GAINSTRONG
Minibox-LTE V1.0_SPEC_EN

Specification Version 1.0.1

Author：kary

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Rev.	Date	Contents of Revision Change	Remark
1.0.0	2018-04-12	First Initial	James
1.0.1	2018-08-11	Update the picture	kary

1 PRODUCT DESCRIPTION

The Minibox-LTE V1.0 is an exquisite portable and small wireless 4G/LTE router which designed for those who use mobile devices like smart phone, PADs, notebook to surf the internet.The Router based on Qualcomm QCA9531,Which supported well by OPENWRT/LEDE has 2 FE RJ45 ports which support both wired connection and wireless connection at the same time.it allows users not only able to share their internet by wired connection but also wireless connection.

The Minibox-LTE V1.0 Wi-Fi link is a 2T2R 802.11b/g/n 300Mbps solution. The Wi-Fi link is highly integrated, and includes an energy efficient on-board power amplifier and LNA.   For the 2.4 GHz band, RF switches are also integrated. The Minibox-LTE V1.0 Wi-Fi link is optimized for low system cost, and minimizes the number and cost of any components required to achieve a reliable Wi-Fi link.

EC25 series is Quectel's new generation of LTE category-4 module, optimized specially for M2M and IoT applications. Adopting the 3GPP Rel. 10 LTE technology, it delivers 150Mbps downlink and 50Mbps uplink data rates.

The Product to a wide range applications such as Router, AP, Rugged tab-let, Automotive, Live Video Streaming, Security and IOT/M2M.

2 FEATURES

- Qualcomm QCA9531 with 650MHZ MIPS 24Kc
- IEEE 802.11b/g/n 2x2 2.4 GHz 300Mbps WiFi
- DDR2:64MB/128MB optional
- Flash:16MB/8MB optional
- Ethnet Port: 1 * 10/100M Wan Port & 1 * 10/100M Lan Port
- Power Sypply: 1 * Micro USB(DC 5V/1A Input)
- 1 * NANO SIM Card Solt.
- 1 * 4G/LTE Build-in Module(Regions and countries can be Select)
- 1* 4G/LTE Power On/Off Switch
- 2.4G WiFi Antenna(build-in shell) + 1* 4G/LTE Antenna(build-in shell)
- Status LED: 1 * System status LED, 1 * 4G/LTE Status LED
- 1 * Reset Button(for flash fw in uboot or factory reset)
- Dimensions: 64mm x 44.5mm x22.3mm(L x W x H)
- OS: Openwrt/LEDE/QSDK
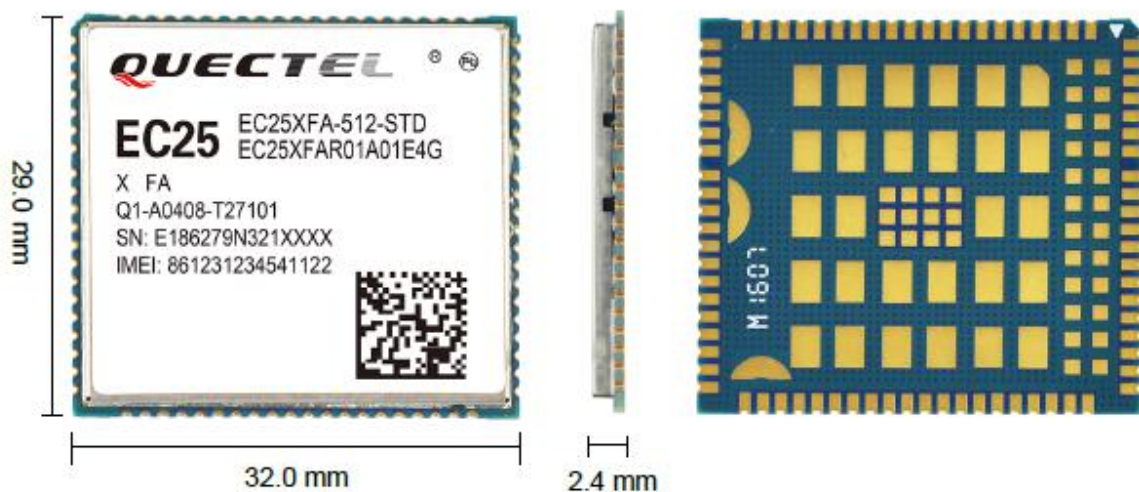- U-Boot: in chlude web to flash U-Boot/OS

3 PICTURES

4 4G/LTE(EC25) GENERAL FEATURES

Frequency Bands	EC25-E	FDD LTE: B1/B3/B5/B7/B8/B20
		TDD LTE: B38/B40/B41
		WCDMA: B1/B5/B8
		GSM: 900/1800
	EC25-V	FDD LTE: B4/B13
	EC25-A	FDD LTE: B2/B4/B12
		WCDMA: B2/B4/B5
	EC25-AUT	FDD LTE: B1/B3/B5/B7/B28
		WCDMA: B1/B5
LTE Version	3GPP E-UTRA Release 10	
Bandwidth	1.4/3/5/10/15/20MHz	
Antenna	DL MIMO, supports Rx-diversity	
Supply Voltage Range	3.3V~ 4.3V, 3.8V Typ.	
Operation Temperature	-40°C ~ +85°C	
Dimensions	32.0mm×29.0mm×2.4mm	
Package	LCC	
Weight	Approx. 4.6g	
Control via AT Commands	3GPP TS27.007 and enhanced AT Commands	

Specifications

	LTE	LTE-FDD Max 150Mbps (DL) Max 50Mbps (UL)
		LTE-TDD Max 130Mbps (DL) Max 35Mbps (UL)
	DC-HSPA+	Max 42Mbps (DL) Max 5.76Mbps (UL)
Data	UMTS	Max 384Kbps (DL) Max 384Kbps (UL)
	TD-SCDMA	Max 4.2Mbps (DL) Max 2.2Mbps (UL)
	EDGE	Max 236.8Kbps (DL) Max 236.8Kbps (UL)
	GPRS	Max 85.6Kbps (DL) Max 85.6Kbps (UL)
Voice	Speech Codec Modes	HR, FR, EFR, AMR, AMR-WB
eCall *	Accident, Emergency Services	
VoLTE	Digital Audio and VoLTE (Voice over LTE) (Optional)	
Protocols	TCP/UDP/PPP/FTP*/HTTP*/SMTP*/MMS*/NTP/ PING/DTMF*/FILE*/CMUX*/QMI	

5 4G/LTE MODEL SELECTION GUIDE

Frequency		EC25-E	EC25-A	EC25-V	EC25-AUT	EC25-AU	EC25-AUTL	EC25-J	EC20-C R2.1	EC20-CE R2.1
LTE	FDD-LTE	B1/ B3/ B5/ B7/ B8/ B20	B2/ B4/ B12	B4/ B13	B1/ B3/ B5/ B7/ B28	B1/ B2[①]/ B3/ B4/ B5/ B7/ B8/ B28	B3/ B7/ B28	B1/ B3/ B8/ B18/ B19/ B26	B1/ B3/ B8	B1/ B3/ B5/ B8
	TDD-LTE	B38/ B40 /B41				B40		B41	B34/ B38/ B39/ B40/ B41	B34/ B38/ B39/ B40/ B41
3G	WCDMA	B1/ B5/ B8	B2/ B4/ B5		B1/ B5	B1/ B2/ B5/ B8		B1/ B6/ B8/ B19	B1/ B8	B1/ B8
GSM/EDGE		B3/ B8				B2/ B3/ B5/ B8			B3/ B8	B3/ B8
Embedded GNSS		Optional	Optional	Optional	Optional	Optional		Optional	Optional	Optional
Wi-Fi Interface		Y	Y	Y	Y	Y		Y	Y	Y
Region		EMEA, Korea, Thailand, India	America	America	Australia	Latin America, ANZ, Taiwan		Japan	China	China, India
Certification		CE/ GCF/ KC/ SKT/ NBTC/ Vodafone/ FAC	FCC/ PTCRB/ IC/ ROGERS/ AT&T	FCC/ GCF/ Verizon	RCM	RCM/ NCC/ Anatel		JATE/ TELEC/ Docomo*/ Softbank	CCC/ SRRC/ NAL	CCC/ SRRC/ NAL

6 WIFI RF SPECIFICATIONS

QCA9531 RF0 Test Report				
802.11 g 54Mbps	**TX EVM(dB)**	**TX Power(dBm)**	**TX Freq Error(ppm)**	**RX Sensitivity(dBm) 10% PER**
2412	-35.1	14.9	0.5	-72
2437	-33.1	14.9	0.5	-72
2462	-32.2	14.9	0.5	-72
802.11 n HT20 MCS-7	**TX EVM(dB)**	**TX Power(dBm)**	**TX Freq Error(ppm)**	**RX Sensitivity(dBm) 10% PER**
2412	-33.0	13.6	0.5	-69
2437	-31.2	13.5	0.5	-69
2462	-30.2	13.9	0.5	-69
802.11 n HT40 MCS-7	**TX EVM(dB)**	**TX Power(dBm)**	**TX Freq Error(ppm)**	**RX Sensitivity(dBm) 10% PER**
2422	-32.4	12.7	0.5	
2442	-29.9	12.2	0.5	
2462	-30.9	12.5	0.5	

QCA9531 RF1 Test Report				
802.11 g 54Mbps	**TX EVM(dB)**	**TX Power(dBm) ±2dBm**	**TX Freq Error(ppm)**	**RX Sensitivity(dBm) 10% PER**
2412	-30.4	14.9	0.5	-72
2437	-29.5	14.9	0.5	-72
2462	-28.5	15.0	0.5	-72
802.11 n HT20 MCS-7	**TX EVM(dB)**	**TX Power(dBm) ±2dBm**	**TX Freq Error(ppm)**	**RX Sensitivity(dBm) 10% PER**
2412	-30.2	14.1	0.5	
2437	-29.9	14.0	0.5	
2462	-28.6	14.1	0.5	
802.11 n HT40 MCS-7	**TX EVM(dB)**	**TX Power(dBm) ±2dBm**	**TX Freq Error(ppm)**	**RX Sensitivity(dBm) 10% PER**
2422	-29.0	13.3	0.5	
2442	-29.6	13.0	0.5	
2462	-29.0	12.9	0.5	

7 MECHANICAL

Dimensions (mm)	Length	Width	Height
	64	44.5	22.3
	(Tolerance:±0.2mm)	(Tolerance:±0.2mm)	(Tolerance:±0.2mm)

8 ENVIRONAMENT

Power Supply	DC 5V/1A
Operating Temperature	0℃ ~ 50℃
Storage Temperature	-40℃ ~ 70℃
Operating Humidity	10%~90% non-condensing
Storage Humidity	Storage Humidity: 5%~90% non-condensing
Certification	CE, FCC, RoHS,