



*Compound Semiconductor Solutions
from RF to Lightwave*

穩懋半導體

WIN Semiconductors 4Q2021 Investor Conference

February 2022



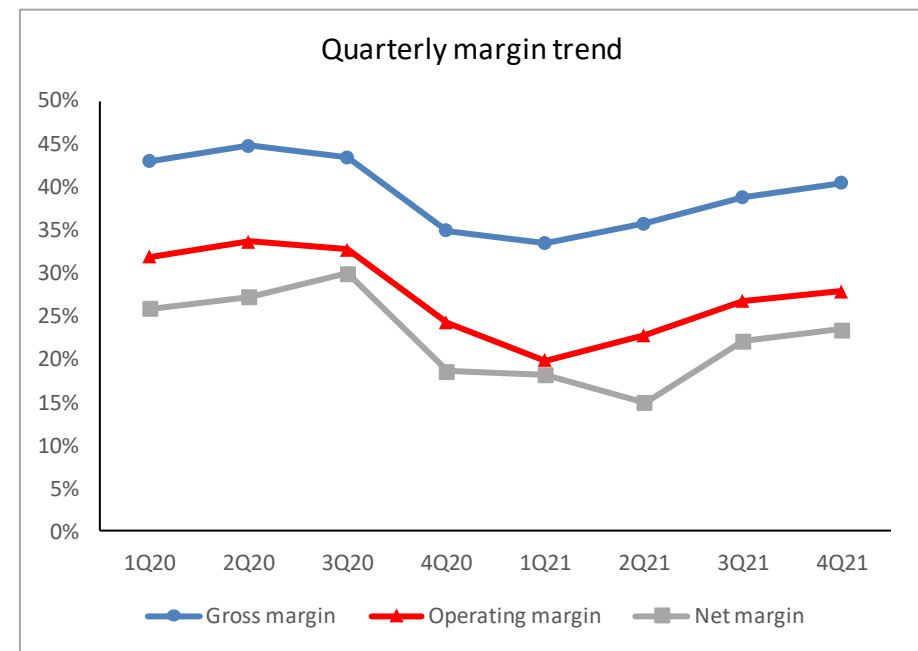
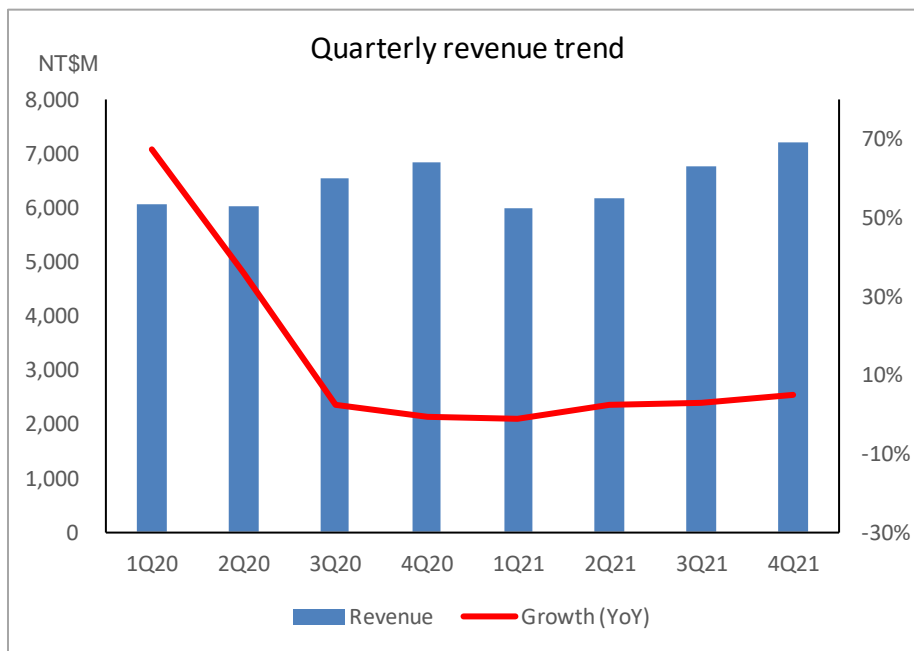
Safe Harbor Notice

- **This presentation contains certain forward-looking statements that are based on current expectations and are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements.**
- **Except as required by law, we undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.**

QUARTERLY RESULTS & GUIDANCE

Revenue & Margin Trend

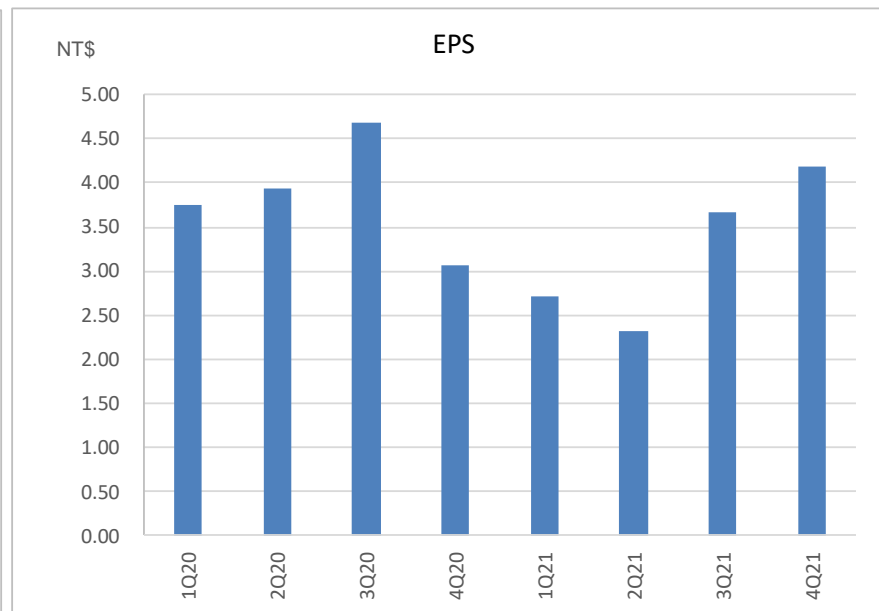
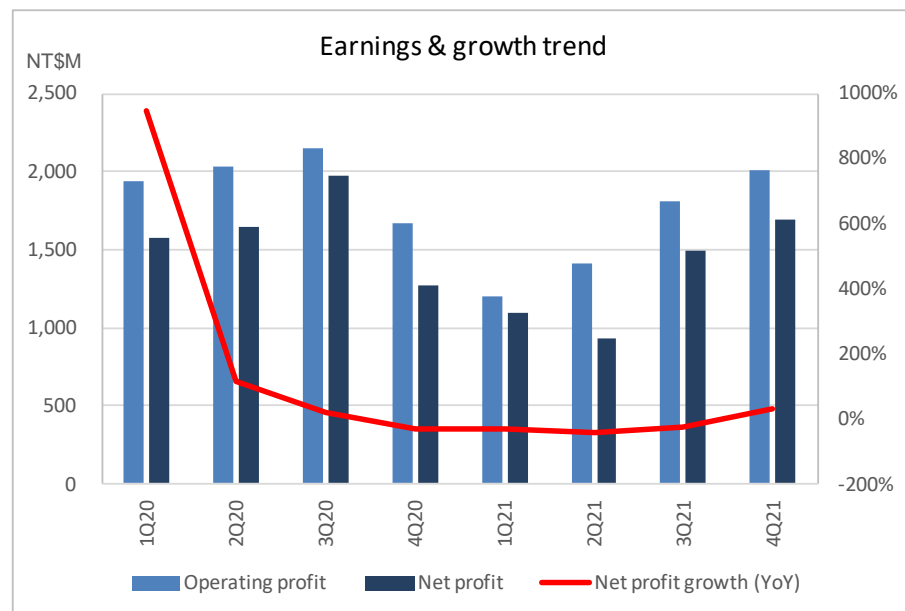
- 4Q21 revenue was NT\$7.2b, up 7% QoQ and 5% YoY.
- In 4Q21, driven by full capacity and better product mix, our gross margin increased by 1.7pp sequentially to 40.5% and operating margin increased by 1pp to 27.8%.



Source: company.

Earnings Trend

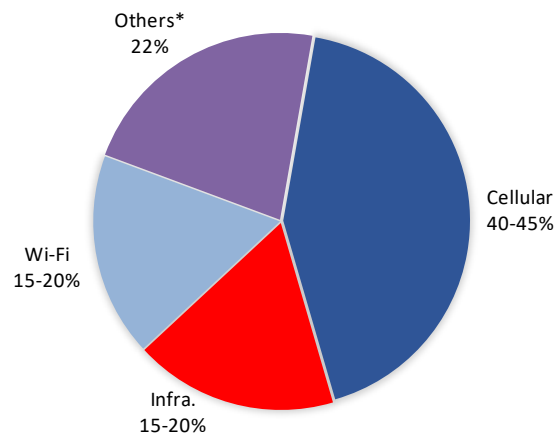
- 4Q21 net profit was NT\$1.7b, up 13% QoQ and 32% YoY. EPS came in at NT\$4.19, compared to NT\$3.67 in 3Q21.



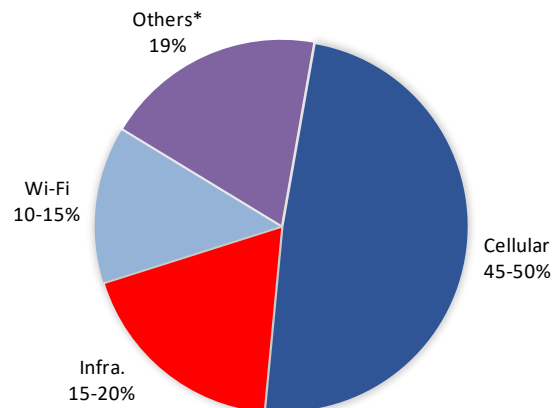
Source: company.

Product Mix

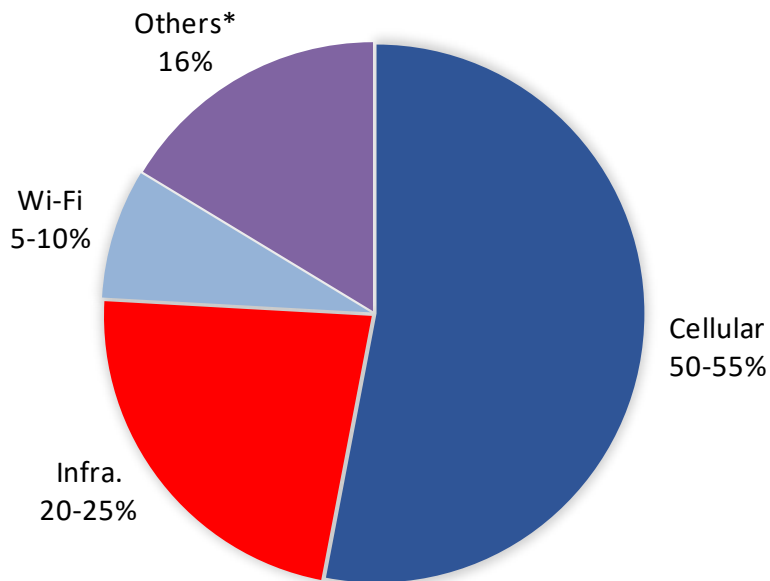
4Q20



3Q21



4Q21



* Others: Revenue not attributable to main product segments and additional revenue being consolidated in accordance with IFRS.

Source: company.

1Q22 Guidance



- Due to the annual maintenance of the fabs and the traditional slower season, we expect 1Q22 revenue to decline low-twenties QoQ.
- We expect 1Q22 gross margin to be around the level of mid-thirties.

FINANCIAL SUMMARY

Consolidated Statements of Comprehensive Income - Quarterly



Unit: NTD Million	4Q'20	3Q'21	4Q'21 (unaudited)	QoQ	YoY
Net revenue	6,861	6,761	7,217	+7%	+5%
Gross profit	2,399	2,623	2,923	+11%	+22%
<i>Gross margin (%)</i>	<i>35.0%</i>	<i>38.8%</i>	<i>40.5%</i>		
Operating expenses	(735)	(814)	(914)	+12%	+24%
<i>Operating expenses rate (%)</i>	<i>-11%</i>	<i>-12%</i>	<i>-13%</i>		
Operating income	1,664	1,810	2,009	+11%	+21%
<i>Operating margin (%)</i>	<i>24.3%</i>	<i>26.8%</i>	<i>27.8%</i>		
Non-operating incomes and expenses	(48)	28	41		
Income before income tax	1,617	1,838	2,049	+12%	+27%
Income tax expense	(341)	(342)	(360)		
Net income	1,276	1,496	1,690	+13%	+32%
<i>Net margin (%)</i>	<i>18.6%</i>	<i>22.1%</i>	<i>23.4%</i>		
EPS (NT\$)	3.07	3.67	4.19	+14%	+36%
Other comprehensive income, net	718	(192)	380		
Comprehensive income	1,994	1,304	2,069	+59%	+4%
ROE(%)	16%	19%	21%		
Approx. Utilization (%)	85%	95%	100%		
Depreciation	983	990	1,018		
CAPEX	2,958	1,289	2,256		

Consolidated Statements of Comprehensive Income - YTD

Unit: NTD Million

	2020Y	2021Y (unaudited)	YoY
Net revenue	25,546	26,182	+2%
Gross profit	10,569	9,770	-8%
<i>Gross margin (%)</i>	41.4%	37.3%	
Operating expenses	(2,786)	(3,347)	+20%
<i>Operating expenses rate (%)</i>	-11%	-13%	
Operating income	7,782	6,423	-17%
<i>Operating margin (%)</i>	30.5%	24.5%	
Non-operating incomes and expenses	220	(23)	
Income before income tax	8,002	6,400	-20%
Income tax expense	(1,534)	(1,189)	
Net income	6,469	5,210	-19%
<i>Net margin (%)</i>	25.3%	19.9%	
EPS (NT\$)	15.45	12.90	-17%
Other comprehensive income, net	731	243	
Comprehensive income	7,200	5,454	-24%
ROE(%)	20%	16%	
Approx. Utilization (%)	85%	90%	
Depreciation	3,628	4,035	
CAPEX	8,509	8,081	

Non-operating Items

Unit: NTD Million	4Q'20	4Q'21 (unaudited)	2020Y	2021Y (unaudited)
Foreign exchange gains (losses)	(11)	21	(44)	(127)
Gains (losses) on disposals of property, plant and equipment	25	(45)	21	(49)
Gains on financial assets (liabilities) at fair value through profit or loss, net	42	23	23	243
Share of gains (losses) of associates and joint ventures accounted for using equity method	35	110	127	148
Impairment loss on financial assets	(139)	-	(139)	-
Others	0.4	(68)	231	(239)
Total	(48)	41	220	(23)

Consolidated Balance Sheets

(Unit: NTD Million)	Major Item	2020/12/31		2021/9/30		2021/12/31 (unaudited)	
		\$	%	\$	%	\$	%
	Cash and cash equivalents	8,356	15%	16,482	23%	16,332	22%
	Current financial assets at fair value through profit or loss	756	1%	56	0.1%	62	0.1%
	Notes and accounts receivable, net	2,038	4%	2,088	3%	2,718	4%
	Inventories	5,499	10%	6,594	9%	6,671	9%
	Long-term investments	8,375	15%	13,575	19%	14,414	19%
	Net property, plant and equipment	26,637	49%	29,512	41%	30,991	41%
	Total Assets	54,702	100%	71,999	100%	74,894	100%
	Current portion of long-term liabilities	-		5,549		-	
	Current liabilities	6,703		11,930		7,215	
	Bonds payable	-		13,244		13,287	
	Long-term borrowings	11,419		10,520		15,993	
	Total Liabilities	18,972	35%	37,021	51%	37,772	50%
	Common stock	4,241		4,240		4,240	
	Total equity attributable to owners of parent	34,078		32,792		34,938	
	Total Equity	35,730	65%	34,978	49%	37,122	50%
	Book value per share (NT\$) ¹	80.36		77.33		82.41	
	Key Indices						
	Current ratio (<i>Current assets / Current liabilities</i>)	261%		218%		367%	
	Debt ratio (<i>Total liabilities / Total assets</i>)	35%		51%		50%	

¹ Book value per share = total equity attributable to owners of parent / number of common shares

MARKET OUTLOOK

2021 Operating Highlights

Operating Highlights



Annual revenue hits the new record high



- > 30% revenue growth on Cellular & Satellite
- > 10% revenue growth on Optics



STSP Construction is on schedule
(Clean room will be completed in Q2' 23)

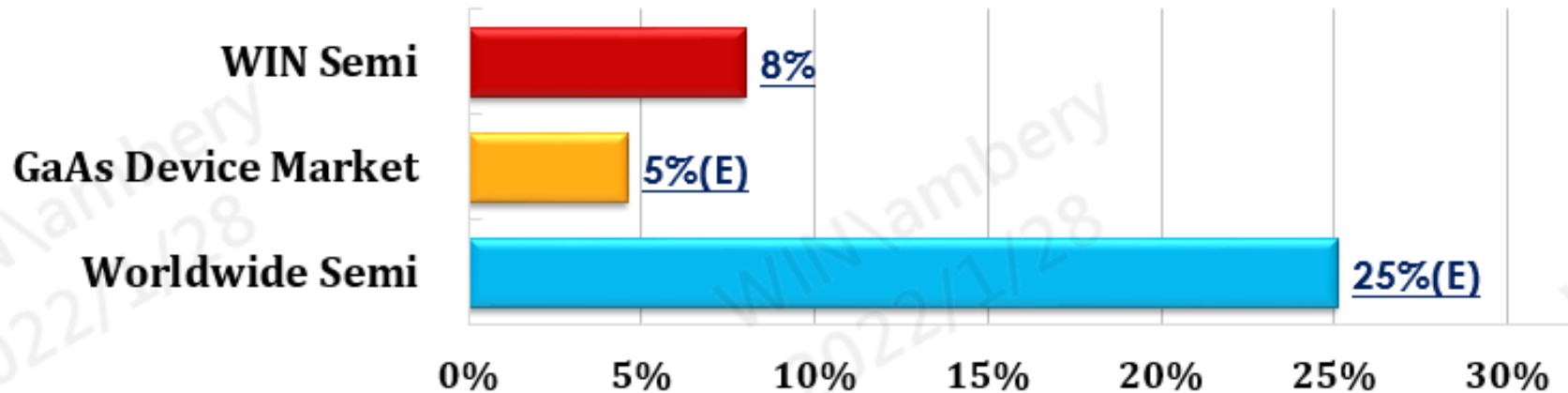


Nurturing compound semiconductor talents

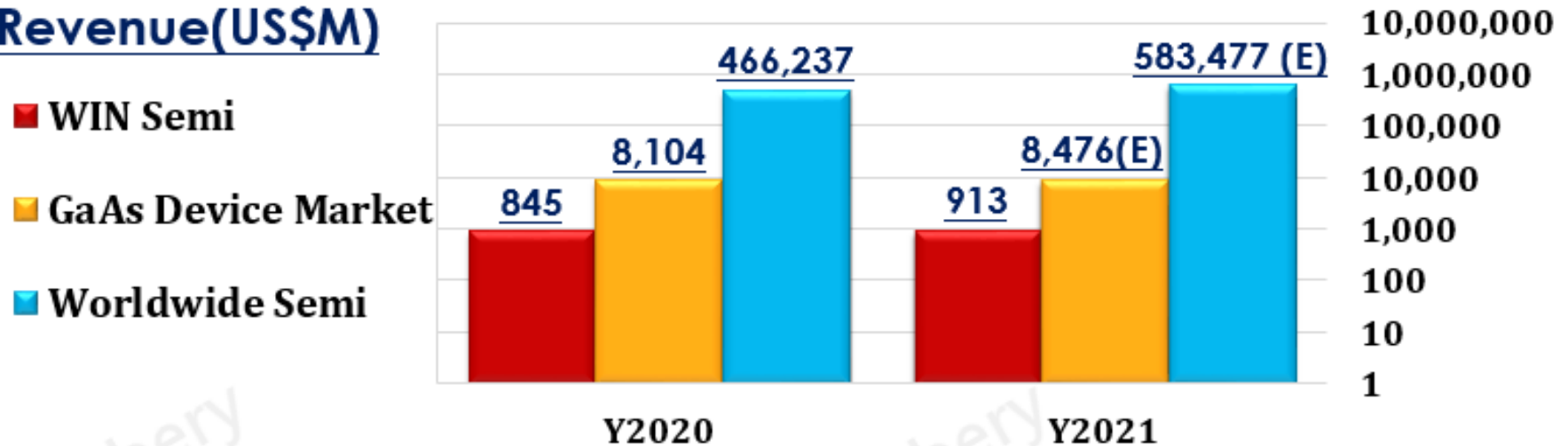
- Established a joint technology innovation center in NYCU
- Established “Academy of Innovative Semiconductor and Sustainable Manufacturing” in NCKU with 15 companies

2021 Revenue Trend of Semi. Industry

Y2021 Revenue Growth Rate(US\$)



Revenue(US\$M)



Source : (1) GaAs Market Estimation, Strategy Analytics, July 2021
(2) Worldwide Semiconductor Revenue, Gartner, Apr. 2021 and Jan. 2022

Growth Engines



5G + Wi-Fi



Satellite



Optical Devices

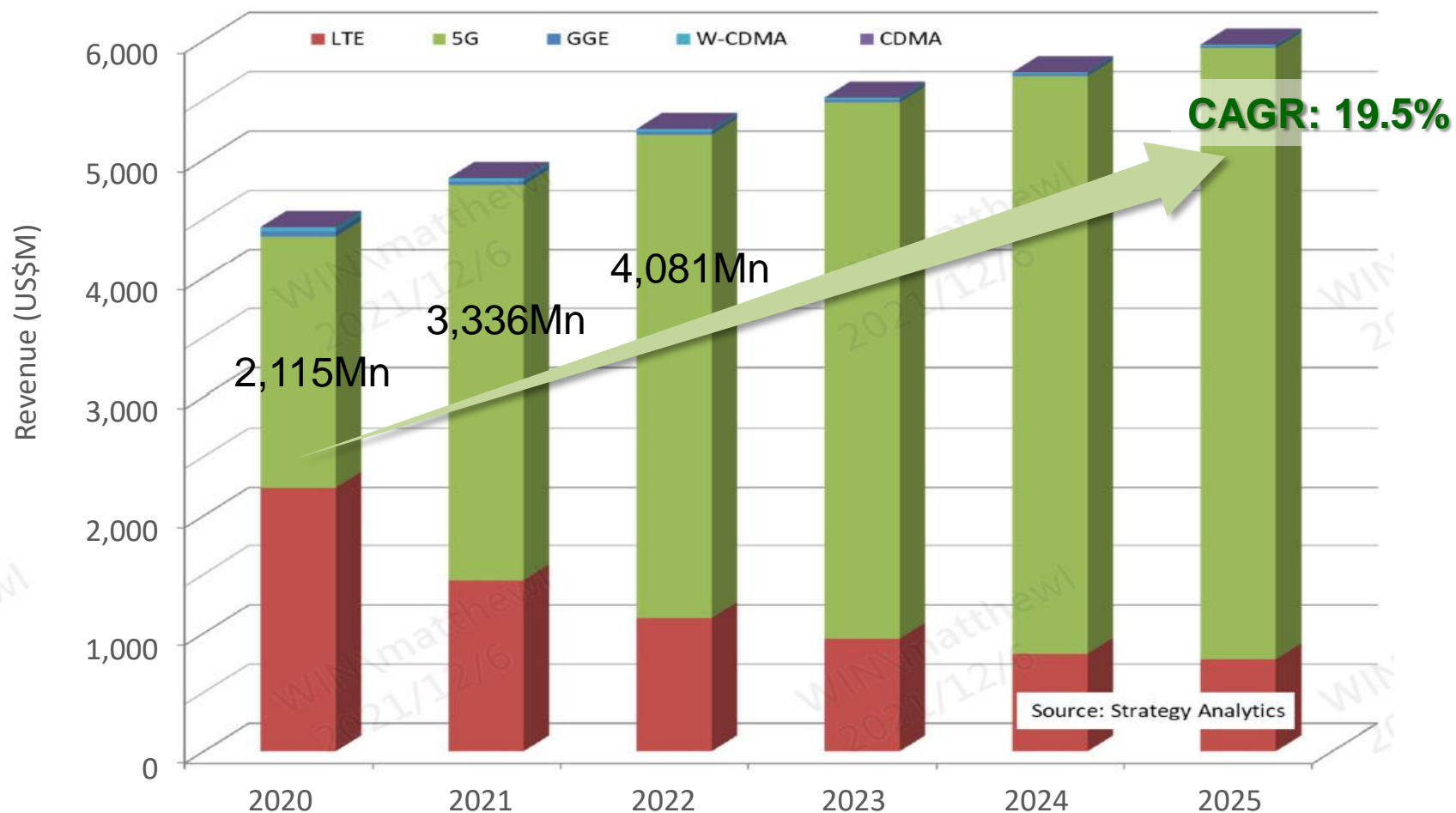
2022 Outlook

- The momentum is increasing with the coexistence of 4G and 5G network. Cellular and Infra products keep under mass production. WIN is continuously developing the new-generation technologies.
- As market penetration of Wi-Fi 6 & 6E increasing, WIN is developing technologies for Wi-Fi 7.
- Strong demand on satellite communication especially Low Earth Orbit (LEO) satellites provide seamless connectivity for ubiquitous communications.
- WIN takes the lead in VCSEL manufacturing/quality techniques. Applications on 3D and proximity sensing are expanding. And, WIN has delivered the vehicular sensors in automobiles successfully.
- For InP optoelectronic products including receivers and other laser devices, WIN is working closely with potential customers to develop LiDAR related application.

Communication/Connectivity

5G Is Expanding

Merchant RF GaAs MMIC Revenue for Cellular Terminals



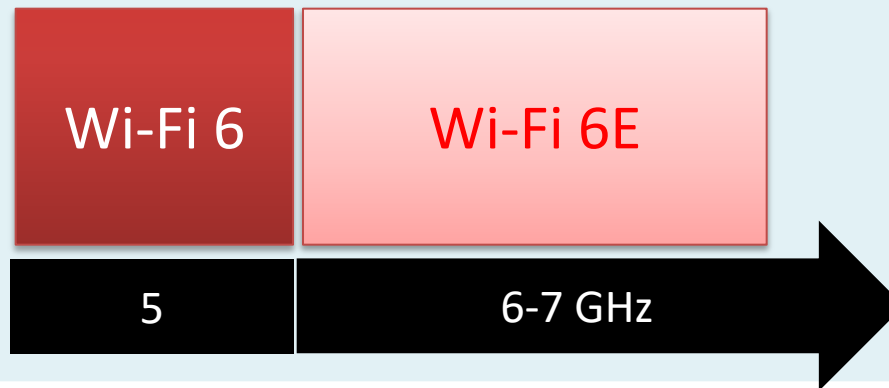


Wi-Fi 6E Spec. Is Critical



● Wi-Fi 6&6E new freq. band and penetration rate growth

- More than 3.5 billion Wi-Fi 6 product shipments in 2022, growing to 79% of product shipments. (IDC)
- Wi-Fi 6E(6-7 GHz) needs superior freq. & high linearity performance which is a challenge to semiconductor.
- GaAs' outstanding characteristics can fulfill the critical requirement of 6E.

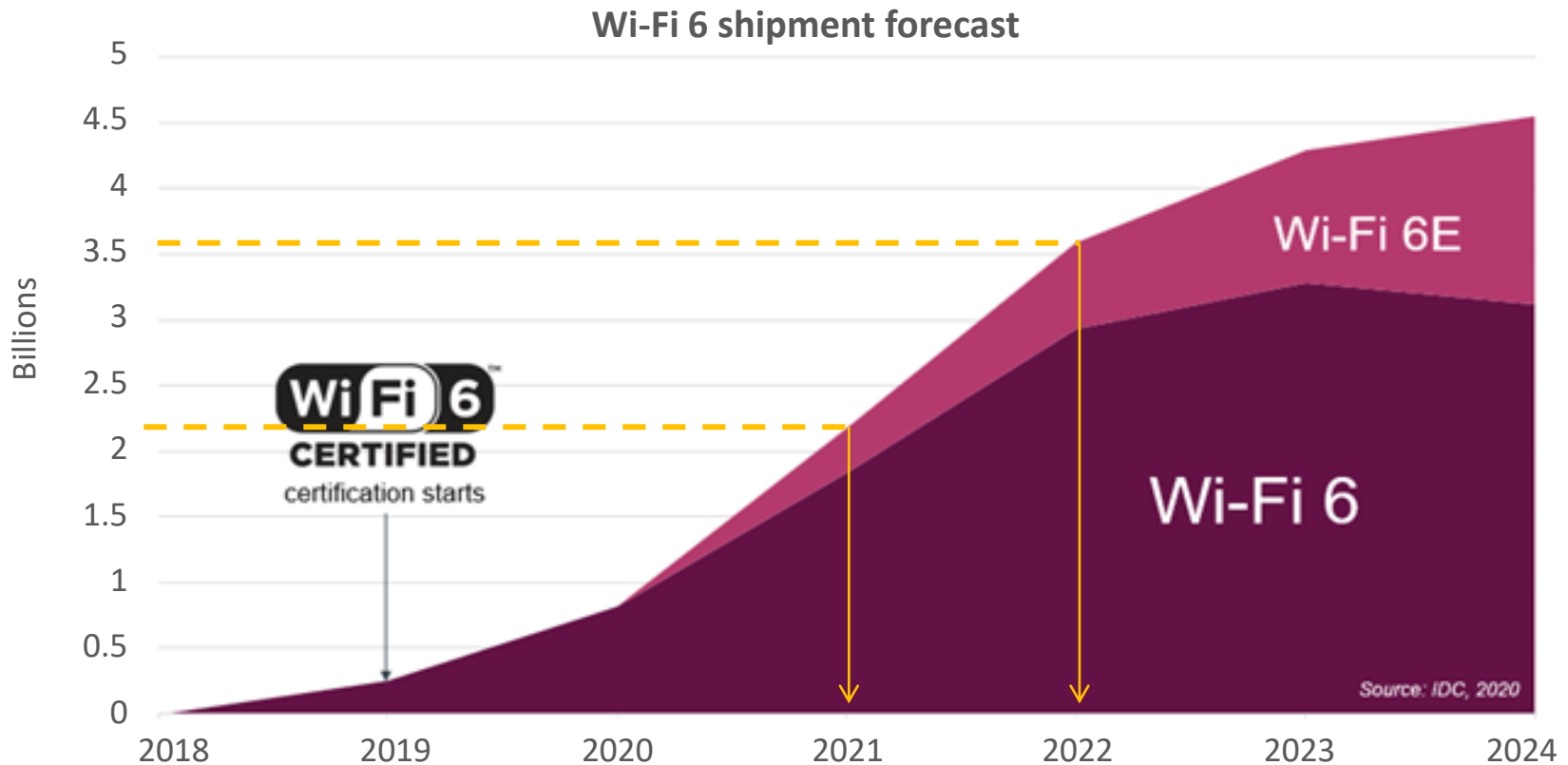




Wi-Fi 6E Is the Next Wave

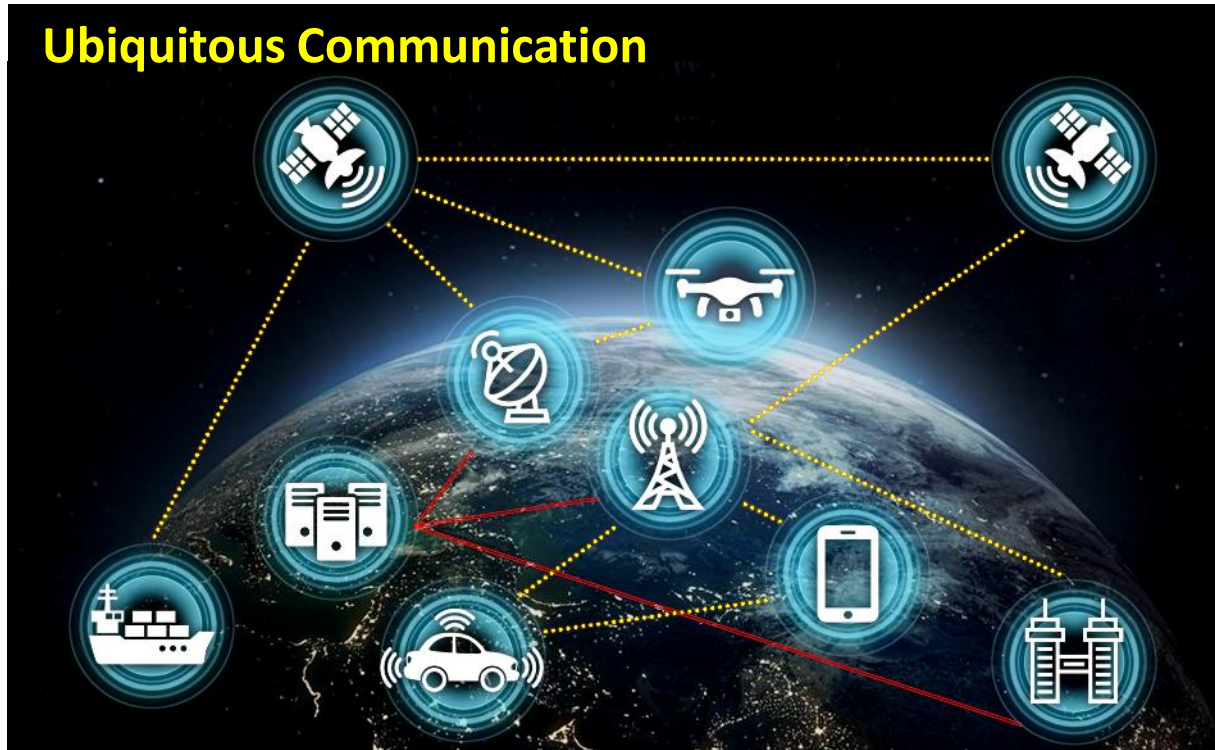


- More than 3.5 billion Wi-Fi 6 product shipments in 2022, growing to 79% of product shipments
- Nearly 20% of all Wi-Fi 6 device shipments will support 6 GHz by 2022
- 5.2 billion Wi-Fi 6 product shipments by 2025, 41% of which will be Wi-Fi 6E



- **Wi-Fi 7: Expect more complex modulation, wider bandwidth and higher frequency.**
 - GaAs shows higher linearity (1K to 4K QAM) & operation freq. for complex modulation.
 - More MIMO requirements (from 8x8 to 16x16)
- **WIN is developing advanced HBT for Wi-Fi 7.**

Ubiquitous Communication



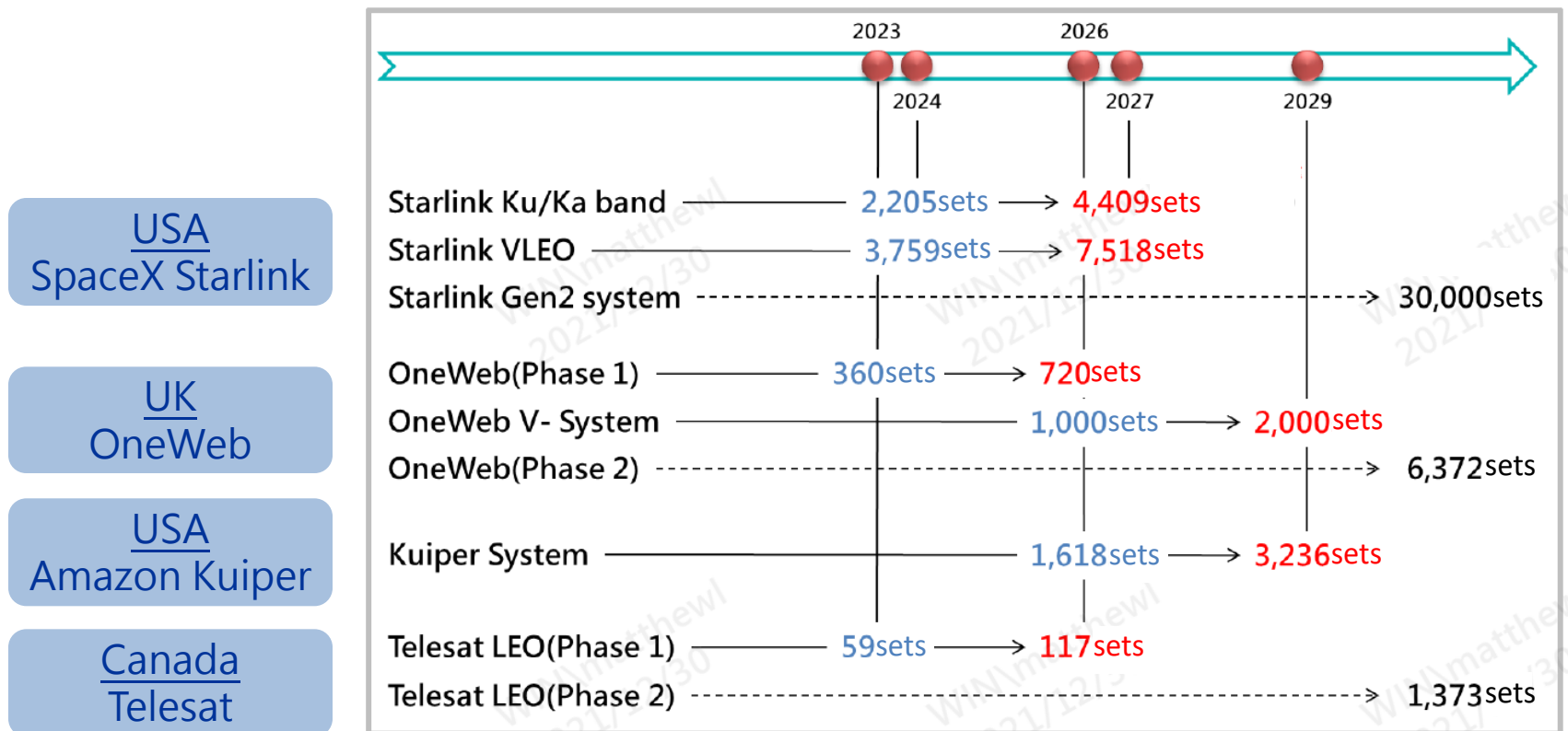
◆ Market is Augmenting ~December 21, 2021 MarketsandMarkets

- The SATCOM on the move market is projected to grow from US\$ 17.7 billion in 2021 to USD 42.8 billion by 2026, at a CAGR of 19.3%.

◆ Data Traffic is Increasing ~December 6, 2021 NSR Report

- The space data volumes are expected to increase 14x, and it will reach more than 500 exabytes of information from 2020 to 2030.

Global LEO constellation plan: All the applications of NGSO to FCC are more than thousand sets. That will form Mega-constellation

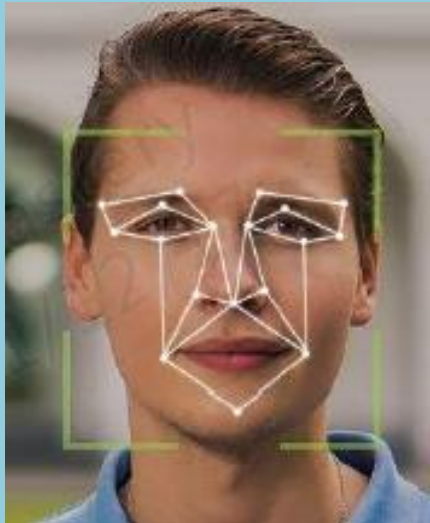


Source: IEK

Optical Devices

3D Sensing Applications

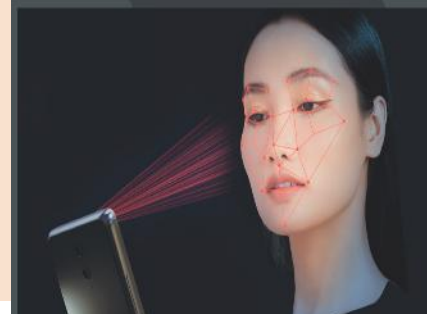
AR/VR



- Structure-Light continuously be used for facial recognition.
- ToF for more 3D sensing applications will keep growing.
 - LiDAR at rear side of smartphone
 - AR/VR Metaverse
 - Proximity sensor
 - Camera Focus assistant



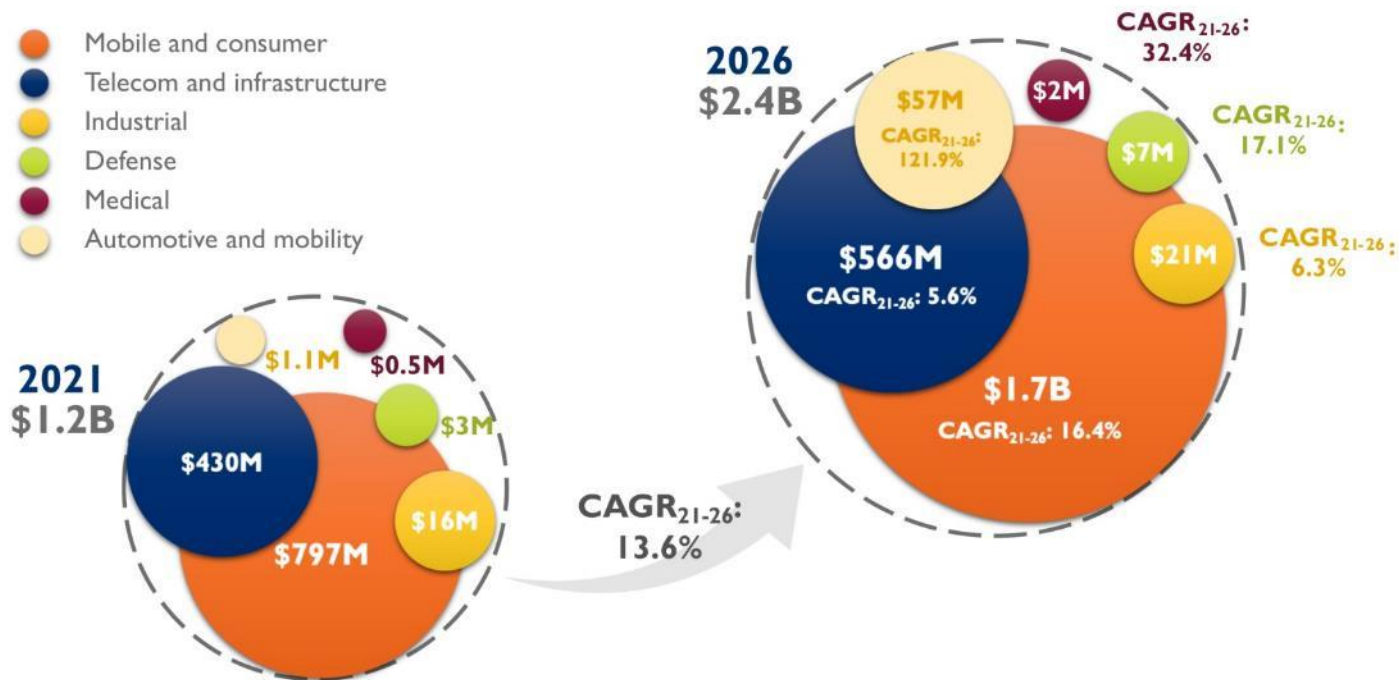
Secure face authentication behind OLED
for unlock and mobile payment



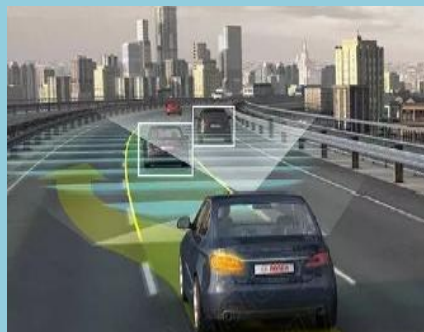
3D Sensing Market Strong Growth

2021–2026 VCSEL market overview

(Source: VCSELs - Technology and Market Trends 2021 report, Yole Développement, 2021)

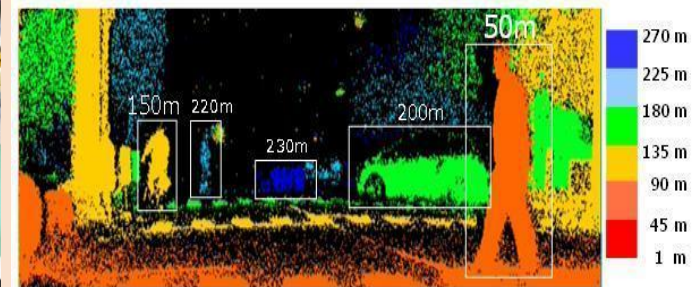


LiDAR



■ ToF for LiDAR applications will keep growing.

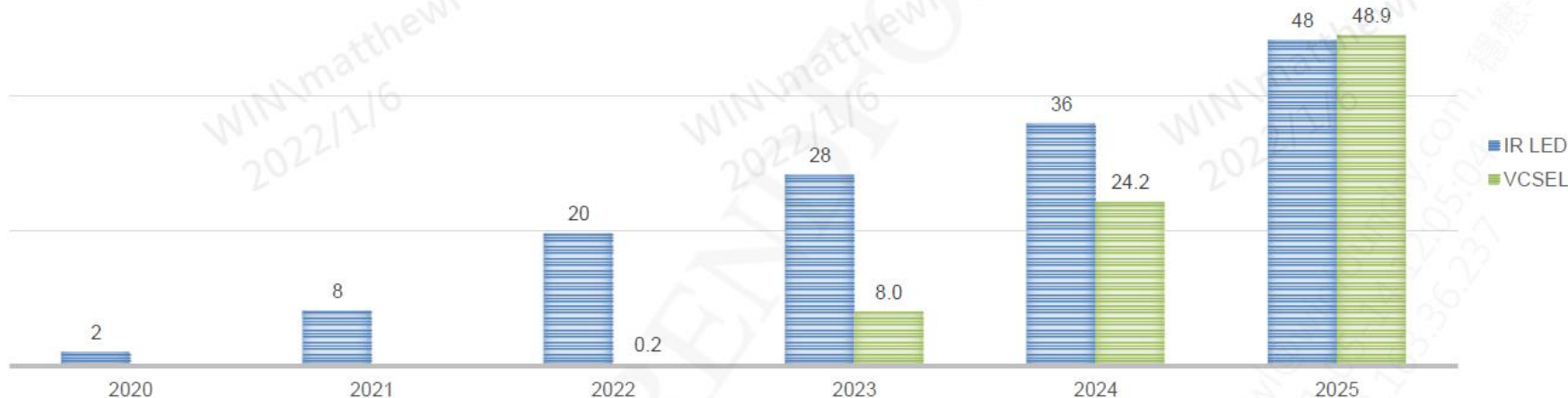
- High-power infrared VCSEL is in production for automotive applications. (in-vehicle sensing device DMS/OMS)
- 150-200m Long Range LiDAR for robotaxis and passenger cars is in Pilot stage.
- AGV (Automated Guided Vehicle) is in Pilot stage.



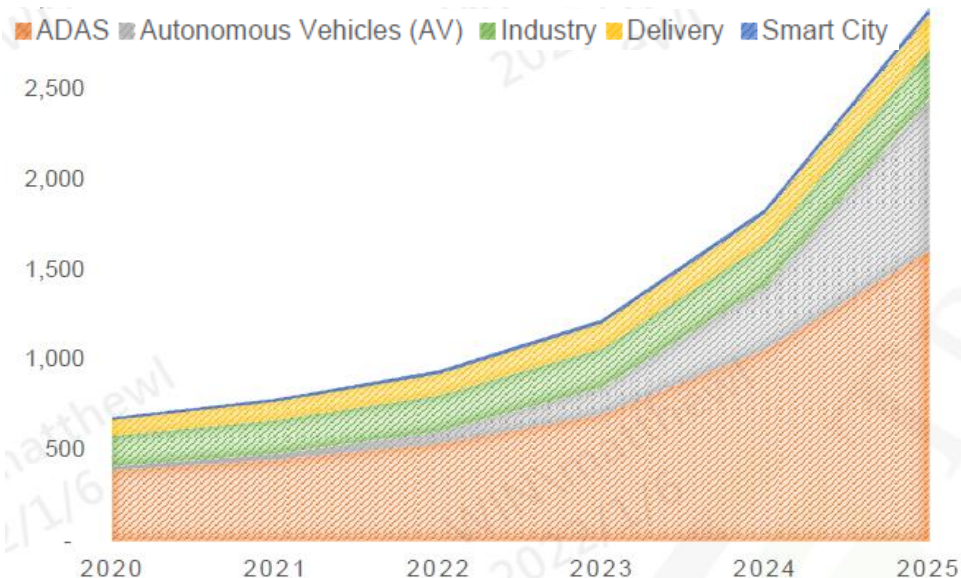
LiDAR Market Fast Growth

2021-2025 (IR LED/VCSEL) Market Value of DMS/OMS

M USD



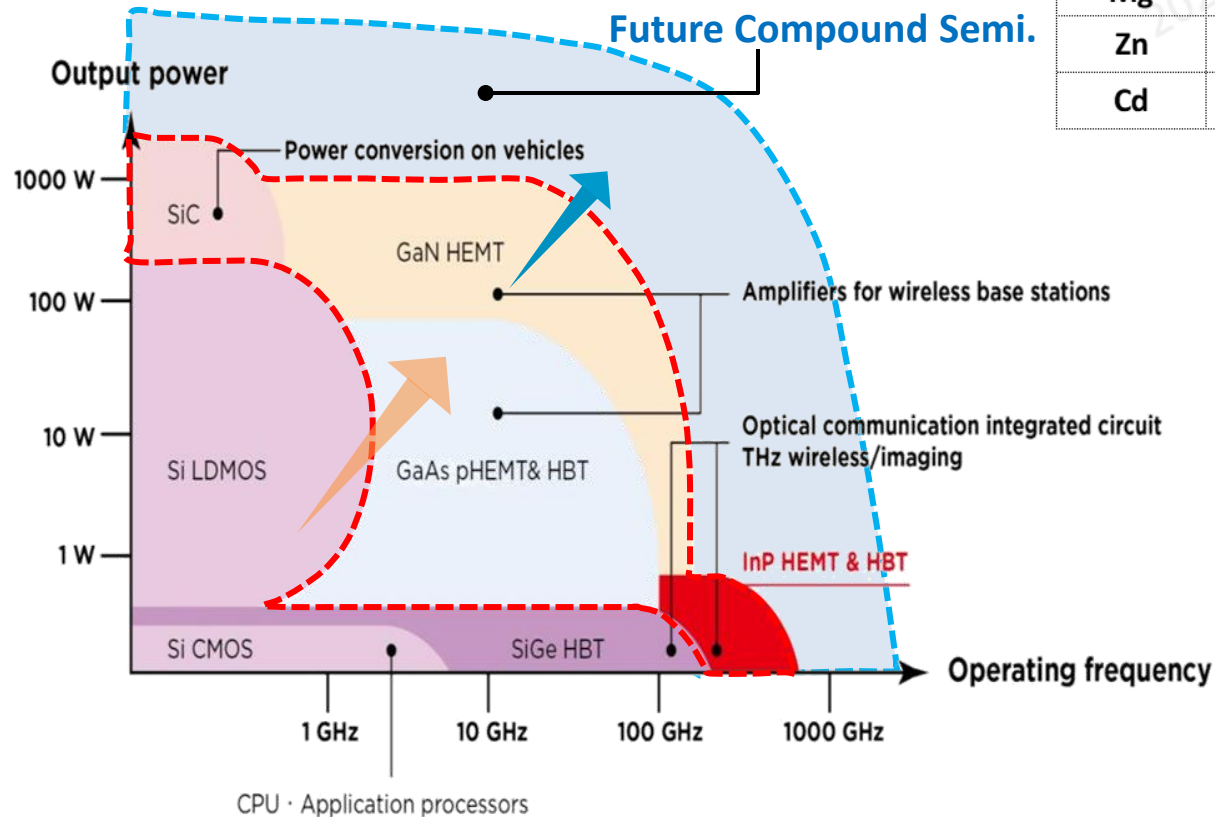
2021-2025 LiDAR Market Forecast



Source: TrendForce

ADVANCED TECHNOLOGY DEVELOPMENT FOR FUTURE MARKETS

Compound Semi. Technologies for Future



Periodic Table

Group II	Group III	Group IV	Group V	Group VI
Be	B	C	N	O
Mg	Al	Si	P	S
Zn	Ga	Ge	As	Se
Cd	In	Sn	Sb	Te

GaAs **GaN** · **InP**

1550 ~ 850nm

SWIR

LiDAR

Datacom

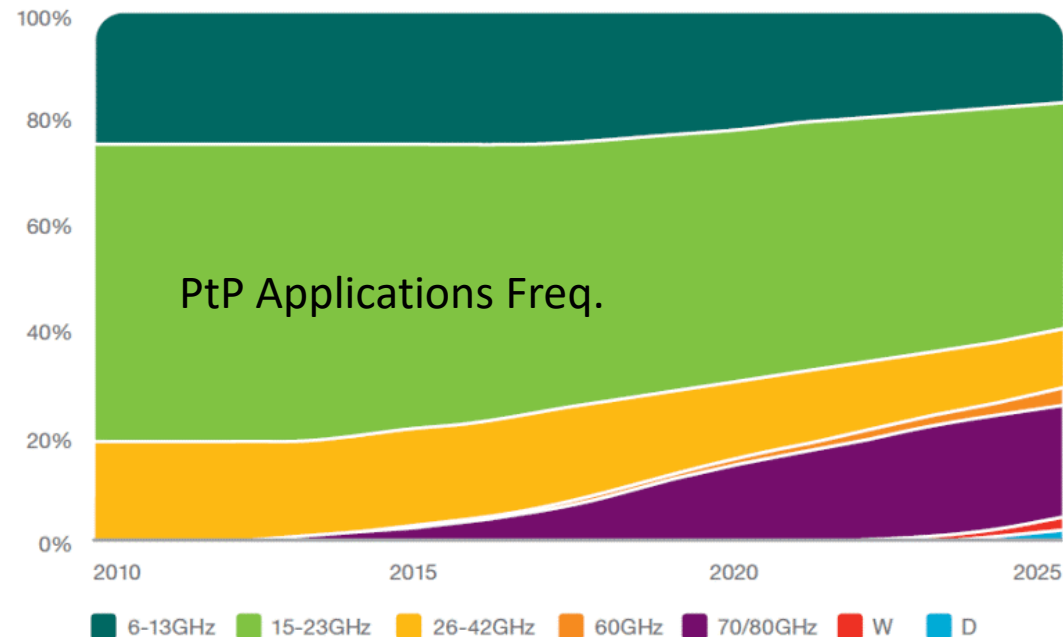


1PHz

High speed, Light emitting, Light absorption, Insulating substrate

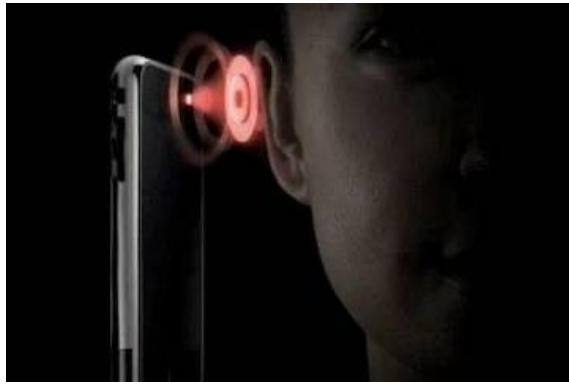
GaN for RF

- To leverage experienced skills, RF specialty and production advantage, WIN strategically focus on RF GaN market.
- The application market of GaN is about to boom, including satellite, PtP, and other consumer applications.
- WIN's GaN solutions cover DC-40 GHz, which covers most of the applications.



Source: Ericsson

InP for Optics



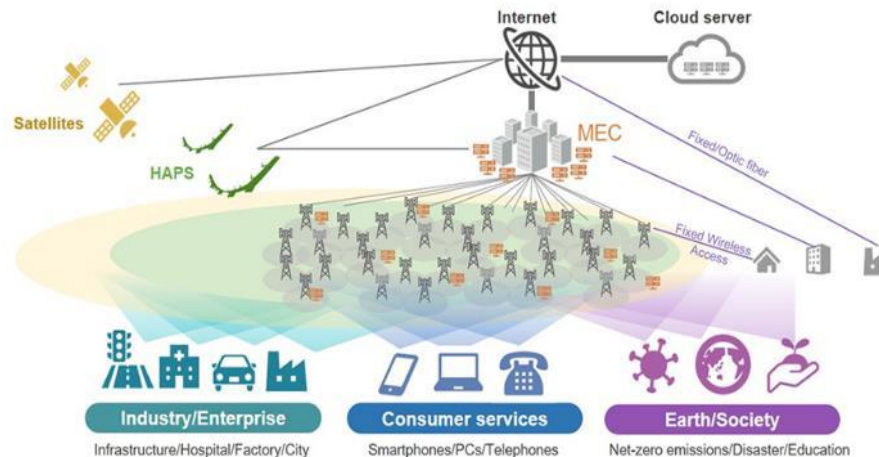
Proximity



SWIR



LiDAR



RF THz Applications

Q & A

For more information regarding WIN
www.winfoundry.com

For all inquiries, suggestions, and comments
ir@winfoundry.com



*Compound Semiconductor Solutions
from RF to Lightwave*

穩懋半導體

