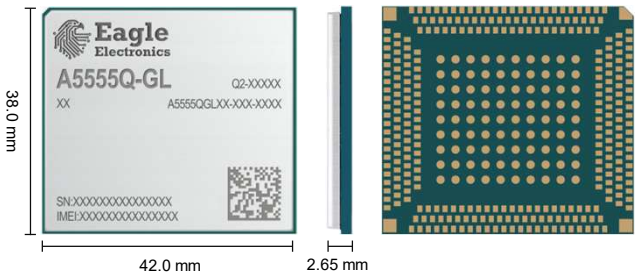
Eagle AG555Q-GL

IATF 16949 – Automotive Grade Automotive Grade 5G NR Module AEC-Q100 Qualified Chipset



AG555Q-GL is one of the 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 max. 2.4 Gbps downlink and 500 Mbps uplink data rates at 5G NSA mode, and max. 1.6 Gbps downlink and 200 Mbps uplink data rates at LTE-A. It provides abundant interfaces for customers to develop applications. Its excellent performance in ESD and EMI protection ensures great robustness in harsh environments.

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.

It 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, BDS, Galileo and QZSS) based on Qualcomm® IZat™ location technology Gen 9 VT, the module additionally supports dual-band GNSS, PPE (RTK) and QDR integrated navigation solutions. This greatly simplifies product design and provides quicker, more accurate and more dependable positioning capability.

With AG555Q-GL, 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), 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 and PPAP
- 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
- A great variety of navigation solutions (single or dual-frequency GNSS, PPE (RTK), QDR integrated navigation, etc.) ensure fast and accurate positioning in any environment
- Feature refinements: FOTA, VoLTE, TelSDK, High Security, etc.
- Wide extended temperature range (-40 °C to +85 °C) and high eCall operating temperature (up to +95 °C) meet the demanding requirements for automotive devices

5G NR Sub-6 GHz

LTE Cat 19

QDR + PPE (RTK) (Optional)

RGMII

eCall

Dual-Band GNSS (Optional)

PCIe 3.0 Interface

USB 3.0 Interface

EMAIL US: info@eagleeectronics.com VISIT US: www.eagleelectronics.com

Eagle A5555Q-GL

5G NR	AG555Q-GL
Region/Operator	Global
Dimensions	42.0 mm × 47.5 mm × 3.45 mm
Ordering Code	AG555QGLAB-M28-CGASA
MSL	MSL 3
Temperature Range	
Operating Temperature	-35 °C to +75 °C
Extended Temperature	-40 °C to +85 °C
eCall Operating Temperature	-40 °C to +95 °C
Frequency Bands	
5G SA	n1/2/3/5/7/8/12/14/20/25/26/28/38/40/41/48/66/71/77/78/79
5G NSA	n1/2/3/5/7/8/12/20/25/28/38/40/41/66/71/77/78/79
5G Refarming NSA	LB + MHB
UL MIMO	n77/78
HPUE	n77/78/79
LTE-FDD	B1/2/3/4/5/7/8/12/13/14/17/18/19/20/21/25/26/28/29①/30①/32①/66/71
LTE-TDD	B34/38/39/40/41/42/48
WCDMA	B1/2/3/4/5/6/8/9/19
GSM	900/1800/850/1900 MHz
Certifications	
Regulatory②	**Global:** GCF **Europe:** CE **North America:** PTCRB **America:** FCC **Canada:** IC **Mexico:** IFETEL **China:** SRRC/NAL/CCC **South Korea:** KC **Japan:** JATE/TELEC **Australia/New Zealand:** RCM
Carrier②	**America:** Verizon/AT&T/T-Mobile **Canada:** Telus **South Korea:** KT **Japan:** NTT DOCOMO **Australia:** Telstra
Data Transmission (Peak Rate)	
5G SA	2.8 Gbps (DL)/900 Mbps (UL)
5G NSA	2.4 Gbps (DL)/500 Mbps (UL)
LTE-FDD	1.6 Gbps (DL)/200 Mbps (UL)
LTE-TDD	1.4 Gbps (DL)/120 Mbps (UL)
DC-HSDPA/HSUPA	42 Mbps/5.76 Mbps
WCDMA	384 kbps (DL)/384 kbps (UL)
EDGE	296 kbps (DL)/236.8 kbps (UL)
GPRS	107 kbps (DL)/85.6 kbps (UL)
Interfaces③	
USB 2.0/3.0	× 1
UART	× 3 (2-wire UART1, 4-wire Bluetooth UART, 2-wire Debug UART)
(U)SIM	× 2
PCIe 3.0	× 1
I2C	× 1
I2S	× 1
Digital Audio (PCM)	× 0 (Occupied by 2nd NAND design)
SDIO	× 1 (4-bit)
ADC	× 0 (4 ADC channels occupied by antenna detection design)
RGMII	× 1
SPI	× 2
RESET_N	× 1 (Reset the module)
MIPI	× 2 (for RF)
GPIO	× 15

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Eagle A5555Q-GL

5G NR	AG555Q-GL
Antenna Interfaces	
Main	× 1 (2G/3G/4G MHB TX/PRX; 5G (SA) MHB TX/PRX; 5G (SA) n77/78 TX MIMO/PRX MIMO; 5G (NSA) n41/77/78 TX @ LTE LB; 5G (Reframing NSA) MHB TX @ LTE LB; 3G/4G LB DRX; 4G B42/48 PRX MIMO; 5G (SA) LB DRX; 5G (SA) n48/79 PRX MIMO)
Diversity	× 1 (2G/3G/4G LB TX/PRX; 5G (SA) LB TX/PRX; 5G (Reframing NSA) LB TX @ LTE MHB; 3G/4G MHB DRX; 4G B42/48 DRX MIMO; 5G (SA) MHB DRX; 5G (SA) n48/77/78/79 DRX MIMO)
MIMO3	× 1 (4G B42/48 TX/PRX; 5G (SA) n48/77/78/79 TX/PRX; 5G n77/78/79 NSA TX @ LTE MHB; 4G/5G (SA) MHB PRX MIMO①)
MIMO4	× 1 (4G MHB DRX MIMO①; 4G B42/48 DRX; 5G (SA) MHB DRX MIMO; 5G (SA & NSA) n48/77/78/79 DRX)
GNSS (Optional)	× 1
Voice	
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression
VoLTE	Digital Audio and VoLTE (Voice over LTE)
SMS	
Point-to-point MO and MT	●
SMS Cell Broadcast	●
Text and PDU Modes	●
Enhanced Features	
eCall	●
FOTA	●
PCIe for WLAN Function	●
UART/PCM② for Bluetooth Function	●
(U)SIM Detection	●
Temperature Management	●
2nd NAND	●
Single-Band GNSS (GPS/GLONASS/BDS/Galileo/QZSS)	Optional
Dual-Band GNSS (L1 + L5)	Optional
PPE (RTK)	Optional
QDR 3.0 (External IMU Required)	Optional
High Security	TPM* (External HSM required) Secure Boot SELinux
ESD/EMI Protection	Realized through Internal Specific Circuits and Components
Drivers	
USB ECM Driver	Linux 2.6–6.5
USB RNDIS Driver	Windows 7/8/8.1/10/11, Linux 2.6–6.5
USB GobiNet Driver	Linux 2.6–6.5
USB QMI_WWAN Driver	Linux 3.4–6.5
USB Serial Driver	Windows 7/8/8.1/10/11, Linux 2.6–6.5
Electrical Features	
Supply Voltage Range	VBAT_BB/VBAT_RF: 3.3–4.3 V, typ. 3.8 V
Power Consumption (Typ.)	TBD @ Power off TBD @ Sleep TBD @ Idle

NOTE:
①: MIMO3 and MIMO4 are not supported by AG520R-CN, AG521R-CN, AG529R-CN and AG529R-EU, and optional for other module models.
②: C-V2X is supported by AG520R-CN/-EU/-NA/-JP. AG525R-GL does not support C-V2X. AG521R series and AG529R series do not support C-V2X by default.
③: AG529R-CN supports single-frequency GNSS L1 by default, but the module is designed to be compatible with dual-frequency GNSS.
* : under development.
●: supported.

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