



**FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E**

**TEST REPORT**

**For**

**Mobile Computer**

**Model: CP60G**

**Trade Name: CIPHERLAB**

*Issued to*

**Cipherlab Co., Ltd.**

**12F, 333 Dunhua S. Rd., Sec.2, Taipei, Taiwan R.O.C.**

*Issued by*

**Compliance Certification Services Inc.**

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**Issued Date: April 2, 2013**



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**Revision History**

Rev.	Issue Date	Revisions	Effect Page	Revised By
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# 1. TEST RESULT CERTIFICATION

**Applicant:** CIPHERLAB Co., Ltd.  
12F, 333 Dunhua S. Rd., Sec.2, Taipei, Taiwan R.O.C.

**Equipment Under Test:** Mobile Computer

**Trade Name:** CIPHERLAB

**Model Number:** CP60G

**Date of Test:** March 30 ~ April 2, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 22 Subpart H & Part 24 Subpart E	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: 2004 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E.

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

Approved by:

Reviewed by:

\_\_\_\_\_  
Miller Lee  
Section Manager  
Compliance Certification Services Inc.

\_\_\_\_\_  
Gina Lo  
Section Manager  
Compliance Certification Services Inc.



## 2. EUT DESCRIPTION

<b>Product</b>	Mobile Computer
<b>Trade Name</b>	CIPHERLAB
<b>Model Number</b>	CP60G
<b>Received Date</b>	March 21, 2013
<b>Power Supply</b>	1. Vdc from Power Adapter Brand: Adapter Technology Co., LTD., Model: STD-05040T I/P: 100-240V, 47-63Hz, 0.58A MAX O/P: 5V, 4A, 20W MAX 2. Vdc from Battery a). Model: BA-0064A4 Rating: 3.7V, 4400mAh, 16.28Wh b) Model: BA-0063A6 Rating: 3.7V, 3600mAh, 13.32Wh
<b>Frequency Range</b>	TX: 824.2 ~ 848.8 MHz / 1850.2 ~ 1909.8 MHz RX: 869 ~ 894 MHz / 1930 ~ 1989.8 MHz GPRS / EDGE: 850: 824.2 ~ 848.8 MHz GPRS / EDGE: 1900: 1850.2 ~ 1909.8 MHz WCDMA / HSDPA / HSUPA Band II: 1852.4 ~ 1907.6 MHz WCDMA / HSDPA / HSUPA Band V: 826.4 ~ 846.6MHz
<b>Transmit Power (ERP &amp; EIRP Power)</b>	GPRS 850: 28.06 dBm GPRS 1900: 24.57 dBm EDGE 850: 28.05 dBm EDGE 1900: 24.88 dBm WCDMA Band II: 22.00 dBm HSDPA Band II: 22.60 dBm HSUPA Band II: 23.69 dBm WCDMA Band V: 22.45 dBm HSDPA Band V: 22.65 dBm HSUPA Band V: 23.00 dBm
<b>Modulation Technique</b>	GMSK
<b>Cellular Phone Protocol</b>	GSM: GMSK GPRS: GMSK EDGE: 8PSK WCDMA: Quadrature Phase Shift Keying (QPSK) with Root-raised cosine pulse shaping filters (roll off = 0.22)
<b>Type of Emission</b>	GPRS 850: 244KGXW--- GPRS 1900: 247KGXW--- EDGE 850: 242KG7W--- EDGE 1900: 247KG7W--- WCDMA Band II: 4M05F9W--- WCDMA Band V: 4M05F9W--- WCDMA HSDPA Band II: 4M05F9W--- WCDMA HSDPA Band V: 4M05F9W---



	WCDMA HSUPA Band II: 4M05F9W--- WCDMA HSUPA Band V: 4M04F9W---
<b>Antenna Gain</b>	GPRS / EDGE 850: 3.6 dBi GPRS / EDGE 1900: 5.2 dBi WCDMA band II: 5.2 dBi WCDMA band V: 3.6 dBi
<b>Antenna Type</b>	FPC Antenna

**Remark:**

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: Q3N-CP60G filing to comply with Part 22 and Part 24 of the FCC 47 CFR Rules.*



### **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, PART 22 SUBPART H AND PART 24 SUBPART E

#### **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: CP60G) had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed.

GSM / GPRS / EDGE 850:

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

GSM / GPRS / EDGE 1900:

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.

WCDMA / HSUPA 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.

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

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis).

The worst emission was found:

in lie-down (X axis) for GPRS 1900 / EDGE 1900

in lie-down (Y axis) for GPRS 850 / EDGE Band 850 / WCDMA Band V / HSDPA Band II / HSDPA Band V / HSUPA Band II / HSUPA Band V

in stand-up position (Z axis) for WCDMA Band II





## **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 # A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	101203	09/13/2013
LISN	R&S	ESH3-Z5	848773/014	12/10/2013
ISN	FCC	FCC-TLISN-T8-02-09	101131	09/05/2013

Wugu 966 Chamber A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	11/06/2013
Bilog Antenna	Sunol Sciences	JB3	A030105	10/02/2013
Horn Antenna	EMCO	3116	00026370	10/10/2013
Loop Antenna	EMCO	6502	8905/2356	06/10/2013
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
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

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 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 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 I for the actual connections between EUT and support equipment.

### 6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	FCC ID	Series No.	Data Cable	Power Cord
	N/A						

**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.



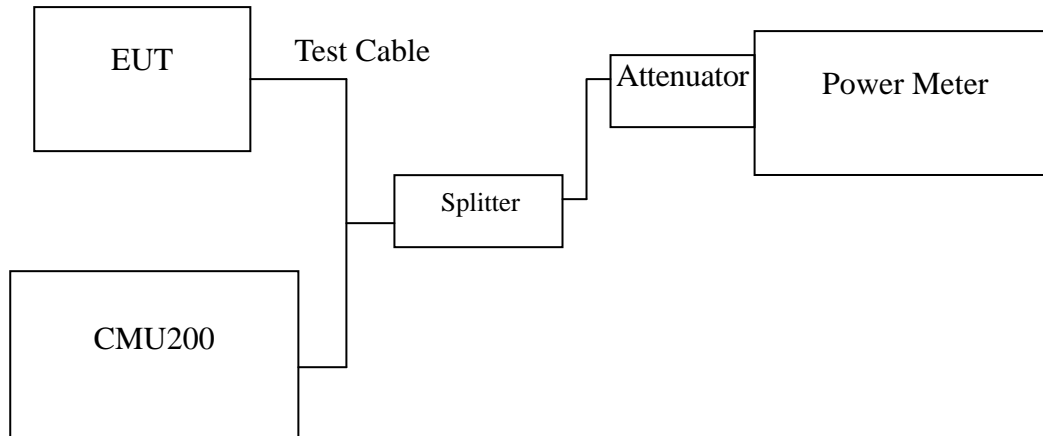
## 7. FCC PART 22 & 24 REQUIREMENTS

### 7.1 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
GPRS 850	128	824.20	32.50	1.77828
	190	836.60	32.50	1.77828
	251	848.80	32.70	<b>*1.86209</b>
EDGE 850	128	824.20	30.40	1.09648
	190	836.60	30.50	1.12202
	251	848.80	30.60	<b>*1.14815</b>

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
GPRS 1900	512	1850.20	29.70	0.93325
	661	1880.00	29.70	0.93325
	810	1909.80	29.80	<b>*0.95499</b>
EDGE 1900	512	1850.20	29.10	<b>*0.81283</b>
	661	1880.00	29.10	0.81283
	810	1909.80	29.10	0.81283

**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	26.42	0.43853
	9400	1880.00	26.48	0.44463
	9538	1907.60	26.51	<b>*0.44771</b>
WCDMA (BAND V)	4132	826.40	26.90	<b>*0.48978</b>
	4182	836.40	26.80	0.47863
	4233	846.60	26.50	0.44668

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
WCDMA / HSDPA (BAND II)	9262	1852.40	26.64	0.46132
	9400	1880.00	27.02	<b>*0.50350</b>
	9538	1907.60	26.94	0.49431
WCDMA / HSDPA (BAND V)	4132	826.40	27.64	<b>*0.58076</b>
	4182	836.40	27.62	0.57810
	4233	846.60	27.28	0.53456

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
WCDMA / HSUPA (BAND II)	9262	1852.40	26.82	0.48084
	9400	1880.00	27.04	0.50582
	9538	1907.60	27.05	<b>*0.50699</b>
WCDMA / HSUPA (BAND V)	4132	826.40	27.44	<b>*0.55463</b>
	4182	836.40	27.39	0.54828
	4233	846.60	27.21	0.52602

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

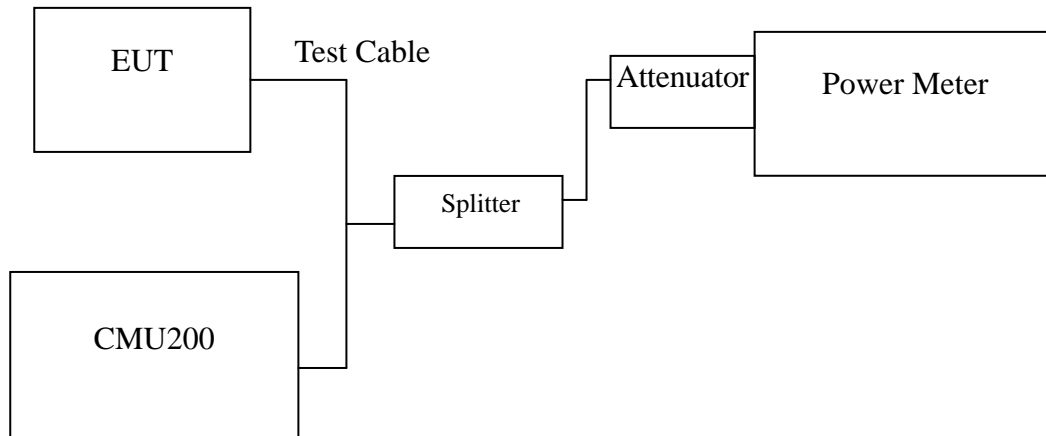


## 7.2 AVERAGE POWER

### 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)	AVG Power (dBm)	Output Power W
GPRS 850	128	824.20	26.48	0.44457
	190	836.60	26.48	0.44457
	251	848.80	26.68	<b>*0.46552</b>
EDGE 850	128	824.20	24.38	0.27412
	190	836.60	24.48	0.28050
	251	848.80	24.58	<b>*0.28704</b>

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
GPRS 1900	512	1850.20	23.68	0.23331
	661	1880.00	23.68	0.23331
	810	1909.80	23.78	<b>*0.23875</b>
EDGE 1900	512	1850.20	23.08	<b>*0.20321</b>
	661	1880.00	23.08	0.20321
	810	1909.80	23.08	0.20321

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



Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
WCDMA (BAND II)	9262	1852.40	23.55	<b>*0.22646</b>
	9400	1880.00	23.18	0.20797
	9538	1907.60	23.10	0.20417
WCDMA (BAND V)	4132	826.40	23.90	<b>*0.24547</b>
	4182	836.40	23.70	0.23442
	4233	846.60	23.70	0.23442

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
WCDMA / HSDPA (BAND II)	9262	1852.40	23.23	<b>*0.21038</b>
	9400	1880.00	23.07	0.20277
	9538	1907.60	23.10	0.20417
WCDMA / HSDPA (BAND V)	4132	826.40	23.50	<b>*0.22387</b>
	4182	836.40	23.35	0.21627
	4233	846.60	23.34	0.21577

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
WCDMA / HSUPA (BAND II)	9262	1852.40	22.94	<b>*0.19679</b>
	9400	1880.00	22.86	0.19320
	9538	1907.60	22.85	0.19275
WCDMA / HSUPA (BAND V)	4132	826.40	23.72	<b>*0.23550</b>
	4182	836.40	23.71	0.23496
	4233	846.60	23.53	0.22542

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



## 7.3 ERP & EIRP MEASUREMENT

### LIMIT

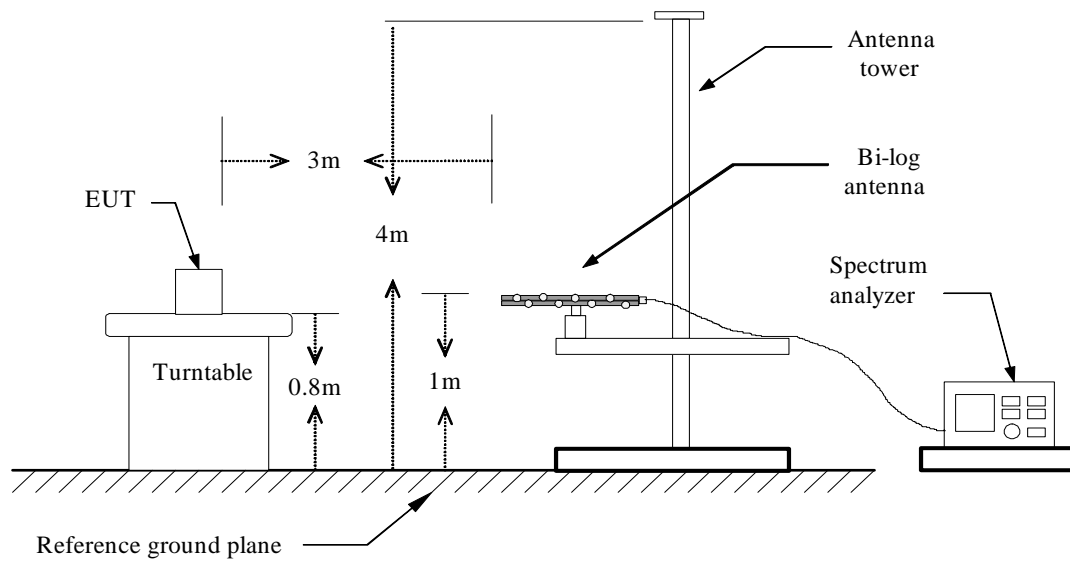
According to FCC §2.1046

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

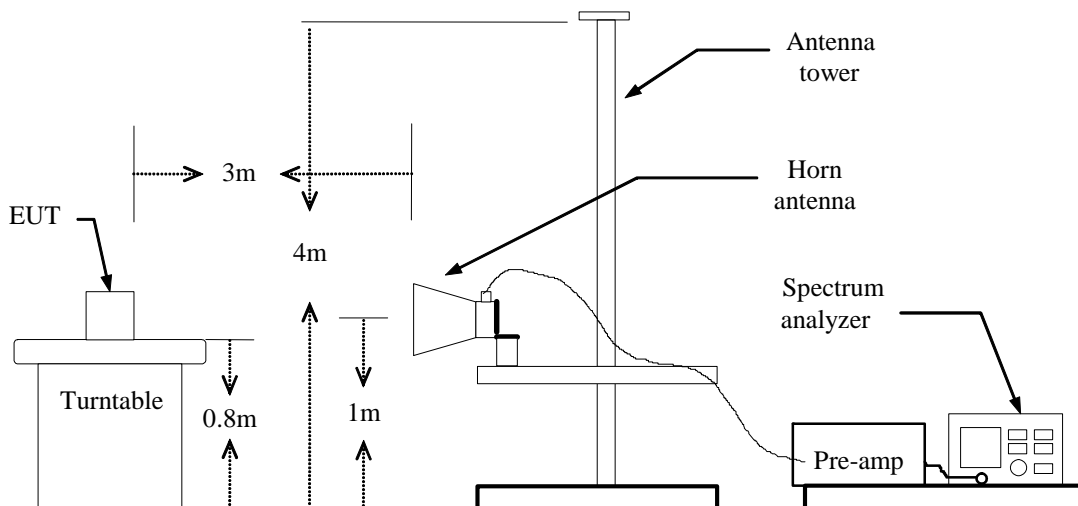
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

### Test Configuration

#### Below 1 GHz

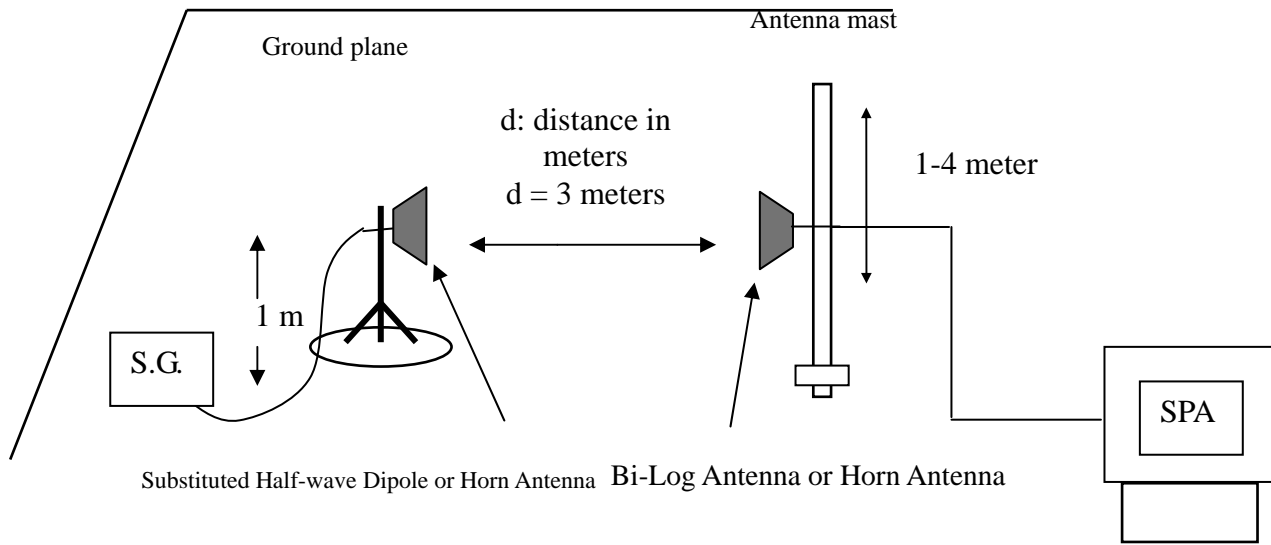


#### Above 1 GHz





### 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.*



**GPRS 850 TEST DATA**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Y	128	824.20	V	25.21	3.39	6.24	<b>*28.06</b>	38.45	-10.39
		824.20	H	22.2	3.39	6.24	25.05	38.45	-13.40
	190	836.60	V	16.03	3.4	6.37	19.00	38.45	-19.45
		836.60	H	16.01	3.4	6.37	18.98	38.45	-19.47
	251	848.80	V	15.23	3.4	6.4	18.23	38.45	-20.22
		848.80	H	15.14	3.4	6.4	18.14	38.45	-20.31

**GPRS 1900 TEST DATA**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
X	512	1850.20	V	23.57	5.37	5.67	23.87	33.00	-9.13
		1850.20	H	24.27	5.37	5.67	<b>*24.57</b>	33.00	-8.43
	661	1880.00	V	22.72	5.42	5.62	22.92	33.00	-10.08
		1880.00	H	20.68	5.42	5.62	20.88	33.00	-12.12
	810	1909.80	V	23.61	5.48	5.56	23.69	33.00	-9.31
		1909.80	H	18.45	5.48	5.56	18.53	33.00	-14.47



**EDGE 850 Test Data**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Y	128	824.20	V	25.2	3.39	6.24	<b>*28.05</b>	38.45	-10.40
		824.20	H	22.18	3.39	6.24	25.03	38.45	-13.42
	190	836.60	V	14.39	3.4	6.37	17.36	38.45	-21.09
		836.60	H	16.03	3.4	6.36	18.99	38.45	-19.46
	251	848.80	V	15.26	3.4	6.4	18.26	38.45	-20.19
		848.80	H	16.05	3.4	6.4	19.05	38.45	-19.40

**EDGE 1900 Test Data**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
X	512	1850.20	V	23.11	5.37	5.67	23.41	33.00	-9.59
		1850.20	H	24.58	5.37	5.67	<b>*24.88</b>	33.00	-8.12
	661	1880.00	V	21.68	5.42	5.62	21.88	33.00	-11.12
		1880.00	H	22.56	5.42	5.62	22.76	33.00	-10.24
	810	1909.80	V	23.51	5.48	5.56	23.59	33.00	-9.41
		1909.80	H	22.53	5.48	5.56	22.61	33.00	-10.39





**WCDMA Test Data (BAND II)**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Z	9262	1852.40	V	21.7	5.37	5.67	<b>*22.00</b>	33.00	-11.00
		1852.40	H	20.36	5.37	5.67	20.66	33.00	-12.34
	9400	1880.00	V	21.44	5.42	5.62	21.64	33.00	-11.36
		1880.00	H	19.55	5.42	5.61	19.74	33.00	-13.26
	9538	1907.60	V	21.9	5.47	5.57	22.00	33.00	-11.00
		1907.60	H	20	5.47	5.57	20.10	33.00	-12.90

**WCDMA Test Data (BAND V)**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Y	4132	826.40	V	18.19	3.39	6.27	21.07	38.45	-17.38
		826.40	H	13.54	3.39	6.27	16.42	38.45	-22.03
	4182	836.40	V	19.48	3.4	6.37	<b>*22.45</b>	38.45	-16.00
		836.40	H	14.07	3.4	6.37	17.04	38.45	-21.41
	4233	846.60	V	19.4	3.4	6.4	22.40	38.45	-16.05
		846.60	H	13.38	3.4	6.4	16.38	38.45	-22.07



**WCDMA / HSDPA BAND II Test Data**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Y	9262	1852.40	V	22.07	5.37	5.67	22.37	33.00	-10.63
		1852.40	H	21.58	5.38	5.66	21.86	33.00	-11.14
	9400	1880.00	V	21.1	5.42	5.61	21.29	33.00	-11.71
		1880.00	H	22.2	5.42	5.61	22.39	33.00	-10.61
	9538	1907.60	V	21.11	5.47	5.57	21.21	33.00	-11.79
		1907.60	H	22.5	5.47	5.57	<b>*22.60</b>	33.00	-10.40

**WCDMA / HSDPA BAND V Test Data**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Y	4132	826.40	V	18.89	3.39	6.27	21.77	38.45	-16.68
		826.40	H	14.11	3.39	6.28	17.00	38.45	-21.45
	4182	836.40	V	19.32	3.41	6.38	22.29	38.45	-16.16
		836.40	H	14.61	3.4	6.37	17.58	38.45	-20.87
	4233	846.60	V	19.65	3.4	6.4	<b>*22.65</b>	38.45	-15.80
		846.60	H	13.9	3.4	6.4	16.90	38.45	-21.55



**WCDMA / HSUPA BAND II Test Data**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Y	9262	1852.40	V	22.2	5.37	5.67	22.50	33.00	-10.50
		1852.40	H	23.31	5.37	5.67	23.61	33.00	-9.39
	9400	1880.00	V	20.94	5.42	5.61	21.13	33.00	-11.87
		1880.00	H	23.24	5.42	5.61	23.43	33.00	-9.57
	9538	1907.60	V	21.89	5.47	5.57	21.99	33.00	-11.01
		1907.60	H	23.59	5.47	5.57	<b>*23.69</b>	33.00	-9.31

**WCDMA / HSUPA BAND V Test Data**

EUT Pol.	Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
Y	4132	826.40	V	19.81	3.39	6.27	22.69	38.45	-15.76
		826.40	H	15.24	3.39	6.27	18.12	38.45	-20.33
	4182	836.40	V	19.96	3.4	6.37	22.93	38.45	-15.52
		836.40	H	14.29	3.4	6.37	17.26	38.45	-21.19
	4233	846.60	V	20	3.4	6.4	<b>*23.00</b>	38.45	-15.45
		846.60	H	13.7	3.4	6.4	16.70	38.45	-21.75

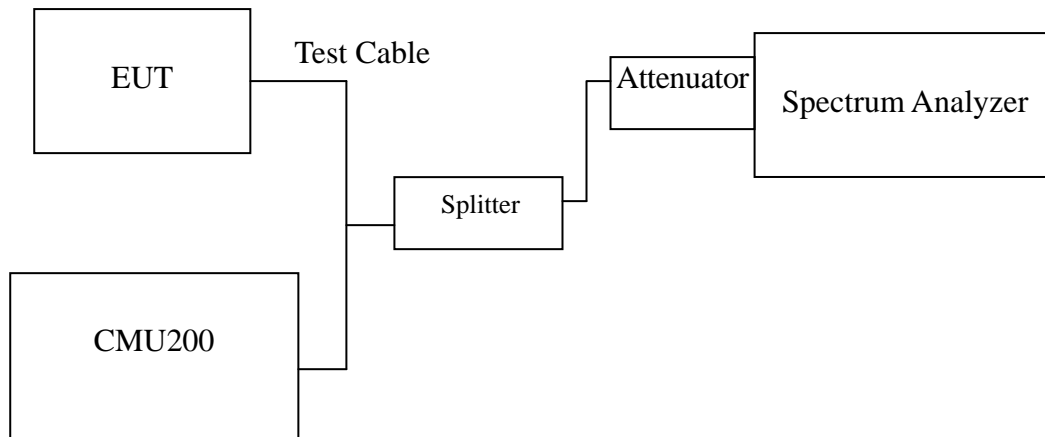


## 7.4 OCCUPIED BANDWIDTH MEASUREMENT

### LIMIT

According to §FCC 2.1049.

### Test Configuration



*Remark: Measurement setup for testing on Antenna connector*

### TEST PROCEDURE

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

### TEST RESULTS

*No non-compliance noted*



**Test Data**

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GPRS 850	128	824.20	241.0169
	190	836.60	241.1458
	251	848.80	244.1870
EDGE 850	128	824.20	241.3590
	190	836.60	236.3113
	251	848.80	242.0632

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GPRS 1900	512	1850.20	244.2765
	661	1880.00	245.7661
	810	1909.80	247.1369
EDGE 1900	512	1850.20	247.2149
	661	1880.00	242.8118
	810	1909.80	246.6542



Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)
WCDMA (Band II)	9262	1852.40	4.0521
	9400	1880.00	4.0401
	9538	1907.60	4.0283
WCDMA (Band V)	4132	826.40	4.0473
	4182	836.40	4.0457
	4233	846.60	4.0515
WCDMA / HSDPA (BAND II)	9262	1852.40	4.0530
	9400	1880.00	4.0329
	9538	1907.60	4.0289
WCDMA / HSDPA (BAND V)	4132	826.40	4.0393
	4182	836.40	4.0488
	4233	846.60	4.0507
WCDMA / HSUPA (BAND II)	9262	1852.40	4.0557
	9400	1880.00	4.0352
	9538	1907.60	4.0214
WCDMA / HSUPA (BAND V)	4132	826.40	4.0366
	4182	836.40	4.0418
	4233	846.60	4.0375

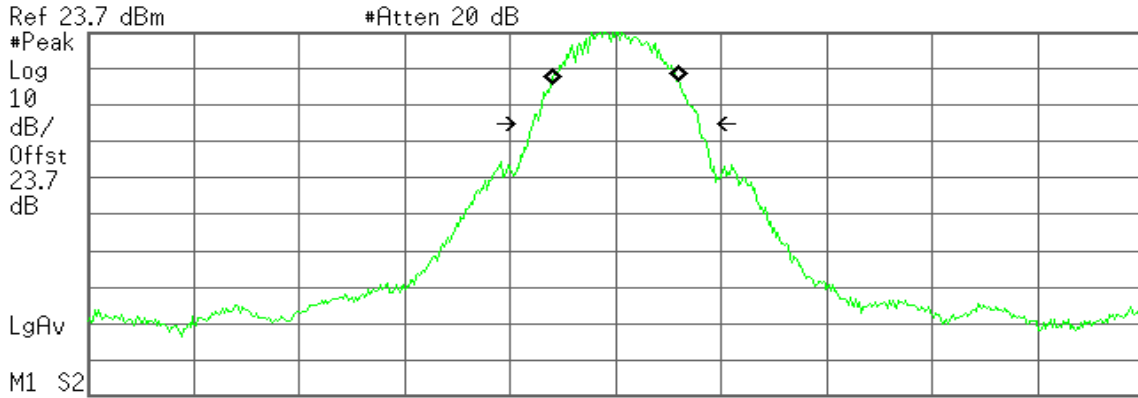


**Test Plot**

**GPRS 850 (CH Low)**

Agilent 10:15:17 Mar 30, 2013

R T



**Occupied Bandwidth**  
241.0169 kHz

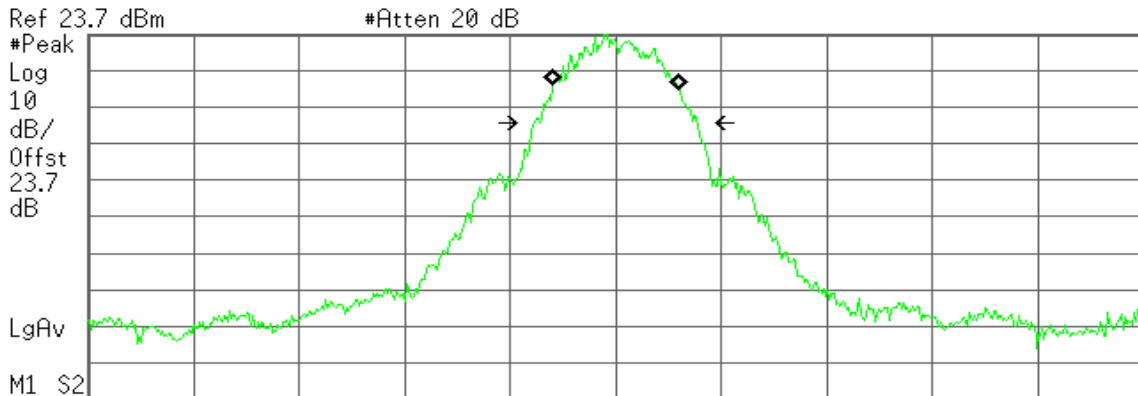
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -60.948 Hz  
**x dB Bandwidth** 315.174 kHz

**GPRS 850(CH Mid)**

Agilent 10:18:44 Mar 30, 2013

R T



**Occupied Bandwidth**  
241.1458 kHz

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

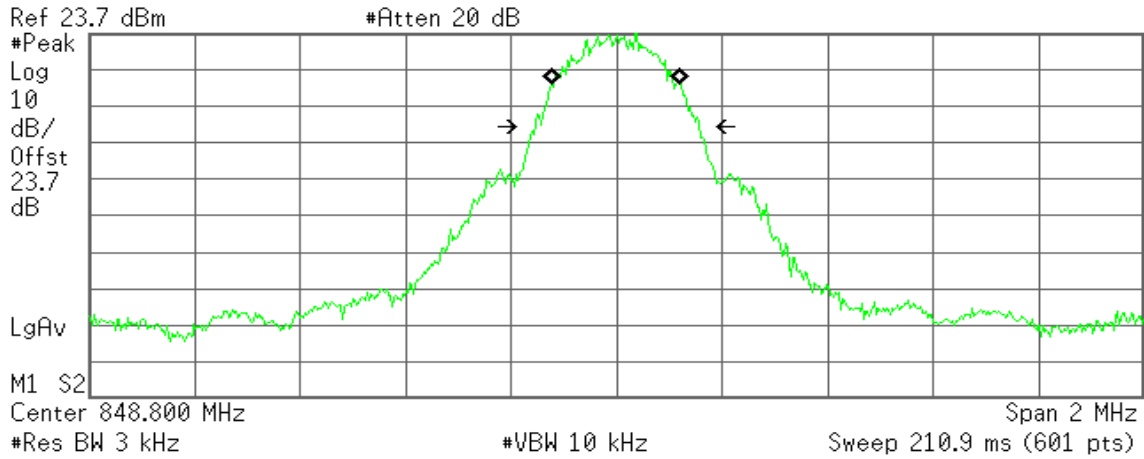
**Transmit Freq Error** 746.693 Hz  
**x dB Bandwidth** 310.269 kHz



### GPRS 850(CH High)

Agilent 10:19:39 Mar 30, 2013

R T



**Occupied Bandwidth**  
244.1870 kHz

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

**Transmit Freq Error** -486.336 Hz  
**x dB Bandwidth** 312.814 kHz

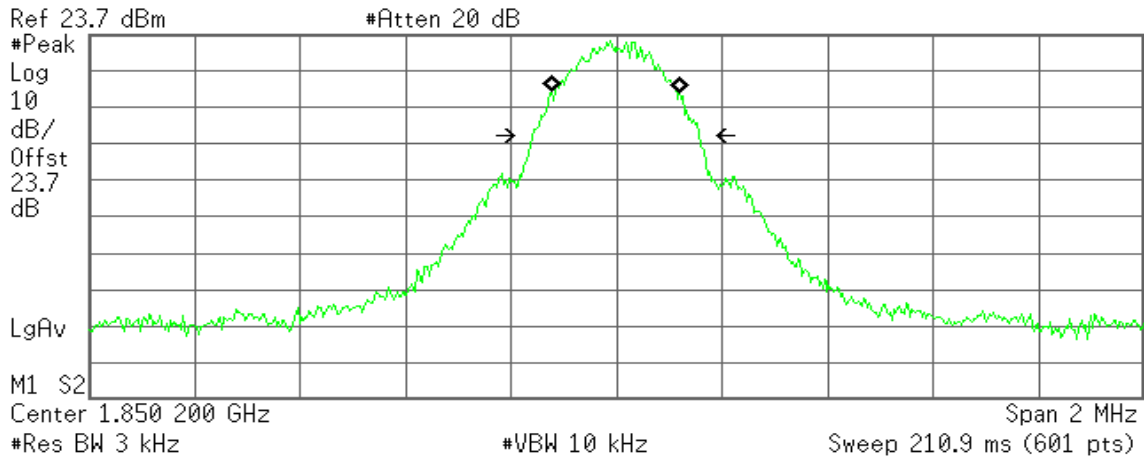




### GPRS 1900 (CH Low)

Agilent 10:29:44 Mar 30, 2013

R T



**Occupied Bandwidth**  
244.2765 kHz

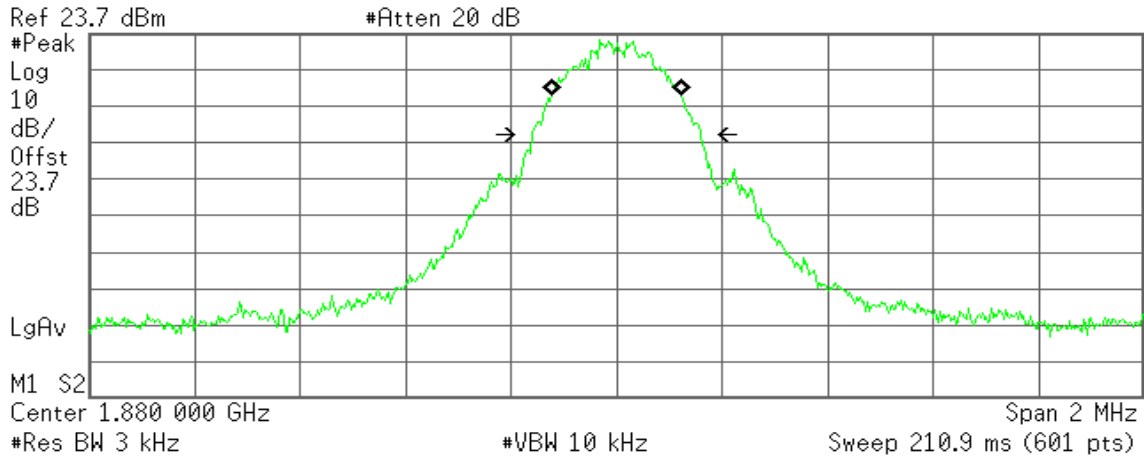
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -1.618 kHz  
**x dB Bandwidth** 316.882 kHz

### GPRS 1900 (CH Mid)

Agilent 10:31:59 Mar 30, 2013

R T



**Occupied Bandwidth**  
245.7661 kHz

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

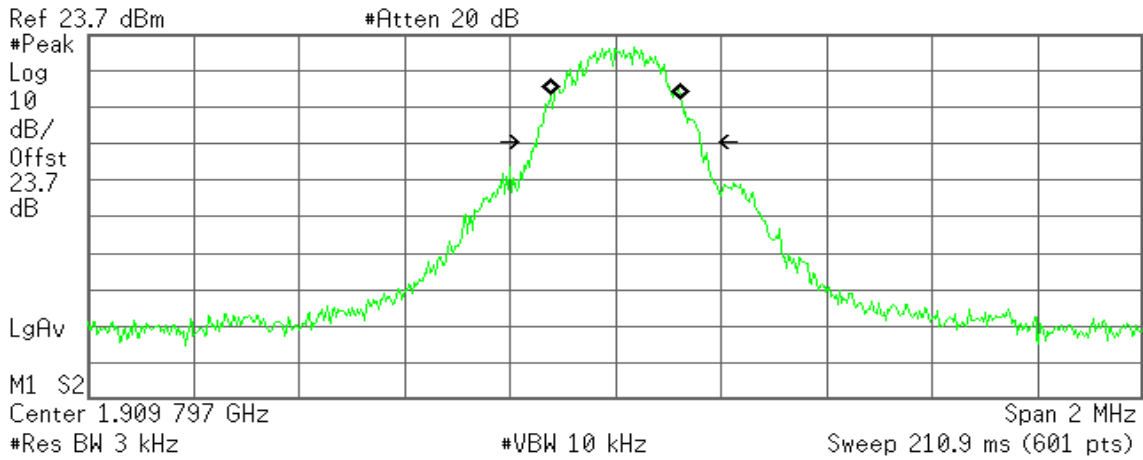
**Transmit Freq Error** -1.020 kHz  
**x dB Bandwidth** 320.769 kHz



### GPRS 1900 (CH High)

Agilent 10:32:41 Mar 30, 2013

R T



Occupied Bandwidth  
247.1369 kHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

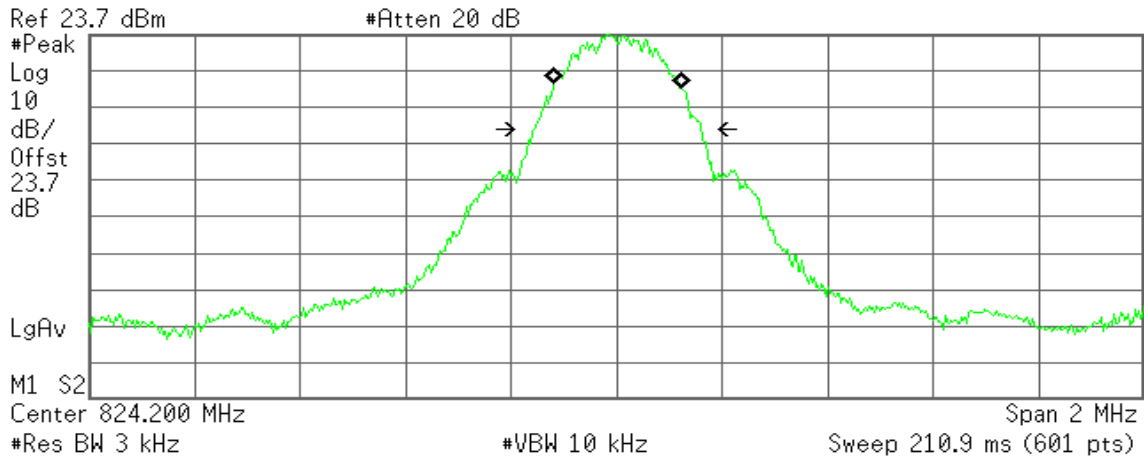
Transmit Freq Error 381.424 Hz  
x dB Bandwidth 311.179 kHz



### EDGE 850 (CH Low)

Agilent 10:16:52 Mar 30, 2013

R T



Occupied Bandwidth  
241.3590 kHz

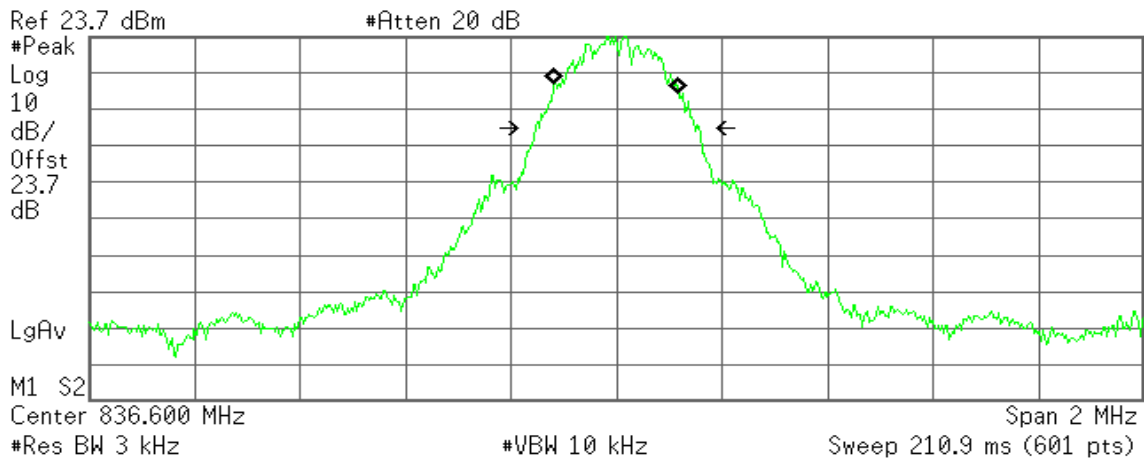
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error 1.506 kHz  
x dB Bandwidth 319.938 kHz

### EDGE 850 (CH Mid)

Agilent 10:18:09 Mar 30, 2013

R T



Occupied Bandwidth  
236.3113 kHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

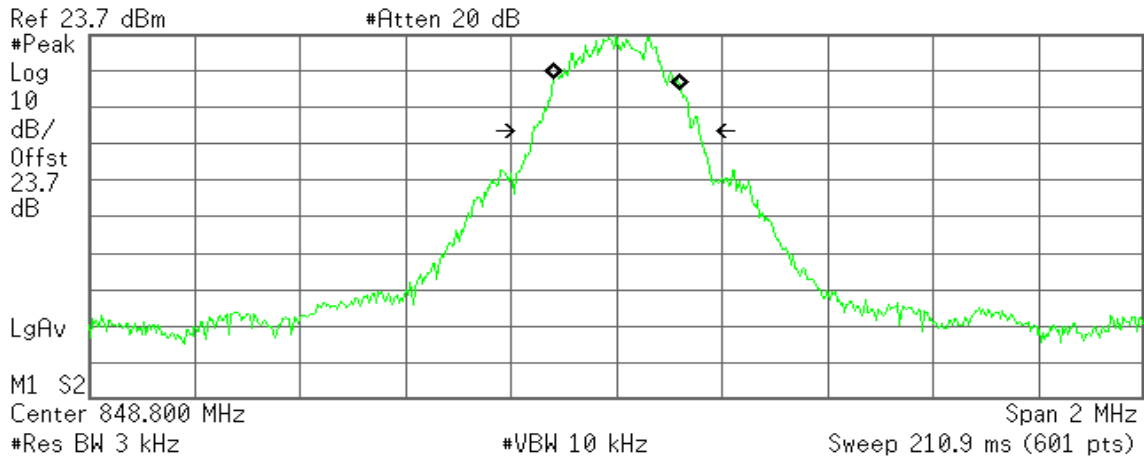
Transmit Freq Error -226.243 Hz  
x dB Bandwidth 312.128 kHz



### EDGE 850 (CH High)

Agilent 10:20:10 Mar 30, 2013

R T



**Occupied Bandwidth**  
242.0632 kHz

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

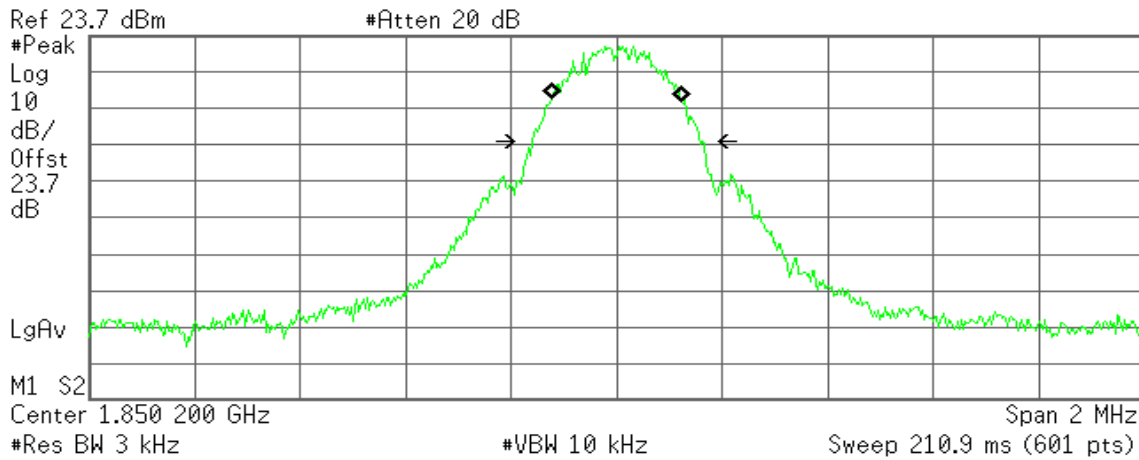
**Transmit Freq Error** 514.197 Hz  
**x dB Bandwidth** 315.111 kHz



### EDGE 1900 (CH Low)

Agilent 10:30:38 Mar 30, 2013

R T



**Occupied Bandwidth**  
247.2149 kHz

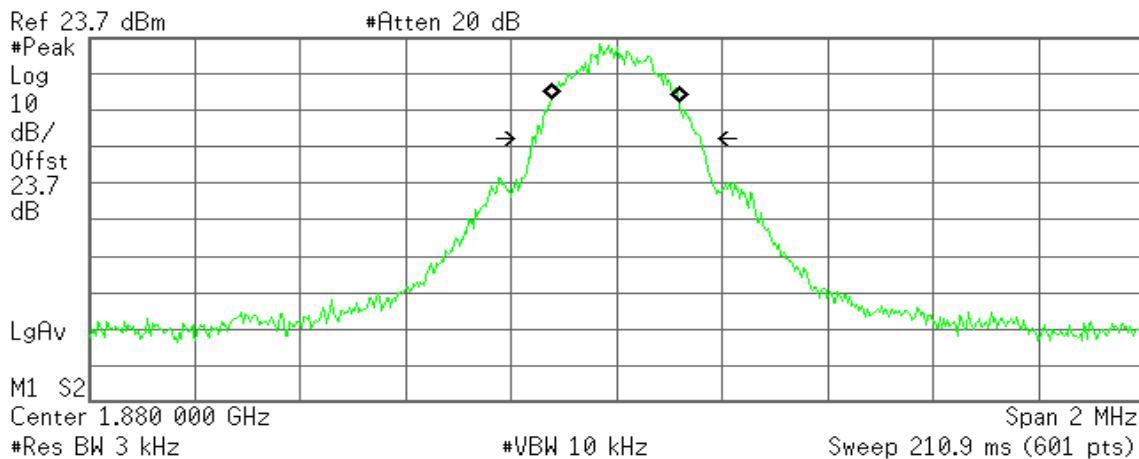
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -28.535 Hz  
**x dB Bandwidth** 318.612 kHz

### EDGE 1900 (CH Mid)

Agilent 10:31:33 Mar 30, 2013

R T



**Occupied Bandwidth**  
242.8118 kHz

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

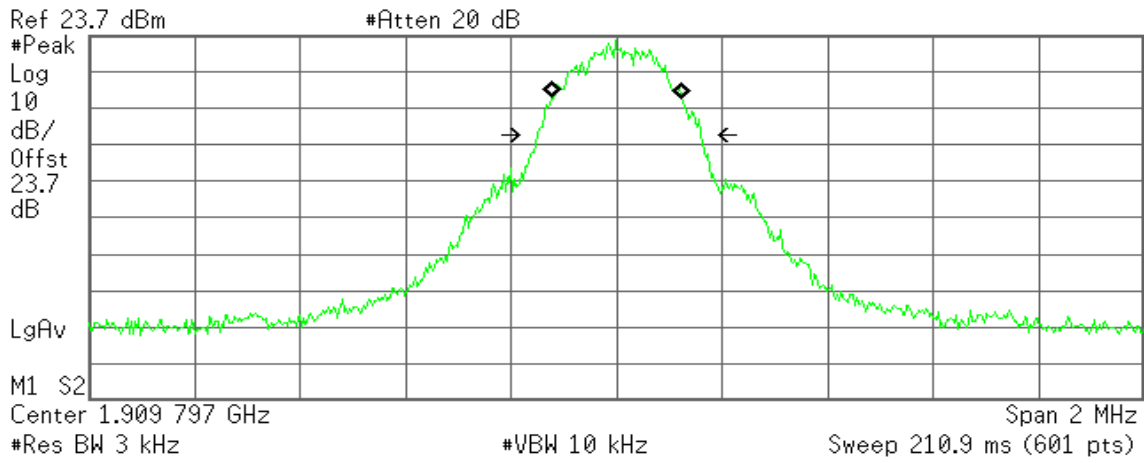
**Transmit Freq Error** -2.578 kHz  
**x dB Bandwidth** 320.769 kHz



### EDGE 1900 (CH High)

Agilent 10:33:02 Mar 30, 2013

R T



**Occupied Bandwidth**  
246.6542 kHz

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

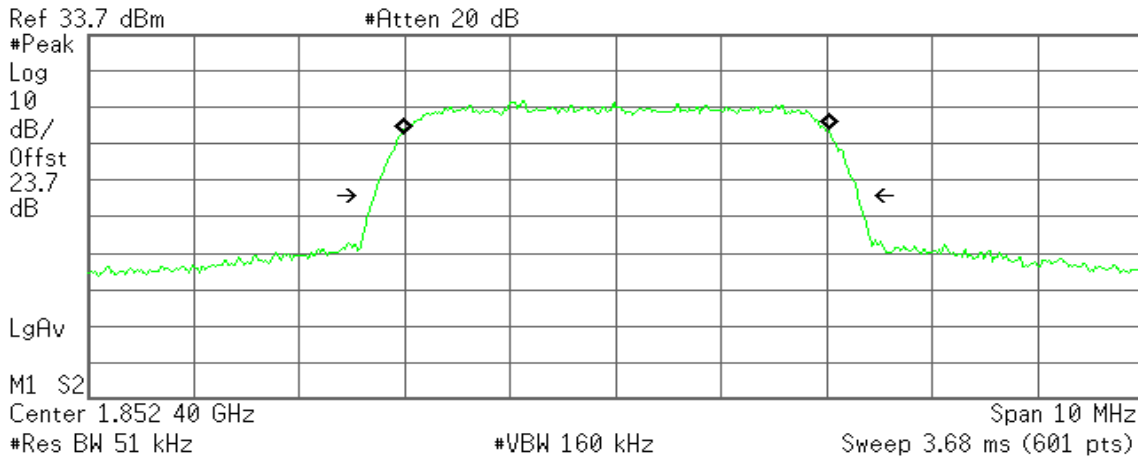
**Transmit Freq Error** 1.388 kHz  
**x dB Bandwidth** 310.736 kHz



### WCDMA Band II (CH Low)

Agilent 13:55:14 Mar 30, 2013

R T



Occupied Bandwidth  
4.0521 MHz

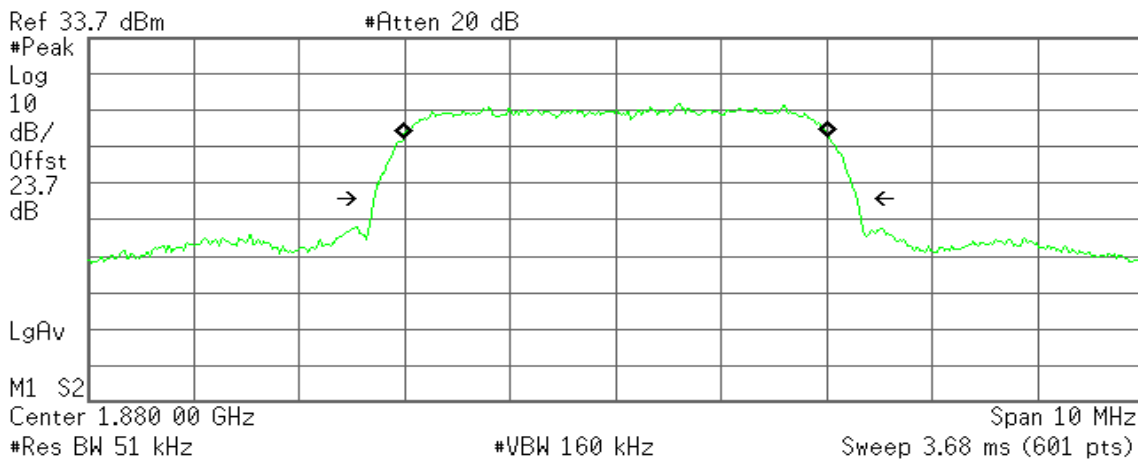
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error 3.140 kHz  
x dB Bandwidth 4.599 MHz

### WCDMA Band II (CH Mid)

Agilent 13:56:56 Mar 30, 2013

R T



Occupied Bandwidth  
4.0401 MHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

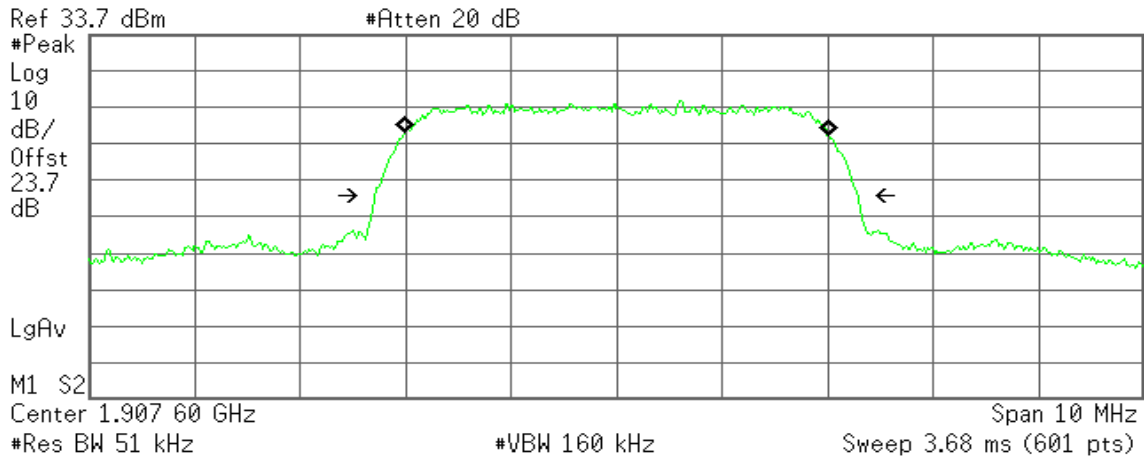
Transmit Freq Error 2.013 kHz  
x dB Bandwidth 4.590 MHz



### WCDMA Band II (CH High)

Agilent 13:57:40 Mar 30, 2013

R T



**Occupied Bandwidth**  
4.0283 MHz

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

**Transmit Freq Error** -3.030 kHz  
**x dB Bandwidth** 4.590 MHz

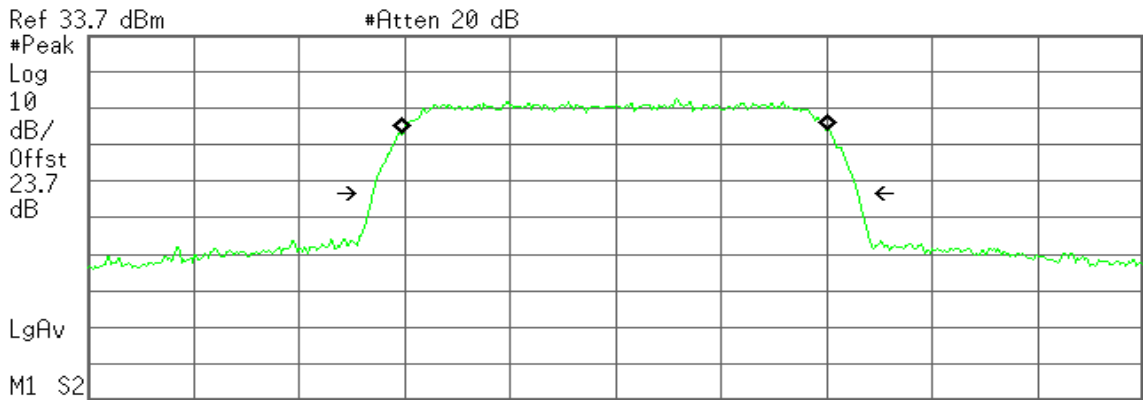




### WCDMA Band V (CH Low)

Agilent 14:08:34 Mar 30, 2013

R T



Center 826.40 MHz Span 10 MHz  
 #Res BW 51 kHz #VBW 160 kHz Sweep 3.68 ms (601 pts)

**Occupied Bandwidth**  
**4.0473 MHz**

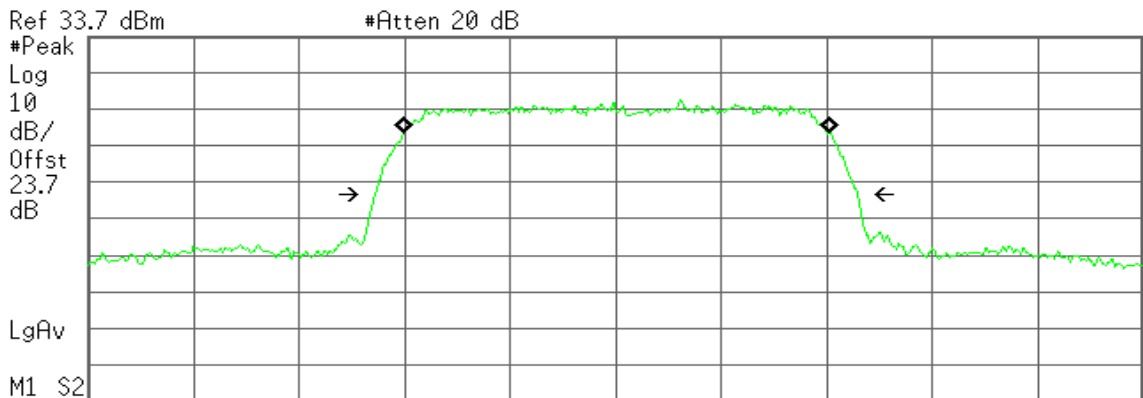
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -1.666 kHz  
**x dB Bandwidth** 4.611 MHz

### WCDMA Band V (CH Mid)

Agilent 14:06:56 Mar 30, 2013

R T



Center 836.40 MHz Span 10 MHz  
 #Res BW 51 kHz #VBW 160 kHz Sweep 3.68 ms (601 pts)

**Occupied Bandwidth**  
**4.0457 MHz**

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

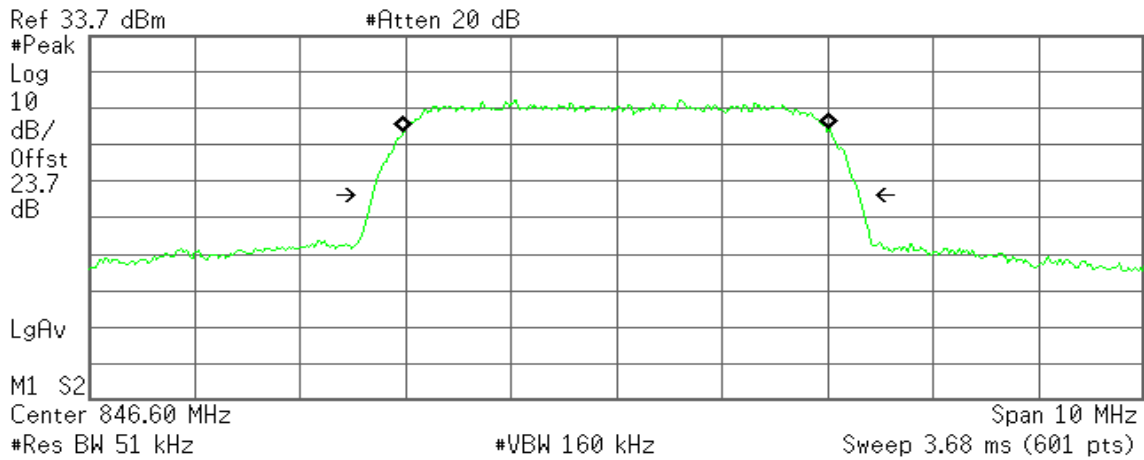
**Transmit Freq Error** 8.047 kHz  
**x dB Bandwidth** 4.587 MHz



### WCDMA Band V (CH High)

Agilent 14:06:01 Mar 30, 2013

R T



Occupied Bandwidth  
4.0515 MHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

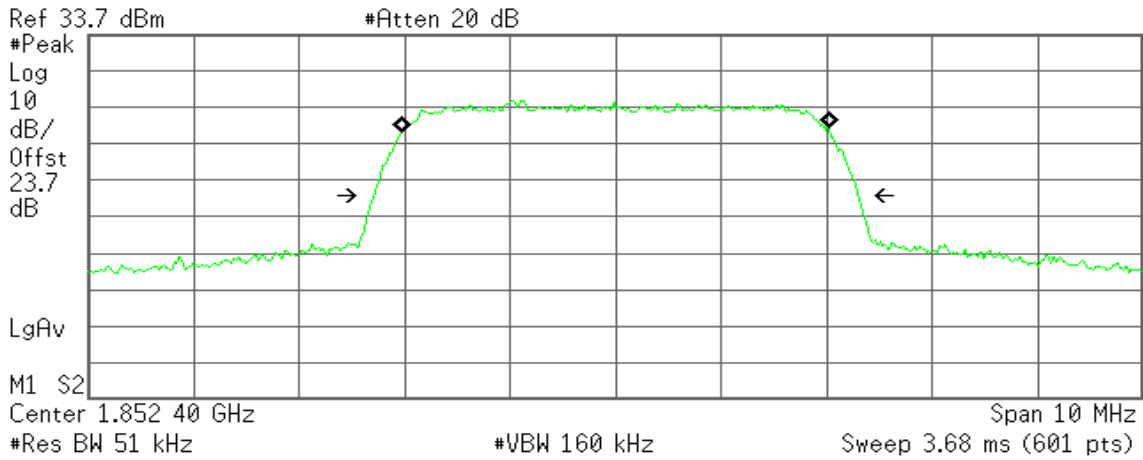
Transmit Freq Error -1.101 kHz  
x dB Bandwidth 4.619 MHz



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

Agilent 13:55:47 Mar 30, 2013

R T



Occupied Bandwidth  
4.0530 MHz

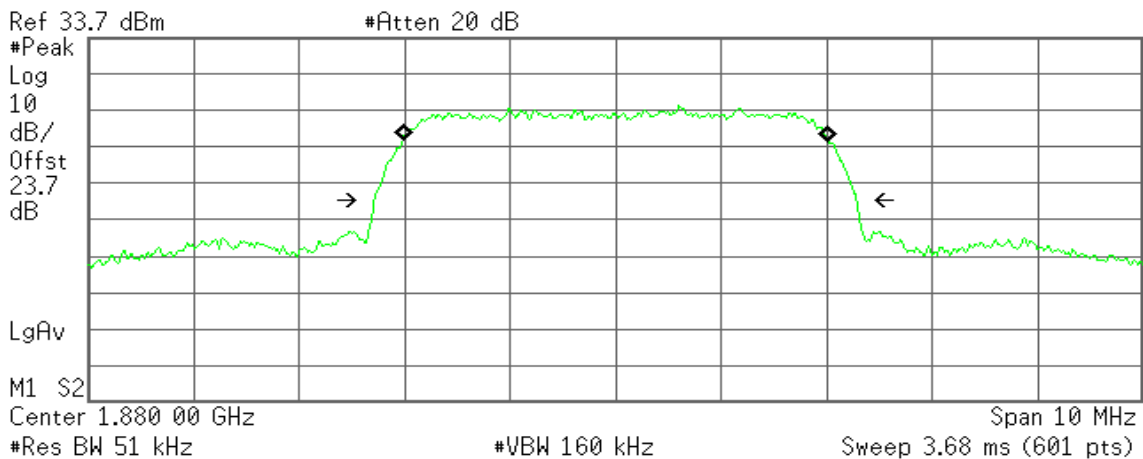
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error 1.281 kHz  
x dB Bandwidth 4.600 MHz

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

Agilent 13:56:28 Mar 30, 2013

R T



Occupied Bandwidth  
4.0329 MHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

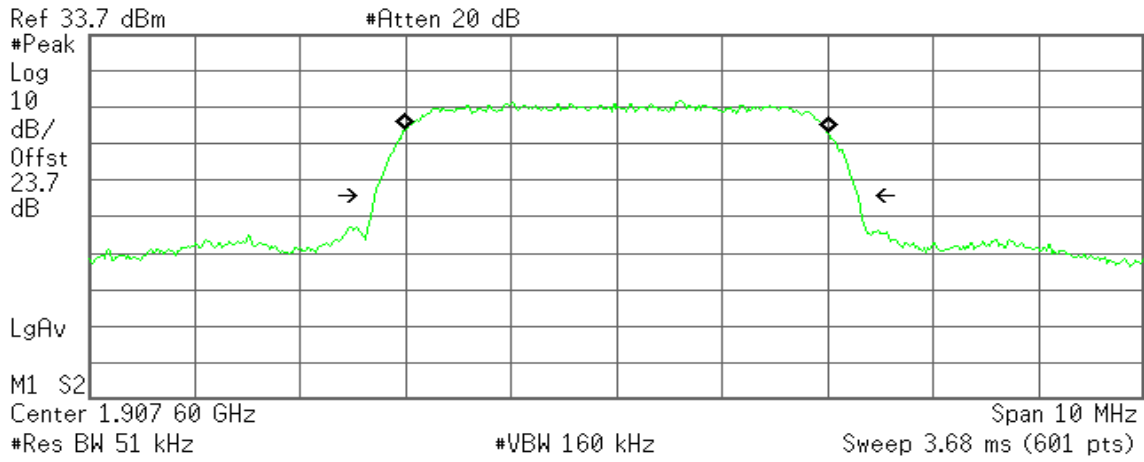
Transmit Freq Error 3.712 kHz  
x dB Bandwidth 4.588 MHz



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

Agilent 13:58:11 Mar 30, 2013

R T



**Occupied Bandwidth**  
4.0289 MHz

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

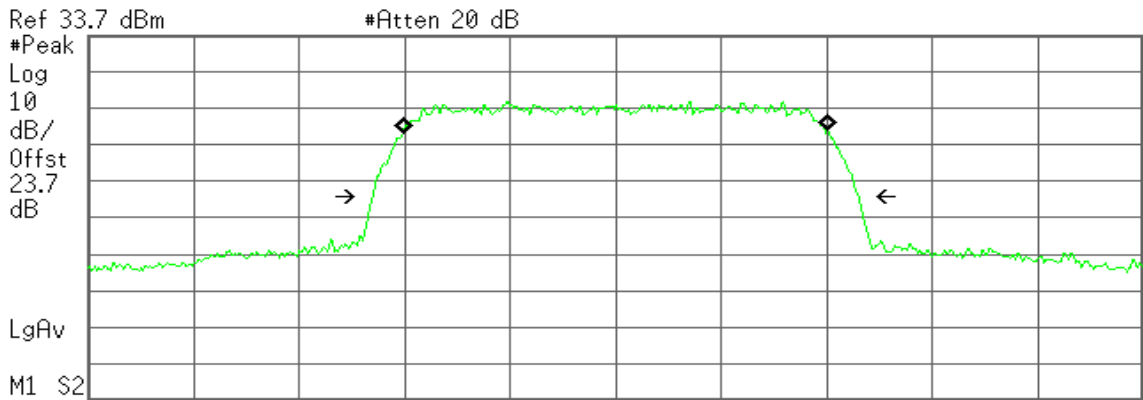
**Transmit Freq Error** -3.443 kHz  
**x dB Bandwidth** 4.591 MHz



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

Agilent 14:08:07 Mar 30, 2013

R T



Center 826.40 MHz Span 10 MHz  
#Res BW 51 kHz #VBW 160 kHz Sweep 3.68 ms (601 pts)

**Occupied Bandwidth**  
4.0393 MHz

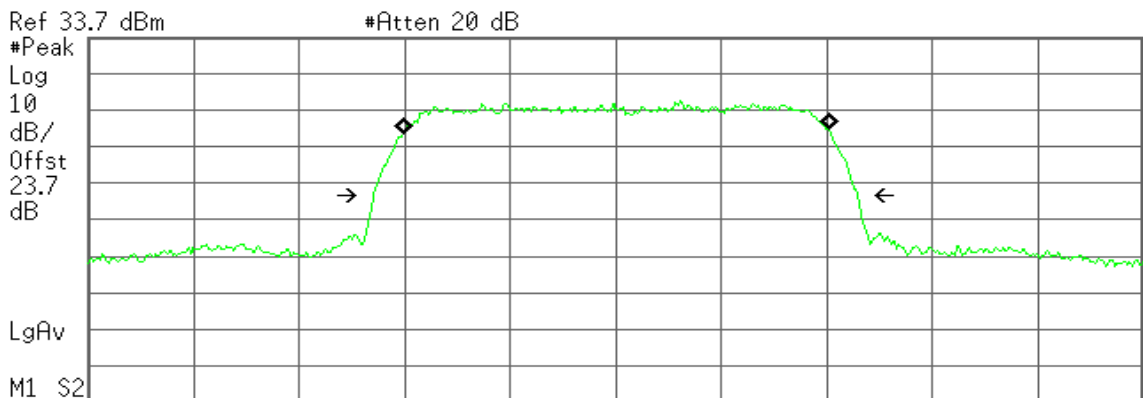
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -1.967 kHz  
**x dB Bandwidth** 4.620 MHz

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

Agilent 14:07:20 Mar 30, 2013

R T



Center 836.40 MHz Span 10 MHz  
#Res BW 51 kHz #VBW 160 kHz Sweep 3.68 ms (601 pts)

**Occupied Bandwidth**  
4.0488 MHz

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

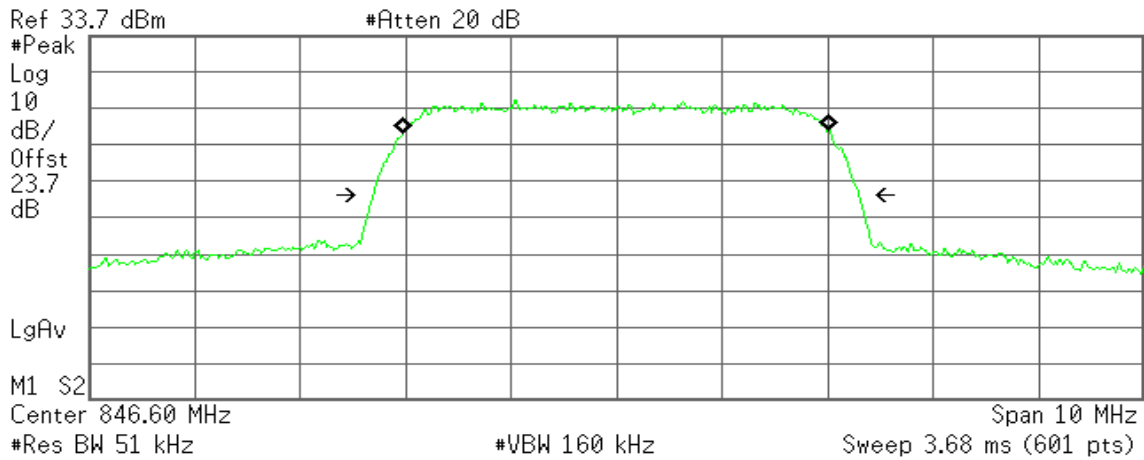
**Transmit Freq Error** 3.173 kHz  
**x dB Bandwidth** 4.601 MHz



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

Agilent 14:05:46 Mar 30, 2013

R T



**Occupied Bandwidth**  
4.0507 MHz

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

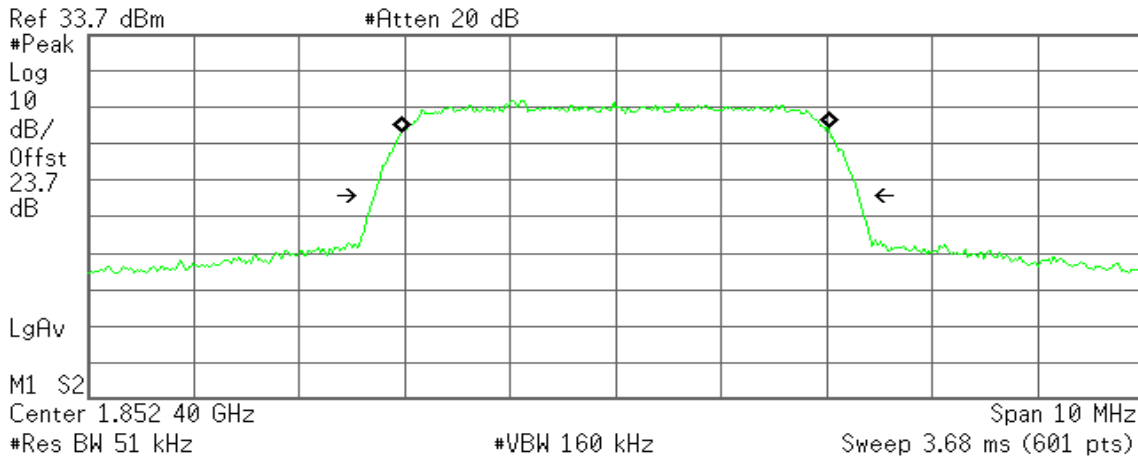
**Transmit Freq Error** -4.514 kHz  
**x dB Bandwidth** 4.614 MHz



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

Agilent 13:55:32 Mar 30, 2013

R T



Occupied Bandwidth  
4.0557 MHz

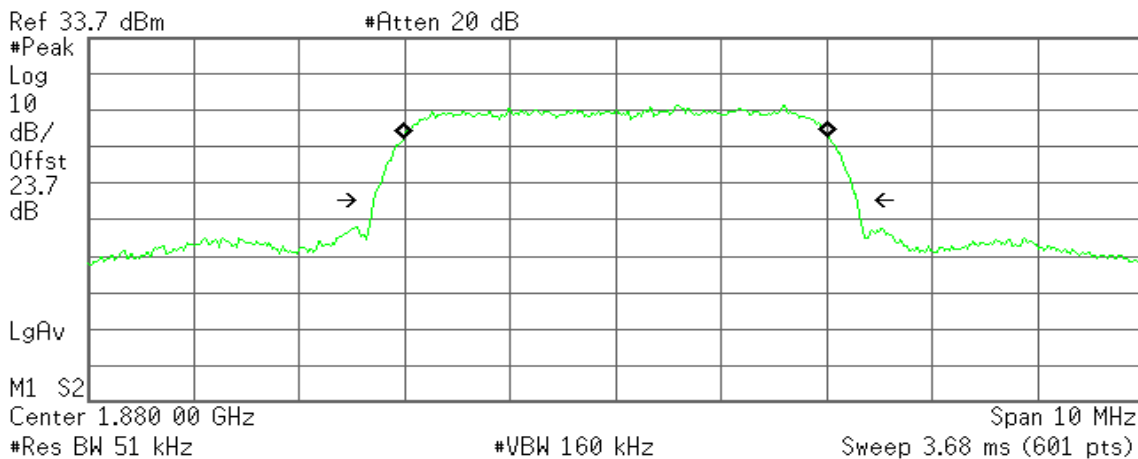
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error 1.319 kHz  
x dB Bandwidth 4.597 MHz

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

Agilent 13:56:44 Mar 30, 2013

R T



Occupied Bandwidth  
4.0352 MHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

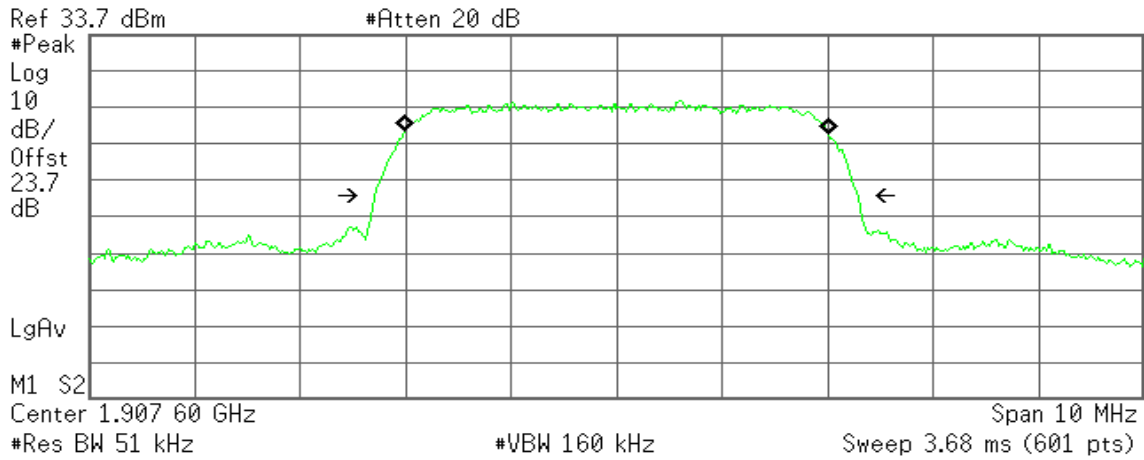
Transmit Freq Error 4.811 kHz  
x dB Bandwidth 4.591 MHz



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

Agilent 13:58:00 Mar 30, 2013

R T



**Occupied Bandwidth**  
4.0214 MHz

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

**Transmit Freq Error** -923.072 Hz  
**x dB Bandwidth** 4.591 MHz

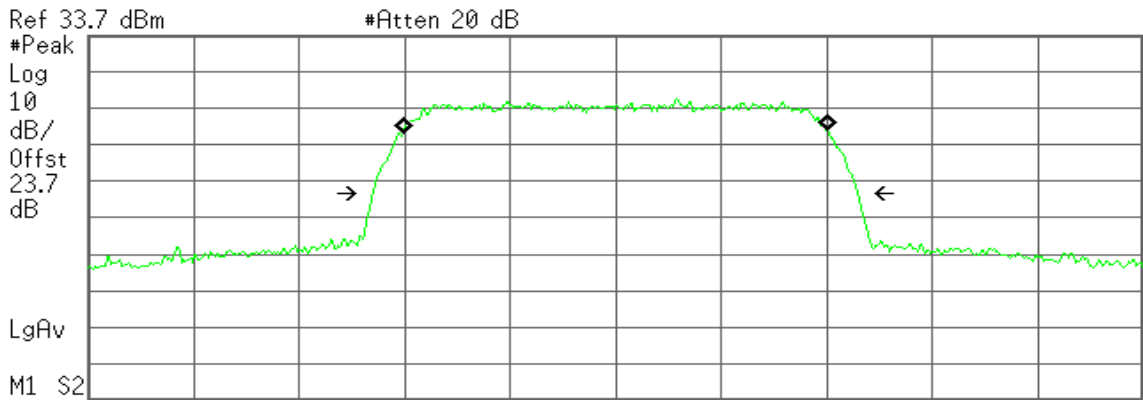




### WCDMA / HSUPA Band V (CH Low).

Agilent 14:08:23 Mar 30, 2013

R T



Center 826.40 MHz Span 10 MHz  
#Res BW 51 kHz #VBW 160 kHz Sweep 3.68 ms (601 pts)

**Occupied Bandwidth**  
4.0366 MHz

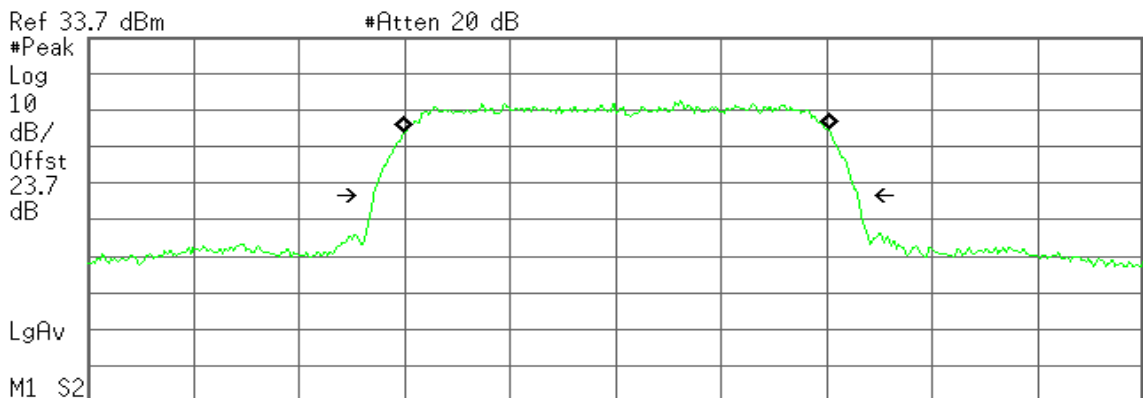
**Occ BW % Pwr** 99.00 %  
**x dB** -26.00 dB

**Transmit Freq Error** -5.951 kHz  
**x dB Bandwidth** 4.611 MHz

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

Agilent 14:07:09 Mar 30, 2013

R T



Center 836.40 MHz Span 10 MHz  
#Res BW 51 kHz #VBW 160 kHz Sweep 3.68 ms (601 pts)

**Occupied Bandwidth**  
4.0418 MHz

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

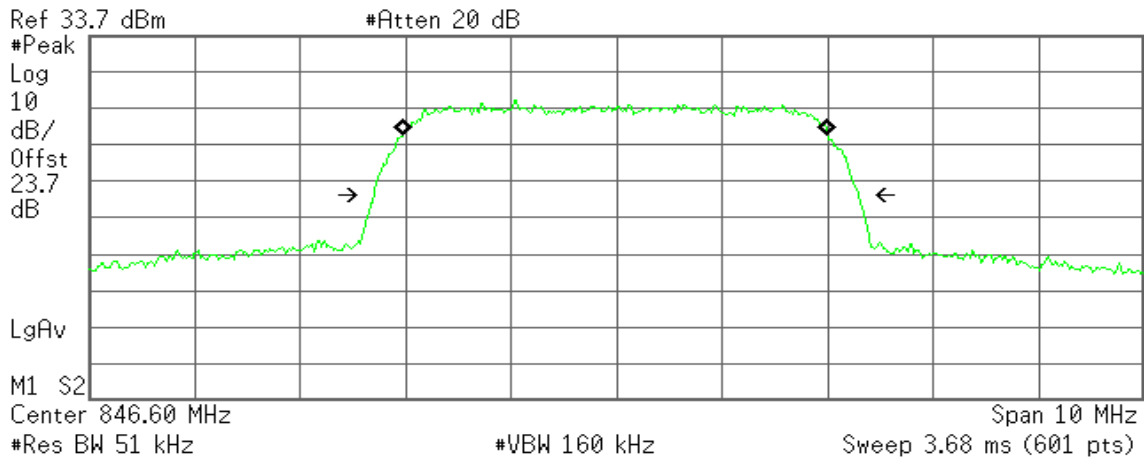
**Transmit Freq Error** 7.997 kHz  
**x dB Bandwidth** 4.601 MHz



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

Agilent 14:05:32 Mar 30, 2013

R T



**Occupied Bandwidth**  
4.0375 MHz

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

**Transmit Freq Error** -13.818 kHz  
**x dB Bandwidth** 4.609 MHz



## 7.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS

### LIMIT

According to FCC §2.1051, FCC §22.917, FCC §24.238(a).

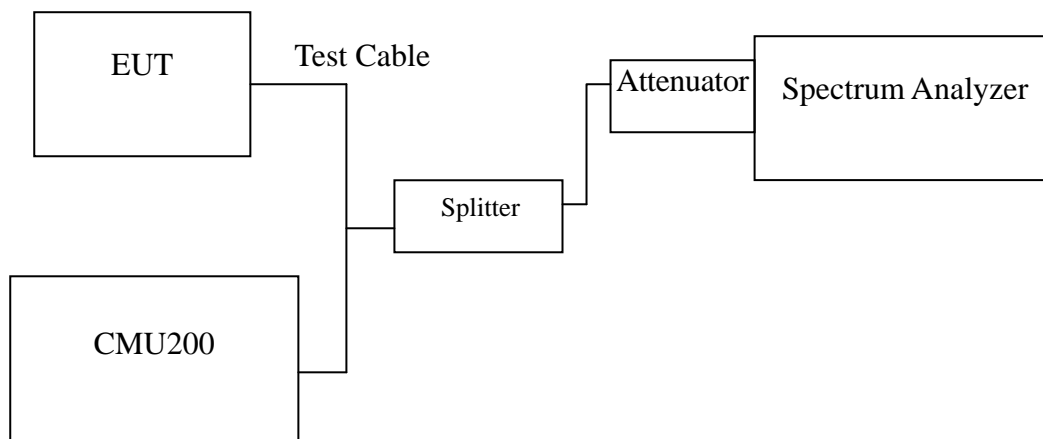
**Out of Band Emissions:** The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least  $43 + 10 \log P$  dB.

**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
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
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
GPRS 850	128	Figure 12-1	Band Edge emissions
	251	Figure 12-2	Band Edge emissions

Mode	CH	Location	Description
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



Mode	CH	Location	Description
HSUPA WCDMA (Band II)	9262	Figure 27-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 27-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 27-3	Conducted spurious emissions, 30MHz - 20GHz
HSUPA WCDMA (Band V)	4132	Figure 28-1	Conducted spurious emissions, 30MHz - 20GHz
	4182	Figure 28-2	Conducted spurious emissions, 30MHz - 20GHz
	4233	Figure 28-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
HSUPA WCDMA (Band II)	9262	Figure 29-1	Band Edge emissions
	9538	Figure 29-2	Band Edge emissions
HSUPA WCDMA (Band V)	4132	Figure 30-1	Band Edge emissions
	4233	Figure 30-2	Band Edge emissions



**Test Plot**

**GPRS 850**

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

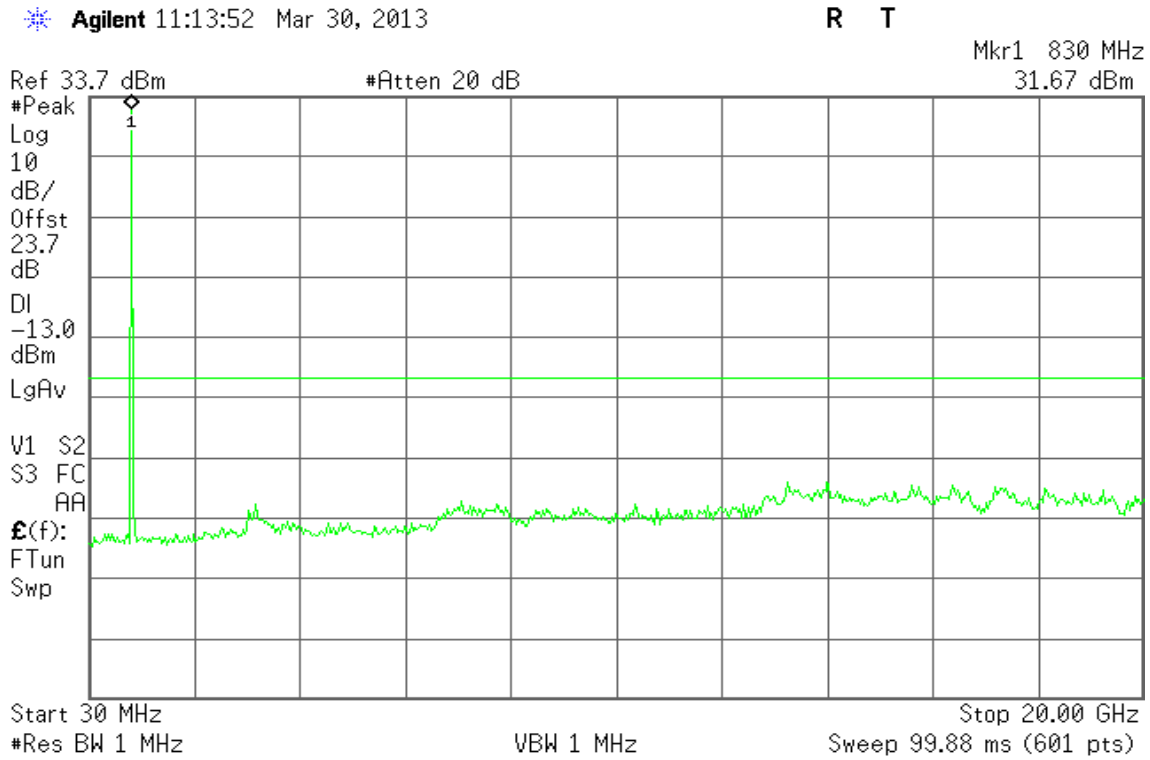


Figure 8-2: Out of Band emission at antenna terminals – GPRS CH Mid

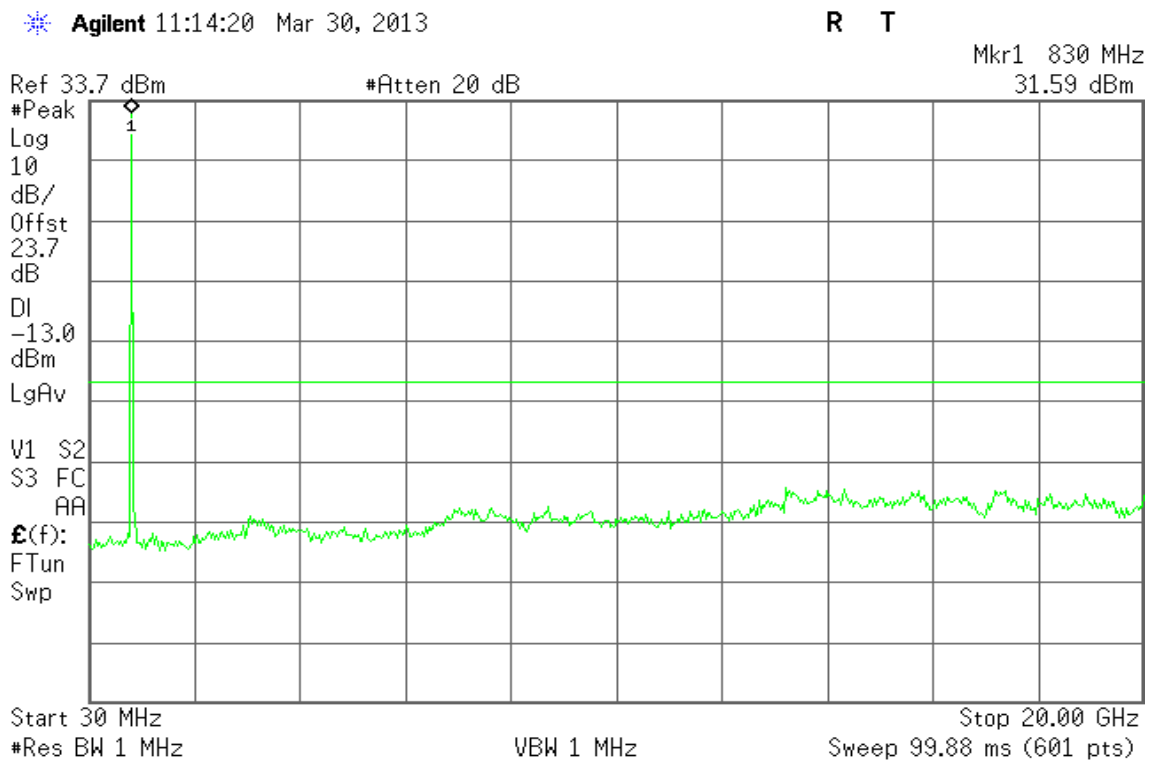
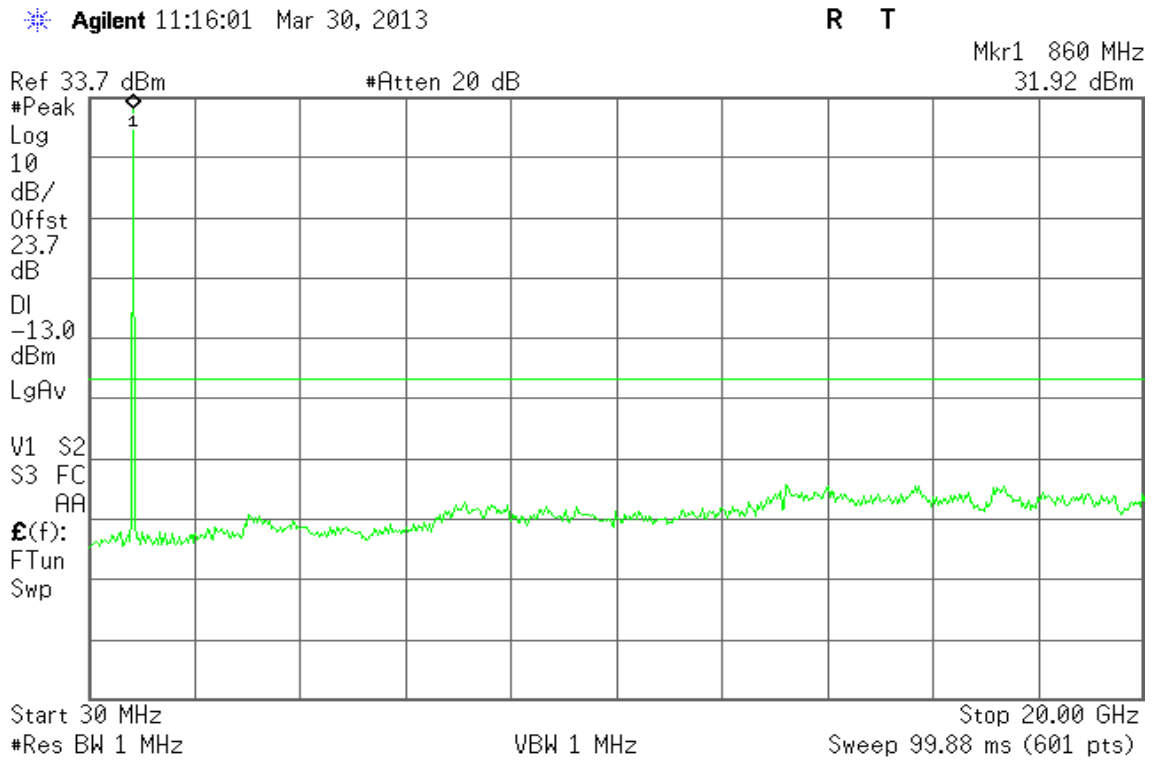






Figure 8-3: Out of Band emission at antenna terminals – GPRS CH High





### GPRS 1900

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

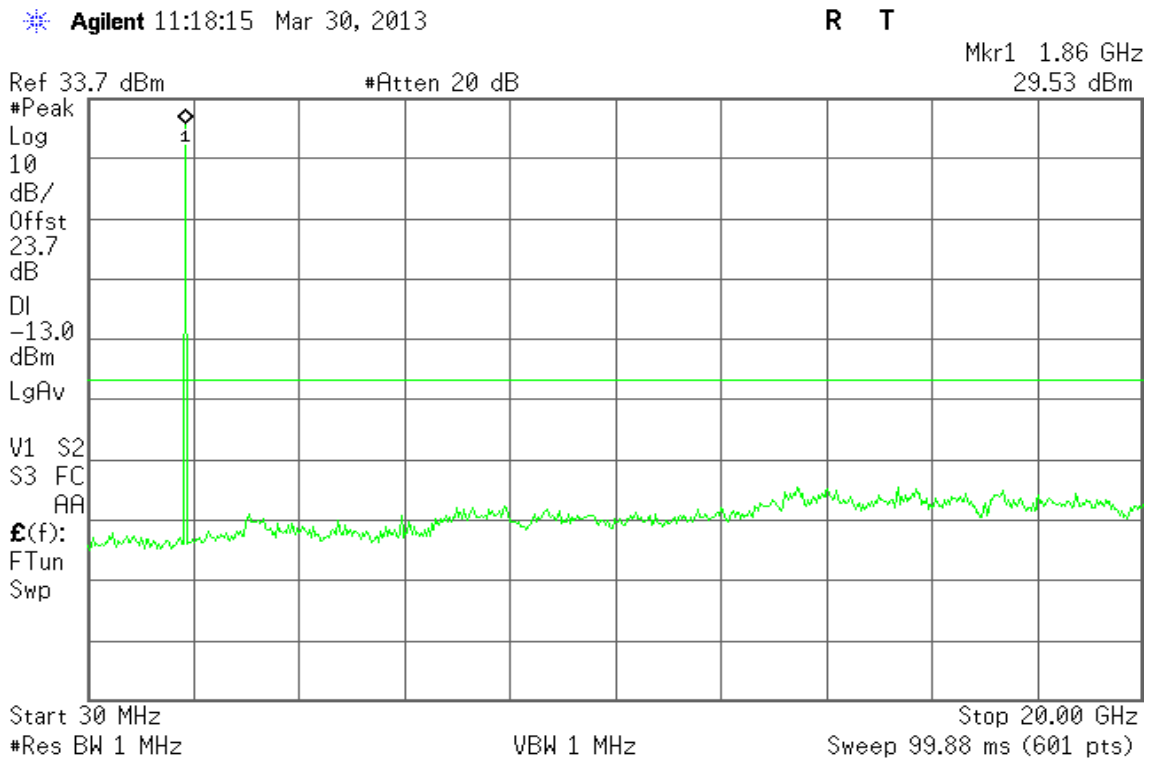


Figure 10-2: Out of Band emission at antenna terminals – GSM CH Mid

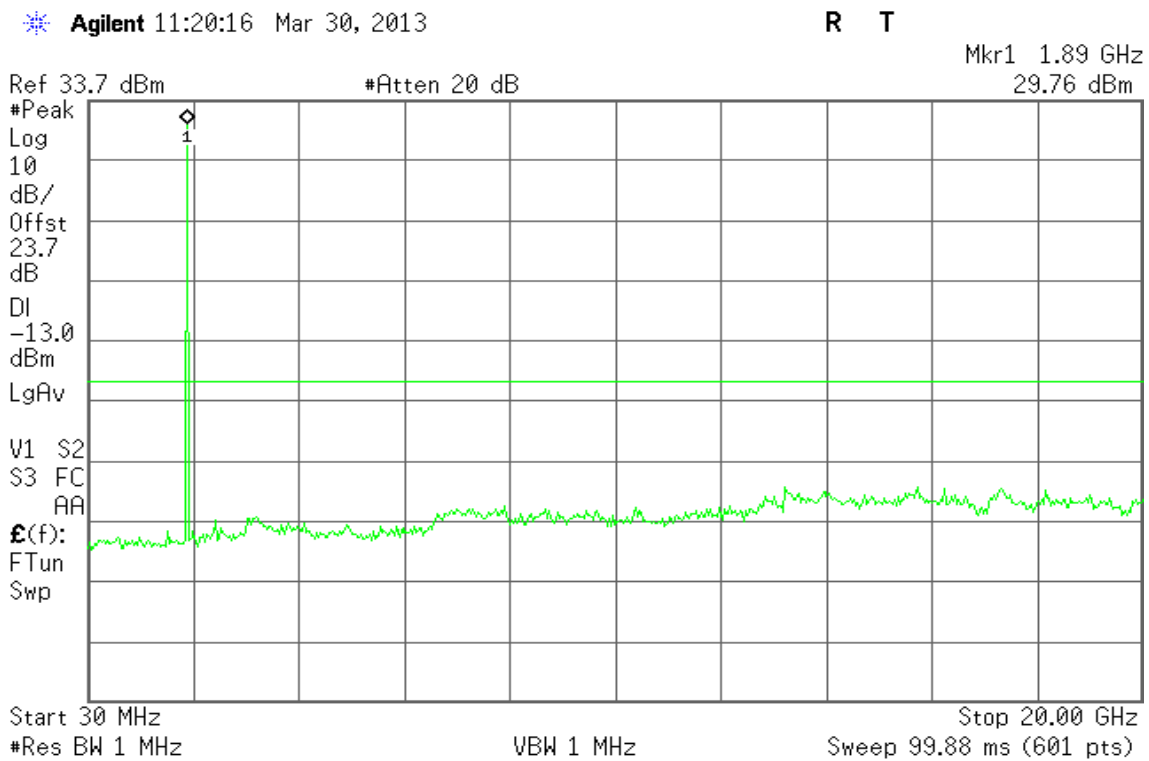
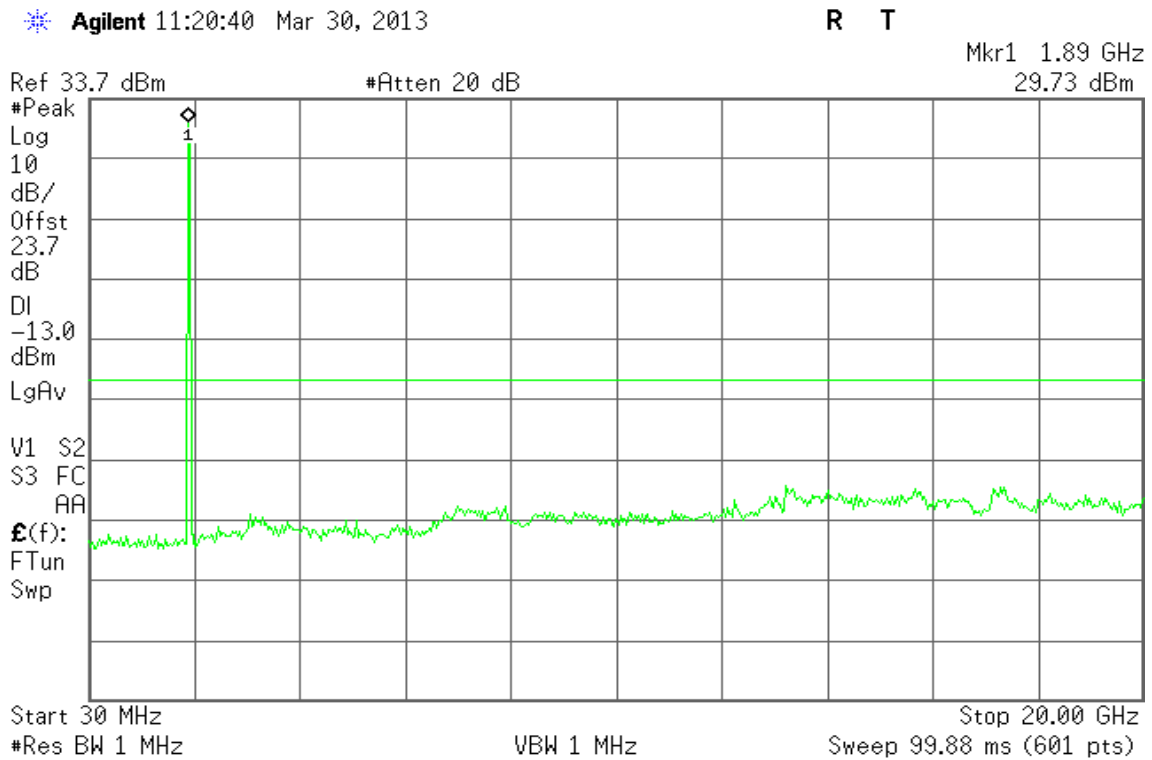




Figure 10-3: Out of Band emission at antenna terminals – GSM CH High





### GPRS 850

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

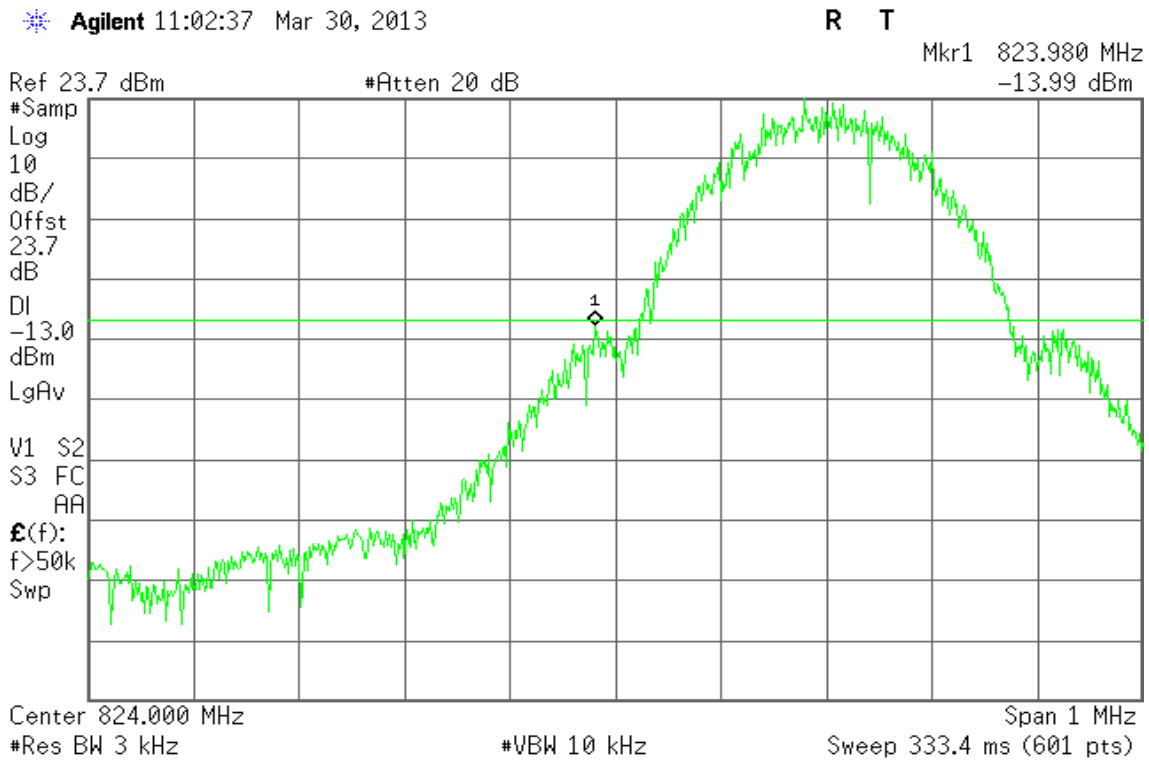
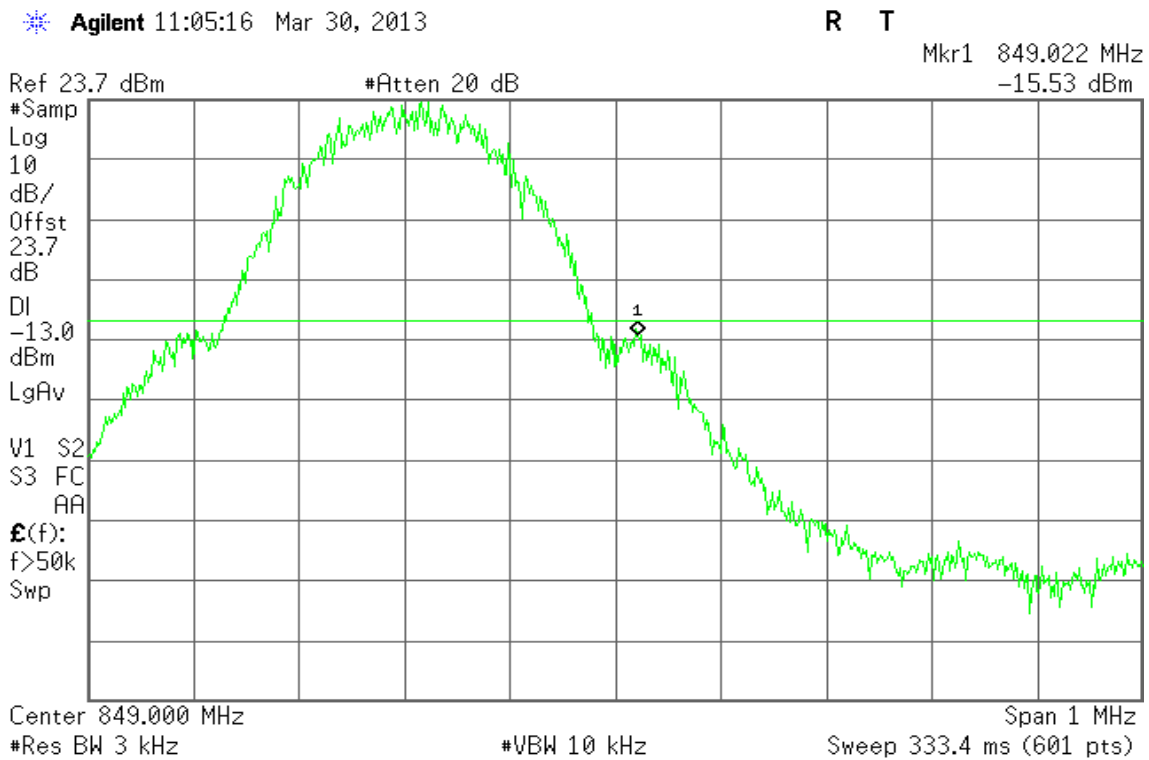


Figure 12-2: Band Edge emissions –GPRS CH High





### GPRS 1900

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

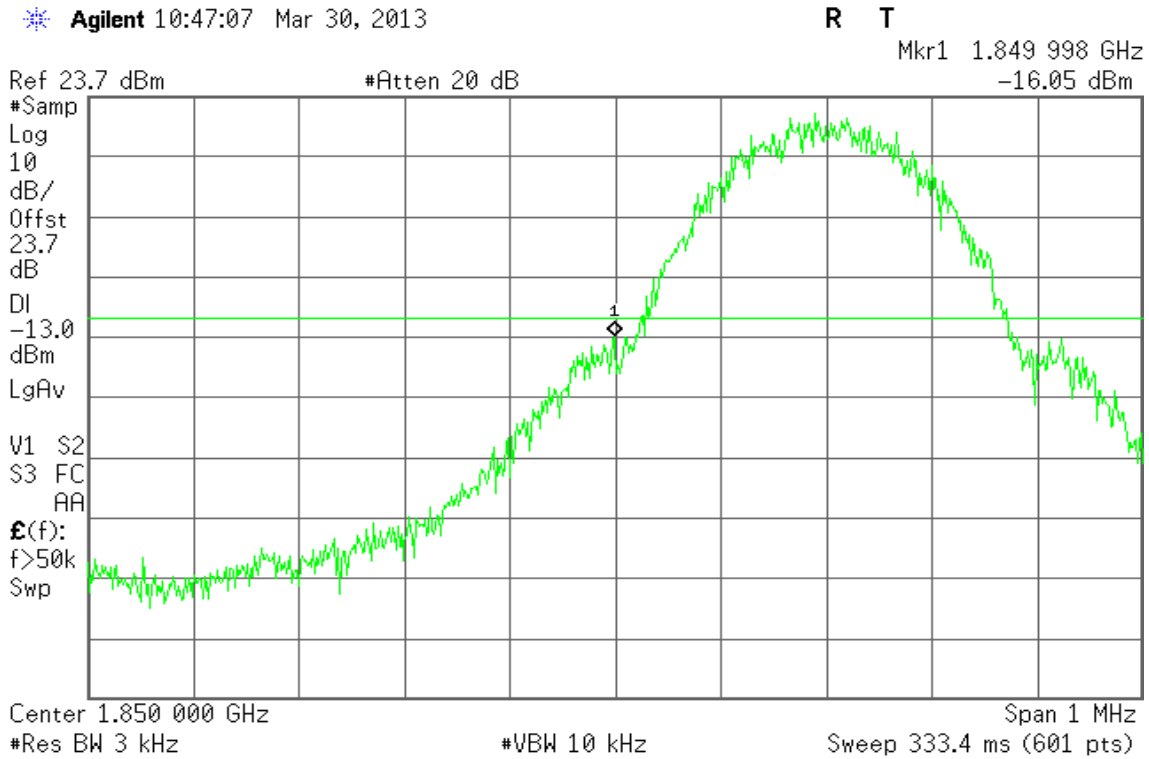
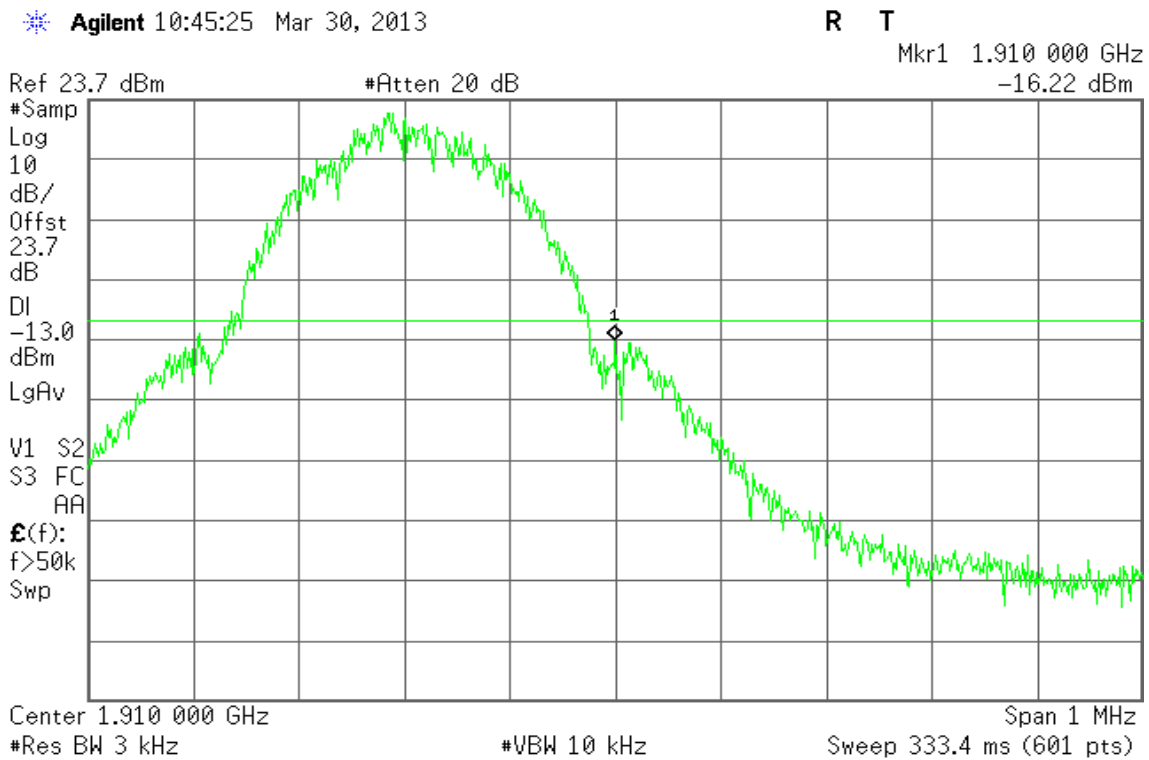


Figure 14-2: Band Edge emissions – GPRS CH High





### EDGE 850

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

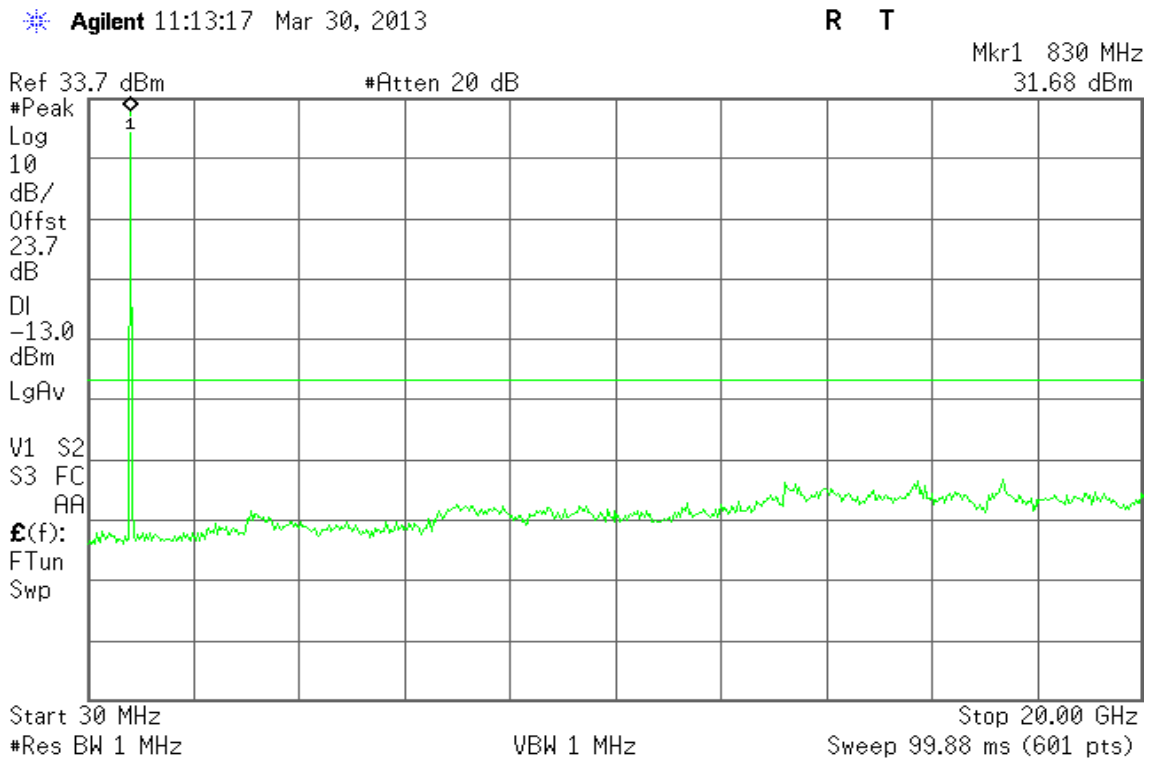


Figure 15-2: Out of Band emission at antenna terminals –EDGE CH Mid

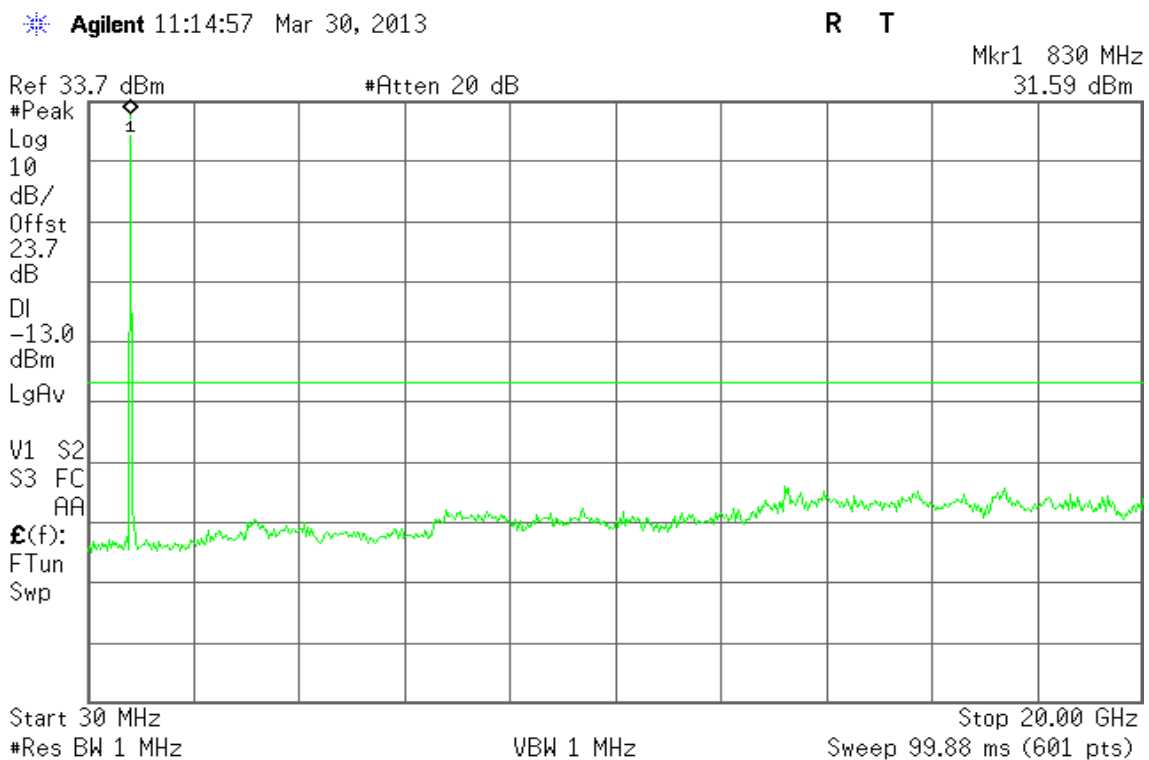


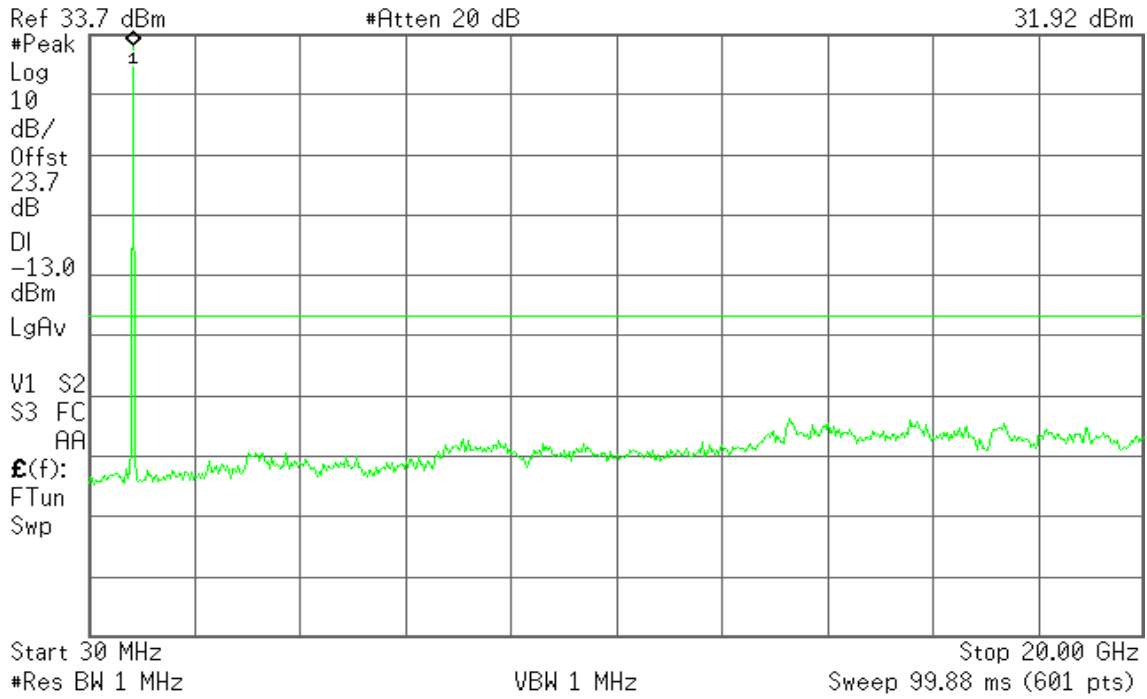


Figure 15-3: Out of Band emission at antenna terminals –EDGE CH High

Agilent 11:15:24 Mar 30, 2013

R T

Mkr1 860 MHz  
31.92 dBm





### EDGE 1900

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

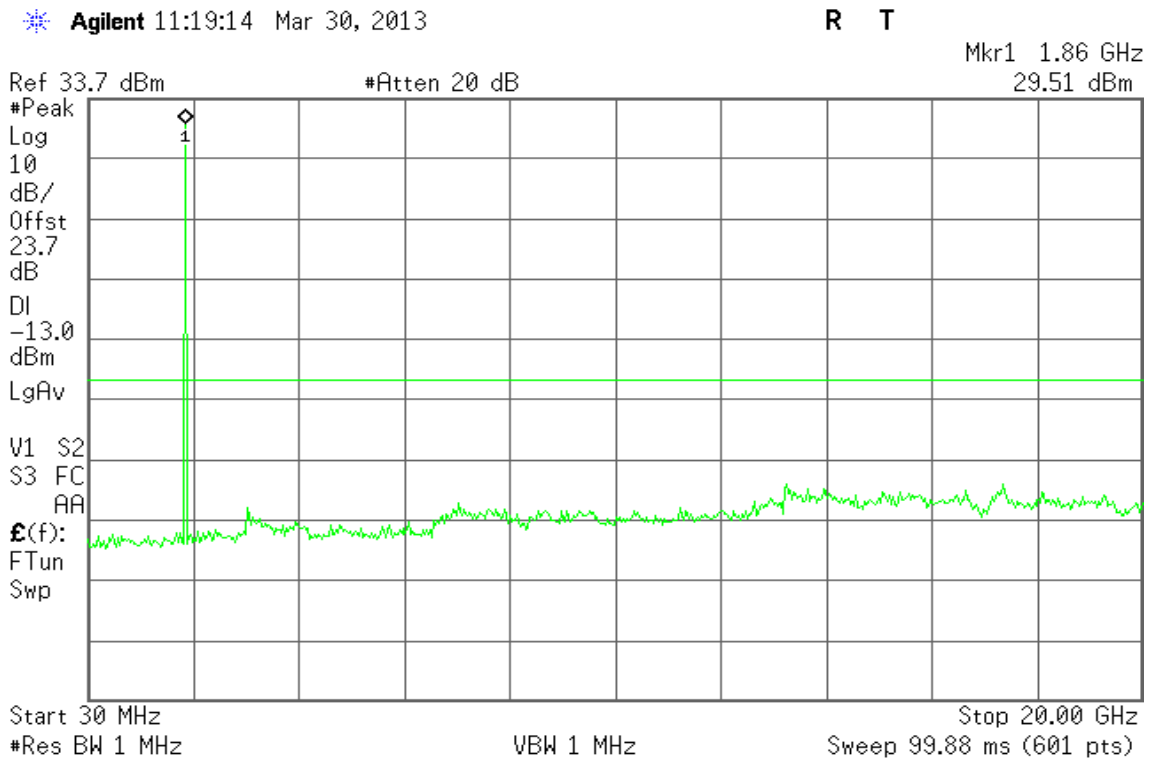


Figure 16-2: Out of Band emission at antenna terminals –EDGE CH Mid

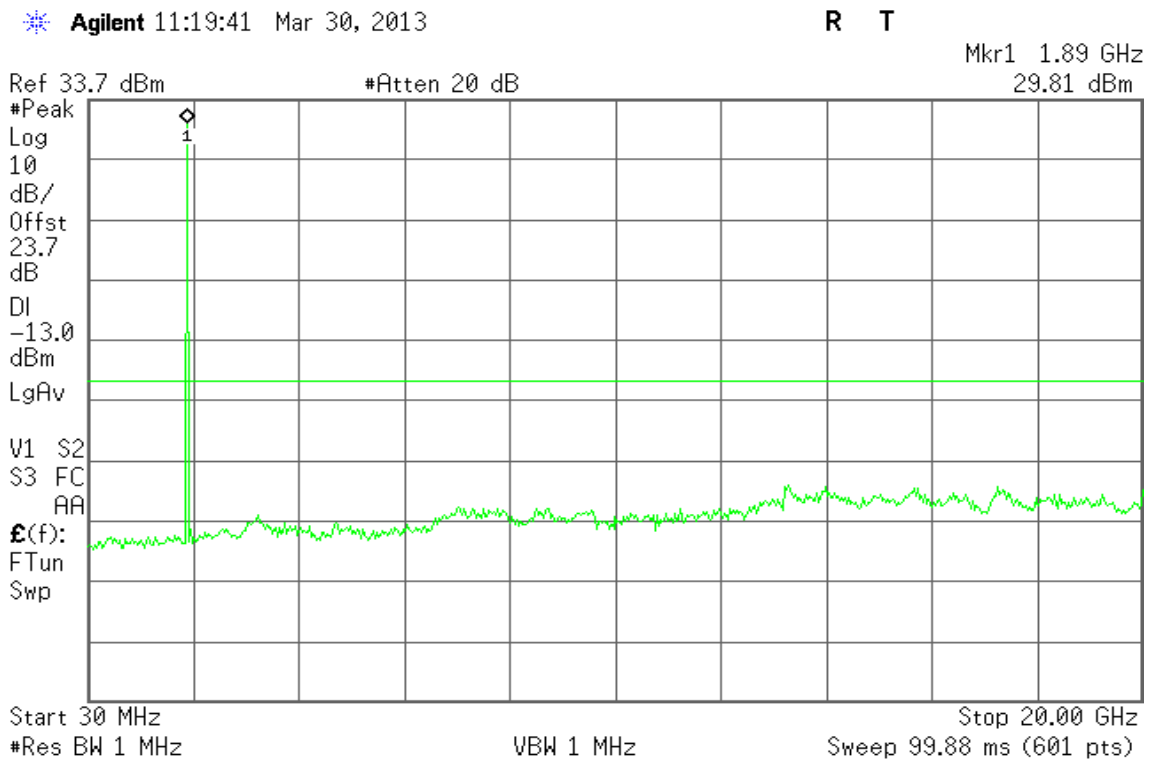


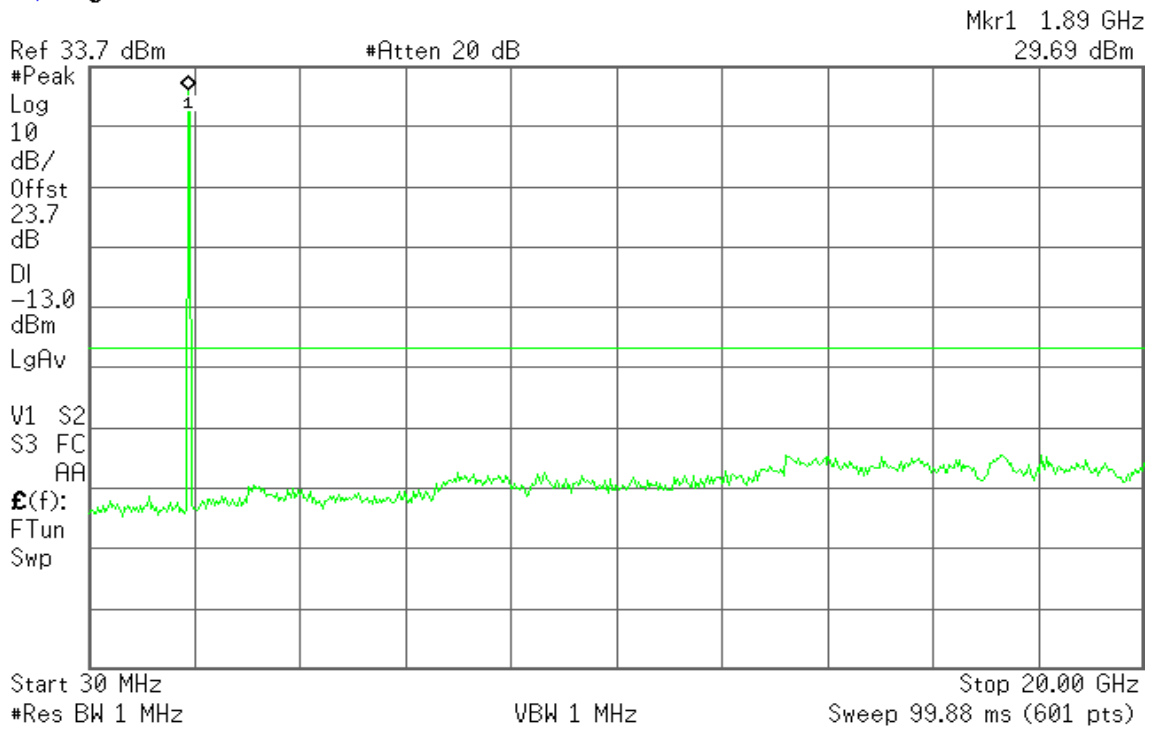




Figure 16-3: Out of Band emission at antenna terminals –EDGE CH High

Agilent 11:21:14 Mar 30, 2013

R T





### EDGE 850

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

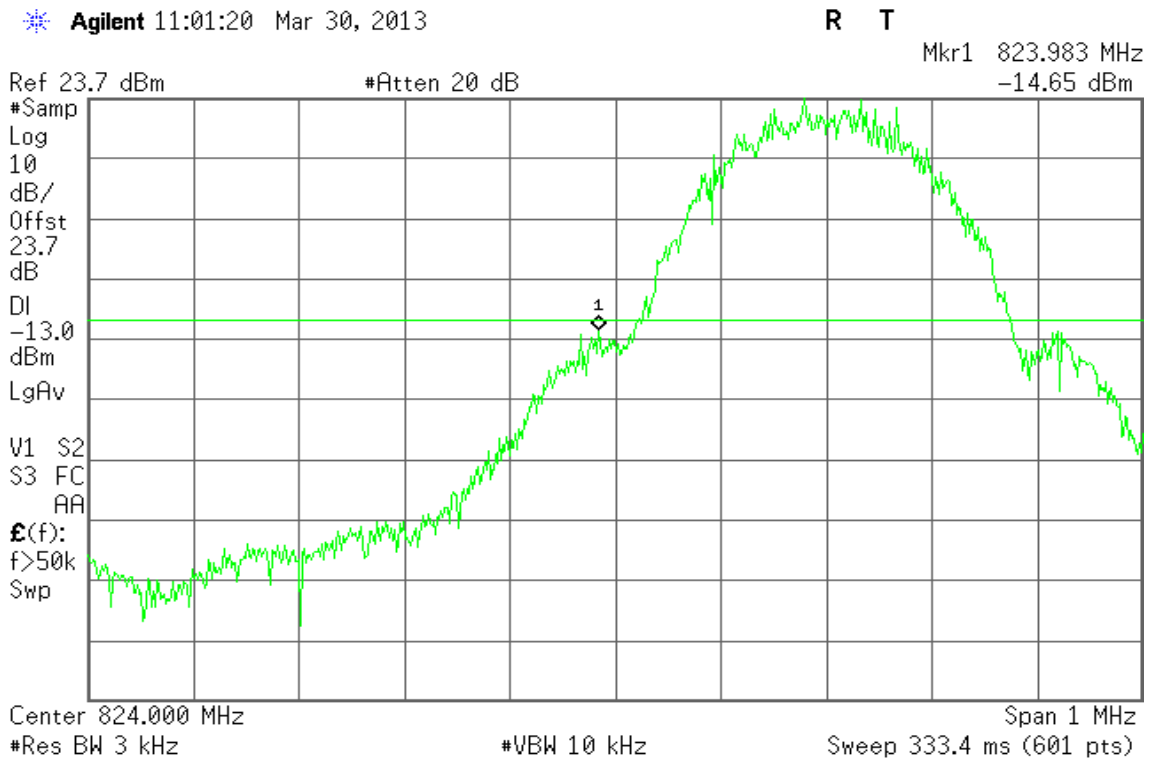
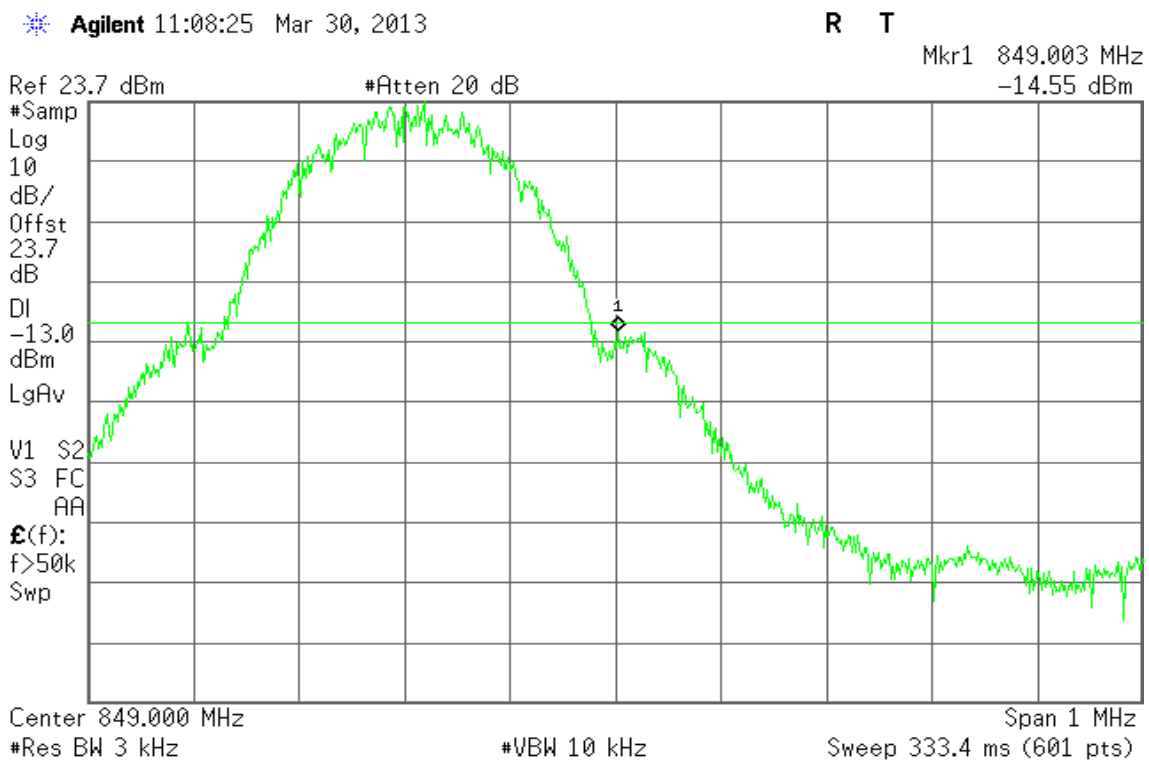


Figure 17-2: Band Edge emissions – EDGE CH High





### EDGE 1900

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

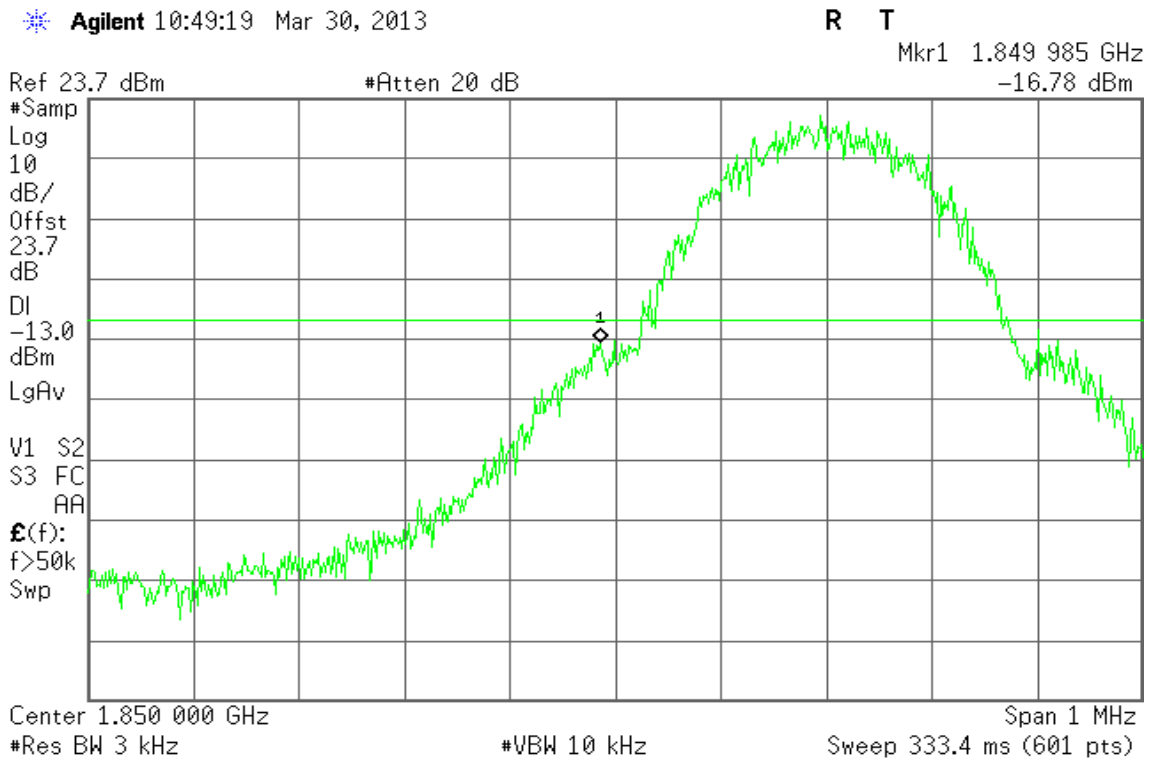
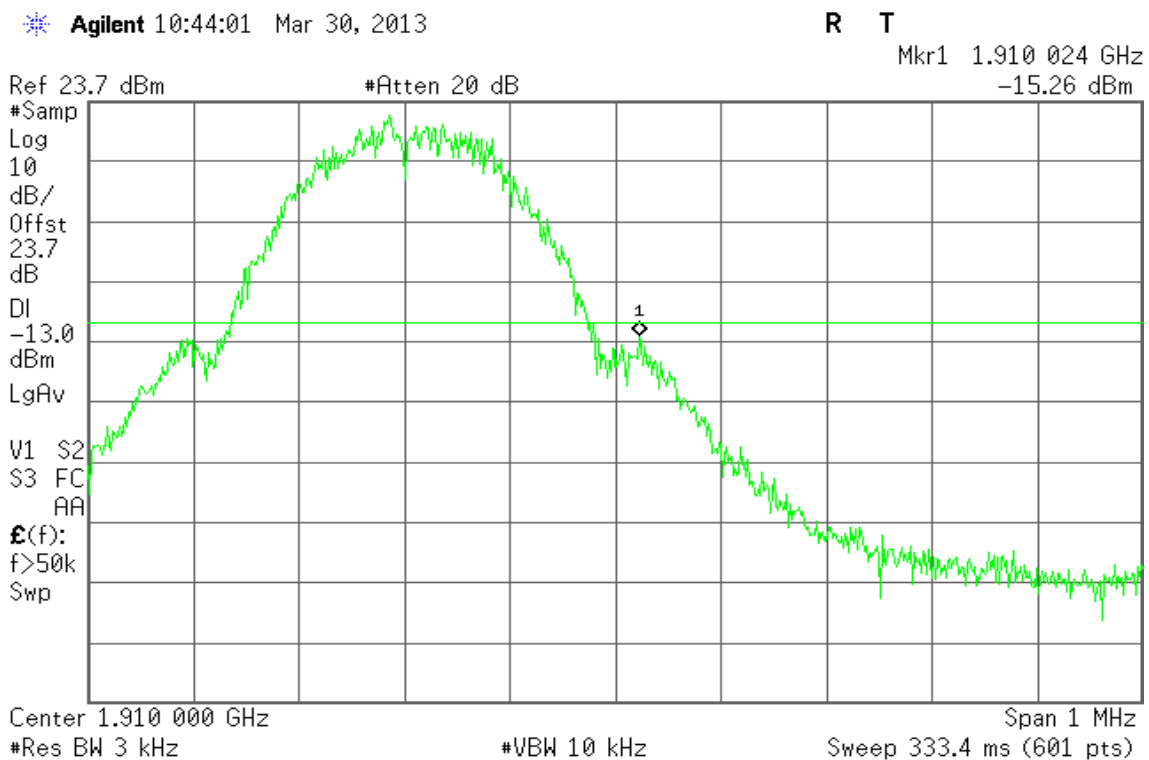


Figure 18-2: Band Edge emissions – EDGE CH High





### WCDMA Band II

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

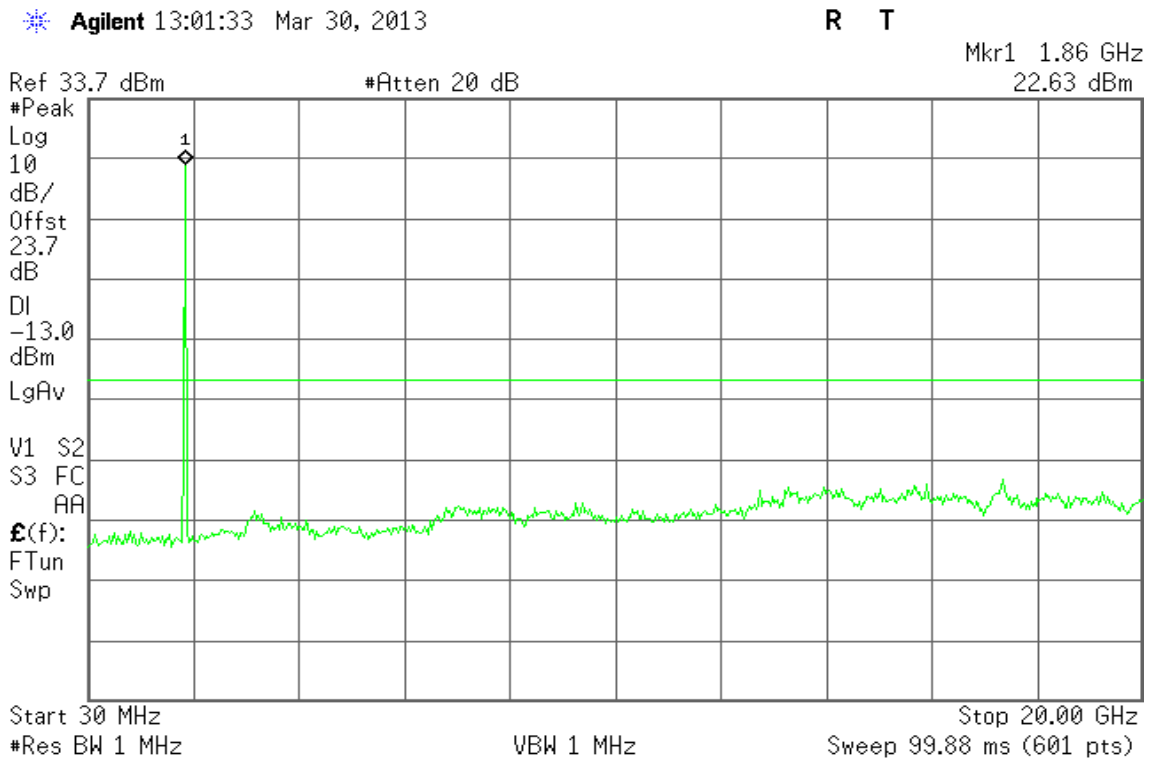


Figure 19-2: Out of Band emission at antenna terminals – WCDMA CH Mid

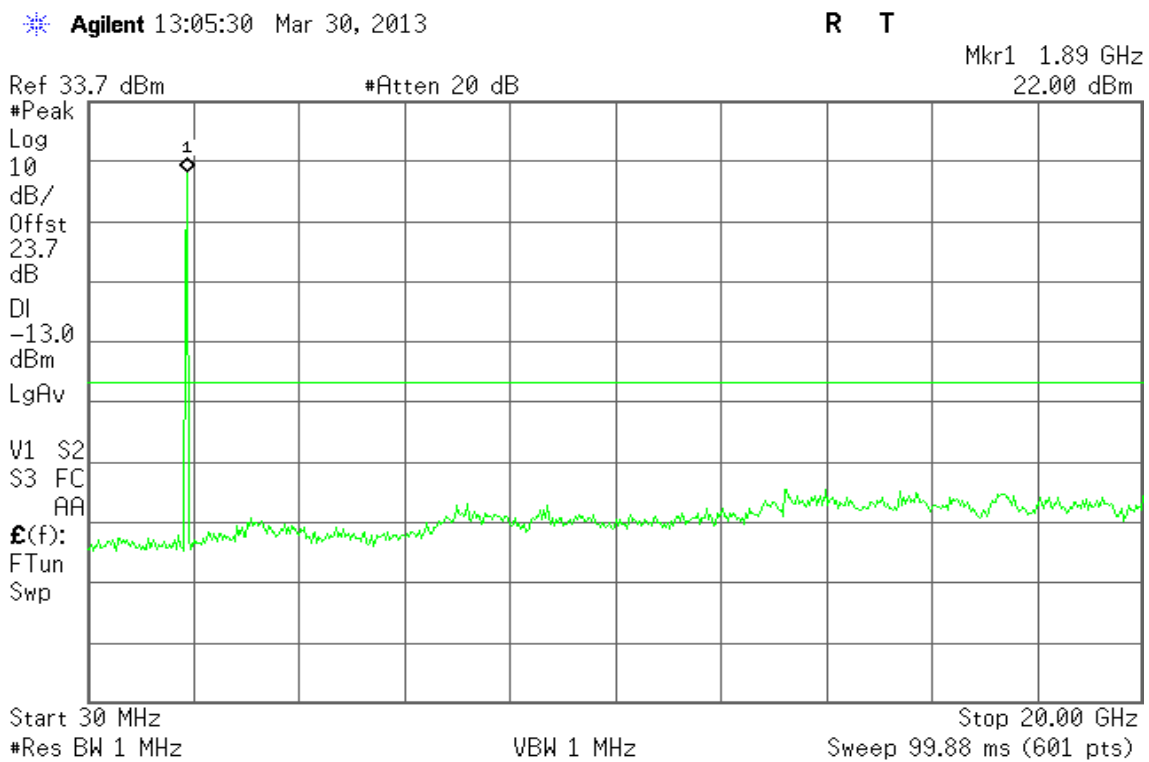
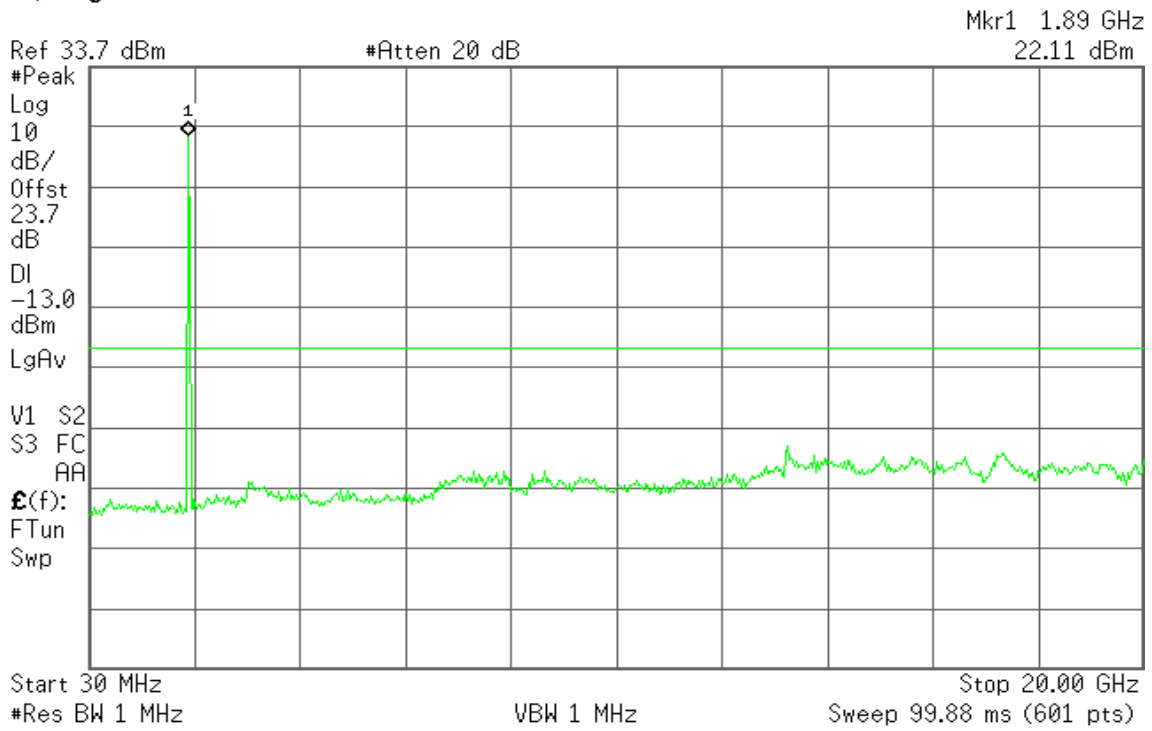




Figure 19-3: Out of Band emission at antenna terminals – WCDMA CH High

Agilent 13:06:14 Mar 30, 2013

R T





### WCDMA Band V

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

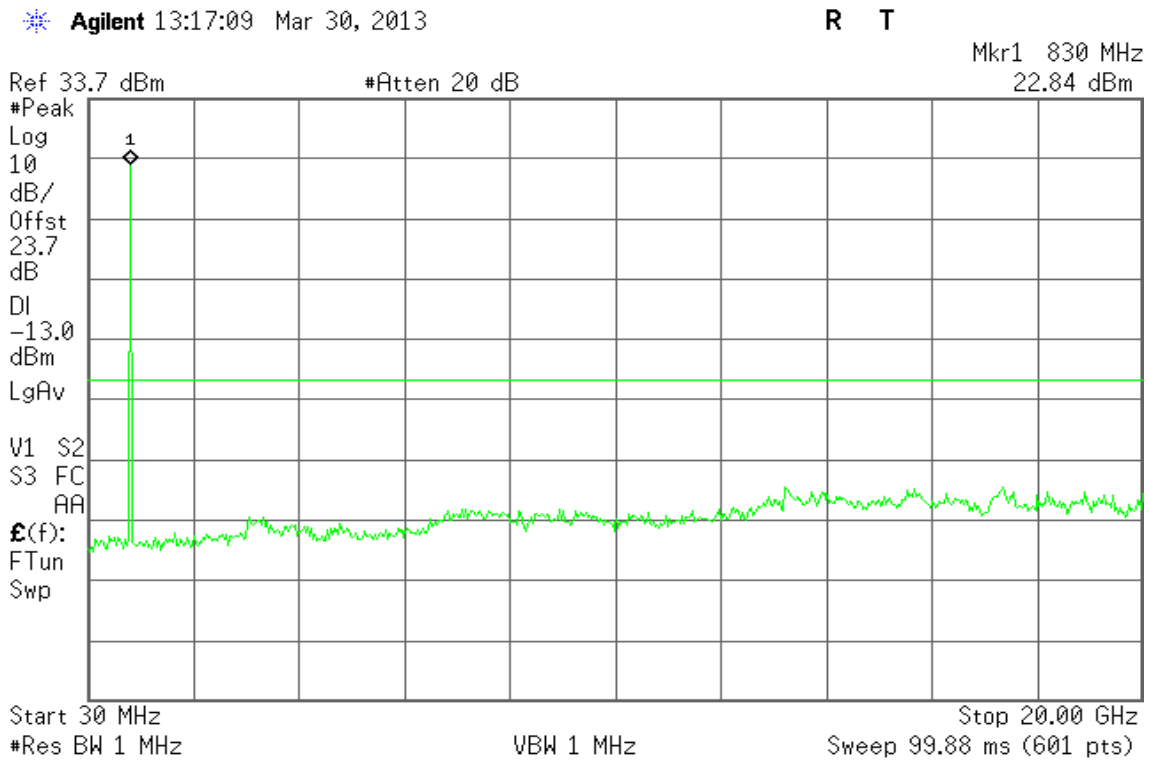


Figure 20-2: Out of Band emission at antenna terminals – WCDMA CH Mid

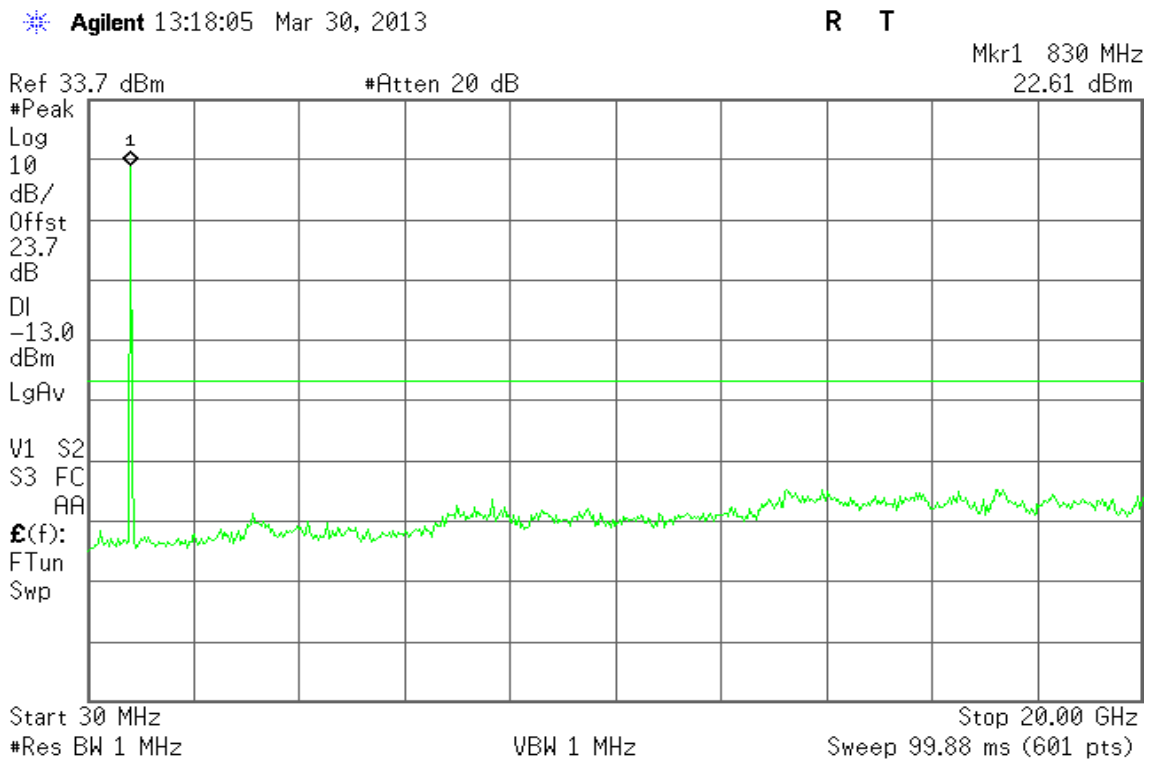


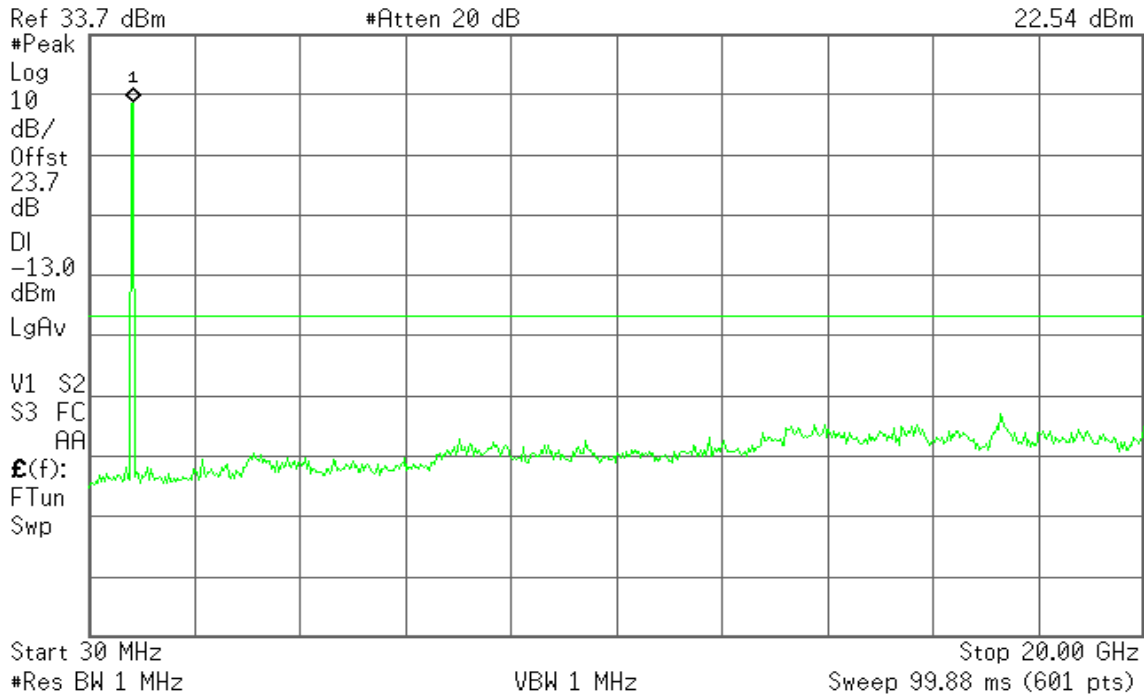


Figure 20-3: Out of Band emission at antenna terminals – WCDMA CH High

Agilent 13:22:36 Mar 30, 2013

R T

Mkr1 860 MHz  
22.54 dBm





### WCDMA Band II

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

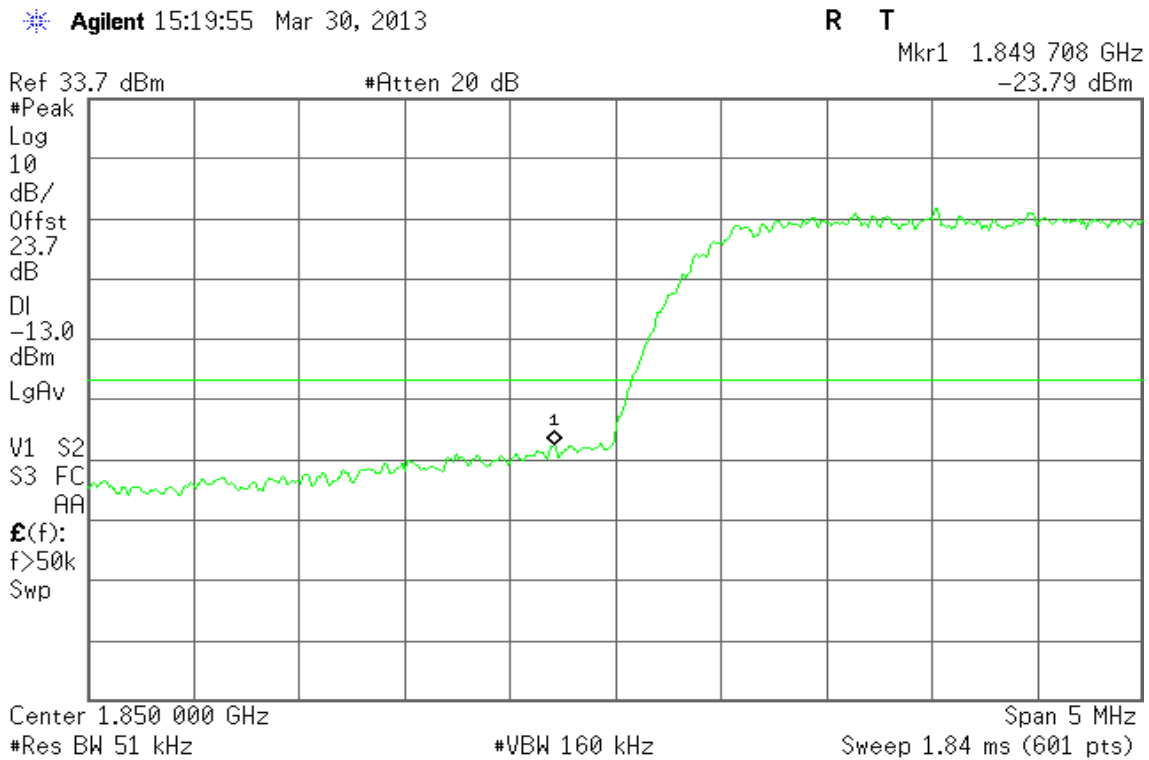
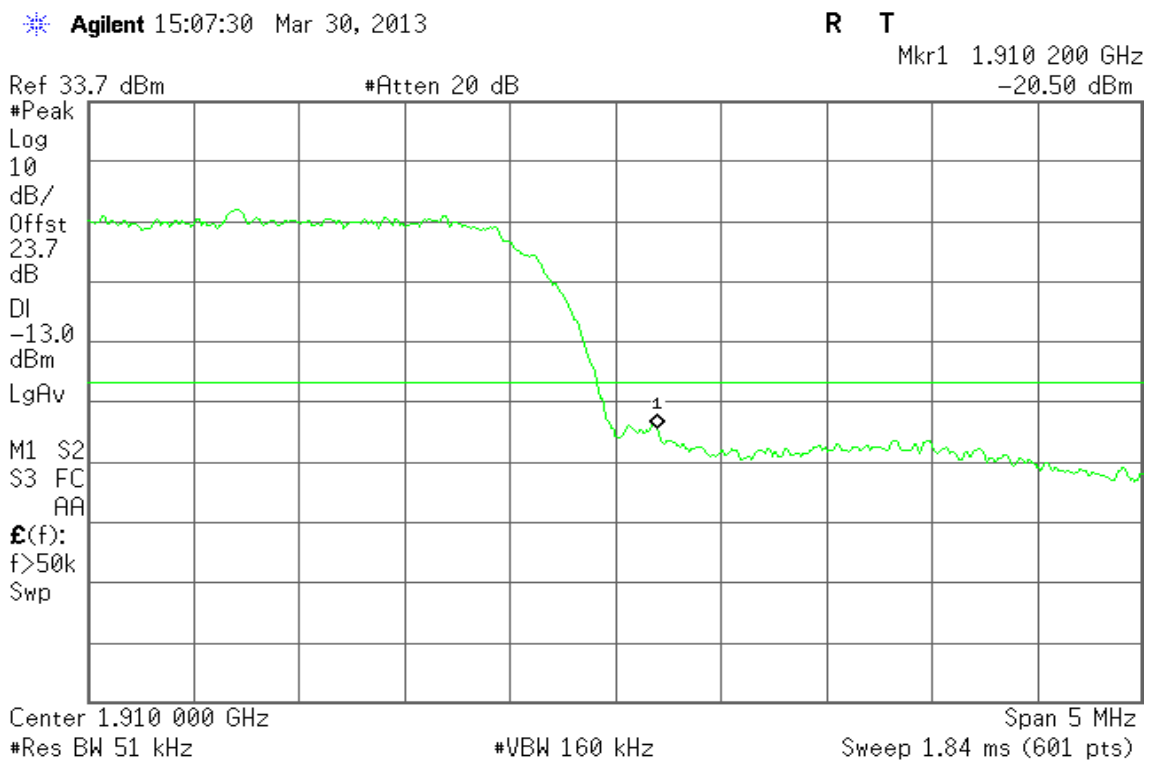


Figure 21-2: Band Edge emissions –WCDMA CH High







### WCDMA Band V

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

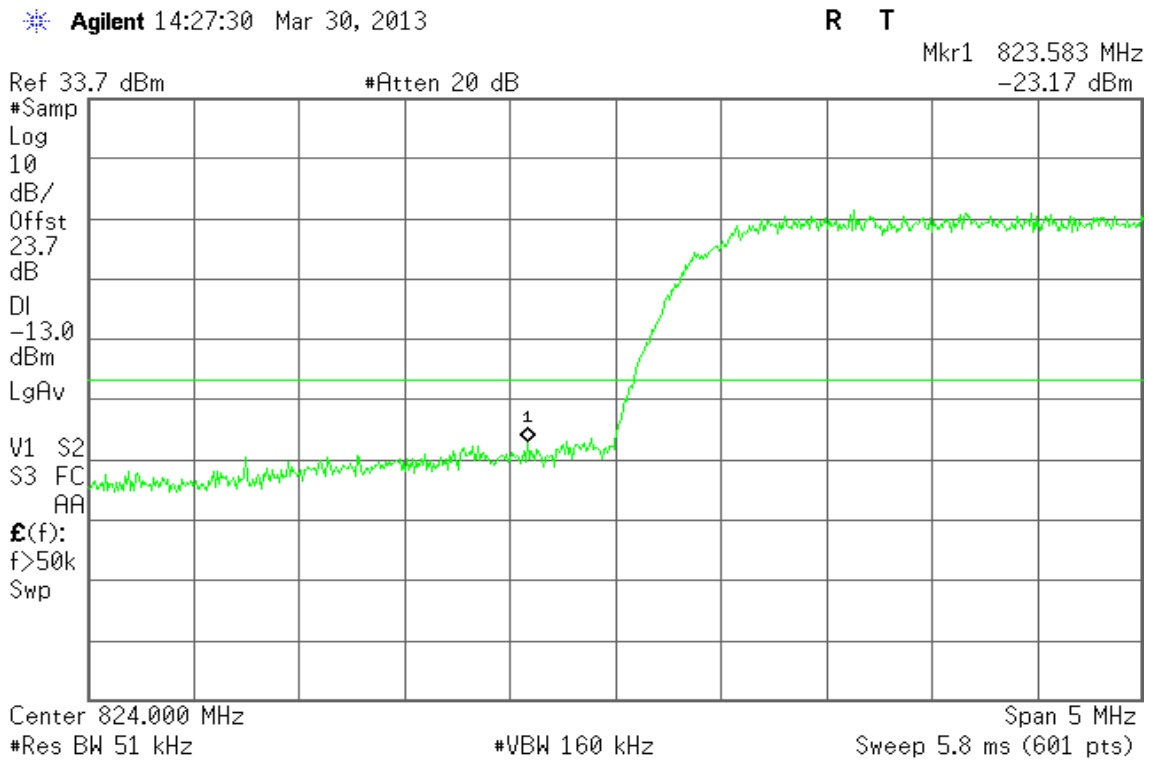
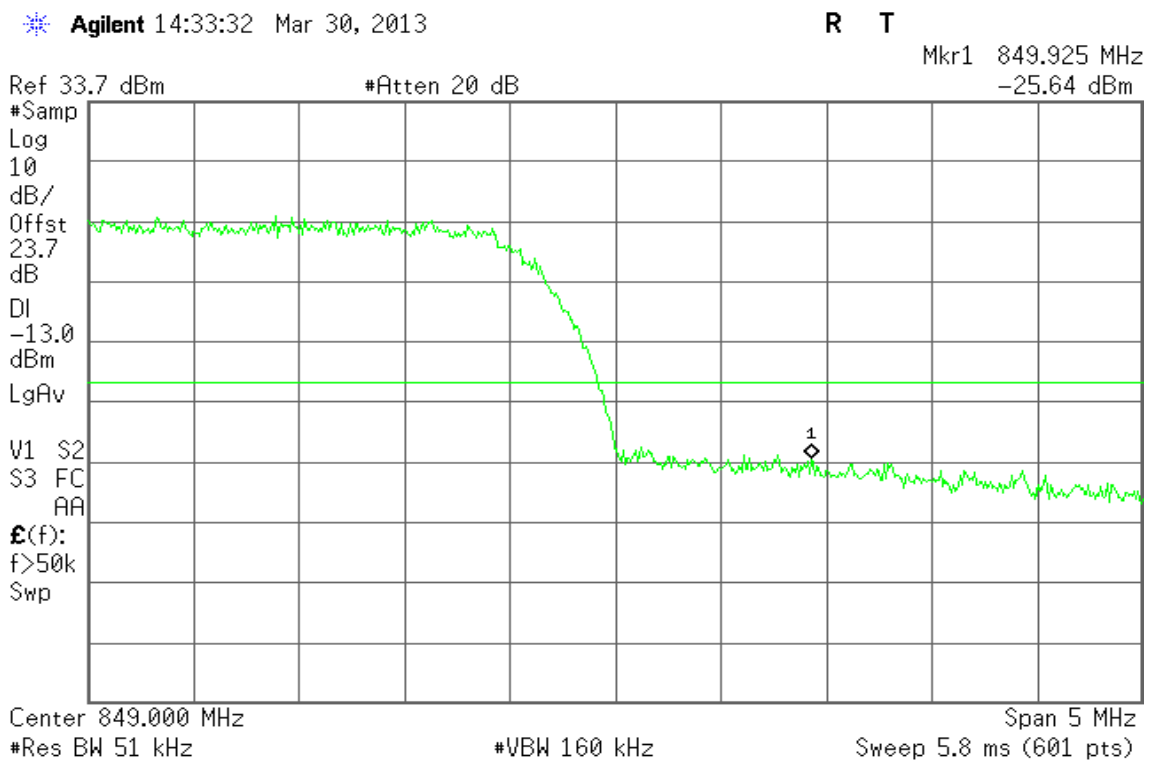


Figure 22-2: Band Edge emissions –WCDMA CH High





### WCDMA / HSDPA Band II

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

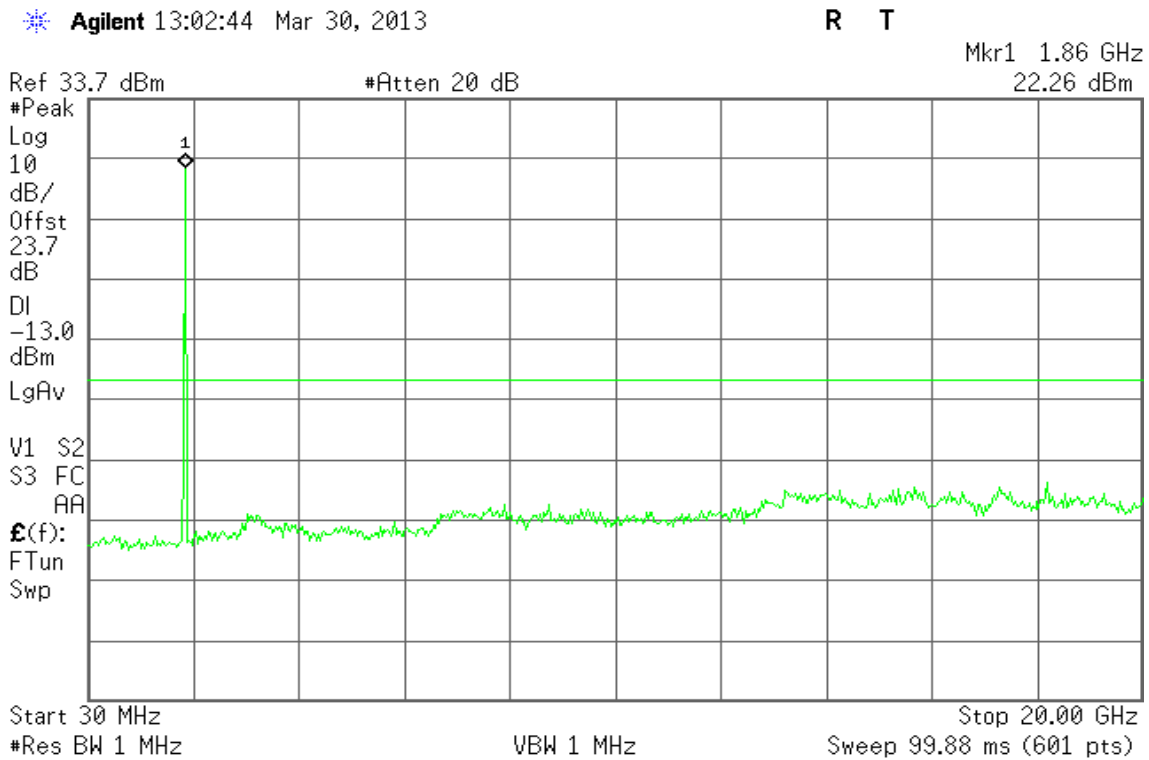


Figure 23-2: Out of Band emission at antenna terminals – HSDPA CH Mid

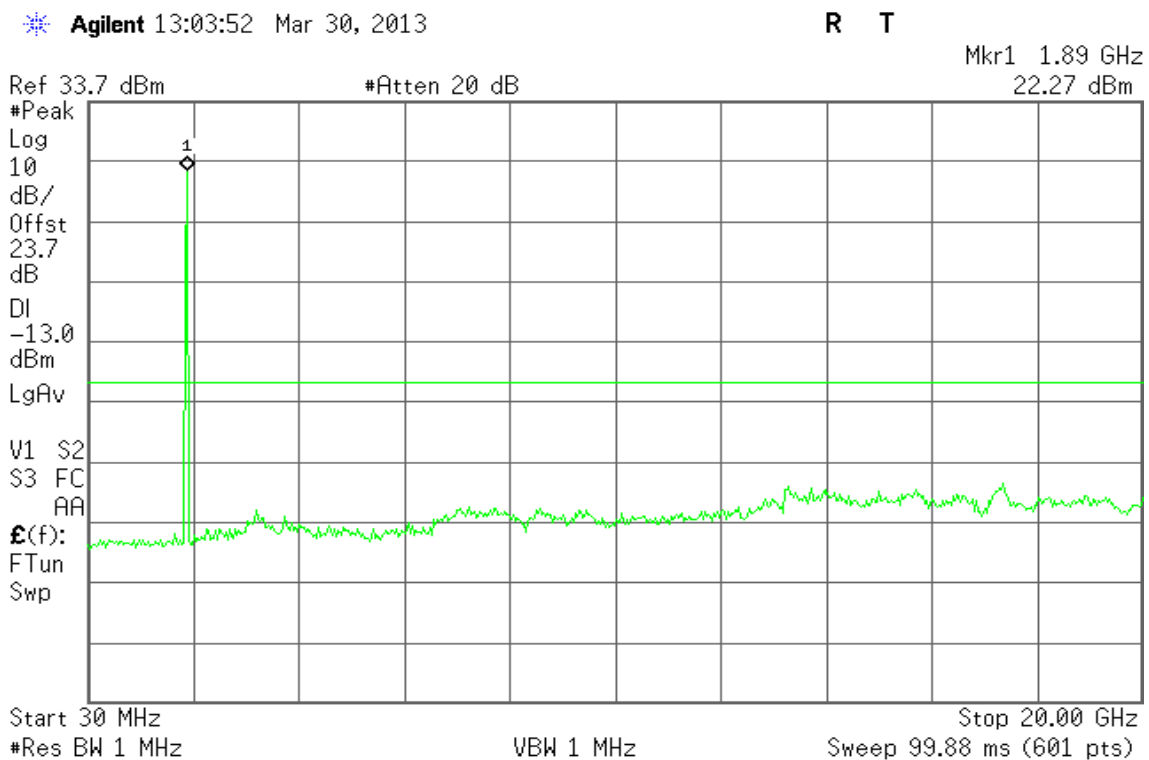
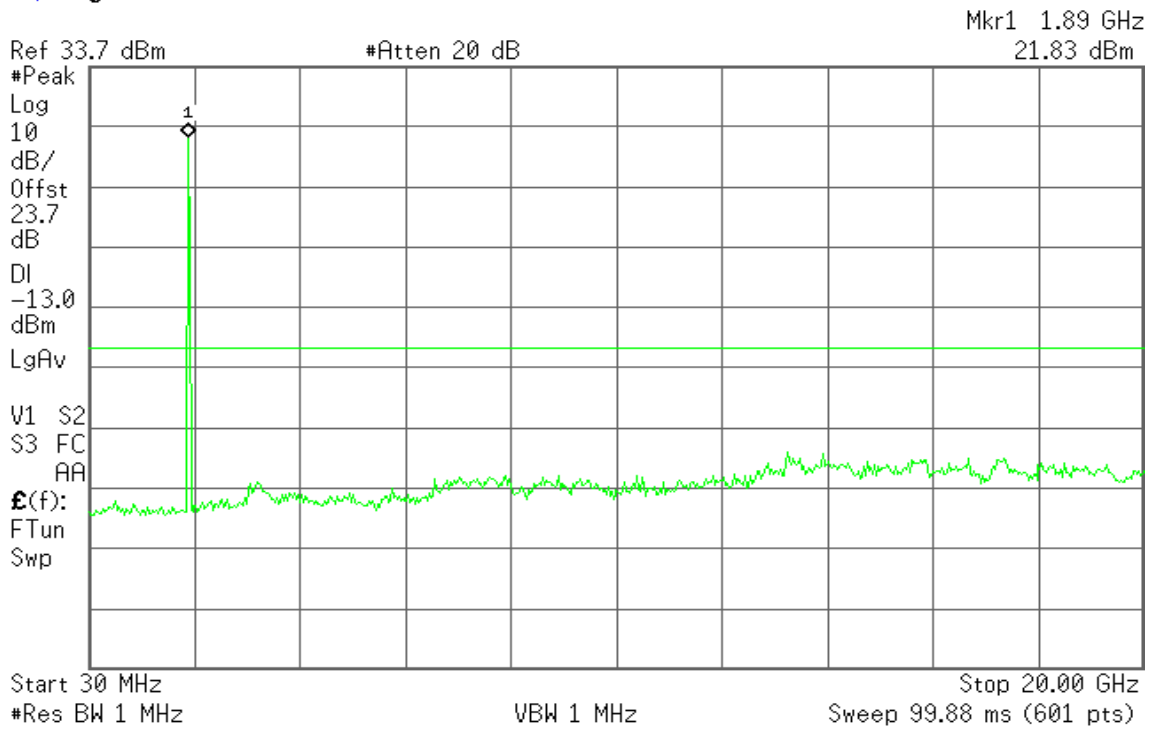




Figure 23-3: Out of Band emission at antenna terminals – HSDPA CH High

Agilent 13:07:03 Mar 30, 2013

R T





### WCDMA / HSDPA Band V

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

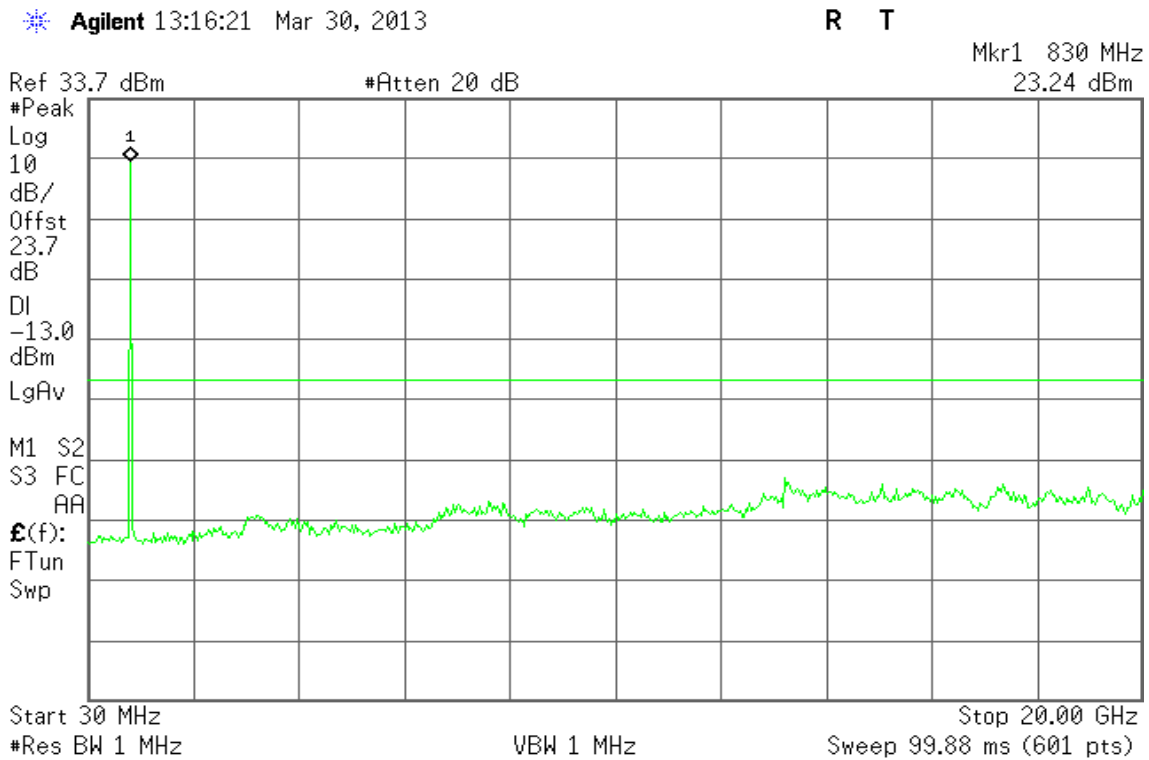


Figure 24-2: Out of Band emission at antenna terminals – HSDPA CH Mid

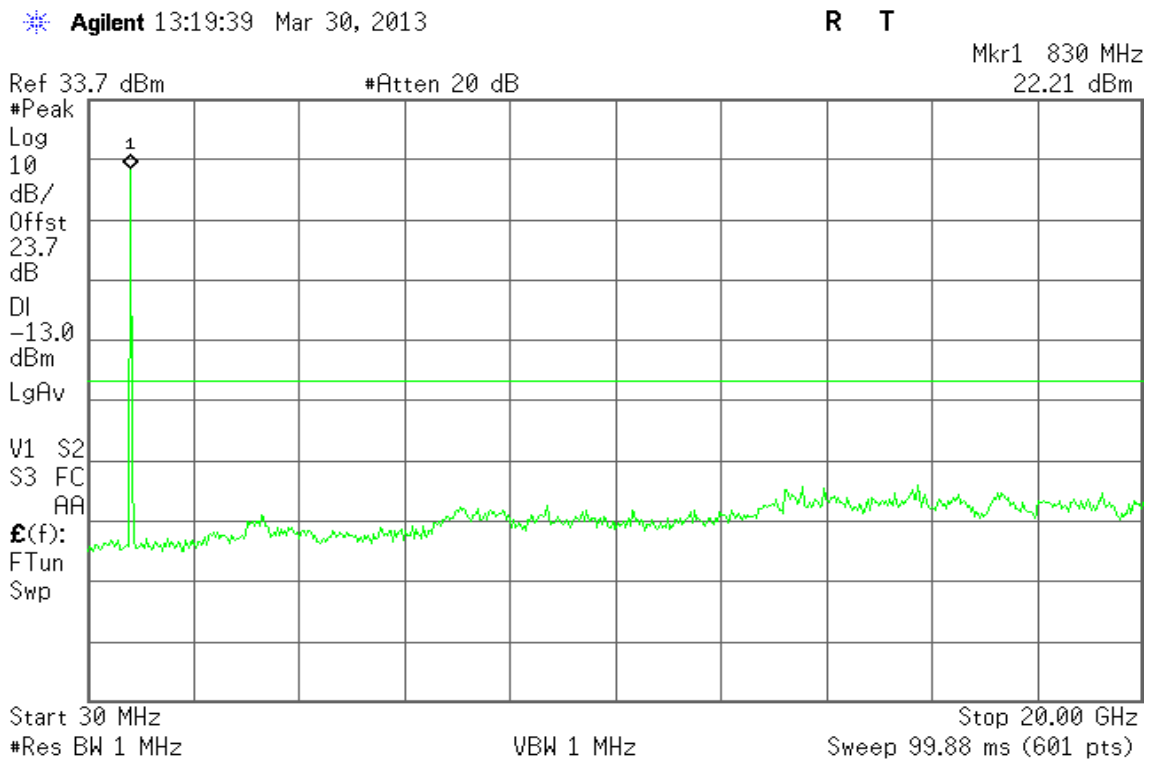


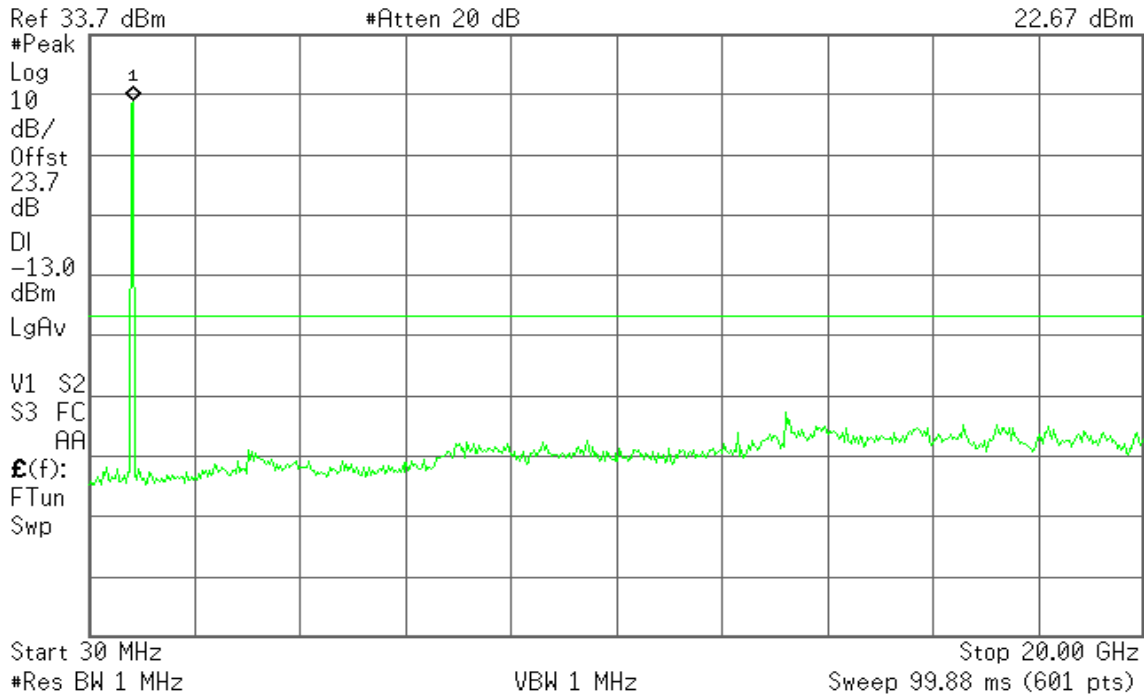


Figure 24-3: Out of Band emission at antenna terminals – HSDPA CH High

Agilent 13:20:33 Mar 30, 2013

R T

Mkr1 860 MHz  
22.67 dBm





### WCDMA / HSDPA Band II

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

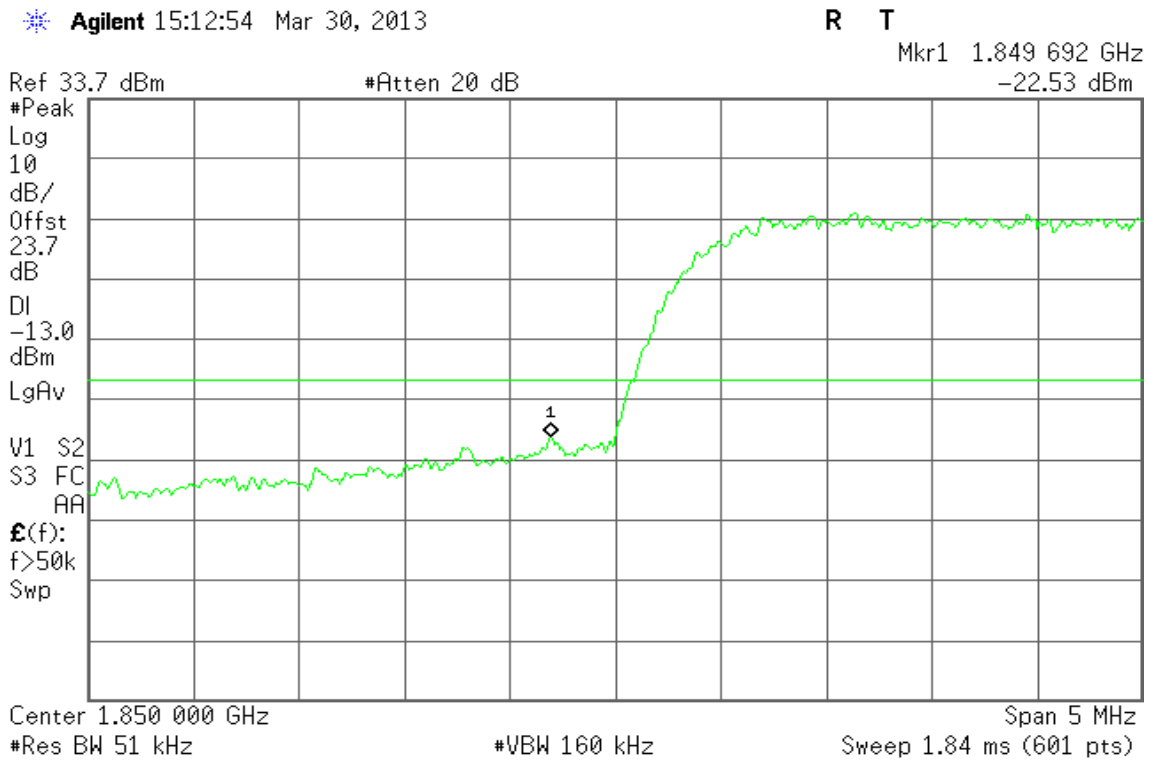
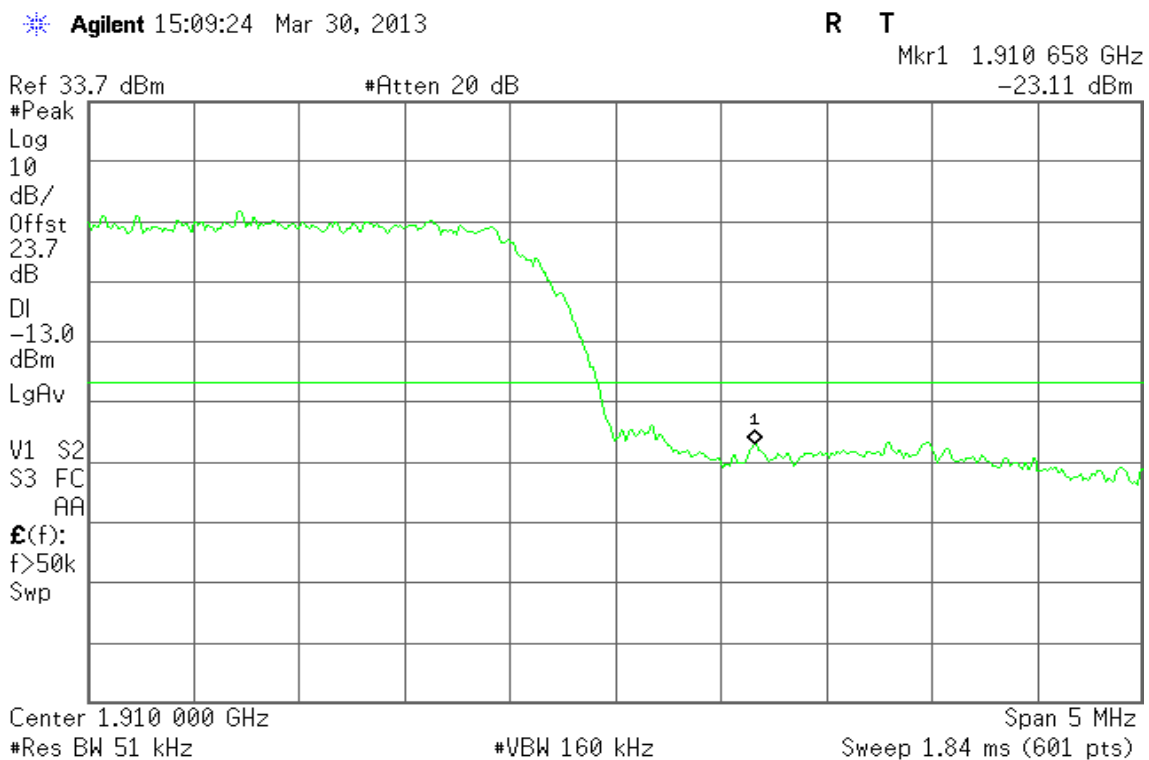


Figure 25-2: Band Edge emissions – HSDPA CH High





### WCDMA / HSDPA Band V

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

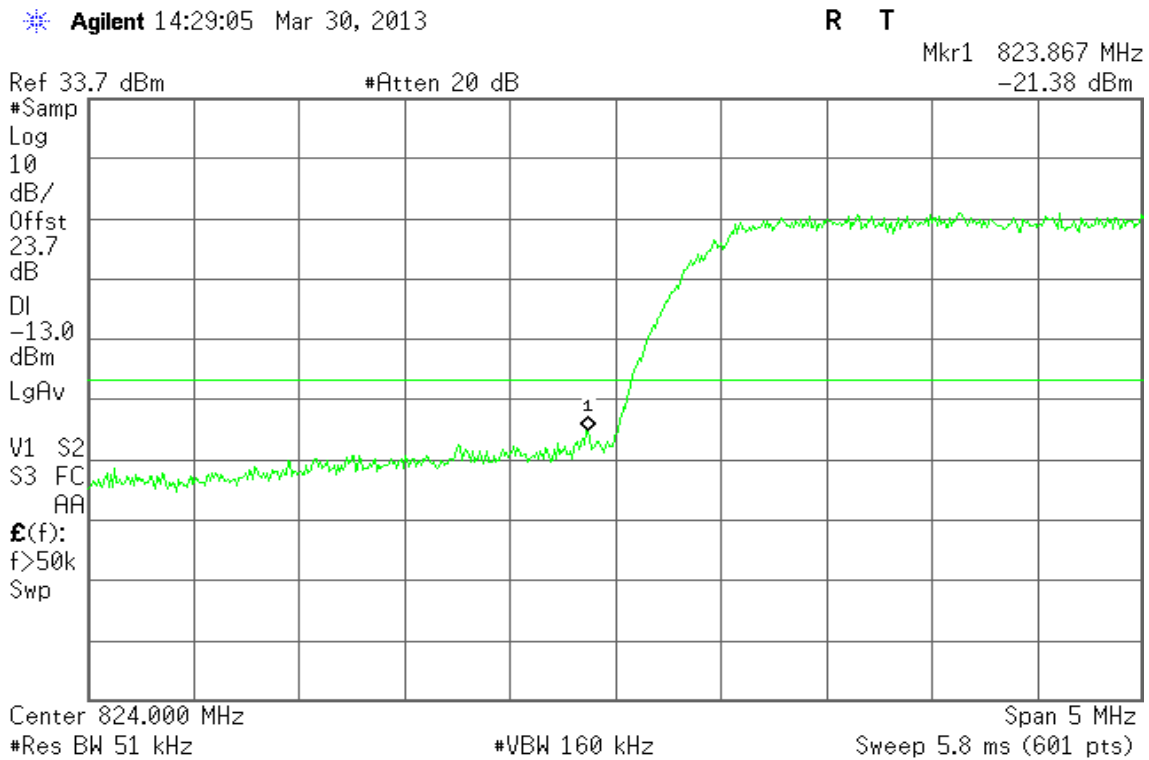
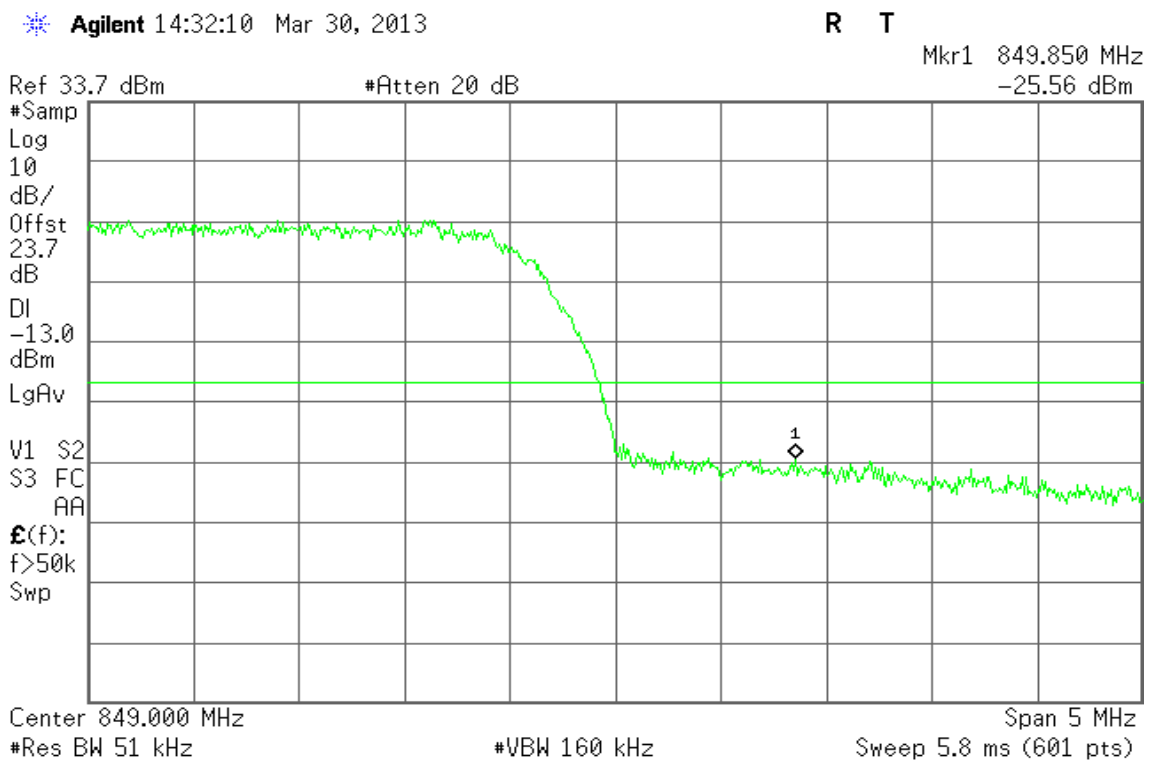


Figure 26-2: Band Edge emissions – HSDPA CH High





### WCDMA / HSUPA Band II

Figure 27-1: Out of Band emission at antenna terminals – HSUPA CH Low

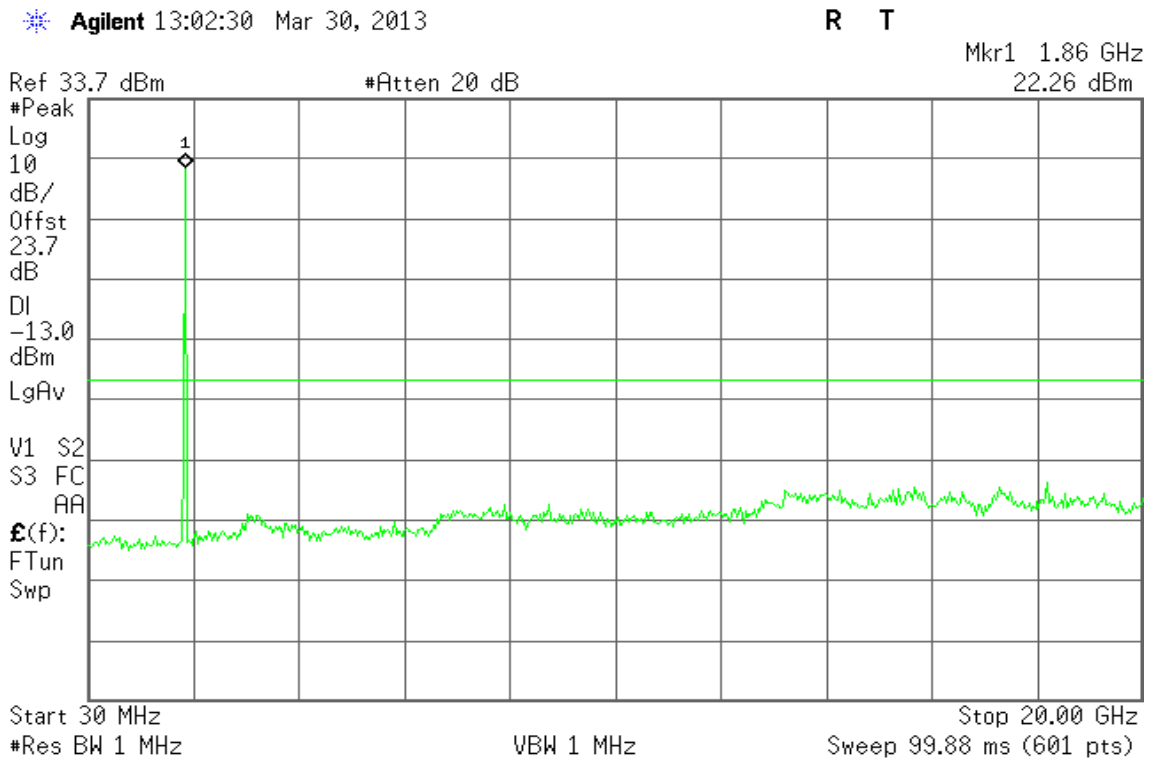


Figure 27-2: Out of Band emission at antenna terminals – HSUPA CH Mid

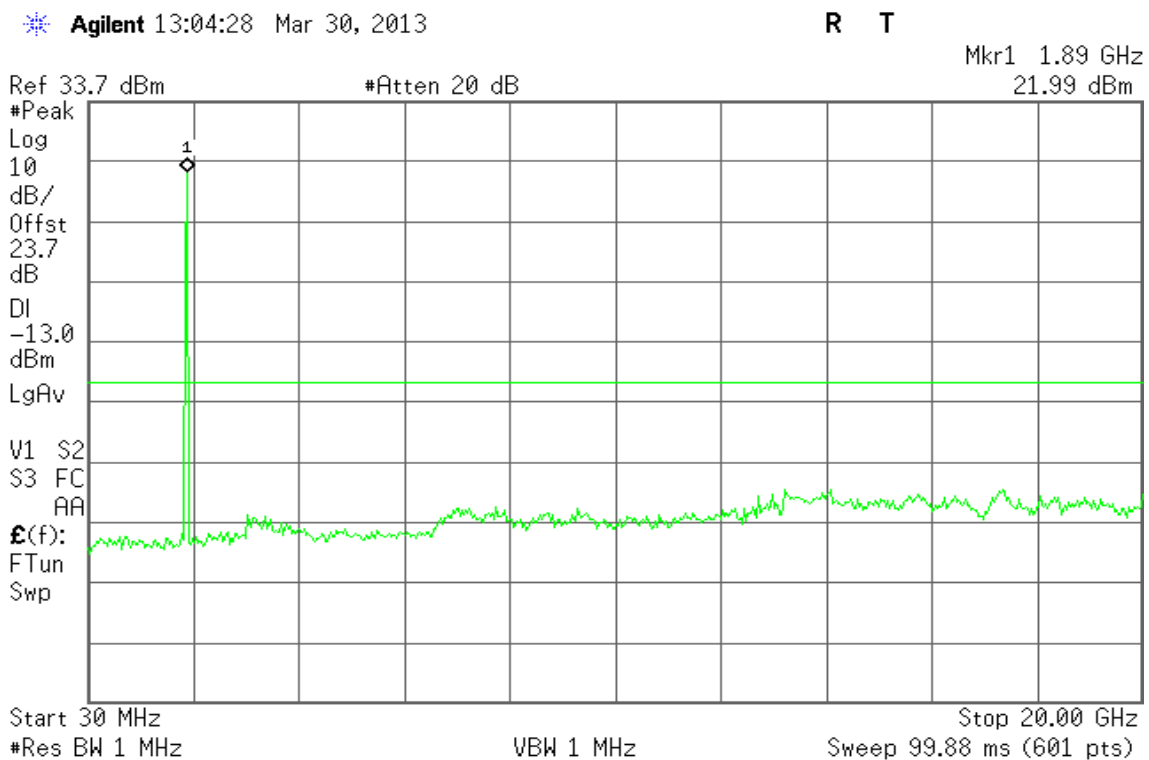


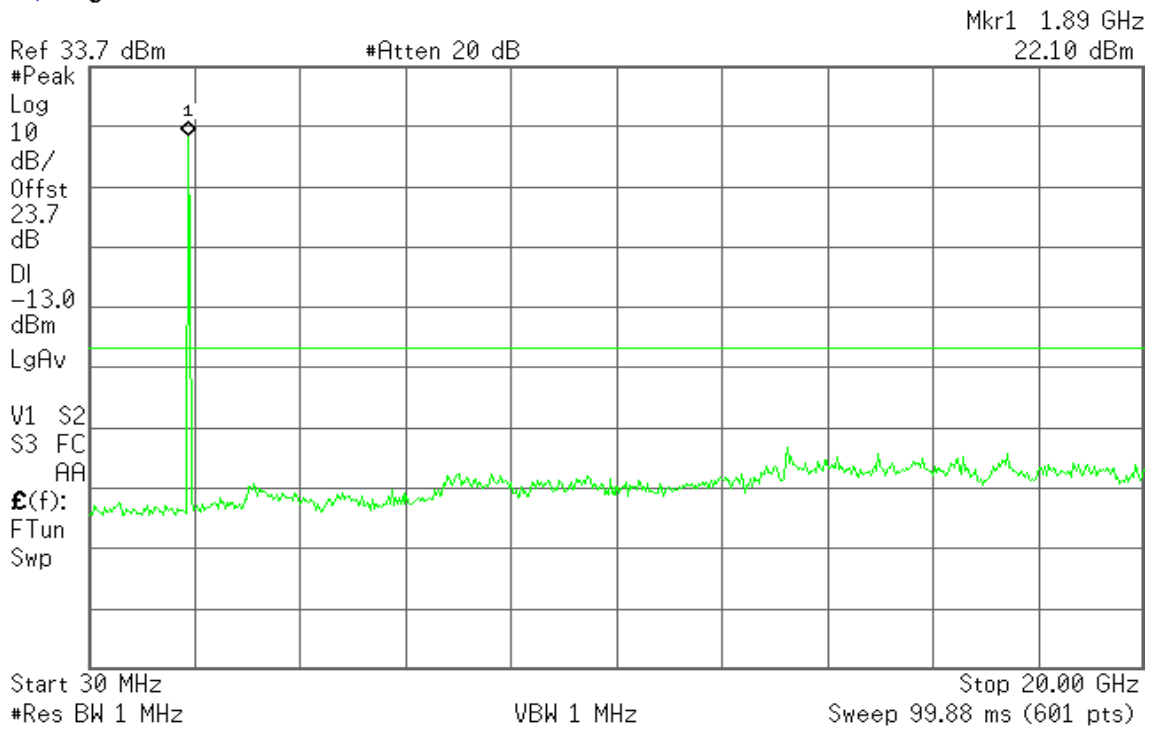




Figure 27-3: Out of Band emission at antenna terminals – HSUPA CH High

Agilent 13:06:39 Mar 30, 2013

R T





### HSUPA / WCDMA Band V

Figure 28-1: Out of Band emission at antenna terminals – HSUPA CH Low

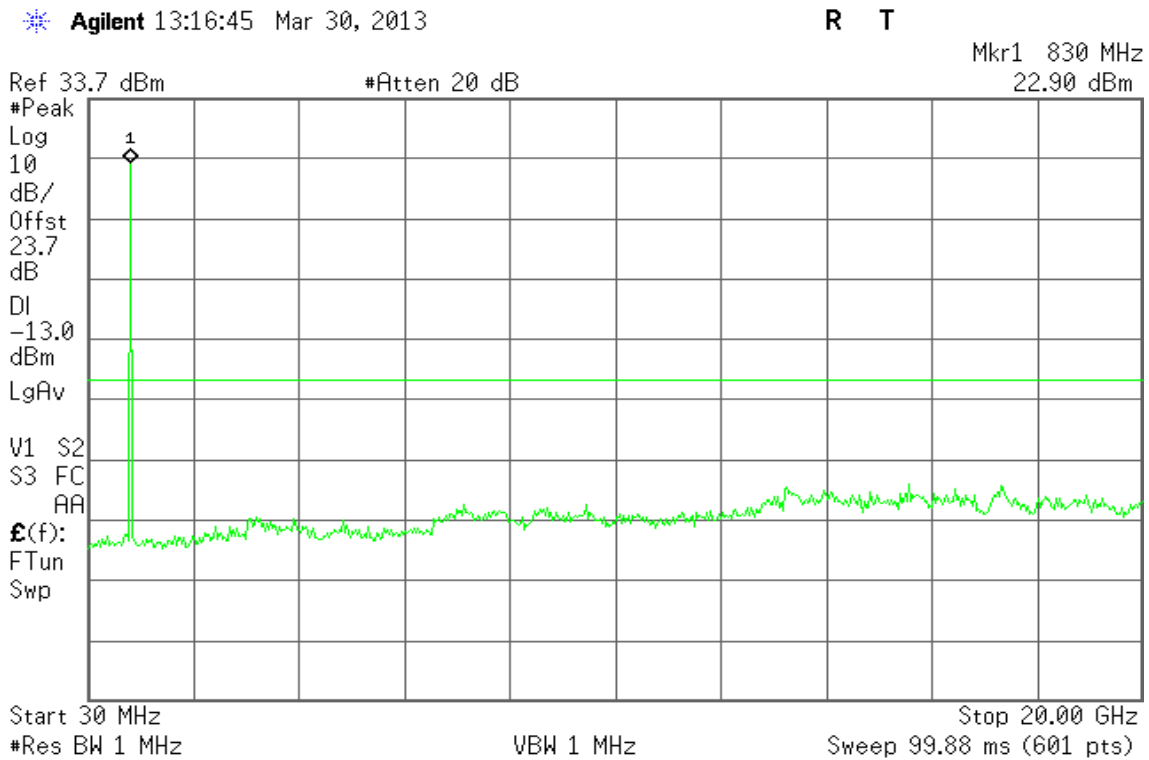


Figure 28-2: Out of Band emission at antenna terminals – HSUPA CH Mid

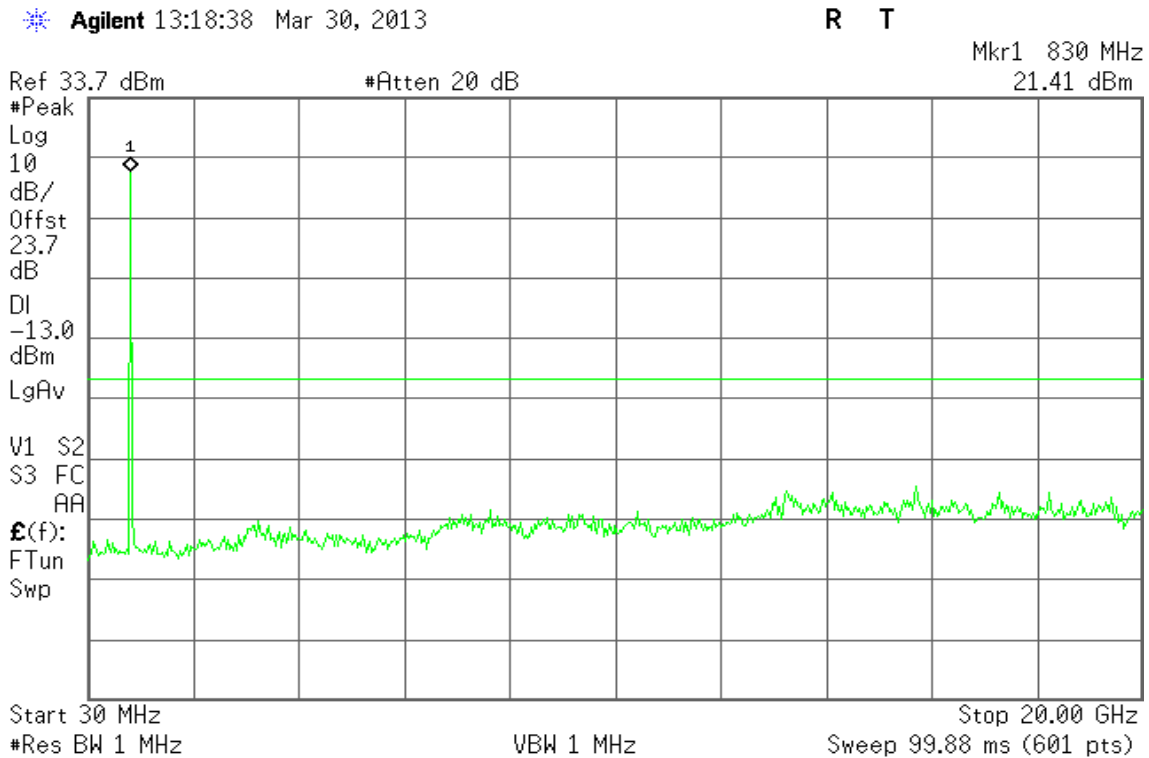


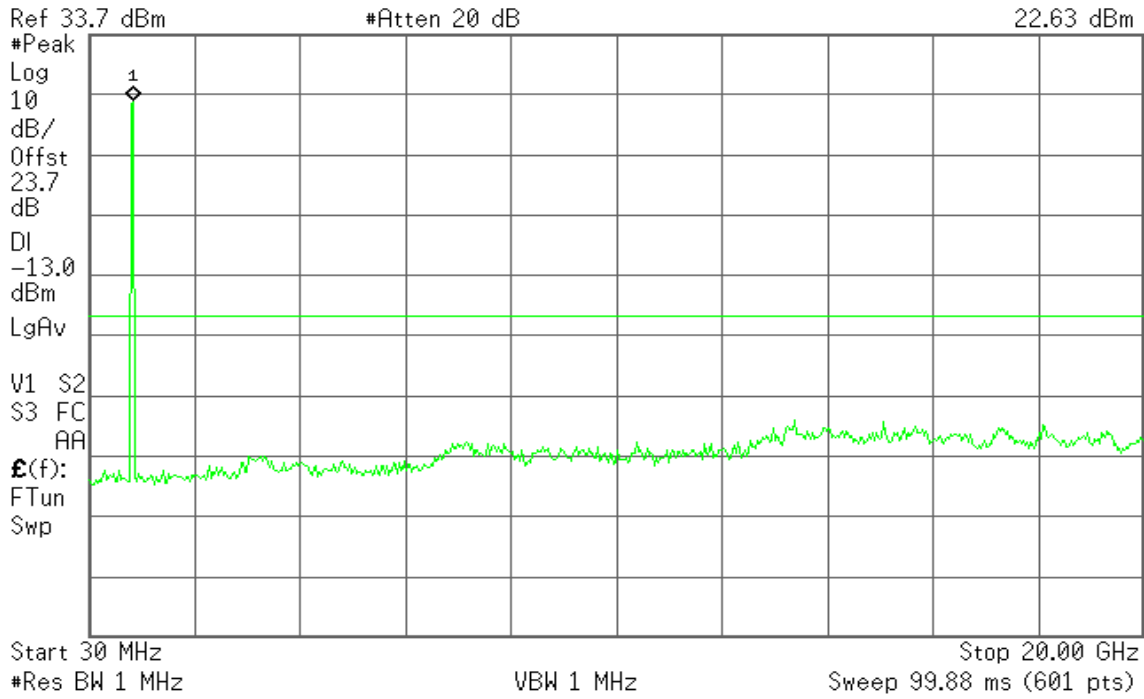


Figure 28-3: Out of Band emission at antenna terminals – HSUPA CH High

Agilent 13:21:50 Mar 30, 2013

R T

Mkr1 860 MHz  
22.63 dBm





### WCDMA / HSUPA Band II

Figure 29-1: Band Edge emissions – HSUPA CH Low

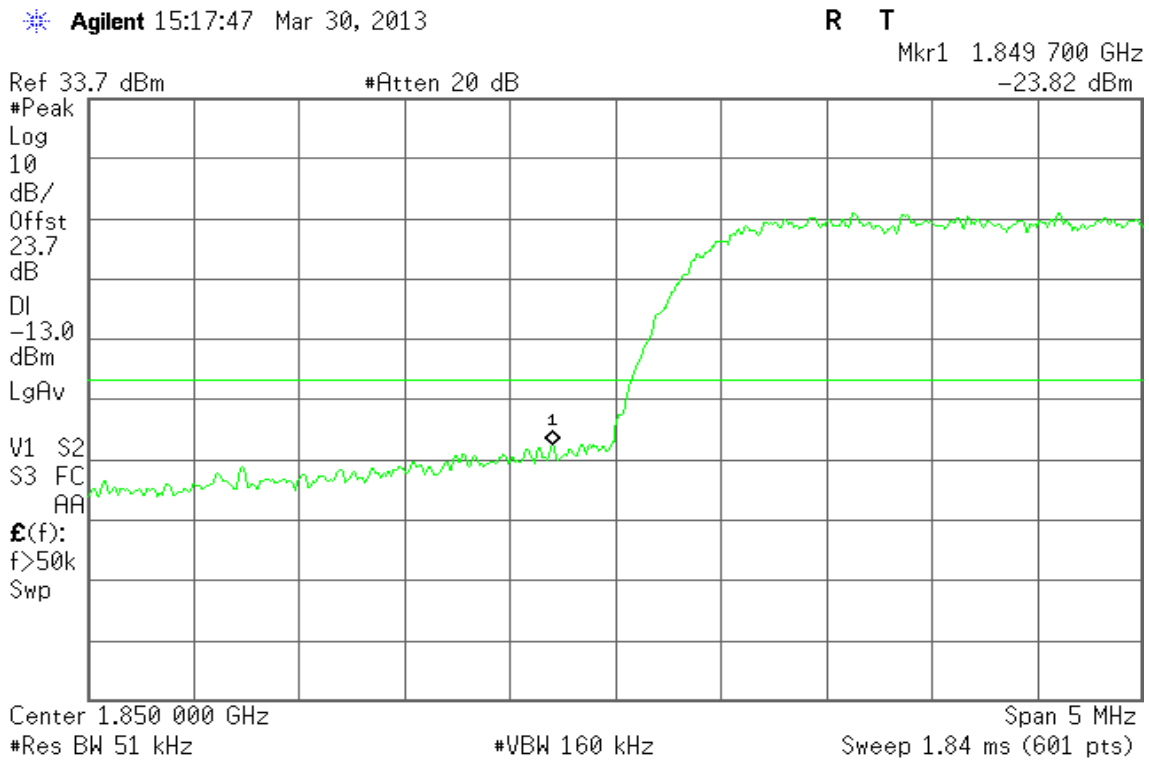
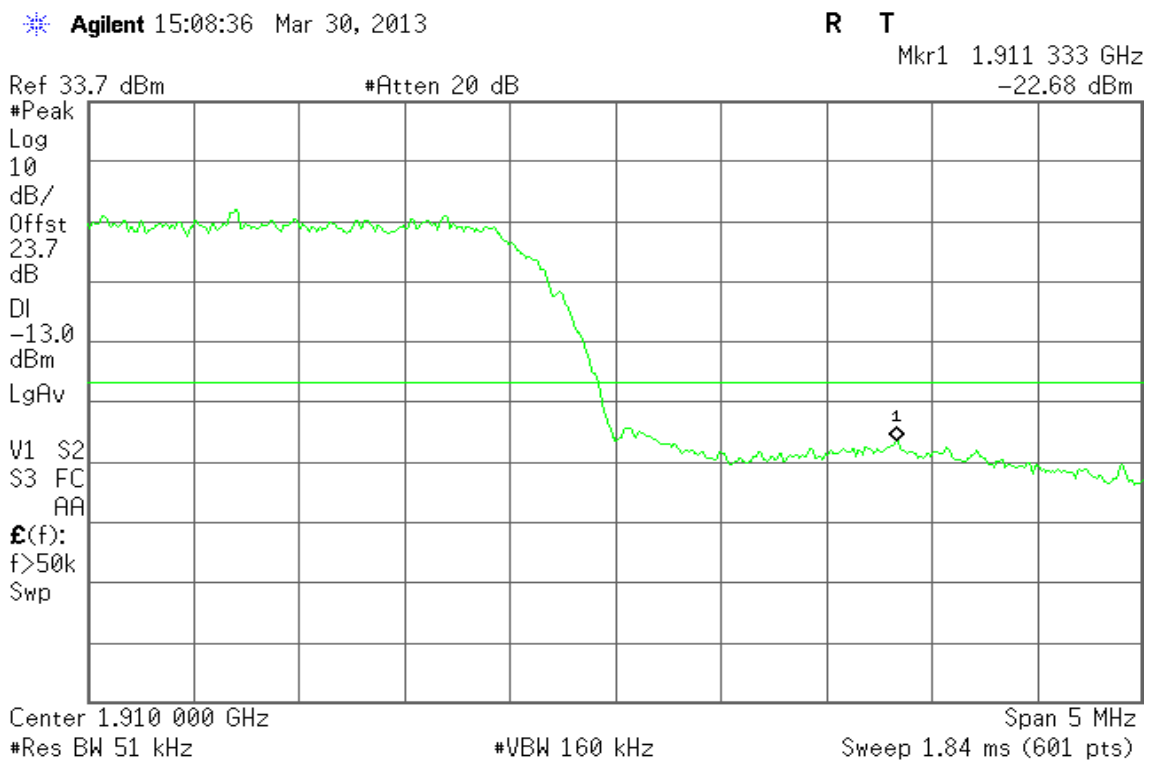


Figure 29-2: Band Edge emissions – HSUPA CH High





### WCDMA / HSUPA Band V

Figure 30-1: Band Edge emissions – HSUPA CH Low

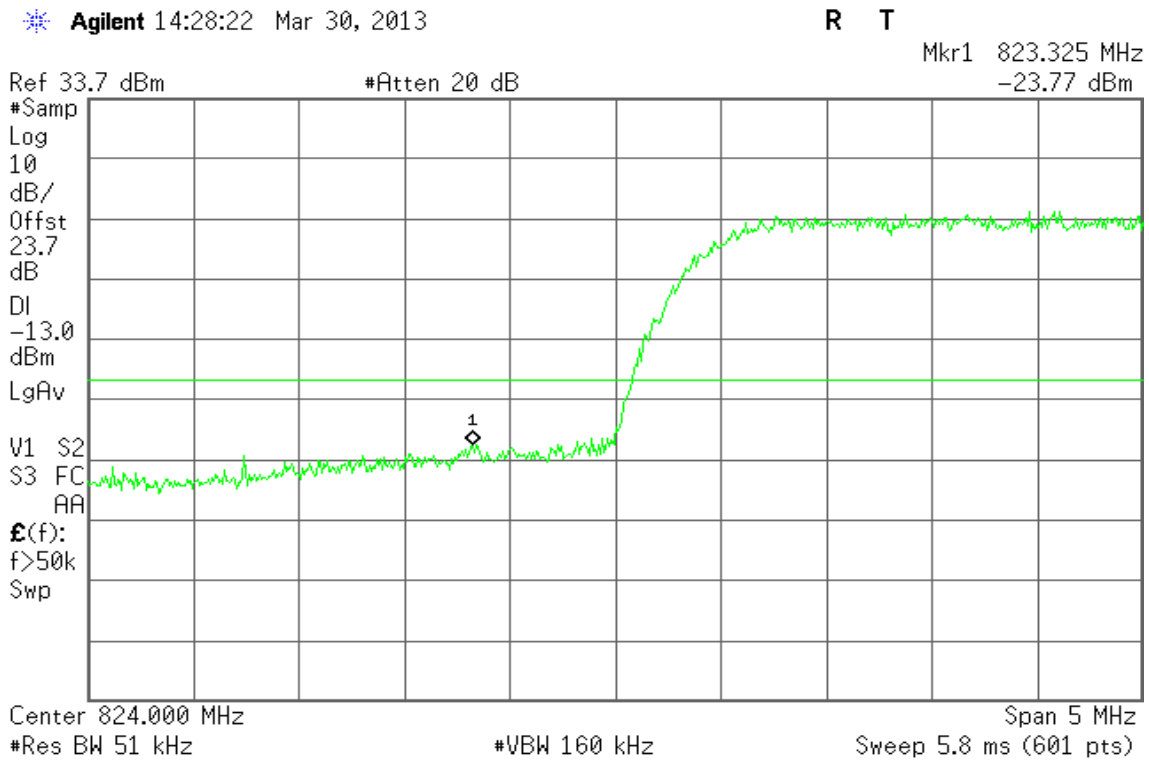
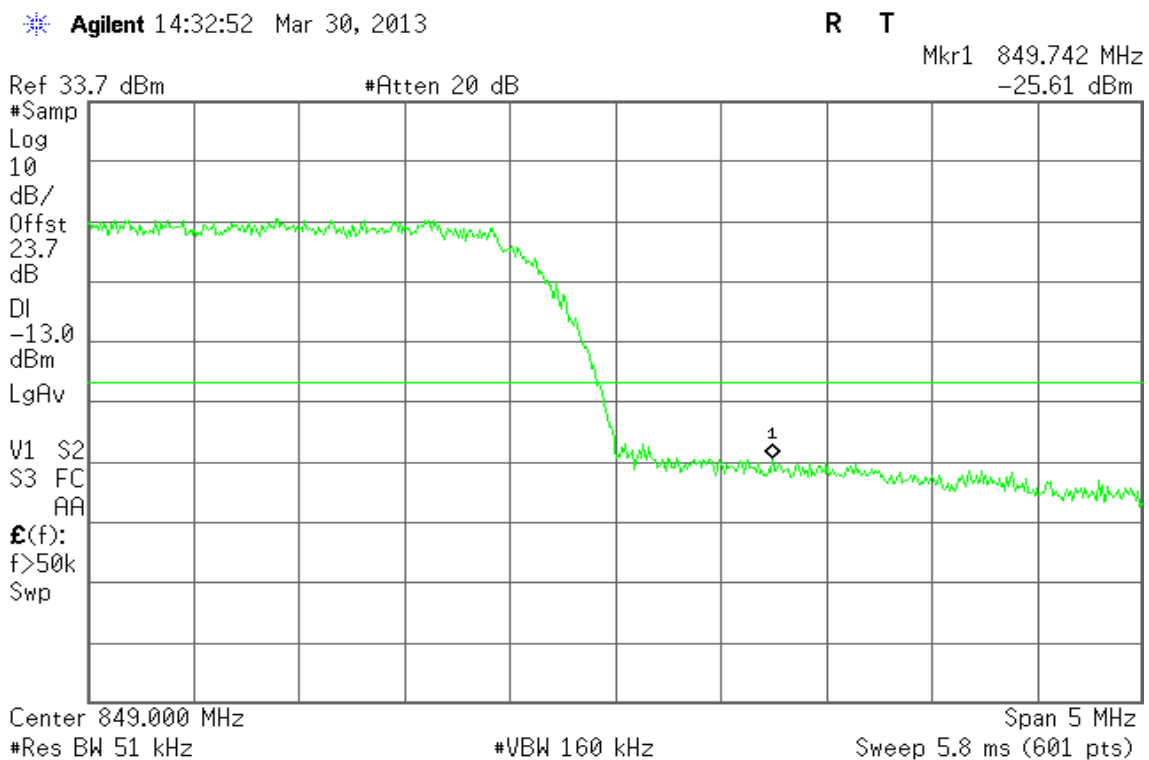


Figure 30-2: Band Edge emissions – HSUPA CH High





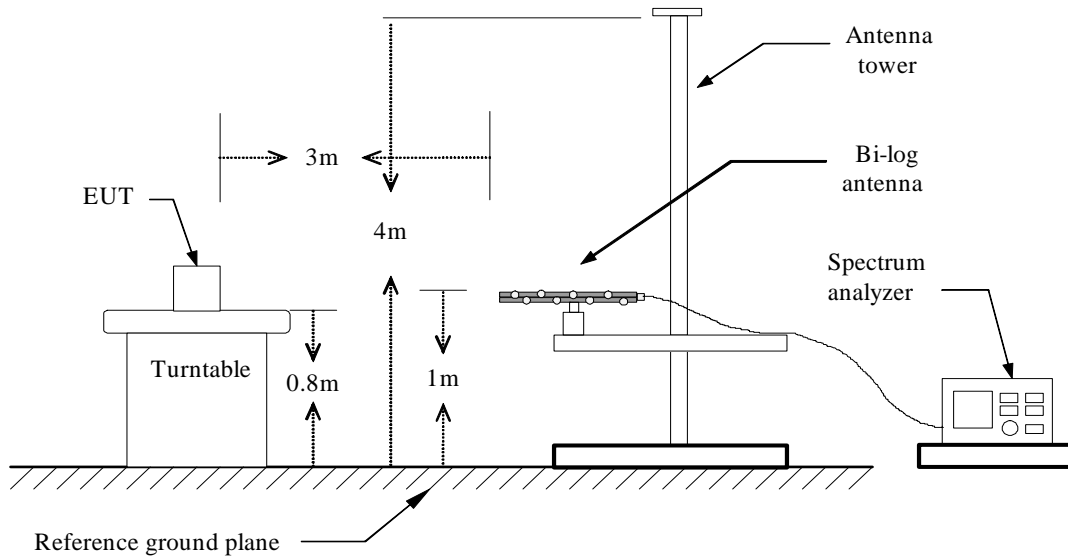
## 7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### LIMIT

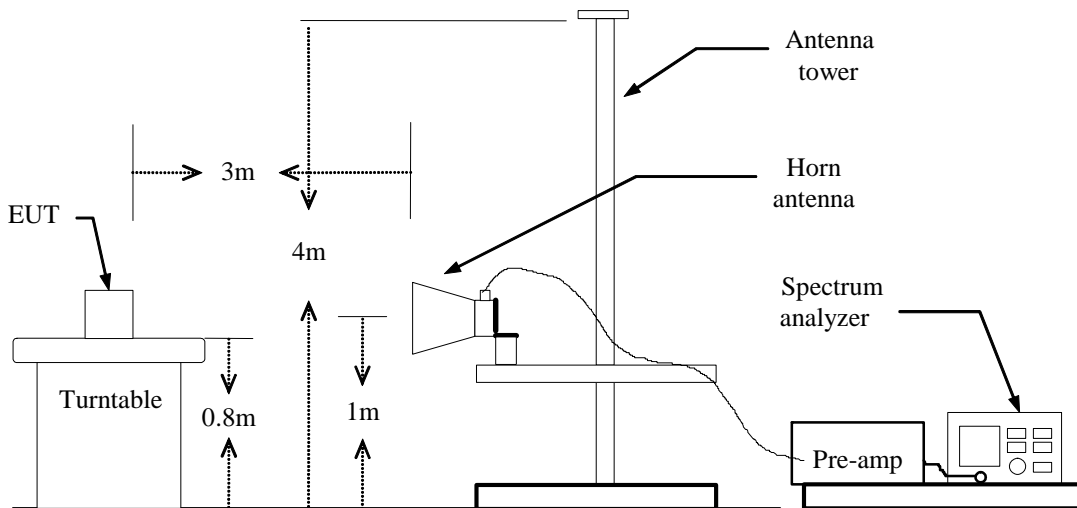
According to FCC §2.1053

### Test Configuration

#### Below 1 GHz

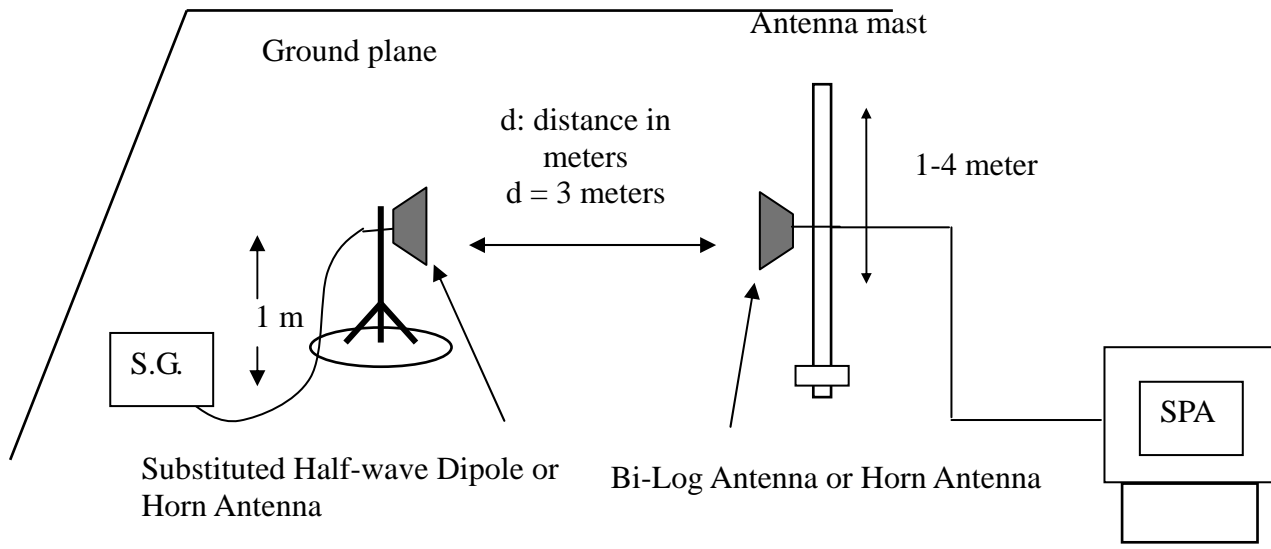


#### Above 1 GHz





## 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.

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

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

## TEST RESULTS

*Refer to the attached tabular data sheets.*

**Radiated Spurious Emission Measurement Result / Below 1GHz****Operation Mode:** GPRS 850 / TX / CH 128**Test Date:** April 2, 2013**Temperature:** 26°C**Tested by:** Wayne Tsai**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)
50.3700	-63.77	0.81	-4.8	-69.38	-13.00	-56.38	V
95.9600	-68.5	1.13	0.26	-69.37	-13.00	-56.37	V
208.4800	-78.29	1.67	5.2	-74.76	-13.00	-61.76	V
288.0200	-83.69	2.02	5.38	-80.33	-13.00	-67.33	V
512.0900	-81.94	2.69	6.02	-78.61	-13.00	-65.61	V
572.2300	-79.35	2.87	6.09	-76.13	-13.00	-63.13	V
123.1200	-68.06	1.29	-1.87	-71.22	-13.00	-58.22	H
207.5100	-74.61	1.67	4.95	-71.33	-13.00	-58.33	H
312.2700	-75.84	2.14	5.76	-72.22	-13.00	-59.22	H
359.8000	-77.71	2.27	5.7	-74.28	-13.00	-61.28	H
452.9200	-75.09	2.59	5.77	-71.91	-13.00	-58.91	H
576.1100	-72.3	2.88	6.05	-69.13	-13.00	-56.13	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:** April 2, 2013**Temperature:** 26°C**Tested by:** Wayne Tsai**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)
51.3400	-64.67	0.81	-4.51	-69.99	-13.00	-56.99	V
95.9600	-68.92	1.13	0.26	-69.79	-13.00	-56.79	V
207.5100	-78.17	1.67	4.95	-74.89	-13.00	-61.89	V
288.0200	-82.11	2.02	5.38	-78.75	-13.00	-65.75	V
519.8500	-79.35	2.7	6.1	-75.95	-13.00	-62.95	V
699.3000	-78.48	3.11	6.4	-75.19	-13.00	-62.19	V
47.4600	-63.13	0.78	-6.58	-70.49	-13.00	-57.49	H
120.2100	-68.8	1.27	-2.06	-72.13	-13.00	-59.13	H
208.4800	-74.41	1.67	5.2	-70.88	-13.00	-57.88	H
384.0500	-76.67	2.31	5.99	-72.99	-13.00	-59.99	H
452.9200	-75.17	2.59	5.77	-71.99	-13.00	-58.99	H
576.1100	-73.1	2.88	6.05	-69.93	-13.00	-56.93	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:** April 2, 2013**Temperature:** 26°C**Tested by:** Wayne Tsai**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)
50.3700	-63.24	0.81	-4.8	-68.85	-13.00	-55.85	V
95.9600	-67.52	1.13	0.26	-68.39	-13.00	-55.39	V
207.5100	-77.48	1.67	4.95	-74.20	-13.00	-61.20	V
288.0200	-81.63	2.02	5.38	-78.27	-13.00	-65.27	V
468.4400	-81.89	2.62	5.8	-78.71	-13.00	-65.71	V
556.7100	-79.2	2.83	6.08	-75.95	-13.00	-62.95	V
48.4300	-63.54	0.79	-5.83	-70.16	-13.00	-57.16	H
120.2100	-68.66	1.27	-2.06	-71.99	-13.00	-58.99	H
208.4800	-74.6	1.67	5.2	-71.07	-13.00	-58.07	H
216.2400	-74.38	1.74	5.36	-70.76	-13.00	-57.76	H
263.7700	-74.62	1.93	5.41	-71.14	-13.00	-58.14	H
599.3900	-72.26	2.9	6.39	-68.77	-13.00	-55.77	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 1900 / TX / CH 512

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
48.4300	-63.37	0.79	-5.83	-69.99	-13.00	-56.99	V
147.3700	-76.86	1.42	0.44	-77.84	-13.00	-64.84	V
216.2400	-82.02	1.74	5.36	-78.40	-13.00	-65.40	V
384.0500	-82.37	2.31	5.99	-78.69	-13.00	-65.69	V
515.0000	-79.26	2.7	6.05	-75.91	-13.00	-62.91	V
616.8500	-70.37	2.94	6.16	-67.15	-13.00	-54.15	V
51.3400	-65.21	0.81	-4.51	-70.53	-13.00	-57.53	H
147.3700	-68.41	1.42	0.44	-69.39	-13.00	-56.39	H
263.7700	-76.75	1.93	5.41	-73.27	-13.00	-60.27	H
347.1900	-76.55	2.21	5.8	-72.96	-13.00	-59.96	H
607.1500	-62.51	2.93	6.33	-59.11	-13.00	-46.11	H
935.9800	-65.02	3.6	6.4	-62.22	-13.00	-49.22	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
48.4300	-62.19	0.79	-5.83	-68.81	-13.00	-55.81	V
145.4300	-77.02	1.41	0.26	-78.17	-13.00	-65.17	V
208.4800	-82.3	1.67	5.2	-78.77	-13.00	-65.77	V
263.7700	-84.18	1.93	5.41	-80.70	-13.00	-67.70	V
312.2700	-82.8	2.14	5.76	-79.18	-13.00	-66.18	V
616.8500	-70.96	2.94	6.16	-67.74	-13.00	-54.74	V
45.5200	-64.63	0.77	-8.09	-73.49	-13.00	-60.49	H
143.4900	-69.36	1.4	0.08	-70.68	-13.00	-57.68	H
384.0500	-78.55	2.31	5.99	-74.87	-13.00	-61.87	H
602.3000	-65.52	2.91	6.38	-62.05	-13.00	-49.05	H
716.7600	-71.83	3.16	6.43	-68.56	-13.00	-55.56	H
935.9800	-68.97	3.6	6.4	-66.17	-13.00	-53.17	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:** GPRS 1900 / TX / CH 810

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
54.2500	-69.76	0.83	-3.66	-74.25	-13.00	-61.25	V
146.4000	-77.05	1.41	0.35	-78.11	-13.00	-65.11	V
384.0500	-83.06	2.31	5.99	-79.38	-13.00	-66.38	V
445.1600	-82.09	2.56	5.8	-78.85	-13.00	-65.85	V
591.6300	-78.2	2.89	6.23	-74.86	-13.00	-61.86	V
675.0500	-73.36	3.08	6.4	-70.04	-13.00	-57.04	V
95.9600	-72.19	1.13	0.26	-73.06	-13.00	-60.06	H
145.4300	-71.24	1.41	0.26	-72.39	-13.00	-59.39	H
327.7900	-80.96	2.17	5.71	-77.42	-13.00	-64.42	H
442.2500	-77.85	2.55	5.85	-74.55	-13.00	-61.55	H
571.2600	-67.08	2.87	6.1	-63.85	-13.00	-50.85	H
608.1200	-63.88	2.93	6.32	-60.49	-13.00	-47.49	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
50.3700	-64.3	0.81	-4.8	-69.91	-13.00	-56.91	V
95.9600	-68.48	1.13	0.26	-69.35	-13.00	-56.35	V
149.3100	-76.34	1.42	0.62	-77.14	-13.00	-64.14	V
207.5100	-78.52	1.67	4.95	-75.24	-13.00	-62.24	V
312.2700	-82.28	2.14	5.76	-78.66	-13.00	-65.66	V
572.2300	-79.37	2.87	6.09	-76.15	-13.00	-63.15	V
48.4300	-63.35	0.79	-5.83	-69.97	-13.00	-56.97	H
95.9600	-72.04	1.13	0.26	-72.91	-13.00	-59.91	H
123.1200	-68.88	1.29	-1.87	-72.04	-13.00	-59.04	H
167.7400	-73.77	1.55	2.26	-73.06	-13.00	-60.06	H
216.2400	-74.34	1.74	5.36	-70.72	-13.00	-57.72	H
576.1100	-71.92	2.88	6.05	-68.75	-13.00	-55.75	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 850 / TX / CH 190

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-64.9	0.81	-4.51	-70.22	-13.00	-57.22	V
95.9600	-68.4	1.13	0.26	-69.27	-13.00	-56.27	V
208.4800	-78.04	1.67	5.2	-74.51	-13.00	-61.51	V
338.4600	-83.18	2.17	5.78	-79.57	-13.00	-66.57	V
519.8500	-80.23	2.7	6.1	-76.83	-13.00	-63.83	V
640.1300	-78.53	3.01	6.13	-75.41	-13.00	-62.41	V
48.4300	-62.93	0.79	-5.83	-69.55	-13.00	-56.55	H
120.2100	-67.88	1.27	-2.06	-71.21	-13.00	-58.21	H
216.2400	-74.32	1.74	5.36	-70.70	-13.00	-57.70	H
263.7700	-76.92	1.93	5.41	-73.44	-13.00	-60.44	H
452.9200	-76.34	2.59	5.77	-73.16	-13.00	-60.16	H
576.1100	-72.01	2.88	6.05	-68.84	-13.00	-55.84	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
50.3700	-63.22	0.81	-4.8	-68.83	-13.00	-55.83	V
95.9600	-67.94	1.13	0.26	-68.81	-13.00	-55.81	V
207.5100	-77.99	1.67	4.95	-74.71	-13.00	-61.71	V
288.0200	-80.58	2.02	5.38	-77.22	-13.00	-64.22	V
384.0500	-83.5	2.31	5.99	-79.82	-13.00	-66.82	V
623.6400	-78.97	2.95	6.14	-75.78	-13.00	-62.78	V
48.4300	-62.25	0.79	-5.83	-68.87	-13.00	-55.87	H
120.2100	-68.03	1.27	-2.06	-71.36	-13.00	-58.36	H
216.2400	-73.7	1.74	5.36	-70.08	-13.00	-57.08	H
384.0500	-76.19	2.31	5.99	-72.51	-13.00	-59.51	H
452.9200	-74.84	2.59	5.77	-71.66	-13.00	-58.66	H
576.1100	-70.45	2.88	6.05	-67.28	-13.00	-54.28	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:** April 2, 2013**Temperature:** 26°C**Tested by:** Wayne Tsai**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)
48.4300	-63.52	0.79	-5.83	-70.14	-13.00	-57.14	V
148.3400	-76.95	1.42	0.53	-77.84	-13.00	-64.84	V
312.2700	-82.38	2.14	5.76	-78.76	-13.00	-65.76	V
389.8700	-82.03	2.32	6	-78.35	-13.00	-65.35	V
546.0400	-80.33	2.8	6.21	-76.92	-13.00	-63.92	V
618.7900	-71.21	2.94	6.12	-68.03	-13.00	-55.03	V
885.5400	-77.02	3.48	6.7	-73.80	-13.00	-60.80	V
95.9600	-69.02	1.13	0.26	-69.89	-13.00	-56.89	H
143.4900	-68.55	1.4	0.08	-69.87	-13.00	-56.87	H
326.8200	-79.34	2.17	5.71	-75.80	-13.00	-62.80	H
599.3900	-63.82	2.9	6.39	-60.33	-13.00	-47.33	H
883.6000	-71.59	3.48	6.7	-68.37	-13.00	-55.37	H
935.9800	-68.03	3.6	6.4	-65.23	-13.00	-52.23	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
48.4300	-61.28	0.79	-5.83	-67.90	-13.00	-54.90	V
95.9600	-75.09	1.13	0.26	-75.96	-13.00	-62.96	V
208.4800	-83.17	1.67	5.2	-79.64	-13.00	-66.64	V
513.0600	-81.02	2.69	6.03	-77.68	-13.00	-64.68	V
555.7400	-79.22	2.83	6.09	-75.96	-13.00	-62.96	V
619.7600	-70.88	2.94	6.11	-67.71	-13.00	-54.71	V
149.3100	-70.11	1.42	0.62	-70.91	-13.00	-57.91	H
191.9900	-81.43	1.62	3.79	-79.26	-13.00	-66.26	H
330.7000	-79.85	2.16	5.71	-76.30	-13.00	-63.30	H
451.9500	-76.95	2.59	5.75	-73.79	-13.00	-60.79	H
605.2100	-65.57	2.92	6.35	-62.14	-13.00	-49.14	H
883.6000	-73.47	3.48	6.7	-70.25	-13.00	-57.25	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.*

**Operation Mode:** EDGE 1900 / TX / CH 810**Test Date:** April 2, 2013**Temperature:** 26°C**Tested by:** Wayne Tsai**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)
48.4300	-66.35	0.79	-5.83	-72.97	-13.00	-59.97	V
123.1200	-76.52	1.29	-1.87	-79.68	-13.00	-66.68	V
207.5100	-83.56	1.67	4.95	-80.28	-13.00	-67.28	V
305.4800	-87.37	2.12	5.71	-83.78	-13.00	-70.78	V
458.7400	-82.66	2.6	5.87	-79.39	-13.00	-66.39	V
660.5000	-73.15	3.06	6.3	-69.91	-13.00	-56.91	V
935.9800	-75.04	3.6	6.4	-72.24	-13.00	-59.24	V
95.9600	-72.64	1.13	0.26	-73.51	-13.00	-60.51	H
144.4600	-68.51	1.41	0.17	-69.75	-13.00	-56.75	H
323.9100	-79.82	2.17	5.7	-76.29	-13.00	-63.29	H
496.5700	-74.98	2.69	5.86	-71.81	-13.00	-58.81	H
613.9400	-63.47	2.94	6.21	-60.20	-13.00	-47.20	H
719.6700	-72.19	3.17	6.48	-68.88	-13.00	-55.88	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:** April 2, 2013**Temperature:** 26°C**Tested by:** Wayne Tsai**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)
51.3400	-64.16	0.81	-4.51	-69.48	-13.00	-56.48	V
95.9600	-71.26	1.13	0.26	-72.13	-13.00	-59.13	V
156.1000	-73.58	1.46	1.15	-73.89	-13.00	-60.89	V
207.5100	-78.25	1.67	4.95	-74.97	-13.00	-61.97	V
263.7700	-80.28	1.93	5.41	-76.80	-13.00	-63.80	V
665.3500	-71.47	3.06	6.3	-68.23	-13.00	-55.23	V
883.6000	-72.41	3.48	6.7	-69.19	-13.00	-56.19	V
48.4300	-65.24	0.79	-5.83	-71.86	-13.00	-58.86	H
123.1200	-64.45	1.29	-1.87	-67.61	-13.00	-54.61	H
207.5100	-78.82	1.67	4.95	-75.54	-13.00	-62.54	H
263.7700	-81.42	1.93	5.41	-77.94	-13.00	-64.94	H
452.9200	-76.47	2.59	5.77	-73.29	-13.00	-60.29	H
603.2700	-72.68	2.91	6.37	-69.22	-13.00	-56.22	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-63.3	0.81	-4.51	-68.62	-13.00	-55.62	V
95.9600	-71.4	1.13	0.26	-72.27	-13.00	-59.27	V
156.1000	-74.48	1.46	1.15	-74.79	-13.00	-61.79	V
208.4800	-76.79	1.67	5.2	-73.26	-13.00	-60.26	V
883.6000	-73.07	3.48	6.7	-69.85	-13.00	-56.85	V
935.9800	-71.94	3.6	6.4	-69.14	-13.00	-56.14	V
123.1200	-63.03	1.29	-1.87	-66.19	-13.00	-53.19	H
207.5100	-74.51	1.67	4.95	-71.23	-13.00	-58.23	H
320.0300	-77.41	2.18	5.71	-73.88	-13.00	-60.88	H
606.1800	-63.76	2.93	6.34	-60.35	-13.00	-47.35	H
883.6000	-68.21	3.48	6.7	-64.99	-13.00	-51.99	H
935.9800	-65.6	3.6	6.4	-62.80	-13.00	-49.80	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:** April 2, 2013**Temperature:** 26°C**Tested by:** Wayne Tsai**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)
51.3400	-64.22	0.81	-4.51	-69.54	-13.00	-56.54	V
156.1000	-74.42	1.46	1.15	-74.73	-13.00	-61.73	V
208.4800	-77.42	1.67	5.2	-73.89	-13.00	-60.89	V
263.7700	-80.75	1.93	5.41	-77.27	-13.00	-64.27	V
671.1700	-70.74	3.07	6.32	-67.49	-13.00	-54.49	V
935.9800	-72.16	3.6	6.4	-69.36	-13.00	-56.36	V
48.4300	-64.16	0.79	-5.83	-70.78	-13.00	-57.78	H
123.1200	-62.62	1.29	-1.87	-65.78	-13.00	-52.78	H
207.5100	-75.66	1.67	4.95	-72.38	-13.00	-59.38	H
572.2300	-66.51	2.87	6.09	-63.29	-13.00	-50.29	H
617.8200	-66.68	2.94	6.14	-63.48	-13.00	-50.48	H
935.9800	-66.36	3.6	6.4	-63.56	-13.00	-50.56	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-64.86	0.81	-4.51	-70.18	-13.00	-57.18	V
95.9600	-70.56	1.13	0.26	-71.43	-13.00	-58.43	V
154.1600	-74.78	1.45	1.01	-75.22	-13.00	-62.22	V
208.4800	-77.65	1.67	5.2	-74.12	-13.00	-61.12	V
263.7700	-79.89	1.93	5.41	-76.41	-13.00	-63.41	V
612.9700	-72.65	2.94	6.23	-69.36	-13.00	-56.36	V
48.4300	-64.54	0.79	-5.83	-71.16	-13.00	-58.16	H
124.0900	-64.04	1.3	-1.81	-67.15	-13.00	-54.15	H
208.4800	-75.07	1.67	5.2	-71.54	-13.00	-58.54	H
288.0200	-77.55	2.02	5.38	-74.19	-13.00	-61.19	H
401.5100	-75.65	2.4	5.98	-72.07	-13.00	-59.07	H
609.0900	-64.4	2.94	6.31	-61.03	-13.00	-48.03	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-65	0.81	-4.51	-70.32	-13.00	-57.32	V
95.9600	-71.35	1.13	0.26	-72.22	-13.00	-59.22	V
154.1600	-74.37	1.45	1.01	-74.81	-13.00	-61.81	V
208.4800	-78.37	1.67	5.2	-74.84	-13.00	-61.84	V
263.7700	-80.23	1.93	5.41	-76.75	-13.00	-63.75	V
612.0000	-72.5	2.94	6.25	-69.19	-13.00	-56.19	V
124.0900	-63.37	1.3	-1.81	-66.48	-13.00	-53.48	H
129.9100	-68.87	1.34	-1.41	-71.62	-13.00	-58.62	H
207.5100	-74.96	1.67	4.95	-71.68	-13.00	-58.68	H
312.2700	-76.73	2.14	5.76	-73.11	-13.00	-60.11	H
452.9200	-74.35	2.59	5.77	-71.17	-13.00	-58.17	H
603.2700	-64.99	2.91	6.37	-61.53	-13.00	-48.53	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 V / TX / CH 4233

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-64.35	0.81	-4.51	-69.67	-13.00	-56.67	V
95.9600	-70.5	1.13	0.26	-71.37	-13.00	-58.37	V
208.4800	-77.78	1.67	5.2	-74.25	-13.00	-61.25	V
312.2700	-80.84	2.14	5.76	-77.22	-13.00	-64.22	V
618.7900	-72.22	2.94	6.12	-69.04	-13.00	-56.04	V
741.0100	-77.36	3.21	6.1	-74.47	-13.00	-61.47	V
47.4600	-63.9	0.78	-6.58	-71.26	-13.00	-58.26	H
122.1500	-63.98	1.29	-1.93	-67.20	-13.00	-54.20	H
207.5100	-75.48	1.67	4.95	-72.20	-13.00	-59.20	H
263.7700	-77.94	1.93	5.41	-74.46	-13.00	-61.46	H
384.0500	-76.69	2.31	5.99	-73.01	-13.00	-60.01	H
608.1200	-64.77	2.93	6.32	-61.38	-13.00	-48.38	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-64.55	0.81	-4.51	-69.87	-13.00	-56.87	V
208.4800	-77.82	1.67	5.2	-74.29	-13.00	-61.29	V
435.4600	-81.85	2.51	5.86	-78.50	-13.00	-65.50	V
671.1700	-71.15	3.07	6.32	-67.90	-13.00	-54.90	V
883.6000	-72.93	3.48	6.7	-69.71	-13.00	-56.71	V
935.9800	-71.29	3.6	6.4	-68.49	-13.00	-55.49	V
48.4300	-67.54	0.79	-5.83	-74.16	-13.00	-61.16	H
124.0900	-65.23	1.3	-1.81	-68.34	-13.00	-55.34	H
207.5100	-78.83	1.67	4.95	-75.55	-13.00	-62.55	H
312.2700	-80.58	2.14	5.76	-76.96	-13.00	-63.96	H
452.9200	-76.39	2.59	5.77	-73.21	-13.00	-60.21	H
603.2700	-74.83	2.91	6.37	-71.37	-13.00	-58.37	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:** WCDMA / HSDPA Band II /  
TX / CH 9400

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-67.33	0.81	-4.51	-72.65	-13.00	-59.65	V
95.9600	-73.87	1.13	0.26	-74.74	-13.00	-61.74	V
156.1000	-75.32	1.46	1.15	-75.63	-13.00	-62.63	V
207.5100	-77.71	1.67	4.95	-74.43	-13.00	-61.43	V
607.1500	-72.6	2.93	6.33	-69.20	-13.00	-56.20	V
671.1700	-71.06	3.07	6.32	-67.81	-13.00	-54.81	V
48.4300	-62.62	0.79	-5.83	-69.24	-13.00	-56.24	H
122.1500	-62.81	1.29	-1.93	-66.03	-13.00	-53.03	H
207.5100	-74.83	1.67	4.95	-71.55	-13.00	-58.55	H
605.2100	-63.93	2.92	6.35	-60.50	-13.00	-47.50	H
883.6000	-68.23	3.48	6.7	-65.01	-13.00	-52.01	H
935.9800	-66.34	3.6	6.4	-63.54	-13.00	-50.54	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 9538

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
52.3100	-63.98	0.82	-4.22	-69.02	-13.00	-56.02	V
95.9600	-72.5	1.13	0.26	-73.37	-13.00	-60.37	V
154.1600	-73.62	1.45	1.01	-74.06	-13.00	-61.06	V
208.4800	-77.91	1.67	5.2	-74.38	-13.00	-61.38	V
603.2700	-72.39	2.91	6.37	-68.93	-13.00	-55.93	V
676.0200	-70.76	3.08	6.42	-67.42	-13.00	-54.42	V
883.6000	-72.64	3.48	6.7	-69.42	-13.00	-56.42	V
48.4300	-62.34	0.79	-5.83	-68.96	-13.00	-55.96	H
123.1200	-62.46	1.29	-1.87	-65.62	-13.00	-52.62	H
208.4800	-74.73	1.67	5.2	-71.20	-13.00	-58.20	H
607.1500	-64.43	2.93	6.33	-61.03	-13.00	-48.03	H
680.8700	-69.16	3.09	6.5	-65.75	-13.00	-52.75	H
935.9800	-66.75	3.6	6.4	-63.95	-13.00	-50.95	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-65.48	0.81	-4.51	-70.80	-13.00	-57.80	V
95.9600	-70.96	1.13	0.26	-71.83	-13.00	-58.83	V
156.1000	-75.32	1.46	1.15	-75.63	-13.00	-62.63	V
207.5100	-77.19	1.67	4.95	-73.91	-13.00	-60.91	V
312.2700	-81.03	2.14	5.76	-77.41	-13.00	-64.41	V
611.0300	-72.84	2.94	6.27	-69.51	-13.00	-56.51	V
48.4300	-62.87	0.79	-5.83	-69.49	-13.00	-56.49	H
122.1500	-63.49	1.29	-1.93	-66.71	-13.00	-53.71	H
207.5100	-75.4	1.67	4.95	-72.12	-13.00	-59.12	H
312.2700	-76.28	2.14	5.76	-72.66	-13.00	-59.66	H
384.0500	-75.71	2.31	5.99	-72.03	-13.00	-59.03	H
605.2100	-64.46	2.92	6.35	-61.03	-13.00	-48.03	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-71.31	1.13	0.26	-72.18	-13.00	-59.18	V
153.1900	-73.93	1.44	0.94	-74.43	-13.00	-61.43	V
239.5200	-77.98	1.81	5.35	-74.44	-13.00	-61.44	V
312.2700	-81.28	2.14	5.76	-77.66	-13.00	-64.66	V
494.6300	-78.99	2.68	5.84	-75.83	-13.00	-62.83	V
607.1500	-72.72	2.93	6.33	-69.32	-13.00	-56.32	V
123.1200	-63.53	1.29	-1.87	-66.69	-13.00	-53.69	H
207.5100	-75.09	1.67	4.95	-71.81	-13.00	-58.81	H
312.2700	-76.2	2.14	5.76	-72.58	-13.00	-59.58	H
384.0500	-75.42	2.31	5.99	-71.74	-13.00	-58.74	H
462.6200	-73.64	2.61	5.85	-70.40	-13.00	-57.40	H
609.0900	-65.22	2.94	6.31	-61.85	-13.00	-48.85	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:** April 1, 2013

**Temperature:** 25°C

**Tested by:** Wayne Tsai

**Humidity:** 50 % 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)
51.3400	-63.78	0.81	-4.51	-69.10	-13.00	-56.10	V
95.9600	-70.78	1.13	0.26	-71.65	-13.00	-58.65	V
207.5100	-77.74	1.67	4.95	-74.46	-13.00	-61.46	V
263.7700	-79.23	1.93	5.41	-75.75	-13.00	-62.75	V
312.2700	-82.47	2.14	5.76	-78.85	-13.00	-65.85	V
609.0900	-72.75	2.94	6.31	-69.38	-13.00	-56.38	V
47.4600	-63.36	0.78	-6.58	-70.72	-13.00	-57.72	H
124.0900	-63.36	1.3	-1.81	-66.47	-13.00	-53.47	H
208.4800	-75.68	1.67	5.2	-72.15	-13.00	-59.15	H
312.2700	-77.04	2.14	5.76	-73.42	-13.00	-60.42	H
384.0500	-76.65	2.31	5.99	-72.97	-13.00	-59.97	H
610.0600	-64.63	2.94	6.29	-61.28	-13.00	-48.28	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 / HSUPA Band II /  
TX / CH 9262

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-67.27	0.81	-4.51	-72.59	-13.00	-59.59	V
154.1600	-77	1.45	1.01	-77.44	-13.00	-64.44	V
240.4900	-81.37	1.81	5.34	-77.84	-13.00	-64.84	V
263.7700	-81.95	1.93	5.41	-78.47	-13.00	-65.47	V
408.3000	-82.89	2.44	5.92	-79.41	-13.00	-66.41	V
610.0600	-73.51	2.94	6.29	-70.16	-13.00	-57.16	V
57.1600	-70.16	0.86	-2.8	-73.82	-13.00	-60.82	H
124.0900	-65.83	1.3	-1.81	-68.94	-13.00	-55.94	H
452.9200	-76.69	2.59	5.77	-73.51	-13.00	-60.51	H
564.4700	-75.37	2.86	6.03	-72.20	-13.00	-59.20	H
676.0200	-75.27	3.08	6.42	-71.93	-13.00	-58.93	H
960.2300	-69.3	3.67	6.39	-66.58	-13.00	-53.58	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 / HSUPA Band II /  
TX / CH 9400

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
52.3100	-67.53	0.82	-4.22	-72.57	-13.00	-59.57	V
95.9600	-72.43	1.13	0.26	-73.30	-13.00	-60.30	V
153.1900	-76.51	1.44	0.94	-77.01	-13.00	-64.01	V
216.2400	-83.85	1.74	5.36	-80.23	-13.00	-67.23	V
435.4600	-81.6	2.51	5.86	-78.25	-13.00	-65.25	V
669.2300	-73.6	3.07	6.3	-70.37	-13.00	-57.37	V
48.4300	-63.68	0.79	-5.83	-70.30	-13.00	-57.30	H
123.1200	-62.23	1.29	-1.87	-65.39	-13.00	-52.39	H
208.4800	-75.16	1.67	5.2	-71.63	-13.00	-58.63	H
605.2100	-63.59	2.92	6.35	-60.16	-13.00	-47.16	H
883.6000	-68.01	3.48	6.7	-64.79	-13.00	-51.79	H
935.9800	-66.97	3.6	6.4	-64.17	-13.00	-51.17	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:** WCDMA / HSUPA Band II /  
TX / CH 9538

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-63.4	0.81	-4.51	-68.72	-13.00	-55.72	V
95.9600	-71.9	1.13	0.26	-72.77	-13.00	-59.77	V
156.1000	-74.64	1.46	1.15	-74.95	-13.00	-61.95	V
207.5100	-77.21	1.67	4.95	-73.93	-13.00	-60.93	V
615.8800	-71.96	2.94	6.18	-68.72	-13.00	-55.72	V
671.1700	-70.69	3.07	6.32	-67.44	-13.00	-54.44	V
883.6000	-72.16	3.48	6.7	-68.94	-13.00	-55.94	V
123.1200	-62.83	1.29	-1.87	-65.99	-13.00	-52.99	H
207.5100	-74.62	1.67	4.95	-71.34	-13.00	-58.34	H
263.7700	-77.49	1.93	5.41	-74.01	-13.00	-61.01	H
312.2700	-76.87	2.14	5.76	-73.25	-13.00	-60.25	H
607.1500	-64.01	2.93	6.33	-60.61	-13.00	-47.61	H
935.9800	-65.14	3.6	6.4	-62.34	-13.00	-49.34	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 / HSUPA Band V /  
TX / CH 4132

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-64.32	0.81	-4.51	-69.64	-13.00	-56.64	V
95.9600	-70.95	1.13	0.26	-71.82	-13.00	-58.82	V
208.4800	-78.3	1.67	5.2	-74.77	-13.00	-61.77	V
288.0200	-80.54	2.02	5.38	-77.18	-13.00	-64.18	V
384.0500	-81.47	2.31	5.99	-77.79	-13.00	-64.79	V
613.9400	-72.94	2.94	6.21	-69.67	-13.00	-56.67	V
48.4300	-64.41	0.79	-5.83	-71.03	-13.00	-58.03	H
123.1200	-63.66	1.29	-1.87	-66.82	-13.00	-53.82	H
216.2400	-76.06	1.74	5.36	-72.44	-13.00	-59.44	H
312.2700	-75.5	2.14	5.76	-71.88	-13.00	-58.88	H
384.0500	-76	2.31	5.99	-72.32	-13.00	-59.32	H
610.0600	-64.9	2.94	6.29	-61.55	-13.00	-48.55	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 / HSUPA Band V /  
TX / CH 4182

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-64.47	0.81	-4.51	-69.79	-13.00	-56.79	V
95.9600	-70.3	1.13	0.26	-71.17	-13.00	-58.17	V
153.1900	-74.12	1.44	0.94	-74.62	-13.00	-61.62	V
207.5100	-77.58	1.67	4.95	-74.30	-13.00	-61.30	V
263.7700	-80.13	1.93	5.41	-76.65	-13.00	-63.65	V
611.0300	-72.38	2.94	6.27	-69.05	-13.00	-56.05	V
48.4300	-63.55	0.79	-5.83	-70.17	-13.00	-57.17	H
124.0900	-63.96	1.3	-1.81	-67.07	-13.00	-54.07	H
216.2400	-75.6	1.74	5.36	-71.98	-13.00	-58.98	H
263.7700	-77.08	1.93	5.41	-73.60	-13.00	-60.60	H
312.2700	-75.39	2.14	5.76	-71.77	-13.00	-58.77	H
604.2400	-65.12	2.92	6.36	-61.68	-13.00	-48.68	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 / HSUPA Band V /  
TX / CH 4233

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
51.3400	-63.86	0.81	-4.51	-69.18	-13.00	-56.18	V
95.9600	-71.31	1.13	0.26	-72.18	-13.00	-59.18	V
154.1600	-74.44	1.45	1.01	-74.88	-13.00	-61.88	V
207.5100	-76.99	1.67	4.95	-73.71	-13.00	-60.71	V
312.2700	-81.05	2.14	5.76	-77.43	-13.00	-64.43	V
616.8500	-72.04	2.94	6.16	-68.82	-13.00	-55.82	V
48.4300	-64.11	0.79	-5.83	-70.73	-13.00	-57.73	H
123.1200	-63.22	1.29	-1.87	-66.38	-13.00	-53.38	H
208.4800	-75.74	1.67	5.2	-72.21	-13.00	-59.21	H
312.2700	-76.54	2.14	5.76	-72.92	-13.00	-59.92	H
408.3000	-75.94	2.44	5.92	-72.46	-13.00	-59.46	H
608.1200	-64.93	2.93	6.32	-61.54	-13.00	-48.54	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.



**Above 1GH**

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

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4339.000	-50.22	8.62	9.67	-49.17	-13.00	-36.17	V
6215.000	-48.03	11.15	11.07	-48.11	-13.00	-35.11	V
N/A							
3142.000	-51.82	7.21	7.83	-51.20	-13.00	-38.20	H
4521.000	-49.67	8.96	9.83	-48.80	-13.00	-35.80	H
N/A							

**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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
3877.000	-50.09	8.36	9.28	-49.17	-13.00	-36.17	V
6040.000	-48.8	10.75	10.93	-48.62	-13.00	-35.62	V
N/A							
4087.000	-49.41	8.45	9.47	-48.39	-13.00	-35.39	H
5844.000	-49.5	10.41	10.87	-49.04	-13.00	-36.04	H
N/A							

**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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
3653.000	-51.05	8.16	9.05	-50.16	-13.00	-37.16	V
4353.000	-50.74	8.62	9.68	-49.68	-13.00	-36.68	V
N/A							
3576.000	-50.84	8.05	8.98	-49.91	-13.00	-36.91	H
5067.000	-49.66	9.44	10.63	-48.47	-13.00	-35.47	H
N/A							

**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 1900 / TX / CH 512

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-40.61	8.2	9.1	-39.71	-13.00	-26.71	V
5550.000	-41.48	10.06	10.81	-40.73	-13.00	-27.73	V
N/A							
3604.000	-42.84	8.11	9	-41.95	-13.00	-28.95	H
7524.000	-29.2	12.23	12.72	-28.71	-13.00	-15.71	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-42.46	8.23	9.16	-41.53	-13.00	-28.53	V
5641.000	-39.01	10.18	10.83	-38.36	-13.00	-25.36	V
N/A							
3758.000	-47.72	8.23	9.16	-46.79	-13.00	-33.79	H
5641.000	-36.03	10.18	10.83	-35.38	-13.00	-22.38	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:** GPRS 1900 / TX / CH 810

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-47.69	8.29	9.22	-46.76	-13.00	-33.76	V
5732.000	-32.32	10.24	10.85	-31.71	-13.00	-18.71	V
N/A							
3821.000	-45.12	8.29	9.22	-44.19	-13.00	-31.19	H
5732.000	-34.51	10.24	10.85	-33.90	-13.00	-20.90	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4255.000	-51.06	8.55	9.6	-50.01	-13.00	-37.01	V
5837.000	-51.48	10.41	10.87	-51.02	-13.00	-38.02	V
N/A							
4059.000	-49.25	8.41	9.45	-48.21	-13.00	-35.21	H
4906.000	-49.91	9.27	10.45	-48.73	-13.00	-35.73	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:** EDGE 850 / TX / CH 190

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
3891.000	-50.79	8.38	9.29	-49.88	-13.00	-36.88	V
4745.000	-50.67	9.22	10.19	-49.70	-13.00	-36.70	V
N/A							
5095.000	-50.6	9.45	10.64	-49.41	-13.00	-36.41	H
5487.000	-51.52	9.92	10.79	-50.65	-13.00	-37.65	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: April 2, 2013

Temperature: 26°C

Tested by: Wayne Tsai

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)
4542.000	-50.78	9	9.87	-49.91	-13.00	-36.91	V
5410.000	-51.32	9.83	10.76	-50.39	-13.00	-37.39	V
N/A							
3226.000	-51.83	7.31	8.08	-51.06	-13.00	-38.06	H
4899.000	-49.26	9.26	10.44	-48.08	-13.00	-35.08	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-42.02	8.2	9.1	-41.12	-13.00	-28.12	V
5550.000	-44.75	10.06	10.81	-44.00	-13.00	-31.00	V
N/A							
3604.000	-45.78	8.11	9	-44.89	-13.00	-31.89	H
7524.000	-33.34	12.23	12.72	-32.85	-13.00	-19.85	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: April 2, 2013

Temperature: 26°C

Tested by: Wayne Tsai

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	-45.16	8.23	9.16	-44.23	-13.00	-31.23	V
5641.000	-34.66	10.18	10.83	-34.01	-13.00	-21.01	V
N/A							
3758.000	-48.25	8.23	9.16	-47.32	-13.00	-34.32	H
5641.000	-38	10.18	10.83	-37.35	-13.00	-24.35	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
3793.000	-48.76	8.26	9.19	-47.83	-13.00	-34.83	V
5732.000	-32.86	10.24	10.85	-32.25	-13.00	-19.25	V
N/A							
3821.000	-49.54	8.29	9.22	-48.61	-13.00	-35.61	H
5732.000	-33.79	10.24	10.85	-33.18	-13.00	-20.18	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-47.8	8.2	9.1	-46.90	-13.00	-33.90	V
6201.000	-47.92	11.22	11.06	-48.08	-13.00	-35.08	V
N/A							
3800.000	-49.37	8.26	9.2	-48.43	-13.00	-35.43	H
4801.000	-49.59	9.32	10.28	-48.63	-13.00	-35.63	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4325.000	-50.06	8.61	9.66	-49.01	-13.00	-36.01	V
5459.000	-50.27	9.89	10.78	-49.38	-13.00	-36.38	V
N/A							
3394.000	-51.07	7.56	8.58	-50.05	-13.00	-37.05	H
4913.000	-49.55	9.28	10.46	-48.37	-13.00	-35.37	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4402.000	-50.1	8.65	9.72	-49.03	-13.00	-36.03	V
6425.000	-47.37	11.18	11.24	-47.31	-13.00	-34.31	V
N/A							
3968.000	-49.63	8.36	9.37	-48.62	-13.00	-35.62	H
5725.000	-48.67	10.22	10.84	-48.05	-13.00	-35.05	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
2197.000	-54.79	5.94	5.68	-55.05	-13.00	-42.05	V
6824.000	-44.39	11.36	11.69	-44.06	-13.00	-31.06	V
N/A							
1651.000	-53.64	5.05	6.03	-52.66	-13.00	-39.66	H
3590.000	-50.85	8.09	8.99	-49.95	-13.00	-36.95	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 V / TX / CH 4182

Test Date: April 1, 2013

Temperature: 26°C

Tested by: Wayne Tsai

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	-53.99	5.07	5.99	-53.07	-13.00	-40.07	V
3877.000	-49.99	8.36	9.28	-49.07	-13.00	-36.07	V
N/A							
1952.000	-51.79	5.59	5.49	-51.89	-13.00	-38.89	H
3940.000	-49.76	8.37	9.34	-48.79	-13.00	-35.79	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:** WCDMA Band V / TX / CH 4233

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-56.22	5.1	5.95	-55.37	-13.00	-42.37	V
4647.000	-49.81	9.13	10.04	-48.90	-13.00	-35.90	V
N/A							
3359.000	-51.54	7.52	8.48	-50.58	-13.00	-37.58	H
6523.000	-46.95	11.08	11.33	-46.70	-13.00	-33.70	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-49.5	8.2	9.1	-48.60	-13.00	-35.60	V
5312.000	-50.14	9.67	10.72	-49.09	-13.00	-36.09	V
N/A							
5032.000	-49.26	9.42	10.61	-48.07	-13.00	-35.07	H
5760.000	-48.94	10.32	10.85	-48.41	-13.00	-35.41	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 II / TX / CH 9400

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4507.000	-49.47	8.93	9.81	-48.59	-13.00	-35.59	V
6565.000	-47.6	11.16	11.38	-47.38	-13.00	-34.38	V
N/A							
3765.000	-48.26	8.24	9.16	-47.34	-13.00	-34.34	H
5067.000	-49.94	9.44	10.63	-48.75	-13.00	-35.75	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:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4570.000	-49.94	9.06	9.91	-49.09	-13.00	-36.09	V
6831.000	-45.02	11.37	11.7	-44.69	-13.00	-31.69	V
N/A							
4332.000	-49.26	8.61	9.67	-48.20	-13.00	-35.20	H
5725.000	-48.02	10.22	10.84	-47.40	-13.00	-34.40	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
1945.000	-51.77	5.57	5.5	-51.84	-13.00	-38.84	V
5032.000	-50.53	9.42	10.61	-49.34	-13.00	-36.34	V
N/A							
1651.000	-54.03	5.05	6.03	-53.05	-13.00	-40.05	H
4423.000	-49.54	8.7	9.74	-48.50	-13.00	-35.50	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4514.000	-49.68	8.94	9.82	-48.80	-13.00	-35.80	V
6887.000	-43.93	11.5	11.76	-43.67	-13.00	-30.67	V
N/A							
1672.000	-50.87	5.07	5.99	-49.95	-13.00	-36.95	H
3772.000	-50.37	8.24	9.17	-49.44	-13.00	-36.44	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:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4087.000	-50.69	8.45	9.47	-49.67	-13.00	-36.67	V
6012.000	-48.32	10.8	10.91	-48.21	-13.00	-35.21	V
N/A							
2540.000	-51.14	6.41	6.2	-51.35	-13.00	-38.35	H
4850.000	-49.99	9.29	10.36	-48.92	-13.00	-35.92	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 / HSUPA Band II /  
TX / CH 9262

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-48.14	8.2	9.1	-47.24	-13.00	-34.24	V
5627.000	-49.87	10.18	10.83	-49.22	-13.00	-36.22	V
N/A							
4304.000	-49.43	8.6	9.64	-48.39	-13.00	-35.39	H
6201.000	-47.05	11.22	11.06	-47.21	-13.00	-34.21	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 / HSUPA Band II / TX / CH 9400

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-49.16	8.23	9.16	-48.23	-13.00	-35.23	V
5501.000	-50.26	9.94	10.8	-49.40	-13.00	-36.40	V
N/A							
3765.000	-48.37	8.24	9.16	-47.45	-13.00	-34.45	H
4486.000	-48.64	8.87	9.79	-47.72	-13.00	-34.72	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 / HSUPA Band II /  
TX / CH 9538

**Test Date:** April 2, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
4283.000	-50.01	8.58	9.63	-48.96	-13.00	-35.96	V
6285.000	-48.26	10.82	11.13	-47.95	-13.00	-34.95	V
N/A							
5725.000	-48.55	10.22	10.84	-47.93	-13.00	-34.93	H
6929.000	-42.62	11.53	11.81	-42.34	-13.00	-29.34	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 / HSUPA Band V /  
TX / CH 4132

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
2995.000	-51.44	7.02	7.39	-51.07	-13.00	-38.07	V
4486.000	-49.84	8.87	9.79	-48.92	-13.00	-35.92	V
N/A							
1651.000	-54.03	5.05	6.03	-53.05	-13.00	-40.05	H
2631.000	-51.88	6.56	6.44	-52.00	-13.00	-39.00	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 / HSUPA Band V / TX / CH 4182

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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	-53.6	5.07	5.99	-52.68	-13.00	-39.68	V
5403.000	-50.74	9.82	10.76	-49.80	-13.00	-36.80	V
N/A							
4010.000	-50	8.36	9.41	-48.95	-13.00	-35.95	H
5977.000	-48.04	10.73	10.9	-47.87	-13.00	-34.87	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 / HSUPA Band V /  
TX / CH 4233

**Test Date:** April 1, 2013

**Temperature:** 26°C

**Tested by:** Wayne Tsai

**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)
1945.000	-43.37	5.57	5.5	-43.44	-13.00	-30.44	V
4556.000	-50.2	9.03	9.89	-49.34	-13.00	-36.34	V
N/A							
2540.000	-47.01	6.41	6.2	-47.22	-13.00	-34.22	H
4024.000	-49.76	8.38	9.42	-48.72	-13.00	-35.72	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.



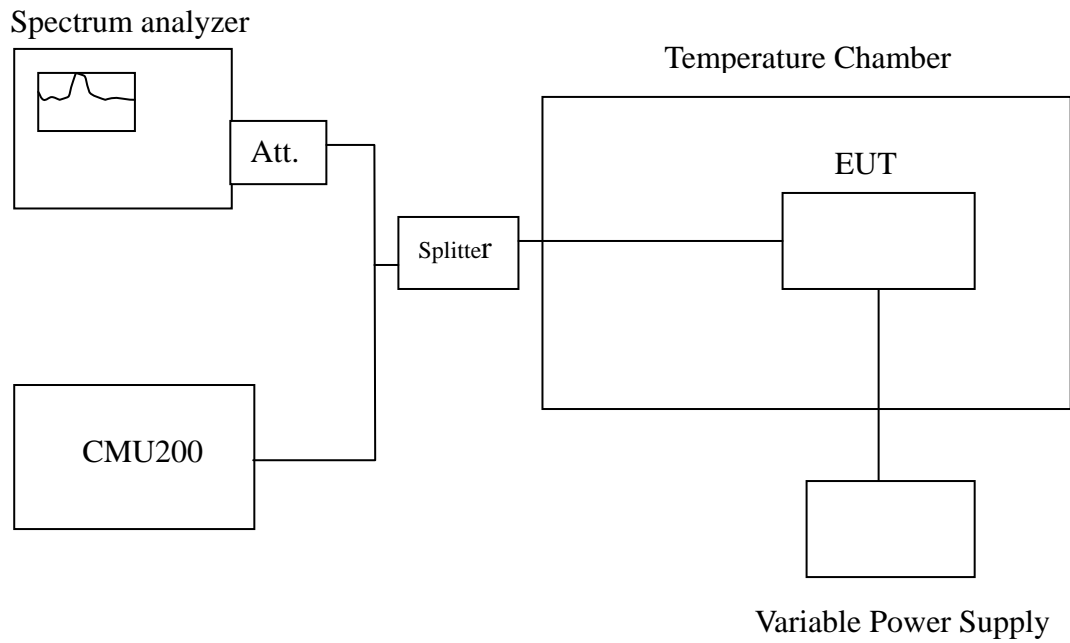
## 7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

### LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

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.*



<b>Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C</b>				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	836600001	-3	2091
	40	836599998	-6	
	30	836599997	-7	
	20	836600004	0	
	10	836599993	-11	
	0	836599992	-12	
	-10	836599998	-6	
	-20	836599999	-5	
	-30	836599995	-9	

<b>Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C</b>				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	1879999991	-11	4700
	40	1879999992	-10	
	30	1879999996	-6	
	20	1880000002	0	
	10	1879999997	-5	
	0	1879999995	-7	
	-10	1879999996	-6	
	-20	1879999999	-3	
	-30	1880000007	5	



<b>Reference Frequency: EDGE Mid Channel 836.6 MHz @ 20°C</b>				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	836600001	-4	2091
	40	836599997	-8	
	30	836599995	-10	
	20	836600005	0	
	10	836599989	-16	
	0	836599998	-7	
	-10	836599995	-10	
	-20	836599992	-13	
	-30	836599996	-9	

<b>Reference Frequency: EDGE Mid Channel 1880 MHz @ 20°C</b>				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	1879999998	-7	4700
	40	1879999994	-11	
	30	1879999991	-14	
	20	1880000005	0	
	10	1879999996	-9	
	0	1879999994	-11	
	-10	1879999998	-7	
	-20	1879999993	-12	
	-30	1879999994	-11	



<b>Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	1879999998	-5	4700
	40	1879999997	-6	
	30	1879999995	-8	
	20	1880000003	0	
	10	1879999992	-11	
	0	1879999978	-25	
	-10	1879999995	-8	
	-20	1879999991	-12	
	-30	1879999993	-10	

<b>Reference Frequency: WCDMA Band V Mid Channel 836.4 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	836399998	-5	2091
	40	836399997	-6	
	30	836399995	-8	
	20	836400003	0	
	10	836399991	-12	
	0	836399988	-15	
	-10	836399989	-14	
	-20	836399986	-17	
	-30	836399998	-5	





<b>Reference Frequency: WCDMA / HSDPA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	1879999997	-5	4700
	40	1879999993	-9	
	30	1879999992	-10	
	20	1880000002	0	
	10	1879999999	-3	
	0	1879999998	-4	
	-10	1879999999	-3	
	-20	1879999995	-7	
	-30	1879999992	-10	

<b>Reference Frequency: WCDMA / HSDPA Band V Mid Channel 836.4 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	836399992	-11	2091
	40	836399990	-13	
	30	836399999	-4	
	20	836400003	0	
	10	836399995	-8	
	0	836399991	-12	
	-10	836399996	-7	
	-20	836399998	-5	
	-30	836399995	-8	



<b>Reference Frequency: WCDMA / HSUPA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	1879999998	-5	4700
	40	1879999996	-7	
	30	1879999995	-8	
	20	1880000003	0	
	10	1879999996	-7	
	0	1879999993	-10	
	-10	1879999992	-11	
	-20	1879999991	-12	
	-30	1879999999	-4	

<b>Reference Frequency: WCDMA / HSUPA Band V Mid Channel 836.4 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
3.7	50	836399997	-4	2091
	40	836399997	-4	
	30	836399994	-7	
	20	836400001	0	
	10	836399992	-9	
	0	836399991	-10	
	-10	836399994	-7	
	-20	836399997	-4	
	-30	836399999	-2	



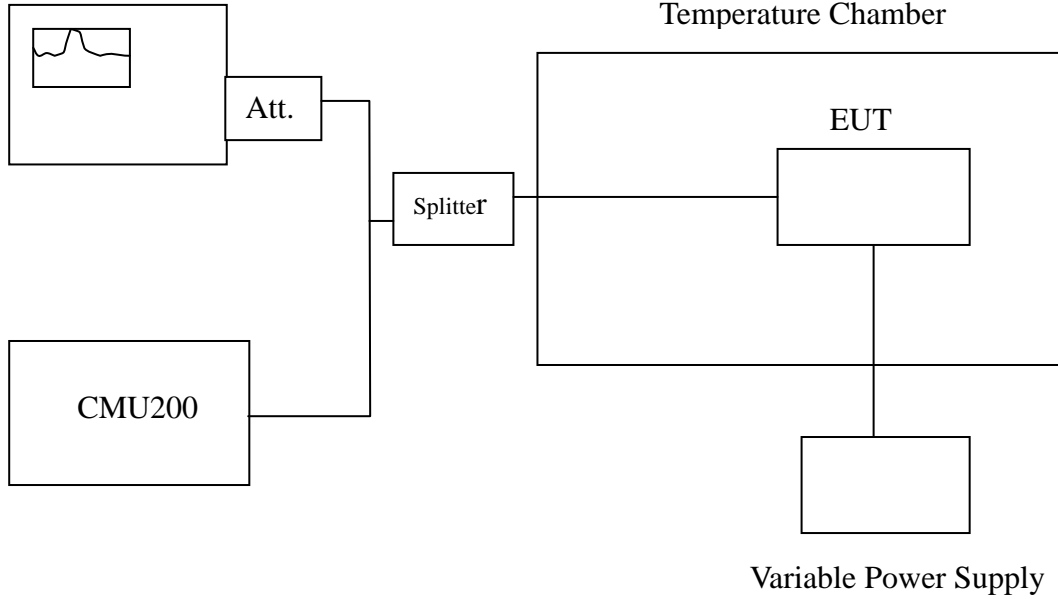
## 7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

### LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235,

### Test Configuration

Spectrum analyzer



**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 ( $\pm 15\%$ ) and endpoint, record the maximum frequency change.

## **TEST RESULTS**

*No non-compliance noted.*



Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.07	20	836600003	-1	2091
3.7		836600004	0	
3.33		836600004	0	
3.1END		836600005	1	

Reference Frequency: GPRS Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.07	20	1880000003	1	4700
3.7		1880000002	0	
3.33		1880000001	-1	
2.9		1880000005	3	



Reference Frequency: EDGE Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.07	20	836600002	-3	2091
3.7		836600005	0	
3.33		836600009	4	
3		836600008	3	

Reference Frequency: EDGE Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4.07	20	1880000003	-2	4700
3.7		1880000005	0	
3.33		1880000008	3	
3.1		1880000002	-3	



<b>Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4	20	1880000002	-1	4700
3.7		1880000003	0	
3.3		1880000004	1	
3.1		1880000005	2	

<b>Reference Frequency: WCDMA Band V Mid Channel 836.4 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4	20	836400002	-1	2091
3.7		836400003	0	
3.3		836400003	0	
3.1		836400005	2	



<b>Reference Frequency: WCDMA HSDPA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4	20	1880000003	1	4700
3.7		1880000002	0	
3.3		1880000001	-1	
3		1880000005	3	

<b>Reference Frequency: WCDMA HSDPA Band V Mid Channel 836.4 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4	20	836400002	-1	2091
3.7		836400003	0	
3.3		836400004	1	
3.1		836400005	2	





<b>Reference Frequency: WCDMA HSUPA Band II Mid Channel 1880 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4	20	1880000002	-1	4700
3.7		1880000003	0	
3.3		1880000005	2	
3		1880000009	6	

<b>Reference Frequency: WCDMA HSUPA Band V Mid Channel 836.4 MHz @ 20°C</b>				
Limit: $\pm 2.5$ ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
4	20	836400002	1	2091
3.7		836400001	0	
3.3		836400004	3	
3		836400003	2	