# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E and Part27

*OF*

| | |
|---|---|
| **Product Name:** | **Dream** |
| **Brand Name:** | **HTC** |
| **Model Name:** | **DREA100** |
| **FCC ID:** | **NM8DRM** |
| **Report No.:** | **EH/2008/50016** |
| **Issue Date:** | **Jun. 11, 2008** |
| **FCC Rule Part:** | **2 , 22H & 24E &27** |
| **Prepared for:** | **HTC Corporation**<br>**No.23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan, R.O.C** |
| **Prepared by:** | **SGS Taiwan Ltd.**<br>**Electronics & Communication Laboratory**<br>**No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.** |

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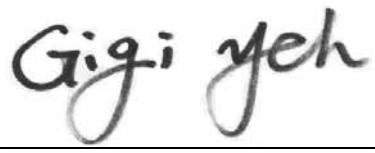
# VERIFICATION OF COMPLIANCE

| | |
|---|---|
| **Applicant:** | HTC Corporation<br>No.23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan, R.O.C |
| **Product Name:** | Dream |
| **Brand Name:** | HTC |
| **FCC ID:** | NM8DRM |
| **Model No.:** | DREA100 |
| **Model Difference:** | N/A |
| **File Number:** | EH/2008/50016 |
| **Date of test:** | May. 23, 2008 ~ Jun. 10, 2008 |
| **Date of EUT Received:** | May. 22, 2008 |

## We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-B-2002 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 subpart H, PART 24 subpart E and Part27.
The test results of this report relate only to the tested sample identified in this report.

| | | | |
|---|---|---|---|
| ***Test By:*** |  | ***Date*** | Jun. 11, 2008 |
| | ***Bondi Liu / Engineer*** | | |
| ***Prepared By:*** |  | ***Date*** | Jun. 11, 2008 |
| | ***Gigi Yeh / Clerk*** | | |
| ***Approved By*** |  | ***Date*** | Jun. 11, 2008 |
| | ***Vincent Su/Manager*** | | |

# Version

| Version No. | Date |
|---|---|
| 00 | Jun. 11, 2008 |
| | |

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# 1. GENERAL PRODUCT INFORMATION

General:

| | | |
|---|---|---|
| Product Name: | Dream | |
| Brand Name: | HTC | |
| Model Name: | DREA100 | |
| Model Difference: | N/A | |
| Simple Hands-Free (SHF): | 1 provide, Mode No.: CHM-311STV08002, Supplier: COTRON | |
| Data Cable (USB): | 2 provide, Model: MEC/60-4426-300C;70H00272_00M | |
| Power Supply | 3.7 Vdc re-chargeable battery or 5Vdc by AC/DC power adapter | |
| | Battery: | 1. Model: DREA160<br>2. P/N: 35H00106-01M |
| | Adapter: | Model: PSAA05A-050 |
| | Car Charger: | Model: CLA05D-050A |
| Jog ball and EUT color description | Jog ball | EUT |
| | TMU Dark Green | Black color |
| | TMU Brown | Black color |
| | TMU Nude | Original color |

GSM:

| | | | |
|---|---|---|---|
| Cellular Phone Standards Frequency Range and Power | GSM/GPRS 850 | 824 MHz– 849MHz | 33 dBm |
| | EDGE 850 | 824 MHz– 849MHz | 27 dBm |
| | GSM/GPRS 1900 | 1850MHz – 1910MHz | 30 dBm |
| | EDGE 1900 | 1850MHz – 1910MHz | 26 dBm |
| | WCDMA Band IV | 1710MHz – 1755MHz | 23 dBm |
| final amplifier voltage and current information | | DC voltage (V) | DC current (mA) |
| | GSM 850 | 3.7Vdc | 850 |
| | GSM 1900 | 3.7Vdc | 850 |
| Type of Emission | GSM: 300KGXW<br>EDGE: 300KG7W<br>WCDMA: 4M20F9W | | |
| IMEI | 35827901002462600 | | |
| Antenna Designation | GSM850: PIFA Antenna, -1.5dBi<br>GSM1900: PIFA Antenna. 0.5dBi | | |

WLAN:

| | |
|---|---|
| Frequency Range | 2412 – 2462 MHz |
| Channel number | 11 channels |
| Rated Power | 802.11 b: 18.02 dBm (Peak)<br>802.11 g: 13.16 dBm (Peak) |
| Modulation Technology | DSSS, OFDM |
| Modulation type | CCK, DQPSK, DBPSK for DSSS<br>64QAM. 16QAM, QPSK, BPSK for OFDM |
| Transition Rate: | 802.11 b: 1/2/5.5/11 Mbps;<br>802.11 g: 6/9/12/18/24/36/48/54 Mbps |
| Antenna Designation | PIFA Antenna, 0.5 dBi |
| Type of Emission | 16M5M7D |

The EUT is compliance with IEEE 802.11 b/g Standard.

Bluetooth:

| | |
|---|---|
| Frequency Range | 2402 – 2480MHz |
| Channel number | 79 channels |
| Rated Power | 1.25dBm (Peak) |
| Modulation type | Frequency Hopping Spread Spectrum (FHSS) (GFSK)<br>(π/ 4-DQPSK) (8DPSK) |
| Antenna Designation | PIFA Antenna, 0.5dBi |

The EUT is compliance with Bluetooth 2.0 with EDR.
This test report applies for GSM/GPRS/EDGE 850/1900 and WCDMA Bands IV.

## 1.1 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **NM8DRM** filing to comply with Section Part 22 subpart H, Part 24 subpart E and Part27 of the FCC CFR 47 Rules.

## 1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4 (2003) and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting.

## 1.3 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

## 1.4 Special Accessories

Not available for this EUT intended for grant.

## 1.5 Equipment Modifications

Not available for this EUT intended for grant. The components list refers to BOM number "51H40446-00M".

# 2 SYSTEM TEST CONFIGURATION

## 2.1 EUT Configuration

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

## 2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

## 2.3 Test Procedure

### 2.3.1 Conducted Emissions

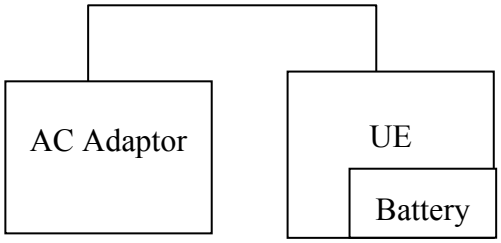
The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna. according to the requirements in Section 8 and 13 and Subclause 8.3.1.2 of ANSI C63.4-2003.

## 2.4 Configuration of Tested System

**Fig. 2-1 Configuration of Tested System (Fixed Channel)**




**Remote Side**

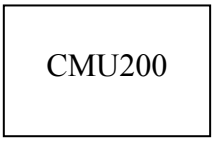



**Table 2-1 Equipment Used in Tested System**

| Item | Equipment | Mfr/Brand | Model/ Type No. | Series No. | Data Cable | Power Cord |
|---|---|---|---|---|---|---|
| 1. | Universal Radio Communication Tester | R&S | CMU200 | 102189 | shielded | Un-shielded |

# 3 SUMMARY OF TEST RESULTS

| FCC Rules | Description Of Test | Result |
|---|---|---|
| §2.1046(a)<br>§22.913(a)<br>§24.232(a) | RF Power Output | Compliant |
| §2.1046(a)<br>§22.913(a)<br>§24.232(a)<br>§27.50(d)(2) | ERP/ EIRP measurement | Compliant |
| §2.1049(h) | 99% Occupied Bandwidth | Compliant |
| §2.1051<br>§22.917(a)<br>§24.238(a)<br>§27.53(h) | Out of Band Emissions at Antenna Terminals and Band Edge | Compliant |
| §2.1053<br>§22.917(a)<br>§24.238(a)<br>§27.53(h) | Field Strength of Spurious Radiation | Compliant |
| §2.1055(a)(1)(b)<br>§27.54 | Frequency Stability vs. Temperature | Compliant |
| §2.1055(d)(1)(2)<br>§27.54 | Frequency Stability vs. Voltage | Compliant |
| §15.107;§15.207 | AC Power Line Conducted Emission | Compliant |

Max ERP/EIRP measurement result:

| | dBm | dB | W |
|---|---|---|---|
| GSM 850 Band | 31.21 | EIRP | 1.321 |
| GSM 1900 Band | 27.59 | EIRP | 0.574 |
| EDGE 850 Band | 22.79 | ERP | 0.190 |
| EDGE 1900 Band | 20.25 | EIRP | 0.106 |
| WCDMA Band IV | 21.49 | EIRP | 0.141 |

# 4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (E1 mode) and lie down position (E1, E2 mode) for GSM/GPRS/EDGE and WCDMA Band 4 with power adaptors. The worst-case of H position for GSM 850 band, H position for GSM 1900, E2 position WCDMA Band 4 were reported.

# 5 RF POWER OUTPUT MEASUREMENT

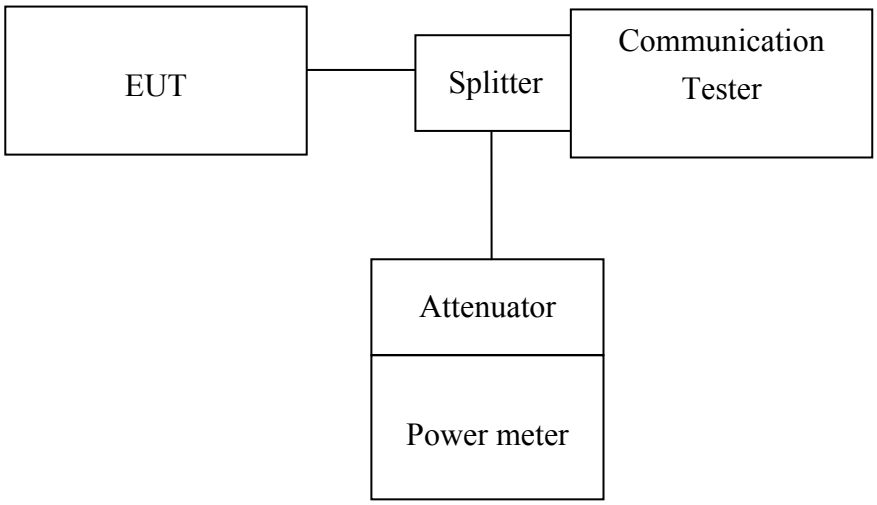
## 5.1 Standard Applicable

According to FCC §2.1046.

FCC 22.913(a) Mobile station are limited to 7W.

FCC 24.232(b) Mobile station are limited to 2W.

## 5.2 Test Set-up:




***Note:*** *Measurement setup for testing on Antenna connector*

## 5.3 Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting.

## 5.4 Measurement Equipment Used:

| Conducted Emission Test Site | | | | | |
|---|---|---|---|---|---|
| **EQUIPMENT TYPE** | **MFR** | **MODEL NUMBER** | **SERIAL NUMBER** | **LAST CAL.** | **CAL DUE.** |
| Spectrum Analyzer | Agilent | E4446A | MY43360126 | 04/27/2008 | 04/27/2009 |
| Spectrum Analyzer | Agilent | E7405A | US41160416 | 07/04/2007 | 07/03/2008 |
| Spectrum Analyzer | R&S | FSP 40 | 100034 | 11/09/2007 | 11/08/2008 |
| Communication Test | R&S | SMU200 | N/A | N/A | N/A |
| Power Sensor | Anritsu | MA2490A | 31431 | 07/07/2007 | 07/06/2008 |
| Power Meter | Anritsu | ML2487A | 6K00002070 | 07/07/2007 | 07/06/2008 |
| Temperature Chamber | TERCHY | MHG-120LF | 911009 | 10/14/2007 | 10/13/2008 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA | N/A | N/A | N/A |
| Attenuator | Mini-Circuit | BW-S10W5 | N/A | 09/23/2007 | 09/22/2008 |
| Attenuator | Mini-Circuit | BW-S6W5 | N/A | 09/23/2007 | 09/22/2008 |
| Splitter | Agilent | 11636B | 51728 | 09/23/2007 | 09/22/2008 |
| DC Power Supply | Agilent | 6038A | 2929A-07548 | 06/27/2007 | 06/26/2008 |

## 5.5 Measurement Result

| EUT Mode | Frequency (MHz) | CH | Power meter Reading (dBm) | Path Loss (dB) | Peak Power (dBm) |
|---|---|---|---|---|---|
| GSM 850 | 824.20 | 128 | 15.3 | 16.90 | 32.20 |
| | 836.60 | 190 | 15.1 | 16.90 | 32.00 |
| | 848.80 | 251 | 14.8 | 16.90 | 31.70 |

| EUT Mode | Frequency (MHz) | CH | Power Meter Reading (dBm) | Path Loss (dB) | Peak Power (dBm) |
|---|---|---|---|---|---|
| PCS 1900 | 1850.20 | 512 | 13.4 | 16.90 | 30.30 |
| | 1880.00 | 661 | 13.3 | 16.90 | 30.20 |
| | 1909.80 | 810 | 13.1 | 16.90 | 30.00 |

| EUT Mode | Frequency (MHz) | CH | Power meter Reading (dBm) | Path Loss (dB) | Peak Power (dBm) |
|---|---|---|---|---|---|
| EDGE 850 | 824.20 | 128 | 8.00 | 17.80 | 25.80 |
| | 836.60 | 190 | 7.70 | 17.80 | 25.50 |
| | 848.80 | 251 | 7.30 | 17.80 | 25.10 |

| EUT Mode | Frequency (MHz) | CH | Power Meter Reading (dBm) | Path Loss (dB) | Peak Power (dBm) |
|---|---|---|---|---|---|
| EDGE 1900 | 1850.20 | 512 | 5.90 | 17.80 | 23.70 |
| | 1880.00 | 661 | 5.70 | 17.80 | 23.50 |
| | 1909.80 | 810 | 6.40 | 17.80 | 24.20 |

| EUT Mode | Frequency (MHz) | CH | Power Meter Reading (dBm) | Path Loss (dB) | Peak Power (dBm) |
|---|---|---|---|---|---|
| WCDMA IV | 1712.40 | 1312 | 7.66 | 15.60 | 23.26 |
| | 1732.60 | 1413 | 8.07 | 15.60 | 23.67 |
| | 1752.60 | 1513 | 8.17 | 15.60 | 23.77 |

# 6 ERP, EIRP MEASUREMENT

## 6.1 Standard Applicable

According to FCC §2.1046

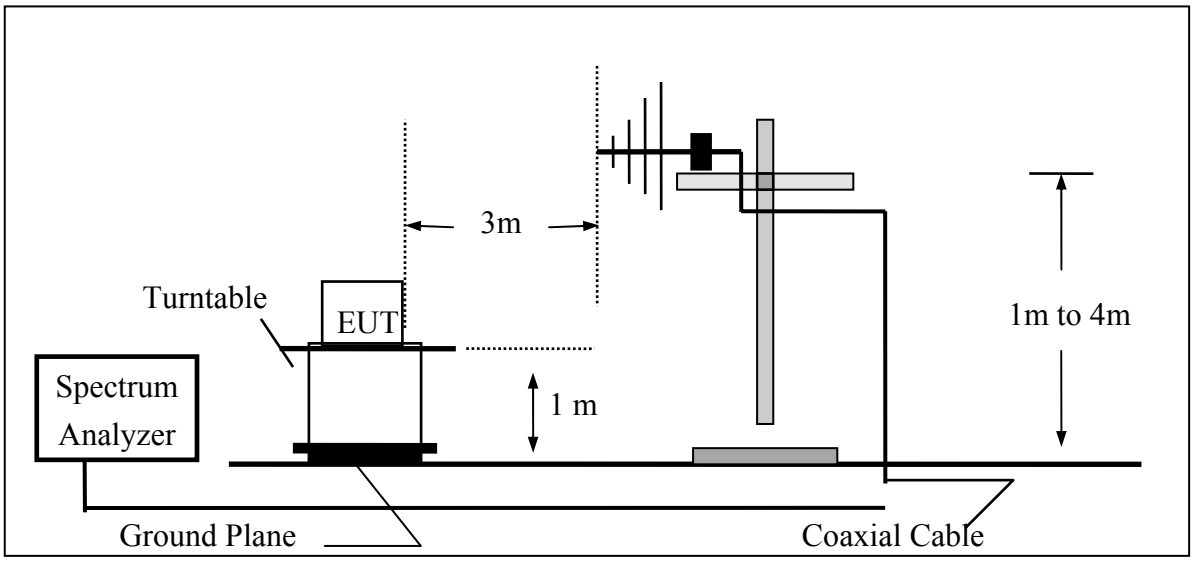
FCC 22.913(a) Mobile station are limited to 7W ERP.

FCC 24.232(b) Mobile station are limited to 2W EIRP.

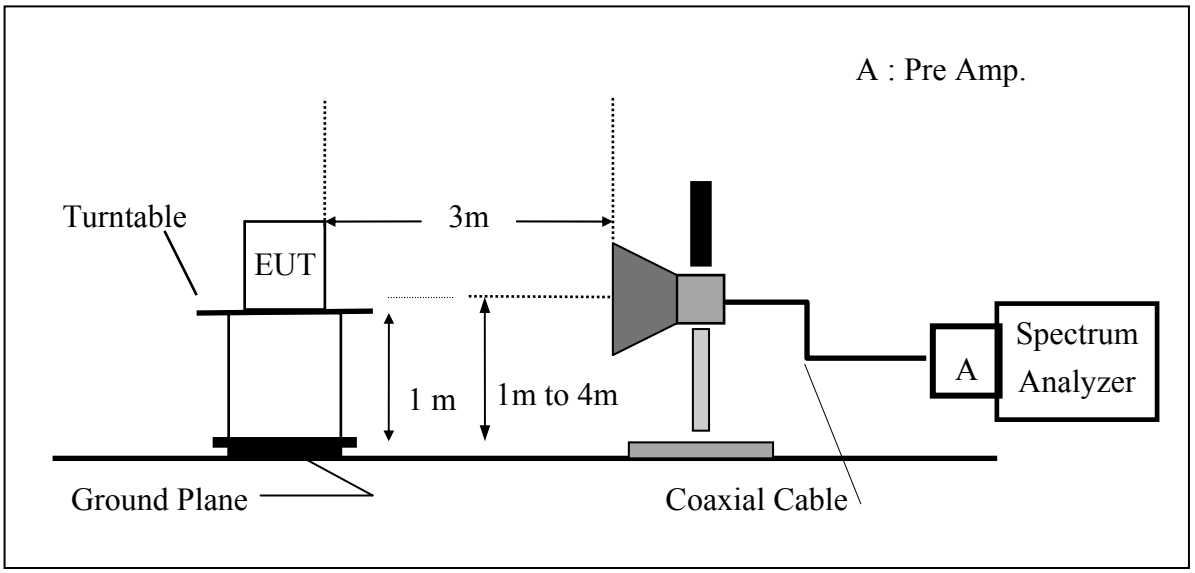
FCC 27.50(d)(2) Fixed, mobile, and portable (hand-held) stations are limited to 1W EIRP.

## 6.2 Test SET-UP (Block Diagram of Configuration)

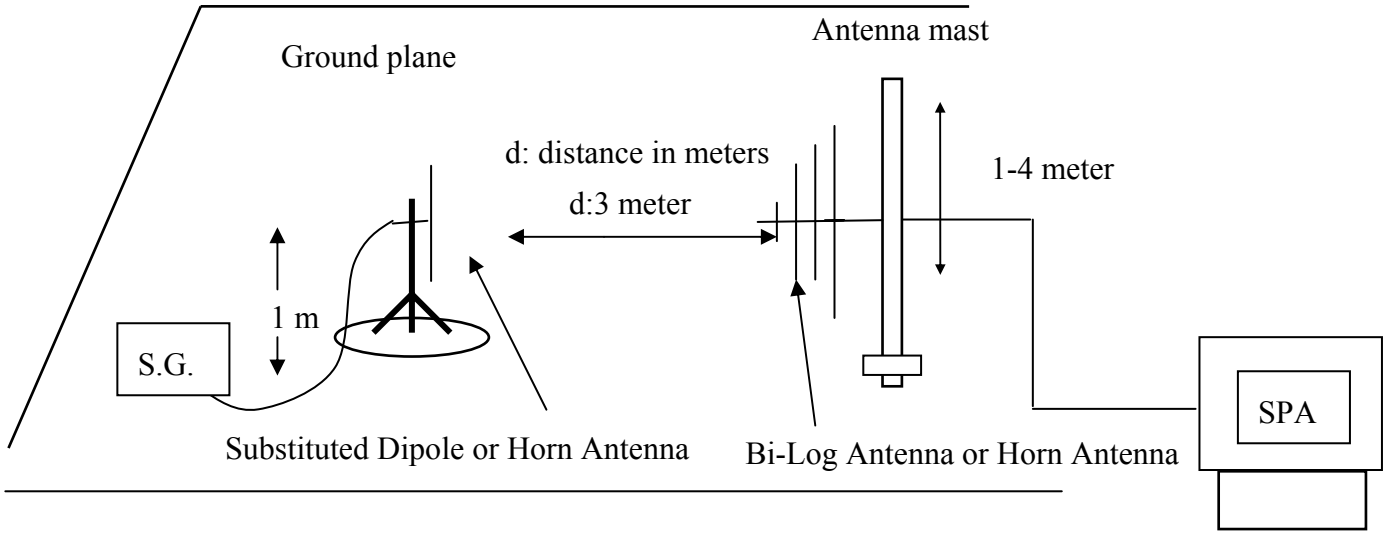
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz




(C) Substituted Method Test Set-UP



## 6.3 Measurement Procedure

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824.2 –848.80MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting.

## 6.4 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | LAST CAL. | CAL DUE. |
|---|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY43360126 | 04/27/2008 | 04/26/2009 |
| Spectrum Analyzer | Agilent | E7405A | US41160416 | 07/04/2007 | 07/03/2008 |
| Spectrum Analyzer | R&S | FSP 40 | 100034 | 11/09/2007 | 11/10/2008 |
| Communication Test | R&S | SMU200 | N/A | N/A | N/A |
| Bi-log Antenna | SCHWAZBECK | VULB9160 | 3224 | 11/14/2007 | 11/13/2008 |
| Horn antenna | SCHWAZBECK | BBHA 9120D | 309/320 | 08/16/2007 | 08/15/2008 |
| Pre-Amplifier | HP | 8447D | 2944A09469 | 07/19/2007 | 07/18/2008 |
| Pre-Amplifier | HP | 8494B | 3008A00578 | 02/26/2008 | 02/25/2009 |
| Signal Generator | R&S | SMR40 | 100210 | 02/09/2008 | 02/10/2009 |
| Turn Table | HD | DT420 | N/A | N.C.R | N.C.R |
| Antenna Tower | HD | MA240-N | 240/657 | N.C.R | N.C.R |
| Controller | HD | HD100 | N/A | N.C.R | N.C.R |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-10M | 10m | 10/09/2007 | 10/08/2008 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-3M | 3m | 10/09/2007 | 10/08/2008 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-0.5M | 0.5m | 10/09/2007 | 10/08/2008 |
| Site NSA | SGS | 966 chamber | N/A | 11/17/2007 | 11/16/2008 |
| Attenuator | Mini-Circult | BW-S10W5 | N/A | 09/23/2007 | 09/22/2008 |
| Dipole Antenna | SCHWAZBECK | VHAP | 908/909 | 06/09/2007 | 06/10/2008 |
| Dipole Antenna | SCHWAZBECK | UHAP | 891/892 | 06/09/2007 | 06/10/2008 |
| Horn antenna | SCHWAZBECK | BBHA 9120D | N/A | 08/16/2007 | 08/15/2008 |

## 6.5 Measurement Result

| EUT Mode | Frequency (MHz) | CH | EUT Pol. | Antenna Pol. | SPA Reading (dBuV) | S.G. Output (dBm) | Antenna Gain (dBd) | Cable Loss (dB) | ERP (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|---|
| GSM 850 | 824.20 | 128 | H | V | 120.73 | 33.41 | -7.87 | 3.64 | 21.89 | 38.45 |
| | | | | H | 126.56 | 38.90 | -7.87 | 3.64 | 27.39 | 38.45 |
| | | | E1 | V | 121.91 | 34.59 | -7.87 | 3.64 | 23.07 | 38.45 |
| | | | | H | 127.39 | 39.73 | -7.87 | 3.64 | 28.22 | 38.45 |
| | | | E2 | V | 122.60 | 35.28 | -7.87 | 3.64 | 23.76 | 38.45 |
| | | | | H | 128.07 | 40.41 | -7.87 | 3.64 | 28.90 | 38.45 |
| | 836.60 | 190 | H | V | 124.79 | 37.76 | -7.88 | 3.70 | 26.19 | 38.45 |
| | | | | H | 120.67 | 33.33 | -7.88 | 3.70 | 21.76 | 38.45 |
| | | | E1 | V | 125.28 | 38.25 | -7.88 | 3.70 | 26.68 | 38.45 |
| | | | | H | 120.74 | 33.40 | -7.88 | 3.70 | 21.83 | 38.45 |
| | | | E2 | V | 125.52 | 38.49 | -7.88 | 3.70 | 26.92 | 38.45 |
| | | | | H | 120.89 | 33.55 | -7.88 | 3.70 | 21.98 | 38.45 |
| | 848.80 | 251 | H | V | 124.90 | 38.16 | -7.88 | 3.75 | 26.53 | 38.45 |
| | | | | H | 129.86 | 42.84 | -7.88 | 3.75 | 31.21 | 38.45 |
| | | | E1 | V | 122.60 | 35.86 | -7.88 | 3.75 | 24.23 | 38.45 |
| | | | | H | 129.35 | 42.33 | -7.88 | 3.75 | 30.70 | 38.45 |
| | | | E2 | V | 120.20 | 33.46 | -7.88 | 3.75 | 21.83 | 38.45 |
| | | | | H | 128.85 | 41.83 | -7.88 | 3.75 | 30.20 | 38.45 |

**Remark：**

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=100 KHz, VBW=300KHz,

Above 1GHz was RBW= 1MHz , VBW= 3MHz

## 6.6 Measurement Result

| EUT Mode | Frequency (MHz) | CH | EUT Pol. | Antenna Pol. | SPA Reading (dBuV) | S.G. Output (dBm) | Antenna Gain (dBi) | Cable Loss (dB) | EIRP (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|---|
| PCS 1900 | 1850.20 | 512 | H | V | 132.29 | 16.50 | 9.90 | 3.77 | 22.63 | 33.00 |
| | | | | H | 136.66 | 21.11 | 9.90 | 3.77 | 27.24 | 33.00 |
| | | | E1 | V | 131.15 | 15.36 | 9.90 | 3.77 | 21.49 | 33.00 |
| | | | | H | 136.09 | 20.54 | 9.90 | 3.77 | 26.67 | 33.00 |
| | | | E2 | V | 130.87 | 15.08 | 9.90 | 3.77 | 21.21 | 33.00 |
| | | | | H | 136.07 | 20.52 | 9.90 | 5.84 | 24.58 | 33.00 |
| | 1880.00 | 661 | H | V | 133.92 | 18.11 | 9.99 | 3.80 | 24.30 | 33.00 |
| | | | | H | 136.96 | 21.40 | 9.99 | 3.80 | 27.59 | 33.00 |
| | | | E1 | V | 133.43 | 17.62 | 9.99 | 3.80 | 23.81 | 33.00 |
| | | | | H | 136.55 | 20.99 | 9.99 | 3.80 | 27.18 | 33.00 |
| | | | E2 | V | 134.32 | 18.51 | 9.99 | 3.80 | 24.70 | 33.00 |
| | | | | H | 136.81 | 21.25 | 9.99 | 3.80 | 27.44 | 33.00 |
| | 1909.80 | 810 | H | V | 137.08 | 21.25 | 10.08 | 3.83 | 27.50 | 33.00 |
| | | | | H | 134.79 | 19.22 | 10.08 | 3.83 | 25.47 | 33.00 |
| | | | E1 | V | 136.72 | 20.89 | 10.08 | 3.83 | 27.14 | 33.00 |
| | | | | H | 134.05 | 18.48 | 10.08 | 3.83 | 24.73 | 33.00 |
| | | | E2 | V | 136.25 | 20.42 | 10.08 | 3.83 | 26.67 | 33.00 |
| | | | | H | 134.39 | 18.82 | 10.08 | 3.83 | 25.07 | 33.00 |

**Remark：**

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=250 KHz, VBW=300KHz,

Above 1GHz was RBW= 1MHz , VBW= 3MHz

## 6.7 Measurement Result

| EUT Mode | Frequency (MHz) | CH | EUT Pol. | Antenna Pol. | SPA Reading (dBuV) | S.G. Output (dBm) | Antenna Gain (dBd) | Cable Loss (dB) | ERP (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|---|
| GSM 850 (EDGE) | 824.20 | 128 | H | V | 113.30 | 25.98 | -7.87 | 3.64 | 14.46 | 38.45 |
| | | | | H | 120.12 | 32.46 | -7.87 | 3.64 | 20.95 | 38.45 |
| | | | E1 | V | 114.42 | 27.10 | -7.87 | 3.64 | 15.58 | 38.45 |
| | | | | H | 120.79 | 33.13 | -7.87 | 3.64 | 21.62 | 38.45 |
| | | | E2 | V | 115.66 | 28.34 | -7.87 | 3.64 | 16.82 | 38.45 |
| | | | | H | 121.27 | 33.61 | -7.87 | 3.64 | 22.10 | 38.45 |
| | 836.60 | 190 | H | V | 118.45 | 31.42 | -7.88 | 3.70 | 19.85 | 38.45 |
| | | | | H | 112.50 | 25.16 | -7.88 | 3.70 | 13.59 | 38.45 |
| | | | E1 | V | 119.32 | 32.29 | -7.88 | 3.70 | 20.72 | 38.45 |
| | | | | H | 112.25 | 24.91 | -7.88 | 3.70 | 13.34 | 38.45 |
| | | | E2 | V | 120.38 | 33.35 | -7.88 | 3.70 | 21.78 | 38.45 |
| | | | | H | 112.75 | 25.41 | -7.88 | 3.70 | 13.84 | 38.45 |
| | 848.80 | 251 | H | V | 116.04 | 29.30 | -7.88 | 3.75 | 17.67 | 38.45 |
| | | | | H | 121.44 | 34.42 | -7.88 | 3.75 | 22.79 | 38.45 |
| | | | E1 | V | 115.46 | 28.72 | -7.88 | 3.75 | 17.09 | 38.45 |
| | | | | H | 120.73 | 33.71 | -7.88 | 3.75 | 22.08 | 38.45 |
| | | | E2 | V | 114.38 | 27.64 | -7.88 | 3.75 | 16.01 | 38.45 |
| | | | | H | 120.13 | 33.11 | -7.88 | 3.75 | 21.48 | 38.45 |

**Remark：**

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=250 KHz, VBW=300KHz,

Above 1GHz was RBW= 1MHz , VBW= 3MHz

## 6.8 Measurement Result

| EUT Mode | Frequency (MHz) | CH | EUT Pol. | Antenna Pol. | SPA Reading (dBuV) | S.G. Output (dBm) | Antenna Gain (dBi) | Cable Loss (dB) | EIRP (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|---|
| PCS 1900 (EDGE) | 1850.20 | 512 | H | V | 115.50 | 8.54 | 9.90 | 5.41 | 13.03 | 33.00 |
| | | | | H | 120.91 | 14.02 | 9.90 | 5.41 | 18.51 | 33.00 |
| | | | E1 | V | 117.03 | 10.07 | 9.90 | 5.41 | 14.56 | 33.00 |
| | | | | H | 121.02 | 14.13 | 9.90 | 5.41 | 18.62 | 33.00 |
| | | | E2 | V | 116.66 | 9.70 | 9.90 | 5.41 | 14.19 | 33.00 |
| | | | | H | 123.08 | 16.19 | 9.90 | 5.84 | 20.25 | 33.00 |
| | 1880.00 | 661 | H | V | 119.02 | 12.07 | 9.99 | 5.46 | 16.60 | 33.00 |
| | | | | H | 119.65 | 12.78 | 9.99 | 5.46 | 17.31 | 33.00 |
| | | | E1 | V | 119.02 | 12.07 | 9.99 | 5.46 | 16.60 | 33.00 |
| | | | | H | 120.05 | 13.18 | 9.99 | 5.46 | 17.71 | 33.00 |
| | | | E2 | V | 119.70 | 12.75 | 9.99 | 5.46 | 17.28 | 33.00 |
| | | | | H | 120.92 | 14.05 | 9.99 | 5.46 | 18.58 | 33.00 |
| | 1909.80 | 810 | H | V | 119.86 | 12.92 | 10.08 | 5.51 | 17.49 | 33.00 |
| | | | | H | 118.60 | 11.75 | 10.08 | 5.51 | 16.31 | 33.00 |
| | | | E1 | V | 120.99 | 14.05 | 10.08 | 5.51 | 18.62 | 33.00 |
| | | | | H | 117.69 | 10.84 | 10.08 | 5.51 | 15.40 | 33.00 |
| | | | E2 | V | 121.95 | 15.01 | 10.08 | 5.51 | 19.58 | 33.00 |
| | | | | H | 119.45 | 12.60 | 10.08 | 5.51 | 17.16 | 33.00 |

**Remark：**

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=250 KHz, VBW=300KHz,

Above 1GHz was RBW= 1MHz , VBW= 3MHz

## 6.9 Measurement Result

| EUT Mode | Frequency (MHz) | CH | EUT Pol. | Antenna Pol. | SPA Reading (dBuV) | S.G. Output (dBm) | Antenna Gain (dBi) | Cable Loss (dB) | EIRP (dBm) | Limit (dBm) |
|---|---|---|---|---|---|---|---|---|---|---|
| WCDMA IV | 1712.40 | 1312 | H | V | 112.44 | 5.48 | 9.90 | 5.41 | 9.98 | 30.00 |
| | | | | H | 120.49 | 13.60 | 9.90 | 5.41 | 18.10 | 30.00 |
| | | | E1 | V | 114.72 | 7.76 | 9.90 | 5.41 | 12.26 | 30.00 |
| | | | | H | 122.94 | 16.05 | 9.90 | 5.41 | 20.55 | 30.00 |
| | | | E2 | V | 116.24 | 9.28 | 9.90 | 5.41 | 13.78 | 30.00 |
| | | | | H | 124.32 | 17.43 | 9.90 | 5.84 | 21.49 | 30.00 |
| | 1732.60 | 1413 | H | V | 119.52 | 12.57 | 9.99 | 5.46 | 17.10 | 30.00 |
| | | | | H | 120.10 | 13.23 | 9.99 | 5.46 | 17.76 | 30.00 |
| | | | E1 | V | 118.65 | 11.70 | 9.99 | 5.46 | 16.23 | 30.00 |
| | | | | H | 119.74 | 12.87 | 9.99 | 5.46 | 17.40 | 30.00 |
| | | | E2 | V | 119.89 | 12.94 | 9.99 | 5.46 | 17.47 | 30.00 |
| | | | | H | 121.60 | 14.73 | 9.99 | 5.46 | 19.26 | 30.00 |
| | 1752.60 | 1513 | H | V | 119.21 | 12.27 | 10.07 | 5.51 | 16.84 | 30.00 |
| | | | | H | 119.11 | 12.25 | 10.07 | 5.51 | 16.82 | 30.00 |
| | | | E1 | V | 119.15 | 12.21 | 10.07 | 5.51 | 16.78 | 30.00 |
| | | | | H | 118.02 | 11.16 | 10.07 | 5.51 | 15.73 | 30.00 |
| | | | E2 | V | 121.05 | 14.11 | 10.07 | 5.51 | 18.68 | 30.00 |
| | | | | H | 120.31 | 13.45 | 10.07 | 5.51 | 18.02 | 30.00 |

**Remark：**

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=250 KHz, VBW=300KHz,

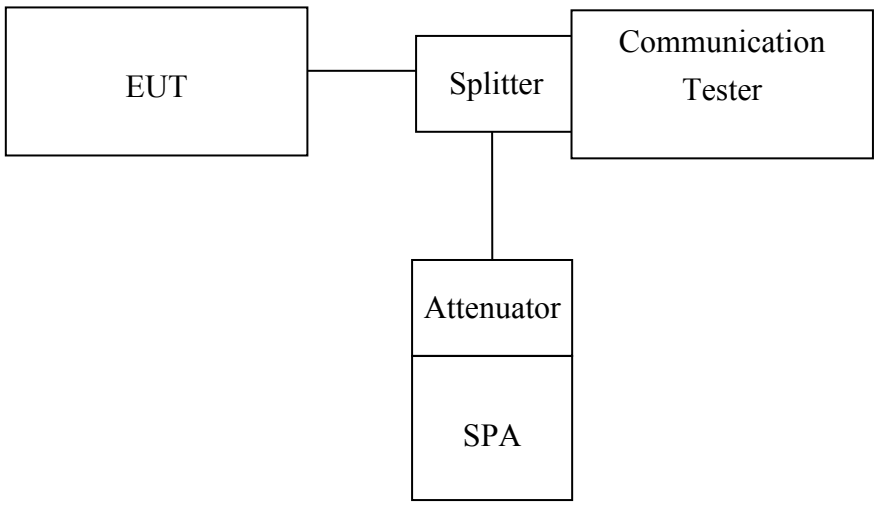
Above 1GHz was RBW= 1MHz , VBW= 3MHz

# 7 99% OCCUPIED BANDWIDTH MEASUREMENT

## 7.1 Standard Applicable

According to §FCC 2.1049.

## 7.2 Test Set-up:




***Note:*** *Measurement setup for testing on Antenna connector*

## 7.3 Measurement Procedure

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW (10/30KHz) was set to about 1% of emission BW, VBW= 3 times RBW(30/100KHz), -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

## 7.4 Measurement Equipment Used:

| Conducted Emission Test Site | | | | | |
|---|---|---|---|---|---|
| **EQUIPMENT TYPE** | **MFR** | **MODEL NUMBER** | **SERIAL NUMBER** | **LAST CAL.** | **CAL DUE.** |
| Spectrum Analyzer | Agilent | E4446A | MY43360126 | 04/27/2008 | 04/26/2009 |
| Spectrum Analyzer | Agilent | E7405A | US41160416 | 07/04/2007 | 07/03/2008 |
| Power Sensor | Anritsu | MA2490A | 31431 | 07/07/2007 | 07/06/2008 |
| Power Meter | Anritsu | ML2487A | 6K00002070 | 07/07/2007 | 07/06/2008 |
| Communication Test | R&S | SMU200 | N/A | N/A | N/A |
| Temperature Chamber | TERCHY | MHG-120LF | 911009 | 04/26/2008 | 04/25/2009 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA | N/A | N/A | N/A |
| Attenuator | Mini-Circuit | BW-S10W5 | N/A | 07/05/2007 | 07/04/2008 |
| Attenuator | Mini-Circuit | BW-S6W5 | N/A | 07/05/2007 | 07/04/2008 |
| Splitter | Agilent | 11636B | 51728 | 09/23/2007 | 09/22/2008 |
| Signal Generator | R&S | SMR40 | 100210 | 11/09/2007 | 11/10/2008 |
| DC Power Supply | Agilent | 6038A | 2929A-07548 | 01/06/2008 | 01/05/2009 |

## 7.5 Measurement Result:.

| EUT Mode | Frequency (MHz) | CH | 99% Bandwidth (MHz) |
|---|---|---|---|
| GSM 850 | 824.20 | 128 | 0.2456 |
| | 836.60 | 190 | 0.2460 |
| | 848.80 | 251 | 0.2432 |

| EUT Mode | Frequency (MHz) | CH | 99% Bandwidth (MHz) |
|---|---|---|---|
| PCS 1900 | 1850.20 | 512 | 0.2398 |
| | 1880.00 | 661 | 0.2418 |
| | 1909.80 | 810 | 0.2461 |

| EUT Mode | Frequency (MHz) | CH | 99% Bandwidth (MHz) |
|---|---|---|---|
| EDGE 850 | 824.20 | 128 | 0.2446 |
| | 836.60 | 190 | 0.2433 |
| | 848.80 | 251 | 0.2423 |

| EUT Mode | Frequency (MHz) | CH | 99% Bandwidth (MHz) |
|---|---|---|---|
| EDGE 1900 | 1850.20 | 512 | 0.2477 |
| | 1880.00 | 661 | 0.2482 |
| | 1909.80 | 810 | 0.2447 |

| EUT Mode | Frequency (MHz) | CH | 99% Bandwidth (MHz) |
|---|---|---|---|
| WCDMA IV | 1712.40 | 1312 | 4.1794 |
| | 1732.60 | 1413 | 4.1598 |
| | 1752.60 | 1513 | 4.1677 |

**Figure 7-1: GSM Channel Low**

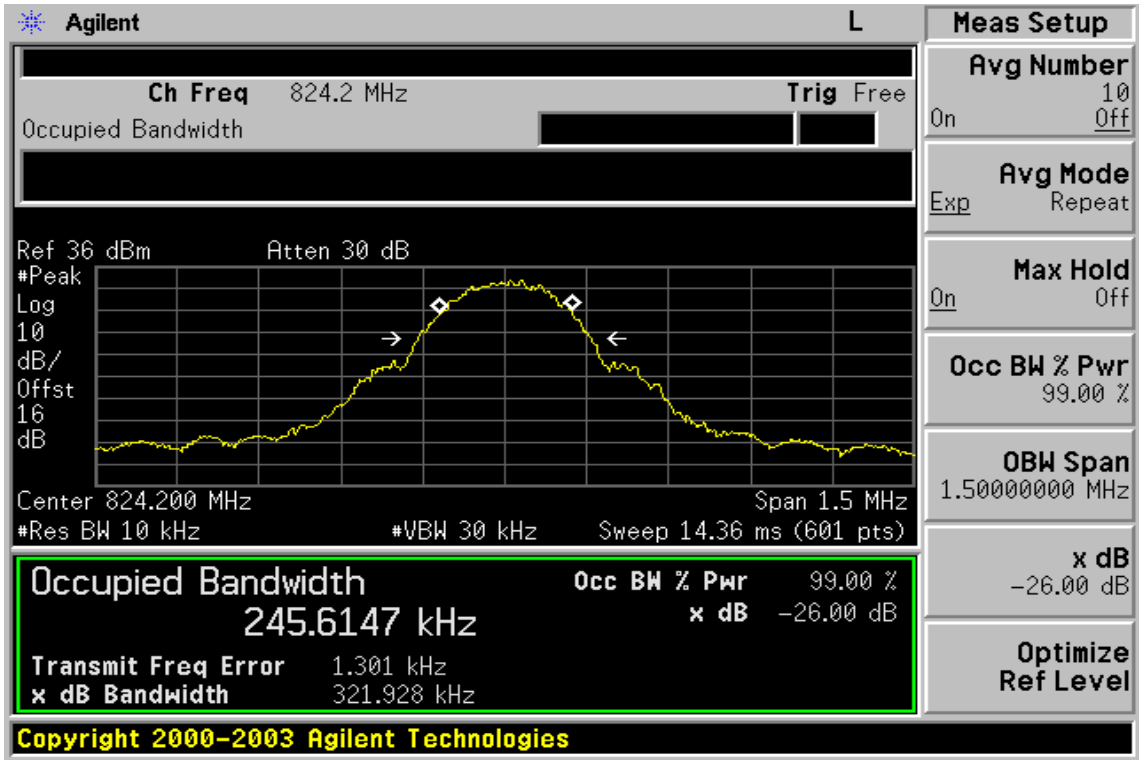



**Figure 7-2 GSM Channel Mid**

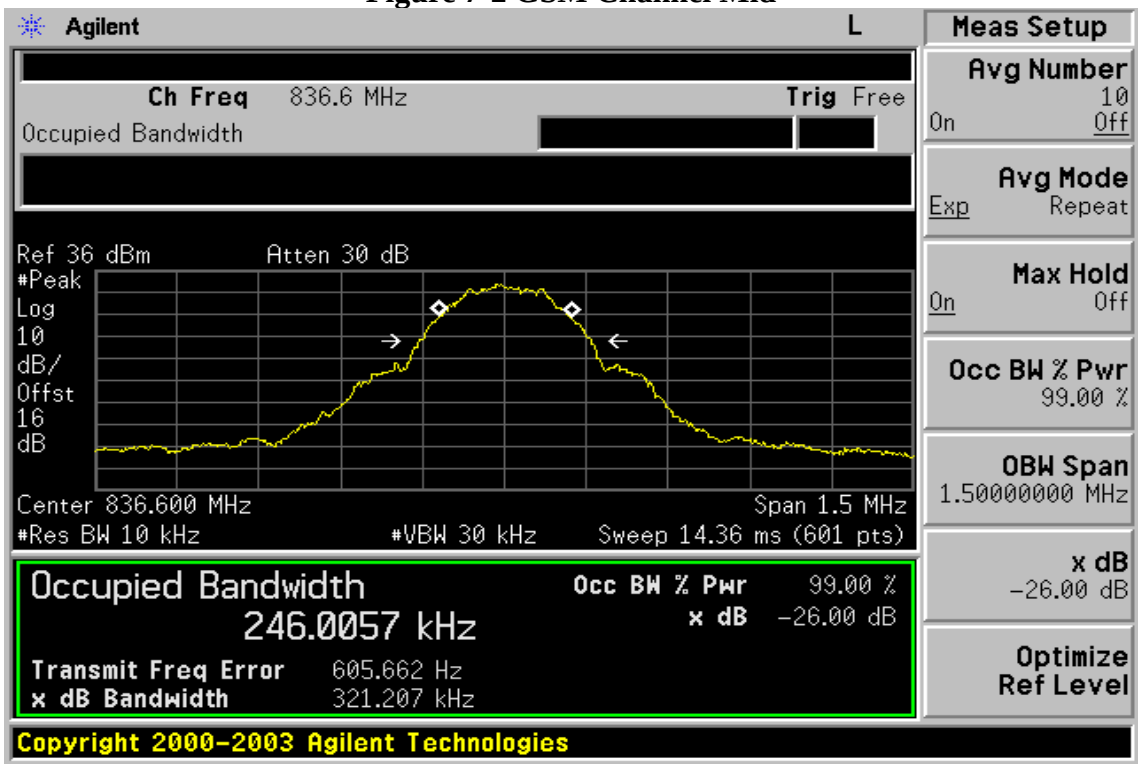


**Figure 7-3: GSM Channel High**

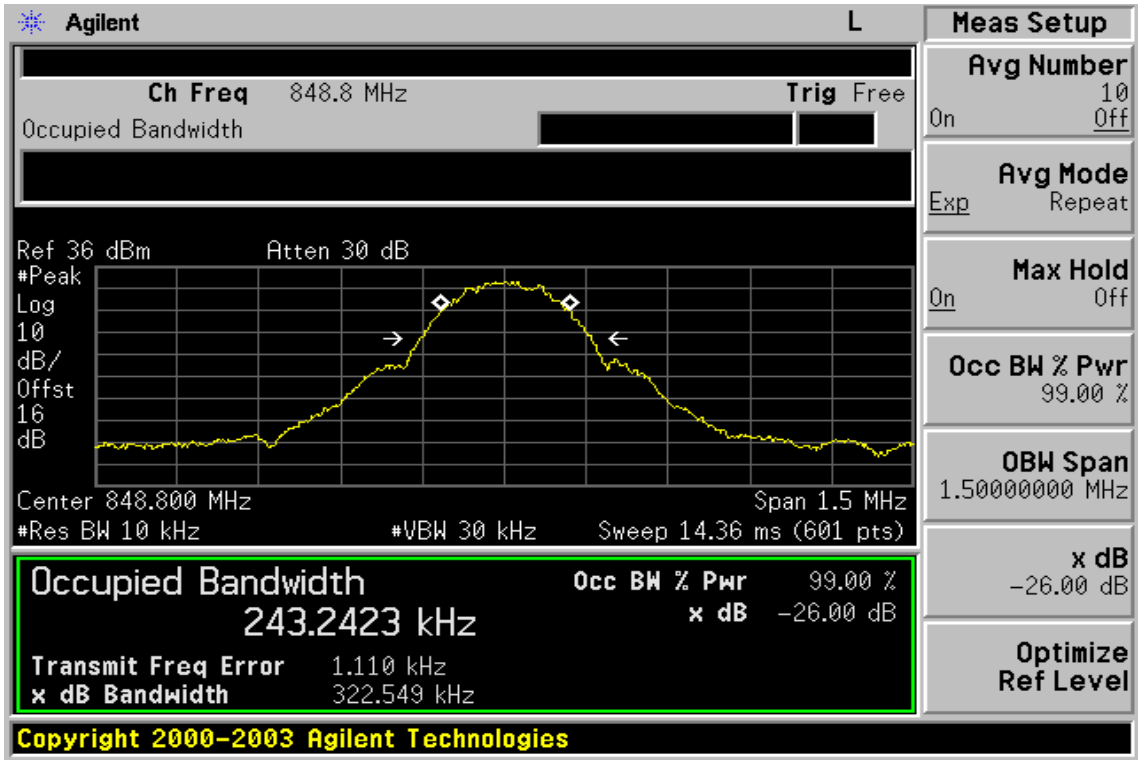



**Figure 7-4: PCS Channel Low**

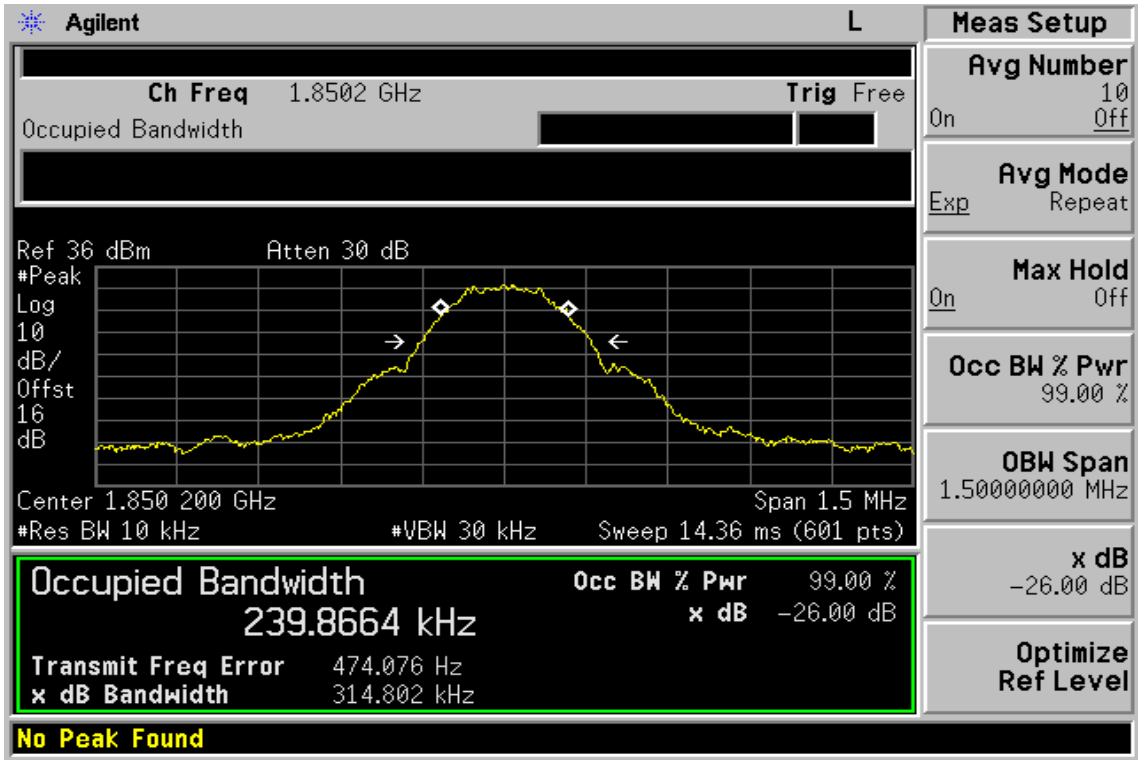


**Figure 7-5 PCS Channel Mid**

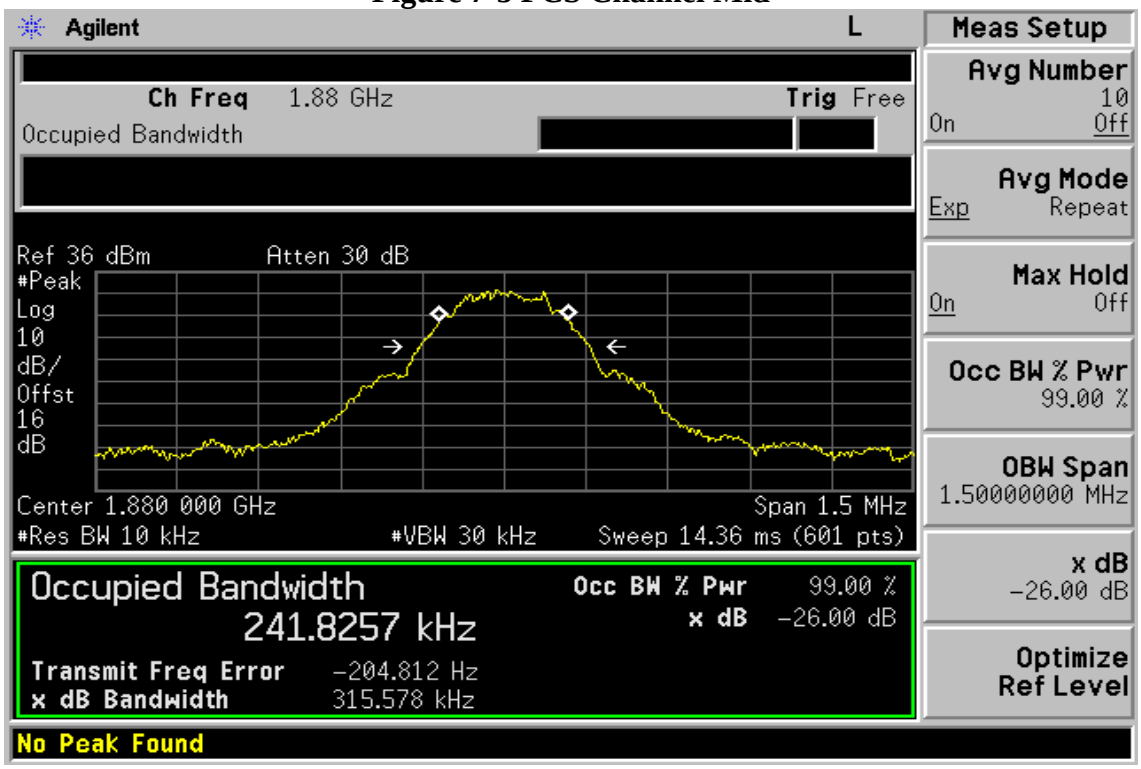



**Figure 7-6: PCS Channel High**

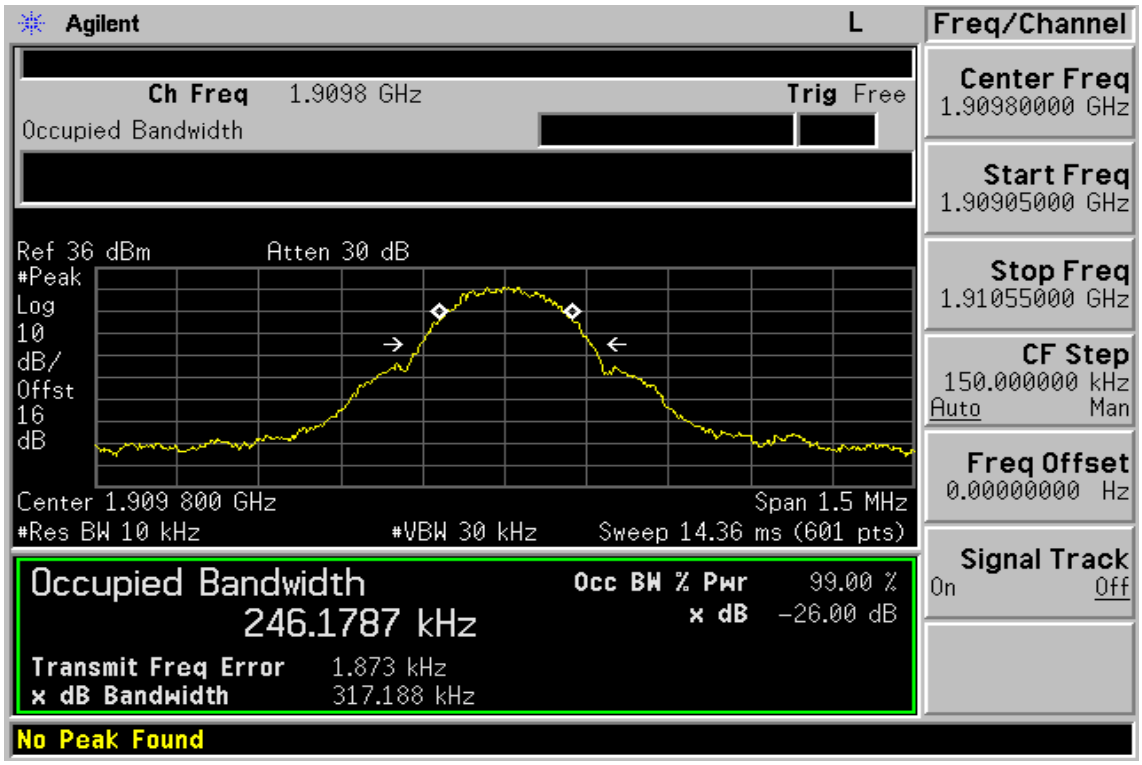


**Figure 7-7: EDGE 850 Channel Low**

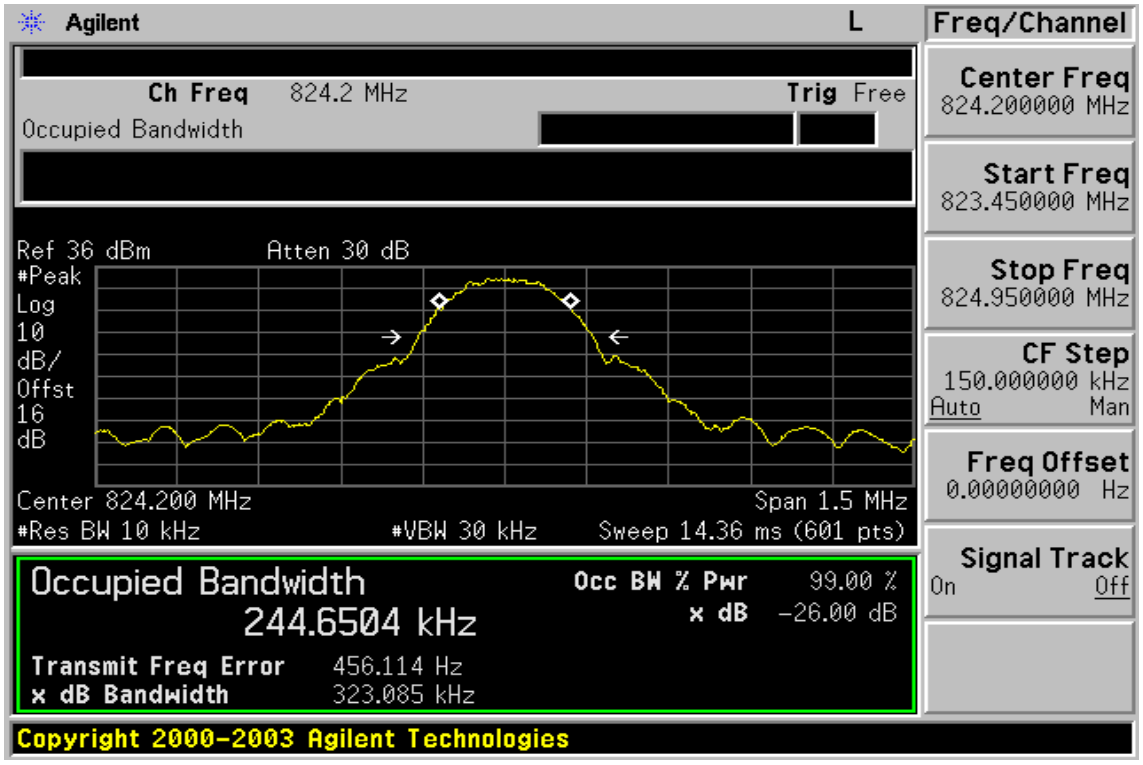



**Figure 7-8 EDGE 850 Channel Mid**

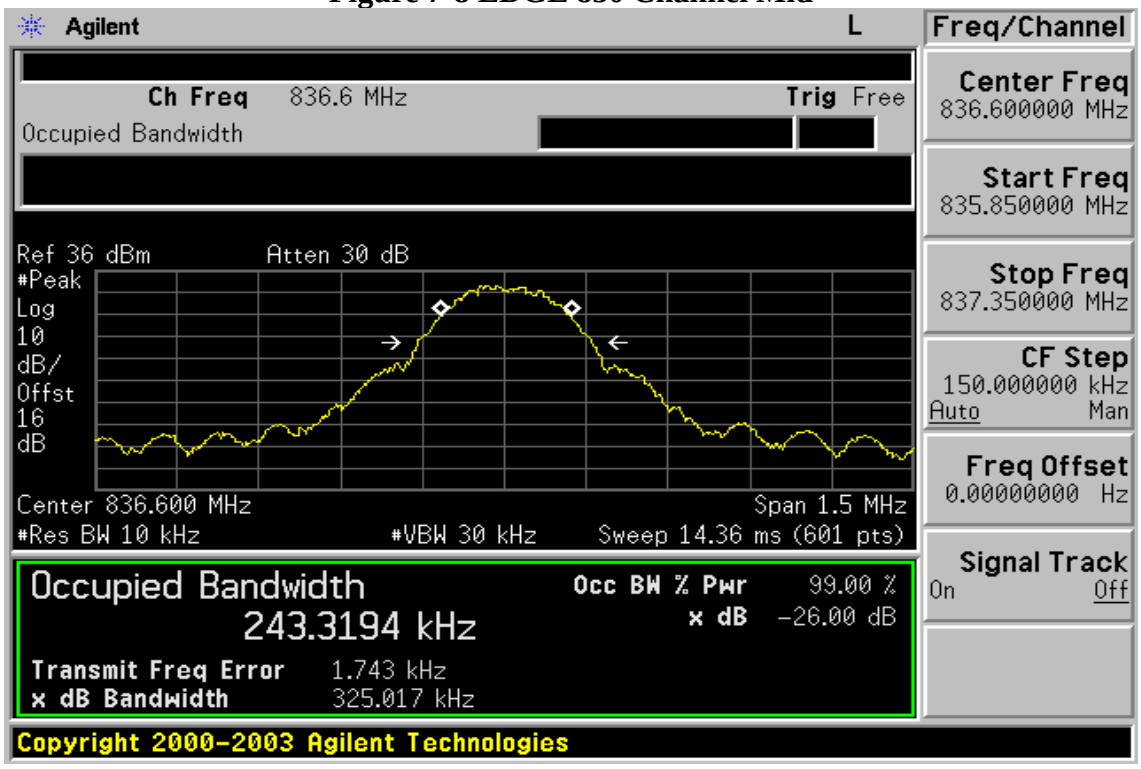


**Figure 7-9: EDGE 850 Channel High**

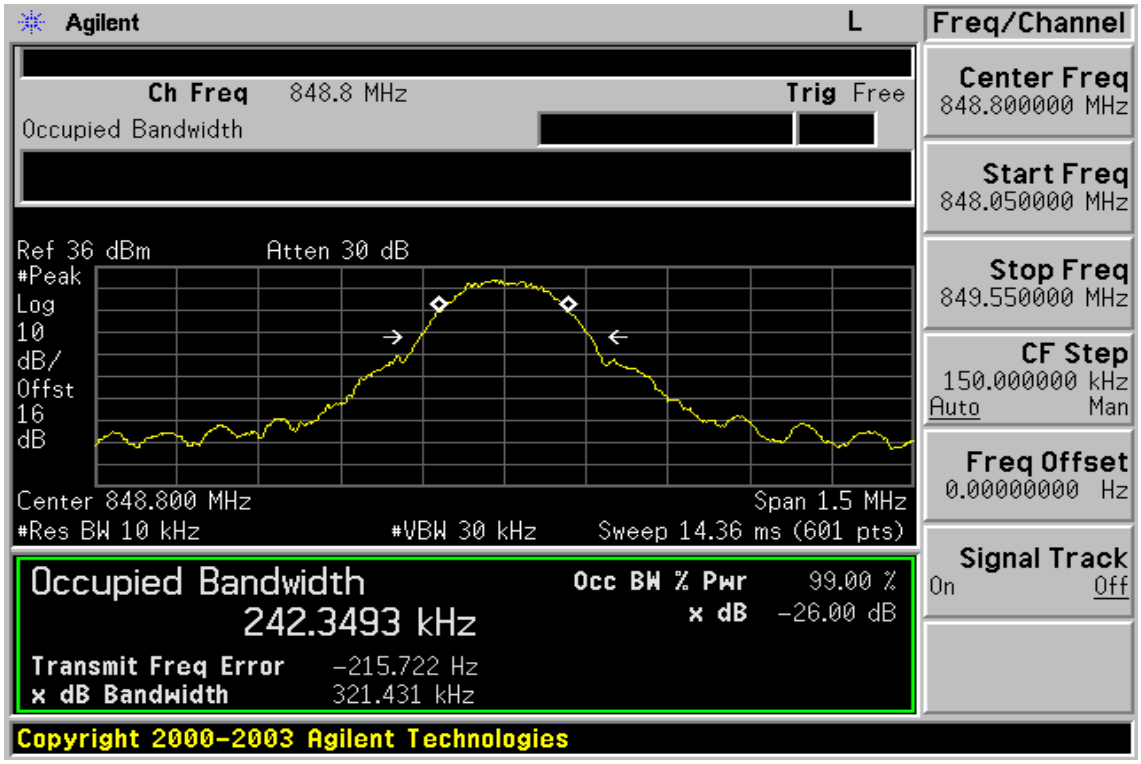



**Figure 7-10: EDGE 1900 Channel Low**

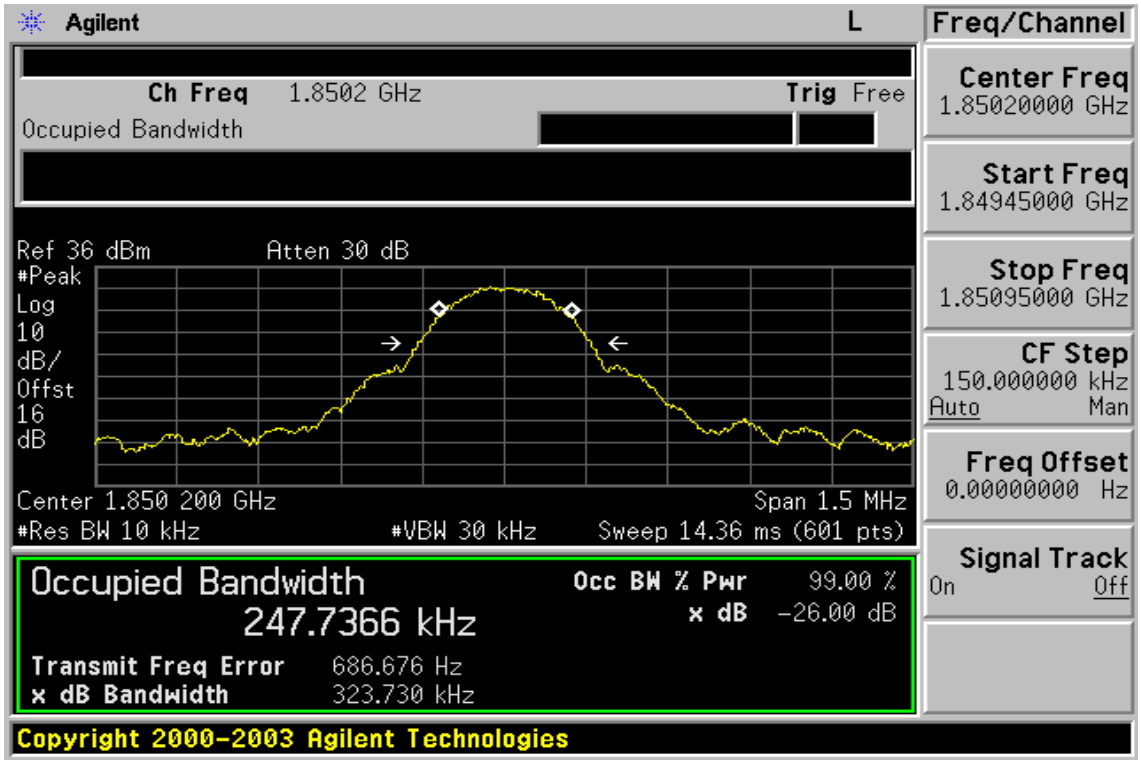


**Figure 7-11 EDGE 1900 Channel Mid**

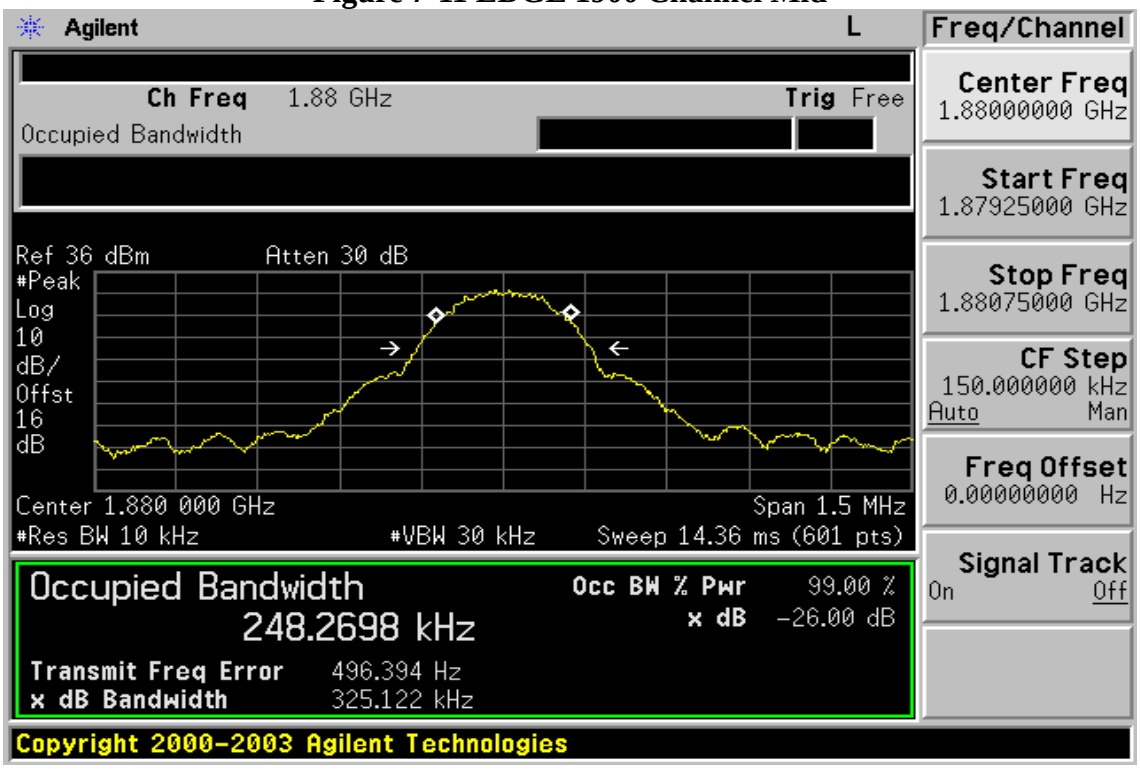



**Figure 7-12: EDGE 1900 Channel High**

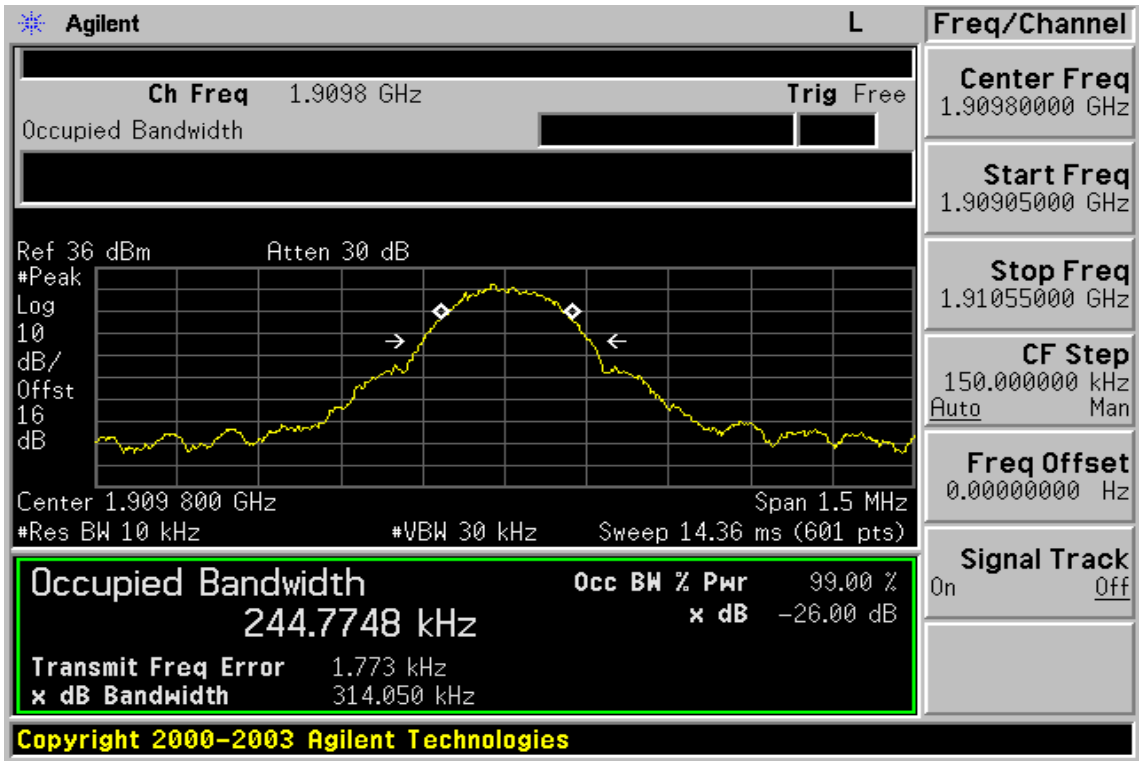


**Figure 7-13: WCDMA IV Channel Low**

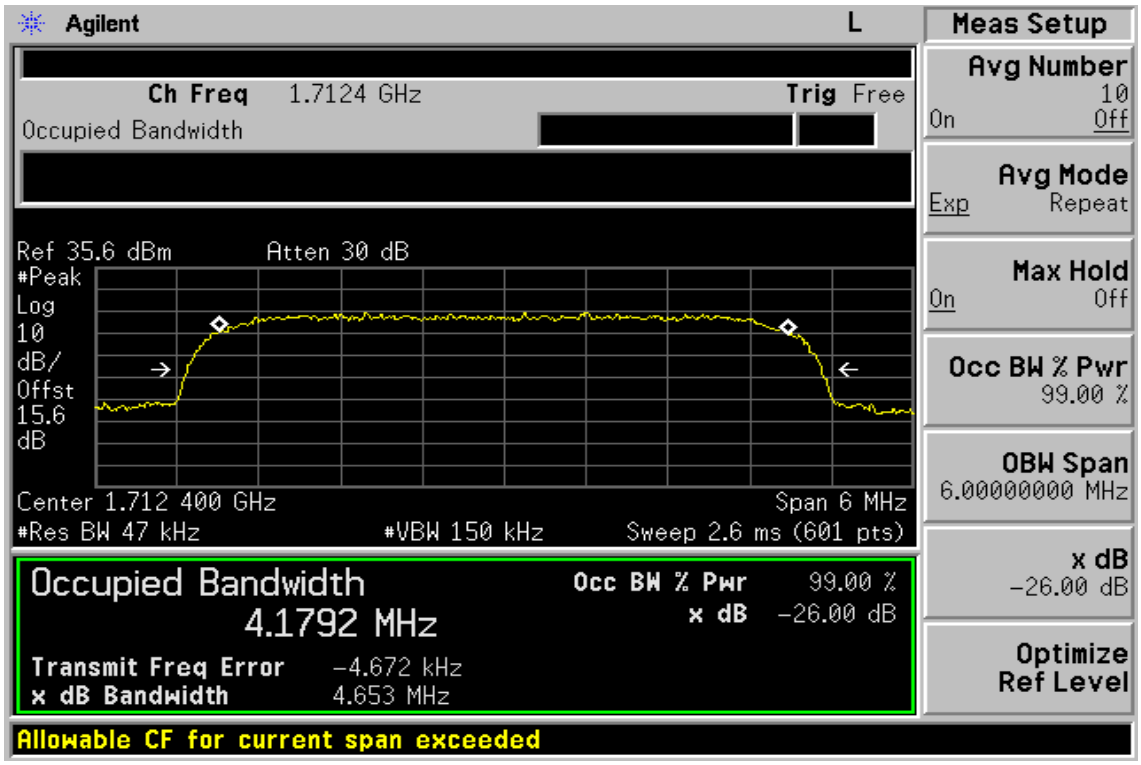



**Figure 7-14 WCDMA IV Channel Mid**

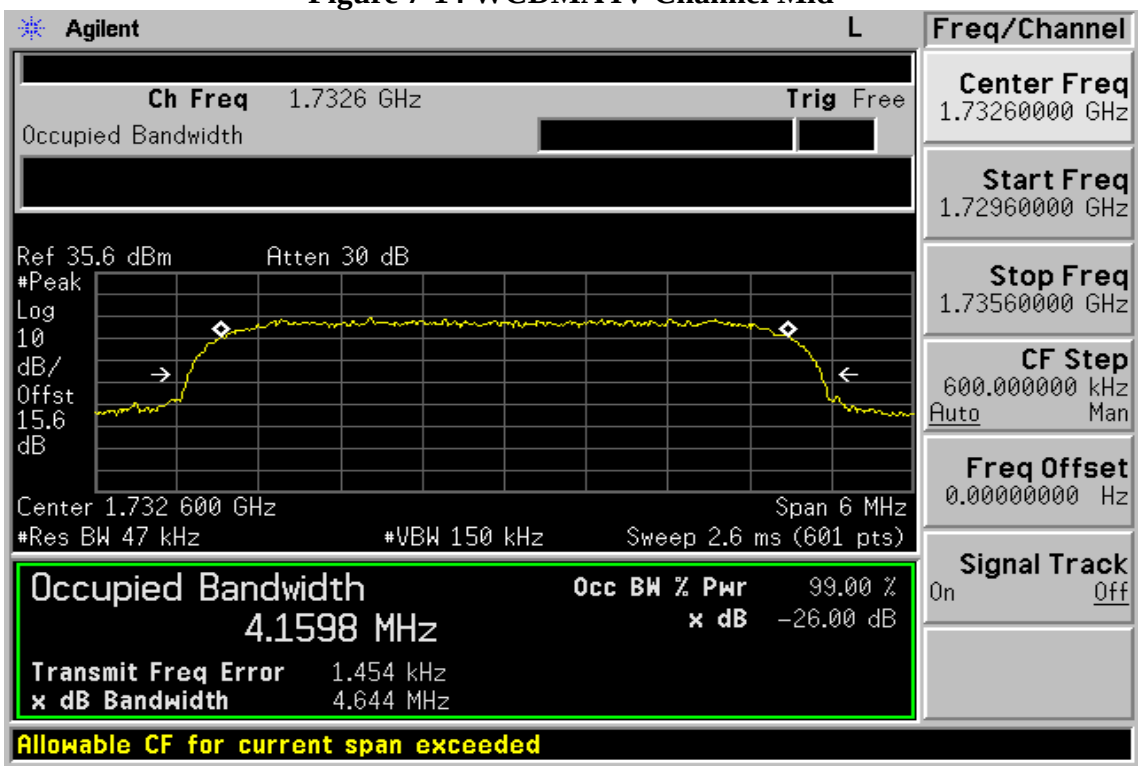
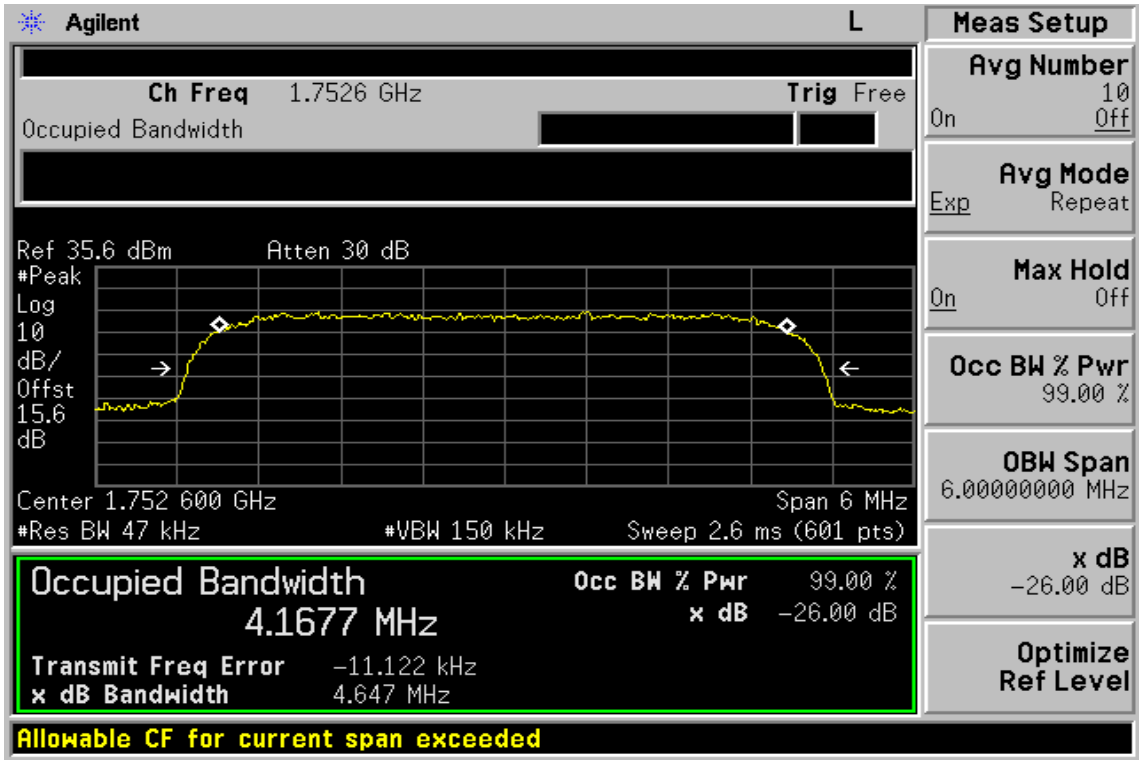


**Figure 7-15: WCDMA IV Channel High**



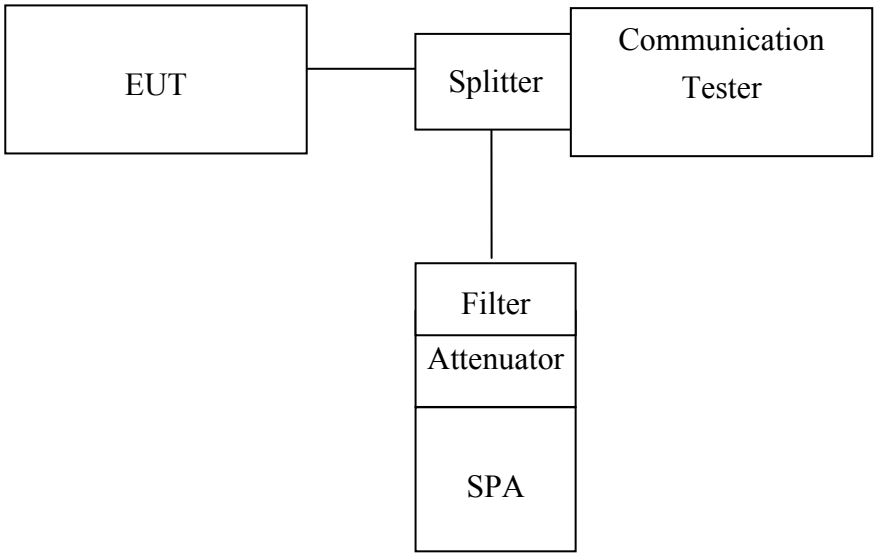
# 8 OUT OF BAND EMISSION AT ANTENNA TERMINALS

## 8.1 Standard Applicable

According to FCC §2.1051.

FCC §22.917(a),§24.238(a), §27.53(h)the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

## 8.2 Test SET-UP




***Note:*** *Measurement setup for testing on Antenna connector*

## 8.3 Measurement Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

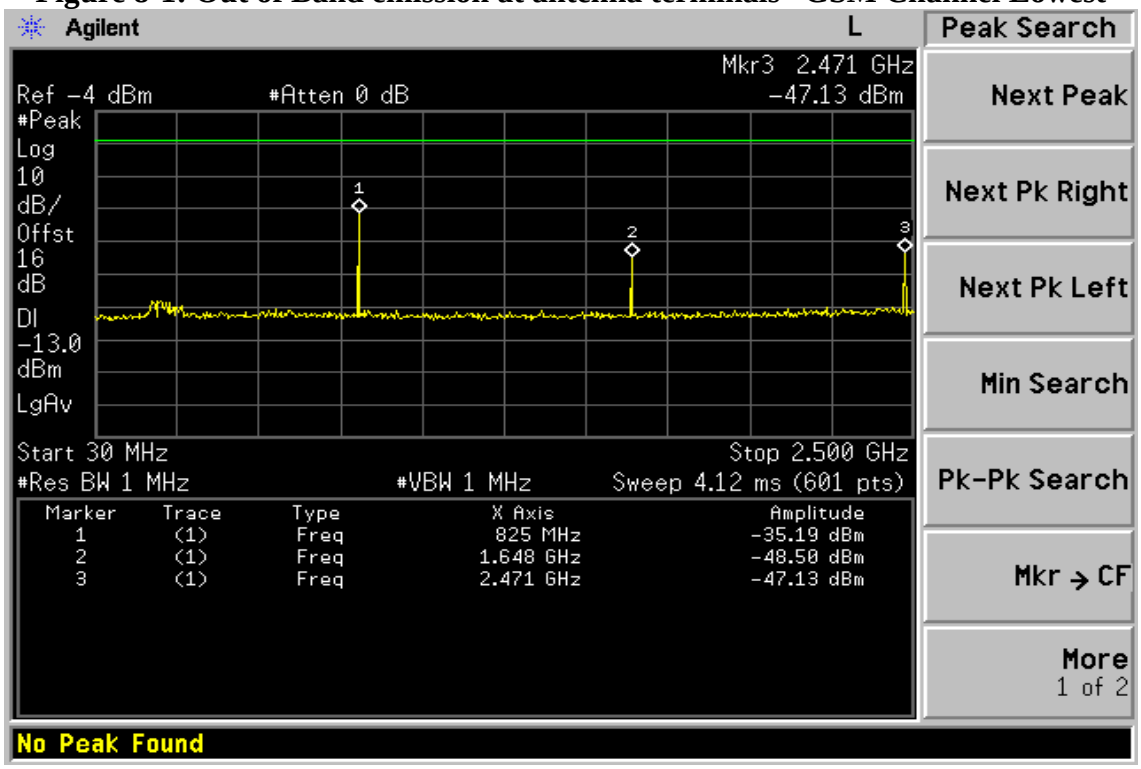
Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

## 8.4 Measurement Equipment Used:

| Conducted Emission Test Site | | | | | |
|---|---|---|---|---|---|
| **EQUIPMENT TYPE** | **MFR** | **MODEL NUMBER** | **SERIAL NUMBER** | **LAST CAL.** | **CAL DUE.** |
| Spectrum Analyzer | Agilent | E4446A | MY43360126 | 04/27/2008 | 04/26/2009 |
| Spectrum Analyzer | Agilent | E7405A | US41160416 | 07/04/2007 | 07/03/2008 |
| Power Sensor | Anritsu | MA2490A | 31431 | 07/07/2007 | 07/06/2008 |
| Power Meter | Anritsu | ML2487A | 6K00002070 | 07/07/2007 | 07/06/2008 |
| Communication Test | R&S | SMU200 | N/A | N/A | N/A |
| Temperature Chamber | TERCHY | MHG-120LF | 911009 | 04/26/2008 | 04/25/2009 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA | N/A | N/A | N/A |
| Attenuator | Mini-Circuit | BW-S10W5 | N/A | 07/05/2007 | 07/04/2008 |
| Attenuator | Mini-Circuit | BW-S6W5 | N/A | 07/05/2007 | 07/04/2008 |
| Splitter | Agilent | 11636B | 51728 | 09/23/2007 | 09/22/2008 |
| Signal Generator | R&S | SMR40 | 100210 | 11/09/2007 | 11/10/2008 |
| DC Power Supply | Agilent | 6038A | 2929A-07548 | 01/06/2008 | 01/05/2009 |

## 8.5 Measurement Result

**Figure 8-1: Out of Band emission at antenna terminals– GSM Channel Lowest**



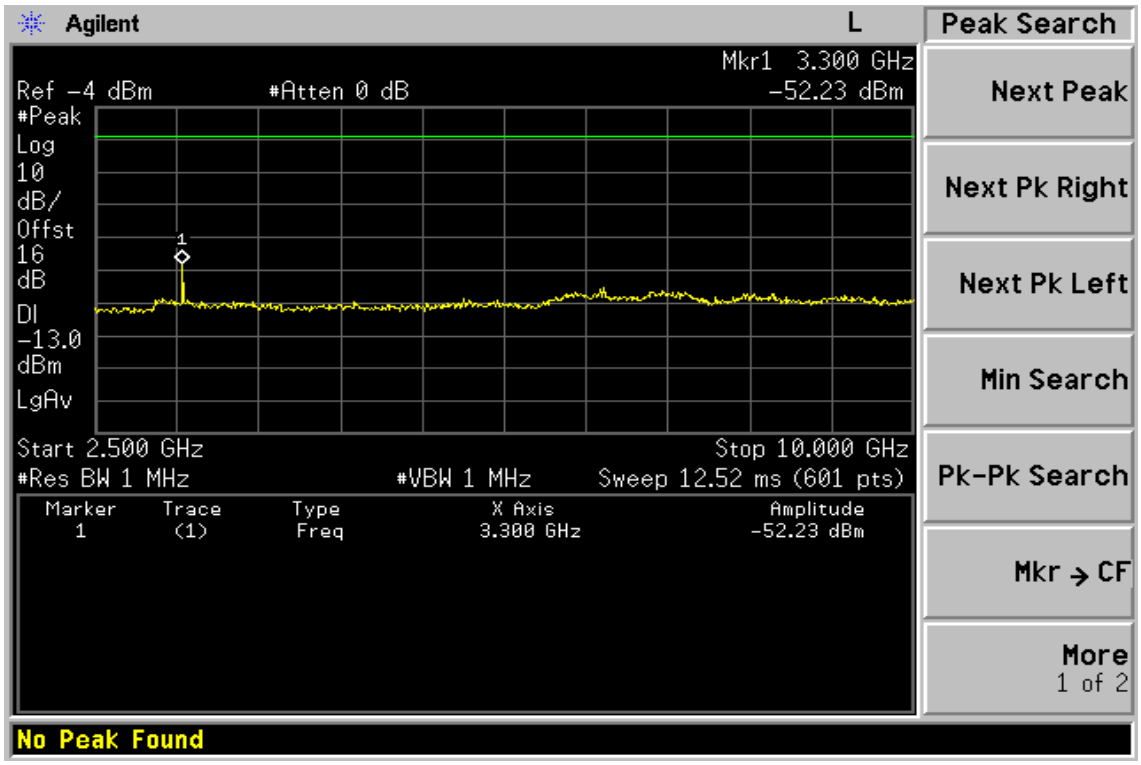
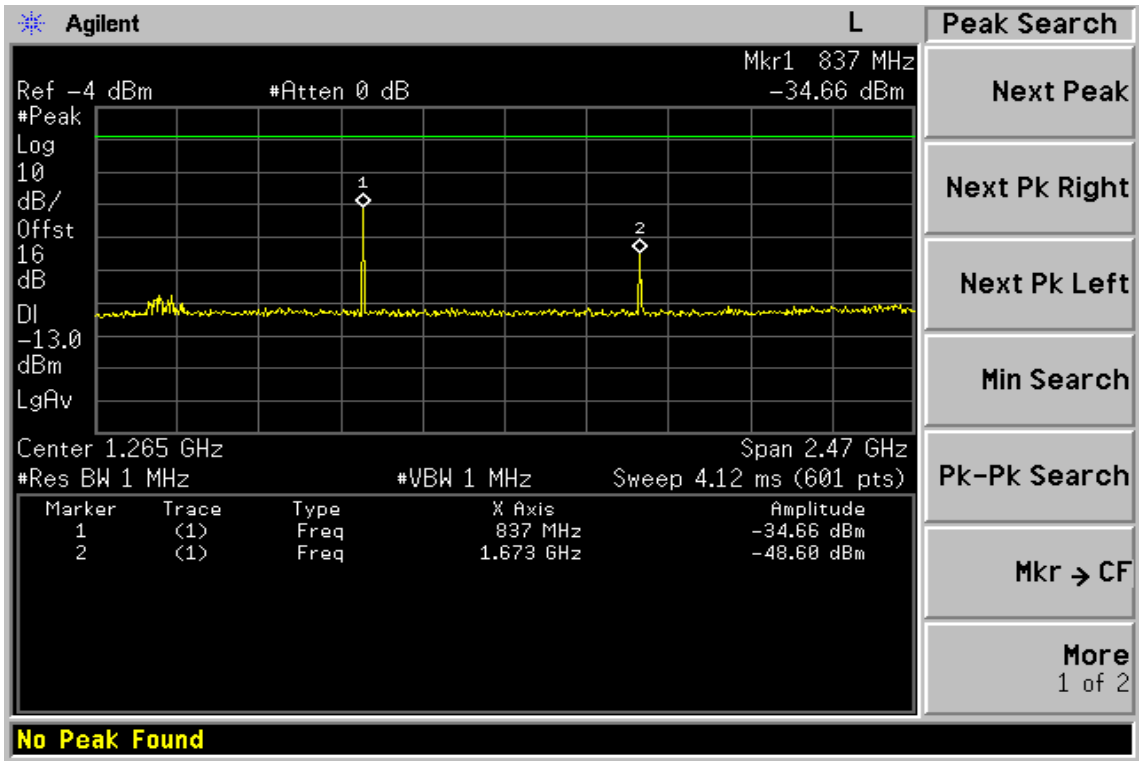



**Figure 8-2: Out of Band emission at antenna terminals –GSM Channel Mid**



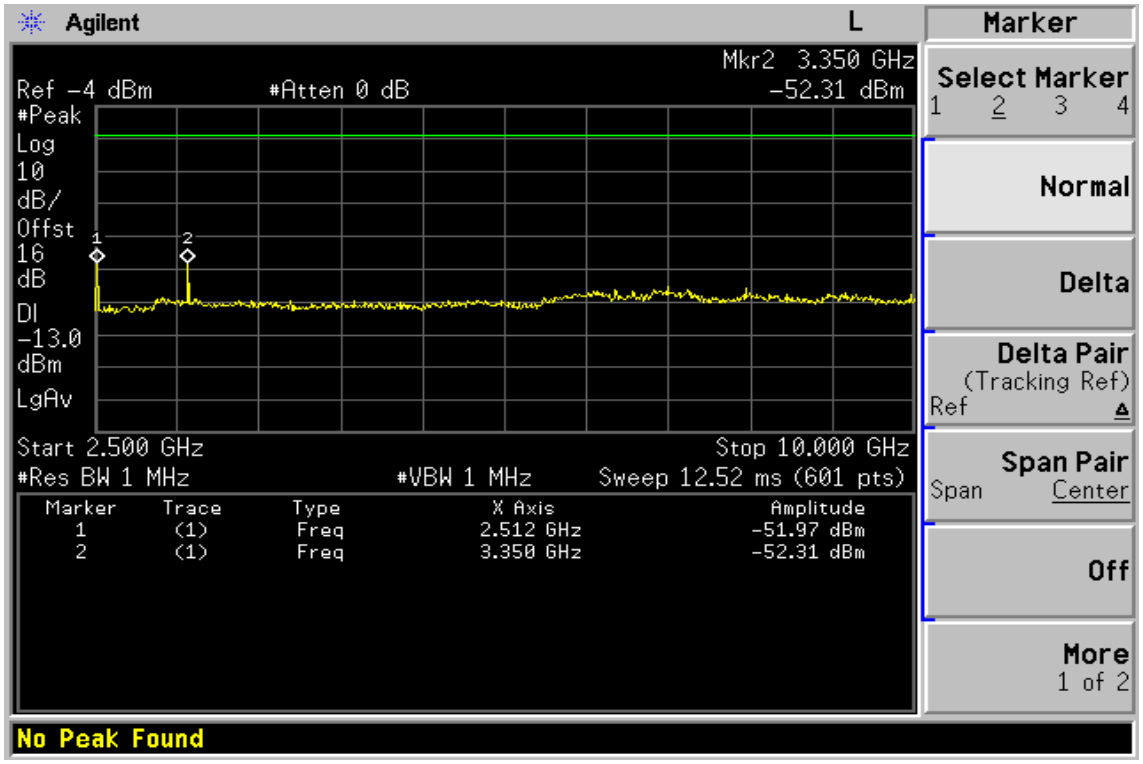
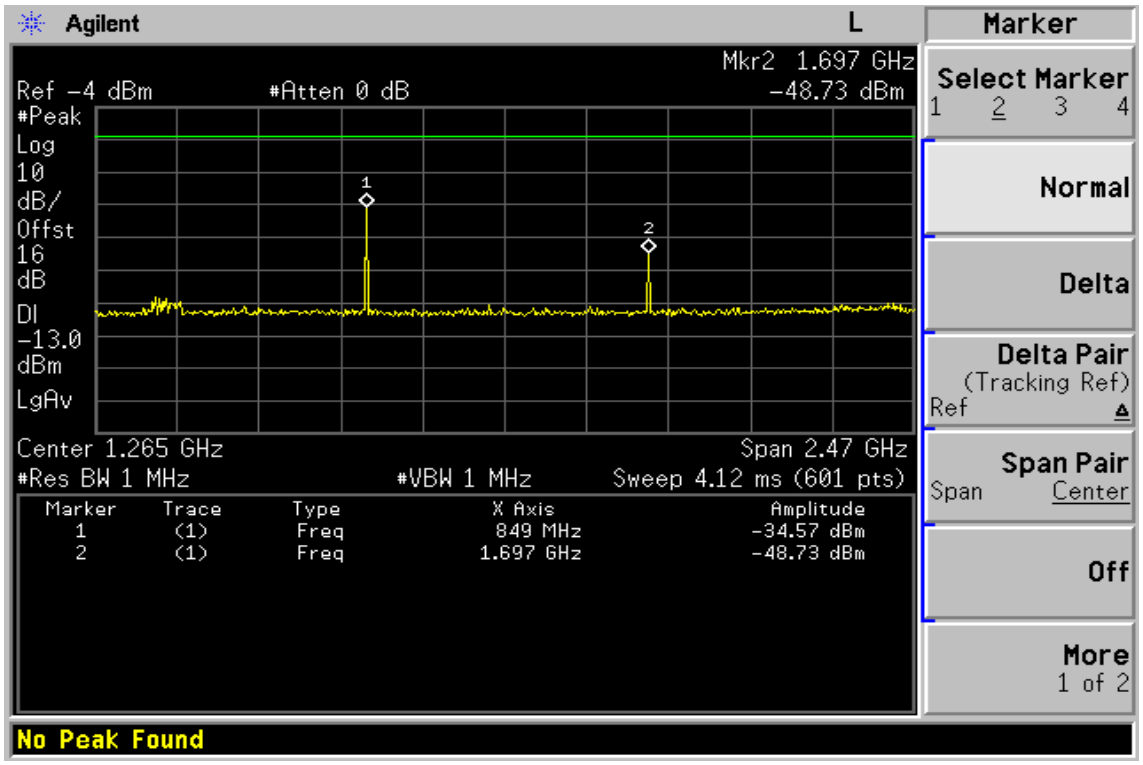



**Figure 8-3: Out of Band emission at antenna terminals–GSM Channel Highest**



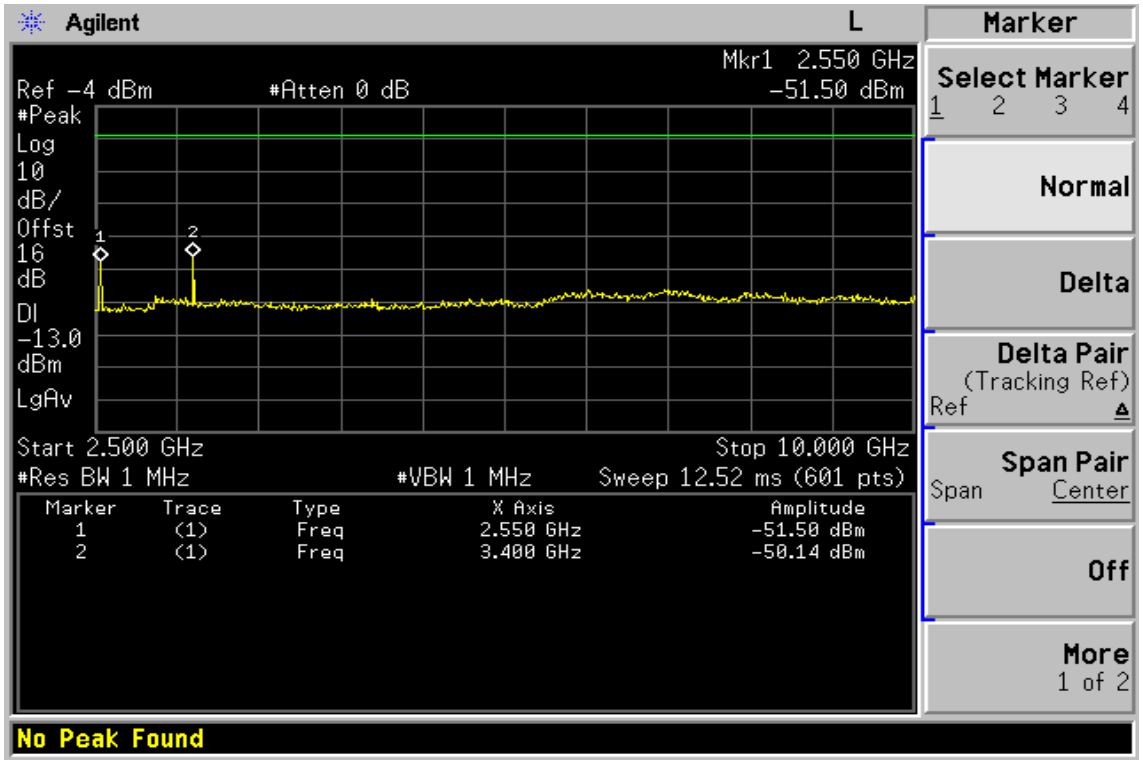



**Figure 8-4: Band edge emission at antenna terminals – GSM Channel Lowest**

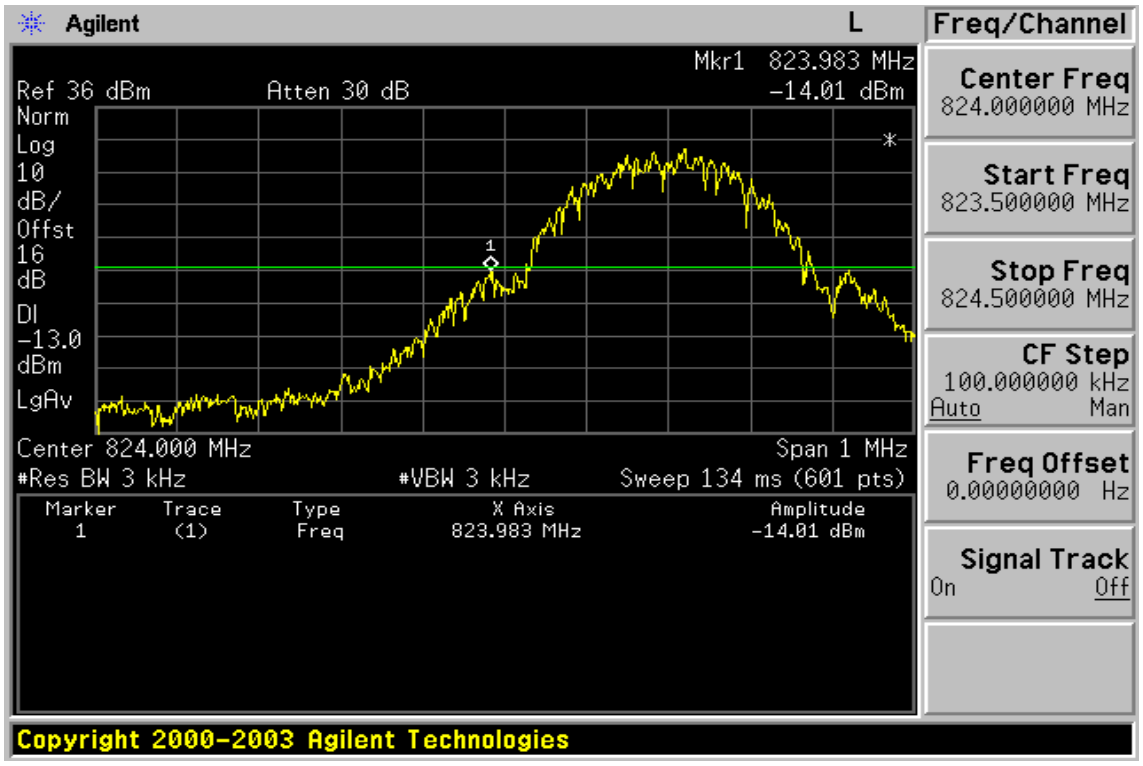



**Figure 8-5: Band edge emission at antenna terminals – GSM Channel Highest**

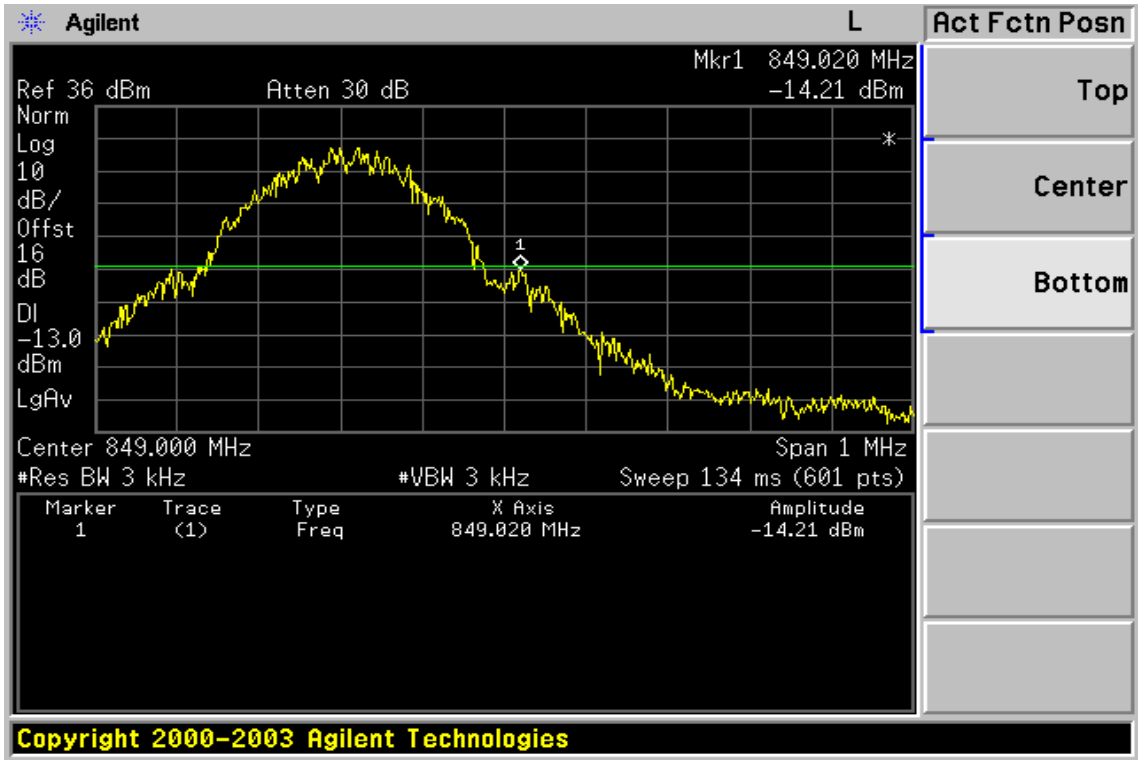
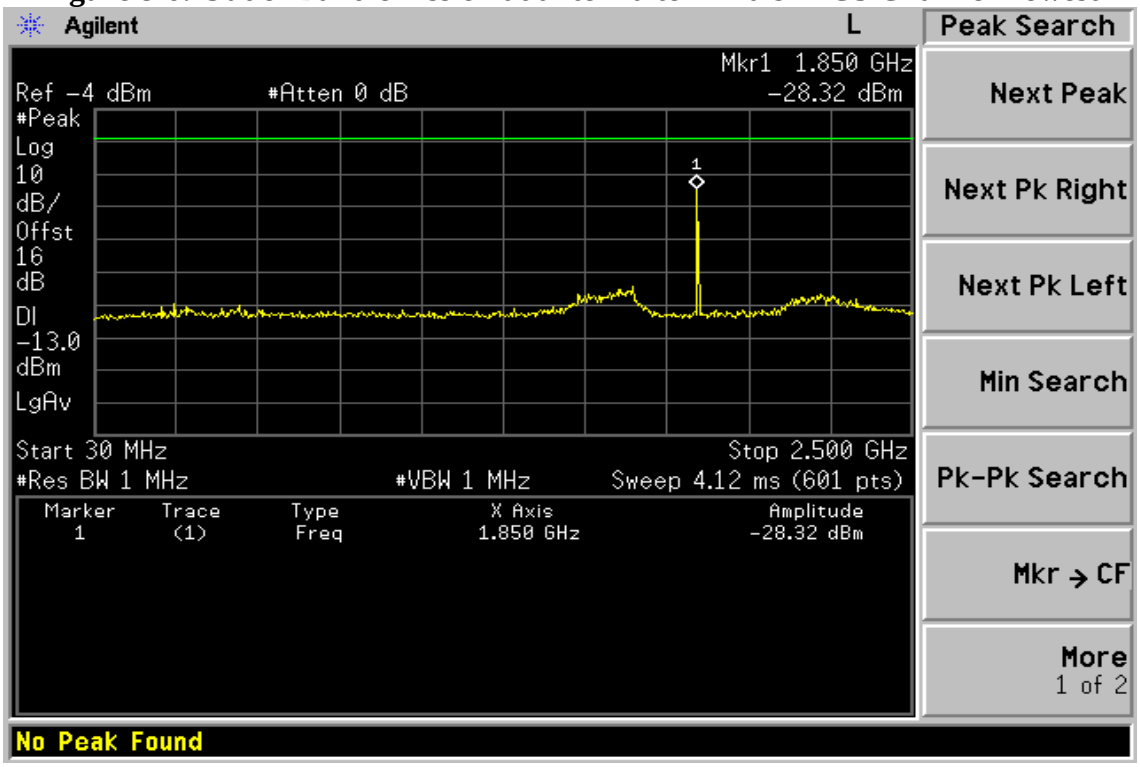


**Figure 8-6: Out of Band emission at antenna terminals– PCS Channel Lowest**



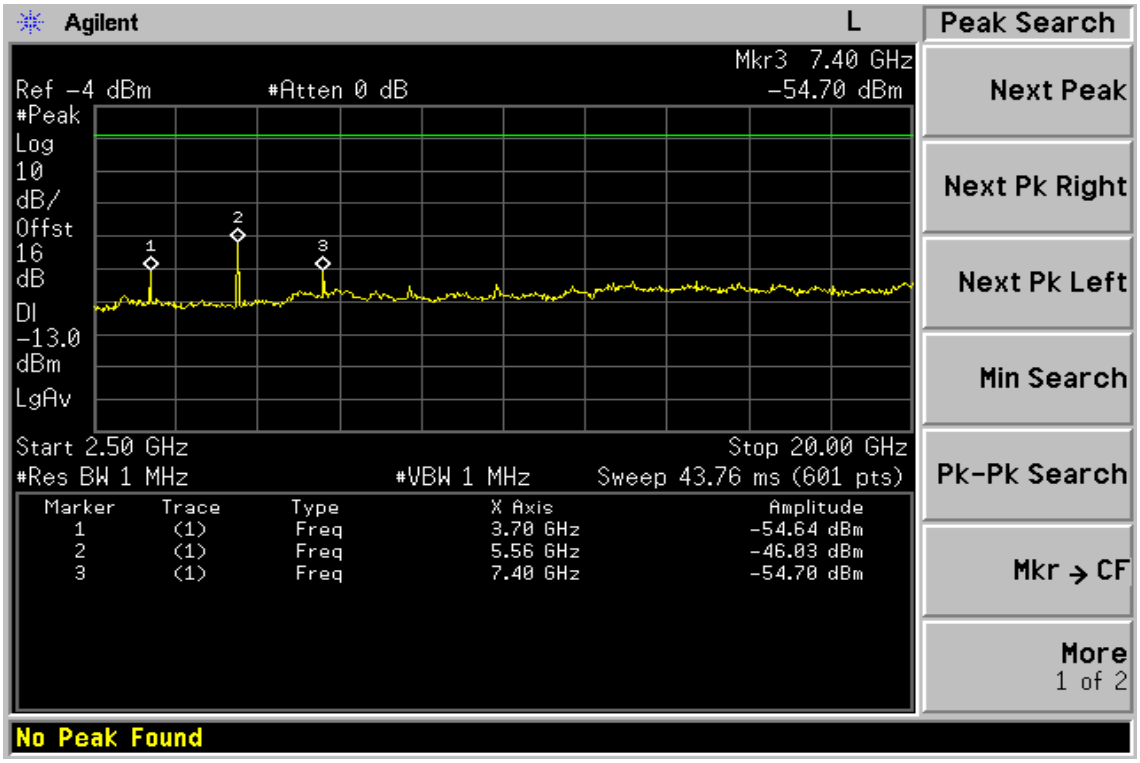
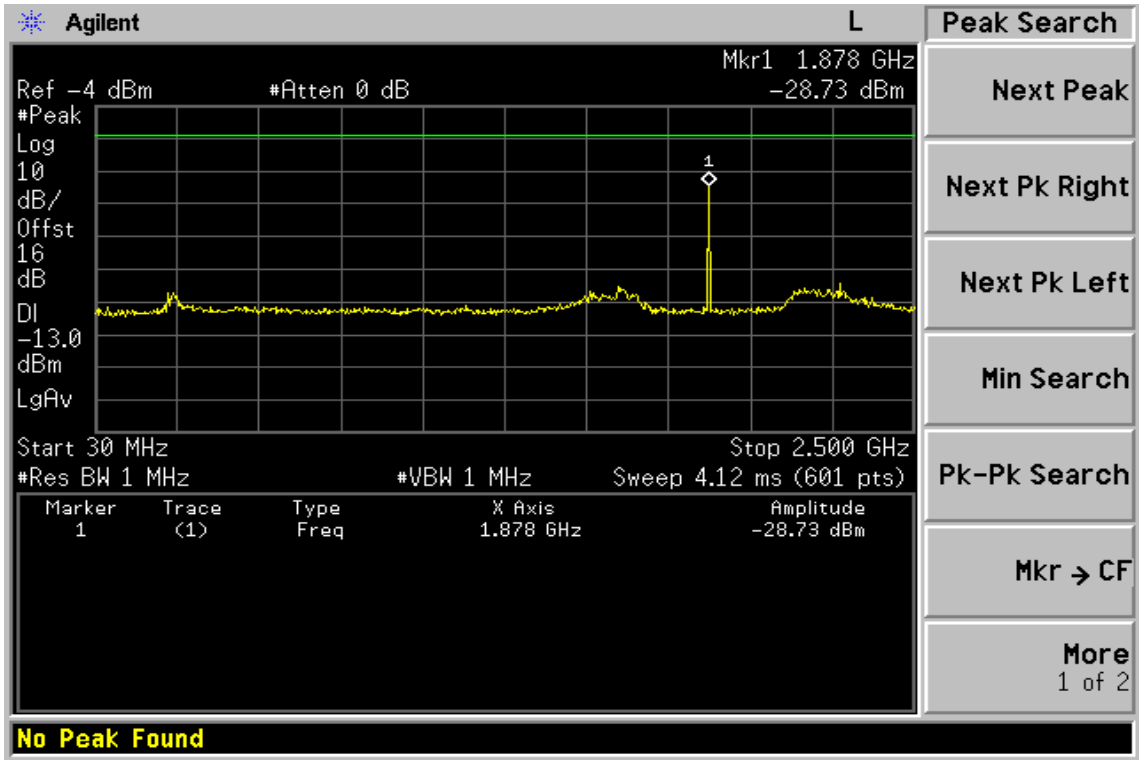



**Figure 8-7: Out of Band emission at antenna terminals –PCS Channel Mid**



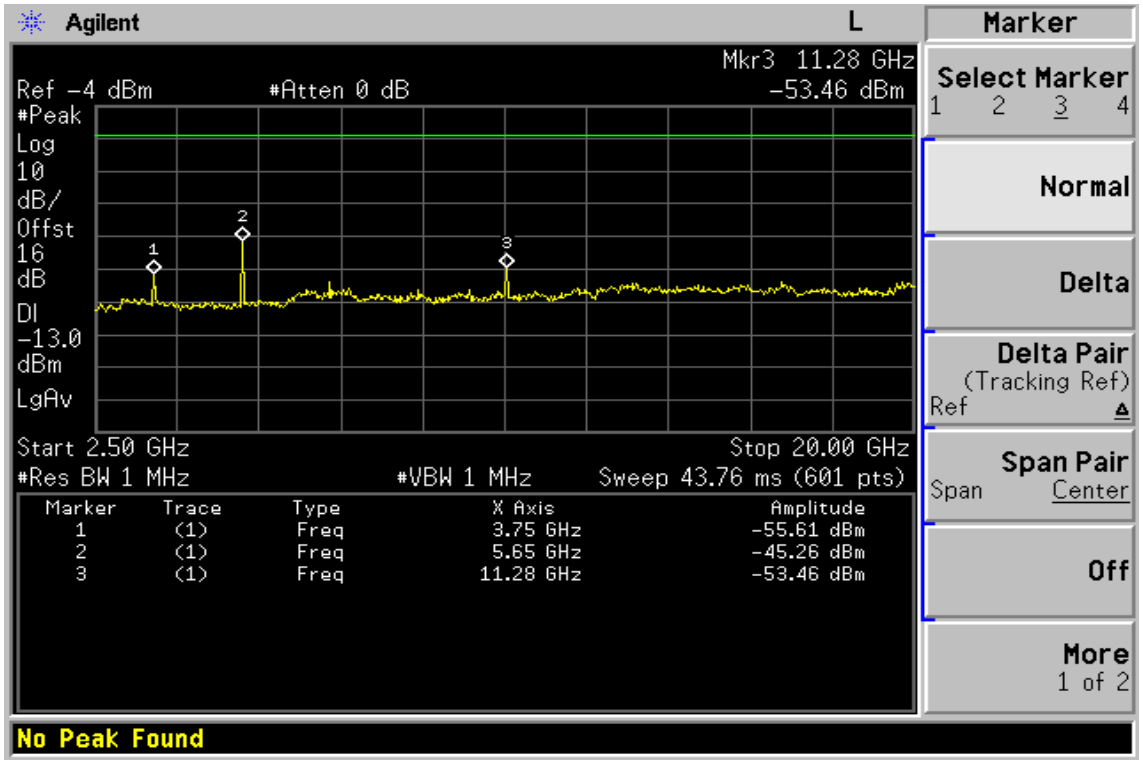
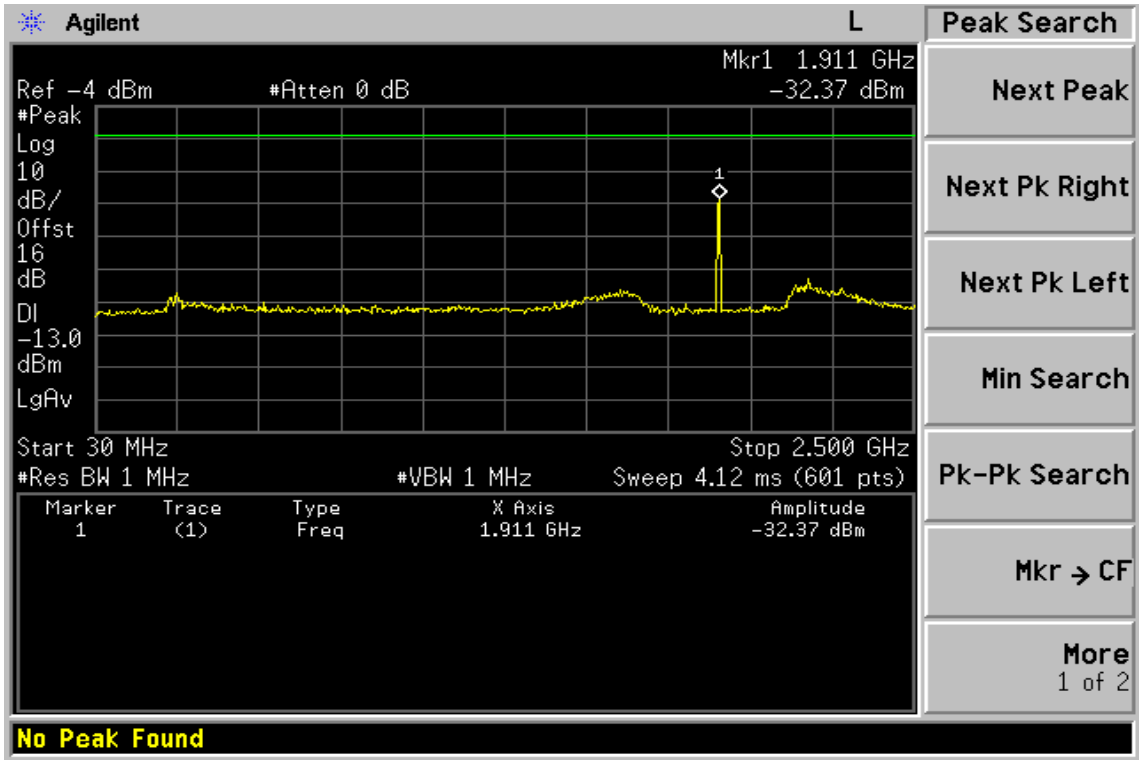



**Figure 8-8: Out of Band emission at antenna terminals–PCS Channel Highest**



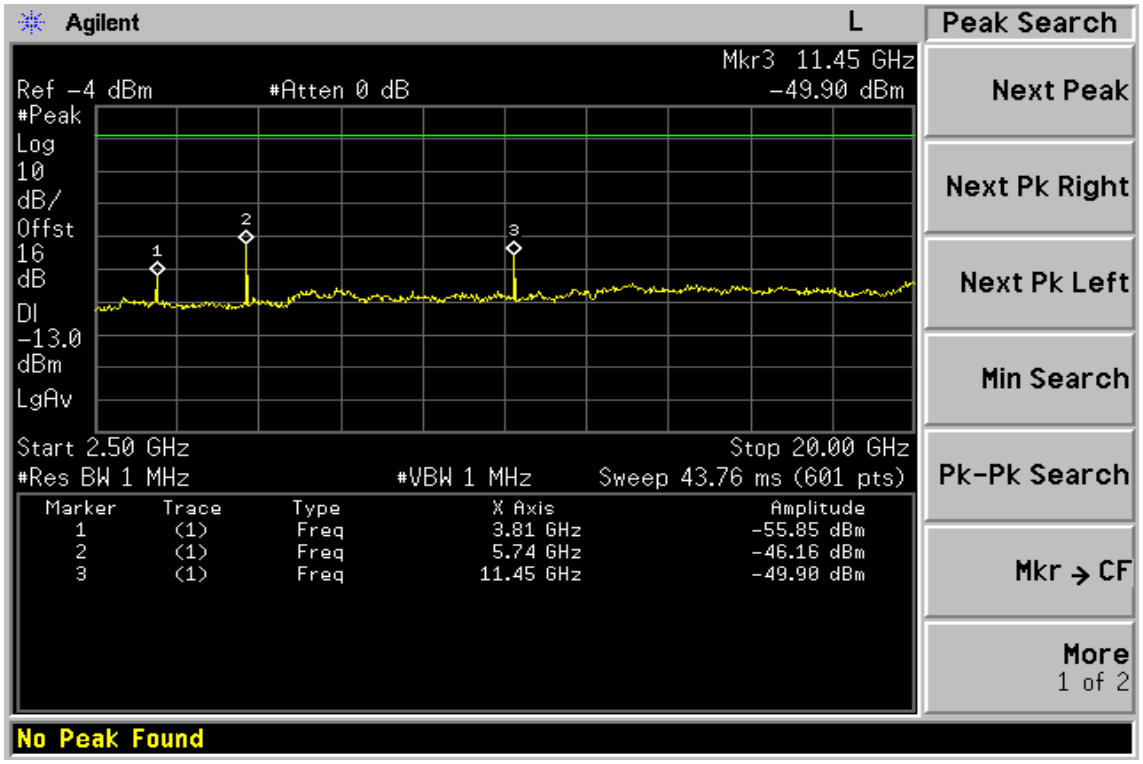



**Figure 8-9: Bad edge emission at antenna terminals – PCS Channel Lowest**

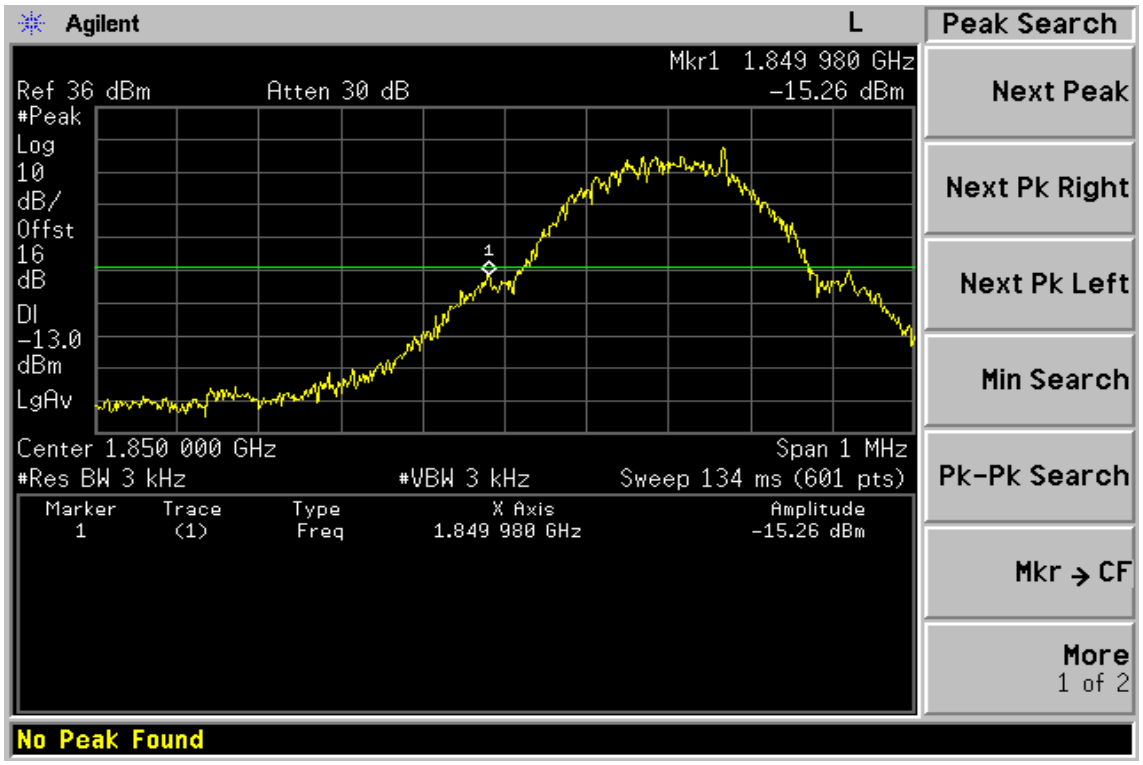



**Figure 8-10: Band edge emission at antenna terminals – PCS Channel Highest**

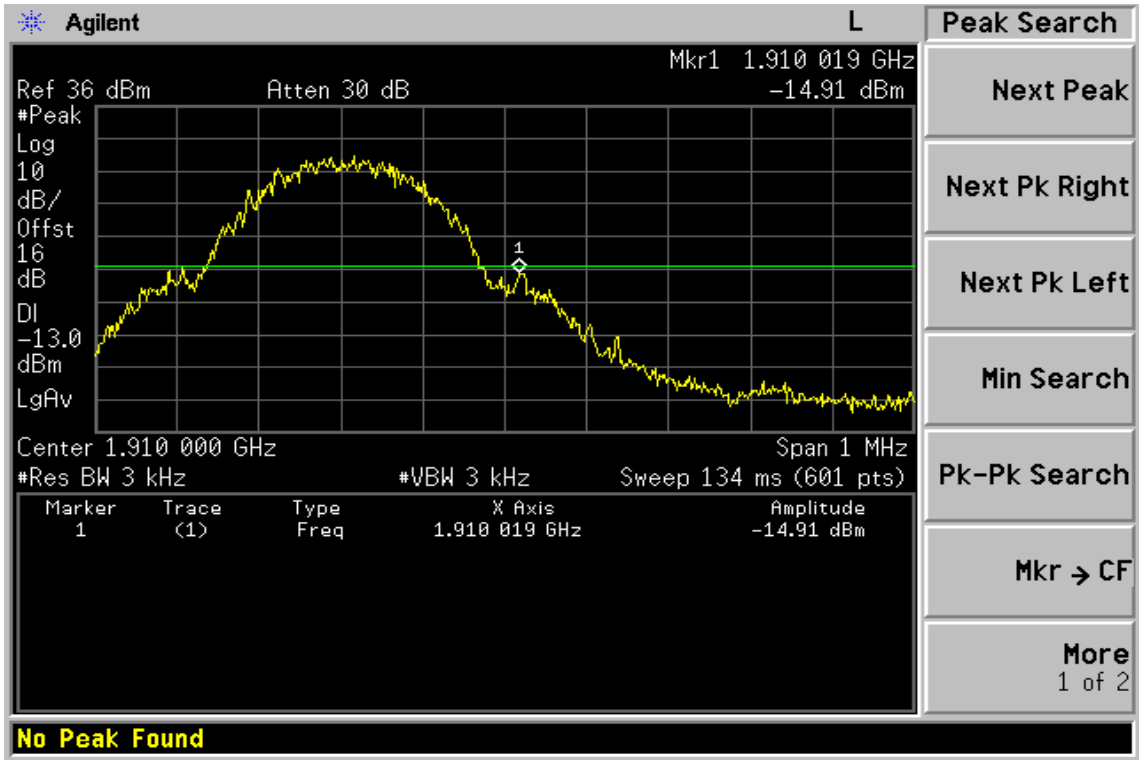
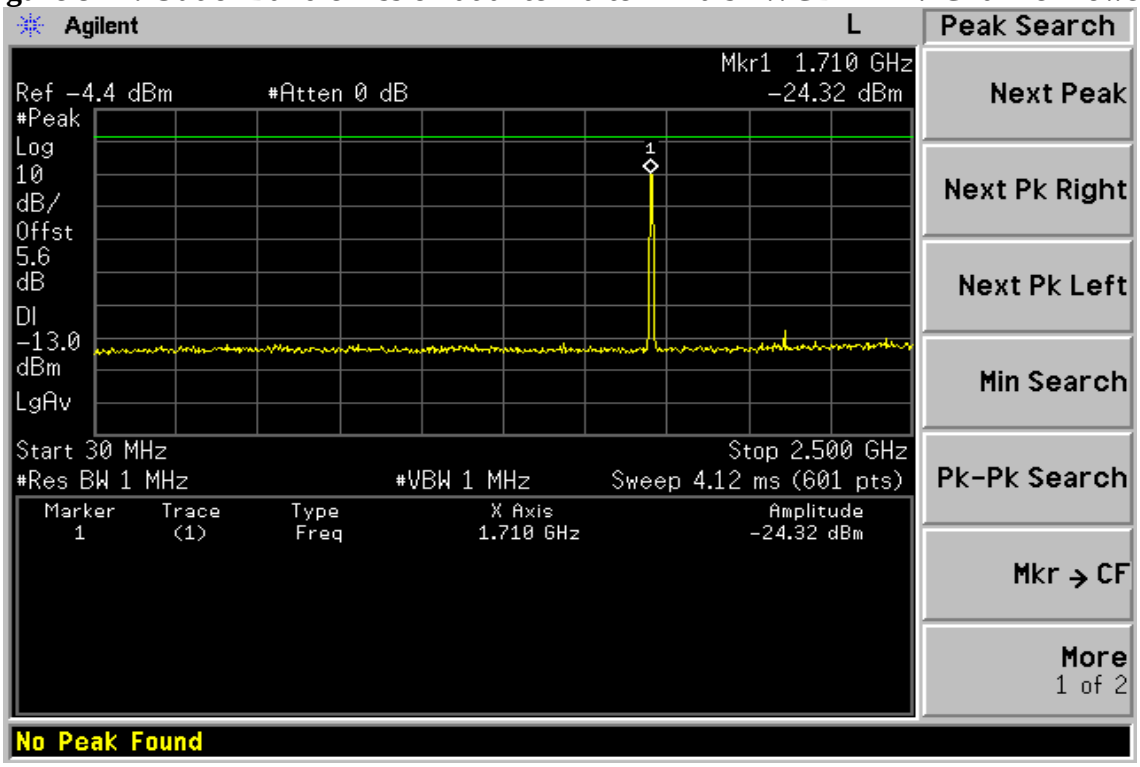


**Figure 8-11: Out of Band emission at antenna terminals– WCDMA IV Channel Lowest**



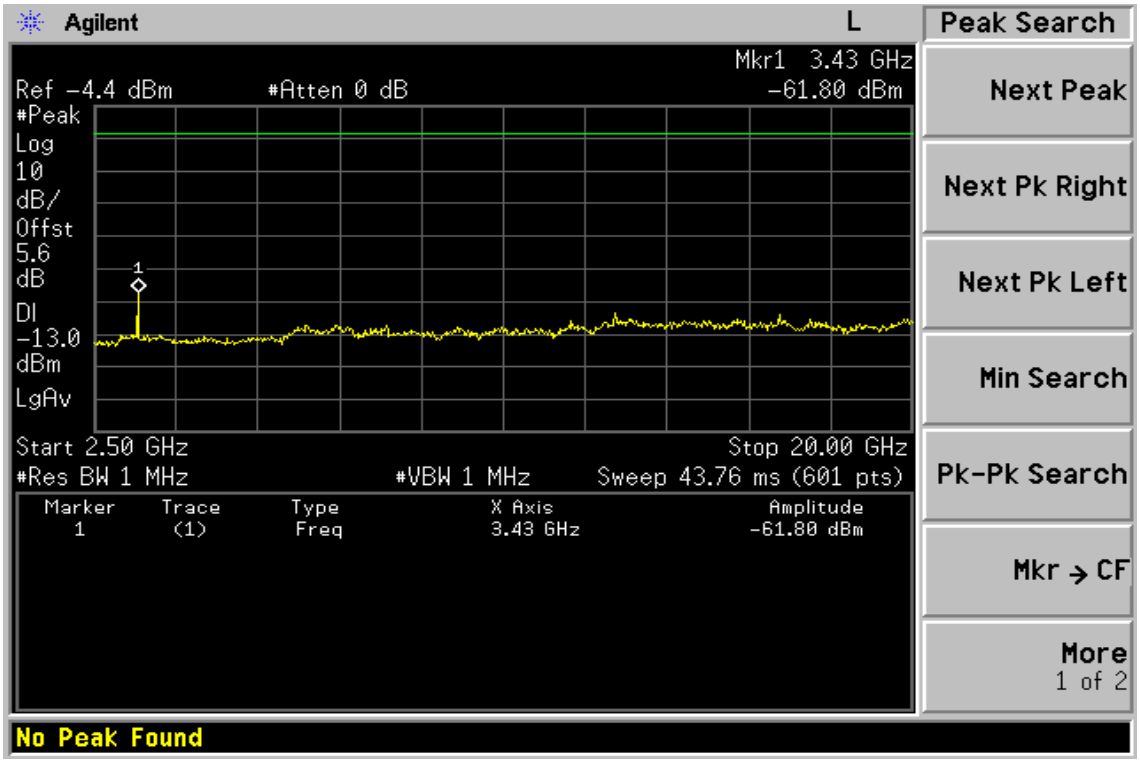
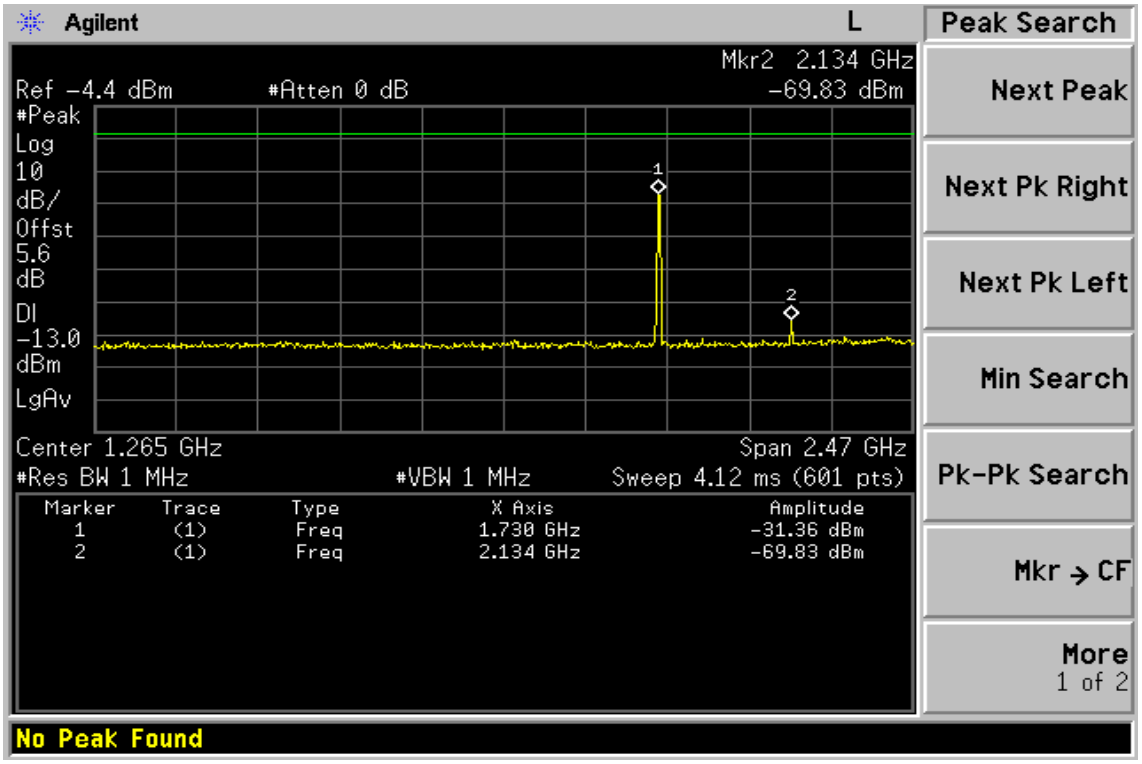



**Figure 8-12: Out of Band emission at antenna terminals –WCDMA IV Channel Mid**



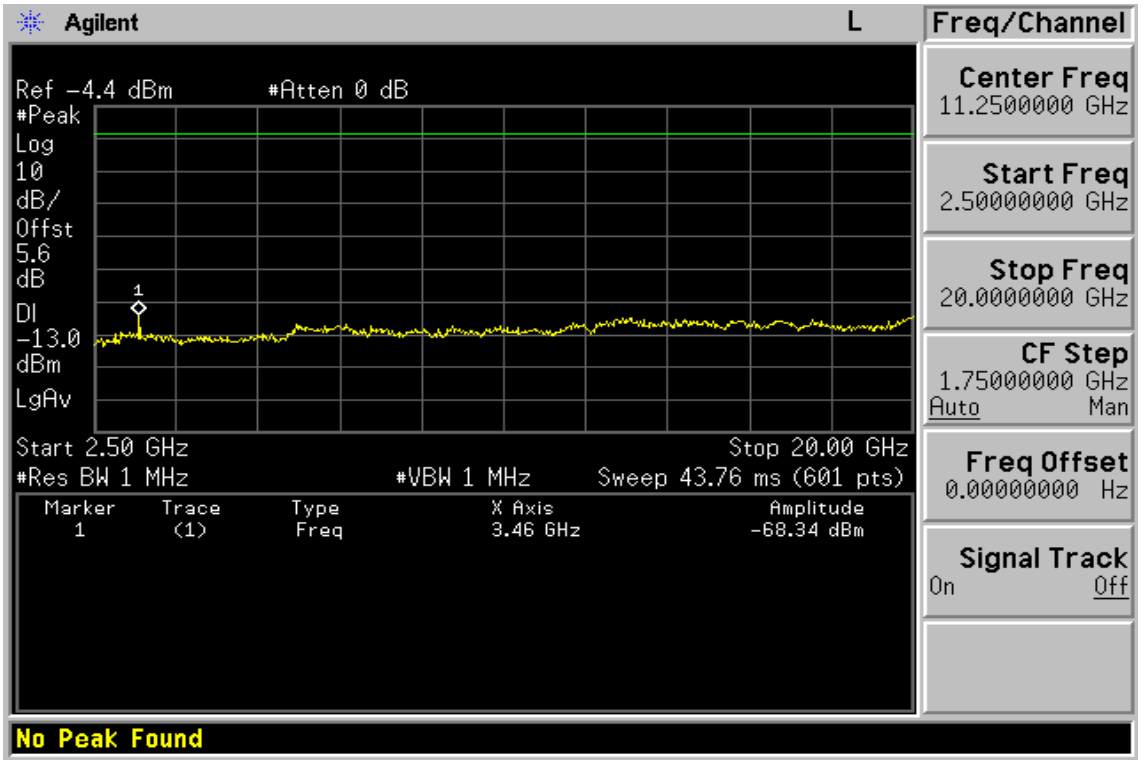
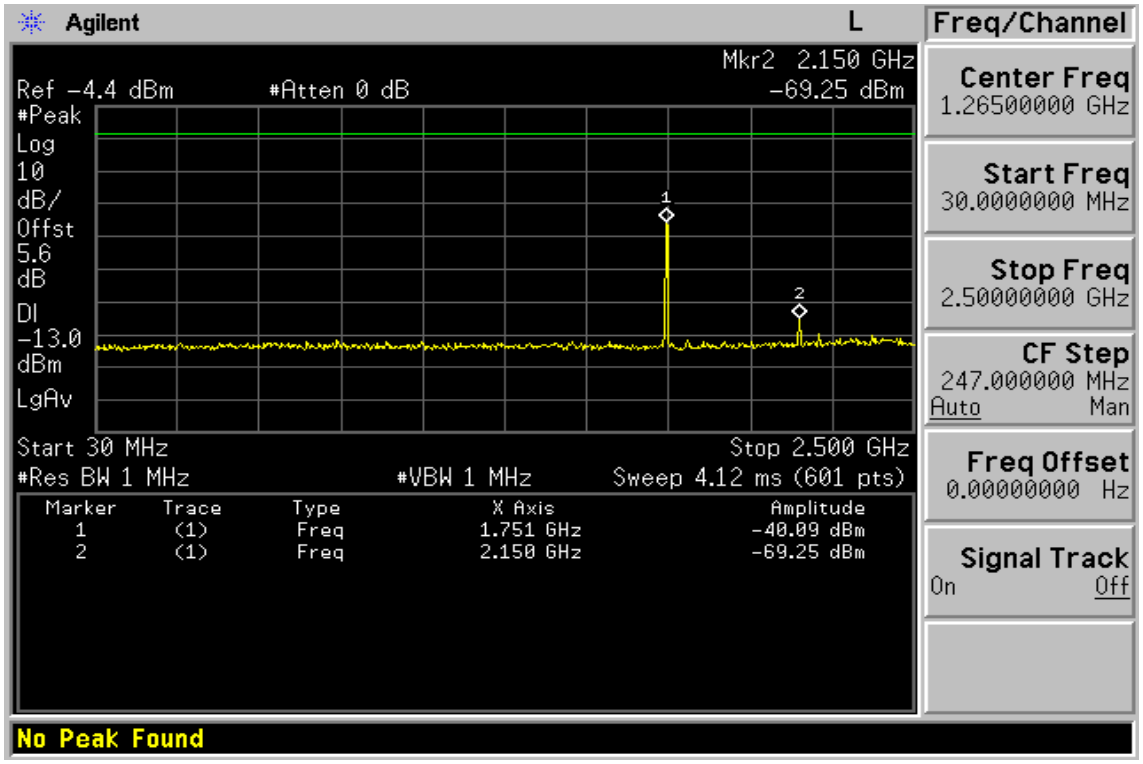



**Figure 8-13: Out of Band emission at antenna terminals–WCDMA IV Channel Highest**



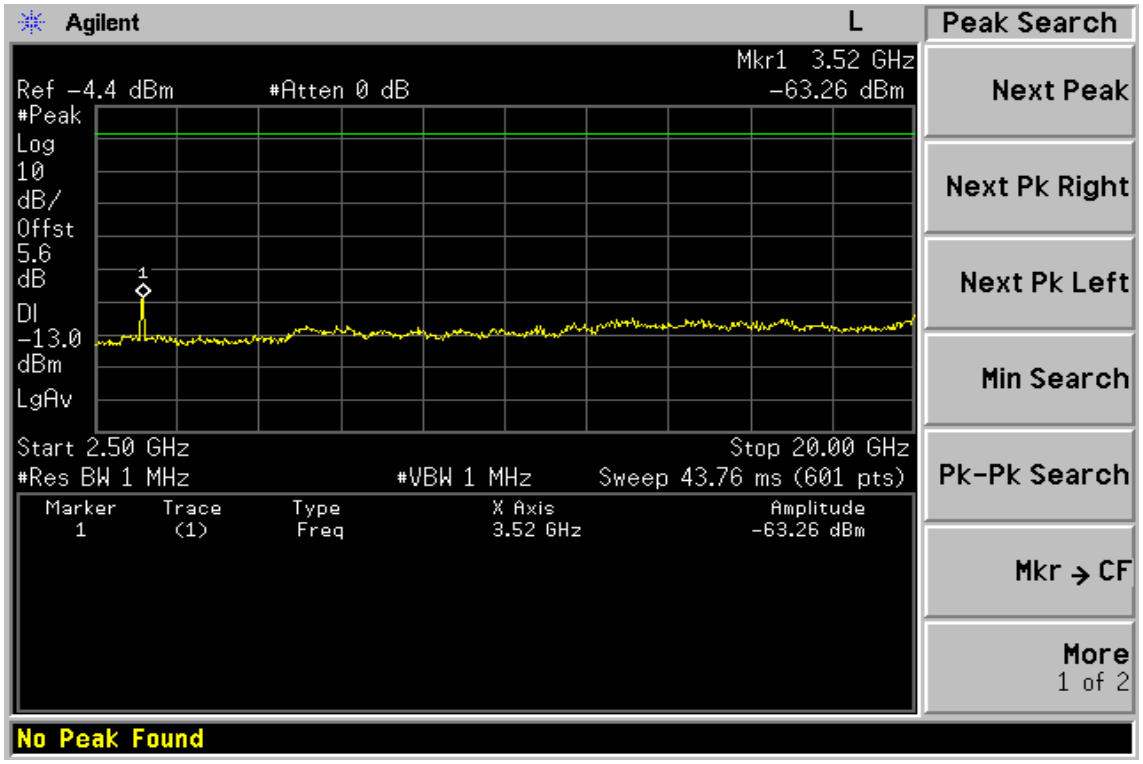



**Figure 8-14: Bad edge emission at antenna terminals –WCDMA IV Channel Lowest**

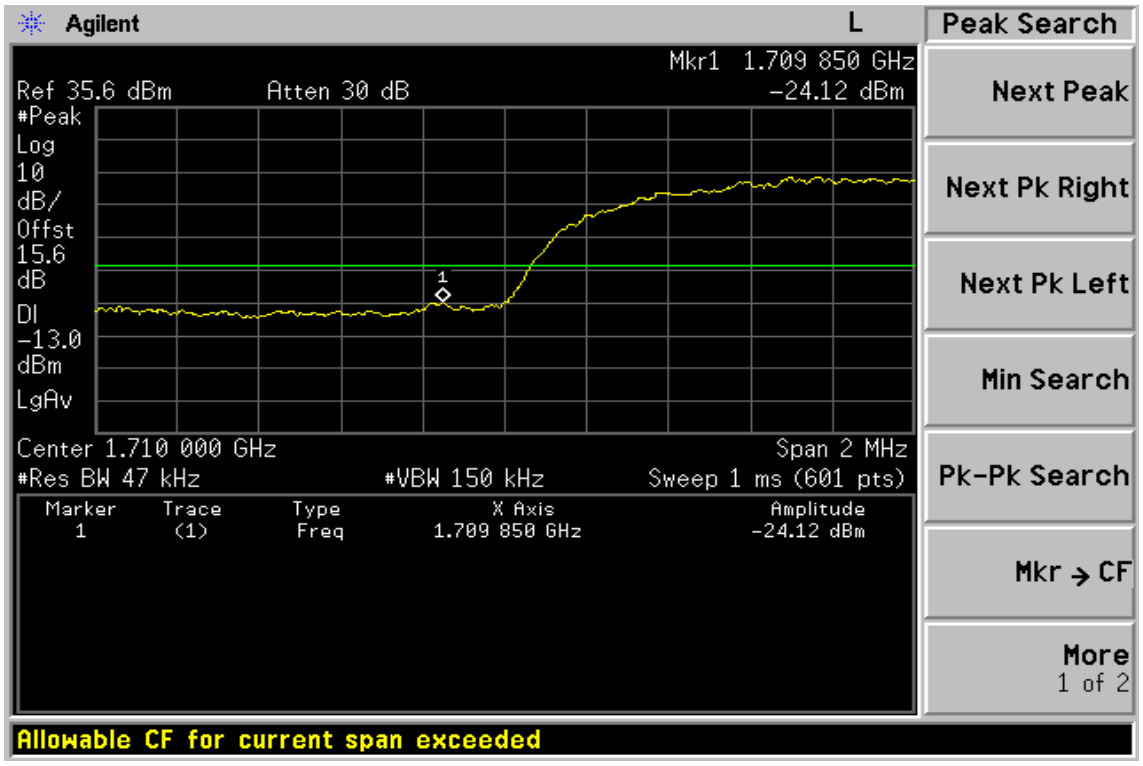
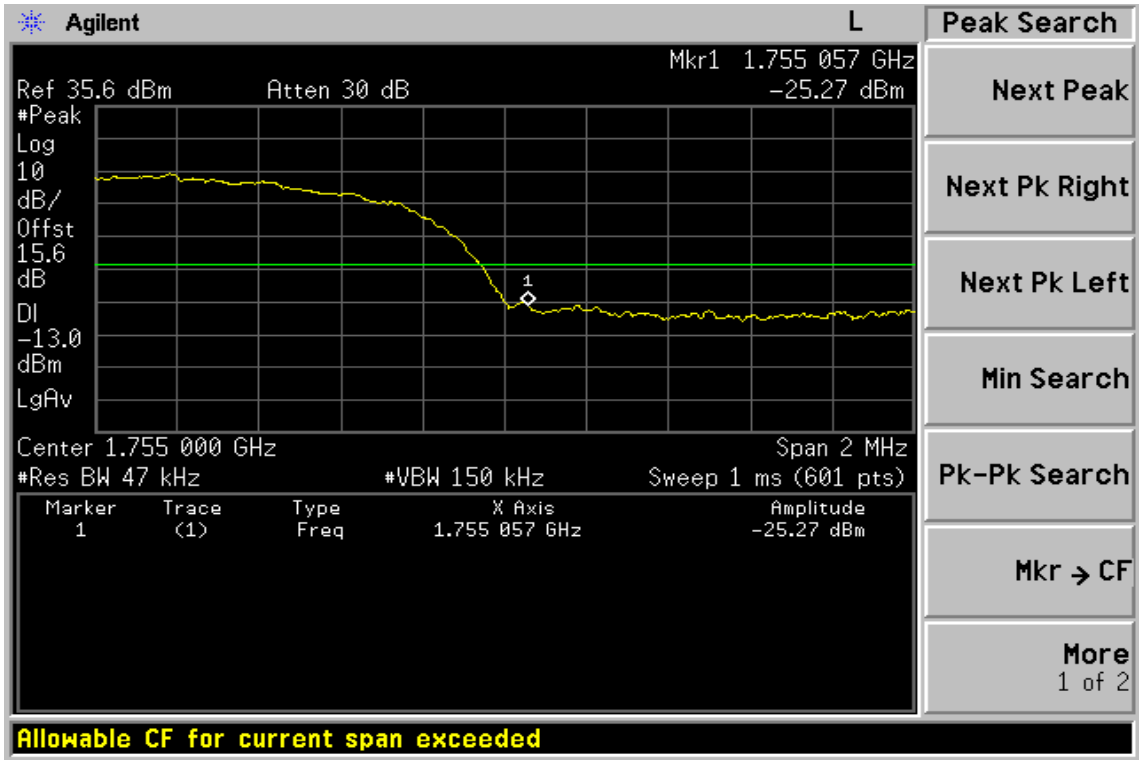



**Figure 8-15: Band edge emission at antenna terminals –WCDMA IV Channel Highest**



# 9 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

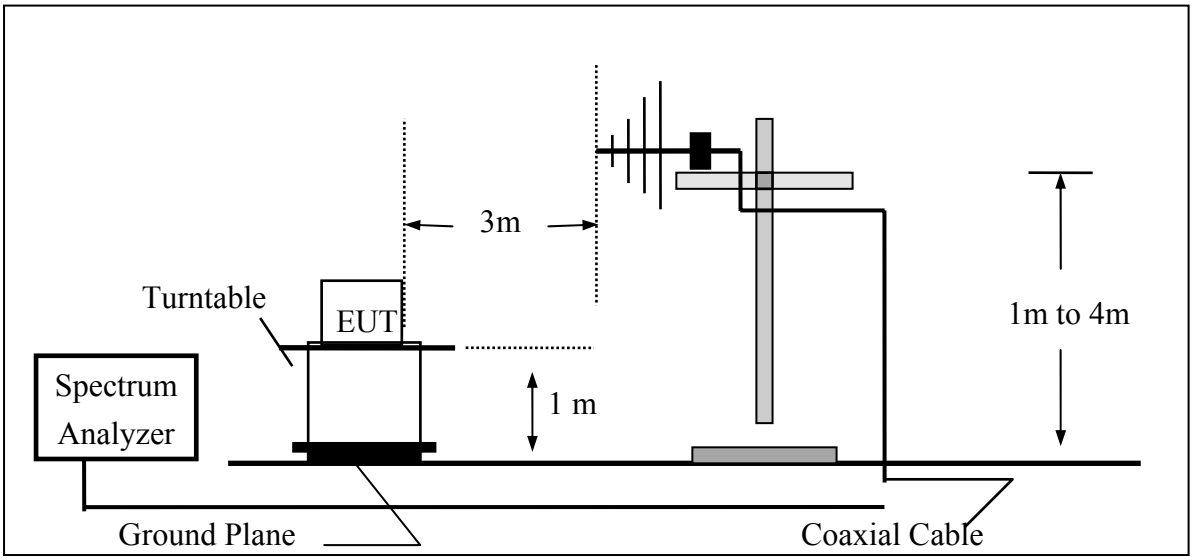
## 9.1 Standard Applicable

According to FCC §2.1053,

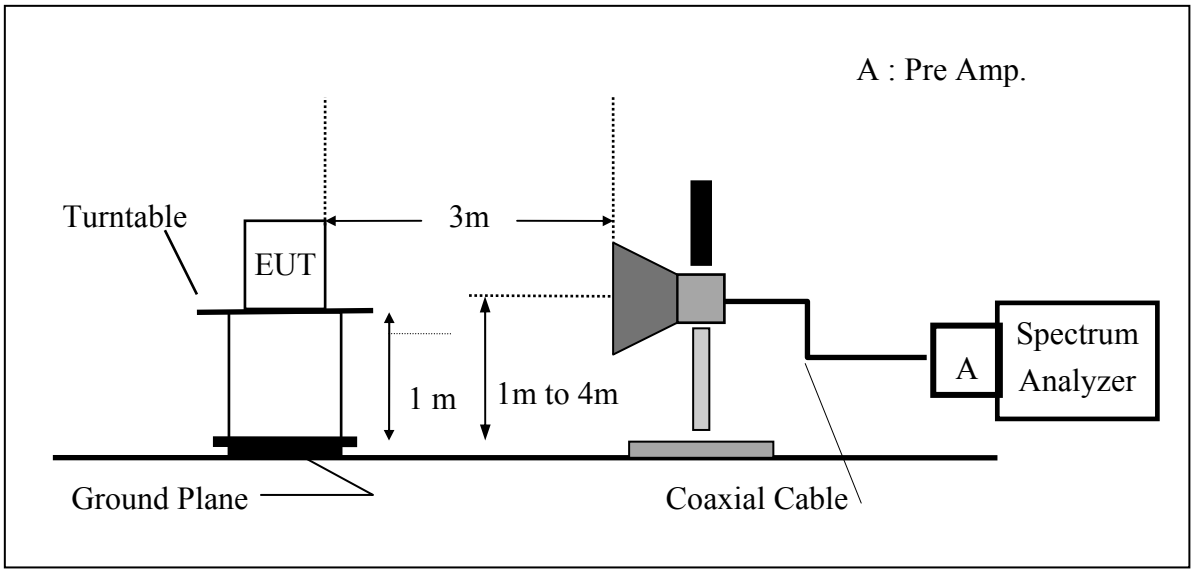
FCC §22.917(a),§24.238(a), §27.53(h) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

## 9.2 EUT Setup (Block Diagram of Configuration)

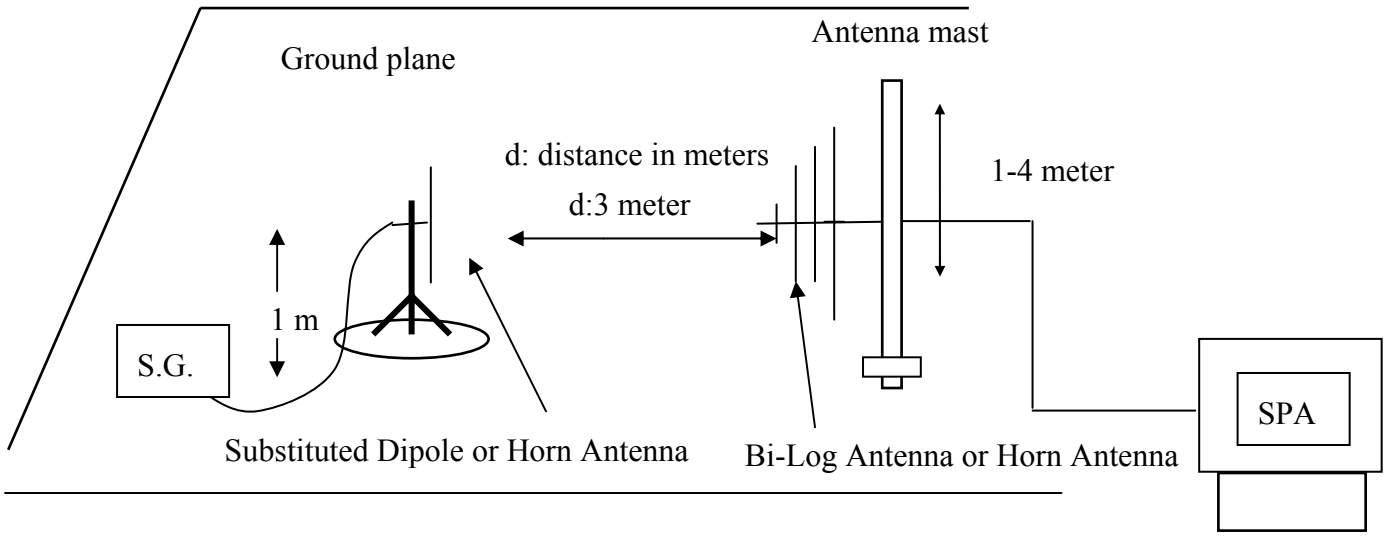
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz




(C) Substituted Method Test Set-UP



## 9.3 Measurement Procedure

The EUT was placed on a non-conductive, The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP= S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain(dBi) – Cable Loss (dB)

## 9.4 Measurement Equipment Used:

| EQUIPMENT TYPE | MFR | MODEL NUMBER | SERIAL NUMBER | LAST CAL. | CAL DUE. |
|---|---|---|---|---|---|
| Spectrum Analyzer | Agilent | E4446A | MY43360126 | 04/27/2008 | 04/26/2009 |
| Spectrum Analyzer | Agilent | E7405A | US41160416 | 07/04/2007 | 07/03/2008 |
| Communication Test | R&S | SMU200 | N/A | N/A | N/A |
| Bi-log Antenna | SCHWAZBECK | VULB9160 | 3224 | 11/14/2007 | 11/13/2008 |
| Horn antenna | SCHWAZBECK | BBHA 9120D | 309/320 | 08/16/2007 | 08/15/2008 |
| Pre-Amplifier | HP | 8447D | 2944A09469 | 07/19/2007 | 07/18/2008 |
| Pre-Amplifier | HP | 8494B | 3008A00578 | 02/26/2008 | 02/25/2009 |
| Signal Generator | R&S | SMR40 | 100210 | 02/09/2008 | 02/10/2009 |
| Turn Table | HD | DT420 | N/A | N.C.R | N.C.R |
| Antenna Tower | HD | MA240-N | 240/657 | N.C.R | N.C.R |
| Controller | HD | HD100 | N/A | N.C.R | N.C.R |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-10M | 10m | 10/09/2007 | 10/08/2008 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-3M | 3m | 10/09/2007 | 10/08/2008 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA-0.5M | 0.5m | 10/09/2007 | 10/08/2008 |
| Site NSA | SGS | 966 chamber | N/A | 11/17/2007 | 11/16/2008 |
| Attenuator | Mini-Circult | BW-S10W5 | N/A | 09/23/2007 | 09/22/2008 |
| Dipole Antenna | SCHWAZBECK | VHAP | 908/909 | 06/09/2007 | 06/10/2008 |
| Dipole Antenna | SCHWAZBECK | UHAP | 891/892 | 06/09/2007 | 06/10/2008 |
| Horn antenna | SCHWAZBECK | BBHA 9120D | N/A | 08/16/2007 | 08/15/2008 |

## 9.5 Measurement Result

Refer to attach tabular data sheets.

## Radiated Spurious Emission Measurement Result: GSM 850 Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Low H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 824.20 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 56.19 | V | -66.57 | -0.49 | 0.67 | -67.73 | -13.00 | -54.73 |
| 85.29 | 57.75 | V | -60.87 | -7.75 | 0.44 | -69.06 | -13.00 | -56.06 |
| 109.54 | 50.51 | V | -68.41 | -7.77 | 0.91 | -77.08 | -13.00 | -64.08 |
| 155.13 | 45.70 | V | -68.83 | -7.80 | 1.05 | -77.68 | -13.00 | -64.68 |
| 327.79 | 44.41 | V | -67.84 | -7.76 | 1.56 | -77.17 | -13.00 | -64.17 |
| 824.00 | 84.89 | V | -18.84 | -7.87 | 2.48 | -29.19 | -13.00 | -16.19 |
| 1648.40 | 63.81 | V | -51.82 | 9.29 | 3.56 | -46.10 | -13.00 | -33.10 |
| 2472.60 | 72.41 | V | -41.16 | 10.08 | 4.42 | -35.51 | -13.00 | -22.51 |
| 3288.00 | 58.66 | V | -54.56 | 12.15 | 5.14 | -47.55 | -13.00 | -34.55 |
| 3296.80 | --- | V | | 12.17 | 5.15 | | -13.00 | |
| 4121.00 | --- | V | | 12.61 | 5.77 | | -13.00 | |
| 4945.20 | --- | V | | 12.65 | 6.40 | | -13.00 | |
| 5769.40 | --- | V | | 13.55 | 7.12 | | -13.00 | |
| 6593.60 | --- | V | | 12.05 | 7.73 | | -13.00 | |
| 7417.80 | --- | V | | 11.49 | 8.21 | | -13.00 | |
| 8242.00 | --- | V | | 11.48 | 8.84 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: GSM 850 Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Low H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 824.20 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 155.13 | 46.16 | H | -70.57 | -7.80 | 1.05 | -79.43 | -13.00 | -66.43 |
| 216.24 | 46.33 | H | -67.27 | -7.86 | 1.35 | -76.48 | -13.00 | -63.48 |
| 264.74 | 46.19 | H | -68.13 | -7.90 | 1.43 | -77.45 | -13.00 | -64.45 |
| 329.73 | 44.73 | H | -68.02 | -7.75 | 1.57 | -77.35 | -13.00 | -64.35 |
| 611.03 | 43.97 | H | -62.28 | -7.79 | 2.13 | -72.20 | -13.00 | -59.20 |
| 824.00 | 89.44 | H | -14.03 | -7.87 | 2.48 | -24.38 | -13.00 | -11.38 |
| 1648.40 | 68.28 | H | -47.19 | 9.29 | 3.56 | -41.47 | -13.00 | -28.47 |
| 2472.60 | 63.24 | H | -49.94 | 10.08 | 4.42 | -44.29 | -13.00 | -31.29 |
| 3296.80 | --- | H | | 12.17 | 5.15 | | -13.00 | |
| 4121.00 | --- | H | | 12.61 | 5.77 | | -13.00 | |
| 4945.20 | --- | H | | 12.65 | 6.40 | | -13.00 | |
| 5769.40 | --- | H | | 13.55 | 7.12 | | -13.00 | |
| 6593.60 | --- | H | | 12.05 | 7.73 | | -13.00 | |
| 7417.80 | --- | H | | 11.49 | 8.21 | | -13.00 | |
| 8242.00 | --- | H | | 11.48 | 8.84 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Mid H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 836.60 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 56.69 | V | -66.07 | -0.49 | 0.67 | -67.23 | -13.00 | -54.23 |
| 85.29 | 56.57 | V | -62.05 | -7.75 | 0.44 | -70.24 | -13.00 | -57.24 |
| 133.79 | 47.30 | V | -68.86 | -7.79 | 0.97 | -77.62 | -13.00 | -64.62 |
| 286.08 | 45.86 | V | -67.39 | -7.91 | 1.44 | -76.74 | -13.00 | -63.74 |
| 1663.00 | 62.91 | V | -52.73 | 9.33 | 3.58 | -46.98 | -13.00 | -33.98 |
| 1673.20 | --- | V | | 9.36 | 3.59 | | -13.00 | |
| 2509.80 | 73.70 | V | -39.74 | 10.09 | 4.46 | -34.11 | -13.00 | -21.11 |
| 3333.50 | 59.12 | V | -54.06 | 12.25 | 5.18 | -46.99 | -13.00 | -33.99 |
| 3346.40 | --- | V | | 12.28 | 5.19 | | -13.00 | |
| 4183.00 | --- | V | | 12.62 | 5.82 | | -13.00 | |
| 5019.60 | --- | V | | 12.67 | 6.46 | | -13.00 | |
| 5856.20 | --- | V | | 13.68 | 7.21 | | -13.00 | |
| 6692.80 | --- | V | | 11.95 | 7.80 | | -13.00 | |
| 7529.40 | --- | V | | 11.45 | 8.27 | | -13.00 | |
| 8366.00 | --- | V | | 11.59 | 8.93 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Mid H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 836.60 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 48.18 | H | -74.52 | -0.49 | 0.67 | -75.68 | -13.00 | -62.68 |
| 155.13 | 46.33 | H | -70.40 | -7.80 | 1.05 | -79.26 | -13.00 | -66.26 |
| 264.74 | 48.67 | H | -65.65 | -7.90 | 1.43 | -74.97 | -13.00 | -61.97 |
| 507.25 | 50.49 | H | -60.03 | -7.73 | 1.88 | -69.64 | -13.00 | -56.64 |
| 1663.00 | 66.17 | H | -49.31 | 9.33 | 3.58 | -43.55 | -13.00 | -30.55 |
| 1673.20 | --- | H | | 9.36 | 3.59 | | -13.00 | |
| 2509.80 | 63.49 | H | -49.55 | 10.09 | 4.46 | -43.92 | -13.00 | -30.92 |
| 3333.50 | 57.88 | H | -55.30 | 12.25 | 5.18 | -48.23 | -13.00 | -35.23 |
| 3346.40 | --- | H | | 12.28 | 5.19 | | -13.00 | |
| 4183.00 | --- | H | | 12.62 | 5.82 | | -13.00 | |
| 5019.60 | --- | H | | 12.67 | 6.46 | | -13.00 | |
| 5856.20 | --- | H | | 13.68 | 7.21 | | -13.00 | |
| 6692.80 | --- | H | | 11.95 | 7.80 | | -13.00 | |
| 7529.40 | --- | H | | 11.45 | 8.27 | | -13.00 | |
| 8366.00 | --- | H | | 11.59 | 8.93 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: GSM 850 Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH High H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 848.80 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 57.12 | V | -65.64 | -0.49 | 0.67 | -66.80 | -13.00 | -53.80 |
| 85.29 | 56.55 | V | -62.07 | -7.75 | 0.44 | -70.26 | -13.00 | -57.26 |
| 150.28 | 45.14 | V | -69.19 | -7.80 | 1.02 | -78.01 | -13.00 | -65.01 |
| 286.08 | 45.45 | V | -67.80 | -7.91 | 1.44 | -77.15 | -13.00 | -64.15 |
| 475.23 | 58.57 | V | -51.58 | -7.71 | 1.82 | -61.11 | -13.00 | -48.11 |
| 850.00 | 89.74 | V | -14.00 | -7.88 | 2.54 | -24.42 | -13.00 | -11.42 |
| 1697.60 | 63.27 | V | -52.40 | 9.44 | 3.61 | -46.57 | -13.00 | -33.57 |
| 2546.40 | 73.94 | V | -39.50 | 10.20 | 4.49 | -33.80 | -13.00 | -20.80 |
| 3385.50 | 59.10 | V | -54.04 | 12.36 | 5.22 | -46.90 | -13.00 | -33.90 |
| 3395.20 | --- | V | | 12.38 | 5.23 | | -13.00 | |
| 4244.00 | --- | V | | 12.63 | 5.87 | | -13.00 | |
| 5092.80 | --- | V | | 12.74 | 6.51 | | -13.00 | |
| 5941.60 | --- | V | | 13.81 | 7.31 | | -13.00 | |
| 6790.40 | --- | V | | 11.86 | 7.87 | | -13.00 | |
| 7639.20 | --- | V | | 11.40 | 8.36 | | -13.00 | |
| 8488.00 | --- | V | | 11.70 | 9.02 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: GSM 850 Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH High H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 848.80 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 72.68 | 50.42 | H | -73.14 | -1.45 | 0.74 | -75.33 | -13.00 | -62.33 |
| 167.74 | 46.03 | H | -69.75 | -7.81 | 1.13 | -78.69 | -13.00 | -65.69 |
| 216.24 | 48.06 | H | -65.54 | -7.86 | 1.35 | -74.75 | -13.00 | -61.75 |
| 463.59 | 59.00 | H | -51.29 | -7.71 | 1.81 | -60.81 | -13.00 | -47.81 |
| 633.34 | 44.93 | H | -62.14 | -7.80 | 2.20 | -72.14 | -13.00 | -59.14 |
| 850.00 | 93.27 | H | -10.47 | -7.88 | 2.54 | -20.89 | -13.00 | -7.89 |
| 1697.60 | 66.71 | H | -48.78 | 9.44 | 3.61 | -42.96 | -13.00 | -29.96 |
| 2546.40 | 64.45 | H | -48.61 | 10.20 | 4.49 | -42.91 | -13.00 | -29.91 |
| 3385.50 | 57.22 | H | -55.95 | 12.36 | 5.22 | -48.81 | -13.00 | -35.81 |
| 3395.20 | --- | H | | 12.38 | 5.23 | | -13.00 | |
| 4244.00 | --- | H | | 12.63 | 5.87 | | -13.00 | |
| 5092.80 | --- | H | | 12.74 | 6.51 | | -13.00 | |
| 5941.60 | --- | H | | 13.81 | 7.31 | | -13.00 | |
| 6790.40 | --- | H | | 11.86 | 7.87 | | -13.00 | |
| 7639.20 | --- | H | | 11.40 | 8.36 | | -13.00 | |
| 8488.00 | --- | H | | 11.70 | 9.02 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Low H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1850.20MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 56.45 | V | -66.31 | -0.49 | 0.67 | -67.47 | -13.00 | -54.47 |
| 85.29 | 57.44 | V | -61.18 | -7.75 | 0.44 | -69.37 | -13.00 | -56.37 |
| 109.54 | 50.46 | V | -68.46 | -7.77 | 0.91 | -77.13 | -13.00 | -64.13 |
| 158.04 | 45.44 | V | -69.20 | -7.81 | 1.07 | -78.08 | -13.00 | -65.08 |
| 293.84 | 45.52 | V | -67.00 | -7.92 | 1.45 | -76.36 | -13.00 | -63.36 |
| 1850.00 | 94.58 | V | -21.21 | 9.90 | 3.77 | -15.08 | -13.00 | -2.08 |
| 3691.00 | 65.50 | V | -47.05 | 12.61 | 5.45 | -39.90 | -13.00 | -26.90 |
| 3700.40 | --- | V | | 12.61 | 5.46 | | -13.00 | |
| 5543.50 | 59.74 | V | -48.04 | 13.22 | 6.88 | -41.70 | -13.00 | -28.70 |
| 5550.60 | --- | V | | 13.23 | 6.88 | | -13.00 | |
| 7400.80 | --- | V | | 11.50 | 8.20 | | -13.00 | |
| 9251.00 | --- | V | | 11.92 | 9.53 | | -13.00 | |
| 11101.20 | --- | V | | 11.66 | 10.53 | | -13.00 | |
| 12951.40 | --- | V | | 13.63 | 11.38 | | -13.00 | |
| 14801.60 | --- | V | | 12.76 | 12.26 | | -13.00 | |
| 16651.80 | --- | V | | 15.92 | 13.03 | | -13.00 | |
| 18502.00 | --- | V | | 18.75 | 7.03 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Low H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1850.20MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 48.04 | H | -74.66 | -0.49 | 0.67 | -75.82 | -13.00 | -62.82 |
| 143.49 | 45.89 | H | -71.42 | -7.79 | 1.00 | -80.22 | -13.00 | -67.22 |
| 324.88 | 45.01 | H | -68.07 | -7.78 | 1.55 | -77.40 | -13.00 | -64.40 |
| 441.28 | 56.70 | H | -53.78 | -7.69 | 1.79 | -63.26 | -13.00 | -50.26 |
| 674.08 | 45.12 | H | -62.50 | -7.83 | 2.30 | -72.63 | -13.00 | -59.63 |
| 1850.00 | 92.03 | H | -23.52 | 9.90 | 3.77 | -17.39 | -13.00 | -4.39 |
| 3691.00 | 65.34 | H | -47.23 | 12.61 | 5.45 | -40.08 | -13.00 | -27.08 |
| 3700.40 | --- | H | | 12.61 | 5.46 | | -13.00 | |
| 5543.50 | 59.70 | H | -47.89 | 13.22 | 6.88 | -41.55 | -13.00 | -28.55 |
| 5550.60 | --- | H | | 13.23 | 6.88 | | -13.00 | |
| 7400.80 | --- | H | | 11.50 | 8.20 | | -13.00 | |
| 9251.00 | --- | H | | 11.92 | 9.53 | | -13.00 | |
| 11101.20 | --- | H | | 11.66 | 10.53 | | -13.00 | |
| 12951.40 | --- | H | | 13.63 | 11.38 | | -13.00 | |
| 14801.60 | --- | H | | 12.76 | 12.26 | | -13.00 | |
| 16651.80 | --- | H | | 15.92 | 13.03 | | -13.00 | |
| 18502.00 | --- | H | | 18.75 | 7.03 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Mid H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1880MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 56.44 | V | -66.32 | -0.49 | 0.67 | -67.48 | -13.00 | -54.48 |
| 85.29 | 56.56 | V | -62.06 | -7.75 | 0.44 | -70.25 | -13.00 | -57.25 |
| 99.84 | 51.47 | V | -68.52 | -7.76 | 0.88 | -77.16 | -13.00 | -64.16 |
| 150.28 | 45.39 | V | -68.94 | -7.80 | 1.02 | -77.76 | -13.00 | -64.76 |
| 3756.00 | 62.97 | V | -49.41 | 12.60 | 5.50 | -42.31 | -13.00 | -29.31 |
| 3760.00 | --- | V | | 12.60 | 5.50 | | -13.00 | |
| 5640.00 | 58.07 | V | -49.35 | 13.36 | 6.98 | -42.98 | -13.00 | -29.98 |
| 7520.00 | --- | V | | 11.45 | 8.26 | | -13.00 | |
| 9400.00 | --- | V | | 11.93 | 9.61 | | -13.00 | |
| 11280.00 | --- | V | | 11.92 | 10.57 | | -13.00 | |
| 13160.00 | --- | V | | 13.33 | 11.53 | | -13.00 | |
| 15040.00 | --- | V | | 13.76 | 12.32 | | -13.00 | |
| 16920.00 | --- | V | | 15.27 | 13.14 | | -13.00 | |
| 18800.00 | --- | V | | 18.68 | 11.20 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Mid H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1880MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 75.59 | 49.61 | H | -74.30 | -1.85 | 0.75 | -76.90 | -13.00 | -63.90 |
| 158.04 | 45.74 | H | -70.77 | -7.81 | 1.07 | -79.65 | -13.00 | -66.65 |
| 349.13 | 45.77 | H | -65.69 | -7.64 | 1.65 | -74.98 | -13.00 | -61.98 |
| 434.49 | 55.95 | H | -54.82 | -7.69 | 1.78 | -64.28 | -13.00 | -51.28 |
| 633.34 | 45.71 | H | -61.36 | -7.80 | 2.20 | -71.36 | -13.00 | -58.36 |
| 3760.00 | 62.68 | H | -49.69 | 12.60 | 5.50 | -42.59 | -13.00 | -29.59 |
| 5640.00 | 58.13 | H | -49.12 | 13.36 | 6.98 | -42.74 | -13.00 | -29.74 |
| 7520.00 | --- | H | | 11.45 | 8.26 | | -13.00 | |
| 9400.00 | --- | H | | 11.93 | 9.61 | | -13.00 | |
| 11280.00 | --- | H | | 11.92 | 10.57 | | -13.00 | |
| 13160.00 | --- | H | | 13.33 | 11.53 | | -13.00 | |
| 15040.00 | --- | H | | 13.76 | 12.32 | | -13.00 | |
| 16920.00 | --- | H | | 15.27 | 13.14 | | -13.00 | |
| 18800.00 | --- | H | | 18.68 | 11.20 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: PCS 1900 Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH High H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1909.8 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 58.13 | 56.21 | V | -66.55 | -0.49 | 0.67 | -67.71 | -13.00 | -54.71 |
| 85.29 | 57.57 | V | -61.05 | -7.75 | 0.44 | -69.24 | -13.00 | -56.24 |
| 109.54 | 51.31 | V | -67.61 | -7.77 | 0.91 | -76.28 | -13.00 | -63.28 |
| 133.79 | 46.71 | V | -69.45 | -7.79 | 0.97 | -78.21 | -13.00 | -65.21 |
| 436.43 | 55.64 | V | -54.85 | -7.69 | 1.78 | -64.31 | -13.00 | -51.31 |
| 1910.00 | 92.03 | V | -23.80 | 10.08 | 3.83 | -17.55 | -13.00 | -4.55 |
| 3821.00 | 61.28 | V | -50.94 | 12.60 | 5.55 | -43.88 | -13.00 | -30.88 |
| 3981.60 | --- | V | | 12.60 | 5.67 | | -13.00 | |
| 5725.50 | 58.30 | V | -48.81 | 13.49 | 7.07 | -42.40 | -13.00 | -29.40 |
| 5972.40 | --- | V | | 13.86 | 7.34 | | -13.00 | |
| 7963.20 | --- | V | | 11.27 | 8.64 | | -13.00 | |
| 9954.00 | --- | V | | 12.08 | 9.85 | | -13.00 | |
| 11944.80 | --- | V | | 13.08 | 10.94 | | -13.00 | |
| 13935.60 | --- | V | | 11.82 | 11.94 | | -13.00 | |
| 15926.40 | --- | V | | 17.08 | 12.51 | | -13.00 | |
| 17917.20 | --- | V | | 9.63 | 13.58 | | -13.00 | |
| 19908.00 | --- | V | | 18.88 | 14.32 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH High H Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1909.8 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 43.58 | 49.56 | H | -69.85 | -1.92 | 0.63 | -72.40 | -13.00 | -59.40 |
| 75.59 | 50.02 | H | -73.89 | -1.85 | 0.75 | -76.49 | -13.00 | -63.49 |
| 158.04 | 45.74 | H | -70.77 | -7.81 | 1.07 | -79.65 | -13.00 | -66.65 |
| 3603.54 | 44.98 | H | -67.85 | 12.61 | 5.39 | -60.63 | -13.00 | -47.63 |
| 424.79 | 56.24 | H | -54.95 | -7.68 | 1.76 | -64.39 | -13.00 | -51.39 |
| 1910.00 | 92.03 | H | -23.54 | 10.08 | 3.83 | -17.29 | -13.00 | -4.29 |
| 3821.00 | 60.26 | H | -51.93 | 12.60 | 5.55 | -44.87 | -13.00 | -31.87 |
| 3981.60 | --- | H | | 12.60 | 5.67 | | -13.00 | |
| 5725.50 | 57.47 | H | -49.49 | 13.49 | 7.07 | -43.07 | -13.00 | -30.07 |
| 5972.40 | --- | H | | 13.86 | 7.34 | | -13.00 | |
| 7963.20 | --- | H | | 11.27 | 8.64 | | -13.00 | |
| 9954.00 | --- | H | | 12.08 | 9.85 | | -13.00 | |
| 11944.80 | --- | H | | 13.08 | 10.94 | | -13.00 | |
| 13935.60 | --- | H | | 11.82 | 11.94 | | -13.00 | |
| 15926.40 | --- | H | | 17.08 | 12.51 | | -13.00 | |
| 17917.20 | --- | H | | 9.63 | 13.58 | | -13.00 | |
| 19908.00 | --- | H | | 18.88 | 14.32 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: WCDMA IV Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Low E2 Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1712.4MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 138.64 | 38.61 | V | -60.38 | -7.79 | 1.41 | -69.58 | -13.00 | -56.58 |
| 177.44 | 36.22 | V | -63.85 | -7.82 | 1.52 | -73.20 | -13.00 | -60.20 |
| 252.13 | 34.56 | V | -66.09 | -7.89 | 1.99 | -75.97 | -13.00 | -62.97 |
| 426.73 | 33.14 | V | -62.15 | -7.68 | 2.49 | -72.32 | -13.00 | -59.32 |
| 706.08 | 33.64 | V | -56.15 | -7.86 | 3.34 | -67.34 | -13.00 | -54.34 |
| 1709.85 | 85.12 | V | -21.90 | 9.47 | 5.16 | -17.58 | -13.00 | -4.58 |
| 3424.80 | 47.59 | V | -54.94 | 12.45 | 7.35 | -49.85 | -13.00 | -36.85 |
| 5137.20 | --- | V | | 12.79 | 9.36 | | -13.00 | |
| 6849.60 | --- | V | | 11.80 | 10.94 | | -13.00 | |
| 8562.00 | --- | V | | 11.73 | 12.66 | | -13.00 | |
| 10274.40 | --- | V | | 11.85 | 13.80 | | -13.00 | |
| 11986.80 | --- | V | | 13.15 | 15.25 | | -13.00 | |
| 13699.20 | --- | V | | 12.32 | 16.55 | | -13.00 | |
| 15411.60 | --- | V | | 15.69 | 18.06 | | -13.00 | |
| 17124.00 | --- | V | | 14.68 | 19.79 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

**Radiated Spurious Emission Measurement Result: WCDMA IV Mode**

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH Low E2 Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1712.4MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 150.28 | 38.34 | H | -60.26 | -7.80 | 1.47 | -69.53 | -13.00 | -56.53 |
| 216.24 | 45.30 | H | -56.21 | -7.86 | 1.70 | -65.76 | -13.00 | -52.76 |
| 264.74 | 36.84 | H | -63.68 | -7.90 | 1.99 | -73.56 | -13.00 | -60.56 |
| 426.73 | 32.65 | H | -63.19 | -7.68 | 2.49 | -73.36 | -13.00 | -60.36 |
| 706.09 | 33.51 | H | -56.05 | -7.86 | 3.34 | -67.25 | -13.00 | -54.25 |
| 1709.85 | 76.33 | H | -30.64 | 9.47 | 5.16 | -26.33 | -13.00 | -13.33 |
| 3424.80 | 55.17 | H | -47.09 | 12.45 | 7.35 | -42.00 | -13.00 | -29.00 |
| 5137.20 | --- | H | | 12.79 | 9.36 | | -13.00 | |
| 6849.60 | --- | H | | 11.80 | 10.94 | | -13.00 | |
| 8562.00 | --- | H | | 11.73 | 12.66 | | -13.00 | |
| 10274.40 | --- | H | | 11.85 | 13.80 | | -13.00 | |
| 11986.80 | --- | H | | 13.15 | 15.25 | | -13.00 | |
| 13699.20 | --- | H | | 12.32 | 16.55 | | -13.00 | |
| 15411.60 | --- | H | | 15.69 | 18.06 | | -13.00 | |
| 17124.00 | --- | H | | 14.68 | 19.79 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: WCDMA IV Mode

Operation Mode : TX CH Mid E2 Mode
Fundamental Frequency : 1732.6MHz
Temperature : 25℃
Humidity : 65%

Test Date: May. 28, 2008
Test By: Bondi
Pol: Ver

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 140.58 | 38.16 | V | -60.60 | -7.79 | 1.42 | -69.81 | -13.00 | -56.81 |
| 177.44 | 36.42 | V | -63.65 | -7.82 | 1.52 | -73.00 | -13.00 | -60.00 |
| 276.38 | 34.46 | V | -65.65 | -7.91 | 1.99 | -75.54 | -13.00 | -62.54 |
| 327.79 | 33.84 | V | -64.83 | -7.76 | 2.26 | -74.85 | -13.00 | -61.85 |
| 706.09 | 33.01 | V | -56.78 | -7.86 | 3.34 | -67.97 | -13.00 | -54.97 |
| 3465.20 | --- | V | | 12.53 | 7.38 | | -13.00 | |
| 3849.00 | 35.60 | V | -65.29 | 12.60 | 7.96 | -60.65 | -13.00 | -47.65 |
| 5197.80 | --- | V | | 12.85 | 9.41 | | -13.00 | |
| 6930.40 | --- | V | | 11.72 | 11.05 | | -13.00 | |
| 8663.00 | --- | V | | 11.77 | 12.74 | | -13.00 | |
| 10395.60 | --- | V | | 11.75 | 13.95 | | -13.00 | |
| 12128.20 | --- | V | | 13.35 | 15.32 | | -13.00 | |
| 13860.80 | --- | V | | 11.98 | 16.77 | | -13.00 | |
| 15593.40 | --- | V | | 16.35 | 18.21 | | -13.00 | |
| 17326.00 | --- | V | | 14.02 | 19.68 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: WCDMA IV Mode

Operation Mode : TX CH Mid E2 Mode
Fundamental Frequency : 1732.6MHz
Temperature : 25℃
Humidity : 65%

Test Date: May. 28, 2008
Test By: Bondi
Pol: Hor

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 150.28 | 37.66 | H | -60.94 | -7.80 | 1.47 | -70.21 | -13.00 | -57.21 |
| 216.24 | 47.06 | H | -54.45 | -7.86 | 1.70 | -64.00 | -13.00 | -51.00 |
| 264.74 | 40.52 | H | -60.00 | -7.90 | 1.99 | -69.88 | -13.00 | -56.88 |
| 313.24 | 42.73 | H | -56.23 | -7.85 | 2.12 | -66.20 | -13.00 | -53.20 |
| 647.89 | 32.54 | H | -57.85 | -7.81 | 3.00 | -68.65 | -13.00 | -55.65 |
| 3465.20 | 36.58 | H | -65.65 | 12.53 | 7.38 | -60.50 | -13.00 | -47.50 |
| 5197.80 | --- | H | | 12.85 | 9.41 | | -13.00 | |
| 6930.40 | --- | H | | 11.72 | 11.05 | | -13.00 | |
| 8663.00 | --- | H | | 11.77 | 12.74 | | -13.00 | |
| 10395.60 | --- | H | | 11.75 | 13.95 | | -13.00 | |
| 12128.20 | --- | H | | 13.35 | 15.32 | | -13.00 | |
| 13860.80 | --- | H | | 11.98 | 16.77 | | -13.00 | |
| 15593.40 | --- | H | | 16.35 | 18.21 | | -13.00 | |
| 17326.00 | --- | H | | 14.02 | 19.68 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: WCDMA IV Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH High E2 Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1752.6 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Ver |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 67.83 | 40.15 | V | -71.54 | -0.95 | 1.00 | -73.48 | -13.00 | -60.48 |
| 138.64 | 38.57 | V | -60.42 | -7.79 | 1.41 | -69.62 | -13.00 | -56.62 |
| 216.24 | 39.12 | V | -62.53 | -7.86 | 1.70 | -72.08 | -13.00 | -59.08 |
| 313.24 | 38.12 | V | -61.03 | -7.85 | 2.12 | -70.99 | -13.00 | -57.99 |
| 706.09 | 33.12 | V | -56.67 | -7.86 | 3.34 | -67.86 | -13.00 | -54.86 |
| 1755.06 | 79.45 | V | -27.55 | 9.61 | 5.24 | -23.18 | -13.00 | -10.18 |
| 3505.20 | 50.05 | V | -52.43 | 12.61 | 7.42 | -47.23 | -13.00 | -34.23 |
| 5257.80 | --- | V | | 12.91 | 9.46 | | -13.00 | |
| 7010.40 | --- | V | | 11.65 | 11.14 | | -13.00 | |
| 8763.00 | --- | V | | 11.80 | 12.82 | | -13.00 | |
| 10515.60 | --- | V | | 11.66 | 14.08 | | -13.00 | |
| 12268.20 | --- | V | | 13.54 | 15.39 | | -13.00 | |
| 14020.80 | --- | V | | 11.67 | 16.95 | | -13.00 | |
| 15773.40 | --- | V | | 16.75 | 18.27 | | -13.00 | |
| 17526.00 | --- | V | | 13.21 | 19.62 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

## Radiated Spurious Emission Measurement Result: WCDMA IV Mode

| | | | |
|---|---|---|---|
| Operation Mode | : TX CH High E2 Mode | Test Date: | May. 28, 2008 |
| Fundamental Frequency | : 1752.6 MHz | Test By: | Bondi |
| Temperature | : 25℃ | Pol: | Hor |
| Humidity | : 65% | | |

| Freq. (MHz) | SPA. Reading (dBuV) | Ant.Pol. H/V | S.G Out-put (dBm) | Antenna Gain (dB/dBi) | Cable Loss (dB) | ERP/ EIRP (dBm) | Limit (dBm) | Safe Margin (dBm) |
|---|---|---|---|---|---|---|---|---|
| 150.28 | 37.45 | H | -61.15 | -7.80 | 1.47 | -70.42 | -13.00 | -57.42 |
| 216.24 | 40.49 | H | -61.02 | -7.86 | 1.70 | -70.57 | -13.00 | -57.57 |
| 264.74 | 35.45 | H | -65.07 | -7.90 | 1.99 | -74.95 | -13.00 | -61.95 |
| 426.73 | 32.42 | H | -63.42 | -7.68 | 2.49 | -73.59 | -13.00 | -60.59 |
| 706.09 | 32.75 | H | -56.81 | -7.86 | 3.34 | -68.01 | -13.00 | -55.01 |
| 1755.06 | 79.45 | H | -27.50 | 9.61 | 5.24 | -23.13 | -13.00 | -10.13 |
| 3505.20 | 53.82 | H | -48.36 | 12.61 | 7.42 | -43.17 | -13.00 | -30.17 |
| 5257.80 | --- | H | | 12.91 | 9.46 | | -13.00 | |
| 7010.40 | --- | H | | 11.65 | 11.14 | | -13.00 | |
| 8763.00 | --- | H | | 11.80 | 12.82 | | -13.00 | |
| 10515.60 | --- | H | | 11.66 | 14.08 | | -13.00 | |
| 12268.20 | --- | H | | 13.54 | 15.39 | | -13.00 | |
| 14020.80 | --- | H | | 11.67 | 16.95 | | -13.00 | |
| 15773.40 | --- | H | | 16.75 | 18.27 | | -13.00 | |
| 17526.00 | --- | H | | 13.21 | 19.62 | | -13.00 | |

| | |
|---|---|
| Measurement uncertainty | 30MHz - 80MHz: 5.04dB |
| | 80MHz -1000MHz: 3.76dB |
| | 1GHz - 13GHz: 4.45dB |

Remark：

1 The emission behaviors belong to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) – Cable loss (dB)

# 10 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

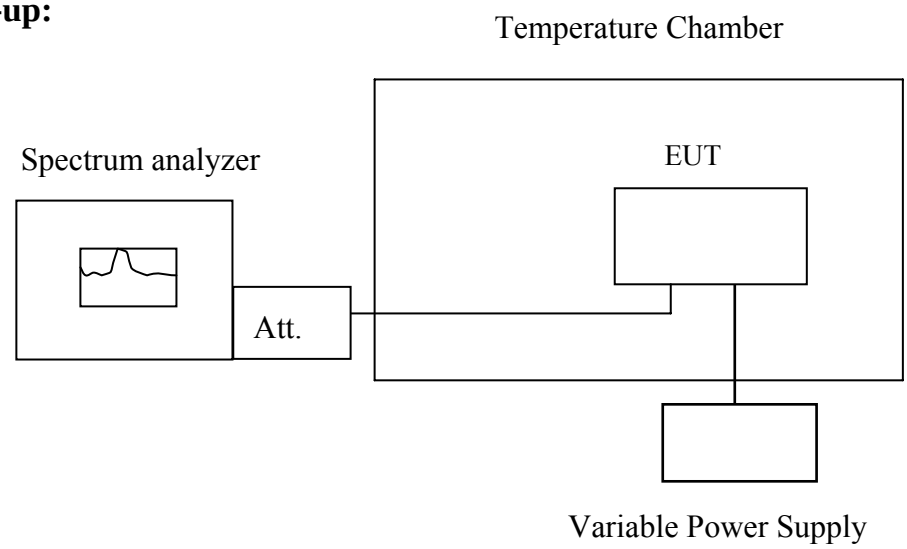
## 10.1 Standard Applicable

According to FCC §2.1055(a)(1)(b).

Frequency Tolerance: +/- 2.5

§ 27.54: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

## 10.2 Test Set-up:




**Note :** Measurement setup for testing on Antenna connector

## 10.3 Measurement Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

## 10.4 Measurement Equipment Used:

| Conducted Emission Test Site | | | | | |
|---|---|---|---|---|---|
| **EQUIPMENT TYPE** | **MFR** | **MODEL NUMBER** | **SERIAL NUMBER** | **LAST CAL.** | **CAL DUE.** |
| Spectrum Analyzer | Agilent | E4446A | MY43360126 | 04/27/2008 | 04/26/2009 |
| Spectrum Analyzer | Agilent | E7405A | US41160416 | 07/04/2007 | 07/03/2008 |
| Power Sensor | Anritsu | MA2490A | 31431 | 07/07/2007 | 07/06/2008 |
| Power Meter | Anritsu | ML2487A | 6K00002070 | 07/07/2007 | 07/06/2008 |
| Communication Test | R&S | SMU200 | N/A | N/A | N/A |
| Temperature Chamber | TERCHY | MHG-120LF | 911009 | 04/26/2008 | 04/25/2009 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA | N/A | N/A | N/A |
| Attenuator | Mini-Circult | BW-S10W5 | N/A | 07/05/2007 | 07/04/2008 |
| Attenuator | Mini-Circult | BW-S6W5 | N/A | 07/05/2007 | 07/04/2008 |
| Splitter | Agilent | 11636B | 51728 | 09/23/2007 | 09/22/2008 |
| Signal Generator | R&S | SMR40 | 100210 | 11/09/2007 | 11/10/2008 |
| DC Power Supply | Agilent | 6038A | 2929A-07548 | 01/06/2008 | 01/05/2009 |

## 10.5 Measurement Result

| Reference Frequency: GSM Mid Channel 836.6 MHz @ 25℃ | | | | |
|---|---|---|---|---|
| Limit: +/- 2.5 ppm = 2091 Hz | | | | |
| Power Supply | Environment | Frequency | Delta (Hz) | Limit (Hz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 3.7 | -30 | 836.599999 | -14.00 | 2091 |
| 3.7 | -20 | 836.600016 | -31.00 | 2091 |
| 3.7 | -10 | 836.600002 | -17.00 | 2091 |
| 3.7 | 0 | 836.599994 | -9.00 | 2091 |
| 3.7 | 10 | 836.59999 | -5.00 | 2091 |
| 3.7 | 20 | 836.599985 | 0.00 | 2091 |
| 3.7 | 30 | 836.599983 | 2.00 | 2091 |
| 3.7 | 40 | 836.599988 | -3.00 | 2091 |
| 3.7 | 50 | 836.599984 | 1.00 | 2091 |

| Reference Frequency: PCS Mid Channel 1880 MHz @ 25℃ | | | | |
|---|---|---|---|---|
| Limit: +/- 2.5 ppm = 4700 Hz | | | | |
| Power Supply | Environment | Frequency | Delta (Hz) | Limit (Hz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 3.7 | -30 | 1879.999964 | 18.00 | 4700 |
| 3.7 | -20 | 1879.999966 | 16.00 | 4700 |
| 3.7 | -10 | 1879.999956 | 26.00 | 4700 |
| 3.7 | 0 | 1879.999980 | 2.00 | 4700 |
| 3.7 | 10 | 1879.999989 | -7.00 | 4700 |
| 3.7 | 20 | 1879.999982 | 0.00 | 4700 |
| 3.7 | 30 | 1879.999969 | 13.00 | 4700 |
| 3.7 | 40 | 1879.999962 | 20.00 | 4700 |
| 3.7 | 50 | 1879.999956 | 26.00 | 4700 |

**Note: The battery is rated 3.7V dc.**

| Reference Frequency: WCDMA II Mid Channel 1732.6(ARFCN1413) MHz @ 25℃ | | | | |
|---|---|---|---|---|
| Limit: +/- 2.5 ppm = 4332 Hz | | | | |
| Power Supply | Environment | Frequency | Delta (Hz) | Limit (Hz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 3.7 | -30 | 1732.600003 | -5.00 | 4332 |
| 3.7 | -20 | 1732.600004 | -6.00 | 4332 |
| 3.7 | -10 | 1732.599996 | 2.00 | 4332 |
| 3.7 | 0 | 1732.600008 | -10.00 | 4332 |
| 3.7 | 10 | 1732.600001 | -3.00 | 4332 |
| 3.7 | 20 | 1732.599998 | 0.00 | 4332 |
| 3.7 | 30 | 1732.599992 | 6.00 | 4332 |
| 3.7 | 40 | 1732.599988 | 10.00 | 4332 |
| 3.7 | 50 | 1732.599983 | 15.00 | 4332 |

**Note: The battery is rated 3.7V dc.**

# 11 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

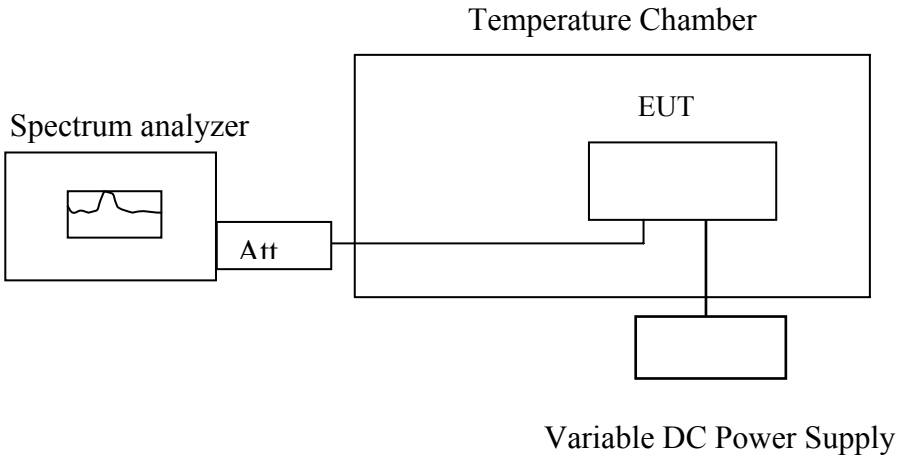
## 11.1 Standard Applicable

According to FCC §2.1055(a)(1)(b).

Frequency Tolerance: +/- 2.5

§ 27.54: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

## 11.2 Test Set-up:




***Note:*** *Measurement setup for testing on Antenna connector*

## 11.3 Measurement Procedure

Set chamber temperature to 25℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

## 11.4 Measurement Equipment Used:

| Conducted Emission Test Site | | | | | |
|---|---|---|---|---|---|
| **EQUIPMENT TYPE** | **MFR** | **MODEL NUMBER** | **SERIAL NUMBER** | **LAST CAL.** | **CAL DUE.** |
| Spectrum Analyzer | Agilent | E4446A | MY43360126 | 04/27/2008 | 04/26/2009 |
| Spectrum Analyzer | Agilent | E7405A | US41160416 | 07/04/2007 | 07/03/2008 |
| Power Sensor | Anritsu | MA2490A | 31431 | 07/07/2007 | 07/06/2008 |
| Power Meter | Anritsu | ML2487A | 6K00002070 | 07/07/2007 | 07/06/2008 |
| Communication Test | R&S | SMU200 | N/A | N/A | N/A |
| Temperature Chamber | TERCHY | MHG-120LF | 911009 | 04/26/2007 | 04/25/2008 |
| Low Loss Cable | HUBER+SUHNER | SUCOFLEX 104PEA | N/A | N/A | N/A |
| Attenuator | Mini-Circult | BW-S10W5 | N/A | 07/05/2007 | 07/04/2008 |
| Attenuator | Mini-Circult | BW-S6W5 | N/A | 07/05/2007 | 07/04/2008 |
| Splitter | Agilent | 11636B | 51728 | 09/23/2007 | 09/22/2008 |
| Signal Generator | R&S | SMR40 | 100210 | 11/09/2007 | 11/10/2008 |
| DC Power Supply | Agilent | 6038A | 2929A-07548 | 01/06/2008 | 01/05/2009 |

## 11.5 Measurement Result

| Reference Frequency: GSM Mid Channel 836.6 MHz @ 25℃ | | | | |
|---|---|---|---|---|
| Limit: +/- 2.5 ppm = 2091 Hz | | | | |
| Power Supply | Environment | Frequency | Delta (Hz) | Limit (Hz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 4.20 | 25.00 | 836.599973 | 0.00 | 2091 |
| 3.70 | 25.00 | 836.599983 | -10.00 | 2091 |
| 3.53 | 25.00 | 836.599970 | 3.00 | 2091 |
| 2.9 (End Point) | 25.00 | 836.599254 | 719.00 | 2091 |

| Reference Frequency: PCS Mid Channel 1880 MHz @ 25℃ | | | | |
|---|---|---|---|---|
| Limit: +/- 2.5 ppm = 4700 Hz | | | | |
| Power Supply | Environment | Frequency | Delta (Hz) | Limit (Hz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 4.2 | 25 | 1879.999959 | 0.00 | 4700 |
| 3.7 | 25 | 1879.999982 | -23.00 | 4700 |
| 3.53 | 25 | 1879.999976 | -17.00 | 4700 |
| 2.9 (Endpoint) | 25 | 1879.99827 | 1692.00 | 4700 |

| Reference Frequency: WCDMA IV Mid Channel 1732.6 MHz(ARFCN1413) @ 25℃ | | | | |
|---|---|---|---|---|
| Limit: +/- 2.5 ppm = 4332Hz | | | | |
| Power Supply | Environment | Frequency | Delta (Hz) | Limit (Hz) |
| Vdc | Temperature (℃) | (MHz) | | |
| 4.2 | 25 | 1732.599996 | 0.00 | 4332 |
| 3.7 | 25 | 1732.599998 | -2.00 | 4332 |
| 3.53 | 25 | 1732.599997 | -1.00 | 4332 |
| 2.9 (Endpoint) | 25 | 1732.600012 | -16.00 | 4332 |

# 12 AC POWER LINE CONDUCTED EMISSION TEST

## 12.1 Standard Applicable

According to §15.207. The emission value for frequency within 150KHz to 30MHz shall not exceed criteria of below chart.

| Frequency range MHz | Limits dB(uV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |
| Note<br>1.The lower limit shall apply at the transition frequencies<br>2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz. | | |

## 12.2 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2001.
2. The EUT was plug-in DC power adaptort and was placed on the center of the back edge on the test table. The peripherals like earphone was placed on the side of the EUT. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The Power adaptor was connected with 110Vac/60Hz power source.

## 12.3 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

## 12.4 Measurement Equipment Used:

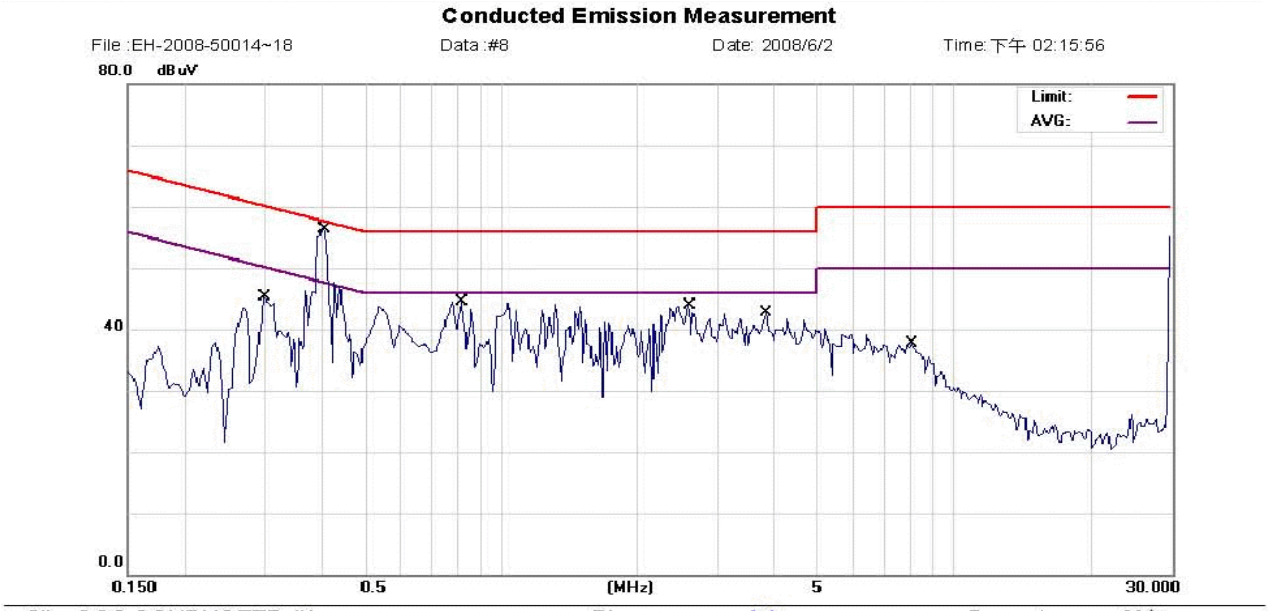
| Conducted Emission Test Site | | | | | |
|---|---|---|---|---|---|
| **EQUIPMENT TYPE** | **MFR** | **MODEL NUMBER** | **SERIAL NUMBER** | **LAST CAL.** | **CAL DUE.** |
| EMC Analyzer | HP | 8594EM | 3624A00203 | 09/02/2007 | 09/03/2008 |
| EMI Test Receiver | R&S | ESCS30 | 828985/004 | 06/09/2007 | 06/10/2008 |
| Transient Limiter | HP | 11947A | 3107A02062 | 09/02/2007 | 09/03/2008 |
| LISN | Rolf-Heine | NNB-2/16Z | 99012 | 12/31/2007 | 12/30/2008 |
| LISN | Rolf-Heine | NNB-2/16Z | 99013 | 01/10/2008 | 01/09/2009 |
| Coaxial Cables | N/A | No. 3, 4 | N/A | 01/11/2008 | 01/10/2009 |

## 12.5 Measurement Result

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

# AC POWER LINE CONDUCTED EMISSION TEST DATA

| Operation Mode: | GSM 850 LINK | | | Test Date: | Jun. 02, 2008 |
|---|---|---|---|---|---|
| Temperature: | 26 ℃ | Humidity: | 58 % | Test By: | Bondi |




Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Dream
M/N: DREA100
Note: GSM850 Link + Charger mode

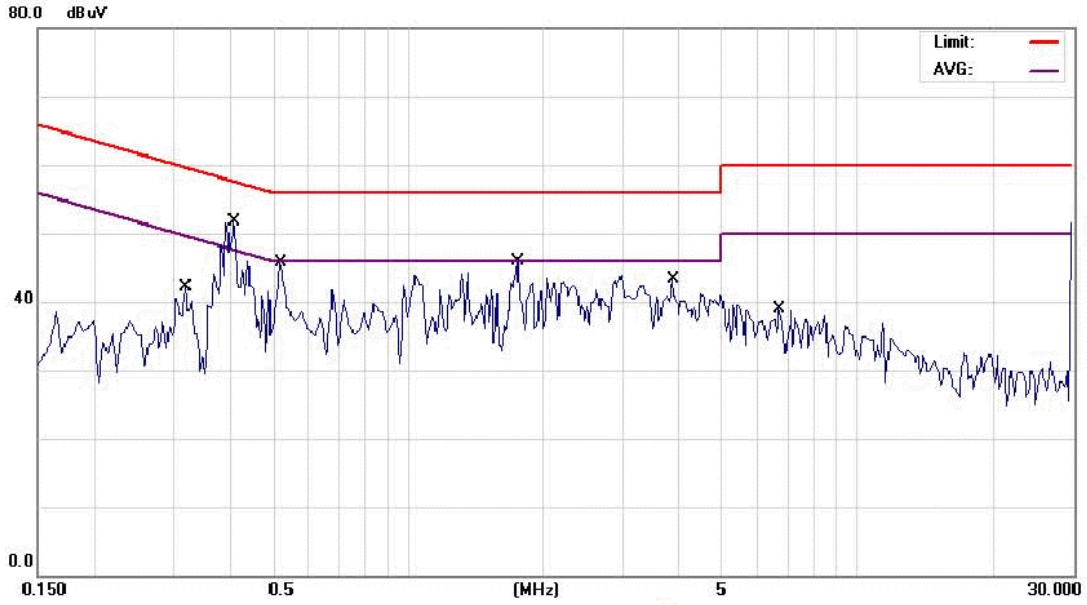
Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 26 ℃
Humidity: 58 %
Air Pressure: hpa

| No. | Mk. | Freq. | Reading Level | Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.3000 | 45.11 | 0.11 | 45.22 | 60.24 | -15.02 | QP | |
| 2 | * | 0.4050 | 56.19 | 0.08 | 56.27 | 57.75 | -1.48 | QP | |
| 3 | | 0.4050 | 45.00 | 0.08 | 45.08 | 47.75 | -2.67 | AVG | |
| 4 | | 0.8200 | 44.45 | 0.04 | 44.49 | 56.00 | -11.51 | QP | |
| 5 | | 0.8200 | 37.00 | 0.04 | 37.04 | 46.00 | -8.96 | AVG | |
| 6 | | 2.6000 | 43.79 | 0.03 | 43.82 | 56.00 | -12.18 | QP | |
| 7 | | 2.6000 | 20.00 | 0.03 | 20.03 | 46.00 | -25.97 | AVG | |
| 8 | | 3.8600 | 42.67 | 0.04 | 42.71 | 56.00 | -13.29 | QP | |
| 9 | | 8.0800 | 37.52 | 0.18 | 37.70 | 60.00 | -22.30 | QP | |

## Conducted Emission Measurement

File :EH-2008-50014~18 Data :#9 Date: 2008/6/2 Time: 下午 02:21:38




Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Dream
M/N: DREA100
Note: GSM850 Link + Charger mode

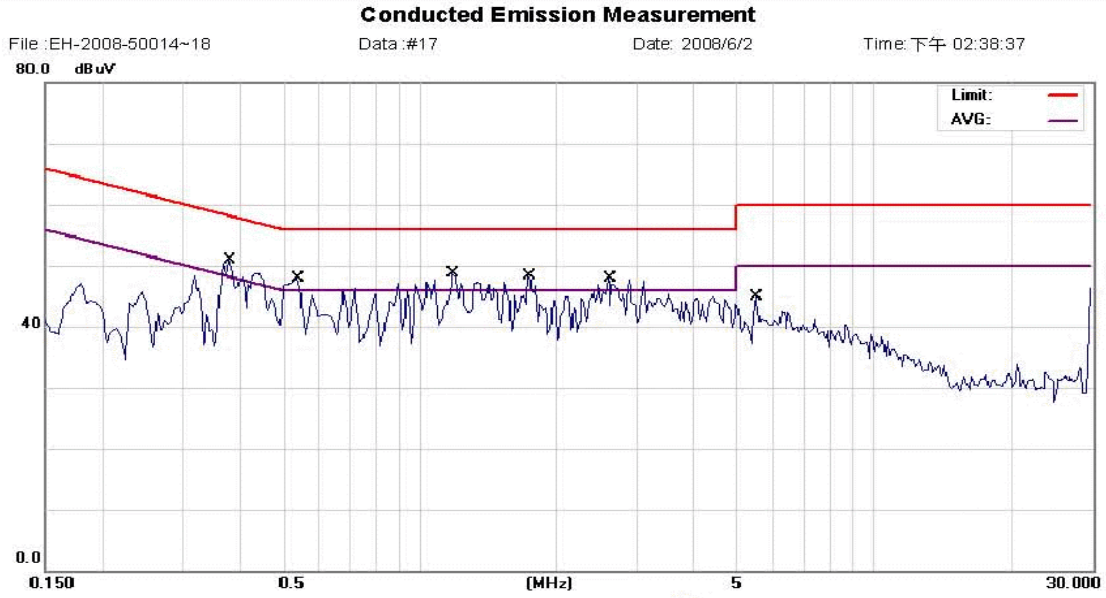
Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 26 ℃
Humidity: 58 %
Air Pressure: hpa

| No. | Mk. | Freq. | Reading Level | Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.3200 | 41.93 | 0.10 | 42.03 | 59.71 | -17.68 | QP | |
| 2 | * | 0.4100 | 51.64 | 0.08 | 51.72 | 57.65 | -5.93 | QP | |
| 3 | | 0.4100 | 36.00 | 0.08 | 36.08 | 47.65 | -11.57 | AVG | |
| 4 | | 0.5200 | 45.64 | 0.05 | 45.69 | 56.00 | -10.31 | QP | |
| 5 | | 0.5200 | 32.00 | 0.05 | 32.05 | 46.00 | -13.95 | AVG | |
| 6 | | 1.7600 | 45.82 | 0.03 | 45.85 | 56.00 | -10.15 | QP | |
| 7 | | 1.7600 | 35.00 | 0.03 | 35.03 | 46.00 | -10.97 | AVG | |
| 8 | | 3.9000 | 43.27 | 0.04 | 43.31 | 56.00 | -12.69 | QP | |
| 9 | | 3.9000 | 28.00 | 0.04 | 28.04 | 46.00 | -17.96 | AVG | |
| 10 | | 6.7200 | 38.87 | 0.13 | 39.00 | 60.00 | -21.00 | QP | |

# AC POWER LINE CONDUCTED EMISSION TEST DATA

| Operation Mode: | GSM 1900 Link | | | Test Date: | Jun. 02, 2008 |
|---|---|---|---|---|---|
| Temperature: | 26 ℃ | Humidity: | 58 % | Test By: | Bondi |




Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Dream
M/N: DREA100
Note: GSM1900 Link + Charger mode

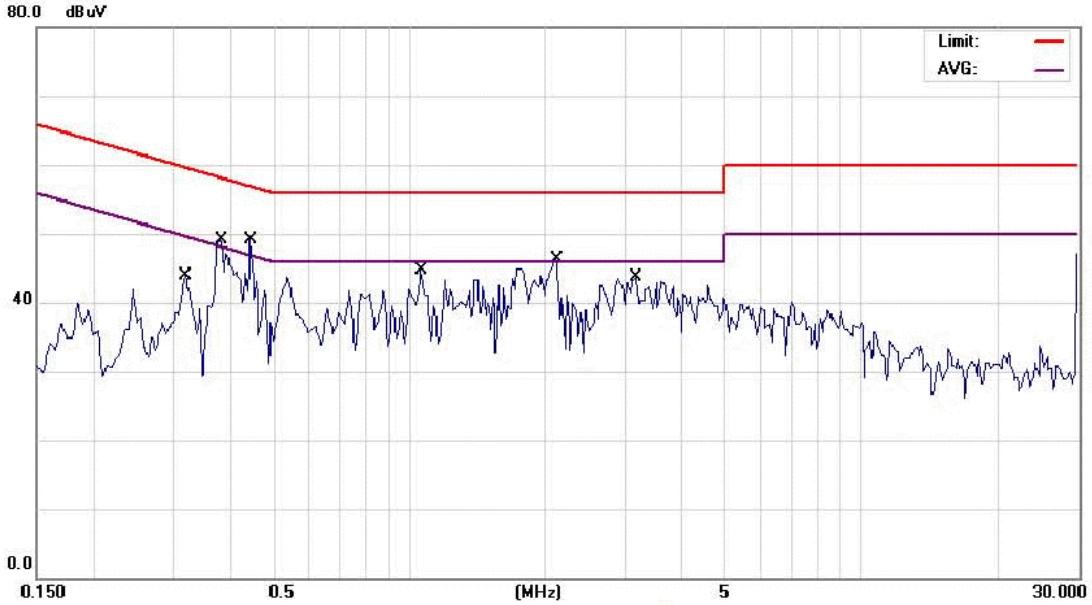
Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 26 ℃
Humidity: 58 %
Air Pressure: hpa

| No. | Mk. | Freq. | Reading Level | Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.3800 | 50.83 | 0.09 | 50.92 | 58.28 | -7.36 | QP | |
| 2 | | 0.3800 | 43.00 | 0.09 | 43.09 | 48.28 | -5.19 | AVG | |
| 3 | | 0.5400 | 47.87 | 0.05 | 47.92 | 56.00 | -8.08 | QP | |
| 4 | * | 0.5400 | 41.00 | 0.05 | 41.05 | 46.00 | -4.95 | AVG | |
| 5 | | 1.1800 | 48.60 | 0.03 | 48.63 | 56.00 | -7.37 | QP | |
| 6 | | 1.1800 | 39.00 | 0.03 | 39.03 | 46.00 | -6.97 | AVG | |
| 7 | | 1.7400 | 48.26 | 0.03 | 48.29 | 56.00 | -7.71 | QP | |
| 8 | | 1.7400 | 37.00 | 0.03 | 37.03 | 46.00 | -8.97 | AVG | |
| 9 | | 2.6200 | 47.91 | 0.03 | 47.94 | 56.00 | -8.06 | QP | |
| 10 | | 2.6200 | 38.00 | 0.03 | 38.03 | 46.00 | -7.97 | AVG | |
| 11 | | 5.5200 | 44.89 | 0.08 | 44.97 | 60.00 | -15.03 | QP | |

**Conducted Emission Measurement**

File :EH-2008-50014~18 Data :#10 Date: 2008/6/2 Time: 下午 02:30:47




Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Dream
M/N: DREA100
Note: GSM1900 Link + Charger mode

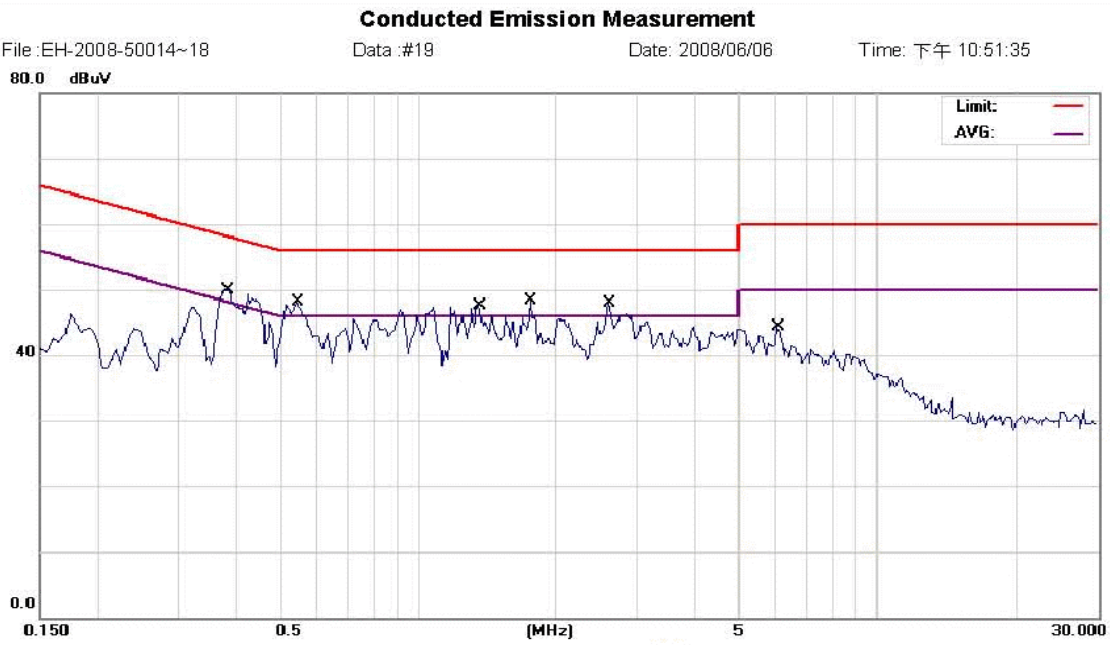
Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 26 ℃
Humidity: 58 %
Air Pressure: hpa

| No. | Mk. | Freq. | Reading Level | Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.3200 | 43.79 | 0.10 | 43.89 | 59.71 | -15.82 | QP | |
| 2 | | 0.3850 | 49.09 | 0.08 | 49.17 | 58.17 | -9.00 | QP | |
| 3 | * | 0.3850 | 42.00 | 0.08 | 42.08 | 48.17 | -6.09 | AVG | |
| 4 | | 0.4450 | 49.07 | 0.07 | 49.14 | 56.97 | -7.83 | QP | |
| 5 | | 0.4450 | 39.00 | 0.07 | 39.07 | 46.97 | -7.90 | AVG | |
| 6 | | 1.0600 | 44.72 | 0.03 | 44.75 | 56.00 | -11.25 | QP | |
| 7 | | 1.0600 | 35.00 | 0.03 | 35.03 | 46.00 | -10.97 | AVG | |
| 8 | | 2.1200 | 46.20 | 0.03 | 46.23 | 56.00 | -9.77 | QP | |
| 9 | | 2.1200 | 33.00 | 0.03 | 33.03 | 46.00 | -12.97 | AVG | |
| 10 | | 3.1800 | 43.73 | 0.04 | 43.77 | 56.00 | -12.23 | QP | |
| 11 | | 3.1800 | 32.00 | 0.04 | 32.04 | 46.00 | -13.96 | AVG | |

# AC POWER LINE CONDUCTED EMISSION TEST DATA

| Operation Mode: | WCDMA IV Link | | | Test Date: | Jun. 06, 2008 |
|---|---|---|---|---|---|
| Temperature: | 26 ℃ | Humidity: | 58 % | Test By: | Bondi |




Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Dream
M/N: DREA100
Note: WCDMA B4 LINK + Charger mode

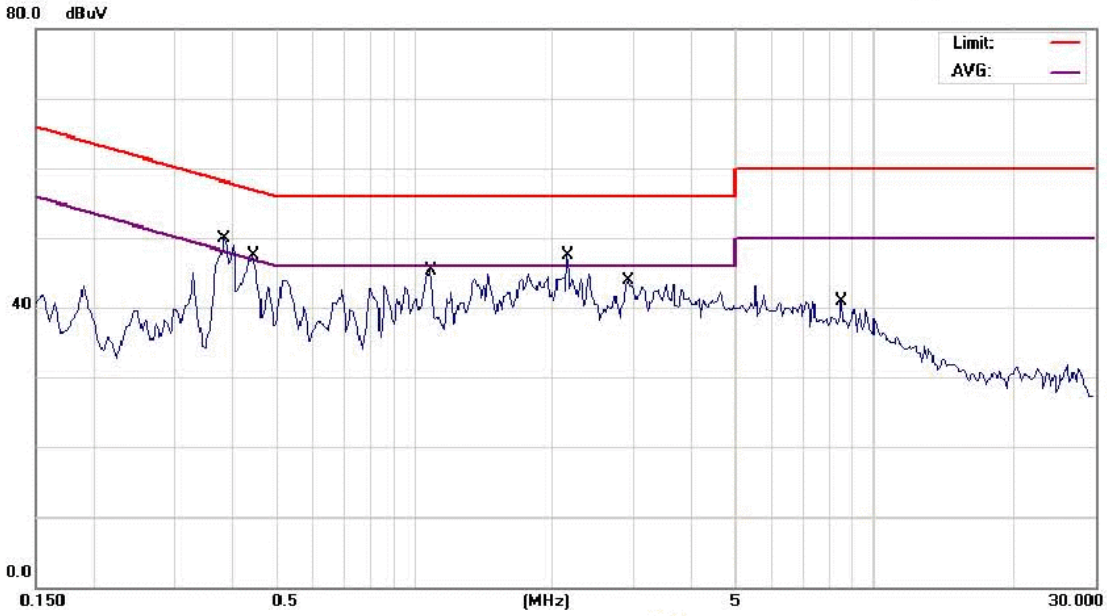
Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 26 ℃
Humidity: 58 %
Air Pressure: hpa

| No. | Mk. | Freq. | Reading Level | Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.3850 | 49.88 | 0.10 | 49.98 | 58.17 | -8.19 | QP | |
| 2 | | 0.3850 | 33.00 | 0.10 | 33.10 | 48.17 | -15.07 | AVG | |
| 3 | | 0.5450 | 48.02 | 0.06 | 48.08 | 56.00 | -7.92 | QP | |
| 4 | | 0.5450 | 32.00 | 0.06 | 32.06 | 46.00 | -13.94 | AVG | |
| 5 | | 1.3550 | 47.39 | 0.04 | 47.43 | 56.00 | -8.57 | QP | |
| 6 | | 1.3550 | 27.00 | 0.04 | 27.04 | 46.00 | -18.96 | AVG | |
| 7 | * | 1.7600 | 48.30 | 0.04 | 48.34 | 56.00 | -7.66 | QP | |
| 8 | | 1.7600 | 27.00 | 0.04 | 27.04 | 46.00 | -18.96 | AVG | |
| 9 | | 2.6000 | 47.82 | 0.04 | 47.86 | 56.00 | -8.14 | QP | |
| 10 | | 2.6000 | 29.00 | 0.04 | 29.04 | 46.00 | -16.96 | AVG | |
| 11 | | 6.0600 | 44.28 | 0.08 | 44.36 | 60.00 | -15.64 | QP | |

**Conducted Emission Measurement**

File :EH-2008-50014~18 Data :#18 Date: 2008/06/06 Time: 下午 10:47:12




Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Dream
M/N: DREA100
Note: WCDMA B4 LINK + Charger mode

Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 26 ℃
Humidity: 58 %
Air Pressure: hpa

| No. | Mk. | Freq. | Reading Level | Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | * | 0.3850 | 49.80 | 0.08 | 49.88 | 58.17 | -8.29 | QP | |
| 2 | | 0.3850 | 38.00 | 0.08 | 38.08 | 48.17 | -10.09 | AVG | |
| 3 | | 0.4450 | 47.44 | 0.07 | 47.51 | 56.97 | -9.46 | QP | |
| 4 | | 0.4450 | 36.00 | 0.07 | 36.07 | 46.97 | -10.90 | AVG | |
| 5 | | 1.0850 | 45.33 | 0.03 | 45.36 | 56.00 | -10.64 | QP | |
| 6 | | 1.0850 | 30.00 | 0.03 | 30.03 | 46.00 | -15.97 | AVG | |
| 7 | | 2.1500 | 47.46 | 0.03 | 47.49 | 56.00 | -8.51 | QP | |
| 8 | | 2.1500 | 30.00 | 0.03 | 30.03 | 46.00 | -15.97 | AVG | |
| 9 | | 2.9300 | 43.86 | 0.03 | 43.89 | 56.00 | -12.11 | QP | |
| 10 | | 2.9300 | 29.00 | 0.03 | 29.03 | 46.00 | -16.97 | AVG | |
| 11 | | 8.5000 | 40.78 | 0.18 | 40.96 | 60.00 | -19.04 | QP | |