



TEST REPORT

No. 2008TAR046

for

AMOI Mobile Co., LTD

Dual mode gsm wcdma mobile phone with bluetooth

Type: WMA8710

with

Hardware Version: V3.0

Software Version: WP3.0_V1.5_HK

Issued Date: Aug 25th, 2008



No. DAT-P-114/01-01

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

TMC Beijing, Telecommunication Metrology Center of Ministry of Information Industry

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1. Test Laboratory

1.1. Testing Location

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

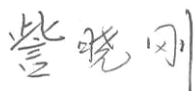
1.2. Testing Environment

Normal Temperature: 15-35℃
Relative Humidity: 20-75%

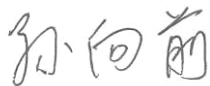
1.3. Project data

Testing Start Date: Aug 6,2008
Testing End Date: Aug 21,2008

1.4. Signature



Zi Xiaogang
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Lu Bingsong
Deputy Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: AMOI Mobile Co., LTD
Address /Post: 102 Xianguang Road, Haicang district, Xiamen City, Fujian
Province, P.R.China
City: Xiamen
Postal Code: 361022
Country: China
Telephone: 0086-592-6516777-3316
Fax: 0086-592-6516007

2.2. Manufacturer Information

Company Name: AMOI Mobile Co., LTD
Address /Post: 102 Xianguang Road, Haicang district, Xiamen City, Fujian
Province, P.R.China
City: Xiamen
Postal Code: 361022
Country: China
Telephone: 0086-592-6516777-3316
Fax: 0086-592-6516007

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)**3.1. About EUT**

| | |
|-------------------------|---|
| Description | Dual mode gsm wcdma mobile phone with bluetooth |
| Model | WMA8710 |
| FCC ID | WGL-WMA8710 |
| Frequency | PCS 1900 MHz |
| Antenna | Internal |
| Power supply | Battery or Charger (AC Adaptor) |
| Output power | 23.44 dBm maximum EIRP measured for PCS1900 |
| Extreme vol. Limits | 3.5VDC to 4.2VDC (nominal: 3.7 VDC) |
| Extreme temp. Tolerance | -30°C to +50°C |

Note: Photographs of EUT are shown in ANNEX A of this test report. Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MII of People's Republic of China.

3.2. Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version |
|---------|-----------------|------------|---------------|
| N13 | 354541020002841 | V3.0 | WP3.0_V1.5_HK |

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

3.3. Internal Identification of AE used during the test

| AE ID* | Description | SN |
|--------|----------------|--------------|
| AE1 | Battery | 080506101846 |
| AE2 | Travel Adapter | / |
| AE3 | Headset | / |

AE1

| | |
|-----------------|--------------|
| Model | AH-01 |
| Manufacturer | BYD Co., Ltd |
| Capacitance | 1150mAh |
| Nominal Voltage | 3.7V |

AE2

| | |
|-------------------|------------------------|
| Model | TM350-EU-10PIN |
| Manufacturer | i.Tech Dynamic Limited |
| Length of DC line | 175cm |

AE3

| | |
|--------------|------------|
| Model | HSE769LR-1 |
| Manufacturer | lianchuang |
| Length | 125cm |

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

3.4. General Description

The Equipment Under Test (EUT) is a model of dual mode gsm wcdma mobile phone with integrated antenna. It has Bluetooth, Camera and MP3 function. It consists of Hand Telephone Set and normal options: lithium battery, charger and Headset.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|----------------|--|-----------|
| FCC Part 24 | PERSONAL COMMUNICATIONS SERVICES | V 10.1.06 |
| ANSI/TIA-603-C | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards | 2004 |
| ANSI C63.4 | Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz | 2003 |

5. LABORATORY 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 80 to 2000 MHz |

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 80 to 2000 MHz |

6. SUMMARY OF TEST RESULTS

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

7. Test Equipments Utilized

| 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 | 2009-4-20 |
| 7 | LISN | ESH2-Z5 | 829991/012 | R&S | 2008-8 |
| 8 | Spectrum Analyzer | FSU26 | 200030 | R&S | 2009-6-18 |

| | | | | | |
|----|---|--------|-----------|-------|-----------|
| 9 | Universal Radio Communication Tester | CMU200 | 100680 | R&S | 2009-8-23 |
| 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 | 2009-5-15 |

ANNEX A: EUT photograph

External Photo



Mobile Phone



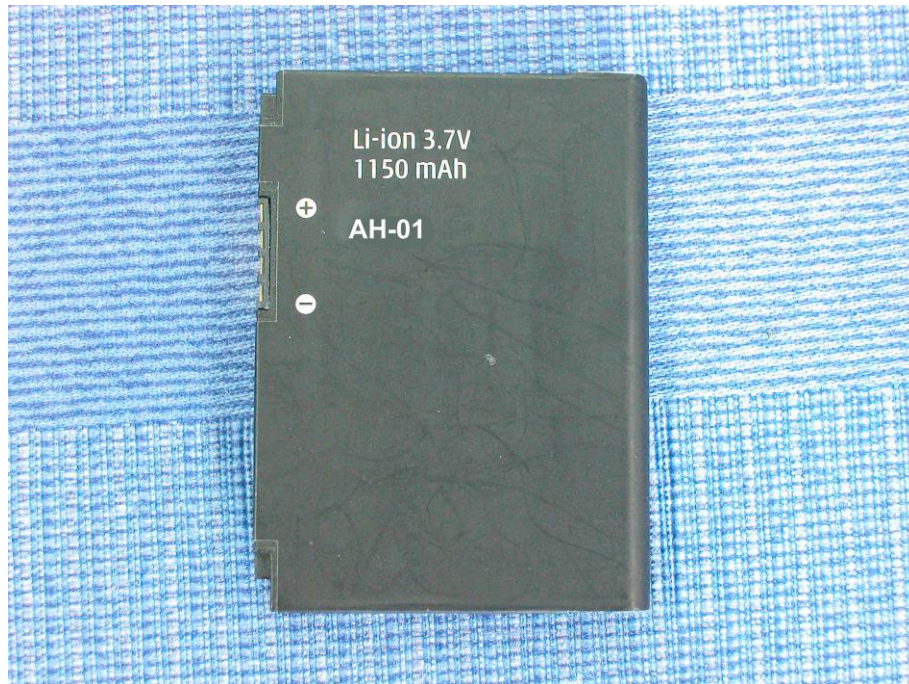
Mobile Phone



Mobile Phone



Battery



Battery

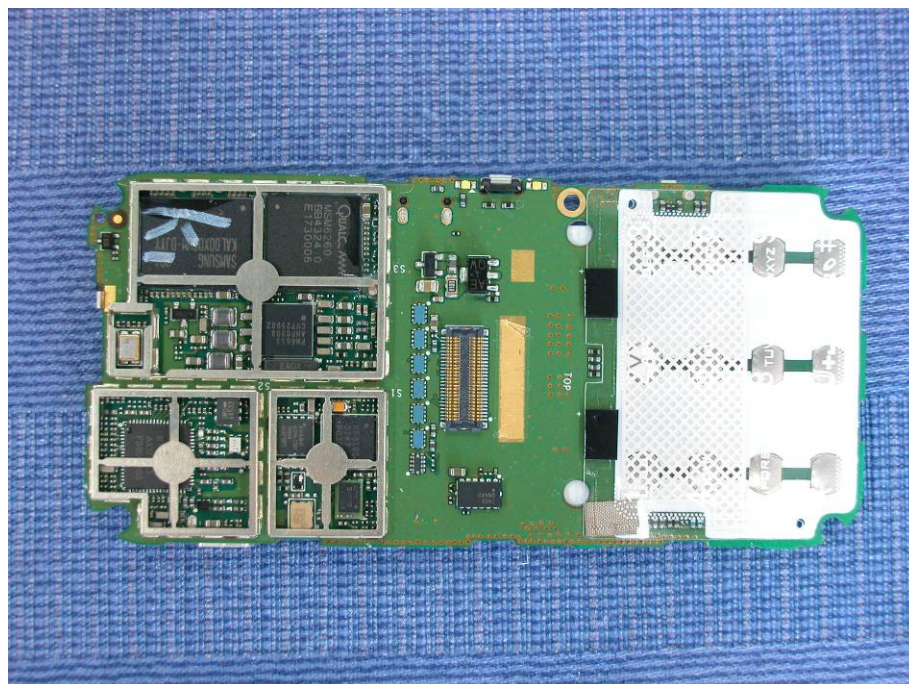
Internal Photo



Mobile phone Disassembly



Mobile phone Disassembly



Mobile phone Disassembly



Mobile phone Disassembly

ANNEX B: MEASUREMENT RESULTS

B.1 OUTPUT POWER (§22.913(a)/§24.232(b))

B.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.

B.1.2 Conducted

B.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 Rhode & Schwarz Spectrum Analyzer FSU (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

GSM

| Frequency(MHz) | Conducted Output Power(dBm) |
|----------------|-----------------------------|
| 1850.2 | 28.76 |
| 1880.0 | 28.75 |
| 1909.8 | 28.65 |

GPRS

| Frequency(MHz) | Conducted Output Power(dBm) |
|----------------|-----------------------------|
| 1850.2 | 28.88 |
| 1880.0 | 29.01 |
| 1909.8 | 28.88 |

EGPRS

| Frequency(MHz) | Conducted Output Power(dBm) |
|----------------|-----------------------------|
| 1850.2 | 27.98 |
| 1880.0 | 28.03 |
| 1909.8 | 28.40 |

B.1.3 Radiated

B.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."

Rule Part 22.913(a) specifies "Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

B.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 with the radiation pattern of the antenna. A known (measured) power (P_{in}) is applied to the input of the dipole, and the power received (P_r) 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 (P_{in}).
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 | $\leq 33dBm$ (2W) |

Measurement result

GSM

| Frequency(MHz) | Peak EIRP(dBm) |
|----------------|----------------|
| 1850.2 | 23.42 |
| 1880.0 | 22.97 |
| 1909.8 | 21.92 |

GPRS

| Frequency(MHz) | Peak EIRP(dBm) |
|----------------|----------------|
| 1850.2 | 23.44 |
| 1880.0 | 22.97 |
| 1909.8 | 22.21 |

EGPRS

| Frequency(MHz) | Peak EIRP(dBm) |
|----------------|----------------|
| 1850.2 | 22.89 |
| 1880.0 | 22.69 |
| 1909.8 | 21.71 |

ANALYZER SETTINGS: RBW = VBW = 3MHz

B.2 EMISSION LIMIT (§2.1051/§24.238)

B.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 band.

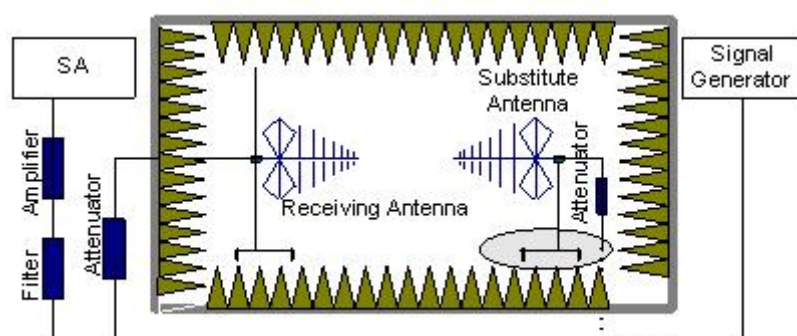
The procedure of radiated spurious emissions is as follows:

a) Pre-calibration

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

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

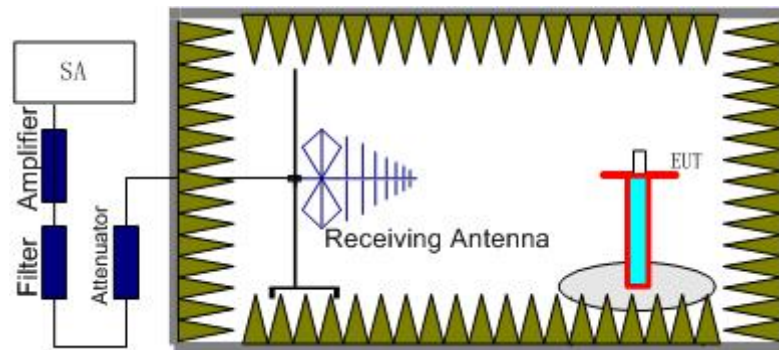
The SA is calibrated using following setup.



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.



B.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.

B.2.3 Measurement Results

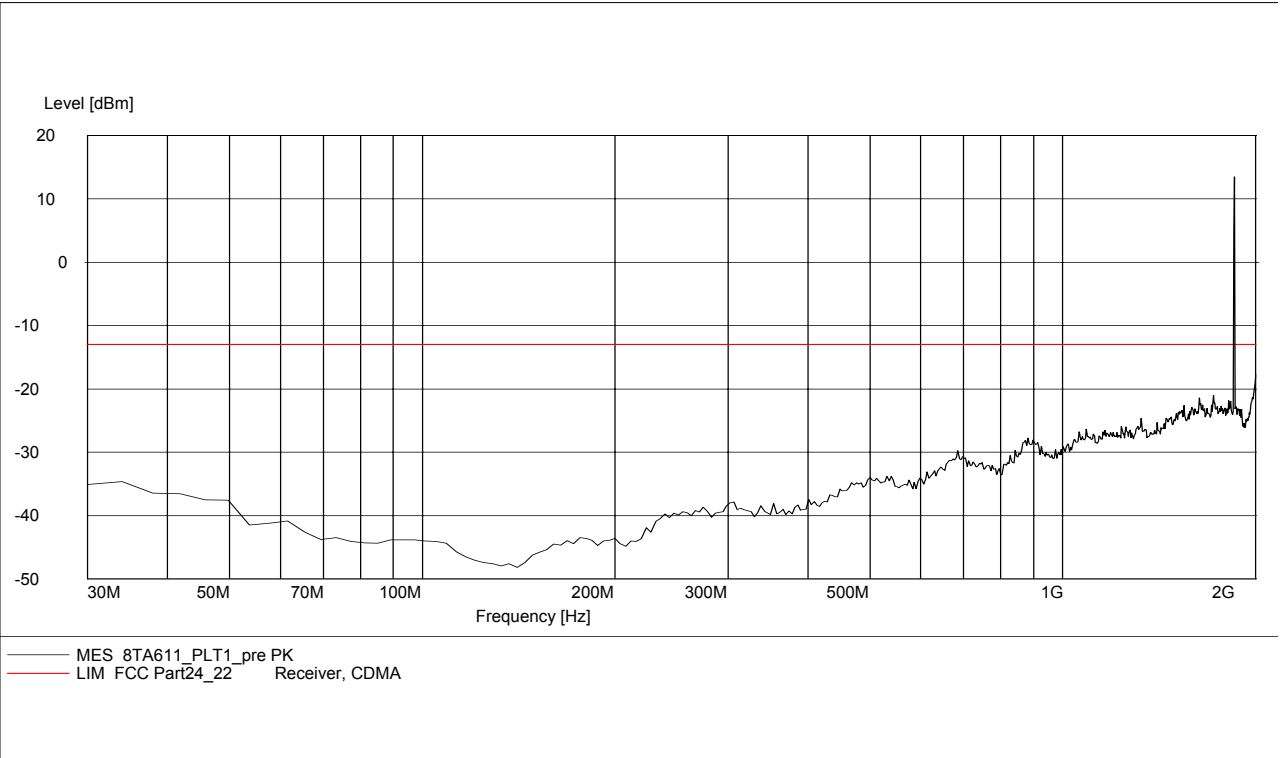
Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS band (1850.2 MHz, 1880 MHz and 1909.8 MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it 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

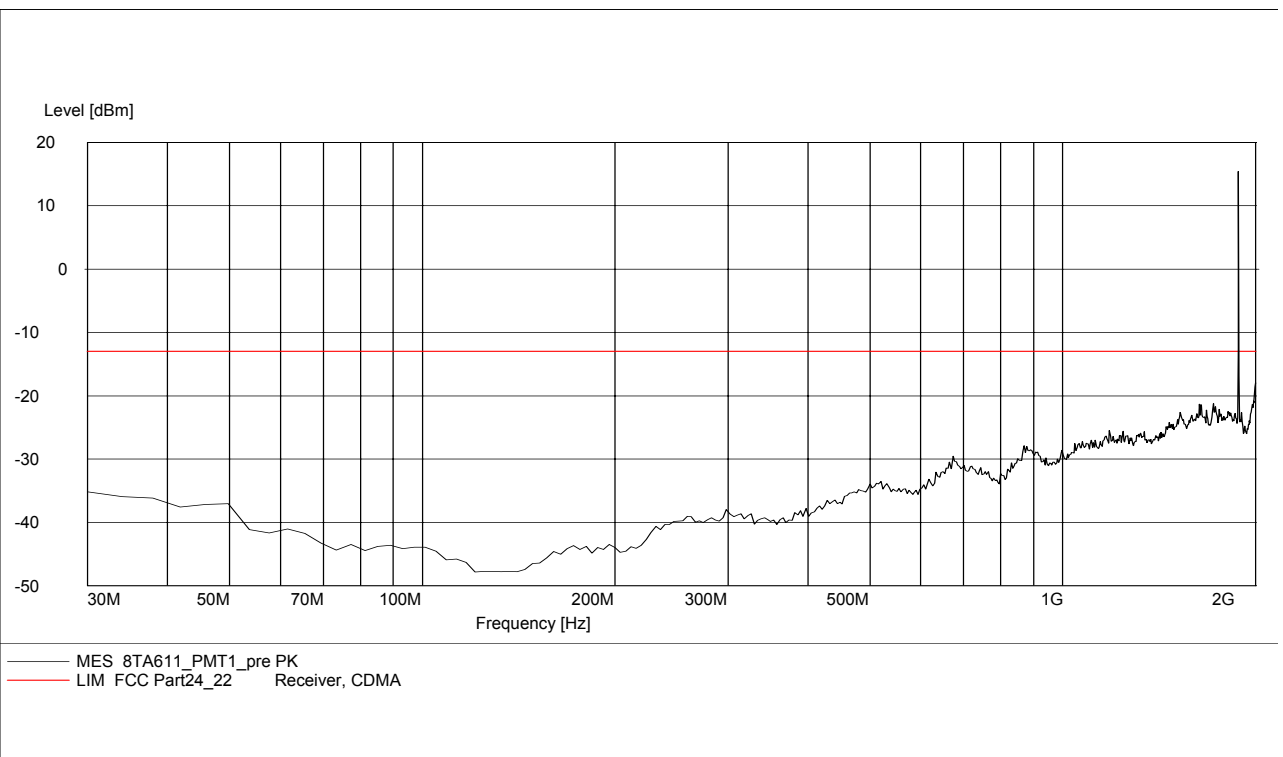
B.2.3.1 RADIATED SPURIOUS EMISSIONS-Channel 512: 30MHz – 2GHz

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



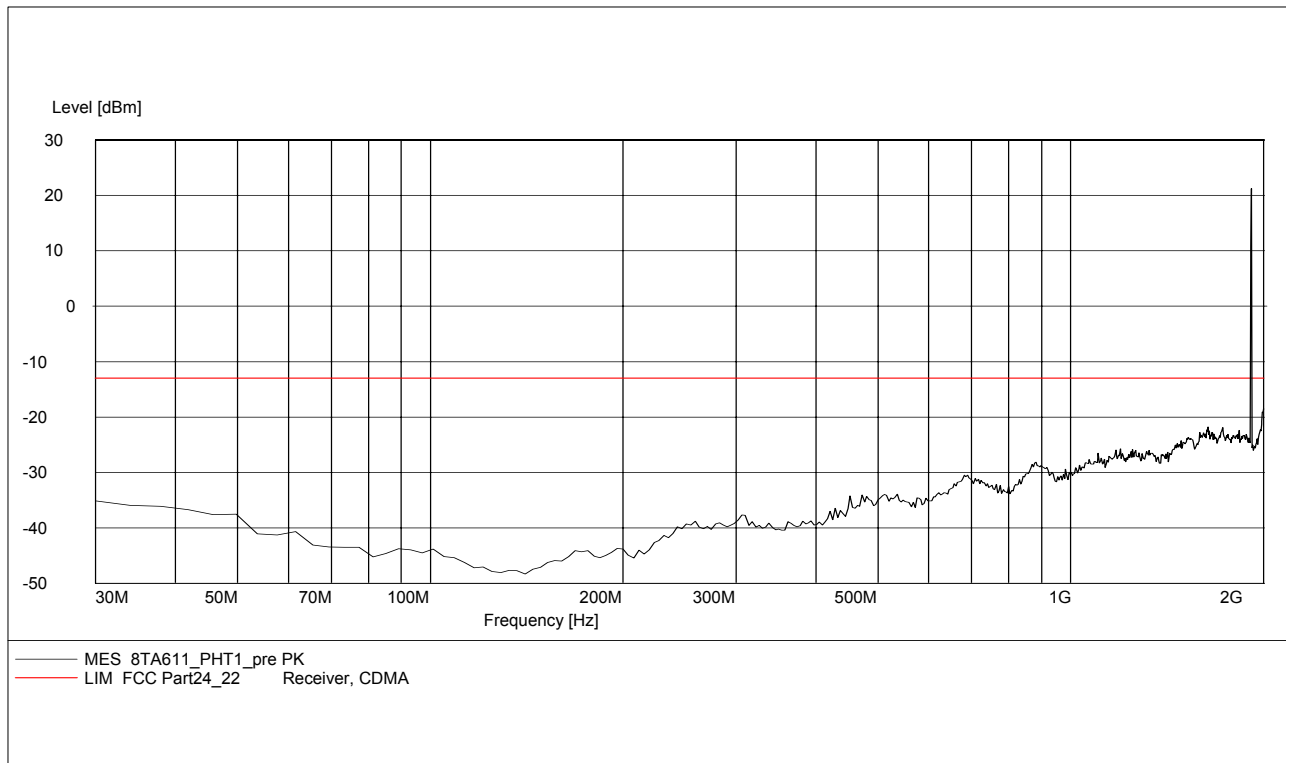
B.2.3.2 RADIATED SPURIOUS EMISSIONS-Channel 661: 30MHz – 2GHz

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

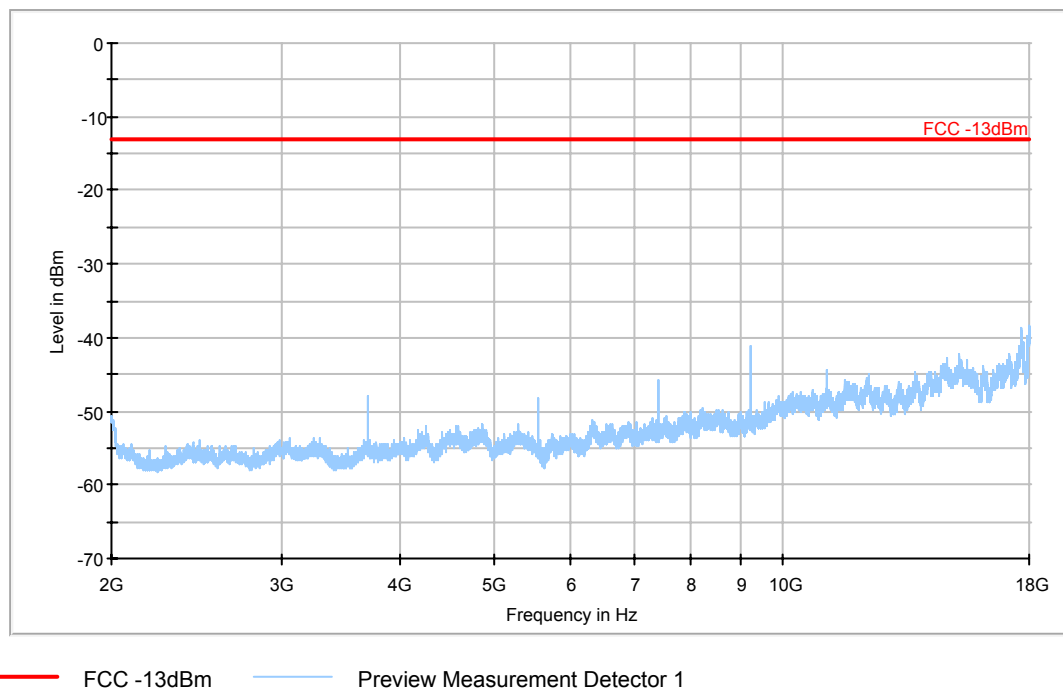


B.2.3.3 RADIATED SPURIOUS EMISSIONS-Channel 810: 30MHz – 2GHz

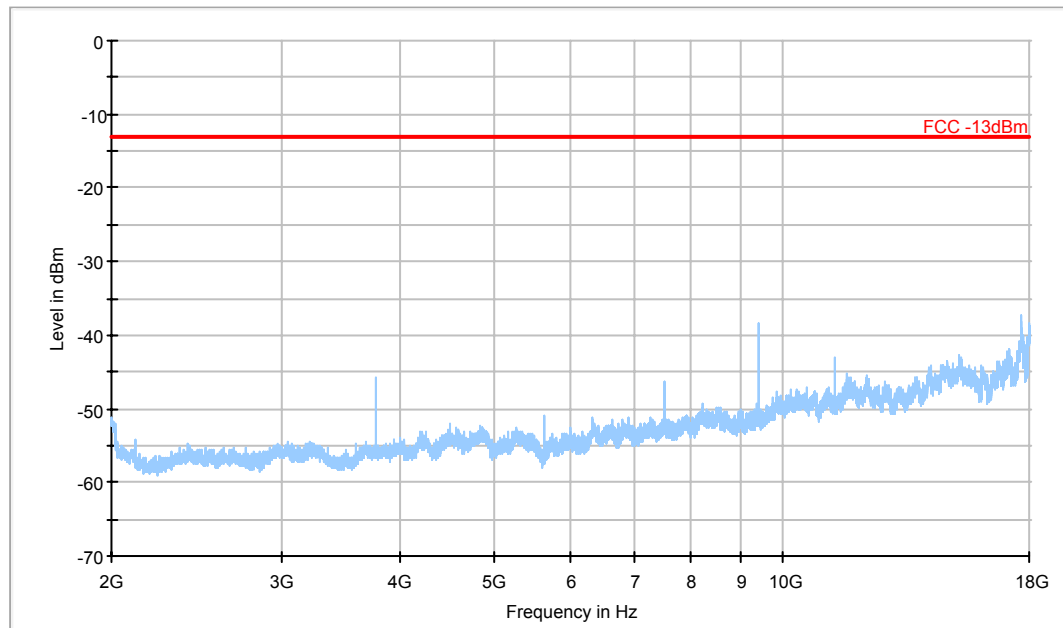
NOTE: peak above the limit line is the Carrier frequency @ ch-810



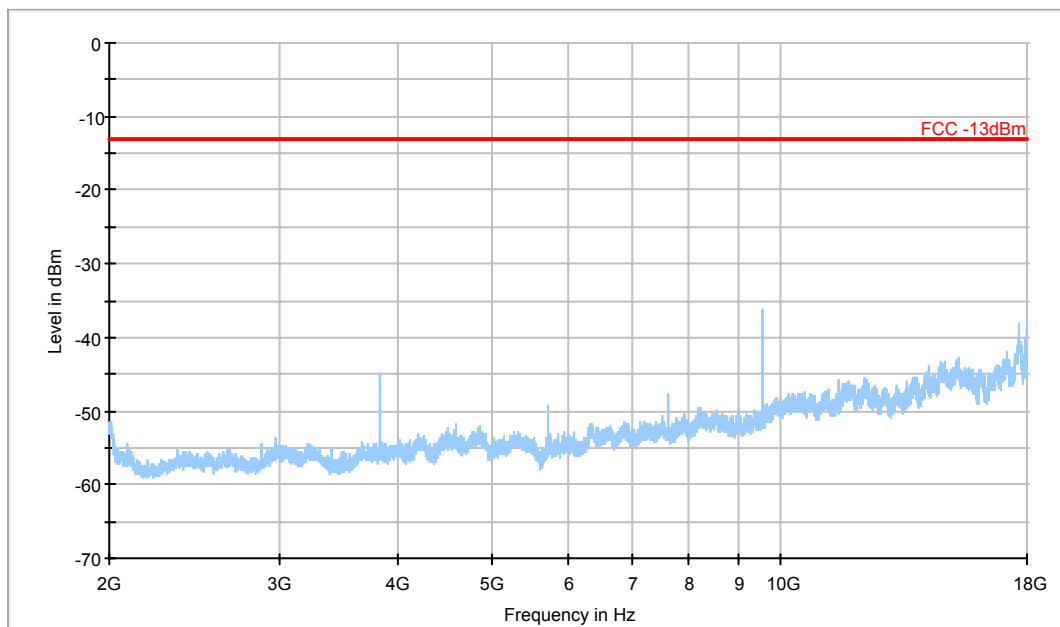
B.2.3.4 RADIATED SPURIOUS EMISSIONS-Channel 512: 2GHz – 18GHz



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

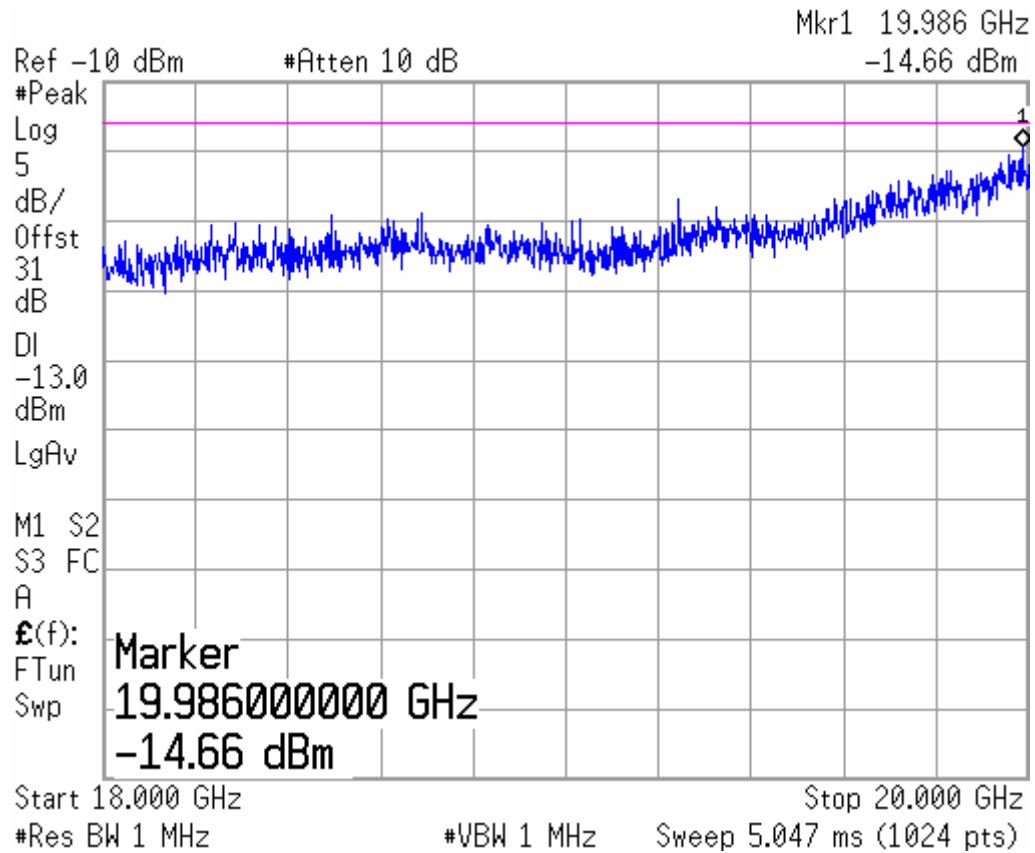


B.2.3.6 RADIATED SPURIOUS EMISSIONS-Channel 810: 2GHz – 18GHz

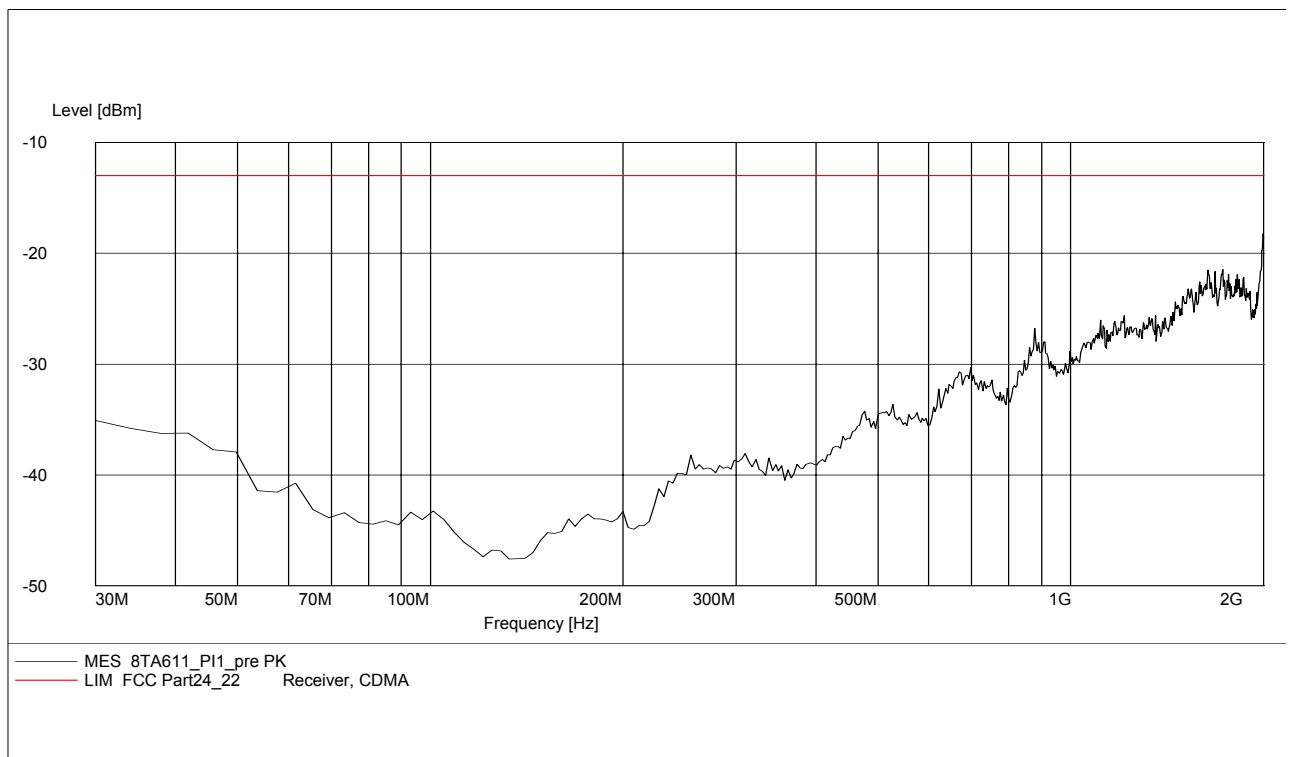


B.2.3.7 Radiated spurious emission (18GHz-20GHz)

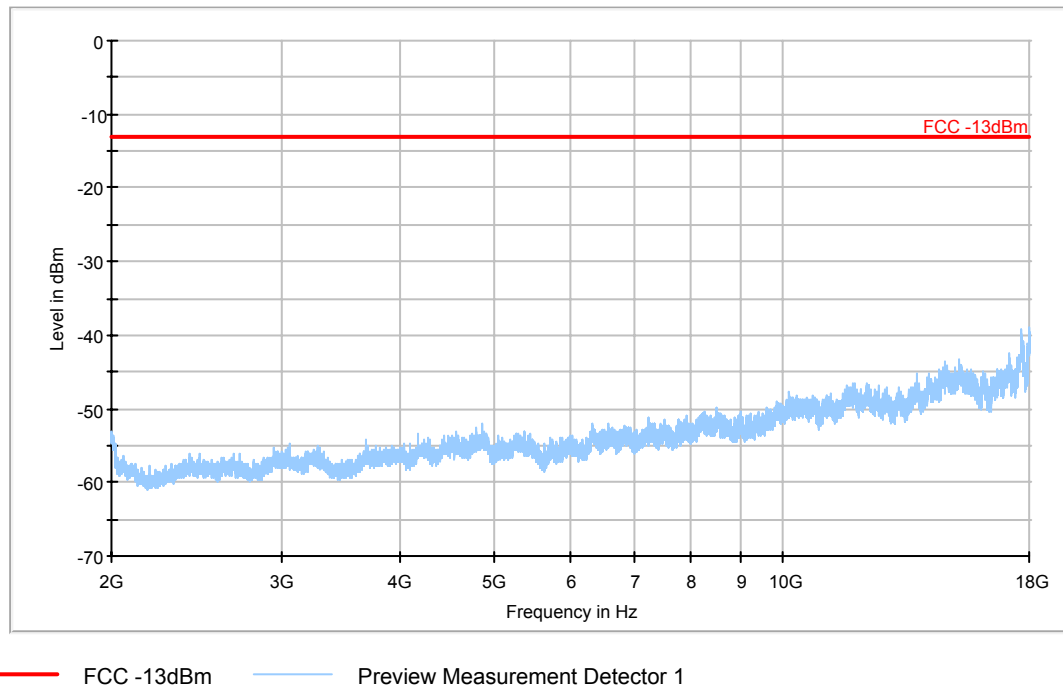
Note: This plot is valid for low, mid & high channels. It is same as the floor noise.



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

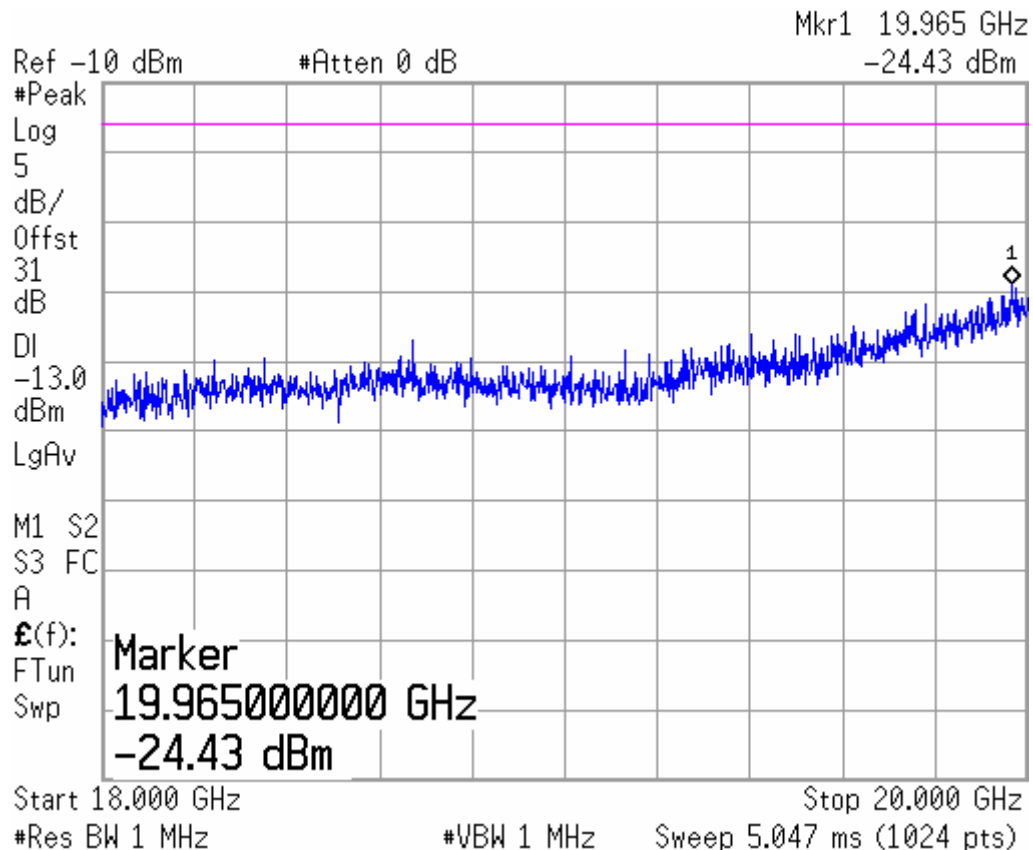


B.2.3.9 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 2GHz – 18GHz



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

Note: It is same as the floor noise.



B.3 CONDUCTED EMISSION (§15.107§15.207)

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

B.3.1 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 |

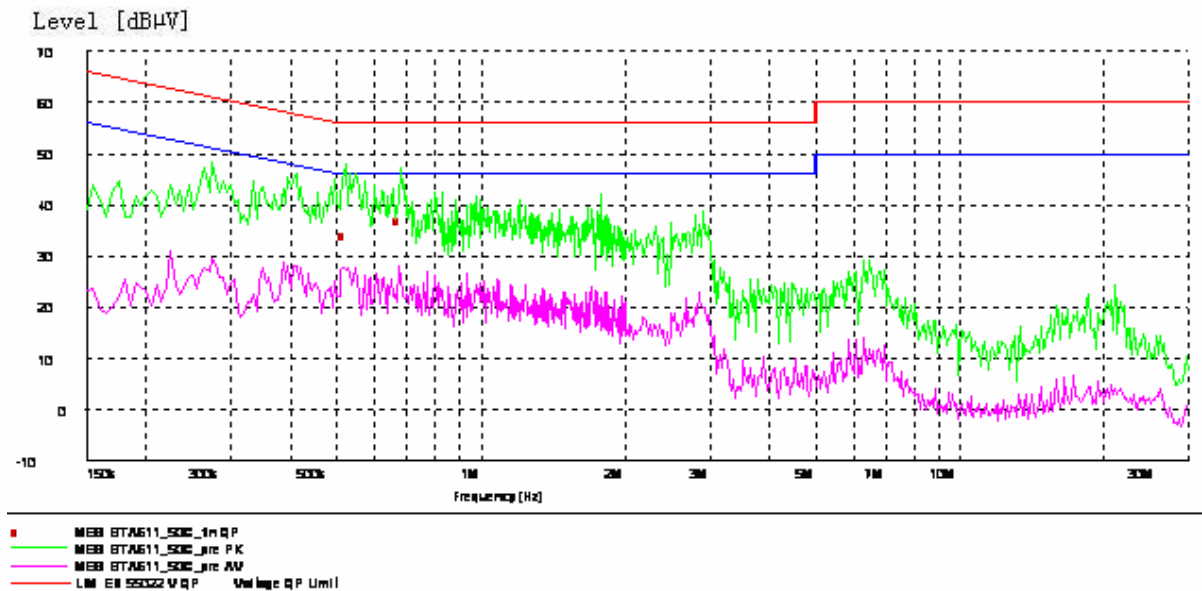
* Decreases with logarithm of the frequency

B.3.2 Test Condition

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 110 | 60 |

B.3.3 Measurement result

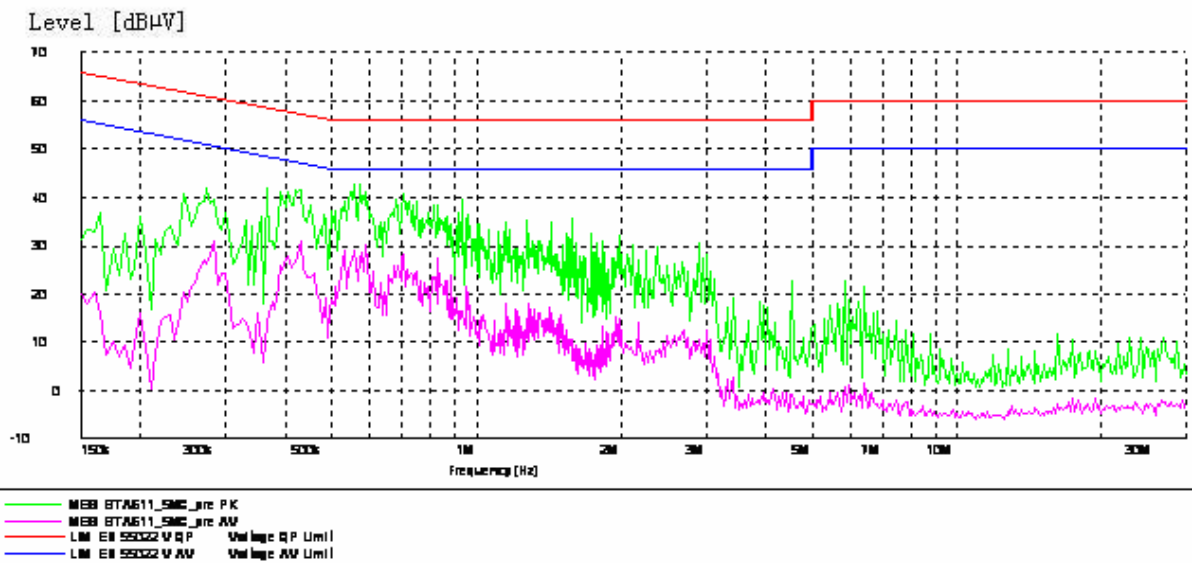
PCS 1900MHz



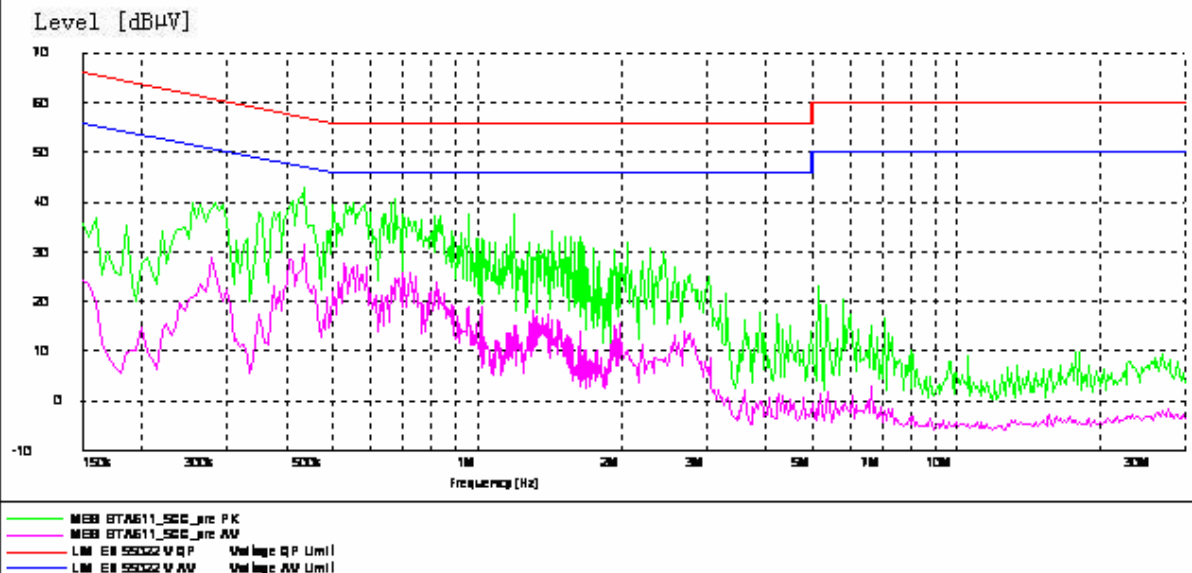
MEASUREMENT RESULT: "8TA611_5PC_fin QP"

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Line | PE |
|------------------|---------------|--------------|---------------|--------------|------|-----|
| 0.520000 | 34.00 | 10.1 | 56 | 22.0 | N | GND |
| 0.680000 | 37.20 | 10.1 | 56 | 18.8 | L1 | FLO |

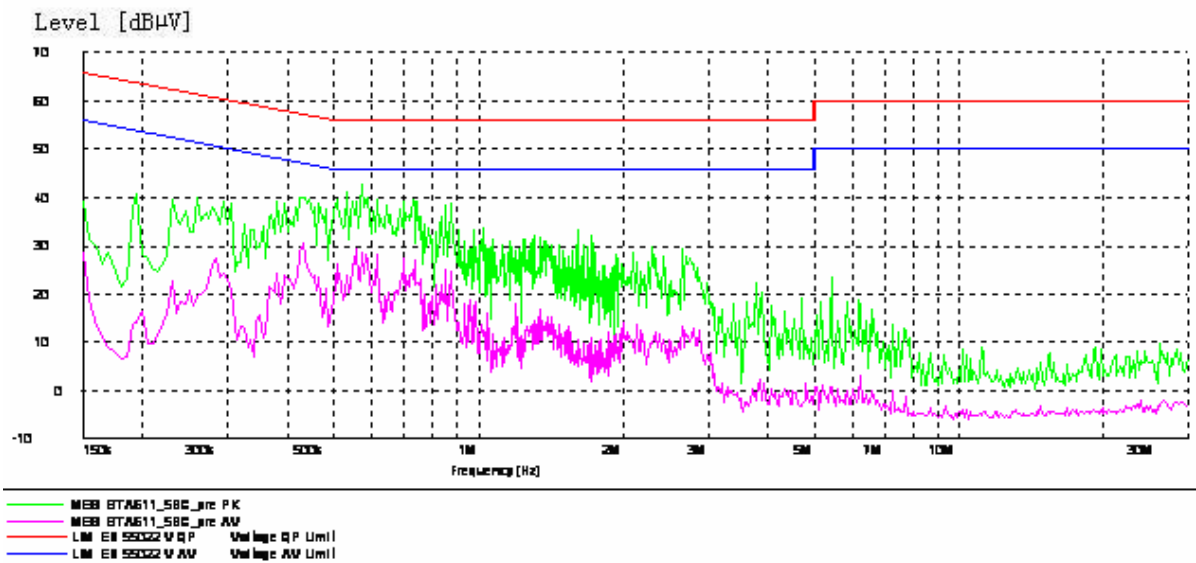
MP3



Camera



Bluetooth



B.4 FREQUENCY STABILITY (§2.1055/§24.235)

B.4.1 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 for PCS 1900, 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.

B.4.2 Measurement Limit

B.4.2.1 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 3.5VDC and 4.2VDC, with a nominal voltage of 3.7VDC. 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.

B.4.2.2 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.

B.4.3 Measurement results

PCS 1900

Frequency Error vs Voltage

| Voltage(V) | Frequency error(Hz) | Frequency error(ppm) |
|------------|---------------------|----------------------|
| 3.5 | 87 | 0.046 |
| 3.7 | 85 | 0.045 |
| 4.2 | 81 | 0.043 |

Frequency Error vs Temperature

| temperature(°C) | Frequency error(Hz) | Frequency error(ppm) |
|-----------------|---------------------|----------------------|
| -30 | 90 | 0.048 |
| -20 | 87 | 0.046 |
| -10 | 85 | 0.045 |
| 0 | 84 | 0.045 |
| 10 | 80 | 0.043 |
| 20 | 81 | 0.043 |
| 30 | 82 | 0.044 |
| 40 | 85 | 0.045 |
| 50 | 88 | 0.047 |

B.5.1 Occupied Bandwidth Results

PCS 1900(99%)

| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |
|----------------|--------------------------------|
| 1850.2 | 246.795 |
| 1880.0 | 248.397 |
| 1909.8 | 245.192 |

PCS 1900

Ref 15 dBm Att 20 dB RBW 3 kHz VBW 3 kHz SWT 280 ms

Marker 1 [T1] -50.67 dBm 1.85076603 GHz

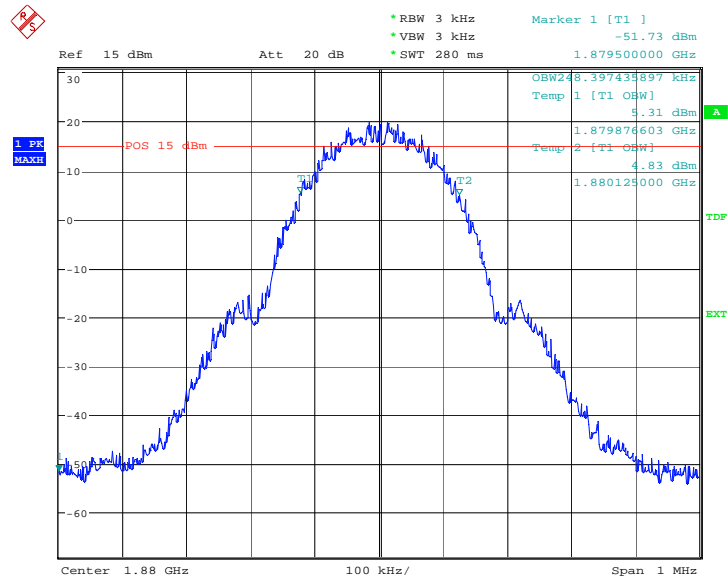
OBW246.794871795 kHz Temp 1 [T1 OBW] 5.92 dBm 1.850076603 GHz

Temp 2 [T1 OBW] 6.72 dBm 1.850323397 GHz

Center 1.8502 GHz Span 1 MHz

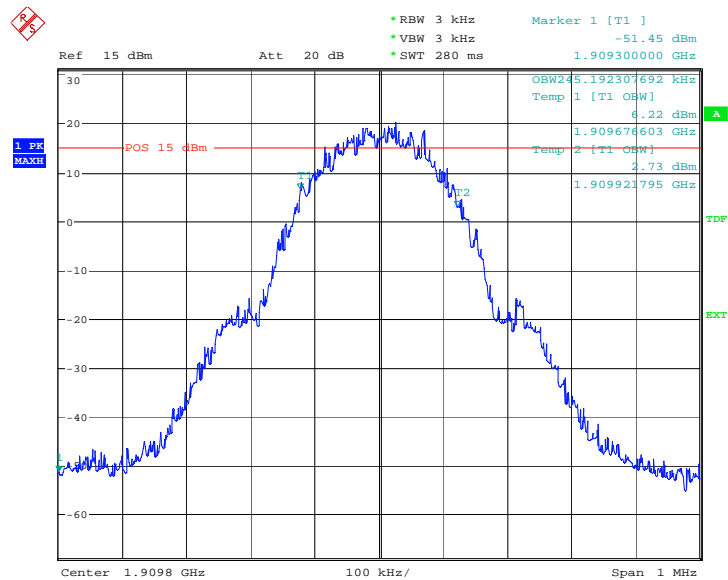
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Channel 661-Occupied Bandwidth (99%)



Date: 7.AUG.2008 02:44:25

Channel 810-Occupied Bandwidth (99%)



Date: 7.AUG.2008 02:45:08

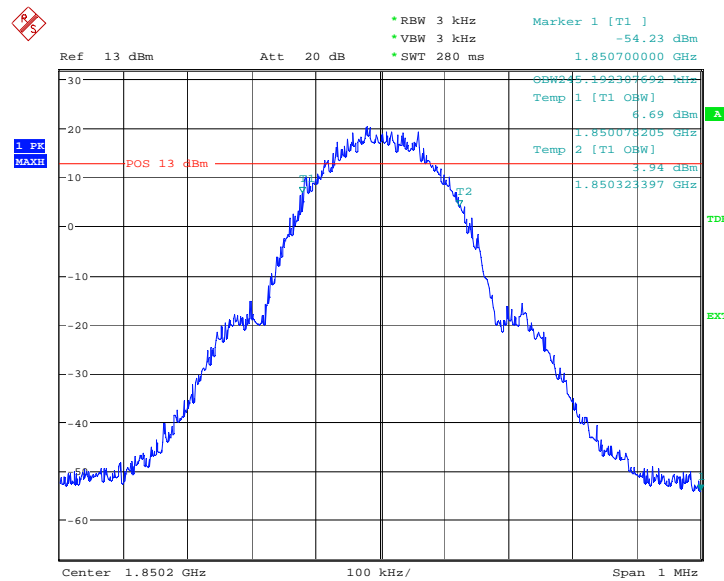
GPRS

| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |
|----------------|--------------------------------|
| 1850.2 | 245.192 |
| 1880.0 | 245.102 |
| 1909.8 | 243.589 |

ANALYZER SETTINGS: RBW=VBW=3kHz

GPRS

Channel 512-Occupied Bandwidth (99%)



Date: 7.AUG.2008 03:27:19

1 PK
MAX

Ref 13 dBm Att 20 dB

- * RBW 3 kHz
- * VBW 3 kHz
- * SWT 280 ms

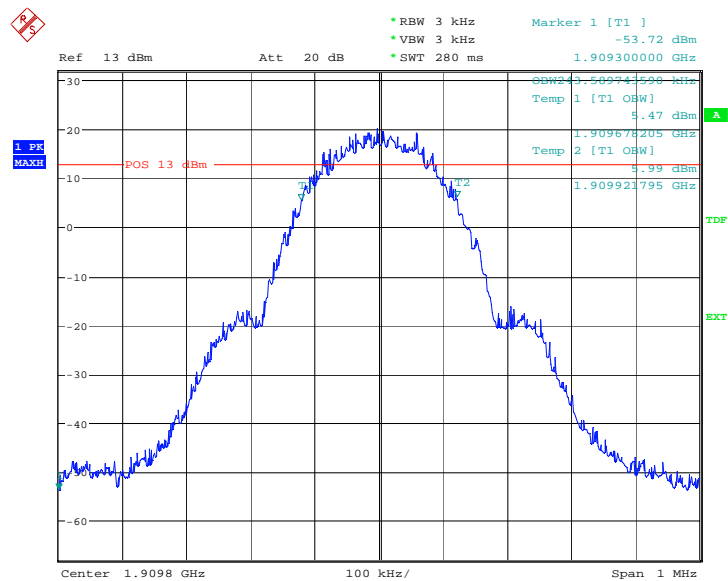
Marker 1 [T1]
-52.71 dBm
1.879500000 GHz

Temp 1 [T1 OBW]
6.49 dBm
1.879878205 GHz

Temp 2 [T1 OBW]
6.29 dBm
1.880123397 GHz

Center 1.80 GHz 100 kHz/ Span 1 MHz

Channel 810-Occupied Bandwidth (99%)



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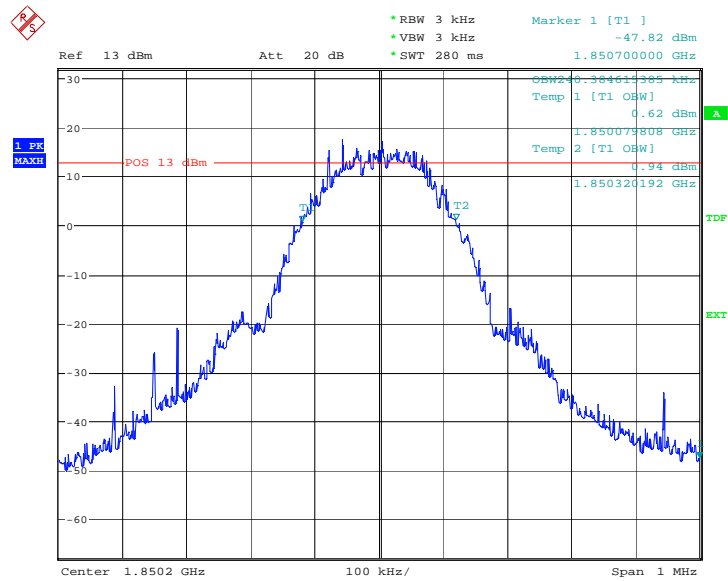
EGPRS

| Frequency(MHz) | Occupied Bandwidth (99%)(kHz) |
|----------------|--------------------------------|
| 1850.2 | 240.384 |
| 1880.0 | 245.192 |
| 1909.8 | 246.795 |

ANALYZER SETTINGS: RBW=VBW=3kHz

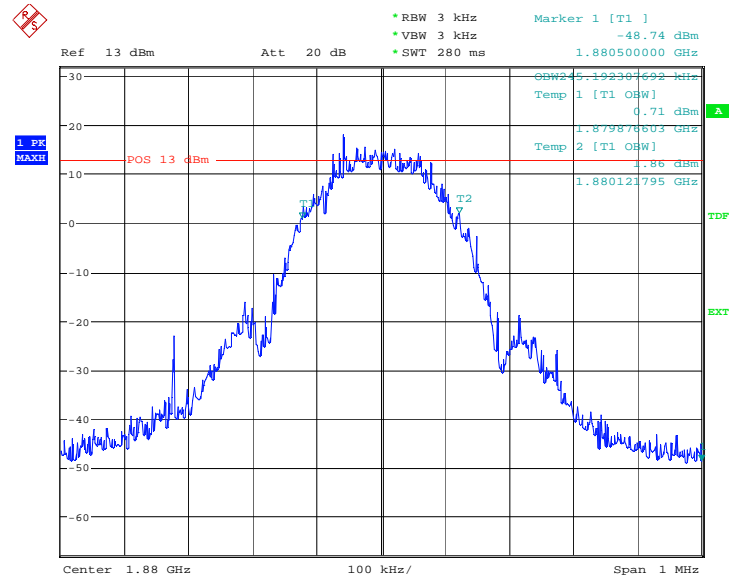
EGPRS

Channel 512-Occupied Bandwidth (99%)



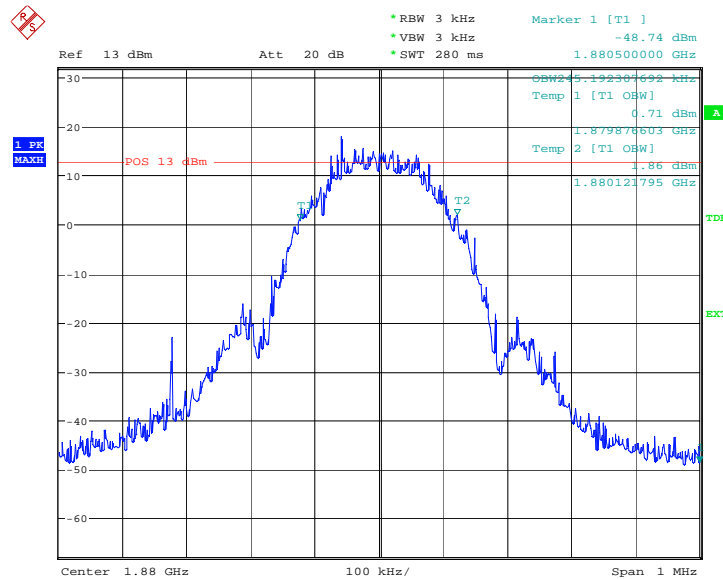
Date: 7.AUG.2008 03:32:43

Channel 661-Occupied Bandwidth (99%)



Date: 7.AUG.2008 03:33:19

Channel 810-Occupied Bandwidth (99%)



Date: 7.AUG.2008 03:33:19

B.6 EMISSION BANDWIDTH (§22.917(b)/§24.238(b))

B.6.1 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.

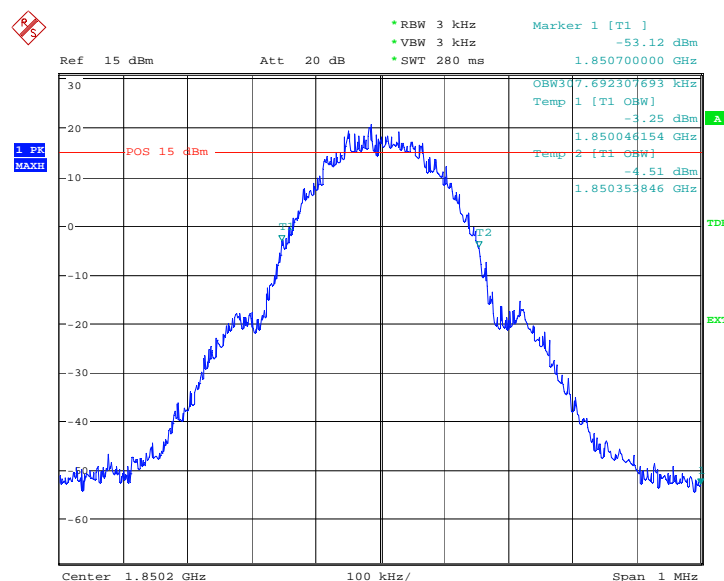
PCS 1900(-26dBc)

| Frequency(MHz) | Occupied Bandwidth (-26dBc BW)(kHz) |
|----------------|--------------------------------------|
| 1850.2 | 307.692 |
| 1880.0 | 307.692 |
| 1909.8 | 306.090 |

ANALYZER SETTINGS: RBW=VBW=3kHz;

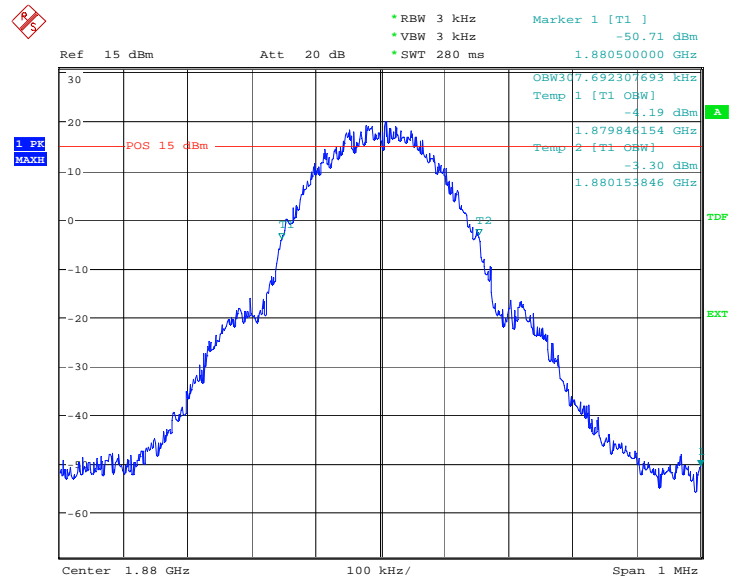
PCS 1900

Channel 512-Occupied Bandwidth (-26dBc BW)



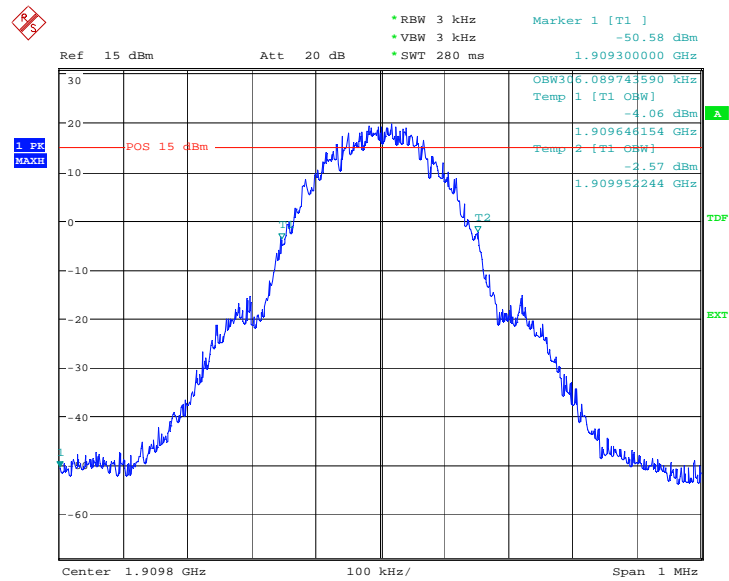
Date: 7.AUG.2008 02:47:03

Channel 661-Occupied Bandwidth (-26dBc BW)



Date: 7.AUG.2008 02:46:25

Channel 810-Occupied Bandwidth (-26dBc BW)



Date: 7.AUG.2008 02:45:51

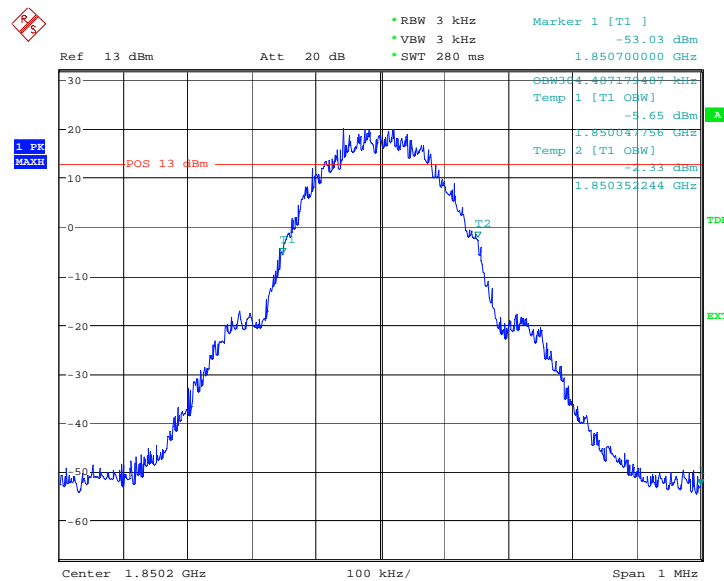
GPRS

| Frequency(MHz) | Occupied Bandwidth (-26dBc BW)(kHz) |
|----------------|--------------------------------------|
| 1850.2 | 304.487 |
| 1880.0 | 309.295 |
| 1909.8 | 309.295 |

ANALYZER SETTINGS: RBW=VBW=3kHz;

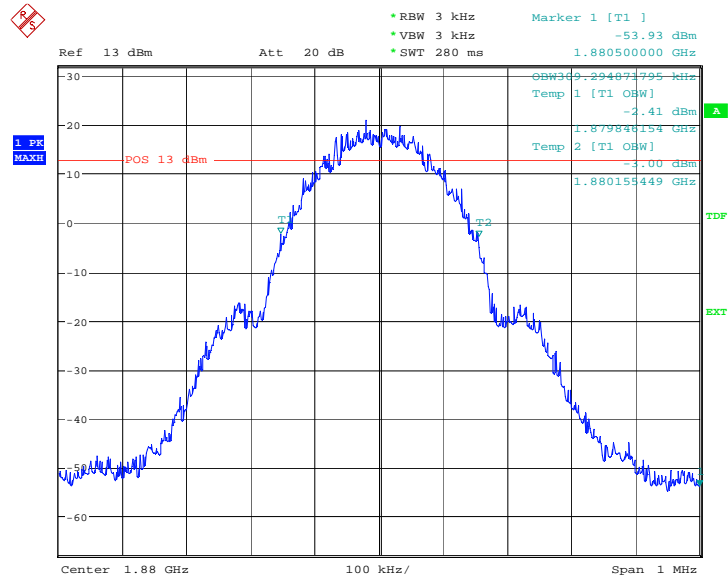
GPRS

Channel 512-Occupied Bandwidth (-26dBc BW)



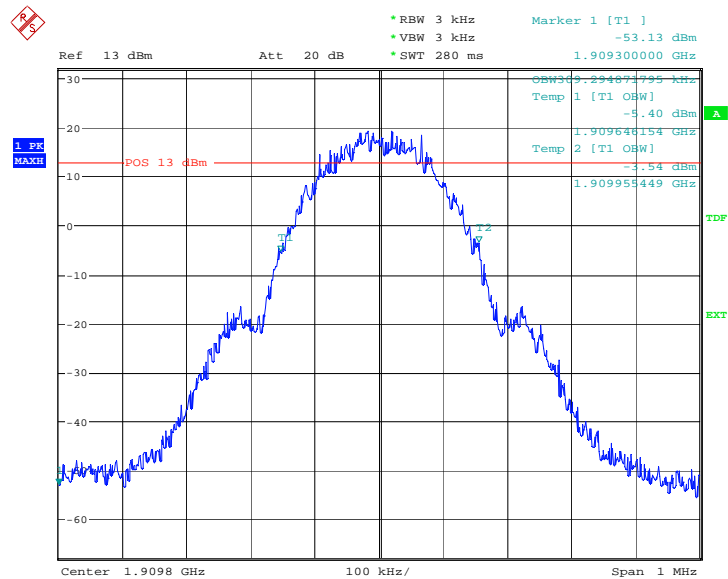
Date: 7.AUG.2008 03:31:27

Channel 661-Occupied Bandwidth (-26dBc BW)



Date: 7.AUG.2008 03:30:50

Channel 810-Occupied Bandwidth (-26dBc BW)



Date: 7.AUG.2008 03:30:14

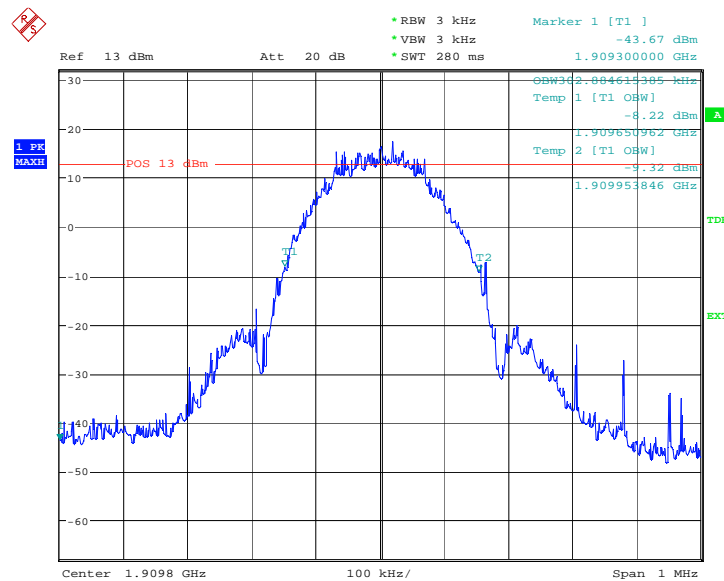
EGPRS

| Frequency(MHz) | Occupied Bandwidth (-26dBc BW)(kHz) |
|----------------|--------------------------------------|
| 1850.2 | 302.885 |
| 1880.0 | 301.282 |
| 1909.8 | 302.885 |

ANALYZER SETTINGS: RBW=VBW=3kHz;

EGPRS

Channel 512-Occupied Bandwidth (-26dBc BW)



Date: 7.AUG.2008 03:36:24

Ref 13 dBm Att 20 dB

• RBW 3 kHz • VBW 3 kHz • SWT 280 ms

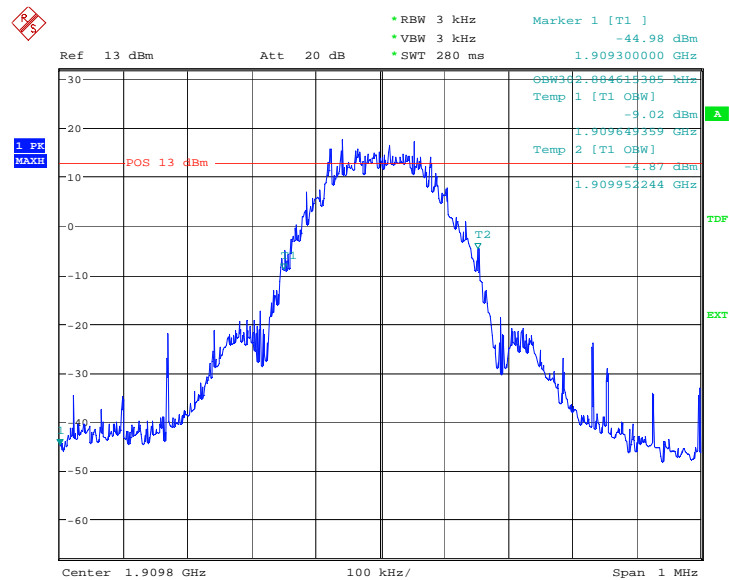
Marker 1 [T1] -45.21 dBm 1.880500000 GHz

Temp 1 [T1 OBW] -5.79 dBm 1.879850962 GHz

Temp 2 [T1 OBW] -5.88 dBm 1.880152244 GHz

Center 1.88 GHz 100 kHz/ Span 1 MHz

Channel 810-Occupied Bandwidth (-26dBc BW)

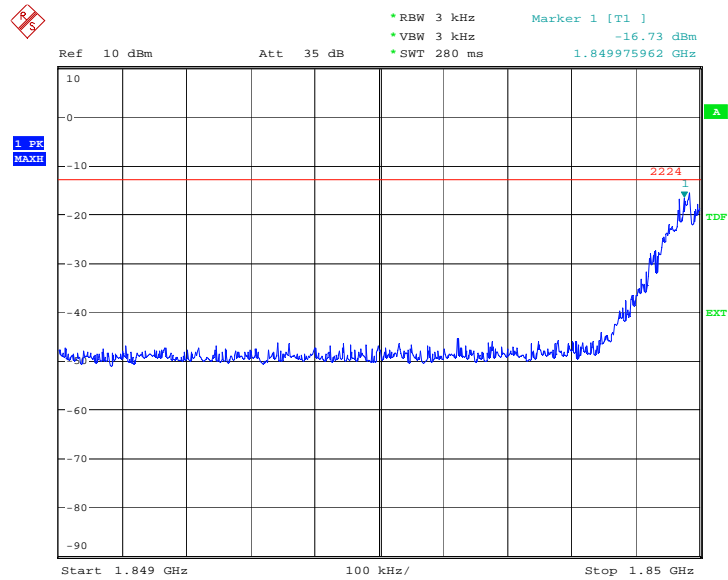


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B.7 BAND EDGE COMPLIANCE (§22.917(b)/§24.238(b))

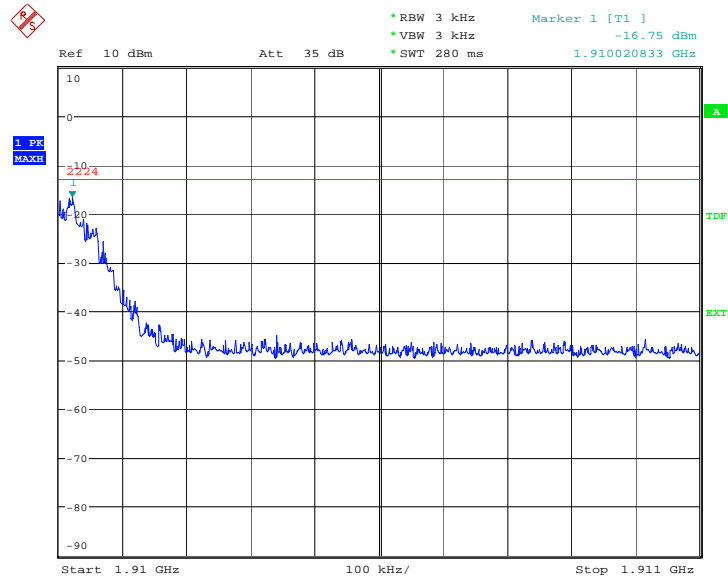
PCS 1900

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



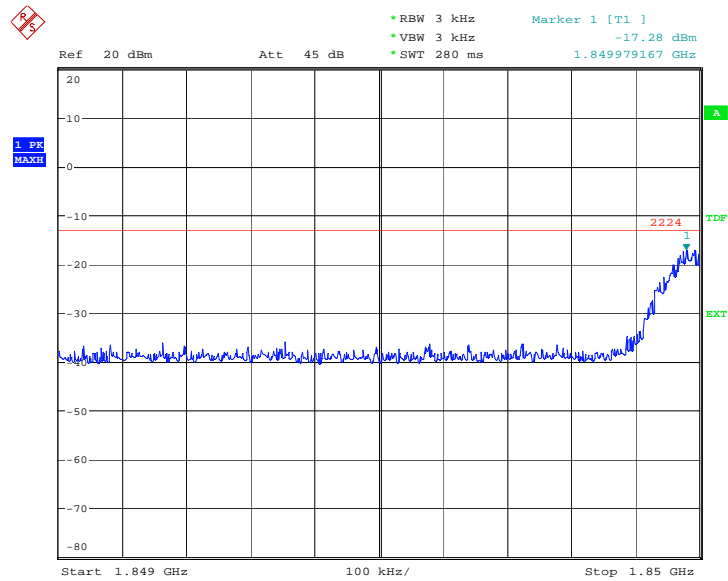
Date: 7.AUG.2008 03:12:38

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



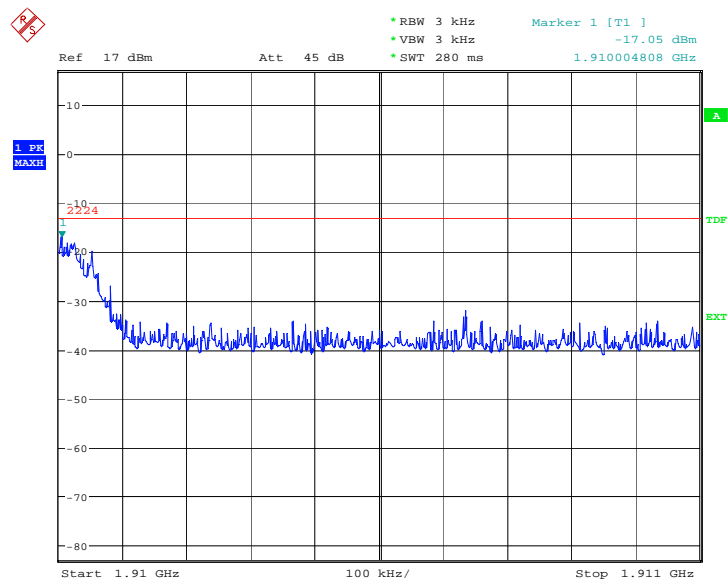
Date: 7.AUG.2008 03:13:51

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



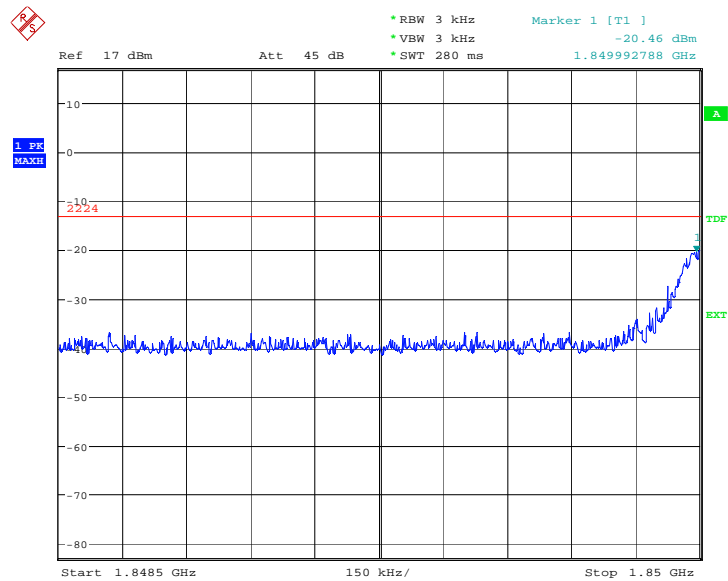
Date: 7.AUG.2008 03:51:48

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



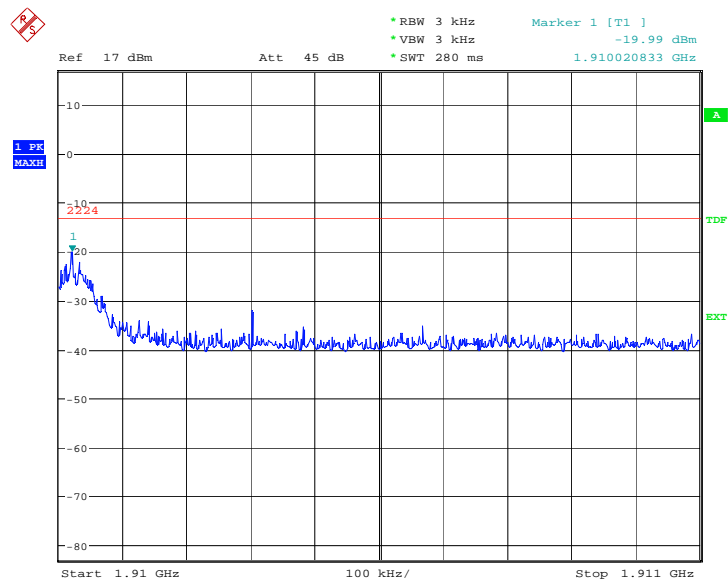
Date: 7.AUG.2008 03:52:32

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



Date: 7.AUG.2008 03:53:32

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



Date: 7.AUG.2008 03:54:15

B.8 CONDUCTED SPURIOUS EMISSION (§2.1057/§22.917/§24.238)

B.8.1 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 |

B. 8.2 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 $43+10\log(P)$ dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

B. 8.3 Measurement result

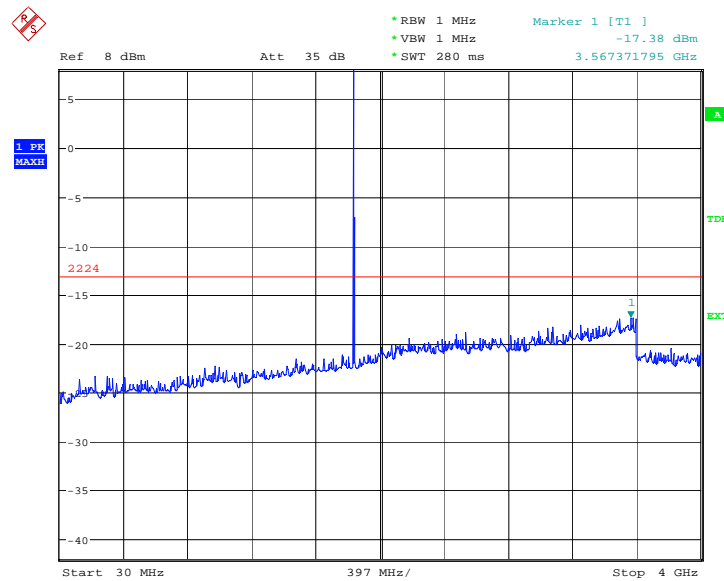
PCS1900

| 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 | | | | | | |

B. 8.3.1 Channel 512: 30MHz – 4GHz

Spurious emission limit –13dBm.

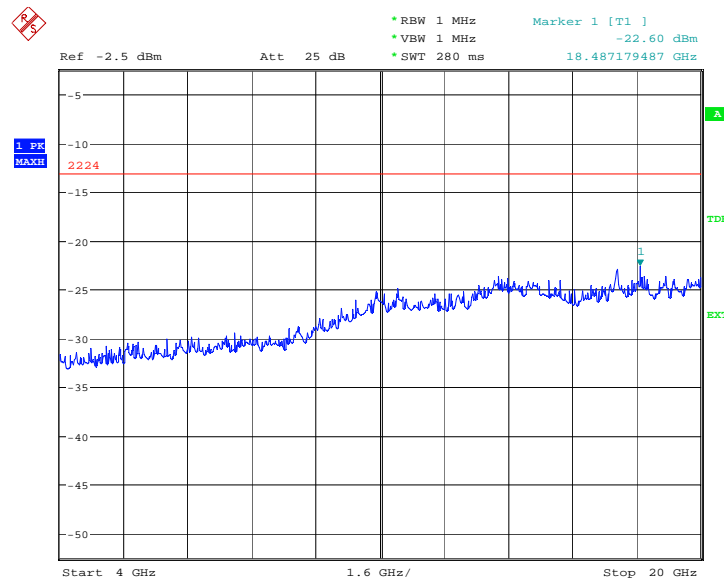
NOTE: peak above the limit line is the carrier frequency.



Date: 7.AUG.2008 03:05:29

B. 8.3.2 Channel 512: 4GHz – 20GHz

Spurious emission limit –13dBm.

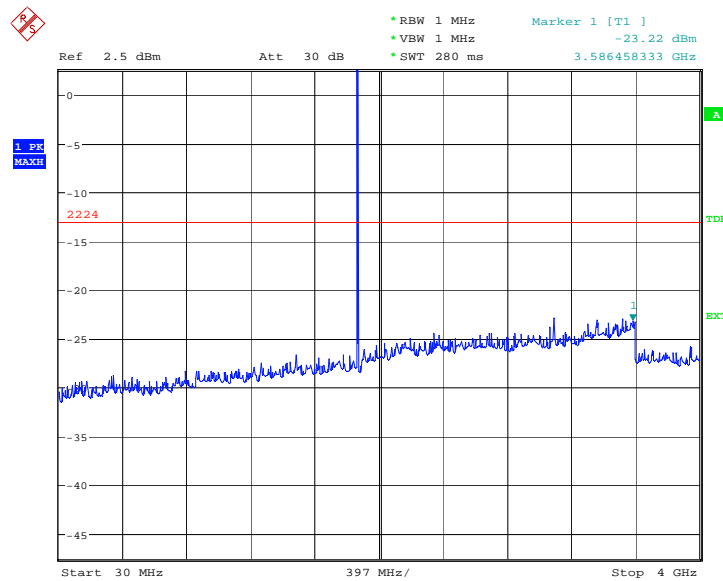


Date: 7.AUG.2008 03:06:20

B. 8.3.3 Channel 661: 30MHz – 4GHz

Spurious emission limit –13dBm

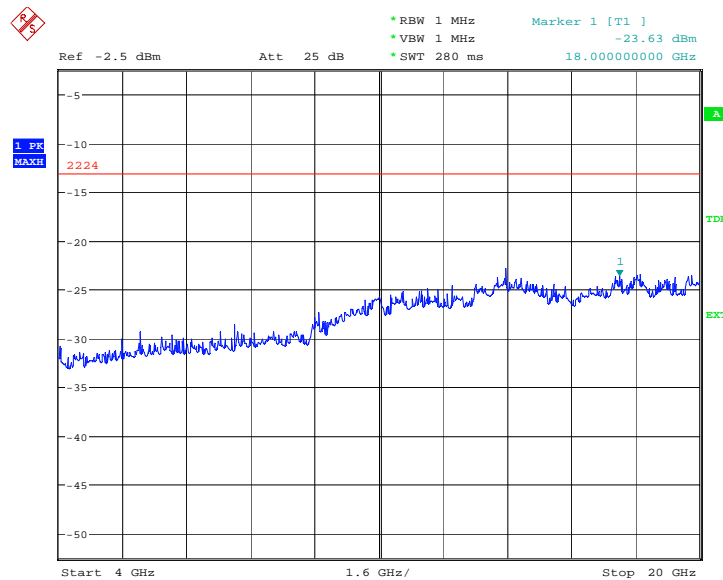
NOTE: peak above the limit line is the carrier frequency.



Date: 7.AUG.2008 03:07:46

B. 8.3.4 Channel 661: 4GHz –20GHz

Spurious emission limit –13dBm

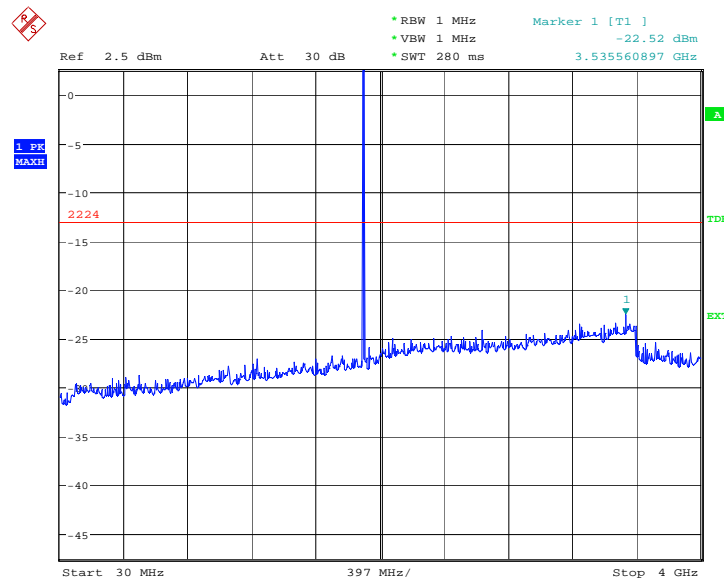


Date: 7.AUG.2008 03:07:01

B. 8.3.5 Channel 810: 30MHz – 4GHz

Spurious emission limit –13dBm.

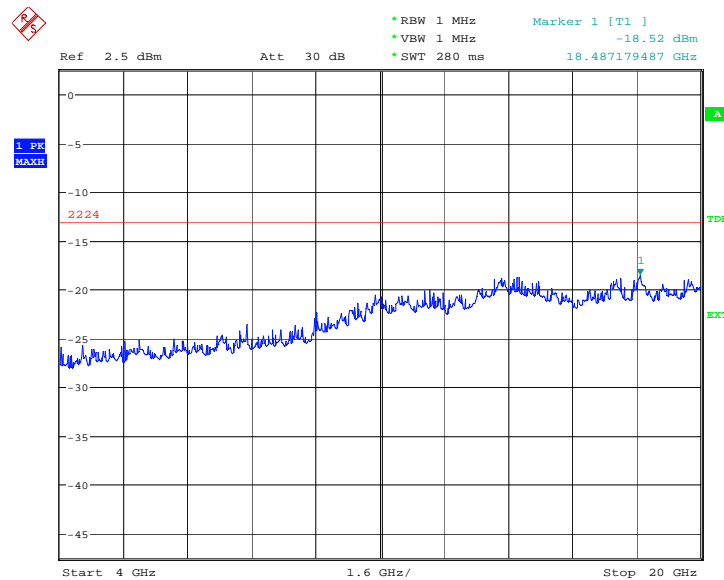
NOTE: peak above the limit line is the carrier frequency.



Date: 7.AUG.2008 03:08:27

B. 8.3.6 Channel 810: 4GHz – 20GHz

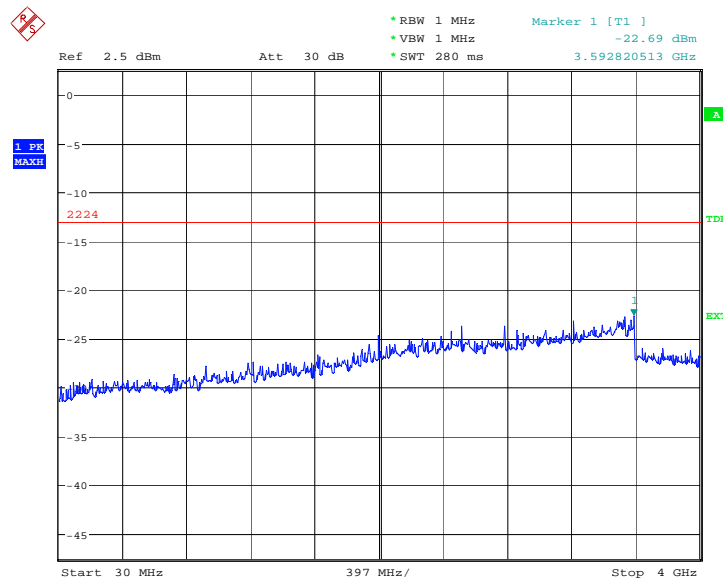
Spurious emission limit –13dBm.



Date: 7.AUG.2008 03:09:13

B. 8.3.7 Idle mode: 30MHz – 4GHz

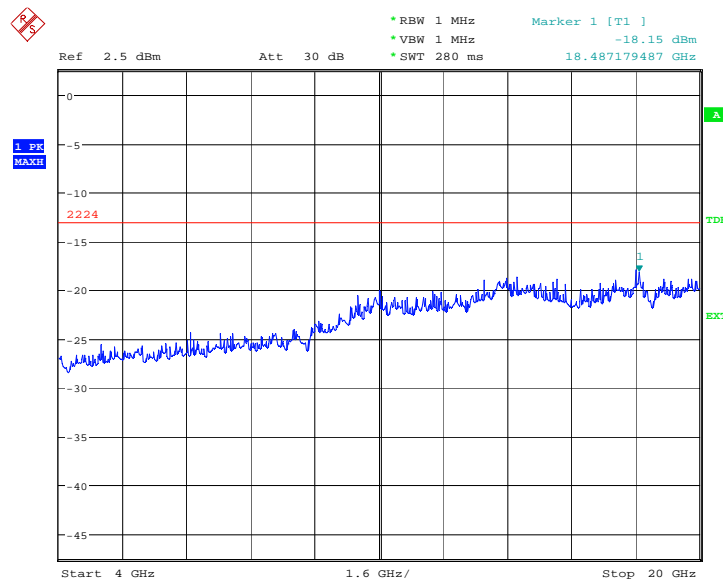
Spurious emission limit -13dBm.



Date: 7.AUG.2008 03:10:06

B. 8.3.8 Idle mode: 4GHz – 20GHz

Spurious emission limit -13dBm.



Date: 7.AUG.2008 03:10:32

ANNEX C: TEST LAYOUT

Pic C-1 Conducted Emission



Pic C-2 Radiated Spurious Emission

*****END OF REPORT*****