Stock symbol ：3419.TW

We connect the wireless world.

Wha Yu Industrial Co., Ltd
Investor Conference

2023/11/24

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Outline

- Company Overview
- Product Introduction
- 2023 Q3 Financial Result
- Market overview and Strategies
- Future prospects and Growth driving force
- Q & A

With focus on RF industry over 40 years, M.gear provides advanced technology antennas, communication modules, and integrated solutions. We are the best partner for network operators, SI and equipment vendors in the last mile of network deployment in various scenarios.

- Establishment : Nov. 18, 1981 (TWSE: 3419)
- Employee : 640
- Contributed Capital : 39.5M USD
- Revenue : 65M USD (2022)

Applications

WLAN AP,
Router

Directional
Antenna,
Lens Antenna

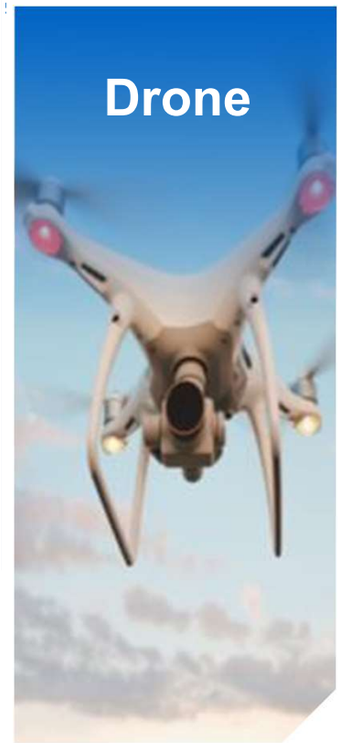
DAS

FWA

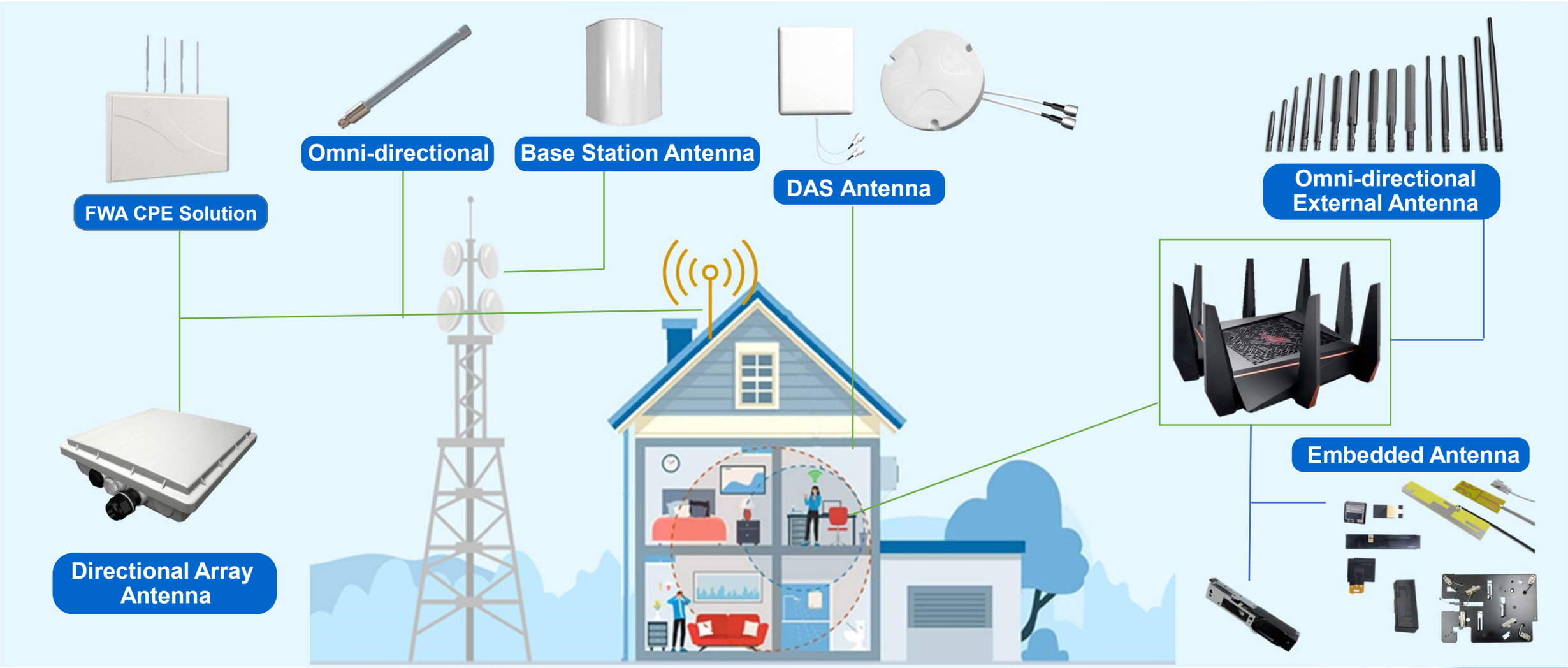
Small cell,
Base station

DSRC, C-V2X

4-Arm GNSS



Indoor and Outdoor Solutions



Achievements

40+
Years of experiences

1400+
Successfully Complete Projects

25+
Countries Worldwide

1.1 Billion
Units Shipment 2019-22

400+
Telecommunication & Engineering experts

600+
Customer Base

Global Base

Dongguan, China
Dongguan Aeon Tech
- Antenna R&D center and production
- Sales & FAE

Suzhou, China
Suzhou Branch Office
Dongguan Aeon Tech
- Sales & FAE

California, USA
(2023 H1)
WHA YU
- Sales

Hsinchu, Taiwan
WHA YU
- HQ & R&D Center
- Sales & FAE

North Vietnam
(2024 Q1)
WHA YU
- Antenna production

Hukou, Hsinchu, Taiwan
WHA YU
- Unique Product, High-Tech Production Base

Strategy deployment

1. Establish close cooperative relationships with strategic partners (new ventures, chips, SI, industry-university-research institutes, agents)
2. Looking for nearby agents to increase contact with customers and expand product sales.
3. To create more standard products, maximize the output of R&D resources, enhance product value and increase product competitiveness.
4. Close to the market: actively discuss product development plans and projects with customers in the USA, Japan, and Europe.
5. Proposed vertical application solutions for wireless products—FWA, DAS, O-RAN.
6. Increase product differentiation value (multi-component integration, software integration), expand product sales, and propose value-added solution services that combine antenna + system + structural integration solutions.
7. Collaborate with SI industry players to enhance application requirements in various fields and build solution capabilities.

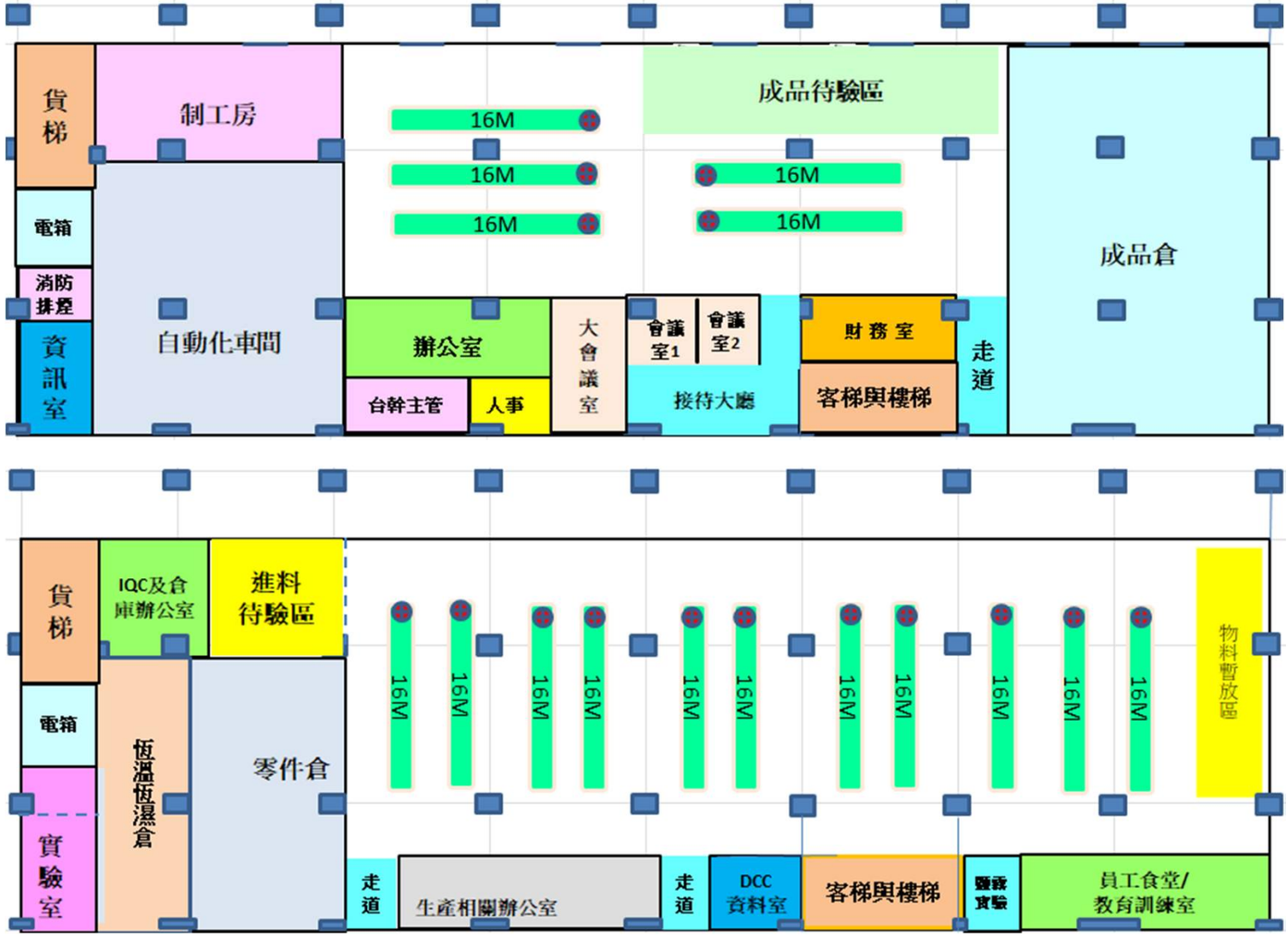
VN Factory--Location and Factory Area

- VN Factory Location : VSIP Industrial Park, Bac Ninh Province
- 2 Floors Factory Area : 4,380 m^2
- Address : Block 1, No. 2, BH5 Street, VSIP Bac Ninh, Phu Chan Ward, Tu Son City, Bac Ninh Province, Vietnam

Driving time between Hanoi city center and nearby province

	Bac Ninh 北寧省
重要城市	北寧市 (Bac Ninh City)
人口 (人)	1,450,518
面積 (平方公里)	822.7
國道長度 (公里)	200
港口數(國際港)	0
機場（國際/國內）	0/0

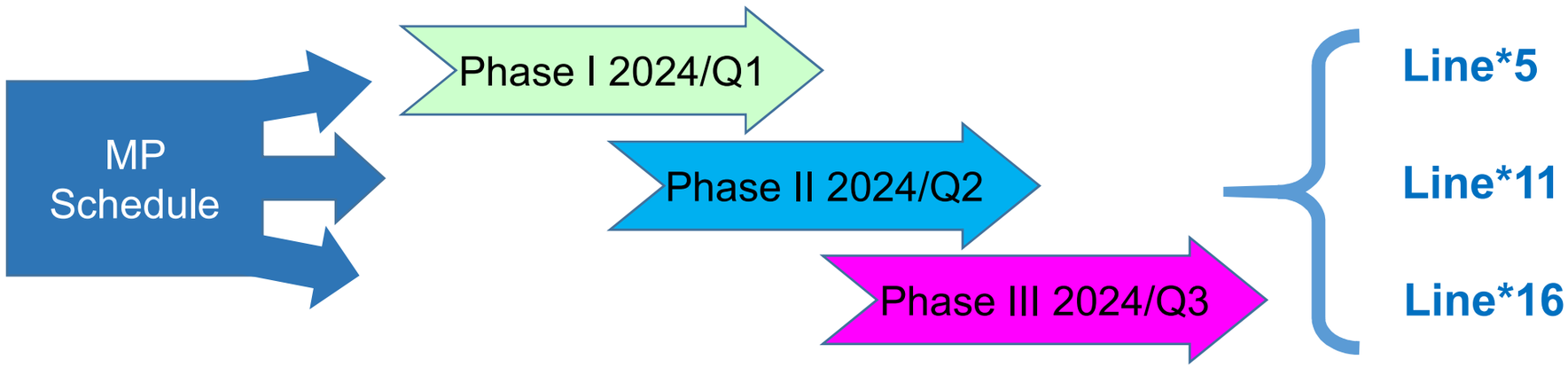
VN Factory Layout and Capacity



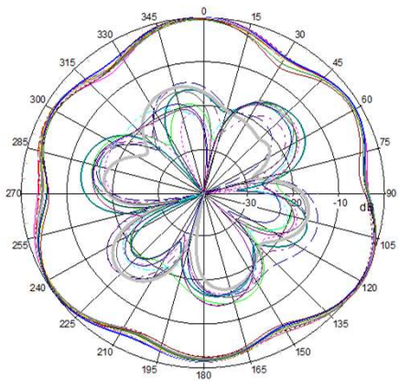
- Production line :
  - Assembly Line：16
  - Automatic M/C : 10 sets
- Capacity：
  - RF Antenna : 3,000 Kpcs/M
  - GPS Antenna : 200 Kpcs/M
  - Cable Assembly : 2,000 Kpcs/M

Mass Production Schedule

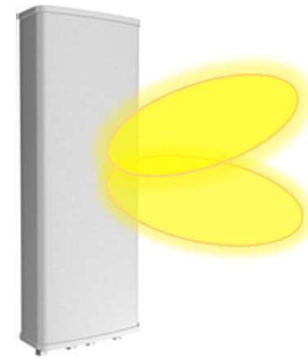
- **Production Schedule**



5G Private Network Antenna Solution 1

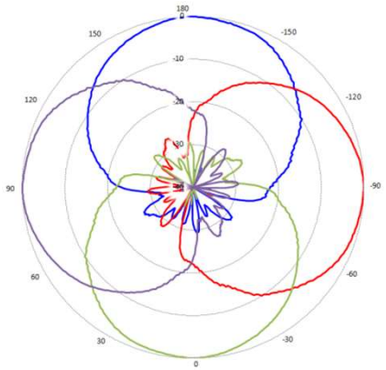


- **Low Profile Omni 10dBi MIMO Antenna**
  - **can meet high-speed but low-capacity scenarios in blind area.**



- **Split Beam Antenna**
  - can meet the coverage requirements of high and low floors in urban areas, and minimize inter- cell interference.

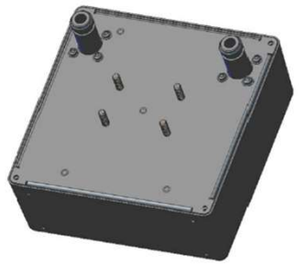
4 sector in station

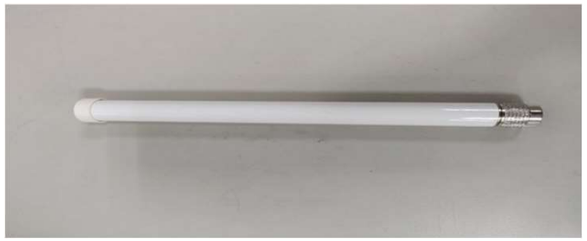


- **Macro N78 18dBi MIMO Antenna**
  - O-RAN large coverage antenna

5G Private Network Antenna Solution 2

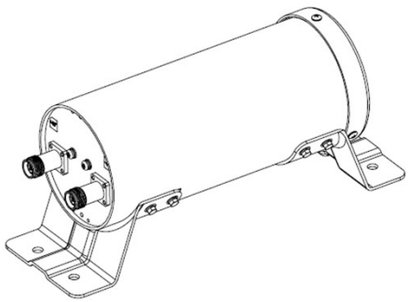
- **Narrow Beam Sector Antenna**
  N78 33^0 14dBi 2X2 MIMO





- **Omni Antenna**
  N78/N79 6dBi

- **65^0 Beam width Sector Antenna**
  N78/N79 12/14 dBi 4X4 MIMO

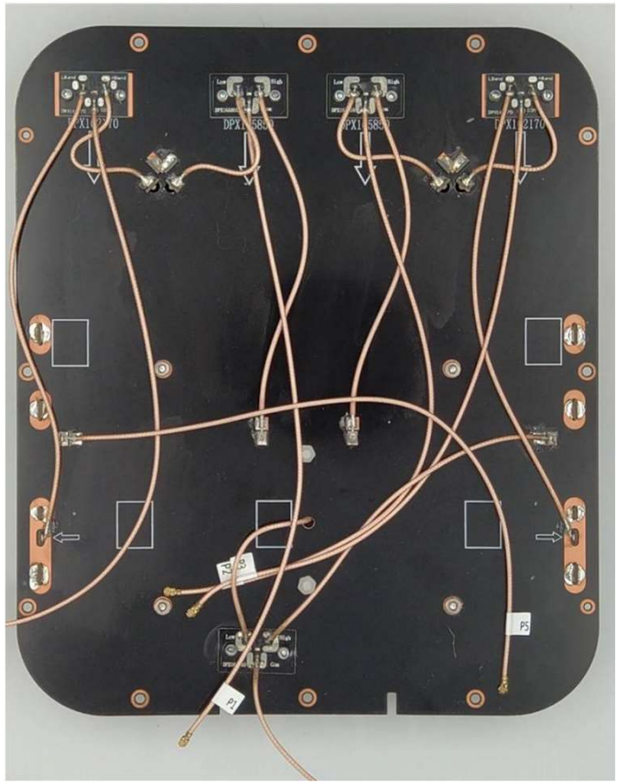


- **120^0 Beam width Antenna**
  N78/N79 12dBi 2X2 MIMO

Outdoor LTE / 5G-NR Directional Panel

Front View

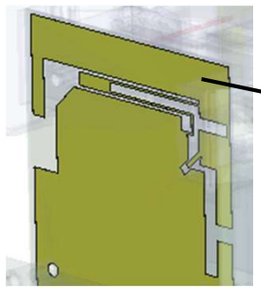
Back View



H band dual pol. 9 dBi array

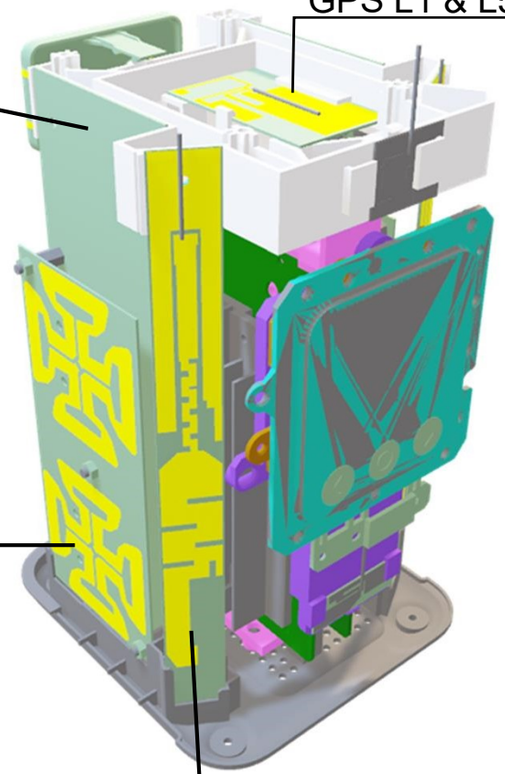
Band Allocation			
Port	Low band	Middle band	High band
Port 0	0.617 – 0.96	1.452 – 2.69	3.3 – 3.8
Port 1	0.617 – 0.96	1.452 – 2.69	3.3 – 3.8
Port 2		1.452 – 2.69	3.3 – 3.8
Port 3		1.452 – 2.69	3.3 – 3.8
Port 4			3.3 – 3.8
Gain	> 1.5 dBi	> 6 dBi	> 6 / 8 dBi
Efficiency	> 60 %	> 60 %	> 60 %

Indoor FWA – LTE / 5G-NR / Wi-Fi 6



4G LTE
703-960 /
1710-2690 MHz

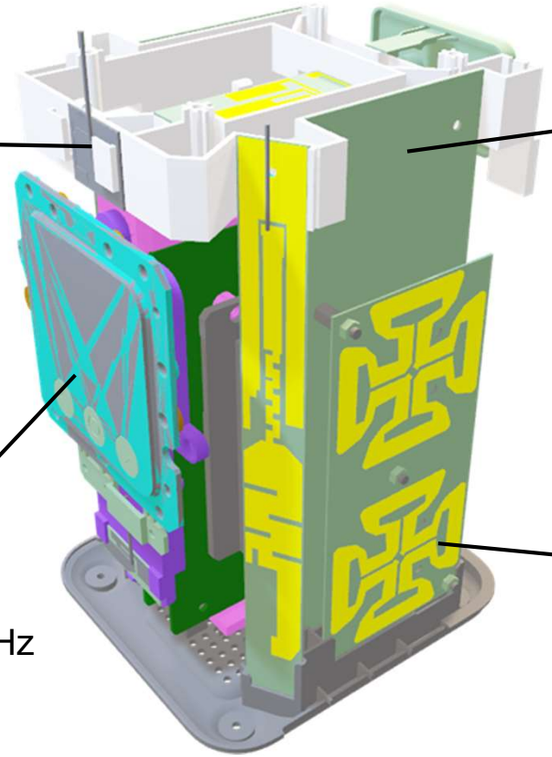
GPS L1 & L5



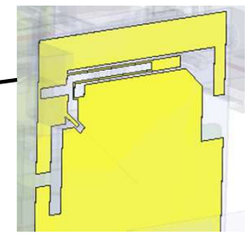
5G-NR N77
Dual-Polarization
11 dBi Directional Array

4G LTE
Omni-Directional
703-960 / 1710-2690 MHz

DB Wi-Fi * 5



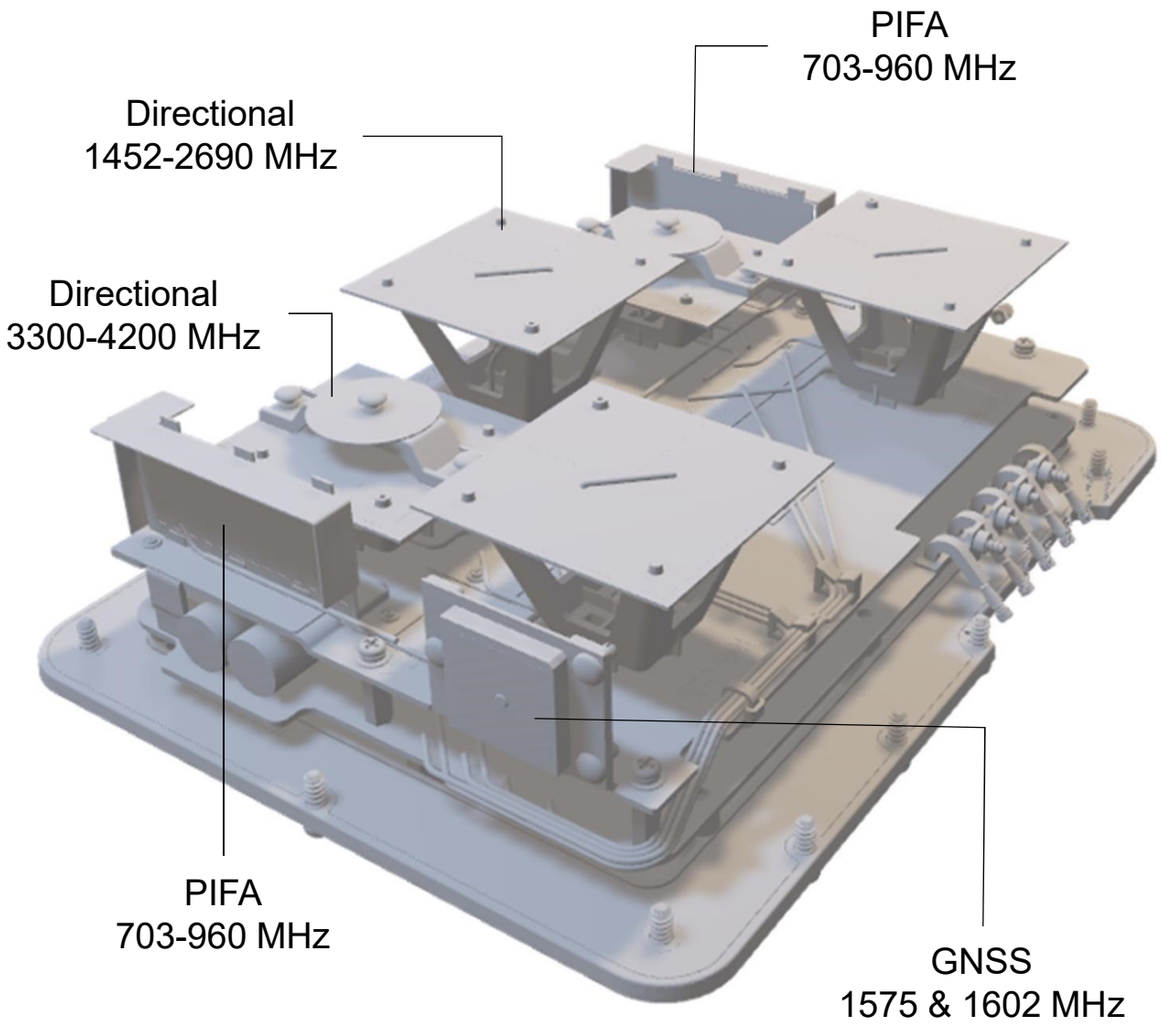
4G LTE
Omni-Directional
703-960 / 1710-2690 MHz



4G LTE
703-960 /
1710-2690 MHz

5G-NR N77
Dual-Polarization
11 dBi Directional Array

Outdoor LTE / 5G-NR Directional Panel



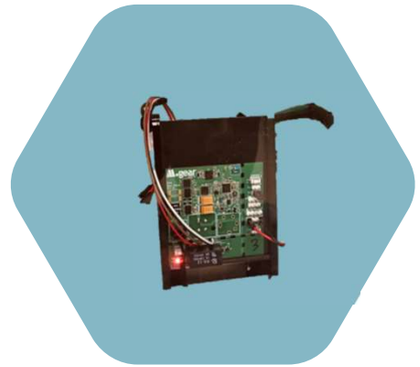
Band Allocation			
Port	Low band	Middle band	High band
Port 0	0.703 – 0.96	1.452 – 2.69	
Port 1	0.703 – 0.96	1.452 – 2.69	
Port 2		1.452 – 2.69	3.3 – 4.2
Port 3		1.452 – 2.69	3.3 – 4.2
Port 4		1.71 – 2.69	3.3 – 4.2
Port 5		2.496 – 2.69	3.3 – 4.2
Port 6	GNSS 1575 & 1602 MHz		
	Gain		
	> 1.5 dBi	> 6 dBi	> 6 dBi
	Efficiency		
	> 50 %	> 60 %	> 60 %

IoT Solutions

M.gear help partners create reliable IoT solutions for different scenarios such as smart meter, vehicle telematics system, high-speed railway, maritime satellite, wireless networking and wide area IoT, etc.

Electronic shelf

Industrial 4/5G Router

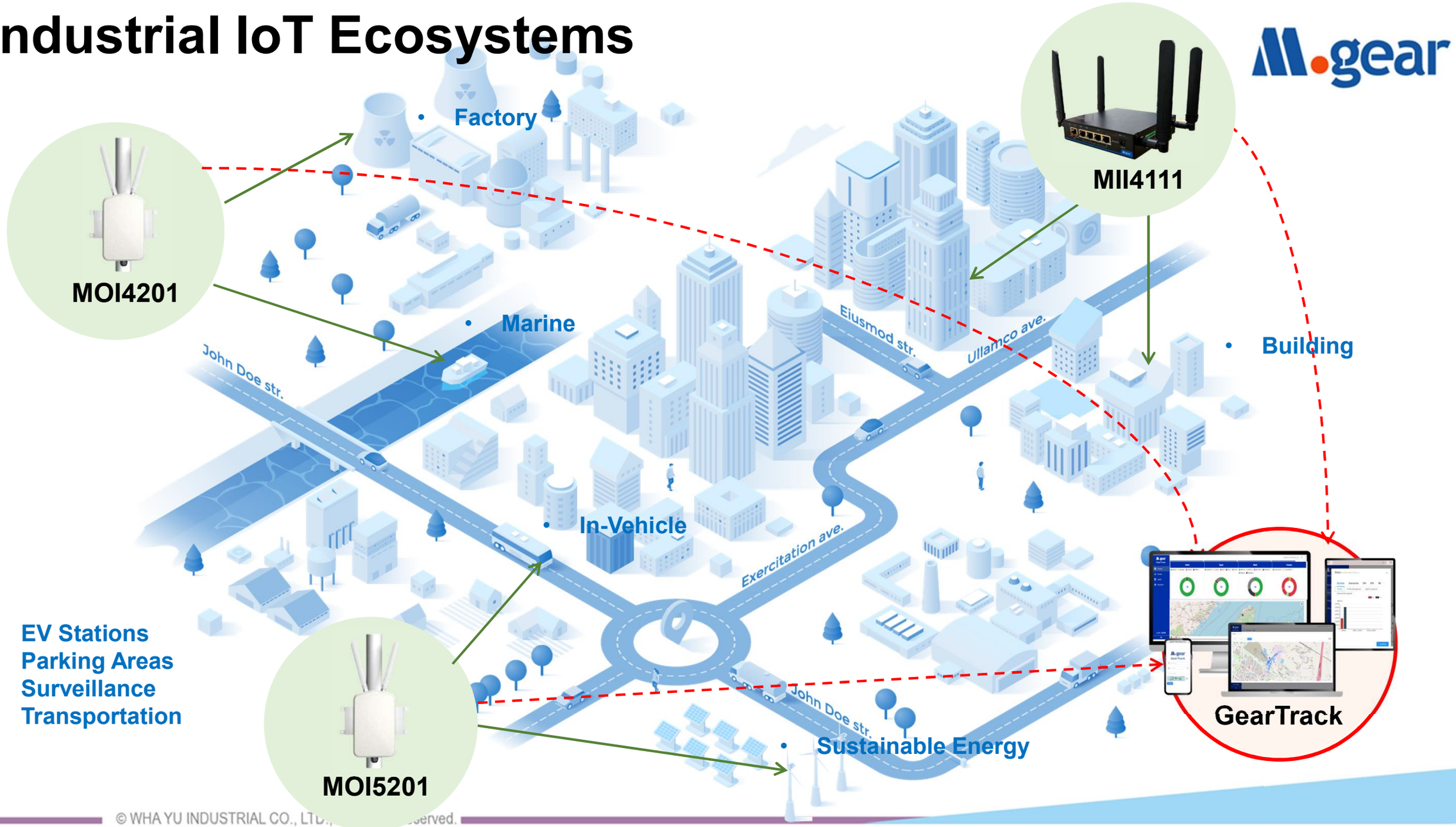


Keyless Module

Meter Communication Module

AI Webcam

Industrial IoT Ecosystems



- EV Stations
- Parking Areas
- Surveillance
- Transportation

Joint Anterix Active Ecosystems

M.gear

CA410

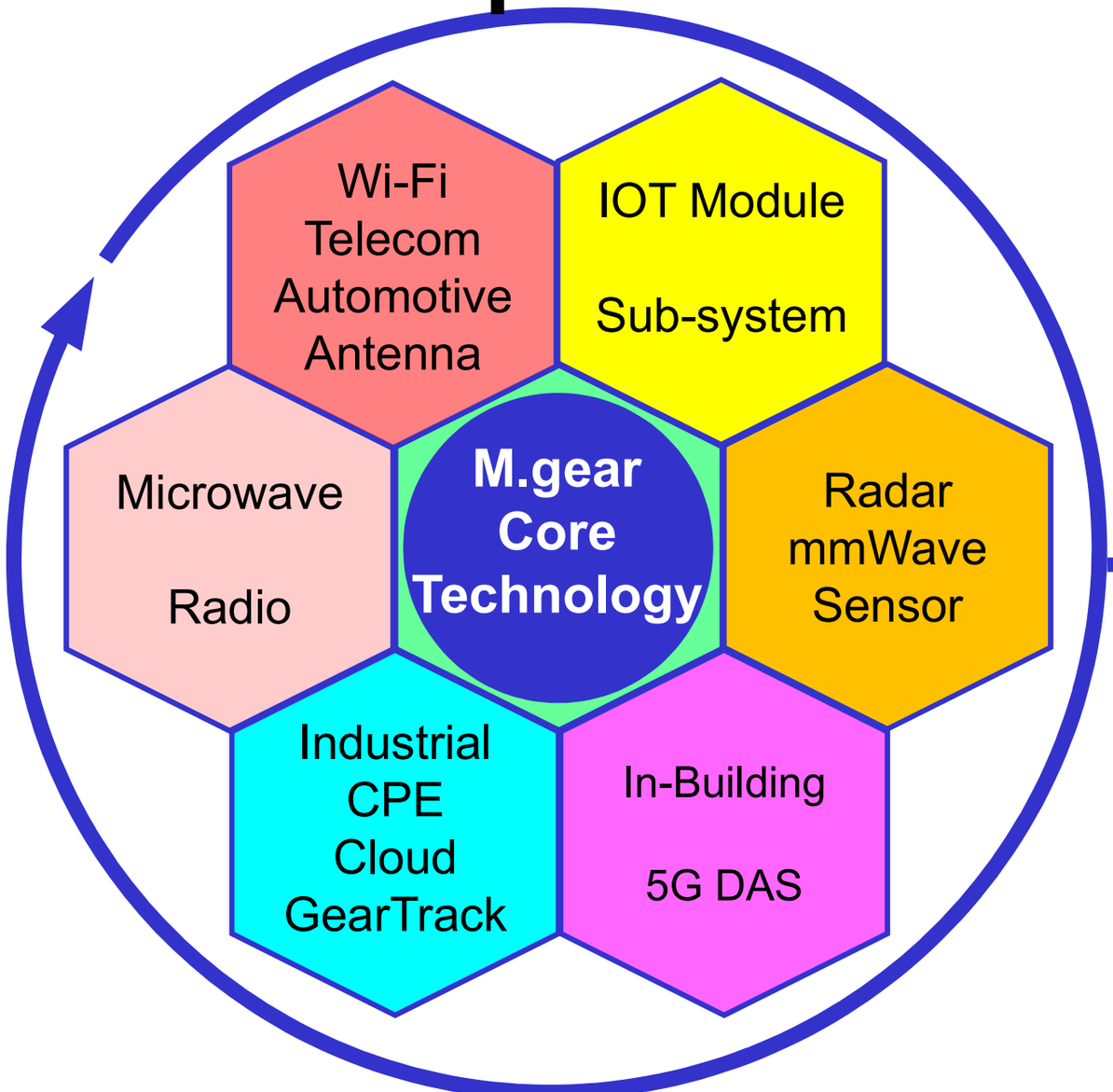
RF Frequency
- Bands 42, 43, 48 (CBRS)
- Band 8 (Anterix)
- Bands 2,4,12,13,14,66

SEQUANS Anterix™

CA410L - LCC
CA410M - M.2

Anterix is the largest holder of licensed spectrum in the 900 MHz band (896-901/935-940 MHz) in the mainland US, plus Hawaii, Alaska, and Puerto Rico, also. It sells private LTE spectrum access and network systems to the energy, transportation, logistics sectors, primarily. The new module will "support and accelerate the growth of the ecosystem of new OEM equipment" to go with the Anterix proposition for the US smart utilities market, plus associated sectors.

Core Competence



Global Sales Team
Serve customers nearby

Flexibility MFG Site:
- ✓**Taiwan MFG Center**
- ✓**China MFG**
- ✓**Vietnam MFG**

Reliable Product Quality

Communication Product Solutions Provider

2023 Finance Report

Unit: In Thousands of New Taiwan Dollars

會計科目	ACTUAL							
	Q1	%	Q2	%	Q3	%	2023 1/1~9/30	%
Operating revenue	375,459	100.0%	343,918	100.0%	365,509	100.0%	1,084,886	100.0%
Operating costs	312,485	83.2%	287,723	83.7%	317,621	86.9%	917,829	84.6%
Gross profit	62,974	16.8%	56,195	16.3%	47,888	13.1%	167,057	15.4%
Selling and marketing expenses	34,750	9.3%	40,596	11.8%	32,948	9.0%	108,294	10.0%
General and administrative expenses	29,303	7.8%	39,743	11.6%	39,497	10.8%	108,543	10.0%
Research and development expenses	27,286	7.3%	32,721	9.5%	31,540	8.6%	91,547	8.4%
Total Operating expenses	91,339	24.3%	113,060	32.9%	103,985	28.4%	308,384	28.4%
Loss From Operations	(28,365)	-7.6%	(56,865)	-16.5%	(56,097)	-15.3%	(141,327)	-13.0%
Total non-operating income and expenses	(4,682)	-1.2%	83,603	24.3%	20,919	5.7%	99,840	9.2%
Profit(Loss) Before Income Tax	(33,047)	-8.8%	26,738	7.8%	(35,178)	-9.6%	(41,487)	-3.8%
Income tax expense	0	0.0%	2,278	0.7%	(1,748)	-0.5%	530	0.0%
Net income (loss)	(33,047)	-8.8%	24,460	7.1%	(33,430)	-9.1%	(42,017)	-3.9%
Non-controlling interests	(1,759)	-0.5%	(1,694)	-0.5%	(1,184)	-0.3%	(4,637)	-0.4%
Owners of the Company	(31,288)	-8.3%	26,154	7.6%	(32,246)	-8.8%	(37,380)	-3.4%
Basic earnings (loss) per share	(0.26)		0.22		(0.27)		(0.31)	

Industry overview

- The United States announced a broadband network infrastructure plan on June 26, which will allocate US$42 billion. States must submit plans before 4Q2023 to obtain 20% of the subsidy. They must submit a final proposal by the end of 2024 to apply for the remaining 80% of the subsidy. Taking into account the deployment cost and speed, the directly benefited products are estimated to be broadband network equipment such as cable/DSL/PON/FWA.
- In response to the 5G clean network by the US to ensure that its key telecom networks, cloud, data analysis, mobile applications, Internet of Things and 5G technologies do not use "untrusted" equipment suppliers to avoid Infringed by malicious attackers or unfairly extra-legal controlled by authoritarian governments such as the communist party of China. The operators currently responded come from the EU, India, Australia, Japan, South Korea…etc. Therefore these areas will also become opportunities that domestic network manufacturers opportunities in future.
- Although the material shortage problem has been resolved, the overall economy is slowing down and the overall supply chain inventory depletion progress is slightly slower than originally expected. The overall outlook for home broadband equipment and enterprise-level switch demand is conservative, so the financial reports of manufacturers that can be observed the manufacturer's inventory and DOI (days of inventory turnover) have both increased slightly.
- After the number of users of EU and US operators has slowed down since 2H21, general broadband network plans are bound to a maximum of 2 years. So start from 2H23 the users will begin to re-examine existing plans and operators are expected to carry out promotions. Driven by user upgrades and the launch of new Wi-Fi 7 and Matter products, it is expected that demand for network products from operators will gradually recover in 2024.
- The transmission of automated/unmanned vehicles and the tracking assets must have positioning functions. In addition all 5G equipment needs synchronization, UWB, RTK, RFID, LiDAR, etc. So the demand for vehicle all-in-one antennas is highly growth.
- The labor force demand and carbon reduction issues are accelerating the digital transformation of logistics in advanced countries. The concept of Physical Internet is to convert network data transmission into physical logistics transportation procedures to create a network to integrate global logistics systems. The PI concept advocates the use of standard modularization and shared logistics resources to achieve a more efficient, environmentally friendly and sustainable transportation and logistics system, driving demand for instant messaging on mobile carriers.

Operation Strategy

- Market---Continue to deeply develop broadband communication customers in the United States, Japan, and Europe. We has established a business base in LA in 2023 Q1, expanding its active presence in the US market, starting from vertical application fields, and breaking the operational bottleneck.
- Product portfolio --- Based on communication antennas to expand product in communication modules, IoT products, radar sensors, AI audio and video transmission. We plan to establish vertically integrated communication solution products and continue to recruit software and hardware R&D teams and improve product quality diversified innovation and integration capabilities provide customers with more entirety products and services.
- Upstream and downstream cooperation---At present, the industry is developing rapidly and it continues to ally with external industry, government and academia partners (like Sequans, Anterix ECO System, SI sensing, satellite communications... and other technical cooperation) to increase the company's tentacle and strengthen the company's competitiveness.
- Manufacturing close to customers---We have completed the construction of Taiwan's smart manufacturing center and continue to invest in digital transformation, strengthen smart MES systems and data collection and analysis and other smart management. After the Vietnam factory will complete and operation to meet the market's short-chain supply demand and can disperse geopolitical risks to provide diversified services close to customers.

Future Outlook and Growth Momentum

- Qualcomm is driving a paradigm shift in residential Wi-Fi 7 service delivery, and the signature feature of Wi-Fi 7 for smartphones remains High Band Synchronization (HBS) multilink, which allows simultaneous operation on the 5 GHz and 6 GHz bands. Multiple Wi-Fi links, Wi-Fi 7 is designed for a new generation with higher throughput. The number of antennas required for 16x16MIMO is doubled compared to Wi-Fi 6. Wi-Fi 7 products will enter the market in 2024, which will drive more antennas required.
- Enterprises and telecom customers in the network industry continue to destock, and the impact is expected to last from the end of this year to the first half of next year. Recently, the demand for fixed line broadband has continued to increase, and demand for new products and new applications has increased. The European market is gradually recovering and the India market, mainly optical fiber, is booming, and it is generally expected that 24H2 5G FWA and Wi-Fi device will benefit from it. It is expected the number of FWA connections will increase from 2022 100 million units to 300 million units in 2028. The highest growth area will shift from North America to Asia-Pacific and Latin America. The number of FWA connections with India and China as the main growth markets, will account for 50% of the global total.
- Telecom operators in various countries have invested in C-V2X experiment trials as a breakthrough point in smart transportation. Vehicles achieve a wide coverage network through 4G/5G network (V2N) and V2V/V2X communication interfaces to ensure the continuity of smart transportation services. Telecom companies rely on 4G/5G network, cloud computing and other technologies to provide end-to-end solutions with wide coverage, low cost and rapid implementation.
- The radar sensor can detect the distance, speed, angle and other data parameters of the object, making it easy to use algorithms to determine the authenticity of the target object, and the trajectory of the object's movement can be more accurately and effectively interpreted. It has been widely used in automobiles, security, drones, industrial robots, lighting control, access control, engineering equipment, smart homes, emerging medical care and other product applications.

M.gear

Thank You

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