

# IR Presentation

## Q3 2021

Q3 2021 Results & Q4 2021 Guidance

November 2021  
OE Solutions IR

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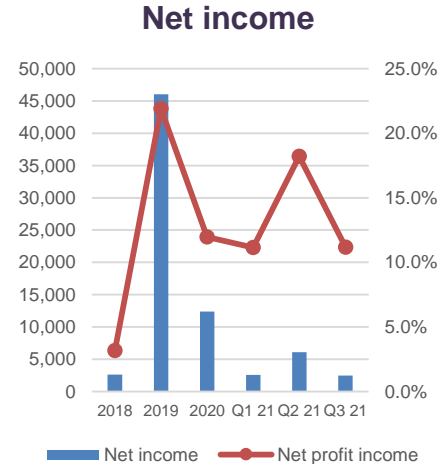
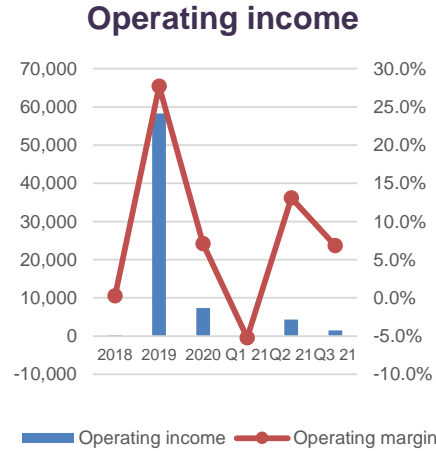
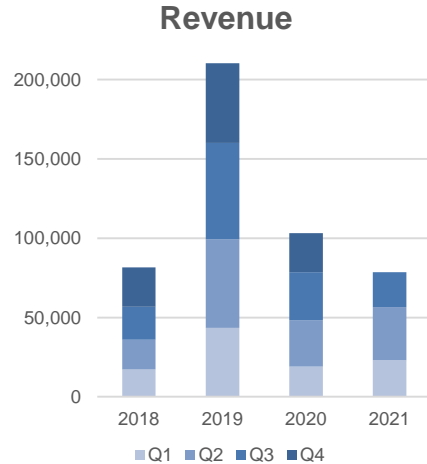
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# Q3 2021 Result Review



Q3 2021 Revenue **22.2B KRW** , Operating income **1.5B KRW(6.7%)**, Net income **2.5B KRW(11.2%)**



※ Based on consolidated

구분	2018	2019	2020	Q1 21	Q2 21	Q3 21
• Revenue	81,504	210,283	103,178	23,068	33,397	22,193
• Operating income	234	58,266	7,333	-1,203	4,370	1,518
• Operating margin	0.3%	27.7%	7.1%	-5.2%	13.1%	6.8%
• Net income	2,584	45,908	12,352	2,573	6,085	2,480
• Net profit margin	3.2%	21.8%	12.0%	11.2%	18.2%	11.2%

(Unit : million KRW)

## Q3 2021 Revenue **22.2B KRW** QoQ -33.6%, YoY -26.4%

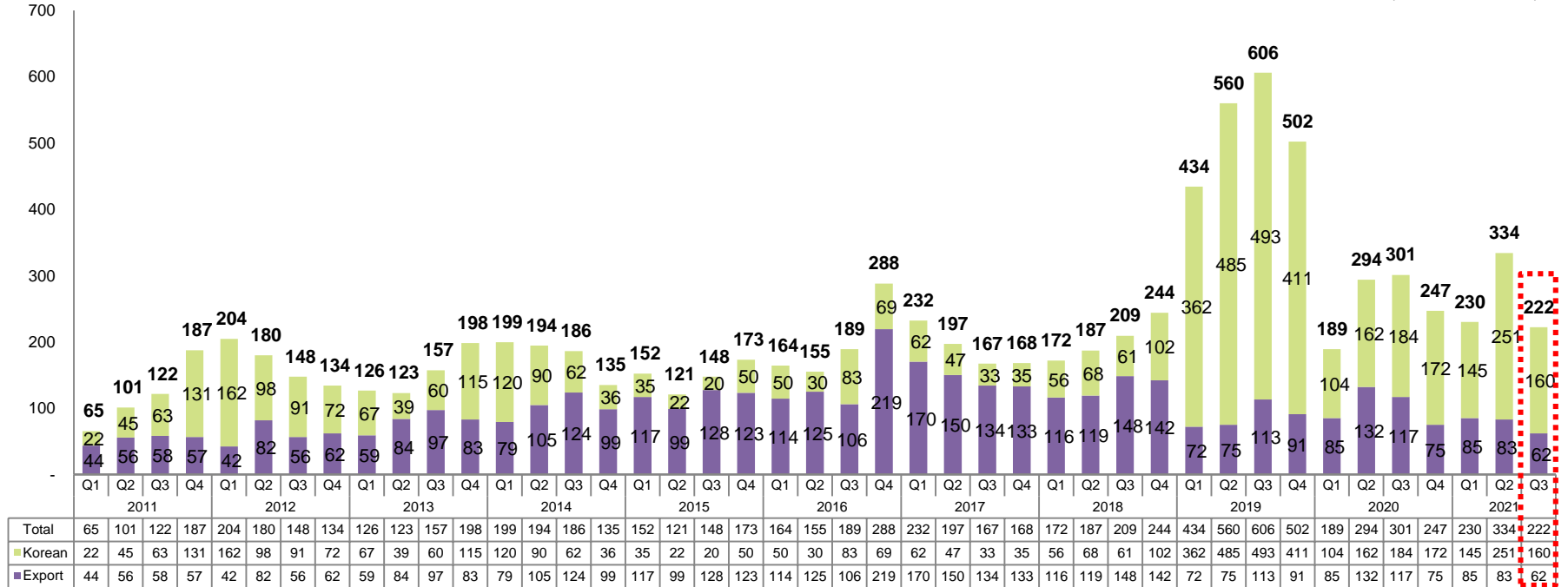
(Unit : million KRW)

	Q2 21	Q3 21	%	QoQ	Q3 20	YoY
Revenue (Sales)	33,397	<b>22,193</b>		<b>-33.6%</b>	30,157	-26.4%
Gross profit	14,018	8,850	39.9%	-36.9%	13,351	-33.7%
Selling general Administrative expenses	9,648	7,332	33.0%	-24.0%	8,314	-11.8%
Operating Income(loss)	4,370	<b>1,518</b>	<b>6.8%</b>	<b>-65.3%</b>	5,037	-69.9%
Profit (loss) Before tax	6,457	2,248	10.1%	-65.2%	5,085	-55.8%
Net income	6,085	<b>2,480</b>	<b>11.2%</b>	<b>-59.2%</b>	4,514	-45.1%

※ Based on consolidated

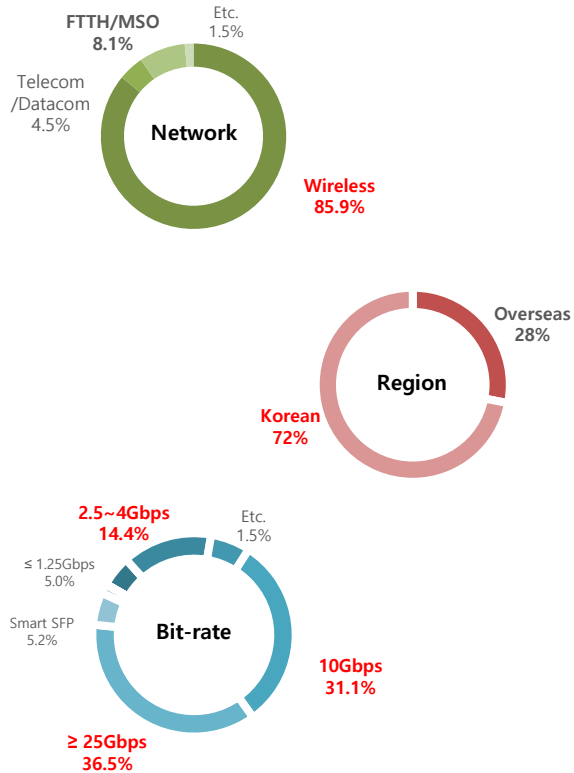
## Global 5G investment Expected in 2022

(Unit: 100 million KRW)



※ Based on separate standard

# Sales details



(Unit: 100 million KRW)

	2Q 2020	3Q 2021	QoQ (%)
<b>Network</b>			
• <b>Wireless</b>	277.8	190.7	-45.7%
• Telecom/Datacom	8.3	9.9	16.2%
• FTTH/MSO	44.2	17.9	-146.9%
• etc.	3.9	3.4	-14.7%
<b>Region</b>			
• <b>Korean</b>	251.2	159.7	-36.4%
• Overseas	83.0	62.2	-25.1%
<b>Overseas ratio</b>	24.8%	28.0%	
<b>Bit-rate</b>			
• ≤1.25Gbps	12.4	11.1	-11.7%
• <b>2.5~4Gbps</b>	56	31.9	-75.5%
• 5~6Gbps	8.3	14.1	14.1%
• <b>10Gbps</b>	122.6	68.9	-77.9%
• <b>≥25Gbps</b>	125.4	81	-54.8%
• Smart SFP	5.6	11.5	51.3%
• Component / Chip	3.9	3.4	-14.7%
• etc.			
<b>Total</b>	334.2	221.9	-33.6%

※ Based on separate standard



# 5G(NR) Mobile Network Business



## 5G Network Supply chain

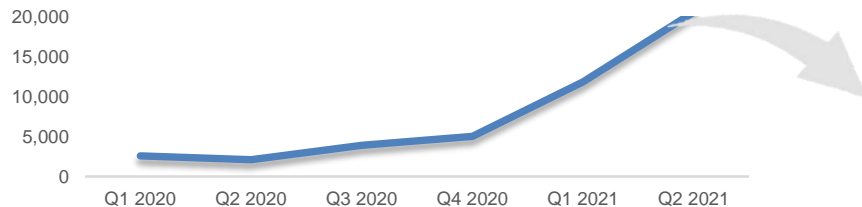


## Global 5G Revenue Forecast

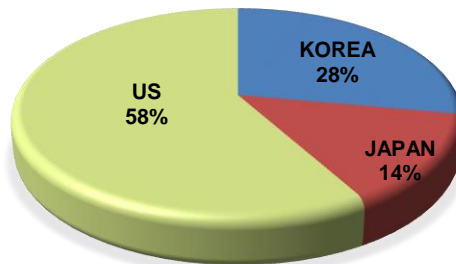
Global(US, Japan, etc.) 5G sales growth is expected to decrease in the second half of the year

(Unit: 100 million KRW)

### Global 5G Revenue outlook



## Q3 2021 5G Revenue



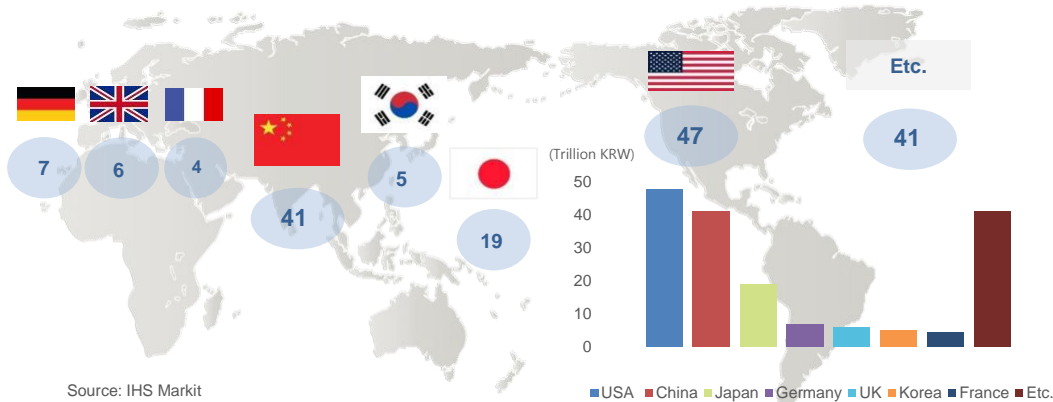
(Unit: 100 million KRW)

Region	Operator	Revenue	%
US	Verizon	7,979	58%
	KDDI	1,926	14%
JAPAN	NTT docomo		
KOREA	KT	3,822	28%
	LG U+		
	SKT		
<b>Total</b>		<b>13,727</b>	

## 5G Market Forecast

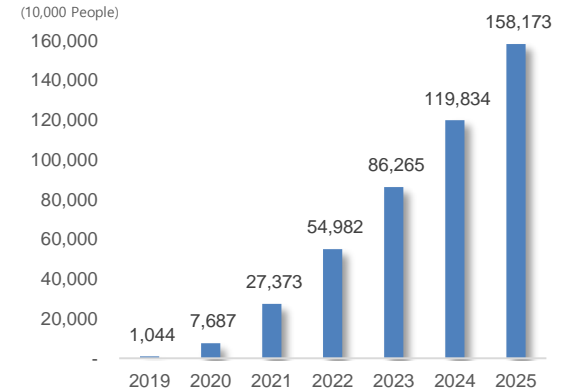


### 5G Infra equipment investment outlook - 5-year average



Source: IHS Markit

### Global 5G subscribers outlook



Source: IHS Markit

## Data traffic

### Global Mobile data traffic outlook

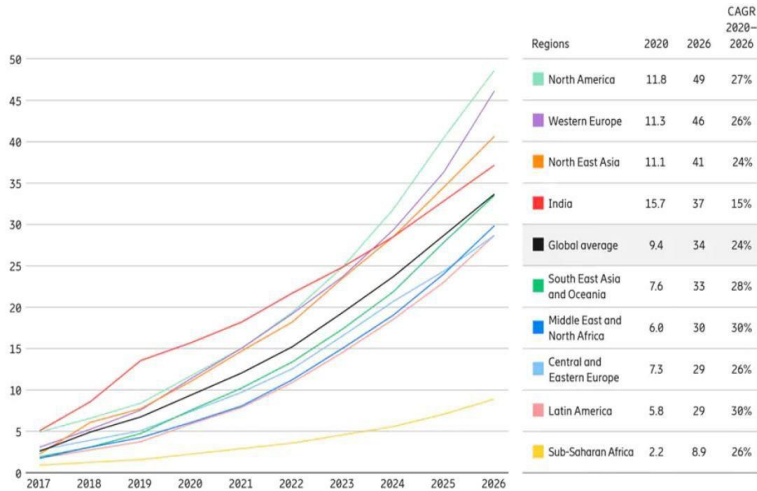
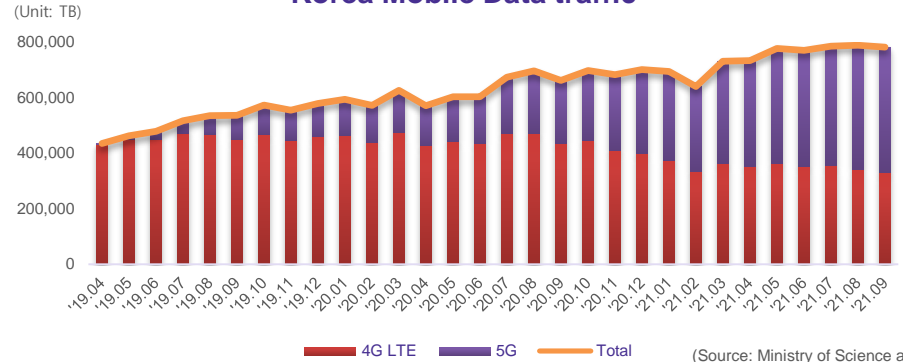


Figure 13: Mobile data traffic per smartphone (GB per month)

(Source: Ericsson)

### Korea Mobile Data traffic



(Source: Ministry of Science and ICT)

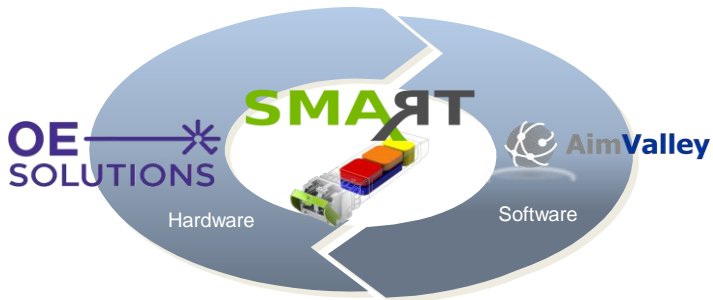


# OE Solutions Vision & Strategy



## World's First Leading Technology Smart Transceiver

### Smart Transceiver



### Product Features



### Smart Transceiver

The Network system features in the transceiver enable network migration at low cost and high efficiency. OE Solutions/AimValley

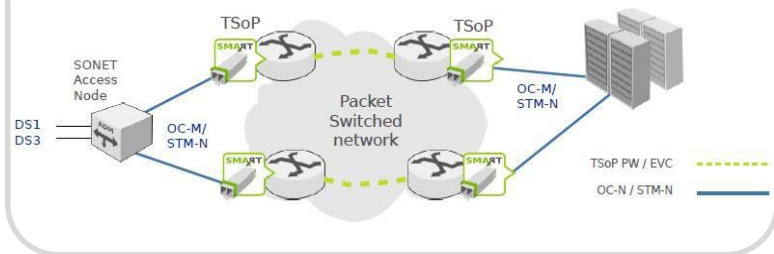
### World's First Leading Technology

Global Tier 1 customer design in good progress

→Ciena, CISCO, Nokia, Juniper, ADVA etc.

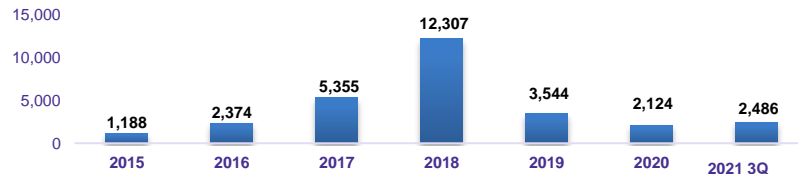
### Simplify Network Migration

#### Example of using Smart SFP



### Smart Transceiver Revenue

(Unit: million KRX)



Business expand



## Optical Component



- Mass production scheduled for the 2020
- 10G/25G/100G will start using in-house laser chip
- Component sales for China 5G and data center applications
- Component business expect high margin
- Through in-house capability, 1) Cost competitive 2) Supply and demand stabilization 3) Custom development will be possible
- Road map : 10G DML, 25G DFB, 25G EML, Tunable Chip
- 25G EML : Joint with ETRI



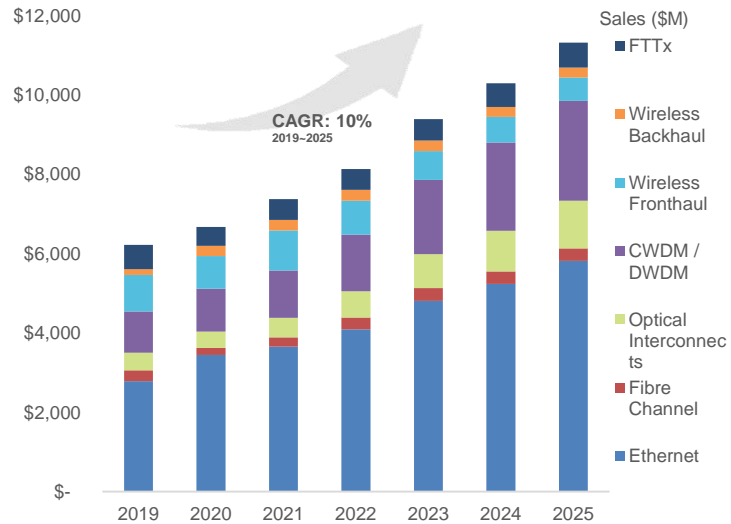
## Transceiver



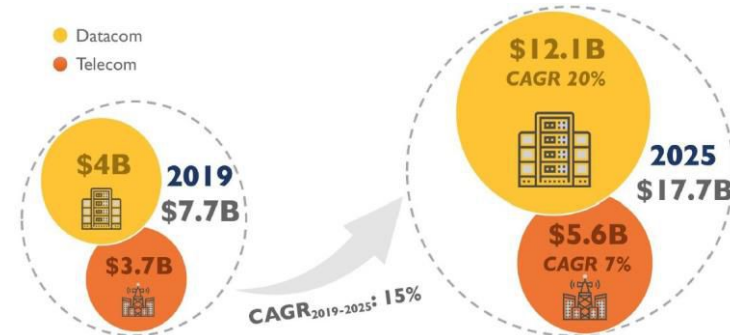
- Global 5G Transceiver All line-up
- Transceiver profitability and competitive advantage through in-house technology
- High bit-rate Transceiver development to launch a variety of Network Target products
- New Product in the second half
  - 50Gbps, 100Gbps, 400Gbps PAM4 for wireless and Data Center interconnector
  - 10Gbps Tunable Transceiver for WDM
  - Digital Coherent TRx for 100Gbps >100km

## Demand for Transceivers continues to increase due to infrastructure investments that require data connectivity

Transceiver Market Forecast



Source : LightCounting, 2020 October Report



Source : Yole Developpement, 2020

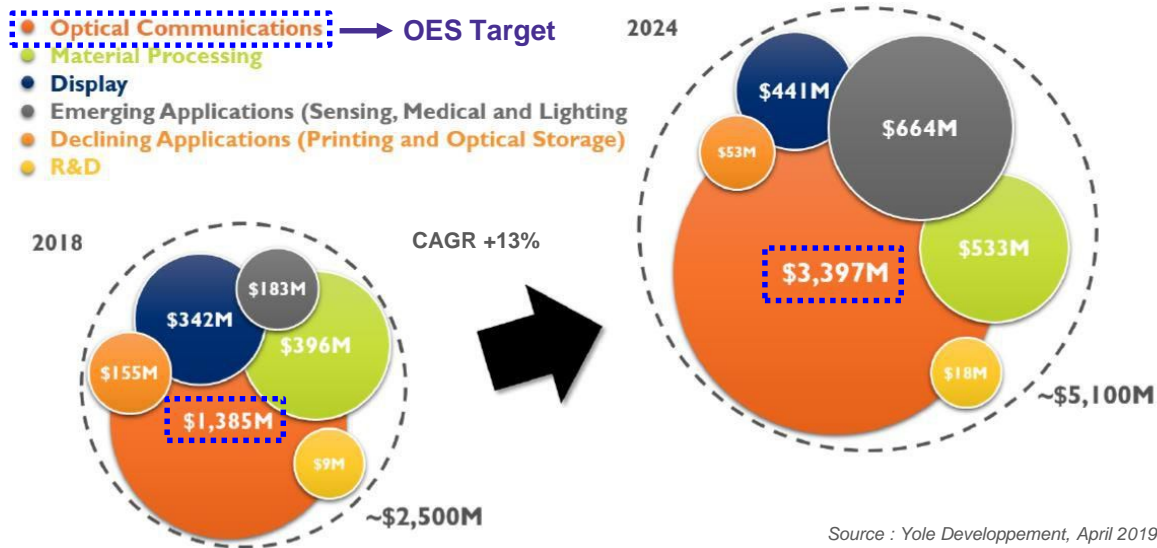


# Vision & Strategy for OES's Semiconductor Laser Diode Chip

Target the Optical Communication market through Edge Emitting Lasers technology  
EEL technology has potential to expand into many businesses

\*EEL Market

\*EEL : Edge Emitting Lasers



Q4 of 21 Guidance



**Q4 Revenue is expected to 21.4B KRW**  
 YoY -13.4%, QoQ -3.6%

## Quarterly Guidance

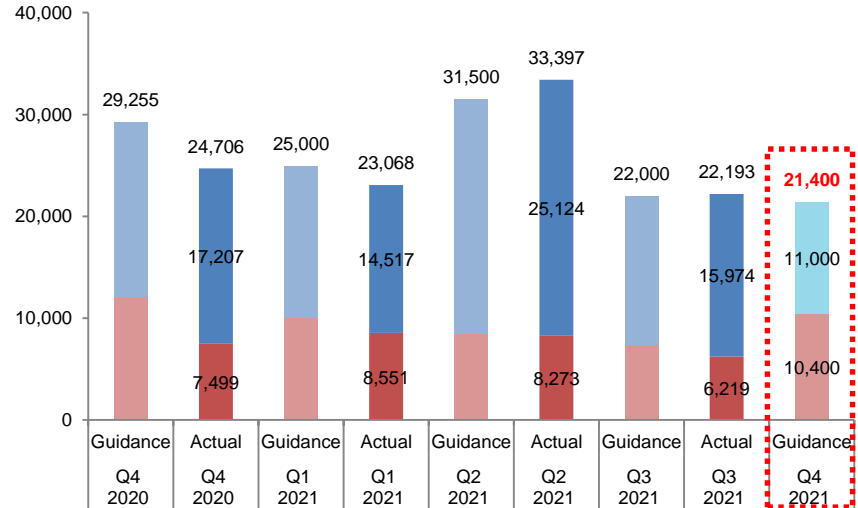
(Unit : million KRW)

	Q4 2020 Actual	Q1 2021 Actual	Q2 2021 Actual	Q3 2021 Actual	Q4 2021 Guidance
Revenue (Sales)	24,706	23,068	33,397	22,193	<b>21,400</b>
Domestic	17,207	14,517	25,124	15,974	<b>11,000</b>
Export	7,499	8,551	8,273	6,219	<b>10,400</b>

※ Consolidated and forecast as of November 2021

## Quarterly Trends

(Unit : million KRW)



# Appendix

- Company Introduction
- Financials



# About OE Solutions

## Overview

<b>Name</b>	OE Solutions, Co., Ltd	<b>Date of Established</b>	Aug.7, 2003
<b>Number of Employees</b>	433 (Korea: 411 / USA: 18 / Japan: 4)	<b>Date of Listing</b>	Feb.27, 2014(KOSDAQ code : 138080)
<b>Product</b>	Optical Transceiver	<b>Homepage</b>	www.oesolutions.com
<b>Locations</b>	Head Quarter : Gwangju, South Korea / US : Ridgefield Park, NJ, USA / JAPAN : Tokyo Japan		

(As of October.31,2021 )

## Locations



- Hilversum, Netherlands**
- Europe Headquarter
  - Europe Sales
  - Smart and system R&D

- Gwangju, Korea**
- Global Headquarter
  - Manufacturing
  - R&D

- Seoul (Anyang), Korea**
- Korea Sales
  - R&D

- Seoul (Suwon), Korea**
- Korea Sales
  - Engineering Support

- Taipei, Taiwan**
- China Sales
  - Engineering Support

- Tokyo, Japan**
- Japan Sales
  - Engineering Support

- Ridgefield Park, NJ, USA**
- US Headquarter
  - US (East Coast) Sales
  - Engineering Support

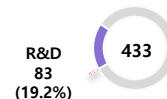
- Irvine, CA, USA**
- R&D

- Santa Barbara, CA, USA**
- R&D

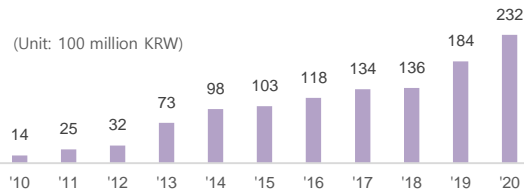
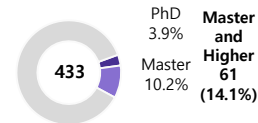


## R&D Engineer & Cost

< By sector >



< By education >



\* 자회사 포함

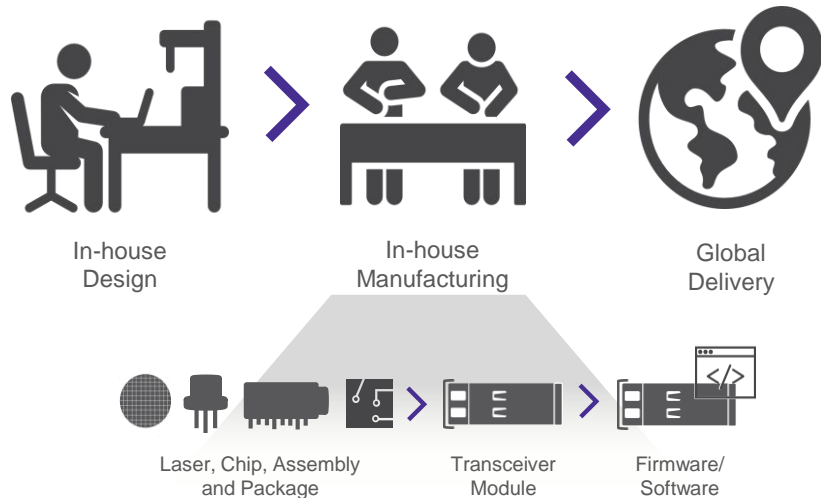
24 November 2021 | 21

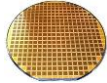


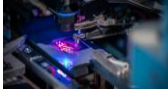










## Leading Supplier of High-Reliability Optical Components for Challenging Deployment Environments



- ❑ Leading supplier of optical components since 2003
- ❑ Founded by a team of Bell Labs and Samsung veterans
- ❑ Traded on KOSDAQ since 2014
- ❑ Key supplier to tier-1 MSO and Wireless OEMs
- ❑ Serving global customer in over 50 countries
- ❑ Leading supplier of BID1 and I-Temp Optics
- ❑ Leading supplier of Smart SFPs (co-developed with AimValley)
- ❑ Vertically integrated production
- ❑ In-house production in Gwangju, S. Korea factory
- ❑ R&D sites in Korea, USA and the Netherlands

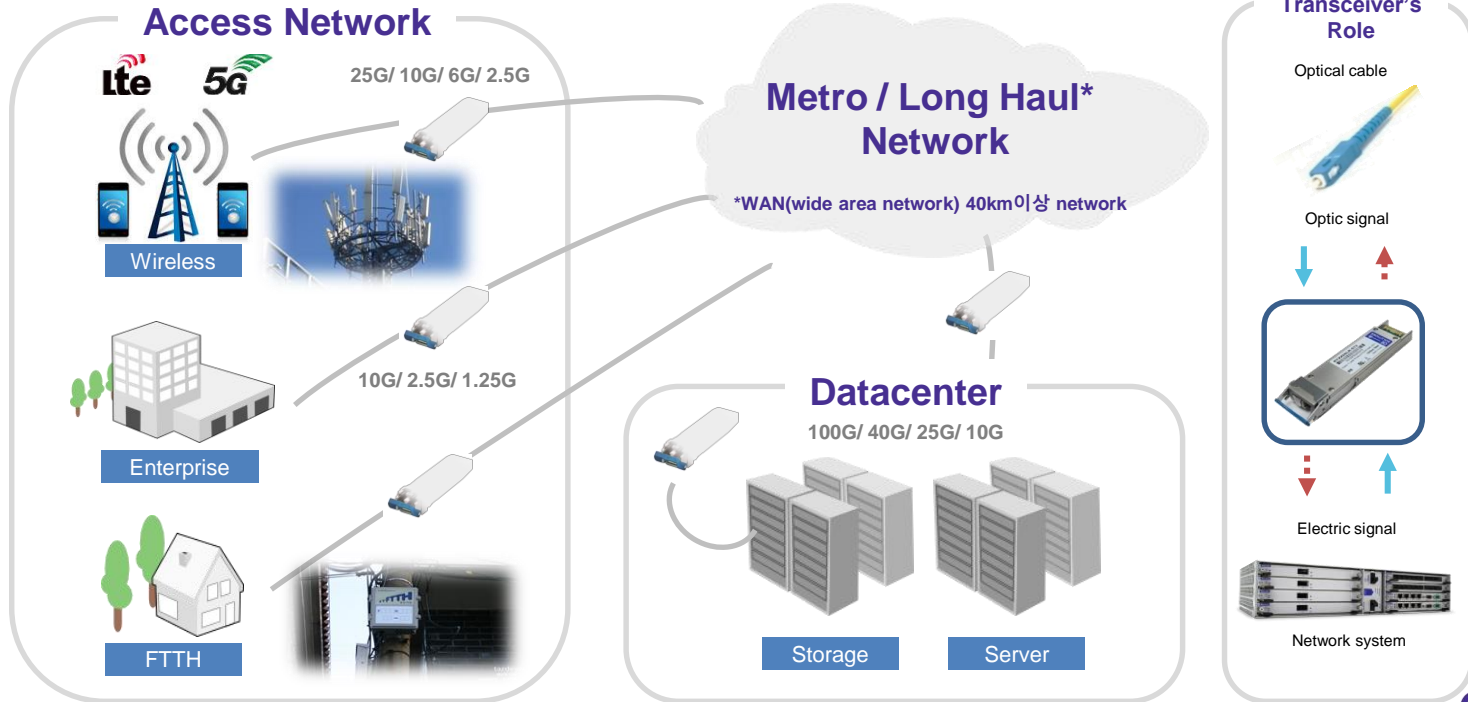


Manufacturing Process			Manufacturing Technology	
<b>Chip</b>		Laser Diode Photo Diode	Epitaxy / Fabrication / Wafer Characterization	
<b>Assembly</b>		TO/ XMD (Cooled/ Uncooled)	Die Bonding, Wire Bonding, Seam Sealing, Burn-in, DC/AC Test	
<b>Package</b>		OSA (TOSA/ ROSA/ BOSA)	Laser welding, Epoxy bonding, DC/AC Test	
<b>Circuit / Module</b>		Transceiver (Tuning & Test)	Auto Soldering / Auto Tuning / Test	
<b>Firmware / Software</b>		Sub-system (Network Migration & Self-Monitoring Technology)	Co-developed with AimValley, a networking technology expert in Netherlands	
<b>Production</b>		Own manufacturing, assembly & testing facility	Low cost, flexible production	

# Transceiver Products Applications

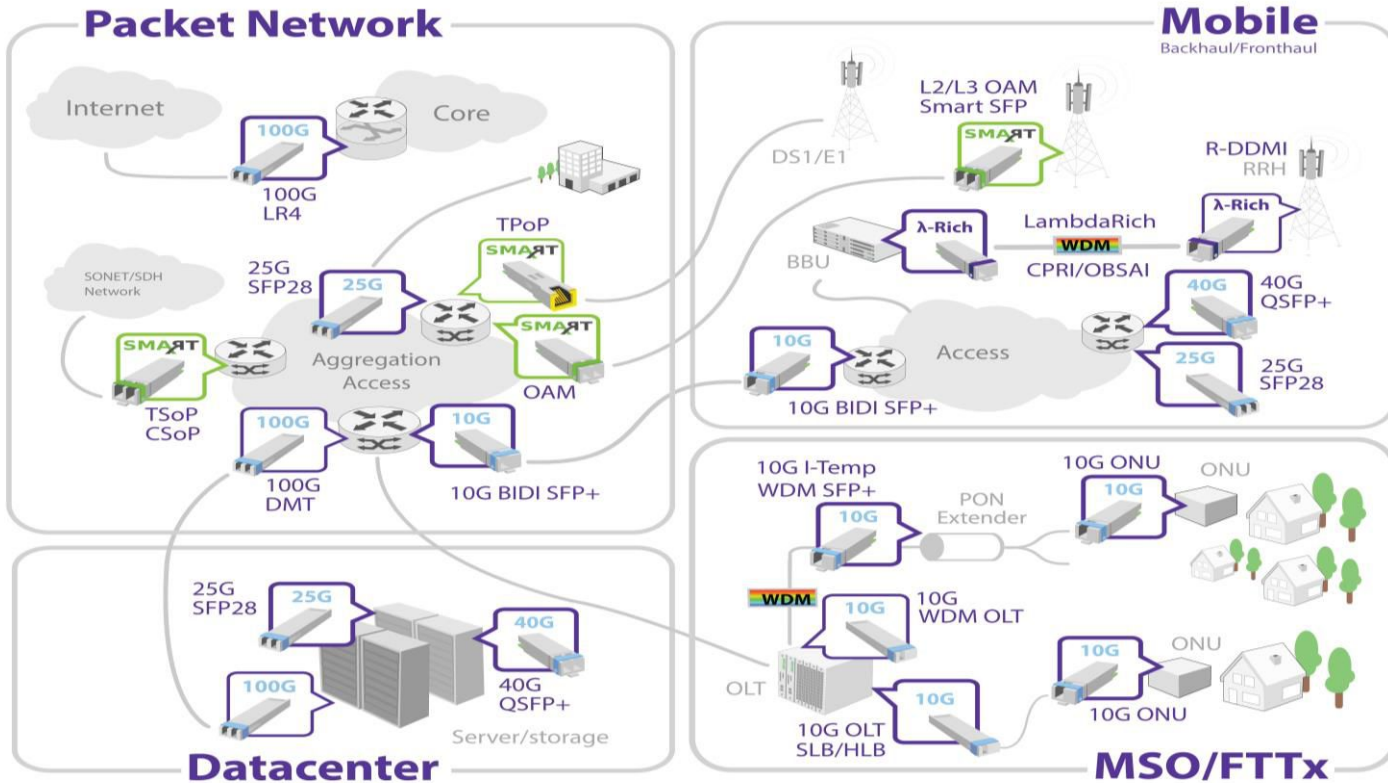
The use of Transceiver in the Network

Transceiver required for network connections





# Key Application Areas



# Condensed income statement

## Consolidated

(Unit : million KRW)

	2018	2019	2020	2021		
				1Q	2Q	Q3
Revenue (Sales)	81,504	210,283	103,178	23,068	33,397	22,193
Cost of sales	54,106	122,835	62,686	14,722	19,380	13,343
Gross profit	27,398	87,448	40,492	8,345	14,018	8,850
Selling general administrative expenses	27,164	29,186	33,159	9,548	9,648	7,332
<b>Operating income(loss)</b>	<b>234</b>	<b>58,262</b>	<b>7,333</b>	<b>-1,203</b>	<b>4,370</b>	<b>1,518</b>
Profit (loss) before tax	1,951	58,388	6,699	-443	6,457	2,248
Net income	<b>2,584</b>	<b>46,065</b>	<b>12,352</b>	<b>2,573</b>	<b>6,085</b>	<b>2,480</b>

## Separate standards

(Unit : million KRW)

	2018	2019	2020	2021		
				1Q	2Q	Q3
Revenue (Sales)	81,406	210,242	103,172	23,039	33,423	22,193
Cost of sales	54,117	122,835	62,686	14,722	19,380	13,344
Gross profit	27,289	87,407	40,486	8,317	14,043	8,849
Selling general administrative expenses	26,925	28,533	33,180	9,714	9,649	7,051
<b>Operating income(loss)</b>	<b>364</b>	<b>58,874</b>	<b>7,305</b>	<b>-1,397</b>	<b>4,395</b>	<b>1,798</b>
Profit (loss) before tax	1,945	59,436	6,990	-625	5,695	2,488
Net income	<b>2,641</b>	<b>47,026</b>	<b>12,227</b>	<b>2,390</b>	<b>5,352</b>	<b>2,727</b>

# Condensed statement of financial position

## Consolidated

(Unit : million KRW)

	2018	2019	2020	2021		
				Q1	Q2	Q3
Current assets	57,027	137,422	129,808	129,878	118,317	113,275
Cash and cash equivalents	11,073	44,259	40,068	35,829	36,938	38,594
Accounts receivable	18,969	33,138	14,847	14,454	10,543	7,787
Inventory asset	19,740	24,222	22,484	27,813	33,452	36,373
Non-current assets	42,125	46,945	65,377	68,992	86,295	87,760
Property, plant and equipment	30,476	30,161	39,269	39,938	41,066	40,421
Intangible assets	782	738	746	754	732	822
<b>Total assets</b>	<b>99,152</b>	<b>184,367</b>	<b>195,184</b>	<b>198,870</b>	<b>204,612</b>	<b>201,035</b>
Current liabilities	25,369	42,847	45,749	49,841	49,446	43,209
Short-term debt	19,400	27,000	36,000	36,000	36,000	34,000
Non-current liabilities	5,736	2,211	2,455	2,602	2,640	2,679
<b>Total liabilities</b>	<b>31,105</b>	<b>45,059</b>	<b>48,204</b>	<b>52,443</b>	<b>52,086</b>	<b>45,888</b>
Capital	3,870	5,312	5,312	5,312	5,312	5,312
Paid-in capital in excess of par value	26,969	52,031	52,002	52,002	52,002	52,002
Retained earnings	34,868	79,731	87,511	86,900	92,985	95,465
<b>Total equity</b>	<b>68,047</b>	<b>139,308</b>	<b>146,981</b>	<b>146,427</b>	<b>152,526</b>	<b>155,147</b>

## Separate standards

(Unit : million KRW)

	2018	2019	2020	2021		
				Q1	Q2	Q3
Current assets	55,790	136,299	127,504	127,904	116,319	111,222
Cash and cash equivalents	10,227	42,423	34,557	32,788	31,540	35,394
Accounts receivable	18,299	33,096	18,137	14,804	12,368	8,478
Inventory asset	19,740	24,222	22,484	27,811	33,452	36,372
Non-current assets	41,993	46,416	65,055	68,730	86,005	87,449
Property, plant and equipment	30,119	29,192	38,592	39,314	40,518	39,924
Intangible assets	54	36	18	14	9	60
<b>Total assets</b>	<b>97,783</b>	<b>182,715</b>	<b>192,559</b>	<b>196,634</b>	<b>202,324</b>	<b>198,671</b>
Current liabilities	26,119	43,065	44,794	49,529	49,827	43,423
Short-term debt	19,400	27,000	36,000	36,000	36,000	34,000
Non-current liabilities	5,643	1,676	2,164	2,300	2,339	2,363
<b>Total liabilities</b>	<b>31,761</b>	<b>44,740</b>	<b>46,959</b>	<b>51,828</b>	<b>52,166</b>	<b>45,786</b>
Capital	3,870	5,312	5,312	5,312	5,312	5,312
Paid-in capital in excess of par value	26,969	52,031	52,002	52,002	52,002	52,002
Retained earnings	32,638	78,461	86,116	85,322	90,674	93,401
<b>Total equity</b>	<b>66,022</b>	<b>137,975</b>	<b>145,600</b>	<b>144,806</b>	<b>150,158</b>	<b>152,885</b>

Thank you.

**OE** —   
**SOLUTIONS**

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