



Technical Specification Document

CQ20

LTE Cat 4 / 2G Module





Cavli C-Series CQ20 Module









LTE Cat 4/ 2G Module



CQ20 is an LTE Cat 4 module with 2G fall back compliant with 3GPP release 10 standards, designed for IoT and M2M applications. It delivers a maximum data rate of 150 Mbit/s DL & 50 Mbit/s UL. The module comes in a compact LGA form factor. CQ20 supports GNSS powered by Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou/Compass, Galileo and QZSS), ensuring precise positioning. Additionally, it supports VoLTE and SMS over IMS/SG/CS and a wide variety of Internet protocols and industry-standard hardware interfaces.

Featuring an optional integrated eSIM powered by Cavli Hubble platform, the module provides seamless global connectivity and wide coverage which helps to reduce the time to market. CQ20 is tailored for IoT applications such as asset tracking, automotive, e-mobility, data loggers, fleet management, environmental monitoring and much more.

Key features

 LTE Cat 4	 eSIM	 Cavli Hubble Platform	 Integrated GNSS	 USB 2.0 Interface	 2G fallback
 VoLTE Support	 SMS over IMS/SG/CS				

	CQ20-EA	CQ20-NA	CQ20-WW
Basic Information			
Region	EMEA, APAC	North America	Global
CPU	ARM Cortex-A7 @ 1.3 GHz	ARM Cortex-A7 @ 1.3 GHz	ARM Cortex-A7 @ 1.3 GHz
Memory	256 MB RAM 256/ 512 MB Flash	256 MB RAM 256/512 MB Flash	256 MB RAM 256/512 MB Flash
OS	Linux 4.14	Linux 4.14	Linux 4.14
Package	LGA + LCC	LGA + LCC	LGA + LCC
Pin Count	144	144	144
Dimensions	32 x 29 x TBD mm	32 x 29 x TBD mm	32 x 29 x TBD mm
Weight	TBD	TBD	TBD
Operating Temperature	-30 °C to +85 °C	-30 °C to +85 °C	-30 °C to +85 °C
Radio Frequency Bands			
RAT	Cat 4 GSM	Cat 4 GSM	Cat 4 GSM
Transmission Rates	Cat 4: DL 150 Mbps & UL 50 Mbps GSM (2G): DL 236.8 Kbps & UL 236.8 Kbps	Cat 4: DL 150 Mbps & UL 50 Mbps GSM (2G): DL 236.8 Kbps & UL 236.8 Kbps	Cat 4: DL 150 Mbps & UL 50 Mbps GSM (2G): DL 236.8 Kbps & UL 236.8 Kbps
LTE Bands GSM Bands	B1/ B3/ B5/ B8/ B20/ B40 900/ 1800MHz	B2/ B4/ B5/ B12/ B13/ B25/ B26/ B66 900/ 1800MHz	B1/ B3/ B4/ B5/ B7/ B8/ B12/ B13/ B18/ B19/ B20/ B25/ B26/ B40 900/ 1800MHz
3GPP Release	10	10	10
GNSS Capability			
GNSS (GNA Variant)	GPS/ GLONASS/ BeiDou/ Galileo QZSS Capable	GPS/ GLONASS/ BeiDou/ Galileo QZSS Capable	GPS/ GLONASS/ BeiDou/ Galileo QZSS Capable
Network Protocols			
Internet Protocols	TCP(S), HTTP(S), MQTT(S), FTP(S), UDP	TCP(S), HTTP(S), MQTT(S), FTP(S), UDP	TCP(S), HTTP(S), MQTT(S), FTP(S), UDP
Interfaces			
UART	x3	x3	x3
USB 2.0 (HS)	x1	x1	x1
HSIC	x1	x1	x1
WLAN/BT (External)	x1	x1	x1
SDC	x2	x2	x2
USIM (1.8V / 2.85V)	x1	x1	x1
Network Status Indicator	x2	x2	x2
Power ON Status Indicator	x1	x1	x1
SGMII	x1	x1	x1
I2C ²	x1	x1	x1

¹Optional

²Needs SDK

³In Progress

	CQ20-EA	CQ20-NA	CQ20-WW
ADC	x2	x2	x2
PCM ²	x1	x1	x1
JTAG	x1	x1	x1
Main ANT	x1	x1	x1
GNSS ANT	x1	x1	x1
Diversity ANT	x1	x1	x1

Electrical Characteristics

Operating Voltage	Range: 3.6 V to 4.5 V Typical: 3.8 V	Range: 3.6 V to 4.5 V Typical: 3.8 V	Range: 3.6 V to 4.5 V Typical: 3.8 V
TxD Peak	TBD	TBD	TBD
TxD Idle	TBD	TBD	TBD
GNSS (Fix)	TBD	TBD	TBD

Enhanced Features

VoLTE	Yes	Yes	Yes
SMS - IMS	Yes	Yes	Yes
SMS - SG	Yes	Yes	Yes
SMS - CS	Yes	Yes	Yes

Driver Support

USB Driver	RNDIS/ CDC-ECM/ RMNET/ MBIM/ DUN	RNDIS/ CDC-ECM/ RMNET/ MBIM/ DUN	RNDIS/ CDC-ECM/ RMNET/ MBIM/ DUN
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Certifications

Regulatory	Global: GCF ³ Europe: CE ² Taiwan: NCC ²	Global: GCF ³ North America: PTCRB ³ America: FCC ³ Canada: IC ³	Global: GCF ³ North America: PTCRB ³ America: FCC ³ Canada: IC ³
Carrier	TBD	Verizon ³ /AT&T ³ /TMobile ³	Verizon ³ /AT&T ³ /TMobile ³
Others	RoHS / REACH	RoHS / REACH	RoHS / REACH

Other Features

Integrated eSIM + Cavli Hubble Global Connectivity and Device Management Platform	Optional	Optional	Optional
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¹Optional

²Needs SDK

³In Progress

This document is a pre-release version. Some of the technical specifications are subject to change.

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