

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

TEST REPORT

For

Product Name	Model
MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	BEC MX-1000
MXConnect M2M Wireless Router	BEC MX-500

Trade Name: BEC

Issued to

Billion Electric Co., Ltd.
8F., No.192, Sec. 2, Zhongxing Rd., Xindian Dist.,
New Taipei City 231, Taiwan (R.O.C.)

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
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Issued Date: September 22, 2015



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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 22, 2015	Initial Issue	ALL	Kelly Cheng

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1. TEST RESULT CERTIFICATION

Applicant: Billion Electric Co., Ltd.
8F., No.192, Sec. 2, Zhongxing Rd., Xindian Dist., New Taipei
City 231, Taiwan (R.O.C.)

Equipment Under Test / Model:

Product Name	Model
MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	BEC MX-1000
MXConnect M2M Wireless Router	BEC MX-500

Trade Name: BEC

Date of Test: August 31 ~ September 2, 2015

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
Manager
Compliance Certification Services Inc.

Angel Cheng
Section Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	MXConnect M2M Advanced In-Vehicle 4G/LTE Wireless Router	MXConnect M2M Wireless Router
Model Number	BEC MX-1000	BEC MX-500
Trade Name	BEC	
WLAN Module	Sierra / MC7354	
Received Date	July 21, 2015	
Power Supply	10~56VDC	
Frequency Range	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	
Transmit Power (ERP & EIRP Power)	GPRS 850: 28.01 dBm GPRS 1900: 21.88 dBm EDGE 850: 21.31 dBm EDGE 1900: 18.36 dBm WCDMA Band II: 21.78 dBm HSDPA Band II: 21.92 dBm HSUPA Band II: 21.81 dBm WCDMA Band V: 20.70 dBm HSDPA Band V: 14.41 dBm HSUPA Band V: 14.47 dBm	
Modulation Technique	GMSK	
Type of Emission	GPRS 850: 245KGXW GPRS 1900: 247KGXW EDGE 850: 243KG7W EDGE 1900: 245KG7W WCDMA Band II: 4M06F9W WCDMA Band V: 4M06F9W HSDPA Band II: 4M06F9W HSDPA Band V: 4M50F9W HSUPA Band II: 4M06F9W HSUPA Band V: 4M06F9W	
Antenna Gain	GPRS / EDGE 850: -1.01 dBi GPRS / EDGE 1900: -0.47 dBi WCDMA band II: -0.47 dBi WCDMA band V: -1.01 dBi	
Antenna Type	Monopole Antenna	

Note: 1. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

2. The detail descriptions please see as below.

Model / Difference Item	BEC MX-1000	BEC MX-500
<i>LTE / SIM</i>	2	N/A
<i>Wi-Fi 2.4Ghz</i>	yes	yes
<i>Mini USB</i>	2	N/A
<i>GPS</i>	yes	yes
<i>WIFI on/off Button</i>	1	1
<i>Reset Button</i>	1	1
<i>Giga LAN</i>	4	4
<i>Power</i>	10~56VDC	

3. Client consigns only one sample to test (model number: BEC MX-1000). Therefore, the testing Lab. just guarantees the unit, which has been tested.

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: BEC MX-1000) had been tested under operating condition.

EUT staying in continuous transmitting mode was programmed.

GPRS / EDGE 850:

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

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.

HSDPA Band II:

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

HSDPA Band V:

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

HSUPA Band II:

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

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 and power line conducted emissions below 30MHz, 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 position (X axis) and the worst case was recorded.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

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

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510252	11/23/2015
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	10/07/2015
AC Power Source	EXTECH	6205	1140845	N.C.R
DC Power Supply	ABM	8301HD	D011531	N.C.R
Power Meter	Anritsu	ML2495A	1012009	07/07/2016
Power Sensor	Anritsu	MA2411A	0917072	07/07/2016
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/19/2016

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4407B	MY44212686	03/17/2016
Pre-Amplifier	MITEQ	AFS44-00102650-4 2-10P-44	1042473	04/13/2016
'Bilog Antenna	Sunol Sciences	JB1	A0526009	08/05/2016
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
Spectrum Analyzer	ROHDE&SCHWARZ	FSV40	101073	07/19/2016
Horn Antenna	EMCO	3117	00055165	01/26/2016
Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMU 200	100535	09/01/2016

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

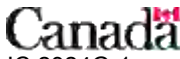
Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

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.

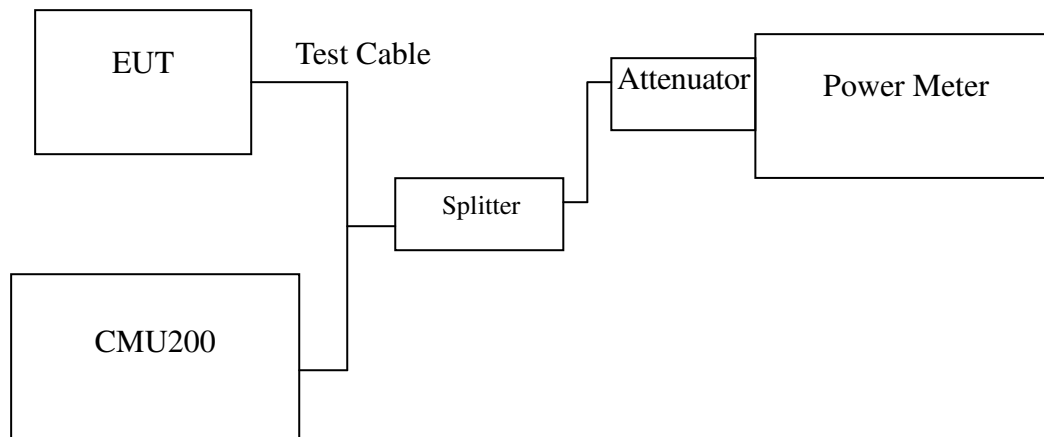
7. FCC PART 22 & 24 REQUIREMENTS

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	31.90	1.54882
	190	836.60	31.70	1.47911
	251	848.80	31.50	1.41254
EDGE 850	128	824.20	27.70	0.58884
	190	836.60	26.30	0.42658
	251	848.80	27.20	0.52481

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
GPRS 1900	512	1850.20	28.50	0.70795
	661	1880.00	28.40	0.69183
	810	1909.80	28.40	0.69183
EDGE 1900	512	1850.20	26.70	0.46774
	661	1880.00	26.50	0.44668
	810	1909.80	26.30	0.42658

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	25.80	0.38019
	9400	1880.00	25.58	0.36141
	9538	1907.60	25.43	0.34914
WCDMA (BAND V)	4132	826.40	25.91	0.38994
	4182	836.40	25.96	0.39446
	4233	846.60	25.95	0.39355

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
HSDPA (BAND II)	9262	1852.40	25.77	0.37757
	9400	1880.00	25.56	0.35975
	9538	1907.60	25.33	0.34119
HSDPA (BAND V)	4132	826.40	25.76	0.37670
	4182	836.40	25.91	0.38994
	4233	846.60	25.90	0.38905

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
HSUPA (BAND II)	9262	1852.40	25.38	0.34514
	9400	1880.00	25.03	0.31842
	9538	1907.60	24.90	0.30903
HSUPA (BAND V)	4132	826.40	25.41	0.34754
	4182	836.40	25.67	0.36898
	4233	846.60	25.73	0.37411

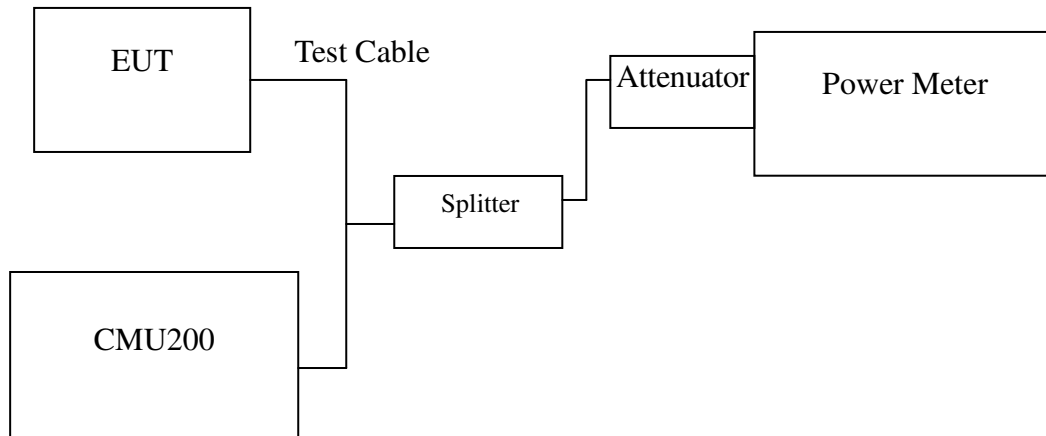
Remark: The value of factor includes both the loss of cable and external attenuator

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	31.80	1.51356
	190	836.60	31.50	1.41254
	251	848.80	31.30	1.34896
EDGE 850	128	824.20	26.70	0.46774
	190	836.60	26.50	0.44668
	251	848.80	26.30	0.42658

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
GPRS 1900	512	1850.20	28.30	0.67608
	661	1880.00	28.20	0.66069
	810	1909.80	28.20	0.66069
EDGE 1900	512	1850.20	25.80	0.38019
	661	1880.00	25.50	0.35481
	810	1909.80	25.40	0.34674

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	22.22	0.16672
	9400	1880.00	22.16	0.16444
	9538	1907.60	22.15	0.16406
WCDMA (BAND V)	4132	826.40	22.53	0.17906
	4182	836.40	22.58	0.18113
	4233	846.60	22.56	0.18030

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
HSDPA (BAND II)	9262	1852.40	22.16	0.16444
	9400	1880.00	22.06	0.16069
	9538	1907.60	22.09	0.16181
HSDPA (BAND V)	4132	826.40	22.40	0.17378
	4182	836.40	22.45	0.17579
	4233	846.60	22.43	0.17498

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
HSUPA (BAND II)	9262	1852.40	22.10	0.16218
	9400	1880.00	22.00	0.15849
	9538	1907.60	22.03	0.15959
HSUPA (BAND V)	4132	826.40	22.17	0.16474
	4182	836.40	22.22	0.16665
	4233	846.60	22.20	0.16588

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

7.3 ERP & EIRP MEASUREMENT

LIMIT

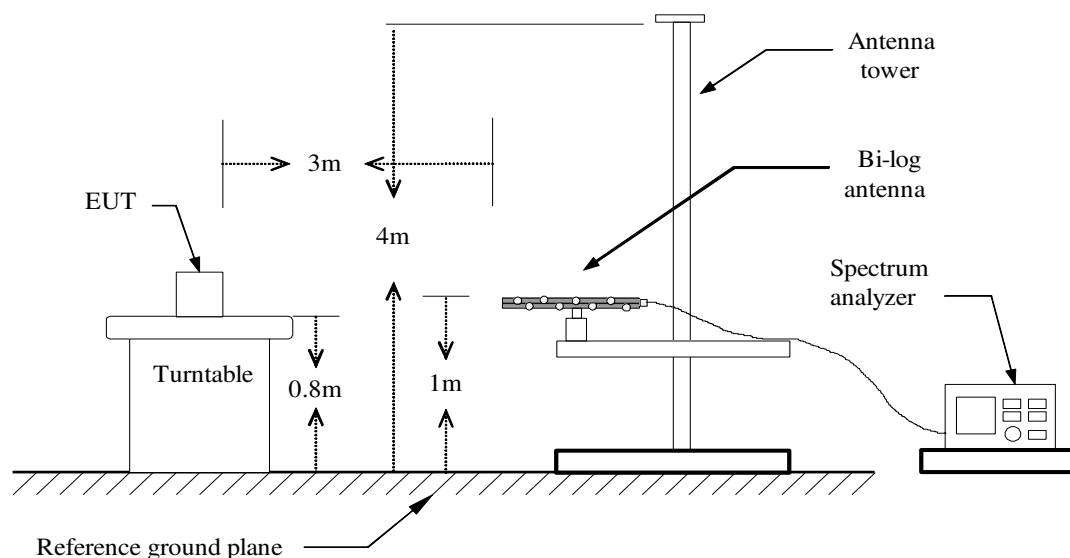
According to FCC §2.1046

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

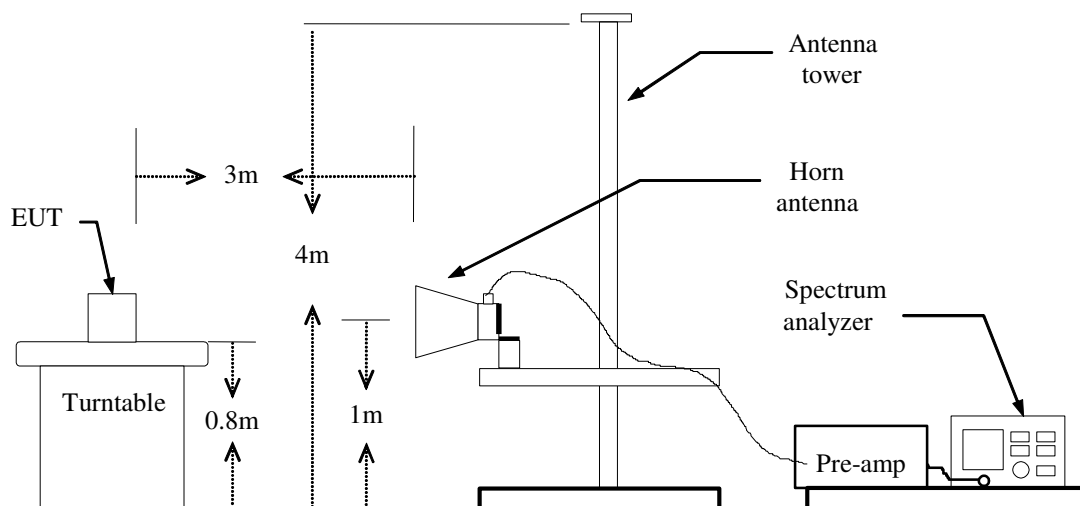
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

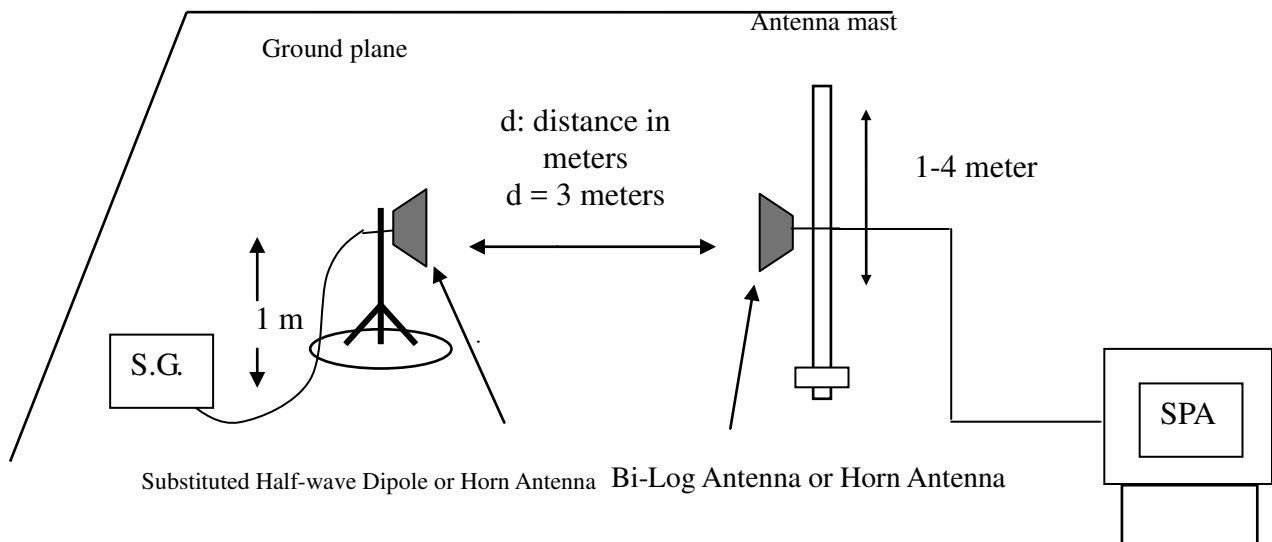
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

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

During the measurement of the EUT, the resolution bandwidth was set to 5MHz and the average bandwidth was set to 50MHz. 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:

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

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

TEST RESULTS

No non-compliance noted.

GPRS 850 Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
128	824.120	V	21.75	3.39	6.24	24.60	38.45	-13.85
	824.240	H	25.06	3.39	6.24	27.91	38.45	-10.54
190	836.540	V	20.38	3.40	6.36	23.34	38.45	-15.11
	836.660	H	25.04	3.40	6.37	*28.01	38.45	-10.44
251	848.900	V	19.61	3.40	6.40	22.61	38.45	-15.84
	848.780	H	23.92	3.40	6.40	26.92	38.45	-11.53

GPRS 1900 Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
512	1850.160	V	16.29	5.37	5.67	16.59	33.00	-16.41
	1850.280	H	7.21	5.37	5.67	7.51	33.00	-25.49
661	1880.040	V	18.49	5.42	5.62	18.69	33.00	-14.31
	1879.920	H	9.46	5.42	5.62	9.66	33.00	-23.34
810	1909.680	V	21.8	5.48	5.56	*21.88	33.00	-11.12
	1909.800	H	11.59	5.48	5.56	11.67	33.00	-21.33

EDGE 850 Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
128	824.300	V	12.33	3.39	6.24	15.18	38.45	-23.27
	824.120	H	18.46	3.39	6.24	*21.31	38.45	-17.14
190	836.480	V	12.14	3.40	6.36	15.10	38.45	-23.35
	836.600	H	17.15	3.40	6.37	20.12	38.45	-18.33
251	848.780	V	11.98	3.40	6.40	14.98	38.45	-23.47
	848.720	H	16.52	3.40	6.40	19.52	38.45	-18.93

EDGE 1900 Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
512	1850.280	V	13.2	5.37	5.67	13.50	33.00	-19.50
	1850.160	H	6.30	5.37	5.67	6.60	33.00	-26.40
661	1880.160	V	15.13	5.42	5.62	15.33	33.00	-17.67
	1879.800	H	6.16	5.42	5.62	6.36	33.00	-26.64
810	1909.920	V	18.28	5.48	5.56	*18.36	33.00	-14.64
	1909.800	H	8.23	5.48	5.56	8.31	33.00	-24.69

WCDMA BAND II Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
9262	1853.640	V	18.94	5.38	5.66	19.22	33.00	-13.78
	1853.640	H	4.43	5.38	5.66	4.71	33.00	-28.29
9400	1880.160	V	20.66	5.42	5.62	20.86	33.00	-12.14
	1878.720	H	7.11	5.42	5.62	7.31	33.00	-25.69
9538	1908.600	V	21.69	5.47	5.56	*21.78	33.00	-11.22
	1908.240	H	7.33	5.47	5.57	7.43	33.00	-25.57

WCDMA BAND V Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
4132	826.520	V	15.05	3.39	6.26	17.92	38.45	-20.53
	826.520	H	15.52	3.39	6.26	18.39	38.45	-20.06
4182	836.420	V	15.24	3.40	6.36	18.20	38.45	-20.25
	836.660	H	16.83	3.40	6.37	19.80	38.45	-18.65
4233	846.740	V	15.13	3.40	6.40	18.13	38.45	-20.32
	846.980	H	17.7	3.40	6.40	*20.70	38.45	-17.75

HSDPA BAND II Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
9262	1853.640	V	19.01	5.38	5.66	19.29	33.00	-13.71
	1853.520	H	4.76	5.38	5.66	5.04	33.00	-27.96
9400	1880.280	V	20.87	5.42	5.62	21.07	33.00	-11.93
	1880.160	H	6.66	5.42	5.62	6.86	33.00	-26.14
9538	1908.360	V	21.83	5.47	5.56	*21.92	33.00	-11.08
	1908.960	H	7.61	5.47	5.56	7.70	33.00	-25.30

HSDPA BAND V Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
4132	825.380	V	10.99	3.39	6.25	13.85	38.45	-24.60
	825.020	H	11.55	3.39	6.25	*14.41	38.45	-24.04
4182	835.160	V	9.94	3.40	6.35	12.89	38.45	-25.56
	835.160	H	10.41	3.40	6.35	13.36	38.45	-25.09
4233	845.480	V	10.51	3.40	6.40	13.51	38.45	-24.94
	845.480	H	10.11	3.40	6.40	13.11	38.45	-25.34

HSUPA BAND II Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
9262	1853.640	V	19.02	5.38	5.66	19.30	33.00	-13.70
	1852.920	H	4.94	5.37	5.66	5.23	33.00	-27.77
9400	1880.280	V	20.99	5.42	5.62	21.19	33.00	-11.81
	1880.760	H	6.72	5.42	5.61	6.91	33.00	-26.09
9538	1908.120	V	21.71	5.47	5.57	*21.81	33.00	-11.19
	1908.000	H	7.45	5.47	5.57	7.55	33.00	-25.45

HSUPA BAND V Test Data

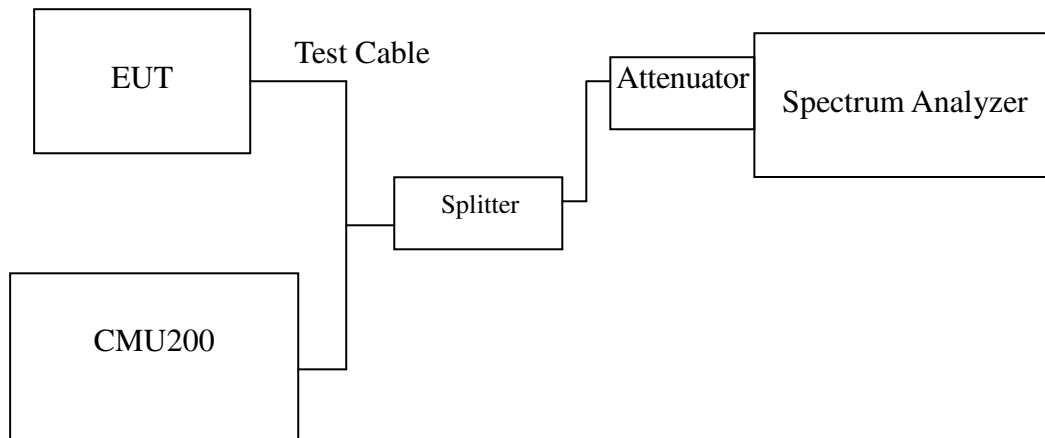
Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
4132	827.000	V	10.8	3.39	6.27	13.68	38.45	-24.77
	825.080	H	11.61	3.39	6.25	*14.47	38.45	-23.98
4182	835.220	V	9.92	3.40	6.35	12.87	38.45	-25.58
	835.520	H	10.3	3.40	6.35	13.25	38.45	-25.20
4233	845.780	V	10.5	3.40	6.40	13.50	38.45	-24.95
	845.660	H	10.05	3.40	6.40	13.05	38.45	-25.40

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	*245.7353
	190	836.60	240.1513
	251	848.80	244.8783
EDGE 850	128	824.20	*243.9368
	190	836.60	242.2592
	251	848.80	243.0219

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)
GPRS 1900	512	1850.20	245.3575
	661	1880.00	*247.0079
	810	1909.80	246.6571
EDGE 1900	512	1850.20	241.5077
	661	1880.00	*245.9471
	810	1909.80	244.5472

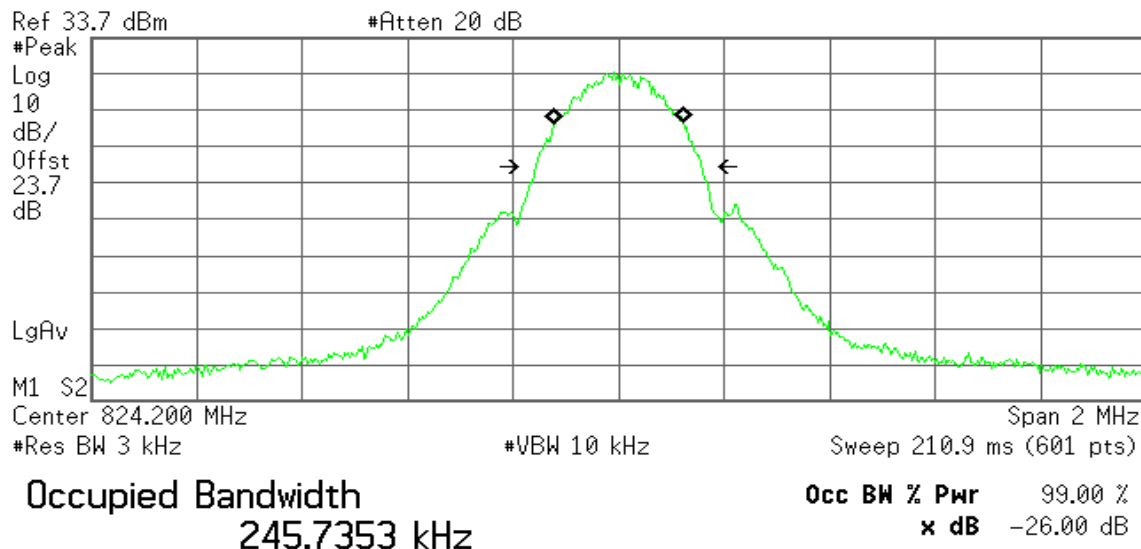
Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)
WCDMA (Band II)	9262	1852.40	4.0527
	9400	1880.00	4.0622
	9538	1907.60	*4.0629
WCDMA (Band V)	4132	826.40	4.0526
	4182	836.40	4.0600
	4233	846.60	*4.0621
HSDPA (BAND II)	9262	1852.40	4.0559
	9400	1880.00	4.0585
	9538	1907.60	*4.0638
HSDPA (BAND V)	4132	826.40	*4.5049
	4182	836.40	4.0541
	4233	846.60	4.0521
HSUPA (BAND II)	9262	1852.40	4.0552
	9400	1880.00	4.0550
	9538	1907.60	*4.0663
HSUPA (BAND V)	4132	826.40	4.0291
	4182	836.40	*4.0641
	4233	846.60	4.0499

Test Plot

GPRS 850 (CH Low)

Agilent

R T

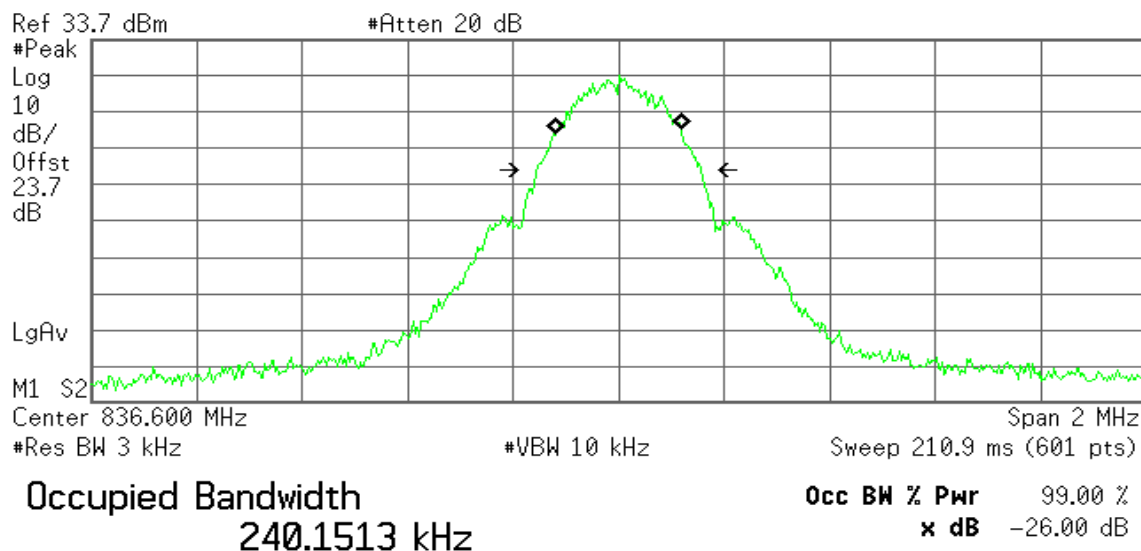


Transmit Freq Error 1.009 kHz
x dB Bandwidth 316.122 kHz

GPRS 850 (CH Mid)

Agilent

R T

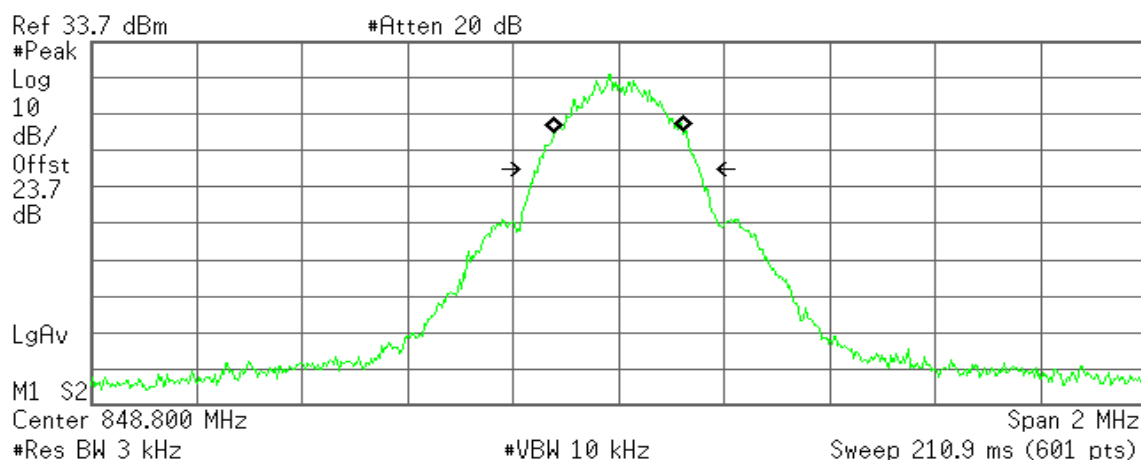


Transmit Freq Error -620.538 Hz
x dB Bandwidth 312.137 kHz

GPRS 850(CH High)

Agilent

R T



Occupied Bandwidth
244.8783 kHz

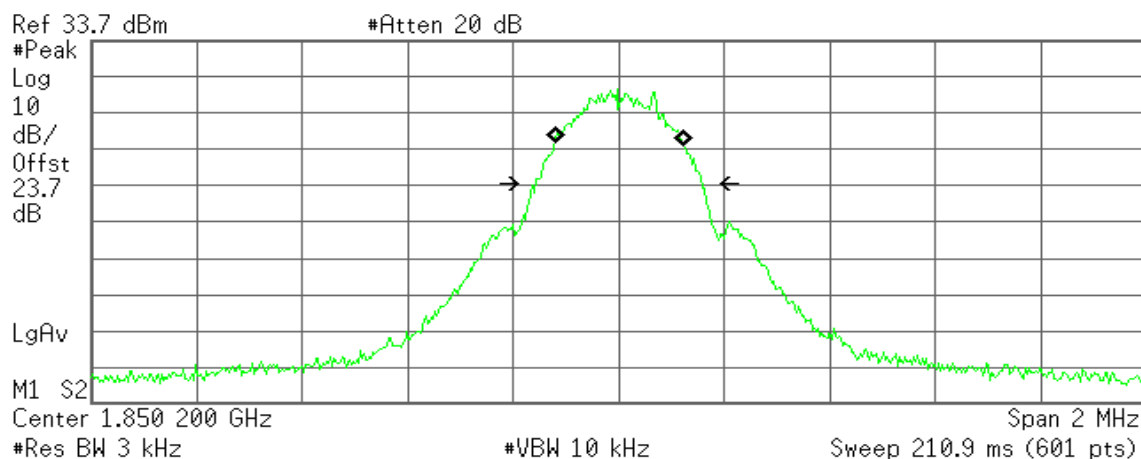
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -289.491 Hz
x dB Bandwidth 305.565 kHz

GPRS 1900 (CH Low)

Agilent

R T



Occupied Bandwidth
245.3575 kHz

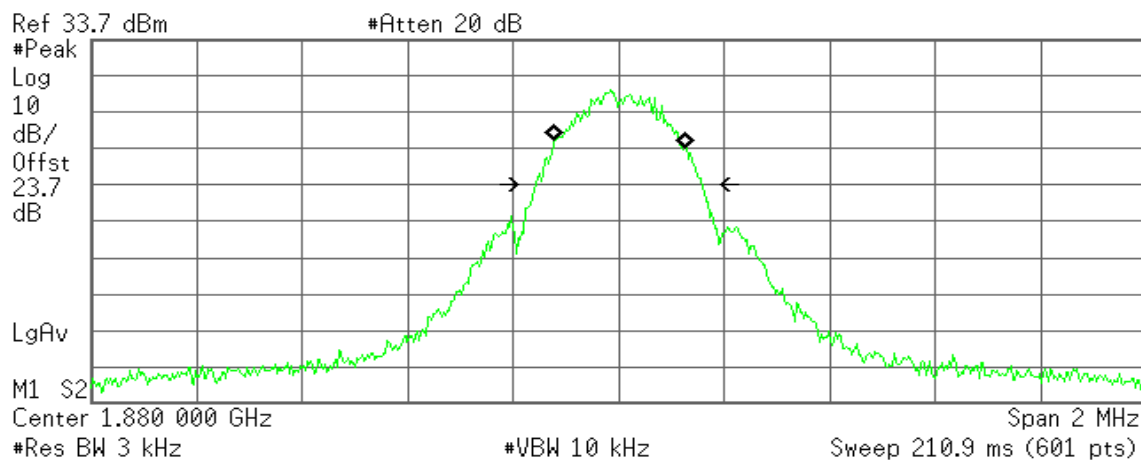
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.428 kHz
x dB Bandwidth 317.278 kHz

GPRS 1900 (CH Mid)

Agilent

R T



Occupied Bandwidth
247.0079 kHz

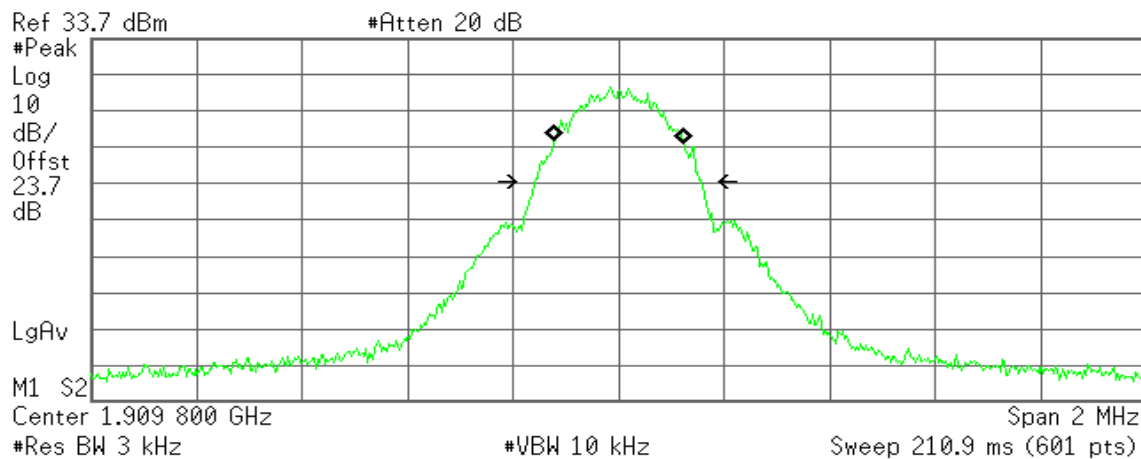
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.747 kHz
x dB Bandwidth 316.327 kHz

GPRS 1900 (CH High)

Agilent

R T



Occupied Bandwidth
246.6571 kHz

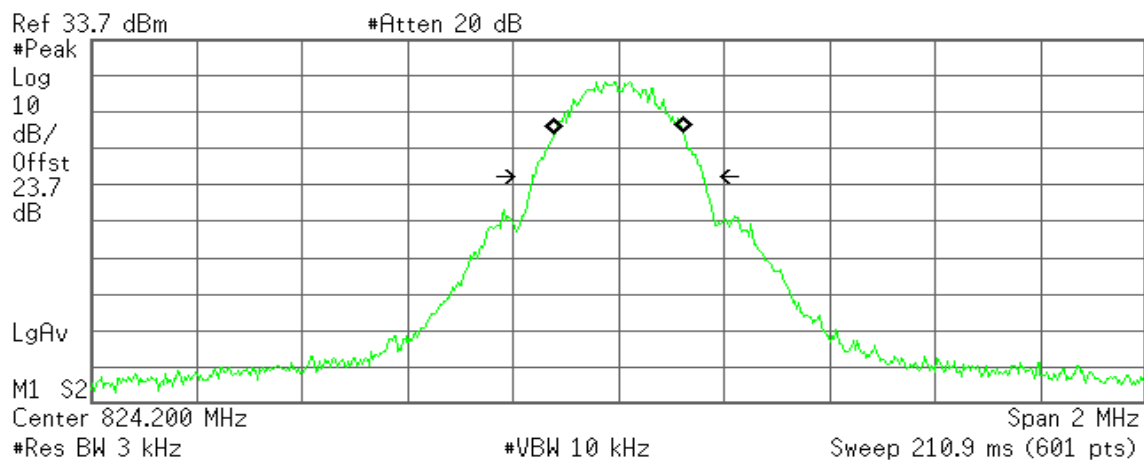
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.183 kHz
x dB Bandwidth 317.969 kHz

EDGE 850 (CH Low)

Agilent

R T



Occupied Bandwidth
243.9368 kHz

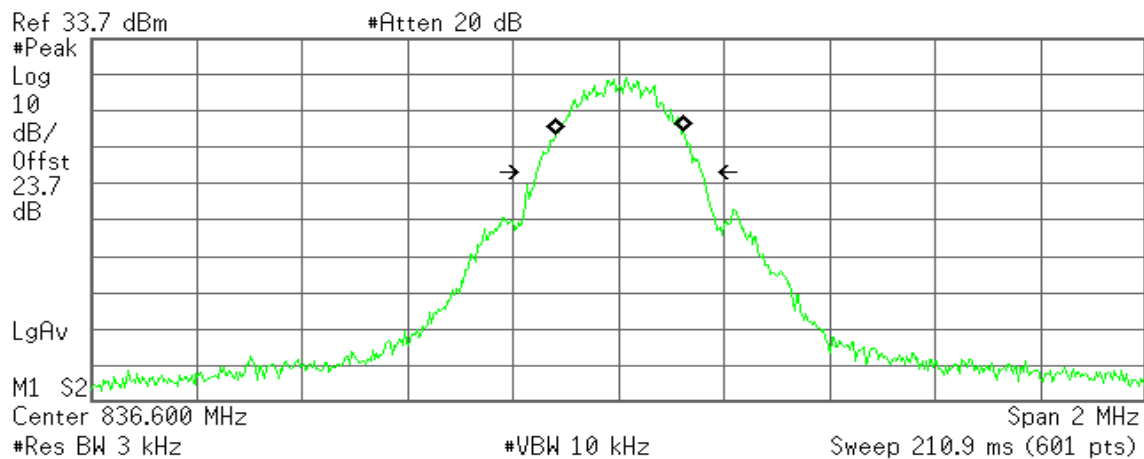
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 203.773 Hz
x dB Bandwidth 323.300 kHz

EDGE 850 (CH Mid)

Agilent

R T



Occupied Bandwidth
242.2592 kHz

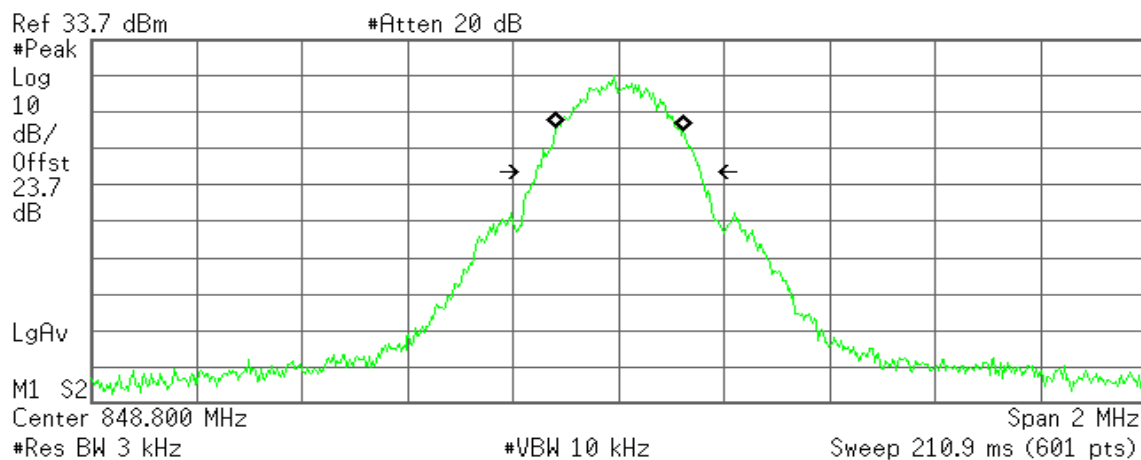
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.143 kHz
x dB Bandwidth 312.141 kHz

EDGE 850 (CH High)

Agilent

R T



Occupied Bandwidth
243.0219 kHz

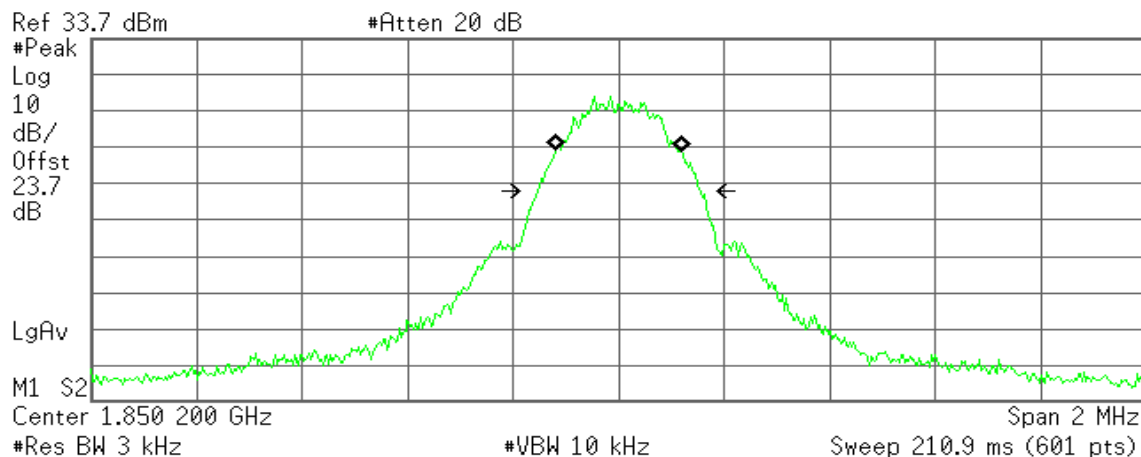
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.811 kHz
x dB Bandwidth 311.336 kHz

EDGE 1900 (CH Low)

Agilent

R T



Occupied Bandwidth
241.5077 kHz

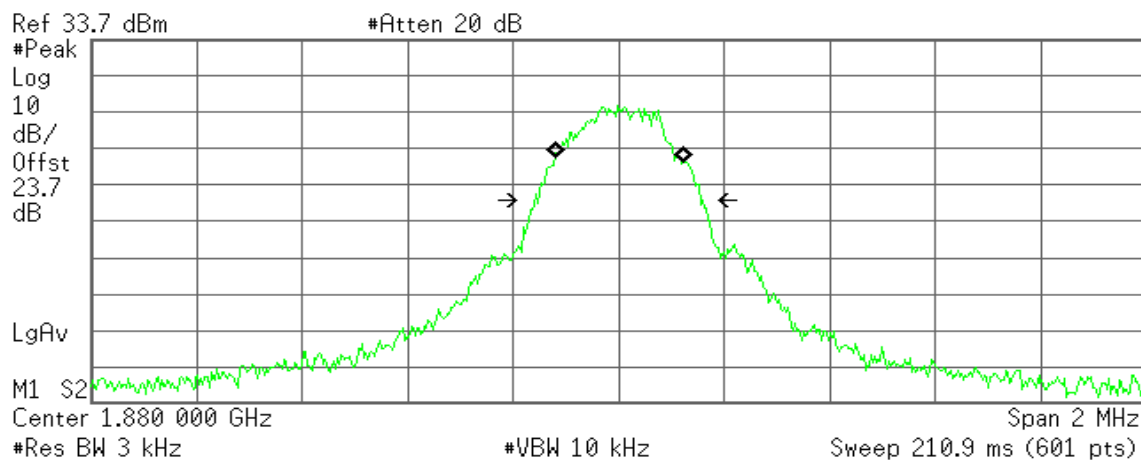
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 518.958 Hz
x dB Bandwidth 309.321 kHz

EDGE 1900 (CH Mid)

Agilent

R T



Occupied Bandwidth
245.9471 kHz

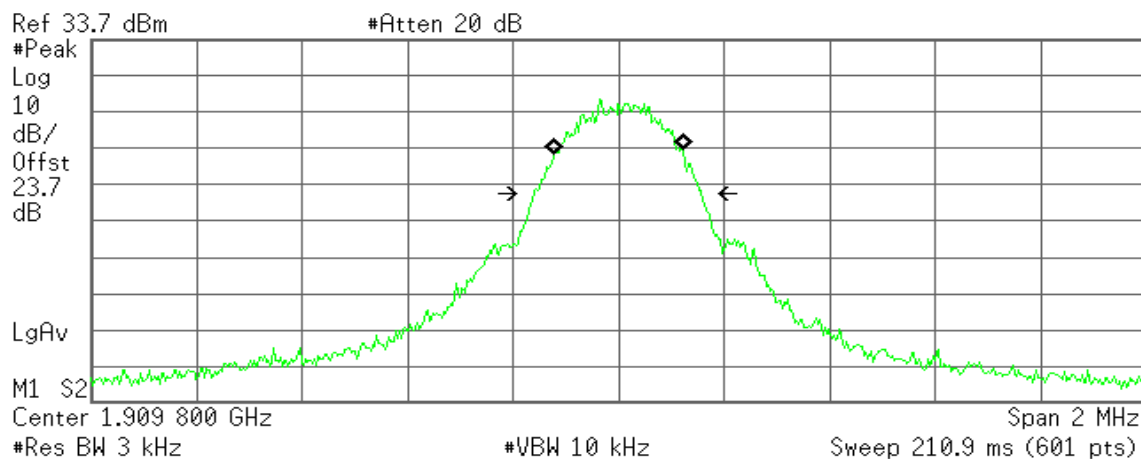
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.901 kHz
x dB Bandwidth 315.212 kHz

EDGE 1900 (CH High)

Agilent

R T



Occupied Bandwidth
244.5472 kHz

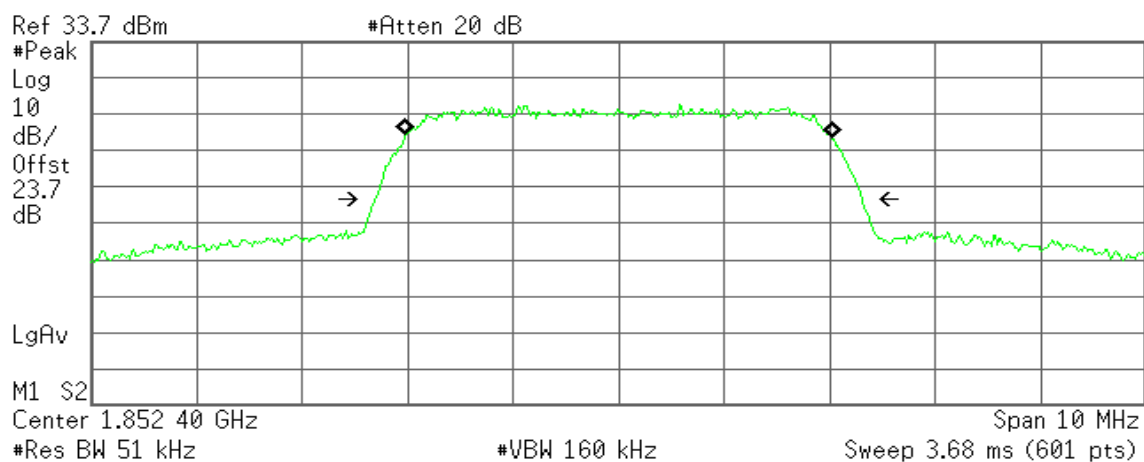
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 381.224 Hz
x dB Bandwidth 319.088 kHz

WCDMA Band II (CH Low)

Agilent

R T



Occupied Bandwidth
4.0527 MHz

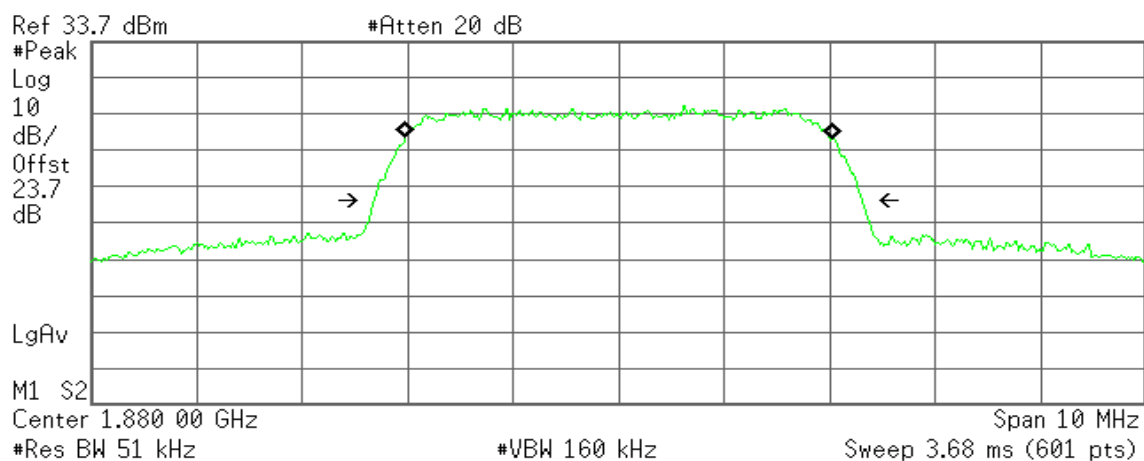
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -884.084 Hz
x dB Bandwidth 4.631 MHz

WCDMA Band II (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0622 MHz

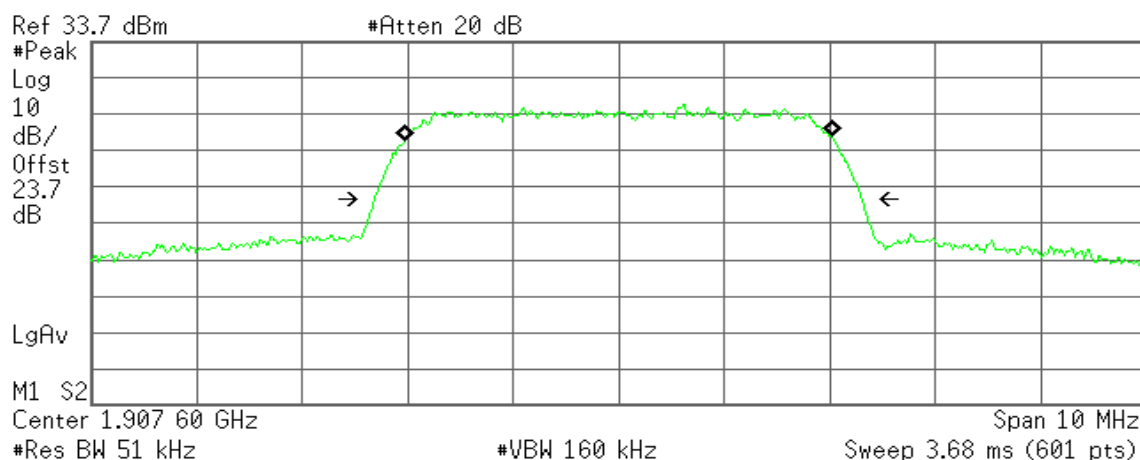
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 2.716 kHz
x dB Bandwidth 4.634 MHz

WCDMA Band II (CH High)

Agilent

R T



Occupied Bandwidth
4.0629 MHz

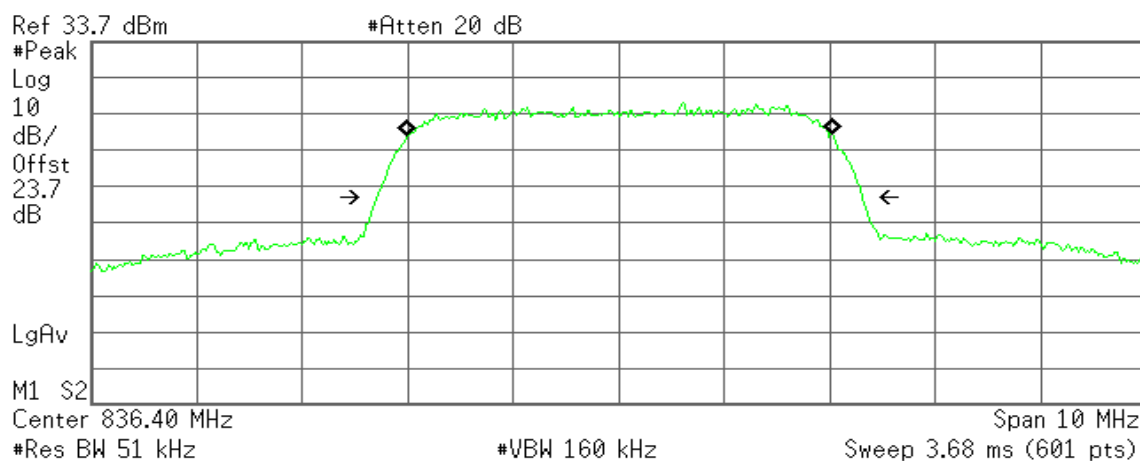
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -1.165 kHz
x dB Bandwidth 4.637 MHz

WCDMA Band V (CH Low)

Agilent

R T



Occupied Bandwidth
4.0526 MHz

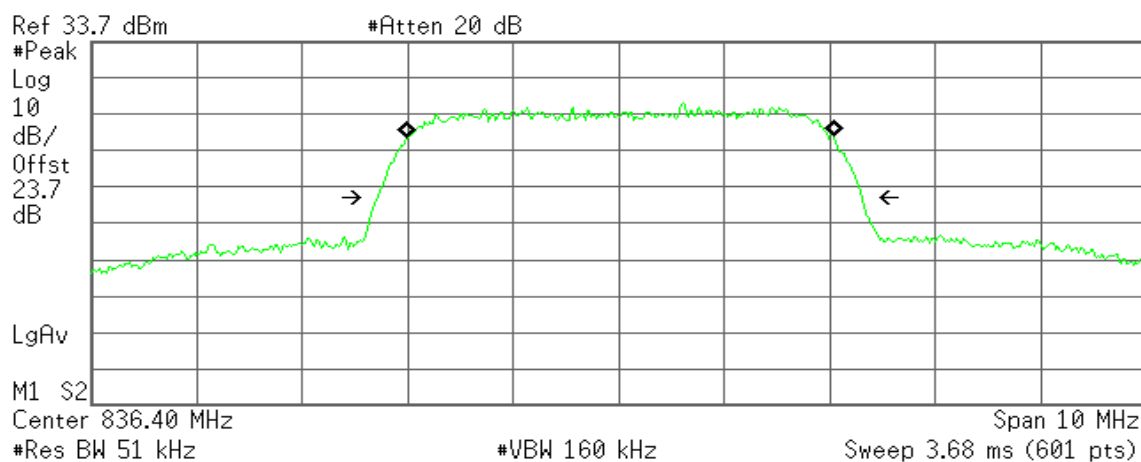
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 11.972 kHz
x dB Bandwidth 4.611 MHz

WCDMA Band V (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0600 MHz

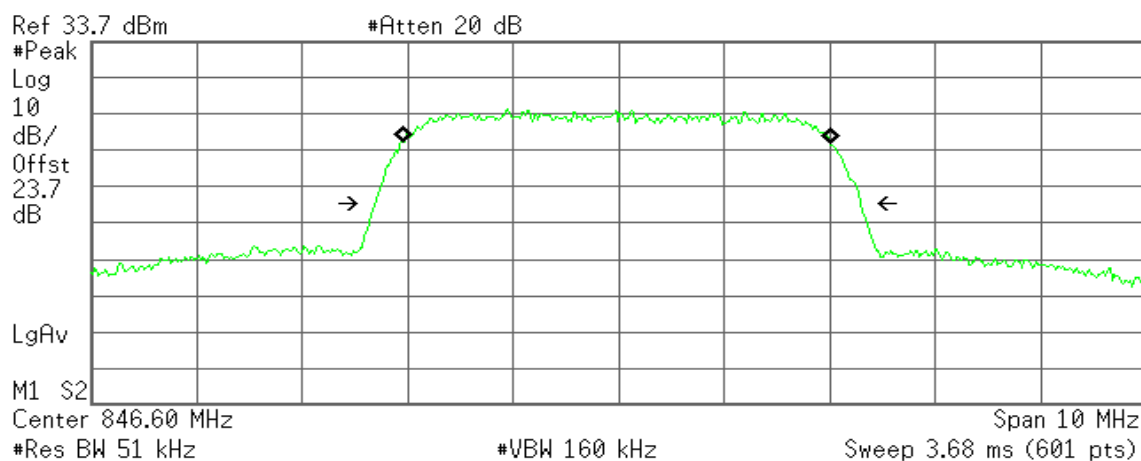
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 12.450 kHz
x dB Bandwidth 4.596 MHz

WCDMA Band V (CH High)

Agilent

R T



Occupied Bandwidth
4.0621 MHz

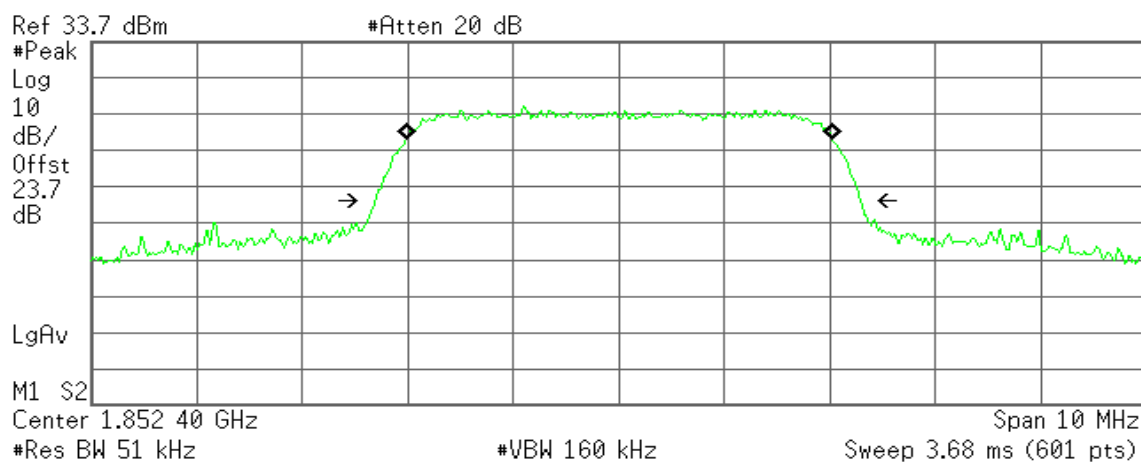
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -20.480 kHz
x dB Bandwidth 4.610 MHz

HSDPA Band II (CH Low)

Agilent

R T



Occupied Bandwidth
4.0559 MHz

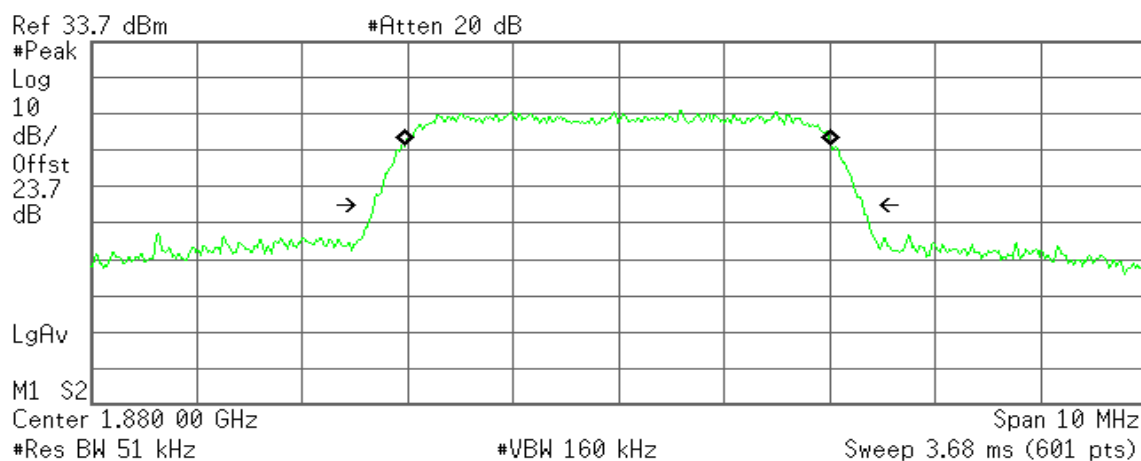
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 5.078 kHz
x dB Bandwidth 4.606 MHz

HSDPA Band II (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0585 MHz

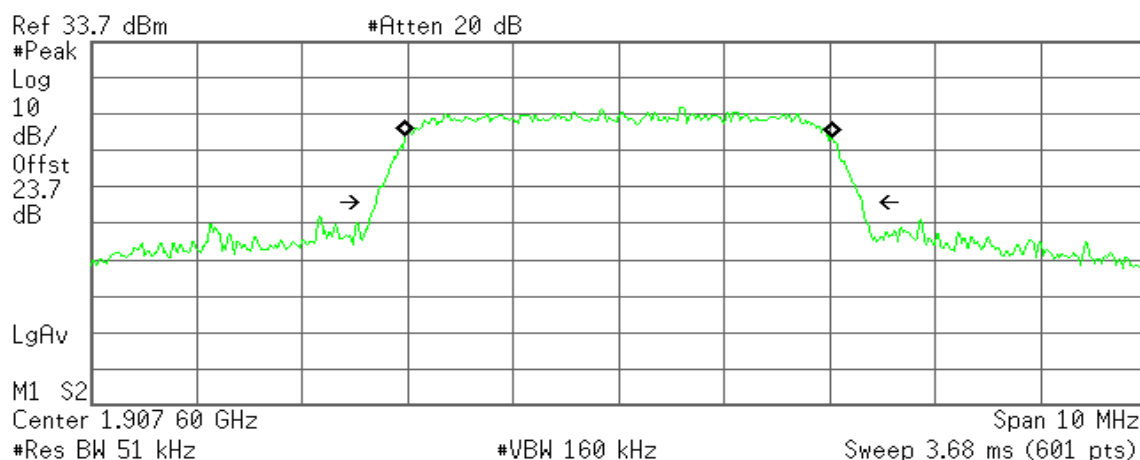
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -8.602 kHz
x dB Bandwidth 4.647 MHz

HSDPA Band II (CH High)

Agilent

R T



Occupied Bandwidth
4.0638 MHz

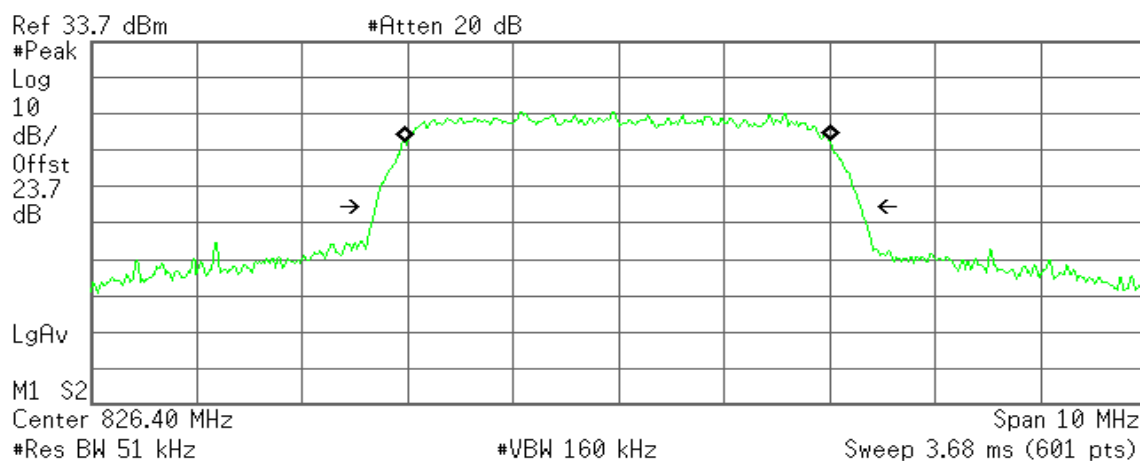
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.320 kHz
x dB Bandwidth 4.616 MHz

HSDPA Band V (CH Low)

Agilent

R T



Occupied Bandwidth
4.0549 MHz

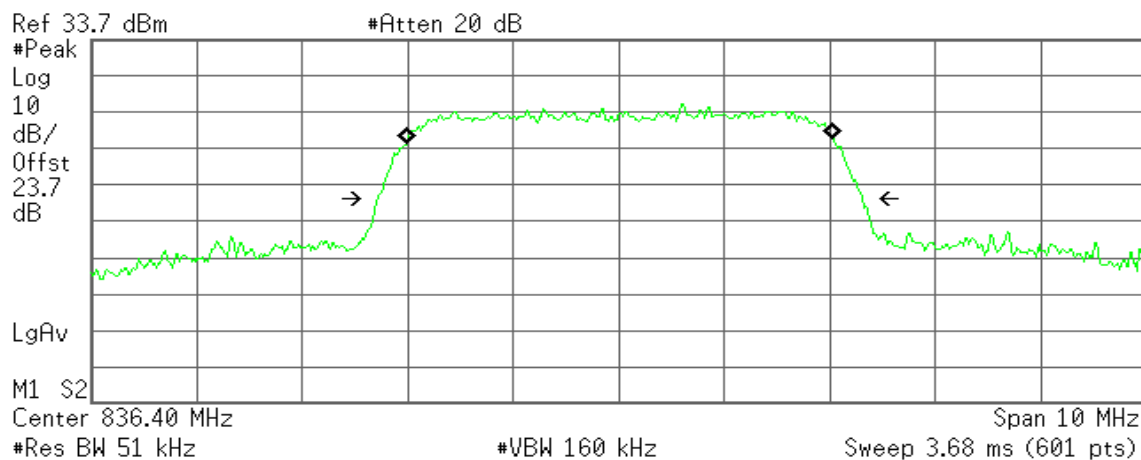
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -11.881 kHz
x dB Bandwidth 4.609 MHz

HSDPA Band V (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0541 MHz

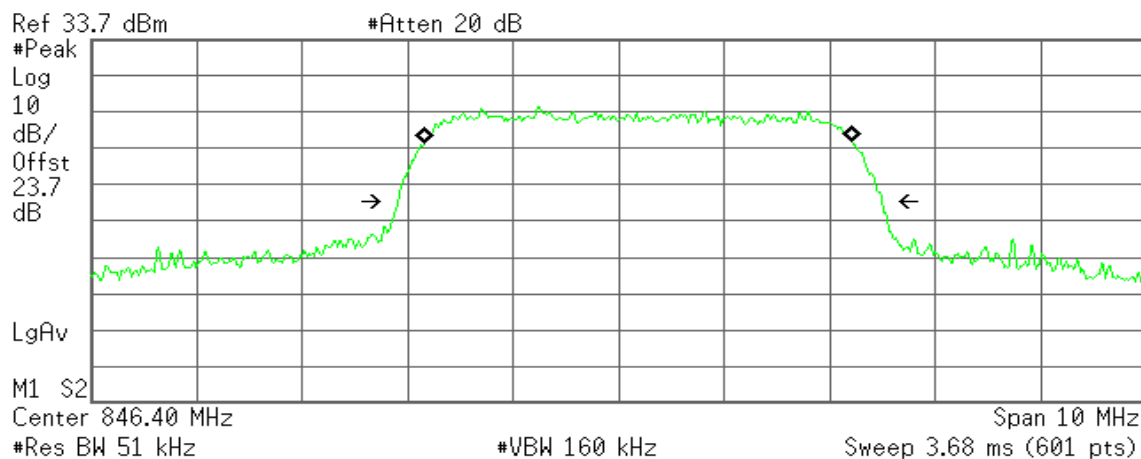
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 14.038 kHz
x dB Bandwidth 4.612 MHz

HSDPA Band V (CH High)

Agilent

R T



Occupied Bandwidth
4.0521 MHz

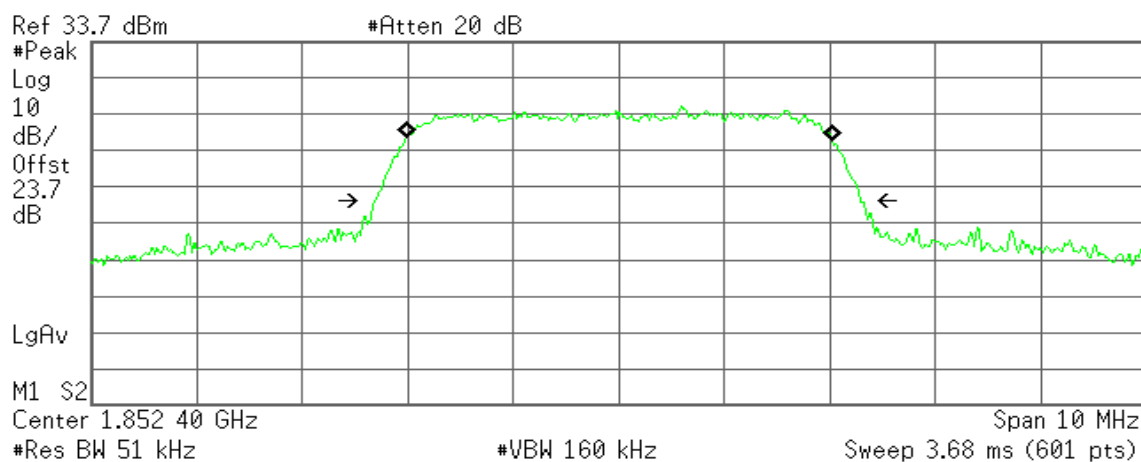
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 194.256 kHz
x dB Bandwidth 4.603 MHz

HSUPA Band II (CH Low)

Agilent

R T



Occupied Bandwidth
4.0552 MHz

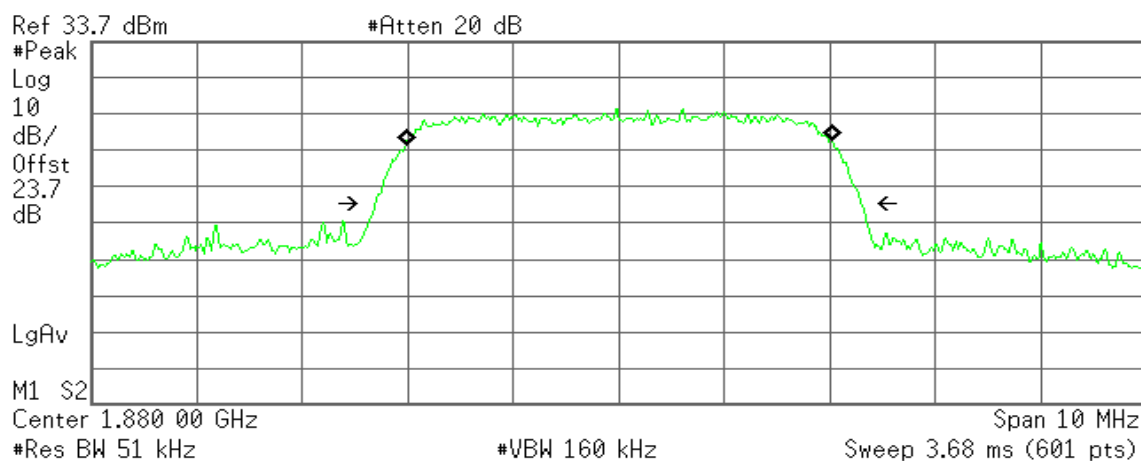
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 2.617 kHz
x dB Bandwidth 4.611 MHz

HSUPA Band II (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0550 MHz

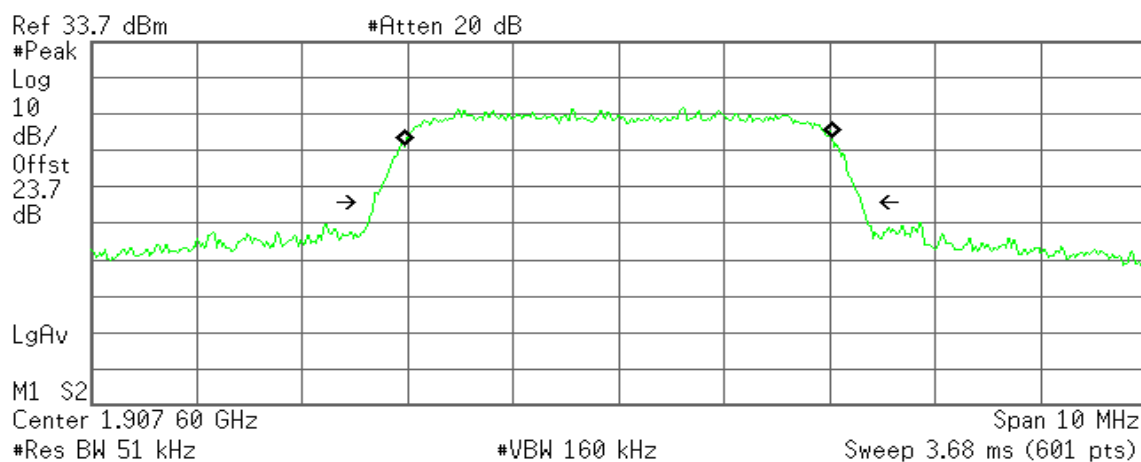
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 4.470 kHz
x dB Bandwidth 4.618 MHz

HSUPA Band II (CH High)

Agilent

R T



Occupied Bandwidth
4.0663 MHz

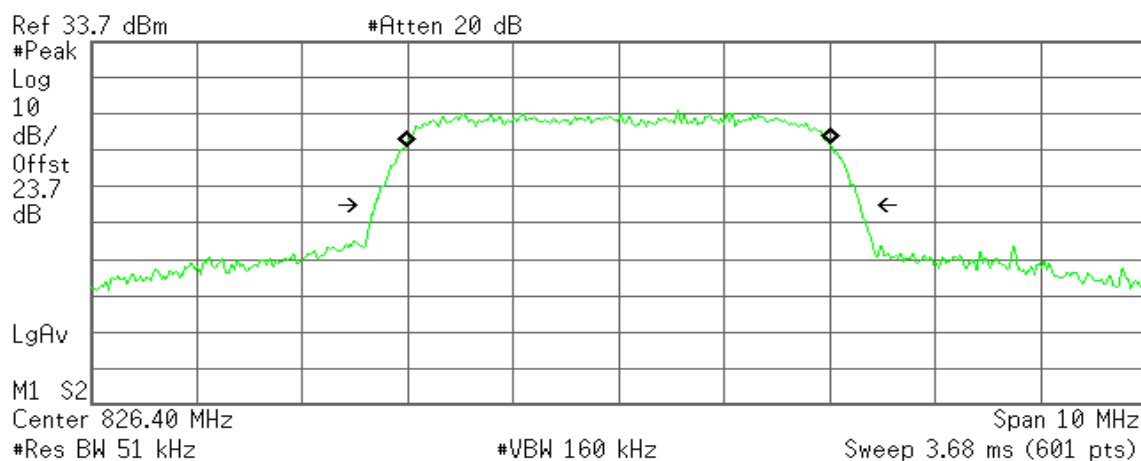
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 1.923 kHz
x dB Bandwidth 4.636 MHz

HSUPA Band V (CH Low)

Agilent

R T



Occupied Bandwidth
4.0291 MHz

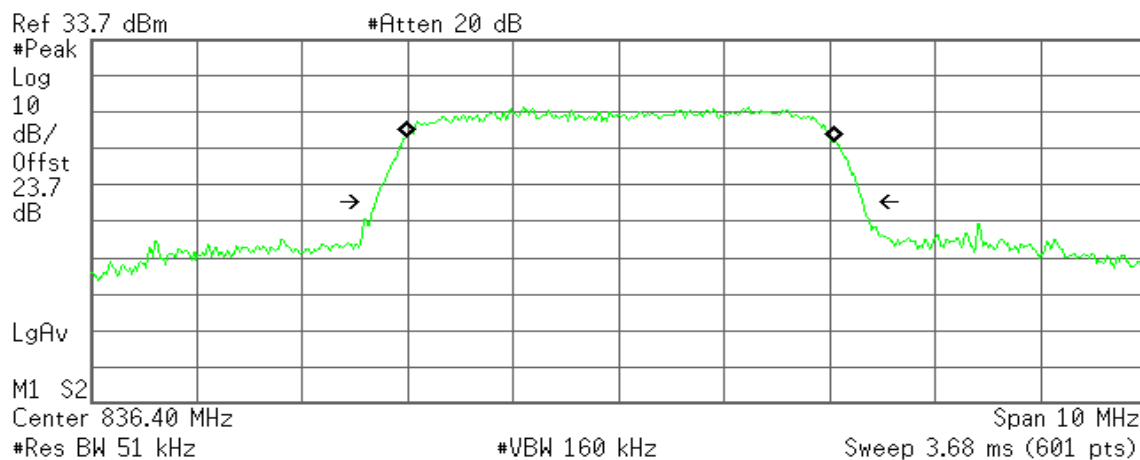
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -4.829 kHz
x dB Bandwidth 4.609 MHz

HSUPA Band V (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0641 MHz

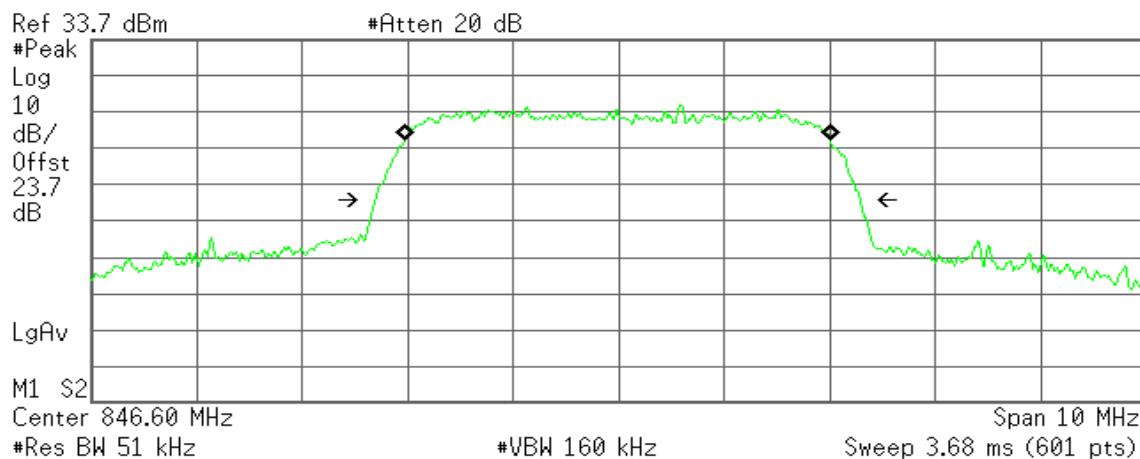
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 10.806 kHz
x dB Bandwidth 4.630 MHz

HSUPA Band V (CH High)

Agilent

R T



Occupied Bandwidth
4.0499 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -7.072 kHz
x dB Bandwidth 4.605 MHz

7.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS

LIMIT

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

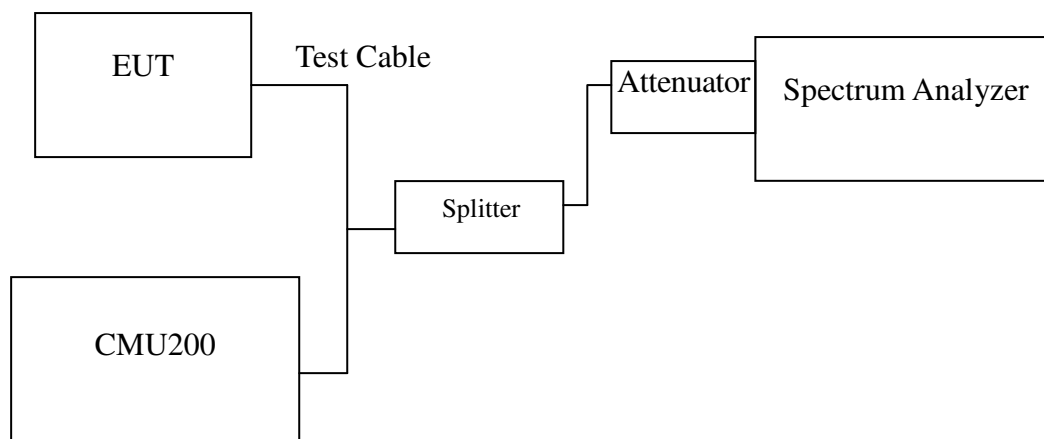
Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least $43 + 10 \log P$ dB.

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 (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 (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 (Band II)	9262	Figure 25-1	Band Edge emissions
	9538	Figure 25-2	Band Edge emissions
HSDPA (Band V)	4132	Figure 26-1	Band Edge emissions
	4233	Figure 26-2	Band Edge emissions

Mode	CH	Location	Description
HSUPA (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 (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 (Band II)	9262	Figure 29-1	Band Edge emissions
	9538	Figure 29-2	Band Edge emissions
HSUPA (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

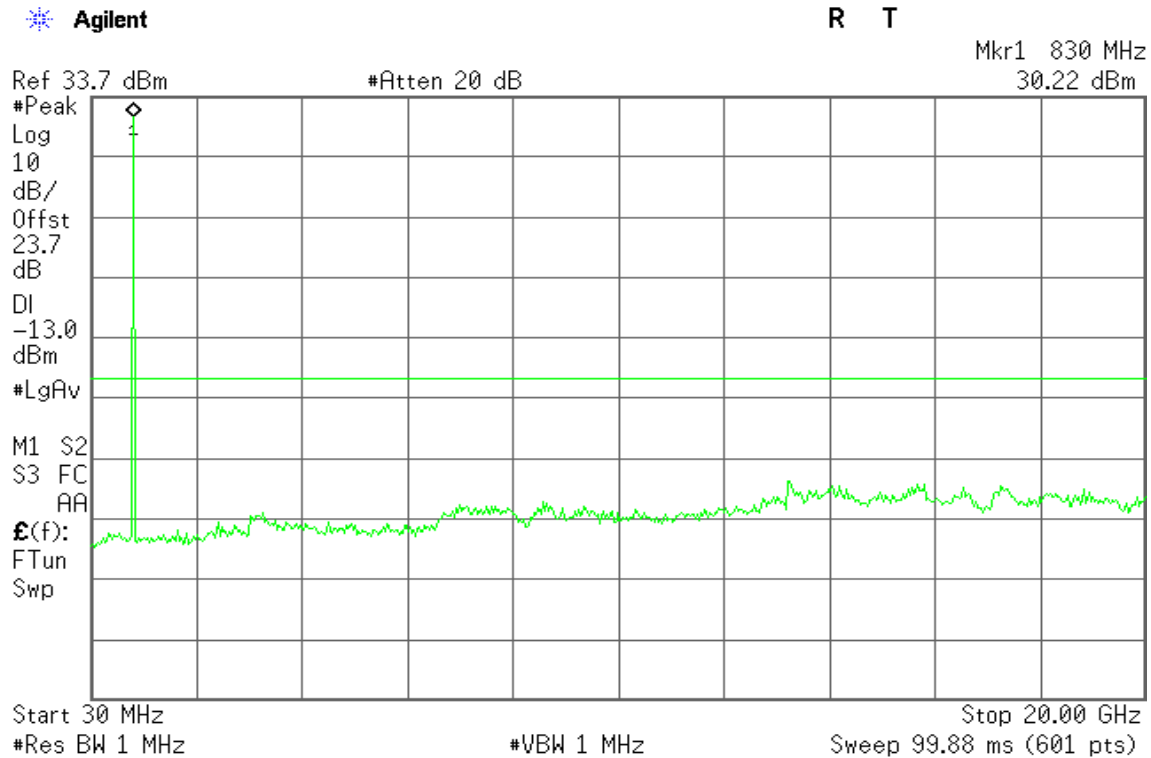


Figure 8-2: Out of Band emission at antenna terminals – GPRS CH Mid

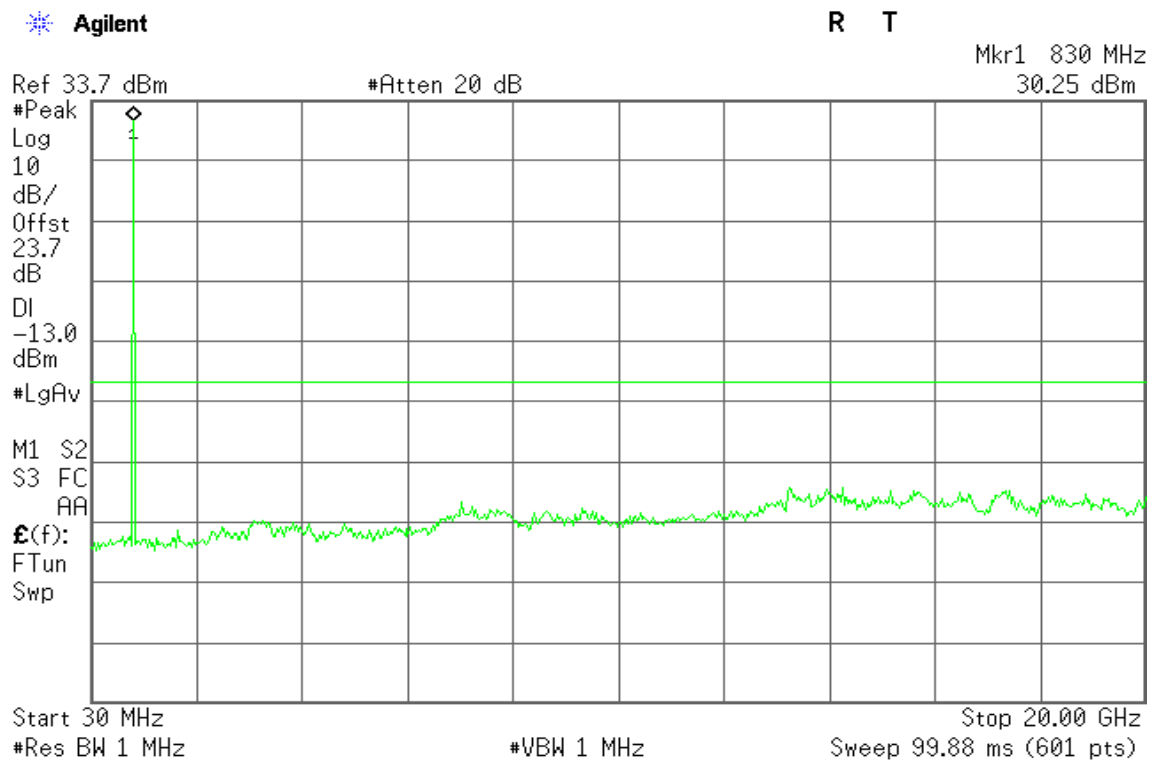
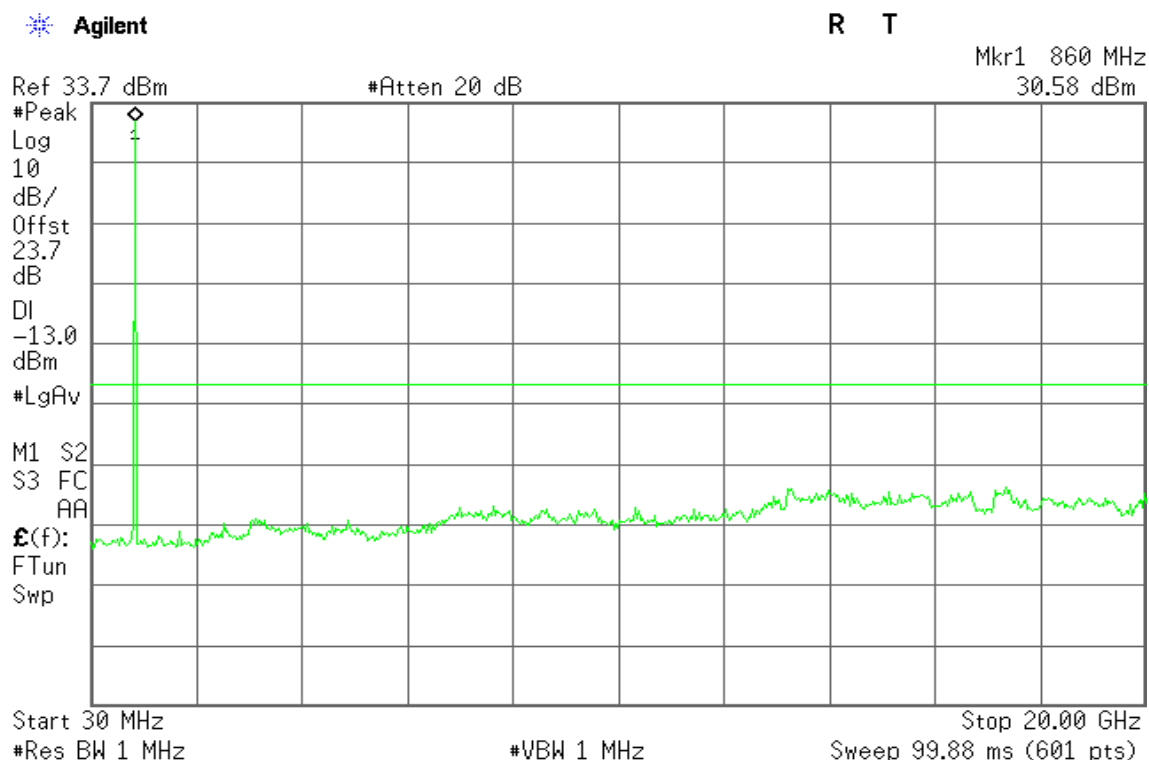


Figure 8-3: Out of Band emission at antenna terminals – GPRS CH High



GPRS 1900

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

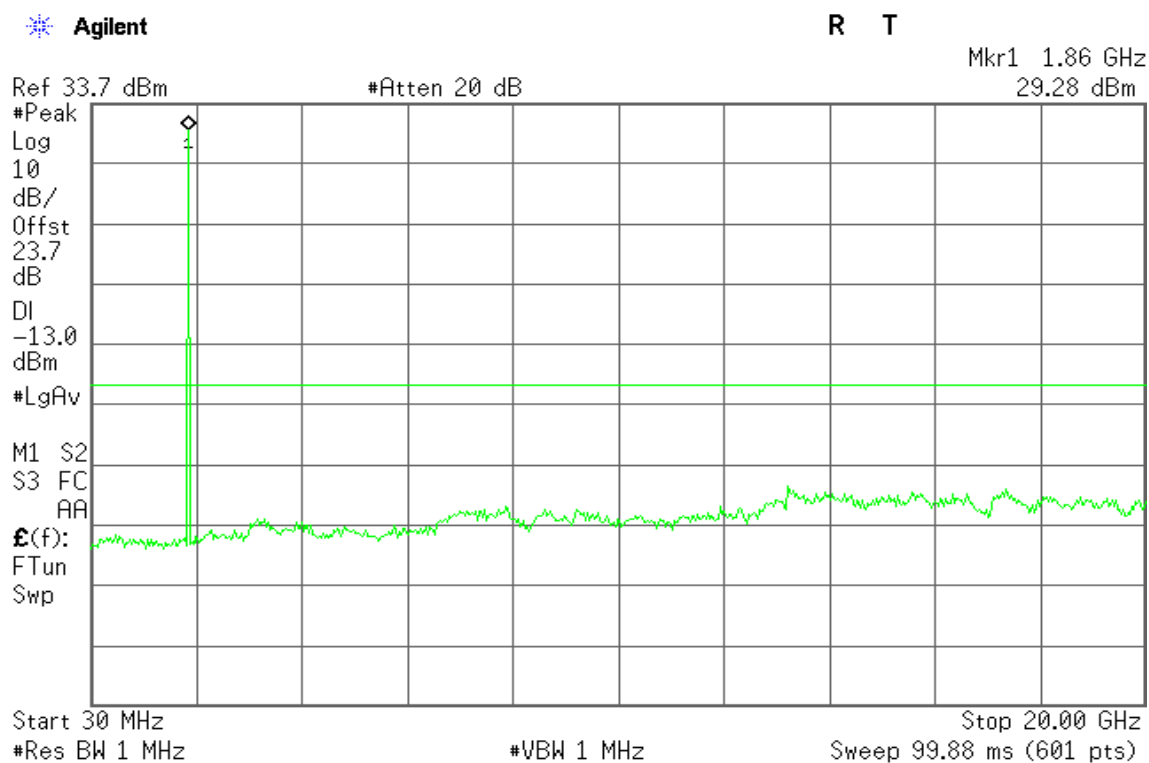


Figure 10-2: Out of Band emission at antenna terminals – GPRS CH Mid

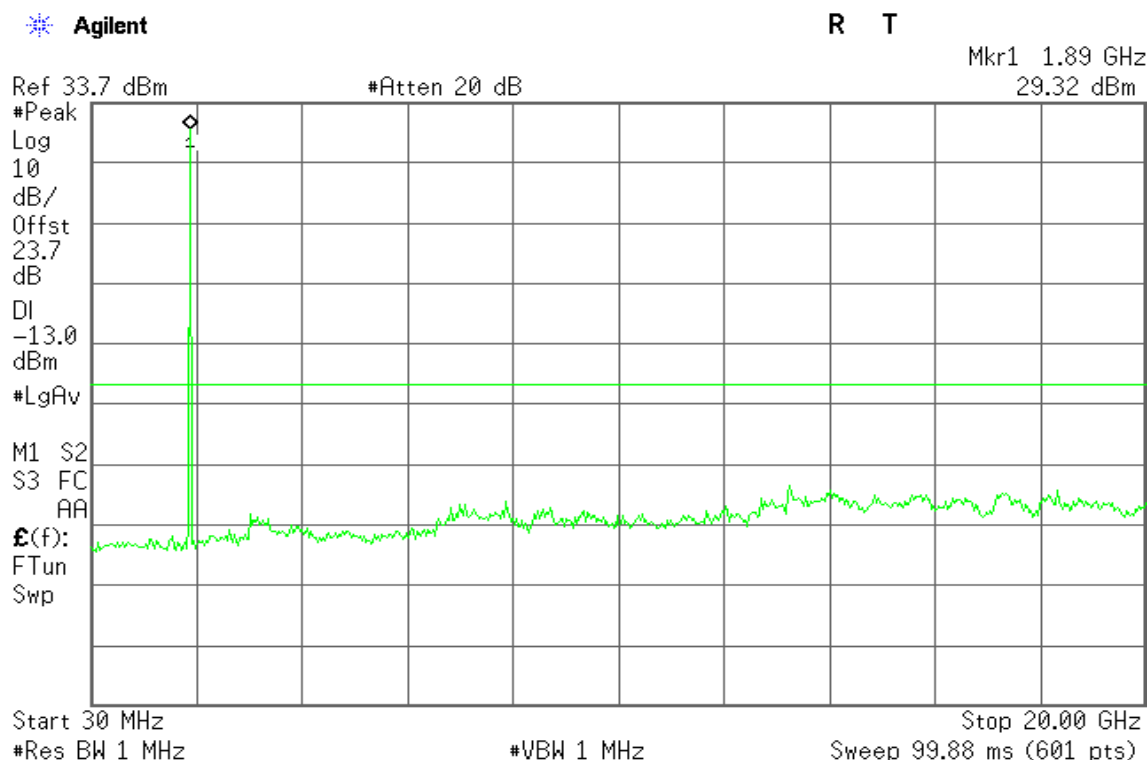
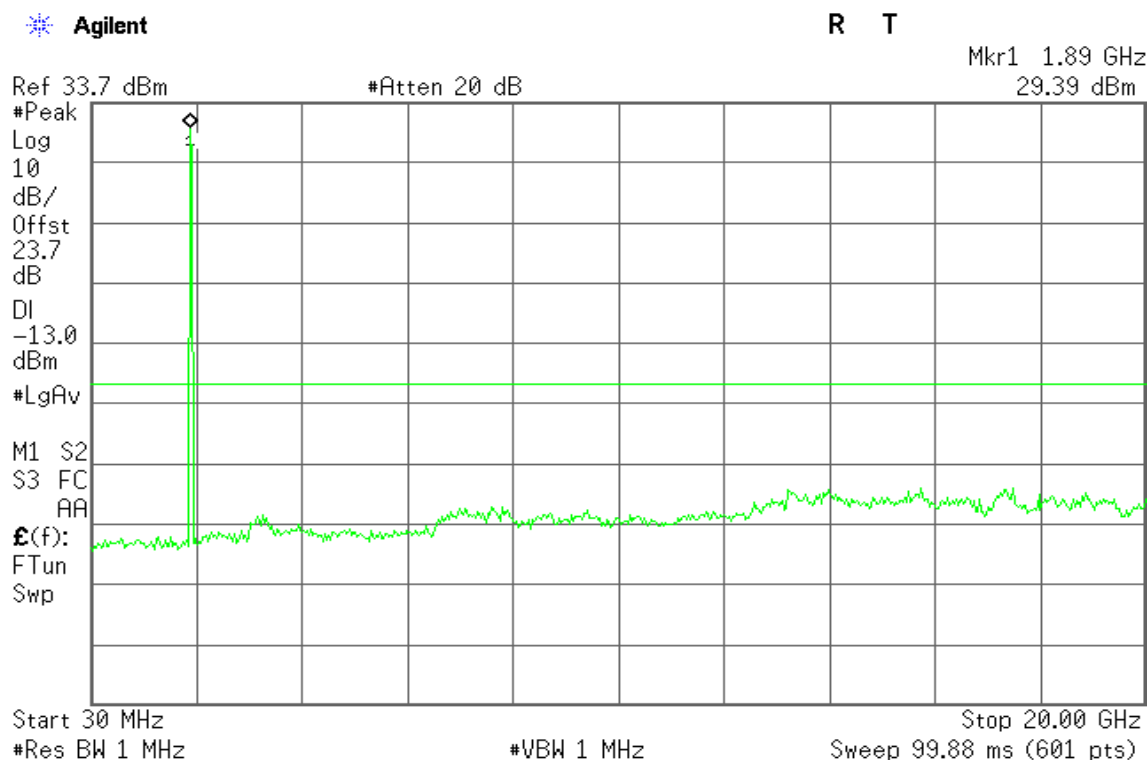


Figure 10-3: Out of Band emission at antenna terminals –GPRS CH High



GPRS 850

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

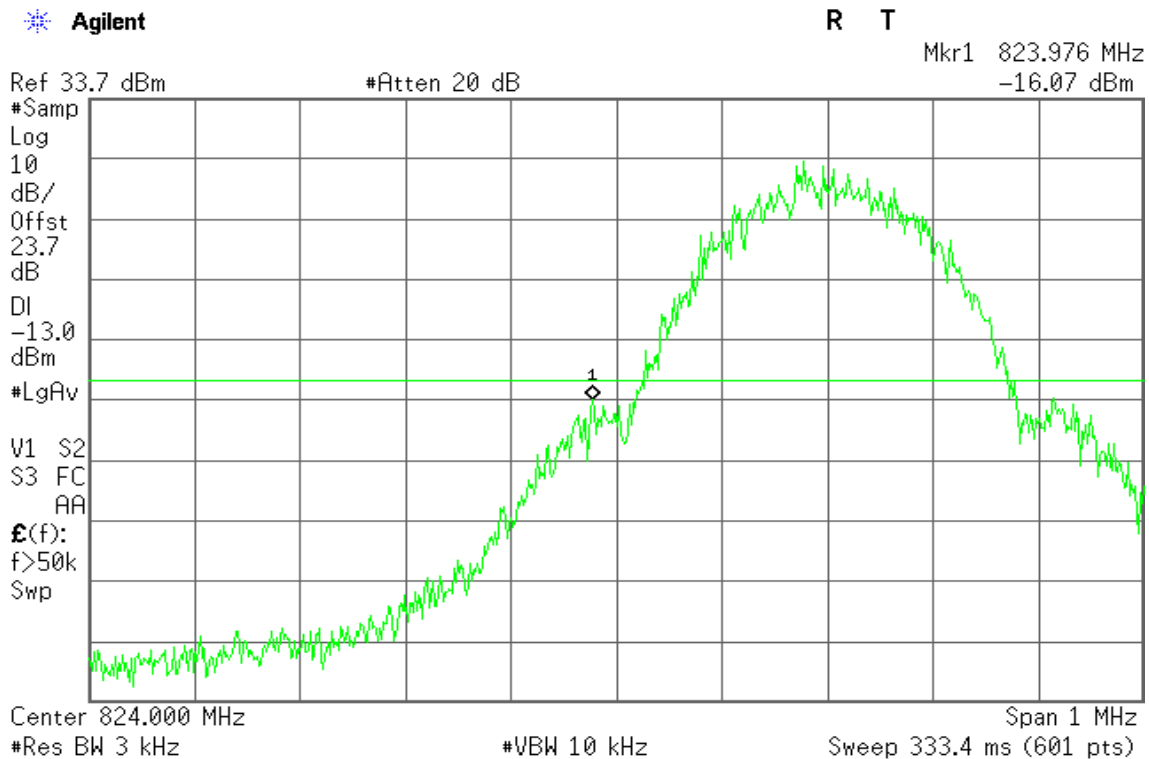
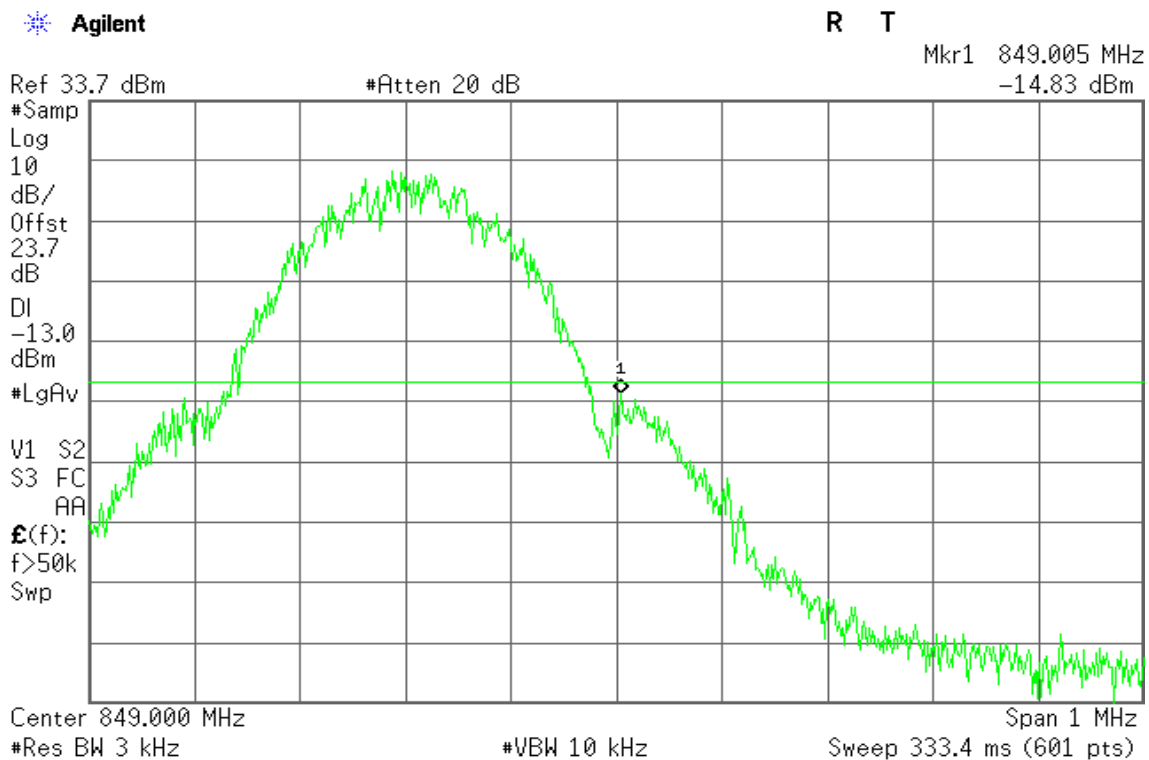


Figure 12-2: Band Edge emissions –GPRS CH High



GPRS 1900

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

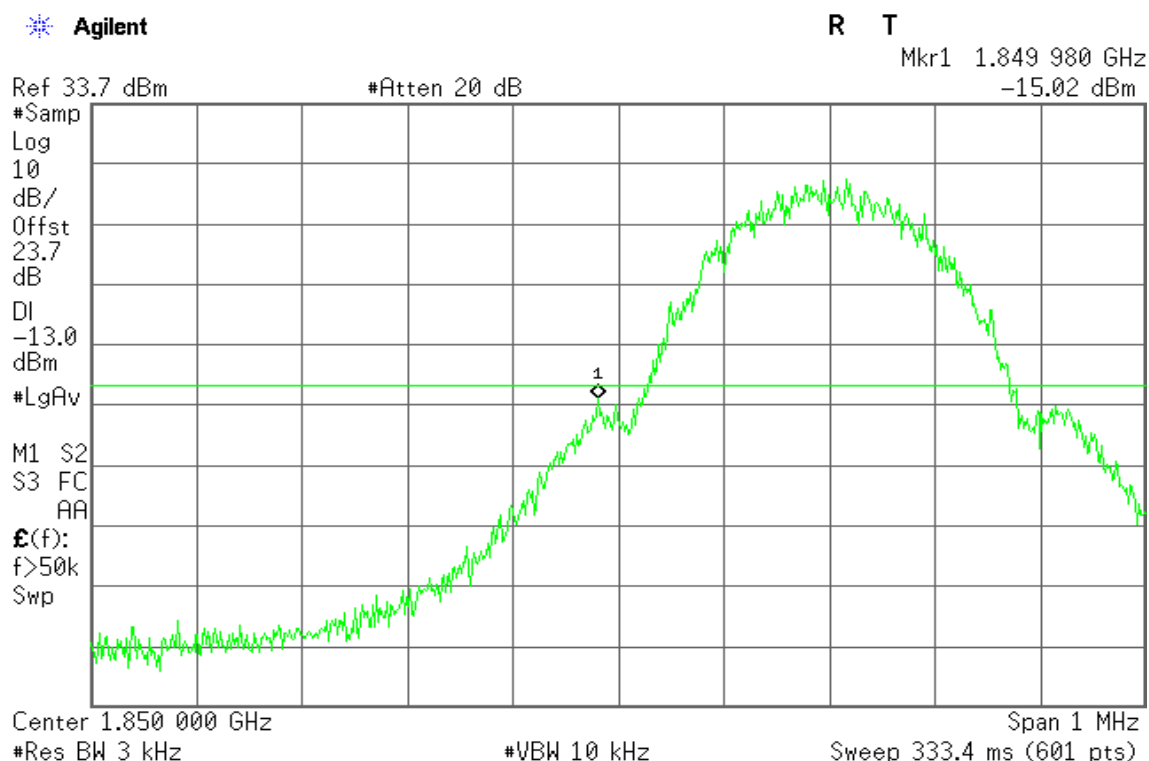
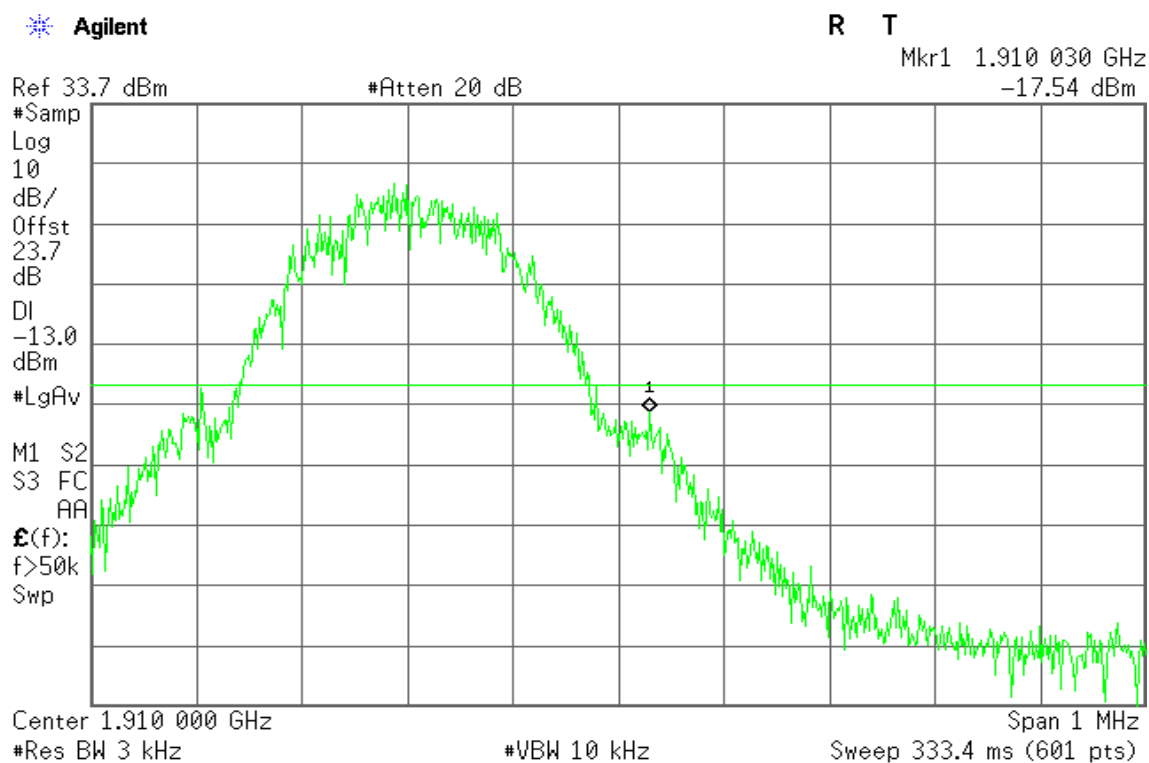


Figure 14-2: Band Edge emissions – GPRS CH High



EDGE 850

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

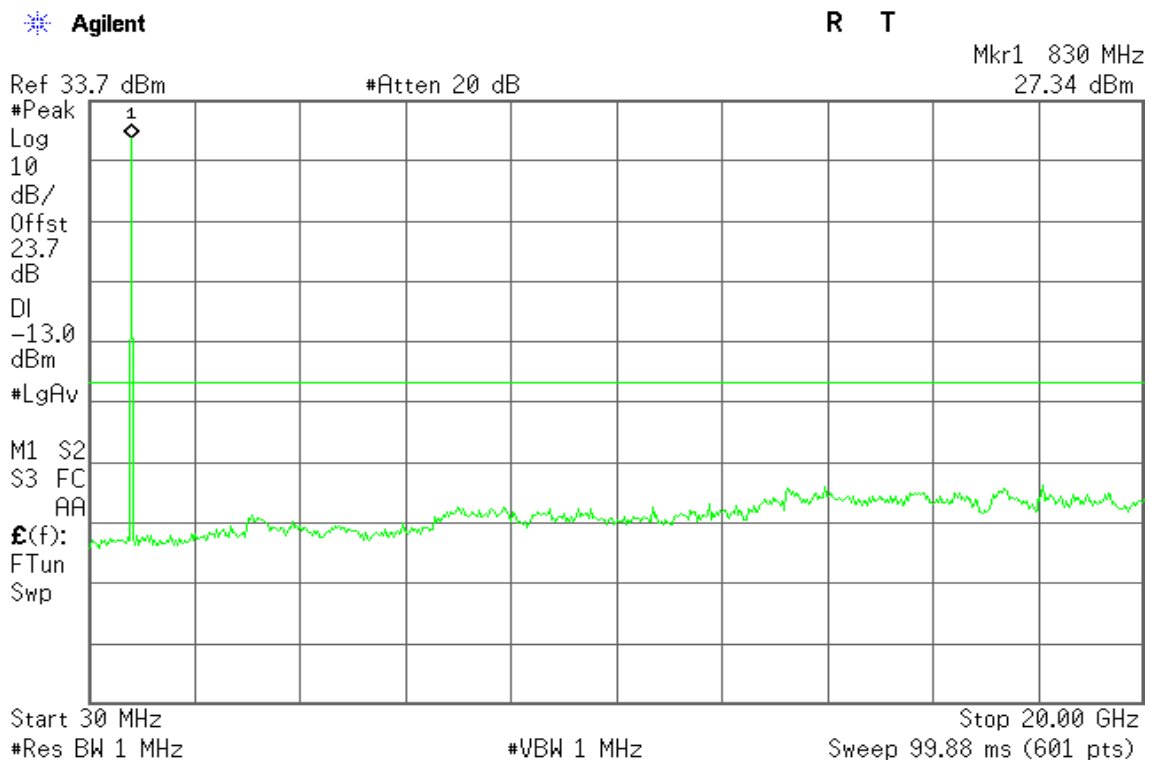


Figure 15-2: Out of Band emission at antenna terminals –EDGE CH Mid

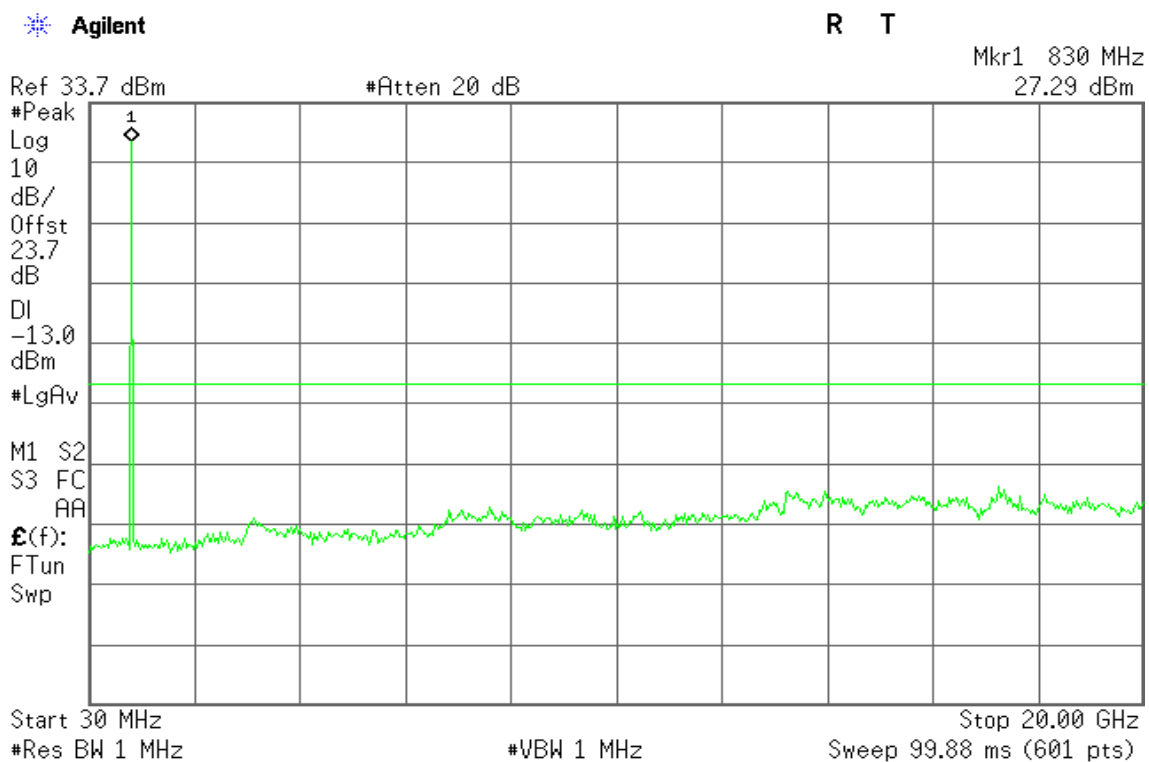
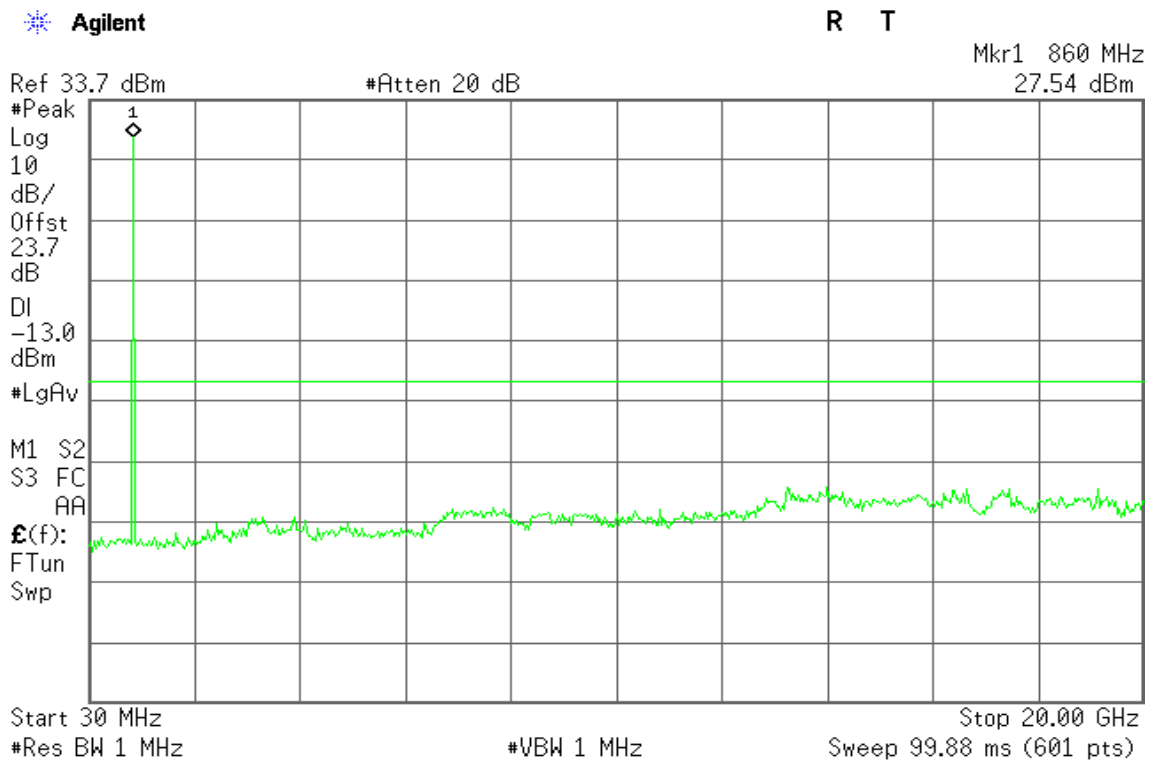


Figure 15-3: Out of Band emission at antenna terminals –EDGE CH High



EDGE 1900

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

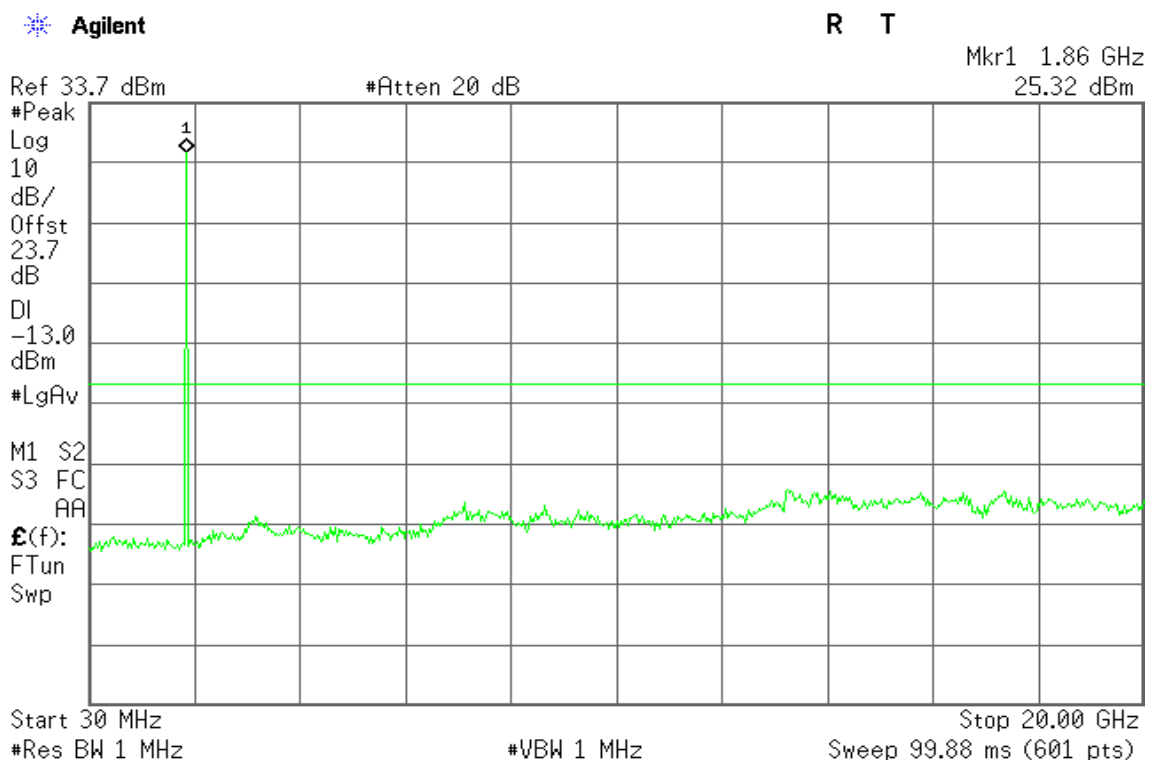


Figure 16-2: Out of Band emission at antenna terminals –EDGE CH Mid

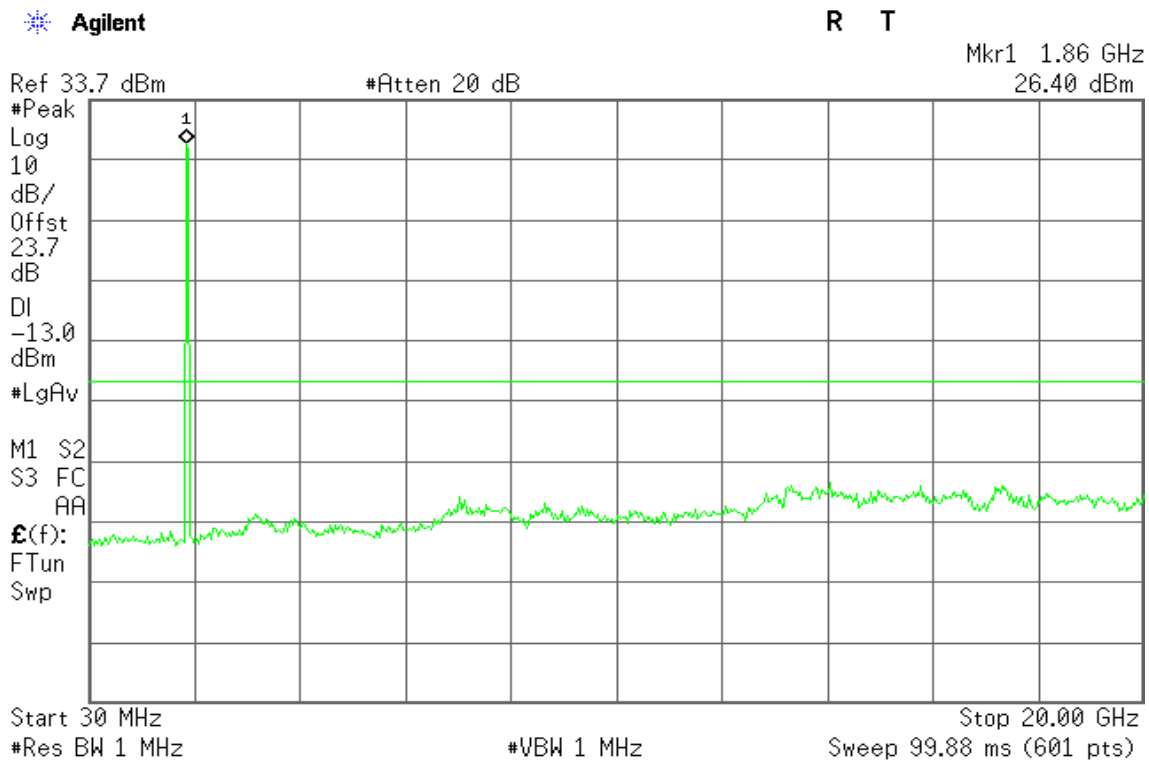
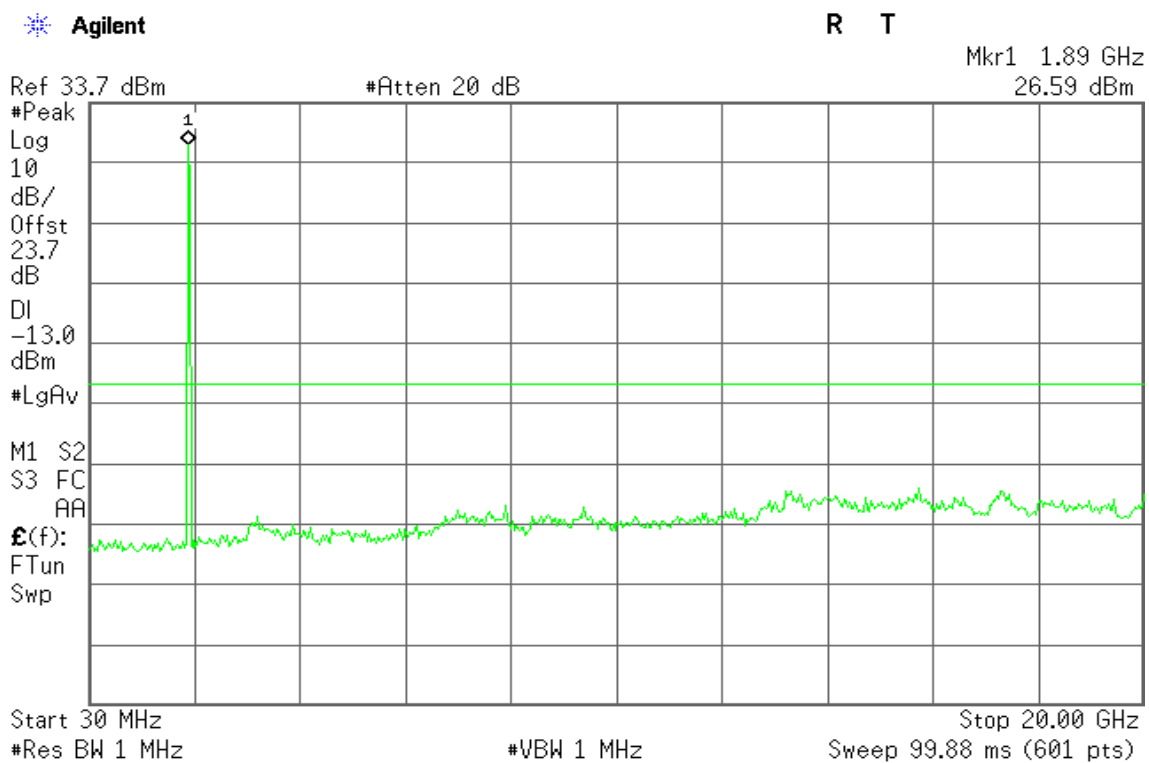


Figure 16-3: Out of Band emission at antenna terminals –EDGE CH High



EDGE 850

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

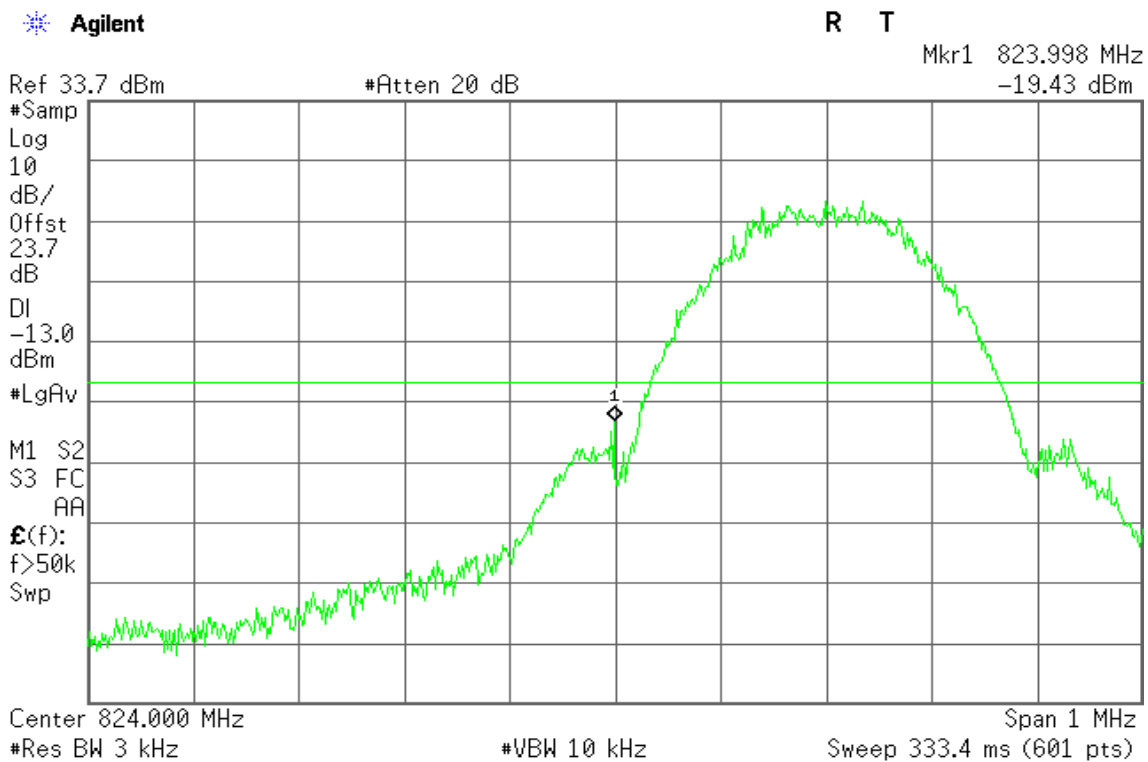
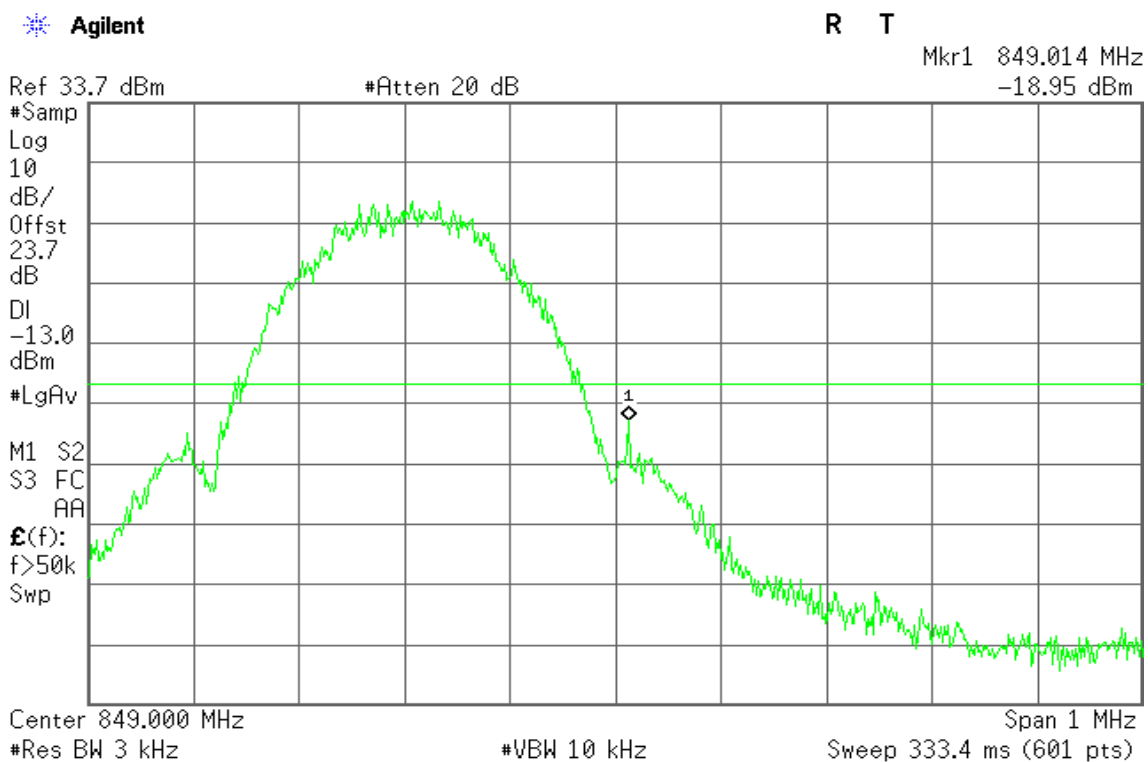


Figure 17-2: Band Edge emissions – EDGE CH High



EDGE 1900

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

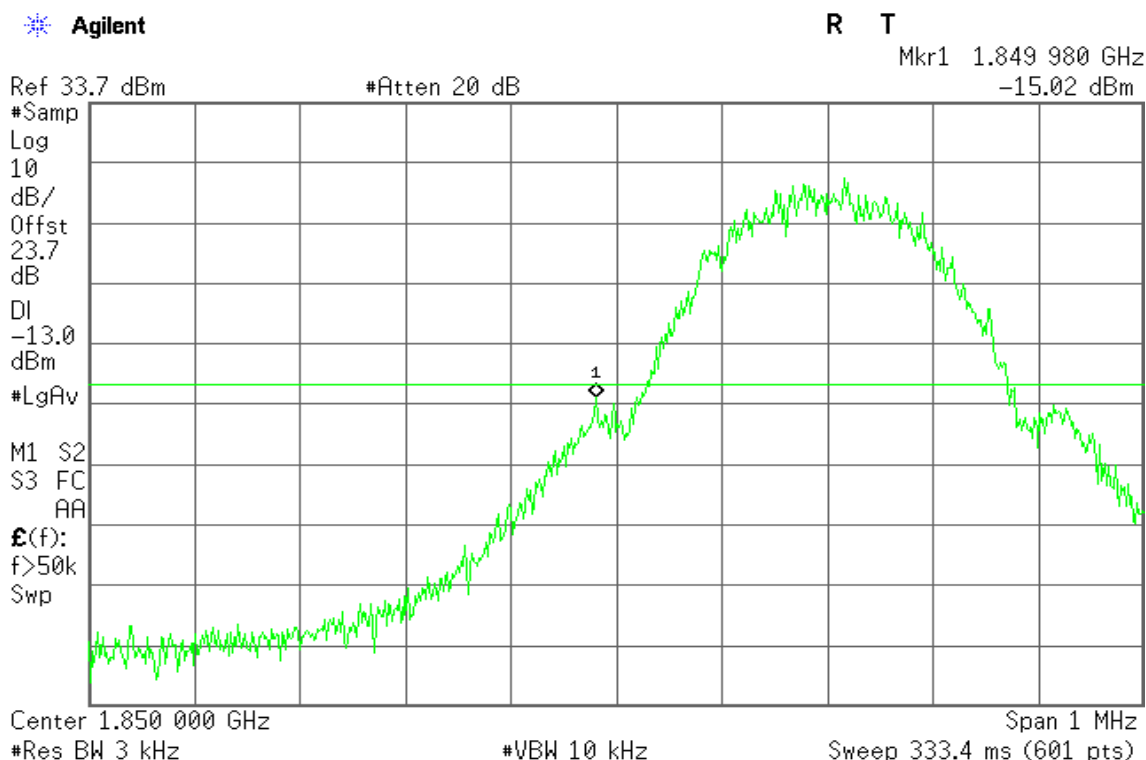
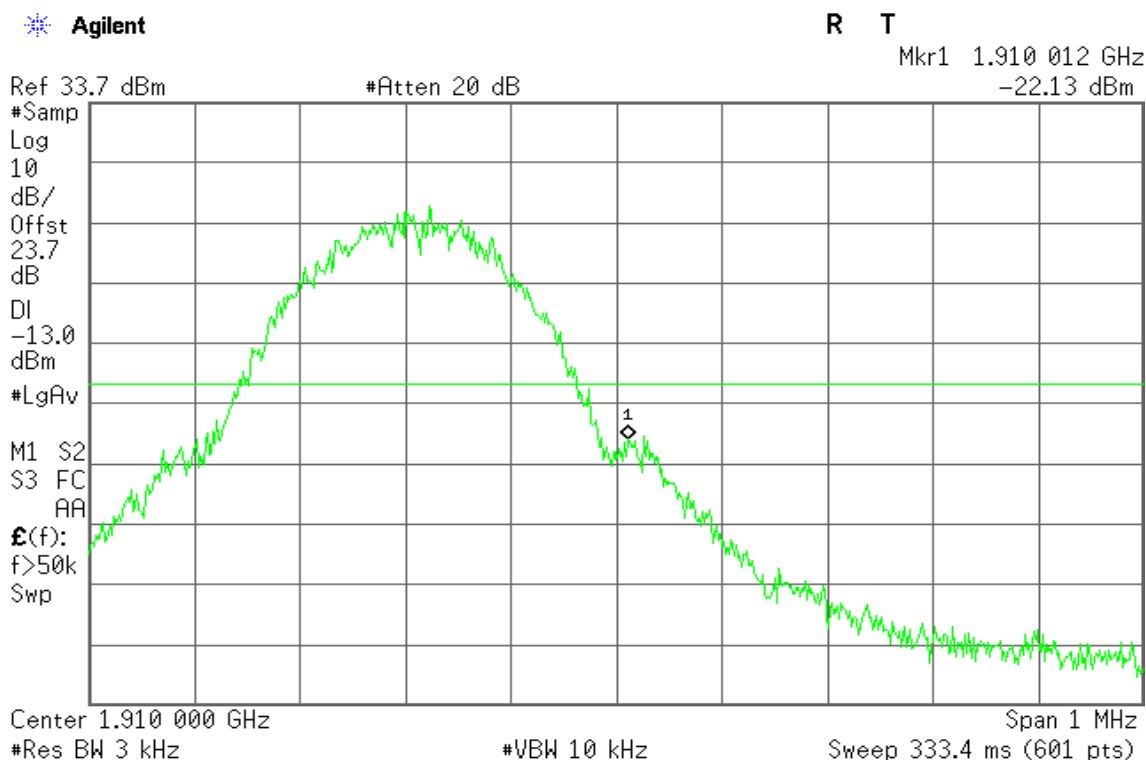


Figure 18-2: Band Edge emissions – EDGE CH High



WCDMA Band II

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

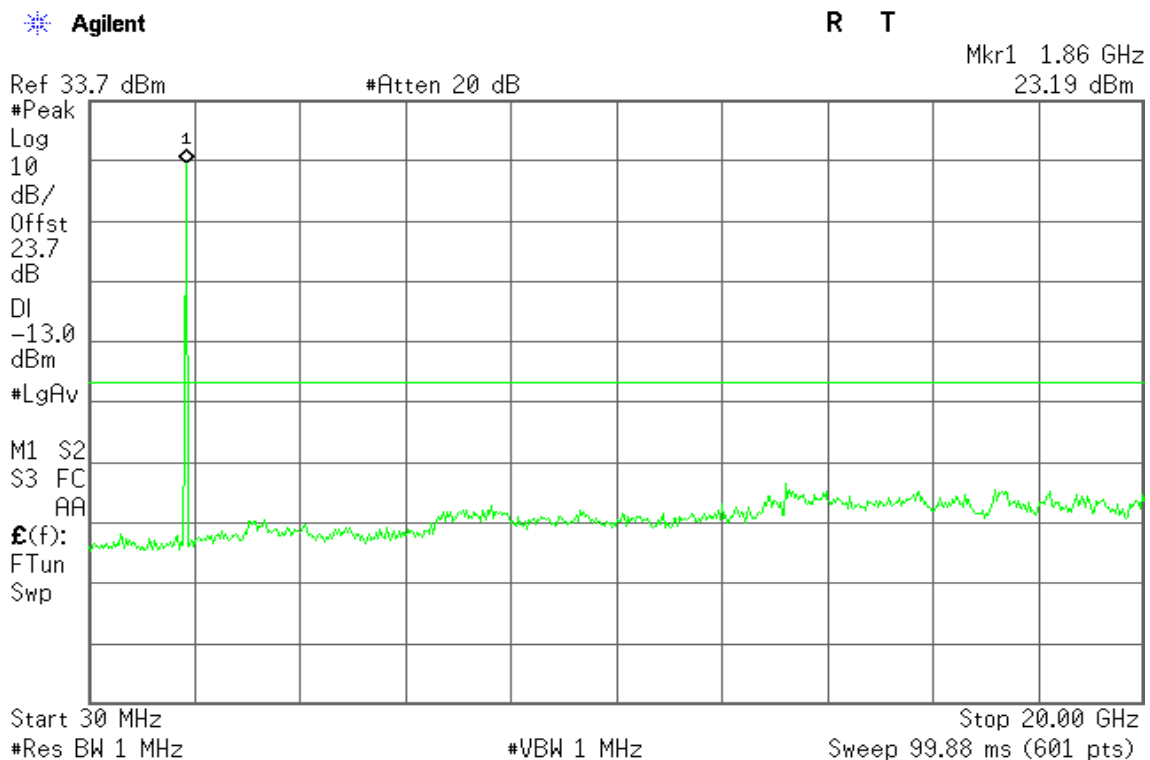


Figure 19-2: Out of Band emission at antenna terminals – WCDMA CH Mid

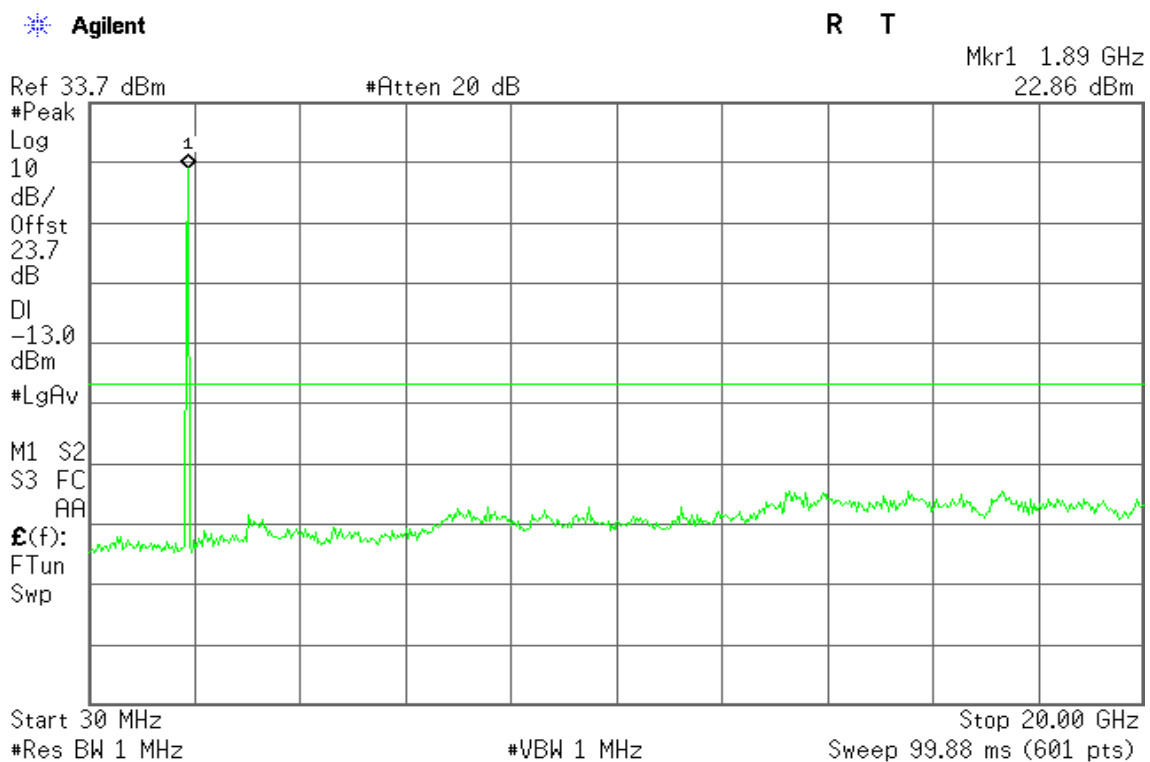
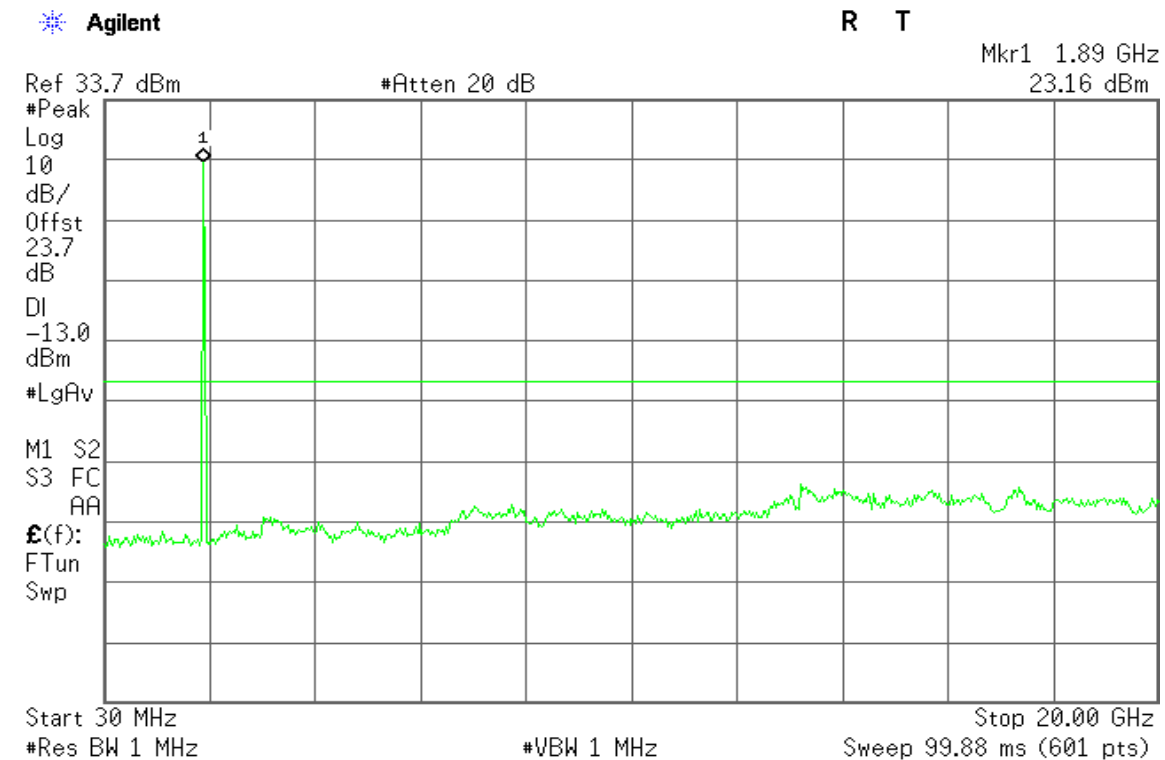


Figure 19-3: Out of Band emission at antenna terminals – WCDMA CH High



WCDMA Band V

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

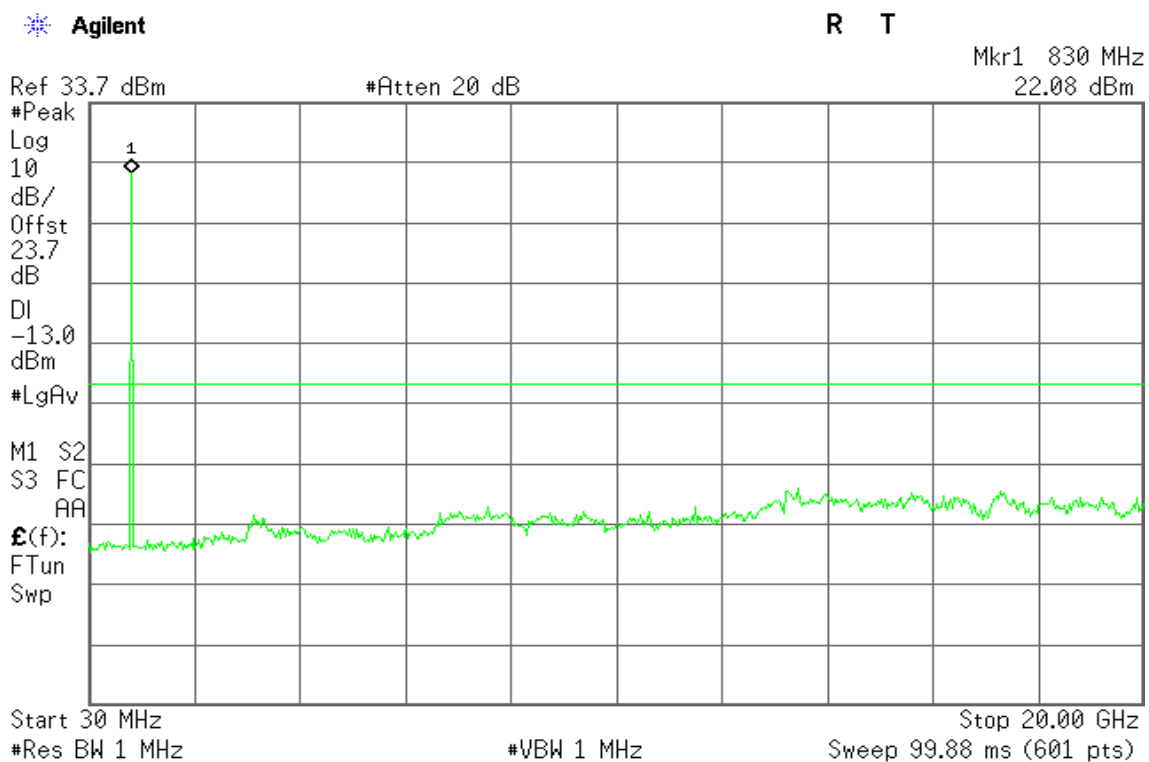


Figure 20-2: Out of Band emission at antenna terminals – WCDMA CH Mid

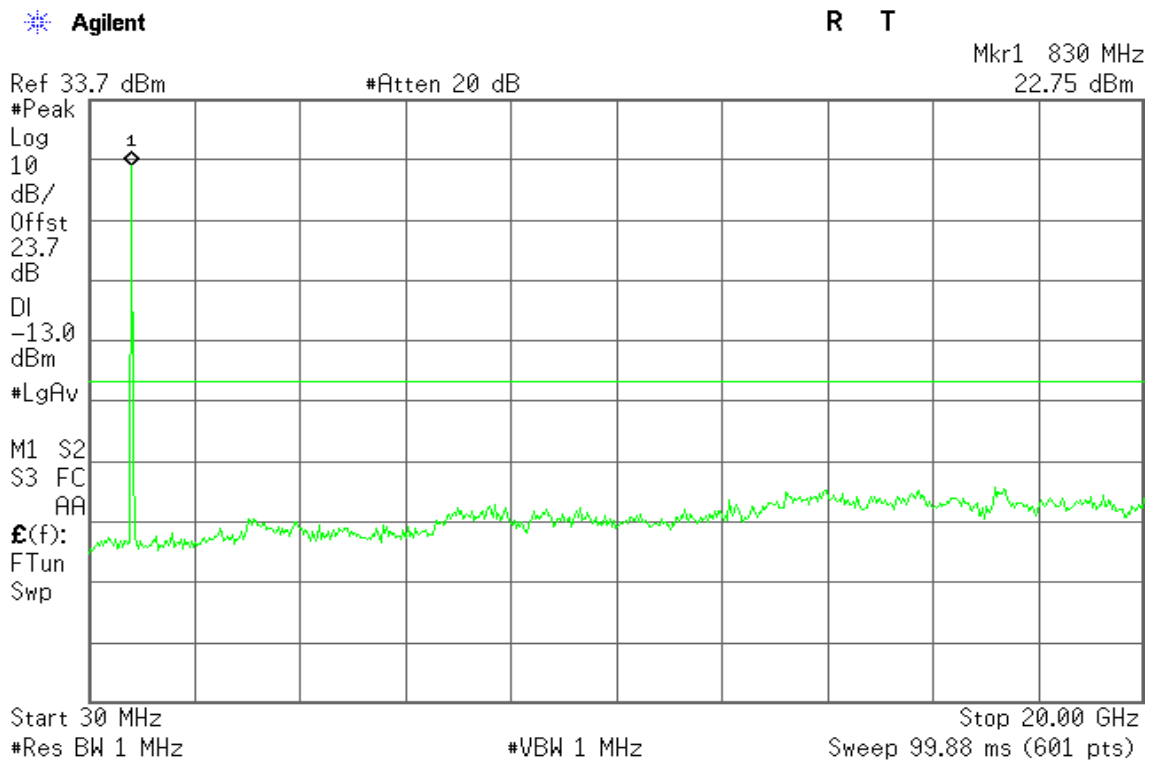
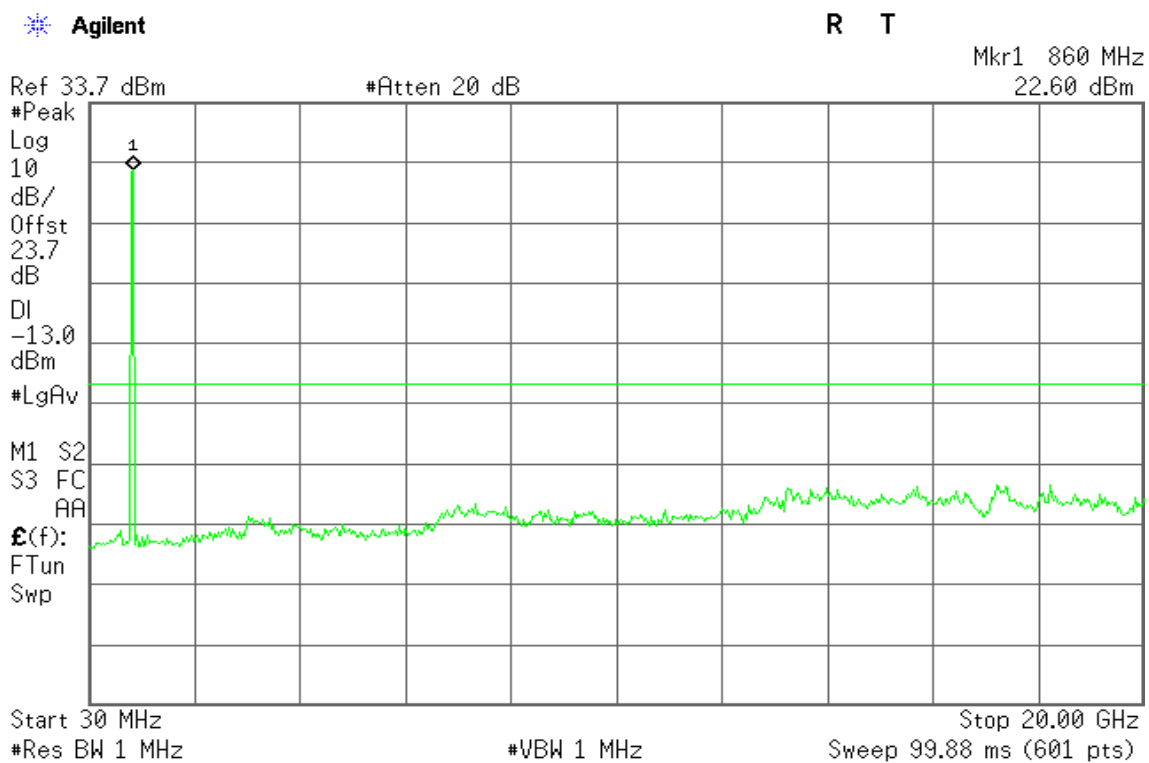


Figure 20-3: Out of Band emission at antenna terminals – WCDMA CH High



WCDMA Band II

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

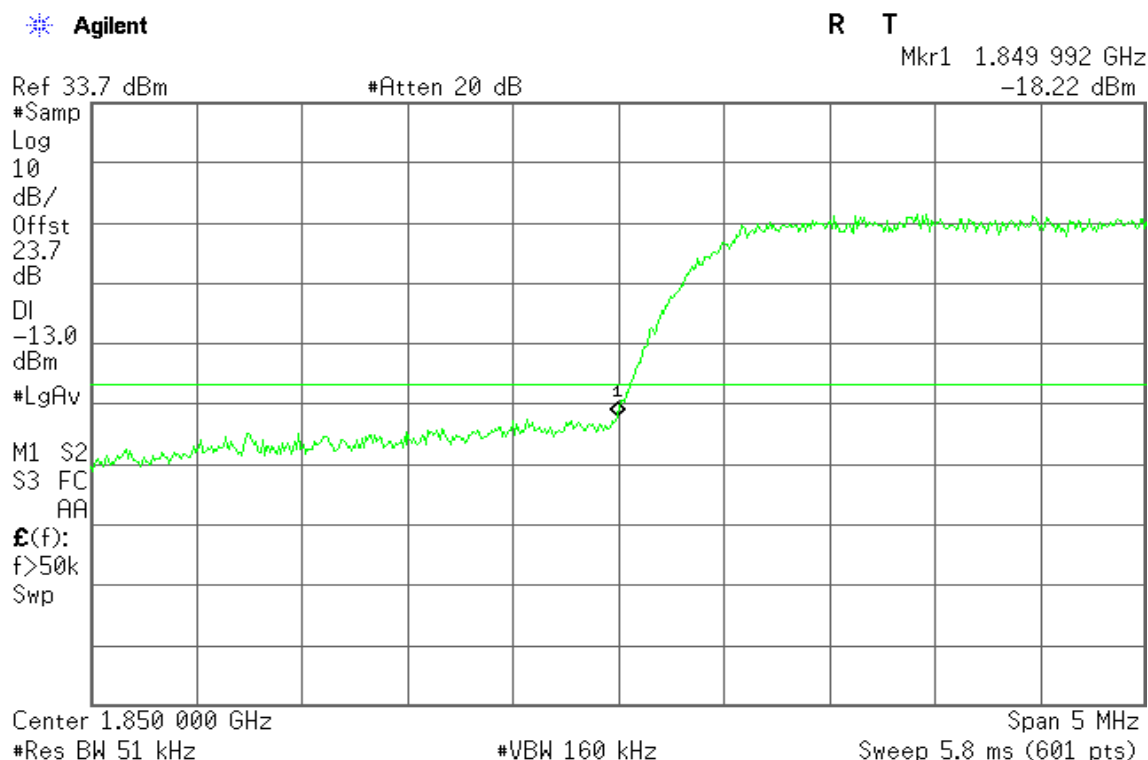
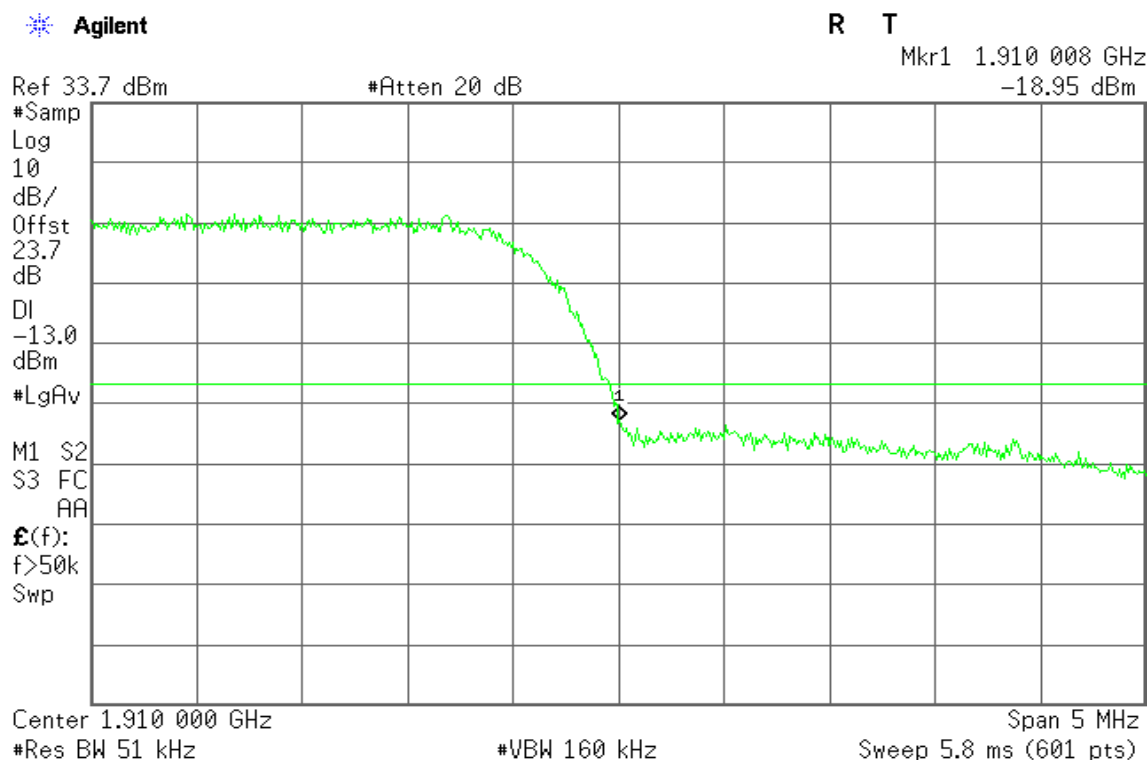


Figure 21-2: Band Edge emissions –WCDMA CH High



WCDMA Band V

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

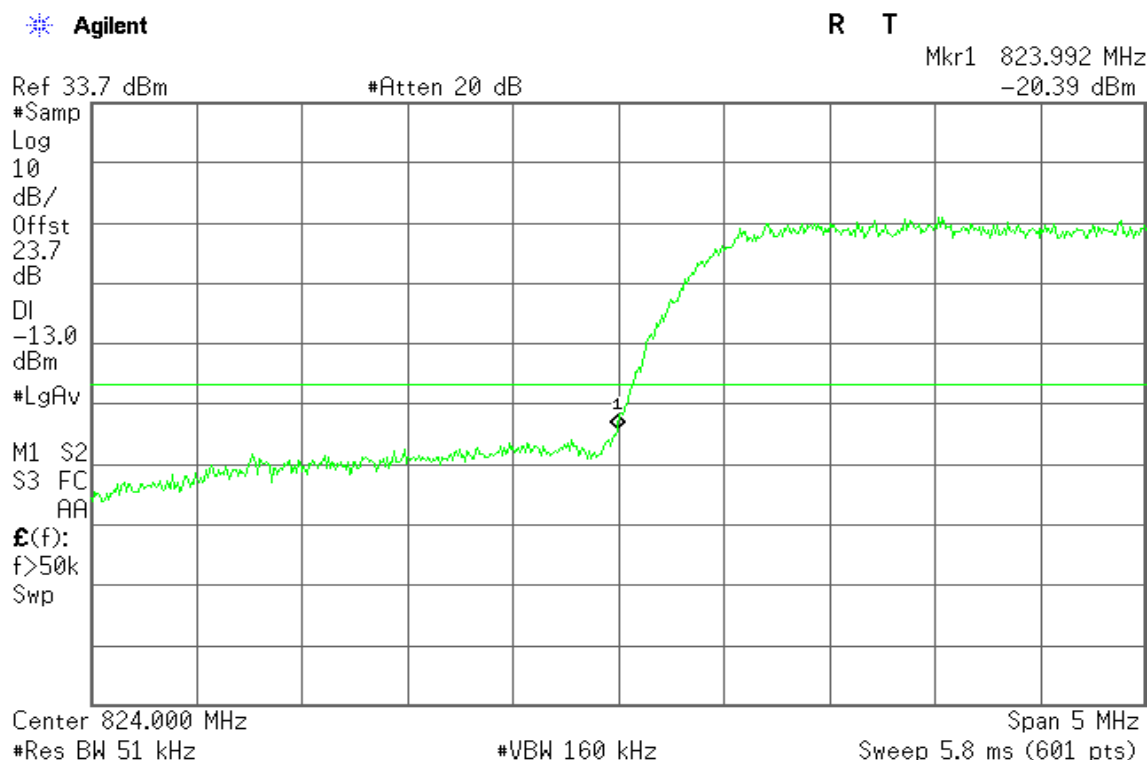
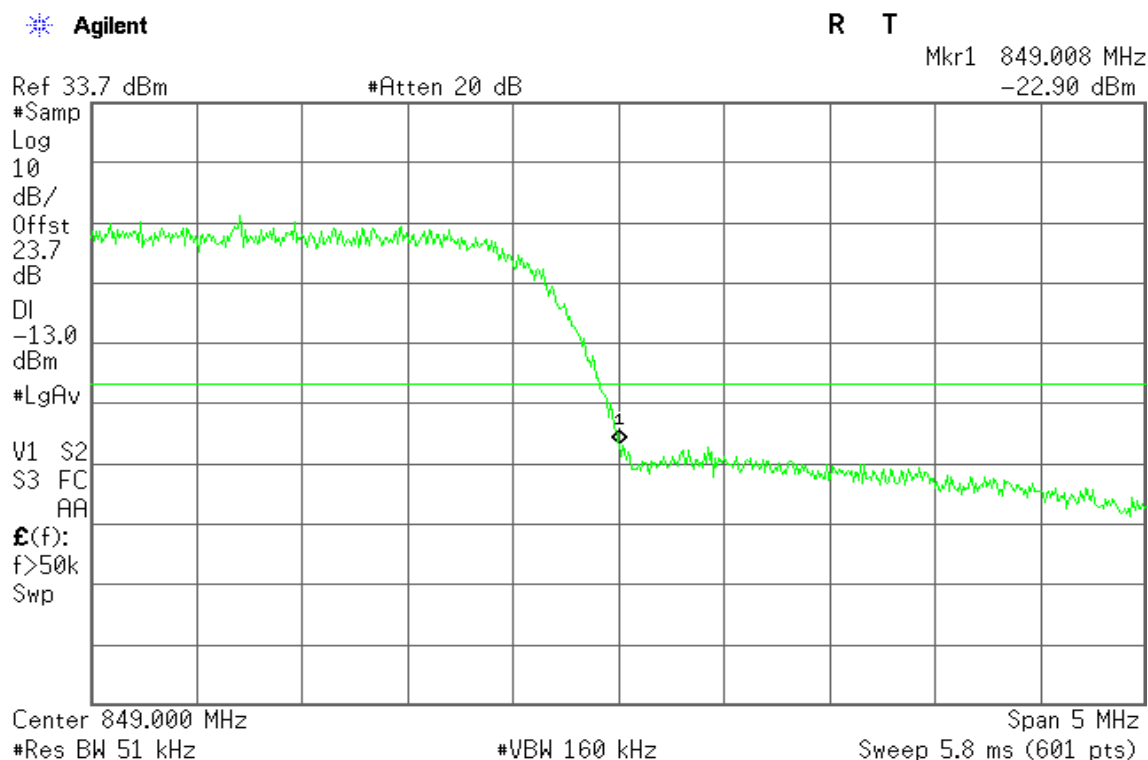


Figure 22-2: Band Edge emissions –WCDMA CH High



HSDPA Band II

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

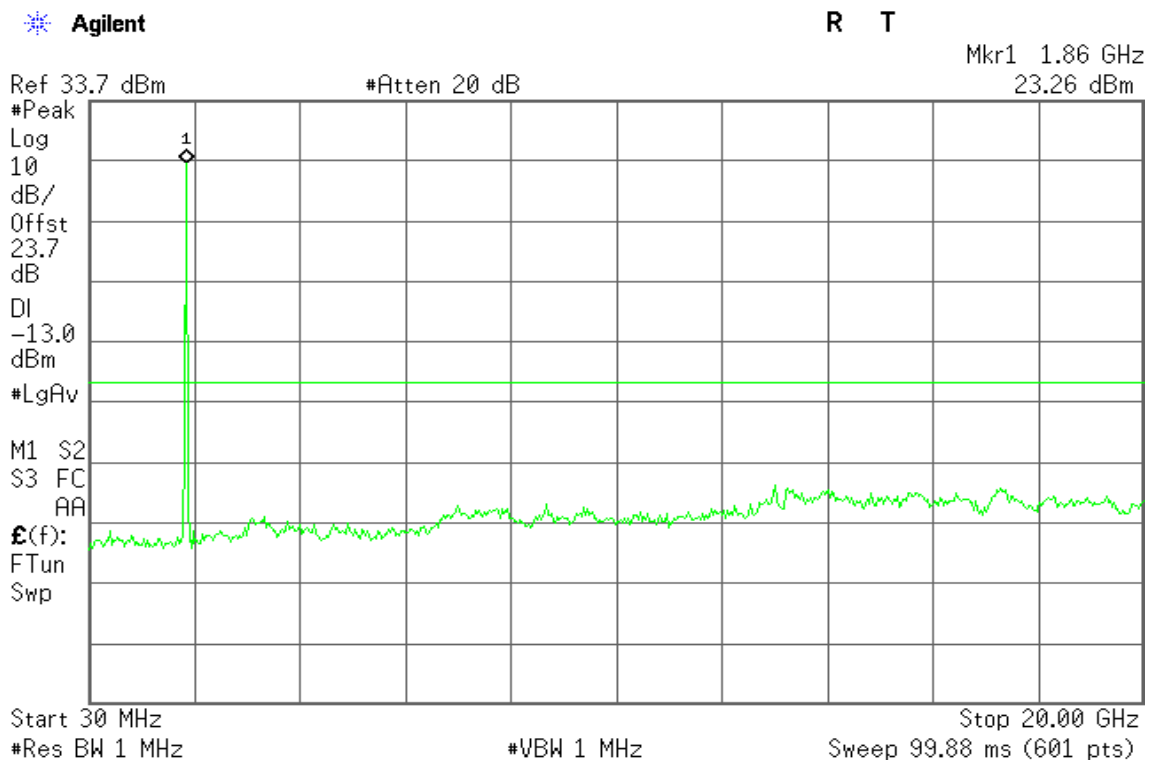


Figure 23-2: Out of Band emission at antenna terminals – HSDPA CH Mid

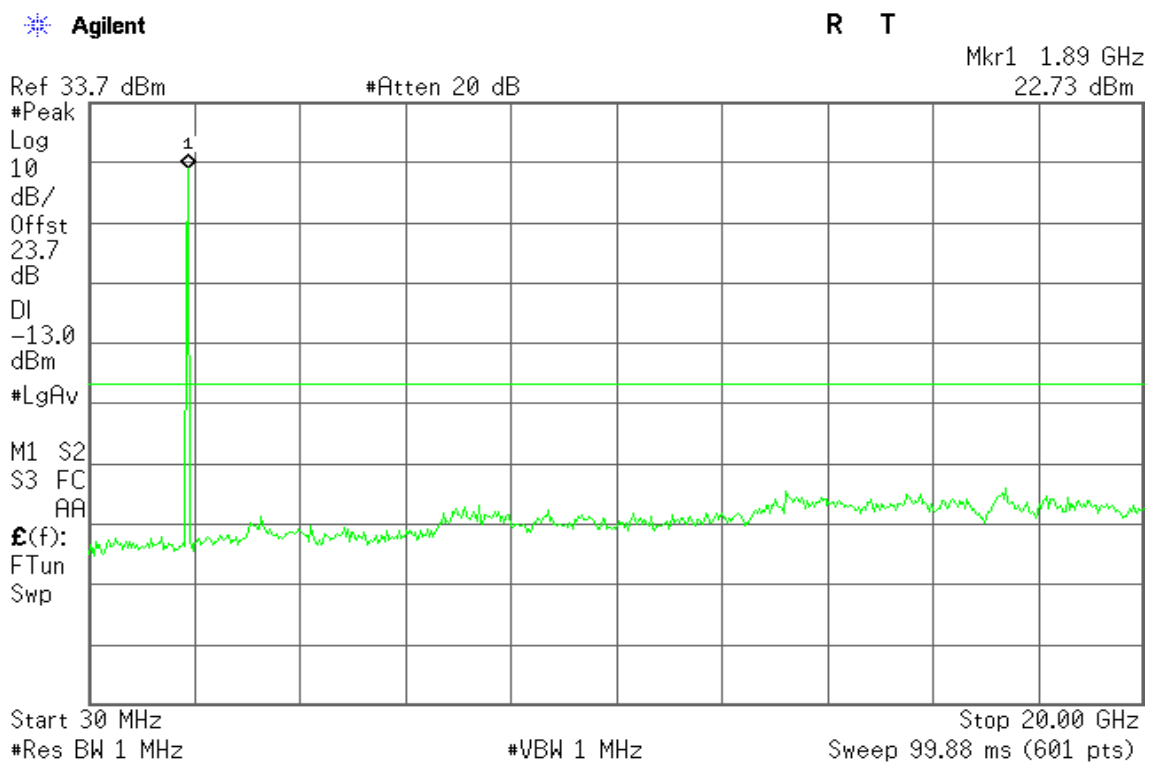
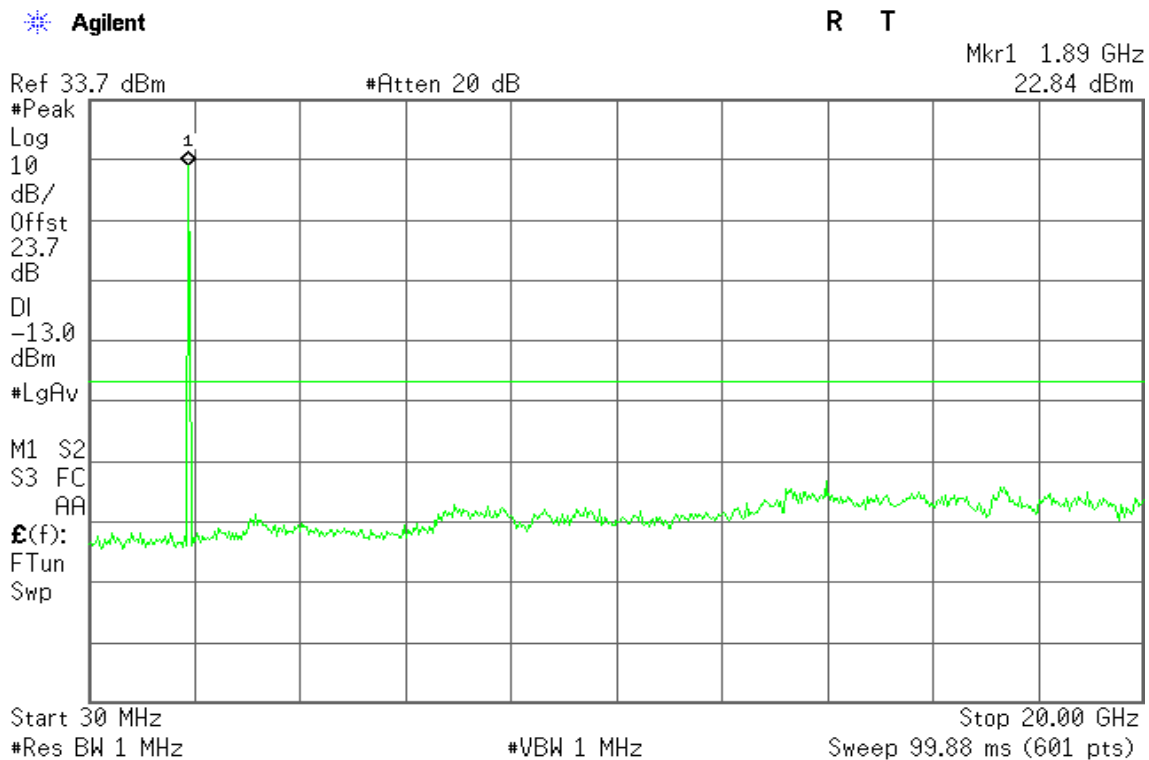


Figure 23-3: Out of Band emission at antenna terminals – HSDPA CH High



HSDPA Band V

Figure 21-1: Out of Band emission at antenna terminals – HSDPA CH Low

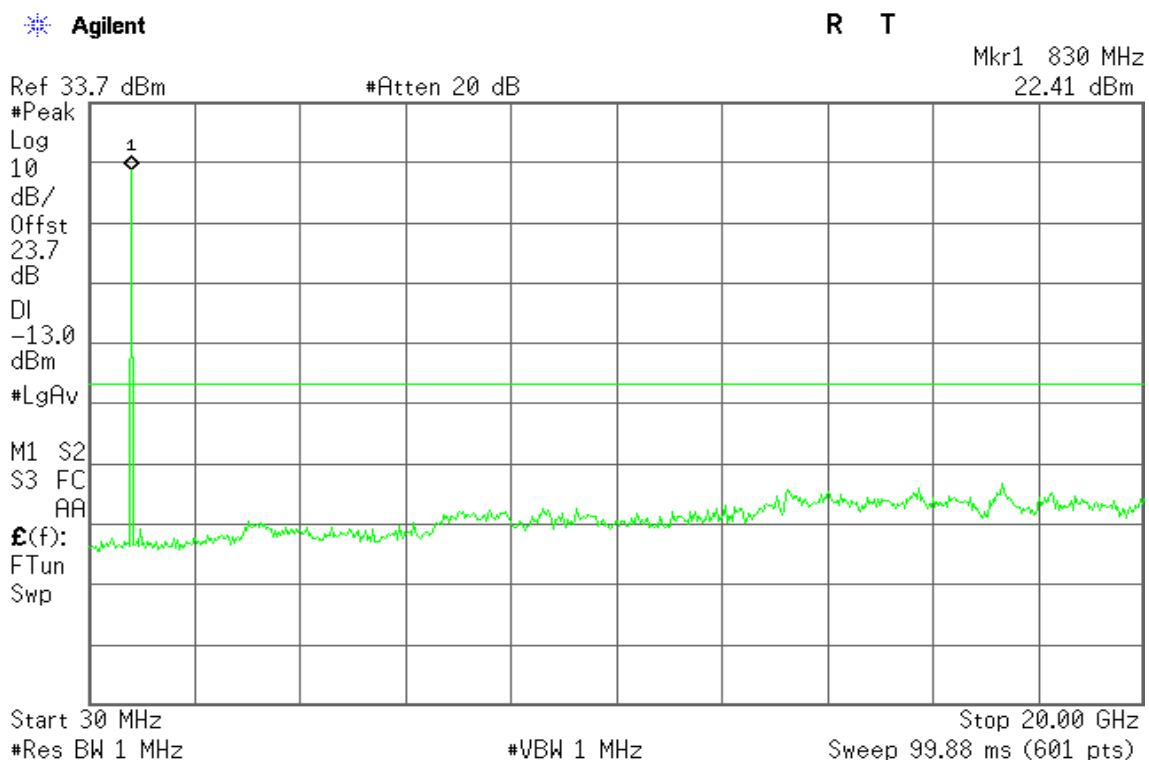


Figure 24-2: Out of Band emission at antenna terminals – HSDPA CH Mid

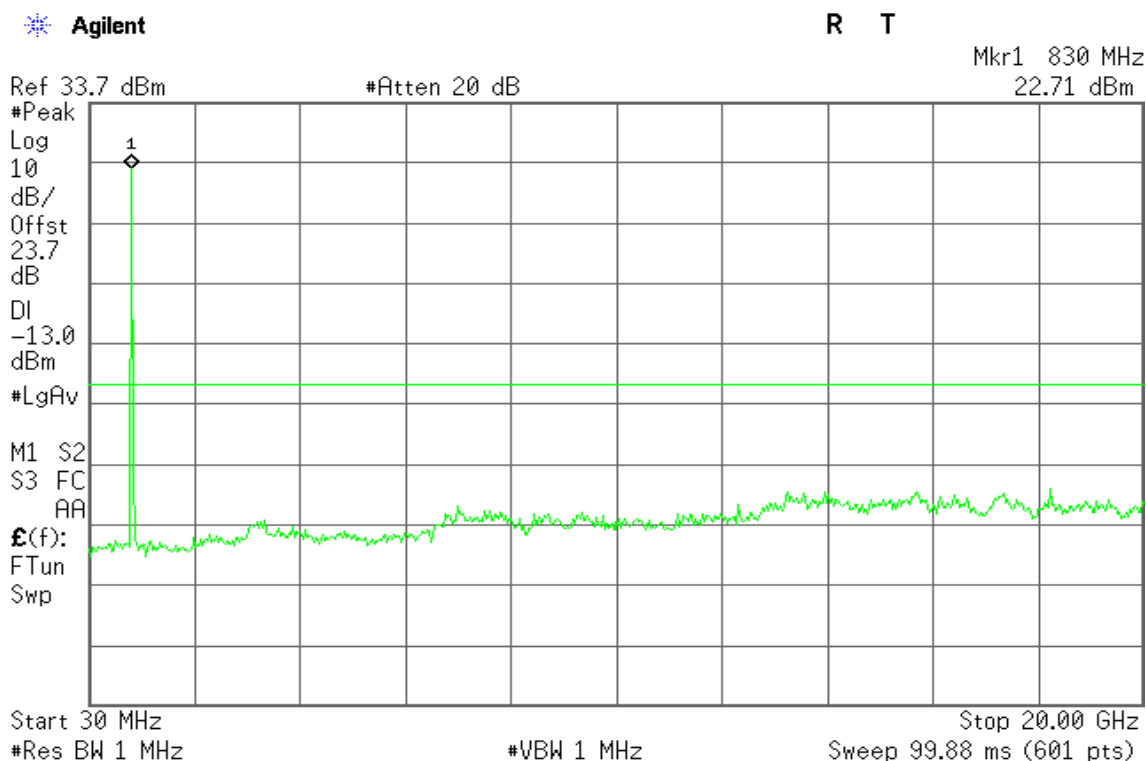
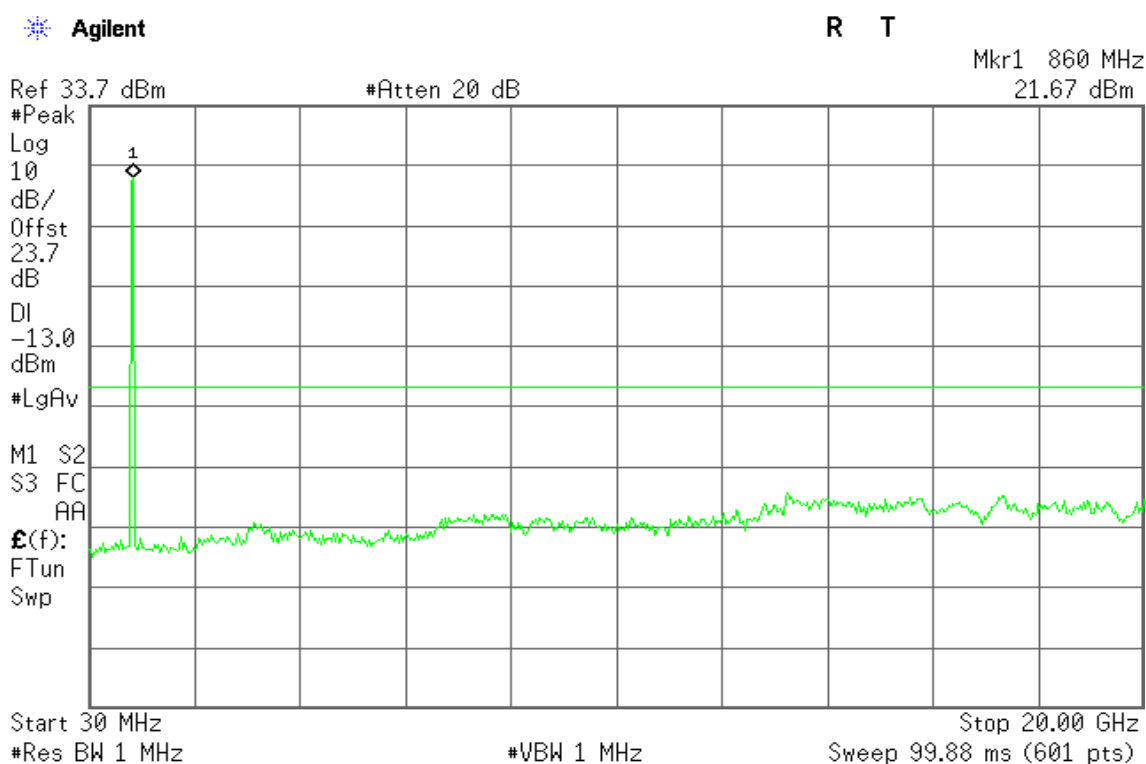


Figure 24-3: Out of Band emission at antenna terminals – HSDPA CH High



HSDPA Band II

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

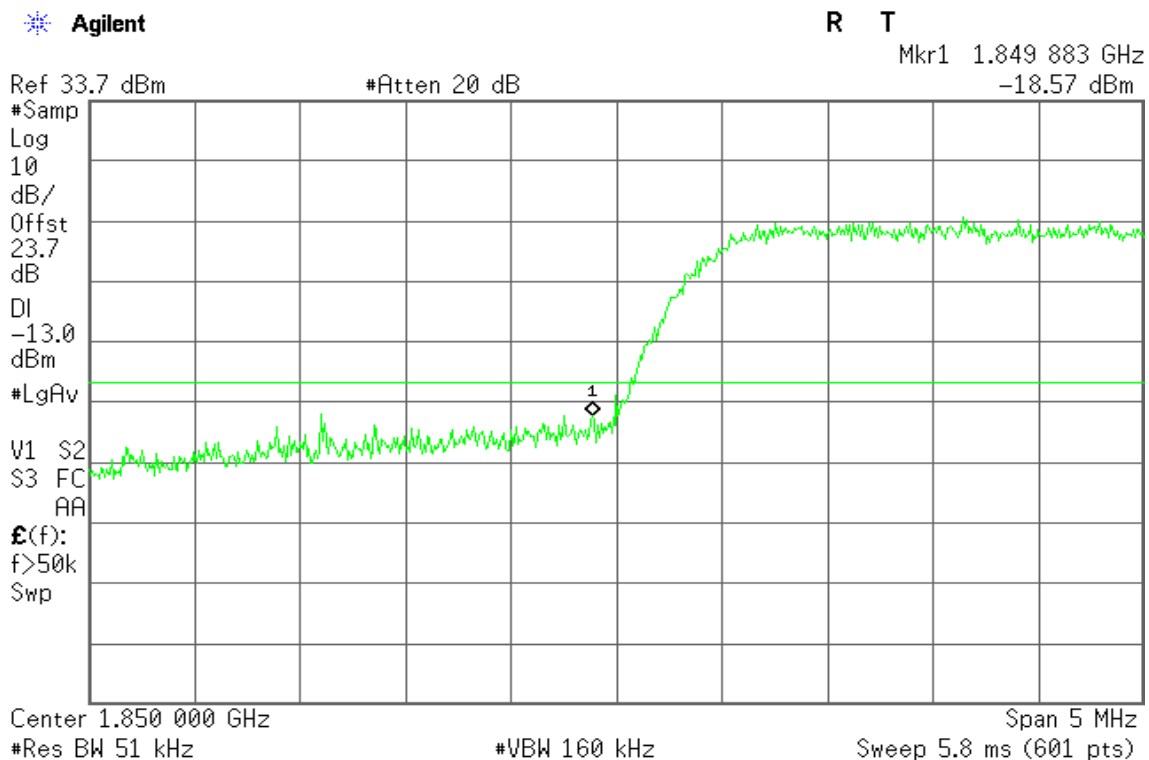
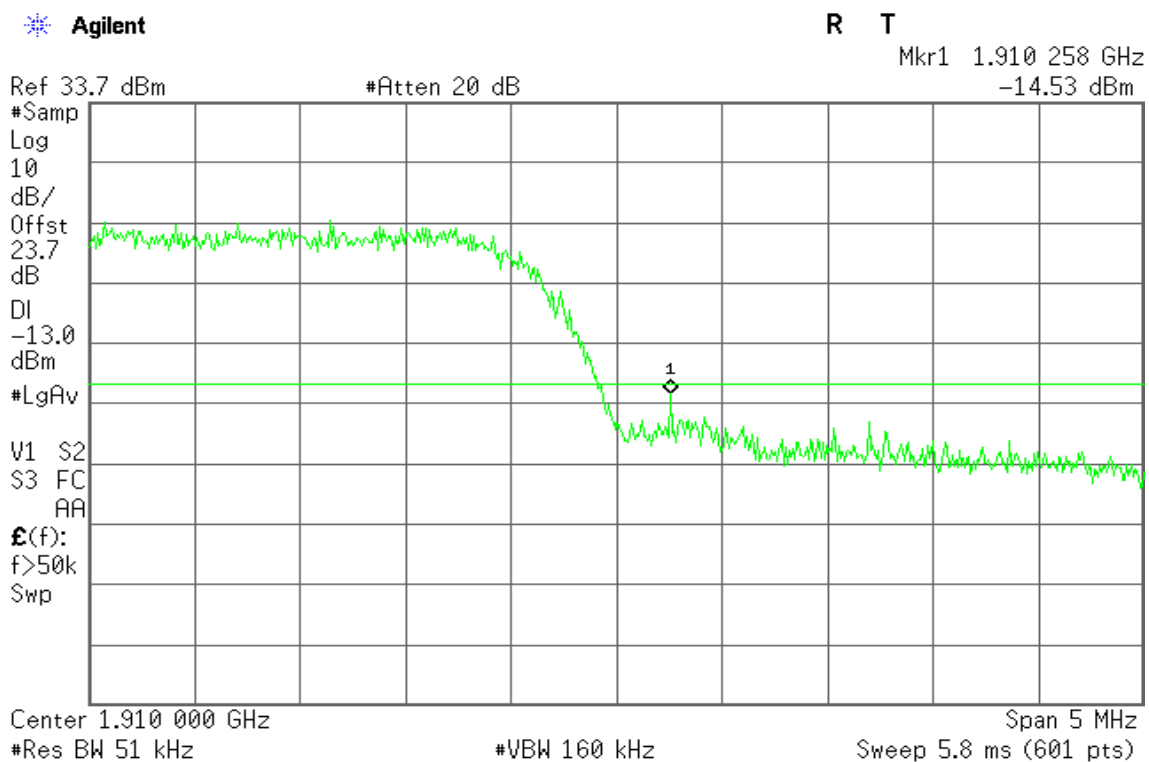


Figure 25-2: Band Edge emissions – HSDPA CH High



HSDPA Band V

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

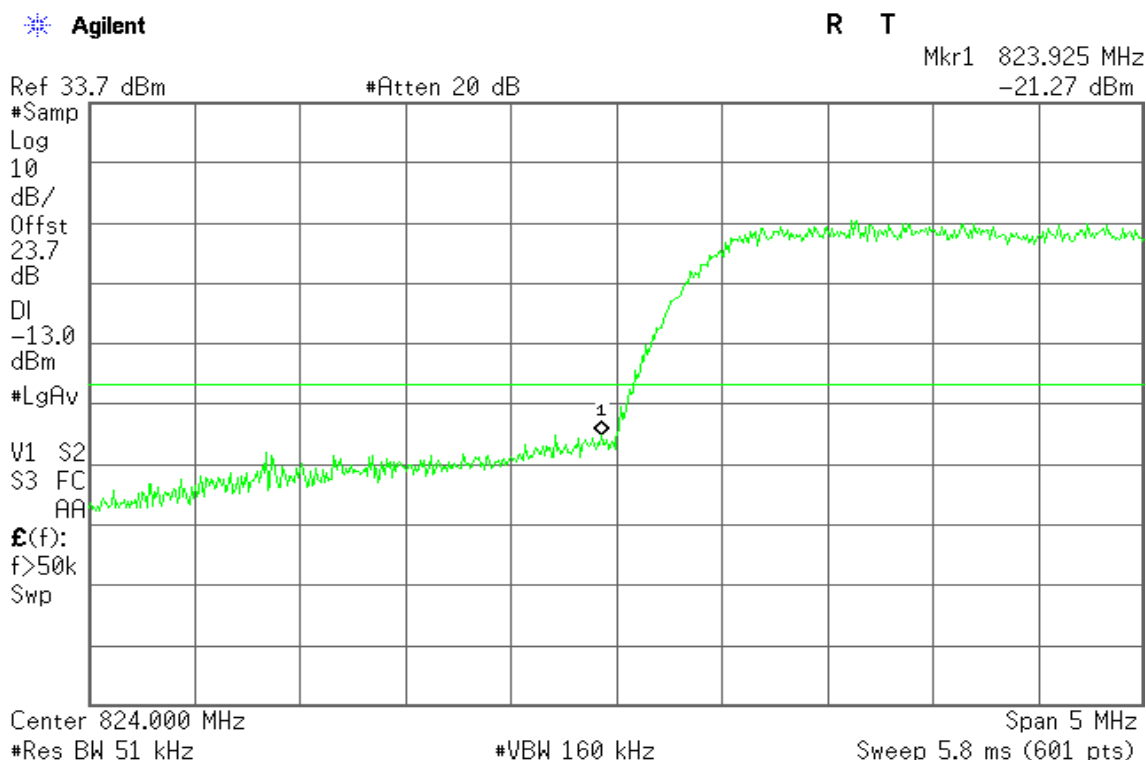
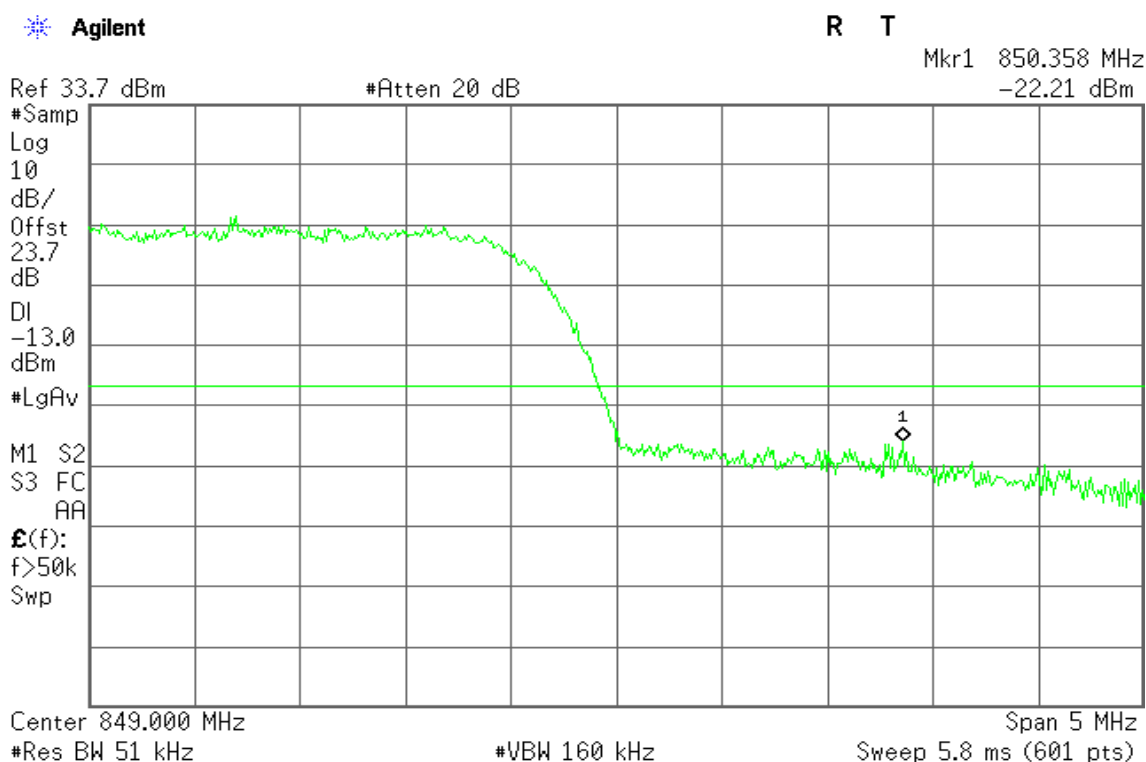


Figure 26-2: Band Edge emissions – HSDPA CH High



HSUPA Band II

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

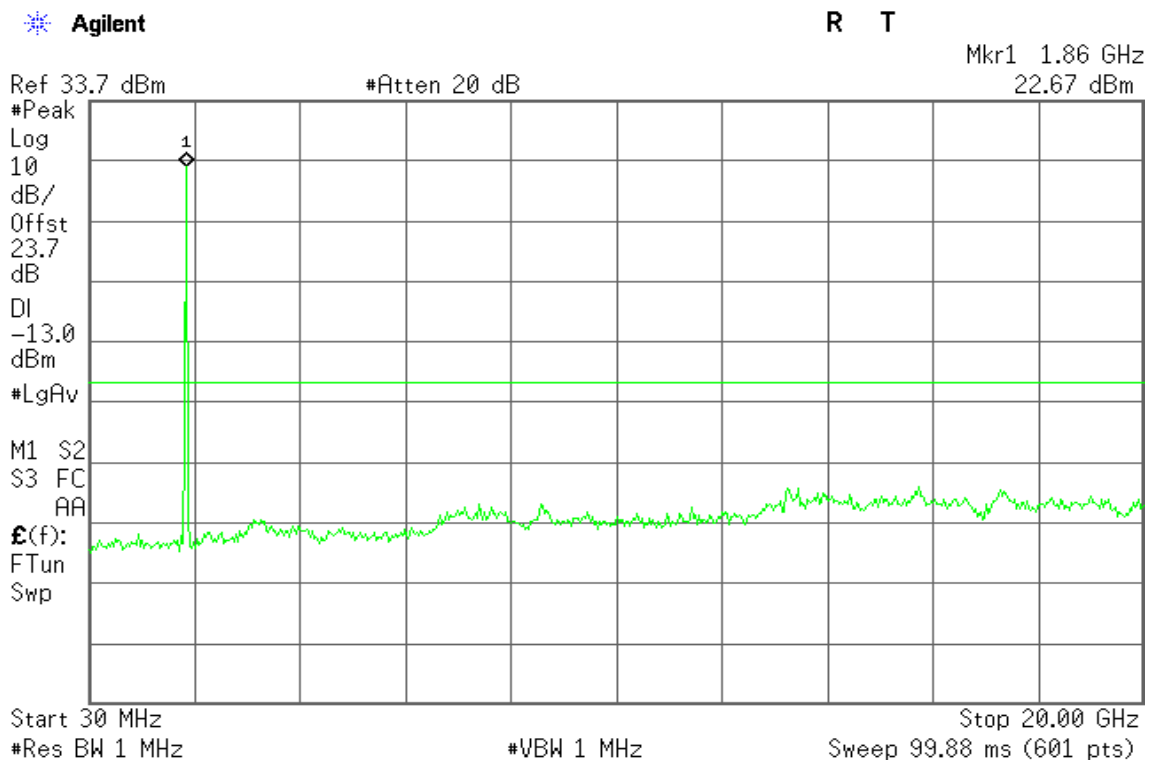


Figure 27-2: Out of Band emission at antenna terminals – HSUPA CH Mid

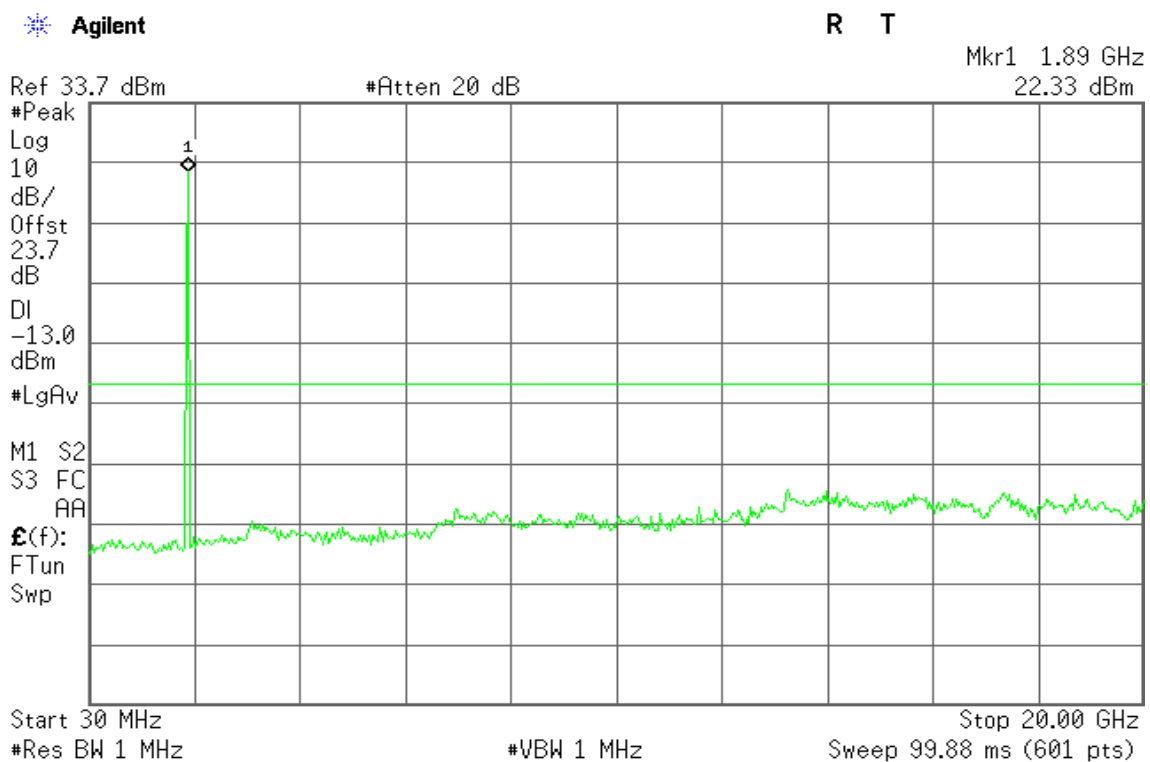
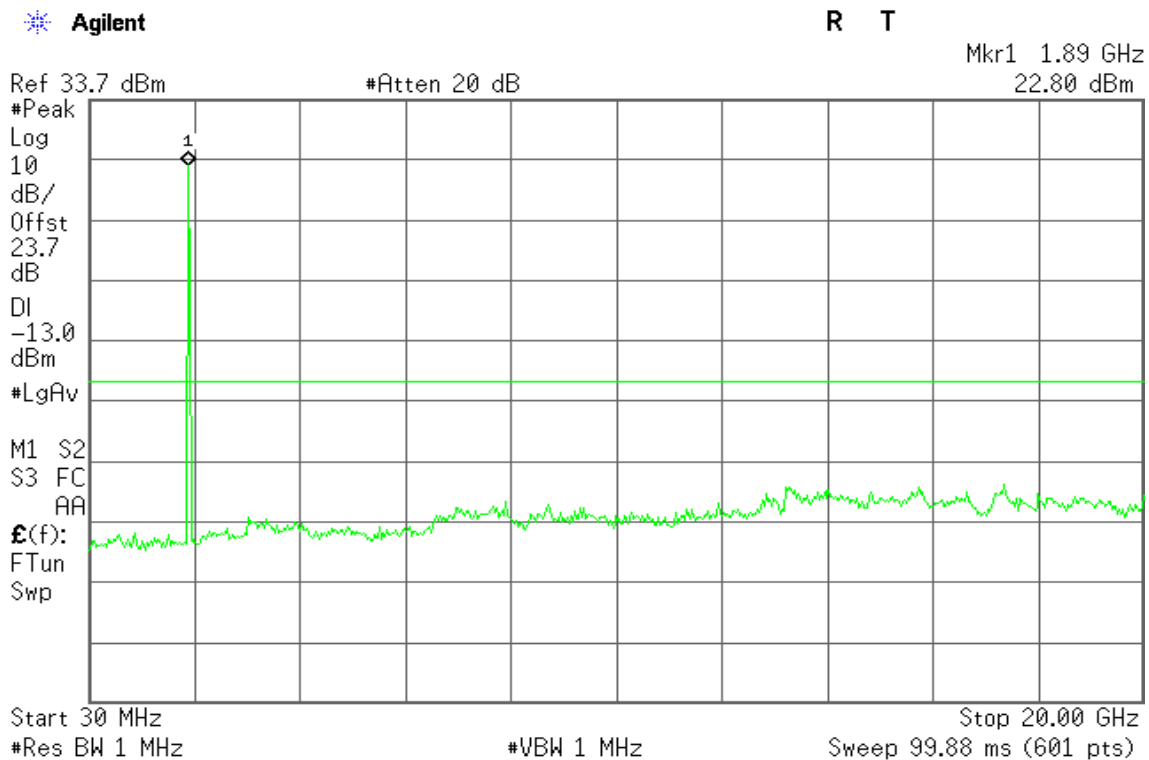


Figure 27-3: Out of Band emission at antenna terminals – HSUPA CH High



WCDMA Band V

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

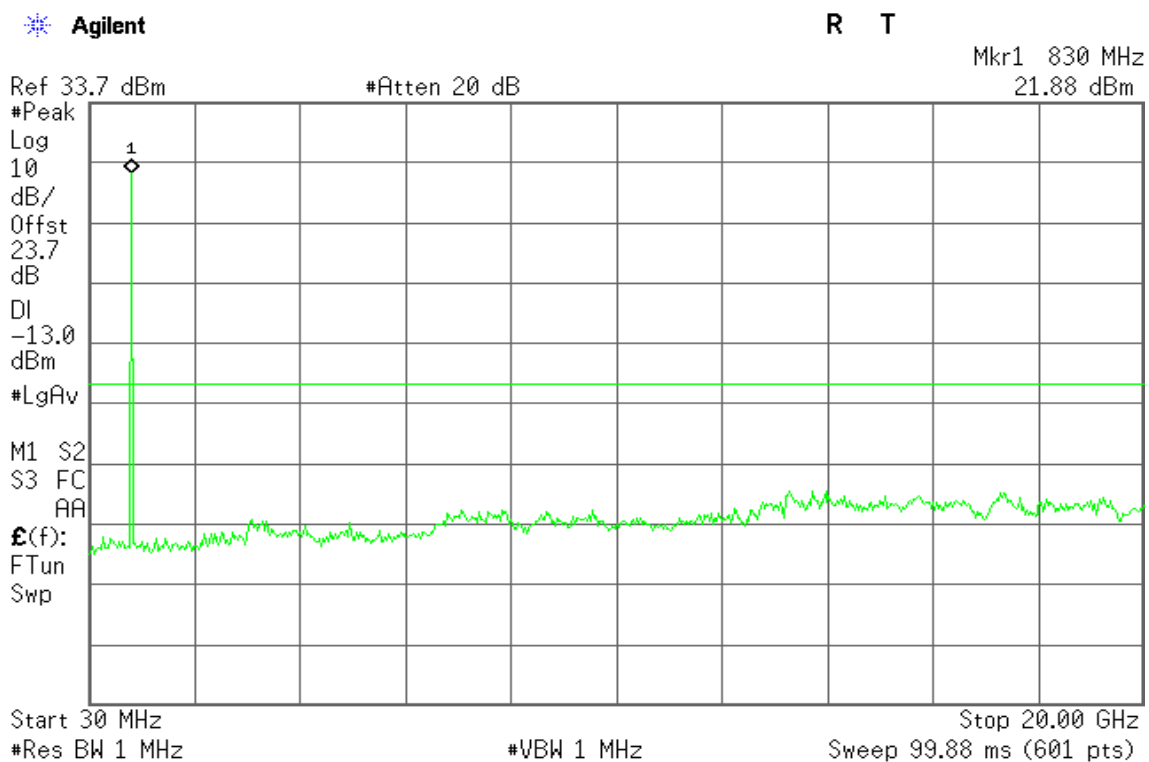


Figure 28-2: Out of Band emission at antenna terminals – HSUPA CH Mid

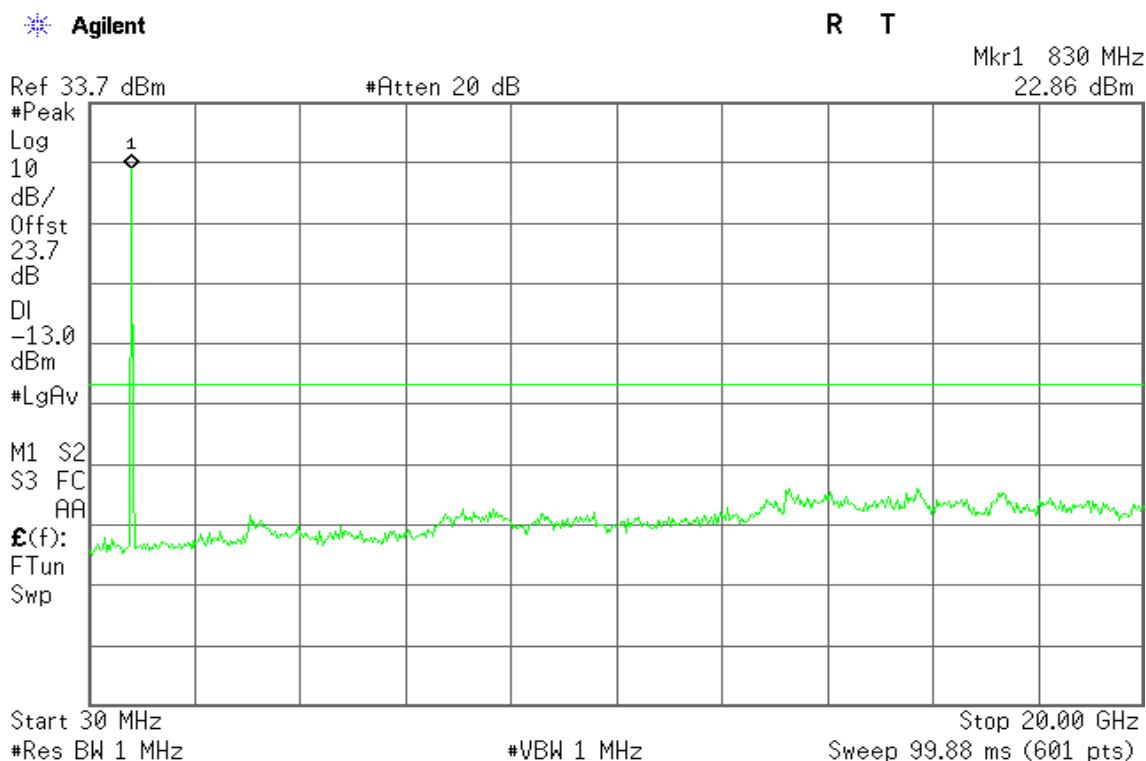
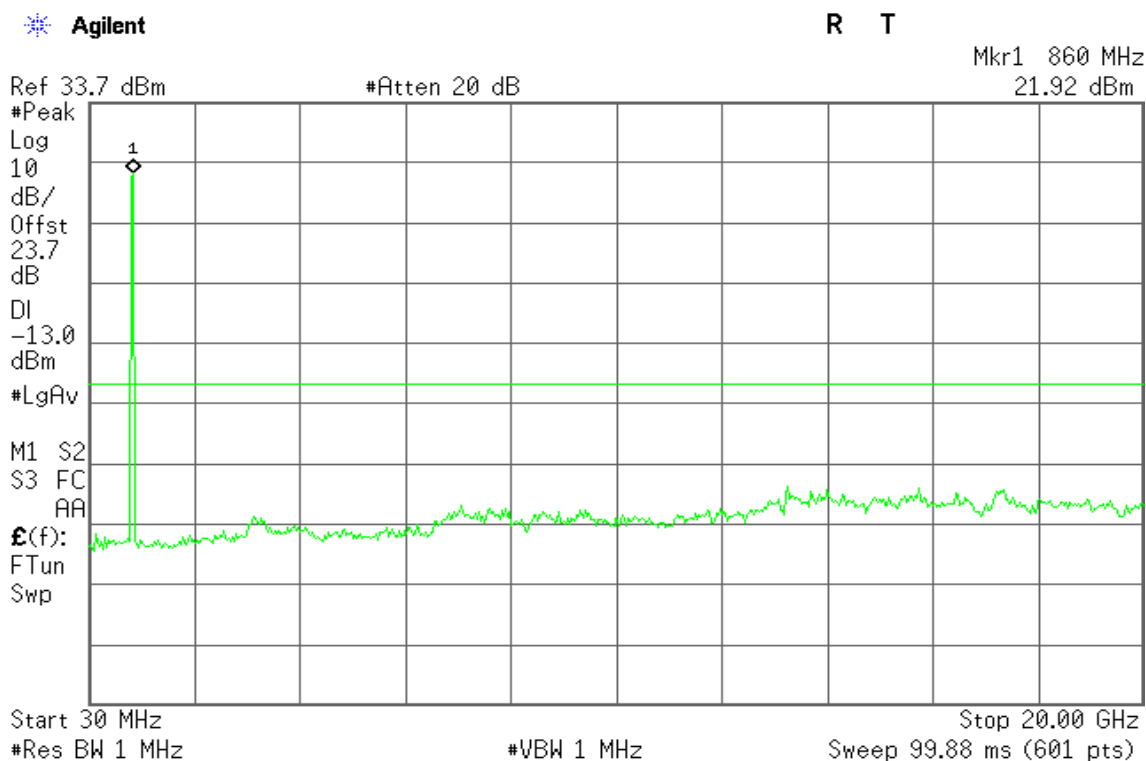


Figure 28-3: Out of Band emission at antenna terminals – HSUPA CH High



HSUPA Band II

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

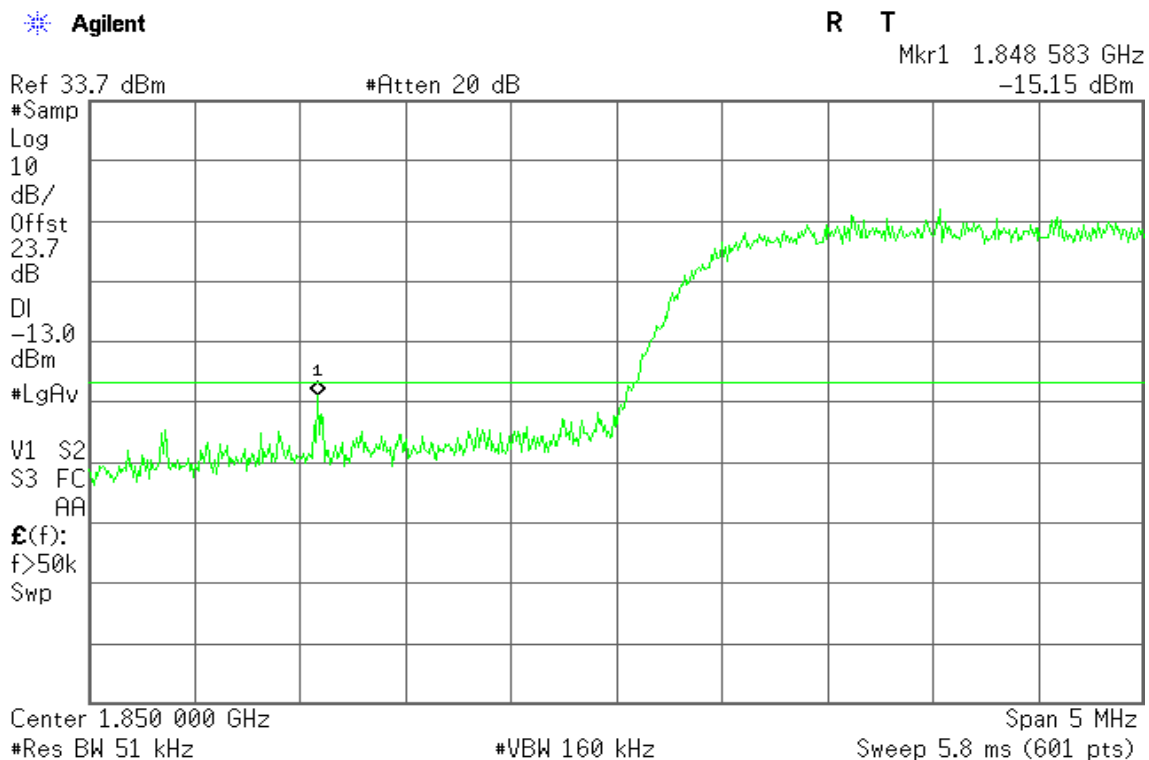
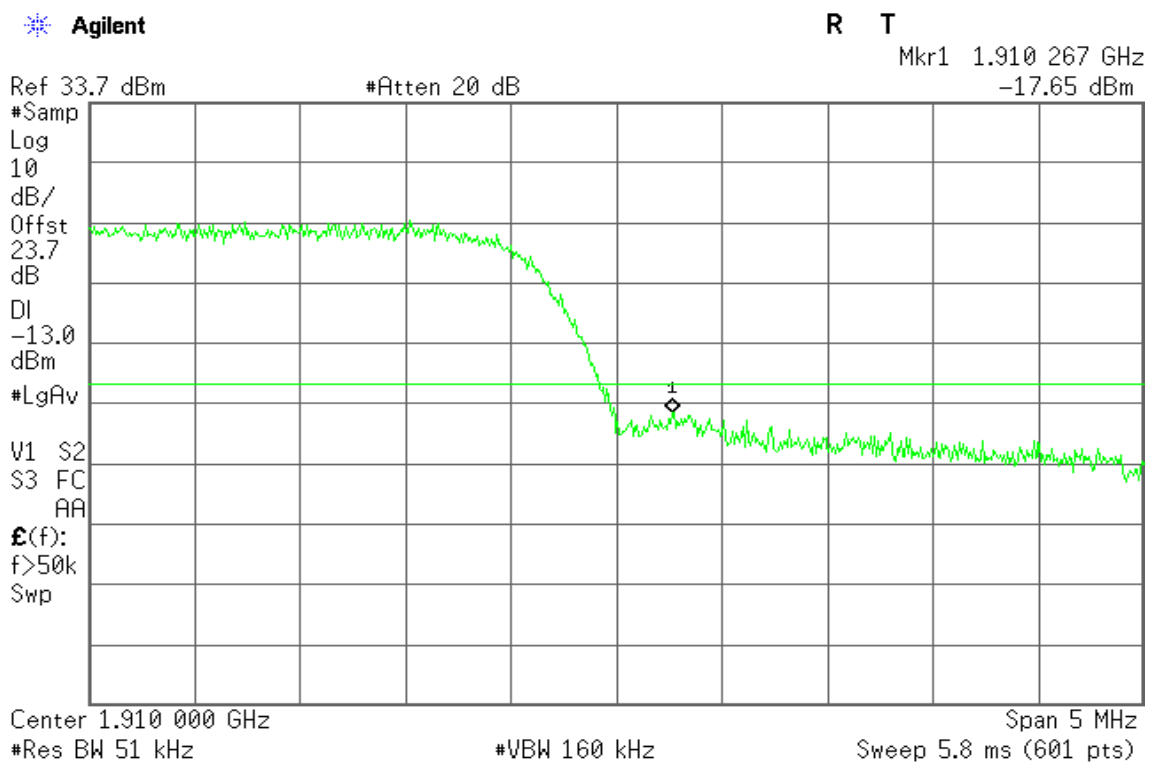


Figure 29-2: Band Edge emissions – HSUPA CH High



HSUPA Band V

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

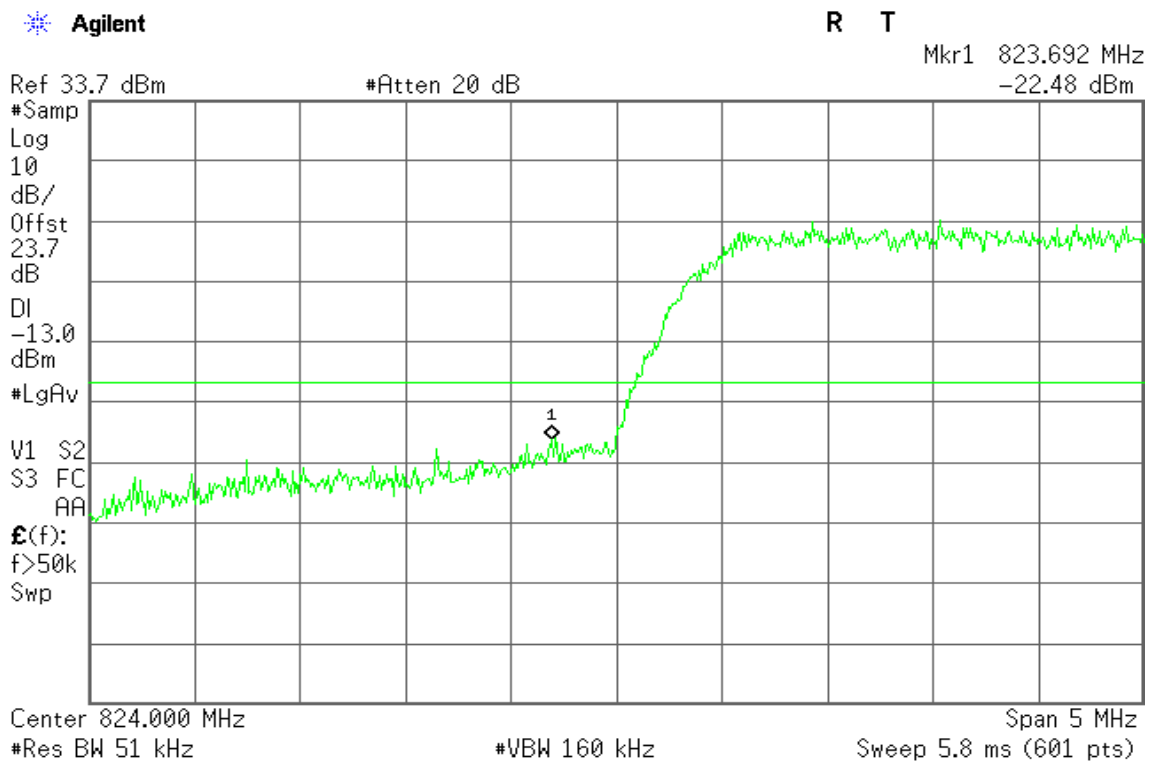
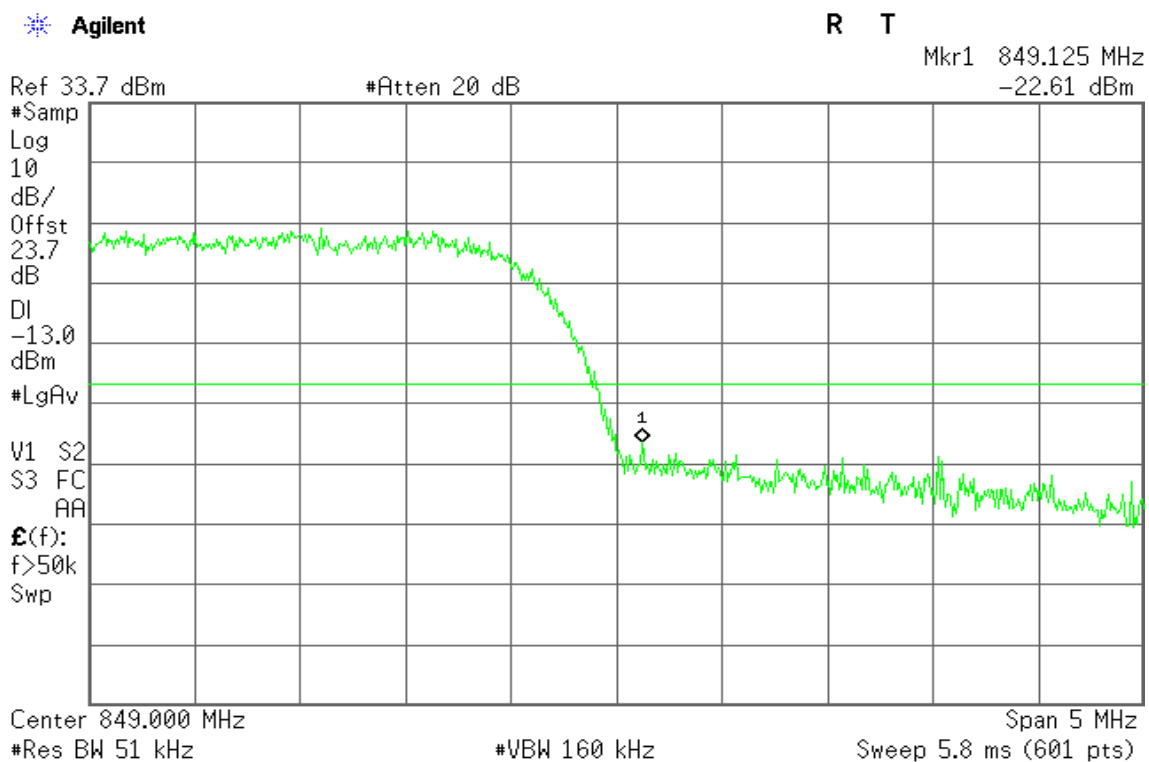


Figure 30-2: Band Edge emissions – HSUPA CH High



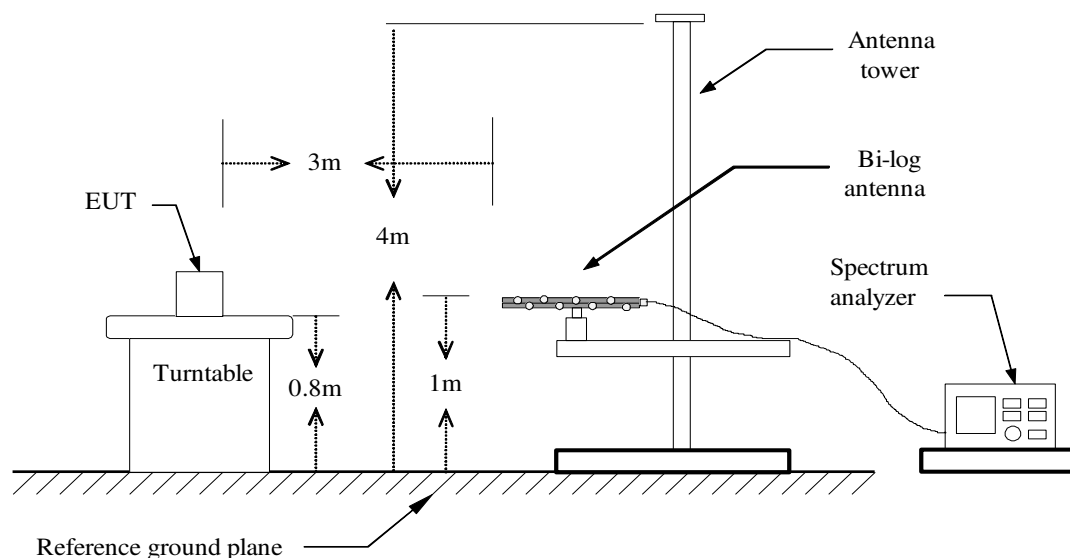
7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

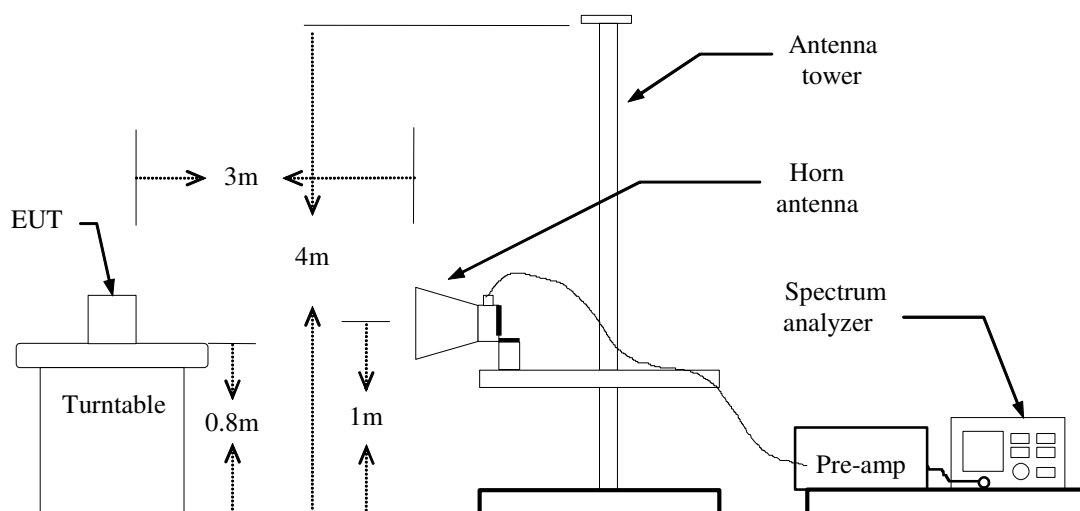
According to FCC §2.1053

Test Configuration

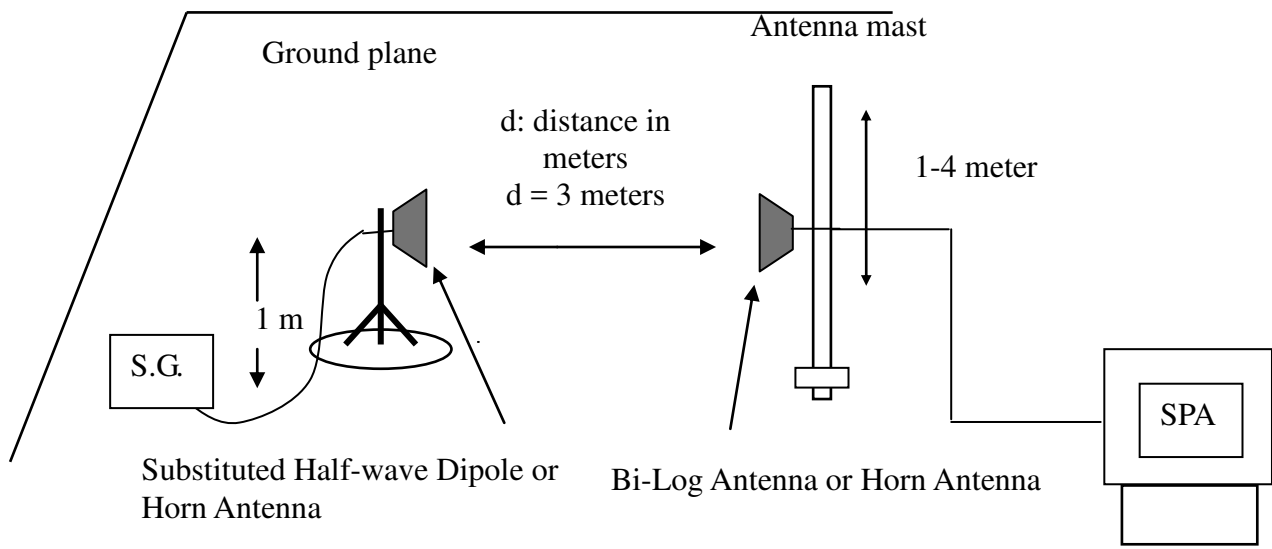
Below 1 GHz



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:** August 31, 2015**Temperature:** 21°C**Tested by:** Jason Lu**Humidity:** 56 % 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)
56.1900	-66.3	0.85	-3.09	-70.24	-13.00	-57.24	V
86.2600	-66.68	1.08	0.62	-67.14	-13.00	-54.14	V
239.5200	-67.39	1.81	5.35	-63.85	-13.00	-50.85	V
287.0500	-73.77	2.01	5.37	-70.41	-13.00	-57.41	V
480.0800	-71.74	2.64	5.54	-68.84	-13.00	-55.84	V
635.2800	-78.7	2.99	6.17	-75.52	-13.00	-62.52	V
67.8300	-59.36	0.94	-1.85	-62.15	-13.00	-49.15	H
127.0000	-59.5	1.32	-1.63	-62.45	-13.00	-49.45	H
240.4900	-71.07	1.81	5.34	-67.54	-13.00	-54.54	H
305.4800	-70.36	2.12	5.71	-66.77	-13.00	-53.77	H
427.7000	-62.6	2.48	5.8	-59.28	-13.00	-46.28	H
480.0800	-70.36	2.64	5.54	-67.46	-13.00	-54.46	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
Temperature: 26°C
Humidity: 56 % RH

Test Date: August 31, 2015

Tested by: Jason Lu

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	-62.87	0.82	-4.22	-67.91	-13.00	-54.91	V
91.1100	-63.08	1.11	1.05	-63.14	-13.00	-50.14	V
190.0500	-73.32	1.62	4	-70.94	-13.00	-57.94	V
288.0200	-73.16	2.02	5.38	-69.80	-13.00	-56.80	V
385.9900	-73.2	2.32	5.99	-69.53	-13.00	-56.53	V
480.0800	-71.69	2.64	5.54	-68.79	-13.00	-55.79	V
66.8600	-65.54	0.93	-1.89	-68.36	-13.00	-55.36	H
123.1200	-61.16	1.29	-1.87	-64.32	-13.00	-51.32	H
184.2300	-65.03	1.61	3.77	-62.87	-13.00	-49.87	H
237.5800	-65.91	1.81	5.36	-62.36	-13.00	-49.36	H
385.9900	-70.28	2.32	5.99	-66.61	-13.00	-53.61	H
480.0800	-70.03	2.64	5.54	-67.13	-13.00	-54.13	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 251

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-66.85	0.83	-3.66	-71.34	-13.00	-58.34	V
87.2300	-66.74	1.09	0.73	-67.10	-13.00	-54.10	V
172.5900	-67.68	1.58	2.8	-66.46	-13.00	-53.46	V
289.9600	-74.48	2.02	5.41	-71.09	-13.00	-58.09	V
388.9000	-70.99	2.32	6	-67.31	-13.00	-54.31	V
480.0800	-72.4	2.64	5.54	-69.50	-13.00	-56.50	V
73.6500	-61.72	0.99	-1.28	-63.99	-13.00	-50.99	H
127.9700	-59.71	1.33	-1.56	-62.60	-13.00	-49.60	H
176.4700	-65.54	1.59	3.21	-63.92	-13.00	-50.92	H
285.1100	-68.48	2.01	5.35	-65.14	-13.00	-52.14	H
380.1700	-71.58	2.31	5.98	-67.91	-13.00	-54.91	H
480.0800	-72.48	2.64	5.54	-69.58	-13.00	-56.58	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: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
78.5000	-68	1.03	-0.43	-69.46	-13.00	-56.46	V
87.2300	-66.12	1.09	0.73	-66.48	-13.00	-53.48	V
223.0300	-77.93	1.77	5.35	-74.35	-13.00	-61.35	V
285.1100	-79.33	2.01	5.35	-75.99	-13.00	-62.99	V
385.0200	-72.69	2.31	5.99	-69.01	-13.00	-56.01	V
415.0900	-80.65	2.45	5.86	-77.24	-13.00	-64.24	V
66.8600	-69.73	0.93	-1.89	-72.55	-13.00	-59.55	H
183.2600	-72.94	1.61	3.73	-70.82	-13.00	-57.82	H
381.1400	-76.06	2.31	5.98	-72.39	-13.00	-59.39	H
480.0800	-74.43	2.64	5.54	-71.53	-13.00	-58.53	H
667.2900	-77.49	3.07	6.3	-74.26	-13.00	-61.26	H
819.5800	-74.36	3.39	6.2	-71.55	-13.00	-58.55	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: GPRS 1900 / TX / CH 661
Temperature: 26°C
Humidity: 56 % RH

Test Date: August 31, 2015
Tested by: Jason Lu
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)
86.2600	-70.42	1.08	0.62	-70.88	-13.00	-57.88	V
184.2300	-78.1	1.61	3.77	-75.94	-13.00	-62.94	V
287.0500	-83.66	2.01	5.37	-80.30	-13.00	-67.30	V
387.9300	-76.34	2.32	6	-72.66	-13.00	-59.66	V
480.0800	-71.82	2.64	5.54	-68.92	-13.00	-55.92	V
712.8800	-79.66	3.15	6.36	-76.45	-13.00	-63.45	V
66.8600	-58.06	0.93	-1.89	-60.88	-13.00	-47.88	H
207.5100	-67.44	1.67	4.95	-64.16	-13.00	-51.16	H
253.1000	-76.84	1.86	5.67	-73.03	-13.00	-60.03	H
382.1100	-71.9	2.31	5.99	-68.22	-13.00	-55.22	H
480.0800	-71.63	2.64	5.54	-68.73	-13.00	-55.73	H
644.0100	-75.67	3.02	6.17	-72.52	-13.00	-59.52	H

Remark:

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

Operation Mode: GPRS 1900 / TX / CH 810
Temperature: 26°C
Humidity: 56 % RH

Test Date: August 31, 2015
Tested by: Jason Lu
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	-67.07	0.83	-3.66	-71.56	-13.00	-58.56	V
167.7400	-76.37	1.55	2.26	-75.66	-13.00	-62.66	V
224.0000	-76.4	1.78	5.35	-72.83	-13.00	-59.83	V
267.6500	-80.27	1.96	5.22	-77.01	-13.00	-64.01	V
390.8400	-80.71	2.32	6	-77.03	-13.00	-64.03	V
480.0800	-71.08	2.64	5.54	-68.18	-13.00	-55.18	V
65.8900	-69.09	0.93	-1.93	-71.95	-13.00	-58.95	H
185.2000	-72.77	1.61	3.81	-70.57	-13.00	-57.57	H
400.5400	-78.74	2.4	5.98	-75.16	-13.00	-62.16	H
551.8600	-77.36	2.81	6.16	-74.01	-13.00	-61.01	H
609.0900	-77.76	2.94	6.31	-74.39	-13.00	-61.39	H
859.3500	-73.96	3.43	6.4	-70.99	-13.00	-57.99	H

Remark:

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

Operation Mode: EDGE 850 / TX / CH 128

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
62.9800	-63.93	0.9	-2.06	-66.89	-13.00	-53.89	V
149.3100	-61.77	1.42	0.62	-62.57	-13.00	-49.57	V
245.3400	-75.25	1.82	5.5	-71.57	-13.00	-58.57	V
288.9900	-73.97	2.02	5.39	-70.60	-13.00	-57.60	V
415.0900	-80.4	2.45	5.86	-76.99	-13.00	-63.99	V
480.0800	-72.01	2.64	5.54	-69.11	-13.00	-56.11	V
57.1600	-67.37	0.86	-2.8	-71.03	-13.00	-58.03	H
125.0600	-61.05	1.31	-1.75	-64.11	-13.00	-51.11	H
218.1800	-72.94	1.75	5.33	-69.36	-13.00	-56.36	H
288.9900	-68.59	2.02	5.39	-65.22	-13.00	-52.22	H
439.3400	-75.11	2.53	5.9	-71.74	-13.00	-58.74	H
480.0800	-70.86	2.64	5.54	-67.96	-13.00	-54.96	H

Remark:

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

Operation Mode: EDGE 850 / TX / CH 190

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
56.1900	-66.15	0.85	-3.09	-70.09	-13.00	-57.09	V
86.2600	-66.55	1.08	0.62	-67.01	-13.00	-54.01	V
275.4100	-69.25	1.99	5.21	-66.03	-13.00	-53.03	V
424.7900	-80.04	2.47	5.8	-76.71	-13.00	-63.71	V
480.0800	-71.2	2.64	5.54	-68.30	-13.00	-55.30	V
657.5900	-79.84	3.05	6.3	-76.59	-13.00	-63.59	V
72.6800	-62.88	0.98	-1.45	-65.31	-13.00	-52.31	H
122.1500	-60.68	1.29	-1.93	-63.90	-13.00	-50.90	H
241.4600	-72.36	1.81	5.36	-68.81	-13.00	-55.81	H
350.1000	-70.87	2.23	5.8	-67.30	-13.00	-54.30	H
385.0200	-69.1	2.31	5.99	-65.42	-13.00	-52.42	H
501.4200	-77.53	2.7	5.91	-74.32	-13.00	-61.32	H

Remark:

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

Operation Mode: EDGE 850 / TX / CH 251

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
85.2900	-64.67	1.08	0.5	-65.25	-13.00	-52.25	V
121.1800	-65.12	1.28	-2	-68.40	-13.00	-55.40	V
290.9300	-73.12	2.03	5.43	-69.72	-13.00	-56.72	V
385.9900	-75.33	2.32	5.99	-71.66	-13.00	-58.66	V
480.0800	-71.76	2.64	5.54	-68.86	-13.00	-55.86	V
645.9500	-75.77	3.02	6.21	-72.58	-13.00	-59.58	V
50.3700	-66.79	0.81	-4.8	-72.40	-13.00	-59.40	H
126.0300	-62.17	1.32	-1.69	-65.18	-13.00	-52.18	H
284.1400	-68.94	2.01	5.35	-65.60	-13.00	-52.60	H
384.0500	-69.18	2.31	5.99	-65.50	-13.00	-52.50	H
480.0800	-71.45	2.64	5.54	-68.55	-13.00	-55.55	H
644.9800	-75.58	3.02	6.19	-72.41	-13.00	-59.41	H

Remark:

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

Operation Mode: EDGE 1900 / TX / CH 512

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
59.1000	-60.69	0.87	-2.23	-63.79	-13.00	-50.79	V
151.2500	-70.07	1.43	0.8	-70.70	-13.00	-57.70	V
266.6800	-84.3	1.96	5.27	-80.99	-13.00	-67.99	V
385.0200	-77.39	2.31	5.99	-73.71	-13.00	-60.71	V
480.0800	-71.75	2.64	5.54	-68.85	-13.00	-55.85	V
595.5100	-72.99	2.9	6.31	-69.58	-13.00	-56.58	V
62.9800	-61.46	0.9	-2.06	-64.42	-13.00	-51.42	H
174.5300	-62.46	1.59	3	-61.05	-13.00	-48.05	H
251.1600	-66.06	1.84	5.69	-62.21	-13.00	-49.21	H
385.0200	-71.49	2.31	5.99	-67.81	-13.00	-54.81	H
480.0800	-71	2.64	5.54	-68.10	-13.00	-55.10	H
745.8600	-73.11	3.2	6.1	-70.21	-13.00	-57.21	H

Remark:

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

Operation Mode: EDGE 1900 / TX / CH 661

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
66.8600	-65.76	0.93	-1.89	-68.58	-13.00	-55.58	V
139.6100	-65.81	1.39	-0.28	-67.48	-13.00	-54.48	V
382.1100	-76.83	2.31	5.99	-73.15	-13.00	-60.15	V
480.0800	-70.75	2.64	5.54	-67.85	-13.00	-54.85	V
679.9000	-79.88	3.09	6.5	-76.47	-13.00	-63.47	V
782.7200	-77.19	3.31	6.14	-74.36	-13.00	-61.36	V
85.2900	-68.96	1.08	0.5	-69.54	-13.00	-56.54	H
248.2500	-66.48	1.83	5.61	-62.70	-13.00	-49.70	H
353.0100	-71.16	2.24	5.77	-67.63	-13.00	-54.63	H
480.0800	-70.08	2.64	5.54	-67.18	-13.00	-54.18	H
733.2500	-74.07	3.19	6.31	-70.95	-13.00	-57.95	H
969.9300	-72.76	3.67	6.31	-70.12	-13.00	-57.12	H

Remark:

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

Operation Mode: EDGE 1900 / TX / CH 810

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
86.2600	-70.5	1.08	0.62	-70.96	-13.00	-57.96	V
244.3700	-83.19	1.82	5.47	-79.54	-13.00	-66.54	V
385.9900	-76.73	2.32	5.99	-73.06	-13.00	-60.06	V
480.0800	-77.27	2.64	5.54	-74.37	-13.00	-61.37	V
631.4000	-79.64	2.98	6.2	-76.42	-13.00	-63.42	V
720.6400	-79.75	3.17	6.49	-76.43	-13.00	-63.43	V
57.1600	-63.46	0.86	-2.8	-67.12	-13.00	-54.12	H
128.9400	-63.8	1.34	-1.5	-66.64	-13.00	-53.64	H
188.1100	-75.02	1.62	3.92	-72.72	-13.00	-59.72	H
382.1100	-76.02	2.31	5.99	-72.34	-13.00	-59.34	H
564.4700	-77.21	2.86	6.03	-74.04	-13.00	-61.04	H
784.6600	-74.73	3.32	6.16	-71.89	-13.00	-58.89	H

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9262

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
43.5800	-60.36	0.75	-9.59	-70.70	-13.00	-57.70	V
142.5200	-73.16	1.4	-0.01	-74.57	-13.00	-61.57	V
240.4900	-84.12	1.81	5.34	-80.59	-13.00	-67.59	V
480.0800	-76.28	2.64	5.54	-73.38	-13.00	-60.38	V
629.4600	-76.35	2.97	6.19	-73.13	-13.00	-60.13	V
653.7100	-81.59	3.04	6.3	-78.33	-13.00	-65.33	V
48.4300	-66.09	0.79	-5.83	-72.71	-13.00	-59.71	H
128.9400	-66.58	1.34	-1.5	-69.42	-13.00	-56.42	H
184.2300	-74.09	1.61	3.77	-71.93	-13.00	-58.93	H
329.7300	-81.94	2.16	5.71	-78.39	-13.00	-65.39	H
480.0800	-73.63	2.64	5.54	-70.73	-13.00	-57.73	H
726.4600	-77.47	3.18	6.43	-74.22	-13.00	-61.22	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: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
45.5200	-66.11	0.77	-8.09	-74.97	-13.00	-61.97	V
186.1700	-81.87	1.62	3.85	-79.64	-13.00	-66.64	V
254.0700	-87.39	1.86	5.66	-83.59	-13.00	-70.59	V
447.1000	-84.17	2.58	5.76	-80.99	-13.00	-67.99	V
600.3600	-83.55	2.9	6.4	-80.05	-13.00	-67.05	V
771.0800	-80.83	3.27	6.35	-77.75	-13.00	-64.75	V
57.1600	-69.92	0.86	-2.8	-73.58	-13.00	-60.58	H
128.9400	-67.33	1.34	-1.5	-70.17	-13.00	-57.17	H
182.2900	-73.86	1.61	3.7	-71.77	-13.00	-58.77	H
207.5100	-80.58	1.67	4.95	-77.30	-13.00	-64.30	H
346.2200	-82.21	2.21	5.8	-78.62	-13.00	-65.62	H
470.3800	-79.73	2.62	5.77	-76.58	-13.00	-63.58	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 Band II / TX / CH 9538

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
45.5200	-64.72	0.77	-8.09	-73.58	-13.00	-60.58	V
110.5100	-77.1	1.21	-1.72	-80.03	-13.00	-67.03	V
241.4600	-84.9	1.81	5.36	-81.35	-13.00	-68.35	V
457.7700	-83.75	2.6	5.85	-80.50	-13.00	-67.50	V
559.6200	-83.47	2.84	6.03	-80.28	-13.00	-67.28	V
677.9600	-82.78	3.09	6.46	-79.41	-13.00	-66.41	V
46.4900	-61.36	0.78	-7.34	-69.48	-13.00	-56.48	H
180.3500	-74.09	1.61	3.62	-72.08	-13.00	-59.08	H
221.0900	-81.02	1.77	5.33	-77.46	-13.00	-64.46	H
375.3200	-78.25	2.31	5.91	-74.65	-13.00	-61.65	H
480.0800	-72.82	2.64	5.54	-69.92	-13.00	-56.92	H
635.2800	-74.08	2.99	6.17	-70.90	-13.00	-57.90	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: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
45.5200	-57.07	0.77	-8.09	-65.93	-13.00	-52.93	V
192.9600	-71.64	1.62	3.68	-69.58	-13.00	-56.58	V
265.7100	-66.78	1.95	5.32	-63.41	-13.00	-50.41	V
394.7200	-75.4	2.35	5.99	-71.76	-13.00	-58.76	V
480.0800	-76.74	2.64	5.54	-73.84	-13.00	-60.84	V
561.5600	-77.46	2.85	6	-74.31	-13.00	-61.31	V
57.1600	-60.02	0.86	-2.8	-63.68	-13.00	-50.68	H
143.4900	-55.58	1.4	0.08	-56.90	-13.00	-43.90	H
221.0900	-74.15	1.77	5.33	-70.59	-13.00	-57.59	H
272.5000	-73.69	1.99	5.15	-70.53	-13.00	-57.53	H
385.0200	-72.37	2.31	5.99	-68.69	-13.00	-55.69	H
480.0800	-73.67	2.64	5.54	-70.77	-13.00	-57.77	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: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
57.1600	-61.65	0.86	-2.8	-65.31	-13.00	-52.31	V
126.0300	-69.46	1.32	-1.69	-72.47	-13.00	-59.47	V
173.5600	-73.04	1.58	2.9	-71.72	-13.00	-58.72	V
237.5800	-75.79	1.81	5.36	-72.24	-13.00	-59.24	V
399.5700	-80.45	2.39	5.98	-76.86	-13.00	-63.86	V
480.0800	-76.4	2.64	5.54	-73.50	-13.00	-60.50	V
57.1600	-59.96	0.86	-2.8	-63.62	-13.00	-50.62	H
94.0200	-56.69	1.12	0.58	-57.23	-13.00	-44.23	H
152.2200	-61.29	1.44	0.87	-61.86	-13.00	-48.86	H
240.4900	-72.84	1.81	5.34	-69.31	-13.00	-56.31	H
326.8200	-70.83	2.17	5.71	-67.29	-13.00	-54.29	H
480.0800	-73.31	2.64	5.54	-70.41	-13.00	-57.41	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: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
58.1300	-62.77	0.86	-2.51	-66.14	-13.00	-53.14	V
92.0800	-70.79	1.12	0.89	-71.02	-13.00	-58.02	V
259.8900	-76.93	1.91	5.59	-73.25	-13.00	-60.25	V
285.1100	-77.66	2.01	5.35	-74.32	-13.00	-61.32	V
480.0800	-76.78	2.64	5.54	-73.88	-13.00	-60.88	V
612.9700	-72.49	2.94	6.23	-69.20	-13.00	-56.20	V
71.7100	-59.54	0.97	-1.61	-62.12	-13.00	-49.12	H
130.8800	-60.72	1.35	-1.3	-63.37	-13.00	-50.37	H
245.3400	-68.9	1.82	5.5	-65.22	-13.00	-52.22	H
387.9300	-67.84	2.32	6	-64.16	-13.00	-51.16	H
480.0800	-73.26	2.64	5.54	-70.36	-13.00	-57.36	H
635.2800	-75.82	2.99	6.17	-72.64	-13.00	-59.64	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: HSDPA Band II / TX / CH 9262

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
45.5200	-64.23	0.77	-8.09	-73.09	-13.00	-60.09	V
94.9900	-76.73	1.13	0.42	-77.44	-13.00	-64.44	V
182.2900	-80.95	1.61	3.7	-78.86	-13.00	-65.86	V
315.1800	-87.35	2.16	5.74	-83.77	-13.00	-70.77	V
360.7700	-83.72	2.27	5.71	-80.28	-13.00	-67.28	V
496.5700	-83.64	2.69	5.86	-80.47	-13.00	-67.47	V
57.1600	-69.94	0.86	-2.8	-73.60	-13.00	-60.60	H
128.9400	-67.26	1.34	-1.5	-70.10	-13.00	-57.10	H
182.2900	-74.25	1.61	3.7	-72.16	-13.00	-59.16	H
388.9000	-81.18	2.32	6	-77.50	-13.00	-64.50	H
480.0800	-73.46	2.64	5.54	-70.56	-13.00	-57.56	H
619.7600	-78.05	2.94	6.11	-74.88	-13.00	-61.88	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: HSDPA Band II / TX / CH 9400

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
45.5200	-64.23	0.77	-8.09	-73.09	-13.00	-60.09	V
182.2900	-80.95	1.61	3.7	-78.86	-13.00	-65.86	V
360.7700	-83.72	2.27	5.71	-80.28	-13.00	-67.28	V
564.4700	-83.83	2.86	6.03	-80.66	-13.00	-67.66	V
710.9400	-82.08	3.14	6.33	-78.89	-13.00	-65.89	V
803.0900	-80.94	3.33	6.48	-77.79	-13.00	-64.79	V
57.1600	-70.22	0.86	-2.8	-73.88	-13.00	-60.88	H
128.9400	-67.72	1.34	-1.5	-70.56	-13.00	-57.56	H
181.3200	-75.21	1.61	3.66	-73.16	-13.00	-60.16	H
480.0800	-74.85	2.64	5.54	-71.95	-13.00	-58.95	H
733.2500	-78.81	3.19	6.31	-75.69	-13.00	-62.69	H
887.4800	-76.3	3.49	6.7	-73.09	-13.00	-60.09	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: HSDPA Band II / TX / CH 9538

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
45.5200	-63.89	0.77	-8.09	-72.75	-13.00	-59.75	V
180.3500	-80.26	1.61	3.62	-78.25	-13.00	-65.25	V
239.5200	-84.93	1.81	5.35	-81.39	-13.00	-68.39	V
376.2900	-83.8	2.31	5.93	-80.18	-13.00	-67.18	V
610.0600	-81.91	2.94	6.29	-78.56	-13.00	-65.56	V
701.2400	-82.32	3.12	6.38	-79.06	-13.00	-66.06	V
47.4600	-66.65	0.78	-6.58	-74.01	-13.00	-61.01	H
128.9400	-67.04	1.34	-1.5	-69.88	-13.00	-56.88	H
185.2000	-75.12	1.61	3.81	-72.92	-13.00	-59.92	H
264.7400	-82.29	1.94	5.36	-78.87	-13.00	-65.87	H
363.6800	-81.12	2.28	5.74	-77.66	-13.00	-64.66	H
480.0800	-73.02	2.64	5.54	-70.12	-13.00	-57.12	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: HSDPA Band V / TX / CH 4132

Test Date: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
87.2300	-65.32	1.09	0.73	-65.68	-13.00	-52.68	V
143.4900	-67.43	1.4	0.08	-68.75	-13.00	-55.75	V
244.3700	-78.4	1.82	5.47	-74.75	-13.00	-61.75	V
331.6700	-84.62	2.16	5.72	-81.06	-13.00	-68.06	V
360.7700	-81.5	2.27	5.71	-78.06	-13.00	-65.06	V
480.0800	-77.13	2.64	5.54	-74.23	-13.00	-61.23	V
57.1600	-63.17	0.86	-2.8	-66.83	-13.00	-53.83	H
117.3000	-55.06	1.26	-1.99	-58.31	-13.00	-45.31	H
221.0900	-69.37	1.77	5.33	-65.81	-13.00	-52.81	H
361.7400	-75.51	2.28	5.72	-72.07	-13.00	-59.07	H
480.0800	-74.84	2.64	5.54	-71.94	-13.00	-58.94	H
573.2000	-77.06	2.88	6.08	-73.86	-13.00	-60.86	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: HSDPA Band V / TX / CH 4182

Test Date: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
56.1900	-64.84	0.85	-3.09	-68.78	-13.00	-55.78	V
86.2600	-66.84	1.08	0.62	-67.30	-13.00	-54.30	V
171.6200	-73.76	1.57	2.69	-72.64	-13.00	-59.64	V
266.6800	-83.59	1.96	5.27	-80.28	-13.00	-67.28	V
333.6100	-77.48	2.16	5.74	-73.90	-13.00	-60.90	V
480.0800	-78.15	2.64	5.54	-75.25	-13.00	-62.25	V
57.1600	-67.2	0.86	-2.8	-70.86	-13.00	-57.86	H
174.5300	-76.69	1.59	3	-75.28	-13.00	-62.28	H
326.8200	-81.22	2.17	5.71	-77.68	-13.00	-64.68	H
426.7300	-81.04	2.48	5.8	-77.72	-13.00	-64.72	H
598.4200	-78.37	2.9	6.37	-74.90	-13.00	-61.90	H
795.3300	-76.09	3.33	6.38	-73.04	-13.00	-60.04	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: HSDPA Band V / TX / CH 4233

Test Date: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
57.1600	-63.86	0.86	-2.8	-67.52	-13.00	-54.52	V
145.4300	-67.86	1.41	0.26	-69.01	-13.00	-56.01	V
230.7900	-75.99	1.8	5.4	-72.39	-13.00	-59.39	V
269.5900	-77.37	1.98	5.12	-74.23	-13.00	-61.23	V
326.8200	-84.41	2.17	5.71	-80.87	-13.00	-67.87	V
480.0800	-78.41	2.64	5.54	-75.51	-13.00	-62.51	V
57.1600	-60.53	0.86	-2.8	-64.19	-13.00	-51.19	H
132.8200	-56.47	1.36	-1.07	-58.90	-13.00	-45.90	H
185.2000	-69.5	1.61	3.81	-67.30	-13.00	-54.30	H
362.7100	-75.38	2.28	5.73	-71.93	-13.00	-58.93	H
480.0800	-75.24	2.64	5.54	-72.34	-13.00	-59.34	H
567.3800	-75.21	2.86	6.07	-72.00	-13.00	-59.00	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: HSUPA Band II / TX / CH 9262

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
46.4900	-66.05	0.78	-7.34	-74.17	-13.00	-61.17	V
95.9600	-75.5	1.13	0.26	-76.37	-13.00	-63.37	V
188.1100	-84.18	1.62	3.92	-81.88	-13.00	-68.88	V
371.4400	-83.77	2.3	5.84	-80.23	-13.00	-67.23	V
515.9700	-83.22	2.7	6.06	-79.86	-13.00	-66.86	V
714.8200	-80.94	3.15	6.4	-77.69	-13.00	-64.69	V
57.1600	-70.55	0.86	-2.8	-74.21	-13.00	-61.21	H
128.9400	-67.25	1.34	-1.5	-70.09	-13.00	-57.09	H
181.3200	-75.48	1.61	3.66	-73.43	-13.00	-60.43	H
270.5600	-82.23	1.98	5.11	-79.10	-13.00	-66.10	H
442.2500	-80.88	2.55	5.85	-77.58	-13.00	-64.58	H
480.0800	-73.49	2.64	5.54	-70.59	-13.00	-57.59	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: HSUPA Band II / TX / CH 9400

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
46.4900	-65.23	0.78	-7.34	-73.35	-13.00	-60.35	V
176.4700	-80.21	1.59	3.21	-78.59	-13.00	-65.59	V
245.3400	-86.01	1.82	5.5	-82.33	-13.00	-69.33	V
362.7100	-81.51	2.28	5.73	-78.06	-13.00	-65.06	V
512.0900	-83.75	2.69	6.02	-80.42	-13.00	-67.42	V
654.6800	-81.67	3.04	6.3	-78.41	-13.00	-65.41	V
57.1600	-67.97	0.86	-2.8	-71.63	-13.00	-58.63	H
128.9400	-67.78	1.34	-1.5	-70.62	-13.00	-57.62	H
180.3500	-74.69	1.61	3.62	-72.68	-13.00	-59.68	H
480.0800	-73.86	2.64	5.54	-70.96	-13.00	-57.96	H
619.7600	-79.06	2.94	6.11	-75.89	-13.00	-62.89	H
748.7700	-77.75	3.2	6.1	-74.85	-13.00	-61.85	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: HSUPA Band II / TX / CH 9538

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
46.4900	-66.06	0.78	-7.34	-74.18	-13.00	-61.18	V
184.2300	-82.24	1.61	3.77	-80.08	-13.00	-67.08	V
335.5500	-86.31	2.17	5.75	-82.73	-13.00	-69.73	V
362.7100	-84.16	2.28	5.73	-80.71	-13.00	-67.71	V
568.3500	-83.07	2.87	6.08	-79.86	-13.00	-66.86	V
741.0100	-81.75	3.21	6.1	-78.86	-13.00	-65.86	V
57.1600	-69.32	0.86	-2.8	-72.98	-13.00	-59.98	H
128.9400	-67.1	1.34	-1.5	-69.94	-13.00	-56.94	H
181.3200	-74.04	1.61	3.66	-71.99	-13.00	-58.99	H
284.1400	-81.86	2.01	5.35	-78.52	-13.00	-65.52	H
382.1100	-80.16	2.31	5.99	-76.48	-13.00	-63.48	H
480.0800	-72.98	2.64	5.54	-70.08	-13.00	-57.08	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: HSUPA Band V / TX / CH 4132

Test Date: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
57.1600	-66.56	0.86	-2.8	-70.22	-13.00	-57.22	V
171.6200	-78.26	1.57	2.69	-77.14	-13.00	-64.14	V
207.5100	-83.06	1.67	4.95	-79.78	-13.00	-66.78	V
480.0800	-81.88	2.64	5.54	-78.98	-13.00	-65.98	V
575.1400	-81.02	2.88	6.06	-77.84	-13.00	-64.84	V
826.3700	-79.92	3.39	6.26	-77.05	-13.00	-64.05	V
57.1600	-64.67	0.86	-2.8	-68.33	-13.00	-55.33	H
263.7700	-81.62	1.93	5.41	-78.14	-13.00	-65.14	H
326.8200	-81.5	2.17	5.71	-77.96	-13.00	-64.96	H
412.1800	-80.08	2.45	5.89	-76.64	-13.00	-63.64	H
623.6400	-78.31	2.95	6.14	-75.12	-13.00	-62.12	H
805.0300	-75.7	3.33	6.41	-72.62	-13.00	-59.62	H

Remark:

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

Operation Mode: HSUPA Band V / TX / CH 4182

Test Date: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
73.6500	-60.47	0.99	-1.28	-62.74	-13.00	-49.74	V
129.9100	-69.38	1.34	-1.41	-72.13	-13.00	-59.13	V
191.0200	-75.63	1.62	3.89	-73.36	-13.00	-60.36	V
396.6600	-79.34	2.36	5.99	-75.71	-13.00	-62.71	V
480.0800	-77.89	2.64	5.54	-74.99	-13.00	-61.99	V
639.1600	-81.45	3	6.14	-78.31	-13.00	-65.31	V
57.1600	-62.42	0.86	-2.8	-66.08	-13.00	-53.08	H
122.1500	-58.68	1.29	-1.93	-61.90	-13.00	-48.90	H
215.2700	-71.73	1.73	5.37	-68.09	-13.00	-55.09	H
286.0800	-62	2.01	5.36	-58.65	-13.00	-45.65	H
386.9600	-72.34	2.32	6	-68.66	-13.00	-55.66	H
480.0800	-74.36	2.64	5.54	-71.46	-13.00	-58.46	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: HSUPA Band V / TX / CH 4233

Test Date: September 2, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
57.1600	-64.34	0.86	-2.8	-68.00	-13.00	-55.00	V
160.9500	-69.54	1.49	1.5	-69.53	-13.00	-56.53	V
263.7700	-79.09	1.93	5.41	-75.61	-13.00	-62.61	V
345.2500	-75.91	2.2	5.8	-72.31	-13.00	-59.31	V
480.0800	-77.26	2.64	5.54	-74.36	-13.00	-61.36	V
642.0700	-80.8	3.01	6.14	-77.67	-13.00	-64.67	V
57.1600	-61.72	0.86	-2.8	-65.38	-13.00	-52.38	H
126.0300	-59.1	1.32	-1.69	-62.11	-13.00	-49.11	H
150.2800	-63.9	1.43	0.71	-64.62	-13.00	-51.62	H
362.7100	-75.35	2.28	5.73	-71.90	-13.00	-58.90	H
480.0800	-75.45	2.64	5.54	-72.55	-13.00	-59.55	H
549.9200	-78.34	2.81	6.18	-74.97	-13.00	-61.97	H

Remark:

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

Above 1GHz**Operation Mode:** GPRS 850 / TX / CH 128**Test Date:** August 31, 2015**Temperature:** 26°C**Tested by:** Jason Lu**Humidity:** 56 % 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)
2470.000	-48.11	6.3	6.06	-48.35	-13.00	-35.35	V
4843.000	-50.36	9.29	10.35	-49.30	-13.00	-36.30	V
N/A							
1651.000	-54.21	5.05	6.03	-53.23	-13.00	-40.23	H
2435.000	-50.33	6.24	6.01	-50.56	-13.00	-37.56	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
Temperature: 26°C
Humidity: 56 % RH

Test Date: August 31, 2015

Tested by: Jason Lu

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)
1938.000	-53.96	5.55	5.51	-54.00	-13.00	-41.00	V
2512.000	-50.68	6.37	6.13	-50.92	-13.00	-37.92	V
N/A							
1672.000	-55.17	5.07	5.99	-54.25	-13.00	-41.25	H
2442.000	-50.04	6.25	6.02	-50.27	-13.00	-37.27	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: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
1700.000	-54.6	5.11	5.94	-53.77	-13.00	-40.77	V
2547.000	-48.33	6.42	6.22	-48.53	-13.00	-35.53	V
N/A							
1700.000	-53.78	5.11	5.94	-52.95	-13.00	-39.95	H
2547.000	-50.48	6.42	6.22	-50.68	-13.00	-37.68	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: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-48.99	8.2	9.1	-48.09	-13.00	-35.09	V
5550.000	-49.24	10.06	10.81	-48.49	-13.00	-35.49	V
N/A							
3212.000	-53.47	7.28	8.04	-52.71	-13.00	-39.71	H
6908.000	-45.24	11.53	11.79	-44.98	-13.00	-31.98	H
N/A							

Remark:

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

Operation Mode: GPRS 1900 / TX / CH 661

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-46.67	8.23	9.16	-45.74	-13.00	-32.74	V
6586.000	-47.79	11.2	11.4	-47.59	-13.00	-34.59	V
N/A							
2435.000	-52.16	6.24	6.01	-52.39	-13.00	-39.39	H
5676.000	-50.05	10.17	10.84	-49.38	-13.00	-36.38	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
Temperature: 26°C
Humidity: 56 % RH

Test Date: August 31, 2015
Tested by: Jason Lu
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	-48.62	8.29	9.22	-47.69	-13.00	-34.69	V
6509.000	-48.04	11.06	11.31	-47.79	-13.00	-34.79	V
N/A							
3632.000	-52.42	8.14	9.03	-51.53	-13.00	-38.53	H
6621.000	-46.74	11.24	11.45	-46.53	-13.00	-33.53	H
N/A							

Remark:

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

Operation Mode: EDGE 850 / TX / CH 128

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-53.7	5.05	6.03	-52.72	-13.00	-39.72	V
4997.000	-50.15	9.41	10.6	-48.96	-13.00	-35.96	V
N/A							
2442.000	-49.89	6.25	6.02	-50.12	-13.00	-37.12	H
6446.000	-47.02	11.14	11.26	-46.90	-13.00	-33.90	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 190

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
2512.000	-51.22	6.37	6.13	-51.46	-13.00	-38.46	V
4997.000	-50.46	9.41	10.6	-49.27	-13.00	-36.27	V
N/A							
2435.000	-48.87	6.24	6.01	-49.10	-13.00	-36.10	H
6250.000	-46.69	10.98	11.1	-46.57	-13.00	-33.57	H
N/A							

Remark:

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

Operation Mode: EDGE 850 / TX / CH 251

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
2547.000	-46.7	6.42	6.22	-46.90	-13.00	-33.90	V
6628.000	-47.45	11.25	11.45	-47.25	-13.00	-34.25	V
N/A							
1700.000	-56.02	5.11	5.94	-55.19	-13.00	-42.19	H
2435.000	-49.55	6.24	6.01	-49.78	-13.00	-36.78	H
N/A							

Remark:

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

Operation Mode: EDGE 1900 / TX / CH 512

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	8.2	9.1	-47.10	-13.00	-34.10	V
5550.000	-48.78	10.06	10.81	-48.03	-13.00	-35.03	V
N/A							
3702.000	-50.32	8.2	9.1	-49.42	-13.00	-36.42	H
6005.000	-48.24	10.82	10.9	-48.16	-13.00	-35.16	H
N/A							

Remark:

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

Operation Mode: EDGE 1900 / TX / CH 661

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-46.93	8.23	9.16	-46.00	-13.00	-33.00	V
5641.000	-48.89	10.18	10.83	-48.24	-13.00	-35.24	V
N/A							
3758.000	-49.88	8.23	9.16	-48.95	-13.00	-35.95	H
6495.000	-47.51	11.05	11.3	-47.26	-13.00	-34.26	H
N/A							

Remark:

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

Operation Mode: EDGE 1900 / TX / CH 810

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-46.81	8.29	9.22	-45.88	-13.00	-32.88	V
6474.000	-48.36	11.09	11.28	-48.17	-13.00	-35.17	V
N/A							
4304.000	-50.39	8.6	9.64	-49.35	-13.00	-36.35	H
6845.000	-45.05	11.4	11.71	-44.74	-13.00	-31.74	H
N/A							

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9262

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3709.000	-50.29	8.21	9.11	-49.39	-13.00	-36.39	V
6432.000	-46.72	11.16	11.25	-46.63	-13.00	-33.63	V
N/A							
4556.000	-49.3	9.03	9.89	-48.44	-13.00	-35.44	H
6418.000	-46.71	11.19	11.23	-46.67	-13.00	-33.67	H
N/A							

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9400

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
3765.000	-48.81	8.24	9.16	-47.89	-13.00	-34.89	V
5634.000	-47.93	10.18	10.83	-47.28	-13.00	-34.28	V
N/A							
2442.000	-50.93	6.25	6.02	-51.16	-13.00	-38.16	H
6852.000	-45.28	11.42	11.72	-44.98	-13.00	-31.98	H
N/A							

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9538

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3814.000	-47.43	8.28	9.21	-46.50	-13.00	-33.50	V
5725.000	-46.82	10.22	10.84	-46.20	-13.00	-33.20	V
N/A							
2435.000	-49.76	6.24	6.01	-49.99	-13.00	-36.99	H
5725.000	-48.84	10.22	10.84	-48.22	-13.00	-35.22	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
Temperature: 26°C
Humidity: 56 % RH

Test Date: August 31, 2015

Tested by: Jason Lu

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)
1658.000	-54.99	5.06	6.02	-54.03	-13.00	-41.03	V
2435.000	-50.92	6.24	6.01	-51.15	-13.00	-38.15	V
N/A							
2435.000	-49.77	6.24	6.01	-50.00	-13.00	-37.00	H
6852.000	-46	11.42	11.72	-45.70	-13.00	-32.70	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 Band V / TX / CH 4182

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-52.43	5.07	5.99	-51.51	-13.00	-38.51	V
2512.000	-51.32	6.37	6.13	-51.56	-13.00	-38.56	V
N/A							
2442.000	-48.75	6.25	6.02	-48.98	-13.00	-35.98	H
4269.000	-50.68	8.57	9.62	-49.63	-13.00	-36.63	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 V / TX / CH 4233
Temperature: 26°C
Humidity: 56 % RH

Test Date: August 31, 2015

Tested by: Jason Lu

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	-53.29	5.1	5.95	-52.44	-13.00	-39.44	V
3870.000	-52.43	8.35	9.27	-51.51	-13.00	-38.51	V
N/A							
2442.000	-51.16	6.25	6.02	-51.39	-13.00	-38.39	H
5816.000	-50.07	10.42	10.86	-49.63	-13.00	-36.63	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: HSDPA Band II / TX / CH 9262

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3709.000	-51.92	8.21	9.11	-51.02	-13.00	-38.02	V
5557.000	-50.17	10.08	10.81	-49.44	-13.00	-36.44	V
N/A							
3842.000	-53.47	8.31	9.24	-52.54	-13.00	-39.54	H
7755.000	-45.4	12.43	12.96	-44.87	-13.00	-31.87	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: HSDPA Band II / TX / CH 9400

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-50.6	8.23	9.16	-49.67	-13.00	-36.67	V
5641.000	-49.15	10.18	10.83	-48.50	-13.00	-35.50	V
N/A							
2435.000	-55.18	6.24	6.01	-55.41	-13.00	-42.41	H
6012.000	-49.42	10.8	10.91	-49.31	-13.00	-36.31	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: HSDPA Band II / TX / CH 9538

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3814.000	-47.38	8.28	9.21	-46.45	-13.00	-33.45	V
5725.000	-47.48	10.22	10.84	-46.86	-13.00	-33.86	V
N/A							
3128.000	-55.9	7.2	7.78	-55.32	-13.00	-42.32	H
6621.000	-47.58	11.24	11.45	-47.37	-13.00	-34.37	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: HSDPA Band V / TX / CH 4132

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
2435.000	-54.84	6.24	6.01	-55.07	-13.00	-42.07	V
5928.000	-52.8	10.52	10.89	-52.43	-13.00	-39.43	V
N/A							
2435.000	-53.19	6.24	6.01	-53.42	-13.00	-40.42	H
6152.000	-49.11	10.93	11.02	-49.02	-13.00	-36.02	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: HSDPA Band V / TX / CH 4182

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-57.18	5.07	5.99	-56.26	-13.00	-43.26	V
2435.000	-53.55	6.24	6.01	-53.78	-13.00	-40.78	V
N/A							
2435.000	-49.59	6.24	6.01	-49.82	-13.00	-36.82	H
5410.000	-51.17	9.83	10.76	-50.24	-13.00	-37.24	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: HSDPA Band V / TX / CH 4233

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-54.67	5.1	5.95	-53.82	-13.00	-40.82	V
2435.000	-51.85	6.24	6.01	-52.08	-13.00	-39.08	V
N/A							
2435.000	-51.28	6.24	6.01	-51.51	-13.00	-38.51	H
4808.000	-50.42	9.32	10.29	-49.45	-13.00	-36.45	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: HSUPA Band II / TX / CH 9262

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3709.000	-51.5	8.21	9.11	-50.60	-13.00	-37.60	V
6810.000	-47.69	11.32	11.67	-47.34	-13.00	-34.34	V
N/A							
2442.000	-52.14	6.25	6.02	-52.37	-13.00	-39.37	H
6453.000	-48.35	11.12	11.26	-48.21	-13.00	-35.21	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: HSUPA Band II / TX / CH 9400

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-50.64	8.23	9.16	-49.71	-13.00	-36.71	V
5641.000	-47.85	10.18	10.83	-47.20	-13.00	-34.20	V
N/A							
4563.000	-50.69	9.05	9.9	-49.84	-13.00	-36.84	H
7363.000	-44.41	12.07	12.48	-44.00	-13.00	-31.00	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: HSUPA Band II / TX / CH 9538

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3814.000	-46.91	8.28	9.21	-45.98	-13.00	-32.98	V
5718.000	-48.67	10.21	10.84	-48.04	-13.00	-35.04	V
N/A							
3814.000	-50.69	8.28	9.21	-49.76	-13.00	-36.76	H
5725.000	-49.95	10.22	10.84	-49.33	-13.00	-36.33	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: HSUPA Band V / TX / CH 4132

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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)
2484.000	-54.12	6.32	6.08	-54.36	-13.00	-41.36	V
6509.000	-46.45	11.06	11.31	-46.20	-13.00	-33.20	V
N/A							
2442.000	-53.25	6.25	6.02	-53.48	-13.00	-40.48	H
5151.000	-52.65	9.51	10.66	-51.50	-13.00	-38.50	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: HSUPA Band V / TX / CH 4182

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-53.14	5.07	5.99	-52.22	-13.00	-39.22	V
2512.000	-51.56	6.37	6.13	-51.80	-13.00	-38.80	V
N/A							
3457.000	-54.36	7.74	8.77	-53.33	-13.00	-40.33	H
6509.000	-47.69	11.06	11.31	-47.44	-13.00	-34.44	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: HSUPA Band V / TX / CH 4233

Test Date: August 31, 2015

Temperature: 26°C

Tested by: Jason Lu

Humidity: 56 % 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	-55.18	5.1	5.95	-54.33	-13.00	-41.33	V
4297.000	-51.77	8.6	9.64	-50.73	-13.00	-37.73	V
N/A							
2435.000	-50.68	6.24	6.01	-50.91	-13.00	-37.91	H
4913.000	-51.78	9.28	10.46	-50.60	-13.00	-37.60	H
N/A							

Remark:

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

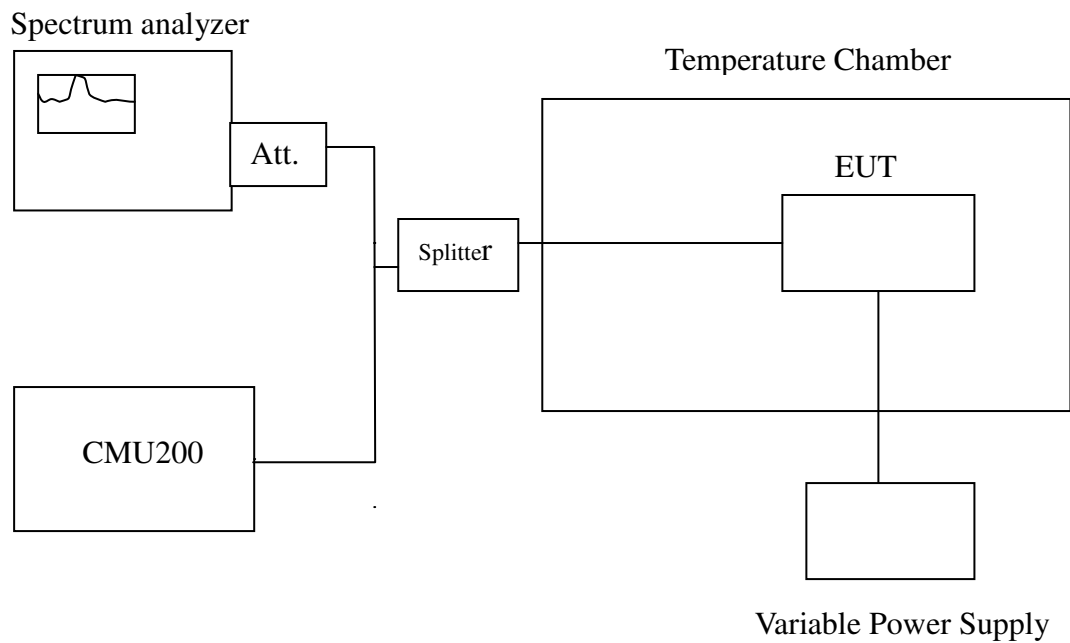
7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

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.

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20°C				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	836600019	27	2091
	40	836599977	-15	
	30	836599982	-10	
	20	836599992	0	
	10	836600015	23	
	0	836600010	18	
	-10	836600004	12	
	-20	836600012	20	
	-30	836599999	7	

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)
24	50	1880000000	-4	4700
	40	1880000006	2	
	30	1880000009	5	
	20	1880000004	0	
	10	1879999990	-14	
	0	1879999983	-21	
	-10	1879999975	-29	
	-20	1879999988	-16	
	-30	1880000013	9	

Reference Frequency: EDGE Mid Channel 836.6 MHz @ 20°C				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	836599976	-19	2091
	40	836600011	16	
	30	836599986	-9	
	20	836599995	0	
	10	836600011	16	
	0	836599975	-20	
	-10	836600011	16	
	-20	836599980	-15	
	-30	836599988	-7	

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)
24	50	1879999986	-24	4700
	40	1879999995	-15	
	30	1880000007	-3	
	20	1880000010	0	
	10	1880000004	-6	
	0	1880000011	1	
	-10	1880000025	15	
	-20	1879999986	-24	
	-30	1879999992	-18	

Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	1879999995	-1	4700
	40	1879999982	-14	
	30	1879999988	-8	
	20	1879999996	0	
	10	1880000013	17	
	0	1880000007	11	
	-10	1879999979	-17	
	-20	1879999984	-12	
	-30	1879999982	-14	

Reference Frequency: WCDMA Band V Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	836400000	2	2091
	40	836400003	5	
	30	836400009	11	
	20	836399998	0	
	10	836399990	-8	
	0	836400023	25	
	-10	836400009	11	
	-20	836399978	-20	
	-30	836399985	-13	

Reference Frequency: HSDPA Band II Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	1880000003	6	4700
	40	1879999982	-15	
	30	1880000005	8	
	20	1879999997	0	
	10	1880000015	18	
	0	1880000014	17	
	-10	1879999987	-10	
	-20	1880000010	13	
	-30	1879999986	-11	

Reference Frequency: HSDPA Band V Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	836400014	17	2091
	40	836400002	5	
	30	836400019	22	
	20	836399997	0	
	10	836399999	2	
	0	836399995	-2	
	-10	836400023	26	
	-20	836400001	4	
	-30	836400022	25	

Reference Frequency: HSUPA Band II Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	1880000001	5	4700
	40	1880000016	20	
	30	1880000005	9	
	20	1879999996	0	
	10	1880000012	16	
	0	1880000021	25	
	-10	1880000018	22	
	-20	1879999979	-17	
	-30	1879999994	-2	

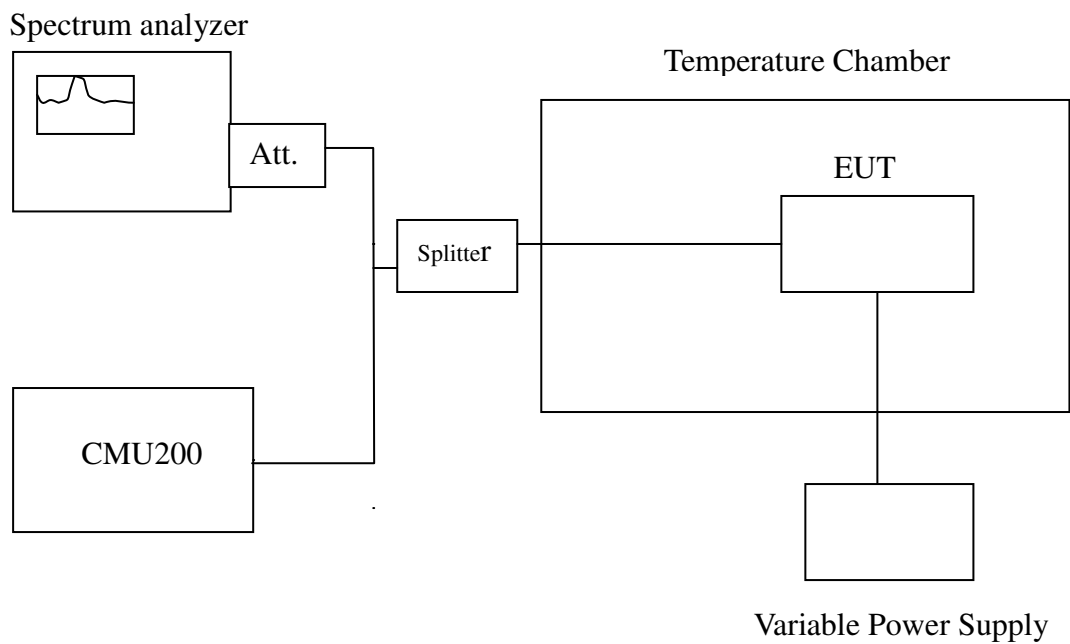
Reference Frequency: HSUPA Band V Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
24	50	836400003	3	2091
	40	836400017	17	
	30	836399993	-7	
	20	836400000	0	
	10	836400019	19	
	0	836400010	10	
	-10	836399998	-2	
	-20	836399987	-13	
	-30	836400002	2	

7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

LIMIT

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

Test Configuration



Remark: Measurement setup for testing on Antenna connector.

TEST PROCEDURE

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

AC

Reduce the input voltage to specify extreme voltage variation ($\pm 10\%$) 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 = 2090Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	836599991	-15	2091
24		836600006	0	
20.4		836599986	-20	

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)
27.6	20	1880000020	11	4700
24		1880000009	0	
20.4		1880000005	-4	

Reference Frequency: EDGE Mid Channel 836.6 MHz @ 20°CLimit: ± 2.5 ppm = 2091Hz

Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	836600008	1	2091
24		836600007	0	
20.4		836600002	-5	

Reference Frequency: EDGE Mid Channel 1880 MHz @ 20°CLimit: ± 2.5 ppm = 4700 Hz

Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	1879999995	-8	4700
24		1880000003	0	
20.4		1879999991	-12	

Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 20°CLimit: ± 2.5 ppm = 4700 Hz

Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	1880000019	11	4700
24		1880000008	0	
20.4		1879999991	-17	

Reference Frequency: WCDMA Band V Mid Channel 836.6 MHz @ 20°CLimit: ± 2.5 ppm = 2090Hz

Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	836399990	-7	2091
24		836399997	0	
20.4		836400009	12	

Reference Frequency: HSDPA Band II Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	1879999984	-13	4700
24		1879999997	0	
20.4		1879999990	-7	

Reference Frequency: HSDPA Band V Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	836399997	-13	2091
24		836400010	0	
20.4		836399985	-25	

Reference Frequency: HSUPA Band II Mid Channel 1880 MHz @ 20°C				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	1879999990	-8	4700
24		1879999998	0	
20.4		1879999986	-12	

Reference Frequency: HSUPA Band V Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
27.6	20	836400018	16	2091
24		836400002	0	
20.4		836399987	-15	