

IR Presentation 2019

2019 Results & Q1 2020 Guidance



February 2020
OE Solutions IR

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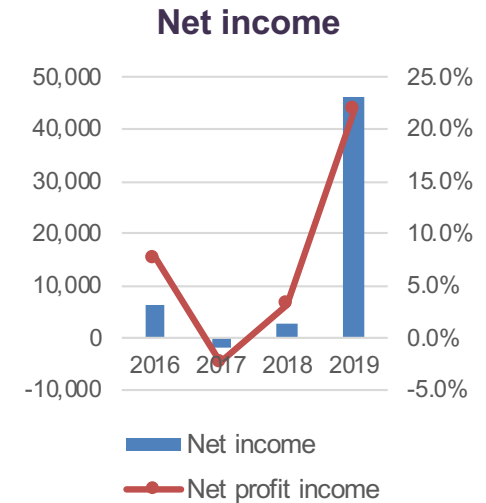
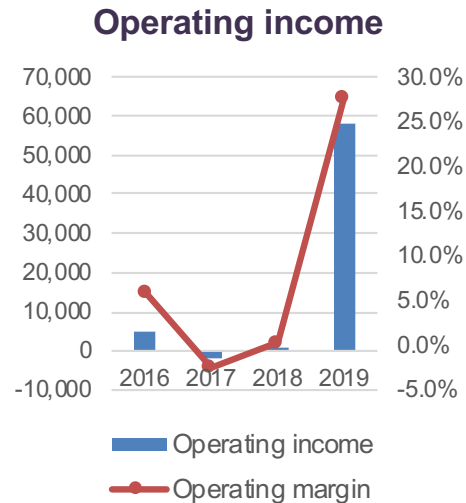
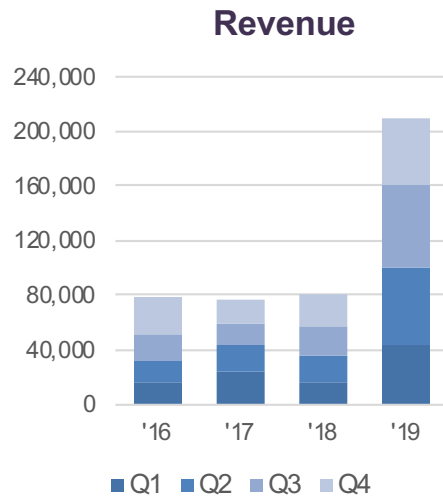


2019 Result Review



Financial Results

Accumulative Revenue by 2019 210.3B KRW Operating income 58.3B KRW (27.7%) Net income 45.9B KRW(21.8%)



※ Based on consolidated

(Unit : million KRW)

	2016	2017	2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	2019
• Revenue	79,720	76,594	81,504	43,409	56,036	60,645	50,193	210,283
• Operating Income	4,721	-1,917	234	9,735	16,530	19,926	12,075	58,266
• Operating margin	5.9%	-2.5%	0.3%	22.4%	29.5%	32.9%	24.1%	27.7%
• Net Income	6,127	-1,786	2,584	9,641	11,273	15,630	9,364	45,908
• Net profit margin	7.7%	-2.3%	3.2%	22.2%	20.1%	25.8%	18.7%	21.8%

Financial Results

2019 Revenue **210.3B KRW, 158% (YoY), Operating income 58.3B KRW(27.7%)**

Q4 50.2B KRW, -17.2% QoQ, Operating income 12.1B KRW(24.1%)

Increase in revenue and profitability due to increase of 5G(NR) products in Korea

(Unit : million KRW)

	2018	2019	%	YoY	Q3 19	Q4 19	QoQ
Revenue (Sales)	81,504	210,283		158.0%	60,645	50,193	-17.2%
Gross profit	27,398	87,448	41.6%	219.2%	27,075	19,982	-26.2%
Selling general Administrative expenses	27,164	29,182	13.9%	7.4%	7,149	7,908	10.6%
Operating Income(loss)	234	58,266	27.7%	24,821.8%	19,926	12,075	-39.4%
Profit (loss) Before tax	1,951	58,302	27.7%	2,955.6%	20,321	11,742	-42.2%
Net income	2,584	45,908	21.8%	1,672.3%	15,630	9,364	-40.1%

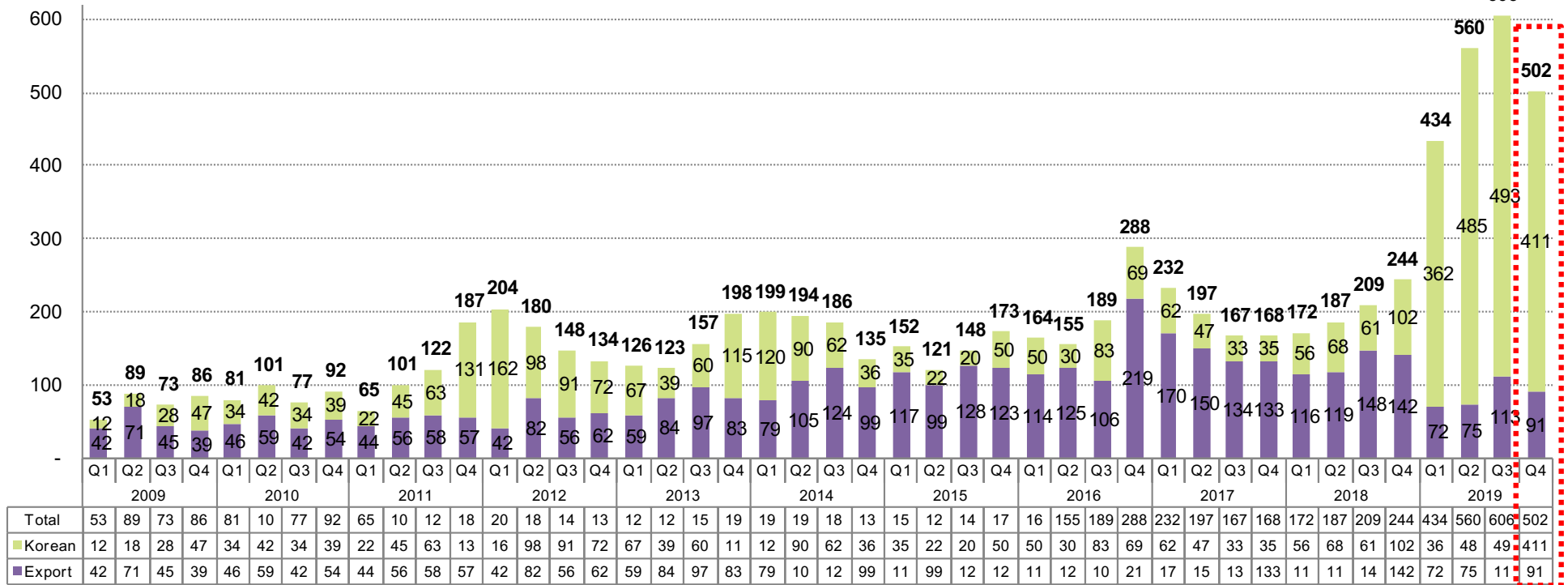
※ Based on consolidated

Quarterly Revenue trends

Growth by expanding investment in Korea 5G(NR) infrastructure in 2019

In 2020, Korea(domestic) and overseas 5G(NR) sales are expected to drive overall top-line growth

(Unit: 100 million KRW)

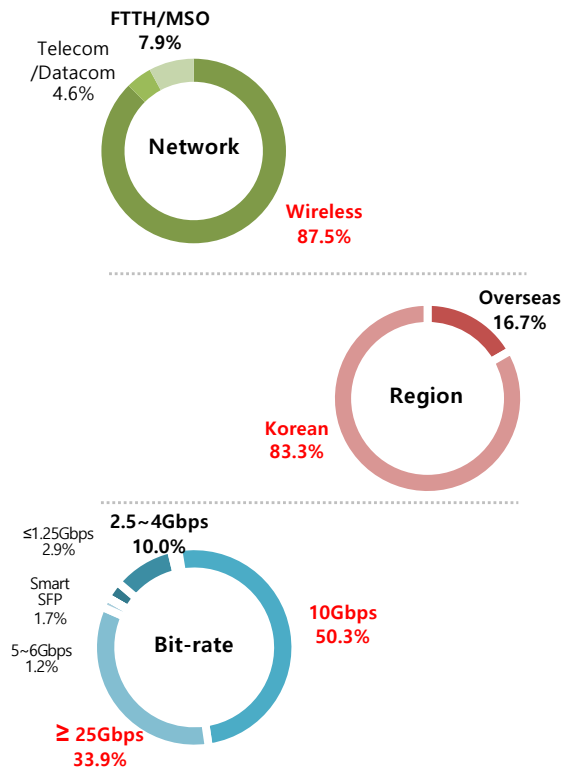


※ Based on separate standard

Sales details

Wireless 87.5% and Korean sales 83.3%

Increased sales of 5G network providers in the US and Japan are positive signs



(Unit: 100 million KRW)

	2018	2019	YoY (%)
Network			
• Wireless	389.5	1,840	372.6%
• Telecom/Datacom	177.6	96.2	-45.8%
• FTTH/MSO	247	166.1	-32.8%
Region			
• Korean	291.3	1751.5	509.6%
• Overseas	522.8	350.9	-33.4%
Overseas sales ratio	64.2%	16.7%	
Bit-rate			
• ≤ 1.25Gbps	53.6	61.2	14.2%
• 2.5~4Gbps	251.7	210.8	-16.2%
• 5~6Gbps	26.6	24.3	-8.6%
• 10Gbps	336.5	1,056.7	214.0%
• ≥ 25Gbps	10.7	713.1	6,564.5%
• Smart SFP	123.1	35.3	-71.3%
• Others	11.9	1.04	-91.3%
Total	814.1	2,102.4	158.2%

※ Based on separate standard

Financial results

Q3 19 Revenue **60.6B KRW, 189.6% (YoY), 8.2%(QoQ)**

Operating income **19.9B KRW (32.9%)**

Increase in revenue and profitability due to increased sales of 5G(NR) products in Korea

(Unit : million KRW)

구분	Q3 18	Q3 19	%	YoY	Q2 19	QoQ
Revenue (Sales)	20,939	60,645		189.6%	56,036	8.2%
Gross profit	8,381	27,075	44.6%	223.1%	23,666	14.4%
Selling general administrative expenses	7,340	7,149	11.8%	-2.6%	7,137	0.2%
Operating income(loss)	1,041	19,926	32.9%	1,814.8%	16,530	20.5%
Profit (loss) before tax	1,113	20,321	33.5%	1,725.9%	16,598	22.4%
Net income	1,067	15,630	25.8%	1,364.5%	11,273	38.6%

※ Based on consolidated



5G(NR) Mobile Network Business



5G(NR) Mobile Network Business

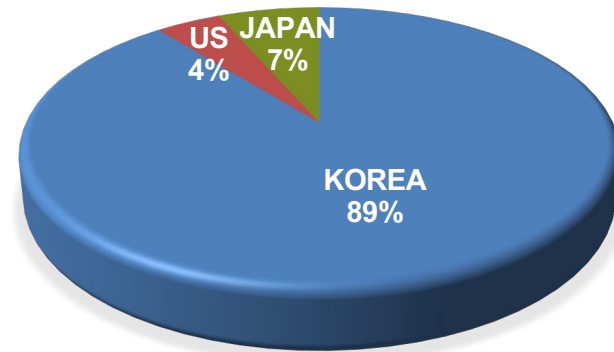
Revenue Growth due to Korean buildout of 5G infrastructure in 2019

Expected to be followed by growth in overseas market

5G Network Supply chain



5G Total Revenue



(Unit : million KRW)

Region	Carrier	Product	Revenue	%
KOREA	KT	10Gbps, 25Gbps	142,718	89%
	LGU+	10Gbps		
	SKT	10Gbps		
JAPAN	KDDI	10Gbps	10,509	7%
	NTT docomo	25Gbps		
US	Verizon	10Gbps	6,744	4%
	AT&T	25Gbps		
Total			159,971	

5G(NR) Mobile Network Business

Market Environment and Business Outlook

- T-Mobile ↔ Sprint merger approved
→ Expect to accelerate US 5G investment

- Apple 5G mobile phone is expected to be release in 2H
- Qualcomm 5G modem chip launch (X60)

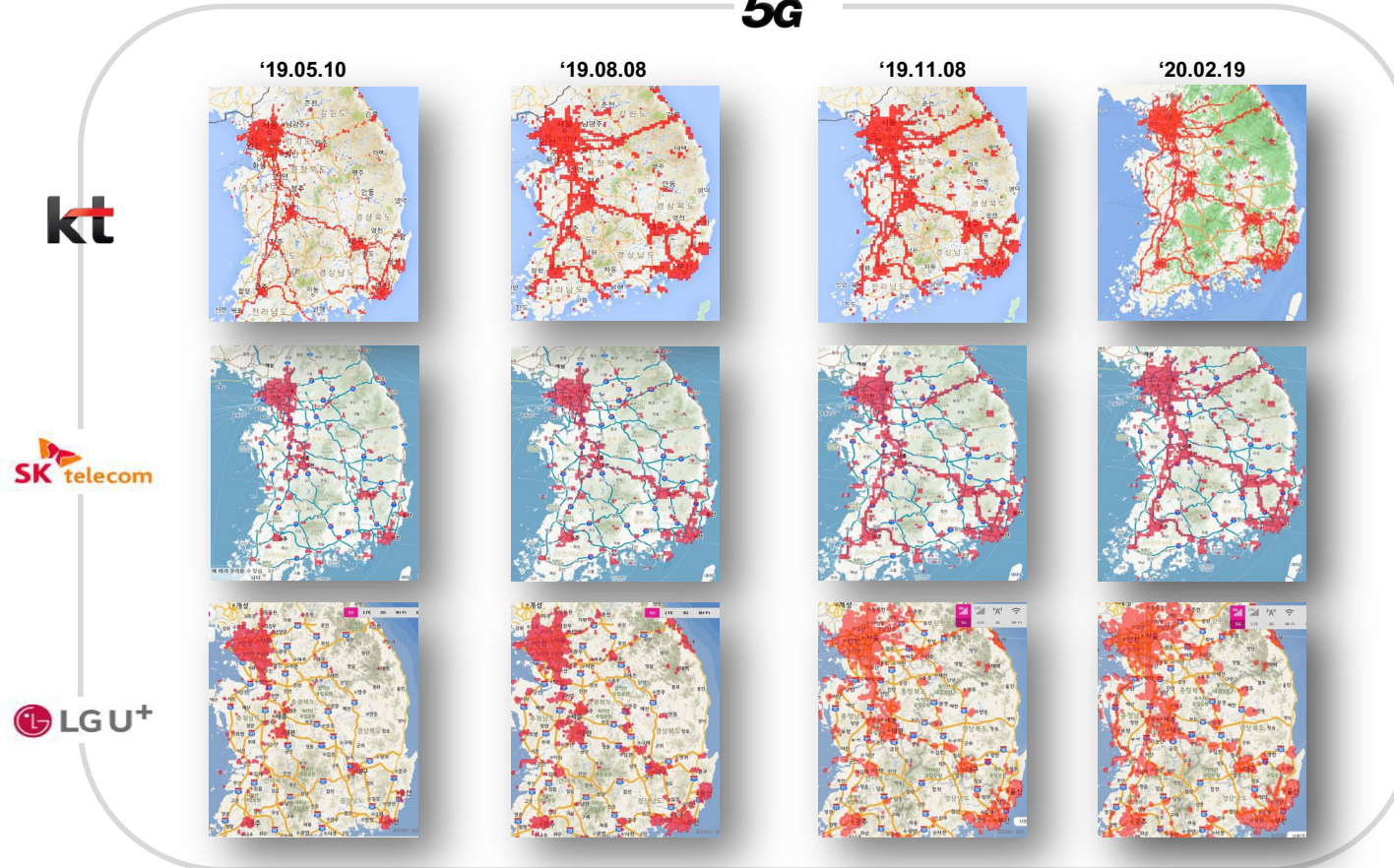
- Expect to expand the use of 25Gbs Transceiver in Korea and Global market
- Expect to expand investment in 28GHz spectrum in Korea



5G(NR) Coverage map in Korea



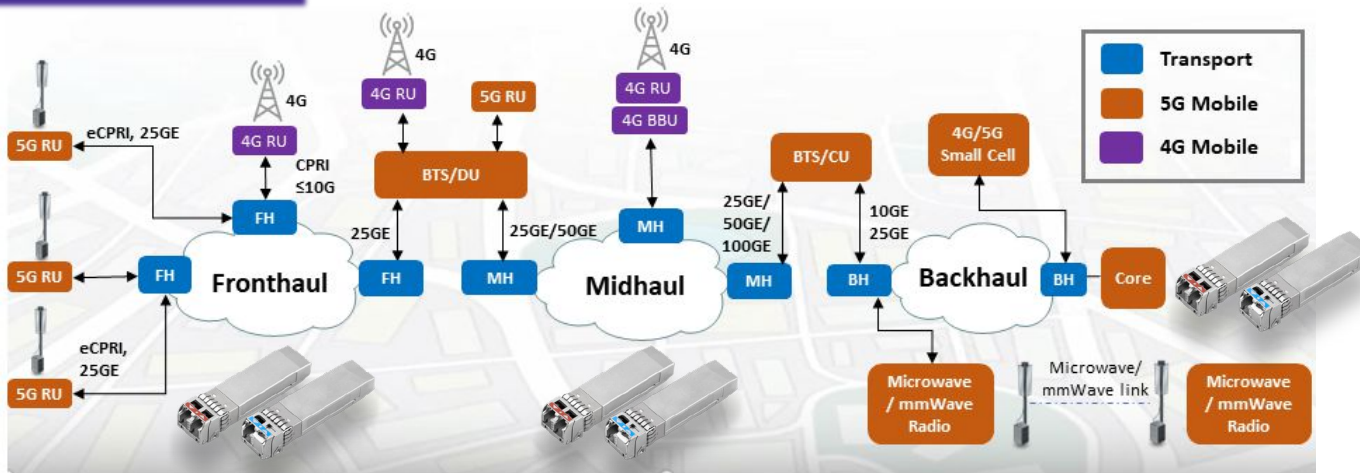
(Source: KT, SKT, LG U+ Website)



5G(NR) Mobile Network Business

5G Network Fronthaul/Midhaul/Backhaul Transceiver All Line up Midhaul Target New product 50Gbps PAM4 Transceiver

5G Network architecture



Fronthaul
(DU ↔ RU)

Mass Product
10G/25G Transceiver
Market : Korea / Global

Midhaul
(CU ↔ DU)

New Product
50G PAM4 Transceiver
Market : China / Global

Backhaul
(CU ↔ Core)

Development 100G/200G/400G
Transceiver
Market : Global



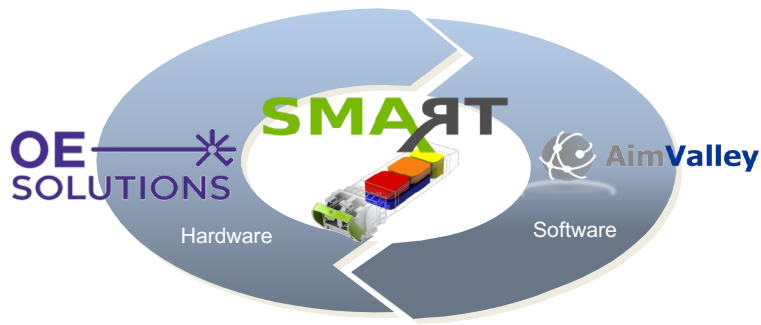
OE Solutions Vision & Strategy



Unique Products-Smart Transceivers

World's First Leading Technology Smart Transceiver

Smart Transceiver



Product Features



Smart Transceiver

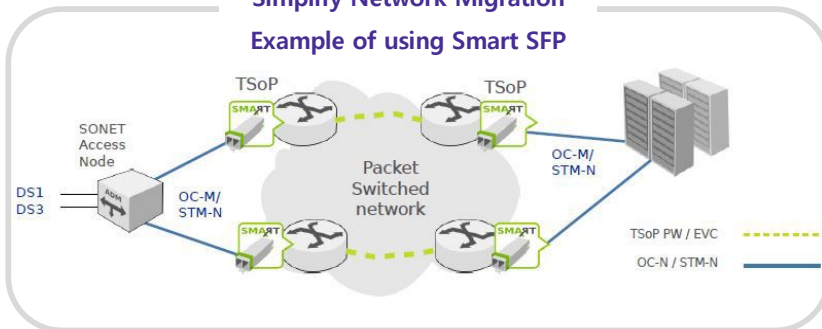
The Network system features in the transceiver enable network migration at low cost and high efficiency.
OE Solutions/AimValley

World's First Leading Technology

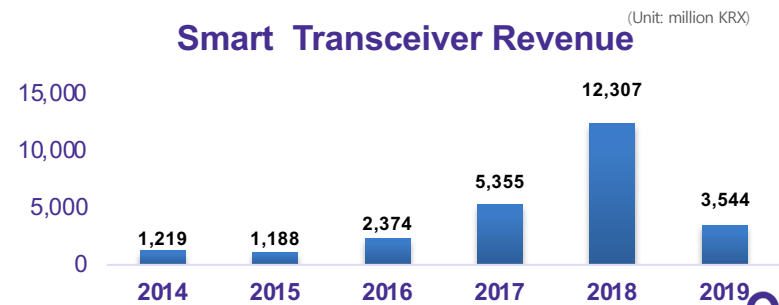
Major Customers

→Ciena, CISCO, Nokia, Juniper, etc.

Simplify Network Migration Example of using Smart SFP



Smart Transceiver Revenue



Vision & Strategy

Business expand



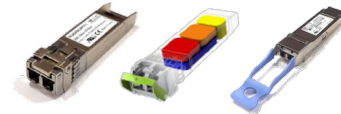
Optical Component



- 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



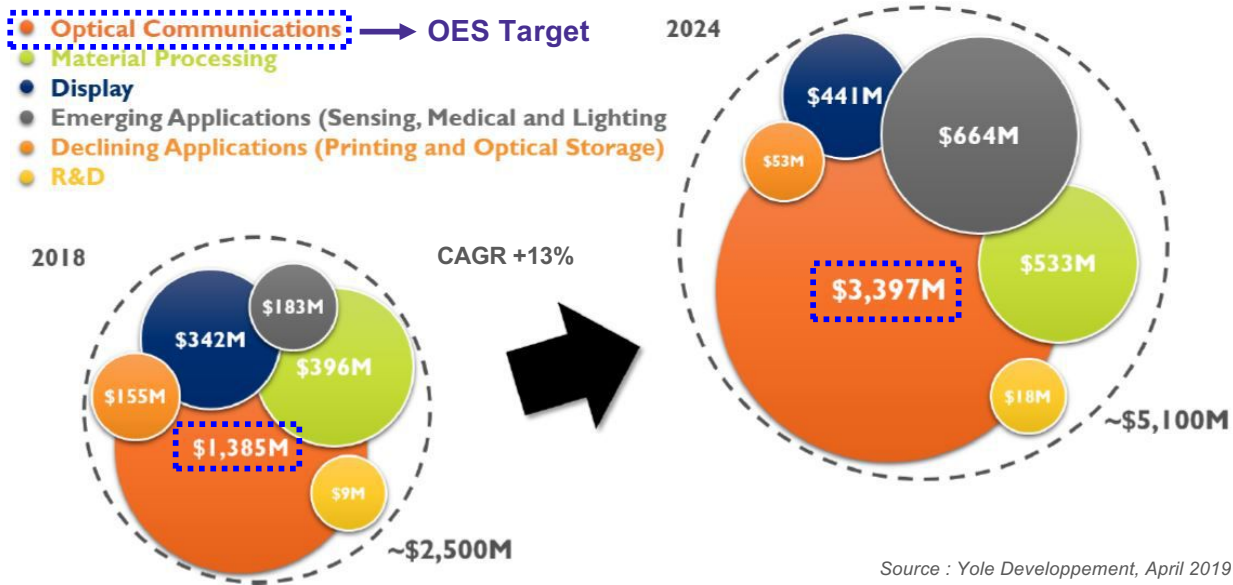
- Global 5G Transceiver All line-up
- Transceiver profitability and competitive advantage through in-house technology
- High bit-rate Transceiver development to launch a variety of Network Target products
- Road map : 50Gbps, 100Gbps, 200Gbps, 400Gbps, Tunable SFP Etc.

Vision & Strategy

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





Q1 of 20 Guidance



Q1 of 20 Guidance

Q1 YoY **Revenue** is expected to decrease **-53.9%, to 20B KRW**

A temporary decrease in Korea 5G infrastructure investment

QoQ growth is expected after Q1

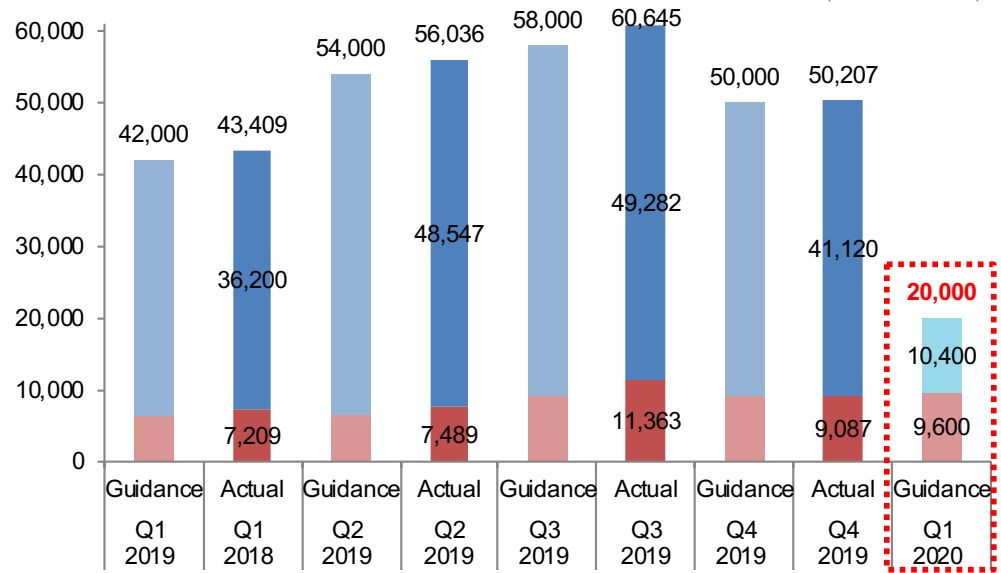
Quarterly Guidance

(Unit : million KRW)

	Q1 2019 Actual	Q2 2019 Actual	Q3 2019 Actual	Q4 2019 Actual	Q1 2020 Guidance
Revenue (Sales)	43,409	56,036	60,645	50,207	20,000
Domestic	36,200	48,547	49,282	41,120	10,400
Export	7,209	7,489	11,363	9,087	9,600

Quarterly Trends

(Unit : million KRW)



※ Consolidated and forecast as of February 2020



Appendix

- Company Introduction
- Financials



About OE Solutions

Overview

Name	OE Solutions, Co., Ltd	Date of Established	Aug.7, 2003
Number of Employees	405명 (Korea: 385 / USA: 18 / Japan: 2)	Date of Listing	Feb.27, 2014(KOSDAQ code : 138080)
Product	Optical Transceiver	Homepage	www.oesolutions.com
Locations	Head Quarter : Gwangju, South Korea / US : Ridgefield Park, NJ, USA / JAPAN : Tokyo Japan		

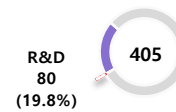
(As of Jan.31,2020)

Locations

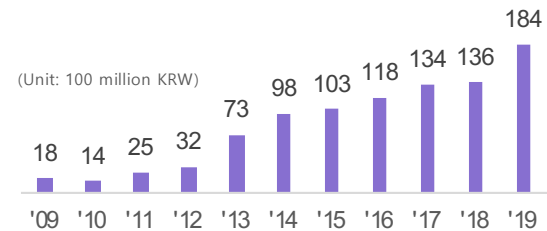
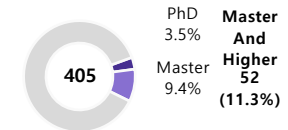


R&D Engineer & Cost

< By Sector >



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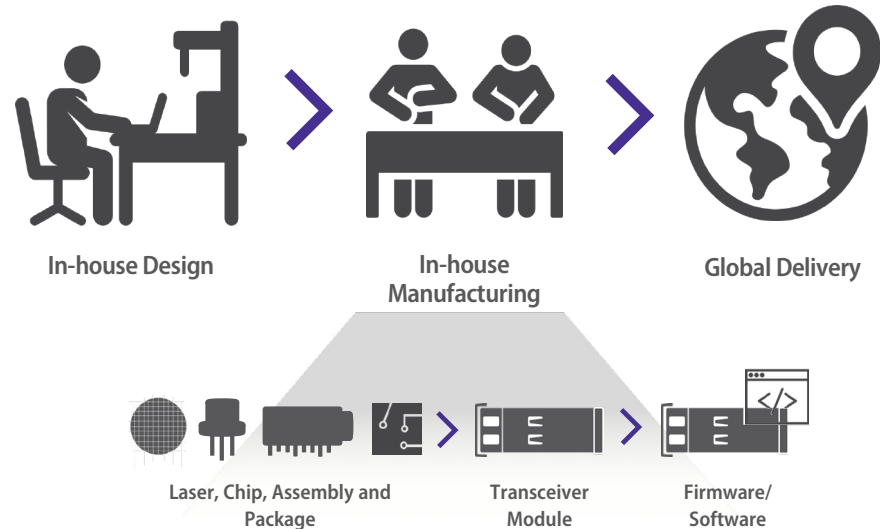


OE Solutions – A Global Supplier of Transceivers

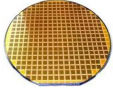


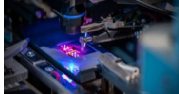

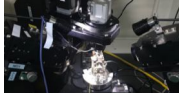






Leading Supplier of High-Reliability Optical Components for Challenging Deployment Environments



- ❑ 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



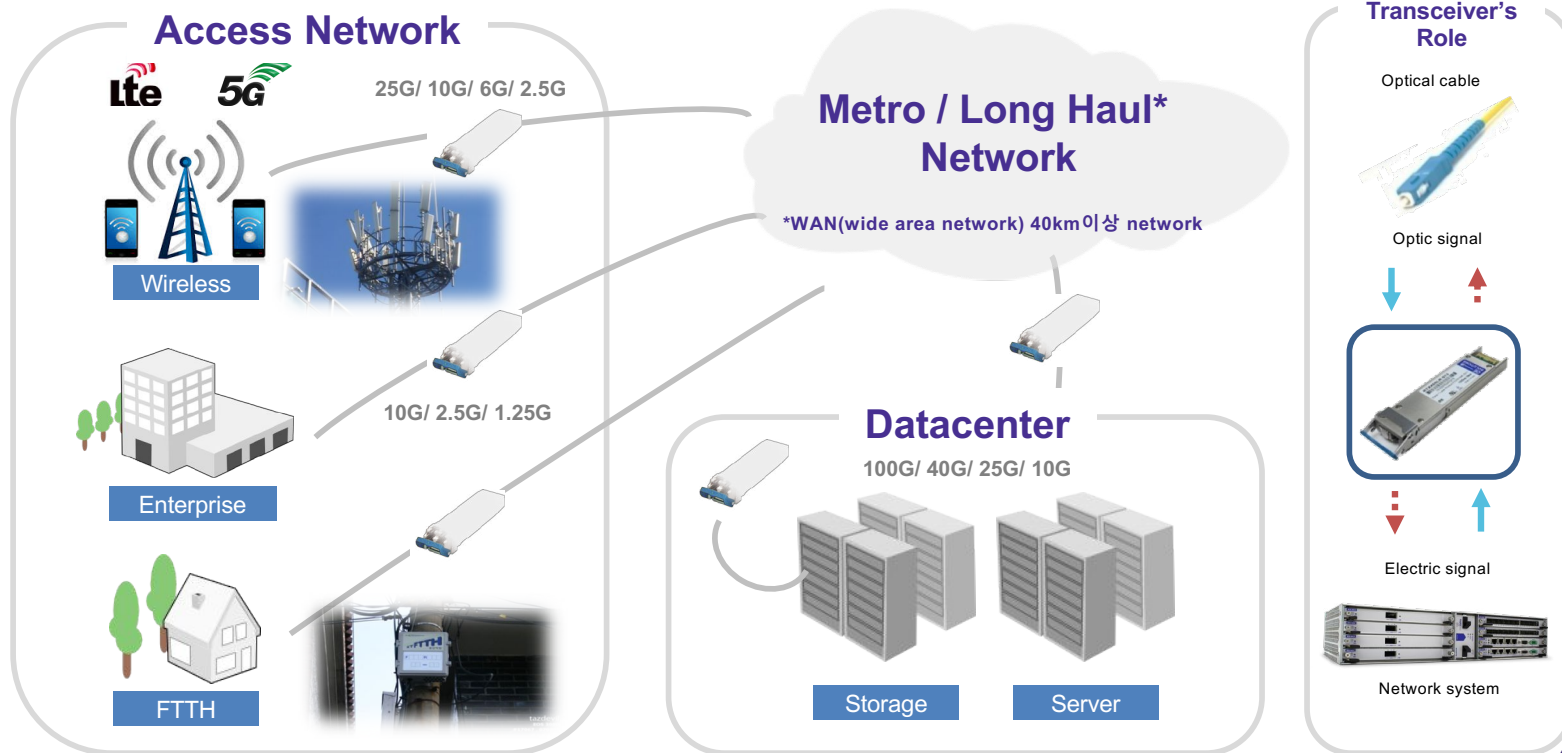
Vertical Integration

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	

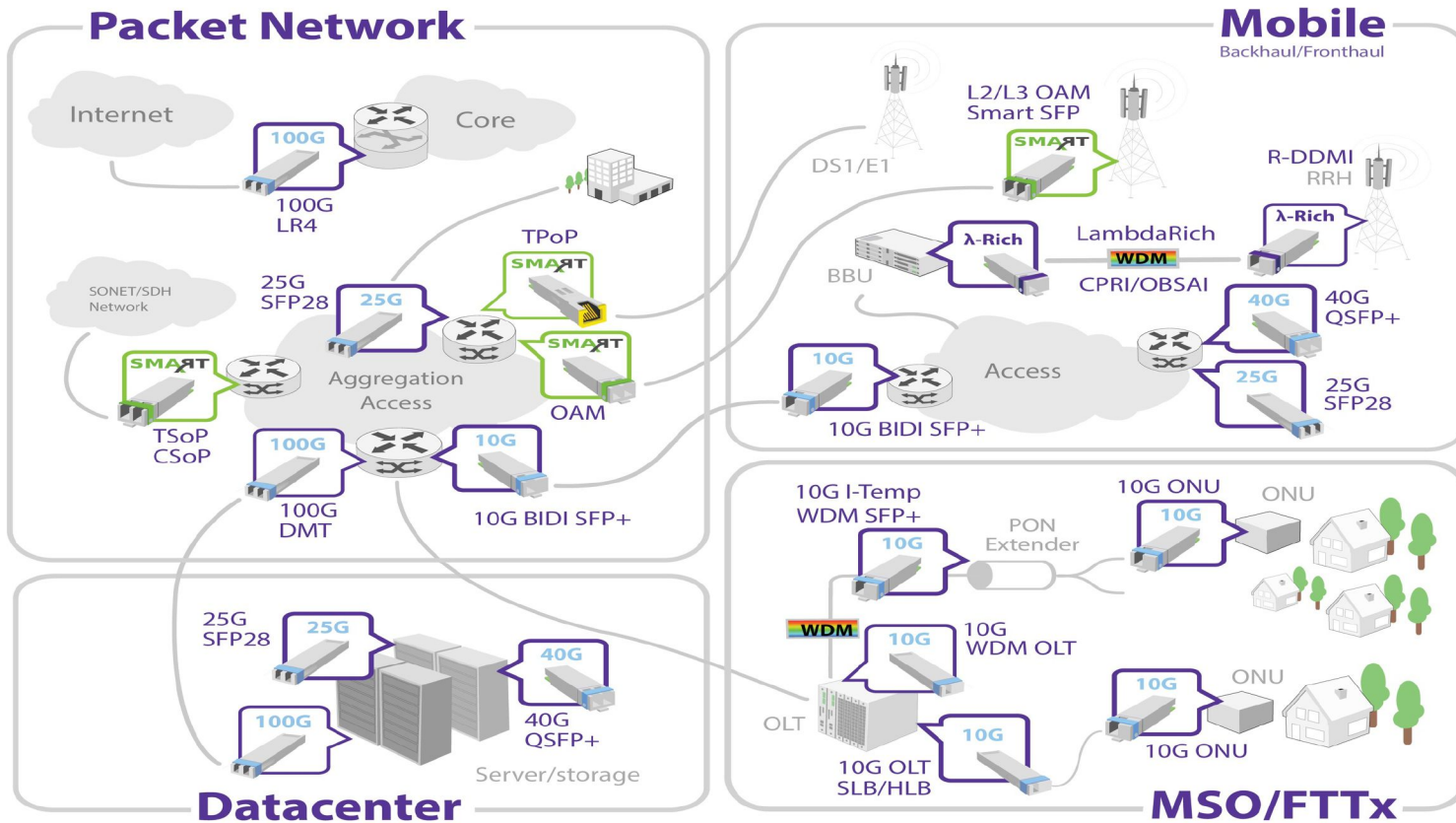
Transceiver Products Applications

The use of Transceiver in the Network

Transceiver required for network connections



Key Application Areas



Supplier to The World's Leading Network Equipment Manufacturers

Sales growth requires long-term product reliability, quality, customer response, etc.

NOKIA

SAMSUNG

Coriant

CISCO

JUNIPER
NETWORKS

infinera

ADTRAN

ciena

FUJITSU

ECI
THE ELASTIC NETWORK

ARRIS

NEC

ADVA
Optical Networking

Aviat
NETWORKS

harmonic

HUAWEI

ERICSSON

Condensed income statement

Consolidated

(Unit : million KRW)

	2016	2017	2018	2019
Revenue (Sales)	79,720	76,594	81,504	210,283
Cost of sales	53,089	53,974	54,106	122,835
Gross margin	26,631	22,620	27,398	87,448
Operating expenses	21,910	24,537	27,164	29,182
Operating income(loss)	4,721	(1,917)	234	58,266
Profit (loss) before tax	6,076	(3,788)	1,951	58,302
Net income	6,127	(1,786)	2,584	45,908

* K-IFRS

Separate standards

(Unit : million KRW)

	2016	2017	2018	2019
Revenue (Sales)	79,590	76,535	81,406	210,242
Cost of sales	52,965	53,914	54,117	122,835
Gross margin	26,625	22,621	27,289	87,407
Operating expenses	22,375	25,174	26,925	28,532
Operating income(loss)	4,250	(2,553)	364	58,875
Profit (loss) before tax	5,553	(4,514)	1,945	59,437
Net income	5,929	(2,337)	2,641	47,045

Condensed statement of financial position

Consolidated

(Unit : million KRW)

	2016	2017	2018	2019
Current assets	52,923	57,247	57,027	137,422
Cash and cash equivalents	9,270	21,923	11,073	44,259
Accounts receivable	22,998	14,626	18,969	33,138
Inventory asset	17,662	18,840	19,740	24,222
Non-current assets	37,005	38,809	42,125	46,824
Tangible assets	30,011	29,597	30,476	30,162
Intangible assets	777	766	782	738
Total assets	89,928	96,056	99,152	184,246
Current liabilities	28,435	24,807	25,369	42,249
Short-term debt	20,000	20,000	19,400	27,000
Non-current liabilities	6,198	4,303	5,736	2,411
Total liabilities	34,633	29,110	31,105	44,660
Capital	2,590	3,870	3,870	5,312
Premium on capital stock	13,900	26,969	26,969	52,031
Retained earnings	36,286	33,937	34,868	79,591
Total equity	55,295	66,946	68,047	139,586

Separate standards

(Unit : million KRW)

	2016	2017	2018	2019
Current assets	52,218	55,648	55,790	136,299
Cash and cash equivalents	8,358	20,662	10,227	42,423
Accounts receivable	23,083	14,254	18,299	33,096
Inventory asset	17,662	18,840	19,740	24,222
Non-current assets	37,044	38,923	41,993	46,429
Tangible assets	29,624	29,306	30,119	29,192
Intangible assets	77	105	54	36
Total assets	89,262	94,572	97,783	182,728
Current liabilities	29,563	25,309	26,119	42,466
Short-term debt	20,000	20,000	19,400	27,000
Non-current liabilities	6,099	4,228	5,643	1,876
Total liabilities	35,662	29,538	31,761	44,342
Capital	2,590	3,870	3,870	5,312
Premium on capital stock	13,900	26,969	26,969	52,031
Retained earnings	34,550	31,650	32,638	78,498
Total equity	53,600	65,034	66,022	138,387

Thank you.



OE — *
SOLUTIONS

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