

# **IR Presentation**

## **Q1 2021**

Q1 2021 Results & Q2 2021 Guidance

**June 2021**  
**OE Solutions IR**



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## Table of Contents

1. Q1 2021 Result Review
2. 5G(NR) Mobile Network Business
3. OE Solutions Vision & Strategy
4. Q2 of 2021 Guidance
5. Appendix



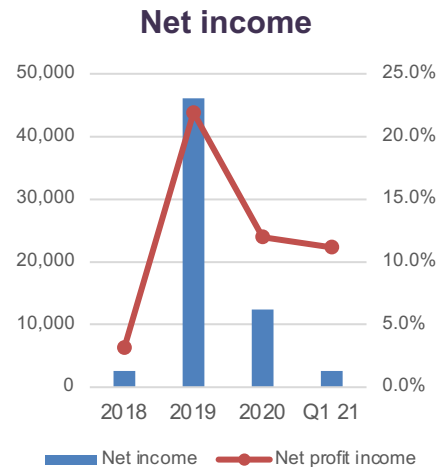
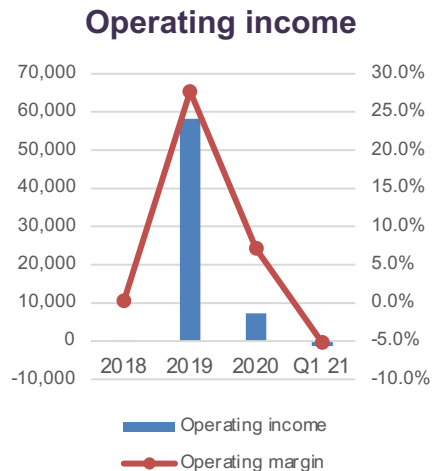
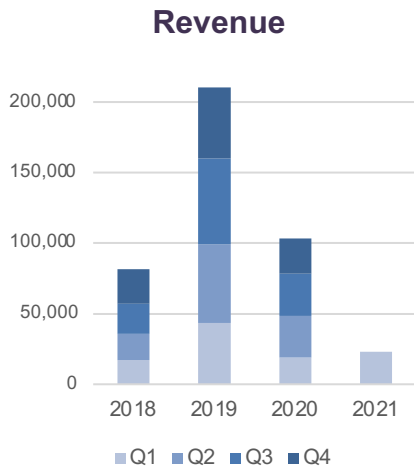


## Q1 2021 Result Review





**Q1 2021 Revenue 23.1B KRW , Operating income -1.2B KRW(-5%), Net income 2.6B KRW(11%)**



※ Based on consolidated

(Unit : million KRW)

구 분	2017	2018	2019	2020	Q1 21
• Revenue	76,594	81,504	210,283	103,178	23,068
• Operating income	-1,917	234	58,266	7,333	-1,203
• Operating margin	-2.5%	0.3%	27.7%	7.1%	-5.2%
• Net income	-1,786	2,584	46,065	12,352	2,573
• Net profit margin	-2.3%	3.2%	21.9%	12.0%	11.2%



## Q1 2021 Revenue **23.1B KRW** YoY 21.8%, QoQ -6.6%

(Unit : million KRW)

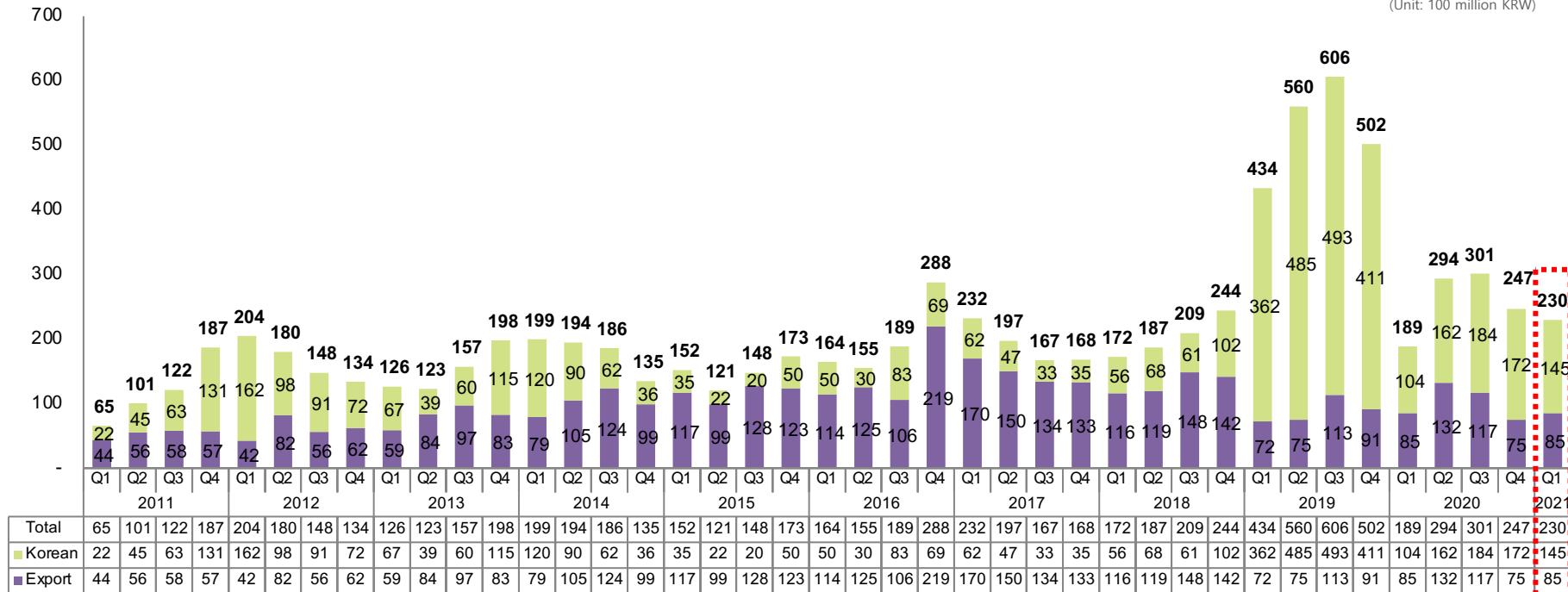
	Q1 20	Q1 21	%	YoY	Q4 20	QoQ
Revenue (Sales)	18,938	<b>23,068</b>		<b>21.8%</b>	24,706	-6.6%
Gross profit	6,503	<b>8,345</b>	<b>36.2%</b>	28.3%	8,000	4.3%
Selling general Administrative expenses	7,903	<b>9,548</b>	<b>41.4%</b>	20.8%	8,480	12.6%
Operating Income(loss)	-1,400	<b>-1,203</b>	<b>-5.2%</b>	<b>14.1%</b>	-480	-150.6%
Profit (loss) Before tax	-154	<b>-443</b>	<b>-3.0%</b>	-188.4%	-2,339	81.0%
Net income	175	<b>2,573</b>	<b>11.2%</b>	<b>1,370.6%</b>	3,870	-33.5%

※ Based on consolidated



## Global 5G investment Expected in 2021

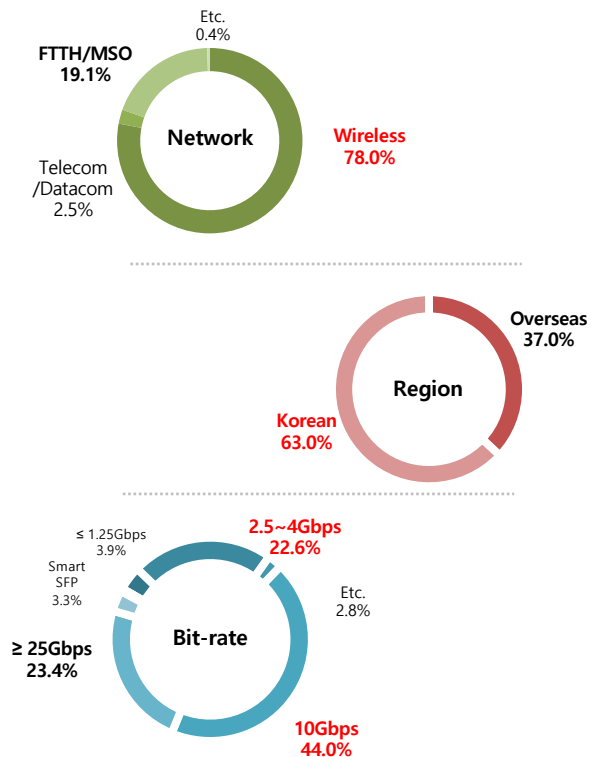
(Unit: 100 million KRW)



※ Based on separate standard



## Global 5G Wireless sales have a positive effect on Q1 2021 Revenue



(Unit: 100 million KRW)

구 분	4Q 2020	1Q 2021	QoQ (%)
<b>Network</b>			
• <b>Wireless</b>	187.5	<b>179.6</b>	-4.2%
• Telecom/Datacom	7.8	5.7	-26.9%
• FTTH/MSO	48.9	<b>44.1</b>	-9.8%
• etc.	2.8	1	-64.3%
<b>Region</b>			
• <b>Korean</b>	172.1	145.2	-15.6%
• Overseas	74.9	85.2	<b>13.8%</b>
<b>Overseas ratio</b>	30.3%	37.0%	
<b>Bit-rate</b>			
• ≤1.25Gbps	8.7	9	3.4%
• <b>2.5~4Gbps</b>	58.6	<b>52.1</b>	-11.1%
• 5~6Gbps	2.7	5.4	<b>100.0%</b>
• <b>10Gbps</b>	125.4	<b>101.4</b>	-19.1%
• ≥25Gbps	43.2	53.8	24.5%
• Smart SFP	5.6	7.7	37.5%
• Component / Chip	2.8	1.0	-62.9%
• etc.			0.0%
<b>Total</b>	<b>247.0</b>	<b>230.4</b>	-6.6%

※ Based on separate standard



# 5G(NR) Mobile Network Business





# 5G(NR) Mobile Network Business

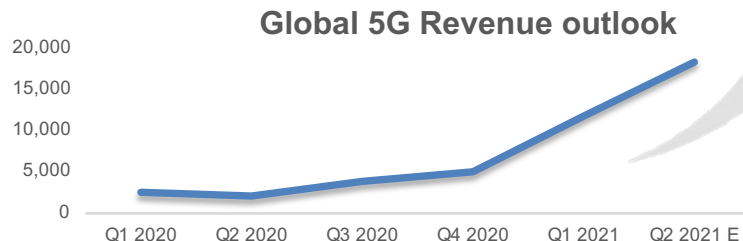
## 5G Network Supply chain



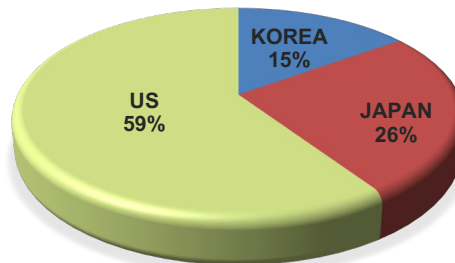
## Global 5G Revenue Forecast

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

(Unit: 100 million KRW)



## Q1 2021 5G Revenue



(Unit: 100 million KRW)

Region	Operator	Revenue	%
US	Verizon	8,274	59%
JAPAN	KDDI	3,557	26%
	NTT docomo		
KOREA	KT	2,094	15%
	LG U+		
	SKT		
Total		13,925	

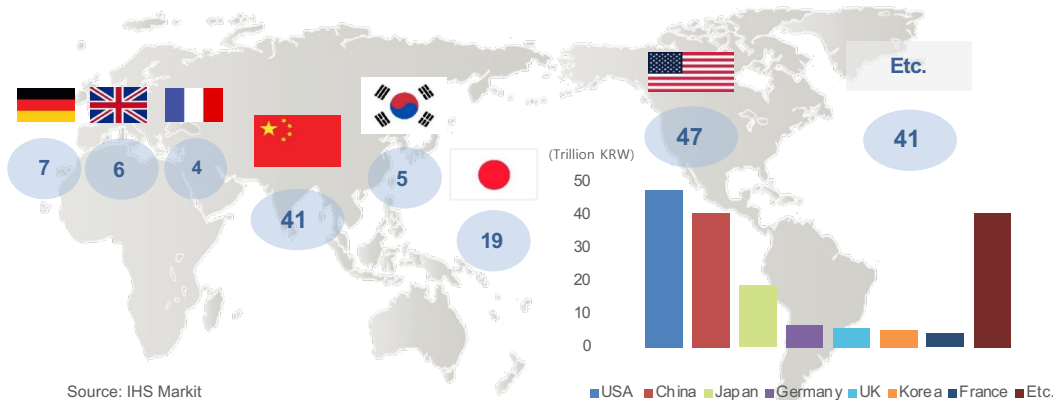


# 5G(NR) Mobile Network Business

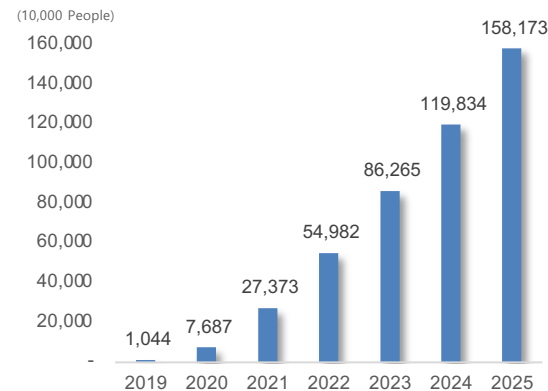
## 5G Market Forecast



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



### Global 5G subscribers outlook





## Data traffic

### Global Mobile data traffic outlook

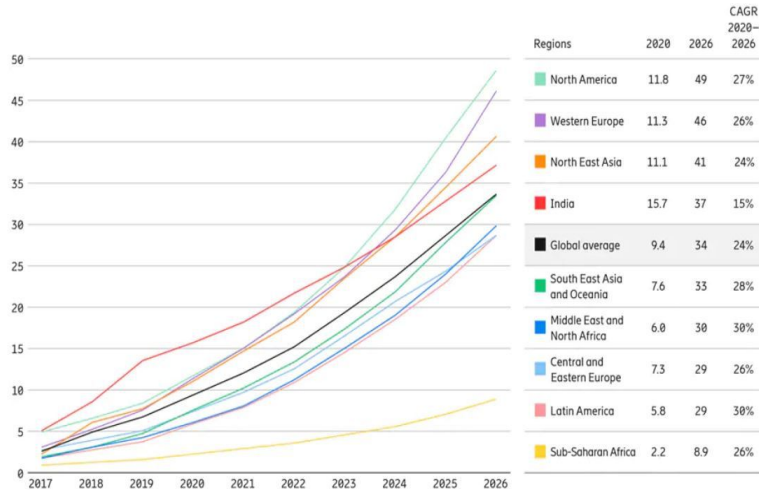
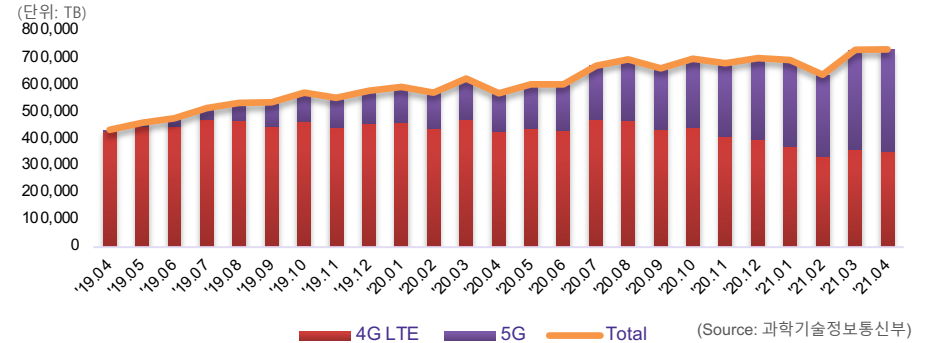


Figure 13: Mobile data traffic per smartphone (GB per month)

(Source: Ericsson)

### Korea Mobile Data traffic





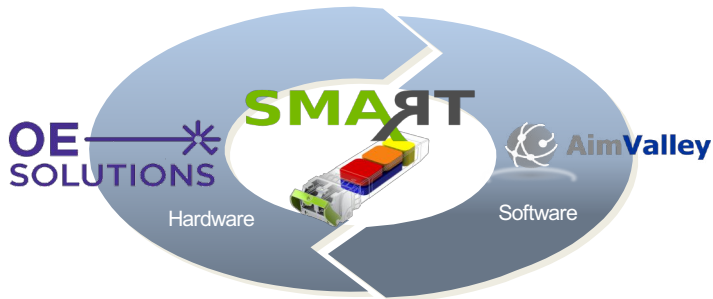
# OE Solutions Vision & Strategy





## 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

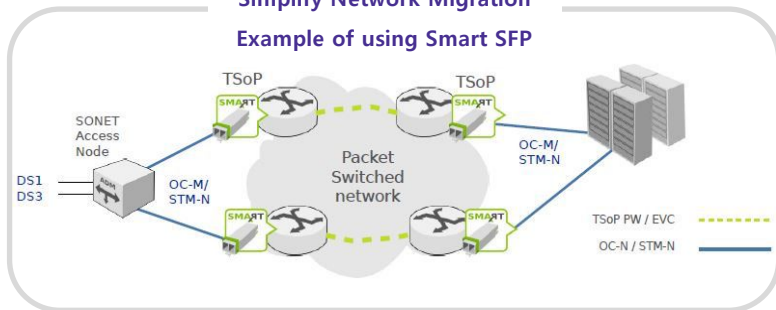
### World's First Leading Technology

**Global Tier 1 customer design in good progress**

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

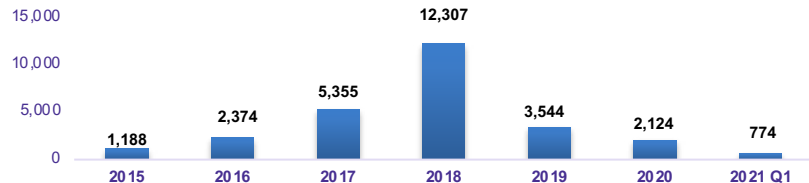
### Simplify Network Migration

#### Example of using Smart SFP



### Smart Transceiver Revenue

(Unit: million KRX)





Business expand



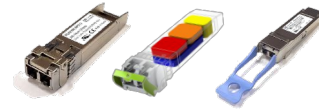
## Optical Component



- 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

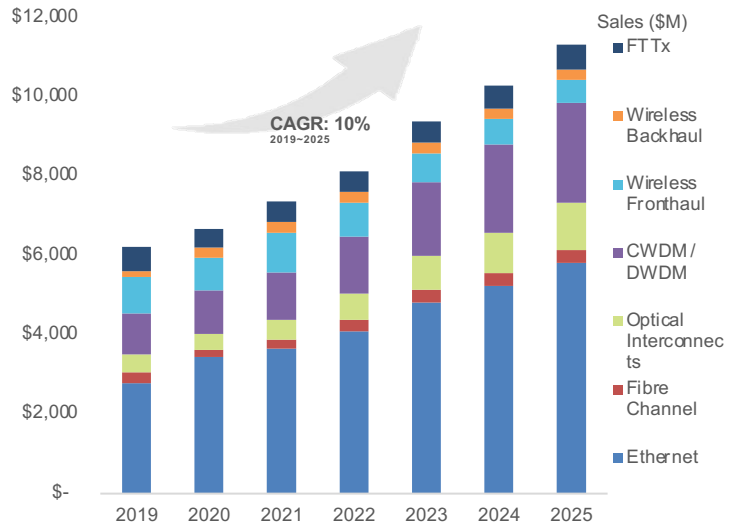


- Global 5G Transceiver All line-up
- Transceiver profitability and competitive advantage through in-house technology
- High bit-rate Transceiver development to launch a variety of Network Target products
- New Product in the second half
  - 50Gbps, 100Gbps, 400Gbps PAM4 for wireless and Data Center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

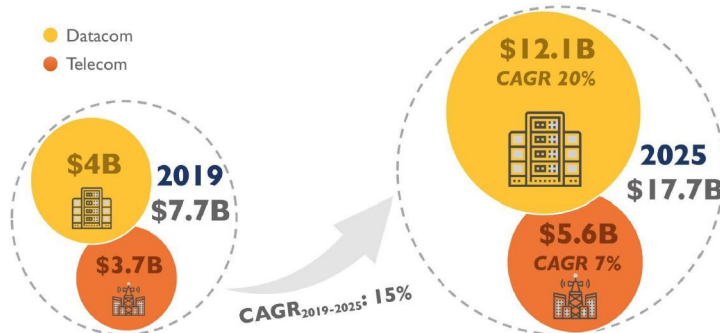


## Demand for Transceivers continues to increase due to infrastructure investments that require data connectivity

Transceiver Market Forecast



Source : LightCounting, 2020 October Report



Source : Yole Developpement, 2020

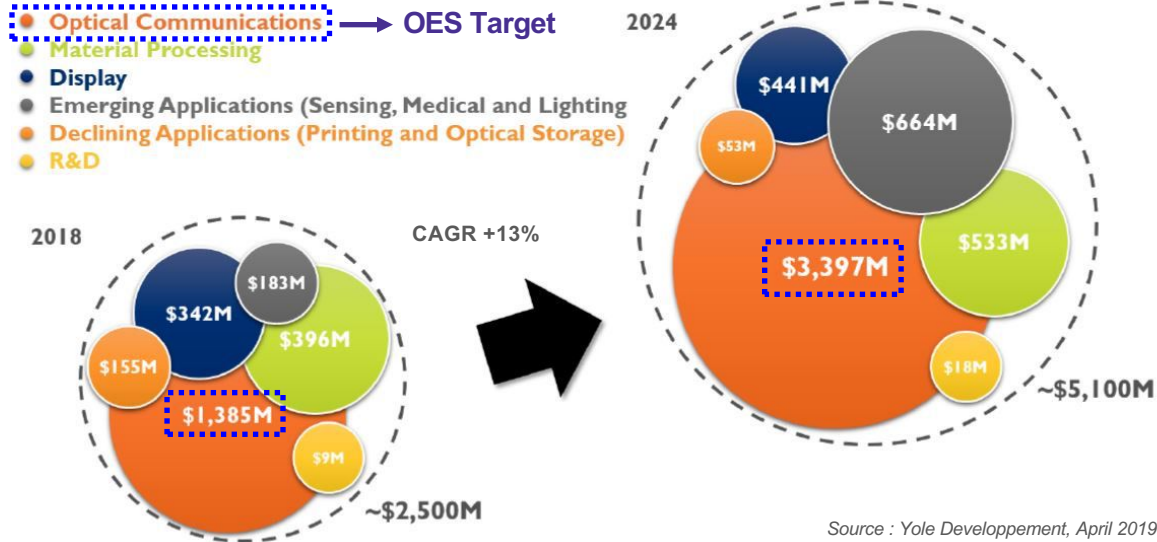


# Vision & Strategy for OES's Semiconductor Laser Diode Chip

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



Source : Yole Developpement, April 2019



Q2 of 21 Guidance





Q2 Revenue is expected to **31.5B KRW**

YoY 36.7% ↑, QoQ 7.2% ↑

## Quarterly Guidance

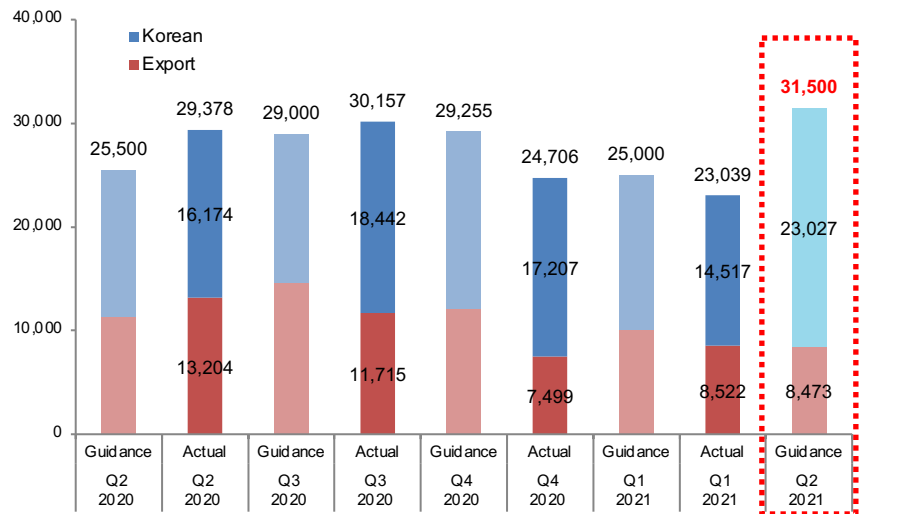
(Unit : million KRW)

	Q2 2020 Actual	Q3 2020 Actual	Q4 2020 Actual	Q1 2021 Actual	Q2 2021 Guidance
Revenue (Sales)	29,378	30,157	24,706	23,039	<b>31,500</b>
Domestic	16,174	18,442	17,207	14,517	<b>23,027</b>
Export	13,204	11,715	7,499	8,522	<b>8,473</b>

※ Consolidated and forecast as of May 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>	503 (Korea: 480 / USA: 19 / Japan: 3)	<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 May.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

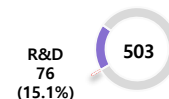
- R&D

### Santa Barbara, CA, USA

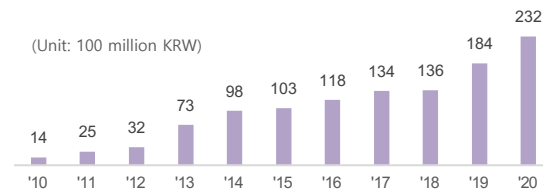
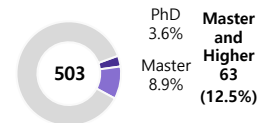
- R&D

## R&D Engineer & Cost

### < By sector >



### < By education >



\* 자회사 포함

7 June 2021 | 21



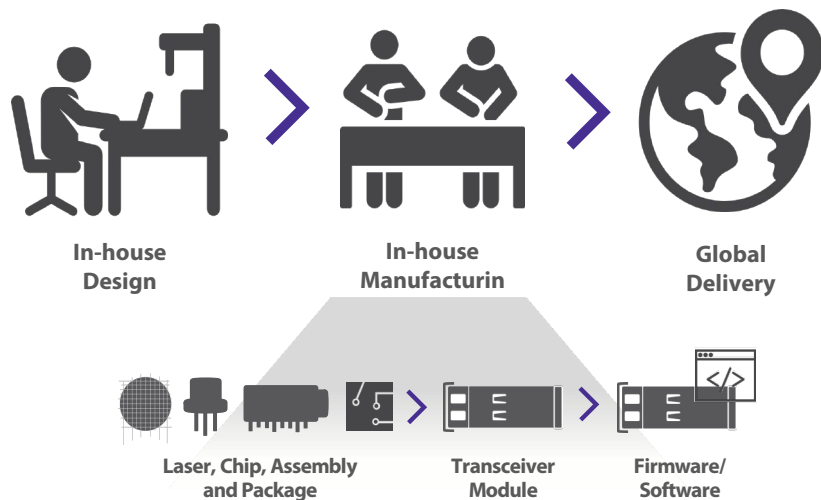


# OE Solutions – A Global Supplier of Transceivers

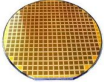




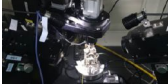






## Leading Supplier of High-Reliability Optical Components for Challenging Deployment Environments



- ❑ 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 BIDI 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





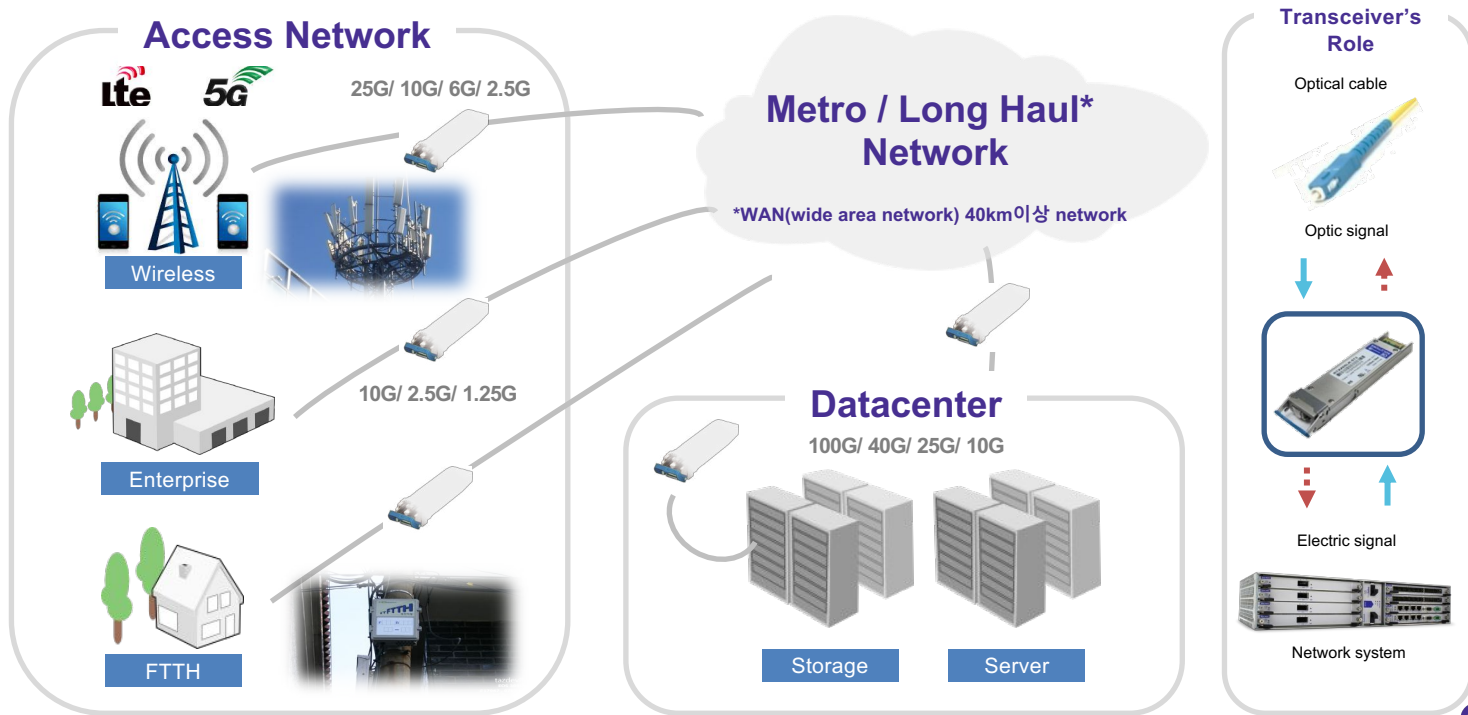
Manufacturing Process			Manufacturing Technology	
Chip		Laser Diode Photo Diode	Epitaxy / Fabrication / Wafer Characterization	
Assembly		TO/ XMD (Cooled/ Uncooled)	Die Bonding, Wire Bonding, Seam Sealing, Burn-in, DC/AC Test	
Package		OSA (TOSA/ ROSA/ BOSA)	Laser welding, Epoxy bonding, DC/AC Test	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



# Transceiver Products Applications

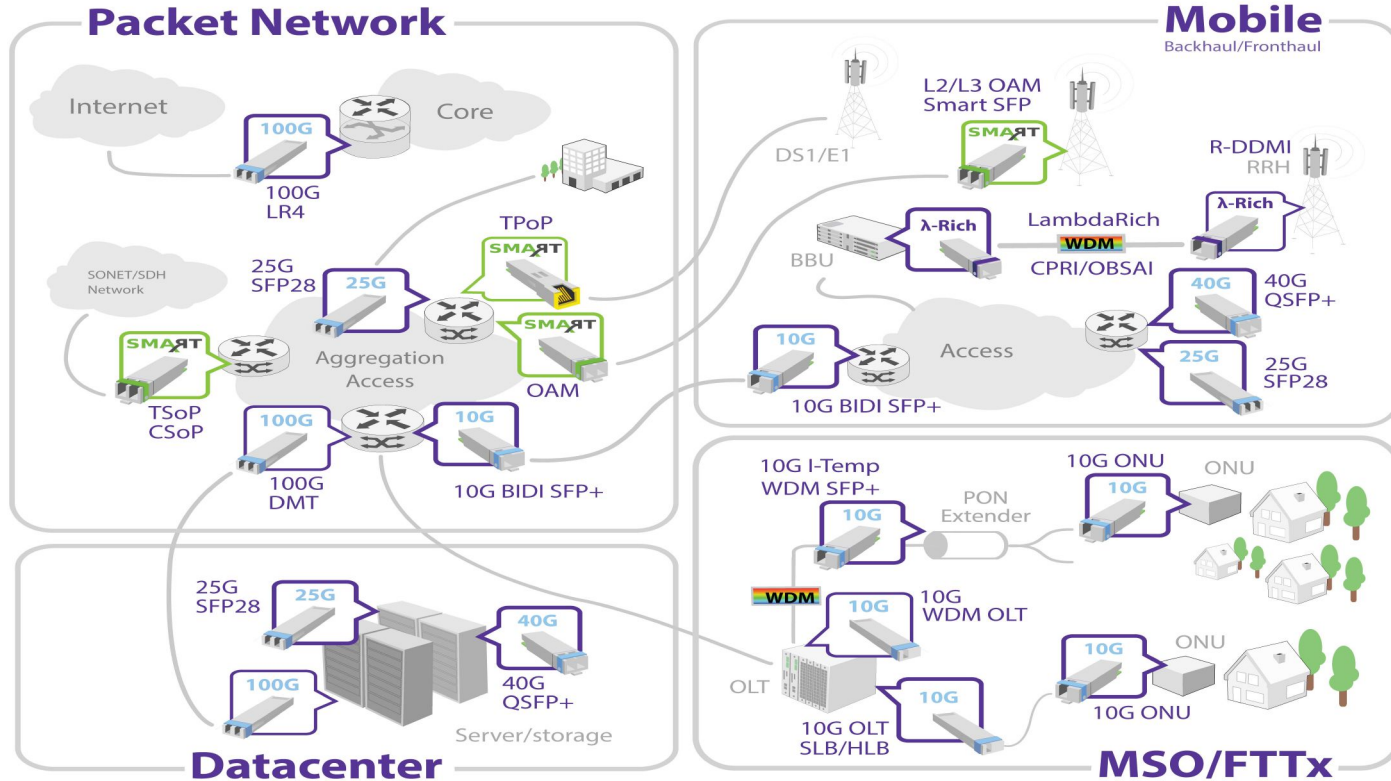
## The use of Transceiver in the Network

Transceiver required for network connections





# Key Application Areas





# Condensed income statement

## Consolidated

(Unit : million KRW)

	2018	2019	2020	2021 1Q
Revenue (Sales)	81,504	210,283	103,178	23,068
Cost of sales	54,106	122,835	62,686	14,722
Gross profit	27,398	87,448	40,492	8,345
Selling general administrative expenses	27,164	29,186	33,159	9,548
Operating income(loss)	234	58,262	7,333	-1,203
Profit (loss) before tax	1,951	58,388	6,699	-443
Net income	2,584	46,065	12,352	2,573

## Separate standards

(Unit : million KRW)

	2018	2019	2020	2021 1Q
Revenue (Sales)	81,406	210,242	103,172	23,039
Cost of sales	54,117	122,835	62,686	14,722
Gross profit	27,289	87,407	40,486	8,317
Selling general administrative expenses	26,925	28,533	33,180	9,714
Operating income(loss)	364	58,874	7,305	-1,397
Profit (loss) before tax	1,945	59,436	6,990	-625
Net income	2,641	47,026	12,227	2,390



# Condensed statement of financial position

## Consolidated

(Unit : million KRW)

	2018	2019	2020	2021 1Q
Current assets	57,027	137,422	129,808	129,878
Cash and cash equivalents	11,073	44,259	40,068	35,829
Accounts receivable	18,969	33,138	14,847	14,454
Inventory asset	19,740	24,222	22,484	27,813
Non-current assets	42,125	46,945	65,377	68,992
Property, plant and equipment	30,476	30,161	39,269	39,938
Intangible assets	782	738	746	754
<b>Total assets</b>	<b>99,152</b>	<b>184,367</b>	<b>195,184</b>	<b>198,870</b>
Current liabilities	25,369	42,847	45,749	49,841
Short-term debt	19,400	27,000	36,000	36,000
Non-current liabilities	5,736	2,211	2,455	2,602
<b>Total liabilities</b>	<b>31,105</b>	<b>45,059</b>	<b>48,204</b>	<b>52,443</b>
Capital	3,870	5,312	5,312	5,312
Paid-in capital in excess of par value	26,969	52,031	52,002	52,002
Retained earnings	34,868	79,731	87,511	86,900
<b>Total equity</b>	<b>68,047</b>	<b>139,308</b>	<b>146,981</b>	<b>146,427</b>

## Separate standards

(Unit : million KRW)

	2018	2019	2020	2021 1Q
Current assets	55,790	136,299	127,504	127,904
Cash and cash equivalents	10,227	42,423	34,557	32,788
Accounts receivable	18,299	33,096	18,137	14,804
Inventory asset	19,740	24,222	22,484	27,811
Non-current assets	41,993	46,416	65,055	68,730
Property, plant and equipment	30,119	29,192	38,592	39,314
Intangible assets	54	36	18	14
<b>Total assets</b>	<b>97,783</b>	<b>182,715</b>	<b>192,559</b>	<b>196,634</b>
Current liabilities	26,119	43,065	44,794	49,529
Short-term debt	19,400	27,000	36,000	36,000
Non-current liabilities	5,643	1,676	2,164	2,300
<b>Total liabilities</b>	<b>31,761</b>	<b>44,740</b>	<b>46,959</b>	<b>51,828</b>
Capital	3,870	5,312	5,312	5,312
Paid-in capital in excess of par value	26,969	52,031	52,002	52,002
Retained earnings	32,638	78,461	86,116	85,322
<b>Total equity</b>	<b>66,022</b>	<b>137,975</b>	<b>145,600</b>	<b>144,806</b>



Thank you.





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