



EMC Test Report

Product Name:
HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth

Model Number:
HUAWEI U8150-A/U8150-A/Comet

Report No: SYBH(Z-EMC)064122010-2
FCC ID: QISU8150-A
IC ID: 6369A-U8150A

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Notice 1

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2. The laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 97456.
3. The laboratory has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 6369A-1.
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9. Context of the test report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of the laboratory.



Notice 2

Modification Information:

Modification Information

Modification Information	1	
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	3	<i>Not Applicable!</i>
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1 Status

1.1 Product Information

CLIENT:	Huawei Technologies Co., Ltd.
ADDRESS:	Bantian Longgang District Shenzhen, P.R. China
MANUFACTURING DESCRIPTION	HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth
MANUFACTURERS MODEL NUMBER	HUAWEI U8150-A/U8150-A/Comet

1.2 Test Site

Site 1:
EMC LABORATORY OF RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD

1.3 Test environment condition

Ambient temperature	20~25°C
Relative humidity	40%~52%
Atmospheric pressure	101kPa

2 Summary of Results

Table below shows a brief summary of the results obtained.

Summary of results

EUT Classification: Wireless Terminal				
Test Items	Test Configuration & Test Mode	Required Performance Criteria	Result	Site
<u>Radiated Spurious Emissions</u> Enclosure Port	TC1 (TM1-TM2)	N/A	Pass	Site1
Note: 1, Measurement taken is within the measurement uncertainty of measurement system. 2, TC = Test configuration				

3 Equipment Specification

3.1 General Description

HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth- HUAWEI U8150-A/U8150-A/Comet is subscriber equipment in the WCDMA/GSM system. HUAWEI U8150-A/U8150-A/Comet are just three different names for one type phone. The HSDPA/UMTS frequency bands of HUAWEI U8150-A/U8150-A/Comet are Band I and Band IV and Band VIII. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900. Only Band IV test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSDPA/UMTS 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 USIM 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.

The new type changed WCDMA 2100M and WCDMA AWS PA base on the original type. The PCB of them is the same.

3.1.1 Main Equipment Technical Data

Description:	HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth
Models:	HUAWEI U8150-A/U8150-A/Comet
Input Rated Voltage	3.7V
Extreme Voltage	3.6V and 4.2V
Rated Power	Normal 3W ,Max 8 W
Dimensions	103mmx55mmx14mm
Weight	<110g (with battery)

Sub-Assembly Identity

Mode		Work Frequency	
		Transmitt Frequency (MHz)	Receive Frequency (MHz)
GSM	GSM850	824 - 849	869 - 894
	PCS1900	1850-1910	1930-1990
WCDMA	WCDMA AWS	1713- 1753	2113-2153
Bluetooth		2400-2483.5	
WIFI		2400-2483.5	

3.2 Sub-Assembly Identity

Sub-Assembly Identity

Board				
Model Name	Qty.	Serial	Description	
HD1U815M	1	NG2AA11040356312	Main board of Mobile Phone	
Accessory				
Name	Qty.	Manufacture	Serials number	Description
Adapter	1	Huawei Technologies Co., Ltd.	BYAA91923843	Adapter Model: HW-050100U1W Input Voltage : ~100-240V 50/60Hz 0.2A Output Voltage: 5.0V 1A Rated Power: 5W



Rechargeable Li-ion	1	Huawei Technologies Co., Ltd.	UNHA508XA1811459	Battery Model: HB4J1H Rated capacity: 1200mAh Nominal Voltage: $\text{---} +3.7\text{V}$ Charging Voltage: $\text{---} +4.2\text{V}$
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4 System Configuration during EMC Test

The Equipment under Test (EUT) was functioning correctly during all tests. The EUT was installed within the test site and was configured to simulate a typical user installation.

4.1 Cables Used during Test

Cable Used during Test

Cable	Quantity	Type of Cable
AC Power	1	shielded
Earphone	1	Unshielded

4.2 Associated Equipment Used during Test

Associated Equipment Used during Test

Name	Model	Manufacturer	S/N	Cal Date
Radio Communication Tester	CMU200	R&S	3607111817	2010-7-23

4.3 Test Configurations and Test Mode

4.3.1 Test Configuration.

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

TC1:EUT powered with an adapter and connected to the test system (Base Station Simulator).

Configuration table

TC1	TM1~TM2
-----	---------

4.3.2 Test Mode

There were 2 test Modes. TM1 to TM2 were shown in the diagrams below:

TM1	operate in traffic mode WCDMA AWS
TM2	operate in traffic mode HSDPA AWS

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

4.4 Test conditions and test Connections

4.4.1 Test Conditions

The EUT will be connected to test system (Base Station Simulator) in order to simulate normal operating conditions (with reference to the guidance given in the standard for this type of equipment).

4.4.2 Test Connections

Traffic Mode:

The EUT is required to be in the traffic mode, a call is set up according to the generic call set up procedure and enter the EUT into loop back test mode.
For WCDMA, the following conditions shall also be met:

Logical Test Interface for details regarding generic call set-up procedure and BER, BLER test loop scenarios:

- set and send continuously up power control commands to the UE;
- The DTX shall be disabled;
- Inner Loop Power Control shall be enabled;
- transmitting and/or receiving (UL/DL) bit rate for reference test channel shall be 12.2 kbit / s.
- The EUT shall be commanded to operate at maximum transmit power;

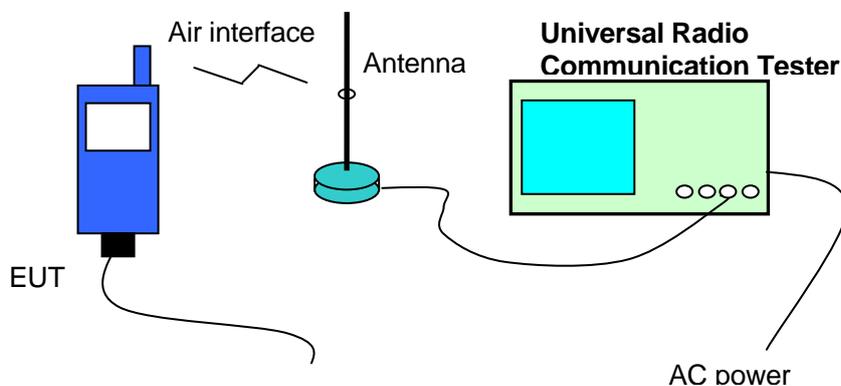


Figure 1.: Test Configuration

Idle Mode:

- For WCDMA, the following conditions shall be met:
- UE shall be camped on a cell;
- UE shall perform Location Registration (LR) before the test, but not during the test;
- UE's neighbour cell list shall be empty;
- Paging repetition period and DRX cycle shall be set to minimum (shortest possible time interval).

Please refer to following figure:

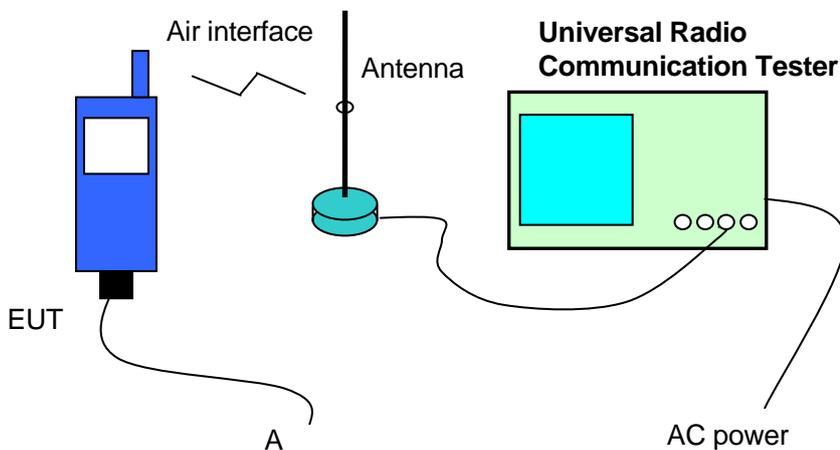


Figure 2. Test Configuration

4.5 Radiated Spurious Emissions

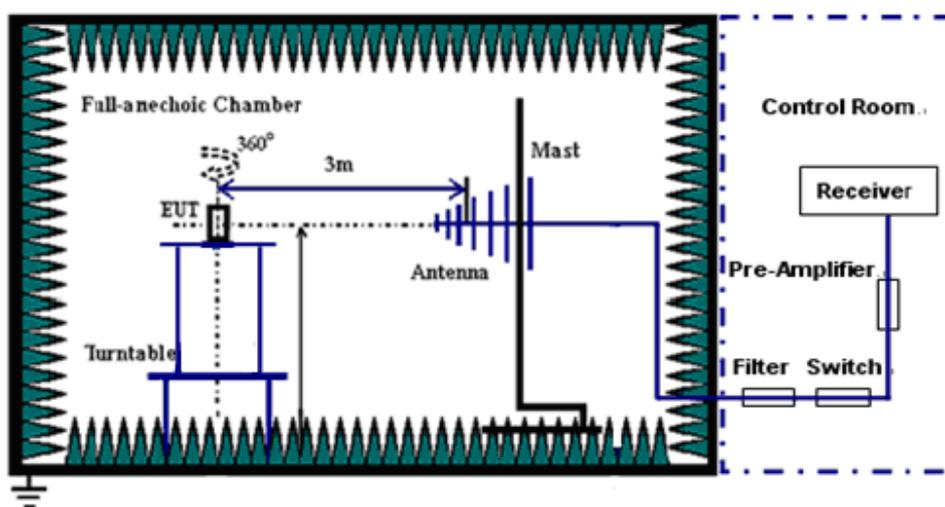
4.5.1 Test Procedure

A test site fulfilling the requirements of ITU-R Recommendation SM329-10 was used. The EUT was placed on a non-conducting support in the anechoic chamber and was operated from a power source via an RF filter to avoid radiation from the power leads.

Step 1:

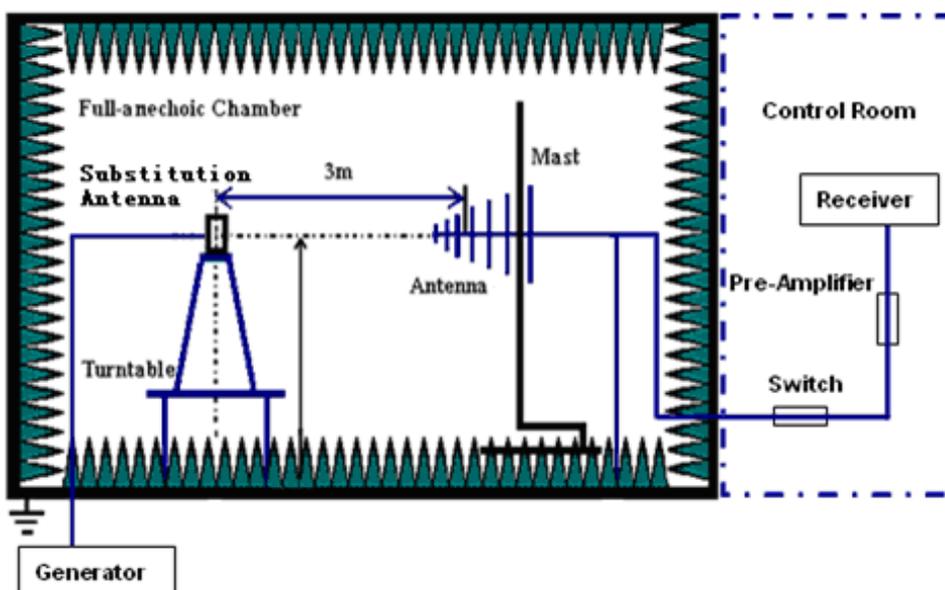
For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, EIRP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the EUT to the BTS simulator via the air interface.

Test the Radiated maximum output power by the Test Receiver from test antenna.



Step 2:

Use substitution method to verify the maximum output power. The EUT is substituted by a dipole antenna. The dipole is connected to a signal generator. And then adjust the output level of the signal generator to get the same received power recorded in step1 on Test Receiver, and record the power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.



According to part 27.53, the defined measurement bandwidth as following:

27.53(h) Measurement procedure: Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

Measurement bandwidth (RBW) for 9 kHz up to 150 kHz: 1 kHz;
 Measurement bandwidth (RBW) for 150 kHz up to 30 MHz: 10 kHz;
 Measurement bandwidth (RBW) for 30MHz up to 18GHz: 1MHz;

Radiated Spurious Emissions Limits

Frequency band	Minimum requirement (E.R.P) traffic mode
9KHz~18GHz	-13dBm

No peak found in pre- test. All frequency points' margin is bigger than 20dB, so the substitution method isn't used.

Calculation Sample:

Substitution Results

Freq. [MHz]	Measurement Value [dBm]	Substitution Antenna Type	Gain [dBd]	Cable Loss [dB]	Signal Generator Level [dBm]	Substitution Level [dBm]	FCC limit [dBm]	Result

Note: For get the E.R.P. (Efficient Radiated Power) in substitution method, the following formula should take to calculate it,

$$E.R.P. [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]$$

NOTE: SGP- Signal Generator Level

4.5.2 Test Results

The EUT has met the requirements of FCC Part27 requirement.

5 Main Test Instruments

Main Test Equipments

Test item	Test Instrument	Model	Manufacturer	Cal-Date	Cal Interval (month)
RSE	EMI Test receiver	FSU43	R&S	Jun.24, 2010	12
	Broadband Antenna	VULB 9163	SCHAFFNER	May.15.2010	12
	Horn Antenna	HF906	R&S	Jun.26, 2010	12
Software Information					
Test Item	Software Name	Manufacturer	Version		
RSE	EMC32	R&S	V8.10.10		

6 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

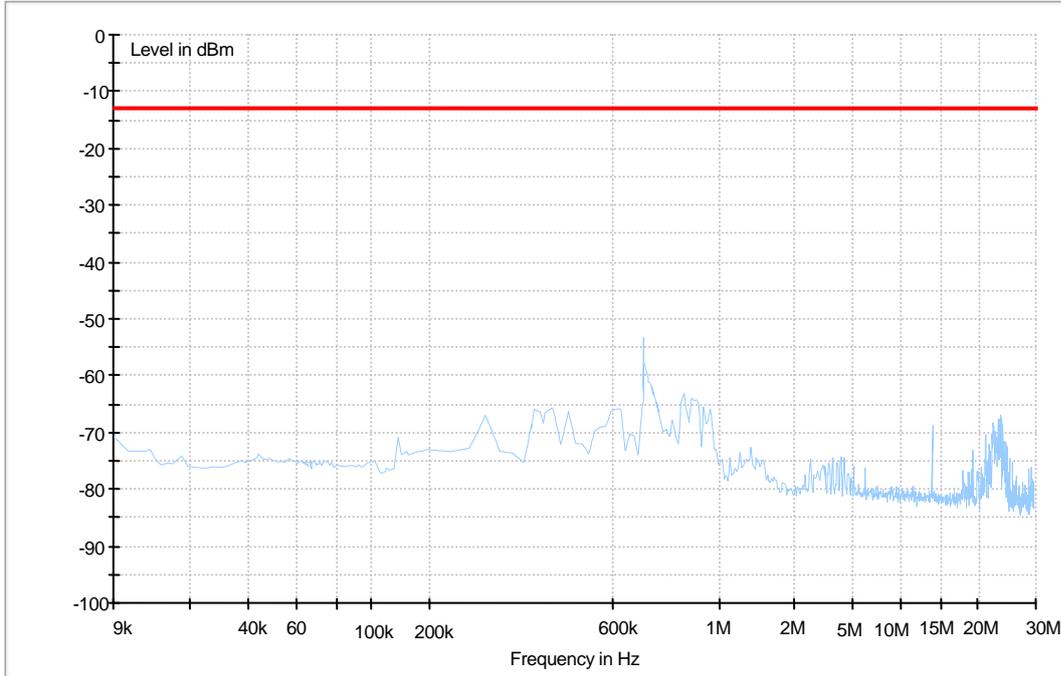
Items		Extended Uncertainty
RSE	ERP (dBm)	U=2.8dB; k=2

6.1 Radiated Spurious Emission

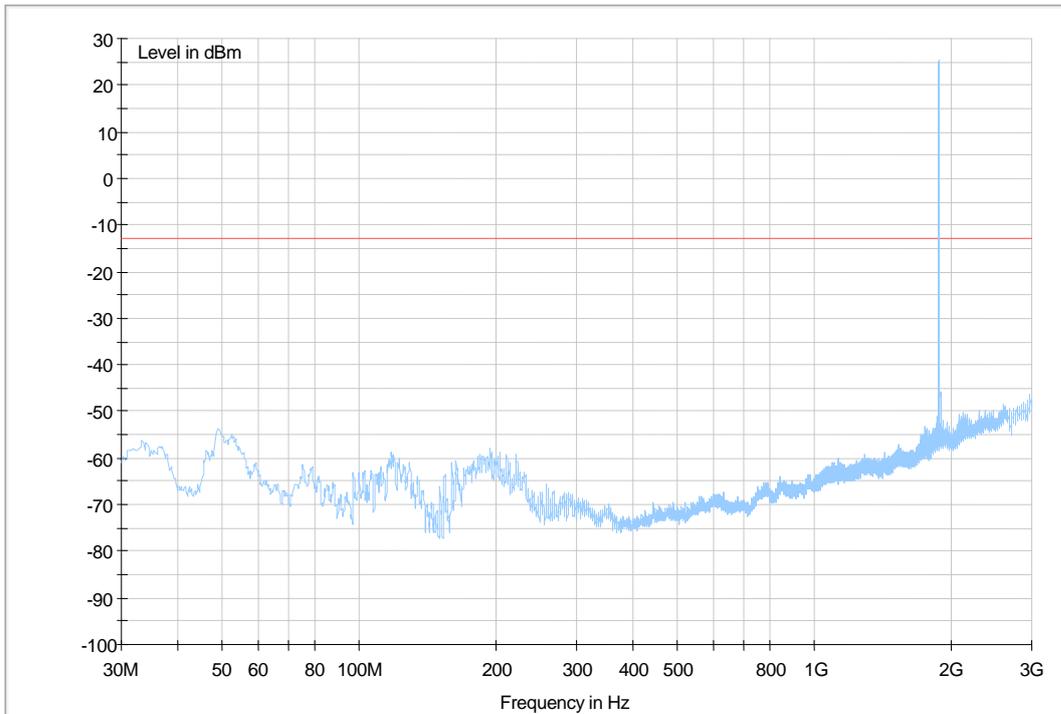
This test results are the maximum level of radiated spurious emissions in vertical and horizontal polarity. The highest peak exceeds the limit line is carrier frequency

6.1.1 For WCDMA AWS

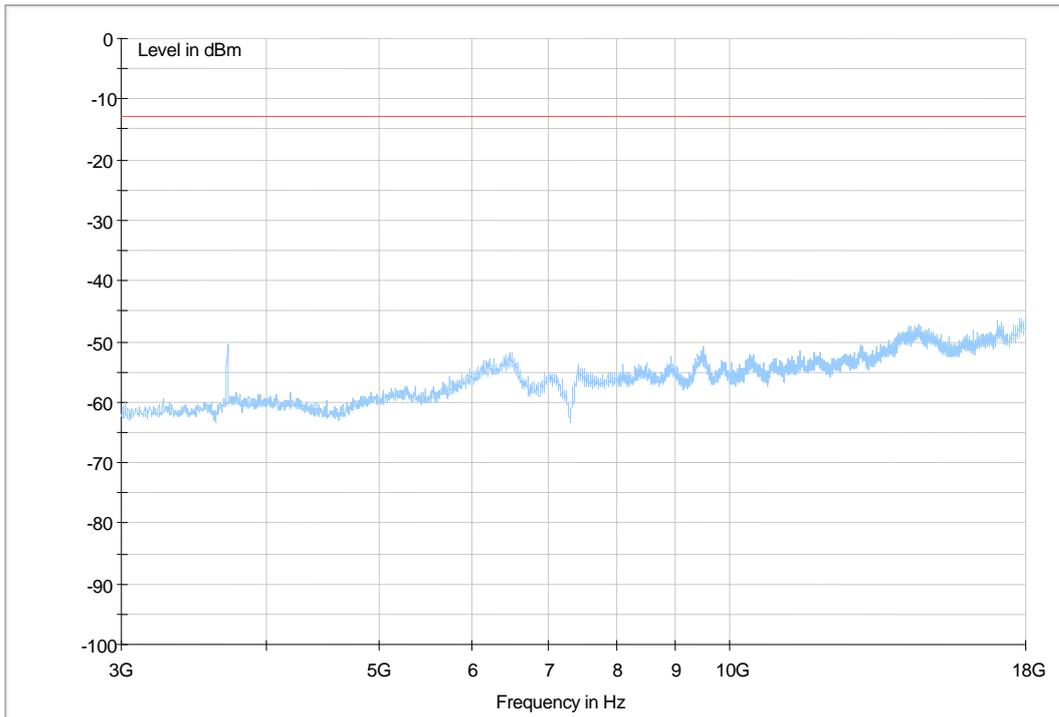
Traffic Mode (9kHz-30MHz)



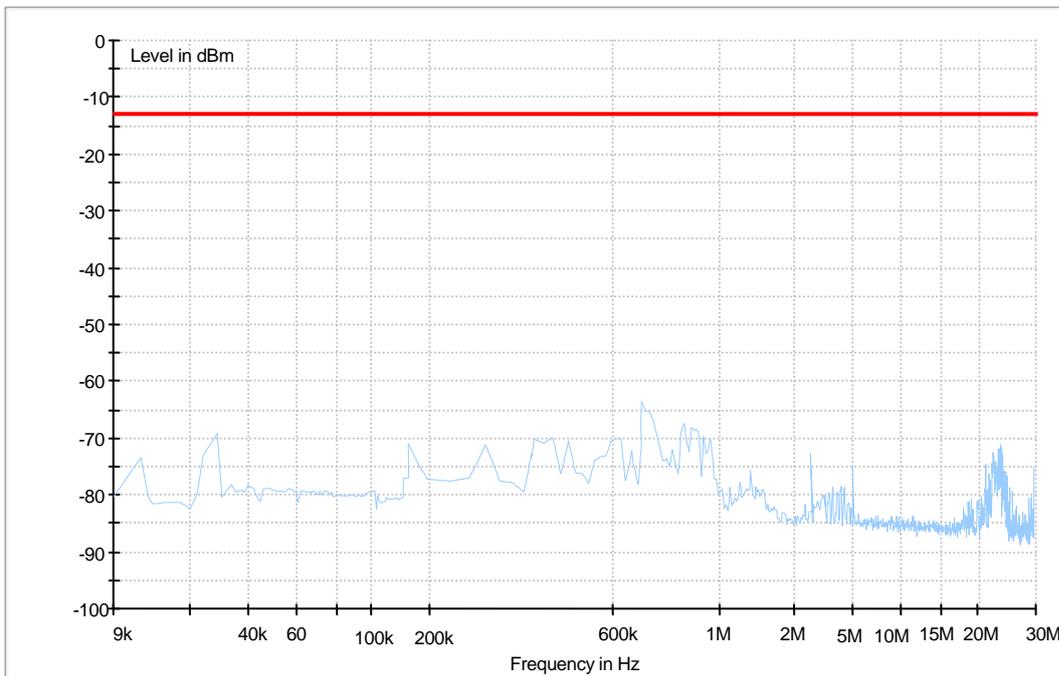
Traffic Mode (30MHz-3GHz)



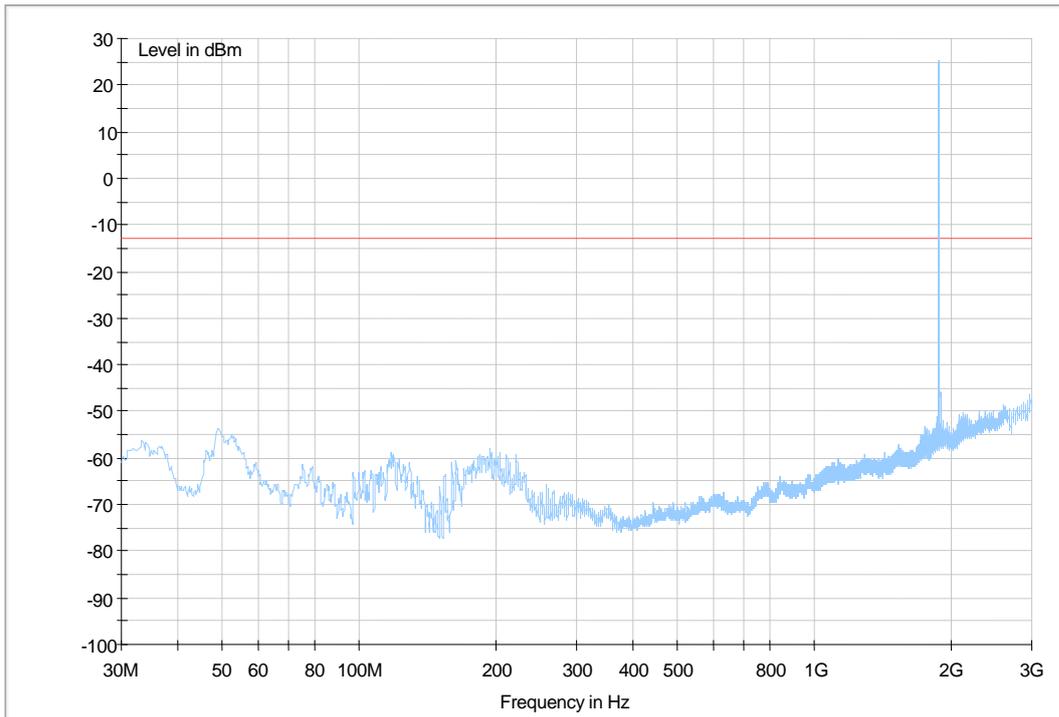
Traffic Mode (3GHz-18GHz)



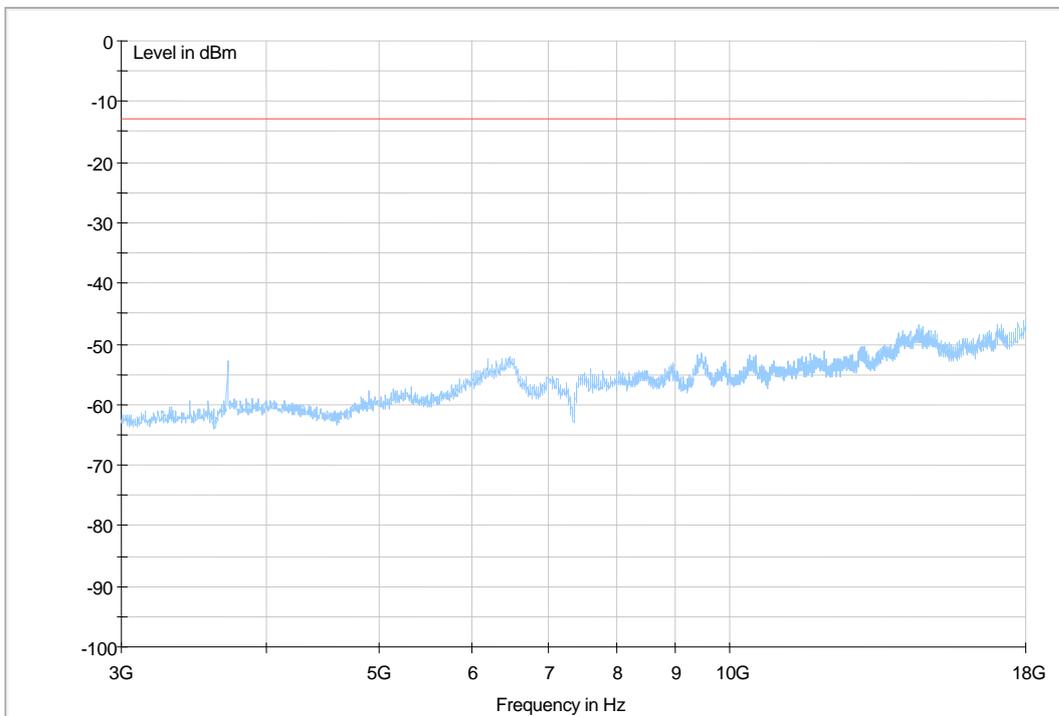
6.1.2 For HSDPA AWS Traffic Mode (9kHz-30MHz)



Traffic Mode (30MHz-3GHz)



Traffic Mode (3GHz-18GHz)



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