apply
- (D) Regulation of alternative calculation methods (and market disruption rules) for the backup interbank rate, or
- (E) Price adjustments to accommodate, where reasonably practicable, the transfer of economic value from one party to another party to settle as a result of the application of the replacement interbank rate (whereby, if an adjustment or a calculation method for an adjustment has been formally determined, designated or recommended by the Competent Body, the adjustment based on that provision, designation or recommendation. In this clause 32.3 says:

"Relevant Body" means any central bank, regulatory or supervisory authority, or an association thereof, or any working group or committee assisted or moderated by, or constituted at the request of, any such central bank or authority or the Financial Stability Board.

"Replacement Interbank Rate" means an interbank rate that

- (i) formally through

- (A) the body managing the respective screen rate (provided that the respective screen rate is based on the same market and economic conditions as the screen rate to be replaced); or
- (B) the responsible body, is intended, named or recommended as a substitute for Screen Rate; where a replacement has been formally determined, nominated or recommended by two of the said bodies, then the interbank rate determined under subparagraph (ii) shall prevail,
 - (ii) in the opinion of the Company and the majority of lenders in the international or a relevant domestic market for syndicated Credit is generally accepted as a reasonable substitute for the applicable Screen Rate, or
 - (iii) is, in the opinion of the Company and the majority of Lenders, a reasonable substitute for the applicable Screen Rate.

"Replacement Event" means, in relation to Screen Rate, one of the following events:

- (i) the calculation method, formula or any other way of calculating the Screen Rate has, in the opinion of the company and the majority of the Lenders changed significantly
- (ii)
- (A)
- (i) the administrator of the screen rate or its parent Body publicly announces that the Administrator is insolvent or
- (ii) it will be through a court, a stock exchange, a supervisory authority or similar official, regulatory or judicial body publishes information that reasonably confirms that the administrator of Screen installment is insolvent and at this time there is no successor to the administrator who continues to publish the screen rate,
- (B) the Administrator of the Screen Rate publicly announces that it has ceased or will cease to publish the Screen Rate permanently or indefinitely and at that time there is no successor to the Administrator who will continue to publish the Screen Rate,
- (C) the governing body of Screen Rate publicly announces that Screen Rate will cease to be published permanently or indefinitely, or
- (D) the administrator of the screen rate or its superior publicly announces that the screen rate may no longer be used as a reference rate, or
- (iii) the administrator of the screen rate determines that the screen rate is in accordance with the arrangements that have been made in the event that not by all Reference banks ask rates are announced, or other contingency agreement is established and either:
 - (A) the circumstances or events giving rise to such determination, (in the opinion of the Company and the majority of the Lenders) are not just temporary, or
 - (B) the screen rate will be based on such for a period of time Schemes calculated not over a period of one month goes out, or

(iv) in the opinion of the Company and the majority of the Lenders, the Screen Rate is no longer an appropriate basis for calculating interest under the Loan Agreement.

32.4 Replacement of Lenders

(a) If (i) a Lender becomes a Defaulting Lender, (ii) the Borrower is required to repay an amount early pursuant to Clause 8.2 (Illegality), (iii) a Market Disruption Event is reported pursuant to Clause 12.1 (Market Disruption Event) , or (iv) the Borrower is required to pay to a Lender an amount in excess of the amount generally payable to Lenders in accordance with Section 14.2 (Tax Net Clause), Section 14.3 (Tax Exemption) or Section 15 (Cost Increase) , the Company may replace such lender ("Retiring Lender") by requiring it to comply with its rights and obligations under the Finance Documents Section 25.1 (Transfer of Underwriters' Interests) to another lender or bank or financial institution nominated by the Company (a "Replacement Lender") . The Retiring Lender is obliged to comply with the Company's request. The Replacement Lender must have been accepted by the Agent and declared its willingness to assume the rights and obligations of the Departing Lender and pay a cash purchase price on the date of acquisition equal to the face value of the assumed outstanding loans equal to accrued interest, commissions, fees and all other amounts payable to the Retiring Lender pursuant to the Financing Documents.

(b) The Company may only make the request under paragraph (a) subject to the following conditions:

- (i) the company may not replace the agent,
- (ii) neither the Agent nor the Outgoing Lender has any obligation to Find replacement lenders, and
- (iii) the Defaulting Lender is not obligated to pay any fee to the Replacement Lender unless it is a Defaulting Lender.

32.5 No Waiver

A (even temporary or partial) non-exercise of a right to which the lenders are entitled, in particular a right of termination, does not constitute a waiver and does not lead to forfeiture.

33. DISCLOSURE OF INFORMATION

(a) Each Lender is entitled (and to this extent is also released from banking secrecy by the Borrower) to use the information provided to it by the Borrower about the Group and details of the content and obligations of the parties under or in connection with the Financing Documents (e.g. loan amount, Maturity date, name and address of the Borrower) to any Affiliated Company and any third party (and Affiliated Company)

(i) to which the relevant Lender transfers or assigns its rights and/or obligations under the Financing Documents or is considering doing so, to the extent that such a transfer or assignment is permitted under Section 25.1 (Transfer of Underwriters' Interests) , or with which the relevant Lender enters into a sub- participation agreement or this checked (as well as to those persons who are to be involved in the processing),

(ii) who intends to provide an umbrella line as a lender,

(iii) in whose favor the respective lender assigns or pledges his rights from the financing documents pursuant to clause 25.2 (security interests in consortium shares) or creates another security interest in them,

(iv) who is involved in the initiation (e.g. for the KYC check), the approval, the processing and monitoring of the loan as part of the credit management or in connection with the above paragraphs (i) to (iii) for the purpose of providing administrative or processing services was ordered in connection with one or more of the financing documents (including those relating to the trading of shares), to the extent that disclosure is necessary for this service provider to be able to provide the relevant service or

(v) to the Information (i) pursuant to an order of any court or governmental agency, banking, tax or other regulatory authority or similar body, the rules of any relevant stock exchange or any other applicable law or regulation, or (ii) in connection with in or for the purposes of any judicial, arbitration, administrative or other proceeding; or dispute and related investigations must be reported, in the case of paragraphs (a)(i) and (a)(iv), however, only if the recipient of the disclosed information enters into a non-disclosure agreement with the relevant lender in respect of the information, unless such an obligation already exists as a result of statutory or professional/professional regulations .

(b) In addition, each Lender is entitled to disclose information about the Group to its advisers or, with the Company's consent, to any other third party.

34. CONFIDENTIALITY OF REFINANCING COSTS AND LETTER RATES

34.1 Confidentiality

(a) The agent and the obligors handle the creditors' and Refinancing costs mentioned by reference banks and the asking rates mentioned for determining the reference interest rate (the "Ask Rates") are confidential, unless otherwise regulated under paragraphs (b) or (c).

(b) The agent can

(i) to the extent required by the borrower within the scope of Section 12.2 (Alternative Calculation Method) , disclose the refinancing costs of each lender and

(ii) disclose refinancing costs and asking rates quoted to him to any third party who performs administrative tasks for him in relation to a financing document, to the extent necessary for that purpose and if the third party has pre-signed a confidentiality agreement with the agent to the satisfaction of the Lender or Reference Bank concerned.

(c) The agent may be quoted refinancing costs or asking rates and each Obligated party may disclose refinancing costs that have been made known to it

(i) to affiliated companies and their consultants and auditors if they are informed in advance in writing that the information is confidential and possibly price- sensitive, unless the respective recipient is already legally or otherwise professionally bound to secrecy,

(ii) insofar as he is obliged to pass on the information due to the applicable statutory provisions or as part of official, court or arbitration proceedings or any other procedure, if he is informed in

writing in advance, as far as practicable, that the information is confidential and possibly price-sensitive information acts and

- (iii) with the consent of the relevant lender or reference bank.

34.2 No Reason for Termination

A breach of the obligations provided for in section 34.1 (confidentiality) by an obligated party does not in itself lead to the existence of a reason for termination.

35. GENERAL PROVISIONS

35.1 Partial Invalidity

Should individual provisions of this credit agreement be or become void, ineffective or unenforceable in whole or in part, or should there be a gap in this credit agreement, this shall not affect the validity of the remaining provisions. In place of the void, ineffective or unenforceable provision or to fill the gap, an appropriate, effective and enforceable provision shall apply which, as far as legally possible, comes as close as possible to what the parties wanted or would have wanted based on the spirit and purpose of this loan agreement, if they had considered the point. The same applies to the ineffectiveness of a time determination or the determination of another dimension.

35.2 Governing Law and Jurisdiction

- (a) (b) This credit agreement is subject to the laws of the Federal Republic of Germany.

The exclusive place of jurisdiction for all disputes arising from or in connection with this credit agreement is Frankfurt am Main. This paragraph protects financial parties only. Accordingly, no financial party shall be precluded from pursuing any proceedings relating to this Credit Agreement in any other court of competent jurisdiction. To the extent permitted by law, financial parties may pursue parallel proceedings in any number of jurisdictions.

35.3 Written Form Requirement

Changes to this credit agreement can only be made jointly by all parties and in writing. The written form requirement also applies to an amendment to this Section 35.3.

36. ENTRY INTO FORCE

- (a) This credit agreement comes into force upon its signature by all contracting parties.

(b) The contracting parties can bring about the conclusion of the contract by exchanging signed signature pages, which are transmitted by telecommunications (e.g. by fax or electronic copy).

(c) Should the contracting parties decide to enter into this form of contract, they will send the signed signature pages of this credit agreement to Latham & Watkins LLP, Reuterweg 20, 60323 Frankfurt, for the attention of Kim Woggon (kim.woggon@lw.com) (the "Recipient") . This credit agreement is concluded as soon as the signature pages from all contracting parties are sent to the recipient (by fax,

electronic copy or in any other telecommunication way) received at the time the last outstanding signature page was received by the recipient.

(d) For these purposes, the contracting parties appoint the recipient as their receiving agent and expressly authorize him to receive the signed signature pages of all contracting parties. In addition, no obligations should arise for the recipient from his function as recipient. In particular, the recipient may of the agreement of the original signature pages with the tele communicatively transmitted copies, authenticity of all signatures on the original signature pages and the signing authority of the signatory.

Annex 1

INITIAL LENDERS

Credit line A (EUR 65,000,000)

Lender Loan Commitment in EUR

Bayerische Landesbank 13.538.461,54

Deutsche Bank Luxembourg S.A. 13.538.461,54

Norddeutsche Landesbank - Girozentrale - 11.000.000,00

IKB Deutsche Industriebank AG 10.000.000,00

Commerzbank Aktiengesellschaft 8.461.538,46

DZ BANK AG Deutsche Zentral-Genossenschaftsbank,

Frankfurt am Main 8.461.538,46

Working capital line of credit (EUR 10.000.000)

Lender Loan Commitment in EUR

Bayerische Landesbank 2.461.538,46

Deutsche Bank Luxembourg S.A. 2.461.538,46

Norddeutsche Landesbank - Girozentrale - 2.000.000,00

Commerzbank Aktiengesellschaft 1.538.461,54

DZ BANK AG Deutsche Zentral-Genossenschaftsbank,

Frankfurt am Main 1.538.461,54

ANNEX 2

PAYMENT REQUIREMENTS

Part 1

Withdrawal Requirements for First Claim

1. Bank documents. Submission of the following current documents in relation to the Borrower or comparable documents customary under foreign law in relation to the Initial Guarantors:

(a) Electronic copy of an excerpt from the commercial register (not older than 20 days before signing this credit agreement),

(b) list of board members,

(c) any rules of procedure of the Management Board and the Supervisory Board,

(d) Statute,

(e) Supervisory board resolution and management board resolution, with which the supervisory board and the Board of Directors gives its consent to the completion of the financing documents and the fulfillment of all related obligations, and

(f) Confirmation from a number of natural persons who are authorized to represent the company and who are entered in the commercial register that all of the aforementioned corporate law documents they have submitted are up-to-date, correct and complete

(i) Signature samples and copies of current identity cards or

Passports of the authorized signatories and the other persons named under paragraph (ii), and

(ii) appropriate proof of the authorization to represent other persons who should be authorized to make declarations to the agent or the lenders, including the submission of powers of attorney or excerpts from the commercial register.

2. Funding Documents. Submission of duly signed copies of the following documents:

(a) this credit agreement,

(b) the guarantee contract, and

(c) the fee agreements.

3. Legal Opinions

(a) Legal opinions of the legal advisors of the lenders on the effectiveness and Enforceability of the financing documents (enforceability opinion) and

(b) Legal opinion of the borrower's legal advisor on the effective conclusion of the financing documents by the obligated party (Capacity Opinion).

4. Bilateral Loans / Lines of Credit. Evidence of termination and repayment of the financial liabilities to be redeemed with the credit funds made available under this loan agreement.
5. Degrees. Copies of the audited consolidated financial statements and the audited separate financial statements of the Company and (if required by law in audited form) the separate financial statements of the Initial Guarantors for each of the financial year 2017 and the consolidated quarterly reports of the Company for the first and second quarters of 2018.
6. group structure. Submission of an up-to-date group organizational chart.
7. Budget. Budget submission.
8. Fees and Costs. Evidence satisfactory to Agents of payment, or payment immediately following the first drawdown of any Loan, on the date of first disbursement of then-due fees and reimbursements owed by Obligors in connection with the Finance Documents.
9. Know your customer. Confirmation of the successful completion of the KYC check of each financial party.

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Part 2

Conditions for the accession of guarantors

1. Accession Agreement. Submission of the accession agreement to the credit agreement or the guarantee agreement.
2. Bank documents. Submission of the following documents of the acceding company (or comparable documents customary under foreign law) that are current on the date of signing of the respective accession contract:
 - (a) (i) Excerpt from the commercial register, not older than 20 days, together with a written confirmation from the managing directors in the number authorized to represent that no measures have been or will be taken or decided in relation to these extracts from the commercial register by the date of accession, (ii) list of shareholders, if existing, (iii) Rules of Procedure, if any, and (iv) Articles of Association, if any,
 - (b) Shareholders' resolution by which the shareholders' meeting gives its consent to the accession to the financing documents and the fulfillment of all related obligations and
 - (c) Confirmation from a number of natural persons authorized to represent the company (entered in the commercial register) that all of the aforementioned corporate law documents they have submitted are up-to-date, correct and complete
- (i) Sample signatures and copies of identity cards or passports

Authorized Signatories and

(iii) suitable proof of the authorization to represent other persons who should be authorized to make declarations to the agent or the lenders, including the submission of powers of attorney and excerpts from the commercial register.

3. Status. If available or required by law, submission of annual financial statements (audited and unqualified and signed) by a number of managing directors, officers or directors of the company authorized to represent.

4. Legal Opinions

(a) Satisfactory legal opinion of the lenders' legal advisers on the Effectiveness and enforceability of the Accession Agreement (Enforceability Opinion) and

(b) Satisfactory legal opinion of the borrower's legal advisors, including the effective representation of the joining company in the conclusion of the joining agreement and other financing documents (Capacity Opinion).

5. Know your customer. Submission of other documents requested by the lenders and other evidence that the lenders need for their incumbent know-your-customer checks and other checks (e.g. under the Money Laundering Act) that the lenders are obliged to carry out due to legal and other regulatory obligations.

6. Appointment of an authorized recipient. If a foreign company joins, proof that the company has accepted your appointment as authorized recipient.

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ANNEX 3

EXISTING AND SETTLEMENT OF FINANCIAL LIABILITIES

Part 1: Existing Financial Liabilities

Existing financial liabilities:

LOAN

ORIGINAL VOLUME IN EUR	VALUE IN EUR (AS OF 09/16/2018)
------------------------	---------------------------------

IKB REDEMPTION LOAN	IKB REDEMPTION LOAN
---------------------	---------------------

15,000,000	
------------	--

25,000,000	
------------	--

9,375,000	
-----------	--

15,625,000	
------------	--

IKB REDEMPTION LOAN	
---------------------	--

10,000,000	
------------	--

6,250,000	
-----------	--

Existing guarantees (as of September 19, 2018)

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Part 2: Financial liabilities to be redeemed

LOAN

ORIGINAL VOLUME IN EUR	VALUE IN EUR (AS OF 09/16/2018)
------------------------	---------------------------------

GERMAN BANK BRIDGE LOAN	21,500,000	21,500,000
-------------------------	------------	------------

NORDLB BRIDGE LOAN	21,500,000	21,500,000
--------------------	------------	------------

BAYERNLB BRIDGE LOAN	12,000,000	12,000,000
----------------------	------------	------------

BAYERNLB REDEMPTION LOAN	10,000,000	10,000,000
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ANNEX 4

ANNEX 5

ANNEX 6

ANNEX 7

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ANNEX 8

INCREASE COMMITMENT

To: Deutsche Bank Luxembourg SA

– as an agent –

By: ADVA Optical Networking SE

[Date]

Syndicated Credit Agreement ADVA Optical Networking SE

here: increase commitment

Ladies and Gentlemen

we refer to the credit agreement between, among others, ADVA Optical Networking SE and [●] and Deutsche

Bank Luxembourg SA as agent dated [●] 2018, as amended (the "Credit Agreement").

1. Terms used in this Enhancement Notice have the meanings ascribed to them in the Credit Agreement unless otherwise specified in this Enhancement Notice.

2. We have agreed with the following credit institutions that they will increase at the

Participate in loan commitments under the working capital facility as follows:

Name of the credit institution Existing creditor (yes/no)

Increased loan approval under the

[working capital line of credit] (EUR)

In total:

3. The above credit commitments will become effective as of the following date (December

"Increase Effective Date") effective:

[...]

4. We hereby confirm, on our own behalf and on behalf of the other guarantors, in favor of all financial parties, that the financial parties in favor of the credit agreement pursuant to Clause 19 (Guarantees) as well as the guarantees granted by [●] in the separate guarantee agreement (i) remain fully effective notwithstanding the increase in the loan commitment with regard to the working capital credit line, and (ii) also extend to the resulting payment obligations.

.....

[authorized signatory]

.....

[authorized signatory]

For ADVA Optical Networking SE

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[For lenders who are already party to the loan agreement:]

1. We confirm that we are willing to increase/participate in our lending commitments to the working capital facility as described above.
2. Section 35.2 (Governing Law and Venue) of the Credit Agreement applies mutatis mutandis to this letter.

.....

[authorized signatory]

.....

[authorized signatory]

For [●] as lender

OR

[For Lenders who are not yet a party to the Loan Agreement and are now joining:]

1. Accession. The Joining Lender joins the Agreement as a Lender on the Increase Date and thereby acquires all of the rights and obligations of a Lender with respect to the loan commitment it has made under the Working Capital Line of Credit.
2. Messages. All communications from the Agent to the Acceding Lender will be made to the address below until the Acceding Lender notifies the Agent in writing of an alternate address:
3. Clause 35.2 (Governing Law and Venue) of the Credit Agreement applies mutatis mutandis to this letter.

.....

[authorized signatory]

.....

[authorized signatory]

For [●] as an acceding lender

Noted as an increase commitment within the meaning of Section 2.2 (increase option):

For the agent:

[authorized signatory]

ANNEX 9

SAMPLE MAXIMUM AMOUNT GUARANTEE

[Letterhead of [•] AKTIENGESELLSCHAFT]

To: [Name of Ancillary Lender] under the Ancillary Facility (as defined in the Credit Agreement (as defined below) as beneficiary (the Beneficiary 1)

From: ADVA Optical Networking SE as guarantor (the Guarantor)

Date: [•]

Dear Sirs,

ADVA Optical Networking SE – EUR [•] facility agreement dated [•]

(A) Reference is made to a EUR [•] credit facilities agreement dated [•] September 2018 and made between, amongst others, the guarantor as borrower and guarantor (together with any other guarantor, the obligors), Bayerische Landesbank and Deutsche Bank AG, German branch as joint coordinators (the Coordinators) and Deutsche Bank AG, German branch, Bayerische Landesbank and [•] as mandated lead arrangers (the Mandated Lead Arrangers), Deutsche Bank Luxembourg SA as agent (the Agent) and certain other finance parties named therein (the Credit Agreement).

(B) This is a maximum amount guarantee agreement pursuant to schedule 9 of the Credit Agreement (the Maximum Amount Guarantee).

(C) The Beneficiary 1 is an Ancillary Lender (sub-credit bank) under the Credit Agreement. The branches and/or Affiliates of the Beneficiary 1 specified in Schedule 1 hereto (each of them as well as any person specified in accordance with Clause 2 below a Local Lender and together the Local Lenders) and the Guarantor's Subsidiaries specified in Schedule 1 hereto (each of them as well as any person specified in accordance with Clause 2 below a Local Borrower and together the Local Borrowers) have (to the extent specified in Schedule 1 at the date of this Agreement) a current business relationship. The Local Lenders and the Local Borrowers intend to enter into certain agreements pursuant to which the local lenders will make available to the Local Borrowers certain credit facilities as specified in Schedule 1 hereto (each of them an Agreement and together, the Agreements). Schedule 1 may be amended from time to time and in accordance with the procedure set out in Clause 2 below.

1.

1.1

DEFINITIONS AND INTERPRETATIONS

In this Maximum Amount Guarantee:

Affiliate has the meaning given to the term Affiliates in the Credit Agreement. Agreements has the meaning given to it in recital (C) above. Ancillary Facility means any ancillary facility made available by a lender in accordance with Clause 6 of the Credit Agreement. Ancillary Lender means each Lender (or

Affiliate of a Lender) which makes available an Ancillary Facility in accordance with Clause 6 of the Credit Agreement.

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Beneficiary means the Beneficiary 1 and/or any Local Lender.

Credit Agreement has the meaning given to it in recital (A) above.

Local Borrower has the meaning given to it in recital (C) above.

Local Lender has the meaning given to it in recital (C) above.

Maximum Amount Guarantee has the meaning given to it in recital (B) above.

1.2 Any reference in this Maximum Amount Guarantee to a defined document is a reference to that defined document as amended, varied, novated or supplemented from time to time.

1.3 Any reference to a person includes its respective successor(s) in law (including any universal successor of that person by way of merger (merger), any other reorganization contemplated in the German Transformation Act (Umwandlungsgesetz) or otherwise) and any assign(s) and transferee(s) of that person and, to the extent legally possible, any legal provision to the contrary is waived.

1.4 The headings in this Maximum Amount Guarantee are for convenience only and are to be ignored in constructing this Maximum Amount Guarantee.

1.5 Where the context so admits, the singular includes the plural and vice versa.

1.6

2. This Maximum Amount Guarantee is made in the English language. For the avoidance of doubt, the English language version of this Maximum Amount Guarantee shall prevail over any translation of this Maximum Amount Guarantee. However, where a German translation of a word or phrase appears in the text of this Maximum Amount Guarantee, the German translation of such word or phrase shall prevail.

Amendments to Schedule 1

The Guarantor and the Beneficiary 1 May, after the date of this Maximum Amount Guarantee, agree (in writing, by letter or telefax) on any amendments to Schedule 1 from time to time.

3. Maximum Amount Guarantee and Undertaking to Reimburse, contract for the benefit of third parties

3.1 The Guarantor hereby irrevocably and unconditionally guarantees by way of an independent guarantee (Garantie) to each of the Beneficiaries up to a maximum aggregate amount of:

EUR [•]

the payment of all principal, interest (including default interest, if any), costs, expenses or other amount which are due and payable by any Local Borrower under any Agreement (for the avoidance of doubt without limitation to the relevant amounts specified in Schedule 1 hereto) from time to time in the

currency and at the place provided in that agreement or, at the option of either of the beneficiaries, in euros, at its stated or accelerated maturity irrespective of the factual or legal circumstances and motives by reason of which any local borrower may fail to pay such amount.

3.2 Any Beneficiary shall be entitled to demand direct payment hereunder from the Guarantor.

With regard to Beneficiaries which are Affiliates of the Beneficiary 1, this Maximum Amount Guarantee constitutes a contract for the benefit of third parties according to Section 328 of the German Civil Code. Irrespective of the above, the Beneficiary 1 may claim payment of the guaranteed amounts on behalf of any other Beneficiary for the purpose of forwarding the received amounts to the respective Beneficiary.

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3.3 The Guarantor shall effect payment under this Maximum Amount Guarantee within five days after receipt of a written demand of the respective Beneficiary which shall be accompanied by a confirmation by the relevant Beneficiary that the amount claimed from the Guarantor equals the amount which any of the Local Borrowers has not paid when due. The Guarantor hereby waives its right under any jurisdiction applicable to it to payment in any other currency than Euro.

3.4 This Maximum Amount Guarantee and the undertaking to reimburse (promise to pay) under Clauses 3.1 and 3.2 above constitute the Guarantor's primary and independent obligation to make payment to the Beneficiaries in accordance with the terms hereof, under any and all circumstances, regardless of the validity, legality or enforceability of the obligations of any Local Borrower irrespective of all objections, exceptions or defenses from any Local Borrower under any Agreement or from any other person.

3.5

For the avoidance of doubt,

- (a) this Maximum Amount Guarantee does not constitute a guarantee upon first demand and nothing in this Maximum Amount Guarantee, in particular receipt of the written demand referred to in Clause 3.3 above, shall preclude any rights or defenses (Einreden und Objections) the Guarantor may have (in its capacity as Guarantor only) with respect to any payment requested by any of the Beneficiary under this Maximum Amount Guarantee; other
- (b) an amendment to Schedule 1 pursuant to, and in accordance with, Clause 2 above shall not be construed as an increase of the maximum aggregate amount referred to in Clause 3.1 above.

4. Immediate recourse

The Beneficiaries (including in their capacity as Local Lenders) are not obliged first to claim payment from, to take any legal action against, or enforce any claims or security, if any, granted by any Local Borrower or any other person before making demand from the Guarantor hereunder.

5. Exclusion of defenses

The obligations of the Guarantor hereunder shall not be contingent upon the legal relationship between the Beneficiaries (or any of them) on the one hand and the Local Borrowers on the other hand and accordingly shall without limitation be independent of:

- (a) any amendment or any defect in any provision of any Agreement;
- (b) any absence or insufficiency of corporate resolutions relating to the indebtedness of any Local Borrower under any Agreement;
- (c) any inadequate representation of any local borrower;
- (d) any absence of any authorization or any factual or legal restriction or limitation existing or introduced in the country of the Local Borrower (including, but not limited to, force majeure or any event or action delaying or preventing any conversion or transfer of any amount to, or its receipt in, the agreed account);
- (e) any deferral or waiver of obligations or a consent or approval in favor of any local borrower;
- (f) any agreement made between the beneficiaries (or any of them) on the one side and the local borrowers on the other side concerning their respective obligations under

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ny agreement, including any extension of the term of payment and any rescheduling or restructuring of their indebtedness, whether or not the guarantor shall have given its consent thereto;

(G) the taking, existence, variation or release of any other collateral provided to the Beneficiaries (or any of them) for the obligations of the Guarantor or the Local Borrowers and the Beneficiaries' legal relationship with any provider of such other collateral;

(H) any right of any local borrower to rescind any agreement; other

(i) any right that a beneficiary may have to set-off the indebtedness against a counterclaim of the guarantor or any local borrower.

6. Currency Indemnity

Payments made by the Guarantor to a Beneficiary pursuant to a judgment or order of a court or tribunal in a currency other than the currency owed according to Clause 3.1 above shall only constitute a discharge of the Guarantor's obligation hereunder to the extent that the respective Beneficiary, immediately after receipt of such payment in such other currency, would be able to purchase with the amount of the other currency so received the owed currency on a recognized foreign exchange market. If the amount so received in the currency owed in accordance with Clause 3.1 should be less than the amount due, then as a separate and independent obligation, which gives rise to a separate cause of action, the guarantor is obliged to pay the difference.

7.

7.1

7.2 Obligations not Discharged and Deferral of Guarantor's Rights

So long as any sum remains payable under any Agreement or this Maximum Amount Guarantee, the Guarantor undertakes not to assert or enforce any claim it may have against any Local Borrower by reason of the performance of the Guarantor's obligations hereunder whether on contractual grounds or on any other legal basis, until all amounts payable to the Beneficiary 1 or the Local Lenders under the Agreements and this Maximum Amount Guarantee have been fully and irrevocably received or recovered; any amount received or recovered by the Guarantor from a Local Borrower shall be held in trust for and immediately paid to the Beneficiary 1 on behalf of himself and the Local Lenders. The obligations of the Guarantor hereunder shall remain in force notwithstanding any dissolution or change in the structure or legal form of the Local Borrower or the Guarantor.

8. expiration

The obligations of the Guarantor hereunder are effective as of the date hereof and shall expire on the date on which all amounts expressed to be payable by the Guarantor and the Local Borrowers under the Agreements and this Maximum Amount Guarantee (respectively) have finally and irrevocably been paid or repaid in full to the beneficiaries.

9. enforcement

The obligations of the Guarantor hereunder may be enforced against the Guarantor by each Beneficiary in any proceedings including enforcement proceedings

10 clean statement

Should any of the Beneficiaries become liable to return monies received in payment of indebtedness payable by the Guarantor or any Local Borrower under the Agreements or any other document (including, for the avoidance of doubt, this Maximum Amount Guarantee) as

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11.

a result of any bankruptcy, composition or similar proceedings affecting the Guarantor or a Local Borrower after expiry of this guarantee in accordance with Clause 8 (Expiry) above, the obligations of the Guarantor hereunder shall be reinstated and become effective again notwithstanding such expiration.

Additional security

This Maximum Amount Guarantee and the undertaking to pay is in addition to and is not in any way prejudiced by any other guarantee or security now or subsequently held by any of the Beneficiaries.

12. Payments and set-off

12.1 All payments owed by the Guarantor shall be made in immediately available, freely convertible funds for value on the due date to such account with such bank as the relevant Beneficiary

specifies and only irrevocable crediting of such payment in full onto the account specified by the relevant Beneficiary shall discharge the Guarantor's payment obligation.

12.2 The Beneficiaries may set-off any obligation due from the Guarantor under this Maximum Amount Guarantee or any other agreement against any satisfiable obligation (whether due or not) owed by any of the Beneficiaries to the Guarantor, regardless of the place of payment, booking branch or currency of either obligation. If the obligations are in different currencies, the relevant Beneficiary may convert either obligation at a market rate of exchange in its usual course of business for the purpose of set-off.

13. taxes

All payments owed by the Guarantor under this Maximum Amount Guarantee:

(a) shall be paid without any deduction or withholding for or on account of tax (a "Tax Deduction") unless a Tax Deduction is required by law. If a Tax Deduction is required by law to be made, the amount of the payment shall be increased to an amount which (after making any Tax Deduction) leaves an amount equal to the payment which would have been due if no Tax Deduction had been required . If in connection with payments under this Maximum Amount Guarantee any amounts on account of tax are imposed on the Beneficiary (other than by way of a Tax Deduction) in any jurisdiction (other than the jurisdiction where the relevant Beneficiary is tax resident or, if different , maintains a permanent establishment to which such payment is attributable), the Guarantor shall indemnify and hold harmless the relevant Beneficiary against any such tax; other

(b) are exclusive of any value added tax or similar charge (VAT). If VAT is chargeable, the Guarantor shall also and at the same time pay to the relevant Beneficiary an amount equal to the amount of the VAT.

14 contact details

14.1 The contact details for all communications in connection with this Maximum Amount Guarantee:

(a) in respect of the Guarantor for this purpose are:

Address: Fax: Note:

[•] [•] [•]

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and

(b) in respect of the Beneficiary 1 and each Beneficiary for this purpose are:

Address: Fax:

Note:

[•] [•]

[•]

14.2 Any party hereto may change its contact details by giving seven days prior written notice to the Beneficiary 1 (in the case of the Guarantor) or to the Guarantor (in the case of the Beneficiaries). Where a party to this Maximum Amount Guarantee nominates a particular department or officer to receive a communication, a communication will not be effective if it fails to specify that department or officer.

15. Communications

15.1 Unless otherwise required by statutory law or unless otherwise agreed in writing from time to time, any notice given under or in connection with this Maximum Amount Guarantee must be made in writing (including, for the avoidance of doubt, by way of facsimile) in the English or German language.

15.2 All other documents provided under or in connection with this Maximum Amount Guarantee must be:

(a) in English or German; or

(b) if not in English or German and unless the document is a statutory, corporate, constitutional or other official document if so required by the Beneficiary 1, accompanied by a certified English or German translation.

16 Miscellaneous

16.1 This Maximum Amount Guarantee may be executed (manually or by facsimile) in any number of counterparts. This shall have the same effect as if the signatures on the counterparts were on a single copy of this Maximum Amount Guarantee.

16.2 If any term of this Maximum Amount Guarantee is or becomes illegal, void, invalid or unenforceable in any respect under any jurisdiction, that will not affect:

(a)

(b) the legality, validity or enforceability in that jurisdiction of any other term of the maximum amount guarantee; or the legality, validity or enforceability in other jurisdictions of that or any other term of the Maximum Amount Guarantee, without any party having to argue and prove the parties intent to uphold the agreement made pursuant to this Maximum Amount Guarantee even without the illegal, void, invalid or unenforceable provision(s), which intent shall be indisputable). The illegal, void, invalid or unenforceable provision shall be deemed to be replaced by such legal, valid and enforceable provision that in legal and economic terms comes closest to what the parties intended or would have intended in accordance with the purpose of this Maximum Amount Guarantee if they had considered the point at the time of conclusion of this Maximum Amount Guarantee. The same shall apply mutatis mutandis to any gap in this Maximum Amount Guarantee.

16.3 Changes to and amendments to this Guarantee (including this Clause 16) must be made in

writing.

16.4 No failure to exercise, nor any delay in exercising, on the part of the Agent or the other Finance Parties (or any of them), any right or remedy under this Maximum Amount Guarantee shall operate as a waiver thereof, nor shall any single or partial exercise of any right or remedy prevent any further or other exercise thereof or the exercise of any other right or remedy. The rights and remedies provided hereunder are cumulative and not exclusive of any rights or remedies provided by law.

16.5 The Guarantor may not assign and/or transfer any of its rights and/or obligations under this Maximum Amount Guarantee to another person without the prior written consent of the Beneficiaries.

17 Governing law

This Maximum Amount Guarantee and any non-contractual obligations arising out of or in connection with it shall be governed by and constructed in accordance with the laws of the Federal Republic of Germany.

18 Jurisdiction

18.1 The courts of Frankfurt am Main, Germany shall have non-exclusive jurisdiction to settle any dispute arising out of or in connection with this Maximum Amount Guarantee.

18.2 This Clause is for the benefit of the Beneficiaries only. To the extent allowed by law, the beneficiaries may take:

(a) proceedings in any other competent court; other

(b) concurrent proceedings in any number of jurisdictions.

18.3 References in this Clause to a dispute in connection with this Maximum Amount Guarantee include any dispute as to the existence, validity or termination of this Maximum Amount Guarantee.

Yours sincerely,

ADVA Optical Networking SE

Acknowledged and agreed:

[•] as Beneficiary 1

dates:

Schedule 1

to the Maximum Amount Guarantee from

ADVA Optical Networking SE

dated [•] in the amount of EUR [•]

Local Local Lender Local

Local Facility

Local Facility Total in EUR

Borrowers currency (if cash (if not guarantees (if not EUR) denominated in not denominated EUR,
converted into EUR) in EUR, converted into EUR)

Total local facilities under maximum

Amount Guarantee from ADVA Optical

Networking SE

place and date

place and date

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ANNEX 10

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ANNEX 11

EXISTING CREDITS AND ASSUMPTIONS OF LIABILITY

Part 1 (Lending)

Company Borrower Value in EUR (8/22/2018)

Adva Optical Networking SE	ADVA Optical Networking North America Inc.	48.011.843
Adva Optical Networking SE	ADVA Optical Networking Israel Ltd.	4.553.946
Adva Optical Networking SE	Oscilloquartz Finland Oy	350.000
ADVA Optical Networking North America Inc.	Charlotte's Web Ltd.	44.962.826
ADVA Optical Networking North America Inc.	MRV Communications GmbH	1.971.971
ADVA Optical Networking North America Inc.	Nbase Communications Ltd.	260.857
ADVA Optical Networking North America Inc.	Nbase Fibronics Ltd.	979.402
ADVA Optical Networking North America Inc.	ADVA Optical Networking Israel Ltd.	31.177.794

Part 2 (Assumption of Liability)

Company Warrantee Value in EUR (per 8/19/2018)

Adva Optical Networking SE	ADVA Optical Networking Ltd.	1.691.000
Adva Optical Networking SE	ADVA Optical Networking (India) Private Limited	2.184.000
Adva Optical Networking SE	ADVA Optical Networking Singapore Ptd. Ltd.	624.000
Adva Optical Networking SE	Oscilloquartz	854.000

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ANNEX 12

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ANNEX 13

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ANNEX 14

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ANNEX 15

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ANNEX 16

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ANNEX 17

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SIGNATURE

SIGNATURE

Kreditnehmer und Garant
ADVA Optical Networking SE

/s/ Ulrich Dopfer

Name: Ulrich Dopfer
CFO

/s/ Thomas Zeiner

Name: Thomas Zeiner
Director

Agent

Deutsche Bank Luxembourg S.A.

/s/ Marco Kaster

Name: Marco Kaster

/s/ A. Alert

Name: A. Alert

Banken

Bayerische Landeshank

(als Mandated Lead Arranger und Krditgeber)

/s/ Von Ducker

Name: Von Ducker

/s/ Keck

Name: Keck

Deutsche Bank AG Filiale Deutschlandgeschäft

(als Mandated Lead Arranger)

/s/ Florian Frank

Name: Florian Frank

/s/ Oliver Bolus

Name: Oliver Bolus
Director

Deutsche Bank Luxembourg S.A.

(als Kreditgeber)

/s/ S Jabbar

Name: S. Jabbar

/s/ C Koch

Name: C. Koch

Norddeutsche Landesbank – Girozentrale –

(als Mandated Lead Arranger und Kreditgeber)

/s/ Prinzhausen

Name: Prinzhausen

/s/ Pohler

Name: Pohler

[Signature page: revolving credit agreement with ADVA Optical Networking]

Deutsche Bank Luxembourg S.A.

(als Kreditgeber)

/s/ S Jabbar

Name:

S. Jabbar

/s/ C Koch

Name:

C. Koch

Norddeutsche Landesbank – Girozentrale -

(als Mandated Lead Arranger und Kreditgeber)

/s/ Prinzhausen

Name:

Prinzhausen

/s/ Pohler

Name:

Pohler

[Signature page: revolving credit agreement with ADVA Optical Networking]

Commerzbank Aktiengesellschaft

(als Lead Arranger und Kreditgeber)

/s/ J Huber

Name: J Huber

/s/ Michael Breitwieser

Name: Michael Breitwieser

DZ Bank AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main

(als Lead Arranger und Kreditgeber)

/s/ V Sonnenberg

Name: V Sonnenbert

/s/ Jens Doht

Name: Jens Doht

IKB Deutsche Industriebank AG

(als Lead Arranger und Kreditgeber)

/s/ I. V. Roosen

Name: Roosen

/s/ Luck

Name: Luck

[Signature page: revolving credit agreement with ADVA Optical Networking]

CERTIFICATIONS

I, Thomas R. Stanton, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of ADTRAN Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 9, 2022

/s/ Thomas R. Stanton

Thomas R. Stanton
Chief Executive Officer and Chairman of the Board

CERTIFICATIONS

I, Michael Foliano, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of ADTRAN Holdings, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's Board of Directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 9, 2022

/s/ Michael Foliano

Michael Foliano
Chief Financial Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of ADTRAN Holdings, Inc. (the "Company") on Form 10-Q for the quarter ending September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Thomas R. Stanton, Chief Executive Officer and Chairman of the Board of the Company, certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods described therein.

/s/ Thomas R. Stanton

Thomas R. Stanton

Chief Executive Officer and Chairman of the Board

November 9, 2022

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of ADTRAN Holdings, Inc. (the "Company") on Form 10-Q for the quarter ending September 30, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Michael Foliano, Senior Vice President of Finance and Chief Financial Officer, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that, to the best of my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company for the periods described therein.

/s/ Michael Foliano

Michael Foliano
Chief Financial Officer
November 9, 2022