



PRODUCT SAFETY AND COMPLIANCE EMC LABORATORY

EMC TEST REPORT - Addendum

Test Report Number –25111-1

Report Date – 2012-08-21

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

Signature:

Name: Hongpeng Yin

Title: EMC Project Manager

Test: 2012-07-25 to 2012-08-23

As the responsible test lab manager, I hereby declare that the model tested as specified in this report conforms to the requirements indicated.

Signature:

Name: Douglas Hammers

Title: Test Lab Manager

Date: 2012-08-24

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FCC Registration Number: 402854

IC Registration Number: 109AW-1

ADR Testing Service location ADR BJ
ISO/IEC-17025:2005 accredited by UKAS



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Test Report Details

Tests Performed By: Motorola (Beijing) Mobility Technologies Co., Ltd.
Asia Global Compliance Labs
No.1 Wang Jing East Road
Chao Yang District
Beijing, 100102, P. R. China
Phone: +86 10 8473 2610
FCC Registration Number: 402854
IC Registration Number: 109AW-1

Tests Requested by: Motorola Mobility LLC.
Mobile Devices business
600 North US Hwy 45
Libertyville, IL 60048
U. S. A

Product Type: Cellular phone

Signaling Capability: GSM 850/1900,EDGE850/1900, Bluetooth+ EDR,
802.11a/802.11b/802.11g/802.11n

IMEI: 352524050007916
352524050009375

FCC ID: IHDT56NS6

Project number: 25111-1

Testing Complete Date: 2012-08-23

Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

- Part 2
- Part 22 Subpart H – Public Mobile Services
- Part 24 Subpart E – Personal Communications Services

Applicable Standards: ANSI C63.4-2003, ANSI/TIA-603-C-2004, RSS-Gen Issue 3, RSS132 Issue 2, RSS-133 Issue 5.

Summary of Testing

| Test # | Test Name | Pass/Fail |
|--------|---|-----------|
| 1 | RF Power Output | NA |
| 2 | ERP (Effective Radiated Power) | Pass |
| 3 | EIRP (Effective Isotropic Radiated Power) | Pass |
| 4 | Occupied Bandwidth | Pass |
| 5 | Spurious Emissions at Antenna Terminal | Pass |
| 6 | Field Strength of Spurious Emissions | Pass |
| 7 | Frequency Stability | Pass |

| Test # | Test Name | Margin with respect to the Limit |
|--------|---|----------------------------------|
| 1 | RF Power Output | NA |
| 2 | ERP (Effective Radiated Power) | See results |
| 3 | EIRP (Effective Isotropic Radiated Power) | See results |
| 4 | Occupied Bandwidth | See Plots |
| 5 | Spurious Emissions at Antenna Terminal | See results |
| 6 | Field Strength of Spurious Emissions | See results |
| 7 | Frequency Stability | See results |

The margin with respect to the limit is the minimum margin for all modes and bands.

General and Special Conditions

The EUT was tested using a fully charged internal battery when applicable when applicable. Where a battery could not be used due to the need for a controlled variation of input voltage, an external power supply was utilized.

All testing was done in an indoor controlled environment. The temperature and the relative humidity were maintained within the ANSI C63.4-2003 Standard requirements during the entire duration of testing.

Equipment and Cable Configurations

The EUT was tested in a stand-alone configuration that is representative of typical use.

| Equipment | Model/type | Serial number | Operational range | Date of calibration |
|---------------------|-------------------|----------------------|--|----------------------------|
| EMI analyzers | ESU 40 | 100036 | 20 Hz – 40 GHz | 11.05.2011 |
| Pre Amplifiers | PA-02-0001: | 2007343 | (10 kHz – 3 GHz) | N/A |
| | PA-02-218 | 2007344 | 3 GHz – 18 GHz | N/A |
| | PA-02-5 | 2007345 | 18 GHz – 40 GHz | N/ A |
| Radio com. Tester | CMU 200 | 112790 | GSM 850/900/1800/1900 UMTS, CDMA, Bluetooth | no need calibration* |
| Band Reject Filter | WRCD | N/A | GSM 850/900/1800/1900 UMTS, CDMA | N/A |
| | 4N45-24241/3/6 | N/A | WLAN | N/A |
| EMI analyzers | R&S ESCI | 100650 | 9 kHz – 3 GHz | 03.13.2012 |
| Spectrum analyzer | R&S FSU | 200353 | 20 Hz – 26.5 GHz | 03.03.2012 |
| LISN | ENV216 | 100055 | 9 kHz – 30 MHz | 12.19.2010 |
| Environment Chamber | Votsch VT4004 | 3546270300000 20 | -50 ⁰ C -150 ⁰ C | 11.30.2011 |
| DC Power Supply | Agilent E3632A | My40021519 | 15V/7A | 07.20.2012 |
| Power meter | Agilent E4416A | MY451000906 | NA | 03.03.2011 |
| Power sensor | Agilent E9323A | MY44420783 | 50MHz-6GHz | 03.03.2011 |

Note: For CMU200, it is only used for communication connection during testing, not the measuring device."

The antennas used in the various tests are listed in the below table.

| Antenna | Type | Serial number | Operational range | Date of calibration |
|---------------------|---------------|---------------|-------------------|---------------------|
| Hybrid-log periodic | TDK HLP 3003C | 130408 | 30 MHz – 3 GHz | 11.14.2011 |
| Double ridged Horn | TDK HRN0118 | 130303 | 1 GHz – 18 GHz | 11.22.2011 |
| Double ridged Horn | ETS HRN3116 | 00071938 | 18 GHz – 40 GHz | 07.13.2011 |

All test equipments was within their calibration date during the time of testing. When equipment went out of calibration during testing it was replaced using a similar piece of calibrated equipment. All these equipments are listed in the equipment list.

Note that the Agilent power meter, power sensor and the preamplifier are on two-year calibration cycle. The LISN is on a two-year calibration Antennas are on three-year calibration cycle. All other equipments are on a one-year calibration cycle.

Measurement Procedures and Data

RF POWER OUTPUT

Measurement Procedure

The RF output port of the equipment under test is directly coupled to the input of an Agilent power meter through a 30dB passive attenuator, adaptor (if needed), and specialized RF connector.

Measurement Results

GSM 850

| Frequency (MHz) | Power (dBm) |
|-----------------|-------------|
| 824.20 | 33.32 |
| 836.60 | 33.37 |
| 848.80 | 33.52 |

GSM 1900

| Frequency (MHz) | Power (dBm) |
|-----------------|-------------|
| 1850.2 | 30.38 |
| 1880 | 30.50 |
| 1909.8 | 30.66 |

EDGE 850

| Frequency (MHz) | Power (dBm) |
|-----------------|-------------|
| 824.20 | 28.38 |
| 836.60 | 28.17 |
| 848.80 | 28.37 |

EDGE1900

| Frequency (MHz) | Power (dBm) |
|-----------------|-------------|
| 1850.2 | 27.98 |
| 1880 | 27.87 |
| 1909.8 | 27.69 |

RADIATED POWER (EIRP AND ERP)

Measurement Procedure

The phone was tested in a 16' anechoic chamber with a 2-axis position system that permits taking complete spherical scans of the EUT's radiation patterns. For all tests, the phone was supported in a free space type environment, vertically oriented in the chamber.

All measurements were made with the phone placed in a call using a mobile station test set. The phone was weakly coupled to the test set and configured to transmit in full data rate mode. Radiated power was measured at each 15 degree step. The radiated power was measured using a Peak detector for all bands in the Spectrum Analyzers. From these measurements, the software calculates the angle at which maximum radiated power occurs for each case, and the radiated power at this angle was extracted from the data. To get ERP (effective radiated power referenced to a half-wave dipole), subtract 2.1 dB from these

A Peak detector was used for measurements in the GSM1900, EDGE1900

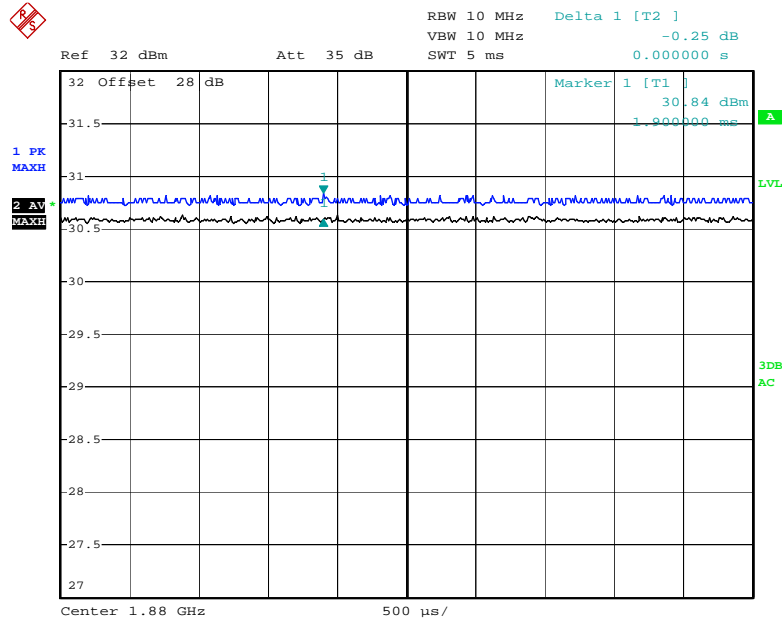
Measurement Results

| Band | EIRP dBm | ERP dBm |
|-------------|-----------------|----------------|
| GSM850 | 34.11 | 31.96 |
| GSM1900 | 30.99 | 28.84 |
| EDGE850 | 29.72 | 27.57 |
| EDGE1900 | 29.54 | 27.39 |

For GSM and EDGE modes, the PAR plots are shown below. The conducted port of the EUT is connected to the spectrum analyzer. Except for the detector used and the trace type, all spectrum analyzer settings are the same for both plot traces as follows:

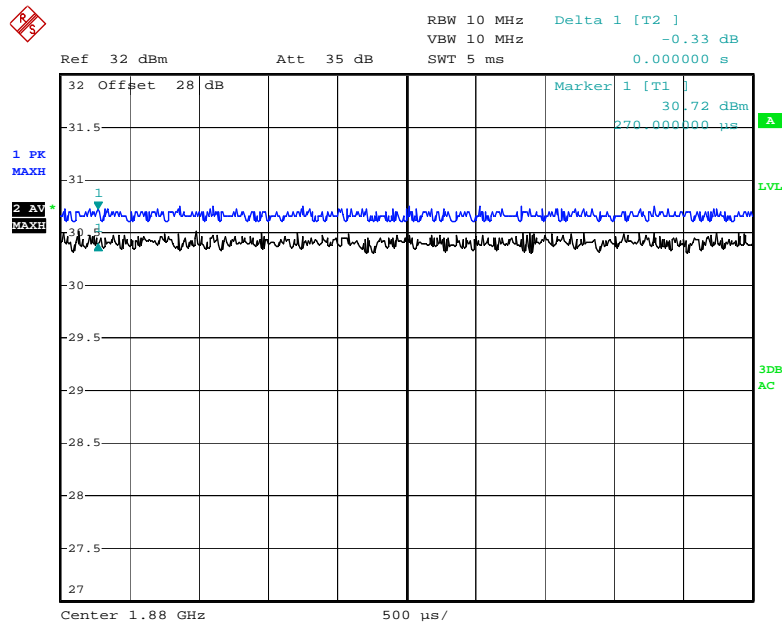
Resolution Bandwidth 10MHz
 Video Bandwidth 10MHz
 Span 0 Hz
 Sweep Time 600 μs
 Trace 1 type is Max Hold and the detector is Peak.
 Trace 2 type is average and the detector is Average.

For WCDMA modes, the CCDF plots are also shown below. The conducted port of the EUT is connected to the spectrum analyzer. The spectrum analyzer's Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth.



Date: 6.SEP.2012 13:30:22

GSM1900 – PAR Plot



Date: 6.SEP.2012 13:45:34

EDGE1900 – PAR Plot

OCCUPIED BANDWIDTH

CFR Part 2.1049, 22.917, 24.238

Measurement Procedure

The RF output port of the equipment under test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 20dB passive attenuator for GSM1900, EDGE1900. The amplitude of the spectrum analyzer is corrected for the attenuator and any other applicable losses. The analyzer is set for Peak Detector and each trace is set for Max Hold. A fully charged battery was used for the supply voltage.

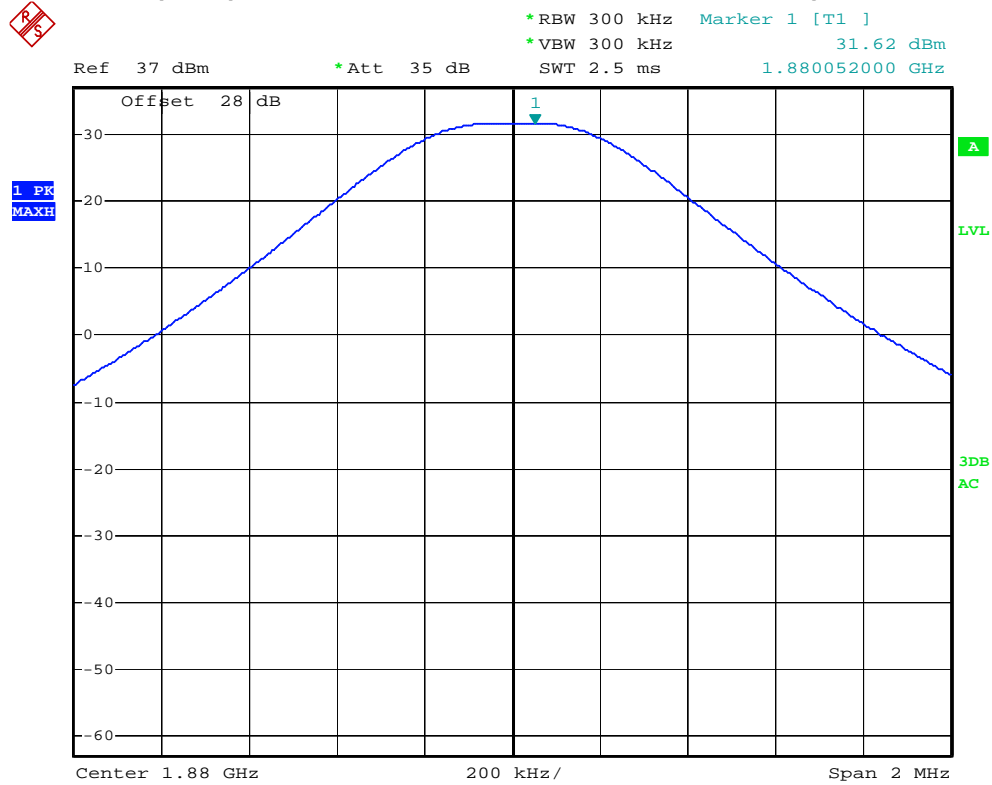
The middle channel within the designated frequency block was measured. For digital modulation, the lower and upper band edge plots are displayed.

Measurement Results

Attached

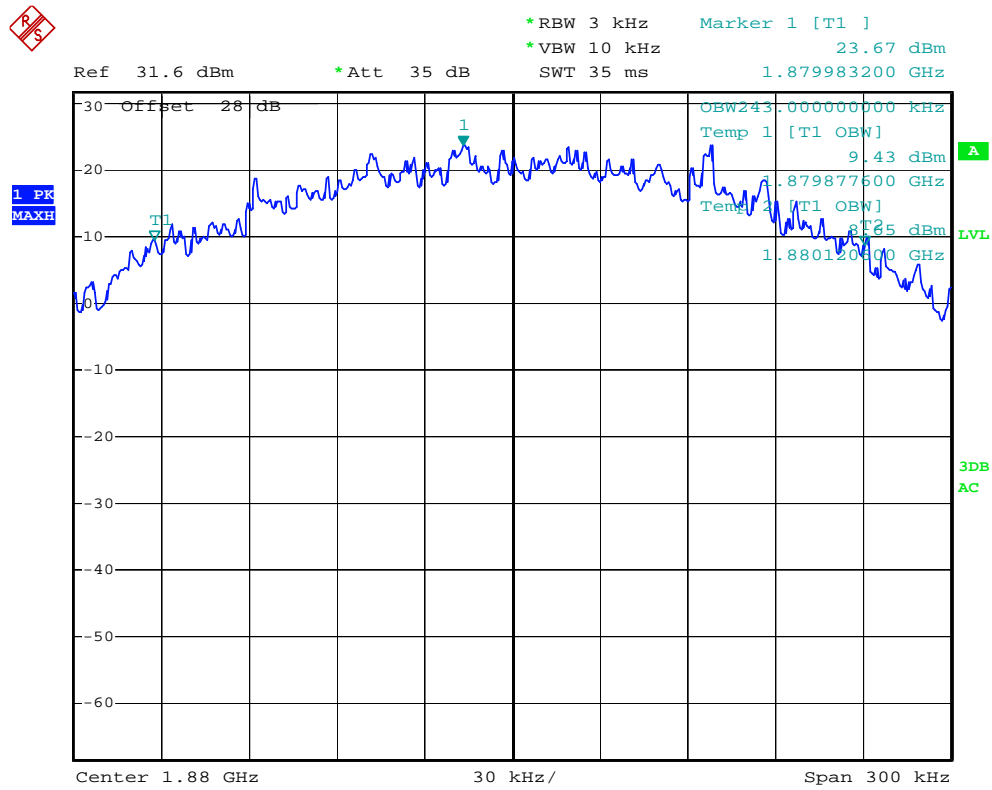
Measurement Results – GSM 1900

GSM 1900(PCS) – Reference Level Plot – Channel 661 (1880.00 MHz)



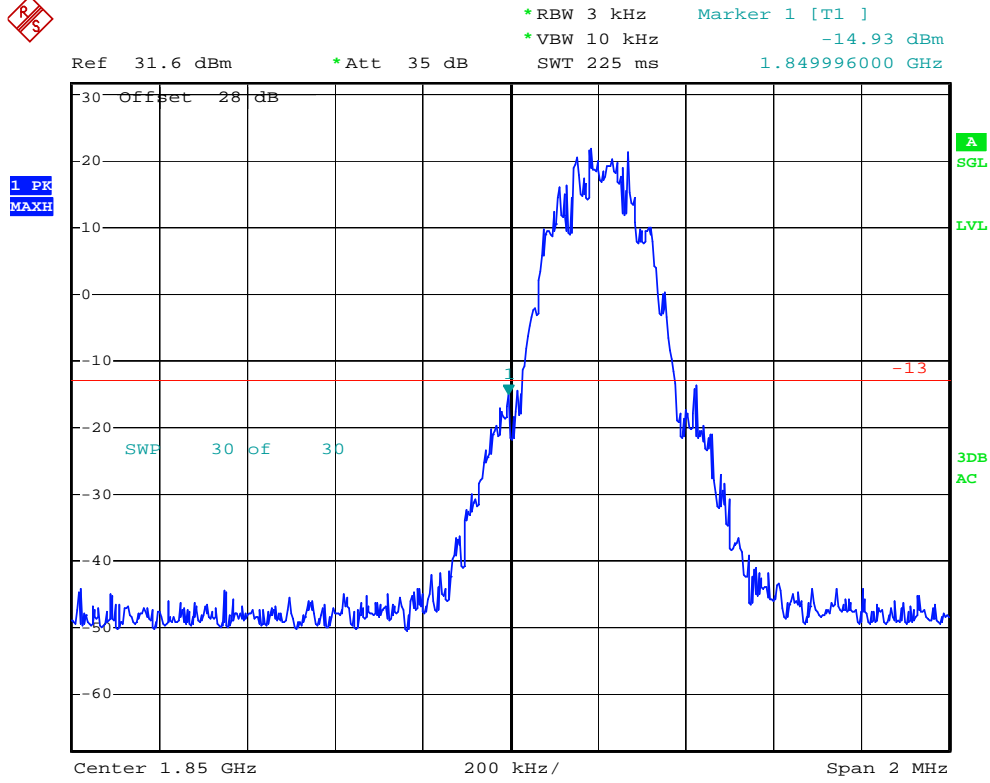
Date: 30.JUL.2012 14:07:42

GSM 1900(PCS) – Channel 661 (1880.00 MHz) – Occupied Bandwidth



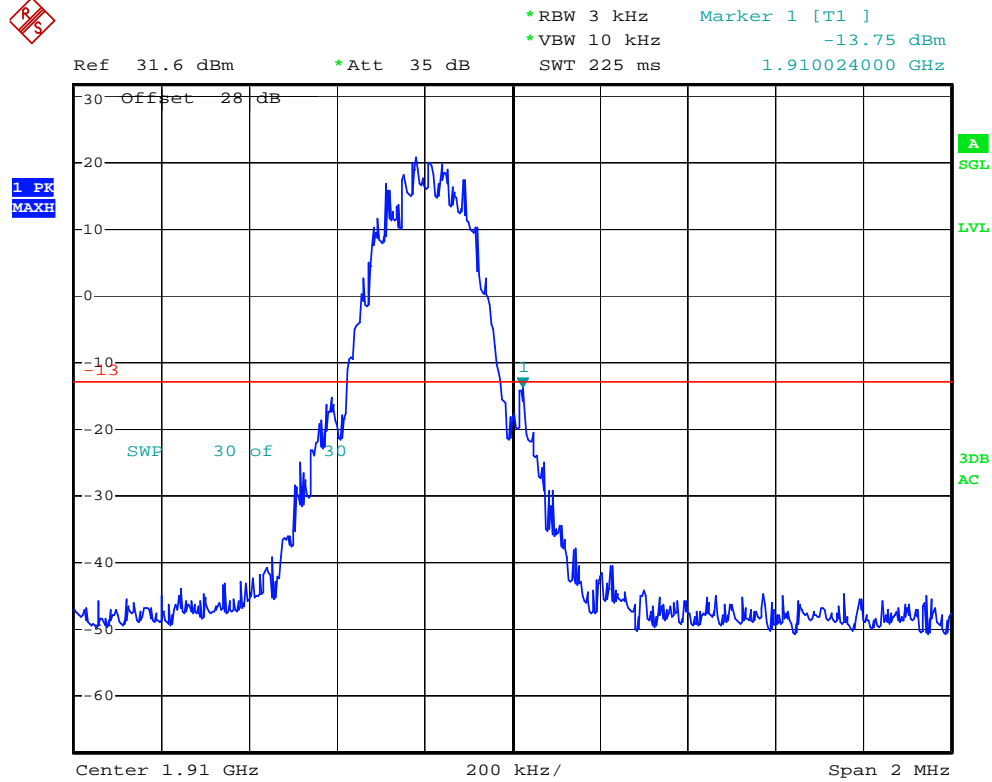
Date: 30.JUL.2012 14:09:00

GSM 1900(PCS) – Lower Band Edge – Channel 512 (1850.2 MHz)



Date: 30.JUL.2012 14:10:21

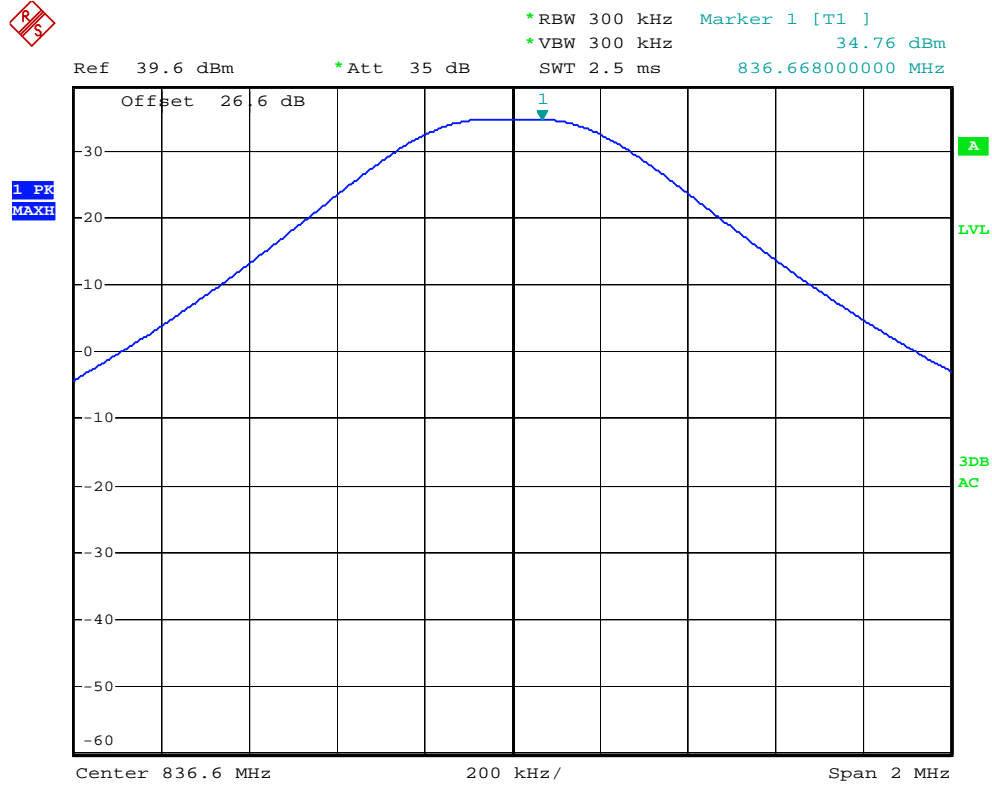
GSM 1900(PCS) – Upper Band Edge – Channel 810 (1909.8 MHz)



Date: 30.JUL.2012 14:12:14

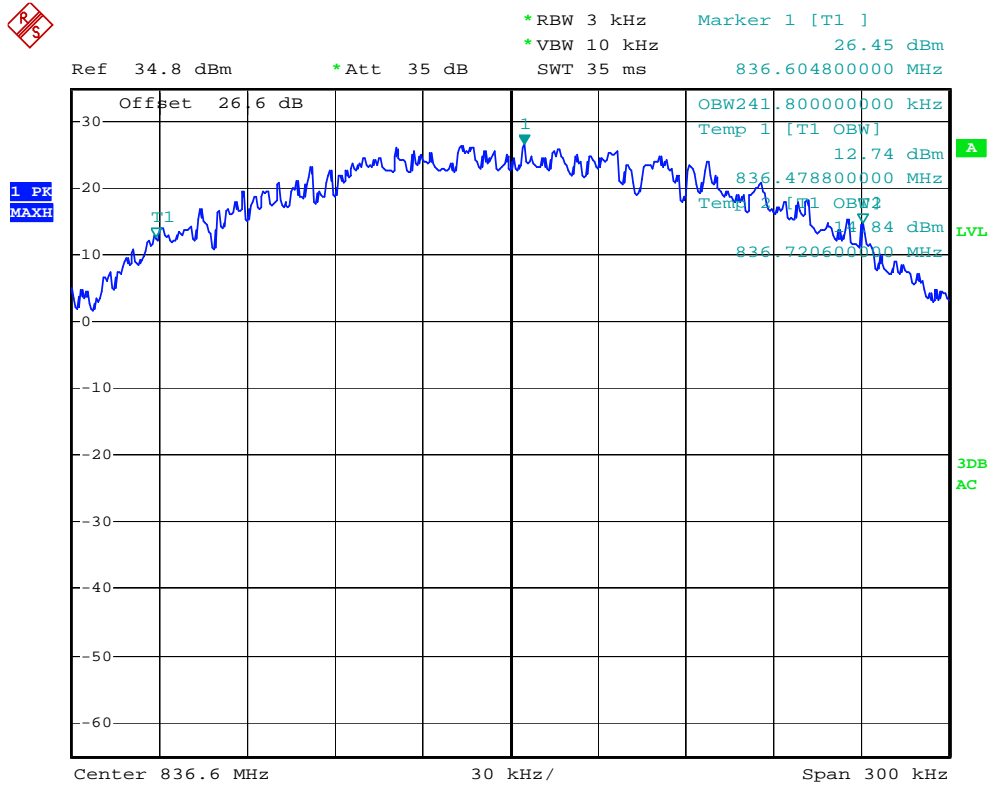
Measurement Results – GSM 850

GSM 850 – Reference Level Plot – Channel 190 (836.6 MHz)



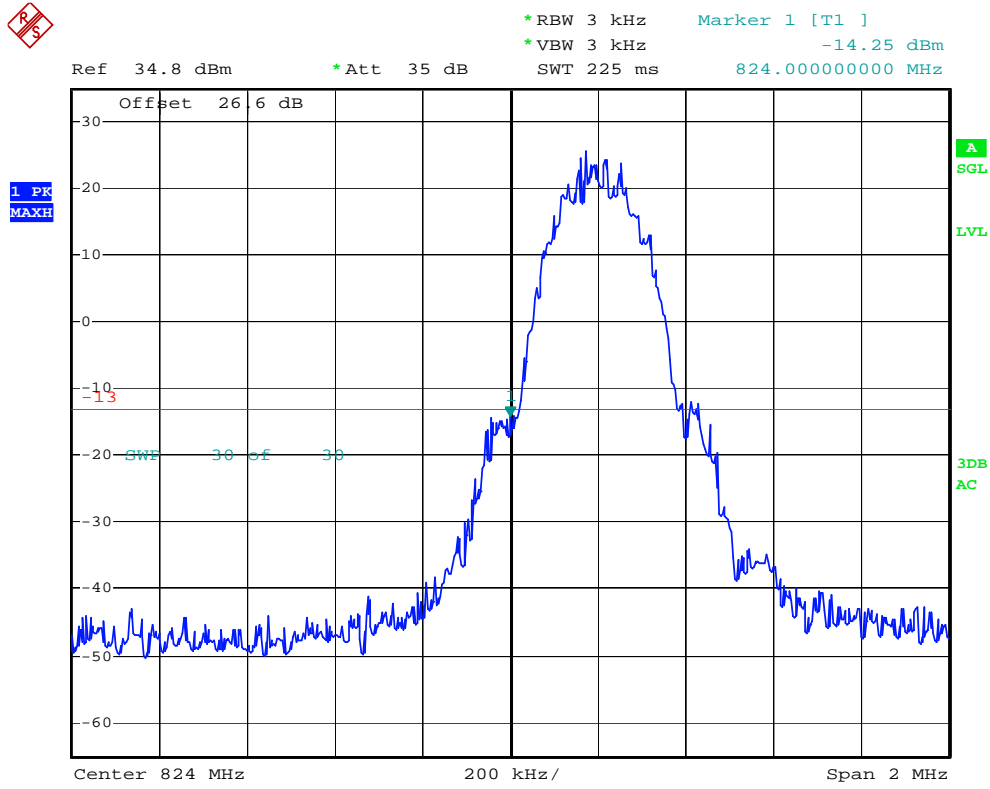
Date: 30.JUL.2012 14:22:28

GSM 850 – Channel 190 (836.6 MHz)– Occupied Bandwidth



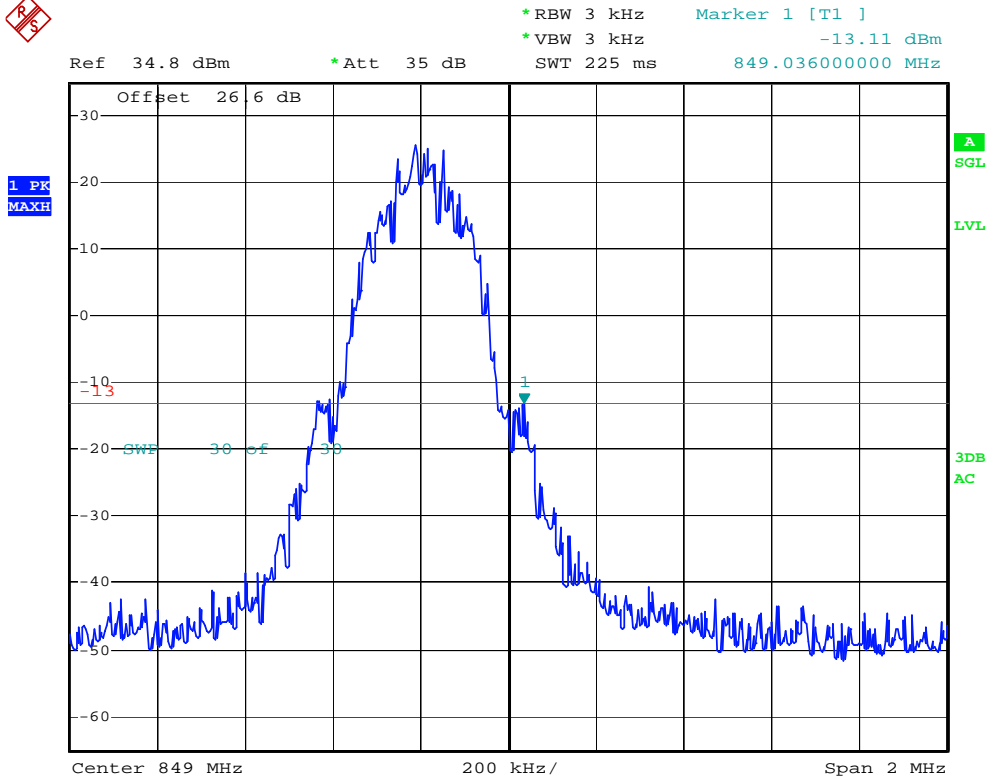
Date: 30.JUL.2012 14:23:54

GSM 850 – Lower Band Edge – Channel 128 (824.2 MHz)



Date: 30.JUL.2012 14:29:28

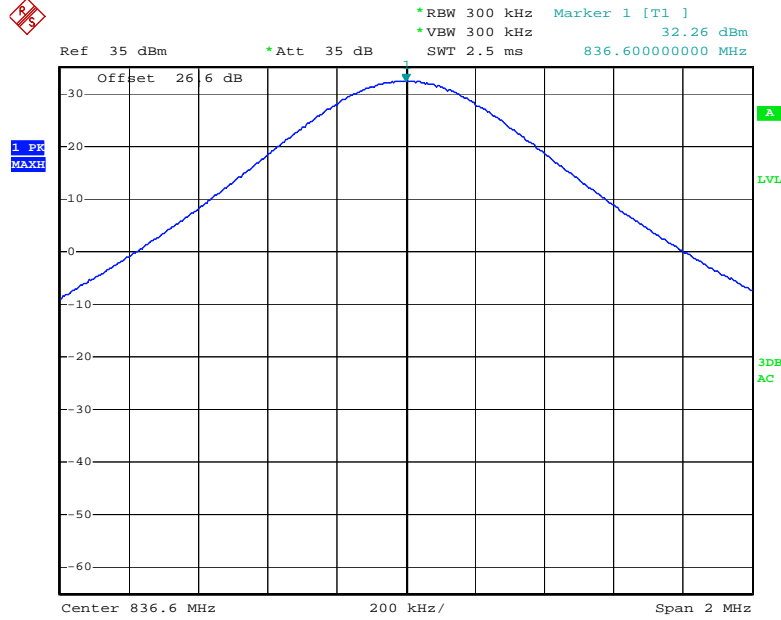
GSM 850 – Upper Band Edge – Channel 251 (848.8 MHz)



Date: 30.JUL.2012 14:32:07

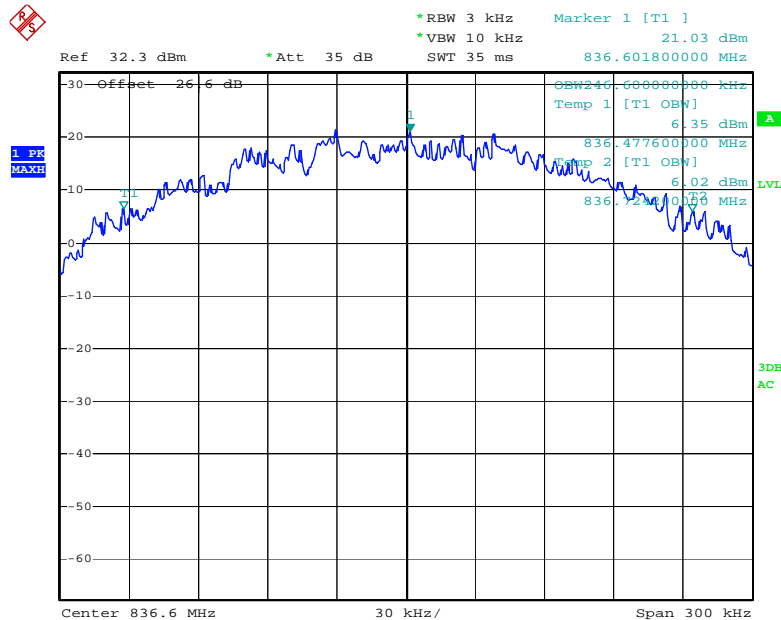
Measurement Results – EDGE 850

EDGE 850 – Reference Level Plot – Channel 190 (836.6 MHz)



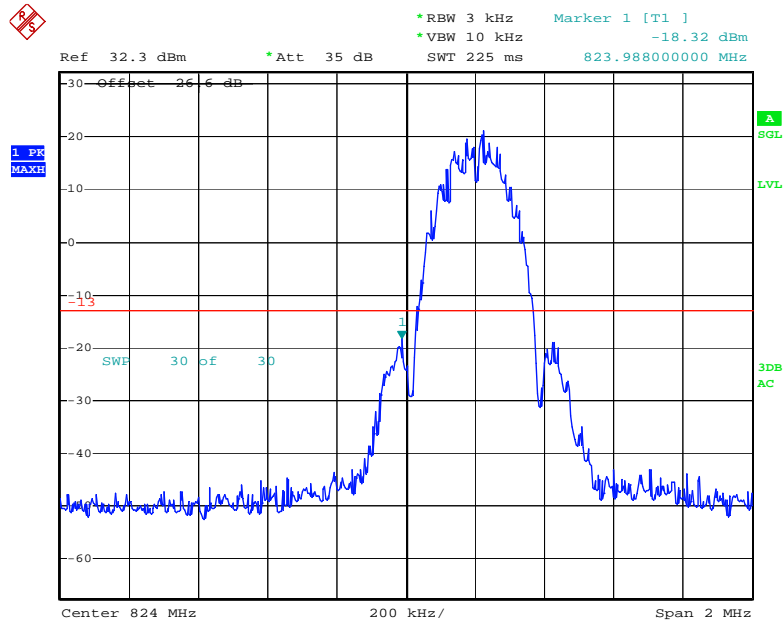
Date: 30.JUL.2012 14:42:31

EDGE 850 – Channel 190 (836.6 MHz)– Occupied Bandwidth



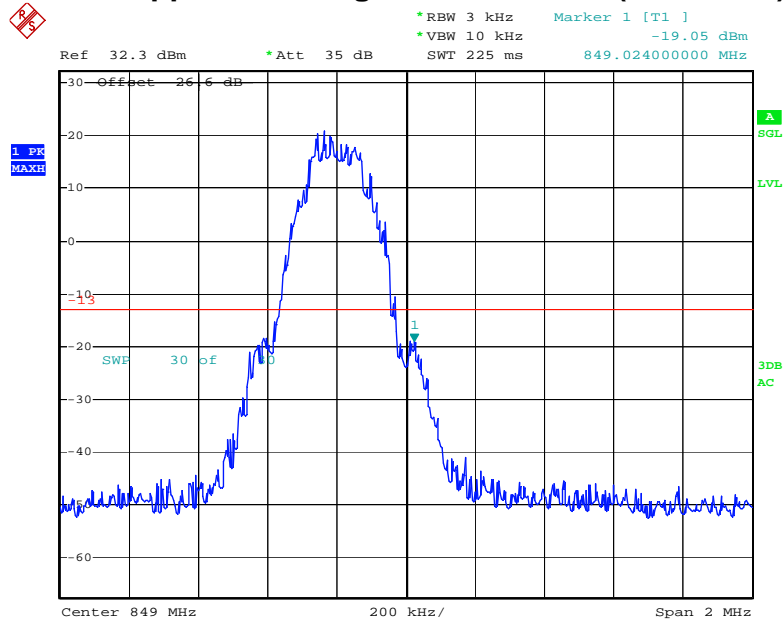
Date: 30.JUL.2012 14:43:46

EDGE 850 – Lower Band Edge – Channel 128 (824.2 MHz)



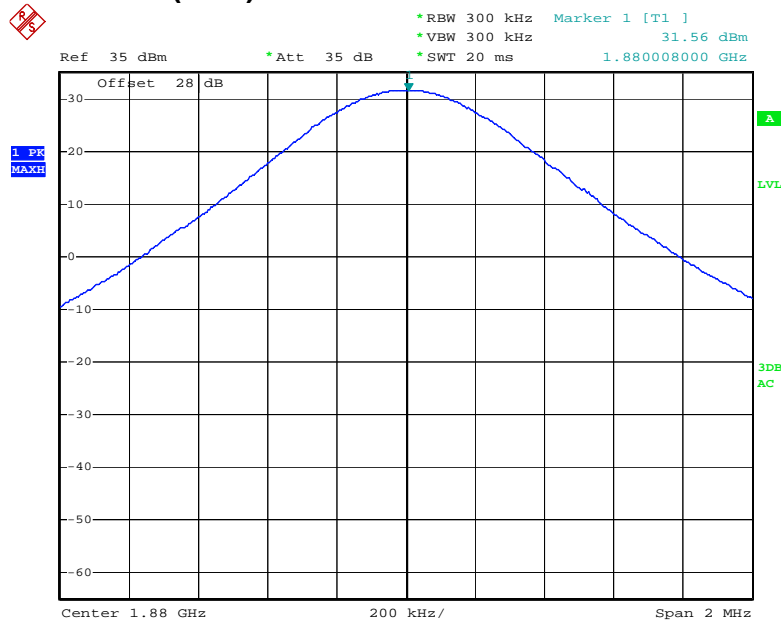
Date: 30.JUL.2012 14:44:45

EDGE – Upper Band Edge – Channel 251 (848.8 MHz)



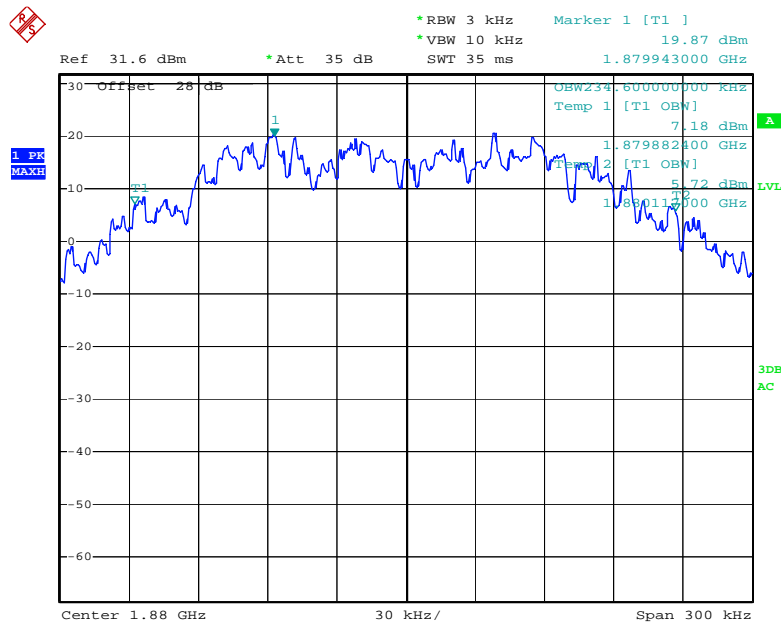
Date: 30.JUL.2012 14:46:07

Measurement Results – EDGE 1900 EDGE 1900(PCS) – Reference Level Plot – Channel 661 (1880.00 MHz)



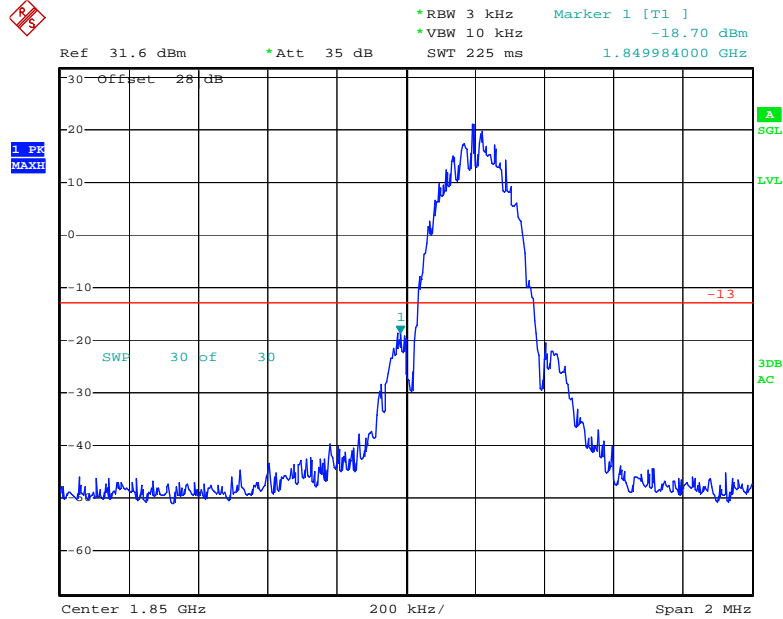
Date: 30.JUL.2012 14:50:10

EDGE 1900(PCS) – Channel 661 (1880.00 MHz) – Occupied Bandwidth



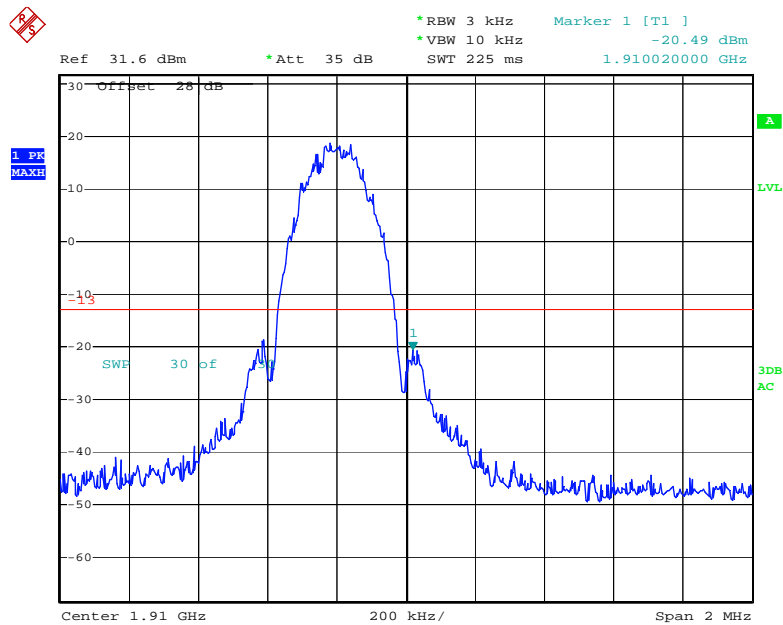
Date: 30.JUL.2012 14:53:43

EDGE 1900(PCS) – Lower Band Edge – Channel 512 (1850.2 MHz)



Date: 30.JUL.2012 14:55:25

EDGE 1900(PCS) – Upper Band Edge – Channel 810 (1909.8 MHz)



Date: 30.JUL.2012 14:58:52

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Measurement Procedure

The RF output port of the Equipment Under Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 20dB passive attenuator. For all testing the EUT was powered through the computer’s USB.

The spectrum was investigated from the lowest frequency signal generated, without going below 9 kHz, up to at least the tenth harmonic of the fundamental or 40 GHz, whichever is lower.

The spectrum analyzer settings were as follows:

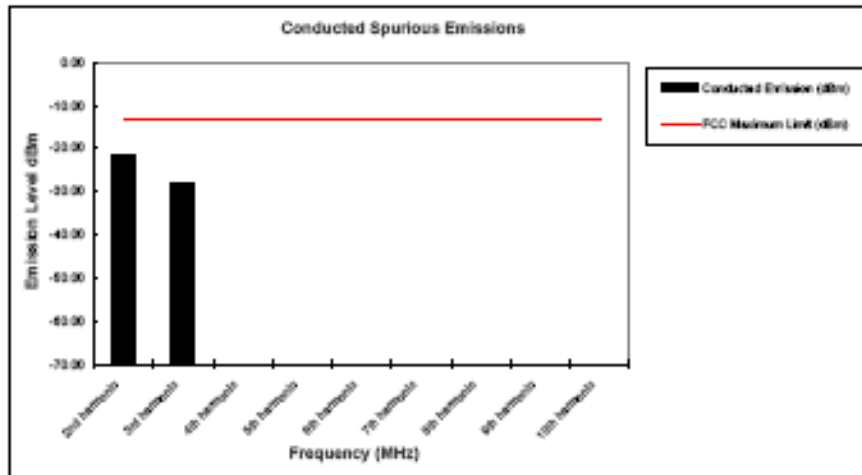
| | |
|-----------------------|---------------|
| Units | dBm |
| Divisions | 10 dB |
| Detector | Peak Detector |
| Resolution Bandwidth | 1 MHz |
| Video Bandwidth (AVG) | Auto |
| Sweep Time | Auto |

Measurement Results

Attached

Measurement Results – GSM 850

| Harmonic of Fundamental | FCC Maximum Limit (dBm) | Conducted Emission (dBm) |
|-------------------------|-------------------------|--------------------------|
| 2nd harmonic | -13 | -21.64 |
| 3rd harmonic | -13 | -28.23 |
| 4th harmonic | -13 | * |
| 5th harmonic | -13 | * |
| 6th harmonic | -13 | * |
| 7th harmonic | -13 | * |
| 8th harmonic | -13 | * |
| 9th harmonic | -13 | * |
| 10th harmonic | -13 | * |



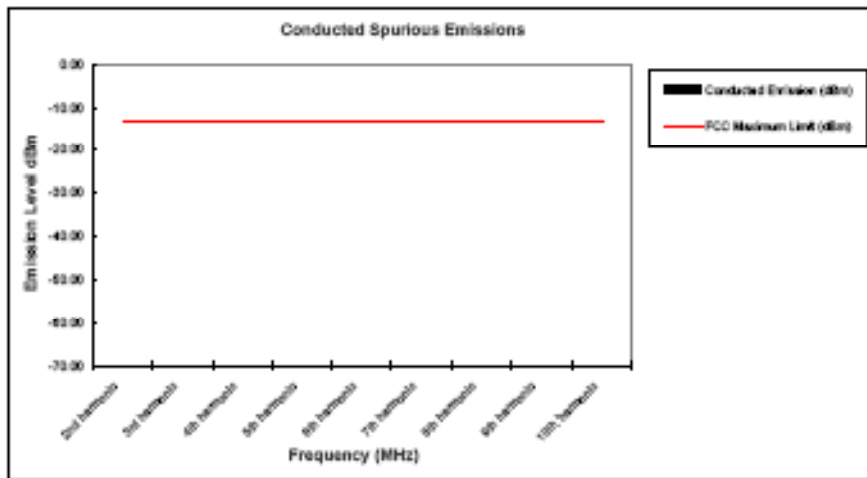
Notes:

- * Indicates the spurious emission could not be detected due to noise limitations or ambients
- Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
- The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – GSM 1900

| Harmonic of Fundamental | FCC Maximum Limit (dBm) | Conducted Emission (dBm) |
|-------------------------|-------------------------|--------------------------|
| 2nd harmonic | -13 | * |
| 3rd harmonic | -13 | * |
| 4th harmonic | -13 | * |
| 5th harmonic | -13 | * |
| 6th harmonic | -13 | * |
| 7th harmonic | -13 | * |
| 8th harmonic | -13 | * |
| 9th harmonic | -13 | * |
| 10th harmonic | -13 | * |



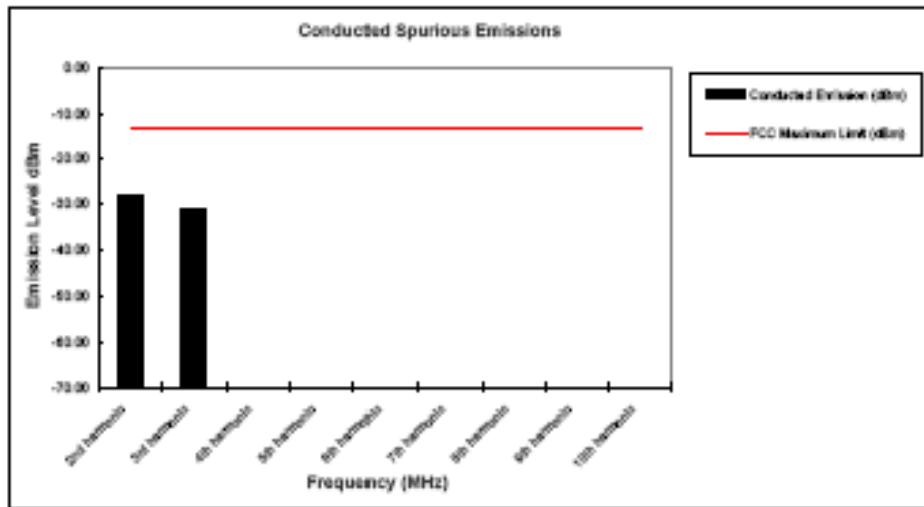
Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was Investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – EDGE 850

| Harmonic of Fundamental | FCC Maximum Limit (dBm) | Conducted Emission (dBm) |
|-------------------------|-------------------------|--------------------------|
| 2nd harmonic | -13 | -27.85 |
| 3rd harmonic | -13 | -30.94 |
| 4th harmonic | -13 | * |
| 5th harmonic | -13 | * |
| 6th harmonic | -13 | * |
| 7th harmonic | -13 | * |
| 8th harmonic | -13 | * |
| 9th harmonic | -13 | * |
| 10th harmonic | -13 | * |



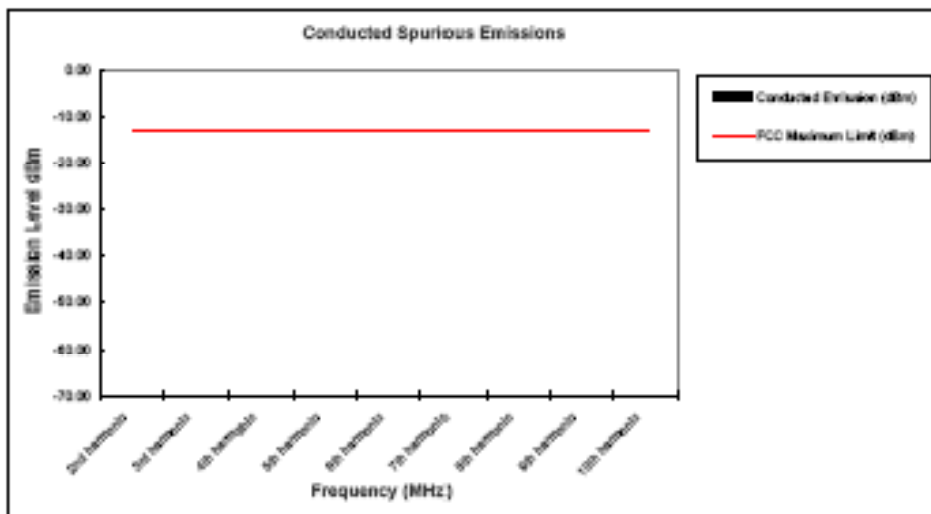
Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was Investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – EDGE 1900

| Harmonic of Fundamental | FCC Maximum Limit (dBm) | Conducted Emission (dBm) |
|-------------------------|-------------------------|--------------------------|
| 2nd Harmonic | -13 | * |
| 3rd Harmonic | -13 | * |
| 4th Harmonic | -13 | * |
| 5th Harmonic | -13 | * |
| 6th Harmonic | -13 | * |
| 7th Harmonic | -13 | * |
| 8th Harmonic | -13 | * |
| 9th Harmonic | -13 | * |
| 10th Harmonic | -13 | * |



Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands

FIELD STRENGTH OF SPURIOUS EMISSIONS

Measurement Procedure

The equipment under test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. With the signal generator tuned to a particular spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters to obtain a maximum reading at the spectrum analyzer. The output of the signal generator is then adjusted until a reading identical to that obtained with the actual transmitter is achieved.

The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole. A fully charged battery was used for the supply voltage.

The settings of the receiver were as follows:

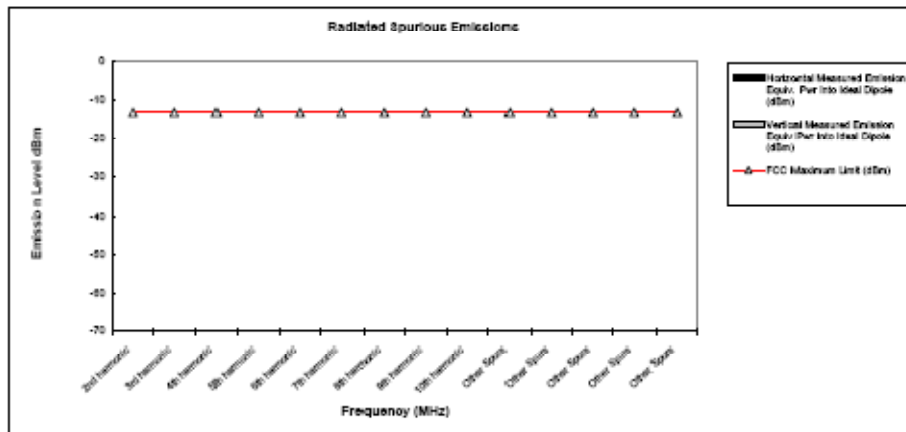
| | |
|-----------------------|---------------|
| Units | dBm |
| Divisions | 5 dB |
| Detector | Peak Detector |
| Resolution Bandwidth | 1 MHz |
| Video Bandwidth (AVG) | Auto |
| Sweep Time | Auto |

Measurement Results

Attached

Measurement Results – GSM 850

| Frequency (MHz) | FCC Maximum Limit (dBm) | Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm) | Vertical Measured Emission Equiv Pair Into Ideal Dipole (dBm) |
|-----------------|-------------------------|---|---|
| 2nd harmonic | -13 | * | * |
| 3rd harmonic | -13 | * | * |
| 4th harmonic | -13 | * | * |
| 5th harmonic | -13 | * | * |
| 6th harmonic | -13 | * | * |
| 7th harmonic | -13 | * | * |
| 8th harmonic | -13 | * | * |
| 9th harmonic | -13 | * | * |
| 10th harmonic | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |



Notes:

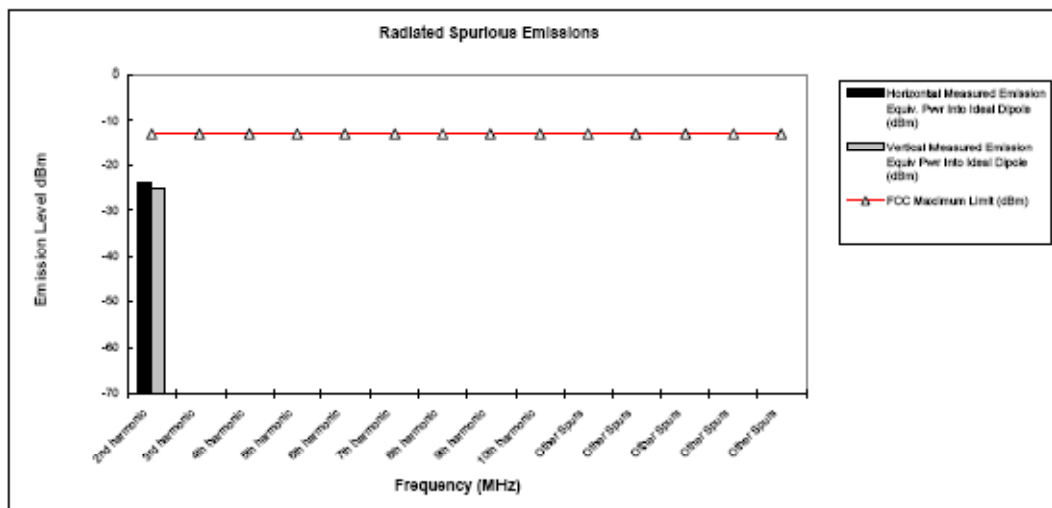
1. * indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are lower than -33 dBm.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

Emissions below -33dBm are not shown.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – GSM 1900

| Frequency (MHz) | FCC Maximum Limit (dBm) | Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm) | Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm) |
|-----------------|-------------------------|---|--|
| 2nd harmonic | -13 | -24.0 | -25.2 |
| 3rd harmonic | -13 | * | * |
| 4th harmonic | -13 | * | * |
| 5th harmonic | -13 | * | * |
| 6th harmonic | -13 | * | * |
| 7th harmonic | -13 | * | * |
| 8th harmonic | -13 | * | * |
| 9th harmonic | -13 | * | * |
| 10th harmonic | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |



Notes:

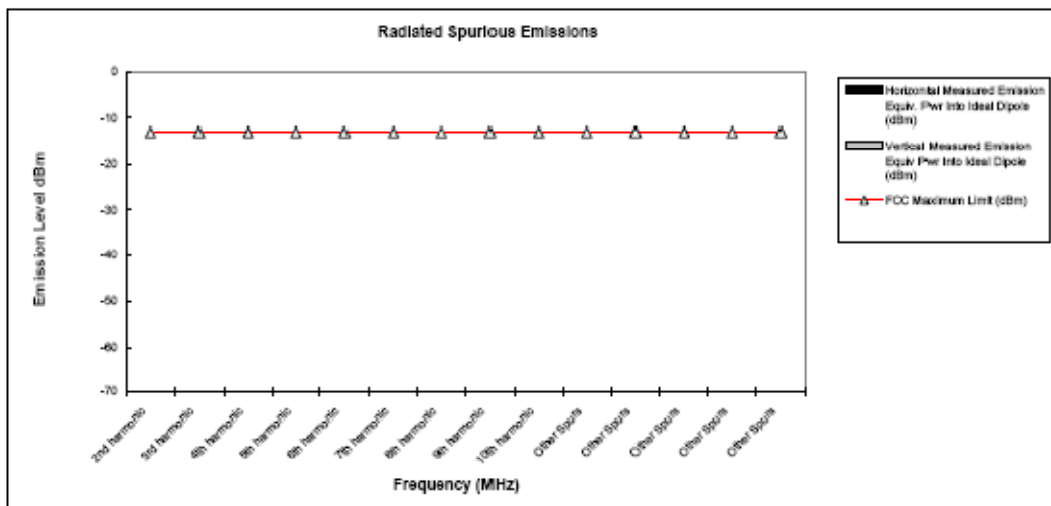
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are low
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

Emissions below -33dBm are not shown.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – EDGE 850

| Frequency (MHz) | FCC Maximum Limit (dBm) | Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm) | Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm) |
|-----------------|-------------------------|---|--|
| 2nd harmonic | -13 | * | * |
| 3rd harmonic | -13 | * | * |
| 4th harmonic | +13 | * | * |
| 5th harmonic | -13 | * | * |
| 6th harmonic | -13 | * | * |
| 7th harmonic | -13 | * | * |
| 8th harmonic | -13 | * | * |
| 9th harmonic | -13 | * | * |
| 10th harmonic | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |



Notes:

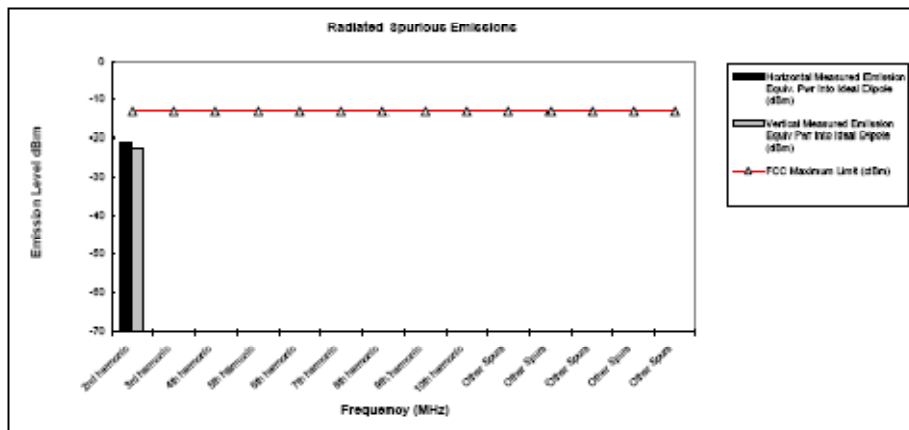
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are low
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

Emissions below -33dBm are not shown.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – EDGE 1900

| Frequency (MHz) | FCC Maximum Limit (dBm) | Horizontal Measured Emission Equiv. Pwr into Ideal Dipole (dBm) | Vertical Measured Emission Equiv Pwr into Ideal Dipole (dBm) |
|-----------------|-------------------------|---|--|
| 2nd harmonic | -13 | -21.0 | -22.5 |
| 3rd harmonic | -13 | * | * |
| 4th harmonic | -13 | * | * |
| 5th harmonic | -13 | * | * |
| 6th harmonic | -13 | * | * |
| 7th harmonic | -13 | * | * |
| 8th harmonic | -13 | * | * |
| 9th harmonic | -13 | * | * |
| 10th harmonic | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |
| Other Spurs | -13 | * | * |



Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are lower than -33 dBm.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

Emissions below -33dBm are not shown.

The margin with respect to the limit is the minimum margin for all modes and bands.

FREQUENCY STABILITY**Measurement Procedure**

The equipment under test is placed in an environmental chamber. The antenna port of the Equipment Under Test is directly coupled to the input of the measurement equipment through a specialized RF connector. A power supply is attached as the primary voltage supply.

Frequency measurements are made at the extremes of the temperature range -30°C to $+60^{\circ}\text{C}$ and at intervals of 10°C with the primary supply voltage set to the nominal battery operating voltage. A period of time sufficient to stabilize all components of the equipment is allowed at each frequency measurement. The maximum variation of frequency is measured.

At room temperature, the primary supply voltage is reduced to the battery operating endpoint of the equipment under test. The maximum variation of frequency is measured. A battery eliminator was used for the input supply voltage.

Measurement Results

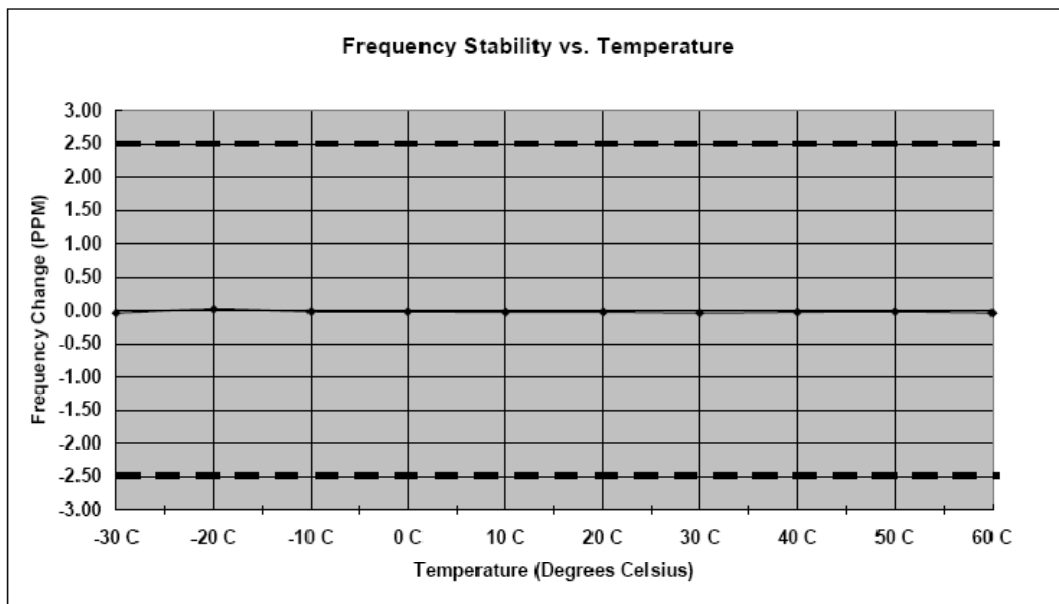
Attached

Measurement Results – GSM 850

Frequency Stability

Mode: GSM 850 Operating Frequency: 836.6 MHz
 Channel: 190 Deviation Limit (PPM): ±2.5 ppm

| Temperature C | Frequency Error HZ | Frequency Error (PPM) | Voltage (%) | Voltage (VDC) |
|------------------|-----------------------|--------------------------|------------------|------------------|
| -30 C | -32.00 | -0.038 | 100% | 3.80 |
| -20 C | 15.00 | 0.018 | 100% | 3.80 |
| -10 C | -13.00 | -0.016 | 100% | 3.80 |
| 0 C | -16.00 | -0.019 | 100% | 3.80 |
| 10 C | -21.00 | -0.025 | 100% | 3.80 |
| 20 C | -18.00 | -0.022 | 100% | 3.80 |
| 30 C | -32.00 | -0.038 | 100% | 3.80 |
| 40 C | -21.00 | -0.025 | 100% | 3.80 |
| 50 C | -16.00 | -0.019 | 100% | 3.80 |
| 60 C | -31.00 | -0.037 | 100% | 3.80 |
| 20 C | -14.00 | -0.017 | Battery Endpoint | 3.40 |

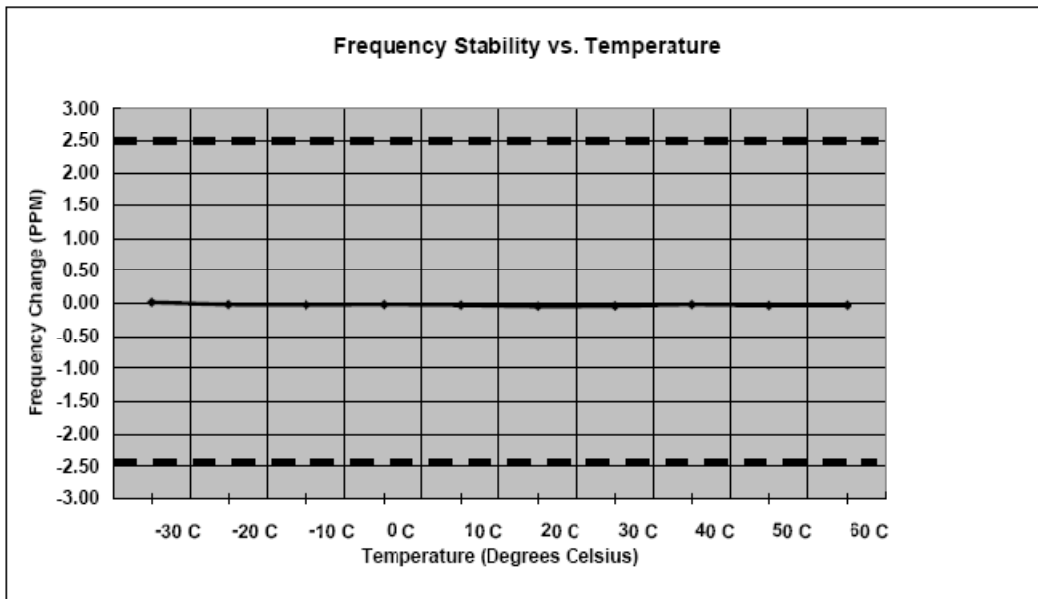


Measurement Results – GSM 1900

Frequency Stability

Mode: GSM 1900 Operating Frequency: 1880.0 MHz
 Channel: 661 Deviation Limit (PPM): ±2.5ppm

| Temperature | Frequency Error | Frequency Error | Voltage | Voltage |
|-------------|-----------------|-----------------|------------------|---------|
| C | HZ | (PPM) | (%) | (VDC) |
| -30 C | 33.00 | 0.018 | 100% | 3.80 |
| -20 C | -31.00 | -0.016 | 100% | 3.80 |
| -10 C | -43.00 | -0.023 | 100% | 3.80 |
| 0 C | -31.00 | -0.016 | 100% | 3.80 |
| 10 C | -47.00 | -0.025 | 100% | 3.80 |
| 20 C | -82.00 | -0.044 | 100% | 3.80 |
| 30 C | -68.00 | -0.036 | 100% | 3.80 |
| 40 C | -31.00 | -0.016 | 100% | 3.80 |
| 50 C | -56.00 | -0.030 | 100% | 3.80 |
| 60 C | -53.00 | -0.028 | 100% | 3.80 |
| | | | | |
| 20 C | -56.00 | -0.030 | Battery Endpoint | 3.40 |

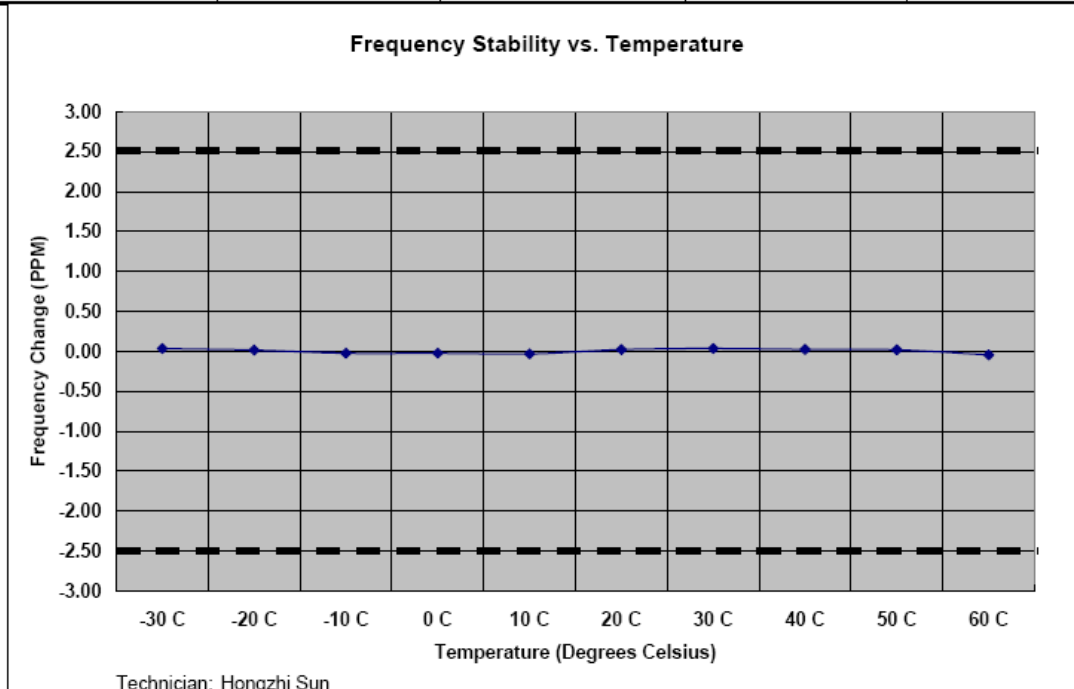


Measurement Results – EDGE 850

Frequency Stability

Mode: Edge 850 **Operating Frequency:** 836.6 MHz
Channel: 190 **Deviation Limit (PPM):** ±2.5 ppm

| Temperature | Frequency Error | Frequency Error | Voltage | Voltage |
|-------------|-----------------|-----------------|------------------|---------|
| C | HZ | (PPM) | (%) | (VDC) |
| -30 C | 29.00 | 0.035 | 100% | 3.80 |
| -20 C | 14.00 | 0.017 | 100% | 3.80 |
| -10 C | -20.00 | -0.024 | 100% | 3.80 |
| 0 C | -19.00 | -0.023 | 100% | 3.80 |
| 10 C | -26.00 | -0.031 | 100% | 3.80 |
| 20 C | 20.00 | 0.024 | 100% | 3.80 |
| 30 C | 31.00 | 0.037 | 100% | 3.80 |
| 40 C | 21.00 | 0.025 | 100% | 3.80 |
| 50 C | 16.00 | 0.019 | 100% | 3.80 |
| 60 C | -37.00 | -0.044 | 100% | 3.80 |
| 20 C | -25.00 | -0.030 | Battery Endpoint | 3.40 |

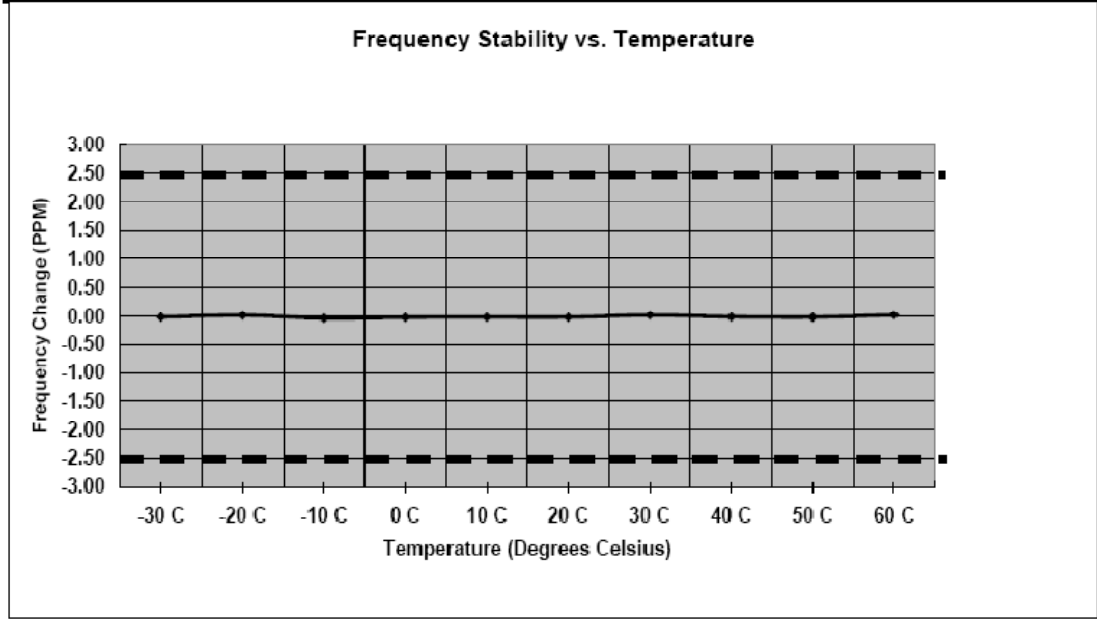


Measurement Results – EDGE 1900

Frequency Stability

Mode: Edge 1900 Operating Frequency: 1880.0 MHz
 Channel: 661 Deviation Limit (PPM): ±2.5ppm

| Temperature C | Frequency Error HZ | Frequency Error (PPM) | Voltage (%) | Voltage (VDC) |
|------------------|-----------------------|--------------------------|------------------|------------------|
| -30 C | -31.00 | -0.016 | 100% | 3.80 |
| -20 C | 29.00 | 0.015 | 100% | 3.80 |
| -10 C | -65.00 | -0.035 | 100% | 3.80 |
| 0 C | -37.00 | -0.020 | 100% | 3.80 |
| 10 C | -33.00 | -0.018 | 100% | 3.80 |
| 20 C | -33.00 | -0.018 | 100% | 3.80 |
| 30 C | 34.00 | 0.018 | 100% | 3.80 |
| 40 C | -19.00 | -0.010 | 100% | 3.80 |
| 50 C | -35.00 | -0.019 | 100% | 3.80 |
| 60 C | 40.00 | 0.021 | 100% | 3.80 |
| 20 C | -40.00 | -0.021 | Battery Endpoint | 3.40 |



End of Test Report