



FCC Test Report


Application Purpose : Original grant
Applicant Name: : INFINIX MOBILITY LIMITED
FCC ID : 2AIZN-X601
Equipment Type : Mobile phone
Model Name : X601
Report Number : FCC16083894A-5
Standard(S) : FCC Part 22H & 24E &27 Rules
Date Of Receipt : August 11, 2016
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Report Revise Record

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
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1. CERTIFICATION

| | |
|-----------------------------|--|
| Applicant | INFINIX MOBILITY LIMITED |
| Address | RMS 05-15, 13A/F SOUTH TOWER WORLD FINANCE CTR HARBOUR CITY 17 CANTON RD TST KLN HONG KONG |
| Manufacturer | SHENZHEN TECNO TECHNOLOGY CO.,LTD. |
| Address | 1-4th Floor,3rd Building,Pacific Industrial Park,No.2088,Shenyan Road,Yantian District,Shenzhen,Guangdong,China |
| Equipment Type | Mobile phone |
| Brand Name | Infinix |
| Test Model | X601 |
| Hardware version: | V1.2 |
| Software version: | X601-H536-B1-M-X1-20160627 |
| Series Model | N/A |
| Difference description | N/A |
| Deviation | None |
| Condition of Test Sample | Normal |

We hereby certify that:

All measurement facilities used to collect the measurement data are located at QTC Certification & Testing Co., Ltd.

Registration Number: 588523

The data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C 63.4:2014 and TIA/EIA 603. The sample tested as described in this report is in compliance with the FCC Rules Part 22H and 24E and 27.

The test results of this report relate only to the tested sample identified in this report.

2. GENERAL INFORMATION

2.1.EUT Description

| | |
|--------------------------------|---|
| Equipment Type: | Mobile phone |
| Hardware version: | V1.2 |
| Software version: | X601-H536-B1-M-X1-20160627 |
| Frequency Bands: | <input checked="" type="checkbox"/> GSM 850 <input checked="" type="checkbox"/> PCS 1900 (U.S. Bands) U.S. Bands: <input checked="" type="checkbox"/> UMTS FDD Band II <input checked="" type="checkbox"/> UMTS FDD Band IV <input checked="" type="checkbox"/> UMTS FDD Band V |
| Antenna Type: | Detachable Antenna |
| Antenna gain: | -2.5dBi |
| Battery information: | Li-ion Battery : BL-45BX Voltage: 3.85V Capacity: 4500mAh Limited Charge Voltage: 4.4V |
| Adapter Information: | Adapter: CQ—24JX Input: AC 100-240V 50/60Hz 600mA Output: 5V-2A/7V-2A 9V-2A/12V-2A |
| Card(S): | Card 1: UMTS Card Slot |
| Max power: | See note 3 |
| GPRS Class: | 12 |
| Extreme Vol. Limits: | DC 3.45V to 4.4V (Normal: DC 3.85V) |
| Extreme Temp. Tolerance | -10°C to +55°C |

Note 1: The High Voltage DC 4.4V and Low Voltage DC 3.45V were declared by manufacturer, The EUT couldn't be operating normally with higher or lower voltage.

3. TEST DESCRIPTION

3.1. Test Facility

The test site used to collect the radiated data is located at:
QTC Certification & Testing Co., Ltd.
Registration Number: 588523

EUT System Configuration:

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

Fig. 3.2-1 Configuration of EUT System

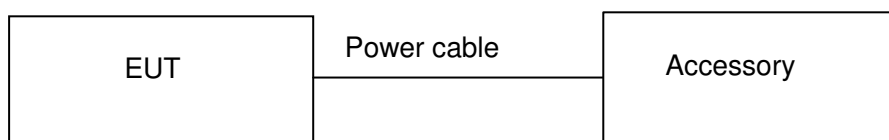


Table 3.2-1 Equipment Used in EUT System

| Item | Equipment | Model No. | ID or Specification | Note |
|------|--------------|-----------|---------------------|--------------|
| 1 | Mobile phone | X601 | FCC ID: 2AIZN-X601 | EUT |
| 2 | DC SOURCE | RXN-3010D | Series: 2008006875 | Power supply |

***Note: All the accessories have been used during the test. The following "EUT" in setup diagram means EUT system.

3.2. Description Of Test Channels And Test Modes

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on following frequency band(s).

Test channels:

| Band | Channel | | Frequency (MHz) |
|--------|---------|-----|-----------------|
| GSM850 | Low | 128 | 824.2 |
| | Middle | 190 | 836.6 |
| | High | 251 | 848.8 |

| Band | Channel | | Frequency (MHz) |
|---------|---------|-----|-----------------|
| PCS1900 | Low | 512 | 1850.2 |
| | Middle | 661 | 1880 |
| | High | 810 | 1909.8 |

| Band | Channel | | Frequency (MHz) |
|---------------|---------|------|-----------------|
| WCDMA BAND II | Low | 9263 | 1852.6 |
| | Middle | 9400 | 1880 |
| | High | 9537 | 1907.4 |

| Band | Channel | | Frequency (MHz) |
|---------------|---------|------|-----------------|
| WCDMA BAND IV | Low | 1313 | 1712.6 |
| | Middle | 1450 | 1740 |
| | High | 1512 | 1752.4 |

| Band | Channel | | Frequency (MHz) |
|--------------|---------|------|-----------------|
| WCDMA BAND V | Low | 4133 | 826.6 |
| | Middle | 4175 | 835 |
| | High | 4232 | 846.4 |

The worst condition was recorded in the test report if no other modes test data.

3.3. Equipment Modifications

Not available for this EUT intended for grant.

4. SUMMARY OF TEST REQUIREMENTS AND RESULTS

For GSM850/GPRS850:

| Item Number | Item Description | | Test Channel | FCC Rules | Result |
|-------------|--------------------------|-----------------------------|--------------|----------------------|--------|
| 1 | Output Power | Conducted Output Power | 128/190/251 | 2.1046/22.913(a) (2) | Pass |
| | | Radiated Output Power | 128/190/251 | | |
| | | PAPR | 128/190/251 | | |
| 2 | Spurious Emission | Conducted Spurious Emission | 128/190/251 | 2.1051 / 22.917 | Pass |
| | | Radiated Spurious Emission | 128/190/251 | | |
| 3 | Mains Conducted Emission | | | 15.207 | Pass |
| 4 | Frequency Stability | | 190 | 2.1055/22.355 | Pass |
| 5 | Occupied Bandwidth | | 128/190/251 | 2.1049 | Pass |
| 6 | Emission Bandwidth | | 128/190/251 | 22.917(a)(b) | Pass |
| 7 | Band Edge | | 128/190/251 | 22.917(a) | Pass |

For PCS1900/GPRS1900:

| Item Number | Item Description | | Test Channel | FCC Rules | Result |
|-------------|--------------------------|-----------------------------|--------------|--------------------|--------|
| 1 | Output Power | Conducted Output Power | 512/661/810 | 2.1046/24.232(c) | Pass |
| | | Radiated Output Power | 512/661/810 | | |
| | | PAPR | 512/661/810 | | |
| 2 | Peak-to-Average Ratio | Peak-to-Average Ratio | 512/661/810 | 24.232(d) | Pass |
| 3 | Spurious Emission | Conducted Spurious Emission | 512/661/810 | 2.1051 / 24.238(a) | Pass |
| | | Radiated Spurious Emission | 512/661/810 | | |
| 4 | Mains Conducted Emission | | | 15.207 | Pass |
| 5 | Frequency Stability | | 661 | 2.1055/24.235 | Pass |
| 6 | Occupied Bandwidth | | 512/661/810 | 2.1049 | Pass |
| 7 | Emission Bandwidth | | 512/661/810 | 24.238(a)(b) | Pass |
| 8 | Band Edge | | 512/661/810 | 24.238(a)(b) | Pass |

For WCDMA BAND II:

| Item Number | Item Description | | Test Channel | FCC Rules | Result |
|-------------|---------------------|-----------------------------|----------------|----------------------|--------|
| 1 | Output Power | Conducted Output Power | 9263/9400/9537 | 2.1046/22.913(a) (2) | Pass |
| | | Radiated Output Power | 9263/9400/9537 | | |
| | | PAPR | 9263/9400/9537 | | |
| 2 | Spurious Emission | Conducted Spurious Emission | 9263/9400/9537 | 2.1051 / 22.917 | Pass |
| | | Radiated Spurious Emission | 9263/9400/9537 | | |
| 3 | Frequency Stability | | 9400 | 2.1055/22.355 | Pass |
| 4 | Occupied Bandwidth | | 9263/9400/9537 | 2.1049 | Pass |
| 5 | Emission Bandwidth | | 9263/9400/9537 | 22.917(a)(b) | Pass |
| 6 | Band Edge | | 9263/9400/9537 | 22.917(a) | Pass |

For WCDMA BAND IV:

| Item Number | Item Description | | Test Channel | FCC Rules | Result |
|-------------|---------------------|-----------------------------|----------------|-----------------|--------|
| 1 | Output Power | Conducted Output Power | 1313/1450/1512 | 2.1046,27.50(d) | Pass |
| | | Radiated Output Power | 1313/1450/1512 | | |
| | | PAPR | 1313/1450/1512 | | |
| 2 | Spurious Emission | Conducted Spurious Emission | 1313/1450/1512 | 2.1051,27.53(h) | Pass |
| | | Radiated Spurious Emission | 1313/1450/1512 | | |
| 3 | Frequency Stability | | 1450 | 2.1055,27.54 | Pass |
| 4 | Occupied Bandwidth | | 1313/1450/1512 | 2.1049 | Pass |
| 5 | Emission Bandwidth | | 1313/1450/1512 | 2.1051,27.53(h) | Pass |
| 6 | Band Edge | | 1313/1450/1512 | 2.1051,27.53(h) | Pass |

For WCDMA BAND V:

| Item Number | Item Description | | Test Channel | FCC Rules | Result |
|-------------|---------------------|-----------------------------|----------------|----------------------|--------|
| 1 | Output Power | Conducted Output Power | 4133/4175/4232 | 2.1046/22.913(a) (2) | Pass |
| | | Radiated Output Power | 4133/4175/4232 | | |
| | | PAPR | 4133/4175/4232 | | |
| 2 | Spurious Emission | Conducted Spurious Emission | 4133/4175/4232 | 2.1051 / 22.917 | Pass |
| | | Radiated Spurious Emission | 4133/4175/4232 | | |
| 3 | Frequency Stability | | 4175 | 2.1055/22.355 | Pass |
| 4 | Occupied Bandwidth | | 4133/4175/4232 | 2.1049 | Pass |
| 5 | Emission Bandwidth | | 4133/4175/4232 | 22.917(a)(b) | Pass |
| 6 | Band Edge | | 4133/4175/4232 | 22.917(a) | Pass |

5. MEASUREMENT INSTRUMENTS

| NAME OF EQUIPMENT | MANUFACTURER | MODEL | SERIAL NUMBER | Calibration Date | Calibration Due. |
|--------------------------------------|------------------------|--------------------|---------------|------------------|------------------|
| EMI Test Receiver | R&S | ESCI | 100005 | 08/19/2016 | 08/18/2017 |
| ESPI Test Receiver | ROHDE&SCHWARZ | ESPI | 101139 | 08/19/2016 | 08/18/2017 |
| LISN | AFJ | LS16 | 16010222119 | 08/19/2016 | 08/18/2017 |
| LISN(EUT) | Mestec | AN3016 | 04/10040 | 08/19/2016 | 08/18/2017 |
| Universal Radio Communication Tester | R&S | CMU 200 | 1100.0008.02 | 08/19/2016 | 08/18/2017 |
| Coaxial cable | Megalon | LMR400 | N/A | 08/12/2016 | 08/11/2017 |
| GPIB cable | Megalon | GPIB | N/A | 08/12/2016 | 08/11/2017 |
| Spectrum Analyzer | R&S | FSU | 100114 | 08/19/2016 | 08/18/2017 |
| Pre Amplifier | H.P. | HP8447E | 2945A02715 | 10/13/2016 | 10/12/2017 |
| Pre-Amplifier | CDSI | PAP-1G18-38 | -- | 10/13/2016 | 10/12/2017 |
| Bi-log Antenna | SUNOL Sciences | JB3 | A021907 | 09/13/2016 | 09/12/2017 |
| 9*6*6 Anechoic | -- | -- | -- | 08/21/2016 | 08/20/2017 |
| Horn Antenna | COMPLIANCE ENGINEERING | CE18000 | -- | 09/13/2016 | 09/12/2017 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 9120D-631 | 08/23/2016 | 08/22/2017 |
| Cable | TIME MICROWAVE | LMR-400 | N-TYPE04 | 04/25/2016 | 04/24/2017 |
| System-Controller | CCS | N/A | N/A | N.C.R | N.C.R |
| Turn Table | CCS | N/A | N/A | N.C.R | N.C.R |
| Antenna Tower | CCS | N/A | N/A | N.C.R | N.C.R |
| RF cable | Murata | MXHQ87WA3000 | - | 08/21/2016 | 08/20/2017 |
| Loop Antenna | EMCO | 6502 | 00042960 | 08/22/2016 | 08/21/2017 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | 1123 | 08/19/2016 | 08/18/2017 |
| Three-way connector | Weinschel | 1506A | A1213 | 08/19/2016 | 08/18/2017 |
| Attenuator | MCL | BW-N20W5+ | 1306 | 08/19/2016 | 08/18/2017 |
| Signal generator | Agilent | 8920B | VS36141817 | 08/19/2016 | 08/18/2017 |
| Power amplifier | rflight | NTWPA-00810150100E | 13103205 | 08/19/2016 | 08/18/2017 |
| Power amplifier | rflight | NTWPA-1060040E | 13104214 | 08/19/2016 | 08/18/2017 |
| Bi-log Antenna | A.H. Systems Inc. | SAS-522-3 | 1326 | 08/21/2016 | 08/20/2017 |

6. OUTPUT POWER

5.1. Conducted Output Power

Measurement Method

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes (GSM/GPRS 850, GSM/GPRS1900) at 3 typical channels described in section 3.3 of this report for each band.

Measurement Result

| Conducted Output Power Limits for GSM850 band | | |
|--|--------------------|---------------|
| Mode | Nominal Peak Power | Tolerance(dB) |
| GSM850 | 33 dBm (2W) | +/- 1 |
| Conducted Output Power Limits for PCS1900 band | | |
| Mode | Nominal Peak Power | Tolerance(dB) |
| PCS1900 | 30 dBm (1W) | +/- 1 |

| Conducted Output Power Limits for WCDMA BAND II band | | |
|--|-----------------------|---------------|
| Mode | Nominal Average Power | Tolerance(dB) |
| WCDMA BAND II | 24 dBm (250mW) | +/- 2 |
| Conducted Output Power Limits for WCDMA BAND V band | | |
| Mode | Nominal Average Power | Tolerance(dB) |
| WCDMA BAND IV | 24 dBm (250mW) | +/- 2 |
| Conducted Output Power Limits for WCDMA BAND V band | | |
| Mode | Nominal Average Power | Tolerance(dB) |
| WCDMA BAND V | 24 dBm (250mW) | +/- 2 |

GSM 850:**Card 1:**

| Mode | Frequency (MHz) | Peak Power (dBm) | Avg. Burst Power (dBm) | PAPR (dB) | Duty cycle Factor(dB) | Frame Power(dBm) |
|---------|-----------------|------------------|------------------------|-----------|-----------------------|------------------|
| GSM850 | 824.2 | 33.07 | 32.55 | 0.52 | -9 | 23.55 |
| | 836.6 | 33.20 | 32.71 | 0.49 | -9 | 23.71 |
| | 848.8 | 33.26 | 32.75 | 0.51 | -9 | 23.75 |
| GPRS850 | 824.2 | 29.92 | 29.66 | 0.26 | -9 | 20.66 |
| | 836.6 | 30.12 | 29.87 | 0.25 | -9 | 20.87 |
| | 848.8 | 30.23 | 30.03 | 0.20 | -9 | 21.03 |

Card 2:

| Mode | Frequency (MHz) | Peak Power (dBm) | Avg. Burst Power (dBm) | PAPR (dB) | Duty cycle Factor(dB) | Frame Power (dBm) |
|---------|-----------------|------------------|------------------------|-----------|-----------------------|-------------------|
| GSM850 | 824.2 | 32.99 | 32.91 | 0.08 | -9 | 23.99 |
| | 836.6 | 33.10 | 32.57 | 0.53 | -9 | 23.57 |
| | 848.8 | 33.07 | 32.81 | 0.26 | -9 | 23.81 |
| GPRS850 | 824.2 | 29.99 | 29.52 | 0.47 | -9 | 20.52 |
| | 836.6 | 30.17 | 29.74 | 0.43 | -9 | 20.74 |
| | 848.8 | 30.07 | 29.68 | 0.39 | -9 | 20.68 |

PCS 1900:**Card 1:**

| Mode | Frequency (MHz) | Peak Power (dBm) | Avg. Burst Power (dBm) | PAPR (dB) | Duty cycle Factor(dB) | Frame Power (dBm) |
|----------|-----------------|------------------|------------------------|-----------|-----------------------|-------------------|
| GSM1900 | 1850.2 | 29.81 | 29.35 | 0.46 | -9 | 20.35 |
| | 1880 | 29.80 | 29.54 | 0.26 | -9 | 20.54 |
| | 1909.8 | 30.01 | 29.77 | 0.24 | -9 | 20.77 |
| GPRS1900 | 1850.2 | 27.02 | 26.58 | 0.44 | -9 | 17.58 |
| | 1880 | 26.78 | 26.67 | 0.11 | -9 | 17.67 |
| | 1909.8 | 27.12 | 26.79 | 0.33 | -9 | 17.79 |

Card 2:

| Mode | Frequency (MHz) | Peak Power (dBm) | Avg. Burst Power (dBm) | PAPR (dB) | Duty cycle Factor(dB) | Frame Power (dBm) |
|----------|-----------------|------------------|------------------------|-----------|-----------------------|-------------------|
| GSM1900 | 1850.2 | 30.02 | 29.62 | 0.40 | -9 | 20.62 |
| | 1880 | 29.95 | 29.46 | 0.46 | -9 | 20.46 |
| | 1909.8 | 29.72 | 29.31 | 0.41 | -9 | 20.31 |
| GPRS1900 | 1850.2 | 26.99 | 26.49 | 0.50 | -9 | 17.49 |
| | 1880 | 27.05 | 26.69 | 0.36 | -9 | 17.69 |
| | 1909.8 | 26.91 | 26.41 | 0.50 | -9 | 17.41 |

WCDMA BAND II:

| Mode | Frequency (MHz) | Peak Power (dBm) | Avg. Burst Power(dBm) | PAPR (dB) |
|-----------------|-----------------|------------------|-----------------------|-----------|
| RMC 12.2k | 1852.6 | 24.35 | 20.36 | 3.99 |
| | 1880 | 25.62 | 20.44 | 5.18 |
| | 1907.4 | 24.75 | 20.52 | 4.23 |
| HSDPA SUBTEST 1 | 1852.6 | 25.68 | 21.36 | 4.32 |
| | 1880 | 24.17 | 19.50 | 4.67 |
| | 1907.4 | 25.73 | 20.03 | 4.70 |
| HSUPA SUBTEST 1 | 1852.6 | 24.66 | 20.31 | 4.35 |
| | 1880 | 23.06 | 18.49 | 4.57 |
| | 1907.4 | 24.15 | 19.03 | 5.12 |

WCDMA BAND IV:

| Mode | Frequency (MHz) | Peak Power (dBm) | Avg. Burst Power(dBm) | PAPR (dB) |
|-----------------|-----------------|------------------|-----------------------|-----------|
| RMC 12.2k | 1712.6 | 24.81 | 22.36 | 2.45 |
| | 1740 | 24.43 | 22.75 | 1.68 |
| | 1752.4 | 23.48 | 22.68 | 0.80 |
| HSDPA SUBTEST 1 | 1712.6 | 23.57 | 22.15 | 1.42 |
| | 1740 | 23.96 | 22.33 | 1.63 |
| | 1752.4 | 24.40 | 22.21 | 2.19 |
| HSUPA SUBTEST 1 | 1712.6 | 24.00 | 22.37 | 1.63 |
| | 1740 | 23.90 | 22.76 | 1.14 |
| | 1752.4 | 24.22 | 22.62 | 1.60 |

WCDMA BAND V:

| Mode | Frequency (MHz) | Peak Power (dBm) | Avg. Burst Power(dBm) | PAPR (dB) |
|-----------------|------------------------|-------------------------|------------------------------|------------------|
| RMC 12.2k | 826.6 | 25.56 | 20.73 | 4.83 |
| | 835 | 25.51 | 20.58 | 4.93 |
| | 846.4 | 25.47 | 20.69 | 4.78 |
| HSDPA SUBTEST 1 | 826.6 | 26.30 | 21.89 | 4.41 |
| | 835 | 25.91 | 21.57 | 4.34 |
| | 846.4 | 25.69 | 21.14 | 4.55 |
| HSUPA SUBTEST 1 | 826.6 | 25.09 | 20.85 | 4.64 |
| | 835 | 24.83 | 20.44 | 4.39 |
| | 846.4 | 24.50 | 20.06 | 4.44 |

5.2. RADIATED OUTPUT POWER

Measurement Method

KDB 978 168 5.6 Determining ERP and EIRP from conducted RF output power measurements

In many cases, the RF output power limits for licensed digital transmission devices is specified in terms of effective radiated power (ERP) or equivalent isotropic radiated power (EIRP). Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are determined by adding the transmit antenna gain to the conducted RF output power with the primary difference between the two being that when determining the ERP, the transmit antenna gain is referenced to a dipole antenna (i.e., dBd) whereas when determining the EIRP, the transmit antenna gain is referenced to an isotropic antenna (dBi).

The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP/EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

where:

| | | |
|-------------------|---|---|
| ERP/EIRP | = | effective or equivalent radiated power, respectively (expressed in the same units as P_{Meas} , typically dBW or dBm); |
| P_{Meas} | = | measured transmitter output power or PSD, in dBm or dBW; |
| G_{T} | = | gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP); |
| L_{C} | = | signal attenuation in the connecting cable between the transmitter and antenna, in dB. <i>(For personal/portable radios utilizing an integral antenna, this factor is typically negligible. However, in a fixed station transmit system that utilizes a long cable run between the transmitter and the transmitting antenna, this factor can be significant. The minimum cable loss should be used in this equation)^s</i> |

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

Note: ERP can be calculated from EIRP by subtracting the gain of the dipole, $\text{ERP} = \text{EIRP} - 2.15\text{dBi}$.

(KDB 412172 D01)

Provisions Applicable

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."

| Mode | Nominal Peak Power |
|------------------------|--------------------|
| GSM 850/WCDMA BAND V | <=38.45 dBm (7W) |
| PCS 1900/WCDMA BAND II | <=33 dBm (2W) |
| WCDMA BAND IV | <=30 dBm (1W) |

Measurement Result

Card 1:

| Radiated Power (E.R.P) for GSM 850 MHZ | | | | |
|--|-----------------|---------------------|--------------------------|------------|
| Mode | Frequency (MHz) | Result | | Conclusion |
| | | Max. Peak ERP (dBm) | Polarization Of Max. ERP | |
| GSM850 | 824.2 | 32.99 | Horizontal | Pass |
| | 836.6 | 32.85 | Horizontal | Pass |
| | 848.8 | 32.95 | Horizontal | Pass |

| Radiated Power (E.I.R.P) for PCS 1900 MHZ | | | | |
|---|-----------------|-------------------------|-------------------------------|------------|
| Mode | Frequency (MHz) | Result | | Conclusion |
| | | Max. Peak E.I.R.P.(dBm) | Polarization Of Max. E.I.R.P. | |
| GSM 1900 | 1850.2 | 29.66 | Horizontal | Pass |
| | 1880.0 | 29.59 | Horizontal | Pass |
| | 1909.8 | 29.97 | Horizontal | Pass |

Card 2:

| Radiated Power (E.R.P) for GSM 850 MHZ | | | | |
|--|-----------------|---------------------|--------------------------|------------|
| Mode | Frequency (MHz) | Result | | Conclusion |
| | | Max. Peak ERP (dBm) | Polarization Of Max. ERP | |
| GSM850 | 824.2 | 32.88 | Horizontal | Pass |
| | 836.6 | 33.05 | Horizontal | Pass |
| | 848.8 | 32.89 | Horizontal | Pass |

| Radiated Power (E.I.R.P) for PCS 1900 MHZ | | | | |
|---|-----------------|-------------------------|-------------------------------|------------|
| Mode | Frequency (MHz) | Result | | Conclusion |
| | | Max. Peak E.I.R.P.(dBm) | Polarization Of Max. E.I.R.P. | |
| GSM 1900 | 1850.2 | 29.95 | Horizontal | Pass |
| | 1880.0 | 29.87 | Horizontal | Pass |
| | 1909.8 | 29.65 | Horizontal | Pass |

| Radiated Power (E.I.R.P) for WCDMA BAND II | | | | |
|--|-----------------|---------------------|--------------------------|------------|
| Mode | Frequency (MHz) | Result | | Conclusion |
| | | Max. Peak ERP (dBm) | Polarization Of Max. ERP | |
| WCDMA BAND II | 1852.6 | 22.88 | Horizontal | Pass |
| | 1880 | 22.05 | Horizontal | Pass |
| | 1907.4 | 22.84 | Horizontal | Pass |

| Radiated Power (E.I.R.P) for WCDMA BAND IV | | | | |
|--|-----------------|---------------------|--------------------------|------------|
| Mode | Frequency (MHz) | Result | | Conclusion |
| | | Max. Peak ERP (dBm) | Polarization Of Max. ERP | |
| WCDMA BAND IV | 1712.6 | 22.75 | Horizontal | Pass |
| | 1740 | 22.65 | Horizontal | Pass |
| | 1752.4 | 22.82 | Horizontal | Pass |

| Radiated Power (E.R.P) for WCDMA BAND V | | | | |
|---|-----------------|-------------------------|-------------------------------|------------|
| Mode | Frequency (MHz) | Result | | Conclusion |
| | | Max. Peak E.I.R.P.(dBm) | Polarization Of Max. E.I.R.P. | |
| WCDMA BAND V | 826.6 | 22.96 | Horizontal | Pass |
| | 835 | 22.89 | Horizontal | Pass |
| | 846.4 | 22.85 | Horizontal | Pass |

7. SPURIOUS EMISSION

6.1.CONDUCTED SPURIOUS EMISSION

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.

Provisions Applicable

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

Measurement Result

PLEASE REFER TO: APPENDIX A TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION.

Note: 1. Below 30MHZ no Spurious found and The GSM modes is the worst condition.

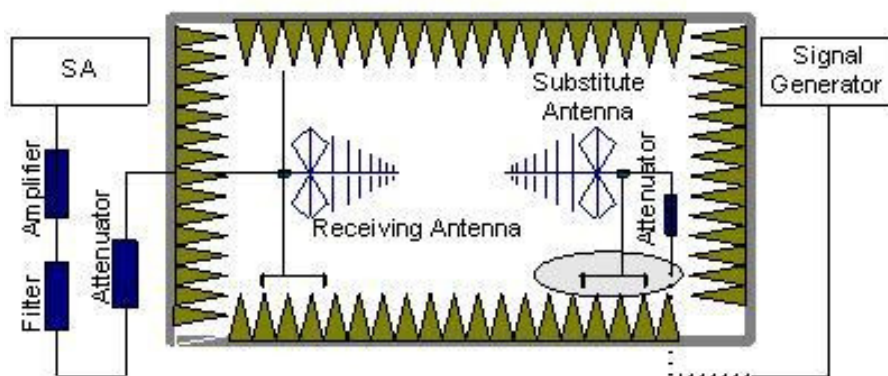
6.2. Radiated Spurious Emission

Measurement Method

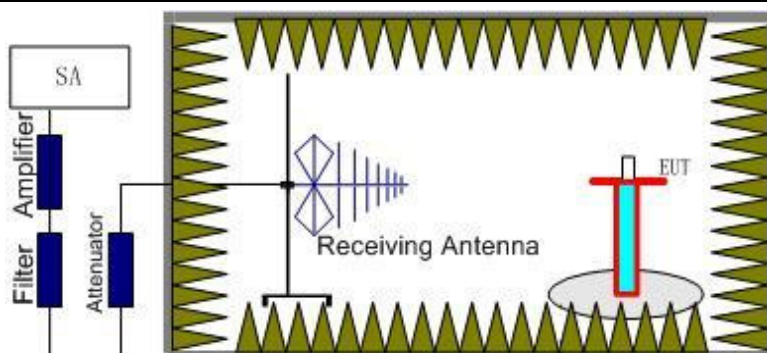
The measurements procedures specified in TIA-603C-2004 were used for testing. The spectrum was scanned from 9 KHz to the 10th harmonic of the highest frequency generated within the equipment. The measurements were performed on all modes(WCDMA BAND V) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each 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 was placed on a 0.8 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 0.8m. 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.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the WCDMA BAND V (826.4MHz, 836MHz, 846.6MHz), . 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 any band into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the A_{Rpl} is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: $Power = P_{Mea} + A_{Rpl}$

Provisions Applicable

(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.

Note: only result the worst condition of each test mode:

Measurement Result

GSM850:

| The Worst Test Results for Channel 128/824.2MHz | | | | | |
|---|------------|------------------------|------------------------|-------------|------------|
| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
| 1648.4 | -34.52 | -4.99 | -29.53 | -13 | Horizontal |
| 1648.4 | -28.41 | -2.45 | -25.96 | -13 | Vertical |
| 2472.6 | -33.66 | 3.61 | -37.27 | -13 | Horizontal |
| 2472.6 | -27.09 | 2.82 | -29.91 | -13 | Vertical |

| The Worst Test Results for Channel 190/836.6MHz | | | | | |
|---|------------|------------------------|------------------------|-------------|------------|
| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
| 1673.2 | -34.29 | -4.99 | -29.30 | -13 | Horizontal |
| 1673.2 | -33.50 | -2.45 | -31.05 | -13 | Vertical |
| 2509.8 | -29.75 | 3.61 | -33.36 | -13 | Horizontal |
| 2509.8 | -30.05 | 2.82 | -32.87 | -13 | Vertical |

| The Worst Test Results for Channel 251/848.8MHz | | | | | |
|---|------------|------------------------|------------------------|-------------|------------|
| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
| 1697.6 | -31.04 | -4.99 | -26.05 | -13 | Horizontal |
| 1697.6 | -33.30 | -2.45 | -30.85 | -13 | Vertical |
| 2549.4 | -27.65 | 3.61 | -31.26 | -13 | Horizontal |
| 2549.4 | -30.54 | 2.82 | -33.36 | -13 | Vertical |

PCS1900:

| The Worst Test Results for Channel 512/1850.2MHz | | | | | |
|--|------------|------------------------|------------------------|-------------|------------|
| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
| 3700.4 | -31.21 | -3.21 | -28.00 | -13 | Horizontal |
| 3700.4 | -34.55 | 0.34 | -34.89 | -13 | Vertical |
| 5550.6 | -33.01 | 3.95 | -36.96 | -13 | Horizontal |
| 5550.6 | -29.01 | -2.26 | -26.75 | -13 | Vertical |

| The Worst Test Results for Channel 661/1880MHz | | | | | |
|--|------------|------------------------|------------------------|-------------|------------|
| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
| 3760 | -30.24 | -3.21 | -27.03 | -13 | Horizontal |
| 3760 | -26.67 | 0.34 | -27.01 | -13 | Vertical |
| 5640 | -26.75 | 3.95 | -30.70 | -13 | Horizontal |
| 5640 | -33.90 | -2.26 | -31.64 | -13 | Vertical |

The Worst Test Results for Channel 810/1909.8MHz

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 3819.6 | -34.54 | -3.21 | -31.33 | -13 | Horizontal |
| 3819.6 | -31.40 | 0.34 | -31.74 | -13 | Vertical |
| 5729.4 | -27.84 | 3.95 | -31.79 | -13 | Horizontal |
| 5729.4 | -28.49 | -2.26 | -26.23 | -13 | Vertical |

WCDMA BAND II:**The Worst Test Results for Channel 9263/1852.6MHz**

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 3705.2 | -25.40 | -3.21 | -22.19 | -13 | Horizontal |
| 3705.2 | -31.40 | 0.34 | -31.74 | -13 | Vertical |
| 5557.8 | -26.14 | 3.95 | -30.09 | -13 | Horizontal |
| 5557.8 | -29.09 | -2.26 | -26.83 | -13 | Vertical |

The Worst Test Results for Channel 9400/1880MHz

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 3760 | -29.80 | -3.21 | -26.59 | -13 | Horizontal |
| 3760 | -25.35 | 0.34 | -25.69 | -13 | Vertical |
| 5640 | -26.01 | 3.95 | -29.96 | -13 | Horizontal |
| 5640 | -26.46 | -2.26 | -24.20 | -13 | Vertical |

The Worst Test Results for Channel 9537/1907.4MHz

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 3814.8 | -33.76 | -3.21 | -30.55 | -13 | Horizontal |
| 3814.8 | -31.44 | 0.34 | -31.78 | -13 | Vertical |
| 5722.2 | -25.65 | 3.95 | -29.60 | -13 | Horizontal |
| 5722.2 | -30.12 | -2.26 | -27.86 | -13 | Vertical |

WCDMA BAND IV:**The Worst Test Results for Channel 1313/1712.6MHz**

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 3425.2 | -33.15 | 1.42 | -34.57 | -13 | Horizontal |
| 3425.2 | -29.11 | -2.48 | -26.63 | -13 | Vertical |
| 5137.8 | -34.37 | 3.26 | -37.63 | -13 | Horizontal |
| 5137.8 | -32.10 | 6.68 | -38.78 | -13 | Vertical |

The Worst Test Results for Channel 1450/1740MHz

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 3480 | -36.66 | -1.98 | -34.68 | -13 | Horizontal |
| 3480 | -36.09 | -1.61 | -34.48 | -13 | Vertical |
| 5220 | -37.49 | 1.97 | -39.46 | -13 | Horizontal |
| 5220 | -34.49 | -2.26 | -32.23 | -13 | Vertical |

The Worst Test Results for Channel 1512/1752.4MHz

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 3504.8 | -31.66 | -4.99 | -26.67 | -13 | Horizontal |
| 3504.8 | -34.24 | -2.45 | -31.79 | -13 | Vertical |
| 5257.2 | -27.06 | 3.61 | -30.67 | -13 | Horizontal |
| 5257.2 | -32.93 | 2.82 | -35.75 | -13 | Vertical |

WCDMA BAND V:**The Worst Test Results for Channel 4133/826.6MHz**

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 1653.2 | -32.85 | -4.99 | -27.86 | -13 | Horizontal |
| 1653.2 | -27.44 | -2.45 | -24.99 | -13 | Vertical |
| 2479.8 | -25.20 | 3.61 | -28.81 | -13 | Horizontal |
| 2479.8 | -30.42 | 2.82 | -33.24 | -13 | Vertical |

The Worst Test Results for Channel 4175/835MHz

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 1670 | -32.02 | -4.99 | -27.03 | -13 | Horizontal |
| 1670 | -25.92 | -2.45 | -23.47 | -13 | Vertical |
| 2505 | -29.82 | 3.61 | -33.43 | -13 | Horizontal |
| 2505 | -34.74 | 2.82 | -37.56 | -13 | Vertical |

The Worst Test Results for Channel 4232/846.4MHz

| Frequency(MHz) | Power(dBm) | A _{Rpl} (dBm) | P _{Mea} (dBm) | Limit (dBm) | Polarity |
|----------------|------------|------------------------|------------------------|-------------|------------|
| 1692.8 | -33.57 | -4.99 | -28.58 | -13 | Horizontal |
| 1692.8 | -30.64 | -2.45 | -28.19 | -13 | Vertical |
| 2539.2 | -34.07 | 3.61 | -37.68 | -13 | Horizontal |
| 2539.2 | -28.37 | 2.82 | -31.19 | -13 | Vertical |

Note: Below 30MHz no Spurious found.

8. FREQUENCY STABILITY

Measurement Method

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 -10°C.
- 3 , With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 4180 for WCDMA band V, 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 -10°C to +50°C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.
- 5 , Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring 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 the 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 -10°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.

Provisions Applicable

➤ 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. For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

➤ **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, the normal environment temperature is 25°C.

Measurement Result (WORST)

Frequency Error against Voltage for GSM 850 band (Mid channel)

| Voltage(V) | Frequency error(Hz) | Frequency error (ppm) |
|------------|---------------------|-----------------------|
| 3.45 | 30 | 0.036 |
| 3.85 | 31 | 0.037 |
| 4.4 | 29 | 0.035 |

Frequency Error against Temperature for GSM 850 band (Mid channel)

| Temperature(°C) | Frequency error(Hz) | Frequency error(ppm) |
|-----------------|---------------------|----------------------|
| -10 | 35 | 0.042 |
| 0 | 40 | 0.048 |
| 10 | 36 | 0.043 |
| 20 | 36 | 0.043 |
| 30 | 35 | 0.042 |
| 40 | 37 | 0.044 |
| 50 | 29 | 0.035 |

Frequency Error against Voltage for PCS 1900 band (Mid channel)

| Voltage(V) | Frequency error(Hz) | Frequency error(ppm) |
|------------|---------------------|----------------------|
| 3.45 | 36 | 0.019 |
| 3.85 | 38 | 0.020 |
| 4.4 | 39 | 0.021 |

Frequency Error against Temperature for PCS 1900 band (Mid channel)

| Temperature(°C) | Frequency error(Hz) | Frequency error(ppm) |
|-----------------|---------------------|----------------------|
| -10 | 40 | 0.021 |
| 0 | 40 | 0.021 |
| 10 | 31 | 0.016 |
| 20 | 35 | 0.019 |
| 30 | 38 | 0.020 |
| 40 | 29 | 0.015 |
| 50 | 35 | 0.019 |

UTRA BANDS**Frequency Error against Voltage for WCDMA BAND 2 (Mid channel)**

| Voltage(V) | Frequency error(Hz) | Frequency error (ppm) |
|------------|---------------------|-----------------------|
| 3.45 | 35 | 0.019 |
| 3.85 | 29 | 0.015 |
| 4.4 | 35 | 0.019 |

Frequency Error against Temperature for WCDMA BAND 2 (Mid channel)

| Temperature(°C) | Frequency error(Hz) | Frequency error(ppm) |
|-----------------|---------------------|----------------------|
| -10 | 37 | 0.020 |
| 0 | 38 | 0.020 |
| 10 | 33 | 0.018 |
| 20 | 39 | 0.021 |
| 30 | 35 | 0.018 |
| 40 | 34 | 0.018 |
| 50 | 36 | 0.019 |

Frequency Error against Voltage for WCDMA BAND 4 (Mid channel)

| Voltage(V) | Frequency error(Hz) | Frequency error (ppm) |
|------------|---------------------|-----------------------|
| 3.45 | 33 | 0.019 |
| 3.85 | 37 | 0.021 |
| 4.4 | 31 | 0.018 |

Frequency Error against Temperature for WCDMA BAND 4 (Mid channel)

| Temperature(°C) | Frequency error(Hz) | Frequency error(ppm) |
|-----------------|---------------------|----------------------|
| -10 | 29 | 0.017 |
| 0 | 34 | 0.020 |
| 10 | 29 | 0.017 |
| 20 | 39 | 0.023 |
| 30 | 29 | 0.017 |
| 40 | 31 | 0.018 |
| 50 | 29 | 0.017 |

Frequency Error against Voltage for WCDMA BAND 5 (Mid channel)

| Voltage(V) | Frequency error(Hz) | Frequency error(ppm) |
|------------|---------------------|----------------------|
| 3.45 | 34 | 0.040 |
| 3.85 | 40 | 0.047 |
| 4.4 | 36 | 0.043 |

Frequency Error against Temperature for WCDMA BAND 5 (Mid channel)

| Temperature(°C) | Frequency error(Hz) | Frequency error(ppm) |
|-----------------|---------------------|----------------------|
| -10 | 30 | 0.036 |
| 0 | 39 | 0.047 |
| 10 | 36 | 0.043 |
| 20 | 35 | 0.042 |
| 30 | 32 | 0.039 |
| 40 | 38 | 0.045 |
| 50 | 29 | 0.035 |

9. OCCUPIED BANDWIDTH

Measurement Method

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Provisions Applicable

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

Measurement Result

GSM850:

| Frequency (MHz) | OBW(99%) |
|-----------------|------------|
| 824.2 | 245.19 KHz |
| 836.6 | 245.19KHz |
| 848.8 | 246.79KHz |

PCS1900:

| Frequency (MHz) | OBW(99%) |
|-----------------|-----------|
| 1850.2 | 245.19KHz |
| 1880 | 245.19KHz |
| 1909.8 | 243.58KHz |

UTRA BANDS**BAND 2:**

| Frequency (MHz) | OBW(99%) |
|--------------------|----------|
| 1852.6 | 4.166MHz |
| 1880 | 4.166MHz |
| 1907.4 | 4.166MHz |

BAND 4:

| Frequency (MHz) | OBW(99%) |
|--------------------|----------|
| 1712.6 | 4.198MHz |
| 1740 | 4.198MHz |
| 1752.4 | 4.230MHz |

BAND 5:

| Frequency (MHz) | OBW(99%) |
|--------------------|----------|
| 826.6 | 4.166MHz |
| 835 | 4.166MHz |
| 846.4 | 4.166MHz |

Please refers to Appendix B for compliance test plots

10. EMISSION BANDWIDTH

Measurement Method

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Provisions Applicable

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

Measurement Result

| Emission Bandwidth (-26dBc) for GSM850 | | |
|--|----------------|-----------------------------------|
| Mode | Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) |
| Low Channel | 824.2 | 314.10 |
| Middle Channel | 836.6 | 320.51 |
| High Channel | 848.8 | 315.70 |

| Emission Bandwidth (-26dBc) for GSM1900 | | |
|---|----------------|-----------------------------------|
| Mode | Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) |
| Low Channel | 1850.2 | 314.102 |
| Middle Channel | 1880 | 314.102 |
| High Channel | 1909.8 | 317.307 |

| Emission Bandwidth (-26dBc) for WCDMA BAND II | | |
|---|----------------|-----------------------------------|
| Mode | Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) |
| Low Channel | 1852.6 | 4.695 |
| Middle Channel | 1880 | 4.695 |
| High Channel | 1907.4 | 4.695 |

| Emission Bandwidth (-26dBc) for WCDMA BAND IV | | |
|---|----------------|-----------------------------------|
| Mode | Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) |
| Low Channel | 1712.6 | 4.855 |
| Middle Channel | 1740 | 4.839 |
| High Channel | 1752.4 | 4.935 |

| Emission Bandwidth (-26dBc) for WCDMA BAND V | | |
|---|----------------|-----------------------------------|
| Mode | Frequency(MHz) | Emission Bandwidth (-26dBc)(kHz) |
| Low Channel | 826.6 | 4.711 |
| Middle Channel | 835 | 4.695 |
| High Channel | 846.4 | 4.679 |

Please refers to Appendix B for compliance test plots

11. BAND EDGE

Measurement Method

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Provisions Applicable

As Specified in FCC rules of 22.917(a)

Measurement Result

GSM850:

| Test Channel | BW(MHz) | UL Channel | Frequency(MHz) | Judgment |
|--------------|---------|------------|----------------|----------|
| Low Range | 0.2 | 128 | 824.2 | Pass |
| High Range | 0.2 | 251 | 848.8 | Pass |

PCS 1900:

| Test Channel | BW(MHz) | UL Channel | Frequency(MHz) | Judgment |
|--------------|---------|------------|----------------|----------|
| Low Range | 0.2 | 512 | 1850.2 | Pass |
| High Range | 0.2 | 810 | 1909.8 | Pass |

UTRA BANDS

BAND 2:

| Test Channel | BW(MHz) | UL Channel | Frequency(MHz) | Judgment |
|--------------|---------|------------|----------------|----------|
| Low Range | 5 | 9263 | 1852.6 | Pass |
| High Range | 5 | 9537 | 1907.4 | Pass |

BAND 4:

| Test Channel | BW(MHz) | UL Channel | Frequency(MHz) | Judgment |
|--------------|---------|------------|----------------|----------|
| Low Range | 5 | 1313 | 1712.6 | Pass |
| High Range | 5 | 1512 | 1752.4 | Pass |

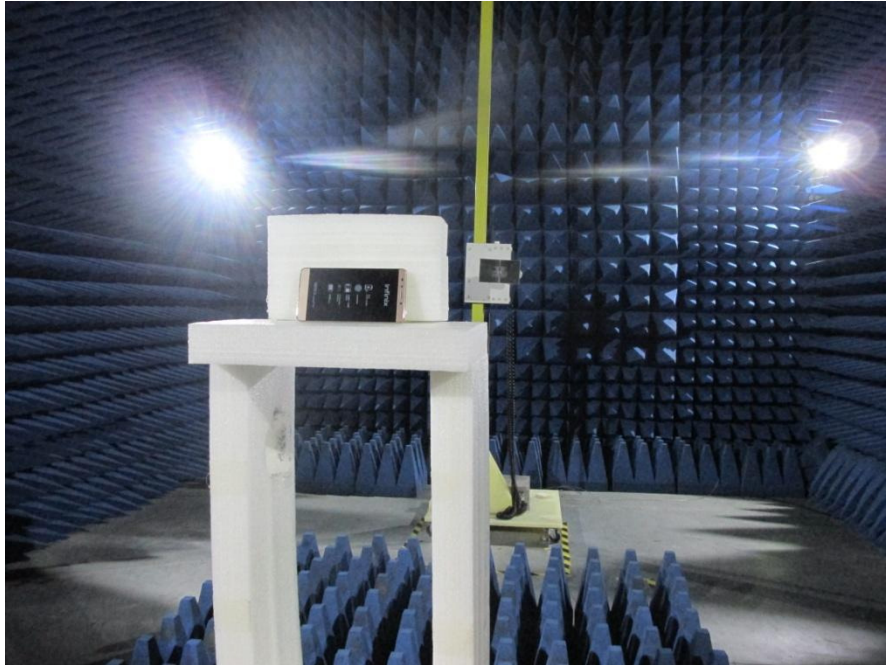
BAND 5:

| Test Channel | BW(MHz) | UL Channel | Frequency(MHz) | Judgment |
|--------------|---------|------------|----------------|----------|
| Low Range | 5 | 4133 | 826.6 | Pass |
| High Range | 5 | 4232 | 846.4 | Pass |

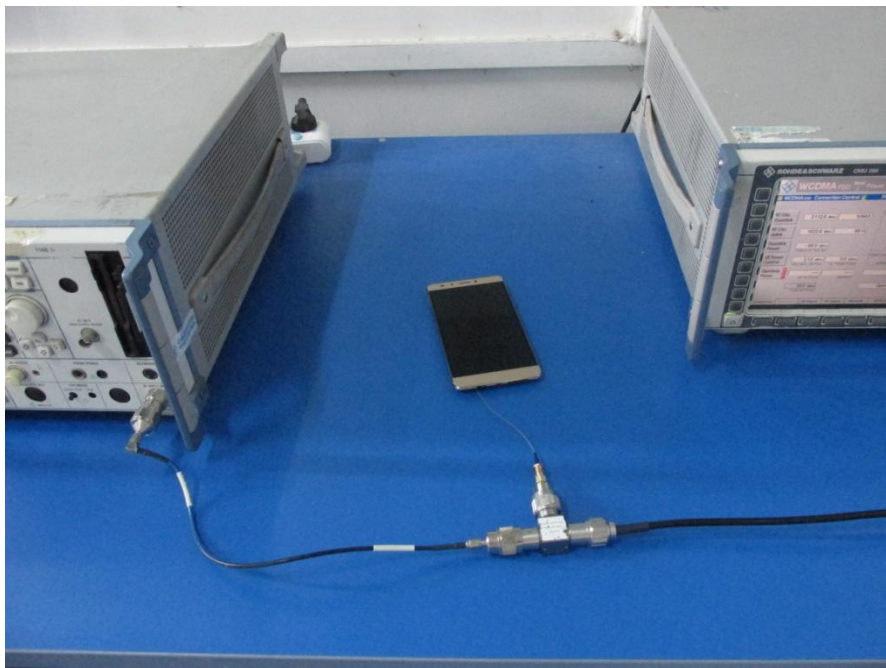
Please refers to Appendix C for compliance test plots

12. EUT TEST PHOTO

RADIATED EMISSION TEST
(Frequency above 1GHz)



RF TEST



13. EUT PHOTO

Appearance photograph of EUT



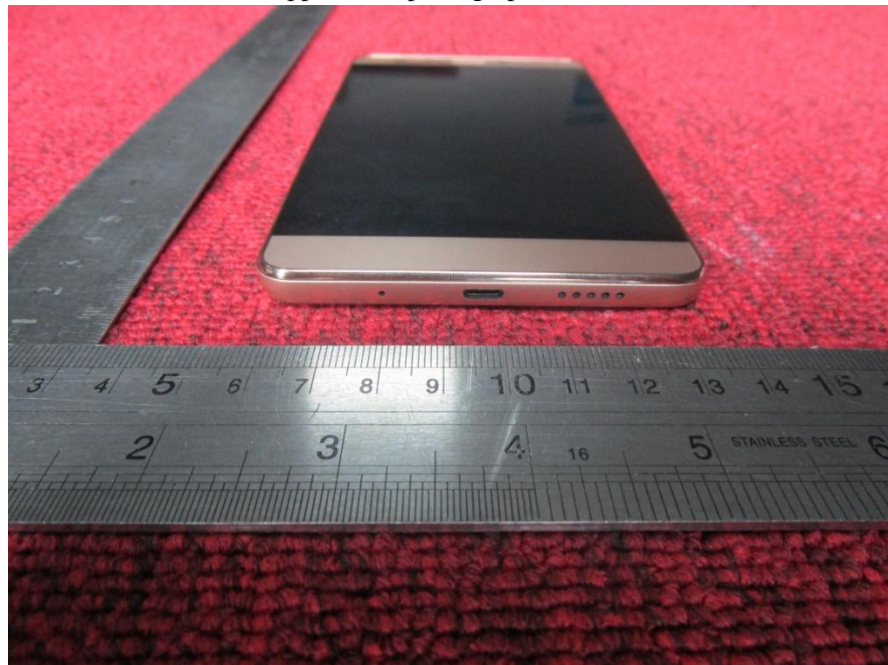
Appearance photograph of EUT



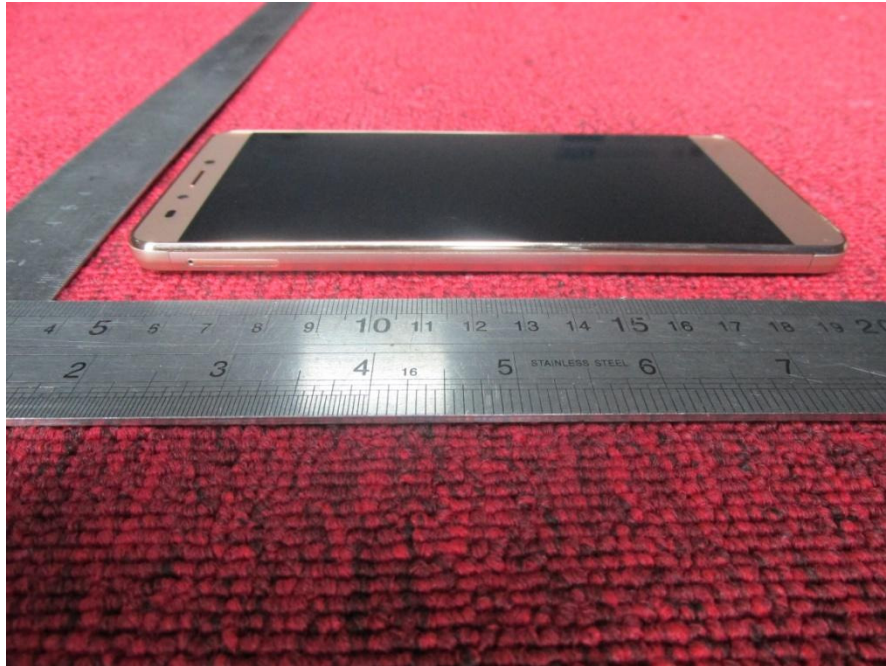
Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Appearance photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT



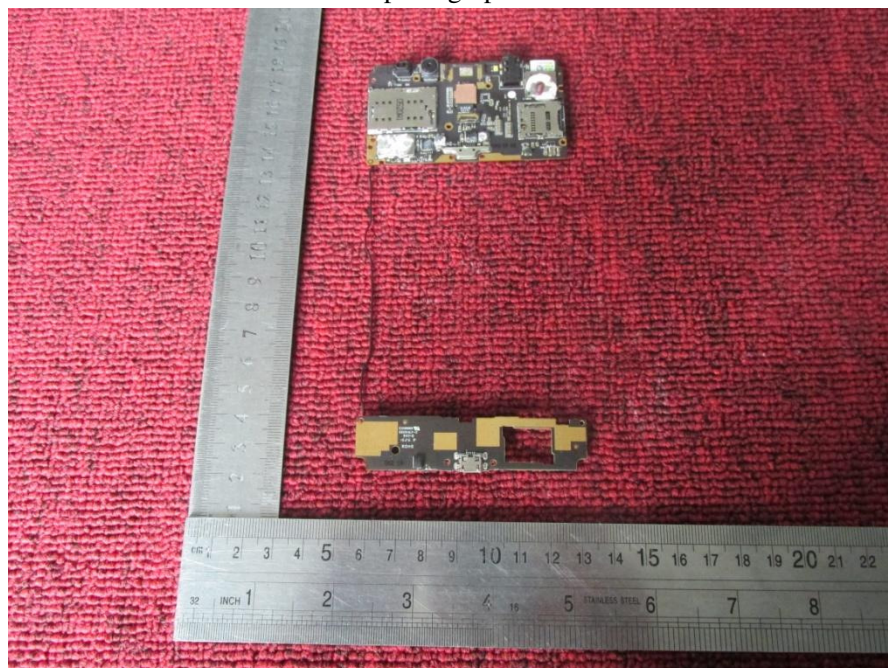
Internal photograph of EUT



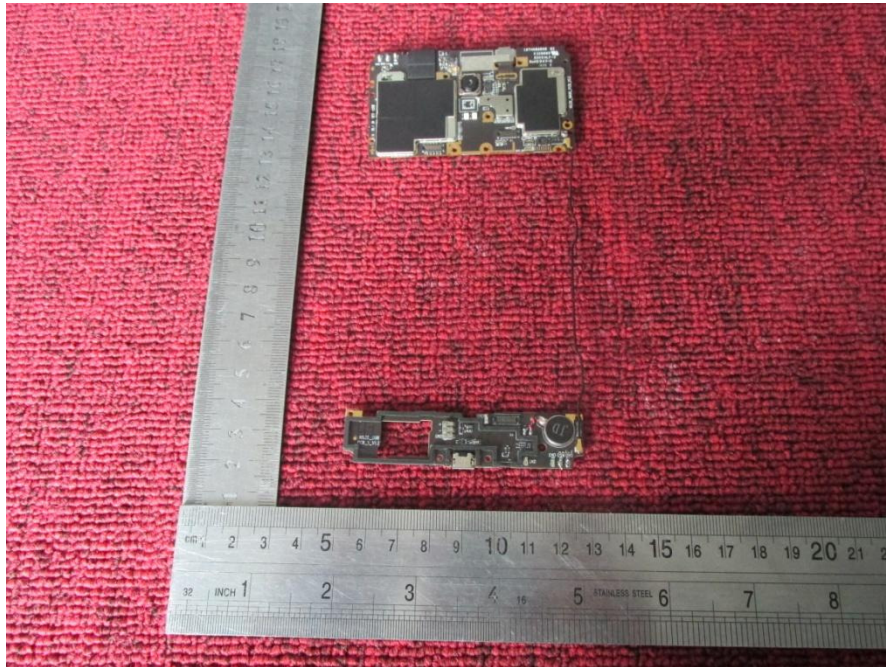
Internal photograph of EUT



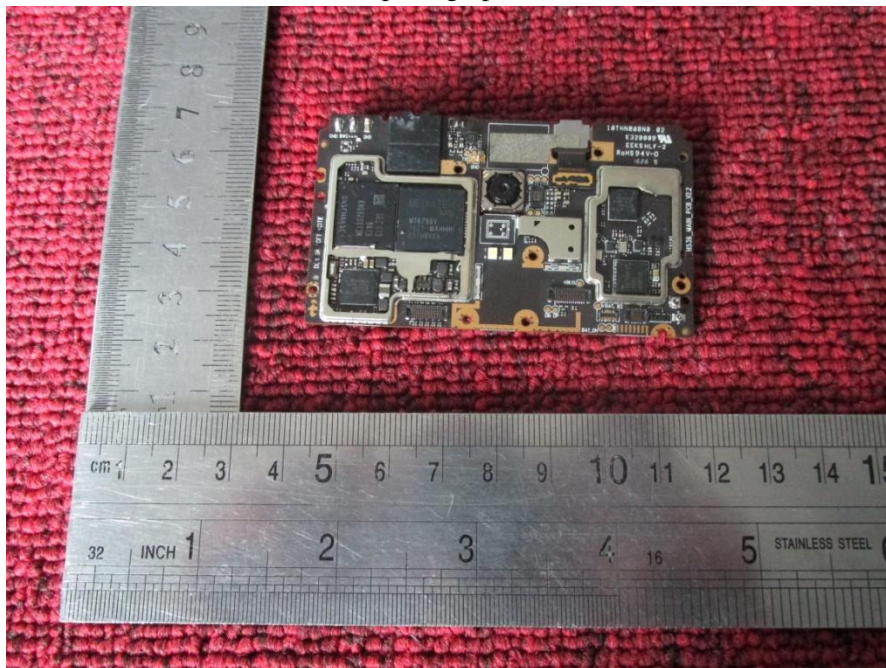
Internal photograph of EUT



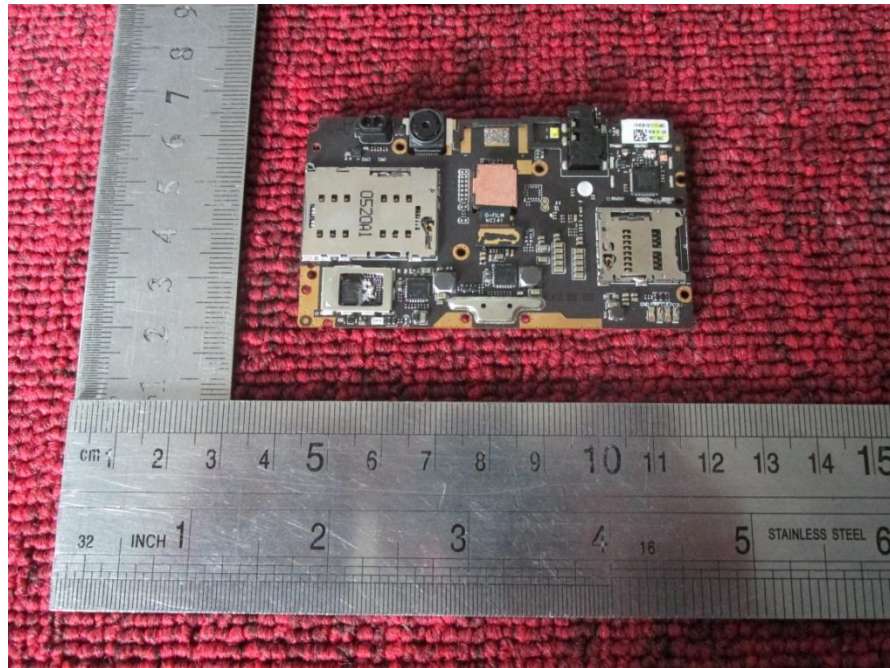
Internal photograph of EUT



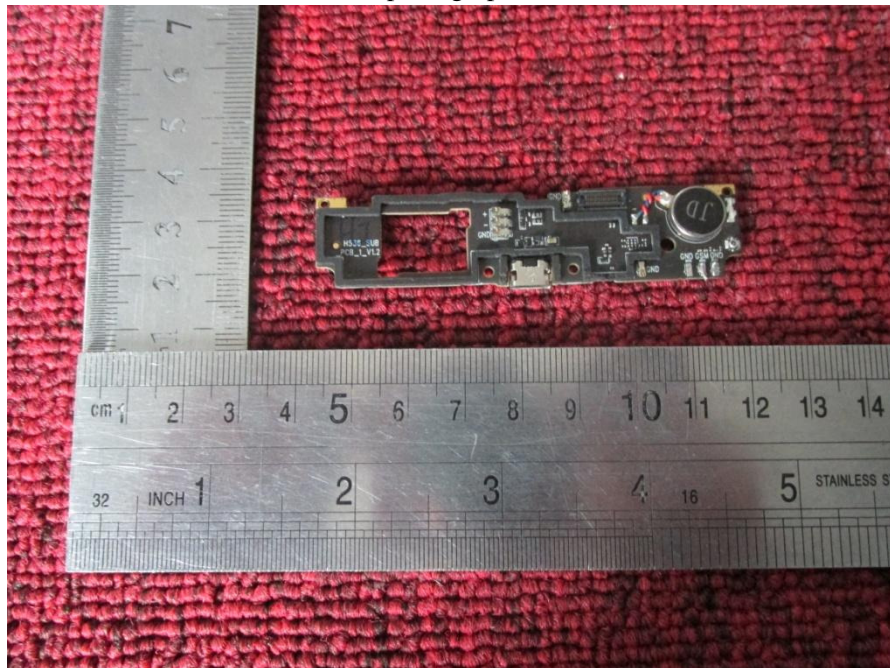
Internal photograph of EUT



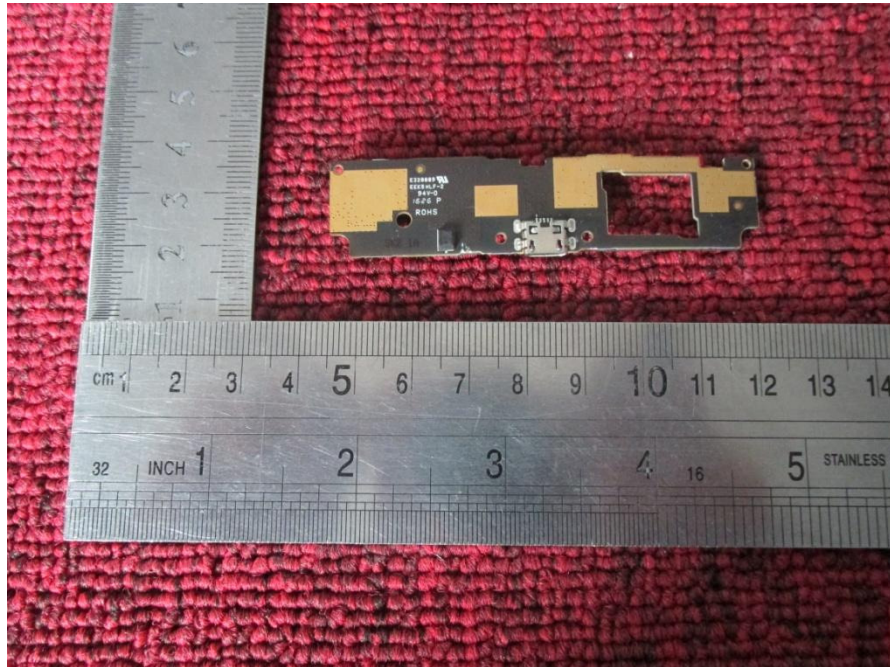
Internal photograph of EUT



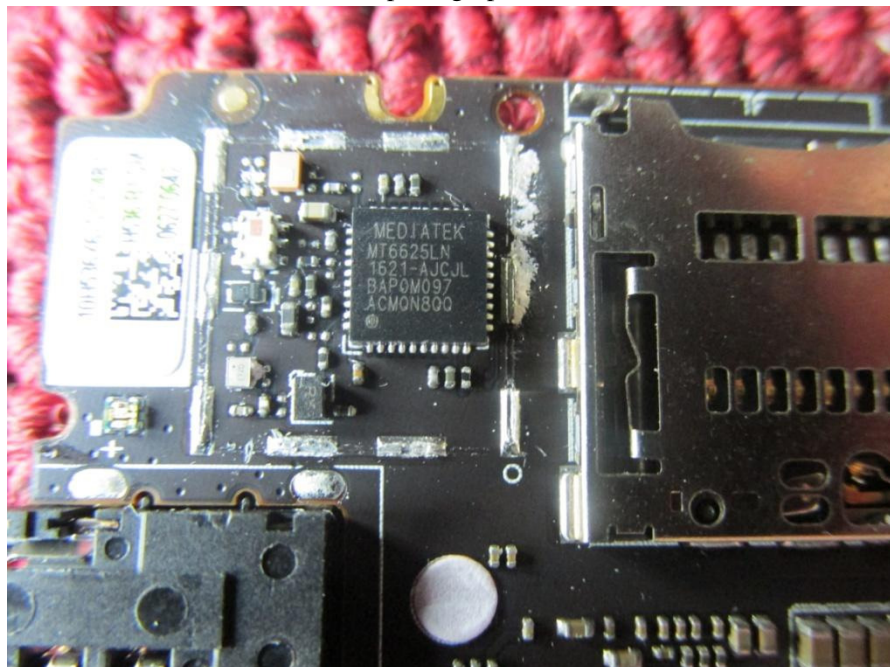
Internal photograph of EUT



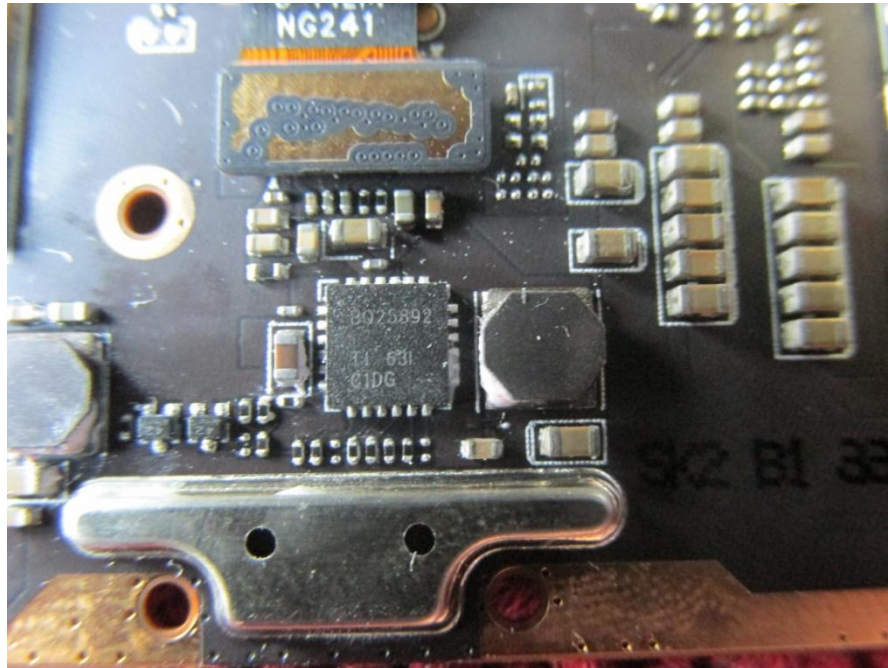
Internal photograph of EUT



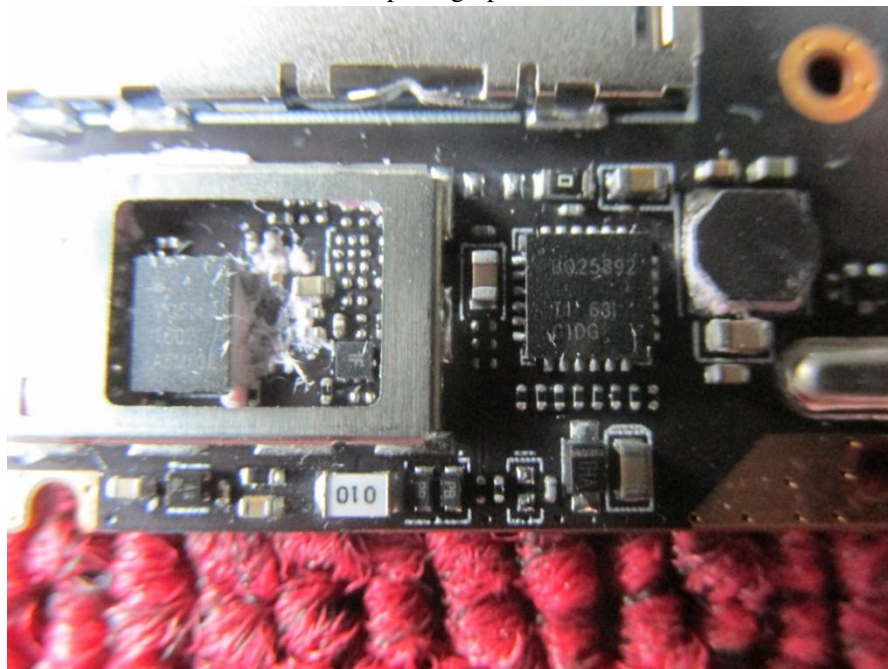
Internal photograph of EUT



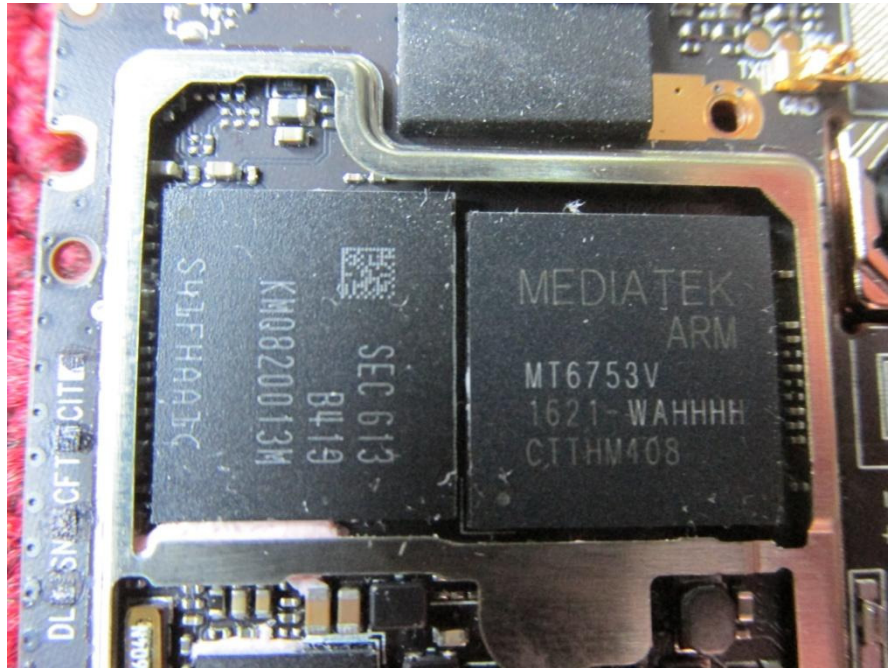
Internal photograph of EUT



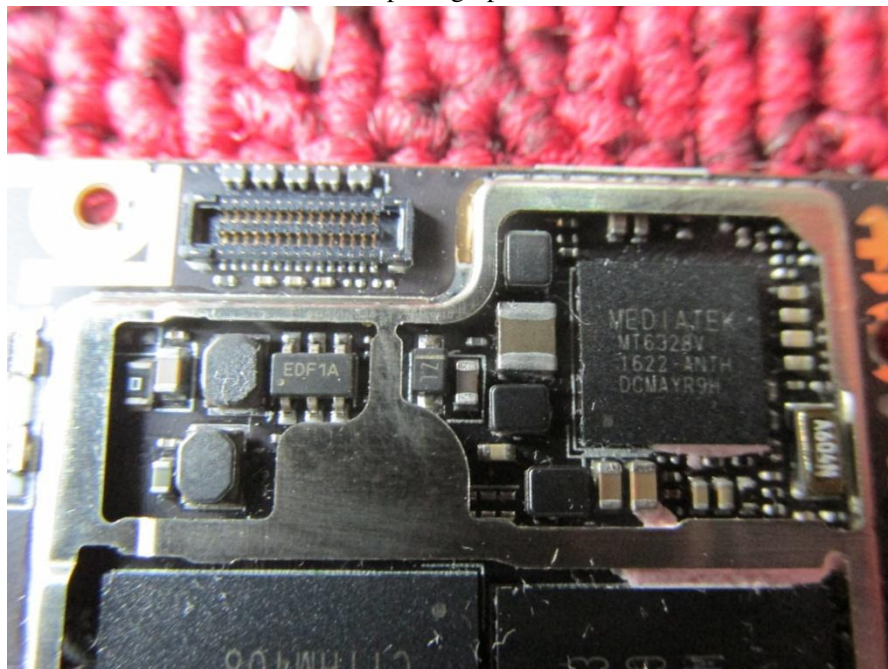
Internal photograph of EUT



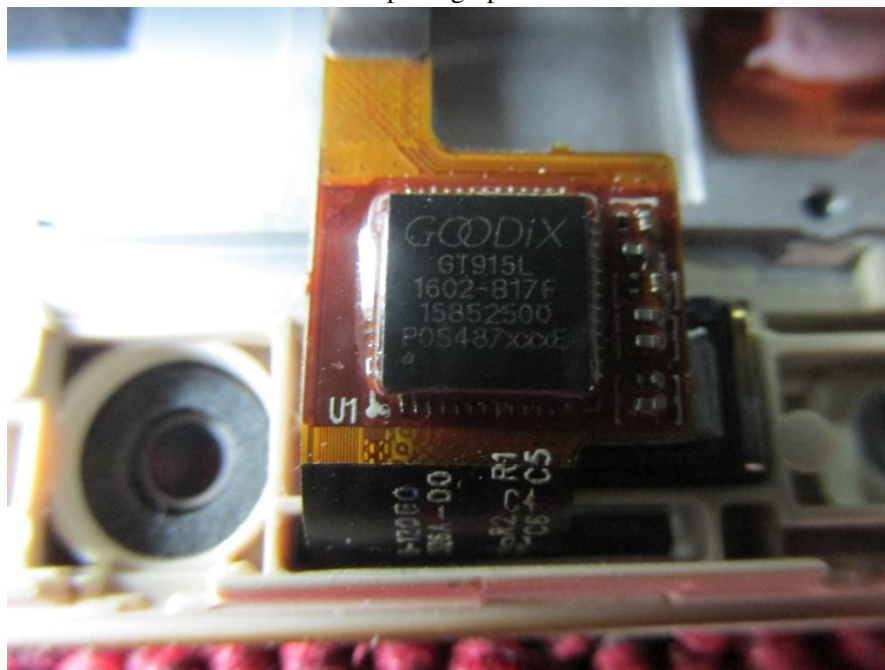
Internal photograph of EUT



Internal photograph of EUT



Internal photograph of EUT

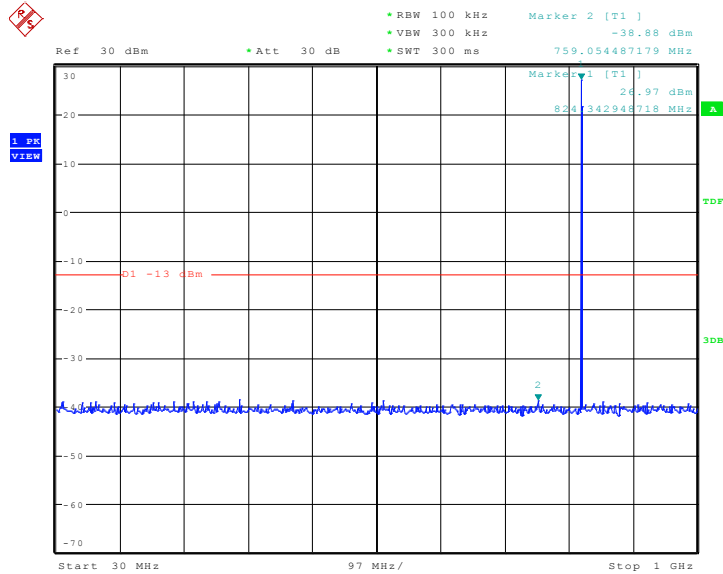


Note: The EUT and CMU200, frequency analyzer are connected by three-way connector. There produce loss, like three-way connector loss, attenuator loss, RF cable loss. The offset is compensation.

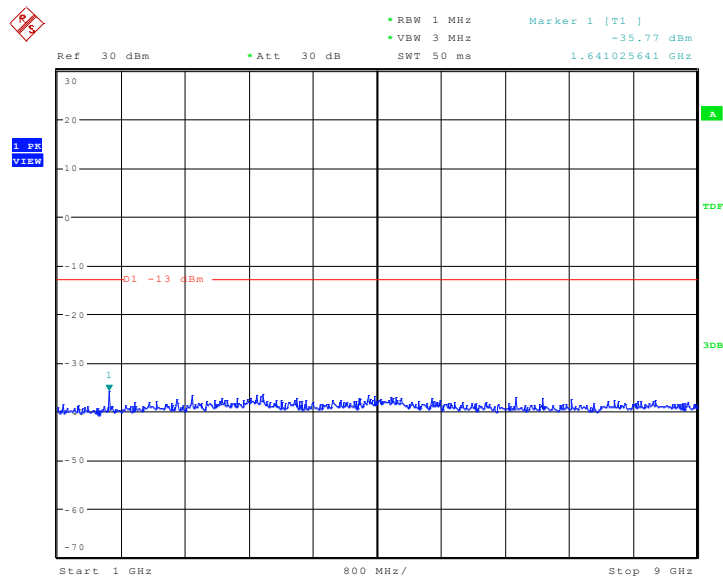
APPENDIX A: TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

CONDUCTED EMISSION IN GSM850 BAND

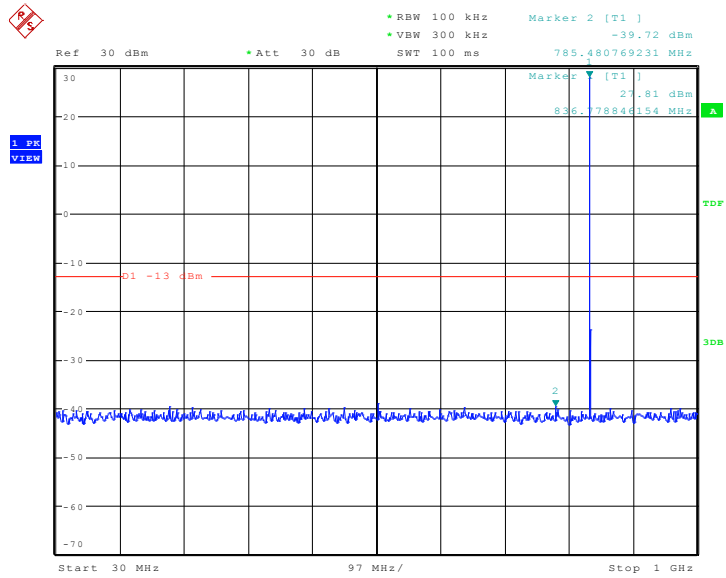
Conducted Emission Transmitting Mode CH 128 30MHz – 1GHz



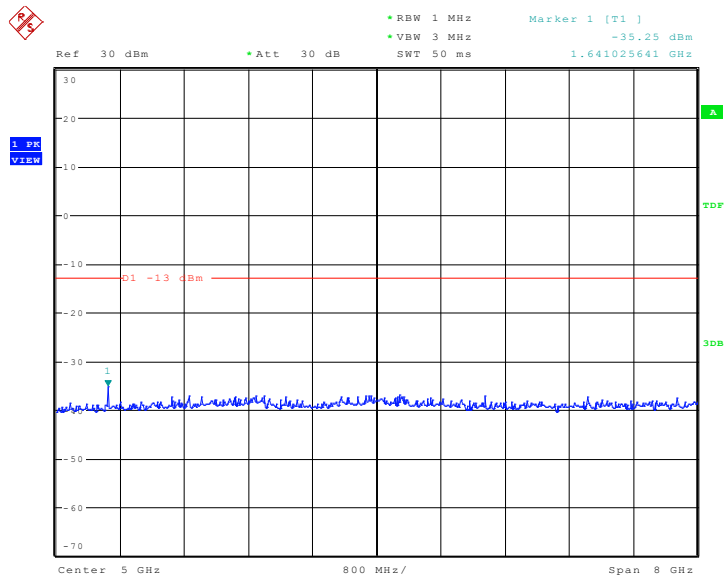
Conducted Emission Transmitting Mode CH 128 1GHz – 9GHz



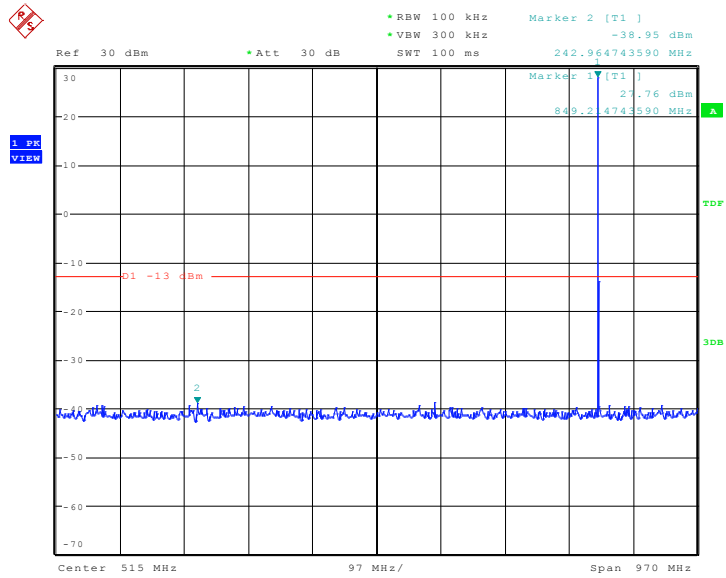
Conducted Emission Transmitting Mode CH 190 30MHz – 1GHz



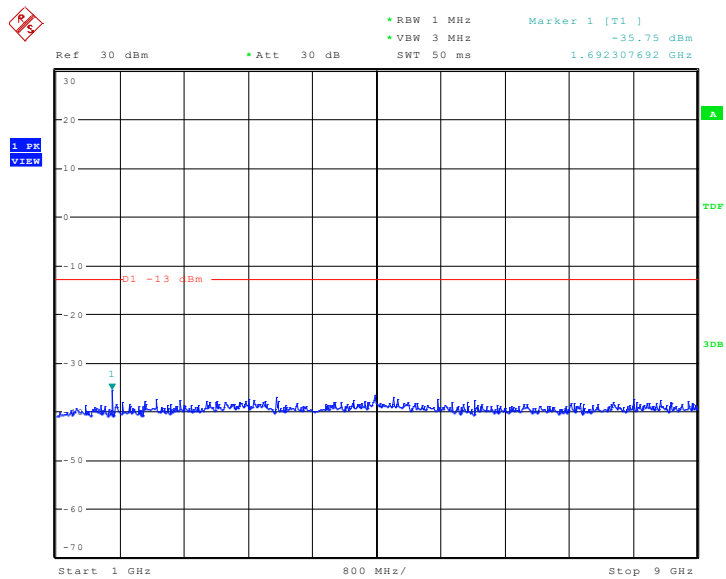
Conducted Emission Transmitting Mode CH 190 1GHz – 9GHz



Conducted Emission Transmitting Mode CH 251 30MHz – 1GHz

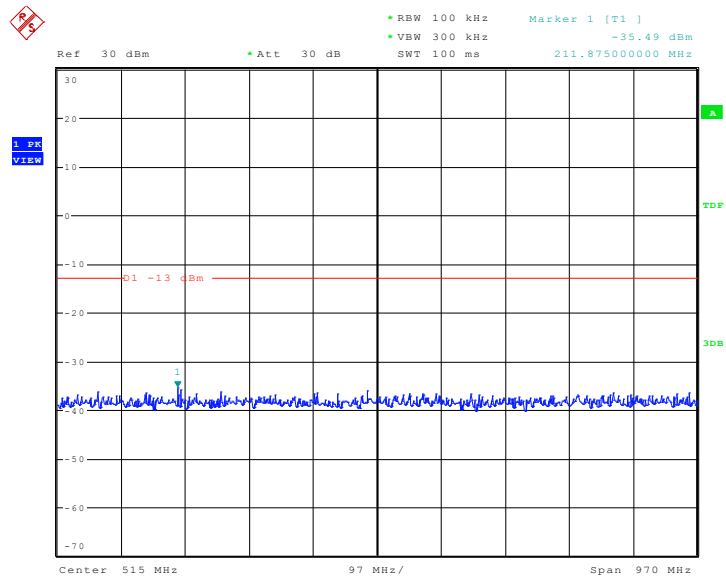


Conducted Emission Transmitting Mode CH 251 1GHz – 9GHz

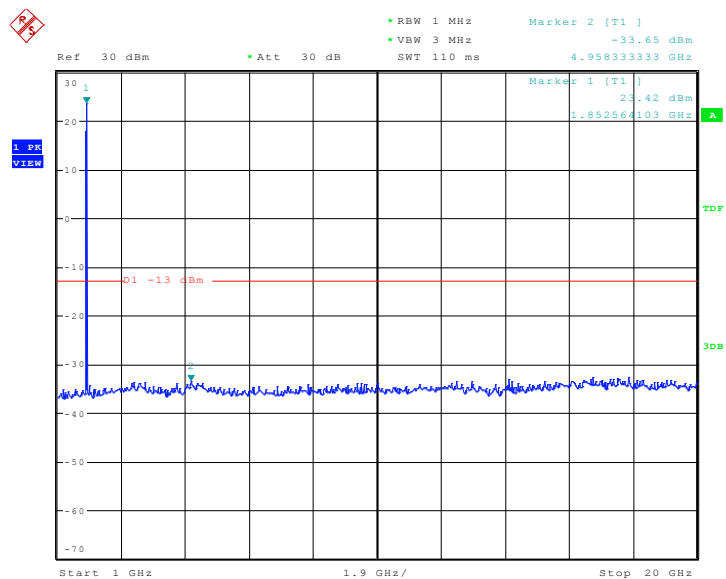


CONDUCTED EMISSION IN PCS1900 BAND

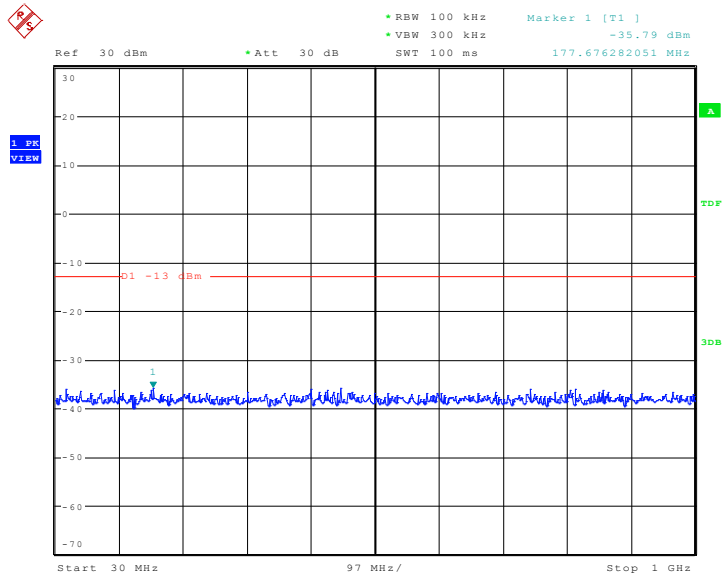
Conducted Emission Transmitting Mode CH 512 30MHz – 1GHz



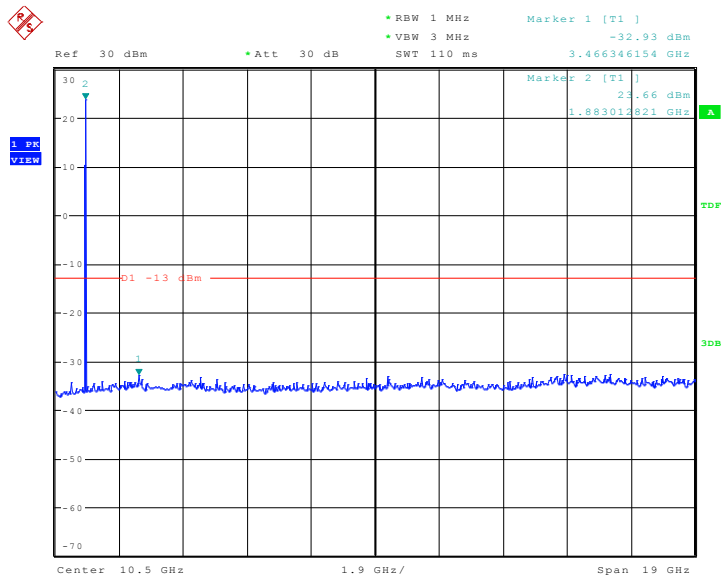
Conducted Emission Transmitting Mode CH 512 1GHz – 20GHz



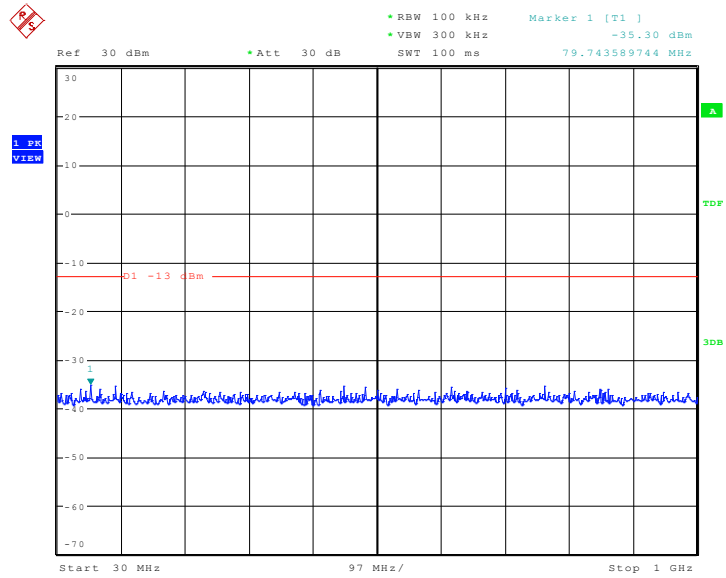
Conducted Emission Transmitting Mode CH 661 30MHz – 1GHz



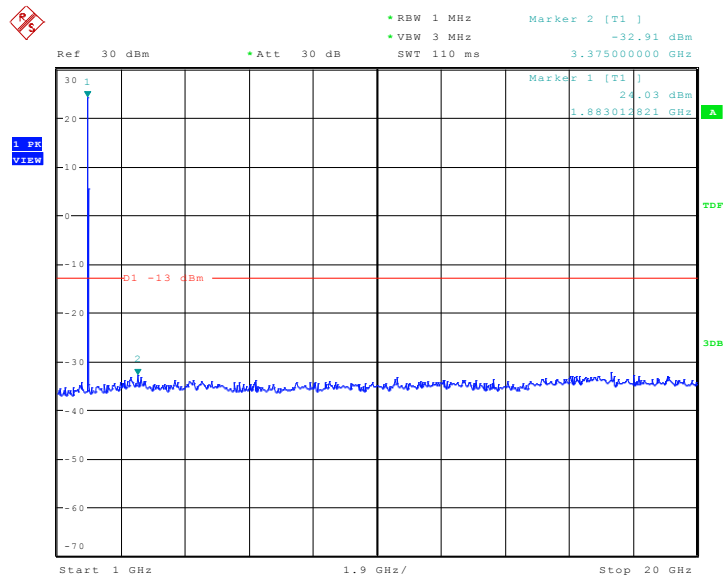
Conducted Emission Transmitting Mode CH 661 1GHz – 20GHz



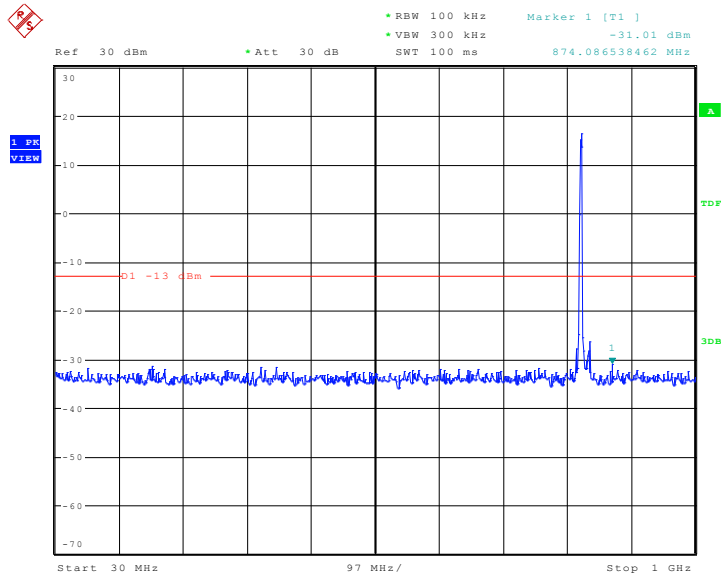
Conducted Emission Transmitting Mode CH 810 30MHz – 1GHz



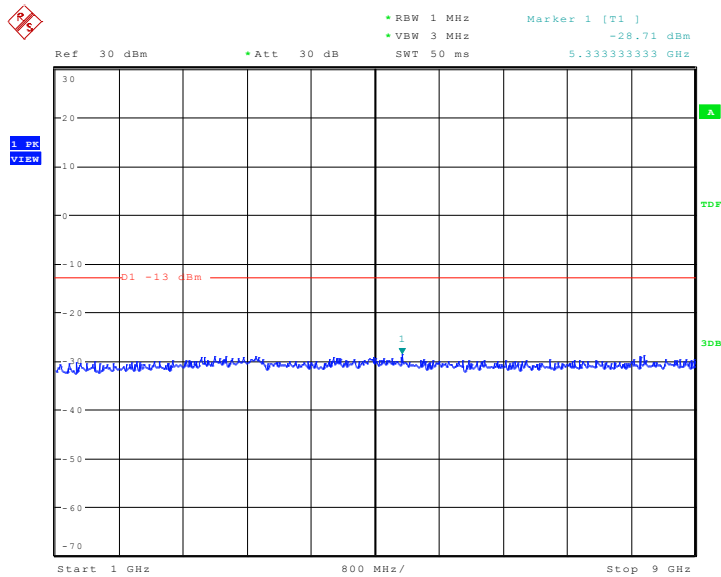
Conducted Emission Transmitting Mode CH 810 1GHz – 20GHz



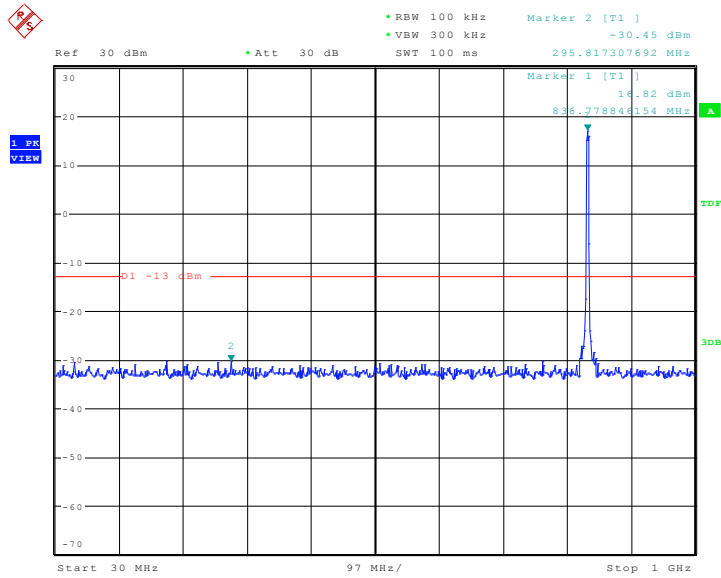
CONDUCTED EMISSION IN WCDMA Band V Conducted Emission Transmitting Mode CH 4133 30MHz – 1GHz



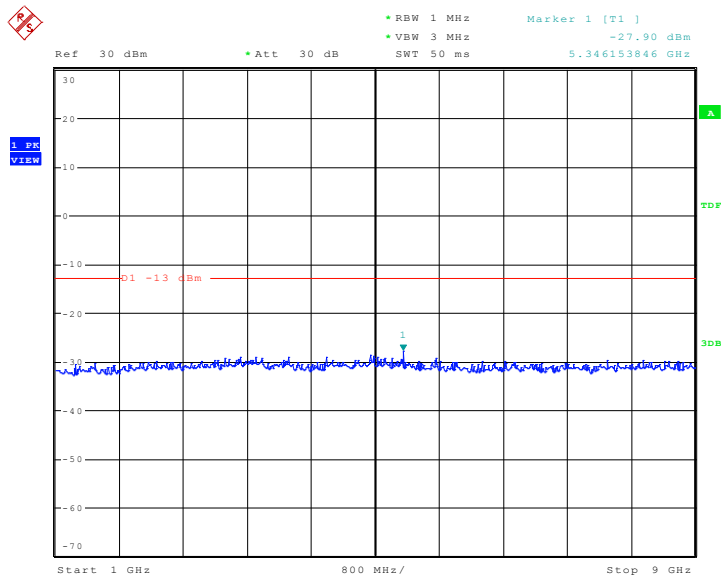
Conducted Emission Transmitting Mode CH 4133 1GHz – 9GHz



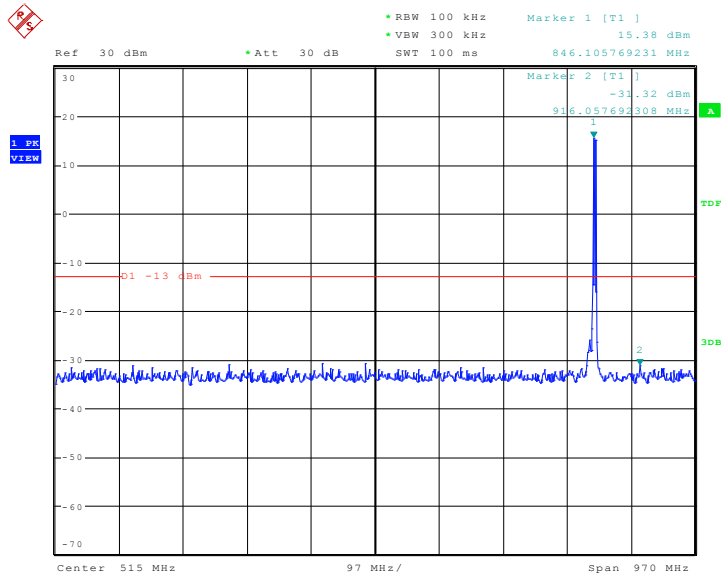
Conducted Emission Transmitting Mode CH 4175 30MHz – 1GHz



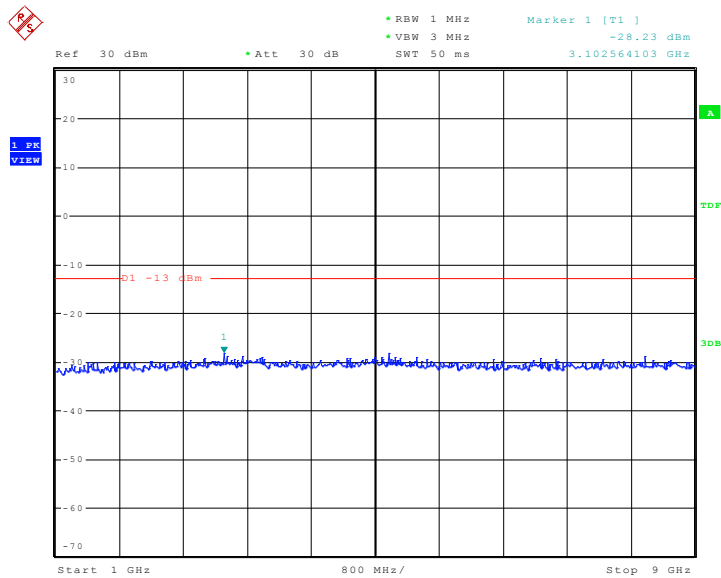
Conducted Emission Transmitting Mode CH 4175 1GHz – 9GHz



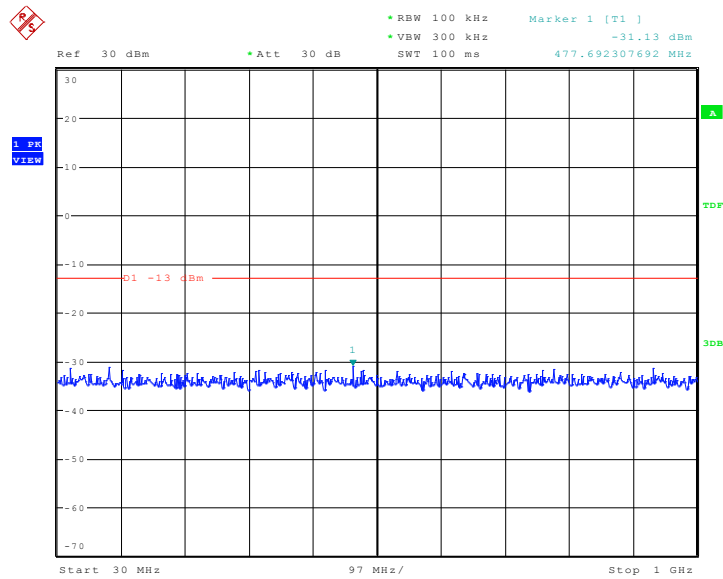
Conducted Emission Transmitting Mode CH 4232 30MHz – 1GHz



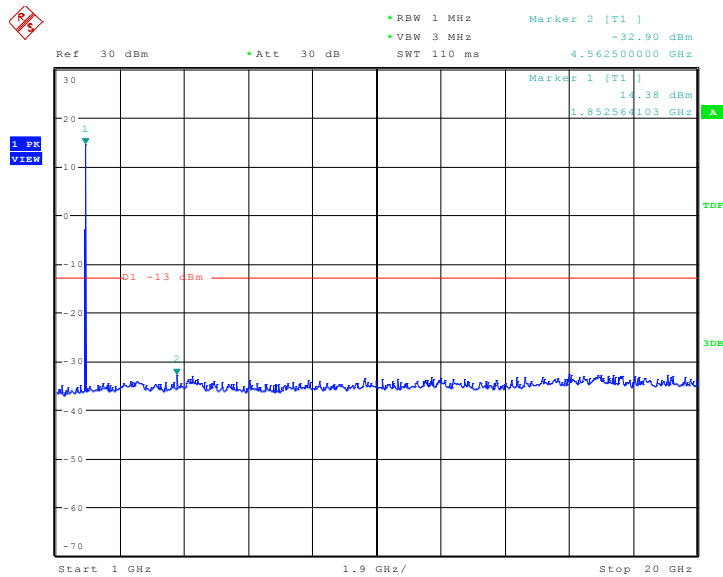
Conducted Emission Transmitting Mode CH 4232 1GHz – 9GHz



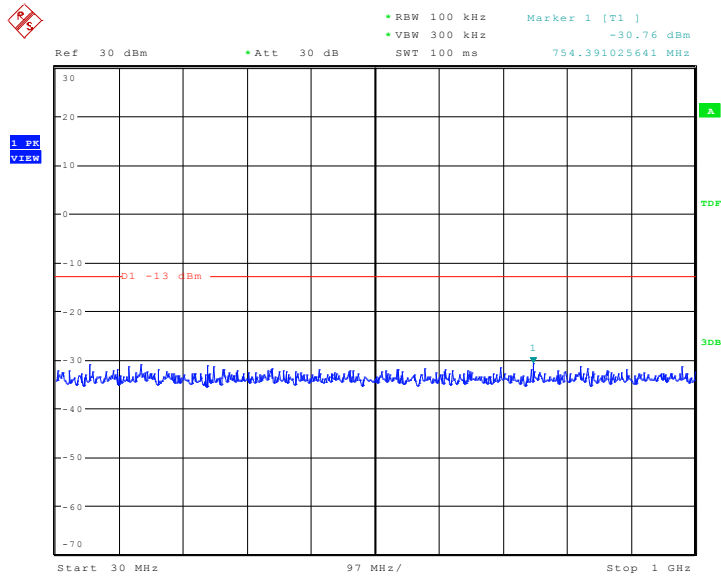
CONDUCTED EMISSION IN WCDMA Band II Conducted Emission Transmitting Mode CH 9263 30MHz – 1GHz



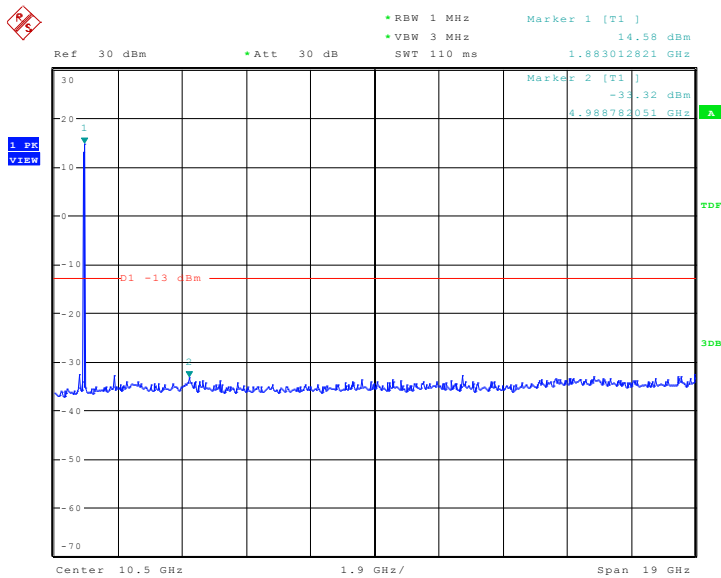
Conducted Emission Transmitting Mode CH 9263 1GHz – 20GHz



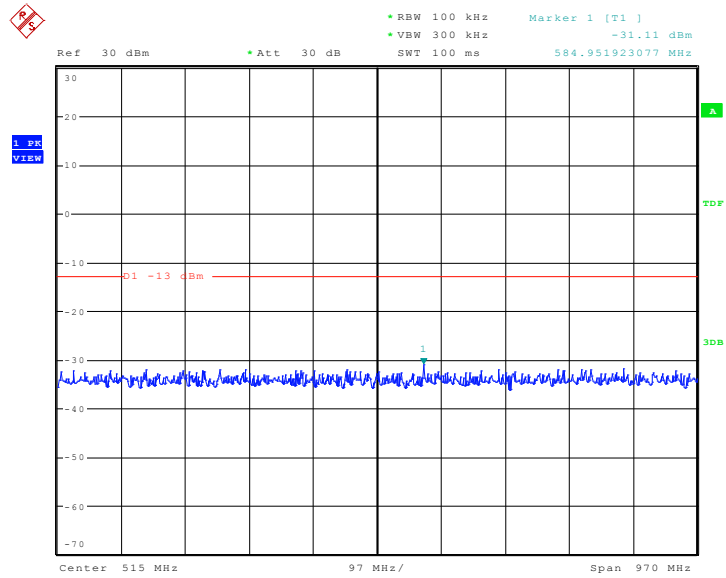
Conducted Emission Transmitting Mode CH 9400 30MHz – 1GHz



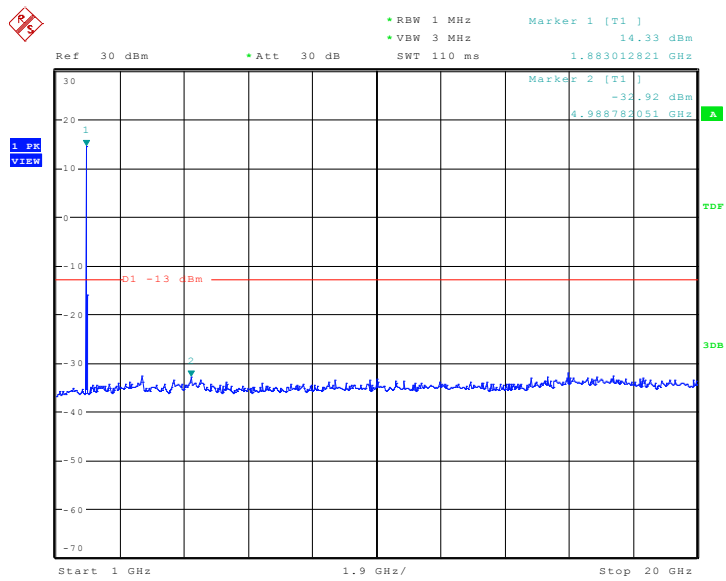
Conducted Emission Transmitting Mode CH 9400 1GHz – 20GHz



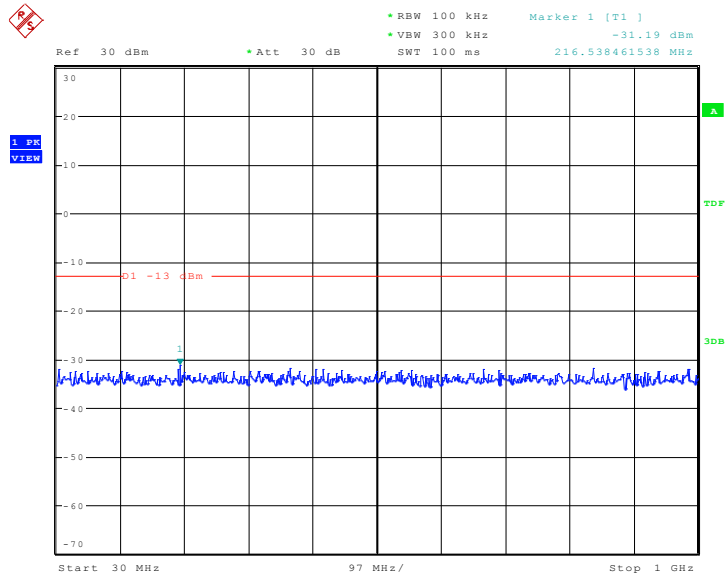
Conducted Emission Transmitting Mode CH 9537 30MHz – 1GHz



Conducted Emission Transmitting Mode CH 9537 1GHz – 20GHz

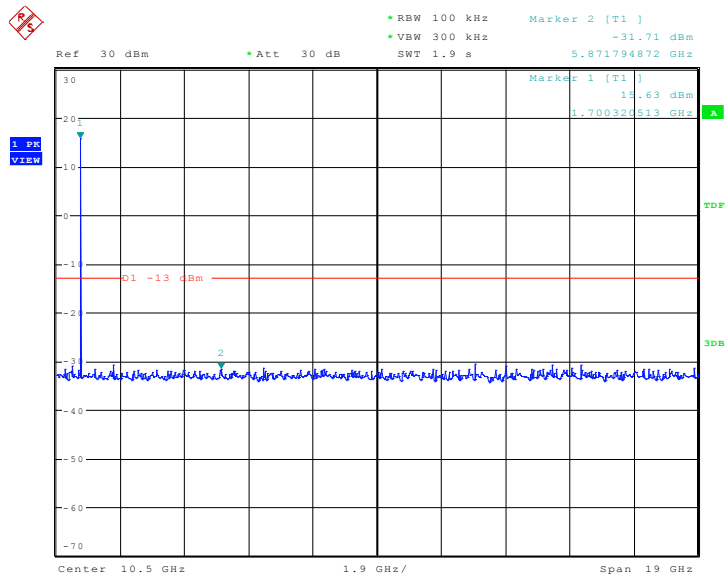


CONDUCTED EMISSION IN WCDMA Band IV Conducted Emission Transmitting Mode CH 1313 30MHz – 1GHz



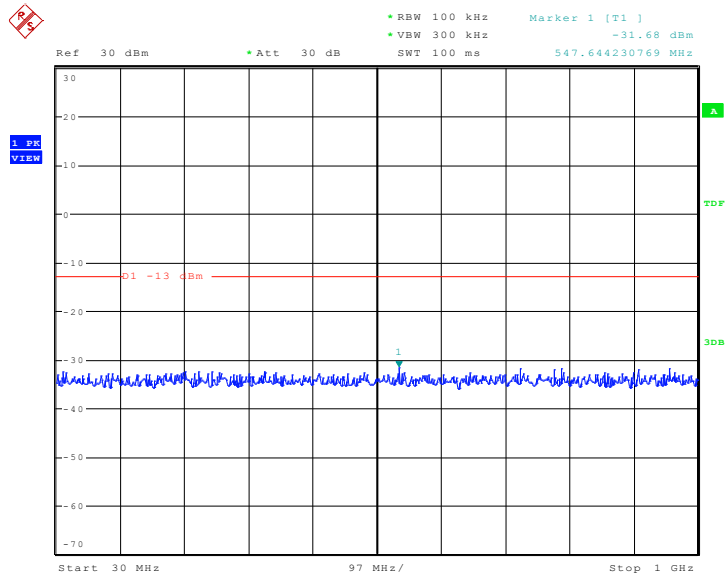
Date: 9.SEP.2016 16:48:01

Conducted Emission Transmitting Mode CH 1313 1GHz – 20GHz



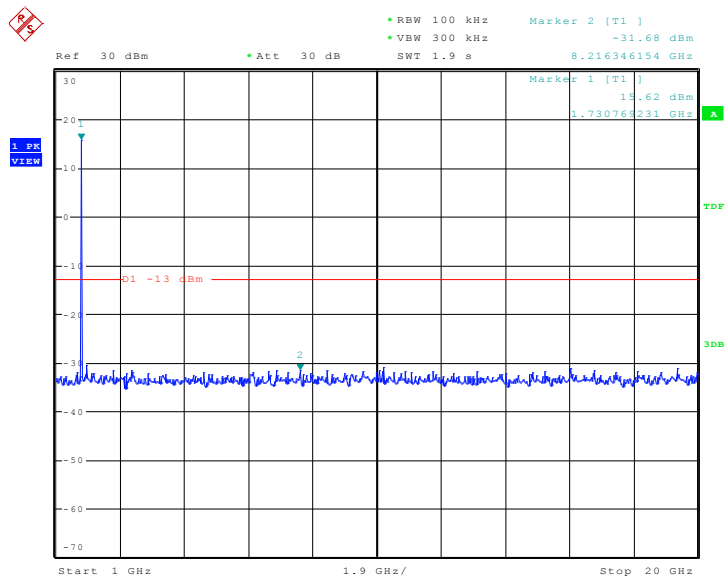
Date: 9.SEP.2016 16:47:28

Conducted Emission Transmitting Mode CH 1512 30MHz – 1GHz



Date: 9.SEP.2016 16:49:43

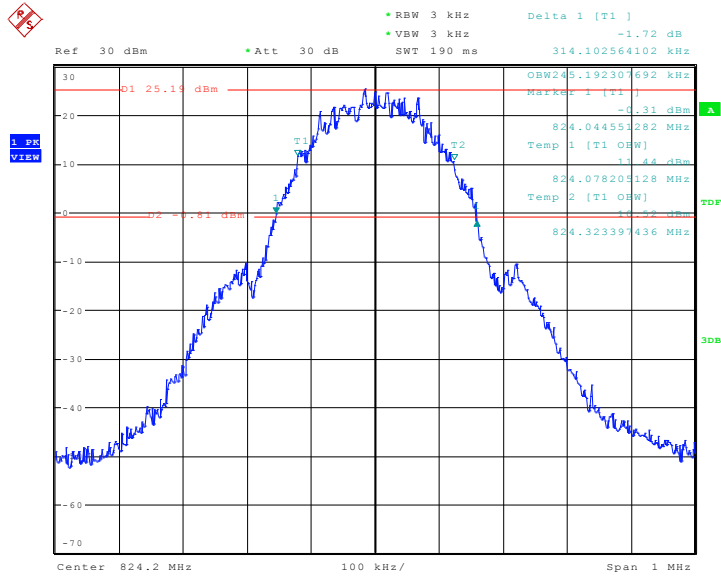
Conducted Emission Transmitting Mode CH 1512 1GHz – 20GHz



Date: 9.SEP.2016 16:50:11

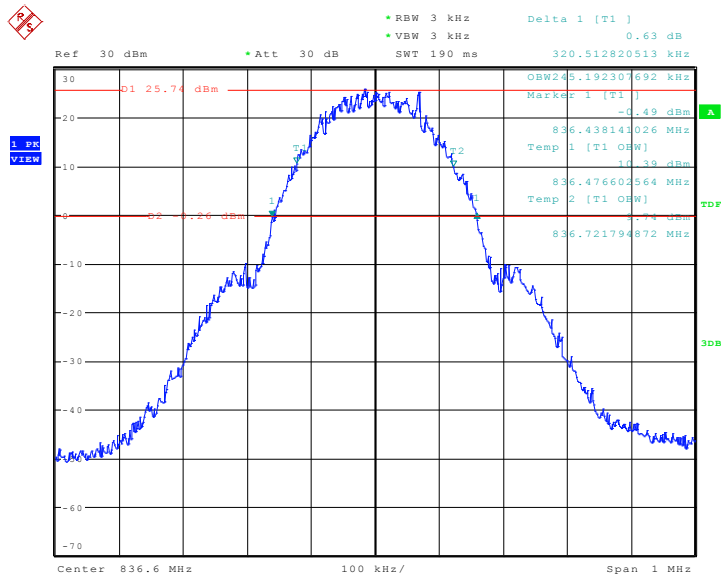
APPENDIX B: TEST PLOTS FOR OCCUPIED BANDWIDTH (99% and -26dBc)

Occupied Bandwidth (99% and -26dBc) GSM 850 BAND CH 128



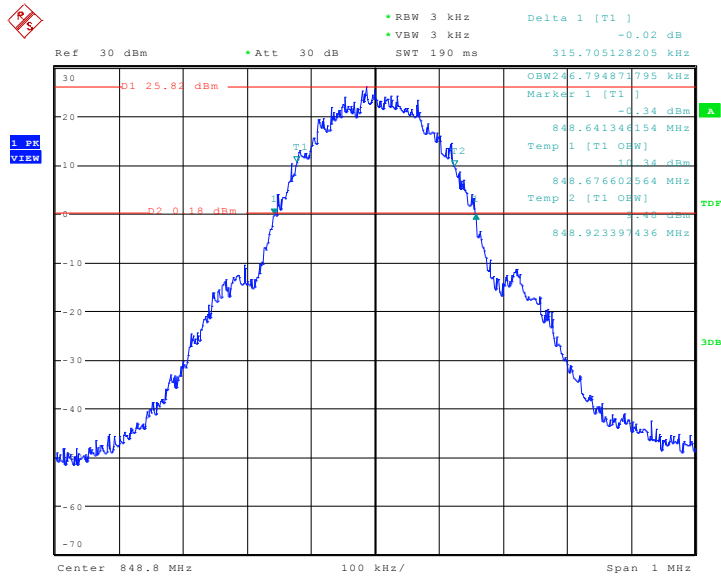
Date: 26.AUG.2016 14:47:54

Occupied Bandwidth (99% and -26dBc) GSM 850 BAND CH 190



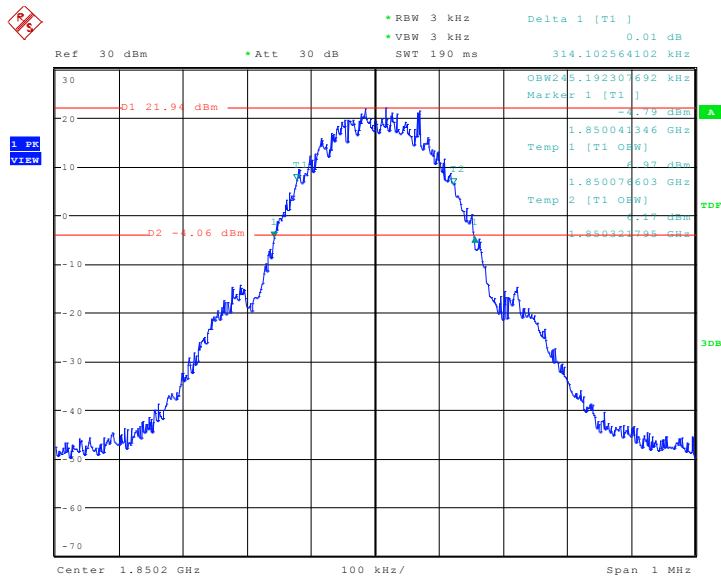
Date: 26.AUG.2016 14:57:42

Occupied Bandwidth (99% and -26dBc) GSM 850 BAND CH 251



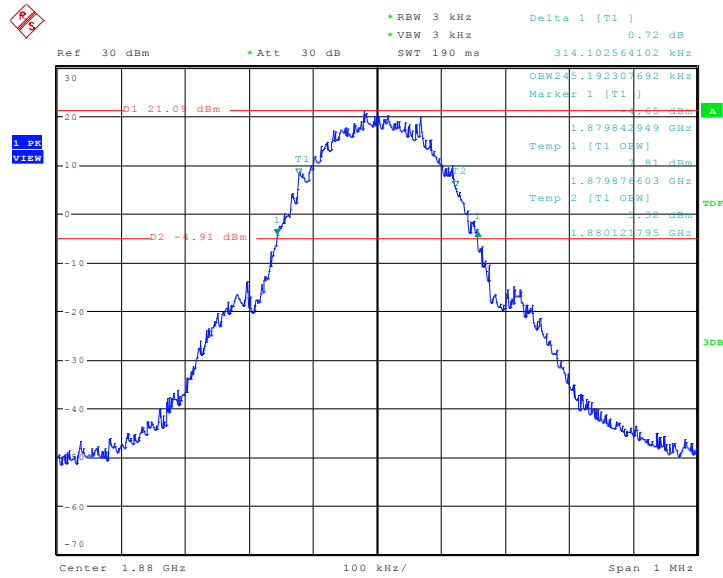
Date: 26.AUG.2016 15:05:25

Occupied Bandwidth (99% and -26dBc) PCS 1900 BAND CH 512



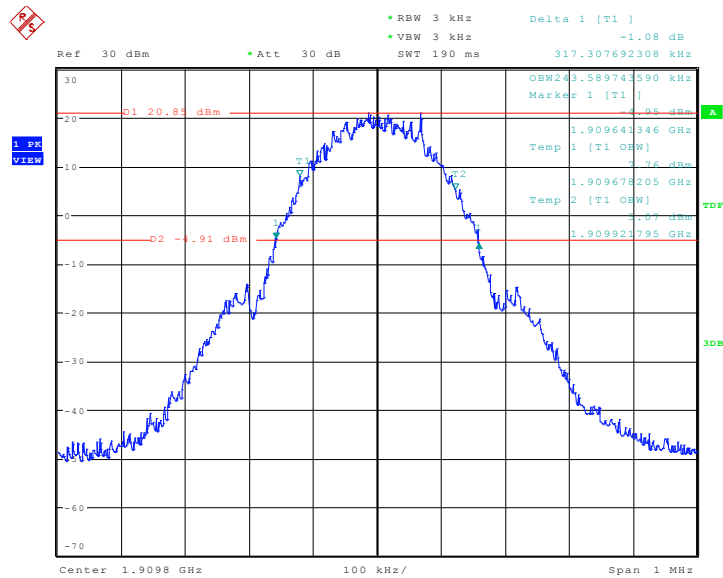
Date: 26.AUG.2016 10:57:11

Occupied Bandwidth (99% and -26dBc) PCS 1900 BAND CH 661



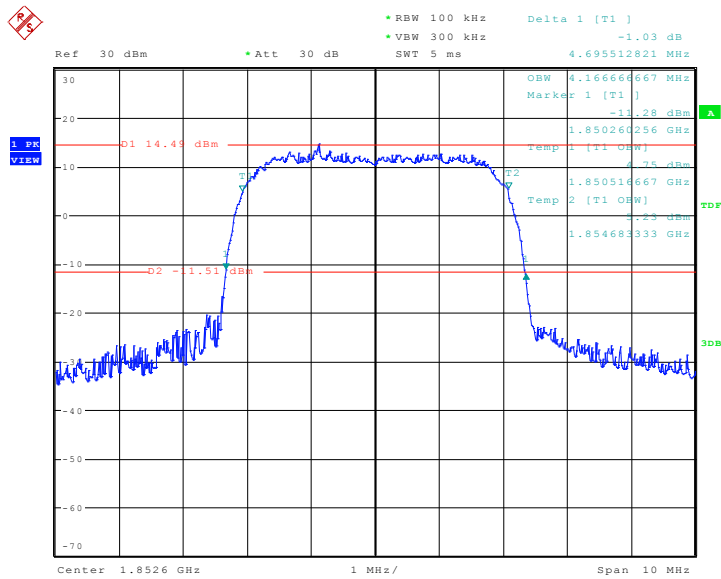
Date: 26.AUG.2016 15:32:11

Occupied Bandwidth (99% and -26dBc) PCS 1900 BAND CH 810



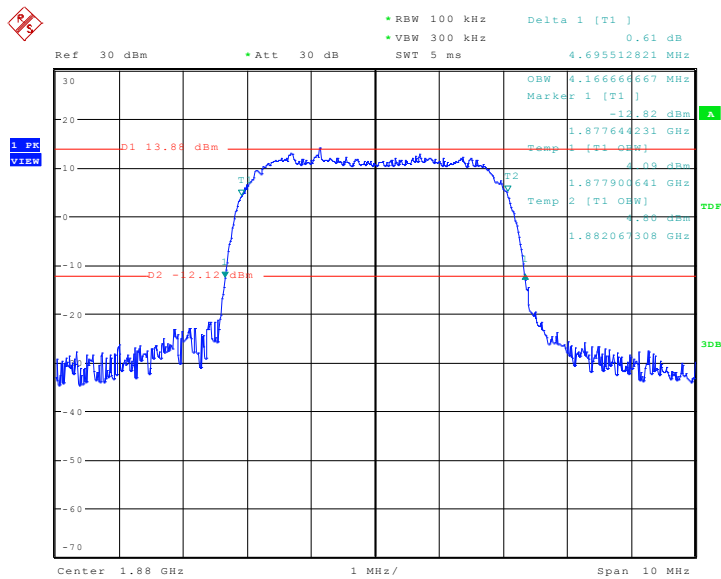
Date: 26.AUG.2016 15:36:53

Occupied Bandwidth (99% and -26dBc) WCDMA BAND II CH 9263



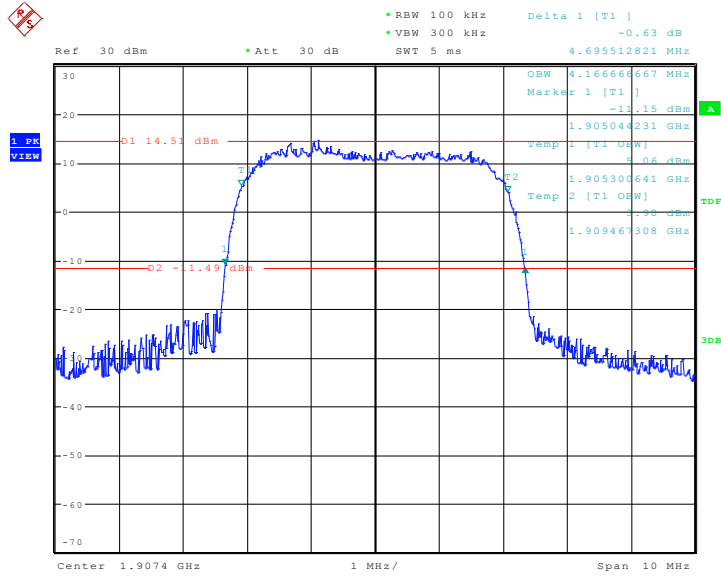
Date: 26.AUG.2016 15:52:59

Occupied Bandwidth (99%and-26dBc) WCDMA BAND II CH 9400



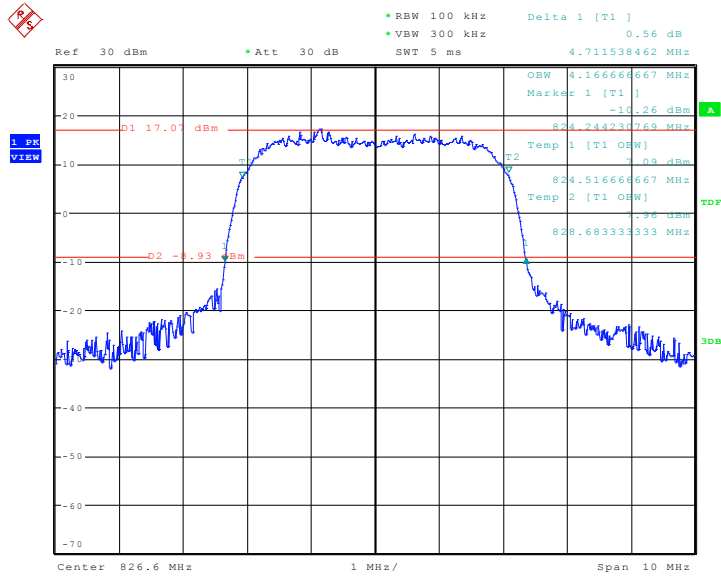
Date: 26.AUG.2016 15:57:08

Occupied Bandwidth (99%and-26dBc) WCDMA BAND II CH 9537



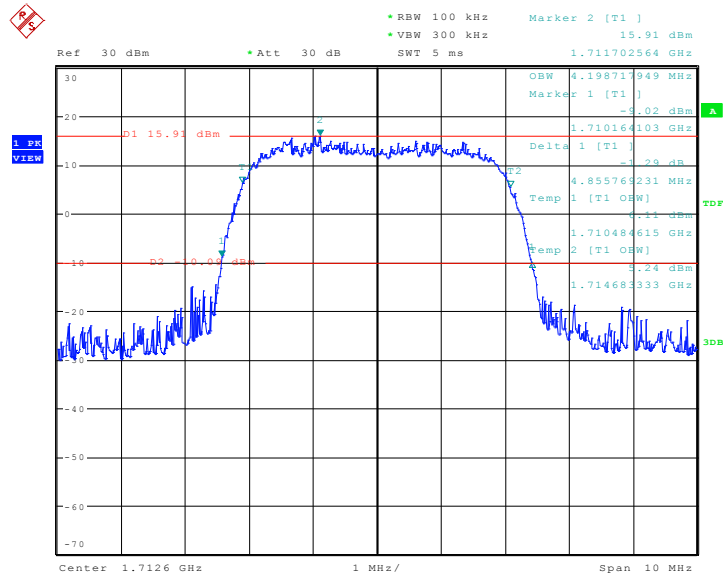
Date: 26.AUG.2016 16:00:19

Occupied Bandwidth (99%and-26dBc) WCDMA BAND V CH 4133



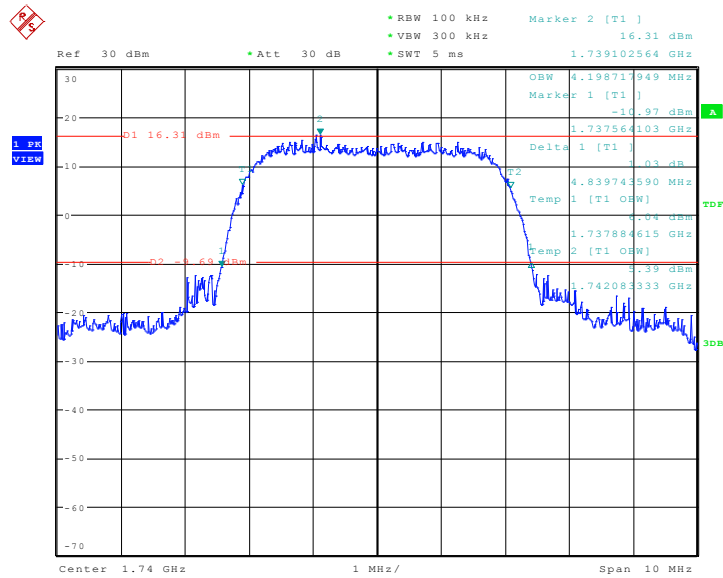
Date: 26.AUG.2016 16:08:28

Occupied Bandwidth (99% and -26dBc) WCDMA BAND IV CH 1313



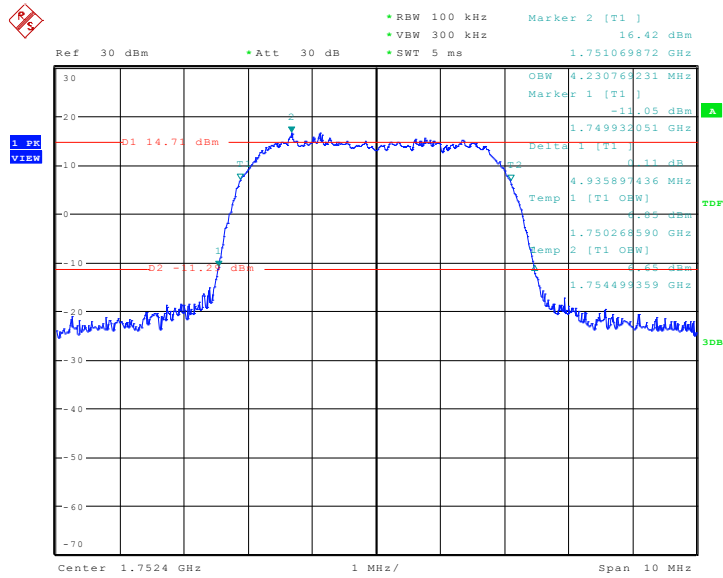
Date: 12.SEP.2016 18:19:20

Occupied Bandwidth (99% and -26dBc) WCDMA BAND IV CH 1450



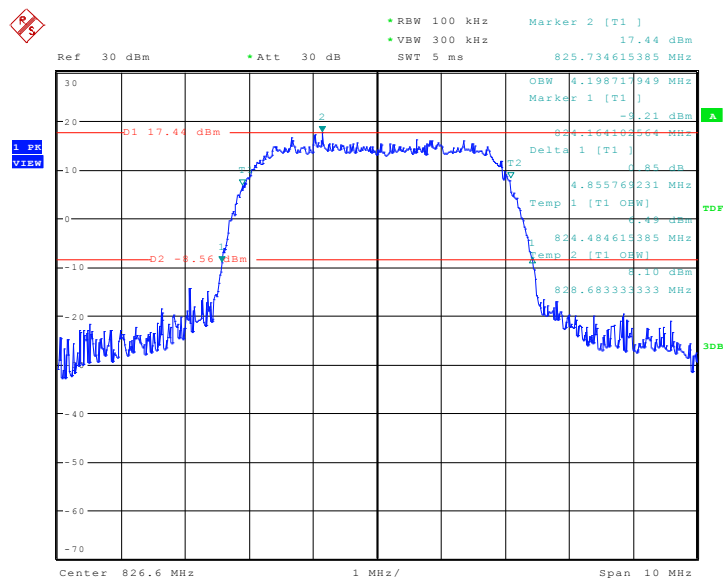
Date: 12.SEP.2016 18:11:12

Occupied Bandwidth (99% and -26dBc) WCDMA BAND IV CH 1512



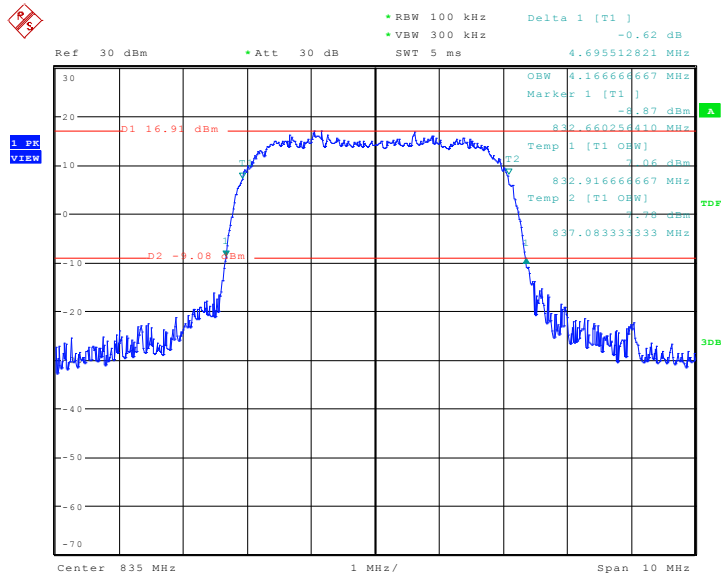
Date: 12.SEP.2016 18:07:58

Occupied Bandwidth (99% and -26dBc) WCDMA BAND V CH 4133



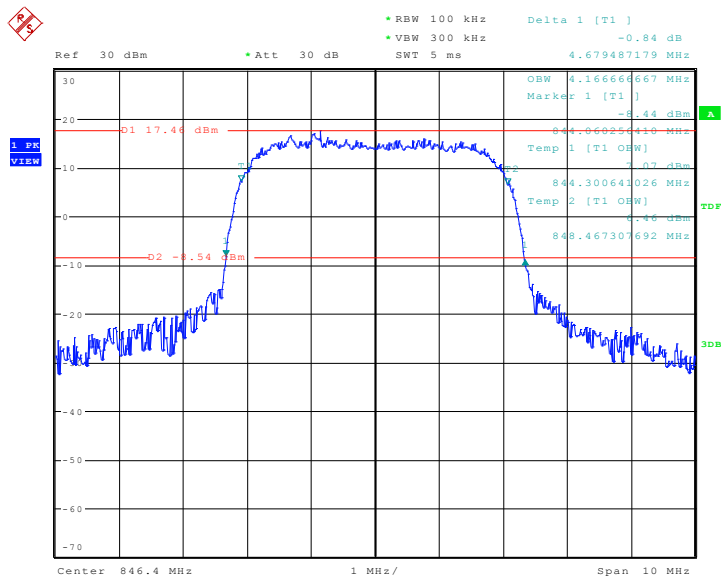
Date: 9.SEP.2016 17:43:41

Occupied Bandwidth (99%and-26dBc) WCDMA BAND V CH 4175



Date: 26.AUG.2016 16:16:35

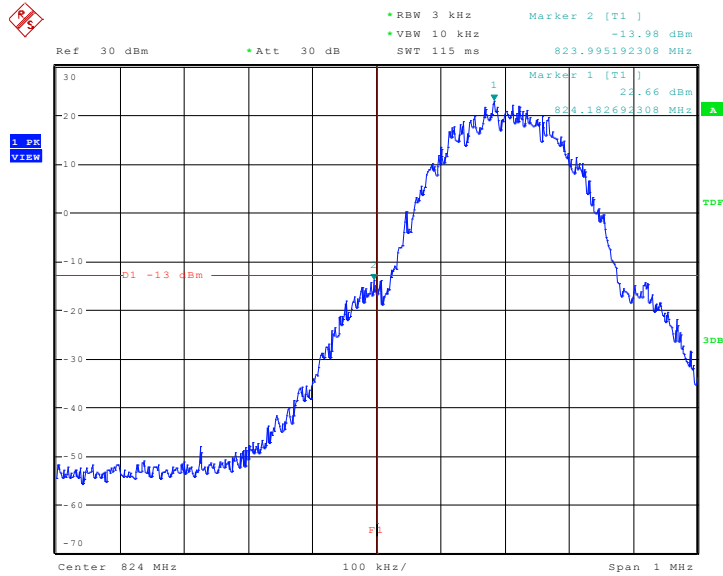
Occupied Bandwidth (99%and-26dBc) WCDMA BAND V CH 4232



Date: 26.AUG.2016 16:19:08

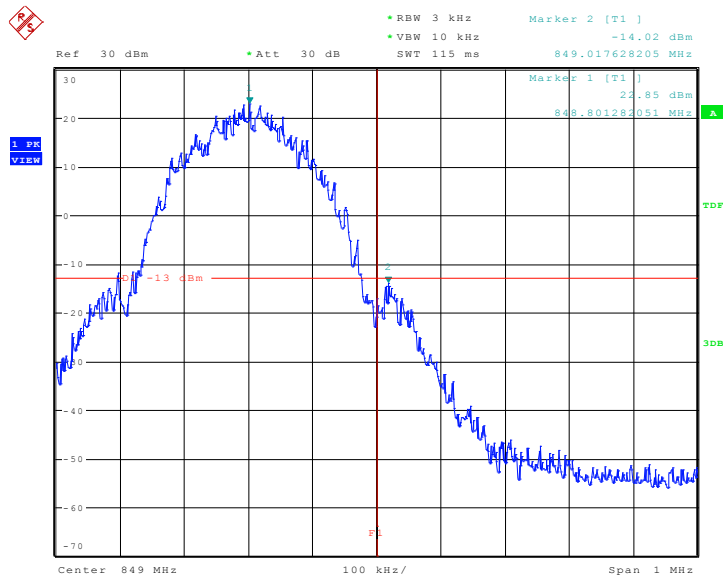
APPENDIX C: TEST PLOTS FOR BAND EDGES

Low Band Edge GSM 850 BAND CH 128



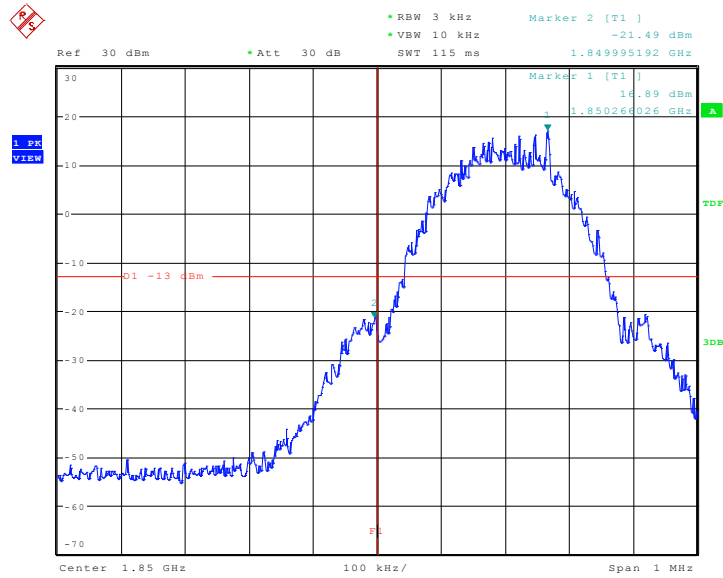
Date: 30.AUG.2016 11:32:31

High Band Edge GSM 850 BAND CH 251



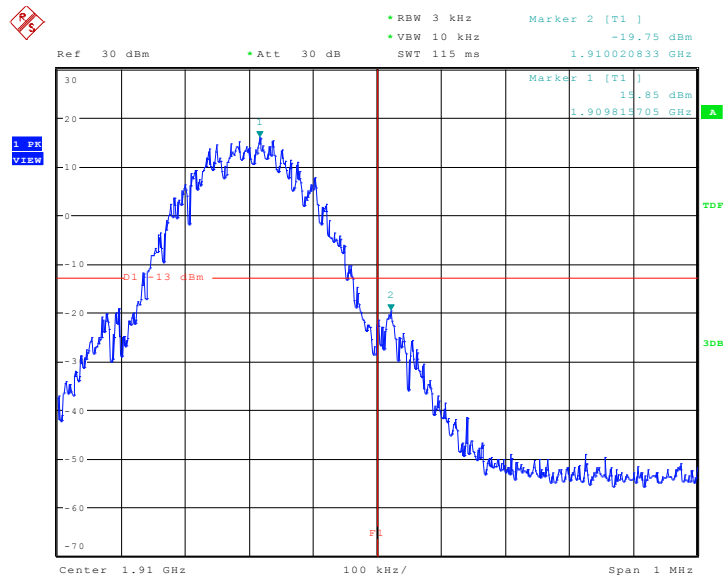
Date: 30.AUG.2016 11:33:17

Low Band Edge PCS 1900 BAND CH 512



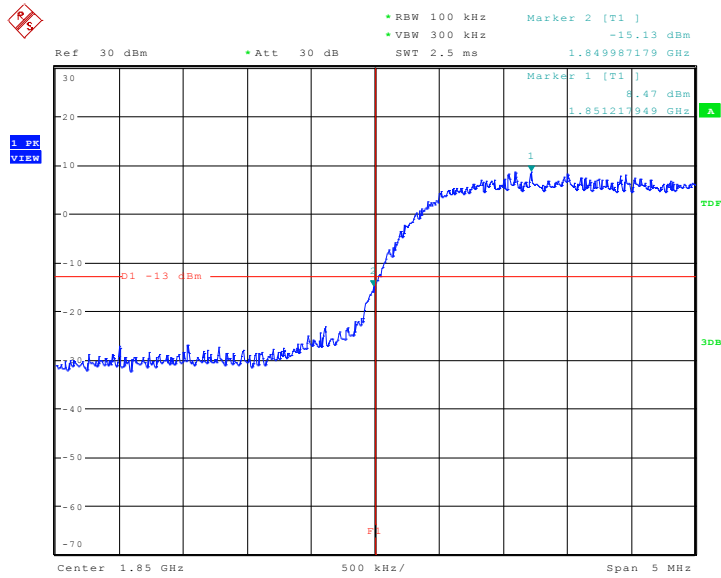
Date: 30.AUG.2016 11:35:36

High Band Edge PCS 1900 BAND CH 810



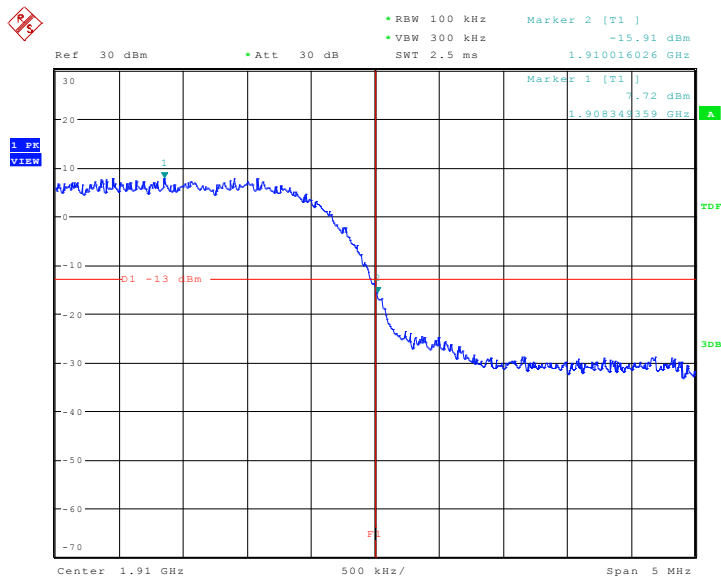
Date: 30.AUG.2016 11:36:23

Low Band Edge WCDMA BAND II CH 9263



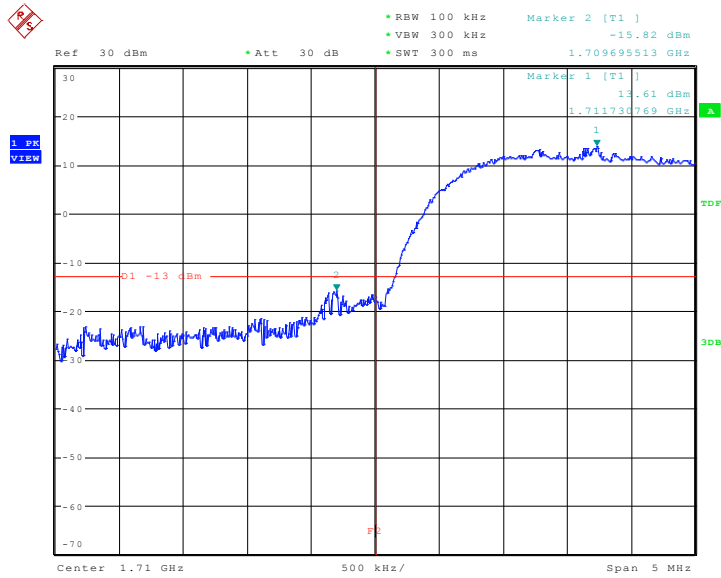
Date: 30.AUG.2016 11:38:51

High Band Edge WCDMA BAND II CH 9537



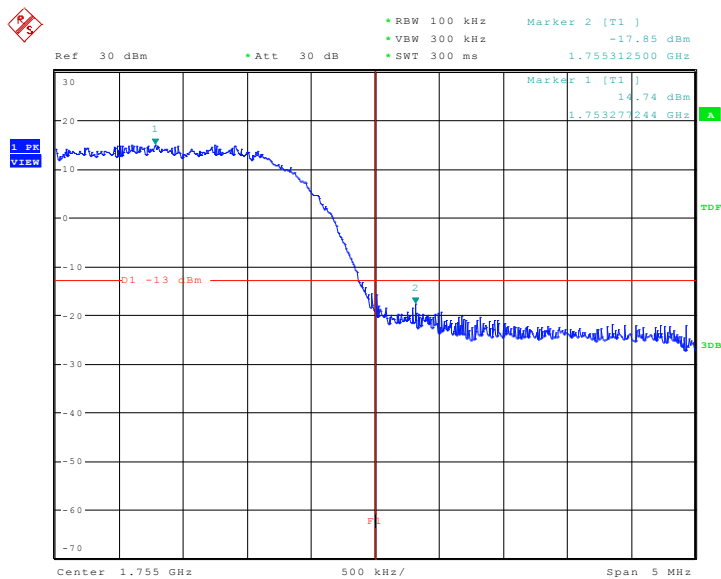
Date: 30.AUG.2016 11:39:46

Low Band Edge WCDMA BAND IV CH 1313



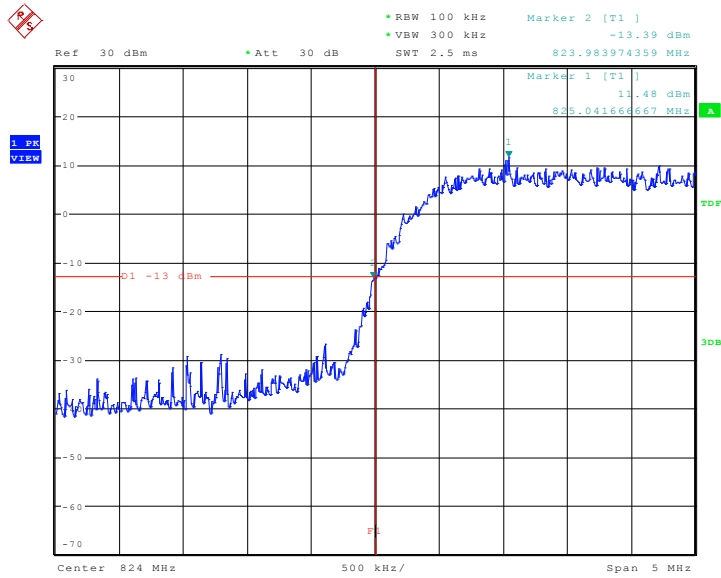
Date: 13.SEP.2016 09:53:45

Low Band Edge WCDMA BAND IV CH 1512



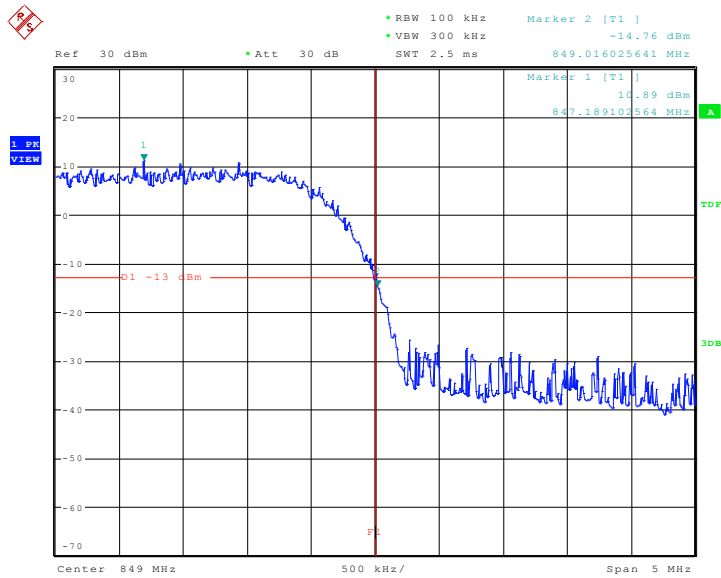
Date: 13.SEP.2016 09:55:56

Low Band Edge WCDMA BAND V CH 4133



Date: 30.AUG.2016 11:40:57

High Band Edge WCDMA BAND V CH 4232



Date: 30.AUG.2016 11:41:43

---END OF REPORT---