

M17 Device description

Version 0.1 – Aug 26th 2009

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Part 15.21 statement

" Change or Modifications that are not expressly approved by the manufacturer could void the user's authority to operate the equipment. "

Part 15.105 statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Part 15 Class B Compliance

This device and its accessories comply with part15 of FCC rules.

Operation is subject to the following two conditions:

- (1) This device & its accessories may not cause harmful interference.
- (2) This device & its accessories must accept any interference received,
including interference that may cause undesired operation.

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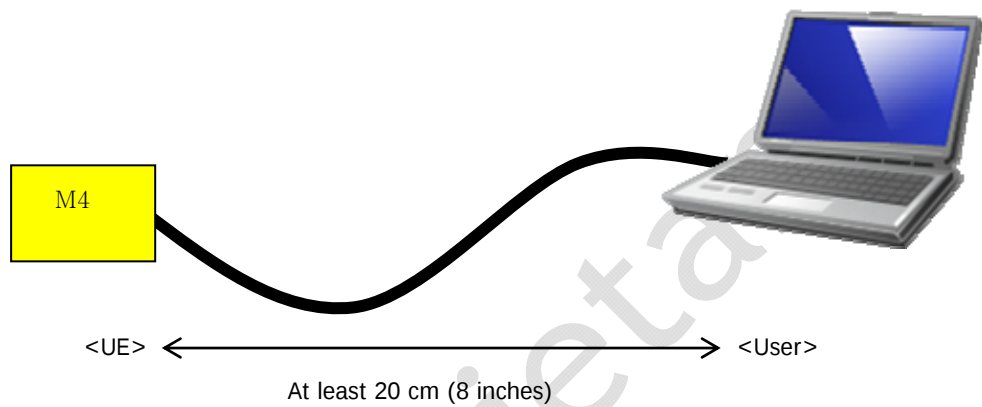
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Caution

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm (8 inches) between the equipment and the body must be maintained.



About This Document

Revision History

Version	Date	Comment	Author
0.1	2009-04-07	Initial Draft	Sang Ha Park

References

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General Description

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1.1 Feature

This document describes briefly the board level operations, key features and the environment of the M17 Platform. The purpose of this platform is the verification of LG LTE ASIC, namely 'L1000', and the evaluation of LG UE system performance. The further details about the characteristics and functions of L1000 are available on other documents.

<Table 1. M17 Device Feature>

Specification L				TE only	Remark
SW Date					
HW	General	Interface Spec.	LTE	USB 2.0 High Speed	
		External port		Micro USB 1 Port	
		Standard(SW ver.)	LTE	3GPP Rel. 8 (Dec. 2008)	
		Band support	LTE	3GPP Band 17	
		Main chipset	LTE	L1000 (by LGE)	
		Max. Data rate	LTE	DL 50Mbps / UL 25Mbps (Category2)	
		GPS Not		Support	
		Battery Support			
	Transmitter	Tx Diversity	LTE	Not support	UE Antenna Selection will not be supported
		Max. Tx Power	LTE	23 dBm	At antenna port
		Band Width	LTE	10MHz	

	Receiver	Modulation Method	LTE	Up to 16QAM	
		Rx Diversity	LTE	Support	
		MIMO L	TE	2x2 MIMO	Adaptive switching between downlink Transmit Diversity and SU MIMO
		Band width	LTE	10MHz	
		Modulation Method	LTE	Up to 64QAM	
SW	Interface	Interface protocol	LTE USB	Ethernet	
		USB Driver	LTE	3 Ports (Data, DM, Control)	
		Downloading Tool		Support	Downloading tool for field upgrade through USB port
		DM (Diagnostic Monitor)		Support	LGE tool for LTE
	System selection	Preferred system selection		Support 'LTE only' mode	
		Support System		LTE only	
		PRL/PLMN List	LTE Support	PLMN	
	Authentication & Identity	User Identity Module (IMSI)	LTE Device		
		Authentication	LTE Not	Support	
		Numbering & Identities		NAI based upon the IMSI 11digit MDN	
	IP support	IPv4/6 dual IP stack	LTE	Support for IPv4/6 (need to test with Network)	
		DHCP L	TE	N/A	
			LTE	Proxy mobile IPv4/6	

		QoS			
		Active handoff	LTE Support		
	QoS	Idle handoff	N/A	Non optimized handover	
			N/A	Non optimized handover	
	IRAT handoff	IRAT measurement		N/A	
		Dimensions (W xD xH)		185 x 133.9 x 22.8 mm	
		Weight 420g			
Mechanical	Mechanical	Antenna Internal		Antenna (MIMO)	

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Mechanical description

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2.1 Dimension

M17 Mechanical dimension is 133.9 x 185 x 22.8mm.

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Functional description

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3.1 External connector description

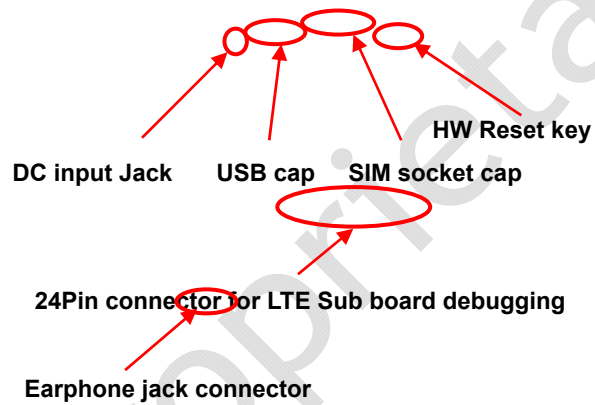
LTE device has several external connectors.

DC input jack connector: External Power source, 5V TA

USB connector: USB Connect to Host (PC)

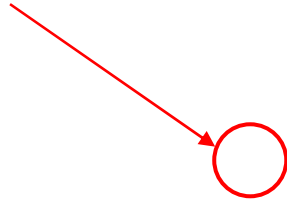
SIM socket: for LTE Authentication

24Pin connector: For debug LTE Sub board

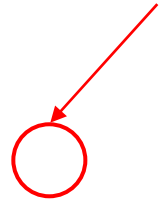


3.2 External RF connector description

LTE MIMO ANT mobile SW



LTE Main ANT mobile SW



LTE device has 2 external RF connectors in order to measure wired RF performance characteristic.

It is configured that LTE RF front-end part is two external RF port; LTE main RF port and LTE MIMO RF port.

If you want to test wired LTE RF performance, you can use this external RF port(mobile switch).

3.3 Antenna description

M4 Device LTE Antenna: MIMO Antenna

Type: Carrier & PIFA

Directive: Omni-directional

LTE Band 7 Support: UL; 704~716(MHz), DL;734~746(MHz)

Max power: 2W(Maximum)

Primary Ant. : 1TX and 1RX

Secondary Ant.: 1RX

3D Primary Antenna Gain: -2.00dBi(Average)

3D Secondary Antenna Gain: -2.40dBi(Average)

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3.4 External Power description

To operate and charge the battery, plug the AC Adapter into a standard wall outlet and connect it to the LTE trial device via the DC input jack Connector.

External power supply is DC input jack or TA. This power supply specification is below.

Input Voltage & Current

	Min.	Normal	Max.
Input Voltage	90Vac	100-240Vac	264Vac
Input Frequency	47Hz	50/60Hz	63Hz

Output Voltage & Current

3.1.1	5.0Vdc	Min. Value	Typical	Max. Value	
3.1.2	Output Voltage	4.7Vdc	5.0Vdc	5.3Vdc	0 ~ 3.0A Loading
3.1.3	Output Load	0.0A	—	3.0A	

3.5 Battery description

Our LTE Trial device has a battery is used for operating LTE modem part.

Battery Capacity for used in LTE is 2400mAh.

If the battery's charge is completely run down, it takes 6 to 7 hours to fully recharge.

But this battery capacity is not enough to operate LTE capability; you should external power supply, which is TA (Travel Adaptor). The mandatory power supply of the LTE UE is supplied by TA which is distributed by the LGE.

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