

Global and China Automotive Wireless Communication Module Market Report, 2022

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# Chinese Suppliers of Automotive Wireless Communication Module Play a Dominant Part in the Industry

Automotive wireless module is gearing towards a fusion of 5G, C-V2X, GNSS and smart antennas.

Smart connectivity makes the car a new mobile terminal, to which being connected and intelligent is indispensable. Intelligent connected vehicles (ICVs) are more demanding on in-car data exchange and communication with the outside. Automotive wireless communication module capable of data transmission acts as a key integral of vehicle intelligence.

Chinese suppliers of automotive wireless communication module play a dominant part in the industry.

Connected vehicles still at a gallop in 2021 when the shortage of vehicle chips deteriorated see an ever rise in penetration rate. In 2020, ICV sales worldwide registered 39.52 million units with a year-on-year upsurge of 36.6%, a figure projected to hit 53.2 million units in 2021 and more than 100 million units in 2025.

In China, a total of 14.6 million ICVs are sold in 2021, a figure expected to outnumber 26.0 million units with a penetration rate of above 90% in 2025.



Source: ResearchInChina



# Chinese Suppliers of Automotive Wireless Communication Module Play a Dominant Part in the Industry

Based on that one set of T-Box / TCU (Telematics Control Unit) is configured for each vehicle and packaged with multiin-one wireless communication module, the global shipments of automotive wireless communication module would reach 53.2 million units and that in China 14.6 million units in 2021, and the shipments worldwide will expectedly rise to 107.59 million units and that in China 26.54 million units in 2025.

Meanwhile, T-Box in a car has a growing value from RMB500-600 to RMB1,000-2,000 with the evolution of the T-Box toward the integrated module (4G+V2X, 5G, 5G+V2X, etc.) from a single 4G module. Actually, the integrated (incl. 5G, V2X, GNSS localization and WIFI) T-Box terminal in single vehicle is valued above RMB2,000, which spurs the automotive wireless communication module market to expand ever.

If by the vehicle communication module shipments in varied communication modes in China, the Chinese market of vehicle wireless communication modules is sized by RMB3.2 billion in 2021, a figure projected to report RMB9.14 billion in 2025.



#### Automotive Wireless Communication Module Market Size in China

Source: ResearchInChina



Automotive wireless communication modules find clear applications and play a crucial role. Against the burgeoning intelligent connected vehicles, the Chinese players are seeking strongholds in the wireless communication module field and faster branching out to the international automotive market.

In the automotive wireless communication module market, Chinese communication module manufacturers are developing rapidly, including Quectel, Fibocom, GosuncnWelink, Huawei, Neoway Technology, Sunsea AloT Technology (LongSung Technology, SIMCom Wireless Solutions), MeiG Smart Technology, etc., while foreign peers include Sierra Wireless (acquired by Fibocom), Telit (acquired by Tus-Holdings), Gemalto (acquired by Thales) and ublox, among others. It is over the recent years that the mergers and acquisitions in the world's automotive wireless communication module industry are gathering pace, and the industry concentration will rise further in the future.

Through the lens of corporate competition, Chinese suppliers of automotive wireless communication module outperform foreign counterparts in whatever technology, industrial chain, product competiveness or capital attraction, and they tend to be in full swing. By comparing the technical capability, production layout and "going global" of the influential Chinese providers of automotive wireless communication module, we can see:

•Automotive-grade 5G module: Quectel's 5G module AG55xQ series empower the implementation of more than thirty '5G + C-V2X' projects from automotive clients; Fibocom Auto, Inc., a wholly-owned subsidiary of Fibocom, launched its proprietary 5G, 5G + V2X automotive-grade modules AN958 and AN958T, which are suitable for telematics, smart cockpit and autonomous driving scenarios; GosuncnWelink rolled out the world's first commercial automotive-grade 5G + C-V2X module – GM860A in LGA package and with the smallest size in the industry, as well as vehicle 5G modules – 860A-CIAG and 860A-C1AX; Sunsea AloT Technology unveiled the automotive-grade 5G+C-V2X module, i.e., SIM8800CE.

•Automotive-grade model factories: Quectel' Hefei base has been operational, and its Changzhou base will be in full operation in 2022; the Guangzhou base of GosuncnWelink will go into production in 2022; and the Zhuhai base of Sunsea AloT Technology commenced construction in June 2020 and has already been in partial production, and will become operational fully in 2022.

•Foreign Tier1 customers: Quectel serves a total of over 60 tier1 suppliers around the globe; Fibocom taps into the international market through the acquisition of Sierra Wireless automotive operations; GosuncnWelink has such clients as Bosch, Continental, Yanfeng Visteon, Pioneer, Hyundai Mobis, and also cover the aftermarket OBD, etc.



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Туре	Vendor	Product Model	Chip	Development Stage
5G+C-V2X Automotive Module	Quectel	AG55xQ Series	Qualcomm SA515M	Production vehicle models with such module series will be launched successively in 2022
	Huawei	MH5000	Balong 5000	Some production vehicle models launched in 2021
	Fibocom	AN958T	Qualcomm SA515M	Spawned in 2021
	Neoway Technology	A590	Qualcomm SA515M	5G+C-V2X full functional automotive module A590 launched formally in 2021
	GosuncnWelink	GM860A	Qualcomm SA515M	Already pre-commercial trials worldwide
	SIMCom Wireless Solutions	SIM8800CE	Qualcomm 9150	-
	ZTE	ZM9200	Qualcomm SA515M	It is successively demonstrated in the '2021 C-V2X Four-Cross Demonstration & Application Activity in China'
C-V2X Module	Quectel	AG15 Series	Qualcomm MDM9150	Successful support of commercial use of several vehicle models (the industry's first batch of C-V2X production models), and the use in many OBU/RSU projects worldwide
	Fibocom	AX168-GL	Israel-based Autotalks CRATON2 chipset and security CAN MCU	Promoted large-scale commercialization of C-V2X in March 2021
	SIMCom Wireless Solutions	SIM8100	Qualcomm 9150	Spaw <mark>ned in M</mark> arch 2020
	GosuncnWelink	GM860A-C1AX	Qualcomm SA515M	Already pre-commercial trials worldwide
		GM556A	Qualcomm MDM9150	Validation tests conducted in 2019
	GoHigh Data Networks Technology	DMD3A	MorningCore CX1860	Spawned in June 2020, and the production vehicle modules with such module are to be rolled out successively in 2022
	MorningCore Technology	CX7100	MorningCore CX1860	Joined 'C-V2X Four-Cross Demonstration & Application Activity in China' for successive three years; applied in multiple scenarios
	LongSung Technology	VX95	-	Used in Expressway V2X RSU
	MobileTek	WG7101	MorningCore CX1860	To be Launched in Q1 2022
	nFore Technology	F9312	MorningCore CX1860	To be Launched in Q1 2022
5G In-car Module	Quectel	5G Android Smart Module AG800D	Qualcomm QCM6490	Launched on January 4, 2022
	Fibocom	AN958 Series	Qualcomm SA515M	Eligible for mass production and shipment
	GosuncnWelink	GM860A-C1AG	Qualcomm SA515M	Already pre-commercial trials worldwide
		GM860A-C1AX	Qualcomm SA515M	Already pre-commercial trials worldwide
	LongSung Technology	EX610	-	Launched in August 2021

#### Automotive Wireless Communication Modules (Partial)

Source: ResearchInChina



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# Vehicle Communication Module Evolving towards an Integration of 5G, C-V2X, GNSS, Smart Antennas, etc.

Vehicle communication module is evolving towards an integration of 5G, C-V2X, GNSS, smart antennas, etc.

Vehicle infrastructure cooperation, automotive intelligence and synergy with 5G construction are underlined in the Strategy of Development and Innovation of Intelligent Vehicle (issued by National Development and Reform Commission together with other ten ministries in February 2020). As the growing demand for automotive communications is a boon for the wireless communication module market, the availability of 4G modules onto cars is on a rapid rise, and the automotive 5G communication module of more value accelerates to be popularized amid the robust need for OTA updates, highdefinition entertainment inside the care as well as automated driving, etc.

The intelligent connected vehicles in the 5G era will bring a fundamental change in future mobility, which calls for a fusion of technologies like 4G/5G, C-V2X, Wi-Fi, Bluetooth, GNSS high-precision localization, and which requires being integrated with onboard smart antennas. In short, the value of automotive wireless communication module continues to rise in the future.

2015 2016 2017 2018 2019 2020 2021 2022 AG55xQ Series AG215S AG800D(5G) AG15(C-V2X) AG35 AG52xR(C-V2X) Quectel (5G+C-V2X) (C-V2XAP) AG600K MH5000 Huawei (5G+C-V2X) AX168 Series AN958 Series Fibocom AL640 AL940 (C-V2X) (5G) GM860A GM551A/GM552A GosuncnWelink (5G+C-V2X) GM556A(C-V2X) A590 Neoway Technology N720 A70 N58 (5G+C-V2X) U9507CATA U9507CAT/ EX610(5G) LongSung Technology U9507C V2 U9507C V2C/ VX95(C-V2X) U9507C V2A SIM8800CE SIMCom Wireless SIM8100(C-V2X) SIM7800 Solutions (5G+C-V2X) MeiG Smart Technology MA800 DMD3A GoHigh Data Networks (C-V2X) Technology (C-V2X) CX7100 MorningCore Technology (C-V2X) ZM9200 ZTE (5G+C-V2X) Telit LE920 LE940

Source: ResearchInChina



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#### Automotive Wireless Communication Module Lineup

### **5G Communication Module Cooperation Projects of Some OEMs**

The active involvement of OEMs invigorates practical implementation of automotive 5G and C-V2X wireless communication modules.

In recent years, the car models with 5G and C-V2X have been launched successively on the market, with a huge demand for vehicle 5G and C-V2X wireless communication modules that are not only technically demanding with a long cycle of certification, but has the first-mover advantage. The companies that can be verified by the OEM and can cooperate with the latter will hold supremacy in the industry. The industrial barriers impel automotive-grade wireless communication modules to gear towards 5G and C-V2X.

OEM	Model	5G Onboard Module	5G Module Chip	Development Stage
SAIC MARVEL R	MARVEL R	Huawei in-car module MH5000	Huawei Balong 5000	Launched on the market in February 2021
Human Horizons	HiPhi X	Quectel AG55xQ series	Qualcomm SA515M	Launched in September 2020, delivered to users in May 2021
Geely	Boyue	Fibocom Auto AN958 Series	Qualcomm SA515M	Mass-produced in 2021
GAC	AION V Plus	Huawei in-car module MH5000	Huawei Balong 5000	Mass-produced in December 2020, part of 5G vehicle models are with 4G rate.
NIO	NIO ET7	Quectel AG55xQ series	Qualcomm SA515M	Pre-production of ET7 in November 2021
BYD	BYD-Han EV	Huawei in-car module MH5000	Huawei Balong 5000/ Qualcomm Snapdragon 690 5G chip	5G vehicle models still not available on the market, the roll-out of DiLink 4.0(5G) optional package (Qualcomm chip)
BAIC	ARCFOX αT	Huawei in-car module MH5000	Huawei Balong 5000	Technical demonstration done in 2020, V2X vehicle models still not available on the market
V V	BEIJING-X7	Huawei in-car module MH5000	Huawei Balong 5000	Technical demonstration done in 2020
ZTE	ZTE Walking-L4 Mini Robobus	ZTE	ZTE	Has offered services in cities like Shenzhen (concretely, the Lian Hua Shan Park)
BMW	BMW iX	-	-	Launch in 2022
Dongfeng Motor	Sharing-VAN	China Mobile		Applied in multiple 5G autonomous driving scenarios

#### 5G Communication Module Cooperation Projects of Some OEMs



The report is structured around the following:

- In terms of policy, economy and industrial chain development, China has the most ideal development environment in the world for automotive wireless communication module industry and more breakthroughs are hopefully made in technology and industry layout;
- Chinese automotive wireless communication module manufacturers are technologically leading the world, with more shipments than foreign competitors, but the industry features a high concentration of resources, which is easy to form an oligarch market;
- China's wireless communication modules are mainly sold in large quantities but at low prices, and the Chinese players have poor bargaining power. There is still a long way to go if they wish to explore the international market;
- Against the severe shortage of automotive chips over the recent two years, 5G / C-V2X vehicle module shipments hardly show explosive growth, and we look forward to a boom between 2023 and 2025;
- Although Chinese automotive wireless communication module manufacturers remain superior in T-Box production, it is actually not a piece of cake to access into the supply chain of world-renowned automakers and it takes time.



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### **Beijing Headquarters** TEL: 13718845418 FAX: 010-82601570 Email: report@researchinchina.com

Website: www.researchinchina.com

WeChat: zuosiqiche



### Chengdu Branch

TEL: 028-68738514 FAX: 028-86930659



