# FCC CFR47 PART 22 SUBPART H
# FCC CFR47 PART 24 SUBPART E
# CERTIFICATION TEST REPORT

**FOR**

**DUAL BANDS GSM/GPRS/EDGE/WCDMA PHONE WITH BT3.0 AND WIFI**

**MODEL NUMBER: GT-S6010L**

**FCC ID: A3LGTS6010L**

**REPORT NUMBER: 12I14598-3, Revision A**

**ISSUE DATE: SEPTEMBER 19, 2012**

*Prepared for*

**SAMSUNG ELECTRONICS CO., LTD.**
**416, MAETAN 3-DONG, YEONGTONG-GU**
**SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA**

*Prepared by*

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NVLAP LAB CODE 200065-0

Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| | 09/11/12 | Initial Issue | T. Chan |
| A | 09/19/12 | Corrected FCC ID | A. Zaffar |

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# 1. ATTESTATION OF TEST RESULTS

| | |
|---|---|
| **COMPANY NAME:** | SAMSUNG ELECTRONICS CO., LTD.<br>416, MAETAN 3-DONG, YEONGTONG-GU<br>SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA |
| **EUT DESCRIPTION:** | DUAL BANDS GSM/GPRS/EDGE/WCDMA PHONE, 802.11bgn, BT3.0 |
| **MODEL:** | GT-S6010L |
| **SERIAL NUMBER:** | FJ-223-B |
| **DATE TESTED:** | AUGUST 31 TO SEPTEMBER 9, 2012 |

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| FCC PART 22H AND 24E | Pass |

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By: Tested By:

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# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22, and FCC CFR Part 24.

# 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

# 4. CALIBRATION AND UNCERTAINTY

## 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards

## 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

## 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER | UNCERTAINTY |
|---|---|
| Conducted Disturbance, 0.15 to 30 MHz | 3.52 dB |
| Radiated Disturbance, 30 to 1000 MHz | 4.94 dB |

Uncertainty figures are valid to a confidence level of 95%.

# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

The EUT is a Dual Bands GSM/GPRS/EDGE/WCDMA phone with 802.11BGN and BT3.0 feature.

## 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted and ERP / EIRP output powers as follows:

Part 22 Cellular Band

| Frequency range (MHz) | Modulation | Conducted | | ERP | |
|---|---|---|---|---|---|
| | | dBm | mW | dBm | mW |
| 824.2 – 848.8 | GPRS | 32.75 | 1883.6 | 30.62 | 1153.5 |
| 826.4 – 846.6 | UMTS, WCDMA | 25.56 | 359.7 | 23.07 | 202.8 |
| | UMTS, HSUPA | 27.90 | 616.6 | 24.89 | 308.3 |

Part 24 PCS Band

| Frequency range (MHz) | Modulation | Conducted | | EIRP | |
|---|---|---|---|---|---|
| | | dBm | mW | dBm | mW |
| 1850.2 – 1909.8 | GPRS | 29.87 | 970.5 | 26.56 | 452.9 |
| 1852.4 – 1907.6 | UMTS, WCDMA | 25.55 | 358.9 | 23.34 | 215.8 |
| | UMTS, HSUPA | 26.93 | 493.2 | 25.09 | 322.8 |

## 5.3. SOFTWARE AND FIRMWARE

The EUT is linked with Agilent 8960/Anritsu Wireless Communication Test Set.

## 5.4. WORST-CASE CONFIGURATION AND MODE

Based on the investigation results, the highest peak power and enhanced data rate is the worst-case scenario for all measurements.

Worst-case modes: GPRS, UMTS WCDMA and UMTS HSUPA Sub-test 3.

Since the EUT is a portable device, to determine the worst/highest emissions, the X, Y, and Z orientations of the EUT with respect to the turntable and the worst among them with headset and an AC adapter were investigated. After the investigations Z-Orientation without headset and an AC Adapter and Y-orientation with headset and an AC adapter was turned out to be the worst case for cell and PCS bands respectively.

## 5.5. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| PERIPHERAL SUPPORT EQUIPMENT LIST | | | | |
|---|---|---|---|---|
| Description | Manufacturer | Model | Serial Number | FCC ID |
| USB Travel Adapter | Samsung | ETAOU10EBE | SC3BB03HS/7E FJ-223-B | DoC |
| Headset | Samsung | EHS61ASFWE | -- | N/A |

**I/O CABLES (CONDUCTED)**

| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| **Cable No** | **Port** | **# of identical ports** | **Connector Type** | **Cable Type** | **Cable Length (m)** | **Remarks** |
| 1 | RF | 1 | Antenna Port | Shielded | 1.0m | NA |
| 2 | RF | 1 | SMA | Shielded | 0.7m | NA |

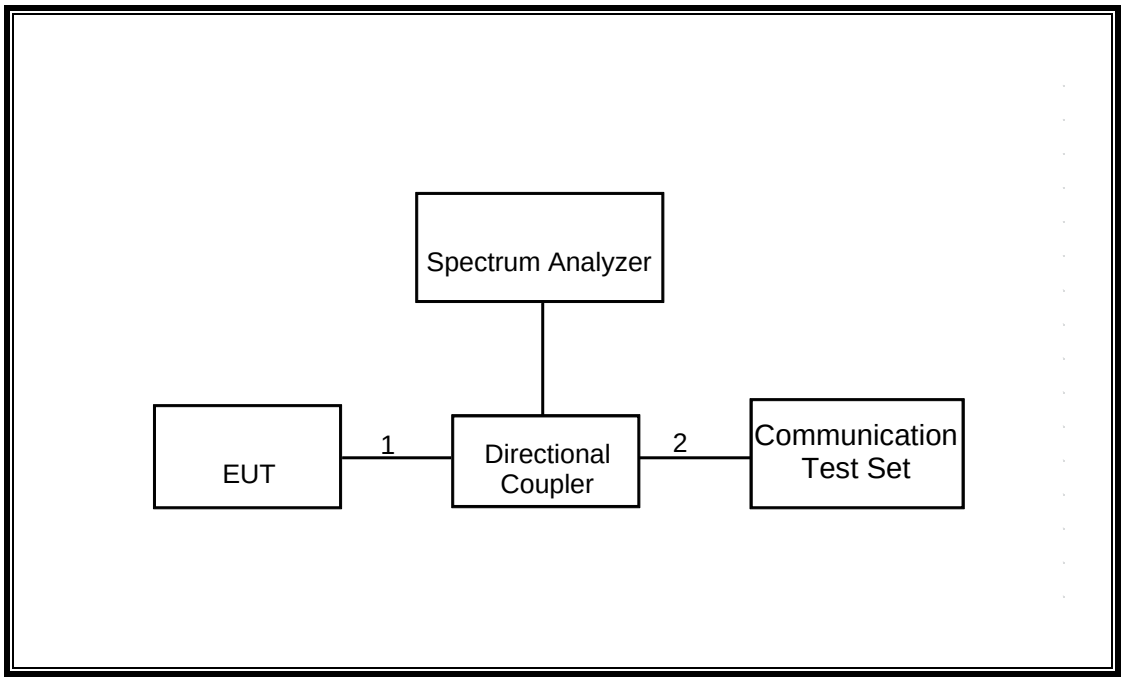
**I/O CABLES (RADIATED)**

| I/O CABLE LIST | | | | | | |
|---|---|---|---|---|---|---|
| **Cable No.** | **Port** | **# of Identical Ports** | **Connector Type** | **Cable Type** | **Cable Length** | **Remarks** |
| 1 | DC Power | 1 | Mini-USB | Shielded | 1.2 m | NA |
| 2 | Audio | 1 | Mini-Jack | Shielded | 1.5 m | NA |

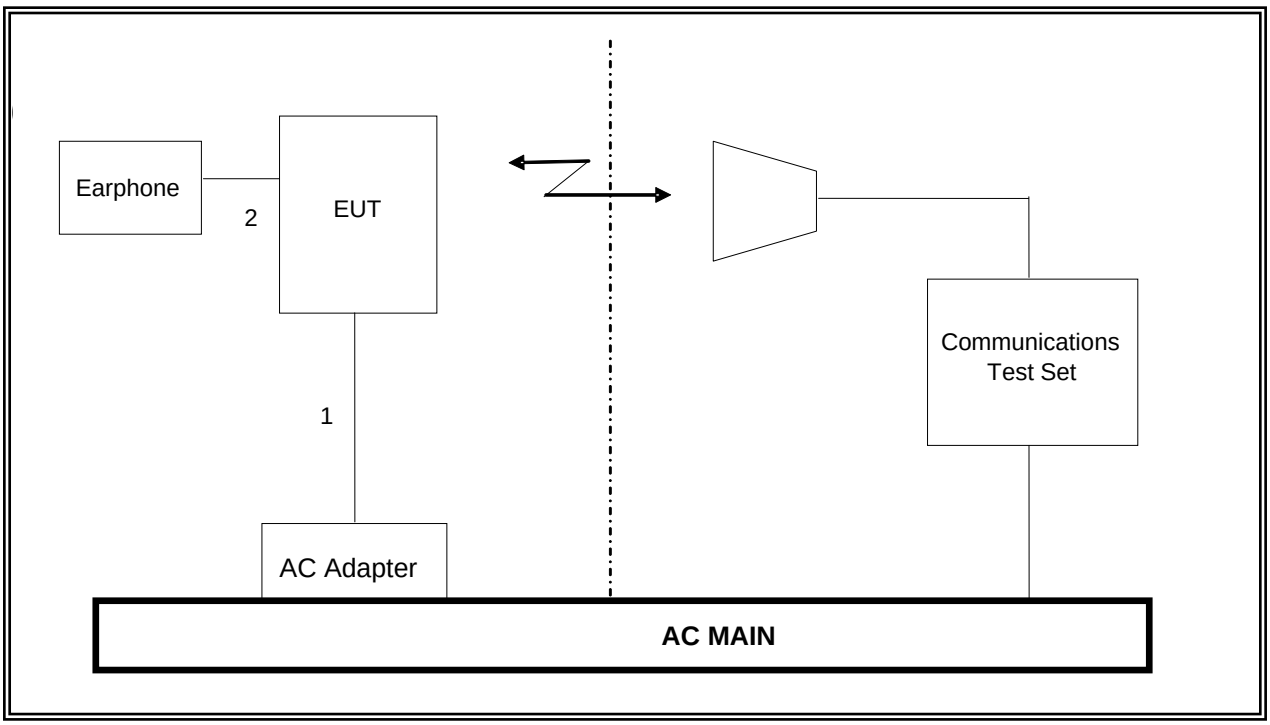
**TEST SETUP**

The EUT is a stand-alone device. A link is established between the EUT and the Agilent/Anritsu communications test set.

**SETUP DIAGRAM FOR RF CONDUCTED TESTS**



**SETUP DIAGRAM FOR RF RADIATED TESTS**



# 6 TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| TEST EQUIPMENT LIST | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Asset** | **Cal Due** |
| Spectrum Analyzer, 44 GHz | Agilent / HP | E4446A | C00986 | 03/22/13 |
| Antenna, Horn, 18 GHz | EMCO | 3115 | C00945 | 10/06/12 |
| Antenna, Horn, 18 GHz | EMCO | 3115 | C00943 | CNR |
| Antenna, Horn, 18 GHz | EMCO | 3115 | C00783 | 10/18/12 |
| Antenna, Bilog, 30MHz-1 GHz | Sunol Sciences | JB1 | | 02/07/13 |
| Preamplifier, 26.5 GHz | Agilent / HP | 8449B | C01063 | 11/07/12 |
| 41468 | 41468 | 41468 | 41468 | 07/13/13 |
| Communications Test Set | Agilent / HP | E5515C | C01086 | 06/20/13 |
| Temperature / Humidity Chamber | Thermotron | SE 600-10-10 | C00930 | 10/20/12 |
| Highpass Filter, 1.5 GHz | Micro-Tronics | HPM13193 | N02689` | CNR |
| Highpass Filter, 2.7 GHz | Micro-Tronics | HPM13194 | N02687 | CNR |
| Directional Coupler | Krytar | 1817 | N02656 | CNR |
| Vector signal generator, 20 GHz | Agilent / HP | E8267C | C01066 | 11/17/12 |
| Antenna, Tuned Dipole 400~1000 MHz | ETS | 3121C DB4 | C00993 | 10/16/12 |

# 7. RF POWER OUTPUT VERIFICATION

## 7.1. RF POWER OUTPUT FOR GSM MODE

**TEST PROCEDURE**

**GPRS/EGPRS**

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 27 dBm for EGPRS 850/900

> 30 dBm for GPRS1800/1900

> 26 dBm for EGPRS1800/1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0> 4 dB

Slot Config > Unchanged (if already set under MS Signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

Network Coding Scheme > CS4 (GPRS) and MCS9 (EGPRS)

Bit Stream > 2E9-1PSR Bit Pattern

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal On to turn on the signal and change settings

**RESULTS**

**GPRS for Cell and PCS Band**

| Mode | Ch. | f (MHz) | 1 time slot Peak (dBm) | 2 time slots Peak (dBm) | 3 time slots Peak (dBm) | 4 time slots Peak (dBm) |
|---|---|---|---|---|---|---|
| GPRS | 128 | 824.2 | **32.75** | 29.88 | 27.99 | 26.83 |
| | 190 | 836.6 | 32.74 | 29.66 | 27.98 | 26.85 |
| | 251 | 848.8 | 32.67 | 29.84 | 27.95 | 26.8 |
| GPRS | 512 | 1850.2 | **29.87** | 27.01 | 25.15 | 24.02 |
| | 661 | 1880.0 | 29.77 | 26.91 | 25.04 | 32.93 |
| | 810 | 1909.8 | 29.74 | 26.85 | 25.00 | 23.84 |

## 7.2. RF POWER OUTPUT FOR UMTS WCDMA

**TEST PROCEDURE**

The following summary of these settings are illustrated below:

| | Mode | Rel99 |
|---|---|---|
| | Subtest | - |
| WCDMA General Settings | Loopback Mode | Test Mode 1 |
| | Rel99 RMC | 12.2kbps RMC |
| | HSDPA FRC | Not Applicable |
| | HSUPA Test | Not Applicable |
| | Power Control Algorithm | Algorithm2 |
| | βc | Not Applicable |
| | βd | Not Applicable |
| | βec | Not Applicable |
| | βc/βd | 8/15 |
| | βhs | Not Applicable |
| | βed | Not Applicable |

**RESULTS**

| Band | UL Ch | DL Ch | Frequency | Conducted output power (dBm) |
|---|---|---|---|---|
| | | | | Peak |
| UMTS 850 | 4132 | 4357 | 826.4 | **25.56** |
| | 4183 | 4408 | 836.6 | 25.34 |
| | 4233 | 4458 | 846.6 | 25.34 |

| Band | UL Ch | DL Ch | Frequency | Conducted output power (dBm) |
|---|---|---|---|---|
| | | | | Peak |
| UMTS 1900 | 9262 | 9662 | 1852.4 | **25.55** |
| | 9400 | 9800 | 1880.0 | 25.41 |
| | 9538 | 9938 | 1907.6 | 25.50 |

# 7.3. RF POWER OUTPUT FOR UMTS HSDPA

**TEST PROCEDURE**

The following summary of these settings are illustrated below:

| | Mode | Rel6 HSDPA | Rel6 HSDPA | Rel6 HSDPA | Rel6 HSDPA |
|---|---|---|---|---|---|
| | Subtest | 1 | 2 | 3 | 4 |
| WCDMA General Settings | Loopback Mode | Test Mode 1 | | | |
| | Rel99 RMC | 12.2kbps RMC | | | |
| | HSDPA FRC | H-Set1 | | | |
| | HSUPA Test | Not Applicable | | | |
| | Power Control Algorithm | Algorithm 2 | | | |
| | βc | 2/15 | 12/15 | 15/15 | 15/15 |
| | βd | 15/15 | 15/15 | 8/15 | 4/15 |
| | βec | - | - | - | - |
| | βc/βd | 2/15 | 12/15 | 15/8 | 15/4 |
| | βhs | 4/15 | 24/15 | 30/15 | 30/15 |
| | βed | Not Applicable | | | |
| HSDPA Specific Settings | DACK | 8 | | | |
| | DNAK | 8 | | | |
| | DCQI | 8 | | | |
| | Ack-Nack repetition factor | 3 | | | |
| | CQI Feedback (Table 5.2B.4) | 4ms | | | |
| | CQI Repetition Factor (Table 5.2B.4) | 2 | | | |
| | Ahs = βhs/βc | 30/15 | | | |

**RESULT**

| Band | Subtest | UL Ch | DL Ch | Frequency | Conducted output power (dBm) |
|---|---|---|---|---|---|
| | | | | | Peak |
| UMTS850 (Band IV) | 1 | 4132 | 4357 | 826.4 | 25.35 |
| | | 4183 | 4408 | 836.6 | 26.27 |
| | | 4233 | 4458 | 846.6 | 26.06 |
| | 2 | 4132 | 4357 | 826.4 | 26.58 |
| | | 4183 | 4408 | 836.6 | 26.56 |
| | | 4233 | 4458 | 846.6 | 26.48 |
| | 3 | 4132 | 4357 | 826.4 | **27.43** |
| | | 4183 | 4408 | 836.6 | 27.35 |
| | | 4233 | 4458 | 846.6 | 27.11 |
| | 4 | 4132 | 4357 | 826.4 | 25.06 |
| | | 4183 | 4408 | 836.6 | 24.90 |
| | | 4233 | 4458 | 846.6 | 25.51 |
| Band | Subtest | UL Ch | DL Ch | Frequency | Conducted output power (dBm) |
| | | | | | Peak |
| UMTS1900 (Band II) | 1 | 9262 | 9662 | 1852.4 | 26.66 |
| | | 9400 | 9800 | 1880.0 | 26.55 |
| | | 9538 | 9938 | 1907.6 | 26.11 |
| | 2 | 9262 | 9662 | 1852.4 | 26.15 |
| | | 9400 | 9800 | 1880.0 | 25.85 |
| | | 9538 | 9938 | 1907.6 | 26.09 |
| | 3 | 9262 | 9662 | 1852.4 | 26.20 |
| | | 9400 | 9800 | 1880.0 | 26.54 |
| | | 9538 | 9938 | 1907.6 | **26.73** |
| | 4 | 9262 | 9662 | 1852.4 | 25.55 |
| | | 9400 | 9800 | 1880.0 | 25.63 |
| | | 9538 | 9938 | 1907.6 | 25.87 |

# 7.4. RF POWER OUTPUT UMTS HSPA (HSDPA & HSUPA)

**TEST PROCEDURE**

The following summary of these settings are illustrated below:

| | Mode | Rel6 HSUPA | Rel6 HSUPA | Rel6 HSUPA | Rel6 HSUPA | Rel6 HSUPA |
|---|---|---|---|---|---|---|
| | Subtest | 1 | 2 | 3 | 4 | 5 |
| WCDMA General Settings | Loopback Mode | Test Mode 1 | | | | |
| | Rel99 RMC | 12.2kbps RMC | | | | |
| | HSDPA FRC | H-Set1 | | | | |
| | HSUPA Test | HSUPA Loopback | | | | |
| | Power Control Algorithm | Algorithm2 | | | | |
| | βc | 11/15 | 6/15 | 15/15 | 2/15 | 15/15 |
| | βd | 15/15 | 15/15 | 9/15 | 15/15 | 0 |
| | βec | 209/225 | 12/15 | 30/15 | 2/15 | 5/15 |
| | βc/βd | 11/15 | 6/15 | 15/9 | 2/15 | - |
| | βhs | 22/15 | 12/15 | 30/15 | 4/15 | 5/15 |
| | βed | 1309/225 | 94/75 | 47/15<br>47/15 | 56/75 | 47/15 |
| HSDPA Specific Settings | DACK | 8 | | | | |
| | DNAK | 8 | | | | |
| | DCQI | 8 | | | | |
| | Ack-Nack repetition factor | 3 | | | | |
| | CQI Feedback (Table 5.2B.4) | 4ms | | | | |
| | CQI Repetition Factor (Table 5.2B.4) | 2 | | | | |
| | Ahs = βhs/βc | 30/15 | | | | |
| HSUPA Specific Settings | D E-DPCCH | 6 | 8 | 8 | 5 | 7 |
| | DHARQ | 0 | 0 | 0 | 0 | 0 |
| | AG Index | 20 | 12 | 15 | 17 | 12 |
| | ETFCI (from 34.121 Table C.11.1.3) | 75 | 67 | 92 | 71 | 67 |
| | Associated Max UL Data Rate kbps | 242.1 | 174.9 | 482.8 | 205.8 | 308.9 |
| | Reference E_TFCIs | E-TFCI 11<br>E-TFCI PO 4<br>E-TFCI 67<br>E-TFCI PO 18<br>E-TFCI 71<br>E-TFCI PO 23<br>E-TFCI 75<br>E-TFCI PO 26<br>E-TFCI 81<br>E-TFCI PO 27 | | E-TFCI 11<br>E-TFCI PO 4<br>E-TFCI 92<br>E-TFCI PO 18 | E-TFCI 11<br>E-TFCI PO 4<br>E-TFCI 67<br>E-TFCI PO 18<br>E-TFCI 71<br>E-TFCI PO 23<br>E-TFCI 75<br>E-TFCI PO 26<br>E-TFCI 81<br>E-TFCI PO 27 | |

**RESULTS**

| Band | Subtest | UL Ch | DL Ch | Frequency | Conducted output power (dBm) |
|---|---|---|---|---|---|
| | | | | | Peak |
| UMTS850 (Band IV) | 1 | 4132 | 4357 | 826.4 | 25.67 |
| | | 4183 | 4408 | 836.6 | 26.82 |
| | | 4233 | 4458 | 846.6 | 26.58 |
| | 2 | 4132 | 4357 | 826.4 | 26.90 |
| | | 4183 | 4408 | 836.6 | 27.11 |
| | | 4233 | 4458 | 846.6 | 27.00 |
| | 3 | 4132 | 4357 | 826.4 | 27.75 |
| | | 4183 | 4408 | 836.6 | **27.90** |
| | | 4233 | 4458 | 846.6 | 27.63 |
| | 4 | 4132 | 4357 | 826.4 | 25.38 |
| | | 4183 | 4408 | 836.6 | 25.45 |
| | | 4233 | 4458 | 846.6 | 26.03 |
| | 5 | 4132 | 4357 | 826.4 | 26.78 |
| | | 4183 | 4408 | 836.6 | 26.78 |
| | | 4233 | 4458 | 846.6 | 26.82 |
| Band | Subtest | UL Ch | DL Ch | Frequency | Conducted output power (dBm) |
| | | | | | Peak |
| UMTS1900 (Band II) | 1 | 9262 | 9662 | 1852.4 | 26.71 |
| | | 9400 | 9800 | 1880.0 | 26.68 |
| | | 9538 | 9938 | 1907.6 | 26.31 |
| | 2 | 9262 | 9662 | 1852.4 | 26.20 |
| | | 9400 | 9800 | 1880.0 | 25.98 |
| | | 9538 | 9938 | 1907.6 | 26.29 |
| | 3 | 9262 | 9662 | 1852.4 | 26.25 |
| | | 9400 | 9800 | 1880.0 | 26.67 |
| | | 9538 | 9938 | 1907.6 | **26.93** |
| | 4 | 9262 | 9662 | 1852.4 | 25.60 |
| | | 9400 | 9800 | 1880.0 | 25.76 |
| | | 9538 | 9938 | 1907.6 | 26.07 |
| | 5 | 9262 | 9662 | 1852.4 | 27.13 |
| | | 9400 | 9800 | 1880.0 | 26.78 |
| | | 9538 | 9938 | 1907.6 | 26.84 |

# 8. CONDUCTED TEST RESULTS

## 8.1. OCCUPIED BANDWIDTH

**RULE PART(S)**

FCC: §2.1049

**LIMITS**

For reporting purposes only

**TEST PROCEDURE**

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

**MODES TESTED**

- GPRS
- UMTS, WCDMA and HSUPA

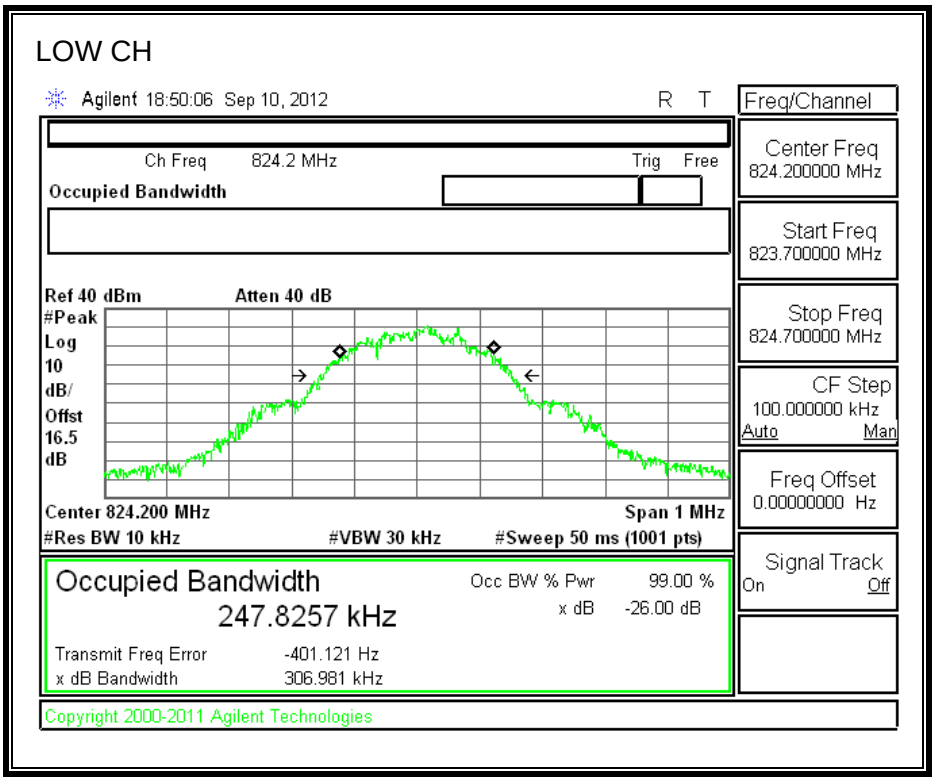
**RESULTS**

| Band | Mode | Channel | f (MHz) | 99% BW (kHz) | -26dB BW (kHz) |
|---|---|---|---|---|---|
| Cellular | GPRS | 128 | 824.20 | 247.8257 | 306.981 |
| | | 190 | 836.60 | 247.3542 | 305.671 |
| | | 251 | 848.80 | 246.6554 | 306.688 |
| PCS | | 512 | 1850.2 | 245.6779 | 303.903 |
| | | 661 | 1880.0 | 249.0212 | 307.061 |
| | | 810 | 1909.8 | 249.6939 | 313.101 |

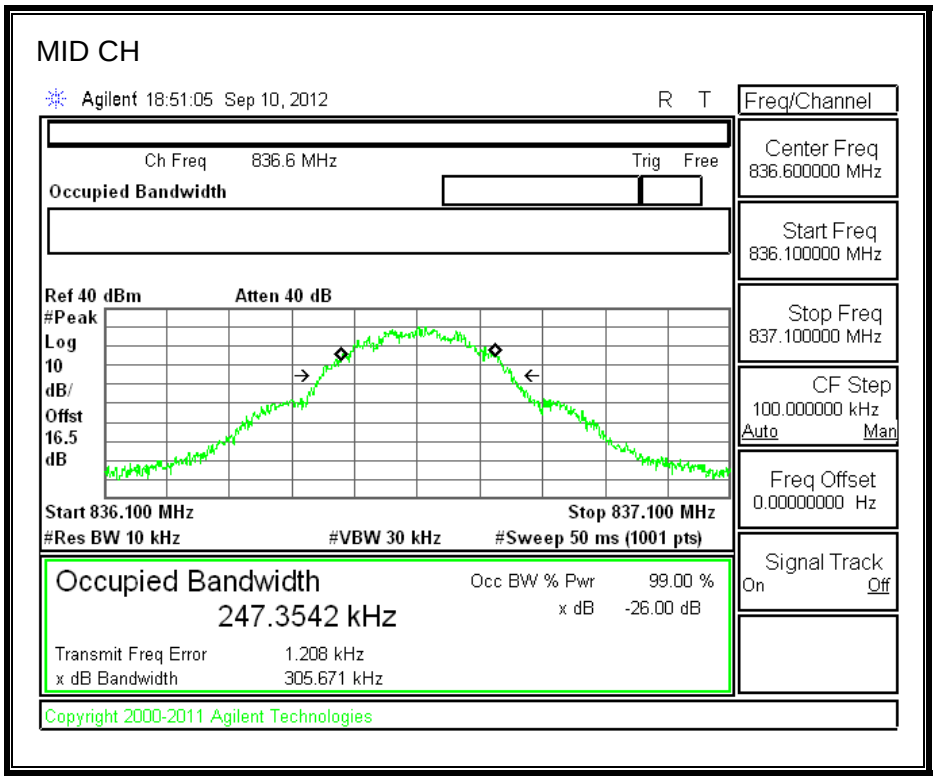
| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---|---|---|---|---|---|
| CELL | UMTS, WCDMA | 4357 | 826.4 | 4.1228 | 4.700 |
| | | 4408 | 836.6 | 4.1878 | 4.685 |
| | | 4458 | 846.6 | 4.2293 | 4.613 |
| | UMTS, HSUPA | 4357 | 826.4 | 4.1932 | 4.630 |
| | | 4408 | 836.6 | 4.1610 | 4.628 |
| | | 4458 | 846.6 | 4.1733 | 4.658 |
| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
| PCS | UMTS, WCDMA | 9662 | 1852.4 | 4.2738 | 4.704 |
| | | 9800 | 1880.0 | 4.1375 | 4.639 |
| | | 9938 | 1907.6 | 4.2159 | 4.653 |
| | UMTS, HSUPA | 9662 | 1852.4 | 4.1368 | 4.600 |
| | | 9800 | 1880.0 | 4.1963 | 4.681 |
| | | 9938 | 1907.6 | 4.1682 | 4.672 |

**GPRS Mode (Cellular Band)**

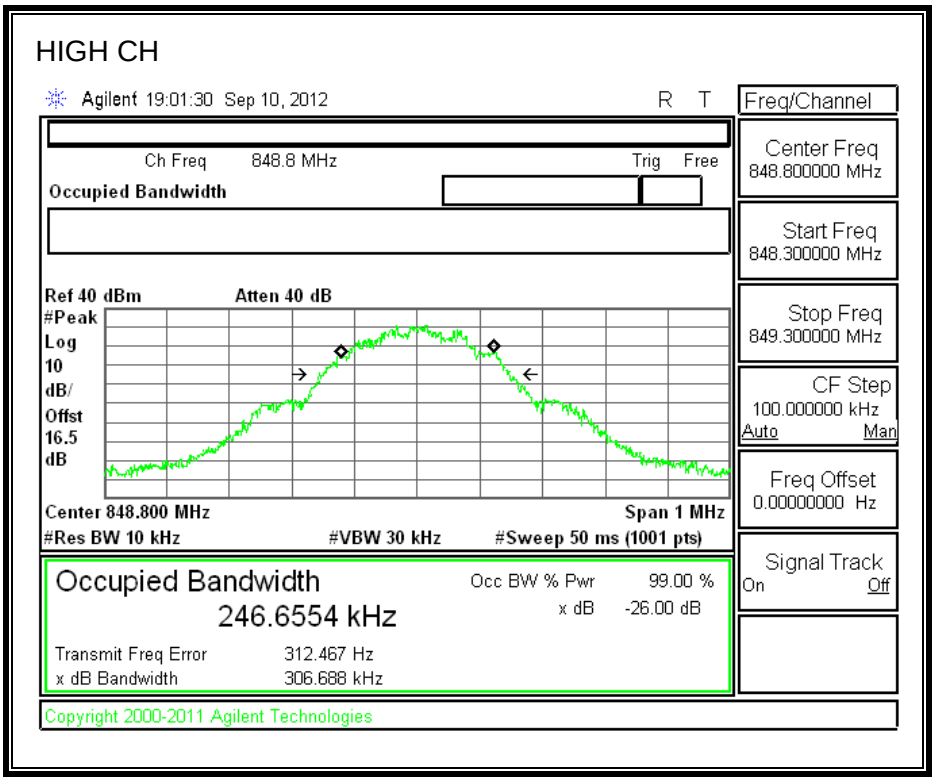
LOW CH




MID CH

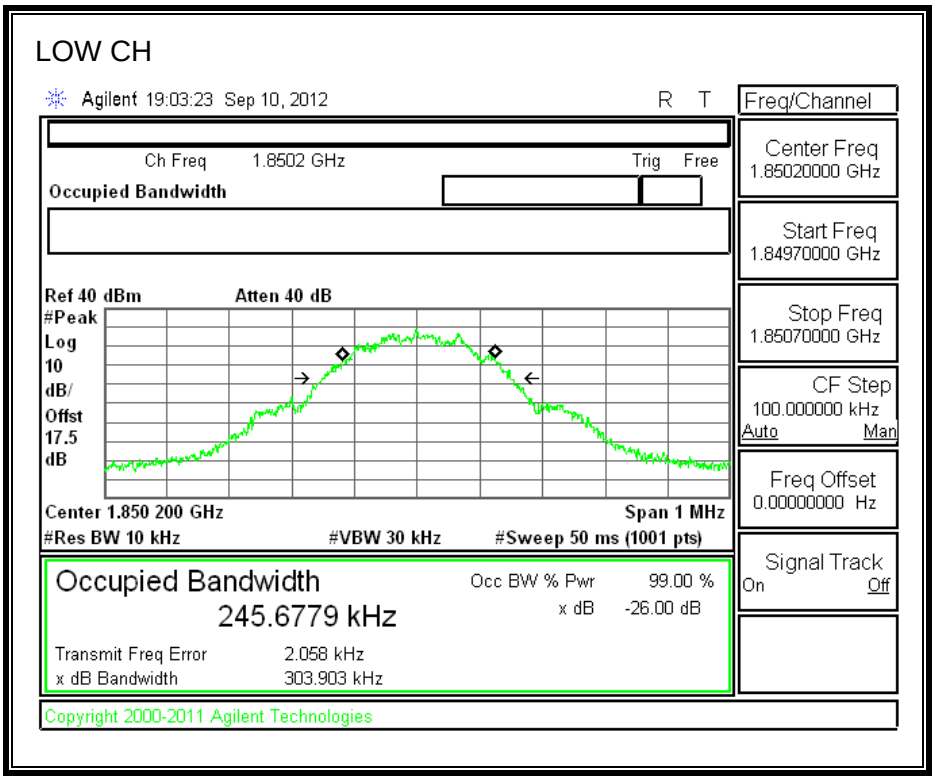


HIGH CH

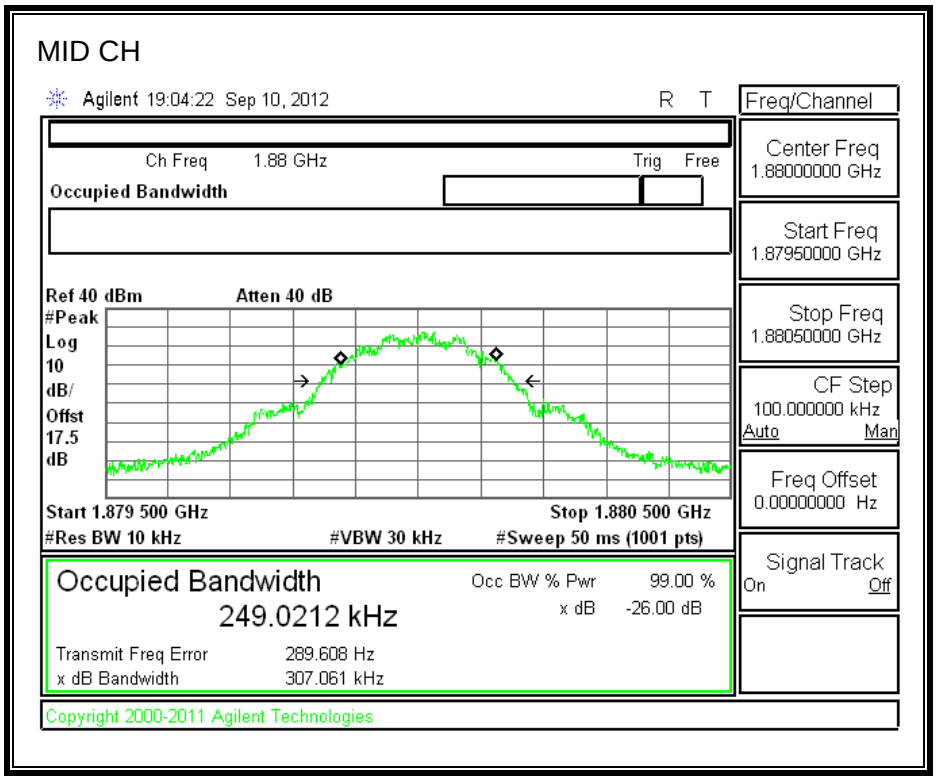


**GPRS Mode (PCS Band)**

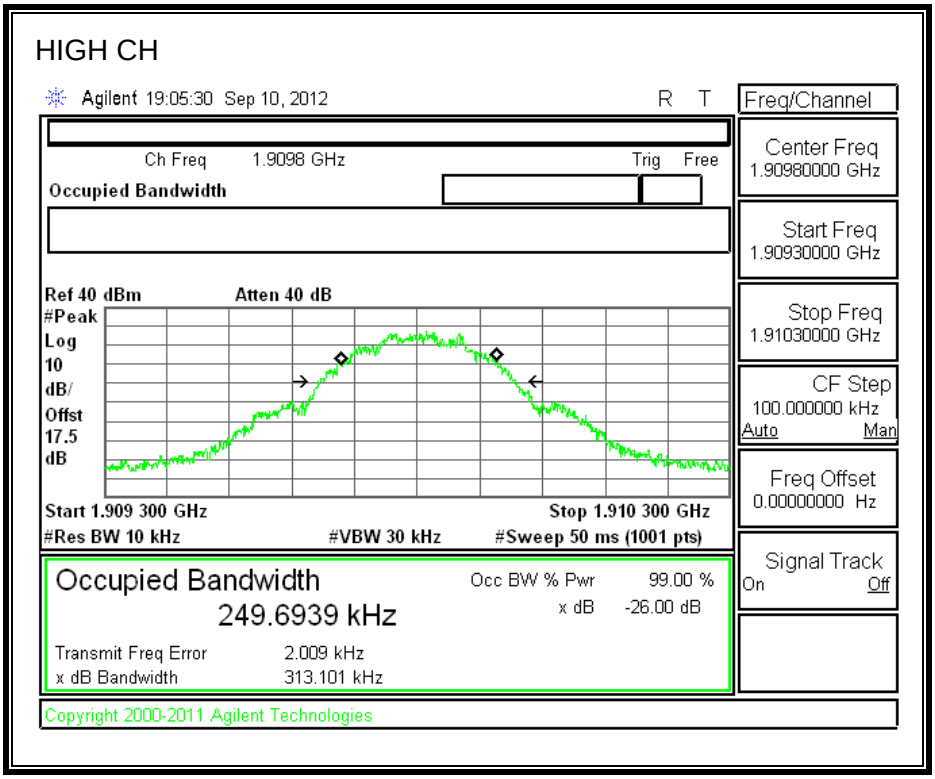
LOW CH




MID CH

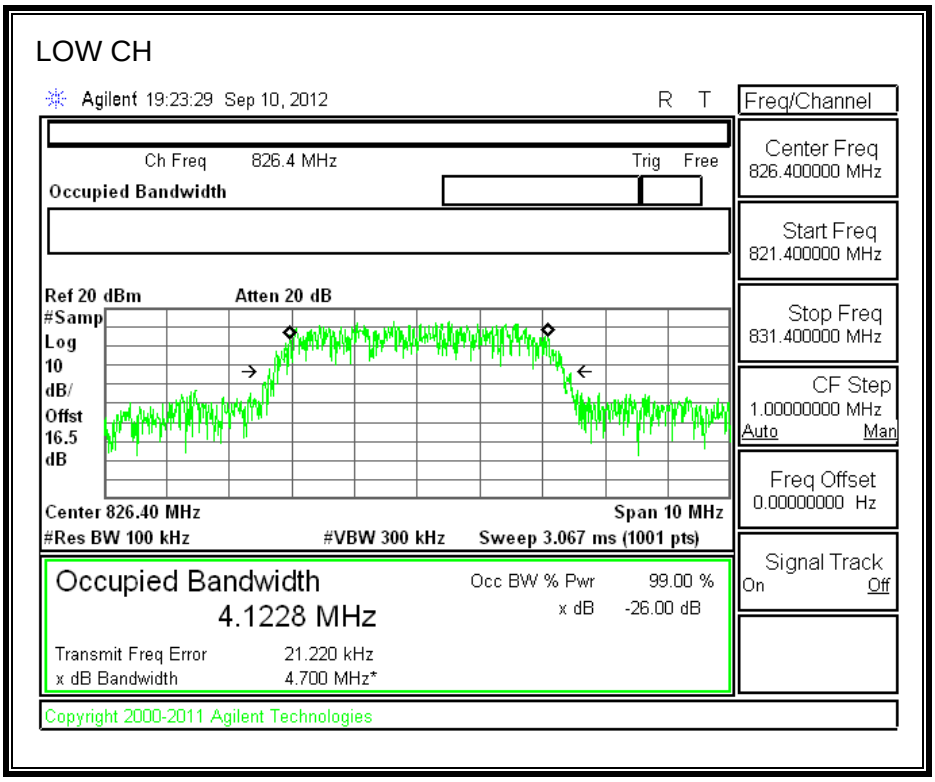


HIGH CH

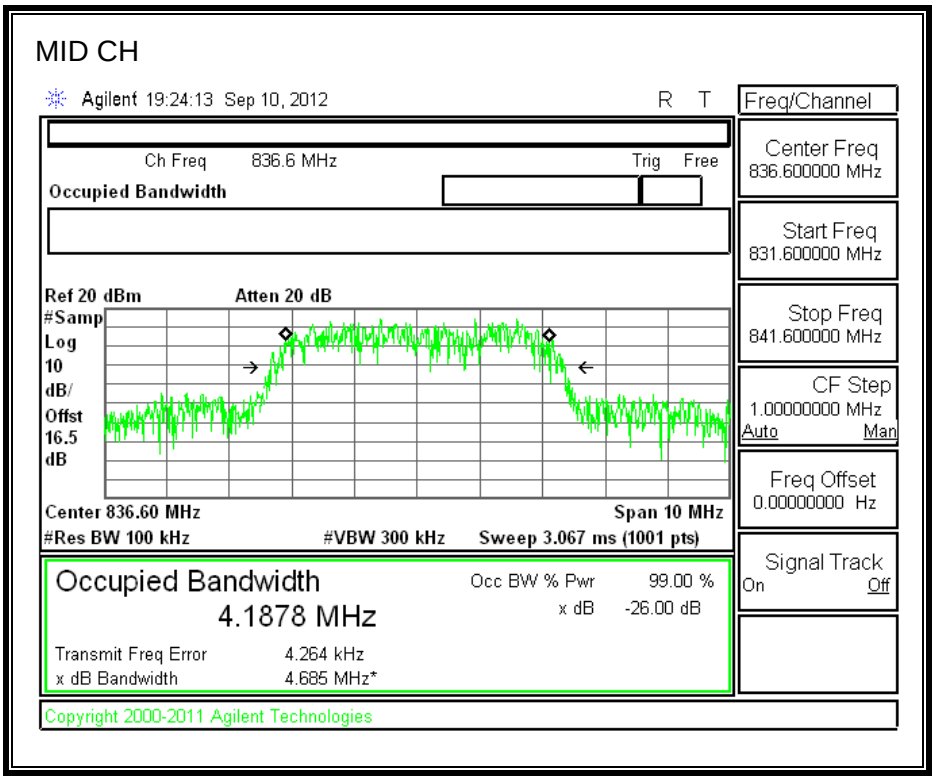


**UMTS WCDMA850 (Cellular Band)**

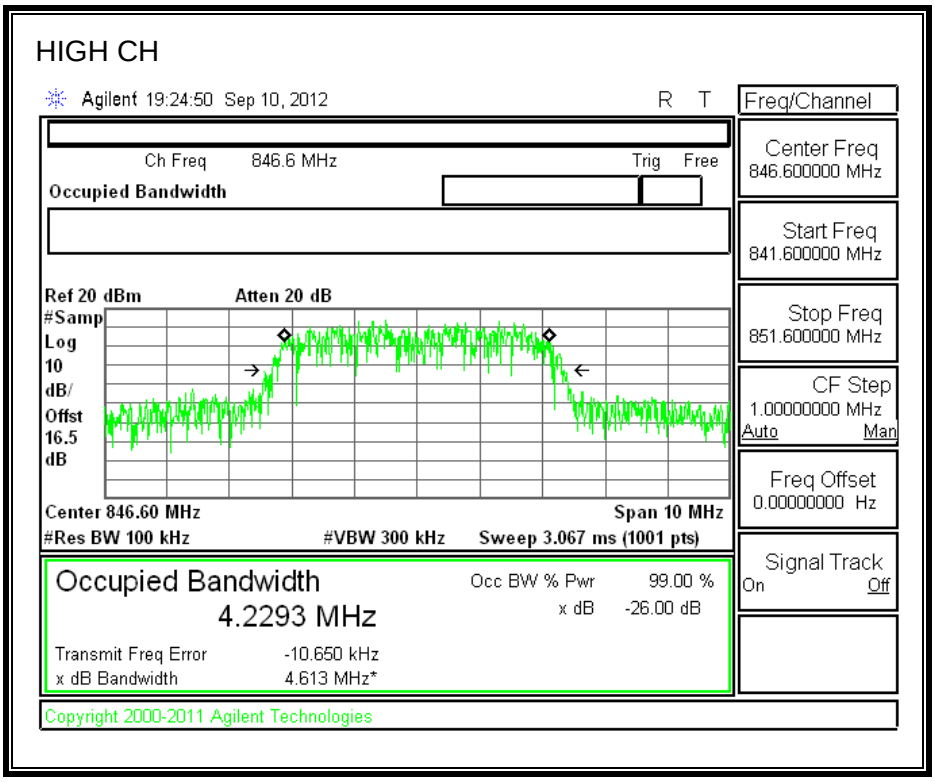
LOW CH




MID CH

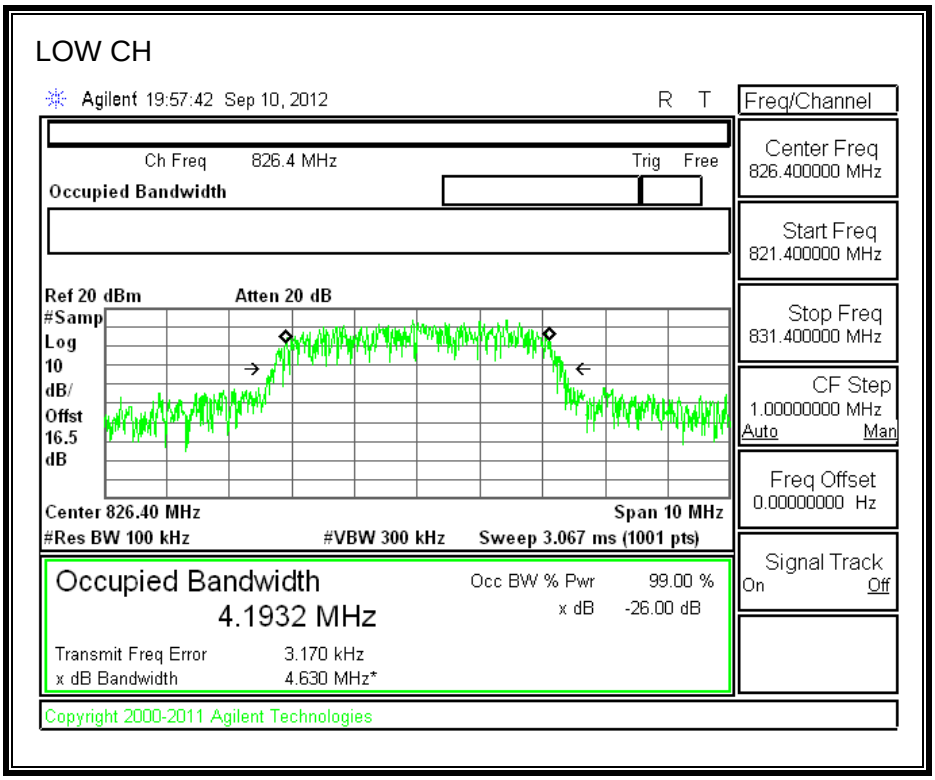


HIGH CH

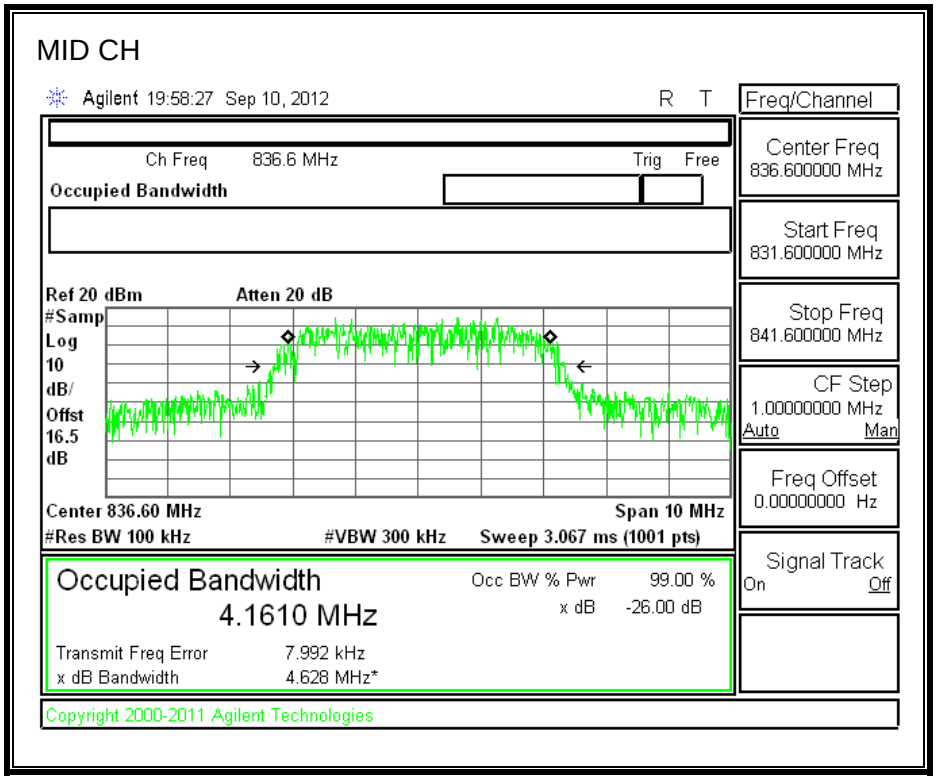


**UMTS HSUPA850 (Cellular Band)**

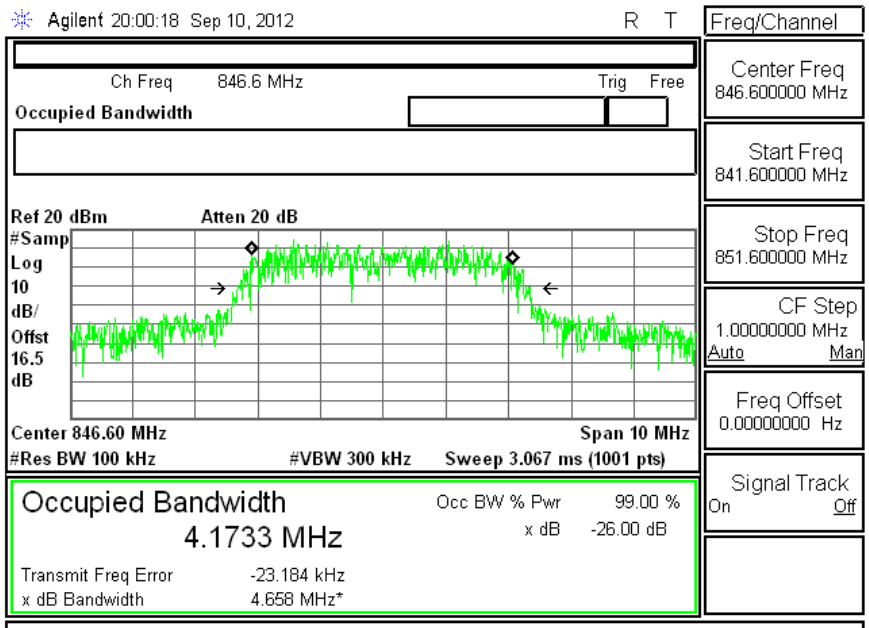
LOW CH




MID CH

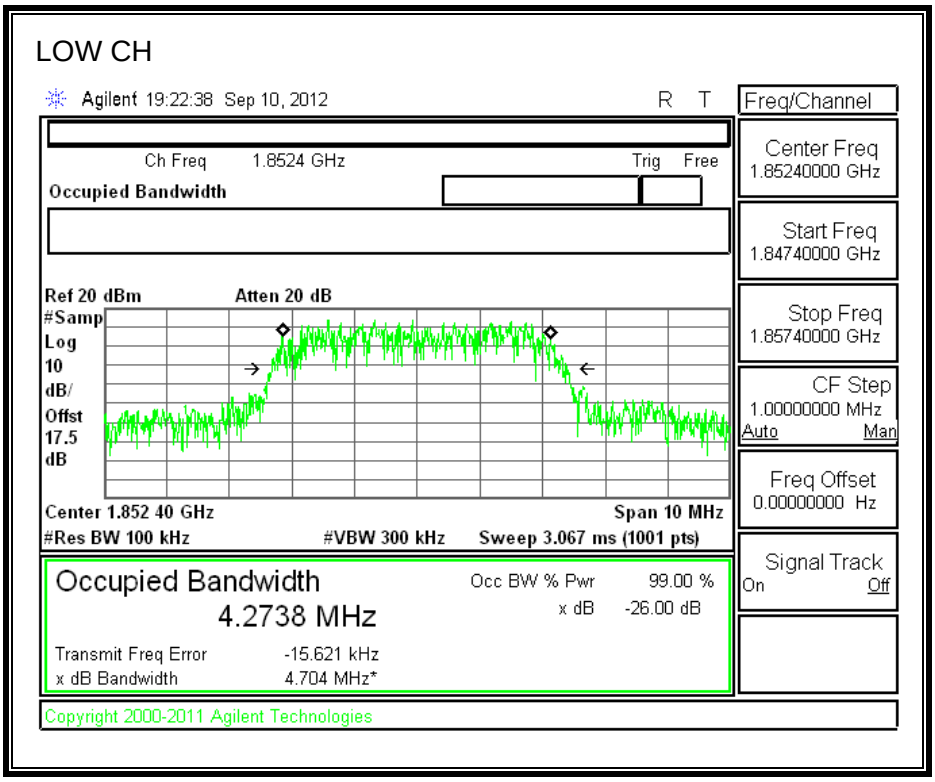


HIGH CH

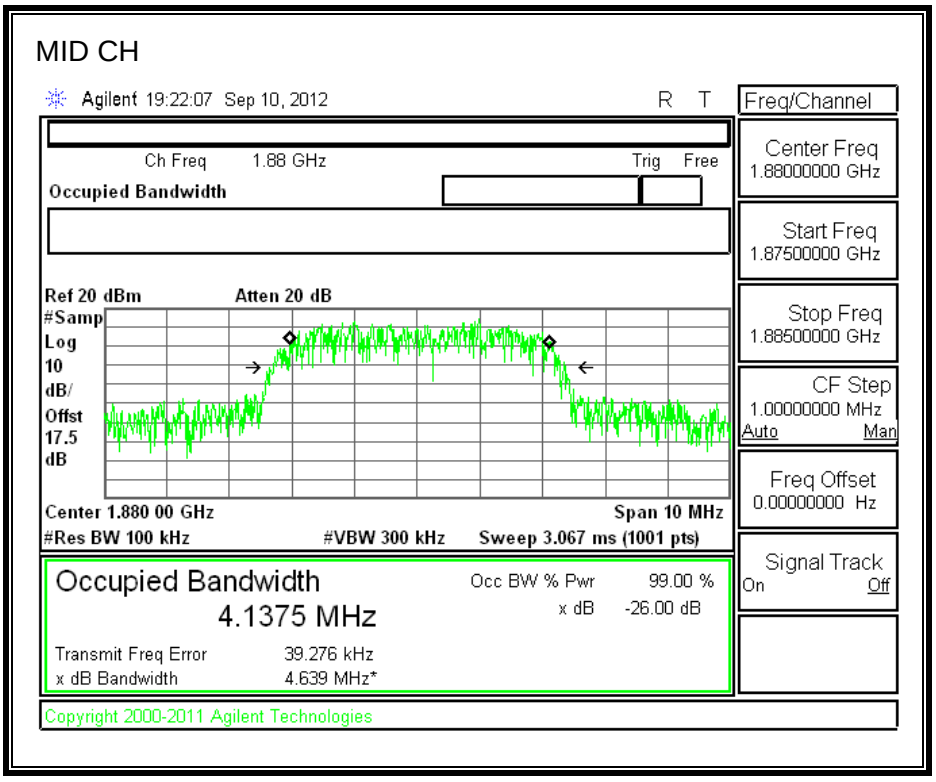


**UMTS WCDMA1900 (PCS Band)**

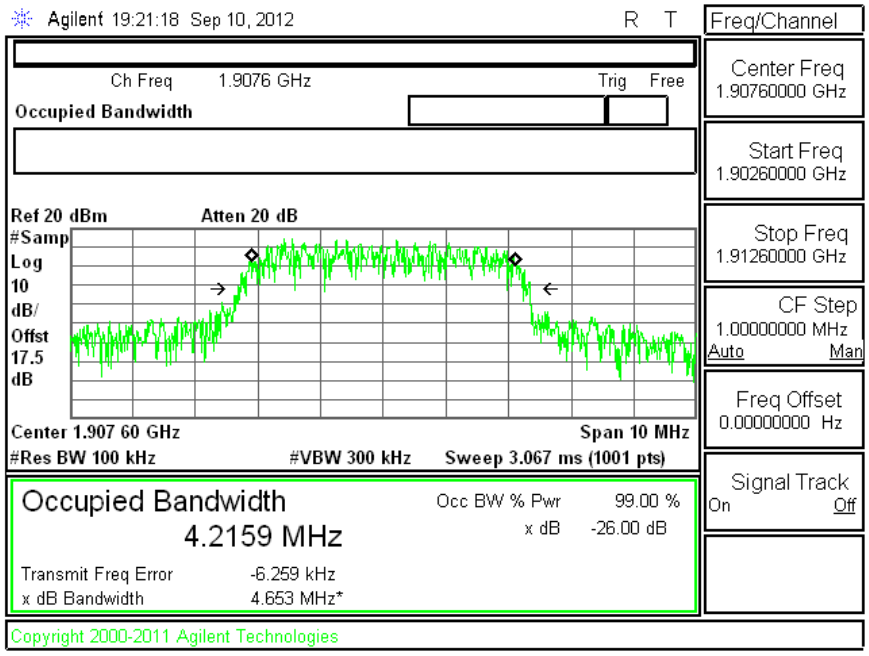
LOW CH




MID CH

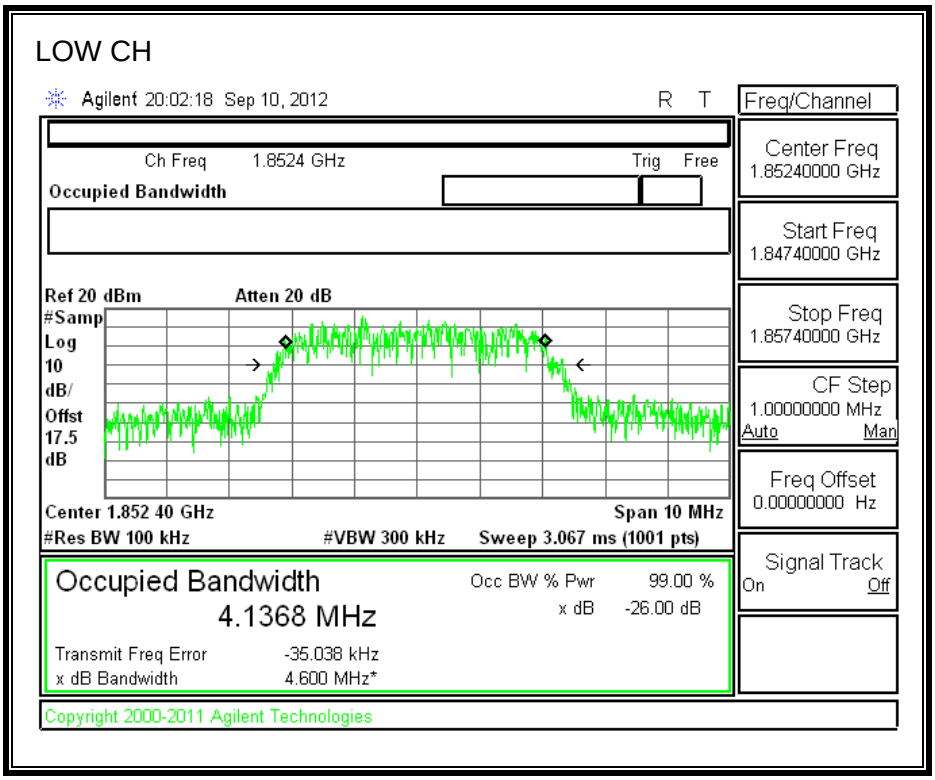


HIGH CH

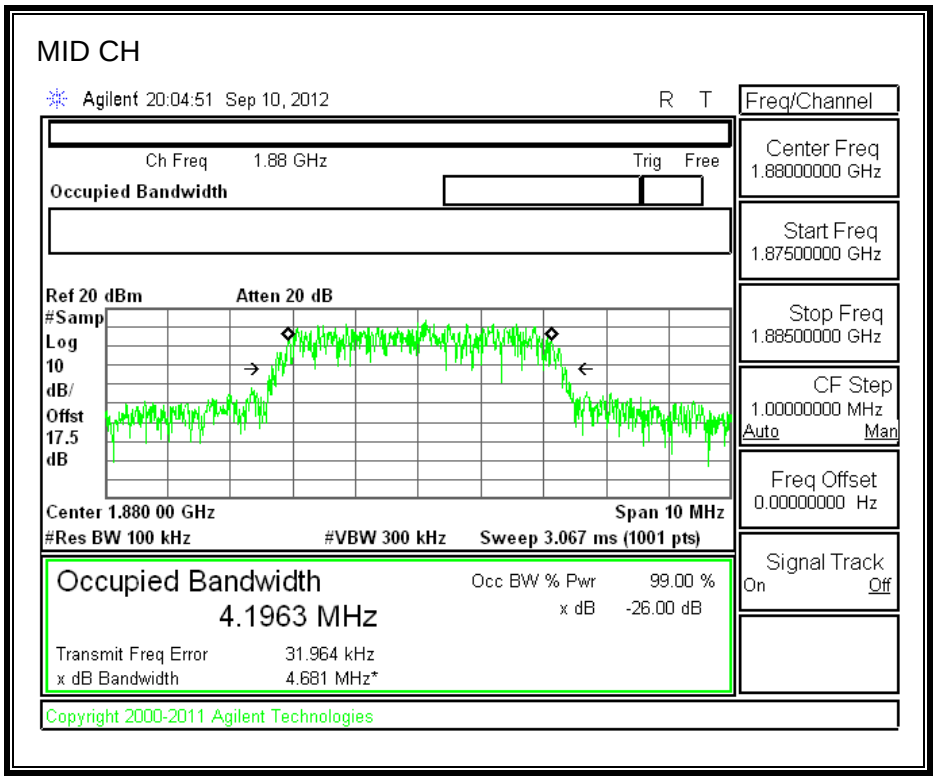


**UMTS HSUPA1900 (PCS Band)**

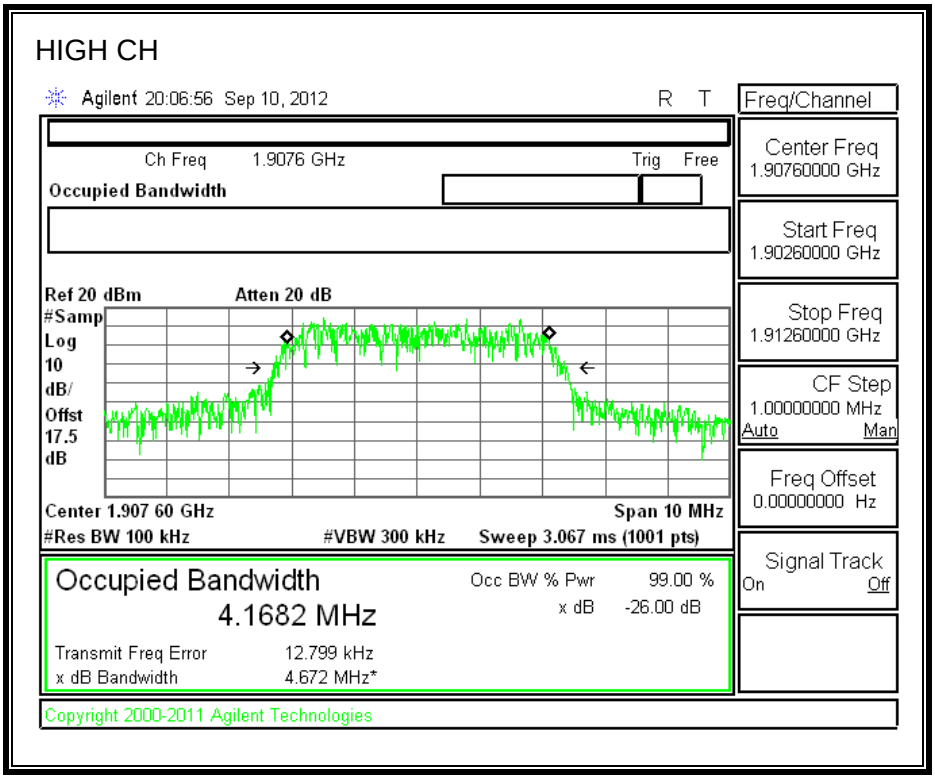
LOW CH




MID CH



HIGH CH



## 8.2. BAND EDGE

**RULE PART(S)**

FCC: §22.359, 24.238

**LIMITS**

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.

**TEST PROCEDURE**

The transmitter output was connected to a Agilent 8960 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.
For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency (824, 848, 1850, 1910MHz)
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

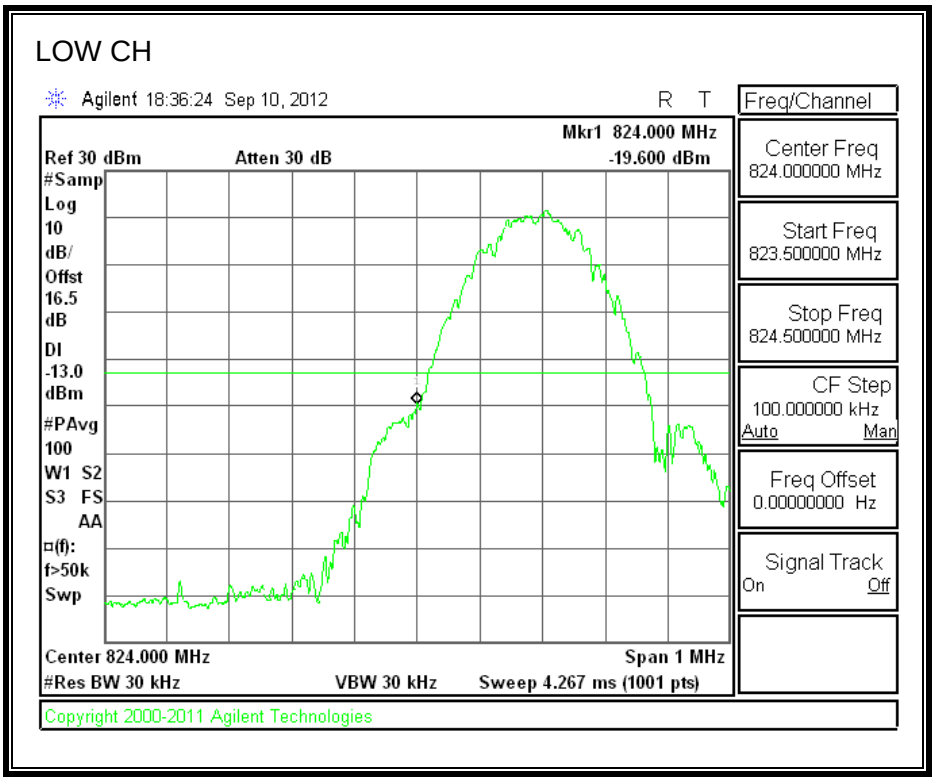
**MODES TESTED**

- GPRS
- UMTS, WCDMA and HSUPA

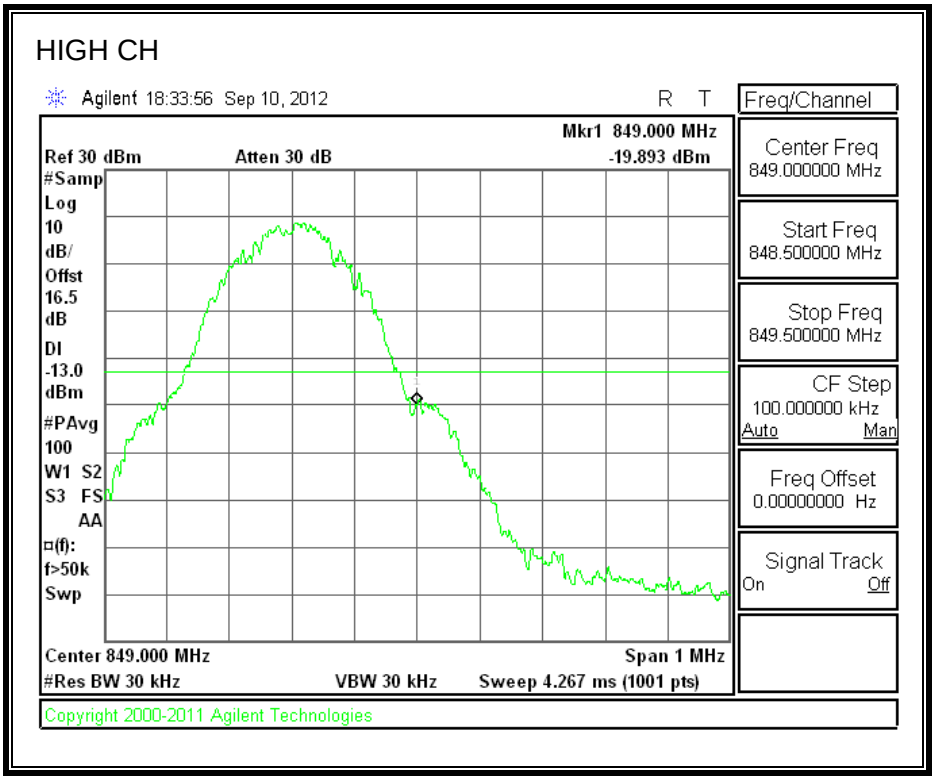
**RESULTS**

**GPRS Mode (Cellular Band)**

**Low Channel Band Edge**

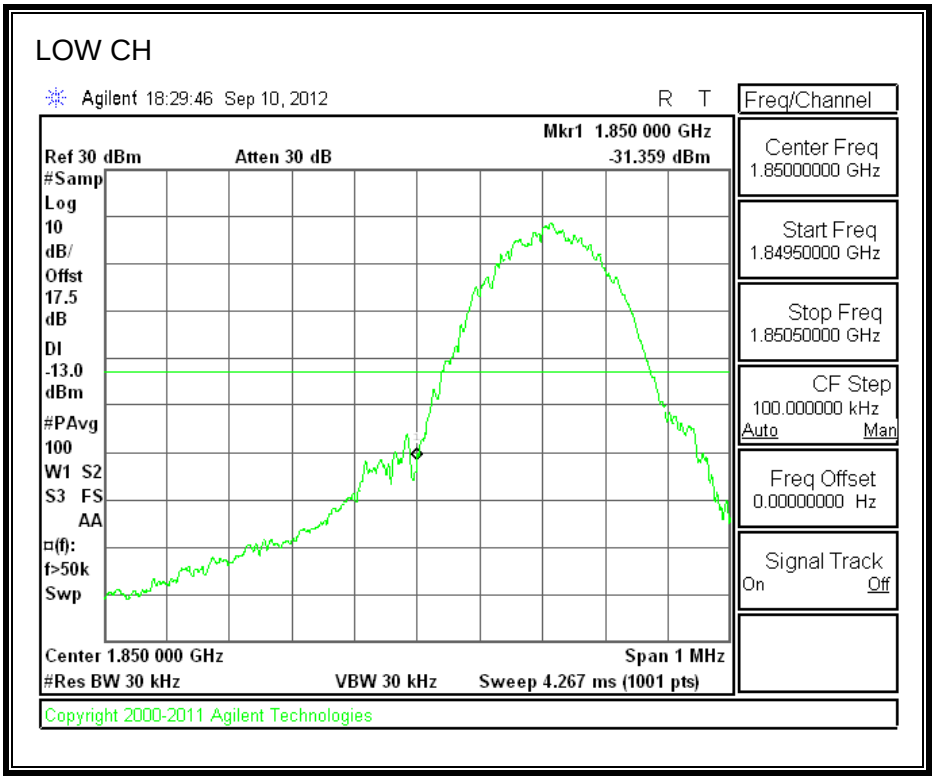


**High Channel Band Edge**

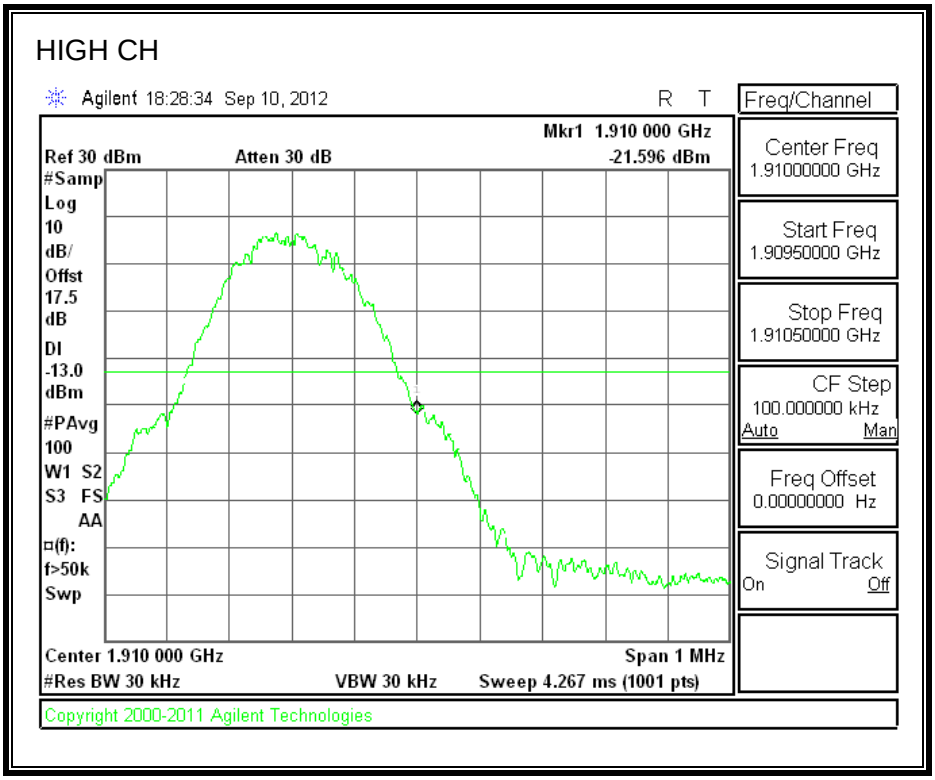


**GPRS Mode (PCS Band)**

**Low Channel Band Edge**

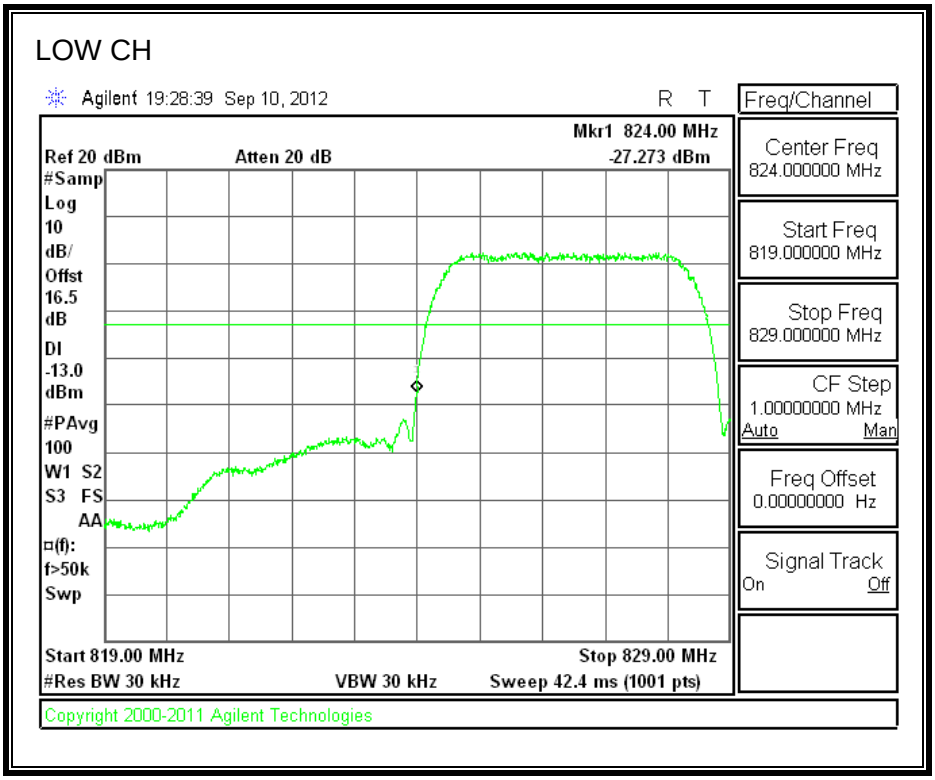


**High Channel Band Edge**

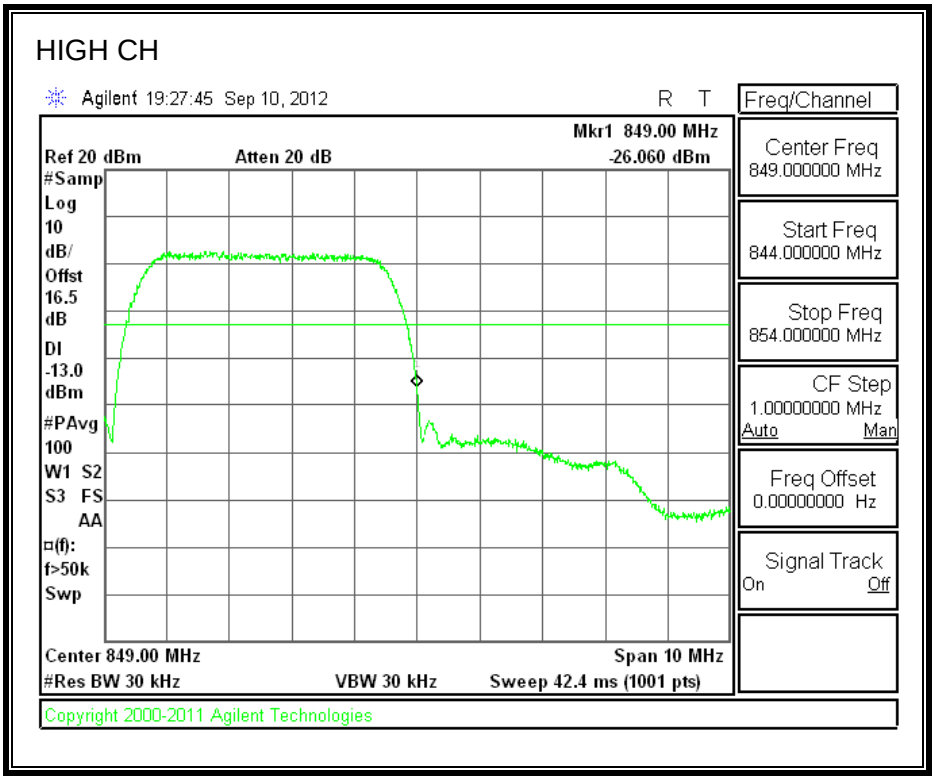


**UMTS WCDMA850 (Cellular Band)**

**Low Channel Band Edge**

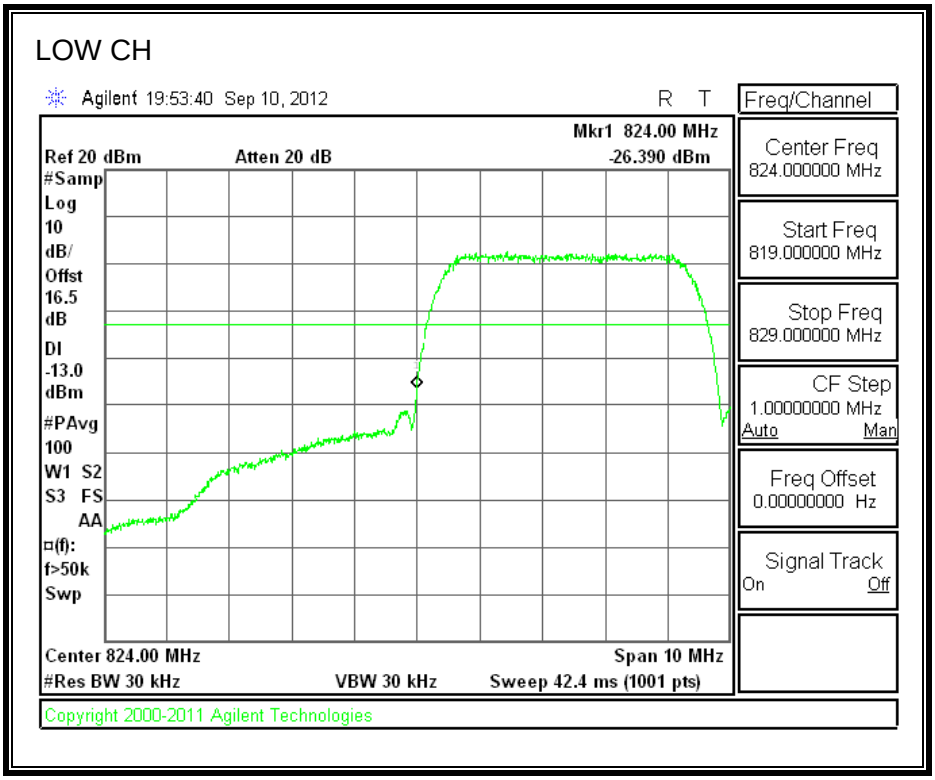


**High Channel Band Edge**

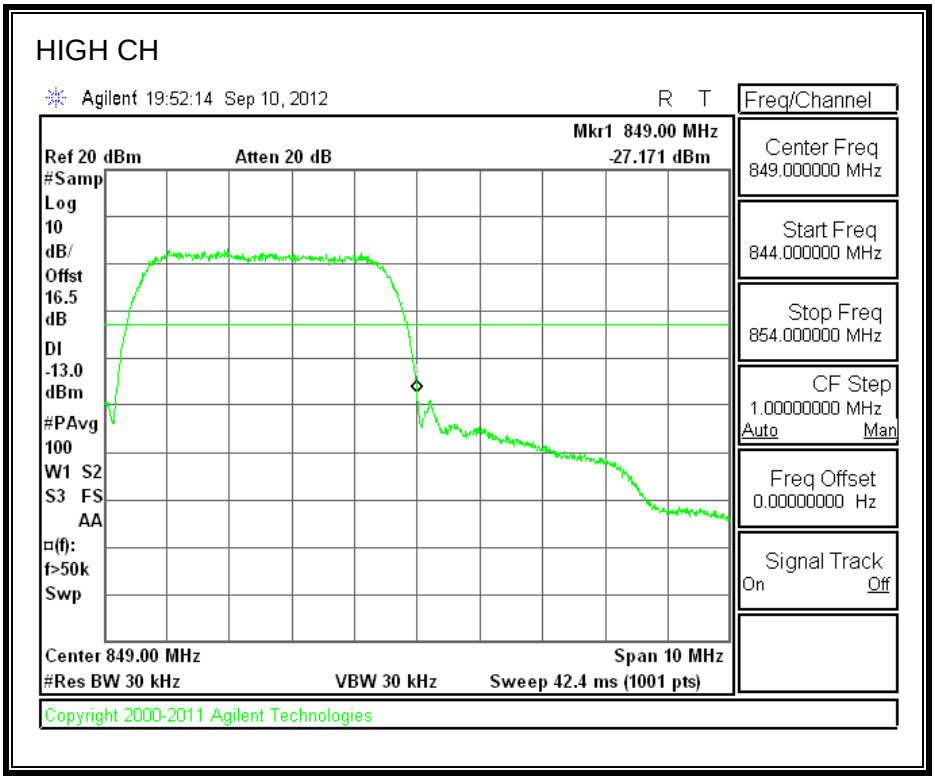


**UMTS HSUPA850 (Cellular Band)**

**Low Channel Band Edge**

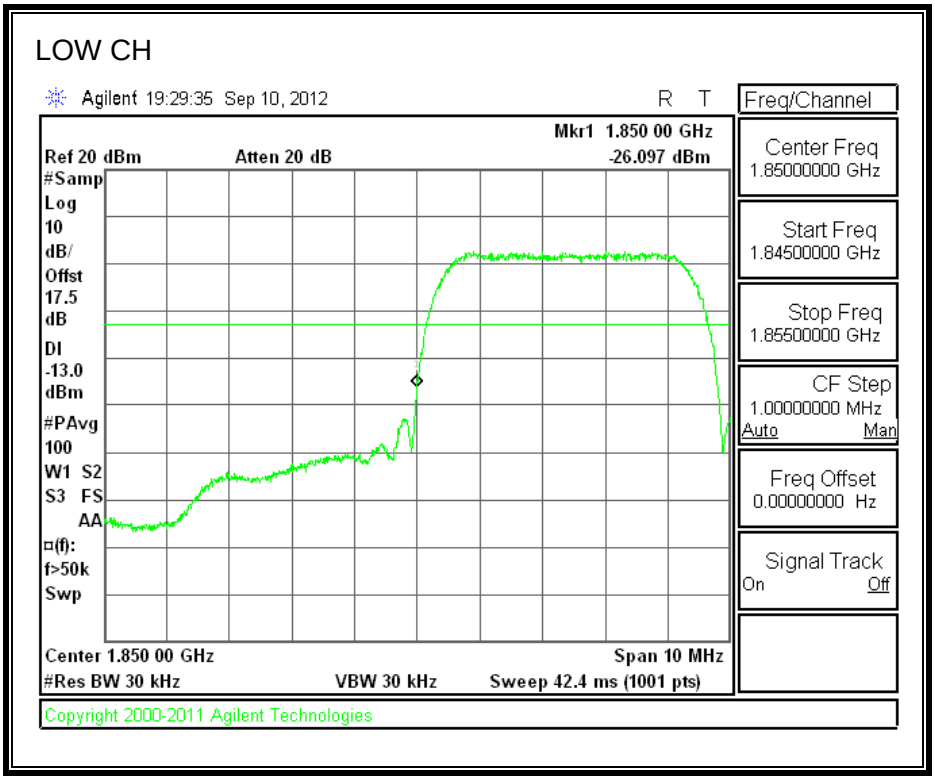


**High Channel Band Edge**

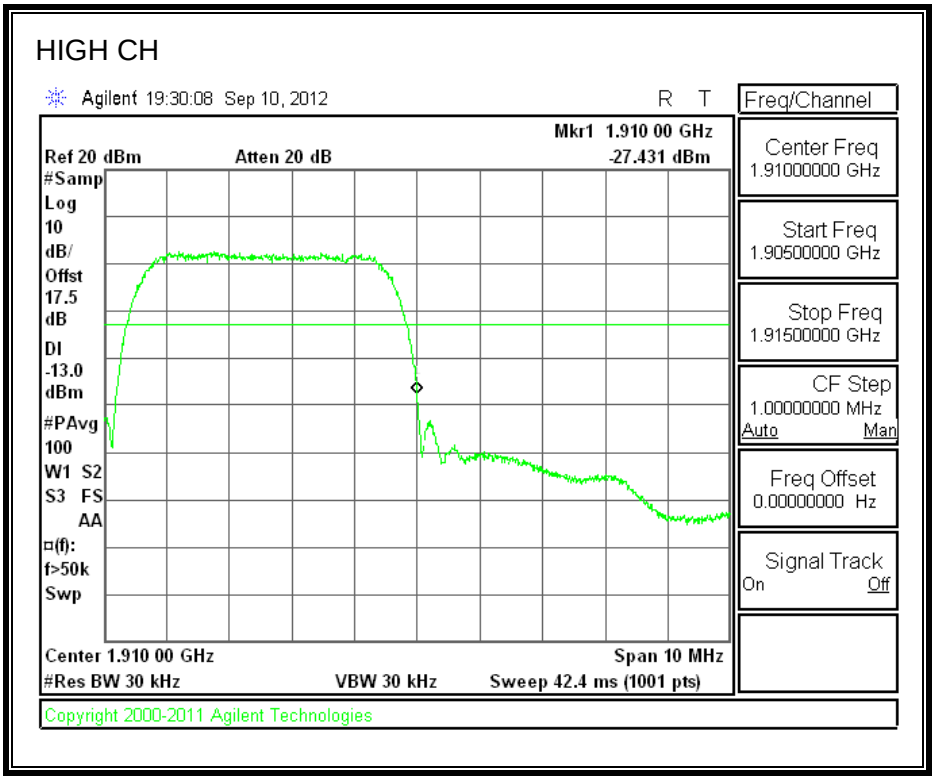


**UMTS WCDMA1900 (PCS Band)**

Low Channel Band Edge

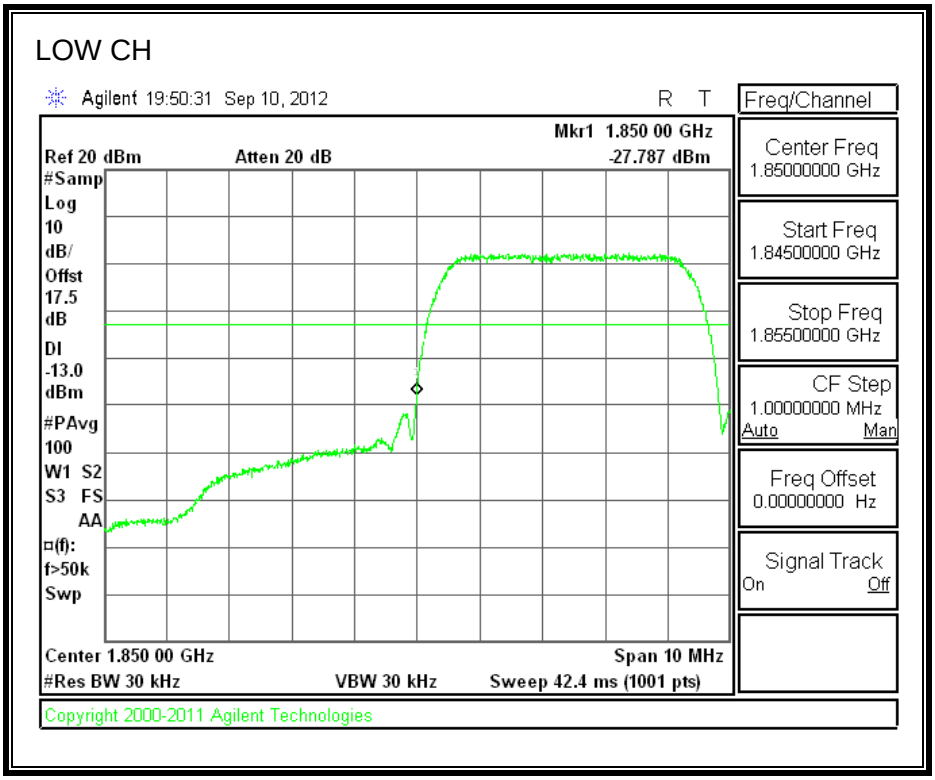


**High Channel Band Edge**

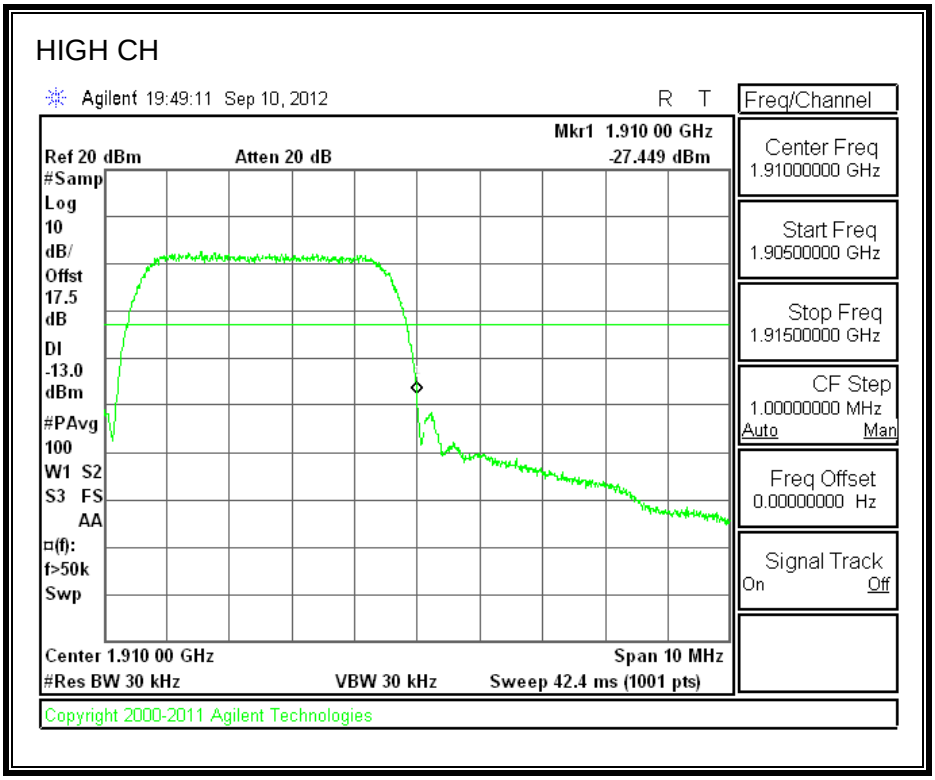


**UMTS HSUPA1900 (PCS Band)**

**Low Channel Band Edge**



**High Channel Band Edge**



## 8.3. OUT OF BAND EMISSIONS

**RULE PART(S)**

FCC: §2.1051, §22.901, §22.917, §24.238

**LIMITS**

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.

**TEST PROCEDURE**

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

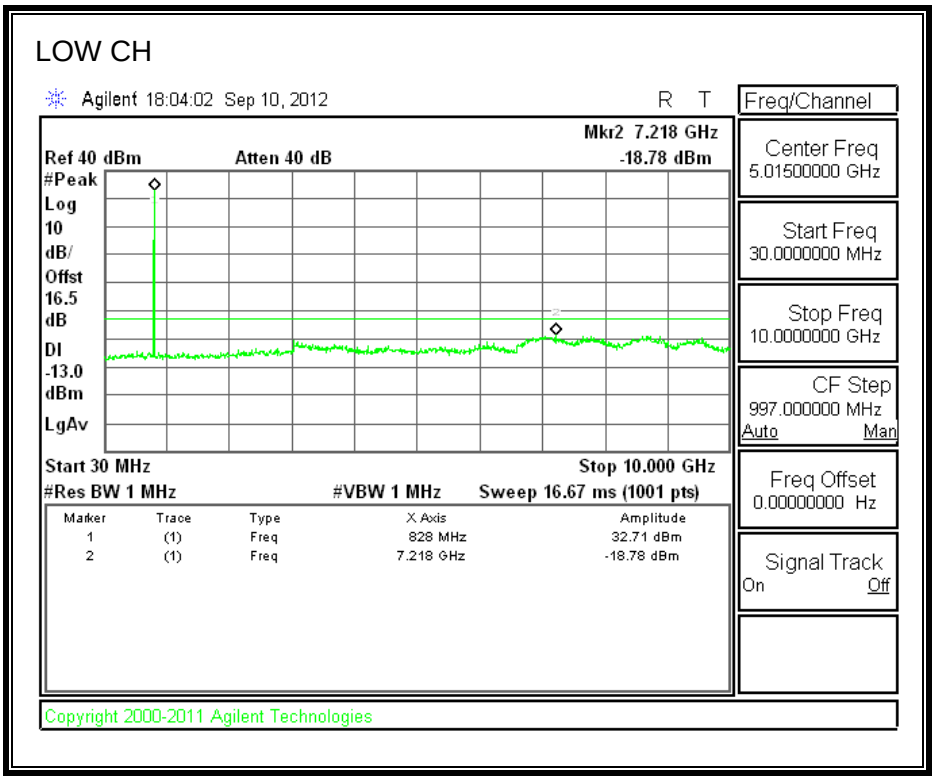
**MODES TESTED**

- GPRS
- UMTS, WCDMA and HSUPA

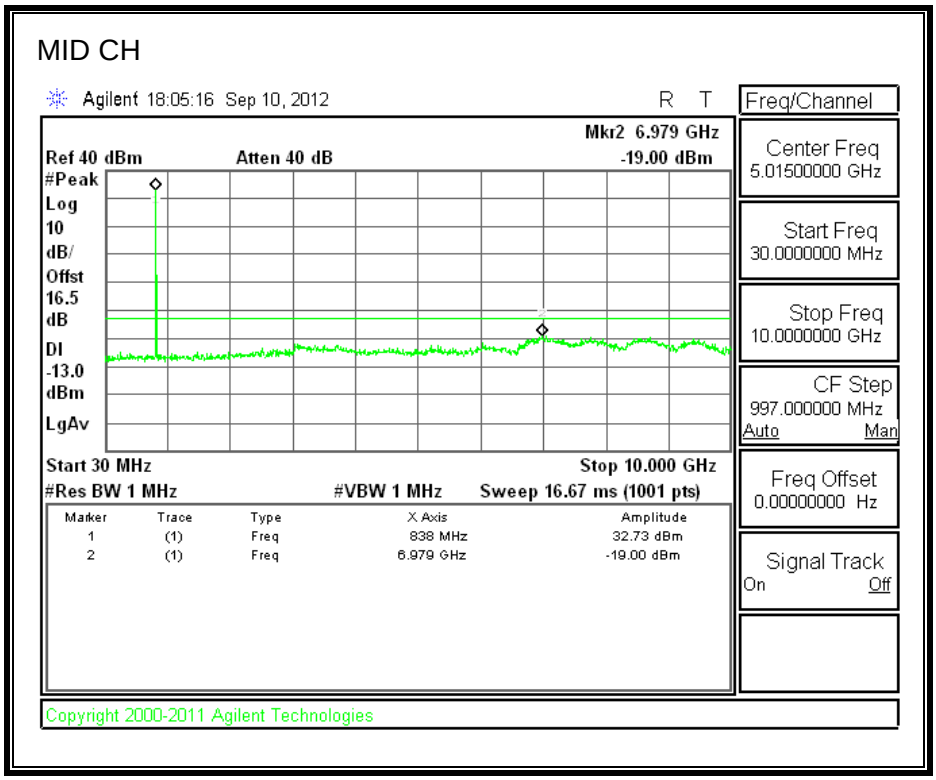
**RESULTS**

**GPRS Mode (Cellular Band)**

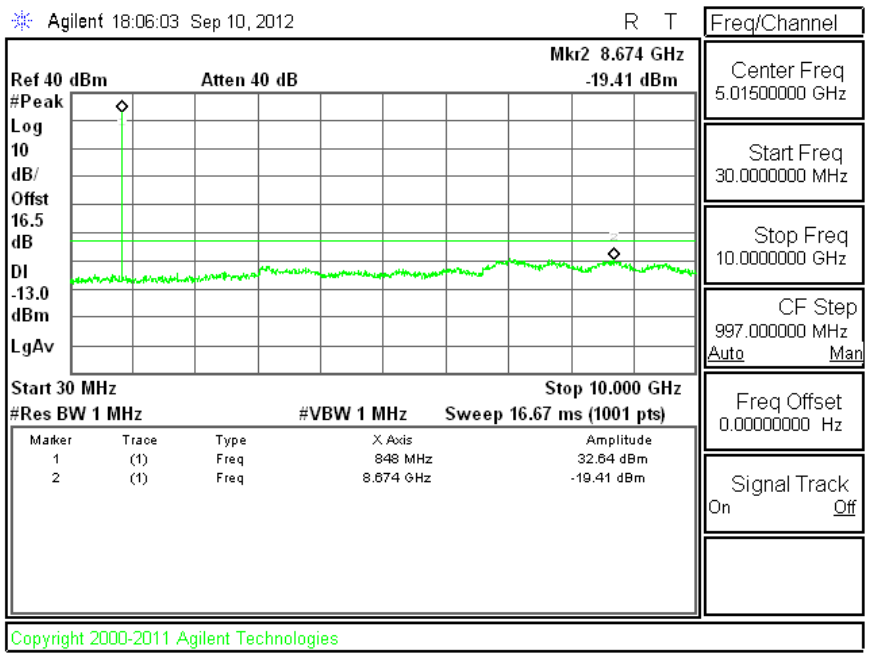
LOW CH




MID CH

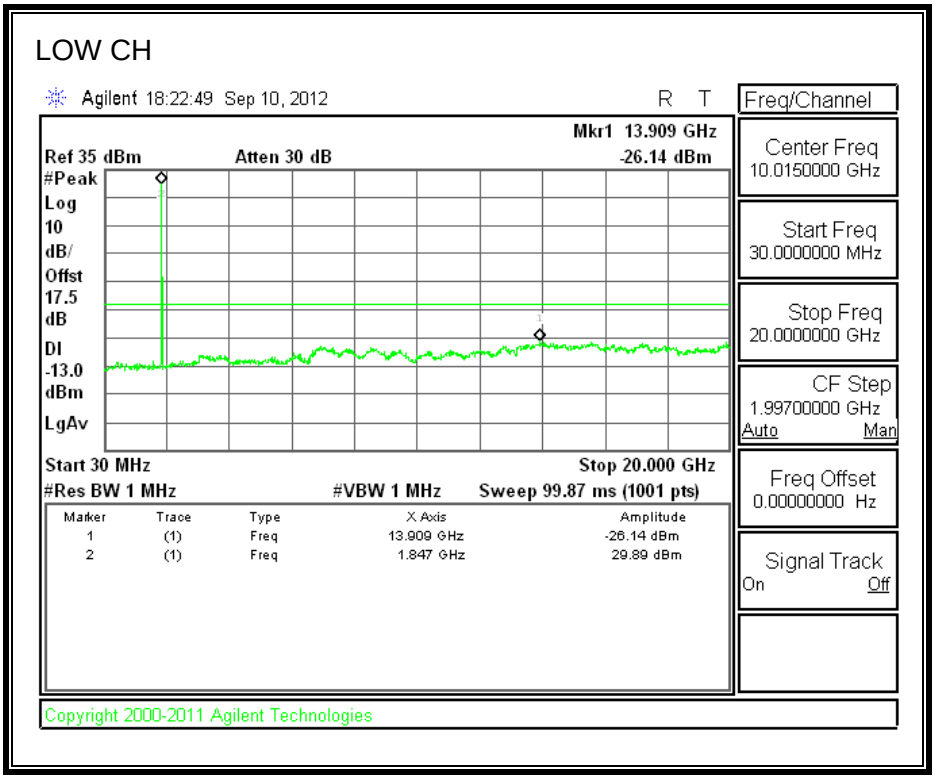


HIGH CH

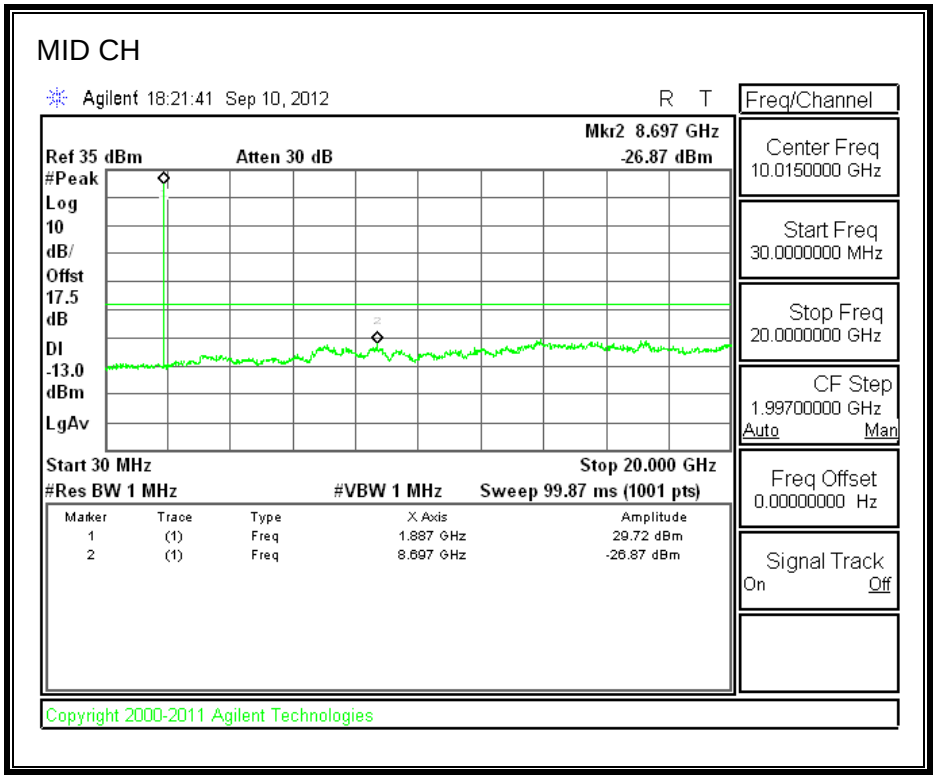


**GPRS Mode (PCS Band)**

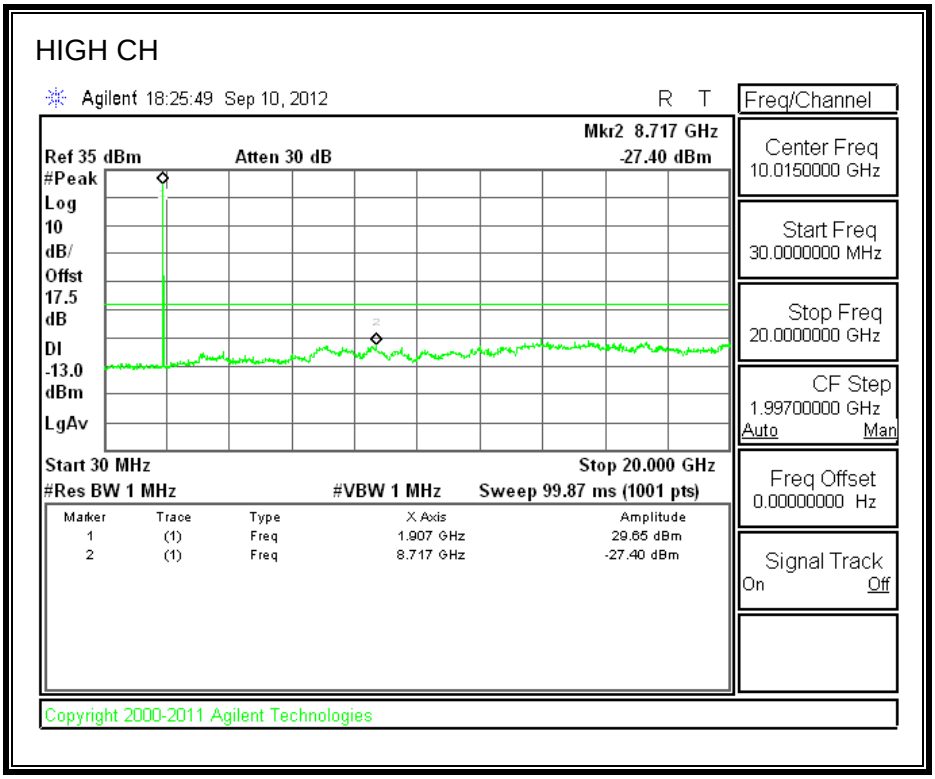
LOW CH




MID CH

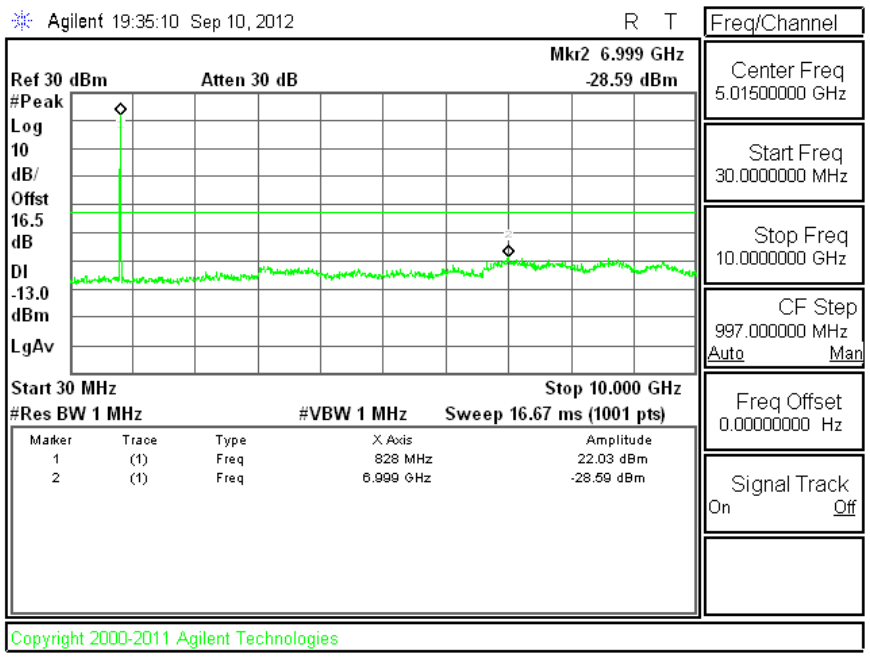


HIGH CH

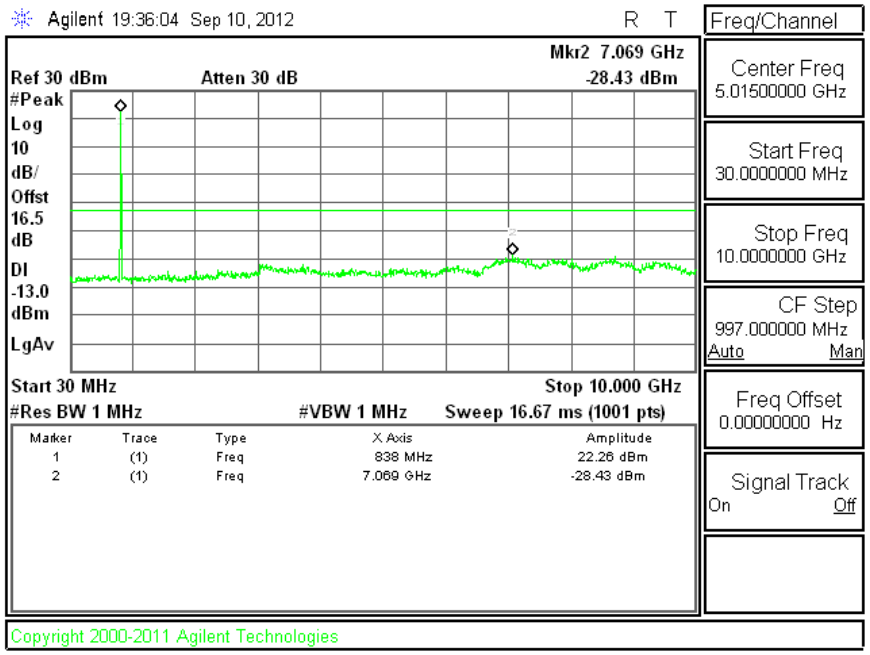


**UMTS WCDMA850 (Cellular Band)**

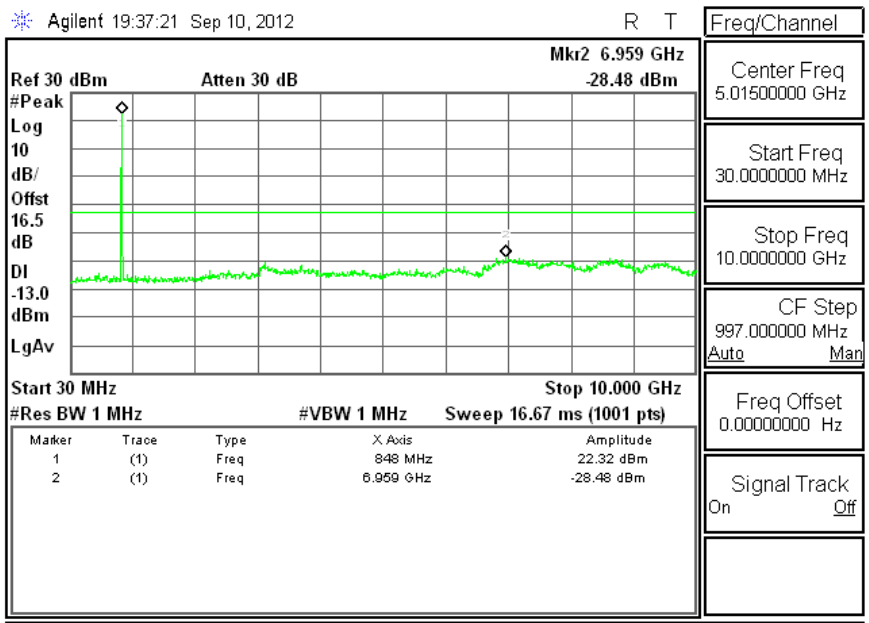
LOW CH




MID CH

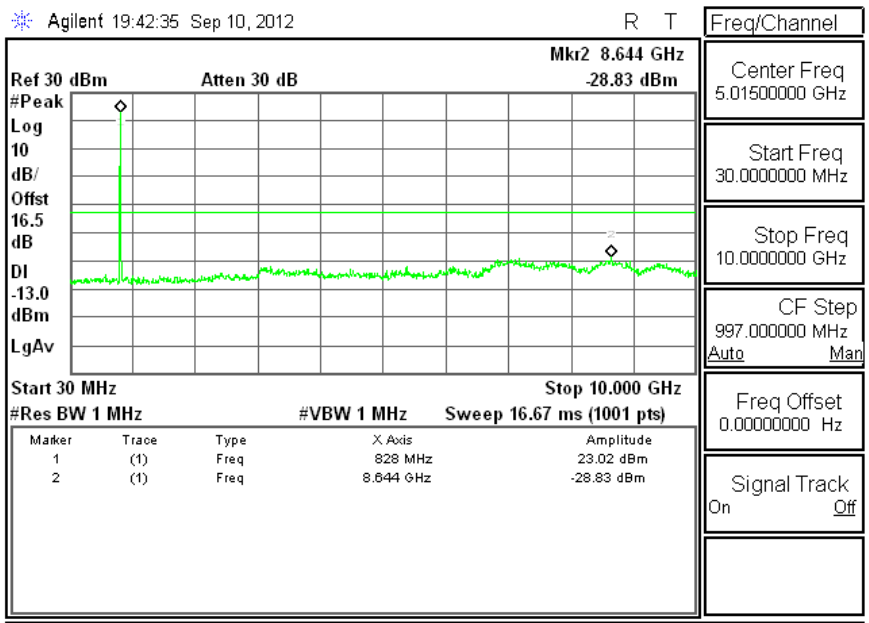


HIGH CH

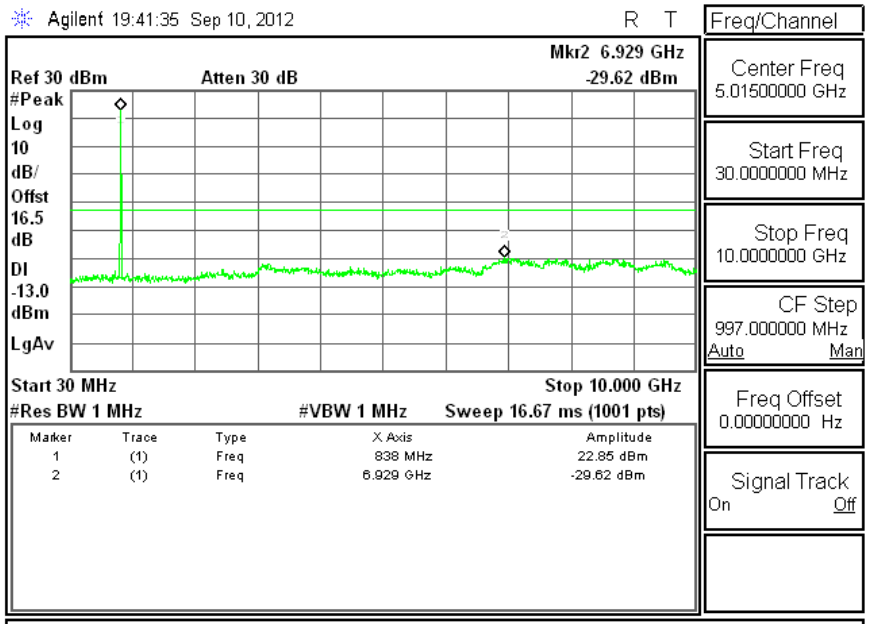


**UMTS HSUPA850 (Cellular Band)**

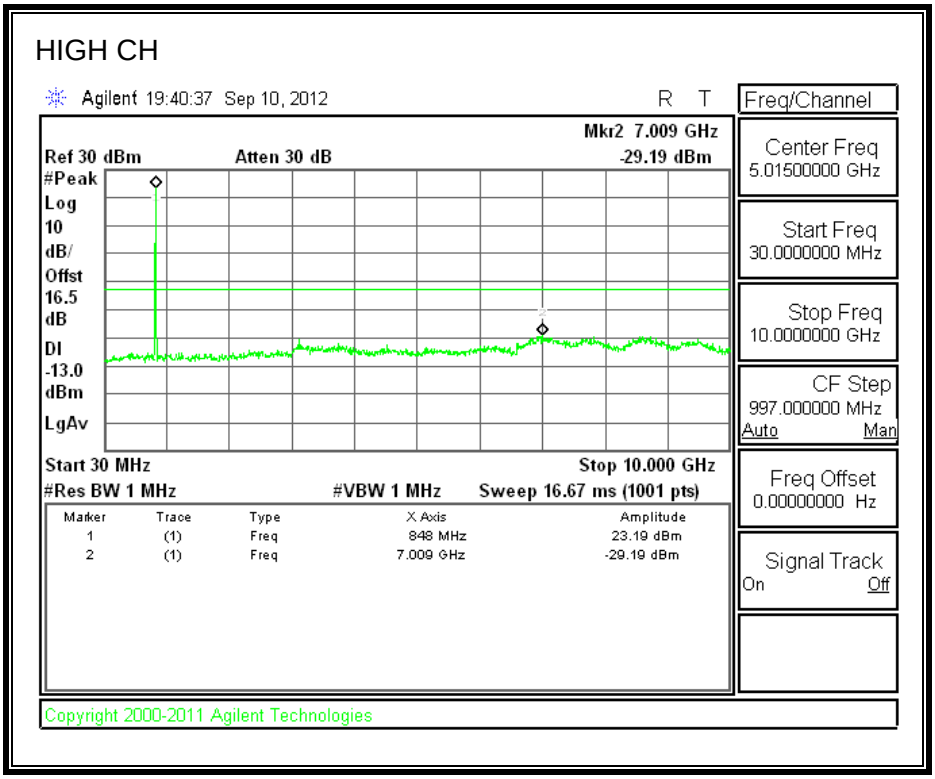
LOW CH




MID CH

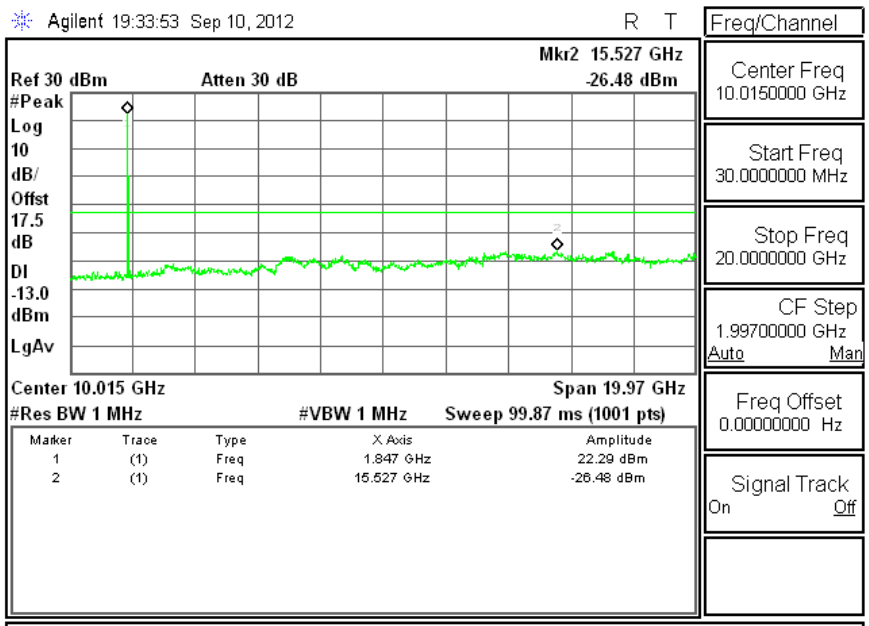


HIGH CH

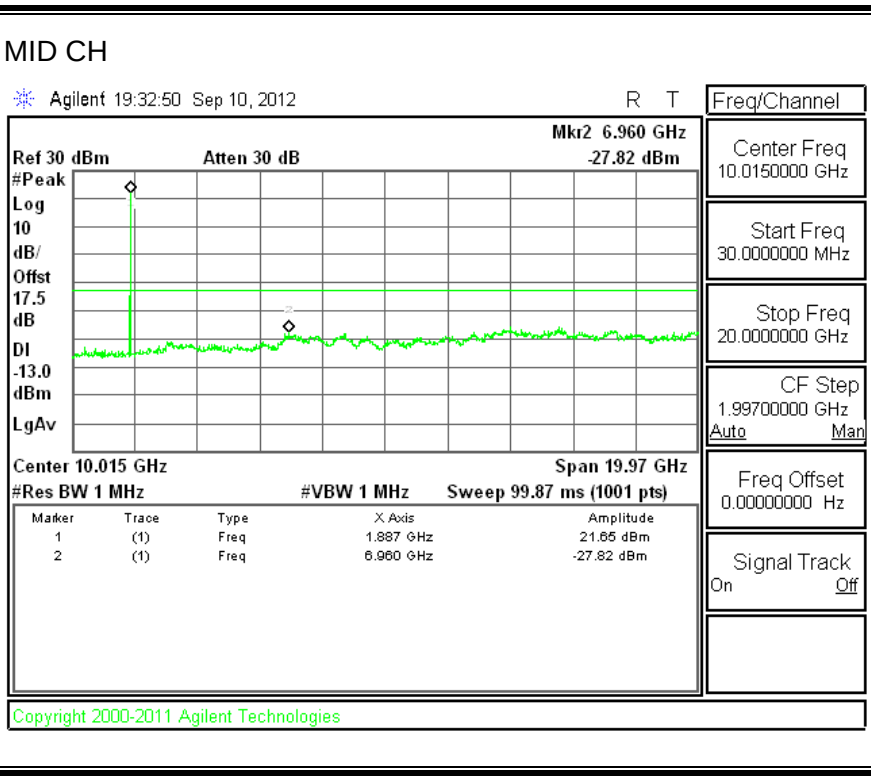


**UMTS WCDMA1900 (PCS Band)**

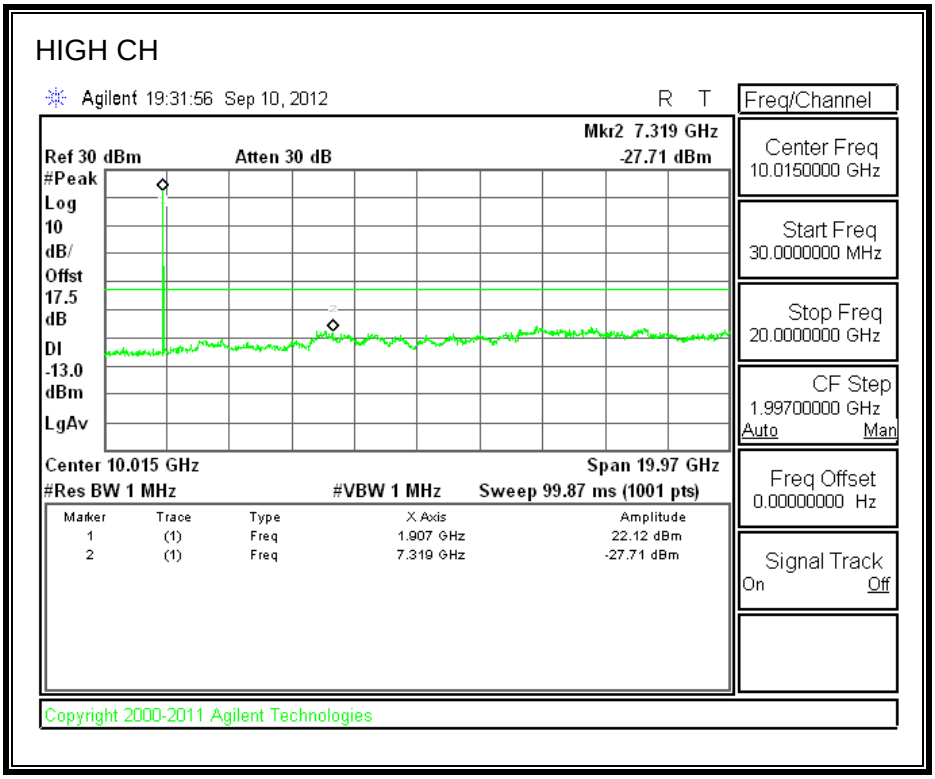
LOW CH




MID CH

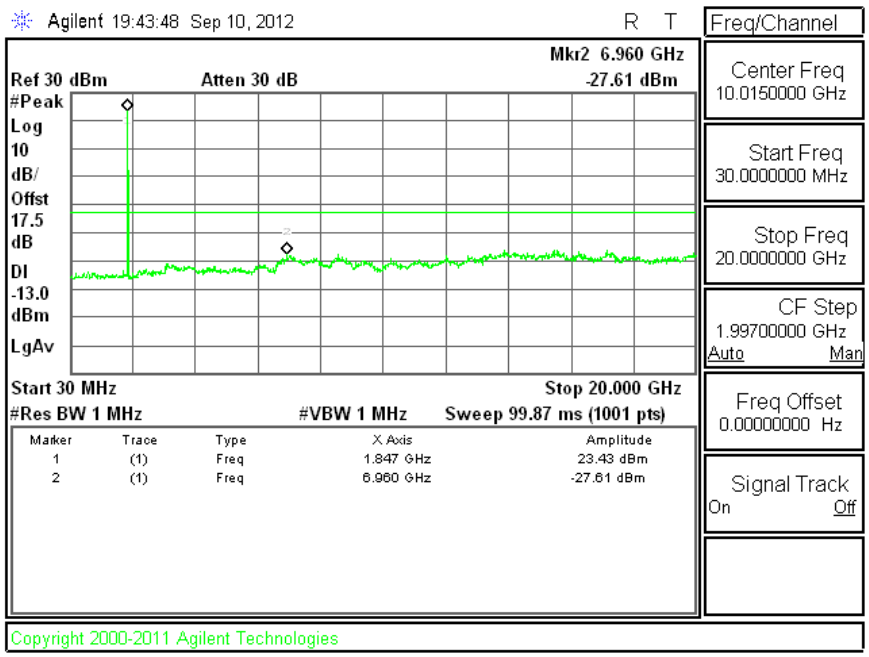


HIGH CH

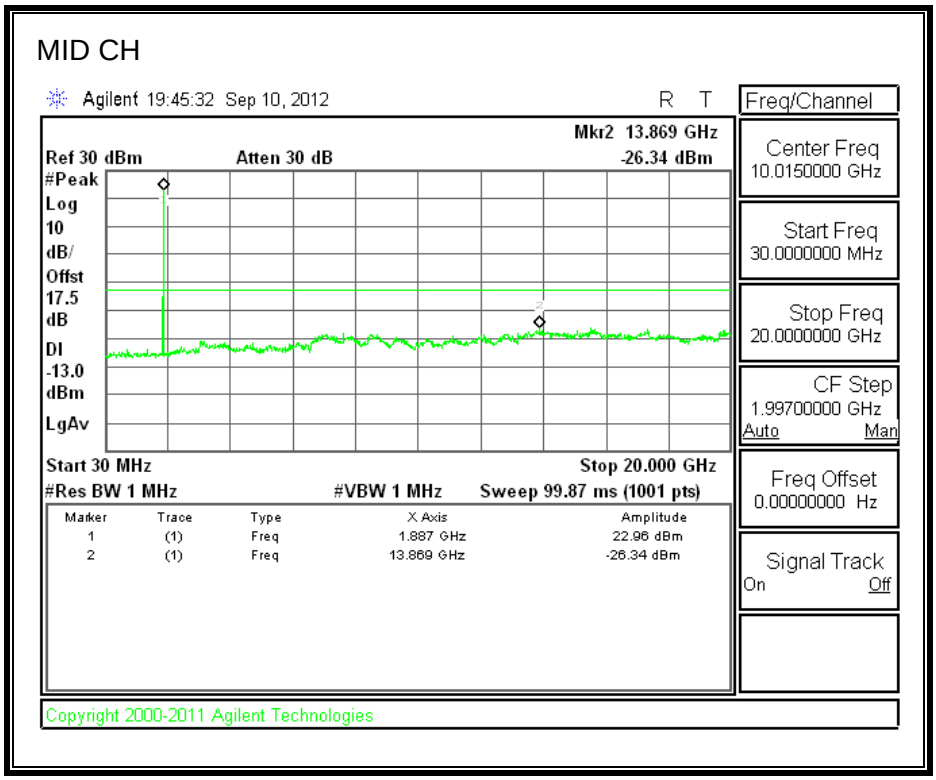


**UMTS HSUPA1900 (PCS Band)**

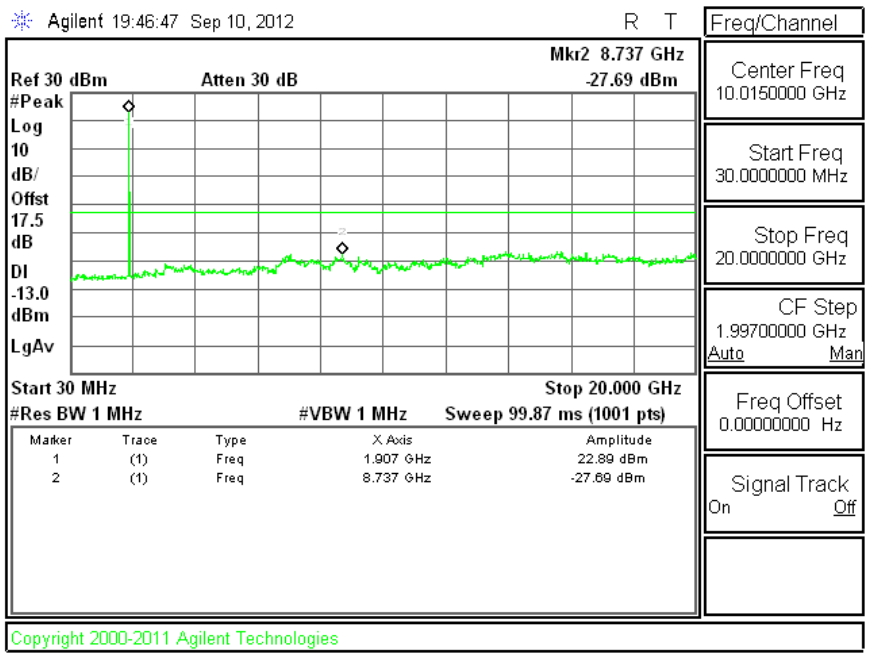
LOW CH




MID CH



HIGH CH



## 8.4. FREQUENCY STABILITY

**RULE PART(S)**

FCC: §2.1055, §22.355, §24.235

**LIMITS**

- §22.355 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

- §24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

**TEST PROCEDURE**

Use Agilent 8960 with Frequency Error measurement capability.

- Temp. = −30° to +50°C
- Voltage = 3.70 Vdc (85% - 115%)

**Frequency Stability vs Temperature:**

The EUT is place inside a temperature chamber. The temperature is set to 20ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.

**Frequency Stability vs Voltage:**

The peak frequency error is recorded (worst-case).

**MODES TESTED**

- GPRS
- UMTS, WCDMA and HSUPA

**RESULTS**

See the following pages

**CELL, GSM MODULATION – MID CHANNEL**

| Reference Frequency: Cellular Mid Channel 836.600026MHz @ 20°C<br>Limit: to stay +- 2.5 ppm = 2091.500 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (°C) | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.70 | 50 | 836.600015 | 0.013 | 2.5 |
| 3.70 | 40 | 836.600018 | 0.010 | 2.5 |
| 3.70 | 30 | 836.600022 | 0.005 | 2.5 |
| ***3.70*** | ***20*** | ***836.600026*** | ***0*** | 2.5 |
| 3.70 | 10 | 836.600027 | -0.001 | 2.5 |
| 3.70 | 0 | 836.600027 | -0.001 | 2.5 |
| 3.70 | -10 | 836.600029 | -0.004 | 2.5 |
| 3.70 | -20 | 836.600030 | -0.005 | 2.5 |
| 3.70 | -30 | 836.600012 | 0.017 | 2.5 |

| Reference Frequency: Cellular Mid Channel 836.600026MHz @ 20°C<br>Limit: to stay +- 2.5 ppm = 2091.500 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (°C) | (MHz) | Delta (ppm) | Limit (ppm) |
| ***3.70*** | ***20*** | ***836.600026*** | ***0*** | ***2.5*** |
| 3.40 | 20 | 836.600027 | *-0.001* | 2.5 |
| 4.26 | 20 | 836.600011 | *0.018* | 2.5 |

**PCS, GSM MODULATION – MID CHANNEL**

| Reference Frequency: PCS Mid Channel 1880.000021MHz @ 20°C<br>Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (*C) | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.70 | 50 | 1880.000015 | 0.003 | 2.5 |
| 3.70 | 40 | 1880.000017 | 0.002 | 2.5 |
| 3.70 | 30 | 1880.000018 | 0.002 | 2.5 |
| ***3.70*** | ***20*** | ***1880.000021*** | ***0*** | ***2.5*** |
| 3.70 | 10 | 1880.000019 | 0.001 | 2.5 |
| 3.70 | 0 | 1880.000017 | 0.002 | 2.5 |
| 3.70 | -10 | 1880.000015 | 0.003 | 2.5 |
| 3.70 | -20 | 1880.000013 | 0.004 | 2.5 |
| 3.70 | -30 | 1880.000012 | 0.005 | 2.5 |

| Reference Frequency: PCS Mid Channel 1880.000021MHz @ 20°C<br>Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (*C) | (MHz) | Delta (ppm) | Limit (ppm) |
| ***3.70*** | ***20*** | ***1880.000021*** | ***0*** | ***2.5*** |
| 3.40 | 20 | 1880.000022 | *-0.001* | 2.5 |
| 4.26 | 20 | 1880.000021 | *0.000* | 2.5 |

**CELL UMTS – MID CHANNEL**

| Reference Frequency: PCS Mid Channel 1879.999596MHz @ 20ºC<br>Limit: to stay +- 2.5 ppm = 4699.999 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (ºC) | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.70 | 50 | 1879.999574 | 0.012 | 2.5 |
| 3.70 | 40 | 1879.999579 | 0.009 | 2.5 |
| 3.70 | 30 | 1879.999584 | 0.006 | 2.5 |
| ***3.70*** | ***20*** | ***1879.999596*** | ***0*** | 2.5 |
| 3.70 | 10 | 1880.000063 | -0.248 | 2.5 |
| 3.70 | 0 | 1880.000476 | -0.468 | 2.5 |
| 3.70 | -10 | 1880.000539 | -0.502 | 2.5 |
| 3.70 | -20 | 1880.000093 | -0.264 | 2.5 |
| 3.70 | -30 | 1879.999566 | 0.016 | 2.5 |

| Reference Frequency: PCS Mid Channel 1879.999596MHz @ 20ºC<br>Limit: to stay +- 2.5 ppm = 4699.999 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (ºC) | (MHz) | Delta (ppm) | Limit (ppm) |
| ***3.70*** | ***20*** | ***1879.999596*** | ***0*** | ***2.5*** |
| 3.40 | 20 | 1879.999626 | *-0.016* | 2.5 |
| 4.26 | 20 | 1879.999609 | *-0.007* | 2.5 |

**PCS WCDMA – MID CHANNEL**

| Reference Frequency: PCS Mid Channel 1880.008559MHz @ 20ºC<br>Limit: within the authorized block or +- 2.5 ppm = 4700.002 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (*C) | (MHz) | Delta (ppm) | Limit (ppm) |
| 3.70 | 50 | 1880.0010052 | -0.079 | 2.5 |
| 3.70 | 40 | 1880.0009654 | -0.058 | 2.5 |
| 3.70 | 30 | 1880.0009247 | -0.037 | 2.5 |
| ***3.70*** | ***20*** | ***1880.0008559*** | ***0*** | ***2.5*** |
| 3.70 | 10 | 1880.0009045 | -0.026 | 2.5 |
| 3.70 | 0 | 1880.0009664 | -0.059 | 2.5 |
| 3.70 | -10 | 1880.0010044 | -0.079 | 2.5 |
| 3.70 | -20 | 1880.0009543 | -0.052 | 2.5 |
| *3.70* | -30 | 1880.0009304 | -0.040 | 2.5 |

| Reference Frequency: PCS Mid Channel 1880.008559MHz @ 20ºC<br>Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz | | | | |
|---|---|---|---|---|
| Power Supply | Environment | Frequency Deviation Measureed with Time Elapse | | |
| (Vdc) | Temperature (*C) | (MHz) | Delta (ppm) | Limit (ppm) |
| ***3.70*** | ***20*** | ***1880.0000000*** | ***0*** | ***2.5*** |
| 3.40 | 20 | 1880.0010187 | *-0.542* | 2.5 |
| 4.26 | 20 | 1880.0009236 | *-0.491* | 2.5 |

# 9. RADIATED TEST RESULTS

## 9.1. RADIATED POWER (ERP & EIRP)

**RULE PART(S)**

FCC: §2.1046, §22.913, §24.232

**LIMITS**

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

**TEST PROCEDURE**

ANSI / TIA / EIA 603C

**MODES TESTED**

- GPRS
- UMTS, WCDMA and HSUPA

**RESULTS**

**CELLULAR BAND (ERP)**

| Mode | Channel | f (MHz) | ERP | |
|---|---|---|---|---|
| | | | dBm | mW |
| GPRS | 128 | 824.20 | 27.32 | 539.51 |
| | 192 | 836.60 | 28.29 | 674.53 |
| | 251 | 848.80 | **30.62** | 1153.45 |
| UMTS WCDMA | 4357 | 826.40 | 18.16 | 65.46 |
| | 4408 | 836.60 | **23.07** | 202.77 |
| | 4458 | 846.60 | 22.22 | 166.72 |
| UMTS HSUPA | 4357 | 826.40 | 19.80 | 95.50 |
| | 4408 | 836.60 | **24.89** | 308.32 |
| | 4458 | 846.60 | 24.18 | 261.82 |

**PCS BAND (EIRP)**

| Mode | Channel | f (MHz) | EIRP | |
|---|---|---|---|---|
| | | | dBm | mW |
| GPRS | 512 | 1850.20 | 25.30 | 338.84 |
| | 661 | 1880.00 | 26.11 | 408.32 |
| | 810 | 1909.80 | **26.56** | 452.90 |
| UMTS WCDMA | 9662 | 1852.40 | 22.69 | 185.78 |
| | 9800 | 1880.00 | **23.34** | 215.77 |
| | 9938 | 1907.60 | 23.05 | 201.84 |
| UMTS HSUPA | 9662 | 1852.40 | 22.81 | 190.99 |
| | 9800 | 1880.00 | 24.00 | 251.19 |
| | 9938 | 1907.60 | **25.09** | 322.85 |

**ERP GPRS850 BAND**

**High Frequency Substitution Measurement**
**Compliance Certification Services Chamber B**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/03/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT ALONE
**Mode:** TX, 850 MHz BAND, GPRS MODE

**Test Equipment:**
**Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)**
**Substitution: Dipole S/N: 1629, 4ft SMA Cable (245182002) Warehouse.**

| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|---|---|---|---|---|---|---|---|---|
| Low Ch | | | | | | | | |
| 824.20 | 27.82 | V | 0.5 | 0.0 | 27.32 | 38.5 | -11.1 | |
| 824.20 | 15.55 | H | 0.5 | 0.0 | 15.05 | 38.5 | -23.4 | |
| | | | | | | | | |
| 836.60 | 28.79 | V | 0.5 | 0.0 | 28.29 | 38.5 | -10.2 | |
| 836.60 | 15.04 | H | 0.5 | 0.0 | 14.54 | 38.5 | -23.9 | |
| | | | | | | | | |
| 848.80 | 31.12 | V | 0.5 | 0.0 | 30.62 | 38.5 | -7.8 | |
| 848.80 | 16.09 | H | 0.5 | 0.0 | 15.59 | 38.5 | -22.9 | |
| | | | | | | | | |

Rev. 3.17.11

**ERP UMTS WCDMA, 850MHz BAND**

**High Frequency Substitution Measurement**
**Compliance Certification Services Chamber A**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/03/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT ALONE
**Mode:** TX, 850 MHz BAND, WCDMA MODE

**Test Equipment:**
**Receiving: Sunol T243, and Chamber A N-type Cable (Setup this one for testing EUT)**
**Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.**

| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|---|---|---|---|---|---|---|---|---|
| 826.40 | 18.66 | V | 0.5 | 0.0 | 18.16 | 38.5 | -20.3 | |
| 826.40 | 6.13 | H | 0.5 | 0.0 | 5.63 | 38.5 | -32.8 | |
| 836.60 | 23.57 | V | 0.5 | 0.0 | 23.07 | 38.5 | -15.4 | |
| 836.60 | 6.53 | H | 0.5 | 0.0 | 6.03 | 38.5 | -32.4 | |
| 846.60 | 22.72 | V | 0.5 | 0.0 | 22.22 | 38.5 | -16.2 | |
| 846.60 | 8.41 | H | 0.5 | 0.0 | 7.91 | 38.5 | -30.5 | |

Rev. 3.17.11

**ERP UMTS HSUPA, 850MHz BAND**

**High Frequency Substitution Measurement**
**Compliance Certification Services Chamber A**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/03/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT only
**Mode:** TX, 850 MHz BAND, HSUPA MODE

**Test Equipment:**
**Receiving: Sunol T243, and Chamber A N-type Cable (Setup this one for testing EUT)**
**Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.**

| f MHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|---|---|---|---|---|---|---|---|---|
| 826.40 | 20.30 | V | 0.5 | 0.0 | 19.80 | 38.5 | -18.6 | |
| 826.40 | 7.70 | H | 0.5 | 0.0 | 7.20 | 38.5 | -31.2 | |
| 836.60 | 25.39 | V | 0.5 | 0.0 | 24.89 | 38.5 | -13.6 | |
| 836.60 | 8.89 | H | 0.5 | 0.0 | 8.39 | 38.5 | -30.1 | |
| 846.60 | 24.68 | V | 0.5 | 0.0 | 24.18 | 38.5 | -14.3 | |
| 846.60 | 9.91 | H | 0.5 | 0.0 | 9.41 | 38.5 | -29.0 | |

Rev. 3.17.11

**EIRP GPRS1900 BAND**

**High Frequency Fundamental Measurement**
**Compliance Certification Services Chamber B**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/03/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT WITH HEADSET AND AC ADAPTER
**Mode:** TX, 1900 MHz BAND, GPRS MODE

**Test Equipment:**
**Receiving: Horn T59, and Camber B SMA Cables**
**Substitution: Horn T217 Substitution, 4ft SMA Cable (245182002) Warehouse**

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.850 | 17.5 | V | 0.85 | 8.62 | 25.30 | 33.0 | -7.7 | |
| 1.850 | 8.2 | H | 0.85 | 8.47 | 15.86 | 33.0 | -17.1 | |
| 1.880 | 18.5 | V | 0.85 | 8.46 | 26.11 | 33.0 | -6.9 | |
| 1.880 | 9.1 | H | 0.85 | 8.36 | 16.64 | 33.0 | -16.4 | |
| 1.910 | 19.1 | V | 0.85 | 8.30 | 26.56 | 33.0 | -6.4 | |
| 1.910 | 9.0 | H | 0.85 | 8.25 | 16.38 | 33.0 | -16.6 | |

Rev. 3.17.11

**EIRP UMTS WCDMA, 1900MHz BAND**

**High Frequency Fundamental Measurement**
**Compliance Certification Services Chamber A**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/03/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT WITH HEADSET AND AC ADAPTER
**Mode:** TX, 1900 MHz BAND, WCDMA MODE

**Test Equipment:**
**Receiving: Horn T73, and Camber A SMA Cables**
**Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse**

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.852 | 14.9 | V | 0.85 | 8.62 | 22.69 | 33.0 | -10.3 | |
| 1.852 | 5.3 | H | 0.85 | 8.47 | 12.95 | 33.0 | -20.1 | |
| 1.880 | 15.7 | V | 0.85 | 8.46 | 23.34 | 33.0 | -9.7 | |
| 1.880 | 6.2 | H | 0.85 | 8.36 | 13.74 | 33.0 | -19.3 | |
| 1.908 | 15.6 | V | 0.85 | 8.30 | 23.05 | 33.0 | -10.0 | |
| 1.908 | 7.1 | H | 0.85 | 8.25 | 14.46 | 33.0 | -18.5 | |

Rev. 3.17.11

**EIRP UMTS HSUPA, 1900MHz BAND**

**High Frequency Fundamental Measurement**
**Compliance Certification Services Chamber A**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/03/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT WITH HEADSET AND AC ADAPTER
**Mode:** TX, 1900 MHz BAND, HSUPA MODE

**Test Equipment:**
**Receiving: Horn T73, and Camber A SMA Cables**
**Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse**

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|
| 1.852 | 15.0 | V | 0.85 | 8.62 | 22.81 | 33.0 | -10.2 | |
| 1.852 | 5.5 | H | 0.85 | 8.47 | 13.16 | 33.0 | -19.8 | |
| 1.880 | 16.4 | V | 0.85 | 8.46 | 24.00 | 33.0 | -9.0 | |
| 1.880 | 5.8 | H | 0.85 | 8.36 | 13.28 | 33.0 | -19.7 | |
| 1.908 | 17.6 | V | 0.85 | 8.30 | 25.09 | 33.0 | -7.9 | |
| 1.908 | 7.4 | H | 0.85 | 8.25 | 14.80 | 33.0 | -18.2 | |

Rev. 3.17.11

## 9.2. FIELD STRENGTH OF SPURIOUS RADIATION

**RULE PART(S)**

FCC: §2.1053, §22.917, §24.238, and §27.53

**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.

**TEST PROCEDURE**

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth ( i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth ( i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

**MODES TESTED**

- GPRS
- UMTS, WCDMA and HSUPA

**RESULTS**

**ERP GPRS850MHz BAND**

**Compliance Certification Services**
**Above 1GHz High Frequency Substitution Measurement**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12U14598
**Date:** 08/31/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT with AC Adapter and Earphone
**Mode:** TX, 850MHz BAND GPRS MODE

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Ch, (824.2MHz) | | | | | | | | | |
| 1.648 | -2.3 | V | 3.0 | 35.5 | 1.0 | -36.8 | -13.0 | -23.8 | |
| 5.769 | -12.7 | V | 3.0 | 35.5 | 1.0 | -47.1 | -13.0 | -34.1 | |
| 8.242 | -8.2 | V | 3.0 | 35.6 | 1.0 | -42.9 | -13.0 | -29.9 | |
| 9.066 | -9.2 | V | 3.0 | 35.6 | 1.0 | -43.8 | -13.0 | -30.8 | |
| 9.890 | -5.2 | V | 3.0 | 35.5 | 1.0 | -39.7 | -13.0 | -26.7 | |
| 1.648 | -6.9 | H | 3.0 | 35.5 | 1.0 | -41.4 | -13.0 | -28.4 | |
| 5.769 | -10.1 | H | 3.0 | 35.5 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 8.242 | -8.0 | H | 3.0 | 35.6 | 1.0 | -42.7 | -13.0 | -29.7 | |
| 9.066 | -4.6 | H | 3.0 | 35.6 | 1.0 | -39.2 | -13.0 | -26.2 | |
| 9.890 | -2.7 | H | 3.0 | 35.5 | 1.0 | -37.2 | -13.0 | -24.2 | |
| | | | | | | | | | |
| Mid Ch, (836.6MHz) | | | | | | | | | |
| 1.673 | -6.0 | V | 3.0 | 35.5 | 1.0 | -40.6 | -13.0 | -27.6 | |
| 5.020 | -12.8 | V | 3.0 | 35.3 | 1.0 | -47.1 | -13.0 | -34.1 | |
| 8.366 | -10.3 | V | 3.0 | 35.6 | 1.0 | -44.9 | -13.0 | -31.9 | |
| 9.203 | -9.1 | V | 3.0 | 35.6 | 1.0 | -43.6 | -13.0 | -30.6 | |
| 10.039 | -5.4 | V | 3.0 | 35.5 | 1.0 | -39.9 | -13.0 | -26.9 | |
| 1.673 | -10.0 | H | 3.0 | 35.5 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 5.856 | -9.6 | H | 3.0 | 35.5 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 7.529 | -12.9 | H | 3.0 | 35.7 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 8.366 | -7.8 | H | 3.0 | 35.6 | 1.0 | -42.4 | -13.0 | -29.4 | |
| 9.203 | -6.8 | H | 3.0 | 35.6 | 1.0 | -41.3 | -13.0 | -28.3 | |
| 10.039 | -3.2 | H | 3.0 | 35.5 | 1.0 | -37.7 | -13.0 | -24.7 | |
| | | | | | | | | | |
| High Ch, (848.8MHz) | | | | | | | | | |
| 1.698 | -13.8 | V | 3.0 | 35.5 | 1.0 | -48.3 | -13.0 | -35.3 | |
| 5.093 | -13.5 | V | 3.0 | 35.3 | 1.0 | -47.8 | -13.0 | -34.8 | |
| 5.942 | -11.2 | V | 3.0 | 35.5 | 1.0 | -45.7 | -13.0 | -32.7 | |
| 8.488 | -13.5 | V | 3.0 | 35.6 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 9.337 | -7.1 | V | 3.0 | 35.6 | 1.0 | -41.7 | -13.0 | -28.7 | |
| 10.186 | -6.1 | V | 3.0 | 35.4 | 1.0 | -40.5 | -13.0 | -27.5 | |
| 5.942 | -12.1 | H | 3.0 | 35.5 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 7.639 | -11.8 | H | 3.0 | 35.7 | 1.0 | -46.5 | -13.0 | -33.5 | |
| 8.488 | -9.1 | H | 3.0 | 35.6 | 1.0 | -43.8 | -13.0 | -30.8 | |
| 9.337 | -4.2 | H | 3.0 | 35.6 | 1.0 | -38.8 | -13.0 | -25.8 | |
| 10.186 | -3.1 | H | 3.0 | 35.4 | 1.0 | -37.5 | -13.0 | -24.5 | |
| | | | | | | | | | |
| | | | | | | | | | |

Rev. 03.03.09
Note: No other emissions within 35 dB marrgine to the limit line detected.

**ERP UMTS WCDMA, 850MHz BAND**

**Compliance Certification Services**
**Above 1GHz High Frequency Substitution Measurement**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/06/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT WITH AC ADAPTER AND HEADSET
**Mode:** TX, 850MHz BAND WCDMA MODE

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Ch, (826.4MHz) | | | | | | | | | |
| 1.653 | -3.1 | V | 3.0 | 35.5 | 1.0 | -37.6 | -13.0 | -24.6 | |
| 2.479 | -21.2 | V | 3.0 | 35.4 | 1.0 | -55.6 | -13.0 | -42.6 | |
| 1.653 | -7.0 | H | 3.0 | 35.5 | 1.0 | -41.5 | -13.0 | -28.5 | |
| 2.479 | -23.9 | H | 3.0 | 35.4 | 1.0 | -58.3 | -13.0 | -45.3 | |
| | | | | | | | | | |
| Mid Ch, (836.6MHz) | | | | | | | | | |
| 1.673 | -4.0 | V | 3.0 | 35.5 | 1.0 | -38.6 | -13.0 | -25.6 | |
| 2.510 | -21.7 | V | 3.0 | 35.4 | 1.0 | -56.1 | -13.0 | -43.1 | |
| 1.673 | -7.9 | H | 3.0 | 35.5 | 1.0 | -42.4 | -13.0 | -29.4 | |
| 2.510 | -23.6 | H | 3.0 | 35.4 | 1.0 | -58.0 | -13.0 | -45.0 | |
| | | | | | | | | | |
| High Ch, (846.6MHz) | | | | | | | | | |
| 1.693 | -1.9 | V | 3.0 | 35.5 | 1.0 | -36.4 | -13.0 | -23.4 | |
| 2.540 | -21.1 | V | 3.0 | 35.4 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 1.693 | -6.3 | H | 3.0 | 35.5 | 1.0 | -40.8 | -13.0 | -27.8 | |
| 2.540 | -22.1 | H | 3.0 | 35.4 | 1.0 | -56.5 | -13.0 | -43.5 | |
| | | | | | | | | | |
| | | | | | | | | | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

**ERP UMTS HSUPA, 850MHz BAND**

**Compliance Certification Services**
**Above 1GHz High Frequency Substitution Measurement**

| | |
|---|---|
| **Company:** | SAMSUNG ELECTRONICS |
| **Project #:** | 12I14598 |
| **Date:** | 09/06/12 |
| **Test Engineer:** | MENGISTU MEKURIA |
| **Configuration:** | EUT WITH AC ADAPTER AND HEADSET |
| **Mode:** | TX, 850MHz BAND HSUPA MODE |

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Ch, (826.4MHz) | | | | | | | | | |
| 1.653 | -2.6 | V | 3.0 | 35.5 | 1.0 | -37.1 | -13.0 | -24.1 | |
| 2.479 | -20.6 | V | 3.0 | 35.4 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 1.653 | -4.6 | H | 3.0 | 35.5 | 1.0 | -39.1 | -13.0 | -26.1 | |
| 2.479 | -23.2 | H | 3.0 | 35.4 | 1.0 | -57.6 | -13.0 | -44.6 | |
| | | | | | | | | | |
| Mid Ch, (836.6MHz) | | | | | | | | | |
| 1.673 | -3.5 | V | 3.0 | 35.5 | 1.0 | -38.0 | -13.0 | -25.0 | |
| 2.510 | -21.1 | V | 3.0 | 35.4 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 1.673 | -5.5 | H | 3.0 | 35.5 | 1.0 | -40.0 | -13.0 | -27.0 | |
| 2.510 | -22.9 | H | 3.0 | 35.4 | 1.0 | -57.3 | -13.0 | -44.3 | |
| | | | | | | | | | |
| High Ch, (846.6MHz) | | | | | | | | | |
| 1.693 | -1.3 | V | 3.0 | 35.5 | 1.0 | -35.9 | -13.0 | -22.9 | |
| 2.540 | -20.5 | V | 3.0 | 35.4 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 1.693 | -3.9 | H | 3.0 | 35.5 | 1.0 | -38.4 | -13.0 | -25.4 | |
| 2.540 | -21.4 | H | 3.0 | 35.4 | 1.0 | -55.8 | -13.0 | -42.8 | |
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Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

**EIRP GPRS1900MHz BAND**

**Compliance Certification Services**
**Above 1GHz High Frequency Substitution Measurement**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12U14598
**Date:** 08/31/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT WITH AC ADAPTER AND HEAD SET
**Mode:** TX, 1900MHz BAND GPRS MODE

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Ch, (1850.20MHz) | | | | | | | | | |
| 3.705 | -10.0 | V | 3.0 | 35.4 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 5.557 | -12.2 | V | 3.0 | 35.4 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 7.410 | -13.0 | V | 3.0 | 35.7 | 1.0 | -47.7 | -13.0 | -34.7 | |
| 9.262 | 2.8 | V | 3.0 | 35.6 | 1.0 | -31.7 | -13.0 | -18.7 | |
| 11.114 | -7.6 | V | 3.0 | 34.8 | 1.0 | -41.3 | -13.0 | -28.3 | |
| 12.967 | -8.9 | V | 3.0 | 34.0 | 1.0 | -41.9 | -13.0 | -28.9 | |
| 3.705 | -7.3 | H | 3.0 | 35.4 | 1.0 | -41.7 | -13.0 | -28.7 | |
| 5.557 | -7.9 | H | 3.0 | 35.4 | 1.0 | -42.3 | -13.0 | -29.3 | |
| 7.410 | -12.9 | H | 3.0 | 35.7 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 9.262 | 8.3 | H | 3.0 | 35.6 | 1.0 | -26.3 | -13.0 | -13.3 | |
| 11.114 | -7.2 | H | 3.0 | 34.8 | 1.0 | -41.0 | -13.0 | -28.0 | |
| 12.967 | -5.4 | H | 3.0 | 34.0 | 1.0 | -38.4 | -13.0 | -25.4 | |
| | | | | | | | | | |
| Mid Ch, (1880.00MHz) | | | | | | | | | |
| 3.760 | -9.7 | V | 3.0 | 35.3 | 1.0 | -44.0 | -13.0 | -31.0 | |
| 5.640 | -12.3 | V | 3.0 | 35.4 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 7.520 | -11.6 | V | 3.0 | 35.7 | 1.0 | -46.3 | -13.0 | -33.3 | |
| 9.400 | 51.2 | V | 3.0 | 35.6 | 1.0 | 16.7 | -13.0 | 29.7 | |
| 11.280 | -2.1 | V | 3.0 | 34.7 | 1.0 | -35.8 | -13.0 | -22.8 | |
| 13.160 | -5.3 | V | 3.0 | 34.0 | 1.0 | -38.3 | -13.0 | -25.3 | |
| 3.760 | -8.2 | H | 3.0 | 35.3 | 1.0 | -42.5 | -13.0 | -29.5 | |
| 5.640 | -12.1 | H | 3.0 | 35.4 | 1.0 | -46.5 | -13.0 | -33.5 | |
| 7.520 | -11.7 | H | 3.0 | 35.7 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 9.400 | 5.3 | H | 3.0 | 35.6 | 1.0 | -29.2 | -13.0 | -16.2 | |
| 11.280 | -5.1 | H | 3.0 | 34.7 | 1.0 | -38.7 | -13.0 | -25.7 | |
| 13.160 | -4.1 | H | 3.0 | 34.0 | 1.0 | -37.0 | -13.0 | -24.0 | |
| | | | | | | | | | |
| High Ch, (1909.80MHz) | | | | | | | | | |
| 3.815 | -13.2 | V | 3.0 | 35.3 | 1.0 | -47.5 | -13.0 | -34.5 | |
| 5.723 | -11.5 | V | 3.0 | 35.4 | 1.0 | -46.0 | -13.0 | -33.0 | |
| 7.630 | -9.8 | V | 3.0 | 35.7 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 9.538 | 0.1 | V | 3.0 | 35.6 | 1.0 | -34.4 | -13.0 | -21.4 | |
| 11.446 | -8.0 | V | 3.0 | 34.6 | 1.0 | -41.6 | -13.0 | -28.6 | |
| 13.353 | -1.1 | V | 3.0 | 33.9 | 1.0 | -34.0 | -13.0 | -21.0 | |
| 15.261 | -3.1 | V | 3.0 | 33.4 | 1.0 | -35.5 | -13.0 | -22.5 | |
| 3.815 | -8.0 | H | 3.0 | 35.3 | 1.0 | -42.3 | -13.0 | -29.3 | |
| 5.723 | -12.8 | H | 3.0 | 35.4 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 7.630 | -7.8 | H | 3.0 | 35.7 | 1.0 | -42.5 | -13.0 | -29.5 | |
| 9.538 | 3.2 | H | 3.0 | 35.6 | 1.0 | -31.4 | -13.0 | -18.4 | |
| 11.446 | -7.4 | H | 3.0 | 34.6 | 1.0 | -41.0 | -13.0 | -28.0 | |
| 13.353 | -1.9 | H | 3.0 | 33.9 | 1.0 | -34.8 | -13.0 | -21.8 | |
| 15.261 | -5.9 | H | 3.0 | 33.4 | 1.0 | -38.3 | -13.0 | -25.3 | |
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Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

**EIRP UMTS WCDMA, 1900MHz BAND**

**Compliance Certification Services**
**Above 1GHz High Frequency Substitution Measurement**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/06/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT WITH AC ADAPTER AND HEADSET
**Mode:** TX, 1900 MHz BAND, WCDMA MODE

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Ch, (1852.40MHz) | | | | | | | | | |
| 3.705 | -16.3 | V | 3.0 | 35.4 | 1.0 | -50.6 | -13.0 | -37.6 | |
| 5.557 | -15.8 | V | 3.0 | 35.4 | 1.0 | -50.2 | -13.0 | -37.2 | |
| 7.410 | -13.7 | V | 3.0 | 35.7 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 3.705 | -13.2 | H | 3.0 | 35.4 | 1.0 | -47.5 | -13.0 | -34.5 | |
| 5.557 | -12.6 | H | 3.0 | 35.4 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 7.410 | -12.6 | H | 3.0 | 35.7 | 1.0 | -47.3 | -13.0 | -34.3 | |
| | | | | | | | | | |
| Mid Ch, (1880.00MHz) | | | | | | | | | |
| 3.760 | -10.7 | V | 3.0 | 35.3 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 5.640 | -16.0 | V | 3.0 | 35.4 | 1.0 | -50.4 | -13.0 | -37.4 | |
| 7.520 | -10.4 | V | 3.0 | 35.7 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 3.760 | -9.6 | H | 3.0 | 35.3 | 1.0 | -43.9 | -13.0 | -30.9 | |
| 5.640 | -9.7 | H | 3.0 | 35.4 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 7.520 | -10.9 | H | 3.0 | 35.7 | 1.0 | -45.6 | -13.0 | -32.6 | |
| | | | | | | | | | |
| High Ch, (1907.60MHz) | | | | | | | | | |
| 3.815 | -9.9 | V | 3.0 | 35.3 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 5.723 | -12.6 | V | 3.0 | 35.4 | 1.0 | -47.1 | -13.0 | -34.1 | |
| 7.630 | -7.2 | H | 3.0 | 35.7 | 1.0 | -41.9 | -13.0 | -28.9 | |
| 3.815 | -5.3 | V | 3.0 | 35.3 | 1.0 | -39.6 | -13.0 | -26.6 | |
| 5.723 | -6.9 | V | 3.0 | 35.4 | 1.0 | -41.4 | -13.0 | -28.4 | |
| 7.630 | -9.7 | H | 3.0 | 35.7 | 1.0 | -44.3 | -13.0 | -31.3 | |
| | | | | | | | | | |
| | | | | | | | | | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

**EIRP UMTS HSUPA, 1900MHz BAND**

**Compliance Certification Services**
**Above 1GHz High Frequency Substitution Measurement**

**Company:** SAMSUNG ELECTRONICS
**Project #:** 12I14598
**Date:** 09/06/12
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT WITH AC ADAPTER AND HEADSET
**Mode:** TX, 1900 MHz BAND, HSUPA MODE

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Ch, (1852.40MHz) | | | | | | | | | |
| 3.705 | -14.1 | V | 3.0 | 35.4 | 1.0 | -48.5 | -13.0 | -35.5 | |
| 5.557 | -13.8 | V | 3.0 | 35.4 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 7.410 | -13.0 | V | 3.0 | 35.7 | 1.0 | -47.7 | -13.0 | -34.7 | |
| 3.705 | -10.1 | H | 3.0 | 35.4 | 1.0 | -44.4 | -13.0 | -31.4 | |
| 5.557 | -11.9 | H | 3.0 | 35.4 | 1.0 | -46.3 | -13.0 | -33.3 | |
| 7.410 | -11.9 | H | 3.0 | 35.7 | 1.0 | -46.6 | -13.0 | -33.6 | |
| | | | | | | | | | |
| Mid Ch, (1880.00MHz) | | | | | | | | | |
| 3.760 | -8.6 | V | 3.0 | 35.3 | 1.0 | -42.9 | -13.0 | -29.9 | |
| 5.640 | -14.0 | V | 3.0 | 35.4 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 7.520 | -9.7 | V | 3.0 | 35.7 | 1.0 | -44.4 | -13.0 | -31.4 | |
| 3.760 | -6.5 | H | 3.0 | 35.3 | 1.0 | -40.8 | -13.0 | -27.8 | |
| 5.640 | -8.9 | H | 3.0 | 35.4 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 7.520 | -10.3 | H | 3.0 | 35.7 | 1.0 | -45.0 | -13.0 | -32.0 | |
| | | | | | | | | | |
| High Ch, (1907.60MHz) | | | | | | | | | |
| 3.815 | -7.8 | V | 3.0 | 35.3 | 1.0 | -42.1 | -13.0 | -29.1 | |
| 5.723 | -10.7 | V | 3.0 | 35.4 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 7.630 | -6.5 | H | 3.0 | 35.7 | 1.0 | -41.2 | -13.0 | -28.2 | |
| 3.815 | -2.2 | V | 3.0 | 35.3 | 1.0 | -36.5 | -13.0 | -23.5 | |
| 5.723 | -6.2 | V | 3.0 | 35.4 | 1.0 | -40.7 | -13.0 | -27.7 | |
| 7.630 | -9.0 | H | 3.0 | 35.7 | 1.0 | -43.7 | -13.0 | -30.7 | |
| | | | | | | | | | |
| | | | | | | | | | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.