



No. DAT-P-114/01-01

TEST REPORT

No. FCC-2006007

Test name	FCC Test
Product	Tri-band GSM mobile phone
Model	AF51
Client	BenQ Mobile

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

Notice

1. The test report is invalid if not marked with “exclusive stamp for the test report” or the stamp of the test center.
2. Any copy of the test report is invalid if not re-marked with the “exclusive stamp for the test report” or the stamp of the test center.
3. 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.
4. The test report is invalid if there is any evidence of erasure and/or falsification.
5. If there is any dissidence for the test report, please file objection to the test center within 15 days from the date of receiving the test report.
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.

Address: No. 52, Huayuanbei Road, Beijing, P. R. China

Post code: 100083

Cable: 04282

Telephone: +86 10 62302041

Fax: +86 10 62304793

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

No. FCC-2006007

Page 3 of 43

Product	Tri-band GSM mobile phone	Model	AF51
		Trade mark	
Client	BenQ Mobile		
Manufacturer	BenQ Mobile	Arrival Date of sample	Sep,5, 2006
Place of sampling	/	Carrier of the samples	Yang Xianguang
Quantity of the samples	2	Date of product	/
Base of the samples	(Blank)	Items of test	10
Series number	EUT1:004400015968256 EUT2:004400015968330		
Standard(s)	FCC Part 24, RSS 133		
Conclusion	<p>The testcases requested by the client in this test report have passed the test.</p> <p align="right">(Stamp) Date of issue: Sep,28, 2006</p>		
Comment	The test result relates only to the tested samples.		

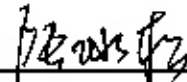
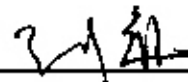
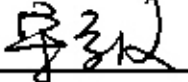
Approved by  Reviewed by  Performed by 
 (Lu Bingsong) (Zhang Rui) (Song Chongwen)
 (Lu Bingsong - Deputy Director of the laboratory)

TABLE OF CONTENT

1. COMPETENCE AND WARRANTIES	5
2. TESTING LABORATORY	5
2.1 TESTING LOCATION	5
2.2 TESTING ENVIRONMENT	5
2.3 TESTING PERIOD.....	6
3. APPLICANT INFORMATION.....	6
3.1 CLIENT INFORMATION	6
3.2 MANUFACTURER INFORMATION.....	7
4. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE).....	7
4.1 ABOUT EUT	7
4.2 INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	7
4.3 INTERNAL IDENTIFICATION OF AE USED DURING THE TEST.....	7
4.4 PHOTOGRAPHS OF EUT	8
5. SUMMARY OF TEST RESULTS	8
6. MAIN TEST INSTRUMENTS.....	8
ANNEX A MEASUREMENT RESULTS	9
ANNEX B PHOTOGRAPHS OF EUT	36
ANNEX C TEST LAYOUT.....	42

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 CNAL – Accreditation Certificate of China National Accreditation Board for Laboratories, 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

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

No. FCC-2006007

Page 6 of 43

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:	Sep 05,2006
Testing End Date:	Sep 25,2006

3. Applicant Information

3.1 Client Information

Name or Company	BENQ MOBILE
Address/Post	Wangjing Tower B, No.9 Wangjing Zhonghuan Nanlu, Chaoyang District
City	Beijing
Postal Code	100102
Country	P.R.China
Telephone	86-10-64748800-6867
Fax	86-10-64734474

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

No. FCC-2006007

Page 7 of 43

3.2 Manufacturer Information

Name or Company	BENQ MOBILE
Address/Post	Wangjing Tower B, No.9 Wangjing Zhonghuan Nanlu, Chaoyang District
City	Beijing
Postal Code	100102
Country	P.R.China
Telephone	86-10-64748800-6867
Fax	86-10-64734474

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

4.1 About EUT

Model	AF51
FCC ID:	JVPBAF51
IC ID:	6175A-BAF51
Description	Tri-band GSM Mobile Phone
Frequency	1850.2MHz –1909.8MHz for PCS 1900;
Type of modulation	GMSK for PCS 1900
Number of channels	299 for PCS 1900
Antenna	Internal
Power supply	Battery or Charger (AC Adaptor)
Output power	24.39dBm maximum EIRP measured for PCS 1900
Extreme vol. Limits	3.7VDC to 4.4VDC (nominal: 3.7 VDC)
Extreme temp. Tolerance	-30°C to +50°C

4.2 Internal Identification of EUT used during the test

EUT ID	SN or IMEI	HW Version	SW Version
EUT1	004400015968256	B2	SVN14
EUT2	004400015968330	B2	SVN14

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

4.3 Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Headset Basic HHS-100	--
AE2	Headset HHS-110	--
AE3	Headset Purestyle HHS-120	--
AE4	Travel Charger ETC-100	--
AE5	Data Cable serial DCA-100	--

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

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

No. FCC-2006007

Page 8 of 43

4.4 Photographs of EUT

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

5. SUMMARY OF TEST RESULTS

Items	List	Clause in FCC rules	Verdict
1	Output Power	24.232(b)	P
2	Emission Limit	24.238	P
3	Receiver radiated emission	2.1053 / RSS-133	P
4	Radiated Emission	n/a	P
5	Conducted Emission	15.107/207	P
6	Frequency Stability	§2.1055/§24.235	P
7	Occupied Bandwidth	§2.1049(h)(i)	P
8	Emission Bandwidth	§24.238(b)	P
9	Band Edge Compliance	§24.238(b)	P
10	Conducted Spurious Emission	§2.1057/§24.238	P

6. MAIN TEST INSTRUMENTS

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER
1	Test Receiver	ESS	847151/015	R&S
2	Test Receiver	ESI40	831564/002	R&S
3	BiLog Antenna	3142B	9908-1403	EMCO
4	BiLog Antenna	3142B	9908-1405	EMCO
5	Signal Generator	SMT06	831285/005	R&S
6	Signal Generator	SMP04	100070	R&S
7	LISN	ESH2-Z5	829991/012	R&S
8	Spectrum Analyzer	E4440A	MY41000262	Agilent
9	Universal Radio Communication Tester	CMU200	100680	R&S
10	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO
11	Dual-Ridge Waveguide Horn Antenna	3116	2663	EMCO
12	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO
13	Climatic chamber	PL-2G	343074	ESPEC

ANNEX A MEASUREMENT RESULTS

A.1 OUTPUT POWER (§24.232(b))

A.1.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMU-200) to ensure max power transmission and proper modulation.

This result contains peak output power and EIRP measurements for the EUT.

In all cases, output power is within the specified limits.

A.1.2 Conducted

A.1.2.1 Method of Measurements

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

The power was measured with Agilent Spectrum Analyzer E4440A (peak)

These measurements were done at 3 frequencies, 1850.2 MHz, 1880.0 MHz and 1909.8 MHz for PCS1900 band (bottom, middle and top of operational frequency range).

PCS1900

Limit

Power step	Nominal Peak output power (dBm)	Tolerance (dB)
0	30dBm(1W)*	± 2

*GSM Specification – ETSI EN 300 910 V8.5.1 (2000-11) Section 4.1

Measurement result

The conducted output power measurement result is provided by BenQ” Test Report: Conducted Output power GSM 900 / 1800 / 1900”

Device	Average Power during burst at connector		
	Ch. 512 1850.2 MHz	Ch. 661 1880.0 MHz	Ch. 810 1909.8 MHz
EUT1: 004400015968256	28.6	28.3	29.1
EUT2: 004400015968330	28.6	28.3	29.1

A.1.3 Radiated

A.1.3.1 Description

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

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

A.1.3.2 Method of Measurement

1. In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere

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

with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.

2. A "reference path loss" is established as $P_{in} + 2.15 - P_r$.
3. The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.
4. From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.
5. The EUT is then put into pulse mode at its maximum power level (Power Step 0 for PCS1900).
6. "Gated mode" power measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.
7. This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).
8. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15dBi$.

PCS1900-EIRP 24.232(b)

Limits

Power Step	Burst Peak EIRP (dBm)
0	≤33dBm (2W)

Measurement result

Frequency(MHz)	Power Step	Peak EIRP(dBm)
1850.2	0	23.71
1880.0	0	24.39
1909.8	0	24.26

ANALYZER SETTINGS: RBW = VBW = 3MHz

A.2 EMISSION LIMIT (§24.238)

A.2.1 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.

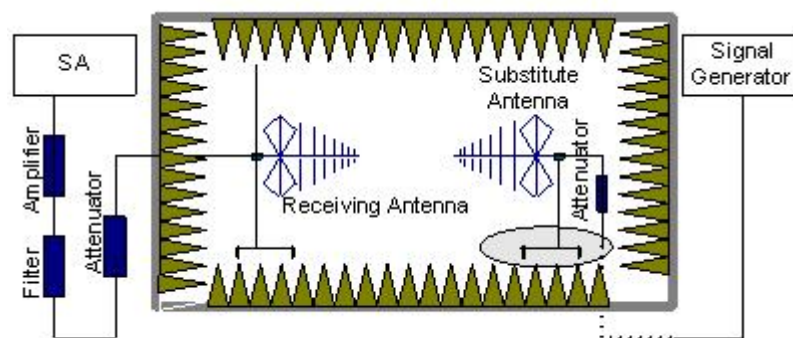
The procedure of radiated spurious emissions is as follows:

a) Pre-calibration

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

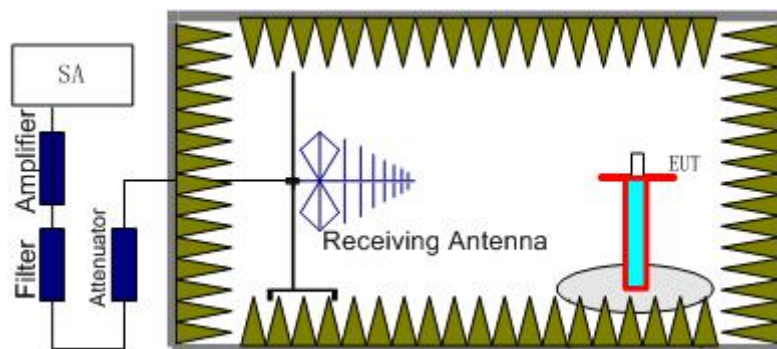
$$RSE = R_x \text{ (dBuV)} + CL \text{ (dB)} + SA \text{ (dB)} + Gain \text{ (dBi)} - 107 \text{ (dBuV to dBm)}$$

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.2.2 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.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier

Telecommunication Metrology Center of Ministry of Information Industry

No. FCC-2006007

Page 12 of 43

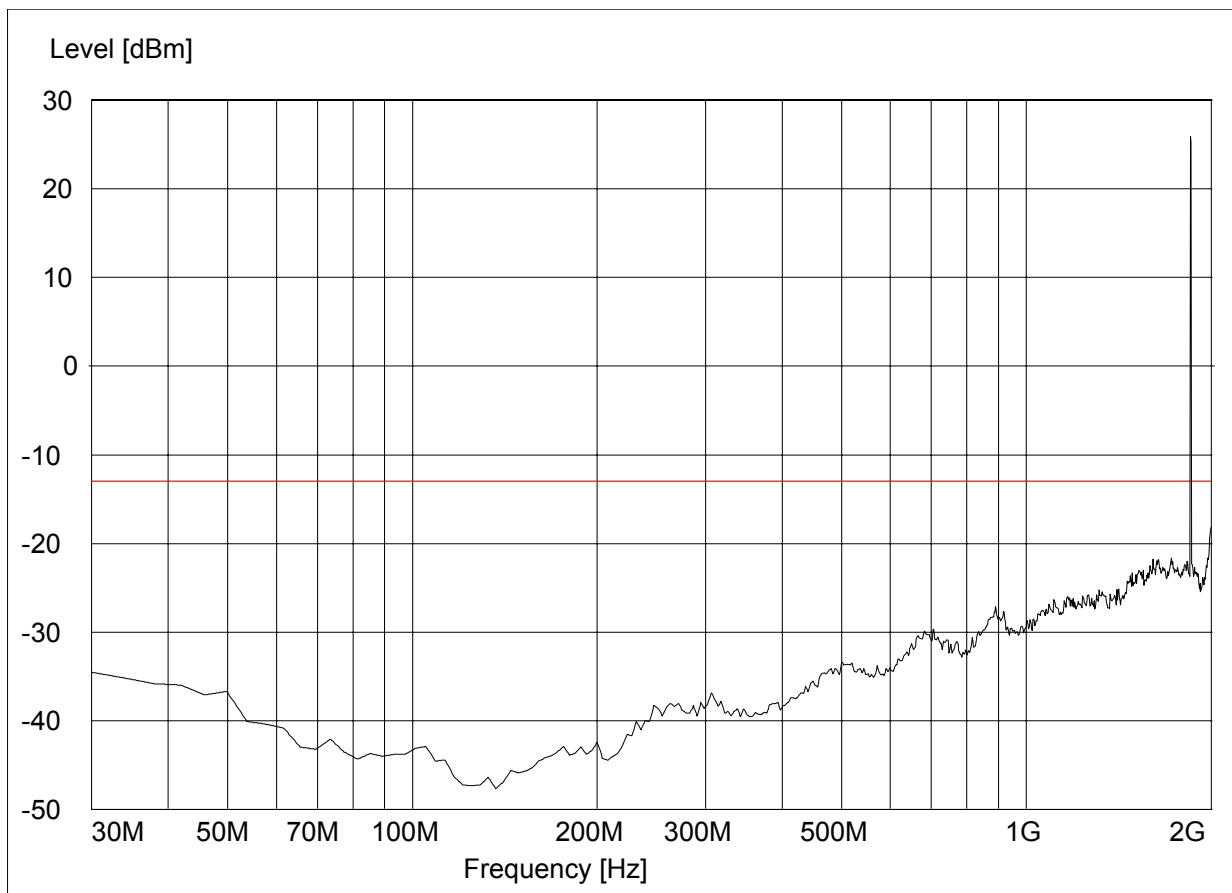
frequencies of the PCS band (1850.2 MHz, 1880 MHz and 1909.8 MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the PCS1900 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.2.3.1 RADIATED SPURIOUS EMISSIONS-Channel 512: 30MHz – 2GHz

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



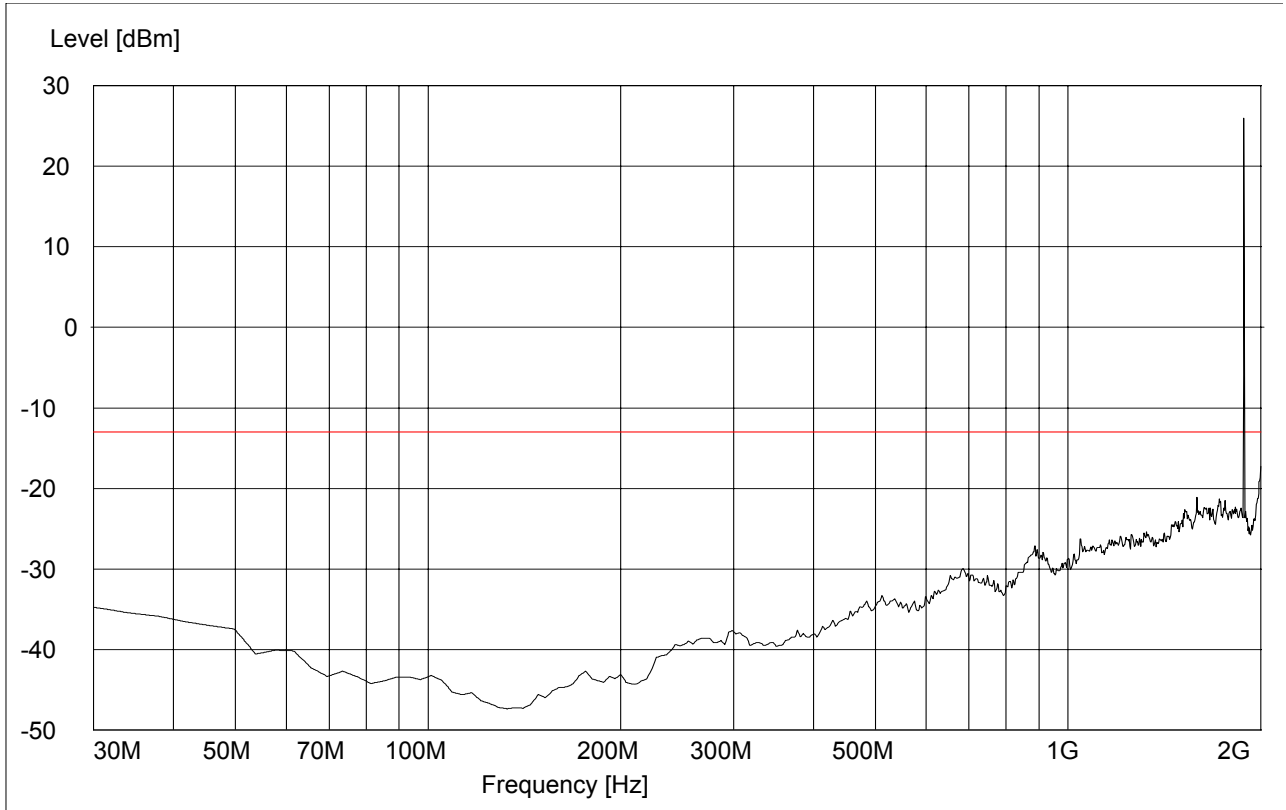
Telecommunication Metrology Center
of Ministry of Information Industry

No. FCC-2006007

Page 13 of 43

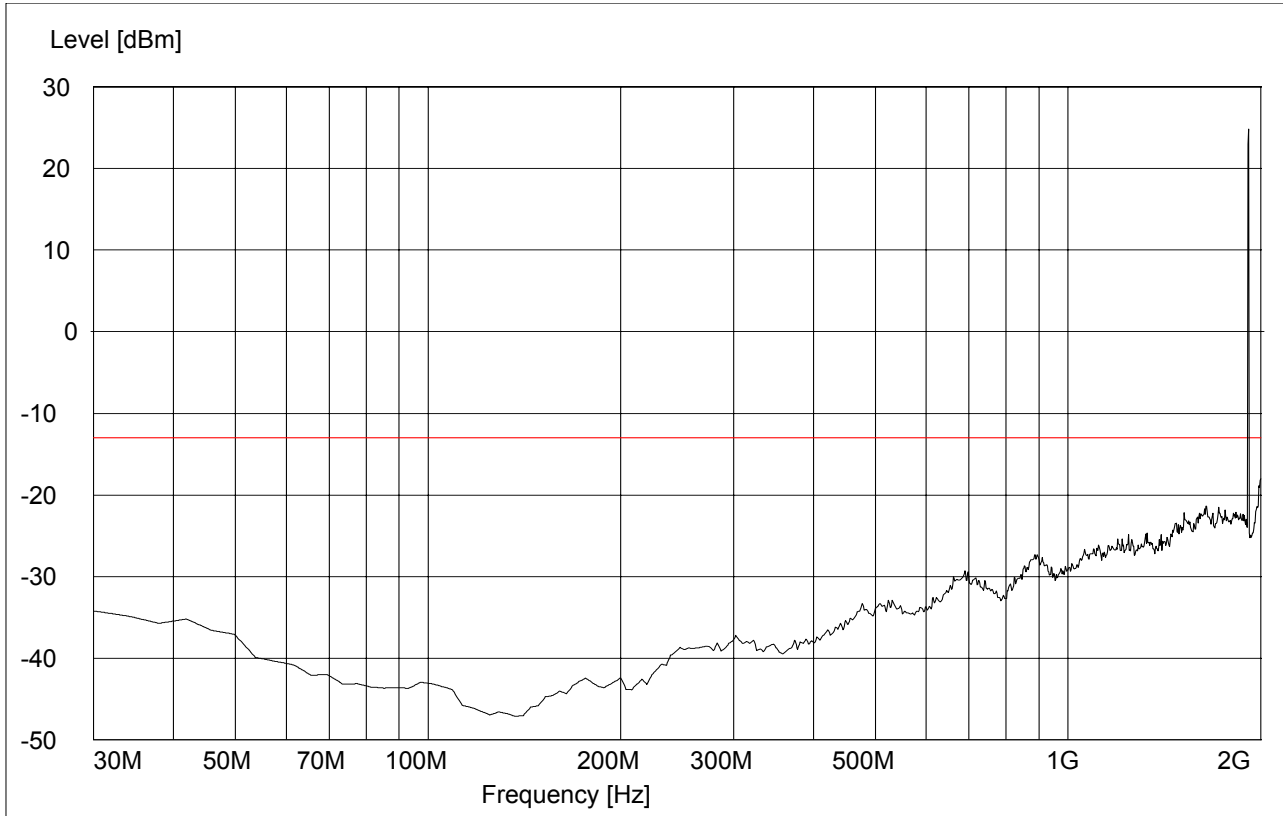
A.2.3.2 RADIATED SPURIOUS EMISSIONS-Channel 661: 30MHz – 2GHz

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

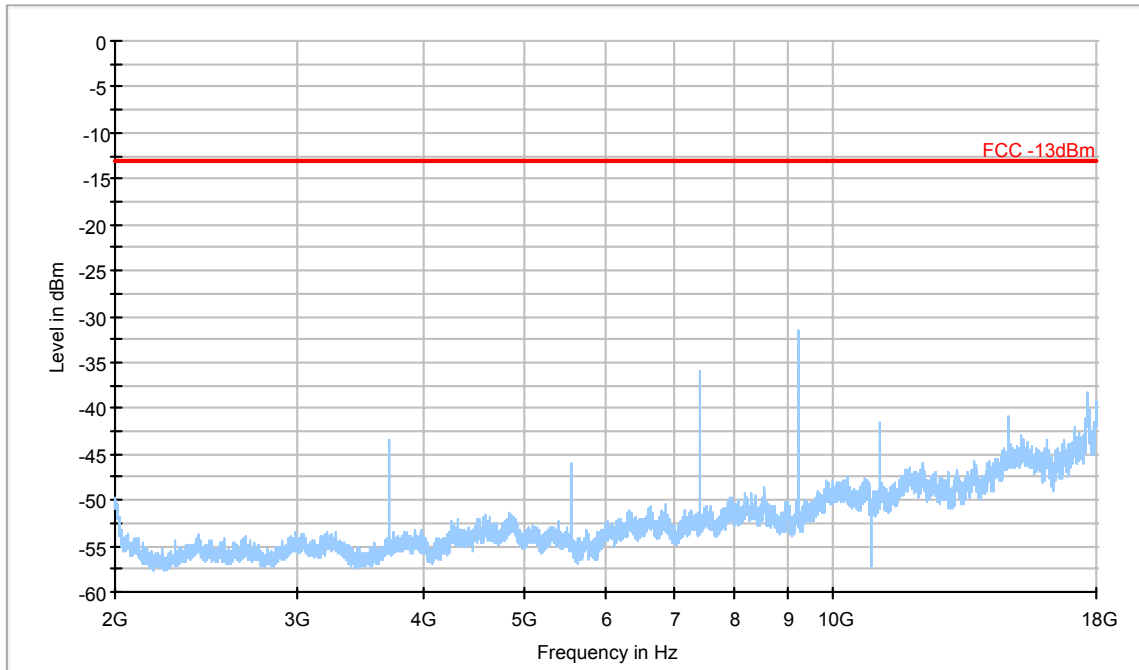


A.2.3.3 RADIATED SPURIOUS EMISSIONS-Channel 810: 30MHz – 2GHz

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

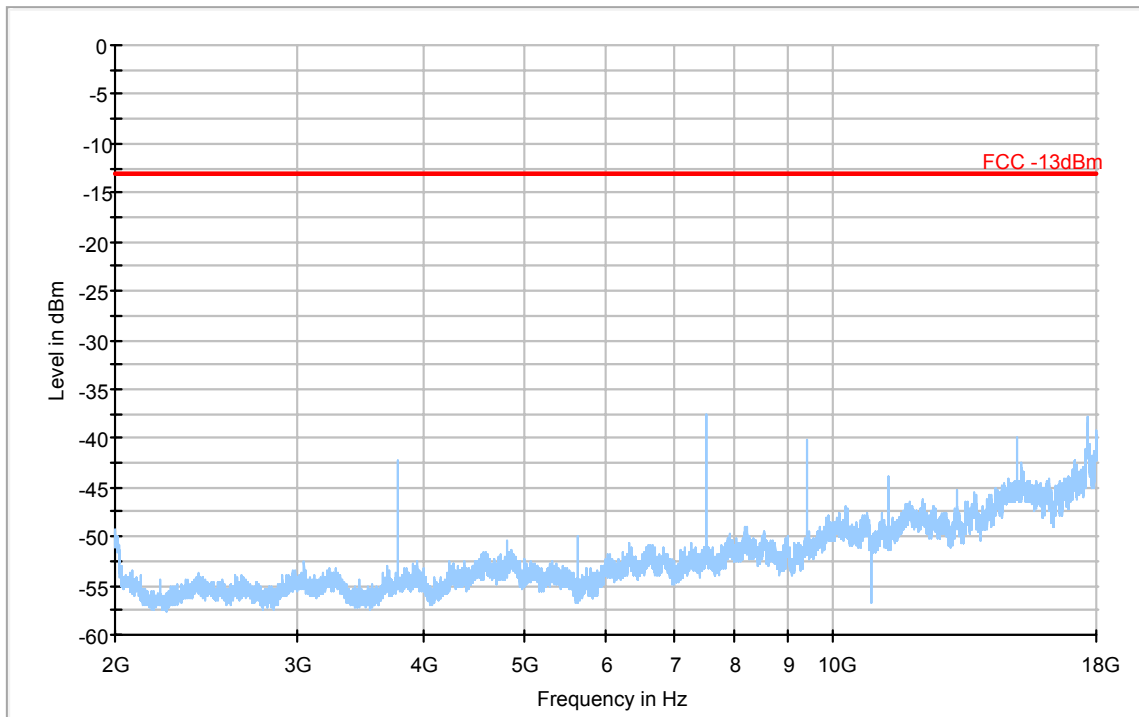


A.2.3.4 RADIATED SPURIOUS EMISSIONS-Channel 512: 2GHz – 18GHz



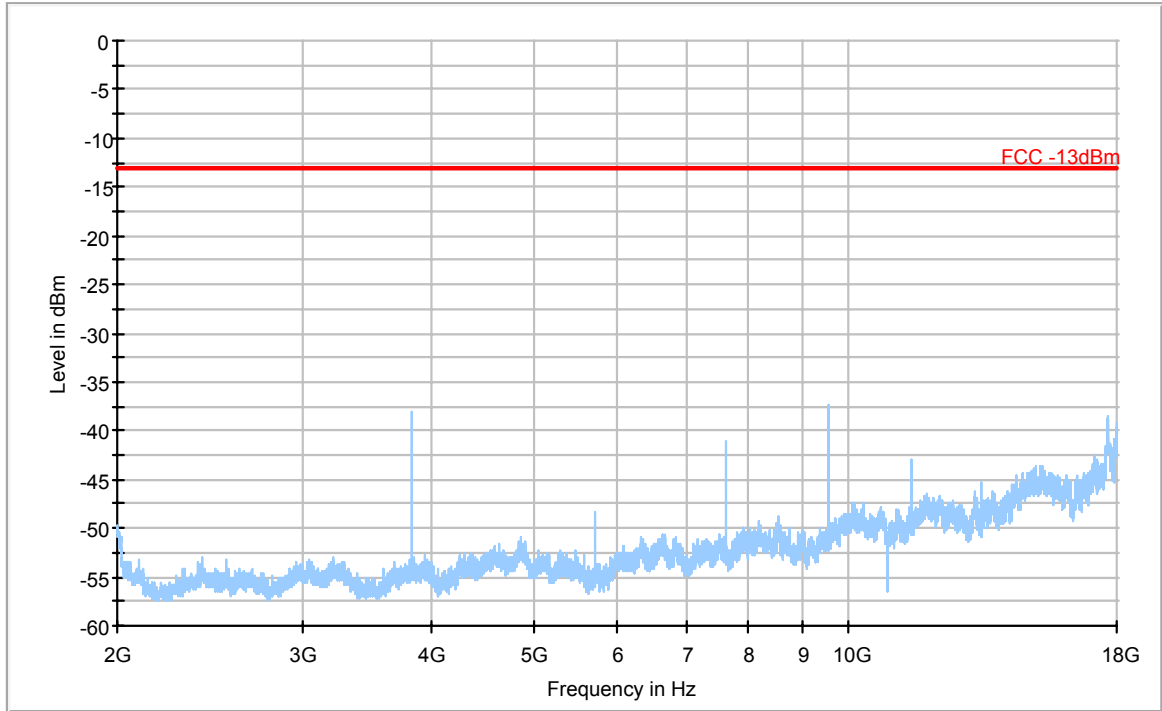
— FCC -13dBm — Preview Measurement Detector 1

A.2.3.5 RADIATED SPURIOUS EMISSIONS-Channel 661: 2GHz – 18GHz



— FCC -13dBm — Preview Measurement Detector 1

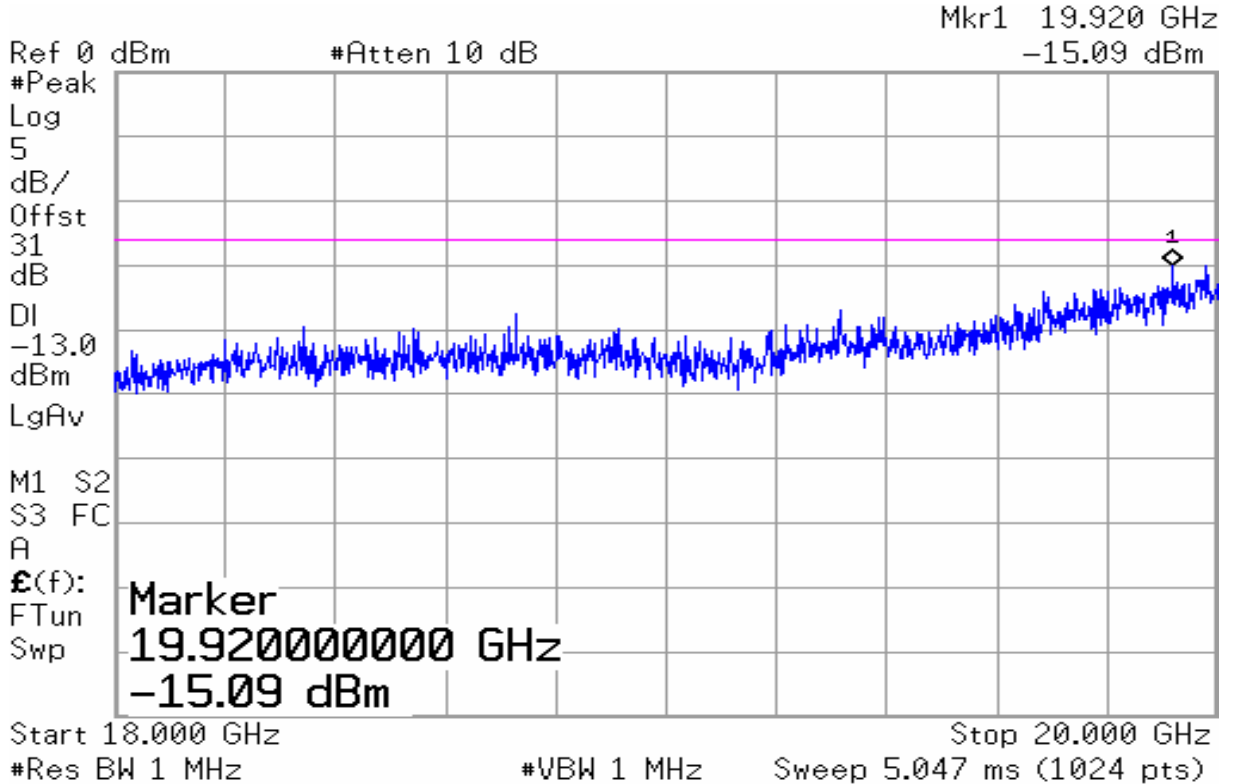
A.2.3.6 RADIATED SPURIOUS EMISSIONS-Channel 810: 2GHz – 18GHz



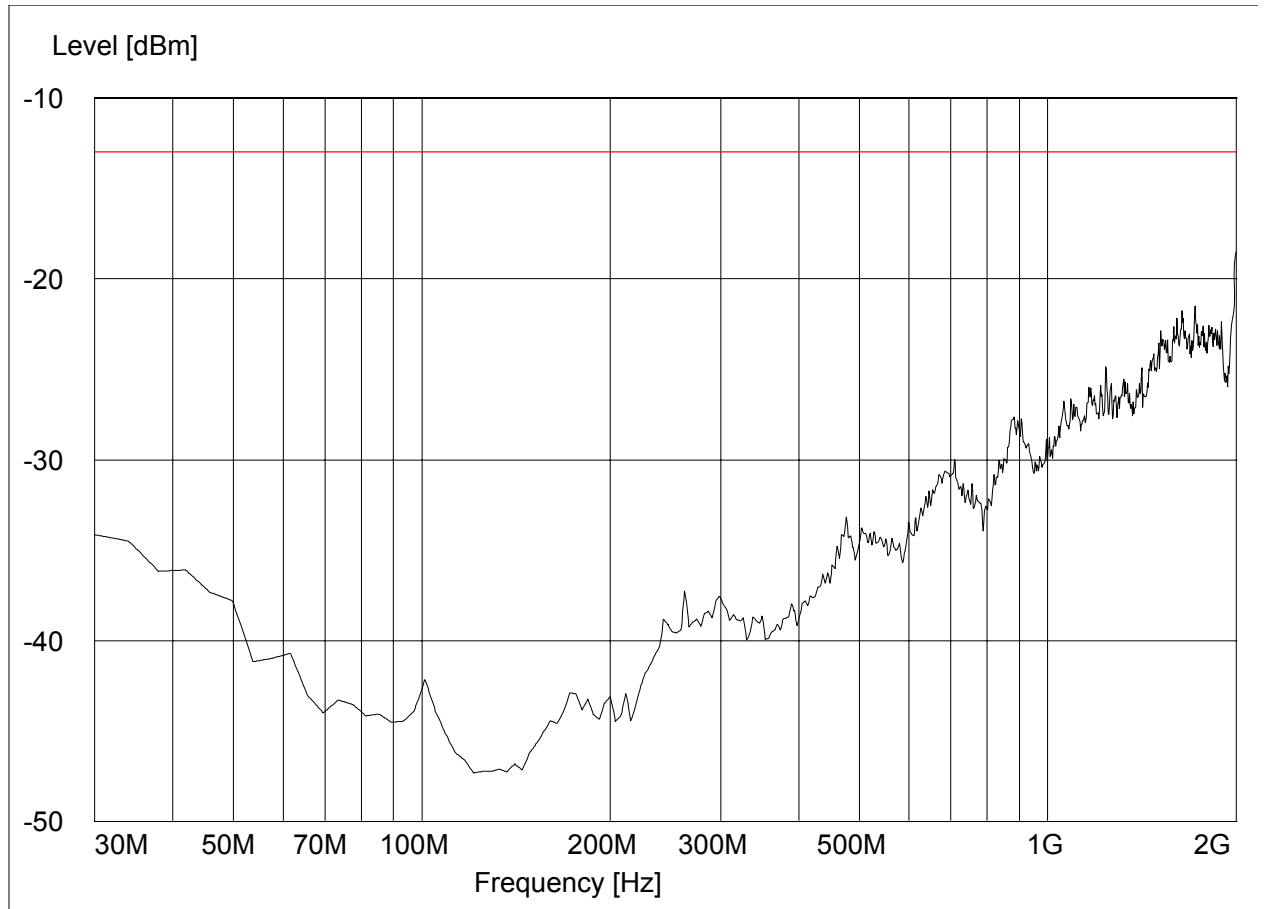
— FCC -13dBm — Preview Measurement Detector 1

A.2.3.7 Radiated spurious emission (18GHz-20GHz)

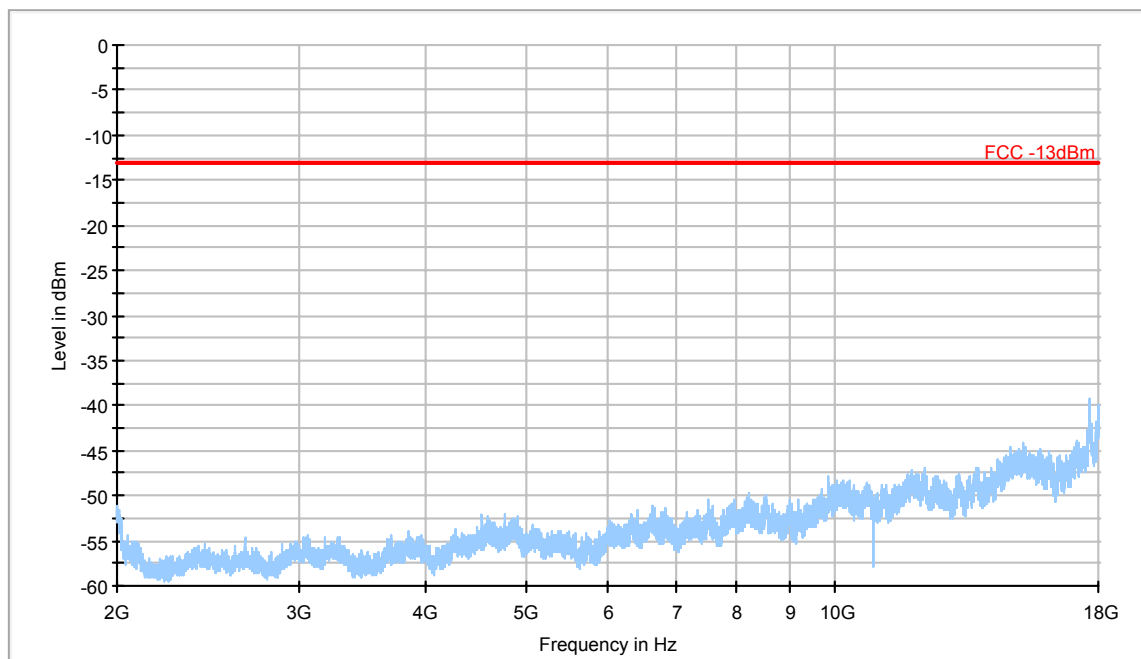
Note: This plot is valid for low, mid & high channels. It is same as the floor noise.



A.2.3.8 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 30MHz – 2GHz



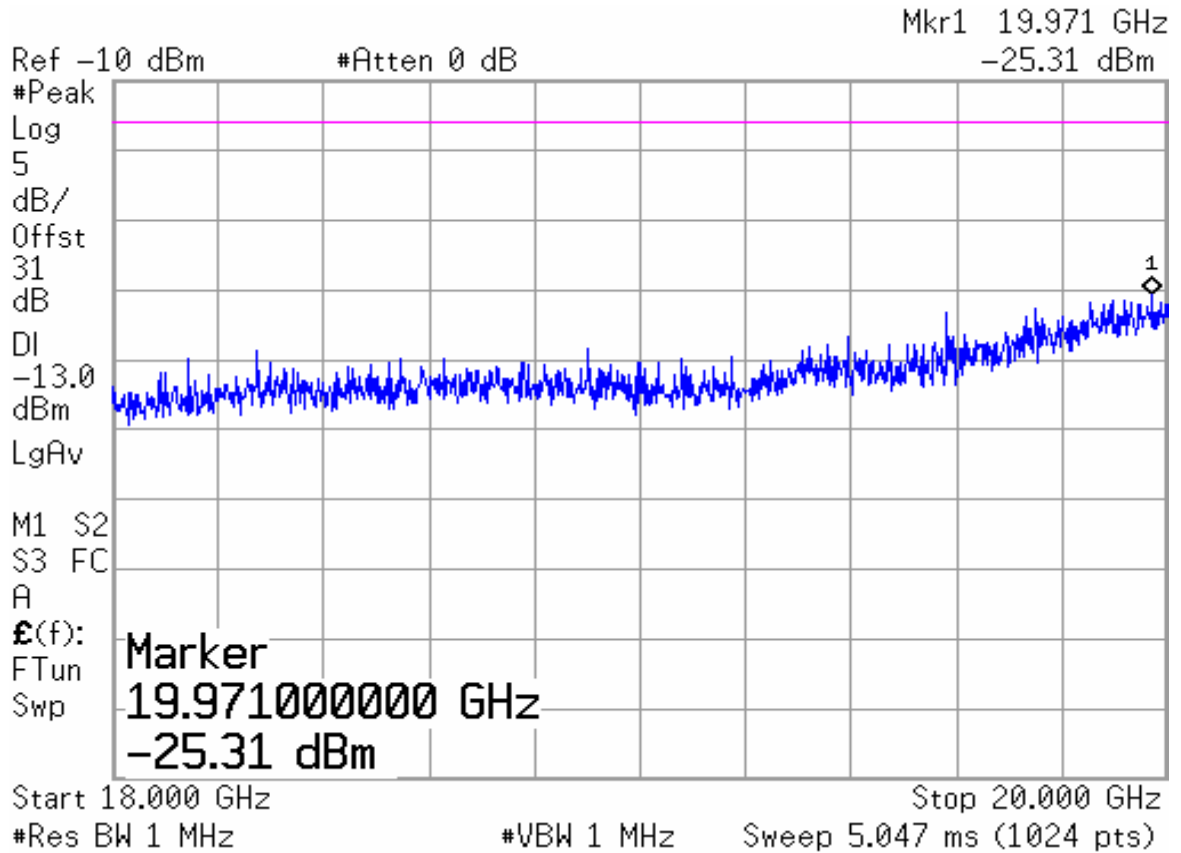
A.2.3.9 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 2GHz – 18GHz



— FCC -13dBm — Preview Measurement Detector 1

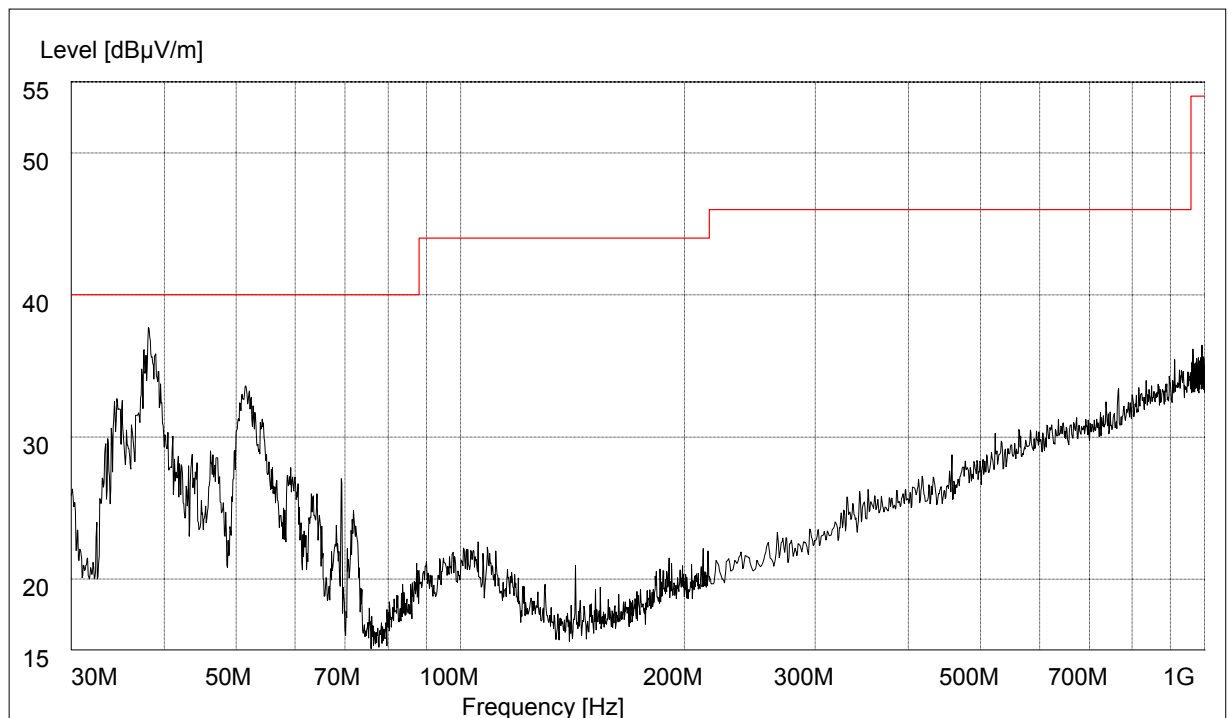
A.2.3.10 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 18GHz – 20GHz

Note: It is same as the floor noise.

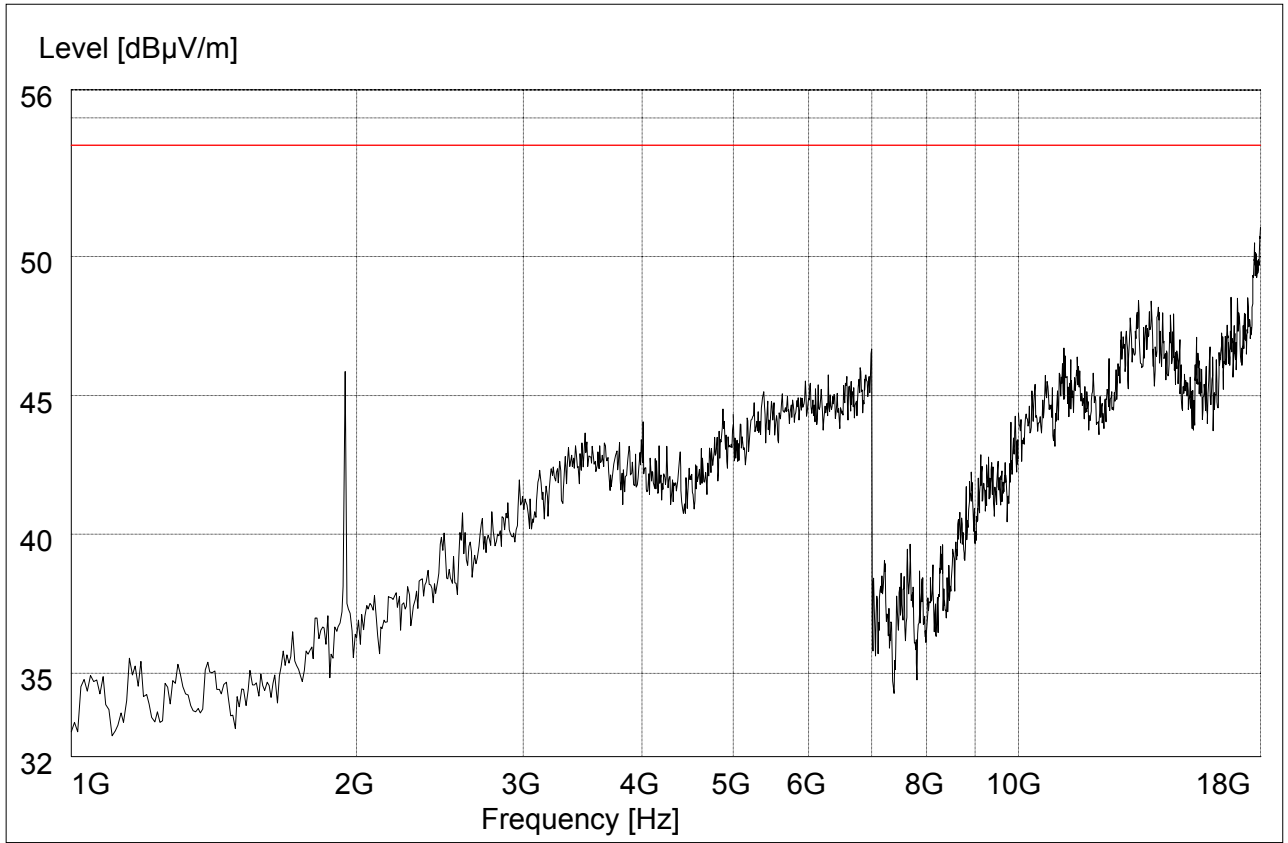


A.3 Receiver Radiated Emission

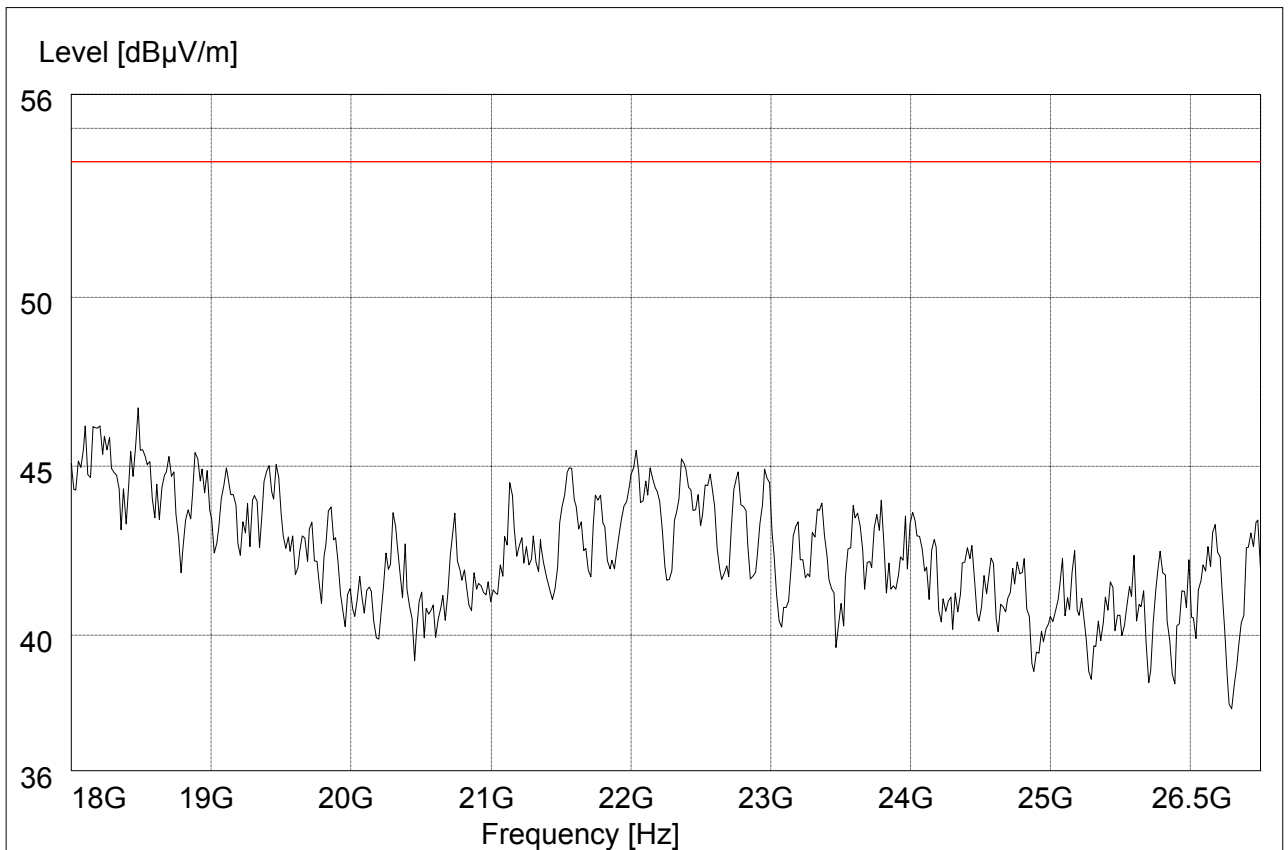
A.3.1 Measurement Result 30MHz-1GHz



A.3.2 Measurement Result 1GHz-18GHz



A.3.3 Measurement Result 18GHz-26.5GHz

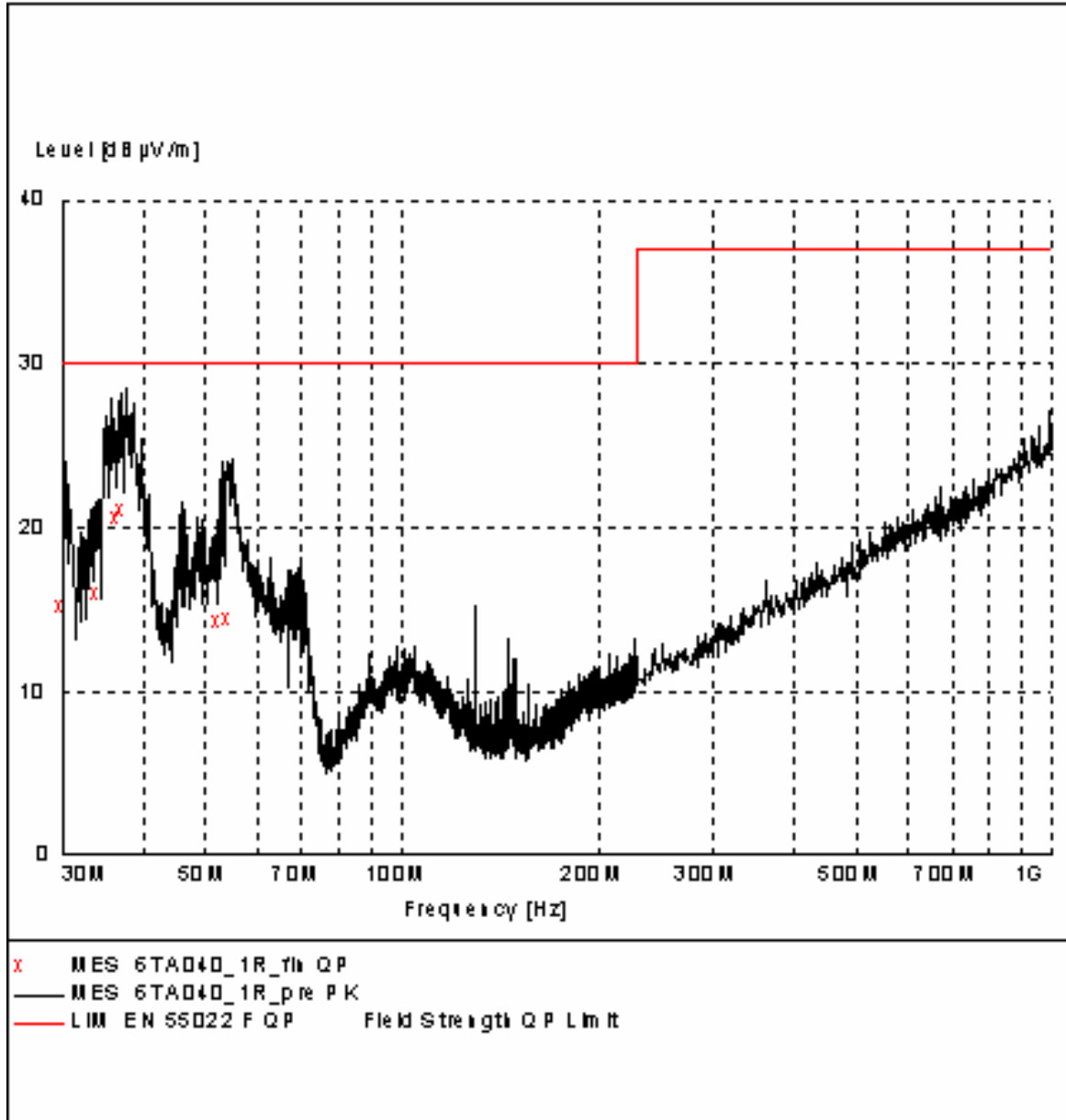


A.4 Radiated Emission

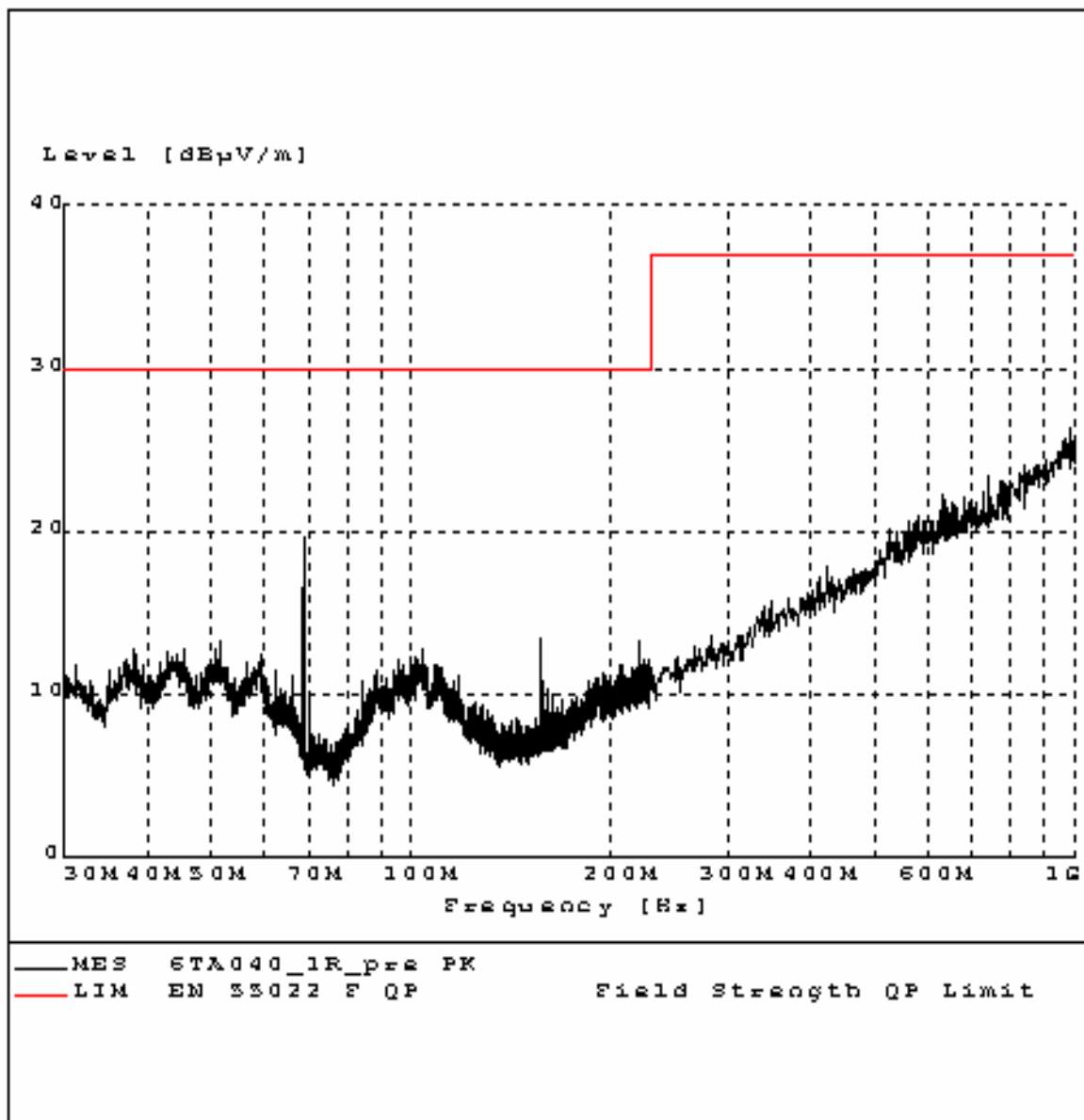
Radiated Emission is measured with travel charger model ETC-100, Headset HHS-100, Headset HHS-110, Headset HHS-120.

The limit and test procedure is according to CISPR 22.

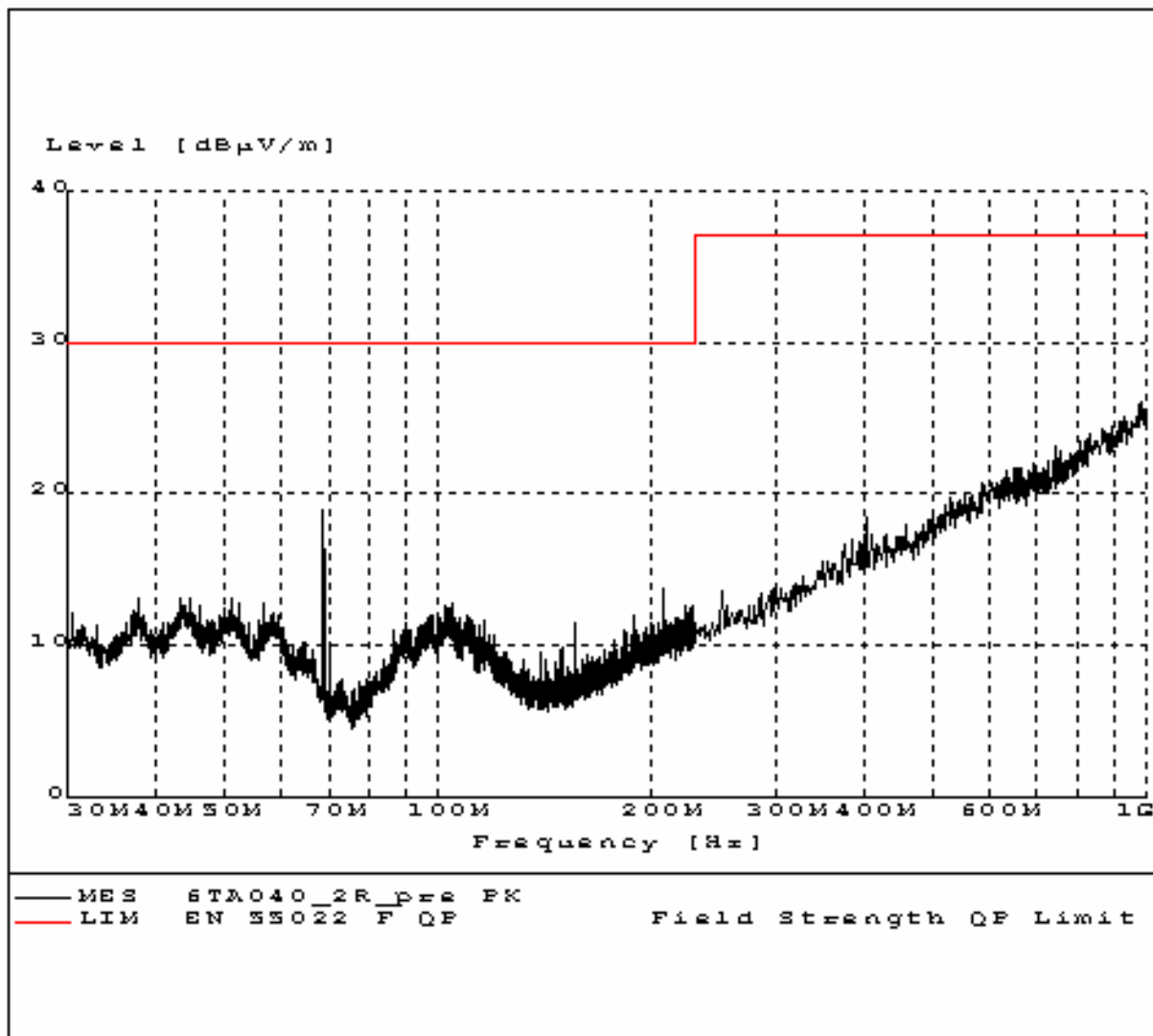
A.4.1 Measurement Result



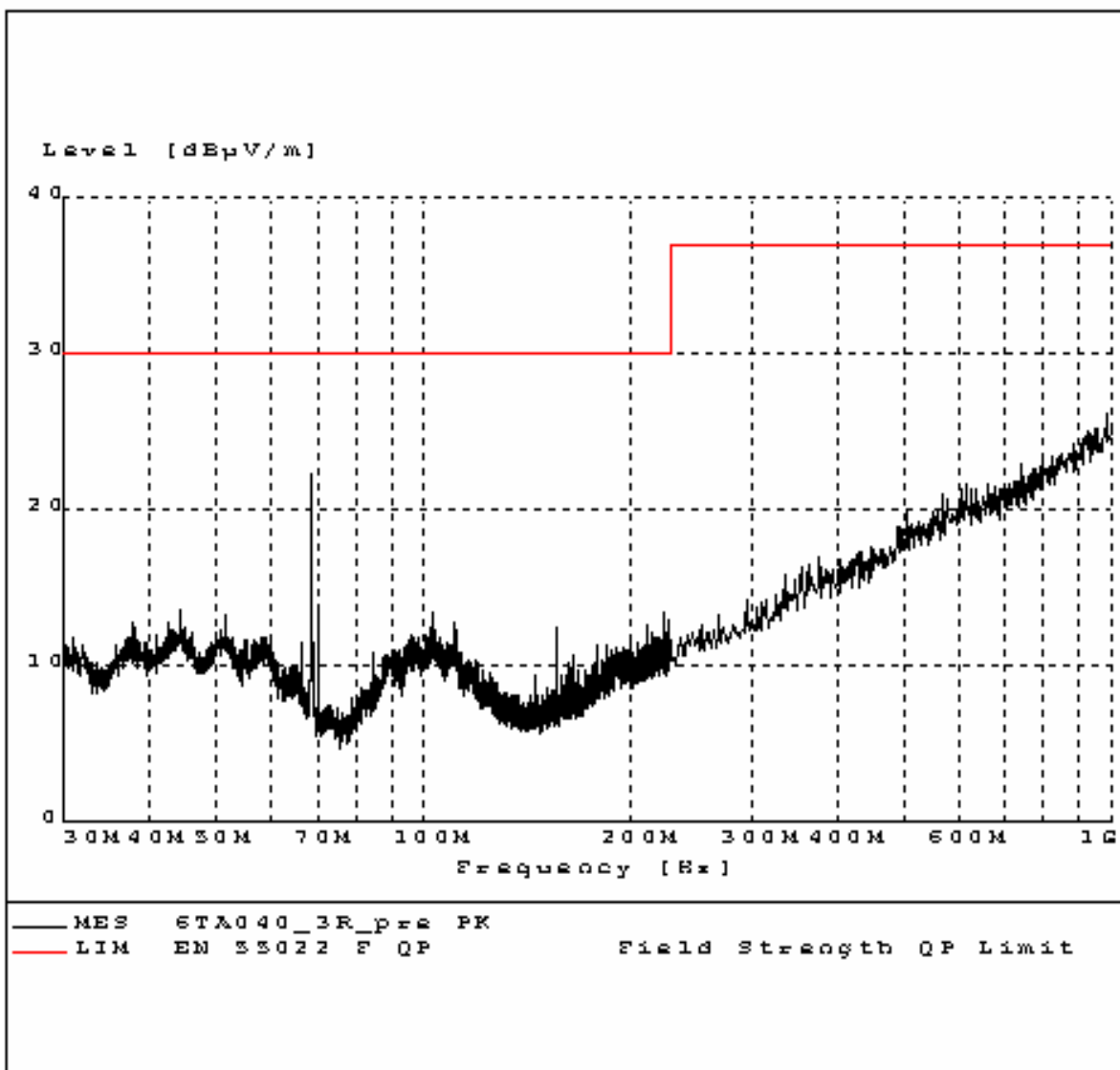
AF51 Mobile phone and Travel Charger ETC-100



AF51 Mobile phone and Headset HHS-100



AF51 Mobile phone and Headset HHS-110



AF51 Mobile phone and Headset HHS-120

A.5 CONDUCTED EMISSION (§15.107§15.207)

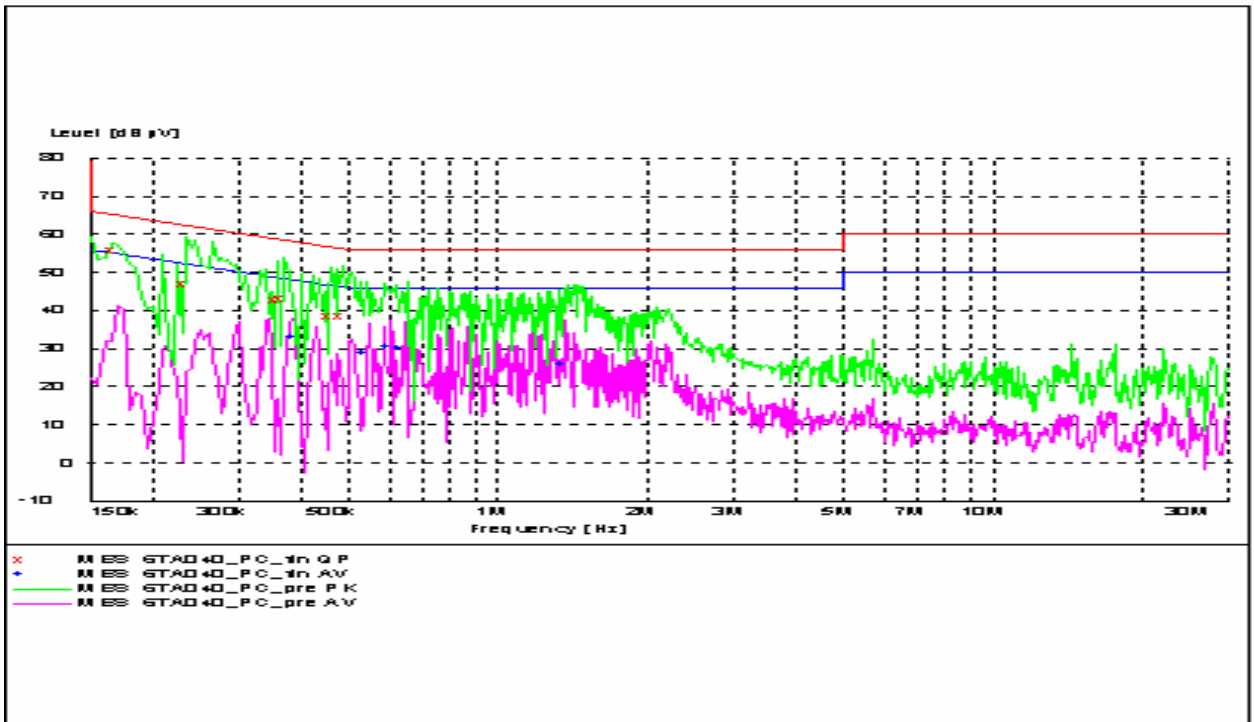
The measurement procedure in ANSI C63.4-1003 is used. Conducted Emission is measured with travel charger ETC-100.

A.5.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi -Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

* Decreases with logarithm of the frequency

A.5.2 Measurement result



MEASUREMENT RESULT: "6TA040_PC_fin QP"

9/11/06 15:10

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.170000	55.60	10.1	65	9.4	N	FLO
0.235000	46.90	10.1	62	15.4	L1	FLO
0.360000	42.50	10.1	59	16.2	L1	GND
0.370000	43.10	10.1	59	15.5	N	GND
0.460000	38.60	10.1	57	18.1	L1	FLO
0.485000	38.40	10.1	56	17.9	N	FLO

MEASUREMENT RESULT: "6TA040_PC_fin AV"

9/11/06 15:10

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Line	PE
0.390000	33.20	10.1	48	14.9	L1	GND
0.545000	28.70	10.1	46	17.3	L1	FLO
0.605000	30.60	10.1	46	15.4	L1	FLO
0.645000	30.10	10.1	46	15.9	L1	FLO
1.370000	25.90	10.1	46	20.1	L1	GND

A.6 FREQUENCY STABILITY (§2.1055/§24.235)

A.6.1 Method of Measurement

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 channel 661 (centre channel), 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 1 1/2 hours at each temperature, unpowered, before making measurements.
5. 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 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50°C.
7. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 661 (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 1 1/2 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

A.6.2 Measurement Limit

A.6.2.1 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 3.7VDC and 4.2VDC, with a nominal voltage of 3.7VDC.

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

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.

A.6.2.2 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.

A.6.3 Measurement results

PCS 1900

Frequency Error vs Voltage

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.7	23	0.012
4.2	26	0.014

Frequency Error vs Temperature

temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-30	24	0.013
-20	40	0.021
-10	26	0.014
0	23	0.012
10	25	0.013
20	26	0.014
30	28	0.015
40	25	0.013
50	29	0.015

A.7 OCCUPIED BANDWIDTH (§2.1049(h)(i))

A.7.1 Occupied Bandwidth Results

Similar to conducted emissions; occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the USPCS frequency band. The table below lists the measured -20dBc BW (99%). Spectrum analyzer plots are included on the following pages.

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

No. FCC-2006007

Page 26 of 43

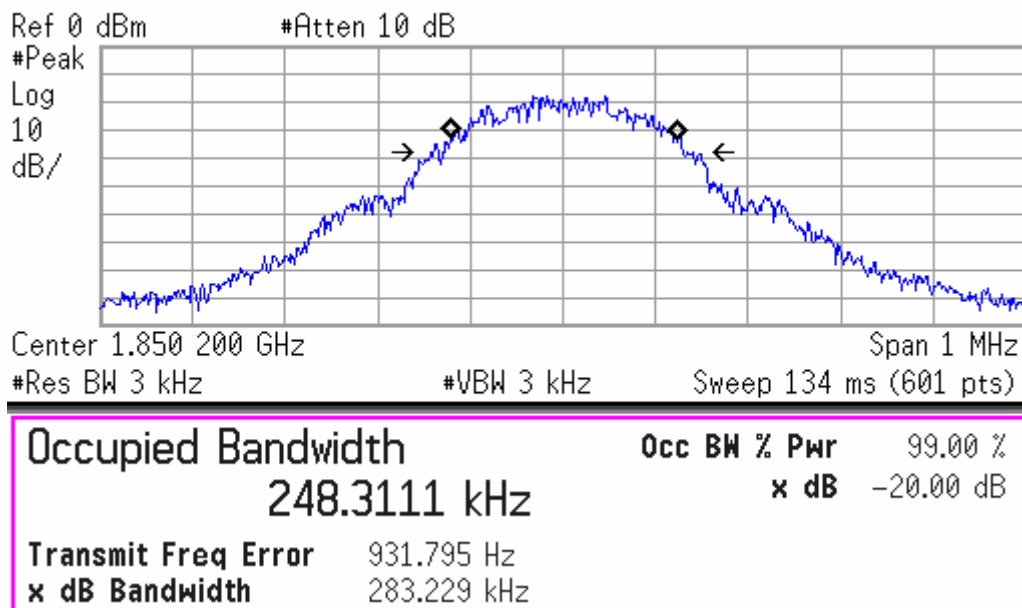
PCS 1900(-20dBc)

Frequency(MHz)	Occupied Bandwidth (-20dBc BW)(kHz)
1850.2	283.229
1880.0	271.889
1909.8	285.133

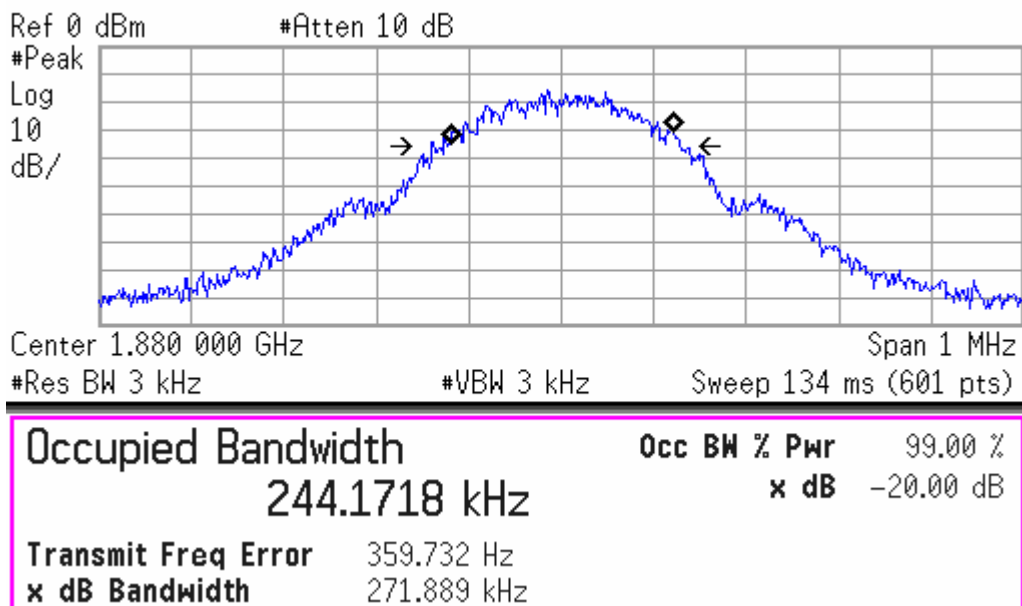
ANALYZER SETTINGS: RBW=VBW=3kHz

PCS 1900

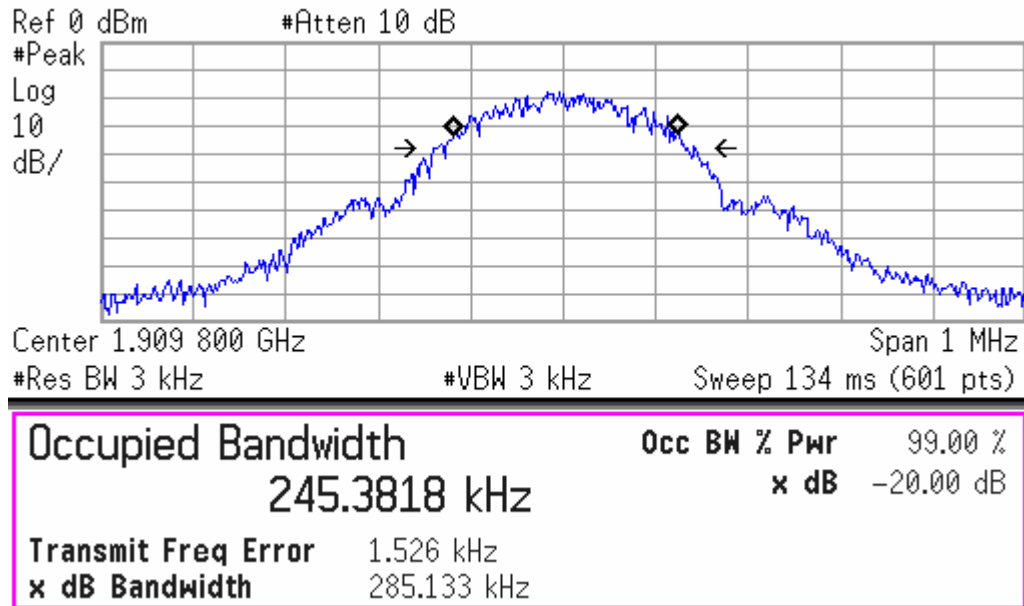
Channel 512-Occupied Bandwidth (-20dBc BW)



Channel 661-Occupied Bandwidth (-20dBc BW)



Channel 810-Occupied Bandwidth (-20dBc BW)



A.8 EMISSION BANDWIDTH (§24.238(b))

A.8.1 Emission Bandwidth Results

Similar to conducted emissions; Emission bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the PCS1900 band . Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

PCS 1900(-26dBc)

EUT1: SN.not available

Frequency(MHz)	Occupied Bandwidth (-26dBc BW)(kHz)
1850.2	312.622
1880.0	315.664
1909.8	305.815

Telecommunication Metrology Center
of Ministry of Information Industry

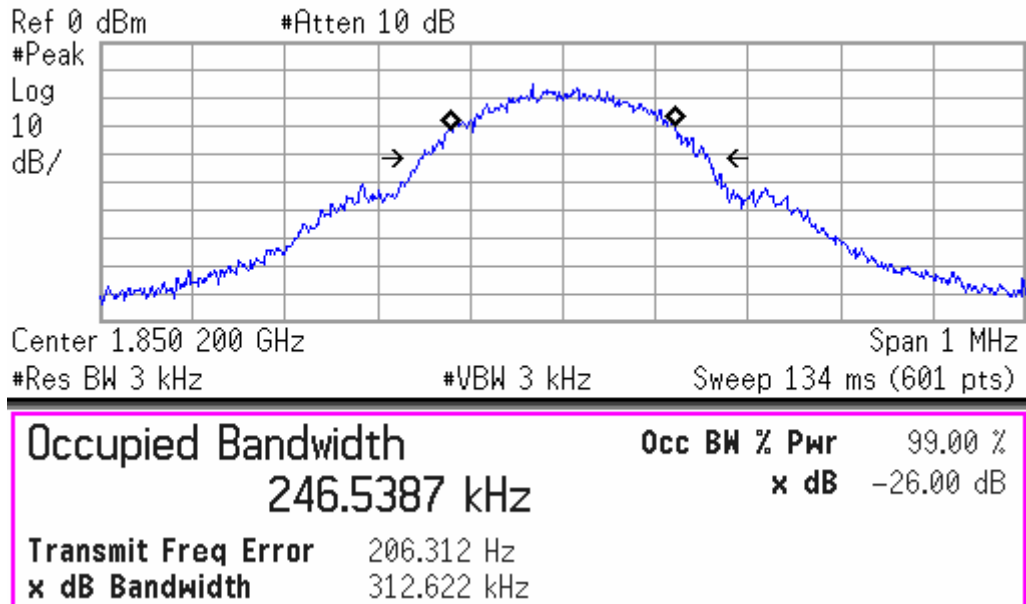
No. FCC-2006007

Page 28 of 43

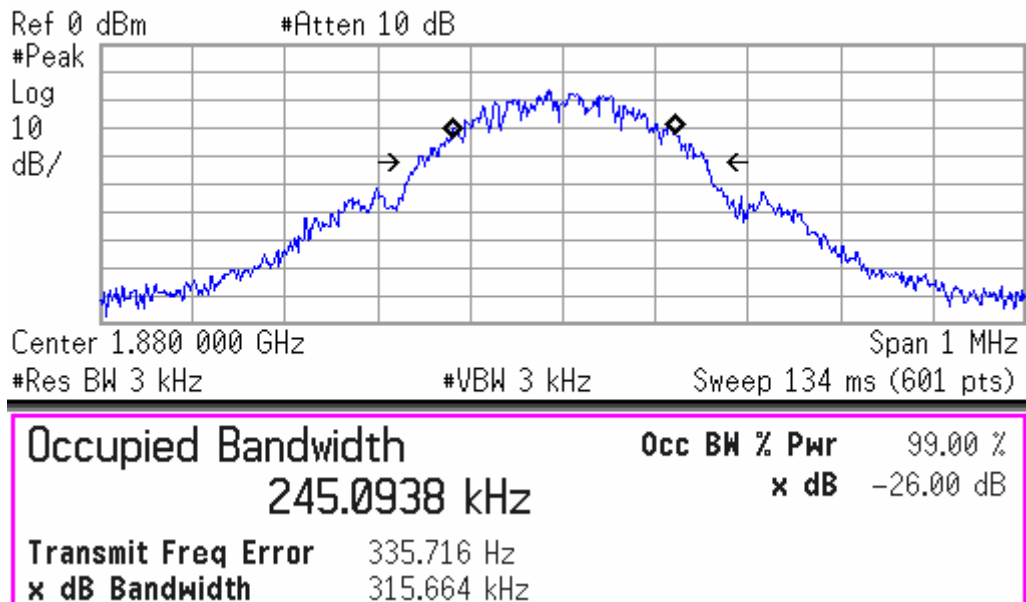
ANALYZER SETTINGS: RBW=VBW=3kHz;

PCS 1900

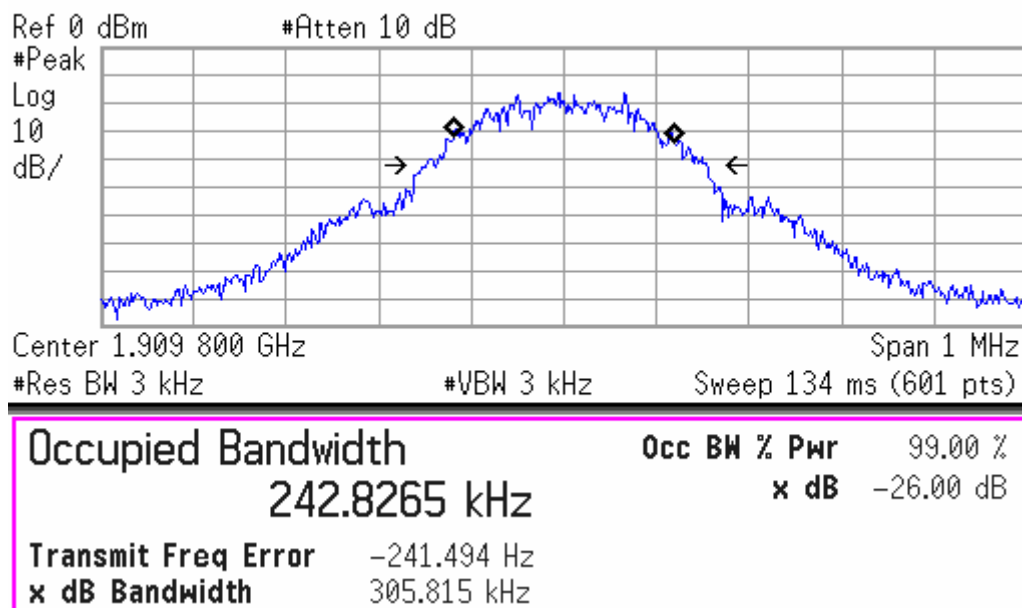
Channel 512-Occupied Bandwidth (-26dBc BW)



Channel 661-Occupied Bandwidth (-26dBc BW)



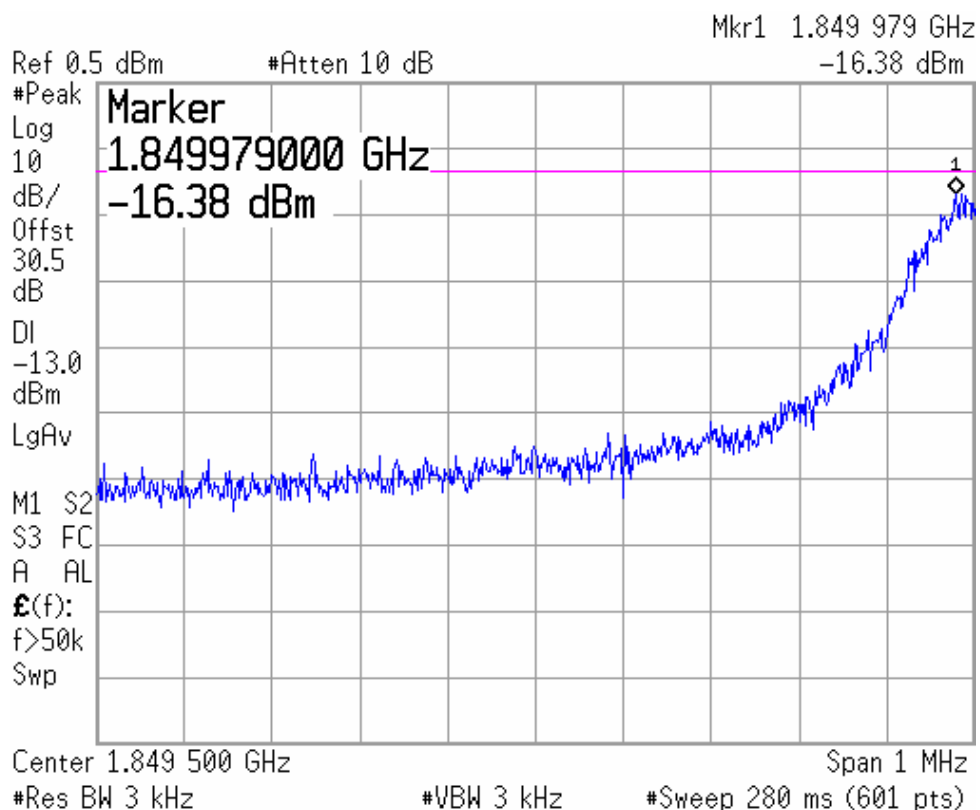
Channel 810-Occupied Bandwidth (-26dBc BW)



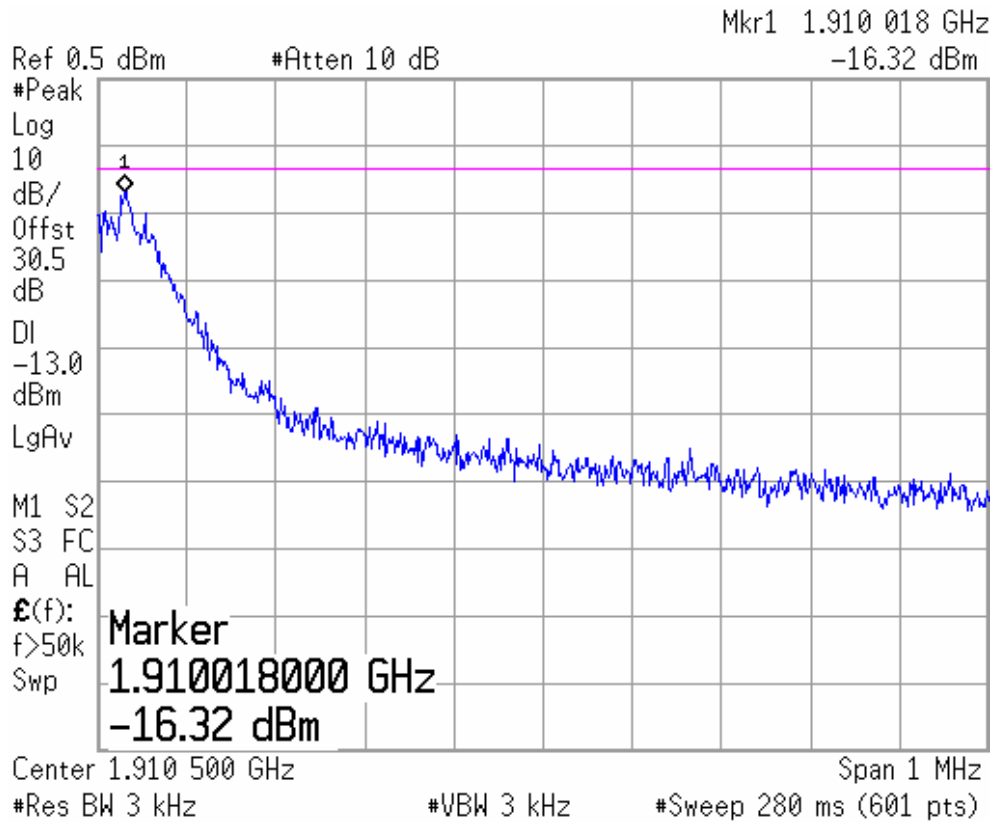
A.9 BAND EDGE COMPLIANCE (§24.238(b))

PCS 1900

LOW BAND EDGE BLOCK-A (PCS-1900)-Channel 512



HIGH BAND EDGE BLOCK-C (PCS-1900) –Channel 810



A.10 CONDUCTED SPURIOUS EMISSION (§2.1057/§24.238)

A.10.1 Measurement Method

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 PCS1900 band, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

PCS1900 Transmitter

Channel	Frequency (MHz)
512	1850.2
661	1880.0
810	1909.8

A. 10.2 Measurement Limit

Sec. 24.238 Emission Limits.

(a) On any frequency outside frequency band of the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

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

A. 10.3 Measurement result

PCS1900

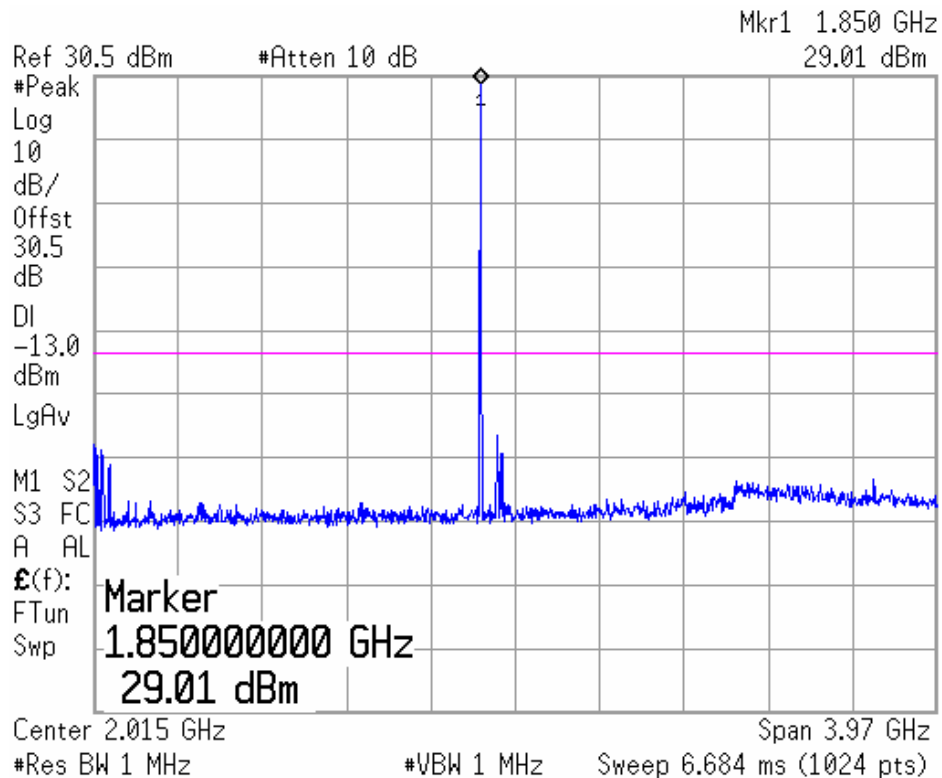
Harmonic	Tx ch. 512 Freq. (MHz)	Level (dBm)	Tx ch. 661 Freq. (MHz)	Level (dBm)	Tx ch. 810 Freq. (MHz)	Level (dBm)
2	3700.4	nf	3760	nf	3819.6	nf
3	5550.6	nf	5640	nf	5729.4	nf
4	7400.8	nf	7520	nf	7639.2	nf
5	9251.0	nf	9400	nf	9549.0	nf
6	11101.2	nf	11280	nf	11458.8	nf
7	12951.4	nf	13160	nf	13368.6	nf
8	14801.6	nf	15040	nf	15278.4	nf
9	16651.8	nf	16920	nf	17188.2	nf
10	18502.0	nf	18800	nf	19098.0	nf

nf: Noise floor

A. 10.3.1 Channel 512: 30MHz – 4GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



Telecommunication Metrology Center
of Ministry of Information Industry

A. 10.3.2 Channel 512: 4GHz – 20GHz

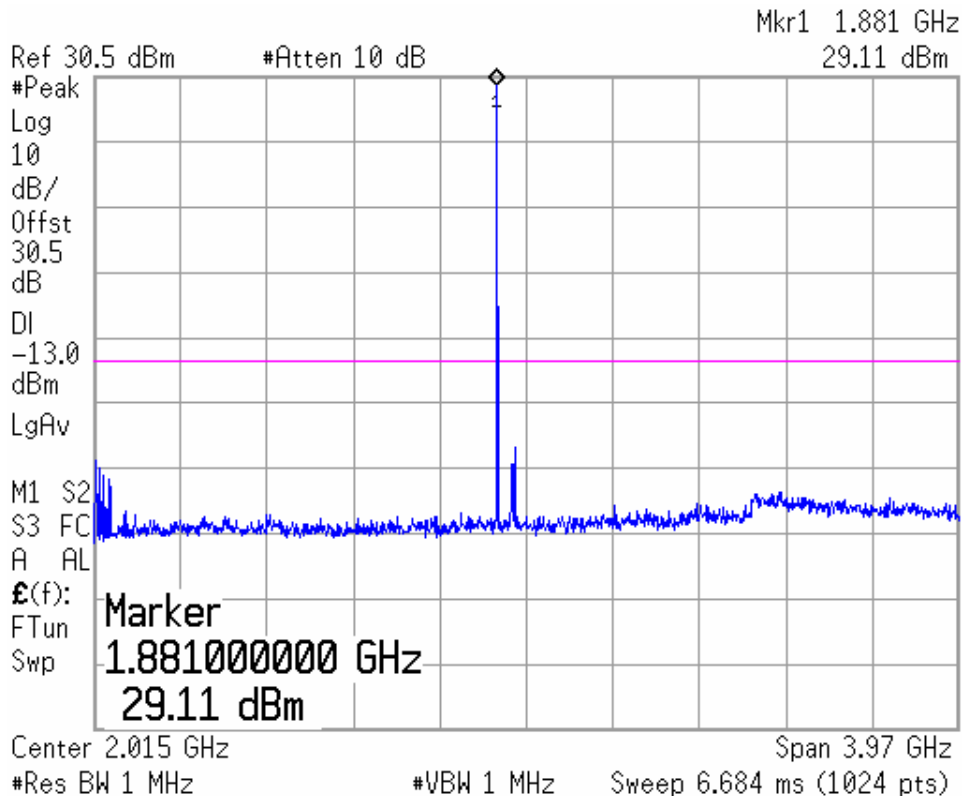
Spurious emission limit -13dBm.



A. 10.3.3 Channel 661: 30MHz – 4GHz

Spurious emission limit -13dBm

NOTE: peak above the limit line is the carrier frequency.



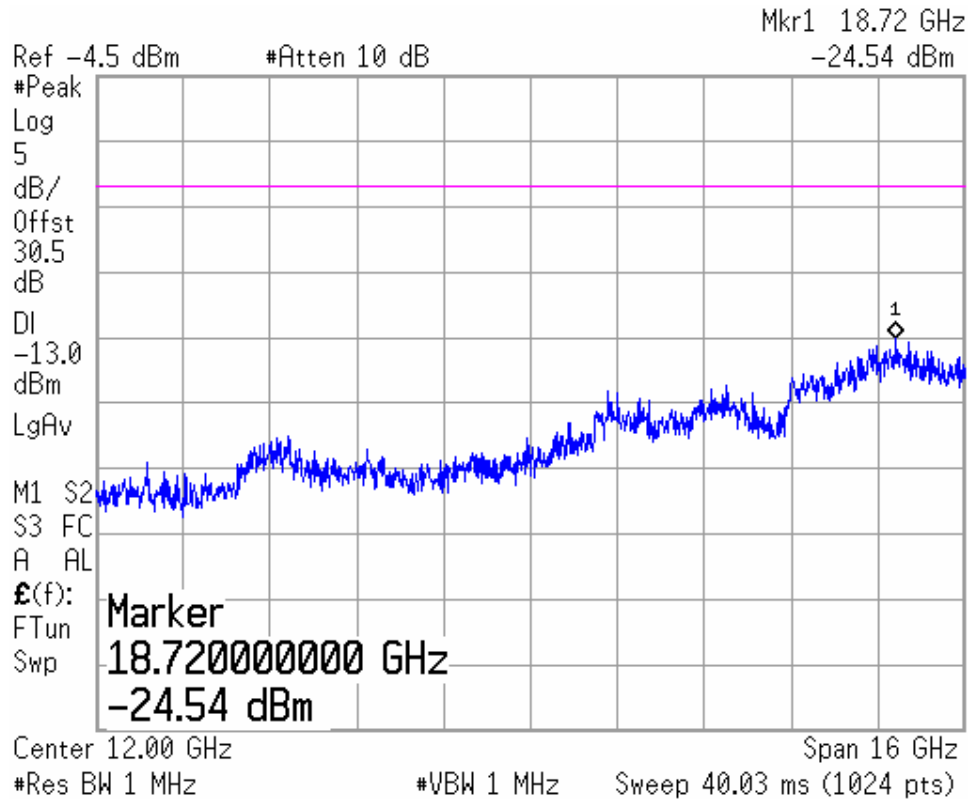
Telecommunication Metrology Center
of Ministry of Information Industry

No. FCC-2006007

Page 33 of 43

A. 10.3.4 Channel 661: 4GHz –20GHz

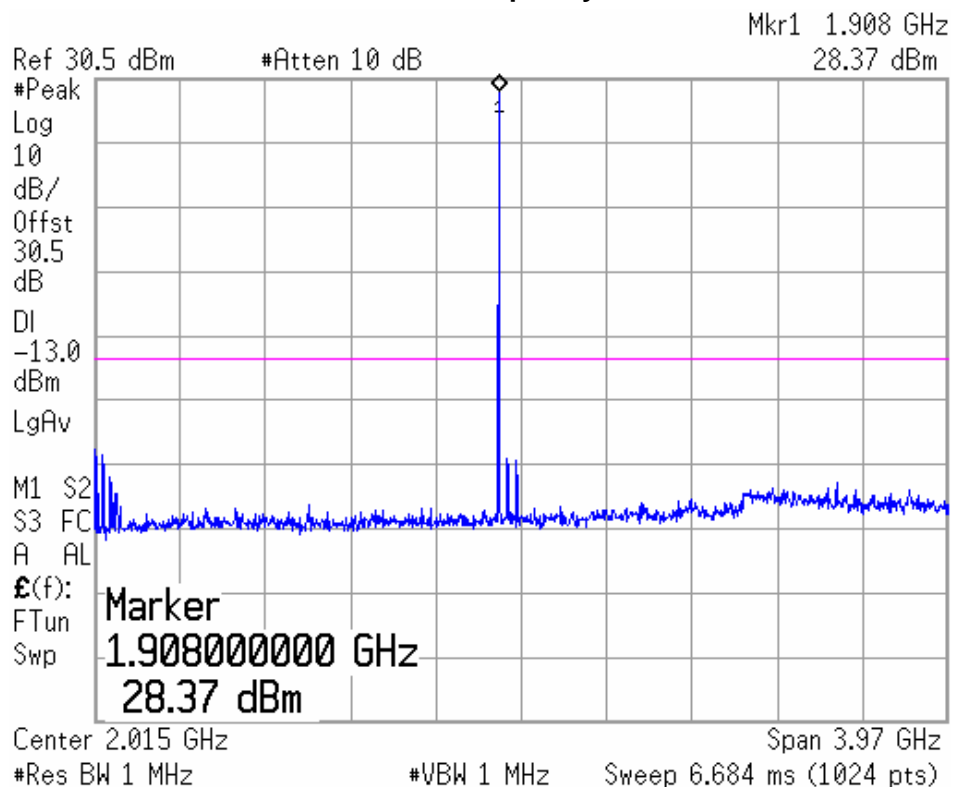
Spurious emission limit –13dBm



A. 10.3.5 Channel 810: 30MHz – 4GHz

Spurious emission limit –13dBm.

NOTE: peak above the limit line is the carrier frequency.



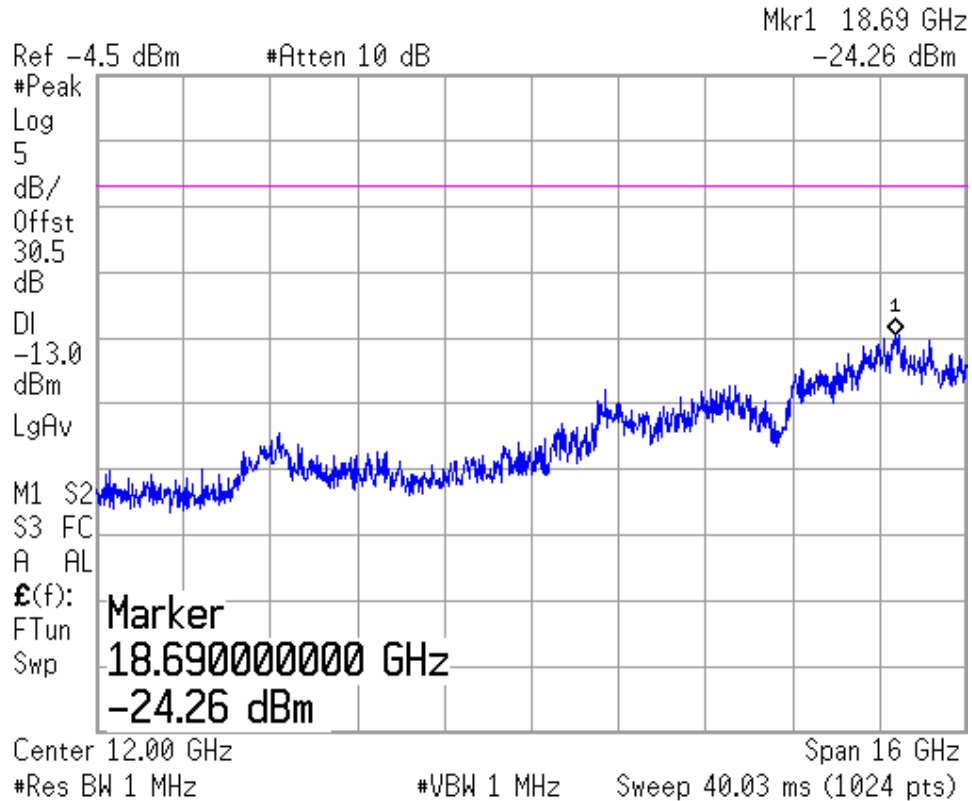
Telecommunication Metrology Center
of Ministry of Information Industry

No. FCC-2006007

Page 34 of 43

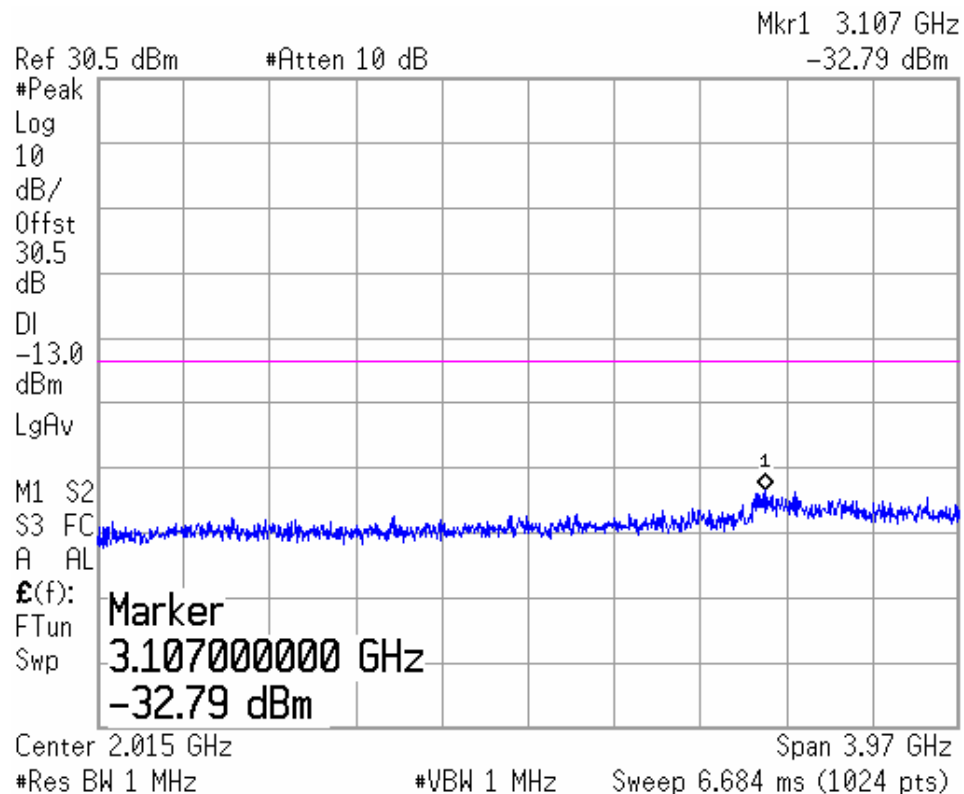
A. 10.3.6 Channel 810: 4GHz – 20GHz

Spurious emission limit -13dBm.



A. 10.3.7 Idle mode: 30MHz – 4GHz

Spurious emission limit -13dBm.



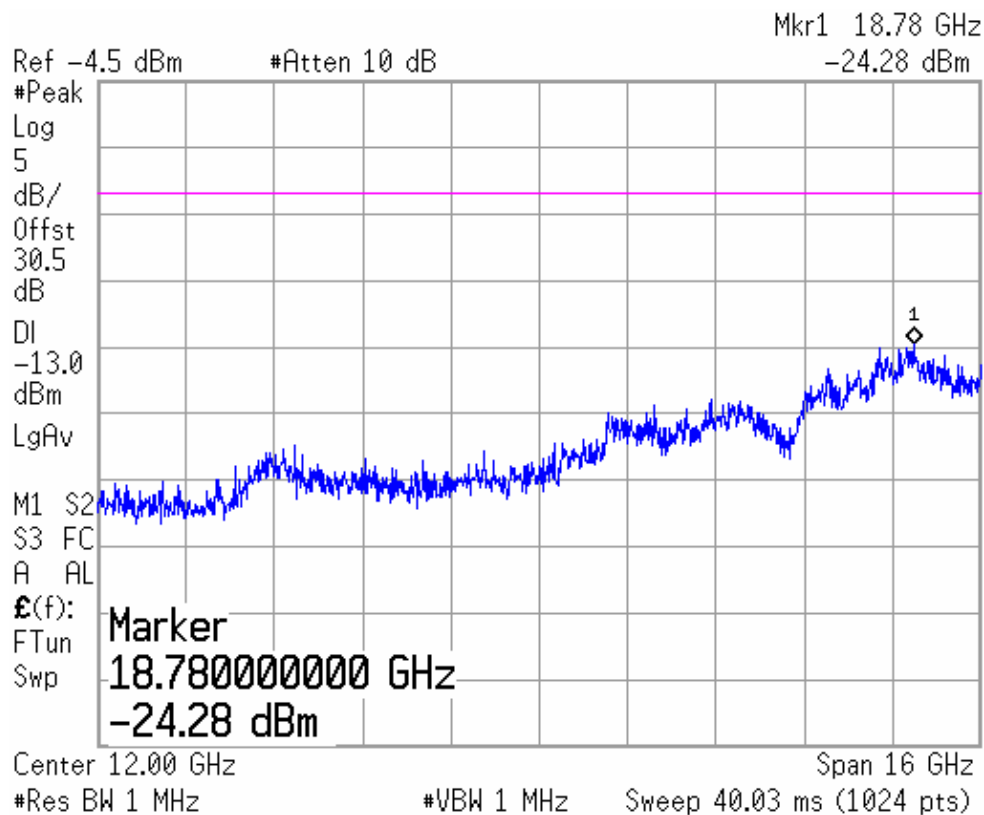
Telecommunication Metrology Center
of Ministry of Information Industry

No. FCC-2006007

Page 35 of 43

A. 10.3.8 Idle mode: 4GHz – 20GHz

Spurious emission limit -13dBm.



ANNEX B PHOTOGRAPHS OF EUT

External Photo



Mobile Phone



Mobile Phone



Mobile Phone



Mobile phone



Charger (AC/DC Adapter)



Headset



Headset



Headset

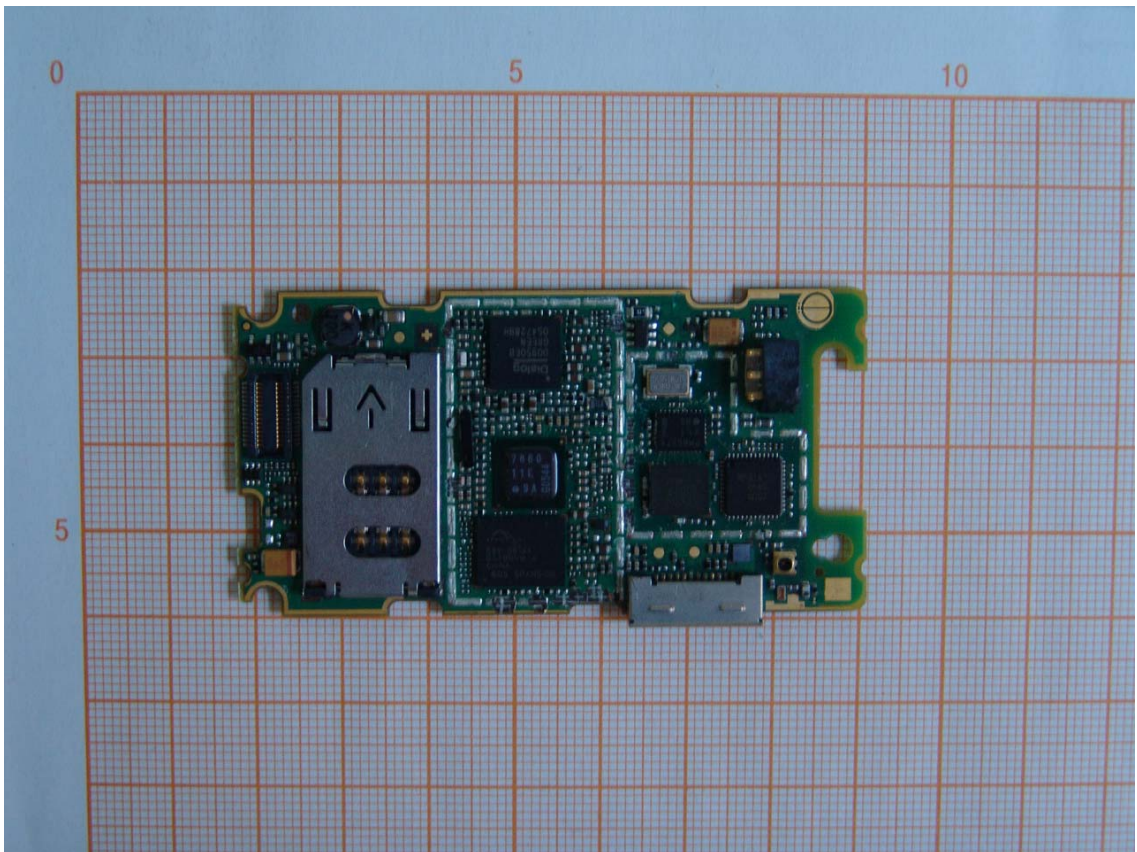
Internal Photo



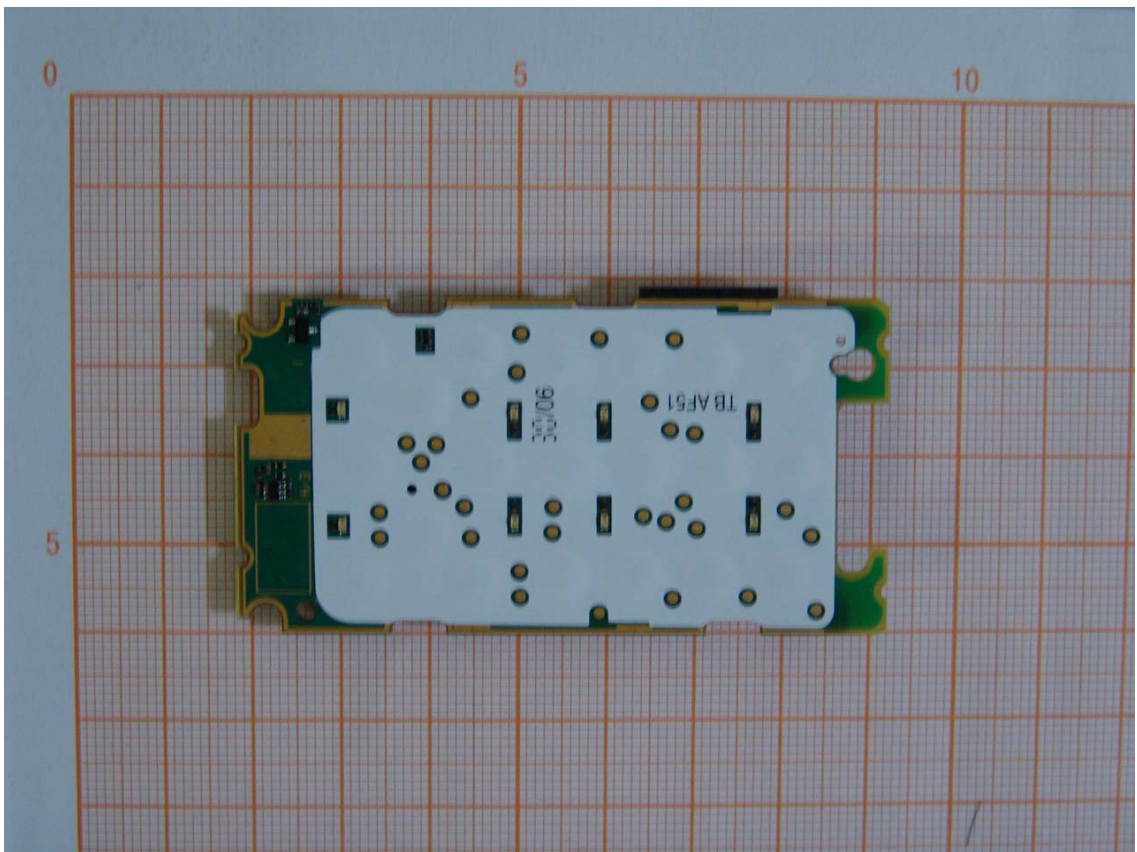
Mobile phone Disassembly



Mobile phone Disassembly

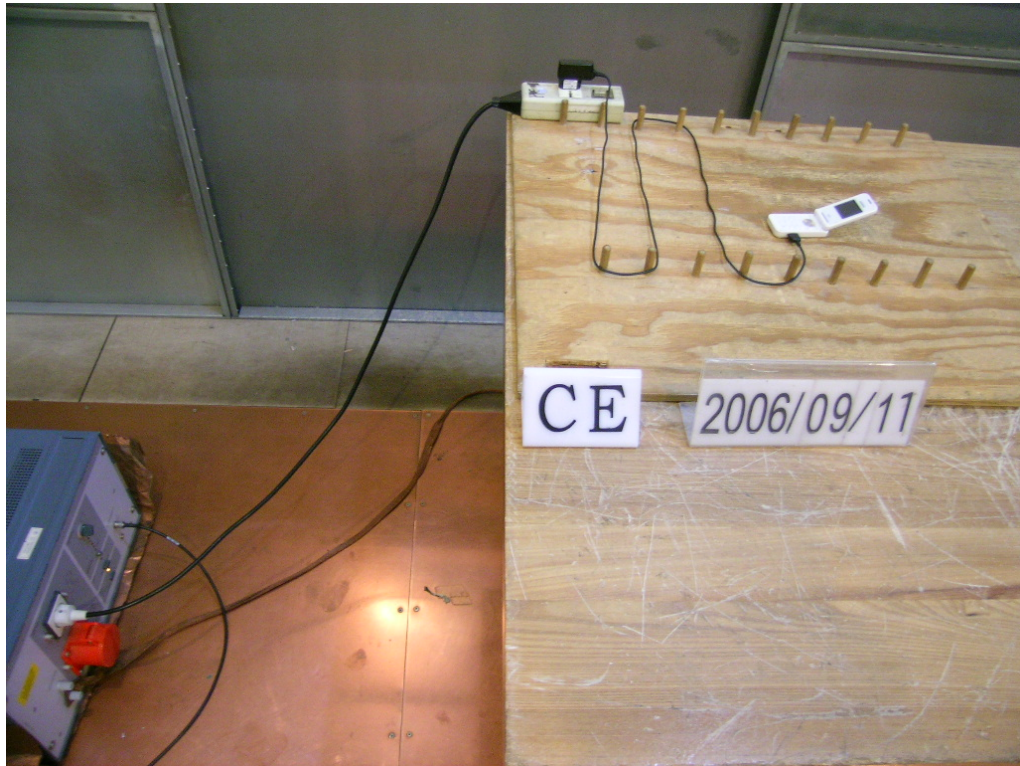


mobile phone PCB back view



mobile phone PCB front view

ANNEX C TEST LAYOUT



Pic1 Conducted Emission



Pic2 Radiated Spurious Emission



Pic3 Radiated Emission
*****END OF REPORT BODY*****