



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

TEST REPORT

For

EFTPOS

Trade Name: CASTLES TECHNOLOGY

Model: VEGA3000

Issued to

Castles Technology Co., Ltd.

2F, No.205, Sec. 3, Beixin Rd., Xindian District, New Taipei City 23143, 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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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		January 12, 2015		Initial Issue	ALL	Doris Chu



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1. TEST RESULT CERTIFICATION

Applicant: Castles Technology Co., Ltd.
2F, No.205, Sec. 3, Beixin Rd., Xindian District, New Taipei City
23143, Taiwan (R.O.C.)

Equipment Under Test: EFTPOS

Trade Name: CASTLES TECHNOLOGY

Model Number: VEGA3000

Date of Test: December 19 ~ 21, 2014

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:

Miller Lee
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Angel Cheng
Section Manager
Compliance Certification Services Inc.



2. EUT DESCRIPTION

Product	EFTPOS
Trade Name	CASTLES TECHNOLOGY
Model Number	VEGA3000
Model Discrepancy	N/A
Received Date	November 20, 2014
Power Supply	1. Vdc from Power Adapter I/P: 100-240V, 50/60Hz, 2A O/P: 9V, 4A 2. From DC Battery (DC3V) 3. From Lithium cell battery: RPC / IP604355 Rating: 3.7V, 2100 mAh, 7.77 Wh
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: 27.55 dBm GPRS 1900: 27.72 dBm EDGE 850: 24.56 dBm EDGE 1900: 26.72 dBm WCDMA Band II: 22.88 dBm HSDPA Band II: 20.88 dBm HSUPA Band II: 20.83 dBm WCDMA Band V: 19.77 dBm HSDPA Band V: 19.40 dBm HSUPA Band V: 19.47 dBm
Cellular Phone Protocol	GPRS: GMSK EDGE: 8PSK WCDMA: Quadrature Phase Shift Keying (QPSK) with Root-raised cosine pulse shaping filters (roll off = 0.22)
Type of Emission	GPRS 850: 245KGXW--- GPRS 1900: 247KGXW--- EDGE 850: 243KG7W--- EDGE 1900: 245KG7W--- WCDMA Band II: 4M06F9W--- WCDMA Band V: 4M06F9W--- WCDMA HSDPA Band II: 4M06F9W--- WCDMA HSDPA Band V: 4M05F9W--- WCDMA HSUPA Band II: 4M06F9W--- WCDMA HSUPA Band V: 4M06F9W---



Antenna Gain	GPRS / EDGE 850: -2.006 dBi GPRS / EDGE 1900: 0.672 dBi WCDMA band II: 0.672 dBi WCDMA band V: -2.006dBi
Antenna Type	Auden Techno Corp. / V3 Monopole Antenna

Remark:

1. *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*
2. *This submittal(s) (test report) is intended for FCC ID: WIYVEGA3000-3G filing to comply with Part 22 and Part 24 of the FCC 47 CFR Rules.*



3. TEST METHODOLOGY

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

3.1 EUT CONFIGURATION

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

3.2 EUT EXERCISE

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

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

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

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2009.



3.4 DESCRIPTION OF TEST MODES

The EUT (model: VEGA3000) 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.

WCDMA / HSDPA Band II:

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

WCDMA / HSDPA Band V:

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

WCDMA / HSUPA Band II:

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

WCDMA / HSDPA Band V:

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

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz 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 (Y 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
Vector Signal Generator	ROHDE&SCHWARZ	SMU200A	102239	12/07/2015
Spectrum Analyzer	Agilent	E4446A	US42510252	11/23/2015
Thermostatic/Hrgrosatic 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

Wugu 966 Chamber A				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US42510268	01/24/2015
EMI Test Receiver	R&S	ESCI	100064	05/30/2015
Bilog Antenna	Sunol Sciences	JB3	A030105	08/19/2015
Horn Antenna	EMCO	3117	00055165	02/04/2015
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



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	 Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2

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



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

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

6.2 SUPPORT EQUIPMENT

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

Remark:

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



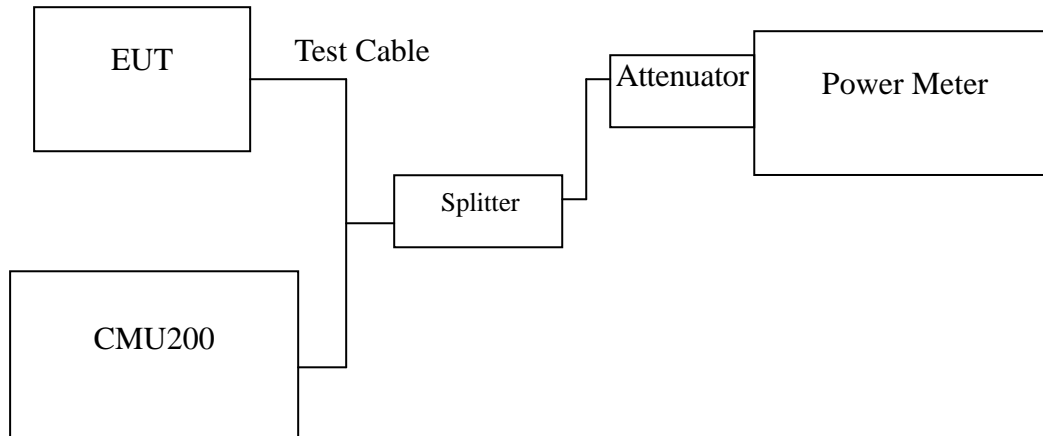
7. FCC PART 22 & 24 REQUIREMENTS

7.1 PEAK POWER

LIMIT

According to FCC §2.1046.

Test Configuration



Remark: Measurement setup for testing on Antenna connector

TEST PROCEDURE

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

TEST RESULTS

No non-compliance noted.

**Test Data**

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
GPRS 850	128	824.20	32.30	1.69824
	190	836.60	32.40	1.73780
	251	848.80	32.40	1.73780
EDGE 850	128	824.20	28.90	0.77625
	190	836.60	28.90	0.77625
	251	848.80	29.00	0.79433

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
GPRS 1900	512	1850.20	29.30	0.85114
	661	1880.00	29.40	0.87096
	810	1909.80	29.20	0.83176
EDGE 1900	512	1850.20	27.70	0.58884
	661	1880.00	27.80	0.60256
	810	1909.80	27.50	0.56234

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



Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
WCDMA (BAND II)	9262	1852.40	26.01	0.39902
	9400	1880.00	24.45	0.27861
	9538	1907.60	25.17	0.32885
WCDMA (BAND V)	4132	826.40	26.50	0.44668
	4182	836.40	26.36	0.43251
	4233	846.60	25.88	0.38726

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
WCDMA / HSDPA (BAND II)	9262	1852.40	26.43	0.43954
	9400	1880.00	24.65	0.29174
	9538	1907.60	25.38	0.34514
WCDMA / HSDPA (BAND V)	4132	826.40	26.79	0.47753
	4182	836.40	26.71	0.46881
	4233	846.60	26.36	0.43251

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
WCDMA / HSUPA (BAND II)	9262	1852.40	26.15	0.41210
	9400	1880.00	24.58	0.28708
	9538	1907.60	25.37	0.34435
WCDMA / HSUPA (BAND V)	4132	826.40	26.28	0.42462
	4182	836.40	26.00	0.39811
	4233	846.60	25.52	0.35645

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

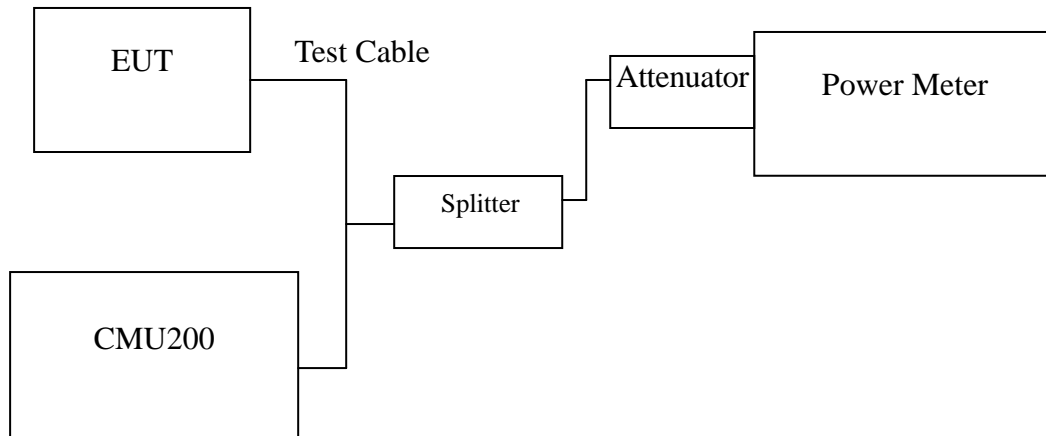


7.2 AVERAGE POWER

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	32.20	1.65959
	190	836.60	32.20	1.65959
	251	848.80	32.30	1.69824
EDGE 850	128	824.20	26.20	0.41687
	190	836.60	26.20	0.41687
	251	848.80	26.30	0.42658

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
GPRS 1900	512	1850.20	29.20	0.83176
	661	1880.00	29.30	0.85114
	810	1909.80	29.00	0.79433
EDGE 1900	512	1850.20	24.70	0.29512
	661	1880.00	24.90	0.30903
	810	1909.80	24.60	0.28840

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



Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
WCDMA (BAND II)	9262	1852.40	23.53	0.22542
	9400	1880.00	23.22	0.20989
	9538	1907.60	22.98	0.19861
WCDMA (BAND V)	4132	826.40	23.58	0.22803
	4182	836.40	23.56	0.22699
	4233	846.60	23.67	0.23281

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power W
WCDMA / HSDPA (BAND II)	9262	1852.40	23.49	0.22336
	9400	1880.00	23.18	0.20797
	9538	1907.60	22.96	0.19770
WCDMA / HSDPA (BAND V)	4132	826.40	23.56	0.22699
	4182	836.40	23.55	0.22646
	4233	846.60	23.65	0.23174

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power W
WCDMA / HSUPA (BAND II)	9262	1852.40	23.47	0.22233
	9400	1880.00	23.16	0.20701
	9538	1907.60	22.96	0.19770
WCDMA / HSUPA (BAND V)	4132	826.40	23.56	0.22699
	4182	836.40	23.55	0.22646
	4233	846.60	23.65	0.23174

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



7.3 ERP & EIRP MEASUREMENT

LIMIT

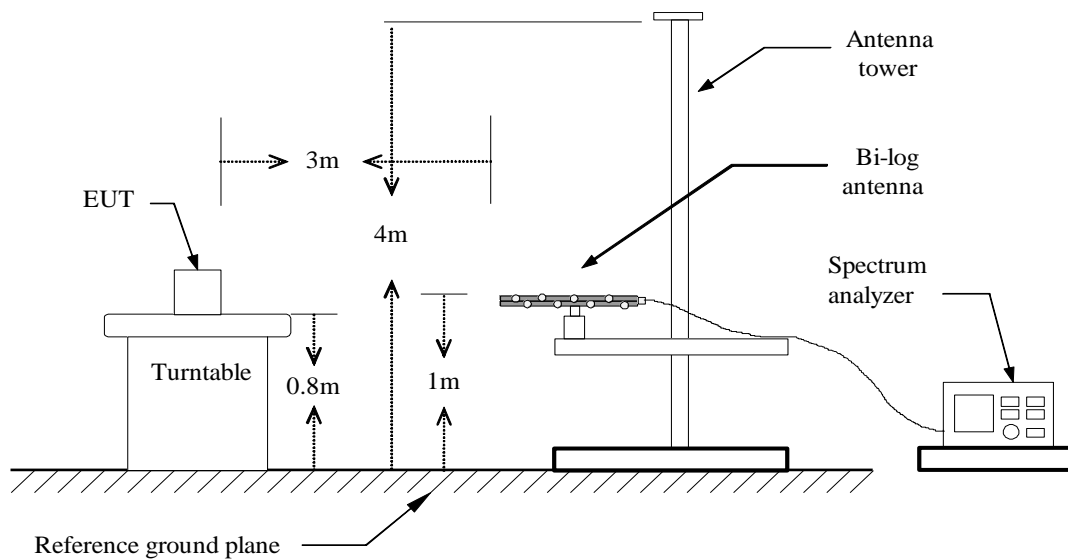
According to FCC §2.1046

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

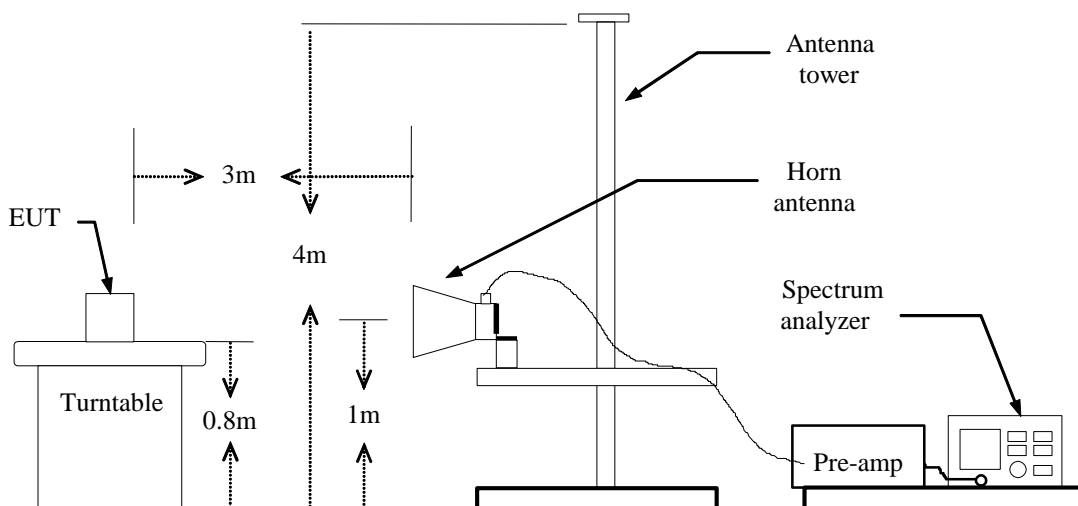
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

Below 1 GHz

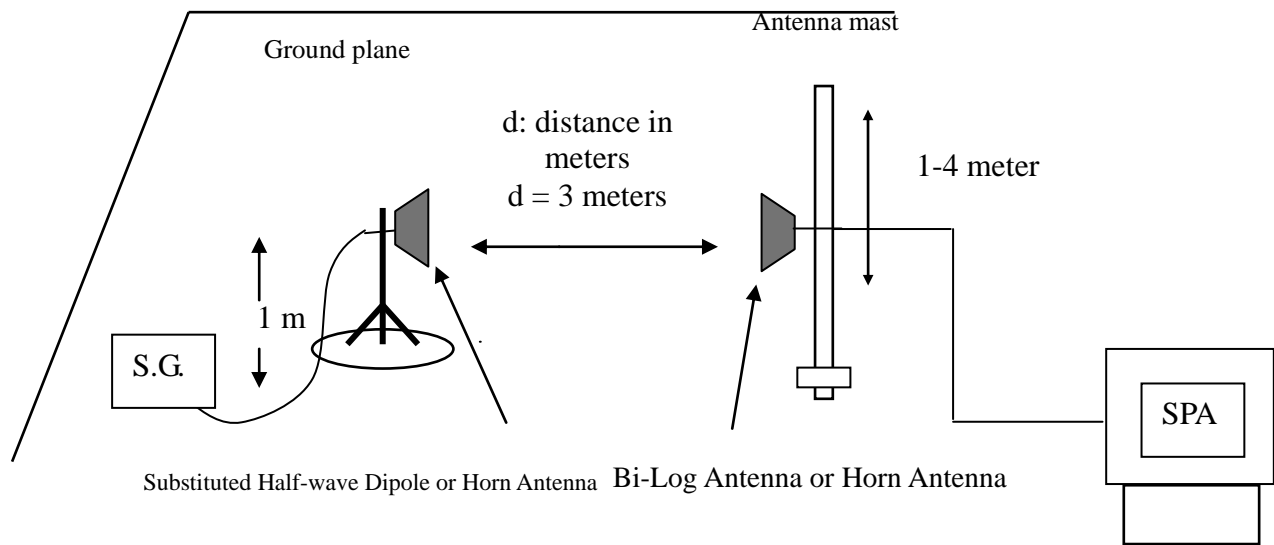


Above 1 GHz





For Substituted Method Test Set-UP



TEST PROCEDURE

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

During the measurement of the EUT, the resolution bandwidth was set to 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:

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

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

TEST RESULTS

No non-compliance noted.

**GPRS 850 TEST DATA**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
128	824.2200	V	15.09	3.39	6.24	17.94	38.45	-20.51
	824.1500	H	21.72	3.39	6.24	24.57	38.45	-13.88
190	836.5400	V	13.95	3.4	6.36	16.91	38.45	-21.54
	836.6800	H	21.77	3.4	6.37	24.74	38.45	-13.71
251	848.7900	V	17.54	3.4	6.4	20.54	38.45	-17.91
	848.7900	H	24.55	3.4	6.4	27.55	38.45	-10.90

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	1850.280	V	23.61	5.37	5.67	23.91	33.00	-9.09
	1850.160	H	27.42	5.37	5.67	27.72	33.00	-5.28
661	1880.040	V	22.94	5.42	5.62	23.14	33.00	-9.86
	1879.920	H	25.86	5.42	5.62	26.06	33.00	-6.94
810	1909.680	V	22.51	5.48	5.56	22.59	33.00	-10.41
	1909.800	H	27.63	5.48	5.56	27.71	33.00	-5.29

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	824.2200	V	14.3	3.39	6.24	17.15	38.45	-21.30
	824.0800	H	20.75	3.39	6.24	23.60	38.45	-14.85
190	836.5400	V	13.02	3.4	6.36	15.98	38.45	-22.47
	836.7500	H	20.81	3.4	6.37	23.78	38.45	-14.67
251	848.7900	V	13.64	3.4	6.4	16.64	38.45	-21.81
	848.7900	H	21.56	3.4	6.4	24.56	38.45	-13.89

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	22.69	5.37	5.67	22.99	33.00	-10.01
	1850.160	H	26.4	5.37	5.67	26.70	33.00	-6.30
661	1879.920	V	22.2	5.42	5.62	22.40	33.00	-10.60
	1879.920	H	26.46	5.42	5.62	26.66	33.00	-6.34
810	1909.800	V	21.55	5.48	5.56	21.63	33.00	-11.37
	1909.800	H	26.64	5.48	5.56	26.72	33.00	-6.28

**WCDMA Test Data (BAND II)**

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
9262	1853.400	V	13	5.38	5.66	13.28	33.00	-19.72
	1853.040	H	22.59	5.37	5.66	22.88	33.00	-10.12
9400	1881.360	V	18.39	5.42	5.61	18.58	33.00	-14.42
	1881.360	H	14.58	5.42	5.61	14.77	33.00	-18.23
9538	1906.320	V	9.22	5.47	5.57	9.32	33.00	-23.68
	1906.560	H	20.14	5.47	5.57	20.24	33.00	-12.76

WCDMA Test Data (BAND V)

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
4132	827.2300	V	16.89	3.39	6.27	19.77	38.45	-18.68
	826.8800	H	9.84	3.39	6.27	12.72	38.45	-25.73
4182	837.3100	V	16.61	3.4	6.37	19.58	38.45	-18.87
	837.3800	H	9.42	3.4	6.37	12.39	38.45	-26.06
4233	847.5300	V	16.3	3.4	6.4	19.30	38.45	-19.15
	847.3900	H	5.72	3.4	6.4	8.72	38.45	-29.73

WCDMA / 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	1853.400	V	11.39	5.38	5.66	11.67	33.00	-21.33
	1853.160	H	20.6	5.38	5.66	20.88	33.00	-12.12
9400	1881.120	V	8.18	5.42	5.61	8.37	33.00	-24.63
	1881.120	H	18.3	5.42	5.61	18.49	33.00	-14.51
9538	1906.440	V	7.77	5.47	5.57	7.87	33.00	-25.13
	1906.560	H	18.28	5.47	5.57	18.38	33.00	-14.62

WCDMA / 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	827.3700	V	16.52	3.39	6.27	19.40	38.45	-19.05
	827.5800	H	10.89	3.39	6.27	13.77	38.45	-24.68
4182	837.6600	V	16.24	3.41	6.38	19.21	38.45	-19.24
	837.4500	H	11.14	3.4	6.37	14.11	38.45	-24.34
4233	846.8300	V	15.37	3.4	6.4	18.37	38.45	-20.08
	847.0400	H	8.51	3.4	6.4	11.51	38.45	-26.94

**WCDMA / 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	1853.160	V	11.29	5.38	5.66	11.57	33.00	-21.43
	1853.160	H	20.55	5.38	5.66	20.83	33.00	-12.17
9400	1881.000	V	8.11	5.42	5.61	8.30	33.00	-24.70
	1881.120	H	18.32	5.42	5.61	18.51	33.00	-14.49
9538	1906.680	V	7.73	5.47	5.57	7.83	33.00	-25.17
	1906.320	H	18.12	5.47	5.57	18.22	33.00	-14.78

WCDMA / 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	827.6500	V	16.59	3.39	6.27	19.47	38.45	-18.98
	827.1600	H	10.93	3.39	6.27	13.81	38.45	-24.64
4182	836.8200	V	16.22	3.4	6.37	19.19	38.45	-19.26
	837.6600	H	11.08	3.41	6.38	14.05	38.45	-24.40
4233	846.9000	V	16.13	3.4	6.4	19.13	38.45	-19.32
	846.7600	H	8.54	3.4	6.4	11.54	38.45	-26.91

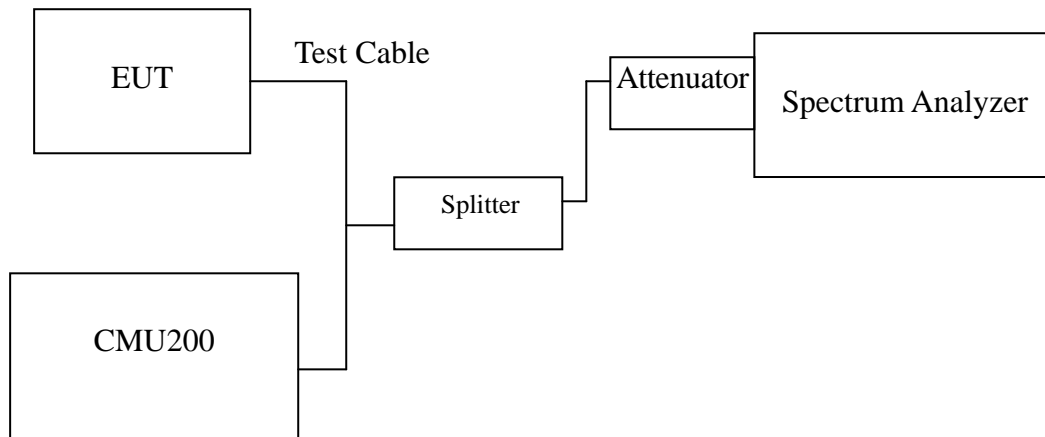


7.4 OCCUPIED BANDWIDTH MEASUREMENT

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

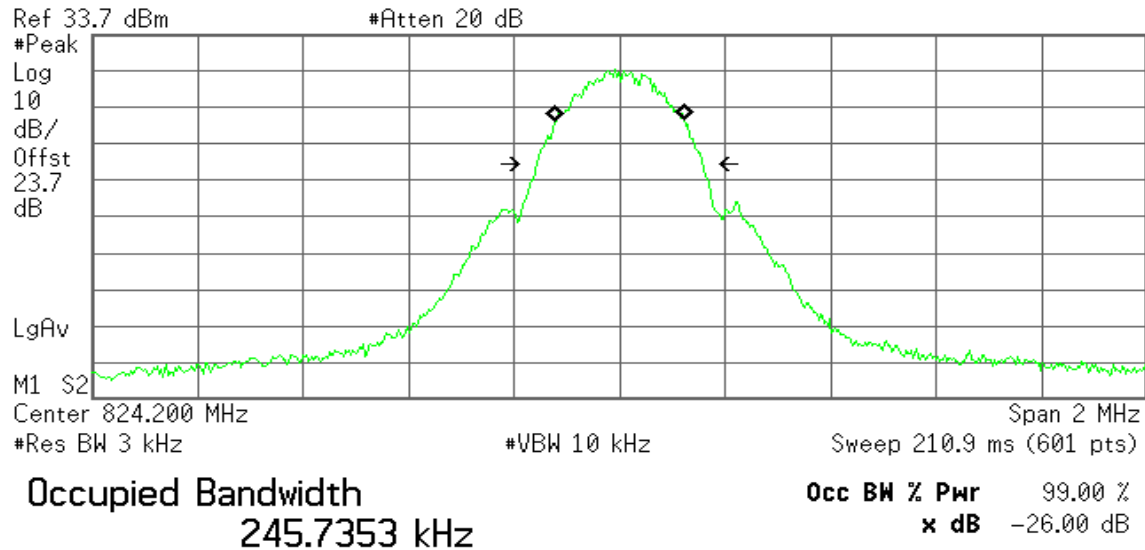


Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)
WCDMA (Band II)	9262	1852.40	4.0527
	9400	1880.00	4.0622
	9538	1907.60	4.0629
WCDMA (Band V)	4132	826.40	4.0526
	4182	836.40	4.0600
	4233	846.60	4.0621
WCDMA / HSDPA (BAND II)	9262	1852.40	4.0559
	9400	1880.00	4.0585
	9538	1907.60	4.0638
WCDMA / HSDPA (BAND V)	4132	826.40	4.0549
	4182	836.40	4.0541
	4233	846.60	4.0521
WCDMA / HSUPA (BAND II)	9262	1852.40	4.0552
	9400	1880.00	4.0550
	9538	1907.60	4.0663
WCDMA / 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

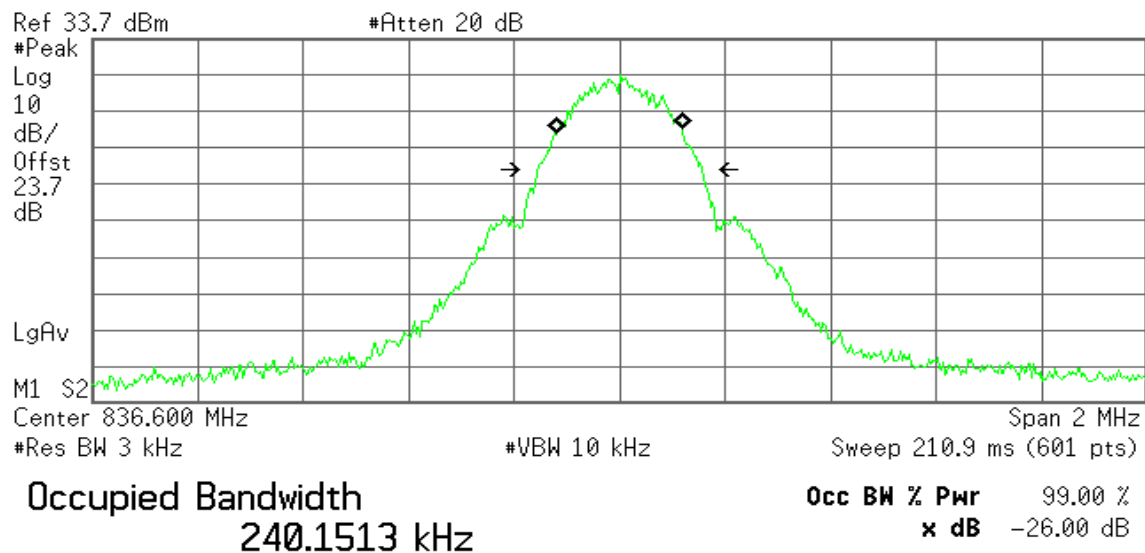


Transmit Freq Error 1.009 kHz
x dB Bandwidth 316.122 kHz

GPRS 850 (CH Mid)

* Agilent

R T



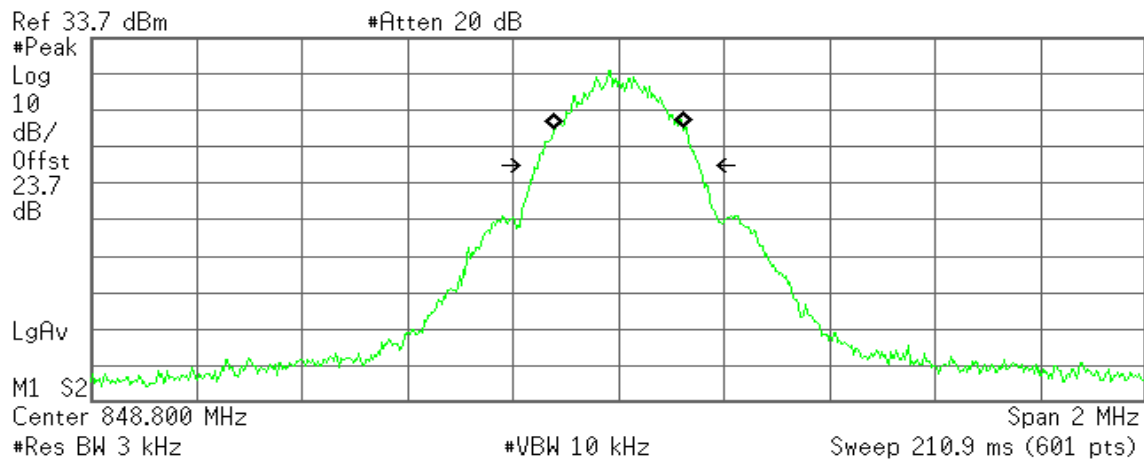
Transmit Freq Error -620.538 Hz
x dB Bandwidth 312.137 kHz



GPRS 850(CH High)

Agilent

R T



Occupied Bandwidth
244.8783 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

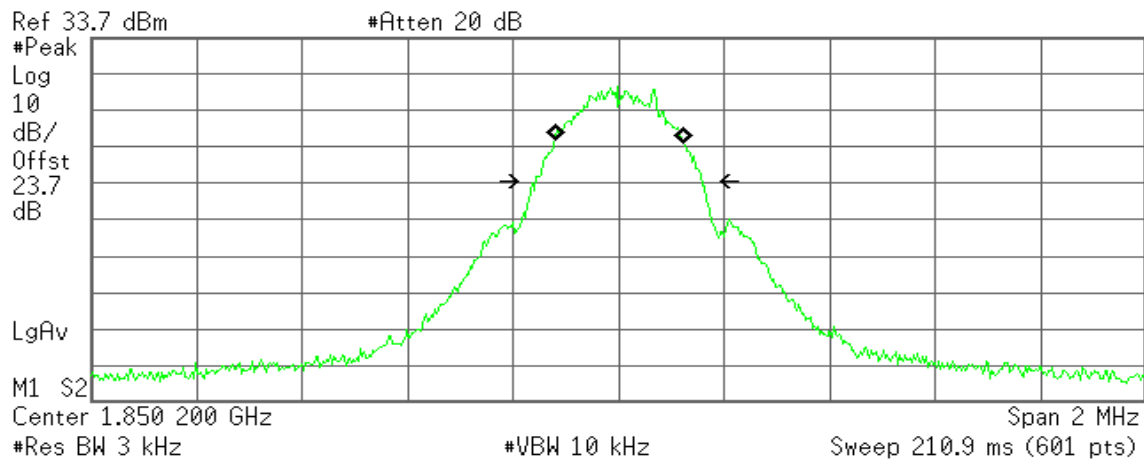
Transmit Freq Error -289.491 Hz
x dB Bandwidth 305.565 kHz



GPRS 1900 (CH Low)

Agilent

R T



Occupied Bandwidth
245.3575 kHz

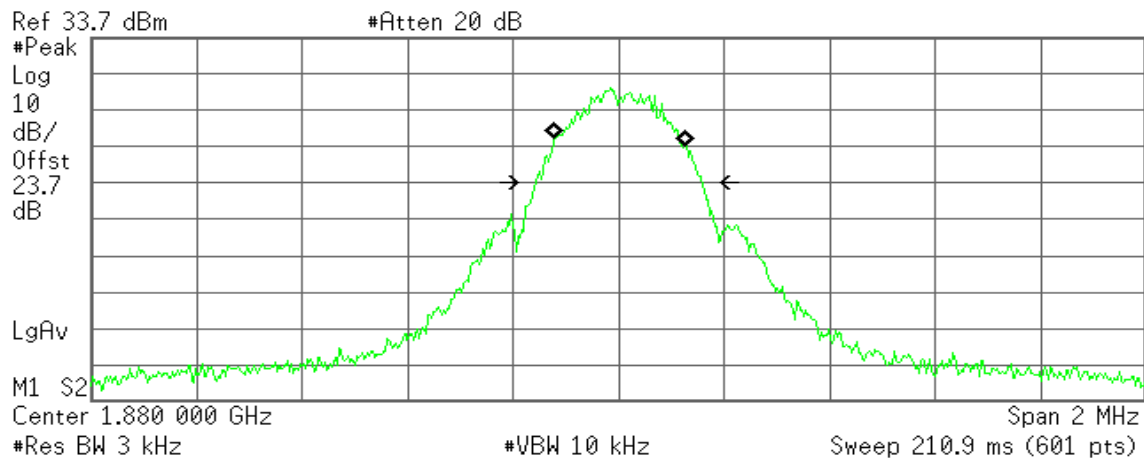
Occ BW % Pwr 99.00 %
x dB -26.00 dB

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

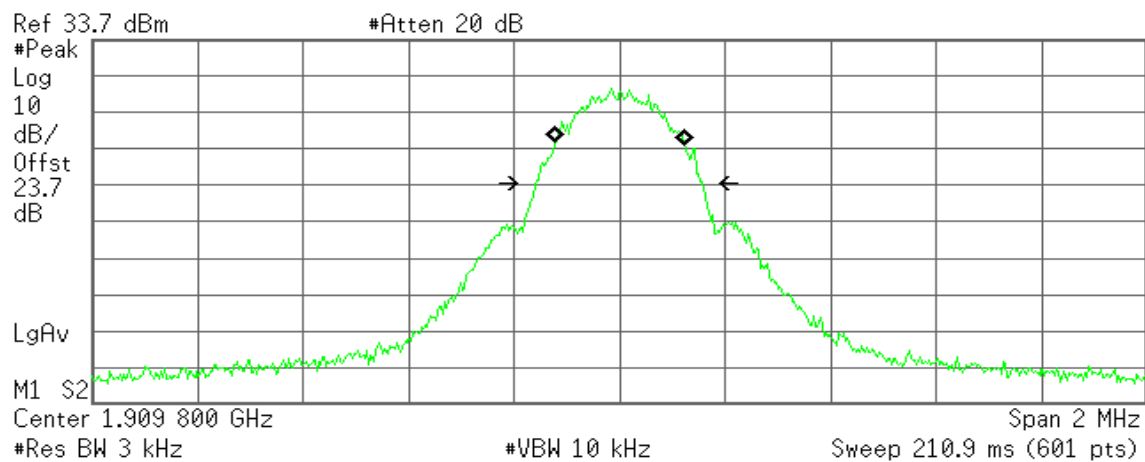
Transmit Freq Error 1.747 kHz
x dB Bandwidth 316.327 kHz



GPRS 1900 (CH High)

Agilent

R T



Occupied Bandwidth
246.6571 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

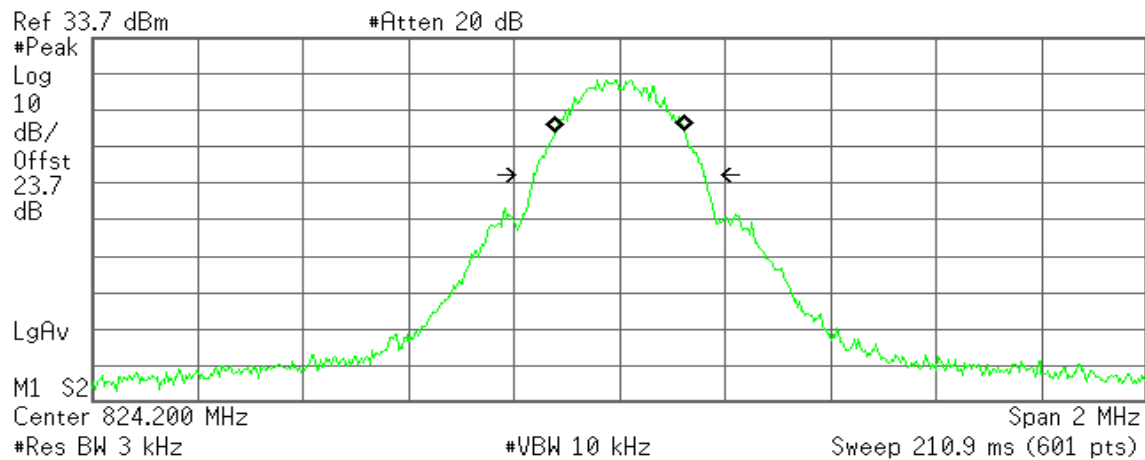
Transmit Freq Error 1.183 kHz
x dB Bandwidth 317.969 kHz



EDGE 850 (CH Low)

Agilent

R T



Occupied Bandwidth
243.9368 kHz

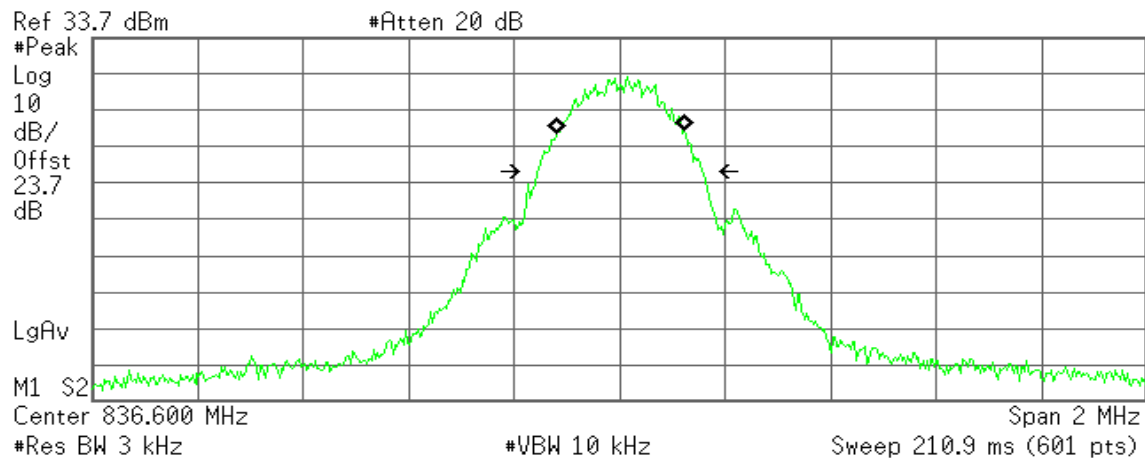
Occ BW % Pwr 99.00 %
x dB -26.00 dB

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

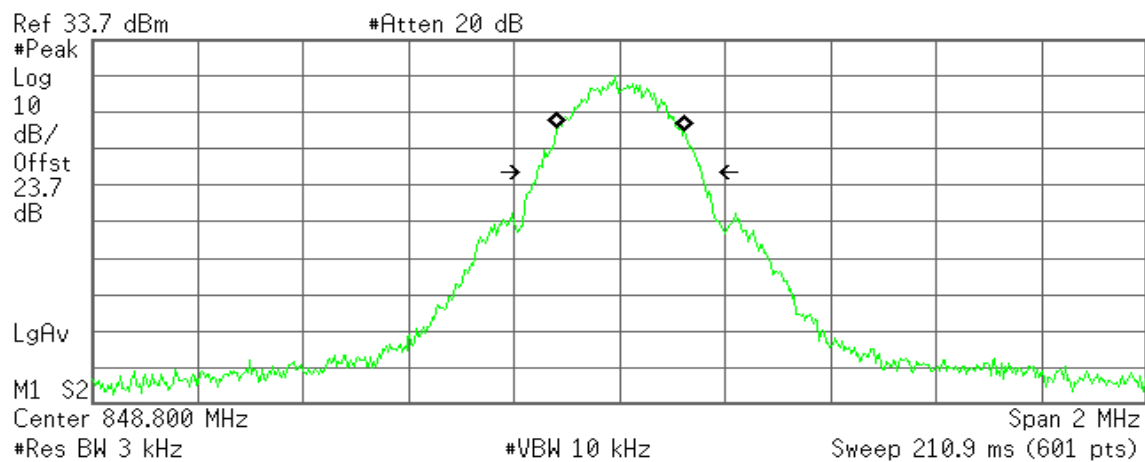
Transmit Freq Error 1.143 kHz
x dB Bandwidth 312.141 kHz



EDGE 850 (CH High)

Agilent

R T



Occupied Bandwidth
243.0219 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

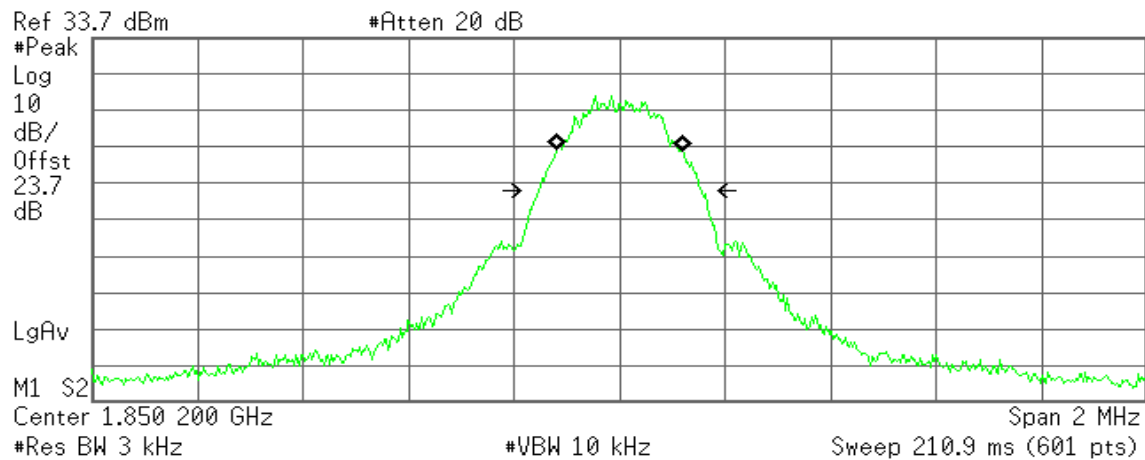
Transmit Freq Error 1.811 kHz
x dB Bandwidth 311.336 kHz



EDGE 1900 (CH Low)

Agilent

R T



Occupied Bandwidth
241.5077 kHz

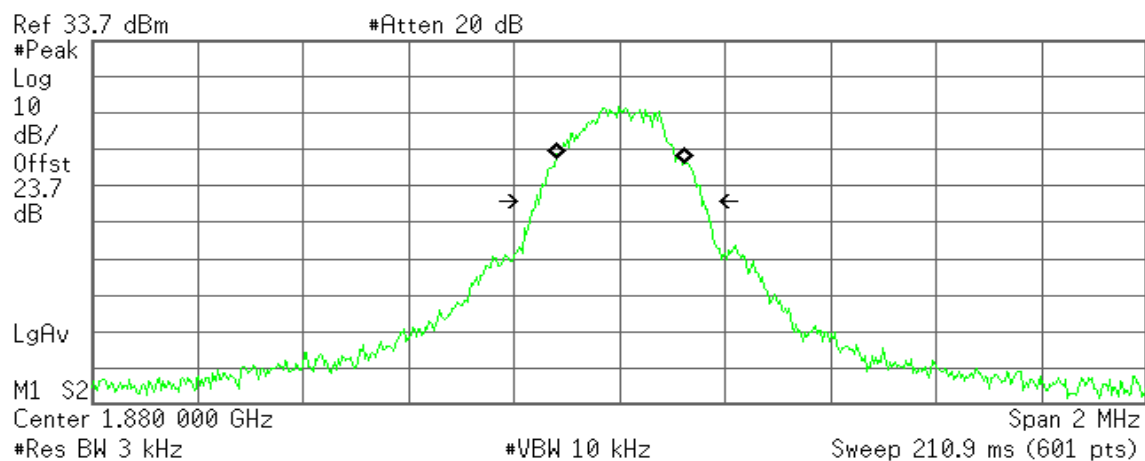
Occ BW % Pwr 99.00 %
x dB -26.00 dB

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

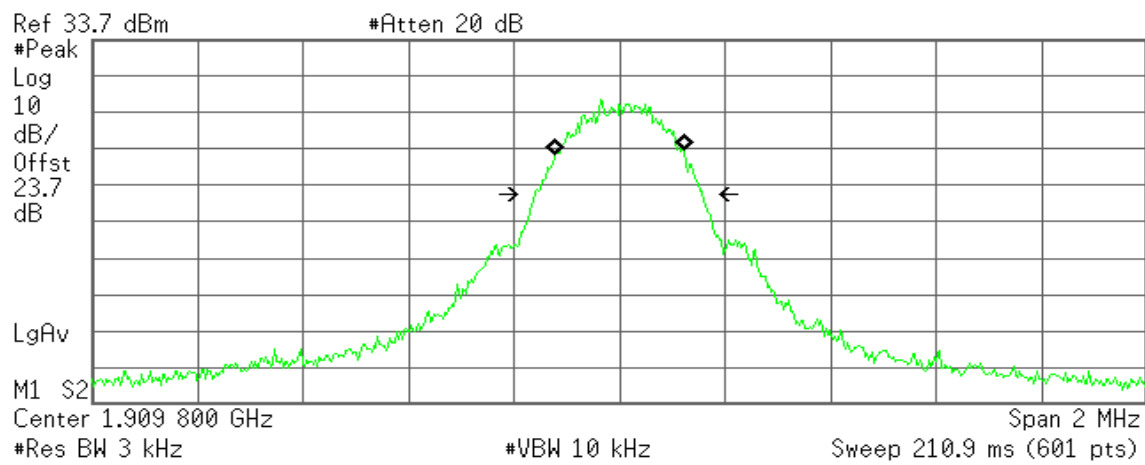
Transmit Freq Error 1.901 kHz
x dB Bandwidth 315.212 kHz



EDGE 1900 (CH High)

Agilent

R T



Occupied Bandwidth
244.5472 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

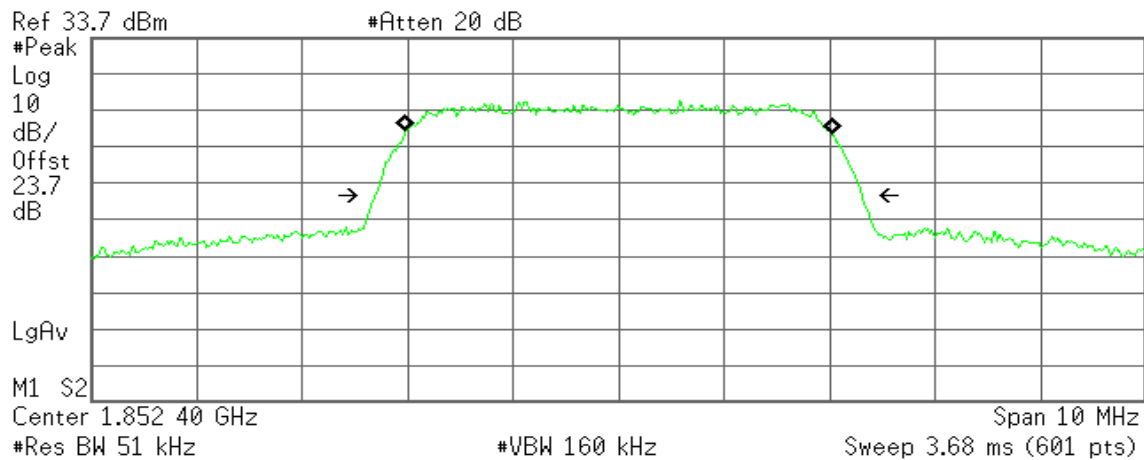
Transmit Freq Error 381.224 Hz
x dB Bandwidth 319.088 kHz



WCDMA Band II (CH Low)

Agilent

R T



Occupied Bandwidth
4.0527 MHz

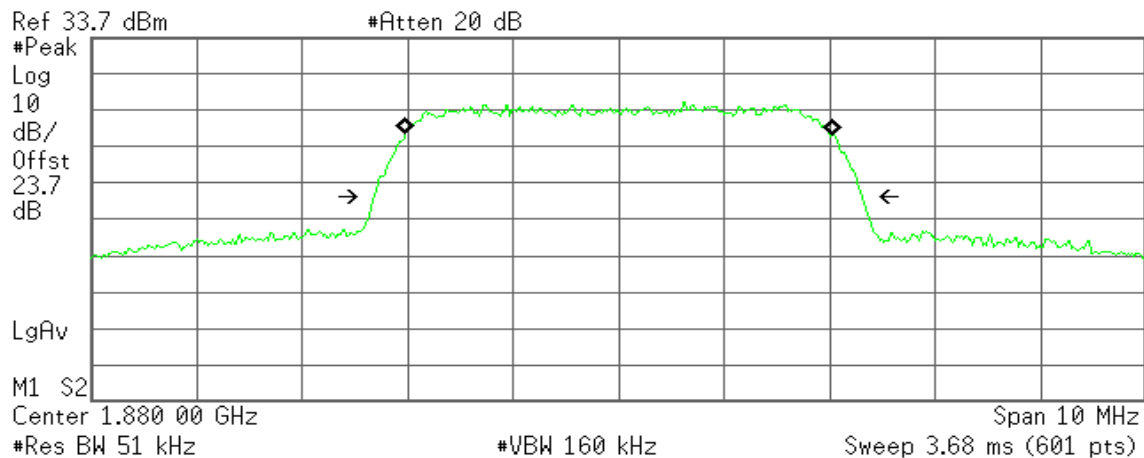
Occ BW % Pwr 99.00 %
x dB -26.00 dB

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

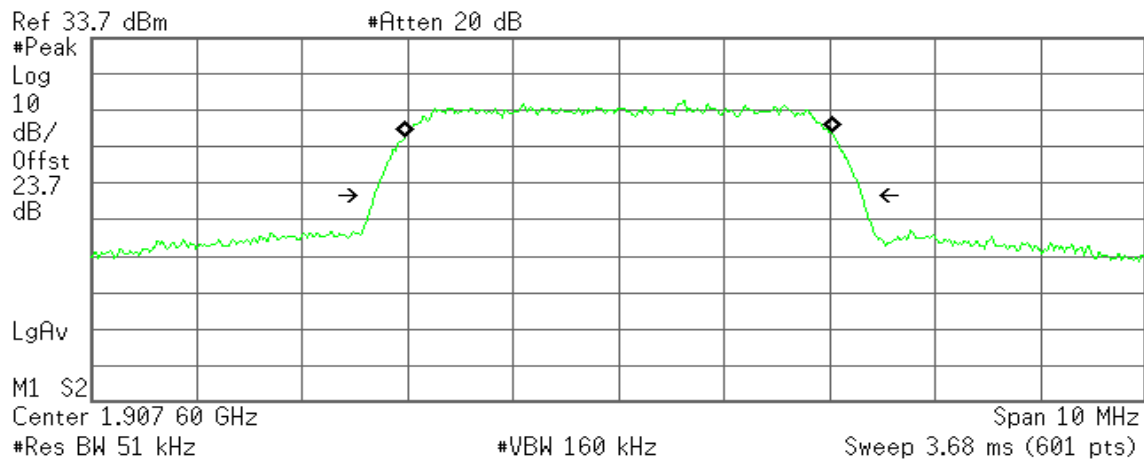
Transmit Freq Error 2.716 kHz
x dB Bandwidth 4.634 MHz



WCDMA Band II (CH High)

Agilent

R T



Occupied Bandwidth
4.0629 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

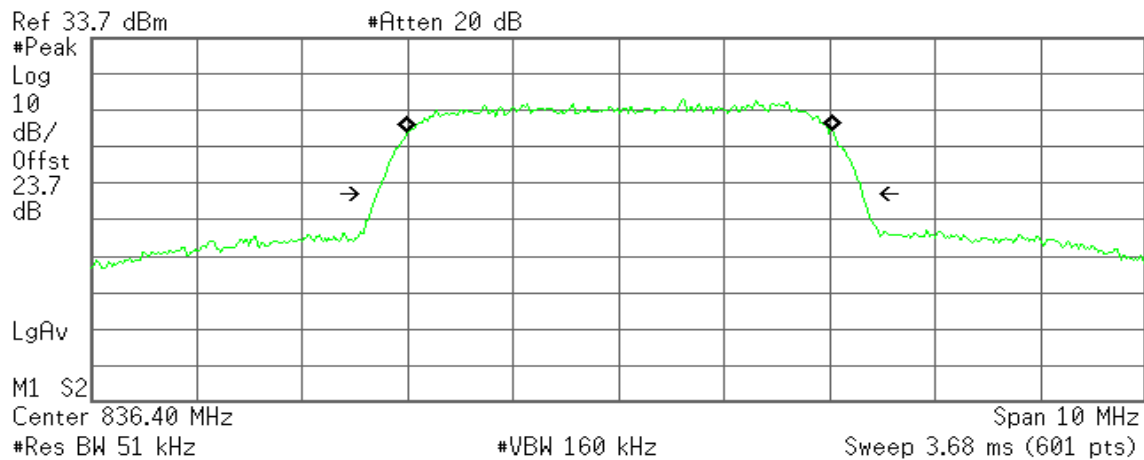
Transmit Freq Error -1.165 kHz
x dB Bandwidth 4.637 MHz



WCDMA Band V (CH Low)

Agilent

R T



Occupied Bandwidth
4.0526 MHz

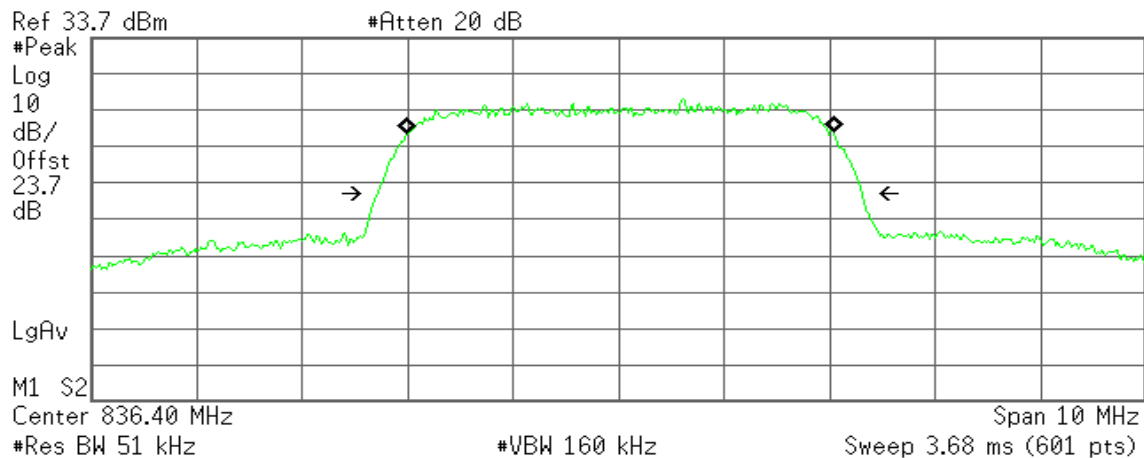
Occ BW % Pwr 99.00 %
x dB -26.00 dB

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

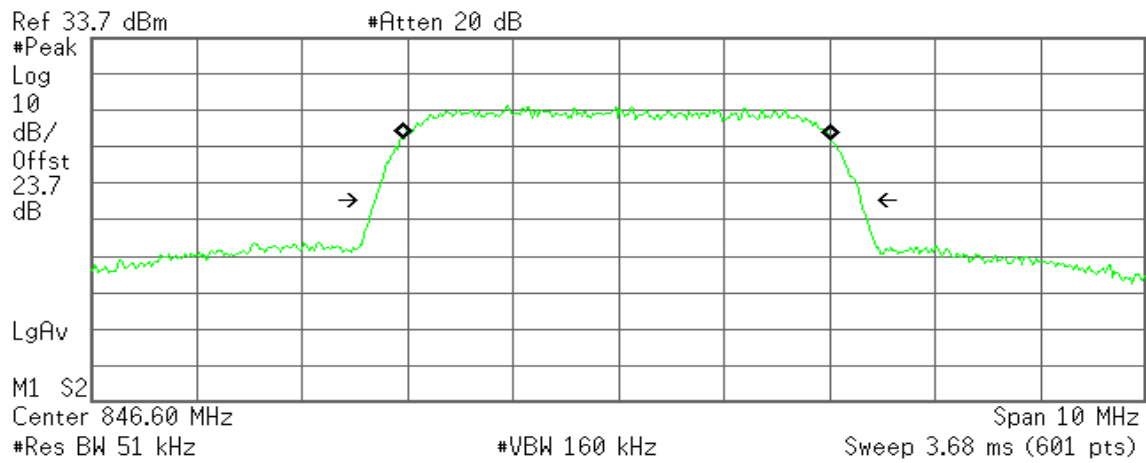
Transmit Freq Error 12.450 kHz
x dB Bandwidth 4.596 MHz



WCDMA Band V (CH High)

Agilent

R T



Occupied Bandwidth
4.0621 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

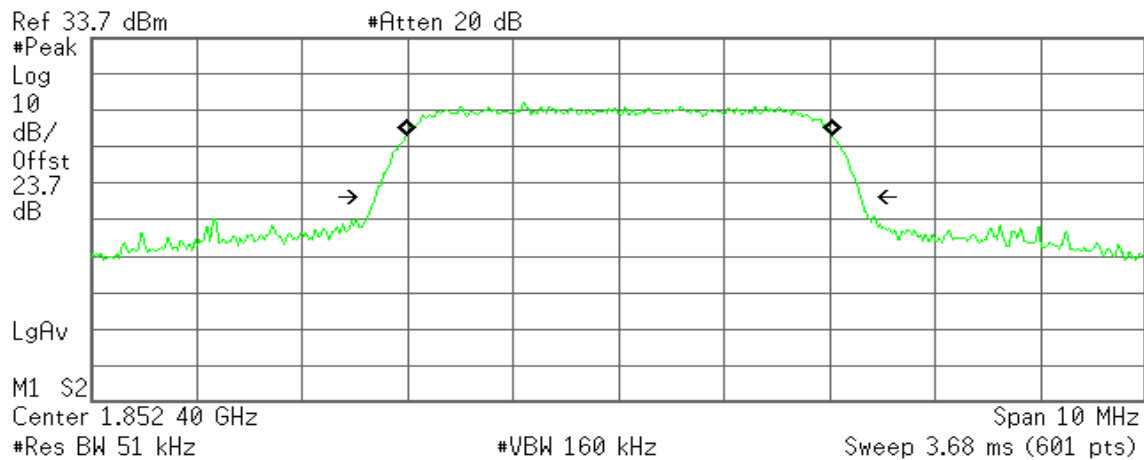
Transmit Freq Error -20.480 kHz
x dB Bandwidth 4.610 MHz



WCDMA / HSDPA Band II (CH Low)

Agilent

R T



Occupied Bandwidth
4.0559 MHz

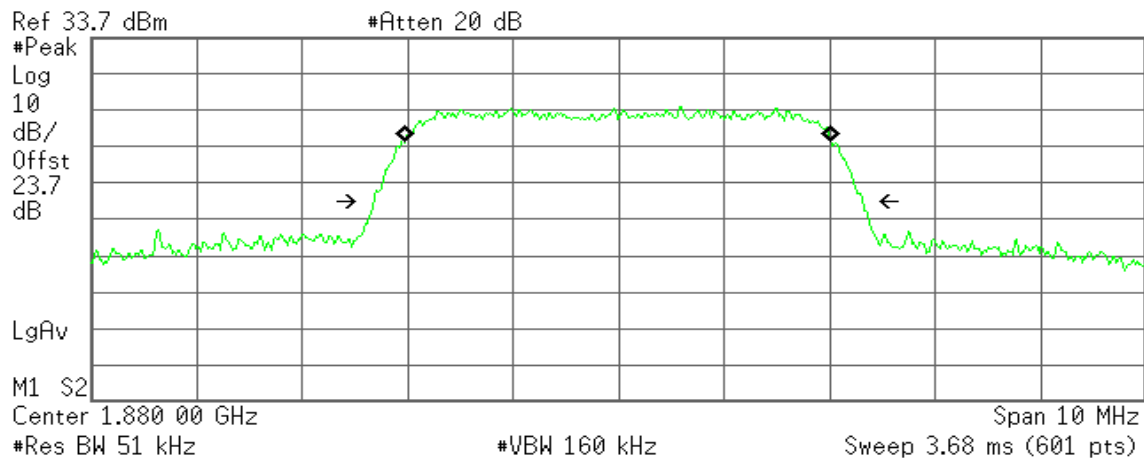
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 5.078 kHz
x dB Bandwidth 4.606 MHz

WCDMA / HSDPA Band II (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0585 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

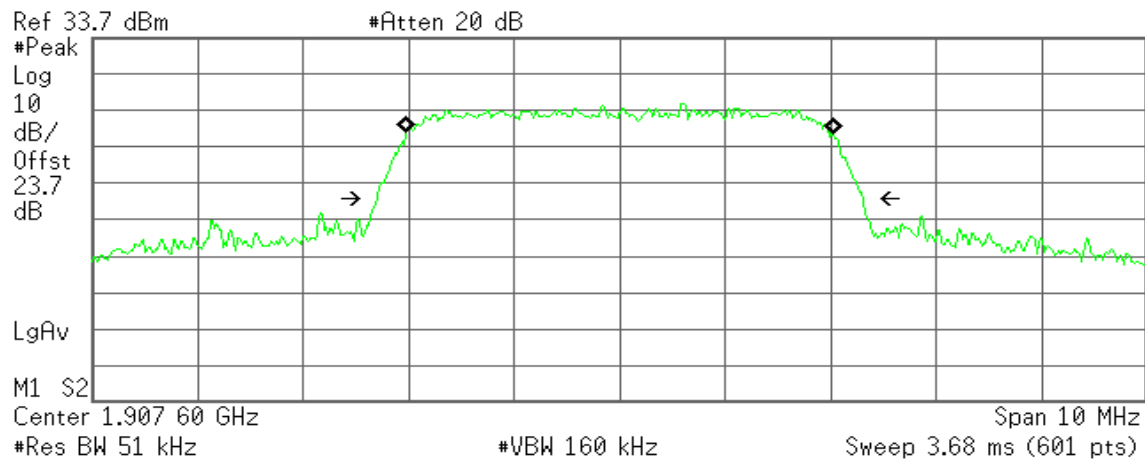
Transmit Freq Error -8.602 kHz
x dB Bandwidth 4.647 MHz



WCDMA / HSDPA Band II (CH High)

Agilent

R T



Occupied Bandwidth
4.0638 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

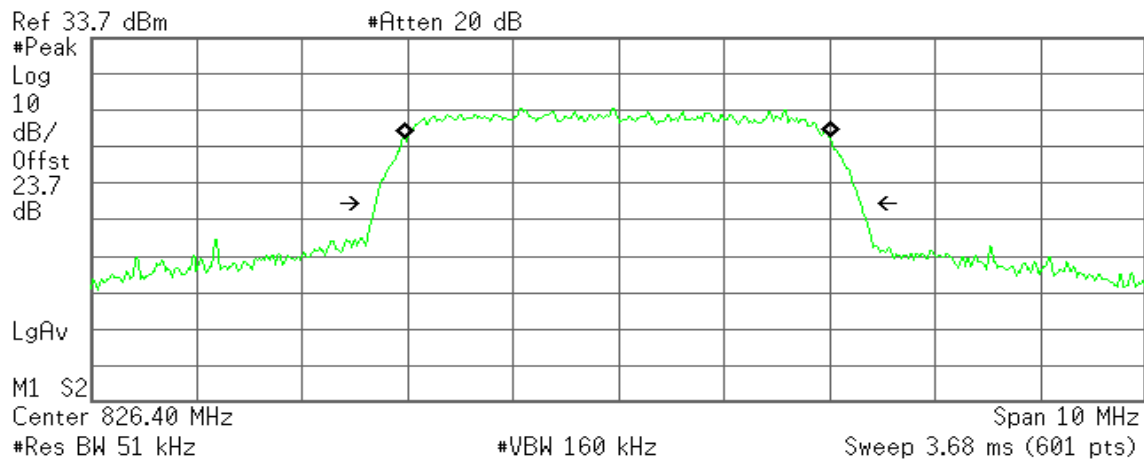
Transmit Freq Error 1.320 kHz
x dB Bandwidth 4.616 MHz



WCDMA / HSDPA Band V (CH Low)

Agilent

R T



Occupied Bandwidth
4.0549 MHz

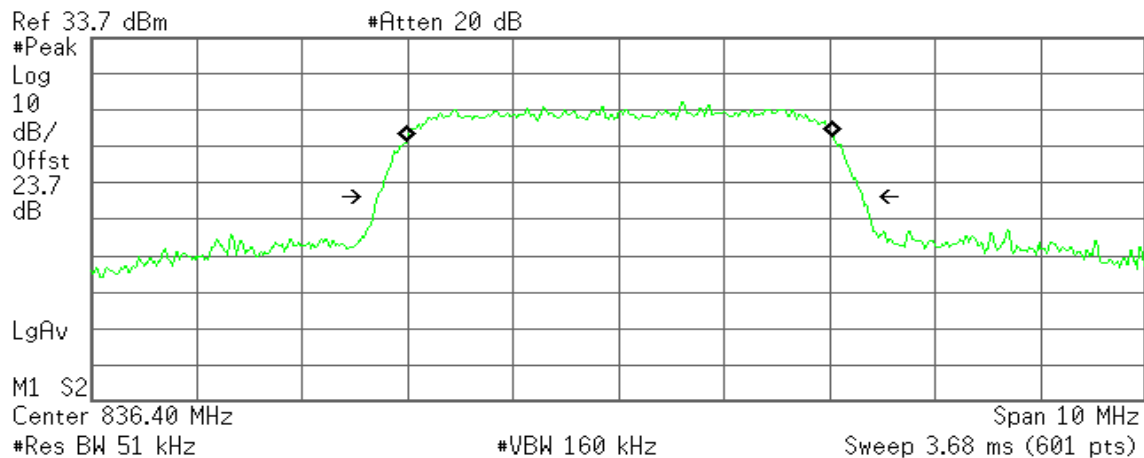
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -11.881 kHz
x dB Bandwidth 4.609 MHz

WCDMA / HSDPA Band V (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0541 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

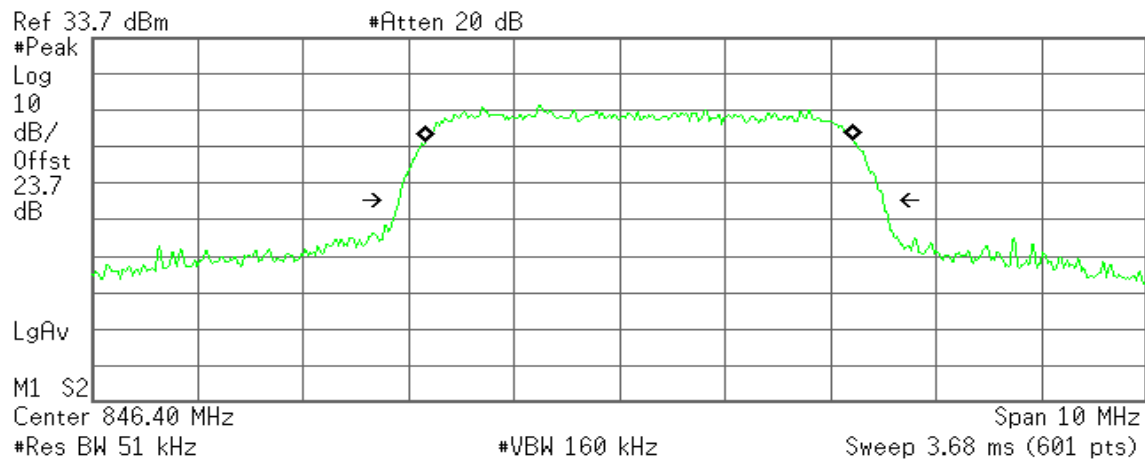
Transmit Freq Error 14.038 kHz
x dB Bandwidth 4.612 MHz



WCDMA / HSDPA Band V (CH High)

Agilent

R T



Occupied Bandwidth
4.0521 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

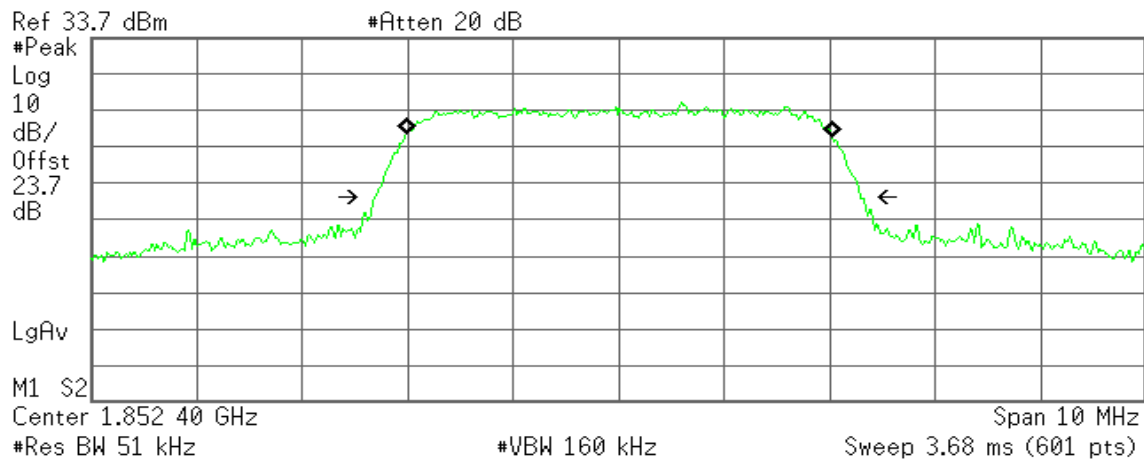
Transmit Freq Error 194.256 kHz
x dB Bandwidth 4.603 MHz



WCDMA / HSUPA Band II (CH Low)

Agilent

R T



Occupied Bandwidth
4.0552 MHz

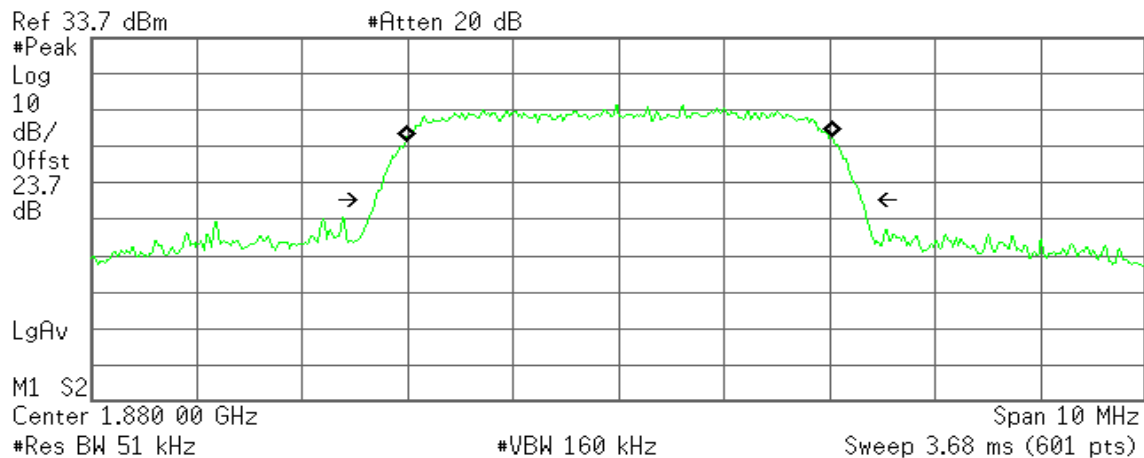
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 2.617 kHz
x dB Bandwidth 4.611 MHz

WCDMA / HSUPA Band II (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0550 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

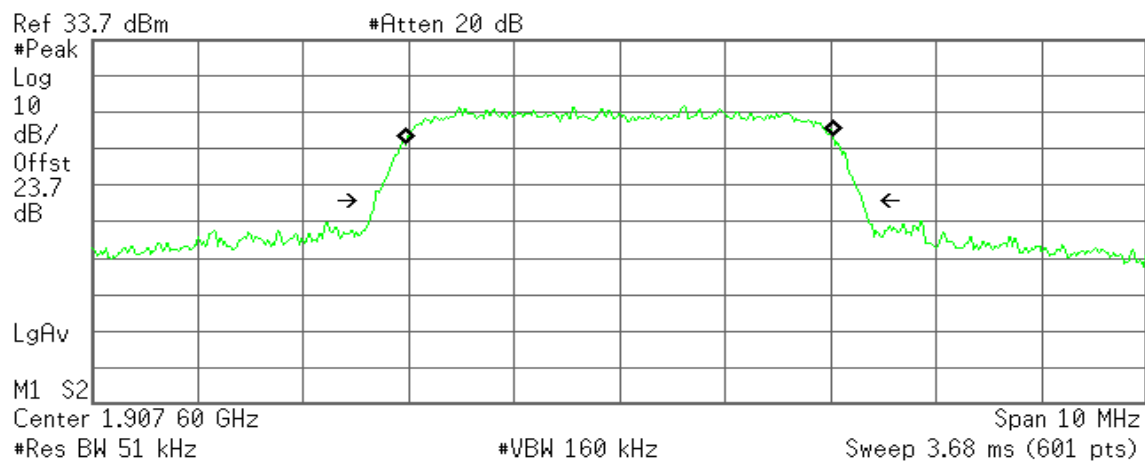
Transmit Freq Error 4.470 kHz
x dB Bandwidth 4.618 MHz



WCDMA / HSUPA Band II (CH High)

Agilent

R T



Occupied Bandwidth
4.0663 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

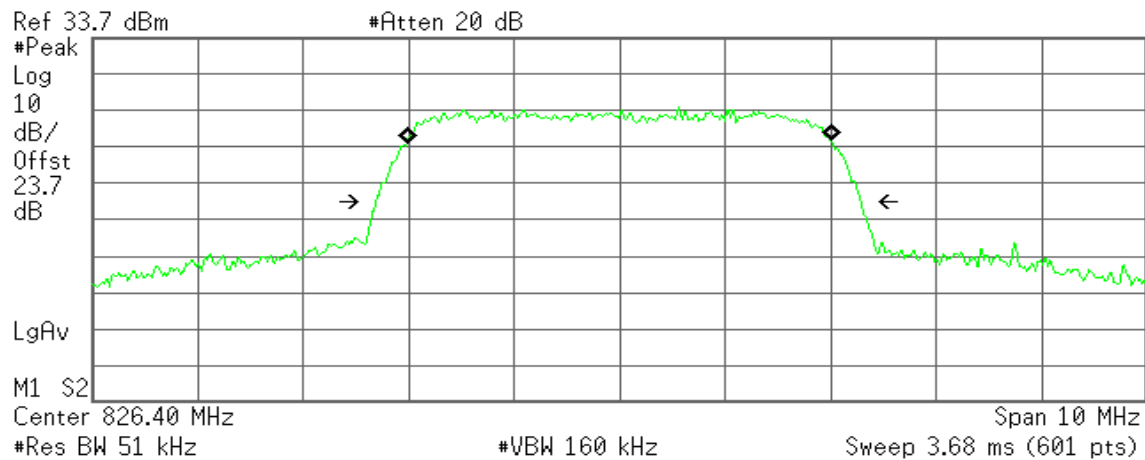
Transmit Freq Error 1.923 kHz
x dB Bandwidth 4.636 MHz



WCDMA / HSUPA Band V (CH Low).

Agilent

R T



Occupied Bandwidth
4.0291 MHz

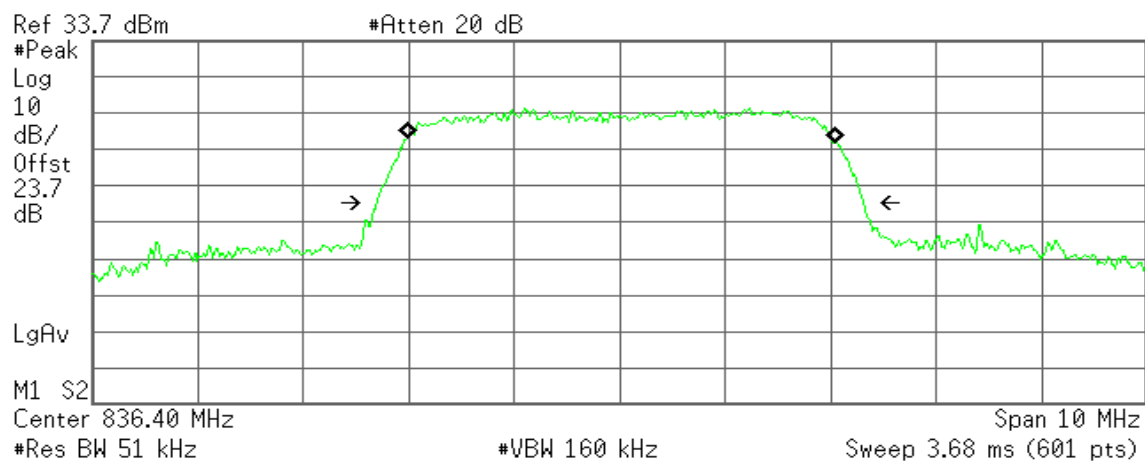
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -4.829 kHz
x dB Bandwidth 4.609 MHz

WCDMA / HSUPA Band V (CH Mid)

Agilent

R T



Occupied Bandwidth
4.0641 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

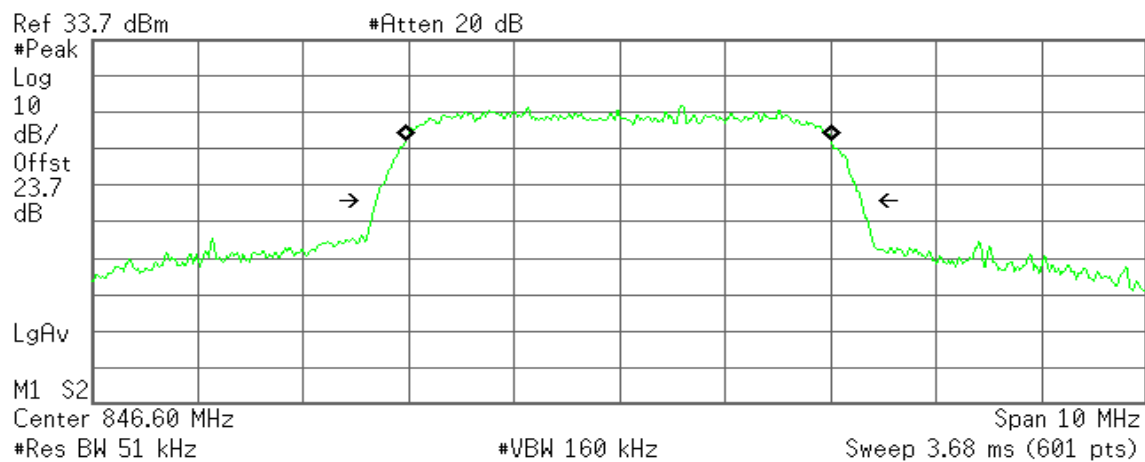
Transmit Freq Error 10.806 kHz
x dB Bandwidth 4.630 MHz



WCDMA / HSUPA Band V (CH Mid)

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).

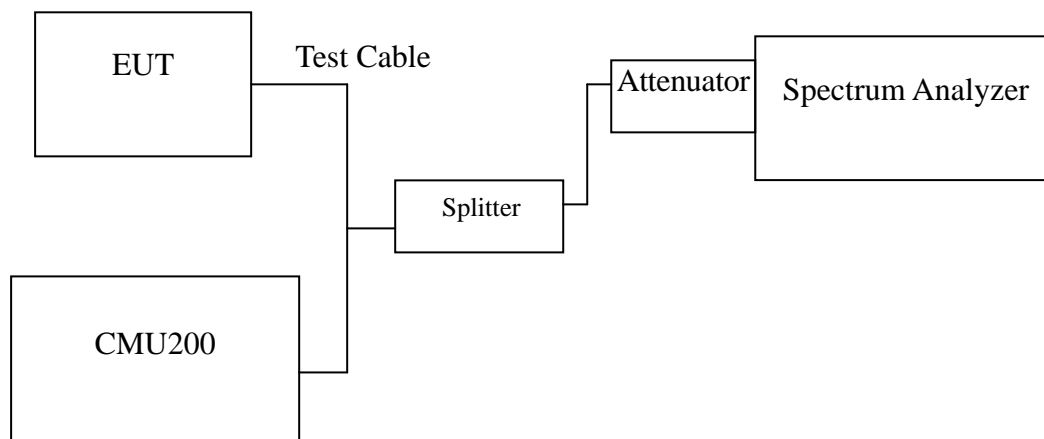
Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least $43 + 10 \log P$ dB.

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 9-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 9-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 9-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
GPRS 850	128	Figure 10-1	Band Edge emissions
	251	Figure 10-2	Band Edge emissions

Mode	CH	Location	Description
GPRS 1900	512	Figure 11-1	Band Edge emissions
	810	Figure 11-2	Band Edge emissions

Mode	CH	Location	Description
EDGE 850	128	Figure 12-1	Conducted spurious emissions, 30MHz - 20GHz
	190	Figure 12-2	Conducted spurious emissions, 30MHz - 20GHz
	251	Figure 12-3	Conducted spurious emissions, 30MHz - 20GHz
EDGE 1900	512	Figure 13-1	Conducted spurious emissions, 30MHz - 20GHz
	661	Figure 13-2	Conducted spurious emissions, 30MHz - 20GHz
	810	Figure 13-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
EDGE 850	128	Figure 14-1	Band Edge emissions
	251	Figure 14-2	Band Edge emissions
EDGE 1900	512	Figure 15-1	Band Edge emissions
	810	Figure 15-2	Band Edge emissions



Mode	CH	Location	Description
WCDMA (Band II)	9262	Figure 16-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 16-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 16-3	Conducted spurious emissions, 30MHz - 20GHz
WCDMA (Band V)	4132	Figure 17-1	Conducted spurious emissions, 30MHz - 20GHz
	4182	Figure 17-2	Conducted spurious emissions, 30MHz - 20GHz
	4233	Figure 17-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
WCDMA (Band II)	9262	Figure 18-1	Band Edge emissions
	9538	Figure 18-2	Band Edge emissions
WCDMA (Band V)	4132	Figure 19-1	Band Edge emissions
	4233	Figure 19-2	Band Edge emissions

Mode	CH	Location	Description
HSDPA WCDMA (Band II)	9262	Figure 20-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 20-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 20-3	Conducted spurious emissions, 30MHz - 20GHz
HSDPA WCDMA (Band V)	4132	Figure 21-1	Conducted spurious emissions, 30MHz - 20GHz
	4182	Figure 21-2	Conducted spurious emissions, 30MHz - 20GHz
	4233	Figure 21-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
HSDPA WCDMA (Band II)	9262	Figure 22-1	Band Edge emissions
	9538	Figure 22-2	Band Edge emissions
HSDPA WCDMA (Band V)	4132	Figure 23-1	Band Edge emissions
	4233	Figure 23-2	Band Edge emissions



Mode	CH	Location	Description
HSUPA WCDMA (Band II)	9262	Figure 24-1	Conducted spurious emissions, 30MHz - 20GHz
	9400	Figure 24-2	Conducted spurious emissions, 30MHz - 20GHz
	9538	Figure 24-3	Conducted spurious emissions, 30MHz - 20GHz
HSUPA WCDMA (Band V)	4132	Figure 25-1	Conducted spurious emissions, 30MHz - 20GHz
	4182	Figure 25-2	Conducted spurious emissions, 30MHz - 20GHz
	4233	Figure 25-3	Conducted spurious emissions, 30MHz - 20GHz

Mode	CH	Location	Description
HSUPA WCDMA (Band II)	9262	Figure 26-1	Band Edge emissions
	9538	Figure 26-2	Band Edge emissions
HSUPA WCDMA (Band V)	4132	Figure 27-1	Band Edge emissions
	4233	Figure 27-2	Band Edge emissions

**Test Plot****GPRS 850**

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

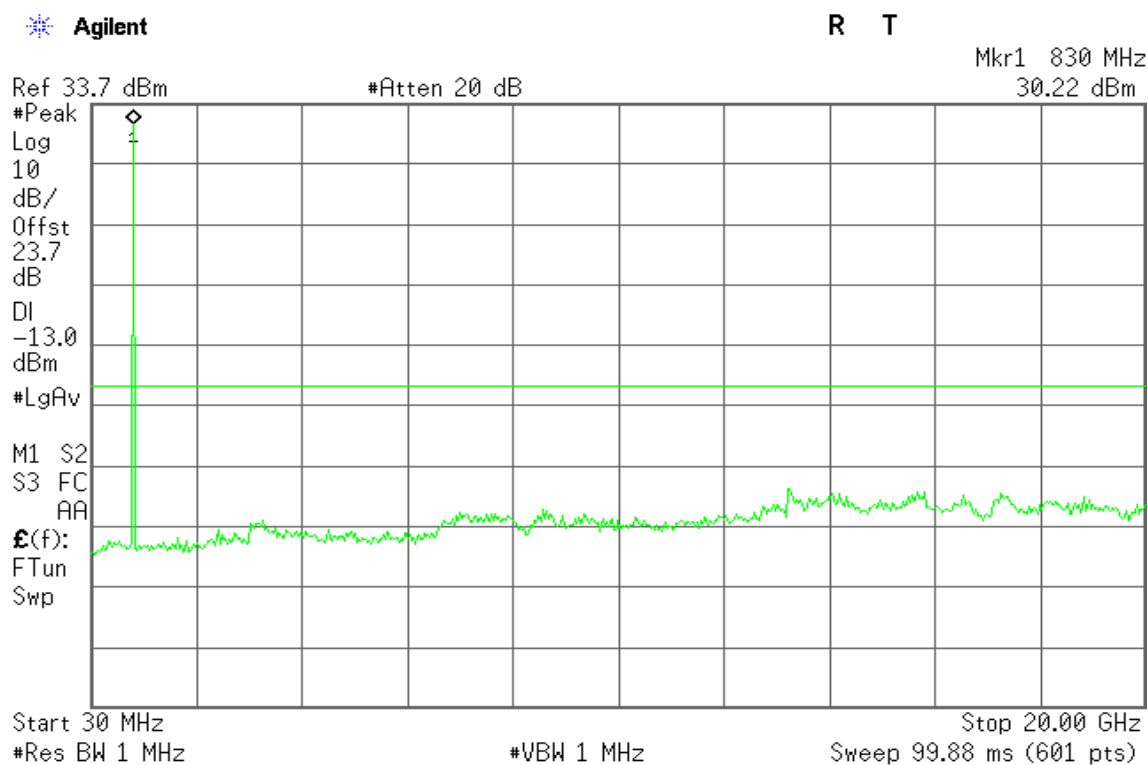


Figure 8-2: Out of Band emission at antenna terminals – GPRS CH Mid

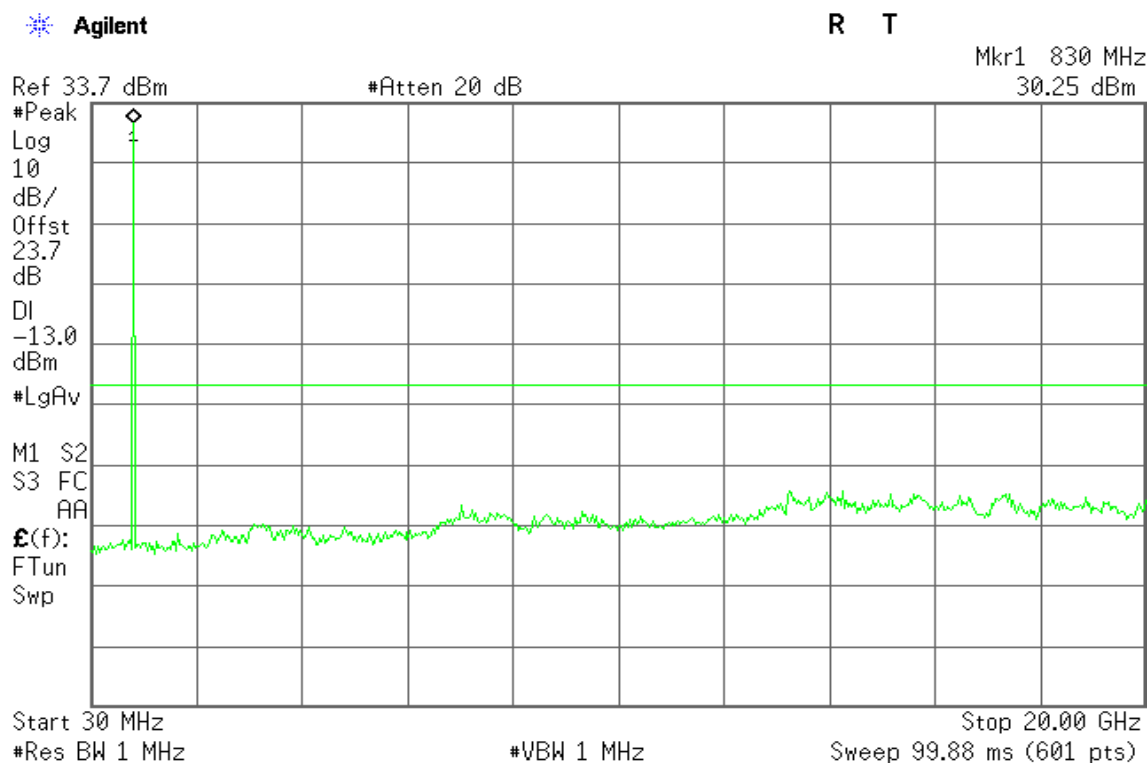
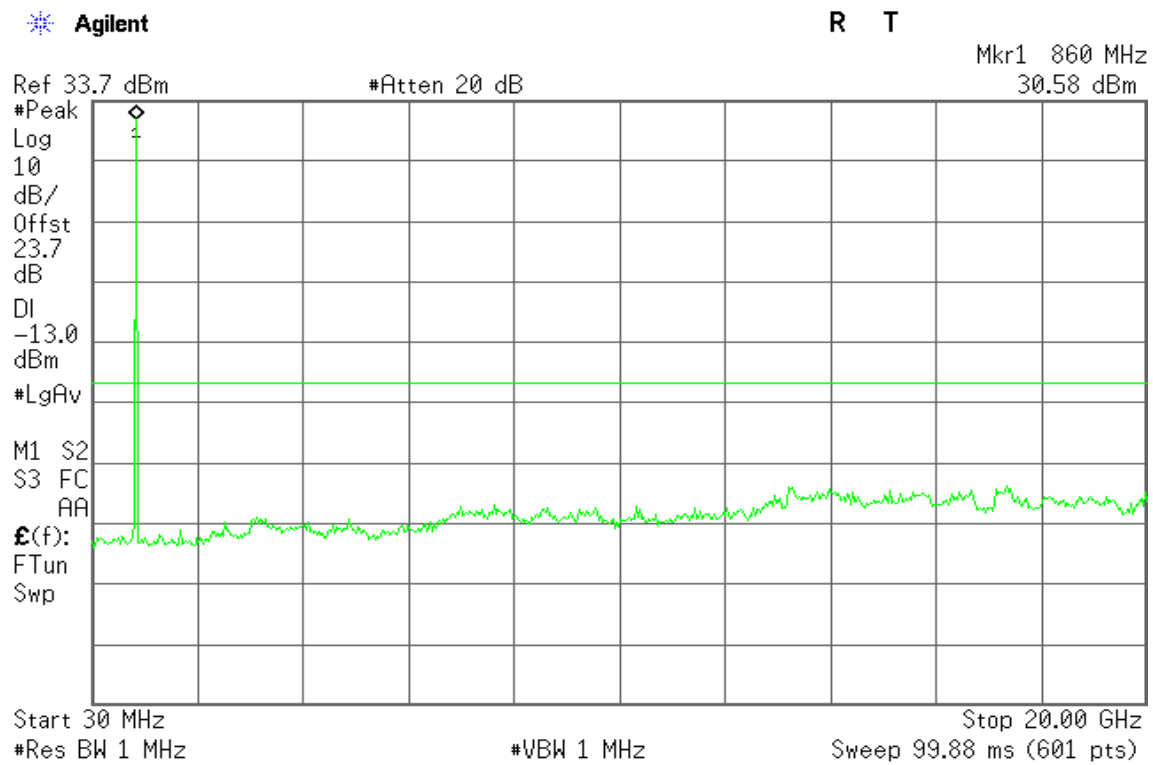




Figure 8-3: Out of Band emission at antenna terminals – GPRS CH High





GPRS 1900

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

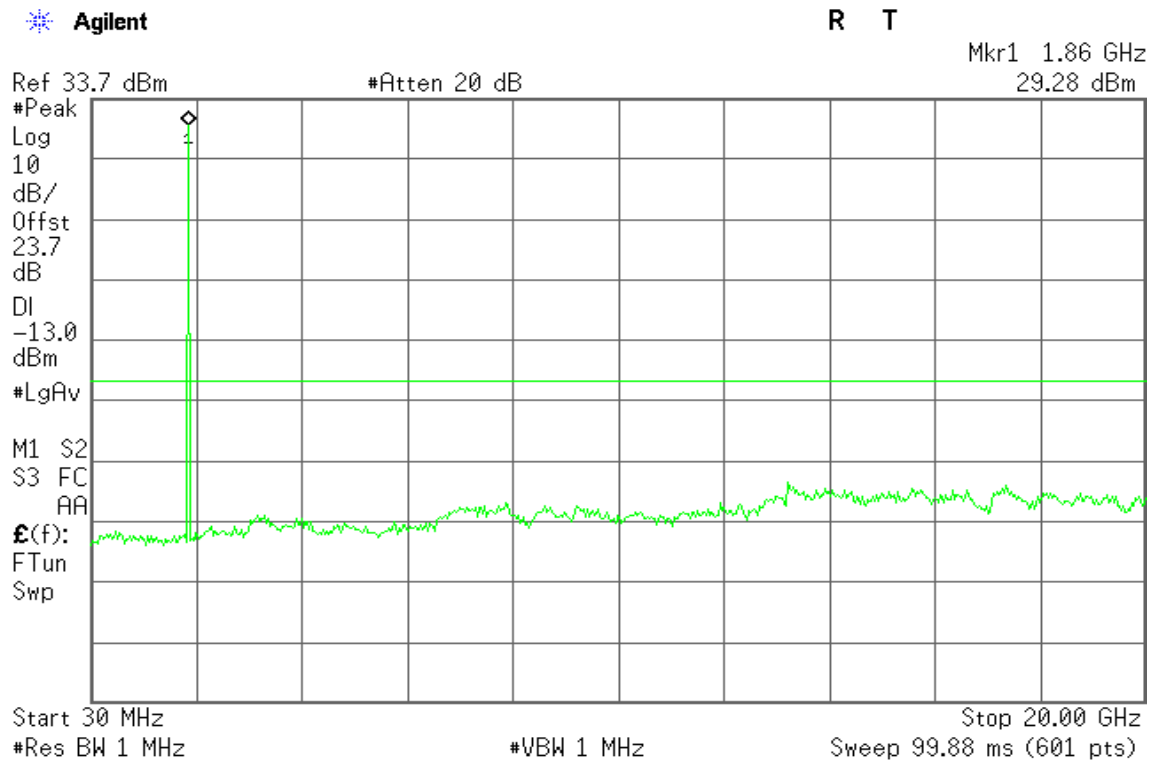


Figure 9-2: Out of Band emission at antenna terminals – GPRS CH Mid

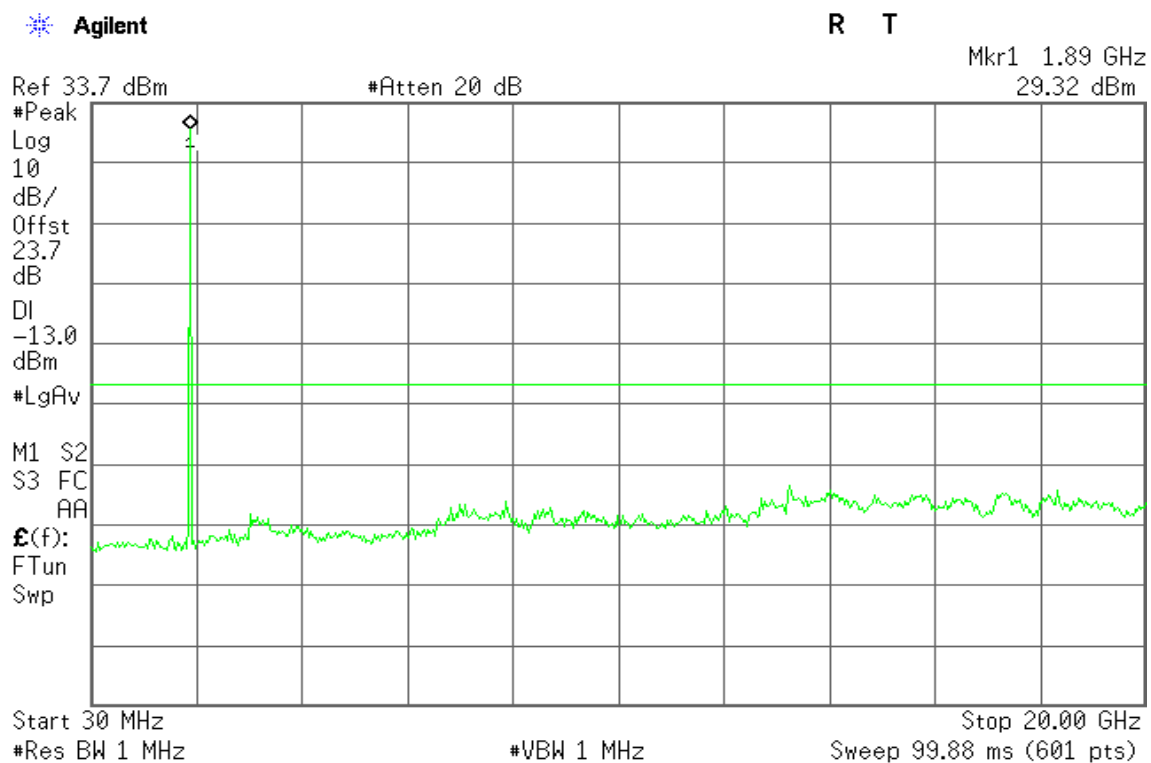
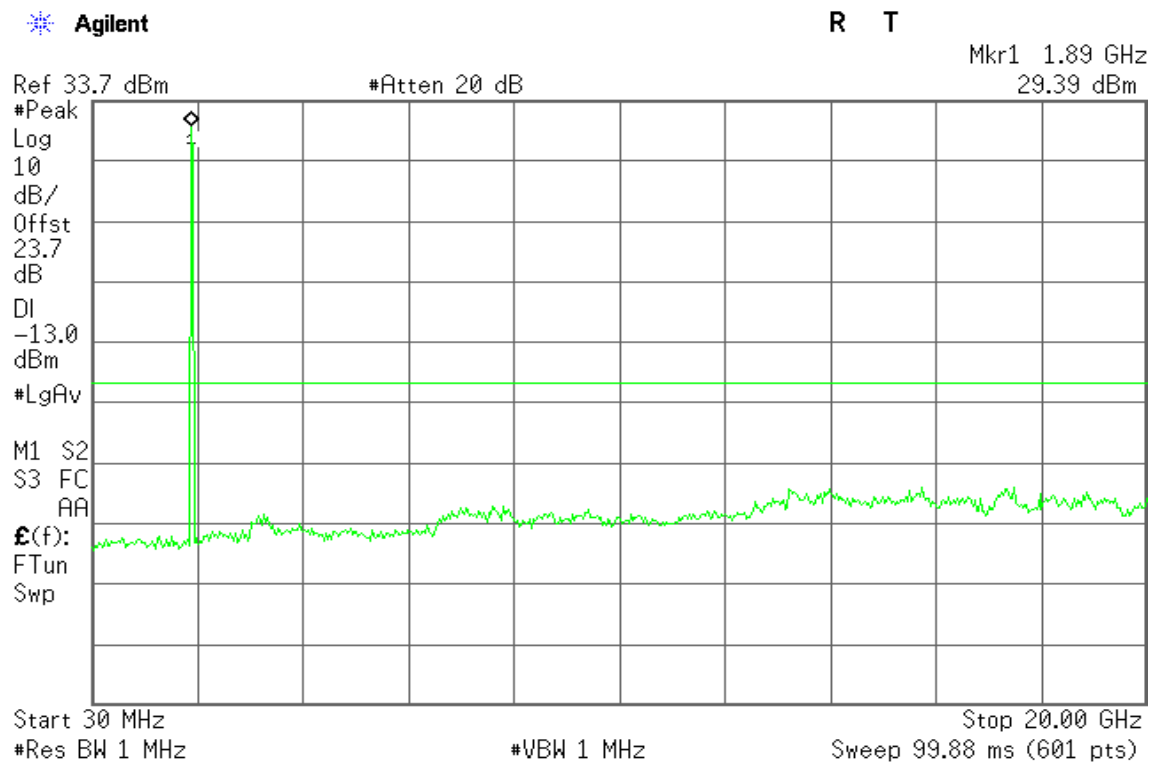




Figure 9-3: Out of Band emission at antenna terminals – GPRS CH High





GPRS 850

Figure 10-1: Band Edge emissions – GPRS CH Low

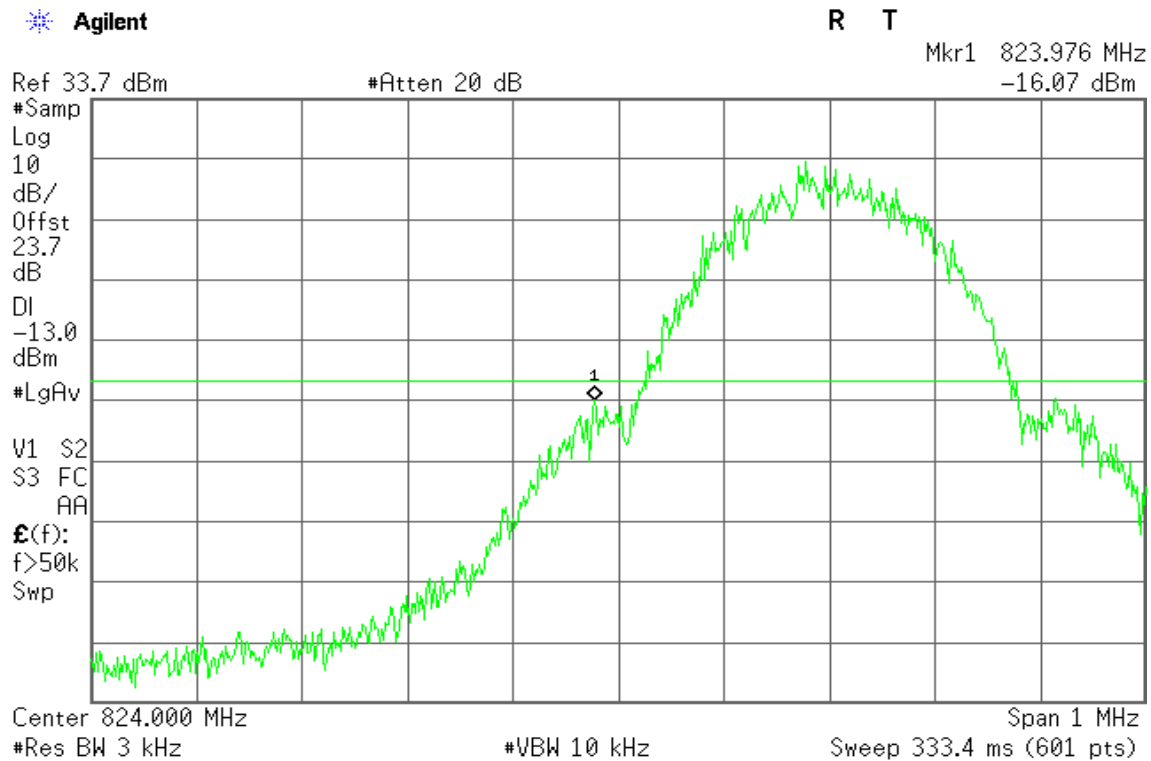
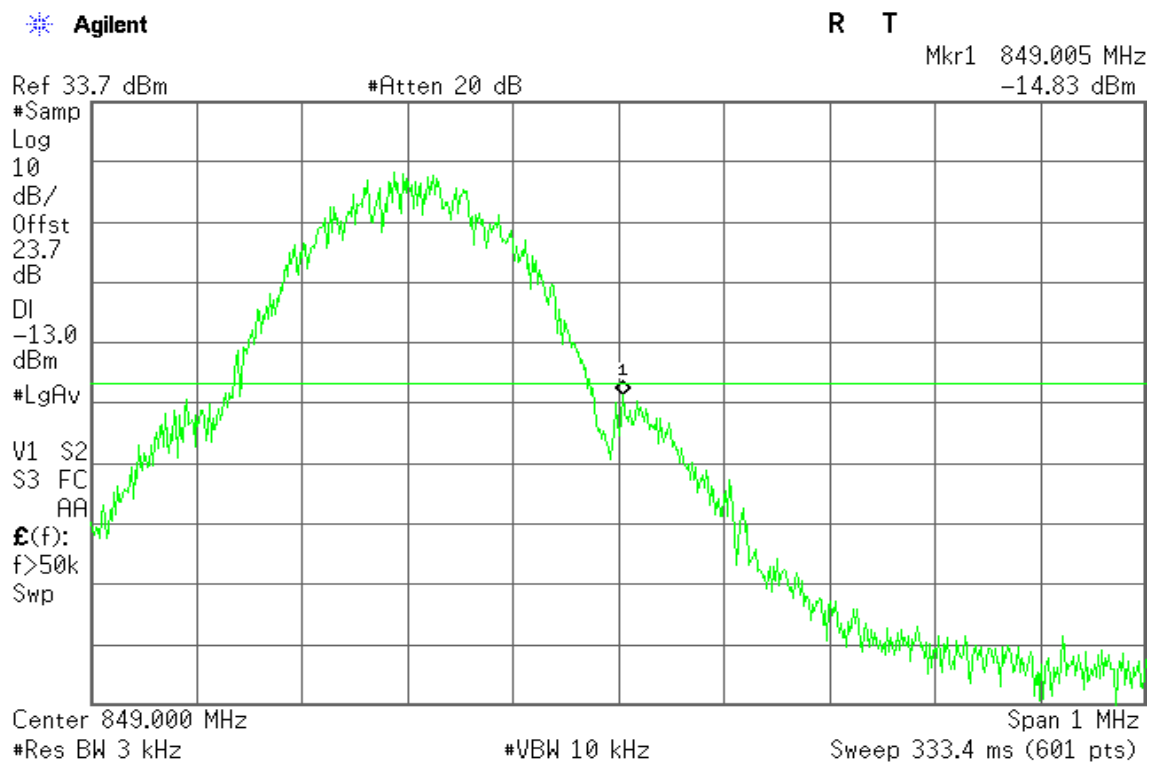


Figure 10-2: Band Edge emissions –GPRS CH High





GPRS 1900

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

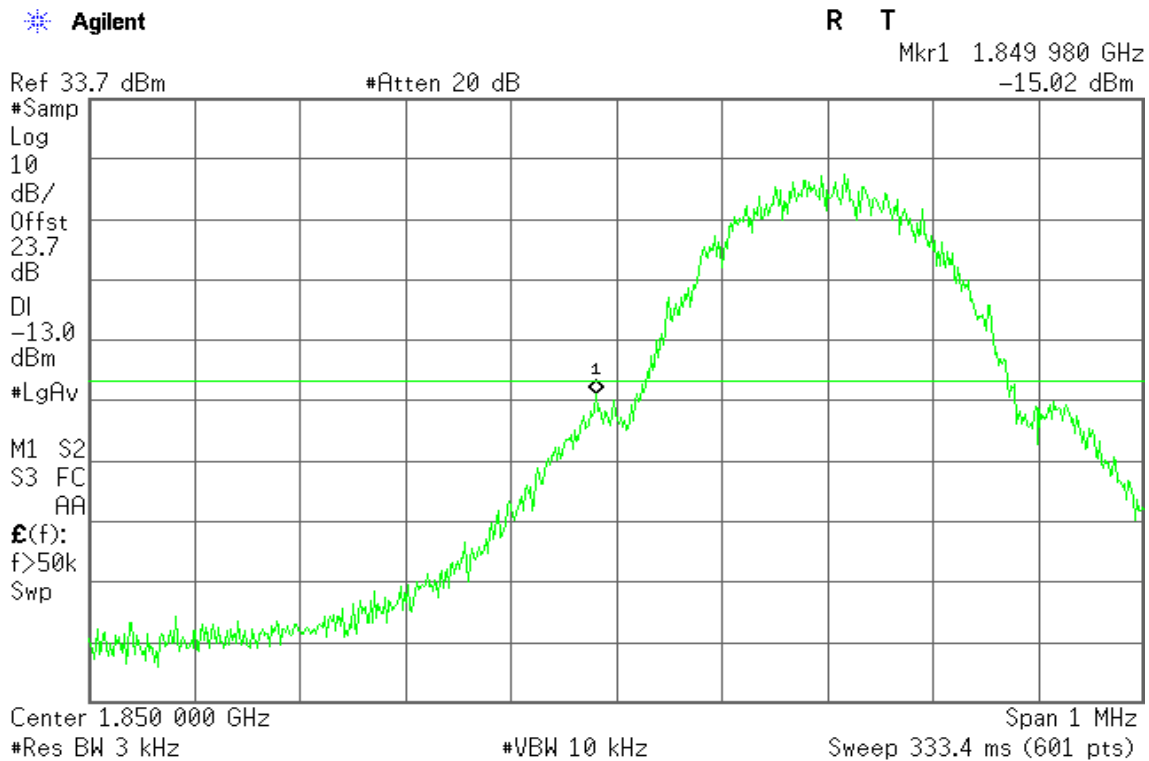
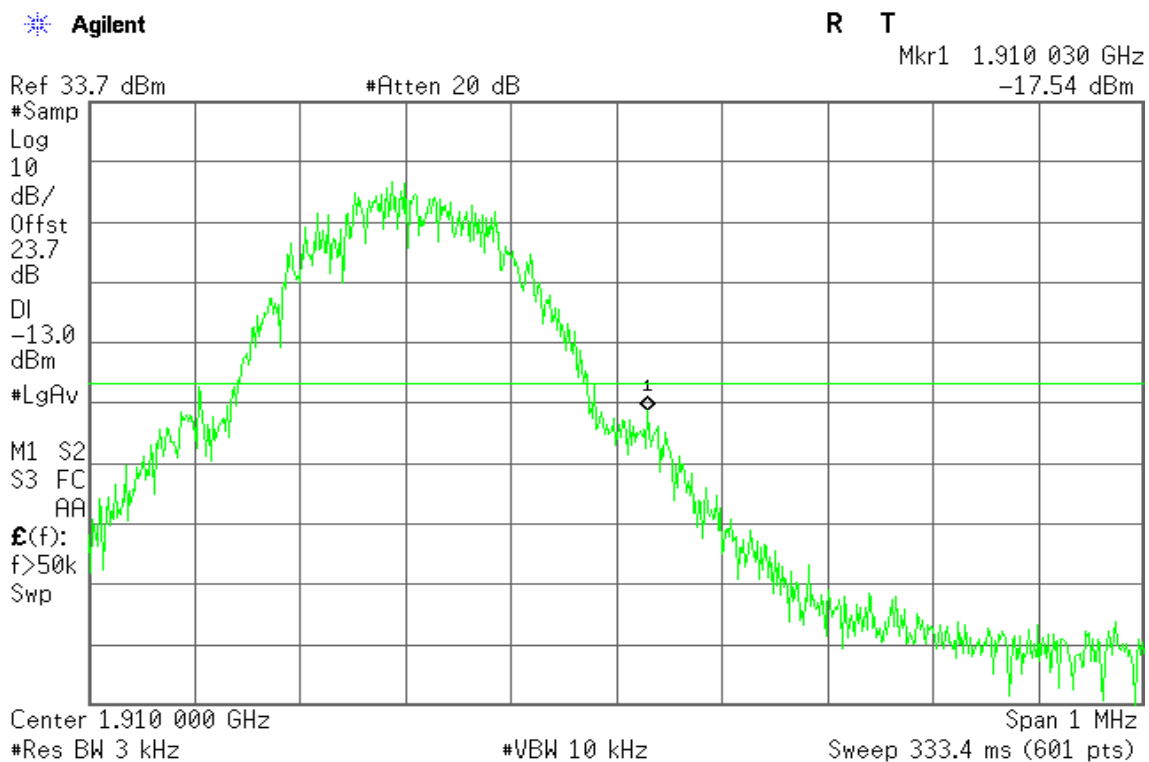


Figure 11-2: Band Edge emissions – GPRS CH High



**EDGE 850**

Figure 12-1: Out of Band emission at antenna terminals –EDGE CH Low

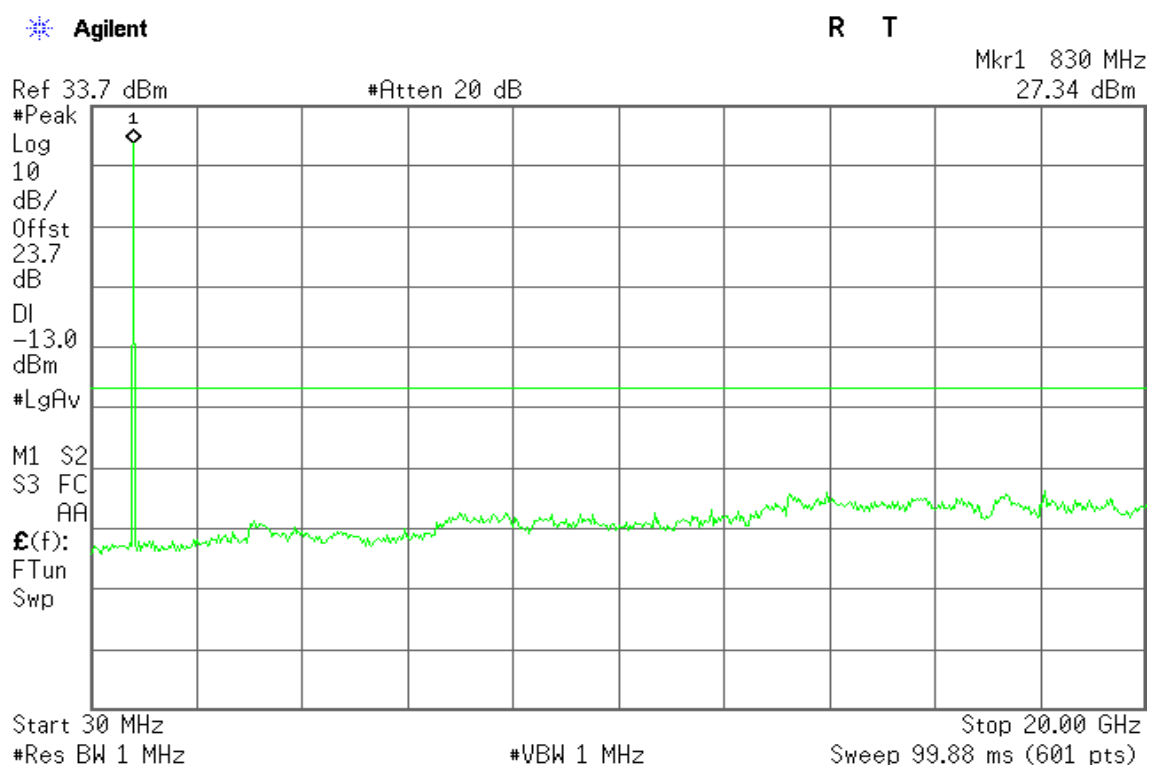


Figure 12-2: Out of Band emission at antenna terminals –EDGE CH Mid

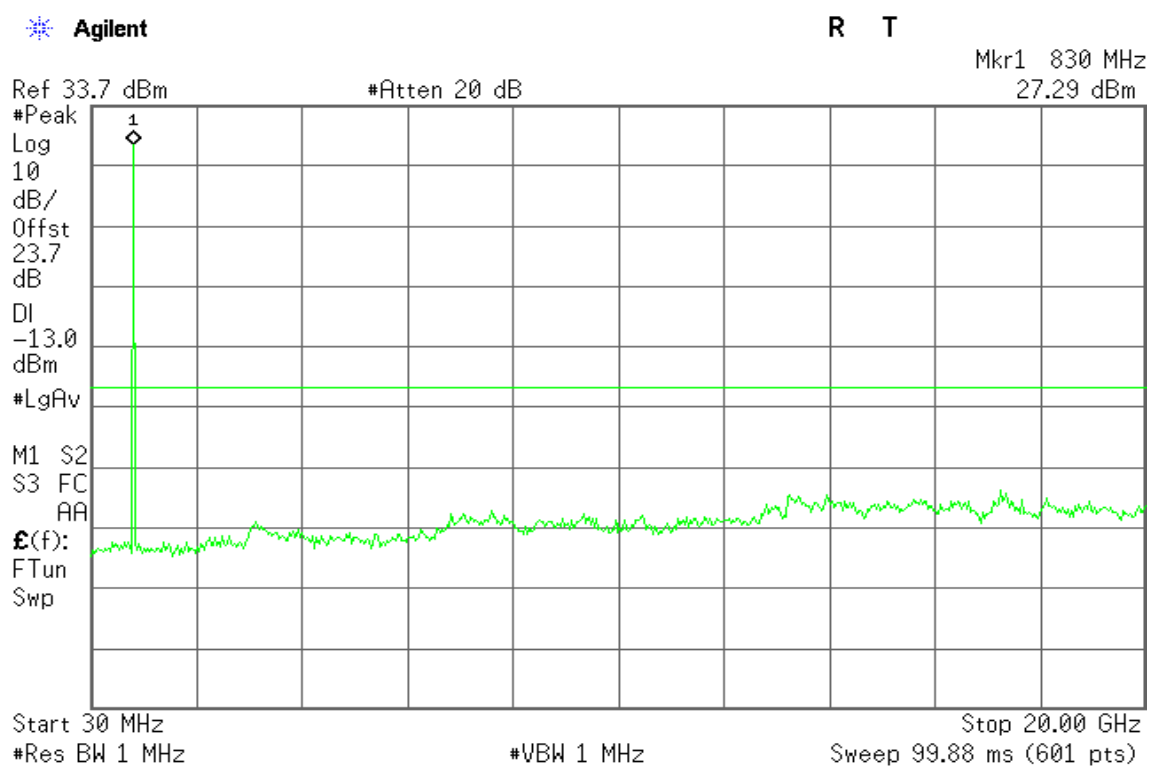
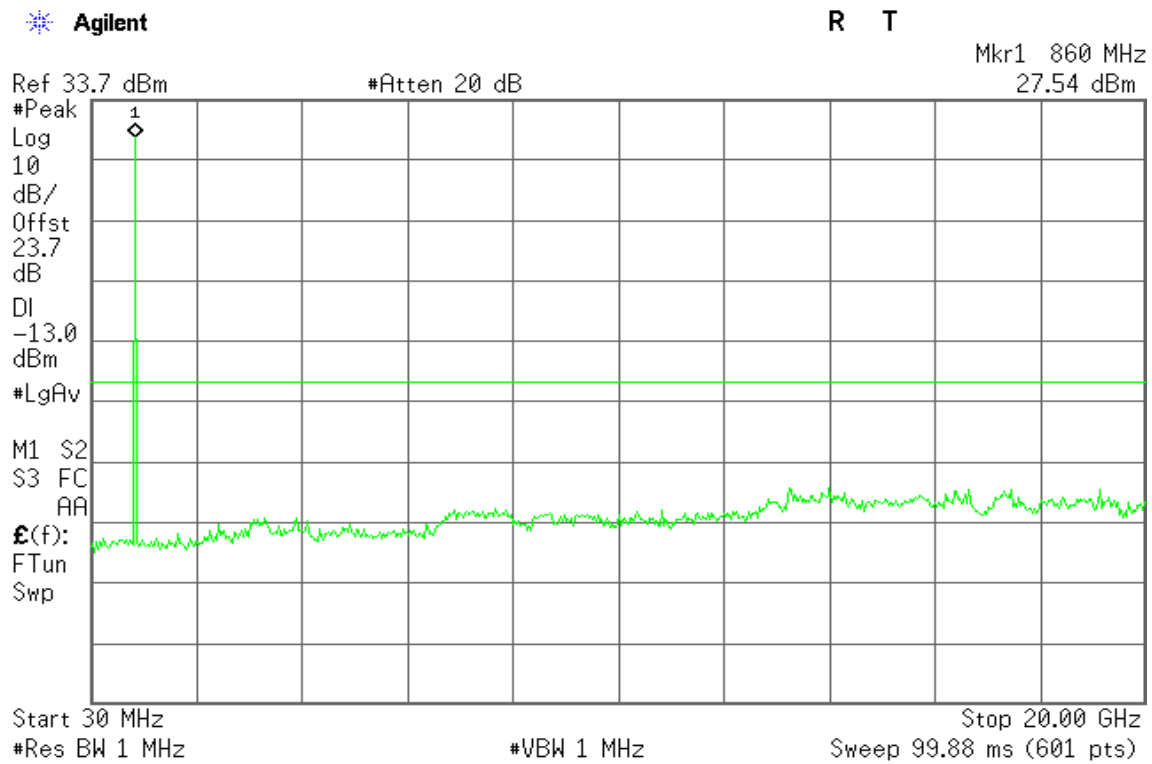




Figure 12-3: Out of Band emission at antenna terminals –EDGE CH High





EDGE 1900

Figure 13-1: Out of Band emission at antenna terminals –EDGE CH Low

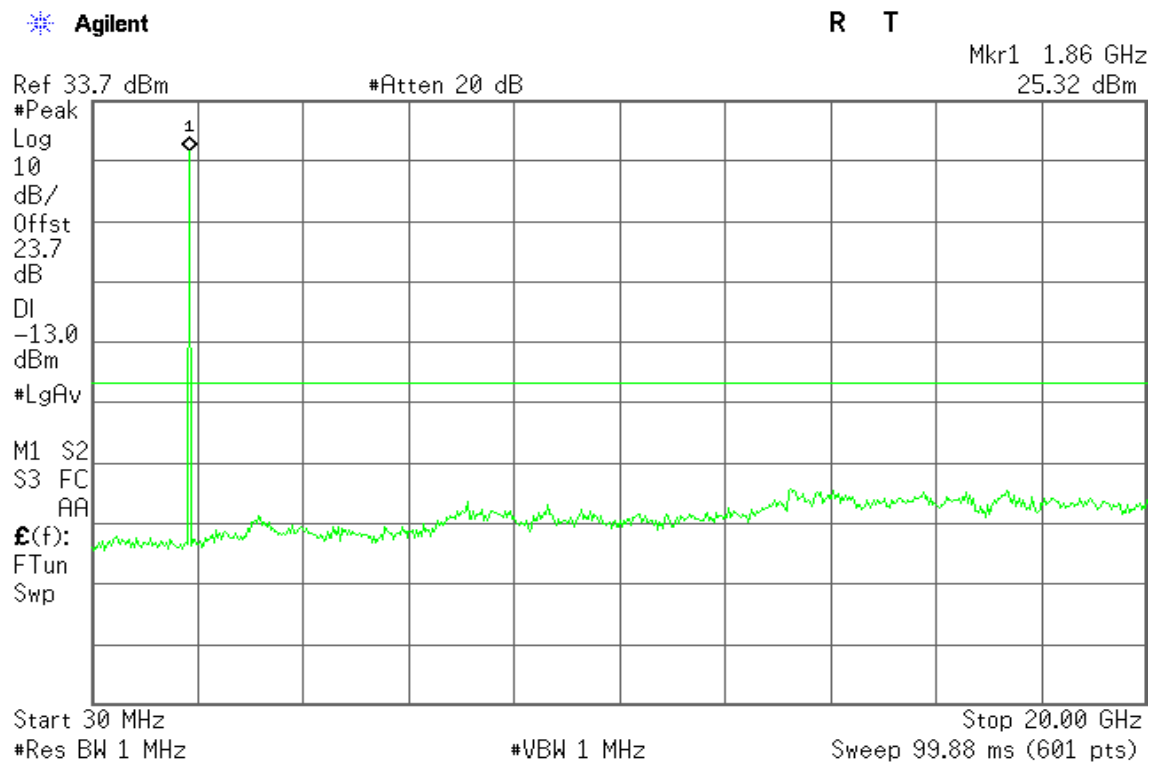


Figure 13-2: Out of Band emission at antenna terminals –EDGE CH Mid

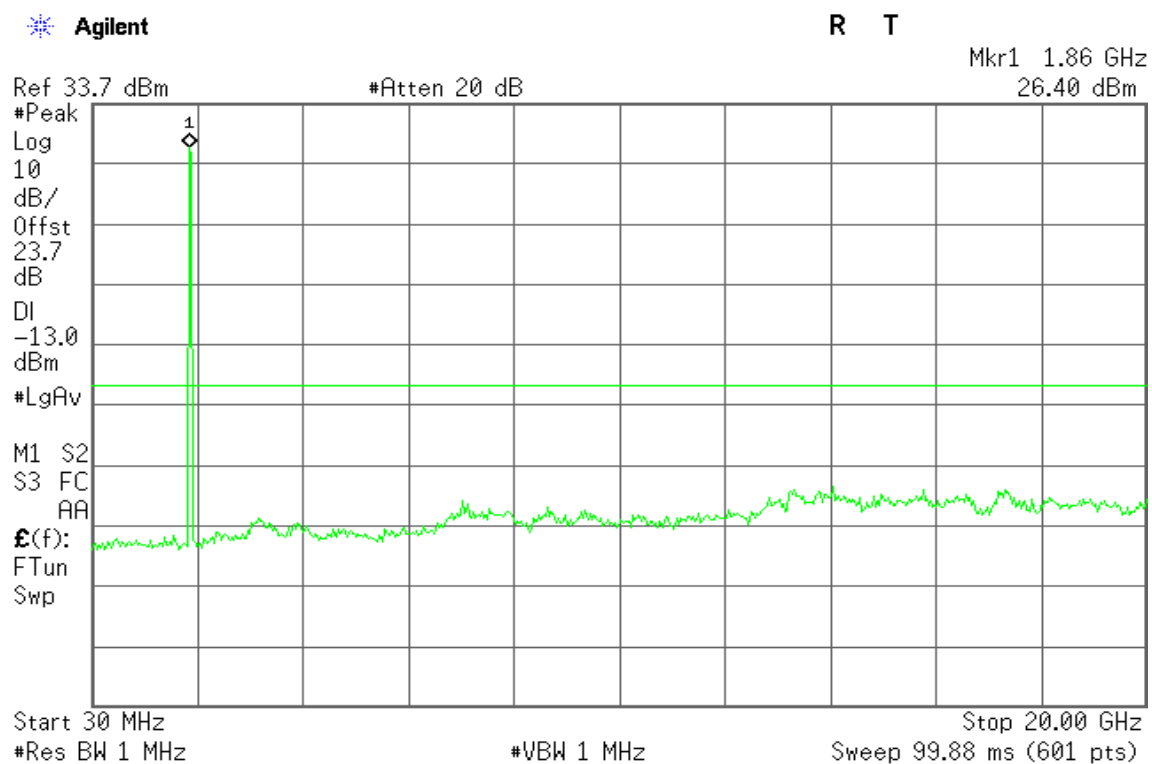
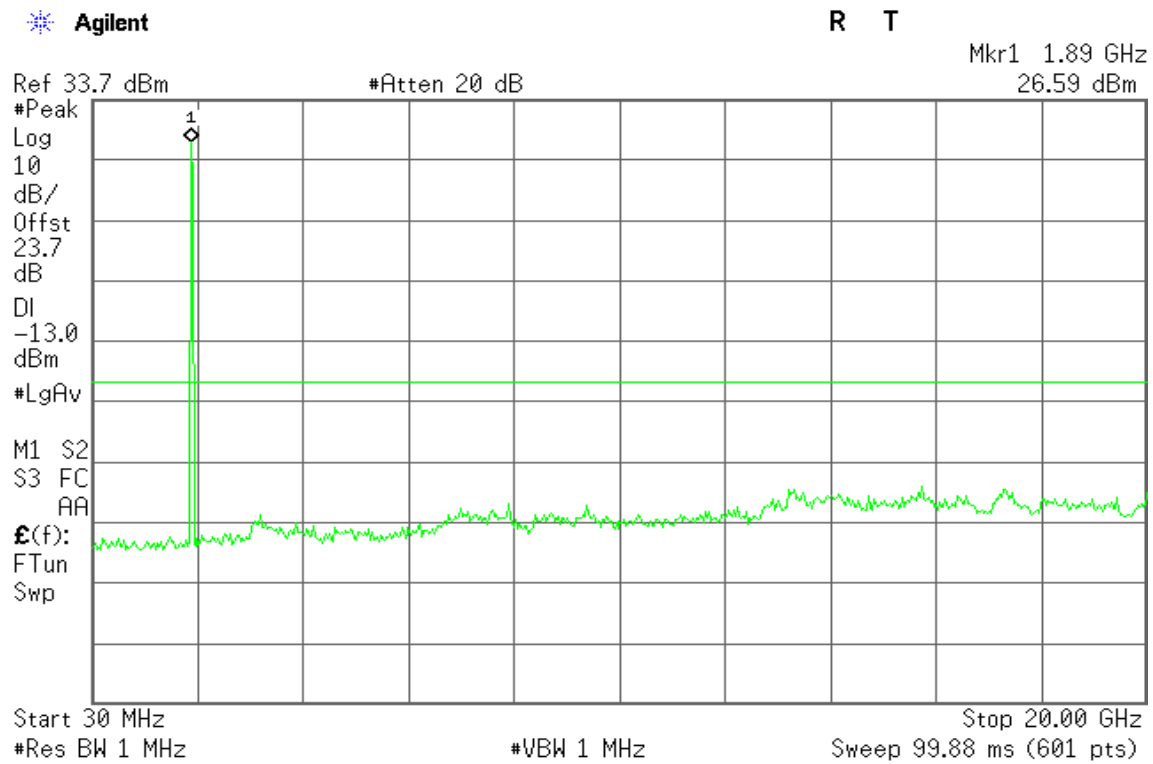




Figure 13-3: Out of Band emission at antenna terminals –EDGE CH High





EDGE 850

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

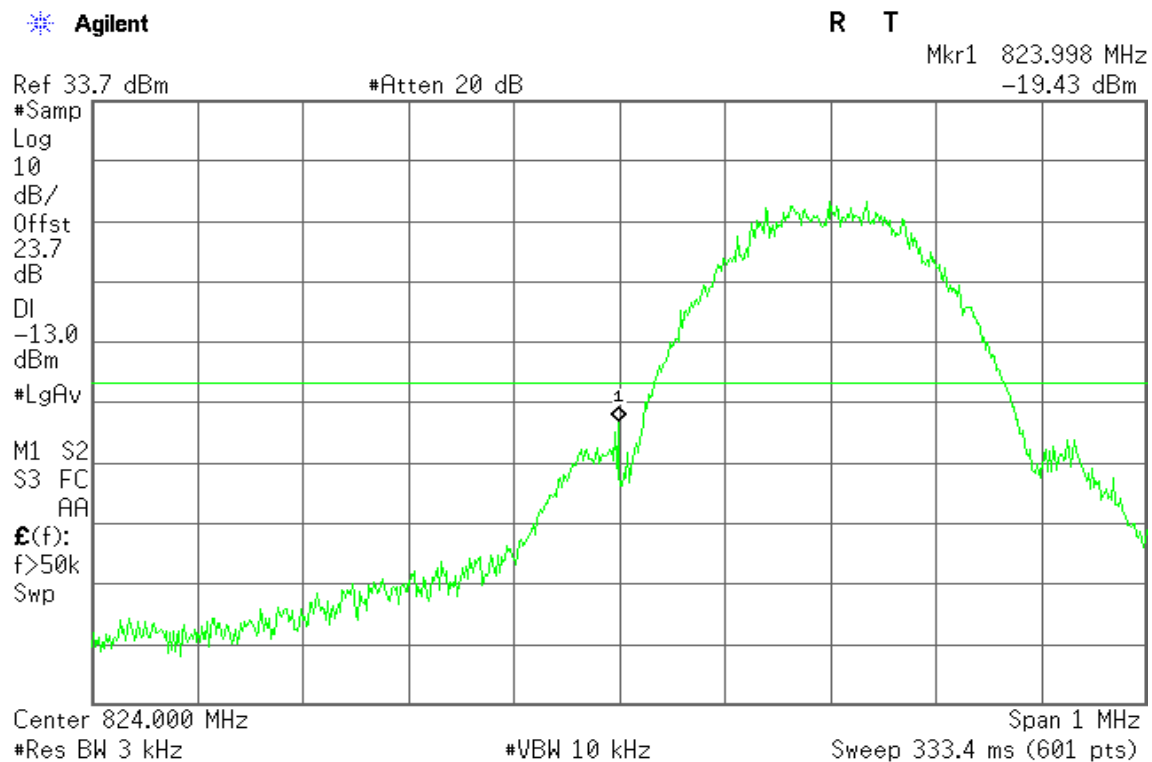
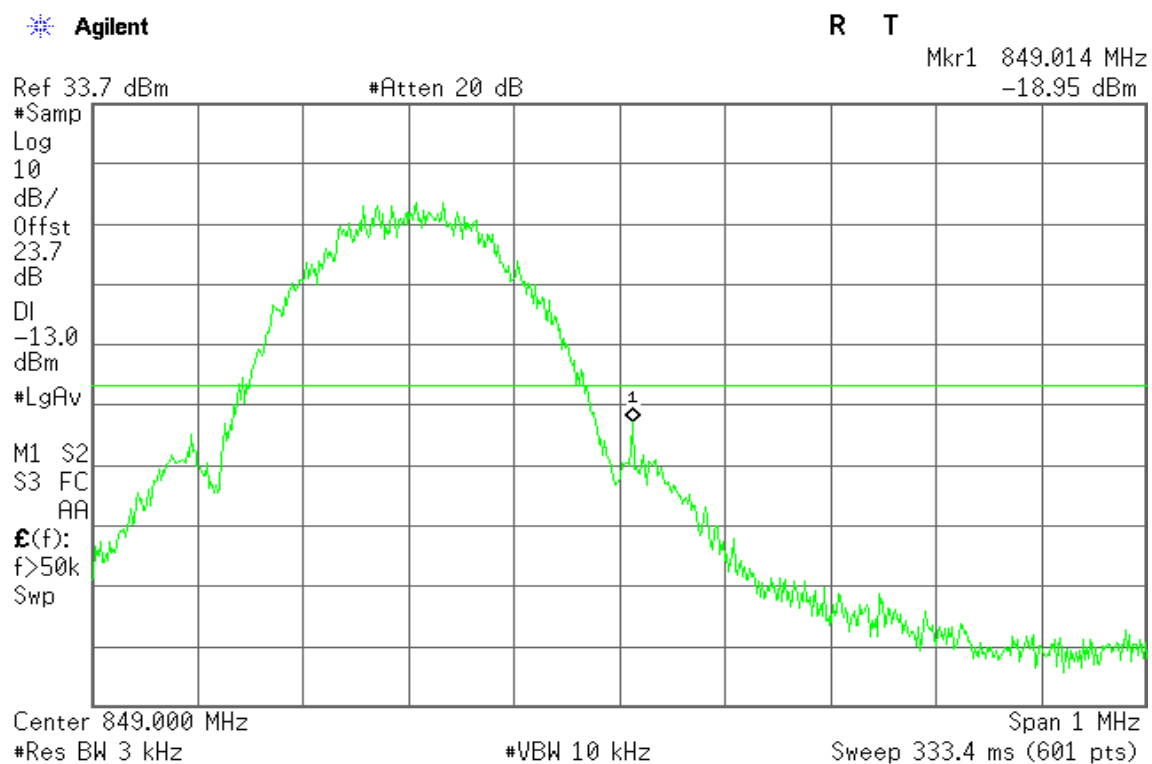


Figure 14-2: Band Edge emissions – EDGE CH High





EDGE 1900

Figure 15-1: Band Edge emissions – EDGE CH Low

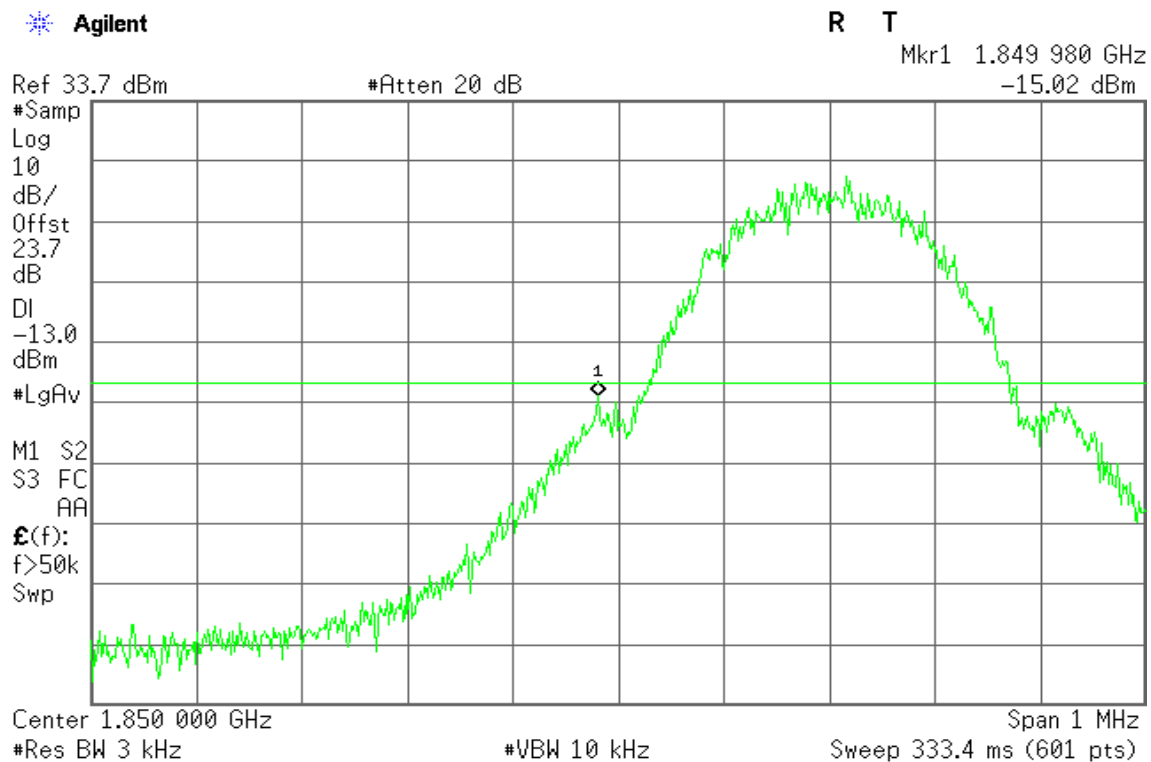
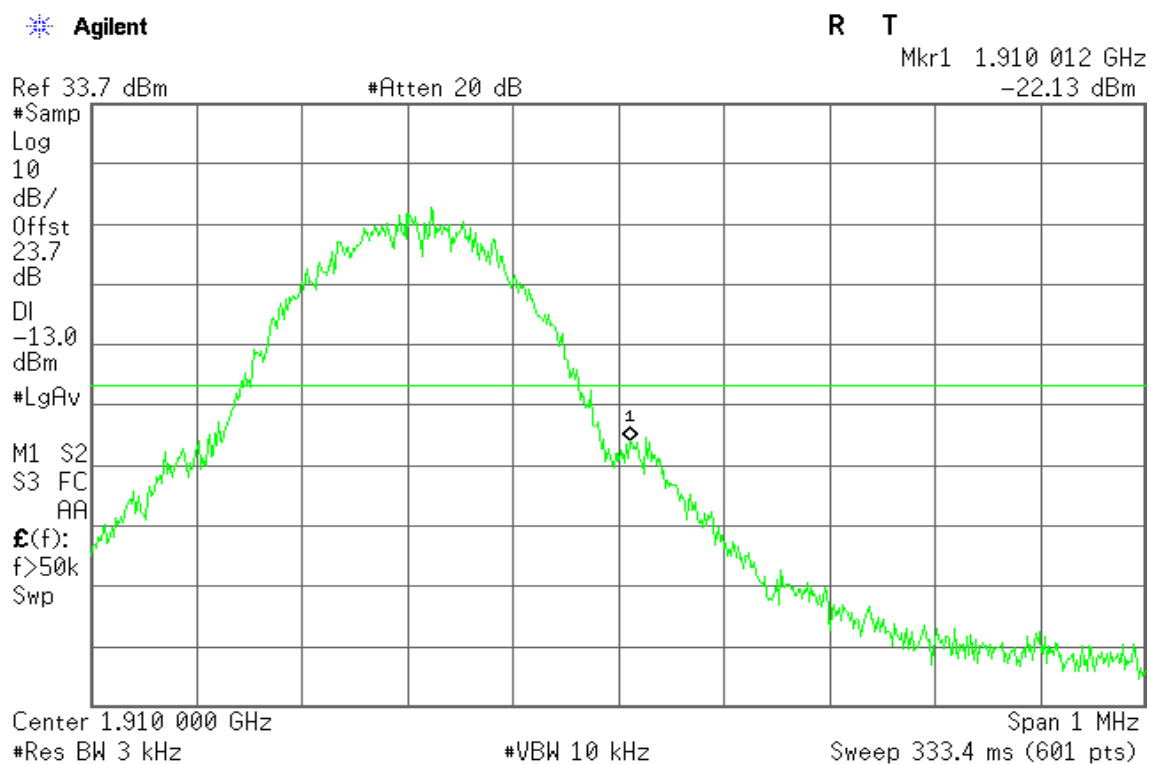


Figure 15-2: Band Edge emissions – EDGE CH High





WCDMA Band II

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

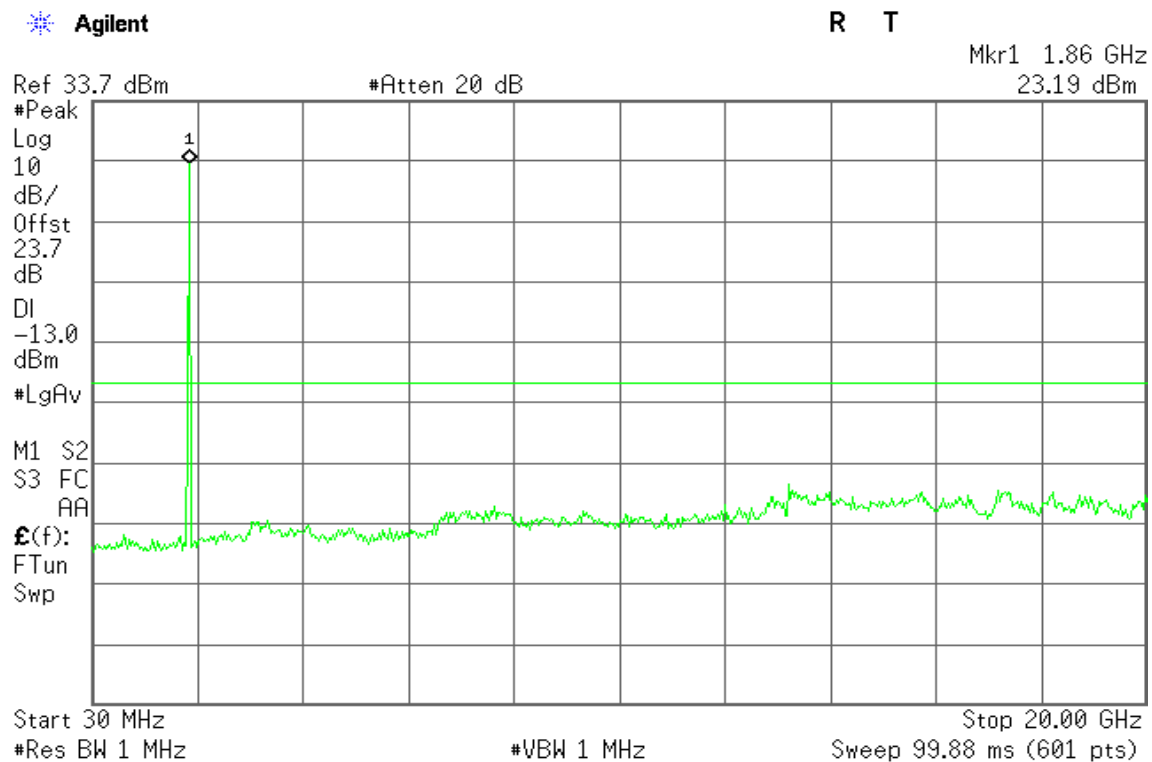


Figure 16-2: Out of Band emission at antenna terminals – WCDMA CH Mid

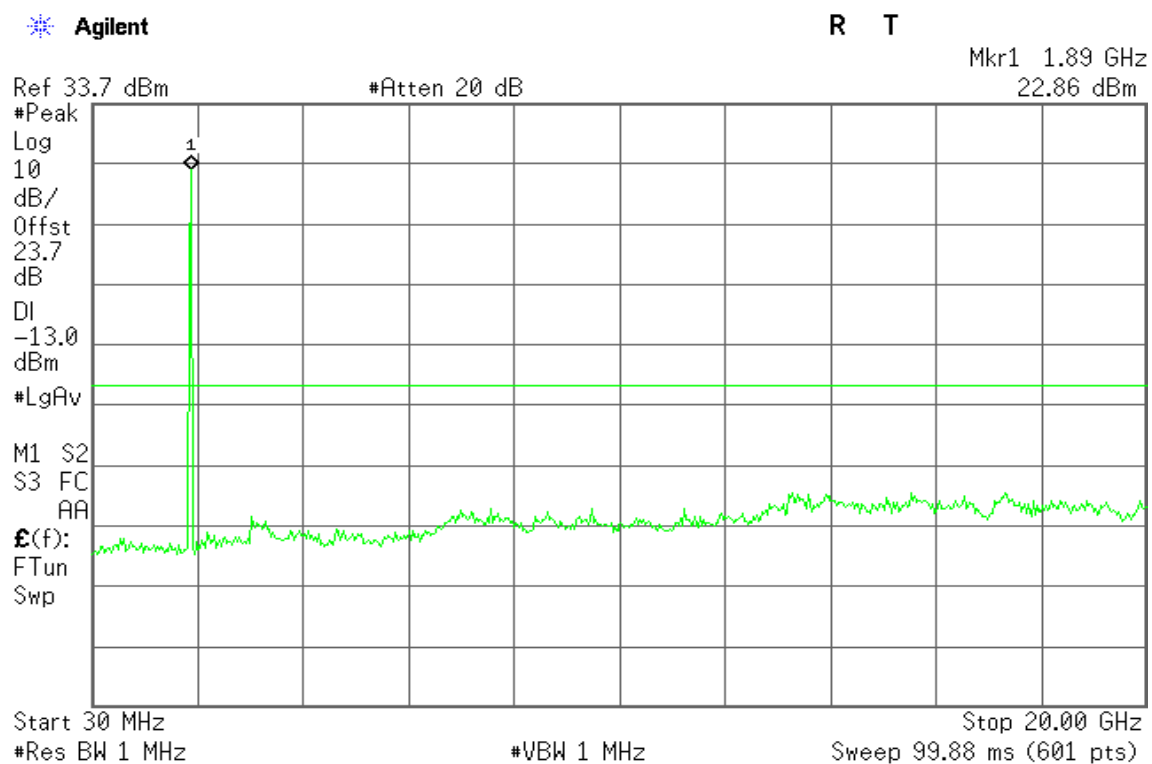
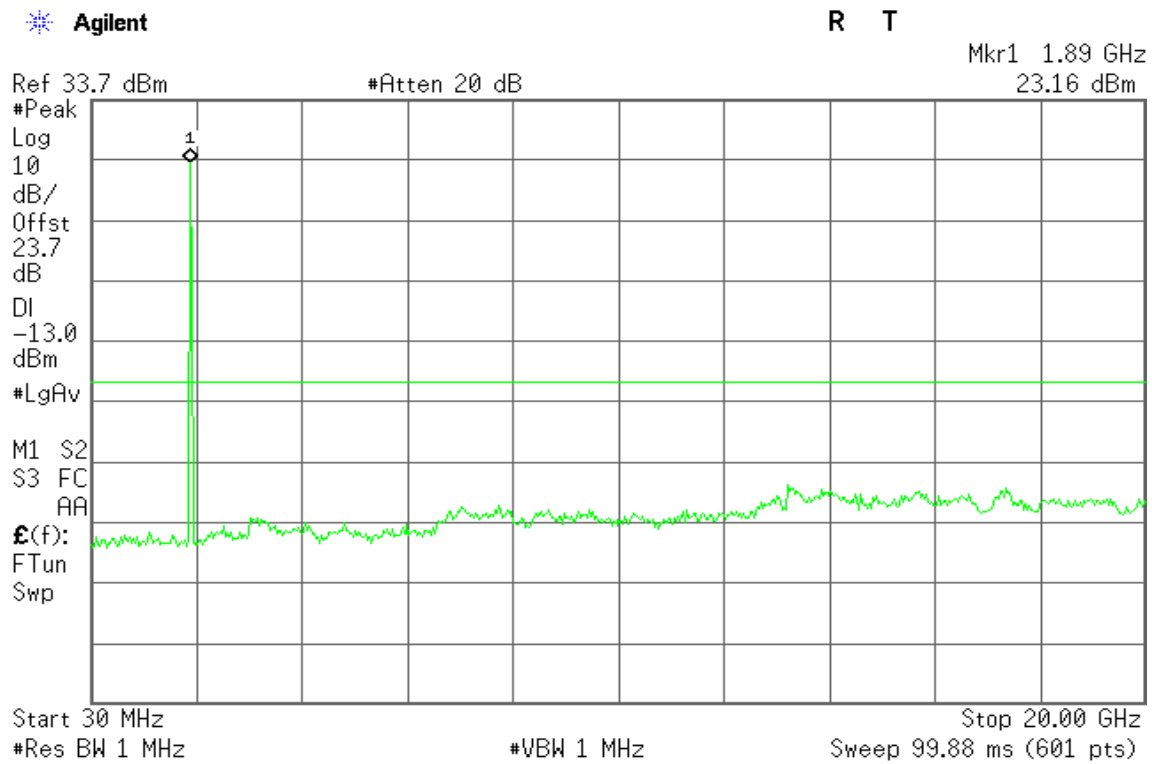




Figure 16-3: Out of Band emission at antenna terminals – WCDMA CH High





WCDMA Band V

Figure 17-1: Out of Band emission at antenna terminals – WCDMA CH Low

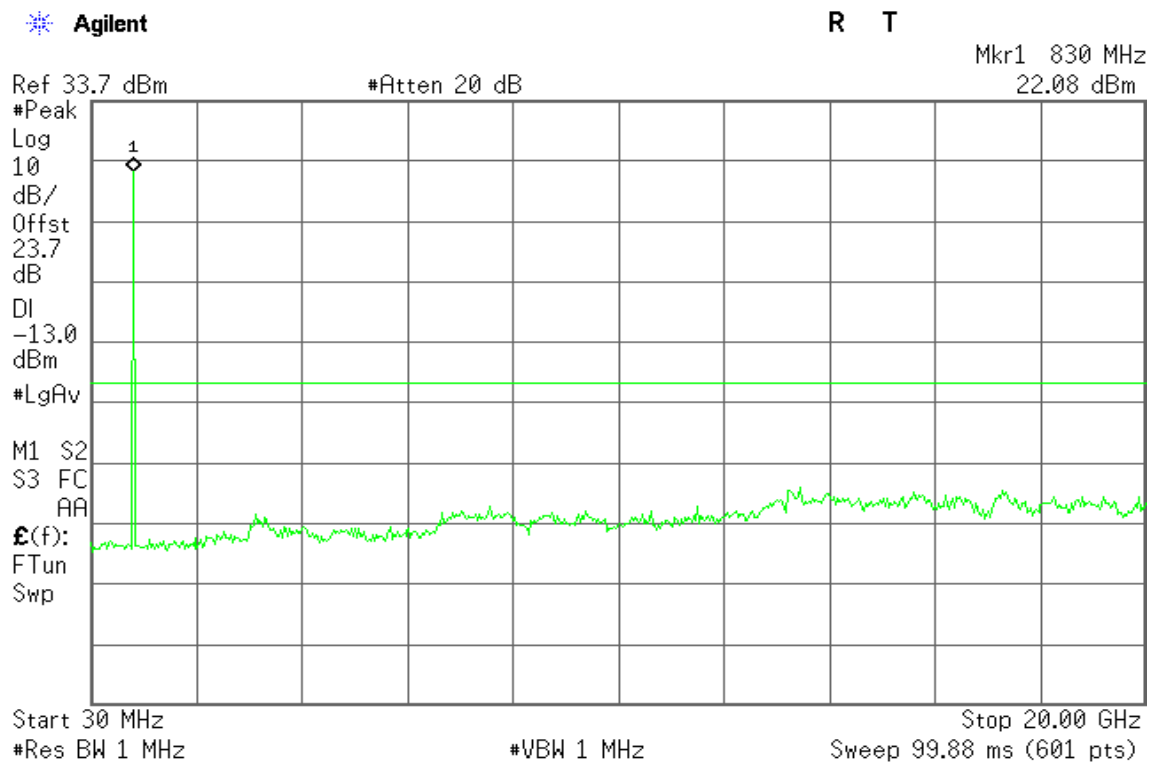


Figure 17-2: Out of Band emission at antenna terminals – WCDMA CH Mid

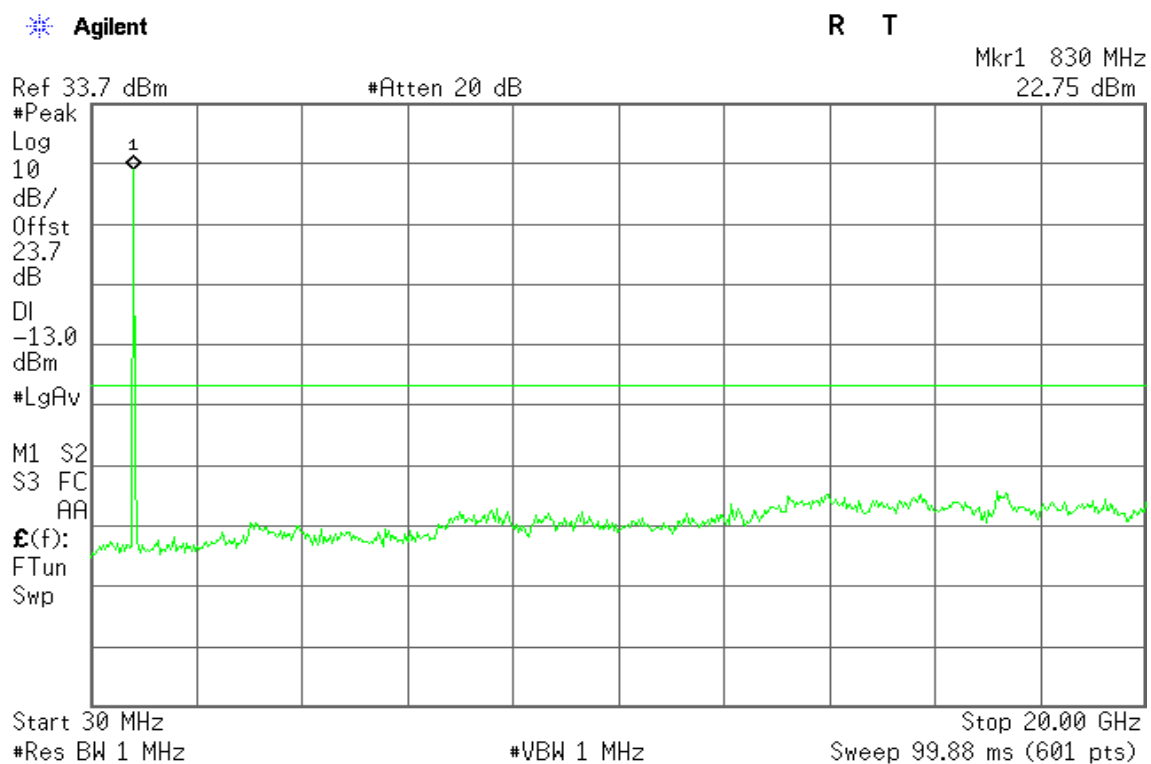
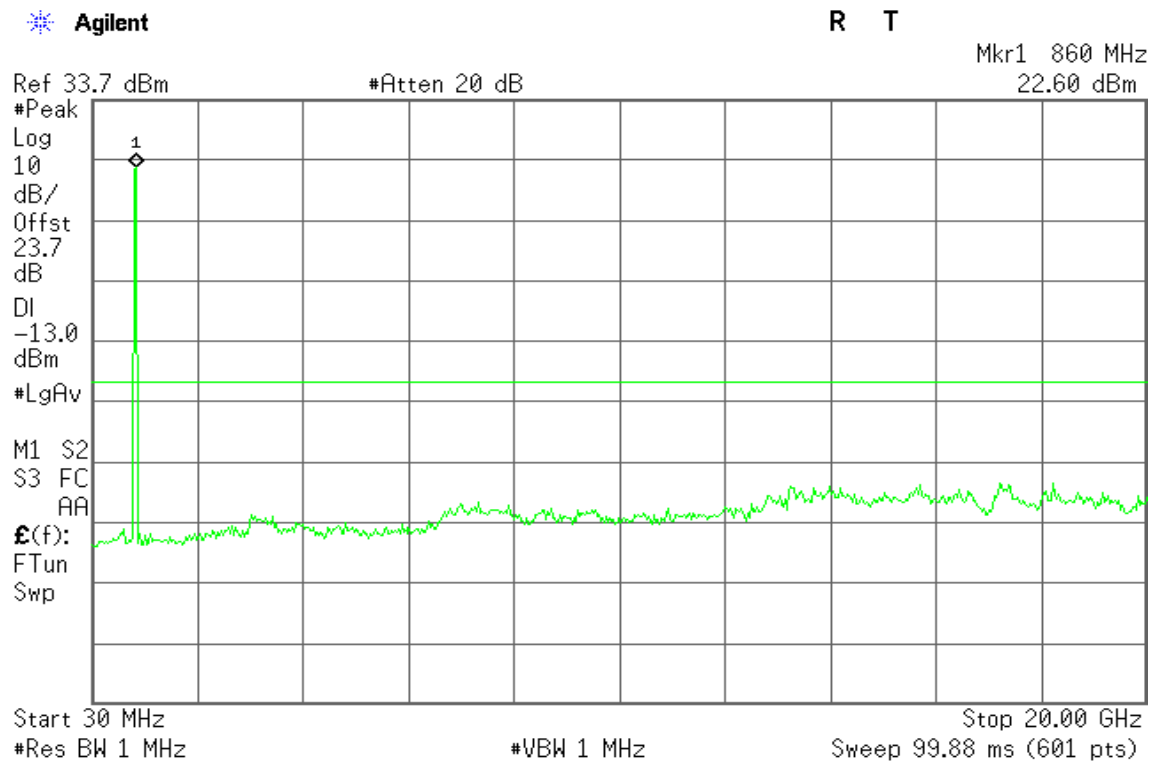




Figure 17-3: Out of Band emission at antenna terminals – WCDMA CH High





WCDMA Band II

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

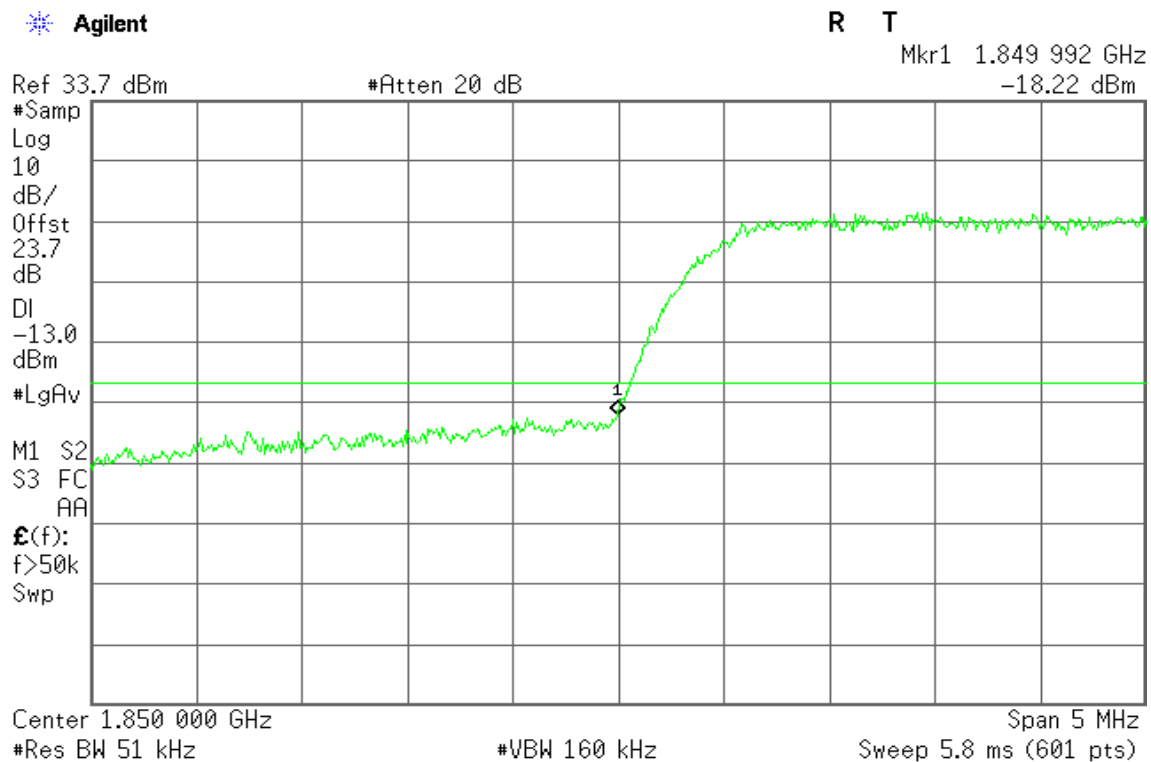
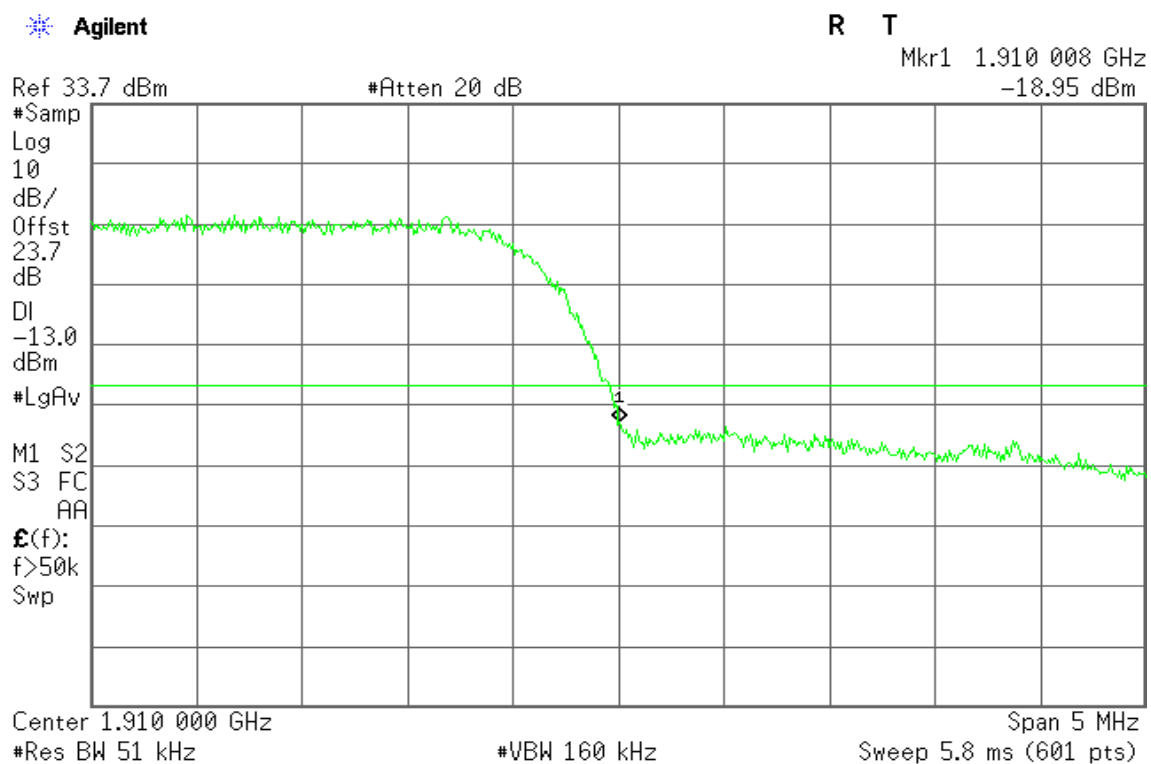


Figure 18-2: Band Edge emissions –WCDMA CH High





WCDMA Band V

Figure 19-1: Band Edge emissions –WCDMA CH Low

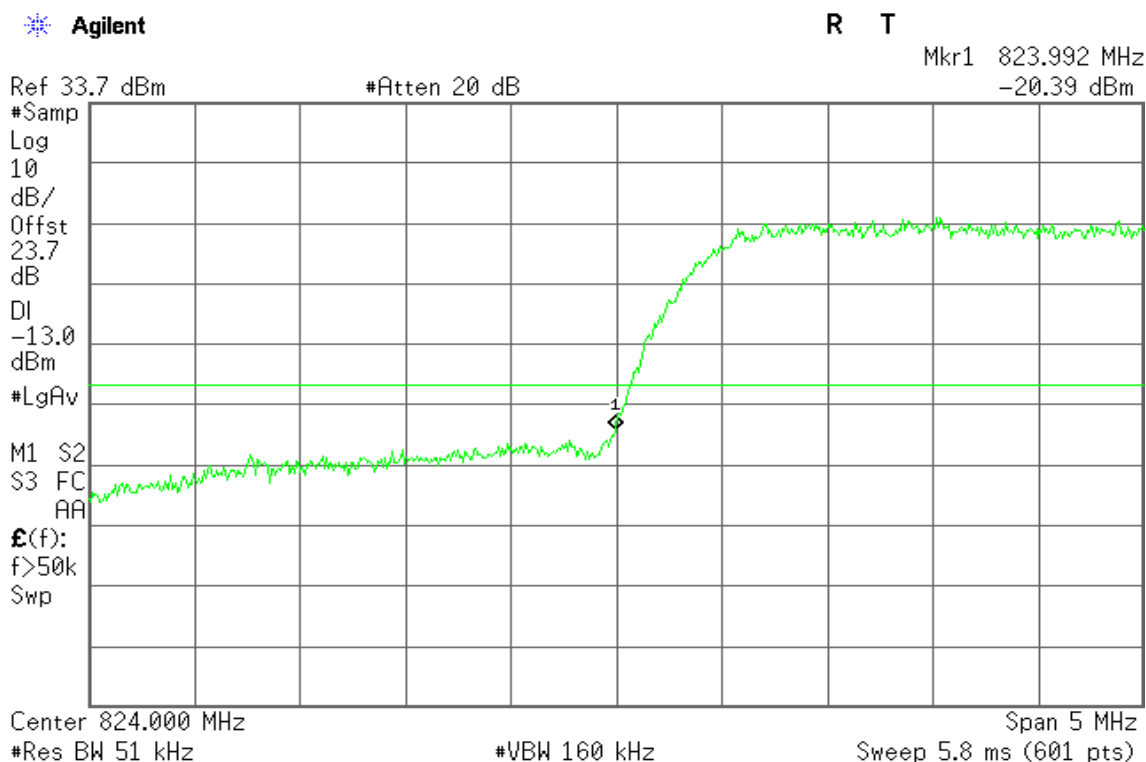
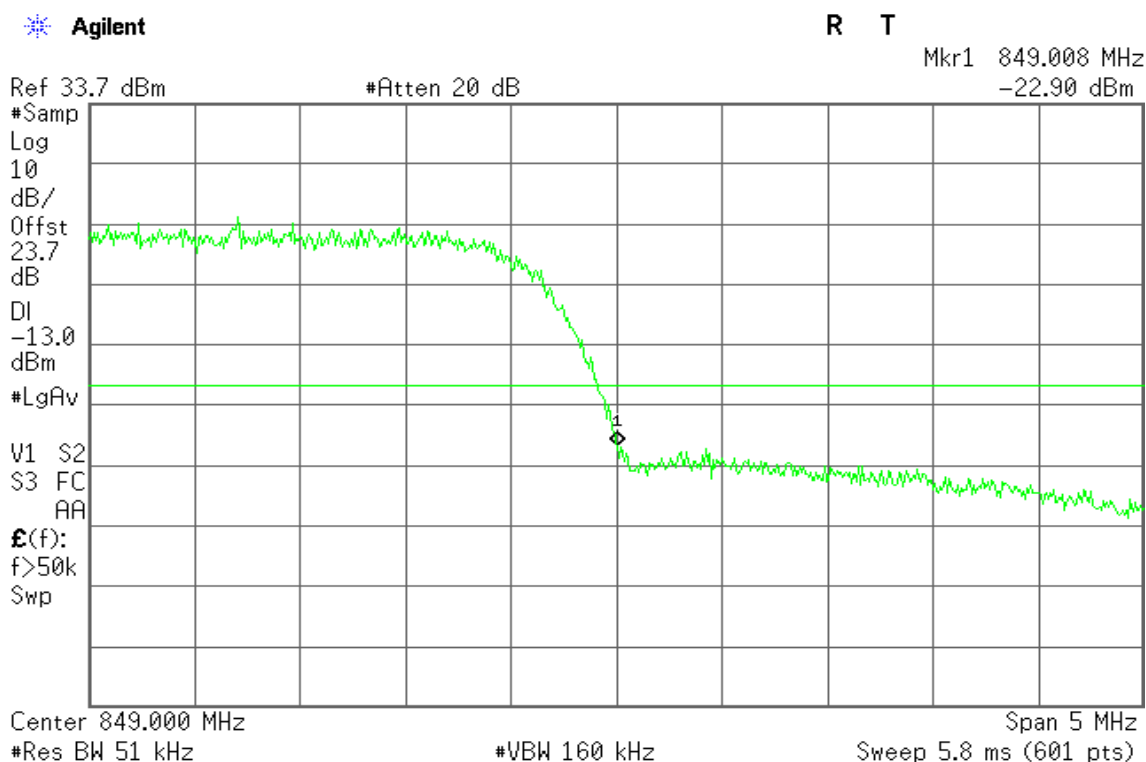


Figure 19-2: Band Edge emissions –WCDMA CH High





WCDMA / HSDPA Band II

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

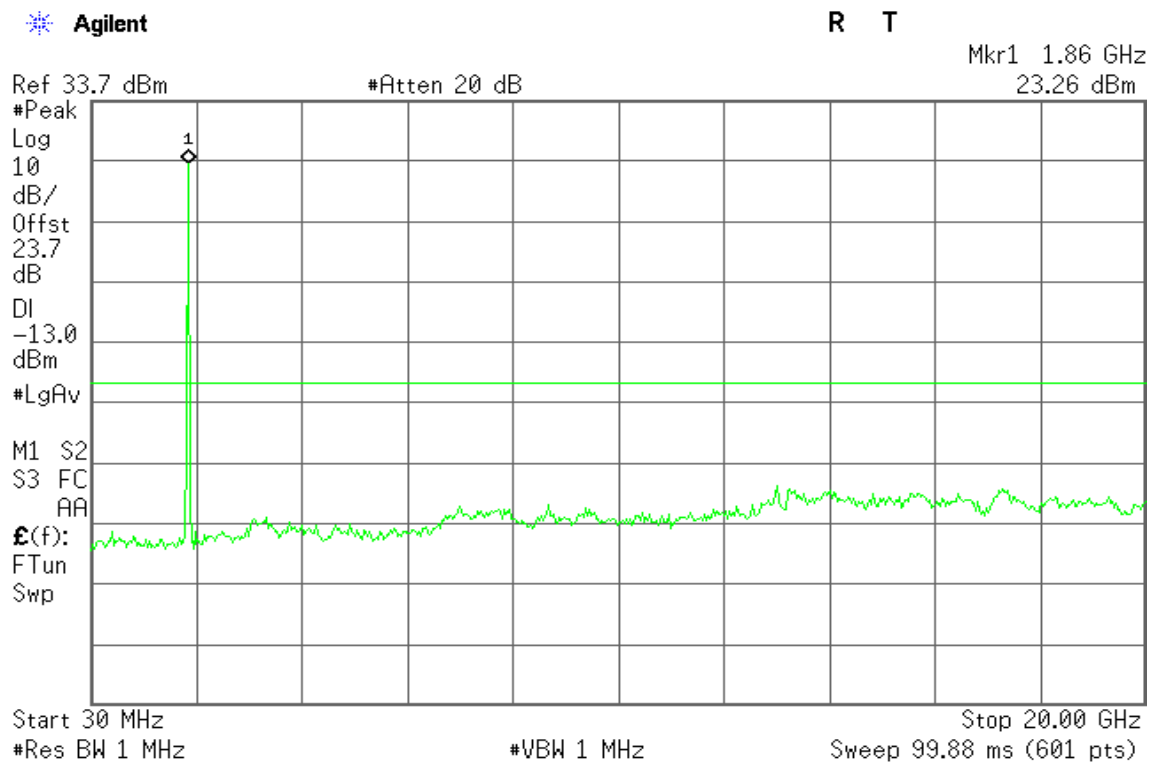


Figure 20-2: Out of Band emission at antenna terminals – HSDPA CH Mid

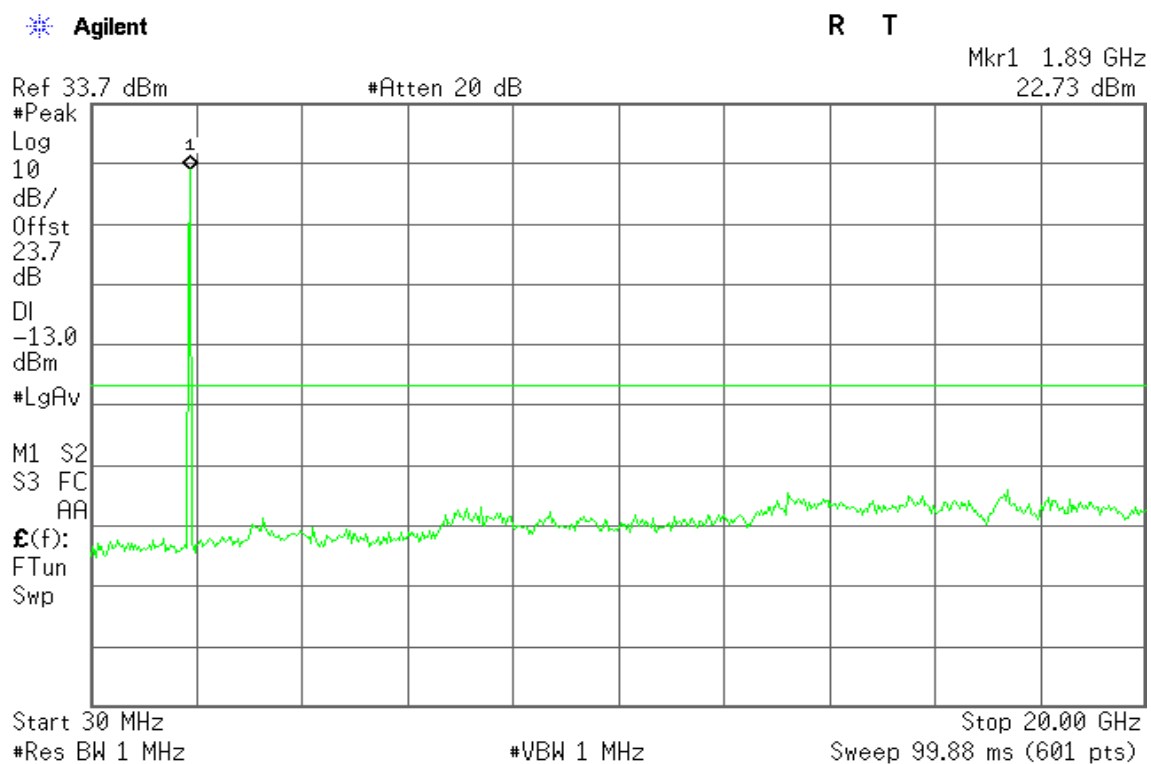
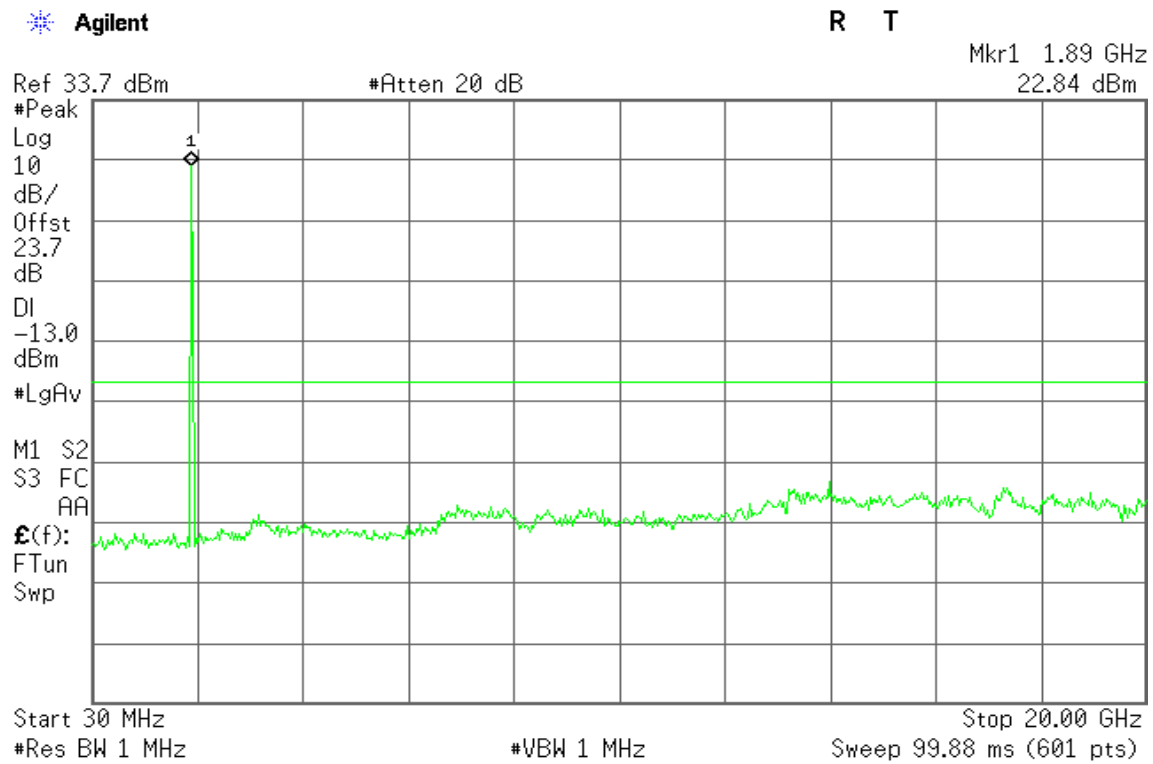




Figure 20-3: Out of Band emission at antenna terminals – HSDPA CH High



**WCDMA / HSDPA Band V**

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

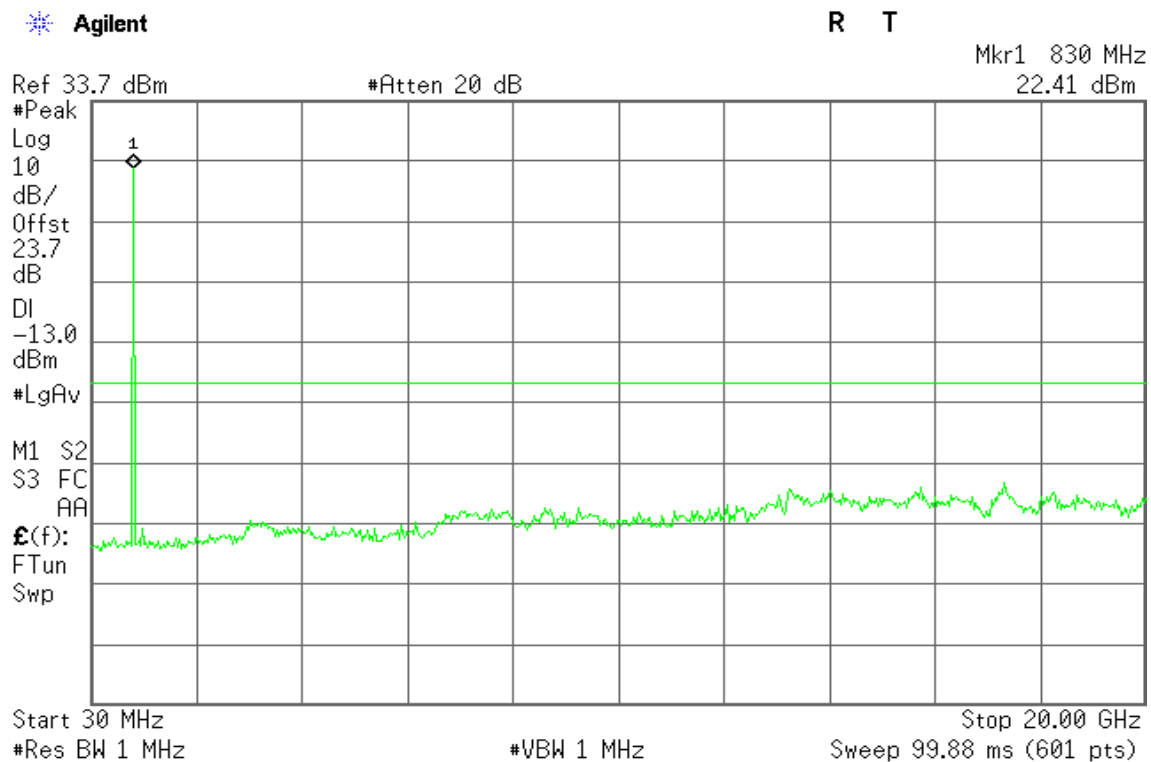


Figure 21-2: Out of Band emission at antenna terminals – HSDPA CH Mid

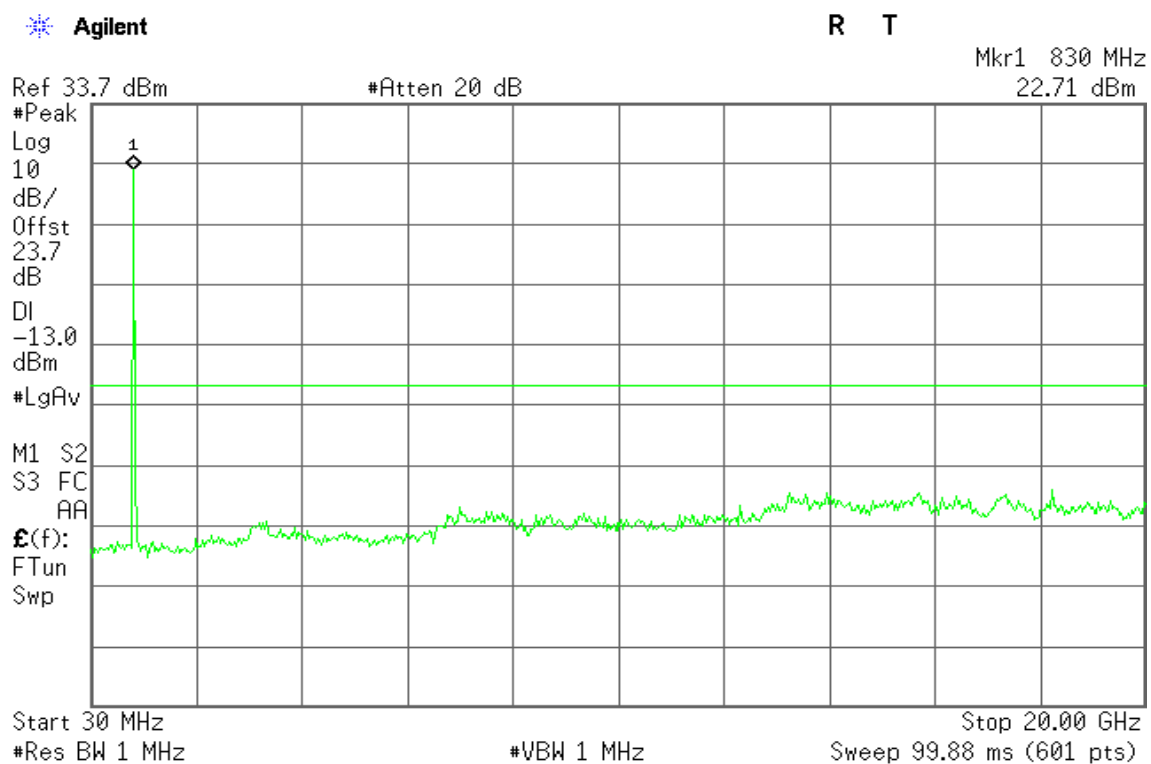
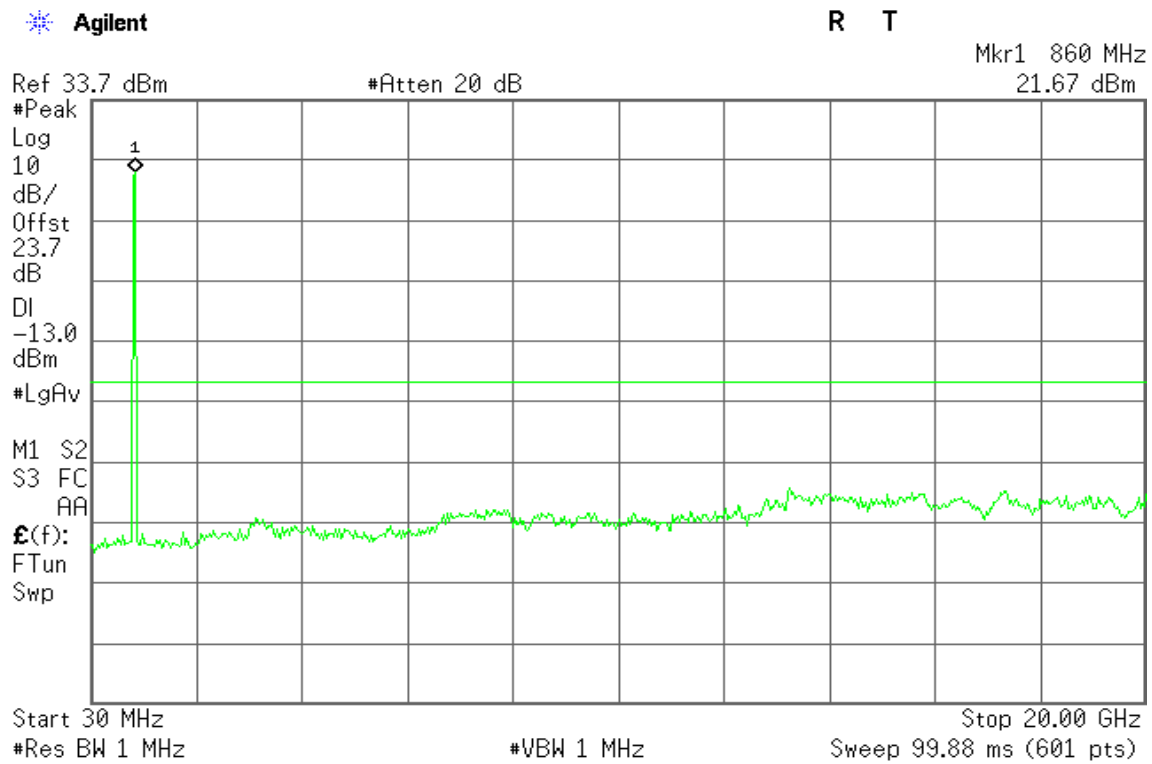




Figure 21-3: Out of Band emission at antenna terminals – HSDPA CH High





WCDMA / HSDPA Band II

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

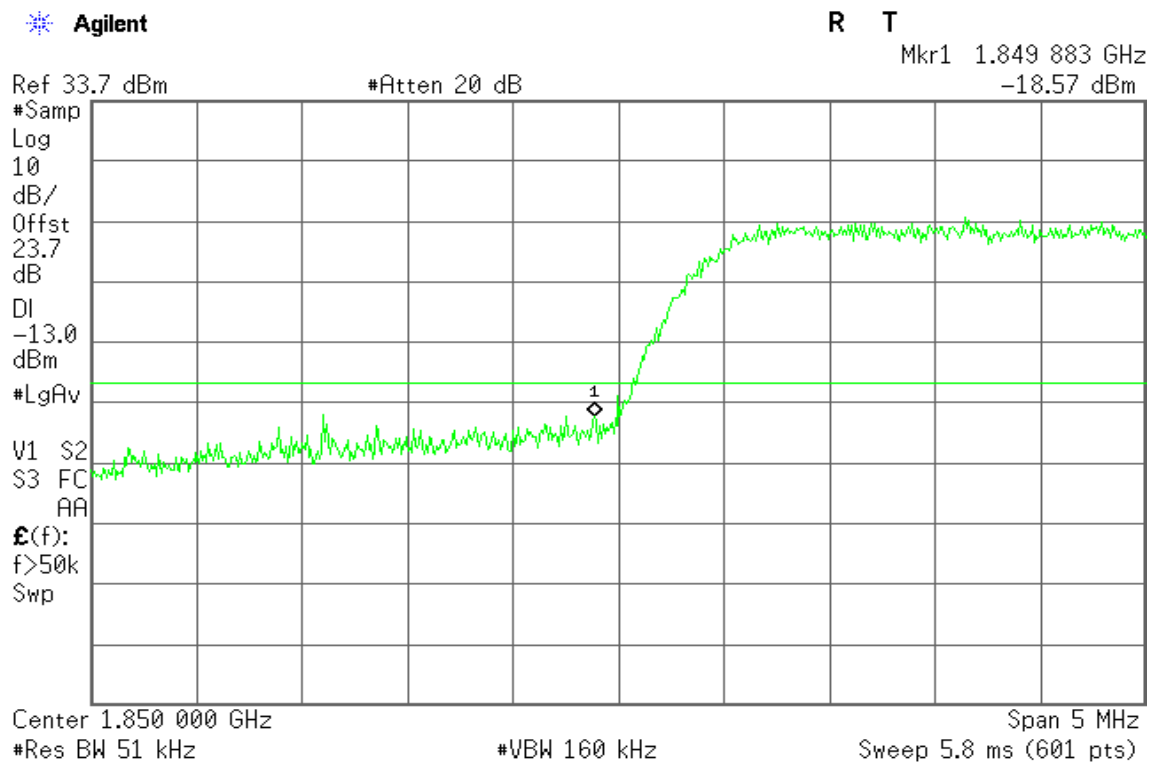
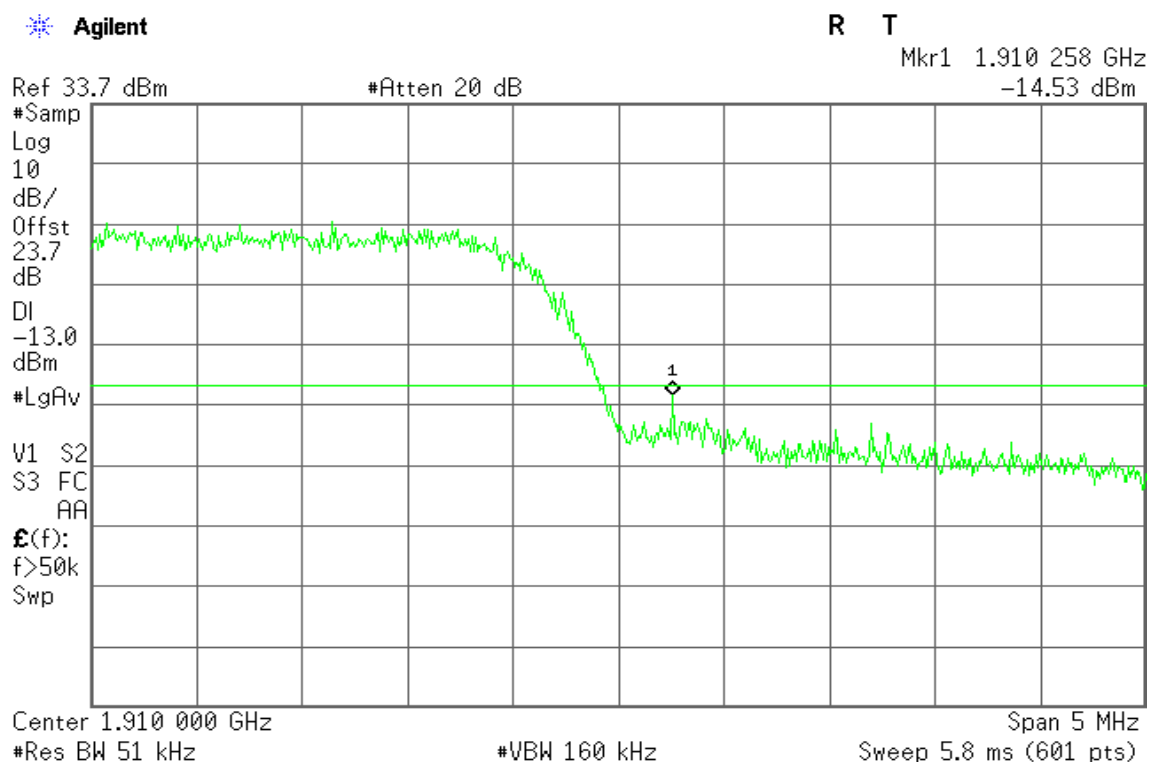


Figure 22-2: Band Edge emissions – HSDPA CH High



**WCDMA / HSDPA Band V**

Figure 23-1: Band Edge emissions – HSDPA CH Low

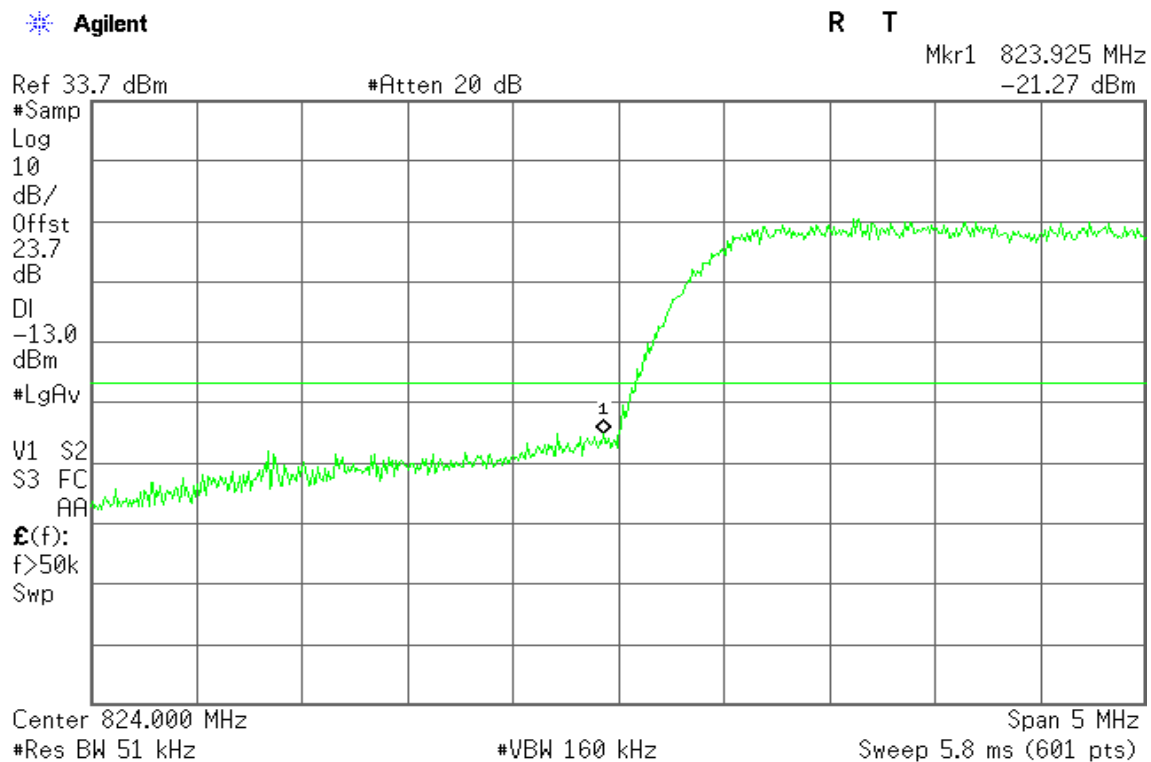
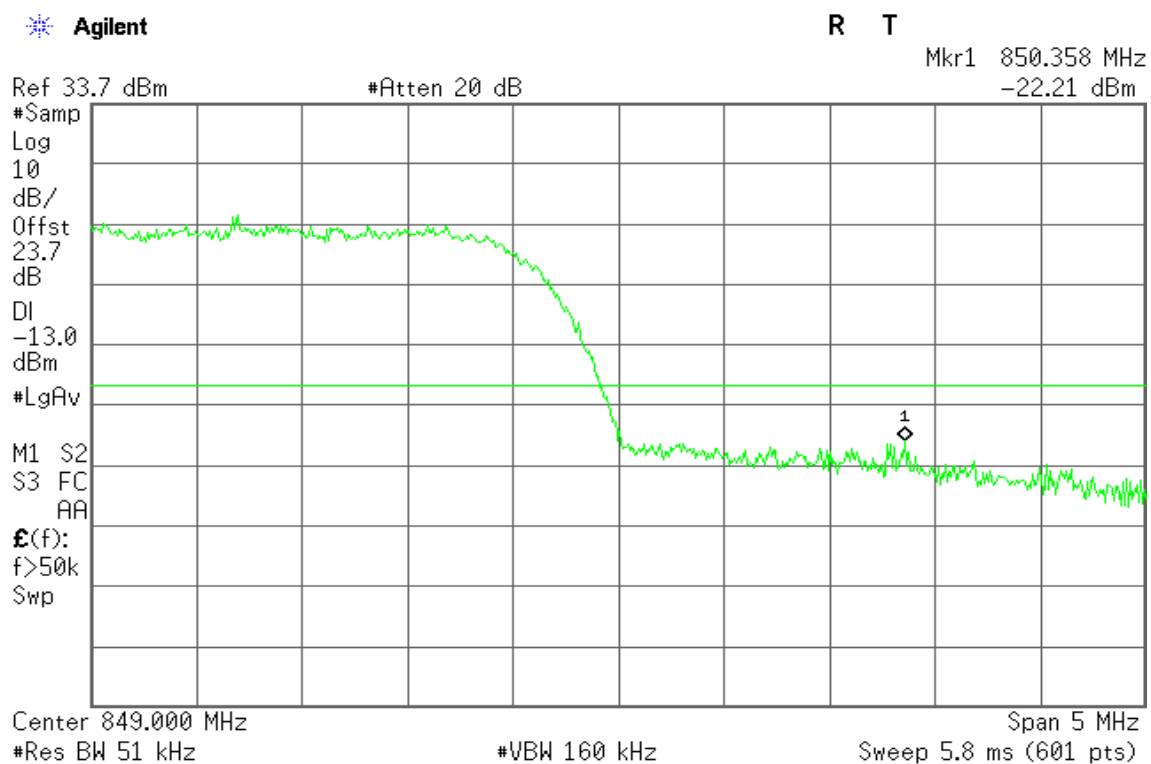


Figure 23-2: Band Edge emissions – HSDPA CH High





WCDMA / HSUPA Band II

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

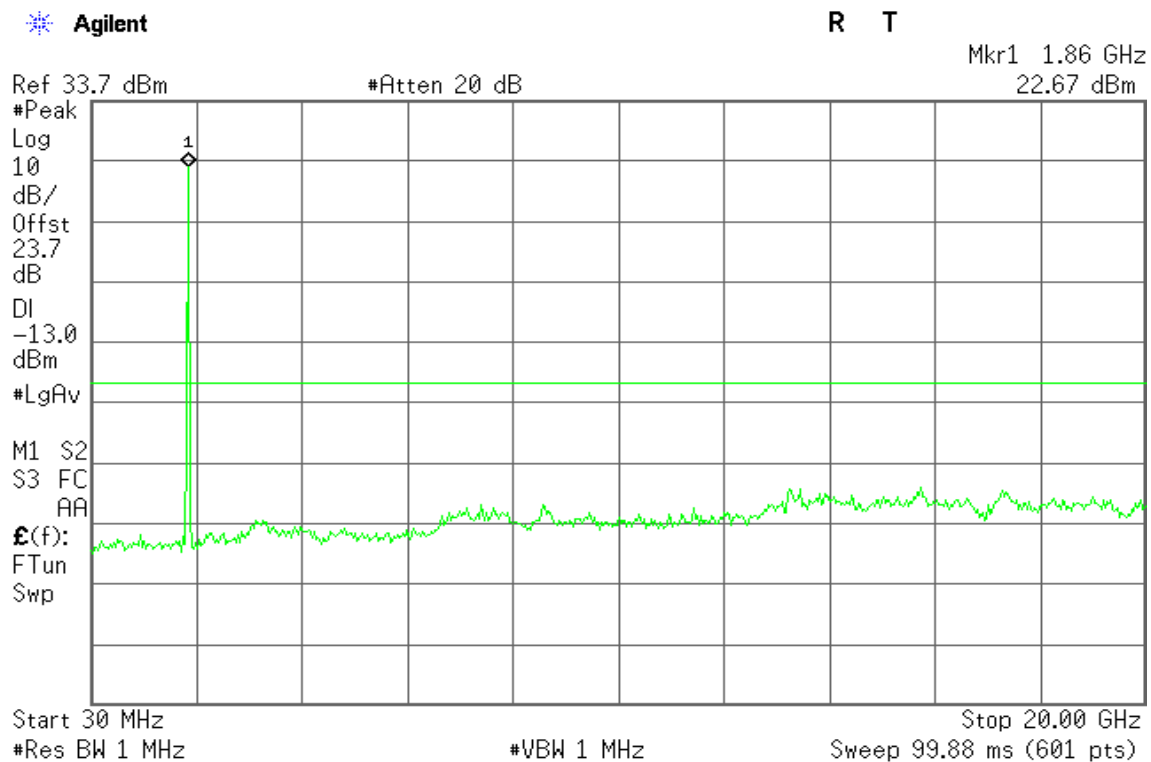


Figure 24-2: Out of Band emission at antenna terminals – HSUPA CH Mid

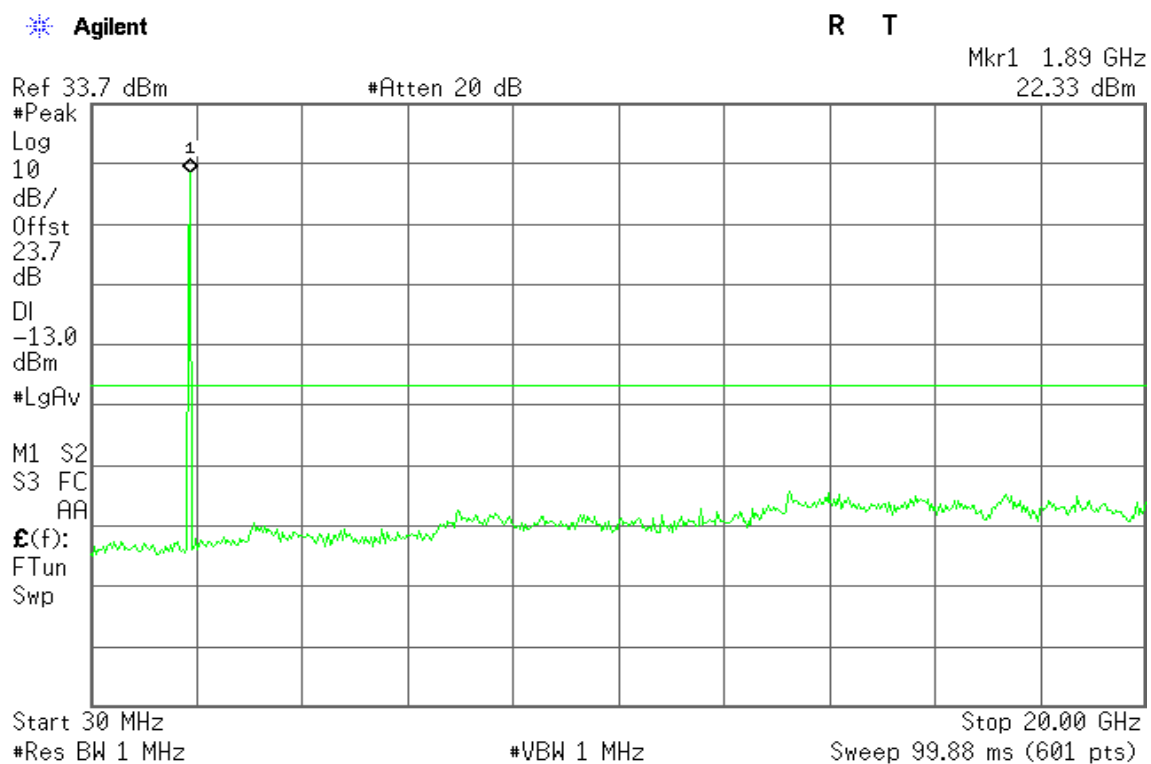
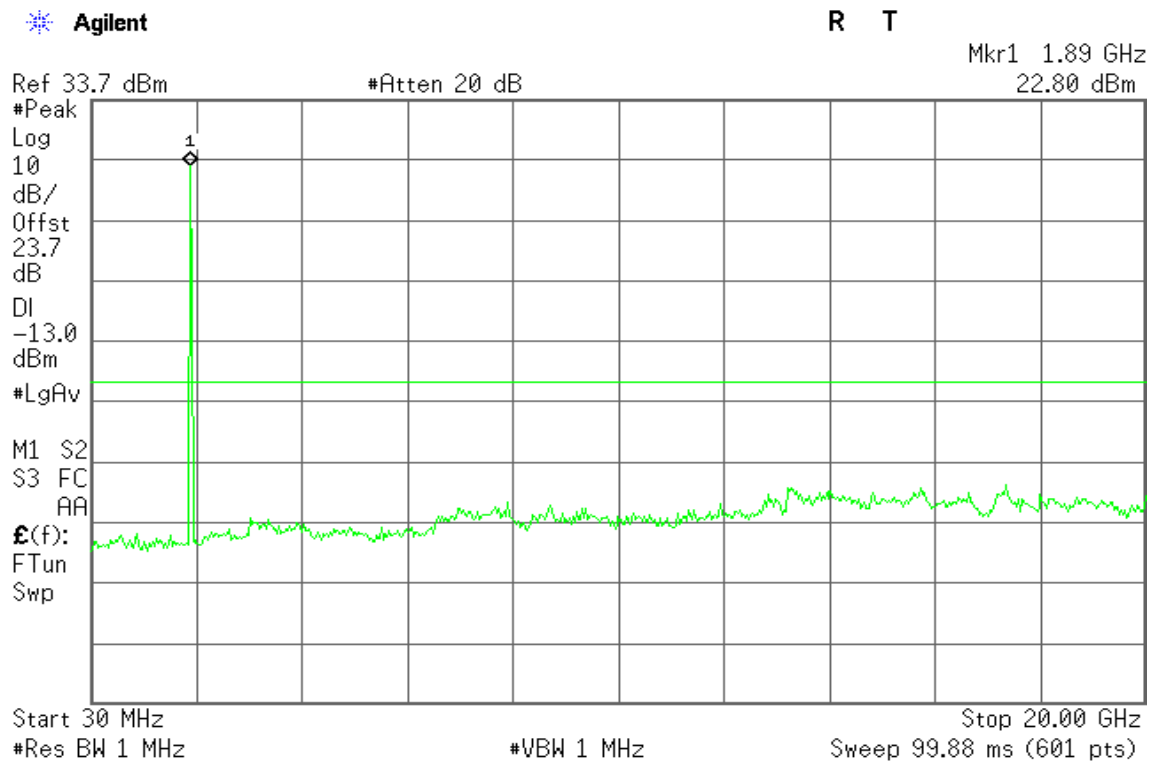




Figure 24-3: Out of Band emission at antenna terminals – HSUPA CH High



**HSUPA / WCDMA Band V**

Figure 25-1: Out of Band emission at antenna terminals – HSUPA CH Low

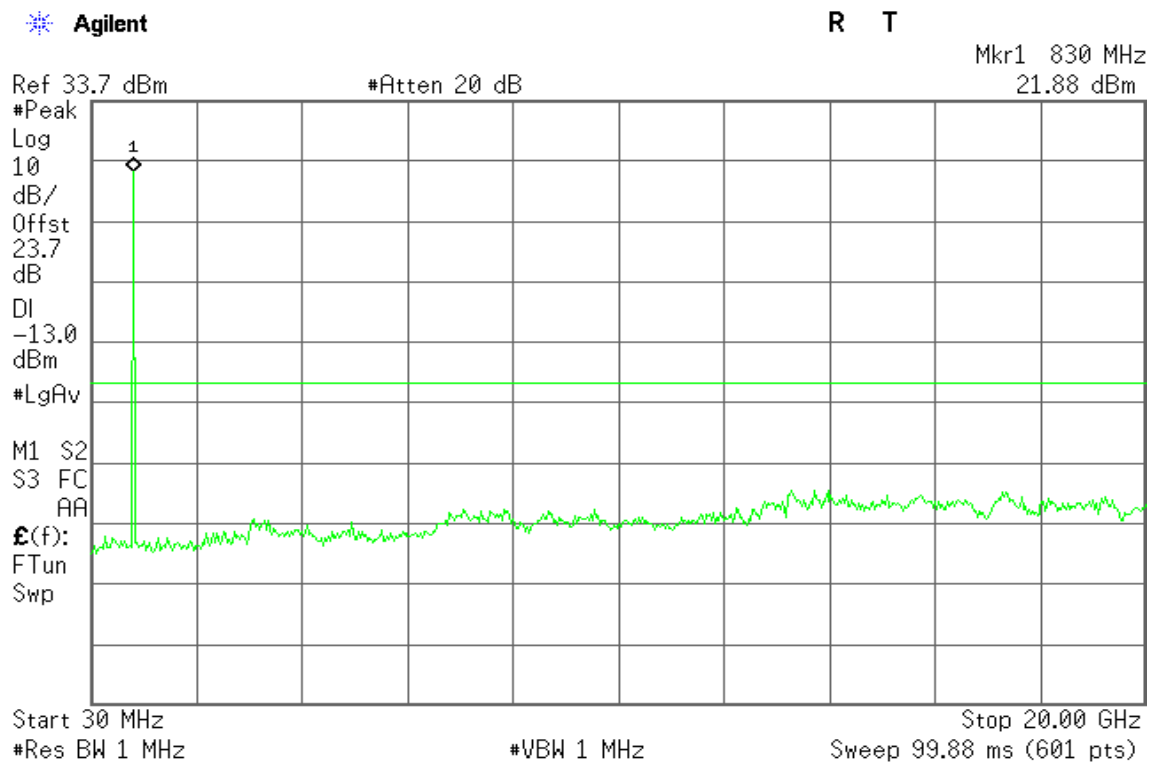


Figure 25-2: Out of Band emission at antenna terminals – HSUPA CH Mid

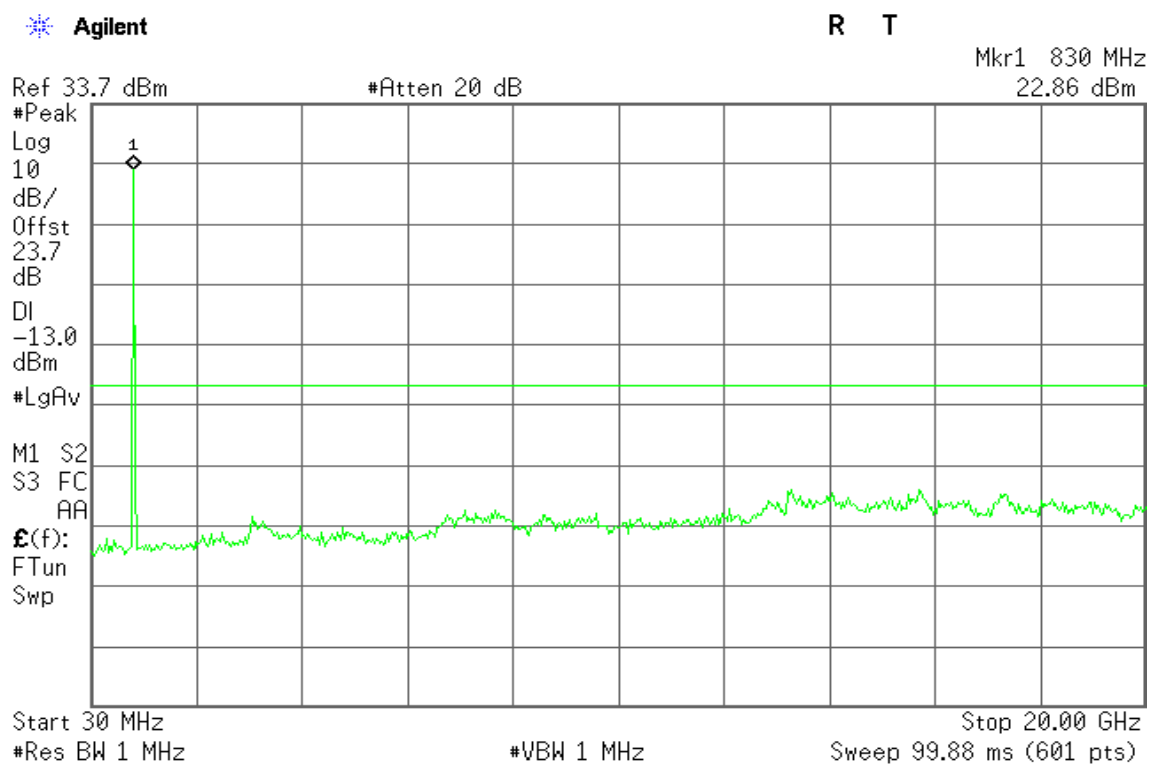
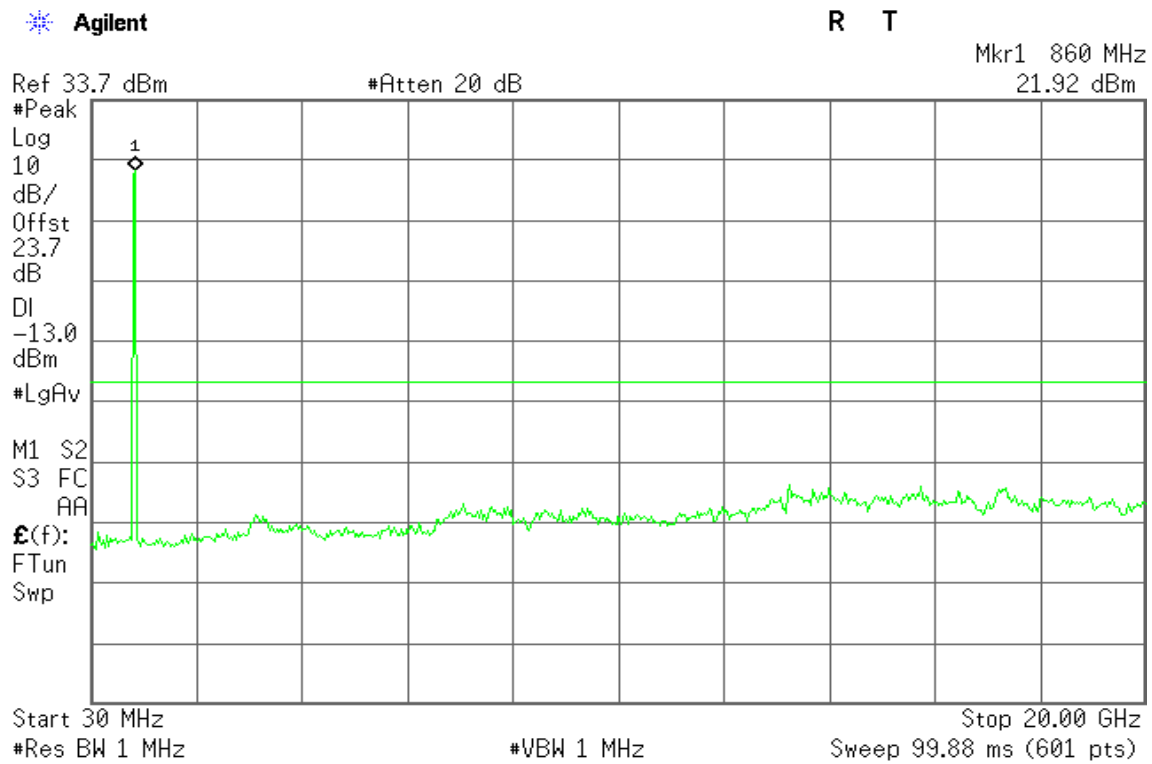




Figure 25-3: Out of Band emission at antenna terminals – HSUPA CH High





WCDMA / HSUPA Band II

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

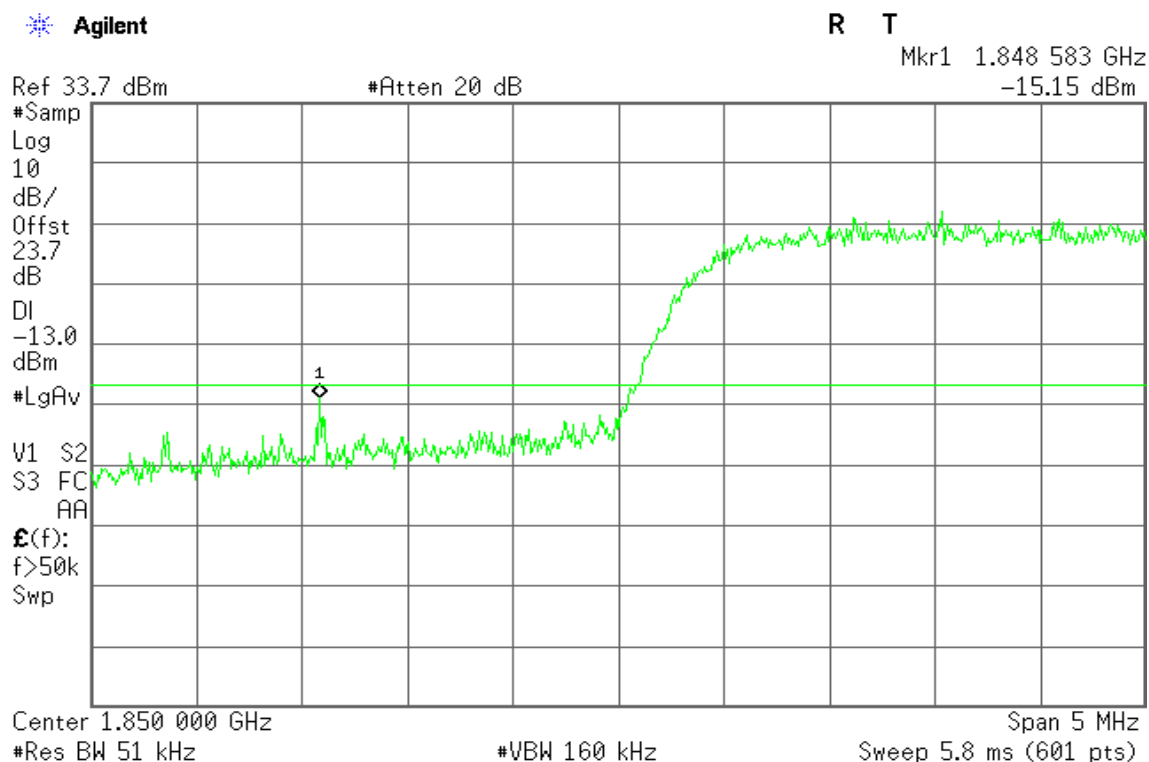
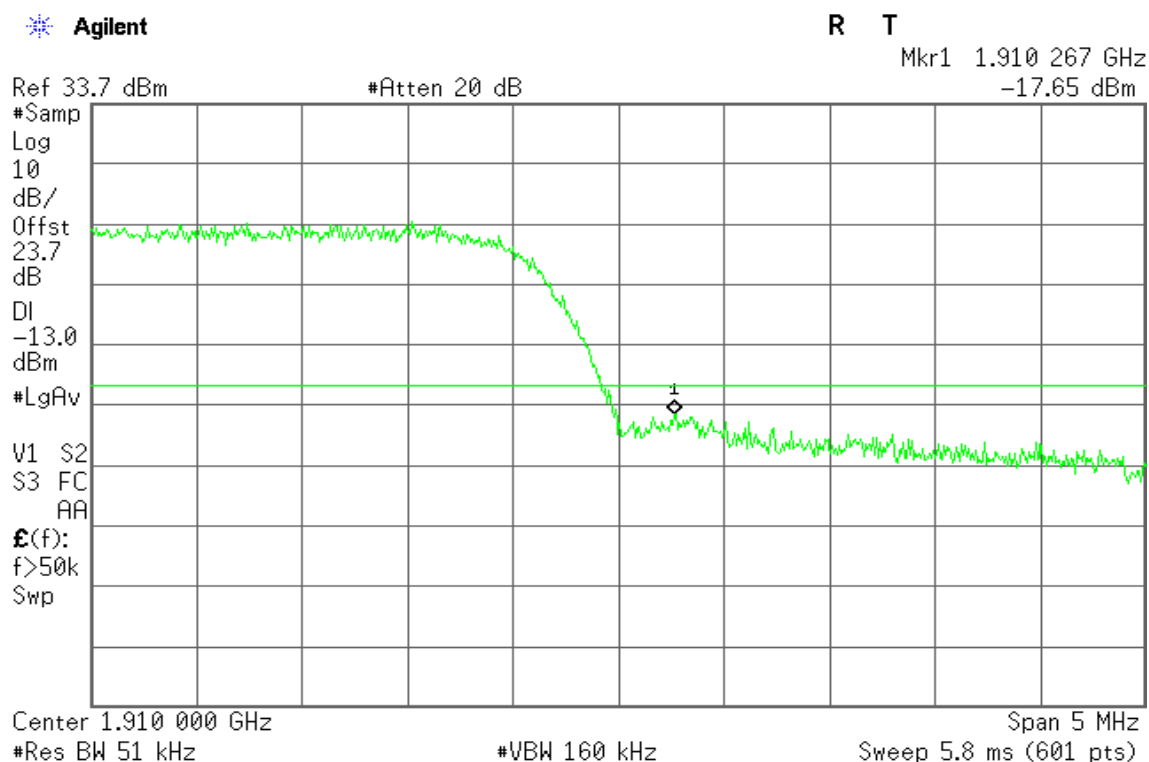


Figure 26-2: Band Edge emissions – HSUPA CH High





WCDMA / HSUPA Band V

Figure 27-1: Band Edge emissions – HSUPA CH Low

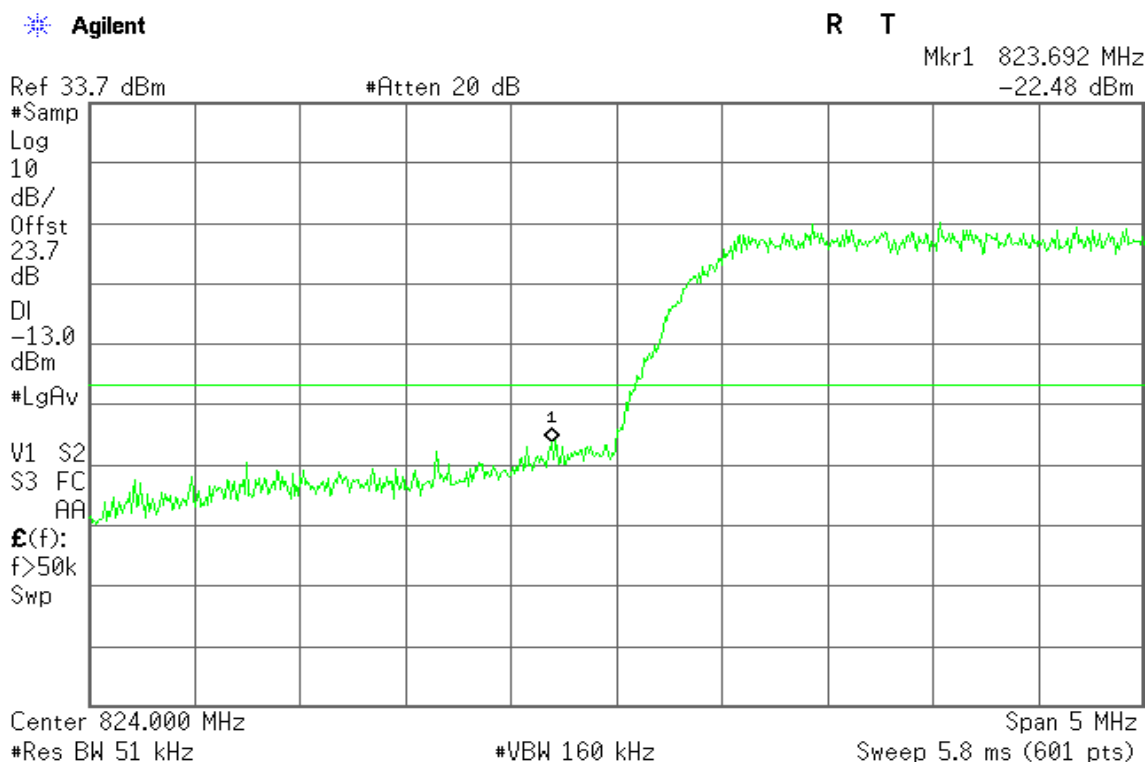
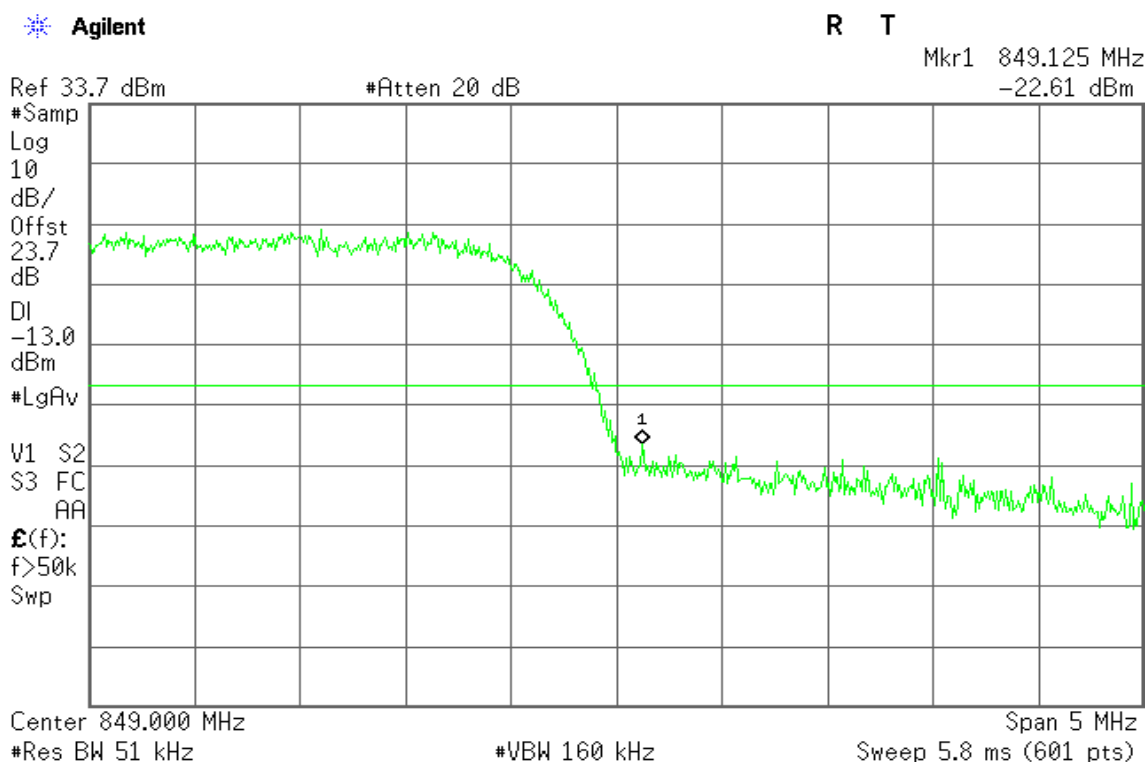


Figure 27-2: Band Edge emissions – HSUPA CH High





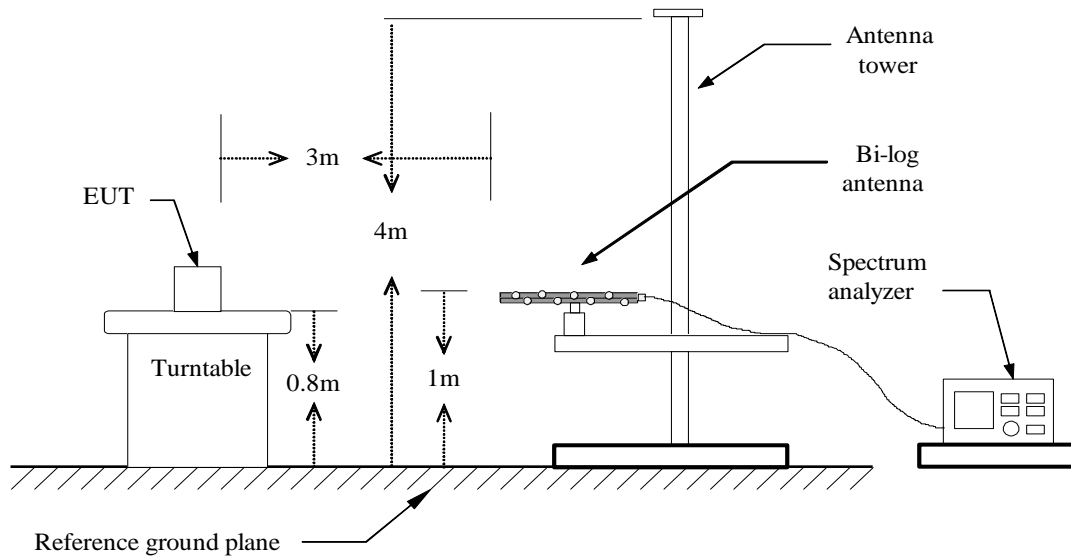
7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

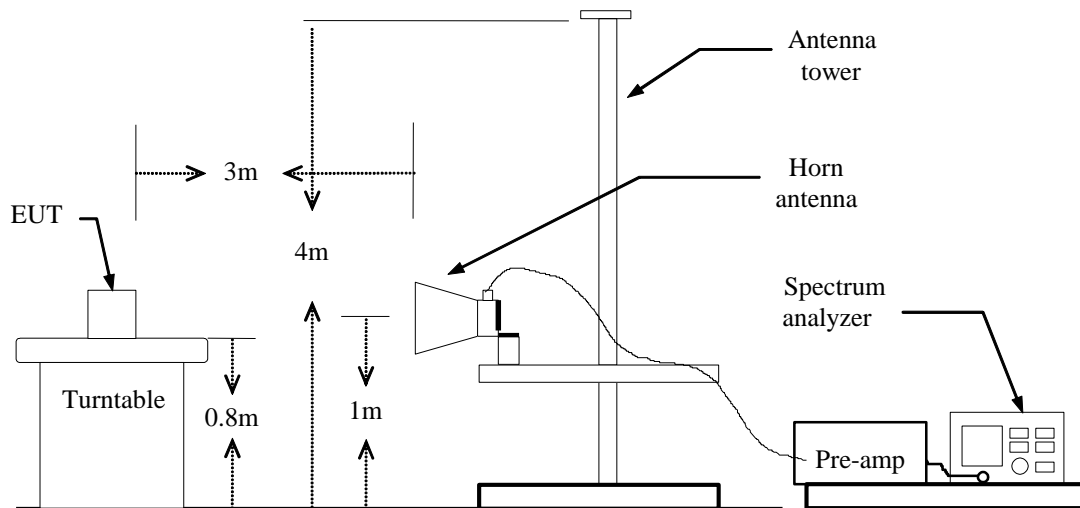
According to FCC §2.1053

Test Configuration

Below 1 GHz

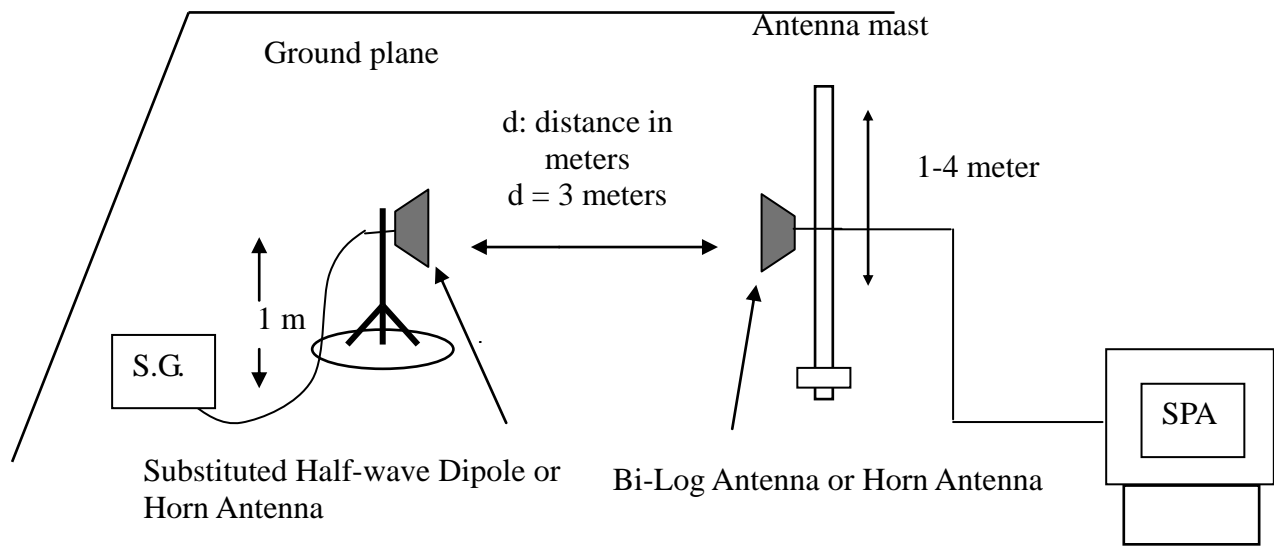


Above 1 GHz





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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
146.4000	-62.57	1.41	0.35	-63.63	-13.00	-50.63	V
245.3400	-68.16	1.82	5.5	-64.48	-13.00	-51.48	V
368.5300	-66.22	2.3	5.79	-62.73	-13.00	-49.73	V
442.2500	-68.06	2.55	5.85	-64.76	-13.00	-51.76	V
515.9700	-70.41	2.7	6.06	-67.05	-13.00	-54.05	V
618.7900	-75.18	2.94	6.12	-72.00	-13.00	-59.00	V
87.2300	-64.33	1.09	0.73	-64.69	-13.00	-51.69	H
169.6800	-54.72	1.56	2.48	-53.80	-13.00	-40.80	H
294.8100	-56.19	2.06	5.5	-52.75	-13.00	-39.75	H
380.1700	-62.24	2.31	5.98	-58.57	-13.00	-45.57	H
479.1100	-69.48	2.64	5.56	-66.56	-13.00	-53.56	H
515.9700	-66.8	2.7	6.06	-63.44	-13.00	-50.44	H

Remark:

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

**Operation Mode:** GPRS 850 / TX / CH 190**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
93.0500	-66.12	1.12	0.74	-66.50	-13.00	-53.50	V
149.3100	-63.79	1.42	0.62	-64.59	-13.00	-51.59	V
249.2200	-69.33	1.84	5.65	-65.52	-13.00	-52.52	V
368.5300	-66.71	2.3	5.79	-63.22	-13.00	-50.22	V
515.9700	-70.02	2.7	6.06	-66.66	-13.00	-53.66	V
618.7900	-76.69	2.94	6.12	-73.51	-13.00	-60.51	V
72.6800	-62.92	0.98	-1.45	-65.35	-13.00	-52.35	H
171.6200	-52.9	1.57	2.69	-51.78	-13.00	-38.78	H
294.8100	-54.98	2.06	5.5	-51.54	-13.00	-38.54	H
368.5300	-60.52	2.3	5.79	-57.03	-13.00	-44.03	H
515.9700	-67.06	2.7	6.06	-63.70	-13.00	-50.70	H
626.5500	-68.32	2.96	6.16	-65.12	-13.00	-52.12	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
150.2800	-61.7	1.43	0.71	-62.42	-13.00	-49.42	V
251.1600	-66.59	1.84	5.69	-62.74	-13.00	-49.74	V
368.5300	-64.15	2.3	5.79	-60.66	-13.00	-47.66	V
442.2500	-66.57	2.55	5.85	-63.27	-13.00	-50.27	V
515.9700	-68.1	2.7	6.06	-64.74	-13.00	-51.74	V
624.6100	-73.03	2.96	6.15	-69.84	-13.00	-56.84	V
71.7100	-59.86	0.97	-1.61	-62.44	-13.00	-49.44	H
171.6200	-52.7	1.57	2.69	-51.58	-13.00	-38.58	H
294.8100	-56.9	2.06	5.5	-53.46	-13.00	-40.46	H
366.5900	-60.51	2.29	5.77	-57.03	-13.00	-44.03	H
515.9700	-65.79	2.7	6.06	-62.43	-13.00	-49.43	H
618.7900	-67.75	2.94	6.12	-64.57	-13.00	-51.57	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
179.3800	-66.53	1.61	3.52	-64.62	-13.00	-51.62	V
368.5300	-70.32	2.3	5.79	-66.83	-13.00	-53.83	V
479.1100	-67.32	2.64	5.56	-64.40	-13.00	-51.40	V
626.5500	-74.78	2.96	6.16	-71.58	-13.00	-58.58	V
773.9900	-75.03	3.28	6.26	-72.05	-13.00	-59.05	V
874.8700	-71.11	3.45	6.6	-67.96	-13.00	-54.96	V
170.6500	-60.8	1.57	2.59	-59.78	-13.00	-46.78	H
294.8100	-60.52	2.06	5.5	-57.08	-13.00	-44.08	H
405.3900	-56.91	2.42	5.94	-53.39	-13.00	-40.39	H
479.1100	-58.03	2.64	5.56	-55.11	-13.00	-42.11	H
618.7900	-65.63	2.94	6.12	-62.45	-13.00	-49.45	H
800.1800	-64.92	3.33	6.52	-61.73	-13.00	-48.73	H

Remark:

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

**Operation Mode:** GPRS 1900 / TX / CH 661**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
172.5900	-65.17	1.58	2.8	-63.95	-13.00	-50.95	V
368.5300	-71.39	2.3	5.79	-67.90	-13.00	-54.90	V
442.2500	-66.39	2.55	5.85	-63.09	-13.00	-50.09	V
626.5500	-74.61	2.96	6.16	-71.41	-13.00	-58.41	V
773.9900	-74.13	3.28	6.26	-71.15	-13.00	-58.15	V
874.8700	-71.43	3.45	6.6	-68.28	-13.00	-55.28	V
167.7400	-60.59	1.55	2.26	-59.88	-13.00	-46.88	H
294.8100	-61.21	2.06	5.5	-57.77	-13.00	-44.77	H
405.3900	-57.51	2.42	5.94	-53.99	-13.00	-40.99	H
479.1100	-57.93	2.64	5.56	-55.01	-13.00	-42.01	H
600.3600	-65.4	2.9	6.4	-61.90	-13.00	-48.90	H
800.1800	-65.66	3.33	6.52	-62.47	-13.00	-49.47	H

Remark:

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

**Operation Mode:** GPRS 1900 / TX / CH 810**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
172.5900	-64.62	1.58	2.8	-63.40	-13.00	-50.40	V
368.5300	-70.42	2.3	5.79	-66.93	-13.00	-53.93	V
442.2500	-67.19	2.55	5.85	-63.89	-13.00	-50.89	V
626.5500	-74.28	2.96	6.16	-71.08	-13.00	-58.08	V
773.9900	-73.51	3.28	6.26	-70.53	-13.00	-57.53	V
933.0700	-66.87	3.6	6.41	-64.06	-13.00	-51.06	V
173.5600	-60.94	1.58	2.9	-59.62	-13.00	-46.62	H
294.8100	-62.03	2.06	5.5	-58.59	-13.00	-45.59	H
405.3900	-57.5	2.42	5.94	-53.98	-13.00	-40.98	H
515.9700	-66.63	2.7	6.06	-63.27	-13.00	-50.27	H
618.7900	-66.82	2.94	6.12	-63.64	-13.00	-50.64	H
800.1800	-62.27	3.33	6.52	-59.08	-13.00	-46.08	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:** EDGE 850 / TX / CH 128**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
93.0500	-66.98	1.12	0.74	-67.36	-13.00	-54.36	V
146.4000	-62.74	1.41	0.35	-63.80	-13.00	-50.80	V
247.2800	-68.47	1.83	5.57	-64.73	-13.00	-51.73	V
405.3900	-63.15	2.42	5.94	-59.63	-13.00	-46.63	V
515.9700	-70.05	2.7	6.06	-66.69	-13.00	-53.69	V
638.1900	-75.81	3	6.14	-72.67	-13.00	-59.67	V
70.7400	-62.02	0.97	-1.72	-64.71	-13.00	-51.71	H
173.5600	-54.43	1.58	2.9	-53.11	-13.00	-40.11	H
294.8100	-57.86	2.06	5.5	-54.42	-13.00	-41.42	H
368.5300	-61.06	2.3	5.79	-57.57	-13.00	-44.57	H
442.2500	-65.28	2.55	5.85	-61.98	-13.00	-48.98	H
600.3600	-70.02	2.9	6.4	-66.52	-13.00	-53.52	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:** EDGE 850 / TX / CH 190**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
91.1100	-65.56	1.11	1.05	-65.62	-13.00	-52.62	V
150.2800	-63.58	1.43	0.71	-64.30	-13.00	-51.30	V
249.2200	-69.48	1.84	5.65	-65.67	-13.00	-52.67	V
405.3900	-65.69	2.42	5.94	-62.17	-13.00	-49.17	V
552.8300	-74.7	2.82	6.14	-71.38	-13.00	-58.38	V
624.6100	-75.53	2.96	6.15	-72.34	-13.00	-59.34	V
70.7400	-61.62	0.97	-1.72	-64.31	-13.00	-51.31	H
169.6800	-52.86	1.56	2.48	-51.94	-13.00	-38.94	H
294.8100	-57.31	2.06	5.5	-53.87	-13.00	-40.87	H
368.5300	-60.52	2.3	5.79	-57.03	-13.00	-44.03	H
442.2500	-65.43	2.55	5.85	-62.13	-13.00	-49.13	H
618.7900	-68.82	2.94	6.12	-65.64	-13.00	-52.64	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:** EDGE 850 / TX / CH 251**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
145.4300	-60.26	1.41	0.26	-61.41	-13.00	-48.41	V
250.1900	-65.65	1.84	5.68	-61.81	-13.00	-48.81	V
366.5900	-62.29	2.29	5.77	-58.81	-13.00	-45.81	V
479.1100	-67.82	2.64	5.56	-64.90	-13.00	-51.90	V
552.8300	-71.29	2.82	6.14	-67.97	-13.00	-54.97	V
624.6100	-71.53	2.96	6.15	-68.34	-13.00	-55.34	V
87.2300	-62.81	1.09	0.73	-63.17	-13.00	-50.17	H
168.7100	-52.37	1.55	2.37	-51.55	-13.00	-38.55	H
294.8100	-55.75	2.06	5.5	-52.31	-13.00	-39.31	H
380.1700	-60.15	2.31	5.98	-56.48	-13.00	-43.48	H
479.1100	-67.78	2.64	5.56	-64.86	-13.00	-51.86	H
515.9700	-65.46	2.7	6.06	-62.10	-13.00	-49.10	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
178.4100	-66.89	1.6	3.41	-65.08	-13.00	-52.08	V
368.5300	-70.5	2.3	5.79	-67.01	-13.00	-54.01	V
442.2500	-67.15	2.55	5.85	-63.85	-13.00	-50.85	V
626.5500	-75.02	2.96	6.16	-71.82	-13.00	-58.82	V
773.9900	-73.89	3.28	6.26	-70.91	-13.00	-57.91	V
874.8700	-70.44	3.45	6.6	-67.29	-13.00	-54.29	V
179.3800	-60.49	1.61	3.52	-58.58	-13.00	-45.58	H
405.3900	-56.83	2.42	5.94	-53.31	-13.00	-40.31	H
442.2500	-58.72	2.55	5.85	-55.42	-13.00	-42.42	H
479.1100	-58.64	2.64	5.56	-55.72	-13.00	-42.72	H
688.6300	-64.98	3.13	6.5	-61.61	-13.00	-48.61	H
800.1800	-63.06	3.33	6.52	-59.87	-13.00	-46.87	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
175.5000	-65.83	1.59	3.1	-64.32	-13.00	-51.32	V
405.3900	-71.05	2.42	5.94	-67.53	-13.00	-54.53	V
442.2500	-67.11	2.55	5.85	-63.81	-13.00	-50.81	V
626.5500	-74.81	2.96	6.16	-71.61	-13.00	-58.61	V
800.1800	-74.69	3.33	6.52	-71.50	-13.00	-58.50	V
933.0700	-69.26	3.6	6.41	-66.45	-13.00	-53.45	V
176.4700	-60.49	1.59	3.21	-58.87	-13.00	-45.87	H
294.8100	-61.64	2.06	5.5	-58.20	-13.00	-45.20	H
405.3900	-57.28	2.42	5.94	-53.76	-13.00	-40.76	H
479.1100	-58.02	2.64	5.56	-55.10	-13.00	-42.10	H
618.7900	-65.1	2.94	6.12	-61.92	-13.00	-48.92	H
800.1800	-63.46	3.33	6.52	-60.27	-13.00	-47.27	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
174.5300	-65.63	1.59	3	-64.22	-13.00	-51.22	V
368.5300	-69.78	2.3	5.79	-66.29	-13.00	-53.29	V
479.1100	-66.67	2.64	5.56	-63.75	-13.00	-50.75	V
589.6900	-74.8	2.89	6.19	-71.50	-13.00	-58.50	V
773.9900	-73.88	3.28	6.26	-70.90	-13.00	-57.90	V
874.8700	-71.47	3.45	6.6	-68.32	-13.00	-55.32	V
173.5600	-59.98	1.58	2.9	-58.66	-13.00	-45.66	H
294.8100	-60.41	2.06	5.5	-56.97	-13.00	-43.97	H
405.3900	-56.85	2.42	5.94	-53.33	-13.00	-40.33	H
479.1100	-57.95	2.64	5.56	-55.03	-13.00	-42.03	H
626.5500	-67.06	2.96	6.16	-63.86	-13.00	-50.86	H
800.1800	-67.44	3.33	6.52	-64.25	-13.00	-51.25	H

Remark:

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

**Operation Mode:** WCDMA Band II / TX / CH 9262**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.0200	-70.61	1.12	0.58	-71.15	-13.00	-58.15	V
174.5300	-75.61	1.59	3	-74.20	-13.00	-61.20	V
275.4100	-69.02	1.99	5.21	-65.80	-13.00	-52.80	V
375.3200	-75.73	2.31	5.91	-72.13	-13.00	-59.13	V
524.7000	-78.89	2.73	6.05	-75.57	-13.00	-62.57	V
689.6000	-74.57	3.13	6.5	-71.20	-13.00	-58.20	V
275.4100	-56.98	1.99	5.21	-53.76	-13.00	-40.76	H
375.3200	-59.84	2.31	5.91	-56.24	-13.00	-43.24	H
479.1100	-56.16	2.64	5.56	-53.24	-13.00	-40.24	H
626.5500	-66.61	2.96	6.16	-63.41	-13.00	-50.41	H
688.6300	-63.57	3.13	6.5	-60.20	-13.00	-47.20	H
773.9900	-66.22	3.28	6.26	-63.24	-13.00	-50.24	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:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
92.0800	-70.47	1.12	0.89	-70.70	-13.00	-57.70	V
275.4100	-68.02	1.99	5.21	-64.80	-13.00	-51.80	V
375.3200	-74.79	2.31	5.91	-71.19	-13.00	-58.19	V
479.1100	-77.21	2.64	5.56	-74.29	-13.00	-61.29	V
589.6900	-78.56	2.89	6.19	-75.26	-13.00	-62.26	V
713.8500	-78.15	3.15	6.38	-74.92	-13.00	-61.92	V
275.4100	-55.77	1.99	5.21	-52.55	-13.00	-39.55	H
375.3200	-58.52	2.31	5.91	-54.92	-13.00	-41.92	H
479.1100	-55.93	2.64	5.56	-53.01	-13.00	-40.01	H
626.5500	-65.18	2.96	6.16	-61.98	-13.00	-48.98	H
733.2500	-65.16	3.19	6.31	-62.04	-13.00	-49.04	H
847.7100	-63.97	3.4	6.4	-60.97	-13.00	-47.97	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.*

**Operation Mode:** WCDMA Band II / TX / CH 9538**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
92.0800	-70.89	1.12	0.89	-71.12	-13.00	-58.12	V
275.4100	-68.77	1.99	5.21	-65.55	-13.00	-52.55	V
375.3200	-75.25	2.31	5.91	-71.65	-13.00	-58.65	V
479.1100	-77.15	2.64	5.56	-74.23	-13.00	-61.23	V
589.6900	-78.73	2.89	6.19	-75.43	-13.00	-62.43	V
695.4200	-77.41	3.12	6.44	-74.09	-13.00	-61.09	V
90.1400	-74.18	1.11	1.07	-74.22	-13.00	-61.22	H
275.4100	-56.96	1.99	5.21	-53.74	-13.00	-40.74	H
375.3200	-60.02	2.31	5.91	-56.42	-13.00	-43.42	H
479.1100	-56.63	2.64	5.56	-53.71	-13.00	-40.71	H
600.3600	-66.83	2.9	6.4	-63.33	-13.00	-50.33	H
733.2500	-62.82	3.19	6.31	-59.70	-13.00	-46.70	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:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.0200	-70.23	1.12	0.58	-70.77	-13.00	-57.77	V
184.2300	-77.1	1.61	3.77	-74.94	-13.00	-61.94	V
275.4100	-69.28	1.99	5.21	-66.06	-13.00	-53.06	V
375.3200	-75.13	2.31	5.91	-71.53	-13.00	-58.53	V
479.1100	-75.93	2.64	5.56	-73.01	-13.00	-60.01	V
589.6900	-77.32	2.89	6.19	-74.02	-13.00	-61.02	V
94.0200	-72.48	1.12	0.58	-73.02	-13.00	-60.02	H
224.9700	-69.7	1.78	5.36	-66.12	-13.00	-53.12	H
275.4100	-57.8	1.99	5.21	-54.58	-13.00	-41.58	H
375.3200	-58.73	2.31	5.91	-55.13	-13.00	-42.13	H
479.1100	-56.66	2.64	5.56	-53.74	-13.00	-40.74	H
622.6700	-65.65	2.95	6.14	-62.46	-13.00	-49.46	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:** WCDMA Band V / TX / CH 4182**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
93.0500	-69.94	1.12	0.74	-70.32	-13.00	-57.32	V
275.4100	-68.39	1.99	5.21	-65.17	-13.00	-52.17	V
375.3200	-73.46	2.31	5.91	-69.86	-13.00	-56.86	V
479.1100	-75.43	2.64	5.56	-72.51	-13.00	-59.51	V
589.6900	-79.1	2.89	6.19	-75.80	-13.00	-62.80	V
701.2400	-81.03	3.12	6.38	-77.77	-13.00	-64.77	V
147.3700	-70.23	1.42	0.44	-71.21	-13.00	-58.21	H
224.9700	-69.61	1.78	5.36	-66.03	-13.00	-53.03	H
275.4100	-57.3	1.99	5.21	-54.08	-13.00	-41.08	H
375.3200	-59.01	2.31	5.91	-55.41	-13.00	-42.41	H
479.1100	-56.49	2.64	5.56	-53.57	-13.00	-40.57	H
626.5500	-67.09	2.96	6.16	-63.89	-13.00	-50.89	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 V / TX / CH 4233**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.0200	-70.34	1.12	0.58	-70.88	-13.00	-57.88	V
184.2300	-77.27	1.61	3.77	-75.11	-13.00	-62.11	V
275.4100	-69.67	1.99	5.21	-66.45	-13.00	-53.45	V
375.3200	-74.88	2.31	5.91	-71.28	-13.00	-58.28	V
479.1100	-76.96	2.64	5.56	-74.04	-13.00	-61.04	V
575.1400	-78.96	2.88	6.06	-75.78	-13.00	-62.78	V
71.7100	-64.93	0.97	-1.61	-67.51	-13.00	-54.51	H
175.5000	-62.31	1.59	3.1	-60.80	-13.00	-47.80	H
287.0500	-60.68	2.01	5.37	-57.32	-13.00	-44.32	H
405.3900	-57.1	2.42	5.94	-53.58	-13.00	-40.58	H
479.1100	-63.62	2.64	5.56	-60.70	-13.00	-47.70	H
599.3900	-67.99	2.9	6.39	-64.50	-13.00	-51.50	H

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band II /
TX / CH 9262**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
90.1400	-70.97	1.11	1.07	-71.01	-13.00	-58.01	V
174.5300	-75.72	1.59	3	-74.31	-13.00	-61.31	V
275.4100	-68.99	1.99	5.21	-65.77	-13.00	-52.77	V
405.3900	-78	2.42	5.94	-74.48	-13.00	-61.48	V
666.3200	-77.36	3.07	6.3	-74.13	-13.00	-61.13	V
874.8700	-71.46	3.45	6.6	-68.31	-13.00	-55.31	V
90.1400	-72.16	1.11	1.07	-72.20	-13.00	-59.20	H
275.4100	-57.33	1.99	5.21	-54.11	-13.00	-41.11	H
375.3200	-59.79	2.31	5.91	-56.19	-13.00	-43.19	H
479.1100	-56.71	2.64	5.56	-53.79	-13.00	-40.79	H
600.3600	-66.18	2.9	6.4	-62.68	-13.00	-49.68	H
773.9900	-65.85	3.28	6.26	-62.87	-13.00	-49.87	H

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band II /
TX / CH 9400**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
92.0800	-70.37	1.12	0.89	-70.60	-13.00	-57.60	V
257.9500	-80.4	1.89	5.61	-76.68	-13.00	-63.68	V
275.4100	-67.5	1.99	5.21	-64.28	-13.00	-51.28	V
375.3200	-74.48	2.31	5.91	-70.88	-13.00	-57.88	V
589.6900	-76.3	2.89	6.19	-73.00	-13.00	-60.00	V
713.8500	-77.83	3.15	6.38	-74.60	-13.00	-61.60	V
224.9700	-66.13	1.78	5.36	-62.55	-13.00	-49.55	H
275.4100	-53.55	1.99	5.21	-50.33	-13.00	-37.33	H
375.3200	-56.04	2.31	5.91	-52.44	-13.00	-39.44	H
479.1100	-54.34	2.64	5.56	-51.42	-13.00	-38.42	H
599.3900	-64.7	2.9	6.39	-61.21	-13.00	-48.21	H
734.2200	-64.96	3.19	6.28	-61.87	-13.00	-48.87	H

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band II /
TX / CH 9538**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.0200	-70.28	1.12	0.58	-70.82	-13.00	-57.82	V
275.4100	-68.5	1.99	5.21	-65.28	-13.00	-52.28	V
375.3200	-75.21	2.31	5.91	-71.61	-13.00	-58.61	V
479.1100	-77.59	2.64	5.56	-74.67	-13.00	-61.67	V
591.6300	-78.41	2.89	6.23	-75.07	-13.00	-62.07	V
689.6000	-75.23	3.13	6.5	-71.86	-13.00	-58.86	V
91.1100	-71.66	1.11	1.05	-71.72	-13.00	-58.72	H
257.9500	-62.43	1.89	5.61	-58.71	-13.00	-45.71	H
275.4100	-56.9	1.99	5.21	-53.68	-13.00	-40.68	H
405.3900	-64.25	2.42	5.94	-60.73	-13.00	-47.73	H
479.1100	-56.94	2.64	5.56	-54.02	-13.00	-41.02	H
515.9700	-69.64	2.7	6.06	-66.28	-13.00	-53.28	H

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band V /
TX / CH 4132**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
93.0500	-70.12	1.12	0.74	-70.50	-13.00	-57.50	V
184.2300	-76.81	1.61	3.77	-74.65	-13.00	-61.65	V
275.4100	-69.09	1.99	5.21	-65.87	-13.00	-52.87	V
375.3200	-74.68	2.31	5.91	-71.08	-13.00	-58.08	V
479.1100	-76.02	2.64	5.56	-73.10	-13.00	-60.10	V
589.6900	-78.46	2.89	6.19	-75.16	-13.00	-62.16	V
92.0800	-71.42	1.12	0.89	-71.65	-13.00	-58.65	H
224.9700	-71.39	1.78	5.36	-67.81	-13.00	-54.81	H
275.4100	-57.53	1.99	5.21	-54.31	-13.00	-41.31	H
375.3200	-59.72	2.31	5.91	-56.12	-13.00	-43.12	H
479.1100	-56.67	2.64	5.56	-53.75	-13.00	-40.75	H
618.7900	-66.23	2.94	6.12	-63.05	-13.00	-50.05	H

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band V /
TX / CH 4182**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
92.0800	-68.66	1.12	0.89	-68.89	-13.00	-55.89	V
275.4100	-67.02	1.99	5.21	-63.80	-13.00	-50.80	V
375.3200	-72.51	2.31	5.91	-68.91	-13.00	-55.91	V
479.1100	-74.64	2.64	5.56	-71.72	-13.00	-58.72	V
524.7000	-75.67	2.73	6.05	-72.35	-13.00	-59.35	V
589.6900	-76.85	2.89	6.19	-73.55	-13.00	-60.55	V
49.4000	-65.87	0.8	-5.08	-71.75	-13.00	-58.75	H
224.9700	-69.84	1.78	5.36	-66.26	-13.00	-53.26	H
275.4100	-56.61	1.99	5.21	-53.39	-13.00	-40.39	H
375.3200	-59.02	2.31	5.91	-55.42	-13.00	-42.42	H
479.1100	-56.32	2.64	5.56	-53.40	-13.00	-40.40	H
618.7900	-66.4	2.94	6.12	-63.22	-13.00	-50.22	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 / HSDPA Band V /
TX / CH 4233**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.9900	-70.51	1.13	0.42	-71.22	-13.00	-58.22	V
174.5300	-75.97	1.59	3	-74.56	-13.00	-61.56	V
275.4100	-69.04	1.99	5.21	-65.82	-13.00	-52.82	V
375.3200	-75.04	2.31	5.91	-71.44	-13.00	-58.44	V
524.7000	-77.74	2.73	6.05	-74.42	-13.00	-61.42	V
657.5900	-79.3	3.05	6.3	-76.05	-13.00	-63.05	V
91.1100	-71.83	1.11	1.05	-71.89	-13.00	-58.89	H
147.3700	-69.94	1.42	0.44	-70.92	-13.00	-57.92	H
275.4100	-58.58	1.99	5.21	-55.36	-13.00	-42.36	H
375.3200	-60.31	2.31	5.91	-56.71	-13.00	-43.71	H
479.1100	-56.08	2.64	5.56	-53.16	-13.00	-40.16	H
626.5500	-67.01	2.96	6.16	-63.81	-13.00	-50.81	H

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band II /
TX / CH 9262**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
93.0500	-70.84	1.12	0.74	-71.22	-13.00	-58.22	V
275.4100	-68.88	1.99	5.21	-65.66	-13.00	-52.66	V
375.3200	-76.14	2.31	5.91	-72.54	-13.00	-59.54	V
479.1100	-77.4	2.64	5.56	-74.48	-13.00	-61.48	V
589.6900	-78.81	2.89	6.19	-75.51	-13.00	-62.51	V
676.0200	-76.75	3.08	6.42	-73.41	-13.00	-60.41	V
89.1700	-71.55	1.1	0.96	-71.69	-13.00	-58.69	H
257.9500	-62.6	1.89	5.61	-58.88	-13.00	-45.88	H
275.4100	-56.83	1.99	5.21	-53.61	-13.00	-40.61	H
375.3200	-59.57	2.31	5.91	-55.97	-13.00	-42.97	H
479.1100	-57	2.64	5.56	-54.08	-13.00	-41.08	H
688.6300	-67.55	3.13	6.5	-64.18	-13.00	-51.18	H

Remark:

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



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

Temperature: 26°C

Humidity: 60 % RH

Test Date: December 21, 2014

Tested by: Dennis Li

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)
93.0500	-70.13	1.12	0.74	-70.51	-13.00	-57.51	V
275.4100	-68.35	1.99	5.21	-65.13	-13.00	-52.13	V
375.3200	-75.28	2.31	5.91	-71.68	-13.00	-58.68	V
524.7000	-77.56	2.73	6.05	-74.24	-13.00	-61.24	V
688.6300	-74.55	3.13	6.5	-71.18	-13.00	-58.18	V
800.1800	-76.3	3.33	6.52	-73.11	-13.00	-60.11	V
257.9500	-60.51	1.89	5.61	-56.79	-13.00	-43.79	H
275.4100	-54.61	1.99	5.21	-51.39	-13.00	-38.39	H
375.3200	-57.57	2.31	5.91	-53.97	-13.00	-40.97	H
479.1100	-54.66	2.64	5.56	-51.74	-13.00	-38.74	H
618.7900	-63.34	2.94	6.12	-60.16	-13.00	-47.16	H
847.7100	-62.81	3.4	6.4	-59.81	-13.00	-46.81	H

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band II /
TX / CH 9538**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.0200	-70.08	1.12	0.58	-70.62	-13.00	-57.62	V
275.4100	-68.74	1.99	5.21	-65.52	-13.00	-52.52	V
375.3200	-75.32	2.31	5.91	-71.72	-13.00	-58.72	V
405.3900	-78.66	2.42	5.94	-75.14	-13.00	-62.14	V
524.7000	-78.74	2.73	6.05	-75.42	-13.00	-62.42	V
676.0200	-77.09	3.08	6.42	-73.75	-13.00	-60.75	V
52.3100	-65.96	0.82	-4.22	-71.00	-13.00	-58.00	H
257.9500	-62.67	1.89	5.61	-58.95	-13.00	-45.95	H
275.4100	-56.91	1.99	5.21	-53.69	-13.00	-40.69	H
375.3200	-59.88	2.31	5.91	-56.28	-13.00	-43.28	H
479.1100	-56.9	2.64	5.56	-53.98	-13.00	-40.98	H
666.3200	-66.23	3.07	6.3	-63.00	-13.00	-50.00	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:** WCDMA / HSUPA Band V /
TX / CH 4132**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
93.0500	-70.33	1.12	0.74	-70.71	-13.00	-57.71	V
174.5300	-76.28	1.59	3	-74.87	-13.00	-61.87	V
275.4100	-69.19	1.99	5.21	-65.97	-13.00	-52.97	V
375.3200	-74.69	2.31	5.91	-71.09	-13.00	-58.09	V
479.1100	-76.86	2.64	5.56	-73.94	-13.00	-60.94	V
589.6900	-78.93	2.89	6.19	-75.63	-13.00	-62.63	V
94.9900	-72.17	1.13	0.42	-72.88	-13.00	-59.88	H
275.4100	-57.79	1.99	5.21	-54.57	-13.00	-41.57	H
375.3200	-59.14	2.31	5.91	-55.54	-13.00	-42.54	H
479.1100	-56.25	2.64	5.56	-53.33	-13.00	-40.33	H
552.8300	-69.74	2.82	6.14	-66.42	-13.00	-53.42	H
626.5500	-66.98	2.96	6.16	-63.78	-13.00	-50.78	H

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band V /
TX / CH 4182**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
94.9900	-69.47	1.13	0.42	-70.18	-13.00	-57.18	V
275.4100	-67.96	1.99	5.21	-64.74	-13.00	-51.74	V
375.3200	-73.36	2.31	5.91	-69.76	-13.00	-56.76	V
479.1100	-75.18	2.64	5.56	-72.26	-13.00	-59.26	V
589.6900	-77.69	2.89	6.19	-74.39	-13.00	-61.39	V
657.5900	-80.86	3.05	6.3	-77.61	-13.00	-64.61	V
91.1100	-72.93	1.11	1.05	-72.99	-13.00	-59.99	H
275.4100	-57.39	1.99	5.21	-54.17	-13.00	-41.17	H
375.3200	-59.21	2.31	5.91	-55.61	-13.00	-42.61	H
479.1100	-56.71	2.64	5.56	-53.79	-13.00	-40.79	H
618.7900	-67.5	2.94	6.12	-64.32	-13.00	-51.32	H
657.5900	-70.69	3.05	6.3	-67.44	-13.00	-54.44	H

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band V /
TX / CH 4233**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
93.0500	-70.33	1.12	0.74	-70.71	-13.00	-57.71	V
275.4100	-68.46	1.99	5.21	-65.24	-13.00	-52.24	V
294.8100	-73.2	2.06	5.5	-69.76	-13.00	-56.76	V
375.3200	-75.19	2.31	5.91	-71.59	-13.00	-58.59	V
479.1100	-77.26	2.64	5.56	-74.34	-13.00	-61.34	V
618.7900	-76.87	2.94	6.12	-73.69	-13.00	-60.69	V
147.3700	-70.71	1.42	0.44	-71.69	-13.00	-58.69	H
224.9700	-71.58	1.78	5.36	-68.00	-13.00	-55.00	H
275.4100	-59.47	1.99	5.21	-56.25	-13.00	-43.25	H
375.3200	-61.09	2.31	5.91	-57.49	-13.00	-44.49	H
479.1100	-56.68	2.64	5.56	-53.76	-13.00	-40.76	H
626.5500	-67.38	2.96	6.16	-64.18	-13.00	-51.18	H

Remark:

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

**Above 1GHz****Operation Mode:** GPRS 850 / TX / CH 128**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-38.04	5.05	6.03	-37.06	-13.00	-24.06	V
3296.000	-46.83	7.45	8.29	-45.99	-13.00	-32.99	V
N/A							
1651.000	-37.65	5.05	6.03	-36.67	-13.00	-23.67	H
3296.000	-45.75	7.45	8.29	-44.91	-13.00	-31.91	H
N/A							

Remark:

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

**Operation Mode:** GPRS 850 / TX / CH 190**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1672.000	-39.73	5.07	5.99	-38.81	-13.00	-25.81	V
5018.000	-44.34	9.42	10.61	-43.15	-13.00	-30.15	V
N/A							
1672.000	-38.73	5.07	5.99	-37.81	-13.00	-24.81	H
3345.000	-47.06	7.51	8.44	-46.13	-13.00	-33.13	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1700.000	-37.7	5.11	5.94	-36.87	-13.00	-23.87	V
4241.000	-41.57	8.54	9.59	-40.52	-13.00	-27.52	V
N/A							
1700.000	-39.02	5.11	5.94	-38.19	-13.00	-25.19	H
4241.000	-43.23	8.54	9.59	-42.18	-13.00	-29.18	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-38.9	8.2	9.1	-38.00	-13.00	-25.00	V
7398.000	-40.54	12.09	12.54	-40.09	-13.00	-27.09	V
N/A							
3702.000	-41.12	8.2	9.1	-40.22	-13.00	-27.22	H
7398.000	-40.98	12.09	12.54	-40.53	-13.00	-27.53	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:** GPRS 1900 / TX / CH 661**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-45.56	8.23	9.16	-44.63	-13.00	-31.63	V
5641.000	-49.54	10.18	10.83	-48.89	-13.00	-35.89	V
N/A							
3758.000	-42.71	8.23	9.16	-41.78	-13.00	-28.78	H
5641.000	-45.56	10.18	10.83	-44.91	-13.00	-31.91	H
7517.000	-39.75	12.24	12.72	-39.27	-13.00	-26.27	H
N/A							

Remark:

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

**Operation Mode:** GPRS 1900 / TX / CH 810**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3821.000	-50.16	8.29	9.22	-49.23	-13.00	-36.23	V
5732.000	-47.35	10.24	10.85	-46.74	-13.00	-33.74	V
N/A							
3821.000	-43.13	8.29	9.22	-42.20	-13.00	-29.20	H
5732.000	-44.04	10.24	10.85	-43.43	-13.00	-30.43	H
7636.000	-40.45	12.24	12.84	-39.85	-13.00	-26.85	H
N/A							

Remark:

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

**Operation Mode:** EDGE 850 / TX / CH 128**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-37.65	5.05	6.03	-36.67	-13.00	-23.67	V
3296.000	-46.84	7.45	8.29	-46.00	-13.00	-33.00	V
N/A							
1651.000	-37.58	5.05	6.03	-36.60	-13.00	-23.60	H
3296.000	-47.06	7.45	8.29	-46.22	-13.00	-33.22	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:** EDGE 850 / TX / CH 190**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1672.000	-39.72	5.07	5.99	-38.80	-13.00	-25.80	V
4185.000	-46.04	8.49	9.55	-44.98	-13.00	-31.98	V
N/A							
1672.000	-38.77	5.07	5.99	-37.85	-13.00	-24.85	H
3345.000	-46.7	7.51	8.44	-45.77	-13.00	-32.77	H
N/A							

Remark:

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

**Operation Mode:** EDGE 850 / TX / CH 251**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1700.000	-37.32	5.11	5.94	-36.49	-13.00	-23.49	V
4241.000	-43.07	8.54	9.59	-42.02	-13.00	-29.02	V
N/A							
1700.000	-38.35	5.11	5.94	-37.52	-13.00	-24.52	H
4241.000	-41.69	8.54	9.59	-40.64	-13.00	-27.64	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-39.82	8.2	9.1	-38.92	-13.00	-25.92	V
7398.000	-39.57	12.09	12.54	-39.12	-13.00	-26.12	V
N/A							
3702.000	-40.81	8.2	9.1	-39.91	-13.00	-26.91	H
7398.000	-40.2	12.09	12.54	-39.75	-13.00	-26.75	H
N/A							

Remark:

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

**Operation Mode:** EDGE 1900 / TX / CH 661**Test Date:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-46.87	8.23	9.16	-45.94	-13.00	-32.94	V
5641.000	-50.57	10.18	10.83	-49.92	-13.00	-36.92	V
N/A							
3758.000	-43.2	8.23	9.16	-42.27	-13.00	-29.27	H
5641.000	-46.97	10.18	10.83	-46.32	-13.00	-33.32	H
7517.000	-40.84	12.24	12.72	-40.36	-13.00	-27.36	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:** December 19, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3821.000	-49.33	8.29	9.22	-48.40	-13.00	-35.40	V
5732.000	-44.42	10.24	10.85	-43.81	-13.00	-30.81	V
N/A							
3821.000	-41.49	8.29	9.22	-40.56	-13.00	-27.56	H
5732.000	-42.8	10.24	10.85	-42.19	-13.00	-29.19	H
N/A							

Remark:

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

**Operation Mode:** WCDMA Band II / TX / CH 9262**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-40.64	8.2	9.1	-39.74	-13.00	-26.74	V
6257.000	-51.5	10.95	11.11	-51.34	-13.00	-38.34	V
N/A							
3702.000	-39.33	8.2	9.1	-38.43	-13.00	-25.43	H
6152.000	-50.73	10.93	11.02	-50.64	-13.00	-37.64	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:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3765.000	-47.29	8.24	9.16	-46.37	-13.00	-33.37	V
6019.000	-51.17	10.79	10.92	-51.04	-13.00	-38.04	V
N/A							
3765.000	-45.47	8.24	9.16	-44.55	-13.00	-31.55	H
5767.000	-50.97	10.33	10.85	-50.45	-13.00	-37.45	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:** WCDMA Band II / TX / CH 9538**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3814.000	-43.92	8.28	9.21	-42.99	-13.00	-29.99	V
6579.000	-49.49	11.19	11.39	-49.29	-13.00	-36.29	V
N/A							
3821.000	-44.63	8.29	9.22	-43.70	-13.00	-30.70	H
6453.000	-49.17	11.12	11.26	-49.03	-13.00	-36.03	H
N/A							

Remark:

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

**Operation Mode:** WCDMA Band V / TX / CH 4132**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-48.41	5.05	6.03	-47.43	-13.00	-34.43	V
4486.000	-53.19	8.87	9.79	-52.27	-13.00	-39.27	V
N/A							
1651.000	-42.56	5.05	6.03	-41.58	-13.00	-28.58	H
2477.000	-49.42	6.31	6.07	-49.66	-13.00	-36.66	H
N/A							

Remark:

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

**Operation Mode:** WCDMA Band V / TX / CH 4182**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1672.000	-47.45	5.07	5.99	-46.53	-13.00	-33.53	V
4402.000	-53.29	8.65	9.72	-52.22	-13.00	-39.22	V
N/A							
1672.000	-46.8	5.07	5.99	-45.88	-13.00	-32.88	H
3912.000	-53.26	8.39	9.31	-52.34	-13.00	-39.34	H
N/A							

Remark:

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

**Operation Mode:** WCDMA Band V / TX / CH 4233**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1693.000	-47.63	5.1	5.95	-46.78	-13.00	-33.78	V
4920.000	-53.93	9.29	10.47	-52.75	-13.00	-39.75	V
N/A							
1693.000	-43.92	5.1	5.95	-43.07	-13.00	-30.07	H
4794.000	-51.79	9.31	10.27	-50.83	-13.00	-37.83	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band II /
TX / CH 9262**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3702.000	-40.04	8.2	9.1	-39.14	-13.00	-26.14	V
5438.000	-52	9.87	10.78	-51.09	-13.00	-38.09	V
N/A							
3702.000	-39.31	8.2	9.1	-38.41	-13.00	-25.41	H
6159.000	-49.75	10.97	11.03	-49.69	-13.00	-36.69	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band II /
TX / CH 9400**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3758.000	-47.97	8.23	9.16	-47.04	-13.00	-34.04	V
5634.000	-51.46	10.18	10.83	-50.81	-13.00	-37.81	V
N/A							
3765.000	-44.45	8.24	9.16	-43.53	-13.00	-30.53	H
5900.000	-51.48	10.4	10.88	-51.00	-13.00	-38.00	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band II /
TX / CH 9538**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3814.000	-43.87	8.28	9.21	-42.94	-13.00	-29.94	V
6824.000	-47.77	11.36	11.69	-47.44	-13.00	-34.44	V
N/A							
3821.000	-44.99	8.29	9.22	-44.06	-13.00	-31.06	H
5088.000	-52.32	9.45	10.64	-51.13	-13.00	-38.13	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band V /
TX / CH 4132**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1658.000	-47.88	5.06	6.02	-46.92	-13.00	-33.92	V
4815.000	-53.17	9.31	10.3	-52.18	-13.00	-39.18	V
N/A							
1658.000	-43.14	5.06	6.02	-42.18	-13.00	-29.18	H
2484.000	-52.06	6.32	6.08	-52.30	-13.00	-39.30	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSDPA Band V /
TX / CH 4182**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1672.000	-47.52	5.07	5.99	-46.60	-13.00	-33.60	V
4332.000	-53.17	8.61	9.67	-52.11	-13.00	-39.11	V
N/A							
1672.000	-46.18	5.07	5.99	-45.26	-13.00	-32.26	H
4521.000	-52.45	8.96	9.83	-51.58	-13.00	-38.58	H
N/A							

Remark:

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



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

Temperature: 26°C

Humidity: 60 % RH

Test Date: December 21, 2014

Tested by: Dennis Li

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	-47.88	5.1	5.95	-47.03	-13.00	-34.03	V
4507.000	-53.07	8.93	9.81	-52.19	-13.00	-39.19	V
N/A							
1693.000	-44.49	5.1	5.95	-43.64	-13.00	-30.64	H
4003.000	-52.37	8.35	9.4	-51.32	-13.00	-38.32	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band II /
TX / CH 9262**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3709.000	-40.56	8.21	9.11	-39.66	-13.00	-26.66	V
5767.000	-53.11	10.33	10.85	-52.59	-13.00	-39.59	V
N/A							
3702.000	-40.13	8.2	9.1	-39.23	-13.00	-26.23	H
5998.000	-50.51	10.82	10.9	-50.43	-13.00	-37.43	H
N/A							

Remark:

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



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

Test Date: December 21, 2014

Temperature: 26°C

Tested by: Dennis Li

Humidity: 60 % RH

Polarity: Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3765.000	-45.87	8.24	9.16	-44.95	-13.00	-31.95	V
6579.000	-49.86	11.19	11.39	-49.66	-13.00	-36.66	V
N/A							
3765.000	-46.1	8.24	9.16	-45.18	-13.00	-32.18	H
6082.000	-50.43	10.66	10.97	-50.12	-13.00	-37.12	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band II /
TX / CH 9538**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3765.000	-46.1	8.24	9.16	-45.18	-13.00	-32.18	V
6082.000	-50.43	10.66	10.97	-50.12	-13.00	-37.12	V
N/A							
3821.000	-44.14	8.29	9.22	-43.21	-13.00	-30.21	H
6236.000	-49.76	11.05	11.09	-49.72	-13.00	-36.72	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band V /
TX / CH 4132**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1651.000	-47.82	5.05	6.03	-46.84	-13.00	-33.84	V
4612.000	-53.03	9.13	9.98	-52.18	-13.00	-39.18	V
N/A							
1658.000	-38.65	5.06	6.02	-37.69	-13.00	-24.69	H
2484.000	-50.19	6.32	6.08	-50.43	-13.00	-37.43	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band V /
TX / CH 4182**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1672.000	-49.15	5.07	5.99	-48.23	-13.00	-35.23	V
3898.000	-53.61	8.39	9.3	-52.70	-13.00	-39.70	V
N/A							
1672.000	-44.31	5.07	5.99	-43.39	-13.00	-30.39	H
4808.000	-51.84	9.32	10.29	-50.87	-13.00	-37.87	H
N/A							

Remark:

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

**Operation Mode:** WCDMA / HSUPA Band V /
TX / CH 4233**Test Date:** December 21, 2014**Temperature:** 26°C**Tested by:** Dennis Li**Humidity:** 60 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1693.000	-48.23	5.1	5.95	-47.38	-13.00	-34.38	V
5025.000	-53.28	9.42	10.61	-52.09	-13.00	-39.09	V
N/A							
1693.000	-44.4	5.1	5.95	-43.55	-13.00	-30.55	H
5018.000	-52.48	9.42	10.61	-51.29	-13.00	-38.29	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.



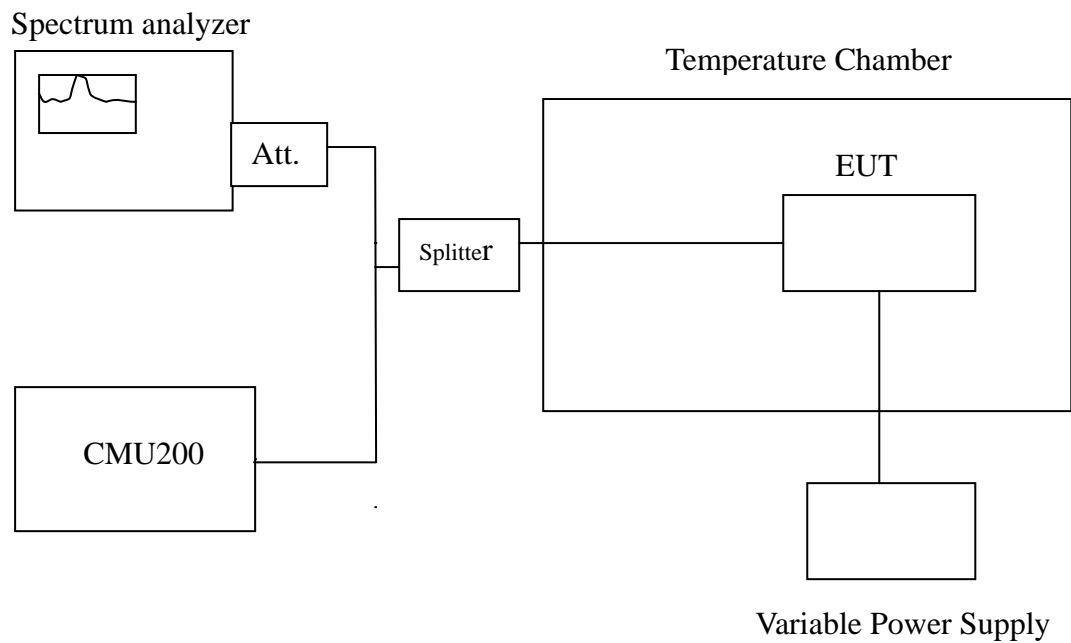
7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

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 = 20910 Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
230	50	836599984	-6	2091
	40	836599979	-11	
	30	836599993	3	
	20	836599990	0	
	10	836599987	-3	
	0	836600025	35	
	-10	836599978	-12	
	-20	836600013	23	
	-30	836600009	19	

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)
230	50	1880000012	22	4700
	40	1880000006	16	
	30	1879999994	4	
	20	1879999990	0	
	10	1880000013	23	
	0	1879999989	-1	
	-10	1879999988	-2	
	-20	1879999983	-7	
	-30	1880000005	15	



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)
230	50	836600013	5	2091
	40	836600002	-6	
	30	836600010	2	
	20	836600008	0	
	10	836600000	-8	
	0	836600015	7	
	-10	836600015	7	
	-20	836599984	-24	
	-30	836600020	12	

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)
230	50	1880000010	3	4700
	40	1880000010	3	
	30	1880000019	12	
	20	1880000007	0	
	10	1879999993	-14	
	0	1880000011	4	
	-10	1880000021	14	
	-20	1879999980	-27	
	-30	1879999980	-27	



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)
230	50	1879999979	-11	4700
	40	1880000023	33	
	30	1879999988	-2	
	20	1879999990	0	
	10	1880000019	29	
	0	1879999995	5	
	-10	1880000011	21	
	-20	1879999978	-12	
	-30	1880000002	12	

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)
230	50	836400009	5	2091
	40	836399985	-19	
	30	836399996	-8	
	20	836400004	0	
	10	836400016	12	
	0	836399998	-6	
	-10	836400017	13	
	-20	836399986	-18	
	-30	836399998	-6	



Reference Frequency: WCDMA / 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)
230	50	1879999998	-9	4700
	40	1879999992	-15	
	30	1880000004	-3	
	20	1880000007	0	
	10	1880000014	7	
	0	1879999990	-17	
	-10	1880000019	12	
	-20	1879999980	-27	
	-30	1879999979	-28	

Reference Frequency: WCDMA / 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)
230	50	836400025	24	2091
	40	836400001	0	
	30	836400018	17	
	20	836400001	0	
	10	836400015	14	
	0	836399999	-2	
	-10	836400020	19	
	-20	836399992	-9	
	-30	836399988	-13	



Reference Frequency: WCDMA / 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)
230	50	1880000023	21	4700
	40	1879999981	-21	
	30	1879999997	-5	
	20	1880000002	0	
	10	1880000014	12	
	0	1880000019	17	
	-10	1879999977	-25	
	-20	1880000009	7	
	-30	1879999994	-8	

Reference Frequency: WCDMA / 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)
230	50	836399981	-19	2091
	40	836400004	4	
	30	836400010	10	
	20	836400000	0	
	10	836399997	-3	
	0	836400017	17	
	-10	836400007	7	
	-20	836400018	18	
	-30	836399992	-8	



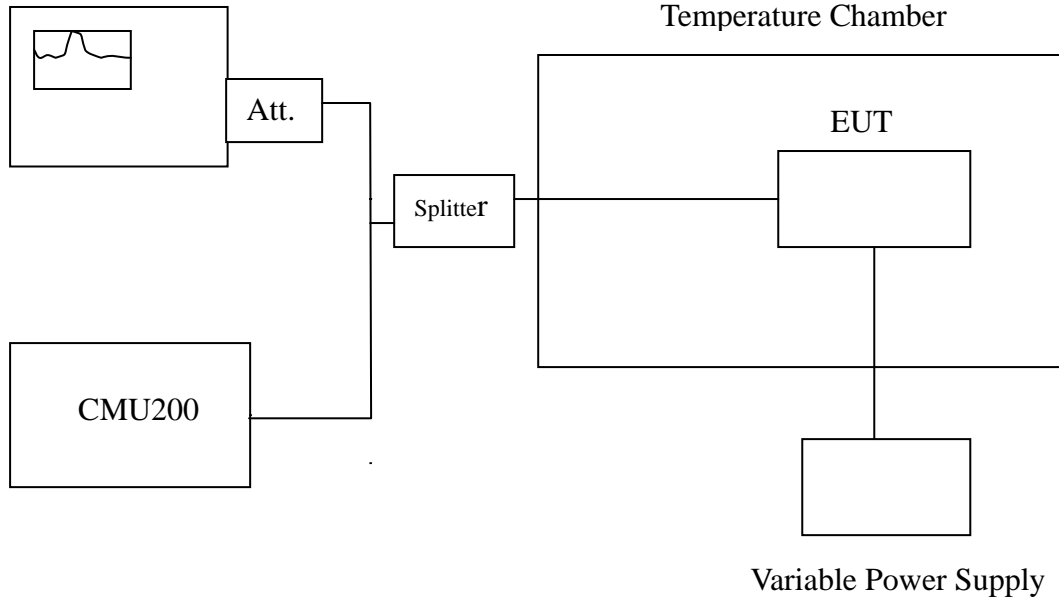
7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

LIMIT

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

Test Configuration

Spectrum analyzer



Remark: Measurement setup for testing on Antenna connector.



TEST PROCEDURE

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

Reduce the input voltage to specify extreme voltage variation ($\pm 10\%$) 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 = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
264.5	20	836599991	-16	2091
230		836600007	0	
195.5		836599982	-25	

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)
264.5	20	1879999992	-18	4700
230		1880000010	0	
195.5		1880000019	9	



Reference Frequency: EDGE Mid Channel 836.6 MHz @ 20°C				
Limit: ± 2.5 ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (°C)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
264.5	20	836600001	-9	2091
230		836600010	0	
195.5		836599987	-23	

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)
264.5	20	1879999986	-5	4700
230		1879999991	0	
195.5		1879999994	3	



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)
264.5	20	1880000013	13	4700
230		1880000000	0	
195.5		1879999994	-6	

Reference Frequency: WCDMA 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)
264.5	20	836400012	13	2091
230		836399999	0	
195.5		836400012	13	



Reference Frequency: WCDMA 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)
264.5	20	1880000013	12	4700
230		1880000001	0	
195.5		1880000016	15	

Reference Frequency: WCDMA 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)
264.5	20	8364000020	13	2091
230		8364000007	0	
195.5		836399980	-27	



Reference Frequency: WCDMA 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)
264.5	20	1879999988	-16	4700
230		1880000004	0	
195.5		1880000016	12	

Reference Frequency: WCDMA 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)
264.5	20	836400007	4	2091
230		836400003	0	
195.5		836400020	17	