



**FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E  
&  
INDUSTRY CANADA RSS-132 & RSS-133**

**TEST REPORT**

**For**

**UE910-NA V2**

**Trade Name: Telit**

**Model: UE910-NA V2**

*Issued to*

**Telit Communications S.p.A.  
Via Stazione di Prosecco, 5/B 34010 Sgonico [TS] Italy**

*Issued by*

**Compliance Certification Services Inc.  
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**Issued Date: August 12, 2013**



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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 12, 2013	Initial Issue	ALL	Eunice Shen



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# 1. TEST RESULT CERTIFICATION

**Applicant:** Telit Communications S.p.A.  
Via Stazione di Prosecco, 5/B 34010 Sgonico [TS] Italy

**Manufacturer:** Telit Communications S.p.A.  
Via Stazione di Prosecco, 5/B 34010 Sgonico [TS] Italy

**Equipment Under Test:** UE910-NA V2

**Trade Name:** Telit

**Model Number:** UE910-NA V2

**Date of Test:** August 1 ~ December 10, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E & IC RSS-132 Issue 2: September 2005 and IC RSS-133 Issue 5: February 2009	No non-compliance noted

### We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. 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-C and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 22 Subpart H, PART 24 Subpart E, IC RSS-132 Issue 2 and IC RSS-133 Issue 4.

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

Approved by:

Reviewed by:

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Miller Lee  
Section Manager  
Compliance Certification Services Inc.

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Angel Cheng  
Section Manager  
Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

<b>Product</b>	UE910-NA V2
<b>Trade Name</b>	Telit
<b>Model Number</b>	UE910-NA V2
<b>Model Discrepancy</b>	N/A
<b>Received Date</b>	August 1, 2013
<b>Power Supply</b>	Powered from Host device. (DC 3.8V)
<b>Frequency Range</b>	GSM / GPRS / EDGE: 850: 824.2 ~ 848.8 MHz GSM / GPRS / EDGE: 1900: 1850.2 ~ 1909.8 MHz WCDMA / HSDPA Band II: 1852.4 ~ 1907.6 MHz WCDMA / HSDPA Band V: 826.4 ~ 846.6MHz
<b>Modulation Technique</b>	GMSK, 8PSK and QPSK
<b>Antenna Gain</b>	Antenna gain including cable loss must not exceed 8.2dBi in the GSM850, 3.7dBi in the PCS1900, 10.22dBi in the FDD-II and 17.27dBi in the FDD-V for satisfying the requirement of 2.1043 and 2.1091.
<b>Antenna Type</b>	Dipole Antenna
<b>Multislot class</b>	Class 10

*Remark: The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*



Mode	ERP Power (dBm)	ERP Power (w)	Type of Emission (99% Bandwidth)	Type of Emission (Occupied Bandwidth)
GSM 850MHz	30.86	1.2190	247KGXW	326KGXW
GPRS 850MHz	25.56	0.3597	245KGXW	325KGXW
EDGE 850MHz	23.46	0.2218	244KG7W	325KG7W
WCDMA Band V	21.51	0.1416	4M17F9W	4M67F9W
WCDMA HSDPA Band V	21.40	0.1380	4M18F9W	4M68F9W

Mode	ERP Power (dBm)	ERP Power (w)	Type of Emission (99% Bandwidth)	Type of Emission (Occupied Bandwidth)
GSM 1900MHz	26.64	0.4613	246KGXW	324KGXW
GPRS 1900MHz	22.72	0.1871	246KGXW	324KGXW
EDGE 1900MHz	20.79	0.1199	247KG7W	331KG7W
WCDMA Band II	23.92	0.2466	4M16F9W	4M68F9W
WCDMA HSDPA Band II	23.41	0.2193	4M16F9W	4M68F9W



### **3. TEST METHODOLOGY**

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4: 2009, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2 and Part 22 Subpart H & Part 24 Subpart E.

The tests documented in this report were performed in accordance with IC RSS-132, SPSR503, RSS-133, SPSR510 and ANSI C63.4 and TIA/EIA-603-C.

#### **3.1 EUT CONFIGURATION**

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

#### **3.2 EUT EXERCISE**

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

#### **3.3 GENERAL TEST PROCEDURES**

##### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable 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 maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009.



### **3.4 DESCRIPTION OF TEST MODES**

The EUT (model: UE910-NA V2) had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed.

After verification, all tests carried out are with the worst-case test modes as shown below except radiated spurious emission below 1GHz which worst case was in normal link mode.

**GSM / GPRS / EDGE 850MHz:**

Channel Low (CH128), Channel Mid (CH190) and Channel High (CH251) were chosen for full testing.

**GSM / GPRS / EDGE 1900MHz:**

Channel Low (CH512), Channel Mid (CH661) and Channel High (CH810) were chosen for full testing.

**WCDMA Band II:**

Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing.

**WCDMA Band V:**

Channel Low (CH4132), Channel Mid (CH4182) and Channel High (CH4233) were chosen for full testing.

**WCDMA / HSDPA Band II:**

Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing.

**WCDMA / HSDPA Band V:**

Channel Low (CH4132), Channel Mid (CH4182) and Channel High (CH4233) were chosen for full testing.

Based on the above results from the different modulations, GSM850 / GSM1900 / GPRS 850 / GPRS1900 / EDGE 850 / EDGE 1900 / WCDMA Band II / WCDMA Band V / HSDPA Band II / HSDPA Band V were determined to be the worst-case scenario for all tests.





## **4. INSTRUMENT CALIBRATION**

### **4.1 MEASURING INSTRUMENT CALIBRATION**

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.



## 4.2 MEASUREMENT EQUIPMENT USED

### Equipment Used for Emissions Measurement

*Remark: Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.*

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/20/2014
Power Meter	Anritsu	ML2495A	1012009	06/04/2014
Power Sensor	Anritsu	MA2411A	0917072	06/04/2014

3M Semi Anechoic Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	11/06/2013
EMI Test Receiver	R&S	ESCI	100064	02/17/2014
Pre-Amplifier	Mini-Circuits	ZFL-1000LN	SF350700823	01/12/2014
Bilog Antenna	Sunol Sciences	JB3	A030105	02/17/2014
Bilog Antenna	Sunol Sciences	JB3	A030205	10/02/2013
Horn Antenna	EMCO	3117	00055165	02/17/2014
Horn Antenna	EMCO	3117	00055167	01/28/2014
Horn Antenna	EMCO	3116	26370	01/07/2014
Loop Antenna	EMCO	6502	8905/2356	06/12/2014
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R
Site NSA	CCS	N/A	N/A	12/22/2013
Test S/W	EZ-EMC (CCS-3A1RE)			



### 4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

**Remark:** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .



## 5. FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.  
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)  
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN,  
R.O.C.  
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4: 2009 and CISPR Publication 22.

### 5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.




All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.



### 5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12.2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method -47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

*\* No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*



## 6. SETUP OF EQUIPMENT UNDER TEST

### 6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

### 6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
1.	Test Kit	N/A	N/A	N/A	N/A	N/A	N/A
2.	8960 Series 10 Wireless Communication test set (Remote)	Agilent	E5515C	GB44051665	N/A	N/A	Unshielded, 1.8m

**Remark:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



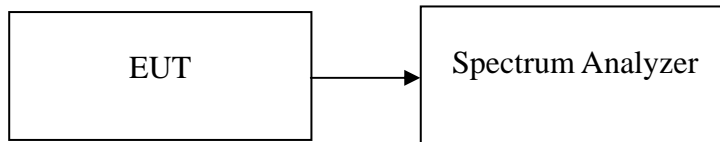
## 7. FCC PART 22 & 24 REQUIREMENTS & INDUSTRY CANADA RSS-132 & RSS-133

### 7.1 99% BANDWIDTH

#### LIMIT

None; for reporting purposes only.

#### Test Configuration



#### TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

#### TEST RESULTS

*No non-compliance noted.*



**Test Data**

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)	Occupied Bandwidth (kHz)
GSM 850	128	824.200	247.4971	326.145
	190	836.400	244.3257	324.644
	251	848.800	246.4439	323.611
GPRS 850	128	824.200	245.8176	323.122
	190	836.400	244.1783	319.716
	251	848.800	245.3676	325.206
EDGE 850	128	824.200	244.7999	324.920
	190	836.570	244.5352	325.592
	251	848.800	244.6431	324.037
GSM 1900	512	1850.210	246.0666	324.175
	661	1880.000	245.6619	324.953
	810	1909.823	246.6355	324.508
GPRS 1900	512	1850.210	244.4622	324.178
	661	1880.000	246.0506	324.945
	810	1909.823	245.7775	324.570
EDGE 1900	512	1850.173	243.7344	324.178
	661	1880.000	247.9922	331.579
	810	1909.800	245.4468	324.570





Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)	Occupied Bandwidth (MHz)
WCDMA (Band II)	9262	1852.40	4.1676	4.685
	9400	1880.00	4.1417	4.639
	9538	1907.60	4.1479	4.674
WCDMA (Band V)	4132	826.40	4.1578	4.671
	4182	836.40	4.1786	4.679
	4233	846.60	4.1739	4.675
WCDMA / HSDPA (BAND II)	9262	1852.40	4.1696	4.685
	9400	1880.00	4.1422	4.624
	9538	1907.60	4.1434	4.672
WCDMA / HSDPA (BAND V)	4132	826.40	4.1710	4.658
	4182	836.40	4.1711	4.668
	4233	846.60	4.1833	4.686

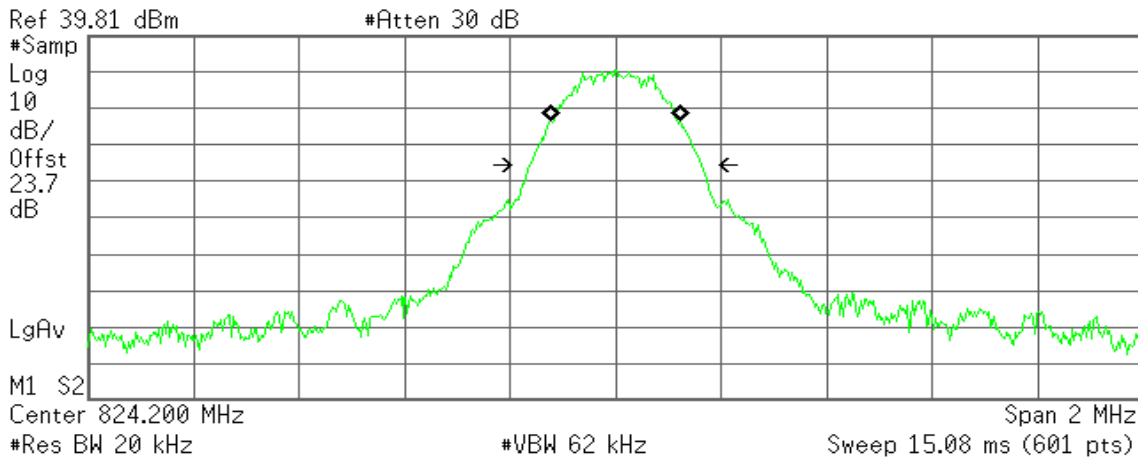


**Test Plot**

**GSM 850 (CH Low)**

Agilent 23:49:26 Aug 8, 2013

R T



**Occupied Bandwidth**  
247.4971 kHz

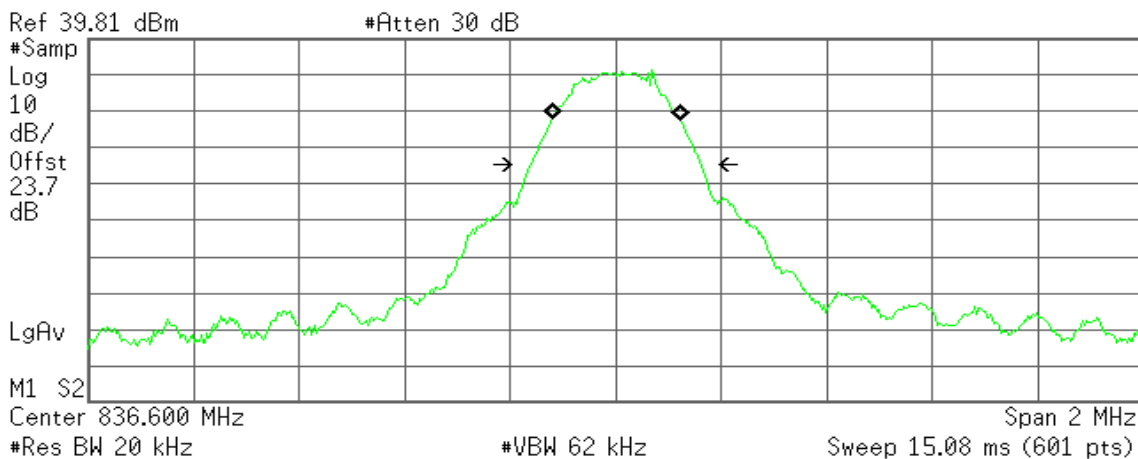
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -172.807 Hz  
**x dB Bandwidth** 326.145 kHz\*

**GSM 850 (CH Mid)**

Agilent 23:48:50 Aug 8, 2013

R T



**Occupied Bandwidth**  
244.3257 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

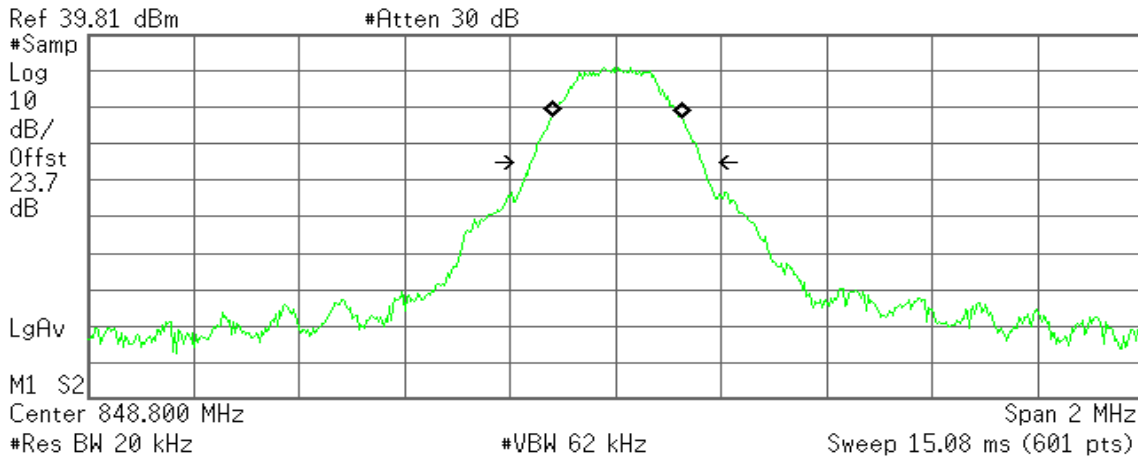
**Transmit Freq Error** 880.236 Hz  
**x dB Bandwidth** 324.644 kHz\*



### GSM 850 (CH High)

Agilent 23:46:57 Aug 8, 2013

R T



Occupied Bandwidth  
246.4439 kHz

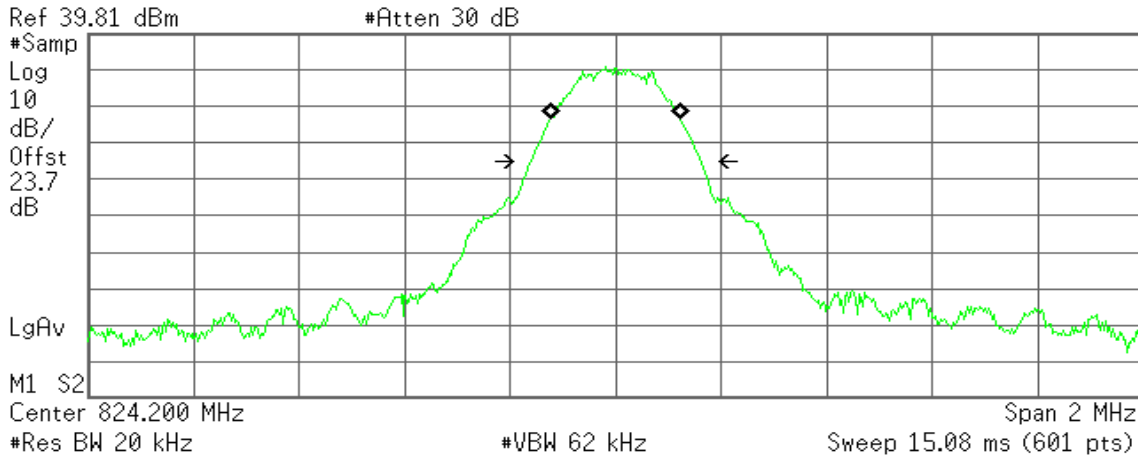
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error 1.868 kHz  
x dB Bandwidth 323.611 kHz\*

### GPRS 850 (CH Low)

Agilent 23:49:36 Aug 8, 2013

R T



Occupied Bandwidth  
245.8176 kHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

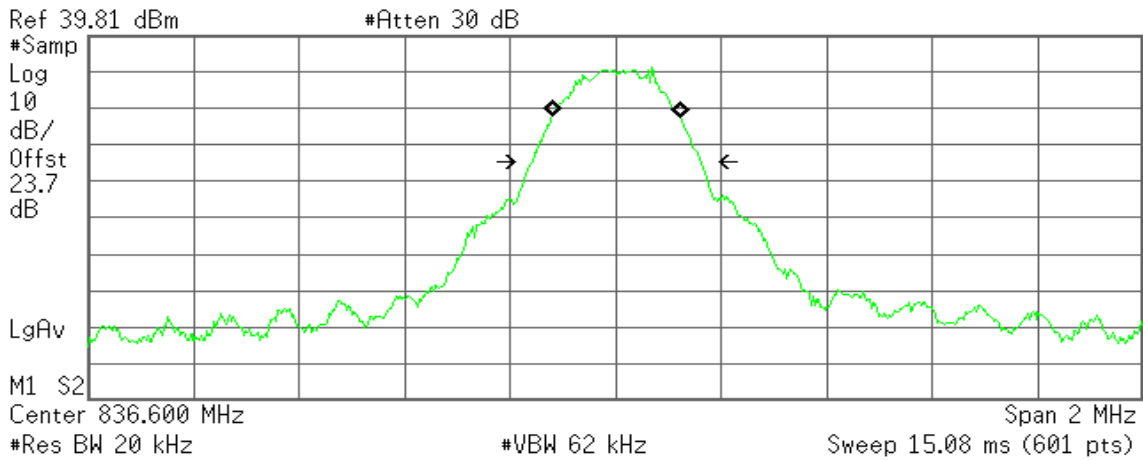
Transmit Freq Error -105.267 Hz  
x dB Bandwidth 323.122 kHz\*



### GPRS 850 (CH Mid)

Agilent 23:48:23 Aug 8, 2013

R T



**Occupied Bandwidth**  
244.1783 kHz

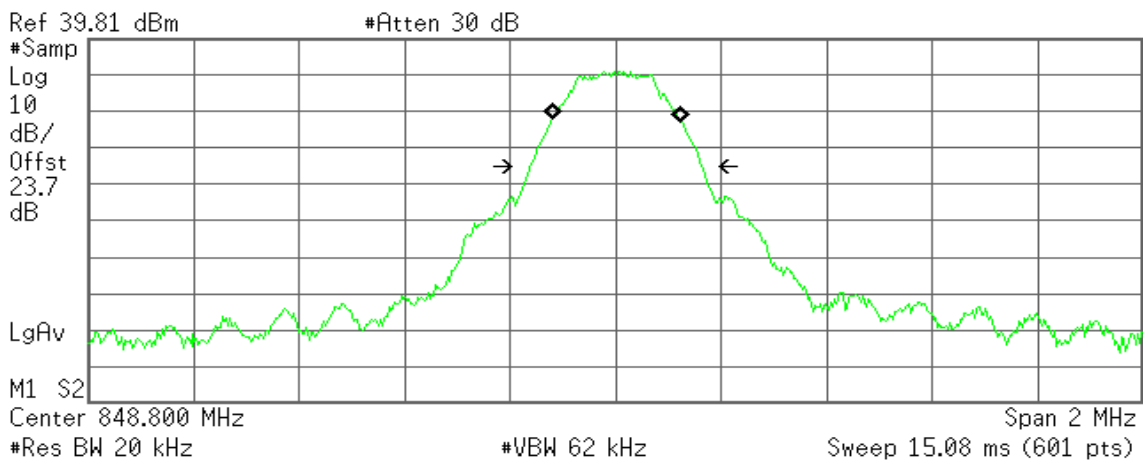
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 848.164 Hz  
**x dB Bandwidth** 319.716 kHz\*

### GPRS 850(CH High)

Agilent 23:47:07 Aug 8, 2013

R T



**Occupied Bandwidth**  
245.3676 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

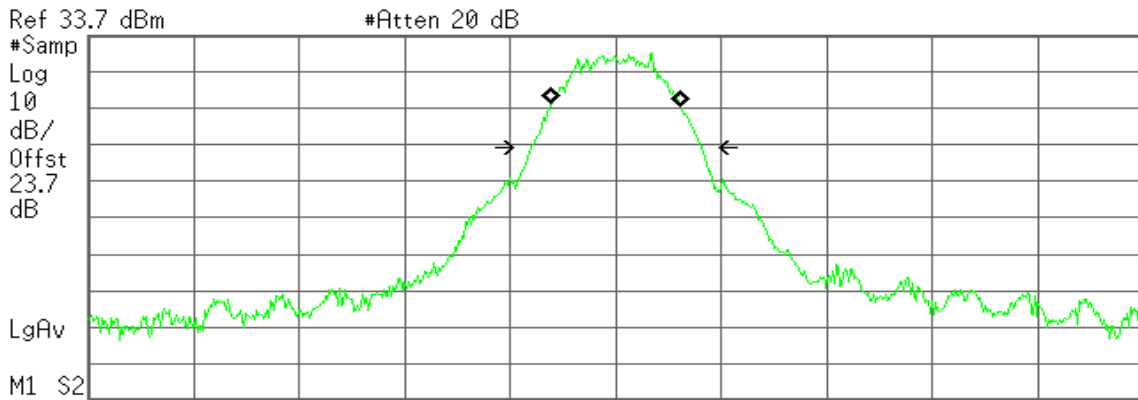
**Transmit Freq Error** 1.661 kHz  
**x dB Bandwidth** 325.206 kHz\*



### GSM 1900 (CH Low)

Agilent 01:09:16 Aug 9, 2013

R T



Ref 33.7 dBm #Atten 20 dB  
 Center 1.850 200 GHz Span 2 MHz  
 #Res BW 20 kHz #VBW 62 kHz Sweep 15.08 ms (601 pts)

**Occupied Bandwidth**  
 246.0666 kHz

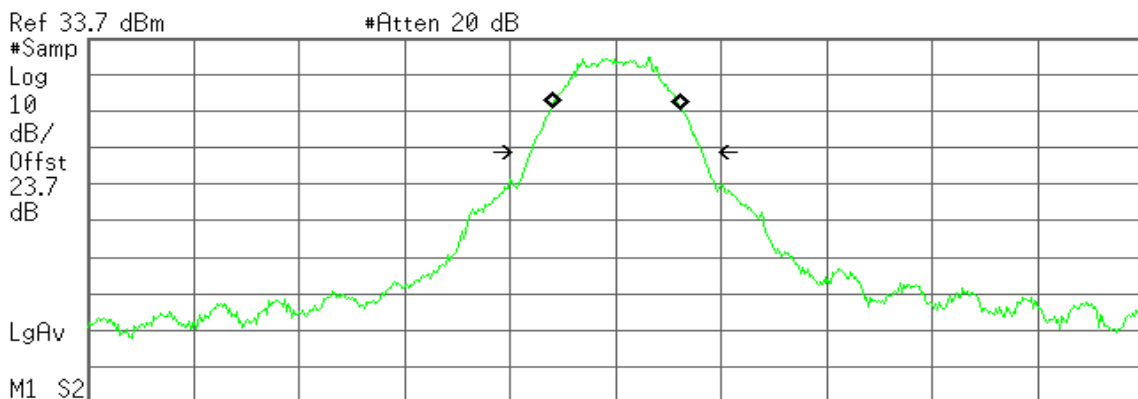
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 941.669 Hz  
**x dB Bandwidth** 324.178 kHz\*

### GSM 1900 (CH Mid)

Agilent 01:08:42 Aug 9, 2013

R T



Ref 33.7 dBm #Atten 20 dB  
 Center 1.880 000 GHz Span 2 MHz  
 #Res BW 20 kHz #VBW 62 kHz Sweep 15.08 ms (601 pts)

**Occupied Bandwidth**  
 245.6619 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

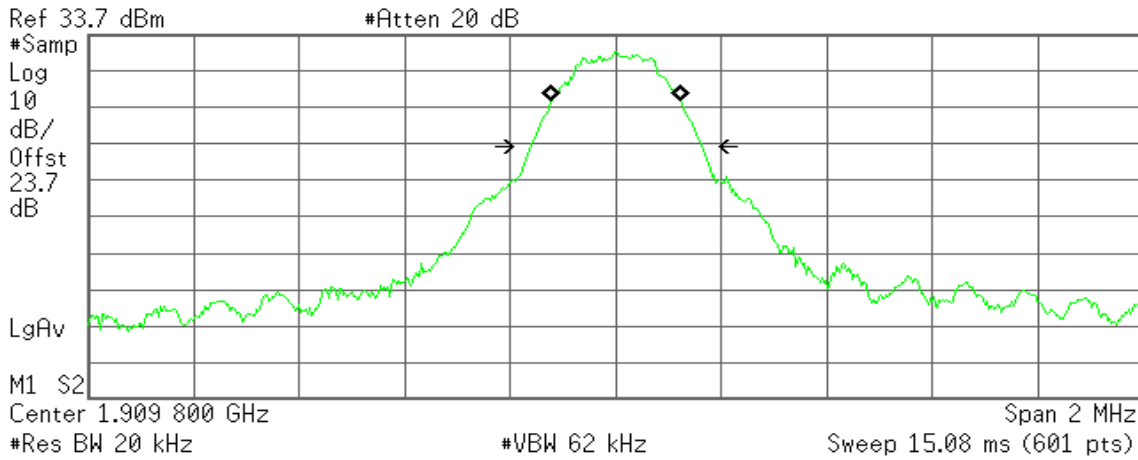
**Transmit Freq Error** 1.362 kHz  
**x dB Bandwidth** 324.953 kHz\*



### GSM 1900 (CH High)

Agilent 01:07:18 Aug 9, 2013

R T



**Occupied Bandwidth**  
246.6355 kHz

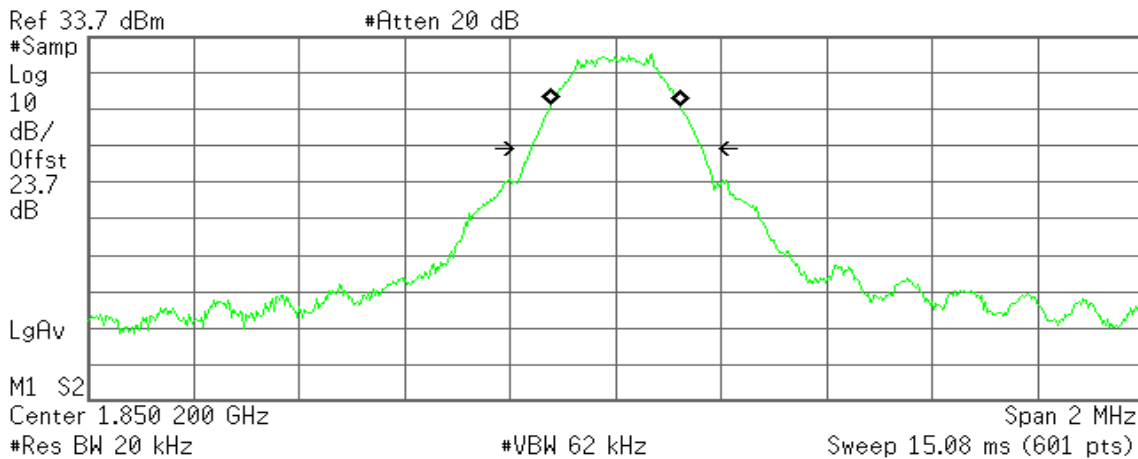
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 1.057 kHz  
**x dB Bandwidth** 324.508 kHz\*

### GPRS 1900 (CH Low)

Agilent 01:09:34 Aug 9, 2013

R T



**Occupied Bandwidth**  
244.4622 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

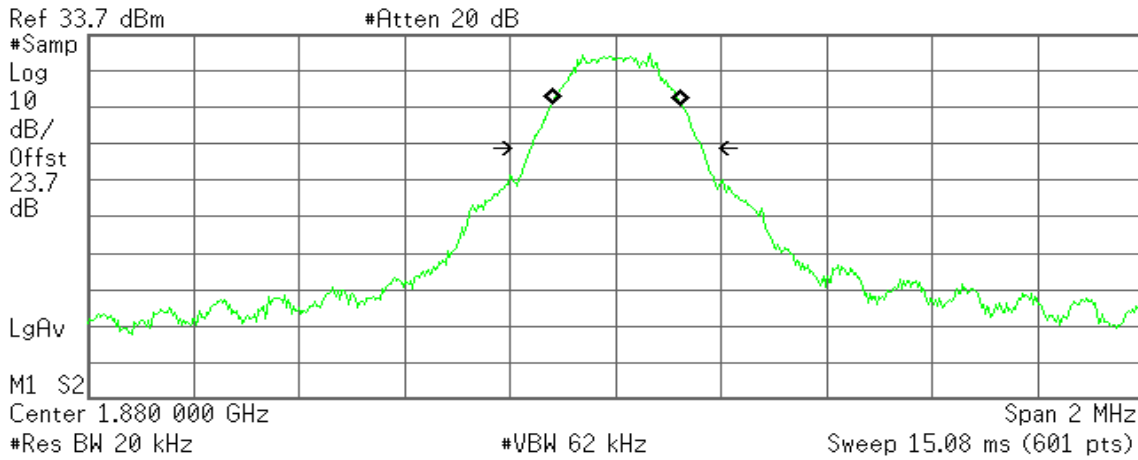
**Transmit Freq Error** 433.609 Hz  
**x dB Bandwidth** 324.178 kHz\*



### GPRS 1900 (CH Mid)

Agilent 01:08:33 Aug 9, 2013

R T



**Occupied Bandwidth**  
246.0506 kHz

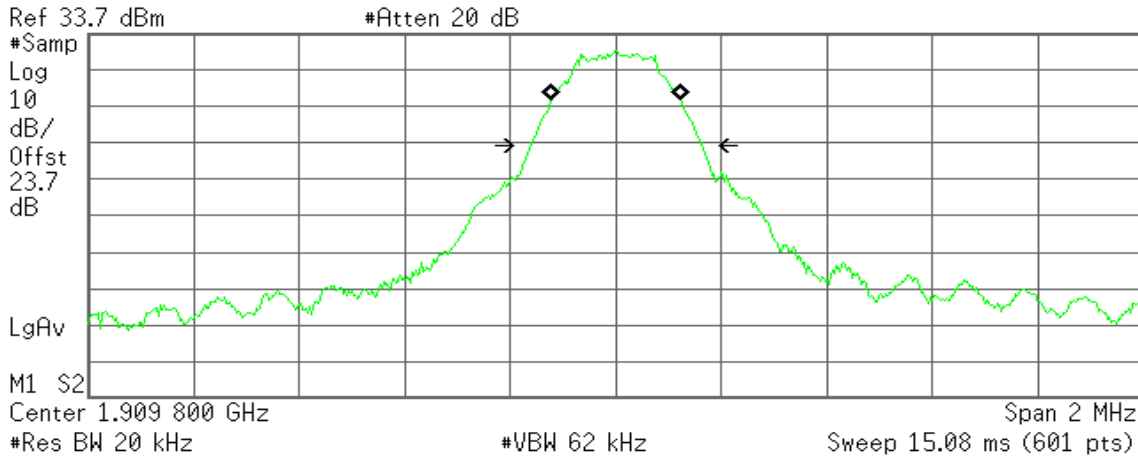
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 1.657 kHz  
**x dB Bandwidth** 324.945 kHz\*

### GPRS 1900 (CH High)

Agilent 01:07:27 Aug 9, 2013

R T



**Occupied Bandwidth**  
245.7775 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

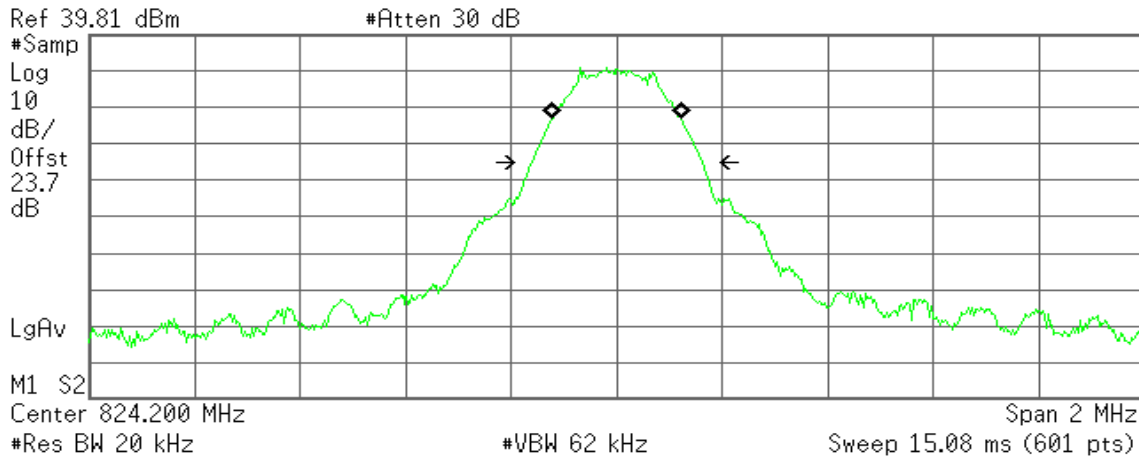
**Transmit Freq Error** 1.113 kHz  
**x dB Bandwidth** 324.570 kHz\*



### EDGE 850 (CH Low)

Agilent 23:49:45 Aug 8, 2013

R T



Occupied Bandwidth  
244.7999 kHz

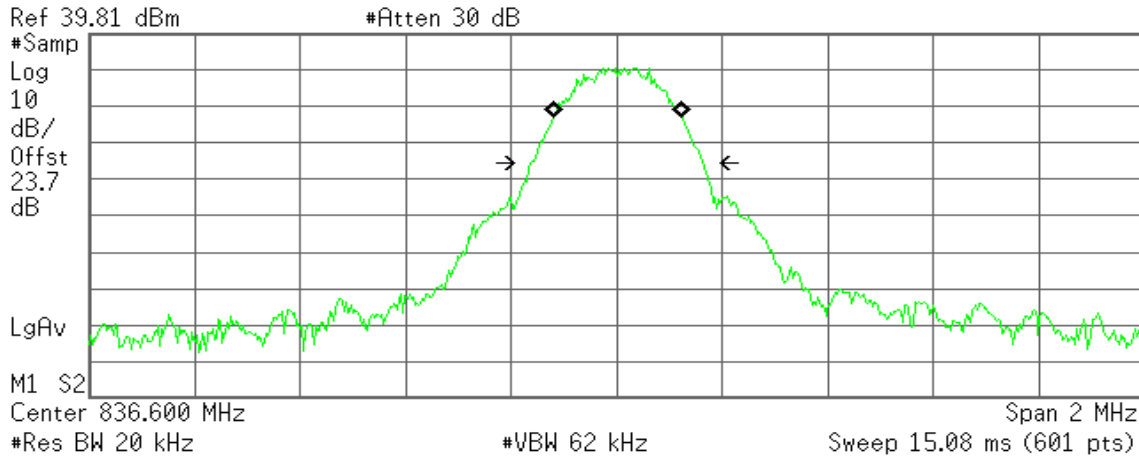
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error 16.310 Hz  
x dB Bandwidth 324.920 kHz\*

### EDGE 850 (CH Mid)

Agilent 23:48:01 Aug 8, 2013

R T



Occupied Bandwidth  
244.5352 kHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error 1.962 kHz  
x dB Bandwidth 325.592 kHz\*

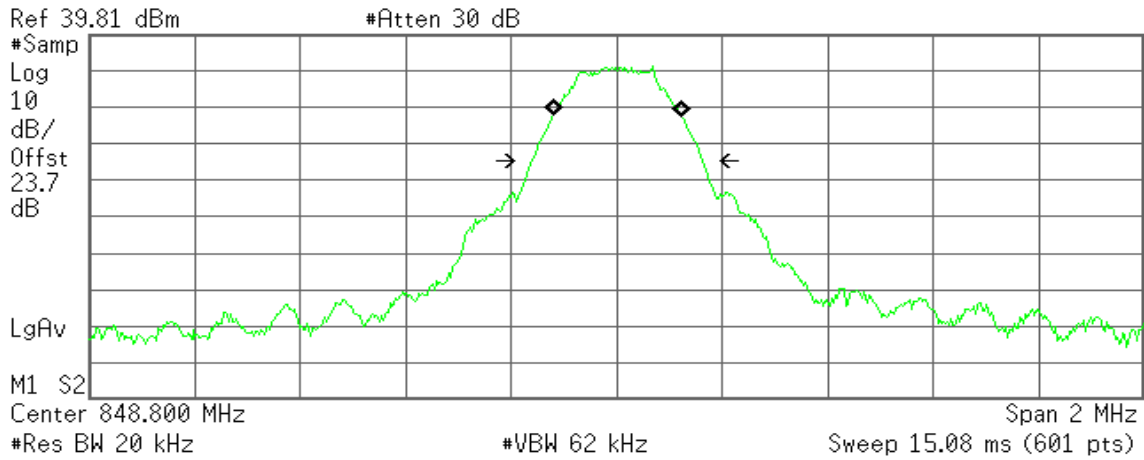




### EDGE 850 (CH High)

Agilent 23:47:18 Aug 8, 2013

R T



**Occupied Bandwidth**  
244.6431 kHz

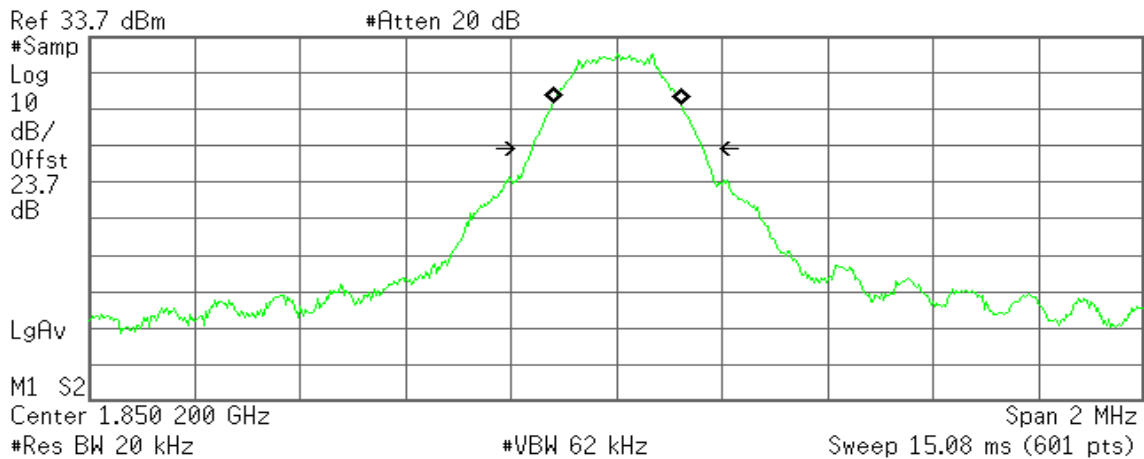
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 1.589 kHz  
**x dB Bandwidth** 324.037 kHz\*

### EDGE 1900 (CH Low)

Agilent 01:09:46 Aug 9, 2013

R T



**Occupied Bandwidth**  
243.7344 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

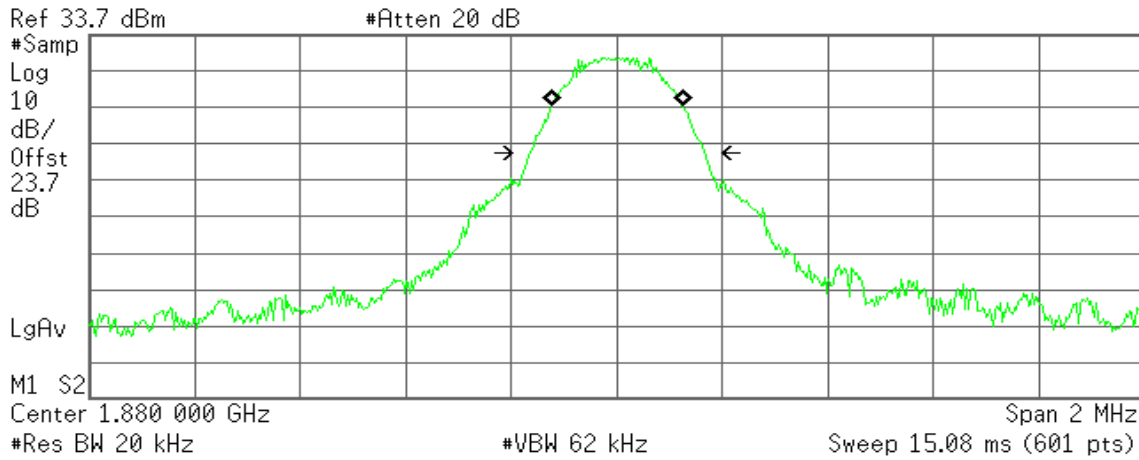
**Transmit Freq Error** 538.536 Hz  
**x dB Bandwidth** 324.178 kHz\*



### EDGE 1900 (CH Mid)

Agilent 01:08:21 Aug 9, 2013

R T



**Occupied Bandwidth**  
247.9922 kHz

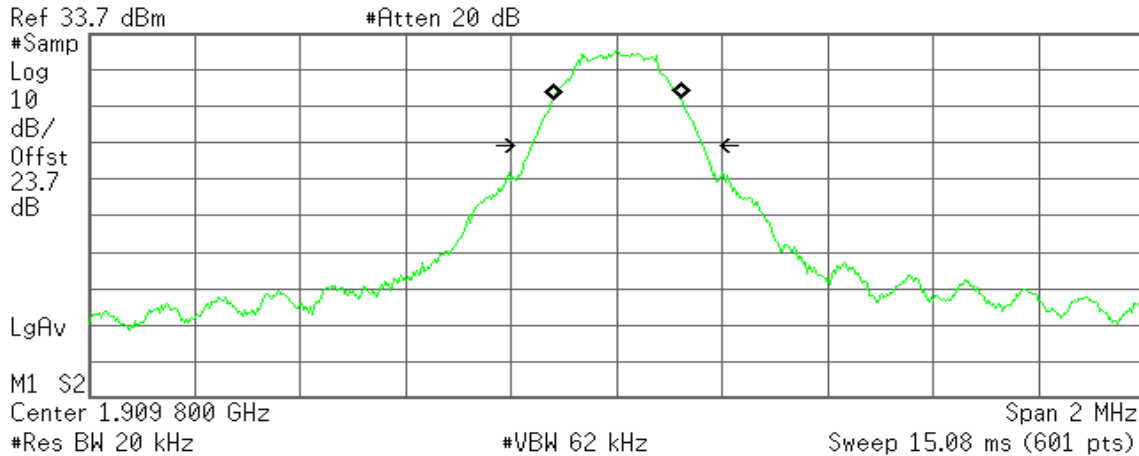
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 1.696 kHz  
**x dB Bandwidth** 331.579 kHz\*

### EDGE 1900 (CH High)

Agilent 01:07:37 Aug 9, 2013

R T



**Occupied Bandwidth**  
245.4468 kHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

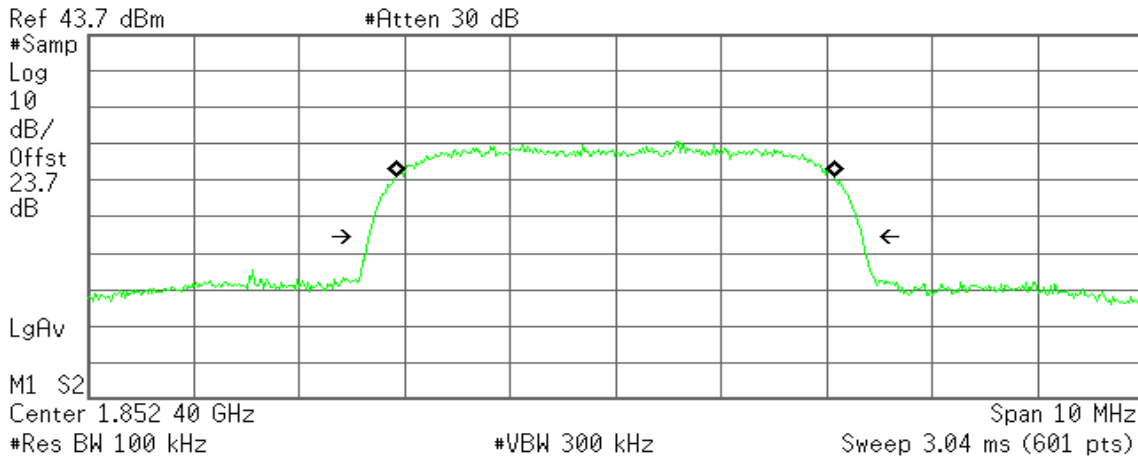
**Transmit Freq Error** 1.113 kHz  
**x dB Bandwidth** 324.570 kHz\*



### WCDMA Band II (CH Low)

Agilent 21:34:45 Aug 12, 2013

R T



**Occupied Bandwidth**  
4.1676 MHz

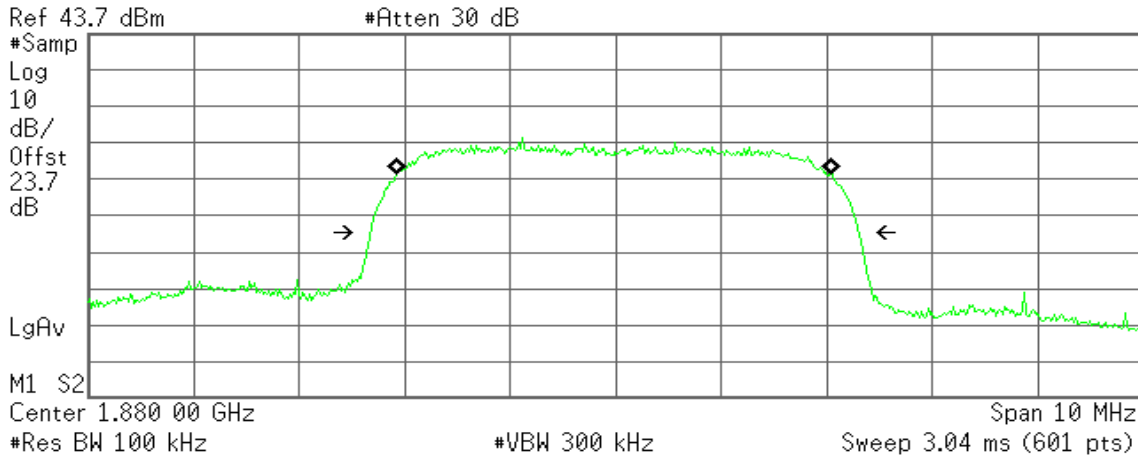
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -4.124 kHz  
**x dB Bandwidth** 4.685 MHz\*

### WCDMA Band II (CH Mid)

Agilent 21:33:47 Aug 12, 2013

R T



**Occupied Bandwidth**  
4.1417 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

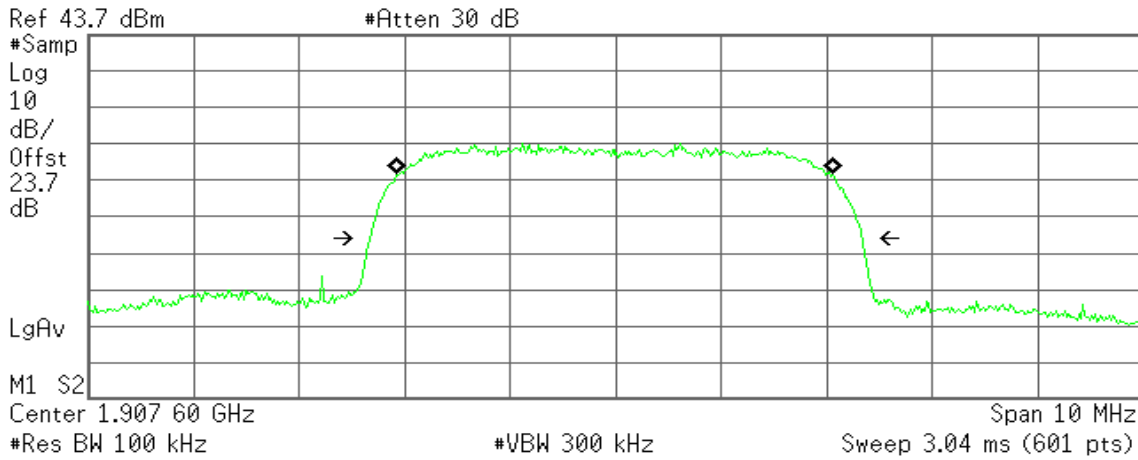
**Transmit Freq Error** -13.873 kHz  
**x dB Bandwidth** 4.639 MHz\*



### WCDMA Band II (CH High)

Agilent 21:32:35 Aug 12, 2013

R T



Occupied Bandwidth  
4.1479 MHz

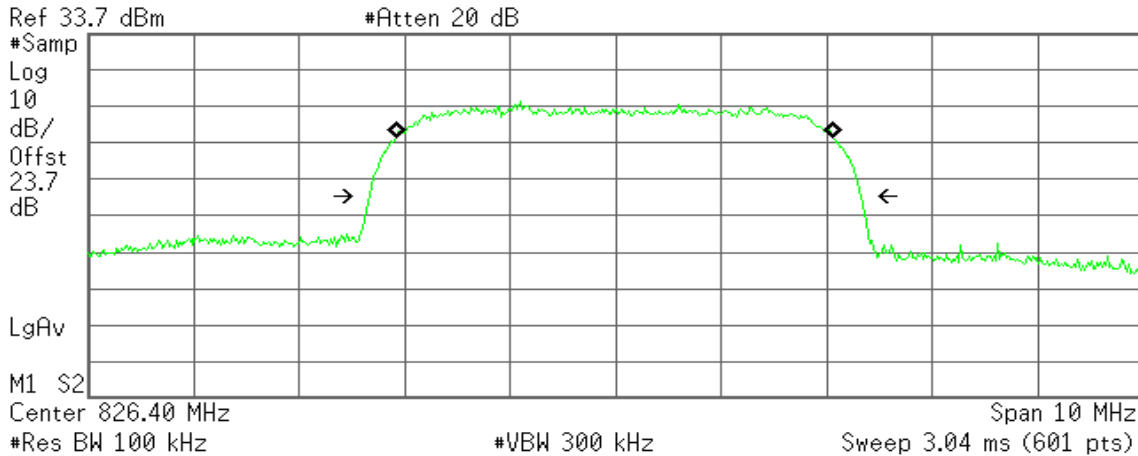
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error -8.144 kHz  
x dB Bandwidth 4.674 MHz\*

### WCDMA Band V (CH Low)

Agilent 22:03:24 Aug 12, 2013

R T



Occupied Bandwidth  
4.1578 MHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

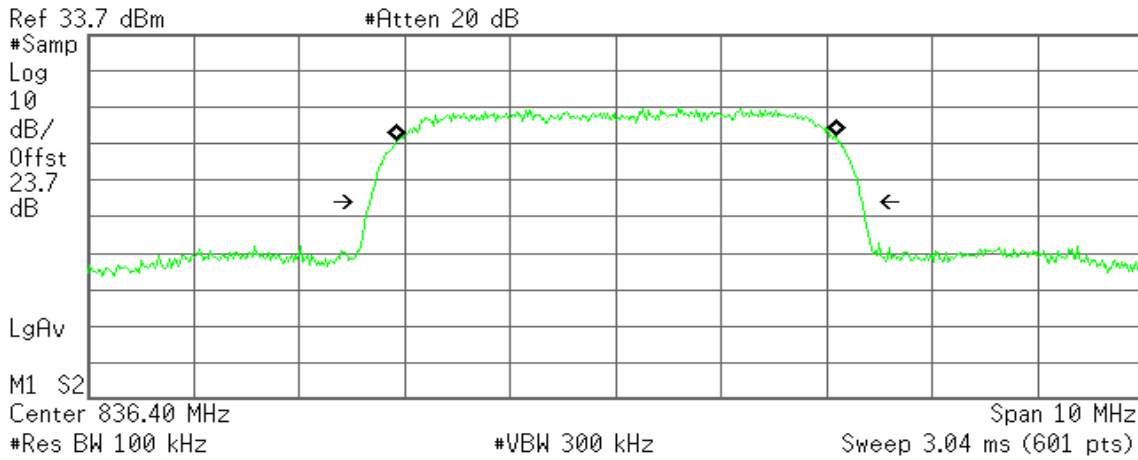
Transmit Freq Error -10.152 kHz  
x dB Bandwidth 4.671 MHz\*



### WCDMA Band V (CH Mid)

Agilent 22:02:10 Aug 12, 2013

R T



**Occupied Bandwidth**  
4.1786 MHz

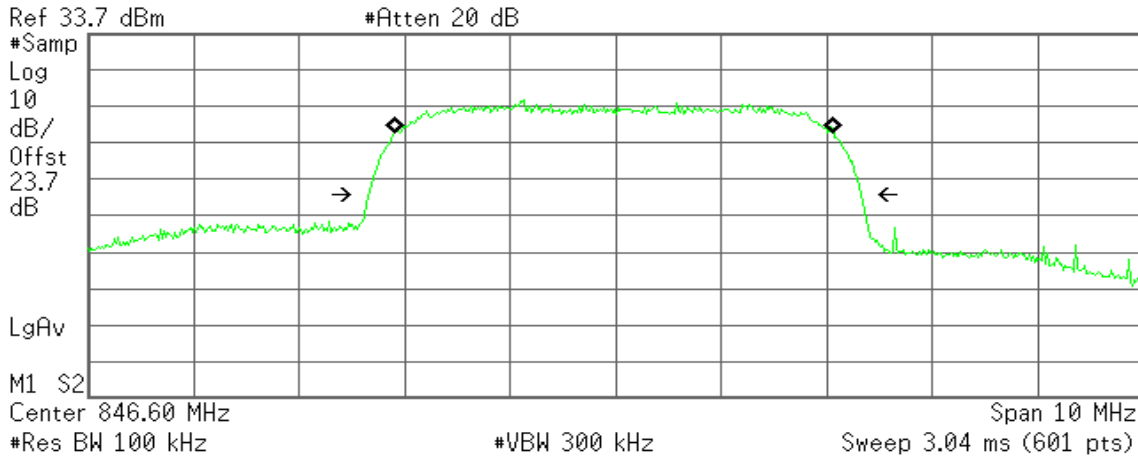
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 12.571 kHz  
**x dB Bandwidth** 4.679 MHz\*

### WCDMA Band V (CH High)

Agilent 22:01:44 Aug 12, 2013

R T



**Occupied Bandwidth**  
4.1739 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

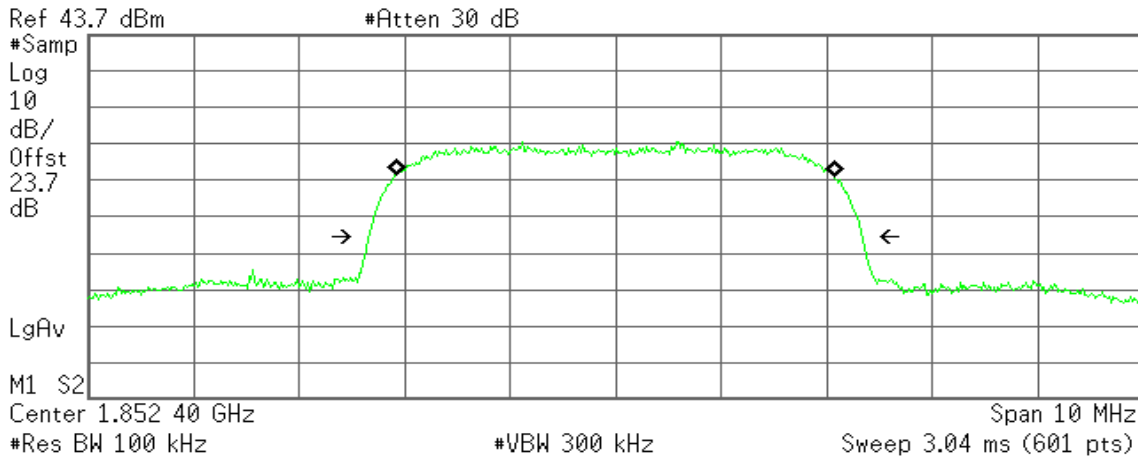
**Transmit Freq Error** -12.119 kHz  
**x dB Bandwidth** 4.675 MHz\*



### WCDMA / HSDPA Band II (CH Low)

Agilent 21:35:05 Aug 12, 2013

R T



Occupied Bandwidth  
4.1696 MHz

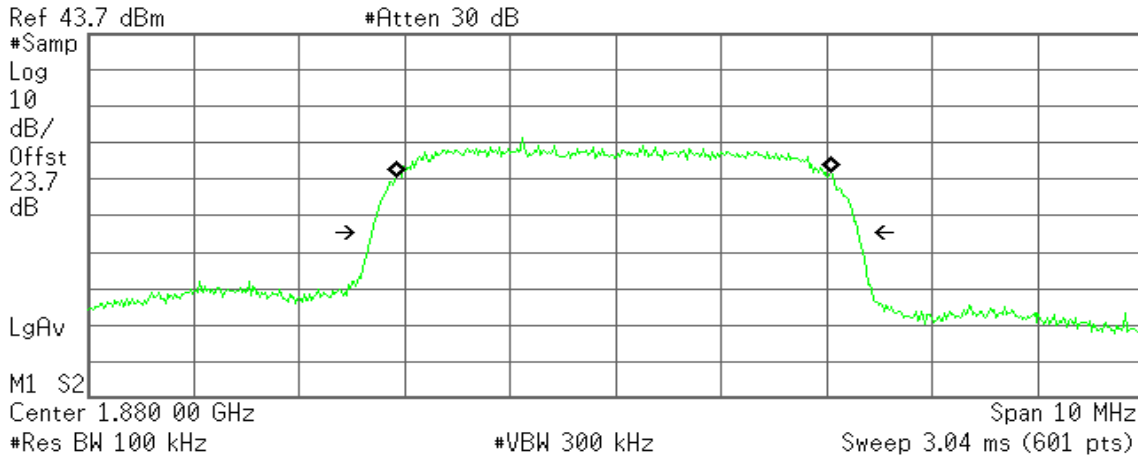
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error -6.486 kHz  
x dB Bandwidth 4.685 MHz\*

### WCDMA / HSDPA Band II (CH Mid)

Agilent 21:33:28 Aug 12, 2013

R T



Occupied Bandwidth  
4.1422 MHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

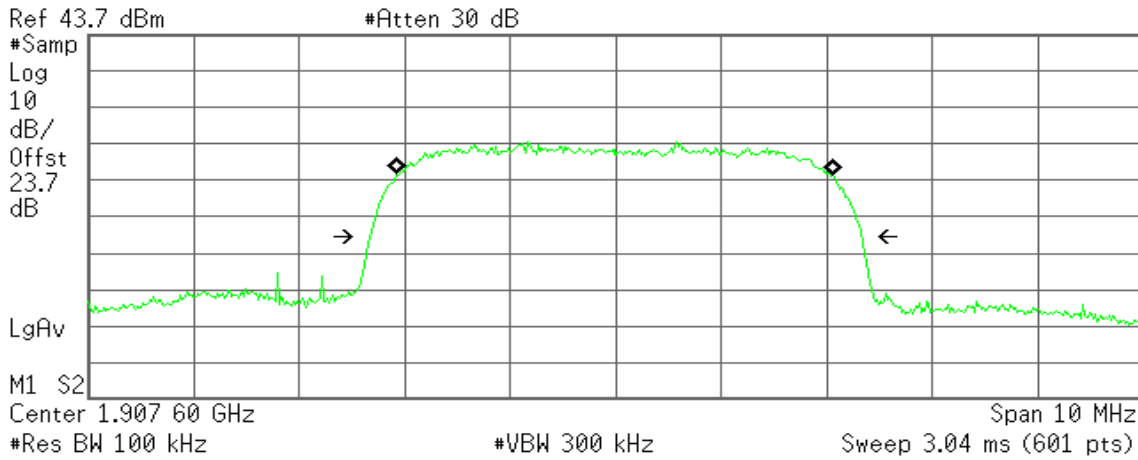
Transmit Freq Error -16.475 kHz  
x dB Bandwidth 4.624 MHz\*



### WCDMA / HSDPA Band II (CH High)

Agilent 21:32:53 Aug 12, 2013

R T



Occupied Bandwidth  
4.1434 MHz

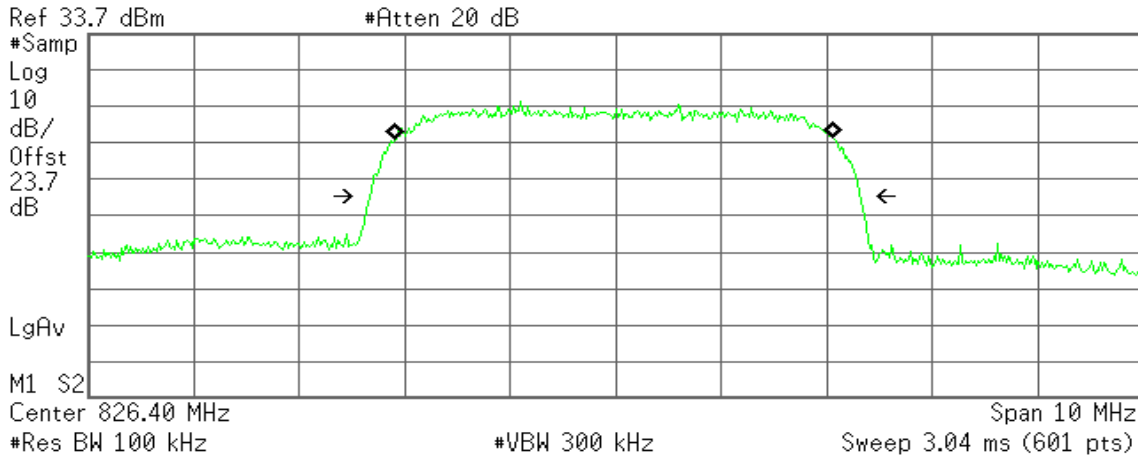
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error -8.327 kHz  
x dB Bandwidth 4.672 MHz\*

### WCDMA / HSDPA Band V (CH Low)

Agilent 22:03:01 Aug 12, 2013

R T



Occupied Bandwidth  
4.1710 MHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

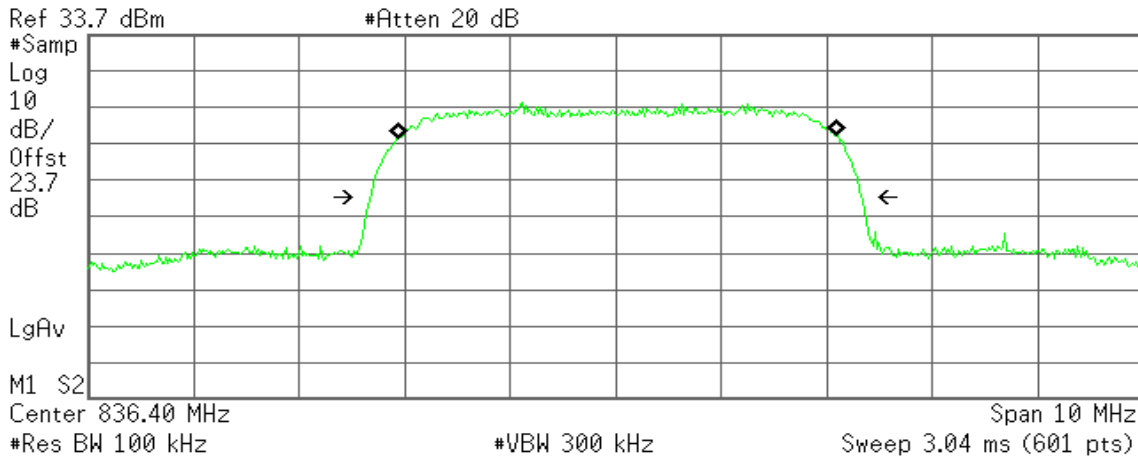
Transmit Freq Error -11.218 kHz  
x dB Bandwidth 4.658 MHz\*



### WCDMA / HSDPA Band V (CH Mid)

Agilent 22:02:37 Aug 12, 2013

R T



**Occupied Bandwidth**  
4.1711 MHz

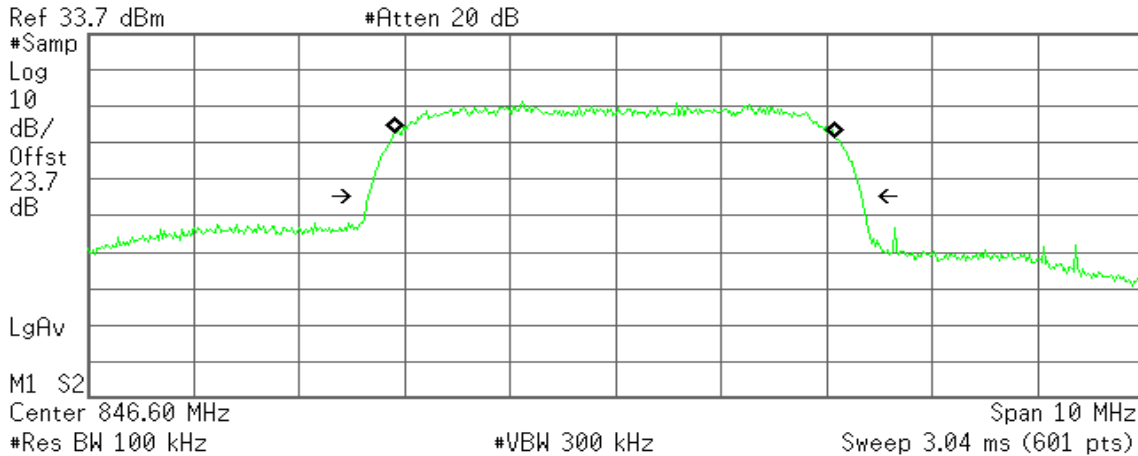
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** 18.617 kHz  
**x dB Bandwidth** 4.668 MHz\*

### WCDMA / HSDPA Band V (CH High)

Agilent 22:01:25 Aug 12, 2013

R T



**Occupied Bandwidth**  
4.1833 MHz

**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -10.968 kHz  
**x dB Bandwidth** 4.686 MHz\*



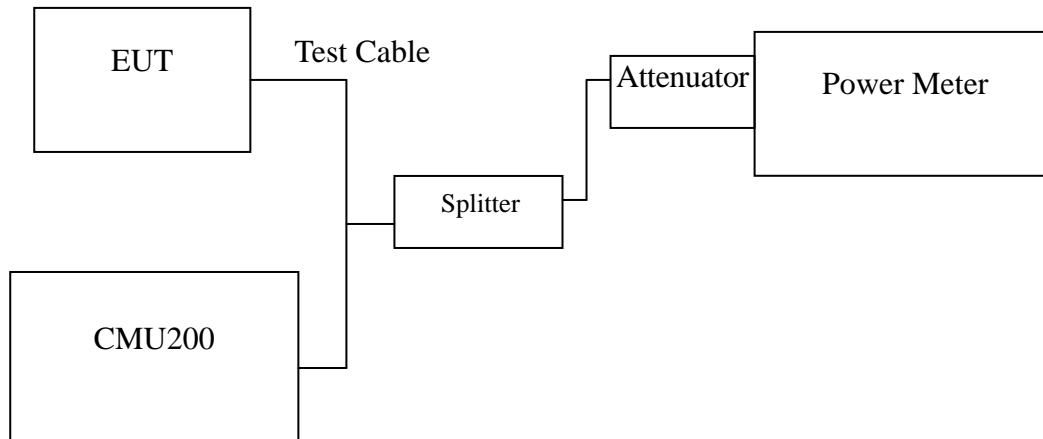


## 7.2 PEAK POWER

### LIMIT

According to FCC §2.1046.

### Test Configuration



*Remark: Measurement setup for testing on Antenna connector*

### TEST 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.

### TEST RESULTS

*No non-compliance noted.*



**Test Data**

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
GSM 850 (Class B)	128	824.20	32.40	1.73780
	190	836.40	32.50	1.77828
	251	848.80	32.50	1.77828
GPRS 850 (Class 10)	128	824.20	32.20	1.65959
	190	836.40	32.30	1.69824
	251	848.80	32.20	1.65959
EDGE 850 (Class 10)	128	824.20	26.50	0.44668
	190	836.40	26.60	0.45709
	251	848.80	26.50	0.44668

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
GSM 1900 (Class B)	512	1850.20	29.40	0.87096
	661	1880.00	29.50	0.89125
	810	1910.00	29.30	0.85114
GPRS 1900 (Class 10)	512	1850.20	28.80	0.75858
	661	1880.00	28.90	0.77625
	810	1910.00	29.00	0.79433
EDGE 1900 (Class 10)	512	1850.20	24.90	0.30903
	661	1880.00	24.90	0.30903
	810	1910.00	25.00	0.31623

**Remark:** The value of factor includes both the loss of cable and external attenuator



Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
WCDMA (BAND II)	9262	1852.40	23.03	0.20091
	9400	1880.00	22.61	0.18239
	9538	1907.60	23.18	0.20797
WCDMA (BAND V)	4132	826.40	23.17	0.20749
	4182	836.40	23.40	0.21878
	4233	846.60	23.14	0.20606

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
WCDMA / HSDPA (BAND II)	9262	1852.40	22.56	0.18030
	9400	1880.00	22.42	0.17458
	9538	1907.60	22.78	0.18967
WCDMA / HSDPA (BAND V)	4132	826.40	22.96	0.19770
	4182	836.40	23.32	0.21478
	4233	846.60	23.03	0.20091

**Remark:** The value of factor includes both the loss of cable and external attenuator

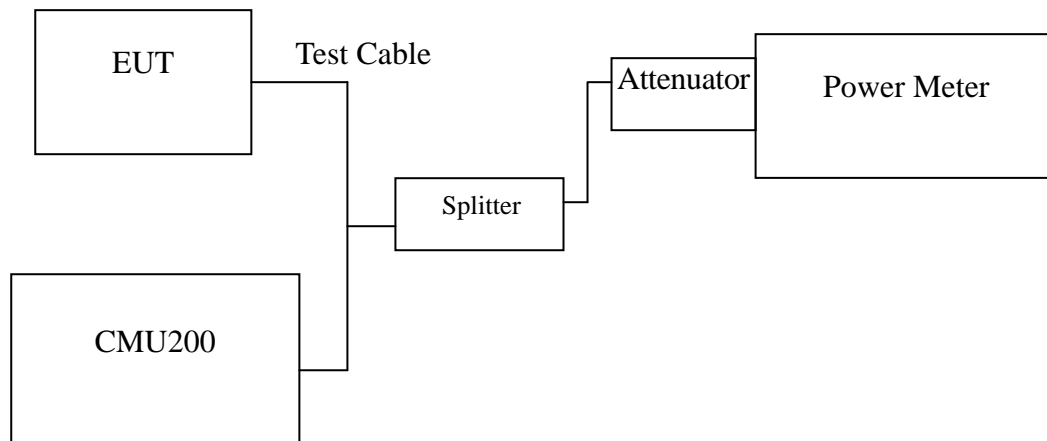


### 7.3 AVERAGE POWER

#### LIMIT

For reporting purposes only.

#### Test Configuration



*Remark: Measurement setup for testing on Antenna connector*

#### TEST 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.

#### TEST RESULTS

*No non-compliance noted.*



**Test Data**

Test Mode	CH	Frequency (MHz)	Average Power (dBm)	Output Power (W)
GSM 850 (Class B)	128	824.20	32.20	1.65959
	190	836.40	32.40	1.73780
	251	848.80	32.30	1.69824
GPRS 850 (Class 10)	128	824.20	32.10	1.62181
	190	836.40	32.20	1.65959
	251	848.80	32.10	1.62181
EDGE 850 (Class 10)	128	824.20	26.30	0.42658
	190	836.40	26.40	0.43652
	251	848.80	26.30	0.42658

Test Mode	CH	Frequency (MHz)	Average Power (dBm)	Output Power (W)
GSM 1900 (Class 10)	512	1850.20	29.20	0.83176
	661	1880.00	29.30	0.85114
	810	1909.80	29.20	0.83176
GPRS 1900 (Class 10)	512	1850.20	28.70	0.74131
	661	1880.00	28.80	0.75858
	810	1909.80	28.90	0.77625
EDGE 1900 (Class 10)	512	1850.20	24.70	0.29512
	661	1880.00	24.80	0.30200
	810	1909.80	24.90	0.30903

**Remark:** The value of factor includes both the loss of cable and external attenuator



Test Mode	CH	Frequency (MHz)	Average Power (dBm)	Output Power (W)
WCDMA (BAND II)	9262	1852.40	22.70	0.18621
	9400	1880.00	22.58	0.18113
	9538	1907.60	22.78	0.18967
WCDMA (BAND V)	4132	826.40	23.14	0.20606
	4182	836.40	23.33	0.21528
	4233	846.60	23.11	0.20464

Test Mode	CH	Frequency (MHz)	Average Power (dBm)	Output Power (W)
WCDMA / HSDPA (BAND II)	9262	1852.40	22.48	0.17701
	9400	1880.00	22.38	0.17298
	9538	1907.60	23.02	0.20045
WCDMA / HSDPA (BAND V)	4132	826.40	22.93	0.19634
	4182	836.40	23.28	0.21281
	4233	846.60	23.00	0.19953

**Remark:** The value of factor includes both the loss of cable and external attenuator



## 7.4 ERP & EIRP MEASUREMENT

### LIMIT

According to FCC §2.1046

FCC 22.913(b): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

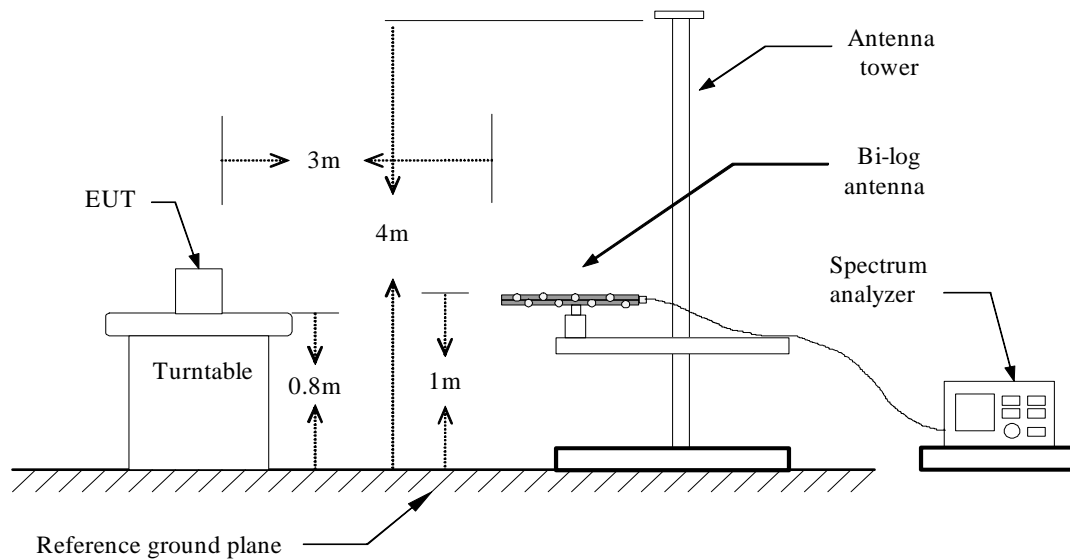
RSS-132 § 4.4 The maximum (ERP) shall be 6.3 Watts for mobile stations.

FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

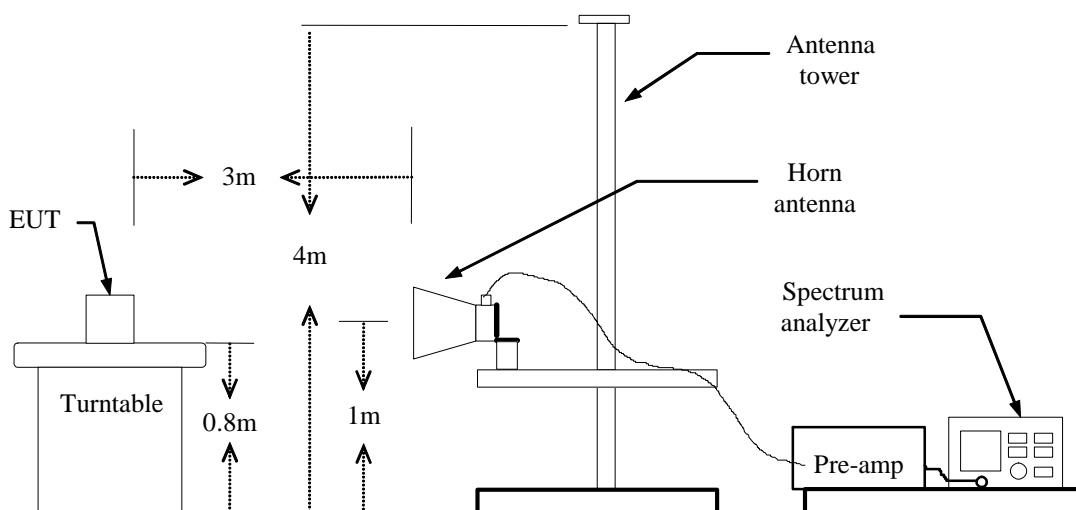
RSS133 § 6.4: Mobile stations and hand-held portables are limited to 2 watts maximum (EIRP).

### Test Configuration

#### Below 1 GHz

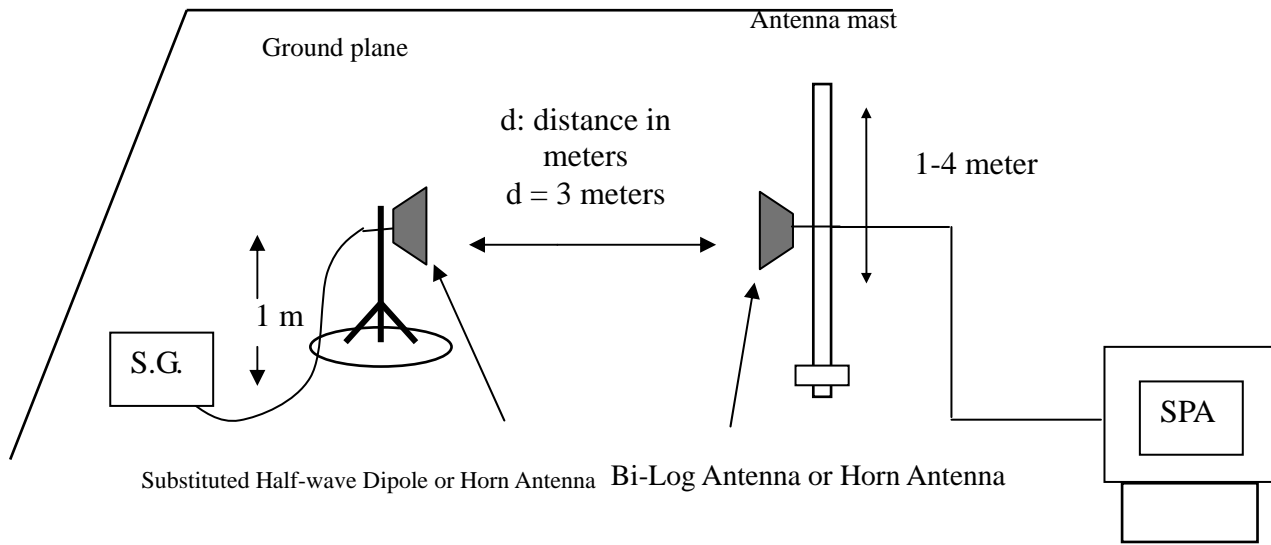


#### Above 1 GHz





### For Substituted Method Test Set-UP



### TEST PROCEDURE

The EUT was placed on a 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 of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

### TEST RESULTS

*No non-compliance noted.*





**Calculation of maximum antenna gain**

850MHz frequency band GSM850, FDD-V				RF Output Power				Calculations to meet ERP limits		
				Burst Average Power		Peak Power		ERP limit	Antenna Gain to meet	
BAND	MODE	Sub-Test	Frequency [MHz]	[dBm]	[W]	[dBm]	[W]	[W]	Numerical	[dBi]
GSM850	GSM850	-	824.2	32.2	1.65959	32.4	1.73780	7	6.91831	8.40
			836.4	32.4	1.73780	32.5	1.77828	7	6.606934	8.20
			848.8	32.3	1.69824	32.5	1.77828	7	6.76083	8.30
	GPRS850 (class 10)	3Down2Up	824.2	32.1	1.62181	32.2	1.65959	7	7.079458	8.50
			836.4	32.2	1.65959	32.3	1.69824	7	6.91831	8.40
			848.8	32.1	1.62181	32.2	1.65959	7	7.079458	8.50
	EDGE850 (class 10)	3Down2Up	824.2	26.3	0.42658	26.5	0.44668	7	26.91535	14.30
			836.4	26.4	0.43652	26.6	0.45709	7	26.30268	14.20
			848.8	26.3	0.42658	26.5	0.44668	7	26.91535	14.30
WCDMA FDD-V	WCDMA FDD-V	-	1852.4	23.14	0.20606	23.17	0.20749	7	55.71857	17.46
			1880	23.33	0.21528	23.4	0.21878	7	53.33349	17.27
			1907.6	23.11	0.20464	23.14	0.20606	7	56.1048	17.49
	HSDPA FDD-V	-	1852.4	22.93	0.19634	22.96	0.19770	7	58.47901	17.67
			1880	23.28	0.21281	23.32	0.21478	7	53.95106	17.32
			1907.6	23	0.19953	23.03	0.20091	7	57.54399	17.60

1900MHz frequency band GSM1900, FDD-II				RF Output Power				Calculations to meet ERP limits		
				Burst Average Power		Peak Power		EIRP limit	Antenna Gain to meet	
BAND	MODE	Sub-Test	Frequency [MHz]	[dBm]	[W]	[dBm]	[W]	[W]	Numerical	[dBi]
GSM1900	GSM1900	-	824.2	29.20	0.83176	29.40	0.87096	2	2.398833	3.80
			836.4	29.30	0.85114	29.50	0.89125	2	2.344229	3.70
			848.8	29.20	0.83176	29.30	0.85114	2	2.398833	3.80
	GPRS1900 (class 10)	3Down2Up	824.2	28.70	0.74131	28.80	0.75858	2	2.691535	4.30
			836.4	28.80	0.75858	28.90	0.77625	2	2.630268	4.20
			848.8	28.90	0.77625	29.00	0.79433	2	2.570396	4.10
	EDGE1900 (class 10)	3Down2Up	824.2	24.70	0.29512	24.90	0.30903	2	6.76083	8.30
			836.4	24.80	0.30200	24.90	0.30903	2	6.606934	8.20
			848.8	24.90	0.30903	25.00	0.31623	2	6.456542	8.10
WCDMA FDD-II	WCDMA FDD-II	-	1852.4	22.70	0.18621	23.03	0.20091	2	10.71519	10.30
			1880	22.58	0.18113	22.61	0.18239	2	11.01539	10.42
			1907.6	22.78	0.18967	23.18	0.20797	2	10.51962	10.22
	HSDPA FDD-II	-	1852.4	22.48	0.17701	22.56	0.18030	2	11.27197	10.52
			1880	22.38	0.17298	22.42	0.17458	2	11.53453	10.62
			1907.6	23.02	0.20045	22.78	0.18967	2	9.954054	9.98



## 7.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS

### LIMIT

According to FCC §2.1051, FCC §22.917, FCC §24.238(a). RSS-132 (4.5.2), RSS-133 (6.6).

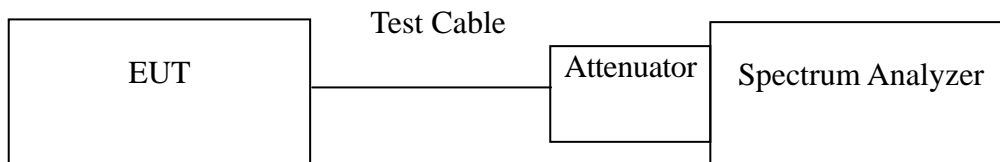
**Out of Band Emissions:** The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least  $43 + 10 \log P$  dB.

**Mobile Emissions in Base Frequency Range:** The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed  $-80$  dBm at the transmit antenna connector.

**Band Edge Requirements:** In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

### Test Configuration

Out of band emission at antenna terminals:



### TEST 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 (824 MHz and 849 MHz /1850MHz and 1910MHz): 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.

### TEST RESULTS

*No non-compliance noted.*



**Test Data**

Mode	CH	Location	Description
GSM 850	128	Figure 7-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 7-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 7-3	Conducted spurious emissions, 30MHz - 20GHz
GPRS 850	128	Figure 8-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 8-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 8-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
GSM 1900	512	Figure 9-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 9-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 9-3	Conducted spurious emissions, 30MHz - 20GHz
GPRS 1900	512	Figure 10-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 10-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 10-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
GSM 850	128	Figure 11-1	Band Edge emissions
	251	Figure 11-2	Band Edge emissions
GPRS 850	128	Figure 12-1	Band Edge emissions
	251	Figure 12-2	Band Edge emissions

Mode	CH	Location	Description
GSM 1900	512	Figure 13-1	Band Edge emissions
	810	Figure 13-2	Band Edge emissions
GPRS 1900	512	Figure 14-1	Band Edge emissions
	810	Figure 14-2	Band Edge emissions



Mode	CH	Location	Description
EDGE 850	128	Figure 15-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 15-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 15-3	Conducted spurious emissions, 30MHz - 20GHz
EDGE 1900	512	Figure 16-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 16-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 16-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
EDGE 850	128	Figure 17-1	Band Edge emissions
	251	Figure 17-2	Band Edge emissions
EDGE 1900	512	Figure 18-1	Band Edge emissions
	810	Figure 18-2	Band Edge emissions



Mode	CH	Location	Description
WCDMA (Band II)	9262	Figure 19-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 19-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 19-3	Conducted spurious emissions, 30MHz - 20GHz
WCDMA (Band V)	4132	Figure 20-1	Conducted spurious emissions, 30MHz - 20GHz
	4182	Figure 20-2	Conducted spurious emissions, 30MHz - 20GHz
	4233	Figure 20-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
WCDMA (Band II)	9262	Figure 21-1	Band Edge emissions
	9538	Figure 21-2	Band Edge emissions
WCDMA (Band V)	4132	Figure 22-1	Band Edge emissions
	4233	Figure 22-2	Band Edge emissions

Mode	CH	Location	Description
HSDPA WCDMA (Band II)	9262	Figure 23-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 23-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 23-3	Conducted spurious emissions, 30MHz - 20GHz
HSDPA WCDMA (Band V)	4132	Figure 24-1	Conducted spurious emissions, 30MHz - 20GHz
	4182	Figure 24-2	Conducted spurious emissions, 30MHz - 20GHz
	4233	Figure 24-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
HSDPA WCDMA (Band II)	9262	Figure 25-1	Band Edge emissions
	9538	Figure 25-2	Band Edge emissions
HSDPA WCDMA (Band V)	4132	Figure 26-1	Band Edge emissions
	4233	Figure 26-2	Band Edge emissions



Out of Band emission at antenna terminals

GSM 850

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max.Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	1660	-33.41	8.2	-25.21	-13	-12.21
	N/A					
Mid	1660	-35.03	8.2	-26.83	-13	-13.83
	N/A					
High	5090	-34.5	8.2	-26.3	-13	-13.3
	N/A					

GSM 1900

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max.Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	3690	-31.79	3.7	-28.09	-13	-15.09
Mid	N/A					
High	N/A					

GPRS 850

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max.Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	1660	-33.35	8.2	-25.15	-13	-12.15
	N/A					
Mid	1660	-36.24	8.2	-28.04	-13	-15.04
	N/A					
High	1690	-33.49	8.2	-25.29	-13	-12.29
	5090	-33.3	8.2	-25.1	-13	-12.1

GPRS 1900

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max.Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	3690	-30.85	3.7	-27.15	-13	-14.15
	N/A					
Mid	3760	-33.3	3.7	-29.6	-13	-16.6
	N/A					
High	N/A					
	N/A					

EGPRS 850

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max.Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	1660	-33.56	8.2	-25.36	-13	-12.36
	4890	-23.38	8.2	-15.18	-13	-2.18
Mid	1660	-33.39	8.2	-25.19	-13	-12.19
	N/A					
High	1690	-33.21	8.2	-25.01	-13	-12.01
	5090	-35.08	8.2	-26.88	-13	-13.88

EGPRS 1900

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max.Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	3690	-32.03	3.7	-28.33	-13	-15.33
	N/A					
Mid	N/A					
	N/A					
High	N/A					
	N/A					

Remark:

WCDMA HSDPA: There is no specific emissions from the EUT are recorded



Test Plot

GSM 850

Figure 7-1: Out of Band emission at antenna terminals – GSM CH Low

Agilent 00:37:34 Aug 9, 2013

R T

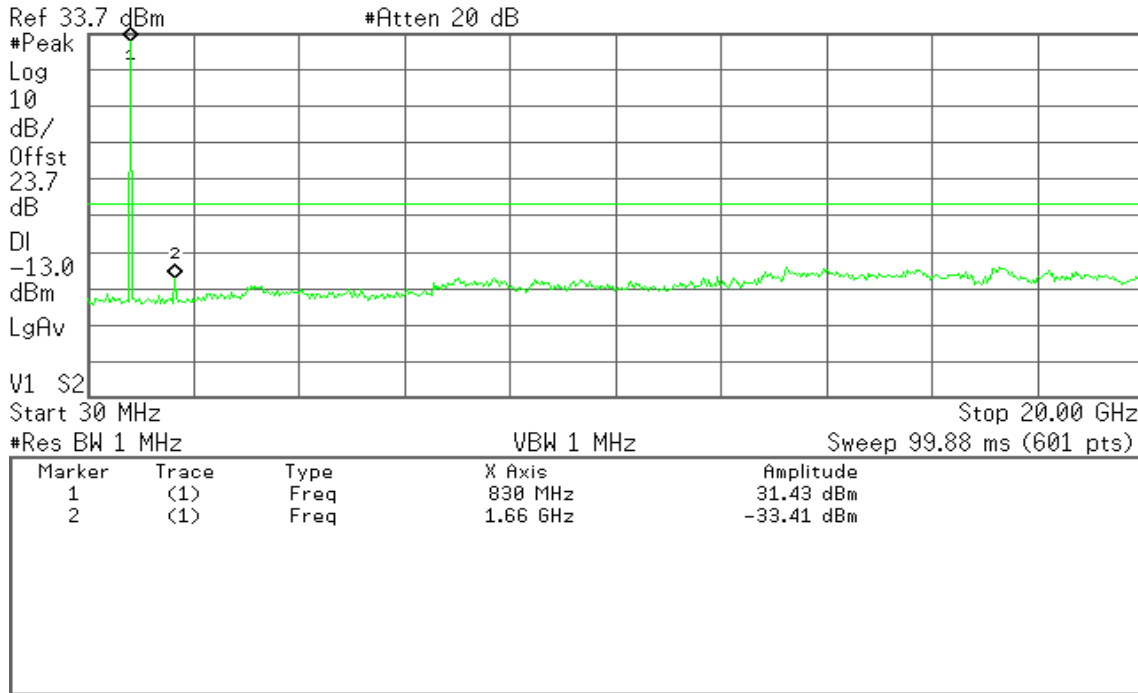


Figure 7-2: Out of Band emission at antenna terminals – GSM CH Mid

Agilent 00:10:14 Aug 9, 2013

R T

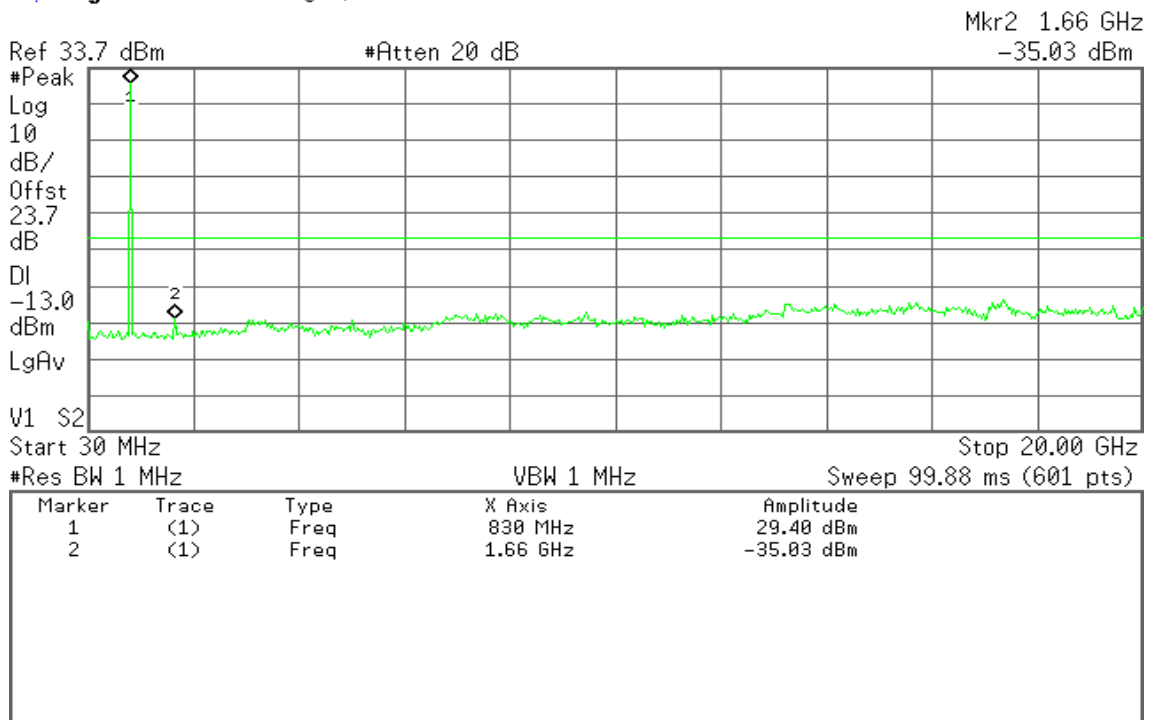
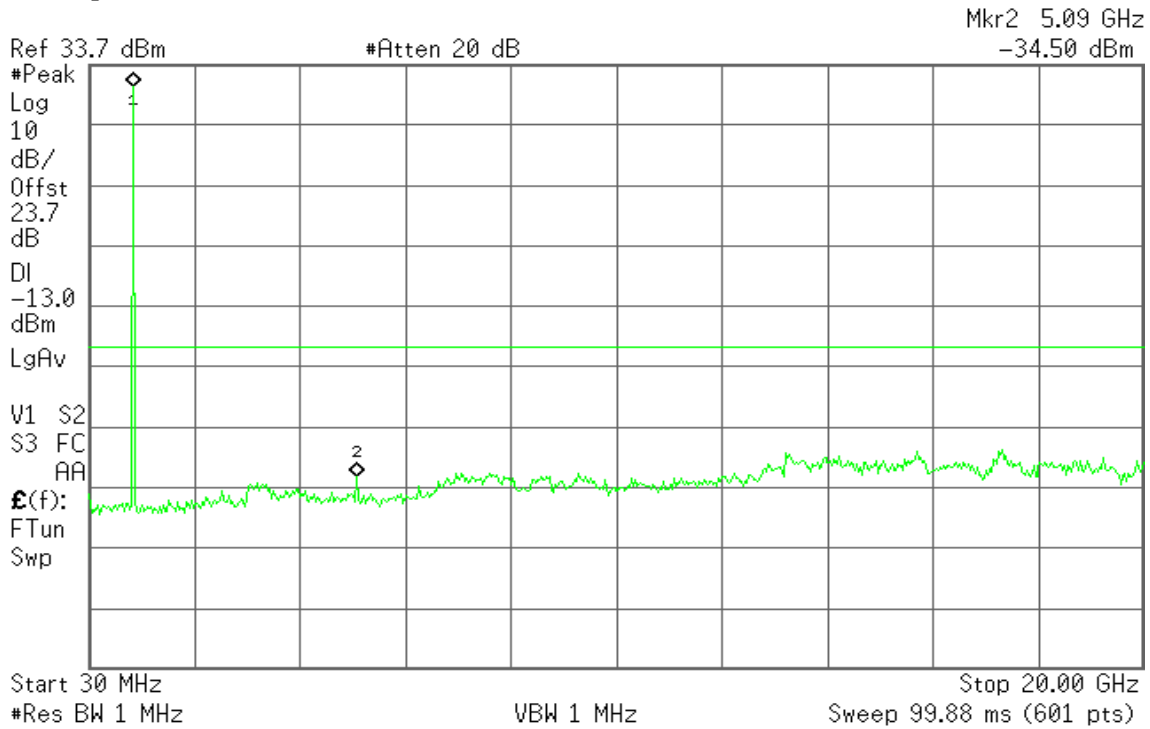




Figure 7-3: Out of Band emission at antenna terminals – GSM CH High

Agilent 00:08:37 Aug 9, 2013

R T



### GPRS 850

Figure 8-1: Out of Band emission at antenna terminals – GPRS CH Low

Agilent 00:36:43 Aug 9, 2013

R T

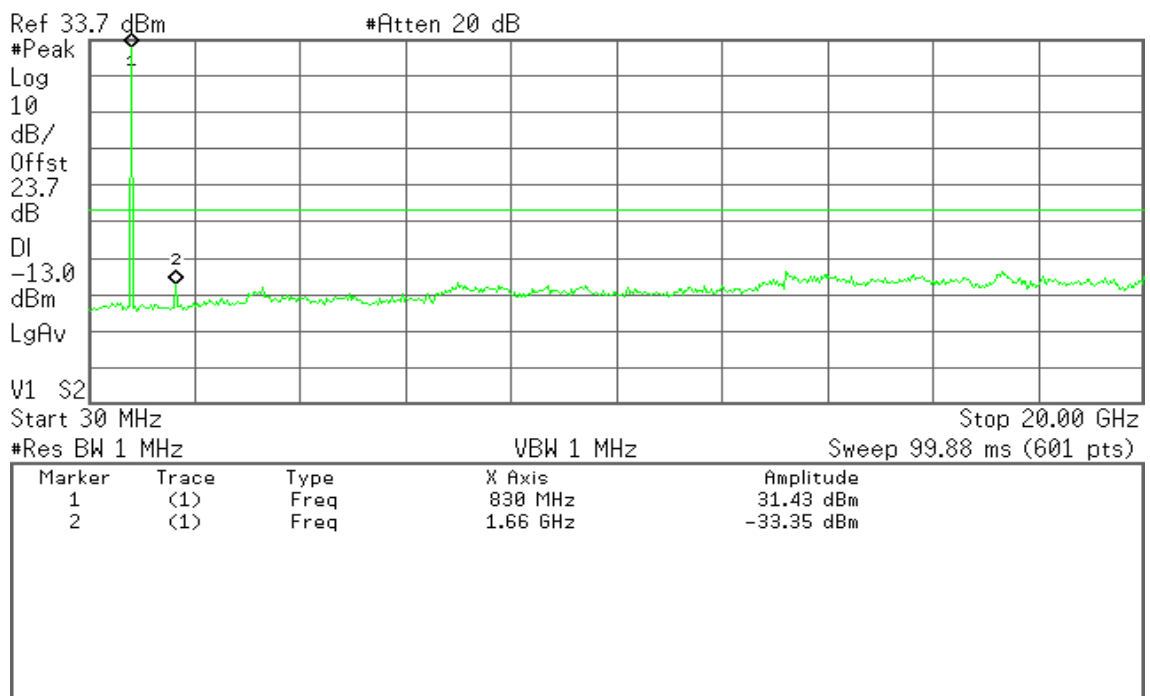






Figure 8-2: Out of Band emission at antenna terminals – GPRS CH Mid

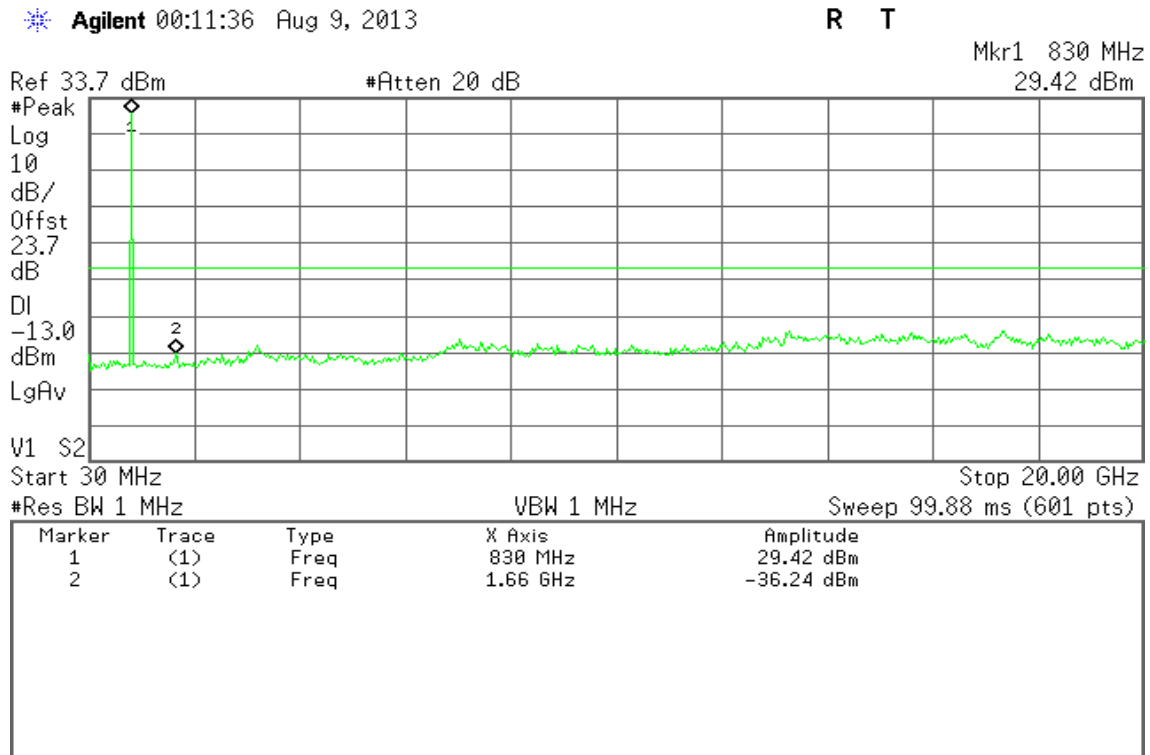
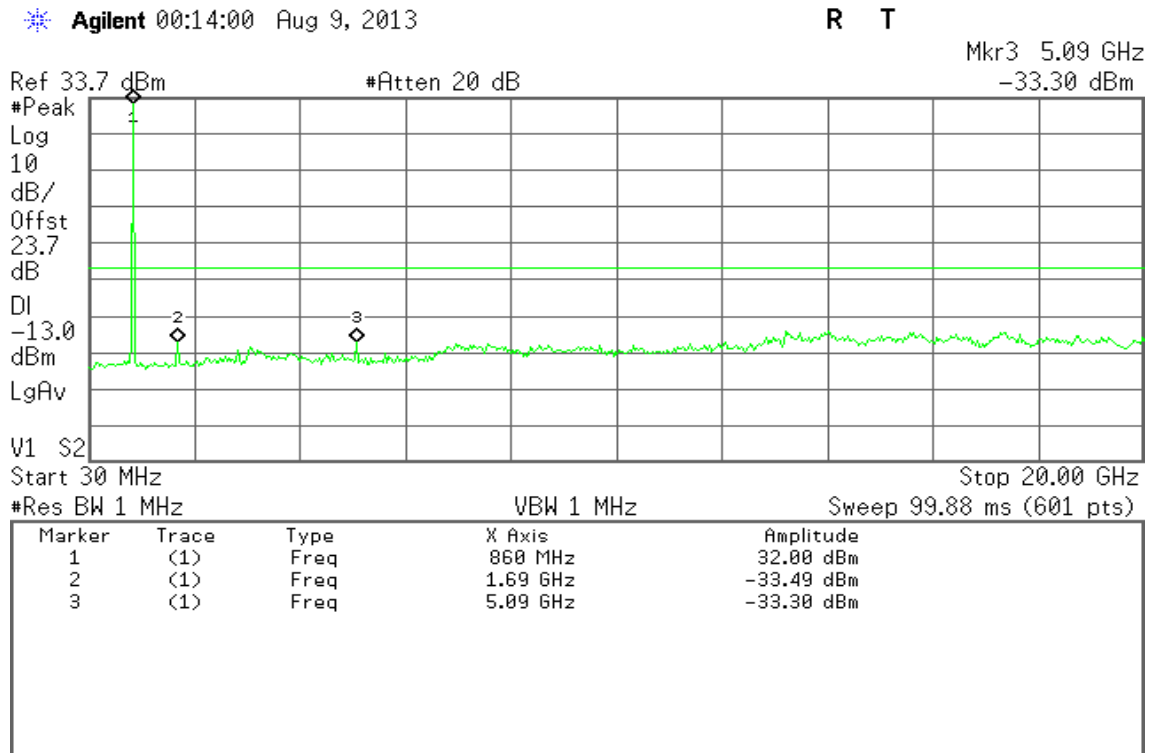


Figure 8-3: Out of Band emission at antenna terminals – GPRS CH High





### GSM 1900

Figure 9-1: Out of Band emission at antenna terminals – GSM CH Low

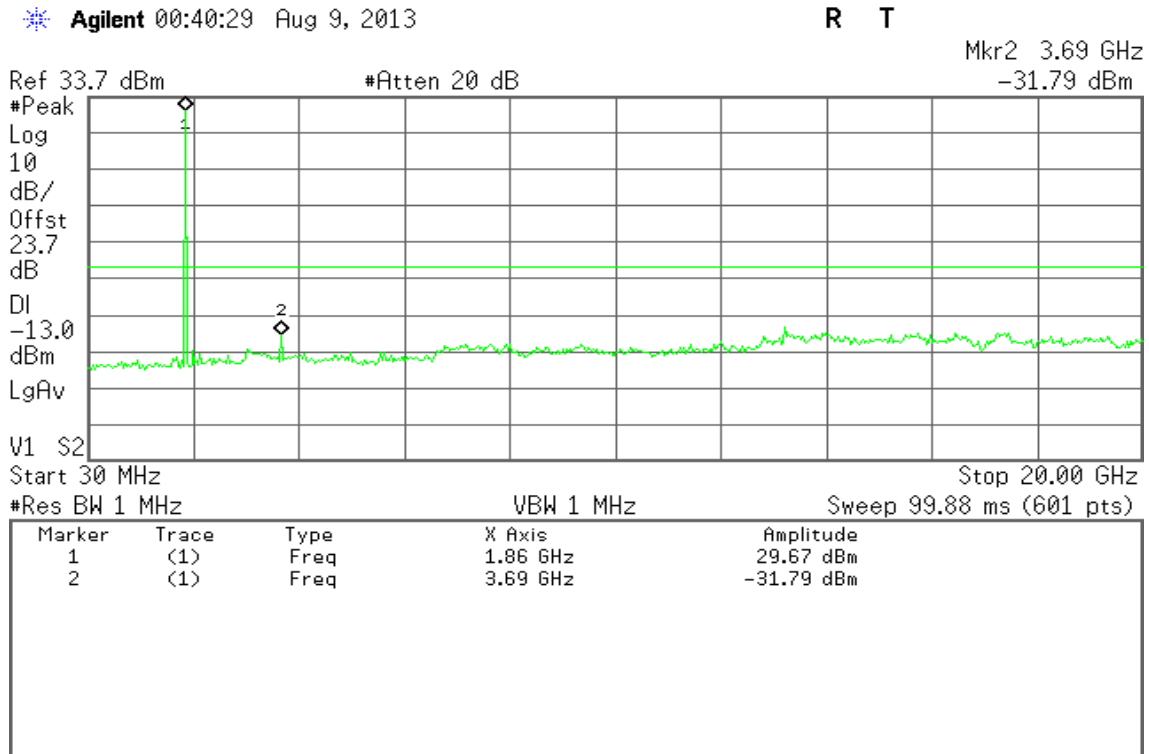


Figure 9-2: Out of Band emission at antenna terminals – GSM CH Mid

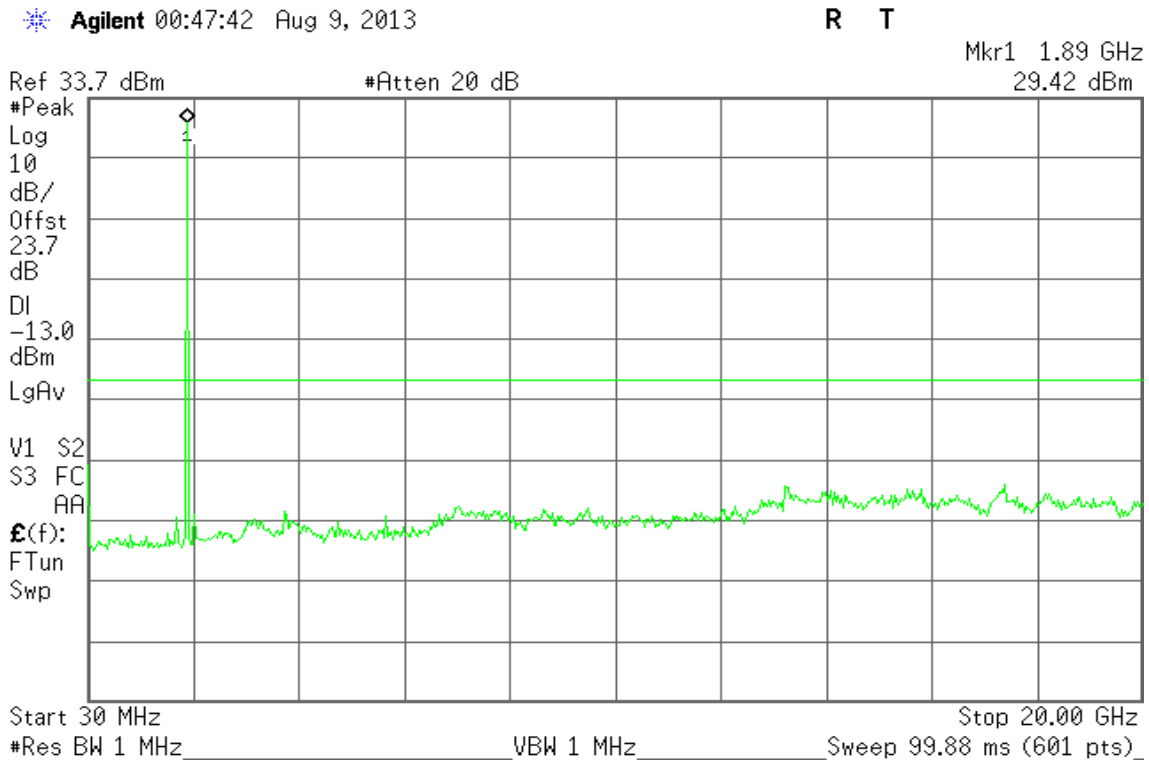
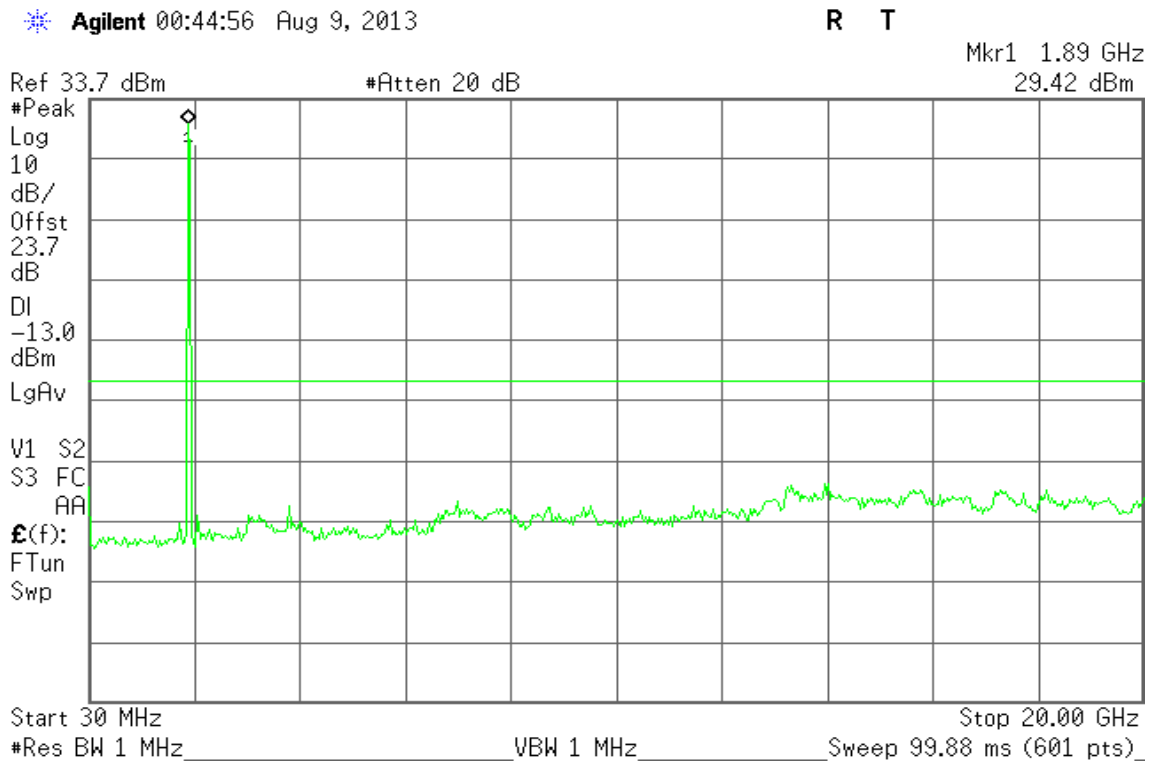




Figure 9-3: Out of Band emission at antenna terminals – GSM CH High



### GPRS 1900

Figure 10-1: Out of Band emission at antenna terminals – GSM CH Low

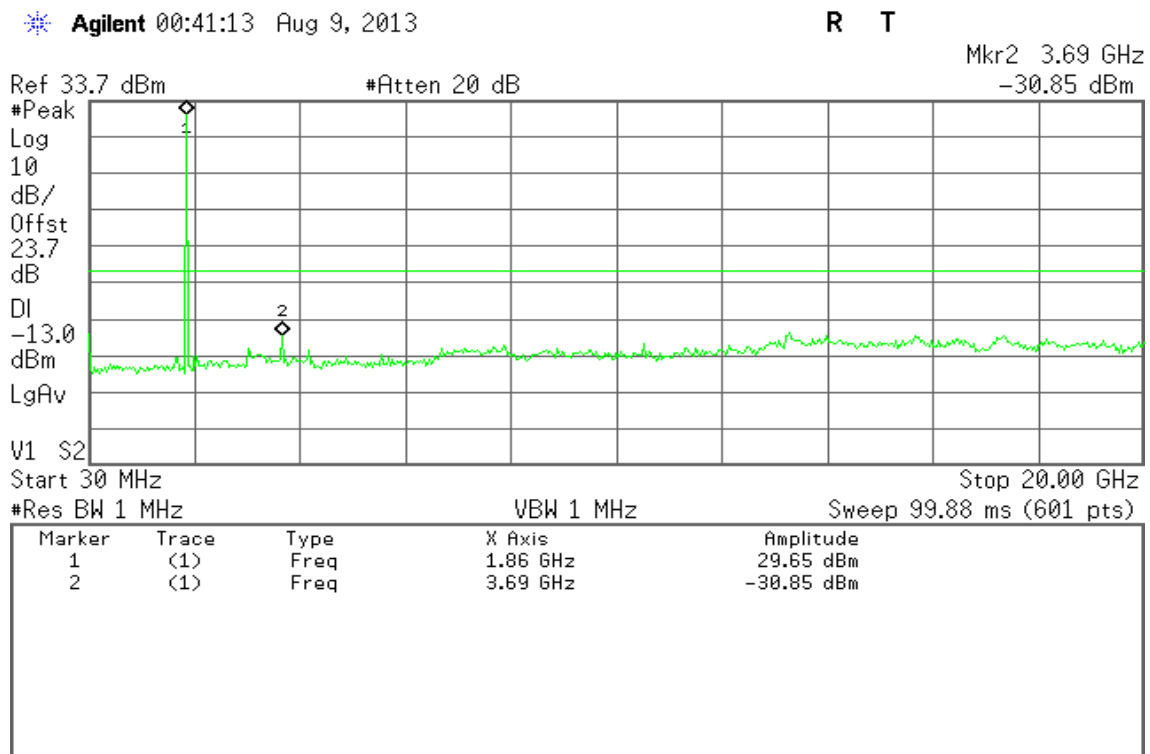




Figure 10-2: Out of Band emission at antenna terminals – GSM CH Mid

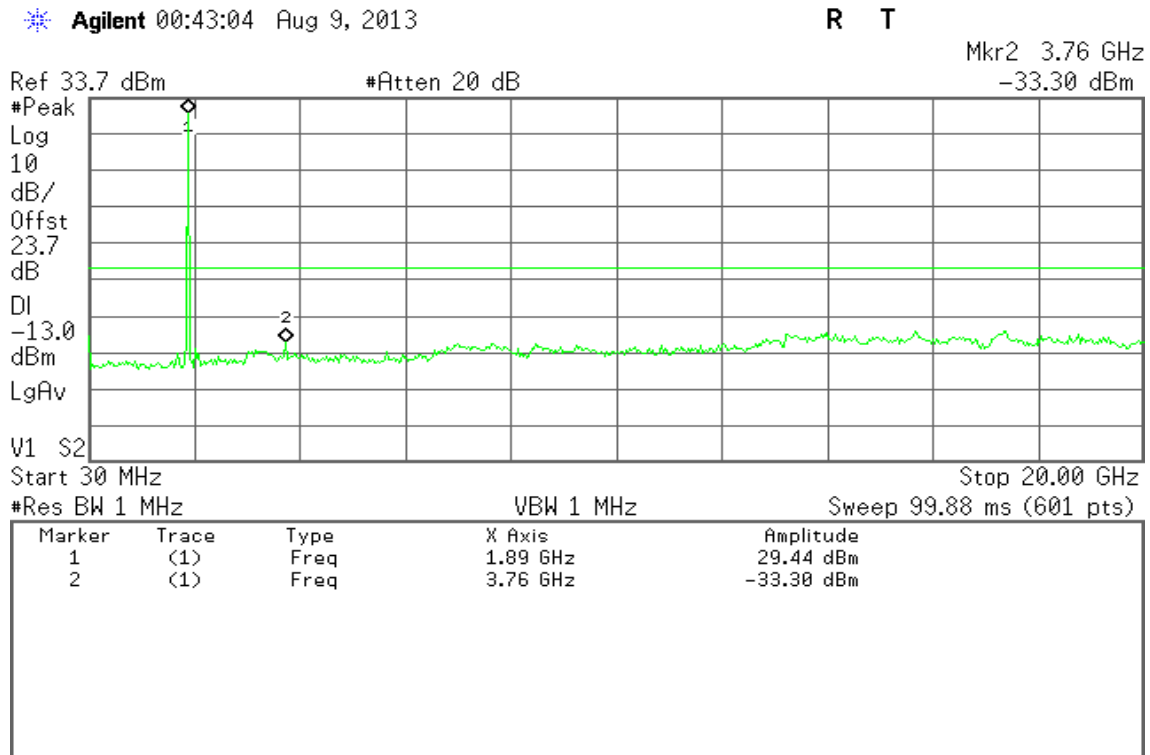
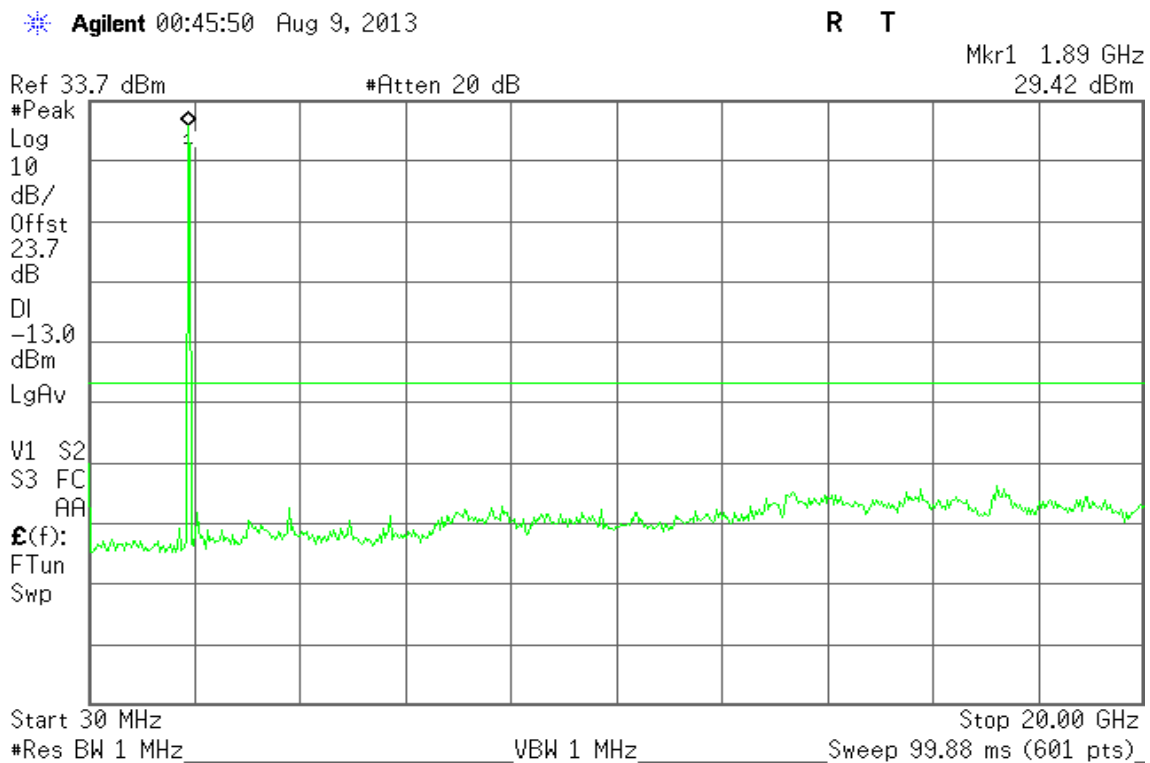


Figure 10-3: Out of Band emission at antenna terminals – GSM CH High





### GSM 850

Figure 11-1: Band Edge emissions – GSM CH Low

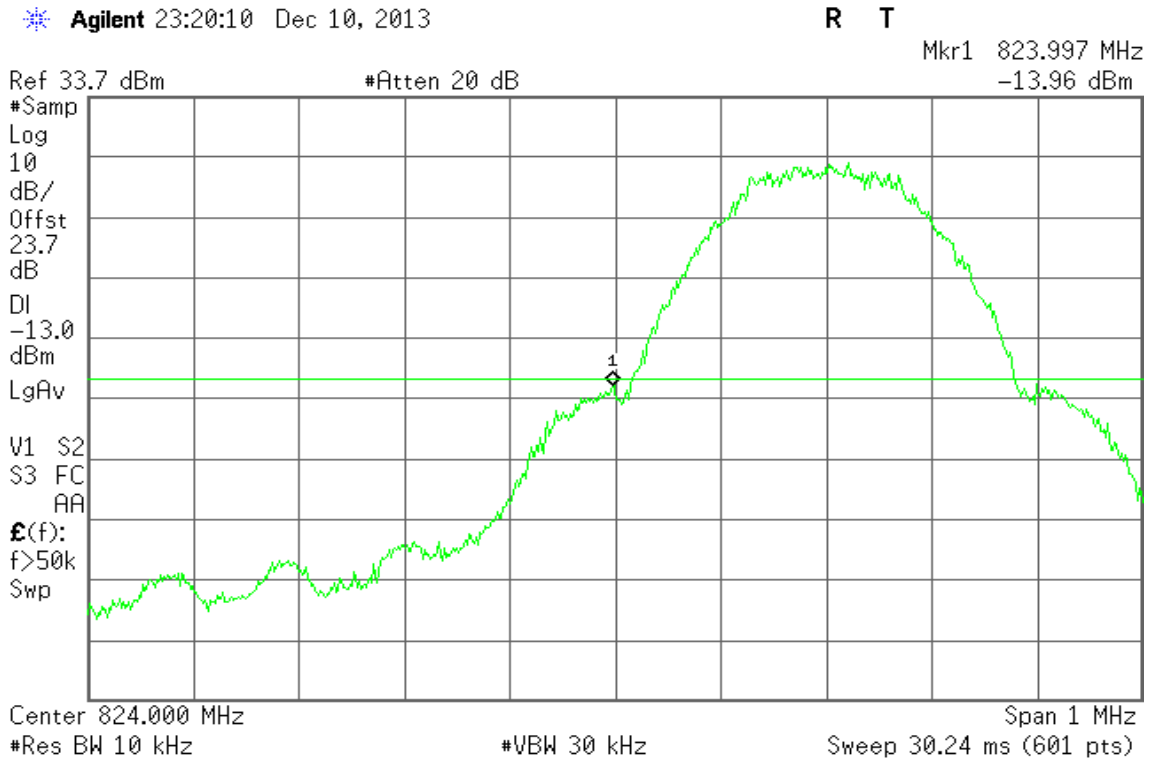
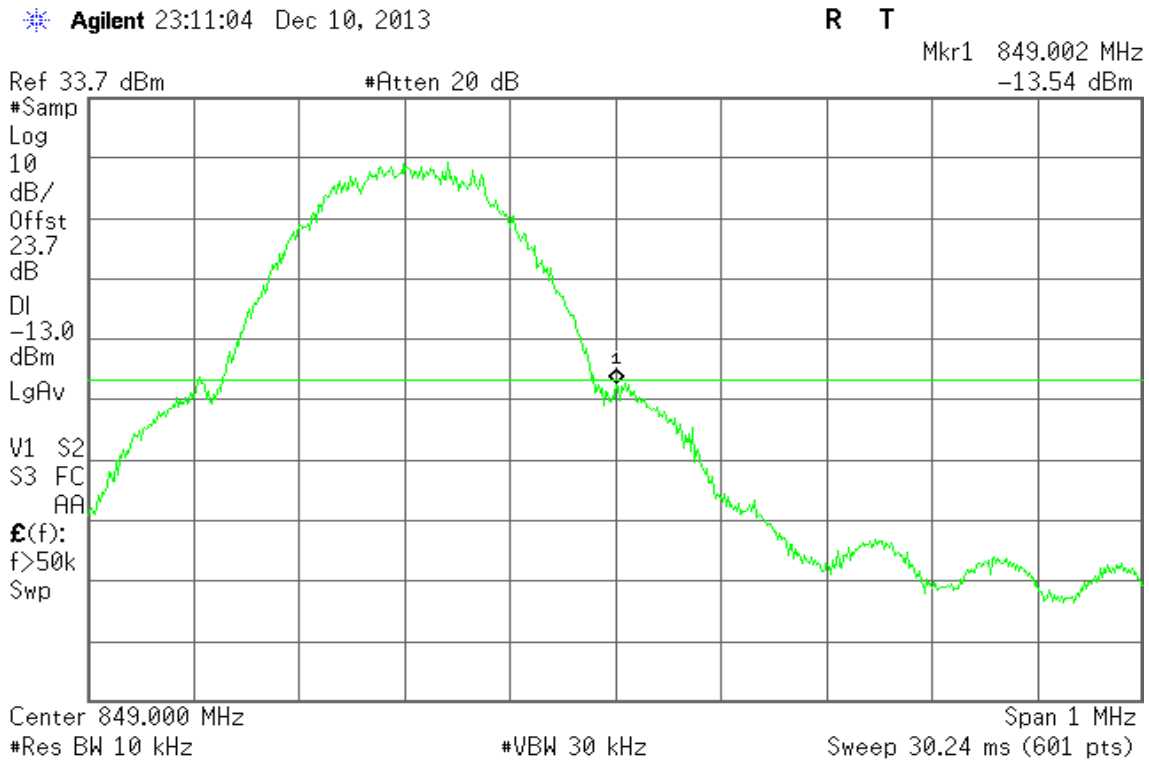


Figure 11-2: Band Edge emissions – GSM CH High





### GPRS 850

Figure 12-1: Band Edge emissions – GPRS CH Low

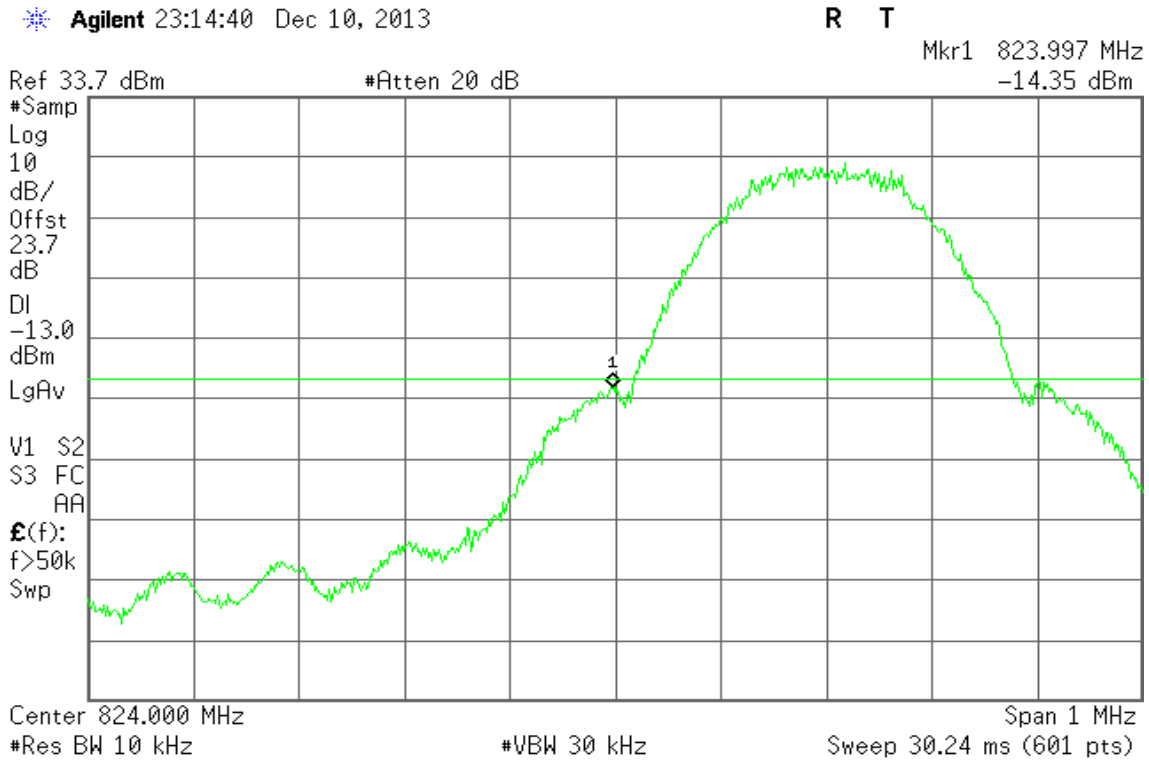
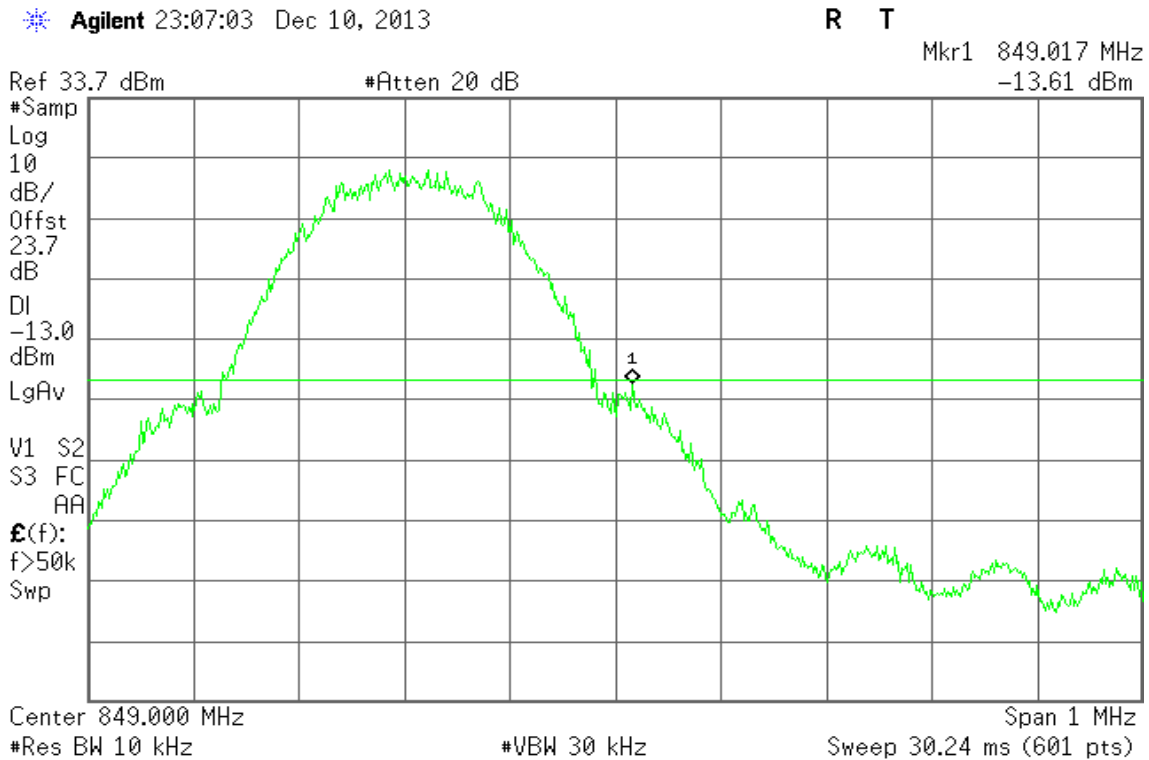


Figure 12-2: Band Edge emissions –GPRS CH High





### GSM 1900

Figure 13-1: Band Edge emissions – GSM CH Low

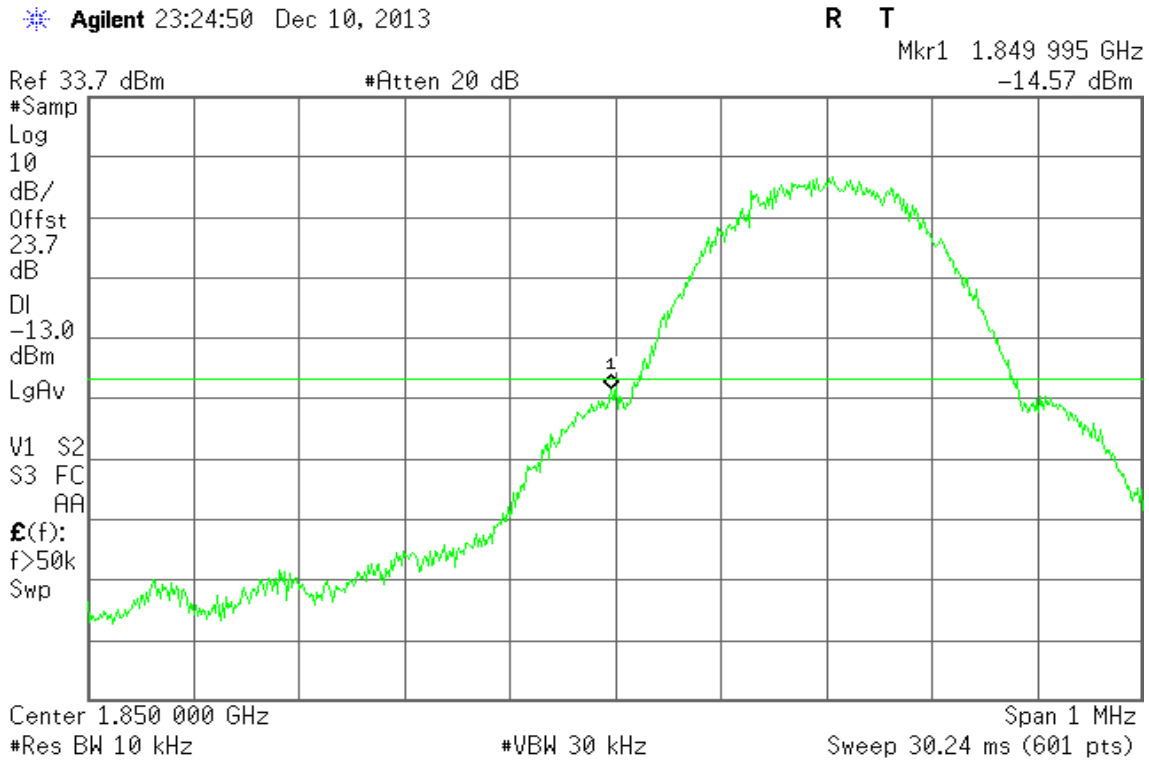
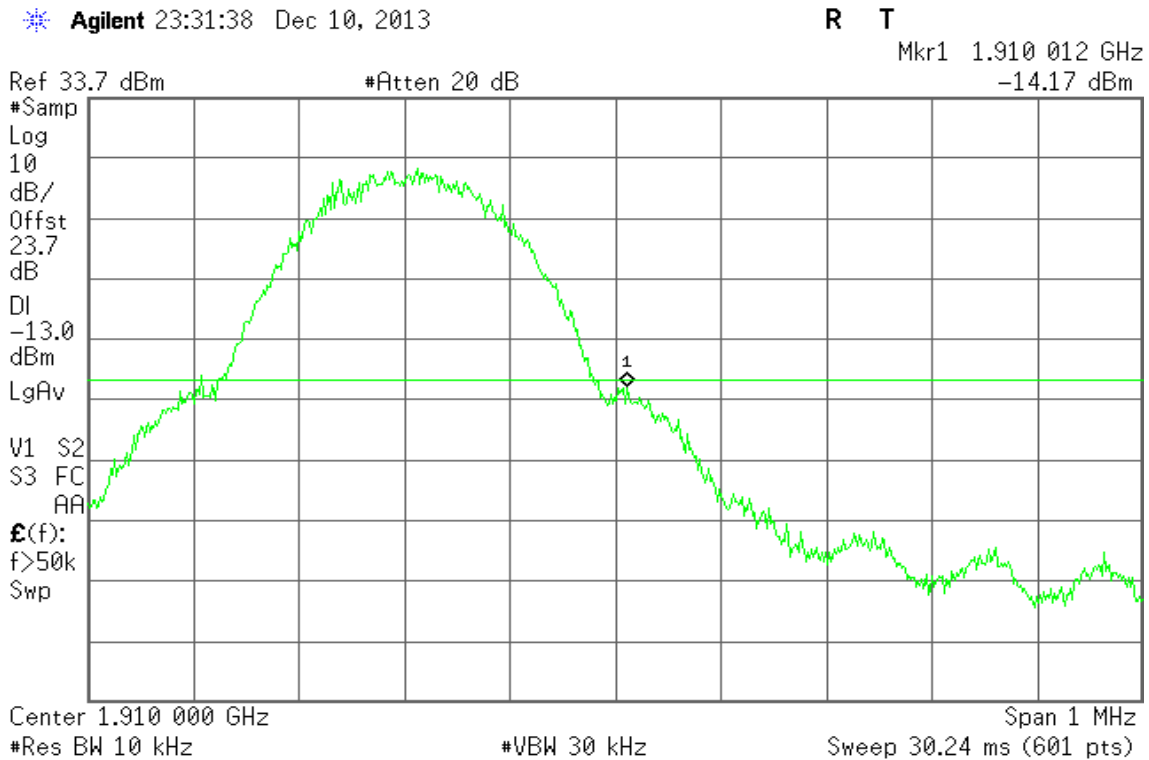


Figure 13-2: Band Edge emissions – GSM CH High





### GPRS 1900

Figure 14-1: Band Edge emissions – GPRS CH Low

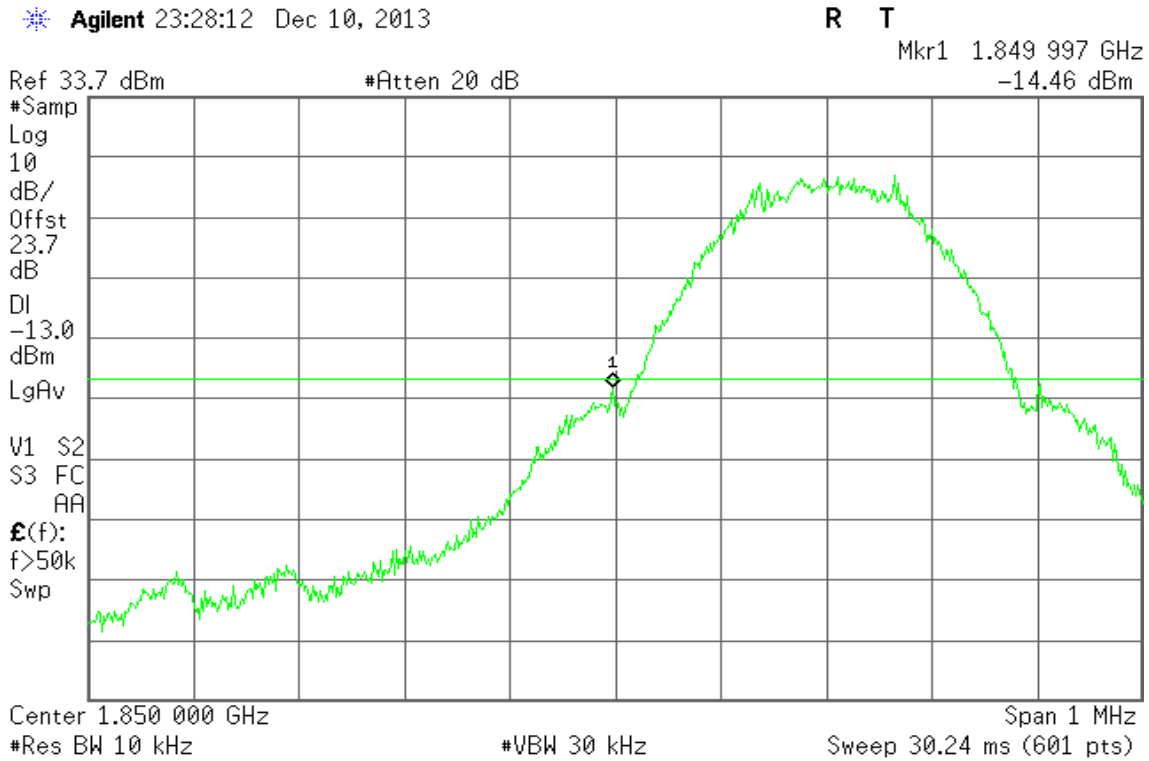
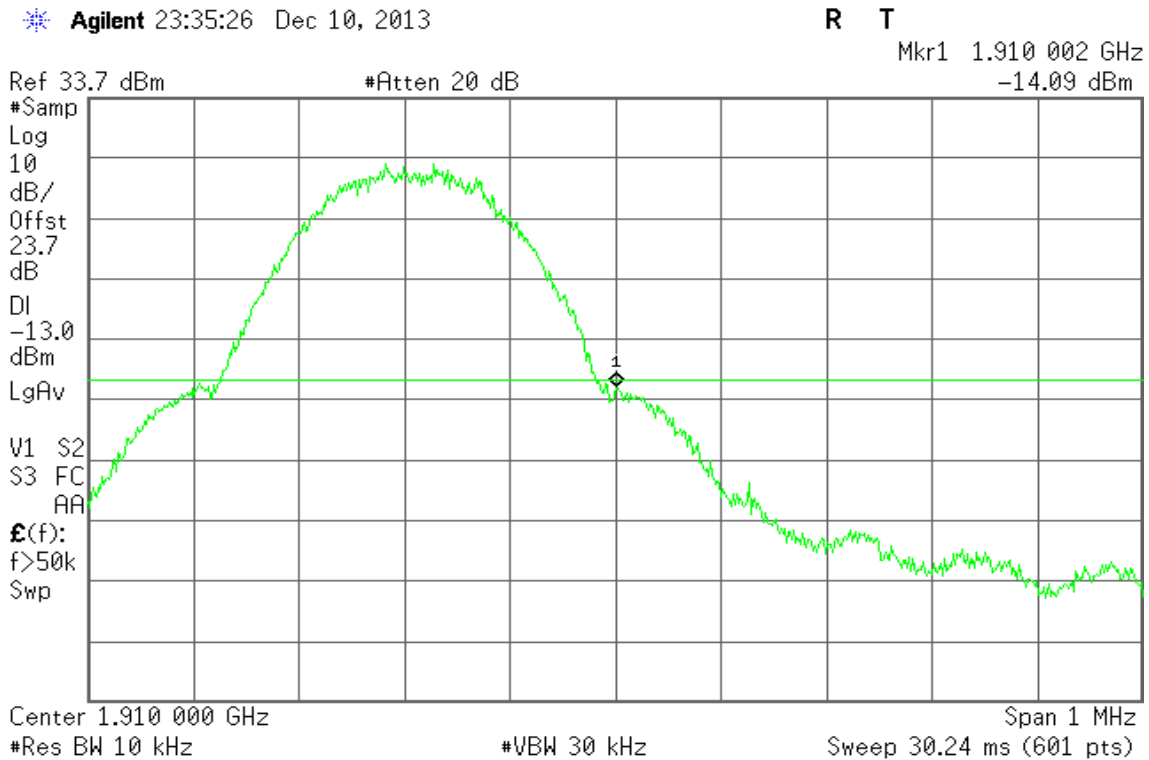


Figure 14-2: Band Edge emissions – GPRS CH High







### EDGE 850

Figure 15-1: Out of Band emission at antenna terminals –EDGE CH Low

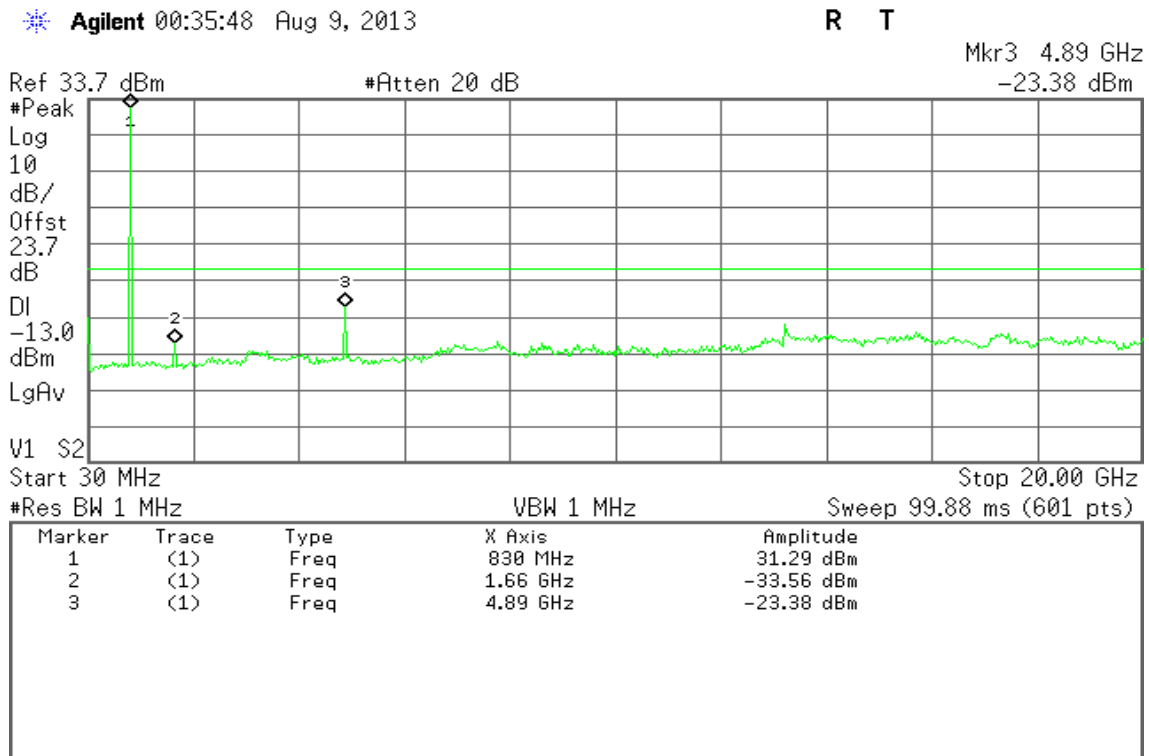


Figure 15-2: Out of Band emission at antenna terminals –EDGE CH Mid

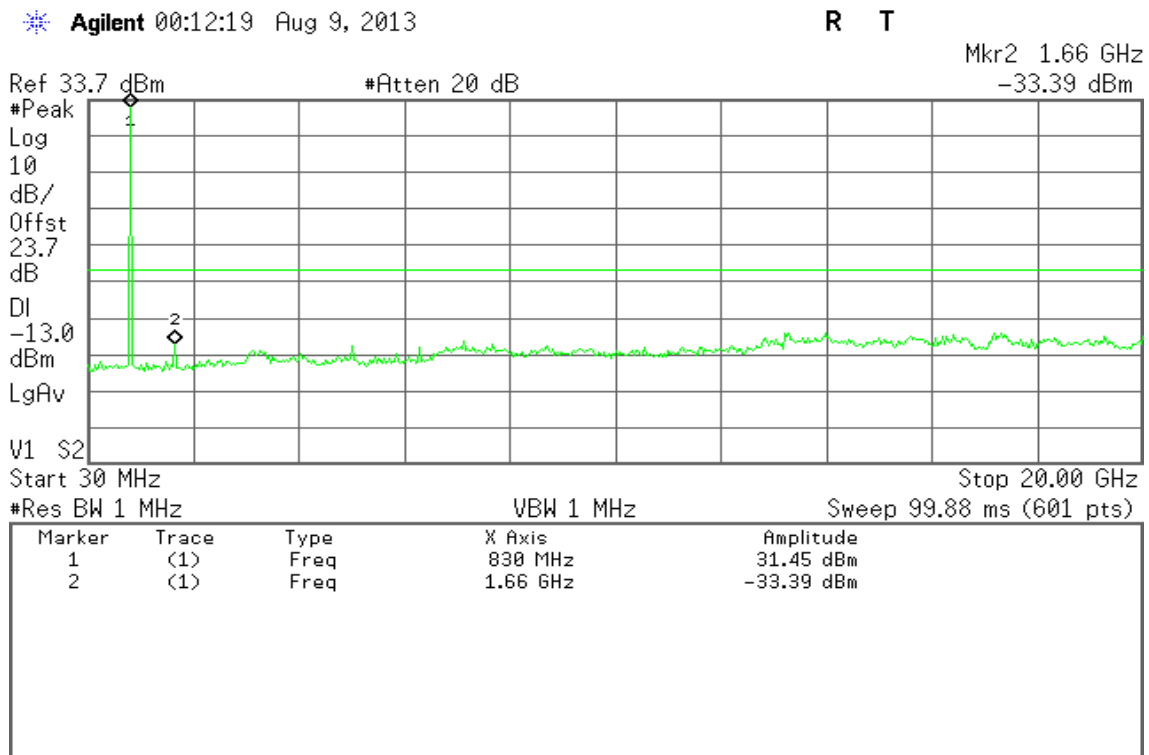
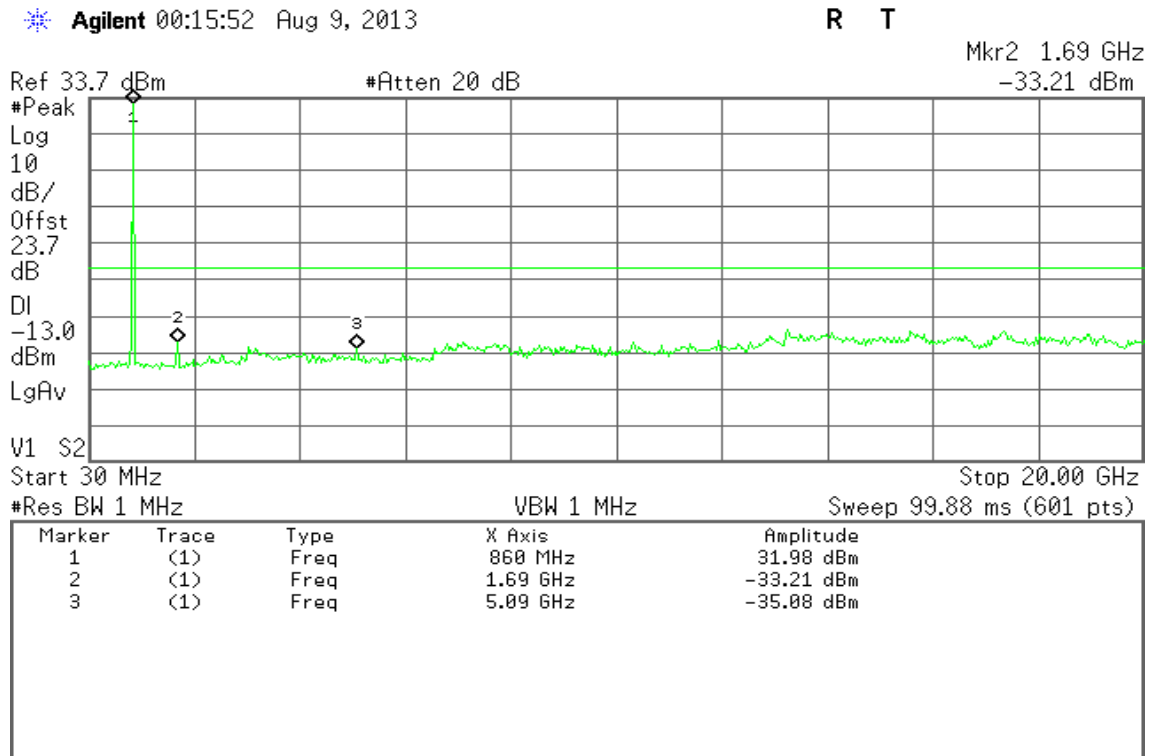




Figure 15-3: Out of Band emission at antenna terminals –EDGE CH High



### EDGE 1900

Figure 16-1: Out of Band emission at antenna terminals –EDGE CH Low

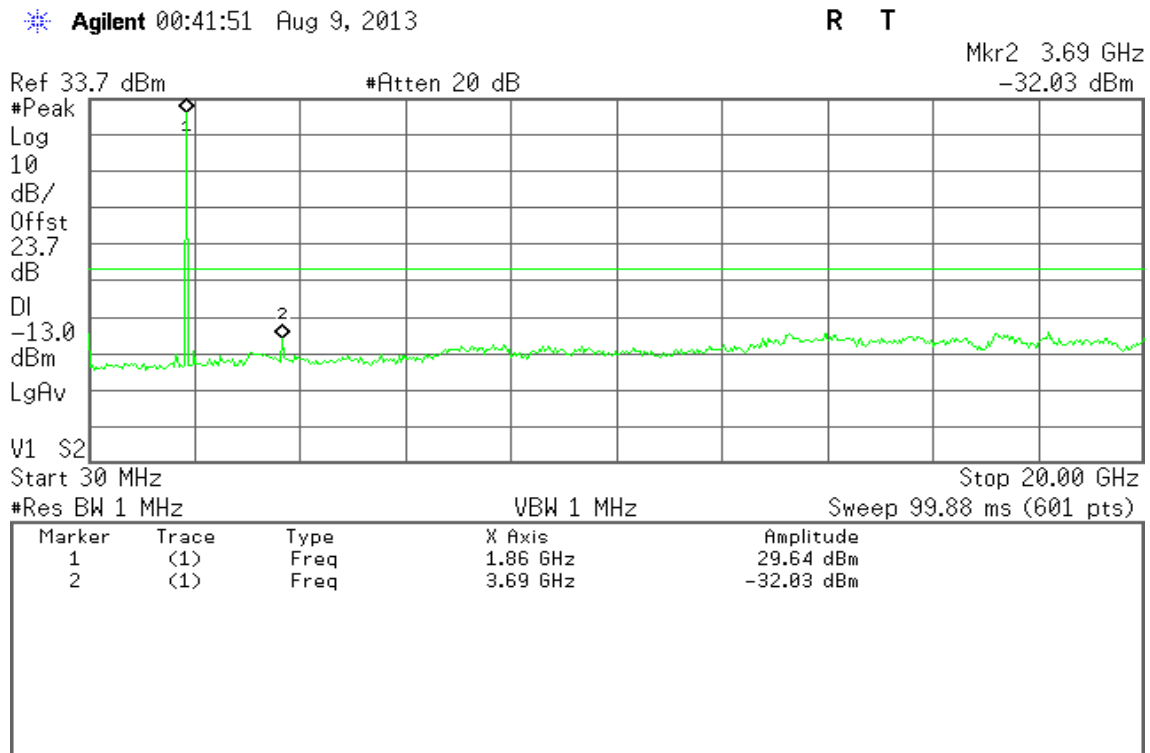




Figure 16-2: Out of Band emission at antenna terminals –EDGE CH Mid

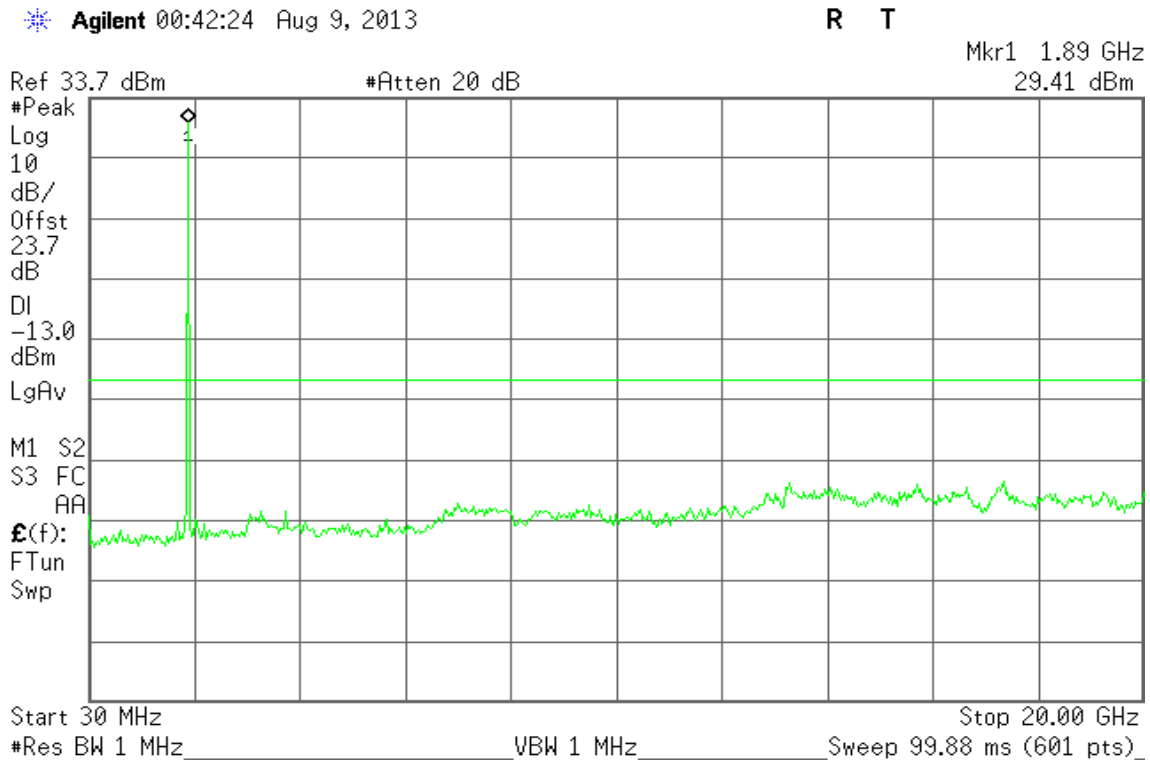
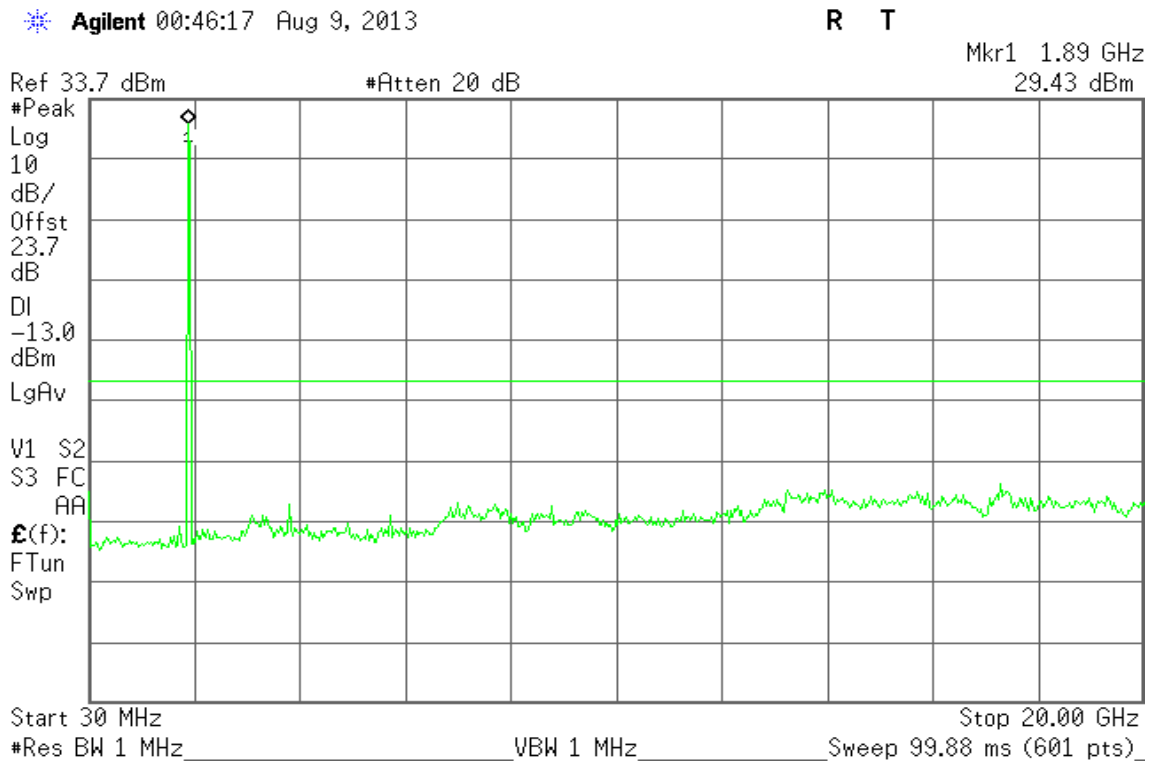


Figure 16-3: Out of Band emission at antenna terminals –EDGE CH High





### EDGE 850

Figure 17-1: Band Edge emissions – EDGE CH Low

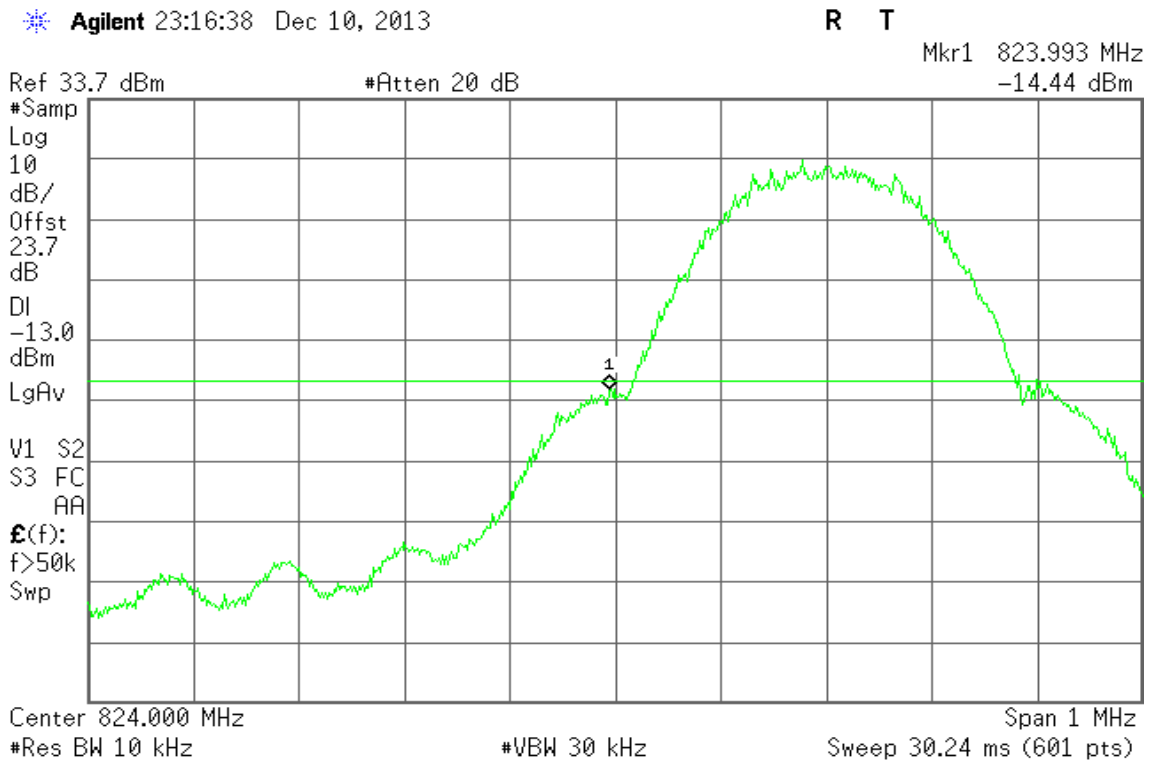
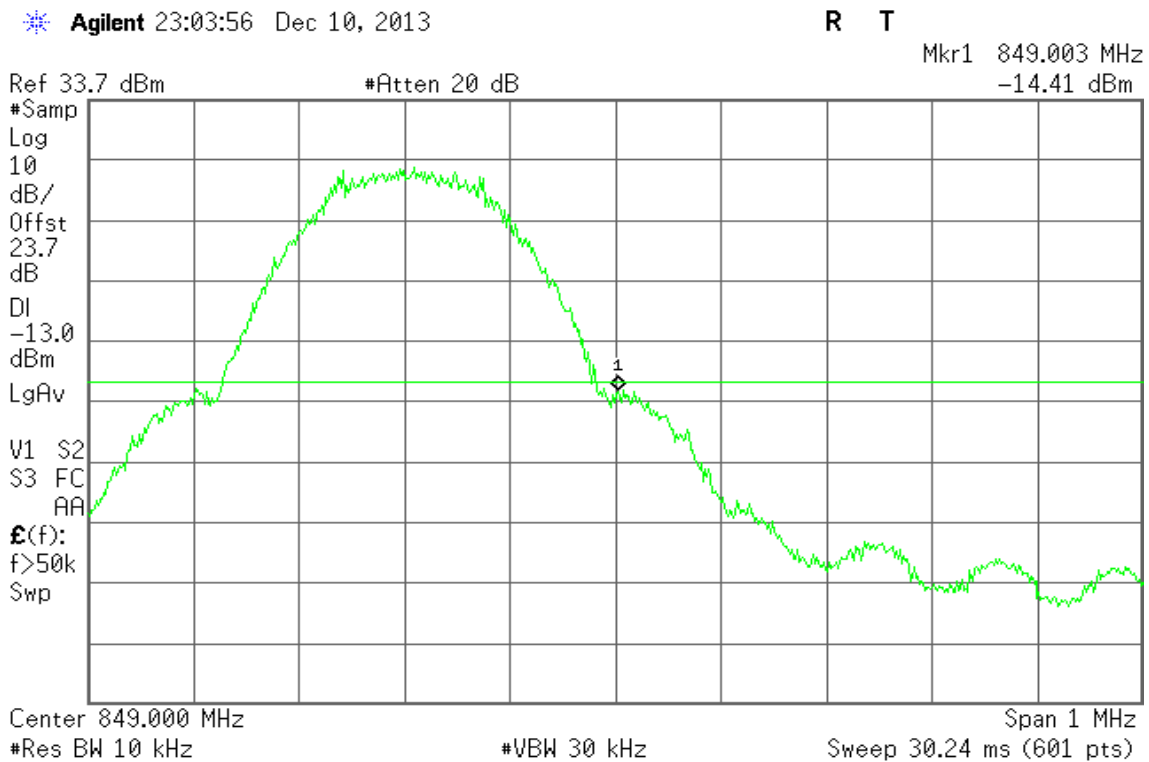


Figure 17-2: Band Edge emissions – EDGE CH High





### EDGE 1900

Figure 18-1: Band Edge emissions – EDGE CH Low

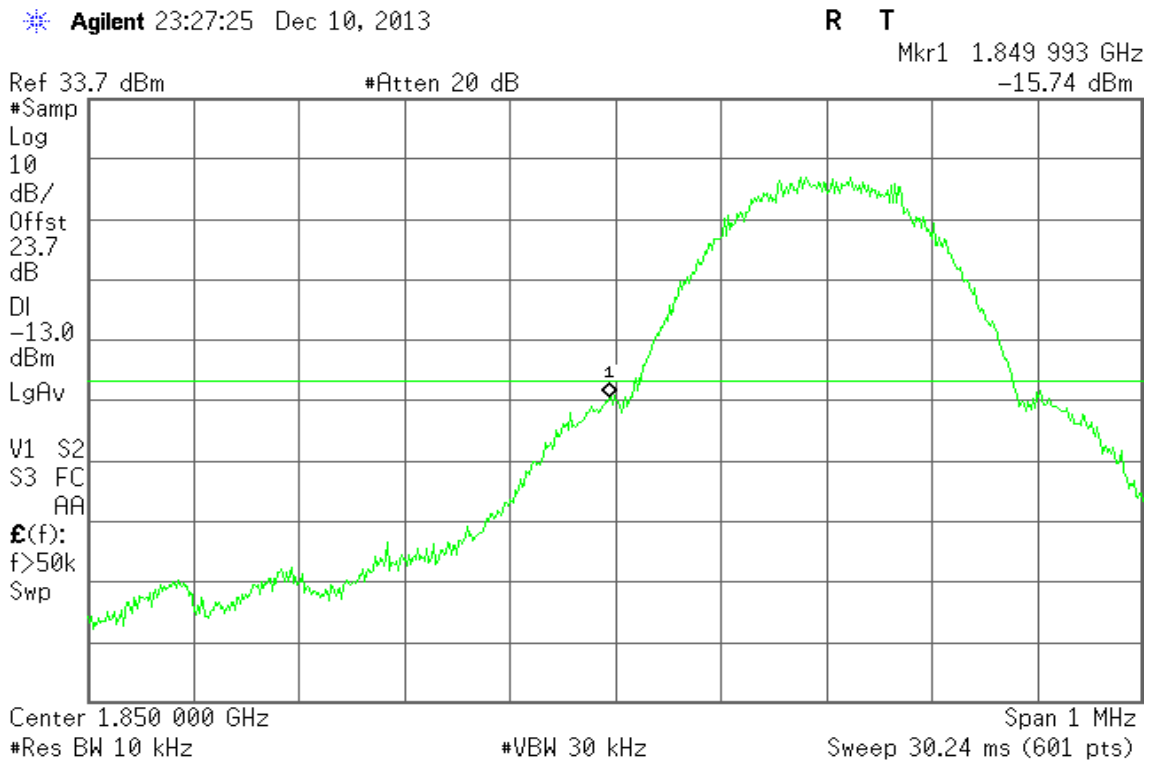
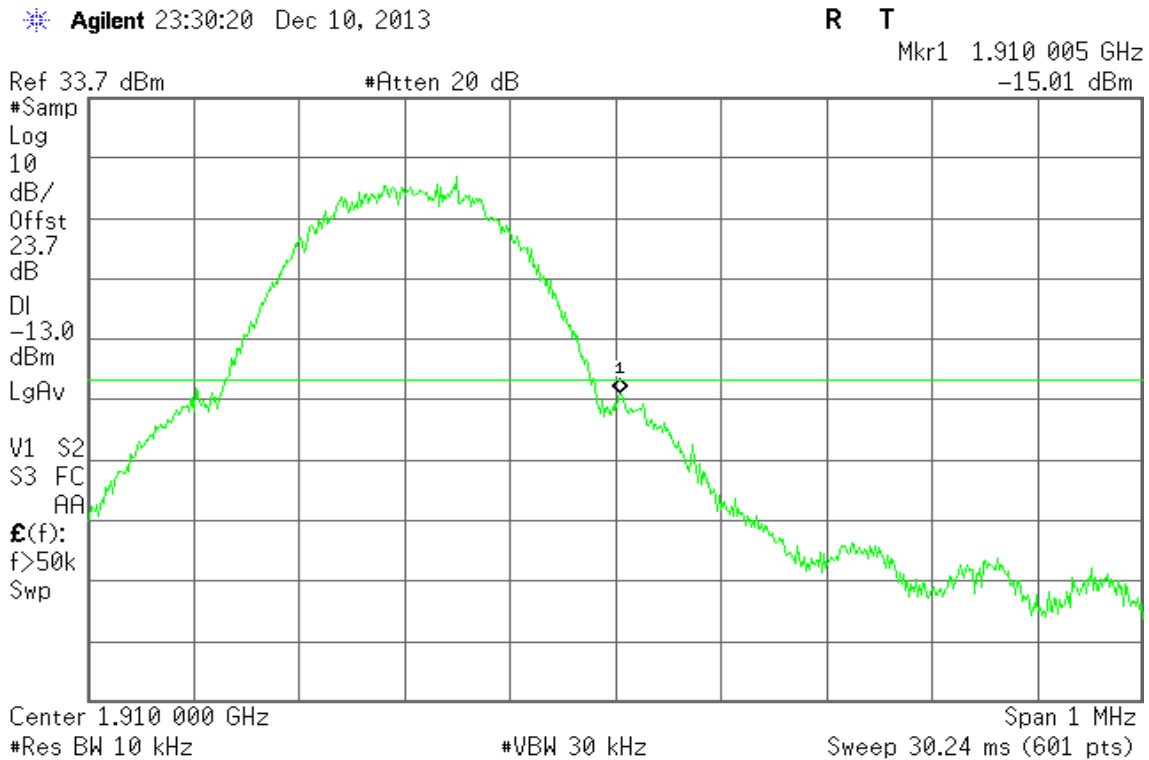


Figure 18-2: Band Edge emissions – EDGE CH High





### WCDMA Band II

Figure 19-1: Out of Band emission at antenna terminals – WCDMA CH Low

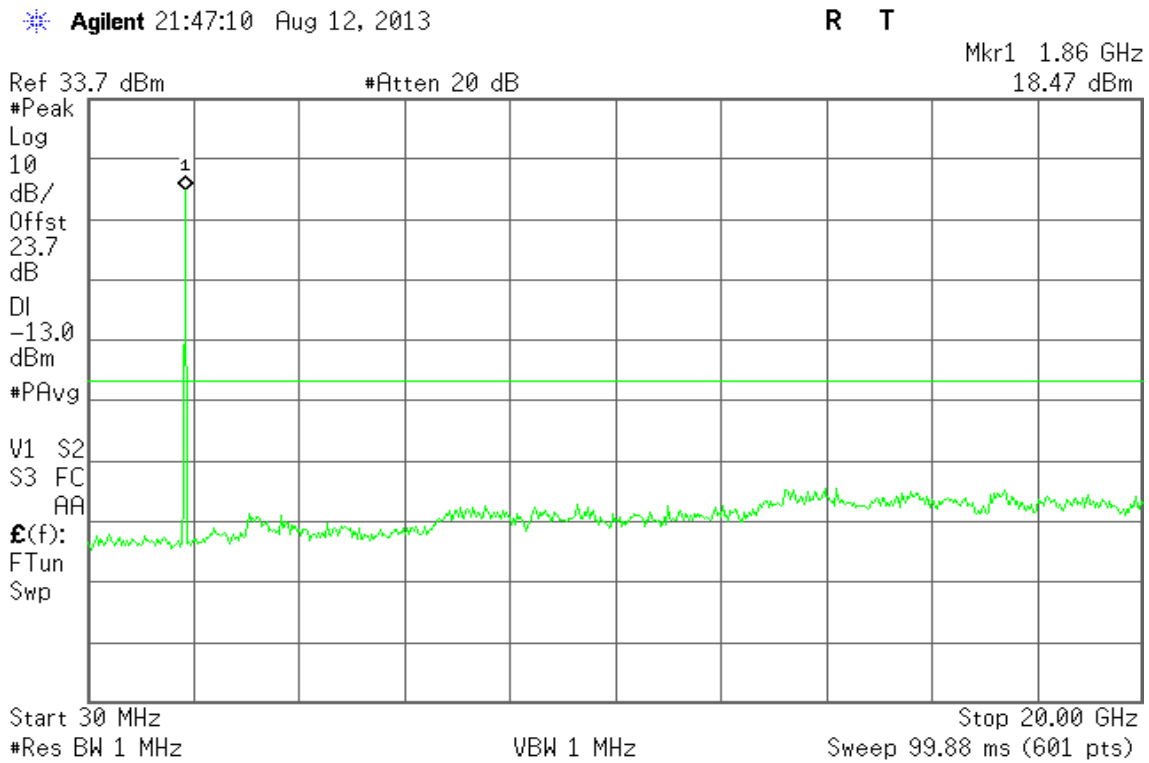


Figure 19-2: Out of Band emission at antenna terminals – WCDMA CH Mid

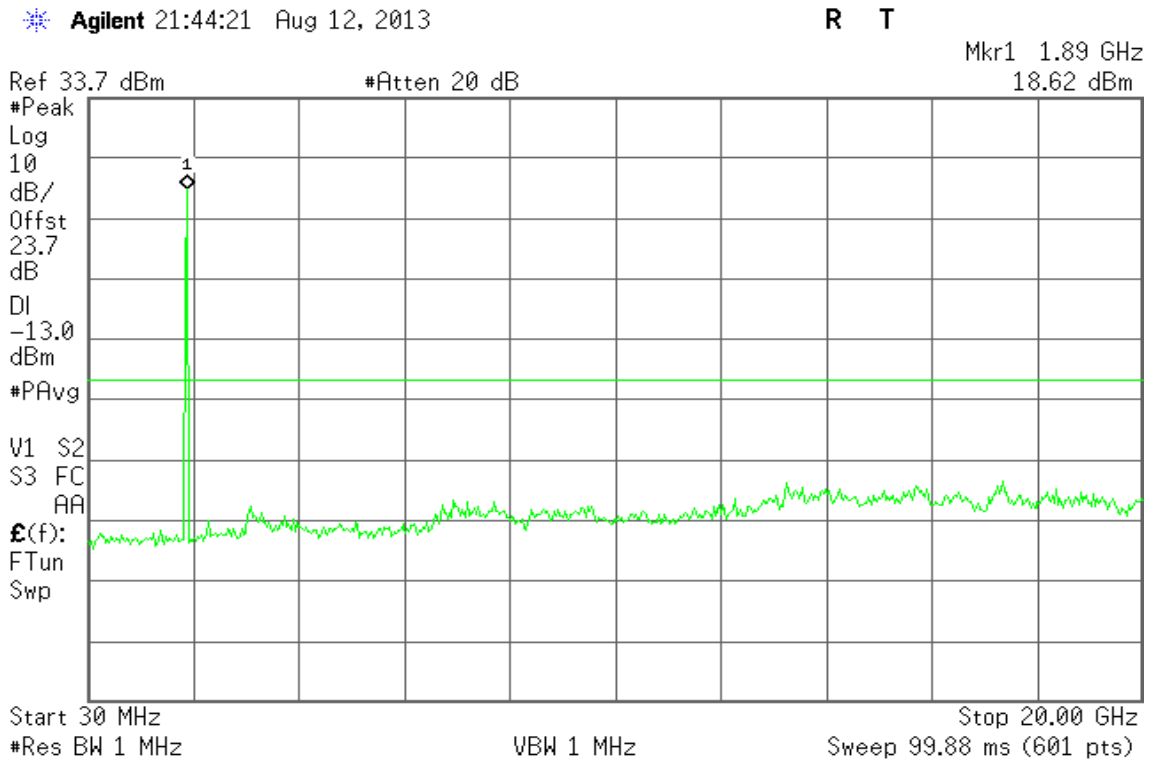
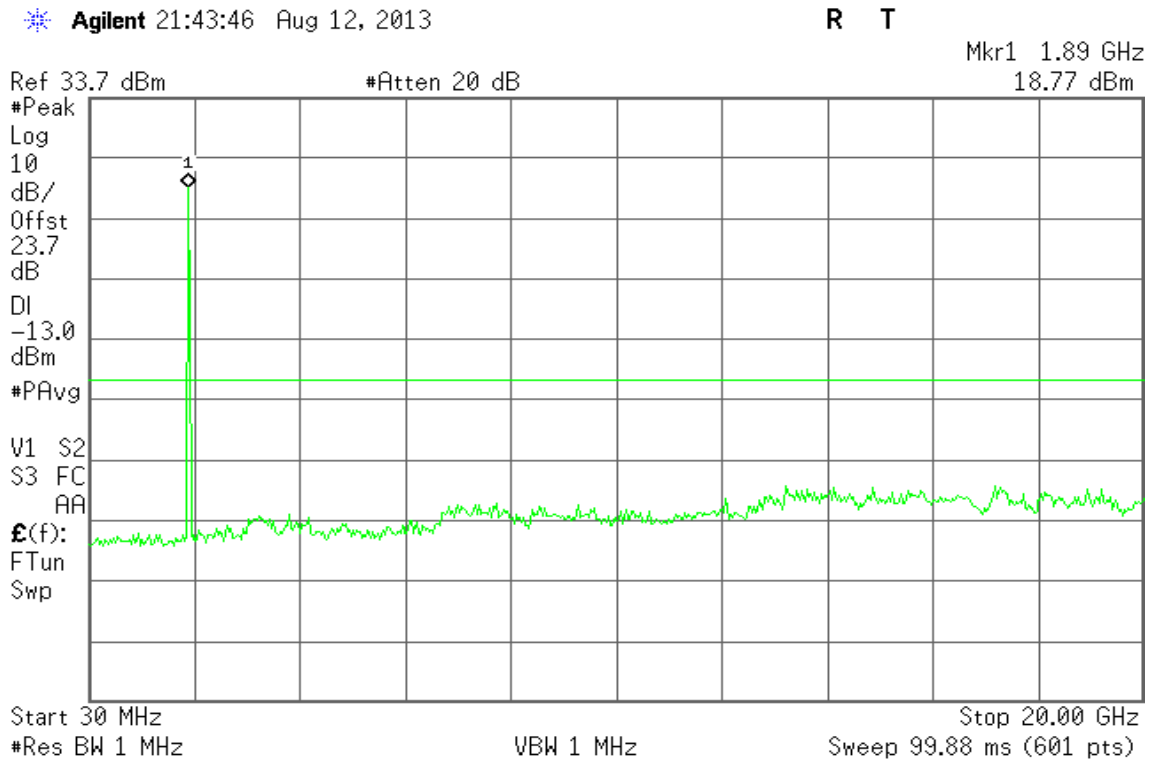




Figure 19-3: Out of Band emission at antenna terminals – WCDMA CH High



### WCDMA Band V

Figure 20-1: Out of Band emission at antenna terminals – WCDMA CH Low

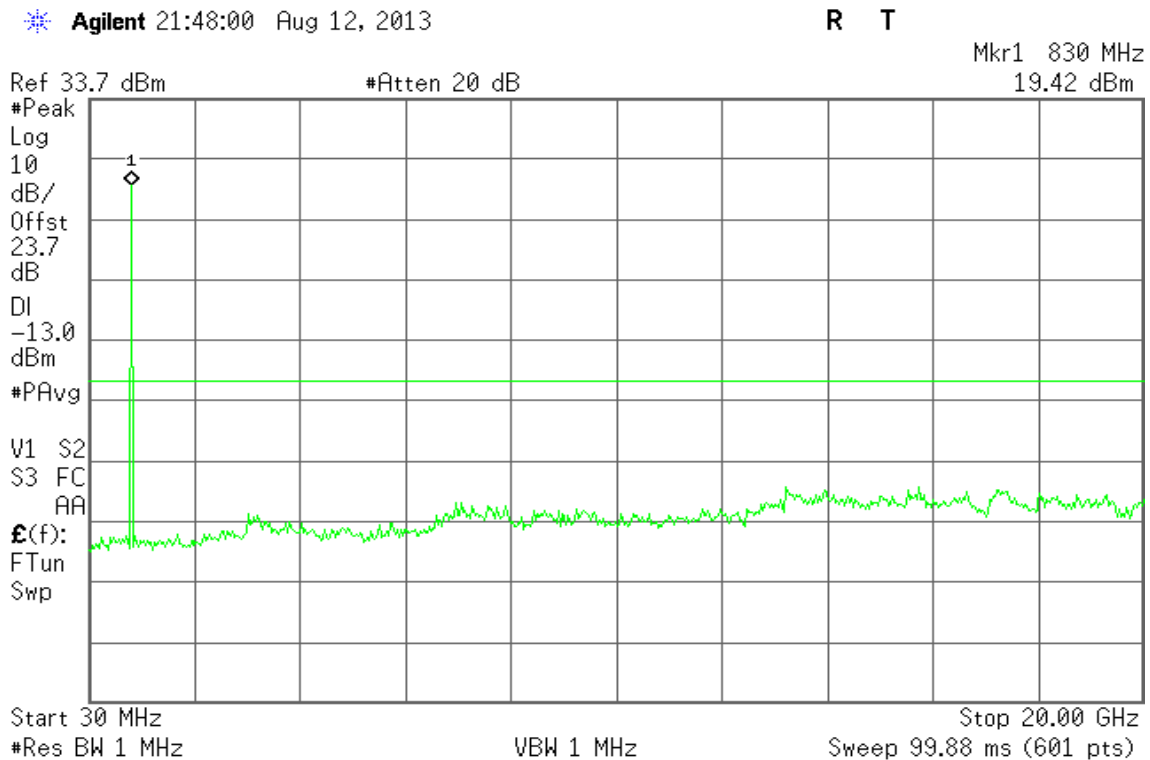




Figure 20-2: Out of Band emission at antenna terminals – WCDMA CH Mid

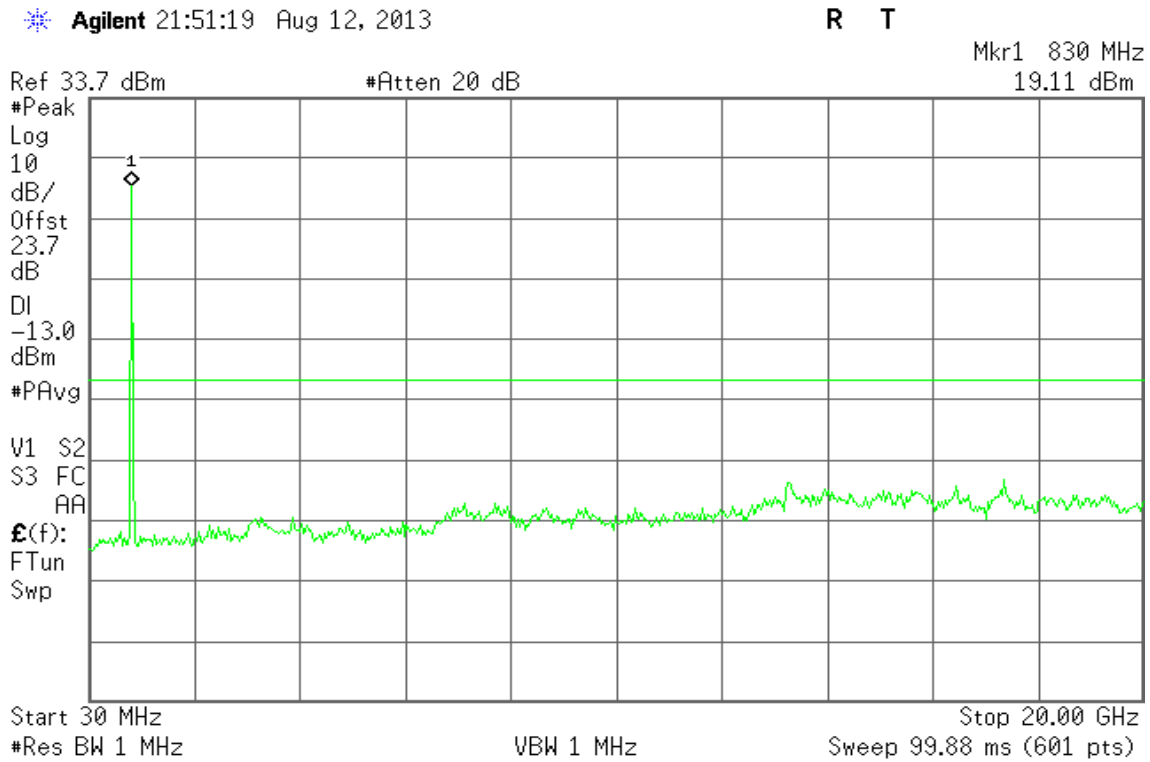
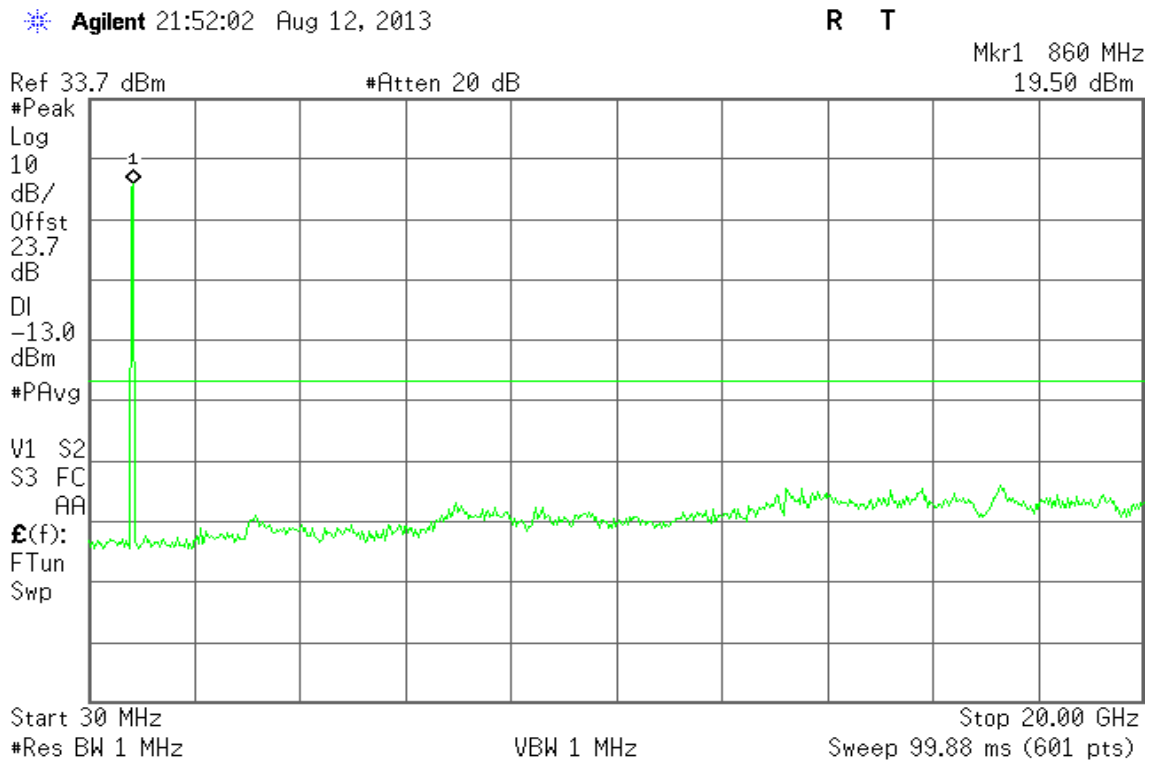


Figure 20-3: Out of Band emission at antenna terminals – WCDMA CH High







### WCDMA Band II

Figure 21-1: Band Edge emissions – WCDMA CH Low

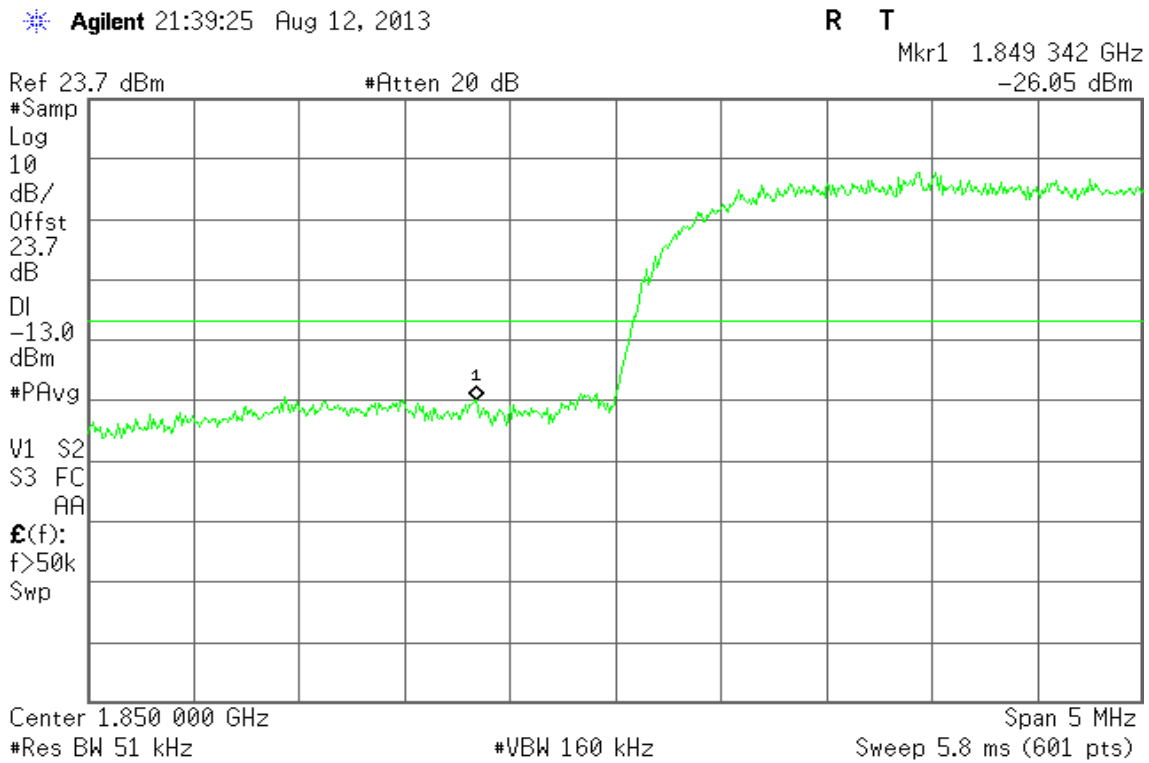
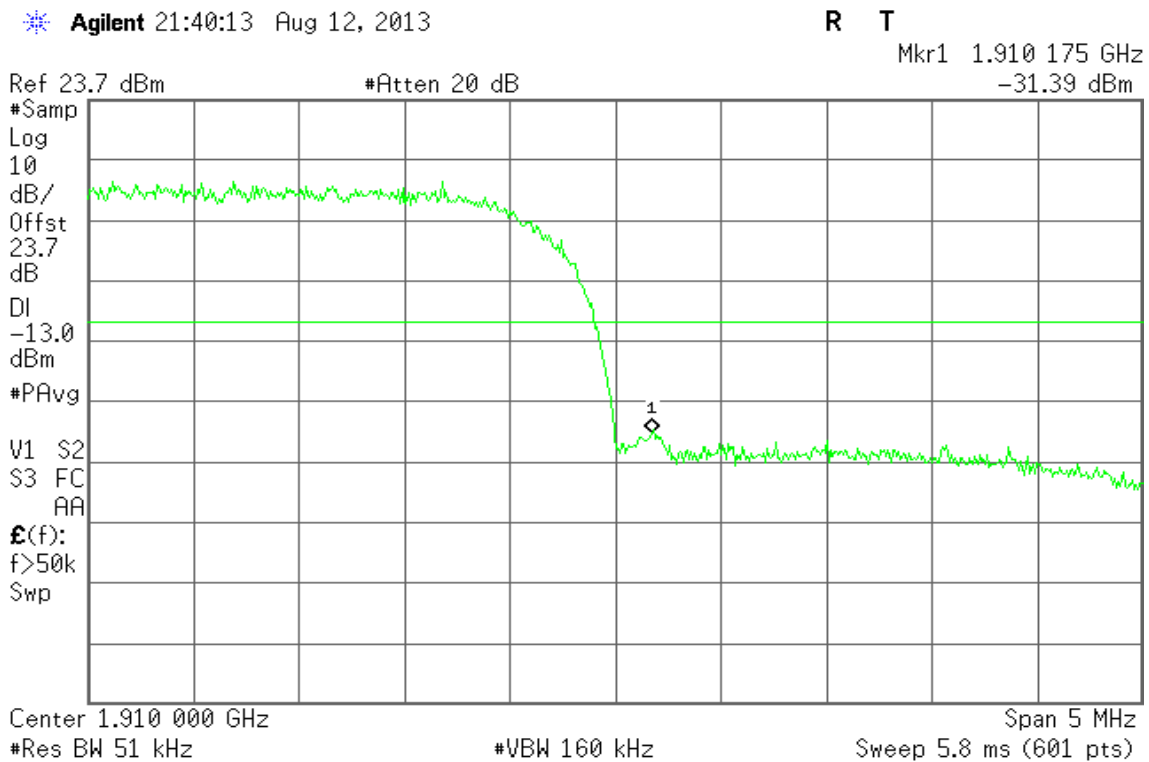


Figure 21-2: Band Edge emissions –WCDMA CH High





### WCDMA Band V

Figure 22-1: Band Edge emissions –WCDMA CH Low

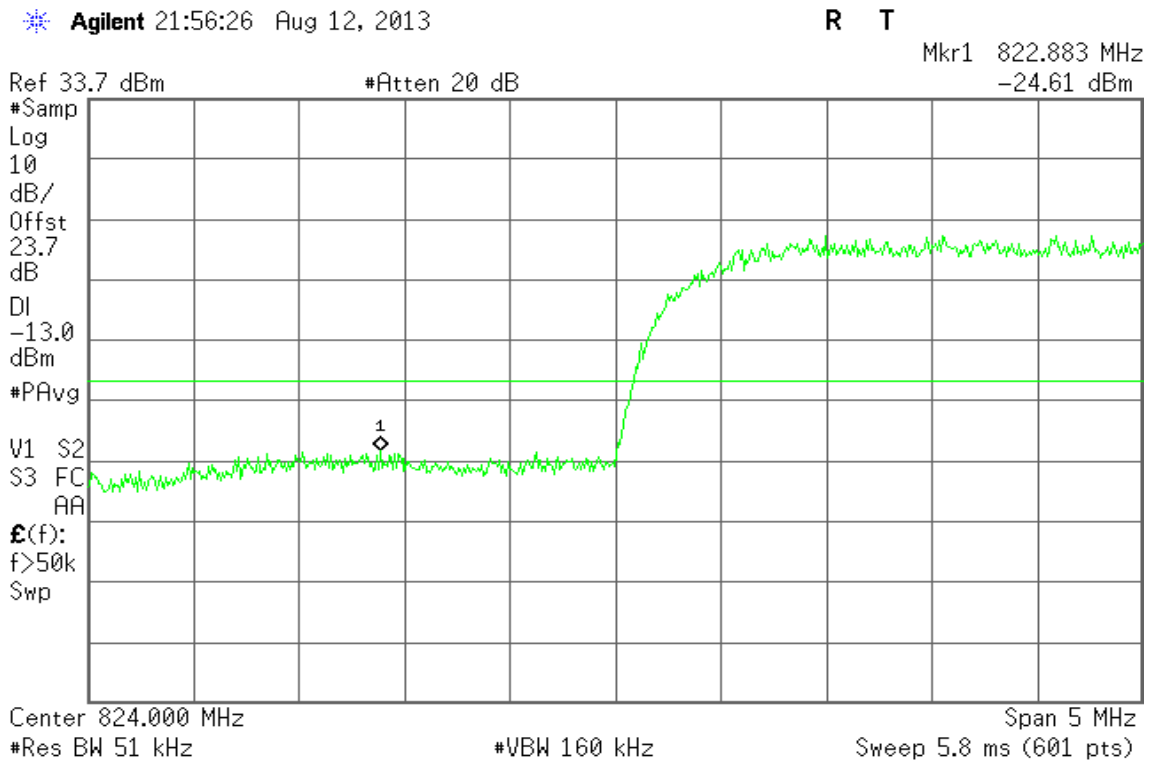
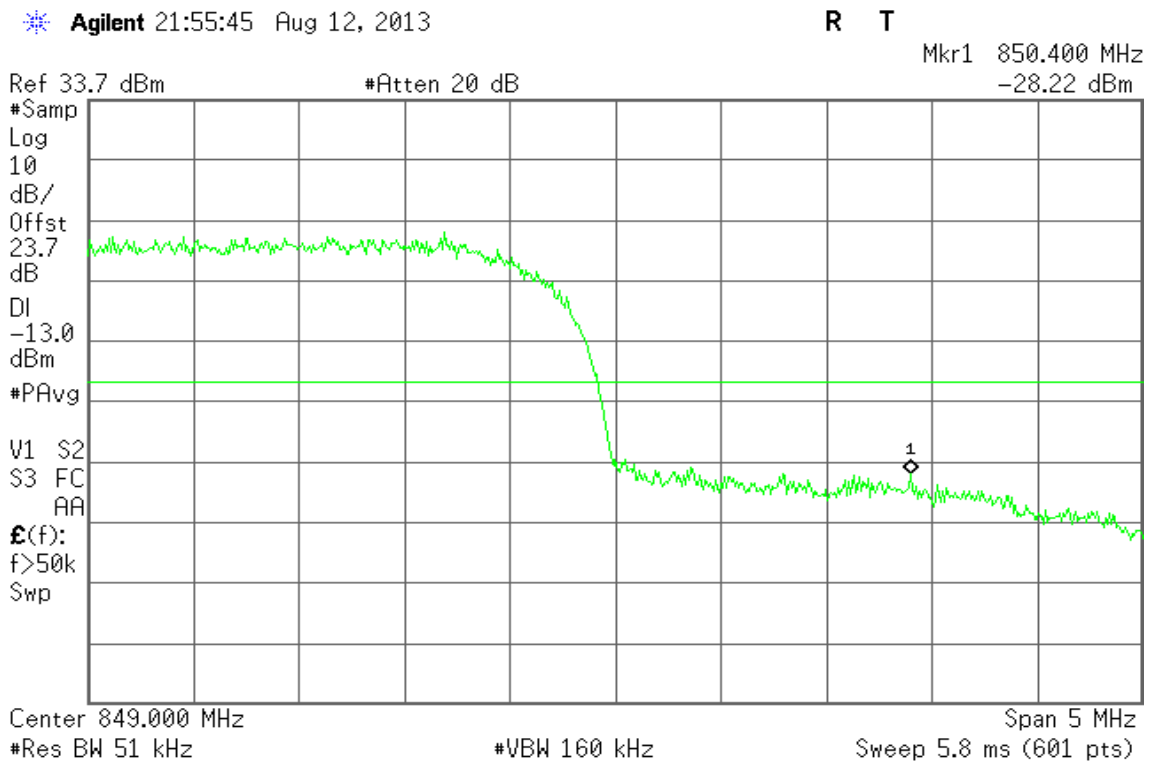


Figure 22-2: Band Edge emissions –WCDMA CH High





### WCDMA / HSDPA Band II

Figure 23-1: Out of Band emission at antenna terminals – HSDPA CH Low

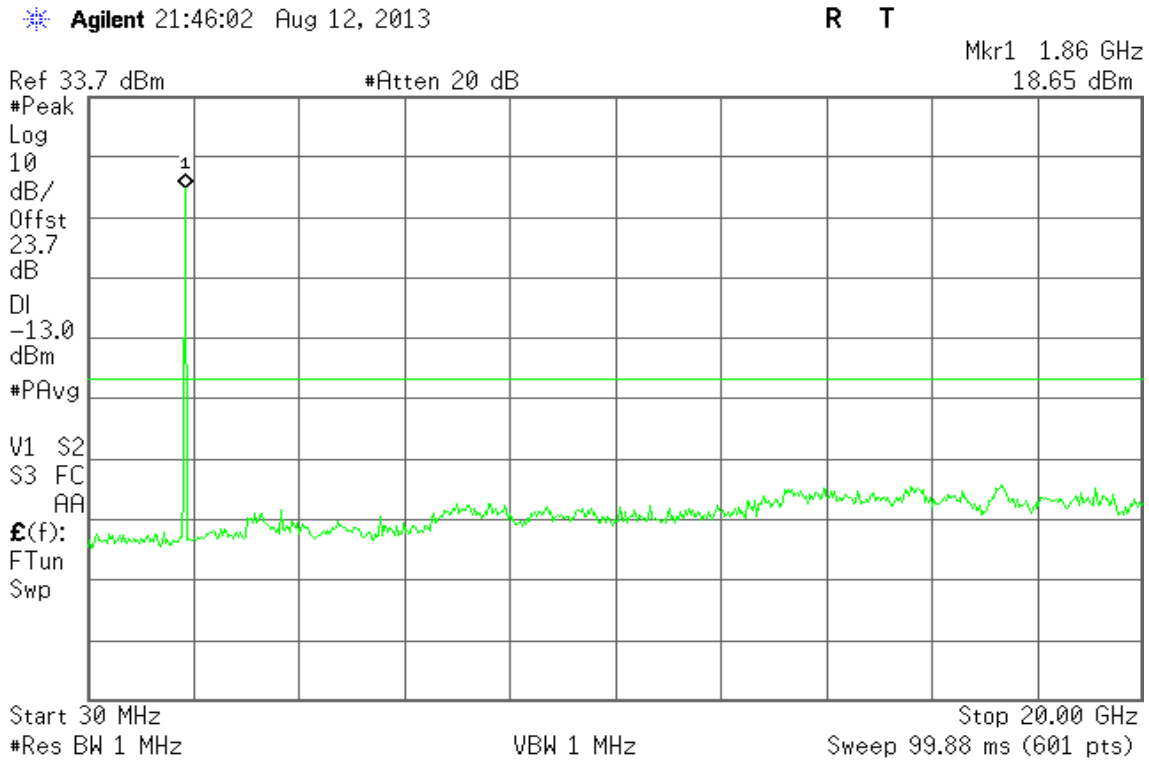


Figure 23-2: Out of Band emission at antenna terminals – HSDPA CH Mid

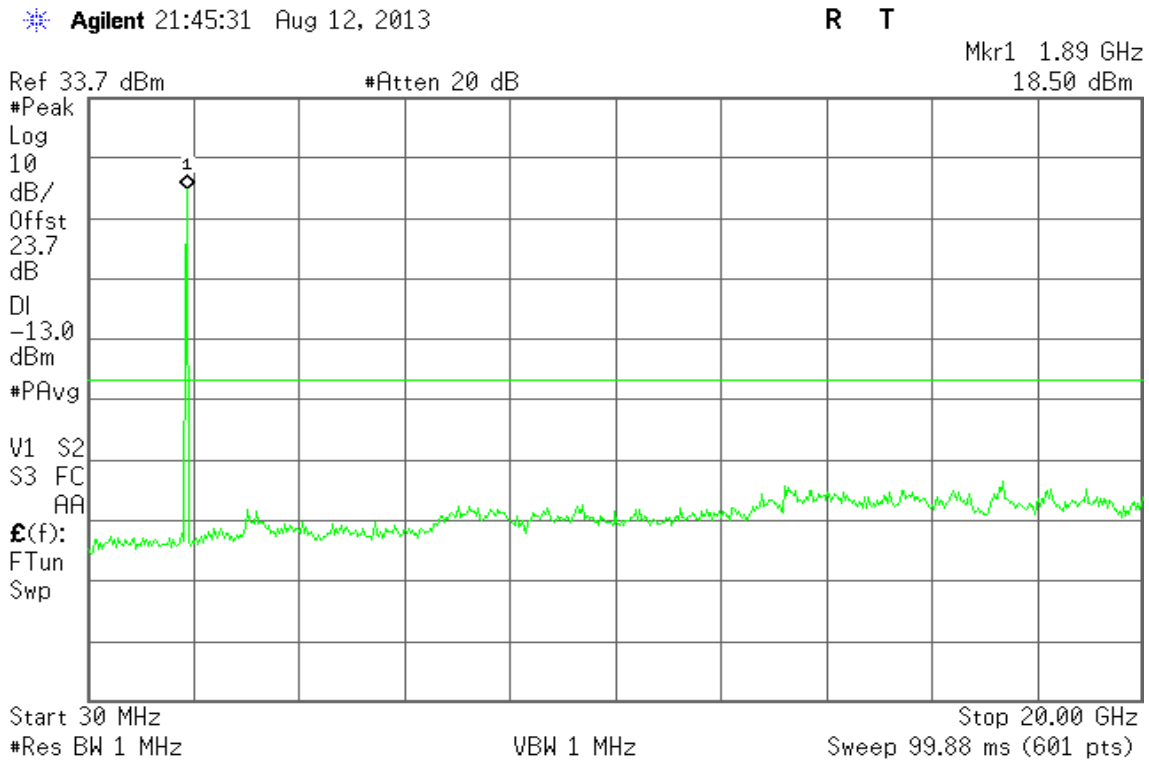
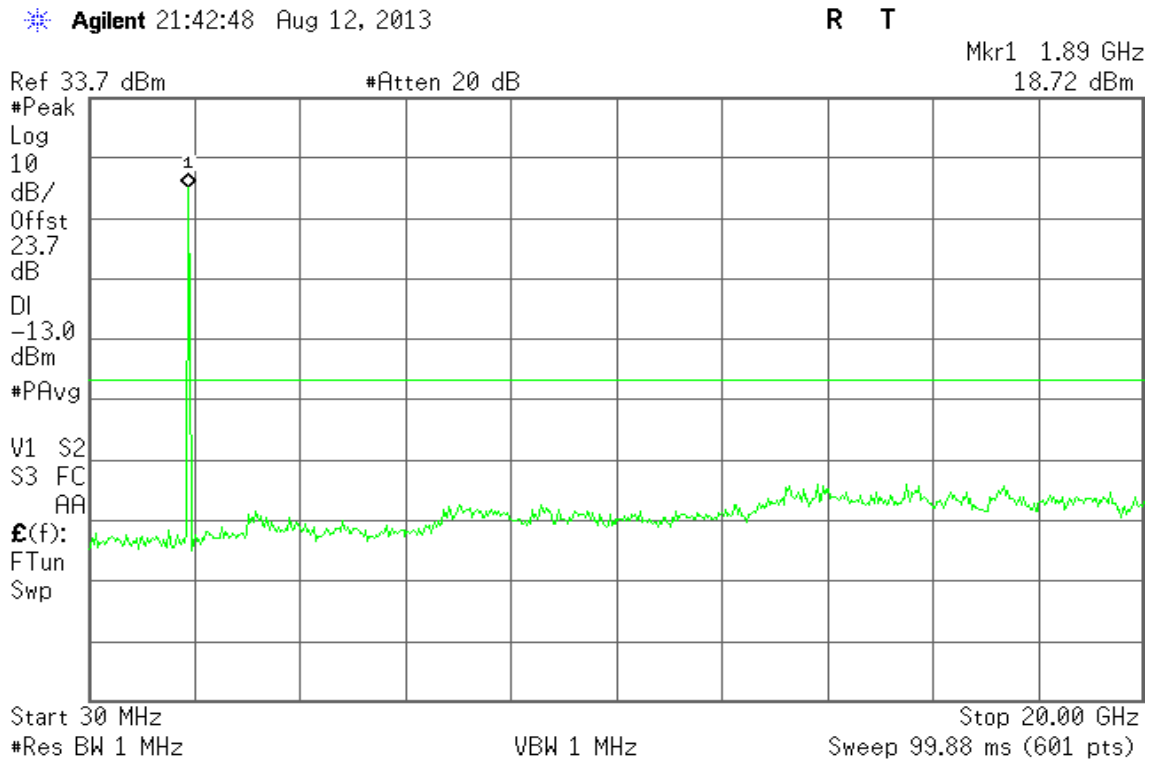




Figure 23-3: Out of Band emission at antenna terminals – HSDPA CH High



### WCDMA / HSDPA Band V

Figure 24-1: Out of Band emission at antenna terminals – HSDPA CH Low

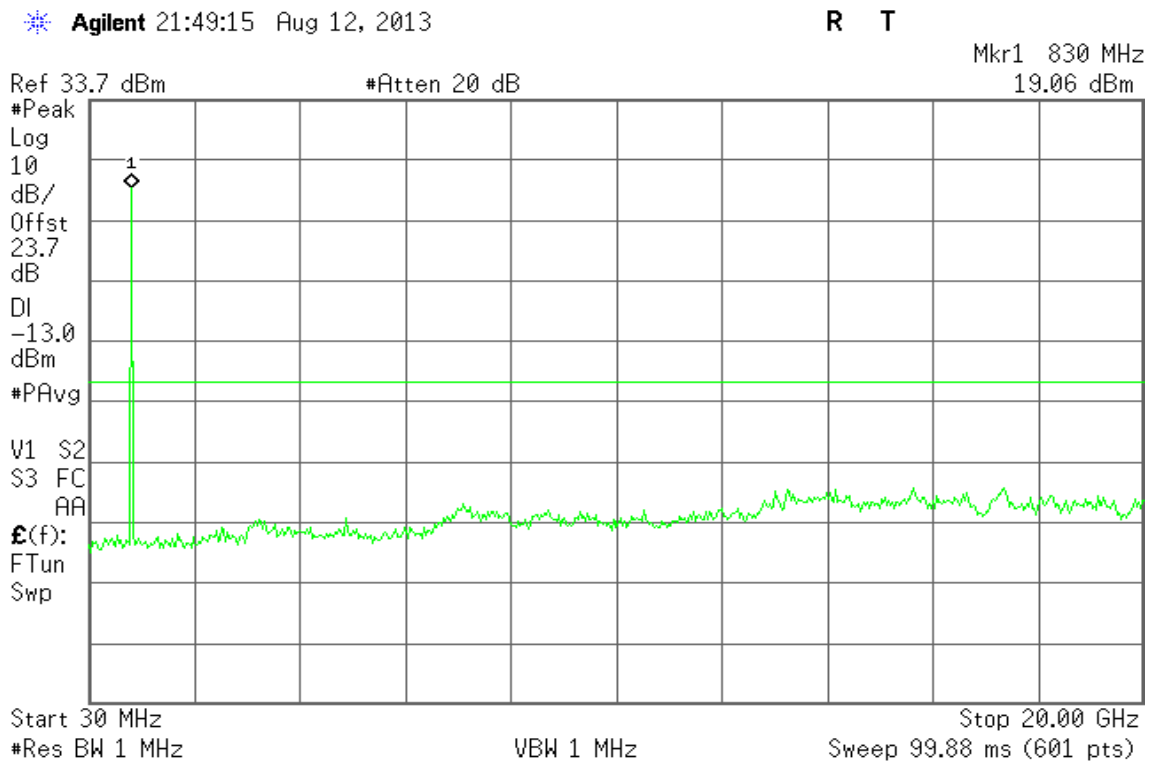




Figure 24-2: Out of Band emission at antenna terminals – HSDPA CH Mid

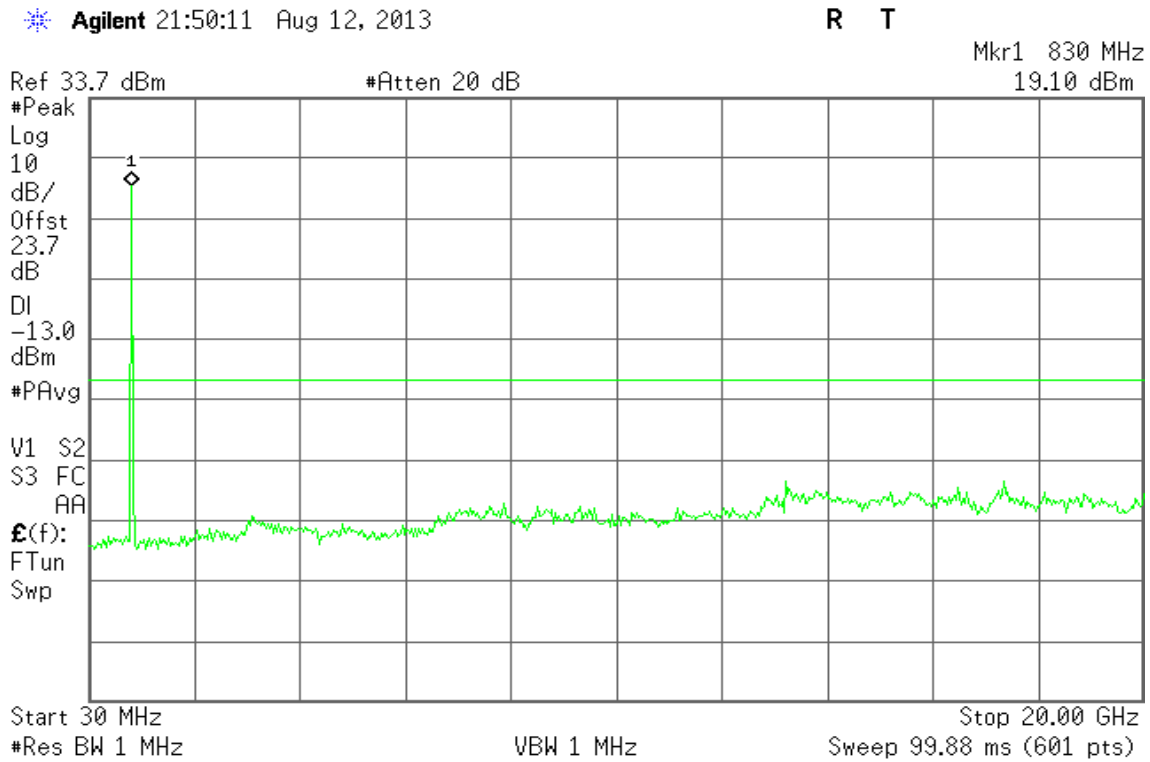
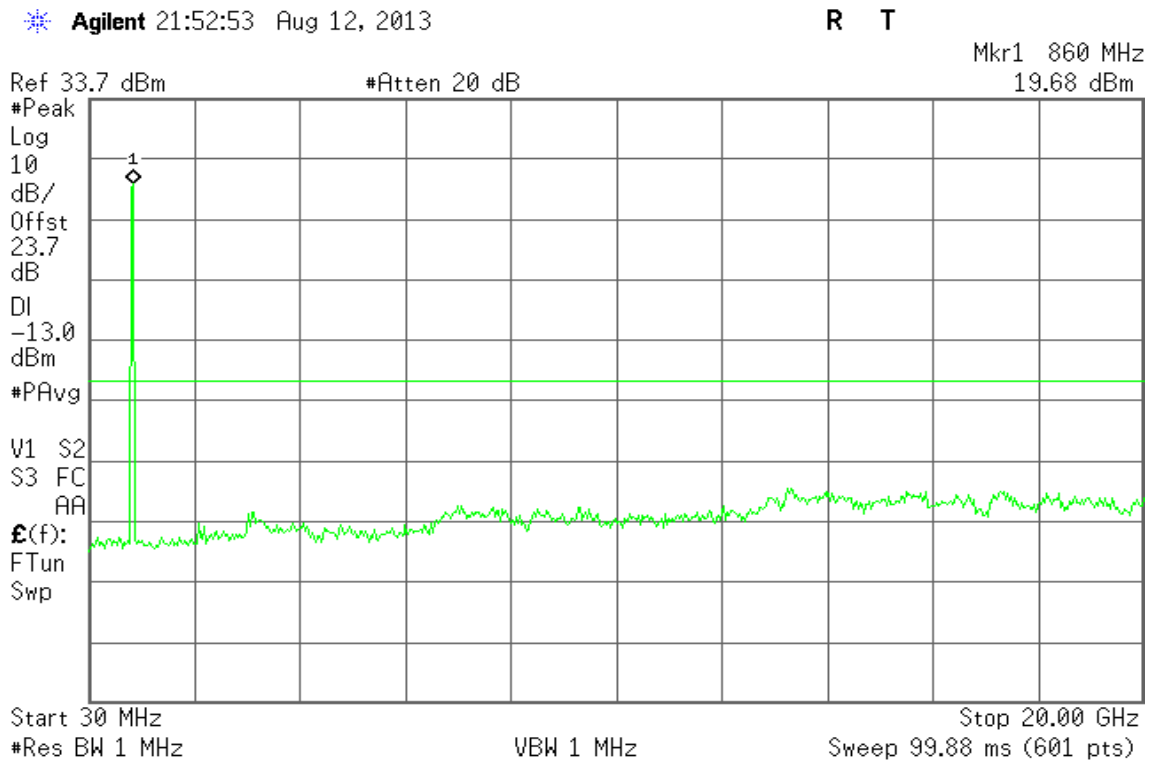


Figure 24-3: Out of Band emission at antenna terminals – HSDPA CH High





### WCDMA / HSDPA Band II

Figure 25-1: Band Edge emissions – HSDPA CH Low

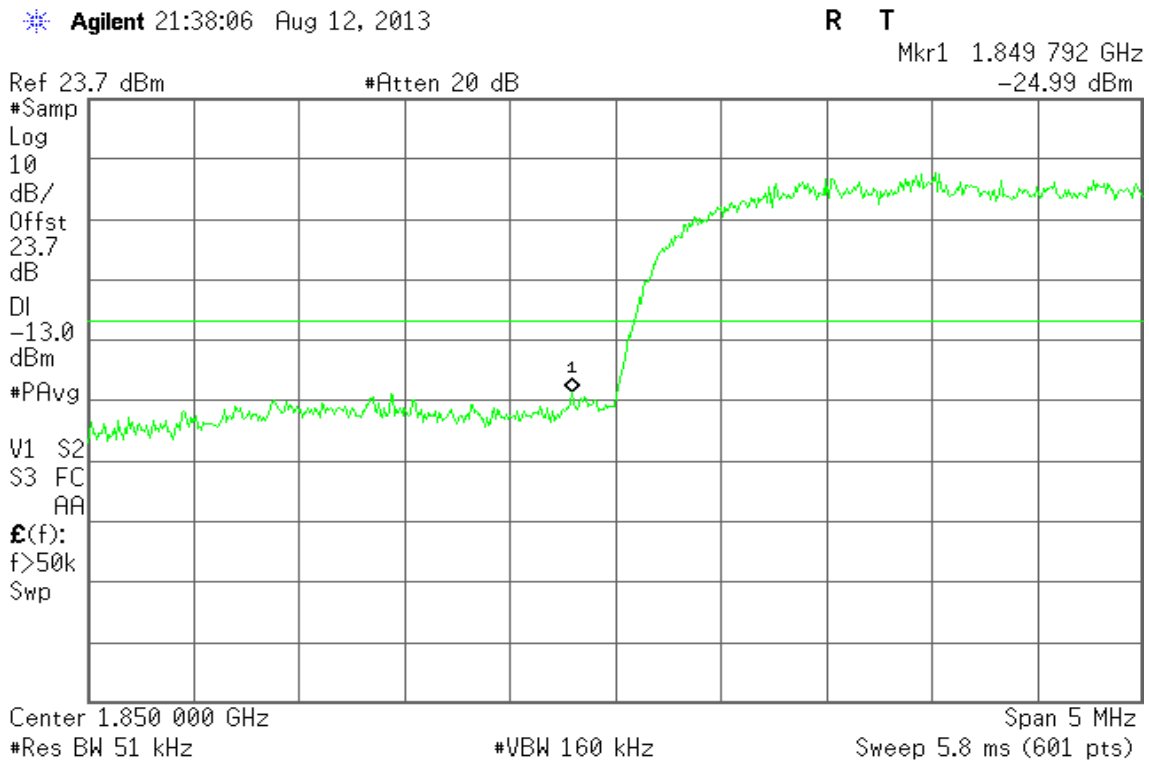
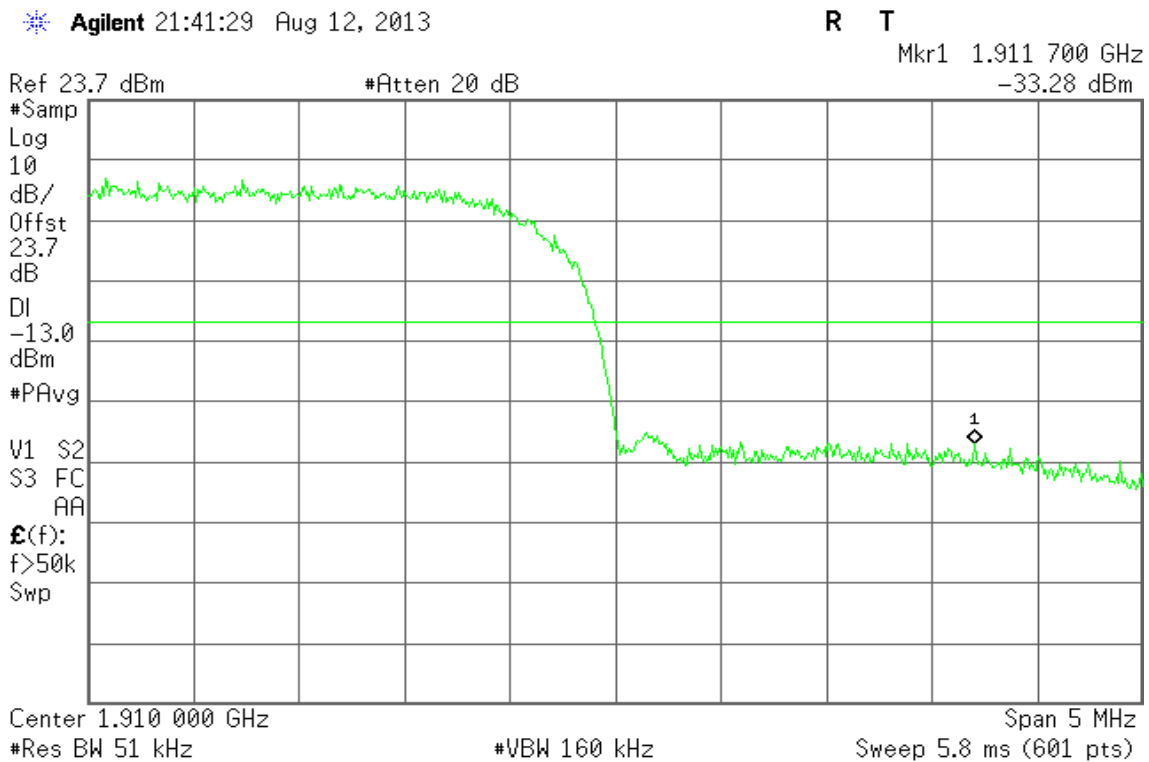


Figure 25-2: Band Edge emissions – HSDPA CH High





### WCDMA / HSDPA Band V

Figure 26-1: Band Edge emissions – HSDPA CH Low

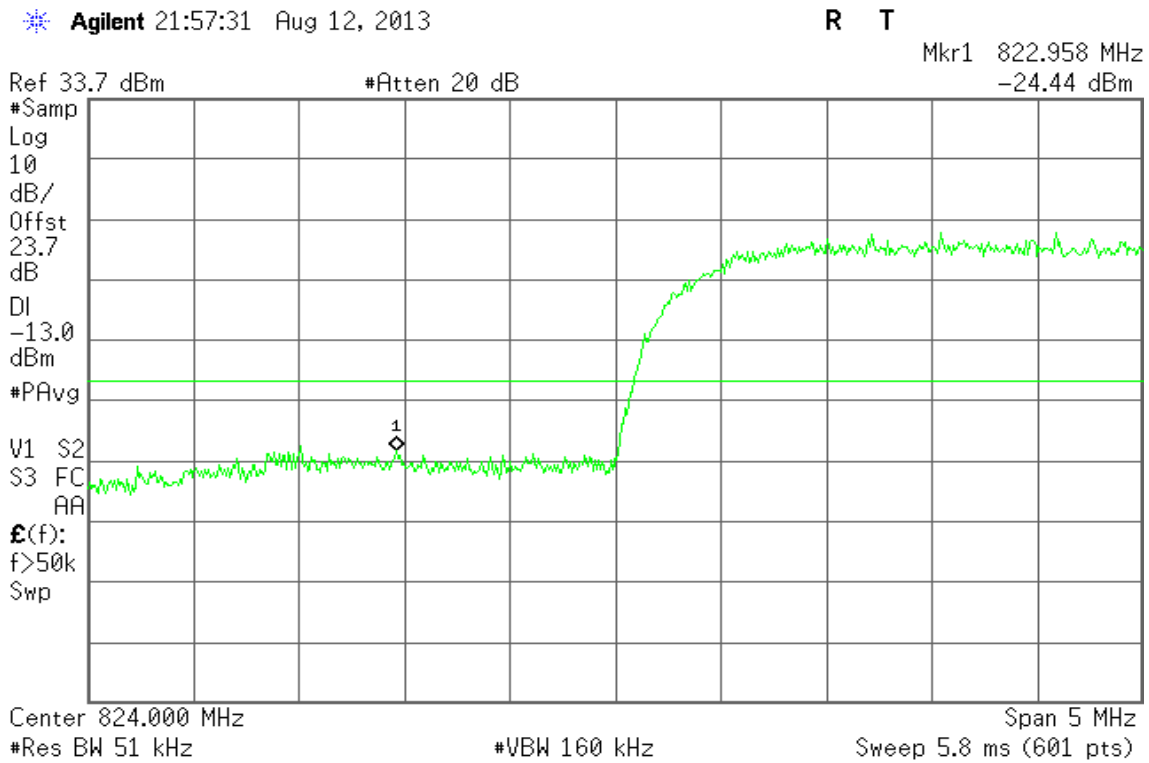
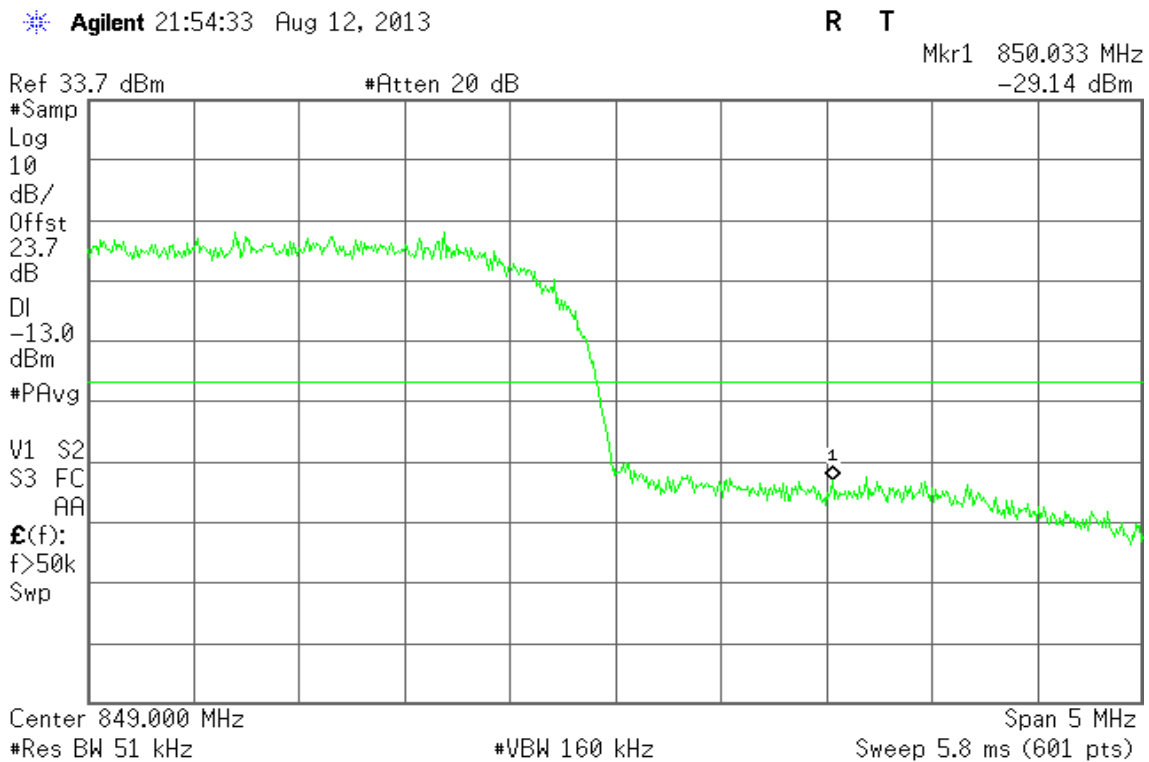


Figure 26-2: Band Edge emissions – HSDPA CH High





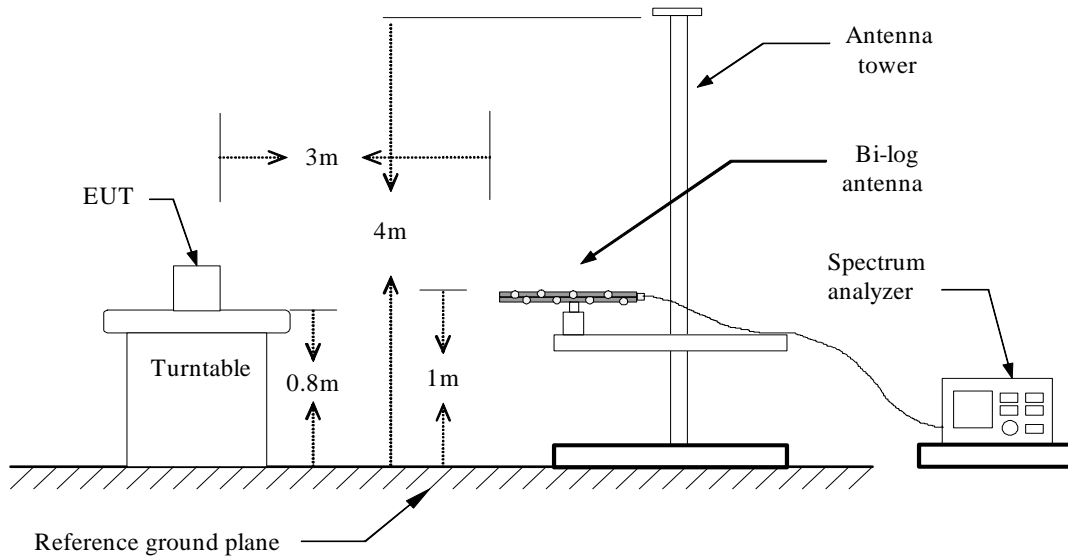
## 7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### LIMIT

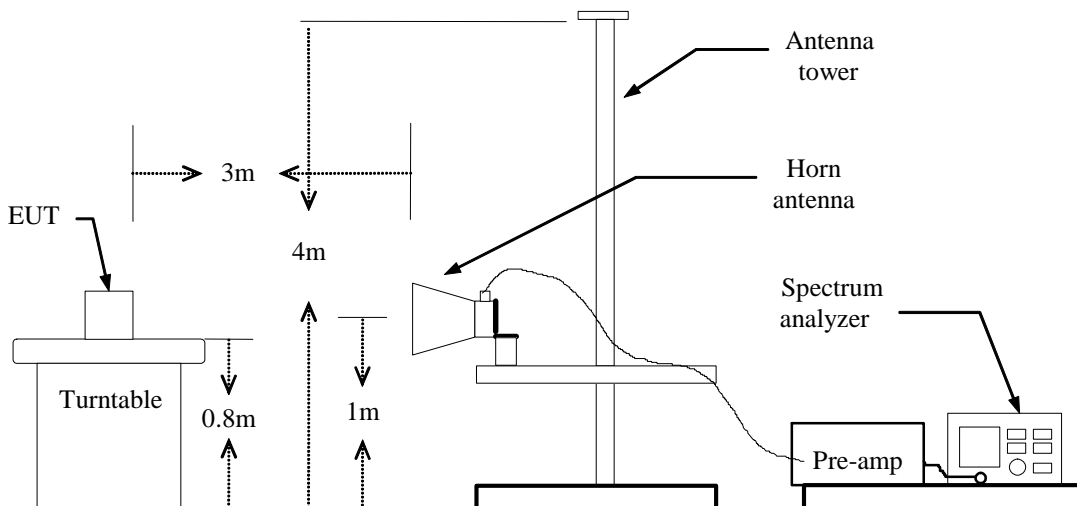
According to FCC §2.1053, RSS-132 (4.6) & RSS-133 (6.5).

### Test Configuration

#### Below 1 GHz



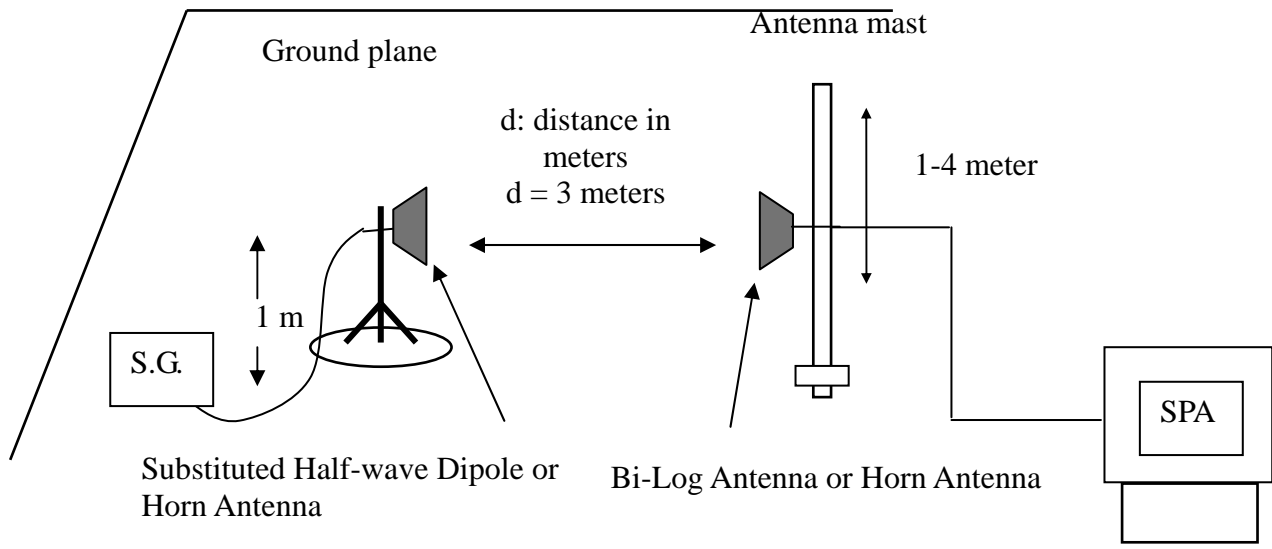
#### Above 1 GHz







## Substituted Method Test Set-up



## TEST 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.

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

The radiation spurious emission was perform at EUT antenna port terminated.

## TEST RESULTS

*Refer to the attached tabular data sheets.*



**Radiated Spurious Emission Measurement Result / Below 1GHz**

**Operation Mode:** GSM 850 / TX / CH 128

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
60.0700	-66.67	0.88	-2.19	-69.74	-13.00	-56.74	V
150.2800	-70.59	1.43	0.71	-71.31	-13.00	-58.31	V
345.2500	-77.34	2.2	5.8	-73.74	-13.00	-60.74	V
402.4800	-78.27	2.41	5.97	-74.71	-13.00	-61.71	V
493.6600	-78.16	2.68	5.83	-75.01	-13.00	-62.01	V
597.4500	-73.13	2.9	6.35	-69.68	-13.00	-56.68	V
71.7100	-51.59	0.97	-1.61	-54.17	-13.00	-41.17	H
95.9600	-54.18	1.13	0.26	-55.05	-13.00	-42.05	H
150.2800	-60.66	1.43	0.71	-61.38	-13.00	-48.38	H
330.7000	-72.14	2.16	5.71	-68.59	-13.00	-55.59	H
493.6600	-72.76	2.68	5.83	-69.61	-13.00	-56.61	H
597.4500	-69.85	2.9	6.35	-66.40	-13.00	-53.40	H

**Remark:**

- The emission behaviour belongs to narrowband spurious emission.*
- Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** GSM 850 / TX / CH 190

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
84.3200	-69.38	1.07	0.39	-70.06	-13.00	-57.06	V
150.2800	-71.06	1.43	0.71	-71.78	-13.00	-58.78	V
346.2200	-77.14	2.21	5.8	-73.55	-13.00	-60.55	V
465.5300	-78.53	2.61	5.83	-75.31	-13.00	-62.31	V
493.6600	-76.86	2.68	5.83	-73.71	-13.00	-60.71	V
598.4200	-74.44	2.9	6.37	-70.97	-13.00	-57.97	V
71.7100	-51.89	0.97	-1.61	-54.47	-13.00	-41.47	H
150.2800	-60.26	1.43	0.71	-60.98	-13.00	-47.98	H
330.7000	-72.07	2.16	5.71	-68.52	-13.00	-55.52	H
379.2000	-74.31	2.31	5.98	-70.64	-13.00	-57.64	H
493.6600	-73.26	2.68	5.83	-70.11	-13.00	-57.11	H
598.4200	-70.09	2.9	6.37	-66.62	-13.00	-53.62	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** GSM 850 / TX / CH 251

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
84.3200	-70.57	1.07	0.39	-71.25	-13.00	-58.25	V
150.2800	-70.97	1.43	0.71	-71.69	-13.00	-58.69	V
346.2200	-76.94	2.21	5.8	-73.35	-13.00	-60.35	V
448.0700	-79.16	2.58	5.74	-76.00	-13.00	-63.00	V
493.6600	-78.02	2.68	5.83	-74.87	-13.00	-61.87	V
597.4500	-73.57	2.9	6.35	-70.12	-13.00	-57.12	V
95.9600	-53.83	1.13	0.26	-54.70	-13.00	-41.70	H
150.2800	-59.39	1.43	0.71	-60.11	-13.00	-47.11	H
342.3400	-72.88	2.18	5.8	-69.26	-13.00	-56.26	H
382.1100	-75.32	2.31	5.99	-71.64	-13.00	-58.64	H
493.6600	-73.55	2.68	5.83	-70.40	-13.00	-57.40	H
597.4500	-69.93	2.9	6.35	-66.48	-13.00	-53.48	H

**Remark:**

1. The emission behaviour belongs to narrowband spurious emission.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** GPRS 850 / TX / CH 128

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-63.97	1.13	0.26	-64.84	-13.00	-51.84	V
161.9200	-70.59	1.5	1.61	-70.48	-13.00	-57.48	V
229.8200	-76.8	1.8	5.39	-73.21	-13.00	-60.21	V
354.9500	-75.14	2.25	5.75	-71.64	-13.00	-58.64	V
490.7500	-73.18	2.67	5.8	-70.05	-13.00	-57.05	V
651.7700	-65.74	3.03	6.3	-62.47	-13.00	-49.47	V
101.7800	-58.54	1.16	-0.64	-60.34	-13.00	-47.34	H
150.2800	-63.06	1.43	0.71	-63.78	-13.00	-50.78	H
192.9600	-71.54	1.62	3.68	-69.48	-13.00	-56.48	H
345.2500	-69.03	2.2	5.8	-65.43	-13.00	-52.43	H
529.5500	-69.24	2.75	6	-65.99	-13.00	-52.99	H
628.4900	-67.95	2.97	6.18	-64.74	-13.00	-51.74	H

**Remark:**

1. The emission behaviour belongs to narrowband spurious emission.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** GPRS 850 / TX / CH 190

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
120.2100	-62.48	1.27	-2.06	-65.81	-13.00	-52.81	V
342.3400	-74.24	2.18	5.8	-70.62	-13.00	-57.62	V
354.9500	-75.32	2.25	5.75	-71.82	-13.00	-58.82	V
490.7500	-73.8	2.67	5.8	-70.67	-13.00	-57.67	V
606.1800	-71.44	2.93	6.34	-68.03	-13.00	-55.03	V
663.4100	-68.34	3.06	6.3	-65.10	-13.00	-52.10	V
95.9600	-57.86	1.13	0.26	-58.73	-13.00	-45.73	H
120.2100	-57.74	1.27	-2.06	-61.07	-13.00	-48.07	H
345.2500	-68.58	2.2	5.8	-64.98	-13.00	-51.98	H
466.5000	-70.39	2.61	5.82	-67.18	-13.00	-54.18	H
549.9200	-68.77	2.81	6.18	-65.40	-13.00	-52.40	H
704.1500	-68.24	3.13	6.35	-65.02	-13.00	-52.02	H

**Remark:**

1. The emission behaviour belongs to narrowband spurious emission.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** GPRS 850 / TX / CH 251

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-64.11	1.13	0.26	-64.98	-13.00	-51.98	V
120.2100	-63.01	1.27	-2.06	-66.34	-13.00	-53.34	V
346.2200	-75.73	2.21	5.8	-72.14	-13.00	-59.14	V
618.7900	-68.02	2.94	6.12	-64.84	-13.00	-51.84	V
676.0200	-71.44	3.08	6.42	-68.10	-13.00	-55.10	V
N/A							
101.7800	-58.72	1.16	-0.64	-60.52	-13.00	-47.52	H
120.2100	-57.89	1.27	-2.06	-61.22	-13.00	-48.22	H
150.2800	-63.95	1.43	0.71	-64.67	-13.00	-51.67	H
270.5600	-71.54	1.98	5.11	-68.41	-13.00	-55.41	H
345.2500	-69.96	2.2	5.8	-66.36	-13.00	-53.36	H
557.6800	-68.33	2.84	6.06	-65.11	-13.00	-52.11	H

**Remark:**

1. *The emission behaviour belongs to narrowband spurious emission.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: GSM 1900 / TX / CH 512

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
150.2800	-70.29	1.43	0.71	-71.01	-13.00	-58.01	V
332.6400	-79.47	2.16	5.73	-75.90	-13.00	-62.90	V
493.6600	-77.72	2.68	5.83	-74.57	-13.00	-61.57	V
597.4500	-74.21	2.9	6.35	-70.76	-13.00	-57.76	V
757.5000	-75.29	3.22	6.25	-72.26	-13.00	-59.26	V
897.1800	-61.3	3.51	6.64	-58.17	-13.00	-45.17	V
101.7800	-54.11	1.16	-0.64	-55.91	-13.00	-42.91	H
150.2800	-60.15	1.43	0.71	-60.87	-13.00	-47.87	H
330.7000	-73.6	2.16	5.71	-70.05	-13.00	-57.05	H
382.1100	-76.18	2.31	5.99	-72.50	-13.00	-59.50	H
597.4500	-68.87	2.9	6.35	-65.42	-13.00	-52.42	H
897.1800	-65.82	3.51	6.64	-62.69	-13.00	-49.69	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*





**Operation Mode:** GSM 1900 / TX / CH 661

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
60.0700	-67.04	0.88	-2.19	-70.11	-13.00	-57.11	V
150.2800	-70.58	1.43	0.71	-71.30	-13.00	-58.30	V
493.6600	-76.52	2.68	5.83	-73.37	-13.00	-60.37	V
598.4200	-73.84	2.9	6.37	-70.37	-13.00	-57.37	V
757.5000	-75.54	3.22	6.25	-72.51	-13.00	-59.51	V
897.1800	-61.49	3.51	6.64	-58.36	-13.00	-45.36	V
101.7800	-54.23	1.16	-0.64	-56.03	-13.00	-43.03	H
150.2800	-59.89	1.43	0.71	-60.61	-13.00	-47.61	H
330.7000	-73.26	2.16	5.71	-69.71	-13.00	-56.71	H
493.6600	-72.21	2.68	5.83	-69.06	-13.00	-56.06	H
597.4500	-69.21	2.9	6.35	-65.76	-13.00	-52.76	H
897.1800	-66.55	3.51	6.64	-63.42	-13.00	-50.42	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** GSM 1900 / TX / CH 810

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
60.0700	-66.99	0.88	-2.19	-70.06	-13.00	-57.06	V
150.2800	-71.7	1.43	0.71	-72.42	-13.00	-59.42	V
345.2500	-78.03	2.2	5.8	-74.43	-13.00	-61.43	V
597.4500	-74.15	2.9	6.35	-70.70	-13.00	-57.70	V
757.5000	-75.32	3.22	6.25	-72.29	-13.00	-59.29	V
897.1800	-61.83	3.51	6.64	-58.70	-13.00	-45.70	V
101.7800	-54.9	1.16	-0.64	-56.70	-13.00	-43.70	H
153.1900	-61.59	1.44	0.94	-62.09	-13.00	-49.09	H
330.7000	-72.69	2.16	5.71	-69.14	-13.00	-56.14	H
493.6600	-73.66	2.68	5.83	-70.51	-13.00	-57.51	H
597.4500	-68.57	2.9	6.35	-65.12	-13.00	-52.12	H
897.1800	-66.5	3.51	6.64	-63.37	-13.00	-50.37	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** GPRS 1900 / TX / CH 512

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
120.2100	-62.32	1.27	-2.06	-65.65	-13.00	-52.65	V
161.9200	-75.97	1.5	1.61	-75.86	-13.00	-62.86	V
246.3100	-85.21	1.83	5.54	-81.50	-13.00	-68.50	V
354.9500	-78.55	2.25	5.75	-75.05	-13.00	-62.05	V
450.9800	-80.85	2.59	5.74	-77.70	-13.00	-64.70	V
733.2500	-78.38	3.19	6.31	-75.26	-13.00	-62.26	V
90.1400	-60.21	1.11	1.07	-60.25	-13.00	-47.25	H
150.2800	-64.02	1.43	0.71	-64.74	-13.00	-51.74	H
270.5600	-76.53	1.98	5.11	-73.40	-13.00	-60.40	H
345.2500	-70.64	2.2	5.8	-67.04	-13.00	-54.04	H
448.0700	-74.14	2.58	5.74	-70.98	-13.00	-57.98	H
529.5500	-75.14	2.75	6	-71.89	-13.00	-58.89	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** GPRS 1900 / TX / CH 661

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
101.7800	-63.94	1.16	-0.64	-65.74	-13.00	-52.74	V
171.6200	-76.59	1.57	2.69	-75.47	-13.00	-62.47	V
342.3400	-78.28	2.18	5.8	-74.66	-13.00	-61.66	V
450.9800	-81.15	2.59	5.74	-78.00	-13.00	-65.00	V
733.2500	-77.58	3.19	6.31	-74.46	-13.00	-61.46	V
793.3900	-78.8	3.33	6.33	-75.80	-13.00	-62.80	V
90.1400	-60.35	1.11	1.07	-60.39	-13.00	-47.39	H
150.2800	-64.41	1.43	0.71	-65.13	-13.00	-52.13	H
267.6500	-75.98	1.96	5.22	-72.72	-13.00	-59.72	H
345.2500	-71.63	2.2	5.8	-68.03	-13.00	-55.03	H
448.0700	-74.08	2.58	5.74	-70.92	-13.00	-57.92	H
529.5500	-74.78	2.75	6	-71.53	-13.00	-58.53	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** GPRS 1900 / TX / CH 810

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
101.7800	-63.79	1.16	-0.64	-65.59	-13.00	-52.59	V
161.9200	-76	1.5	1.61	-75.89	-13.00	-62.89	V
246.3100	-84.48	1.83	5.54	-80.77	-13.00	-67.77	V
342.3400	-77.9	2.18	5.8	-74.28	-13.00	-61.28	V
450.9800	-79.25	2.59	5.74	-76.10	-13.00	-63.10	V
733.2500	-77.38	3.19	6.31	-74.26	-13.00	-61.26	V
90.1400	-60.08	1.11	1.07	-60.12	-13.00	-47.12	H
150.2800	-63.74	1.43	0.71	-64.46	-13.00	-51.46	H
267.6500	-75.97	1.96	5.22	-72.71	-13.00	-59.71	H
345.2500	-70.85	2.2	5.8	-67.25	-13.00	-54.25	H
448.0700	-73.95	2.58	5.74	-70.79	-13.00	-57.79	H
529.5500	-74.68	2.75	6	-71.43	-13.00	-58.43	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** EDGE 850 / TX / CH 128

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-65.03	1.13	0.26	-65.90	-13.00	-52.90	V
161.9200	-71.84	1.5	1.61	-71.73	-13.00	-58.73	V
275.4100	-76.78	1.99	5.21	-73.56	-13.00	-60.56	V
354.9500	-75.48	2.25	5.75	-71.98	-13.00	-58.98	V
593.5700	-73.2	2.89	6.27	-69.82	-13.00	-56.82	V
651.7700	-66.05	3.03	6.3	-62.78	-13.00	-49.78	V
95.9600	-58.43	1.13	0.26	-59.30	-13.00	-46.30	H
150.2800	-63.41	1.43	0.71	-64.13	-13.00	-51.13	H
345.2500	-69.14	2.2	5.8	-65.54	-13.00	-52.54	H
448.0700	-70.68	2.58	5.74	-67.52	-13.00	-54.52	H
539.2500	-68.92	2.78	6.27	-65.43	-13.00	-52.43	H
642.0700	-67.75	3.01	6.14	-64.62	-13.00	-51.62	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: EDGE 850 / TX / CH 190

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-64.93	1.13	0.26	-65.80	-13.00	-52.80	V
197.8100	-75.57	1.63	3.15	-74.05	-13.00	-61.05	V
354.9500	-76.09	2.25	5.75	-72.59	-13.00	-59.59	V
486.8700	-73.25	2.66	5.69	-70.22	-13.00	-57.22	V
606.1800	-70.83	2.93	6.34	-67.42	-13.00	-54.42	V
663.4100	-68.74	3.06	6.3	-65.50	-13.00	-52.50	V
95.9600	-57.2	1.13	0.26	-58.07	-13.00	-45.07	H
150.2800	-62.66	1.43	0.71	-63.38	-13.00	-50.38	H
354.9500	-69.34	2.25	5.75	-65.84	-13.00	-52.84	H
437.4000	-69.21	2.52	5.88	-65.85	-13.00	-52.85	H
529.5500	-68.3	2.75	6	-65.05	-13.00	-52.05	H
660.5000	-68.06	3.06	6.3	-64.82	-13.00	-51.82	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: EDGE 850 / TX / CH 251

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-64.63	1.13	0.26	-65.50	-13.00	-52.50	V
161.9200	-71.3	1.5	1.61	-71.19	-13.00	-58.19	V
342.3400	-75.89	2.18	5.8	-72.27	-13.00	-59.27	V
414.1200	-74.89	2.45	5.87	-71.47	-13.00	-58.47	V
618.7900	-67.74	2.94	6.12	-64.56	-13.00	-51.56	V
676.0200	-70.94	3.08	6.42	-67.60	-13.00	-54.60	V
95.9600	-59.2	1.13	0.26	-60.07	-13.00	-47.07	H
120.2100	-57.93	1.27	-2.06	-61.26	-13.00	-48.26	H
161.9200	-66.77	1.5	1.61	-66.66	-13.00	-53.66	H
345.2500	-69.56	2.2	5.8	-65.96	-13.00	-52.96	H
532.4600	-70.31	2.76	6.08	-66.99	-13.00	-53.99	H
698.3300	-68.47	3.11	6.41	-65.17	-13.00	-52.17	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.





Operation Mode: EDGE 1900 / TX / CH 512

Test Date: August 1, 2013

Temperature: 26°C

Tested by: Jerry Lin

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
120.2100	-62.15	1.27	-2.06	-65.48	-13.00	-52.48	V
161.9200	-75.51	1.5	1.61	-75.40	-13.00	-62.40	V
246.3100	-84.24	1.83	5.54	-80.53	-13.00	-67.53	V
342.3400	-79.1	2.18	5.8	-75.48	-13.00	-62.48	V
448.0700	-80.85	2.58	5.74	-77.69	-13.00	-64.69	V
733.2500	-77.64	3.19	6.31	-74.52	-13.00	-61.52	V
90.1400	-59.83	1.11	1.07	-59.87	-13.00	-46.87	H
120.2100	-56.77	1.27	-2.06	-60.10	-13.00	-47.10	H
150.2800	-63.7	1.43	0.71	-64.42	-13.00	-51.42	H
345.2500	-72.05	2.2	5.8	-68.45	-13.00	-55.45	H
448.0700	-74.91	2.58	5.74	-71.75	-13.00	-58.75	H
733.2500	-73.87	3.19	6.31	-70.75	-13.00	-57.75	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: EDGE 1900 / TX / CH 661

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
101.7800	-63.32	1.16	-0.64	-65.12	-13.00	-52.12	V
161.9200	-76.21	1.5	1.61	-76.10	-13.00	-63.10	V
342.3400	-78.68	2.18	5.8	-75.06	-13.00	-62.06	V
450.9800	-80.5	2.59	5.74	-77.35	-13.00	-64.35	V
733.2500	-77.94	3.19	6.31	-74.82	-13.00	-61.82	V
793.3900	-78.02	3.33	6.33	-75.02	-13.00	-62.02	V
101.7800	-58.27	1.16	-0.64	-60.07	-13.00	-47.07	H
150.2800	-63.72	1.43	0.71	-64.44	-13.00	-51.44	H
270.5600	-75.52	1.98	5.11	-72.39	-13.00	-59.39	H
345.2500	-70.73	2.2	5.8	-67.13	-13.00	-54.13	H
448.0700	-73.95	2.58	5.74	-70.79	-13.00	-57.79	H
529.5500	-74.61	2.75	6	-71.36	-13.00	-58.36	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** EDGE 1900 / TX / CH 810

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
101.7800	-64.01	1.16	-0.64	-65.81	-13.00	-52.81	V
161.9200	-76.26	1.5	1.61	-76.15	-13.00	-63.15	V
342.3400	-78.49	2.18	5.8	-74.87	-13.00	-61.87	V
448.0700	-80.87	2.58	5.74	-77.71	-13.00	-64.71	V
565.4400	-81.84	2.86	6.04	-78.66	-13.00	-65.66	V
733.2500	-77.87	3.19	6.31	-74.75	-13.00	-61.75	V
90.1400	-60.18	1.11	1.07	-60.22	-13.00	-47.22	H
150.2800	-63.74	1.43	0.71	-64.46	-13.00	-51.46	H
243.4000	-76.17	1.82	5.43	-72.56	-13.00	-59.56	H
345.2500	-71.38	2.2	5.8	-67.78	-13.00	-54.78	H
448.0700	-75.23	2.58	5.74	-72.07	-13.00	-59.07	H
529.5500	-74.78	2.75	6	-71.53	-13.00	-58.53	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** WCDMA Band II / TX / CH 9262

**Test Date:** August 5, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
65.8900	-69.98	0.93	-1.93	-72.84	-13.00	-59.84	V
150.2800	-68.93	1.43	0.71	-69.65	-13.00	-56.65	V
331.6700	-77.47	2.16	5.72	-73.91	-13.00	-60.91	V
402.4800	-80.47	2.41	5.97	-76.91	-13.00	-63.91	V
597.4500	-74.61	2.9	6.35	-71.16	-13.00	-58.16	V
897.1800	-61.26	3.51	6.64	-58.13	-13.00	-45.13	V
71.7100	-52.97	0.97	-1.61	-55.55	-13.00	-42.55	H
150.2800	-59.11	1.43	0.71	-59.83	-13.00	-46.83	H
342.3400	-73.34	2.18	5.8	-69.72	-13.00	-56.72	H
597.4500	-69.5	2.9	6.35	-66.05	-13.00	-53.05	H
733.2500	-72.61	3.19	6.31	-69.49	-13.00	-56.49	H
897.1800	-65.28	3.51	6.64	-62.15	-13.00	-49.15	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** WCDMA Band II / TX / CH 9400

**Test Date:** August 5, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
62.9800	-68.03	0.9	-2.06	-70.99	-13.00	-57.99	V
150.2800	-69.74	1.43	0.71	-70.46	-13.00	-57.46	V
345.2500	-78.53	2.2	5.8	-74.93	-13.00	-61.93	V
448.0700	-78.39	2.58	5.74	-75.23	-13.00	-62.23	V
597.4500	-74.24	2.9	6.35	-70.79	-13.00	-57.79	V
897.1800	-61.03	3.51	6.64	-57.90	-13.00	-44.90	V
71.7100	-52.89	0.97	-1.61	-55.47	-13.00	-42.47	H
150.2800	-61.43	1.43	0.71	-62.15	-13.00	-49.15	H
342.3400	-72.8	2.18	5.8	-69.18	-13.00	-56.18	H
390.8400	-75.74	2.32	6	-72.06	-13.00	-59.06	H
597.4500	-68.75	2.9	6.35	-65.30	-13.00	-52.30	H
897.1800	-64.48	3.51	6.64	-61.35	-13.00	-48.35	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: WCDMA Band II / TX / CH 9538

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
84.3200	-71.27	1.07	0.39	-71.95	-13.00	-58.95	V
150.2800	-70.78	1.43	0.71	-71.50	-13.00	-58.50	V
297.7200	-80.5	2.08	5.55	-77.03	-13.00	-64.03	V
402.4800	-78.87	2.41	5.97	-75.31	-13.00	-62.31	V
597.4500	-73.27	2.9	6.35	-69.82	-13.00	-56.82	V
897.1800	-61.33	3.51	6.64	-58.20	-13.00	-45.20	V
101.7800	-55.13	1.16	-0.64	-56.93	-13.00	-43.93	H
150.2800	-60.67	1.43	0.71	-61.39	-13.00	-48.39	H
161.9200	-66.52	1.5	1.61	-66.41	-13.00	-53.41	H
342.3400	-72.16	2.18	5.8	-68.54	-13.00	-55.54	H
597.4500	-69.3	2.9	6.35	-65.85	-13.00	-52.85	H
897.1800	-64.61	3.51	6.64	-61.48	-13.00	-48.48	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** WCDMA Band V / TX / CH 4132

**Test Date:** August 5, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
62.9800	-68.13	0.9	-2.06	-71.09	-13.00	-58.09	V
150.2800	-71.36	1.43	0.71	-72.08	-13.00	-59.08	V
332.6400	-76.96	2.16	5.73	-73.39	-13.00	-60.39	V
402.4800	-79.09	2.41	5.97	-75.53	-13.00	-62.53	V
529.5500	-79.89	2.75	6	-76.64	-13.00	-63.64	V
597.4500	-74.7	2.9	6.35	-71.25	-13.00	-58.25	V
95.9600	-55.1	1.13	0.26	-55.97	-13.00	-42.97	H
150.2800	-60.71	1.43	0.71	-61.43	-13.00	-48.43	H
297.7200	-74.87	2.08	5.55	-71.40	-13.00	-58.40	H
342.3400	-73.7	2.18	5.8	-70.08	-13.00	-57.08	H
531.4900	-75.37	2.76	6.05	-72.08	-13.00	-59.08	H
597.4500	-69.9	2.9	6.35	-66.45	-13.00	-53.45	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** WCDMA Band V / TX / CH 4182

**Test Date:** August 5, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
60.0700	-67.12	0.88	-2.19	-70.19	-13.00	-57.19	V
150.2800	-70.67	1.43	0.71	-71.39	-13.00	-58.39	V
346.2200	-78.3	2.21	5.8	-74.71	-13.00	-61.71	V
448.0700	-79.14	2.58	5.74	-75.98	-13.00	-62.98	V
531.4900	-79.82	2.76	6.05	-76.53	-13.00	-63.53	V
597.4500	-75.09	2.9	6.35	-71.64	-13.00	-58.64	V
71.7100	-52.48	0.97	-1.61	-55.06	-13.00	-42.06	H
150.2800	-60.4	1.43	0.71	-61.12	-13.00	-48.12	H
330.7000	-73.33	2.16	5.71	-69.78	-13.00	-56.78	H
464.5600	-74.58	2.61	5.84	-71.35	-13.00	-58.35	H
531.4900	-75.64	2.76	6.05	-72.35	-13.00	-59.35	H
597.4500	-69.63	2.9	6.35	-66.18	-13.00	-53.18	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*





**Operation Mode:** WCDMA Band V / TX / CH 4233

**Test Date:** August 5, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
65.8900	-68.21	0.93	-1.93	-71.07	-13.00	-58.07	V
150.2800	-70.82	1.43	0.71	-71.54	-13.00	-58.54	V
332.6400	-78.27	2.16	5.73	-74.70	-13.00	-61.70	V
402.4800	-78.18	2.41	5.97	-74.62	-13.00	-61.62	V
529.5500	-79.5	2.75	6	-76.25	-13.00	-63.25	V
598.4200	-74.83	2.9	6.37	-71.36	-13.00	-58.36	V
71.7100	-52.29	0.97	-1.61	-54.87	-13.00	-41.87	H
95.9600	-55.84	1.13	0.26	-56.71	-13.00	-43.71	H
150.2800	-60.41	1.43	0.71	-61.13	-13.00	-48.13	H
342.3400	-72.81	2.18	5.8	-69.19	-13.00	-56.19	H
448.0700	-75.22	2.58	5.74	-72.06	-13.00	-59.06	H
598.4200	-69.01	2.9	6.37	-65.54	-13.00	-52.54	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** WCDMA / HSDPA Band II /  
TX / CH 9262

**Test Date:** August 5, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
120.2100	-61.33	1.27	-2.06	-64.66	-13.00	-51.66	V
171.6200	-78.84	1.57	2.69	-77.72	-13.00	-64.72	V
354.9500	-77.93	2.25	5.75	-74.43	-13.00	-61.43	V
448.0700	-78.17	2.58	5.74	-75.01	-13.00	-62.01	V
709.0000	-80.67	3.14	6.3	-77.51	-13.00	-64.51	V
793.3900	-78.06	3.33	6.33	-75.06	-13.00	-62.06	V
87.2300	-62.79	1.09	0.73	-63.15	-13.00	-50.15	H
120.2100	-54.18	1.27	-2.06	-57.51	-13.00	-44.51	H
153.1900	-65.13	1.44	0.94	-65.63	-13.00	-52.63	H
342.3400	-70.39	2.18	5.8	-66.77	-13.00	-53.77	H
529.5500	-73.89	2.75	6	-70.64	-13.00	-57.64	H
601.3300	-75.17	2.91	6.39	-71.69	-13.00	-58.69	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.*



Operation Mode: WCDMA / HSDPA Band II / TX / CH 9400

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
101.7800	-62.23	1.16	-0.64	-64.03	-13.00	-51.03	V
161.9200	-75.31	1.5	1.61	-75.20	-13.00	-62.20	V
243.4000	-84.1	1.82	5.43	-80.49	-13.00	-67.49	V
342.3400	-77.24	2.18	5.8	-73.62	-13.00	-60.62	V
448.0700	-77.69	2.58	5.74	-74.53	-13.00	-61.53	V
770.1100	-78.15	3.27	6.38	-75.04	-13.00	-62.04	V
120.2100	-54.16	1.27	-2.06	-57.49	-13.00	-44.49	H
150.2800	-61.75	1.43	0.71	-62.47	-13.00	-49.47	H
243.4000	-74.56	1.82	5.43	-70.95	-13.00	-57.95	H
342.3400	-68.8	2.18	5.8	-65.18	-13.00	-52.18	H
415.0900	-75.41	2.45	5.86	-72.00	-13.00	-59.00	H
529.5500	-73.77	2.75	6	-70.52	-13.00	-57.52	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA / HSDPA Band II / TX / CH 9538

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
111.4800	-61.14	1.22	-1.76	-64.12	-13.00	-51.12	V
161.9200	-75.98	1.5	1.61	-75.87	-13.00	-62.87	V
243.4000	-82.85	1.82	5.43	-79.24	-13.00	-66.24	V
342.3400	-77.66	2.18	5.8	-74.04	-13.00	-61.04	V
448.0700	-77.14	2.58	5.74	-73.98	-13.00	-60.98	V
793.3900	-78.06	3.33	6.33	-75.06	-13.00	-62.06	V
90.1400	-60.13	1.11	1.07	-60.17	-13.00	-47.17	H
120.2100	-53.86	1.27	-2.06	-57.19	-13.00	-44.19	H
150.2800	-61.59	1.43	0.71	-62.31	-13.00	-49.31	H
345.2500	-70.69	2.2	5.8	-67.09	-13.00	-54.09	H
529.5500	-74.32	2.75	6	-71.07	-13.00	-58.07	H
733.2500	-73.51	3.19	6.31	-70.39	-13.00	-57.39	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA / HSDPA Band V / TX / CH 4132 Test Date: August 5, 2013

Temperature: 26°C Tested by: David Shu

Humidity: 60 % RH Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-59.78	1.13	0.26	-60.65	-13.00	-47.65	V
120.2100	-56.47	1.27	-2.06	-59.80	-13.00	-46.80	V
161.9200	-75.89	1.5	1.61	-75.78	-13.00	-62.78	V
354.9500	-78.28	2.25	5.75	-74.78	-13.00	-61.78	V
450.9800	-80.57	2.59	5.74	-77.42	-13.00	-64.42	V
625.5800	-81.88	2.96	6.16	-78.68	-13.00	-65.68	V
95.9600	-51.12	1.13	0.26	-51.99	-13.00	-38.99	H
120.2100	-52.43	1.27	-2.06	-55.76	-13.00	-42.76	H
150.2800	-65.27	1.43	0.71	-65.99	-13.00	-52.99	H
354.9500	-71.28	2.25	5.75	-67.78	-13.00	-54.78	H
448.0700	-73.77	2.58	5.74	-70.61	-13.00	-57.61	H
516.9400	-72.26	2.7	6.07	-68.89	-13.00	-55.89	H

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Operation Mode:** WCDMA / HSDPA Band V / TX / CH 4182      **Test Date:** August 5, 2013

**Temperature:** 26°C      **Tested by:** David Shu

**Humidity:** 60 % RH      **Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
95.9600	-60.24	1.13	0.26	-61.11	-13.00	-48.11	V
120.2100	-56.58	1.27	-2.06	-59.91	-13.00	-46.91	V
161.9200	-76.28	1.5	1.61	-76.17	-13.00	-63.17	V
234.6700	-84.65	1.8	5.38	-81.07	-13.00	-68.07	V
354.9500	-78.49	2.25	5.75	-74.99	-13.00	-61.99	V
450.9800	-80.32	2.59	5.74	-77.17	-13.00	-64.17	V
95.9600	-50.46	1.13	0.26	-51.33	-13.00	-38.33	H
150.2800	-65.32	1.43	0.71	-66.04	-13.00	-53.04	H
270.5600	-75.01	1.98	5.11	-71.88	-13.00	-58.88	H
345.2500	-71.41	2.2	5.8	-67.81	-13.00	-54.81	H
448.0700	-74.99	2.58	5.74	-71.83	-13.00	-58.83	H
529.5500	-73.67	2.75	6	-70.42	-13.00	-57.42	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Operation Mode:** WCDMA / HSDPA Band V / TX / CH 4233      **Test Date:** August 5, 2013

**Temperature:** 26°C      **Tested by:** David Shu

**Humidity:** 60 % RH      **Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
120.2100	-56.41	1.27	-2.06	-59.74	-13.00	-46.74	V
161.9200	-76.47	1.5	1.61	-76.36	-13.00	-63.36	V
243.4000	-84.3	1.82	5.43	-80.69	-13.00	-67.69	V
354.9500	-78.84	2.25	5.75	-75.34	-13.00	-62.34	V
450.9800	-80.43	2.59	5.74	-77.28	-13.00	-64.28	V
516.9400	-81.93	2.7	6.07	-78.56	-13.00	-65.56	V
95.9600	-51.41	1.13	0.26	-52.28	-13.00	-39.28	H
150.2800	-65.52	1.43	0.71	-66.24	-13.00	-53.24	H
256.0100	-76.02	1.88	5.63	-72.27	-13.00	-59.27	H
354.9500	-72.19	2.25	5.75	-68.69	-13.00	-55.69	H
448.0700	-75.61	2.58	5.74	-72.45	-13.00	-59.45	H
529.5500	-72.5	2.75	6	-69.25	-13.00	-56.25	H

**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*



**Above 1GHz**

**Operation Mode:** GSM 850 / TX / CH 128

**Test Date:** August 1, 2013

**Temperature:** 26°C

**Tested by:** David Shu

**Humidity:** 60 % RH

**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-49.83	5.05	6.03	-48.85	-13.00	-35.85	V
2092.000	-48.13	5.78	5.53	-48.38	-13.00	-35.38	V
4948.000	-35.1	9.33	10.52	-33.91	-13.00	-20.91	V
5767.000	-42.76	10.33	10.85	-42.24	-13.00	-29.24	V
N/A							
1651.000	-49.94	5.05	6.03	-48.96	-13.00	-35.96	H
2092.000	-51.56	5.78	5.53	-51.81	-13.00	-38.81	H
4948.000	-40.92	9.33	10.52	-39.73	-13.00	-26.73	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.





Operation Mode: GSM 850 / TX / CH 190

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2092.000	-48.48	5.78	5.53	-48.73	-13.00	-35.73	V
4185.000	-44.96	8.49	9.55	-43.90	-13.00	-30.90	V
5018.000	-33.72	9.42	10.61	-32.53	-13.00	-19.53	V
N/A							
1672.000	-50.53	5.07	5.99	-49.61	-13.00	-36.61	H
2512.000	-51.26	6.37	6.13	-51.50	-13.00	-38.50	H
5018.000	-39.76	9.42	10.61	-38.57	-13.00	-25.57	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GSM 850 / TX / CH 251

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-47.46	6.42	6.22	-47.66	-13.00	-34.66	V
3394.000	-46.32	7.56	8.58	-45.30	-13.00	-32.30	V
4241.000	-44.5	8.54	9.59	-43.45	-13.00	-30.45	V
5095.000	-30.03	9.45	10.64	-28.84	-13.00	-15.84	V
N/A							
1700.000	-49.68	5.11	5.94	-48.85	-13.00	-35.85	H
3394.000	-49.28	7.56	8.58	-48.26	-13.00	-35.26	H
5095.000	-37.2	9.45	10.64	-36.01	-13.00	-23.01	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 850 / TX / CH 128

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
4948.000	-40.96	9.33	10.52	-39.77	-13.00	-26.77	V
5767.000	-42.3	10.33	10.85	-41.78	-13.00	-28.78	V
N/A							
4948.000	-43.95	9.33	10.52	-42.76	-13.00	-29.76	H
6131.000	-41.86	10.81	11	-41.67	-13.00	-28.67	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 850 / TX / CH 190

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3345.000	-44.99	7.51	8.44	-44.06	-13.00	-31.06	V
5018.000	-38.3	9.42	10.61	-37.11	-13.00	-24.11	V
N/A							
3919.000	-44.49	8.38	9.32	-43.55	-13.00	-30.55	H
5018.000	-42.98	9.42	10.61	-41.79	-13.00	-28.79	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 850 / TX / CH 251

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-44.17	6.42	6.22	-44.37	-13.00	-31.37	V
3394.000	-42.01	7.56	8.58	-40.99	-13.00	-27.99	V
5095.000	-35.78	9.45	10.64	-34.59	-13.00	-21.59	V
N/A							
3807.000	-45.7	8.27	9.21	-44.76	-13.00	-31.76	H
5095.000	-41.81	9.45	10.64	-40.62	-13.00	-27.62	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GSM 1900 / TX / CH 512

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-33.76	8.2	9.1	-32.86	-13.00	-19.86	V
4185.000	-47.25	8.49	9.55	-46.19	-13.00	-33.19	V
5550.000	-30.54	10.06	10.81	-29.79	-13.00	-16.79	V
N/A							
3702.000	-34.56	8.2	9.1	-33.66	-13.00	-20.66	H
5550.000	-36.55	10.06	10.81	-35.80	-13.00	-22.80	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GSM 1900 / TX / CH 661

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-32.26	8.23	9.16	-31.33	-13.00	-18.33	V
5641.000	-35.37	10.18	10.83	-34.72	-13.00	-21.72	V
N/A							
3758.000	-33.93	8.23	9.16	-33.00	-13.00	-20.00	H
5641.000	-38.82	10.18	10.83	-38.17	-13.00	-25.17	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GSM 1900 / TX / CH 810

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3821.000	-31.11	8.29	9.22	-30.18	-13.00	-17.18	V
5732.000	-35.62	10.24	10.85	-35.01	-13.00	-22.01	V
N/A							
3702.000	-34.85	8.2	9.1	-33.95	-13.00	-20.95	H
5550.000	-35.98	10.06	10.81	-35.23	-13.00	-22.23	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “ N/A ” remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.





Operation Mode: GPRS 1900 / TX / CH 512

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-32.76	8.2	9.1	-31.86	-13.00	-18.86	V
5550.000	-29.84	10.06	10.81	-29.09	-13.00	-16.09	V
7398.000	-42.52	12.09	12.54	-42.07	-13.00	-29.07	V
N/A							
3702.000	-39.22	8.2	9.1	-38.32	-13.00	-25.32	H
5550.000	-35.52	10.06	10.81	-34.77	-13.00	-21.77	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 1900 / TX / CH 661

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-34.67	8.23	9.16	-33.74	-13.00	-20.74	V
5116.000	-48.07	9.47	10.65	-46.89	-13.00	-33.89	V
5641.000	-31.49	10.18	10.83	-30.84	-13.00	-17.84	V
N/A							
3758.000	-36.91	8.23	9.16	-35.98	-13.00	-22.98	H
5641.000	-37.08	10.18	10.83	-36.43	-13.00	-23.43	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: GPRS 1900 / TX / CH 810

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3821.000	-39.54	8.29	9.22	-38.61	-13.00	-25.61	V
5732.000	-36.43	10.24	10.85	-35.82	-13.00	-22.82	V
N/A							
3821.000	-42.04	8.29	9.22	-41.11	-13.00	-28.11	H
5732.000	-41.21	10.24	10.85	-40.60	-13.00	-27.60	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: EDGE 850 / TX / CH 128

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
4948.000	-42	9.33	10.52	-40.81	-13.00	-27.81	V
5767.000	-42.59	10.33	10.85	-42.07	-13.00	-29.07	V
N/A							
5466.000	-43.3	9.9	10.79	-42.41	-13.00	-29.41	H
6131.000	-42.46	10.81	11	-42.27	-13.00	-29.27	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser; with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: EDGE 850 / TX / CH 190

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
4185.000	-43.98	8.49	9.55	-42.92	-13.00	-29.92	V
5018.000	-38.3	9.42	10.61	-37.11	-13.00	-24.11	V
N/A							
4101.000	-44.13	8.46	9.48	-43.11	-13.00	-30.11	H
5018.000	-41.76	9.42	10.61	-40.57	-13.00	-27.57	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: EDGE 850 / TX / CH 251

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-46.21	6.42	6.22	-46.41	-13.00	-33.41	V
3394.000	-41.95	7.56	8.58	-40.93	-13.00	-27.93	V
5095.000	-35.97	9.45	10.64	-34.78	-13.00	-21.78	V
N/A							
5095.000	-41.86	9.45	10.64	-40.67	-13.00	-27.67	H
5788.000	-41.74	10.39	10.86	-41.27	-13.00	-28.27	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: EDGE 1900 / TX / CH 512

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-32.22	8.2	9.1	-31.32	-13.00	-18.32	V
5550.000	-29.45	10.06	10.81	-28.70	-13.00	-15.70	V
7398.000	-39.78	12.09	12.54	-39.33	-13.00	-26.33	V
N/A							
3702.000	-39.43	8.2	9.1	-38.53	-13.00	-25.53	H
5550.000	-34.71	10.06	10.81	-33.96	-13.00	-20.96	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: EDGE 1900 / TX / CH 661

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-33.41	8.23	9.16	-32.48	-13.00	-19.48	V
5641.000	-31.24	10.18	10.83	-30.59	-13.00	-17.59	V
N/A							
3758.000	-38.19	8.23	9.16	-37.26	-13.00	-24.26	H
5641.000	-36.24	10.18	10.83	-35.59	-13.00	-22.59	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.





Operation Mode: EDGE 1900 / TX / CH 810

Test Date: August 1, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3821.000	-39.47	8.29	9.22	-38.54	-13.00	-25.54	V
5732.000	-36.19	10.24	10.85	-35.58	-13.00	-22.58	V
N/A							
3821.000	-41.07	8.29	9.22	-40.14	-13.00	-27.14	H
5732.000	-41.99	10.24	10.85	-41.38	-13.00	-28.38	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA Band II / TX / CH 9262

Test Date: August 5, 2013

Temperature: 25°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2456.000	-41.06	6.28	6.04	-41.30	-13.00	-28.30	V
2883.000	-44.48	7.09	7.1	-44.47	-13.00	-31.47	V
3709.000	-38.58	8.21	9.11	-37.68	-13.00	-24.68	V
5557.000	-42.76	10.08	10.81	-42.03	-13.00	-29.03	V
N/A							
2456.000	-44.08	6.28	6.04	-44.32	-13.00	-31.32	H
2946.000	-46.19	7.09	7.26	-46.02	-13.00	-33.02	H
3709.000	-40.28	8.21	9.11	-39.38	-13.00	-26.38	H
5557.000	-45.68	10.08	10.81	-44.95	-13.00	-31.95	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA Band II / TX / CH 9400

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2456.000	-41.08	6.28	6.04	-41.32	-13.00	-28.32	V
2883.000	-44.58	7.09	7.1	-44.57	-13.00	-31.57	V
3758.000	-37.96	8.23	9.16	-37.03	-13.00	-24.03	V
5634.000	-45.48	10.18	10.83	-44.83	-13.00	-31.83	V
N/A							
2456.000	-45.46	6.28	6.04	-45.70	-13.00	-32.70	H
2946.000	-45.6	7.09	7.26	-45.43	-13.00	-32.43	H
3758.000	-39.59	8.23	9.16	-38.66	-13.00	-25.66	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA Band II / TX / CH 9538

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2456.000	-41.44	6.28	6.04	-41.68	-13.00	-28.68	V
2883.000	-44.63	7.09	7.1	-44.62	-13.00	-31.62	V
3709.000	-36.52	8.21	9.11	-35.62	-13.00	-22.62	V
5557.000	-41.91	10.08	10.81	-41.18	-13.00	-28.18	V
N/A							
2456.000	-44.1	6.28	6.04	-44.34	-13.00	-31.34	H
2946.000	-46.27	7.09	7.26	-46.10	-13.00	-33.10	H
3709.000	-40.05	8.21	9.11	-39.15	-13.00	-26.15	H
5557.000	-45.15	10.08	10.81	-44.42	-13.00	-31.42	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA Band V / TX / CH 4132

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2456.000	-41.61	6.28	6.04	-41.85	-13.00	-28.85	V
2883.000	-44.39	7.09	7.1	-44.38	-13.00	-31.38	V
4164.000	-48.7	8.48	9.53	-47.65	-13.00	-34.65	V
N/A							
2456.000	-44.03	6.28	6.04	-44.27	-13.00	-31.27	H
2946.000	-47.09	7.09	7.26	-46.92	-13.00	-33.92	H
4815.000	-52.68	9.31	10.3	-51.69	-13.00	-38.69	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA Band V / TX / CH 4182

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2456.000	-40.96	6.28	6.04	-41.20	-13.00	-28.20	V
2883.000	-44.76	7.09	7.1	-44.75	-13.00	-31.75	V
4164.000	-49.32	8.48	9.53	-48.27	-13.00	-35.27	V
N/A							
1497.000	-56.45	4.85	6.28	-55.02	-13.00	-42.02	H
2456.000	-45.28	6.28	6.04	-45.52	-13.00	-32.52	H
2946.000	-45.65	7.09	7.26	-45.48	-13.00	-32.48	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA Band V / TX / CH 4233

Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2456.000	-41.47	6.28	6.04	-41.71	-13.00	-28.71	V
2883.000	-44.59	7.09	7.1	-44.58	-13.00	-31.58	V
4164.000	-48.54	8.48	9.53	-47.49	-13.00	-34.49	V
N/A							
2456.000	-44.68	6.28	6.04	-44.92	-13.00	-31.92	H
2946.000	-46.26	7.09	7.26	-46.09	-13.00	-33.09	H
4164.000	-52.24	8.48	9.53	-51.19	-13.00	-38.19	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA / HSDPA Band II / TX / CH 9262 Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3709.000	-29.72	8.21	9.11	-28.82	-13.00	-15.82	V
5557.000	-44.11	10.08	10.81	-43.38	-13.00	-30.38	V
N/A							
3709.000	-37.36	8.21	9.11	-36.46	-13.00	-23.46	H
5557.000	-47.64	10.08	10.81	-46.91	-13.00	-33.91	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.





Operation Mode: WCDMA / HSDPA Band II / TX / CH 9400 Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-34.38	8.23	9.16	-33.45	-13.00	-20.45	V
5634.000	-44.68	10.18	10.83	-44.03	-13.00	-31.03	V
N/A							
3758.000	-41.78	8.23	9.16	-40.85	-13.00	-27.85	H
5634.000	-49.88	10.18	10.83	-49.23	-13.00	-36.23	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA / HSDPA Band II / TX / CH 9538 Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3814.000	-35.75	8.28	9.21	-34.82	-13.00	-21.82	V
5718.000	-42.79	10.21	10.84	-42.16	-13.00	-29.16	V
N/A							
3814.000	-40.9	8.28	9.21	-39.97	-13.00	-26.97	H
5725.000	-48.62	10.22	10.84	-48.00	-13.00	-35.00	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA / HSDPA Band V / TX / CH 4132 Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-57.22	5.05	6.03	-56.24	-13.00	-43.24	V
3905.000	-55.75	8.39	9.31	-54.83	-13.00	-41.83	V
N/A							
4696.000	-54.07	9.13	10.11	-53.09	-13.00	-40.09	H
6684.000	-49.64	11.29	11.52	-49.41	-13.00	-36.41	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA / HSDPA Band V / TX / CH 4182 Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1672.000	-50.26	5.07	5.99	-49.34	-13.00	-36.34	V
5081.000	-54.98	9.44	10.63	-53.79	-13.00	-40.79	V
N/A							
1672.000	-55.06	5.07	5.99	-54.14	-13.00	-41.14	H
3891.000	-55.17	8.38	9.29	-54.26	-13.00	-41.26	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



Operation Mode: WCDMA / HSDPA Band V / TX / CH 4233 Test Date: August 5, 2013

Temperature: 26°C

Tested by: David Shu

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1693.000	-51.07	5.1	5.95	-50.22	-13.00	-37.22	V
4801.000	-55.11	9.32	10.28	-54.15	-13.00	-41.15	V
N/A							
1693.000	-55.19	5.1	5.95	-54.34	-13.00	-41.34	H
4073.000	-55.13	8.43	9.46	-54.10	-13.00	-41.10	H
N/A							

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.



**Calculation of maximum antenna gain**

**GSM850**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	4948	-33.91	8.2	-25.71	-13	-12.71
Mid	5018	-32.53	8.2	-24.33	-13	-11.33
High	5095	-28.84	8.2	-20.64	-13	-7.64

**GPRS850**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	4948	-39.77	8.2	-31.57	-13	-18.57
Mid	5018	-37.11	8.2	-28.91	-13	-15.91
High	5095	-34.59	8.2	-26.39	-13	-13.39

**EDGE850**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	4948	-40.81	8.2	-32.61	-13	-19.61
Mid	5018	-37.11	8.2	-28.91	-13	-15.91
High	5095	-34.78	8.2	-26.58	-13	-13.58

**EDGE 1900**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	5550	-29.79	3.7	-26.09	-13	-13.09
Mid	3785	-31.33	3.7	-27.63	-13	-14.63
High	3821	-30.18	3.7	-26.48	-13	-13.48



**WCDMA BandII**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	3709	-37.68	10.22	-27.46	-13	-14.46
Mid	3785	-37.03	10.22	-26.81	-13	-13.81
High	3709	-35.62	10.22	-25.4	-13	-12.4

**WCDMA BandV**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	2456	-41.85	17.27	-24.58	-13	-11.58
Mid	2456	-41.2	17.27	-23.93	-13	-10.93
High	2456	-41.71	17.27	-24.44	-13	-11.44

**HSDPA Band II**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	3709	-28.82	10.22	-18.6	-13	-5.6
Mid	3758	-33.45	10.22	-23.23	-13	-10.23
High	3814	-34.82	10.22	-24.6	-13	-11.6

**HSDPA BandV**

Operation Mode	Frequency (MHz)	Emission level (dBm)	Max. Ant.Gain (dBi)	Result (dBm)	Limit (dBm)	Margin (dB)
Low	6684	-49.41	17.27	-32.14	-13	-19.14
Mid	1672	-49.34	17.27	-32.07	-13	-19.07
High	1693	-50.22	17.27	-32.95	-13	-19.95



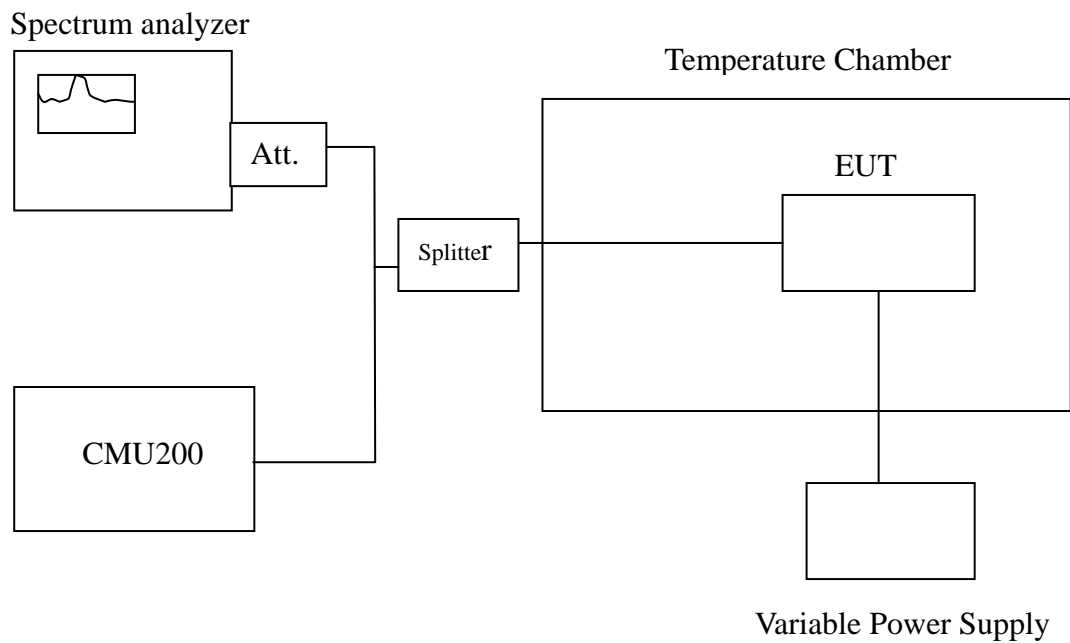
## 7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

### LIMIT

According to FCC §2.1055, FCC §24.235, RSS-132 (4.3) & RSS-133 (6.3).

Frequency Tolerance: 2.5 ppm

### Test Configuration



**Remark:** Measurement setup for testing on Antenna connector.





**TEST 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 20°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.

**TEST RESULTS**

No non-compliance noted.

Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	836599979	-35	2090
	40	836599976	-38	
	30	836599973	-41	
	20	836600014	0	
	10	836599990	-24	
	0	836599989	-25	
	-10	836599986	-28	
	-20	836599986	-28	
	-30	836599983	-31	

Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	1879999990	-41	4700
	40	1879999983	-48	
	30	1879999982	-49	
	20	1880000031	0	
	10	1879999991	-40	
	0	1879999980	-51	
	-10	1879999976	-55	
	-20	1879999978	-53	
	-30	1879999979	-52	



<b>Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C</b>				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	836599970	-38	2090
	40	836599967	-41	
	30	836599966	-42	
	20	836600008	0	
	10	836599982	-26	
	0	836599980	-28	
	-10	836599972	-36	
	-20	836599974	-34	
	-30	836599966	-42	

<b>Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C</b>				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	1879999992	-93	4700
	40	1879999993	-92	
	30	1879999998	-87	
	20	1880000085	0	
	10	1879999955	-130	
	0	1879999954	-131	
	-10	1879999943	-142	
	-20	1879999983	-102	
	-30	1879999975	-110	



Reference Frequency: EDGE Mid Channel 836.6 MHz @ 20°C				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	836599990	-35	2090
	40	836599992	-33	
	30	836599948	-77	
	20	836600025	0	
	10	836599955	-70	
	0	836599988	-37	
	-10	836599982	-43	
	-20	836599978	-47	
	-30	836599976	-49	

Reference Frequency: EDGE Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	1879999998	-17	4700
	40	1879999995	-20	
	30	1879999993	-22	
	20	1880000015	0	
	10	1879999997	-18	
	0	1879999988	-27	
	-10	1879999991	-24	
	-20	1879999990	-25	
	-30	1879999989	-26	



Reference Frequency: WCDMA Band V Mid Channel 836.6 MHz @ 20°C				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	836400000	-2	2090
	40	836399998	-4	
	30	836399999	-3	
	20	836400002	0	
	10	836399992	-10	
	0	836399996	-6	
	-10	836399994	-8	
	-20	836399989	-13	
	-30	836399998	-4	

Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	1879999993	-17	4700
	40	1879999992	-18	
	30	1879999988	-22	
	20	1880000010	0	
	10	1879999954	-56	
	0	1879999953	-57	
	-10	1879999980	-30	
	-20	1879999975	-35	
	-30	1879999972	-38	



<b>Reference Frequency: WCDMA / HSDPA Band V Mid Channel 836.6 MHz @ 20°C</b>				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	836399959	-107	2090
	40	836399995	-71	
	30	836399957	-109	
	20	836400066	0	
	10	836399993	-73	
	0	836399983	-83	
	-10	836399911	-155	
	-20	836399915	-151	
	-30	836399980	-86	

<b>Reference Frequency: WCDMA / HSDPA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.8	50	1879999997	-3	4700
	40	1879999993	-7	
	30	1879999967	-33	
	20	1880000000	0	
	10	1879999977	-23	
	0	1879999947	-53	
	-10	1879999972	-28	
	-20	1879999970	-30	
	-30	1879999945	-55	



## 7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

### LIMIT

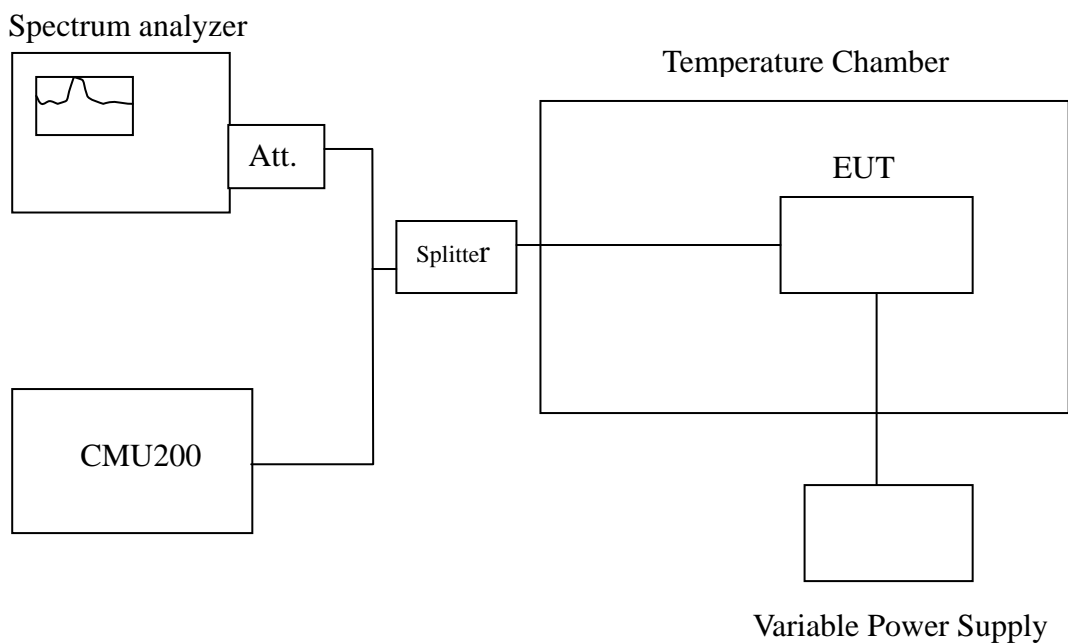
According to FCC §2.1055, FCC §24.235,

Frequency Tolerance: 2.5 ppm.

According to RSS-132 (4.3) & RSS-133 (6.3).

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations and  $\pm 1.0$  ppm for base stations.

### Test Configuration



**Remark:** Measurement setup for testing on Antenna connector.



**TEST PROCEDURE**

Set chamber temperature to 20°C. 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 specify extreme voltage variation (± 15%) and endpoint, record the maximum frequency change.

**TEST RESULTS**

*No non-compliance noted.*

Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	836600017	3	2090
3.8		836600014	0	
3.7		836600015	1	
3.7		836600016	2	

Reference Frequency: GSM Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	1880000030	-1	4700
3.8		1880000031	0	
3.7		1880000032	1	
3.7		1880000033	2	



Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	836600001	-7	2090
3.8		836600008	0	
3.7		836600006	-2	
3.7		836600007	-1	

Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	1880000074	-11	4700
3.8		1880000085	0	
3.7		1880000023	-62	
3.7		1880000012	-73	





Reference Frequency: EDGE Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	836600019	-6	2090
3.8		836600025	0	
3.7		836600005	-20	
3.7		836600009	-16	

Reference Frequency: EDGE Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	1880000014	-1	4700
3.8		1880000015	0	
3.7		1880000018	3	
3.7		1880000019	4	



Reference Frequency: WCDMA Band V Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2090Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	836400017	15	2090
3.8		836400002	0	
3.7		836400003	1	
3.7		836400005	3	

Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	1880000030	20	4700
3.8		1880000010	0	
3.7		1880000033	23	
3.7		1879999943	-67	



<b>Reference Frequency: WCDMA / HSDPA Band V Mid Channel 836.6 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 2090Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	836400011	-55	2090
3.8		836400066	0	
3.7		836400018	-48	
3.7		836400069	3	

<b>Reference Frequency: WCDMA / HSDPA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 4700Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.37	20	1880000023	23	4700
3.8		1880000000	0	
3.7		1880000003	3	
3.7		1880000001	1	