FCC TEST REPORT

For

Shenzhen KVD Communications Equipment Limited

GSM/WCDMA Smartphone

Model No.: X9

Prepared for Address	:	Shenzhen KVD Communications Equipment Limited Room 13C, Block C,Electronics Science & Technology Building, Shennan Road Middle, Shenzhen City, Guangdong Province, China
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Date of receipt of test sample	:	October 12, 2016
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	October 12, 2016~October 23, 2016
Date of Report	:	October 23, 2016

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FCC PART 22/24 TEST REPORT

FCC Part 22 /Part 24

Report Reference No	: LCS1610120612E				
FCC ID	: 2AFPY-X9				
Date of Issue	: October 23, 2016				
	Shenzhen LCS Compliance Testing Laboratory Ltd.				
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	Shenzhen KVD Communications Equipment Limited				
Address	Room 13C, Block C,Electronics Science & Technology Building, Shennan Road Middle, Shenzhen City, Guangdong Province, China				
Test specification					
Stondard	FCC Part 22: PUBLIC MOBILE SERVICES				
Standard	FCC Part 22: PUBLIC MOBILE SERVICES FCC Part 24: PERSONAL COMMUNICATIONS SERVICES				
Test Report Form No	: LCSEMC-1.0				
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Shenzhen LCS Compliance Testing material. Shenzhen LCS Compliance liability for damages resulting from th placement and context. Test item description Trade Mark Model/Type reference Listed Models Ratings Modulation Hardware version	Laboratory Ltd. is acknowledged as copyright owner and source of the Testing Laboratory Ltd. takes no responsibility for and will not assume e reader's interpretation of the reproduced material due to its GSM/WCDMA Smartphone : DOOGEE : X9 : / : DC 3.80V : QPSK				
Shenzhen LCS Compliance Testing material. Shenzhen LCS Compliance liability for damages resulting from th placement and context. Test item description Trade Mark Model/Type reference Listed Models Ratings Modulation Hardware version	Laboratory Ltd. is acknowledged as copyright owner and source of the Testing Laboratory Ltd. takes no responsibility for and will not assume e reader's interpretation of the reproduced material due to its GSM/WCDMA Smartphone : DOOGEE : X9 : / : DC 3.80V : QPSK : W381_MB_V2.0 : DOOGEE-X9-Android6.0-R01-20161026				

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Supervised by:

Glin Lu/ Technique principal

Approved by:

Gavin Liang/ Manager

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Test Report No. :	L	CS1610120612E	October 23, 2016 Date of issue
Equipment under Test	:	GSM/WCDMA Smartpho	one
Model /Type	:	X9	
Listed Models	:	/	
Applicant	:	Shenzhen KVD Commu	unications Equipment Limited
Address	:	Room 13C, Block C,Elec Building, Shennan Road Guangdong Province, Cl	
Manufacturer	:	Shenzhen KVD Commu	unications Equipment Limited
Address	:	material industrial park, 2	puilding, Silicon valley power new Zongyi Road,Dafu industrial park, pad, Baoan district, Shenzhen City
Factory	:	Shenzhen KVD Commu	unications Equipment Limited
Address	:	material industrial park, 2	ouilding, Silicon valley power new Zongyi Road,Dafu industrial park, oad, Baoan district, Shenzhen City

TEST REPORT

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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Revison History

Revision	Issue Date	Revisions	Revised By
00	2016-10-23	Initial Issue	Gavin Liang

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1 <u>TEST STANDARDS</u>

The tests were performed according to following standards:

FCC Part 22 (10-1-16 Edition): PRIVATE LAND MOBILE RADIO SERVICES.
FCC Part 24(10-1-16 Edition): PUBLIC MOBILE SERVICES
TIA/EIA 603 D June 2010: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.
47 CFR FCC Part 15 Subpart B: - Unintentional Radiators
FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS
ANSI C63.4:2014: Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
FCCKDB971168D01 Power Meas License Digital Systems

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AFPY-X9

Report No.: LCS1610120612E

2 <u>SUMMARY</u>

2.1 General Remarks

Date of receipt of test sample	:	October 12, 2016
Testing commenced on	•••	October 23, 2016
Testing concluded on	:	October 23, 2016

2.2 Product Description

The **Shenzhen KVD Communications Equipment Limited**'s Model: X9 or the "EUT" as referred to in this report; more general information as follows, for more details, refer to the user's manual of the EUT.

Model Number X9. Model Declaration PCB board, structure and internal of these model(s) are the same, So no additional models were tested Test Model X9 Hardware version DOOGEE-X9-Android6.0-R01-20161026 Android version 6.0 GSM/EDGE/GPRS Operation GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900 UMTS Operation Frequency Band UMTS FDD Band II/V GSMREDGE/GPRS Supported GSM/GPRS/EDGE GSMREDGE/GPRS Supported GSM/GPRS/EDGE GSM850/PCS1900/FDQ:Power Class 1 GPRS/EDGE Multisol Class GSM850/POwer Class 4/ PCS1900:Power Class 1 GPRS/EDGE Multisol Class GSM850/POwer Class 12 GPRS/DEGE Multisol Class GSM850/POwer Class 12 GPRS/EDGE Multisol Class GSM850/POwer Class 12 GPRS/DEA Release Version R99 HSDPA Release Version R99 DC-HSUPA Release Version R99 DCHSUPA Release Version R99 DCHSUPA Release Version R99 UMTS Dover Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE, QPSK for UMTS WLAN FCC Operation frequency Level 3	Name of EUT	GSM/WCDMA Smartphone
Model Declaration PCB board, structure and internal of these model(s) are the same, So no additional models were tested Test Model X9 Hardware version W381_MB_V2.0 Software version DOOCEEE-X9-Android6.0-R01-20161026 Android version 6.0 GSM/EDGE/GPRS Operation GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900 Frequency Band UMTS FDD Band II/V GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Power Class GSM850:Power Class 4/ PCS1900:Power Class 1 GPRS/EDGE Multislor Class GPRS/EDGE GSM/EDGE/GPRS Power Class GSM850:Power Class 12 GPRS/EDGE Multislor Class GPRS/EDGE MCDMA Release Version R99 HSDPA Release Version R99 MCDHA Release Version R99 MCDHA Release Version Not Supported WLAN FCC Operation frequency IEEE 802.111/2412.2462MHz IEEE 802.111/2412.2462MHz IEEE 802.111/2412.2462MHz IEEE 802.111/2412.2462MHz IEEE 802.111/2412.2462MHz IEEE 802.111/2412.2462MHz IEEE 802.111/2412.2462MHz <td></td> <td></td>		
Model No. Test Model X9 Hardware version W381_MB_V2.0 Software version DOOGEE-X9-Android6.0-R01-20161026 Android version 6.0 GSM/EDGE/GPRS Operation Frequency Band GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Power Class GSM850/PCS1900/GPRS/EDGE GPRS/EDGE/Multislot Class GPRS/EDGE GDAA Release Version R99 HSDPA Release Version R99 HSDPA Release Version R99 DC-HSUPA Release Version R04 Supported UMTS Power Class Level 3 Modiation Type GMSK for GSM/GPRS, 8-PSK for EDGE,QPSK for UMTS WLAN FCC Operation frequency IEEE 802.11b: 202.212.2462MHz IEEE 802.11b: 202.212.2462MHz IEEE 802.11b: DSSS(
Hardware version W381_MB_V2.0 Software version DOOGEE-X9-Android6.0-R01-20161026 Android version 6.0 GSM/EDCE/GPRS Operation GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900 UMTS Operation Frequency Band UMTS FDD Band II/V GSM/EDCE/GPRS Supported GSM/GPRS/EDGE GSM/EDCE/GPRS Supported GSM/GPRS/EDGE GSM/EDCE/GPRS Power Class GSM850/Power Class 12 GPRS/EDGE Multislot Class GPRS/EDGE: GPRS/EDGE Multislot Class GPRS/EDGE: MCDMA Release Version R99 HSDPA Release Version R99 HSDPA Release Version R99 MCJUAR Release Version R99 MCJUAR Release Version R99 DC-HSUPA Release Version R99 MCJUAR Release Version R99 MCJUAR Release Version R99 MUTS Power Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE,QPSK for UMTS WLAN FCC Operation frequency IEEE 802.119: 2412-2462MHz IEEE 802.119: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.1111: OFDM (64QAM, 16QAM, QPSK, BPSK) IEE		no additional models were tested
Software version DOOGEE-X9-Android6.0-R01-20161026 Android version 6.0 GSM/EDGE/GPRS Operation GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900 UMTS Operation Frequency Band UMTS FDD Band II/V GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Power Class GSM850:Power Class 1 GPRS/EDGE Multislot Class GPRS/EDGE: Multi-slot Class 12 GPRS operation mode Class B WCDMA Release Version R99 HSDPA Release Version R99 HSDPA Release Version R99 MCDHA Release Version R99 MSUPA Release Version R99 MSUPA Release Version R99 MODIA Release Version R99 MODIA Release Version R99 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE, QPSK for UMTS WLAN FCC Operation frequency IEEE 802.11b/2012/402.2462MHz IEEE 802.11b/212.2462MHz IEEE 802.11b/2012/412.2462MHz IEEE 802.11b/ DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b/2012/412.2462MHz IEEE 802.11b/2012/2012/412.2462MHz IE	Test Model	X9
Android version 6.0 GSM/EDGE/GPRS Operation GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900 IVMTS Operation Frequency Band UMTS FDD Band II/V GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Power Class GSM850/Power Class 4/ PCS1900:Power Class 1 GPRS/EDGE/Multislot Class GPRS/EDGE GPRS/EDGE/Multislot Class GPRS/EDGE MCDMA Release Version R99 HSDPA Release Version R99 Not Supported UMTS Power Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE, QPSK for UMTS WLAN FCC Operation frequency IEEE 802.11b:2412-2462MHz IEEE 802.11b:2412-2462MHz IEEE 802.11b:2412-2462MHz IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS(CCK, DQPSK, DSSK) IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK)	Hardware version	W381_MB_V2.0
GSM/EDGE/GPRS Operation Frequency Band GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900 UMTS Operation Frequency Band UMTS FDD Band II/V GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM Release Version R99 GSM/EDGE/GPRS Power Class GFRS/EDGE: Multi-slot Class 12 GPRS/EDGE Multislot Class GFRS/EDGE: Multi-slot Class 12 GPRS operation mode Class B WCDMA Release Version R99 HSDPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version R99 MCIAN FOC Operation frequency GMSK for GSM/GPRS, 8-PSK for EDGE,QPSK for UMTS WLAN Supported 802.11b/802.11g/802.11n WLAN FCC Operation frequency IEEE 802.11b:2412-2462MHz IEEE 802.110: L12:2412-2462MHz IEEE 802.11n HT40:2422-2452MHz WLAN FCC Modulation Type IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK,BPSK) IBuetooth Supported BT 4.0/BT 3.0+EDR Bluetooth Modulation Type GFSK,mr4D	Software version	DOOGEE-X9-Android6.0-R01-20161026
Frequency Band GSM850/PCS1900/GPRS350/GPRS1900/EDGE350/EDGE1900 UMTS Operation Frequency Band UMTS FDD Band II/V GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Power Class GSM850:Power Class 1 GPRS/EDGE Multislot Class GPRS/EDGE: Multi-slot Class 12 MCDM Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version Not Supported UMTS Power Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE, QPSK for UMTS WLAN FCC Operation frequency IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSS	Android version	6.0
Frequency Band GSM850/PCS1900/GPRS350/GPRS1900/EDGE350/EDGE1900 UMTS Operation Frequency Band UMTS FDD Band II/V GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM/EDGE/GPRS Power Class GSM850:Power Class 1 GPRS/EDGE Multislot Class GPRS/EDGE: Multi-slot Class 12 MCDM Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version Not Supported UMTS Power Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE, QPSK for UMTS WLAN FCC Operation frequency IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11b: DSS	GSM/EDGE/GPRS Operation	
UMTS Operation Frequency Band UMTS FDD Band II/V GSM/Release Version R99 GSM/Release Version GPRS/EDGE: Multi-slot Class 12 GPRS/EDGE/Multislot Class GPRS/EDGE: Multi-slot Class 12 GPRS/EDGE Multislot Class GPRS/EDGE: Multi-slot Class 12 WCDMA Release Version R99 HSUPA Release Version R99 DC-HSUPA Release Version R99 MSUPA Release Version R99 MCLAN Supported WLAN Supported 802.11b/802.11g/802.11n WLAN Supported 802.11b/802.11g/802.11n WLAN FCC Operation frequency IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) </td <td></td> <td>GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900</td>		GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900
GSM/EDGE/GPRS Supported GSM/GPRS/EDGE GSM Release Version R99 GSM/EDGE/GPRS Power Class GPRS/EDGE GPRS/EDGE Multislot Class GPRS/EDGE: Multi-slot Class 12 GPRS operation mode Class 8 WCDMA Release Version R99 HSDPA Release Version R99 HSDPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version Not Supported UMTS Power Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE, QPSK for UMTS WLAN Supported 802.11b/202.11g/802.11n WLAN FCC Operation frequency IEEE 802.110:2412-2462MHz IEEE 802.110:110:122412-2462MHz IEEE 802.111: DSSS(CK, DQPSK, DBPSK) IEEE 802.110: DSSS(CCK, DQPSK, DBPSK) IEEE 802.111: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK, BPSK) IBLetooth Supported BT 4.0/BT 3.0+EDR Bluetooth Modulation Type GFSK		UMTS FDD Band II/V
GSM Release Version R99 GSM/EDGE/QPRS Power Class GSM850:Power Class 4/ PCS1900:Power Class 1 GPRS/EDGE Multislot Class GPRS/EDGE: Multi-slot Class 12 GPRS operation mode Class B WCDMA Release Version R99 HSDPA Release Version R99 DC-HSUPA Release Version R99 WLAN For Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE,QPSK for UMTS WLAN Supported 802.11b/802.11g/802.11n WLAN FCC Operation frequency IEEE 802.11b:2412-2462MHz IEEE 802.11n HT20:2412-2462MHz IEEE 802.11n HT20:2412-2462MHz IEEE 802.11n HT40:2422-2452MHz IEEE 802.11n HT40:2422-2452MHz WLAN FCC Modulation Type IEEE 802.111: DSSS(CCK,DQPSK,DBPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.111: OFDM (64QAM, 16QAM, QPSK,BPSK) IBuetooth Supported BT 4.0/BT 3.0+EDR Bluetooth Operation frequency 2402MHz-2480MHz </td <td></td> <td></td>		
GSM/EDGE/GPRS Power Class GSM850:Power Class 4/ PCS1900:Power Class 1 GPRS operation mode Class B WCDMA Release Version R99 HSDPA Release Version R99 HSDPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version Not Supported UMTS Power Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE,QPSK for UMTS WLAN Supported 802.11b/802.11g/802.11n WLAN Supported 802.11b/802.11g/802.11n WLAN FCC Operation frequency IEEE 802.11b: 2412-2462MHz IEEE 802.111n HT20:2412-2462MHz IEEE 802.111n HT20:2412-2462MHz WLAN FCC Modulation Type I1 Channels for WIFI 20MHz Bandwidth(802.11b/g/n-HT20) V Channels for WIFI 20MHz Bandwidth(802.11b/g/n-HT20) 7 Channels for WIFI 40MHz Bandwidth(802.11n-HT40) Bluetooth Supported BT 4.0/BT 3.0+EDR Bluetooth Modulation Type GFSK,m/4DQPSK, 8DPSK		
GPRS/EDGE Multislot Class GPRS/EDGE: Multi-slot Class 12 GPRS operation mode Class B WCDMA Release Version R99 HSDPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version R99 DC-HSUPA Release Version Not Supported UMTS Power Class Level 3 Modilation Type GMSK for GSM/GPRS, 8-PSK for EDGE,QPSK for UMTS WLAN Supported 802.11b/802.11g/802.11n WLAN FCC Operation frequency IEEE 802.11b:2412-2462MHz IEEE 802.11g:2412-2462MHz IEEE 802.11g:2412-2462MHz IEEE 802.11g:2412-2462MHz IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) WLAN FCC Channel Number 11 Channels for WIFI 20MHz Bandwidth(802.11b/g/n-HT20) 7 Channels for WIFI 40MHz Bandwidth(802.11b/g/n-HT20) 7 Channels for WIFI 40MHz Bandwidth(802.11b/g/n-HT20) 8luetooth Supported BT 4.0/BT 3.0+EDR Bluetooth Operation frequency 2402MHz-2480MHz Bluetooth Modulation Type GFSK,m/4DQPSK, 8DPSK		
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WLAN FCC Channel Number7 Channels for WIFI 40MHz Bandwidth(802.11n-HT40)BluetoothSupported BT 4.0/BT 3.0+EDRBluetooth Operation frequency2402MHz-2480MHzBluetooth Modulation TypeGFSK,π/4DQPSK, 8DPSKBluetooth Channel Number79 Channels for Bluetooth 4.0(DSS); 40 Channels for Bluetooth 4.0(DTS)GPS functionSupported and only RXAntenna TypePIFA AntennaAntenna Gain0dBi(max.) For GSM 850; 0dBi(max.) For PCS 1900OdBi(max.) For WCDMA Band II0dBi(max.) For WCDMA Band V0 dBi(max.) For WIFI/BT-30°C to +50°C	WLAN FCC Modulation Type	IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)
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Extreme temp. Tolerance -30°C to +50°C		0dBi(max.) For GSM 850; 0dBi(max.) For PCS 1900 0dBi(max.) For WCDMA Band II 0dBi(max.) For WCDMA Band V
	Extreme temp. Tolerance	
	Extreme vol. Limits	3.50VDC to 4.20VDC (nominal: 3.80VDC)

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2.3 Equipment under Test

Power supply system utilised

Power supply voltage	:	0	120V / 60 Hz	0	115V / 60Hz
		0	12 V DC	0	24 V DC
		•	Other (specified in blank bel	ow)

DC 3.80V

Test frequency list

Test Mode	TX/RX	RF Channel				
Test Wode	ΙΛ/ΚΛ	Low(L)	Middle (M)	High (H)		
	ТХ	Channel 4132	Channel 4183	Channel 4233		
WCDMA Band V	IA	826.4 MHz	836.6 MHz	846.6 MHz		
WCDIVIA Dallu V	RX	Channel 4357	Channel 4407	Channel 4458		
	۲A	871.4 MHz	881.4 MHz	891.6 MHz		
Test Mode	TX/RX	RF Channel				
Test Mode	ΙΛ/ΚΛ	Low(L)	Middle (M)	High (H)		
	ТХ	Channel 9262	Channel 9400	Channel 9538		
WCDMA Band II		1852.4 MHz	1880.0 MHz	1907.6 MHz		
	RX	Channel 9662	Channel 9800	Channel 9938		
	ΓΛ	1932.4 MHz	1960.0 MHz	1987.6 MHz		

2.4 Short description of the Equipment under Test (EUT)

2.4.1 General Description

X9 is subscriber equipment in the WCDMA/GSM /LTE system. The HSPA/UMTS frequency band is Band II/V, LTE frequency band is band 2, band 4; The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only Band II and Band V and GSM850 and PCS1900 bands test data included in this report. The Smart Phone implements such functions as RF signal receiving/transmitting, HSPA/UMTS, LTE and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and SIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

2.5 Internal Identification of AE used during the test

AE ID*	Description
AE1	Battery
AE2	Charger

AE2 Model: HY-YLF-0510 INPUT: AC100-240V 50/60Hz 0.35A OUTPUT: DC 5.0V 2.0A

*AE ID: is used to identify the test sample in the lab internally.

2.6 Normal Accessory setting

Fully charged battery was used during the test.

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2.7 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

• - supplied by the manufacturer

 $\, \odot \,$ - supplied by the lab

Ο	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
0	Multimeter	Manufacturer :	/
		Model No. :	/

2.8 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AFPY-X9 filing to comply with FCC Part 22 and Part 24.

2.9 Modifications

No modifications were implemented to meet testing criteria.

2.10 General Test Conditions/Configurations

2.10.1 Test Modes

NOTE: The test mode(s) are selected according to relevant radio technology specifications.

Test Mode	Test Modes Description	
UMTS/TM1	WCDMA system, QPSK modulation	
UMTS/TM2	HSDPA system, QPSK modulation	
UMTS/TM3	HSUPA system, QPSK modulation	

Note:

- 1. This EUT owns two SIM cards, after we perform the pretest for these two SIM cards; we found the SIM 1 is the worst case, so its result is recorded in this report.
- 2. As WCDMA, HSDPA and HSUPA with the same emission designator, test result recorded in this report at the worst case UMTS/TM1 only after exploratory scan.

2.10.2 Test Environment

Environment Parameter	Selected Value	s During Tests	
Relative Humidity	Ambient		
Temperature	TN	Ambient	
	VL	3.5V	
Voltage	VN	3.8V	
	VH	4.2V	

NOTE: VL=lower extreme test voltage VN=nominal voltage VH=upper extreme test voltage TN=normal temperature

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen LCS Compliance Testing Laboratory Ltd

1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China

The sites are constructed in conformance with the requirements of ANSI C63.4 (2014) and CISPR Publication 22.

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS Registration Number. is L4595. FCC Registration Number. is 899208. Industry Canada Registration Number. is 9642A-1. VCCI Registration Number. is C-4260 and R-3804. ESMD Registration Number. is ARCB0108. UL Registration Number. is 100571-492. TUV SUD Registration Number. is SCN1081. TUV RH Registration Number. is UA 50296516-001

3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

(1) expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3.4 Test Description

3.4.1 Cellular Band (824-849MHz paired with 869-894MHz)

Test Item	FCC Rule No.	Requirements	Verdict		
Effective(Isotropic) Radiated Output Power	§2.1046, §22.913	FCC: ERP ≤ 7W.	Pass		
Modulation Characteristics	§2.1047	Digital modulation	N/A		
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Pass		
Band Edges Compliance	§2.1051, §22.917	≤-13dBm/1%*EBW, in 1MHz bands immediately outside and adjacent to The frequency block.	Pass		
Spurious Emission at Antenna Terminals	§2.1051, §22.917	FCC: ≤ -13dBm/100kHz, from 9kHz to 10th harmonics but outside authorized operating frequency ranges.	Pass		
Field Strength of Spurious Radiation	§2.1053, §22.917	FCC: ≤ -13dBm/100kHz.	Pass		
Frequency Stability	quency Stability §2.1055, §22.355 ≤ ±2.5ppm. Page				
NOTE 1: For the verdict, t	he "N/A" denotes	s "not applicable", the "N/T" de notes "not tested".			

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3.4.2 PCS Band (1850-1915MHz paired with 1930-1995MHz)

Test Item	FCC Rule No.	Requirements	Verdict
Effective(Isotropic) Radiated Output Power	§2.1046, §24.232	EIRP ≤ 2W	Pass
Peak-Average Ratio	§2.1046, §24.232	FCC:Limit≤13dB	Pass
Modulation Characteristics	§2.1047	Digital modulation	N/A
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Pass
Band Edges Compliance	§2.1051, §24.238	 ≤ -13dBm/1%*EBW, In 1MHz bands immediately outside and adjacent to The frequency block. 	Pass
Spurious Emission at Antenna Terminals	§2.1051, §24.238	≤-13dBm/1MHz, from 9kHz to10th harmonics but outside authorized Operating frequency ranges.	Pass
Field Strength of Spurious Radiation	§2.1053, §24.238	≤ -13dBm/1MHz.	Pass
Frequency Stability	§2.1055, §24.235	FCC: within authorized frequency block.	Pass
NOTE 1: For the verdict, the	he "N/A" denote:	s "not applicable", the "N/T" de notes "not tested".	

Remark: 1.The measurement uncertainty is not included in the test result.

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3.5 Equipments Used during the Test

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal Date	Due Date
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	June 18,2016	June 17,2017
Signal analyzer	Agilent	E4448A(External mixers to 40GHz)	US44300469	9kHz~40GHz	July 16,2016	July 15,2017
LISN	MESS Tec	NNB-2/16Z	99079	9KHz-30MHz	June 18,2016	June 17,201
LISN (Support Unit)	EMCO	3819/2NM	9703-1839	9KHz-30MHz	June 18,2016	June 17,2017
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9KHz-30MHz	June 18,2016	June 17,201
ISN	SCHAFFNER	ISN ST08	21653	9KHz-30MHz	June 18,2016	June 17,201
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30M-1GHz 3m	June 18,2016	June 17,2017
Amplifier	SCHAFFNER	COA9231A	18667	9kHz-2GHzz	June 18,2016	June 17,2017
Amplifier	Agilent	8449B	3008A02120	1GHz-26.5GHz	July 16,2016	July 15,2017
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz- 40GHz	July 16,2016	July 15,2017
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	July 16,2016	July 15,2017
MAX Signal Analyzer	Agilent	N9020A	MY50510140	20Hz~26.5GHz	Oct. 27, 2015	Oct. 26, 2010
Loop Antenna	R&S	HFH2-Z2	860004/001	9k-30MHz	June 18,2016	June 17,201
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	30MHz-1GHz	June 10,2016	June 09,201
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	June 10,2016	June 09,201
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	June 10,2016	June 09,201
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz-1GHz	June 18,2016	June 17,201
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz-40GHz	June 18,2016	June 17,201
Spectrum Meter	R&S	FSP 30	100023	9kHz-30GHz	July 16,2016	July 15,2017
Power Meter	R&S	NRVS	100444	DC-40GHz	June 18,2016	June 17,201
Power Sensor	R&S	NRV-Z51	100458	DC-30GHz	June 18,2016	June 17,201
Power Sensor	R&S	NRV-Z32	10057	30MHz-6GHz	June 18,2016	June 17,201
RF CABLE-1m	JYE Bao	RG142	CB034-1m	20MHz-7GHz	June 18,2016	June 17,201
RF CABLE-2m	JYE Bao	RG142	CB035-2m	20MHz-1GHz	June 18,2016	June 17,201
Vector signal Generator	R&S	SMU200A	102098	100kHz~6GHz	June 18,2016	June 17,201
Signal Generator	R&S	SMR40	10016	10MHz~40GHz	July 16,2016	July 15,201
Universal Radio Communication Tester	R&S	CMU200	112012	N/A	June 18,2016	June 17,201
DC power Source	GW	GPC-6030D	C671845	/	June 18,2016	June 17,201
Temperature & Humidity Chamber	Wuhuan	HTP205	/	/	June 18,2016	June 17,201

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3.6 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to ETSI TR 100 028 " Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics" and is documented in the Shenzhen LCS Compliance Testing Laboratory Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen LCS Compliance Testing Laboratory Ltd. is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.10 dB	(1)
Radiated Emission	1~18GHz	3.70 dB	(1)
Radiated Emission	18-40GHz	3.90 dB	(1)
Conducted Disturbance	0.15~30MHz	1.63 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occuiped Bandwidth	9KHz~40GHz	-	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4 TEST CONDITIONS AND RESULTS

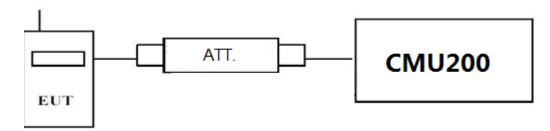
4.1 Output Power

TEST APPLICABLE

During the process of testing, the EUT was controlled via R&S Digital Radio Communication tester (CMU200) to ensure max power transmission and proper modulation. This result contains output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

4.1.1 Conducted Output Power

TEST CONFIGURATION



TEST PROCEDURE

Conducted Power Measurement:

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a CMU200 by an Att.
- c) EUT Communicate with CMU200 then selects a channel for testing.
- d) Add a correction factor to the display CMU200, and then test.

TEST RESULTS

See next page

Test Mode	Test Channel	Burst Average Cor	nducted power (dBm)
Test Mode	Test Channel	UMTS Band V	UMTS Band II
	LCH	23.60	23.72
UMTS/TM1	MCH	23.48	23.52
	НСН	23.37	23.53
	LCH_SubTest-1	23.10	23.73
	LCH_SubTest-2	22.68	22.22
	LCH_SubTest-3	21.65	21.17
	LCH_SubTest-4	21.01	21.51
	MCH_SubTest-1	23.33	23.88
UMTS/TM2	MCH_SubTest-2	22.19	22.24
UIVET 5/ TIVIZ	MCH_SubTest-3	22.91	22.49
	MCH_SubTest-4	21.71	21.50
	HCH_SubTest-1	23.47	23.33
	HCH_SubTest-2	22.23	22.15
	HCH_SubTest-3	22.34	21.13
	HCH_SubTest-4	21.73	21.62
	LCH_SubTest-1	22.66	22.47
	LCH_SubTest-2	21.24	21.23
	LCH_SubTest-3	22.31	22.14
	LCH_SubTest-4	19.99	20.71
	LCH_SubTest-5	21.24	21.51
	MCH_SubTest-1	22.38	22.11
	MCH_SubTest-2	21.87	21.11
UMTS/TM3	MCH_SubTest-3	22.23	22.68
	MCH_SubTest-4	21.21	21.74
	MCH_SubTest-5	21.32	21.24
	HCH_SubTest-1	22.91	22.12
	HCH_SubTest-2	21.28	21.05
	HCH_SubTest-3	22.26	22.27
	HCH_SubTest-4	20.75	21.50
	HCH_SubTest-5	21.23	21.89

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4.1.2 Radiated Output Power

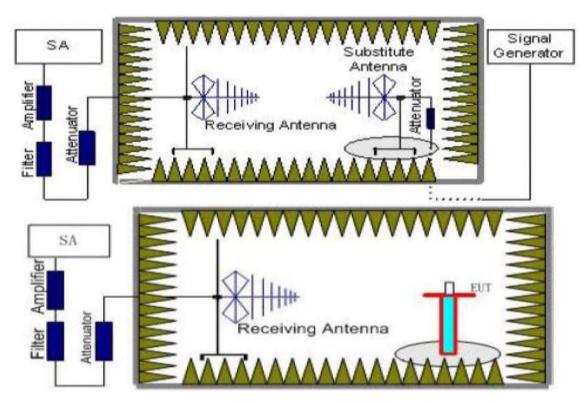
TEST DESCRIPTION

This is the test for the maximum radiated power from the EUT.

Rule Part 24.232(c) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(e) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage." Rule Part 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

Per Part 27.50(d) (4) specifies, Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755MHz band are limited to 1W EIRP. Fixed stations operating in this band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in this band must employ a means for limiting power to the minimum necessary for successful communications.

TEST CONFIGURATION



TEST PROCEDURE

- EUT was placed on a 1.50 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.50m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
- 2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=10MHz,VBW=10MHz, And the maximum value of the receiver should be recorded as (P_r).
- 4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 18 of 35 <u>SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.</u> FCC ID: 2AFPY-X9 Report No.: LCS1610120612E to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

- 5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{cl}), the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test. The measurement results are obtained as described below: Power(EIRP)=P_{Mea}- P_{Ag} - P_{cl} + G_a
- 6. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- 7. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.

TEST LIMIT

According to 22.913(a), 24.232(c) and 27.50(d) (4), the ERP(EIRP) should be not exceeding following table limits:

	Burst Average EIRP
UMTS Band II	33dBm (2W)
	Burst Average ERP

TEST RESULTS

Remark:

- 1. We were tested all Configuration refer 3GPP TS134 121.
- 2. $EIRP=P_{Mea}(dBm)-P_{cl}(dB)+P_{Ag}(dB)+G_{a}(dBi)$
- 3. ERP = EIRP 2.15dBi as EIRP by subtracting the gain of the dipole.
- 4. Margin = Emission Level Limit
- 5. We test the H direction and V direction recorded worst case.

UMTS/TM1/UMTS Band II

Frequency (MHz)	P _{Mea} (dBm)	Pcl (dB)	Ga Antenna Gain(dB)	PAg (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1852.4	-15.55	4.03	8.38	35.51	24.31	33.01	-8.7	V
1880.0	-15.60	4.08	8.33	35.56	24.21	33.01	-8.8	V
1907.6	-15.20	4.14	8.26	35.63	24.55	33.01	-8.46	V

UMTS/TM1/UMTS Band V

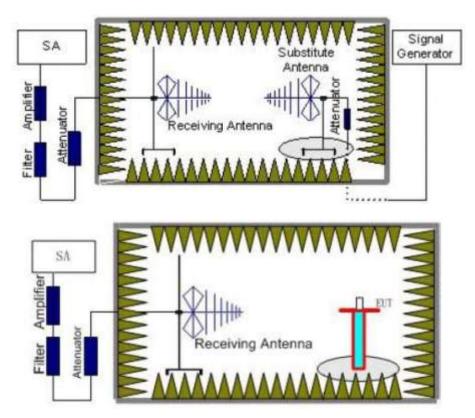
Frequency (MHz)	P _{Mea} (dBm)	P _{cl} (dB)	G _a Antenna Gain(dB)	Correction (dB)	P _{Ag} (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarization
826.40	-14.54	3.45	8.45	2.15	33.79	22.10	38.45	-16.35	V
836.60	-16.24	3.49	8.45	2.15	33.85	20.42	38.45	-18.03	V
844.60	-16.57	3.55	8.36	2.15	33.88	19.97	38.45	-18.48	V

4.2 Radiated Spurious Emssion

TEST APPLICABLE

According to the TIA/EIA 603D:2010 test method, The Receiver or Spectrum was scanned from 9 KHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz The resolution bandwidth is set as outlined in Part 24.238, Part 22.917 and Part 27.54. The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of WCDMA Band II WCDMA Band IV and WCDMA Band V.

TEST CONFIGURATION



TEST PROCEDURE

- EUT was placed on a 1.50 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.50 m. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
- 2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, And the maximum value of the receiver should be recorded as (P_r).
- 4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

- A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{cl}), the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test. The measurement results are obtained as described below: Power(EIRP)=P_{Mea}- P_{Ag} - P_{cl} + G_a
- 6. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- 7. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.
- 8. In order to make sure test results more clearly, we set frequency range and sweep time for difference frequency range as follows table:

Working Frequency	Subrange (GHz)	RBW	VBW	Sweep time (s)
	0.00009~0.15	1KHz	3KHz	30
	0.00015~0.03	10KHz	30KHz	10
UMTS/TM1/	0.03~1	100KHz	300KHz	10
WCDMA Band V	1~2	1 MHz	3 MHz	2
	2~5	1 MHz	3 MHz	3
	5~8	1 MHz	3 MHz	3
	8~10	1 MHz	3 MHz	3
	0.00009~0.15	1KHz	3KHz	30
	0.00015~0.03	10KHz	30KHz	10
	0.03~1	100KHz	300KHz	10
	1~2	1 MHz	3 MHz	2
UMTS/TM1/	2~5	1 MHz	3 MHz	3
WCDMA Band II	5~8	1 MHz	3 MHz	3
	8~11	1 MHz	3 MHz	3
	11~14	1 MHz	3 MHz	3
	14~18	1 MHz	3 MHz	3
	18~20	1 MHz	3 MHz	2

TEST LIMITS

According to 24.238, 22.917 and 27.54 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Frequency	Channel	Frequency Range	Verdict
UMTS/TM1/ WCDMA	Low	9KHz-10GHz	PASS
Band V	Middle	9KHz -10GHz	PASS
Banu v	High	9KHz -10GHz	PASS
UMTS/TM1/ WCDMA	Low	9KHz -20GHz	PASS
Band II	Middle	9KHz -20GHz	PASS
Banun	High	9KHz -20GHz	PASS

TEST RESULTS

Remark:

1. We were tested all Configuration refer 3GPP TS134 121.

- 2. $EIRP=P_{Mea}(dBm)-P_{cl}(dB)+P_{Ag}(dB)+G_{a}(dBi)$
- 3. ERP = EIRP 2.15dBi as EIRP by subtracting the gain of the dipole.
- 4. Margin = EIRP Limit

UMTS/TM1/ WCDMA Band II _ Low Channel

Frequency (MHz)	P _{Mea} (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3704.8	-39.60	5.26	3.00	9.88	-34.98	-13.00	-21.98	Н
5557.2	-44.58	6.11	3.00	11.36	-39.33	-13.00	-26.33	Н
3704.8	-43.43	5.26	3.00	9.88	-38.81	-13.00	-25.81	V
5557.2	-49.72	6.11	3.00	11.36	-44.47	-13.00	-31.47	V

UMTS/TM1/ WCDMA Band II _ Middle Channel

Frequency (MHz)	P _{Mea} (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3760.0	-38.14	5.32	3.00	10.03	-33.43	-13.00	-20.43	Н
5640.0	-43.72	6.19	3.00	11.41	-38.5	-13.00	-25.5	Н
3760.0	-43.27	5.32	3.00	10.03	-38.56	-13.00	-25.56	V
5640.0	-47.32	6.19	3.00	11.41	-42.1	-13.00	-29.1	V

UMTS/TM1/ WCDMA Band II _ High Channel

Frequency (MHz)	P _{Mea} (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
3815.2	-43.30	5.36	3.00	9.62	-39.04	-13.00	-26.04	Н
5722.8	-51.48	6.24	3.00	11.46	-46.26	-13.00	-33.26	Н
3815.2	-45.68	5.36	3.00	9.62	-41.42	-13.00	-28.42	V
5722.8	-52.39	6.24	3.00	11.46	-47.17	-13.00	-34.17	V

UMTS/TM1/ WCDMA Band V _ Low Channel

Frequency (MHz)	P _{Mea} (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1652.8	-47.78	3.86	3.00	8.56	-43.08	-13.00	-30.08	Н
2479.2	-48.08	4.29	3.00	6.98	-45.39	-13.00	-32.39	Н
1652.8	-44.35	3.86	3.00	8.56	-39.65	-13.00	-26.65	V
2479.2	-45.07	4.29	3.00	6.98	-42.38	-13.00	-29.38	V

UMTS/TM1/ WCDMA Band V _ Middle Channel

Frequency (MHz)	P _{Mea} (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1672.8	-48.70	3.90	3.00	8.58	-44.02	-13.00	-31.02	Н
2509.2	-49.36	4.32	3.00	6.80	-46.88	-13.00	-33.88	Н
1672.8	-45.61	3.90	3.00	8.58	-40.93	-13.00	-27.93	V
2509.2	-45.01	4.32	3.00	6.80	-42.53	-13.00	-29.53	V

UMTS/TM1/ WCDMA Band V _ High Channel

Frequency (MHz)	P _{Mea} (dBm)	Pcl (dB)	Diatance	Ga Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1693.2	-50.14	3.91	3.00	9.06	-44.99	-13.00	-31.99	Н
2539.8	-50.16	4.32	3.00	6.65	-47.83	-13.00	-34.83	Н
1693.2	-45.95	3.91	3.00	9.06	-40.8	-13.00	-27.8	V
2539.8	-45.82	4.32	3.00	6.65	-43.49	-13.00	-30.49	V

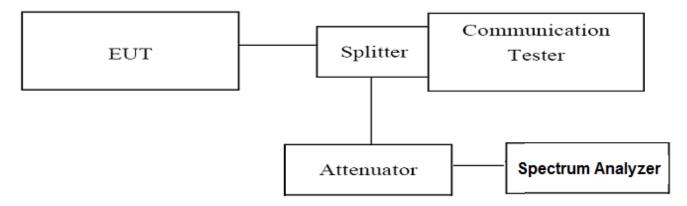
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4.3 Occupied Bandwidth and Emission Bandwith

TEST APPLICABLE

Similar to conducted emissions; occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. The table below lists the measured 99% Bandwidth and -26dBc Bandwidth.

TEST CONFIGURATION



TEST PROCEDURE

- 1. The EUT was set up for the max output power with pseudo random data modulation;
- 2. The Occupied bandwidth and Emission Bandwidth were measured with Aglient Spectrum Analyzer N9020A (peak);
- 3. Set RBW=100KHz,VBW=300KHz,Span=10MHz,SWT=1ms;
- 4. Set SPA Max hold and View, Set 99% Occupied Bandwidth/ Set -26dBc Occupied Bandwidth
- 5. These measurements were done at 3 frequencies for WCDMA band II/IV/V. (low, middle and high of operational frequency range).

TEST RESULTS

Test Mode	Channel	Frequency (MHz)	Occupied Bandwidth (99% BW) (MHz)	Emission Bandwidth (-26 dBc BW) (MHz)	Verdict
UMTS/TM1/	4132	826.40	4.1644	4.706	PASS
WCDMA Band	4183	836.60	4.1717	4.707	PASS
V	4233	846.60	4.1859	4.696	PASS
UMTS/TM1/	9262	1852.40	4.1657	4.697	PASS
WCDMA Band	9400	1880.00	4.1590	4.659	PASS
I	9538	1907.60	4.1550	4.701	PASS

Remark:

1. Test results including cable loss;

2. please refer to following plots;

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AFPY-X9 Report No.: LCS1610120612E

UMTS/TM1/ WCDMA Band V	ndwidth a	nd Emission Bandwidth UMTS/TM1/ WCDMA Band II	
And an Annual Contract of Cont	TraceDetects	Appliest Spectrum Analyses - Delanded AM	raceDete
Alfuer 10.00 dBm Center reg Schalde entra Aghiedo totto dFGateLow After 40 60 Rado Device B1 Rado Device B1	(0):33:40:33:5	Ref Value 10.00 dBm Center free: 35035000 Dit: Rede Sol Nere This Free Nam Arghitechitette ARter 49 4B Rede Derice BTS	
div Ref 10.00 dBm		to devide Ref 10.00 dBm	
	Clear W	100	Clear
when and the second sec	Aver		Av
	MaxH		Max
er 826.4 MHz Span 10		Center 1.852 GHz Span 10 MHz	2,999
BW 100 kHz #VBW 300 kHz Sweep 1		BRes BW 100 kHz #VBW 300 kHz Sweep 1 ms	Mir
ccupied Bandwidth 4.1644 MHz ansmit Freq Error -9.183 kHz OBW Power 99.00 %	Detec Pe Auto		De
18 Bandwidth 4.706 MHz x dB -26.00 dB		x dB Bandwidth 4.697 MHz x dB -26.00 dB	
237.0		nna varaa	
Channel 4132 / 826.4 MHz		Channel 9262 / 1852.4 MHz	
er Freq 835.500000 MHz sPoset.ev Albert.ev	TraceLetect	Center Freq 1.880000000 GHz Center (a 35000000 GHz Methods Note A 50000000 GHz Freq AsgNetic hatte Rade Sid Nerve Address of the State Sid Nerve Address of	receiDet
ide Ref 10.00 dBm	ClearW	to devide Ref 10.00 dBm	Clea
		221	
anna hanna	Aver		A
	MaxH		Ma
er 836.6 MHz Span 10 BW 100 kHz #VBW 300 kHz Sweep 1	MHz	Center 1.88 GHz Span 10 MHz Spen 10 MHz Sweep 1 ms	025
ccupied Bandwidth	Min H	Occupied Bandwidth	Mir
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BW 100 kHz FVBW 300 kHz 5weep 1 ccupied Bandwidth 4.1859 MHz ansmit Freq Error -28.711 kHz OBW Power 99.00 %	Min H	BRes BW 100 kHz #VBW 300 kHz Sweep 1 ms Occupied Bandwidth	Mir De

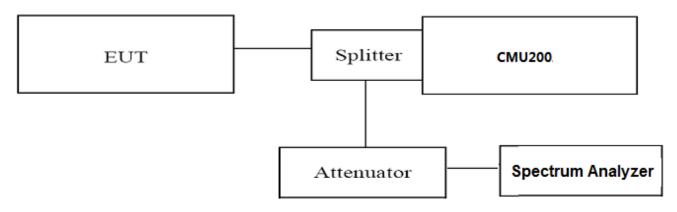
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4.4 Band Edge Compliance

TEST APPLICABLE

During the process of testing, the EUT was controlled via Digital Radio Communication tester (CMU200) to ensure max power transmission and proper modulation.

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was set up for the max output power with pseudo random data modulation;

2. The power was measured with Spectrum Analyzer N9020A;

3. Set RBW=100KHz,VBW=300KHz,Span=10MHz,SWT=1.267ms,Dector: Peak;

These measurements were done at 2 frequencies for WCDMA Band II/V/IV. (low and high of operational frequency range).

TEST RESULTS

		UMTS/TM1/WC	UMTS/TM1/WCDMA Band V										
Test Mode	Channel	Frequency (MHz)	Band Edg Compliance (dBm)	Limits (dBm)	Verdict								
UMTS/TM1/WCDMA	4132	826.40	<-13dBm	-13dBm	PASS								
Band V	4233	846.60	<-13dBm	-13dBm	FA33								
		UMTS/TM1/WC	DMA Band II										
Test Mode	Channel	Frequency (MHz)	Band Edg Compliance (dBm)	Limits (dBm)	Verdict								
UMTS/TM1/WCDMA	9262	1852.40	<-13dBm	-13dBm	PASS								
Band II	9538	1907.60	<-13dBm	-13dBm	FA33								

Remark:

1. Test results including cable loss;

2. please refer to following plots;

				Compliance	d-edge			
	nd II	DMA Ban	UMTS/TM1/WO			OMA Band V	UMTS/TM1/WCD	
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Trans/Defr Select T	1Hz	Ang Type: Log Pur Ang Type: Log Pur AngHald: 100100	100 GH/2 Ptil: Water (and Ptil: Water (and Ptil: State Law Ptil: State Law Ptil: State Law	Adert Sperine Andrea See 14 Marker 1 1,91003000000 Ref Offset 7 dB	TraumDetector Select Trace	status	Channel 4132 /	arker 1 848 97000000
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Select 7 Clear	ri 1.910 03 GHz -24.246 dBm	/ 1852.4 M	Fibi Wee - Trig Free Ran Fibi Wee - Fibi Ren 64tan: 46 d5	Abiri len tes beinet bereit M Marker 1 1,91003000000 20 galake Ref 20,00 dBm 20 galake Ref 20,00 dBm 20 galake Ref 20,00 dBm 20 galake Ref 20,00 dBm	Select Trace	Are Type Log Pue Are Type Log Pue Are Type Log Pue Are Type Log Pue Michael Social Michael Social Michael Social Michael Social Comparison Comp	Channel 4132 /	arker 1 848 97000000
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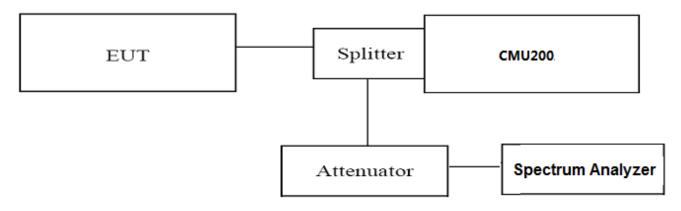
4.5 Spurious Emssion on Antenna Port

TEST APPLICABLE

The following steps outline the procedure used to measure the conducted emissions from the EUT.

- 1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of WCDMA band II/IV, this equates to a frequency range of 9 KHz to 20GHz, data taken from 30 MHz to 20 GHz.For WCDMA Band V, data taken from 30 MHz to 10 GHz.
- 2. The sweep time is set automatically by instrument itself. That should be the optimal sweep time for the span and the RBW. If the sweep time is too short, that is sweep is too fast, the sweep result is not accurate; if the sweep time is too long, that is sweep is too low, some frequency components may be lost. The instrument will give an optimal sweep time according the selected span and RBW.
- The procedure to get the conducted spurious emission is as follows: The trace mode is set to MaxHold to get the highest signal at each frequency; Wait 25 seconds; Get the result.
- 4. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

TEST CONFIGURATION



TEST PROCEDURE

- 1. The EUT was set up for the max output power with pseudo random data modulation;
- 2. The power was measured with Spectrum Analyzer N9020A;
- 3. These measurements were done at 3 frequencies for WCDMA band II/IV/V. (low, middle and high of operational frequency range).

TEST LIMIT

Part 24.238, Part 22.917 and Part 27.54 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

TEST RESULTS

Report No.: LCS1610120612E

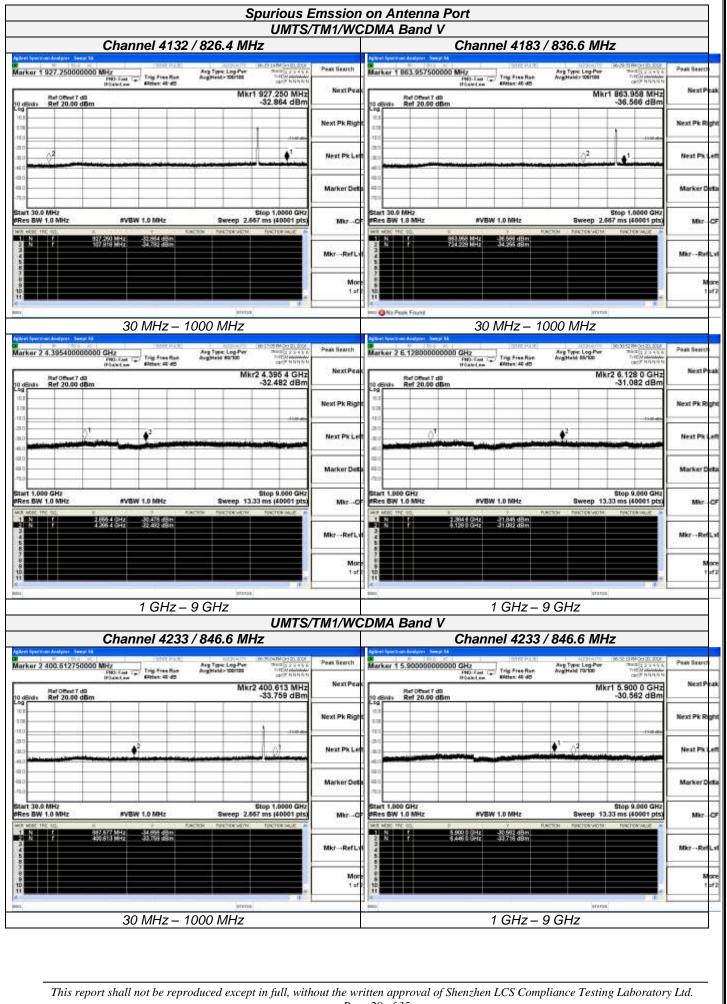
Test Mode	Channel	Frequency (MHz)	Spurious RF Conducted Emission (dBm)	Limits (dBm)	Verdict
UMTS/TM1/WCDMA	4132	826.40	<-13dBm	-13dBm	
Band V	4183	836.60	<-13dBm	-13dBm	PASS
Dallu V	4233	846.60	<-13dBm	-13dBm	
UMTS/TM1/WCDMA	9262	1852.40	<-13dBm	-13dBm	
Band II	9400	1880.00	<-13dBm	-13dBm	PASS
Ballu II	9538	1907.60	<-13dBm	-13dBm	

Remark:

Test results including cable loss;
 please refer to following plots;

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	mssion on Antenna Port TM1/WCDMA Band II
Channel 9262 / 1852.4 MHz	Channel 9400 / 1880.0 MHz
Adventigent and Adventigent Terrer Ma Marker 2 845 285000000 MHz PHD: Last (a) Trigs Free Ram MagNeaks toolson PhD: Last (a) PhD: Last (a) PhD: Last (b) PhD: Last	Peak Search Marker 2 663.725250000 MHz Peak Search Peak Search Trig Free Ran Arg Type: Log Aw Trig: 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 5 + 0 Peak Search Reg Table 2 + 0 + 0 Peak Search Reg
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N F 296 MI2 MH2 -38 000 dBm N F 946 206 MH2 -36 007 dBm	N T 総部務 Mitz 3828 dBm MkrRef_v
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	Next Pk Left
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1 GHz – 20 GHz	1 GHz – 20 GHz
UMTS/ Channel 9538 / 1907.6 MHz	TM1/WCDMA Band II Channel 9538 / 1907.6 MHz
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30 MHz – 1000 MHz	1 GHz – 20 GHz
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4.6 Frequency Stability Test

TEST APPLICABLE

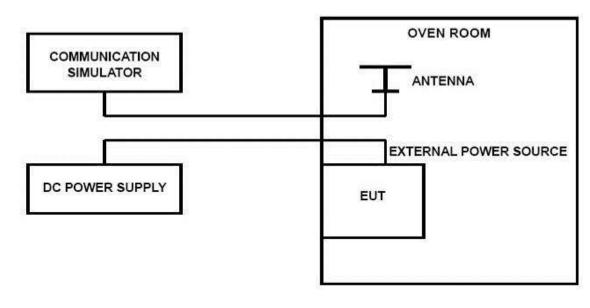
- 1. According to FCC Part 2 Section 2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30°C to +50°C centigrade.
- According to FCC Part 2 Section 2.1055 (E) (2), for battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
- 3. Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried voltage equipment and the end voltage point was 3.50V.

TEST PROCEDURE

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMU200 DIGITAL RADIO COMMUNICATION TESTER.

- 1. Measure the carrier frequency at room temperature;
- 2. Subject the EUT to overnight soak at -30°C;
- 3. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on middle channel of WCDMA Band II/IV/V, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming;
- 4. Repeat the above measurements at 10[°]C increments from -30[°]C to +50[°]C. Allow at least 0.5 hours at each temperature, unpowered, before making measurements;
- Remeasure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments remeasuring carrier frequency at each voltage. Pause at nominal voltage for 0.5 hours unpowered, to allow any self-heating to stabilize, before continuing;
- 6. Subject the EUT to overnight soak at +50°C;
- With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming;
- 8. Repeat the above measurements at 10[°]C increments from +50[°]C to -30[°]C. Allow at least 0.5 hours at each temperature, unpowered, before making measurements;
- 9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure;

TEST CONFIGURATION



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TEST LIMITS

For Hand carried battery powered equipment

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.40VDC and 4.20VDC, with a nominal voltage of 3.70DC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

For equipment powered by primary supply voltage

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

TEST	RESULTS

UMTS/TM1/WCDMA Band II					
DC Power	Temperature (℃)	Frequency error(Hz)	Frequency error(ppm)	Limit (ppm)	Verdict
3.50	20	12	0.006	2.50	PASS
3.80	20	11	0.006	2.50	PASS
4.20	20	19	0.010	2.50	PASS
3.80	-30	17	0.009	2.50	PASS
3.80	-20	15	0.008	2.50	PASS
3.80	-10	9	0.005	2.50	PASS
3.80	0	16	0.009	2.50	PASS
3.80	10	20	0.011	2.50	PASS
3.80	20	21	0.011	2.50	PASS
3.80	30	16	0.009	2.50	PASS
3.80	40	10	0.005	2.50	PASS
3.80	50	12	0.006	2.50	PASS

UMTS/TM1/WCDMA Band V					
DC Power	Temperature (℃)	Frequency error(Hz)	Frequency error(ppm)	Limit (ppm)	Verdict
3.50	20	12	0.014	2.50	PASS
3.80	20	14	0.017	2.50	PASS
4.20	20	17	0.020	2.50	PASS
3.80	-30	8	0.010	2.50	PASS
3.80	-20	15	0.018	2.50	PASS
3.80	-10	19	0.023	2.50	PASS
3.80	0	16	0.019	2.50	PASS
3.80	10	16	0.019	2.50	PASS
3.80	20	12	0.014	2.50	PASS
3.80	30	16	0.019	2.50	PASS
3.80	40	10	0.012	2.50	PASS
3.80	50	12	0.014	2.50	PASS

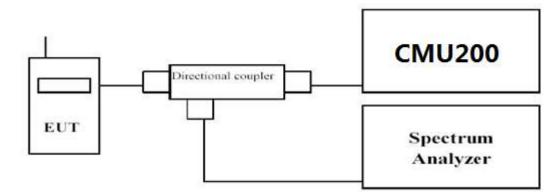
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4.7 Peak-to-Average Ratio (PAR)

<u>LIMIT</u>

The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

TEST CONFIGURATION



TEST PROCEDURE

- 1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- 2. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
- 3. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 4. Set the measurement interval as follows:

for continuous transmissions, set to 1 ms,
 for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.

5. Record the maximum PAPR level associated with a probability of 0.1%.

TEST RESULTS

Test Mode	Channel	Frequency (MHz)	PAPR Value (dB)	Limits (dB)	Verdict
UMTS/TM1/	9262	1852.40	3.27	13.0	PASS
WCDMA Band	9400	1880.00	3.17	13.0	PASS
II	9538	1907.60	3.27	13.0	PASS

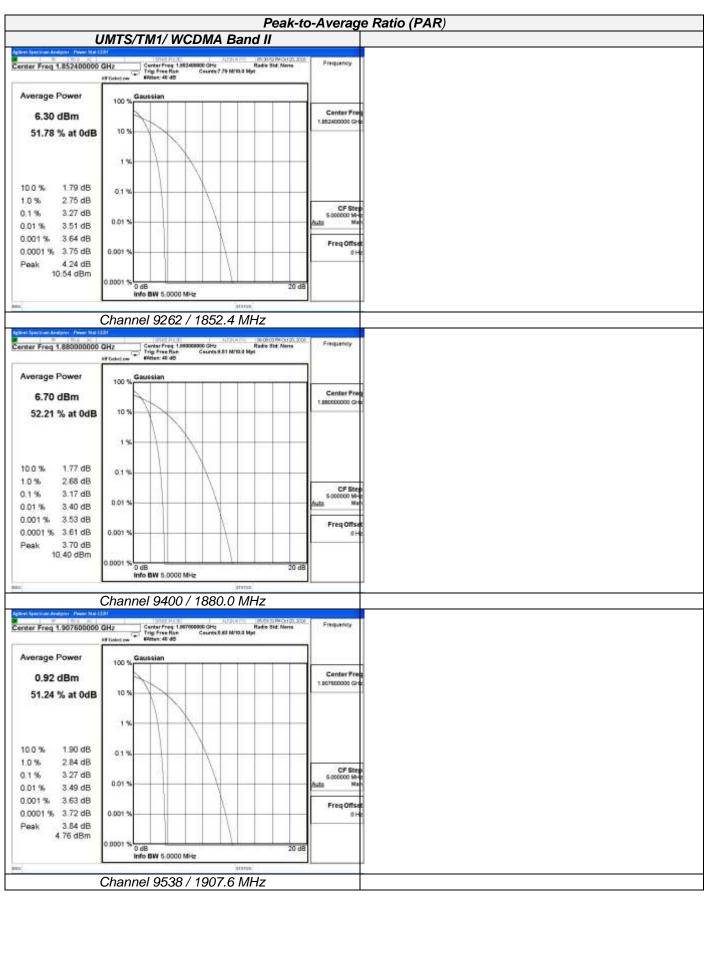
Remark:

1. Test results including cable loss;

2. please refer to following plots;



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5 <u>Test Setup Photos of the EUT</u>

Please refer to separated files for Test Setup Photos of the EUT.

6 External Photos of the EUT

Please refer to separated files for External Photos of the EUT.

7 Internal Photos of the EUT

Please refer to separated files for Internal Photos of the EUT.

.....End of Report.....

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