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

TEST REPORT

For

Computer

Model:
TREK-674XXXXXXXXXXXXXXXX
(where "X" may be any alphanumeric character , "-" or blank)

Trade Name: Advantech Co. Ltd.

Issued to

Advantech Co. Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
Taipei 114, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.
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Issued Date: November 11, 2014

Testing Laboratory
1309

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Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		November 11, 2014		Initial Issue	ALL	Kelly Cheng

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1. TEST RESULT CERTIFICATION

Applicant: Advantech Co. Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.

Equipment Under Test: Computer

Trade Name: Advantech Co. Ltd.

Model Number: TREK-674XXXXXXXXXXXXXXXX(where "X" may be any alphanumeric character , "-" or blank)

Date of Test: November 6, 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	Computer
Trade Name	Advantech Co. Ltd.
Model Number	TREK-674XXXXXXXXXXXXXXXX(where "X" may be any alphanumeric character , "-" or blank)
Model Discrepancy	All the specification and layout are identical except they come with different model numbers for marketing purposes.
Received Date	July 7, 2014
Power Supply	Powered by DC 12-24V
Frequency Range	GSM / GPRS : 850: 824.2 ~ 848.8 MHz GSM / GPRS : 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: 22.59dBm GPRS 1900: 15.94 dBm WCDMA Band II: 13.85 dBm HSDPA Band II: 13.96 dBm HSUPA Band II: 13.86 dBm WCDMA Band V: 17.84 dBm HSDPA Band V: 16.68 dBm HSUPA Band V: 16.69 dBm
Modulation Technique	GMSK
Type of Emission	GPRS 850: 245KGXW GPRS 1900: 249KGXW WCDMA Band II: 4M13F9W WCDMA Band V: 4M16F9W WCDMA HSDPA Band II: 4M15F9W WCDMA HSDPA Band V: 4M15F9W WCDMA HSUPA Band II: 4M14F9W WCDMA HSUPA Band V: 4M14F9W
Antenna Gain	GSM / GPRS 850: 1dBi GSM / GPRS 1900: 1dBi WCDMA band II: 1dBi WCDMA band V: 1dBi
Antenna Type	Dielectric Ceramics 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: **M82-TREK674** 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

3.1EUT 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.

3.2EUT EXERCISE

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

3.3GENERAL 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.

3.4DESCRIPTION OF TEST MODES

The EUT (model: TREK-674) 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 (Y axis) for 2G

and lie-down (X axis) for 3G

4. INSTRUMENT CALIBRATION

4.1MEASURING 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.

4.2MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

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

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY43360131	03/16/2015
Power Meter	Anritsu	ML2495A	1012009	06/03/2015
Power Sensor	Anritsu	MA2411A	0917072	06/03/2015
Temp. / Humidity Chamber	Terchy	MHG-150LF	930619	10/16/2015

Wugu 966 Chamber A				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	US42510268	11/13/2014
EMI Test Receiver	R&S	ESCI	100064	02/27/2015
Pre-Amplifier	Mini-Circults	ZFL-1000LN	SF350700823	01/11/2015
Pre-Amplifier	MITEQ	AFS44-00102650-42-10P-44	1415367	11/18/2014
Bilog Antenna	Sunol Sciences	JB3	A030105	09/30/2015
Bilog Antenna	Sunol Sciences	JB3	A030205	09/30/2015
Horn Antenna	EMCO	3117	00055165	02/12/2015
Horn Antenna	EMCO	3117	00055167	01/27/2015
Horn Antenna	EMCO	3116	00026370	10/09/2015
Loop Antenna	EMCO	6502	8905/2356	06/08/2015
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
Site NSA	CCS	N/A	N/A	12/21/2014
Test S/W	EZ-EMC (CCS-3A1RE)			

4.3MEASUREMENT 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

5.1FACILITIES

☐ 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.

5.2EQUIPMENT

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.”

5.3TABLE 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

6.1SETUP CONFIGURATION OF EUT

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

6.2SUPPORT EQUIPMENT

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

Remark:

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

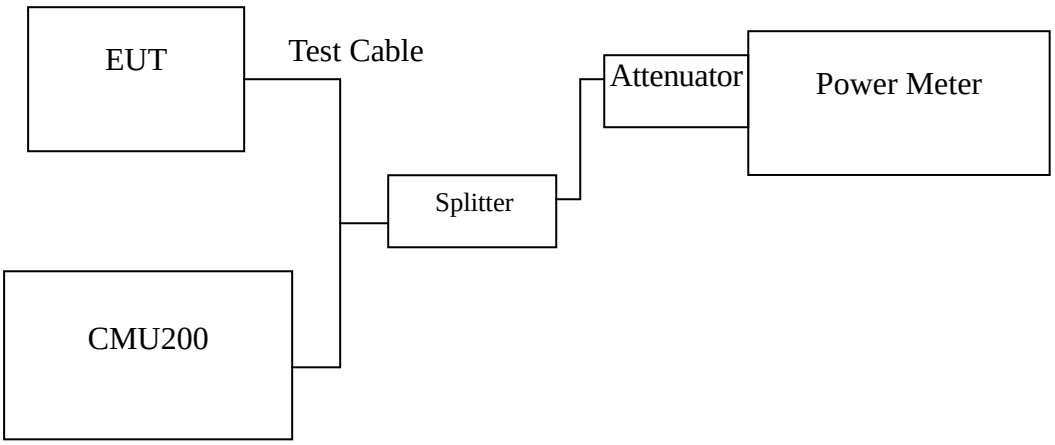
7. FCC PART 22 & 24 REQUIREMENTS

7.1 PEAK POWER

LIMIT

According to FCC §2.1046.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
GPRS 850	128	824.20	31.80	1.51356
	190	836.60	31.60	1.44544
	251	848.80	31.80	1.51356

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
GPRS 1900	512	1850.20	28.80	0.75858
	661	1880.00	28.70	0.74131
	810	1909.80	28.70	0.74131

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
WCDMA (BAND II)	9262	1852.40	25.32	0.34041
	9400	1880.00	26.11	0.40832
	9538	1907.60	25.38	0.34514
WCDMA (BAND V)	4132	826.40	26.67	0.46452
	4182	836.40	25.33	0.34119
	4233	846.60	26.12	0.40926

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
WCDMA / HSDPA (BAND II)	9262	1852.40	24.89	0.30832
	9400	1880.00	26.31	0.42756
	9538	1907.60	25.93	0.39174
WCDMA / HSDPA (BAND V)	4132	826.40	27.31	0.53827
	4182	836.40	25.51	0.35563
	4233	846.60	26.90	0.48978

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
WCDMA / HSUPA (BAND II)	9262	1852.40	25.69	0.37068
	9400	1880.00	26.35	0.43152
	9538	1907.60	25.53	0.35727
WCDMA / HSUPA (BAND V)	4132	826.40	26.70	0.46774
	4182	836.40	25.61	0.36392
	4233	846.60	26.42	0.43853

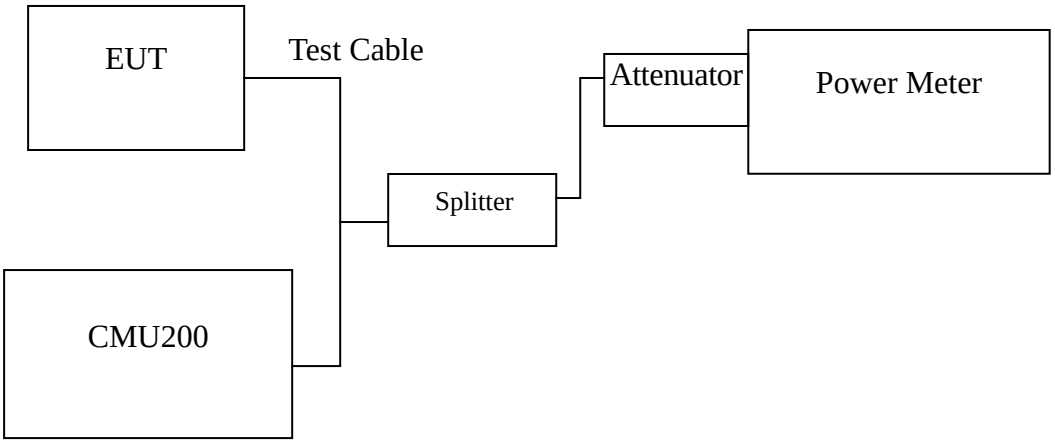
Remark: *The value of factor includes both the loss of cable and external attenuator*

7.2 AVERAGE POWER

LIMIT

For reporting purposes only.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

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

TEST RESULTS

No non-compliance noted.

Test Data

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power (W)
GPRS 850	128	824.20	31.60	1.44544
	190	836.60	31.40	1.38038
	251	848.80	31.60	1.44544

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power (W)
GPRS 1900	512	1850.20	28.70	0.74131
	661	1880.00	28.60	0.72444
	810	1909.80	28.50	0.70795

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power (W)
WCDMA (BAND II)	9262	1852.40	21.54	0.14256
	9400	1880.00	22.37	0.17258
	9538	1907.60	21.89	0.15453
WCDMA (BAND V)	4132	826.40	22.99	0.19907
	4182	836.40	22.83	0.19187
	4233	846.60	22.69	0.18578

Test Mode	CH	Frequency (MHz)	AVG Power (dBm)	Output Power (W)
WCDMA / HSDPA (BAND II)	9262	1852.40	21.08	0.12823
	9400	1880.00	22.07	0.16106
	9538	1907.60	22.37	0.17258
WCDMA / HSDPA (BAND V)	4132	826.40	22.85	0.19275
	4182	836.40	22.20	0.16596
	4233	846.60	22.55	0.17989

Test Mode	CH	Frequency (MHz)	Peak Power (dBm)	Output Power (W)
WCDMA / HSUPA (BAND II)	9262	1852.40	21.66	0.14655
	9400	1880.00	22.65	0.18408
	9538	1907.60	22.04	0.15996
WCDMA / HSUPA (BAND V)	4132	826.40	22.83	0.19187
	4182	836.40	22.25	0.16788
	4233	846.60	22.69	0.18578

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

7.3 ERP & EIRP MEASUREMENT

LIMIT

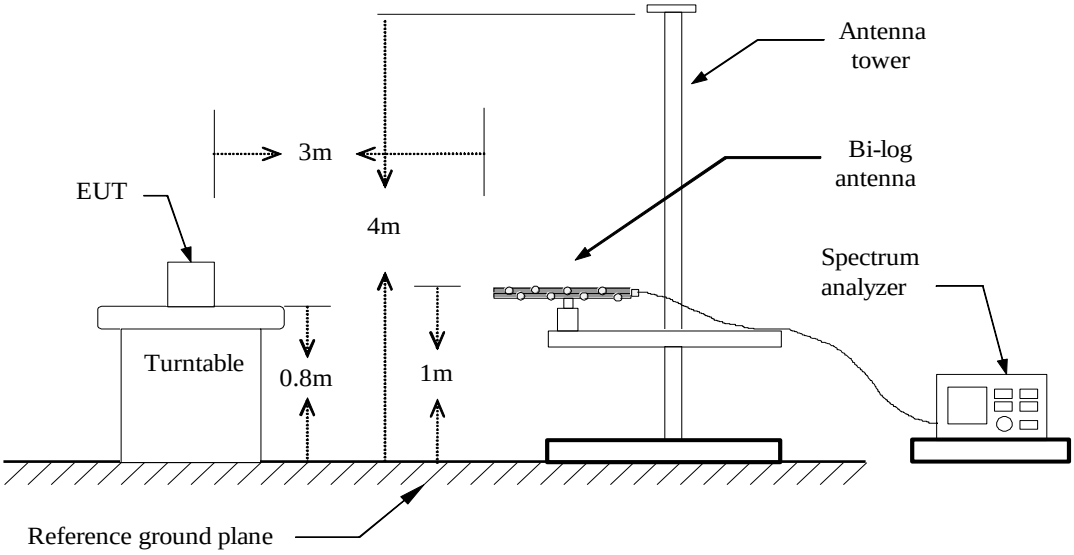
According to FCC §2.1046

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

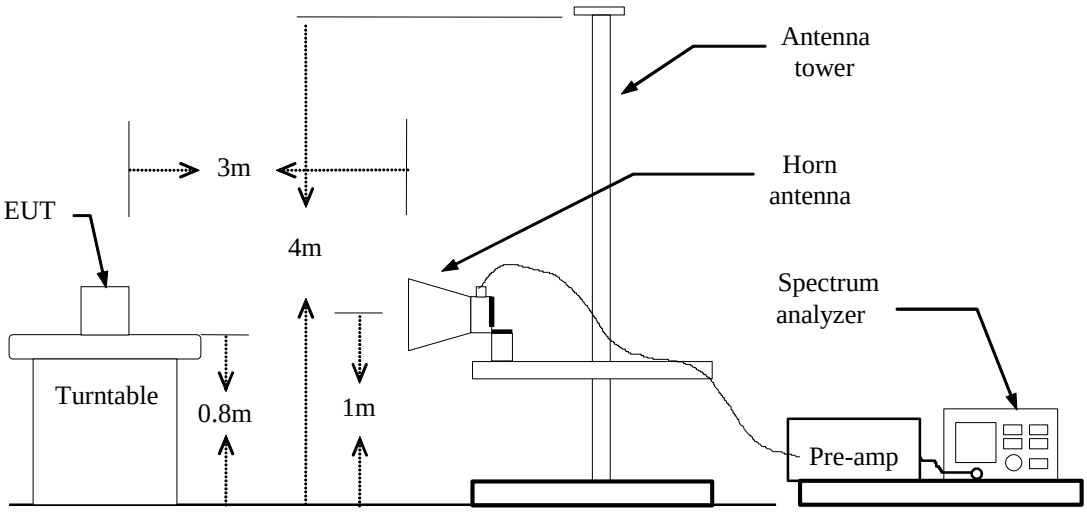
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

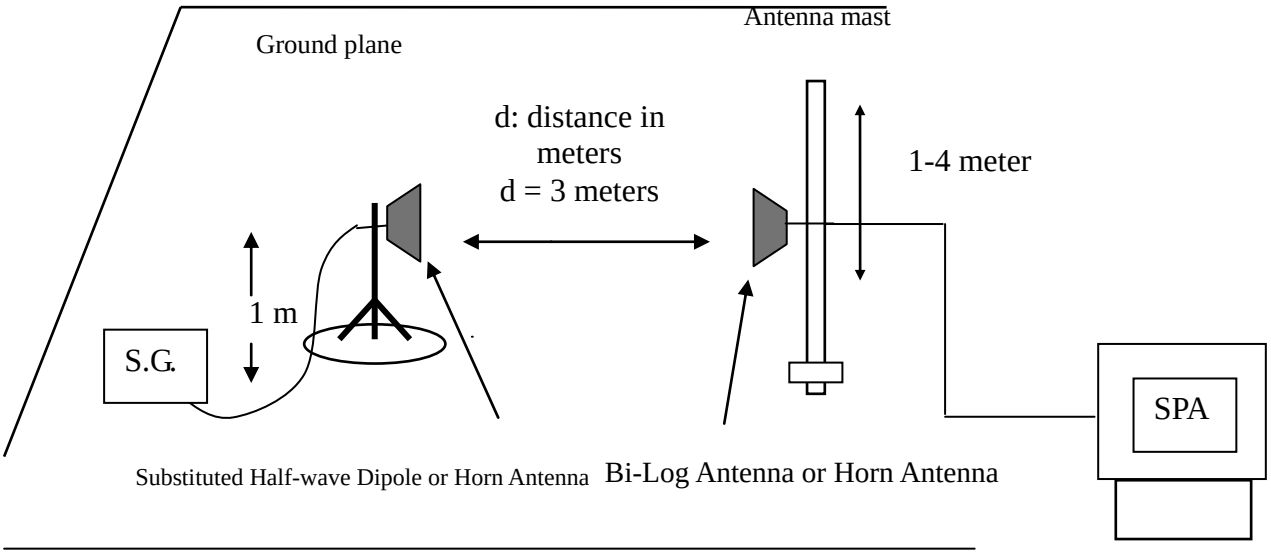
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

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

During the measurement of the EUT, the resolution bandwidth was set to 5MHz and the average bandwidth was set to 50MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

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

ERP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)-2.15
EIRP = S.G. output (dBm) + Antenna Gain (dBi) – 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	824.2900	V	18.13	3.39	6.24	20.98	38.45	-17.47
	824.0800	H	7.93	3.39	6.24	10.78	38.45	-27.67
190	830.5900	V	19.32	3.39	6.3	22.23	38.45	-16.22
	830.5200	H	9.68	3.39	6.3	12.59	38.45	-25.86
251	848.7900	V	19.59	3.4	6.4	***22.59**	38.45	-15.86
	848.6500	H	11.85	3.4	6.4	14.85	38.45	-23.60

GPRS 1900 Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
512	1850.160	V	15.42	5.37	5.67	15.72	33.00	-17.28
	1850.160	H	15.01	5.37	5.67	15.31	33.00	-17.69
661	1879.920	V	14.82	5.42	5.62	15.02	33.00	-17.98
	1880.040	H	14.76	5.42	5.62	14.96	33.00	-18.04
810	1909.680	V	15.2	5.48	5.56	15.28	33.00	-17.72
	1909.800	H	15.86	5.48	5.56	***15.94**	33.00	-17.06

WCDMA BAND II Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
9262	1853.040	V	0.09	5.37	5.66	0.38	33.00	-32.62
	1851.960	H	12.21	5.37	5.67	12.51	33.00	-20.49
9400	1879.080	V	2.17	5.42	5.62	2.37	33.00	-30.63
	1879.440	H	13.65	5.42	5.62	***13.85**	33.00	-19.15
9538	1908.000	V	0.8	5.47	5.57	0.85	33.00	-32.15
	1906.680	H	12.67	5.47	5.57	12.77	33.00	-20.23

WCDMA BAND V Test Data

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
4132	826.7400	V	14.97	3.39	6.26	***17.84**	38.45	-20.61
	825.5500	H	9.01	3.39	6.25	11.87	38.45	-26.58
4182	835.1400	V	14.18	3.4	6.35	17.13	38.45	-21.32
	837.5200	H	7.65	3.4	6.37	10.62	38.45	-27.83
4233	847.0400	V	14.48	3.4	6.4	17.48	38.45	-20.97
	847.1100	H	10.11	3.4	6.4	13.11	38.45	-25.34

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	1852.080	V	-0.48	5.37	5.67	-0.18	33.00	-33.18
	1853.400	H	10.95	5.38	5.66	11.23	33.00	-21.77
9400	1878.840	V	2.55	5.42	5.62	2.75	33.00	-30.25
	1880.040	H	13.76	5.42	5.62	***13.96**	33.00	-19.04
9538	1907.760	V	1.16	5.47	5.57	1.26	33.00	-31.74
	1906.320	H	12.62	5.47	5.57	12.72	33.00	-20.28

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	826.8800	V	13.8	3.39	6.27	***16.68**	38.45	-21.77
	825.0600	H	7.92	3.39	6.25	10.78	38.45	-27.67
4182	835.2800	V	13.01	3.4	6.35	15.96	38.45	-22.49
	837.4500	H	6.59	3.4	6.37	9.56	38.45	-28.89
4233	846.9000	V	13.5	3.4	6.4	16.50	38.45	-21.95
	846.9700	H	9.61	3.4	6.4	12.61	38.45	-25.84

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	1851.840	V	-0.68	5.37	5.67	-0.38	33.00	-33.38
	1853.280	H	11.15	5.38	5.66	11.43	33.00	-21.57
9400	1879.080	V	2.56	5.42	5.62	2.76	33.00	-30.24
	1880.640	H	13.67	5.42	5.61	***13.86**	33.00	-19.14
9538	1908.120	V	0.95	5.47	5.57	1.05	33.00	-31.95
	1906.680	H	12.65	5.47	5.57	12.75	33.00	-20.25

WCDMA / HSUPA BAND V Test Data

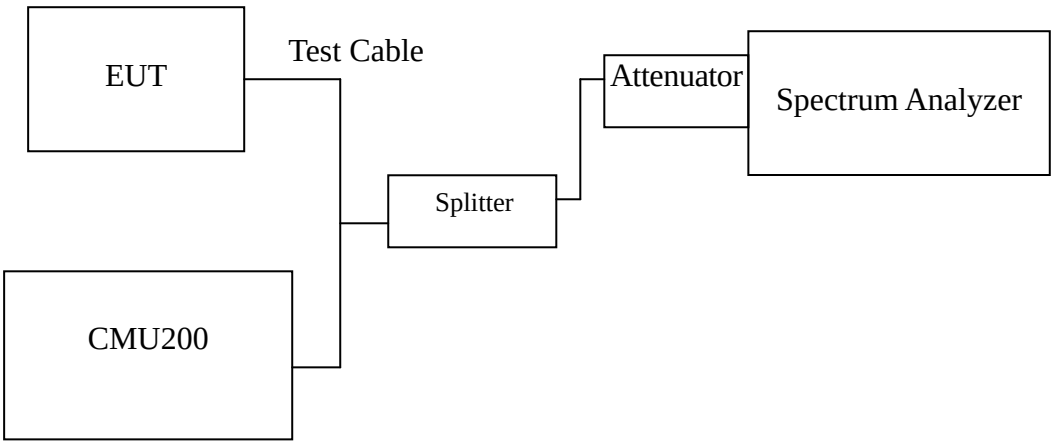
Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
4132	826.8100	V	13.82	3.39	6.26	***16.69**	38.45	-21.76
	825.1300	H	7.92	3.39	6.25	10.78	38.45	-27.67
4182	835.2800	V	13.02	3.4	6.35	15.97	38.45	-22.48
	837.3800	H	6.63	3.4	6.37	9.60	38.45	-28.85
4233	846.9700	V	13.43	3.4	6.4	16.43	38.45	-22.02
	846.9700	H	9.59	3.4	6.4	12.59	38.45	-25.86

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

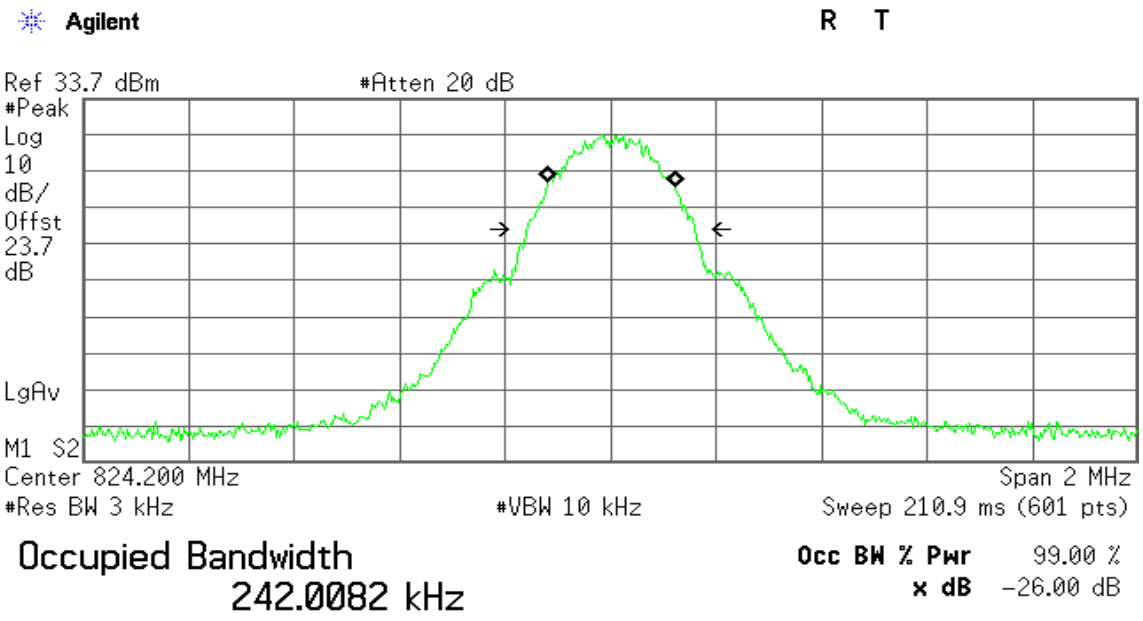
Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)	26dB Bandwidth (kHz)
GPRS 850	128	824.20	242.0082	319.549
	190	836.60	244.8270	316.680
	251	848.80	***245.4745**	311.673

Test Mode	CH	Frequency (MHz)	99% Bandwidth (kHz)	26dB Bandwidth (kHz)
GPRS 1900	512	1850.20	246.6016	312.505
	661	1880.00	***249.8406**	317.080
	810	1909.80	242.8398	313.527

Test Mode	CH	Frequency (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
WCDMA (Band II)	9262	1852.40	***4.1349**	4.626
	9400	1880.00	4.1334	4.639
	9538	1907.60	4.1232	4.625
WCDMA (Band V)	4132	826.40	4.1294	4.631
	4182	836.40	***4.1618**	4.664
	4233	846.60	4.1427	4.639
WCDMA / HSDPA (BAND II)	9262	1852.40	4.1348	4.606
	9400	1880.00	***4.1515**	4.622
	9538	1907.60	4.1177	4.628
WCDMA / HSDPA (BAND V)	4132	826.40	4.1488	4.637
	4182	836.40	***4.1542**	4.645
	4233	846.60	4.1210	4.627
WCDMA / HSUPA (BAND II)	9262	1852.40	4.1447	4.629
	9400	1880.00	***4.1484**	4.625
	9538	1907.60	4.1215	4.626
WCDMA / HSUPA (BAND V)	4132	826.40	4.1303	4.641
	4182	836.40	***4.1498**	4.649
	4233	846.60	4.1241	4.629

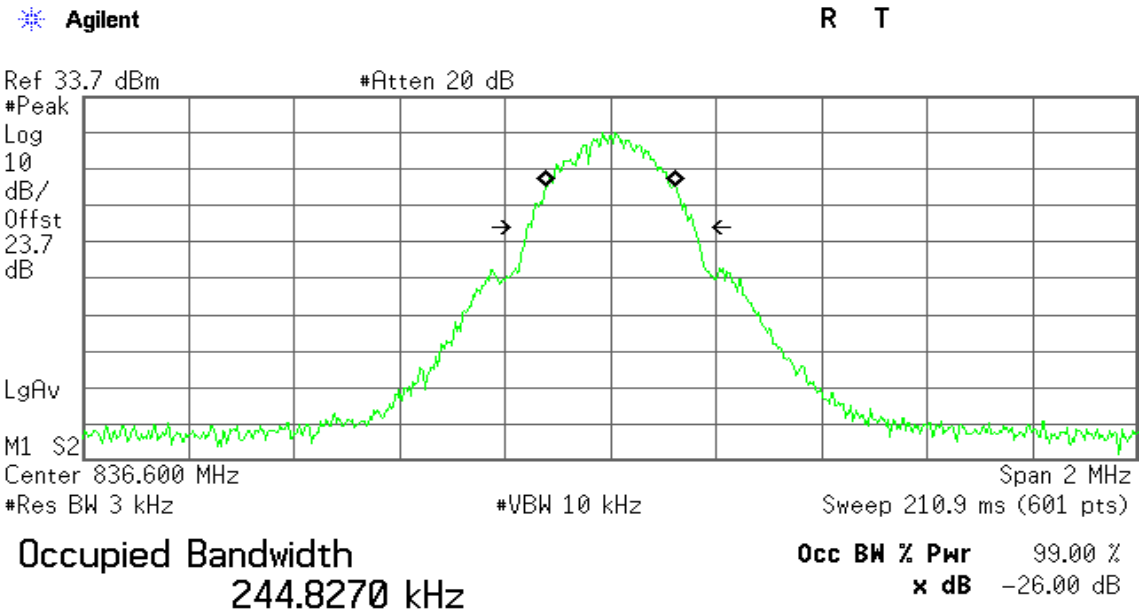
Test Plot

GPRS 850 (CH Low)



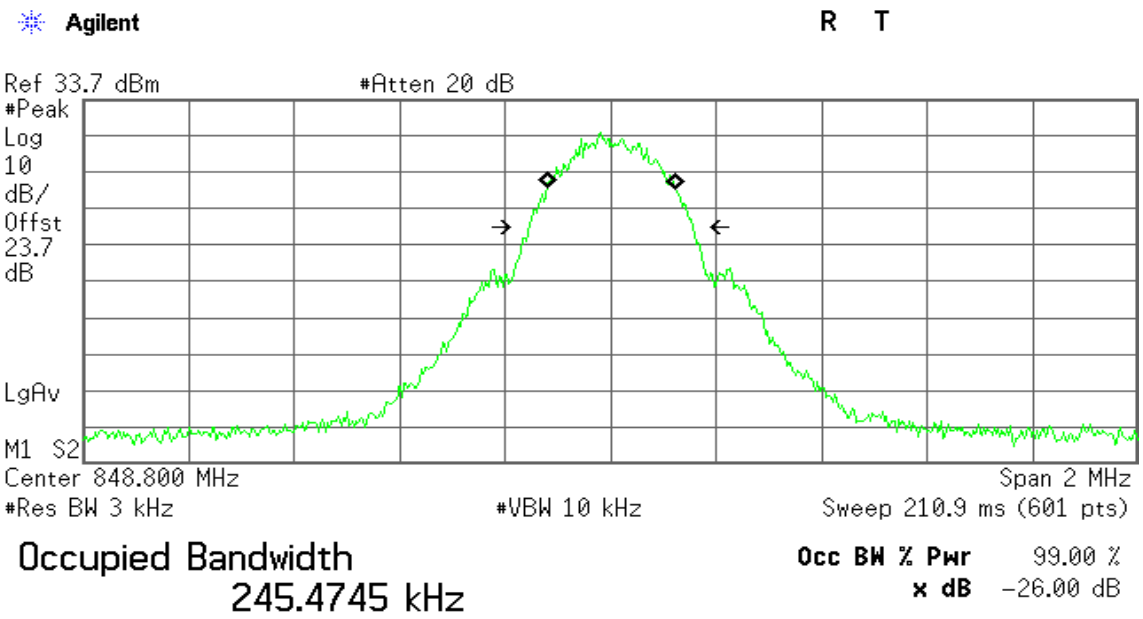
Transmit Freq Error 1.114 kHz
x dB Bandwidth 319.549 kHz

GPRS 850 (CH Mid)



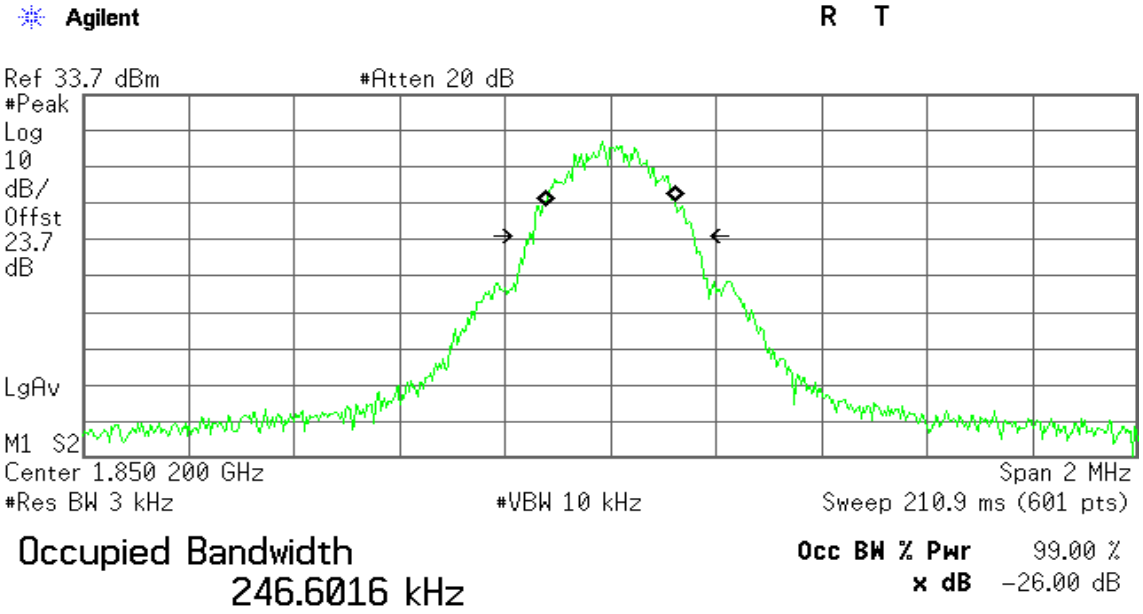
Transmit Freq Error 683.740 Hz
x dB Bandwidth 316.680 kHz

GPRS 850(CH High)



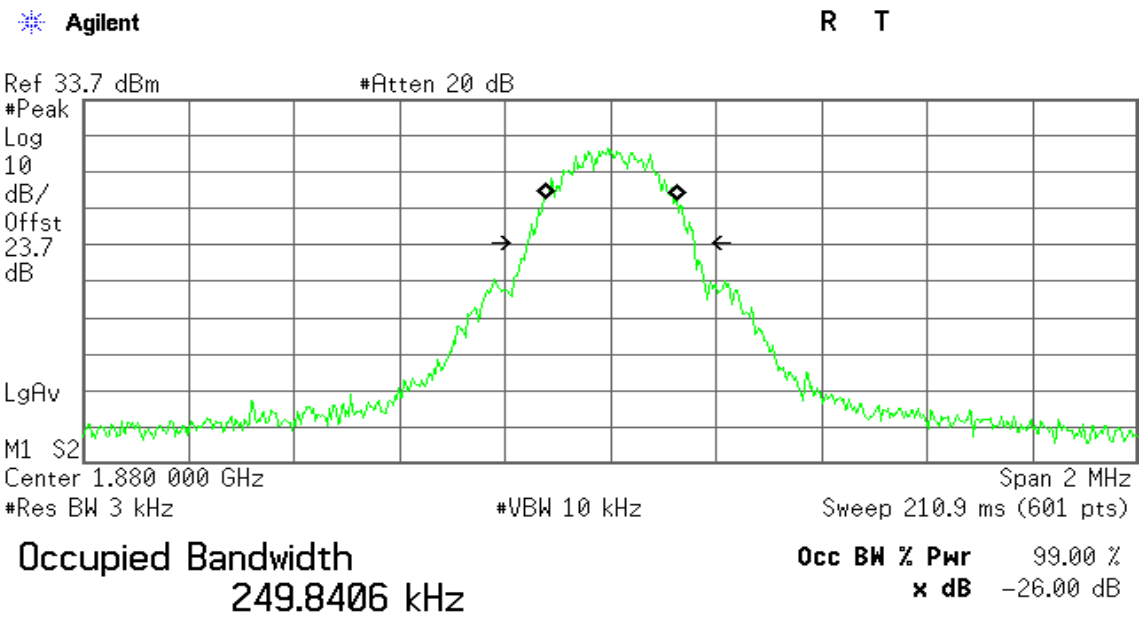
Transmit Freq Error 1.480 kHz
x dB Bandwidth 311.673 kHz

GPRS 1900 (CH Low)



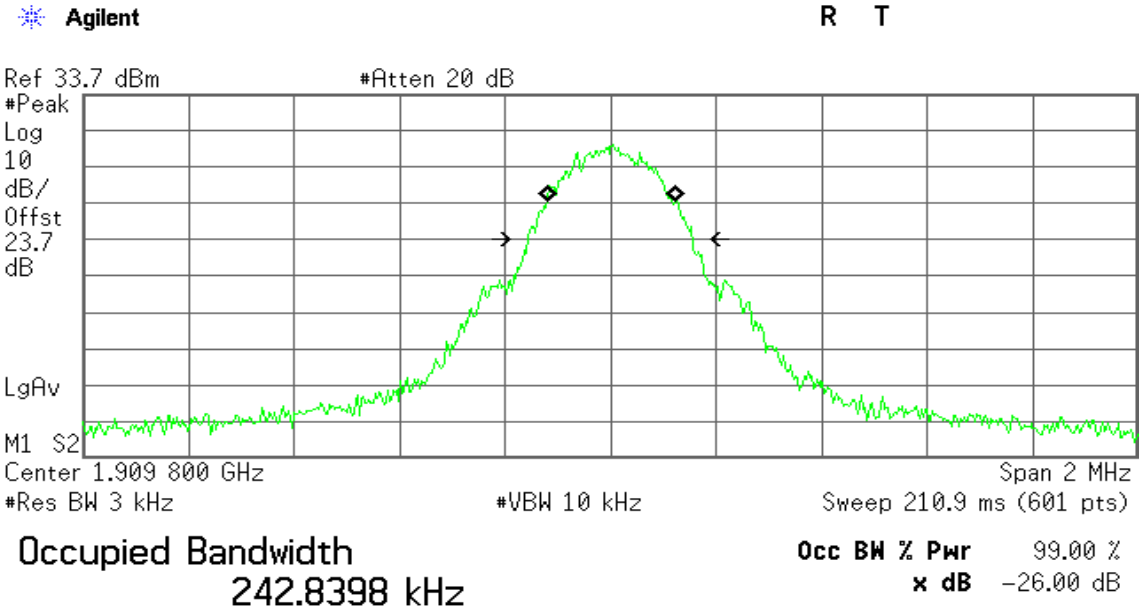
Transmit Freq Error -36.814 Hz
x dB Bandwidth 312.505 kHz

GPRS 1900 (CH Mid)



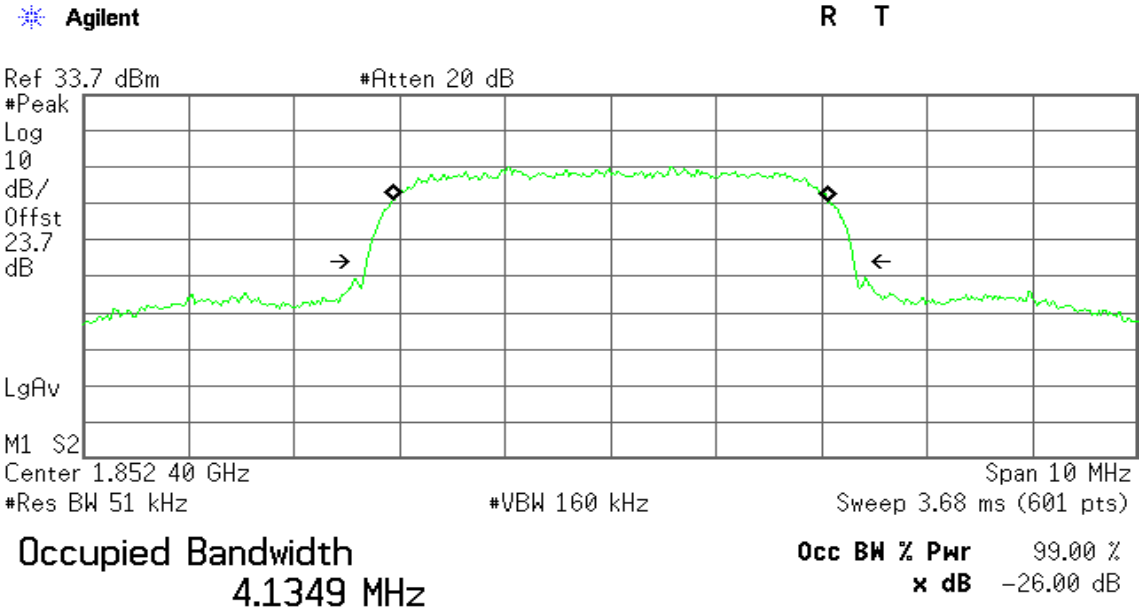
Transmit Freq Error 267.310 Hz
x dB Bandwidth 317.080 kHz

GPRS 1900 (CH High)



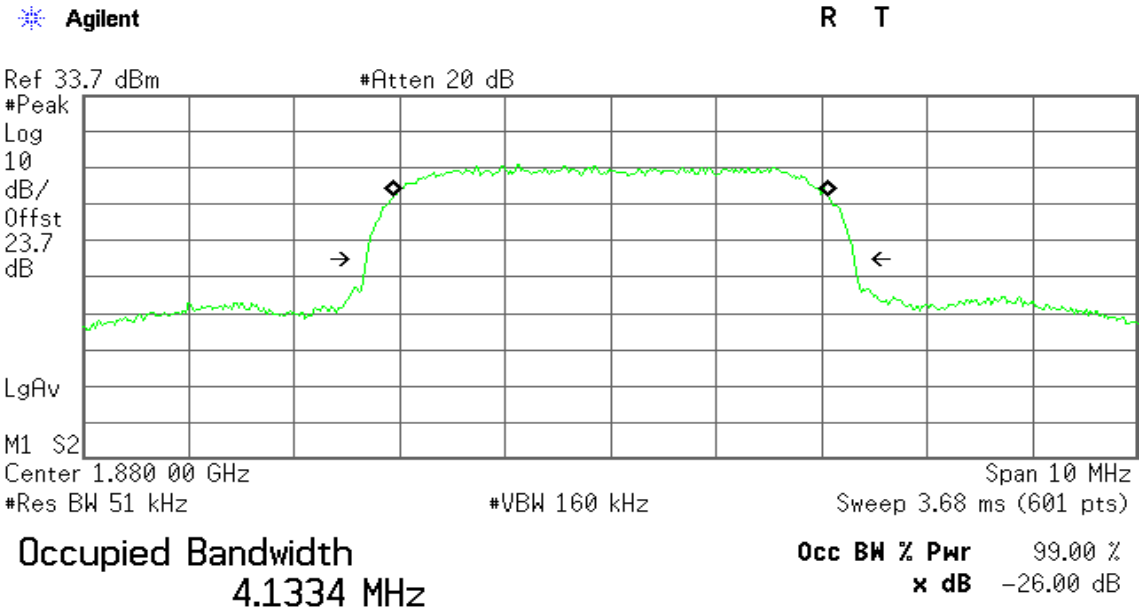
Transmit Freq Error 1.179 kHz
x dB Bandwidth 313.527 kHz

WCDMA Band II (CH Low)



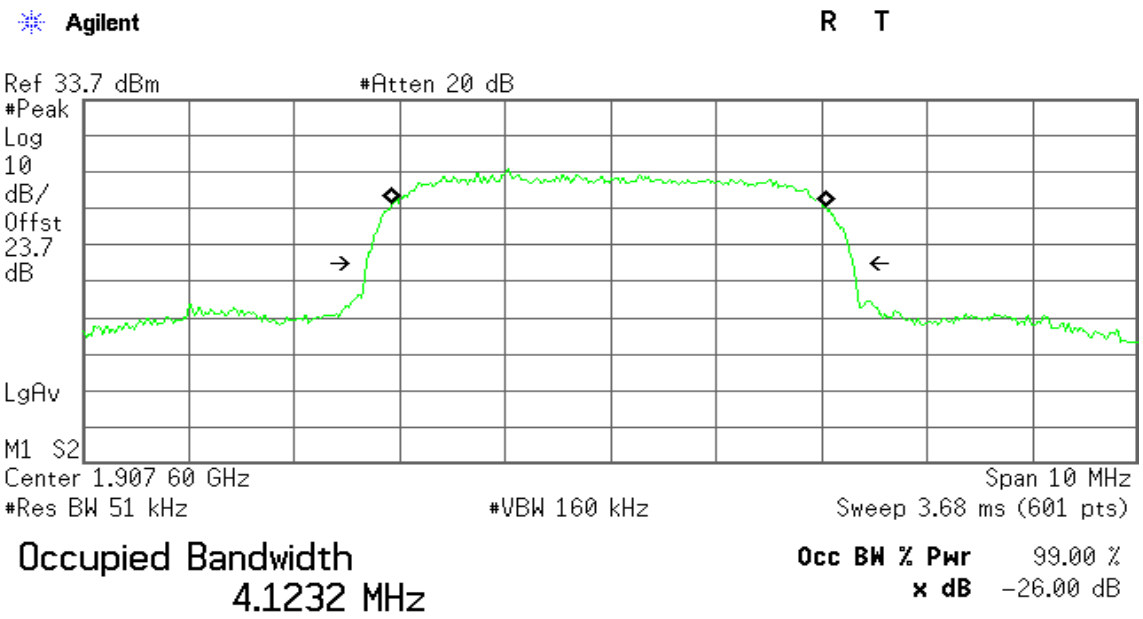
Transmit Freq Error 3.032 kHz
x dB Bandwidth 4.626 MHz

WCDMA Band II (CH Mid)



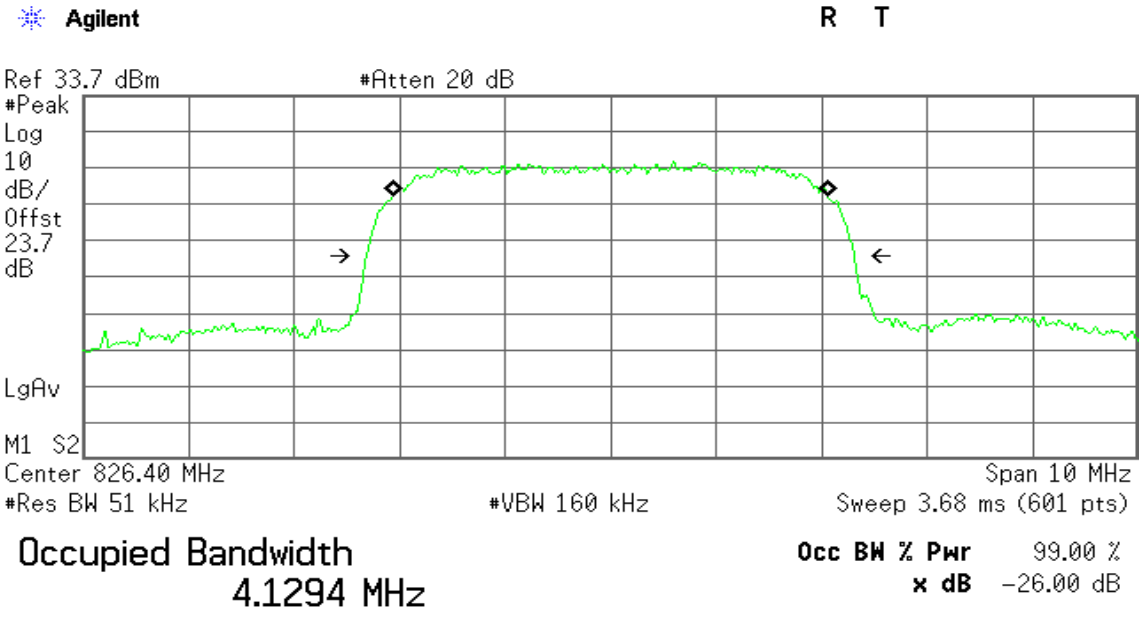
Transmit Freq Error 876.177 Hz
x dB Bandwidth 4.639 MHz

WCDMA Band II (CH High)



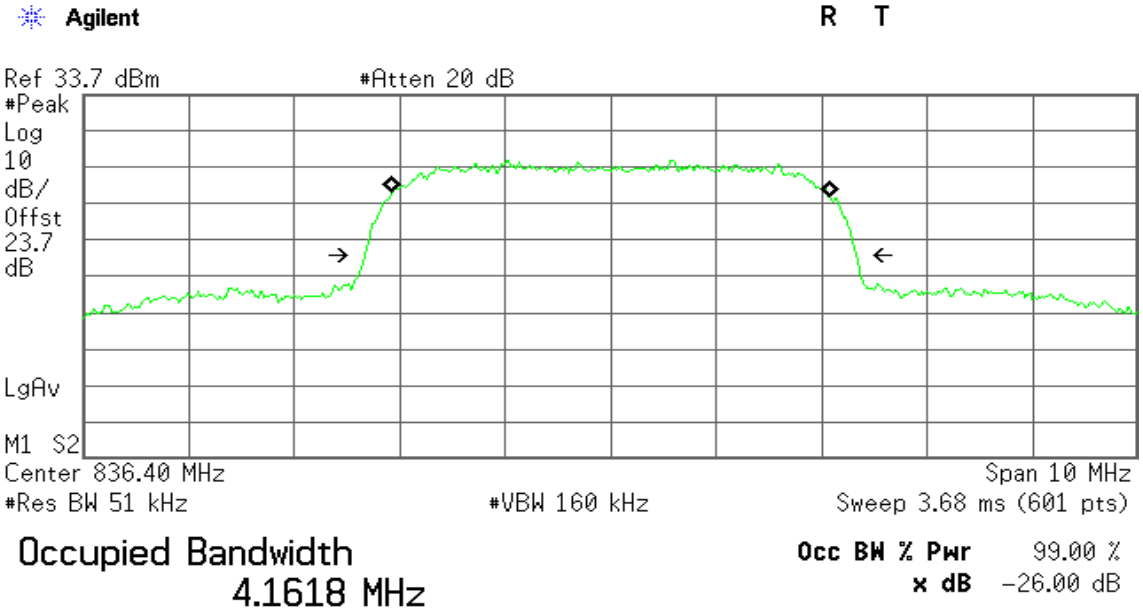
Transmit Freq Error -19.139 kHz
x dB Bandwidth 4.625 MHz

WCDMA Band V (CH Low)

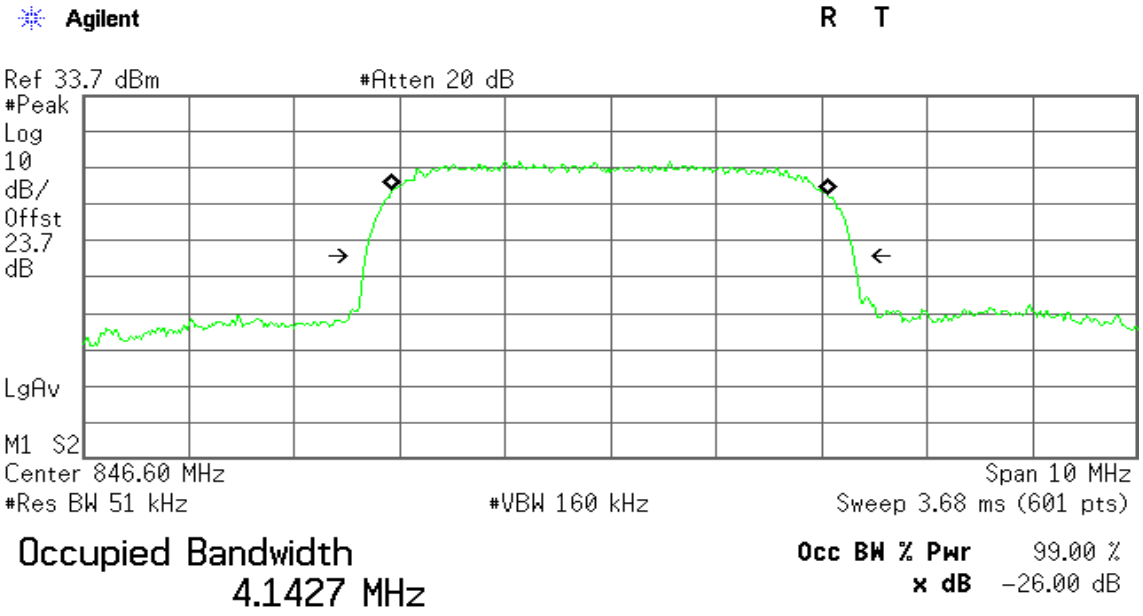


Transmit Freq Error -2.976 kHz
x dB Bandwidth 4.631 MHz

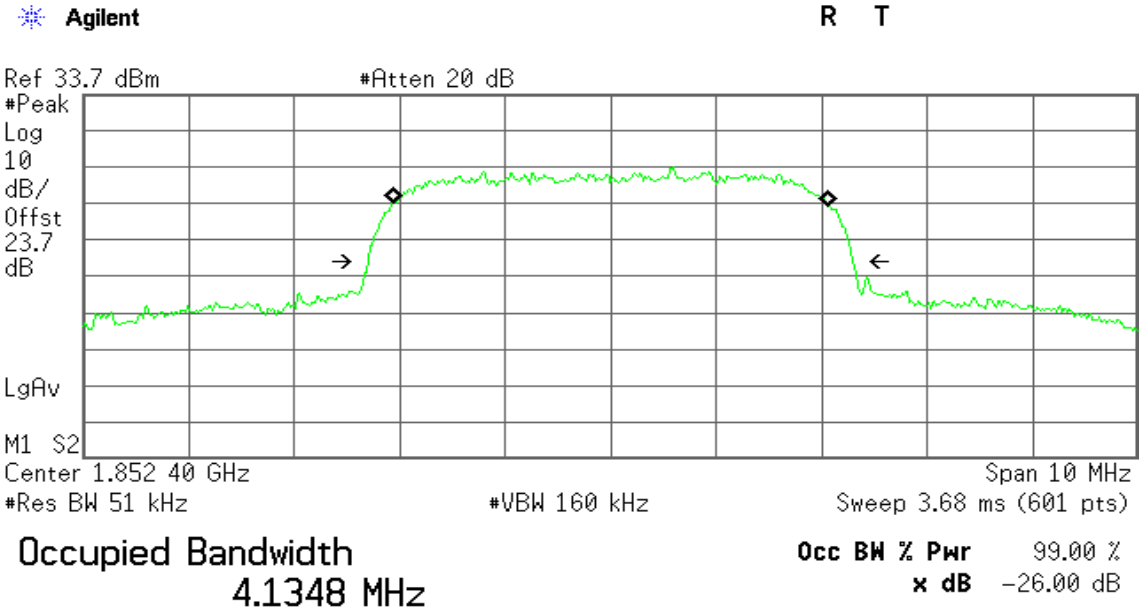
WCDMA Band V (CH Mid)



WCDMA Band V (CH High)

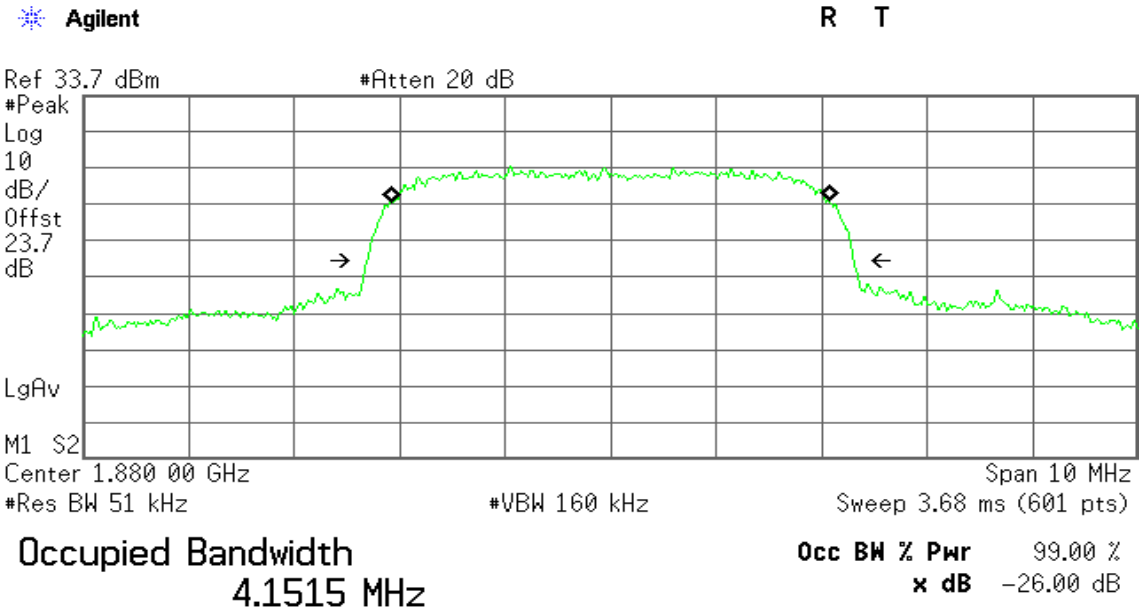


WCDMA / HSDPA Band II (CH Low)



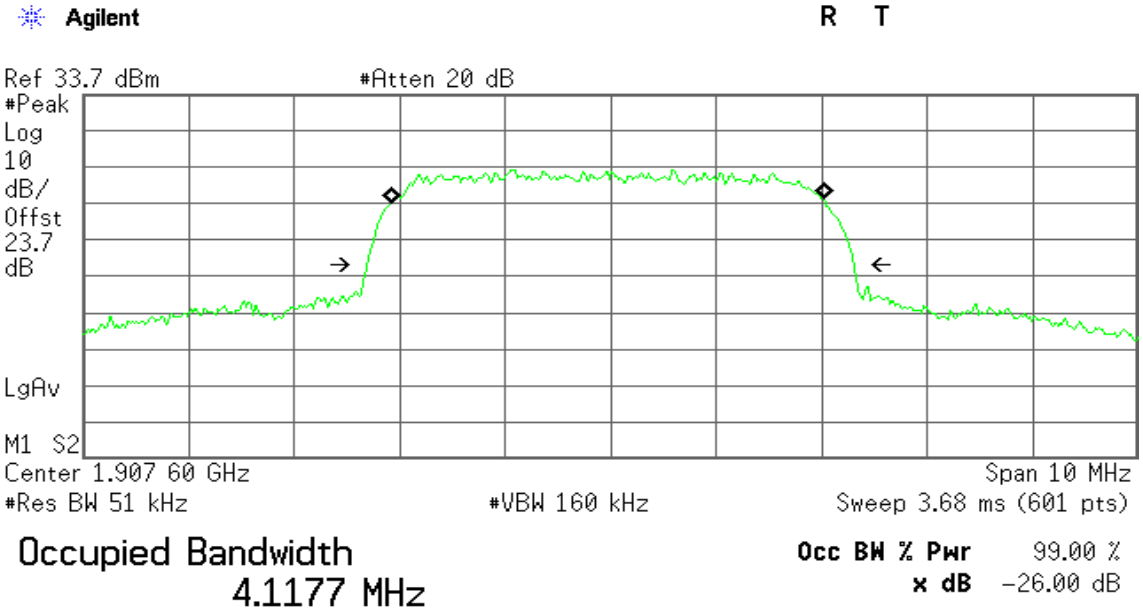
Transmit Freq Error 1.850 kHz
x dB Bandwidth 4.606 MHz

WCDMA / HSDPA Band II (CH Mid)



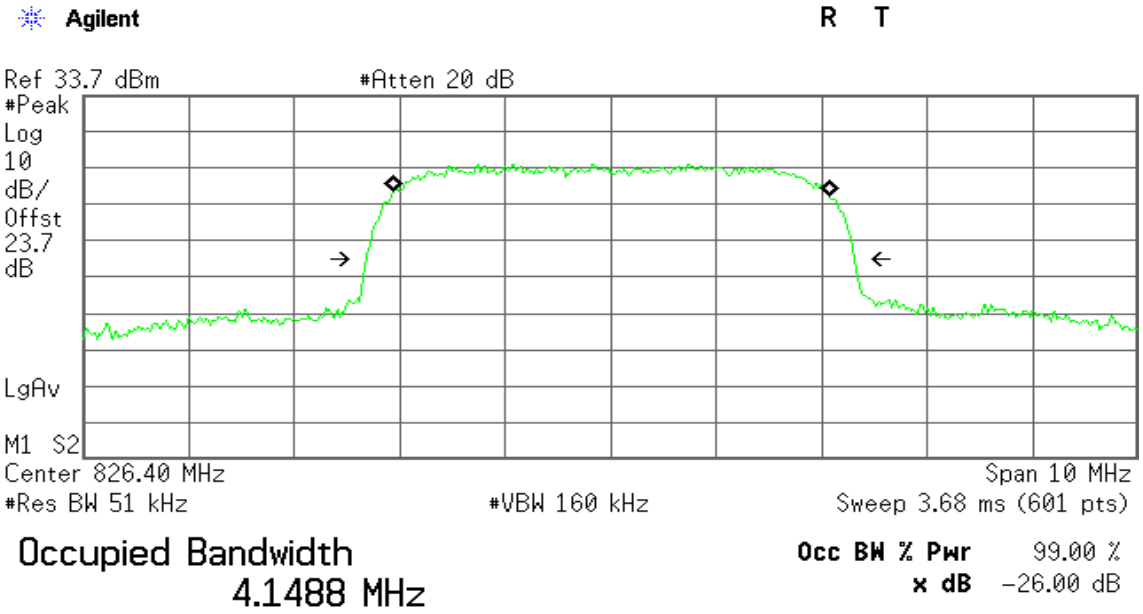
Transmit Freq Error -310.290 Hz
x dB Bandwidth 4.622 MHz

WCDMA / HSDPA Band II (CH High)



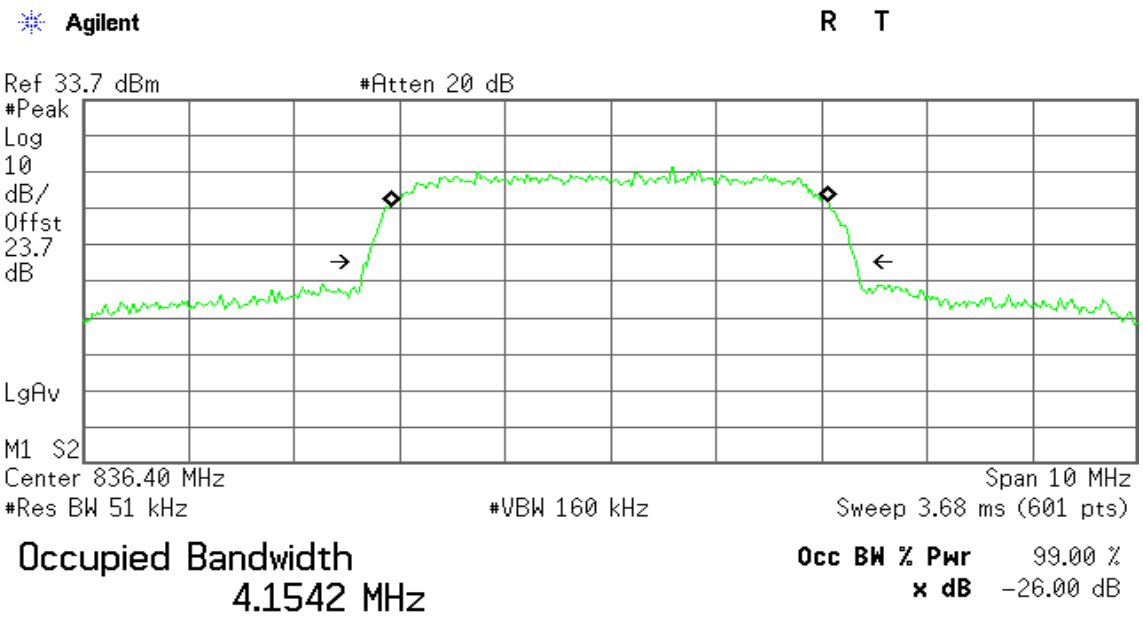
Transmit Freq Error -19.951 kHz
x dB Bandwidth 4.628 MHz

WCDMA / HSDPA Band V (CH Low)



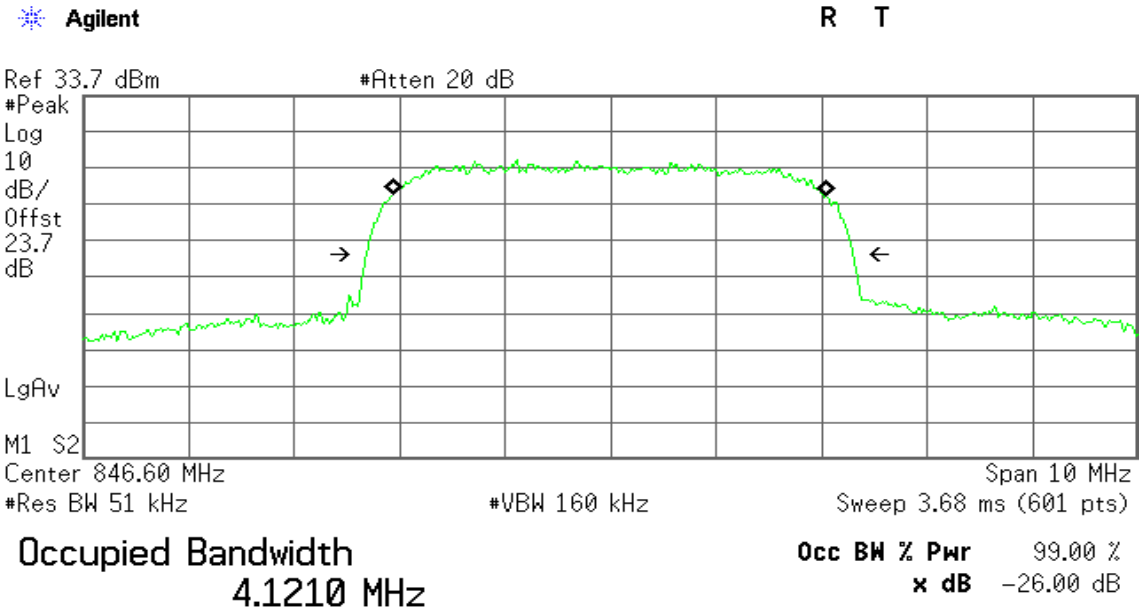
Transmit Freq Error 5.678 kHz
x dB Bandwidth 4.637 MHz

WCDMA / HSDPA Band V (CH Mid)



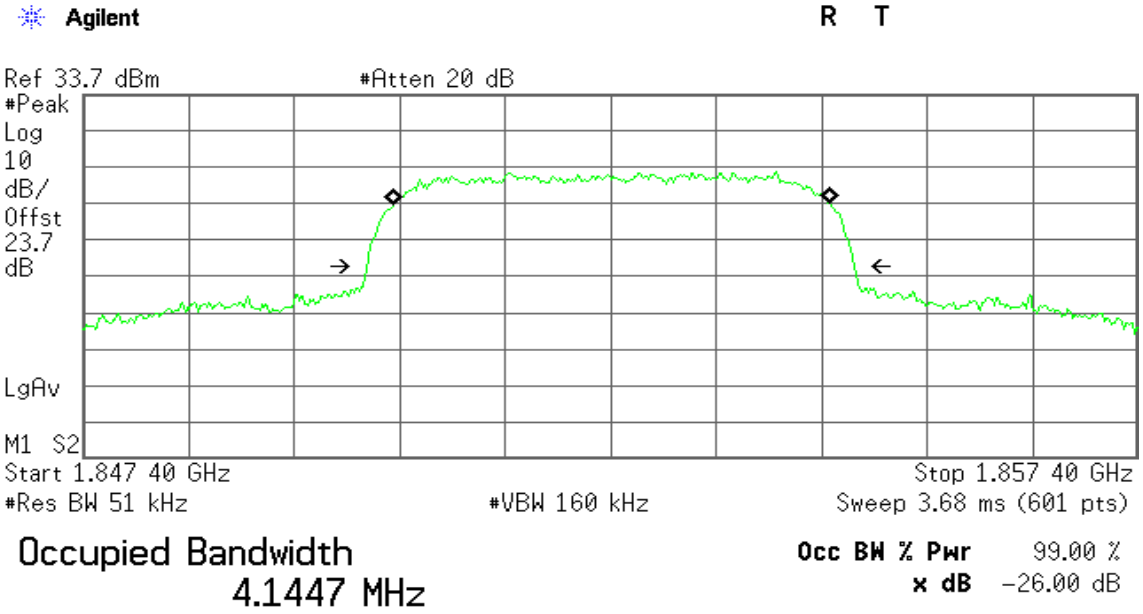
Transmit Freq Error -7.795 kHz
x dB Bandwidth 4.645 MHz

WCDMA / HSDPA Band V (CH High)



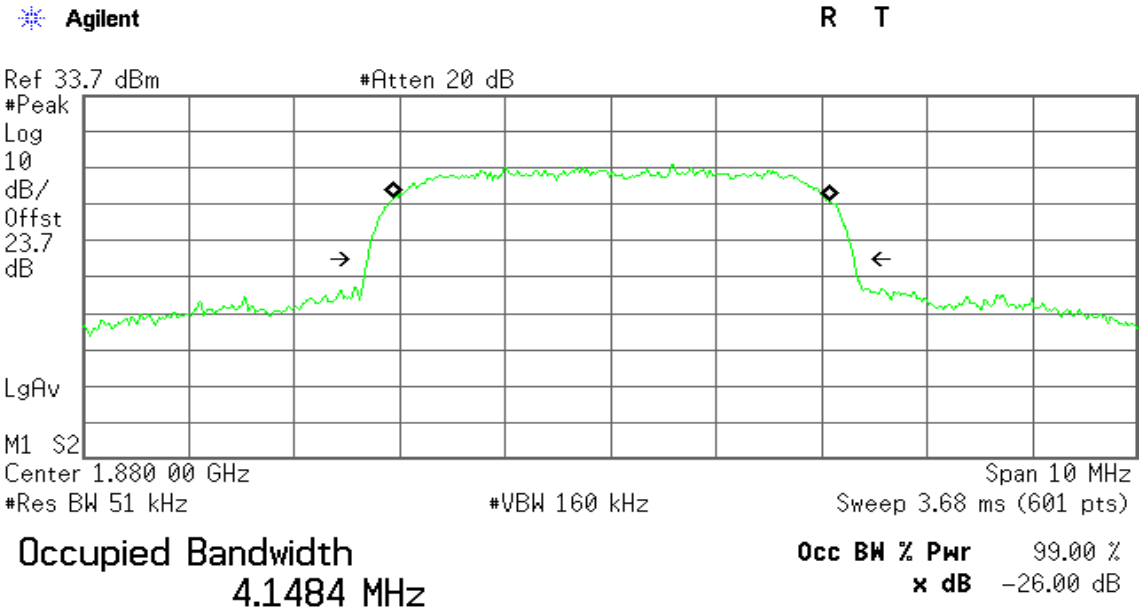
Transmit Freq Error -10.991 kHz
x dB Bandwidth 4.627 MHz

WCDMA / HSUPA Band II (CH Low)



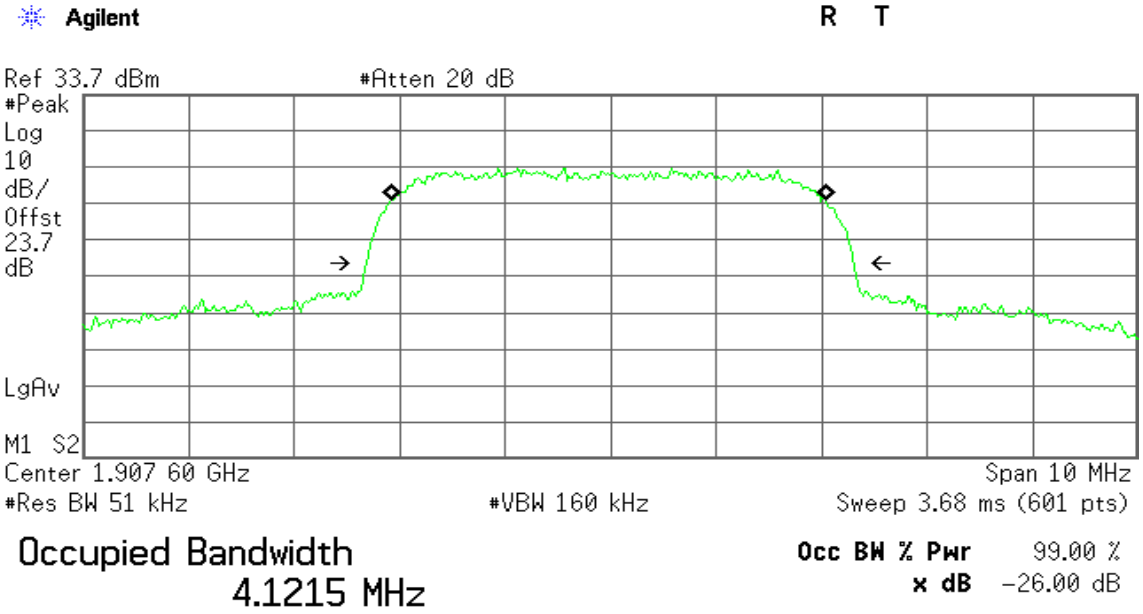
Transmit Freq Error 7.540 kHz
x dB Bandwidth 4.629 MHz

WCDMA / HSUPA Band II (CH Mid)



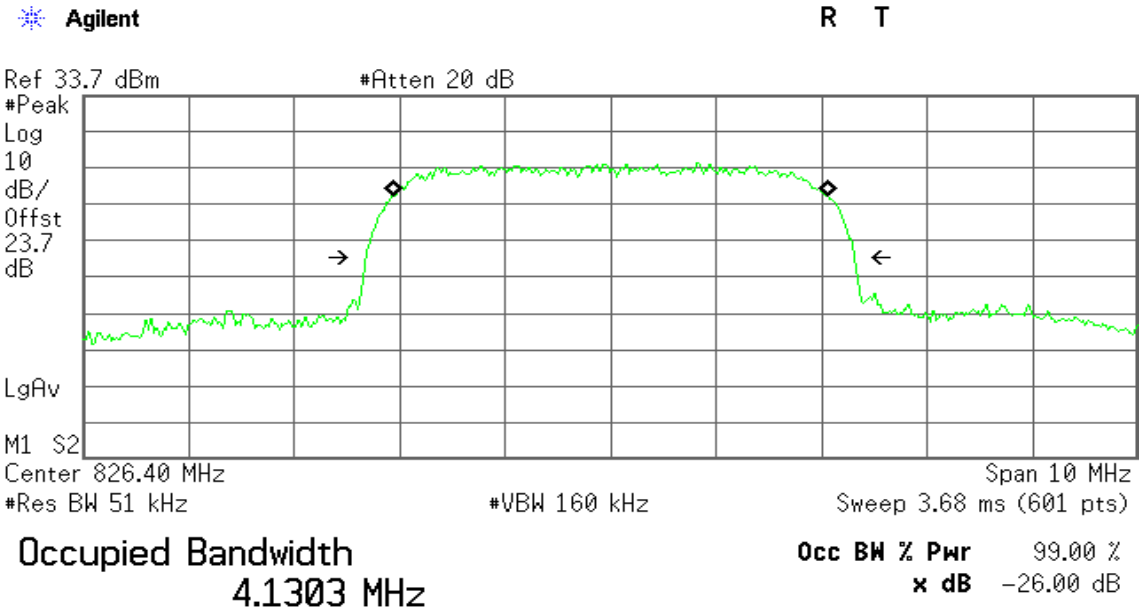
Transmit Freq Error 3.581 kHz
x dB Bandwidth 4.625 MHz

WCDMA / HSUPA Band II (CH High)



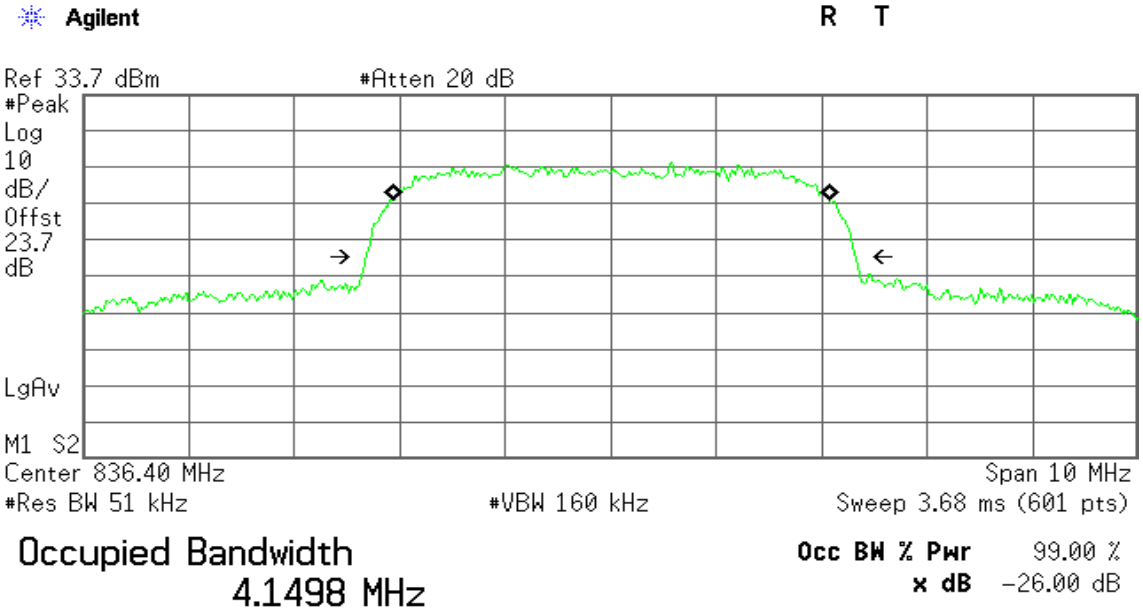
Transmit Freq Error -17.774 kHz
x dB Bandwidth 4.626 MHz

WCDMA / HSUPA Band V (CH Low).

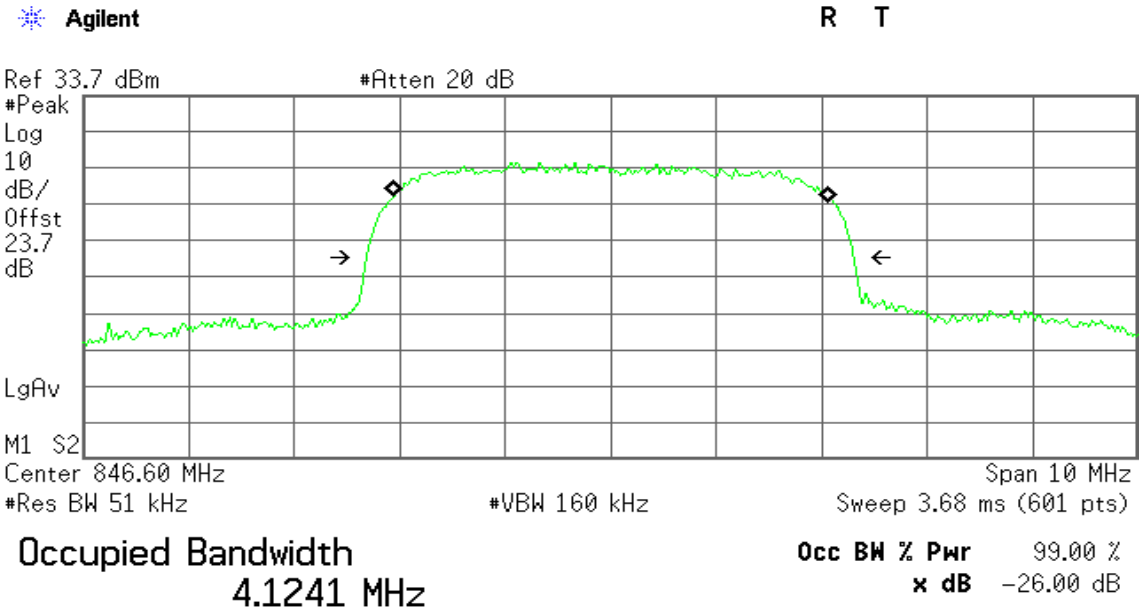


Transmit Freq Error 1.849 kHz
x dB Bandwidth 4.641 MHz

WCDMA / HSUPA Band V (CH Mid)



WCDMA / HSUPA Band V (CH High)



7.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS

LIMIT

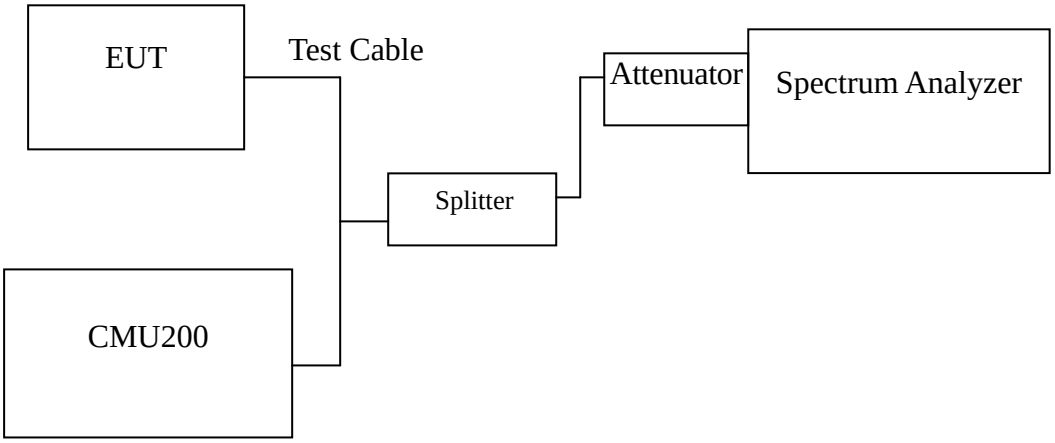
According to FCC §2.1051, FCC §22.917, FCC §24.238(a).

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 lease 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 lease 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission

Test Configuration

Out of band emission at antenna terminals:



TEST PROCEDURE

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

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

Band Edge Requirements (824 MHz and 849 MHz /1850MHz and 1910MHz): In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

TEST RESULTS

No non-compliance noted.

Test Data

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

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

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

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

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

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

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

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

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

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

Test Plot

GPRS 850

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

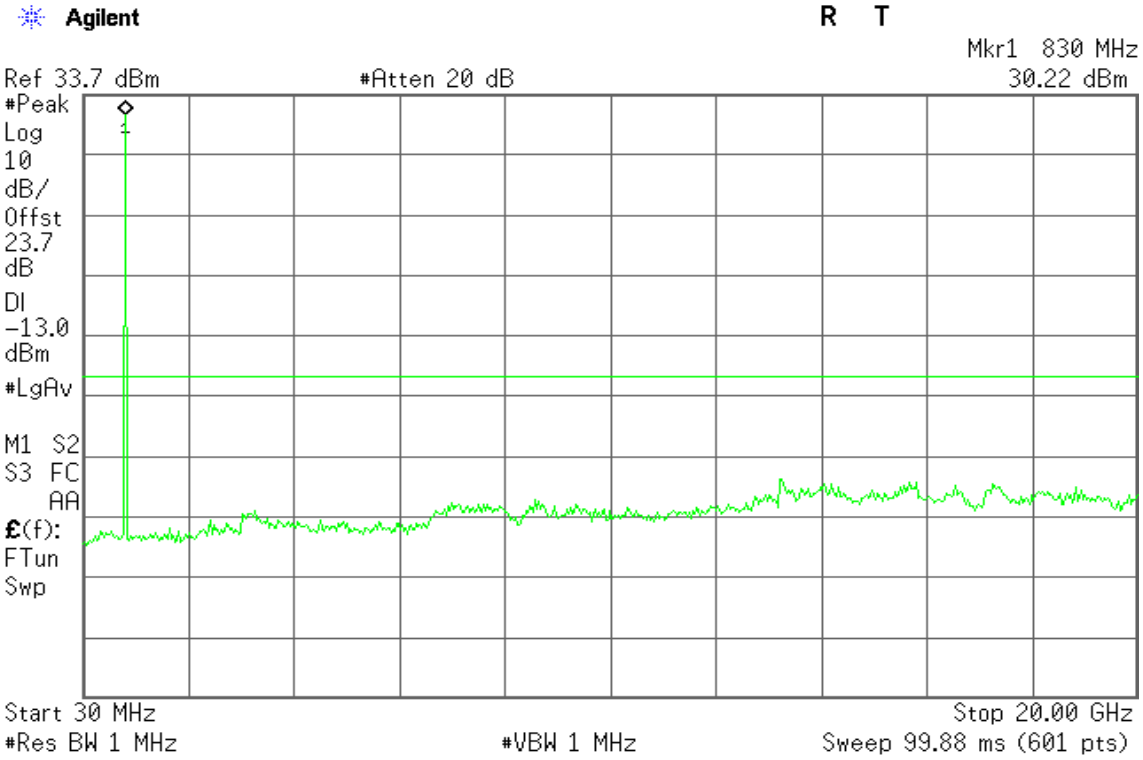


Figure 8-2: Out of Band emission at antenna terminals – GPRS CH Mid

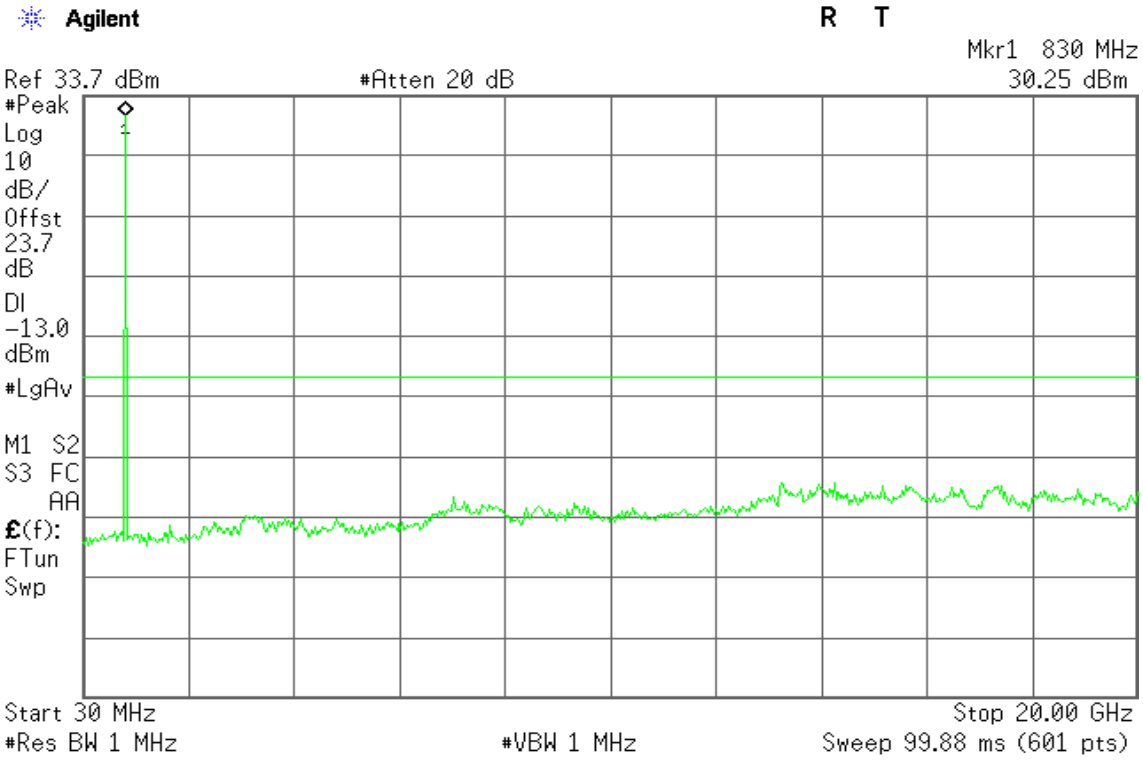
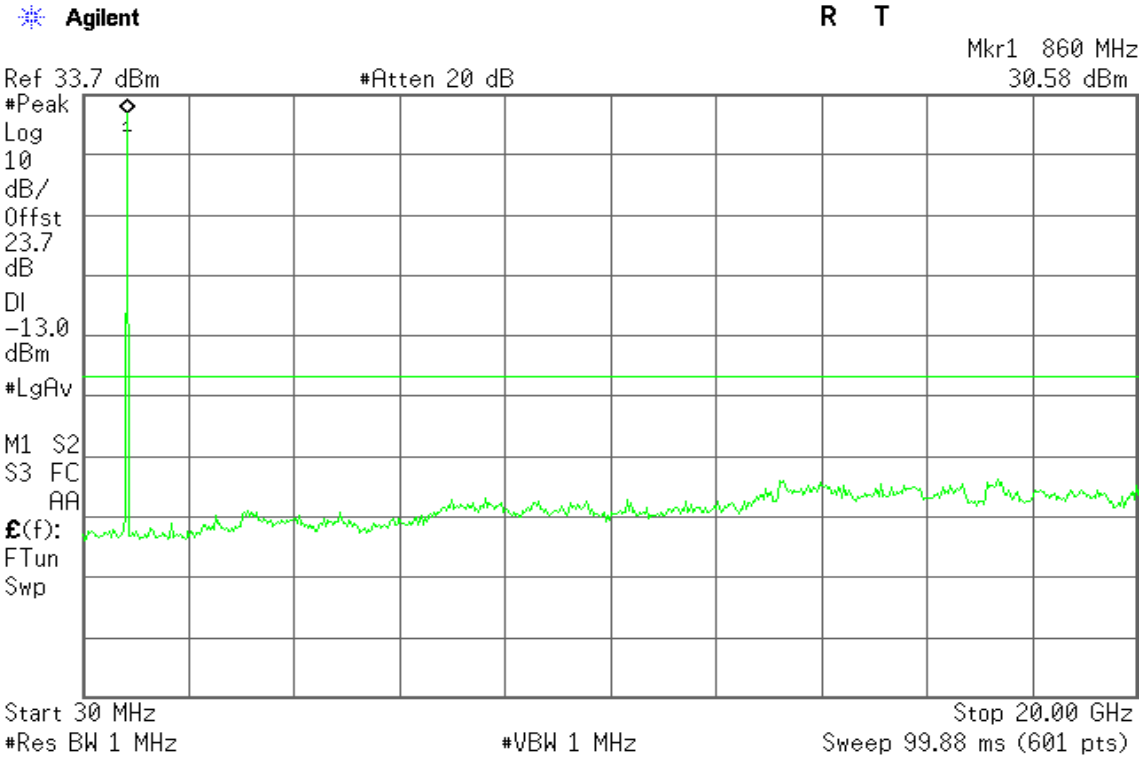


Figure 8-3: Out of Band emission at antenna terminals – GPRS CH High



GPRS 1900

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

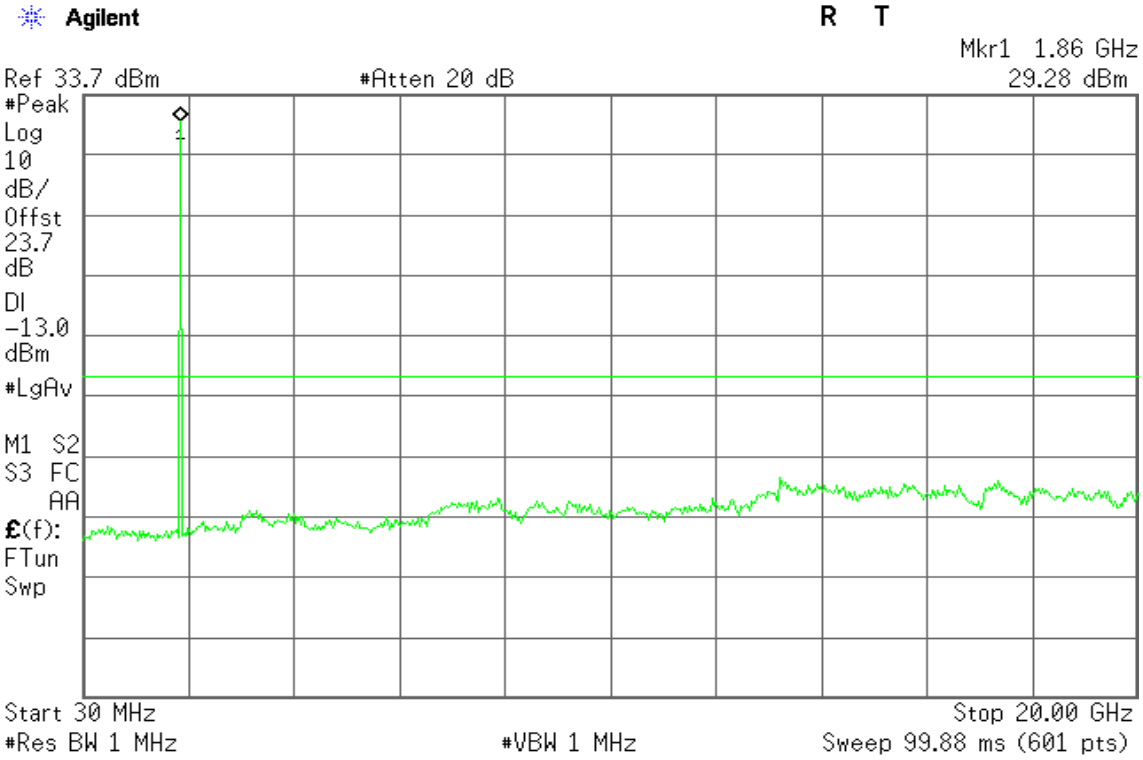


Figure 10-2: Out of Band emission at antenna terminals – GSM CH Mid

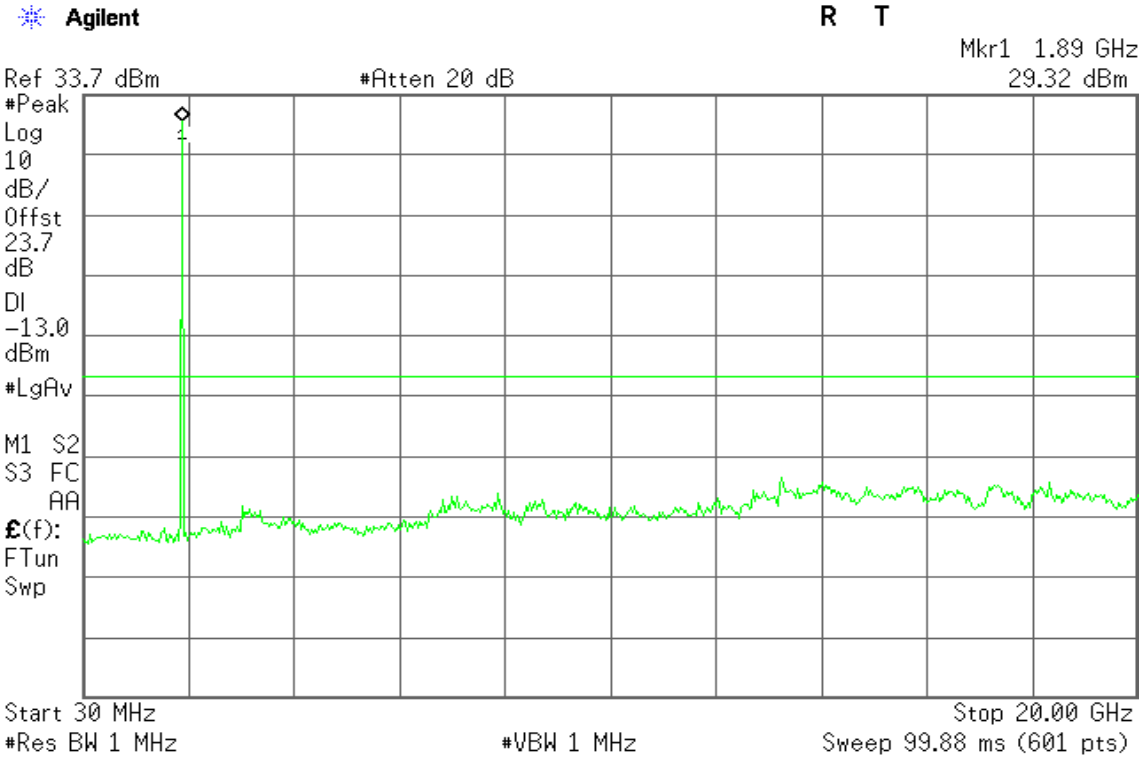
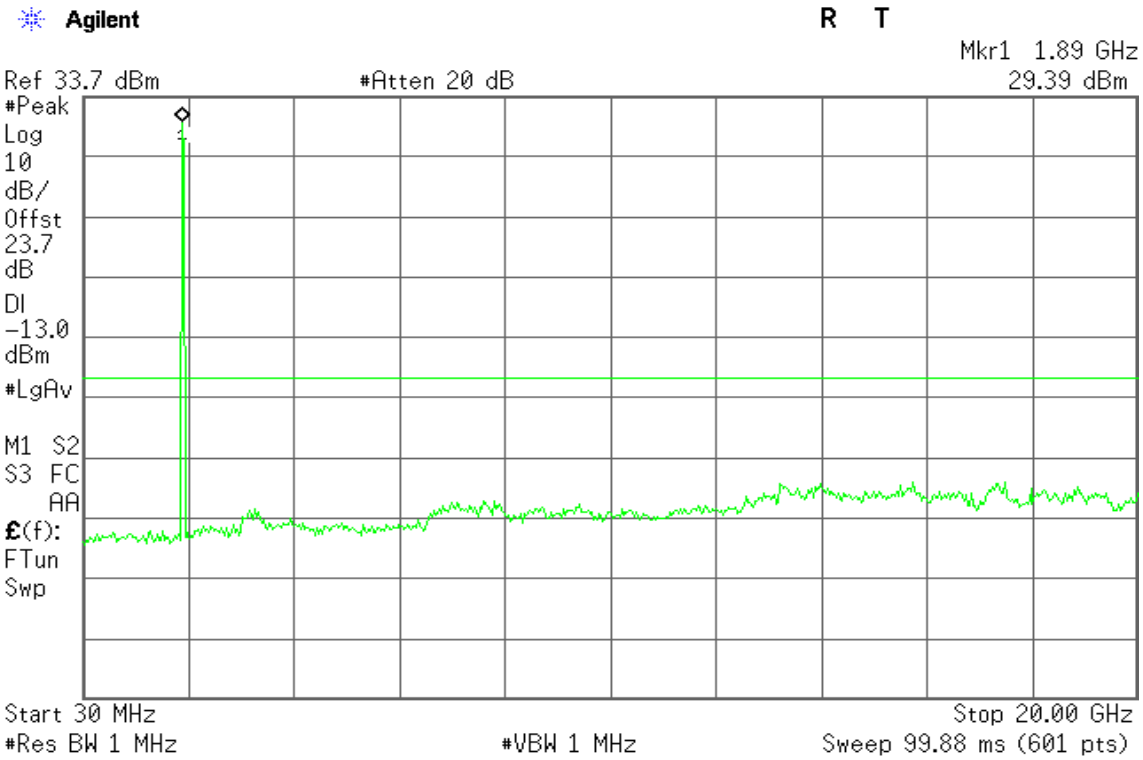


Figure 10-3: Out of Band emission at antenna terminals – GSM CH High



GPRS 850

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

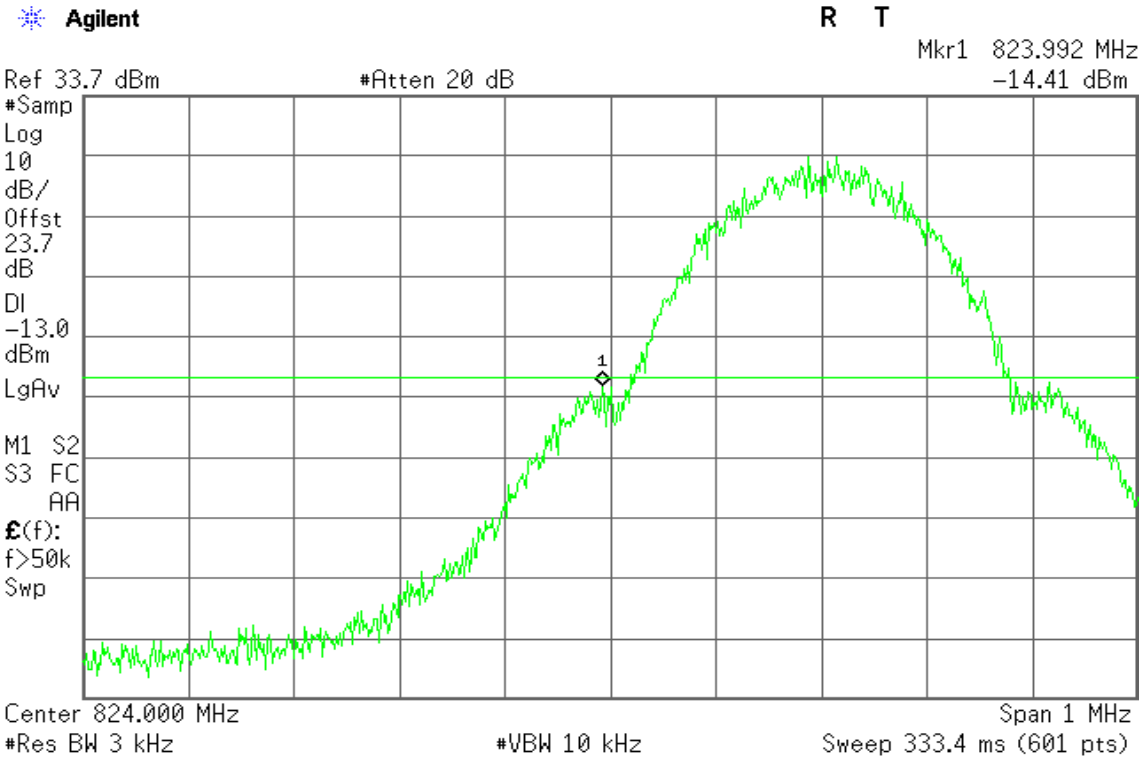
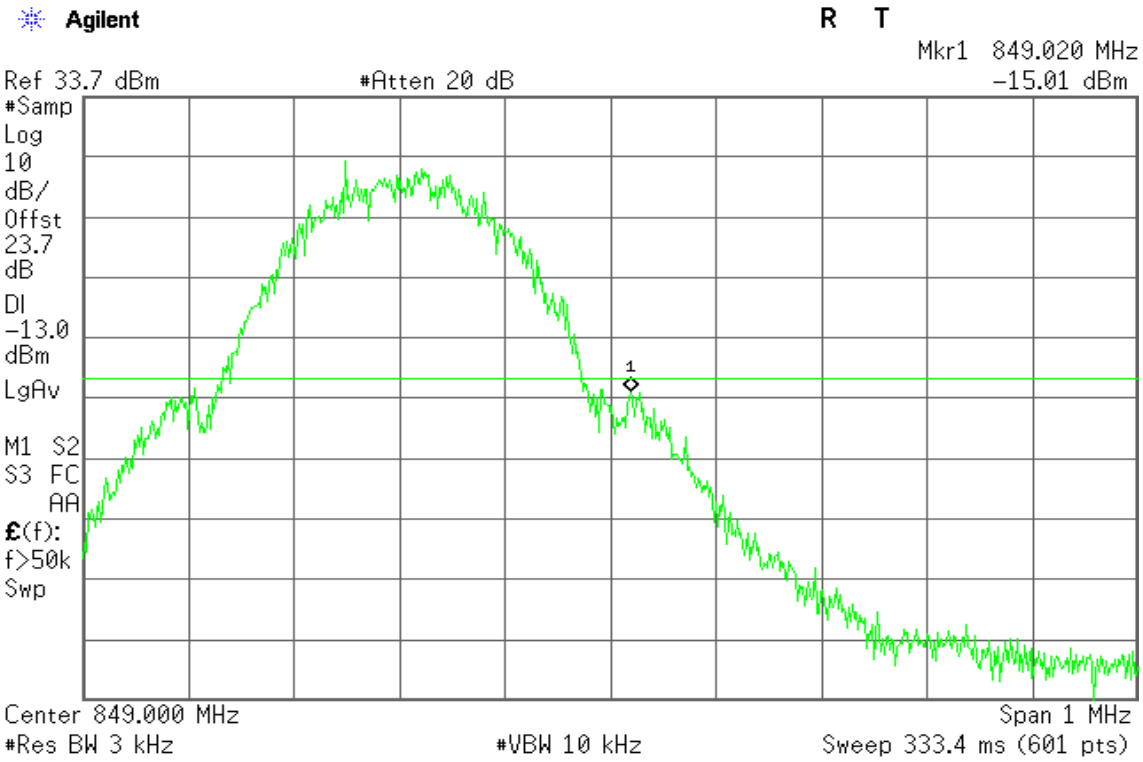


Figure 12-2: Band Edge emissions –GPRS CH High



GPRS 1900

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

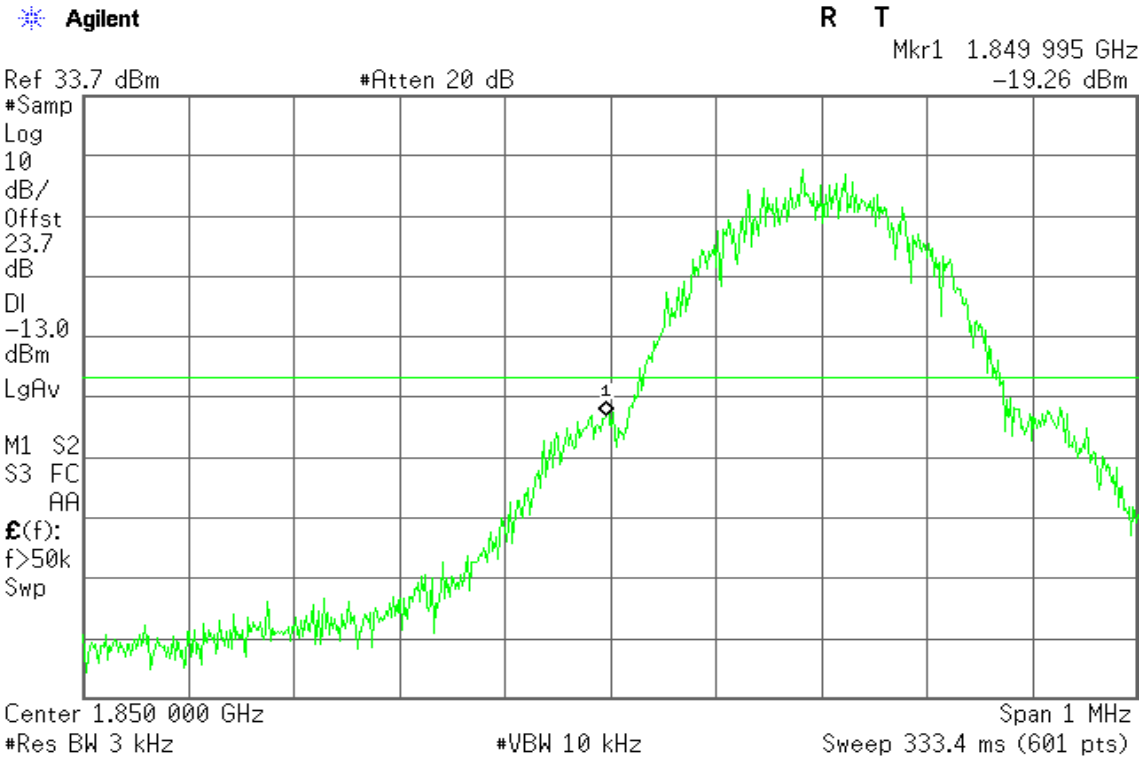
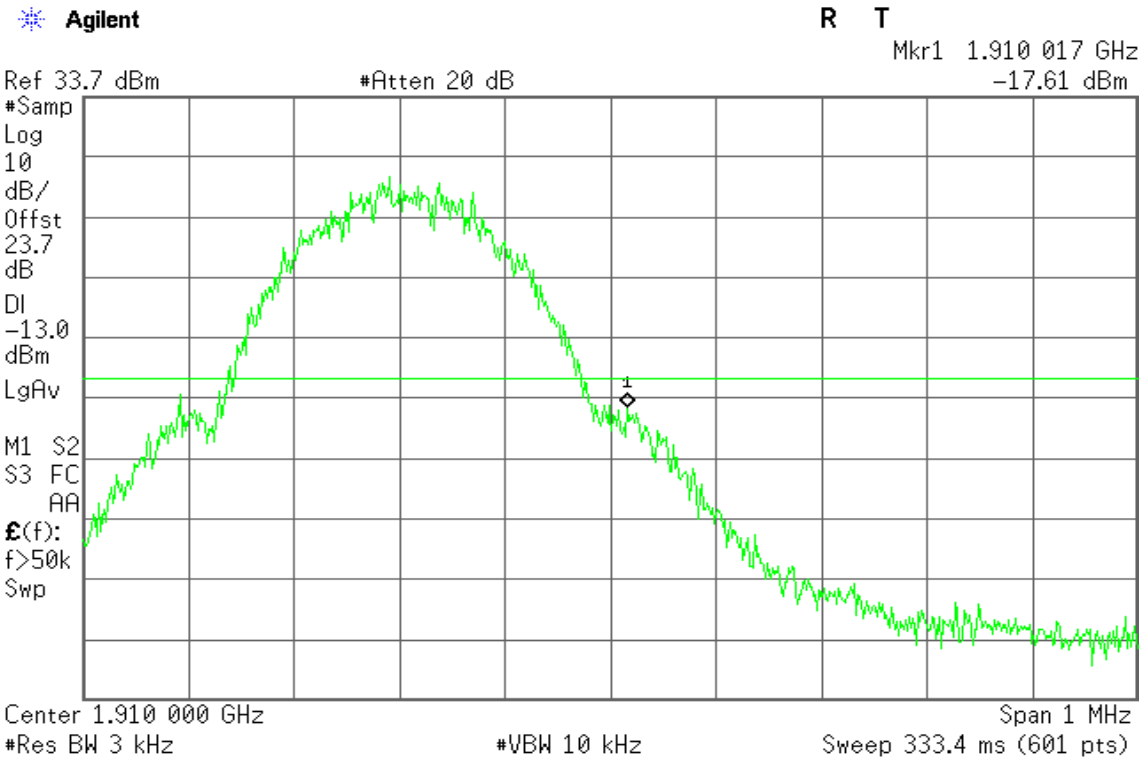


Figure 14-2: Band Edge emissions – GPRS CH High



WCDMA Band II

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

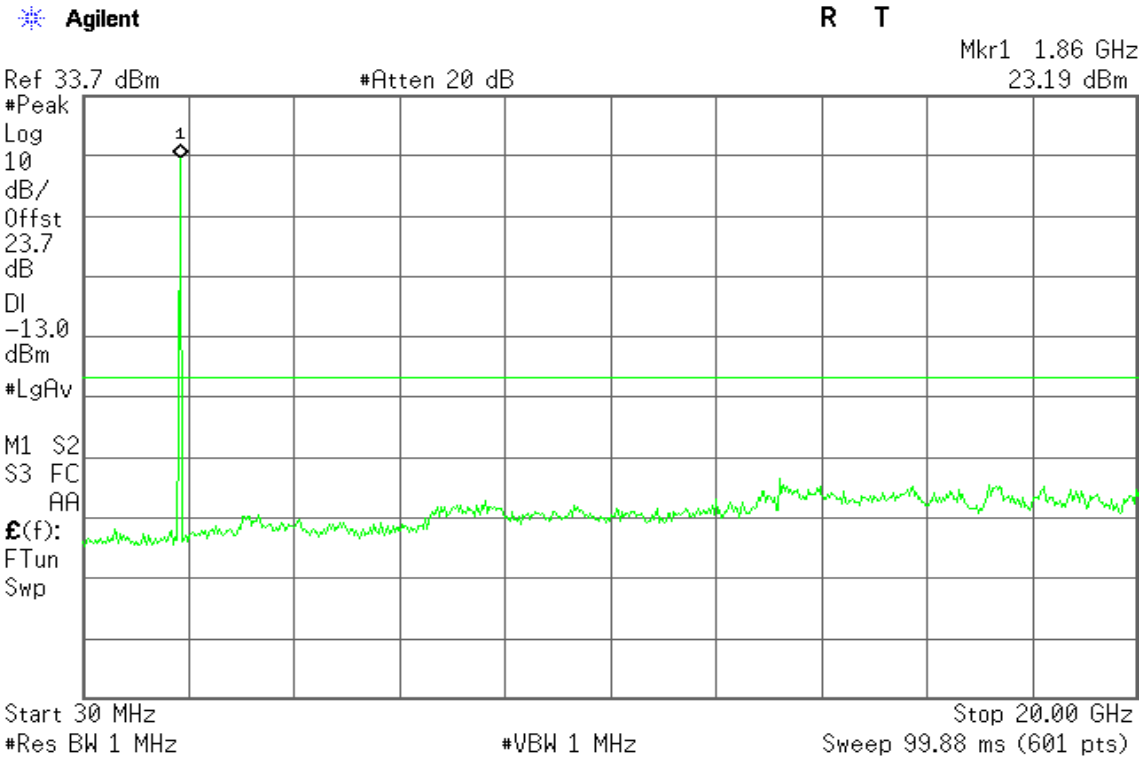


Figure 19-2: Out of Band emission at antenna terminals – WCDMA CH Mid

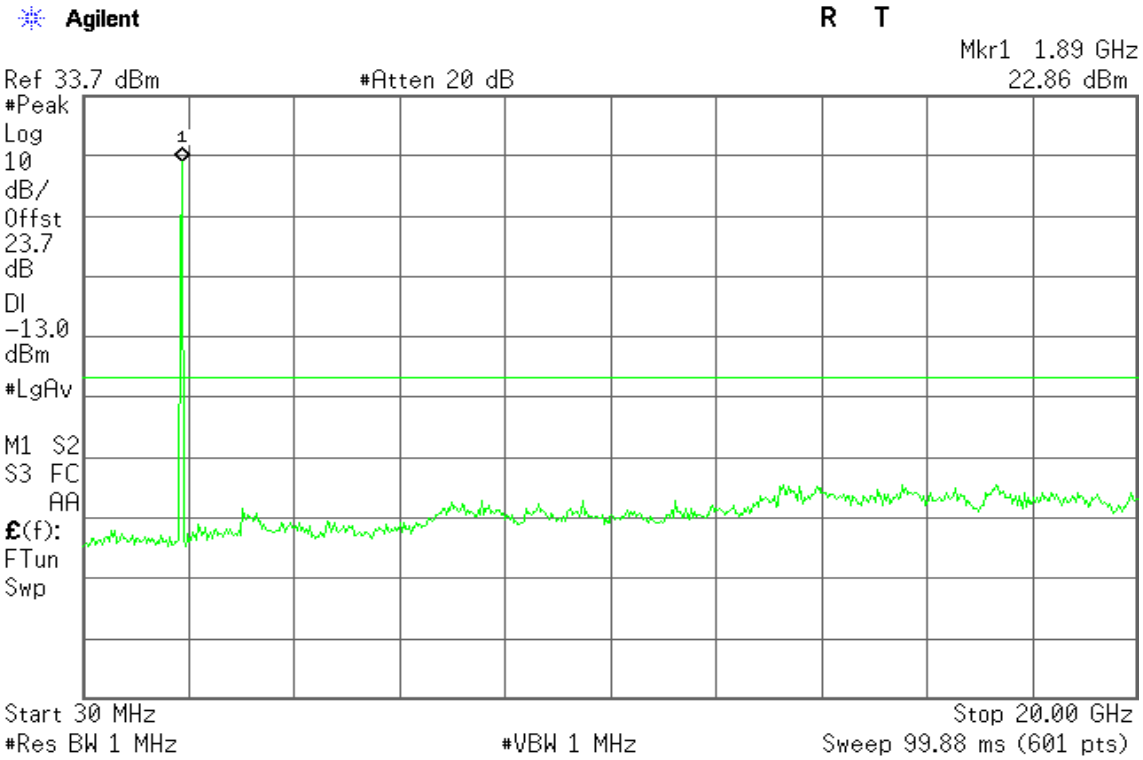
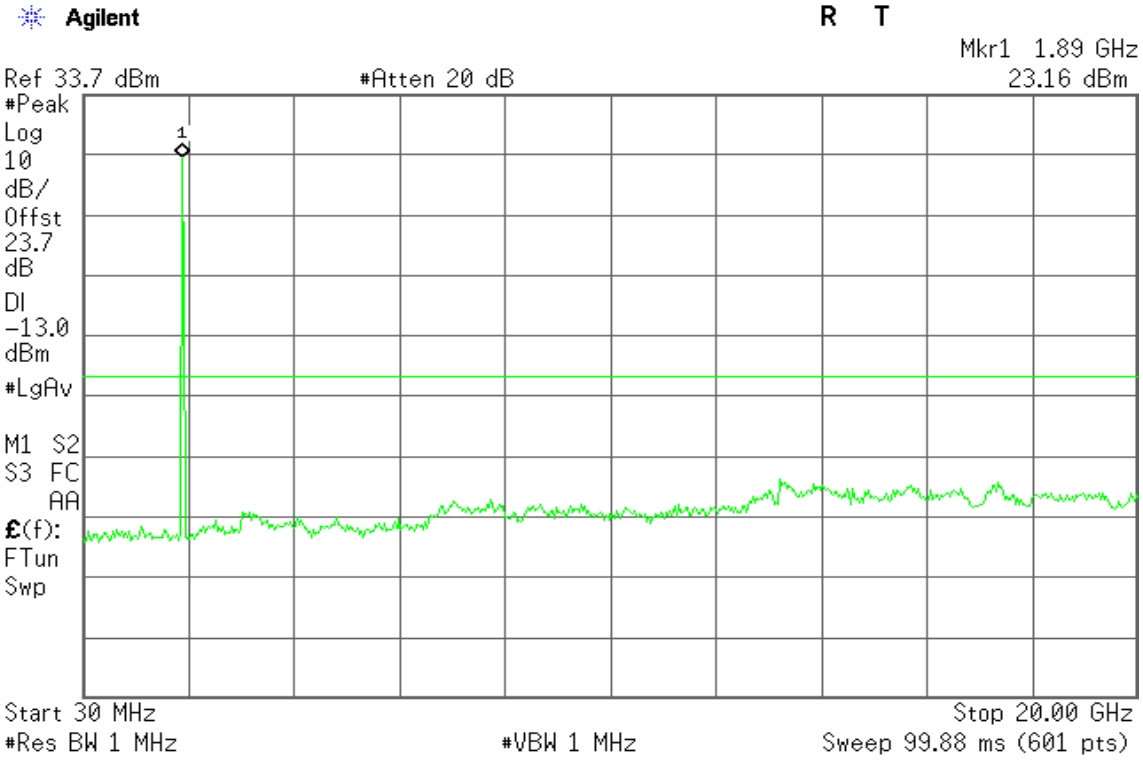


Figure 19-3: Out of Band emission at antenna terminals – WCDMA CH High



WCDMA Band V

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

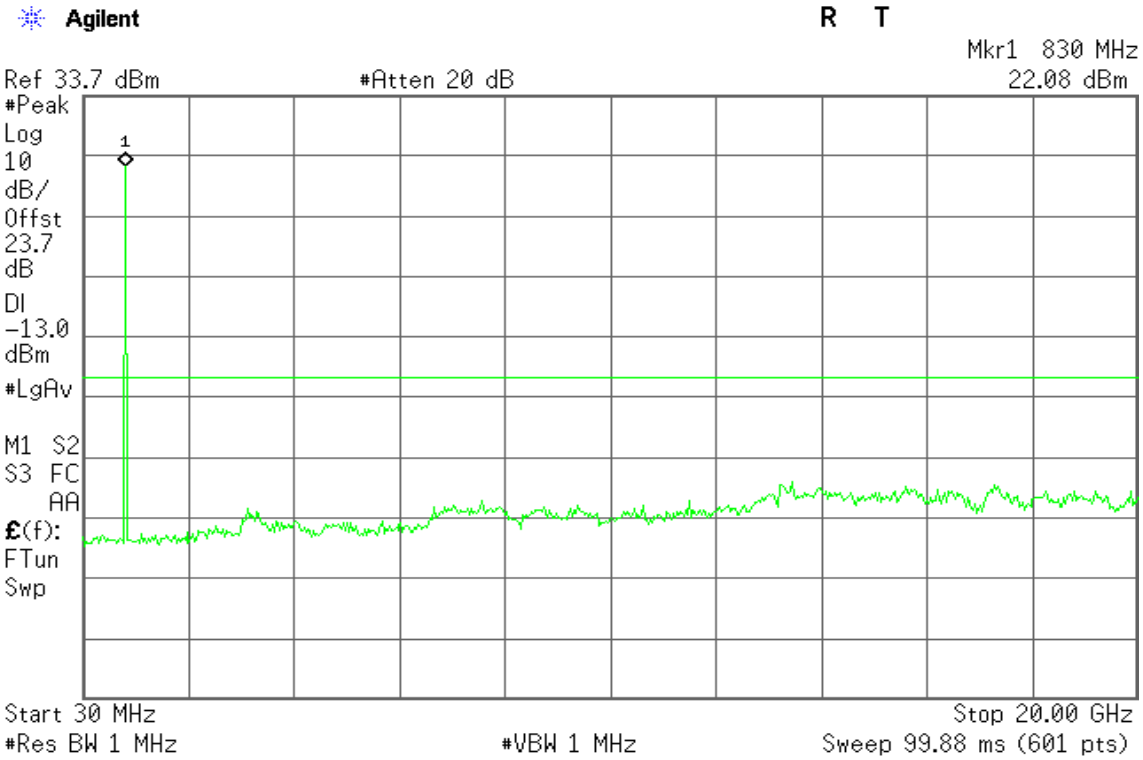


Figure 20-2: Out of Band emission at antenna terminals – WCDMA CH Mid

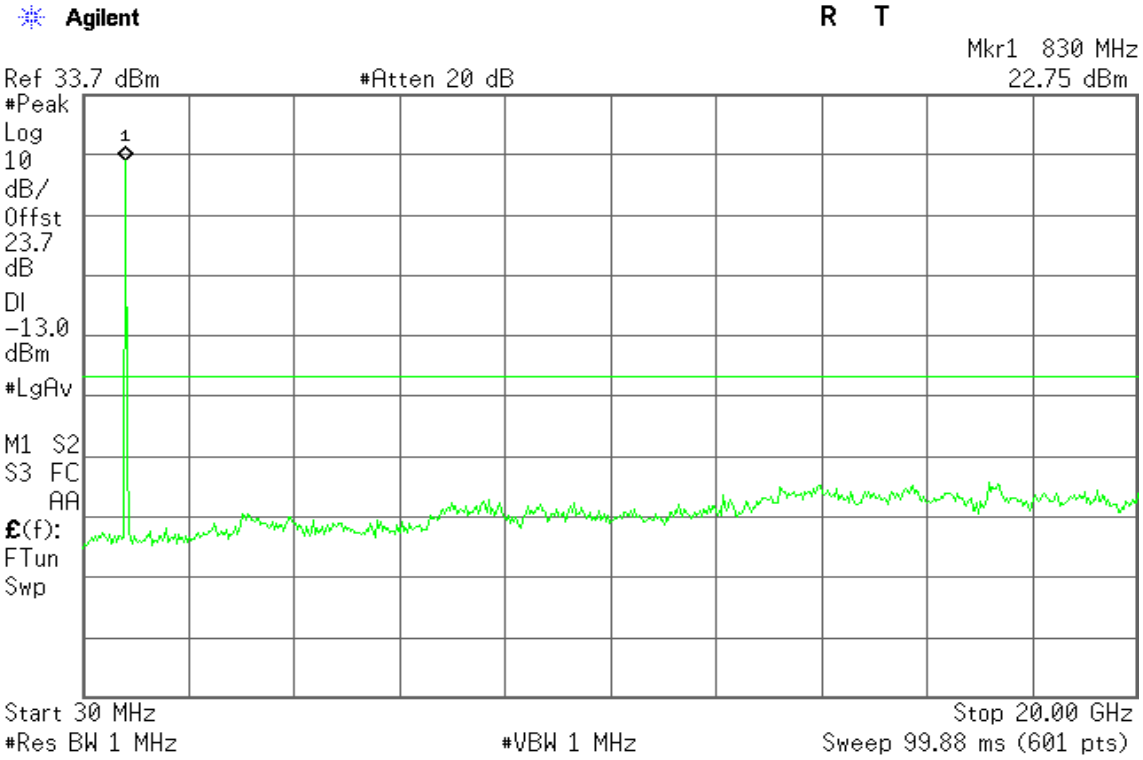
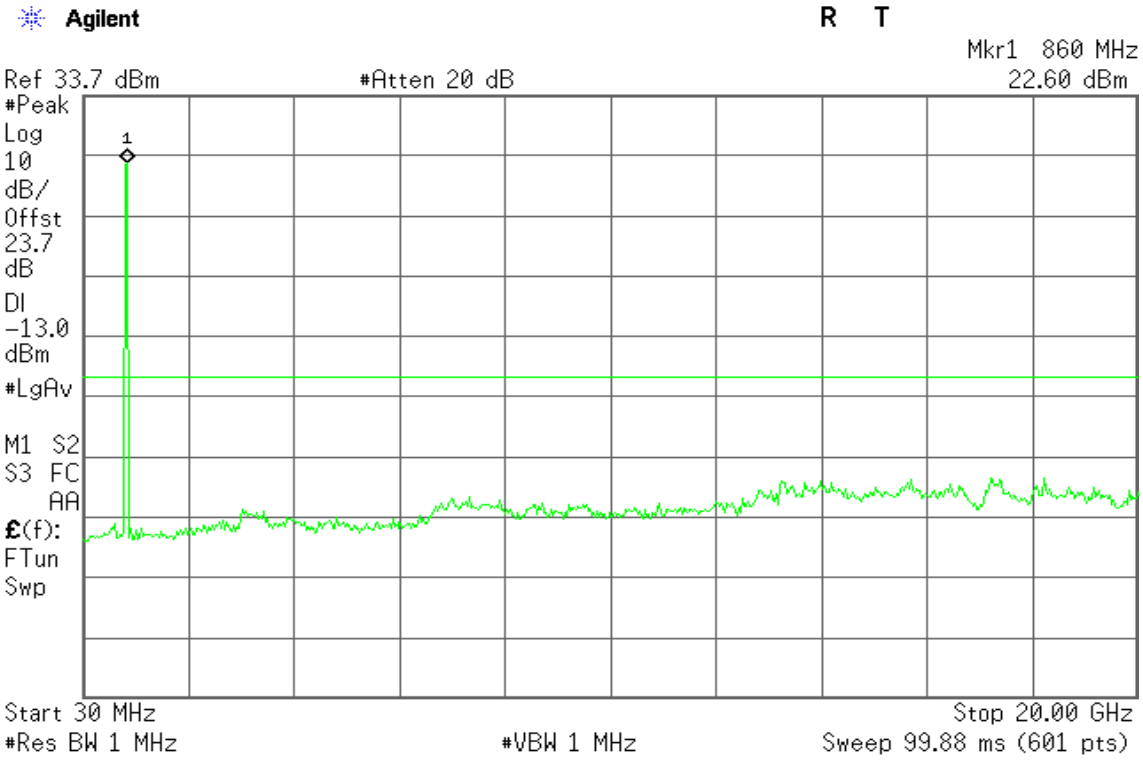


Figure 20-3: Out of Band emission at antenna terminals – WCDMA CH High



WCDMA Band II

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

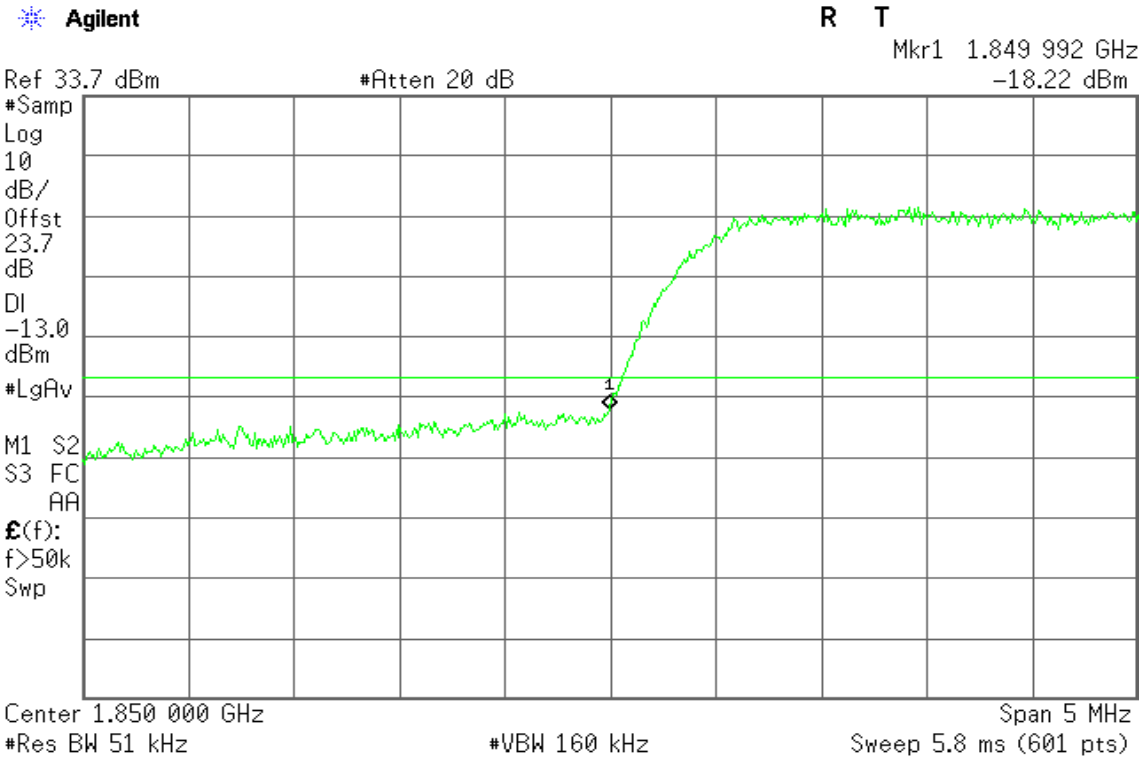
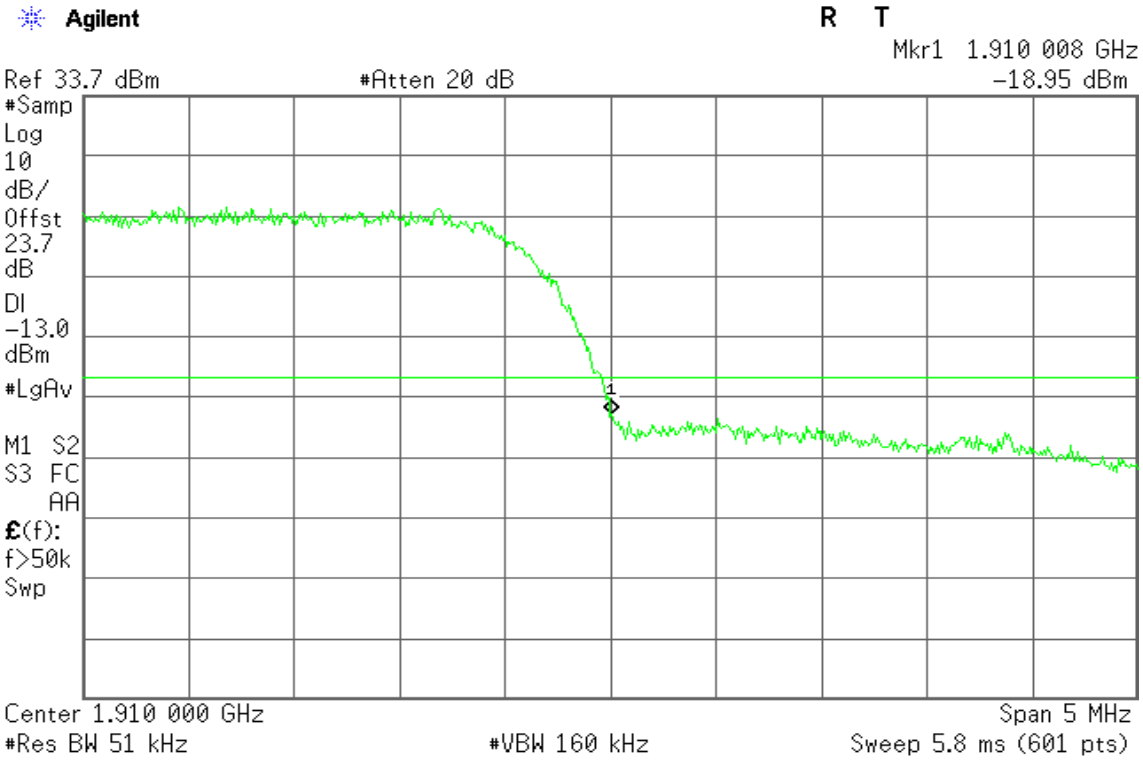


Figure 21-2: Band Edge emissions –WCDMA CH High



WCDMA Band V

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

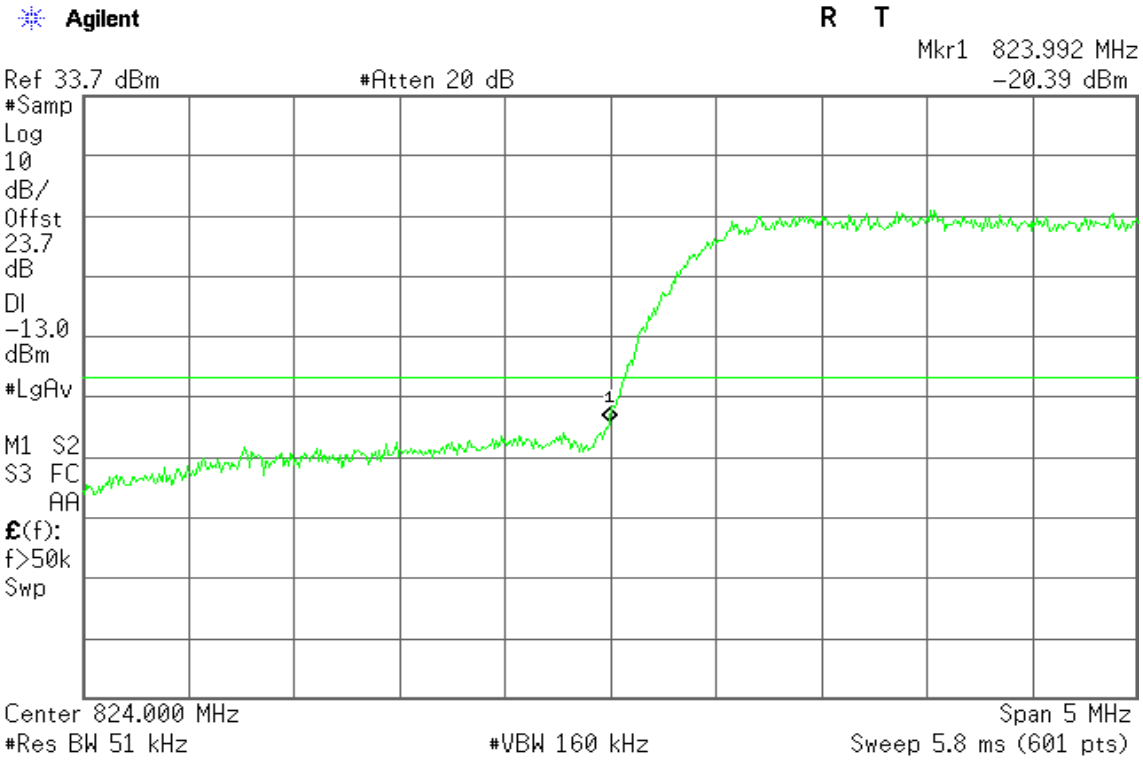
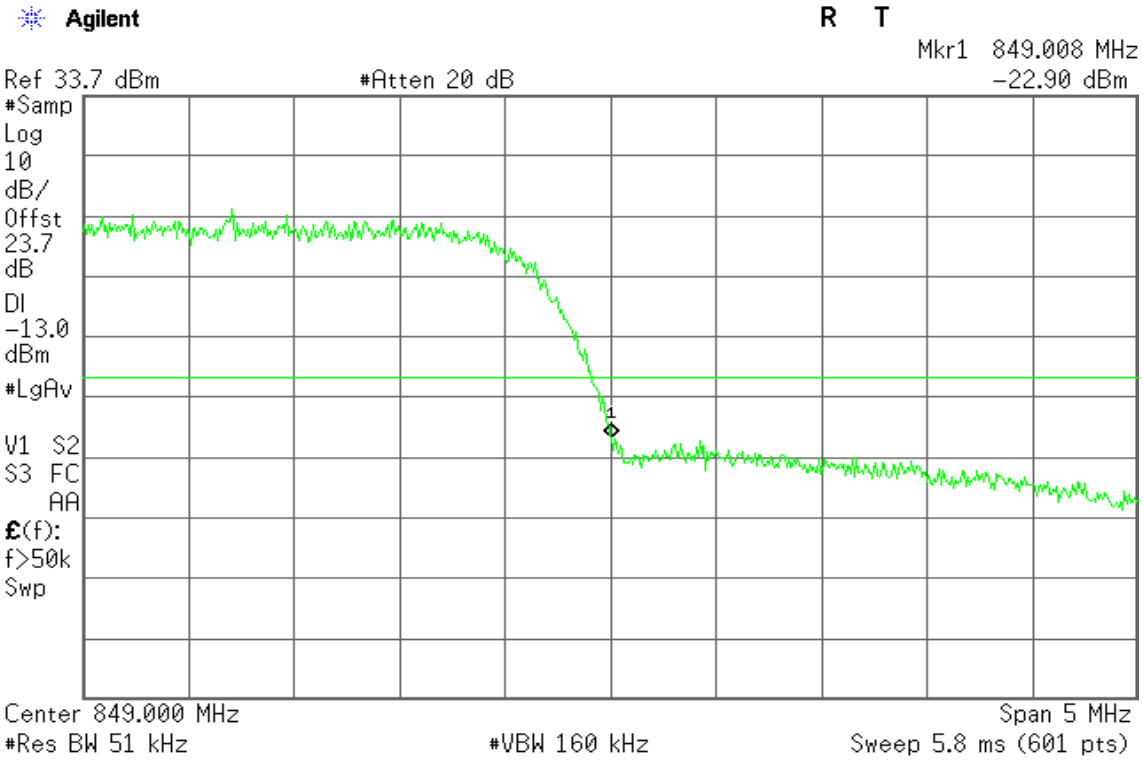


Figure 22-2: Band Edge emissions –WCDMA CH High



WCDMA / HSDPA Band II

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

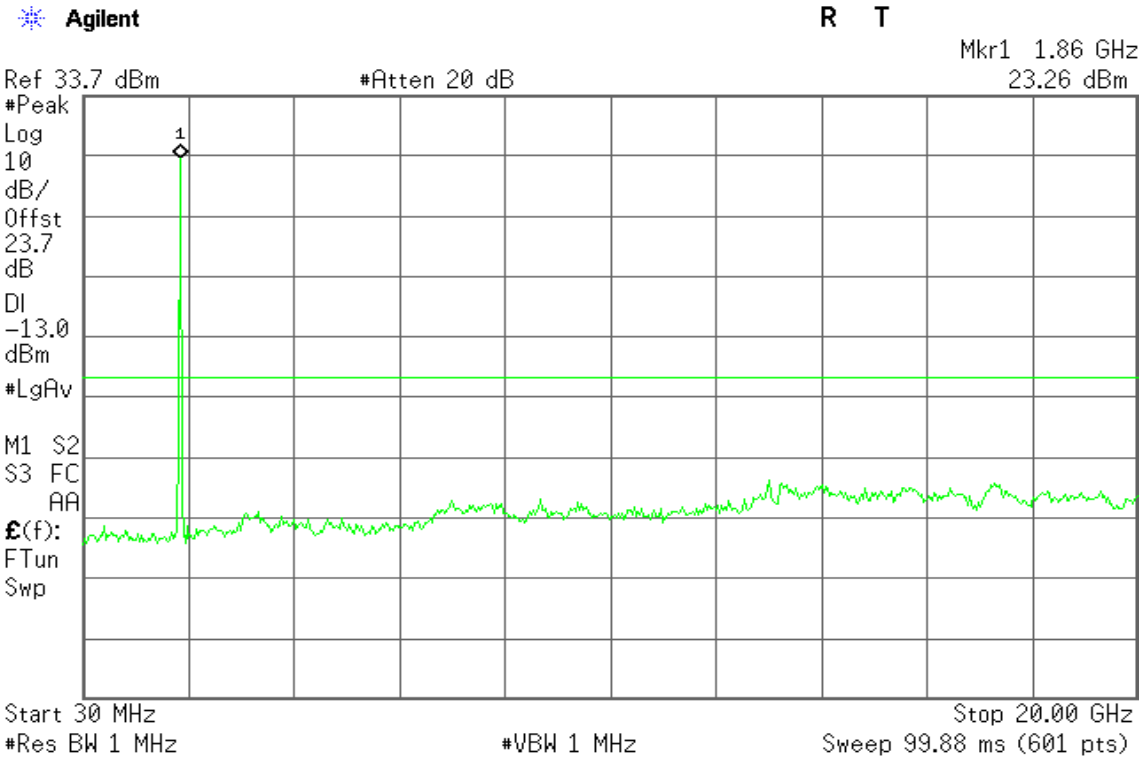


Figure 23-2: Out of Band emission at antenna terminals – HSDPA CH Mid

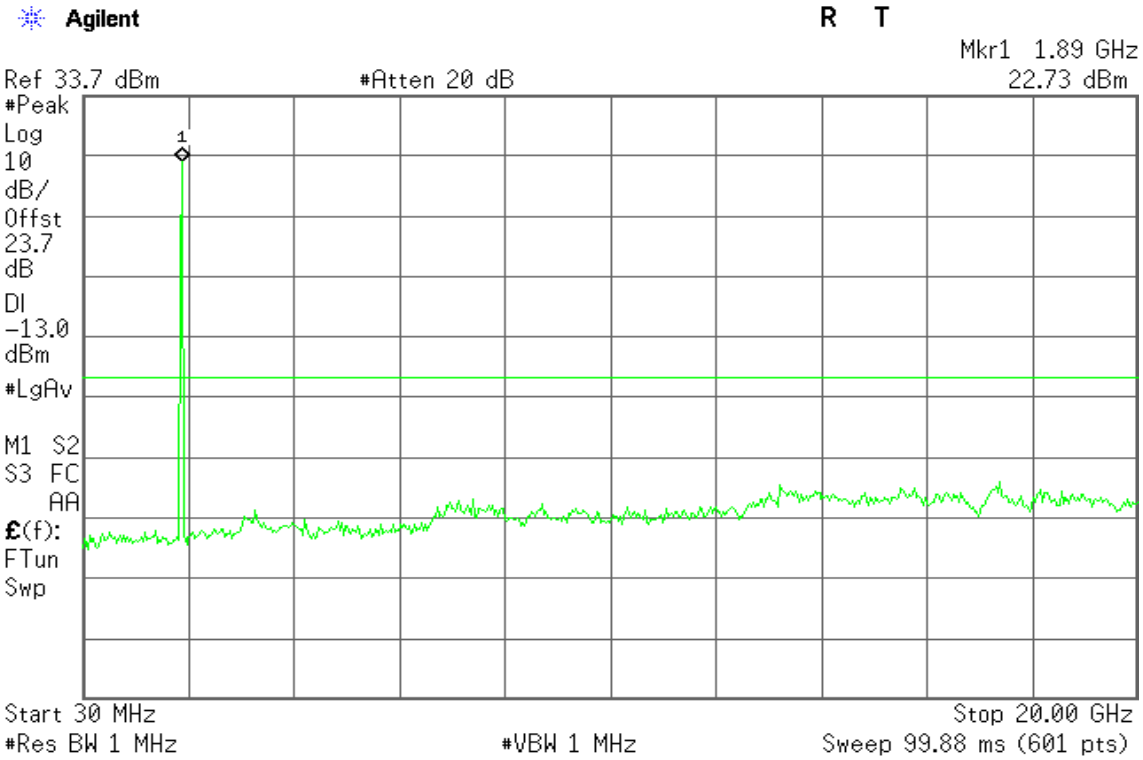
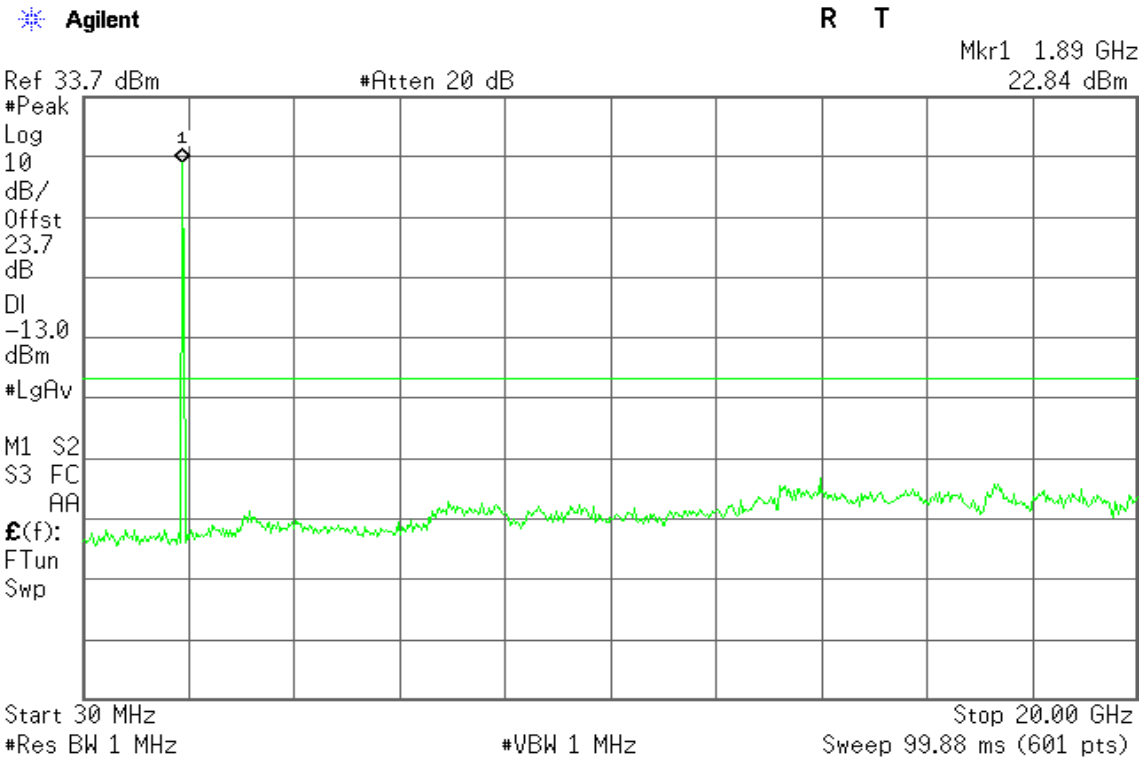


Figure 23-3: Out of Band emission at antenna terminals – HSDPA CH High



WCDMA / HSDPA Band V

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

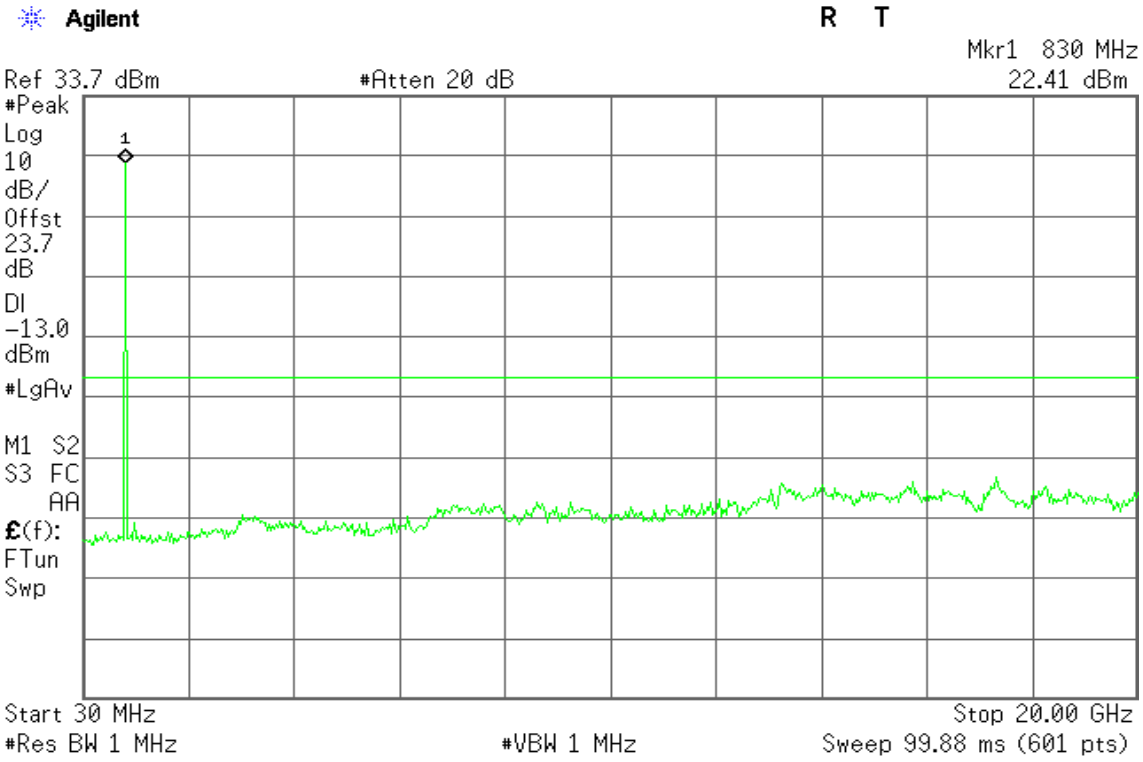


Figure 24-2: Out of Band emission at antenna terminals – HSDPA CH Mid

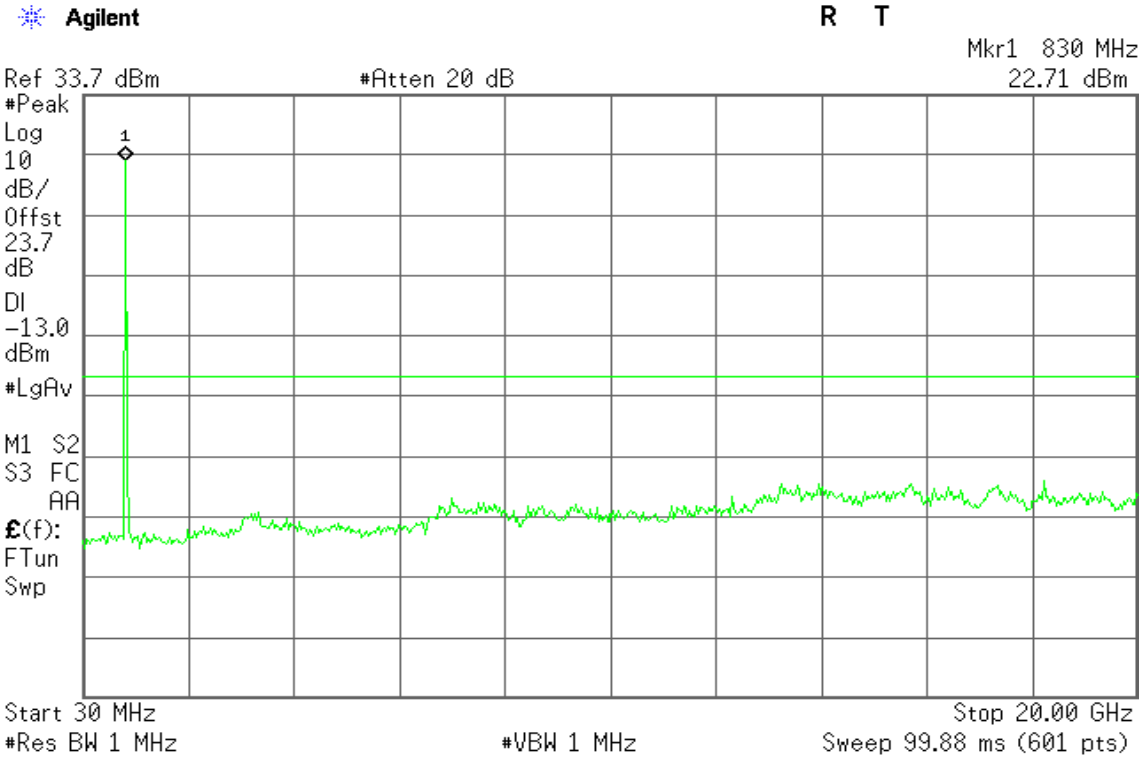
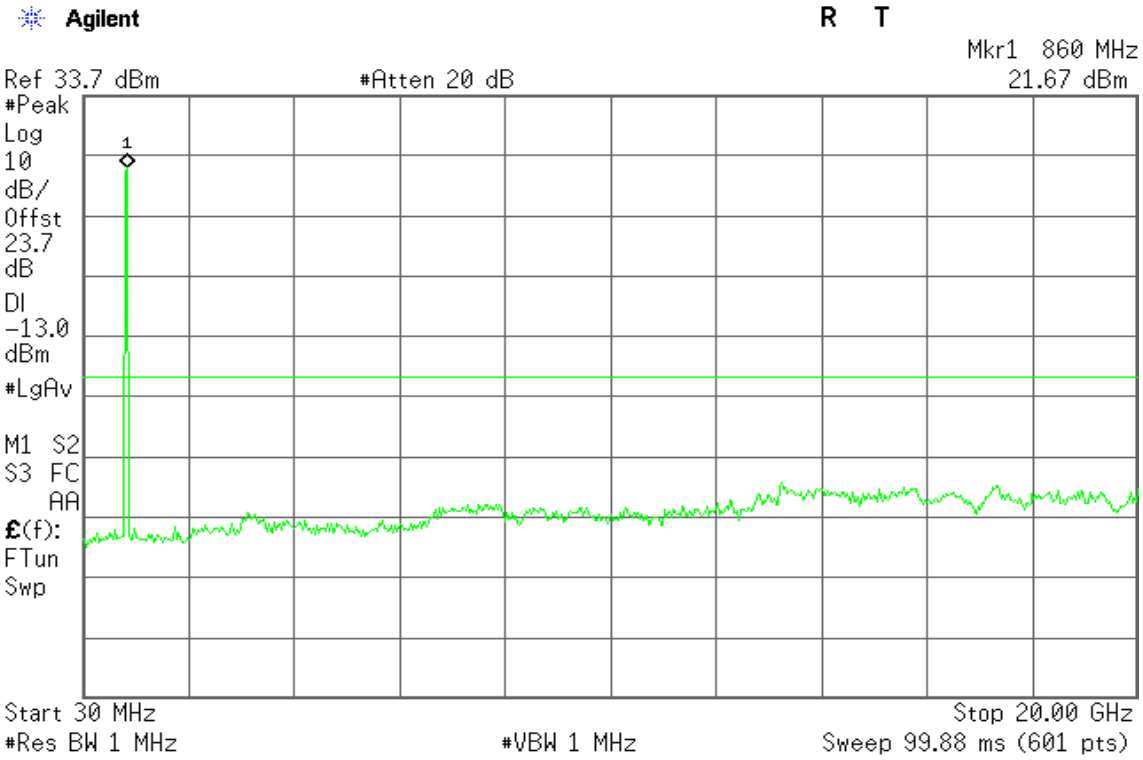


Figure 24-3: Out of Band emission at antenna terminals – HSDPA CH High



WCDMA / HSDPA Band II

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

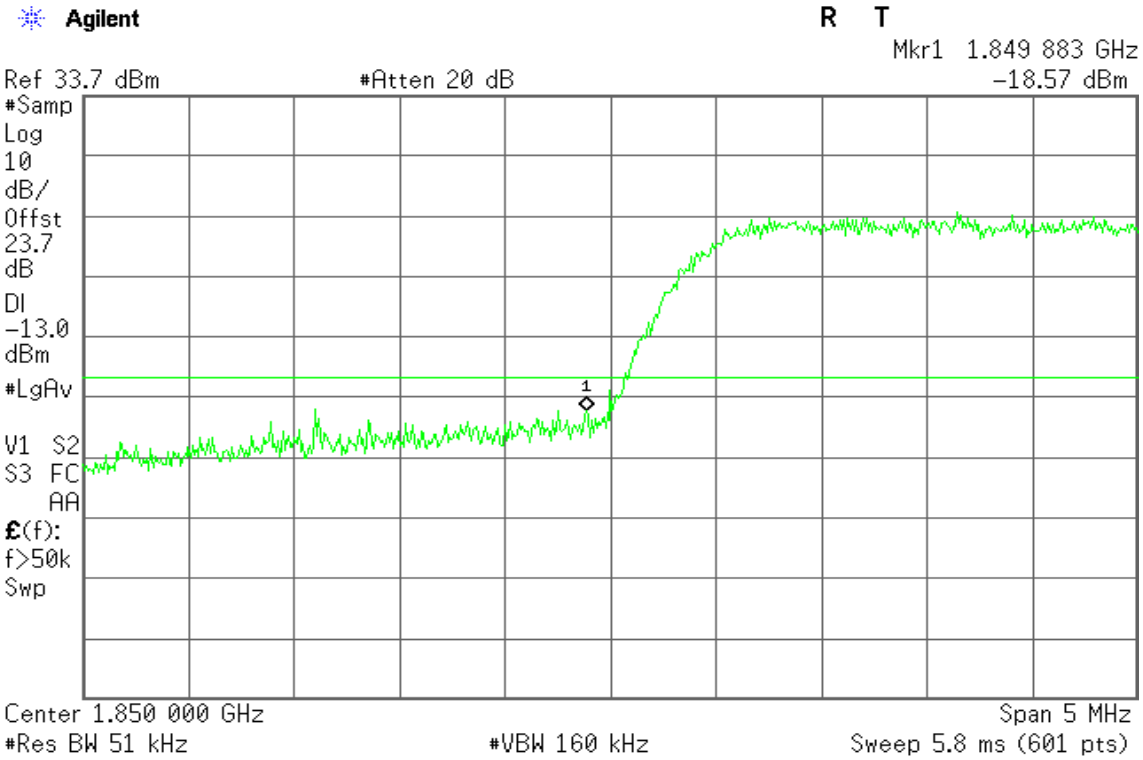
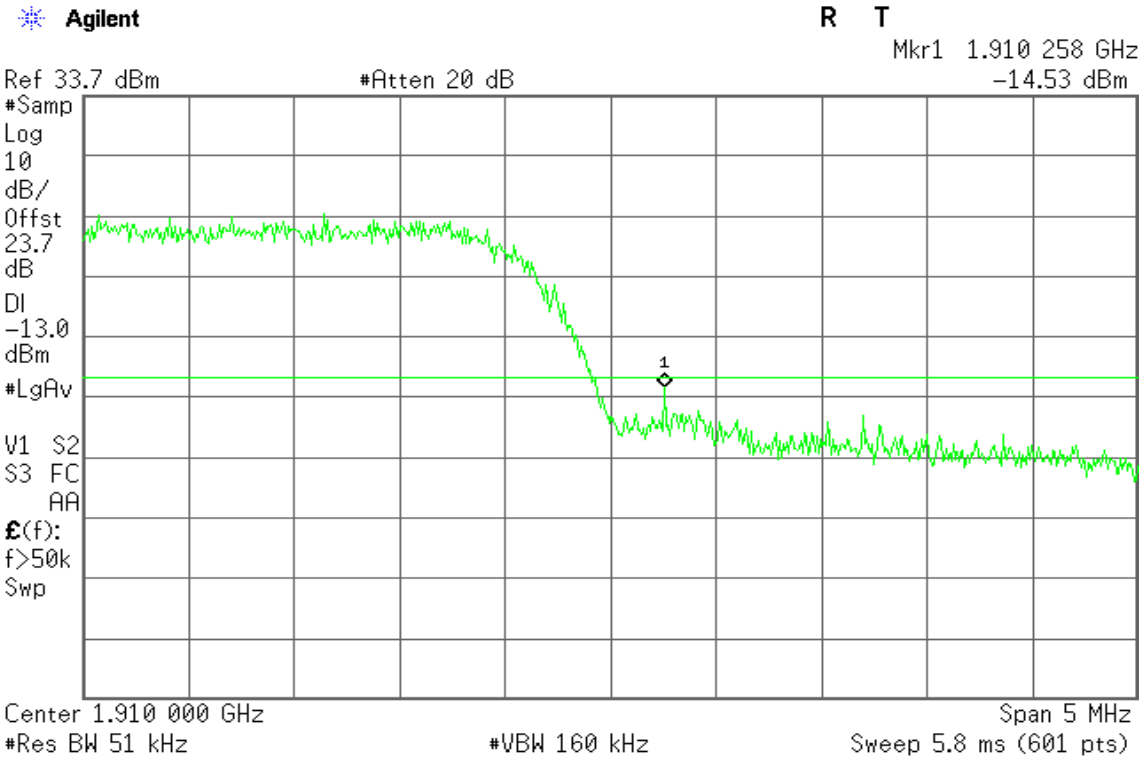


Figure 25-2: Band Edge emissions – HSDPA CH High



WCDMA / HSDPA Band V

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

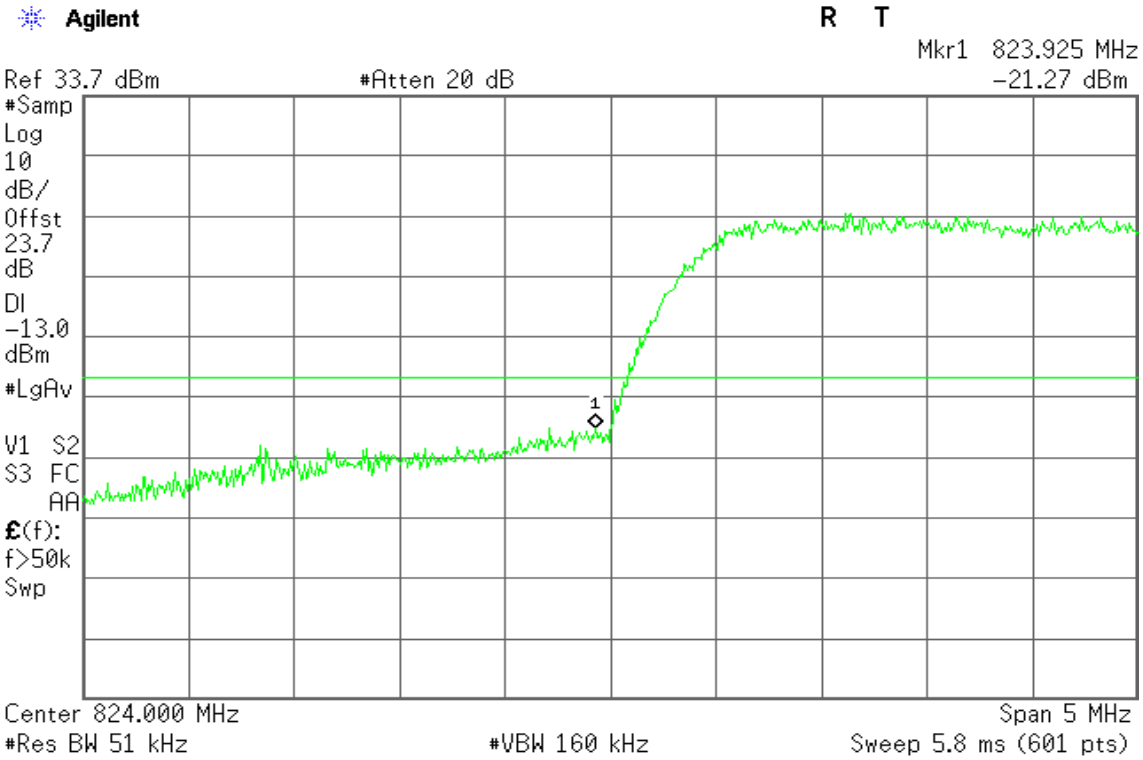
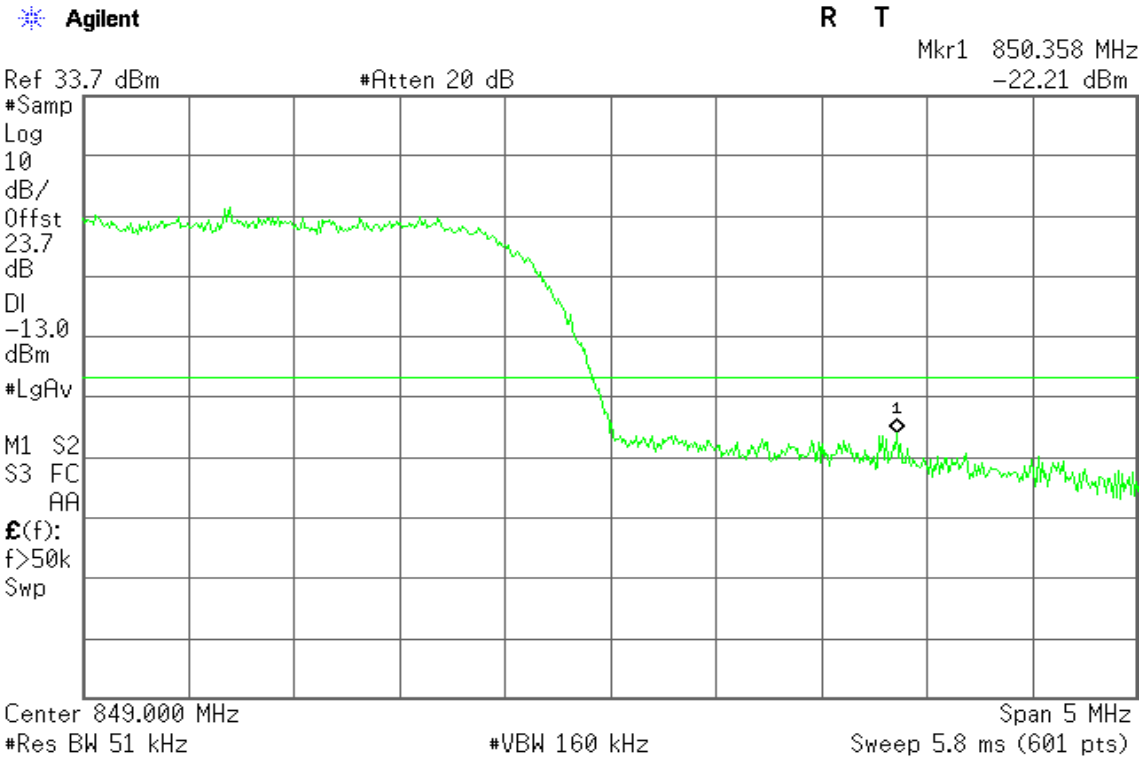


Figure 26-2: Band Edge emissions – HSDPA CH High



WCDMA / HSUPA Band II

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

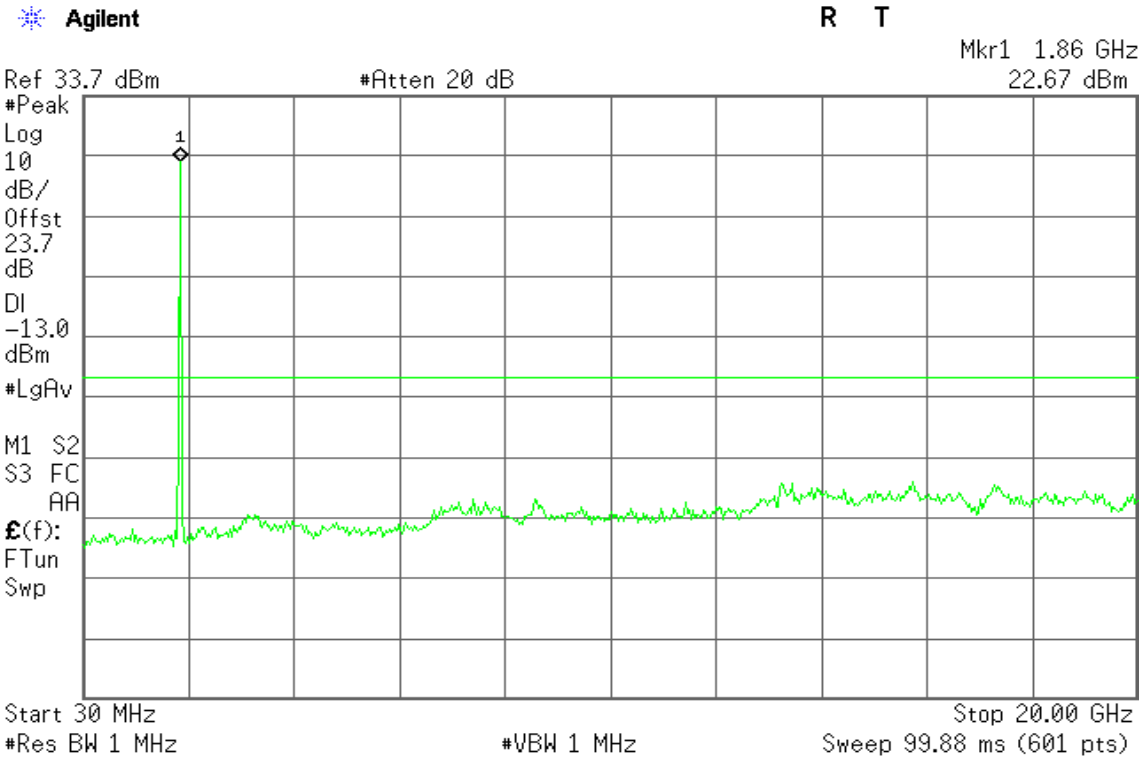


Figure 27-2: Out of Band emission at antenna terminals – HSUPA CH Mid

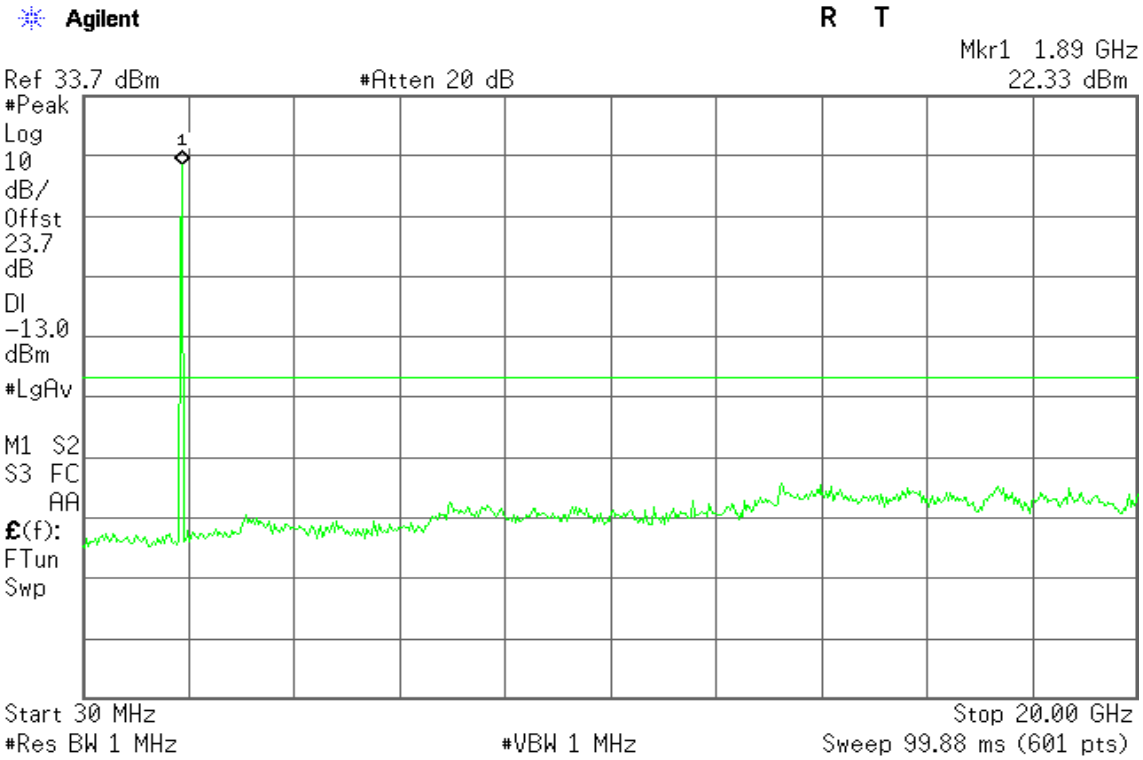
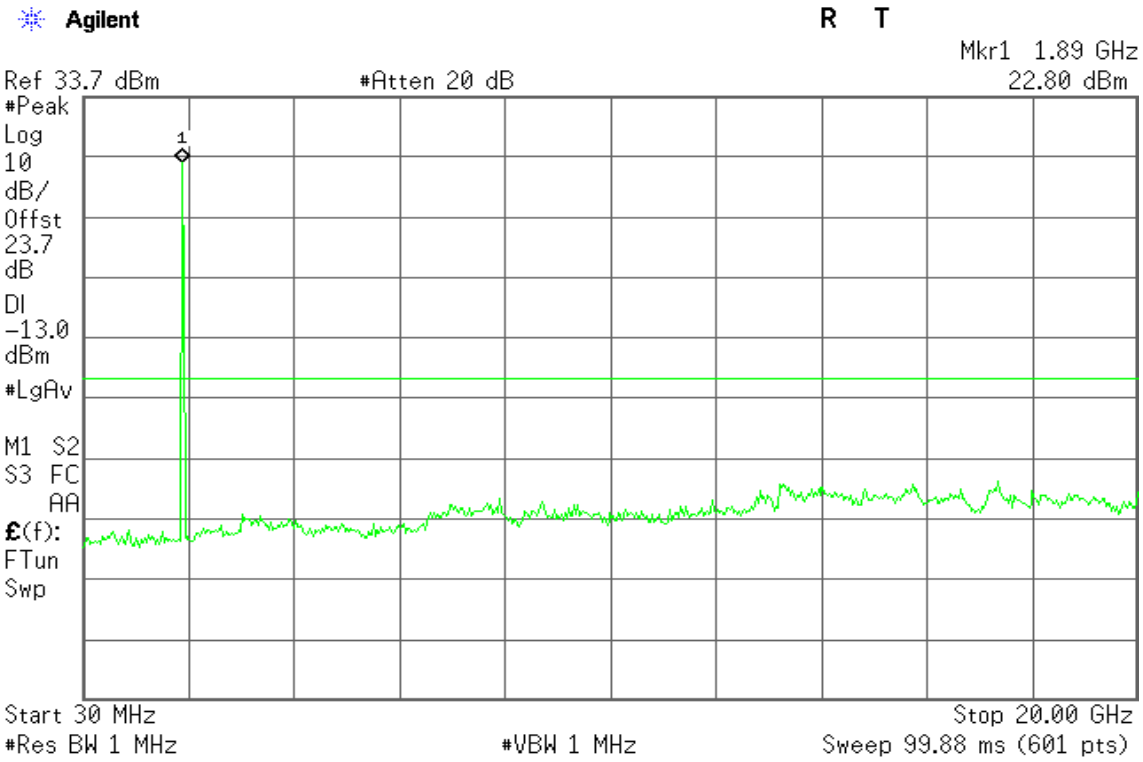


Figure 27-3: Out of Band emission at antenna terminals – HSUPA CH High



HSUPA / WCDMA Band V

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

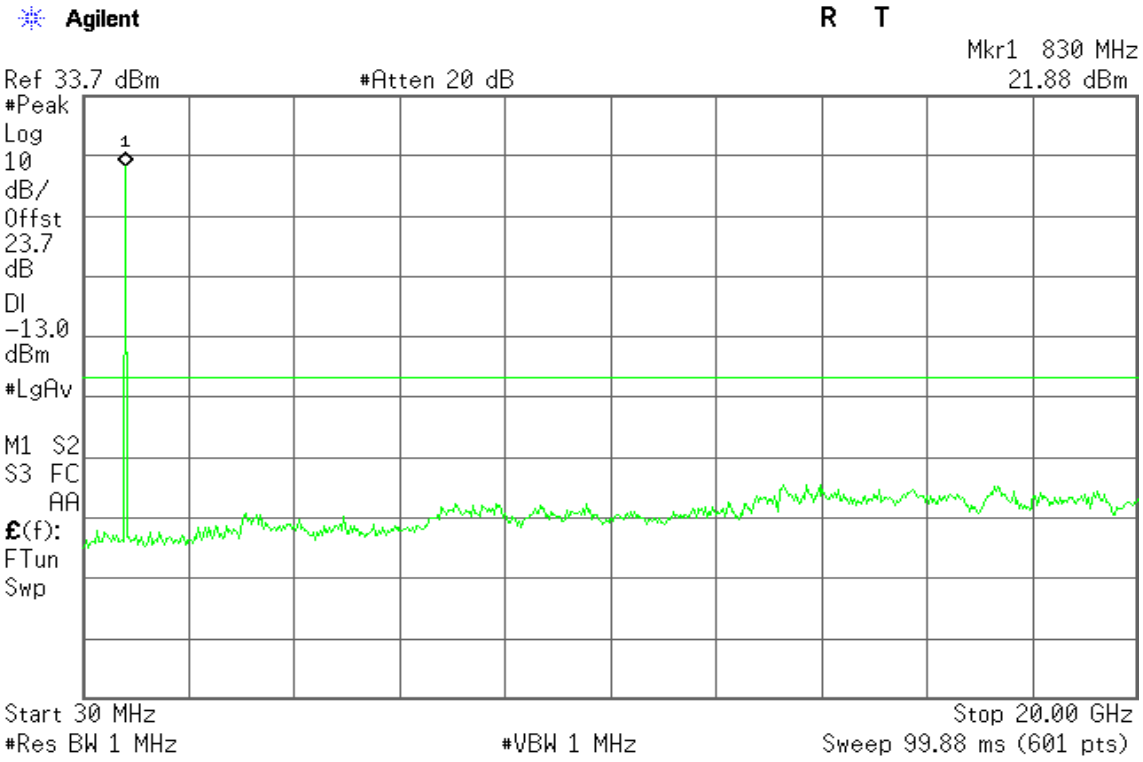


Figure 28-2: Out of Band emission at antenna terminals – HSUPA CH Mid

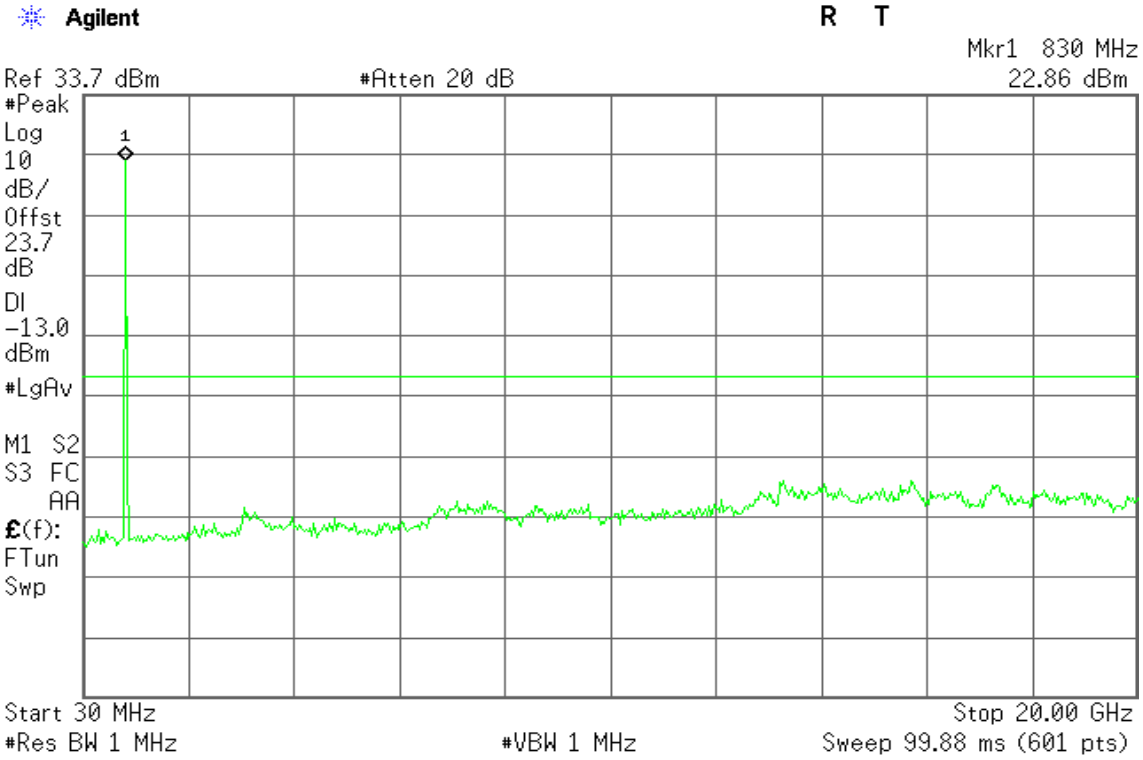
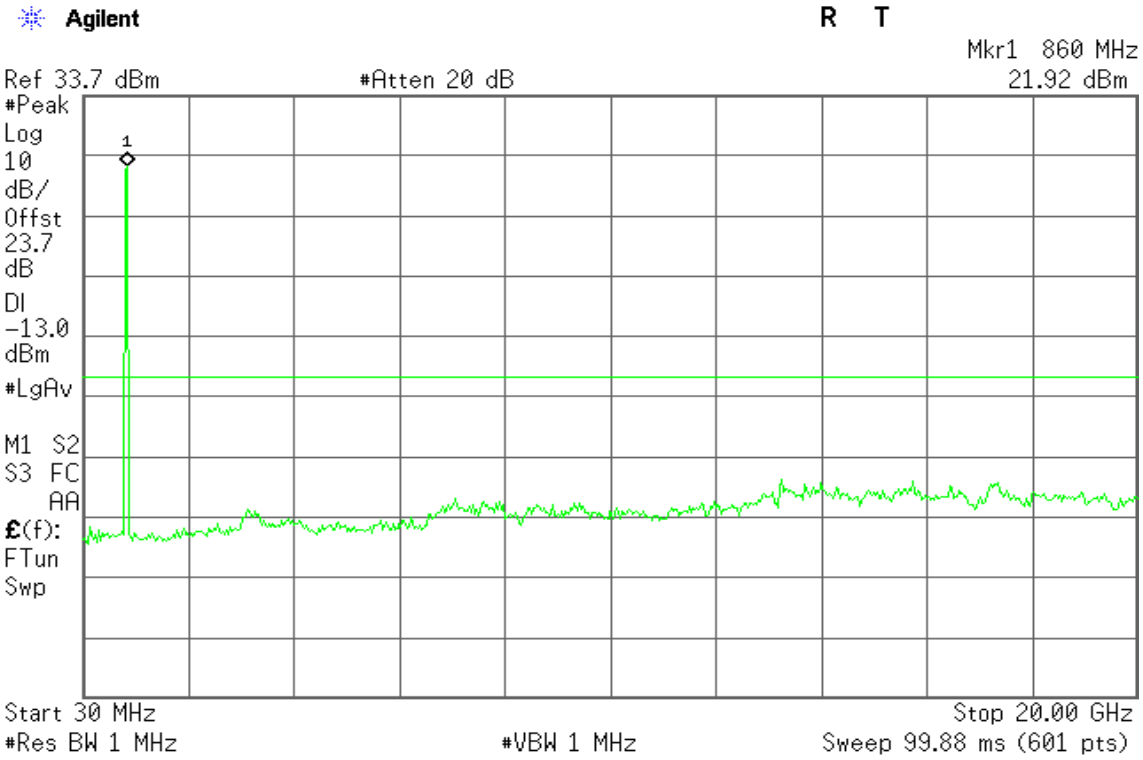


Figure 28-3: Out of Band emission at antenna terminals – HSUPA CH High



WCDMA / HSUPA Band II

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

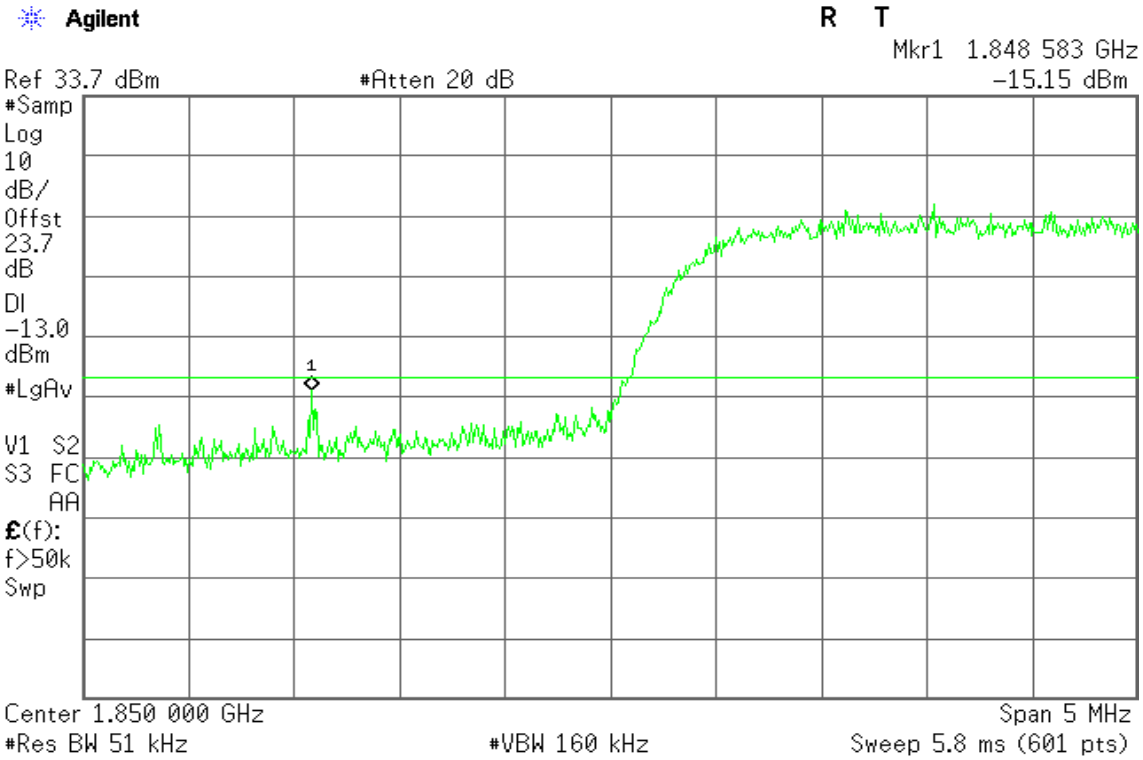
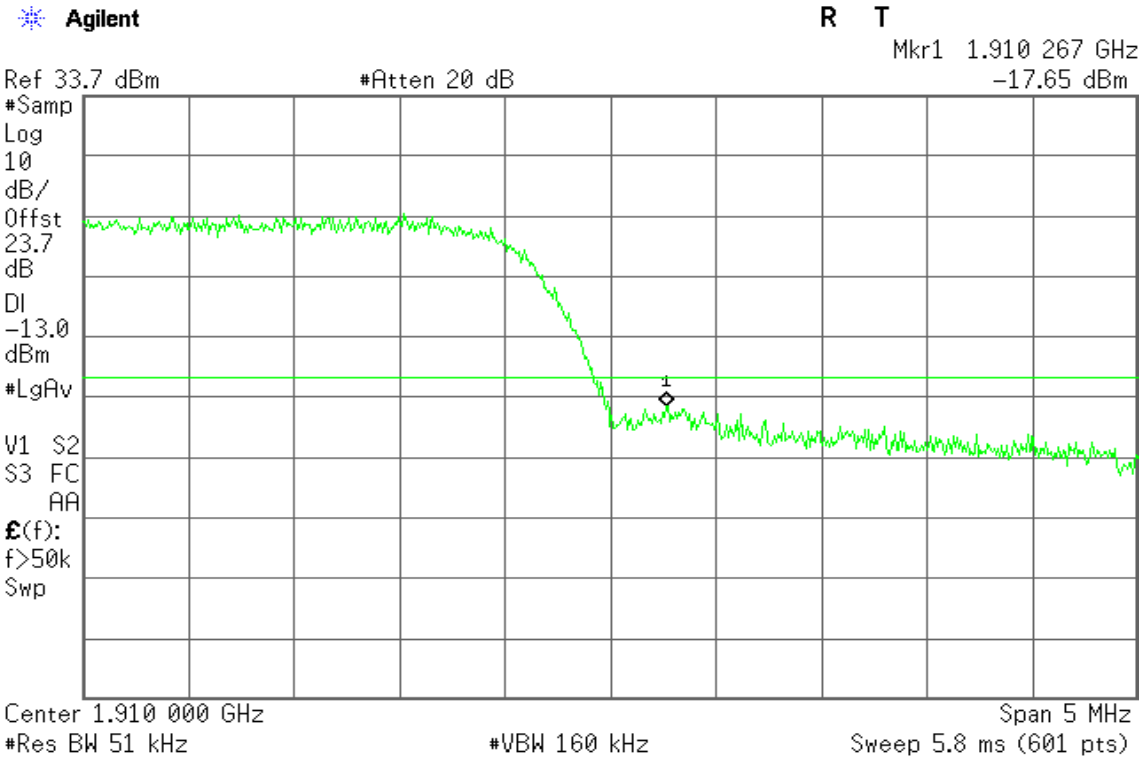


Figure 29-2: Band Edge emissions – HSUPA CH High



WCDMA / HSUPA Band V

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

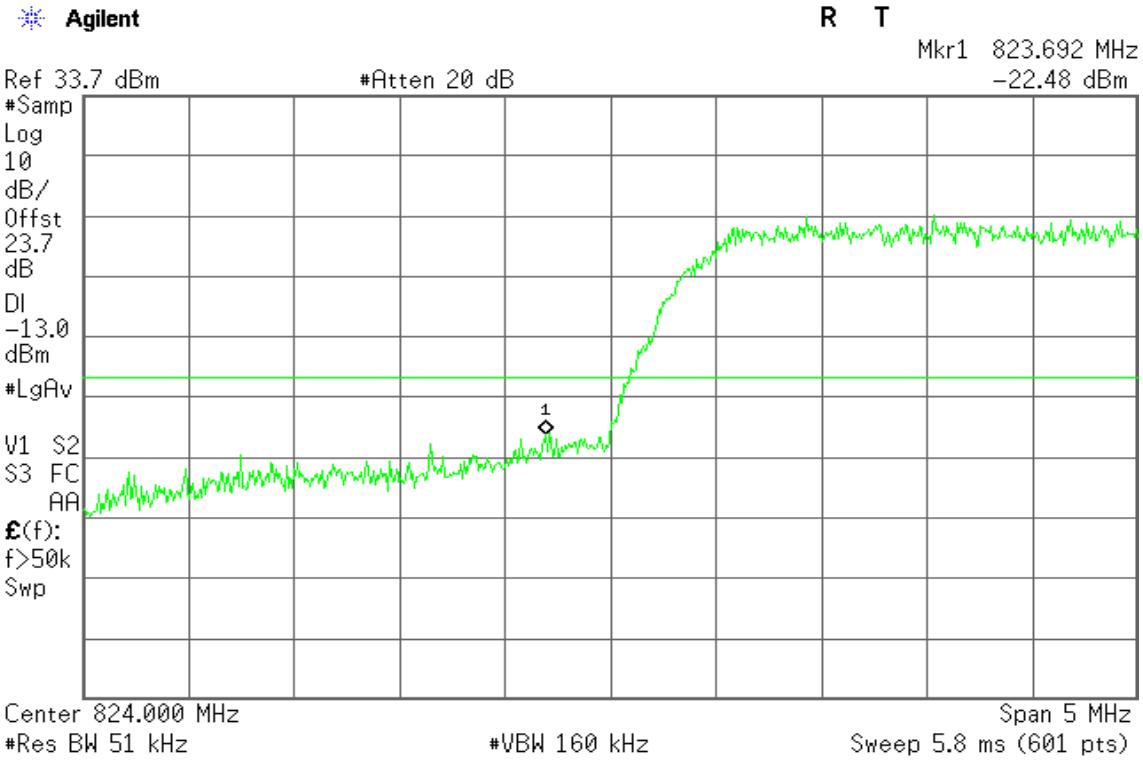
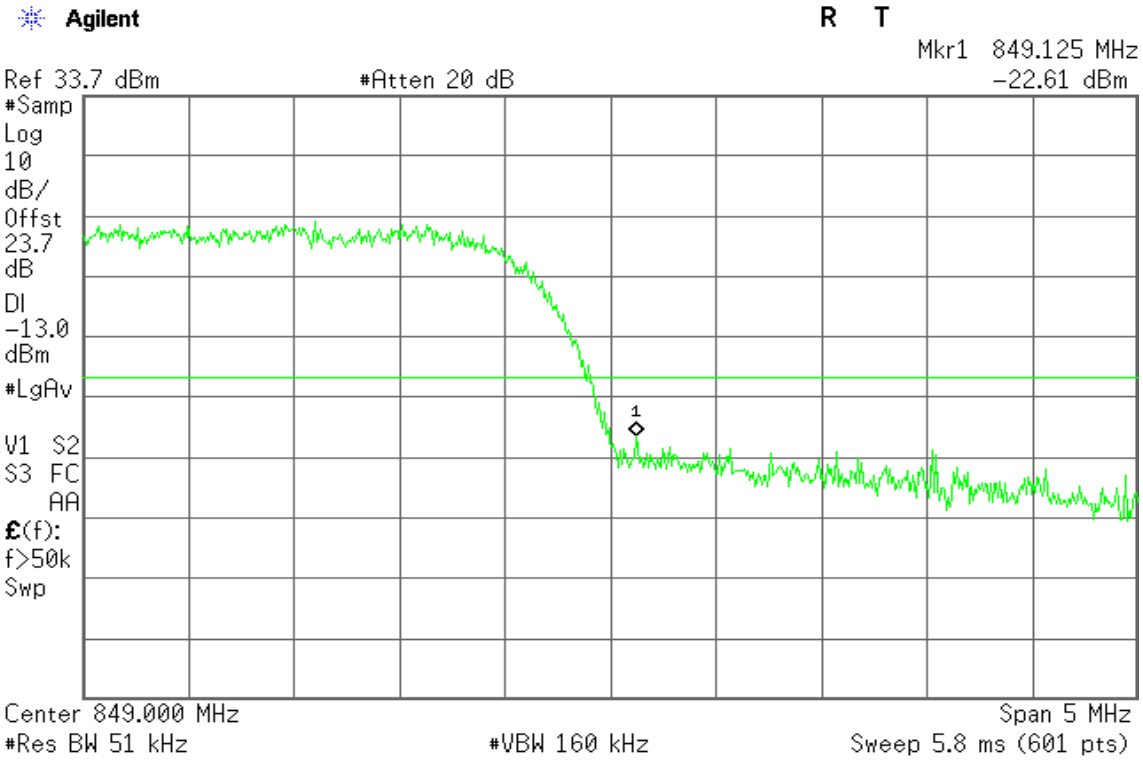


Figure 30-2: Band Edge emissions – HSUPA CH High



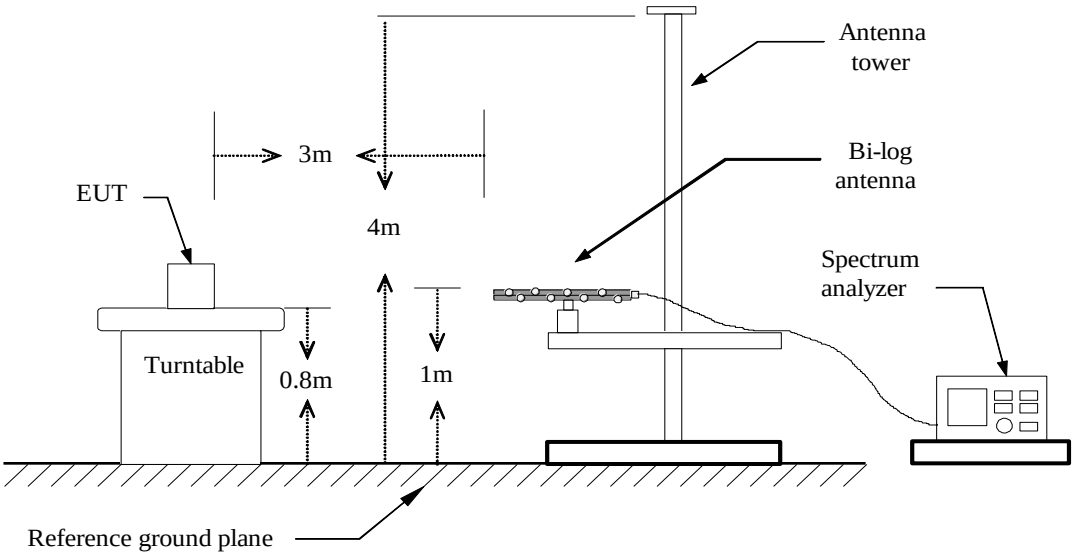
7.6 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

LIMIT

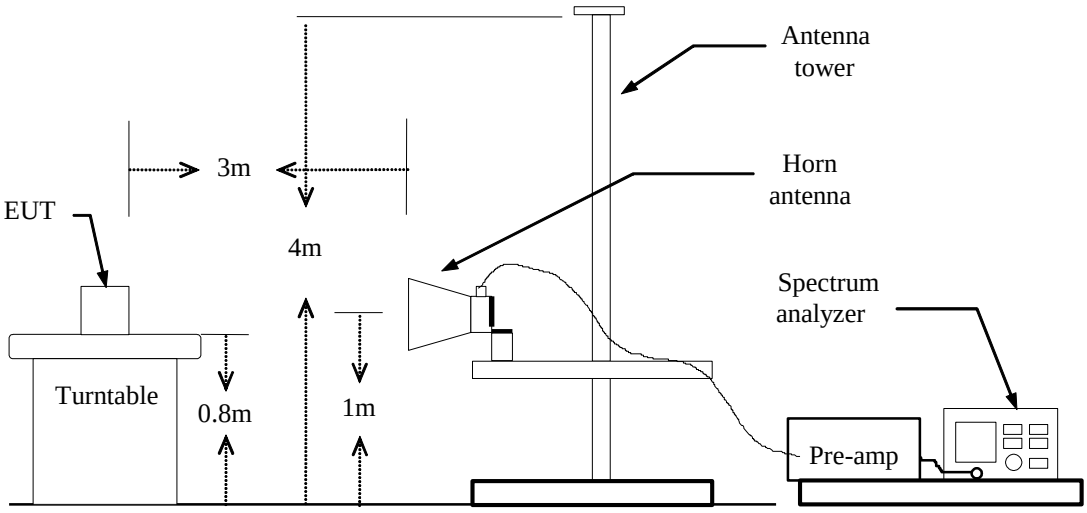
According to FCC §2.1053

Test Configuration

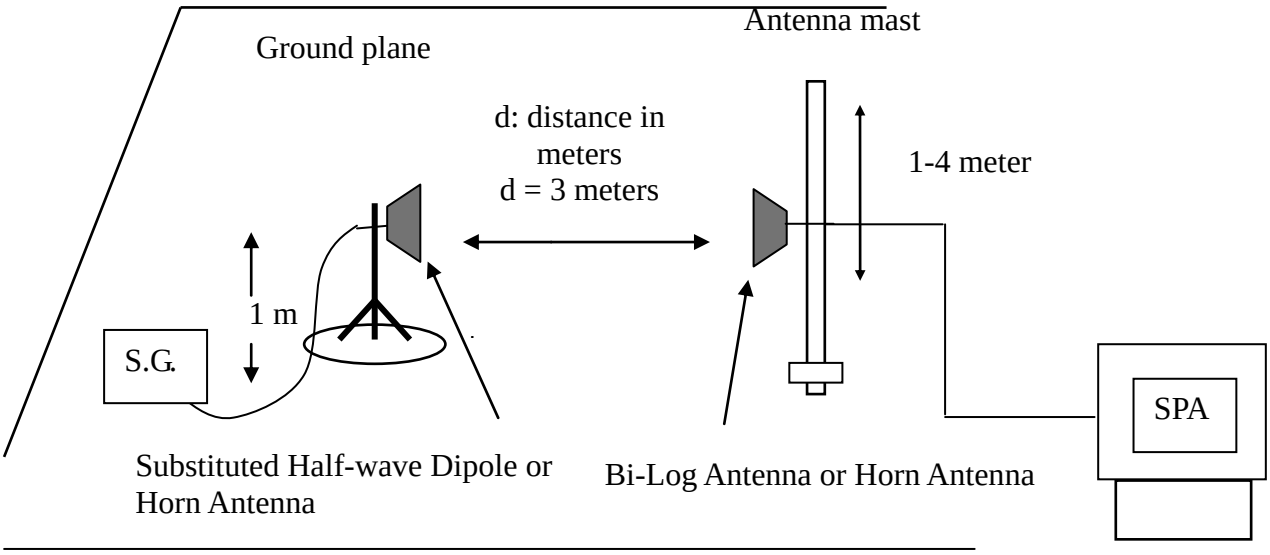
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURE

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

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

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

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

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – 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:** November 6, 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)
60.0700	-60.46	0.88	-2.19	-63.53	-13.00	-50.53	V
150.2800	-71.98	1.43	0.71	-72.70	-13.00	-59.70	V
378.2300	-74.74	2.31	5.96	-71.09	-13.00	-58.09	V
431.5800	-69.45	2.5	5.81	-66.14	-13.00	-53.14	V
527.6100	-73.66	2.74	6.02	-70.38	-13.00	-57.38	V
623.6400	-73.86	2.95	6.14	-70.67	-13.00	-57.67	V
65.8900	-61.67	0.93	-1.93	-64.53	-13.00	-51.53	H
150.2800	-67.11	1.43	0.71	-67.83	-13.00	-54.83	H
431.5800	-61.38	2.5	5.81	-58.07	-13.00	-45.07	H
458.7400	-69.71	2.6	5.87	-66.44	-13.00	-53.44	H
527.6100	-70.95	2.74	6.02	-67.67	-13.00	-54.67	H
623.6400	-71.87	2.95	6.14	-68.68	-13.00	-55.68	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:** November 6, 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)
60.0700	-61.34	0.88	-2.19	-64.41	-13.00	-51.41	V
150.2800	-71.93	1.43	0.71	-72.65	-13.00	-59.65	V
351.0700	-74.94	2.23	5.79	-71.38	-13.00	-58.38	V
431.5800	-69.18	2.5	5.81	-65.87	-13.00	-52.87	V
527.6100	-73.8	2.74	6.02	-70.52	-13.00	-57.52	V
623.6400	-74.28	2.95	6.14	-71.09	-13.00	-58.09	V
65.8900	-62.4	0.93	-1.93	-65.26	-13.00	-52.26	H
191.9900	-72.82	1.62	3.79	-70.65	-13.00	-57.65	H
319.0600	-73.32	2.17	5.71	-69.78	-13.00	-56.78	H
405.3900	-61.15	2.42	5.94	-57.63	-13.00	-44.63	H
431.5800	-61.74	2.5	5.81	-58.43	-13.00	-45.43	H
623.6400	-71.4	2.95	6.14	-68.21	-13.00	-55.21	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:** November 6, 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)
60.0700	-61.36	0.88	-2.19	-64.43	-13.00	-51.43	V
150.2800	-71.28	1.43	0.71	-72.00	-13.00	-59.00	V
309.3600	-80.26	2.13	5.78	-76.61	-13.00	-63.61	V
405.3900	-69.84	2.42	5.94	-66.32	-13.00	-53.32	V
527.6100	-72.87	2.74	6.02	-69.59	-13.00	-56.59	V
623.6400	-74.4	2.95	6.14	-71.21	-13.00	-58.21	V
65.8900	-60.78	0.93	-1.93	-63.64	-13.00	-50.64	H
150.2800	-66.52	1.43	0.71	-67.24	-13.00	-54.24	H
405.3900	-61.54	2.42	5.94	-58.02	-13.00	-45.02	H
431.5800	-62.8	2.5	5.81	-59.49	-13.00	-46.49	H
527.6100	-70.83	2.74	6.02	-67.55	-13.00	-54.55	H
623.6400	-71.53	2.95	6.14	-68.34	-13.00	-55.34	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:** November 6, 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)
60.0700	-60.97	0.88	-2.19	-64.04	-13.00	-51.04	V
150.2800	-73.12	1.43	0.71	-73.84	-13.00	-60.84	V
431.5800	-69.29	2.5	5.81	-65.98	-13.00	-52.98	V
527.6100	-74.59	2.74	6.02	-71.31	-13.00	-58.31	V
623.6400	-74.14	2.95	6.14	-70.95	-13.00	-57.95	V
729.3700	-72.27	3.18	6.4	-69.05	-13.00	-56.05	V
71.7100	-62.6	0.97	-1.61	-65.18	-13.00	-52.18	H
319.0600	-73.48	2.17	5.71	-69.94	-13.00	-56.94	H
405.3900	-63.12	2.42	5.94	-59.60	-13.00	-46.60	H
431.5800	-61.97	2.5	5.81	-58.66	-13.00	-45.66	H
623.6400	-71.2	2.95	6.14	-68.01	-13.00	-55.01	H
717.7300	-66.74	3.16	6.44	-63.46	-13.00	-50.46	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: GPRS 1900 / TX / CH 661 **Test Date:** November 6, 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)
60.0700	-61.6	0.88	-2.19	-64.67	-13.00	-51.67	V
150.2800	-72.87	1.43	0.71	-73.59	-13.00	-60.59	V
431.5800	-69.2	2.5	5.81	-65.89	-13.00	-52.89	V
527.6100	-74.21	2.74	6.02	-70.93	-13.00	-57.93	V
623.6400	-74.01	2.95	6.14	-70.82	-13.00	-57.82	V
719.6700	-74.08	3.17	6.48	-70.77	-13.00	-57.77	V
71.7100	-62.84	0.97	-1.61	-65.42	-13.00	-52.42	H
150.2800	-68.78	1.43	0.71	-69.50	-13.00	-56.50	H
431.5800	-62.06	2.5	5.81	-58.75	-13.00	-45.75	H
623.6400	-71.83	2.95	6.14	-68.64	-13.00	-55.64	H
718.7000	-64.82	3.16	6.46	-61.52	-13.00	-48.52	H
800.1800	-67.55	3.33	6.52	-64.36	-13.00	-51.36	H

Remark:

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

Operation Mode: GPRS 1900 / TX / CH 810 **Test Date:** November 6, 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)
60.0700	-61.4	0.88	-2.19	-64.47	-13.00	-51.47	V
179.3800	-75.79	1.61	3.52	-73.88	-13.00	-60.88	V
431.5800	-69.15	2.5	5.81	-65.84	-13.00	-52.84	V
576.1100	-78.77	2.88	6.05	-75.60	-13.00	-62.60	V
719.6700	-70.16	3.17	6.48	-66.85	-13.00	-53.85	V
839.9500	-75.71	3.41	6.4	-72.72	-13.00	-59.72	V
71.7100	-62.41	0.97	-1.61	-64.99	-13.00	-51.99	H
191.9900	-74.26	1.62	3.79	-72.09	-13.00	-59.09	H
431.5800	-61.49	2.5	5.81	-58.18	-13.00	-45.18	H
623.6400	-71.66	2.95	6.14	-68.47	-13.00	-55.47	H
712.8800	-65.75	3.15	6.36	-62.54	-13.00	-49.54	H
830.2500	-72.47	3.39	6.3	-69.56	-13.00	-56.56	H

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9262 **Test Date:** November 6, 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)
65.8900	-60.59	0.93	-1.93	-63.45	-13.00	-50.45	V
174.5300	-75.55	1.59	3	-74.14	-13.00	-61.14	V
378.2300	-72.2	2.31	5.96	-68.55	-13.00	-55.55	V
431.5800	-68.33	2.5	5.81	-65.02	-13.00	-52.02	V
623.6400	-70.29	2.95	6.14	-67.10	-13.00	-54.10	V
717.7300	-70.48	3.16	6.44	-67.20	-13.00	-54.20	V
101.7800	-58.73	1.16	-0.64	-60.53	-13.00	-47.53	H
309.3600	-72.88	2.13	5.78	-69.23	-13.00	-56.23	H
431.5800	-57.7	2.5	5.81	-54.39	-13.00	-41.39	H
623.6400	-66.08	2.95	6.14	-62.89	-13.00	-49.89	H
729.3700	-62.27	3.18	6.4	-59.05	-13.00	-46.05	H
800.1800	-69.82	3.33	6.52	-66.63	-13.00	-53.63	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:** November 6, 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	-66.28	1.11	1.07	-66.32	-13.00	-53.32	V
174.5300	-76.27	1.59	3	-74.86	-13.00	-61.86	V
431.5800	-68.48	2.5	5.81	-65.17	-13.00	-52.17	V
458.7400	-76.42	2.6	5.87	-73.15	-13.00	-60.15	V
623.6400	-70.81	2.95	6.14	-67.62	-13.00	-54.62	V
702.2100	-71.66	3.12	6.37	-68.41	-13.00	-55.41	V
101.7800	-58.68	1.16	-0.64	-60.48	-13.00	-47.48	H
186.1700	-71.96	1.62	3.85	-69.73	-13.00	-56.73	H
342.3400	-70.37	2.18	5.8	-66.75	-13.00	-53.75	H
431.5800	-60.98	2.5	5.81	-57.67	-13.00	-44.67	H
623.6400	-66.53	2.95	6.14	-63.34	-13.00	-50.34	H
719.6700	-62.63	3.17	6.48	-59.32	-13.00	-46.32	H

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9538 **Test Date:** November 6, 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)
65.8900	-60.71	0.93	-1.93	-63.57	-13.00	-50.57	V
431.5800	-69.7	2.5	5.81	-66.39	-13.00	-53.39	V
576.1100	-75.4	2.88	6.05	-72.23	-13.00	-59.23	V
729.3700	-68.61	3.18	6.4	-65.39	-13.00	-52.39	V
738.1000	-72.36	3.2	6.17	-69.39	-13.00	-56.39	V
839.9500	-73.35	3.41	6.4	-70.36	-13.00	-57.36	V
101.7800	-58.66	1.16	-0.64	-60.46	-13.00	-47.46	H
186.1700	-71.87	1.62	3.85	-69.64	-13.00	-56.64	H
405.3900	-61.62	2.42	5.94	-58.10	-13.00	-45.10	H
540.2200	-72.52	2.78	6.26	-69.04	-13.00	-56.04	H
623.6400	-66.42	2.95	6.14	-63.23	-13.00	-50.23	H
717.7300	-63.92	3.16	6.44	-60.64	-13.00	-47.64	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: WCDMA Band V / TX / CH 4132 **Test Date:** November 6, 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)
60.0700	-57.48	0.88	-2.19	-60.55	-13.00	-47.55	V
150.2800	-69.19	1.43	0.71	-69.91	-13.00	-56.91	V
200.7200	-74.59	1.63	3.19	-73.03	-13.00	-60.03	V
431.5800	-63.17	2.5	5.81	-59.86	-13.00	-46.86	V
527.6100	-69.5	2.74	6.02	-66.22	-13.00	-53.22	V
623.6400	-69.76	2.95	6.14	-66.57	-13.00	-53.57	V
65.8900	-61.31	0.93	-1.93	-64.17	-13.00	-51.17	H
191.9900	-73.28	1.62	3.79	-71.11	-13.00	-58.11	H
405.3900	-63.05	2.42	5.94	-59.53	-13.00	-46.53	H
431.5800	-56.77	2.5	5.81	-53.46	-13.00	-40.46	H
527.6100	-70.5	2.74	6.02	-67.22	-13.00	-54.22	H
623.6400	-69.69	2.95	6.14	-66.50	-13.00	-53.50	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 Band V / TX / CH 4182 **Test Date:** November 6, 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)
60.0700	-60.96	0.88	-2.19	-64.03	-13.00	-51.03	V
150.2800	-73.02	1.43	0.71	-73.74	-13.00	-60.74	V
351.0700	-75.04	2.23	5.79	-71.48	-13.00	-58.48	V
431.5800	-66.95	2.5	5.81	-63.64	-13.00	-50.64	V
527.6100	-73.01	2.74	6.02	-69.73	-13.00	-56.73	V
623.6400	-73.72	2.95	6.14	-70.53	-13.00	-57.53	V
65.8900	-61.13	0.93	-1.93	-63.99	-13.00	-50.99	H
150.2800	-67.9	1.43	0.71	-68.62	-13.00	-55.62	H
378.2300	-68.21	2.31	5.96	-64.56	-13.00	-51.56	H
431.5800	-60.33	2.5	5.81	-57.02	-13.00	-44.02	H
527.6100	-71.01	2.74	6.02	-67.73	-13.00	-54.73	H
623.6400	-70.56	2.95	6.14	-67.37	-13.00	-54.37	H

Remark:

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

Operation Mode: WCDMA Band V / TX / CH 4233 **Test Date:** November 6, 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)
60.0700	-61.43	0.88	-2.19	-64.50	-13.00	-51.50	V
150.2800	-73.09	1.43	0.71	-73.81	-13.00	-60.81	V
351.0700	-75.41	2.23	5.79	-71.85	-13.00	-58.85	V
431.5800	-67.97	2.5	5.81	-64.66	-13.00	-51.66	V
527.6100	-73.2	2.74	6.02	-69.92	-13.00	-56.92	V
623.6400	-73.05	2.95	6.14	-69.86	-13.00	-56.86	V
65.8900	-60.91	0.93	-1.93	-63.77	-13.00	-50.77	H
162.8900	-67.51	1.51	1.72	-67.30	-13.00	-54.30	H
405.3900	-62.95	2.42	5.94	-59.43	-13.00	-46.43	H
431.5800	-58.43	2.5	5.81	-55.12	-13.00	-42.12	H
527.6100	-70.68	2.74	6.02	-67.40	-13.00	-54.40	H
623.6400	-70.33	2.95	6.14	-67.14	-13.00	-54.14	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:**	November 6, 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)
65.8900	-61.14	0.93	-1.93	-64.00	-13.00	-51.00	V
309.3600	-80.04	2.13	5.78	-76.39	-13.00	-63.39	V
431.5800	-68.88	2.5	5.81	-65.57	-13.00	-52.57	V
527.6100	-76.3	2.74	6.02	-73.02	-13.00	-60.02	V
729.3700	-68.38	3.18	6.4	-65.16	-13.00	-52.16	V
839.9500	-74.5	3.41	6.4	-71.51	-13.00	-58.51	V
101.7800	-58.22	1.16	-0.64	-60.02	-13.00	-47.02	H
171.6200	-69.75	1.57	2.69	-68.63	-13.00	-55.63	H
431.5800	-59.95	2.5	5.81	-56.64	-13.00	-43.64	H
540.2200	-72.04	2.78	6.26	-68.56	-13.00	-55.56	H
623.6400	-66.57	2.95	6.14	-63.38	-13.00	-50.38	H
717.7300	-63.21	3.16	6.44	-59.93	-13.00	-46.93	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:**	November 6, 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	-66.37	1.11	1.07	-66.41	-13.00	-53.41	V
171.6200	-74.27	1.57	2.69	-73.15	-13.00	-60.15	V
378.2300	-71.93	2.31	5.96	-68.28	-13.00	-55.28	V
431.5800	-68.06	2.5	5.81	-64.75	-13.00	-51.75	V
623.6400	-70.5	2.95	6.14	-67.31	-13.00	-54.31	V
729.3700	-70.1	3.18	6.4	-66.88	-13.00	-53.88	V
101.7800	-59.12	1.16	-0.64	-60.92	-13.00	-47.92	H
171.6200	-70.87	1.57	2.69	-69.75	-13.00	-56.75	H
309.3600	-71.12	2.13	5.78	-67.47	-13.00	-54.47	H
431.5800	-61.8	2.5	5.81	-58.49	-13.00	-45.49	H
623.6400	-66.76	2.95	6.14	-63.57	-13.00	-50.57	H
709.0000	-63.1	3.14	6.3	-59.94	-13.00	-46.94	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:**	November 6, 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)
65.8900	-60.69	0.93	-1.93	-63.55	-13.00	-50.55	V
174.5300	-74.71	1.59	3	-73.30	-13.00	-60.30	V
431.5800	-68.97	2.5	5.81	-65.66	-13.00	-52.66	V
576.1100	-74.57	2.88	6.05	-71.40	-13.00	-58.40	V
623.6400	-70.6	2.95	6.14	-67.41	-13.00	-54.41	V
729.3700	-69.3	3.18	6.4	-66.08	-13.00	-53.08	V
101.7800	-58.55	1.16	-0.64	-60.35	-13.00	-47.35	H
309.3600	-72.56	2.13	5.78	-68.91	-13.00	-55.91	H
405.3900	-61.62	2.42	5.94	-58.10	-13.00	-45.10	H
540.2200	-71.32	2.78	6.26	-67.84	-13.00	-54.84	H
623.6400	-65.94	2.95	6.14	-62.75	-13.00	-49.75	H
718.7000	-62.56	3.16	6.46	-59.26	-13.00	-46.26	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:**	November 6, 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)
60.0700	-60.88	0.88	-2.19	-63.95	-13.00	-50.95	V
150.2800	-71.35	1.43	0.71	-72.07	-13.00	-59.07	V
351.0700	-74.04	2.23	5.79	-70.48	-13.00	-57.48	V
431.5800	-64.67	2.5	5.81	-61.36	-13.00	-48.36	V
527.6100	-72.09	2.74	6.02	-68.81	-13.00	-55.81	V
623.6400	-72.06	2.95	6.14	-68.87	-13.00	-55.87	V
65.8900	-60.53	0.93	-1.93	-63.39	-13.00	-50.39	H
150.2800	-66.65	1.43	0.71	-67.37	-13.00	-54.37	H
321.9700	-72.25	2.18	5.7	-68.73	-13.00	-55.73	H
431.5800	-55.96	2.5	5.81	-52.65	-13.00	-39.65	H
527.6100	-70.76	2.74	6.02	-67.48	-13.00	-54.48	H
623.6400	-69.77	2.95	6.14	-66.58	-13.00	-53.58	H

Remark:

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

Operation Mode:	WCDMA / HSDPA Band V / TX / CH 4182	**Test Date:**	November 6, 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)
60.0700	-61.2	0.88	-2.19	-64.27	-13.00	-51.27	V
150.2800	-72.31	1.43	0.71	-73.03	-13.00	-60.03	V
405.3900	-71.88	2.42	5.94	-68.36	-13.00	-55.36	V
431.5800	-67.47	2.5	5.81	-64.16	-13.00	-51.16	V
527.6100	-73.31	2.74	6.02	-70.03	-13.00	-57.03	V
623.6400	-71.71	2.95	6.14	-68.52	-13.00	-55.52	V
65.8900	-61.12	0.93	-1.93	-63.98	-13.00	-50.98	H
120.2100	-64.93	1.27	-2.06	-68.26	-13.00	-55.26	H
319.0600	-72.2	2.17	5.71	-68.66	-13.00	-55.66	H
431.5800	-59.89	2.5	5.81	-56.58	-13.00	-43.58	H
527.6100	-71.02	2.74	6.02	-67.74	-13.00	-54.74	H
623.6400	-70.46	2.95	6.14	-67.27	-13.00	-54.27	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:	WCDMA / HSDPA Band V / TX / CH 4233	**Test Date:**	November 6, 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)
60.0700	-60.2	0.88	-2.19	-63.27	-13.00	-50.27	V
150.2800	-72.51	1.43	0.71	-73.23	-13.00	-60.23	V
351.0700	-75.04	2.23	5.79	-71.48	-13.00	-58.48	V
431.5800	-66.34	2.5	5.81	-63.03	-13.00	-50.03	V
527.6100	-72.57	2.74	6.02	-69.29	-13.00	-56.29	V
623.6400	-72.95	2.95	6.14	-69.76	-13.00	-56.76	V
65.8900	-61.17	0.93	-1.93	-64.03	-13.00	-51.03	H
150.2800	-67.29	1.43	0.71	-68.01	-13.00	-55.01	H
342.3400	-73.02	2.18	5.8	-69.40	-13.00	-56.40	H
405.3900	-63.56	2.42	5.94	-60.04	-13.00	-47.04	H
431.5800	-57.37	2.5	5.81	-54.06	-13.00	-41.06	H
623.6400	-69.64	2.95	6.14	-66.45	-13.00	-53.45	H

Remark:

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

Operation Mode:	WCDMA / HSUPA Band II / TX / CH 9262	**Test Date:**	November 6, 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)
65.8900	-60.93	0.93	-1.93	-63.79	-13.00	-50.79	V
186.1700	-79.93	1.62	3.85	-77.70	-13.00	-64.70	V
405.3900	-71.25	2.42	5.94	-67.73	-13.00	-54.73	V
431.5800	-69.25	2.5	5.81	-65.94	-13.00	-52.94	V
623.6400	-70.47	2.95	6.14	-67.28	-13.00	-54.28	V
729.3700	-67.1	3.18	6.4	-63.88	-13.00	-50.88	V
101.7800	-58.59	1.16	-0.64	-60.39	-13.00	-47.39	H
120.2100	-64.39	1.27	-2.06	-67.72	-13.00	-54.72	H
378.2300	-66.43	2.31	5.96	-62.78	-13.00	-49.78	H
431.5800	-58.92	2.5	5.81	-55.61	-13.00	-42.61	H
623.6400	-66.65	2.95	6.14	-63.46	-13.00	-50.46	H
729.3700	-65.54	3.18	6.4	-62.32	-13.00	-49.32	H

Remark:

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

Operation Mode:	WCDMA / HSUPA Band II / TX / CH 9400	**Test Date:**	November 6, 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)
60.0700	-59.35	0.88	-2.19	-62.42	-13.00	-49.42	V
90.1400	-65.05	1.11	1.07	-65.09	-13.00	-52.09	V
171.6200	-75.68	1.57	2.69	-74.56	-13.00	-61.56	V
431.5800	-68.57	2.5	5.81	-65.26	-13.00	-52.26	V
623.6400	-69.85	2.95	6.14	-66.66	-13.00	-53.66	V
702.2100	-71.72	3.12	6.37	-68.47	-13.00	-55.47	V
101.7800	-58.96	1.16	-0.64	-60.76	-13.00	-47.76	H
256.0100	-76.8	1.88	5.63	-73.05	-13.00	-60.05	H
431.5800	-61.18	2.5	5.81	-57.87	-13.00	-44.87	H
540.2200	-73.06	2.78	6.26	-69.58	-13.00	-56.58	H
687.6600	-66.31	3.12	6.5	-62.93	-13.00	-49.93	H
718.7000	-65.18	3.16	6.46	-61.88	-13.00	-48.88	H

Remark:

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

Operation Mode:	WCDMA / HSUPA Band II / TX / CH 9538	**Test Date:**	November 6, 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)
65.8900	-61.06	0.93	-1.93	-63.92	-13.00	-50.92	V
378.2300	-72.68	2.31	5.96	-69.03	-13.00	-56.03	V
431.5800	-69.48	2.5	5.81	-66.17	-13.00	-53.17	V
623.6400	-70.8	2.95	6.14	-67.61	-13.00	-54.61	V
729.3700	-70.3	3.18	6.4	-67.08	-13.00	-54.08	V
800.1800	-73.93	3.33	6.52	-70.74	-13.00	-57.74	V
101.7800	-59.04	1.16	-0.64	-60.84	-13.00	-47.84	H
186.1700	-71.82	1.62	3.85	-69.59	-13.00	-56.59	H
309.3600	-70.67	2.13	5.78	-67.02	-13.00	-54.02	H
405.3900	-61.56	2.42	5.94	-58.04	-13.00	-45.04	H
623.6400	-66.14	2.95	6.14	-62.95	-13.00	-49.95	H
708.0300	-66.24	3.14	6.31	-63.07	-13.00	-50.07	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:**	November 6, 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)
60.0700	-59.59	0.88	-2.19	-62.66	-13.00	-49.66	V
150.2800	-71.38	1.43	0.71	-72.10	-13.00	-59.10	V
378.2300	-73.09	2.31	5.96	-69.44	-13.00	-56.44	V
431.5800	-64.35	2.5	5.81	-61.04	-13.00	-48.04	V
527.6100	-71.32	2.74	6.02	-68.04	-13.00	-55.04	V
623.6400	-71.63	2.95	6.14	-68.44	-13.00	-55.44	V
65.8900	-61.23	0.93	-1.93	-64.09	-13.00	-51.09	H
160.9500	-64.01	1.49	1.5	-64.00	-13.00	-51.00	H
378.2300	-68.05	2.31	5.96	-64.40	-13.00	-51.40	H
431.5800	-56.44	2.5	5.81	-53.13	-13.00	-40.13	H
527.6100	-70.41	2.74	6.02	-67.13	-13.00	-54.13	H
623.6400	-69.71	2.95	6.14	-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:	WCDMA / HSUPA Band V / TX / CH 4182	**Test Date:**	November 6, 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)
60.0700	-60.06	0.88	-2.19	-63.13	-13.00	-50.13	V
150.2800	-73.2	1.43	0.71	-73.92	-13.00	-60.92	V
309.3600	-80.98	2.13	5.78	-77.33	-13.00	-64.33	V
431.5800	-67.45	2.5	5.81	-64.14	-13.00	-51.14	V
527.6100	-73.14	2.74	6.02	-69.86	-13.00	-56.86	V
623.6400	-72.97	2.95	6.14	-69.78	-13.00	-56.78	V
65.8900	-61.37	0.93	-1.93	-64.23	-13.00	-51.23	H
120.2100	-64.94	1.27	-2.06	-68.27	-13.00	-55.27	H
378.2300	-68.49	2.31	5.96	-64.84	-13.00	-51.84	H
431.5800	-60.32	2.5	5.81	-57.01	-13.00	-44.01	H
527.6100	-71.08	2.74	6.02	-67.80	-13.00	-54.80	H
623.6400	-70.46	2.95	6.14	-67.27	-13.00	-54.27	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:	WCDMA / HSUPA Band V / TX / CH 4233	**Test Date:**	November 6, 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)
60.0700	-61.01	0.88	-2.19	-64.08	-13.00	-51.08	V
150.2800	-73.39	1.43	0.71	-74.11	-13.00	-61.11	V
378.2300	-75.26	2.31	5.96	-71.61	-13.00	-58.61	V
431.5800	-66.71	2.5	5.81	-63.40	-13.00	-50.40	V
527.6100	-73.15	2.74	6.02	-69.87	-13.00	-56.87	V
623.6400	-72.04	2.95	6.14	-68.85	-13.00	-55.85	V
65.8900	-61.2	0.93	-1.93	-64.06	-13.00	-51.06	H
191.9900	-72.97	1.62	3.79	-70.80	-13.00	-57.80	H
405.3900	-62.6	2.42	5.94	-59.08	-13.00	-46.08	H
431.5800	-59.61	2.5	5.81	-56.30	-13.00	-43.30	H
527.6100	-70.51	2.74	6.02	-67.23	-13.00	-54.23	H
623.6400	-70.57	2.95	6.14	-67.38	-13.00	-54.38	H

Remark:

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

Above 1GHz

Operation Mode: GPRS 850 / TX / CH 128 **Test Date:** November 6, 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	-45.28	5.05	6.03	-44.30	-13.00	-31.30	V
6551.000	-49.06	11.14	11.36	-48.84	-13.00	-35.84	V
N/A							
1651.000	-41.5	5.05	6.03	-40.52	-13.00	-27.52	H
2470.000	-49.32	6.3	6.06	-49.56	-13.00	-36.56	H
N/A							

Remark:

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

Operation Mode: GPRS 850 / TX / CH 190 **Test Date:** November 6, 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	-49.66	5.07	5.99	-48.74	-13.00	-35.74	V
1952.000	-50.78	5.59	5.49	-50.88	-13.00	-37.88	V
N/A							
1672.000	-46.5	5.07	5.99	-45.58	-13.00	-32.58	H
4346.000	-51.74	8.62	9.68	-50.68	-13.00	-37.68	H
N/A							

Remark:

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

Operation Mode: GPRS 850 / TX / CH 251 **Test Date:** November 6, 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	-48.57	5.11	5.94	-47.74	-13.00	-34.74	V
2547.000	-52.62	6.42	6.22	-52.82	-13.00	-39.82	V
N/A							
1700.000	-45.75	5.11	5.94	-44.92	-13.00	-31.92	H
2547.000	-50.33	6.42	6.22	-50.53	-13.00	-37.53	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:** November 6, 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)
3632.000	-54.82	8.14	9.03	-53.93	-13.00	-40.93	V
5123.000	-52.41	9.48	10.65	-51.24	-13.00	-38.24	V
N/A							
3835.000	-53.53	8.31	9.23	-52.61	-13.00	-39.61	H
5739.000	-50.26	10.26	10.85	-49.67	-13.00	-36.67	H
N/A							

Remark:

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

Operation Mode: GPRS 1900 / TX / CH 661 **Test Date:** November 6, 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)
4444.000	-52.91	8.76	9.76	-51.91	-13.00	-38.91	V
6852.000	-46.6	11.42	11.72	-46.30	-13.00	-33.30	V
N/A							
3870.000	-54.06	8.35	9.27	-53.14	-13.00	-40.14	H
6488.000	-49.26	11.06	11.29	-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: GPRS 1900 / TX / CH 810 **Test Date:** November 6, 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)
4332.000	-53.01	8.61	9.67	-51.95	-13.00	-38.95	V
7349.000	-45.61	12.06	12.46	-45.21	-13.00	-32.21	V
N/A							
3800.000	-53.5	8.26	9.2	-52.56	-13.00	-39.56	H
6614.000	-48.98	11.24	11.44	-48.78	-13.00	-35.78	H
N/A							

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9262 **Test Date:** November 6, 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)
2169.000	-53.43	5.9	5.64	-53.69	-13.00	-40.69	V
3919.000	-51.19	8.38	9.32	-50.25	-13.00	-37.25	V
N/A							
4318.000	-52.56	8.61	9.65	-51.52	-13.00	-38.52	H
5935.000	-50.76	10.55	10.89	-50.42	-13.00	-37.42	H
N/A							

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9400 **Test Date:** November 6, 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)
3863.000	-54.21	8.34	9.26	-53.29	-13.00	-40.29	V
5046.000	-53.39	9.43	10.62	-52.20	-13.00	-39.20	V
N/A							
3107.000	-55.85	7.18	7.72	-55.31	-13.00	-42.31	H
5564.000	-51.89	10.1	10.81	-51.18	-13.00	-38.18	H
N/A							

Remark:

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

Operation Mode: WCDMA Band II / TX / CH 9538 **Test Date:** November 6, 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	-51.12	8.28	9.21	-50.19	-13.00	-37.19	V
4948.000	-53.67	9.33	10.52	-52.48	-13.00	-39.48	V
N/A							
4332.000	-52.55	8.61	9.67	-51.49	-13.00	-38.49	H
5879.000	-51.3	10.4	10.88	-50.82	-13.00	-37.82	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:** November 6, 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)
2169.000	-52.35	5.9	5.64	-52.61	-13.00	-39.61	V
3940.000	-53.74	8.37	9.34	-52.77	-13.00	-39.77	V
N/A							
2001.000	-50.01	5.72	5.4	-50.33	-13.00	-37.33	H
5032.000	-53.06	9.42	10.61	-51.87	-13.00	-38.87	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 Band V / TX / CH 4182 **Test Date:** November 6, 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)
2001.000	-51.47	5.72	5.4	-51.79	-13.00	-38.79	V
4262.000	-54.36	8.56	9.61	-53.31	-13.00	-40.31	V
N/A							
2001.000	-52.78	5.72	5.4	-53.10	-13.00	-40.10	H
4507.000	-52.79	8.93	9.81	-51.91	-13.00	-38.91	H
N/A							

Remark:

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

Operation Mode: WCDMA Band V / TX / CH 4233 **Test Date:** November 6, 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)
2001.000	-51.59	5.72	5.4	-51.91	-13.00	-38.91	V
4353.000	-53.58	8.62	9.68	-52.52	-13.00	-39.52	V
N/A							
2001.000	-50.56	5.72	5.4	-50.88	-13.00	-37.88	H
5606.000	-50.81	10.19	10.82	-50.18	-13.00	-37.18	H
N/A							

Remark:

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

Operation Mode:	WCDMA / HSDPA Band II / TX / CH 9262	**Test Date:**	November 6, 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)
4388.000	-53.04	8.64	9.71	-51.97	-13.00	-38.97	V
5739.000	-51.28	10.26	10.85	-50.69	-13.00	-37.69	V
N/A							
3709.000	-53.5	8.21	9.11	-52.60	-13.00	-39.60	H
5711.000	-51.85	10.19	10.84	-51.20	-13.00	-38.20	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:**	November 6, 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)
4227.000	-52.75	8.52	9.58	-51.69	-13.00	-38.69	V
5998.000	-51.4	10.82	10.9	-51.32	-13.00	-38.32	V
N/A							
3919.000	-53.87	8.38	9.32	-52.93	-13.00	-39.93	H
5060.000	-53.05	9.43	10.62	-51.86	-13.00	-38.86	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:**	November 6, 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	-51.96	8.29	9.22	-51.03	-13.00	-38.03	V
5025.000	-53.4	9.42	10.61	-52.21	-13.00	-39.21	V
N/A							
3856.000	-53.48	8.33	9.26	-52.55	-13.00	-39.55	H
4738.000	-51.95	9.2	10.18	-50.97	-13.00	-37.97	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:**	November 6, 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)
2001.000	-47.8	5.72	5.4	-48.12	-13.00	-35.12	V
4136.000	-52.87	8.47	9.51	-51.83	-13.00	-38.83	V
N/A							
2001.000	-52.4	5.72	5.4	-52.72	-13.00	-39.72	H
4038.000	-52.67	8.39	9.43	-51.63	-13.00	-38.63	H
N/A							

Remark:

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

Operation Mode:	WCDMA / HSDPA Band V / TX / CH 4182	**Test Date:**	November 6, 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)
2001.000	-49.59	5.72	5.4	-49.91	-13.00	-36.91	V
5032.000	-53.7	9.42	10.61	-52.51	-13.00	-39.51	V
N/A							
2001.000	-50.15	5.72	5.4	-50.47	-13.00	-37.47	H
5921.000	-51.77	10.49	10.88	-51.38	-13.00	-38.38	H
N/A							

Remark:

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

Operation Mode:	WCDMA / HSDPA Band V / TX / CH 4233	**Test Date:**	November 6, 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)
2001.000	-50.12	5.72	5.4	-50.44	-13.00	-37.44	V
5039.000	-53.94	9.43	10.62	-52.75	-13.00	-39.75	V
N/A							
2001.000	-50.44	5.72	5.4	-50.76	-13.00	-37.76	H
4563.000	-51.99	9.05	9.9	-51.14	-13.00	-38.14	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:**	November 6, 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)
4430.000	-51.82	8.72	9.74	-50.80	-13.00	-37.80	V
6446.000	-49.14	11.14	11.26	-49.02	-13.00	-36.02	V
N/A							
4388.000	-52.63	8.64	9.71	-51.56	-13.00	-38.56	H
6621.000	-47.81	11.24	11.45	-47.60	-13.00	-34.60	H
N/A							

Remark:

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

Operation Mode:	WCDMA / HSUPA Band II / TX / CH 9400	**Test Date:**	November 6, 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	-52.33	8.23	9.16	-51.40	-13.00	-38.40	V
4514.000	-53.19	8.94	9.82	-52.31	-13.00	-39.31	V
N/A							
4297.000	-53.18	8.6	9.64	-52.14	-13.00	-39.14	H
4850.000	-52.1	9.29	10.36	-51.03	-13.00	-38.03	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 / HSUPA Band II / TX / CH 9538	**Test Date:**	November 6, 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	-51.91	8.28	9.21	-50.98	-13.00	-37.98	V
5081.000	-52.92	9.44	10.63	-51.73	-13.00	-38.73	V
N/A							
4626.000	-51.99	9.13	10	-51.12	-13.00	-38.12	H
5746.000	-51.61	10.28	10.85	-51.04	-13.00	-38.04	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:**	November 6, 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)
2001.000	-48.85	5.72	5.4	-49.17	-13.00	-36.17	V
4710.000	-53.65	9.15	10.14	-52.66	-13.00	-39.66	V
N/A							
2001.000	-48.66	5.72	5.4	-48.98	-13.00	-35.98	H
5123.000	-52.24	9.48	10.65	-51.07	-13.00	-38.07	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:**	November 6, 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)
2001.000	-50.46	5.72	5.4	-50.78	-13.00	-37.78	V
4276.000	-52.42	8.57	9.62	-51.37	-13.00	-38.37	V
N/A							
2001.000	-50.46	5.72	5.4	-50.78	-13.00	-37.78	H
4395.000	-52.09	8.64	9.72	-51.01	-13.00	-38.01	H
N/A							

Remark:

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

Operation Mode:	WCDMA / HSUPA Band V / TX / CH 4233	**Test Date:**	November 6, 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)
2001.000	-49.64	5.72	5.4	-49.96	-13.00	-36.96	V
4451.000	-53.25	8.78	9.76	-52.27	-13.00	-39.27	V
N/A							
2001.000	-52.34	5.72	5.4	-52.66	-13.00	-39.66	H
4115.000	-52.53	8.46	9.49	-51.50	-13.00	-38.50	H
N/A							

Remark:

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

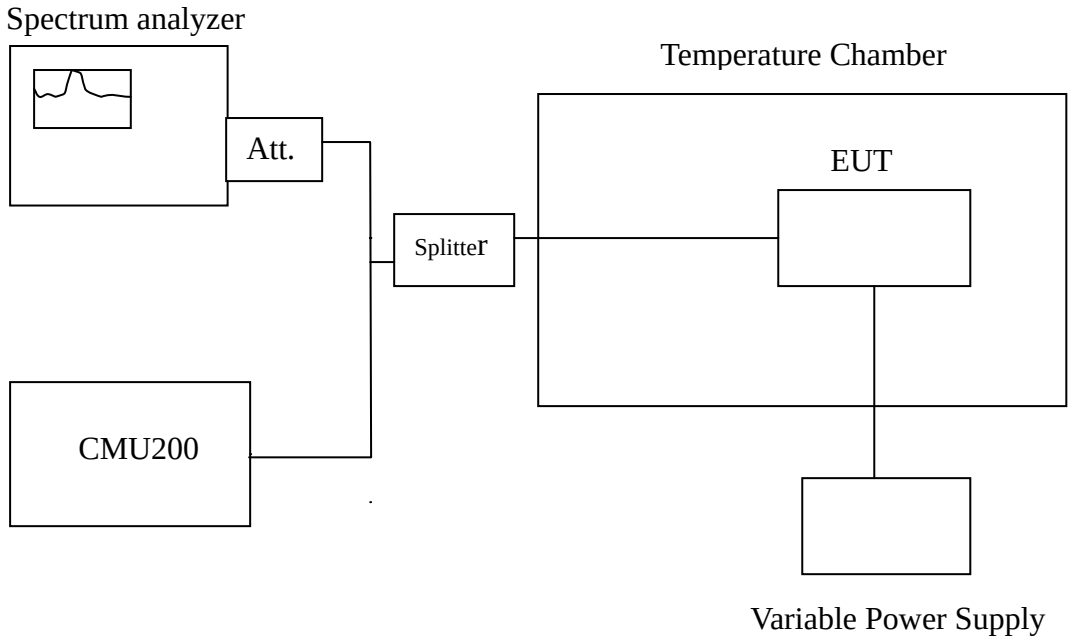
7.7 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

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℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	836599980	-20	2091
	40	836599994	-6	
	30	836599988	-12	
	20	836600000	0	
	10	836600000	0	
	0	836599990	-10	
	-10	836599987	-13	
	-20	836600019	19	
	-30	836599995	-5	

Reference Frequency: GPRS Mid Channel 1880 MHz @ 20℃				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	1880000018	21	4700
	40	1879999985	-12	
	30	1880000016	19	
	20	1879999997	0	
	10	1880000016	19	
	0	1880000004	7	
	-10	1879999995	-2	
	-20	1880000018	21	
	-30	1880000005	8	

Reference Frequency: WCDMA Band II Mid Channel 1880 MHz @ 20℃				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	1880000008	14	4700
	40	1879999997	3	
	30	1879999997	3	
	20	1879999994	0	
	10	1880000003	9	
	0	1880000019	25	
	-10	1879999993	-1	
	-20	1879999977	-17	
	-30	1880000000	6	

Reference Frequency: WCDMA Band V Mid Channel 836.6 MHz @ 20℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	836400007	2	2091
	40	836400001	-4	
	30	836399991	-14	
	20	836400005	0	
	10	836400002	-3	
	0	836399992	-13	
	-10	836399975	-30	
	-20	836400001	-4	
	-30	836400016	11	

Reference Frequency: WCDMA / HSDPA Band II Mid Channel 1880 MHz @ 20℃				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	1880000024	15	4700
	40	1880000009	0	
	30	1879999989	-20	
	20	1880000009	0	
	10	1879999991	-18	
	0	1879999996	-13	
	-10	1879999985	-24	
	-20	1879999998	-11	
	-30	1879999986	-23	

Reference Frequency: WCDMA / HSDPA Band V Mid Channel 836.6 MHz @ 20℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	836400016	13	2091
	40	836400008	5	
	30	836399993	-10	
	20	836400003	0	
	10	836399986	-17	
	0	836400007	4	
	-10	836399988	-15	
	-20	836400001	-2	
	-30	836399977	-26	

Reference Frequency: WCDMA / HSUPA Band II Mid Channel 1880 MHz @ 20℃				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	1880000005	-5	4700
	40	1879999998	-12	
	30	1880000004	-6	
	20	1880000010	0	
	10	1879999985	-25	
	0	1880000014	4	
	-10	1880000008	-2	
	-20	1879999996	-14	
	-30	1880000001	-9	

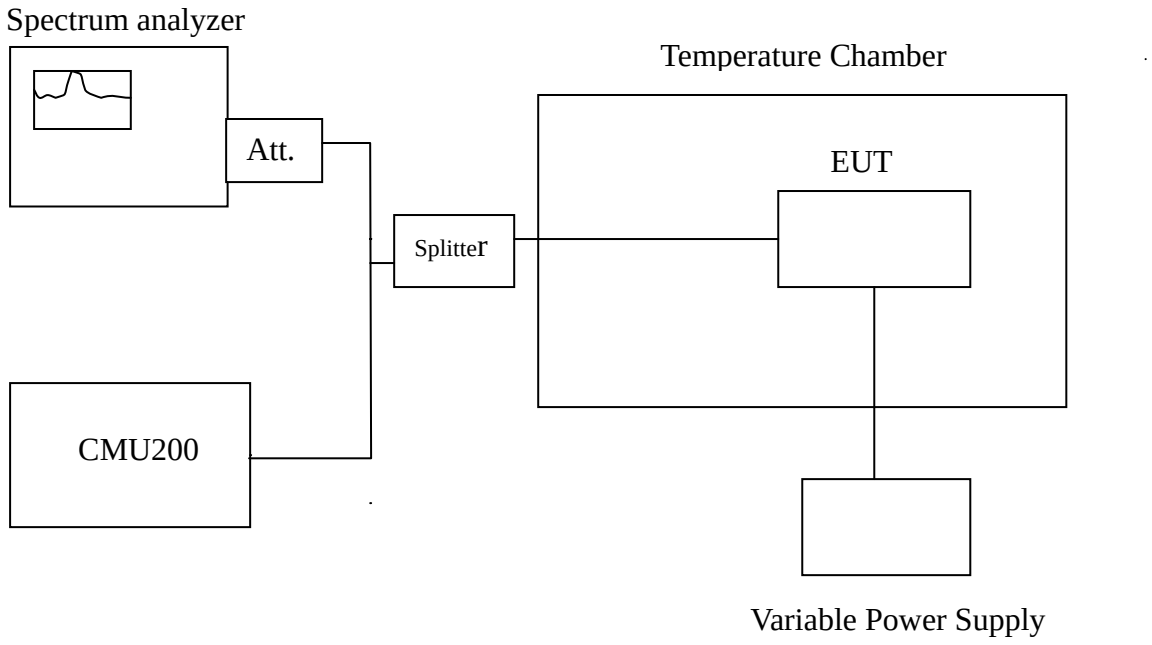
Reference Frequency: WCDMA / HSUPA Band V Mid Channel 836.6 MHz @ 20℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
12	50	836400009	13	2091
	40	836399991	-5	
	30	836399989	-7	
	20	836399996	0	
	10	836399990	-6	
	0	836399984	-12	
	-10	836399982	-14	
	-20	836400023	27	
	-30	836399993	-3	

7.8 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

LIMIT

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

Test Configuration



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

TEST PROCEDURE

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

AC

Reduce the input voltage to specify extreme voltage variation (± 10%) and endpoint, record the maximum frequency change.

TEST RESULTS

No non-compliance noted.

Reference Frequency: GPRS Mid Channel 836.6 MHz @ 20℃				
Limit: ± 2.5 ppm = 2091Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
13.8	20	836599989	-18	2091
12		836600007	0	
10.2		836600011	4	

Reference Frequency: GPRS Mid Channel 1880 MHz @ 20℃				
Limit: ± 2.5 ppm = 4700 Hz				
Power Supply Vdc	Environment Temperature (℃)	Frequency (Hz)	Delta (Hz)	Limit (Hz)
13.8	20	1880000012	11	4700
12		1880000001	0	
10.2		1879999989	-12	

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)
13.8	20	1879999996	-11	4700
12		1880000007	0	
10.2		1880000017	10	

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)
13.8	20	836399994	2	2091
12		836399992	0	
10.2		836400005	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)
13.8	20	1880000018	8	4700
12		1880000010	0	
10.2		1879999986	-24	

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)
13.8	20	836400000	-1	2091
12		836400001	0	
10.2		836400015	14	

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)
13.8	20	1880000001	-5	4700
12		1880000006	0	
10.2		1879999980	-26	

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)
13.8	20	836399992	-9	2091
12		836400001	0	
10.2		836400018	17	