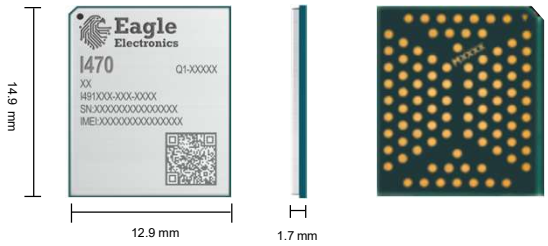
Eagle I470

LTE Cat M1/ Cat NB2 Module



I470 is an ultra-compact LPWA module supporting LTE Cat M1/Cat NB2 and integrated GNSS. It is 3GPP Rel-14 compliant and offers maximum data rates of 588 kbps downlink and 1119 kbps uplink under LTE Cat M1. It features ultra-low power consumption by leveraging the integrated RAM/flash as well as the ARM Cortex A7 processor supporting ThreadX, achieving up to 70 % reduction in PSM leakage and 85 % reduction in eDRX current consumption compared to its predecessor.

I470 boasts a comprehensive set of hardware-based security features and enables trusted applications to run directly on the Cortex A7 Trust Zone engine. With an ultra-compact SMT form factor of 14.9 mm × 12.9 mm × 1.7 mm and high integration level, I470 enables integrators and developers to easily design their applications and take advantage from the module's low power consumption and mechanical intensity. Its advanced LGA package allows fully automated manufacturing for high-volume applications.

A rich set of Internet protocols, industry-standard interfaces and abundant functions extend the applicability of the module to a wide range of M2M applications such as wireless POS, smart metering, tracking, wearable devices, etc.

Key Features

- LTE Cat M1/Cat NB2 module with ultra-low power consumption
- Supports DFOTA
- Main antenna and GNSS antenna (Optional)
- Integrated RAM/flash in the baseband chipset
- Robust mounting and interfaces
- Comprehensive set of hardware-based security features
- Compact SMT form factor ideal for size-constrained applications with tight space

LTE Cat M1 & Cat NB2

EGPRS

LGA Package

Embedded Abundant Protocols

DFOTA

Enhanced AT Commands

USB 2.0 High Speed Interface

Integrate RAM/ Flash in Chipset

Ultra-low Power Consumption

Version: 1.0 | Status: Preliminary

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LPWA	I470
Region/Operator	Global
Dimensions (mm)	14.9 x 12.9 x 1.7
Weight (g)	Approx. 0.73
Temperature Range	
Operating Temperature	-35 °C to +75 °C
Extended Temperature	-40 °C to +85 °C
Frequency Bands	
LTE-FDD	
Cat M1:	B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 18/ 19/ 20/ 25/ 26/ 27/ 28/ 66/ 85
Cat NB2:	B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 18/ 19/ 20/ 25/ 28/ 66/ 71
GNSS (Optional)	GPS/GLONASS/BDS/Galileo/QZSS
Certifications	
Carrier	**America**: Verizon/ AT&T/ T-Mobile
Regulatory	**Global**: GCF **North America**: PTCRB **America**: FCC **Canada**: IC
Others	WHQL/RoHS
Max. Data Rates	
LTE-FDD (kbps)	588 (DL), 1119 (UL)
NB-IoT (kbps)	127 (DL), 158.5 (UL)
Interfaces	
(U)SIM	× 1 (1.8 V only)
UART	× 3
USB 2.0	× 1
PCM	× 1
I2C	× 1
ADC	× 2
RESET	× 1
GPIO	× 7
Antenna	× 2 (for main antenna and GNSS antenna, respectively)
Software Features	
Protocols	PPP/ TCP/ UDP/ SSL/ TLS/ FTP(S)/ HTTP(S)/ NITZ/ PING/ MQTT/ LwM2M/ CoAP/ IPv6/ DNS NTP
USB Serial Driver	Windows 8.1/10/11 Linux 2.6-6.7 Android 4.x-13.x
GNSS/RIL Driver	Android 4.x-13.x
Enhanced Features	
DFOTA	●
QuecOpen	●
QuecLocator	Cell ID Positioning
Electrical Features	
Supply Voltage Range	2.6–4.8 V, typ. 3.3 V
Max Output Power (dBm)	Power Class 5, 21 @ LTE Bands
Power Consumption @ LTE Cat M1	**Sleep Mode:** 1.63 mA @ DRX = 1.28 s, 0.76 @ e-I-DRX = 81.92 s **Idle Mode:** 20 mA@ DRX = 1.28 s, 19.57 @ e-I-DRX = 81.92 s **Active Mode:** 228 mA@ 21 dBm, GNSS off
Power Consumption @ LTE NB IoT	**Sleep Mode:** 1.5 @ DRX = 1.28 s, 0.79 @ e-IDRX = 81.92 s **Idle Mode:** 14.2 @ DRX = 1.28 s, 14.1 @ e-I-DRX = 81.92 s **Active Mode:** 165 mA @ 21 dBm, GNSS off

NOTE:
●: supported.

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