



EMC Test Report

**Product Name: HUAWEI ASCEND X;
HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth;
HUAWEI U9000; U9000**

Model Number: HUAWEI U9000-81/U9000-81

Report No: SYBH(Z-EMC)081032011-2

FCC ID: QISU9000-81

IC ID: 6369A-U900081

Reliability Laboratory of Huawei Technologies Co., Ltd.

Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China

Tel: +86 755 28780808 Fax: +86 755 89652518

Notice 1

1. The laboratory has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L0310.
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-2.
4. The test report is invalid if not marked with "exclusive stamp for the test report".
5. The test report is invalid if not marked with the stamps or the signatures of the persons responsible for performing, revising and approving the test report.
6. The test report is invalid if there is any evidence of erasure and/or falsification.
7. If there is any dissidence for the test report, please file objection to the test centre within 15 days from the date of receiving the test report.
8. Normally, the test report is only responsible for the samples that have undergone the test.
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	
	2	
	3	<i>Not Applicable!</i>
	4	
	5	
	6	
	7	



REPORT ON	HUAWEI ASCEND X; HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; HUAWEI U9000; U9000
	HUAWEI U9000-81/U9000-81
REGULATION	FCC CFR47 Part 15: Subpart B;
	FCC CFR47 Part 22: Subpart H;
	FCC CFR47 Part 24: Subpart E;
	FCC CFR47 Part 27: Subpart C;
	CAN/CSA-CE/IEC CISPR 22;
	RSS-Gen Issue 3;
	RSS-132 Issue 2;
	RSS-133 Issue 5;
	RSS-139 Issue 2;
START OF TEST	Mar.20,2011
END OF TEST	Mar.28,2011
Final Judgement:	Pass

Approved By

2011-03-28
Date

Liuchunlin
Name

Signature

Reviewed By

2011-03-28
Date

Dailinjun
Name

Signature

Operator

2011-03-28
Date

Wenjianfeng
Name

Signature



REPORT BODY CONTENT

1	Status	6
1.1	Product Information	6
1.2	Test Site	6
1.3	Test environment condition	6
2	Summary of Results	7
3	Equipment Specification	8
3.1	General Description	8
4	System Configuration during EMC Test	10
4.1	Cables Used during Test	10
4.2	Associated Equipment Used during Test	10
4.3	Test Configurations and Test Mode	10
4.4	Test conditions and test Connections	11
5	Electromagnetic Interference (EMI)	13
5.1	Radiated Disturbance 30MHz to 18GHz	13
5.2	Conducted Disturbance 0.15 MHz to 30MHz	14
5.3	Radiated Spurious Emissions	15
6	Receiver Spurious Emission (Radiated)	18
7	Main Test Instruments	19
8	System Measurement Uncertainty	20
9	Graph and Data of Emission Test	21
9.1	Radiated Disturbance	21
9.2	Conducted Disturbance	23
9.3	Radiated Spurious Emission	24
9.4	Receiver Spurious Emission	50

1 Status

1.1 Product Information

CLIENT:	Huawei Technologies Co., Ltd.
ADDRESS:	Bantian Longgang District Shenzhen, P.R. China
MANUFACTURING DESCRIPTION	HUAWEI ASCEND X; HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; HUAWEI U9000; U9000
MANUFACTURERS MODEL NUMBER	HUAWEI U9000-81/U9000-81

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 Emissions</u> Enclosure Port	TC1/TC2 (TM18-TM34)	N/A	Pass	Site1
<u>Conducted Emissions</u>	TC1 (TM1-TM34)	N/A	Pass	Site1
<u>Radiated Spurious Emissions</u> Enclosure Port	TC1 (TM1-TM15)	N/A	Pass	Site1
<u>Receiver Spurious Emission</u> Enclosure Port	TC1/TC2 (TM18-TM34)	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

HUAWEI ASCEND X; HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; HUAWEI U9000; U9000 - HUAWEI U9000-81/U9000-81 is subscriber equipment in the WCDMA/GSM system. The HSPA/UMTS frequency band is Band I, Band II, Band IV and Band V, only Band II, Band IV and Band V can be used in this report. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only GSM850 and PCS1900MHz band test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA/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.

3.1.1 Main Equipment Technical Data

Description:	HUAWEI ASCEND X; HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; HUAWEI U9000; U9000
Models:	HUAWEI U9000-81/U9000-81
Input Rated Voltage	3.8V
Extreme Voltage	3.5V and 4.2V
Rated Power	Normal 3W ,Max 8 W
Dimensions	122.3 mm (L) × 65.6 mm (W) × 10.5mm (H)
Weight	130g (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	1712-1753	2112- 2153
	WCDMA850	827-847	872- 892
	WCDMA1900	1853-1908	1933-1988
Bluetooth		2400-2483.5	
WIFI		2400-2483.5	
GPS		1575.42	

Sub-Assembly Identity

Board				
Model Name	Qty.	Serial	Description	
PR2.32	1	8509M21111700130	Main board of Mobile Phone	
Accessory				
Name	Qty.	Manufacture	Serials number	Description
Adapter	1	Huawei Technologies Co., Ltd.	HKAAC0554018	Adapter Model: HW-050100U1W Input Voltage : ~100-240V 50/60Hz 0.2A Output Voltage: === 5.0V 1A Rated Power: 5W
Adapter	1	Huawei Technologies Co., Ltd.	TPAAA2924999	Adapter Model: HW-050100E1W Input Voltage : ~100-240V 50/60Hz 0.2A Output Voltage: === 5.0V 1A

				Rated Power: 5W
Adapter	1	Huawei Technologies Co., Ltd.	HKAAC1465657	Adapter Model: HW-050100B1W Input Voltage : ~100-240V 50/60Hz 0.2A Output Voltage: === 5.0V 1A Rated Power: 5W
Rechargeable Li-ion	1	Huawei Technologies Co., Ltd.	YJCB107HI0202419	Battery Model: HHB4Z1 Rated capacity: 1400mAh Nominal Voltage: === +3.7V Charging Voltage: === +4.2V

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
USB	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
Notebook	T61	IBM	3108052508	N/A

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).
 TC2:EUT connected to the notebook by USB port.

Configuration table

TC1/TC2	TM1~TM34
---------	----------

4.3.2 Test Mode

There were 34 test Modes. TM1 to TM34 were shown in the diagrams below:

TM1	operate in traffic mode GSM850;
TM2	operate in traffic mode GSM1900;
TM3	operate in traffic mode GPRS850;
TM4	operate in traffic mode GPRS 1900;
TM5	operate in traffic mode EDGE850;
TM6	operate in traffic mode EDGE1900;
TM7	operate in traffic mode WCDMA 850;
TM8	operate in traffic mode WCDMA 1900;
TM9	operate in traffic mode WCDMA AWS;
TM10	operate in traffic mode HSDPA 850;
TM11	operate in traffic mode HSDPA 1900;
TM12	operate in traffic mode HSDPA AWS;
TM13	operate in traffic mode HSUPA 850;
TM14	operate in traffic mode HSUPA 1900;
TM15	operate in traffic mode HSUPA AWS;
TM16	operate in traffic mode Bluetooth;

TM17	operate in traffic mode WIFI;
TM18	operate in idle mode GSM850;
TM19	operate in idle mode GSM1900;
TM20	operate in idle mode GPRS850;
TM21	operate in idle mode GPRS 1900;
TM22	operate in idle mode EDGE850;
TM23	operate in idle mode EDGE1900;
TM24	operate in idle mode WCDMA 850;
TM25	operate in idle mode WCDMA 1900;
TM26	operate in idle mode WCDMA AWS;
TM27	operate in idle mode HSDPA 850;
TM28	operate in idle mode HSDPA 1900;
TM29	operate in idle mode HSDPA AWS;
TM30	operate in idle mode HSUPA 850;
TM31	operate in idle mode HSUPA 1900;
TM32	operate in idle mode HSUPA AWS;
TM33	operate in idle mode Bluetooth;
TM34	operate in idle mode WIFI;

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. (WCDMA see 3GPP TS 34.121, GSM see ETSI TS 151.010).

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;

For EGSM and PCS, the following conditions shall also be met:

The EUT shall be commanded to operate at maximum transmit power;

The downlink RXQUAL shall be monitored.

Assign channel frequency to an appropriate channel number.

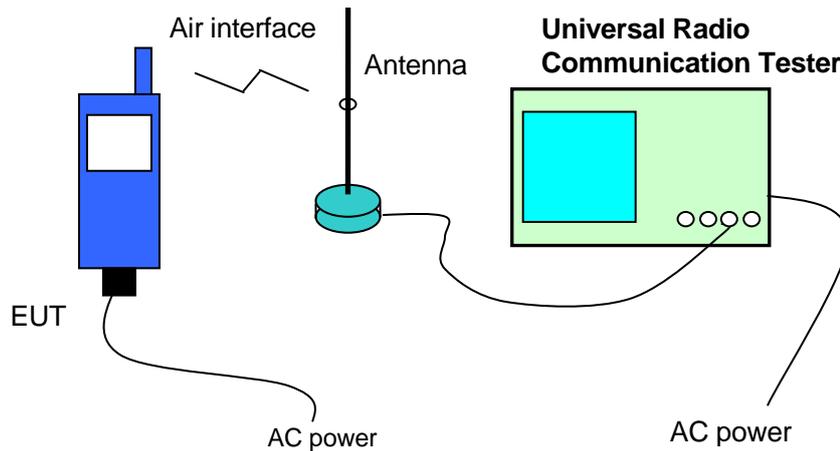


Figure 1.: Test Configuration

Idle Mode:

The EUT is required to be in the 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).

For GSM850 and PCS1900, the following conditions shall be met::

When the EUT is required to be in the idle mode, the test system shall simulate a Base Station (BS) with Broadcast Control Channel/Common Control Channel (BCCH/CCCH) on one carrier. The EUT shall be synchronized to the BCCH, listening to the CCCH and able to respond to paging messages. Periodic Location Updating shall be disabled.

5 Electromagnetic Interference (EMI)

5.1 Radiated Disturbance 30MHz to 18GHz

5.1.1 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4. The test distance was 3m. The set-up and test methods were according to ANSI C63.4 .

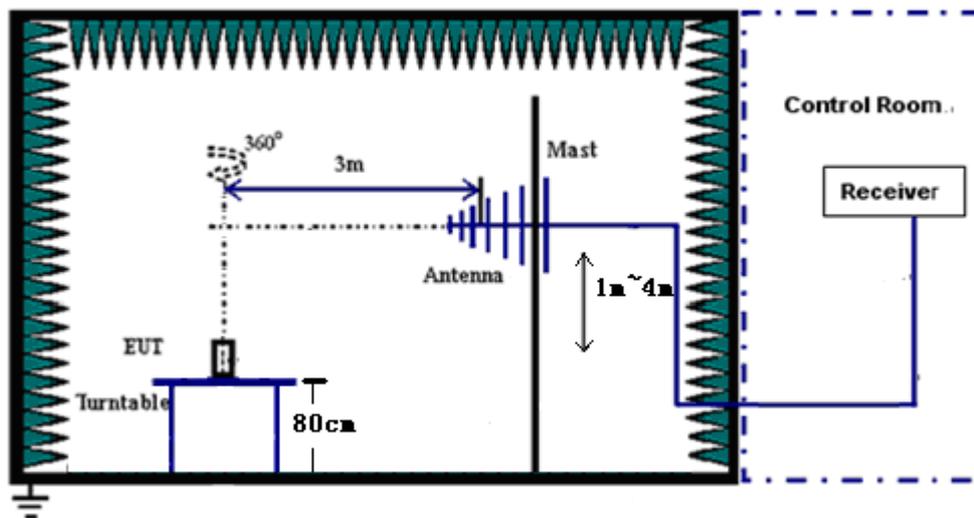
A preliminary scan and a final scan of the emissions were made from 30 MHz to 18 GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°, The receive antenna has two polarizations V and H.

EUT was configured in idle mode and the test performed at worst emission state.

Measurement bandwidth: 30 MHz – 1000 MHz: 120 k Hz

Measurement bandwidth: 1GHz – 18GHz: 1MHz

Test set up figure:



5.1.2 Test Results

The EUT has met the requirements for Radiated Emission of enclosure port.

Test Limits

Frequency of Emission (MHz)	Radiated Limit	
	Unit($\mu\text{V}/\text{m}$)	Unit($\text{dB}\mu\text{V}/\text{m}$)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

5.2 Conducted Disturbance 0.15 MHz to 30MHz

5.2.1 Test Procedure

The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.4.

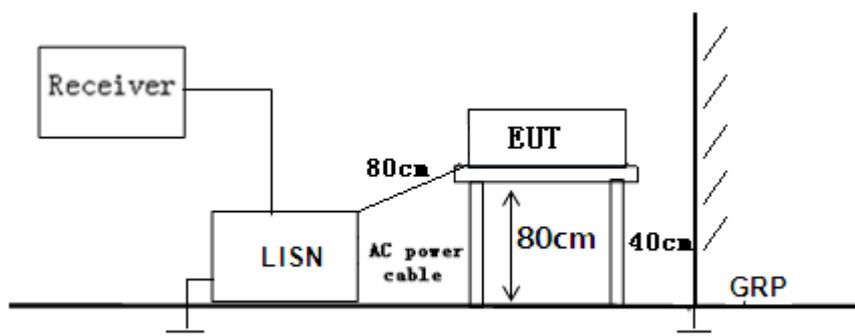
Conducted Disturbance at AC Port measurements were undertaken on the L and N Lines. The emissions were measured using a Quasi-Peak Detector and Average Detector.

Huawei Mobile Station was communicated with the BTS simulator through Air interface, the BTS simulator controls the Mobile Station to transmitter the maximum power which defined in specification of product. The Mobile Station operated on the typical channel.

Measurement bandwidth (RBW) for 150kHz to 30 MHz: 9 kHz;

Test Set-up figure:

The Mobile Station was setup in the screened chamber and operated under nominal conditions.



5.2.2 Test Results

The EUT has met requirements for Conducted disturbance of power lines.

Test Limit of DC&AC Power Port

Frequency range	150kHz~ 30MHz	
Classification	Class B	
Limit(Class B)	Voltage limits	
	QP	AV
0.15MHz~0.5MHz	66~56 dB μ V	56~46 dB μ V
0.5MHz~5MHz	56 dB μ V	46 dB μ V
5MHz~30MHz	60 dB μ V	50 dB μ V

5.3 Radiated Spurious Emissions

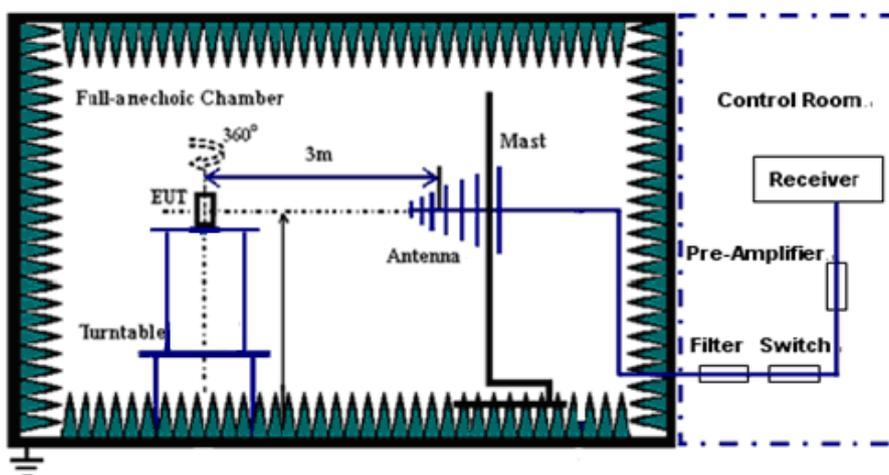
5.3.1 Test Procedure

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:

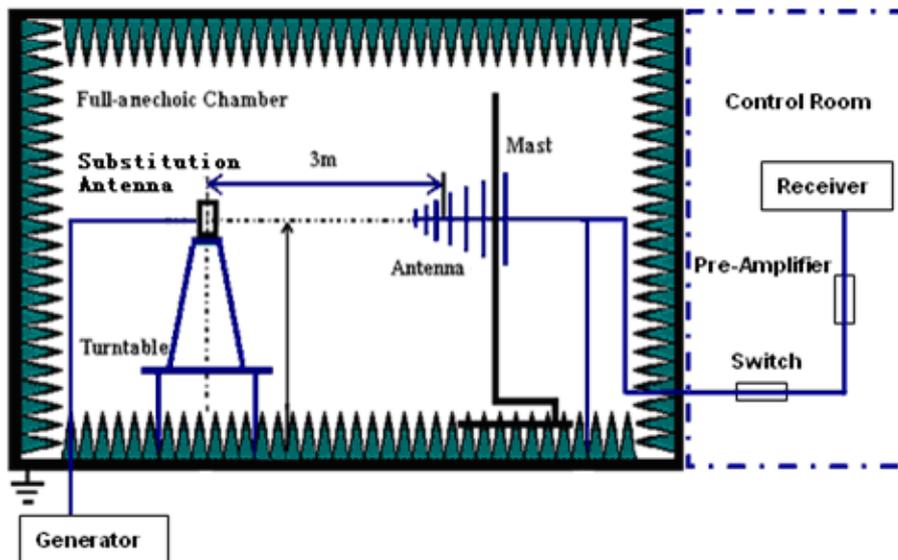
For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, EIRP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect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



Test should be performed in normal voltage condition.

According to part 22.917, the defined measurement bandwidth as following:

22.917(b) 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 1 GHz: 100 kHz;
 Measurement bandwidth (RBW) for 1GHz up to 18GHz: 1MHz;

According to RSS-132, the defined measurement bandwidth as following:
 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 30 MHz up to 1 GHz: 100 kHz;
 Measurement bandwidth (RBW) for 1GHz up to 18 GHz: 1MHz;

Radiated Spurious Emissions Limits

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

According to part 24.238, the defined measurement bandwidth as following:

24.238(b) 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 26.5GHz: 1MHz;

According to RSS-133, the defined measurement bandwidth as following:
 RSS-133 Measurement procedure: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater.
 Measurement bandwidth (RBW) for 30 MHz up to 26.5 GHz: 1 MHz;

Radiated Spurious Emissions Limits

Frequency band	Minimum requirement (E.R.P) traffic mode
9KHz~26.5GHz	-13dBm

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;

According to RSS-139, the defined measurement bandwidth as following:
 RSS-133 Measurement procedure: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater.

Measurement bandwidth (RBW) for 30 MHz up to 18 GHz: 1 MHz;

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,

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

NOTE: SGP- Signal Generator Level

5.3.2 Test Results

The EUT has met the requirements of FCC Part22/24/27, RSS-132/133/139.

6 Receiver Spurious Emission (Radiated)

6.1.1 Test Procedure

The EUT was connected to the Spectrum Analyzer or equivalent via one RF RX diversity connector, and other RF connectors were connected to match loads. The EUT was controlled to transmit maximum power and to be operated in the normal receive mode by Console Computer. Measure and record the Receiver Out-band Spurious Emissions of the EUT by the Spectrum Analyzer or equivalent.

According to IC RSS-Gen clause 4.10, the search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is the higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is the higher, without exceeding 40 GHz.

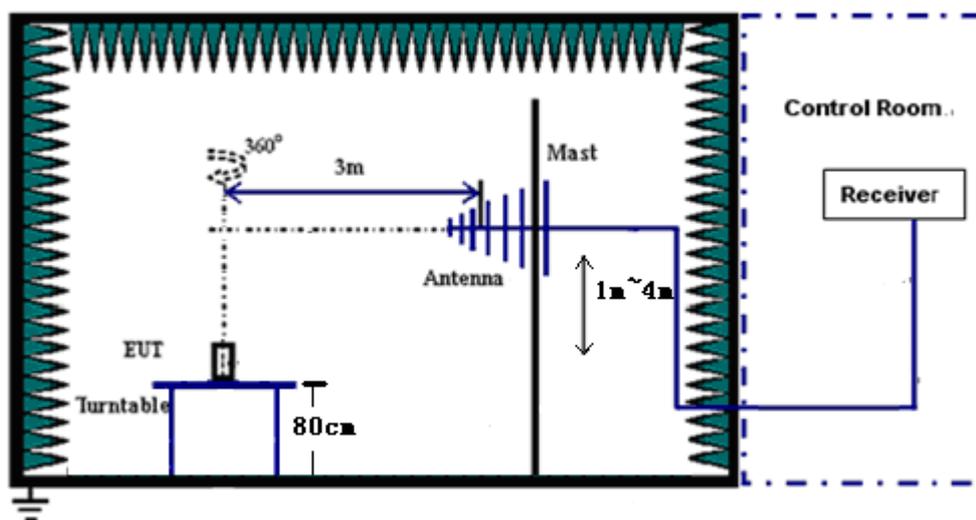
A preliminary scan and a final scan of the emissions were made from 30 MHz to 18 GHz by using test script of software; the emissions were measured using Quasi-Peak Detector (30MHz~1GHz) and AV detector (above 1GHz). The maximal emission value was acquired by adjusting the antenna height, polarisation and turntable azimuth in accordance with the software setup. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°, The receive antenna has two polarizations V and H.

EUT was configured in idle mode and the test performed at worst emission state.

Measurement bandwidth: 30 MHz – 1000 MHz: 120 kHz

Measurement bandwidth: 1GHz – 18GHz: 1MHz

Test set up figure:



6.1.2 Test Results

The EUT has met the requirements for Radiated Emission of enclosure port.

Test Limits

Frequency of Emission (MHz)	Radiated Limit	
	Unit($\mu\text{V}/\text{m}$)	Unit($\text{dB}\mu\text{V}/\text{m}$)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

7 Main Test Instruments

Main Test Equipments

Test item	Test Instrument	Model	Manufacturer	Cal-Date	Cal Interval (month)
RE&CE& Receiver Spurious Emission	EMI Test receiver	ESU26	R&S	Jun.25, 2010	12
	Broadband Antenna	VULB 9163	SCHWARZBECK	May.15, 2010	12
	Horn Antenna	HF906	R&S	May.15, 2010	12
	LISN	ENV216	R&S	Jun.25.2010	12
RSE	EMI Test receiver	ESIB26	R&S	May.05, 2010	12
	Horn Antenna	3117	ETS-Lindgren	Dec.13.2010	12
	Broadband Antenna	CBL 6112B	SCHAFFNER	Dec.11.2010	12
	Horn Antenna	3160	ETS-Lindgren	Dec.23.2010	12
Software Information					
Test Item	Software Name	Manufacturer	Version		
RE&CE& Receiver Spurious Emission	ES-K1	R&S	1.7.1		
RSE	EMC32	R&S	V8.40.10		

8 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

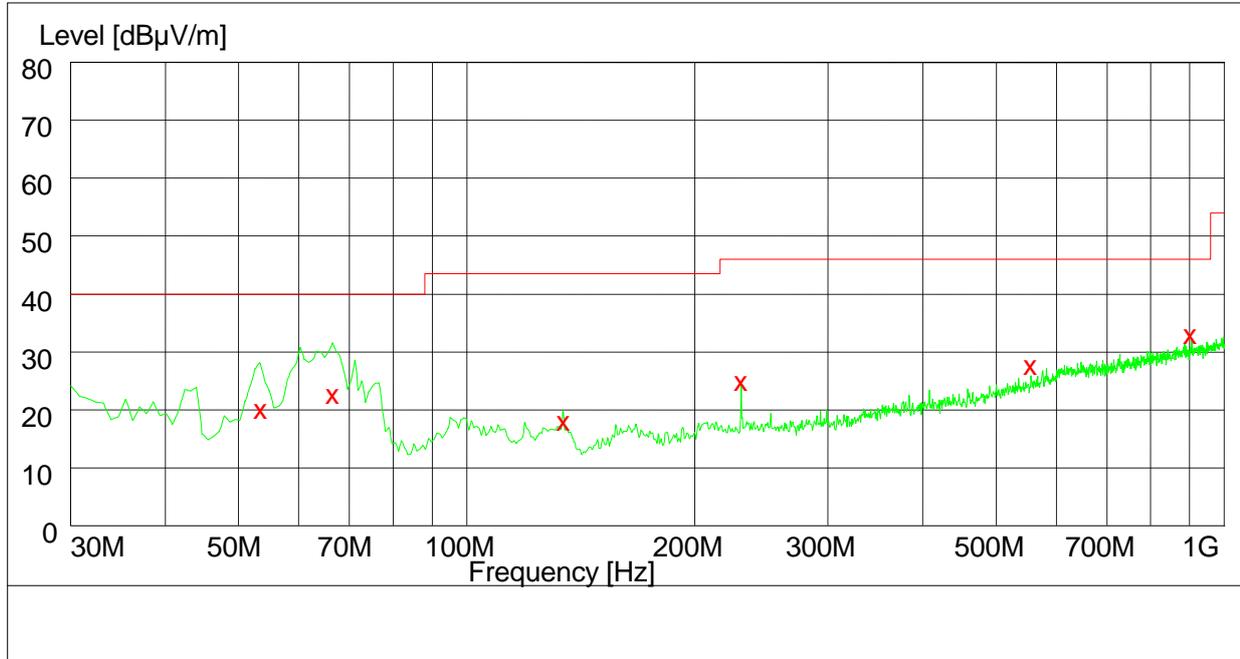
Items		Extended Uncertainty
RE& Receiver Spurious Emission	Field strength (dB μ V/m)	U=4.1dB; k=2(30MHz-1GHz)
RE& Receiver Spurious Emission	Field strength (dB μ V/m)	U=4.1dB; k=2(1GHz-18GHz)
RSE	ERP (dBm)	U=2.2dB; k=2
CE	Disturbance Voltage (dB μ V)	U=3.4dB; k=2

9 Graph and Data of Emission Test

9.1 Radiated Disturbance

This test was carried out in all the test modes, here only the worst test result was shown.

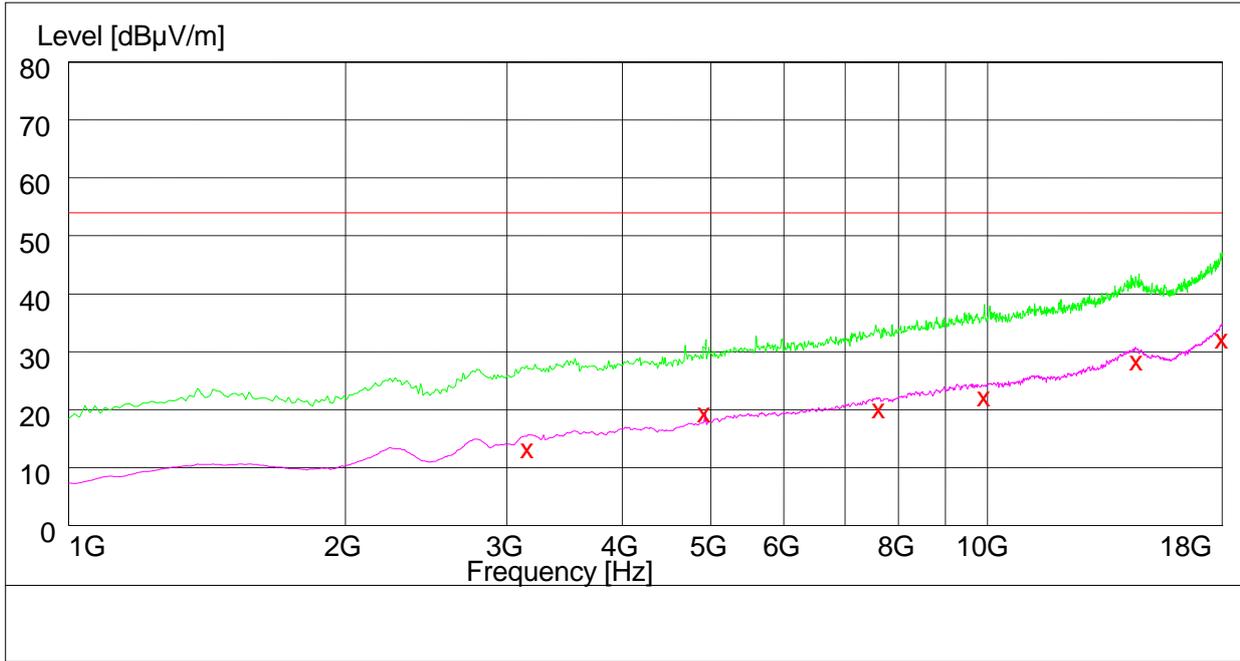
30MHz-1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
53.520000	21.40	12.7	40.0	18.6	100.0	261.00	VERTICAL
66.652000	24.00	9.7	40.0	16.0	100.0	89.00	VERTICAL
134.404000	19.20	9.0	43.5	24.3	100.0	135.00	VERTICAL
230.448000	26.10	13.5	46.0	19.9	121.0	324.00	HORIZONTAL
555.532000	28.90	21.5	46.0	17.1	154.0	272.00	VERTICAL
903.772000	34.20	26.2	46.0	11.8	200.0	240.00	VERTICAL

1GHz-18GHz

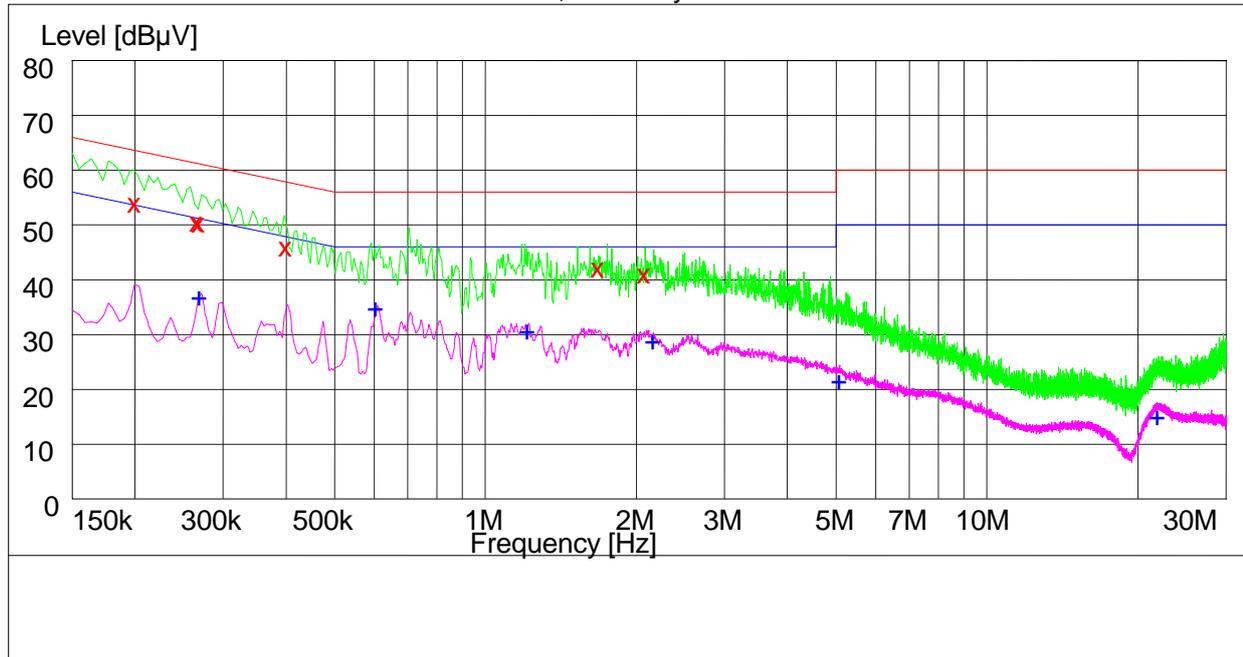


MEASUREMENT RESULT: AV Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3163.900000	14.40	-8.4	54.0	39.6	162.0	50.00	VERTICAL
4923.800000	28.50	-3.8	54.0	25.5	100.0	39.00	VERTICAL
7616.100000	21.30	1.7	54.0	32.7	200.0	0.00	HORIZONTAL
9920.100000	23.40	5.1	54.0	30.6	138.0	189.00	HORIZONTAL
14519.900000	29.60	12.3	54.0	24.4	173.0	235.00	VERTICAL
17990.900000	33.40	17.3	54.0	20.6	200.0	351.00	HORIZONTAL

9.2 Conducted Disturbance

This test was carried out in all the test modes, here only the worst test result was shown.



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.200000	55.40	10.1	64	8.6	N	FLO
0.266000	51.90	10.0	61	9.1	N	FLO
0.268000	51.70	10.0	61	9.3	N	FLO
0.400000	47.40	10.0	58	10.6	N	FLO
1.676000	43.50	10.1	56	12.5	N	FLO
2.078000	42.50	10.1	56	13.5	N	FLO

MEASUREMENT RESULT: AV Detector

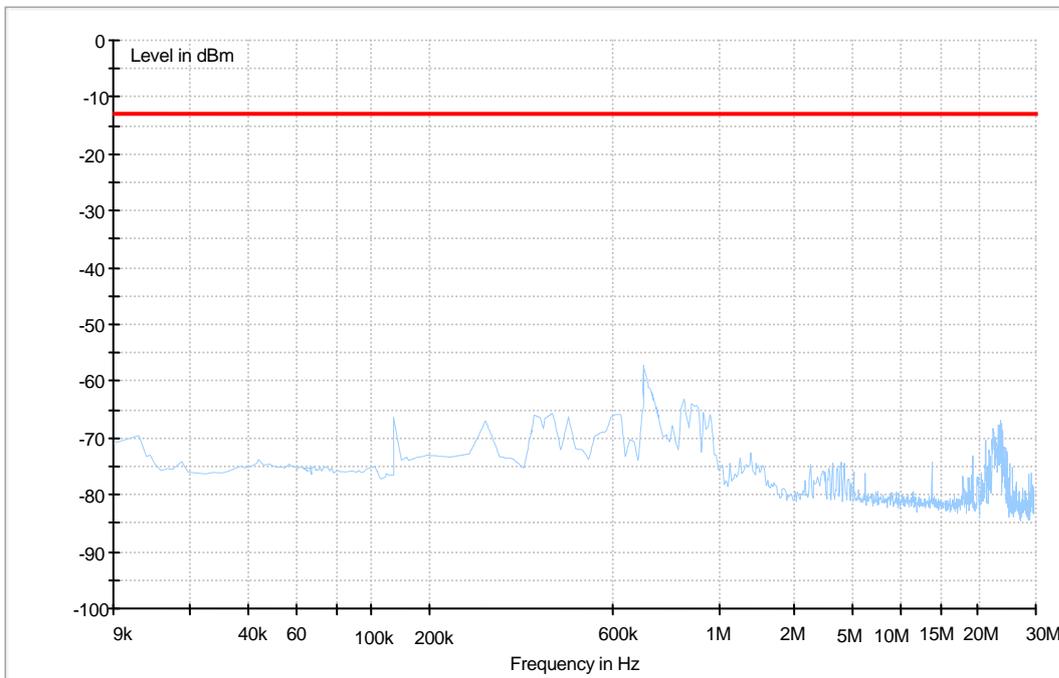
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.268000	38.30	10.0	51	12.7	N	FLO
0.602000	36.30	10.1	46	9.7	N	FLO
1.210000	32.10	10.1	46	13.9	N	FLO
2.154000	30.20	10.1	46	15.8	L1	FLO
5.060000	23.10	10.2	50	26.9	N	FLO
21.780000	16.40	10.4	50	33.6	L1	FLO

9.3 Radiated Spurious Emission

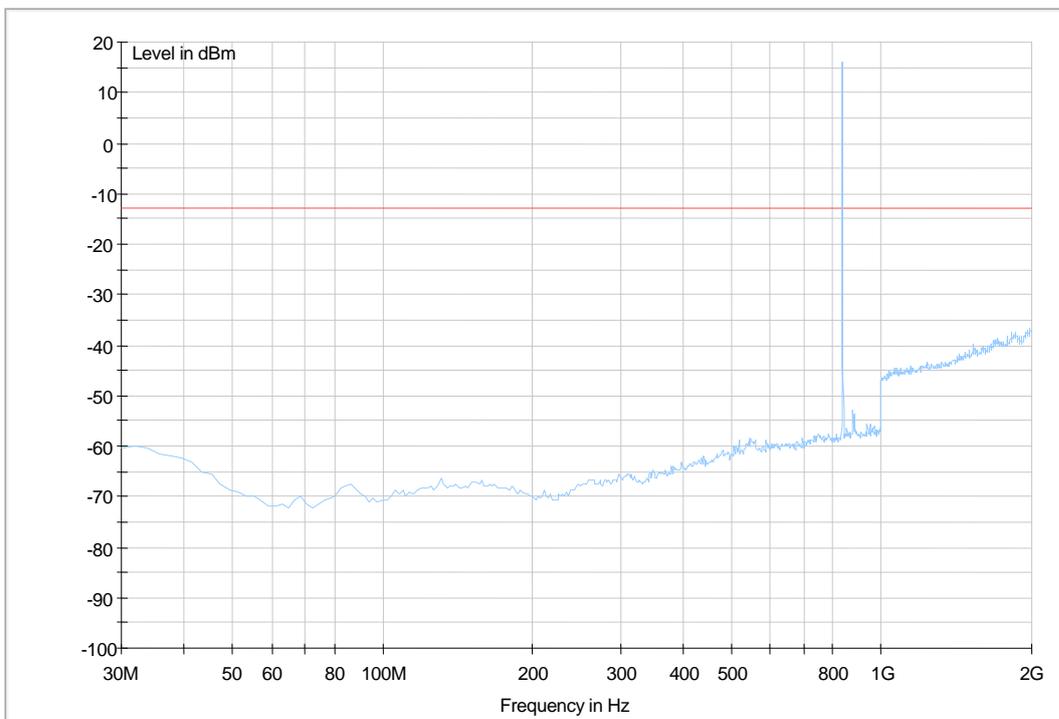
This test results are the maximum level of radiated spurious emissions in vertical and horizontal polarity. The highest peak exceeds the limit line is carrier frequency

9.3.1 For GSM 850

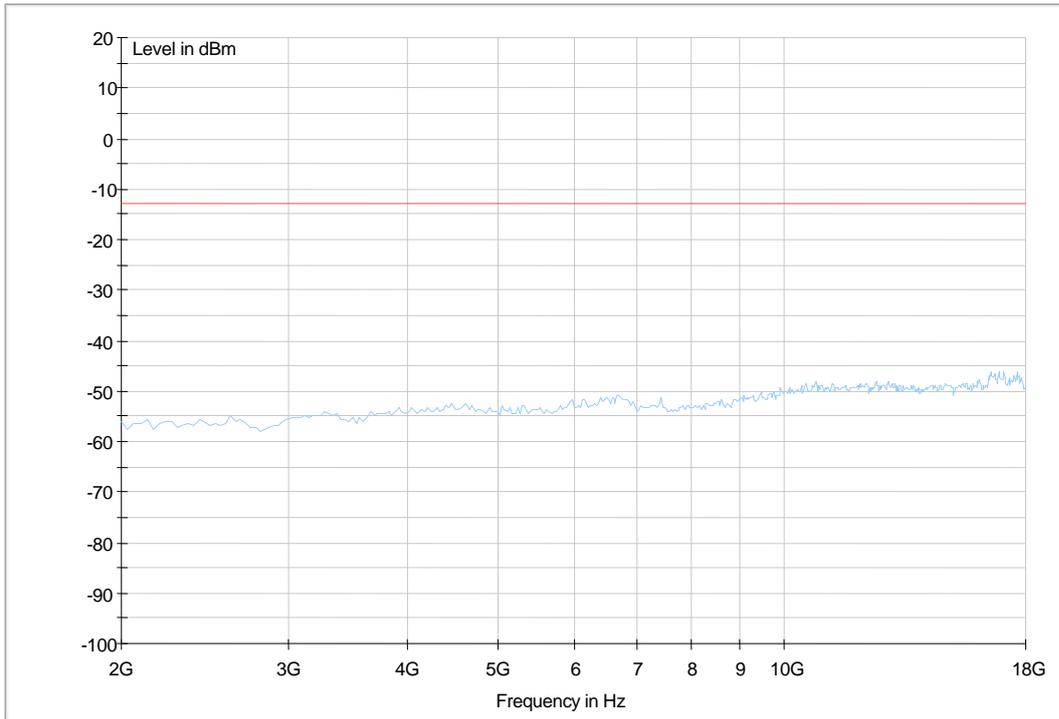
Traffic Mode (9kHz-30MHz)



Traffic Mode (30MHz-2GHz)

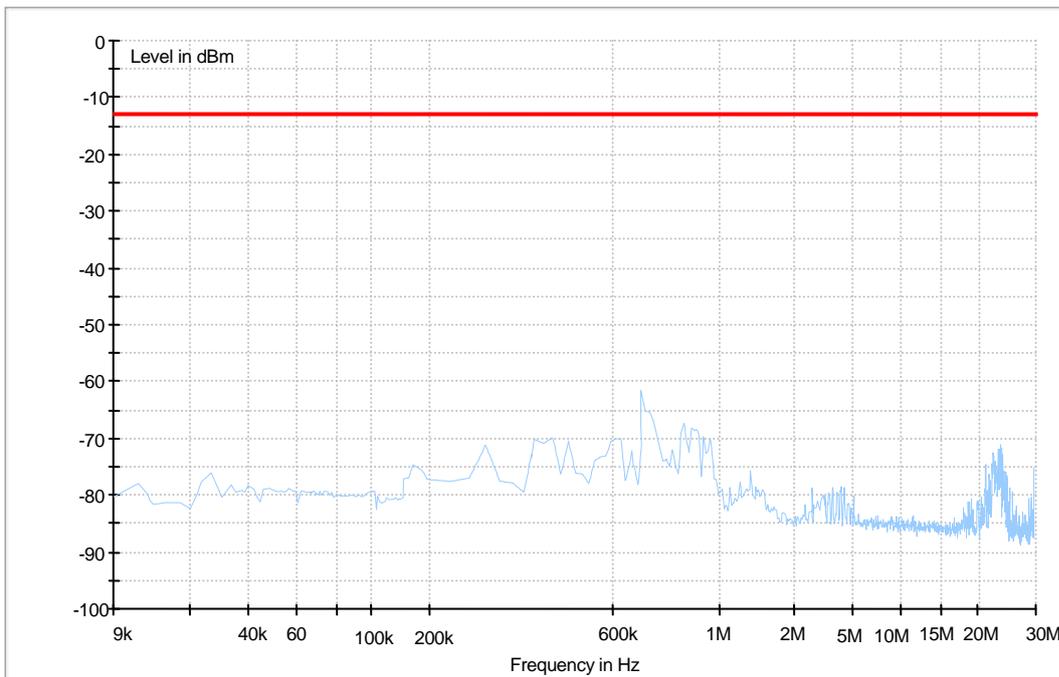


Traffic Mode (2GHz-18GHz)

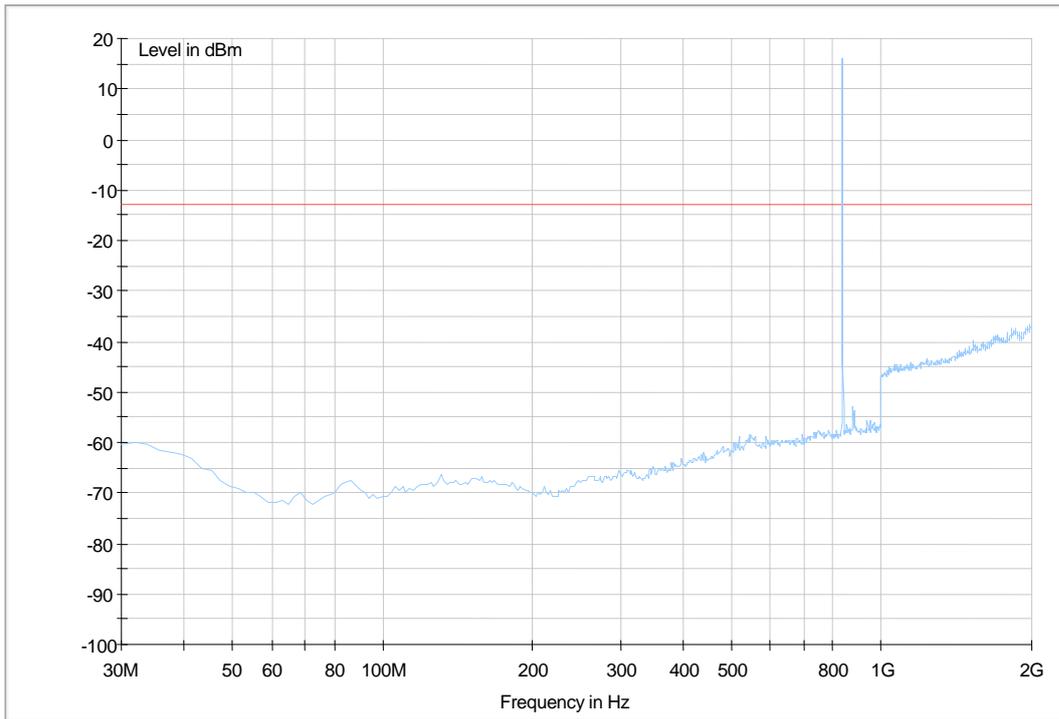


9.3.2 For GPRS 850

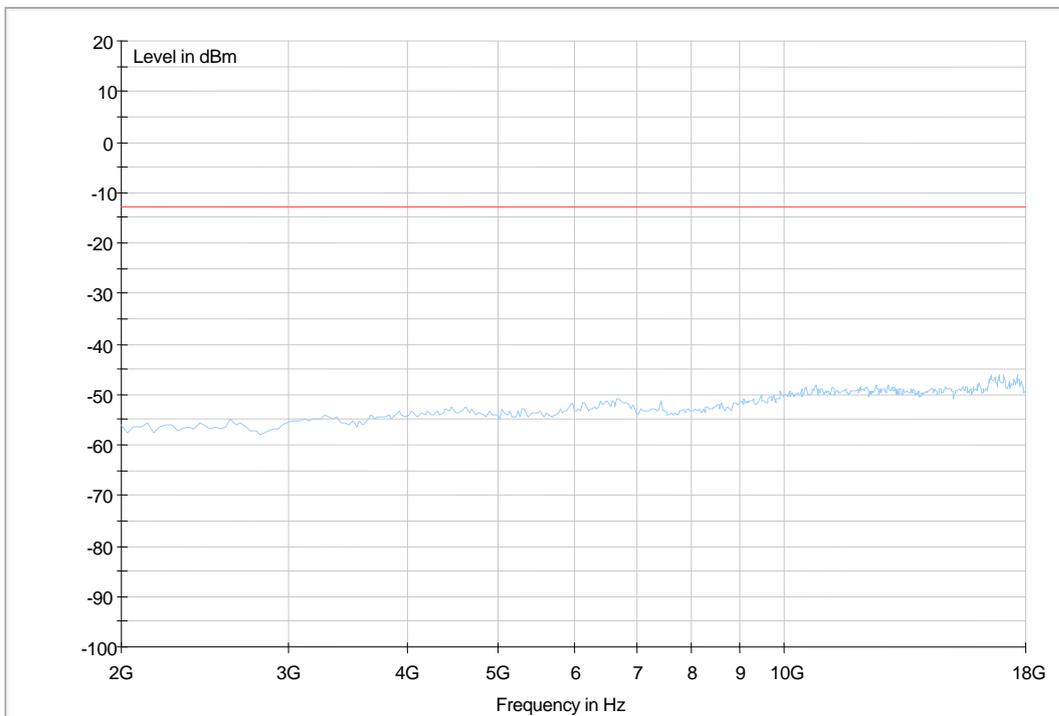
Traffic Mode (9kHz-30MHz)



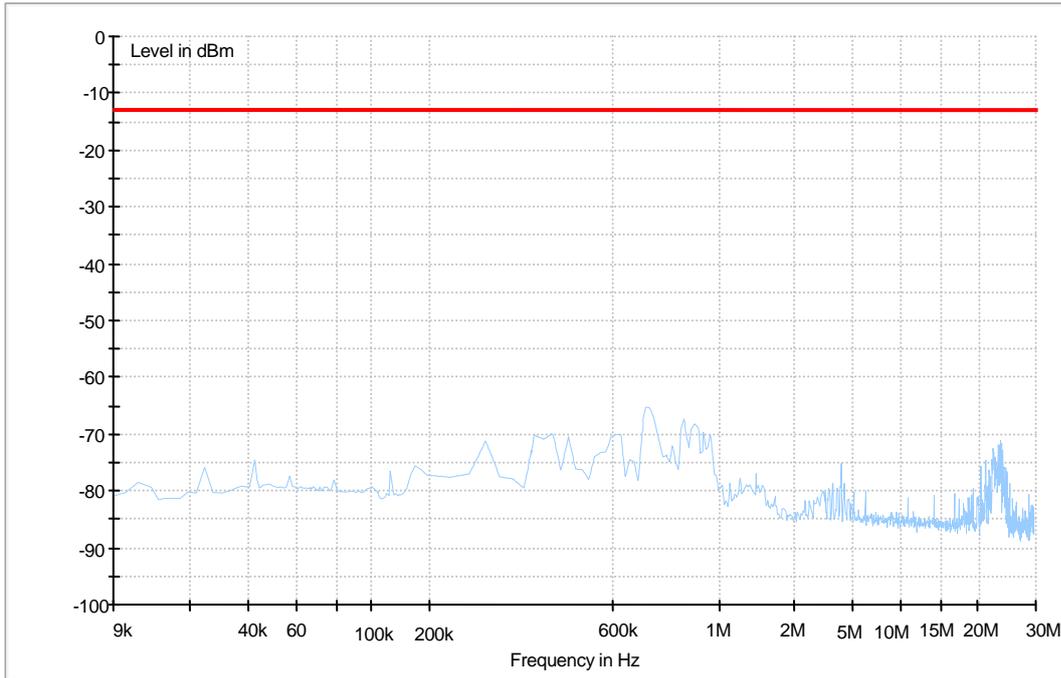
Traffic Mode (30MHz-2GHz)



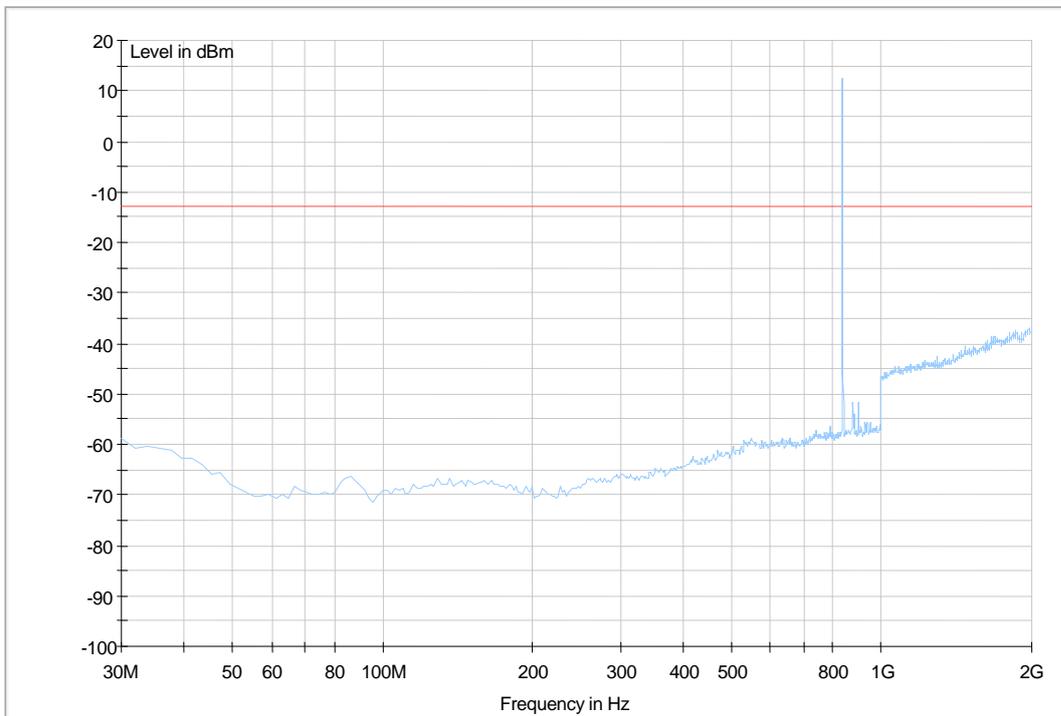
Traffic Mode (2GHz-18GHz)



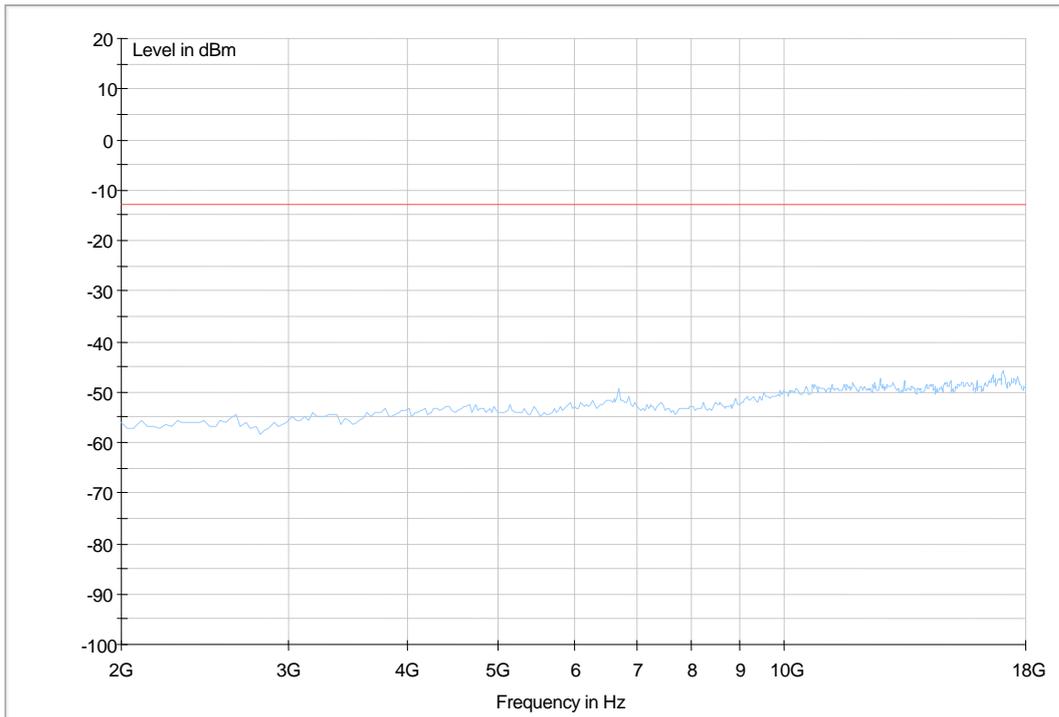
9.3.3 For EDGE 850 Traffic Mode (9kHz-30MHz)



Traffic Mode (30MHz-2GHz)

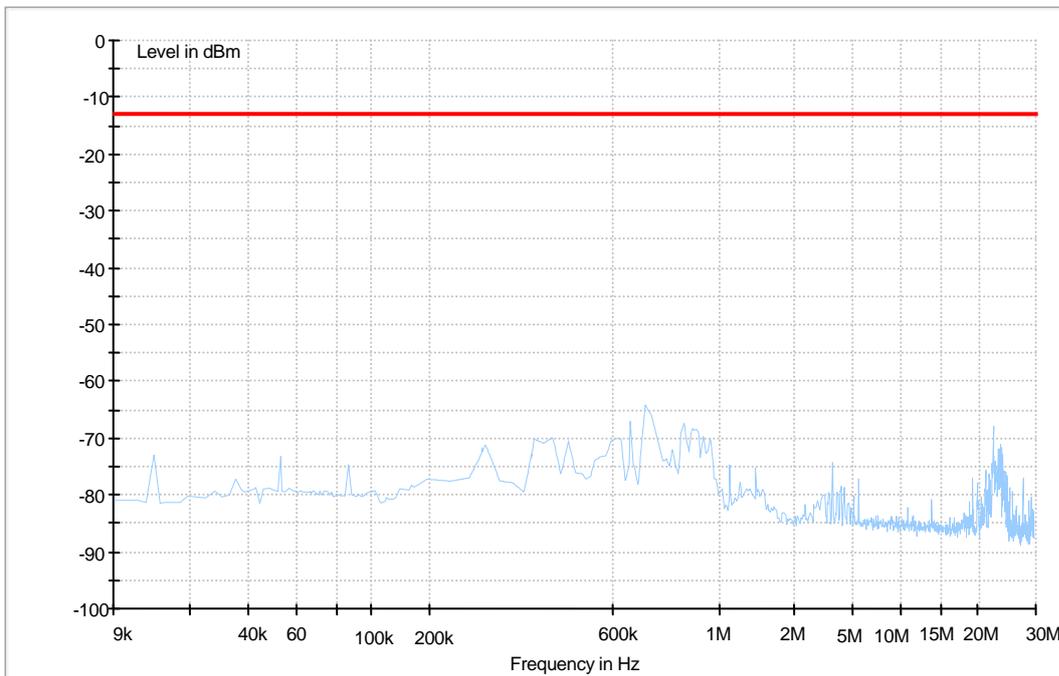


Traffic Mode (2GHz-18GHz)

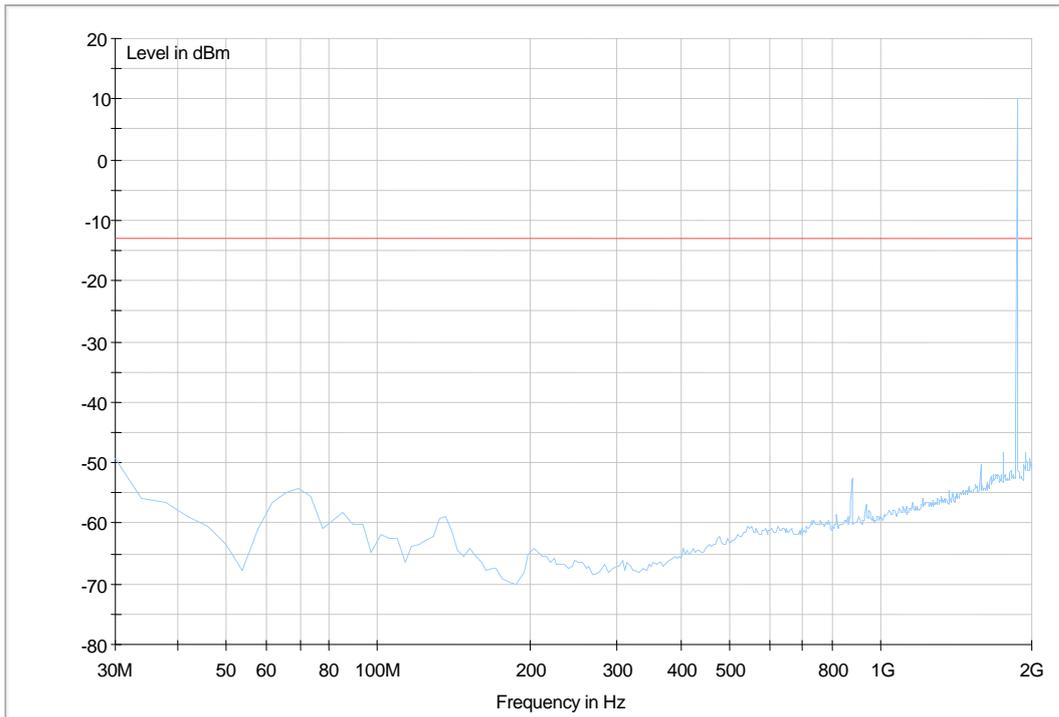


9.3.4 For GSM 1900

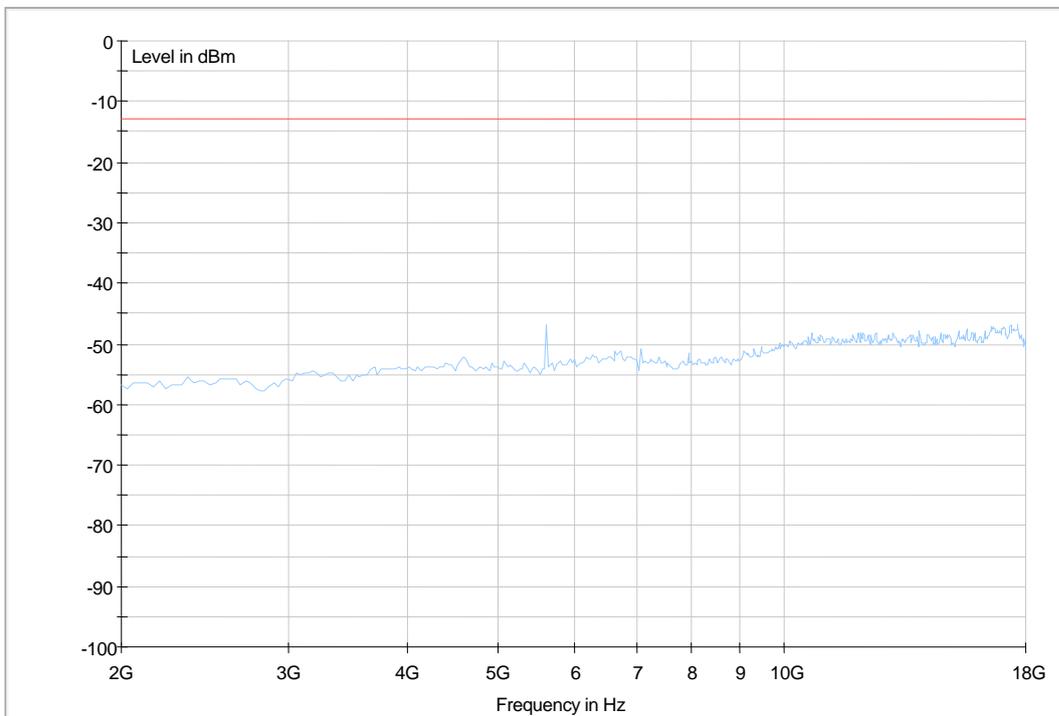
Traffic Mode (9kHz-30MHz)



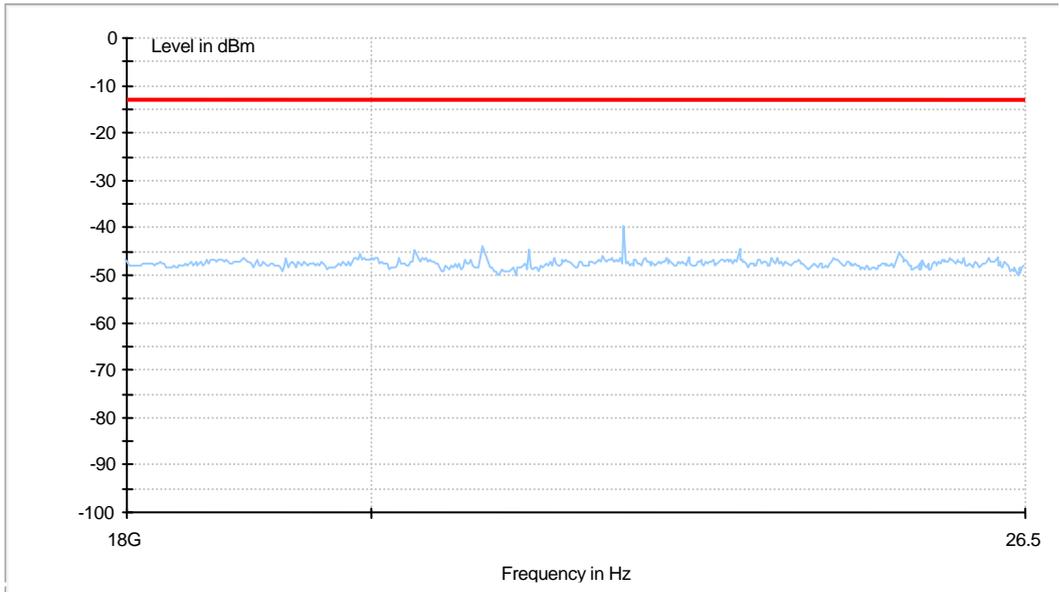
Traffic Mode (30MHz-2GHz)



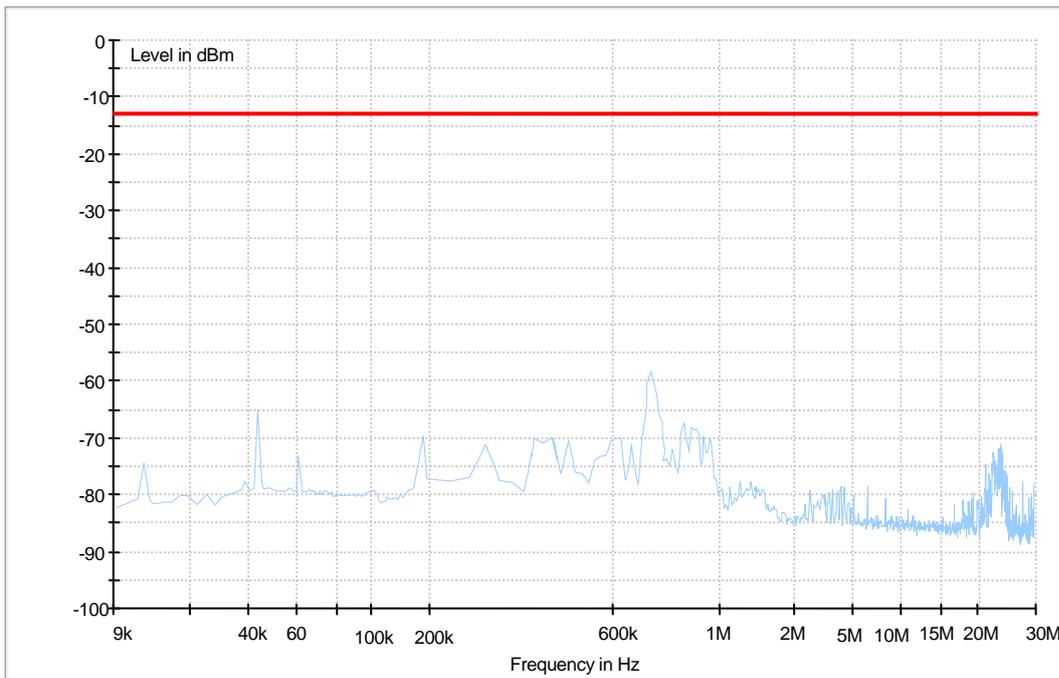
Traffic Mode (2GHz-18GHz)



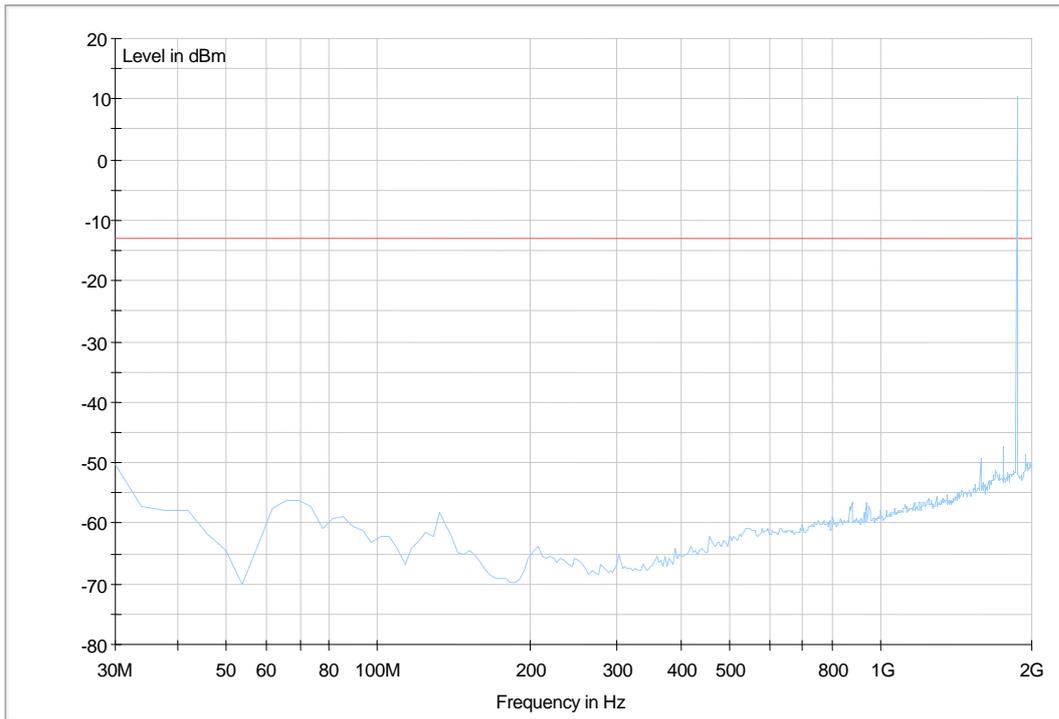
Traffic Mode (18GHz-26.5GHz)



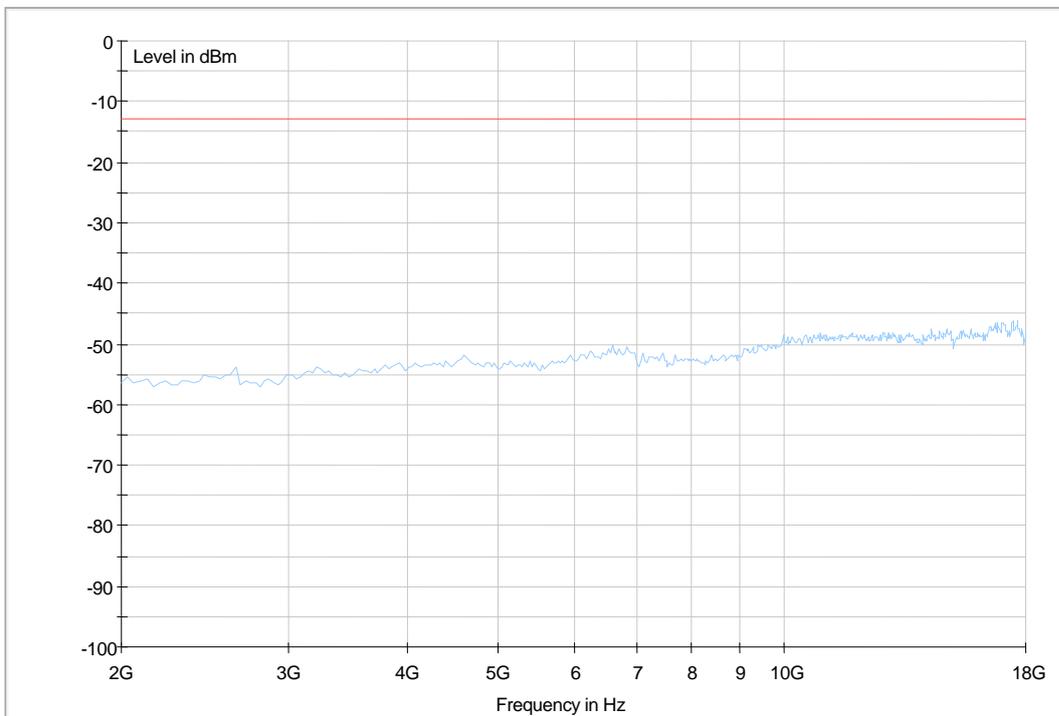
9.3.5 For GPRS 1900 Traffic Mode (9kHz-30MHz)



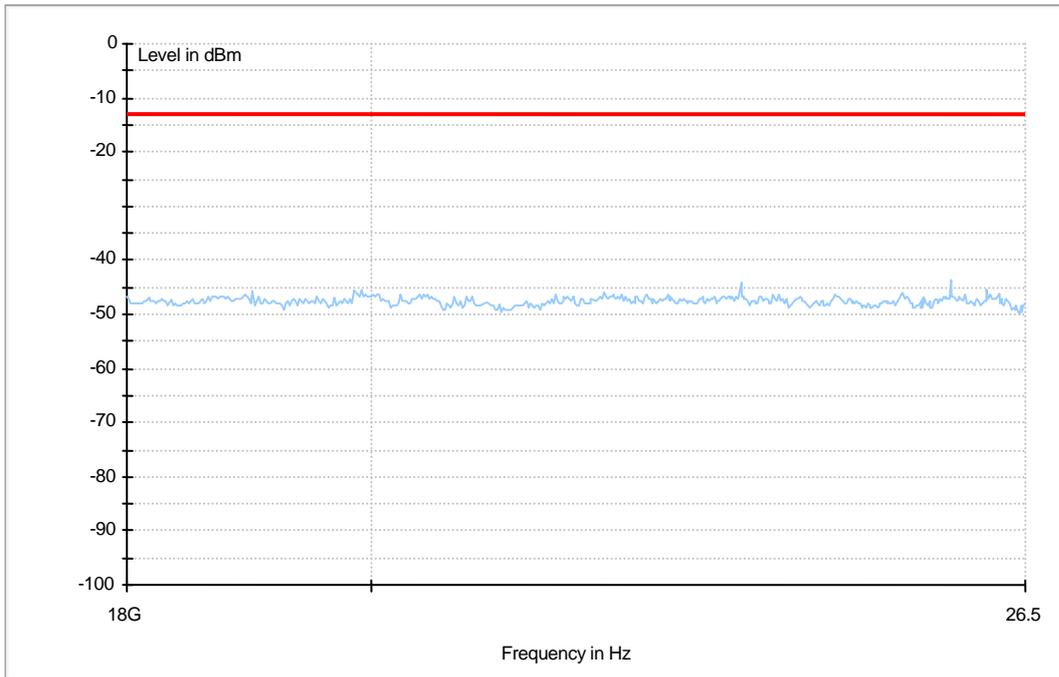
Traffic Mode (30MHz-2GHz)



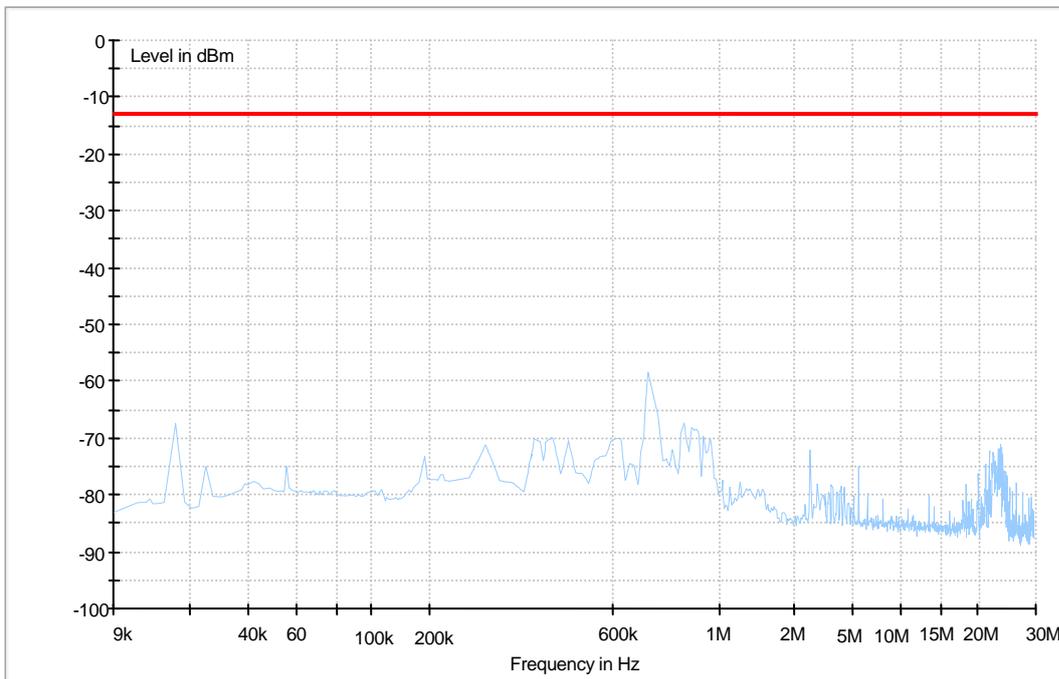
Traffic Mode (2GHz-18GHz)



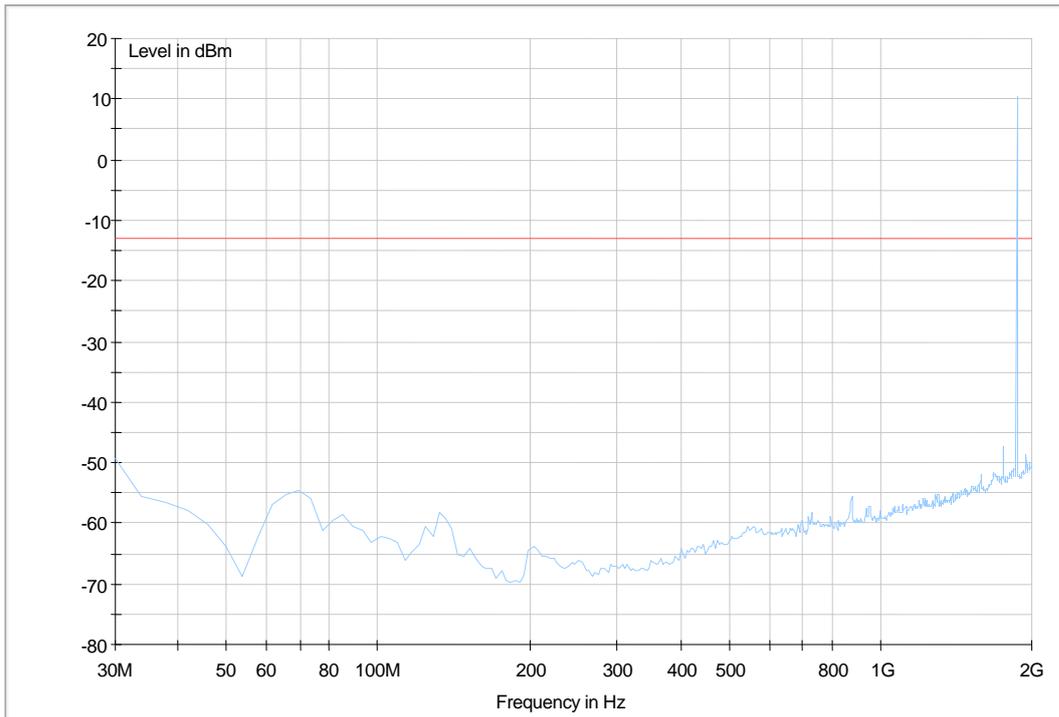
Traffic Mode (18GHz-26.5GHz)



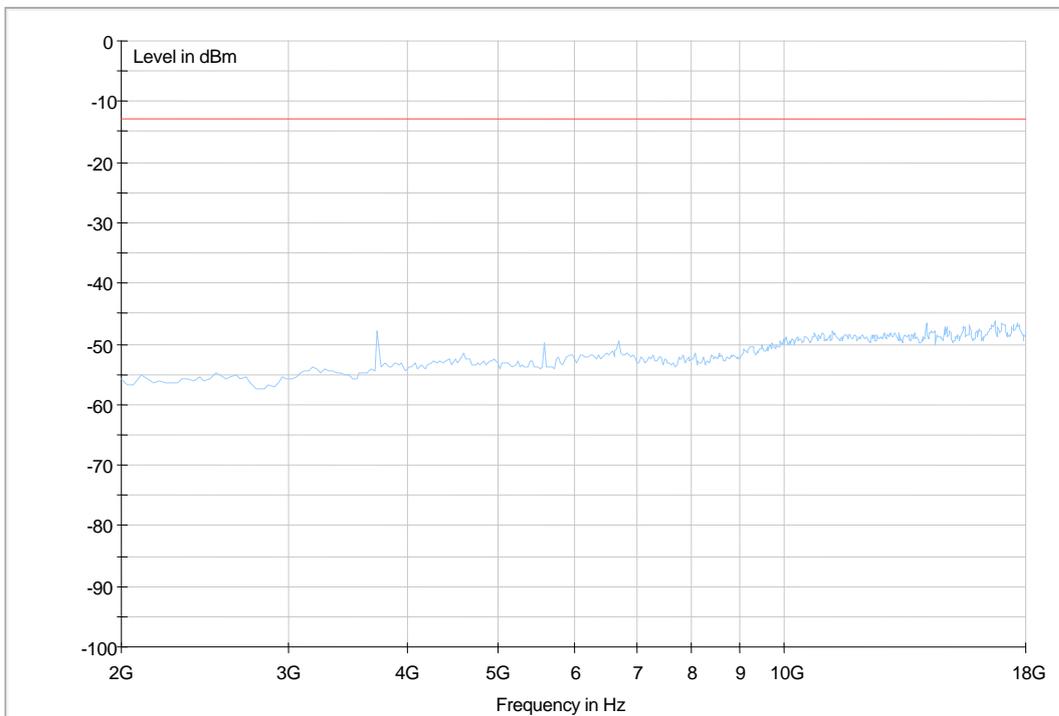
9.3.6 For EDGE 1900
Traffic Mode (9kHz-30MHz)



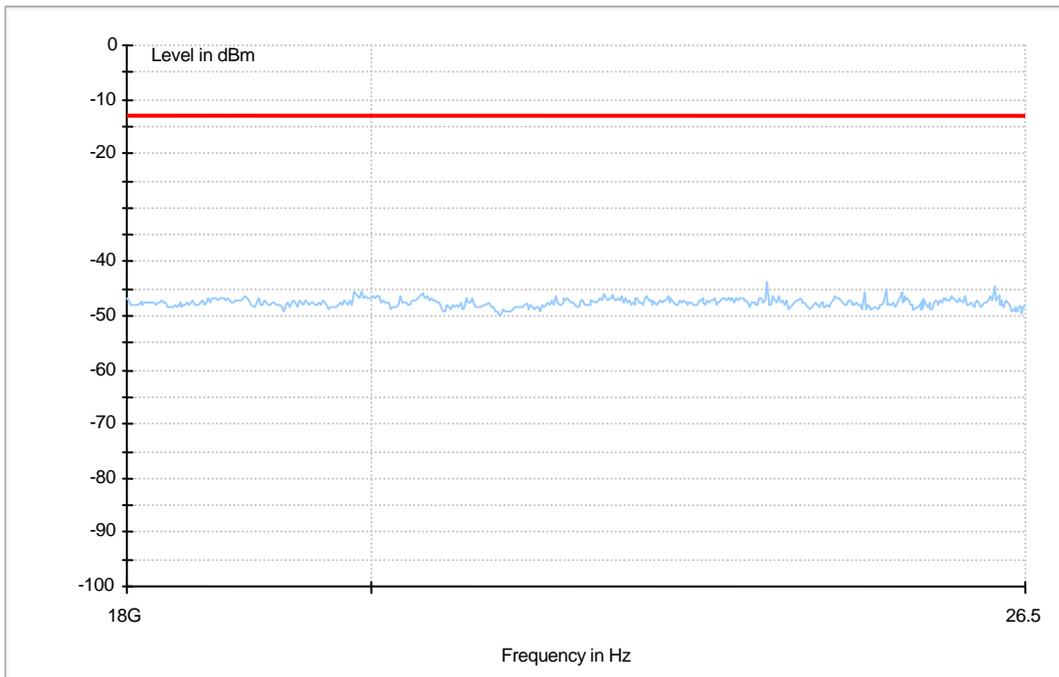
Traffic Mode (30MHz-2GHz)



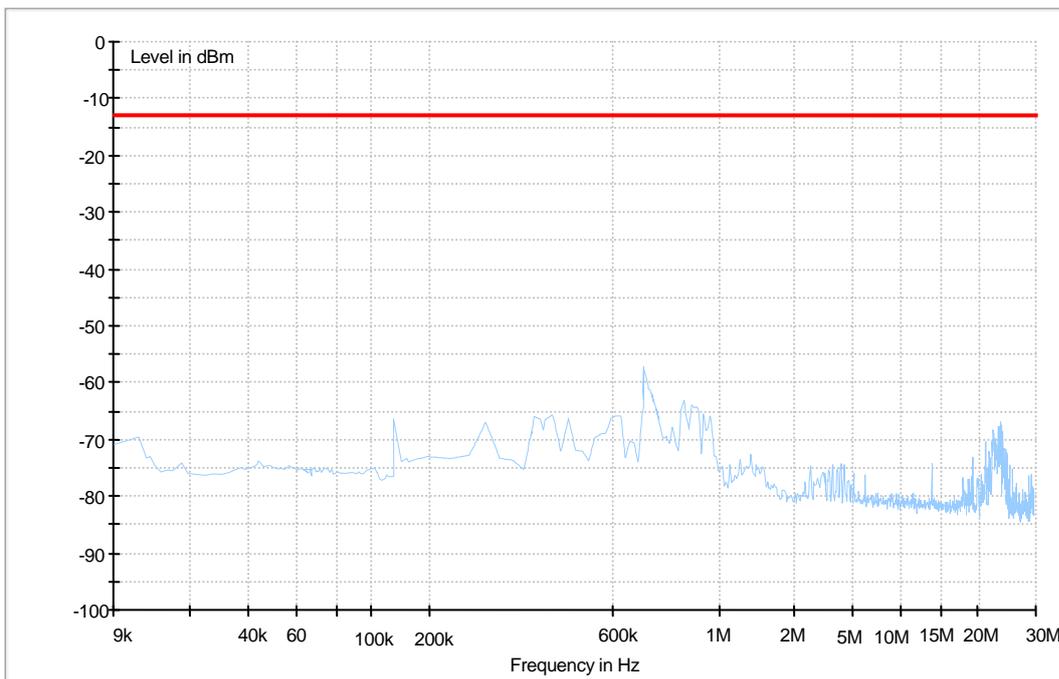
Traffic Mode (2GHz-18GHz)



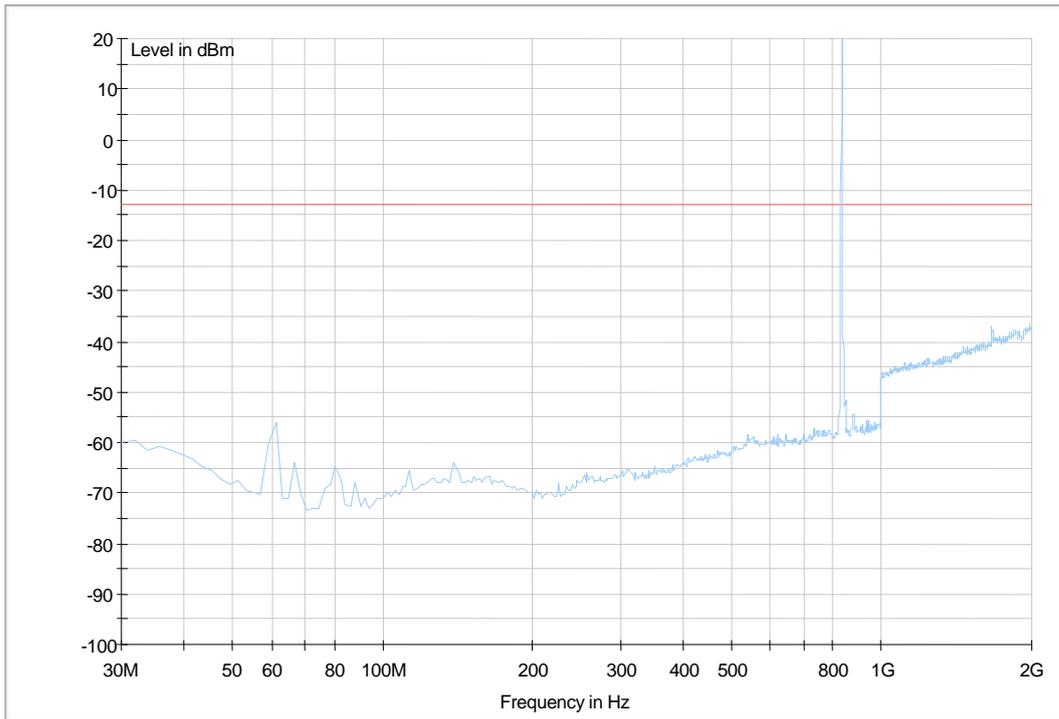
Traffic Mode (18GHz-26.5GHz)



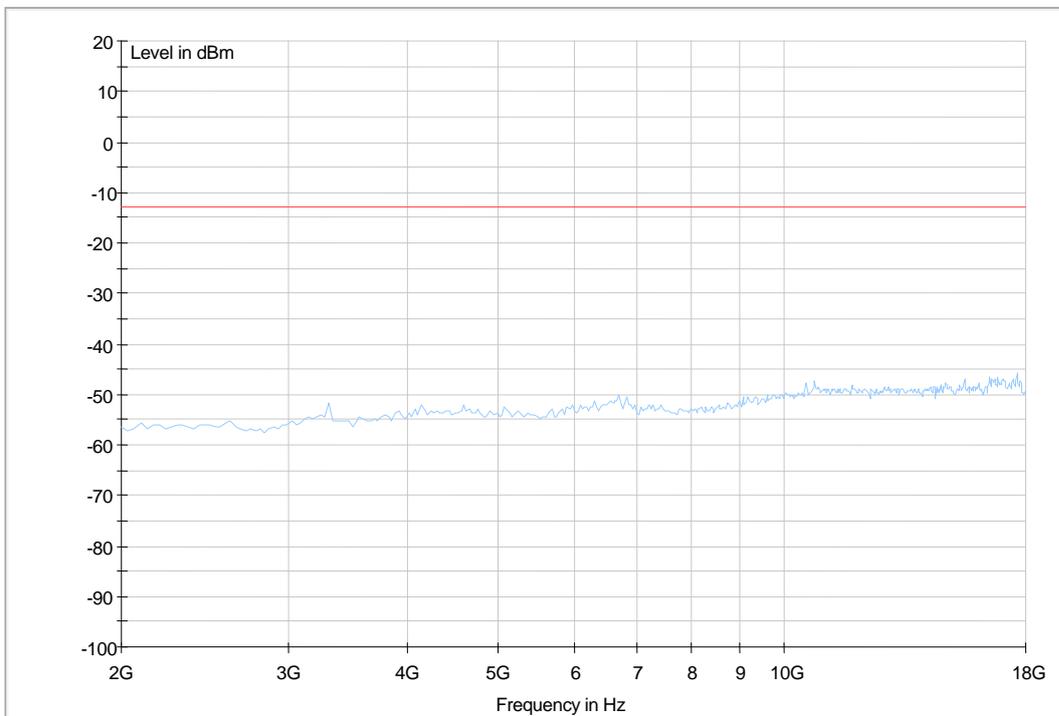
9.3.7 For WCDMA 850
Traffic Mode (9kHz-30MHz)



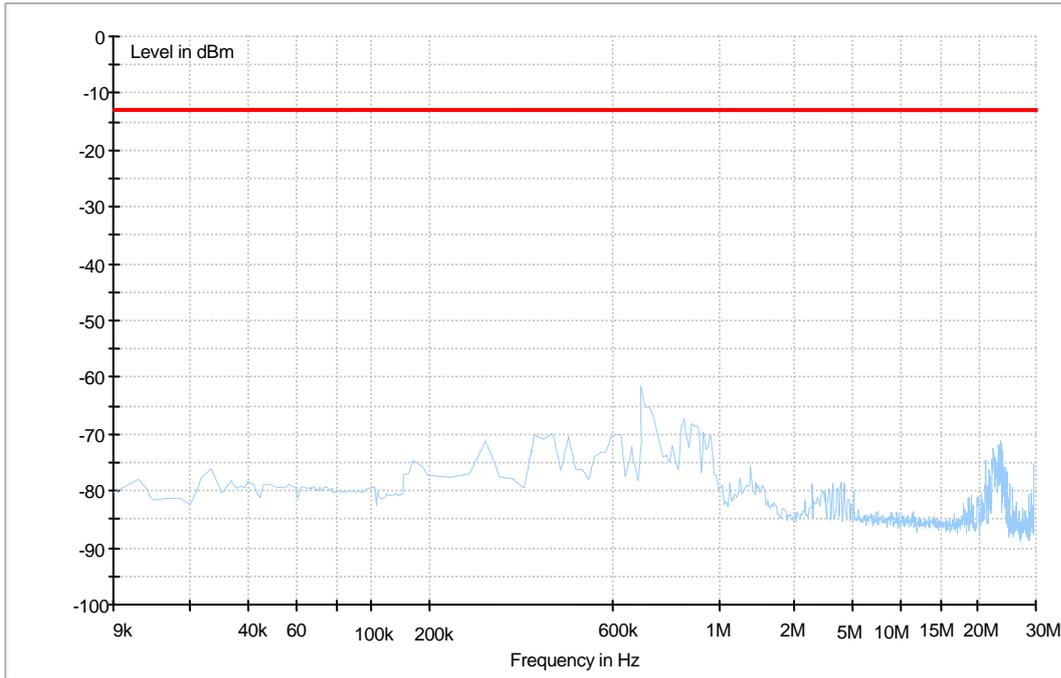
Traffic Mode (30MHz-2GHz)



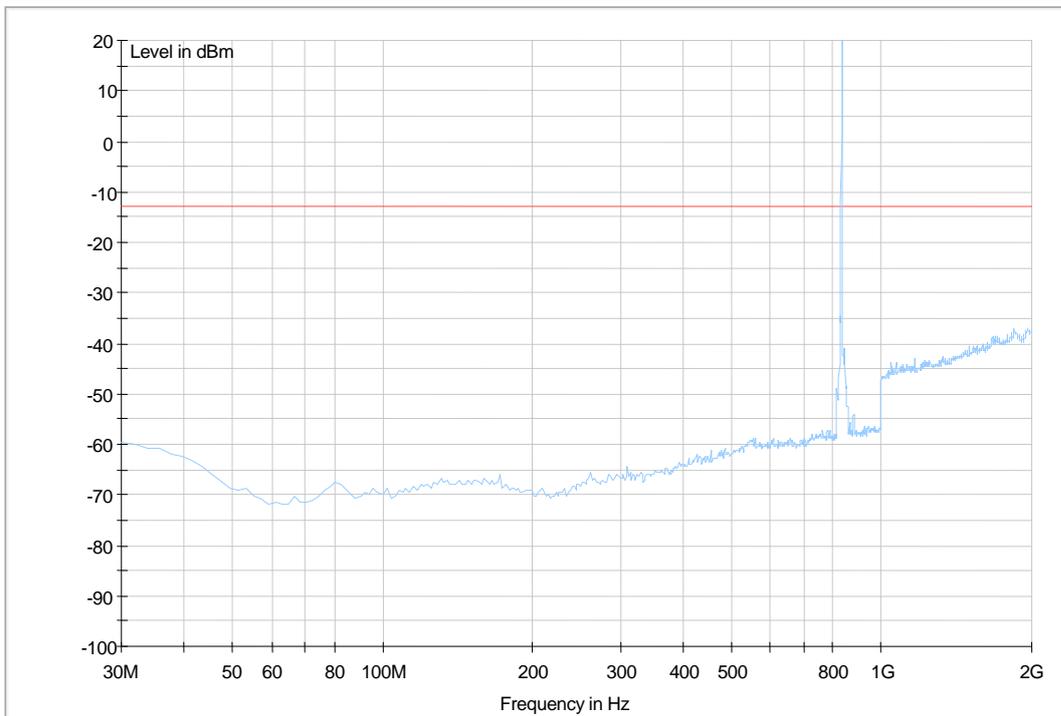
Traffic Mode (2GHz-18GHz)



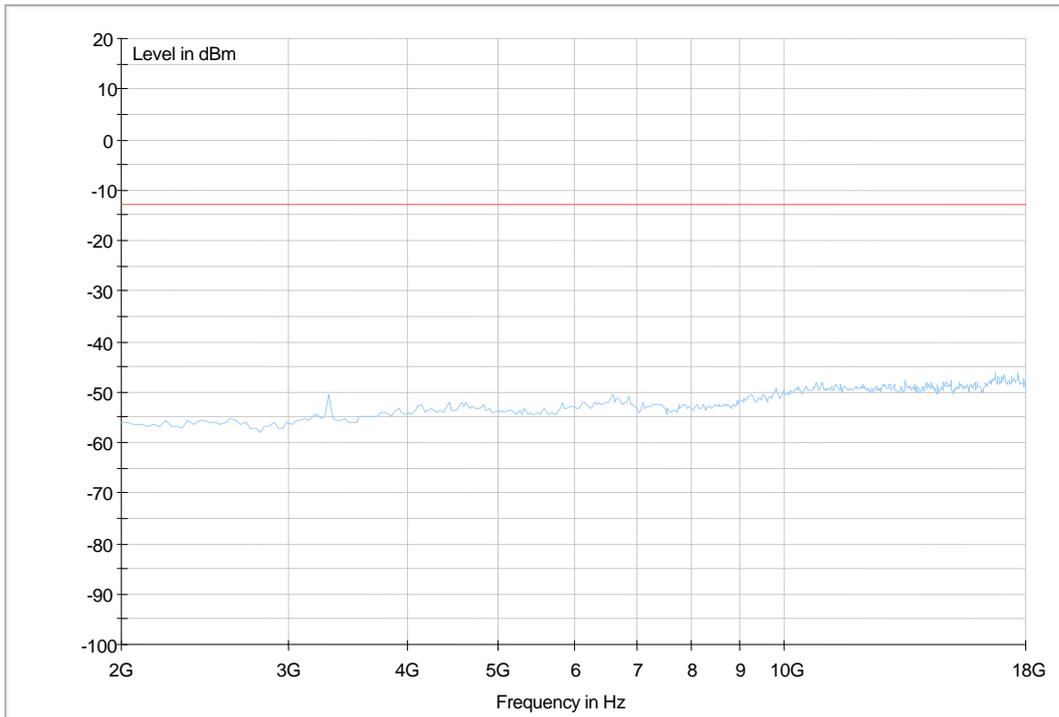
9.3.8 For HSDPA 850 Traffic Mode (9kHz-30MHz)



Traffic Mode (30MHz-2GHz)

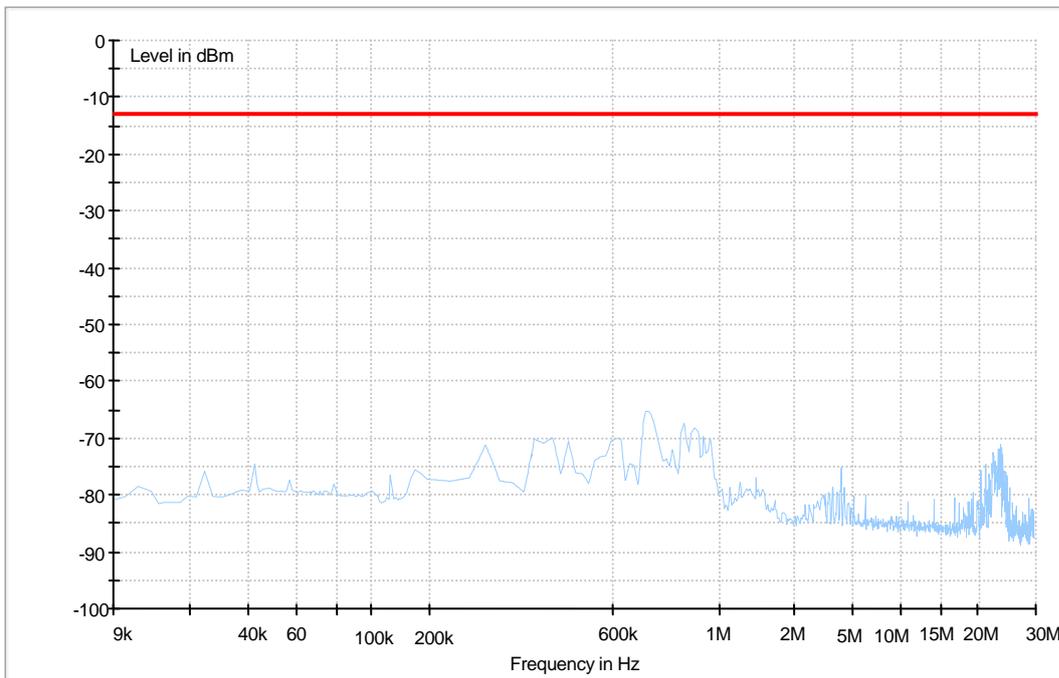


Traffic Mode (2GHz-18GHz)

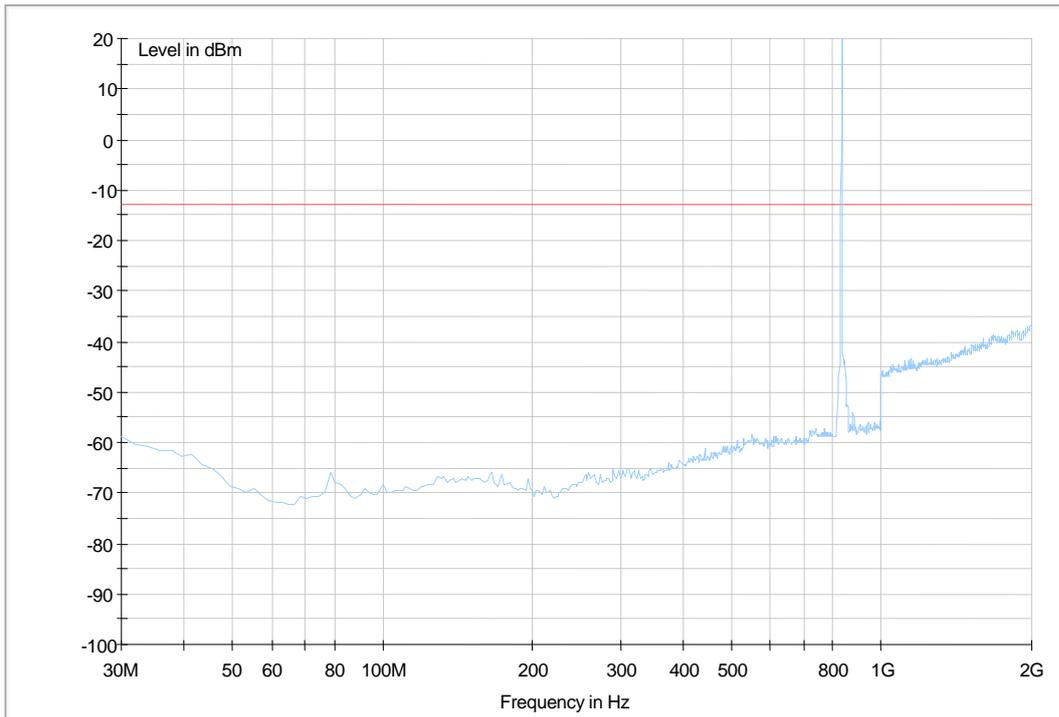


9.3.9 For HSUPA 850

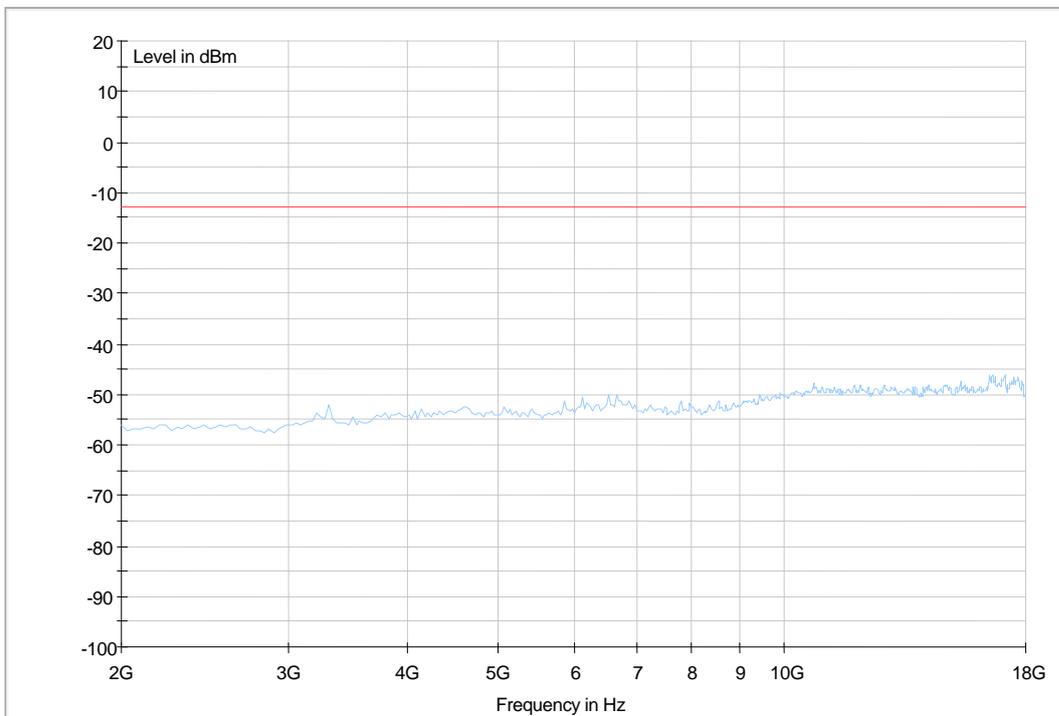
Traffic Mode (9kHz-30MHz)



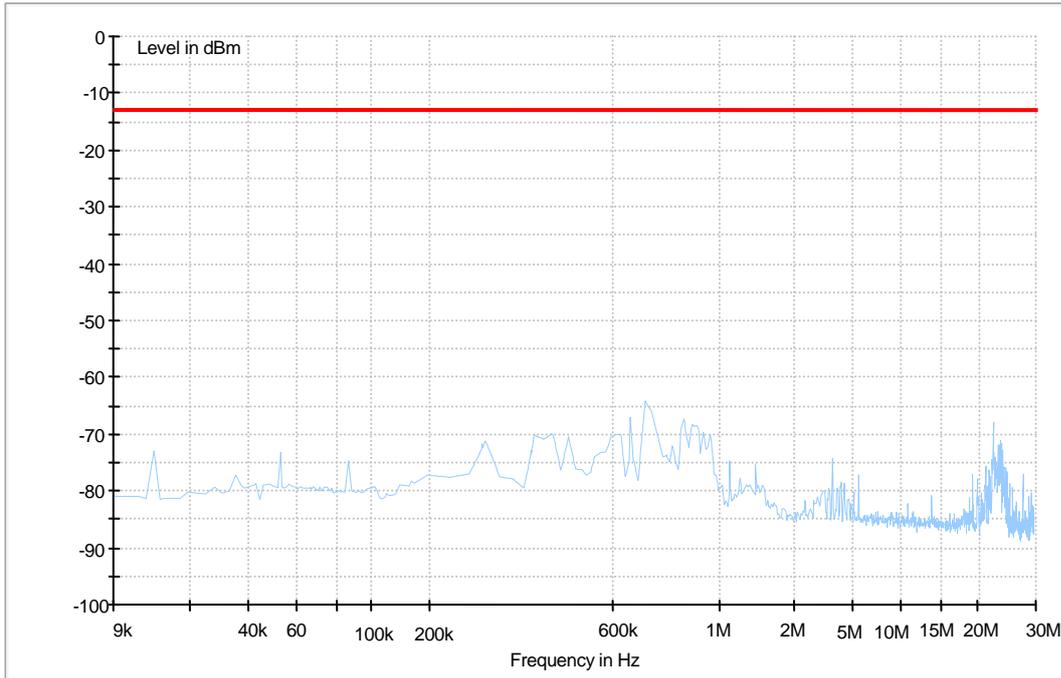
Traffic Mode (30MHz-2GHz)



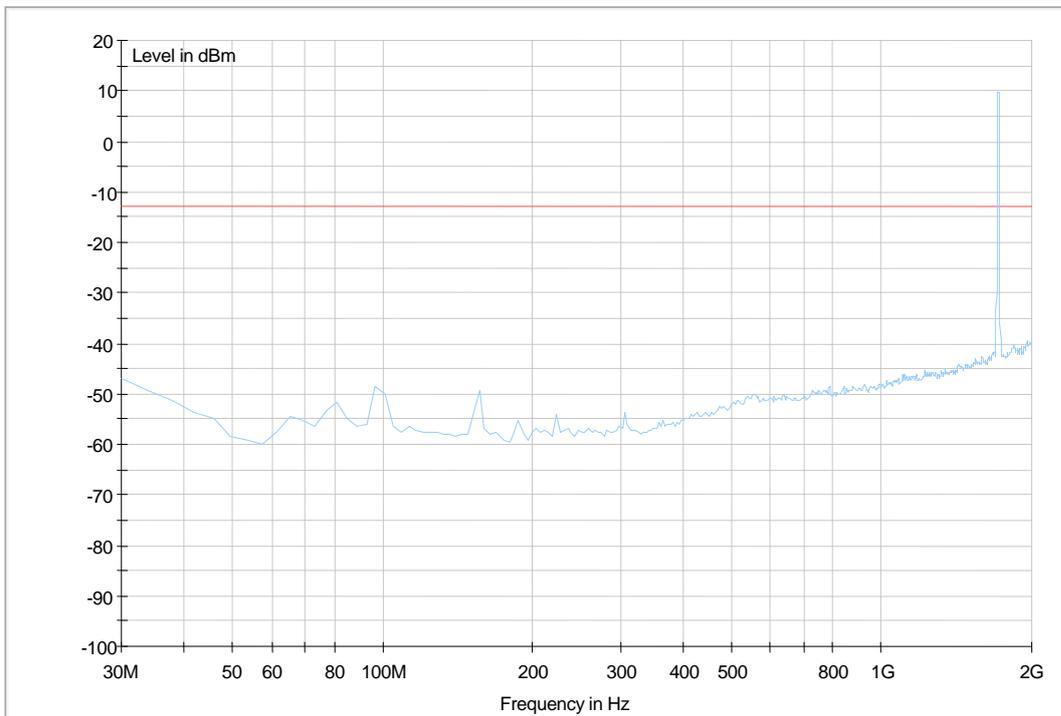
Traffic Mode (2GHz-18GHz)



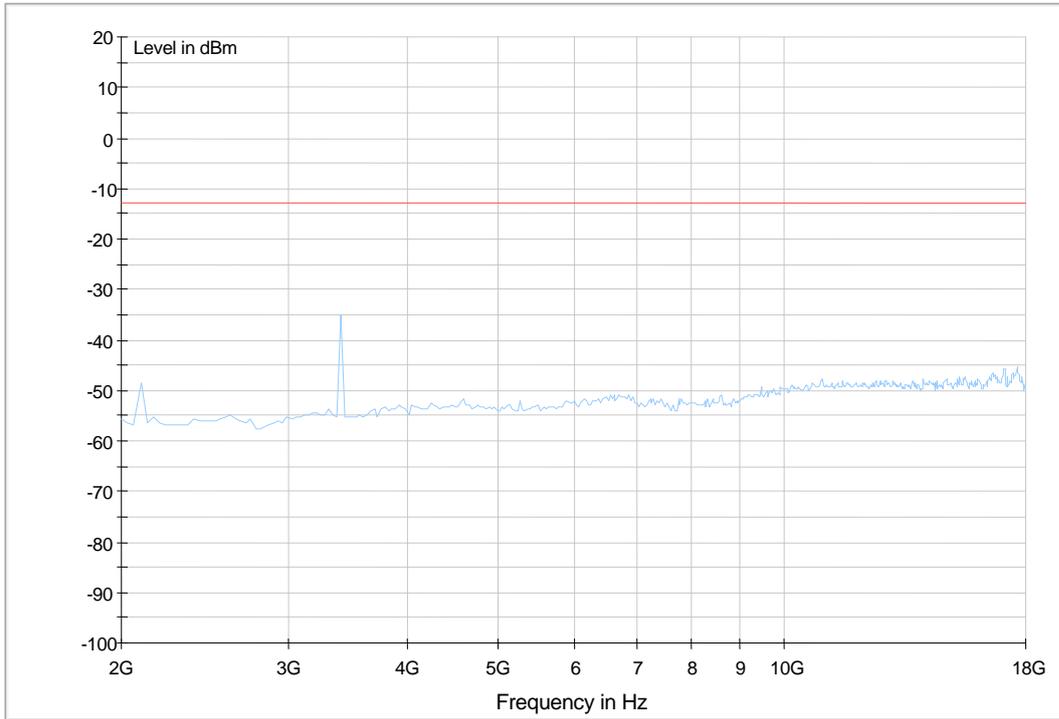
9.3.10 For WCDMA AWS Traffic Mode (9kHz-30MHz)



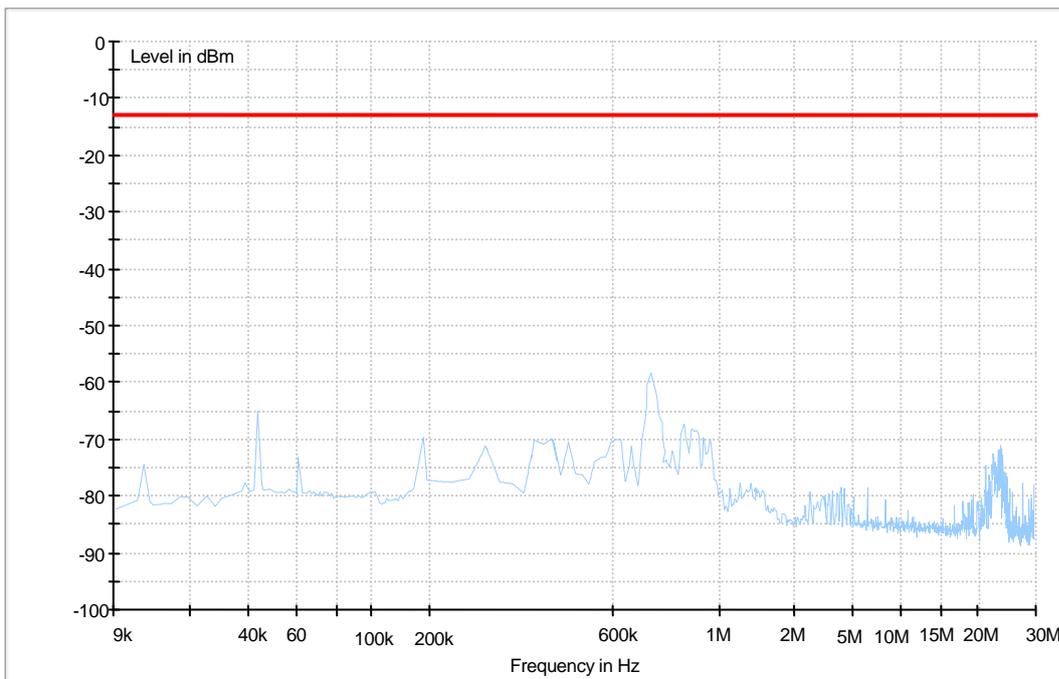
Traffic Mode (30MHz-2GHz)



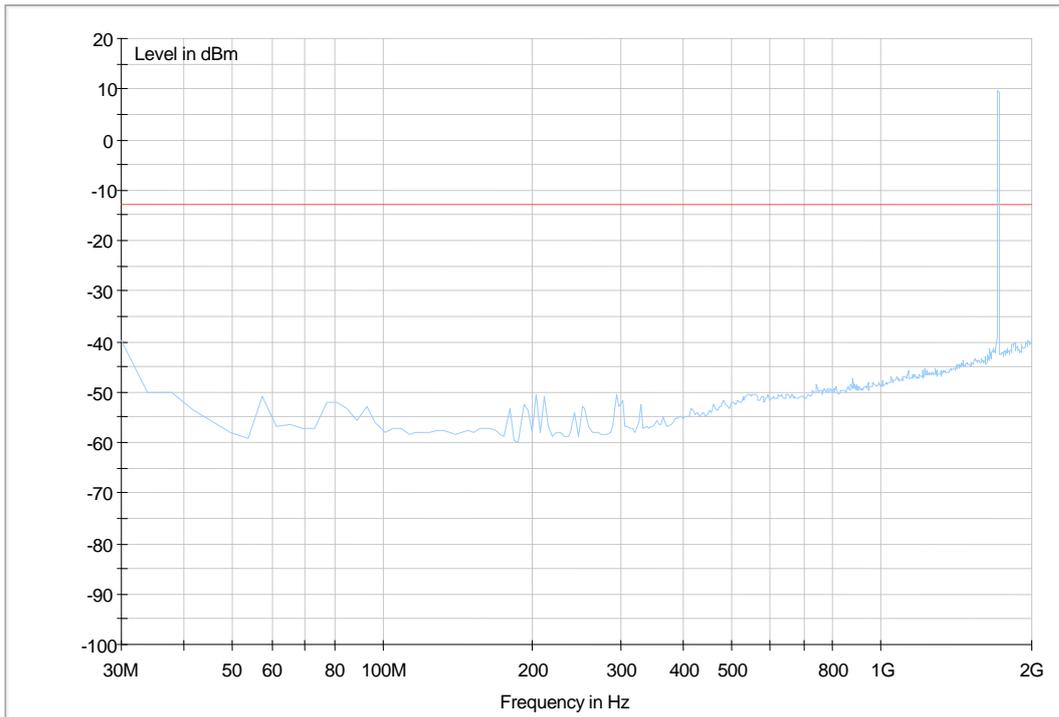
Traffic Mode (2GHz-18GHz)



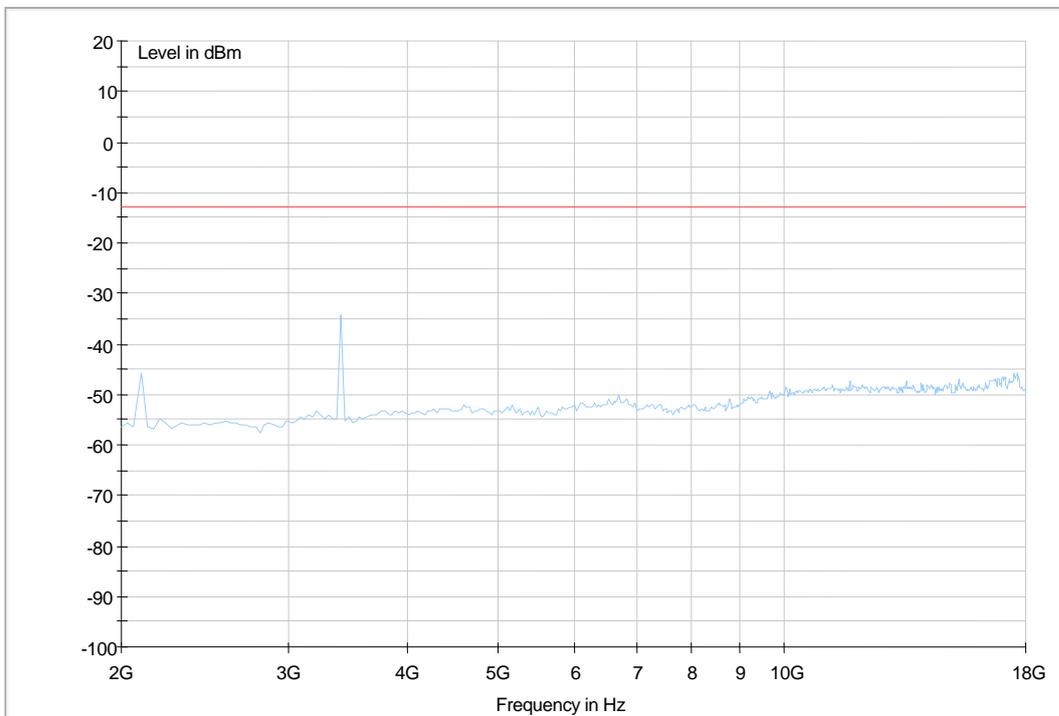
9.3.11 For HSDPA AWS
Traffic Mode (9kHz-30MHz)



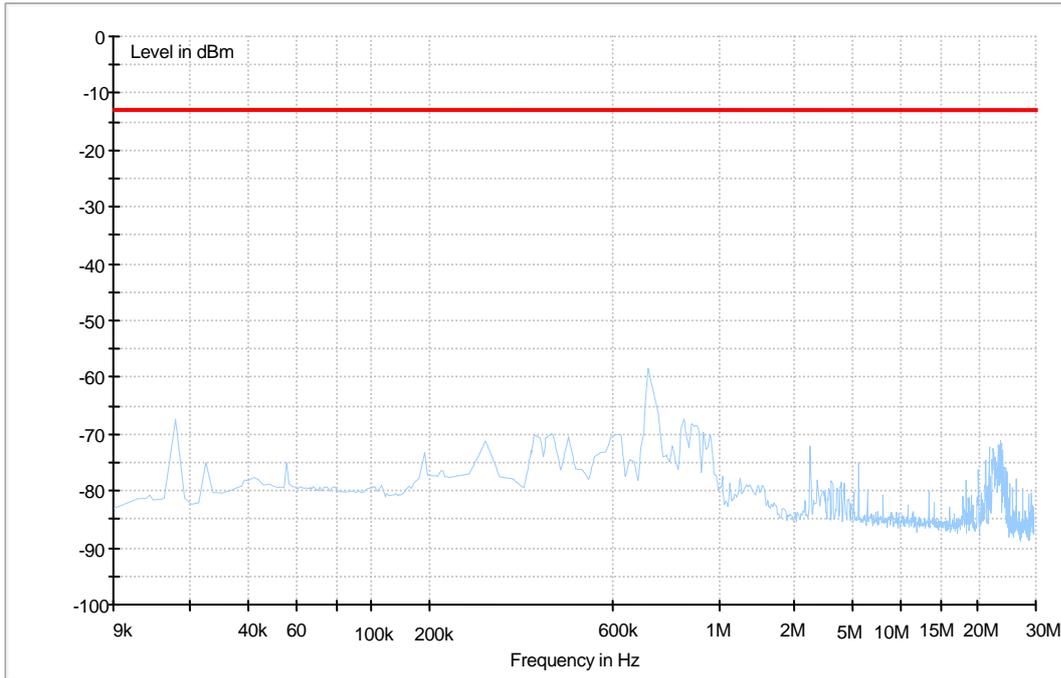
Traffic Mode (30MHz-2GHz)



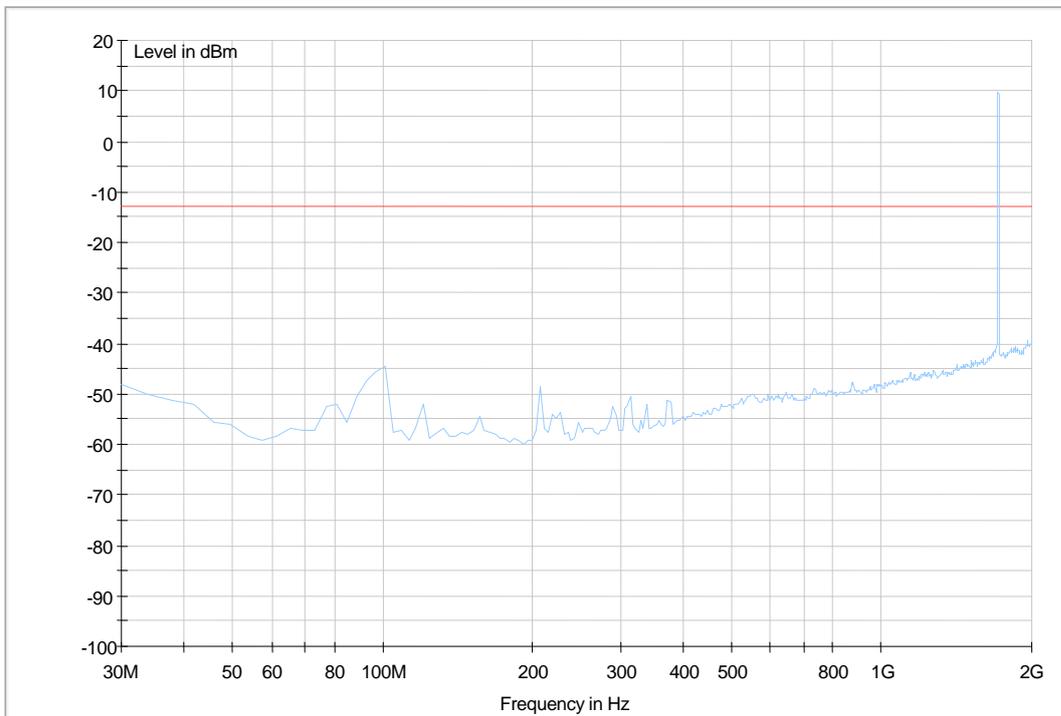
Traffic Mode (2GHz-18GHz)



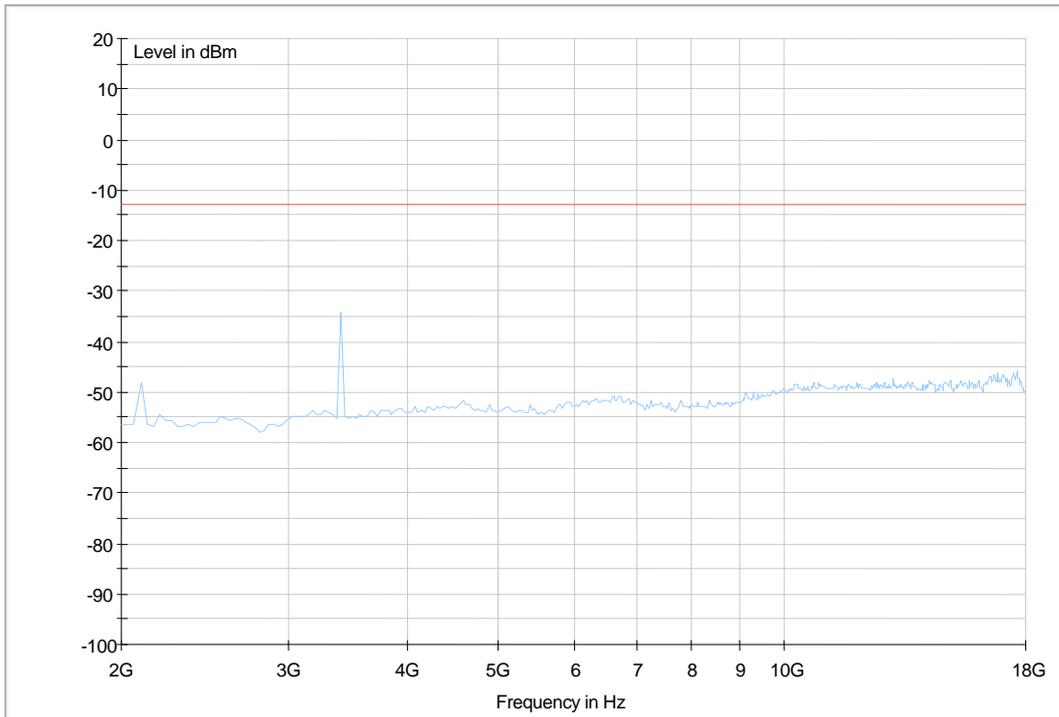
9.3.12 For HSUPA AWS Traffic Mode (9kHz-30MHz)



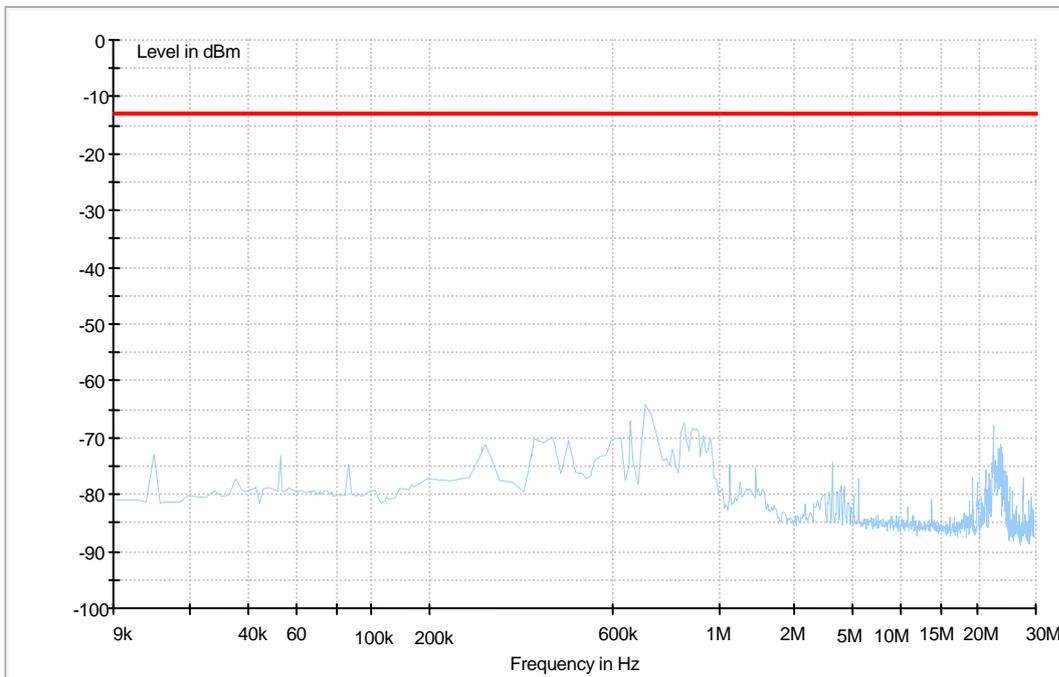
Traffic Mode (30MHz-2GHz)



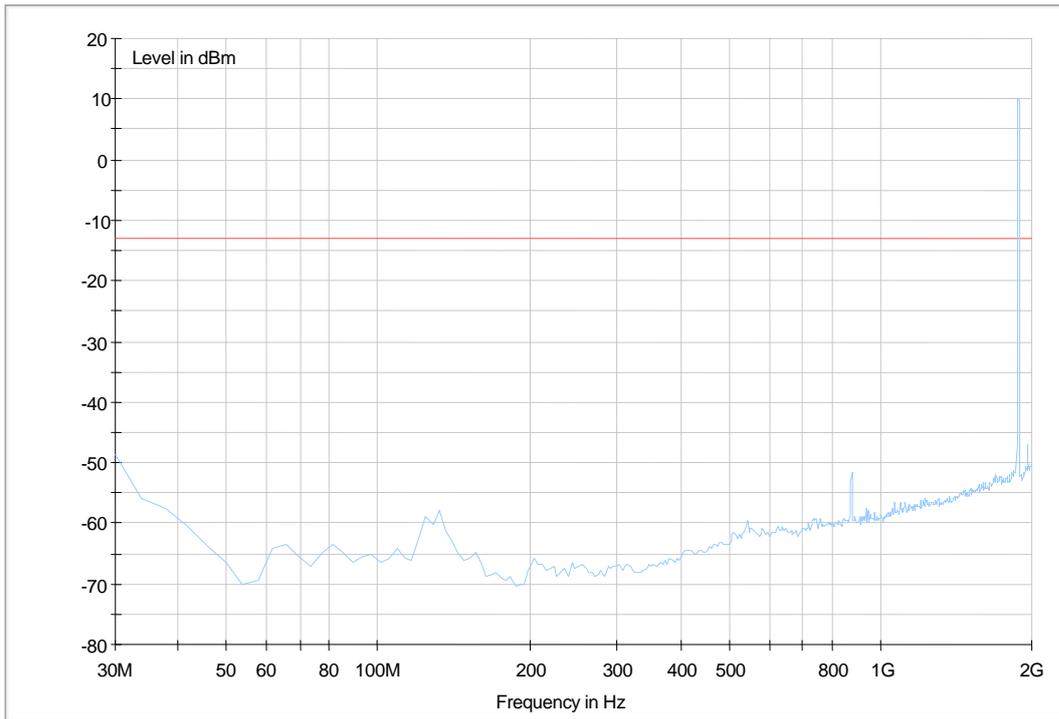
Traffic Mode (2GHz-18GHz)



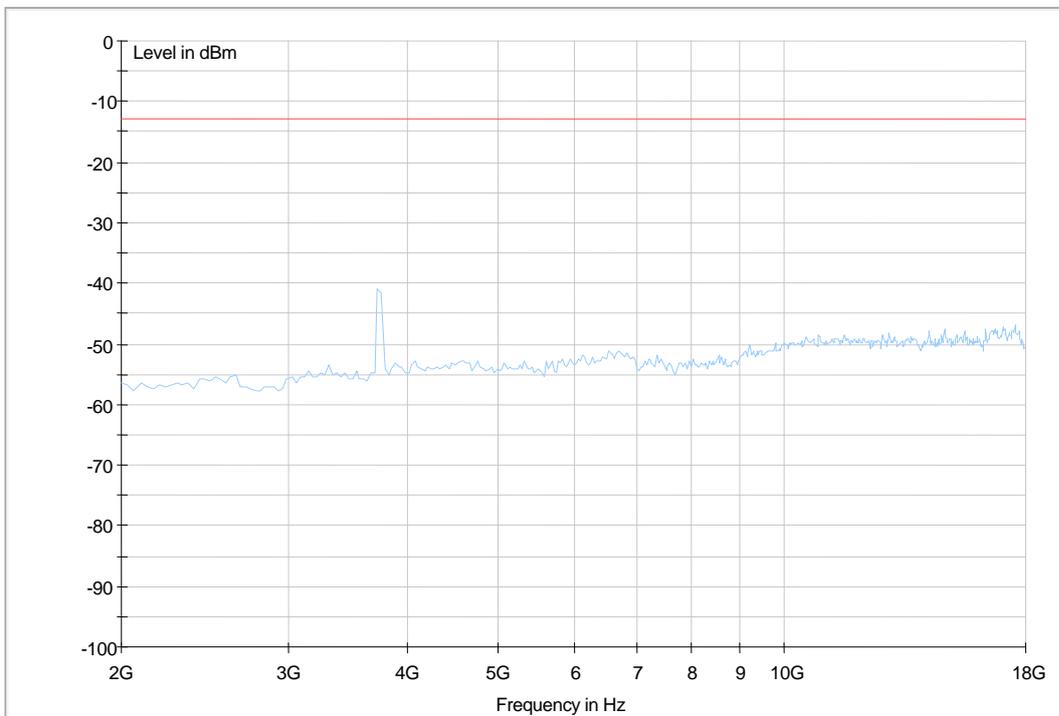
9.3.13 For WCDMA 1900
Traffic Mode (9kHz-30MHz)



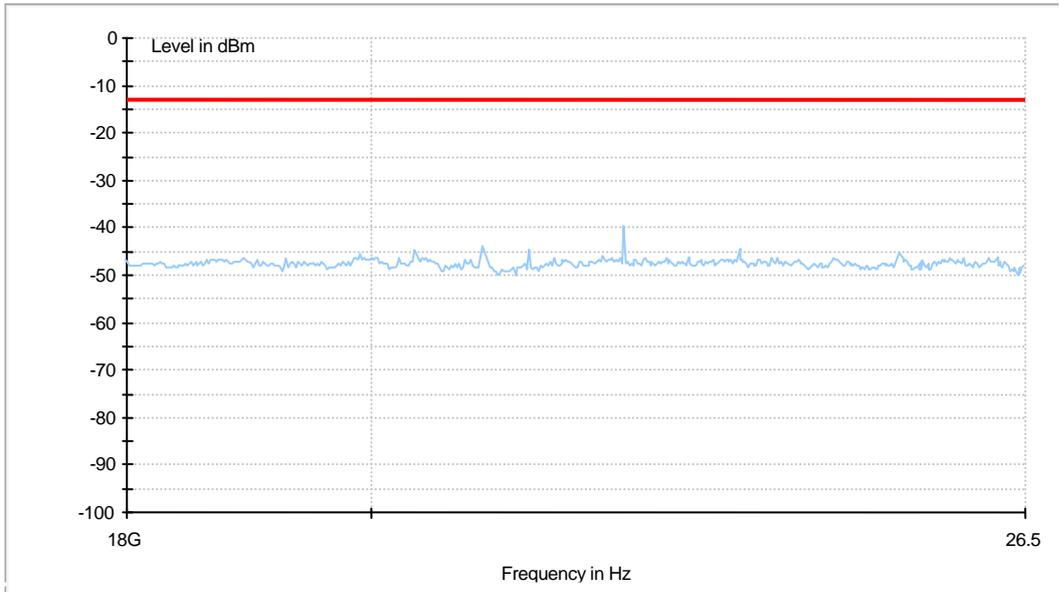
Traffic Mode (30MHz-2GHz)



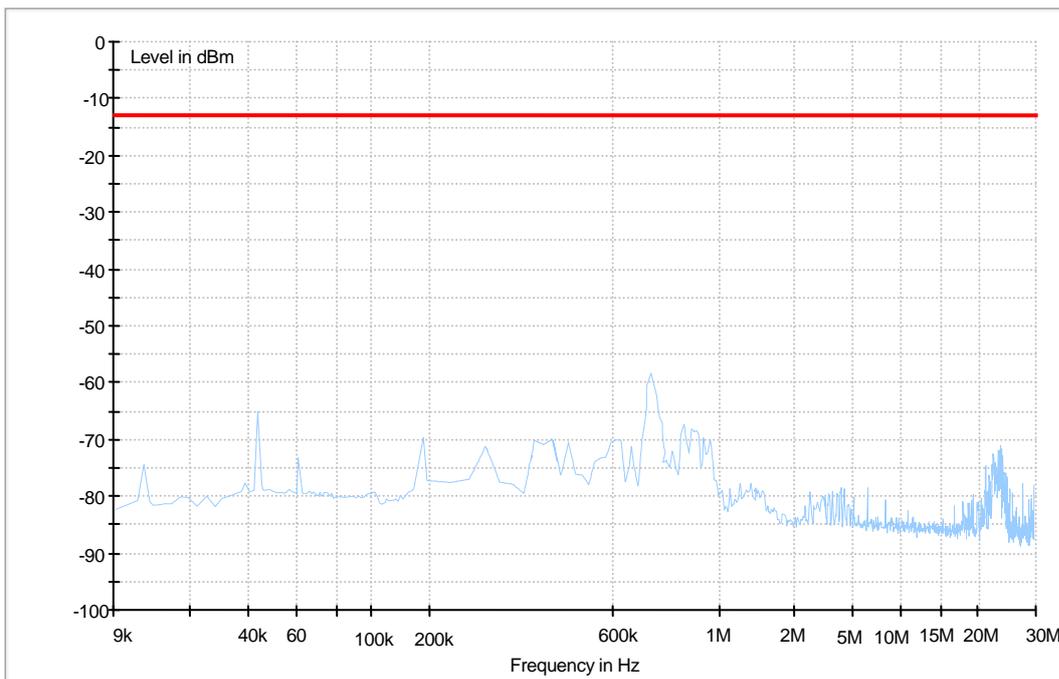
Traffic Mode (2GHz-18GHz)



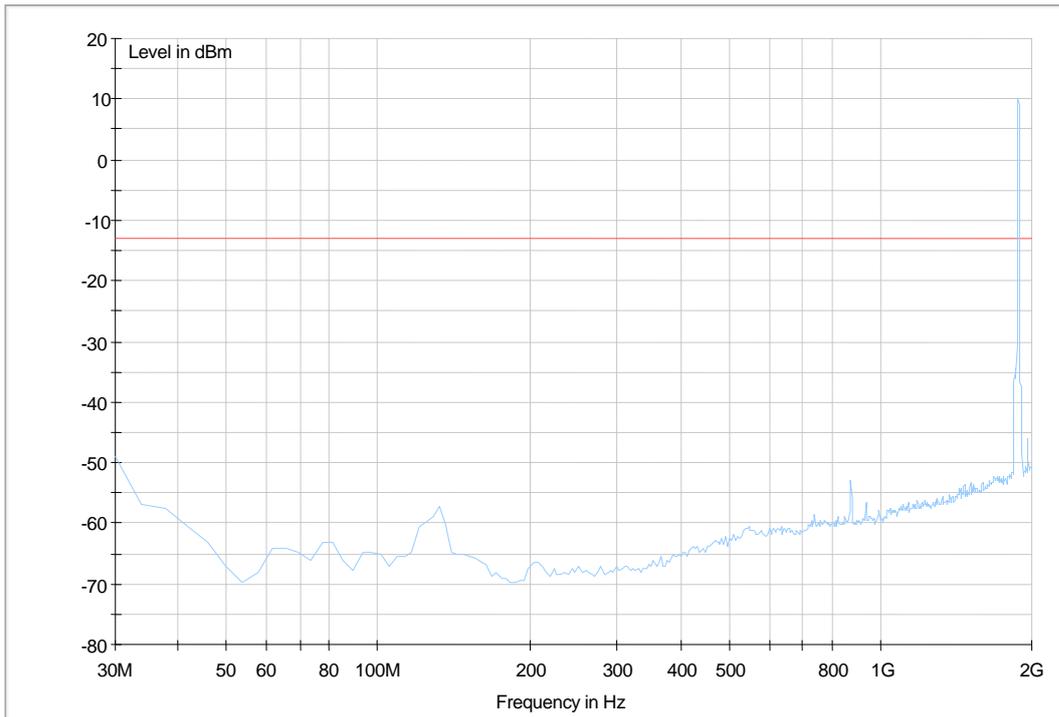
Traffic Mode (18GHz-26.5GHz)



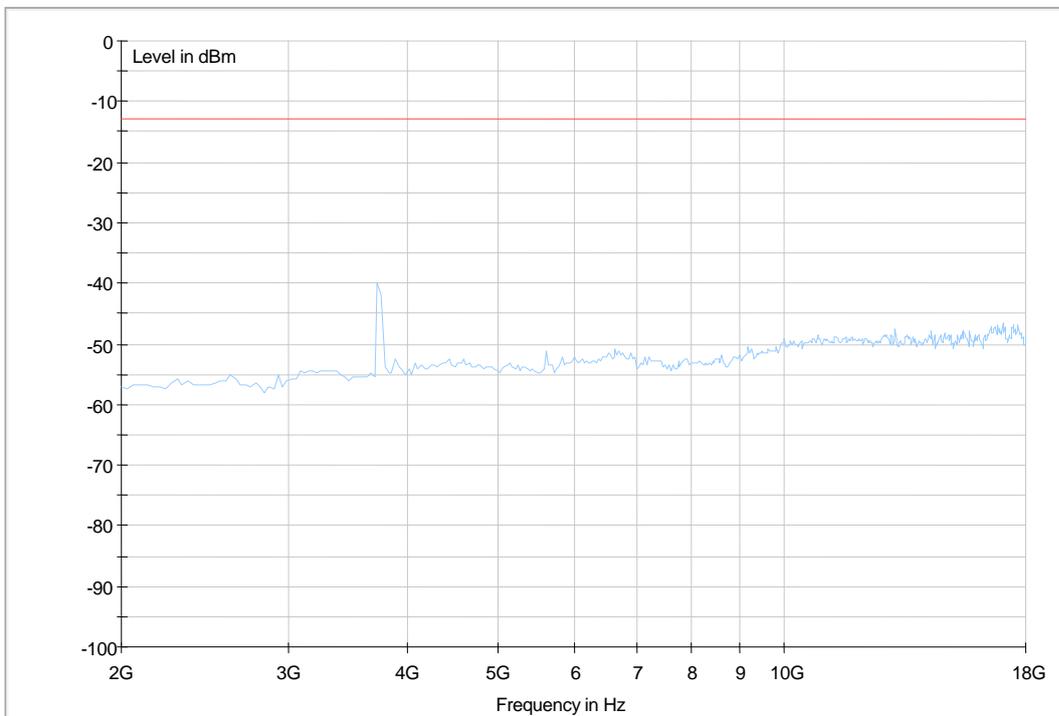
9.3.14 For HSDPA 1900
Traffic Mode (9kHz-30MHz)



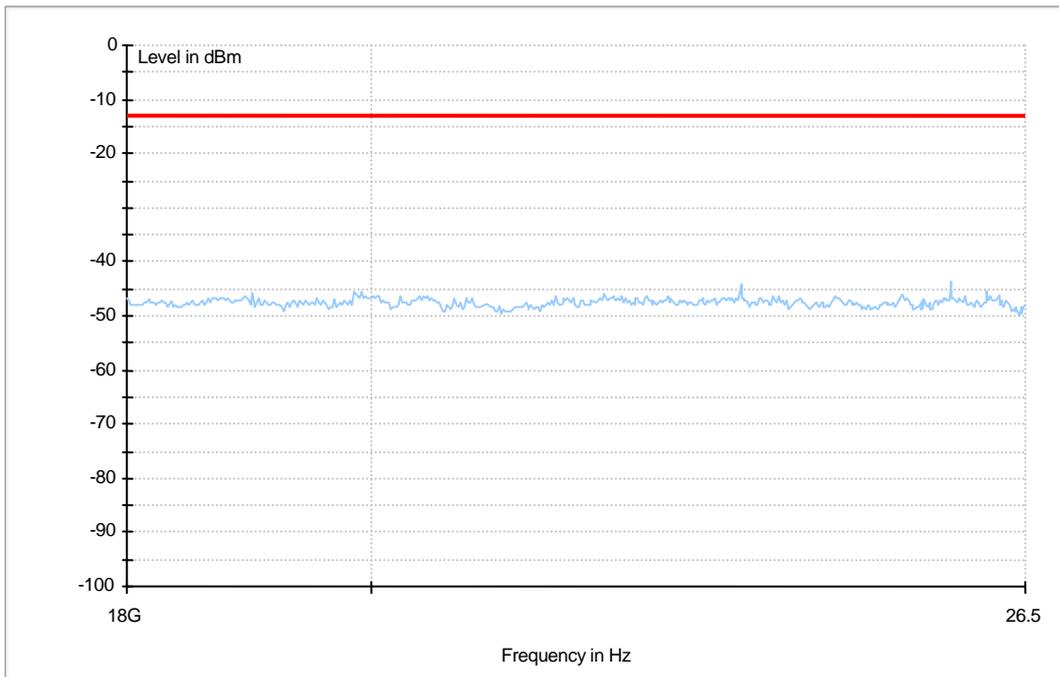
Traffic Mode (30MHz-2GHz)



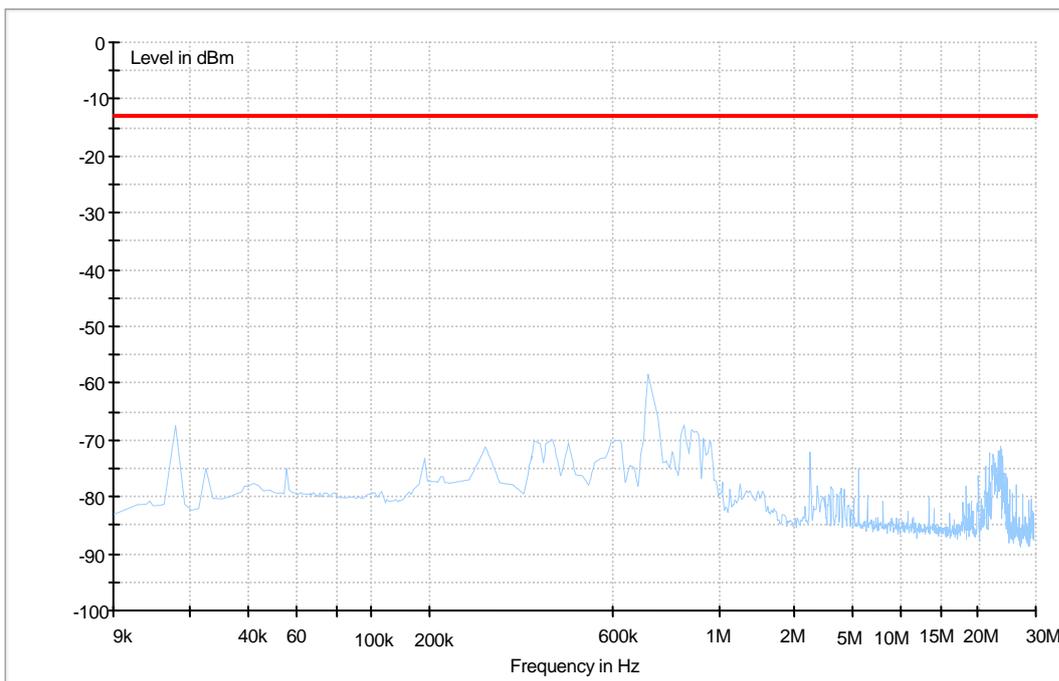
Traffic Mode (2GHz-18GHz)



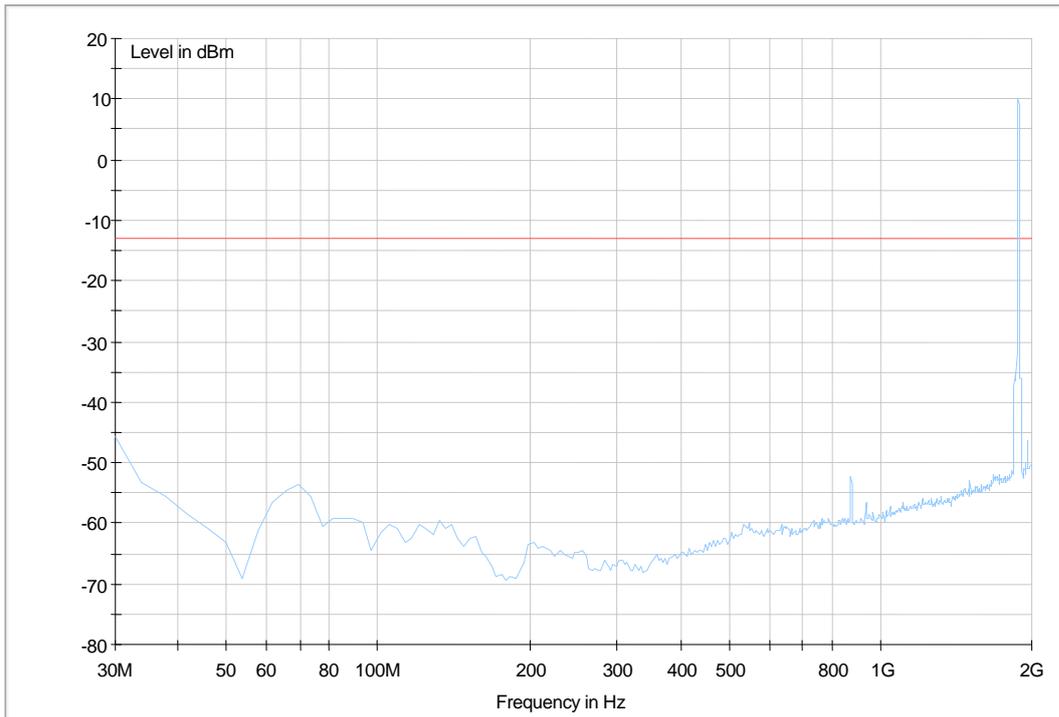
Traffic Mode (18GHz-26.5GHz)



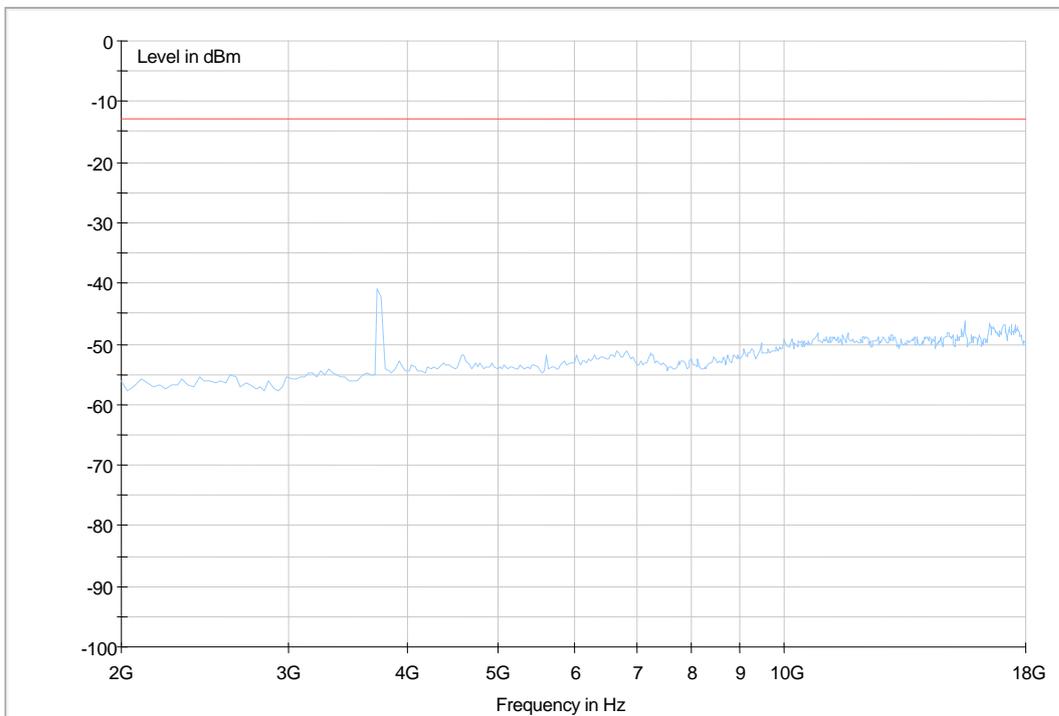
9.3.15 For HSUPA 1900
Traffic Mode (9kHz-30MHz)



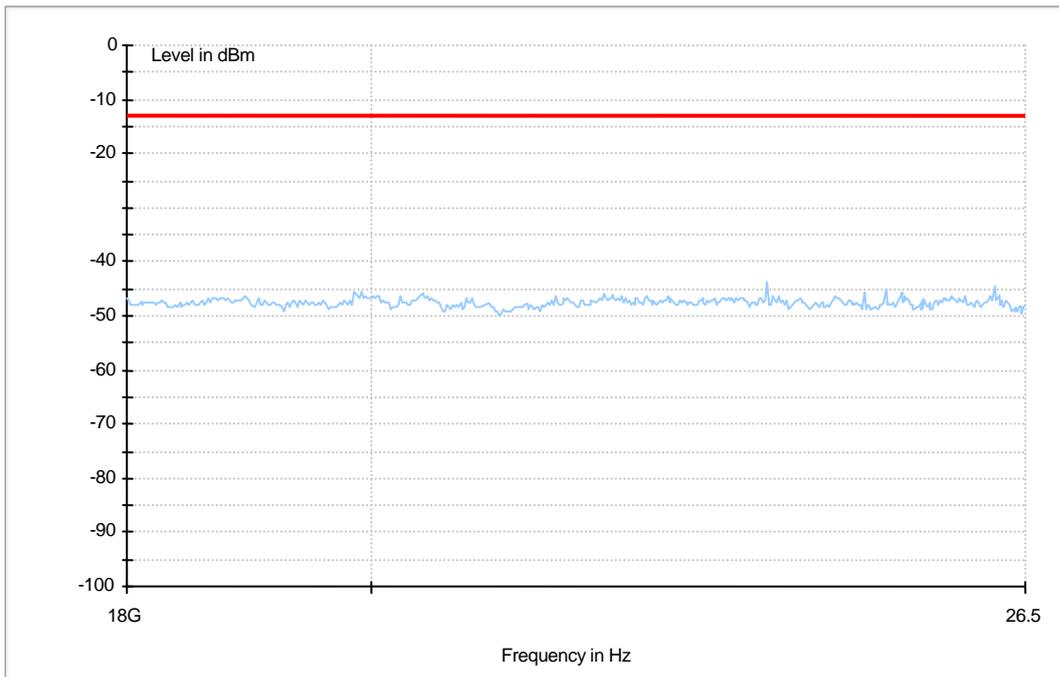
Traffic Mode (30MHz-2GHz)



Traffic Mode (2GHz-18GHz)



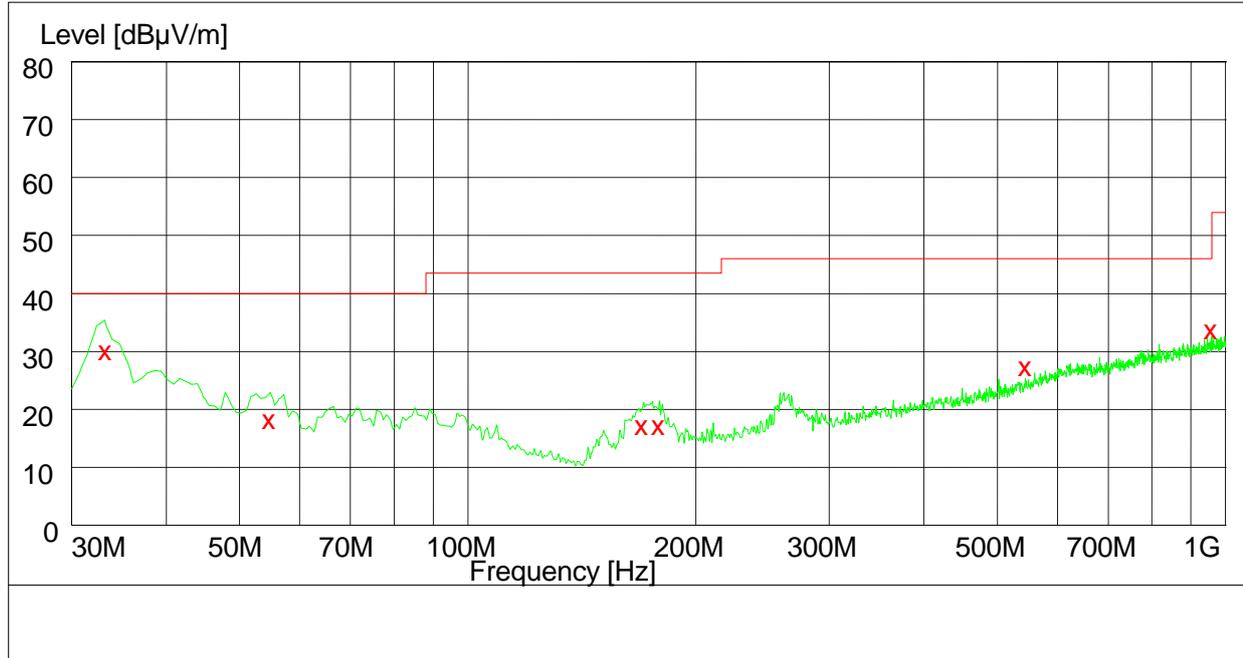
Traffic Mode (18GHz-26.5GHz)



9.4 Receiver Spurious Emission

This test was carried out in all the test modes, but only the worst test result was given below.

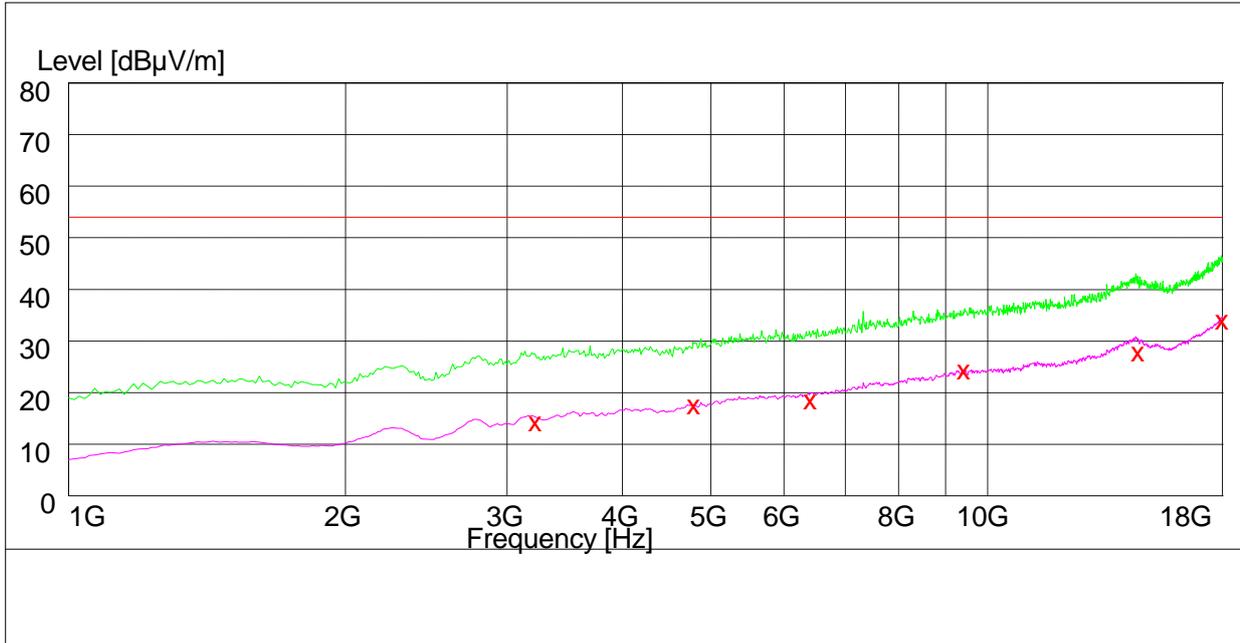
30MHz-1GHz



MEASUREMENT RESULT: QP Detector

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
33.284000	31.30	11.7	40.0	8.7	100.0	27.00	VERTICAL
54.712000	19.50	12.7	40.0	20.5	200.0	193.00	VERTICAL
169.676000	18.40	10.0	43.5	25.1	105.0	209.00	VERTICAL
178.512000	18.40	10.8	43.5	25.1	100.0	271.00	VERTICAL
544.008000	28.60	21.3	46.0	17.4	200.0	42.00	VERTICAL
958.092000	35.00	26.7	46.0	11.0	194.0	195.00	HORIZONTAL

1GHz-18GHz



Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
3325.600000	14.10	-7.9	54.0	39.9	147.0	219.00	VERTICAL
4792.000000	16.90	-4.1	54.0	37.1	108.0	209.00	VERTICAL
6416.100000	18.90	-1.2	54.0	35.1	121.0	242.00	VERTICAL
9428.524000	24.50	4.8	54.0	29.5	110.0	294.00	VERTICAL
14568.800000	29.50	12.2	54.0	24.5	173.0	0.00	HORIZONTAL
17995.500000	33.60	17.3	54.0	20.4	141.0	207.00	HORIZONTAL

-----**END**-----