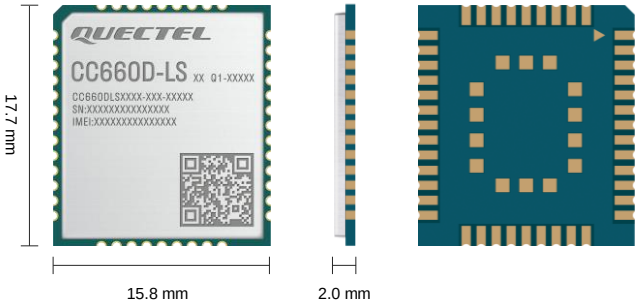
Quectel CC660D-LS

3GPP NTN Satellite Communication Module



CC660D-LS is a 3GPP NTN (Non-Terrestrial Network) satellite communication module which supports 3GPP Rel-17 (IoT-NTN) at L-band (B255) and S-band (B256/ 23) frequencies for satellite communications. With an ultra-compact form factor of 17.7 mm × 15.8 mm × 2.0 mm, it is a perfect choice for size-sensitive applications.

CC660D-LS adopts surface mount technology, which makes it an ideal solution for durable and rugged designs. The low profile and small size of the LCC + LGA package allow CC660D-LS to be easily embedded into space-constrained applications and provide reliable connectivity with the applications. This form factor is ideally suitable for mass production which has strict requirements for cost and efficiency.

The module can be easily integrated into any type of portable devices due to its compact size and low power consumption. CC660D-LS is suitable for applications such as messaging, tracking, and emergency services due to its highly integrated functionalities. It might also be used for the large-scale IoT applications such as power-grid, pipe and infrastructure management, maritime and logistics tracking.

Key Features

- NTN satellite communication module
- Ultra-low power consumption
- Super-high sensitivity
- Low voltage power supply: 2.2–3.6 V
- LCC + LGA package, easy for large-volume manufacturing
- Abundant embedded Internet service protocols
- QuecOpen®* supported to save the MCU

Compact Size

B23/ 255/ 256

Quectel Enhanced AT Commands

LCC + LGA Package

Multiple Serial Ports

Extended Operating Temperature: -40 °C to +85 °C

Embedded Internet Service Protocols

Version: 1.0 | Status: Released

Quectel CC660D-LS

Satellite Communication	CC660D-LS
Region/ Operator	Global ①
General Features	
Pins	58
Package	LCC + LGA
Dimensions	17.7 mm × 15.8 mm × 2.0 mm
Weight	1.2 ±0.2 g
Temperature Range	
Normal Operating Temperature	-35 °C to +75 °C
Extended Operating Temperature	-40 °C to +85 °C
Frequency Bands	
IoT-NTN	• L- Band (B255): UL: 1626.5–1660.5 MHz; DL: 1525–1559 MHz • S-Band (B256): UL: 1980–2010 MHz; DL: 2170–2200 MHz • S-Band (B23): UL: 2000–2020 MHz; DL: 2180–2200 MHz
Certification	
Satellite	Skylo
Regulatory	**Europe:** CE **America:** FCC **Australia/ New Zealand:** RCM **Canada:** IC
Satellite Transceiver	
Bandwidth	• UL single-tone and multi-tone • DL 200 kHz bandwidth
Data Transmission ②	• Single-tone with 15/ 3.75 kHz subcarrier: UL 5.8 kbps (15 kHz)/ 2.7 kbps (3.75 kHz) • Multi-tone with 15 kHz subcarrier: DL 8.3 kbps/ UL 8.6 kbps
Interfaces	
USIM	× 1
UART	× 3 (× 4 in QuecOpen®* solution)
RI*	× 1
ADC	× 1
RESET_N	× 1
USB	× 1
NET_STATUS*	× 1
PWRKEY	× 1
PSM_EINT	× 1
Antenna	× 1
SPI* ③	× 1
PWM* ③	× 4
I2C* ③	× 2
GPIO* ③	Configurable

Note:
1. ①: Only supported in Europe and North America currently. It is expected to be supported in Australia and Asia-Pacific regions in H1 2024.
2. ②: Reference data provided by the baseband chip platform.
3. ③: Supported in QuecOpen® solution only.
4. *: Under development.

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Satellite Communication	CC660D-LS
SMS	
Short Message Service (Point-to-Point MO and MT)	PDU Mode*
Enhanced Features	
DFOTA* (Delta Firmware Upgrade Over-The-Air)	●
RAI* (Release Assistance Indication)	●
E-CID* (Enhanced Cell ID)	●
OTDOA* (Observed Time Difference of Arrival)	●
Software Features	
Protocol Stack	IPv4/ UDP/ NIDD/ DNS
Firmware Upgrading Method	UART/ DFOTA*
AT Command	• 3GPP TS 27.007/ 3GPP TS 27.005 • Quectel Enhanced AT Commands
Electrical Characteristics	
Supply Voltage Range	2.2–3.6 V, typical 3.3 V
GPIO* Voltage	1.8 V
Maximum Transmitting Power	23 dBm ±2 dB
Sensitivity	-114 dBm ±1 dB
Power Consumption (Typical)	3.4 μA @ Deep Sleep 293 mA @ TX, 23 dBm (B255) 278 mA @ TX, 23 dBm (B256) 272 mA @ TX, 23 dBm (B23) 34 mA @ TX, 0 dBm (B255) 36 mA @ TX, 0 dBm (B256) 36 mA @ TX, 0 dBm (B23)

Note:

1. *: Under development.
2. ●: Supported; ○: Optional.

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