# FCC Radio Test Report

## FCC ID: QISAGS2-L03

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

| | |
|---|---|
| **Project No.** | : 1808C216 |
| **Equipment** | : HUAWEI MediaPad T5 |
| **Model Name** | : AGS2-L03 |
| **Series Model** | : N/A |
| **Applicant** | : Huawei Technologies Co., Ltd. |
| **Address** | : Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |

| | |
|---|---|
| **Date of Receipt** | : Aug. 24, 2018 |
| **Date of Test** | : Aug. 27, 2018 ~ Sep. 07, 2018 |
| **Issued Date** | : Sep. 13, 2018 |
| **Tested by** | : BTL Inc. |

**Technical Manager** : David Mao

(David Mao)

**Authorized Signatory** : Steven Lu

(Steven Lu)


**BTL INC.**

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NVLAP® TESTING NVLAP LAB CODE 200788-0

## 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 standards traceable to international standard(s) and/or national standard(s).

**BTL**'s reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

**BTL**'s laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements in all the possible configurations as representative of its intended use.

## Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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## REPORT ISSUED HISTORY

| Issued No. | Description | Issued Date |
|---|---|---|
| BTL-FCCP-5-1808C216 | Original Issue. | Sep. 13, 2018 |

## 1. CERTIFICATION

| | | |
|---|---|---|
| Equipment | : | HUAWEI MediaPad T5 |
| Brand Name | : | HUAWEI |
| Model Name | : | AGS2-L03 |
| Series Model | : | N/A |
| Applicant | : | Huawei Technologies Co., Ltd. |
| Manufacturer | : | Huawei Technologies Co., Ltd. |
| Address | : | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |
| Factory | : | Huawei Technologies Co., Ltd. |
| Address | : | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |
| Date of Test | : | Aug. 27, 2018 ~ Sep. 07, 2018 |
| Test Sample | : | Engineering Sample No.: D180807232 for conducted, D180807229 for radiated. |
| Standard(s) | : | 47 CFR FCC Part 22 Subpart H<br>47 CFR FCC Part 2<br>ANSI/TIA-603-D-2010<br>FCC KDB 971168 D01 Power Meas License Digital Systems v03 |

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-5-1808C216) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP according to the ISO-17025 quality assessment standard and technical standard(s).

**Test result included in this report is only for the GSM850, WCDMA Band V, LTE Band 5 part.**

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| FCC Part 22 Subpart H & Part 2 | | | |
|---|---|---|---|
| Standard(s) Section | Test Item | Judgment | Tested By |
| 2.1046<br>22.913(a) | Radiated power | PASS | Paul Li |
| 2.1046<br>22.913(a) | Maximum Output Power | PASS | Paul Li |
| 2.1049(h)<br>22.917(a) | Occupied Bandwidth | PASS | Paul Li |
| 2.1051<br>22.917(a) | Conducted Spurious Emissions | PASS | Paul Li |
| 2.1053<br>22.917(a) | Radiated Spurious Emissions | PASS | Paul Li |
| 22.917(a) | Band Edge Measurements | PASS | Paul Li |
| - | Peak To Average Ratio | PASS | Paul Li |
| 2.1055<br>22.355 | Frequency Stability | PASS | Paul Li |

## 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: 854385
BTL's designation number for FCC: CN5020

## 2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty figures shall be calculated according the methods described in the ETSI TR 100 028 and shall correspond to an expansion factor (coverage factor) k=1.96 or k=2(which provide confidence levels of respectively 90% and 95.45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y).

The BTL measurement uncertainty as below table:

A. Radiated Measurement :

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U,(dB) |
|---|---|---|---|---|
| DG-CB03 | CISPR | 9KHz ~ 30MHz | V | 3.79 |
| | | 9KHz ~ 30MHz | H | 3.57 |
| | | 30MHz ~ 200MHz | V | 3.82 |
| | | 30MHz ~ 200MHz | H | 3.78 |
| | | 200MHz ~ 1,000MHz | V | 4.10 |
| | | 200MHz ~ 1,000MHz | H | 4.06 |

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U,(dB) |
|---|---|---|---|---|
| DG-CB03 | CISPR | 1GHz ~ 18GHz | V | 3.12 |
| | | 1GHz ~ 18GHz | H | 3.68 |

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 | HUAWEI MediaPad T5 | | | |
| Brand Name | HUAWEI | | | |
| Model Name | AGS2-L03 | | | |
| Series Model | N/A | | | |
| Model Difference(s) | N/A | | | |
| Modulation Type | GSM/GPRS | GMSK | | |
| | EDGE | GMSK, 8PSK | | |
| | WCDMA | UL: BPSK<br>DL: QPSK | | |
| | WCDMA(HSDPA/HSUPA) | 16QAM | | |
| | LTE | UL: QPSK,16QAM<br>DL: QPSK,16QAM | | |
| Operation Frequency | GSM /EDGE/GPRS | 824.2 MHz ~ 848.8 MHz | | |
| | WCDMA Band V | 826.4 MHz ~ 846.6 MHz | | |
| | LTE 5 (Channel Bandwidth: 1.4MHz) | 824.7 MHz ~ 848.3 MHz | | |
| | LTE 5 (Channel Bandwidth: 3MHz) | 825.5 MHz ~ 847.5 MHz | | |
| | LTE 5 (Channel Bandwidth: 5MHz) | 826.5 MHz ~ 846.5 MHz | | |
| | LTE 5 (Channel Bandwidth: 10MHz) | 829.0 MHz ~ 844.0 MHz | | |
| Max. ERP Power | GSM/GPRS | GMSK | 30.58 | dBm |
| | EDGE | 8PSK | 24.27 | dBm |
| | WCDMA | BPSK | 21.34 | dBm |
| | WCDMA_HSDPA | 16QAM | 21.22 | dBm |
| | WCDMA_HSUPA | 16QAM | 21.21 | dBm |
| | LTE 5 (Channel Bandwidth: 1.4MHz) | QPSK | 21.84 | dBm |
| | | 16QAM | 20.91 | dBm |
| | LTE 5 (Channel Bandwidth: 3MHz) | QPSK | 21.68 | dBm |
| | | 16QAM | 20.97 | dBm |
| | LTE 5 (Channel Bandwidth: 5MHz) | QPSK | 22.60 | dBm |
| | | 16QAM | 21.84 | dBm |
| | LTE 5 (Channel Bandwidth: 10MHz) | QPSK | 22.61 | dBm |
| | | 16QAM | 21.88 | dBm |

| | | |
|---|---|---|
| Antenna Type | Internal Antenna | |
| Antenna Gain | -0.4 dBi | |
| Hardware Version | A6t6e | |
| Softwarre Version | AGS2-L03 8.0.0.20(C605) | |
| IMEI No. | Conducted | 004401721233332 |
| | Radiated | 004401721233373 |
| Power Source | 1# DC voltage supplied from AC/DC adapter.<br>Model: HW-050100U01<br>2# Supplied from battery.<br>Model: HB2899C0ECW-C | |
| Power Rating | 1# I/P: 100-240V~,50/60Hz,0.2A<br>O/P: DC 5V, 1A<br>2# DC 3.82V, 4980mAh | |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT contains following accessory devices.

| Item | Manufacturer | Factory | Description |
|---|---|---|---|
| Adapter | Huawei Technologies Co., Ltd. | HUIZHOU BYD ELECTRONIC CO., LTD. | PDM Number: 02220780<br>Model Name: HW-050100U01<br>Input Voltage :<br>100-240V ~50/60Hz, 0.2A<br>Output Voltage: DC 5V,1A<br>(The EU and US adapter are the same PCB board of same factory) |
| | | Shenzhen Huntkey Electric Co., Ltd. | |
| | | DONG GUAN PHITEK ELECTRONICS CO., LTD. | |
| Battery | Huawei Technologies Co.,Ltd. | SCUD (FUJIAN) Electronics Co., Ltd | PDM Number: 24022744<br>Model Name: HB2899C0ECW-C<br>Rated Voltage: DC 3.82V<br>Rated Capacity: 4980mAh |
| USB Cable | Huawei Technologies Co.,Ltd. | FOXCONN INTERCONNECT TECHNOLOGY LIMITED | Model Name: 04071002 |
| | | HONGLIN TECHNOLOGY CO.,LTD | |
| | | Luxshare Precision Industry Co., Ltd. | |

## 3.2 DESCRIPTION OF TEST MODES AND TEST CONDITION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports
The worst case was found when positioned on X-plane for EIRP and X-axis for radiated emission.
Following channel(s) was (were) selected for the final test as listed below:

| GSM MODE | | | |
|---|---|---|---|
| Test Item | Available Channel | Tested Channel | Mode |
| ERP | 128 to 251 | 128, 190, 251 | GSM, EDGE |
| Maximun Output Power | 128 to 251 | 128, 190, 251 | GSM, EDGE |
| Occupied Bandwidth | 128 to 251 | 128, 190, 251 | GSM, EDGE |
| Condcudeted Emission | 128 to 251 | 190 | GSM, EDGE |
| Radiated Emission | 128 to 251 | 190 | GSM, EDGE |
| Band Edge | 128 to 251 | 128, 251 | GSM, EDGE |
| Peak to Average Ratio | 128 to 251 | 128, 190, 251 | GSM, EDGE |
| Frequency Stability | 128 to 251 | 190 | GSM |

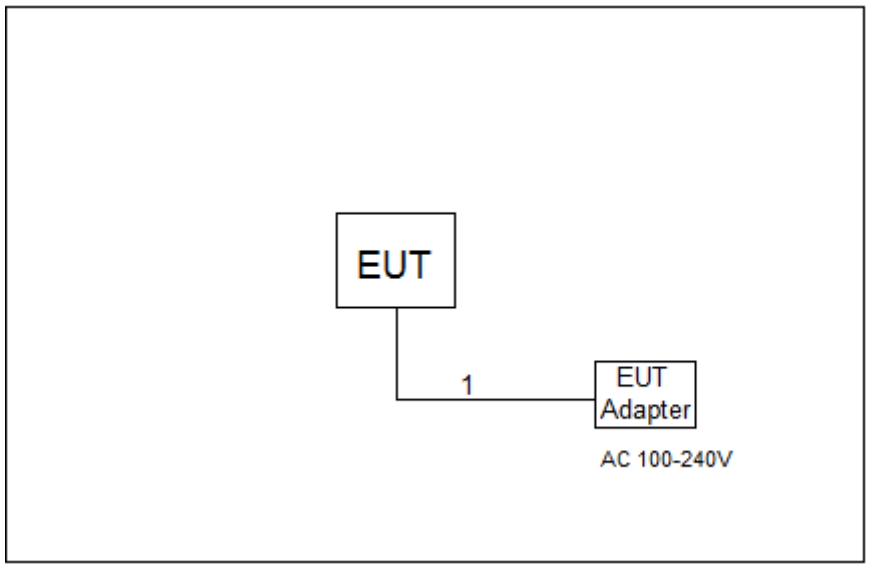
| WCDMA MODE | | | |
|---|---|---|---|
| Test Item | Available Channel | Tested Channel | Mode |
| ERP | 4132 to 4233 | 4132, 4182, 4233 | WCDMA, HSDPA, HSUPA |
| Maximum Output Power | 4132 to 4233 | 4132, 4182, 4233 | WCDMA, HSDPA, HSUPA |
| Conducted Emission | 4132 to 4233 | 4182 | WCDMA, HSDPA, HSUPA |
| Radiated Emission | 4132 to 4233 | 4182 | WCDMA |
| Band Edge | 4132 to 4233 | 4132, 4233 | WCDMA, HSDPA, HSUPA |
| Peak to Average Ratio | 4132 to 4233 | 4132, 4182, 4233 | WCDMA, HSDPA, HSUPA |
| Frequency Stability | 4132 to 4233 | 4182 | WCDMA |

| LTE BAND 5 | | | | | |
|---|---|---|---|---|---|
| Test Item | Available Channel | Tested Channel | Channel Bandwidth | Modulation | Mode |
| ERP | 20407 to 20643 | 20407, 20525, 20643 | 1.4MHz | QPSK, 16QAM | 1RB/3RB/6RB |
| | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | QPSK, 16QAM | 1RB/8RB/15RB |
| | 20425 to 20625 | 20425, 20525, 20625 | 5MHz | QPSK, 16QAM | 1RB/12RB/25RB |
| | 20450 to 20600 | 20450, 20525, 20600 | 10MHz | QPSK, 16QAM | 1RB/25RB/50RB |
| Occupied Bandwidth | 20407 to 20643 | 20407, 20525, 20643 | 1.4MHz | QPSK, 16QAM | 6 RB |
| | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | QPSK, 16QAM | 15 RB |
| | 20425 to 20625 | 20425, 20525, 20625 | 5MHz | QPSK, 16QAM | 25 RB |
| | 20450 to 20600 | 20450, 20525, 20600 | 10MHz | QPSK, 16QAM | 50 RB |
| Conducted Emission | 20407 to 20643 | 20525 | 1.4MHz | QPSK | 1 RB |
| | 20425 to 20625 | 20525 | 5MHz | QPSK | 1 RB |
| | 20450 to 20600 | 20525 | 10MHz | QPSK | 1 RB |
| Radiated Emission | 20407 to 20643 | 20525 | 1.4MHz | QPSK | 1 RB |
| | 20425 to 20625 | 20525 | 5MHz | QPSK | 1 RB |
| | 20450 to 20600 | 20525 | 10MHz | QPSK | 1 RB |
| Band Edge | 20407 to 20643 | 20407 | 1.4MHz | QPSK | 1 RB |
| | | | | | 6 RB |
| | | 20643 | 1.4MHz | QPSK | 1 RB |
| | | | | | 6 RB |
| | 20415 to 20635 | 20415 | 3MHz | QPSK | 1 RB |
| | | | | | 15 RB |
| | | 20635 | 3MHz | QPSK | 1 RB |
| | | | | | 15 RB |
| | 20425 to 20625 | 20425 | 5MHz | QPSK | 1 RB |
| | | | | | 25 RB |
| | | 20625 | 5MHz | QPSK | 1 RB |
| | | | | | 25 RB |
| | 20450 to 20600 | 20450 | 10MHz | QPSK | 1 RB |
| | | | | | 50 RB |
| | | 20600 | 10MHz | QPSK | 1 RB |
| | | | | | 50 RB |
| Peak To Average Ratio | 20407 to 20643 | 20407, 20525, 20643 | 1.4MHz | QPSK, 16QAM | 1 RB |
| | 20415 to 20635 | 20415, 20525, 20635 | 3MHz | QPSK, 16QAM | 1 RB |
| | 20425 to 20625 | 20425, 20525, 20625 | 5MHz | QPSK, 16QAM | 1 RB |
| | 20450 to 20600 | 20450, 20525, 20600 | 10MHz | QPSK, 16QAM | 1 RB |
| Frequency Stability | 20407 to 20643 | 20525 | 1.4MHz | QPSK | 1 RB |
| | 20415 to 20635 | 20525 | 3MHz | QPSK | 1 RB |
| | 20425 to 20625 | 20525 | 5MHz | QPSK | 1 RB |
| | 20450 to 20600 | 20525 | 10MHz | QPSK | 1 RB |

**EUT TEST CONDITIONS:**

| Test Item | Environmental Conditions | Test Voltage |
|---|---|---|
| ERP | 25°C, 60%RH | DC 3.82V |
| Maximum Output Power | 25°C, 65%RH | DC 3.82V |
| Occupied Bandwidth | 25°C, 65%RH | DC 3.82V |
| Conducted Emission | 25°C, 65%RH | DC 3.82V |
| Radiated Emission | 25°C, 60%RH | AC 120V/60Hz |
| Band Edge | 25°C, 65%RH | DC 3.82V |
| Peak to Average Ratio | 25°C, 65%RH | DC 3.82V |
| Frequency Stability | Normal and Extreme | Normal and Extreme |

### 3.3 BLOCKDIGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED FOR RADIATED




### 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. |
|---|---|---|---|---|---|
| - | - | - | - | - | - |

| Item | Shielded Type | Ferrite Core | Length | Note |
|---|---|---|---|---|
| 1 | NO | NO | 1.2m | DC Cable |

# 4. TEST RESULT

## 4.1 OUTPUT POWER MEASUREMENT

### 4.1.1 LIMIT

Mobile / Portable station are limited to 7 watts e.r.p.

### 4.1.2 TEST PROCEDURE

**EURP/ ERP:**

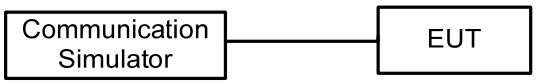
1. EIRP= Output Power +Antenan gain
   ERP power= EIPR power-2.15dBi.

**Maximum Output Power:**

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

### 4.1.3 TESTSETUP LAYOUT

**Output Power Measurement**




### 4.1.4 TEST DEVIATION

No deviation

### 4.1.5 TEST RESULTS

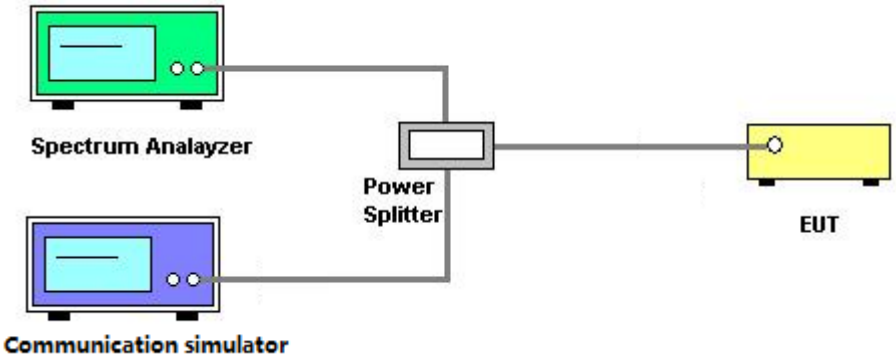
Please refer to the Appendix A.

## 4.2 OCCUPIED BANDWIDTH MEASUREMENT

### 4.2.1 TEST PROCEDURE

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth and 26dB bandwidth.

### 4.2.2 TEST SETUP LAYOUT




### 4.2.3 TEST DEVIATION

No deviation

### 4.2.4 TEST RESULTS

Please refer to the Appendix B.

## 4.3 CONDUCTED EMISSIONS MEASUREMENT

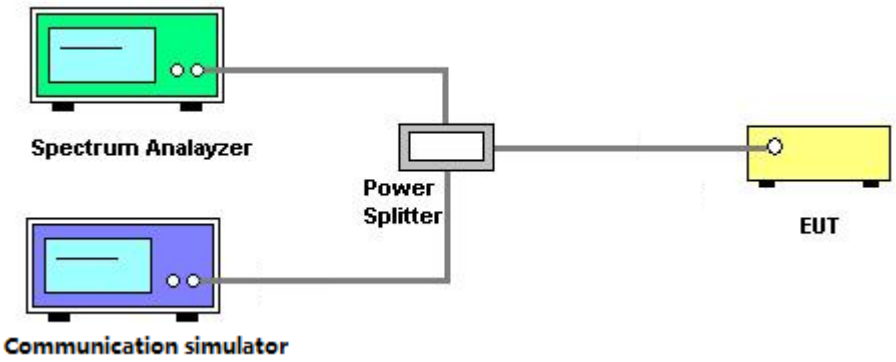
### 4.3.1 LIMIT

The power of any emission 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. The emission limit equal to -13dBm.

### 4.3.2 TEST PROCEDURES

1. The testing follows FCC KDB 971168 v03 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured. Set RBW>=1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Set spectrum analyzer with RMS detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from 43+10log(P)dB below the transmitter power P(Watts)
   =P(W)-[43+10log(P)](dB)
   =[30+10log(P)](dBm)-[43+10log(P)](dB)
   =-13dBm

### 4.3.3 TESTSETUP LAYOUT




### 4.3.4 TESTDEVIATION

No deviation

### 4.3.5 TEST RESULTS

Please refer to the Appendix C.

## 4.4 RADIATED EMISSIONS MEASUREMENT

### 4.4.1 LIMIT

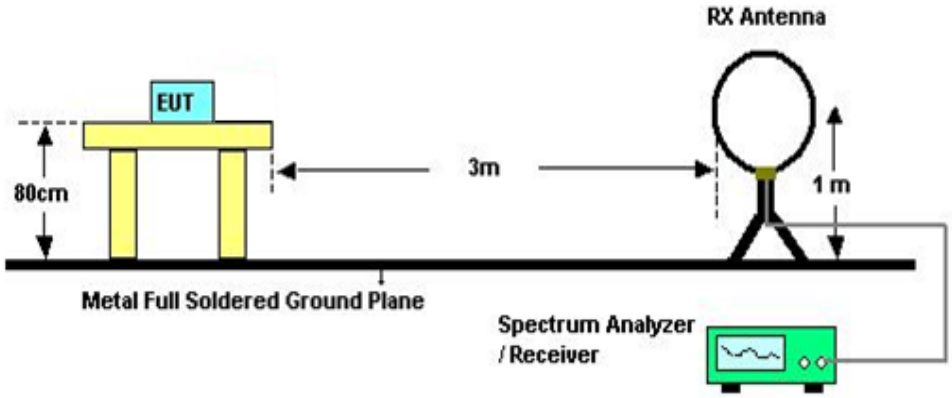
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

### 4.4.2 TEST PROCEDURES

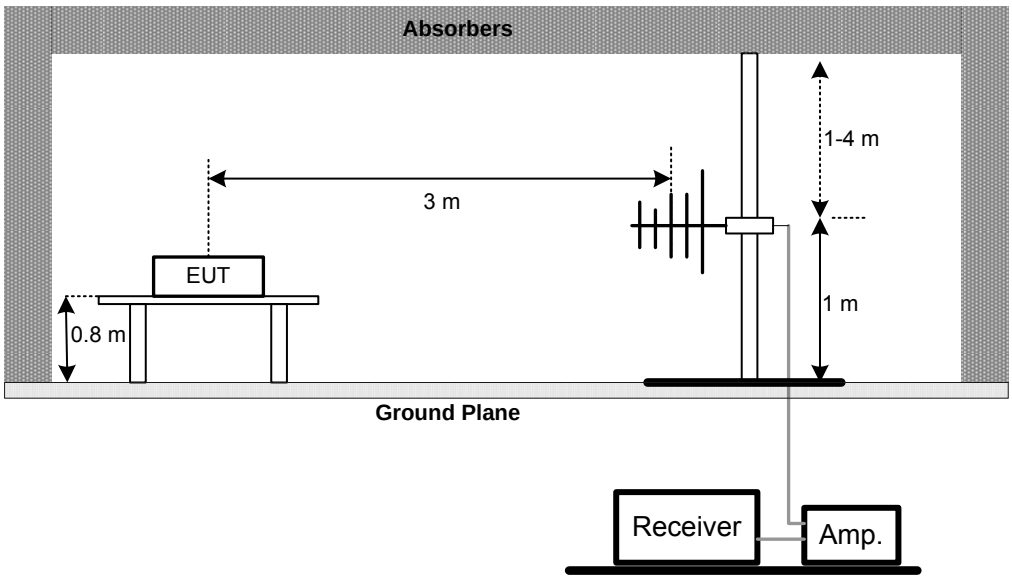
1. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
2. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step a. Record the power level of S.G
3. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
4. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

### 4.4.3 TESTSETUP LAYOUT

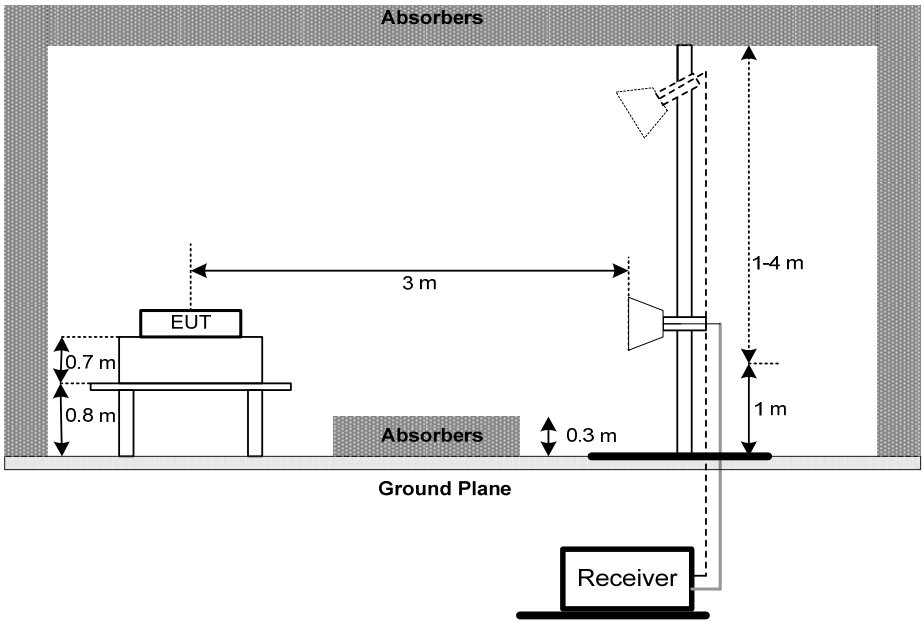
**Below 30MHz**




**30MHz to 1GHz**



**1GHz to 18GHz**




### 4.4.4 TESTDEVIATION

No deviation

### 4.4.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Appendix D.

### 4.4.6 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the Appendix E.

### 4.4.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the Appendix F.

## 4.5 BAND EDGE MEASUREMENT

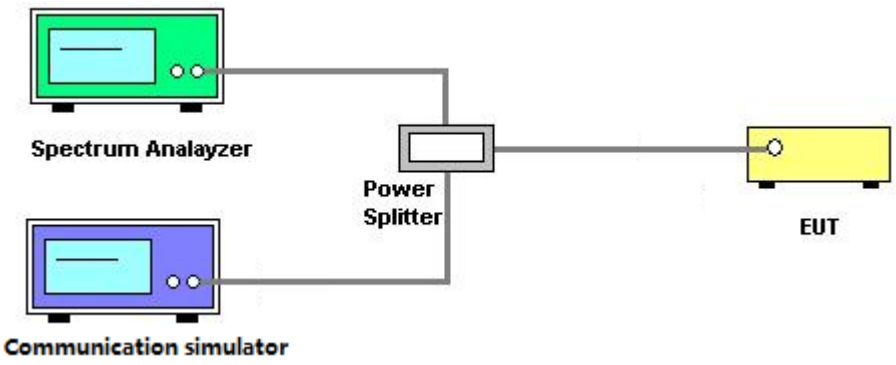
### 4.5.1 LIMIT

A Power of any emission 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 and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 4.5.2 TEST PROCEDURES

1. All measurements were done at low and high operational frequency range.
2. The center frequency of spectrum is the band edge frequency and span is 1.5MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz (GSM/GPRS/EDGE).
3. The center frequency of spectrum is the band edge frequency and span is 10MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
4. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 15kHz and VB of the spectrum is 43kHz (LTE Bandwidth 1.4MHz).
5. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 30kHz and VB of the spectrum is 91kHz (LTE Bandwidth 3MHz).
6. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 51kHz and VB of the spectrum is 150kHz (LTE Bandwidth 5MHz).
7. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Bandwidth 10MHz).
8. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Bandwidth 15MHz).
9. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 200kHz and VB of the spectrum is 620kHz (LTE Bandwidth 20MHz).
10. Record the max trace plot into the test report.

### 4.5.3 TESTSETUP LAYOUT




### 4.5.4 TESTDEVIATION

No deviation

### 4.5.5 TEST RESULTS

Please refer to the Appendix G.

## 4.6 PEAK TO AVERAGE RATIO MEASUREMENT

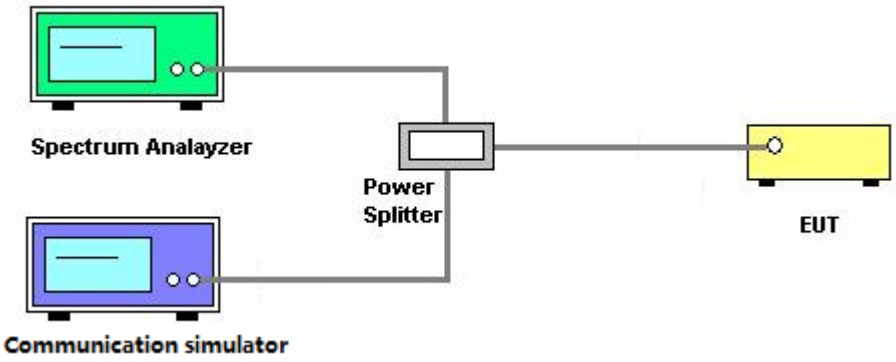
### 4.6.1 LIMIT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 4.6.2 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;
3. Record the maximum PAPR level associated with a probability of 0.1%.

### 4.6.3 TESTSETUP LAYOUT




### 4.6.4 TESTDEVIATION

No deviation

### 4.6.5 TEST RESULTS

Please refer to the Appendix H.

## 4.7 FREQUENCY STABILITY MEASUREMENT

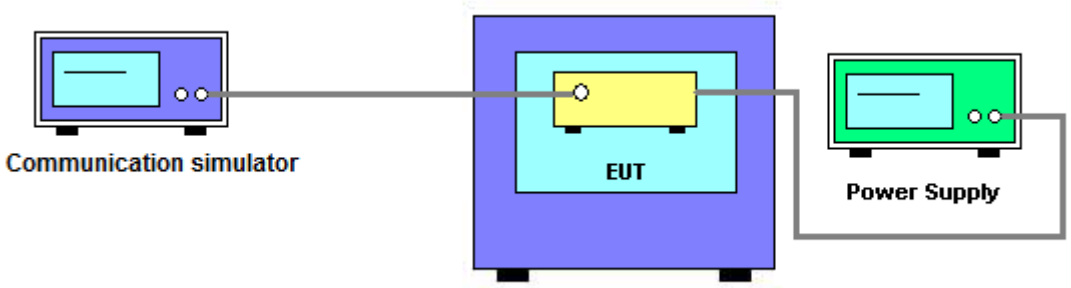
### 4.7.1 LIMIT

1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

### 4.7.2 TEST PROCEDURES

1. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
2. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
3. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5°C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
4. The frequency error was recorded frequency error from the communication simulator.

### 4.7.3 TESTSETUP LAYOUT




### 4.7.4 TESTDEVIATION

No deviation

### 4.7.5 TEST RESULTS

Please refer to the Appendix I.

## 5. LIST OF MEASUREMENT EQUIPMENTS

| Radiated Emission Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Antenna | Schwarbeck | VULB9160 | 9160-3232 | Mar. 11, 2019 |
| 2 | Amplifier | Agilent | 8449B | 3008A02274 | Mar. 11, 2019 |
| 3 | Amplifier | HP | 8447D | 2944A09673 | Aug. 11, 2019 |
| 4 | HighPass Filter | Wairrwright Instruments Gmbh | WHK 1.5/15G-10ST | 11 | Mar. 11, 2019 |
| 5 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 1710/1785-1690/1805-60/12SS | 38 | Mar. 11, 2019 |
| 6 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 824/849-810/863-60/9SS | 7 | Mar. 11, 2019 |
| 7 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 880/915-860/935-60/9SS | 14 | Mar. 11, 2019 |
| 8 | Band Reject Filter | Wairrwright Instruments Gmbh | WRCG 1850/1910-1830/1930-60/10SS | 17 | Mar. 11, 2019 |
| 9 | HighPass Filter | Wairrwright Instruments Gmbh | WHK3.1/18G-10SS | 24 | Mar. 11, 2019 |
| 10 | Wireless Communication Test SET | Agilent | E5515C | MY48364183 | Mar. 11, 2019 |
| 11 | Microwave Preamplifier With Adaptor | EMC INSTRUMENT | EMC2654045 | 980039 & HA01 | Mar. 11, 2019 |
| 12 | Receiver | Agilent | N9038A | MY52130039 | Aug. 11, 2019 |
| 13 | wideband radio communication tester | R&S | CMW500 | 152372 | Mar. 11, 2019 |
| 14 | Cable | emci | LMR-400(30MHz-1GHz)(8m+5m) | N/A | May 25, 2019 |
| 15 | Cable | mitron | B10-01-01-12M | 18072744 | Jul. 30, 2019 |
| 16 | Controller | ETS-Lindgren | 2090 | N/A | N/A |
| 17 | Measurement Software | Farad | EZ-EMC Ver.NB-03A1-01 | N/A | N/A |
| 18 | Loop Antenna | EM | EM-6876-1 | 230 | Feb. 07, 2019 |
| 19 | Double Ridged Guide Antenna | ETS | 3115 | 75789 | Mar. 11, 2019 |
| 20 | Broad-Band Horn Antenna | Schwarzbeck | BBHA 9170 | 9170319 | Jun. 30, 2019 |

| Conducted Emission & Band Edge & Occupied Bandwidth Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Wireless Communication Test SET | Agilent | E5515C | MY48364183 | Mar. 11, 2019 |
| 2 | EXA Spectrum Analyzer | Agilent | N9010A | MY50520044 | Mar. 11, 2019 |
| 3 | POWER SPLITTER | Mini-Circuits | ZFRSC-123-S+ | 331000910-1 | Mar. 11, 2019 |
| 4 | wideband radio communication tester | R&S | CMW500 | 152372 | Mar. 11, 2019 |
| 5 | Spectrum Analyzer | R&S | FSP40 | 100185 | Aug. 11, 2019 |

| Frequency Stability Measurement | | | | | |
|---|---|---|---|---|---|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
| 1 | Wireless Communication Test SET | Agilent | E5515C | MY48364183 | Mar. 11, 2019 |
| 2* | Multi-output DC Power Supply | GW Instek | GPC-3030DN | EK880675 | Sep. 26, 2020 |
| 3 | POWER SPLITTER | Mini-Circuits | ZFRSC-123-S+ | 331000910-1 | Mar. 11, 2019 |
| 4 | wideband radio communication tester | R&S | CMW500 | 152372 | Mar. 11, 2019 |

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

# APPENDIX A – MAXIMUM OUTPUT POWER

**Maximum Output Power (dBm):**

| GSM850 | | Burst Output Power | | |
|---|---|---|---|---|
| | | 128CH | 190CH | 251CH |
| | | 824.2MHz | 836.6MHz | 848.8MHz |
| GSM (CS) | | 33.07 | 33.10 | 33.13 |
| GPRS/EDGE (GMSK) | 1 Tx Slot | 33.07 | 33.10 | 33.13 |
| | 2 Tx Slot | 31.53 | 31.50 | 31.52 |
| | 3 Tx Slot | 29.28 | 29.28 | 29.29 |
| | 4 Tx Slot | 28.32 | 28.32 | 28.33 |
| EDGE (8PSK) | 1 Tx Slot | 26.82 | 26.61 | 26.58 |
| | 2 Tx Slot | 25.24 | 25.01 | 24.92 |
| | 3 Tx Slot | 22.98 | 23.01 | 23.05 |
| | 4 Tx Slot | 21.94 | 21.85 | 22.04 |

| Modulation | Band | WCDMA V | | |
|---|---|---|---|---|
| | Tx Channel | 4132CH | 4182CH | 4233CH |
| | Frequency | 826.4MHz | 836.4MHz | 846.6MHz |
| BPSK | RMC 12.2K | 23.68 | 23.78 | 23.89 |
| | RMC 64K | 23.64 | 23.75 | 23.76 |
| | RMC 144K | 23.67 | 23.77 | 23.77 |
| | RMC 384K | 23.64 | 23.73 | 23.75 |
| 16QAM | HSDPA Subtest-1 | 23.67 | 23.73 | 23.77 |
| | HSDPA Subtest-2 | 21.78 | 21.77 | 21.88 |
| | HSDPA Subtest-3 | 21.70 | 21.84 | 21.89 |
| | HSDPA Subtest-4 | 21.81 | 21.79 | 21.84 |
| 16QAM | HSUPA Subtest-1 | 21.53 | 21.56 | 21.56 |
| | HSUPA Subtest-2 | 21.01 | 20.95 | 21.03 |
| | HSUPA Subtest-3 | 21.57 | 21.53 | 21.58 |
| | HSUPA Subtest-4 | 20.74 | 20.88 | 20.97 |
| | HSUPA Subtest-5 | 23.72 | 23.76 | 23.76 |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20407CH | 20525CH | 20643CH |
| | | | | 824.7MHz | 836.5MHz | 848.3MHz |
| 5 / 1.4M | QPSK | 1 | 0 | 23.77 | 24.04 | 24.28 |
| | | 1 | 2 | 23.87 | 24.12 | 24.39 |
| | | 1 | 5 | 23.70 | 23.94 | 24.29 |
| | | 3 | 0 | 23.77 | 24.07 | 24.31 |
| | | 3 | 1 | 23.79 | 24.09 | 24.35 |
| | | 3 | 2 | 23.78 | 24.03 | 24.35 |
| | | 6 | 0 | 22.73 | 23.09 | 23.34 |
| | 16QAM | 1 | 0 | 22.63 | 23.32 | 23.33 |
| | | 1 | 2 | 22.70 | 23.41 | 23.46 |
| | | 1 | 5 | 22.56 | 23.29 | 23.39 |
| | | 3 | 0 | 22.71 | 23.20 | 23.25 |
| | | 3 | 1 | 22.74 | 23.23 | 23.30 |
| | | 3 | 2 | 22.72 | 23.17 | 23.30 |
| | | 6 | 0 | 21.56 | 22.01 | 22.20 |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20415CH | 20525CH | 20635CH |
| | | | | 825.5MHz | 836.5MHz | 847.5MHz |
| 5 / 3M | QPSK | 1 | 0 | 23.60 | 23.96 | 23.83 |
| | | 1 | 7 | 23.85 | 24.08 | 24.23 |
| | | 1 | 14 | 23.60 | 23.71 | 24.04 |
| | | 8 | 0 | 22.66 | 23.14 | 23.19 |
| | | 8 | 4 | 22.69 | 23.05 | 23.29 |
| | | 8 | 7 | 22.52 | 22.93 | 23.24 |
| | | 15 | 0 | 22.62 | 22.98 | 23.24 |
| | 16QAM | 1 | 0 | 22.73 | 23.35 | 22.96 |
| | | 1 | 7 | 23.03 | 23.52 | 23.38 |
| | | 1 | 14 | 22.54 | 23.05 | 23.15 |
| | | 8 | 0 | 21.62 | 22.15 | 22.12 |
| | | 8 | 4 | 21.66 | 22.07 | 22.24 |
| | | 8 | 7 | 21.53 | 21.94 | 22.17 |
| | | 15 | 0 | 21.52 | 21.97 | 22.12 |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20425CH | 20525CH | 20625CH |
| | | | | 826.5MHz | 836.5MHz | 846.5MHz |
| 5 / 5M | QPSK | 1 | 0 | 24.65 | 25.02 | 24.72 |
| | | 1 | 13 | 23.67 | 23.97 | 24.19 |
| | | 1 | 24 | 24.61 | 24.84 | 25.15 |
| | | 12 | 0 | 22.61 | 23.09 | 22.95 |
| | | 12 | 6 | 22.60 | 23.14 | 23.14 |
| | | 12 | 11 | 22.57 | 22.91 | 23.16 |
| | | 25 | 0 | 22.50 | 22.89 | 22.99 |
| | 16QAM | 1 | 0 | 23.86 | 24.39 | 24.02 |
| | | 1 | 13 | 22.78 | 23.35 | 23.54 |
| | | 1 | 24 | 23.80 | 24.19 | 24.13 |
| | | 12 | 0 | 21.58 | 22.12 | 21.90 |
| | | 12 | 6 | 21.52 | 22.11 | 22.11 |
| | | 12 | 11 | 21.51 | 21.90 | 22.11 |
| | | 25 | 0 | 21.51 | 21.83 | 21.86 |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20450CH | 20525CH | 20600CH |
| | | | | 829.0MHz | 836.5MHz | 844.0MHz |
| 5 / 10M | QPSK | 1 | 0 | 24.68 | 25.16 | 24.76 |
| | | 1 | 25 | 24.50 | 24.84 | 24.56 |
| | | 1 | 49 | 24.84 | 24.49 | 25.13 |
| | | 25 | 0 | 23.36 | 23.76 | 23.30 |
| | | 25 | 13 | 23.48 | 23.75 | 23.68 |
| | | 25 | 25 | 23.46 | 23.46 | 23.60 |
| | | 50 | 0 | 23.42 | 23.58 | 23.59 |
| | 16QAM | 1 | 0 | 23.85 | 24.43 | 23.77 |
| | | 1 | 25 | 23.81 | 24.32 | 23.68 |
| | | 1 | 49 | 24.09 | 23.87 | 24.16 |
| | | 25 | 0 | 22.27 | 22.78 | 22.23 |
| | | 25 | 13 | 22.42 | 22.71 | 22.61 |
| | | 25 | 25 | 22.40 | 22.38 | 22.62 |
| | | 50 | 0 | 22.27 | 22.48 | 22.53 |

**ERP Power (dBm):**

| GSM850 | | ERP Power | | |
|---|---|---|---|---|
| | | 128CH | 190CH | 251CH |
| | | 824.2MHz | 836.6MHz | 848.8MHz |
| GSM (CS) | | 30.52 | 30.55 | 30.58 |
| GPRS/EDGE (GMSK) | 1 Tx Slot | 30.52 | 30.55 | 30.58 |
| | 2 Tx Slot | 28.98 | 28.95 | 28.97 |
| | 3 Tx Slot | 26.73 | 26.73 | 26.74 |
| | 4 Tx Slot | 25.77 | 25.77 | 25.78 |
| EDGE (8PSK) | 1 Tx Slot | 24.27 | 24.06 | 24.03 |
| | 2 Tx Slot | 22.69 | 22.46 | 22.37 |
| | 3 Tx Slot | 20.43 | 20.46 | 20.50 |
| | 4 Tx Slot | 19.39 | 19.30 | 19.49 |

| Modulation | Band | WCDMA V | | |
|---|---|---|---|---|
| | Tx Channel | 4132CH | 4182CH | 4233CH |
| | Frequency | 826.4MHz | 836.4MHz | 846.6MHz |
| BPSK | RMC 12.2K | 21.13 | 21.23 | 21.34 |
| | RMC 64K | 21.09 | 21.20 | 21.21 |
| | RMC 144K | 21.12 | 21.22 | 21.22 |
| | RMC 384K | 21.09 | 21.18 | 21.20 |
| 16QAM | HSDPA Subtest-1 | 21.12 | 21.18 | 21.22 |
| | HSDPA Subtest-2 | 19.23 | 19.22 | 19.33 |
| | HSDPA Subtest-3 | 19.15 | 19.29 | 19.34 |
| | HSDPA Subtest-4 | 19.26 | 19.24 | 19.29 |
| 16QAM | HSUPA Subtest-1 | 18.98 | 19.01 | 19.01 |
| | HSUPA Subtest-2 | 18.46 | 18.40 | 18.48 |
| | HSUPA Subtest-3 | 19.02 | 18.98 | 19.03 |
| | HSUPA Subtest-4 | 18.19 | 18.33 | 18.42 |
| | HSUPA Subtest-5 | 21.17 | 21.21 | 21.21 |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20407CH | 20525CH | 20643CH |
| | | | | 824.7MHz | 836.5MHz | 848.3MHz |
| 5 / 1.4M | QPSK | 1 | 0 | 21.22 | 21.49 | 21.73 |
| | | 1 | 2 | 21.32 | 21.57 | 21.84 |
| | | 1 | 5 | 21.15 | 21.39 | 21.74 |
| | | 3 | 0 | 21.22 | 21.52 | 21.76 |
| | | 3 | 1 | 21.24 | 21.54 | 21.80 |
| | | 3 | 2 | 21.23 | 21.48 | 21.80 |
| | | 6 | 0 | 20.18 | 20.54 | 20.79 |
| | 16QAM | 1 | 0 | 20.08 | 20.77 | 20.78 |
| | | 1 | 2 | 20.15 | 20.86 | 20.91 |
| | | 1 | 5 | 20.01 | 20.74 | 20.84 |
| | | 3 | 0 | 20.16 | 20.65 | 20.70 |
| | | 3 | 1 | 20.19 | 20.68 | 20.75 |
| | | 3 | 2 | 20.17 | 20.62 | 20.75 |
| | | 6 | 0 | 19.01 | 19.46 | 19.65 |

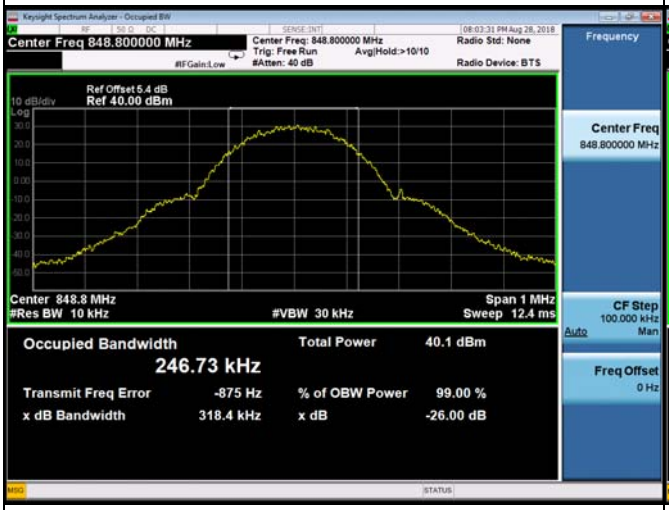
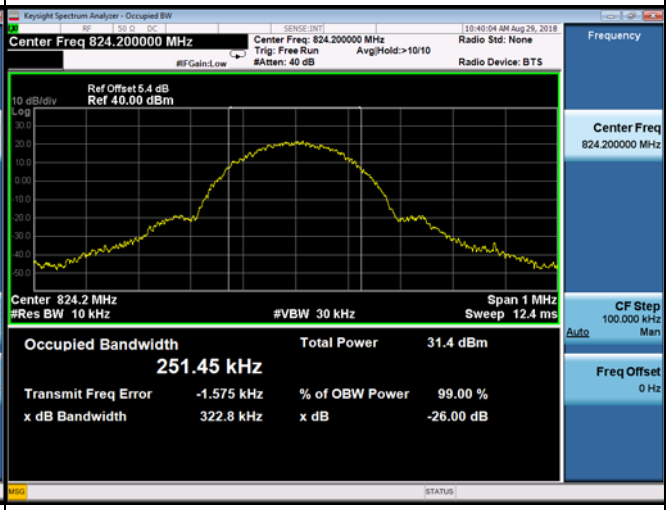
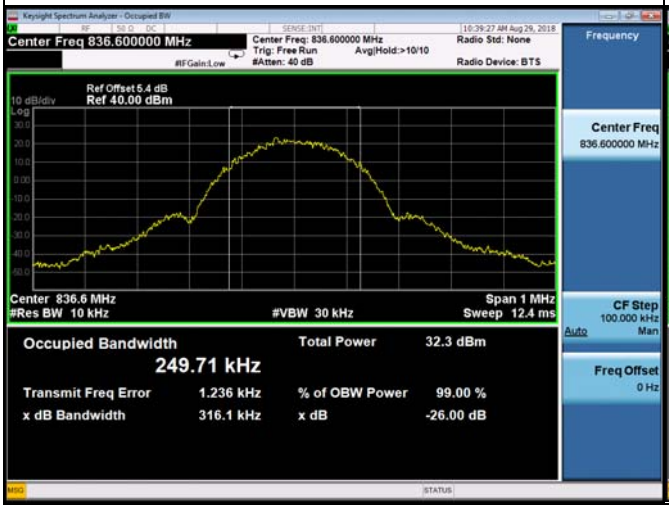
| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20415CH | 20525CH | 20635CH |
| | | | | 825.5MHz | 836.5MHz | 847.5MHz |
| 5 / 3M | QPSK | 1 | 0 | 21.05 | 21.41 | 21.28 |
| | | 1 | 7 | 21.30 | 21.53 | 21.68 |
| | | 1 | 14 | 21.05 | 21.16 | 21.49 |
| | | 8 | 0 | 20.11 | 20.59 | 20.64 |
| | | 8 | 4 | 20.14 | 20.50 | 20.74 |
| | | 8 | 7 | 19.97 | 20.38 | 20.69 |
| | | 15 | 0 | 20.07 | 20.43 | 20.69 |
| | 16QAM | 1 | 0 | 20.18 | 20.80 | 20.41 |
| | | 1 | 7 | 20.48 | 20.97 | 20.83 |
| | | 1 | 14 | 19.99 | 20.50 | 20.60 |
| | | 8 | 0 | 19.07 | 19.60 | 19.57 |
| | | 8 | 4 | 19.11 | 19.52 | 19.69 |
| | | 8 | 7 | 18.98 | 19.39 | 19.62 |
| | | 15 | 0 | 18.97 | 19.42 | 19.57 |

| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20425CH | 20525CH | 20625CH |
| | | | | 826.5MHz | 836.5MHz | 846.5MHz |
| 5 / 5M | QPSK | 1 | 0 | 22.10 | 22.47 | 22.17 |
| | | 1 | 13 | 21.12 | 21.42 | 21.64 |
| | | 1 | 24 | 22.06 | 22.29 | 22.60 |
| | | 12 | 0 | 20.06 | 20.54 | 20.40 |
| | | 12 | 6 | 20.05 | 20.59 | 20.59 |
| | | 12 | 11 | 20.02 | 20.36 | 20.61 |
| | | 25 | 0 | 19.95 | 20.34 | 20.44 |
| | 16QAM | 1 | 0 | 21.31 | 21.84 | 21.47 |
| | | 1 | 13 | 20.23 | 20.80 | 20.99 |
| | | 1 | 24 | 21.25 | 21.64 | 21.58 |
| | | 12 | 0 | 19.03 | 19.57 | 19.35 |
| | | 12 | 6 | 18.97 | 19.56 | 19.56 |
| | | 12 | 11 | 18.96 | 19.35 | 19.56 |
| | | 25 | 0 | 18.96 | 19.28 | 19.31 |

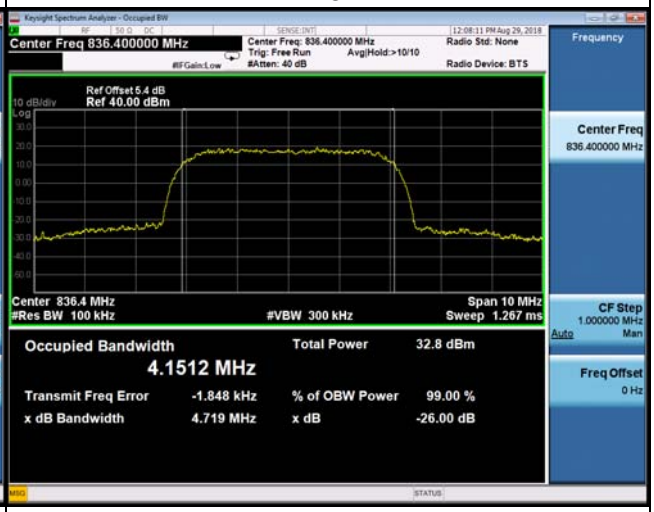
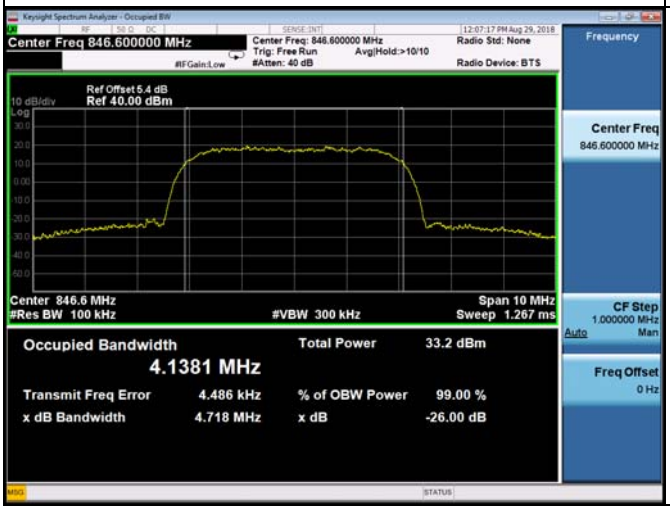
| LTE Band / BW | Modulation | RB Size | RB Offset | Low CH | Mid CH | High CH |
|---|---|---|---|---|---|---|
| | | | | 20450CH | 20525CH | 20600CH |
| | | | | 829.0MHz | 836.5MHz | 844.0MHz |
| 5 / 10M | QPSK | 1 | 0 | 22.13 | 22.61 | 22.21 |
| | | 1 | 25 | 21.95 | 22.29 | 22.01 |
| | | 1 | 49 | 22.29 | 21.94 | 22.58 |
| | | 25 | 0 | 20.81 | 21.21 | 20.75 |
| | | 25 | 13 | 20.93 | 21.20 | 21.13 |
| | | 25 | 25 | 20.91 | 20.91 | 21.05 |
| | | 50 | 0 | 20.87 | 21.03 | 21.04 |
| | 16QAM | 1 | 0 | 21.30 | 21.88 | 21.22 |
| | | 1 | 25 | 21.26 | 21.77 | 21.13 |
| | | 1 | 49 | 21.54 | 21.32 | 21.61 |
| | | 25 | 0 | 19.72 | 20.23 | 19.68 |
| | | 25 | 13 | 19.87 | 20.16 | 20.06 |
| | | 25 | 25 | 19.85 | 19.83 | 20.07 |
| | | 50 | 0 | 19.72 | 19.93 | 19.98 |

# APPENDIX B - OCCUPIED BANDWIDTH

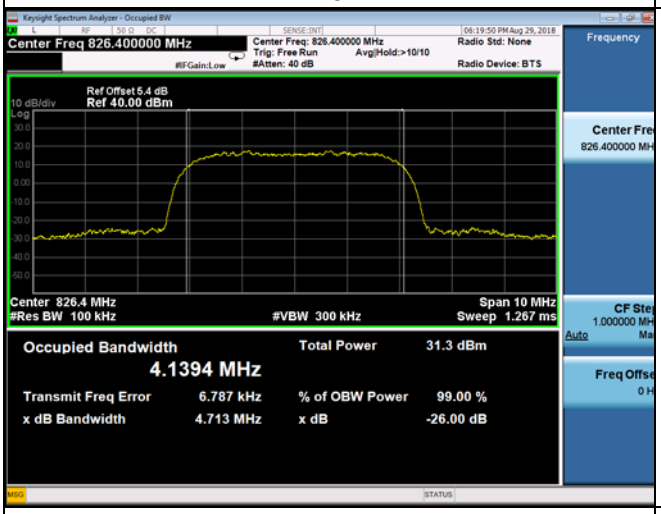
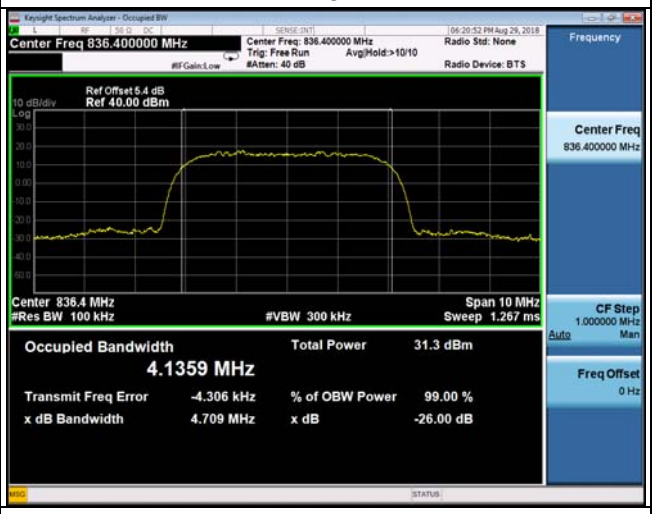
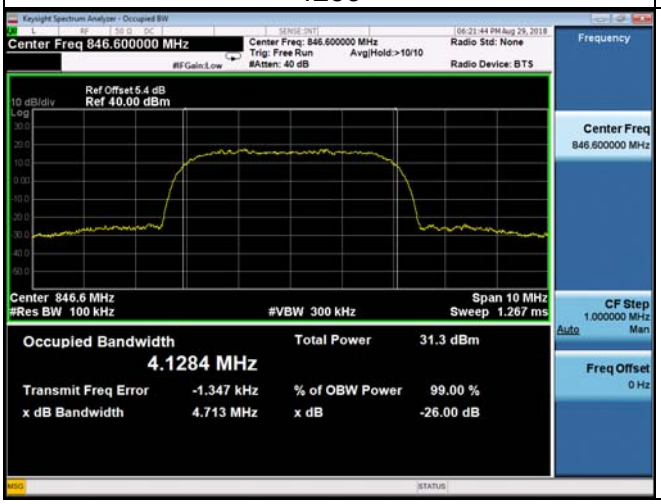
| GSM850 | | | | | |
|---|---|---|---|---|---|
| GSM | | | EDGE | | |
| CS | | | 8PSK | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 128 | 824.2 | 0.245 | 128 | 824.2 | 0.251 |
| 190 | 836.6 | 0.246 | 190 | 836.6 | 0.250 |
| 251 | 848.8 | 0.247 | 251 | 848.8 | 0.253 |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 128 | 824.2 | 0.313 | 128 | 824.2 | 0.323 |
| 190 | 836.6 | 0.322 | 190 | 836.6 | 0.316 |
| 251 | 848.8 | 0.318 | 251 | 848.8 | 0.323 |

| Spectrum Plot | |
|---|---|
| GSM -128 | GSM-190 |
|  |  |
| GSM-251 | EDGE-128 |
|  |  |
| EDGE-190 | EDGE-251 |
|  |  |

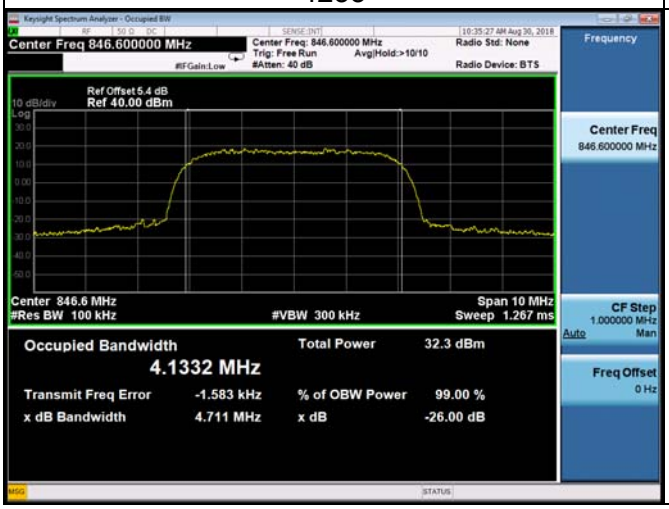
| WCDMA Band V | | | | | |
|---|---|---|---|---|---|
| BPSK | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 4132 | 826.4 | 4.150 | 4132 | 826.4 | 4.698 |
| 4182 | 836.4 | 4.151 | 4182 | 836.4 | 4.719 |
| 4233 | 846.6 | 4.138 | 4233 | 846.6 | 4.718 |

| Spectrum Plot | |
|---|---|
| 4132 | 4182 |
|  |  |
| 4233 | - |
|  | - |

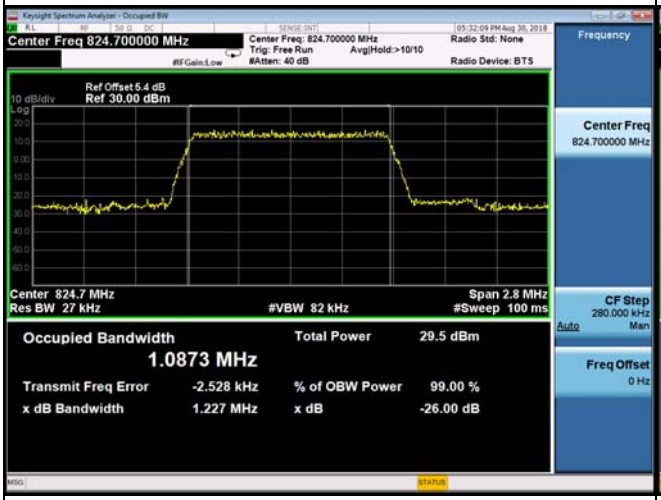
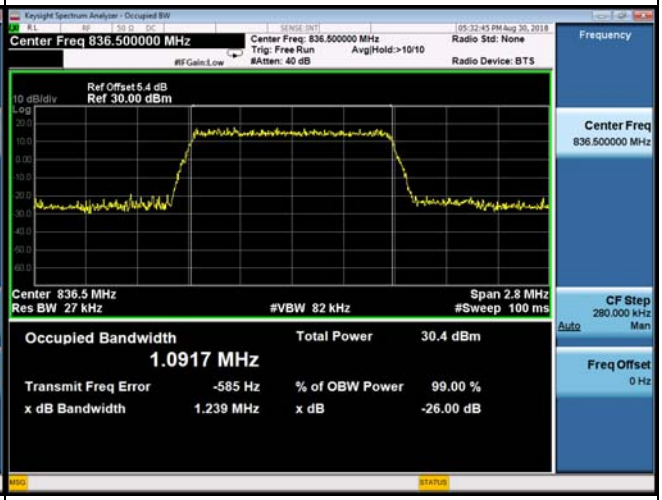
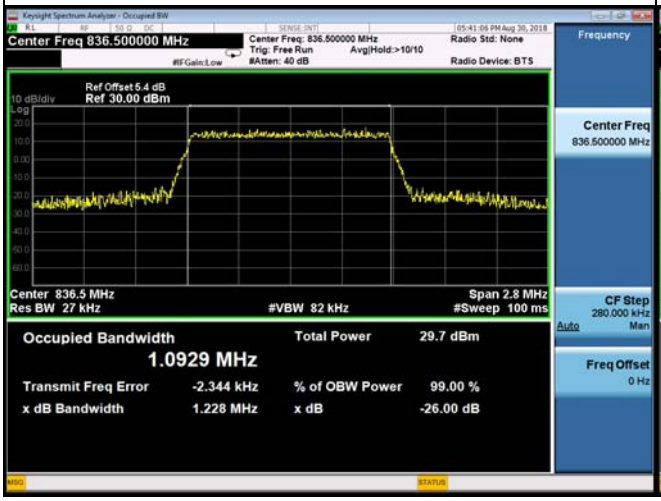
| WCDMA_HSDPA Band V | | | | | |
|---|---|---|---|---|---|
| 16QAM | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 4132 | 826.4 | 4.139 | 4132 | 826.4 | 4.713 |
| 4182 | 836.4 | 4.136 | 4182 | 836.4 | 4.709 |
| 4233 | 846.6 | 4.128 | 4233 | 846.6 | 4.713 |

| Spectrum Plot | |
|---|---|
| 4132 | 4182 |
|  |  |
| 4233 | - |
|  | - |

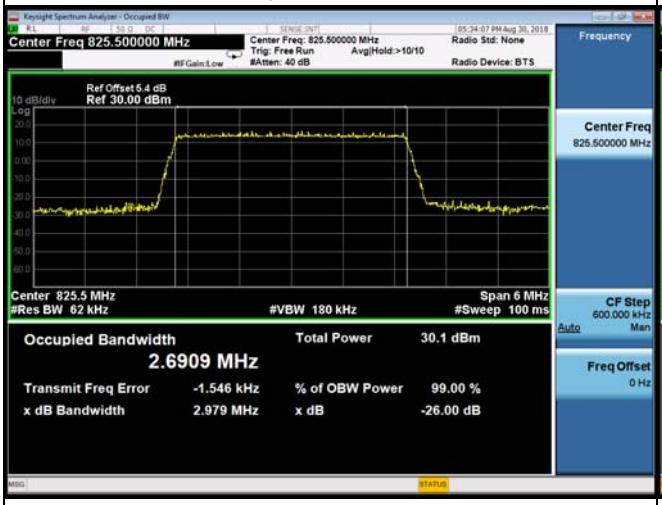
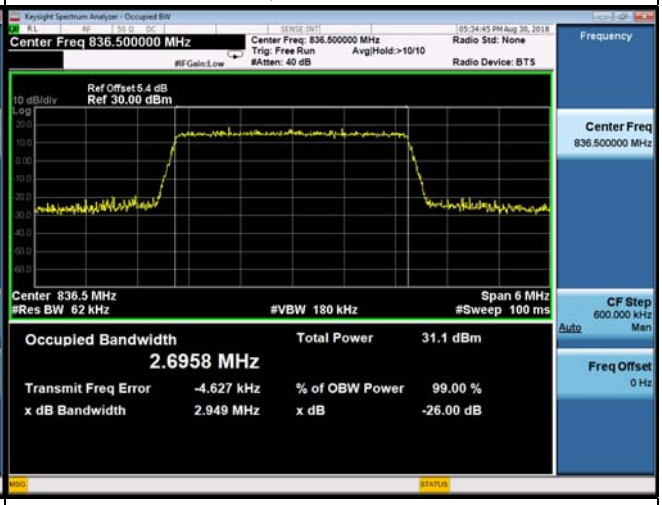
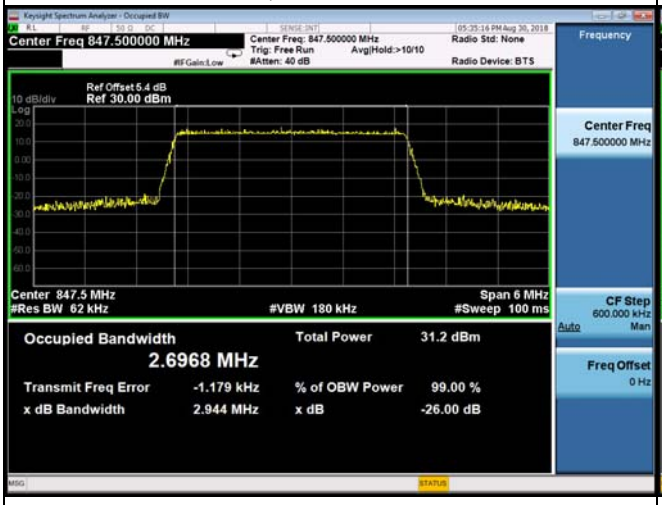
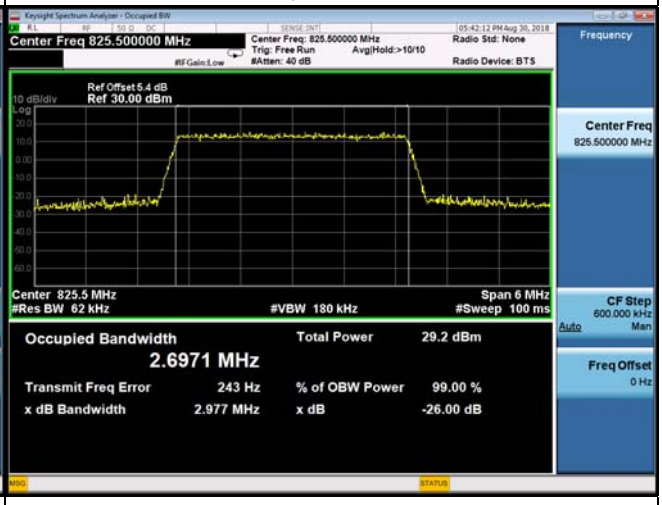
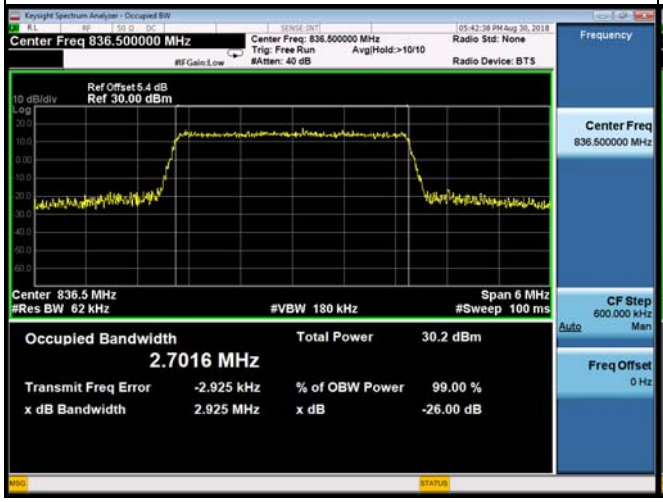
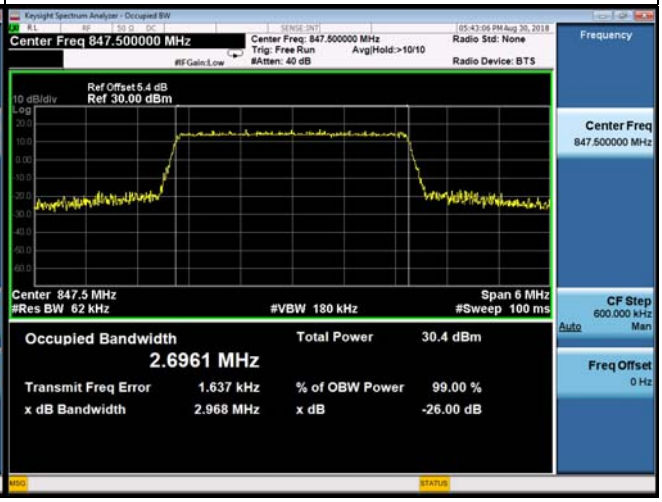
| WCDMA_HSUPA Band V | | | | | |
|---|---|---|---|---|---|
| 16QAM | | | | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 4132 | 826.4 | 4.148 | 4132 | 826.4 | 4.722 |
| 4182 | 836.4 | 4.144 | 4182 | 836.4 | 4.697 |
| 4233 | 846.6 | 4.133 | 4233 | 846.6 | 4.711 |

| Spectrum Plot | |
|---|---|
| 4132 | 4182 |
|  |  |
| 4233 | - |
|  | - |

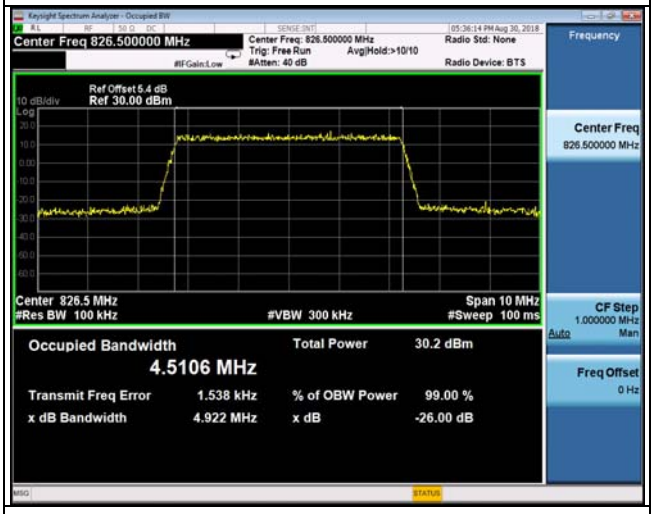
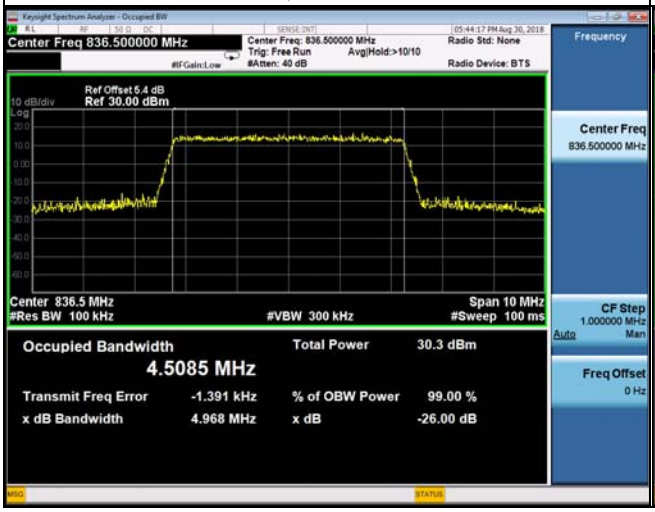
| LTE Band 5_1.4M | | | | | |
|---|---|---|---|---|---|
| QPSK | | | 16QAM | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20407 | 824.7 | 1.087 | 20407 | 824.7 | 1.092 |
| 20525 | 836.5 | 1.092 | 20525 | 836.5 | 1.093 |
| 20643 | 848.3 | 1.092 | 20643 | 848.3 | 1.094 |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 20407 | 824.7 | 1.227 | 20407 | 824.7 | 1.233 |
| 20525 | 836.5 | 1.239 | 20525 | 836.5 | 1.228 |
| 20643 | 848.3 | 1.228 | 20643 | 848.3 | 1.242 |

| Spectrum Plot | |
|---|---|
| QPSK-20407 | QPSK-20525 |
|  |  |
| QPSK-20643 | 16QAM-20407 |
|  |  |
| 16QAM-20525 | 16QAM-20643 |
|  |  |

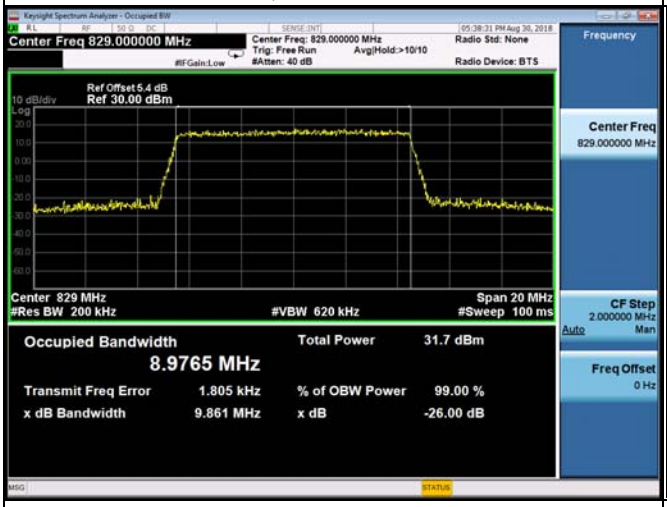
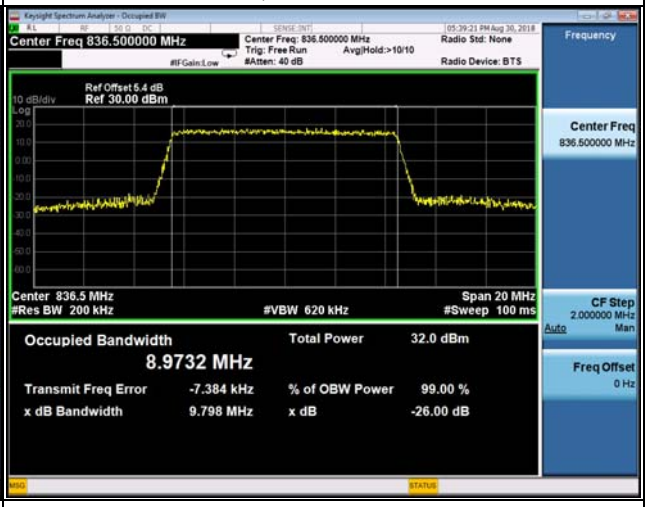
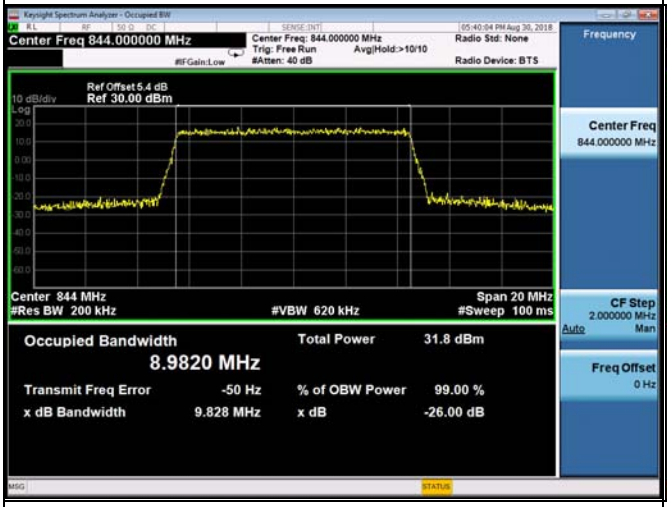
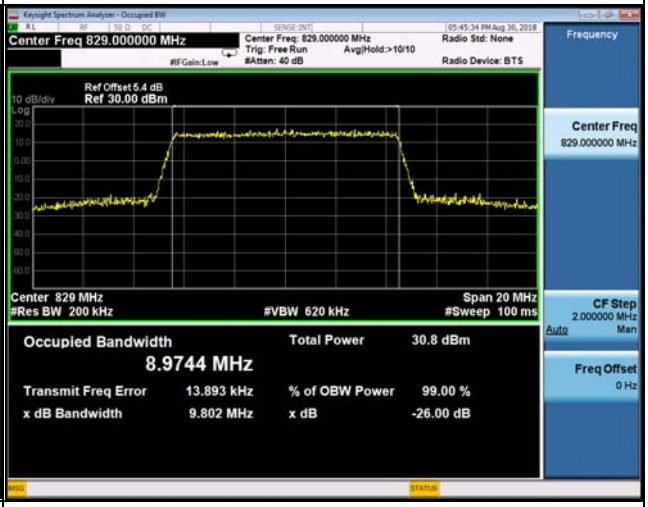
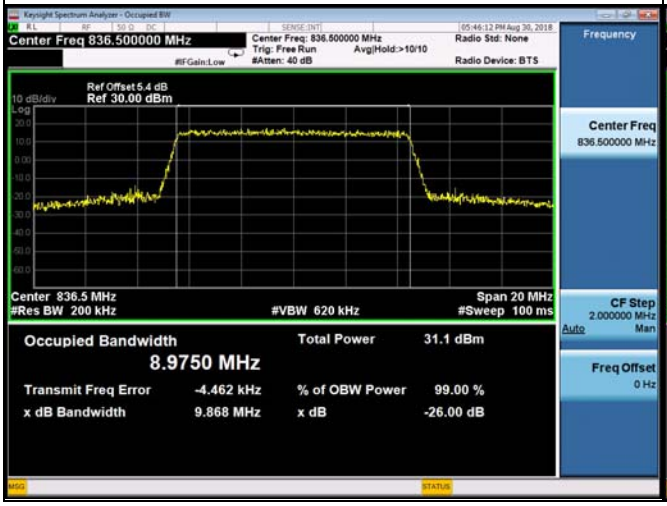
| LTE Band 5_3M | | | | | |
|---|---|---|---|---|---|
| QPSK | | | 16QAM | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20415 | 825.5 | 2.691 | 20415 | 825.5 | 2.697 |
| 20525 | 836.5 | 2.696 | 20525 | 836.5 | 2.702 |
| 20635 | 847.5 | 2.697 | 20635 | 847.5 | 2.696 |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 20415 | 825.5 | 2.979 | 20415 | 825.5 | 2.977 |
| 20525 | 836.5 | 2.949 | 20525 | 836.5 | 2.925 |
| 20635 | 847.5 | 2.944 | 20635 | 847.5 | 2.968 |

| Spectrum Plot | |
|---|---|
| QPSK-20415 | QPSK-20525 |
|  |  |
| QPSK-20635 | 16QAM-20415 |
|  |  |
| 16QAM-20525 | 16QAM-20635 |
|  |  |

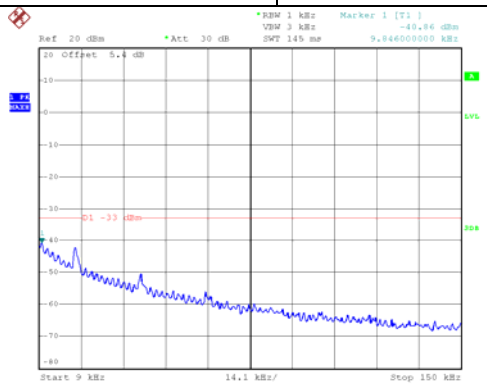
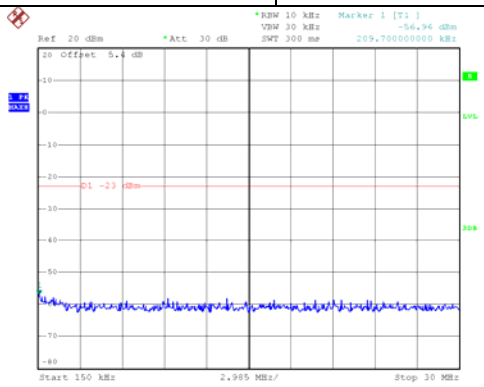
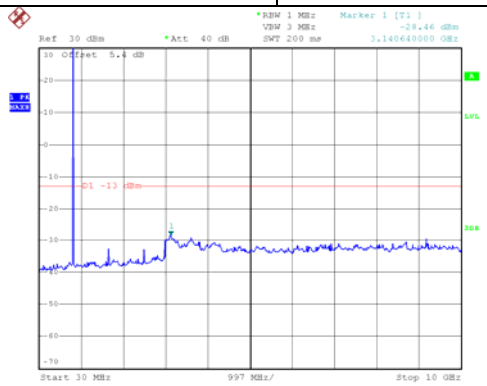
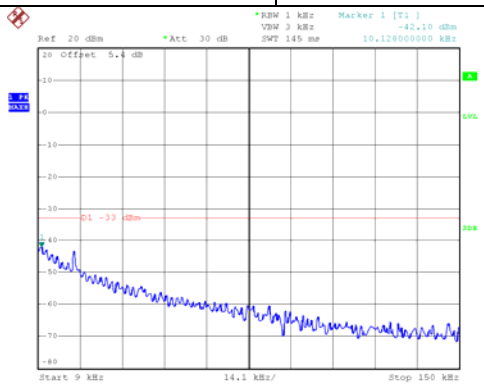
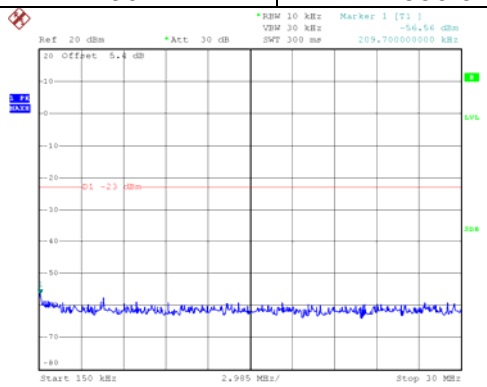
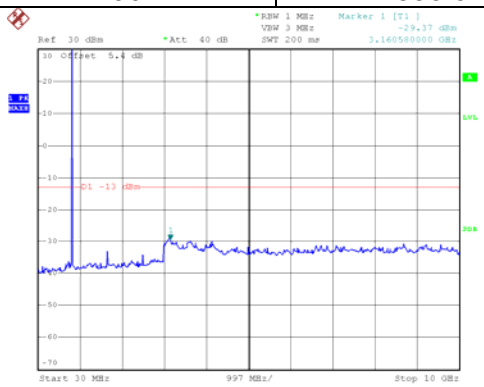
| LTE Band 5_5M | | | | | |
|---|---|---|---|---|---|
| QPSK | | | 16QAM | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20425 | 826.5 | 4.511 | 20425 | 826.5 | 4.505 |
| 20525 | 836.5 | 4.505 | 20525 | 836.5 | 4.509 |
| 20625 | 846.5 | 4.495 | 20625 | 846.5 | 4.505 |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 20425 | 826.5 | 4.922 | 20425 | 826.5 | 4.934 |
| 20525 | 836.5 | 4.961 | 20525 | 836.5 | 4.968 |
| 20625 | 846.5 | 4.914 | 20625 | 846.5 | 4.942 |

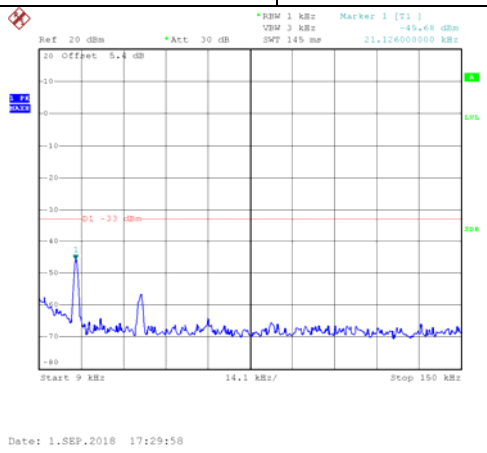
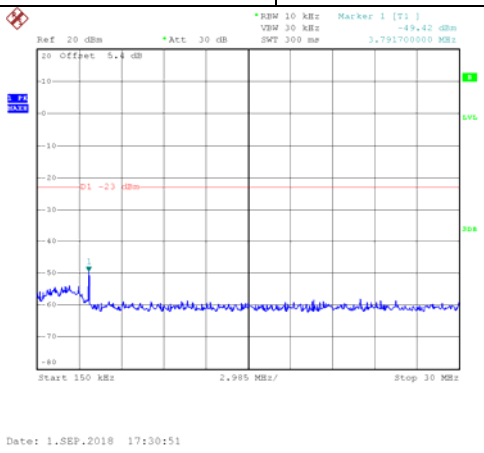
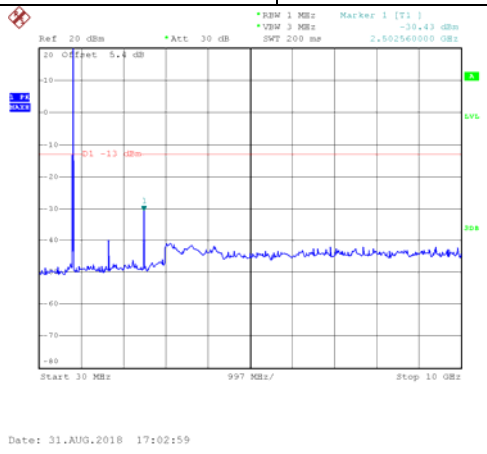
| Spectrum Plot | |
|---|---|
| QPSK-20425 | QPSK-20525 |
|  |  |
| QPSK-20625 | 16QAM-20425 |
|  |  |
| 16QAM-20525 | 16QAM-20625 |
|  |  |

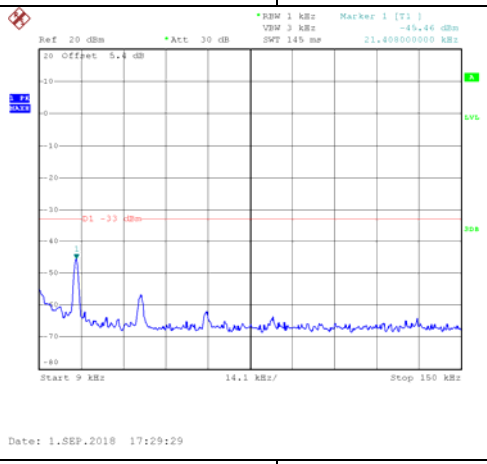
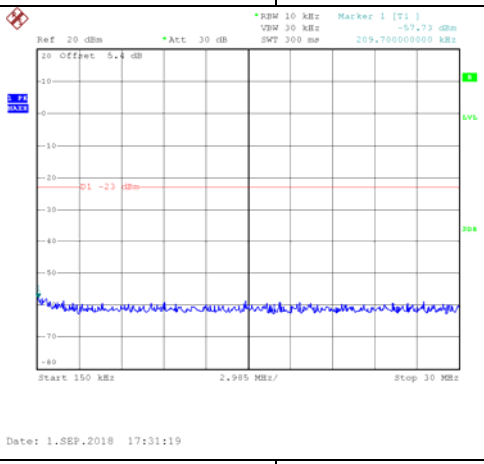
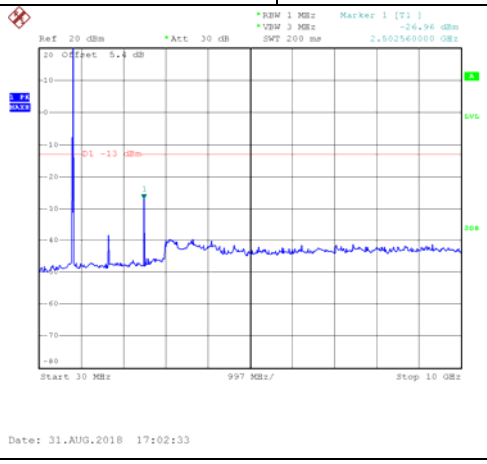
| LTE Band 5_10M | | | | | |
|---|---|---|---|---|---|
| QPSK | | | 16QAM | | |
| Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | Channel | Frequency (MHz) | 99% Occupied Bandwidth (MHz) |
| 20450 | 829.0 | 8.977 | 20450 | 829.0 | 8.974 |
| 20525 | 836.5 | 8.973 | 20525 | 836.5 | 8.975 |
| 20600 | 844.0 | 8.982 | 20600 | 844.0 | 8.970 |
| Channel | Frequency (MHz) | 26dB Bandwidth (MHz) | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
| 20450 | 829.0 | 9.861 | 20450 | 829.0 | 9.802 |
| 20525 | 836.5 | 9.798 | 20525 | 836.5 | 9.868 |
| 20600 | 844.0 | 9.828 | 20600 | 844.0 | 9.889 |

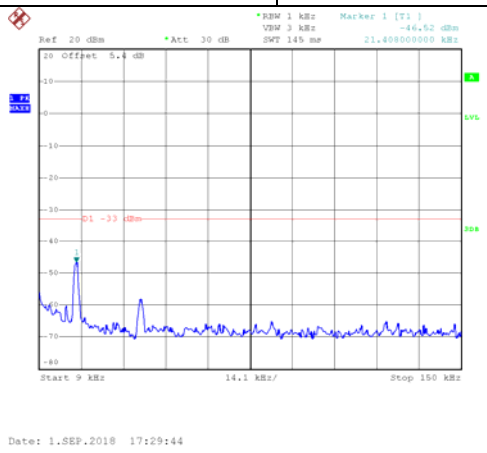
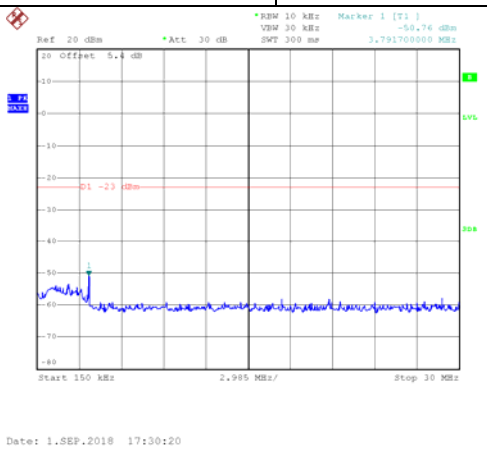
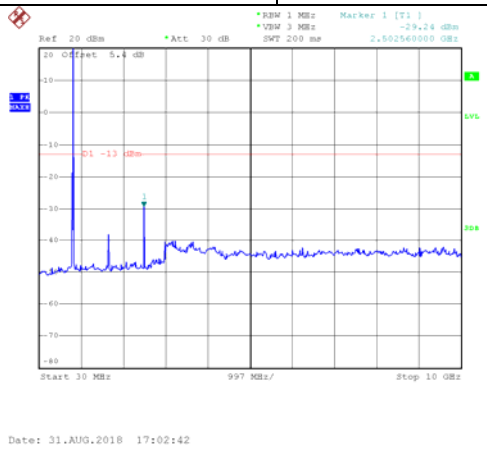
| Spectrum Plot | |
|---|---|
| QPSK-20450 | QPSK-20525 |
|  |  |
| QPSK-20600 | 16QAM-20450 |
|  |  |
| 16QAM-20525 | 16QAM-20600 |
|  |  |

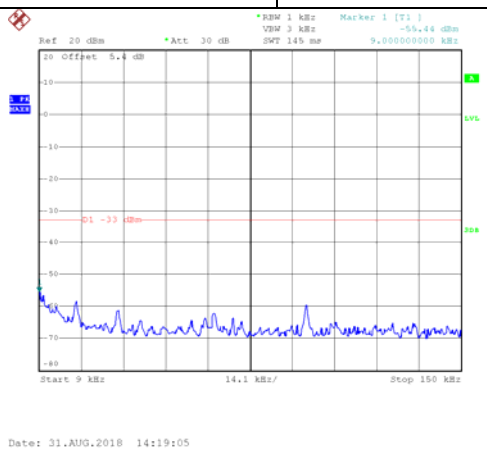
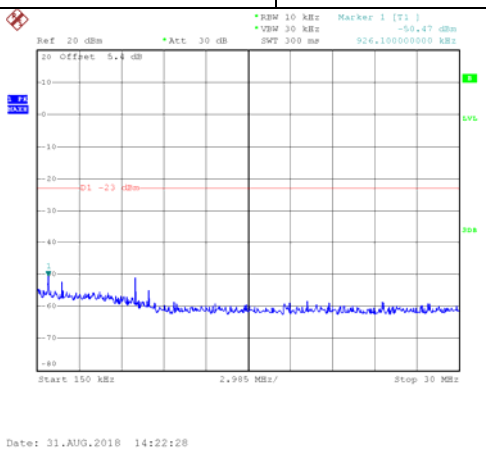
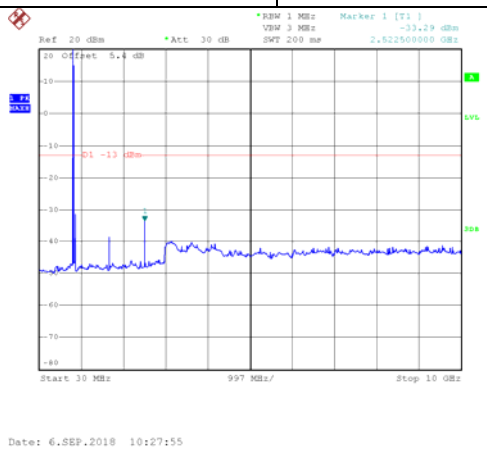
# APPENDIX C - CONDUCTED EMISSIONS

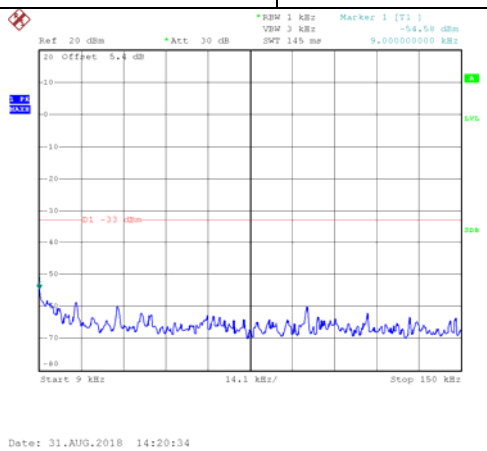
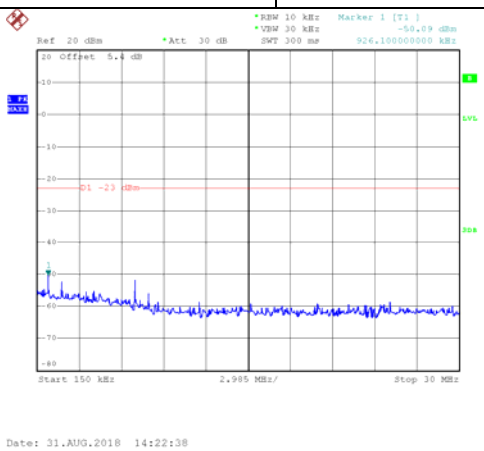
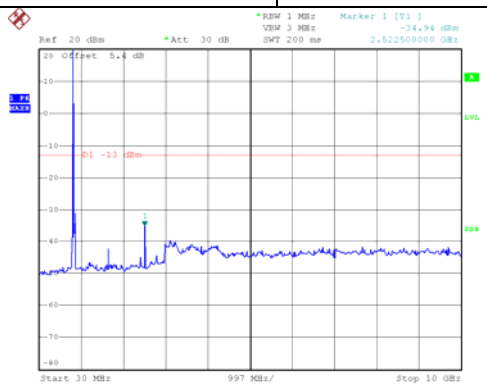
| GSM850 | | | |
|---|---|---|---|
| GSM | | GSM | |
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 190 | 836.6 | 190 | 836.6 |
|  | |  | |
| GSM | | EDGE | |
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 190 | 836.6 | 190 | 836.6 |
|  | |  | |
| EDGE | | EDGE | |
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 190 | 836.6 | 190 | 836.6 |
|  | |  | |

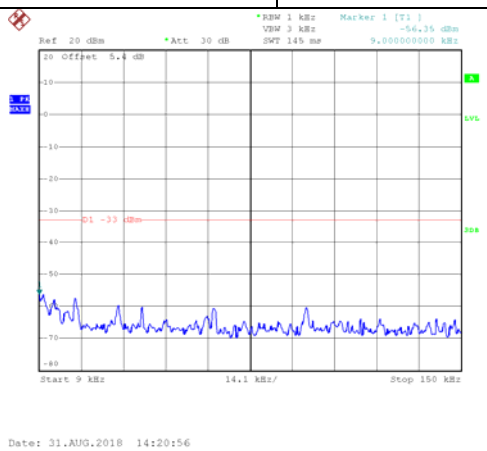
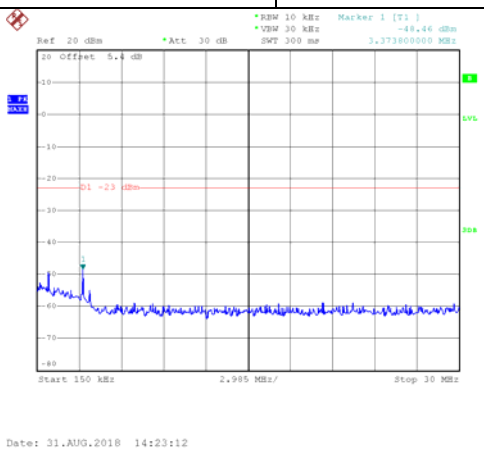
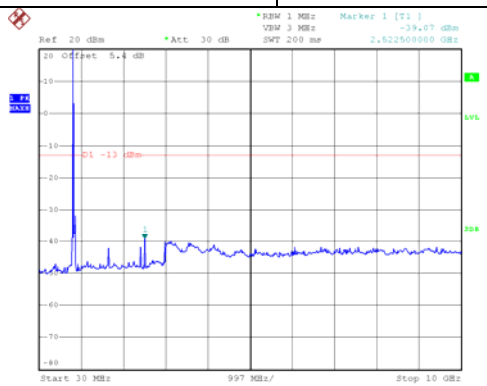
<table>
<tr><td colspan="4">WCDMA Band V</td></tr>
<tr><td>Channel</td><td>Frequency(MHz)</td><td>Channel</td><td>Frequency(MHz)</td></tr>
<tr><td>4182</td><td>836.4</td><td>4182</td><td>836.4</td></tr>
<tr><td>  </td><td colspan="3">  </td></tr>
<tr><td>Channel</td><td>Frequency(MHz)</td><td>-</td><td>-</td></tr>
<tr><td>4182</td><td>836.4</td><td>-</td><td>-</td></tr>
<tr><td>  </td><td colspan="3">-</td></tr>
</table>

| WCDMA_HSDPA Band V | | | |
|---|---|---|---|
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 4182 | 836.4 | 4182 | 836.4 |
|  | |  | |
| Channel | Frequency(MHz) | - | - |
| 4182 | 836.4 | - | - |
|  | | - | |

| WCDMA _HSUPA Band V | | | |
|---|---|---|---|
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 4182 | 836.4 | 4182 | 836.4 |
|  | |  | |
| Channel | Frequency(MHz) | - | - |
| 4182 | 836.4 | - | - |
|  | | - | |

<table>
<tr><td colspan="4">LTE Band 5_1.4M</td></tr>
<tr><td>Channel</td><td>Frequency(MHz)</td><td>Channel</td><td>Frequency(MHz)</td></tr>
<tr><td>20525</td><td>836.5</td><td>20525</td><td>836.5</td></tr>
<tr><td> 
</td><td colspan="2"> 
</td></tr>
<tr><td>Channel</td><td>Frequency(MHz)</td><td>-</td><td>-</td></tr>
<tr><td>20525</td><td>836.5</td><td>-</td><td>-</td></tr>
<tr><td> 
</td><td colspan="2">-</td></tr>
</table>

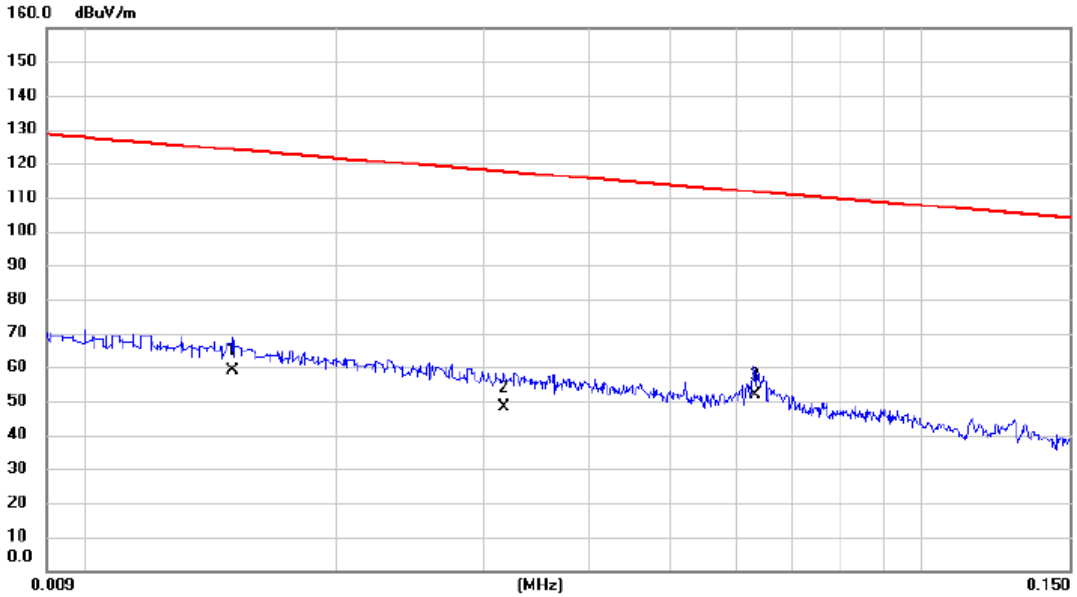
| LTE Band 5_5M | | | |
|---|---|---|---|
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 20525 | 836.5 | 20525 | 836.5 |
|  | |  | |
| Channel | Frequency(MHz) | - | - |
| 20525 | 836.5 | - | - |
|  | | - | |

| LTE Band 5_10M | | | |
|---|---|---|---|
| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
| 20525 | 836.5 | 20525 | 836.5 |
|  | |  | |
| Channel | Frequency(MHz) | - | - |
| 20525 | 836.5 | - | - |
|  | | - | |

# APPENDIX D - RADIATED EMISSION (9KHZ TO 30MHZ)

| Test Mode: | TX Mode _Adapter: Huntkey |
|---|---|

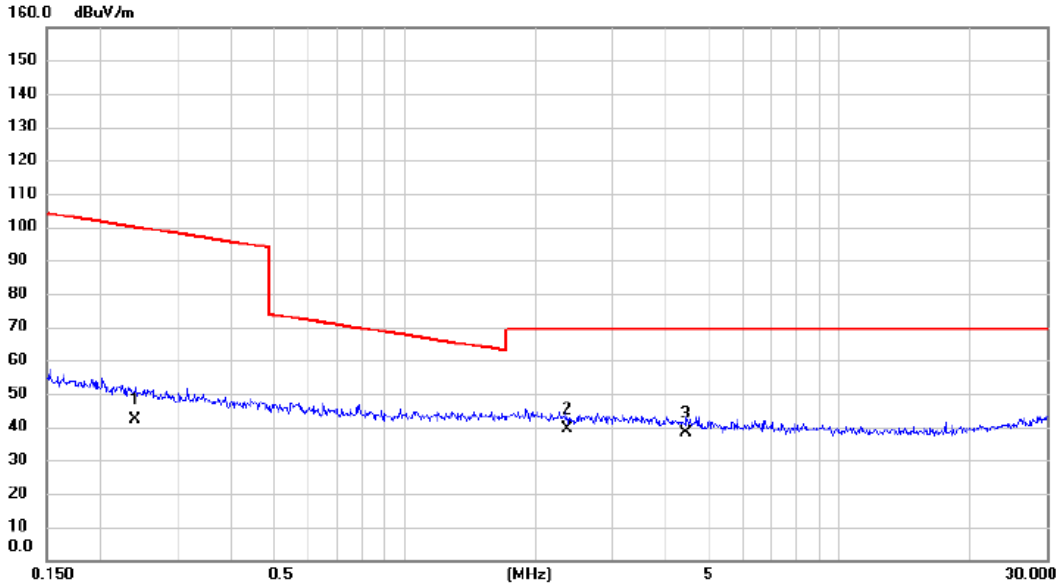
Ant 0°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.0150 | 38.10 | 20.72 | 58.82 | 124.08 | -65.26 | AVG | |
| 2 | | 0.0317 | 28.30 | 19.82 | 48.12 | 117.58 | -69.46 | AVG | |
| 3 | * | 0.0631 | 32.50 | 19.27 | 51.77 | 111.60 | -59.83 | AVG | |

| Test Mode: | TX Mode_Adapter: Huntkey |
|---|---|

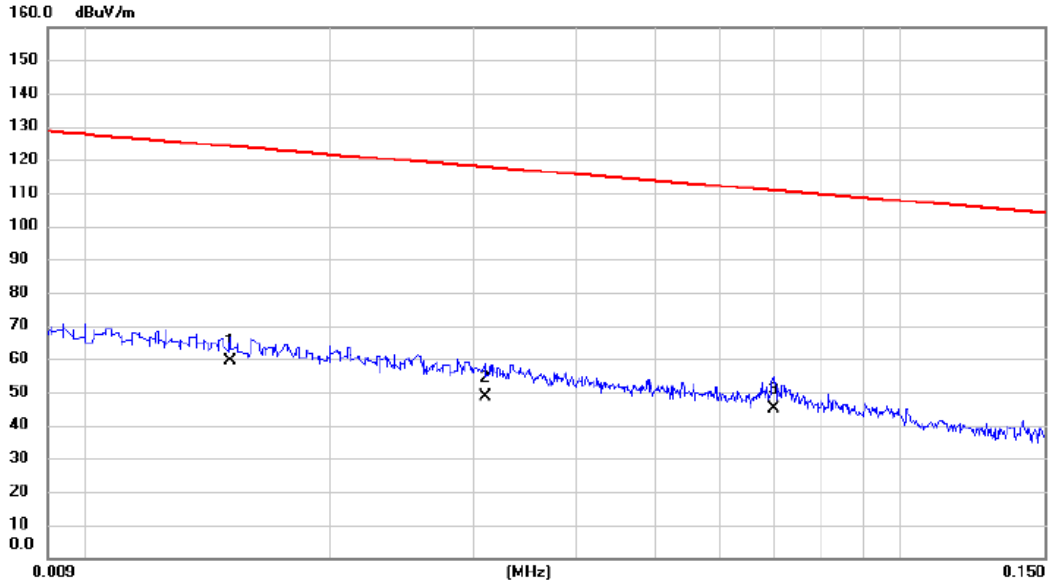
Ant 0°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.2404 | 25.10 | 17.08 | 42.18 | 99.99 | -57.81 | AVG | |
| 2 | * | 2.3585 | 22.70 | 16.90 | 39.60 | 69.54 | -29.94 | QP | |
| 3 | | 4.4540 | 22.80 | 15.49 | 38.29 | 69.54 | -31.25 | QP | |

| Test Mode: | TX Mode_Adapter: Huntkey |
|---|---|

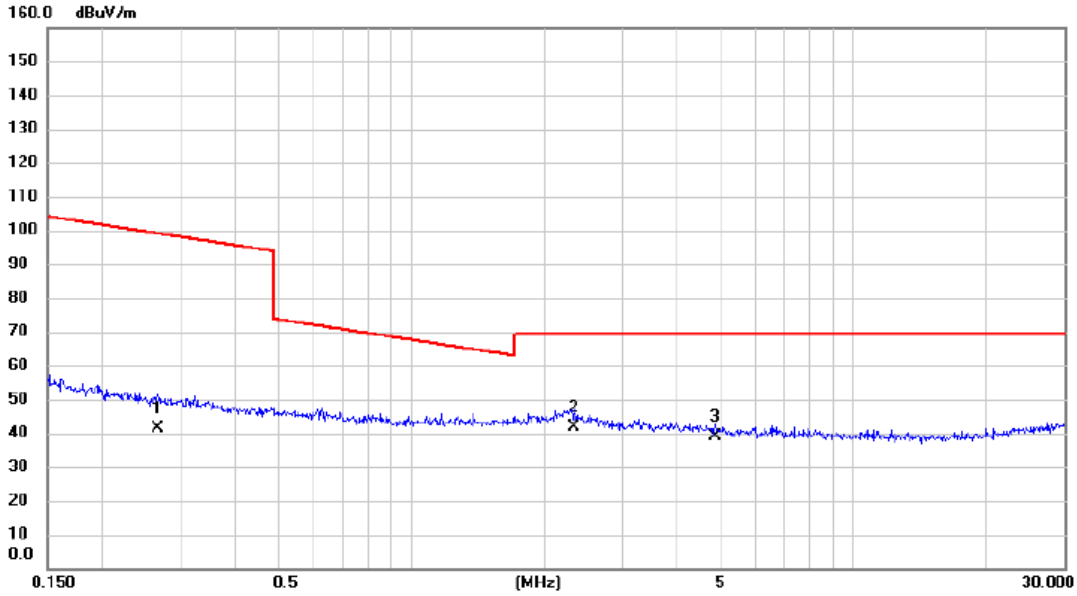
Ant 90°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | * | 0.0151 | 38.50 | 20.71 | 59.21 | 124.03 | -64.82 | AVG | |
| 2 | | 0.0310 | 28.80 | 19.84 | 48.64 | 117.78 | -69.14 | AVG | |
| 3 | | 0.0700 | 25.70 | 19.13 | 44.83 | 110.70 | -65.87 | AVG | |

| Test Mode: | TX Mode_Adapter: Huntkey |
|---|---|

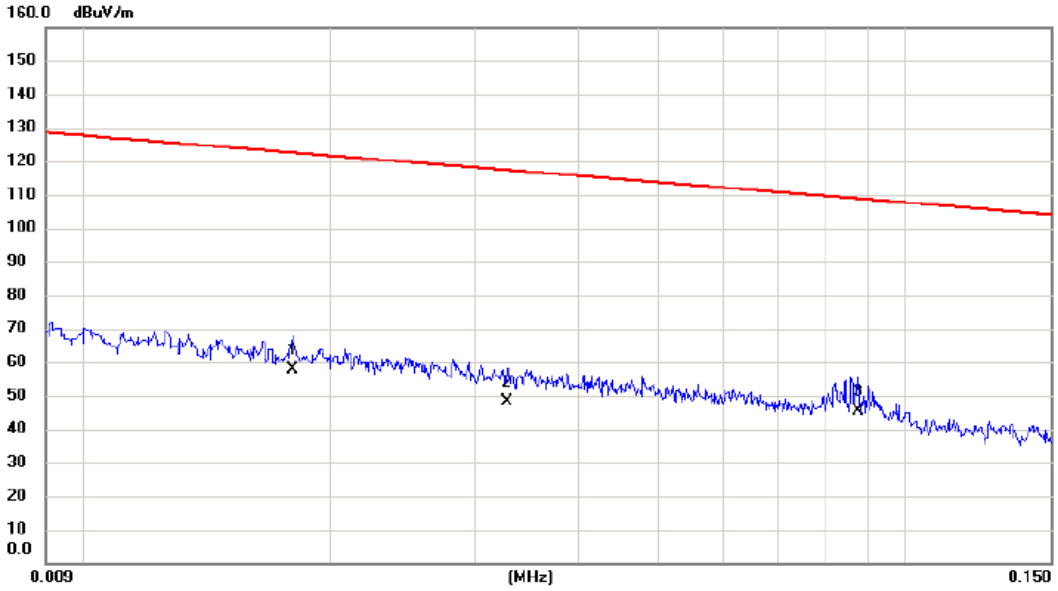
Ant 90°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.2672 | 24.30 | 17.05 | 41.35 | 99.07 | -57.72 | AVG | |
| 2 | * | 2.3336 | 24.70 | 16.92 | 41.62 | 69.54 | -27.92 | QP | |
| 3 | | 4.8738 | 23.60 | 15.25 | 38.85 | 69.54 | -30.69 | QP | |

| Test Mode: | TX Mode _Adapter: PHITEK |
|---|---|

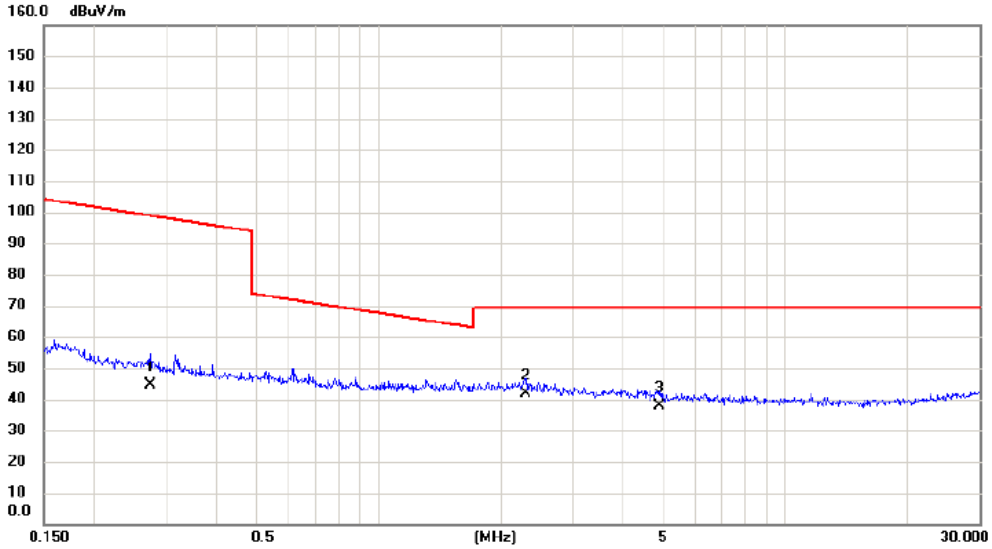
Ant 0°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.0180 | 37.60 | 20.30 | 57.90 | 122.50 | -64.60 | AVG | |
| 2 | | 0.0328 | 28.50 | 19.81 | 48.31 | 117.29 | -68.98 | AVG | |
| 3 | * | 0.0875 | 26.80 | 18.73 | 45.53 | 108.76 | -63.23 | AVG | |

| Test Mode: | TX Mode_Adapter: PHITEK |
|---|---|

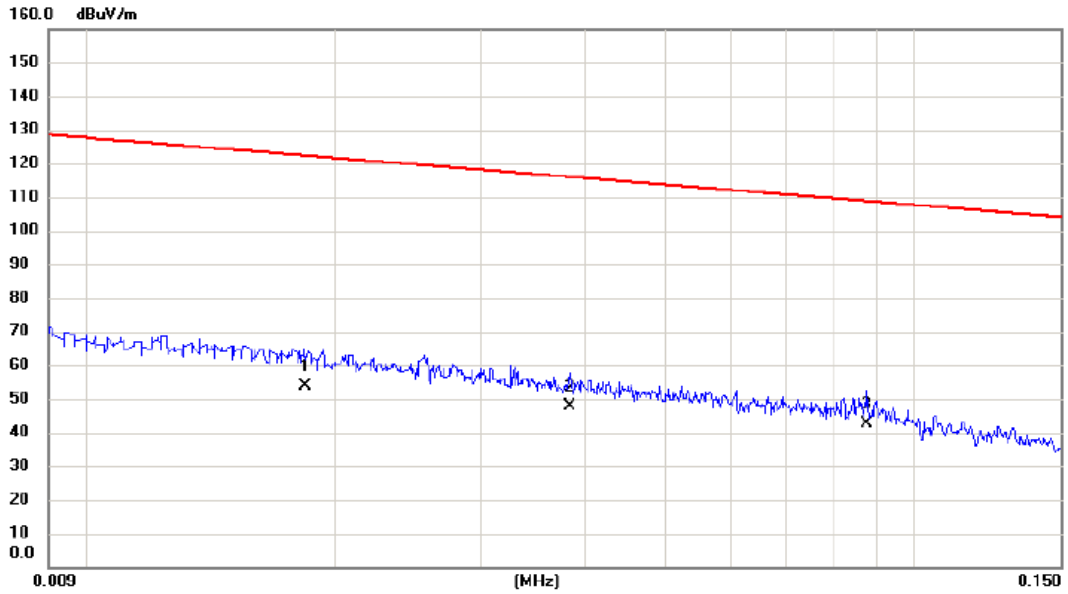
Ant 0°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.2744 | 27.50 | 17.05 | 44.55 | 98.84 | -54.29 | AVG | |
| 2 | * | 2.2968 | 24.80 | 16.94 | 41.74 | 69.54 | -27.80 | QP | |
| 3 | | 4.8997 | 22.40 | 15.23 | 37.63 | 69.54 | -31.91 | QP | |

| Test Mode: | TX Mode_Adapter: PHITEK |
|---|---|

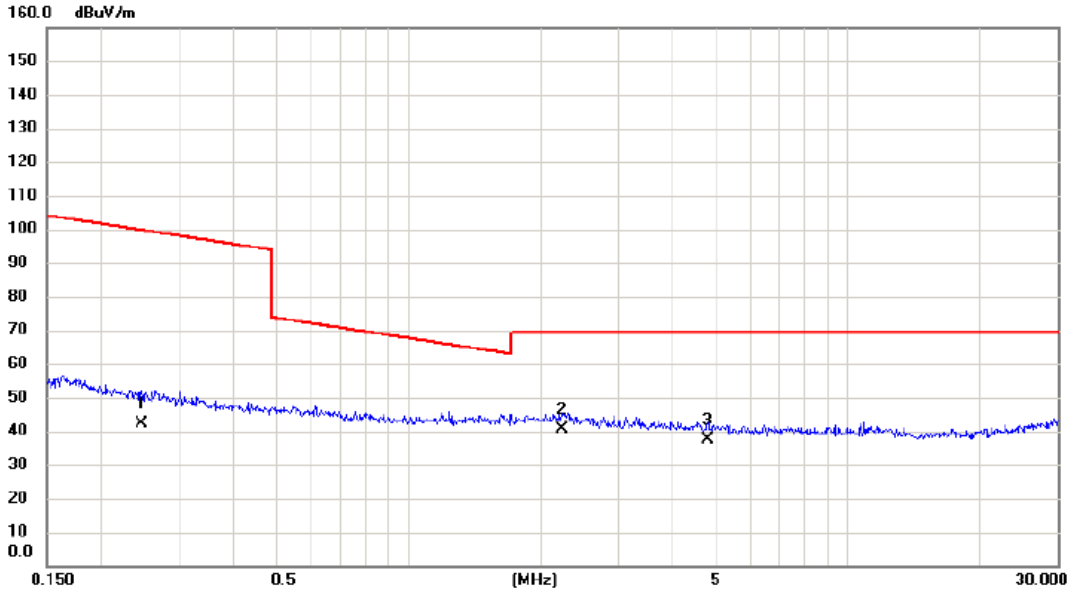
Ant 90°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.0184 | 33.60 | 20.24 | 53.84 | 122.31 | -68.47 | AVG | |
| 2 | | 0.0383 | 28.10 | 19.72 | 47.82 | 115.94 | -68.12 | AVG | |
| 3 | * | 0.0875 | 23.70 | 18.73 | 42.43 | 108.76 | -66.33 | AVG | |

| Test Mode: | TX Mode_Adapter: PHITEK |
|---|---|

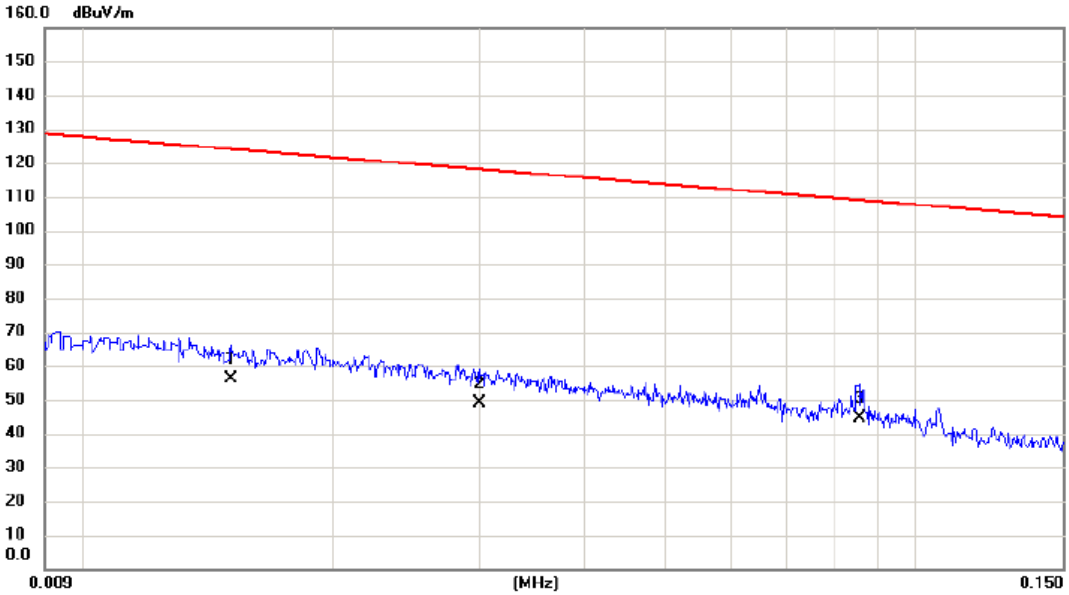
Ant 90°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.2468 | 25.20 | 17.07 | 42.27 | 99.76 | -57.49 | AVG | |
| 2 | * | 2.2367 | 23.60 | 16.97 | 40.57 | 69.54 | -28.97 | QP | |
| 3 | | 4.7970 | 22.20 | 15.29 | 37.49 | 69.54 | -32.05 | QP | |

| Test Mode: | TX Mode _Adapter: BYD |
|---|---|

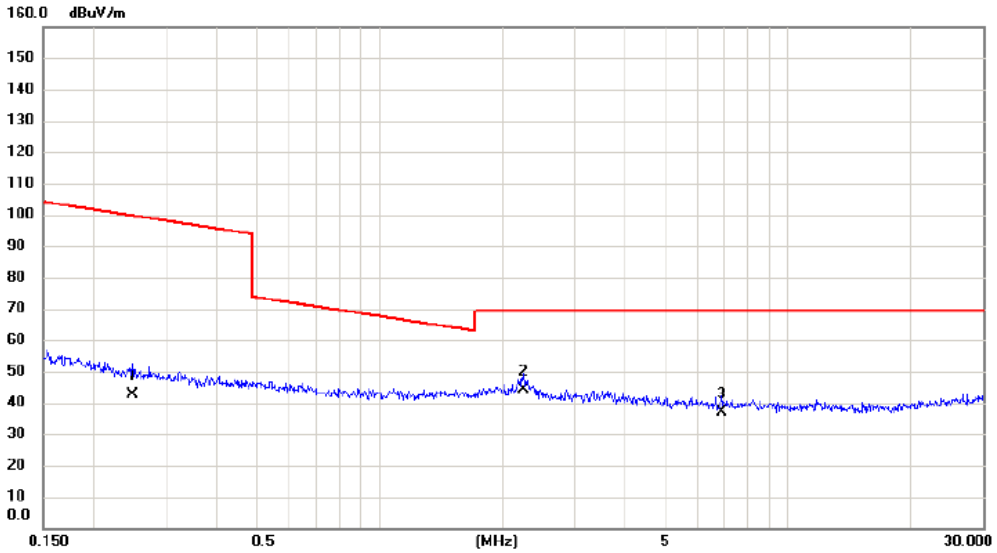
Ant 0°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.0151 | 35.60 | 20.71 | 56.31 | 124.03 | -67.72 | AVG | |
| 2 | | 0.0300 | 29.21 | 19.85 | 49.06 | 118.06 | -69.00 | AVG | |
| 3 | * | 0.0857 | 25.90 | 18.77 | 44.67 | 108.95 | -64.28 | AVG | |

| Test Mode: | TX Mode_Adapter: BYD |
|---|---|

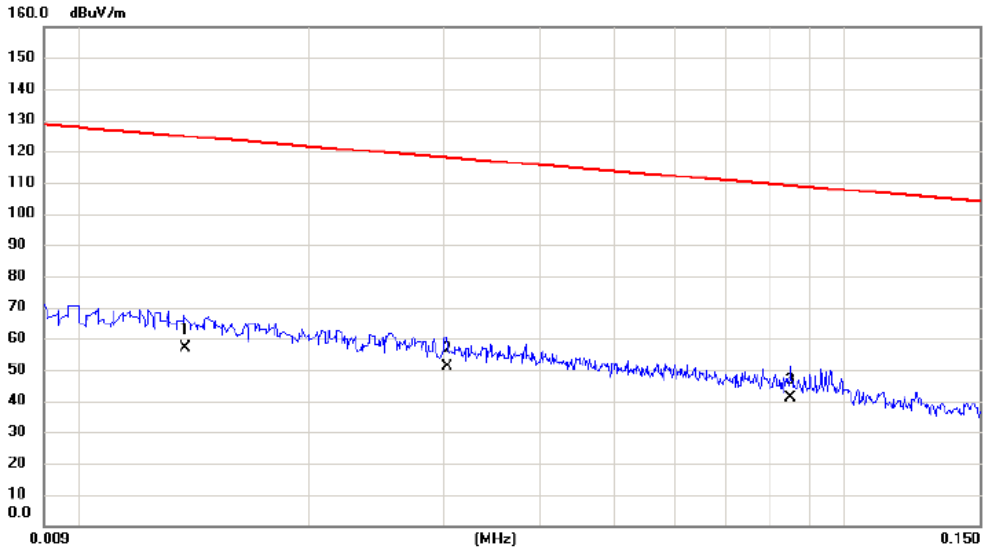
Ant 0°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.2481 | 25.40 | 17.06 | 42.46 | 99.71 | -57.25 | AVG | |
| 2 | * | 2.2486 | 27.30 | 16.96 | 44.26 | 69.54 | -25.28 | QP | |
| 3 | | 6.8776 | 22.10 | 14.86 | 36.96 | 69.54 | -32.58 | QP | |

| Test Mode: | TX Mode_Adapter: BYD |
|---|---|

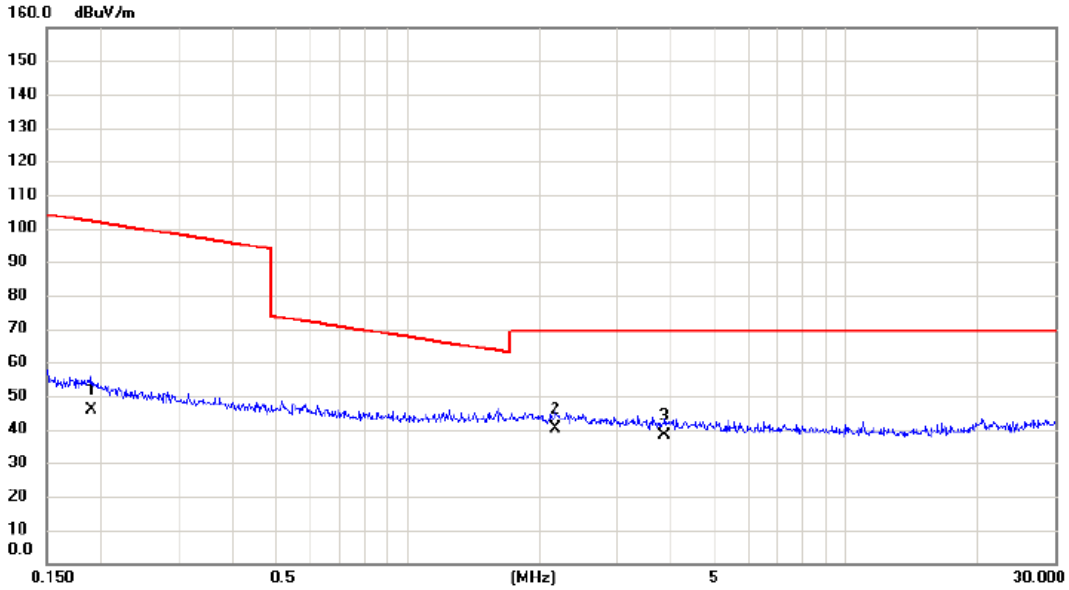
Ant 90°




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.0138 | 36.30 | 20.89 | 57.19 | 124.81 | -67.62 | AVG | |
| 2 | * | 0.0303 | 31.10 | 19.85 | 50.95 | 117.98 | -67.03 | AVG | |
| 3 | | 0.0850 | 22.40 | 18.79 | 41.19 | 109.02 | -67.83 | AVG | |

| Test Mode: | TX Mode_Adapter: BYD |
|---|---|

Ant 90°

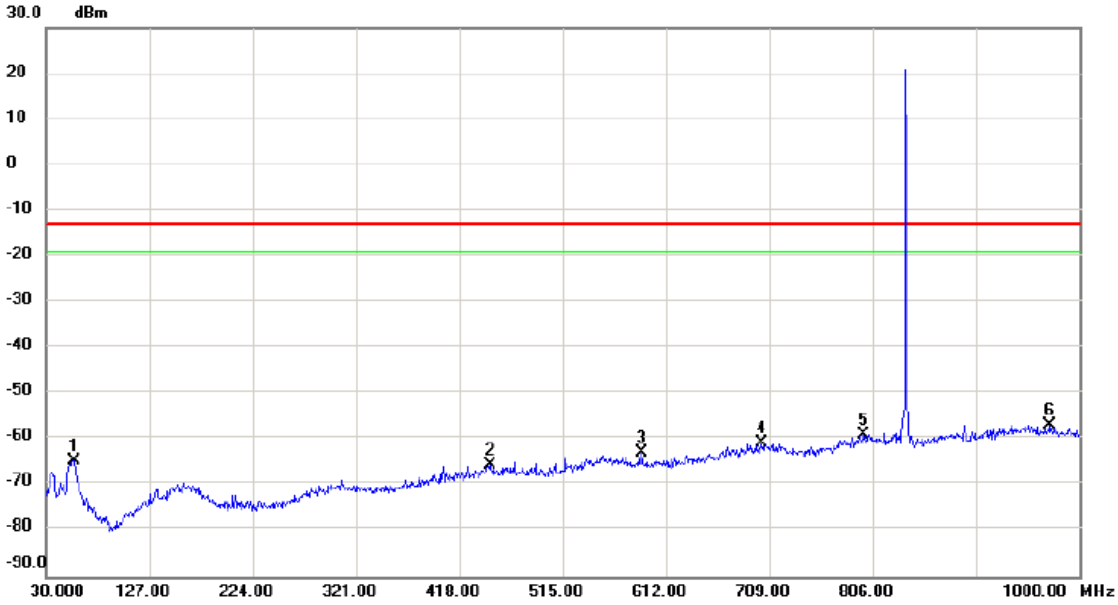



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | Comment |
| 1 | | 0.1894 | 28.50 | 17.17 | 45.67 | 102.06 | -56.39 | AVG | |
| 2 | * | 2.1783 | 23.40 | 17.00 | 40.40 | 69.54 | -29.14 | QP | |
| 3 | | 3.8603 | 22.30 | 15.86 | 38.16 | 69.54 | -31.38 | QP | |

# APPENDIX E - RADIATED EMISSION (30MHZ TO 1GHZ)

| Test Mode: | GSM850_TX CH190_GSM_with Earphone |
|---|---|

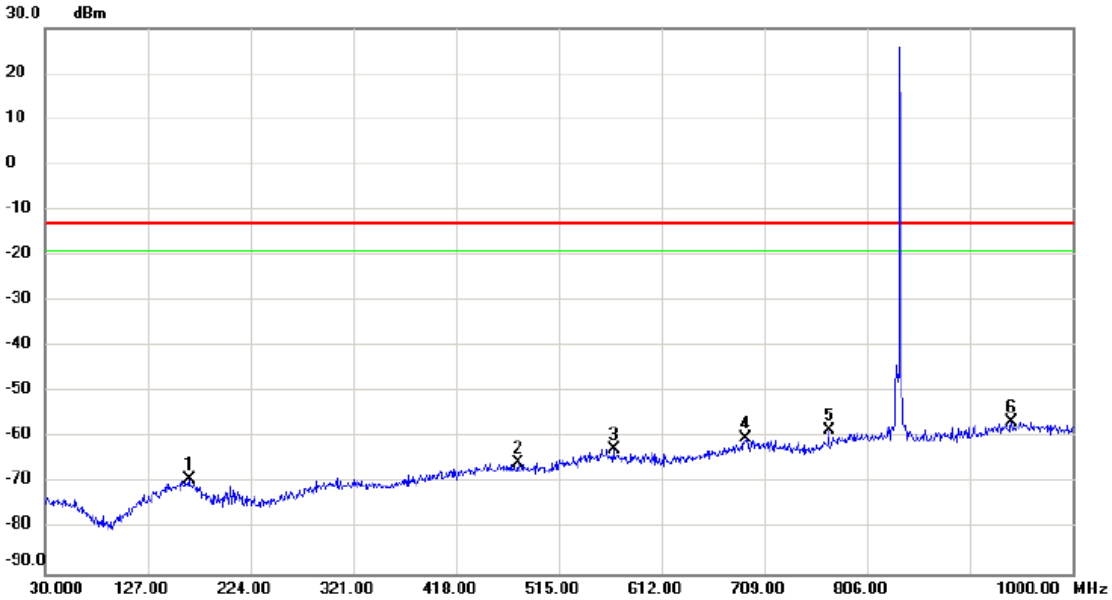
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 56.216 | -69.27 | 4.52 | -64.75 | -13.00 | -51.75 | peak | |
| 2 | | 446.547 | -77.46 | 12.05 | -65.41 | -13.00 | -52.41 | peak | |
| 3 | | 589.279 | -76.44 | 13.46 | -62.98 | -13.00 | -49.98 | peak | |
| 4 | | 701.912 | -77.70 | 16.80 | -60.90 | -13.00 | -47.90 | peak | |
| 5 | | 797.067 | -77.29 | 18.38 | -58.91 | -13.00 | -45.91 | peak | |
| 6 | * | 972.813 | -77.25 | 20.46 | -56.79 | -13.00 | -43.79 | peak | |

| Test Mode: | GSM850_ TX CH190_GSM_with Earphone |
|---|---|

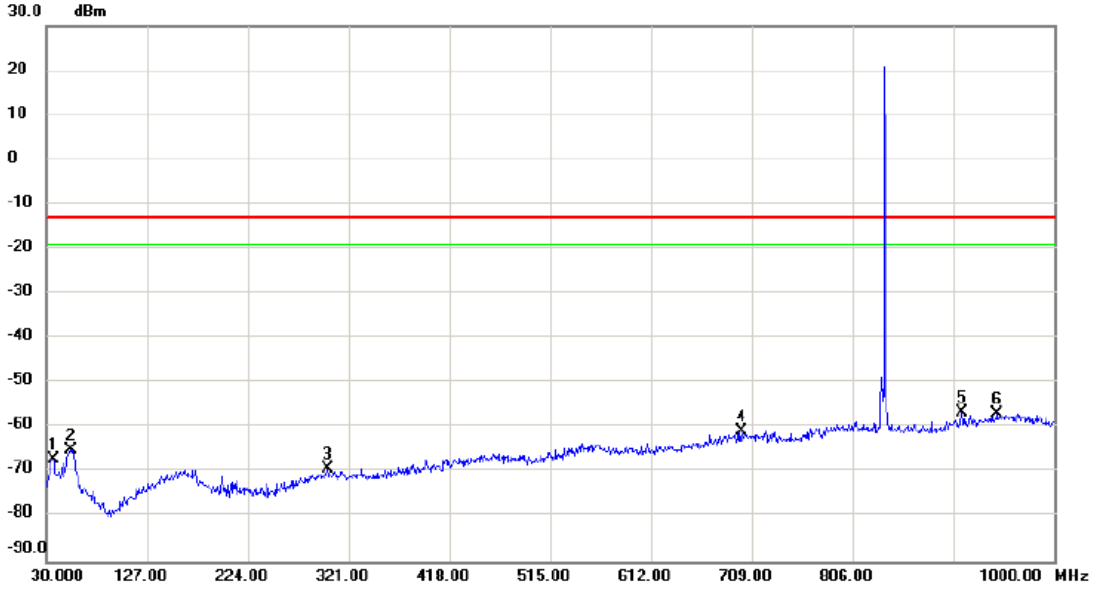
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 165.936 | -77.67 | 8.63 | -69.04 | -13.00 | -56.04 | peak | |
| 2 | | 476.647 | -77.04 | 11.58 | -65.46 | -13.00 | -52.46 | peak | |
| 3 | | 566.947 | -76.38 | 13.84 | -62.54 | -13.00 | -49.54 | peak | |
| 4 | | 691.540 | -76.65 | 16.43 | -60.22 | -13.00 | -47.22 | peak | |
| 5 | | 769.880 | -75.22 | 16.74 | -58.48 | -13.00 | -45.48 | peak | |
| 6 | * | 942.713 | -77.12 | 20.71 | -56.41 | -13.00 | -43.41 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_with Earphone |
|---|---|

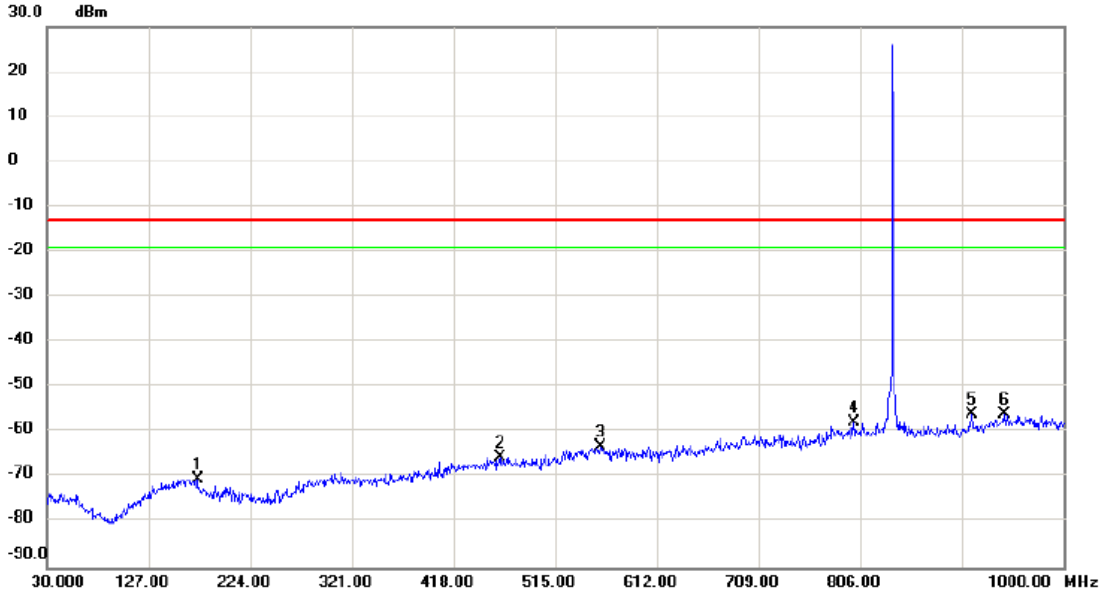
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 36.797 | -71.68 | 4.73 | -66.95 | -13.00 | -53.95 | peak | |
| 2 | | 53.303 | -69.53 | 4.66 | -64.87 | -13.00 | -51.87 | peak | |
| 3 | | 300.901 | -78.23 | 9.21 | -69.02 | -13.00 | -56.02 | peak | |
| 4 | | 698.999 | -77.47 | 16.80 | -60.67 | -13.00 | -47.67 | peak | |
| 5 | * | 911.642 | -76.12 | 19.46 | -56.66 | -13.00 | -43.66 | peak | |
| 6 | | 945.626 | -77.73 | 20.82 | -56.91 | -13.00 | -43.91 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_with Earphone |
|---|---|

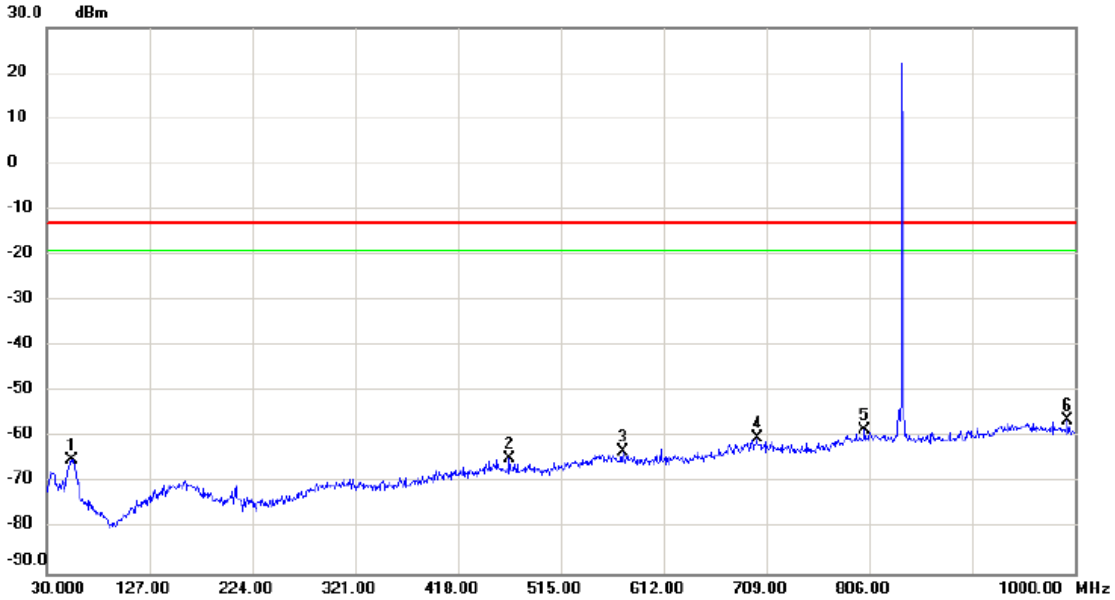
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 173.704 | -78.02 | 7.79 | -70.23 | -13.00 | -57.23 | peak | |
| 2 | | 462.082 | -77.31 | 11.91 | -65.40 | -13.00 | -52.40 | peak | |
| 3 | | 558.208 | -77.18 | 13.99 | -63.19 | -13.00 | -50.19 | peak | |
| 4 | | 799.980 | -76.19 | 18.55 | -57.64 | -13.00 | -44.64 | peak | |
| 5 | | 912.613 | -75.56 | 19.50 | -56.06 | -13.00 | -43.06 | peak | |
| 6 | * | 943.684 | -76.64 | 20.75 | -55.89 | -13.00 | -42.89 | peak | |

| Test Mode: | GSM850_ TX CH190_GSM_without Earphone |
|---|---|

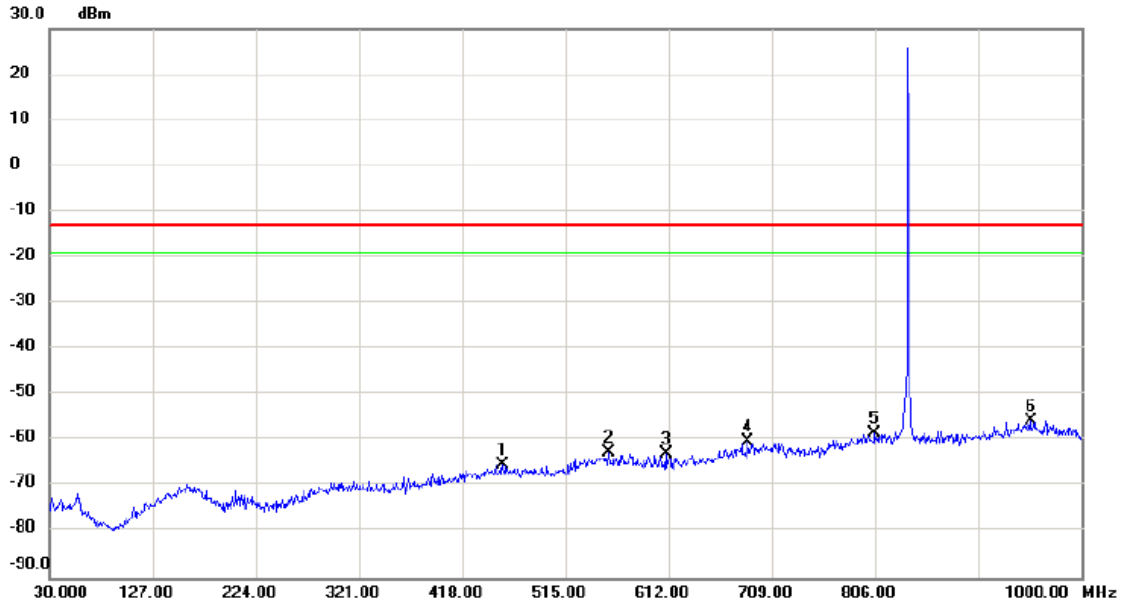
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 53.303 | -69.48 | 4.66 | -64.82 | -13.00 | -51.82 | peak | |
| 2 | | 466.937 | -76.59 | 11.81 | -64.78 | -13.00 | -51.78 | peak | |
| 3 | | 573.744 | -76.91 | 13.73 | -63.18 | -13.00 | -50.18 | peak | |
| 4 | | 699.970 | -76.94 | 16.84 | -60.10 | -13.00 | -47.10 | peak | |
| 5 | | 801.922 | -76.98 | 18.52 | -58.46 | -13.00 | -45.46 | peak | |
| 6 | * | 993.203 | -76.34 | 19.96 | -56.38 | -13.00 | -43.38 | peak | |

| Test Mode: | GSM850_ TX CH190_GSM_without Earphone |
|---|---|

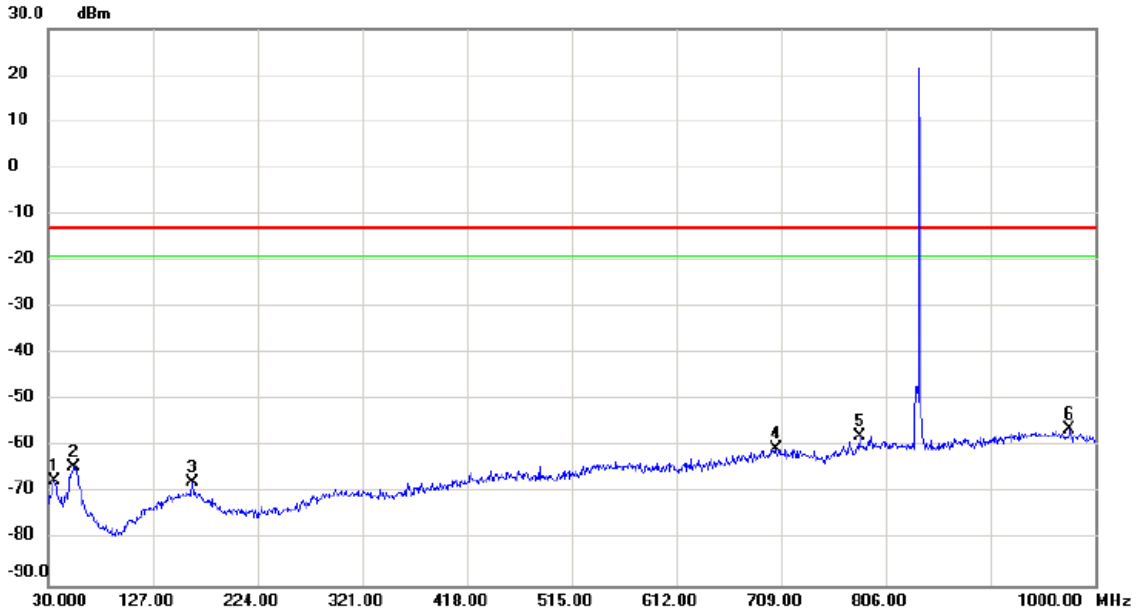
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 456.256 | -77.26 | 12.04 | -65.22 | -13.00 | -52.22 | peak | |
| 2 | | 555.295 | -76.48 | 14.04 | -62.44 | -13.00 | -49.44 | peak | |
| 3 | | 609.670 | -76.43 | 13.50 | -62.93 | -13.00 | -49.93 | peak | |
| 4 | | 686.376 | -76.39 | 16.18 | -60.21 | -13.00 | -47.21 | peak | |
| 5 | | 805.806 | -76.86 | 18.45 | -58.41 | -13.00 | -45.41 | peak | |
| 6 | * | 952.422 | -76.50 | 20.94 | -55.56 | -13.00 | -42.56 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_without Earphone |
|---|---|

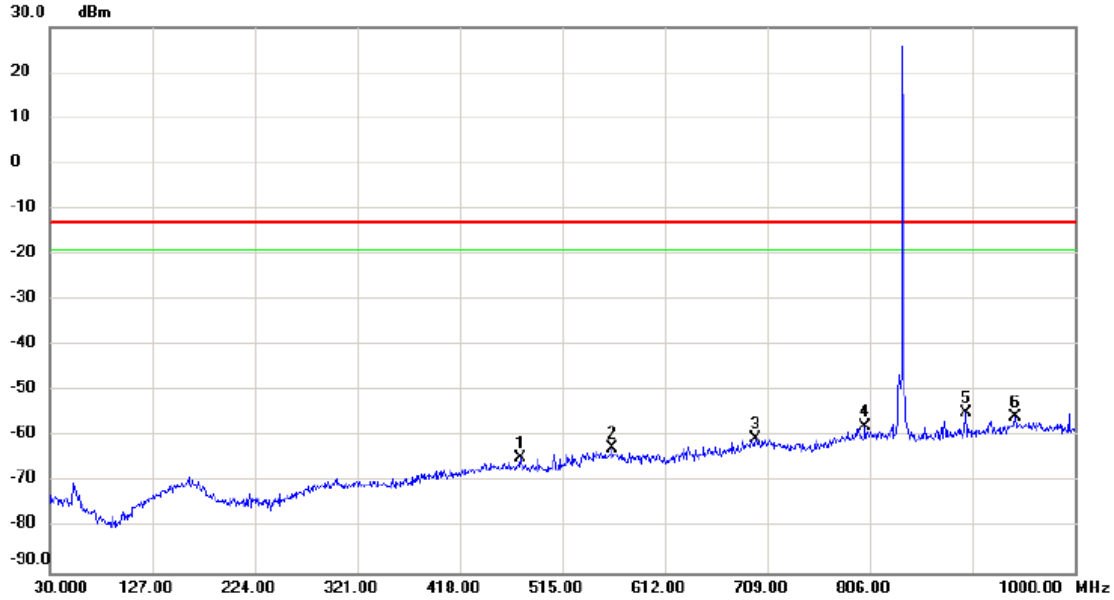
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 35.826 | -72.08 | 4.62 | -67.46 | -13.00 | -54.46 | peak | |
| 2 | | 54.274 | -69.00 | 4.63 | -64.37 | -13.00 | -51.37 | peak | |
| 3 | | 163.994 | -76.52 | 8.75 | -67.77 | -13.00 | -54.77 | peak | |
| 4 | | 703.854 | -77.11 | 16.74 | -60.37 | -13.00 | -47.37 | peak | |
| 5 | | 781.531 | -75.06 | 17.44 | -57.62 | -13.00 | -44.62 | peak | |
| 6 | * | 976.697 | -76.75 | 20.36 | -56.39 | -13.00 | -43.39 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_without Earphone |
|---|---|

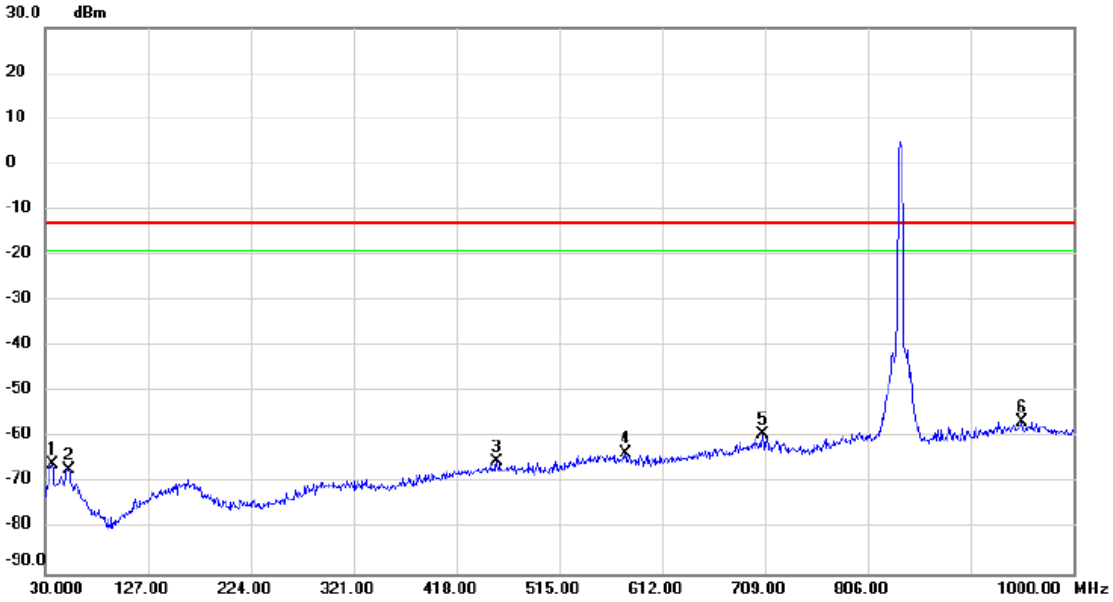
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 475.676 | -76.22 | 11.61 | -64.61 | -13.00 | -51.61 | peak | |
| 2 | | 562.092 | -76.56 | 13.93 | -62.63 | -13.00 | -49.63 | peak | |
| 3 | | 698.028 | -77.26 | 16.74 | -60.52 | -13.00 | -47.52 | peak | |
| 4 | | 801.922 | -76.17 | 18.52 | -57.65 | -13.00 | -44.65 | peak | |
| 5 | * | 897.077 | -73.81 | 18.92 | -54.89 | -13.00 | -41.89 | peak | |
| 6 | | 943.684 | -76.35 | 20.75 | -55.60 | -13.00 | -42.60 | peak | |

| Test Mode: | WCDMA Band V_TX CH4182 |
|---|---|

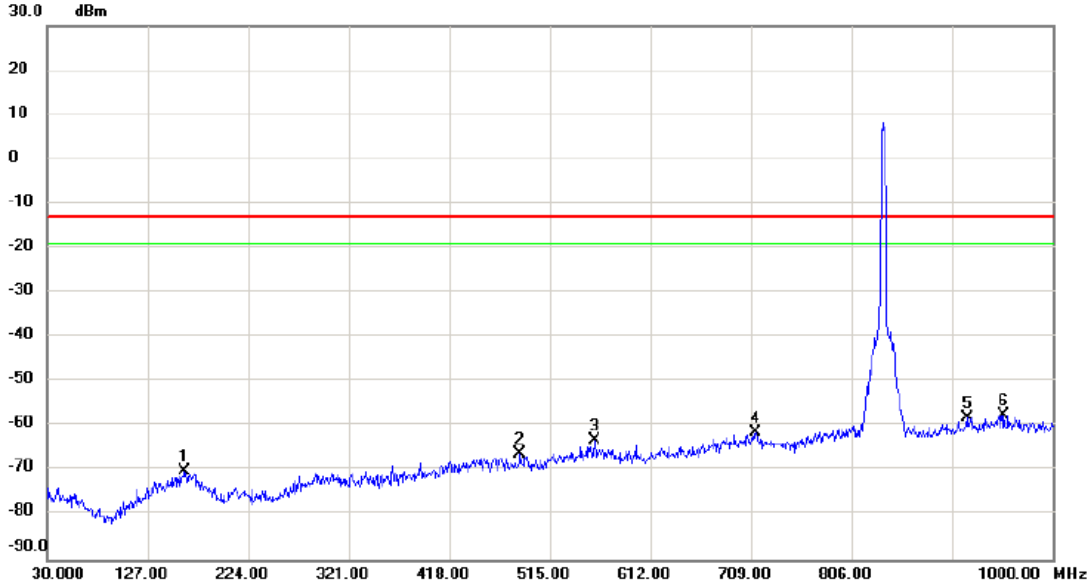
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 36.797 | -70.69 | 4.73 | -65.96 | -13.00 | -52.96 | peak | |
| 2 | | 52.332 | -71.73 | 4.70 | -67.03 | -13.00 | -54.03 | peak | |
| 3 | | 456.256 | -77.36 | 12.04 | -65.32 | -13.00 | -52.32 | peak | |
| 4 | | 577.628 | -77.25 | 13.67 | -63.58 | -13.00 | -50.58 | peak | |
| 5 | | 706.767 | -75.87 | 16.68 | -59.19 | -13.00 | -46.19 | peak | |
| 6 | * | 951.451 | -77.40 | 20.97 | -56.43 | -13.00 | -43.43 | peak | |

| Test Mode: | WCDMA Band V_TX CH4182 |
|---|---|

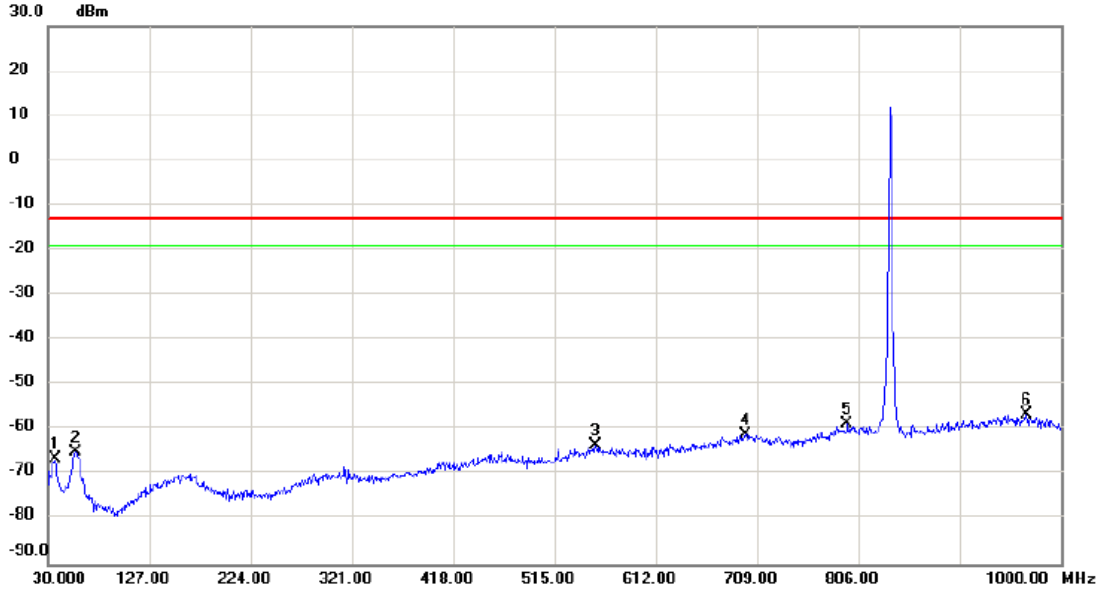
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 163.023 | -78.72 | 8.81 | -69.91 | -13.00 | -56.91 | peak | |
| 2 | | 486.356 | -77.42 | 11.37 | -66.05 | -13.00 | -53.05 | peak | |
| 3 | | 558.208 | -77.00 | 13.99 | -63.01 | -13.00 | -50.01 | peak | |
| 4 | | 713.564 | -77.73 | 16.49 | -61.24 | -13.00 | -48.24 | peak | |
| 5 | | 917.467 | -77.70 | 19.68 | -58.02 | -13.00 | -45.02 | peak | |
| 6 | * | 953.393 | -78.44 | 20.92 | -57.52 | -13.00 | -44.52 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_1.4M |
|---|---|

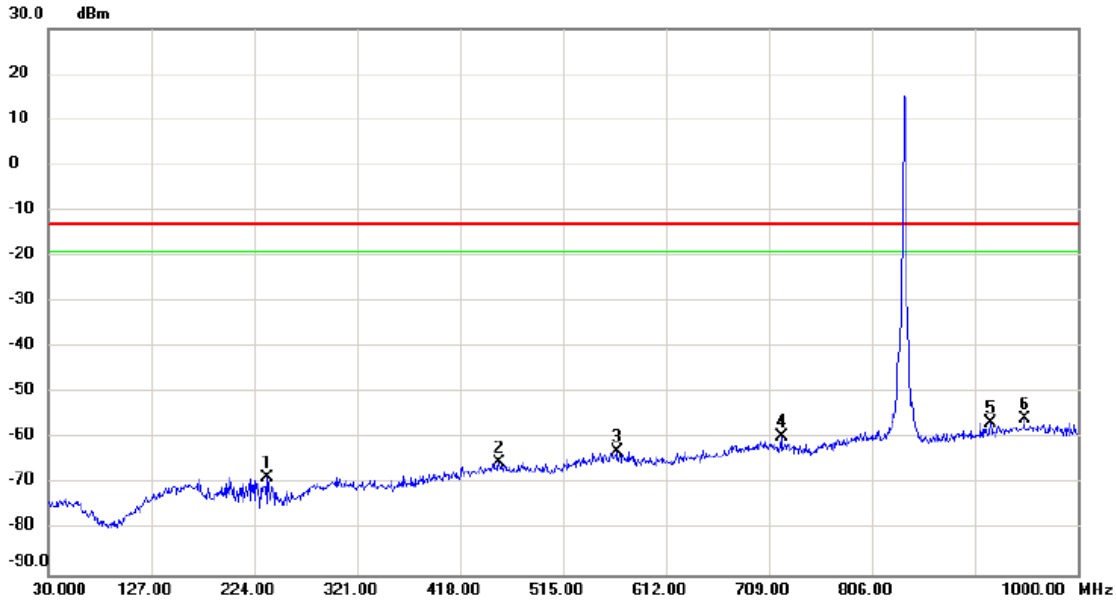
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 36.790 | -71.33 | 4.73 | -66.60 | -13.00 | -53.60 | peak | |
| 2 | | 56.675 | -69.50 | 4.43 | -65.07 | -13.00 | -52.07 | peak | |
| 3 | | 554.770 | -77.36 | 14.04 | -63.32 | -13.00 | -50.32 | peak | |
| 4 | | 698.330 | -77.73 | 16.76 | -60.97 | -13.00 | -47.97 | peak | |
| 5 | | 795.330 | -76.89 | 18.27 | -58.62 | -13.00 | -45.62 | peak | |
| 6 | * | 967.505 | -77.02 | 20.58 | -56.44 | -13.00 | -43.44 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_1.4M |
|---|---|

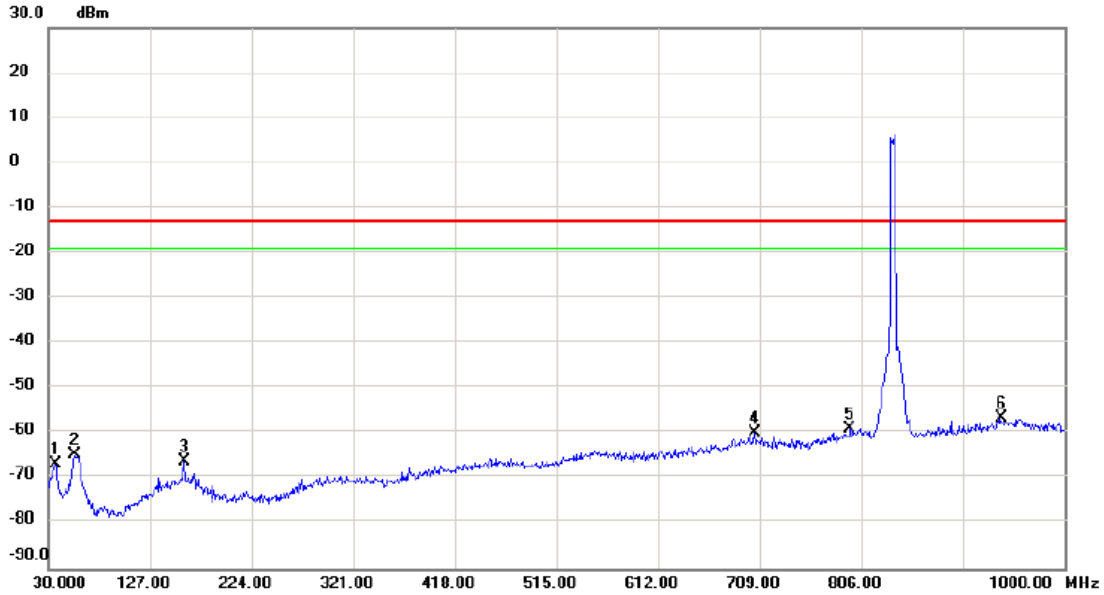
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 236.610 | -73.47 | 4.82 | -68.65 | -13.00 | -55.65 | peak | |
| 2 | | 454.860 | -77.36 | 12.08 | -65.28 | -13.00 | -52.28 | peak | |
| 3 | | 565.440 | -76.66 | 13.86 | -62.80 | -13.00 | -49.80 | peak | |
| 4 | | 720.640 | -75.79 | 16.31 | -59.48 | -13.00 | -46.48 | peak | |
| 5 | | 917.550 | -76.19 | 19.69 | -56.50 | -13.00 | -43.50 | peak | |
| 6 | * | 949.560 | -76.66 | 20.98 | -55.68 | -13.00 | -42.68 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_5M |
|---|---|

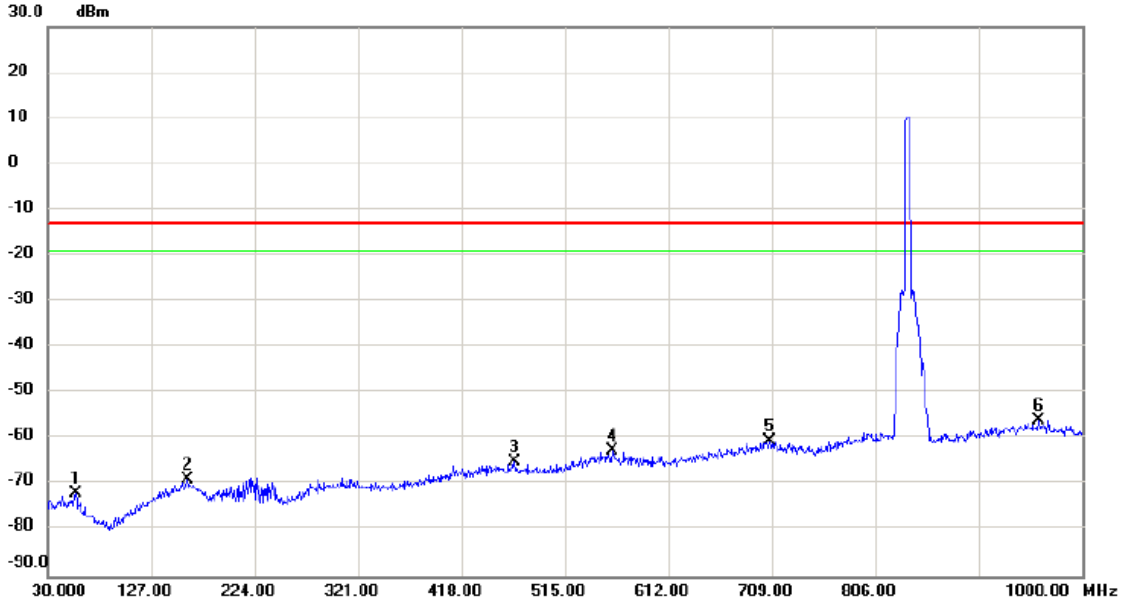
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 37.275 | -71.68 | 4.81 | -66.87 | -13.00 | -53.87 | peak | |
| 2 | | 55.705 | -69.37 | 4.57 | -64.80 | -13.00 | -51.80 | peak | |
| 3 | | 160.465 | -75.04 | 8.97 | -66.07 | -13.00 | -53.07 | peak | |
| 4 | | 704.150 | -76.64 | 16.75 | -59.89 | -13.00 | -46.89 | peak | |
| 5 | | 795.330 | -77.31 | 18.27 | -59.04 | -13.00 | -46.04 | peak | |
| 6 | * | 939.375 | -77.15 | 20.58 | -56.57 | -13.00 | -43.57 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_5M |
|---|---|

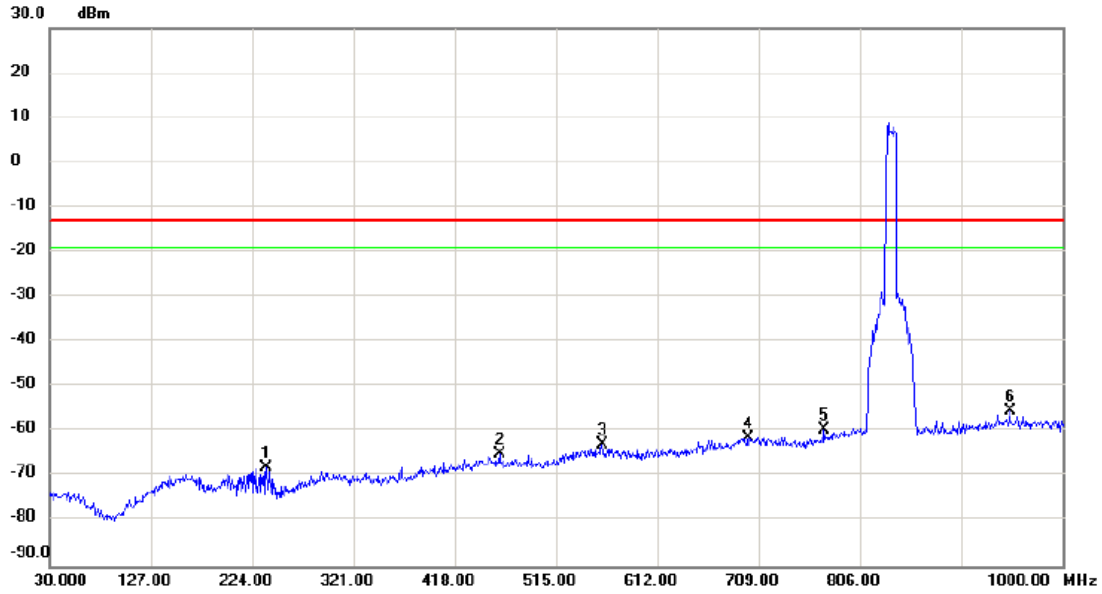
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 56.190 | -76.31 | 4.52 | -71.79 | -13.00 | -58.79 | peak | |
| 2 | | 161.435 | -77.88 | 8.90 | -68.98 | -13.00 | -55.98 | peak | |
| 3 | | 467.470 | -76.76 | 11.79 | -64.97 | -13.00 | -51.97 | peak | |
| 4 | | 559.620 | -76.57 | 13.97 | -62.60 | -13.00 | -49.60 | peak | |
| 5 | | 707.060 | -77.26 | 16.67 | -60.59 | -13.00 | -47.59 | peak | |
| 6 | * | 959.260 | -76.62 | 20.78 | -55.84 | -13.00 | -42.84 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_10M |
|---|---|

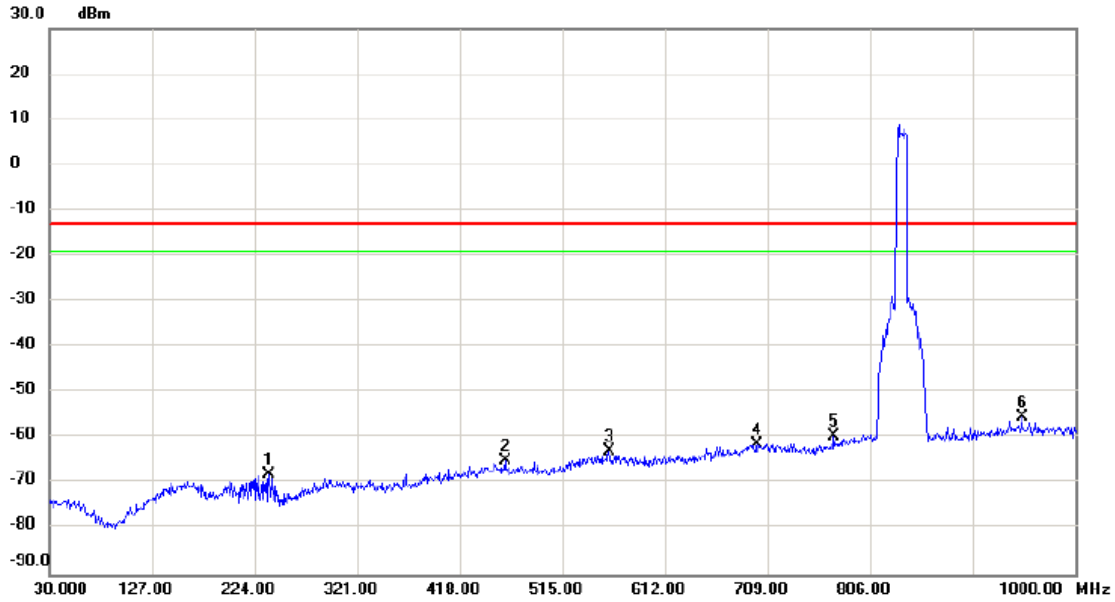
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 238.065 | -72.69 | 4.86 | -67.83 | -13.00 | -54.83 | peak | |
| 2 | | 461.165 | -76.90 | 11.93 | -64.97 | -13.00 | -51.97 | peak | |
| 3 | | 559.135 | -76.76 | 13.97 | -62.79 | -13.00 | -49.79 | peak | |
| 4 | | 699.785 | -78.13 | 16.83 | -61.30 | -13.00 | -48.30 | peak | |
| 5 | | 772.050 | -76.54 | 16.87 | -59.67 | -13.00 | -46.67 | peak | |
| 6 | * | 950.045 | -76.47 | 21.01 | -55.46 | -13.00 | -42.46 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_10M |
|---|---|

**Horizontal**

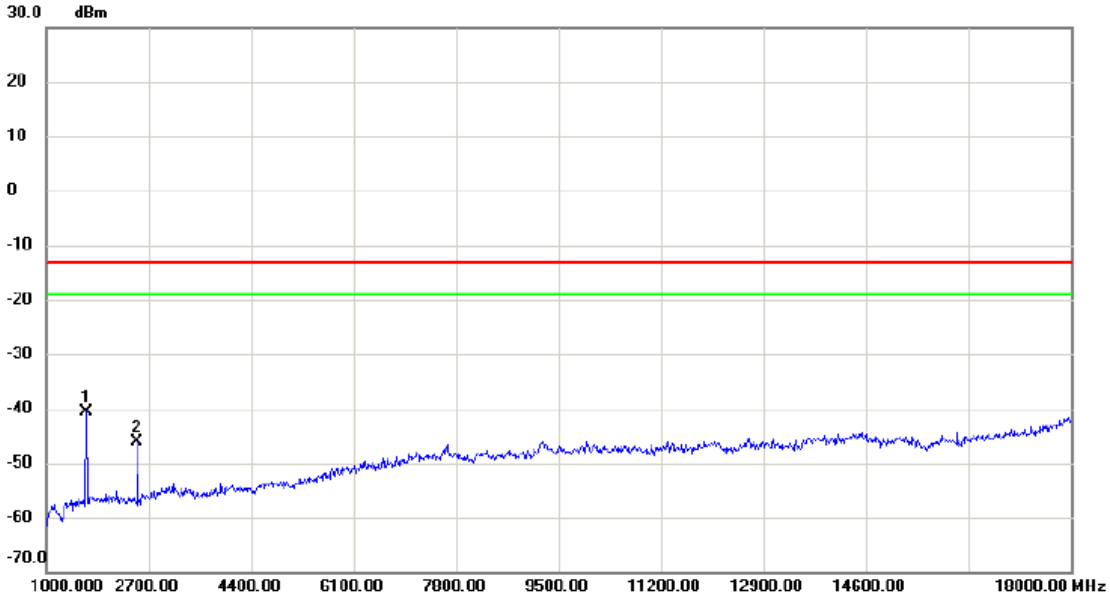



| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 238.065 | -72.69 | 4.86 | -67.83 | -13.00 | -54.83 | peak | |
| 2 | | 461.165 | -76.90 | 11.93 | -64.97 | -13.00 | -51.97 | peak | |
| 3 | | 559.135 | -76.76 | 13.97 | -62.79 | -13.00 | -49.79 | peak | |
| 4 | | 699.785 | -78.13 | 16.83 | -61.30 | -13.00 | -48.30 | peak | |
| 5 | | 772.050 | -76.54 | 16.87 | -59.67 | -13.00 | -46.67 | peak | |
| 6 | * | 950.045 | -76.47 | 21.01 | -55.46 | -13.00 | -42.46 | peak | |

# APPENDIX F - RADIATED EMISSION (ABOVE 1GHZ)

| Test Mode: | GSM850_ TX CH190_GSM_with Earphone |
|---|---|

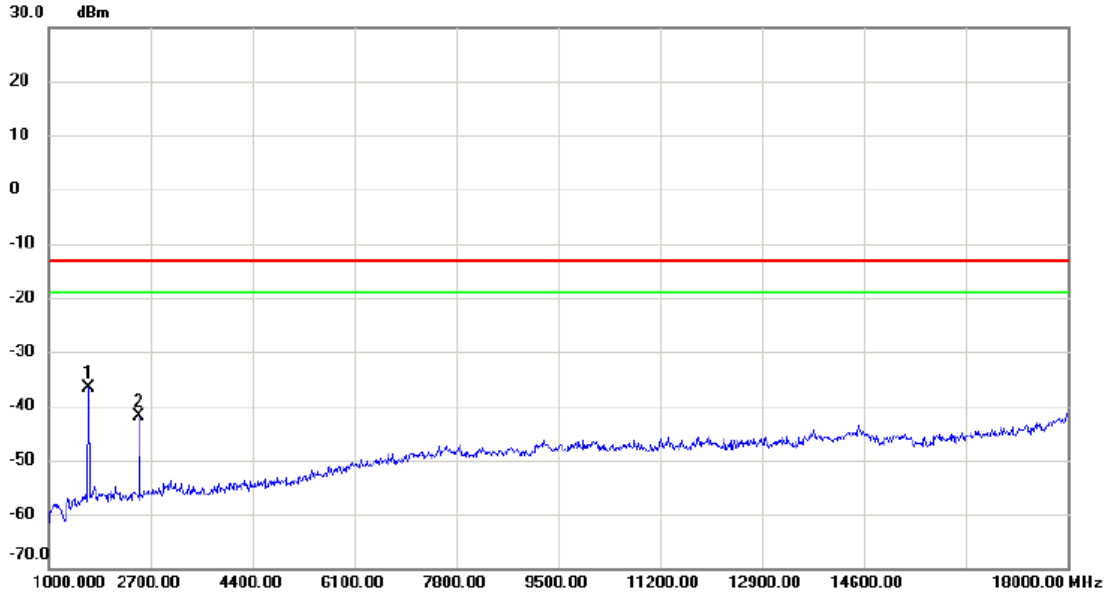
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 1671.500 | -48.77 | 8.22 | -40.55 | -13.00 | -27.55 | peak | |
| 2 | | 2513.000 | -55.22 | 9.12 | -46.10 | -13.00 | -33.10 | peak | |

| Test Mode: | GSM850_ TX CH190_GSM_with Earphone |
|---|---|

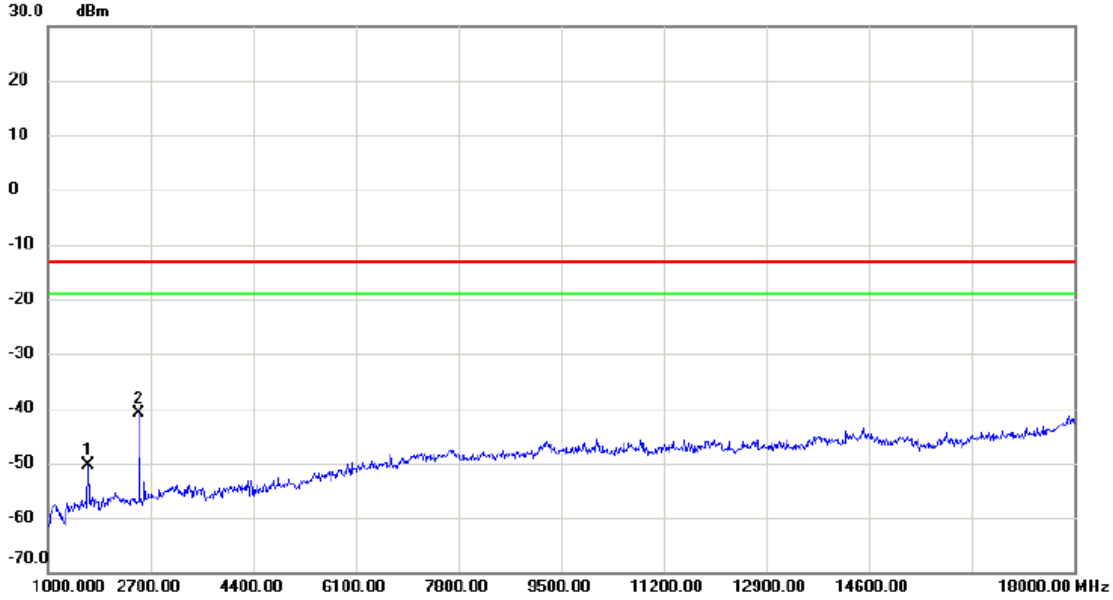
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 1671.500 | -44.78 | 8.22 | -36.56 | -13.00 | -23.56 | peak | |
| 2 | | 2513.000 | -51.10 | 9.12 | -41.98 | -13.00 | -28.98 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_with Earphone |
|---|---|

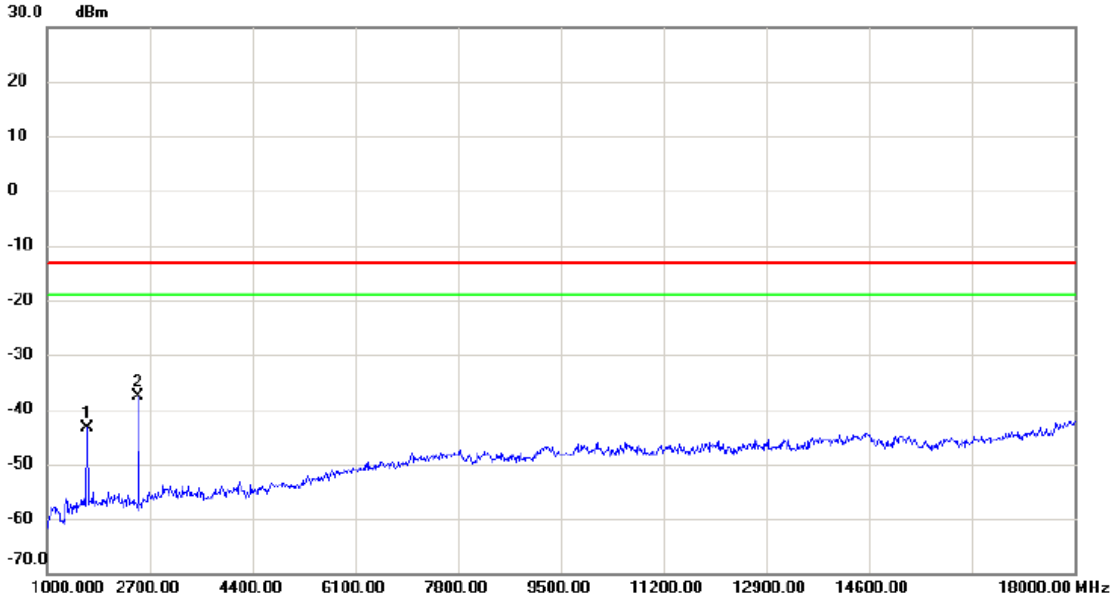
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -58.65 | 8.22 | -50.43 | -13.00 | -37.43 | peak | |
| 2 | * | 2513.000 | -49.89 | 9.12 | -40.77 | -13.00 | -27.77 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_with Earphone |
|---|---|

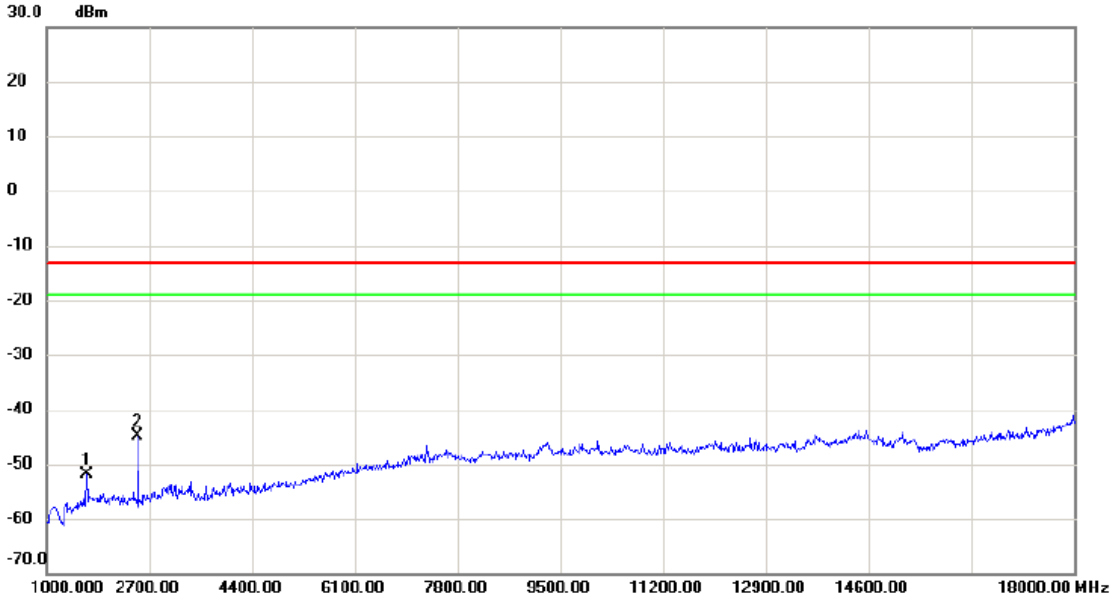
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -51.70 | 8.22 | -43.48 | -13.00 | -30.48 | peak | |
| 2 | * | 2513.000 | -46.85 | 9.12 | -37.73 | -13.00 | -24.73 | peak | |

| Test Mode: | GSM850_ TX CH190_GSM_without Earphone |
|---|---|

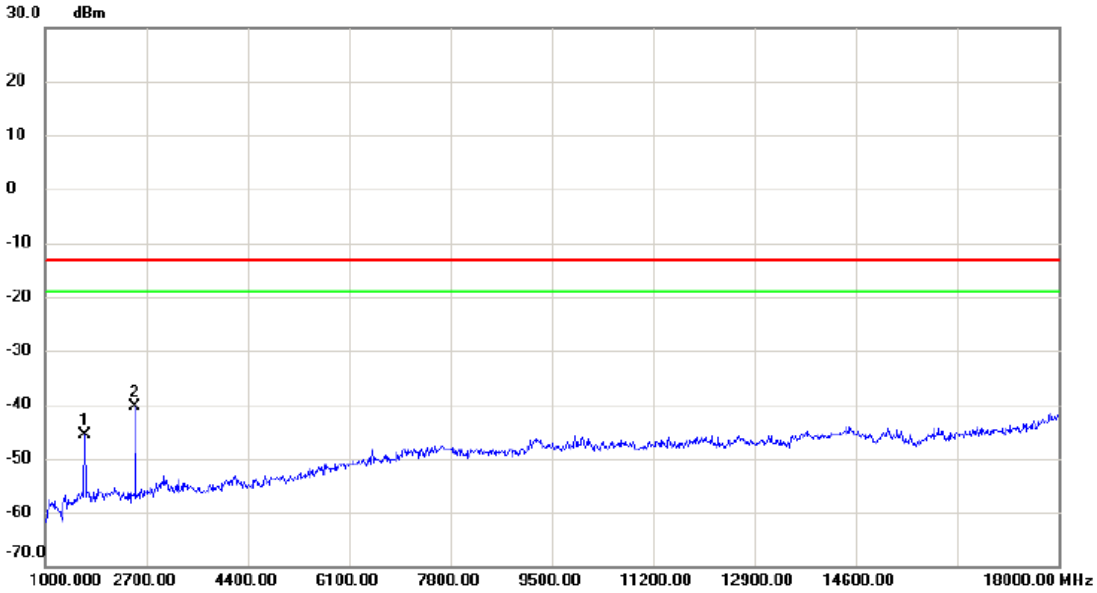
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -60.10 | 8.22 | -51.88 | -13.00 | -38.88 | peak | |
| 2 | * | 2513.000 | -54.03 | 9.12 | -44.91 | -13.00 | -31.91 | peak | |

| Test Mode: | GSM850_ TX CH190_GSM_without Earphone |
|---|---|

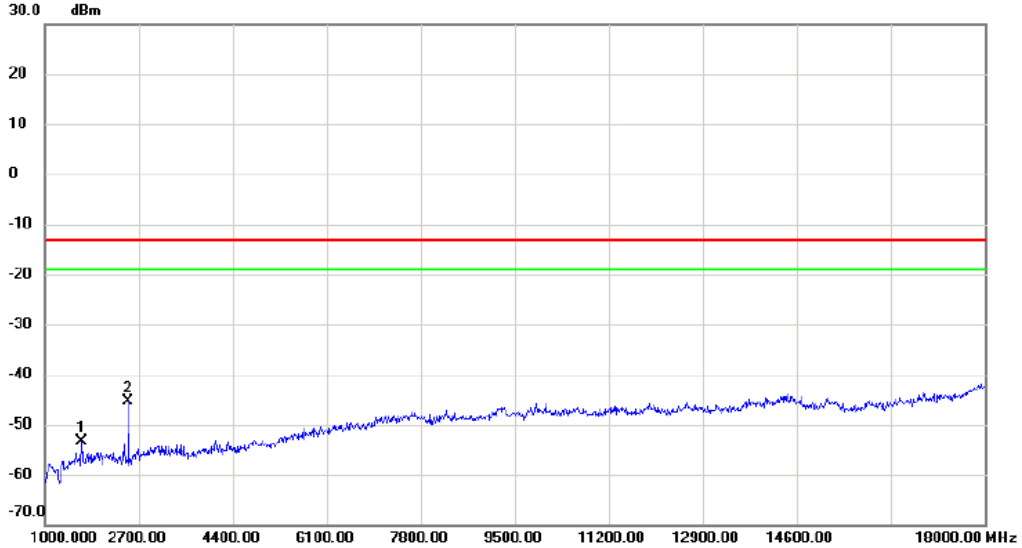
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -53.82 | 8.22 | -45.60 | -13.00 | -32.60 | peak | |
| 2 | * | 2513.000 | -49.55 | 9.12 | -40.43 | -13.00 | -27.43 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_without Earphone |
|---|---|

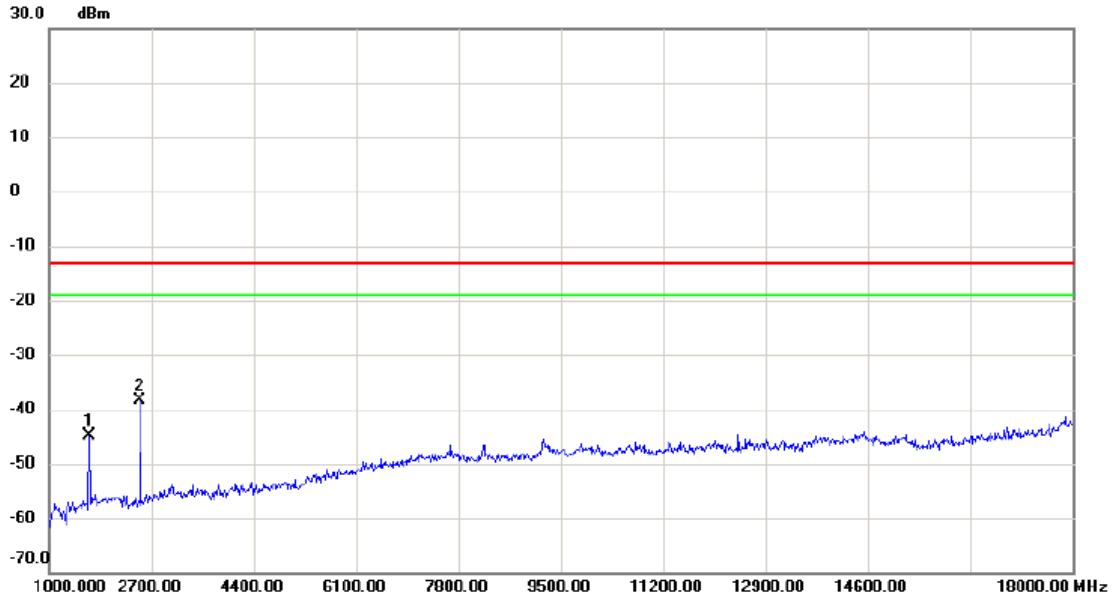
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -61.62 | 8.22 | -53.40 | -13.00 | -40.40 | peak | |
| 2 | * | 2513.000 | -54.51 | 9.12 | -45.39 | -13.00 | -32.39 | peak | |

| Test Mode: | GSM850_ TX CH190_EDGE_without Earphone |
|---|---|

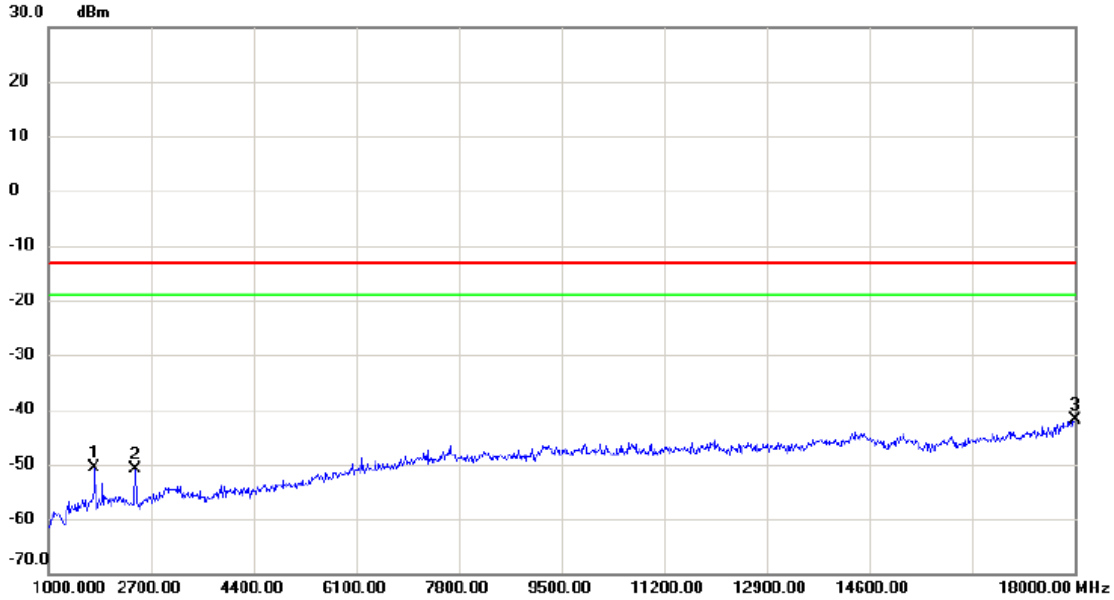
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -53.09 | 8.22 | -44.87 | -13.00 | -31.87 | peak | |
| 2 | * | 2513.000 | -47.60 | 9.12 | -38.48 | -13.00 | -25.48 | peak | |

| Test Mode: | WCDMA Band V_TX CH4182 |
|---|---|

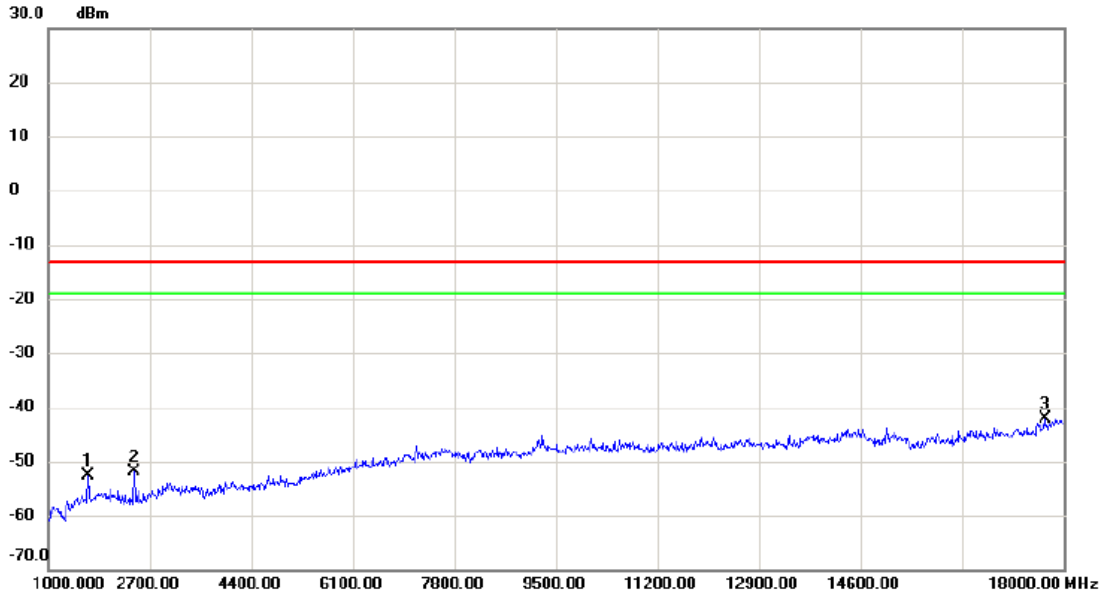
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1765.000 | -59.08 | 8.57 | -50.51 | -13.00 | -37.51 | peak | |
| 2 | | 2436.500 | -59.94 | 9.09 | -50.85 | -13.00 | -37.85 | peak | |
| 3 | * | 18000.000 | -71.45 | 29.51 | -41.94 | -13.00 | -28.94 | peak | |

| Test Mode: | WCDMA Band V_TX CH4182 |
|---|---|

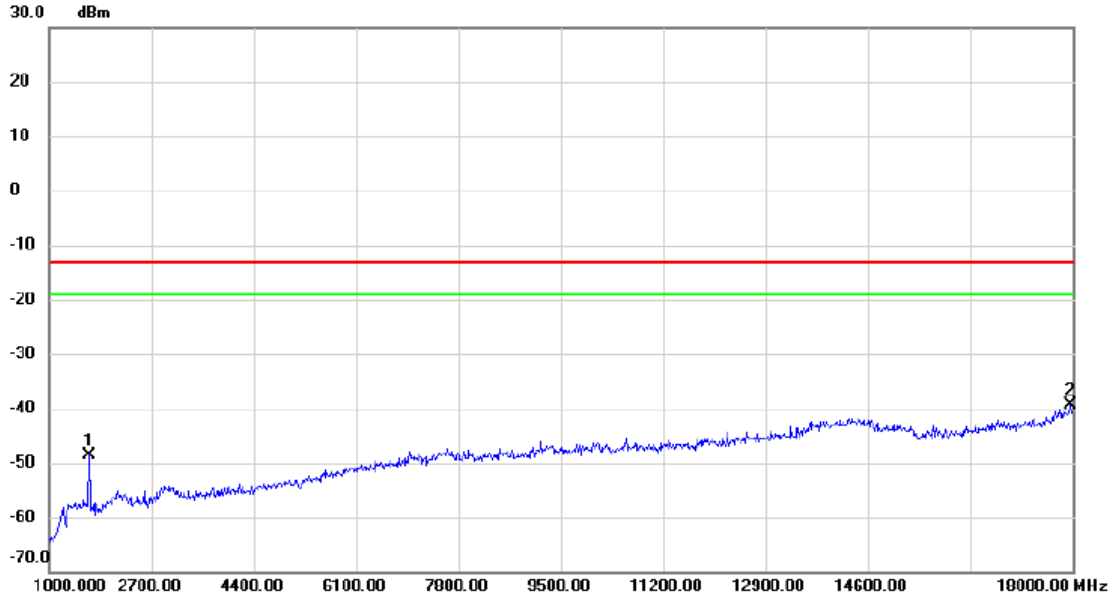
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -60.73 | 8.22 | -52.51 | -13.00 | -39.51 | peak | |
| 2 | | 2436.500 | -60.94 | 9.09 | -51.85 | -13.00 | -38.85 | peak | |
| 3 | * | 17685.500 | -70.69 | 28.56 | -42.13 | -13.00 | -29.13 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_1.4M |
|---|---|

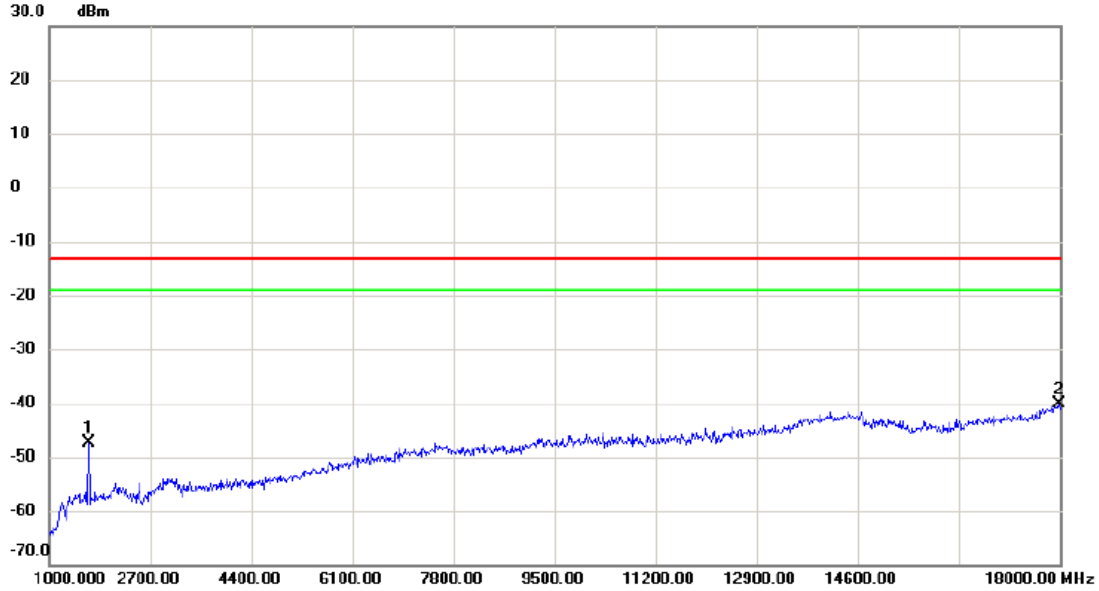
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -56.59 | 7.85 | -48.74 | -13.00 | -35.74 | peak | |
| 2 | * | 17974.500 | -70.24 | 30.93 | -39.31 | -13.00 | -26.31 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_1.4M |
|---|---|

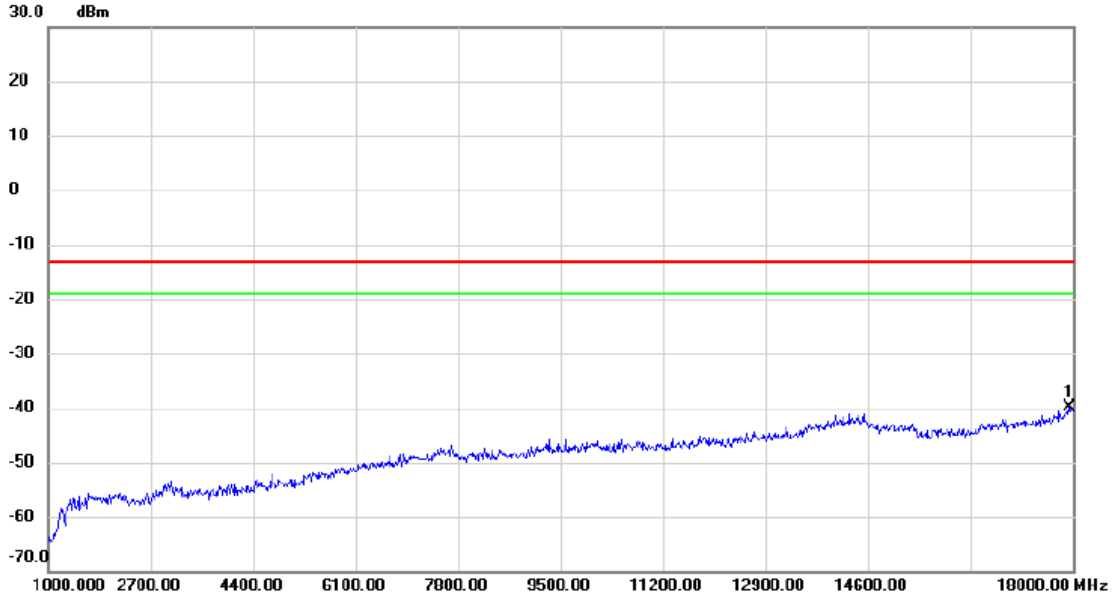
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -55.25 | 7.85 | -47.40 | -13.00 | -34.40 | peak | |
| 2 | * | 17983.000 | -70.99 | 30.96 | -40.03 | -13.00 | -27.03 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_5M |
|---|---|

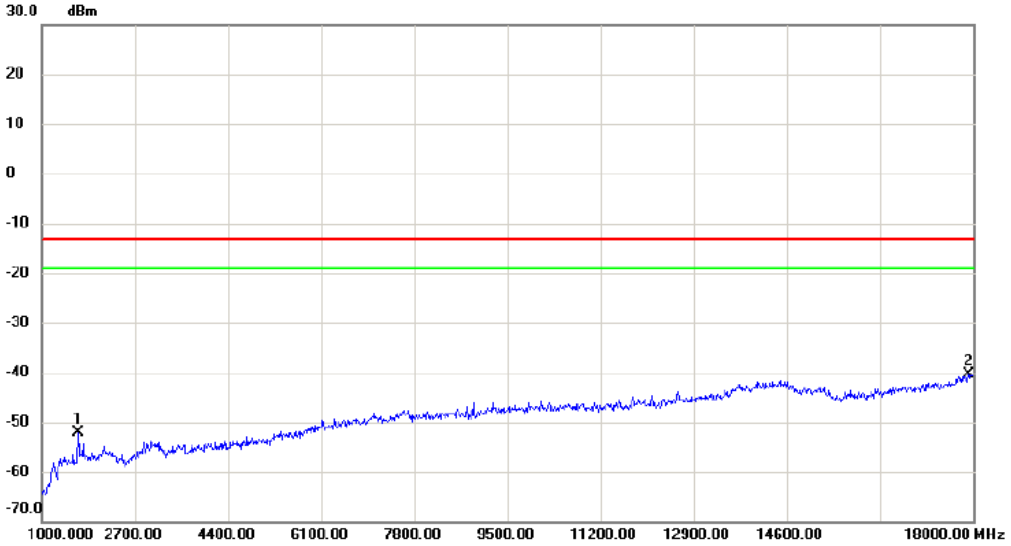
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 17940.500 | -70.80 | 30.83 | -39.97 | -13.00 | -26.97 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_5M |
|---|---|

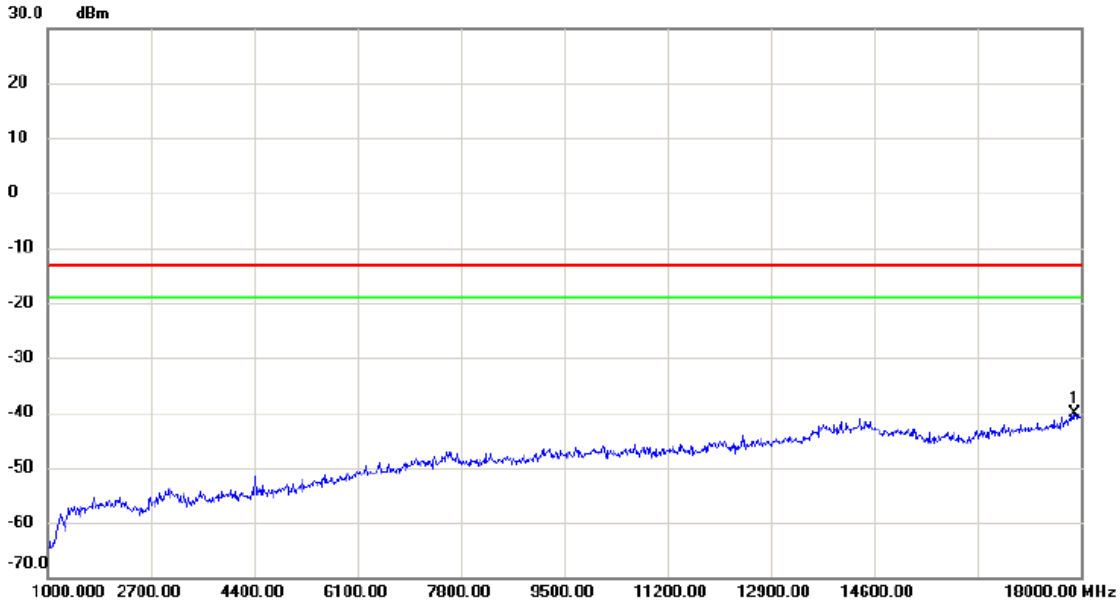
**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -60.05 | 7.85 | -52.20 | -13.00 | -39.20 | peak | |
| 2 | * | 17923.500 | -71.25 | 30.78 | -40.47 | -13.00 | -27.47 | peak | |

| Test Mode: | LTE Band 5_TX CH20525_10M |
|---|---|

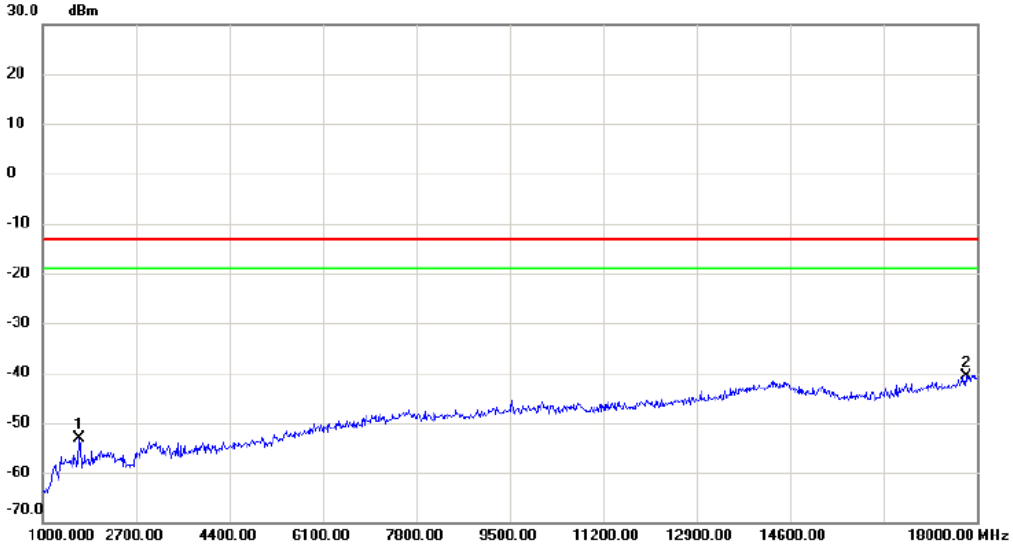
**Vertical**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | * | 17889.500 | -70.88 | 30.67 | -40.21 | -13.00 | -27.21 | peak | |

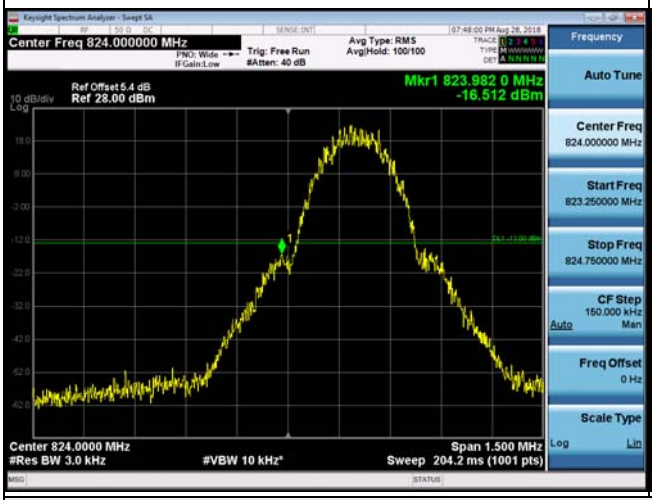
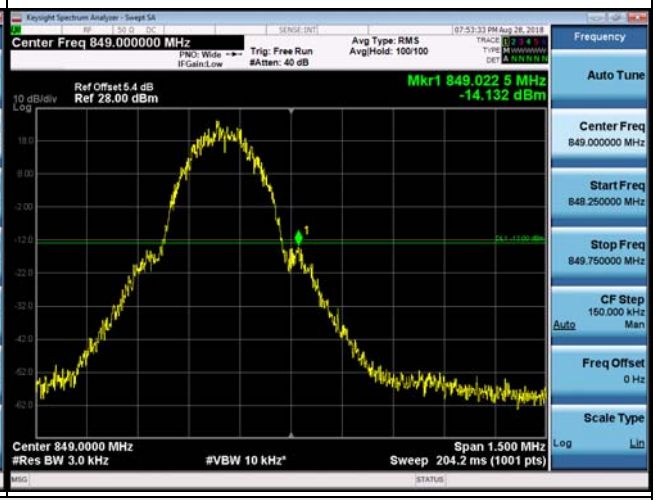
| Test Mode: | LTE Band 5_TX CH20525_10M |
|---|---|

**Horizontal**




| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Margin | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dB | dBm | dBm | dB | Detector | Comment |
| 1 | | 1671.500 | -60.99 | 7.85 | -53.14 | -13.00 | -40.14 | peak | |
| 2 | * | 17804.500 | -70.97 | 30.42 | -40.55 | -13.00 | -27.55 | peak | |

# APPENDIX G - BAND EDGE

| GSM850 | | | |
|---|---|---|---|
| GSM | | | |
| Channel | 128 | Channel | 251 |
|  | |  | |
| EDGE | | | |
| Channel | 128 | Channel | 251 |
|  | |  | |

| WCDMA Band V | | | |
|---|---|---|---|
| Channel | 4132 | Channel | 4233 |
|  | |  | |
| WCDMA_HSDPA Band V | | | |
| Channel | 4132 | Channel | 4233 |
|  | |  | |
| WCDMA_HSUPA Band V | | | |
| Channel | 4132 | Channel | 4233 |
|  | |  | |

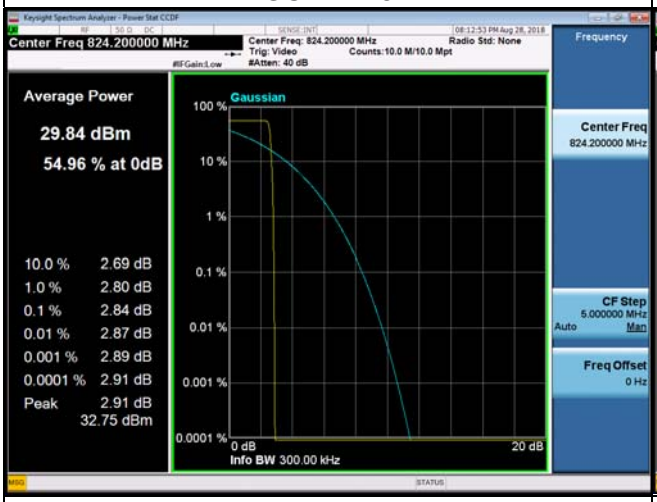
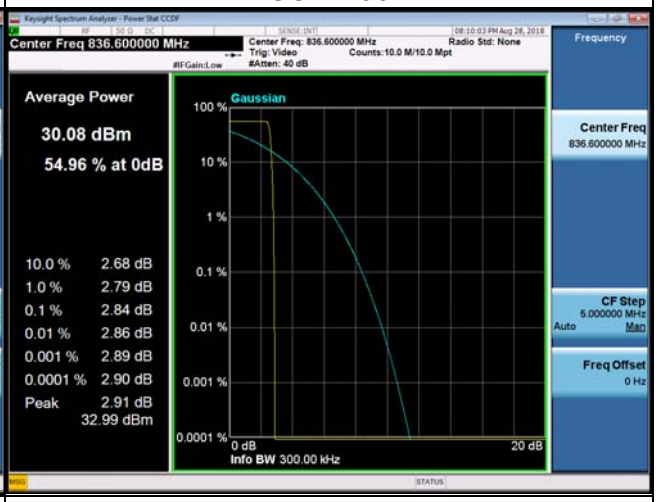
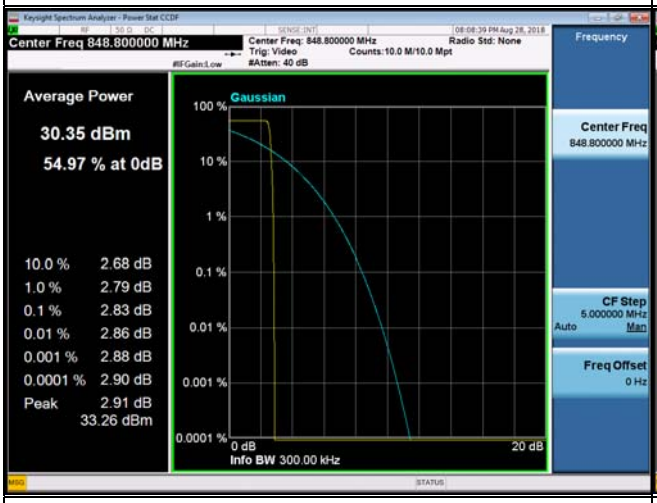
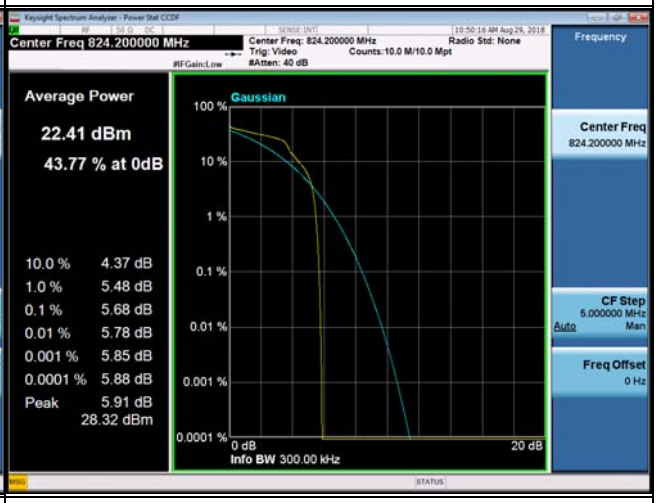
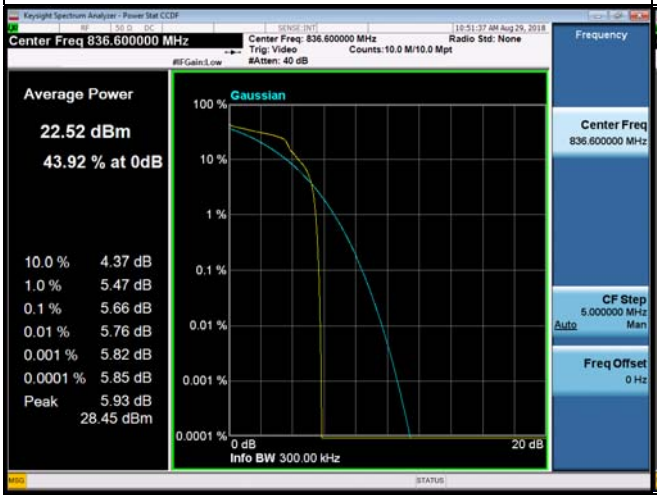
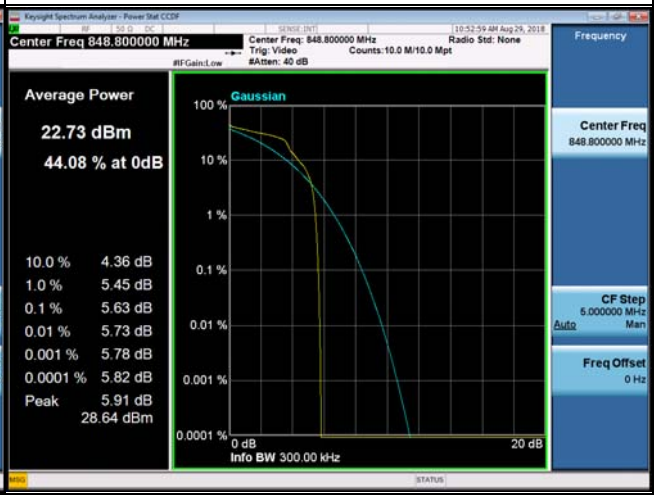
| LTE Band 5_1.4M | | | |
|---|---|---|---|
| 1RB0 | | 1RB5 | |
| Channel | 20407 | Channel | 20643 |
|  | |  | |
| 6RB0 | | | |
| Channel | 20407 | Channel | 20643 |
|  | |  | |

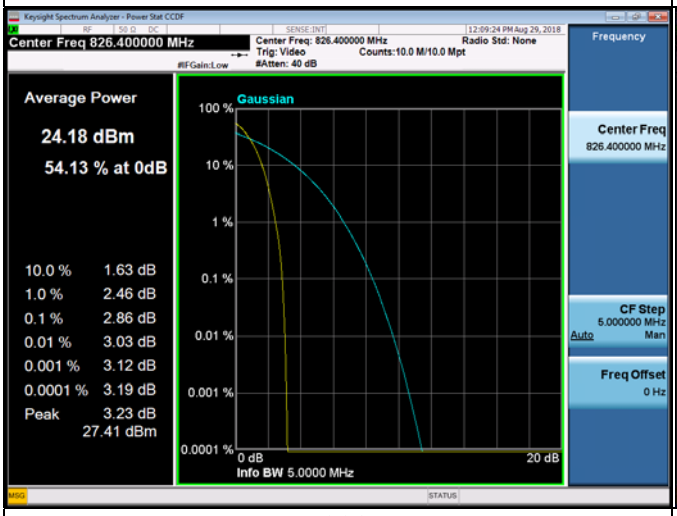
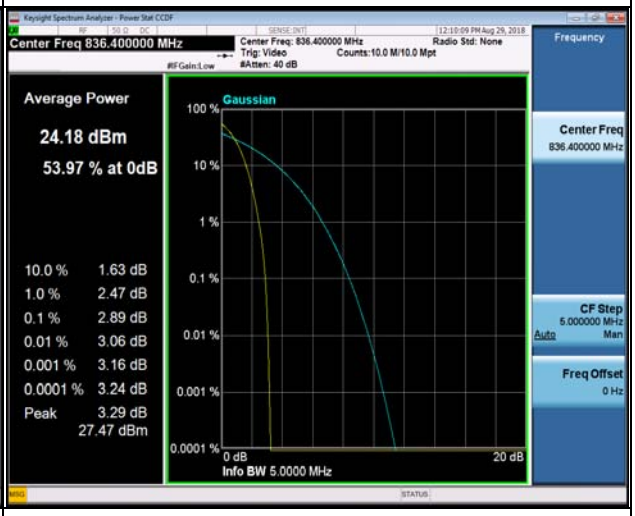
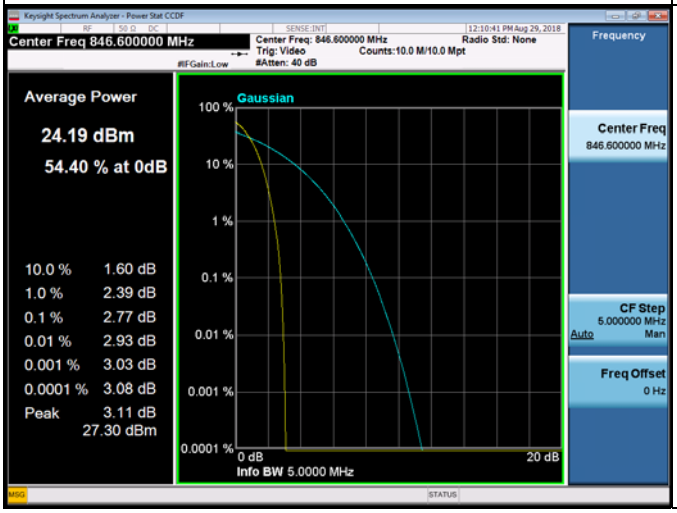
| LTE Band 5_3M | | | |
|---|---|---|---|
| 1RB0 | | 1RB14 | |
| Channel | 20415 | Channel | 20635 |
|  | |  | |
| 15RB0 | | | |
| Channel | 20415 | Channel | 20635 |
|  | |  | |

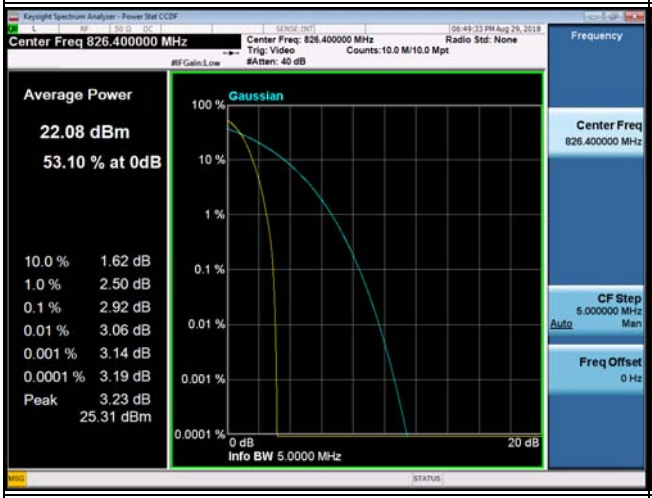
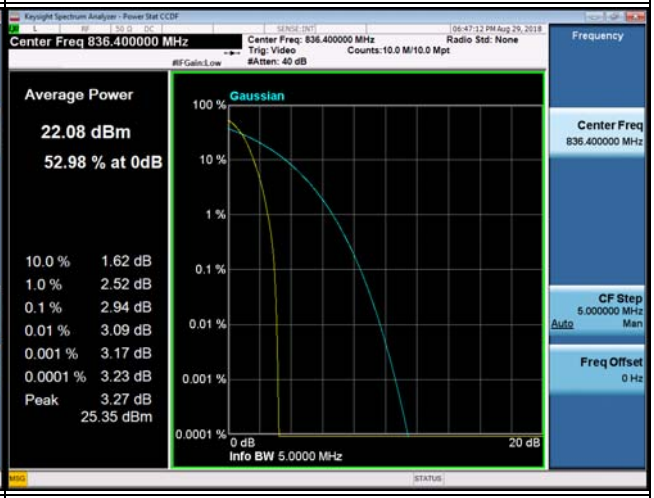
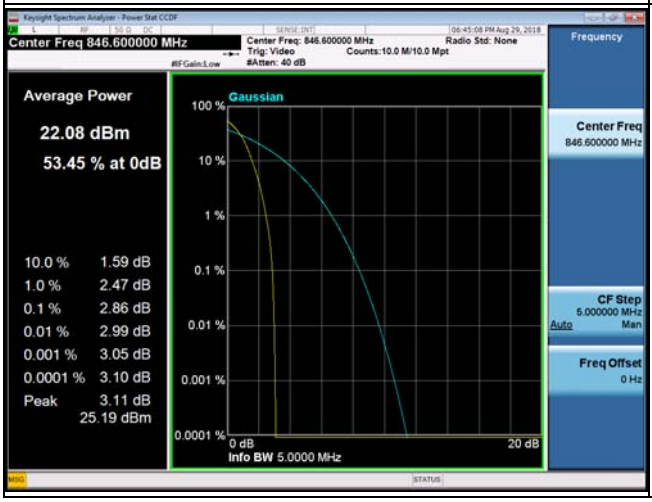
| LTE Band 5_5M | | | |
|---|---|---|---|
| 1RB0 | | 1RB24 | |
| Channel | 20425 | Channel | 20625 |
|  | |  | |
| 25RB0 | | | |
| Channel | 20425 | Channel | 20625 |
|  | |  | |

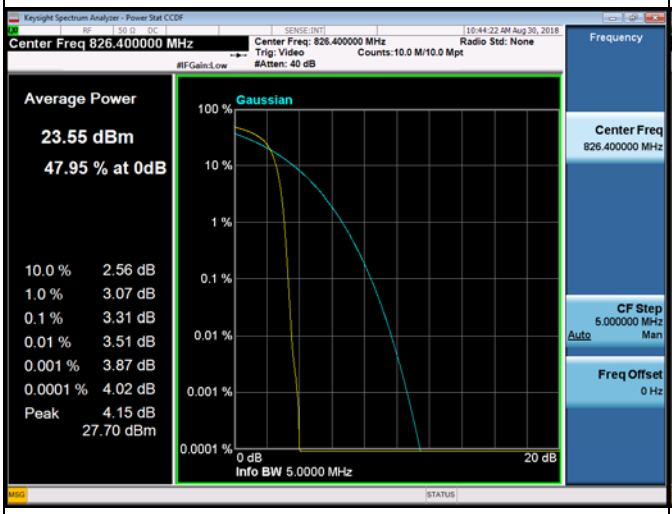
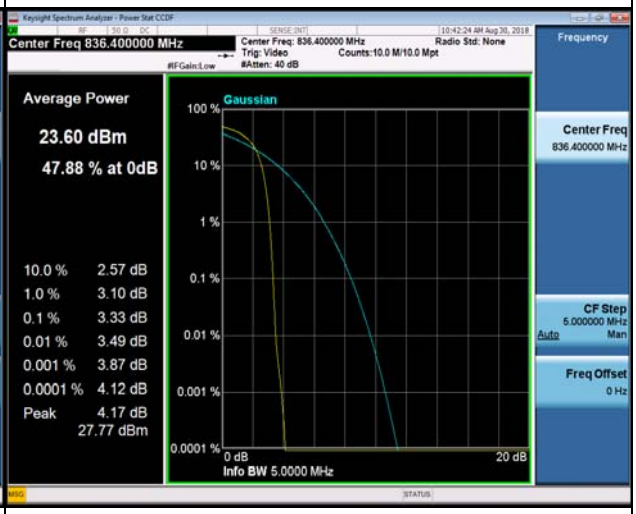
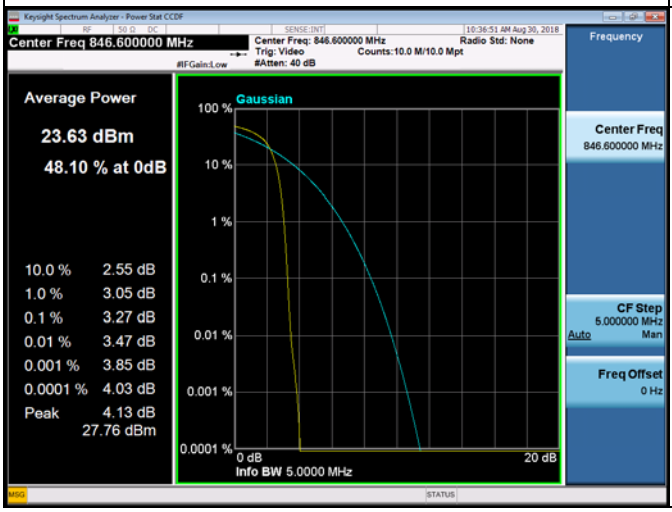
| LTE Band 5_10M | | | |
|---|---|---|---|
| 1RB0 | | 1RB49 | |
| Channel | 20450 | Channel | 20600 |
|  | |  | |
| 50RB0 | | | |
| Channel | 20450 | Channel | 20600 |
|  | |  | |

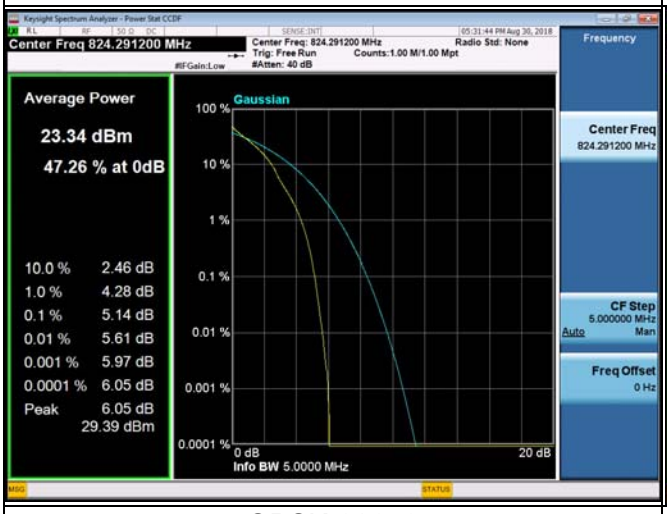
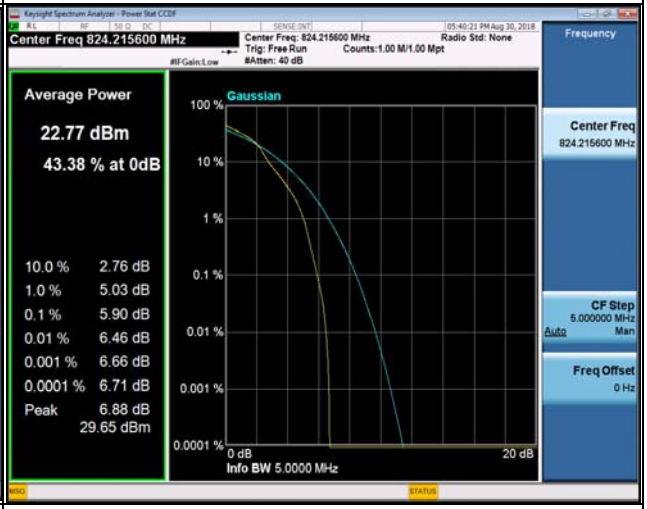
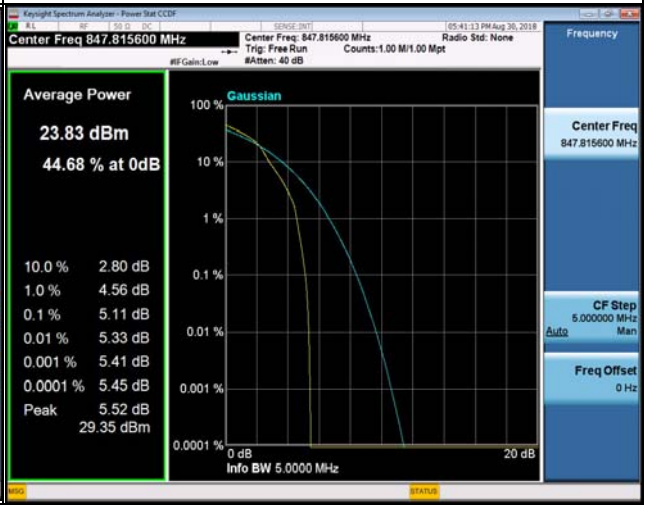
# APPENDIX H - PEAK TO AVERAGE RATIO

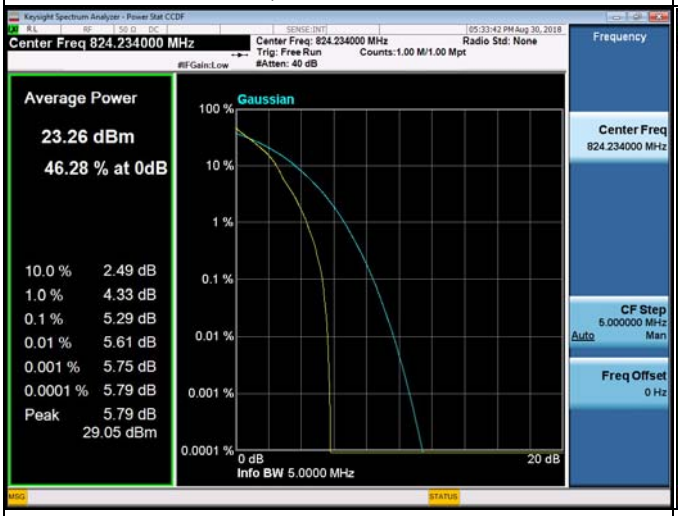
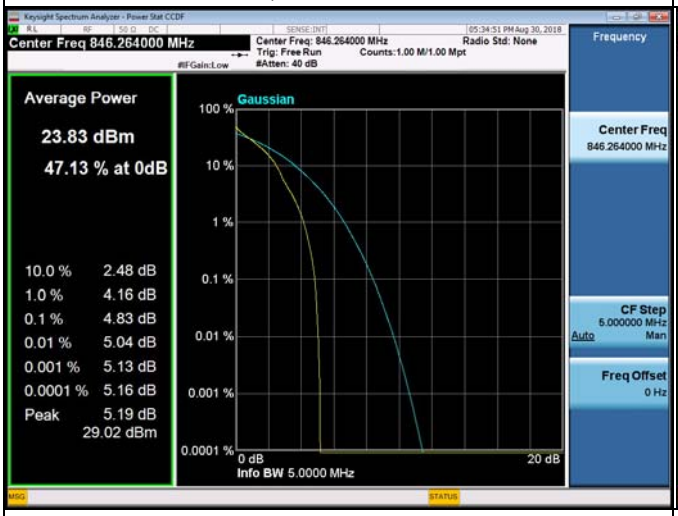
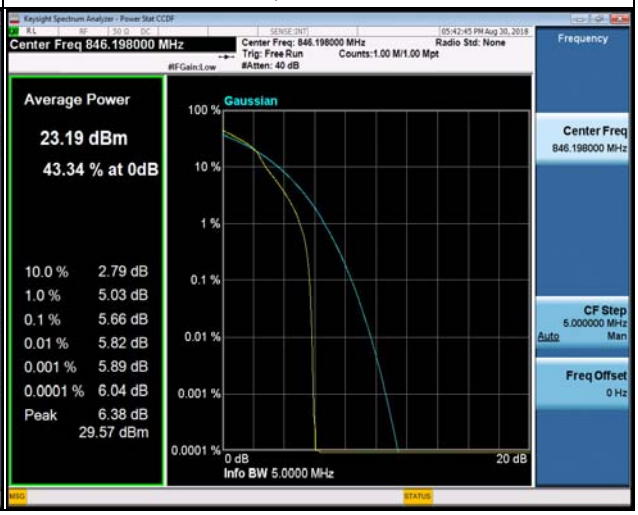
| GSM 850 Spectrum Plot | |
|---|---|
| GSM -128 | GSM-190 |
|  |  |
| GSM-251 | EDGE-128 |
|  |  |
| EDGE-190 | EDGE-251 |
|  |  |

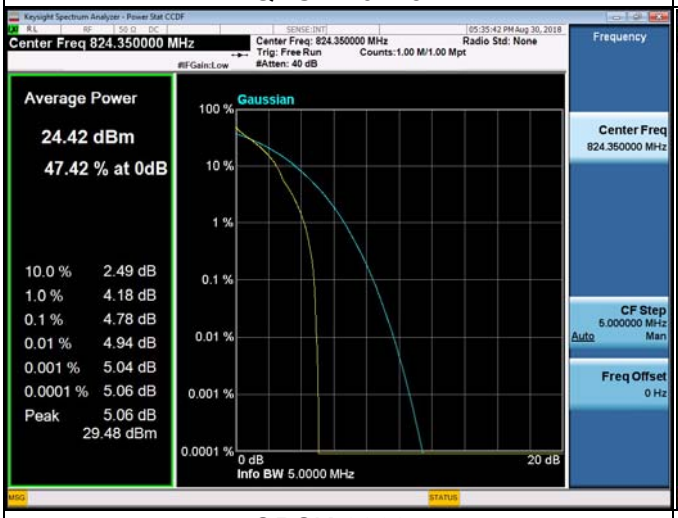
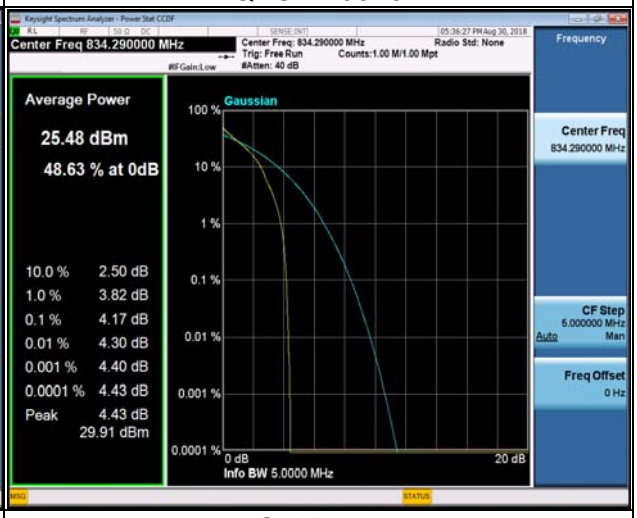
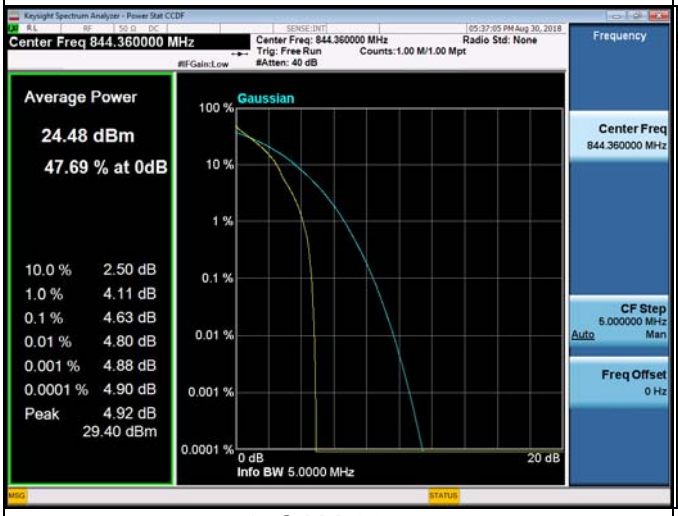
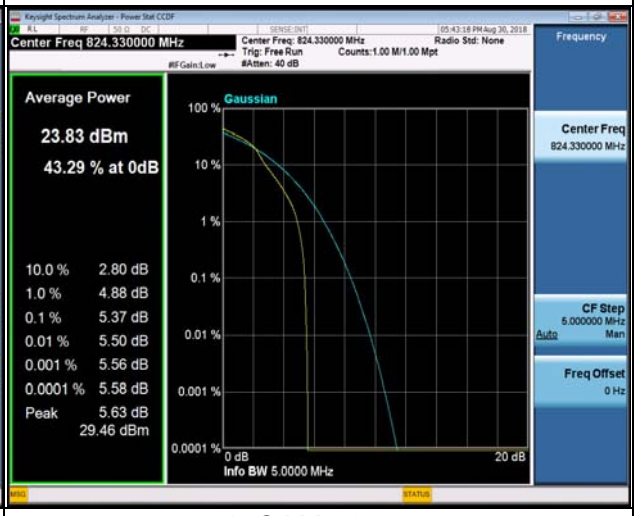
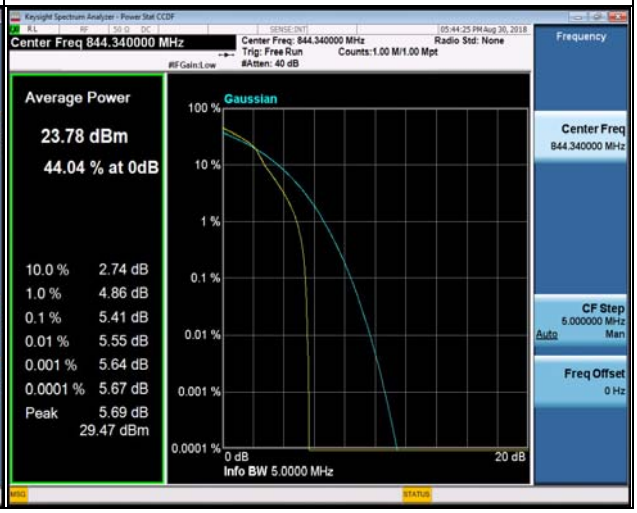
| WCDMA Band V Spectrum Plot | |
|---|---|
| 4132 | 4182 |
|  |  |
| 4233 | - |
|  | - |

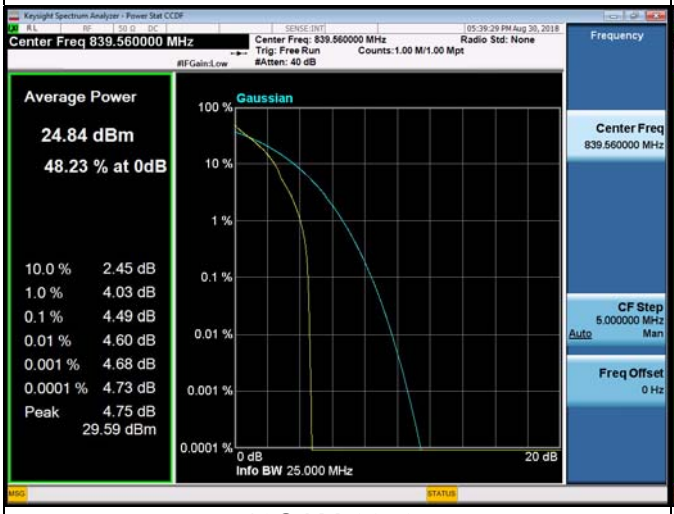
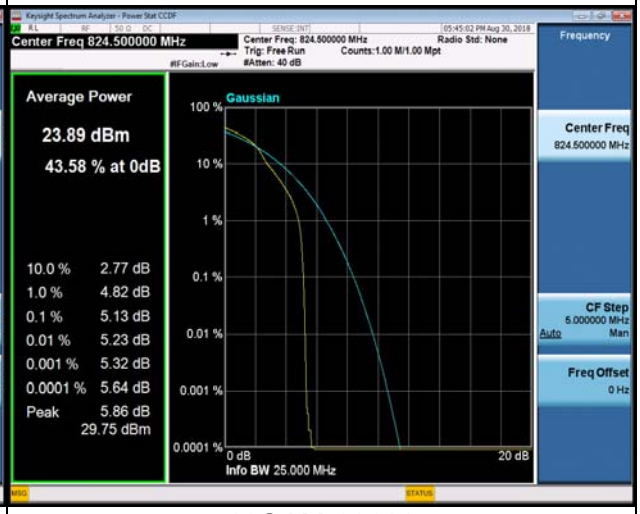
| WCDMA_HSDPA Band V Spectrum Plot | |
|---|---|
| 4132 | 4182 |
|  |  |
| 4233 | - |
|  | - |

| WCDMA_HSUPA Band V Spectrum Plot | |
|---|---|
| 4132 | 4182 |
|  |  |
| 4233 | - |
|  | - |

| LTE Band 5 Spectrum Plot_1.4M | |
|---|---|
| QPSK-20407 | QPSK-20525 |
|  |  |
| QPSK-20643 | 16QAM-20407 |
|  |  |
| 16QAM-20525 | 16QAM-20643 |
|  |  |

| LTE Band 5 Spectrum Plot_3M | |
|---|---|
| QPSK-20415 | QPSK-20525 |
|  |  |
| QPSK-20635 | 16QAM-20415 |
|  |  |
| 16QAM-20525 | 16QAM-20635 |
|  |  |

| LTE Band 5 Spectrum Plot_5M | |
|---|---|
| QPSK-20425 | QPSK-20525 |
|  |  |
| QPSK-20625 | 16QAM-20425 |
|  |  |
| 16QAM-20525 | 16QAM-20625 |
|  |  |

| LTE Band 5 Spectrum Plot_10M | |
|---|---|
| QPSK-20450 | QPSK-20525 |
|  |  |
| QPSK-20600 | 16QAM-20450 |
|  |  |
| 16QAM-20525 | 16QAM-20600 |
|  |  |

# APPENDIX G - FREQUENCY STABILITY

| Test Mode: | GSM850_CH190 |
|---|---|

**Temperature vs. Frequency Stabiility**

| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| -30 | 5.06 | 0.006048291 | ±2.5 |
| -20 | 5.33 | 0.006371026 | |
| -10 | 5.98 | 0.00714798 | |
| 0 | 4.68 | 0.005594071 | |
| 10 | 6.73 | 0.008044466 | |
| 20 | 5.49 | 0.006562276 | |
| 30 | 6.54 | 0.007817356 | |
| 40 | 6.87 | 0.00821181 | |
| 50 | 6.32 | 0.007554387 | |
| Max. Deviation (ppm) | 6.87 | 0.00821181 | |

**Voltage vs. Frequency Stability**

| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 4.35 | 3.18 | 0.0038011 | ±2.5 |
| 3.82 | 3.94 | 0.004709539 | |
| 3.60 | 3.58 | 0.004279225 | |
| Max. Deviation (ppm) | 3.94 | 0.004709539 | |

| Test Mode: | WCDMA Band V_CH4182 |
|---|---|

**Temperature vs. Frequency Stabiility**

| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| -30 | 7.35 | 0.008787661 | ±2.5 |
| -20 | 6.73 | 0.008046389 | |
| -10 | 8.54 | 0.010210426 | |
| 0 | 8.40 | 0.010043042 | |
| 10 | 6.36 | 0.007604017 | |
| 20 | 7.39 | 0.008835485 | |
| 30 | 7.89 | 0.009433286 | |
| 40 | 7.69 | 0.009194165 | |
| 50 | 6.50 | 0.007771401 | |
| Max. Deviation (ppm) | 8.54 | 0.010210426 | |

**Voltage vs. Frequency Stability**

| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 4.35 | 7.11 | 0.008500717 | ±2.5 |
| 3.82 | 8.46 | 0.010114778 | |
| 3.60 | 8.56 | 0.010234338 | |
| Max. Deviation (ppm) | 8.56 | 0.010234338 | |

| Test Mode: | LTE Band 5_CH20525_1.4M |
|---|---|

**Temperature vs. Frequency Stabiility**

| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| -30 | 3.86 | 0.004614465 | ±2.5 |
| -20 | -5.73 | -0.00684997 | |
| -10 | -3.16 | -0.003777645 | |
| 0 | -2.93 | -0.00350269 | |
| 10 | 5.22 | 0.006240287 | |
| 20 | -3.17 | -0.0037896 | |
| 30 | -2.31 | -0.002761506 | |
| 40 | 3.59 | 0.004291692 | |
| 50 | 4.56 | 0.005451285 | |
| Max. Deviation (ppm) | -5.73 | -0.00684997 | |

**Voltage vs. Frequency Stability**

| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 4.35 | 2.80 | 0.00334728 | ±2.5 |
| 3.82 | 2.96 | 0.003538553 | |
| 3.60 | -3.12 | -0.003729827 | |
| Max. Deviation (ppm) | -3.12 | -0.003729827 | |

| Test Mode: | LTE Band 5_CH20525_3M |
|---|---|

**Temperature vs. Frequency Stabiility**

| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| -30 | -3.63 | -0.00433951 | ±2.5 |
| -20 | 3.75 | 0.004482965 | |
| -10 | 4.78 | 0.005714286 | |
| 0 | 5.43 | 0.006491333 | |
| 10 | -2.66 | -0.003179916 | |
| 20 | 4.26 | 0.005092648 | |
| 30 | -3.82 | -0.004566647 | |
| 40 | 1.55 | 0.001852959 | |
| 50 | 3.69 | 0.004411237 | |
| Max. Deviation (ppm) | 5.43 | 0.006491333 | |

**Voltage vs. Frequency Stability**

| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 4.35 | -2.92 | -0.003490735 | ±2.5 |
| 3.82 | 2.68 | 0.003203825 | |
| 3.60 | -3.60 | -0.004303646 | |
| Max. Deviation (ppm) | -3.60 | -0.004303646 | |

| Test Mode: | LTE Band 5_CH20525_5M |
|---|---|

**Temperature vs. Frequency Stabiility**

| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| -30 | 6.62 | 0.007913927 | ±2.5 |
| -20 | 3.57 | 0.004267782 | |
| -10 | -1.63 | -0.001948595 | |
| 0 | 4.38 | 0.005236103 | |
| 10 | -2.47 | -0.002952779 | |
| 20 | 4.03 | 0.004817693 | |
| 30 | 5.24 | 0.006264196 | |
| 40 | 3.80 | 0.004542738 | |
| 50 | -2.68 | -0.003203825 | |
| Max. Deviation (ppm) | 6.62 | 0.007913927 | |

**Voltage vs. Frequency Stability**

| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 4.35 | -3.58 | -0.004279737 | ±2.5 |
| 3.82 | -4.83 | -0.005774059 | |
| 3.60 | -2.47 | -0.002952779 | |
| Max. Deviation (ppm) | -4.83 | -0.005774059 | |

| Test Mode: | LTE Band 5_CH20525_10M |
|---|---|

**Temperature vs. Frequency Stabiility**

| Temperature(℃) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| -30 | -3.75 | -0.004482965 | ±2.5 |
| -20 | 6.98 | 0.008344292 | |
| -10 | 1.88 | 0.00224746 | |
| 0 | -4.24 | -0.005068739 | |
| 10 | -2.73 | -0.003263598 | |
| 20 | -5.17 | -0.006180514 | |
| 30 | 6.64 | 0.007937836 | |
| 40 | 2.53 | 0.003024507 | |
| 50 | 1.77 | 0.002115959 | |
| Max. Deviation (ppm) | 6.98 | 0.008344292 | |

**Voltage vs. Frequency Stability**

| Voltage(Volts) | Frequency Error (Hz) | Frequency Error (ppm) | Limit(ppm) |
|---|---|---|---|
| 4.35 | -3.92 | -0.004686192 | ±2.5 |
| 3.82 | -2.91 | -0.003478781 | |
| 3.60 | 3.27 | 0.003909145 | |
| Max. Deviation (ppm) | -3.92 | -0.004686192 | |