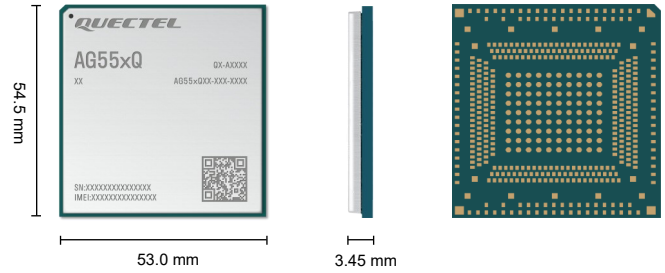


# Quectel AG55xQ Series

IATF 16949 Compliant  
Automotive Grade  
5G NR + C-V2X/DSDA Module  
Based on AEC-Q100 Qualified Chipset



AG55xQ is a series of automotive-grade 5G NR Sub-6 GHz modules developed by Quectel, supporting both 5G NR NSA and SA modes. Adopting 3GPP Rel-15 technology, the module supports maximum 2.4 Gbps downlink and 550 Mbps uplink data rates at 5G NSA mode, and maximum 1.6 Gbps downlink and 200 Mbps uplink data rates at LTE-A. Supporting optional C-V2X PC5 direct communications, AG55xQ is a great solution for automotive applications and makes the traffic smoother and more efficient through paving the way for automated driving and achieving the goal of fully connected traffic. It supports DSDA (optional), and provides abundant interfaces for customers to develop applications. Its excellent performance in ESD and EMI protection ensures great robustness in harsh environments.

AG55xQ consists of AG550Q (5G + DSSS + C-V2X), AG551Q (5G + DSSS), AG552Q (5G + DSDA) and AG553Q (5G + DSDA + C-V2X) variants, each of which contains multiple models (AG55xQ-CN, AG55xQ-EU, AG55xQ-NA and AG55xQ-JP) to meet varied market demands. It is backward compatible with existing GSM, UMTS and LTE networks, enabling it to be connected in areas without 5G NR deployment currently and even remote areas devoid of 3G or 4G coverage.

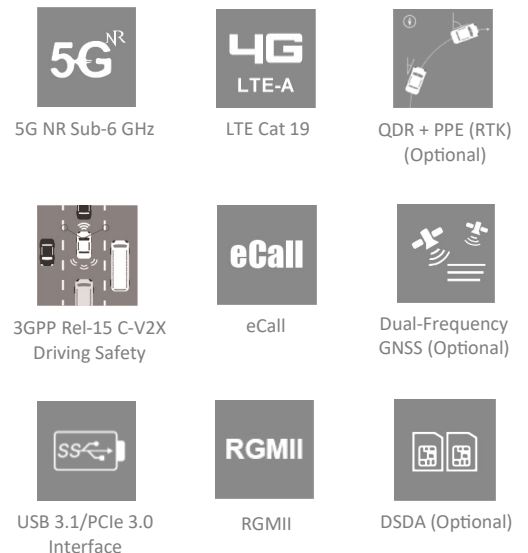
AG55xQ supports multiple input multiple output (MIMO) technology. Using multiple antennas at the transmitting and receiving ends at the same time and on the same frequency band greatly reduces errors and optimizes data speed. While supporting multi-constellation GNSS (GPS, GLONASS, BeiDou, Galileo and QZSS) based on Qualcomm® IZat™ location technology Gen8C-Lite, the module additionally supports dual-frequency GNSS, PPE (RTK) and GNSS/QDR integrated navigation solutions. This greatly simplifies product design and provides quicker, more accurate and more dependable positioning capability.

With AG55xQ, we are able to provide automotive OEMs and tier-1 suppliers with secure and reliable connected car solutions, and also provide vehicle manufacturers smart and flexible solutions to build self-driving cars. More specifically, the module will be commonly found in telematics boxes (T-Box), telematics control units (TCU), advanced driver-assistance systems (ADAS), C-V2X (V2V, V2I, V2P) systems, on-board units (OBU), roadside units (RSU), and other automotive/traffic systems.



## Key Features

- ✓ IATF 16949 qualified and compliant with automotive quality processes such as APQP, PPAP, etc.
- ✓ Based on AEC-Q100 qualified Qualcomm SA515M chipset
- ✓ Automotive 5G NR module with 4G (LTE Cat 19)/3G/2G fallback, supporting both 5G NR NSA and SA modes
- ✓ MIMO technology meets demands for data rate and link reliability
- ✓ Optional C-V2X PC5 mode 4 direct communications
- ✓ A great variety of navigation solutions (single or dual-frequency GNSS, PPE (RTK), GNSS/QDR integrated navigation, etc.) ensure fast and accurate positioning in any environment
- ✓ Optional DSDA for flexible user-oriented applications
- ✓ Feature refinements: DFOTA, VoLTE, QuecOpen®, High Security, etc.
- ✓ Wide operating temperature range (-40 °C to +85 °C) and high eCall operating temperature (up to +95 °C) meet the demanding requirements for automotive devices
- ✓ Excellent EMC protection makes the module operate satisfactorily in any harsh environment



# Quectel AG55xQ Series

AG55x Series	AG550Q Series	AG551Q Series	AG552Q Series	AG553Q Series
<b>General Overview</b>	<ul style="list-style-type: none"> <li>5G + DSSS + C-V2X</li> <li>Single-Frequency GNSS (optional)</li> <li>Dual-Frequency GNSS (optional)</li> <li>QDR 3.0 (optional)</li> <li>PPE (RTK) (optional)</li> <li>Ethernet (optional)</li> <li>-CN/-EU/-NA/-JP<sup>①</sup></li> </ul>	<ul style="list-style-type: none"> <li>5G + DSSS</li> <li>Single-Frequency GNSS (optional)</li> <li>Dual-Frequency GNSS (optional)</li> <li>QDR 3.0 (optional)</li> <li>PPE (RTK) (optional)</li> <li>Ethernet (optional)</li> <li>-CN/-EU/-NA/-JP<sup>①</sup></li> </ul>	<ul style="list-style-type: none"> <li>5G + DSDA</li> <li>Single-Frequency GNSS (optional)</li> <li>Dual-Frequency GNSS (optional)</li> <li>QDR 3.0 (optional)</li> <li>PPE (RTK) (optional)</li> <li>Ethernet (optional)</li> <li>-CN<sup>②</sup>/-EU<sup>③</sup>/-NA<sup>④</sup>/-JP<sup>①</sup></li> </ul>	<ul style="list-style-type: none"> <li>5G + DSDA + C-V2X</li> <li>Single-Frequency GNSS (optional)</li> <li>Dual-Frequency GNSS (optional)</li> <li>QDR 3.0 (optional)</li> <li>PPE (RTK) (optional)</li> <li>Ethernet (optional)</li> <li>-CN<sup>③</sup>/-EU/-NA<sup>④</sup>/-JP<sup>①</sup></li> </ul>

5G NR	AG55xQ-CN	AG55xQ-EU	AG55xQ-NA	AG55xQ-JP (Planning)
<b>Region</b>	China	EMEA, Australia, Korea, India, Latin America, Southeast Asia	North America, Mexico	Japan
<b>Dimensions</b>	54.5 mm × 53.0 mm × 3.45 mm	54.5 mm × 53.0 mm × 3.45 mm	54.5 mm × 53.0 mm × 3.45 mm	54.5 mm × 53.0 mm × 3.45 mm
<b>Temperature Range</b>				
<b>Operating Temperature</b>	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
<b>Extended Temperature</b>	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
<b>eCall Operating Temperature</b>	-40 °C to +95 °C	-40 °C to +95 °C	-40 °C to +95 °C	-40 °C to +95 °C
<b>Frequency Bands</b>				
<b>5G FDD</b>	n1 <sup>②</sup> /n3 <sup>②</sup> /n28 <sup>②</sup>	n1/n3/n8/n20/n28	n2/n5/n25/n66/n71	n1/n3
<b>5G TDD</b>	n41/n78/n79	n41/n78	n41/n78	n77/n78/n79
<b>LTE-FDD</b>	B1/B3/B5/B7/B8	B1/B2/B3/B4/B5/B7/B8/B20/B28/B32 <sup>③</sup>	B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B29 <sup>③</sup> /B30 <sup>③</sup> /B66/B71	B1/B3/B5/B7/B8/B9/B11/B19/B21/B28
<b>LTE-TDD</b>	B34/B38/B39/B40/B41	B38/B40/B41/B42	B41/B48	B41
<b>WCDMA</b>	B1/B8	B1/B3/B5/B6/B8	B2/B4/B5	B1/B3/B5/B8/B9/B19
<b>GSM</b>	900/1800 MHz	900/1800/850/1900 MHz	1900 MHz	-
<b>C-V2X</b>	B47 (For AG550Q/AG553Q Series)	B47 (For AG550Q/AG553Q Series)	B47 (For AG550Q/AG553Q Series)	B47 (For AG550Q/AG553Q Series)
<b>Certifications</b>				
<b>Regulatory</b>	SRRC/NAL/CCC	AG551Q-EU: CE/RCM* Others: TBD	TBD	TBD
<b>Carrier</b>	TBD	TBD	TBD	TBD
<b>Others</b>	TBD	TBD	TBD	TBD
<b>Data Transmission (Peak Rate)</b>				
<b>5G SA</b>	2.0 Gbps (DL)/450 Mbps (UL)	2.0 Gbps (DL)/450 Mbps (UL)	2.0 Gbps (DL)/450 Mbps (UL)	2.0 Gbps (DL)/450 Mbps (UL)
<b>5G NSA</b>	2.4 Gbps (DL)/550 Mbps (UL)	2.4 Gbps (DL)/550 Mbps (UL)	2.4 Gbps (DL)/550 Mbps (UL)	2.4 Gbps (DL)/550 Mbps (UL)
<b>LTE-FDD</b>	1.6 Gbps (DL)/200 Mbps (UL)	1.6 Gbps (DL)/200 Mbps (UL)	1.6 Gbps (DL)/200Mbps (UL)	1.6 Gbps (DL)/200 Mbps (UL)
<b>LTE TDD</b>	1.4 Gbps (DL)/120 Mbps (UL)	1.4 Gbps (DL)/120 Mbps (UL)	1.4 Gbps (DL)/120 Mbps (UL)	1.4 Gbps (DL)/120 Mbps (UL)
<b>DC-HSDPA/HSUPA</b>	42 Mbps/5.76 Mbps	42 Mbps/5.76 Mbps	42 Mbps/5.76 Mbps	42 Mbps/5.76 Mbps
<b>WCDMA</b>	384 kbps (DL)/384 kbps (UL)	384 kbps (DL)/384 kbps (UL)	384 kbps (DL)/384 kbps (UL)	384 kbps (DL)/384 kbps (UL)
<b>EDGE</b>	296 kbps (DL)/236.8 kbps (UL)	296 kbps (DL)/236.8 kbps (UL)	296 kbps (DL)/236.8 kbps (UL)	-
<b>GPRS</b>	107 kbps (DL)/85.6 kbps (UL)	107 kbps (DL)/85.6 kbps (UL)	107 kbps (DL)/85.6 kbps (UL)	-
<b>C-V2X</b>	48 Mbps (Tx)/48 Mbps (Rx)	48 Mbps (Tx)/48 Mbps (Rx)	48 Mbps (Tx)/48 Mbps (Rx)	48 Mbps (Tx)/48 Mbps (Rx)
<b>Interfaces</b>				
<b>USB 2.0/3.1</b>	× 1	× 1	× 1	× 1
<b>UART</b>	× 3 (UART1/Debug/Bluetooth UART)	× 3 (UART1/Debug/Bluetooth UART)	× 3 (UART1/Debug/Bluetooth UART)	× 3 (UART1/Debug/Bluetooth UART)
<b>(U)SIM</b>	× 2	× 2	× 2	× 2
<b>PCIe 3.0</b>	× 1	× 1	× 1	× 1
<b>I2C</b>	× 1	× 1	× 1	× 1
<b>I2S</b>	× 1	× 1	× 1	× 1
<b>Digital Audio (PCM)</b>	× 1	× 1	× 1	× 1
<b>SDIO</b>	× 1 (for eMMC/SD)	× 1 (for eMMC/SD)	× 1 (for eMMC/SD)	× 1 (for eMMC)
<b>ADC</b>	× 2 (15-bit)	× 2 (15-bit)	× 2 (15-bit)	× 2 (15-bit)
<b>RGMII</b>	× 1	× 1	× 1	× 1
<b>SPI</b>	× 1	× 1	× 1	× 1
<b>RESET_N</b>	× 1 (Reset the module)	× 1 (Reset the module)	× 1 (Reset the module)	× 1 (Reset the module)
<b>GPIO</b>	× 15 (For QuecOpen® version only)	× 15 (For QuecOpen® version only)	× 15 (For QuecOpen® version only)	× 15 (For QuecOpen® version only)

**NOTE:**

- ①: Under planning.
- ②: n1/n3/n28 for AG55xQ-CN supports SA only.
- ③: LTE-FDD B29/B30/B32 supports Rx only.
- \*: in progress.

# Quectel AG55xQ Series

5G NR	AG55xQ-CN	AG55xQ-EU	AG55xQ-NA	AG55xQ-JP (Planning)
<b>Antenna Interfaces</b>				
<b>Main</b>	× 1 (2G/3G/4G TRx0, n1/n3/n28 TRx0 SA, n41/n78/n79 Rx1)	× 1 (2G/3G/4G TRx0, n1/n3/n8/n20/n28 TRx0 SA/NSA, 4G B42 DRx0, n41/n78/DRx0)	× 1 (2G/3G/4G TRx0, n2/n5/n25/n66/n71 TRx0 SA/NSA, 4G B48 DRx0, n41/n78 DRx0)	× 1 (2G/3G/4G TRX, n78/n79 RX)
<b>Diversity</b>	× 1 (3G/4G DRx0, n1/n3/n28 DRx0, n41 DRx1, n78/n79 TRx0 SA/NSA)	× 1 (3G/4G/5G DRx0, n41 DRx1, 4G B42 TRx0, n78 TRx0 SA/NSA)	× 1 (3G/4G/5G DRx0, n41 DRx1, 4G B48 TRx0, n78 TRx0 SA/NSA)	× 1 (n77/n78/n79 TRX, 3G/4G DRX)
<b>MIMO3</b>	× 1 (4G MHB Rx1, n1/n3 Rx1, n41 TRx0 SA/NSA, n78/n79 DRx0)	× 1 (4G MHB Rx1, 4G B42 Rx1, n41 TRx0 SA/NSA, n1/n3/n78 Rx1)	× 1 (4G MHB Rx1, n41 TRx0 SA/NSA, 4G B48 Rx1, n2/n25/n66/n78 Rx1)	× 1 (n1/n3 TRX, 4G/5G MIMO, B11/B21 TRX)
<b>MIMO4</b>	× 1 (4G MHB DRx1, n41 DRx0, n1/n3/n78/n79 DRx1)	× 1 (4G MHB DRx1, 4G B42 Rx1, n41 DRx1, n1/n3/n78 DRx1)	× 1 (4G MHB DRx1, 4G B48 DRx1, n41 DRx0, n2/n25/n66/n78 DRx1)	× 1 (4G/5G MIMO)
<b>DSDA - Main</b>	× 1 (2G/4G TRx0)	× 1 (2G/4G TRx0)	× 1 (2G/4G TRx0)	× 1 (2G/4G TRx0)
<b>DSDA - Diversity</b>	× 1 (3G/4G DRx0)	× 1 (3G/4G DRx0)	× 1 (3G/4G DRx0)	× 1 (3G/4G DRx0)
<b>C-V2X</b>	× 2 (TRx0/TRx1)	× 2 (TRx0/TRx1)	× 2 (TRx0/TRx1)	× 2 (TRx0/TRx1)
<b>GNSS</b>	× 1	× 1	× 1	× 1
<b>Voice</b>				
<b>Speech Codec Modes</b>	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
<b>Echo Arithmetic</b>	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
<b>VoLTE</b>	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)
<b>SMS</b>				
<b>Point-to-point MO and MT</b>	●	●	●	●
<b>SMS Cell Broadcast</b>	●	●	●	●
<b>Text and PDU Mode</b>	●	●	●	●
<b>Enhanced Features</b>				
<b>eCall</b>	●	●	●	●
<b>DFOTA</b>	●	●	●	●
<b>QuecOpen® (Open Linux)</b>	●	●	●	●
<b>PCIe for WLAN Function</b>	●	●	●	●
<b>UART/PCM for Bluetooth Function</b>	●	●	●	●
<b>(U)SIM Detection</b>	●	●	●	●
<b>Temperature Management</b>	●	●	●	●
<b>eSIM (eUICC)</b>	Optional	Optional	Optional	Optional
<b>Single-Frequency GNSS (GPS/GLONASS/BeiDou/Galileo/QZSS)</b>	Optional	Optional	Optional	Optional
<b>Dual-Frequency GNSS (L1 + L5)</b>	Optional	Optional	Optional	Optional
<b>PPE (RTK)</b>	Optional	Optional	Optional	Optional
<b>QDR 3.0 (External IMU Required)</b>	Optional	Optional	Optional	Optional
<b>High Security</b>	TrustZone TPM* (External HSM required) Secure Boot SELinux	TrustZone TPM* (External HSM required) Secure Boot SELinux	TrustZone TPM* (External HSM required) Secure Boot SELinux	TrustZone TPM* (External HSM required) Secure Boot SELinux
<b>ESD/EMI Protection</b>	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components
<b>Gigabit Ethernet</b>	Optional	Optional	Optional	Optional
<b>C-V2X TDD B47</b>	AG550Q/AG553Q	AG550Q/AG553Q	AG550Q/AG553Q	AG550Q/AG553Q
<b>DSDA (SIM2 for 2G/4G only)</b>	AG552Q/AG553Q	AG552Q/AG553Q	AG552Q/AG553Q	AG552Q/AG553Q
<b>1 GB NAND + 1 GB DDRAM</b>	Optional	Optional	Optional	Optional
<b>Drivers</b>				
<b>USB ECM Driver</b>	Linux 2.6–5.12	Linux 2.6–5.12	Linux 2.6–5.12	Linux 2.6–5.12
<b>USB RNDIS Driver</b>	Windows 7/8/8.1/10 Linux 2.6–5.12	Windows 7/8/8.1/10 Linux 2.6–5.12	Windows 7/8/8.1/10 Linux 2.6–5.12	Windows 7/8/8.1/10 Linux 2.6–5.12
<b>USB GobiNet Driver</b>	Linux 2.6–5.12	Linux 2.6–5.12	Linux 2.6–5.12	Linux 2.6–5.12
<b>USB QMI_WWAN Driver</b>	Linux 3.4–5.12	Linux 3.4–5.12	Linux 3.4–5.12	Linux 3.4–5.12
<b>USB Serial Driver</b>	Windows 7/8/8.1/10 Linux 2.6–5.12 Android 4.x–11.x	Windows 7/8/8.1/10 Linux 2.6–5.12 Android 4.x–11.x	Windows 7/8/8.1/10 Linux 2.6–5.12 Android 4.x–11.x	Windows 7/8/8.1/10 Linux 2.6–5.12 Android 4.x–11.x
<b>Electrical Features</b>				
<b>Supply Voltage Range</b>	<b>VBAT_BB/VBAT_RF:</b> 3.3–4.3 V, typ. 3.8 V <b>VBAT_C-V2X:</b> 4.75–5.25 V, typ. 5.0 V	<b>VBAT_BB/VBAT_RF:</b> 3.3–4.3 V, typ. 3.8 V <b>VBAT_C-V2X:</b> 4.75–5.25 V, typ. 5.0 V	<b>VBAT_BB/VBAT_RF:</b> 3.3–4.3 V, typ. 3.8 V <b>VBAT_C-V2X:</b> 4.75–5.25 V, typ. 5.0 V	<b>VBAT_BB/VBAT_RF:</b> 3.3–4.3 V, typ. 3.8 V <b>VBAT_C-V2X:</b> 4.75–5.25 V, typ. 5.0 V
<b>Power Consumption</b>	0.04 mA @ Power off 1.40 mA @ Sleep (typ.) 25.0 mA @ Idle	0.04 mA @ Power off 1.40 mA @ Sleep (typ.) 25.0 mA @ Idle	0.04 mA @ Power off 1.40 mA @ Sleep (typ.) 25.0 mA @ Idle	TBD @ Power off TBD @ Sleep (typ.) TBD @ Idle

**NOTE:**

- \*: under development.
- : supported.