# FCC Radio Test Report

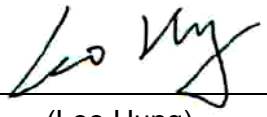
## FCC ID: 2AEU7-LONDON

**This report concerns (check one): ☒Original Grant ☐Class II Change**

| | | |
|---|---|---|
| **Project No.** | : | 1504C209 |
| **Equipment** | : | Marshall London |
| **Model Name** | : | KB-1501 |
| **Applicant** | : | Zound Industries Smartphones AB |
| **Address** | : | Torsgatan 2, 111 23 Stockholm, Sweden |

| | | |
|---|---|---|
| **Date of Receipt** | : | Apr. 22, 2015 |
| **Date of Test** | : | Apr. 22, 2015 ~ May 25, 2015 |
| **Issued Date** | : | May 26, 2015 |
| **Tested by** | : | BTL Inc. |

**Testing Engineer** :  (David Mao)

**Technical Manager** :  (Leo Hung)

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## Declaration

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Table of Contents Page


REPORT ISSUED HISTORY 6

1 . CERTIFICATION 7

2 . SUMMARY OF TEST RESULTS 8

2.1 TEST FACILITY 9

2.2 MEASUREMENT UNCERTAINTY 9

3 . GENERAL INFORMATION 10

3.1 GENERAL DESCRIPTION OF EUT 10

3.2 DESCRIPTION OF TEST MODES 11

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 12

3.4 DESCRIPTION OF SUPPORT UNITS 12

4 . TEST RESULT 13

4.1 RADIATEDRF OUTPUT POWER MEASUREMENT 13

4.1.1 LIMIT 13

4.1.2 MEASURING INSTRUMENTS AND SETTING 13

4.1.3 TEST PROCEDURE 13

4.1.4 TESTSETUP LAYOUT 14

4.1.5 TESTDEVIATION 14

4.1.6 EUT OPERATIONDURING TEST 14

4.1.7 EUT TEST CONDITIONS 14

4.1.8 TEST RESULTS 14

4.2 99% OCCUPIED BANDWIDTH MEASUREMENT 15

4.2.1 LIMIT 15

4.2.2 MEASURING INSTRUMENTS AND SETTING 15

4.2.3 TEST PROCEDURE 15

4.2.4 TESTSETUP LAYOUT 15

4.2.5 TESTDEVIATION 15

4.2.6 EUT OPERATIONDURING TEST 15

4.2.7 EUT TEST CONDITIONS 15

4.2.8 TEST RESULTS 16

4.3 SPURIOUS EMISSIONS AT ANTENNA TERMINALS MEASUREMENT 17

4.3.1 LIMIT 17

4.3.2 MEASURING INSTRUMENTS AND SETTING 17

4.3.3 TEST PROCEDURES 17

4.3.4 TESTSETUP LAYOUT 17

4.3.5 TESTDEVIATION 17

4.3.6 EUT OPERATIONDURING TEST 17

4.3.7 EUT TEST CONDITIONS 18

4.3.8 TEST RESULTS 18
4.4 SPURIOUS RADIATED EMISSIONS MEASUREMENT 19
4.4.1 LIMIT 19
4.4.2 MEASURING INSTRUMENTS AND SETTING 19
4.4.3 TEST PROCEDURES 19
4.4.4 TESTSETUP LAYOUT 20
4.4.5 TESTDEVIATION 20
4.4.6 EUT OPERATIONDURING TEST 20
4.4.7 EUT TEST CONDITIONS 20
4.4.8 TEST RESULTS 20
4.5 BAND EDGE MEASUREMENT 21
4.5.1 LIMIT 21
4.5.2 MEASURING INSTRUMENTS AND SETTING 21
4.5.3 TEST PROCEDURES 21
4.5.4 TESTSETUP LAYOUT 21
4.5.5 TESTDEVIATION 21
4.5.6 EUT OPERATIONDURING TEST 21
4.5.7 EUT TEST CONDITIONS 21
4.5.8 TEST RESULTS 22
4.6 FREQUENCY STABILITY MEASUREMENT 23
4.6.1 LIMIT 23
4.6.2 MEASURING INSTRUMENTS AND SETTING 23
4.6.3 TEST PROCEDURES 23
4.6.4 TESTSETUP LAYOUT 23
4.6.5 TESTDEVIATION 23
4.6.6 EUT OPERATIONDURING TEST 23
4.6.7 EUT TEST CONDITIONS 24
4.6.8 TEST RESULTS 24
4.7 PEAK TO AVERAGE RADIO 25
4.7.1 LIMIT 25
4.7.2 TEST PROCEDURES 25
4.7.3 TESTSETUP LAYOUT 25
4.7.4 TESTDEVIATION 25
4.7.5 EUT OPERATIONDURING TEST 25
4.7.6 EUT TEST CONDITIONS 25
4.7.7 TEST RESULTS 25
4.7 CONDUCTED EMISSION MEASUREMENT 26
4.7.1 POWER LINE CONDUCTED EMISSION LIMITS 26
4.7.2 TEST PROCEDURE 27
4.7.3 DEVIATION FROM TEST STANDARD 27
4.7.4 TESTSETUP 27
4.7.5EUT OPERATING CONDITIONS 27
4.7.6EUT TEST CONDITIONS 27

Table of Contents Page

4.7.8 TEST RESULTS 27
5. LIST OF MEASUREMENT EQUIPMENTS 28
ATTACHMENTA -RADIATED RF OUTPUT POWER 31
ATTACHMENT B - 99% OCCUPIED BANDWIDTH 33
ATTACHMENT C - SPURIOUS EMISSIONS AT ANTENNA TERMINALS 40
ATTACHMENTD - SPURIOUS RADIATED EMISSION 43
ATTACHMENTE - BAND EDGE 60
ATTACHMENTF - FREQUENCY STABILITY 64
ATTACHMENTG - PEAK TO AVERAGE RADIO 67
ATTACHMENTH -CONDUCTED EMISSION 69

## REPORT ISSUED HISTORY

| Issued No. | Description | Issued Date |
|---|---|---|
| BTL-FCCP-6-1504C209 | Original Issue. | May 26, 2015 |

## 1. CERTIFICATION

| | | |
|---|---|---|
| Equipment | : | Marshall London |
| Brand Name | : | Marshall |
| Model Name | : | KB-1501 |
| Applicant | : | Zound Industries Smartphones AB |
| Manufacturer | : | Zound Industries Smartphones AB |
| Address | : | Torsgatan 2, 111 23 Stockholm, Sweden |
| Factory | : | Huizhou BYD Electronics Co., Ltd. |
| Address | : | Xiangshui River, Economic Development Zone, Daya Bay, Huizhou, Guangdong, 516083, P.R.China |
| Date of Test | : | Apr. 22, 2015 ~ May 25, 2015 |
| Test Sample | : | ENGINEERING SAMPLE |
| Standard(s) | : | 47 CFR FCC Part 24 Subpart E &ANSI C63.4 : 2009<br>47 CFR FCC Part 2 &ANSI/TIA-603-C-2004 |

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-6-1504C209) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

**Test result included in this report is only for theGSM 1900MHz approvalpart of the product.**

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| FCC Part 24 Subpart E & Part 2 | | | |
|---|---|---|---|
| Standard(s) Section<br>FCC | Test Item | Judgment | Remark |
| 2.1047(d) | Modulation Characteristics | PASS | |
| 2.1046<br>24.232(c) | Radiated RF Output | PASS | |
| 2.1049<br>24.238(a) | 99% Occupied Bandwidth | PASS | |
| 2.1051<br>24.238(a) | Spurious Emissions at Antenna Terminal | PASS | |
| 2.1053<br>24.238(a) | Spurious Radiated Emissions | PASS | |
| 24.238(a) | Band Edge Emissions | PASS | |
| 2.1055<br>24.235 | Frequency Stability | PASS | |
| 24.232(d) | Peak to Average Radio | PASS | |
| 15.207 | Conducted Emission | PASS | |

NOTE:

(1)” N/A” denotes test is not applicable in this test report

## 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.
BTL's test firm number for FCC: 319330

## 2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimatedfor tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 $U_{cispr}$ requirement.

The reported uncertainty of measurement **y** ± **U**, where expanded uncertainty **U** is based on astandard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95**% ◦

A. Conducted Measurement :

| Test Site | Method | Measurement Frequency Range | U,(dB) | Note |
|---|---|---|---|---|
| DG-C02 | CISPR | 150 KHz~30MHz | 3.40 | |

B. Radiated Measurement :

| Test Site | Parameter | Uncertainty |
|---|---|---|
| DG-CB12 | All emissions | radiated ±6 dB |

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

# 3. GENERAL INFORMATION

## 3.1 GENERAL DESCRIPTION OF EUT

| | | |
|---|---|---|
| Equipment | Marshall London | |
| Brand Name | Marshall | |
| Model Name | KB-1501 | |
| Model Difference | N/A | |
| Product Description | Operation Frequency: | TX:1850.2MHz~1909.8MHz<br>RX:1930.2MHz~1989.8MHz |
| | Modulation Type: | GMSK;8-PSK |
| | EIRP Output Power | 9.57dBm |
| PowerSource | #1 DC voltage supplied from AC adapter.<br>Manufacturer/Model: BYD/BUUS050100-B01<br>#2 Supplied from Li-ion battery.<br>Manufacturer/Model: BYD/M62 | |
| Power Rating | #1 I/P: AC 100-240V 50/60Hz 200mA O/P: DC 5V 1A<br>#2 DC 3.8V 2500mAh | |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Channel List:

| Band | Channel | Frequency (MHz) | |
|---|---|---|---|
| 1850.2MHz~1909.8MHz | 512 | Low | 1850.20 |
| | 661 | Mid | 1880.00 |
| | 810 | High | 1909.80 |

3. Table for Filed Antenna @GSM1900:

| Ant. | Manufacture | Model Name | Antenna Type | Connector | Gain (dBi) |
|---|---|---|---|---|---|
| 1 | SPEED | LF4701Q-EU | Internal | N/A | 0.38 |

## 3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Test Items | Worst TX Mode | Channel |
|---|---|---|
| Radiated RF Output | GSM/EDGE | 512/661/810 |
| Spurious Radiated Emissions | GSM/EDGE | 512/661/810 |
| Band Edge Emissions | GSM/GPRS/EDGE | 512/810 |
| Frequency Stability | GSM/EDGE | 661 |
| 99% Occupied Bandwidth | GSM/GPRS/EDGE | 512/661/810 |
| Spurious Emissions at Antenna Terminal | GSM | 512/661/810 |
| Peak to Average Radio | GSM/EDGE | 661 |

| For Conducted Emission | |
|---|---|
| Final Test Mode | Description |
| Mode 1 | TX Mode |

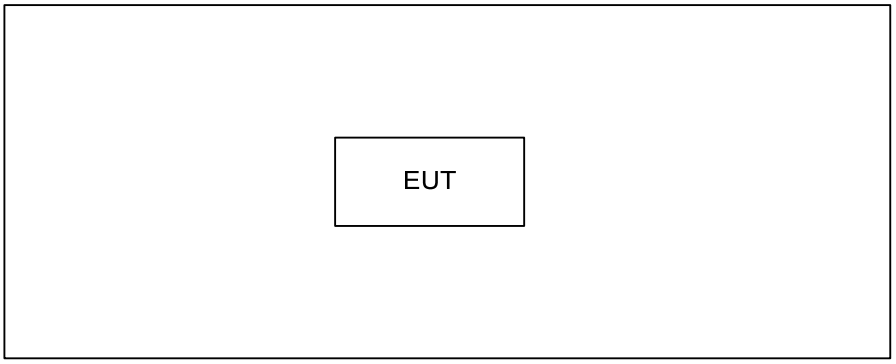
Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

(3) Both adapter and battery are evaluated, operated the battery is the worst and recorded as below test data.

## 3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED




## 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | FCC ID | Series No. | Note |
|---|---|---|---|---|---|---|
| - | - | - | - | - | - | |

| Item | Shielded Type | Ferrite Core | Length | Note |
|---|---|---|---|---|
| - | - | - | - | |

# 4. TEST RESULT

## 4.1 RADIATEDRF OUTPUT POWER MEASUREMENT

### 4.1.1LIMIT

The Radiated Peak Output Power shall be according to the specific rule Part 24.232(b) that “Mobile/Portable station are limited to 2 watts e.i.r.p.” and 24.232(c) specifed that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.

### 4.1.2 MEASURING INSTRUMENTS AND SETTING

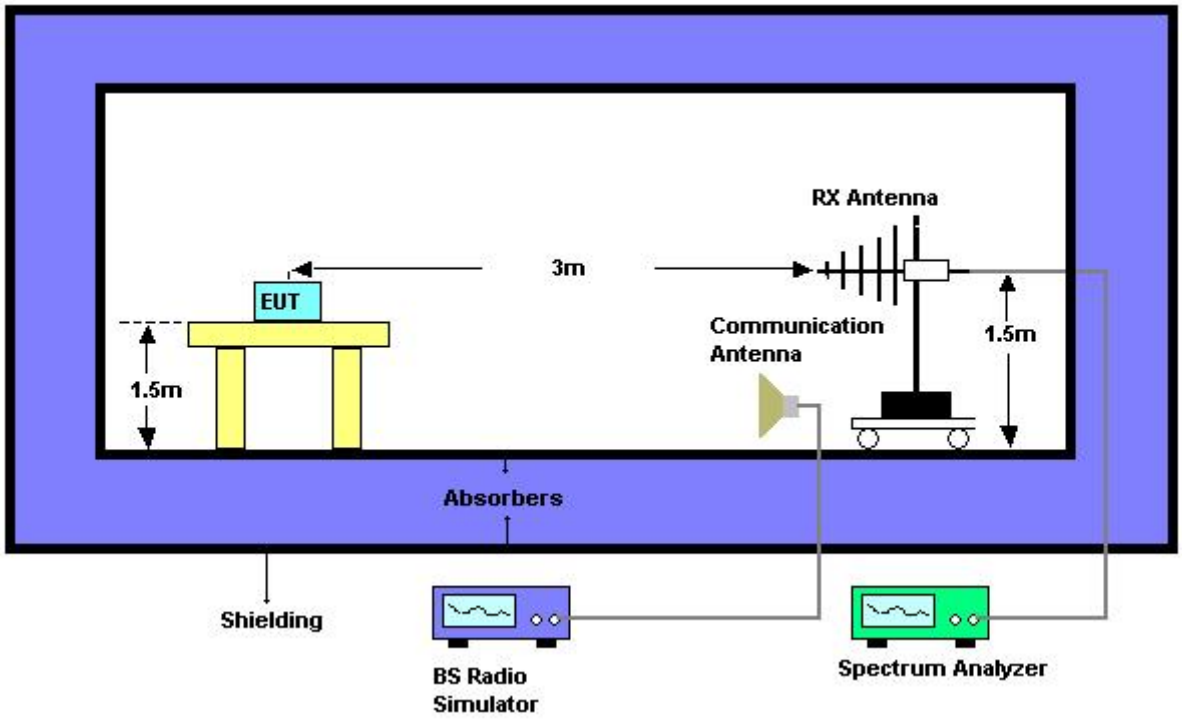
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

| Spectrum Parameters | Setting |
|---|---|
| Attenuation | Auto |
| Center Frequency | Low / middle / high channels |
| Span Frequency | 10MHz |
| RB / VB | 3MHz / 3MHz for Peak |

### 4.1.3 TEST PROCEDURE

1. The EUT was set up for the maximum peak power with GSM link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 512, 661 and 810 (low, middle and high operational frequency range).
2. The conducted peak output power used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The path loss included the splitter loss, cable loss and 20dB pad loss. The spectrum set RB/VB 3MHz,then read peak power value and record to the test. (All transmitted path loss shall be considered in the test report data)
3. E.I.R.P peak power measurement. In the fully anechoic chamber, EUT placed on the1.5mheight of Turn Table, rotated the table around 360 degrees to search the maximum radiation powerand receiver antenna shall be rotated vertical and horizontal polarization to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
4. The substitution horn antennais substituted for EUT at the same position, and signal generator export the CW signal to the calibration antenna. Rotated the Turn Table to find the maximum radiation power. “Raw” is the spectrum reading value, “SG” is signal generator export power, “TX Gain” is calibration antenna isotropic gain value, “TX cable” is the transmitted cable loss between the calibration antenna and signal generator. The “Factor” means that the transmission path loss is equal to “SG” - “TX cable” + “TX Gain”–“Raw”.
5. Actually the real E.I.R.P peak power is equal to “Read Value” + “Factor”

### 4.1.4TESTSETUP LAYOUT
**EIRP Power Measurement**




### 4.1.5 TESTDEVIATION

There is no deviation with the original standard.

### 4.1.6EUT OPERATIONDURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

### 4.1.7EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage:DC 3.8V

### 4.1.8TEST RESULTS

Please refer to the Attachment A.

## 4.299% OCCUPIED BANDWIDTH MEASUREMENT

### 4.2.1LIMIT

According to FCC 2.1049(h) specified that emission bandwidth is defined as thewidth of the signal between two points,one below the carrier center frequencyand one above the carrier center frequency,outside of which all emissionsare attenuated at least 26 dB below thetransmitter power.

### 4.2.2 MEASURING INSTRUMENTS AND SETTING

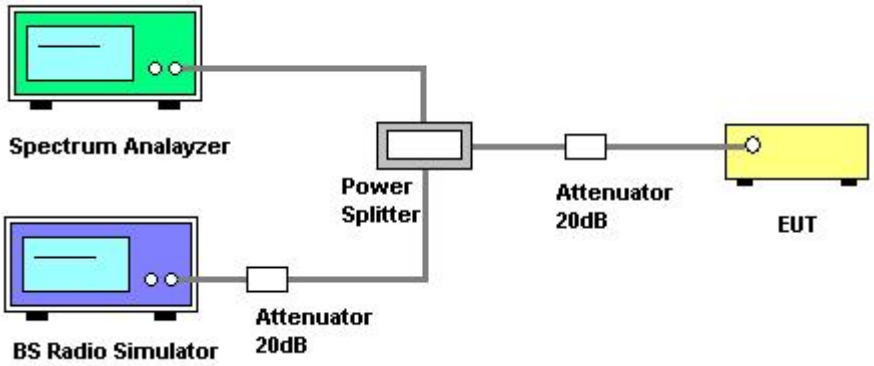
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

| Spectrum Parameters | Setting |
|---|---|
| Attenuation | Auto |
| Span Frequency | Encompass the entire emissions bandwidth (EBW) ofthe signal |
| RB | 30 kHz |
| VB | 100 kHz |
| Trace | Max Hold |

### 4.2.3 TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Used measurement function of spectrum to measure the 99% occupied bandwidth..

### 4.2.4TESTSETUP LAYOUT




### 4.2.5 TESTDEVIATION

There is no deviation with the original standard.

### 4.2.6EUT OPERATIONDURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

### 4.2.7EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: DC 3.8V

### 4.2.8TEST RESULTS

Please refer to the Attachment B.

## 4.3SPURIOUS EMISSIONS AT ANTENNA TERMINALS MEASUREMENT

### 4.3.1LIMIT

In the FCC 22.917(a), on any frequency outside a licensee'sfrequency block within GSM spectrum, the power of anyemission shall be attenuated below thetransmitter power (P) by at least 43 +10 log (P) dB. The limit translates in the relevant power range (2 to 0.003W). At 2W(Power Control Level 5) the specified minimum attenuation becomes 43dB and the limit of emission equal to –13dBm

### 4.3.2 MEASURING INSTRUMENTS AND SETTING

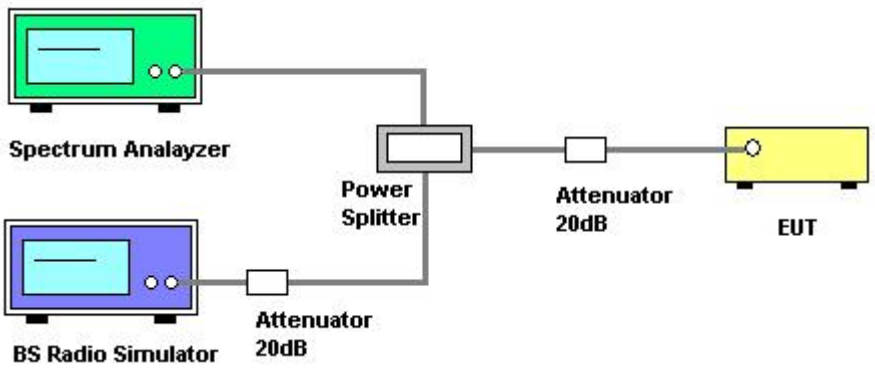
Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

| Spectrum Parameters | Setting |
|---|---|
| Attenuation | Auto |
| Start Frequency | 30MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB | 1 MHz / 1MHz for Peak |

### 4.3.3 TEST PROCEDURES

1. The EUT was set up for the maximum peak power with **GSM/EDGE** link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 128, 190 and 251(low, middle and high operational frequency range.)
2. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss 4dB in the transmitted path track.
3. When the spectrum scanned from 30MHz to 3GHz, it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB/VB 1MHz.
4. When the spectrum scanned from 3GHz to 10GHz, it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB/VB 1MHz.

### 4.3.4TESTSETUP LAYOUT




### 4.3.5 TESTDEVIATION

There is no deviation with the original standard.

### 4.3.6EUT OPERATIONDURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

### 4.3.7EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage:DC 3.8V

### 4.3.8TEST RESULTS

Please refer to the Attachment C.

## 4.4SPURIOUS RADIATED EMISSIONS MEASUREMENT

### 4.4.1LIMIT

Out of band emissions, The power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside the frequency block. The spurious emissions of limit equal to –13dBm.

### 4.4.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

| Spectrum Parameters | Setting |
|---|---|
| Attenuation | Auto |
| Start Frequency | 30 MHz |
| Stop Frequency | 10th carrier harmonic |
| Detector | Positive Peak |
| Span | 100 MHz |
| Sweep Time | 1s |
| RB / VB | 1 MHz / 1MHz |
| Attenuation | Positive Peak |

### 4.4.3 TEST PROCEDURES

1. The EUT was placed on the top of the turntable in fully anechoic chamber.
2. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. This measurement shall be repeated with the transmitter in standby mode where applicable.
4. For 30~1000MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable. For 1~10th carrier harmonic measurement, the receiving Horn antenna was placed 1.5 meters far away from the turntable.
5. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
6. Replace the EUT by standard antenna and feed the RF port by signal generator.
7. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
8. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
9. The level of the spurious emission is the power level of (8) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.

### 4.4.4TESTSETUP LAYOUT

This test setup layout is the same as that shown in section 4.2.4.

### 4.4.5 TESTDEVIATION

There is no deviation with the original standard.

### 4.4.6EUT OPERATIONDURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

### 4.4.7EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: DC 3.8V

### 4.4.8TEST RESULTS

Please refer to the Attachment D.

## 4.5BAND EDGE MEASUREMENT

### 4.5.1LIMIT

According to FCC 22.917(a) specified that power of any emission outside of the authorized operating frequency rangesmust be attenuated below the transmitting power (P) by a factor of at least 43 +10 log(P) dB . In the 1 MHz bands immediatelyoutside and adjacent to the frequencyblock a resolution bandwidth of atleast one percent of the emission bandwidthof the fundamental emission ofthe transmitter may be employed. Then we measure that the bandwidth is about 300kHz and the resolution bandwidth is 3kHz.

### 4.5.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of the Spectrum Analyzer.

| Spectrum Parameters | Setting |
|---|---|
| Attenuation | Auto |
| Span Frequency | 5 MHz |
| RB / VB | 10 kHz /30 kHz |
| Trace | Sample |
| Sweep Time | Auto |

### 4.5.3 TEST PROCEDURES

1. The EUT was set up for the maximum peak power with **GSM/EDGE** link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels, 128 and 251(low and high operational frequency range.)
2. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The splitter loss and cable loss are the worst loss 4dB in the transmitted path track.
3. The center frequency of spectrum is the band edge frequency and span is 2 MHz. RB of the spectrum is 10kHz and VB of the spectrum is 30KHz.
4. Record the Sample trace plot into the test report.

### 4.5.4TESTSETUP LAYOUT

This test setup layout is the same as that shown in section 4.2.4.

### 4.5.5 TESTDEVIATION

There is no deviation with the original standard.

### 4.5.6EUT OPERATIONDURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

### 4.5.7EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: DC 3.8V

### 4.5.8TEST RESULTS

Please refer to the Attachment E.

## 4.6FREQUENCY STABILITY MEASUREMENT

### 4.6.1LIMIT

According to the FCC part 22.355 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficientto ensure that the fundamentalemission stays within the authorizedfrequency block." The frequency error rate is according to the JTC standard that the frequency error rate shall be accurate to within 2.5 ppm of the receivedfrequency from the base station. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from85 to 115 percent of the nominal valuefor other than hand carried batteryequipment and the extreme temperature rule is comply with the 2.1055(a)(1) –30℃~50℃.

### 4.6.2 MEASURING INSTRUMENTS AND SETTING

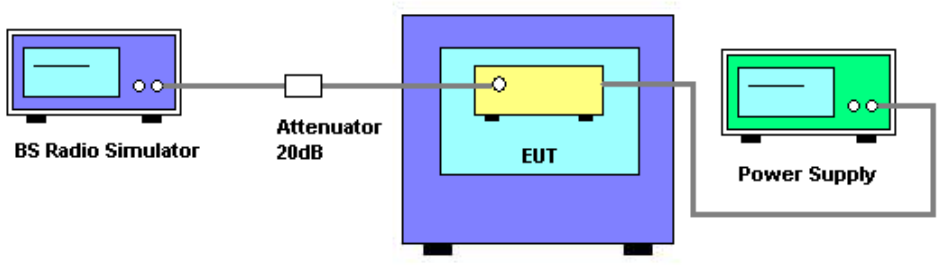
Please refer to section 5 in this report. The following table is the setting of the BS Simulator.

| Spectrum Parameters | Setting |
|---|---|
| Frequency Error | The maximum of transmit frequency error |

### 4.6.3 TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the BS Simulator.
2. The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.
3. BS simulator used the frequency error function and measured the peak frequency error. Power must be removed when changingfrom one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.
   The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
4. EUT is connected the external power supply to control the DC input power. The various Volts from the minimum 3.1 Volts to 4.3 Volts. Each step shall be record the frequency error rate.
5. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
6. Extreme temperature rule is 0°C~40°C.

### 4.6.4TESTSETUP LAYOUT




### 4.6.5 TESTDEVIATION

There is no deviation with the original standard.

### 4.6.6EUT OPERATIONDURING TEST

The EUT was programmed to be in continuously un-modulation transmitting mode.

### 4.6.7EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: DC 3.8V

### 4.6.8TEST RESULTS

Please refer to the Attachment F.

## 4.7PEAK TO AVERAGE RADIO

### 4.7.1LIMIT

In the FCC 24.232 (d)
Peak transmit power shall be measured over any interval of continuous transmission using instrumen-tation calibrated in terms of rms-equivalent voltage.
The measurement results shall be properly adjusted for any instrument limitations, such as detector re-sponse times, limited resolution bandwidth capability when compared to the emission bandwidth, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.
To measure transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission shall not exceed 13 dB.

### 4.7.2 TEST PROCEDURES

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;

### 4.7.3TESTSETUP LAYOUT

Please refer to section 3.4 in this report.

### 4.7.4 TESTDEVIATION

There is no deviation with the original standard.

### 4.7.5EUT OPERATIONDURING TEST

The BS simulator was used to set the TX channel and power level and modulate the TX signal.

### 4.7.6EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage:DC 3.8V

### 4.7.7TEST RESULTS

Please refer to the Attachment G.

## 4.7 CONDUCTED EMISSION MEASUREMENT

### 4.7.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | | Standard |
|---|---|---|---|---|---|
| | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | CISPR |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | CISPR |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | CISPR |

| | | | | | |
|---|---|---|---|---|---|
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | FCC |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | FCC |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | FCC |

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

(3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---|---|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

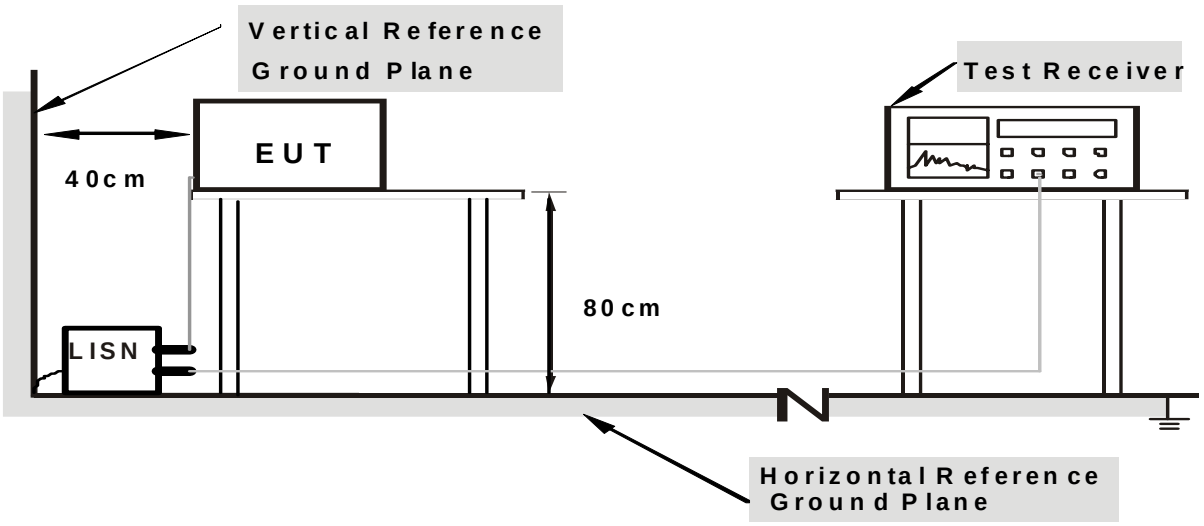
### 4.7.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipmentspowered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 4.7.3 DEVIATION FROM TEST STANDARD

No deviation

### 4.7.4 TESTSETUP




Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

### 4.7.5EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it).The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

### 4.7.6EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

### 4.7.8TEST RESULTS

Please refer to the Attachment H.

## 5. LIST OF MEASUREMENT EQUIPMENTS

| Conducted Emission Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | LISN | EMCO | 3816/2 | 00052765 | Mar. 28, 2016 |
| 2 | LISN | R&S | ENV216 | 101447 | Mar. 28, 2016 |
| 3 | Test Cable | N/A | C_17 | N/A | Mar.13, 2016 |
| 4 | EMI TEST RECEIVER | R&S | ESCS30 | 833364/017 | Mar. 28, 2016 |
| 5 | 50Ω Terminator | SHX | TF2-3G-A | 08122902 | Mar. 28, 2016 |
| 6 | Wireless Communication Test SET | (8960 Series)Agilent | E5515C | MY48364183 | Mar. 28, 2016 |
| 7 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1 -01 | N/A | N/A |

| Radiated Emission Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | EXA Spectrum Analyzer | Agilent | N9010A | MY50520044 | Mar. 28, 2016 |
| 2 | Microwave Preamplifier With Adaptor | EMC INSTRUMENT | EMC012645B | 980221 | Oct. 22, 2015 |
| 3 | Amplifier | Agilent | 8449B | 3008A02274 | Nov. 02, 2015 |
| 4 | Double Ridged Guide Antenna | ETS·LINDGREN | 3115 | 00075846 | Mar. 28, 2016 |
| 5 | Antenna | SCHWARZBECK | VULB 9160 | 9160-3231 | Mar. 28, 2016 |
| 6 | Test Cable | N/A | CL-CB12-001 | N/A | Oct. 22, 2015 |
| 7 | Test Cable | N/A | CL-CB12-004 | N/A | Oct. 22, 2015 |
| 8 | Test Cable | N/A | CL-CB12-006 | N/A | Oct. 22, 2015 |
| 9 | Controller | CT | SC100 | N/A | N/A |
| 10 | Wireless Communication Test SET | （8960 Series ） Agilent | E5515C | MY48364183 | Mar. 15, 2016 |
| 11 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 1710/1785-1690/1805-60/12SS | 38 | Mar. 04, 2016 |
| 12 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 824/849-810/863-60/9SS | 7 | Mar. 04, 2016 |
| 13 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 880/915-860/935-60/9SS | 14 | Mar.04, 2016 |
| 14 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 1850/1910-1830/1930-60/10SS | 17 | Mar. 04, 2016 |

| Antenna Conducted Spurious Emission Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP 40 | 100185 | Nov. 02, 2015 |
| 2 | Wireless Communication Test SET | （8960 Series ） Agilent | E5515C | MY48364183 | Mar. 28, 2016 |

| Band Edge Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP 40 | 100185 | Nov. 02, 2015 |
| 2 | Wireless Communication Test SET | （8960 Series ） Agilent | E5515C | MY48364183 | Mar. 28, 2016 |

| 99% Occupied Bandwidth Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP 40 | 100185 | Nov. 02, 2015 |
| 2 | Wireless Communication Test SET | （8960 Series ） Agilent | E5515C | MY48364183 | Mar. 28, 2016 |

| Frequency Stability Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Spectrum Analyzer | R&S | FSP 40 | 100185 | Nov. 02, 2015 |
| 2 | Wireless Communication Test SET | （8960 Series ） Agilent | E5515C | MY48364183 | Mar. 28, 2016 |

Remark: ”N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

# ATTACHMENTA -RADIATED RF OUTPUT POWER

| Test Mode: | TX CH 512/661/810-GSM |
|---|---|

| GSM 1900 | | EIRP Power(dBm) | | | Max. Limit(dBm) | Result |
|---|---|---|---|---|---|---|
| | | Channel 512 | Channel 661 | Channel 810 | | |
| GSM | V | 7.64 | 8.00 | 8.11 | 33 | Complies |
| | H | 9.28 | 9.44 | 9.57 | 33 | Complies |
| EDGE | V | 7.75 | 8.08 | 8.24 | 33 | Complies |
| | H | 9.19 | 9.40 | 9.57 | 33 | Complies |

| GSM 1900 | | Conducted Power(dBm) | | |
|---|---|---|---|---|
| | | Channel 512 | Channel 661 | Channel 810 |
| GSM (CS) | | 29.27 | 30.02 | 29.99 |
| GPRS (GMSK) | 29.34 | 30.17 | 30.14 | 32.46 |
| | 26.56 | 27.07 | 27.53 | 29.92 |
| | 24.02 | 25.23 | 25.27 | 27.60 |
| | 21.84 | 22.59 | 22.83 | 25.02 |
| EDGE (GMSK) | 29.26 | 30.07 | 30.09 | 32.46 |
| | 26.43 | 26.99 | 27.44 | 30.09 |
| | 23.86 | 24.64 | 25.01 | 27.71 |
| | 21.75 | 22.48 | 22.76 | 25.03 |
| EDGE (8PSK) | 25.12 | 25.56 | 25.71 | 26.07 |
| | 22.93 | 23.68 | 24.19 | 24.06 |
| | 20.98 | 21.71 | 21.68 | 22.09 |
| | 17.61 | 18.12 | 18.48 | 19.12 |

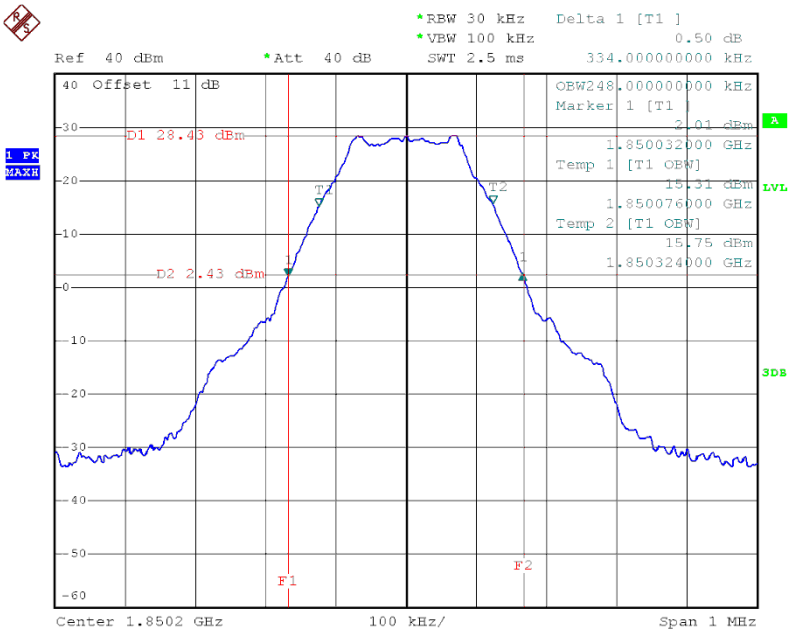
**REMARKS:**

1. Radiated Output Power(dBm)=Raw Value(dBm) + Correction Factor(dB) +Ant Gain(dBi)
2. Correction Factor(dB) = Power SplitterLoss(dB) + Cable Loss(dB)
3. The EUT does employ a power control function by which the output power is controlled from +28dBm to +19dBm (nominal) by 2dB steps. Consequently the EUT meets the requirement of Part24.232(c).
4. The antenna gain is 0.38dBi

# ATTACHMENT B - 99% OCCUPIED BANDWIDTH

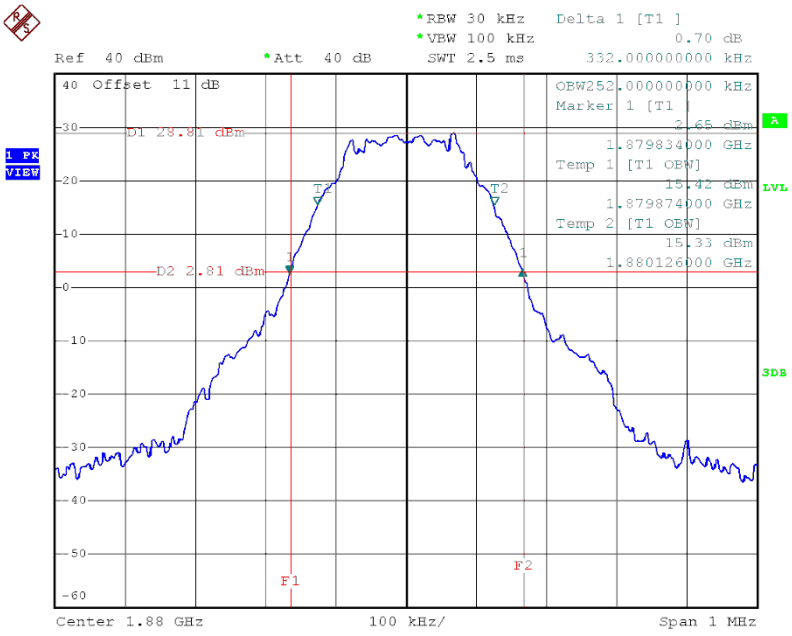
| Test Mode : TX Mode ConfigurationGSM | | | | |
|---|---|---|---|---|
| **Channel** | **Frequency** | **99% OBW (MHz)** | **-26dBc Bandwidth(MHz)** | **Result** |
| 512 | 1850.20MHz | 0.248 | 0.334 | **Complies** |
| 661 | 1880.00 MHz | 0.252 | 0.332 | **Complies** |
| 810 | 1909.80 MHz | 0.250 | 0.332 | **Complies** |

**99% Occupied Bandwidth channel 512**



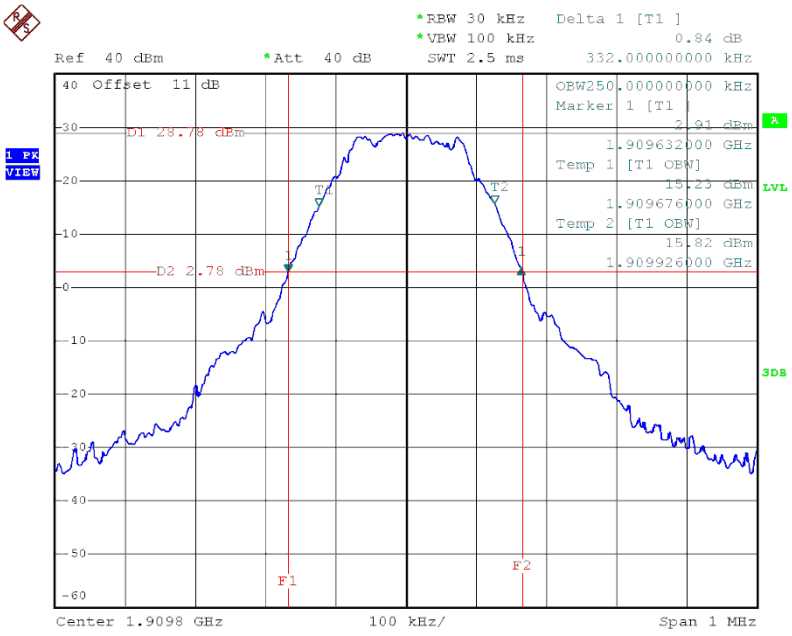

Date: 27.APR.2015 14:00:43

## 99% Occupied Bandwidth channel 661




Date: 27.APR.2015 14:07:01

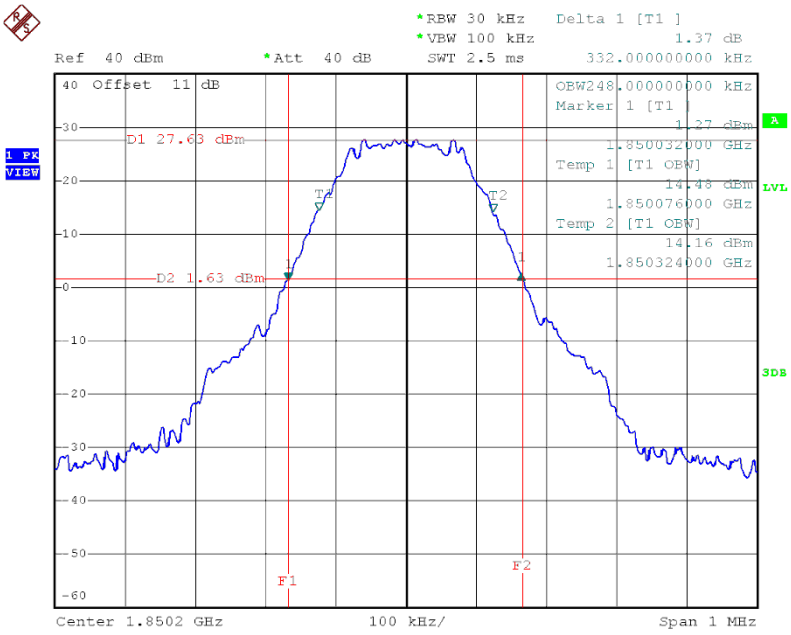
## 99% Occupied Bandwidth channel 810




Date: 27.APR.2015 14:08:15

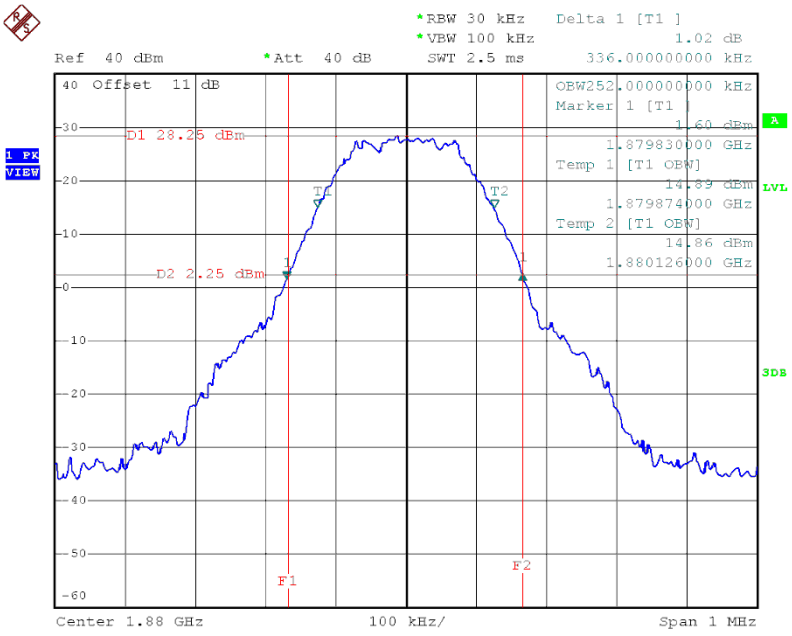
| Test Mode : TX Mode ConfigurationGPRS | | | | |
|---|---|---|---|---|
| **Channel** | **Frequency** | **99% OBW (MHz)** | **-26dBc Bandwidth(MHz)** | **Result** |
| 512 | 1850.20MHz | 0.248 | 0.332 | **Complies** |
| 661 | 1880.00 MHz | 0.252 | 0.336 | **Complies** |
| 810 | 1909.80 MHz | 0.254 | 0.334 | **Complies** |

**99% Occupied Bandwidth channel 512**



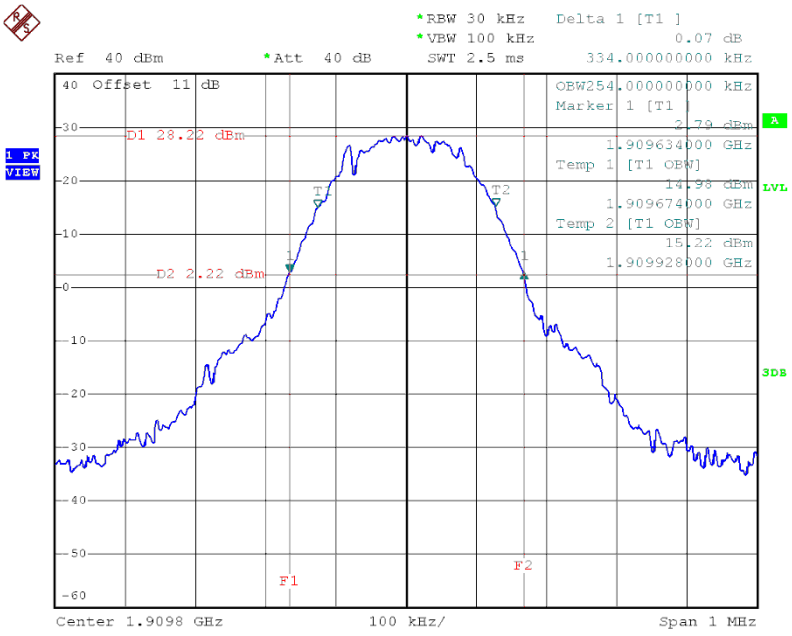

Date: 27.APR.2015 14:19:30

## 99% Occupied Bandwidth channel 661




Date: 27.APR.2015 14:21:58

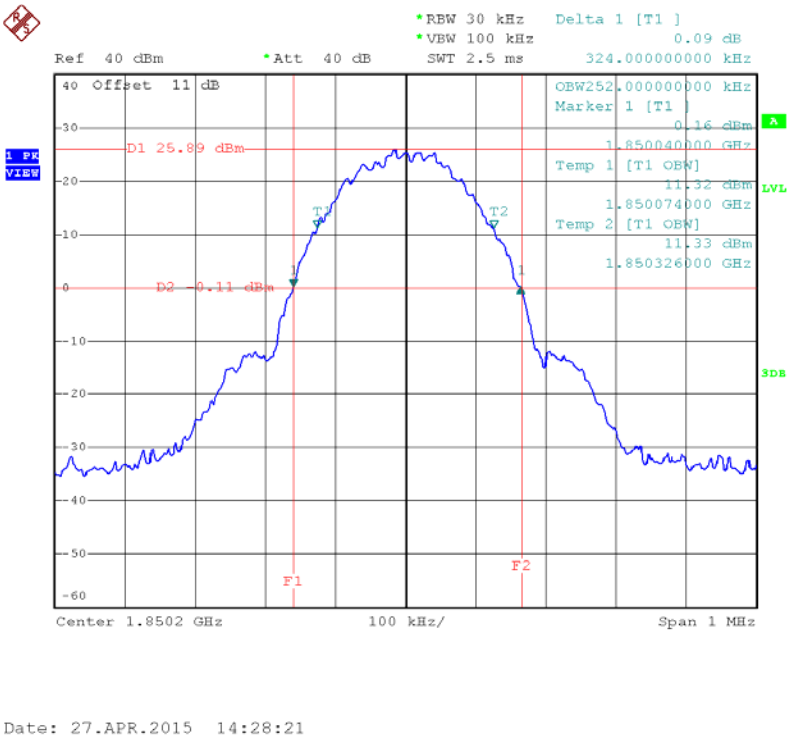
## 99% Occupied Bandwidth channel 810




Date: 27.APR.2015 14:22:49

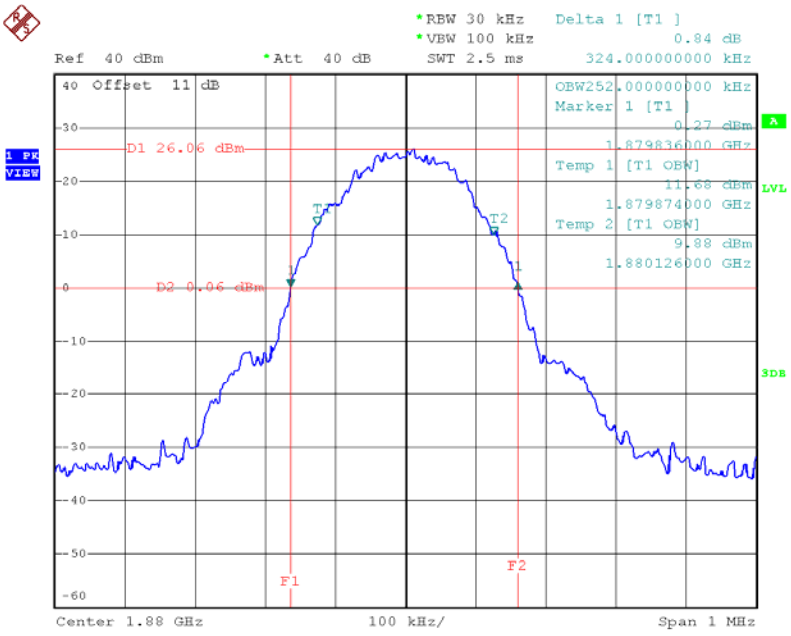
| Test Mode : TX Mode ConfigurationEDGE | | | | |
|---|---|---|---|---|
| **Channel** | **Frequency** | **99% OBW (MHz)** | **-26dBc Bandwidth(MHz)** | **Result** |
| 512 | 1850.20MHz | 0.252 | 0.324 | **Complies** |
| 661 | 1880.00 MHz | 0.252 | 0.334 | **Complies** |
| 810 | 1909.80 MHz | 0.252 | 0.334 | **Complies** |

**99% Occupied Bandwidth channel 512**



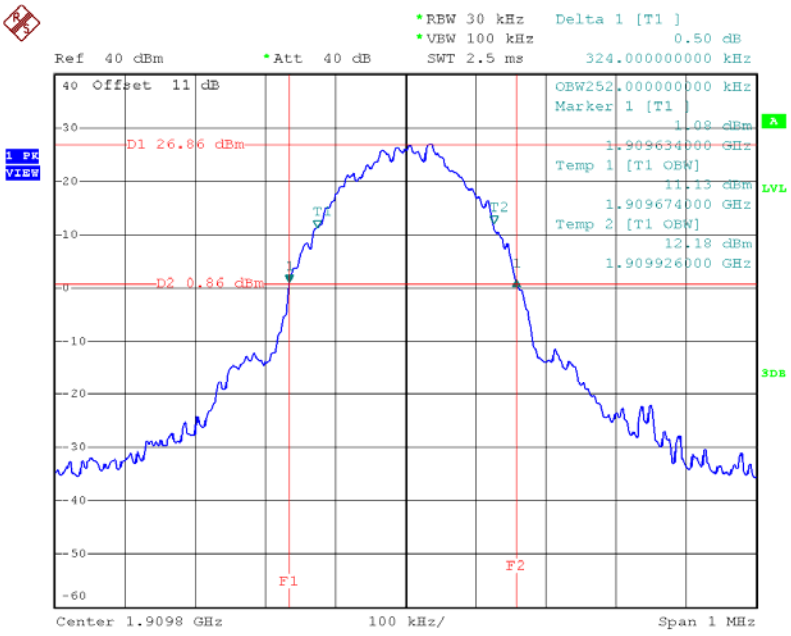

Date: 27.APR.2015 14:28:21

## 99% Occupied Bandwidth channel 661




Date: 27.APR.2015 14:29:57

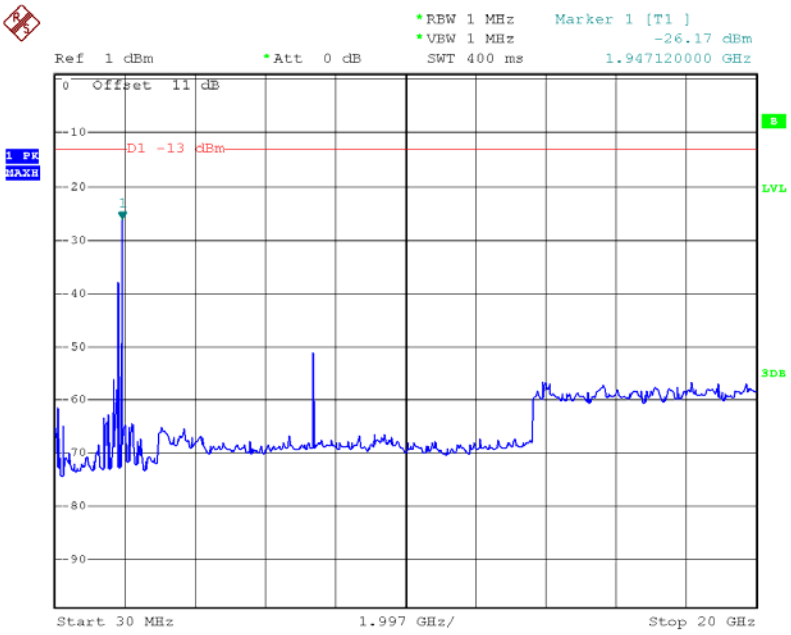
## 99% Occupied Bandwidth channel 810




Date: 27.APR.2015 14:30:56

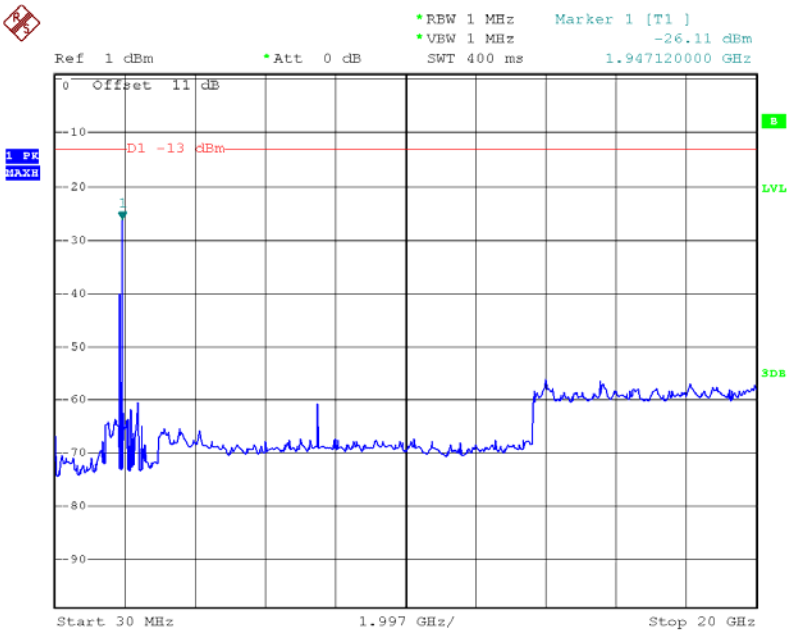
# ATTACHMENT C - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

## Conducted Spurious of Configuration-GSMchannel 512



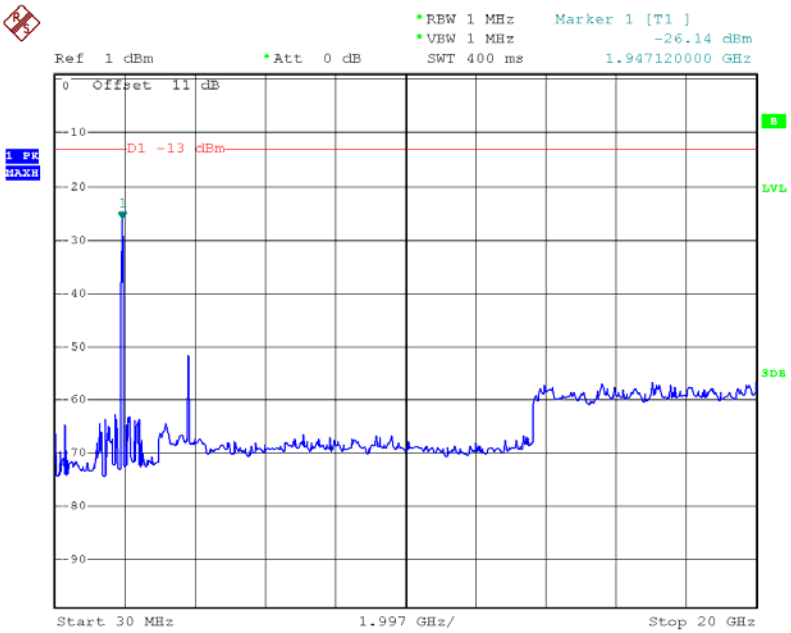

Date: 27.APR.2015 14:35:28

## Conducted Spurious of Configuration-GSMchannel 661




Date: 27.APR.2015 14:35:43

## Conducted Spurious of Configuration-GSMchannel 810

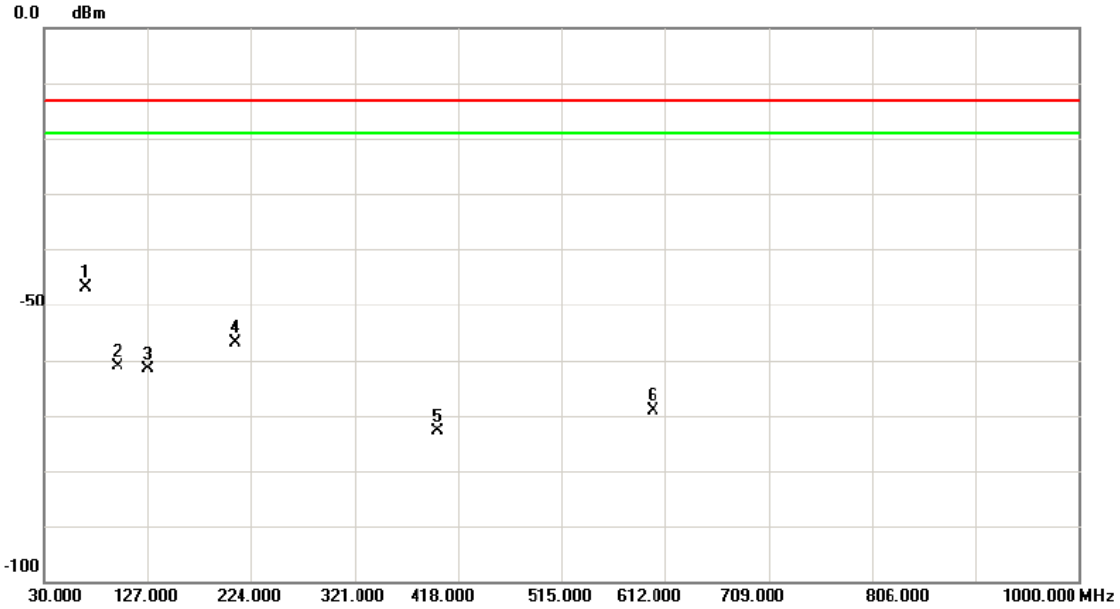



Date: 27.APR.2015 14:35:56

# ATTACHMENTD - SPURIOUS RADIATED EMISSION

| Test Mode: | TX CH661 GSM |
|---|---|

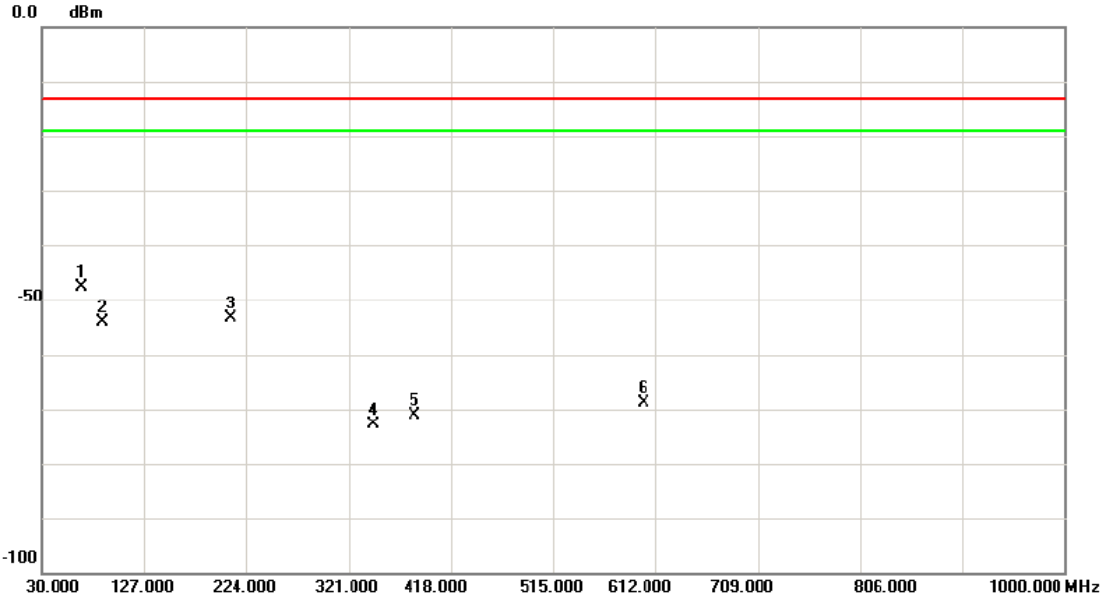
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 68.8000 | -47.09 | 0.16 | -46.93 | -13.00 | -33.93 | peak | |
| 2 | | 98.5467 | -59.22 | -2.01 | -61.23 | -13.00 | -48.23 | peak | |
| 3 | | 127.9700 | -60.54 | -1.00 | -61.54 | -13.00 | -48.54 | peak | |
| 4 | | 209.4500 | -54.45 | -2.48 | -56.93 | -13.00 | -43.93 | peak | |
| 5 | | 399.5700 | -77.01 | 4.10 | -72.91 | -13.00 | -59.91 | peak | |
| 6 | | 600.3600 | -77.85 | 8.71 | -69.14 | -13.00 | -56.14 | peak | |

| Test Mode: | TX CH661 GSM |
|---|---|

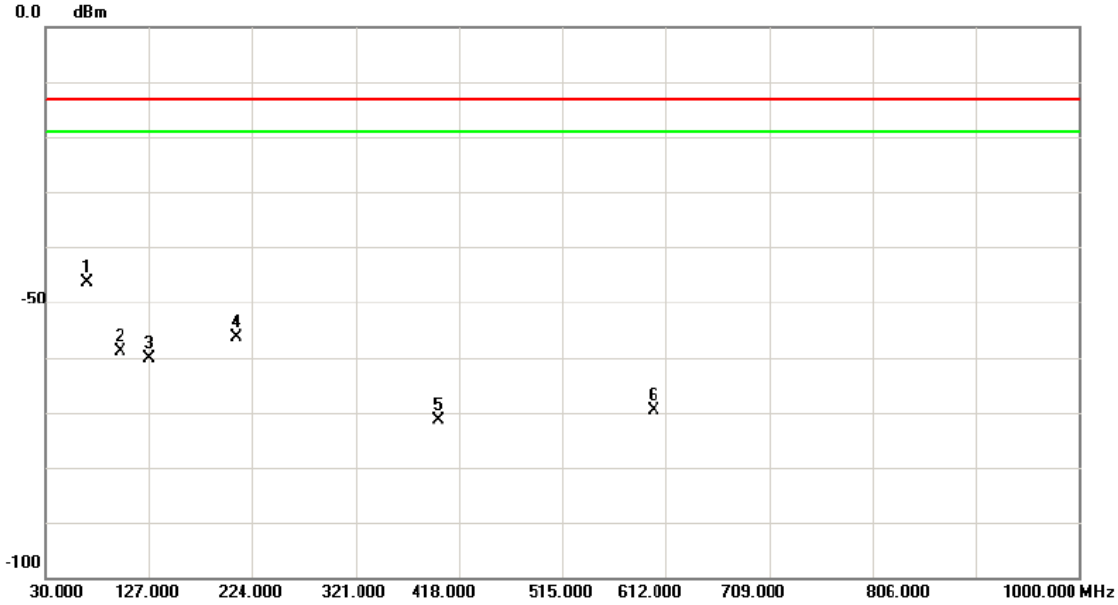
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 67.8300 | -44.94 | -2.78 | -47.72 | -13.00 | -34.72 | peak | |
| 2 | | 87.2300 | -46.70 | -7.38 | -54.08 | -13.00 | -41.08 | peak | |
| 3 | | 209.4500 | -51.39 | -1.94 | -53.33 | -13.00 | -40.33 | peak | |
| 4 | | 345.2500 | -75.71 | 2.84 | -72.87 | -13.00 | -59.87 | peak | |
| 5 | | 383.0800 | -77.08 | 6.07 | -71.01 | -13.00 | -58.01 | peak | |
| 6 | | 600.3600 | -77.96 | 9.14 | -68.82 | -13.00 | -55.82 | peak | |

| Test Mode: | TX CH661EDGE |
|---|---|

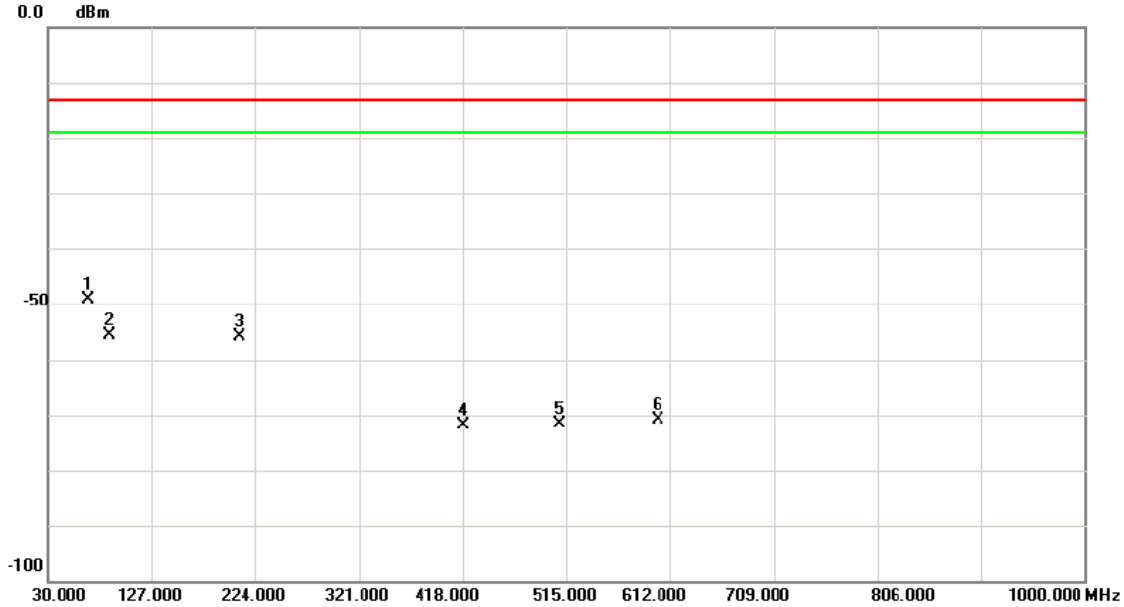
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 68.8000 | -46.59 | 0.16 | -46.43 | -13.00 | -33.43 | peak | |
| 2 | | 99.8400 | -57.32 | -1.45 | -58.77 | -13.00 | -45.77 | peak | |
| 3 | | 127.9700 | -59.04 | -1.00 | -60.04 | -13.00 | -47.04 | peak | |
| 4 | | 209.4500 | -53.95 | -2.48 | -56.43 | -13.00 | -43.43 | peak | |
| 5 | | 399.5700 | -75.51 | 4.10 | -71.41 | -13.00 | -58.41 | peak | |
| 6 | | 600.3600 | -78.35 | 8.71 | -69.64 | -13.00 | -56.64 | peak | |

| Test Mode: | TX CH661EDGE |
|---|---|

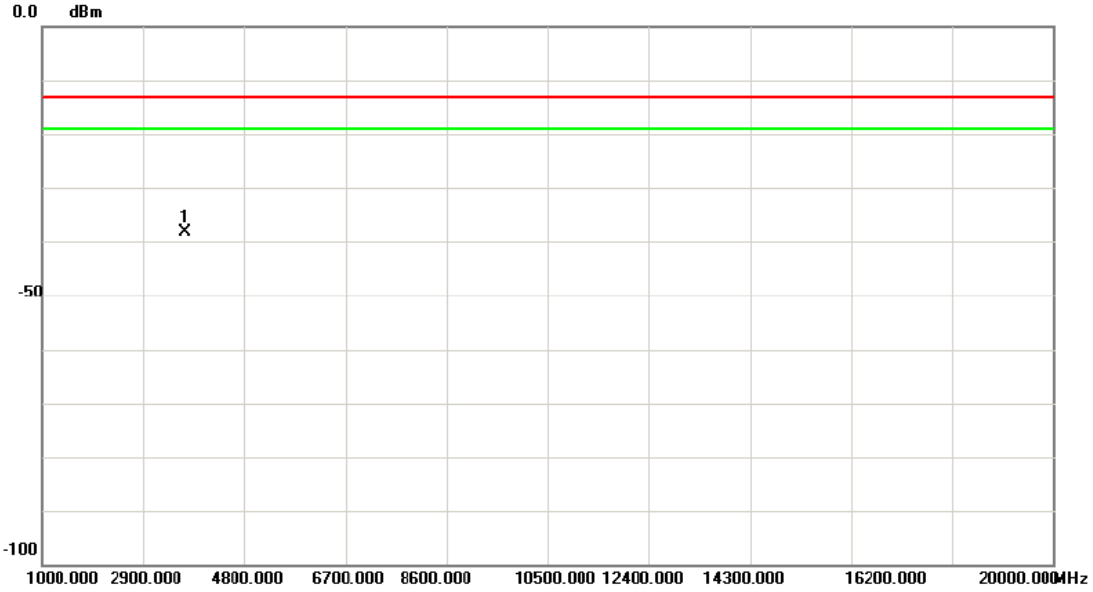
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 67.8300 | -46.44 | -2.78 | -49.22 | -13.00 | -36.22 | peak | |
| 2 | | 87.2300 | -48.20 | -7.38 | -55.58 | -13.00 | -42.58 | peak | |
| 3 | | 209.4500 | -53.89 | -1.94 | -55.83 | -13.00 | -42.83 | peak | |
| 4 | | 418.9700 | -78.68 | 6.83 | -71.85 | -13.00 | -58.85 | peak | |
| 5 | | 509.1800 | -79.58 | 8.07 | -71.51 | -13.00 | -58.51 | peak | |
| 6 | | 600.3600 | -79.96 | 9.14 | -70.82 | -13.00 | -57.82 | peak | |

| Test Mode: | TXCH512 GSM |
|---|---|

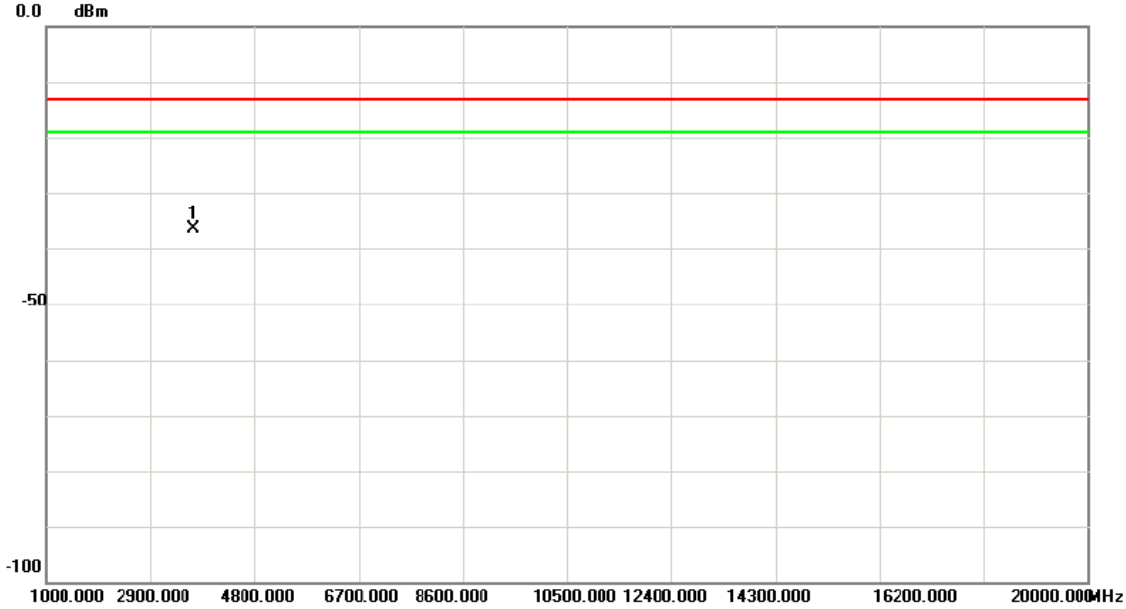
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3700.460 | -39.86 | 1.79 | -38.07 | -13.00 | -25.07 | peak | |

| Test Mode: | TXCH512 GSM |
|---|---|

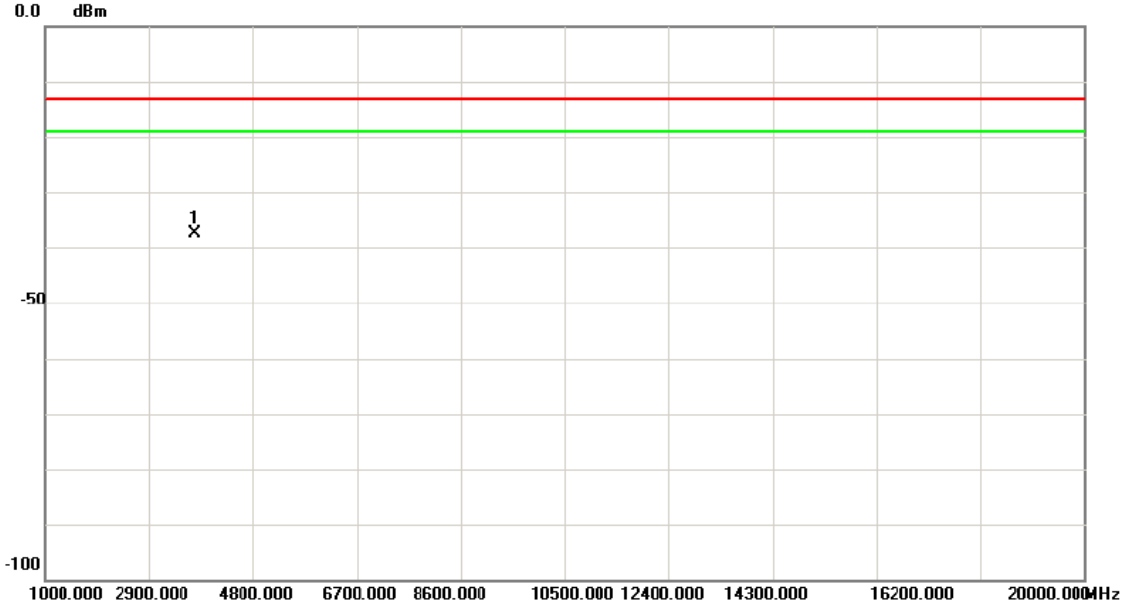
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3700.900 | -38.95 | 2.61 | -36.34 | -13.00 | -23.34 | peak | |

| Test Mode: | TX CH661 GSM |
|---|---|

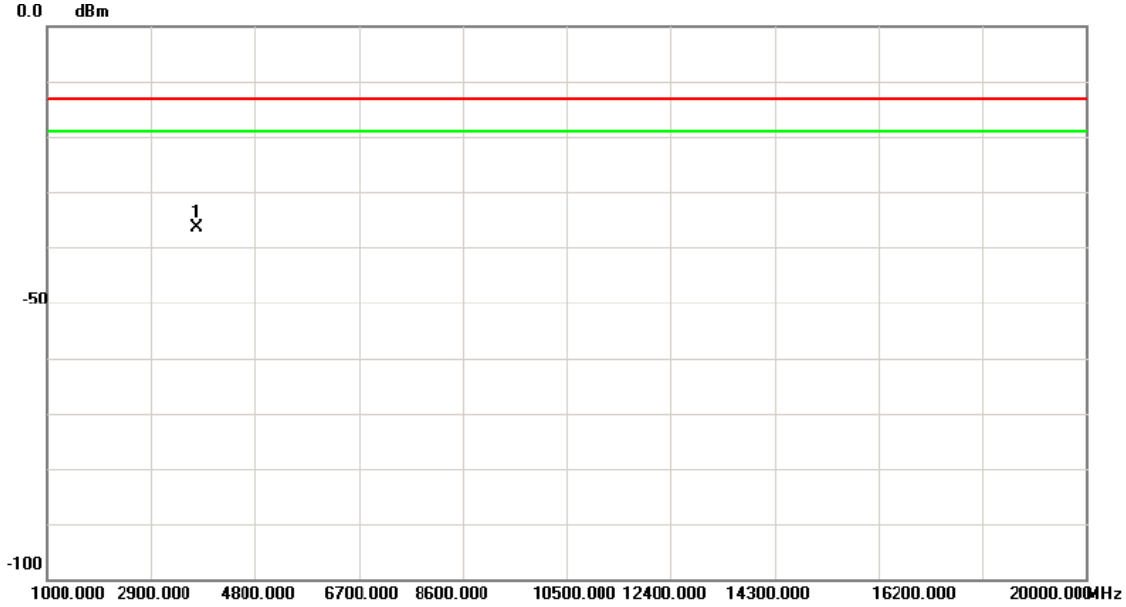
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3759.980 | -39.50 | 2.02 | -37.48 | -13.00 | -24.48 | peak | |

| Test Mode: | TX CH661 GSM |
|---|---|

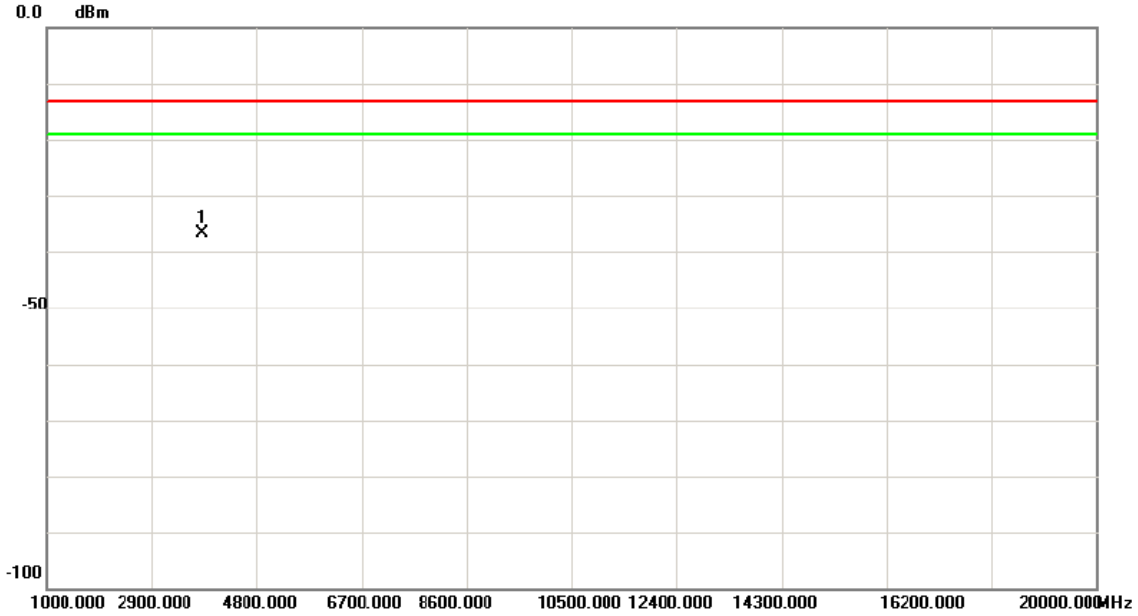
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3759.880 | -38.99 | 2.62 | -36.37 | -13.00 | -23.37 | peak | |

| Test Mode: | TX CH810 GSM |
|---|---|

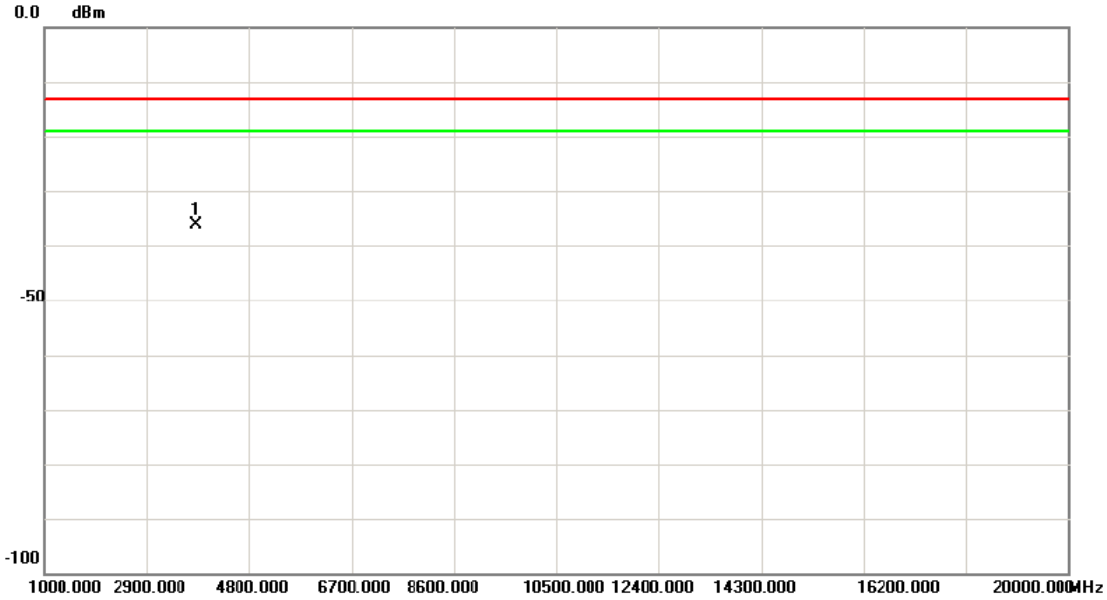
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3820.100 | -38.92 | 2.25 | -36.67 | -13.00 | -23.67 | peak | |

| Test Mode: | TX CH810 GSM |
|---|---|

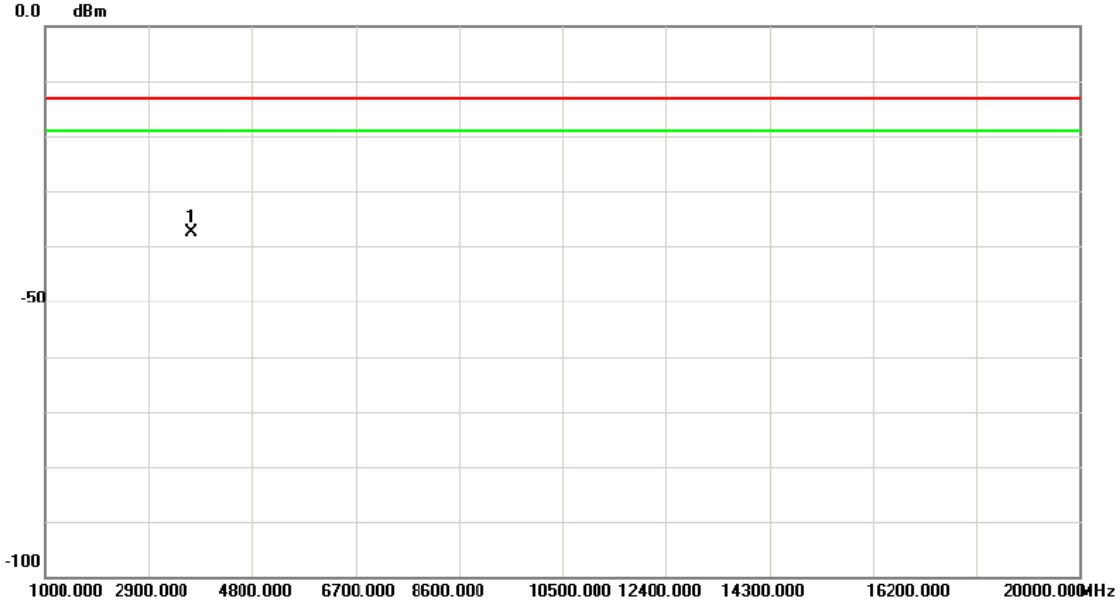
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3820.240 | -38.84 | 2.62 | -36.22 | -13.00 | -23.22 | peak | |

| Test Mode: | TXCH512EDGE |
|---|---|

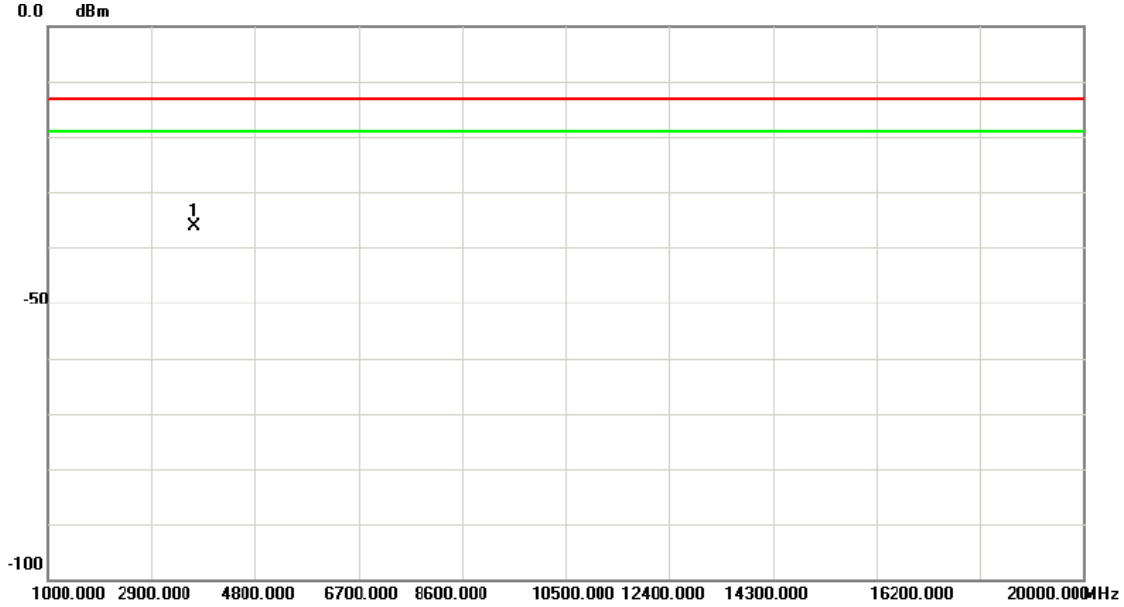
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3700.410 | -39.28 | 1.79 | -37.49 | -13.00 | -24.49 | peak | |

| Test Mode: | TXCH512EDGE |
|---|---|

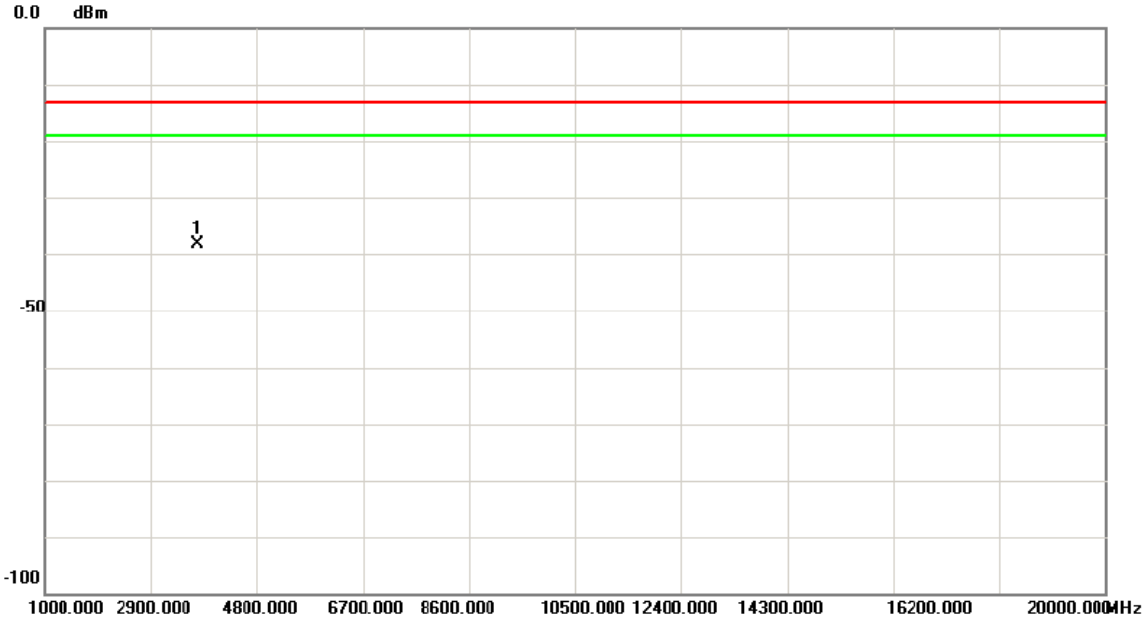
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3700.080 | -38.66 | 2.61 | -36.05 | -13.00 | -23.05 | peak | |

| Test Mode: | TX CH661EDGE |
|---|---|

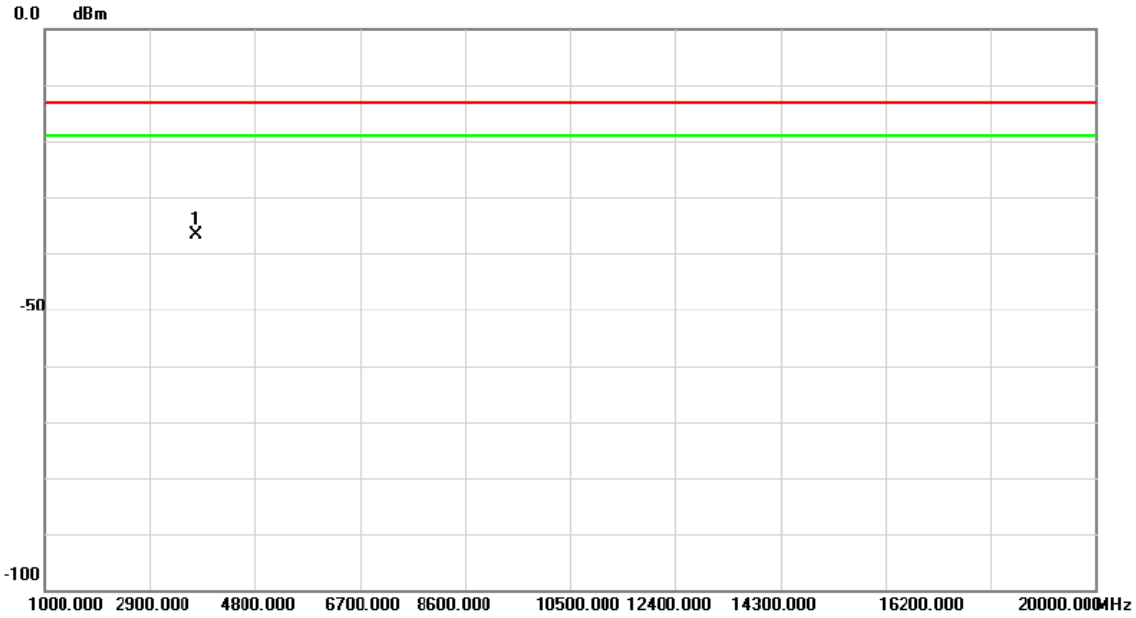
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3759.620 | -40.18 | 2.02 | -38.16 | -13.00 | -25.16 | peak | |

| Test Mode: | TX CH661EDGE |
|---|---|

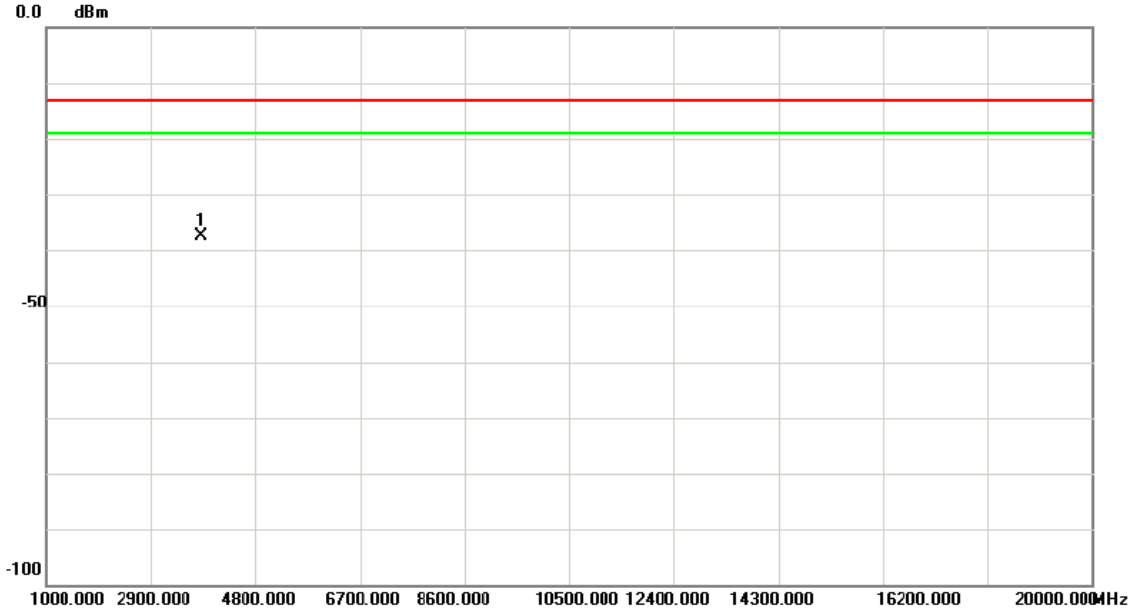
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3759.810 | -39.27 | 2.62 | -36.65 | -13.00 | -23.65 | peak | |

| Test Mode: | TX CH810EDGE |
|---|---|

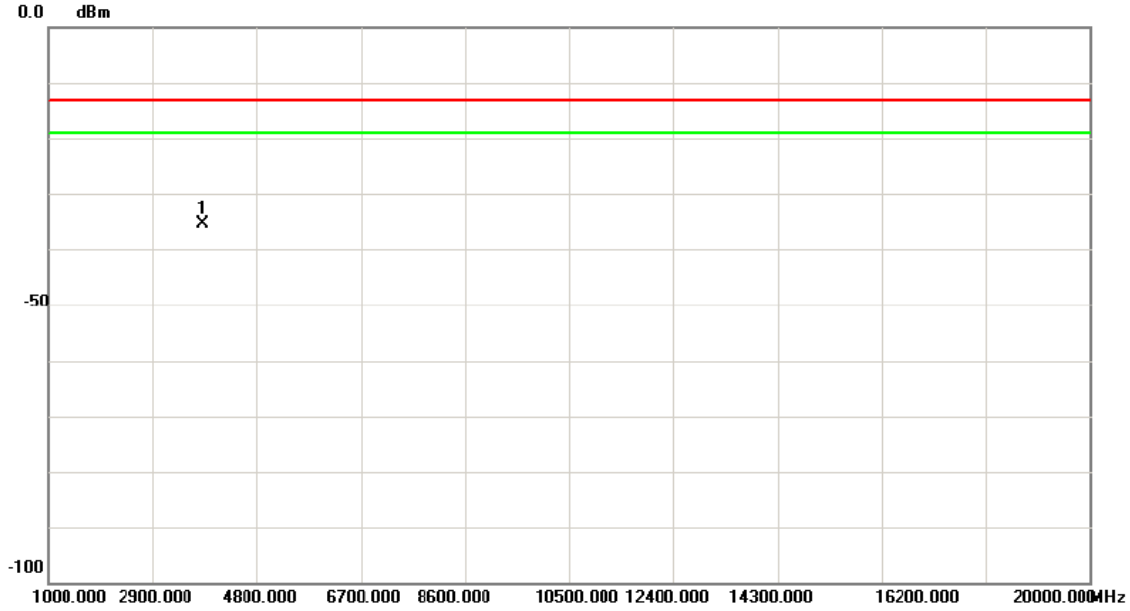
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3820.150 | -39.67 | 2.25 | -37.42 | -13.00 | -24.42 | peak | |

| Test Mode: | TX CH810EDGE |
|---|---|

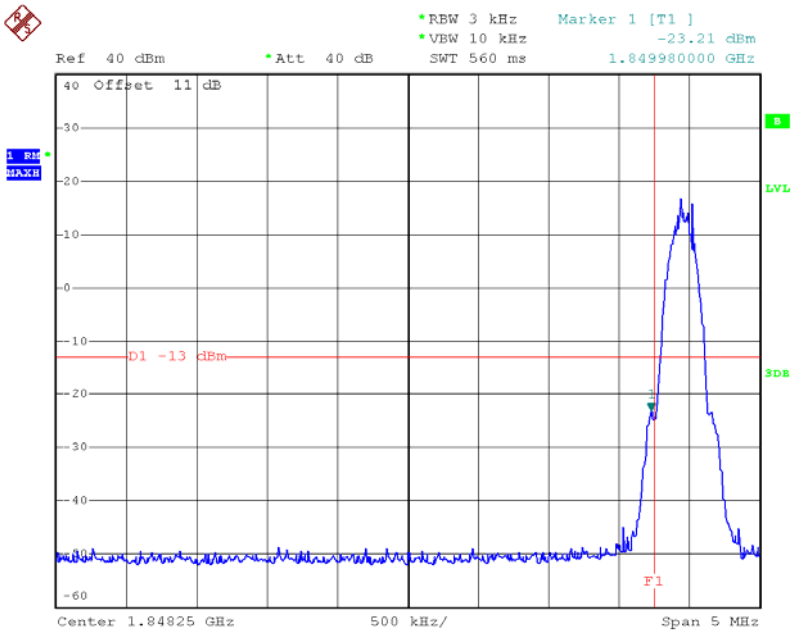
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 3819.650 | -38.09 | 2.62 | -35.47 | -13.00 | -22.47 | peak | |

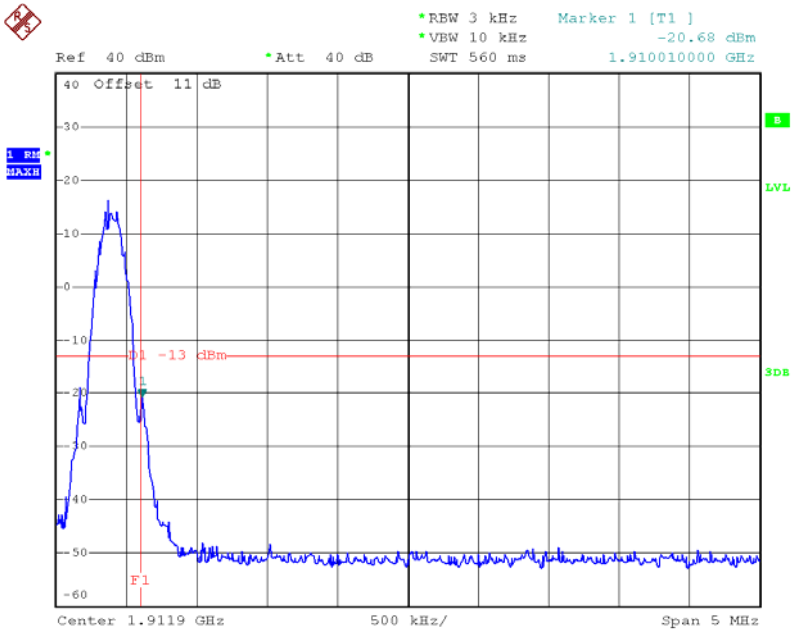
# ATTACHMENTE - BAND EDGE

## Band Edge on Configuration GSM / Channel 512-CONDUCTED MODE



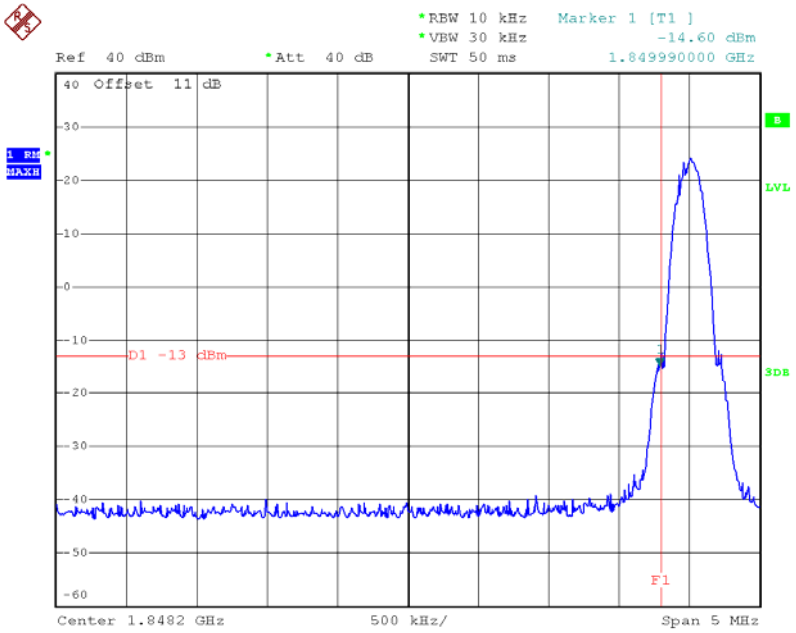

Date: 27.APR.2015 14:03:45

## Band Edge on Configuration GSM / Channel 810-CONDUCTED MODE



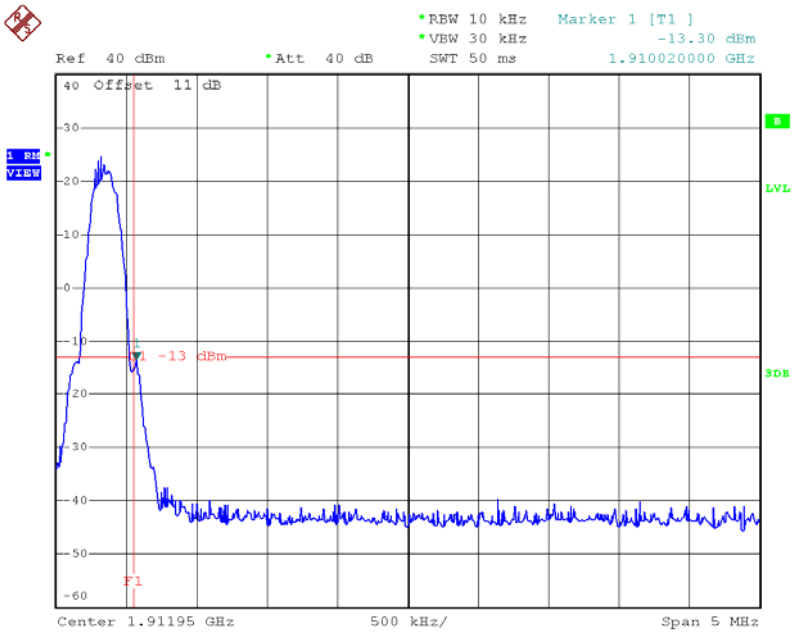

Date: 27.APR.2015 14:09:48

## Band Edge on Configuration GPRS / Channel 512-CONDUCTED MODE



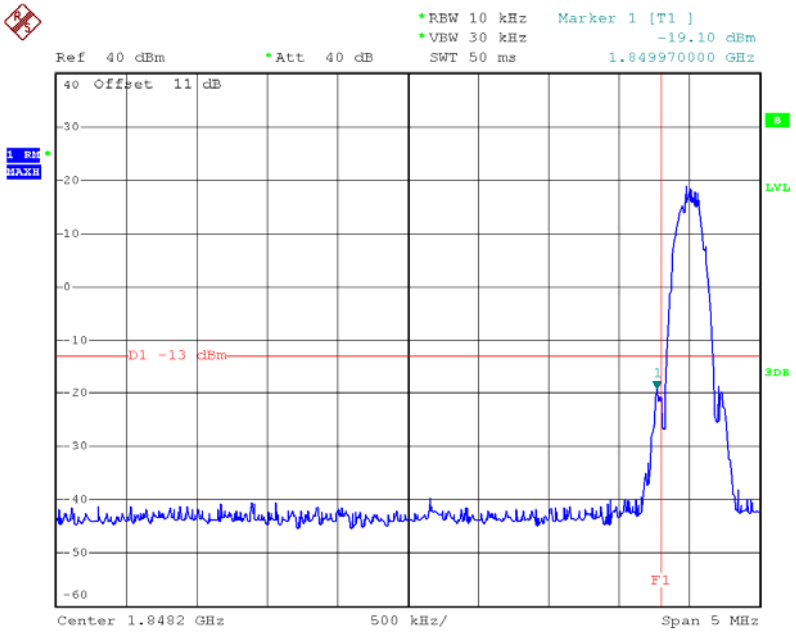

Date: 27.APR.2015 14:21:08

## Band Edge on Configuration GPRS / Channel 810-CONDUCTED MODE



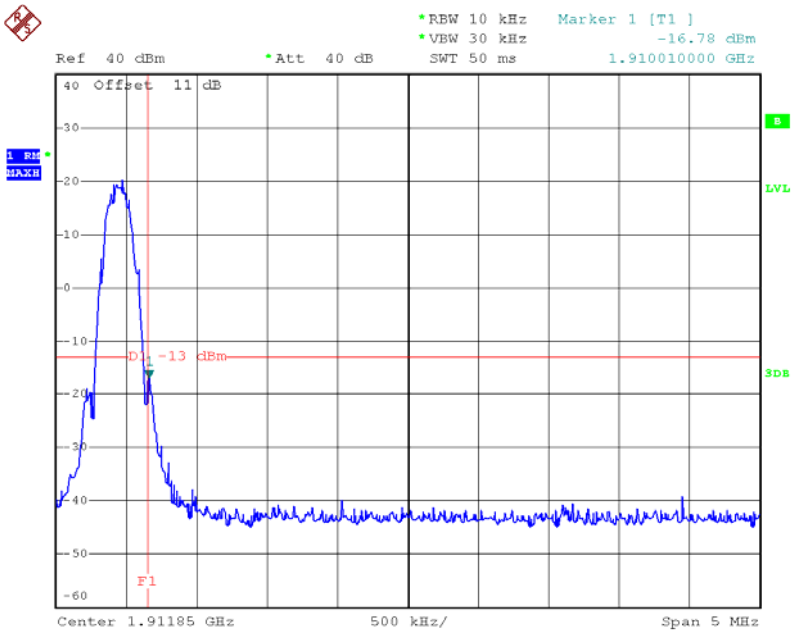

Date: 27.APR.2015 14:25:27

## Band Edge on Configuration EDGE / Channel 512-CONDUCTED MODE




Date: 27.APR.2015 14:29:09

## Band Edge on Configuration EDGE / Channel 810-CONDUCTED MODE




Date: 27.APR.2015 14:31:30

# ATTACHMENTF - FREQUENCY STABILITY

| Test Mode: | GSM CH512 |
|---|---|

**Voltage vs. Frequency Stability**

| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 3.5 | 13 | 0.005945303 | 0.1 |
| 3.6 | 15 | 0.007026267 | 0.1 |
| 3.7 | 14 | 0.005404821 | 0.1 |
| 3.8 | 12 | 0.00756675 | 0.1 |
| 3.9 | 11 | 0.008647714 | 0.1 |
| 4.0 | 12 | 0.006485785 | 0.1 |
| 4.1 | 14 | 0.008107232 | 0.1 |
| 4.2 | 11 | 0.006485785 | 0.1 |
| Max. Deviation (ppm) | **15** | **0.008647714** | **0.1** |

**Temperature vs. Frequency Stability**

| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 45 | **16** | 0.007026267 | 0.1 |
| 30 | 17 | 0.008107232 | 0.1 |
| 20 | 16 | 0.006485785 | 0.1 |
| 10 | 13 | 0.007026267 | 0.1 |
| 0 | 15 | 0.009188196 | 0.1 |
| Max. Deviation (ppm) | **17** | **0.009188196** | **0.1** |

| Test Mode: | EDGECH512 |
|---|---|

**Voltage vs. Frequency Stability**

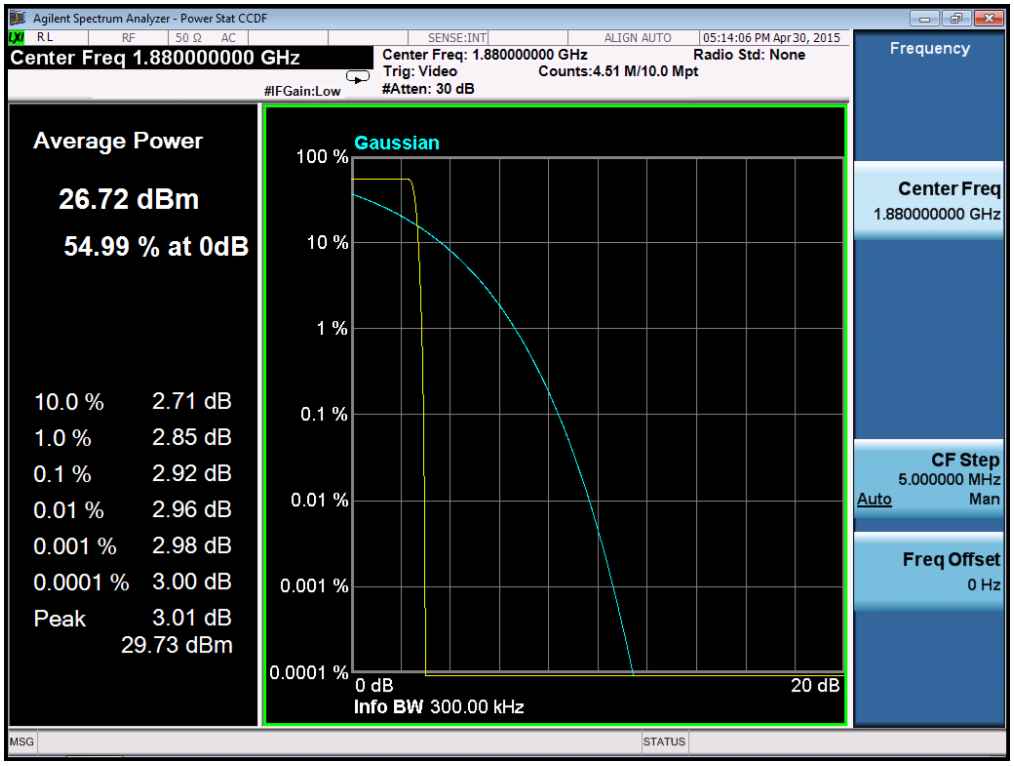
| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 3.5 | 12 | 0.005404821 | 0.1 |
| 3.6 | 13 | 0.006485785 | 0.1 |
| 3.7 | 14 | 0.008647714 | 0.1 |
| 3.8 | 11 | 0.006485785 | 0.1 |
| 3.9 | 13 | 0.008107232 | 0.1 |
| 4.0 | 10 | 0.00756675 | 0.1 |
| 4.1 | 12 | 0.005945303 | 0.1 |
| 4.2 | 13 | 0.007026267 | 0.1 |
| Max. Deviation (ppm) | **14** | **0.008647714** | **0.1** |

**Temperature vs. Frequency Stability**

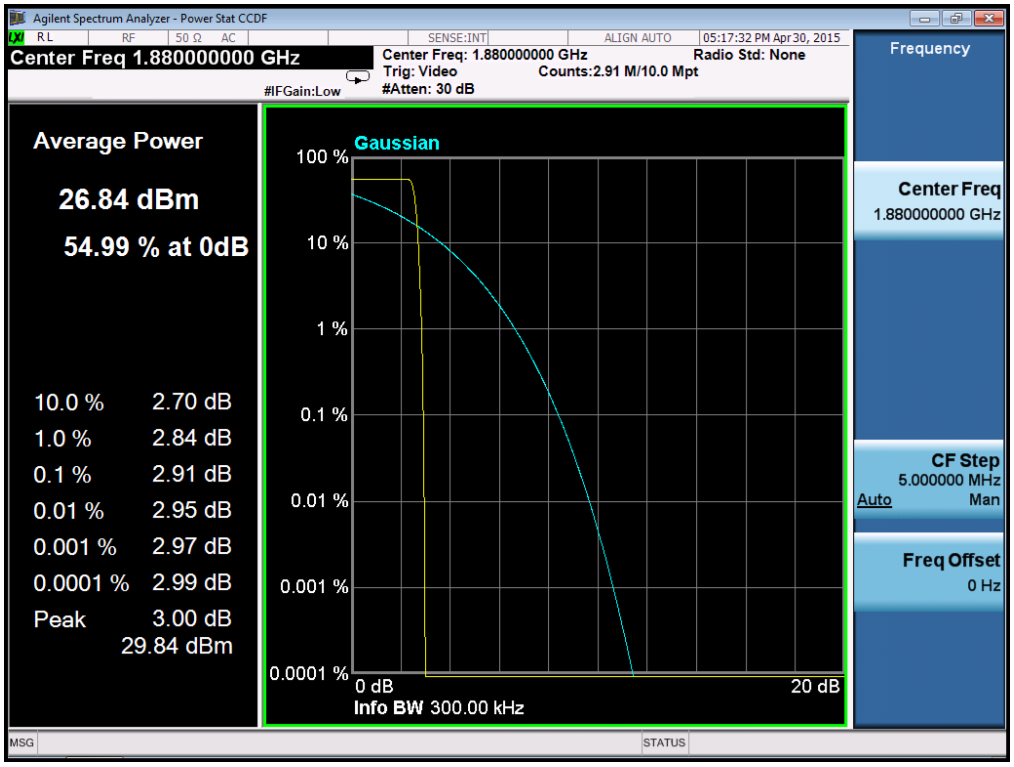
| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 45 | 16 | 0.00756675 | 0.1 |
| 30 | 17 | 0.007026267 | 0.1 |
| 20 | 15 | 0.008647714 | 0.1 |
| 10 | 14 | 0.008107232 | 0.1 |
| 0 | 16 | 0.007026267 | 0.1 |
| Max. Deviation (ppm) | **17** | **0.008647714** | **0.1** |

# ATTACHMENTG - PEAK TO AVERAGE RADIO

## Peak to Average Radio of Configuration-GSMchannel 661



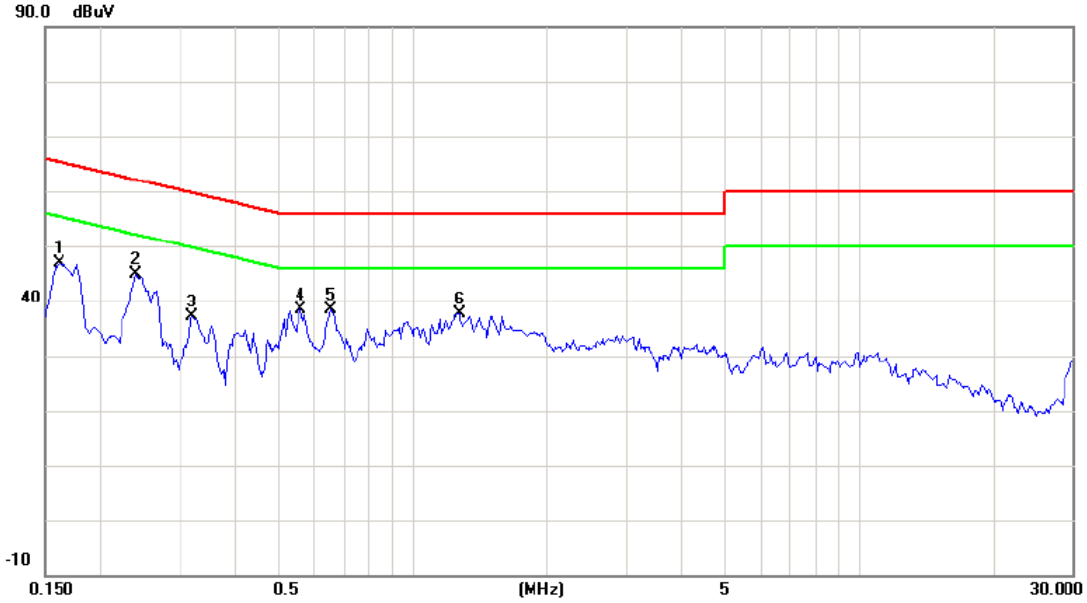

## Peak to Average Radio of Configuration-EDGEchannel 661



# ATTACHMENTH -CONDUCTED EMISSION

| Test Mode: | TX Mode |
|---|---|

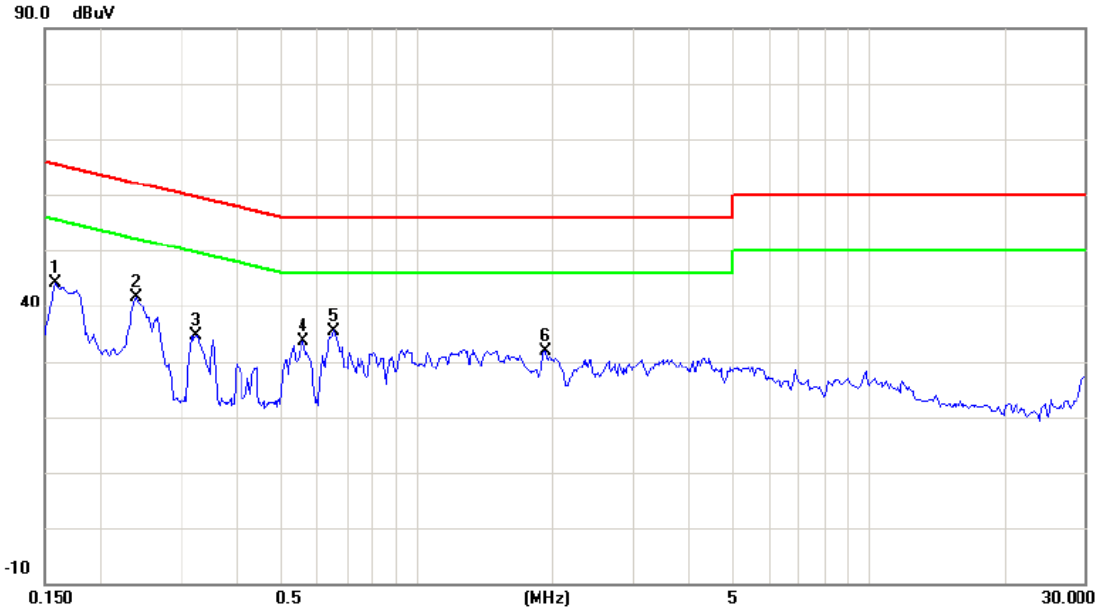
**Line**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1617 | 37.12 | 9.66 | 46.78 | 65.38 | -18.60 | peak | |
| 2 | * | 0.2398 | 35.24 | 9.71 | 44.95 | 62.10 | -17.15 | peak | |
| 3 | | 0.3215 | 27.40 | 9.75 | 37.15 | 59.67 | -22.52 | peak | |
| 4 | | 0.5601 | 28.62 | 9.82 | 38.44 | 56.00 | -17.56 | peak | |
| 5 | | 0.6540 | 28.52 | 9.85 | 38.37 | 56.00 | -17.63 | peak | |
| 6 | | 1.2670 | 27.72 | 9.92 | 37.64 | 56.00 | -18.36 | peak | |

| Test Mode: | TX Mode |
|---|---|

## Neutral




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.1577 | 34.46 | 9.57 | 44.03 | 65.58 | -21.55 | peak | |
| 2 | * | 0.2398 | 32.10 | 9.60 | 41.70 | 62.10 | -20.40 | peak | |
| 3 | | 0.3256 | 25.14 | 9.61 | 34.75 | 59.56 | -24.81 | peak | |
| 4 | | 0.5601 | 24.02 | 9.65 | 33.67 | 56.00 | -22.33 | peak | |
| 5 | | 0.6542 | 25.85 | 9.65 | 35.50 | 56.00 | -20.50 | peak | |
| 6 | | 1.9273 | 21.96 | 9.85 | 31.81 | 56.00 | -24.19 | peak | |