

M4 Device description

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LGE Proprietary

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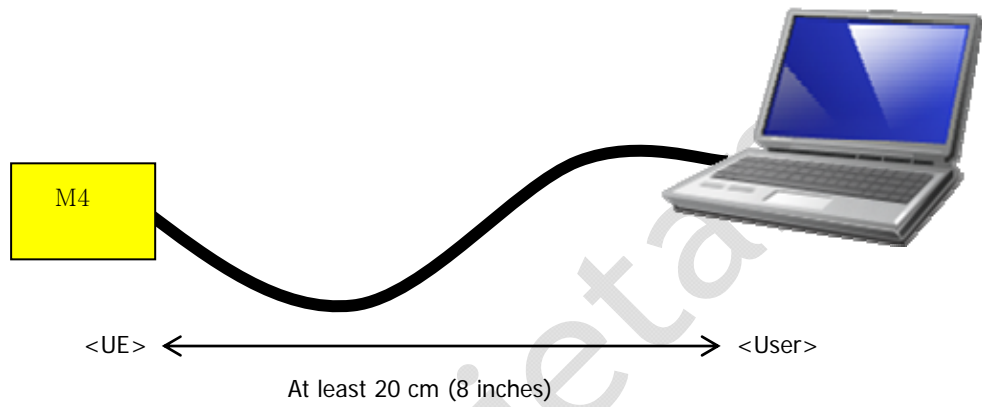
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Caution

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 M4 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. M4 Device Feature>

Specification				LTE only	Remark
SW Date				31-May-30	
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 4	
		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		

		Modulation Method	LTE	Up to 16QAM		
	Receiver	Rx Diversity	LTE	Support		
		MIMO	LTE	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	Prefered 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	LTE	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

M4 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

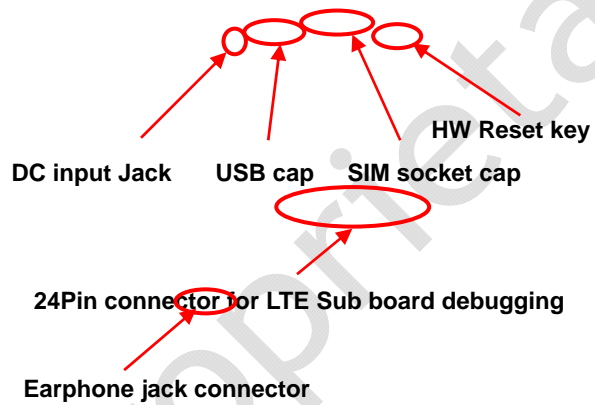
LTE device has several external connectors.

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

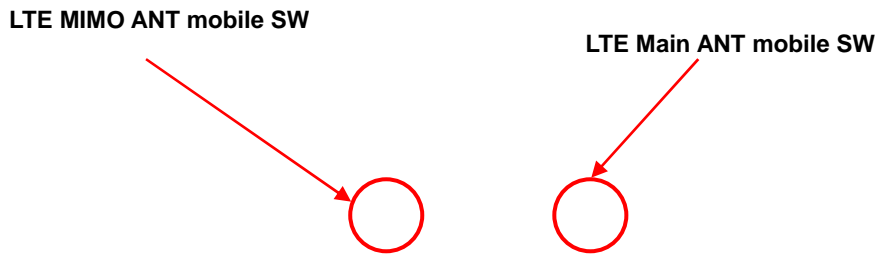
USB connector: USB Connect to Host (PC)

SIM socket: for LTE Authentication

24Pin connector: For debug LTE Sub board



3.2 External RF connector description



LTE 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).

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3.3 Antenna description

M4 Device LTE Antenna: MIMO Antenna

Type: Carrier & PIFA

Directive: Omni-directional

LTE Band 4 Support: UL; 1710~1755(MHz), DL;2110~2155(MHz)

Max power: 2W(Maximum)

Primary Ant. : 1TX and 1RX

Secondary Ant.: 1RX

3D Primary Antenna Gain: -1.32dB(Average)

3D Secondary Antenna Gain: -1.34(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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