



**No. DAT-P-114/01-01**

# TEST REPORT

**No. 2008TAR003**

**Test name** FCC Test

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**Product** WCDMA/GPRS/GSM/EDGE Mobile Phone with Bluetooth

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**Model** U1100/Vodafone 625/V625

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**Client** Huawei Technologies Co., Ltd.

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**Telecommunication Metrology Center  
of Ministry of Information Industry**

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4. The test report is invalid if there is any evidence of erasure and/or falsification.
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6. Normally, entrust test is only responsible for the samples that have undergone the test.
7. Context of the test report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of the test center.

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## 1. COMPETENCE AND WARRANTIES

**Telecommunication Metrology Center of Ministry of Information Industry (hereinafter TMC)** is a test laboratory accredited by DAR (DATEch) – Deutschen Akkreditierungs Rat (Deutsche Akkreditierungsstelle Technik), for the tests indicated in the Certificate No. **DAT-P-114/01-01**.

**TMC** is a test laboratory accredited by CNAS–China national Accreditation Service for Conformity Assessment, for the tests indicated in the Certificate No. **L0442**.

**TMC** is FCC listed lab. FCC listed number is **733176**.

The test site in **TMC** is registered in Industry Canada. The IC registration number is **6629**.

**TMC** is a testing laboratory competent to carry out the tests described in this report.

**TMC** guarantees the reliability of the data presented in this report, which is the result of measurements and tests performed to the item under test on the date and under the conditions stated on the report and is based on the knowledge and technical facilities available at TMC at the time of execution of the test.

**TMC** is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the item under test and the results of the test.

## 2. Testing Laboratory

### 2.1 Testing Location

Company Name:	Telecommunication Metrology Center of Ministry of Information Industry
Address:	No 52, Huayuan beilu, Haidian District, Beijing,P.R.China
Postal Code:	100083
Telephone:	00861062303288
Fax:	00861062304793

### 2.2 Testing Environment

**Semi-anechoic chamber** (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 26 to 1000 MHz

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**Control room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

**Conducted chamber** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

**Fully-anechoic chamber** (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 26 to 1000 MHz

### 2.3 Testing Period

Testing Start Date:	Feb 23,2008
Testing End Date:	Mar 5,2008

## 3. Applicant Information

### 3.1 Client Information

Name or Company	Huawei Technologies Co., Ltd.
Address/Post	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
City	Shenzhen
Postal Code	518129
Country	China
Telephone	8610—82836505
Fax	8610—82836567

### 3.2 Manufacturer Information

Name or Company	Huawei Technologies Co., Ltd.
Address/Post	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
City	Shenzhen
Postal Code	518129
Country	China
Telephone	8610—82836505
Fax	8610—82836567

## 4. Equipment Under Test (EUT) and Ancillary Equipment (AE)

### 4.1 About EUT

Model	U1100/Vodafone 625/V625
FCC ID:	QISU1100
Frequency	PCS 1900 MHz;
Antenna	Internal
Power supply	Battery or Charger (AC Adaptor)
Output power	32.52 dBm maximum EIRP measured for PCS1900
Extreme vol. Limits	3.6VDC to 4.2VDC (nominal: 3.7 VDC)
Extreme temp. Tolerance	-10°C to +50°C

### 4.2 Internal Identification of EUT used during the test

EUT ID	SN or IMEI	HW Version	SW Version
EUT1	35241802000555705	HD1U110M VER.C	V100R001C01B100

\*EUT code: is used to identify the test sample in the lab internally.

### 4.3 Photographs of EUT

Photographs of Telephone Set and Charger are respectively shown in ANNEX B of this test report.

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**5. SUMMARY OF TEST RESULTS**

Items	List	Clause in FCC rules	Verdict
1	Output Power	22.913(a)/24.232(b)	NM
2	Emission Limit	2.1051/22.917/24.238	P
3	Conducted Emission	15.107/207	NM
4	Frequency Stability	2.1055/24.235	NM
5	Occupied Bandwidth	2.1049(h)(i)	NM
6	Emission Bandwidth	22.917(b)/24.238(b)	NM
7	Band Edge Compliance	22.917(b)/24.238(b)	NM
8	Conducted Spurious Emission	2.1057/22.917/24.238	NM

**6. MAIN TEST INSTRUMENTS**

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL DUE DATE
1	Test Receiver	ESS	847151/015	R&S	2008-10-30
2	Test Receiver	ESI40	831564/002	R&S	2009-2-11
3	BiLog Antenna	3142B	9908-1403	EMCO	2009-1-16
4	BiLog Antenna	3142B	9908-1405	EMCO	2009-9-19
5	Signal Generator	SMT06	831285/005	R&S	2008-12-26
6	Signal Generator	SMP04	100070	R&S	2008-4-20
7	LISN	ESH2-Z5	829991/012	R&S	2008-8
8	Spectrum Analyzer	FSU	MY41000262	Agilent	2008-4-18
9	Universal Radio Communication Tester	CMU200	100680	R&S	2008-8-23
10	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2009-3
11	Dual-Ridge Waveguide Horn Antenna	3116	2663	EMCO	2009-3
12	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2009-3
13	Climatic chamber	PL-2G	343074	ESPEC	2008-5-15

## ANNEX A MEASUREMENT RESULTS

### A.1 EMISSION LIMIT (§2.1051/§24.238)

#### A.1.1 Measurement Method

The measurements procedures in TIA-603C-2004 are used.

The spectrum was scanned from 30 MHz 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 1MHz as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the PCS1900 and GSM850 band.

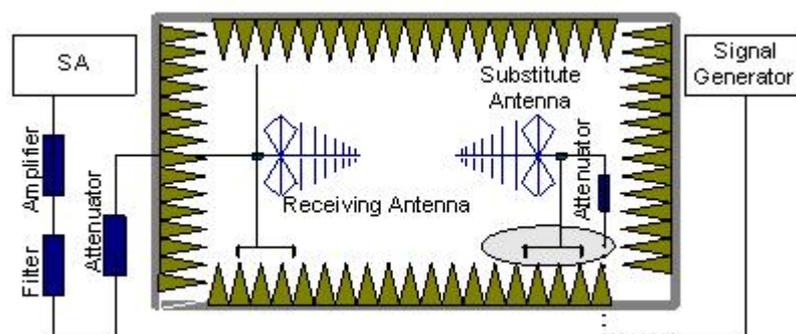
#### The procedure of radiated spurious emissions is as follows:

a) Pre-calibration

With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as,

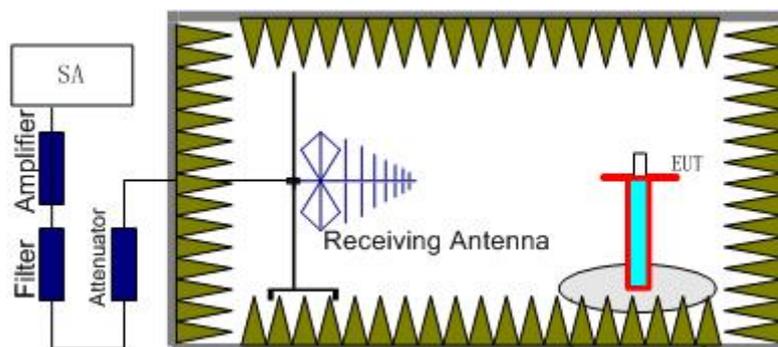
$$RSE = R_x \text{ (dBuV)} + CL \text{ (dB)} + SA \text{ (dB)} + Gain \text{ (dBi)} - 107 \text{ (dBuV to dBm)}$$

The SA is calibrated using following setup.



b) EUT test

EUT was placed on a 1.5 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 test item for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.



### A.1.2 Measurement Limit

Sec. 24.238 Emission Limits.

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power ( $P$ , in Watts) by 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.

### A.1.3 Measurement Results

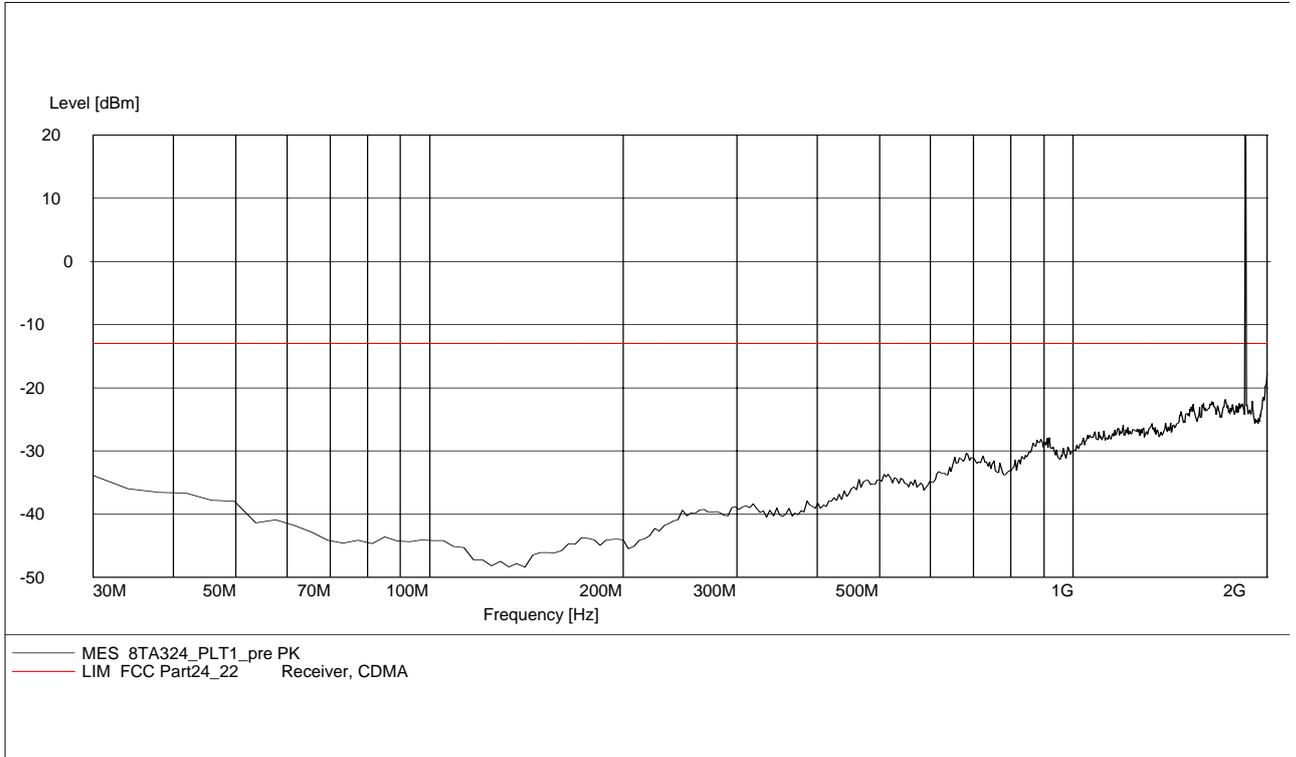
Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS band (1850.2 MHz, 1880 MHz and 1909.8 MHz) and GSM850 band (824.2MHz, 836.6MHz, 848.8MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the PCS1900 and GSM850 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

**NOTE: The spurious emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels.**

PCS 1900

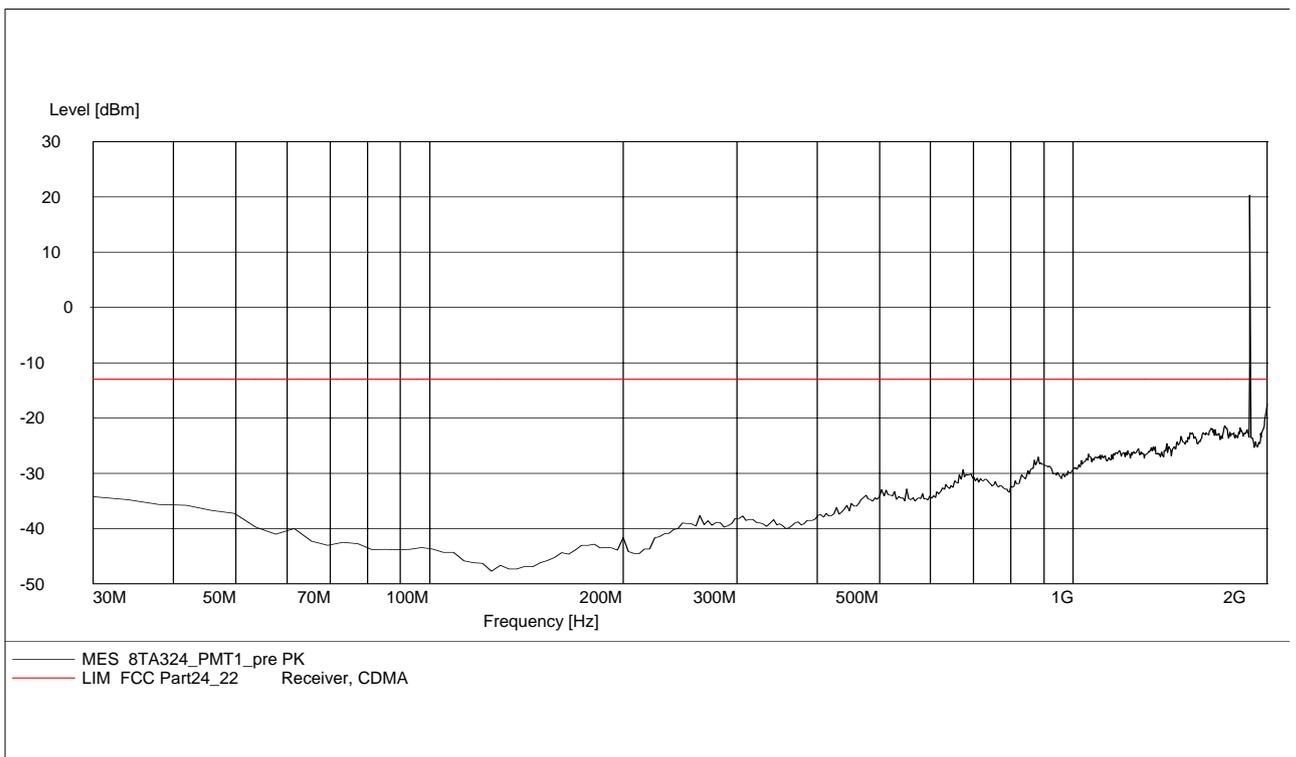
A.1.3.9 RADIATED SPURIOUS EMISSIONS-Channel 512: 30MHz – 2GHz

NOTE: peak above the limit line is the Carrier frequency @ ch-512



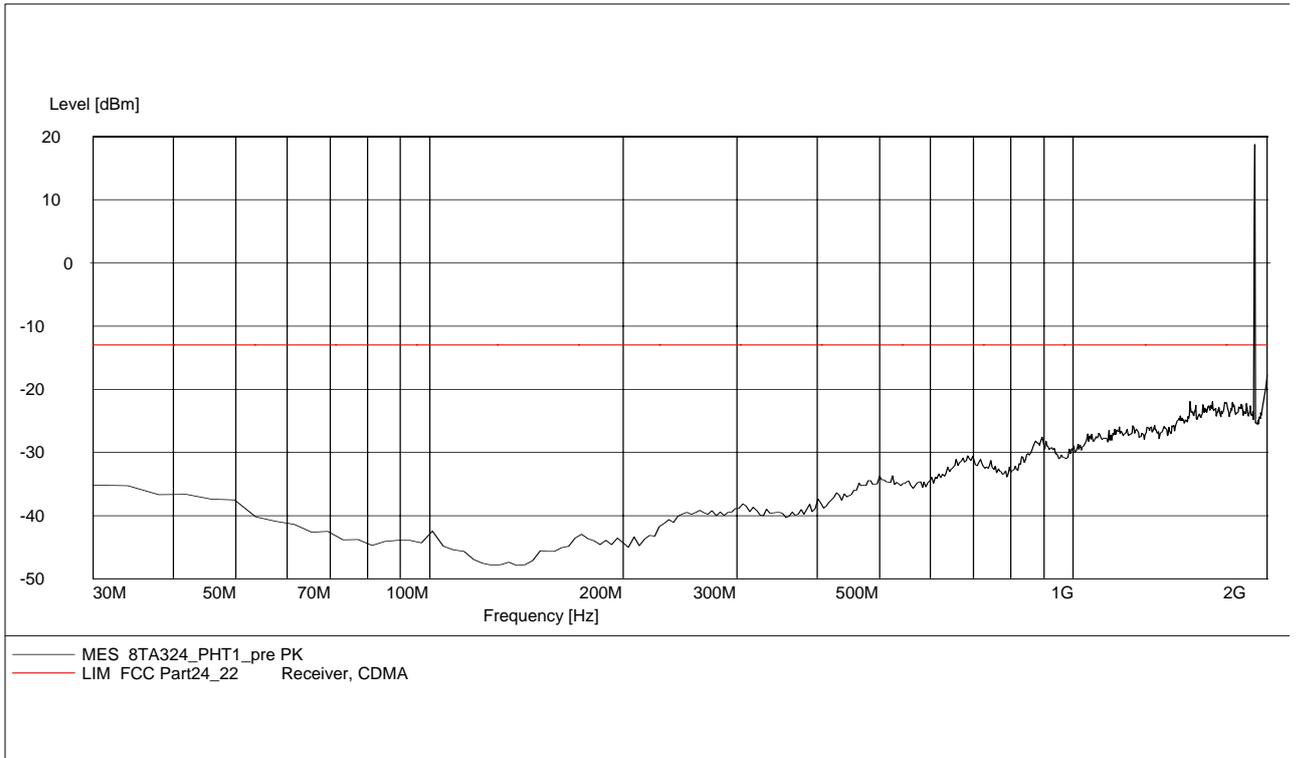
A.1.3.10 RADIATED SPURIOUS EMISSIONS-Channel 661: 30MHz – 2GHz

NOTE: peak above the limit line is the Carrier frequency @ ch-661

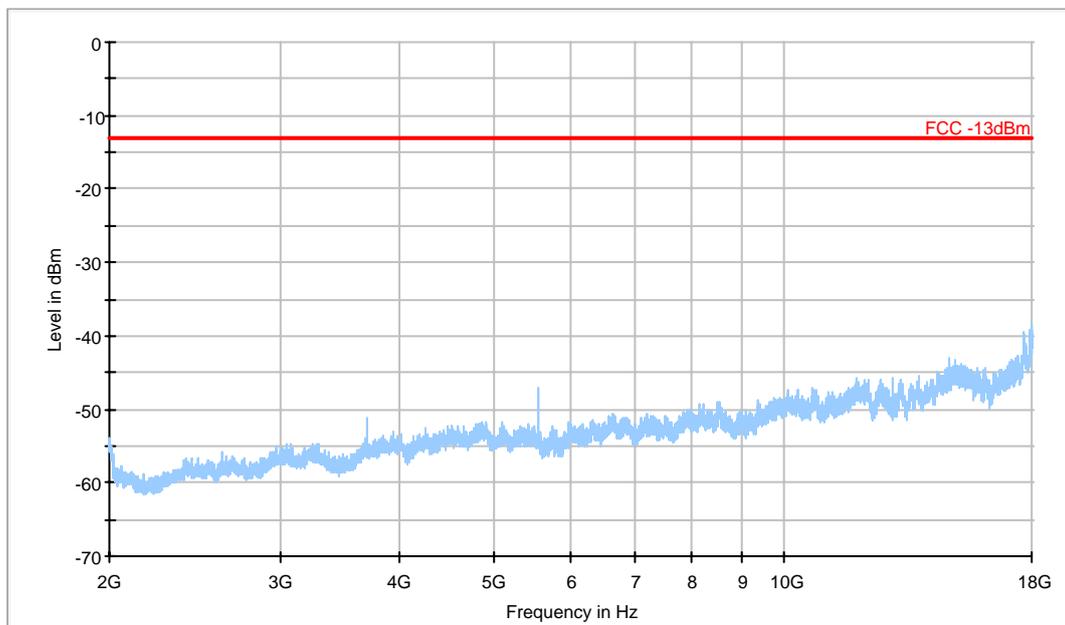


A.1.3.11 RADIATED SPURIOUS EMISSIONS-Channel 810: 30MHz – 2GHz

NOTE: peak above the limit line is the Carrier frequency @ ch-810

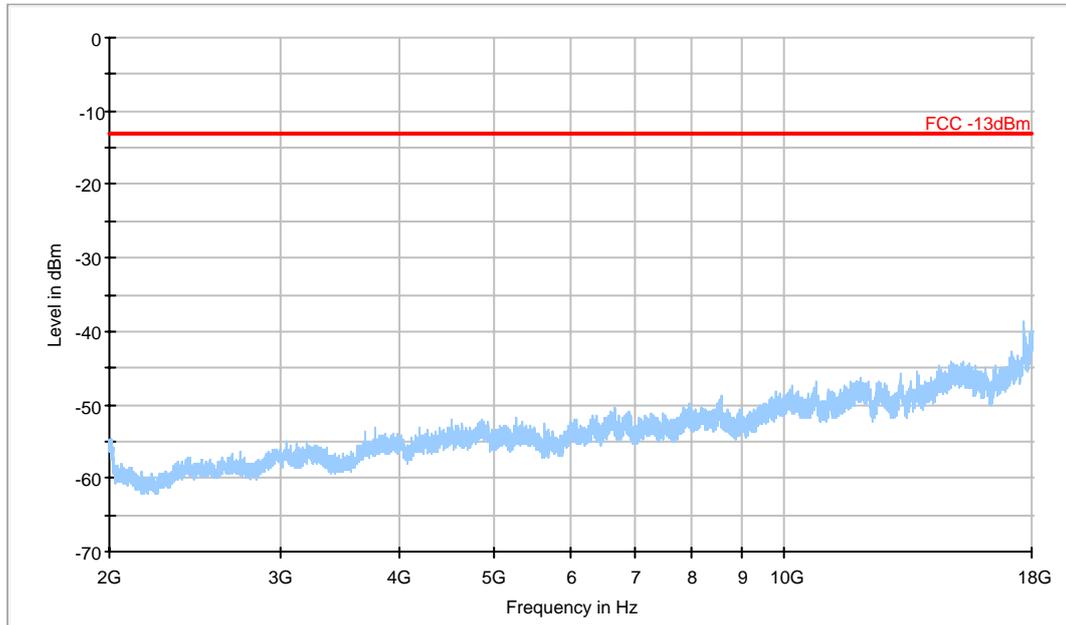


A.1.3.12 RADIATED SPURIOUS EMISSIONS-Channel 512: 2GHz – 18GHz



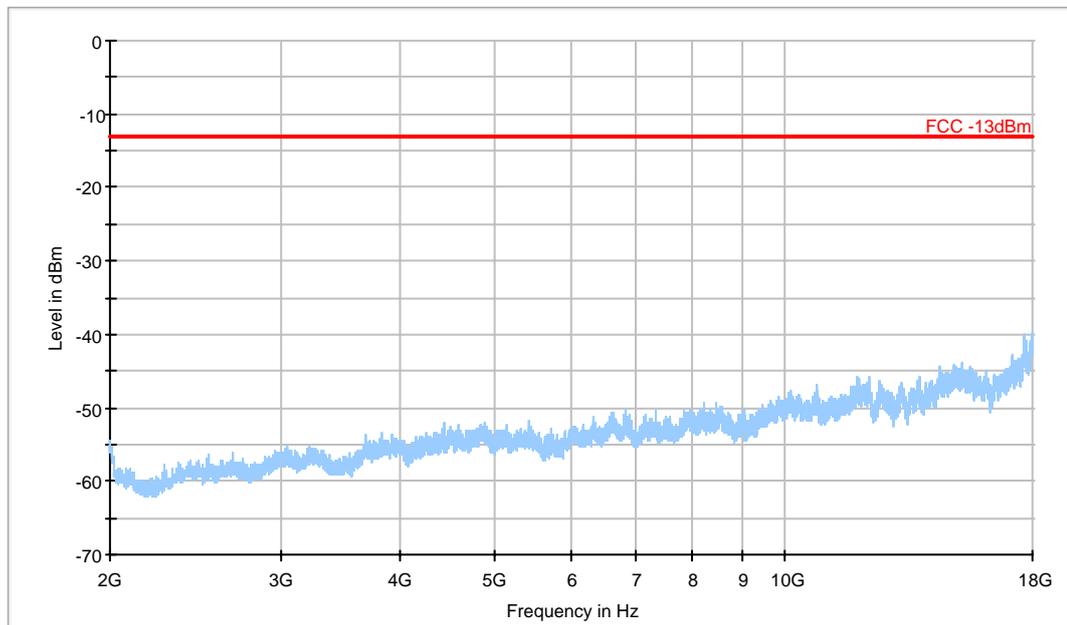
FCC -13dBm Preview Measurement Detector 1

A.1.3.13 RADIATED SPURIOUS EMISSIONS-Channel 661: 2GHz – 18GHz



— FCC -13dBm    — Preview Measurement Detector 1

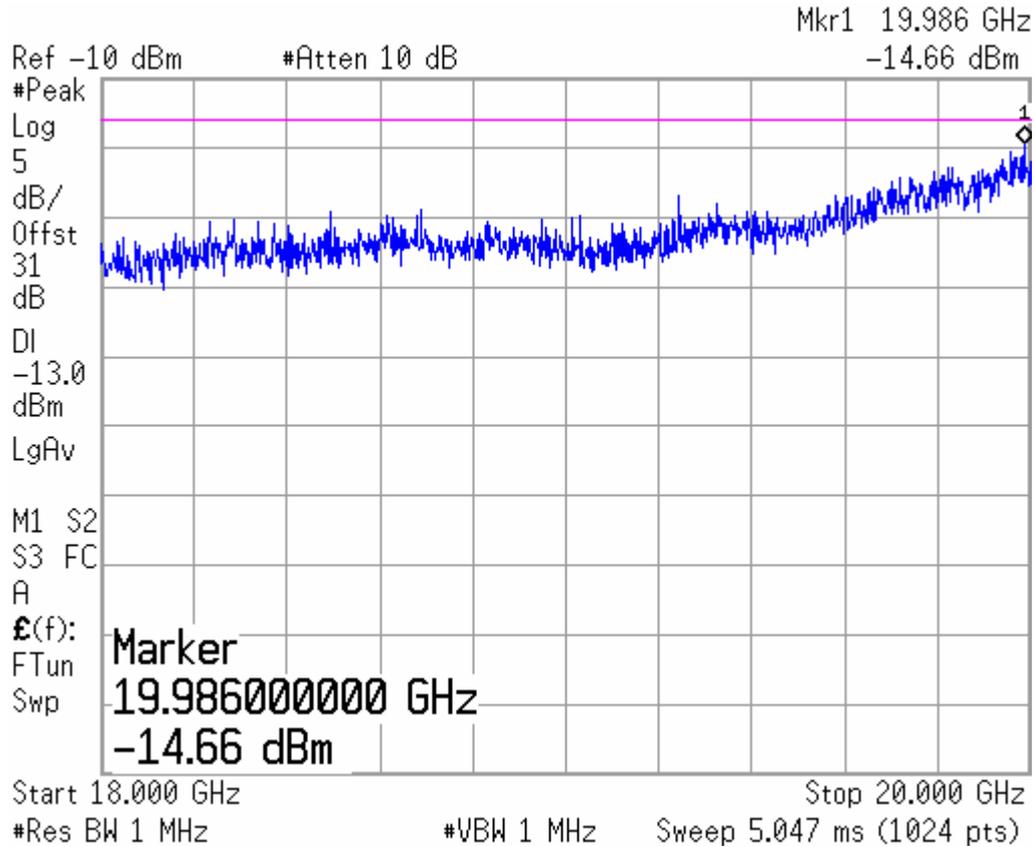
A.1.3.14 RADIATED SPURIOUS EMISSIONS-Channel 810: 2GHz – 18GHz



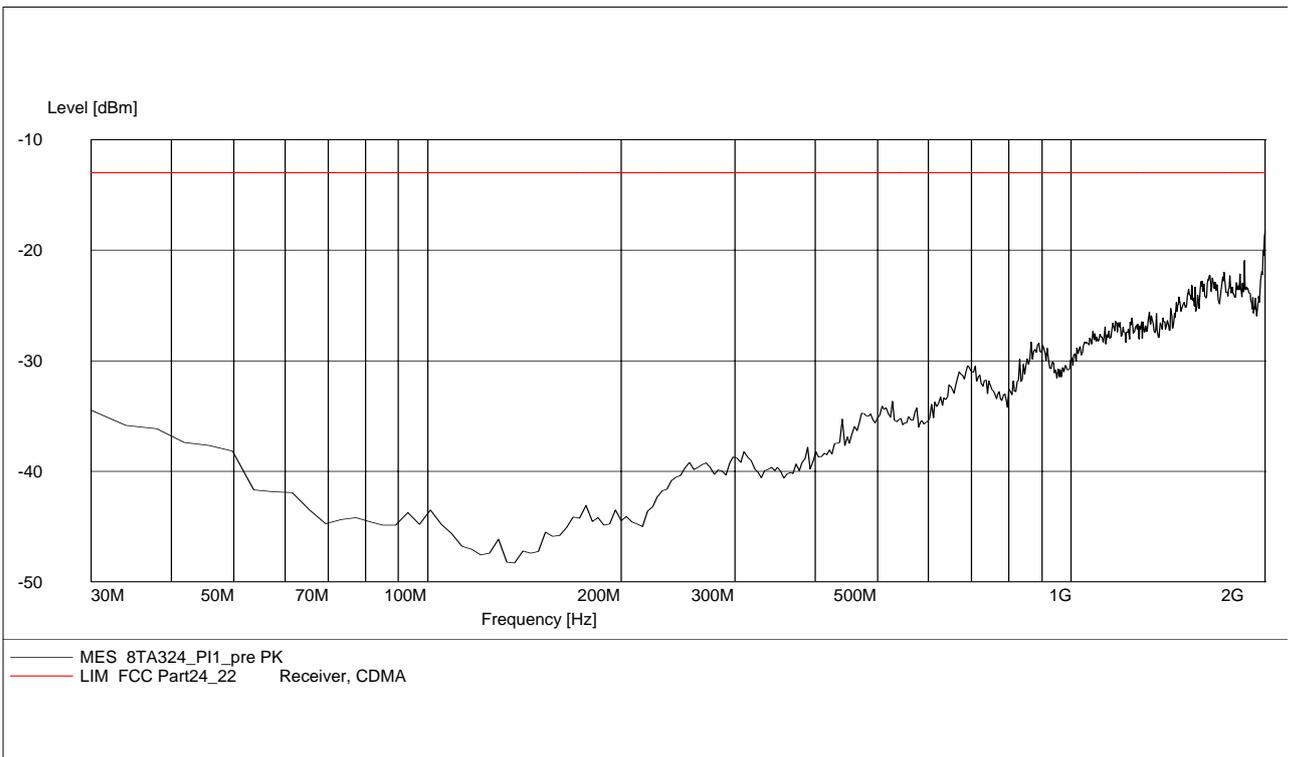
— FCC -13dBm    — Preview Measurement Detector 1

**A.1.3.15 Radiated spurious emission (18GHz-20GHz)**

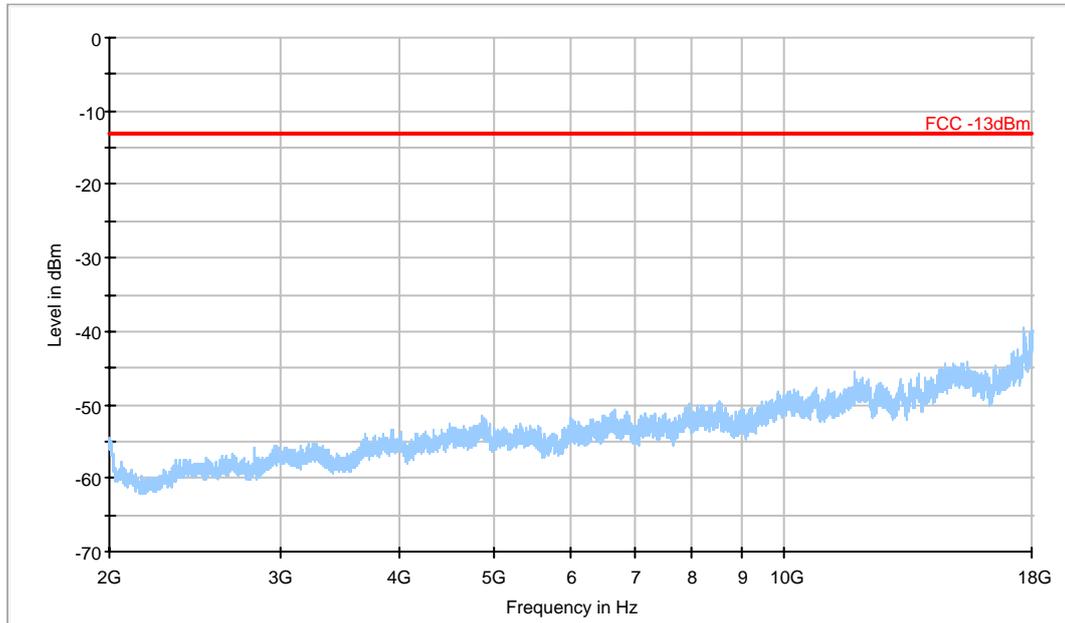
**Note: This plot is valid for low, mid & high channels. It is same as the floor noise.**



**A.1.3.16 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 30MHz – 2GHz**



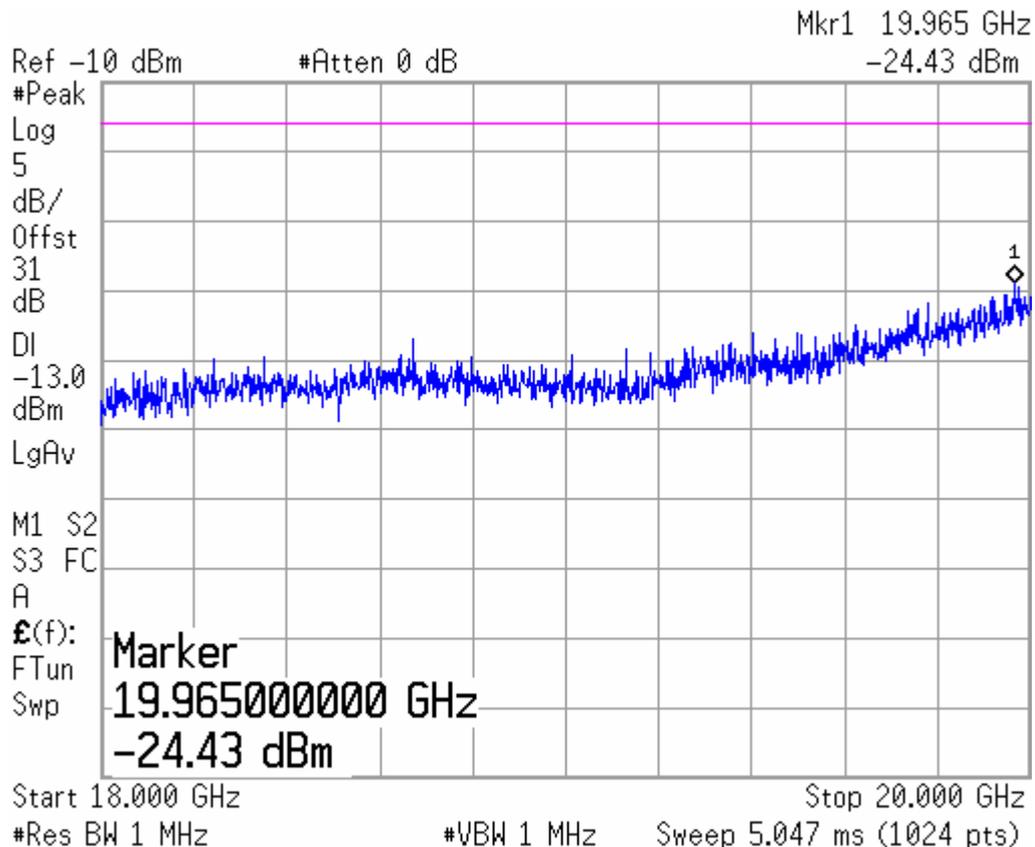
**A.1.3.17 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 2GHz – 18GHz**



— FCC -13dBm    — Preview Measurement Detector 1

**A.1.3.18 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 18GHz – 20GHz**

**Note: It is same as the floor noise.**



ANNEX B PHOTOGRAPHS OF EUT

External Photo



Mobile Phone



Mobile Phone



Charger (AC/DC Adapter)



Label of Charger



Data Line



Headset



Battery



Battery

Internal Photo



Mobile phone Disassembly



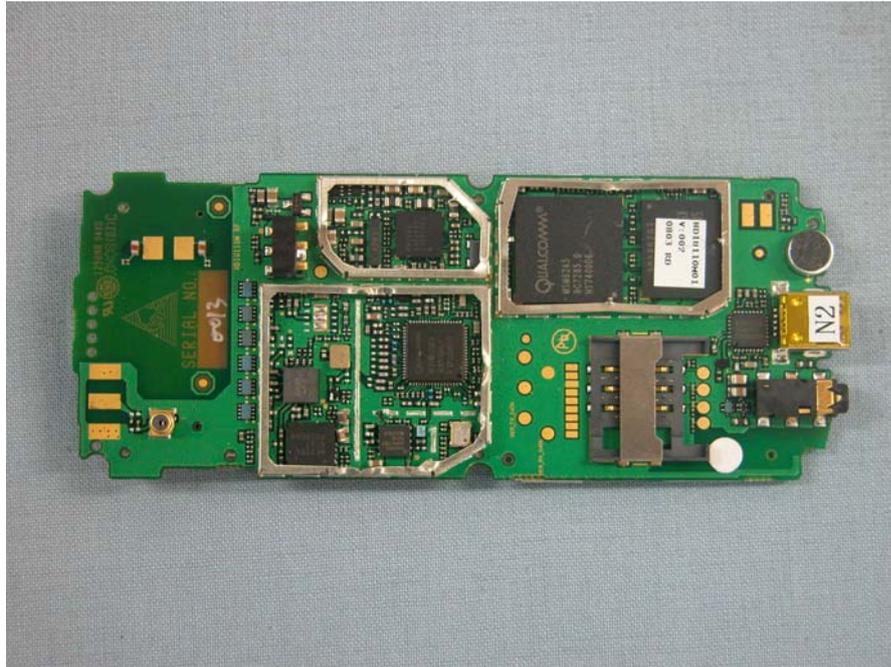
Mobile phone Disassembly



Mobile phone Disassembly



Mobile phone Disassembly



Mobile phone Disassembly

ANNEX C TEST LAYOUT



**Pic1 Radiated Spurious Emission**

**\*\*\*END OF REPORT BODY\*\*\***