



Report No.: SZ12120168W02



FCC TEST REPORT

Issued to

**SHENZHEN SANGFEI CONSUMER
COMMUNICATIONS CO.,LTD**

For

SAF3011

Model Name: SAF3011
Brand Name: N/A
Trade Name: N/A
FCC ID: VQR-SAF3011
IC Number: 10881A-SAF3011
Standard: 47 CFR Part 2, RSS-Gen
47 CFR Part 22 Subpart H, RSS-132
47 CFR Part 24 Subpart E, RSS-133
Test date: 2013-1-15 to 2013-3-13
Issue date: 2013-3-15

Shenzhen Morlab Communications Technology Co., Ltd.



Tested by Nie Quan
Nie Quan
Date 2013.3.15

Approved by Wu Xue
Wu Xue
Date 2013.3.15

Review by Peng Huarui
Peng Huarui
Date 2013.3.15

CTIA Authorized Test Lab
LAB CODE 20081223-00
IEEE 1725

OFTA
電訊管理局



GCF
Official Observer of
Global Certification Forum

Bluetooth
BQTF

FCC
Reg. No.
695796

The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the Shenzhen MORLAB Communication Technology Co., Ltd. It may not be reproduced in its entirety or in part and it may not be used for advertising. The client to whom the report is issued may, however, show or send it, or a certified copy thereof prepared by the Shenzhen MORLAB Telecommunication Co., Ltd to his customer. Supplier or others persons directly concerned. Shenzhen MORLAB Telecommunication Co., Ltd will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report. In the event of the improper use of the report, Shenzhen MORLAB Telecommunication Co., Ltd reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Shenzhen MORLAB Communication Technology Co., Ltd.
FL3, Building A, FeiYang Science Park, No.8 LongChang Road,Block 67, BaoAn District,ShenZhen, GuangDong Province,P. R.
China 518101

Tel: +86 755 61281201 Fax: +86 755 86130218

TABLE OF CONTENTS

1.	GENERAL INFORMATION	3
1.1	EUT Description	3
1.2	Test Standards and Results	4
1.3	Facilities and Accreditations	5
2.	47 CFR PART 2, PART 22H & 24E REQUIREMENTS	6
2.1	Conducted RF Output Power	6
2.2	99% Occupied Bandwidth	15
2.3	Frequency Stability	23
2.4	Conducted Out of Band Emissions	27
2.5	Band Edge	33
2.6	Transmitter Radiated Power (EIRP/ERP)	38
2.7	Radiated Out of Band Emissions	44

Change History		
Issue	Date	Reason for change
1.0	Mar 15, 2013	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type: SAF3011
Model Name: SAF3011
Serial No.....: (n.a, marked #1 by test site)
Hardware Version: SAF3011_ V3.0
Software Version: SAF3011_0.0.1075.0079_20121220_SHIP.bin
Applicant: SHENZHEN SANGFEI CONSUMER COMMUNICATIONS
CO.,LTD
11 Science and Technology Road, Shenzhen Hi-tech industrial Park
Nanshan District.Shenzhen,PRC
Manufacturer: Shenzhen Sangfei Consumer Communications Co.,Ltd.
11 Science and Technology Road, Shenzhen Hi-tech Industrial Park
Nanshan District, Shenzhen 518057, PRC
Frequency Range: CDMA 800MHz:
Tx: 824.7-848.31 MHz;
Rx: 869.7-893.31MHz
CDMA 1900MHz:
Tx: 1851.25 MHz-1914.00 MHz;
Rx: 1931.25 MHz-1993.75 MHz
Modulation Type.....: CDMA:QPSK/HPSK EVDO: QPSK/HPSK/8PSK/16QAM
Emission Designators: 1M29F9W
Antenna Type.....: PIFA Antenna

Note 1: The EUT is a SAF3011 operating in Cellular and PCS bands.

Note 2: The normal configuration for the EUT is the Mobile Phone (MS) associated with ancillary equipments e.g. the Battery and/or the AC Adapter (Charger).

Note 3: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.2 Test Standards and Results

The objective of the report is to perform testing according to:

No.	Identity (FCC)	Identity (IC)	Document Title
1	47 CFR Part 2 (10-1-09 Edition)	RSS-Gen (Issue 3, December 2010)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-09 Edition)	RSS-132 (Issue 3, January 2013)	Public Mobile Services
3	47 CFR Part 24 (10-1-09 Edition)	RSS-133 (Issue 6, January 2013)	Personal Communications Services

Test detailed items/section required by FCC rules and results are as below:

N o.	Section in CFR 47	Section in RSS GEN/132/133/139	Description	Test Band	Result
1	2.1046	4.6, 4.4, 6.4, 6.4	Conducted RF Output Power	CDMA 800/1900MHz	PASS
2	2.1049	4.4.1, 5.6, 6.1	Occupied Bandwidth	CDMA 800/1900MHz	PASS
3	2.1055, 22.355, 24.235	4.5, 4.3, 7, 6.3	Frequency Stability	CDMA 800/1900MHz	PASS
4	2.1051, 2.1057 22.917, 24.238	4.7, 4.5, 6.3, 6.5	Conducted Out of Band Emissions	CDMA 800/1900MHz	PASS
5	2.1051, 2.1057 22.917, 24.238	4.7, 4.5, 6.3, 6.5	Band Edge	CDMA 800/1900MHz	PASS
6	22.913, 24.232	4.6, 4.4, 6.2, 6.4	Transmitter Radiated Power (EIPR/ERP)	CDMA 800/1900MHz	PASS
7	2.1053, 2.1057 22.917, 24.238	4.6, 4.4, 6.2, 6.4	Radiated Out of Band Emissions	CDMA 800/1900MHz	PASS

NOTE: Measurement method according to ANSI/TIA-603-D 2010

1.3 Facilities and Accreditations

1.3.1 Facilities

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L3572.

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, No.8 LongChang Road,Block 67, BaoAn District,ShenZhen, GuangDong Province,P. R. China 518101. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

1.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

2. 47 CFR PART 2, PART 22H & 24E REQUIREMENTS

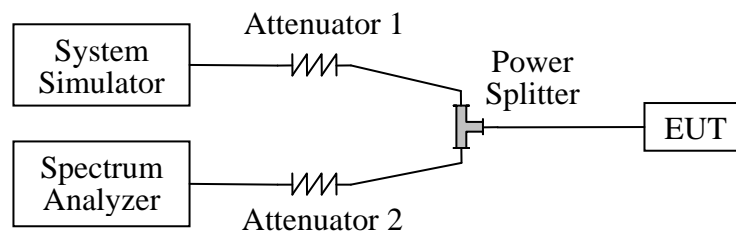
2.1 Conducted RF Output Power

2.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified

2.1.2 Test Description

1. Test Setup:



The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. A call is established between the EUT and the SS.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2012.05	2013.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2013.05
Power Meter	Agilent	E4418B	GB43318055	2012.05	2013.05
Power Sensor	Agilent	8482A	MY41091706	2012.05	2013.05
Power Splitter	Weinschel	1506A	NW521	2012.05	2013.05
Attenuator 1	Resnet	20dB	(n.a.)	2012.05	2013.05
Attenuator 2	Resnet	3dB	(n.a.)	2012.05	2013.05

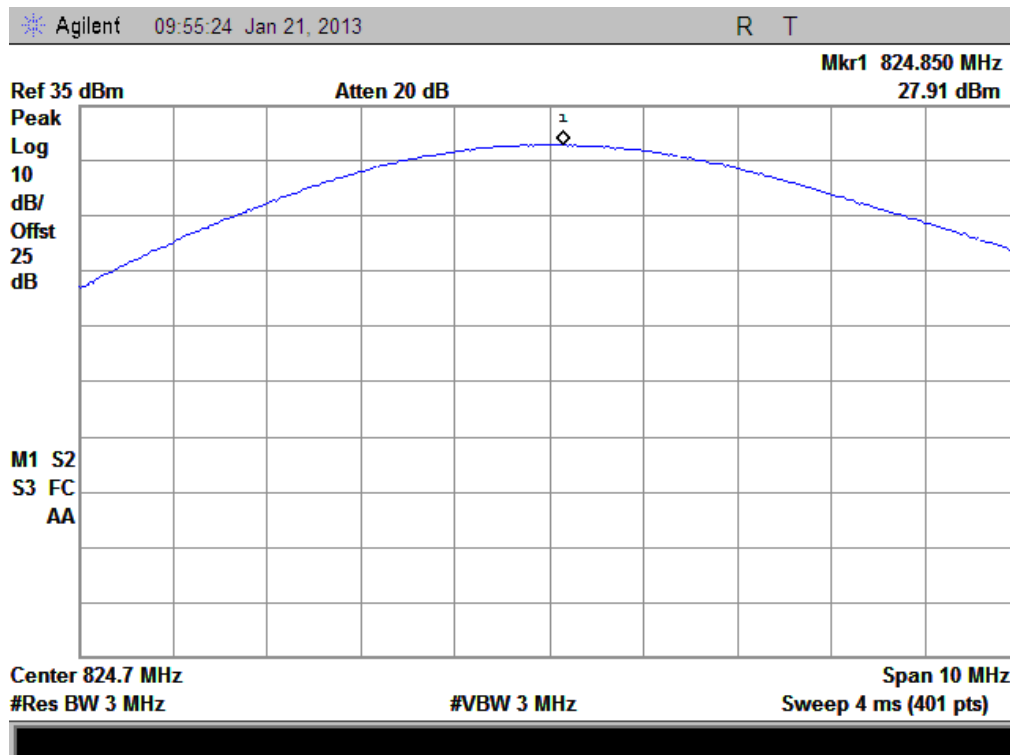
2.1.3 Test Result

Here the lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT. For the CDMA 800MHz operates at maximum output Power, the rated conducted RF output power is 38.5dBm, and For the CDMA 1900MHz operates at maximum output Power, the rated conducted RF output power is 33dBm.

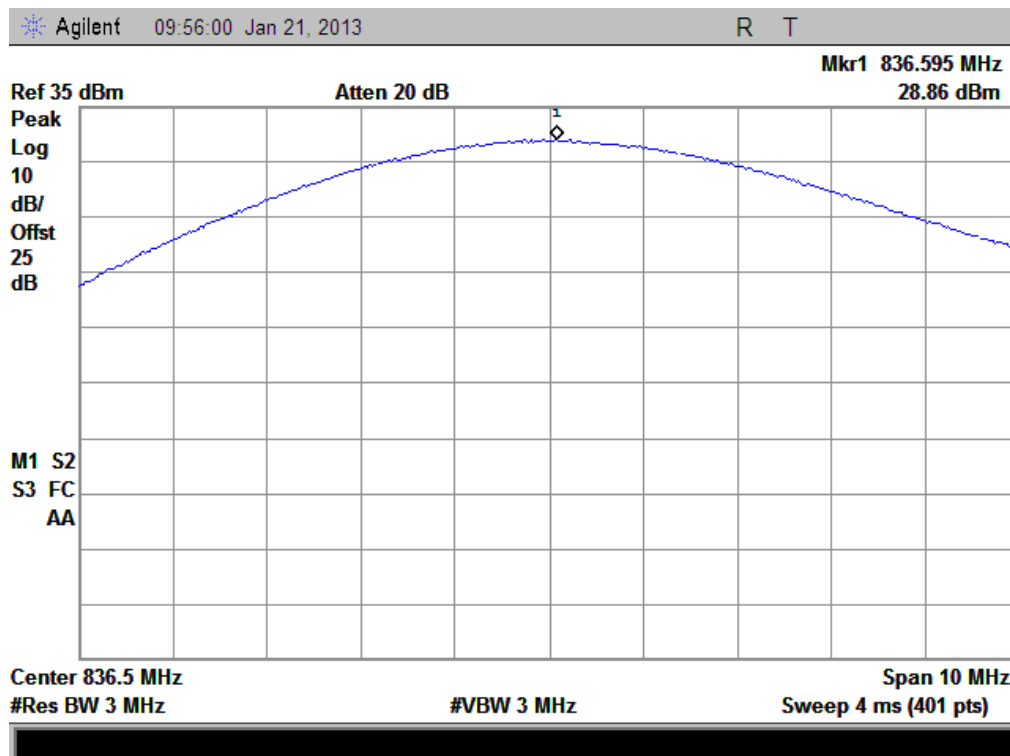
1. Test Verdict:

No.	Channel Number	Frequency (MHz)	Measured Power		Rated Power	
			dBm	W	dBm	W
CDMA 800MHz	1013	824.7	27.91	0.62	38.5	7
	384	836.52	28.86	0.77		
	777	848.31	29.36	0.86		
CDMA 1900MHz	25	1850.2	27.42	0.55	33	2
	600	1880.0	28.11	0.65		
	1175	1909.8	28.55	0.72		
EVDO 800MHz	1013	824.7	26.38	0.43	38.5	7
	384	836.52	27.16	0.52		
	777	848.31	27.28	0.53		
EVDO 1900MHz	25	1850.2	24.83	0.30	33	2
	600	1880.0	24.73	0.30		
	1175	1909.8	24	0.25		
G block	1275	1913.8	24.05	0.25	33	2
G block EVDO	1275	1913.8	23.93	0.24	33	2

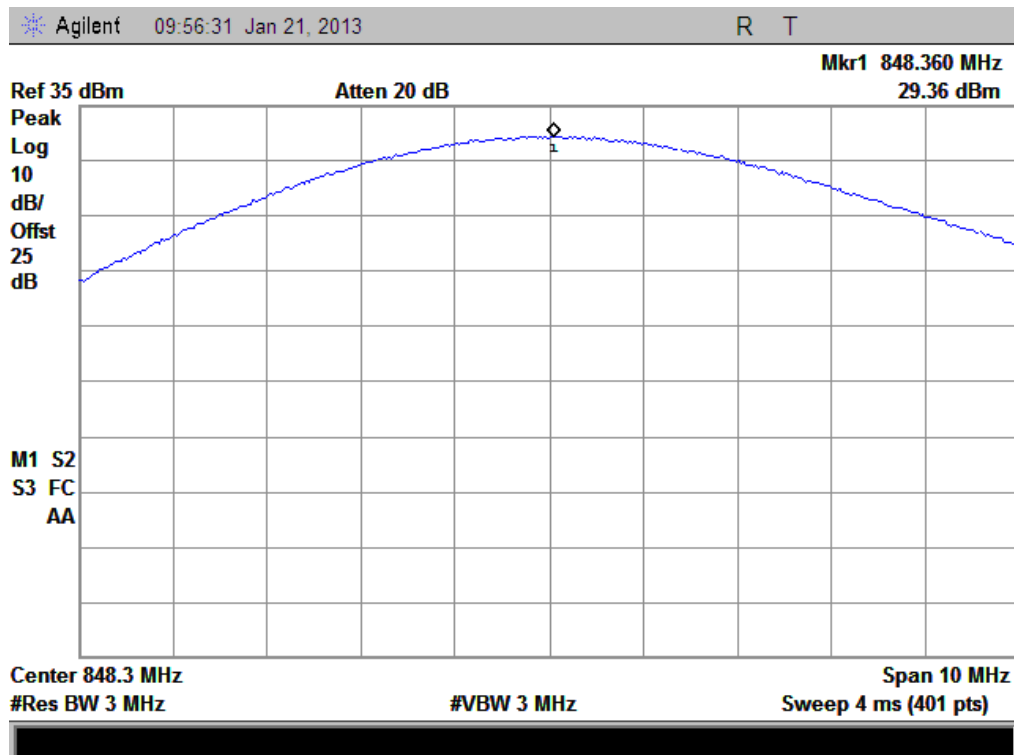
2. Test Plots:



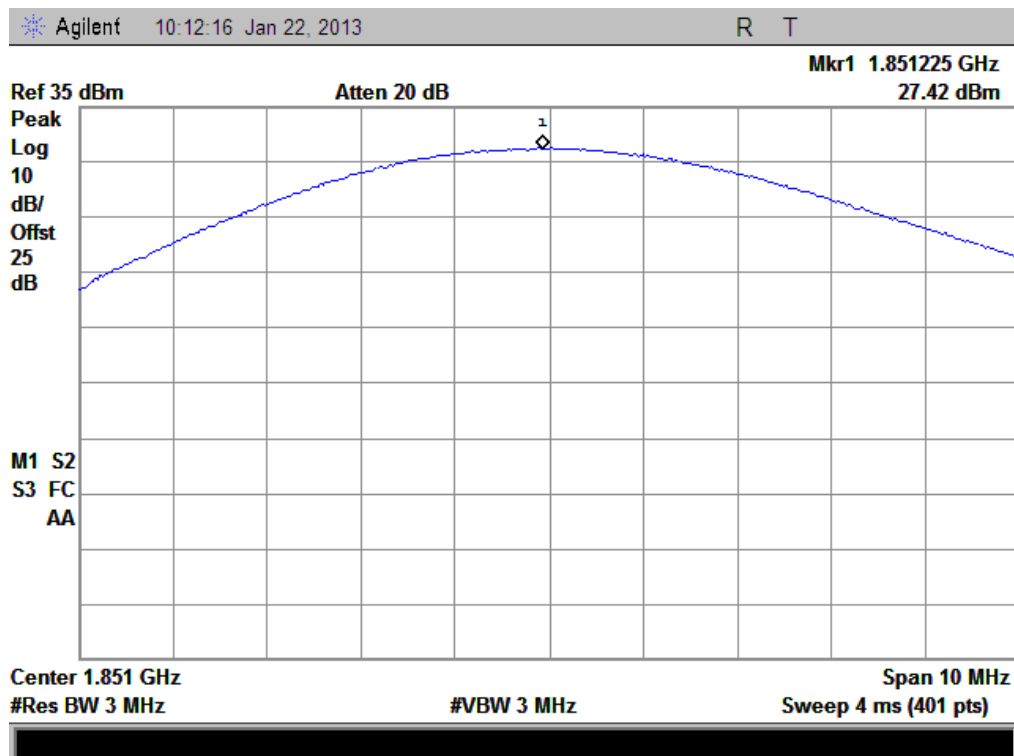
(Plot A: CDMA 800MHz Channel = 1013)



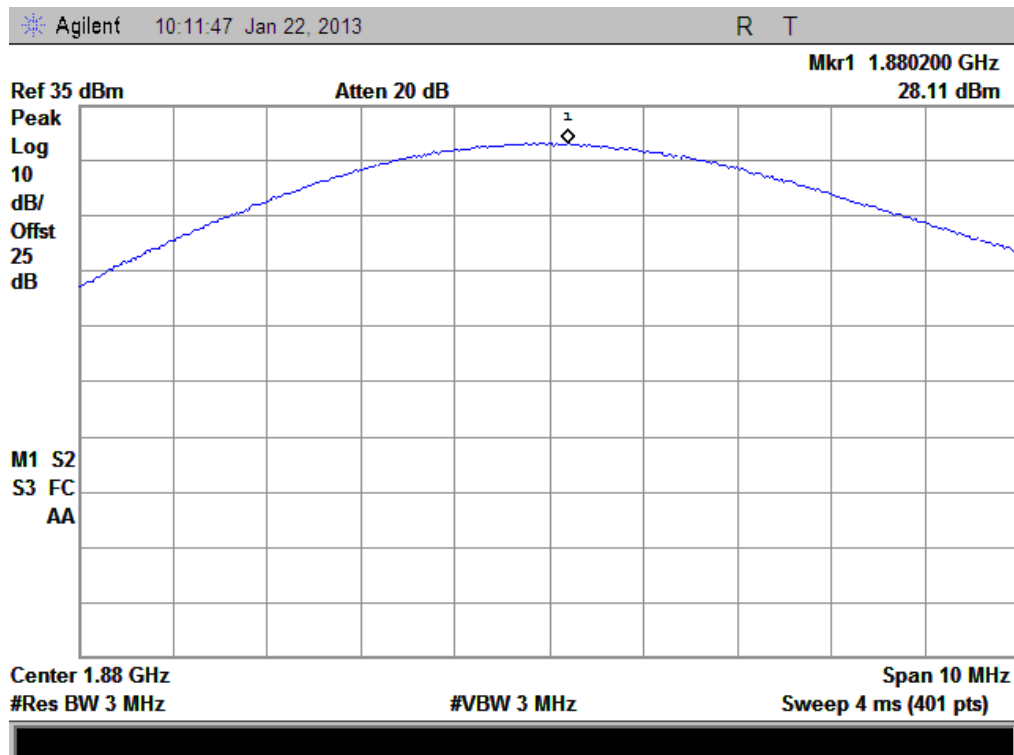
(Plot B: CDMA 800MHz Channel = 384)



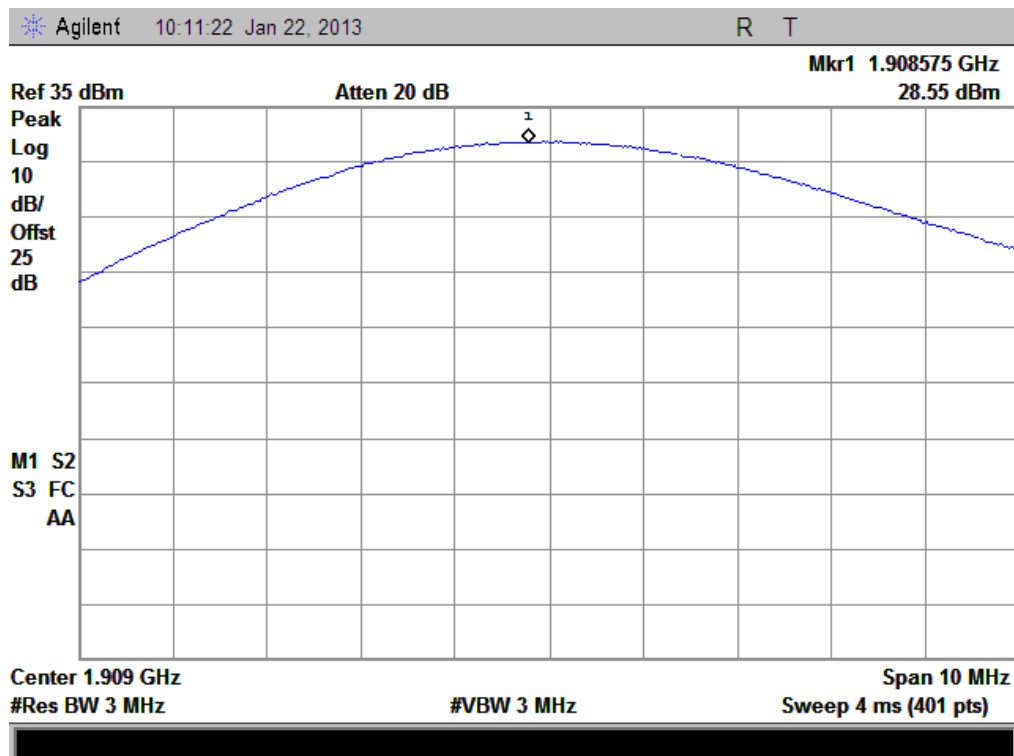
(Plot C: CDMA 800MHz Channel = 777)



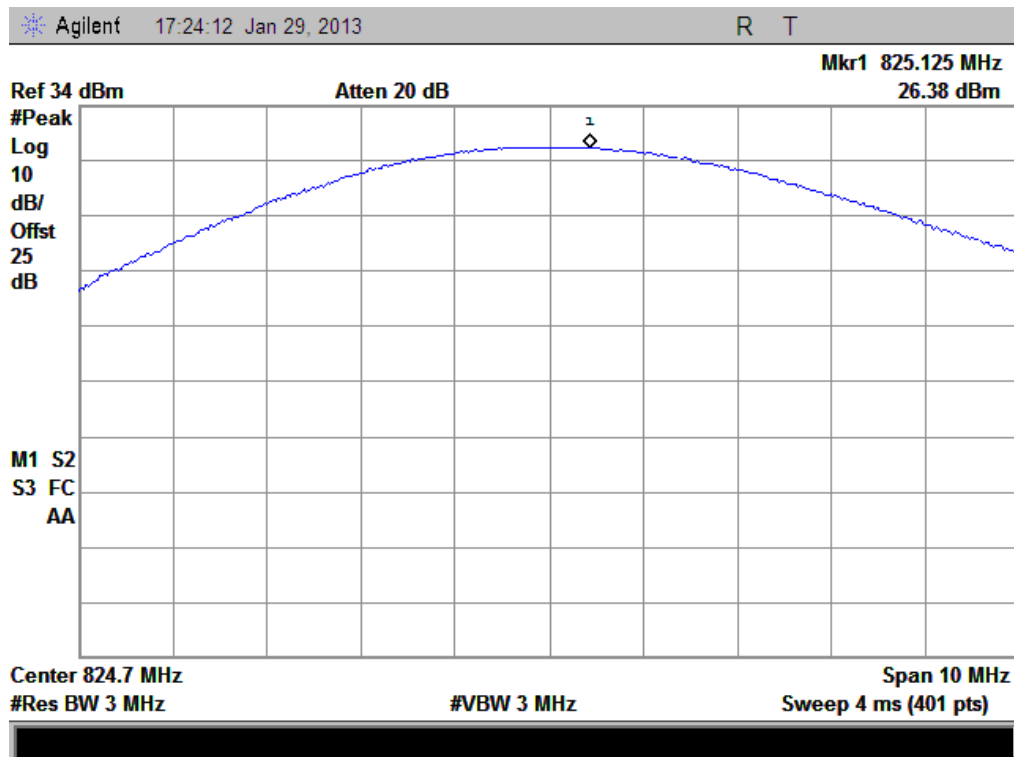
(Plot D: CDMA 1900MHz Channel = 25)-3.



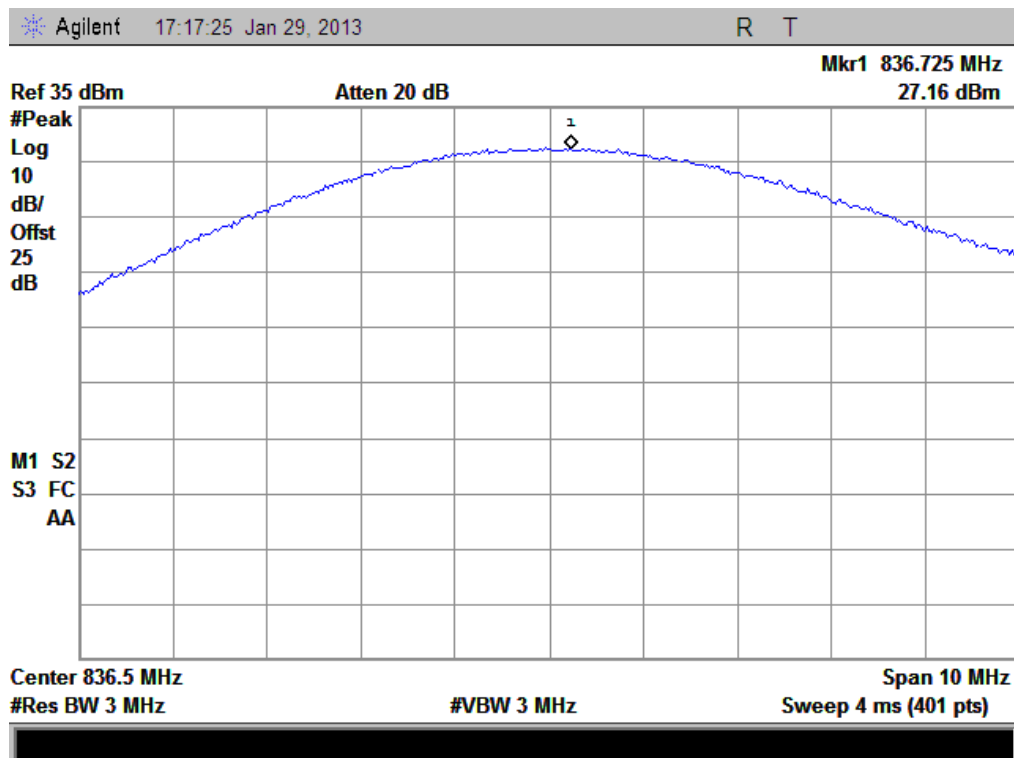
(Plot E: CDMA 1900MHz Channel = 600)



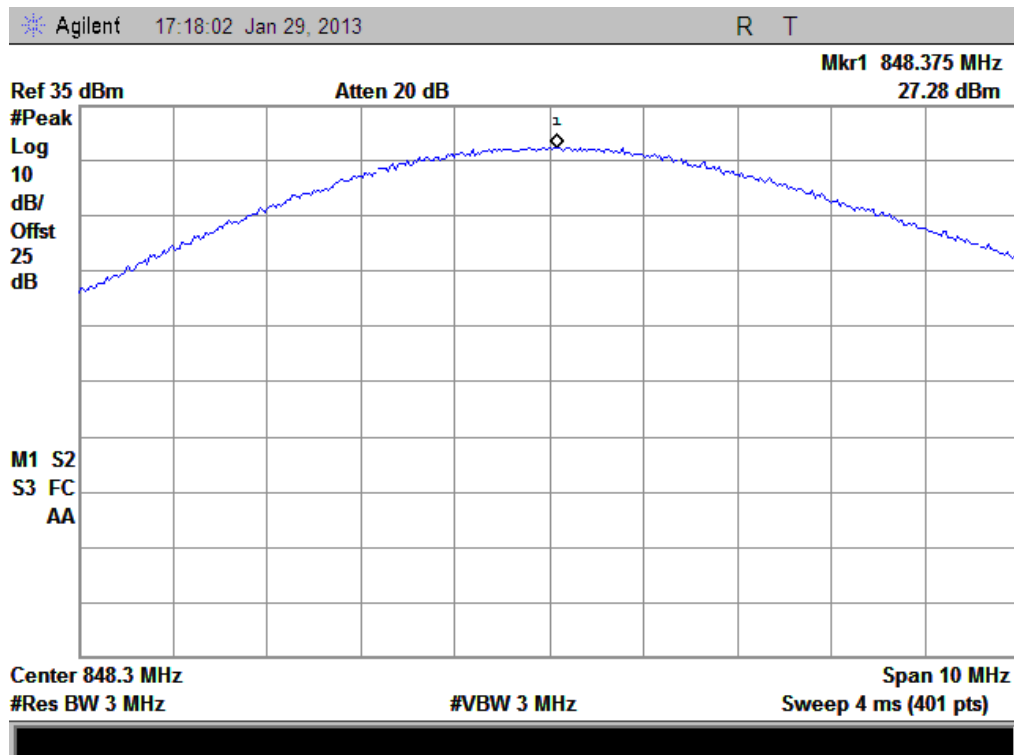
(Plot F: CDMA 1900MHz Channel = 1175)



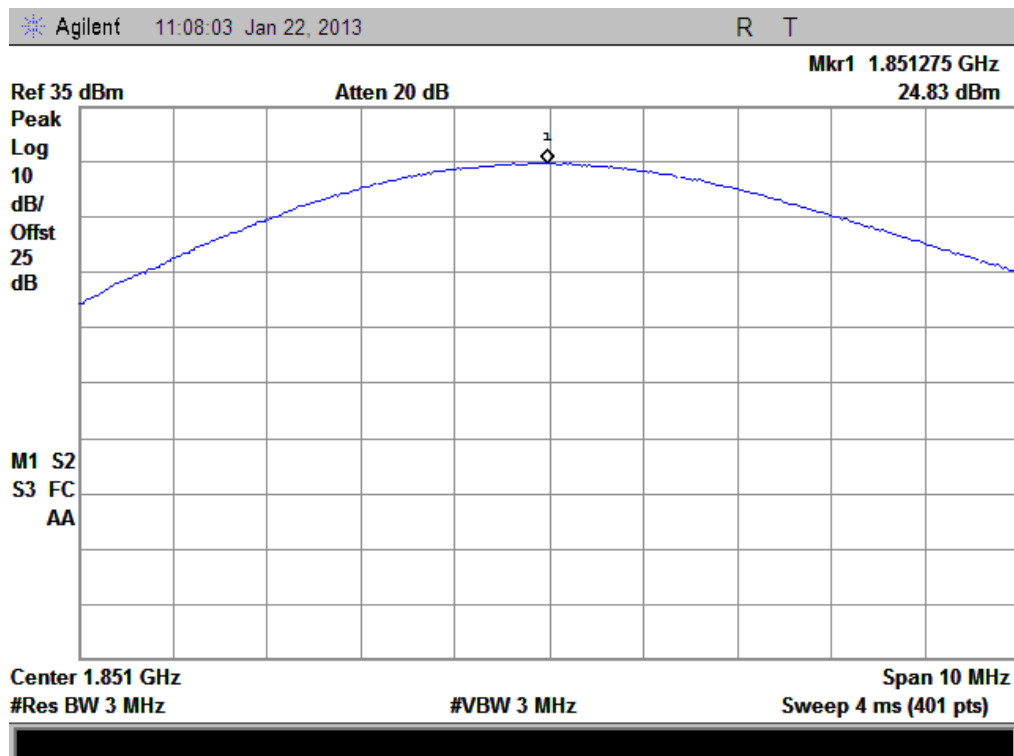
(Plot G: EVDO 800MHz Channel = 1013)



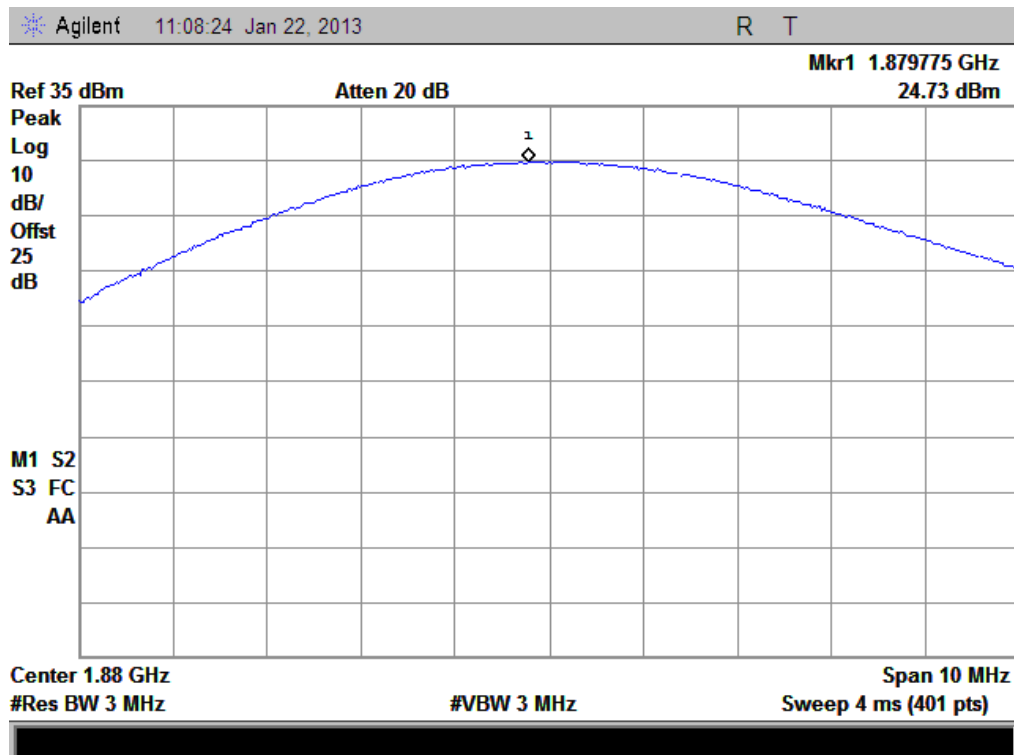
(Plot H: EVDO 800MHz Channel = 384)



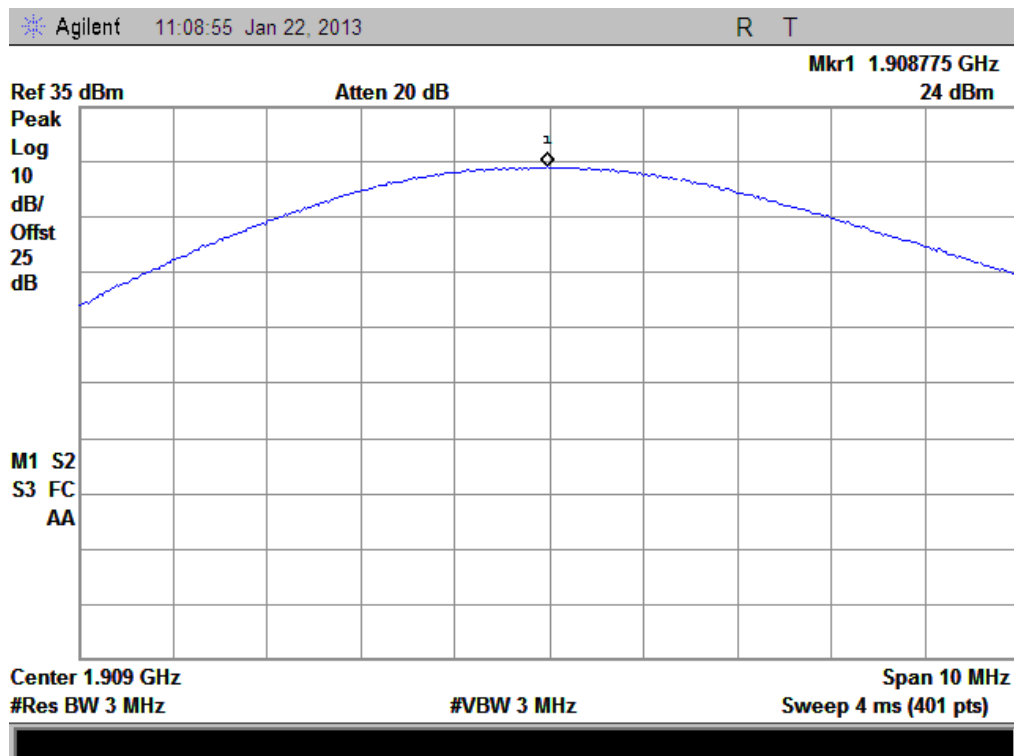
(Plot I: EVDO 800MHz Channel = 777)



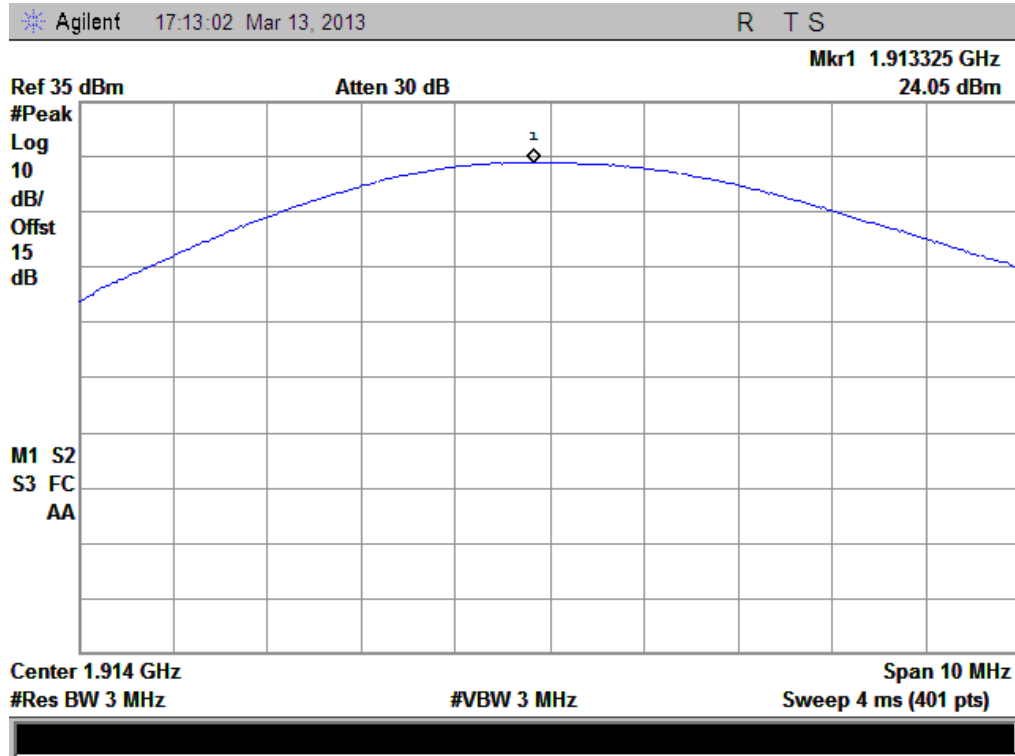
(Plot J: EVDO 1900MHz Channel = 25)



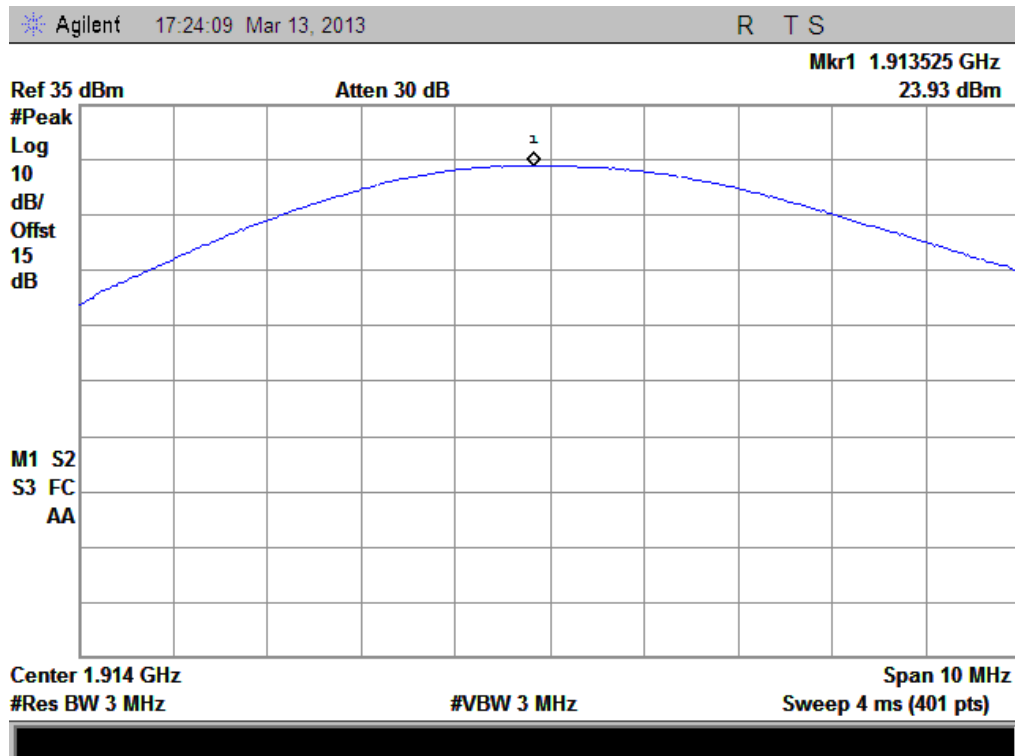
(Plot K: EVDO 1900MHz Channel = 600)



(Plot L: EVDO 1900MHz Channel = 1175)



(Plot M: G BLOCK 1900MHz Channel = 1275)



(Plot N: EVDO G BLOCK 1900MHz Channel = 1275)

2.2 99% Occupied Bandwidth

2.2.1 Definition

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth.

2.2.2 Test Description

See section 2.1.2 of this report.

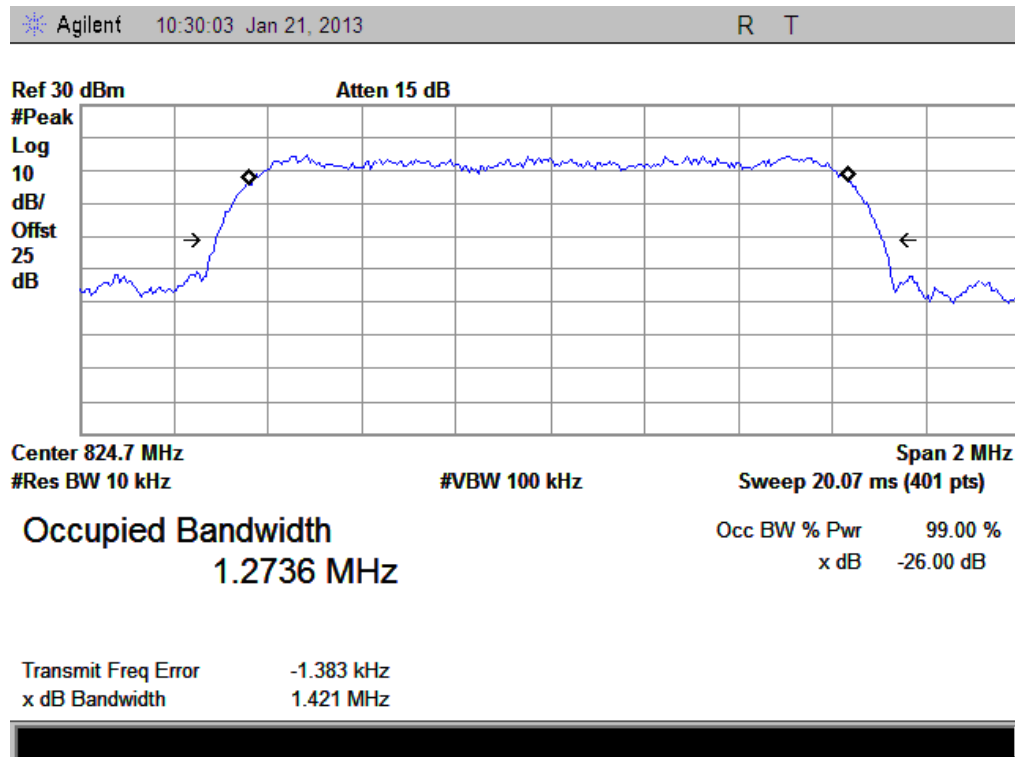
2.2.3 Test Verdict

Here the lowest, middle and highest channels are tested to record the 99% occupied bandwidth.

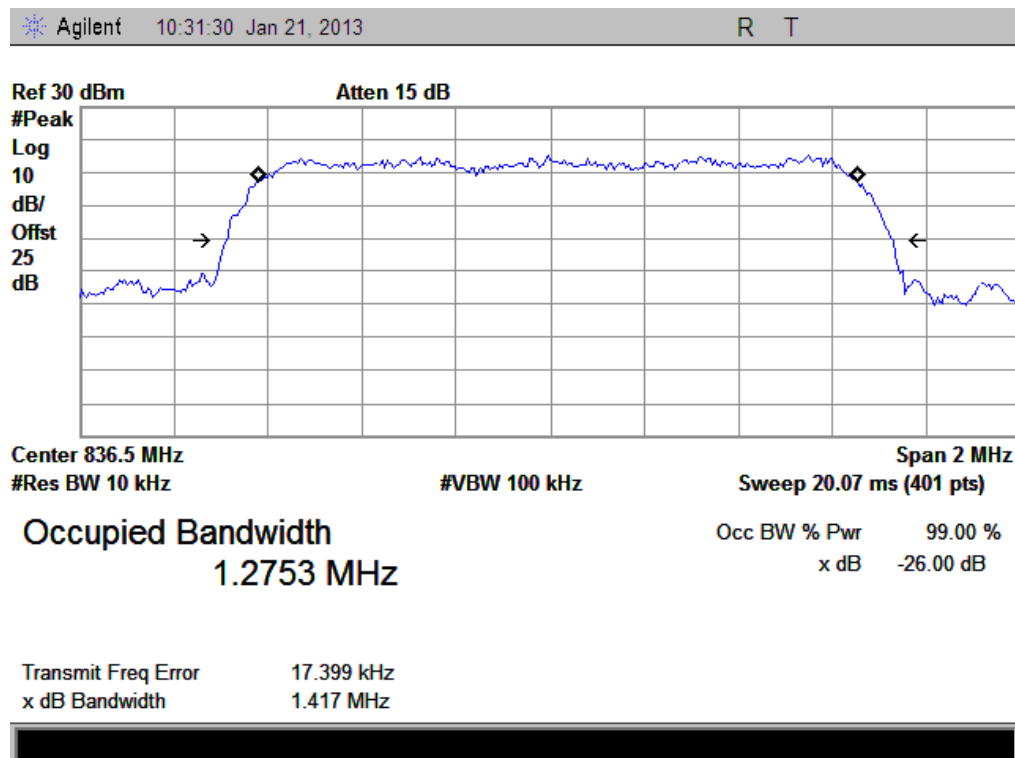
1. Test Verdict:

Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)	Measured 99% Occupied Bandwidth (MHz)	Refer to Plot
CDMA 800MHz	1013	824.7	1.421	1.2736	Plot A
	384	836.52	1.417	1.2753	Plot B
	777	848.31	1.417	1.2730	Plot C
CDMA 1900MHz	25	1850.2	1.425	1.2747	Plot D
	600	1880.0	1.419	1.2776	Plot E
	1175	1909.8	1.424	1.2768	Plot F
EVDO 800MHz	1013	824.7	1.440	1.2867	Plot G
	384	836.52	1.415	1.2704	Plot H
	777	848.31	1.409	1.2714	Plot I
EVDO 1900MHz	25	1850.2	1.408	1.2740	Plot J
	600	1880.0	1.445	1.2753	Plot K
	1175	1909.8	1.416	1.2747	Plot L
G block	1275	1913.8	1.409	1.2720	Plot M
EVDO G block	1275	1913.8	1.462	1.2926	Plot N

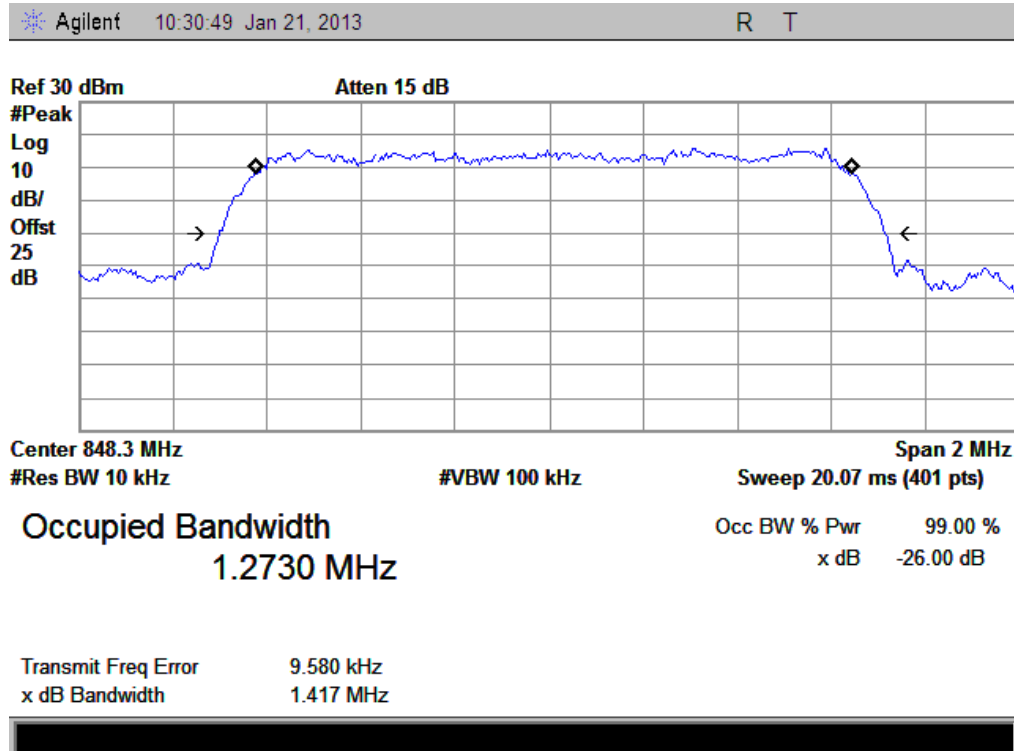
2. Test Plots:



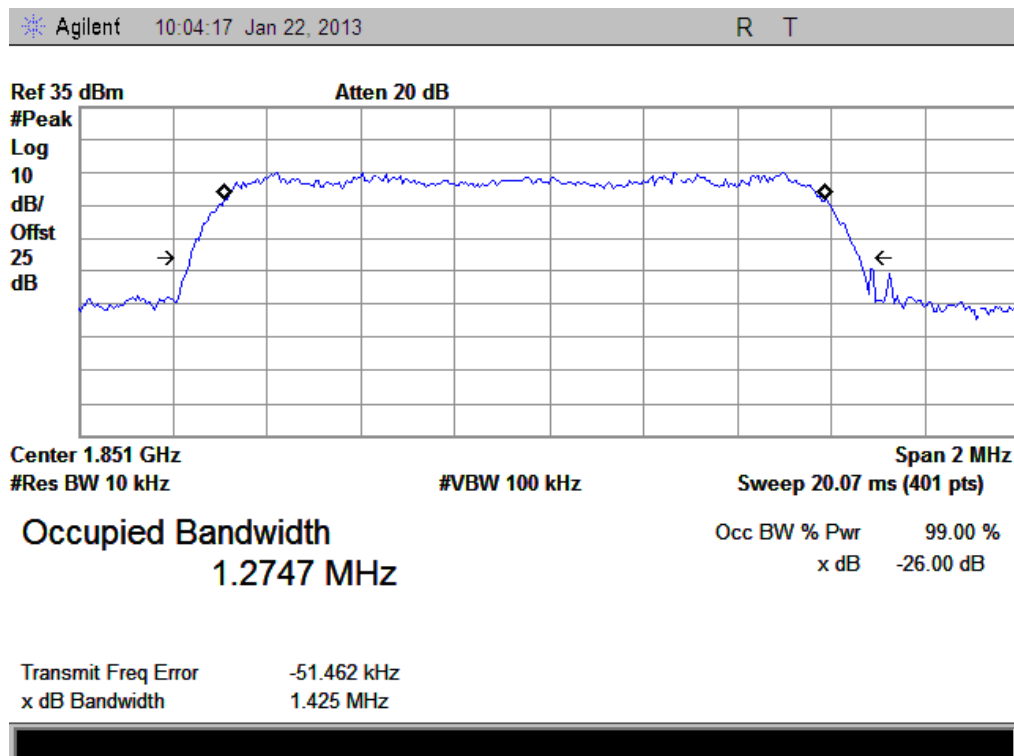
(Plot A: CDMA 800MHz Channel = 1013)



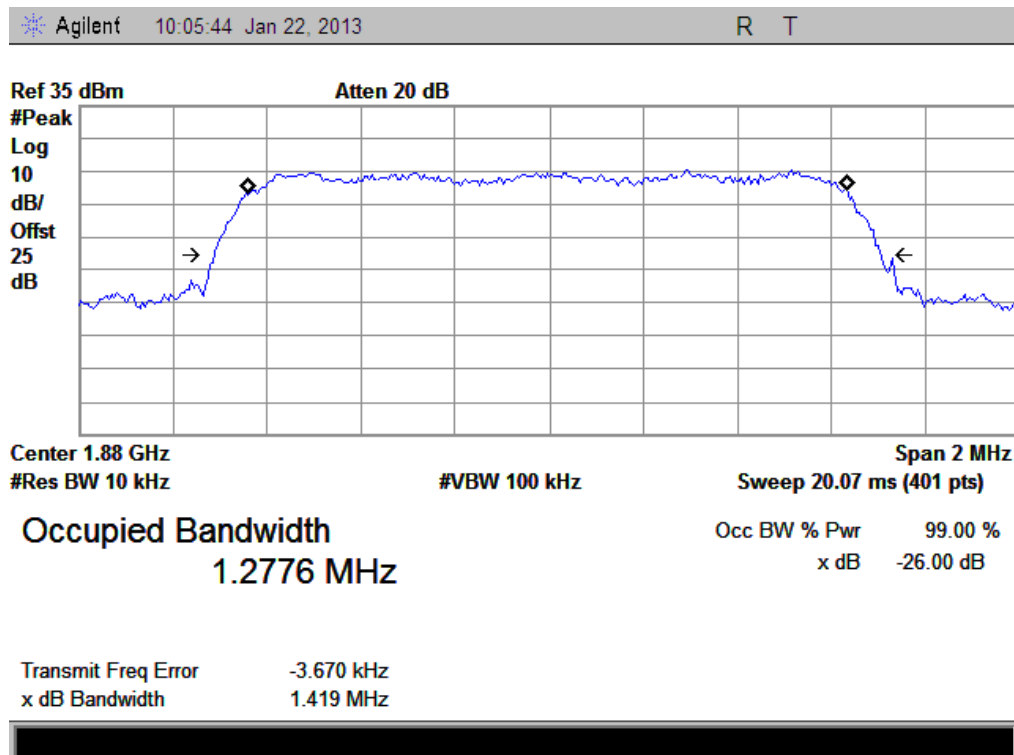
(Plot B: CDMA 800MHz Channel = 384)



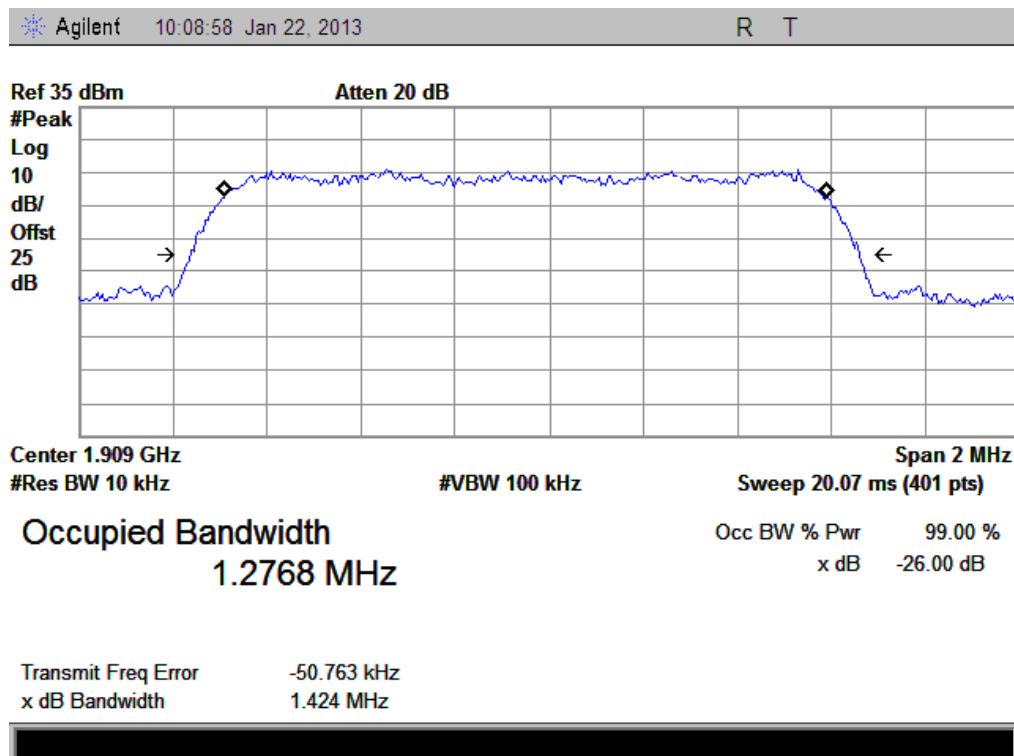
(Plot C: CDMA 800MHz Channel = 777)



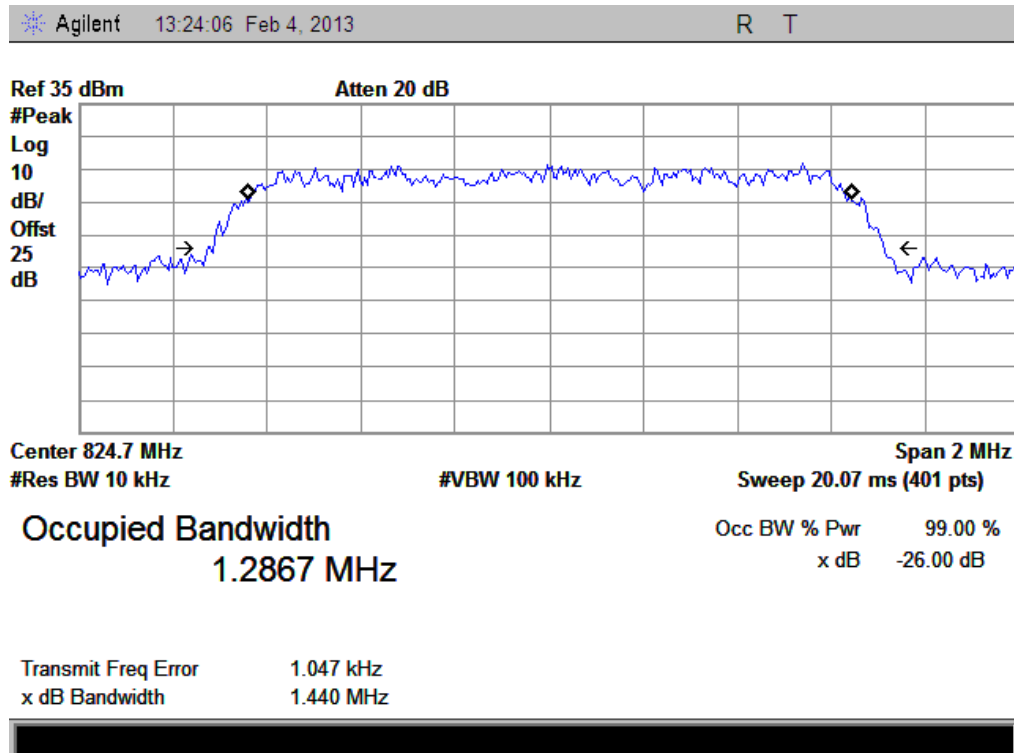
(Plot D: CDMA 1900MHz Channel = 25)



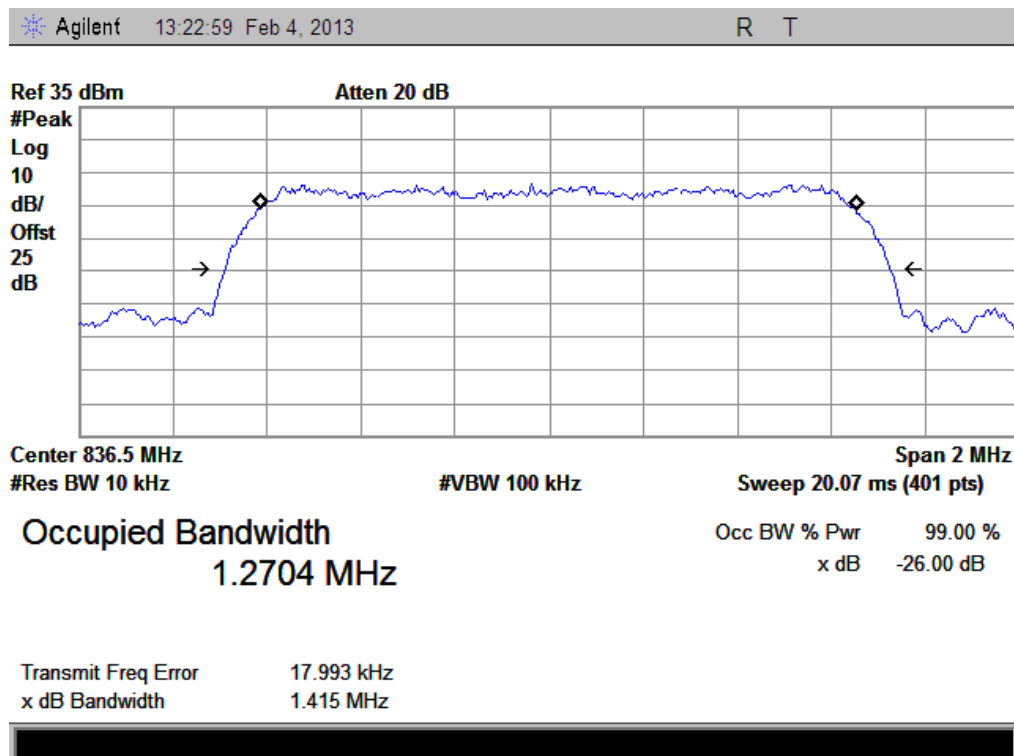
(Plot E: CDMA 1900MHz Channel = 600)



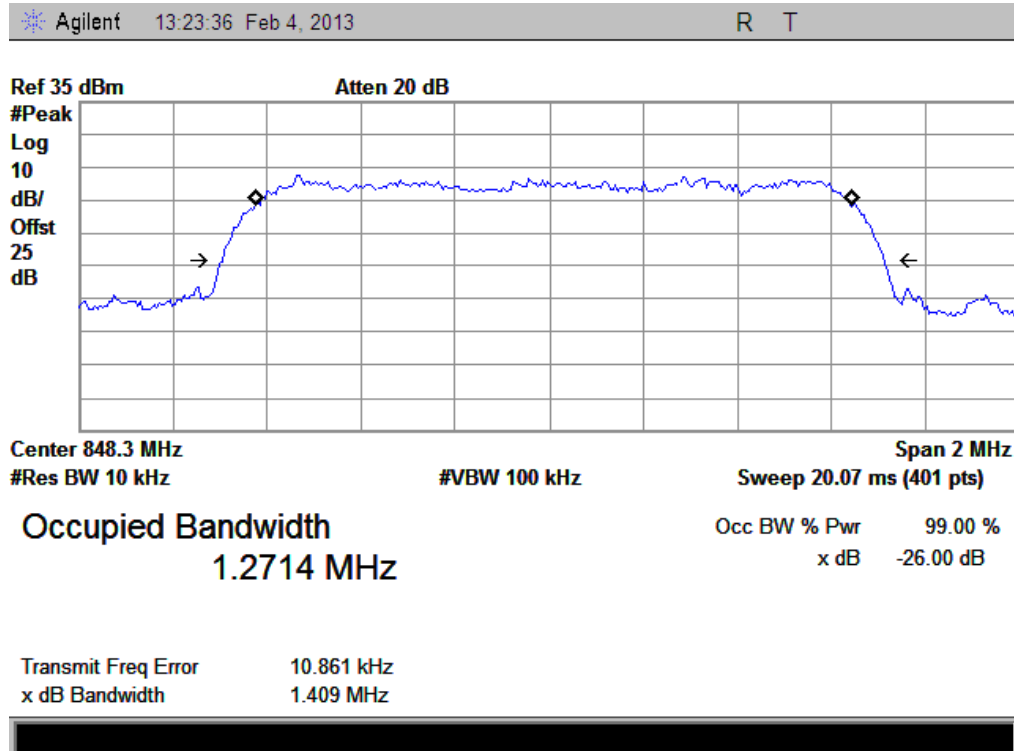
(Plot F: CDMA 1900MHz Channel = 1175)



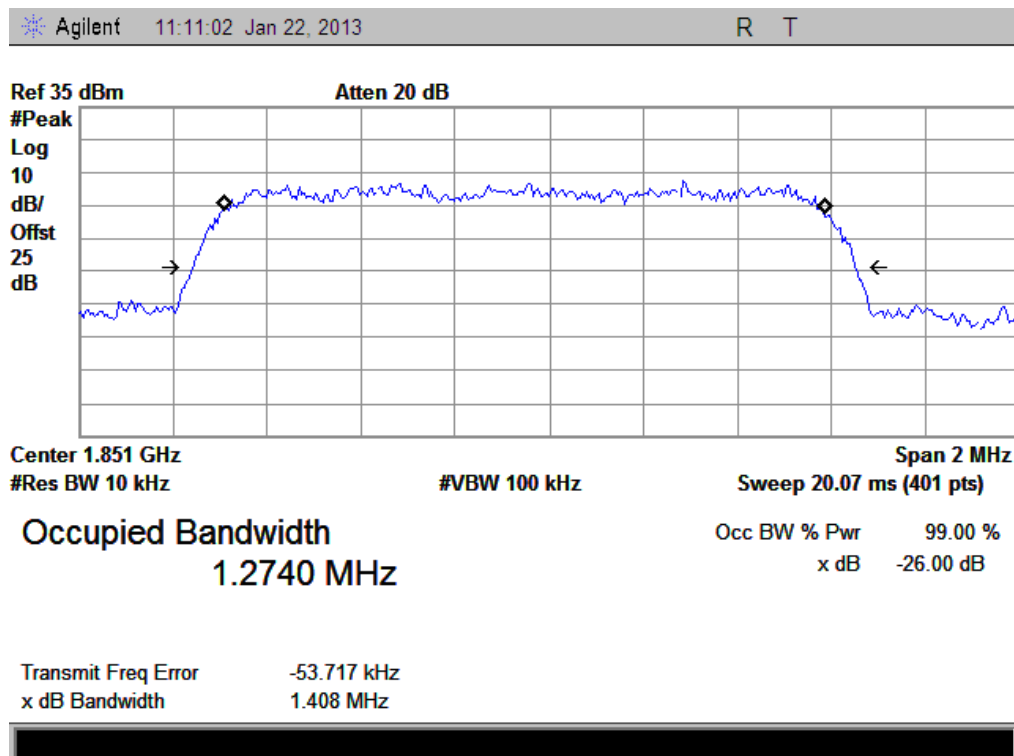
(Plot G: EVDO 800MHz Channel = 1013)



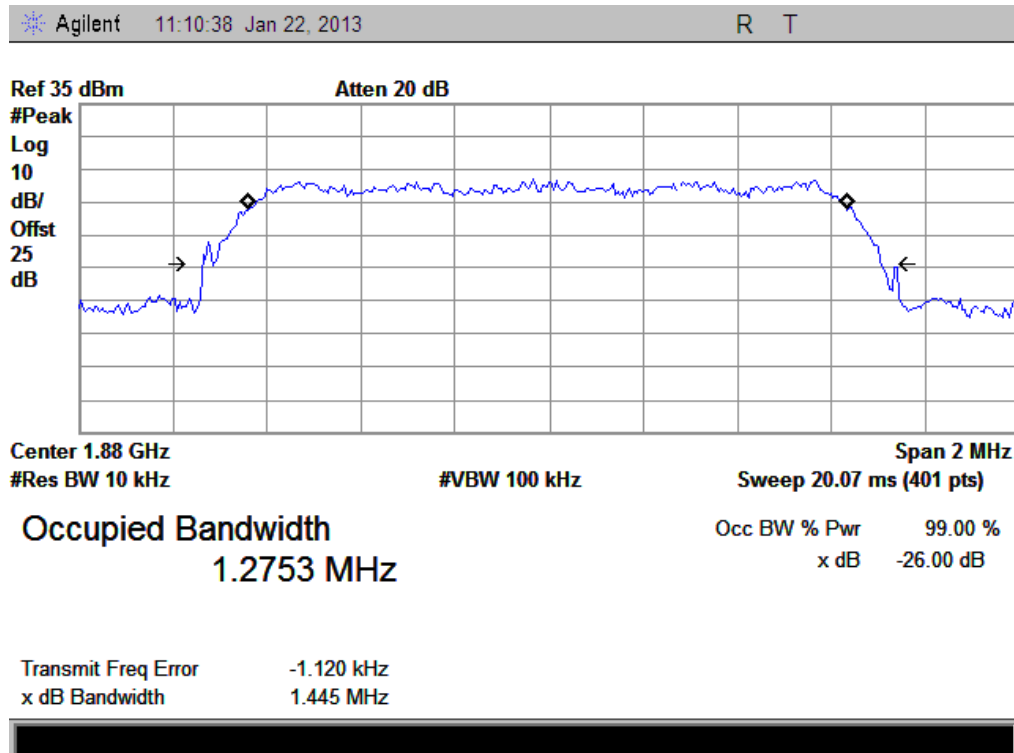
(Plot H: EVDO 800MHz Channel = 384)



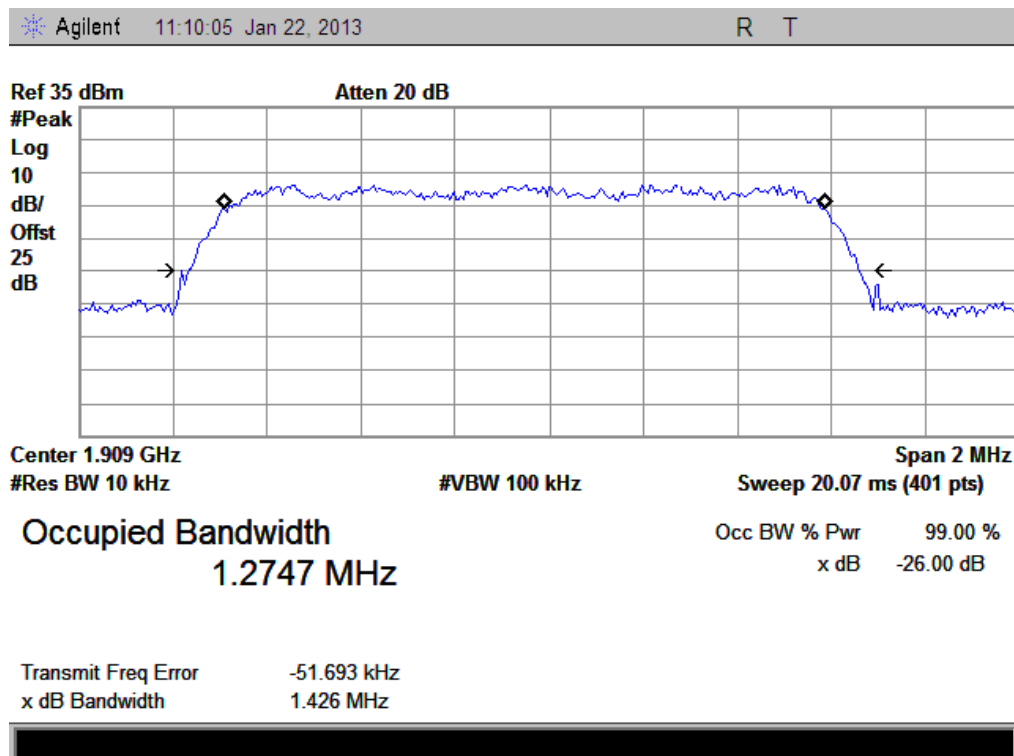
(Plot I: EVDO 800MHz Channel = 777)



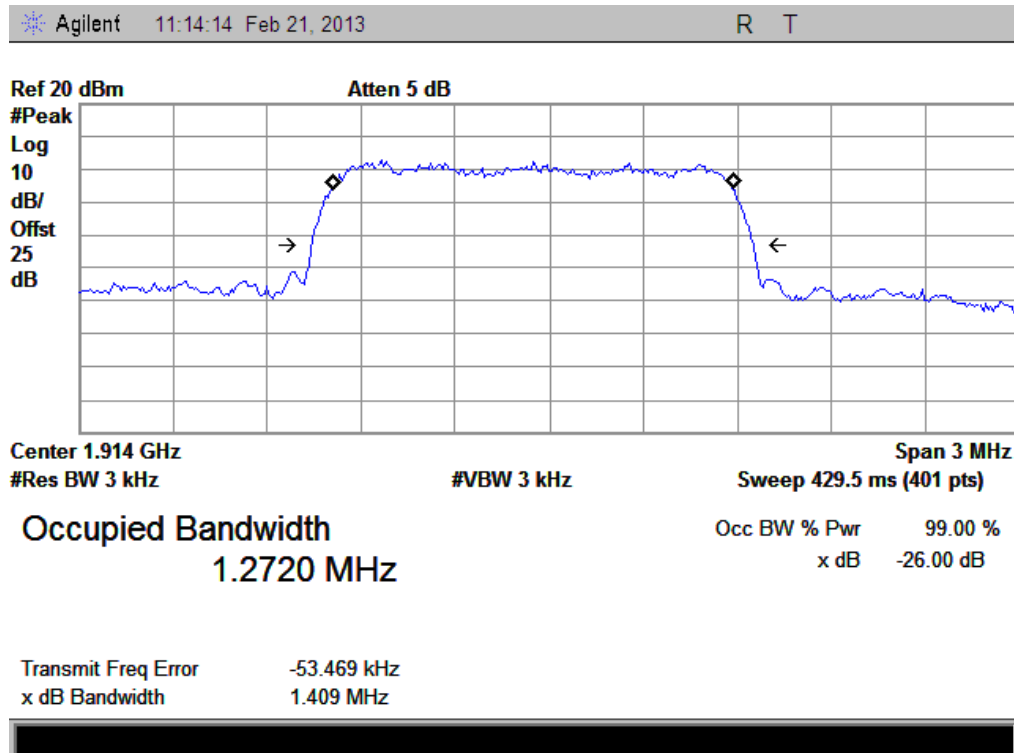
(Plot J: EVDO 1900MHz Channel = 25)



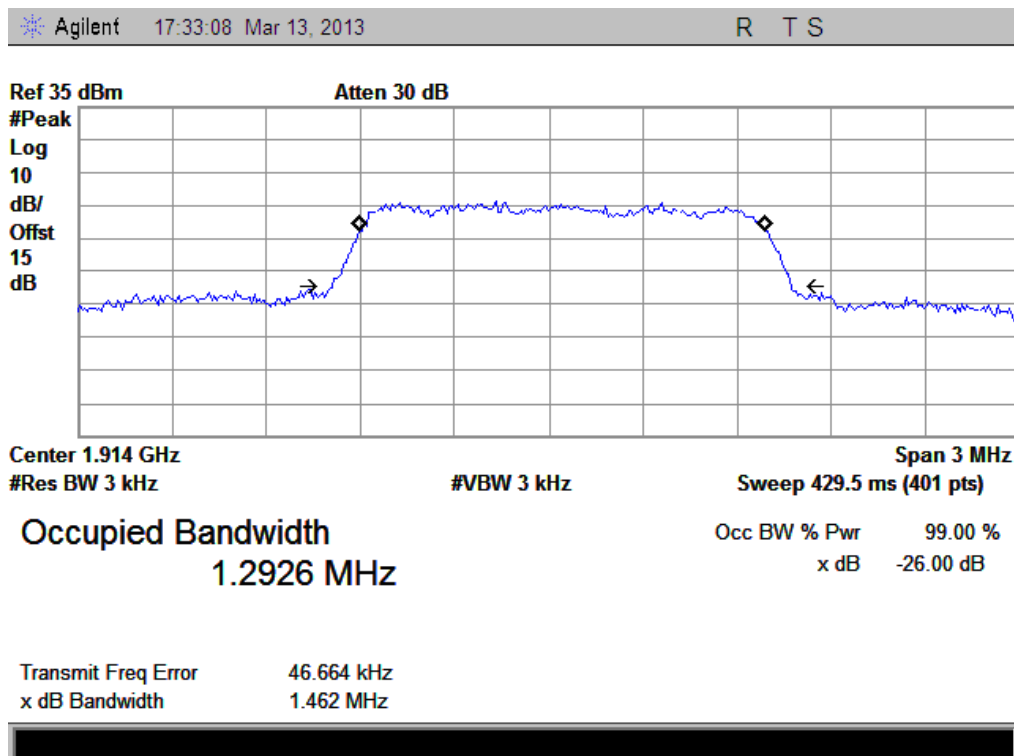
(Plot K: EVDO 1900MHz Channel = 600)



(Plot L: EVDO 1900MHz Channel = 1175)



(Plot M: G BLOCK 1900MHz Channel = 1275)



(Plot N: EVDO G BLOCK 1900MHz Channel = 1275)

2.3 Frequency Stability

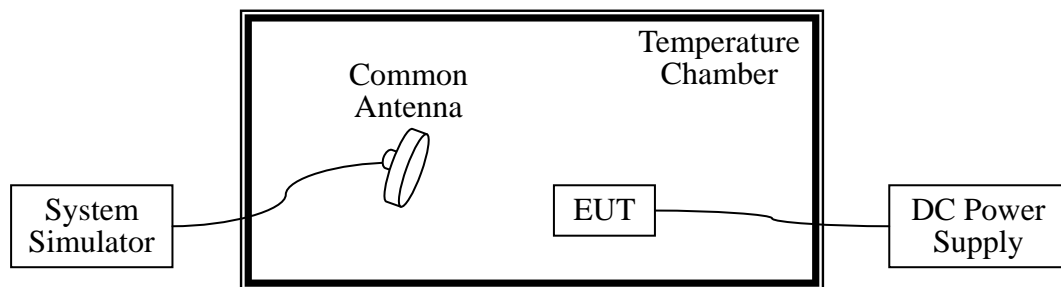
2.3.1 Requirement

According to FCC section 22.355 and FCC section 24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- The temperature is varied from -30°C to $+50^{\circ}\text{C}$ at intervals of not more than 10°C .
- For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

2.3.2 Test Description

1. Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2012.05	2013.05
DC Power Supply	Good Will	GPS-3030DD	EF920938	2012.05	2013.05
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2012.05	2013.05

2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.7VDC, 4.2VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 25°C . The frequency deviation limit of CDMA 800MHz band is $\pm 2.5\text{ppm}$, CDMA 1900MHz is $\pm 1\text{ppm}$.

Band	Test Conditions		Frequency Deviation						Verdict
	Power (VDC)	Temperature (°C)	Channel = 1013 (824.7MHz)		Channel = 384 (836.52MHz)		Channel = 777 (848.31MHz)		
			Hz	Limits	Hz	Limits	Hz	Limits	
CDMA 800MHz	3.7	-30	7.06	±2061.7 5	26.75	±2091.30	-16.29	±2120.78	PASS
		-20	-21.13		-11.01		29.37		
		-10	17.01		11.54		-11.06		
		0	3.20		-4.85		35.04		
		+10	-5.17		13.32		-22.26		
		+20	14.51		5.09		35.09		
		+30	20.79		23.04		26.75		
		+40	-18.75		-10.26		-11.08		
		+50	17.43		21.09		21.44		
	4.2	+25	13.27	-17.85	-7.85				
	3.6	+25	14.34	15.32	25.32				
Band	Test Conditions		Frequency Deviation						Verdict
	Power (VDC)	Temperature (°C)	Channel = 25 (1851.2MHz)		Channel = 600 (1880.0MHz)		Channel = 1175 (1908.8MHz)		
			Hz	Limits	Hz	Limits	Hz	Limits	
CDMA 1900MHz	3.7	-30	-16.11	±1851.2	15.06	±1880.0	-9.54	±1908.8	PASS
		-20	9.35		-25.16		18.17		
		-10	-25.42		24.03		-24.09		
		0	-2.21		-23.21		23.41		
		+10	-19.01		9.85		-16.07		
		+20	26.52		27.01		29.16		
		+30	-18.49		26.09		-17.54		
		+40	17.92		-8.15		11.74		
		+50	-10.25		27.23		28.05		
	4.2	+25	26.98	24.37	-20.13				
	3.6	+25	7.39	24.26	33.70				

Band	Test Conditions		Frequency Deviation		Verdict
	Power (VDC)	Temperature (°C)	Channel = 1275 (1913.8MHz)		
			Hz	Limits	
G BLOCK 1900MHz	3.7	-30	19.32	±1913.8	PASS
		-20	25.09		
		-10	21.04		
		0	-10.27		
		+10	13.12		
		+20	21.71		
		+30	3.0		
		+40	19.4		
		+50	6.8		
	4.2	+25	13.1		
	3.6	+25	1.8		

Band	Test Conditions		Frequency Deviation		Verdict
	Power (VDC)	Temperature (°C)	Channel = 1275 (1913.8MHz)		
			Hz	Limits	
EVDO G BLOCK 1900MHz	3.7	-30	21.12	±1913.8	PASS
		-20	21.03		
		-10	25.06		
		0	-11.23		
		+10	13.12		
		+20	21.71		
		+30	13.08		
		+40	12.4		
		+50	16.08		
	4.2	+25	13.1		
	3.6	+25	11.82		

Band	Test Conditions		Frequency Deviation						Verdict
	Power (VDC)	Temperature (°C)	Channel = 1013 (824.7MHz)		Channel = 384 (836.52MHz)		Channel = 777 (848.31MHz)		
			Hz	Limits	Hz	Limits	Hz	Limits	
EVDO 800MHz	3.7	-30	16.0	±2061.75	9.7	±2091.30	12.0	±2120.78	PASS
		-20	-24.2		-21.2		-22.4		
		-10	29.3		29.7		32.6		
		0	23.9		21.7		19.2		
		+10	-23.4		-21.7		-25.4		
		+20	-29.7		-29.1		-34.6		
		+30	9.6		9.8		13.6		
		+40	23.0		22.4		21.8		
		+50	8.4		4.4		4.2		
	4.2	+25	19.8	21.6	24.8				
	3.4	+25	-6.3	-3.6	-4.2				
Band	Test Conditions		Frequency Deviation						Verdict
	Power (VDC)	Temperature (°C)	Channel = 25 (1851.2MHz)		Channel = 600 (1880.0MHz)		Channel = 1175 (1908.8MHz)		
			Hz	Limits	Hz	Limits	Hz	Limits	
EVDO 1900MHz	3.7	-30	13.1	±1851.2	8.8	±1880.0	17.0	±1908.8	PASS
		-20	3.0		0.7		6.2		
		-10	-8.8		-3.8		-3.9		
		0	-23.2		-19.9		-23.7		
		+10	-6.3		-3.4		-9.9		
		+20	19.9		14.2		15.5		
		+30	-29.1		-27.2		-24.4		
		+40	-27.4		-30.5		-27.9		
		+50	15.0		12.3		13.5		
	4.2	+25	28.1	25.8	23.6				
	3.4	+25	-13.5	-14.0	-13.7				

2.4 Conducted Out of Band Emissions

2.4.1 Requirement

According to FCC section 21051, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43+10*\log(P)$ dB. This calculated to be -13dBm.

2.4.2 Test Description

See section 2.1.2 of this report.

2.4.3 Test Result

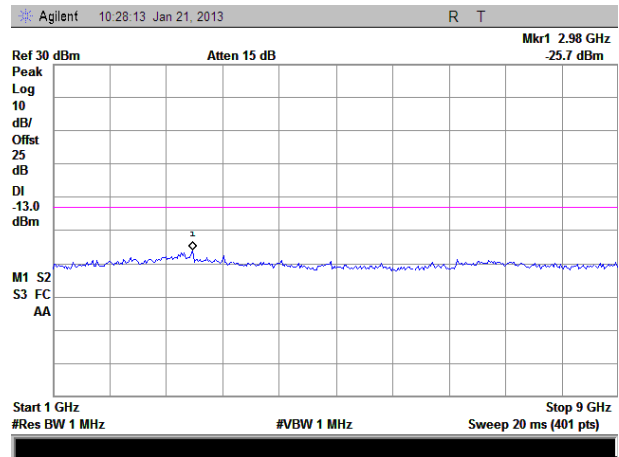
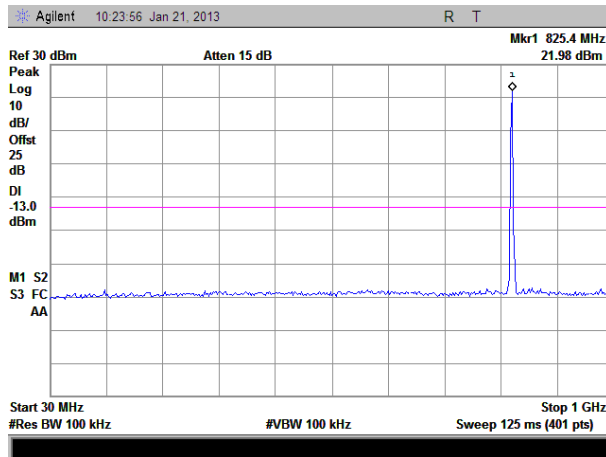
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

1. Test Verdict:

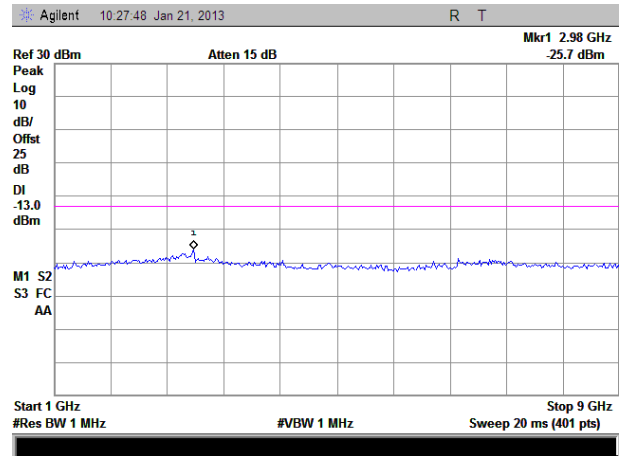
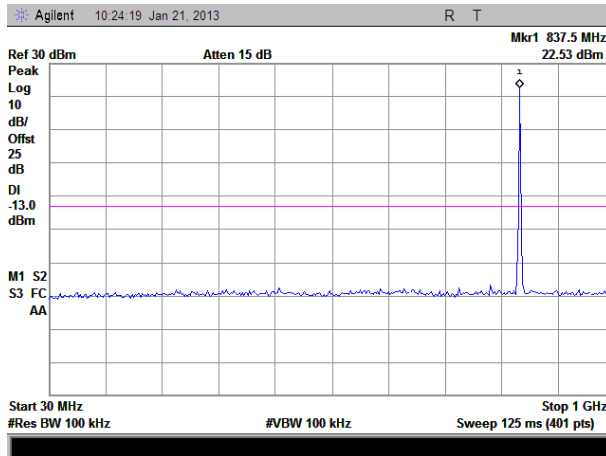
No.	Channel	Frequency(MHz)	Measured Max Spurious Emission(dBm)	Limit(dBm)
CDMA 800MHz	1013	824.7	-25.7	-13
	384	836.52	-25.7	-13
	777	848.31	-26.36	-13
CDMA 1900MHz	25	1850.2	< -25	-13
	600	1880.0	< -25	-13
	1175	1909.8	< -25	-13
EVDO 800MHz	1013	824.7	-25.58	-13
	384	836.52	-24.82	-13
	777	848.31	-25.15	-13
EVDO 1900MHz	25	1850.2	< -25	-13
	600	1880.0	< -25	-13
	1175	1909.8	< -25	-13
G Block	1275	1913.8	-20.23	-13
EVDO G Block	1275	1913.8	-20.67	-13

2. Test Plots for the Whole Measurement Frequency Range:

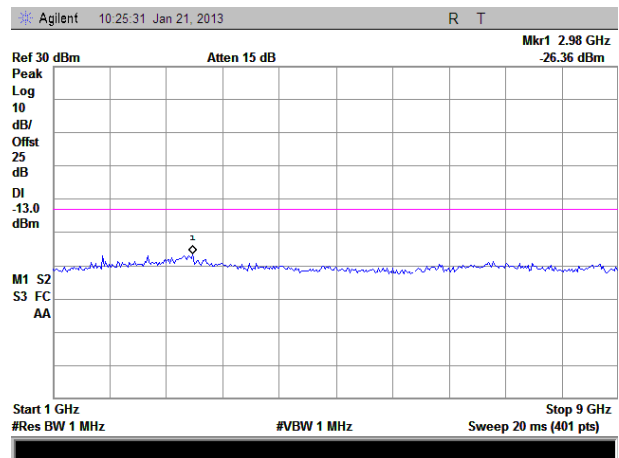
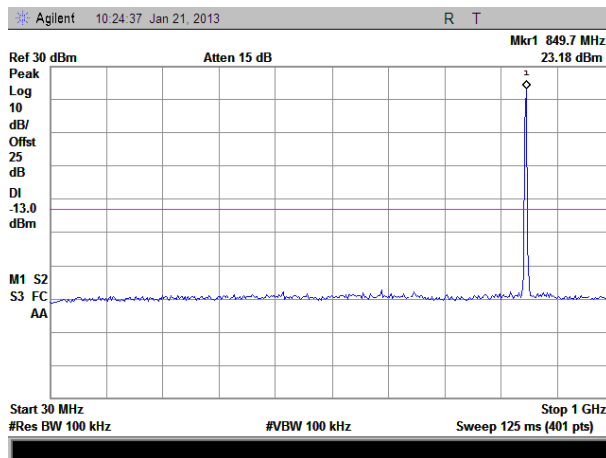
Note: the power of the EUT transmitting frequency should be ignored.



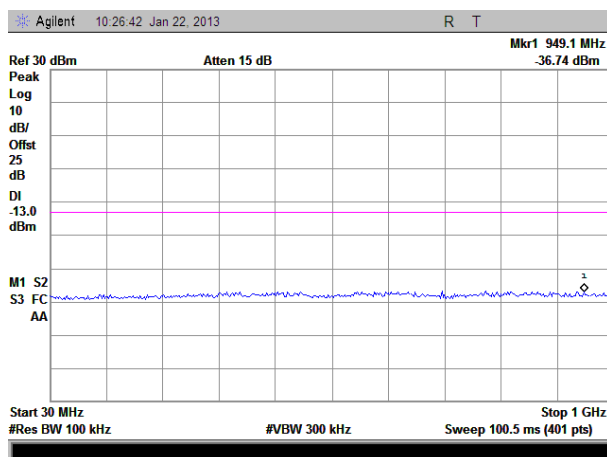
(Plot A: CDMA 800MHz Channel = 1013, 30MHz to 9GHz)



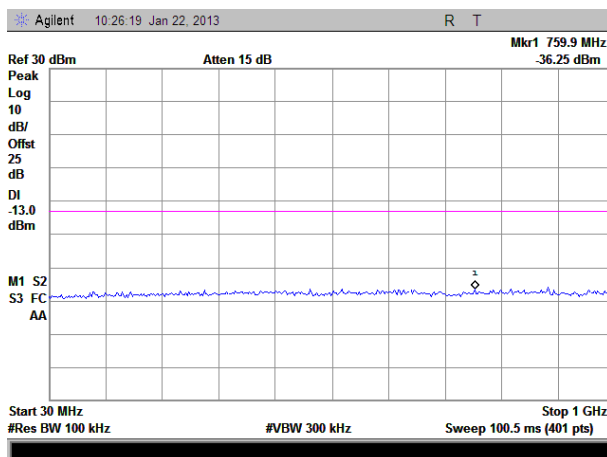
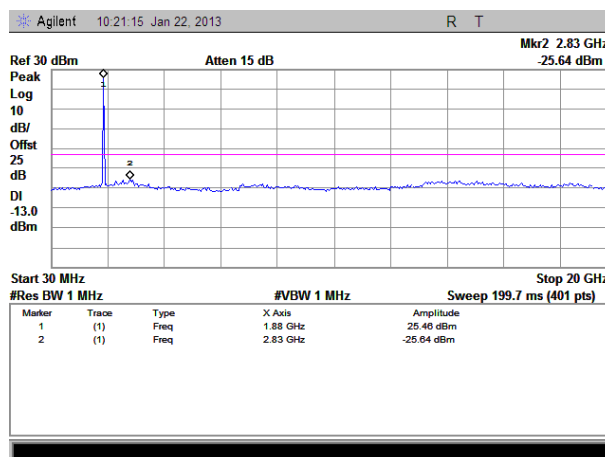
(Plot B: CDMA 800MHz Channel = 384, 30MHz to 9GHz)



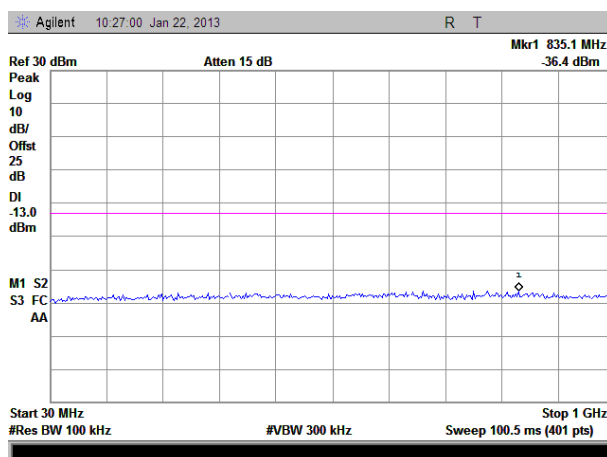
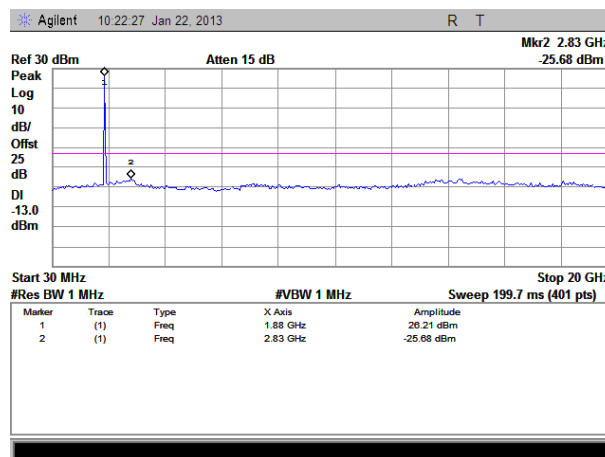
(Plot C: CDMA 800MHz Channel = 777, 30MHz to 9GHz)



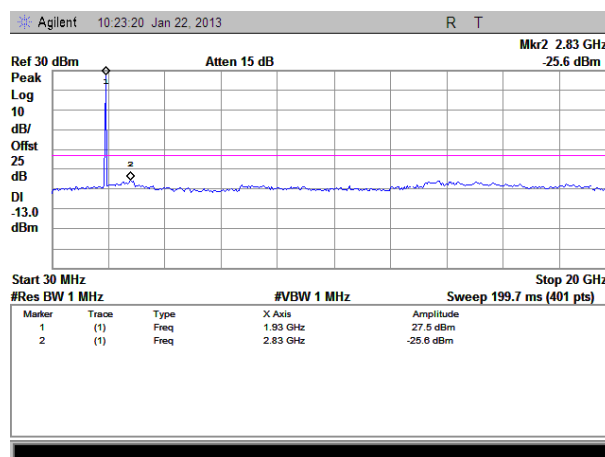
(Plot D: CDMA 1900MHz Channel = 25, 30MHz to 20GHz)

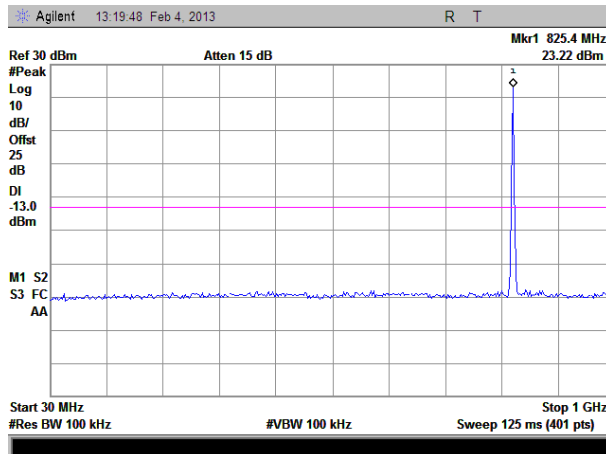


(Plot E: CDMA 1900MHz Channel = 600, 30MHz to 20GHz)

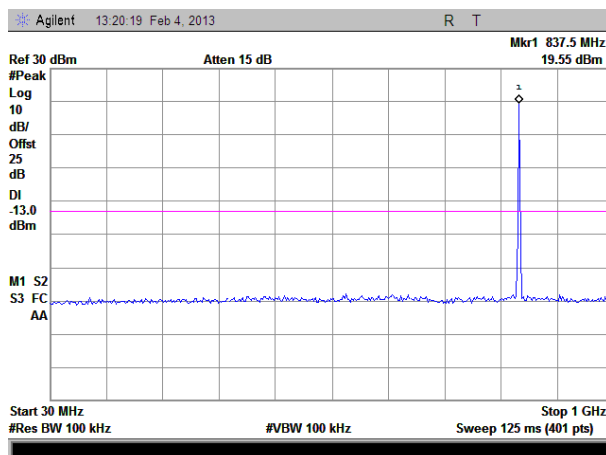
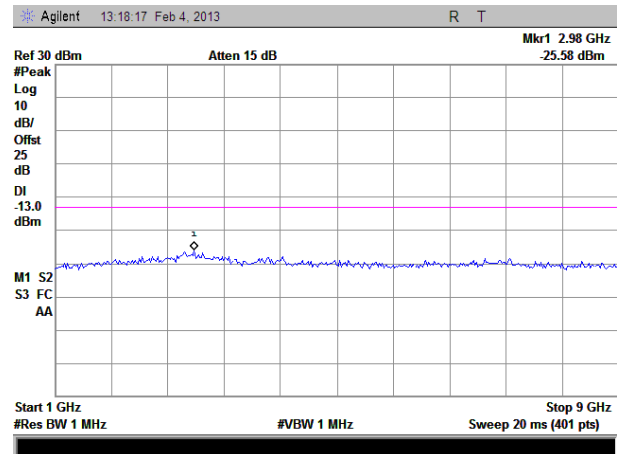


(Plot F: CDMA 1900MHz Channel = 1175, 30MHz to 20GHz)

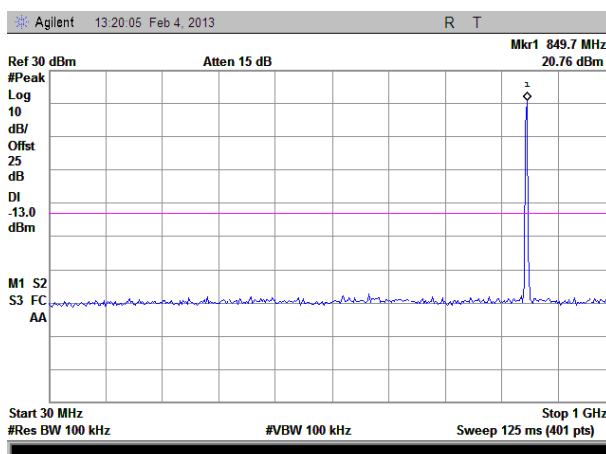
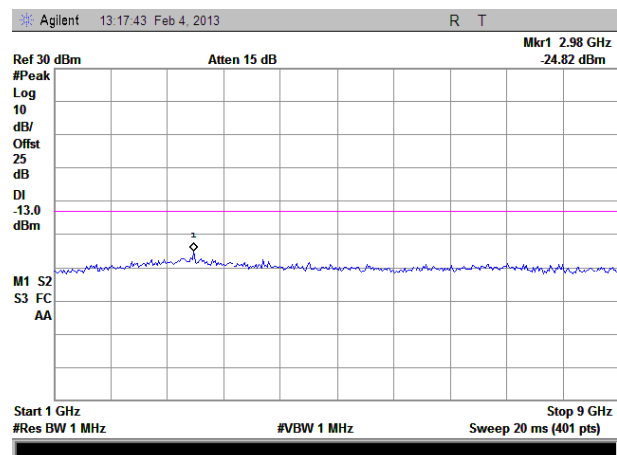




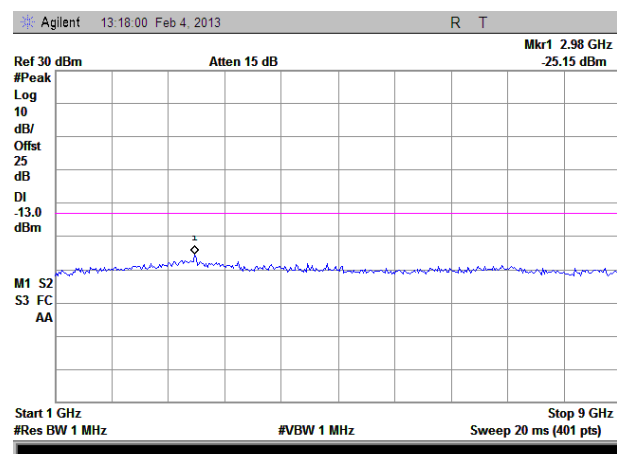
(Plot G: EVDO 800MHz Channel = 1013, 30MHz to 9GHz)

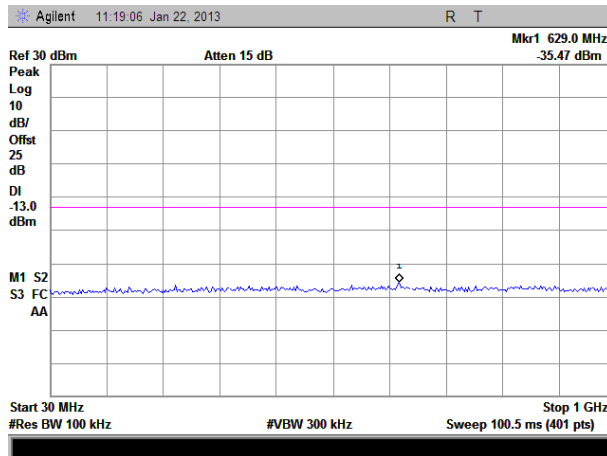


(Plot H: EVDO 800MHz Channel = 384, 30MHz to 9GHz)

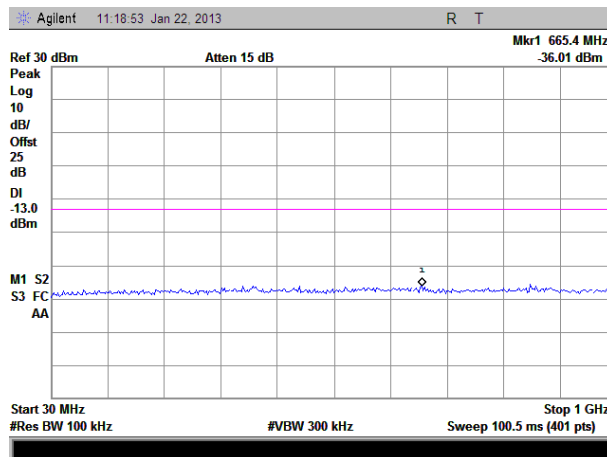


(Plot I: EVDO 800MHz Channel = 777, 30MHz to 9GHz)

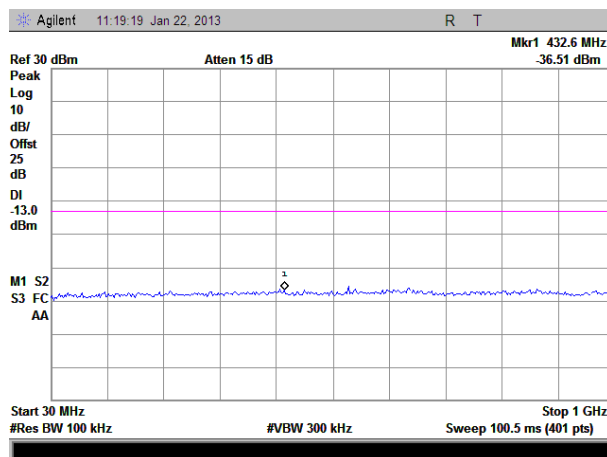




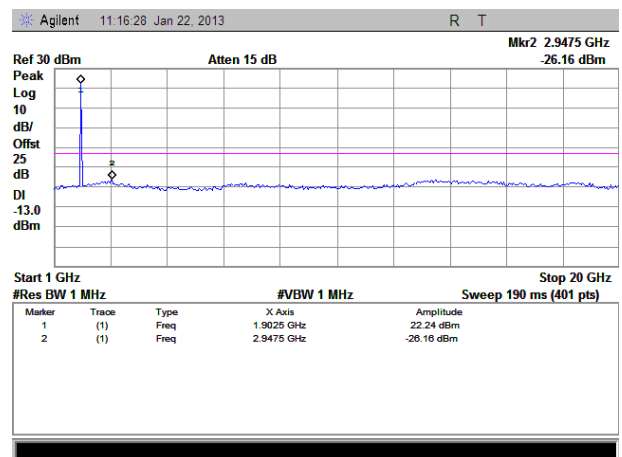
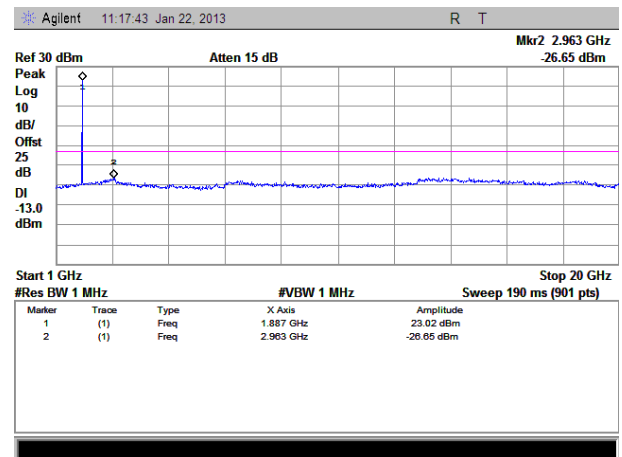
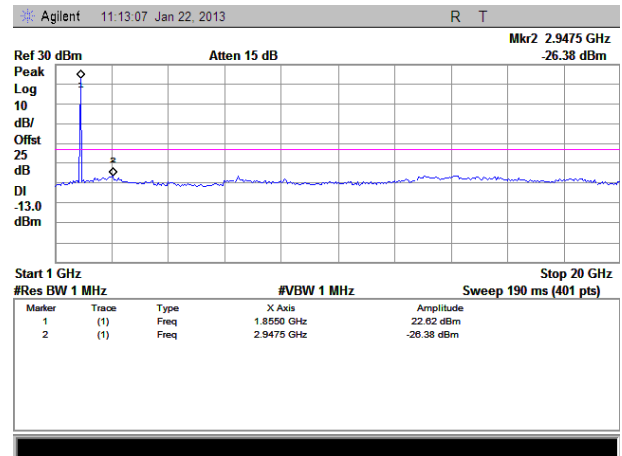
(Plot J: EVDO 1900MHz Channel = 25, 30MHz to 20GHz)

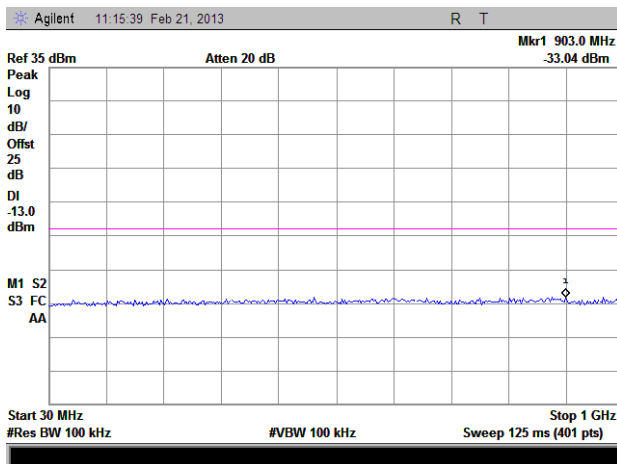


(Plot K: EVDO 1900MHz Channel = 600, 30MHz to 20GHz)

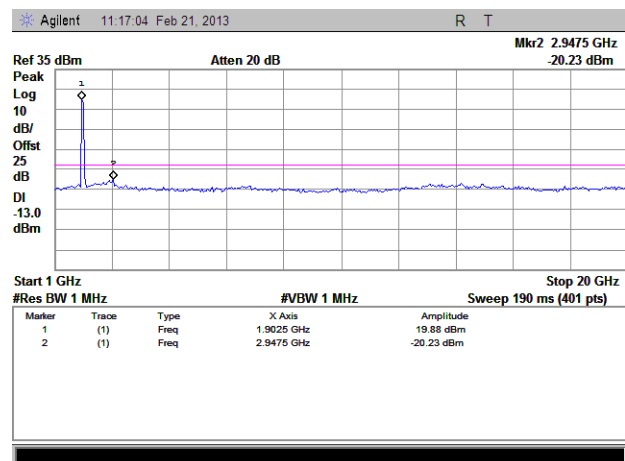
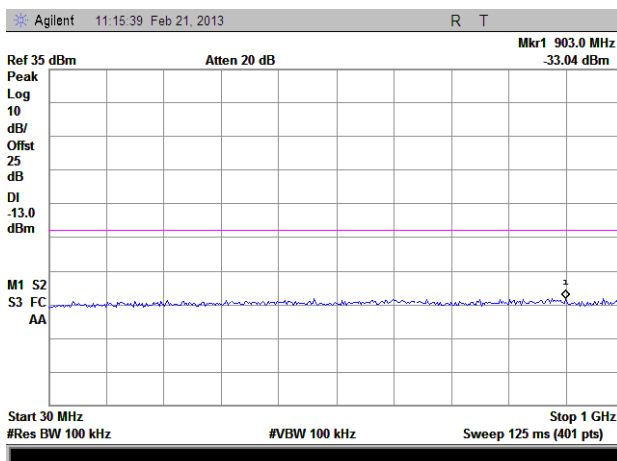
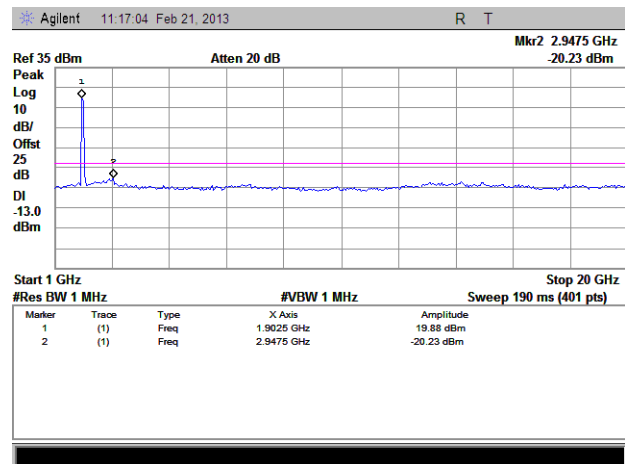


(Plot L: EVDO 1900MHz Channel = 1175, 30MHz to 20GHz)

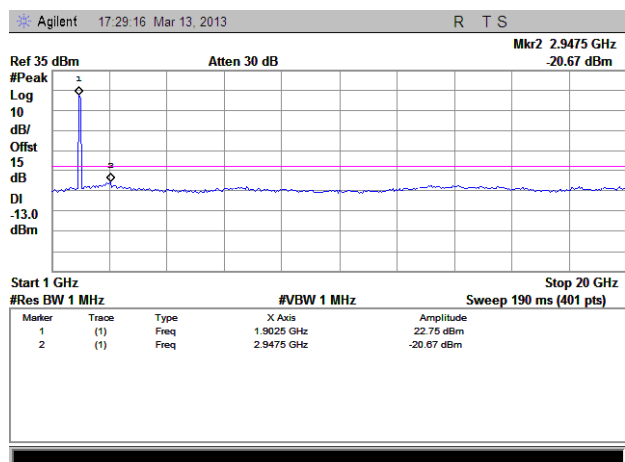
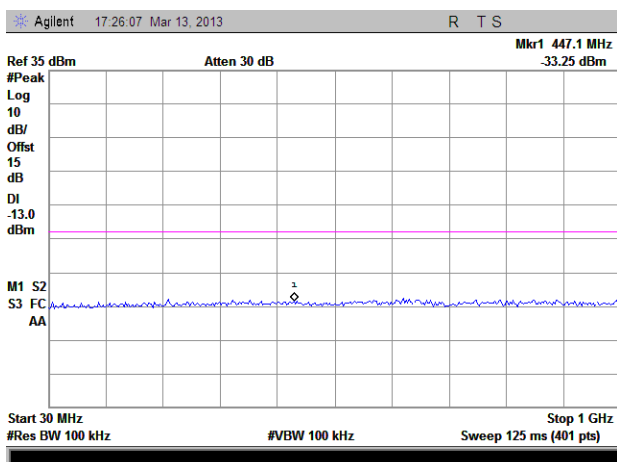




(Plot M: G BLOCK 1900MHz Channel = 1275, 30MHz to 20GHz)



(Plot M: G BLOCK 1900MHz Channel = 1275, 30MHz to 20GHz)



(Plot N: EVDO G BLOCK 1900MHz Channel = 1275, 30MHz to 20GHz)

2.5 Band Edge

2.5.1 Requirement

According to FCC section 2.1051, in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

2.5.2 Test Description

See section 2.1.2 of this report.

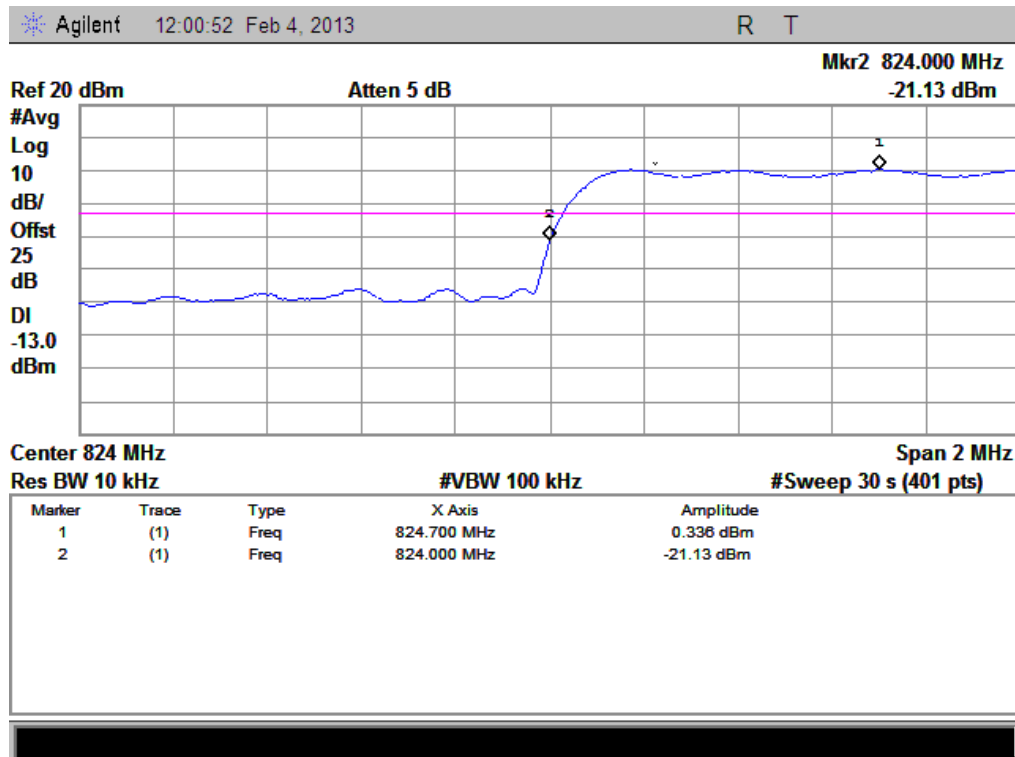
2.5.3 Test Result

The lowest and highest channels are tested to verify the band edge emissions.

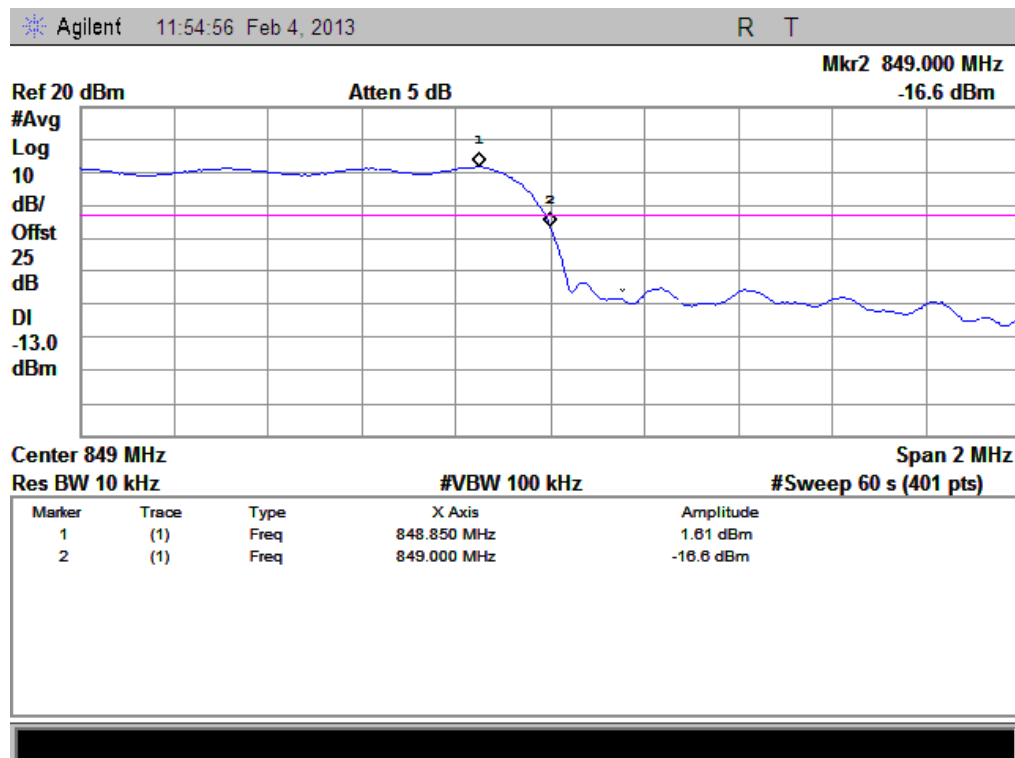
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Band Edge Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
CDMA 800MHz	1013	824.7	-21.13	Plat A	-13	PASS
	777	848.31	-16.6	Plot B		PASS
CDMA 1900MHz	25	1851.2	-32.05	Plat C	-13	PASS
	1175	1908.8	-27.24	Plot D		PASS
EVDO 800MHz	1013	824.7	-21.18	Plat E	-13	PASS
	777	848.31	-16.15	Plot F		PASS
EVDO 1900MHz	25	1851.2	-31.93	Plat G	-13	PASS
	1175	1908.8	-27.26	Plot H		PASS

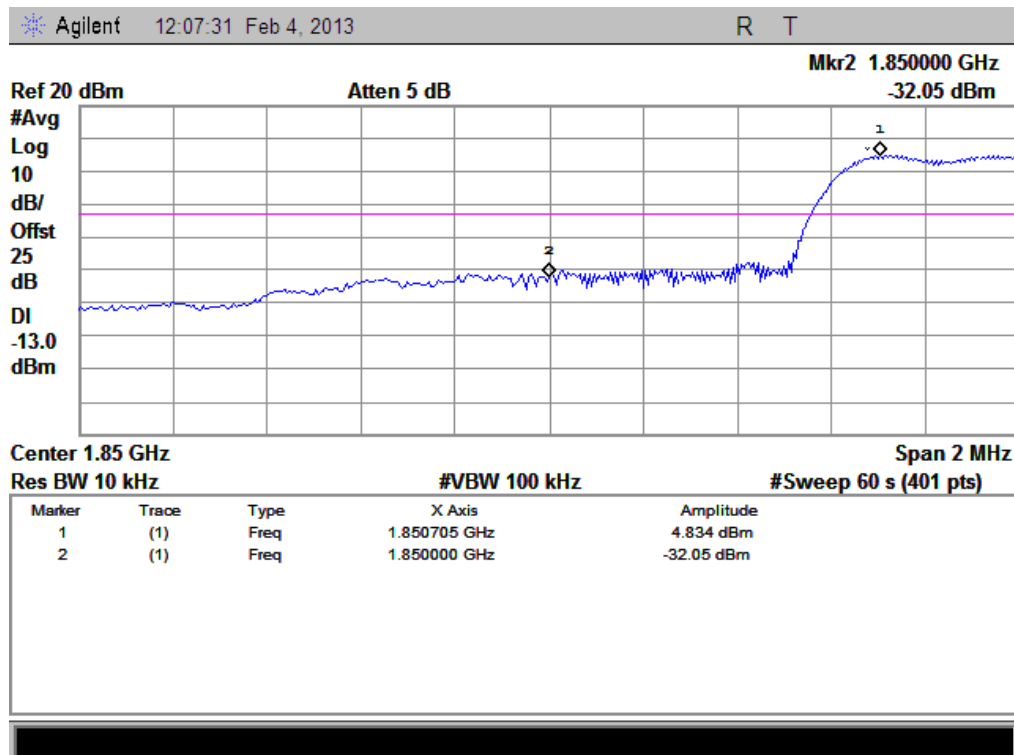
2. Test Plots:



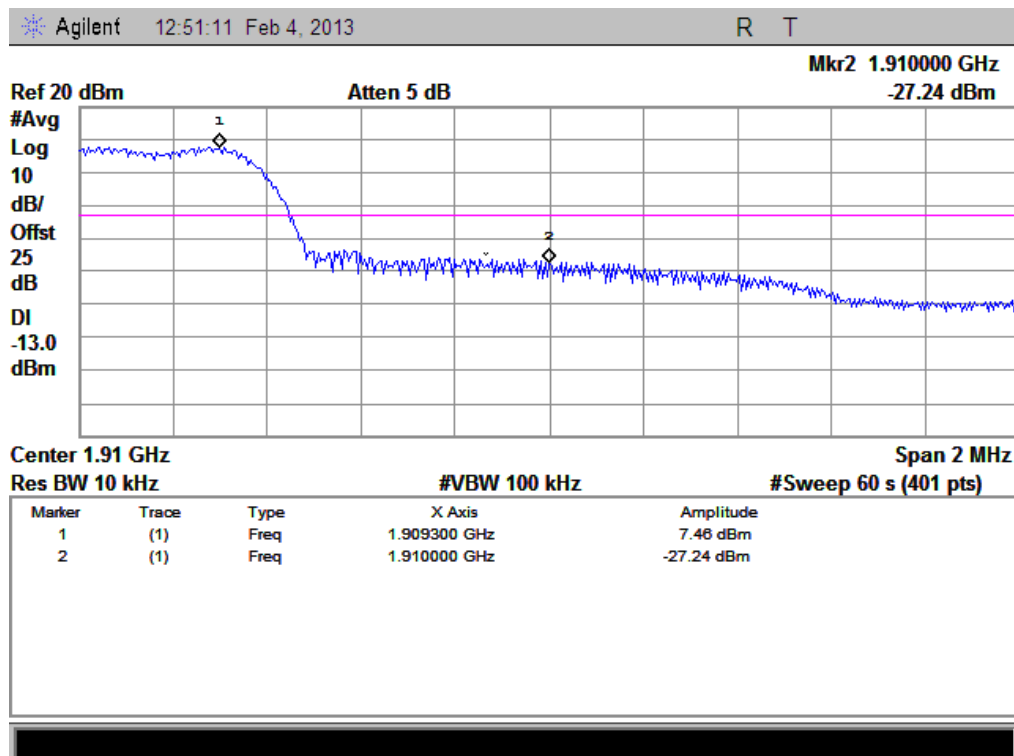
(Plot A: CDMA 800MHz Channel = 1013)



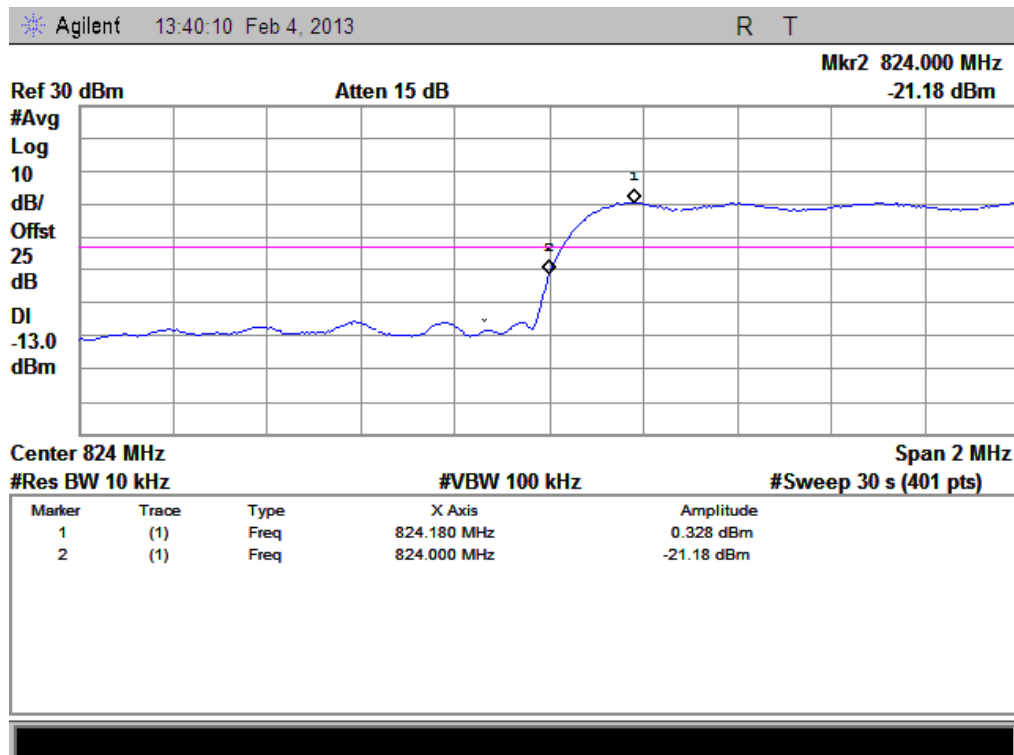
(Plot B: CDMA 800MHz Channel = 777)



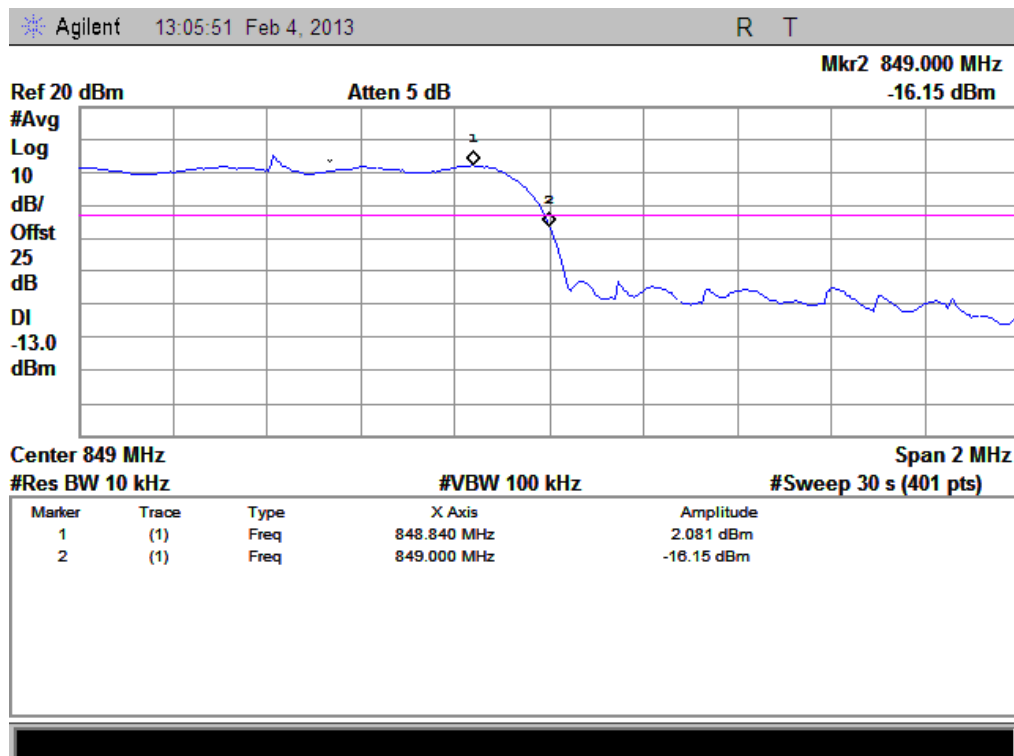
(Plot C: CDMA 1900MHz Channel = 25)



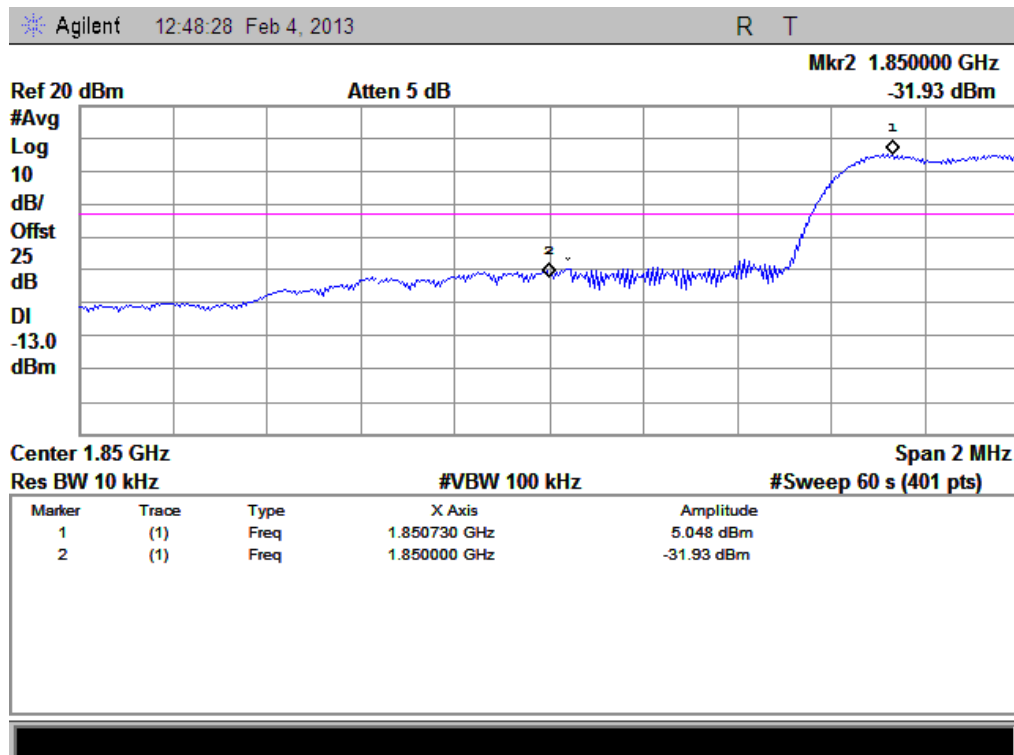
(Plot D: CDMA 1900MHz Channel = 1175)



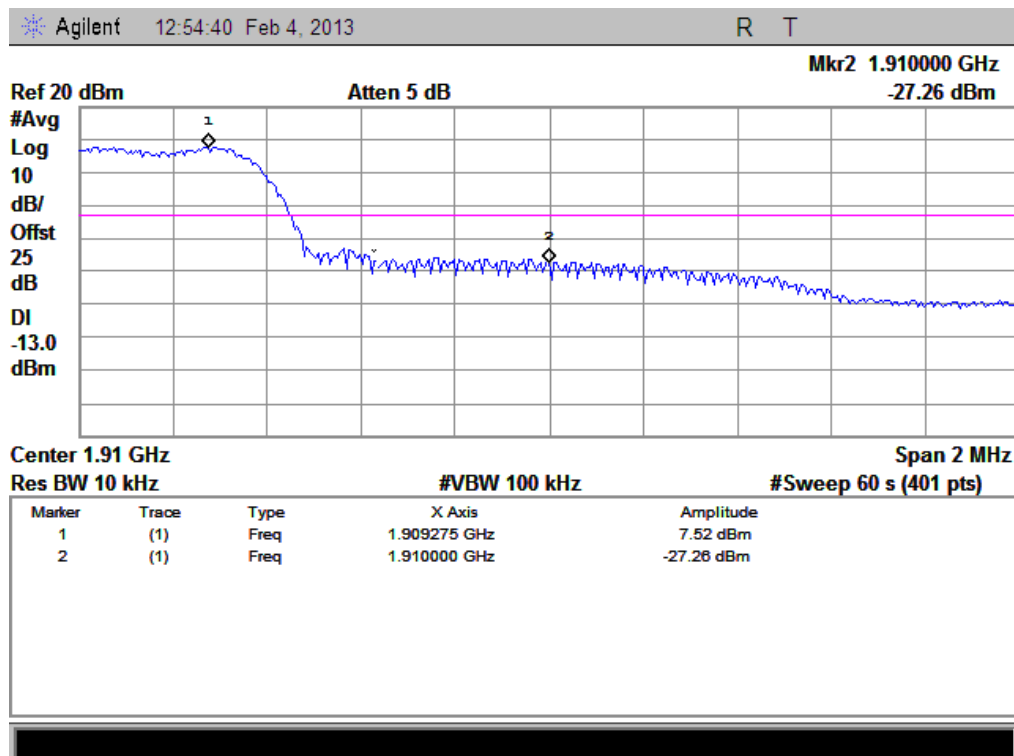
(Plot E: EVDO 800MHz Channel = 1013)



(Plot F: EVDO 800MHz Channel = 777)



(Plot G: EVDO 1900MHz Channel = 25)



(Plot H: EVDO 1900MHz Channel = 1175)

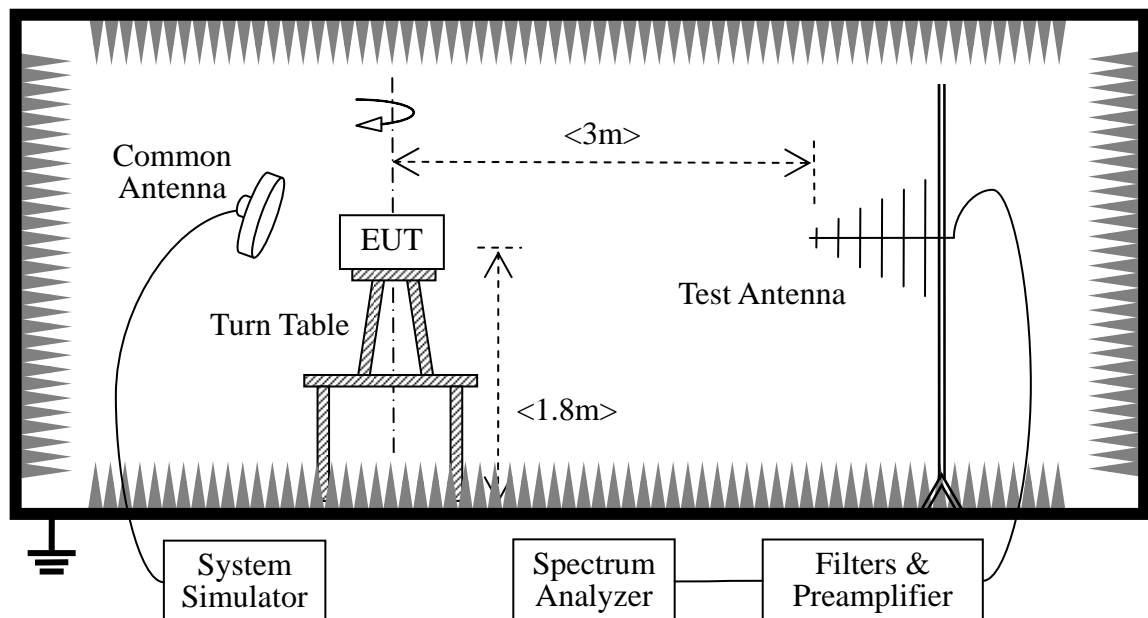
2.6 Transmitter Radiated Power (EIRP/ERP)

2.6.1 Requirement

According to FCC section 22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7Watts, and FCC section 24.232, the broadband PCS mobile station is limited to 2Watts e.i.r.p. peak power.

2.6.2 Test Description

1. Test Setup:



1. The resolution bandwidth of the Spectrum Analyzer is set to be comparable to the emission bandwidth of the transmitter, e.g. for GSM modulated signal (here used): RBW=VBW=1MHz, for CDMA modulated signal: RBW=VBW=3MHz.
2. The low, middle and the high channels are selected to perform tests respectively.
3. Employ the bi-log Test Antenna as the test system receiving antenna; set the polarization of the Test Antenna to be the same as that of the EUT transmitting antenna.

Set the frequency range of the Spectrum Analyzer suitably to capture the waveform; actuate the Turn Table to turn from 0 degrees to 360 degrees to find the maximum reading via the Spectrum Analyzer, mark the peak; finally record the peak and the plot.

-Maximum RF output power: CDMA800 27.01dBm, CDMA 1900 25.64dBm

- Step size (dB): 3dB

- Minimum RF power: CDMA800 -0.1dBm, CDMA 1900 -0.3dBm

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2012.05	2013.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2013.05
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2012.05	2013.05
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2012.05	2013.05
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2013.05
Substitution Antenna	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2013.05
Pre-AMPs	lucix	S10M100L3802	S020180L3203	2012.05	2013.05
Notch Filter	COM-MW	ZBSF-C836.5-25-X	NA	2012.05	2013.05
Notch Filter	COM-MW	ZBSF-C1747.5-75-X2	NA	2012.05	2013.05
Notch Filter	COM-MW	ZBSF-C1880-60-X2	NA	2012.05	2013.05

2.6.3 Test Result

The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested.

The substitution corrections are obtained as described below:

$$A_{\text{SUBST}} = P_{\text{SUBST_TX}} - P_{\text{SUBST_RX}} - L_{\text{SUBST_CABLES}} + G_{\text{SUBST_TX_ANT}}$$

$$A_{\text{TOT}} = L_{\text{CABLES}} + A_{\text{SUBST}}$$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

$P_{\text{SUBST_TX}}$ is signal generator level,

$P_{\text{SUBST_RX}}$ is receiver level,

$L_{\text{SUBST_CABLES}}$ is cable losses including TX cable,

$G_{\text{SUBST_TX_ANT}}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

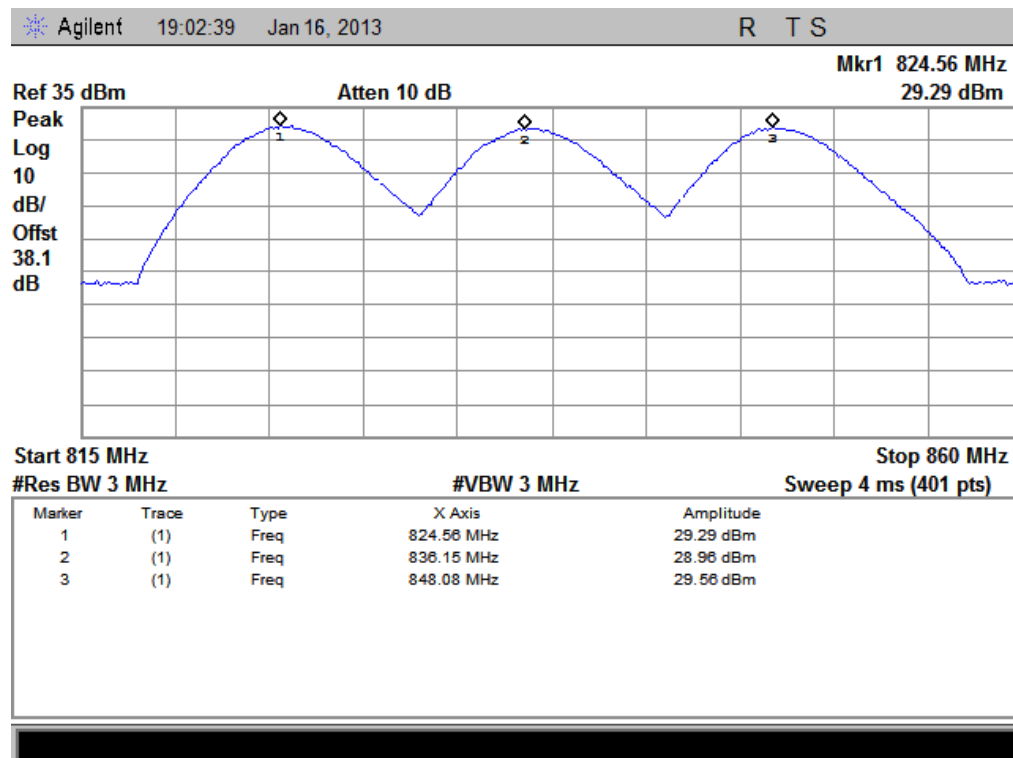
During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT} .

1. Test Verdict:

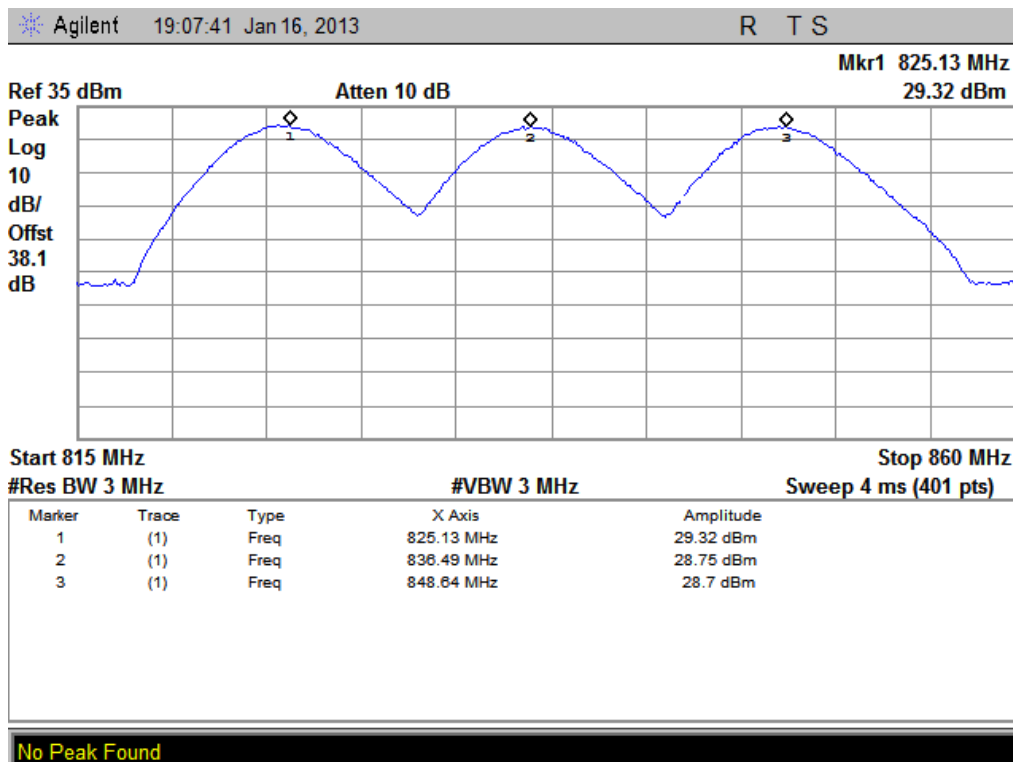
No.	Channel	Frequency (MHz)	Measured ERP		Limit	
			dBm	W	dBm	W
CDMA 800MHz	1013	824.7	29.29	0.849	38.5	7
	384	836.52	28.96	0.787		
	777	848.31	29.56	0.904		
EVDO 800MHz	1013	824.7	29.32	0.855	38.5	7
	384	836.52	28.75	0.750		
	777	848.31	28.7	0.741		

No.	Channel	Frequency (MHz)	Measured EIRP		Limit	
			dBm	W	dBm	W
CDMA 1900MHz	25	1850.2	27.23	0.528	33	2
	600	1880.0	28.73	0.746		
	1175	1909.8	28.69	0.739		
EVDO 1900MHz	25	1850.2	27.37	0.546	33	2
	600	1880.0	28.66	0.735		
	1175	1909.8	28.13	0.650		
G Block	1275	1913.8	24.21	0.264	33	2
EVDO G Block	1275	1913.8	24.13	0.258	33	2

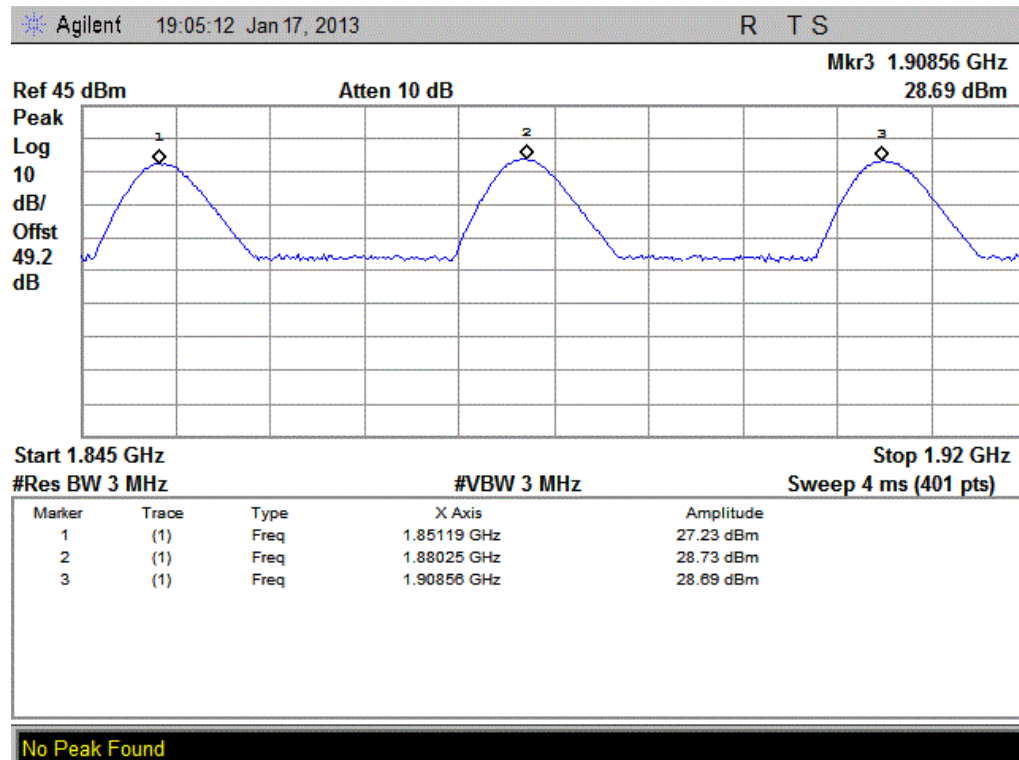
2. Test Plots:



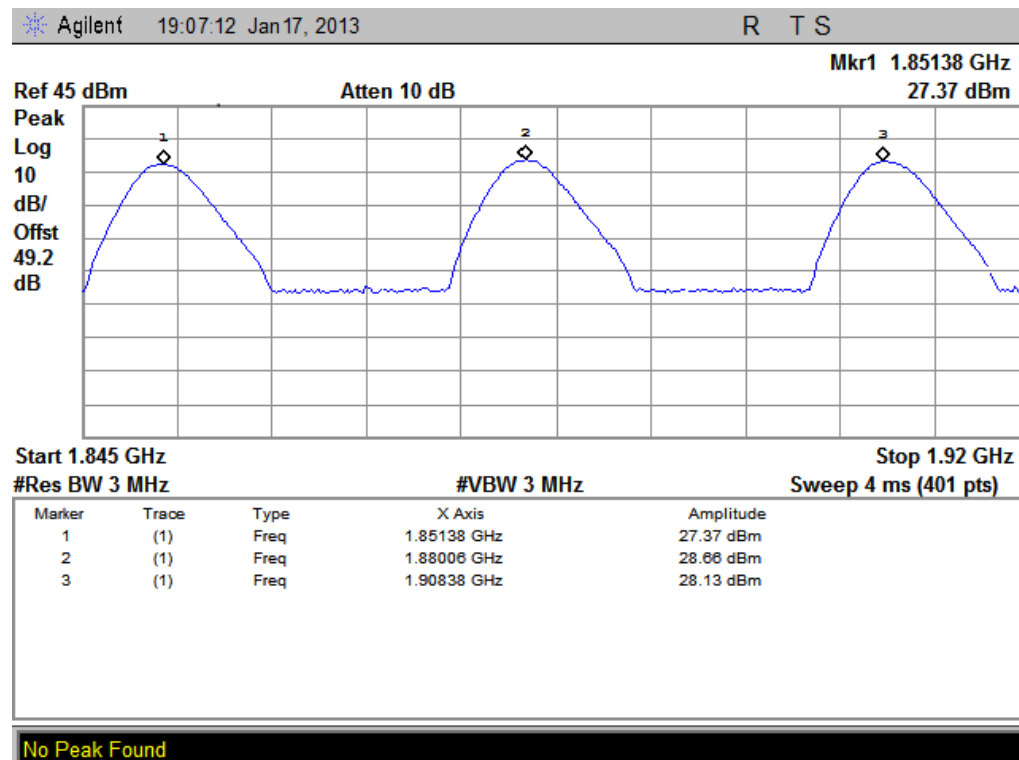
(Plot A: CDMA 800MHz Channel = 1013,384, 777)



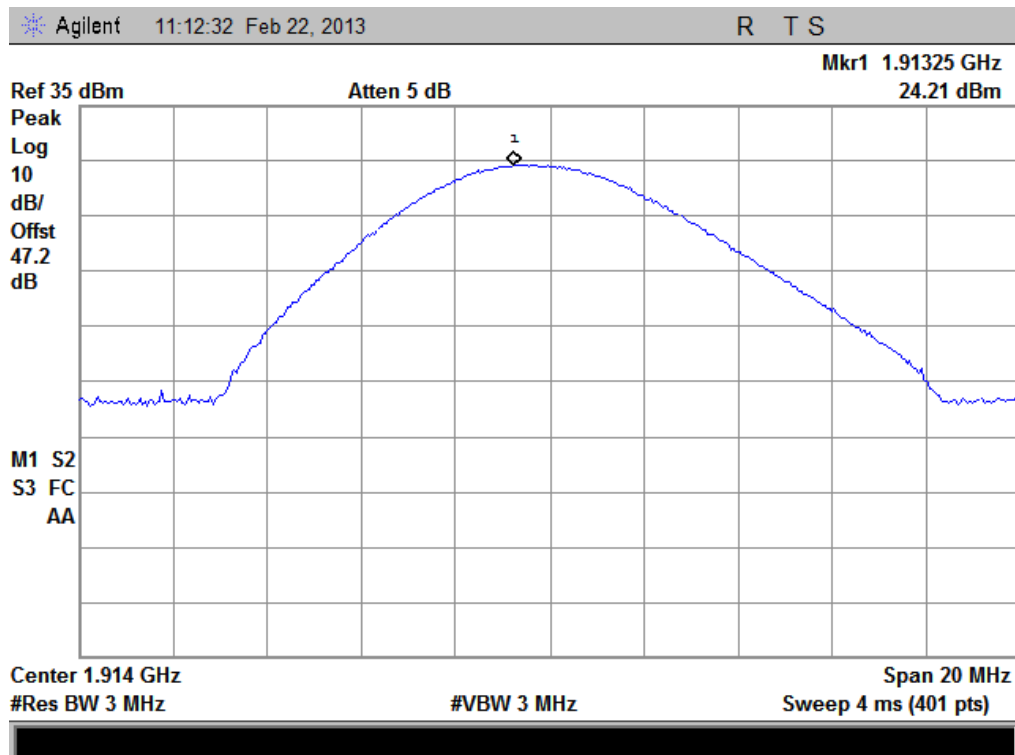
(Plot B: EVDO 800MHz Channel = 1013,384, 777)



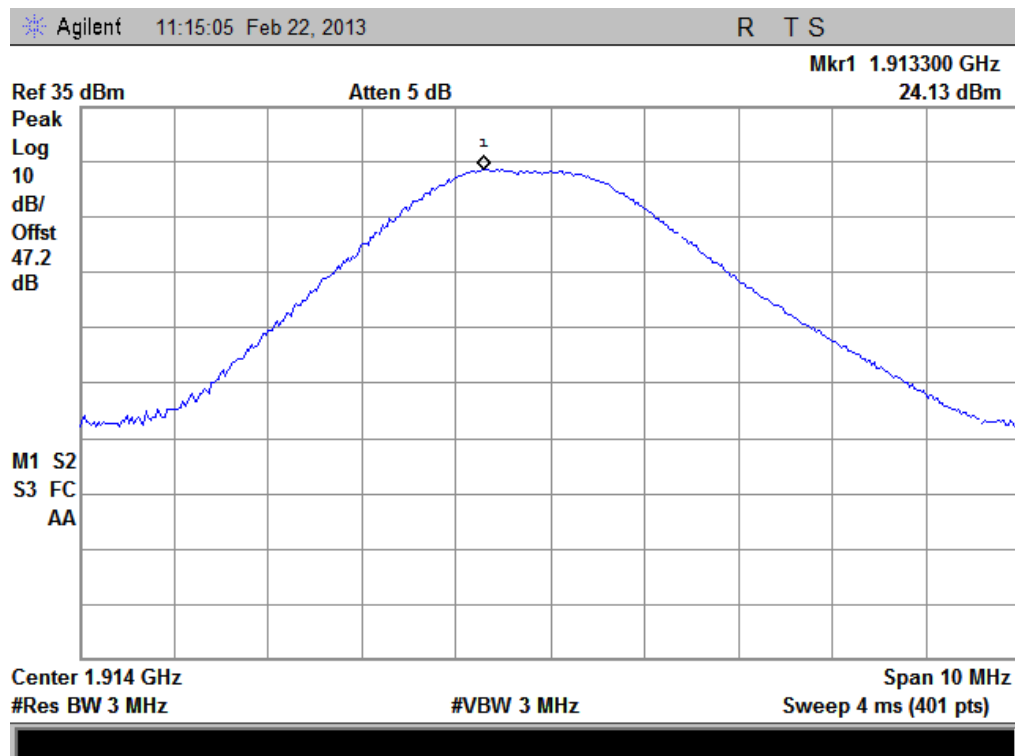
(Plot C: CDMA 1900MHz Channel = 25, 600, 1175)



(Plot D: EVDO 1900MHz Channel = 25, 600, 1175)



(Plot E: G BLOCK 1900MHz Channel = 1275)



(Plot F: EVDO G BLOCK 1900MHz Channel = 1275)

2.7 Radiated Out of Band Emissions

2.7.1 Requirement

According to FCC section 2.1053, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43+10*\log(P)$ dB. This calculated to be -13dBm.

2.7.2 Test Description

See section 2.6.2 of this report.

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2012.05	2013.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2013.05
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2012.05	2013.05
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2012.05	2013.05
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2013.05
Substitution Antenna	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2013.05
Pre-AMPs	lucix	S10M100L3802	S020180L3203	2012.05	2013.05
Notch Filter	COM-MW	ZBSF-C836.5-25-X	NA	2012.05	2013.05
Notch Filter	COM-MW	ZBSF-C1747.5-75-X2	NA	2012.05	2013.05
Notch Filter	COM-MW	ZBSF-C1880-60-X2	NA	2012.05	2013.05

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

2.7.3 Test Result

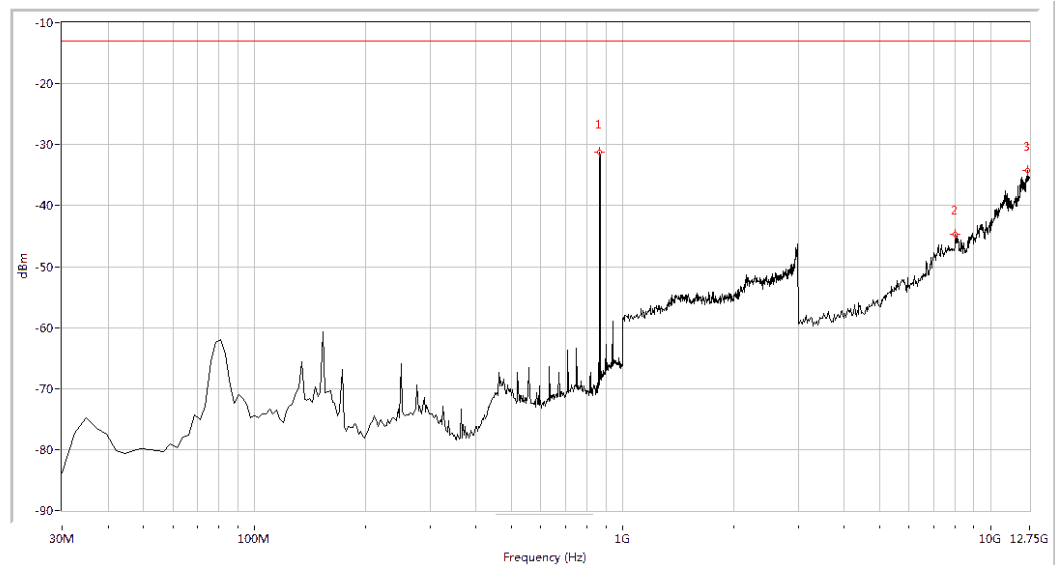
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested to verify the out of band emissions.

1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical			
CDMA 800MHz	1013	1649	< -25	< -25	Plot A.1/A.2	-13	PASS
	384	1673	-21.10	-24.05	Plot B.1/B.2		PASS
	777	1696	< -25	< -25	Plot C.1/C.2		PASS
CDMA 1900MHz	25	3700	-21.27	-24.63	Plot D.1/D.2	-13	PASS
	600	3760	-21.30	-23.71	Plot E.1/E.2		PASS
	1175	1909.8	< -25	< -25	Plot F.1/F.2		PASS
EVDO 800MHz	1013	1649	< -25	< -25	Plot G.1/G.2	-13	PASS
	384	1673	-21.03	-23.10	Plot H.1/H.2		PASS
	777	1696	< -25	< -25	Plot I.1/I.2		PASS
EVDO 1900MHz	25	3700	-21.84	< -25	Plot J.1/J.2	-13	PASS
	600	3760	-20.10	-23.84	Plot K.1/K.2		PASS
	1175	1909.8	< -25	< -25	Plot L.1/L.2		PASS
G Block	1275	1913.8	< -25	-24.54	Plot M.1/M.2	-13	PASS
EVDO G Block	1275	1913.8	< -25	< -25	Plot N.1/N.2	-13	PASS

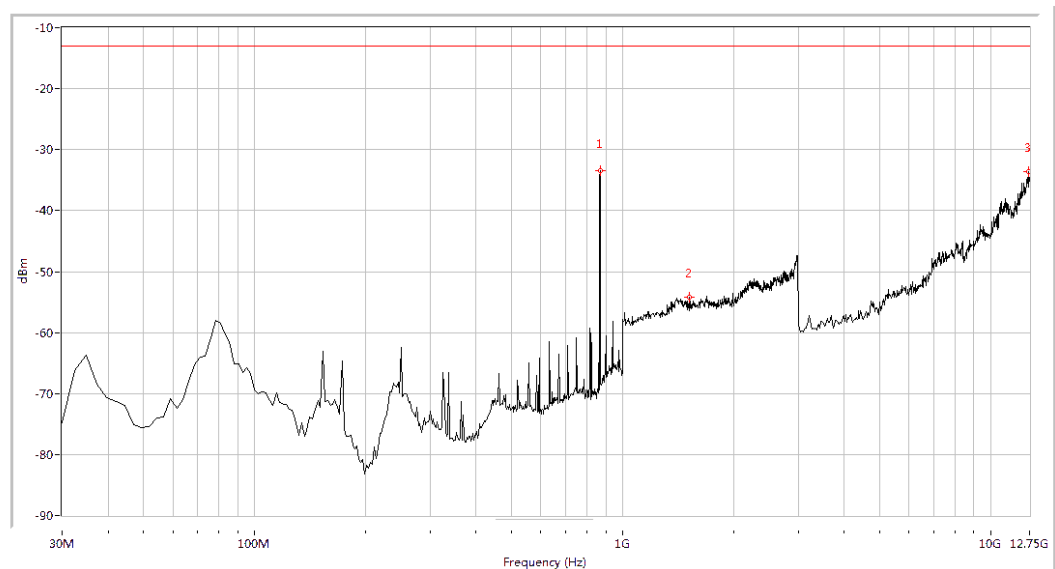
2. Test Plots for the Whole Measurement Frequency Range:

Note: the power of the EUT transmitting frequency should be ignored.



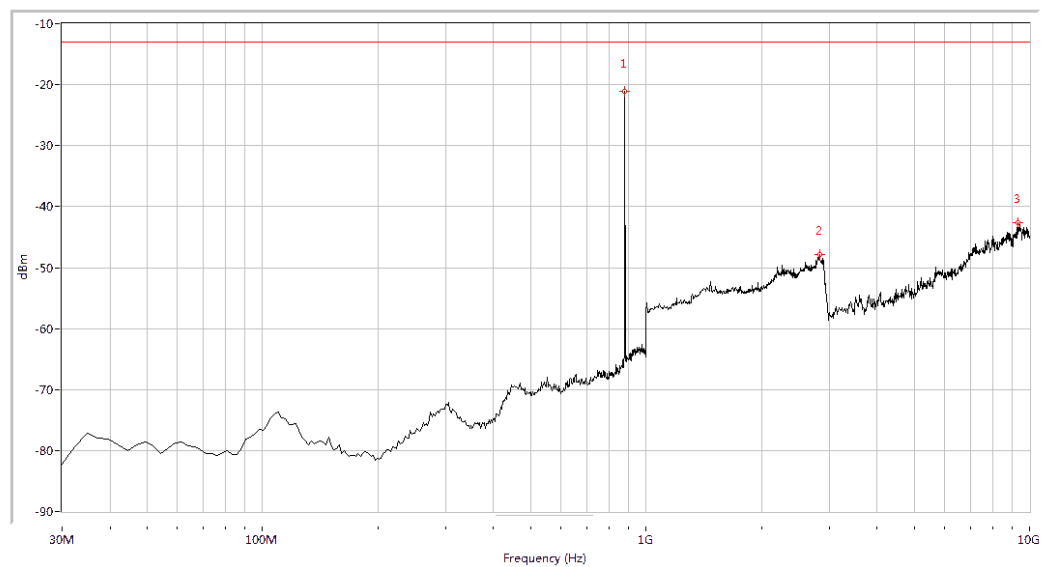
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
866.958	-31.25	-13.0	18.2	198.3	Horizontal	PASS
8008.728	-44.64	-13.0	31.6	169.9	Horizontal	PASS
12604.115	-34.31	-13.0	21.3	0.8	Horizontal	PASS

(Plot A.1: CDMA 800MHz Channel = 1013, Test Antenna Horizontal)



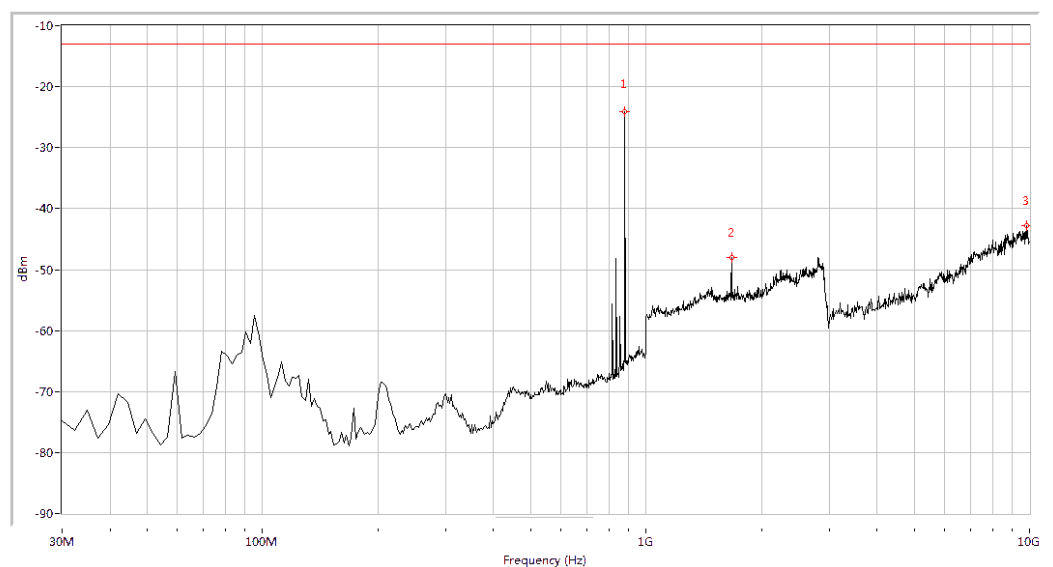
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
869.377	-33.43	-13.0	20.4	316.3	Vertical	PASS
1518.703	-54.26	-13.0	41.3	81.3	Vertical	PASS
12677.057	-33.57	-13.0	20.6	7.4	Vertical	PASS

(Plot A.2: CDMA 800MHz Channel = 1013, Test Antenna Vertical)



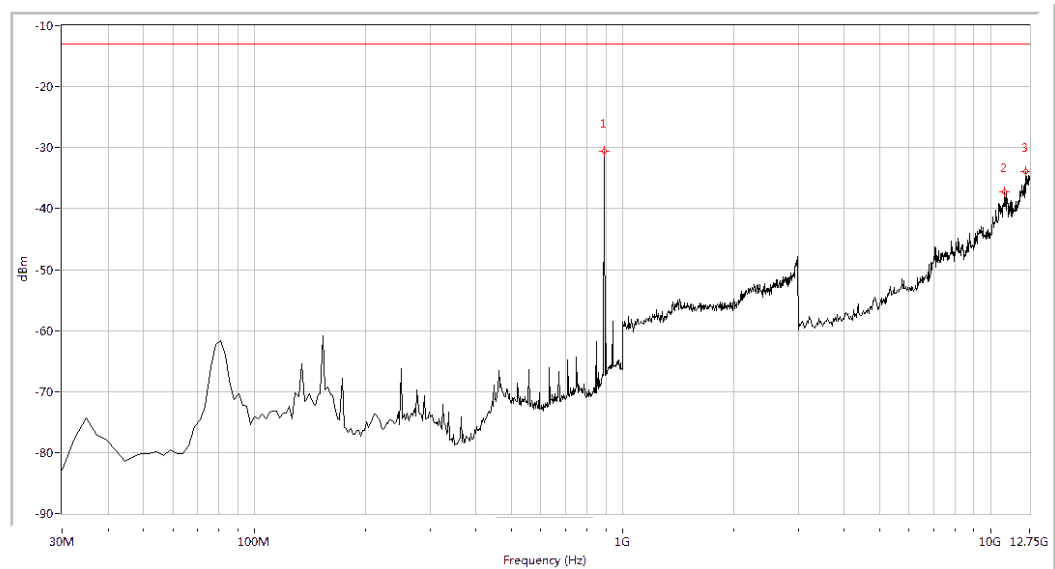
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
879.052	-21.10	-13.0	8.1	138.8	Horizontal	PASS
2830.424	-47.93	-13.0	34.9	268.9	Horizontal	PASS
9319.202	-42.69	-13.0	29.7	313.3	Horizontal	PASS

(Plot B.1: CDMA 800MHz Channel = 384, Test Antenna Horizontal)



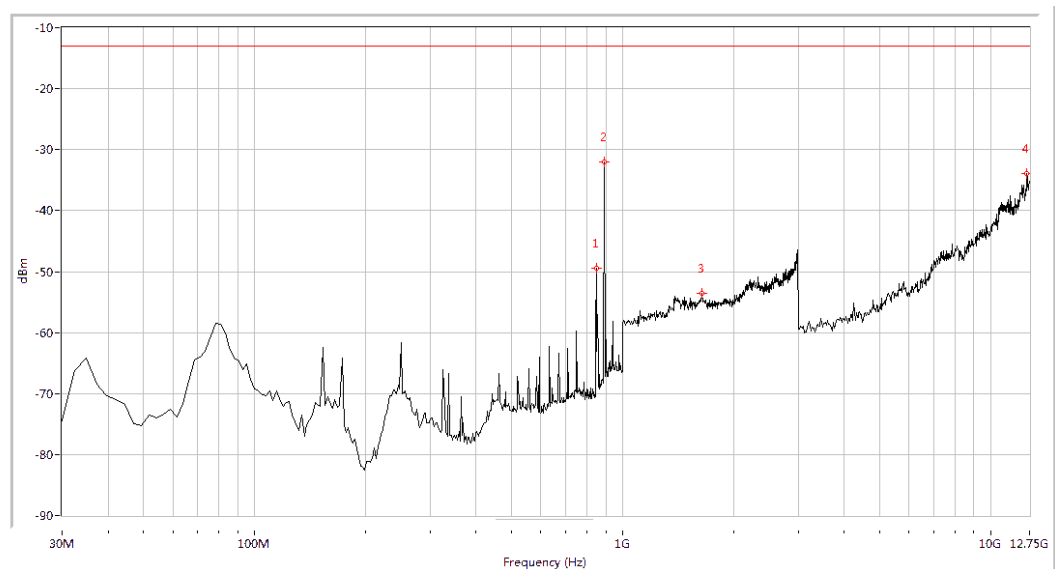
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
879.052	-24.05	-13.0	11.1	96.0	Vertical	PASS
1673.317	-48.00	-13.0	35.0	39.6	Vertical	PASS
9825.436	-42.83	-13.0	29.8	183.6	Vertical	PASS

(Plot B.2: CDMA 800MHz Channel = 384, Test Antenna Vertical)



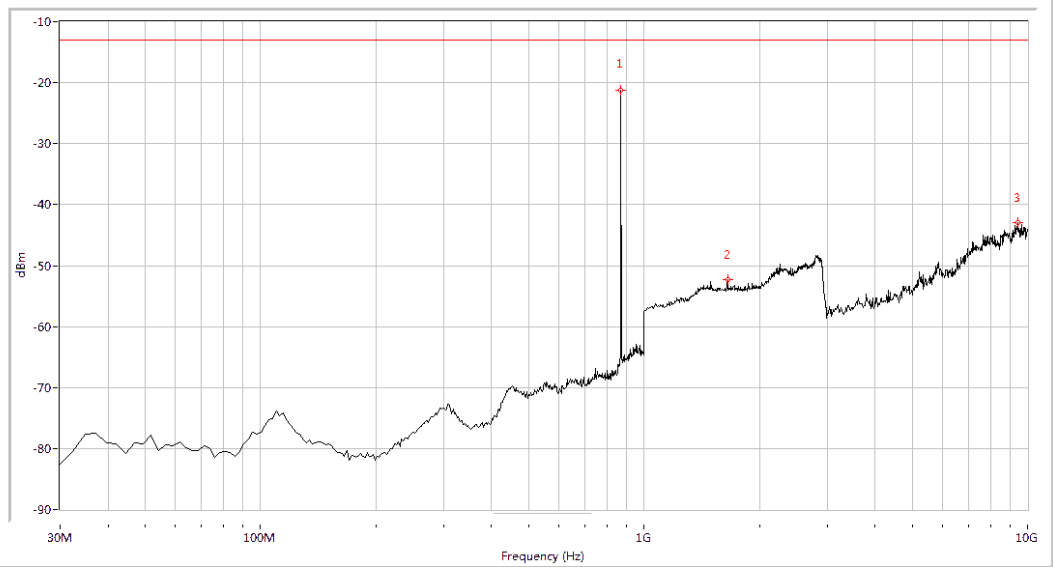
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
891.147	-30.64	-13.0	17.6	293.5	Horizontal	PASS
10926.434	-37.31	-13.0	24.3	360.0	Horizontal	PASS
12482.544	-33.98	-13.0	21.0	360.0	Horizontal	PASS

(Plot C.1: CDMA 800MHz Channel = 777, Test Antenna Horizontal)



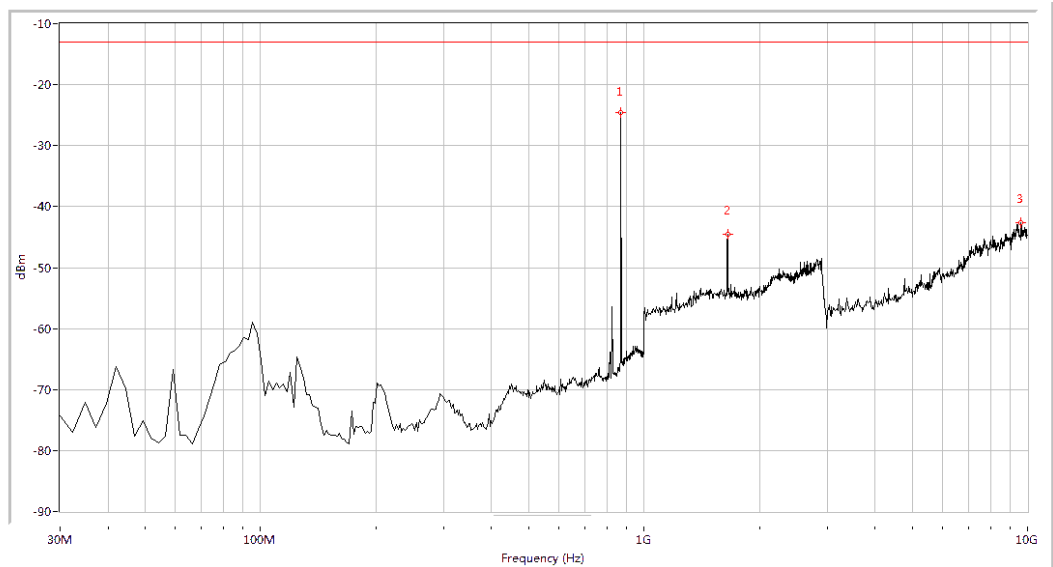
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
847.606	-49.42	-13.0	36.4	-0.0	Vertical	PASS
891.147	-32.06	-13.0	19.1	312.7	Vertical	PASS
1643.392	-53.57	-13.0	40.6	134.9	Vertical	PASS
12555.486	-33.90	-13.0	20.9	360.0	Vertical	PASS

(Plot C.2: CDMA 800MHz Channel = 777, Test Antenna Vertical)



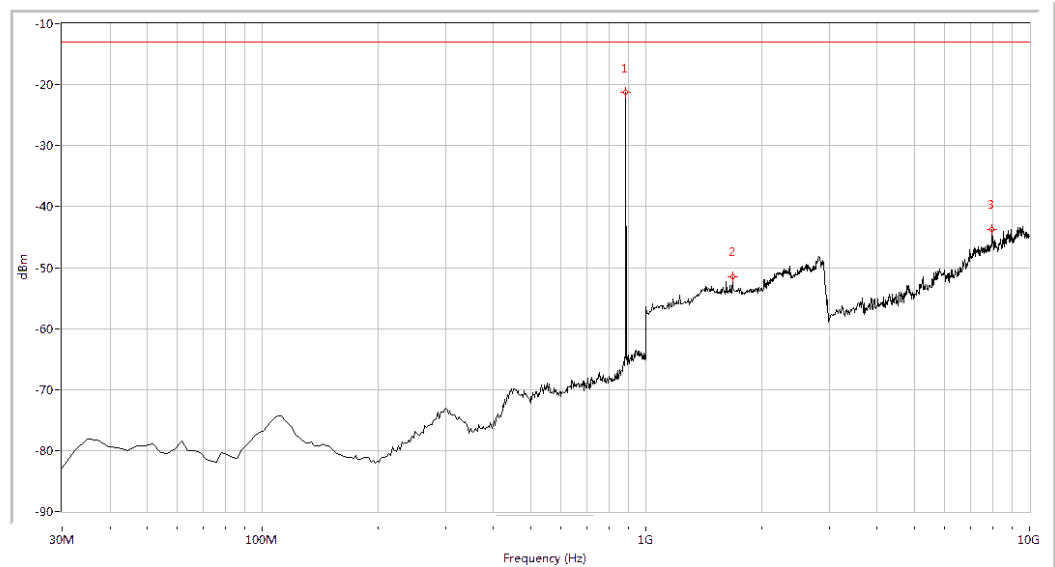
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
869.377	-21.27	-13.0	8.3	331.6	Horizontal	PASS
1653.367	-52.36	-13.0	39.4	226.1	Horizontal	PASS
9441.397	-43.03	-13.0	30.0	0.1	Horizontal	PASS

(Plot D.1: CDMA 1900MHz Channel = 25, Test Antenna Horizontal)



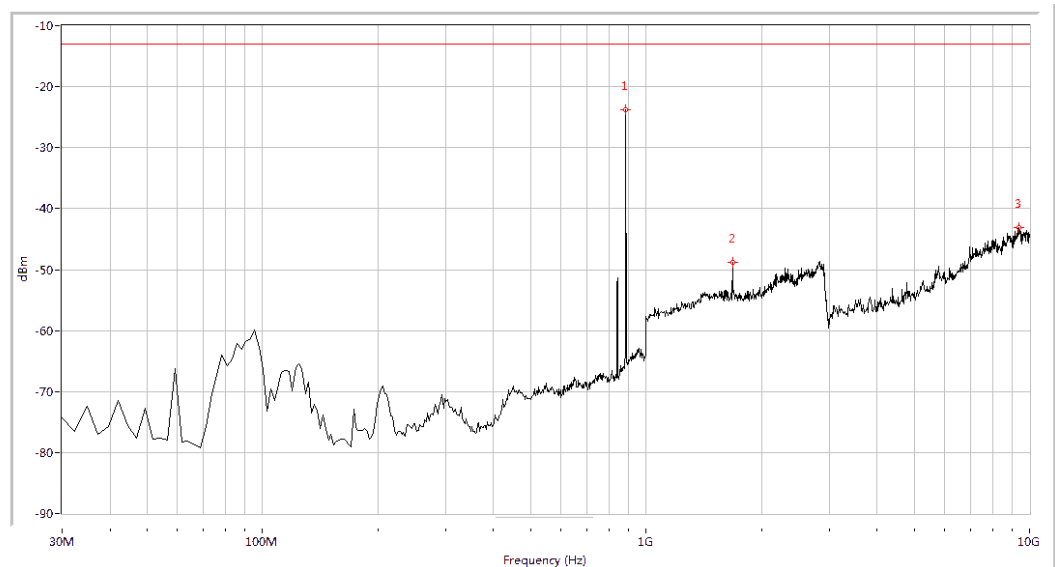
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
869.377	-24.63	-13.0	11.6	123.7	Vertical	PASS
1653.367	-44.54	-13.0	31.5	6.9	Vertical	PASS
9615.960	-42.63	-13.0	29.6	356.3	Vertical	PASS

(Plot D.2: CDMA 1900MHz Channel = 25, Test Antenna Vertical)



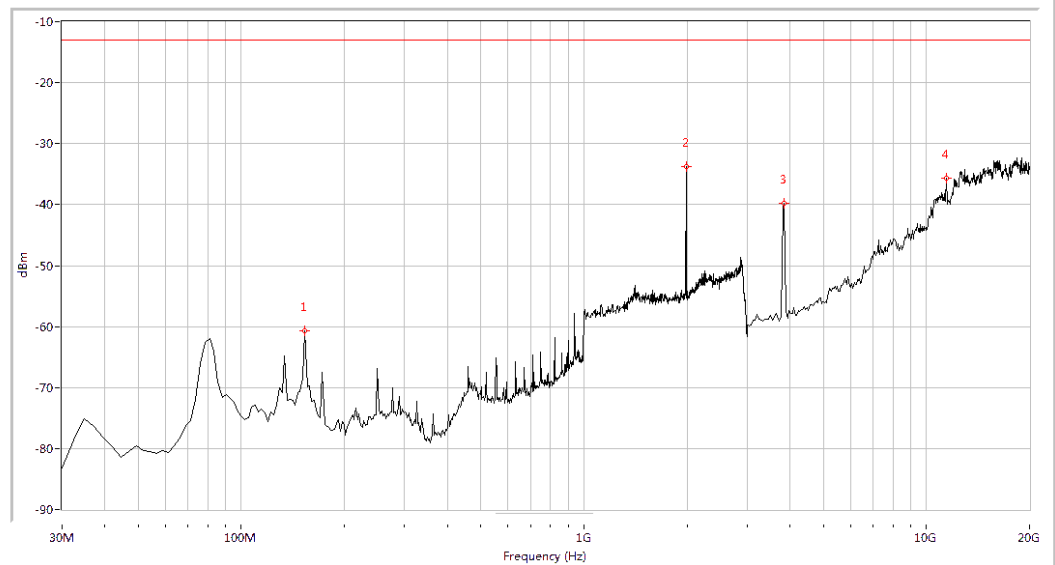
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
886.309	-21.30	-13.0	8.3	160.5	Horizontal	PASS
1683.292	-51.52	-13.0	38.5	76.3	Horizontal	PASS
7992.519	-43.78	-13.0	30.8	220.5	Horizontal	PASS

(Plot E.1: CDMA 1900MHz Channel = 600, Test Antenna Horizontal)



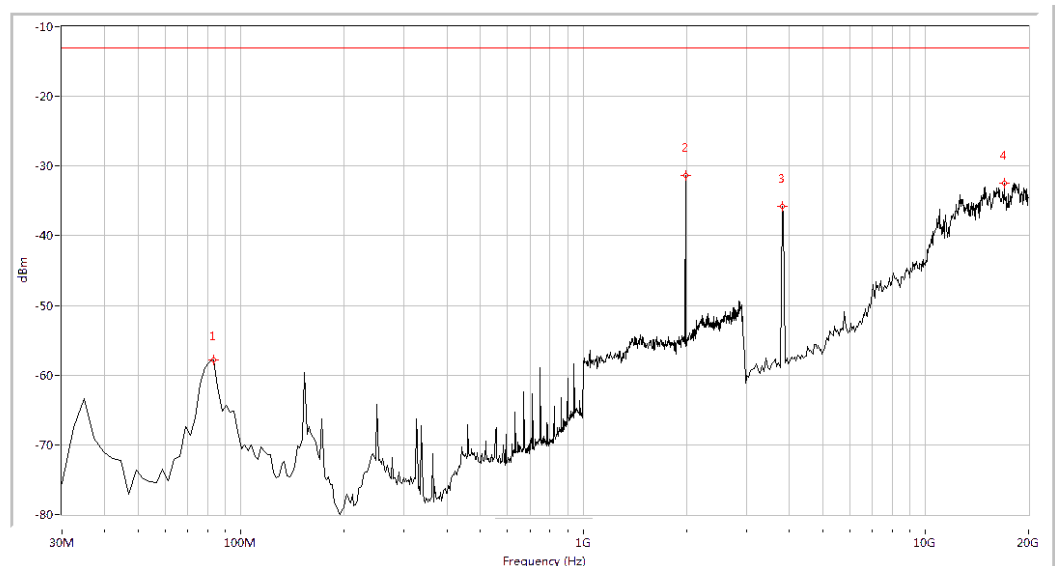
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
886.309	-23.71	-13.0	10.7	13.5	Vertical	PASS
1683.292	-48.75	-13.0	35.8	208.4	Vertical	PASS
9406.484	-43.04	-13.0	30.0	15.1	Vertical	PASS

(Plot E.2: CDMA 1900MHz Channel = 600, Test Antenna Vertical)



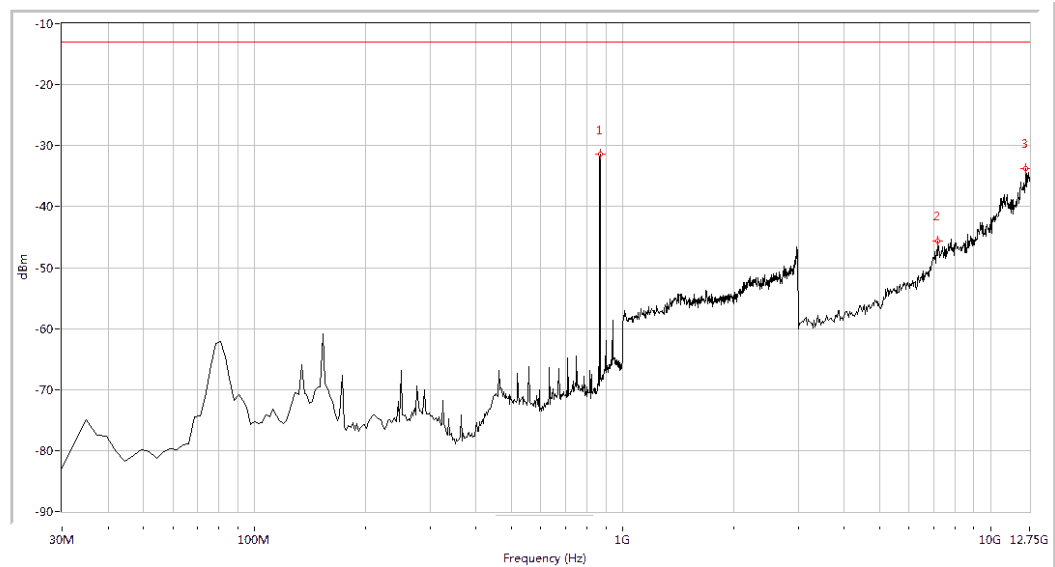
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
153.367	-60.74	-13.0	47.7	45.6	Horizontal	PASS
1987.531	-33.83	-13.0	20.8	172.4	Horizontal	PASS
3847.880	-39.76	-13.0	26.8	38.5	Horizontal	PASS
11436.409	-35.60	-13.0	22.6	46.2	Horizontal	PASS

(Plot F.1: CDMA 1900MHz Channel = 1175, Test Antenna Horizontal)



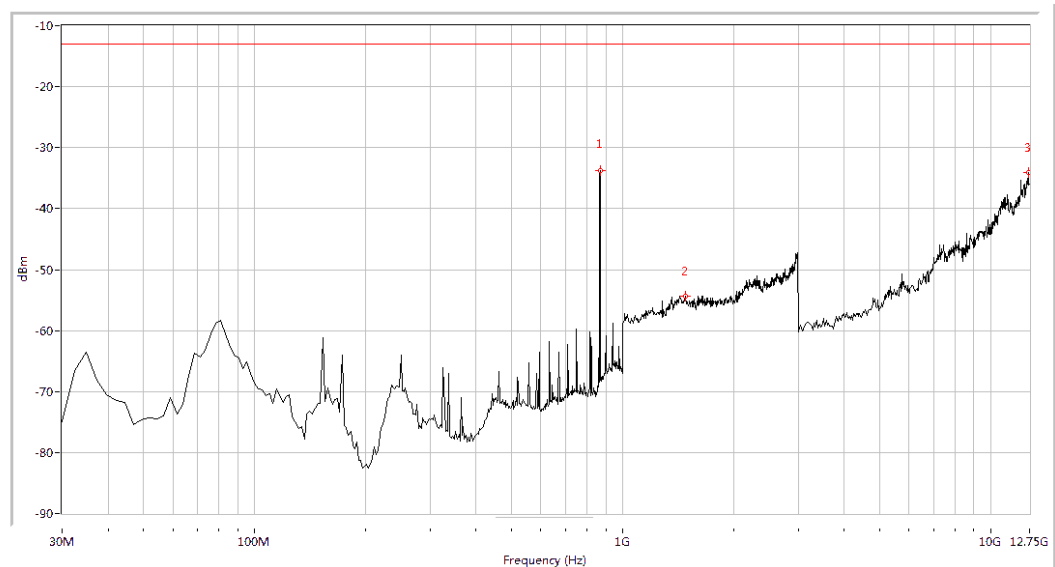
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
83.217	-57.81	-13.0	44.8	174.9	Vertical	PASS
1987.531	-31.40	-13.0	18.4	178.3	Vertical	PASS
3805.486	-35.81	-13.0	22.8	250.1	Vertical	PASS
16990.025	-32.39	-13.0	19.4	357.3	Vertical	PASS

(Plot F.2: CDMA 1900MHz Channel = 1175, Test Antenna Vertical)



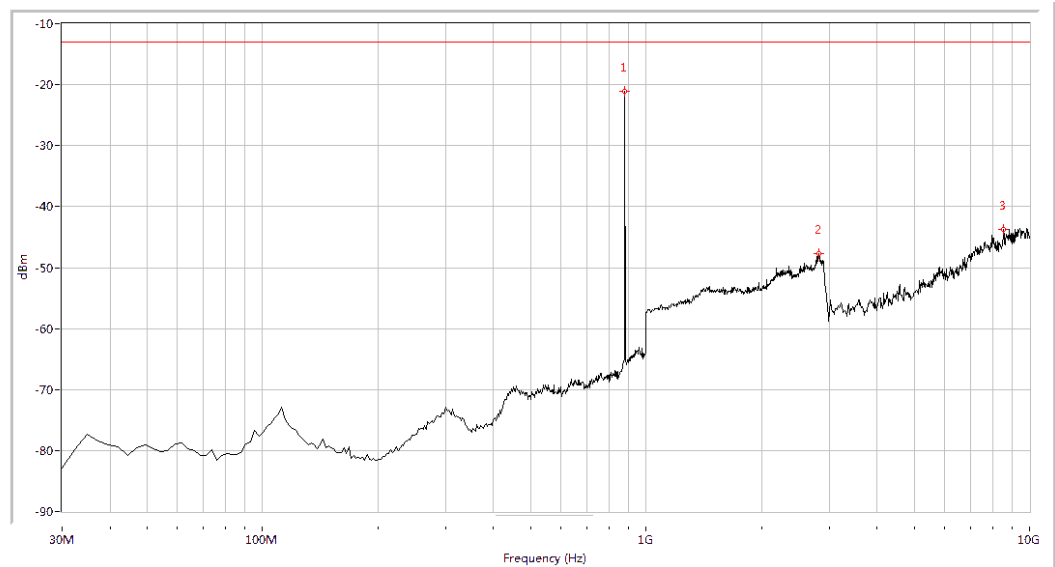
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
869.377	-31.42	-13.0	18.4	62.9	Horizontal	PASS
7182.045	-45.65	-13.0	32.6	151.1	Horizontal	PASS
12482.544	-33.75	-13.0	20.8	210.4	Horizontal	PASS

(Plot G.1: EVDO 800MHz Channel = 1013, Test Antenna Horizontal)



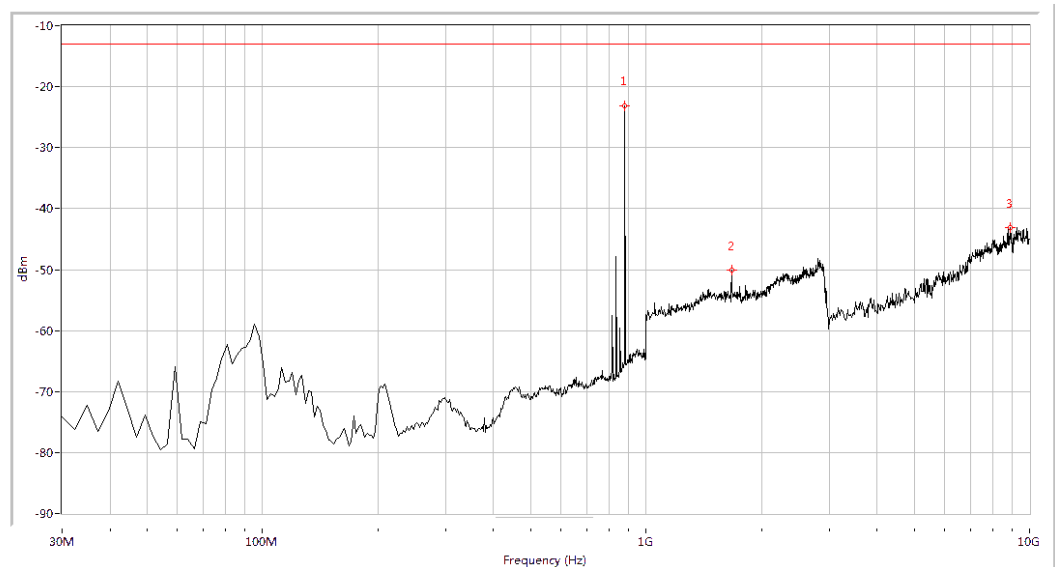
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
869.377	-33.81	-13.0	20.8	236.4	Vertical	PASS
1478.803	-54.36	-13.0	41.4	290.3	Vertical	PASS
12677.057	-34.02	-13.0	21.0	-0.0	Vertical	PASS

(Plot G.2: EVDO 800MHz Channel = 1013, Test Antenna Vertical)



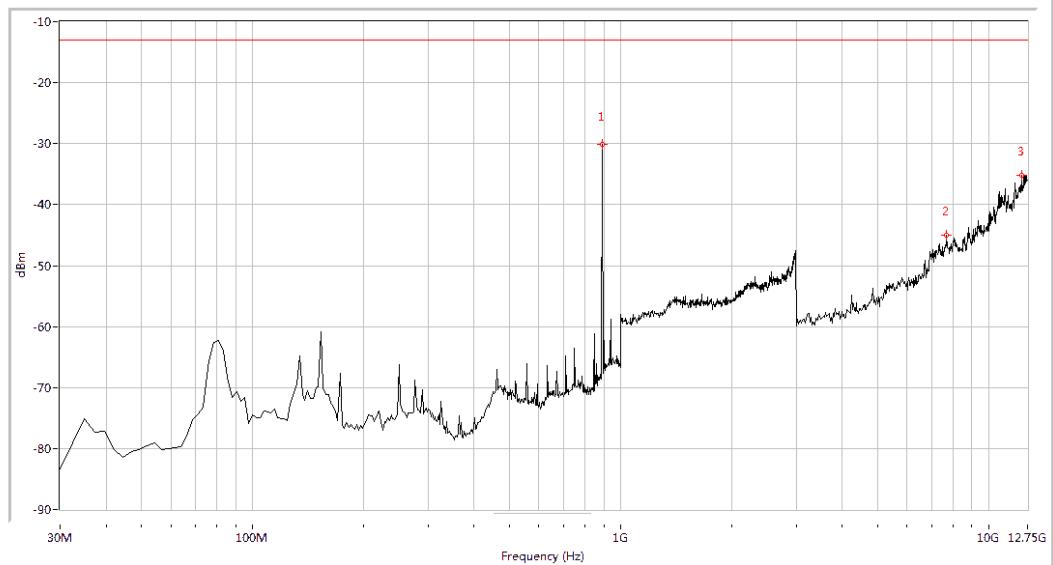
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
879.052	-21.03	-13.0	8.0	138.5	Horizontal	PASS
2815.461	-47.65	-13.0	34.7	-0.0	Horizontal	PASS
8551.122	-43.78	-13.0	30.8	35.0	Horizontal	PASS

(Plot H.1: EVDO 800MHz Channel = 384, Test Antenna Horizontal)



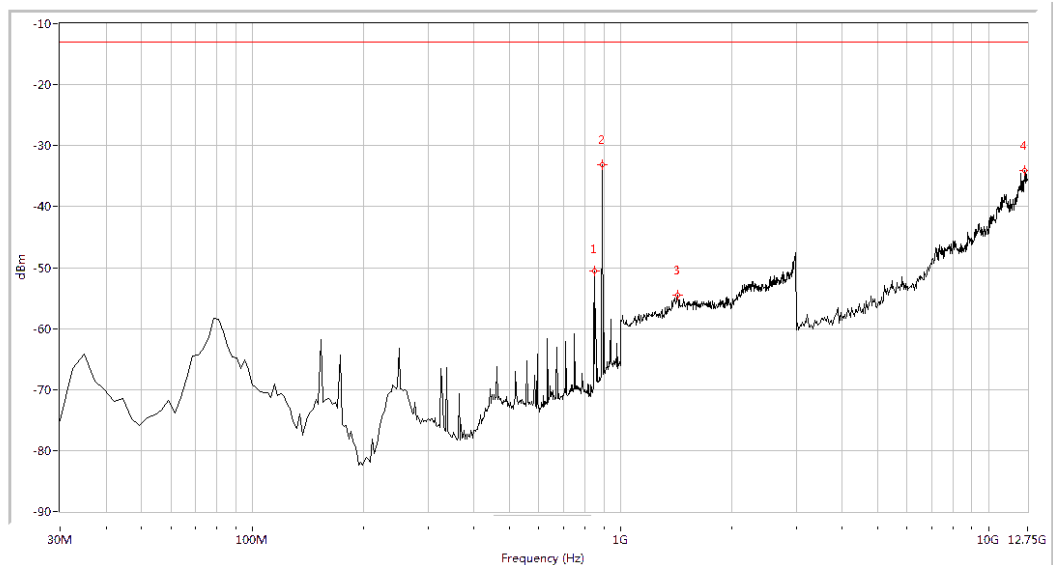
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
879.052	-23.10	-13.0	10.1	57.1	Vertical	PASS
1673.317	-50.16	-13.0	37.2	38.8	Vertical	PASS
8882.793	-43.14	-13.0	30.1	229.7	Vertical	PASS

(Plot H.2: EVDO 800MHz Channel = 384, Test Antenna Vertical)



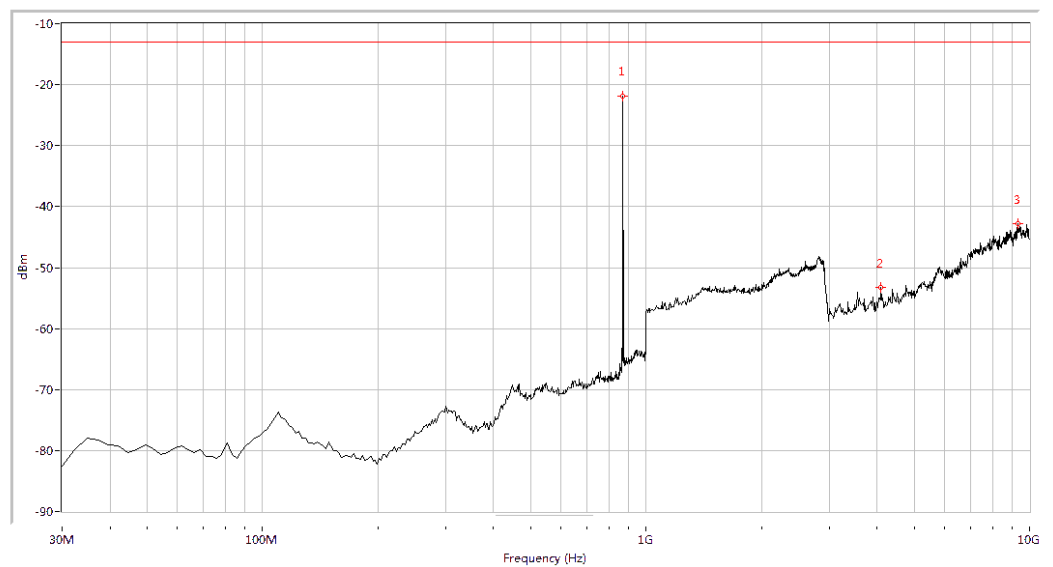
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
891.147	-30.06	-13.0	17.1	169.0	Horizontal	PASS
7692.643	-45.04	-13.0	32.0	-0.0	Horizontal	PASS
12288.030	-35.23	-13.0	22.2	195.9	Horizontal	PASS

(Plot I.1: EVDO 800MHz Channel = 777, Test Antenna Horizontal)



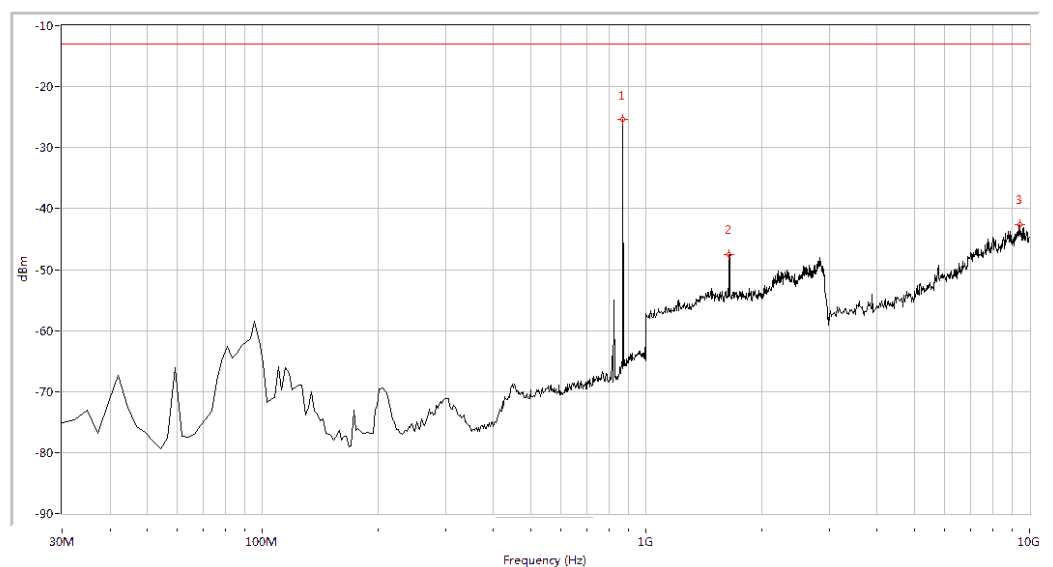
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
847.606	-50.52	-13.0	37.5	149.8	Vertical	PASS
891.147	-33.07	-13.0	20.1	354.9	Vertical	PASS
1428.928	-54.44	-13.0	41.4	259.3	Vertical	PASS
12555.486	-34.02	-13.0	21.0	64.9	Vertical	PASS

(Plot I.2: EVDO 800MHz Channel = 777, Test Antenna Vertical)



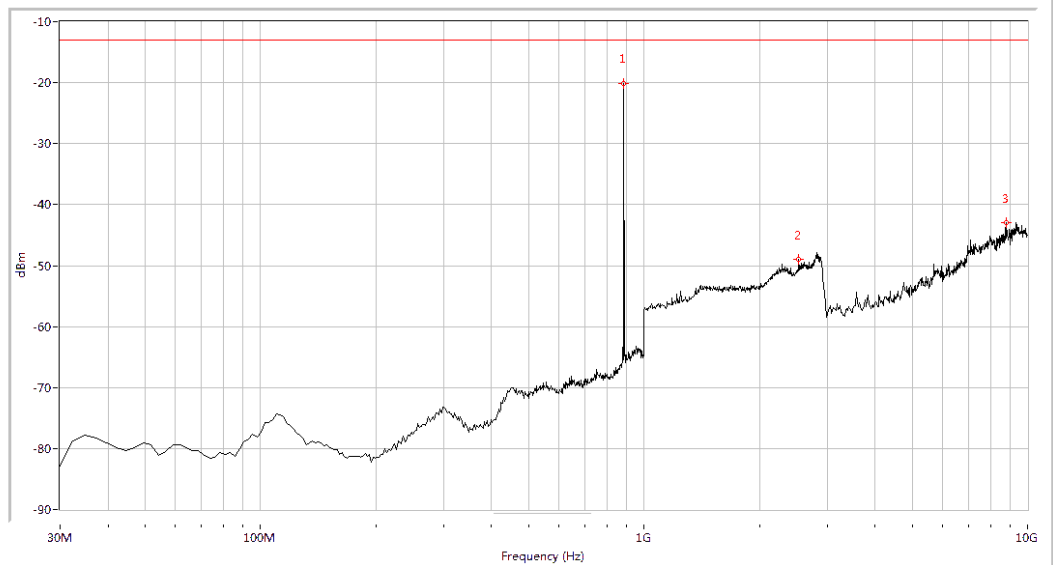
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
869.377	-21.84	-13.0	8.8	269.6	Horizontal	PASS
4099.751	-53.22	-13.0	40.2	251.7	Horizontal	PASS
9301.746	-42.78	-13.0	29.8	143.2	Horizontal	PASS

(Plot J.1: EVDO 1900MHz Channel = 25, Test Antenna Horizontal)



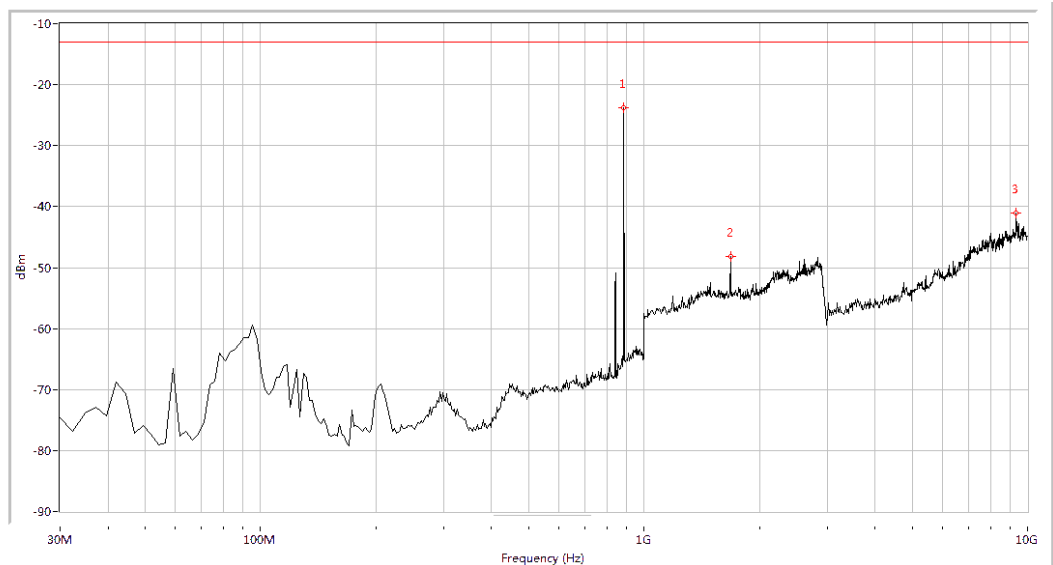
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
869.377	-25.40	-13.0	12.4	241.0	Vertical	PASS
1648.379	-47.50	-13.0	34.5	2.6	Vertical	PASS
9441.397	-42.69	-13.0	29.7	241.5	Vertical	PASS

(Plot J.2: EVDO 1900MHz Channel = 25, Test Antenna Vertical)



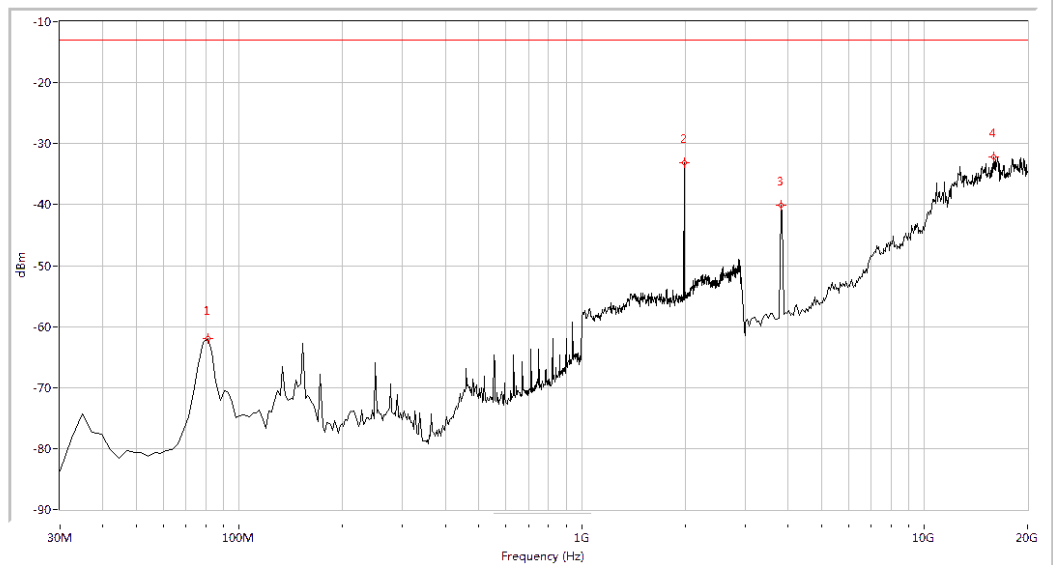
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
886.309	-20.10	-13.0	7.1	59.2	Horizontal	PASS
2531.172	-49.02	-13.0	36.0	124.8	Horizontal	PASS
8778.055	-43.01	-13.0	30.0	360.0	Horizontal	PASS

(Plot K.1: EVDO 1900MHz Channel = 600, Test Antenna Horizontal)



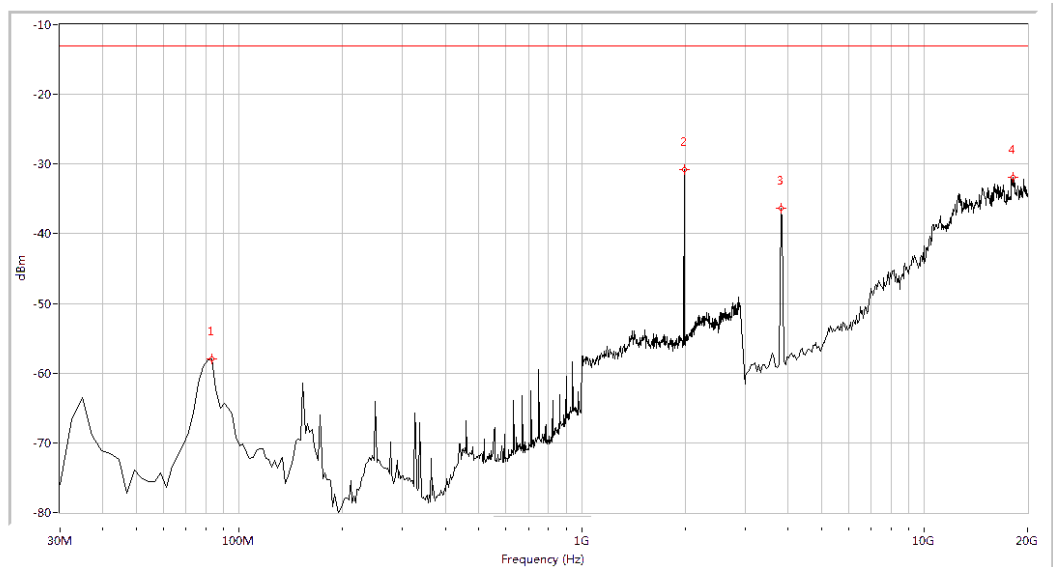
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
886.309	-23.84	-13.0	10.8	318.7	Vertical	PASS
1683.292	-48.10	-13.0	35.1	6.4	Vertical	PASS
9354.115	-41.11	-13.0	28.1	24.6	Vertical	PASS

(Plot K.2: EVDO 1900MHz Channel = 600, Test Antenna Vertical)



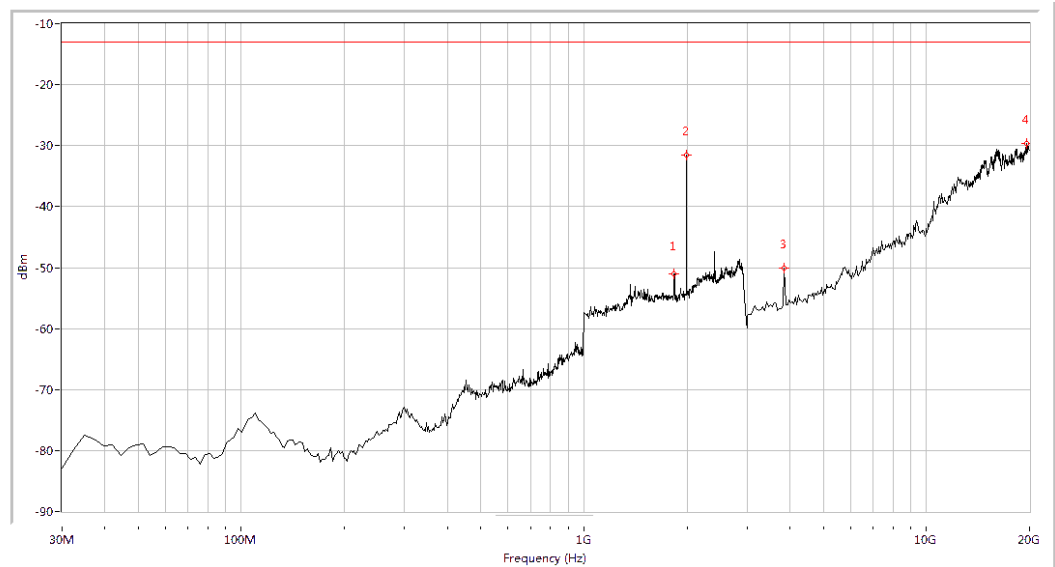
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
80.798	-61.94	-13.0	48.9	106.0	Horizontal	PASS
1987.531	-33.07	-13.0	20.1	247.7	Horizontal	PASS
3805.486	-40.12	-13.0	27.1	43.0	Horizontal	PASS
15972.569	-32.12	-13.0	19.1	161.6	Horizontal	PASS

(Plot L.1: EVDO 1900MHz Channel = 1175, Test Antenna Horizontal)



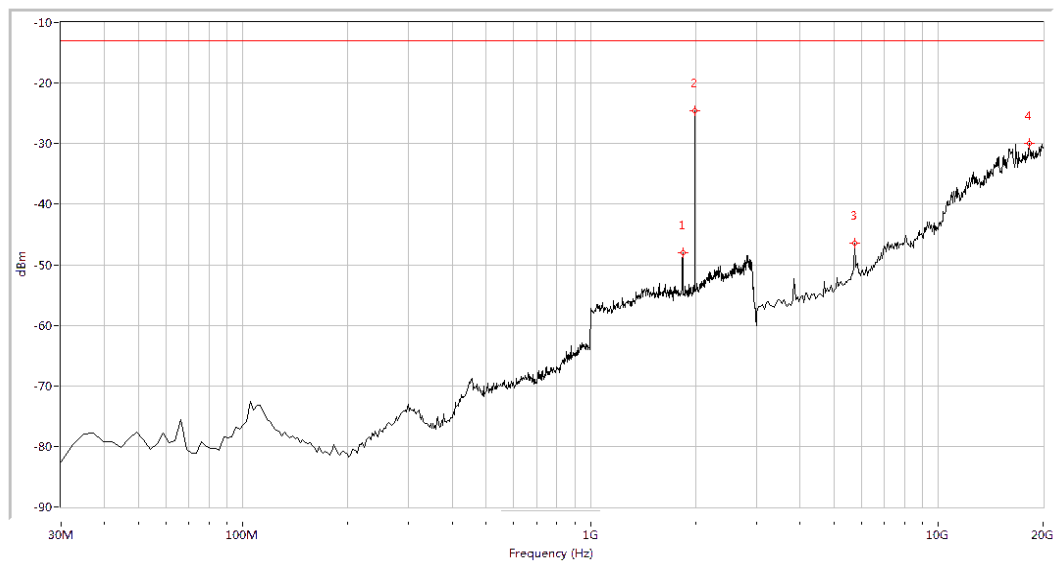
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
83.217	-58.02	-13.0	45.0	195.3	Vertical	PASS
1987.531	-30.79	-13.0	17.8	300.5	Vertical	PASS
3805.486	-36.27	-13.0	23.3	214.8	Vertical	PASS
18092.269	-31.96	-13.0	19.0	56.8	Vertical	PASS

(Plot L.2: EVDO 1900MHz Channel = 1175, Test Antenna Vertical)



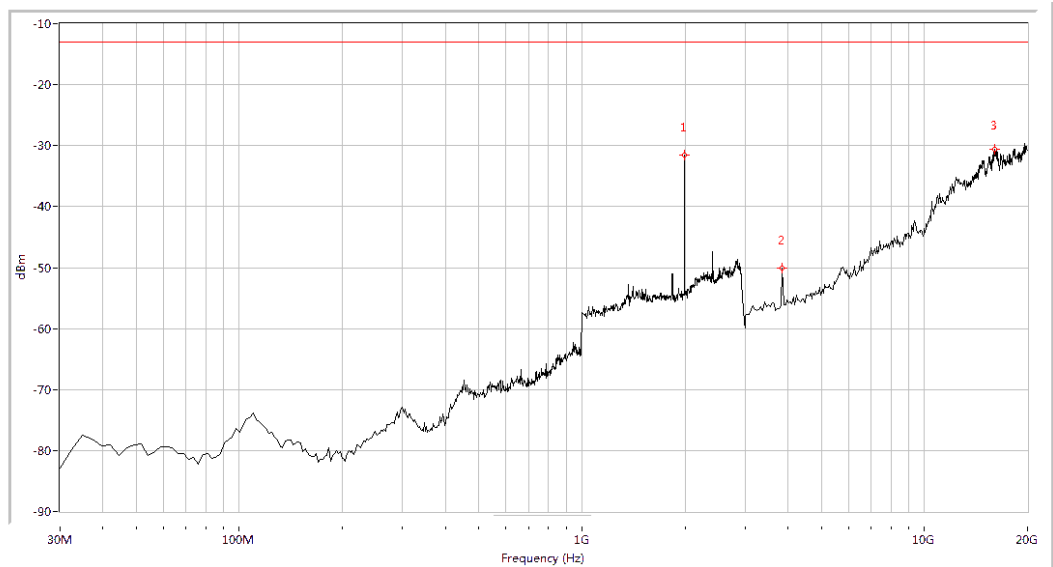
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1832.918	-51.07	-13.0	38.1	233.5	Horizontal	PASS
1992.519	-31.47	-13.0	18.5	59.4	Horizontal	PASS
3847.880	-50.12	-13.0	37.1	3.8	Horizontal	PASS
19618.454	-29.59	-13.0	16.6	25.0	Horizontal	PASS

(Plot M.1: G BLOCK 1900MHz Channel = 1275, Test Antenna Horizontal)



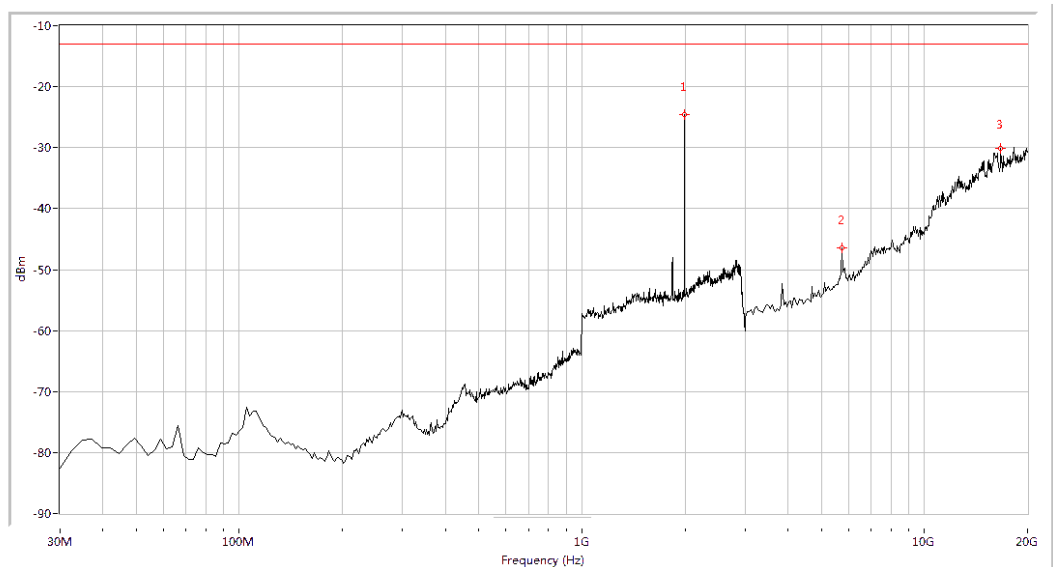
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1837.905	-48.07	-13.0	35.1	298.7	Vertical	PASS
1992.519	-24.54	-13.0	11.5	138.1	Vertical	PASS
5755.611	-46.50	-13.0	33.5	58.2	Vertical	PASS
18304.239	-29.88	-13.0	16.9	131.5	Vertical	PASS

(Plot M.2: G BLOCK 1900MHz Channel = 1275, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1992.519	-31.52	-13.0	18.5	0.0	Vertical	PASS
3847.880	-50.12	-13.0	37.1	0.0	Vertical	PASS
16014.963	-30.62	-13.0	17.6	0.0	Vertical	PASS

(Plot N.1: EVDO G BLOCK 1900MHz Channel = 1275, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1992.519	-25.63	-13.0	11.5	0.0	Horizontal	PASS
5755.611	-46.50	-13.0	33.5	0.0	Horizontal	PASS
16693.267	-30.09	-13.0	17.1	0.0	Horizontal	PASS

(Plot N.2: EVDO G BLOCK 1900MHz Channel = 1275, Test Antenna Horizontal)

** END OF REPORT **