



Report No.: SZ13070112W01



FCC TEST REPORT

Issued to

Corporativo Lanix S.A. de C.V.

For

Smartphone

Model Name: Ilium S410
Trade Name: Lanix
Brand Name: Lanix
FCC ID : ZC4S410
Standard: 47 CFR Part 22 Subpart H
47 CFR Part 24 Subpart E
Test date: 2013-7-19 to 2013-8-5
Issue date: 2013-8-7

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2013.8.7



CTIA Authorized Test Lab

LAB CODE 20081223-00

IEEE 1725

OTA

OFTA

電訊管理局



Testing Laboratory
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695796

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Change History		
Issue	Date	Reason for change
1.0	Aug 7, 2013	First edition

1. GENERAL INFORMATION

1.1 EUT Description

EUT Type	Smartphone
Serial No.....	(n.a, marked #1 by test site)
Hardware Version	V1.0
Software Version	V1.2
Applicant	Corporativo Lanix S.A. de C.V. Carretera Internacional Hermosillo-Nogales Km 8.5,Hermosillo Sonora, Mexico
Manufacturer	Tinno Mobile Technology Corp. 4/F, H-3 Building, OCT Eastern industrial Park, No.1 XiangShan East Road.,Nan Shan District, Shenzhen, P.R. China.
Frequency Range	GSM 850MHz: Tx: 824.20 - 848.80MHz (at intervals of 200kHz); Rx: 869.20 - 893.80MHz (at intervals of 200kHz) GSM 1900MHz: Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz); Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz) WCDMA 850MHz Tx: 826.4 - 846.6MHz (at intervals of 200kHz); Rx: 871.4 - 891.6MHz (at intervals of 200kHz) WCDMA 1900MHz Tx: 1852.4 - 1907.6MHz (at intervals of 200kHz); Rx: 1932.4 - 1987.6MHz (at intervals of 200kHz)
Modulation Type.....	GSM,GPRS Mode with GMSK Modulation EDGE Mode with 8PSK Modulation WCDMA Mode with QPSK Modulation HSDPA Mode with QPSK Modulation HSUPA Mode with QPSK Modulation
Multislot Class.....	GPRS: Multislot Class12,EGPRS: Multislot Class12
Antenna Type.....	PIFA Antenna
Emission Designators	GSM 850:250KGXW,GSM 1900:250KGXW EGPRS850:250KG7W, EGPRS1900:248KG7W, WCDMA 850:4M18F9W .WCDMA1900:4M18F9W

Note 1: The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula $F(n)=824.2+0.2*(n-128)$, $128 \leq n \leq 251$; the lowest, middle, highest channel numbers (ARFCHs) used and tested in this report are separately 128 (824.2MHz), 190 (836.6MHz) and 251 (848.8MHz).

Note 2: The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can

be represented with the formula $F(n)=1850.2+0.2*(n-512)$, $512 \leq n \leq 810$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

Note 3: The transmitter (Tx) frequency arrangement of the WCDMA 850MHz band used by the EUT can be represented with the formula $F(n)=826.4+0.2*(n-4132)$, $4132 \leq n \leq 4233$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 4132 (826.4MHz), 4175(835MHz) and 4233 (846.6MHz).

Note 4: The transmitter (Tx) frequency arrangement of the WCDMA 1900MHz band used by the EUT can be represented with the formula $F(n)=1852.4+0.2*(n-9262)$, $9262 \leq n \leq 9538$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 9262 (1852.4MHz), 9400 (1880MHz) and 9538 (1907.6MHz).

Note 5: 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 47 CFR Part 2, Part 22 and Part 24 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-09 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-09 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-09 Edition)	Personal Communications Services

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

No.	Section	Description	Result
1	2.1046	Conducted RF Output Power	PASS
2.	24.232(d)	Peak to average radio	PASS
2	2.1049,22.917 24.238,	99% Occupied Bandwidth	PASS
3	2.1055,22.355 24.235	Frequency Stability	PASS
4	2.1051,2.1057 22.917,24.238,	Conducted Out of Band Emissions	PASS
5	2.1051,2.1057 22.917,24.238	Band Edge	PASS
6	22.913,24.232	Transmitter Radiated Power (EIPR/ERP)	PASS
7	2.1053,2.1057 22.917,24.238	Radiated Out of Band Emissions	PASS

NOTE: Measurement method according to TIA/EIA 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.1, 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 695796.

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

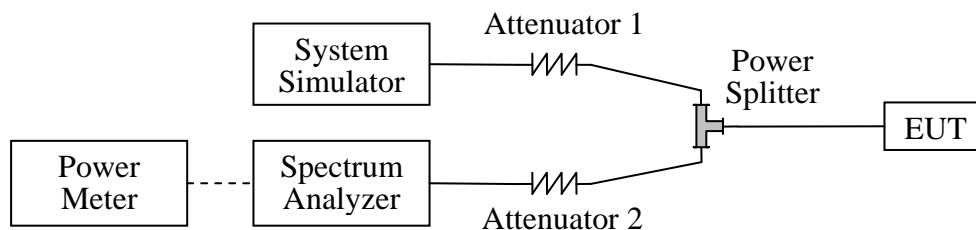
2.1 Conducted RF Output Power

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 in FCC section 2.1033(c)(8).

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. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

The Power Meter was just used for the Conducted RF Output Power test of WCDMA Model.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2012.05	2014.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2014.05
Power Meter	Agilent	E4418B	GB43318055	2012.05	2014.05
Power Sensor	Agilent	8482A	MY41091706	2012.05	2014.05
Power Splitter	Weinschel	1506A	NW521	2012.05	2014.05
Attenuator 1	Resnet	20dB	(n.a.)	2012.05	2014.05
Attenuator 2	Resnet	3dB	(n.a.)	2012.05	2014.05

2.1.3 Test Results

Here the lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT.

1. GSM Model Test Verdict:

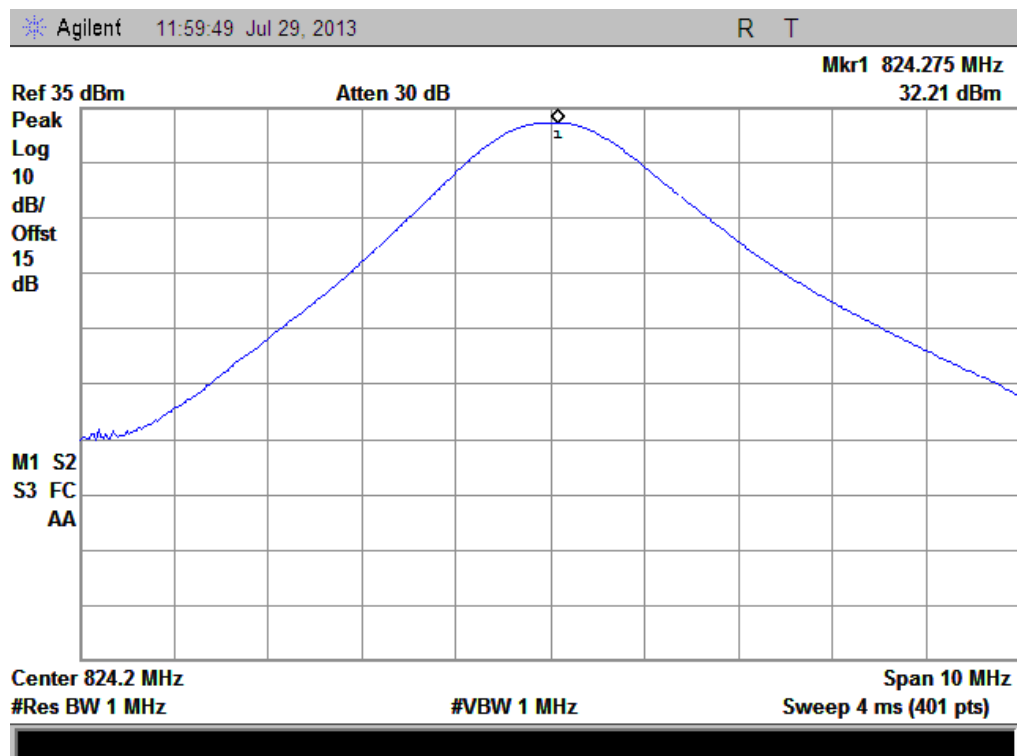
Band	Channel	Frequency (MHz)	Measured Output Power		Limit	Verdict
			dBm	Refer to Plot	dBm	
GSM 850MHz	128	824.2	32.21	Plot A1 to A3	35	PASS
	190	836.6	32.25			PASS
	251	848.8	32.24			PASS
GSM 1900MHz	512	1850.2	27.25	Plot B1 to B3	32	PASS
	661	1880.0	27.45			PASS
	810	1909.8	26.96			PASS
GPRS 850MHz	128	824.2	29.94	Plot C1 to C3 ^{Note 1}	35	PASS
	190	836.6	29.95			PASS
	251	848.8	29.87			PASS
GPRS 1900MHz	512	1850.2	24.82	Plot D1 to D3 ^{Note 1}	32	PASS
	661	1880.0	25.01			PASS
	810	1909.8	24.61			PASS
EGPRS 850MHz	128	824.2	32.37	Plot E1 to E3 ^{Note 1}	35	PASS
	190	836.6	32.39			PASS
	251	848.8	32.33			PASS
EGPRS 1900MHz	512	1850.2	27.41	Plot F1 to F3 ^{Note 1}	32	PASS
	661	1880.0	27.54			PASS
	810	1909.8	27.09			PASS

Note 1: For the GPRS and EGPRS model, all the slots were tested and just the worst data was record in this report.

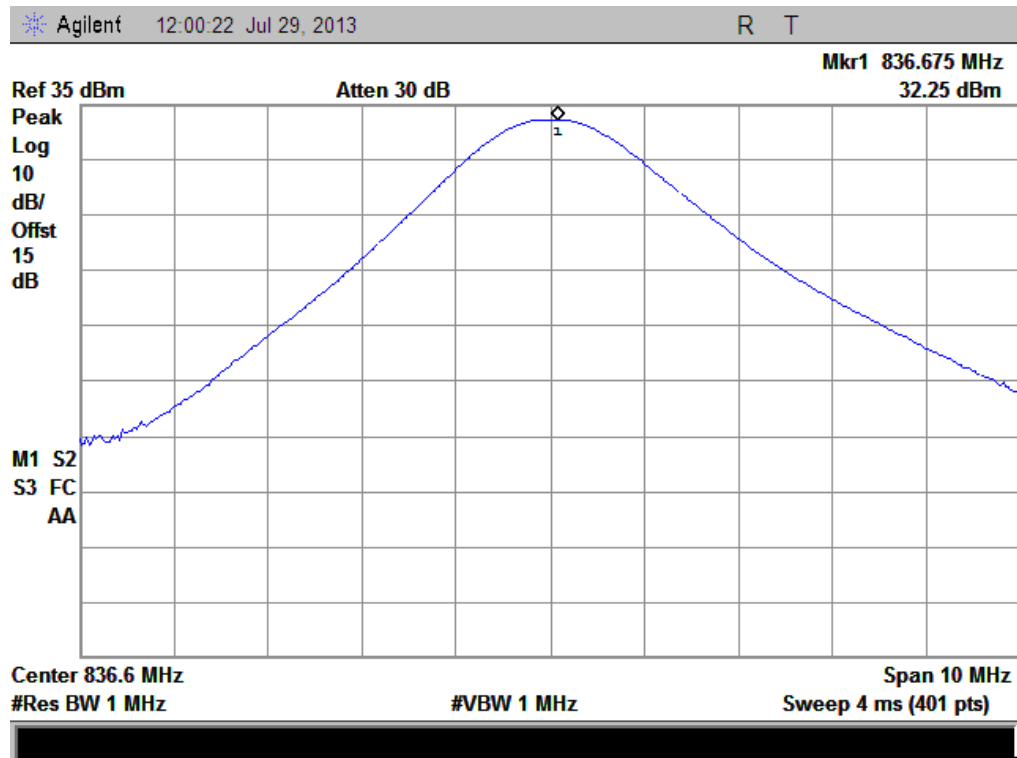
2. WCDMA Model Test Verdict:

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	23.55	23.79	23.57	24.66	24.86	24.45
HSDPA	1	23.45	23.72	23.55	24.53	24.74	24.37
	2	23.43	23.75	23.51	24.52	24.73	24.33
	3	22.92	23.53	23.03	24.07	24.29	23.85
	4	22.93	23.57	23.01	24.05	24.22	23.81
HSUPA	1	23.42	23.71	23.49	24.51	24.39	24.35
	2	21.43	21.75	21.51	22.51	22.37	22.45
	3	22.45	22.69	22.46	23.53	23.31	23.41
	4	21.41	21.69	21.48	22.49	22.35	22.47
	5	23.41	23.69	23.45	24.49	24.35	24.39
Note:	The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA was tested by power meter.						

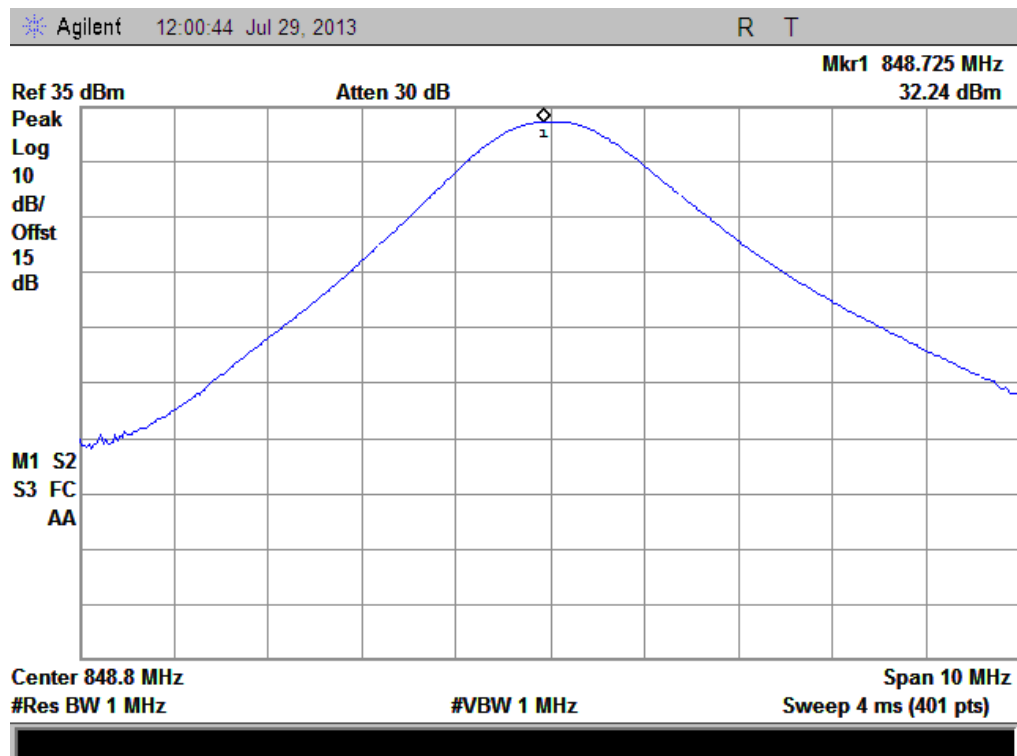
3. GSM Model Test Plots:



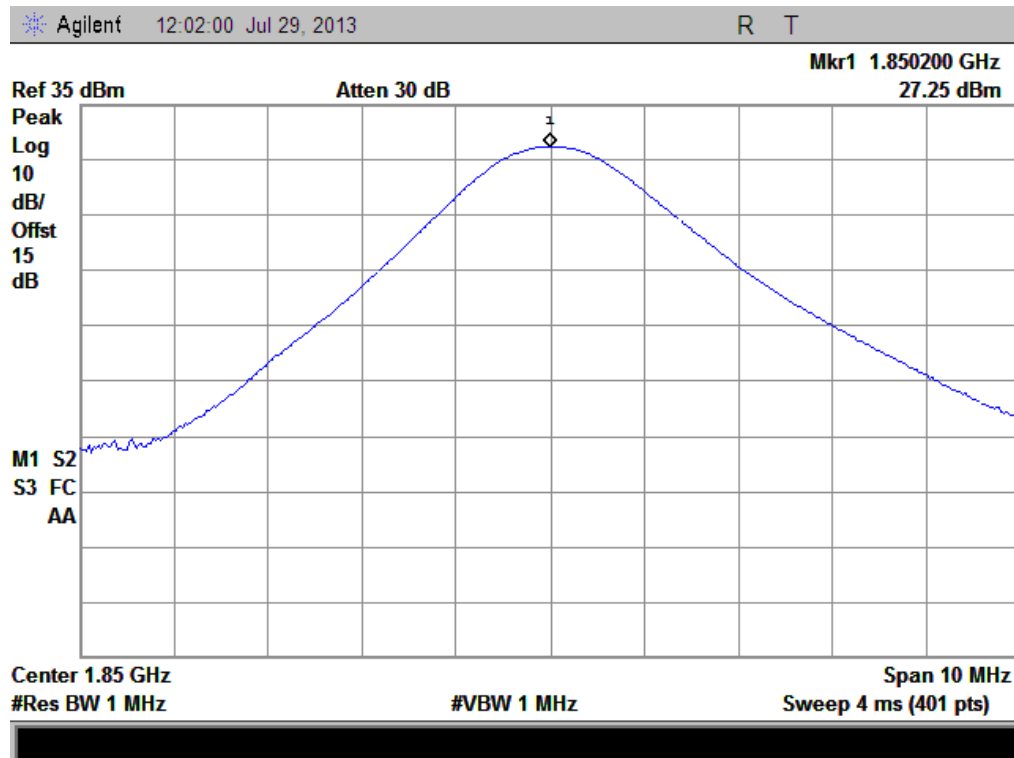
(Plot A1: GSM 850MHz Channel = 128)



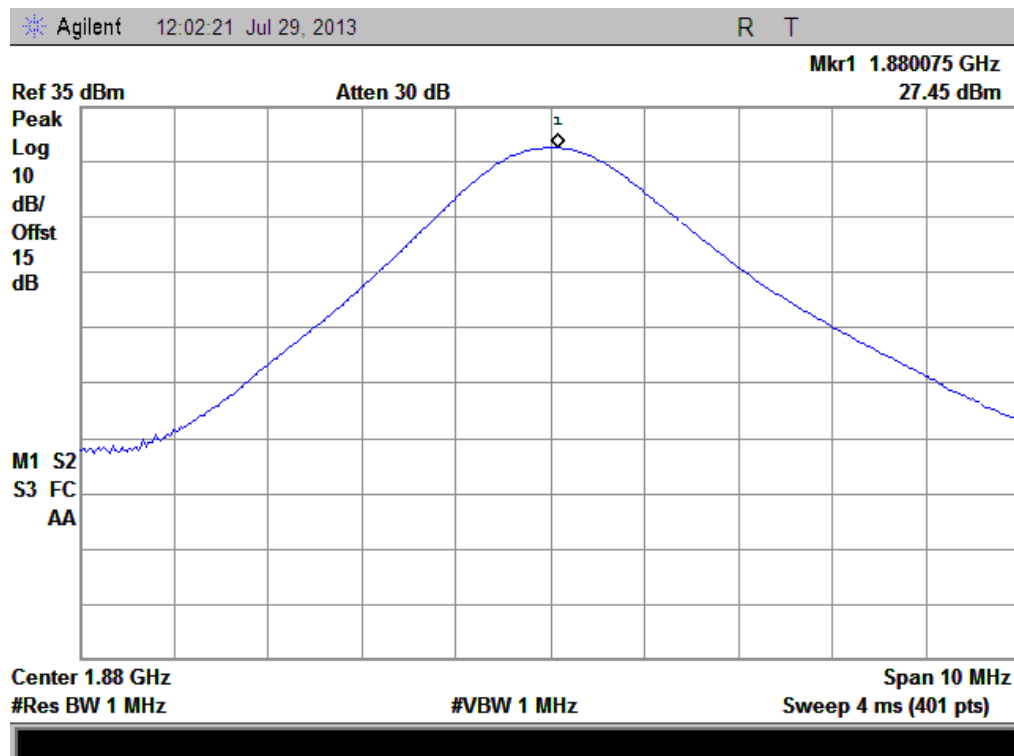
(Plot A2: GSM 850MHz Channel = 190)



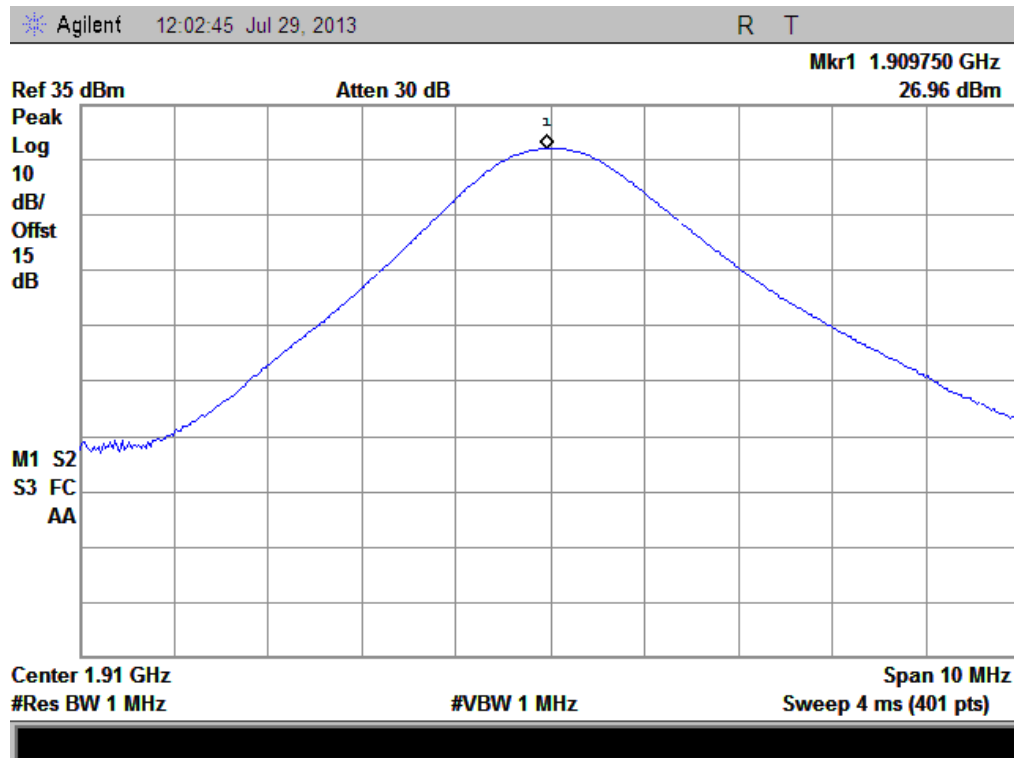
(Plot A3: GSM 850MHz Channel = 251)



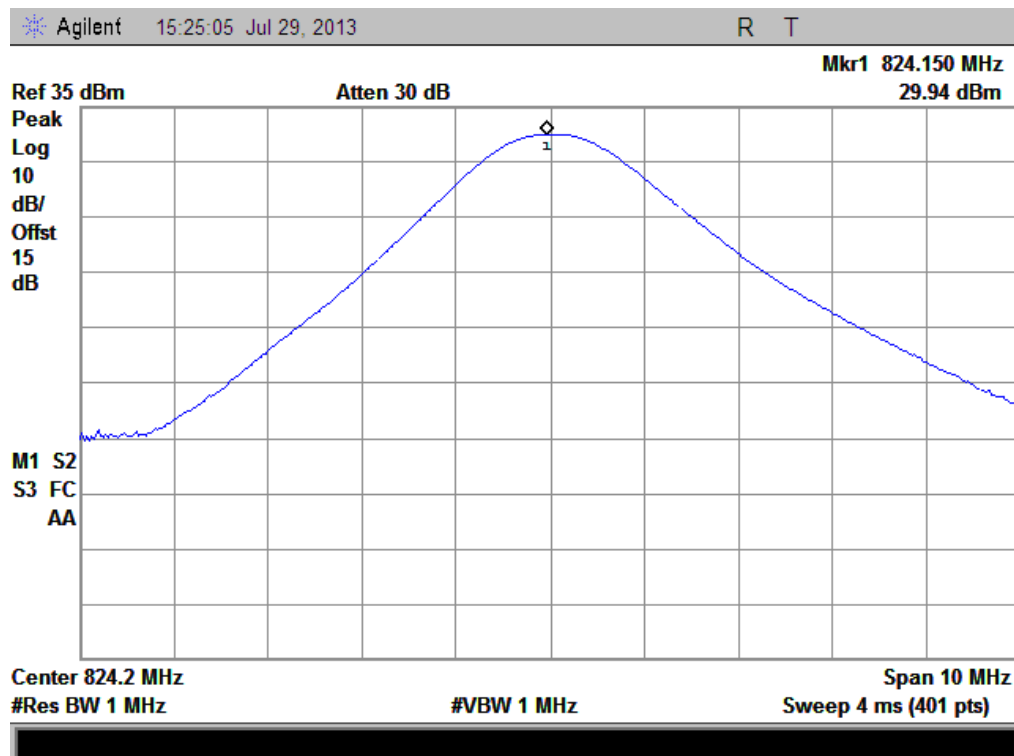
(Plot B1: GSM 1900MHz Channel = 512)



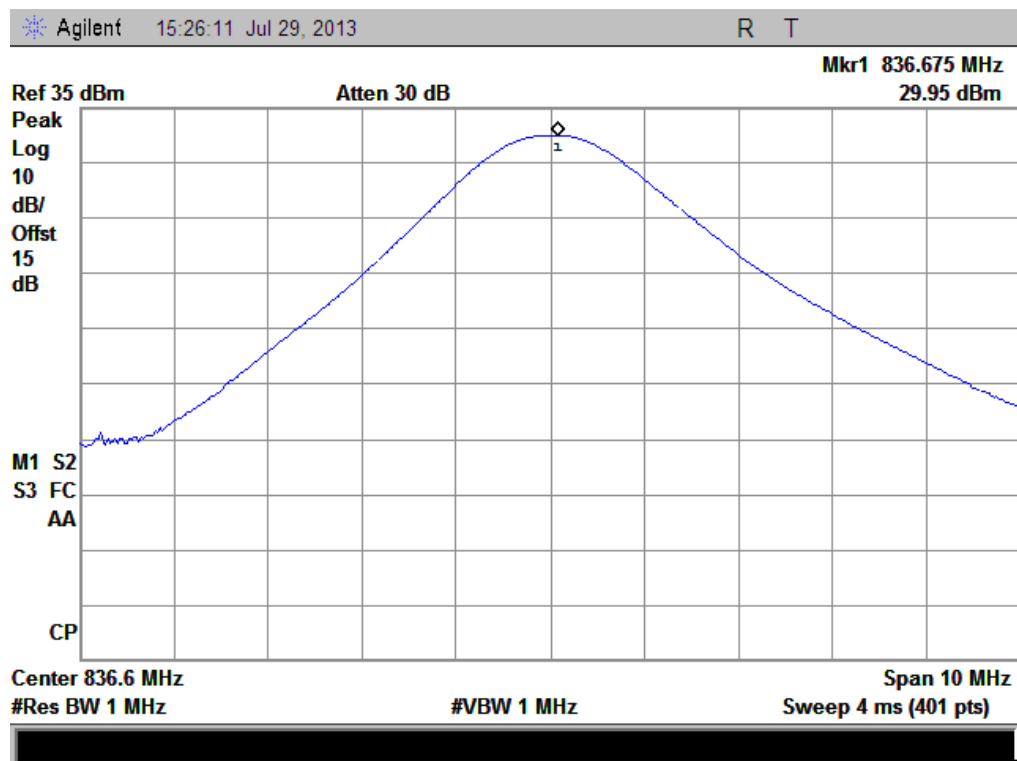
(Plot B2: GSM 1900MHz Channel = 661)



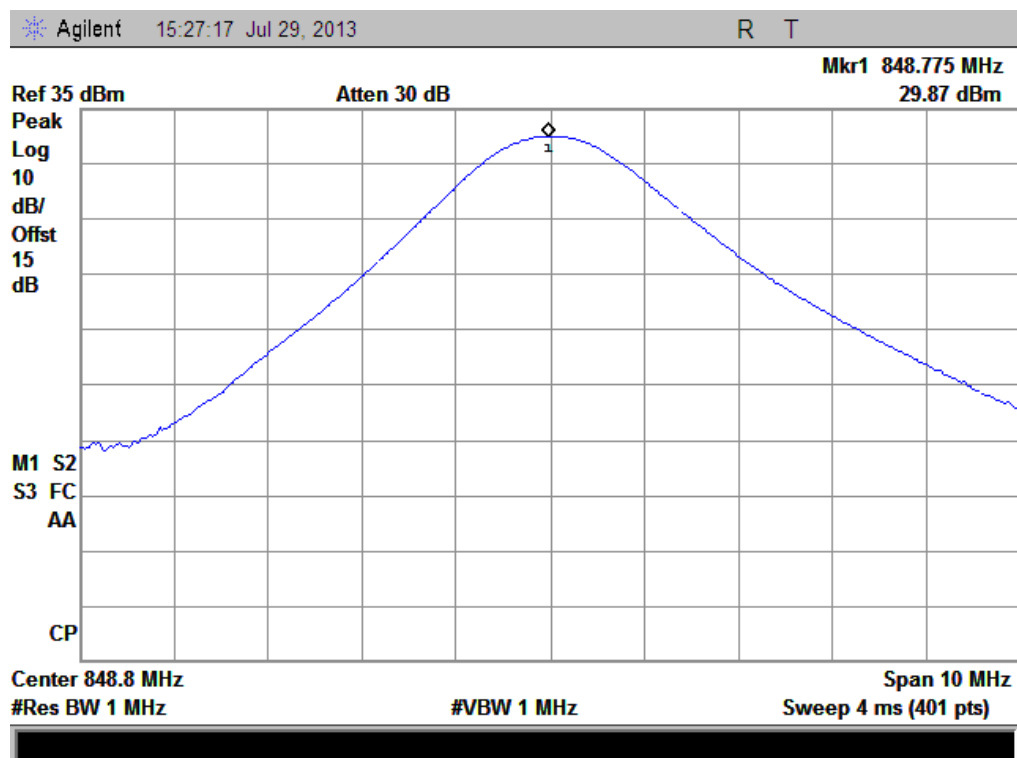
(Plot B3: GSM 1900Hz Channel = 810)



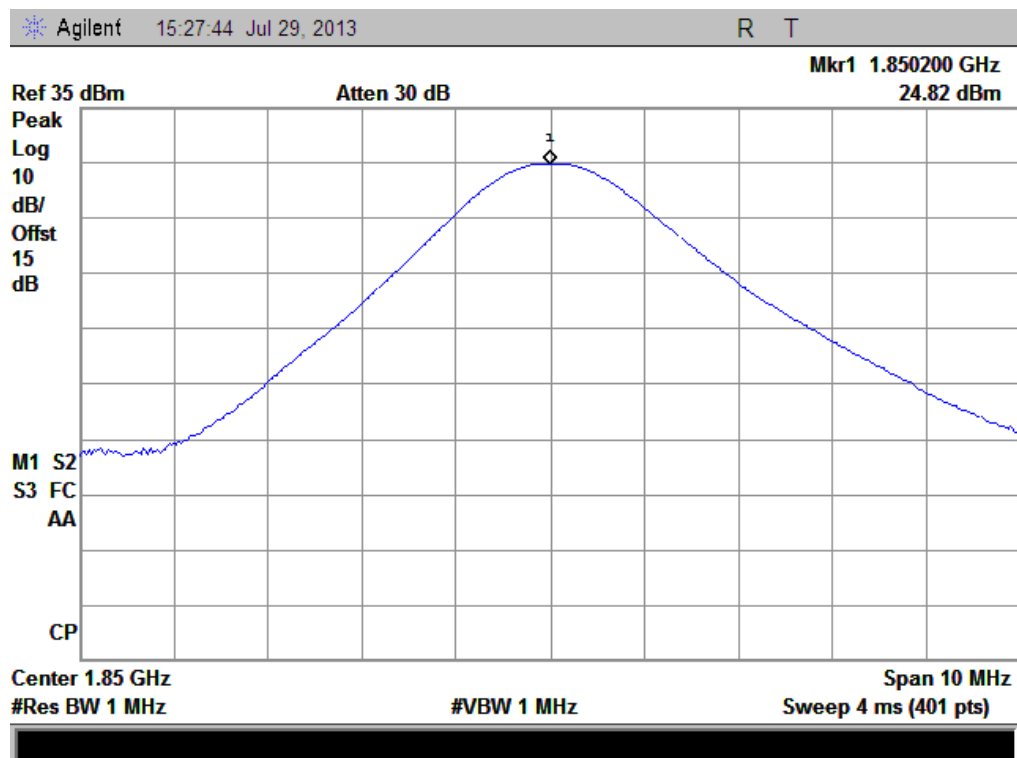
(Plot C 1: GPRS 850MHz Channel = 128)



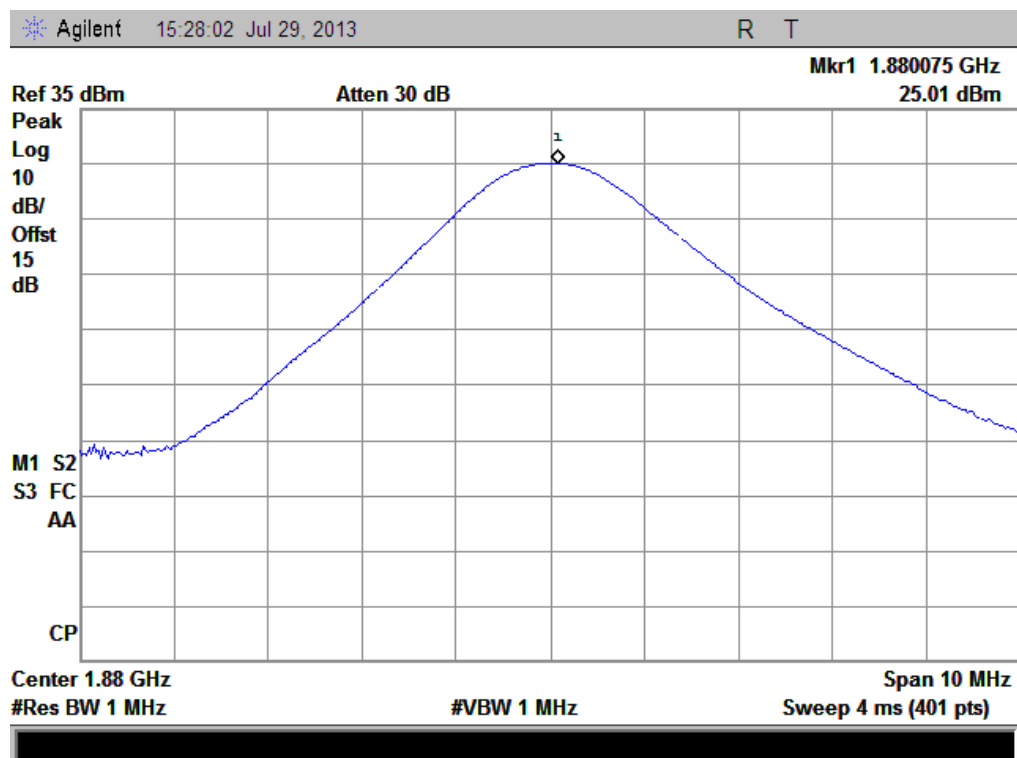
(Plot C 2: GPRS 850MHz Channel = 190)



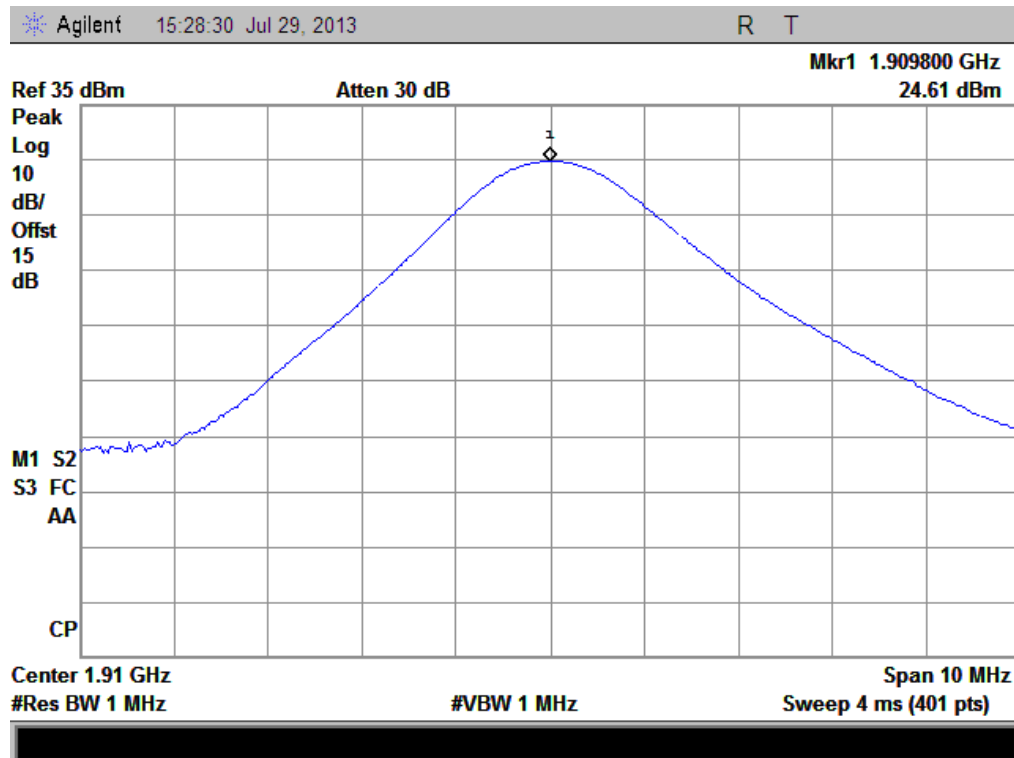
(Plot C 3: GPRS 850MHz Channel = 251)



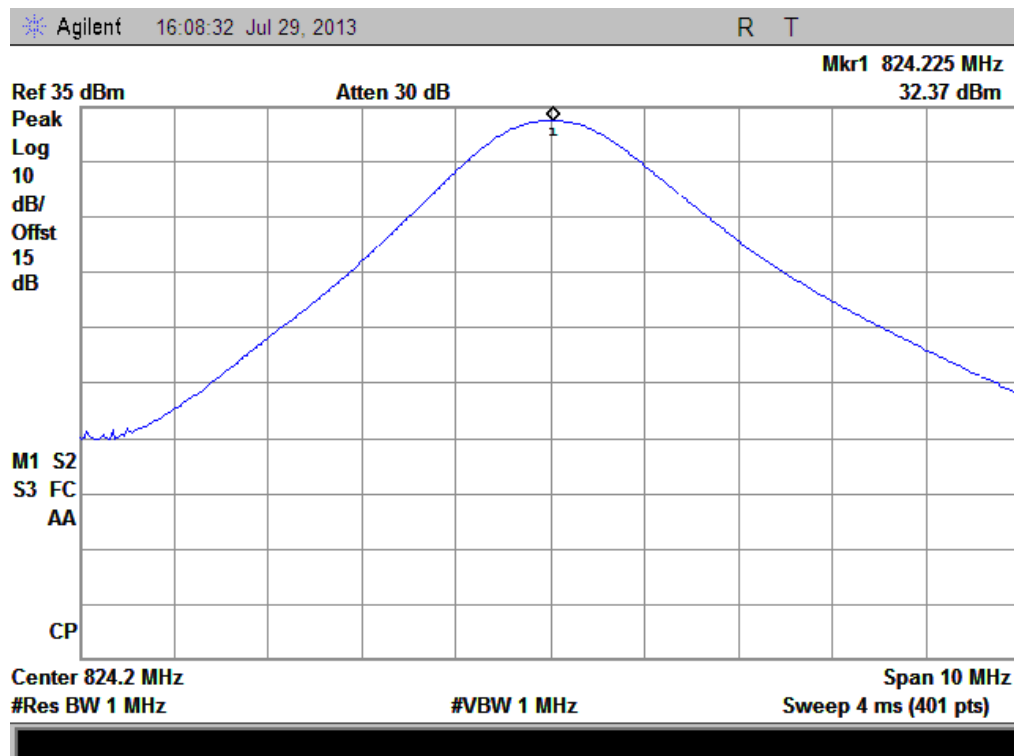
(Plot D 1: GPRS 1900MHz Channel = 512)



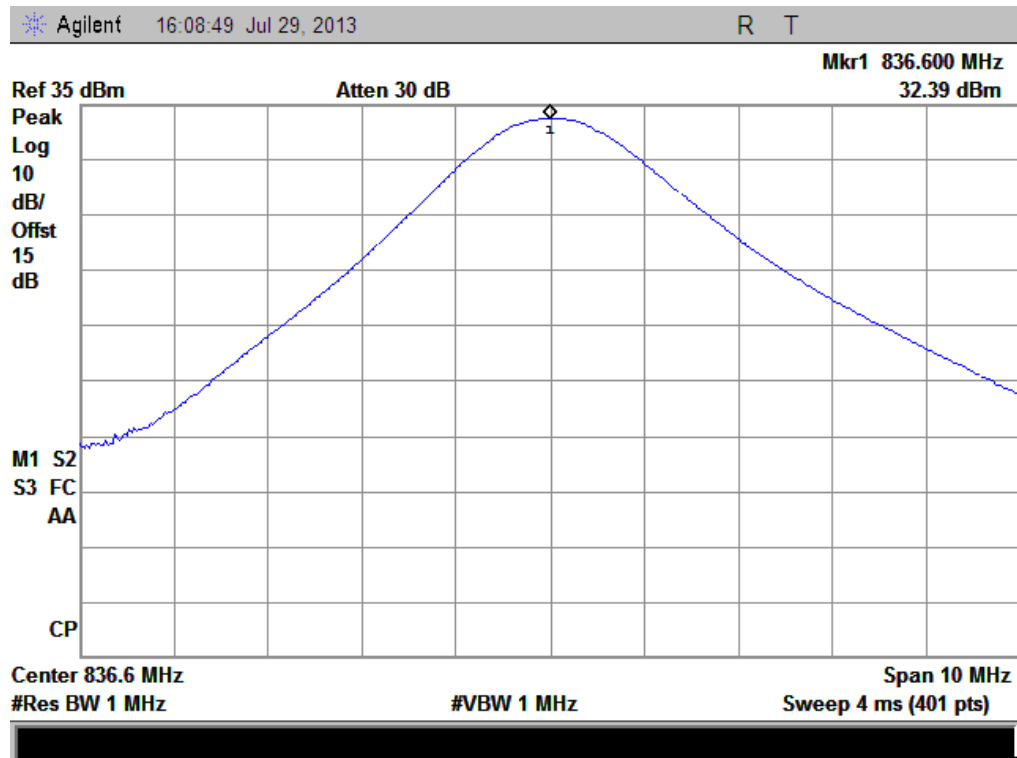
(Plot D 2: GPRS 1900MHz Channel = 661)



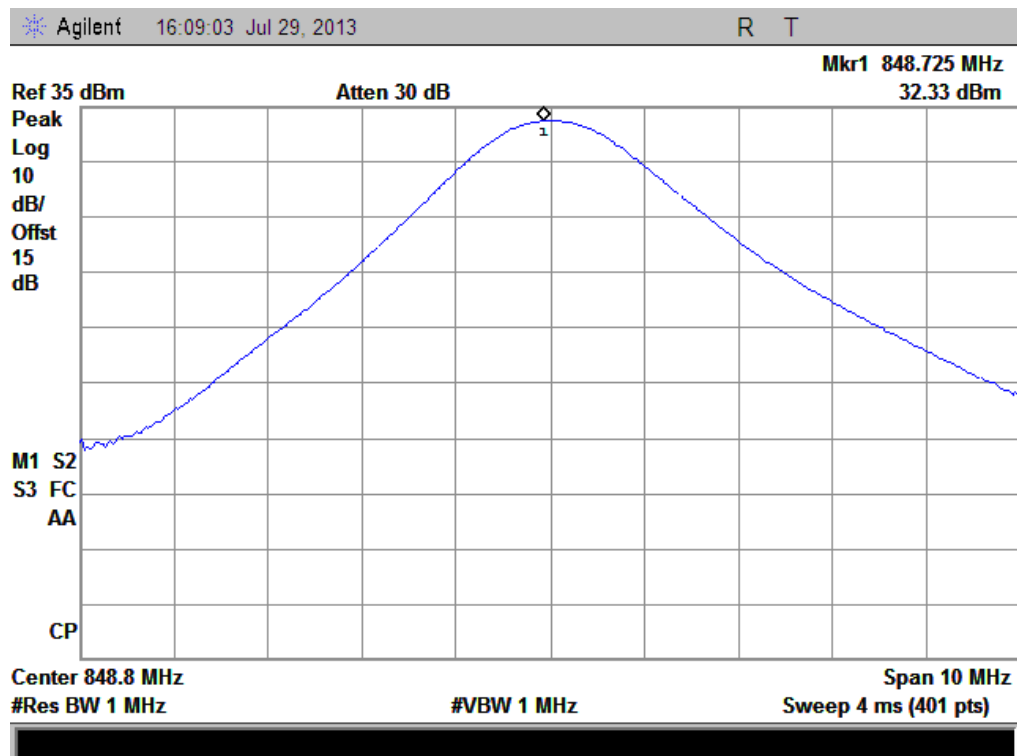
(Plot D 3: GPRS 1900MHz Channel = 810)



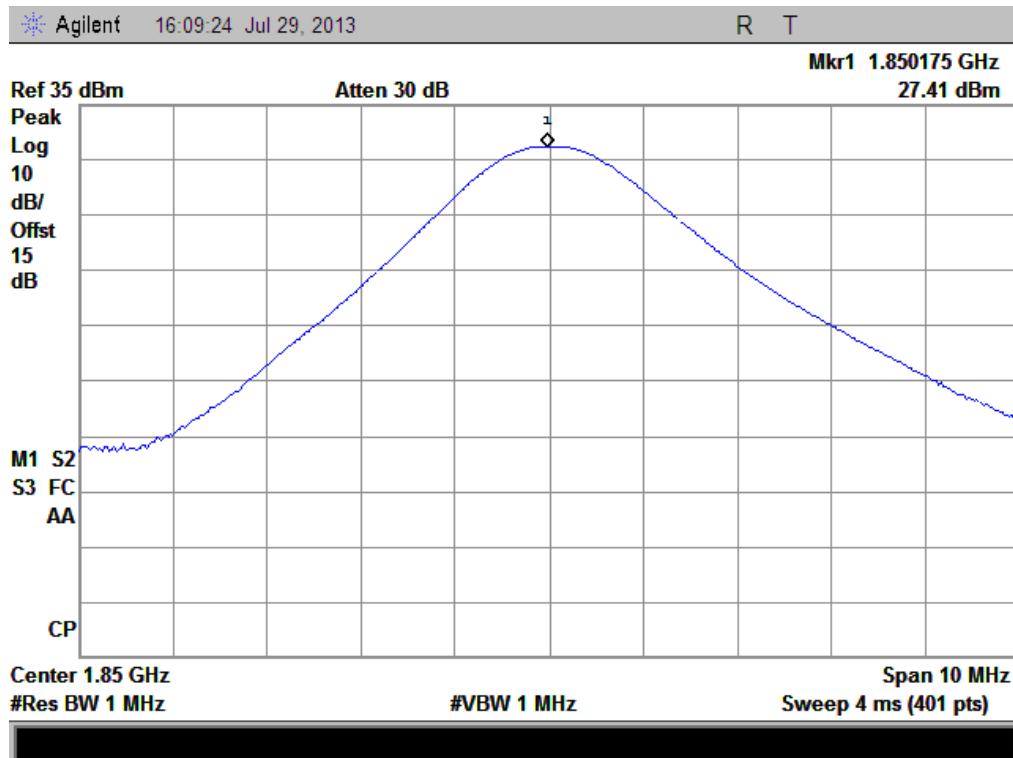
(Plot E1: EGPRS 850MHz Channel = 128)



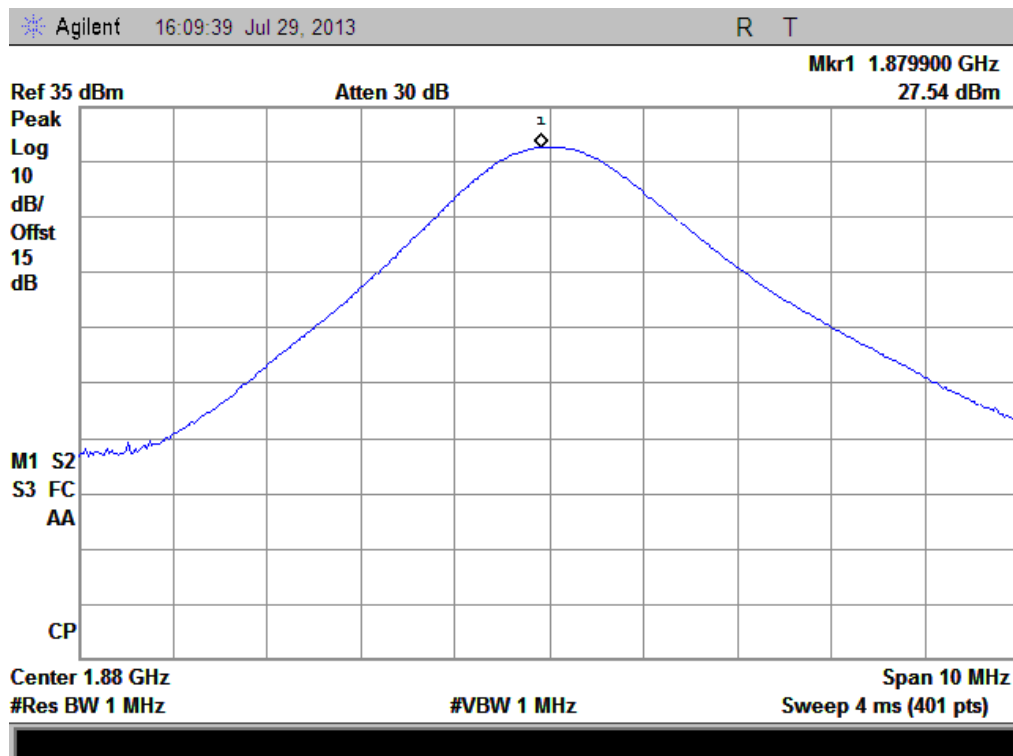
(Plot E2: EGPRS 850MHz Channel = 190)



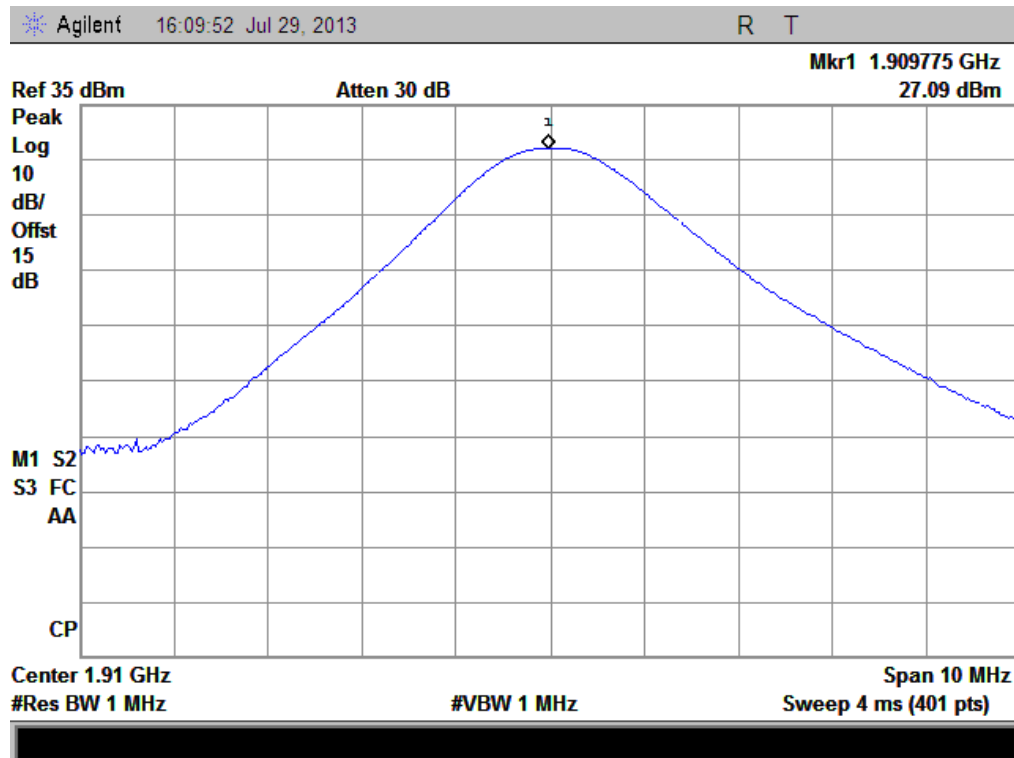
(Plot E3: EGPRS 850MHz Channel = 251)



(Plot F1: EGPRS 1900MHz Channel = 512)



(Plot F2: EGPRS 1900MHz Channel = 661)



(Plot F3: EGPRS 1900Hz Channel = 810)

2.2 Peak to Average Ratio

2.2.1 Definition

According to FCC section 2.1049 and FCC 24.232(d) the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

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 selected to perform testing to verify the peak-to-average ratio.

Test procedures:

A. For GSM/EGPRS operating mode:

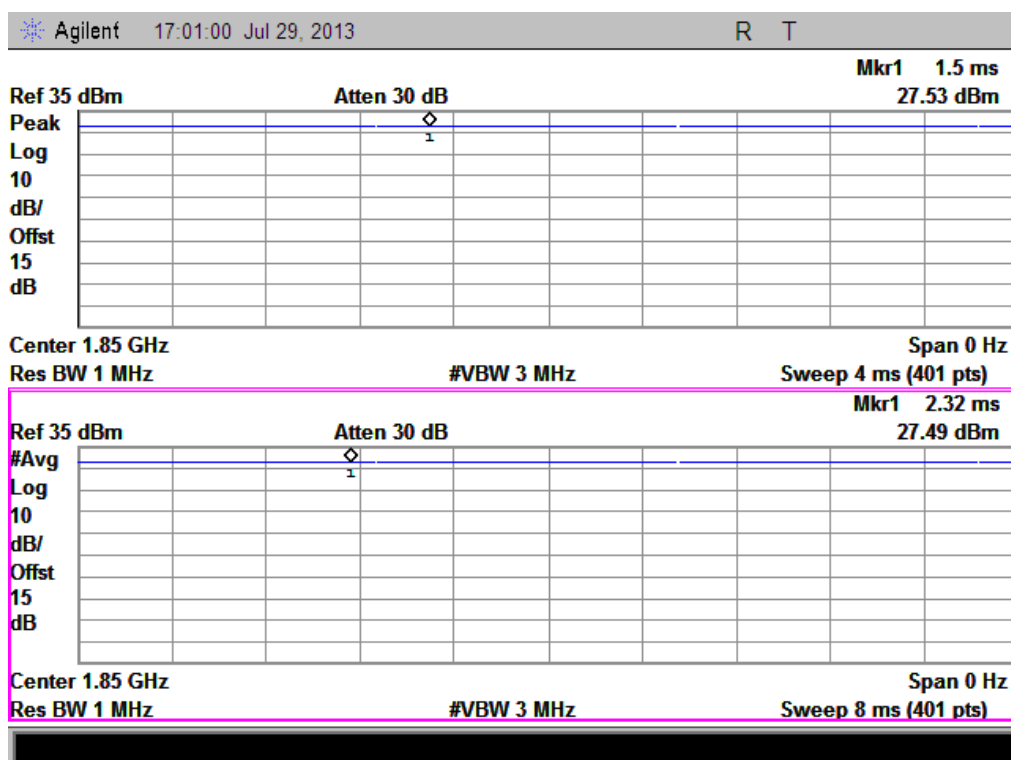
- Set RBW=1MHz, VBW=1MHz, peak detector in spectrum analyzer.
- Set EUT in maximum output power, and triggered the bust signal.
- Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average ratio.

B. For UMTS operating mode:

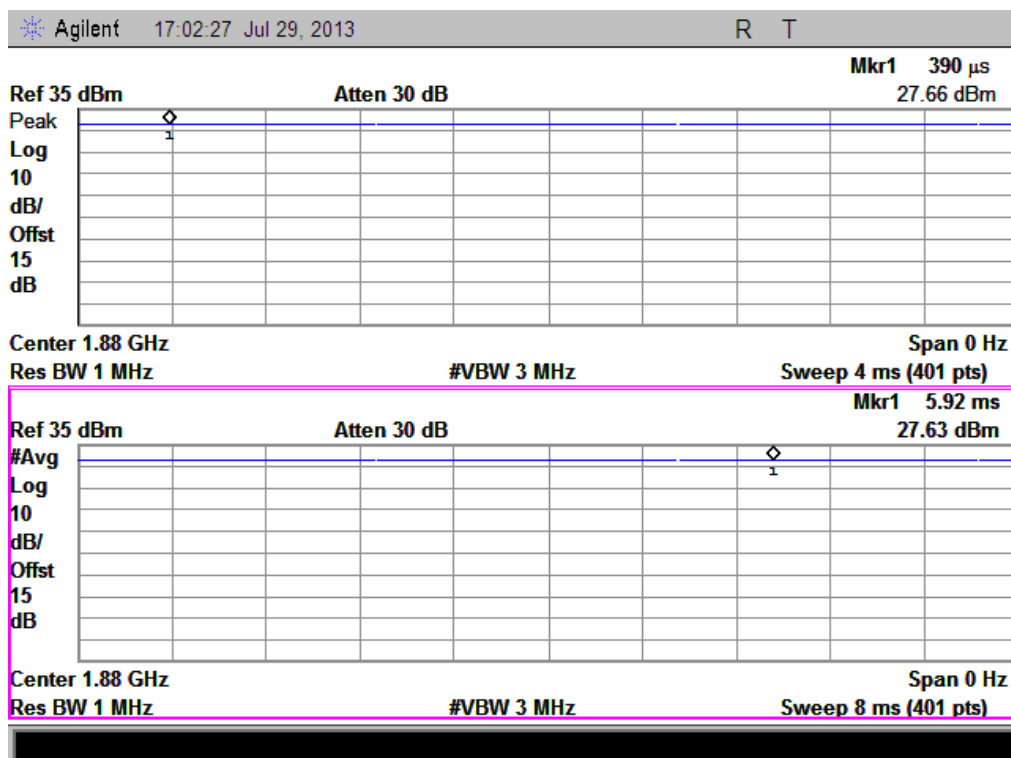
- Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
- The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

1. Test Verdict:

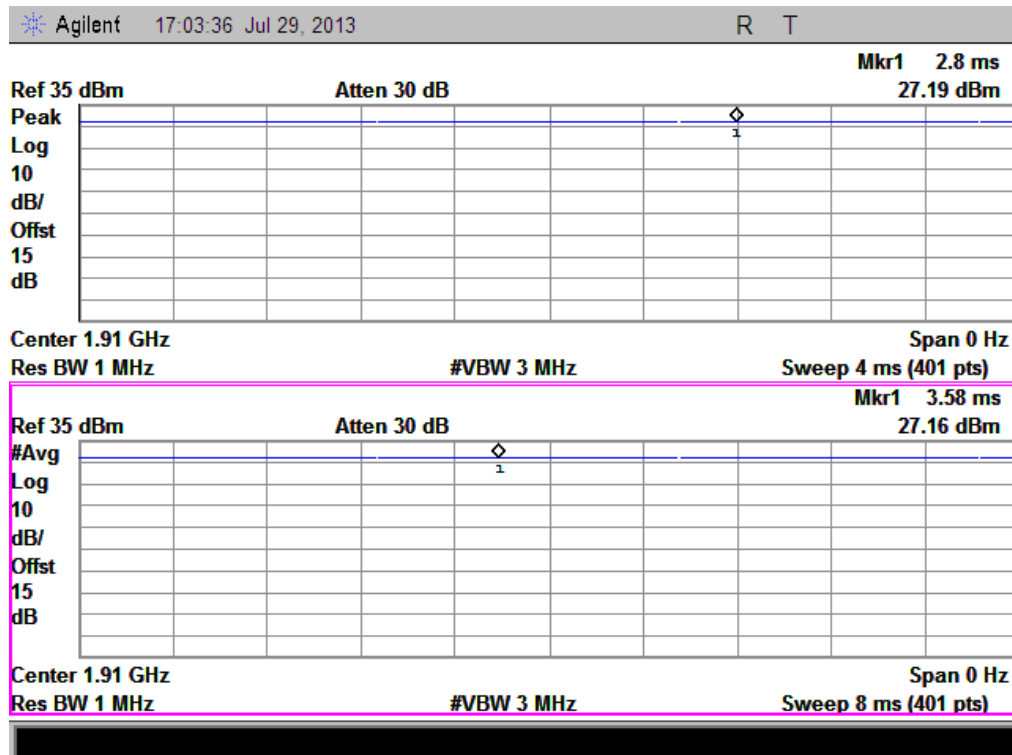
Band	Channel	Frequency (MHz)	Peak to Average ratio		Limit	Verdict
			dBm	Refer to Plot	dBm	
GSM 1900MHz	512	1850.2	0.04	Plot A1 to A3	13	PASS
	661	1880.0	0.03			PASS
	810	1909.8	0.03			PASS
EGPRS 1900MHz	512	1850.2	0.03	Plot B1 to B3	13	PASS
	661	1880.0	0.11			PASS
	810	1909.8	0.03			PASS
WCDMA 1900MHz	9262	1852.4	3.17	Plot C1 to C3	13	PASS
	9400	1880	2.57			PASS
	9538	1907.6	2.87			PASS



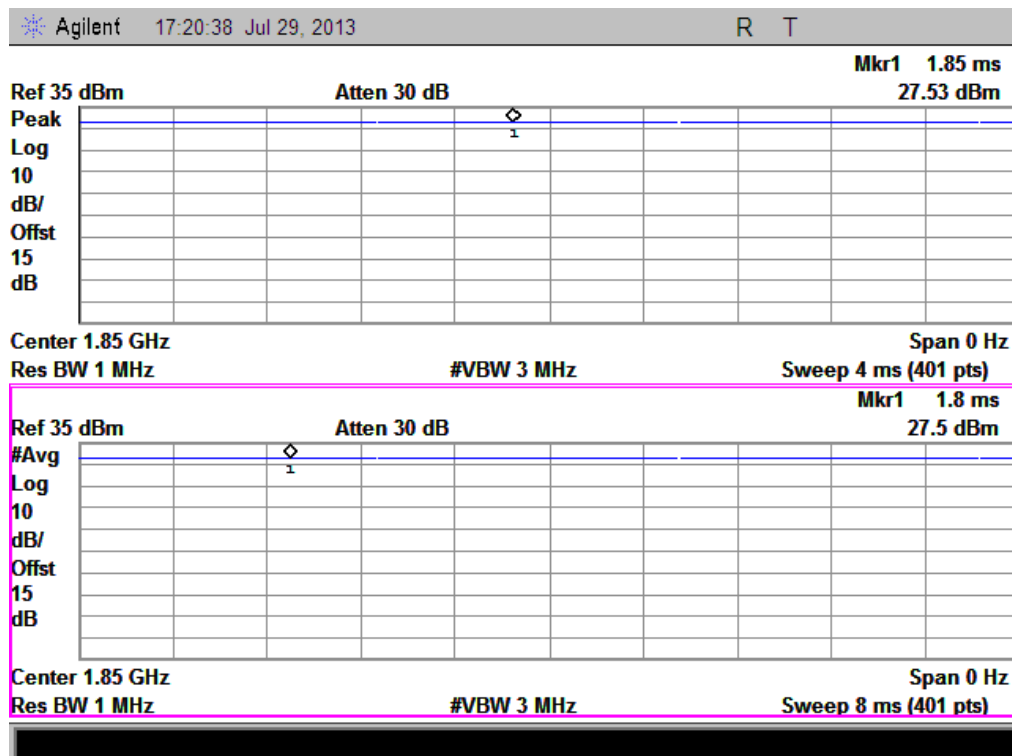
(Plot A1: GSM 1900 MHz Channel = 512)



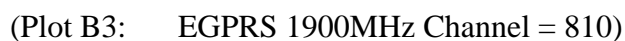
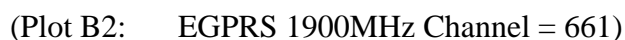
(Plot A2: GSM 1900 MHz Channel = 661)

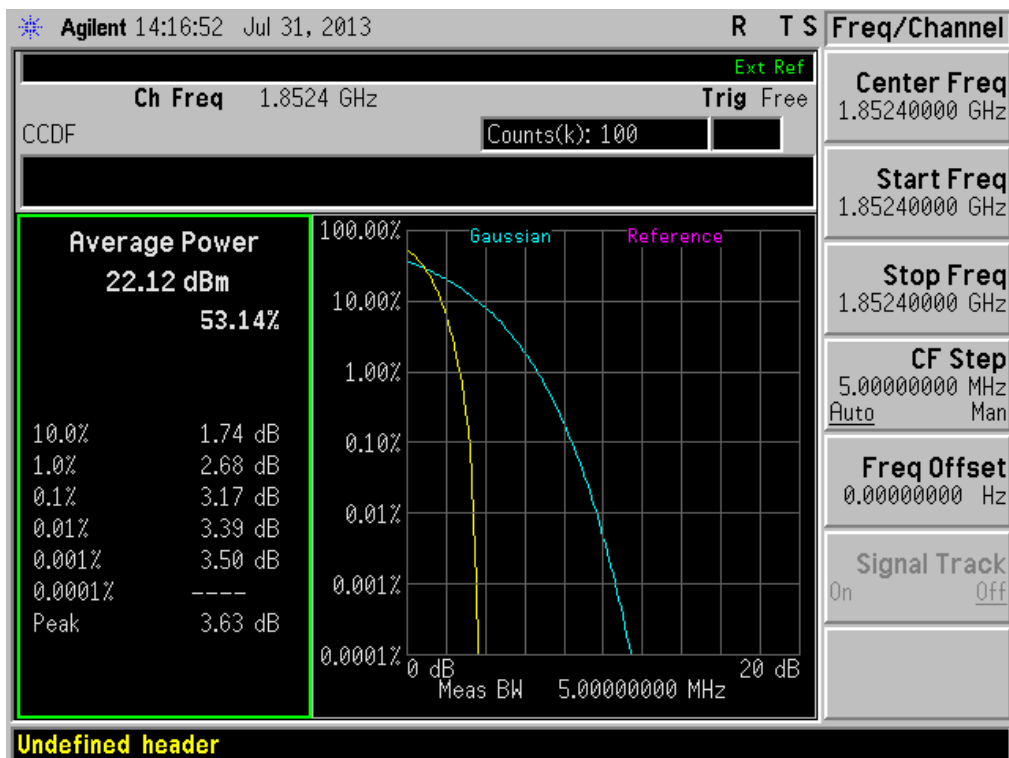


(Plot A3: GSM 1900MHz Channel = 810)

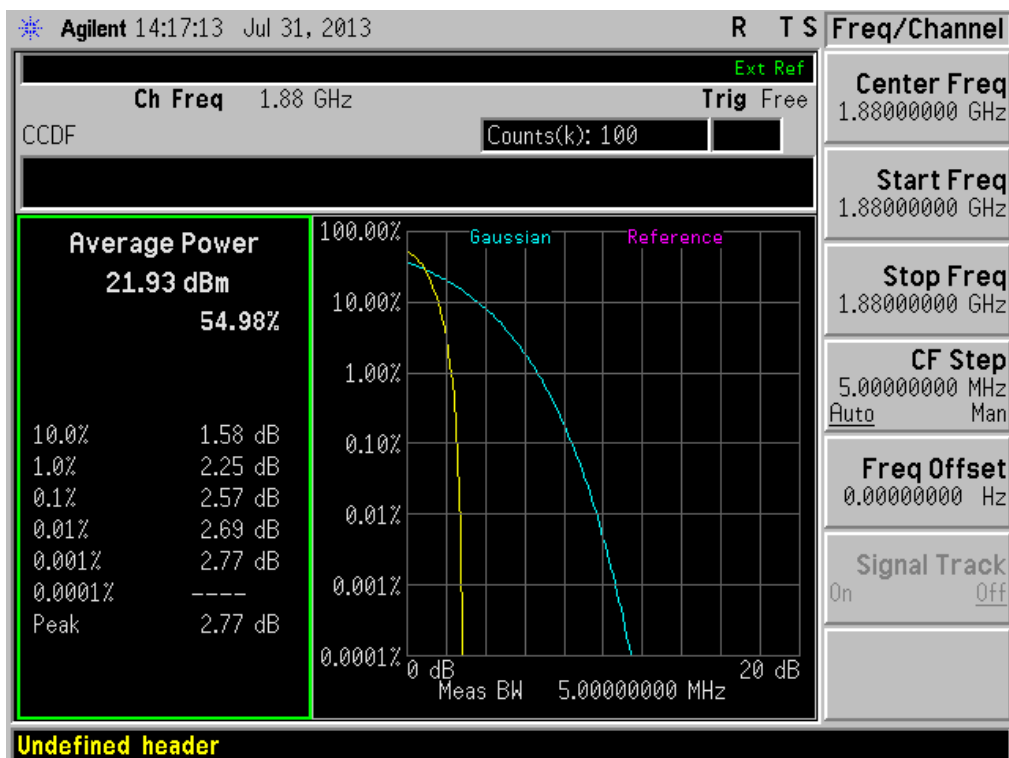


(Plot B1: EGPRS 1900MHz Channel = 512)

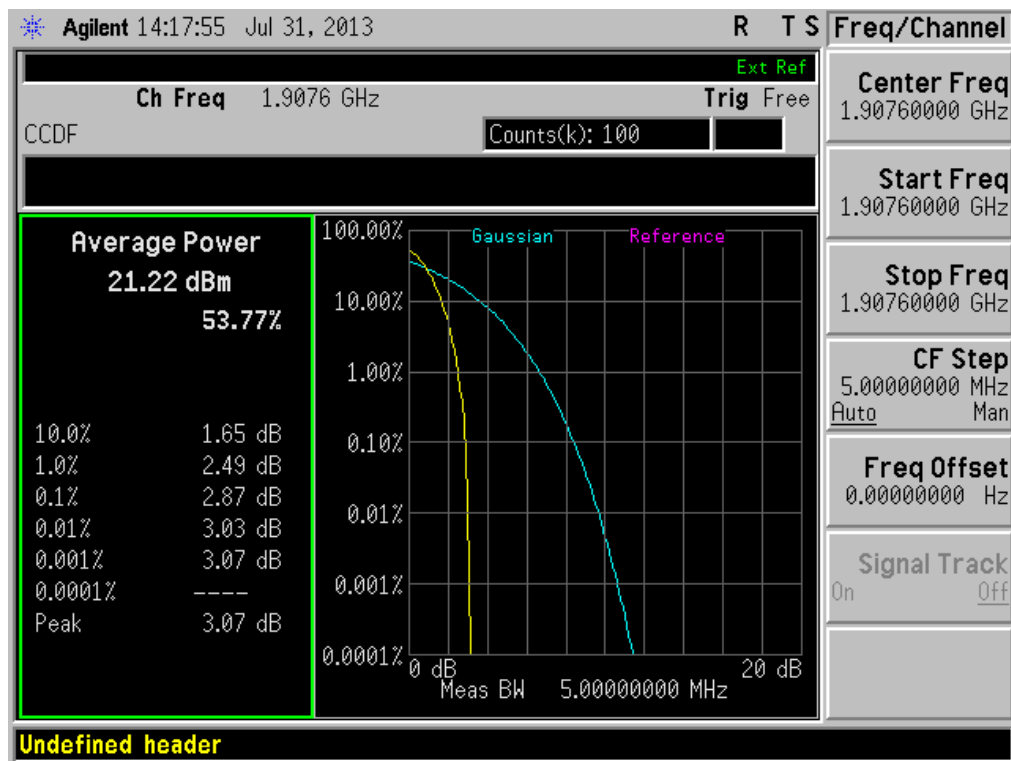




(Plot C1: WCDMA 1900MHz Channel = 9262)



(Plot C2: WCDMA 1900MHz Channel = 9400)



(Plot C3: WCDMA 1900MHz Channel = 9538)

2.3 99% Occupied Bandwidth

2.3.1 Definition

According to FCC section 2.1049 and FCC § 22.917 & 24.238, 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,

2.3.2 Test Description

See section 2.1.2 of this report.

2.3.3 Test Verdict

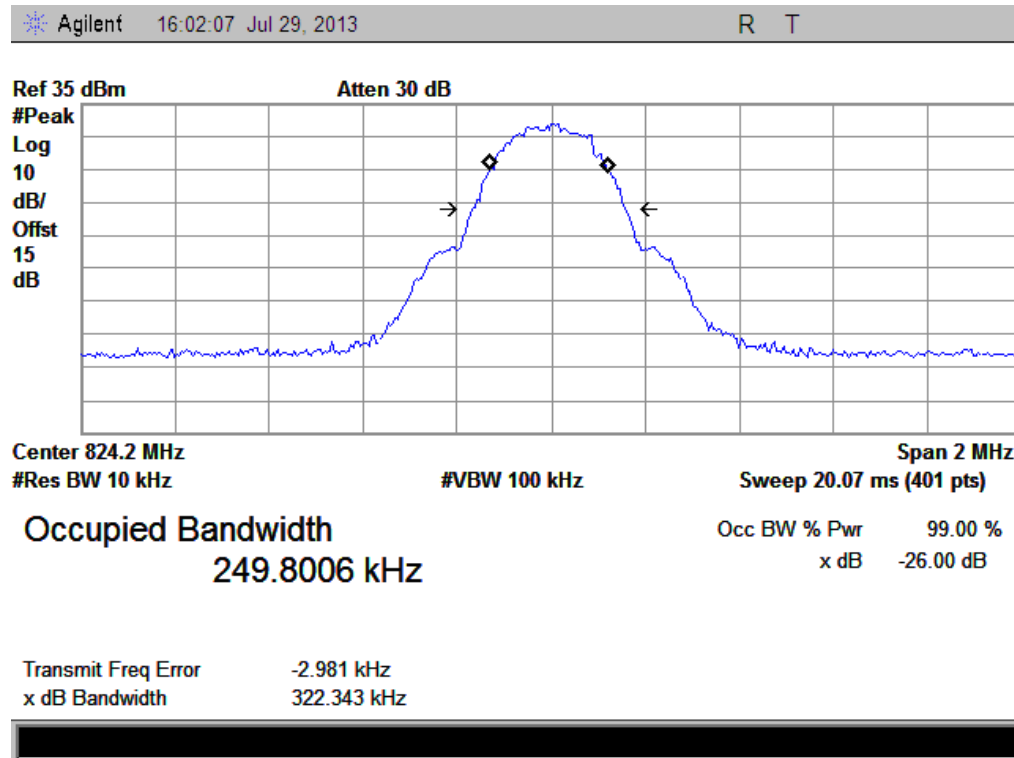
Here the lowest, middle and highest channels are selected to perform testing to verify the 99% occupied bandwidth.

2. Test Verdict:

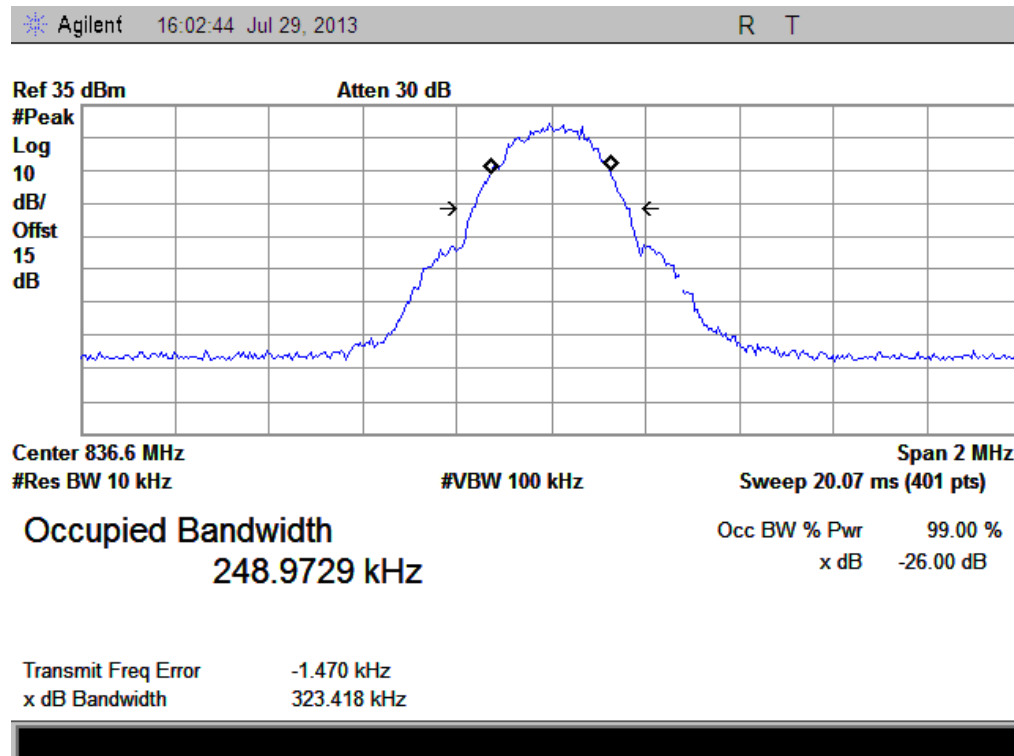
Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
EDGE 850MHz	128	824.2	322.343 KHz	249.8006 KHz	Plot A
	190	836.6	323.418 KHz	248.9729 KHz	Plot B
	251	848.8	328.599 KHz	250.3474 KHz	Plot C
EDGE 1900MHz	512	1850.2	323.051 KHz	248.1182 KHz	Plot D
	661	1880.0	323.182 KHz	244.3254 KHz	Plot E
	810	1909.8	319.207 KHz	247.3325 KHz	Plot F
WCDMA 850MHz	4132	826.4	4.727MHz	4.1632MHz	Plot G
	4175	835	4.733MHz	4.1778MHz	Plot H
	4233	846.6	4.726MHz	4.1642MHz	Plot I
WCDMA 1900MHz	9262	1852.4	4.698MHz	4.1672MHz	Plot J
	9400	1880	4.767MHz	4.1821MHz	Plot K
	9538	1907.6	4.682MHz	4.1550MHz	Plot L
HSDPA 850MHz	4132	826.4	4.731MHz	4.1554MHz	Plot M
	4175	835	4.737MHz	4.1731MHz	Plot N
	4233	846.6	4.718MHz	4.1647MHz	Plot O
HSDPA 1900MHz	9262	1852.4	4.729MHz	4.1742MHz	Plot P
	9400	1880	4.716MHz	4.1718MHz	Plot Q
	9538	1907.6	4.712MHz	4.1567MHz	Plot R
HSUPA 850MHz	4132	826.4	4.712MHz	4.1583MHz	Plot S
	4175	835	4.721MHz	4.1691MHz	Plot T
	4233	846.6	4.716MHz	4.1568MHz	Plot U
HSUPA 1900MHz	9262	1852.4	4.703MHz	4.1759MHz	Plot V

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
	9400	1880	4.751MHz	4.1777MHz	Plot W
	9538	1907.6	4.692MHz	4.1463MHz	Plot X
GSM 850MHz	128	824.2	321.657 KHz	247.8873 KHz	Plot Y
	190	836.6	323.249 KHz	246.6673 KHz	Plot Z
	251	848.8	326.007 KHz	248.1685 KHz	Plot A1
GSM 1900MHz	512	1850.2	321.195 KHz	248.0536 KHz	Plot B1
	661	1880.0	320.256 KHz	249.7265 KHz	Plot C1
	810	1909.8	319.478 KHz	246.8671 KHz	Plot D1
GPRS 850MHz	128	824.2	320.953 KHz	249.5613 KHz	Plot E1
	190	836.6	323.023 KHz	248.7453 KHz	Plot F1
	251	848.8	319.176 KHz	248.0591KHz	Plot G1
GPRS 1900MHz	512	1850.2	328.440 KHz	250.4362 KHz	Plot H1
	661	1880.0	327.771 KHz	248.0331 KHz	Plot I2
	810	1909.8	323.790 KHz	248.1924 KHz	Plot J2

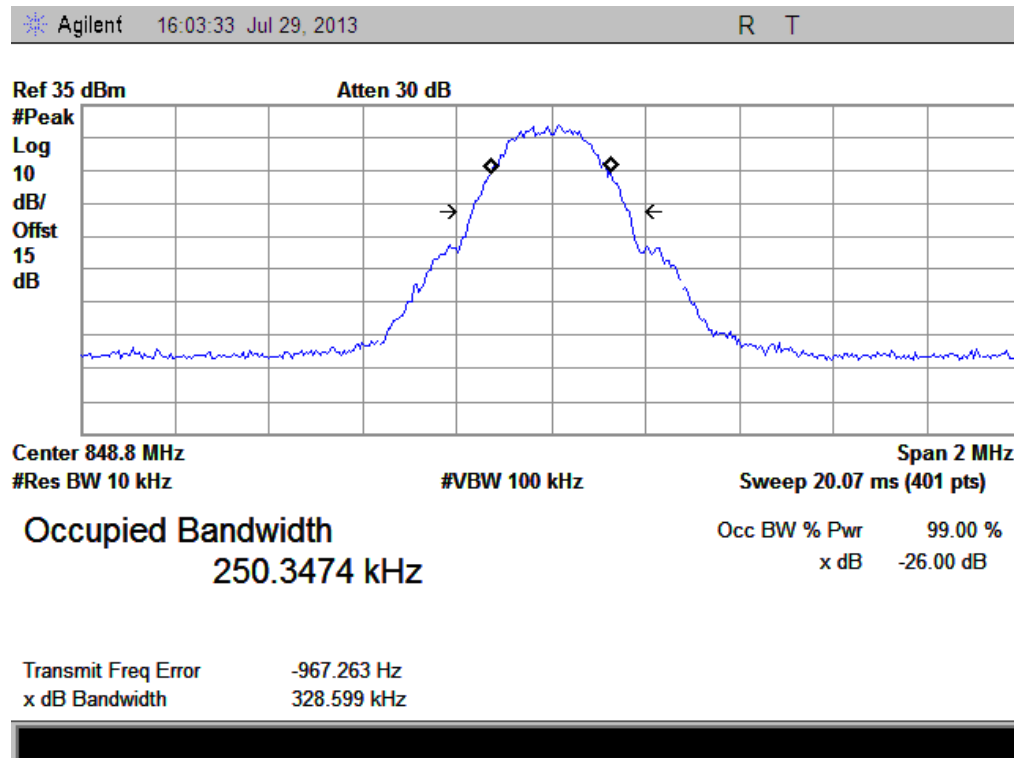
3. Test Plots:



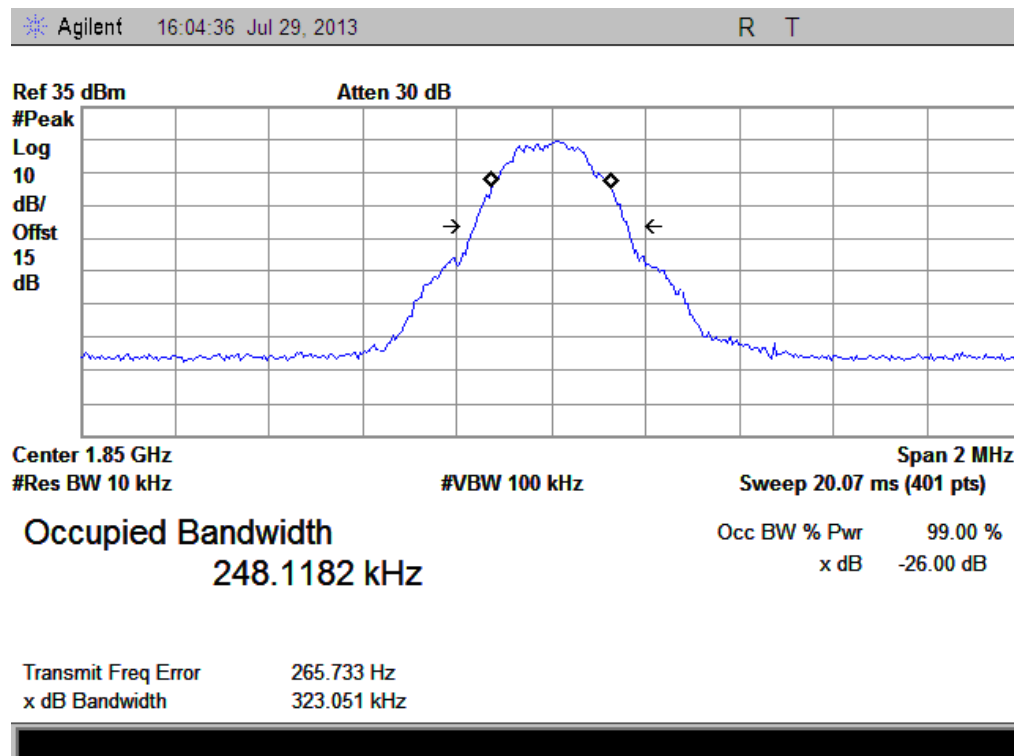
(Plot A: EGPRS 850MHz Channel = 128)



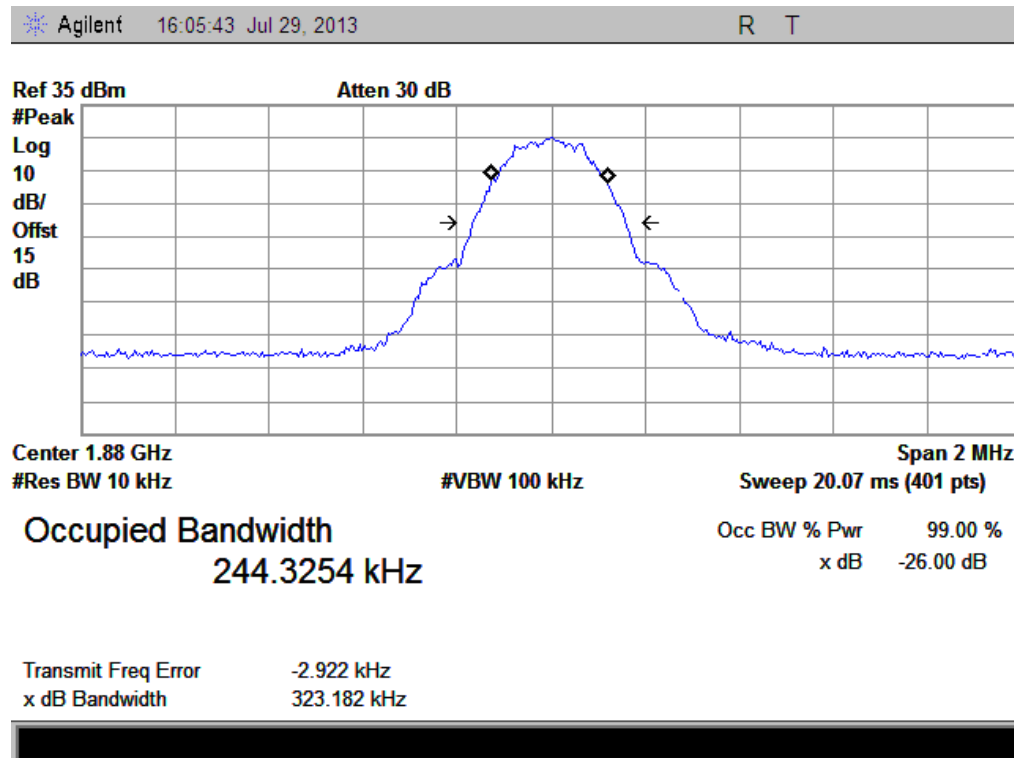
(Plot B: EGPRS 850MHz Channel = 190)



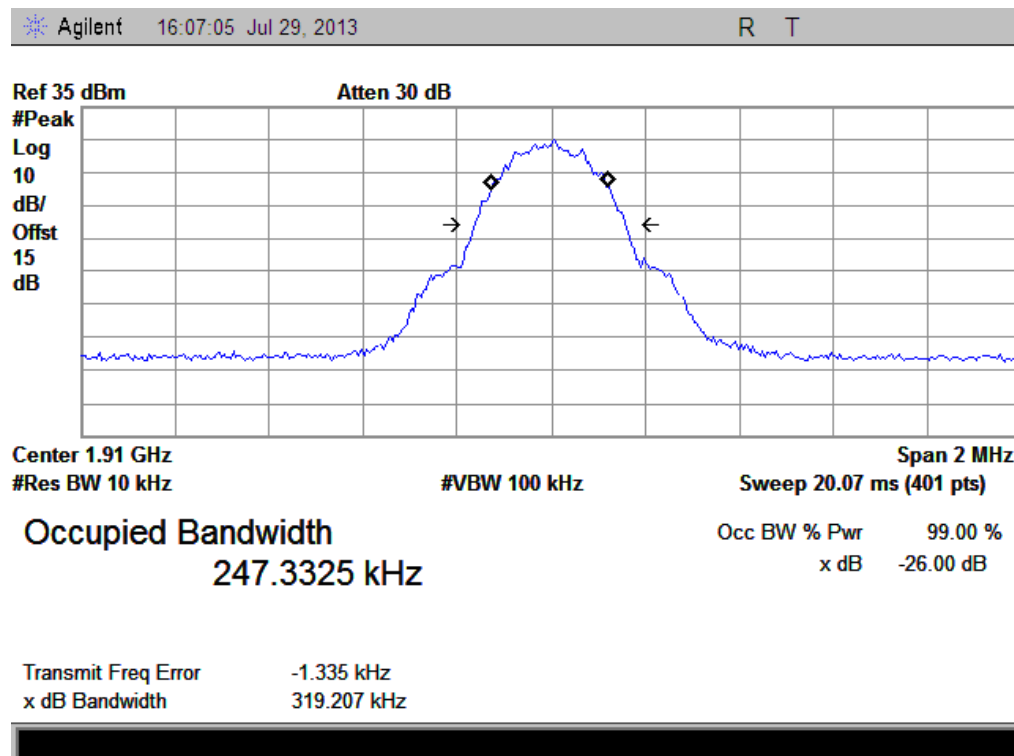
(Plot C: EGPRS 850MHz Channel = 251)



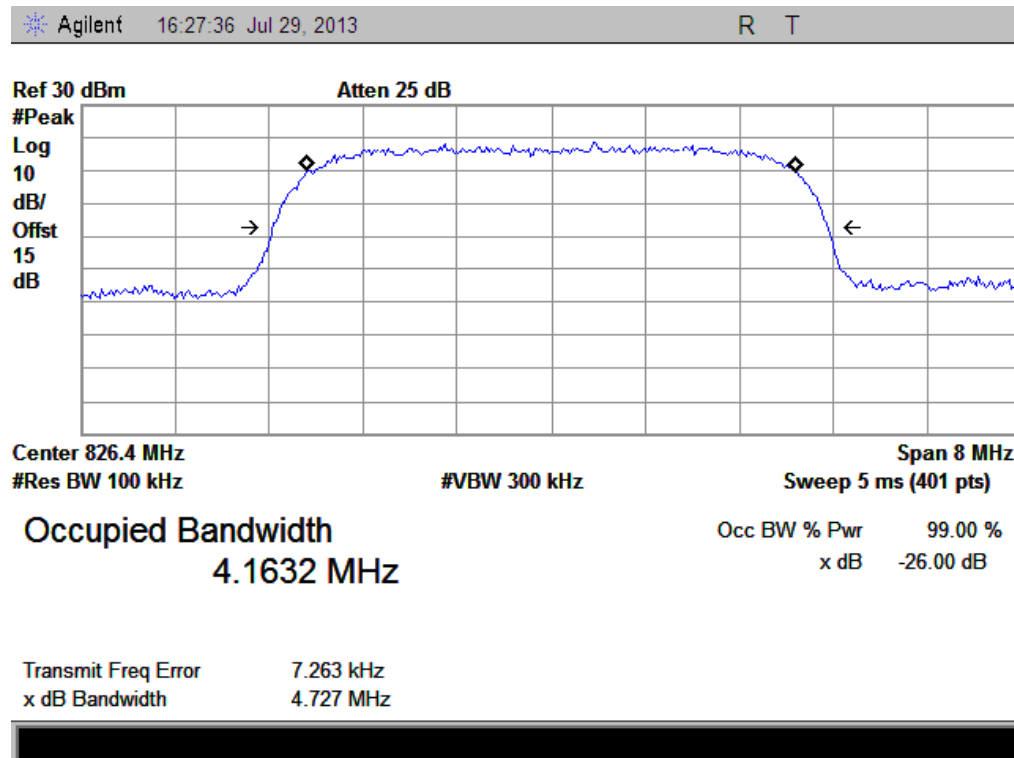
(Plot D: EGPRS1900MHz Channel = 512)



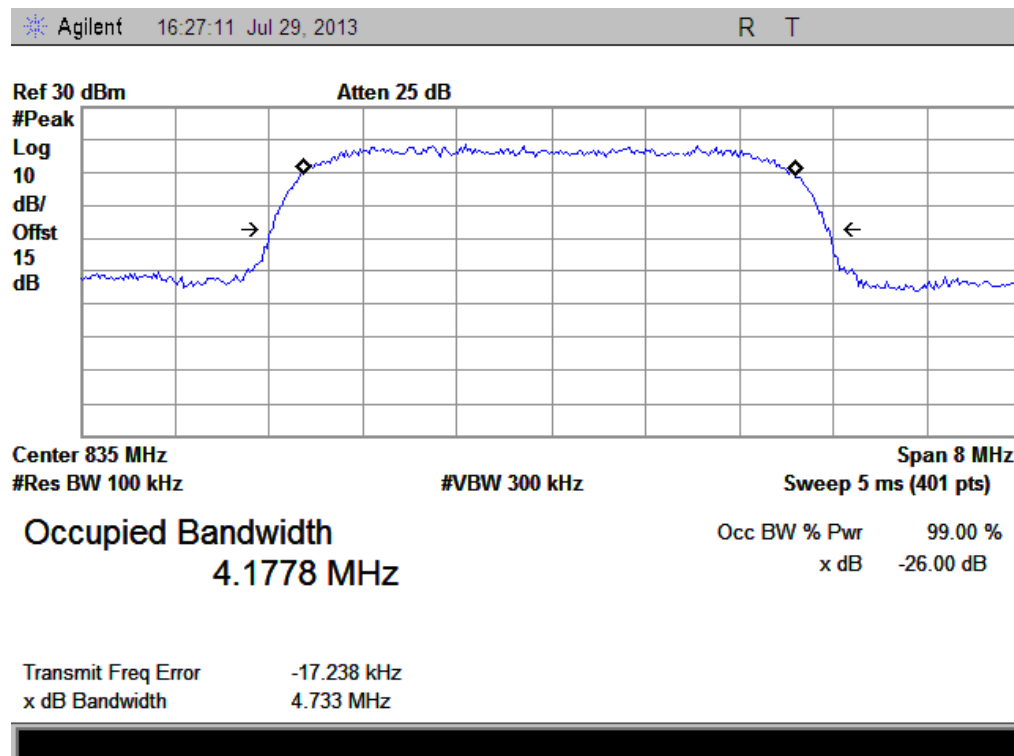
(Plot E: EGPRS1900MHz Channel = 661)



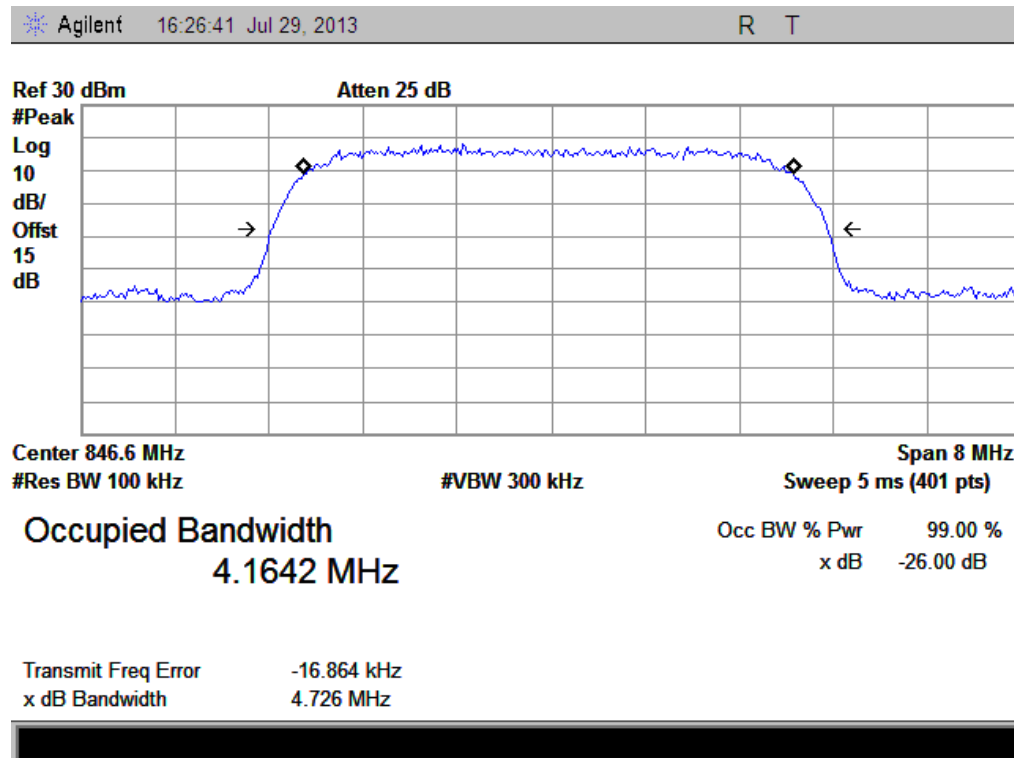
(Plot F: EGPRS 1900MHz Channel = 810)



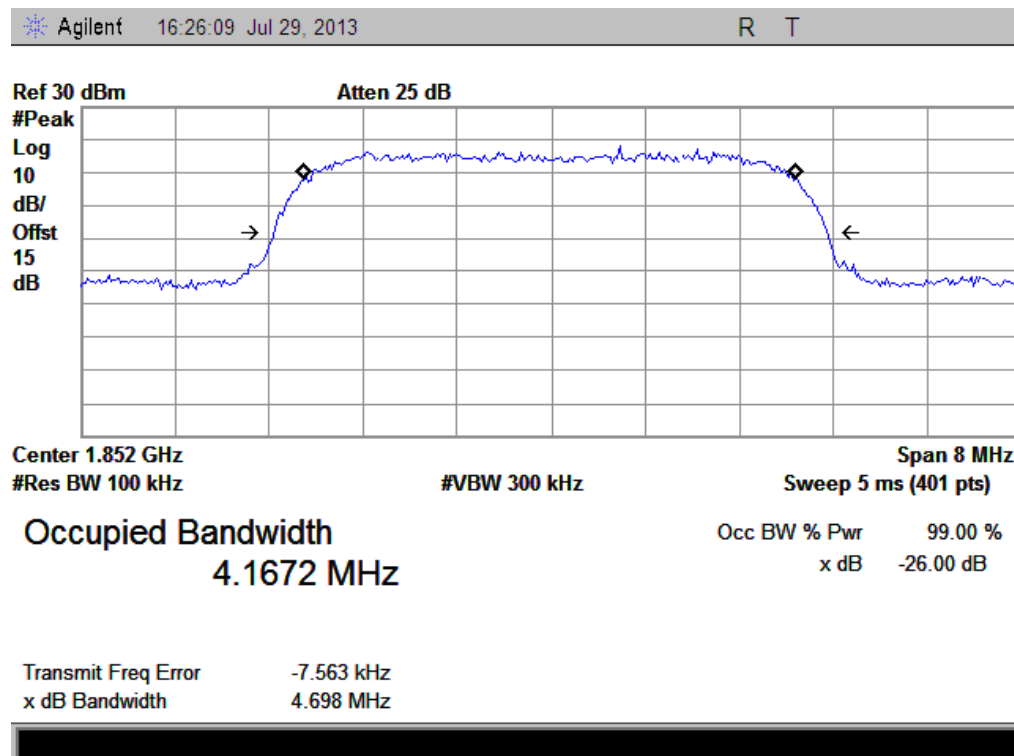
(Plot G: WCDMA 850MHz Channel = 4132)



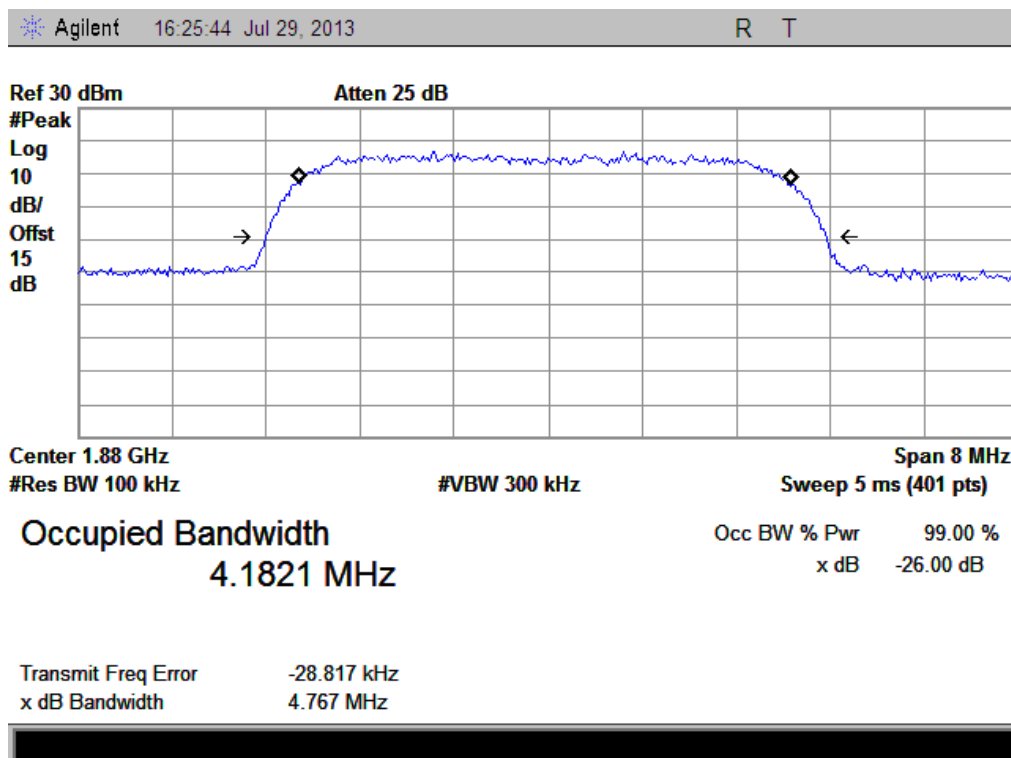
(Plot H: WCDMA 850 MHz Channel = 4175)



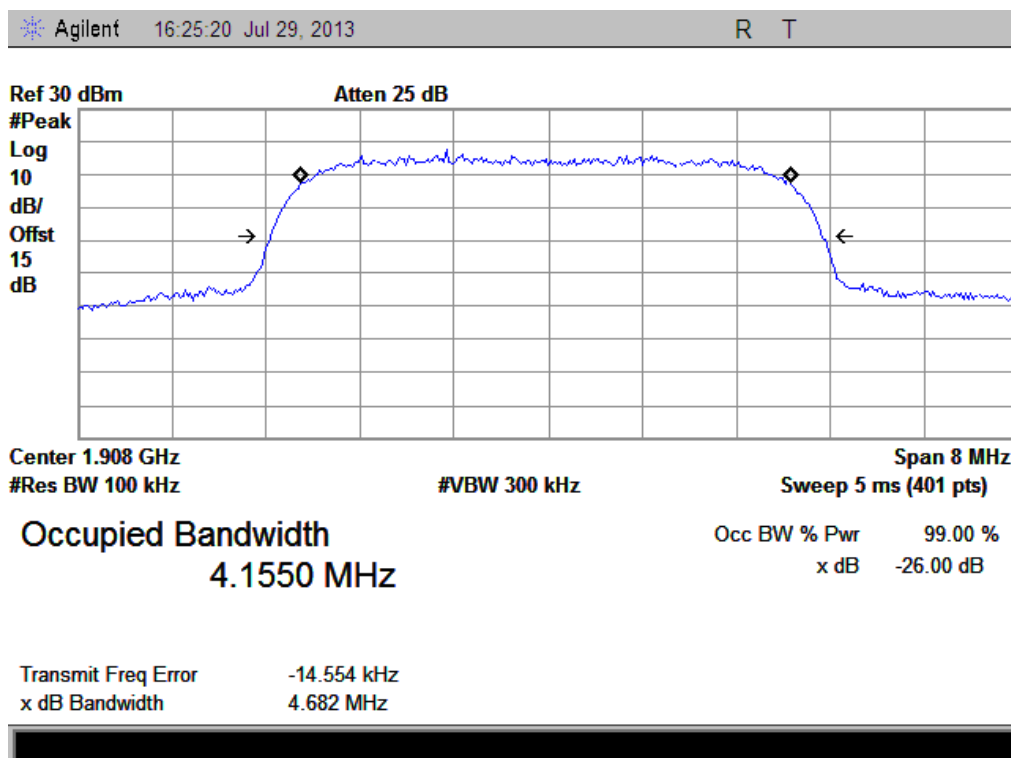
(Plot I: WCDMA 850MHz Channel = 4233)



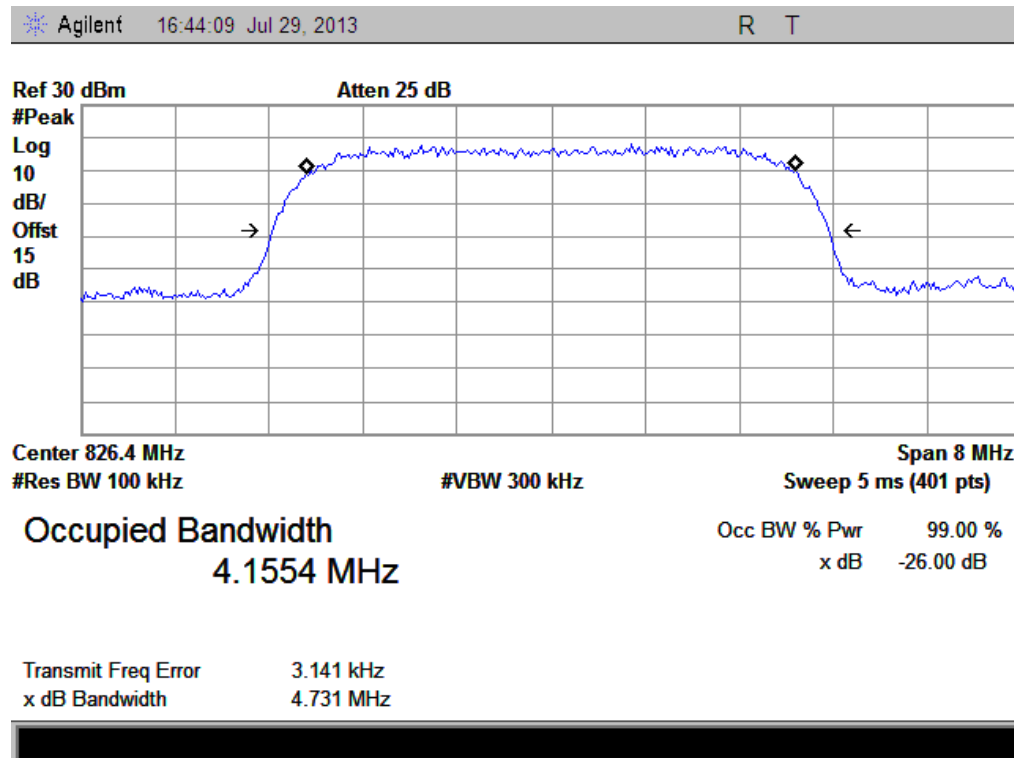
(Plot J: WCDMA 1900MHz Channel = 9262)



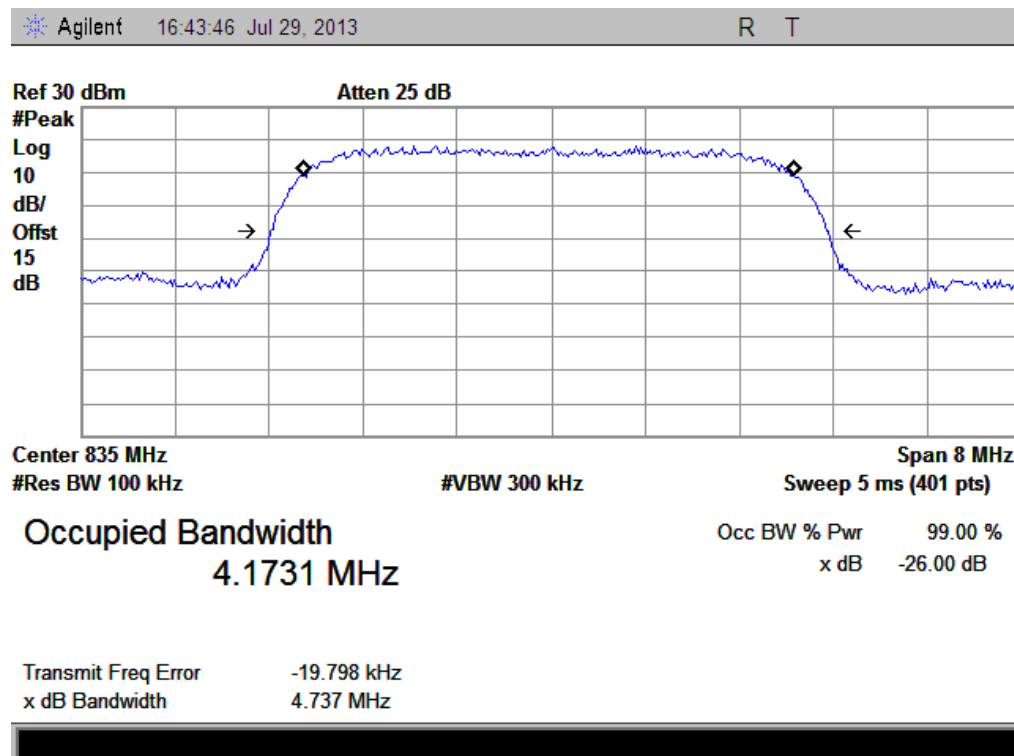
(Plot K: WCDMA 1900 MHz Channel = 9400)



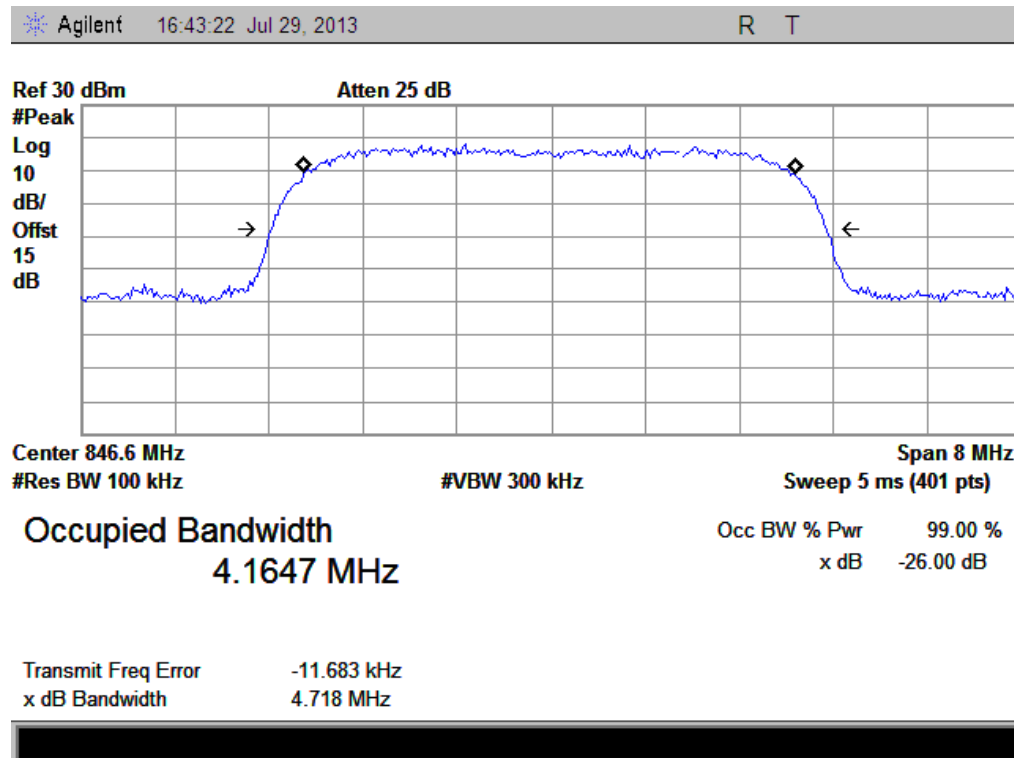
(Plot L: WCDMA1900MHz Channel = 9538)



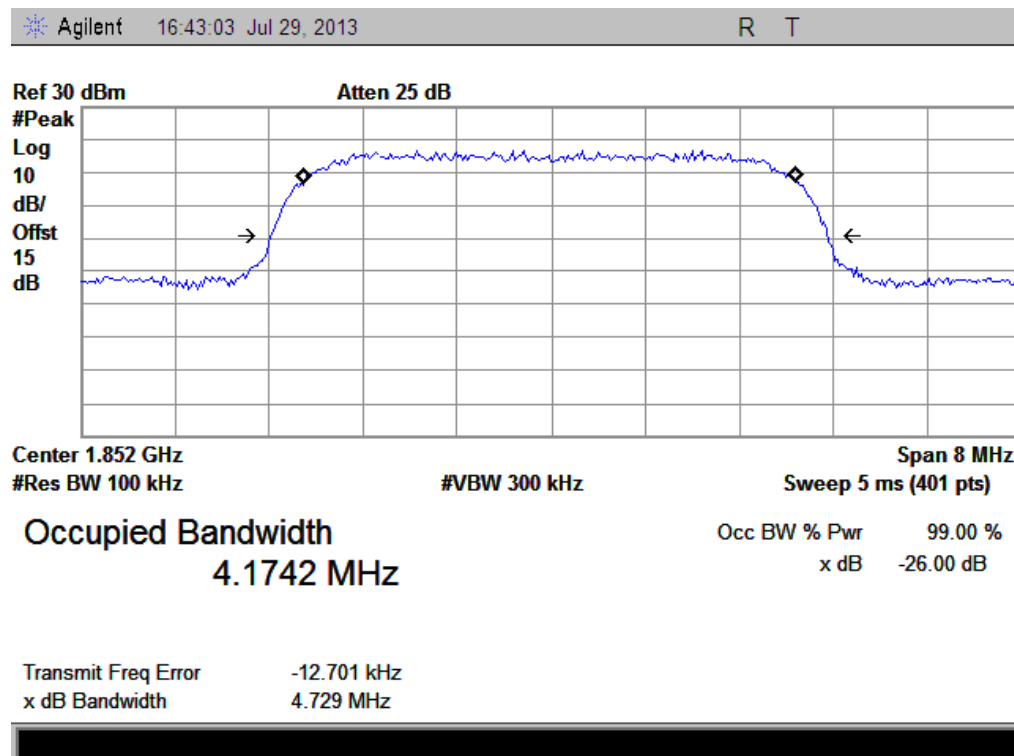
(Plot M: HSDPA 850MHz Channel = 4132)



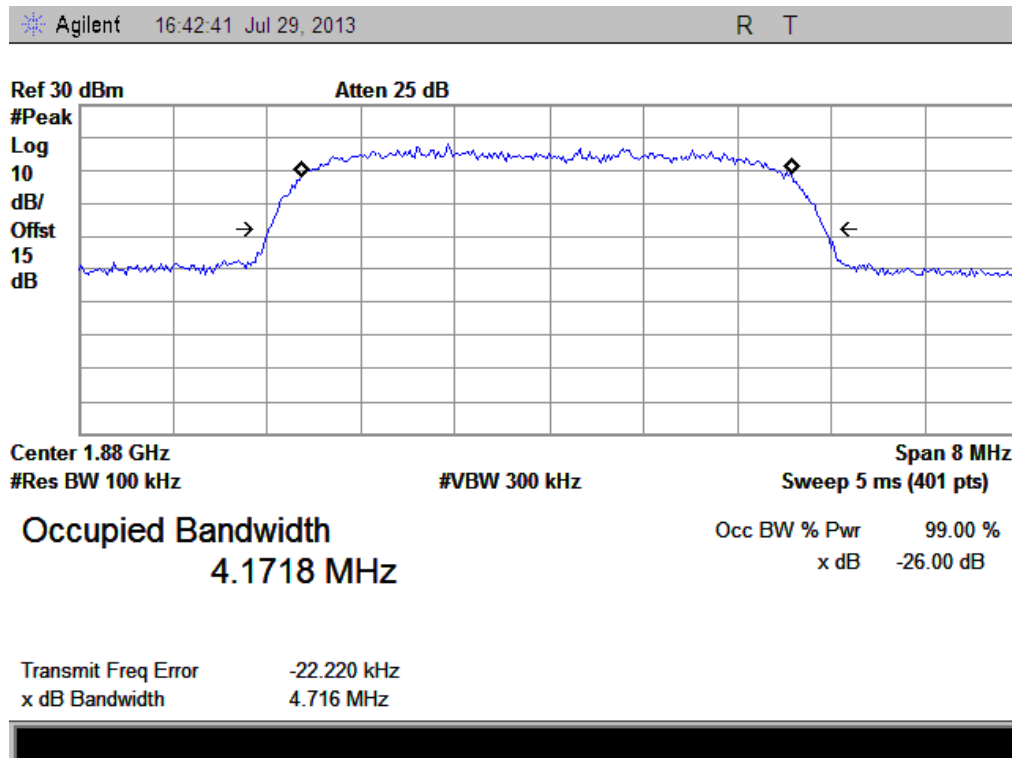
(Plot N: HSDPA850 MHz Channel = 4175)



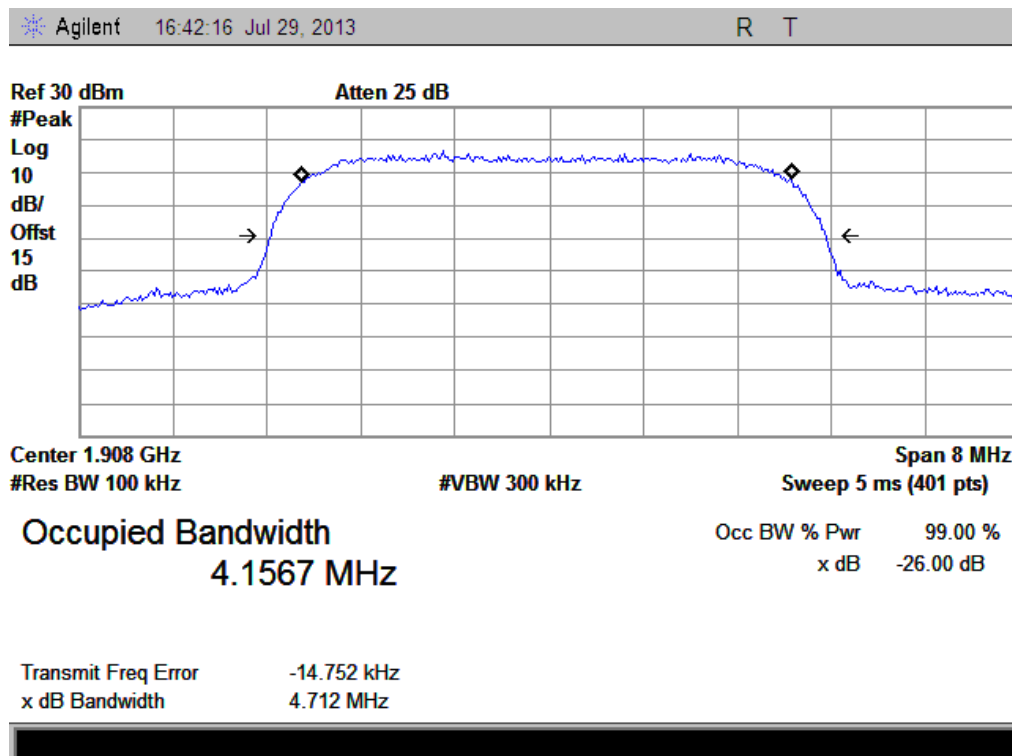
(Plot O: HSDPA 850 MHz Channel = 4233)



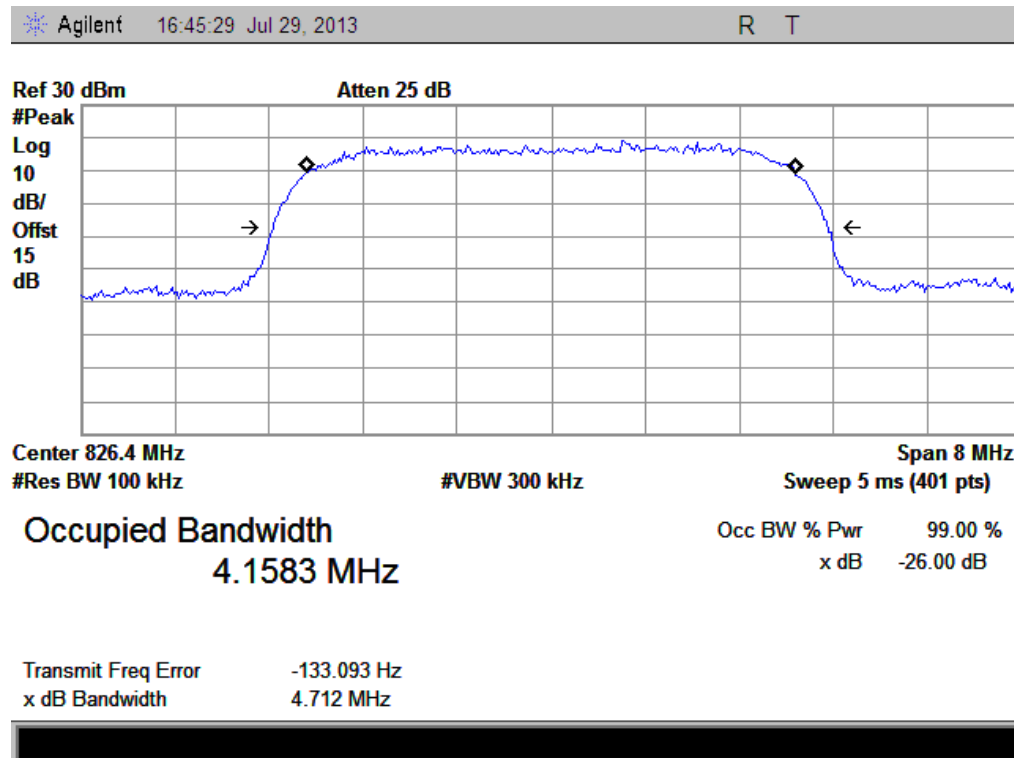
(Plot P: HSDPA1900 MHz Channel = 9262)



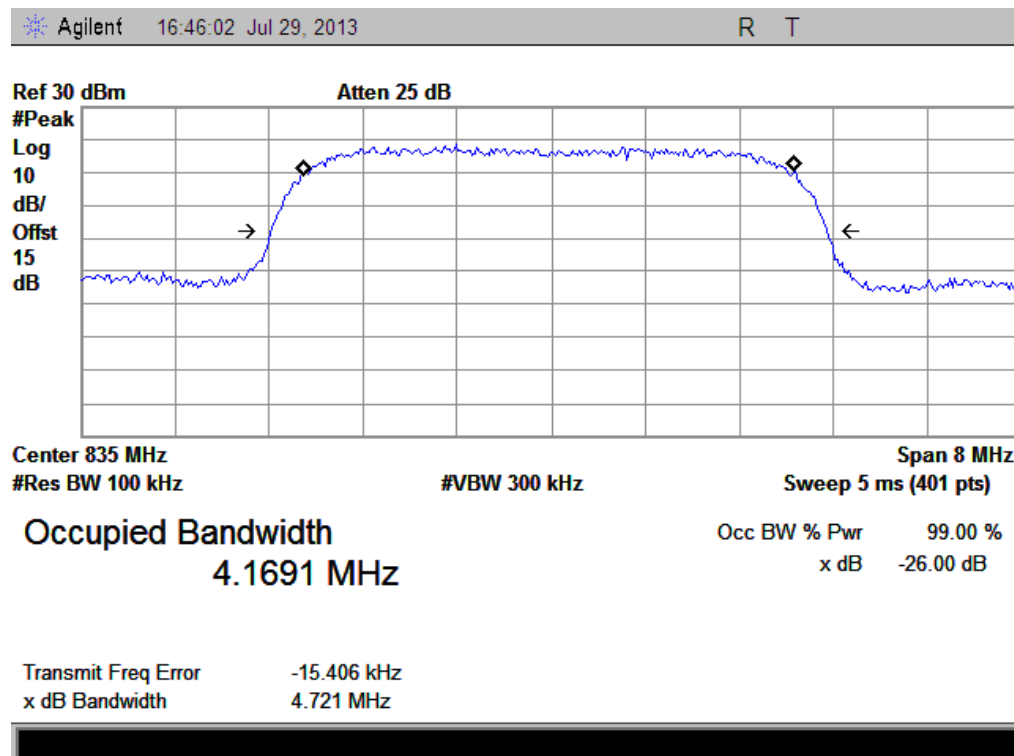
(Plot Q: HSDPA1900 MHz Channel = 9400)



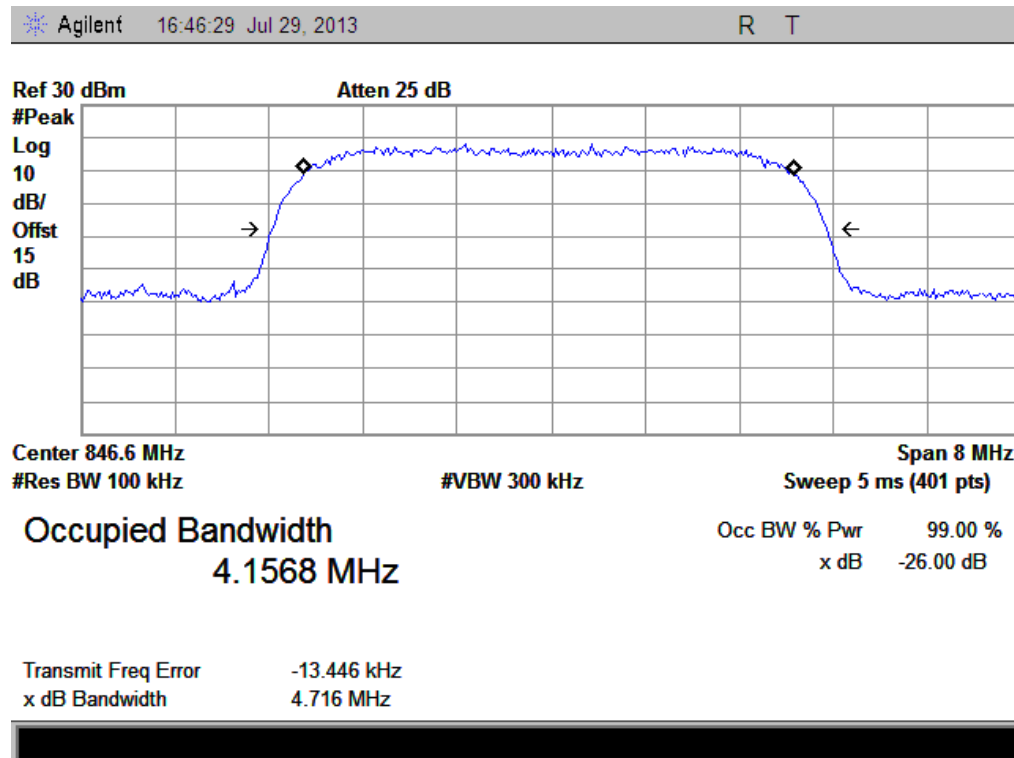
(Plot R: HSDPA 1900 MHz Channel = 9538)



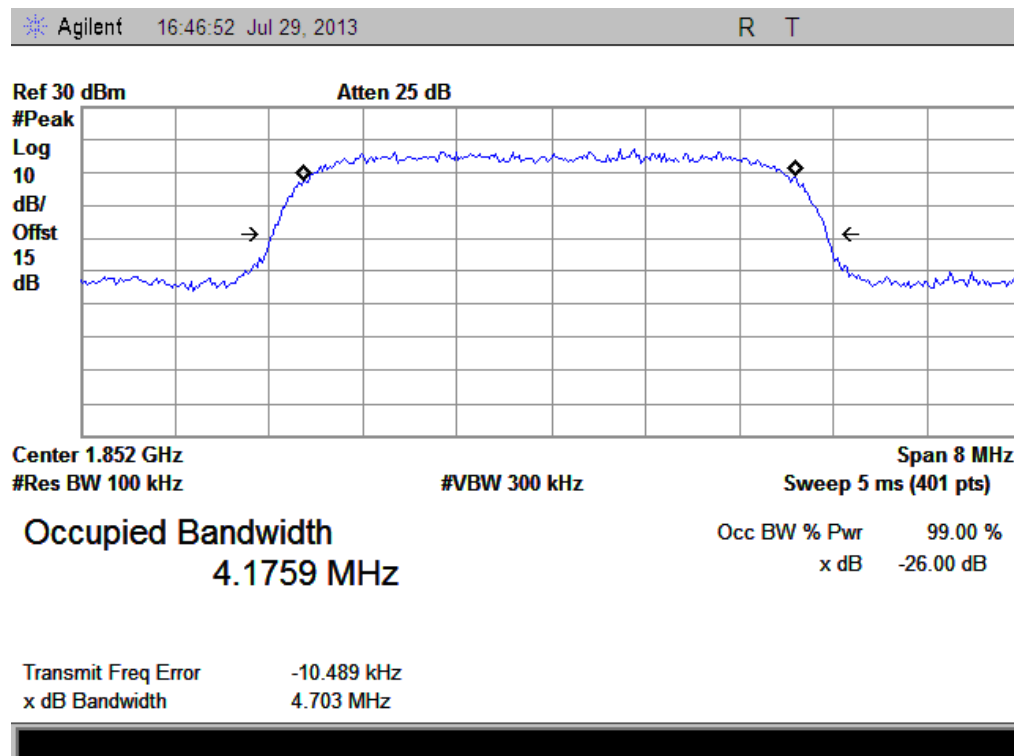
(Plot S: HSUPA850 MHz Channel = 4132)



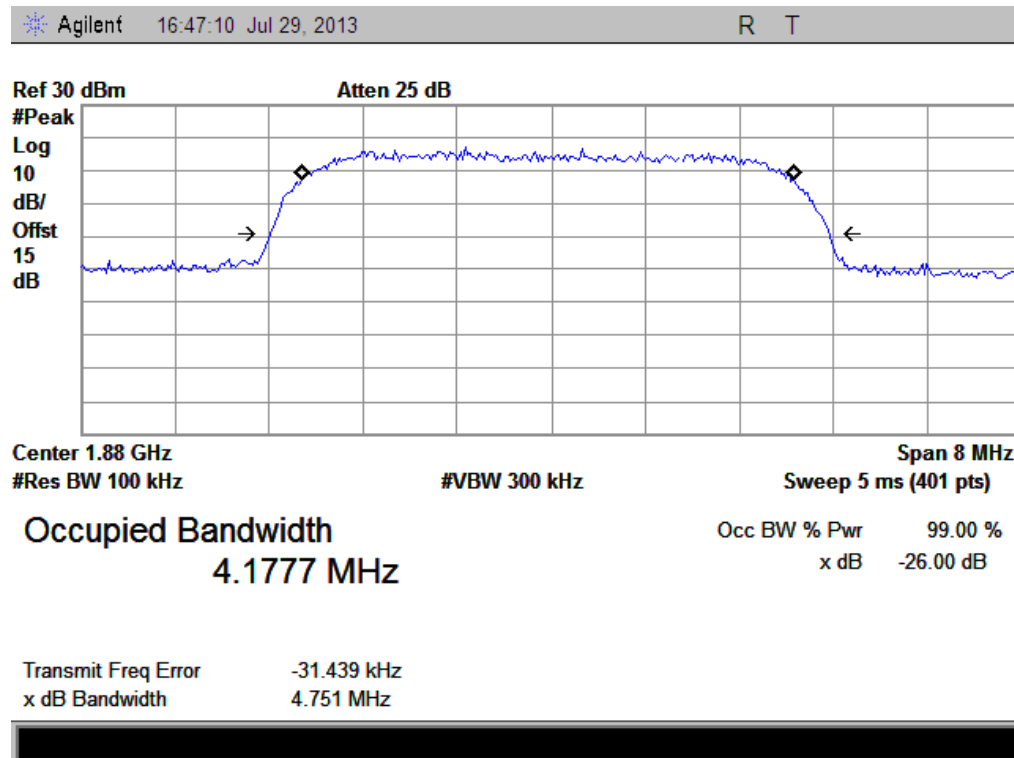
(Plot T: HSUPA850 MHz Channel = 4175)



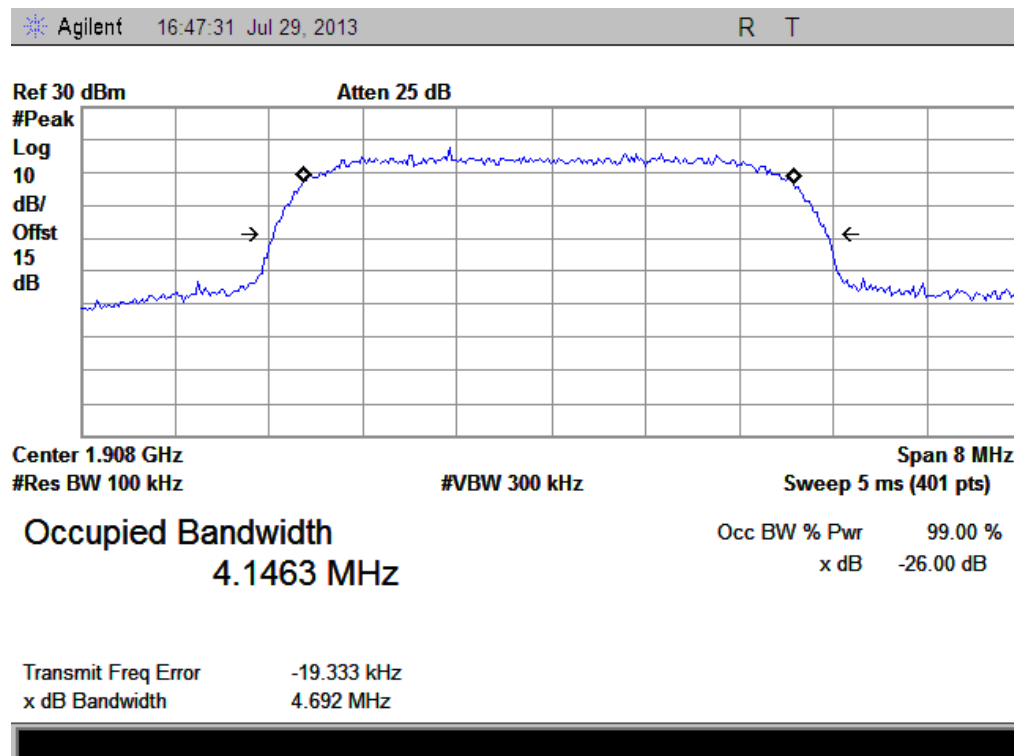
(Plot U: HSUPA850 MHz Channel = 4233)



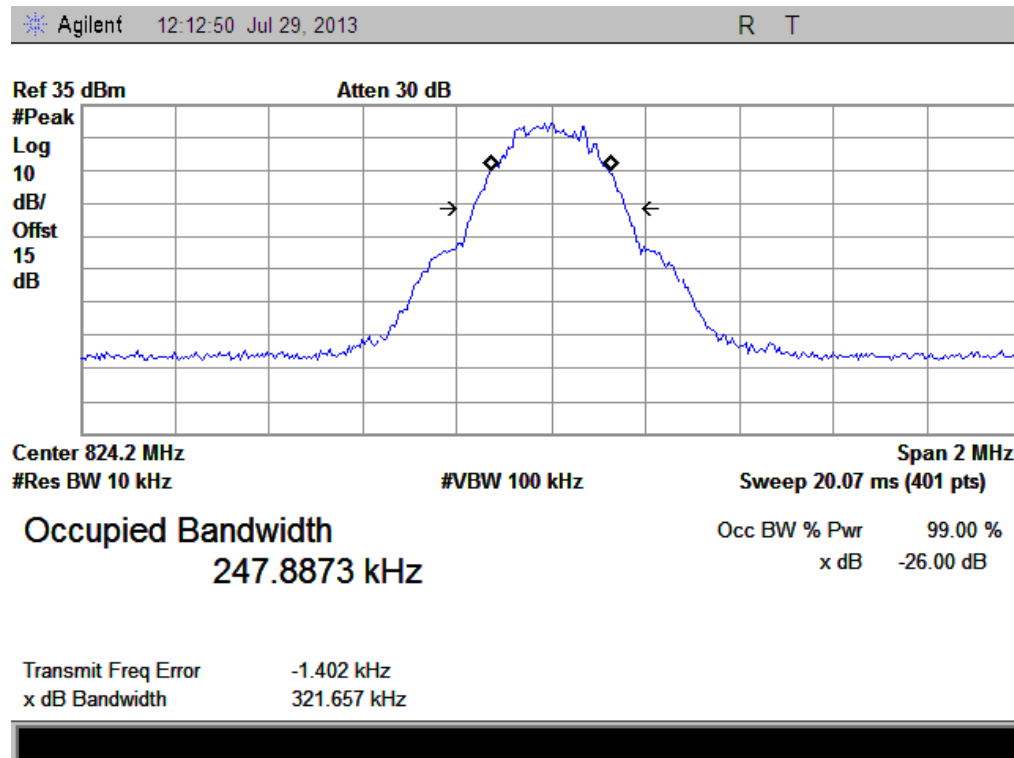
(Plot V: HSUPA1900 MHz Channel = 9262)



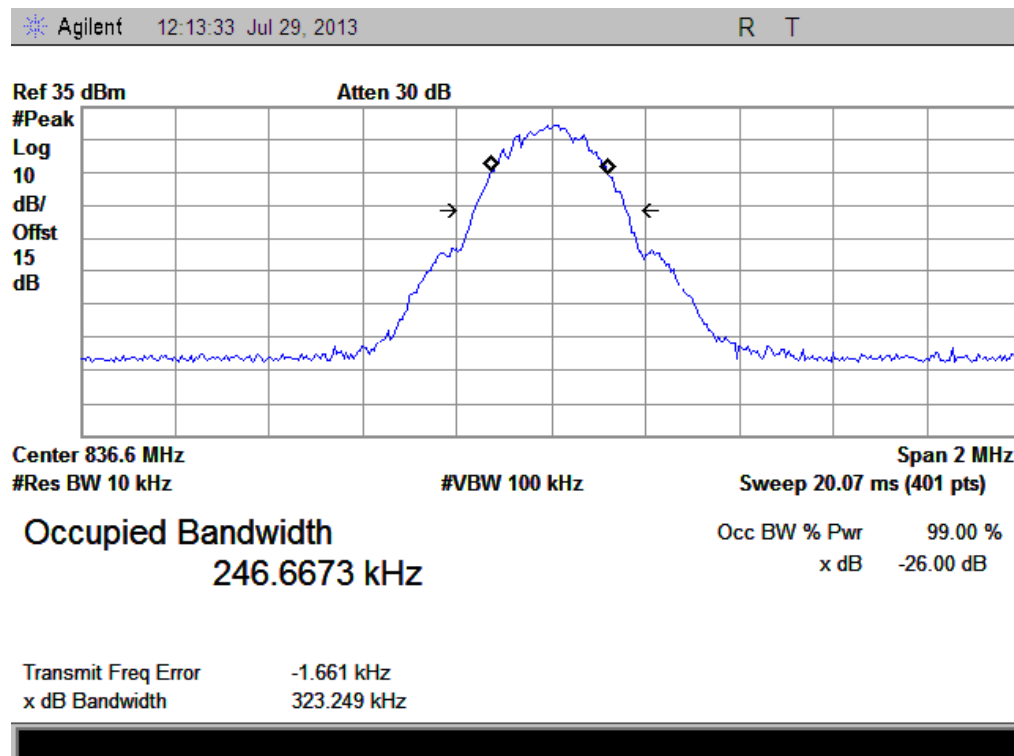
(Plot W: HSUPA1900 MHz Channel = 9400)



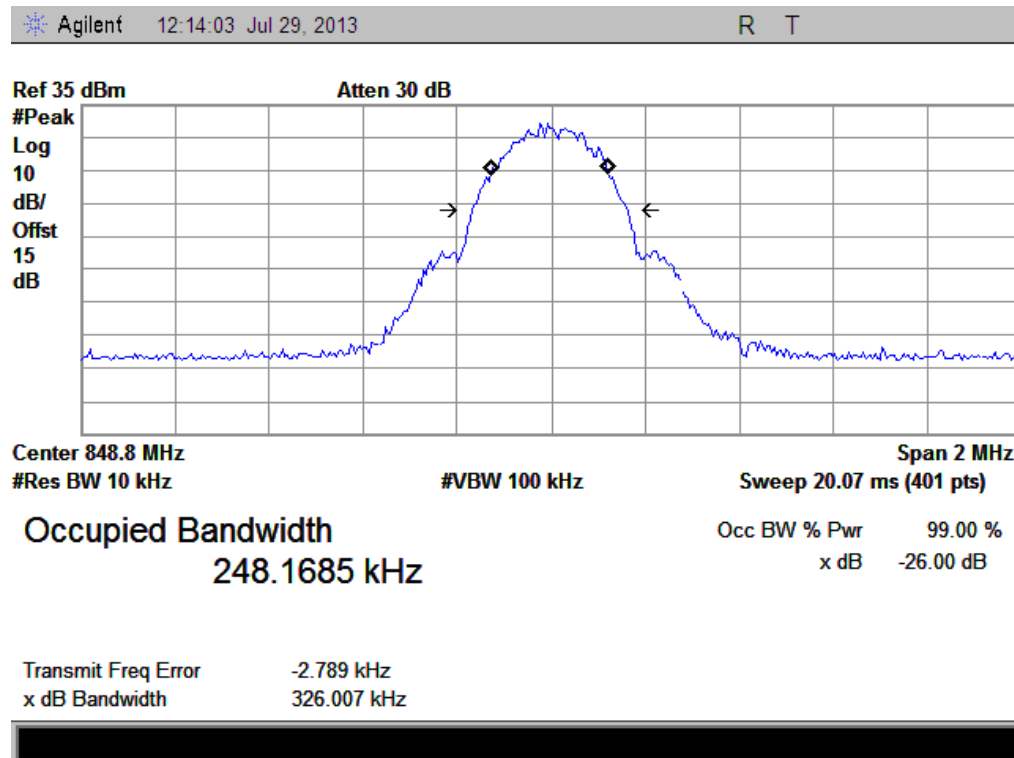
(Plot X: HSUPA1900 MHz Channel = 9538)



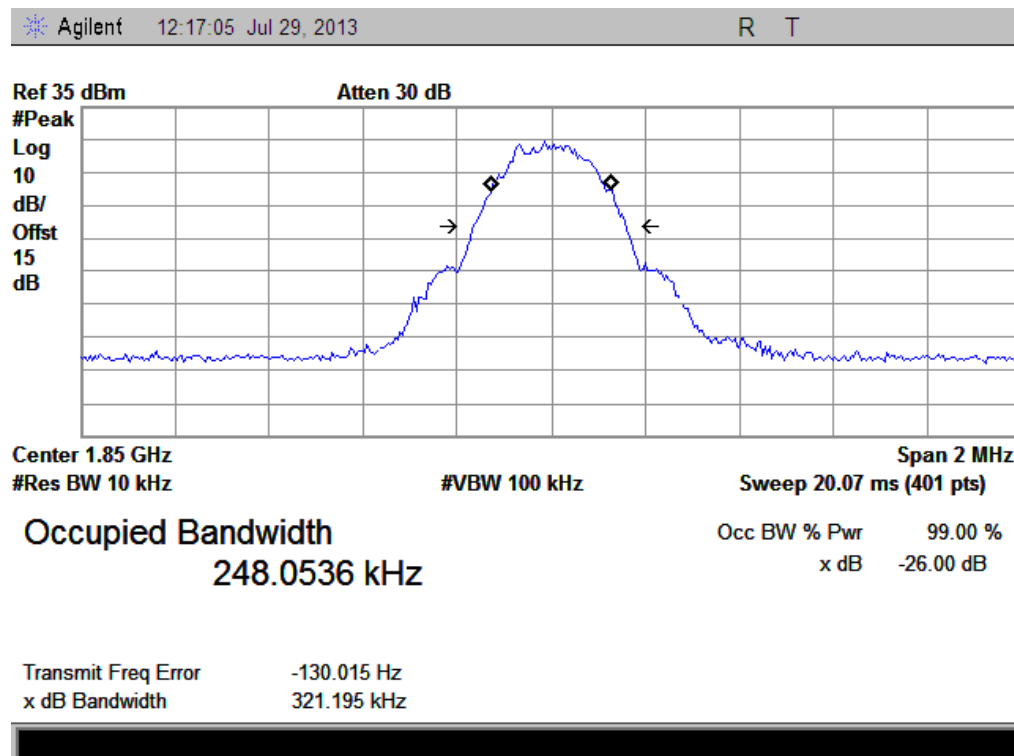
(Plot Y: GSM 850MHz Channel = 128)



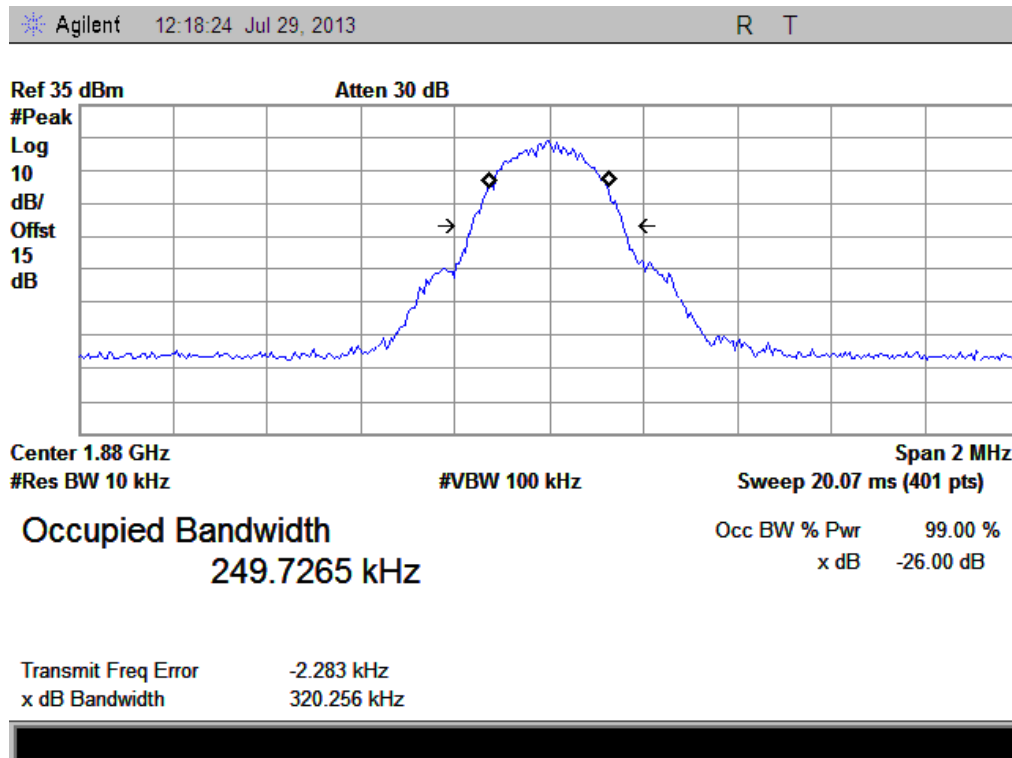
(Plot Z: GSM 850MHz Channel = 190)



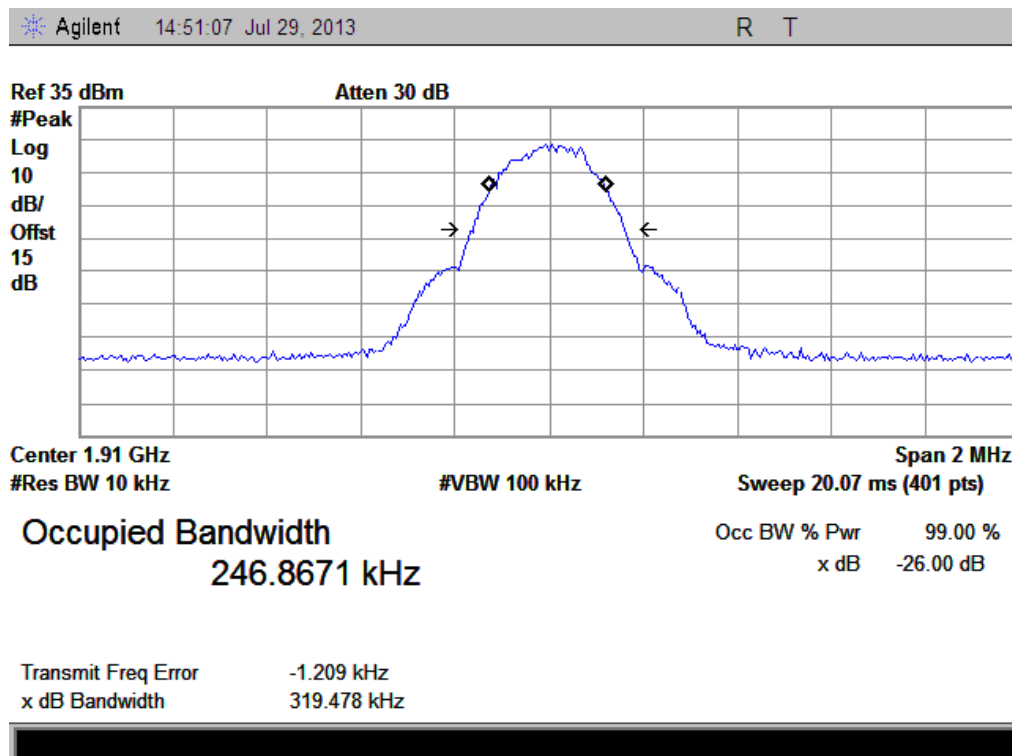
(Plot A1: GSM 850MHz Channel = 251)



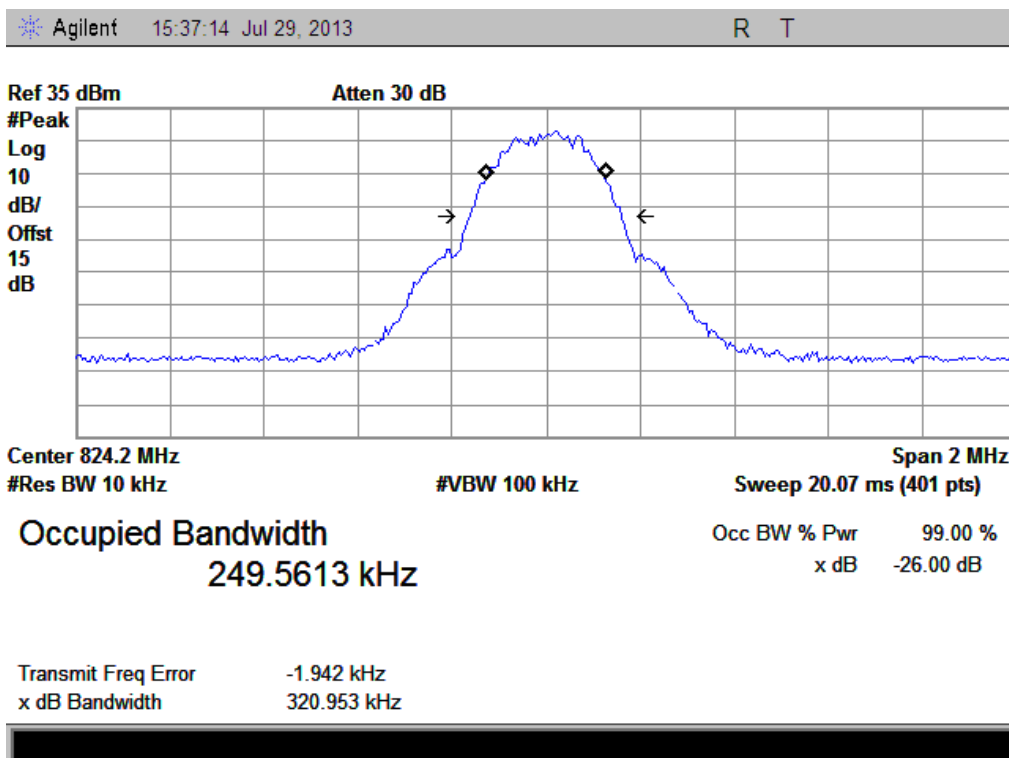
(Plot B1: GSM 1900MHz Channel = 512)



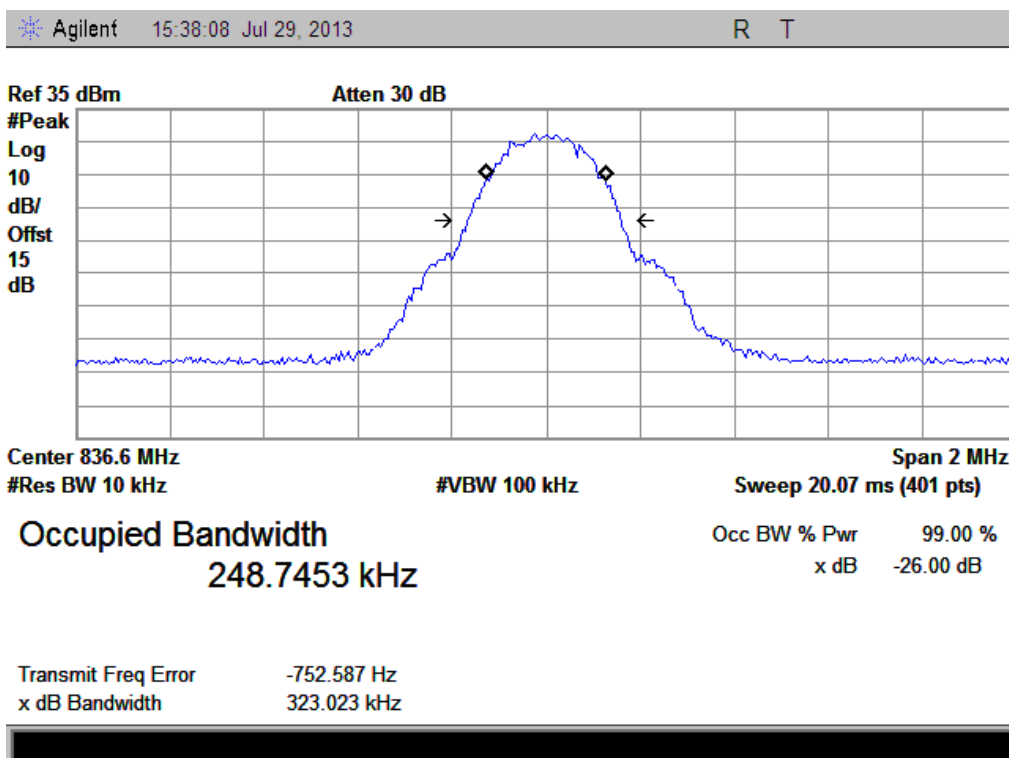
(Plot C1: GSM 1900MHz Channel = 661)



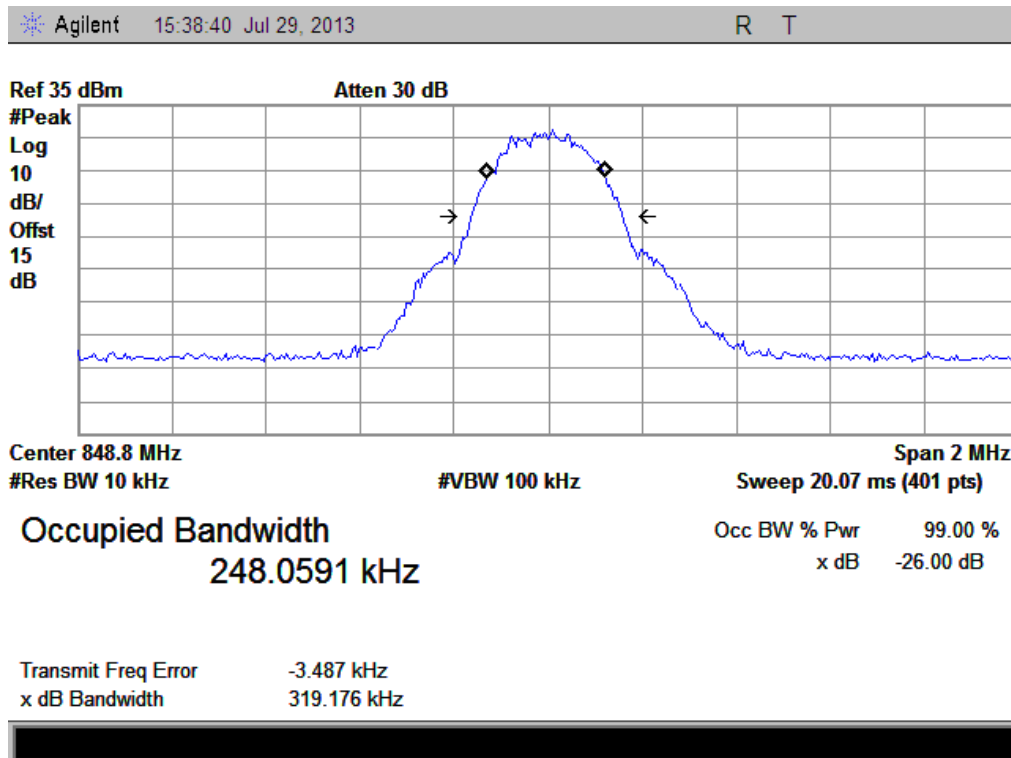
(Plot D1: GSM 1900MHz Channel = 810)



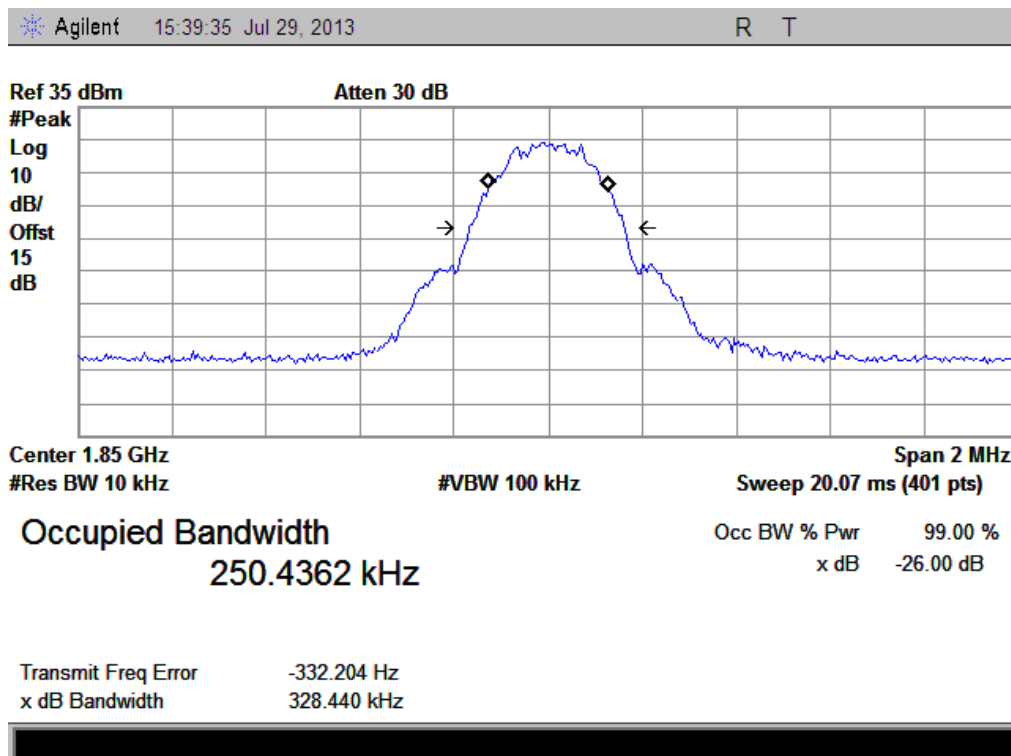
(Plot E1: GPRS 850MHz Channel = 128)



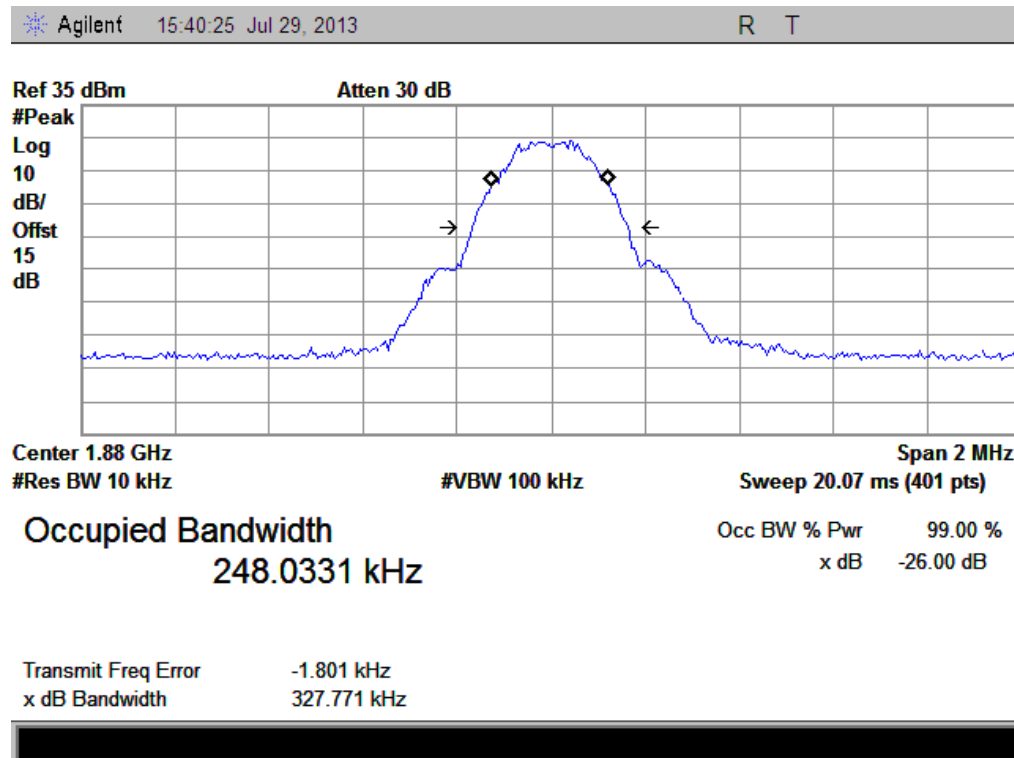
(Plot F1: GPRS 850MHz Channel = 190)



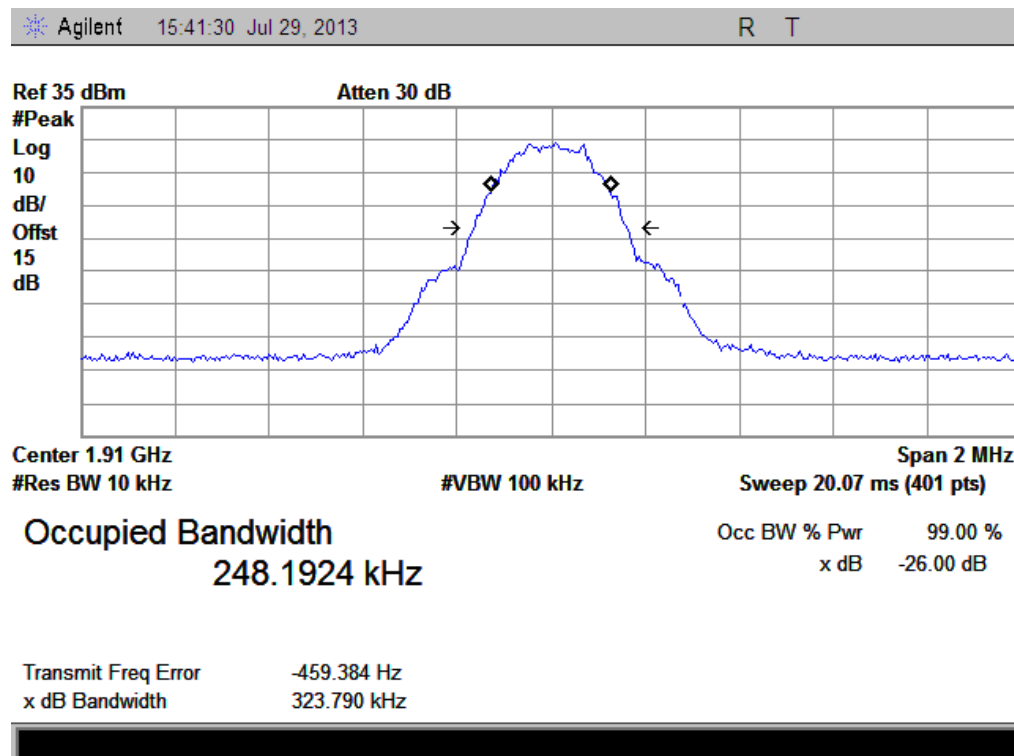
(Plot G1: GPRS850MHz Channel = 251)



(Plot H1: GPRS 1900MHz Channel = 512)



(Plot I1: GPRS 1900MHz Channel = 661)



(Plot J1: GPRS 1900MHz Channel = 810)

2.4 Frequency Stability

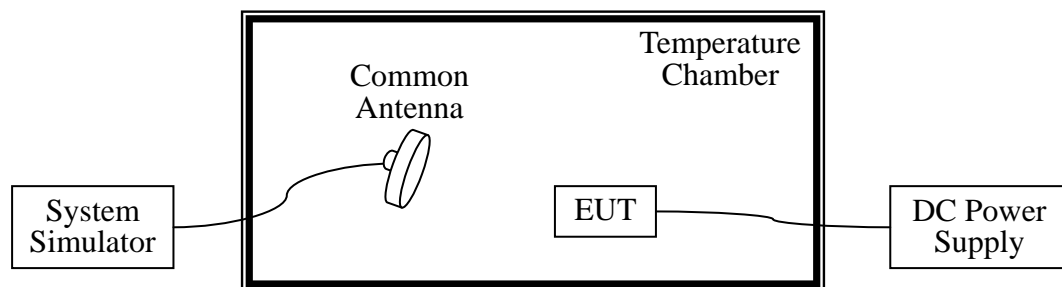
2.4.1 Requirement

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.

2.4.2 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 i.e. Power Control Level (PCL) = 5 and Power Class = 4. 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	2014.05
DC Power Supply	Good Will	GPS-3030DD	EF920938	2012.05	2014.05
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2012.05	2014.05

2.4.3 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 850MHz band is ± 2.5 ppm, and 1900MHz is ± 1 ppm.

1. GSM 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.7	-30	-15.32	±2060.5	-11.51	±2091.5	-20.51	±2122	PASS
	-20	-13.45		21.35		22.15		
	-10	12.47		13.22		19.35		
	0	31.15		1.38		21.31		
	+10	32.07		-13.52		-17.52		
	+20	-7.98		-12.22		28.62		
	+30	21.25		12.36		17.25		
	+40	13.15		19.63		-20.51		
	+55	31.28		21.27		-12.99		
4.2	+25	-14.73		28.92	-7.53			
3.6	+25	-12.72		36.21	11.78			

2. GSM 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.7	-30	11.33	±1850.2	26.31	±1880.0	-12.90	±1909.8	PASS
	-20	-17.55		29.08		12.66		
	-10	38.10		-12.62		5.05		
	0	-22.06		19.30		3.02		
	+10	-16.11		18.30		10.76		
	+20	17.76		-19.53		-16.51		
	+30	15.64		28.93		-2.10		
	+40	3.67		19.66		-12.99		
	+55	11.33		26.31		-7.53		
4.2	+25	38.28		29.08		22.19		
3.6	+25	-18.09		-11.62		-18.70		

3. EDGE 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.7	-30	11.53	±2060.5	21.12	±2091.5	18.47	±2122	PASS
	-20	2.47		11.33		-12.90		
	-10	-10.76		-17.55		12.66		
	0	-2.11		38.10		5.05		
	+10	13.33		-22.06		3.02		
	+20	5.33		-16.11		10.76		
	+30	-2.56		17.76		-16.51		
	+40	17.60		15.64		-2.10		
	+55	11.53		3.67		-12.99		
4.2	+25	-15.71		13.95		-7.53		
3.6	+25	-17.70		6.23		6.78		

4. EDGE 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.7	-30	-13.15	±1850.2	31.07	±1880.0	-6.57	±1909.8	PASS
	-20	10.61		28.79		38.42		
	-10	11.53		3.28		12.94		
	0	2.47		27.29		49.17		
	+10	-10.76		-4.29		64.85		
	+20	-2.11		10.89		-1.72		
	+30	13.33		9.50		56.31		
	+40	5.33		31.07		3.94		
	+55	-2.56		28.79		3.99		
4.2	+25	17.60		3.88		15.36		
3.6	+25	-8.09		13.12		11.03		

5. WCDMA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4175 (835MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.7	-30	15.29	±2066	12.22	±2087.5	-11.28	±2116.5	PASS
	-20	-17.31		-10.59		-19.18		
	-10	-13.40		21.41		17.02		
	0	16.41		13.44		14.15		
	+10	30.12		1.35		-17.32		
	+20	32.21		-12.55		11.91		
	+30	-17.02		30.63		6.65		
	+40	21.17		13.47		28.92		
	+55	15.12		-12.59		19.63		
4.2	+25	-16.11		30.68		22.15		
3.6	+25	15.62		-18.04		-18.78		

6. WCDMA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.7	-30	-12.71	±1852.4	-13.45	±1880.0	-8.97	±1907.6	PASS
	-20	18.83		12.17		23.61		
	-10	5.51		-14.05		14.85		
	0	19.64		18.72		-3.01		
	+10	30.46		22.31		17.43		
	+20	13.48		37.22		-10.33		
	+30	1.35		2.30		17.45		
	+40	-12.52		-13.43		27.82		
	+55	-13.53		-5.75		-2.51		
4.2	+25	23.28		14.52		20.91		
3.6	+25	22.05		26.35		-23.20		

7. HSDPA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4175 (835MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.7	-30	26.49	±2066	-24.09	±2087.5	15.85	±2116.5	PASS
	-20	-18.50		-13.16		14.45		
	-10	20.62		35.27		21.57		
	0	12.84		-8.35		-24.30		
	+10	-14.72		-13.91		-13.91		
	+20	8.71		-24.32		35.25		
	+30	-1.47		12.81		-8.32		
	+40	17.18		-14.71		-13.91		
	+55	-23.62		23.35		26.33		
4.2	+25	32.01		7.92		7.94		
3.6	+25	17.50		-31.29		1.72		

8. HSDPA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.7	-30	11.84	±1852.4	-3.09	±1880	2.64	±1907.6	PASS
	-20	-16.15		21.75		-8.32		
	-10	20.32		14.33		-13.07		
	0	-3.09		-11.27		-8.59		
	+10	21.75		10.65		5.62		
	+20	20.17		-4.89		-3.81		
	+30	-15.09		34.36		9.53		
	+40	22.75		8.32		27.59		
	+55	16.37		-25.81		-12.51		
4.2	+25	-11.21		29.45		-2.89		
3.6	+25	10.35		-2.22		14.41		

9. HSUPA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4175 (835MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.7	-30	18.85	±2066	13.53	±2087.5	13.02	±2116.5	PASS
	-20	5.05		-19.31		27.33		
	-10	19.62		-11.70		37.01		
	0	30.40		-0.49		-7.39		
	+10	13.45		10.11		-4.98		
	+20	1.31		-16.02		21.37		
	+30	18.85		24.20		-5.99		
	+40	5.05		9.61		13.71		
	+55	19.62		23.72		28.49		
4.2	+25	1.77		-4.53		29.13		
3.6	+25	1.59		5.21		-7.71		

10. HSUPA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.7	-30	-14.75	±1852.4	12.59	±1880	-6.81	±1907.6	PASS
	-20	11.87		23.72		38.69		
	-10	15.05		53.51		12.27		
	0	12.61		44.53		49.35		
	+10	22.42		-6.27		64.71		
	+20	13.48		55.35		-1.69		
	+30	11.37		59.37		56.31		
	+40	-12.36		11.28		3.92		
	+55	16.17		21.85		3.16		
4.2	+25	-16.15		48.77		15.49		
3.6	+25	17.33		11.68		11.35		

2.5 Conducted Out of Band Emissions

2.5.1 Requirement

According to FCC section 22.917(a) and FCC section 24.238(a) 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.

2.5.2 Test Description

See section 2.1.2 of this report.

2.5.3 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.

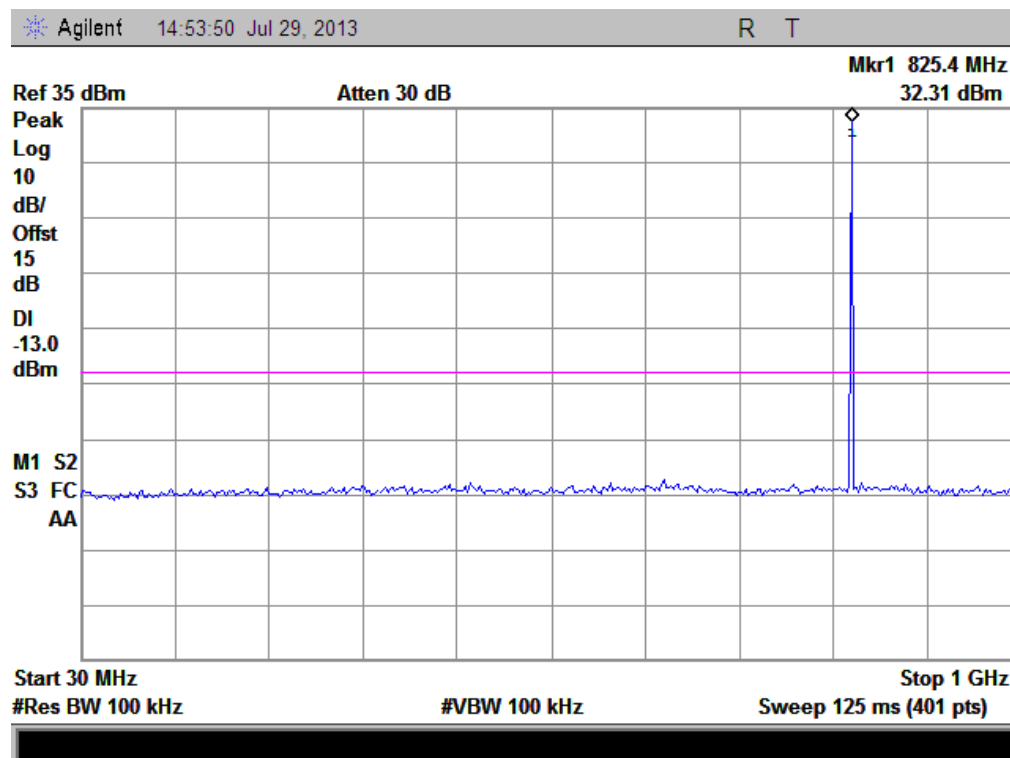
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-20.25	Plot A1toA1.1	-13	PASS
	190	836.6	-20.56	Plot A2toA2.1		PASS
	251	848.8	-21.96	Plot A3toA3.1		PASS
GSM 1900MHz	512	1850.2	-21.06	Plot B1toB1.1	-13	PASS
	661	1880.0	-20.57	Plot B2toB2.1		PASS
	810	1909.8	-21.28	Plot B3toB3.1		PASS
EDGE 850MHz	128	824.2	-20.75	Plot C1toC1.1	-13	PASS
	190	836.6	-20.62	Plot C2toC2.1		PASS
	251	848.8	-21.37	Plot C3toC3.1		PASS
EDGE 1900MHz	512	1850.2	-21.58	Plot D1toD1.1	-13	PASS
	661	1880.0	-20.64	Plot D2toD2.1		PASS
	810	1909.8	-20.91	Plot D3toD3.1		PASS
WCDMA 850MHz	4132	826.4	< -25	Plot E1toE1.1	-13	PASS
	4175	835	< -25	Plot E2toE2.1		PASS
	4233	846.6	< -25	Plot E3toE3.1		PASS
WCDMA 1900MHz	9262	1852.4	< -25	Plot F1toF1.1	-13	PASS
	9400	1880	< -25	Plot F2toF2.1		PASS
	9538	1907.6	< -25	Plot F3toF3.1		PASS
HSDPA	4132	826.4	< -25	Plot G1toG1.1	-13	PASS

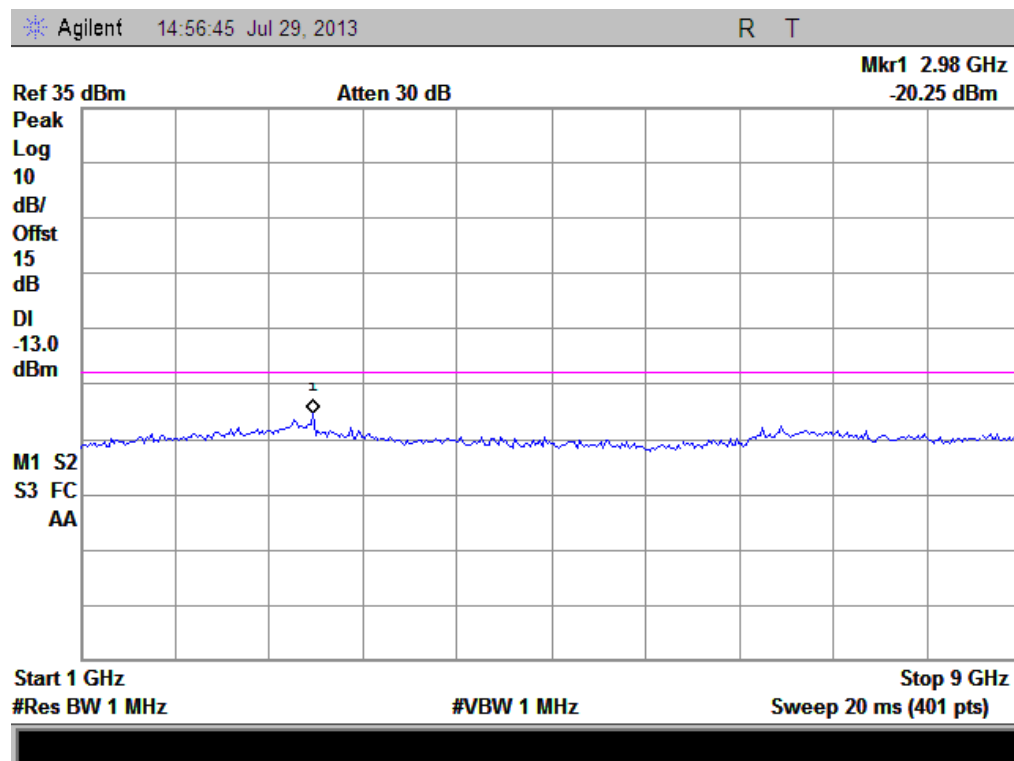
Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
850MHz	4175	835	< -25	Plot G2toG2.1		PASS
	4233	846.6	< -25	Plot G3toG3.1		PASS
HSDPA 1900MHz	9262	1852.4	< -25	Plot H1toH1.1	-13	PASS
	9400	1880	< -25	Plot H2toH2.1		PASS
	9538	1907.6	< -25	Plot H3toH3.1		PASS
HSUPA 850MHz	4132	826.4	< -25	Plot I1toI1.1	-13	PASS
	4175	835	< -25	Plot I2toI2.1		PASS
	4233	846.6	< -25	Plot I3toI3.1		PASS
HSUPA 1900MHz	9262	1852.4	< -25	Plot J1toJ1.1	-13	PASS
	9400	1880	< -25	Plot J2toJ2.1		PASS
	9538	1907.6	< -25	Plot J3toJ3.1		PASS

2. Test Plots for the Whole Measurement Frequency Range:

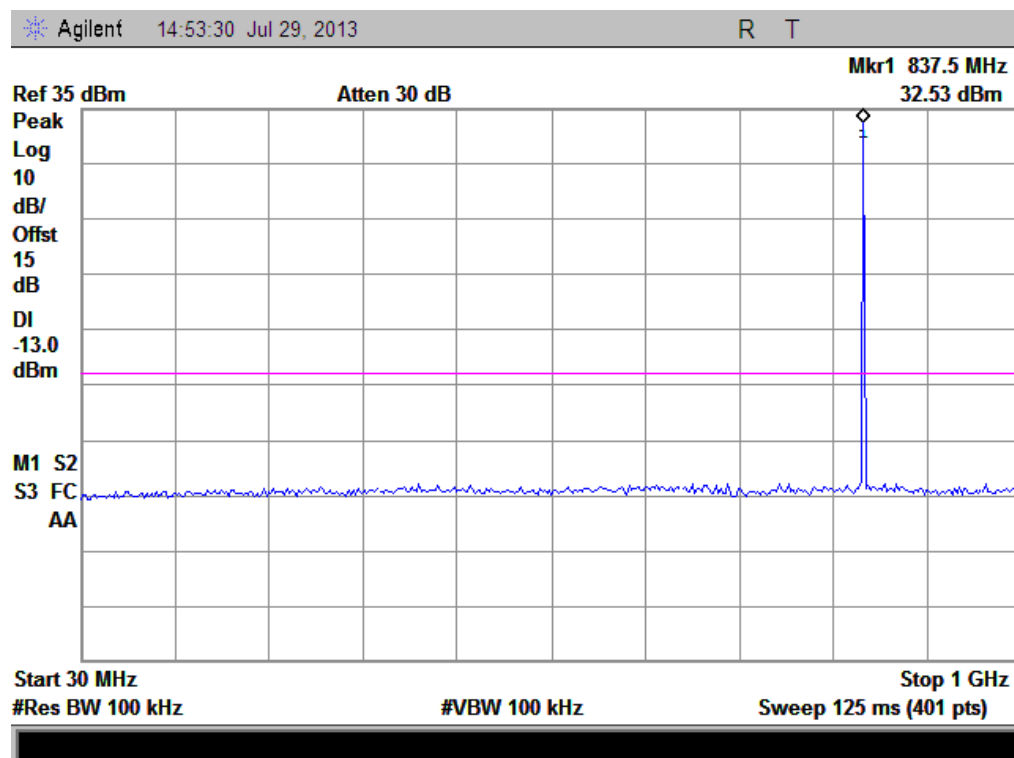
Note: the power of the EUT transmitting frequency should be ignored.



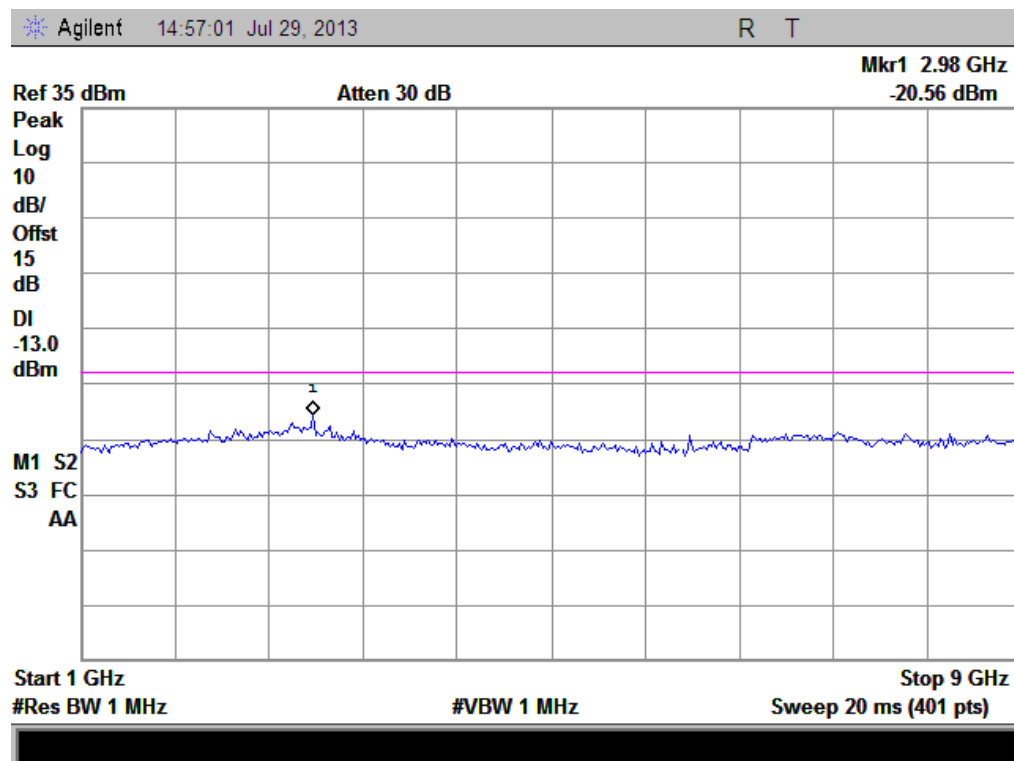
(Plot A1: GSM 850MHz Channel = 128, 30MHz to 1GHz)



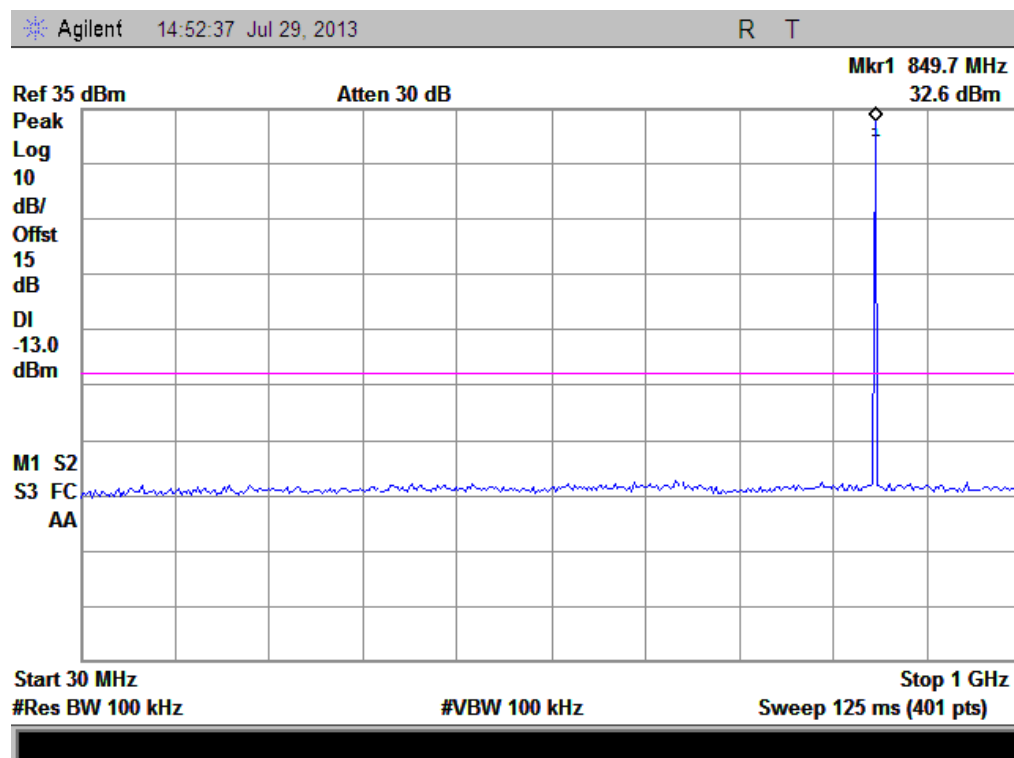
(Plot A1.1: GSM 850MHz Channel = 128, 1GHz to 9GHz)



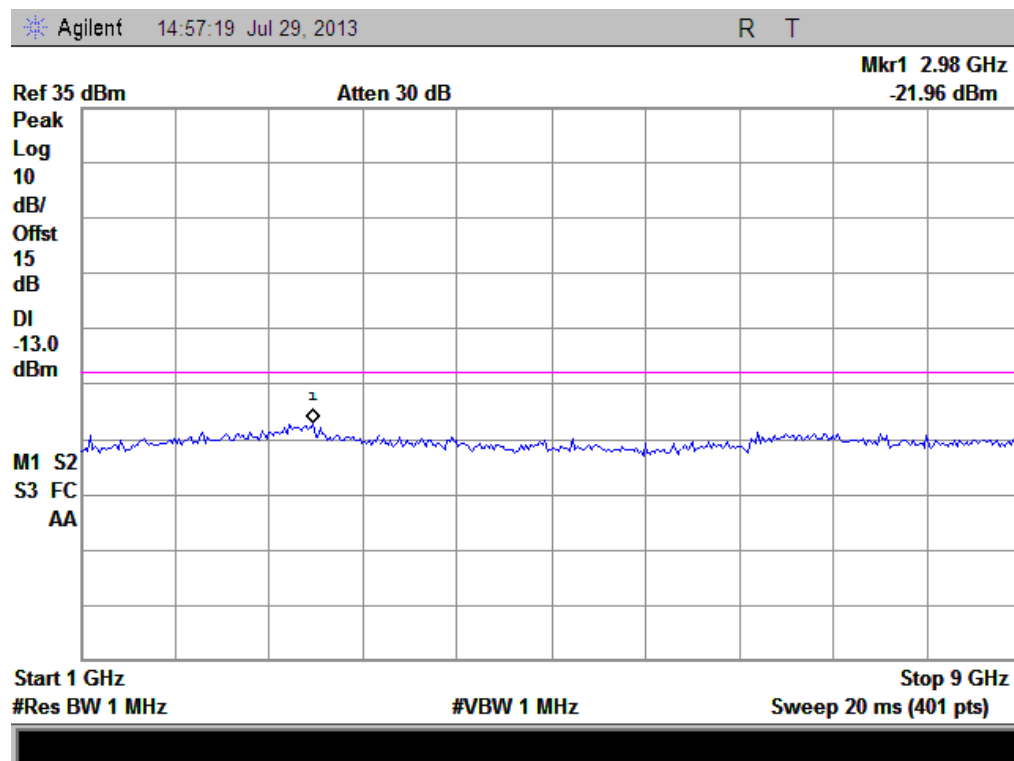
(Plot A2: GSM 850MHz Channel = 190, 30MHz to 1GHz)



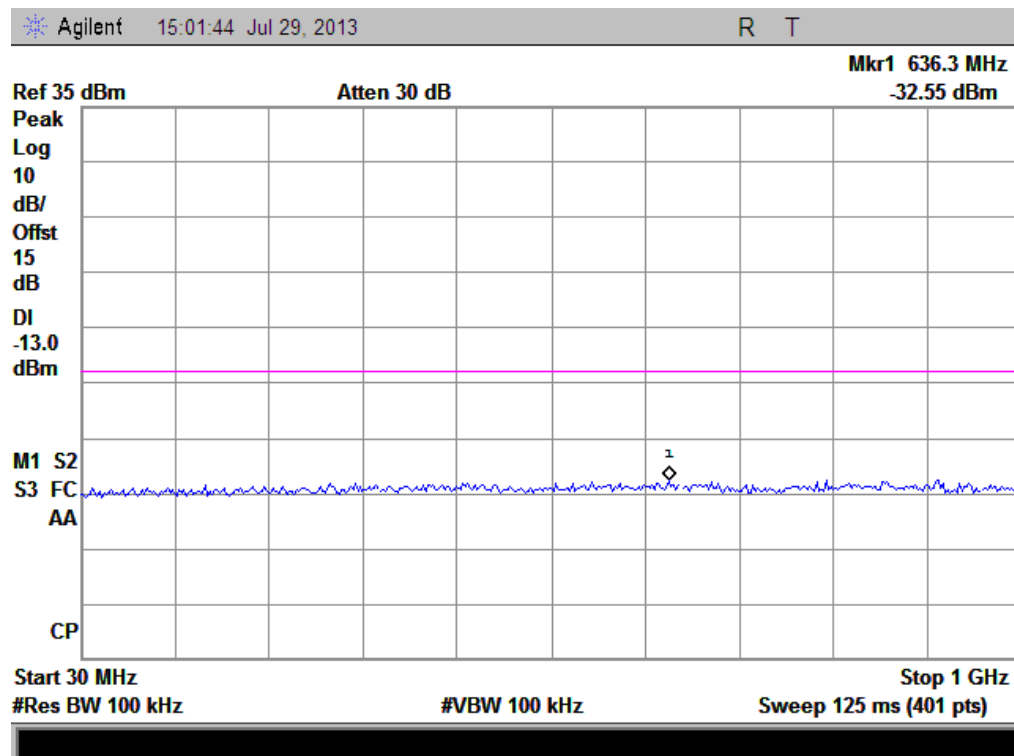
(Plot A2.1: GSM 850MHz Channel = 190, 1GHz to 9GHz)



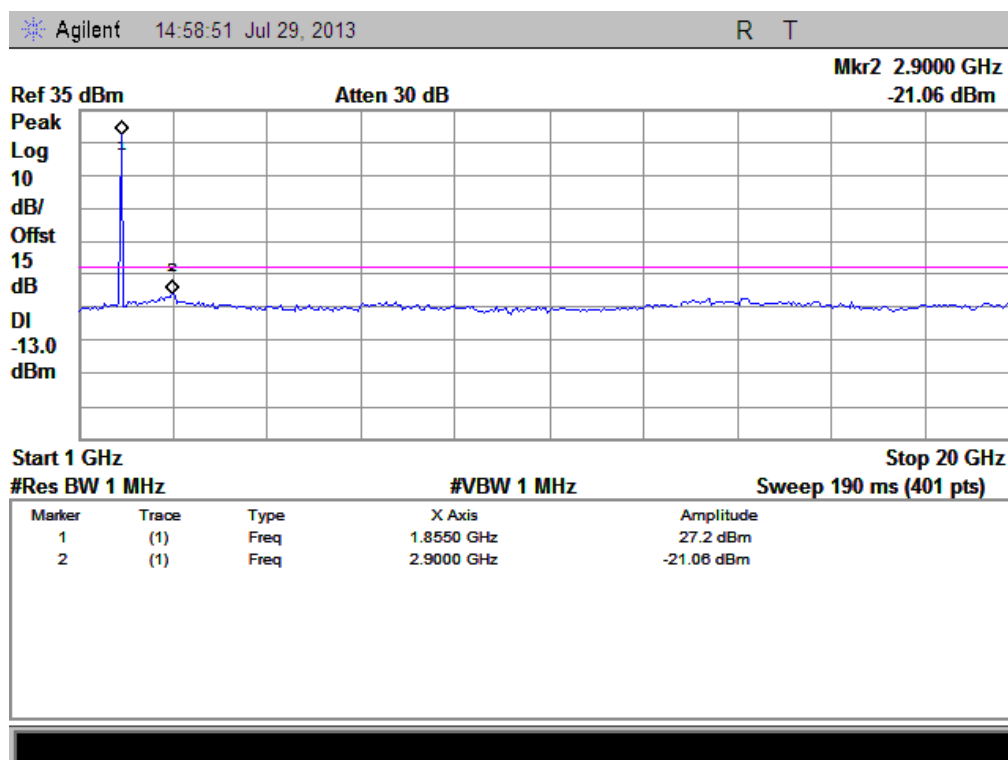
(Plot A3: GSM 850MHz Channel = 251, 30MHz to 1GHz)



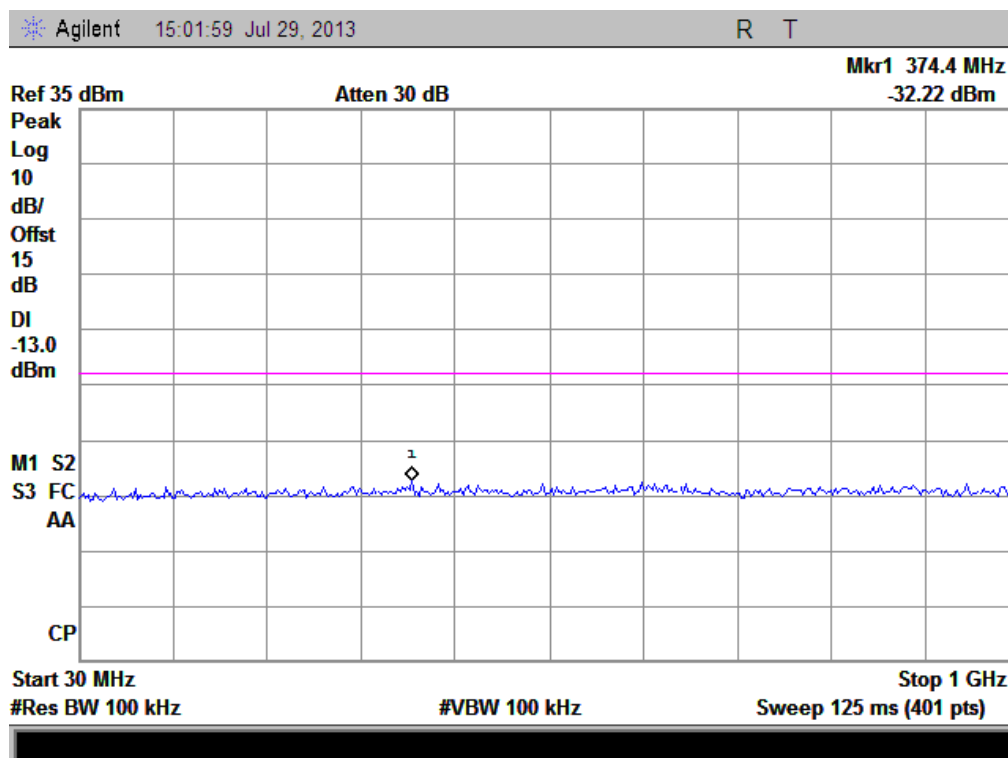
(Plot A3.1: GSM 850MHz Channel = 251, 1GHz to 9GHz)



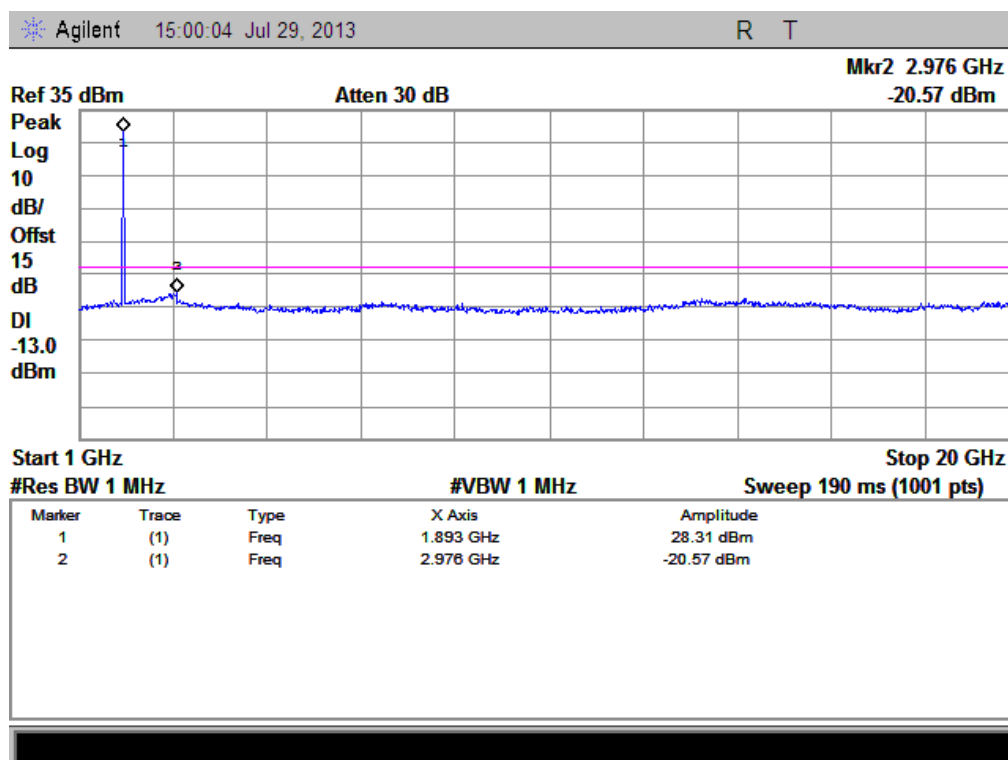
(Plot B1: GSM 1900MHz Channel = 512, 30MHz to 1GHz)



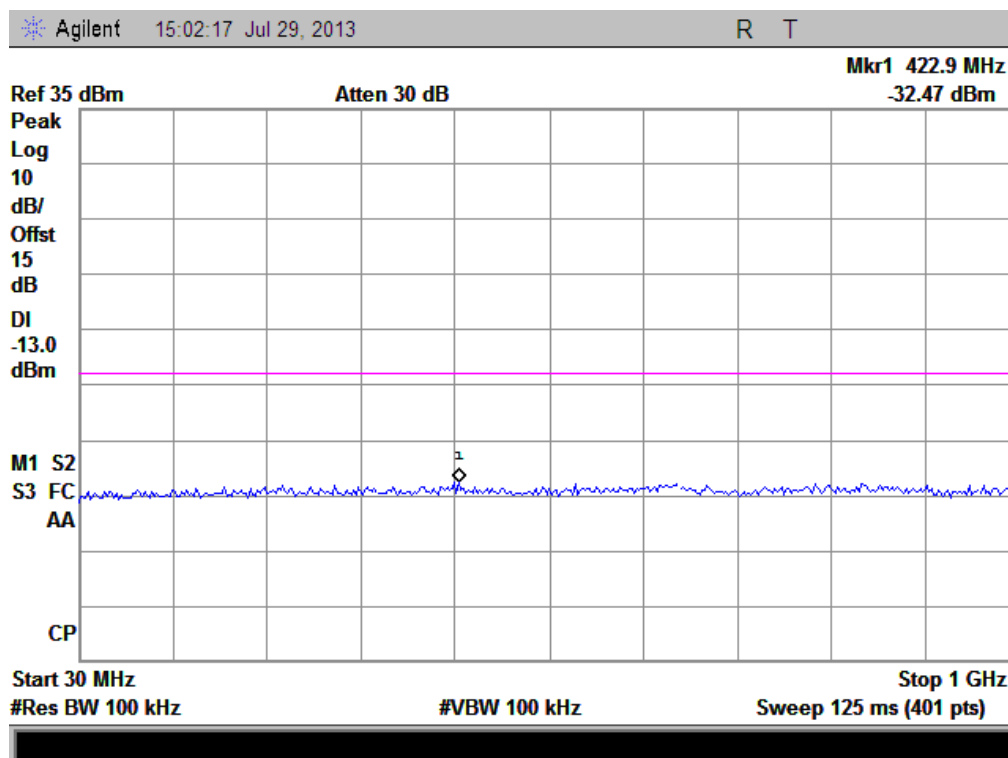
(Plot B1.1: GSM 1900MHz Channel = 512, 1GHz to 20GHz)



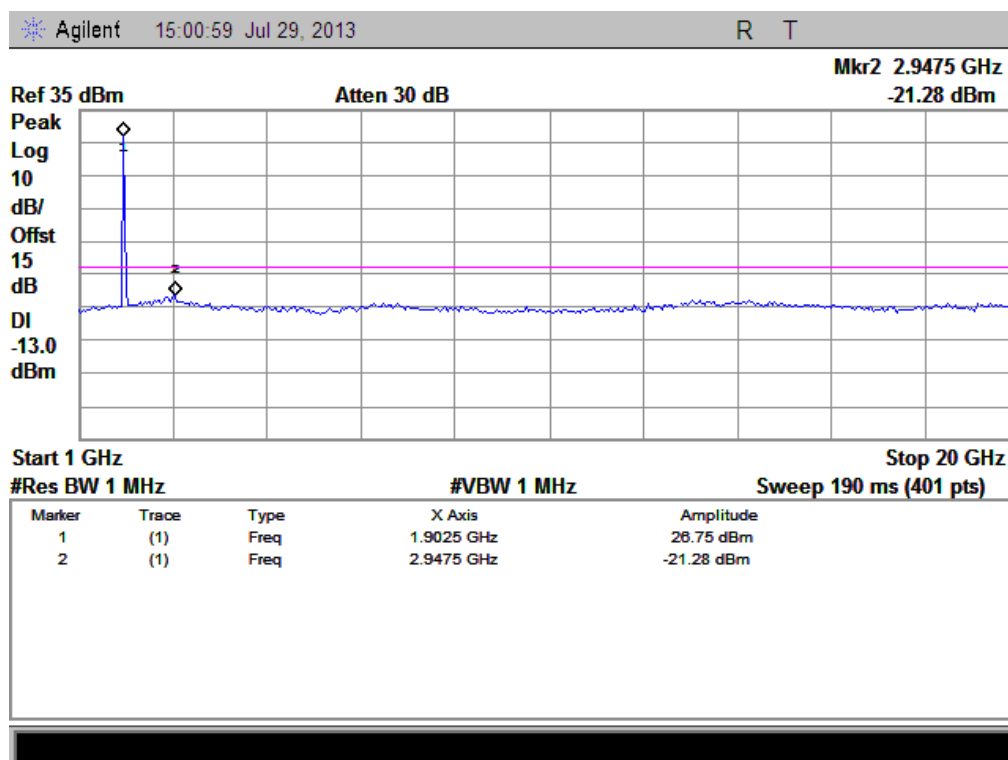
(Plot B2: GSM 1900MHz Channel = 661, 30MHz to 1GHz)



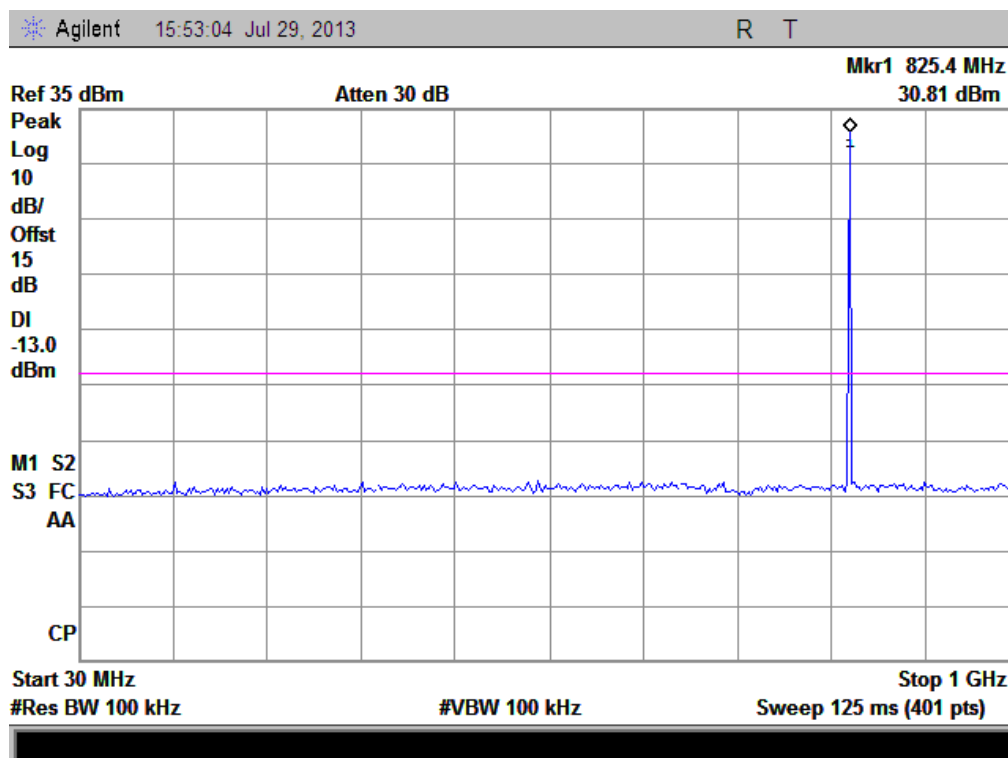
(Plot B2.1: GSM 1900MHz Channel = 661, 1GHz to 20GHz)



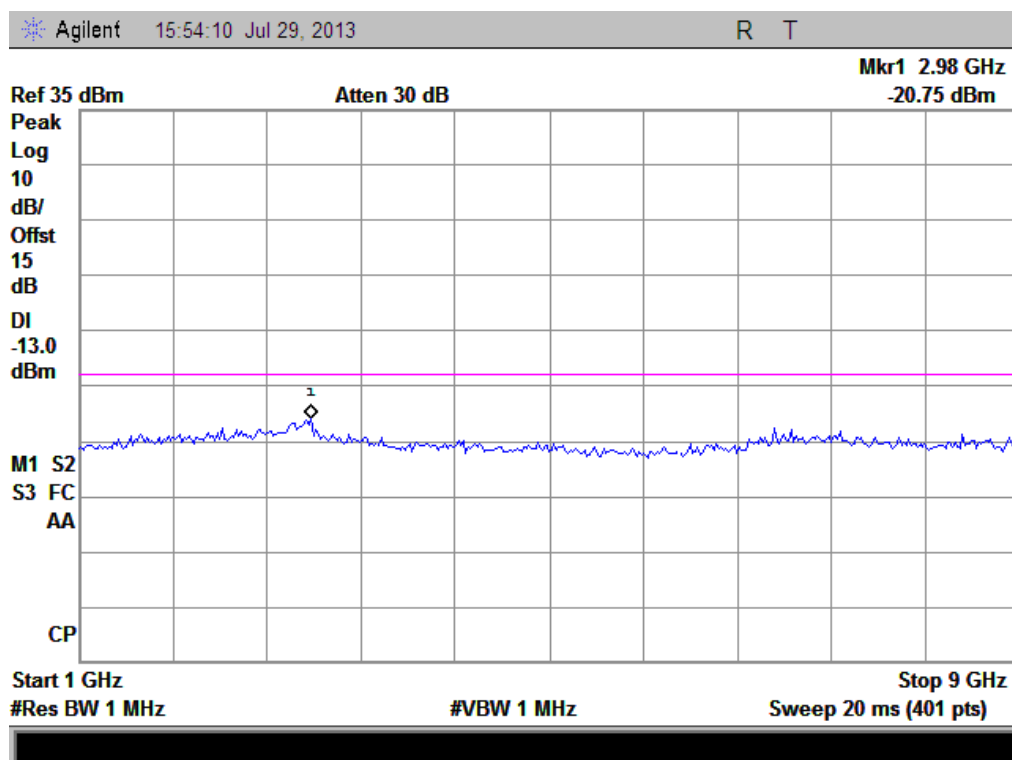
(Plot B3: GSM 1900MHz Channel = 810, 30MHz to 1GHz)



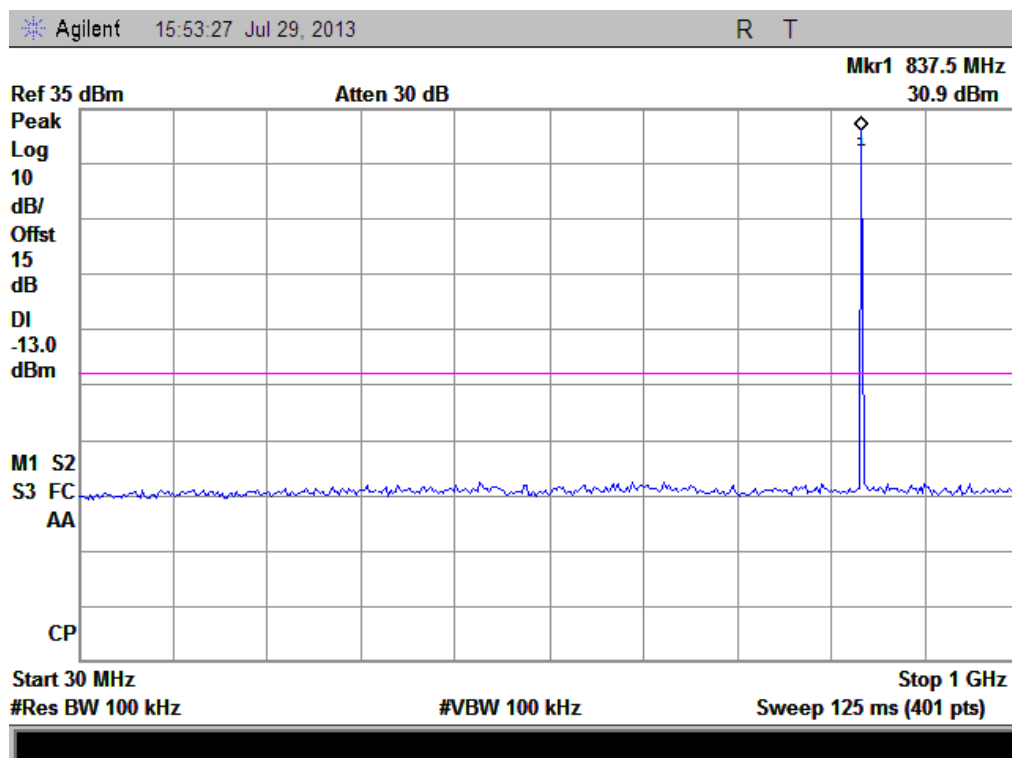
(Plot B3.1: GSM 1900MHz Channel = 810, 1GHz to 20GHz)



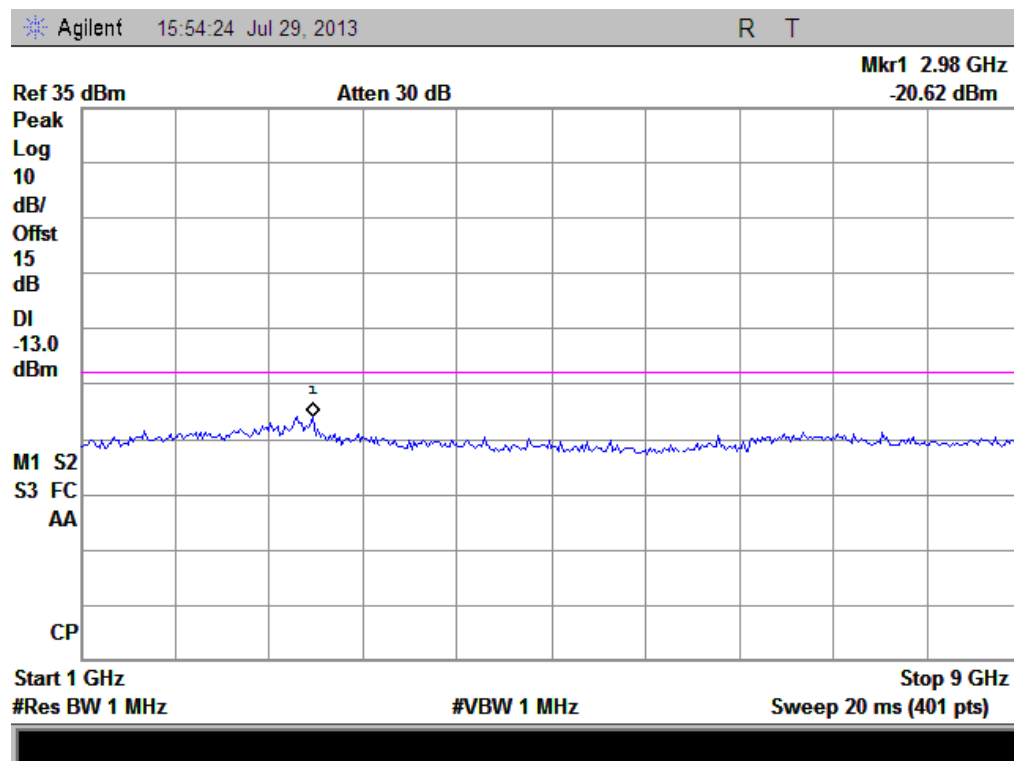
(Plot C1: EDGE 850MHz Channel = 128, 30MHz to 1GHz)



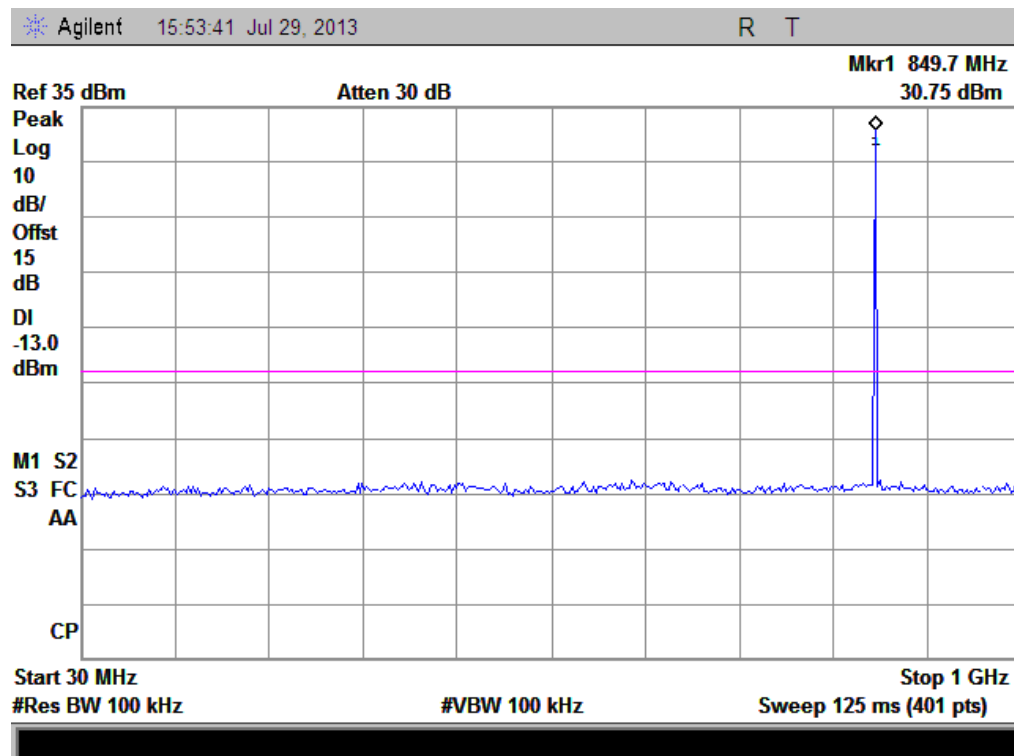
(Plot C1.1: EDGE 850MHz Channel = 128, 1GHz to 9GHz)



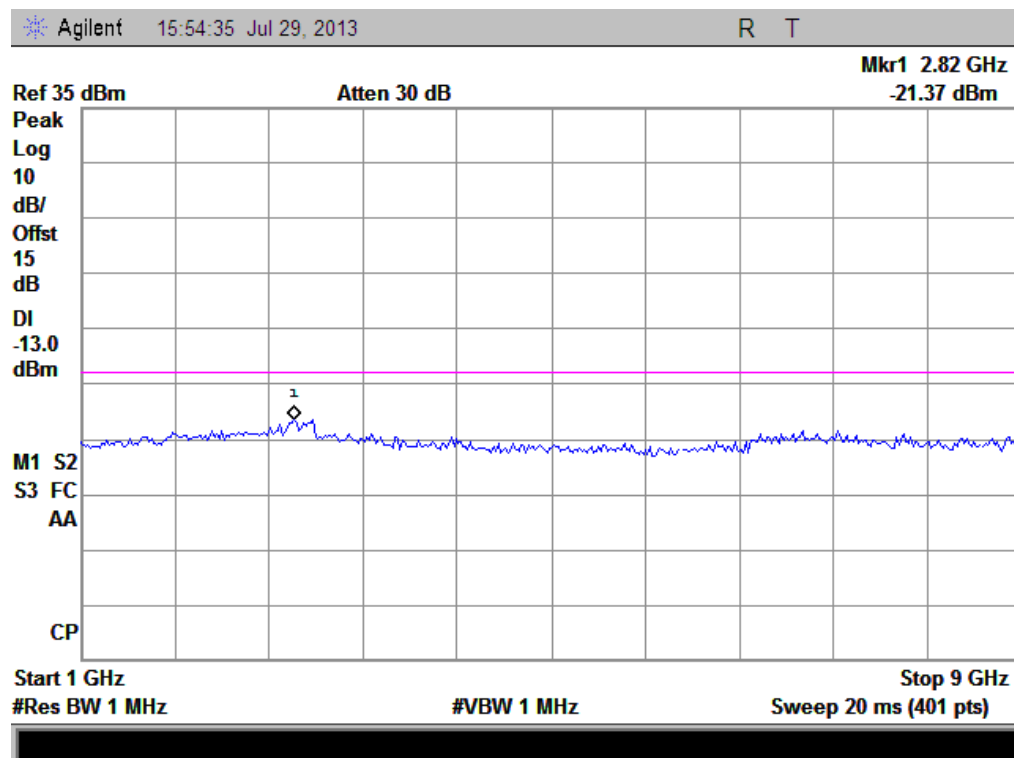
(Plot C2: EDGE 850MHz Channel = 190, 30MHz to 1GHz)



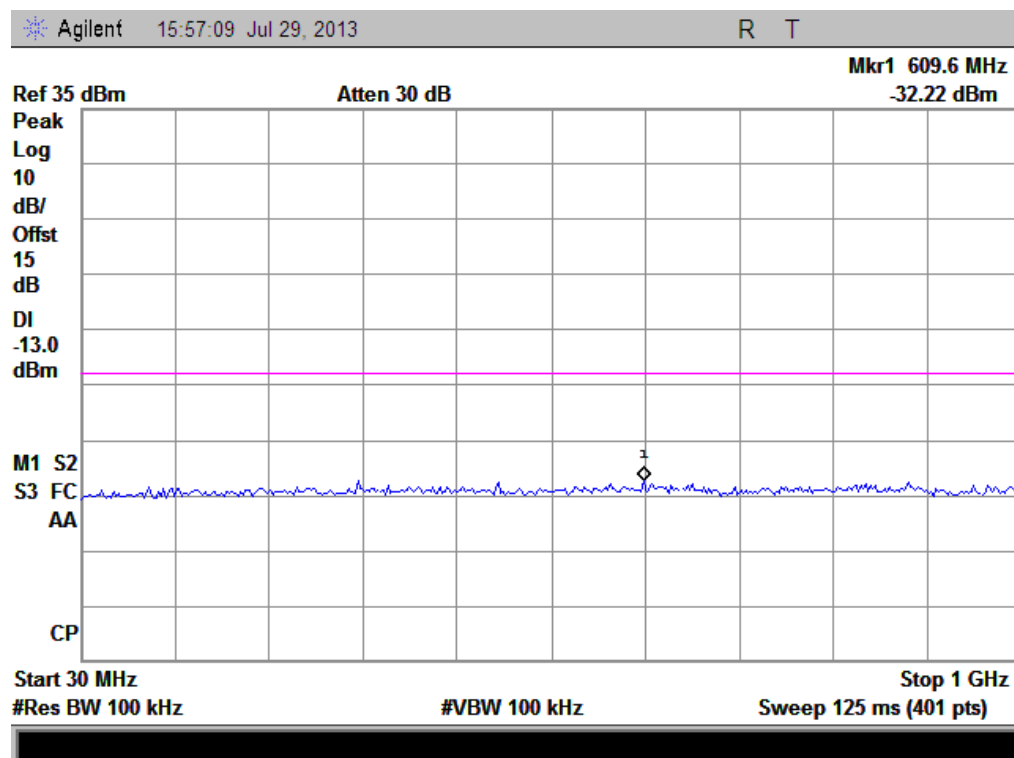
(Plot C2.1: EDGE 850MHz Channel = 190, 1GHz to 9GHz)



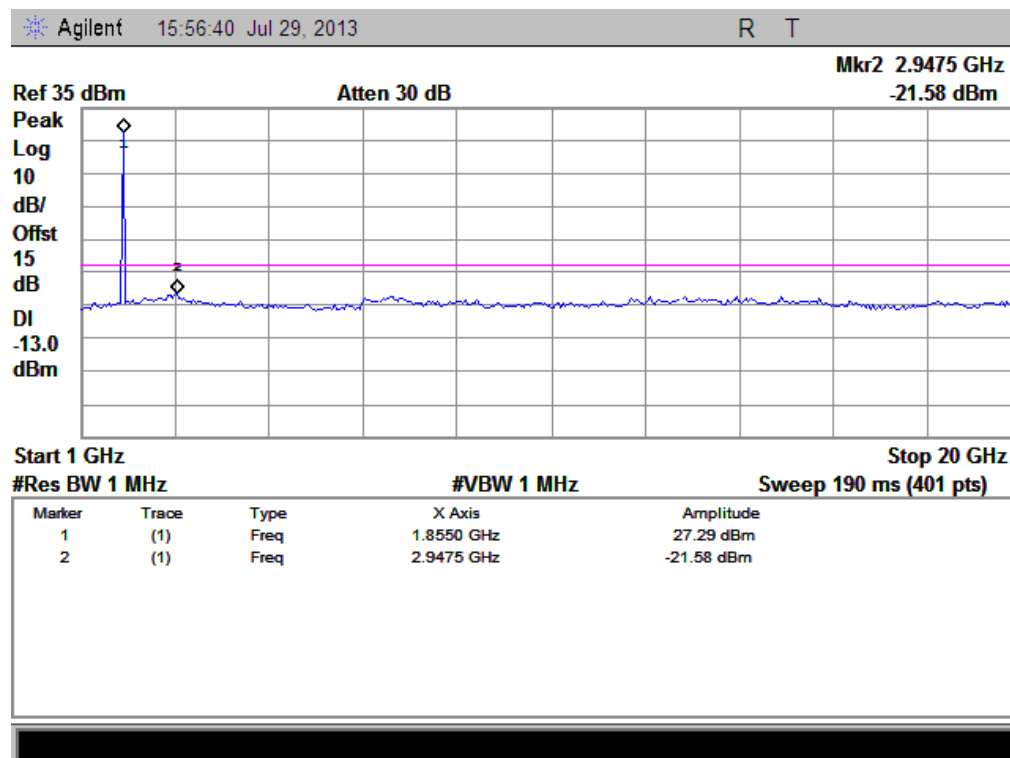
(Plot C3: EDGE 850MHz Channel = 251, 30MHz to 1GHz)



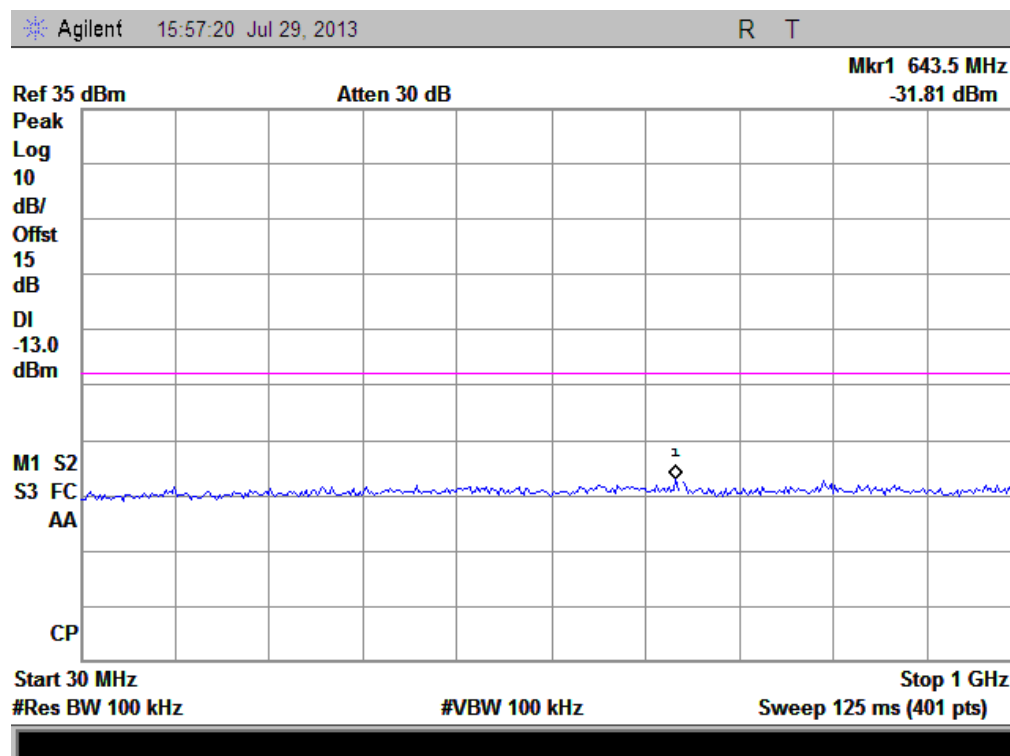
(Plot C3.1: EDGE 850MHz Channel = 251, 1GHz to 9GHz)



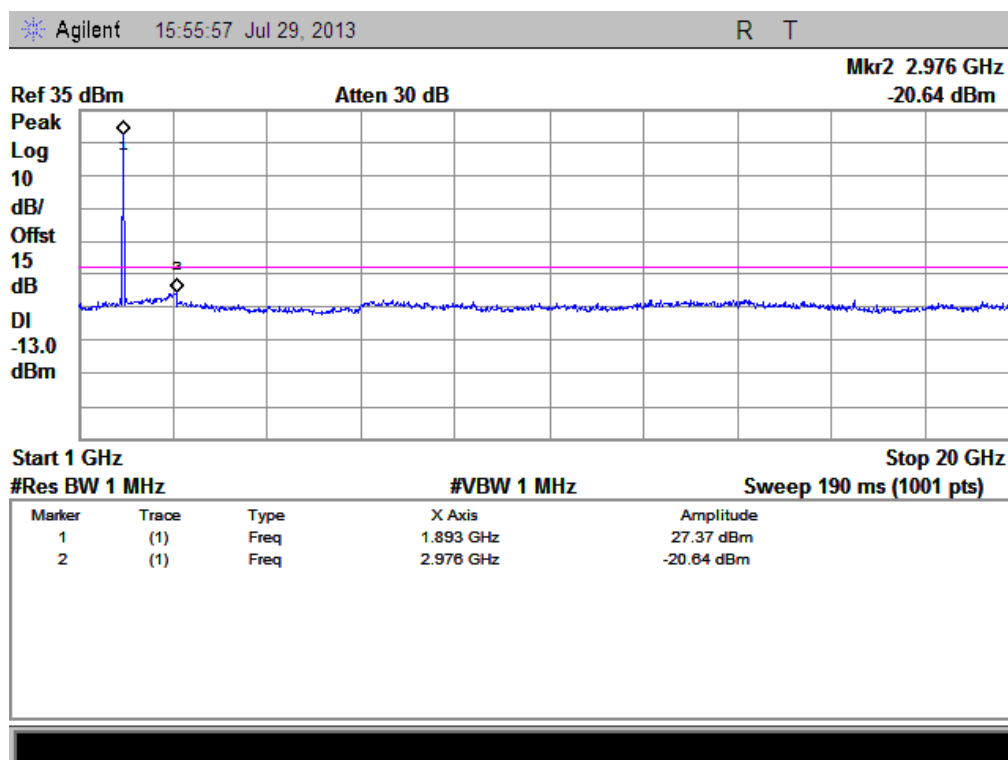
(Plot D1: EDGE 1900MHz Channel = 512, 30MHz to 1GHz)



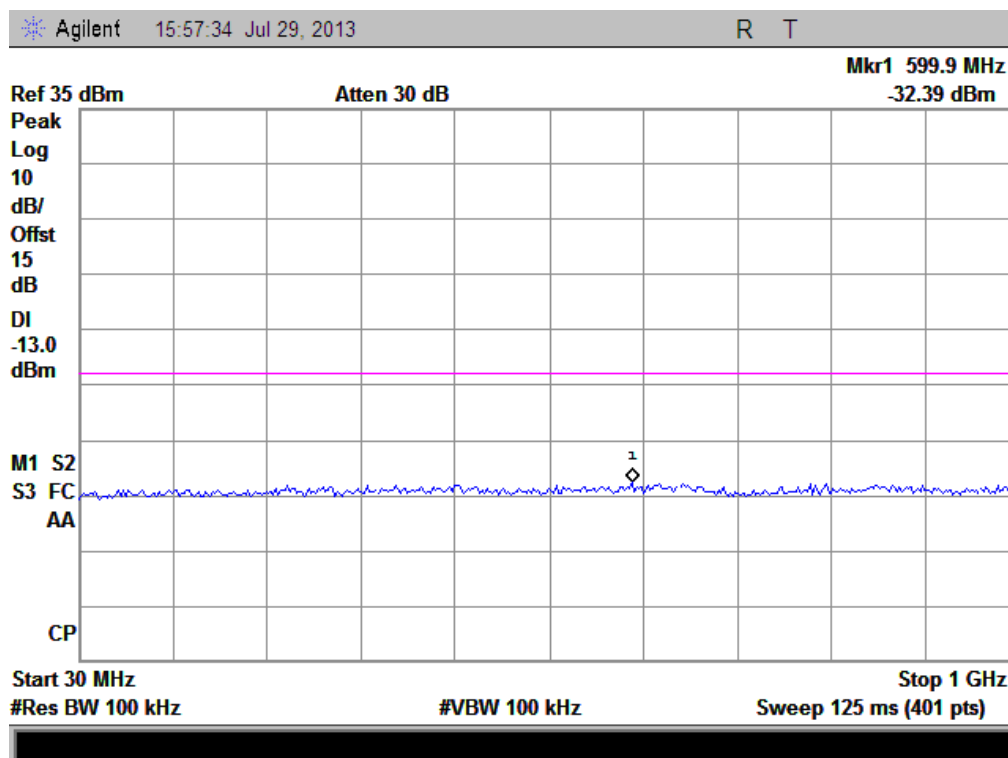
(Plot D1.1: EDGE 1900MHz Channel = 512, 1GHz to 20GHz)



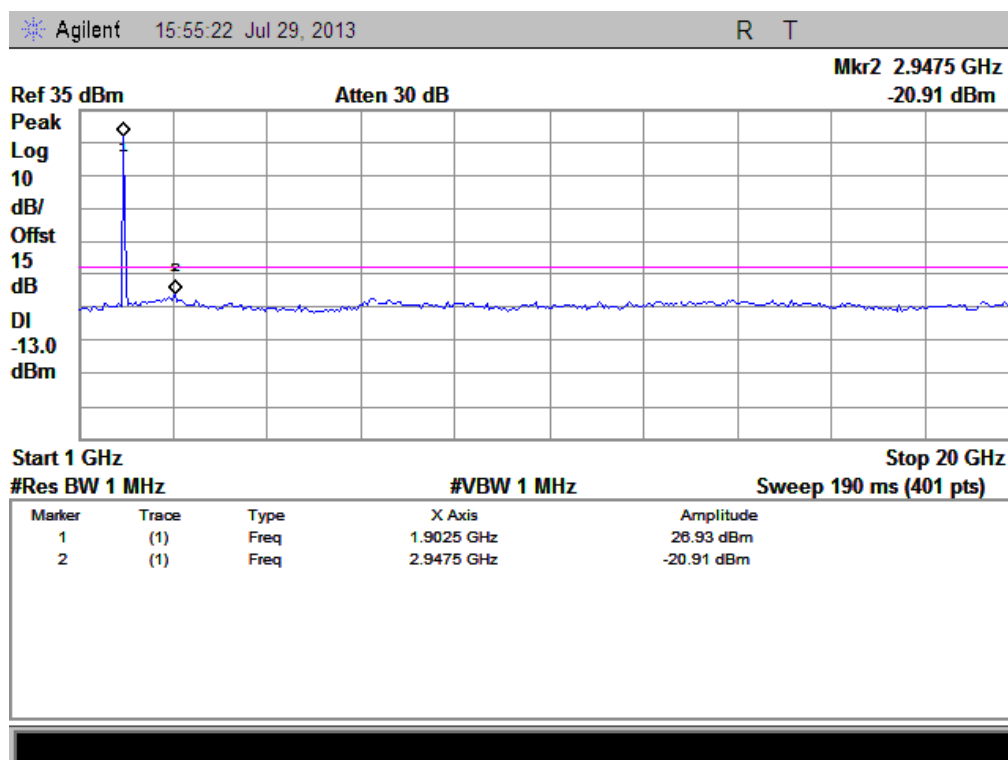
(Plot D2: EDGE 1900MHz Channel = 661, 30MHz to 1GHz)



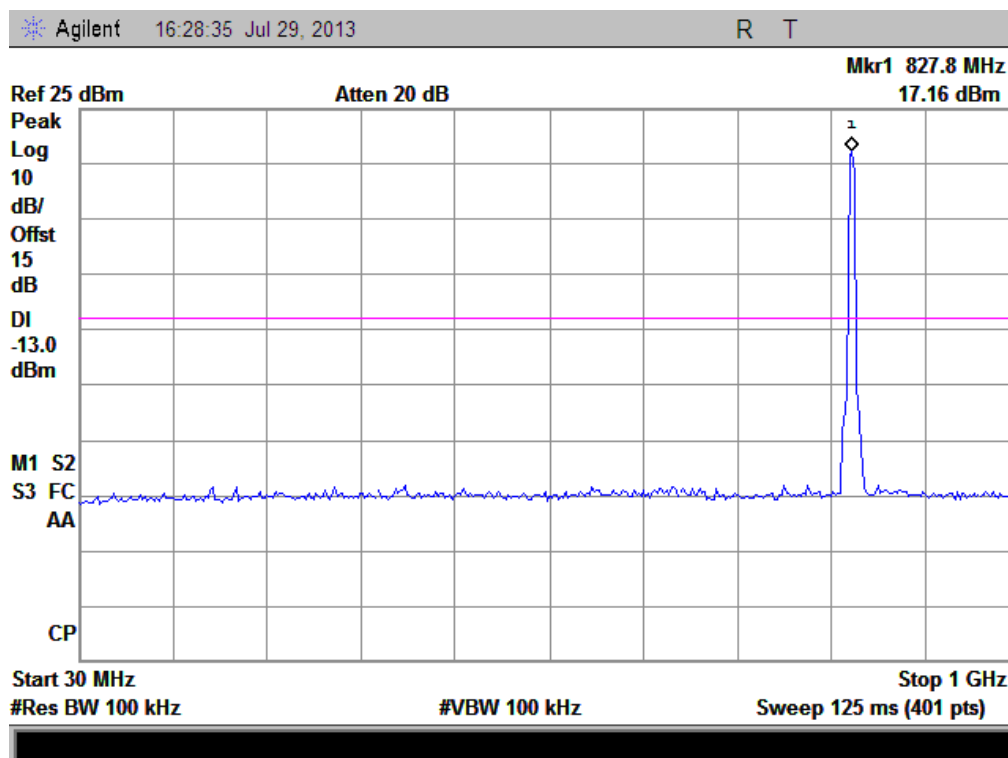
(Plot D2.1: EDGE 1900MHz Channel = 661,1GHz to 20GHz)



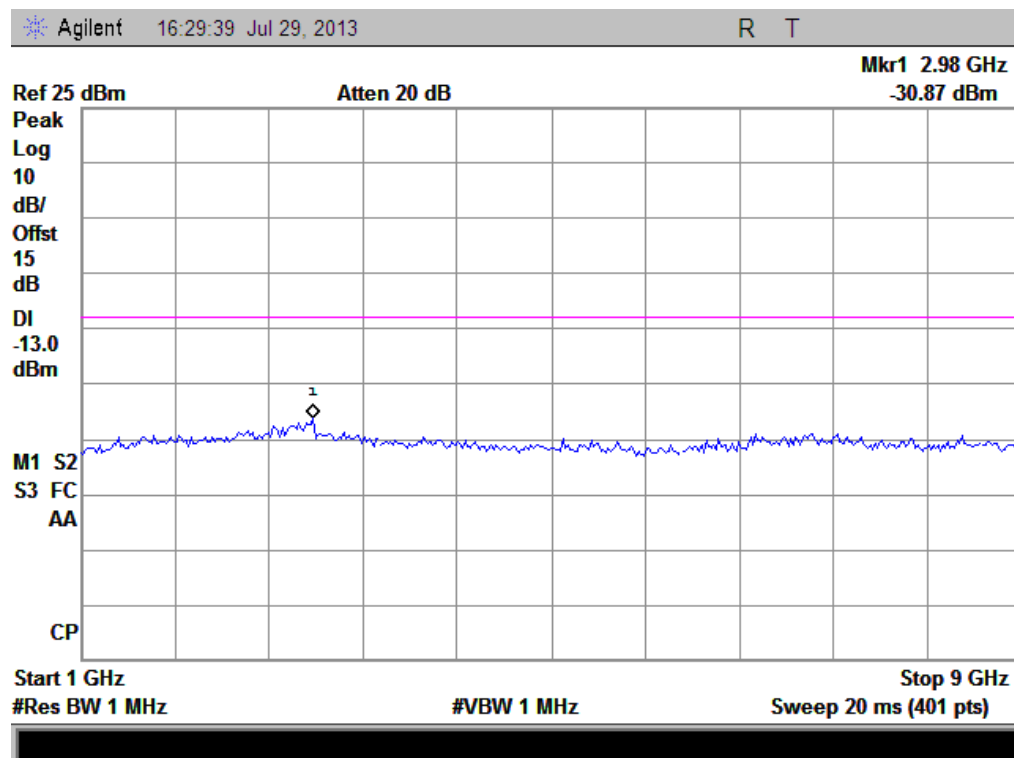
(Plot D3: EDGE 1900MHz Channel = 810, 30MHz to 1GHz)



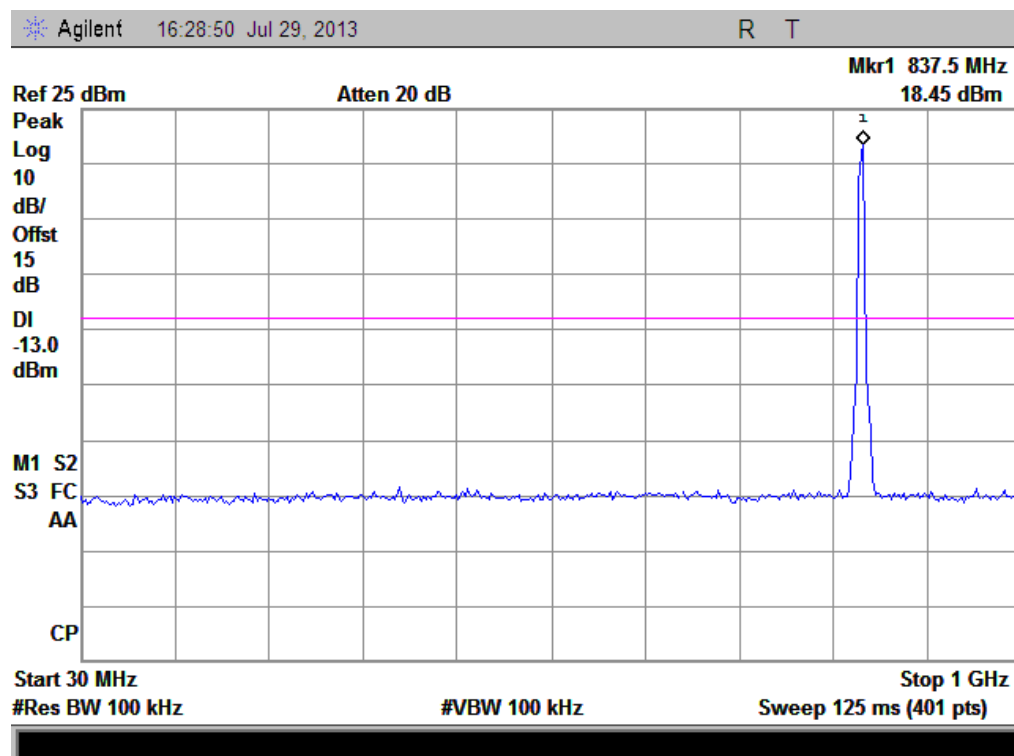
(Plot D3.1: EDGE 1900MHz Channel = 810, 1GHz to 20GHz)



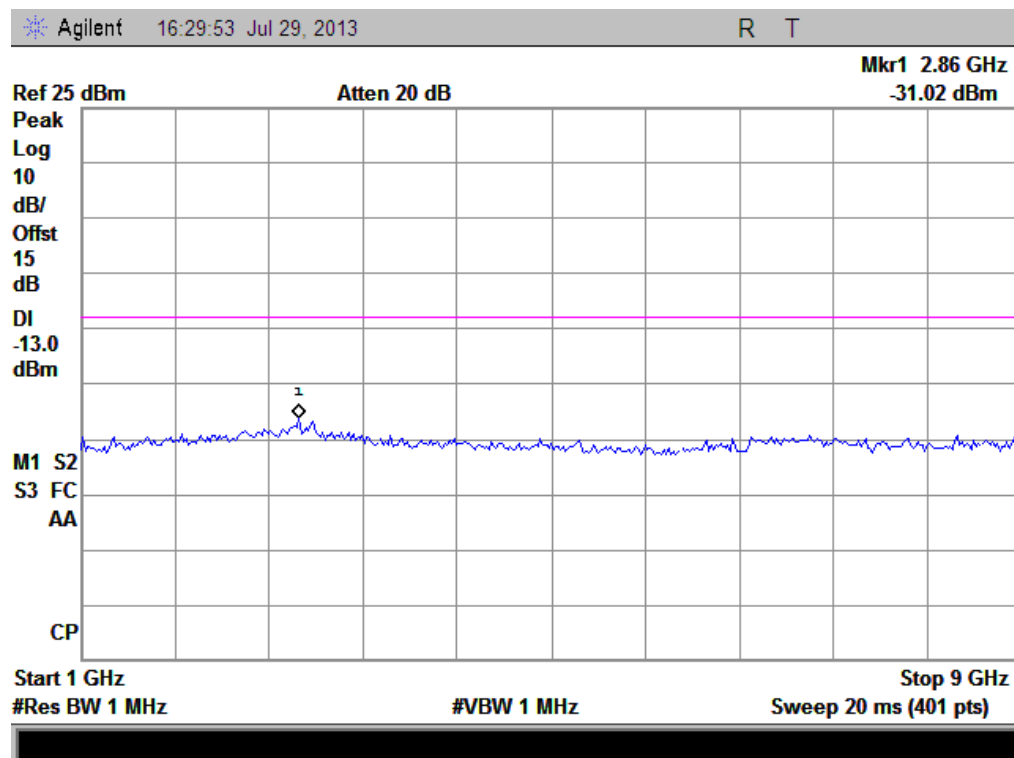
(Plot E1: WCDMA850MHz Channel = 4132, 30MHz to 1GHz)



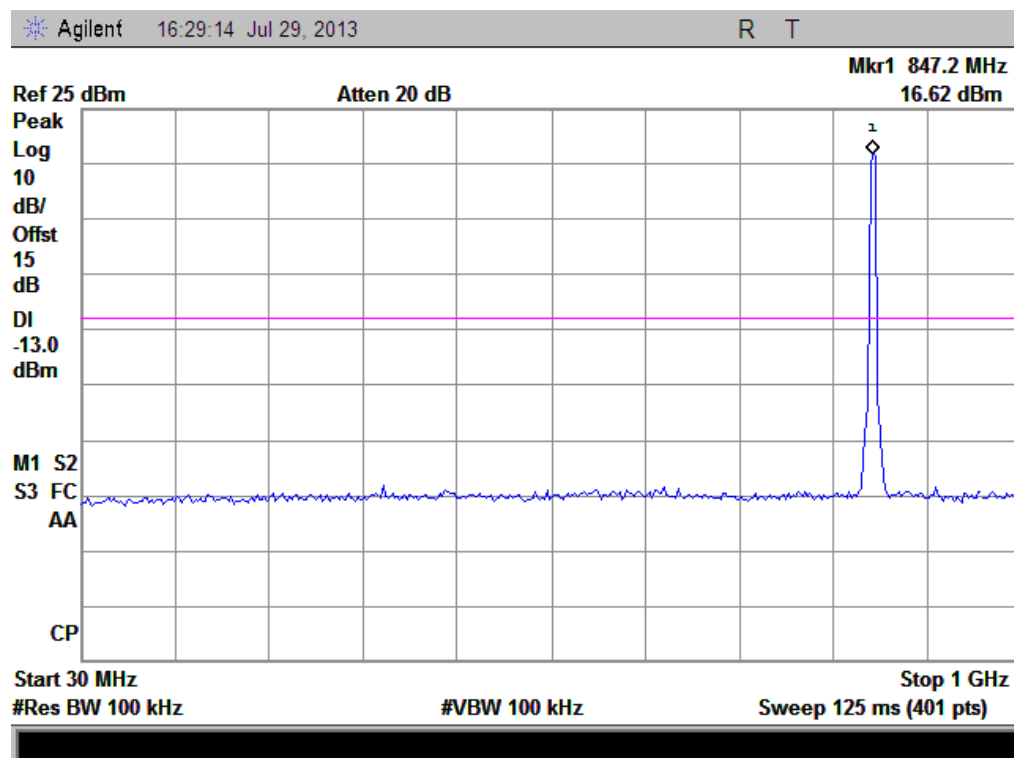
(Plot E1.1: WCDMA850MHz Channel = 4132, 1GHz to 9GHz)



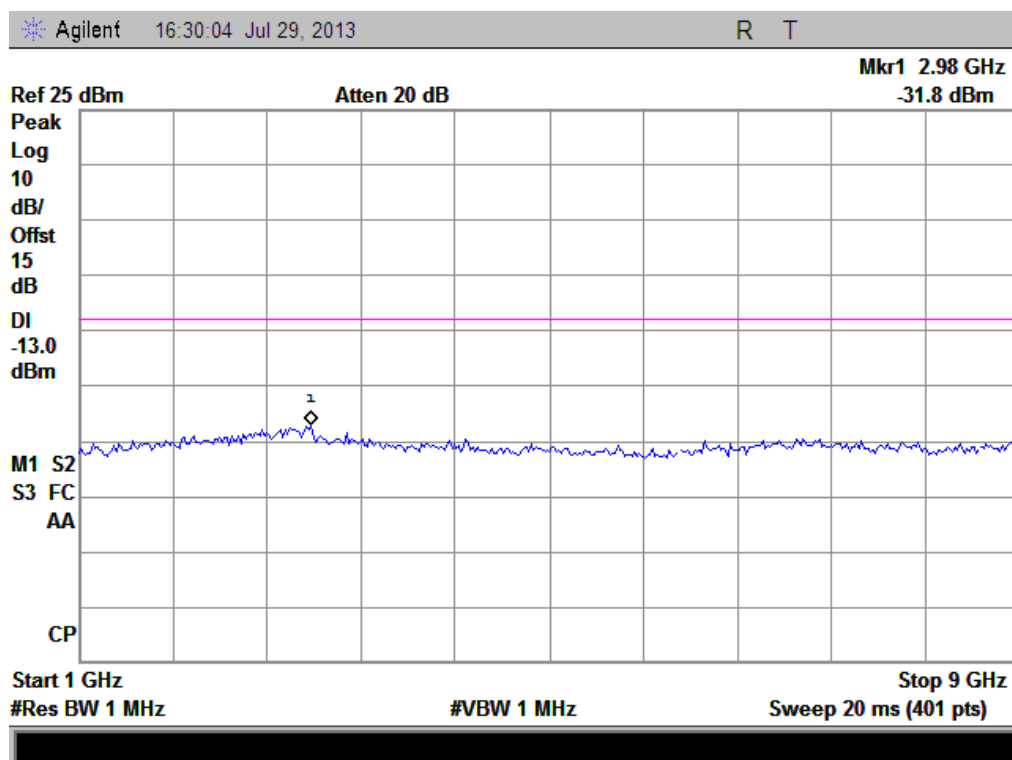
(Plot E2: WCDMA850MHz Channel = 4175, 30MHz to 1GHz)



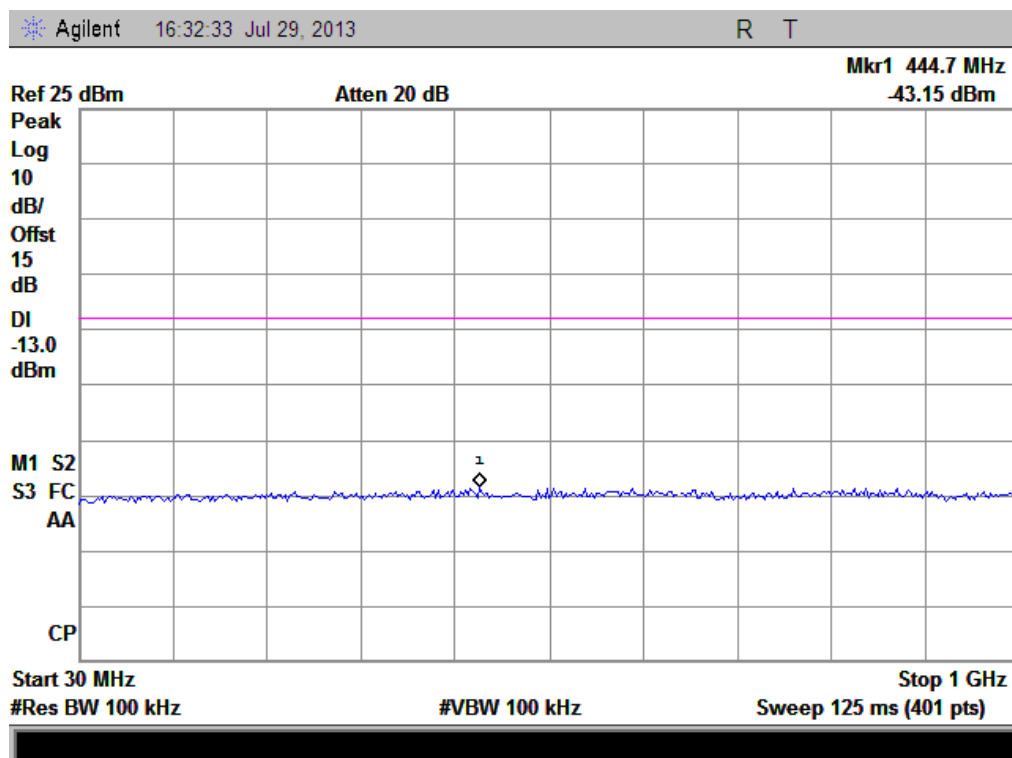
(Plot E2.1: WCDMA850MHz Channel = 4175, 1GHz to 9GHz)



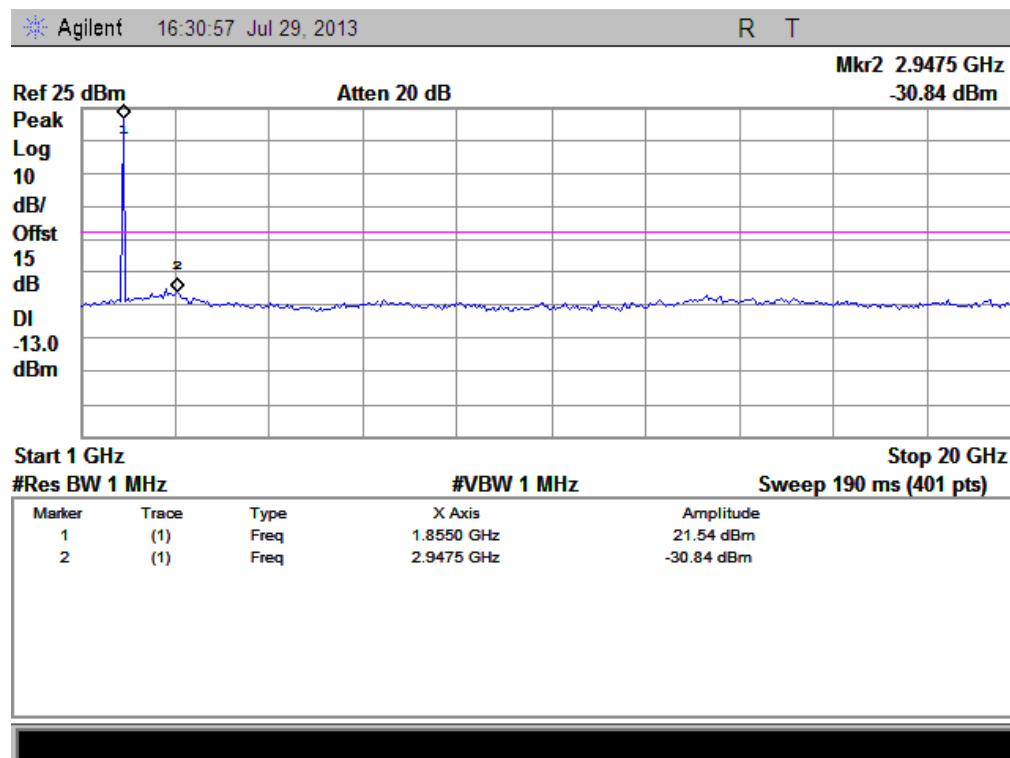
(Plot E3: WCDMA850MHz Channel = 4233, 30MHz to 1GHz)



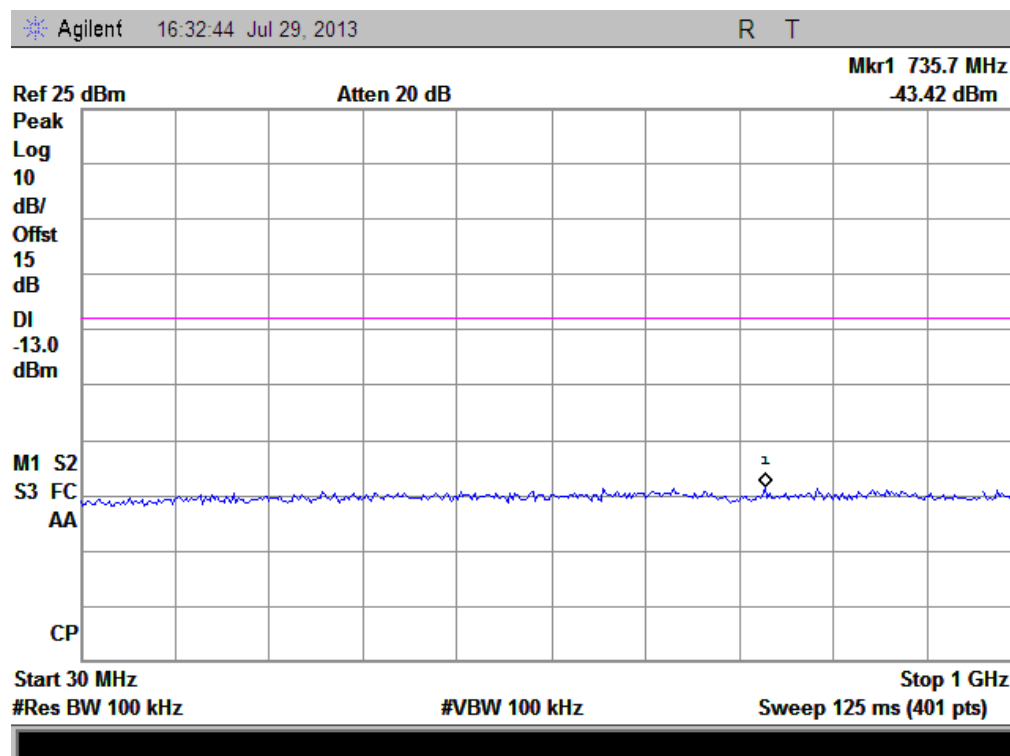
(Plot E3.1: WCDMA850MHz Channel = 4233, 1GHz to 9GHz)



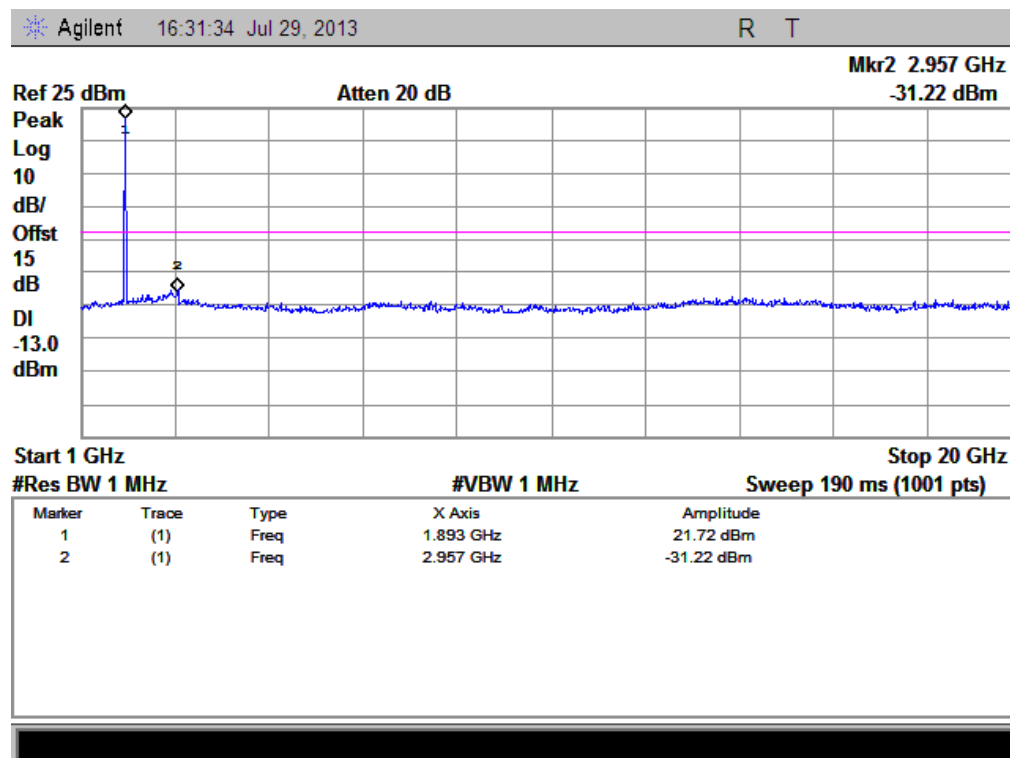
(Plot F1: WCDMA1900MHz Channel = 9262, 30MHz to 1GHz)



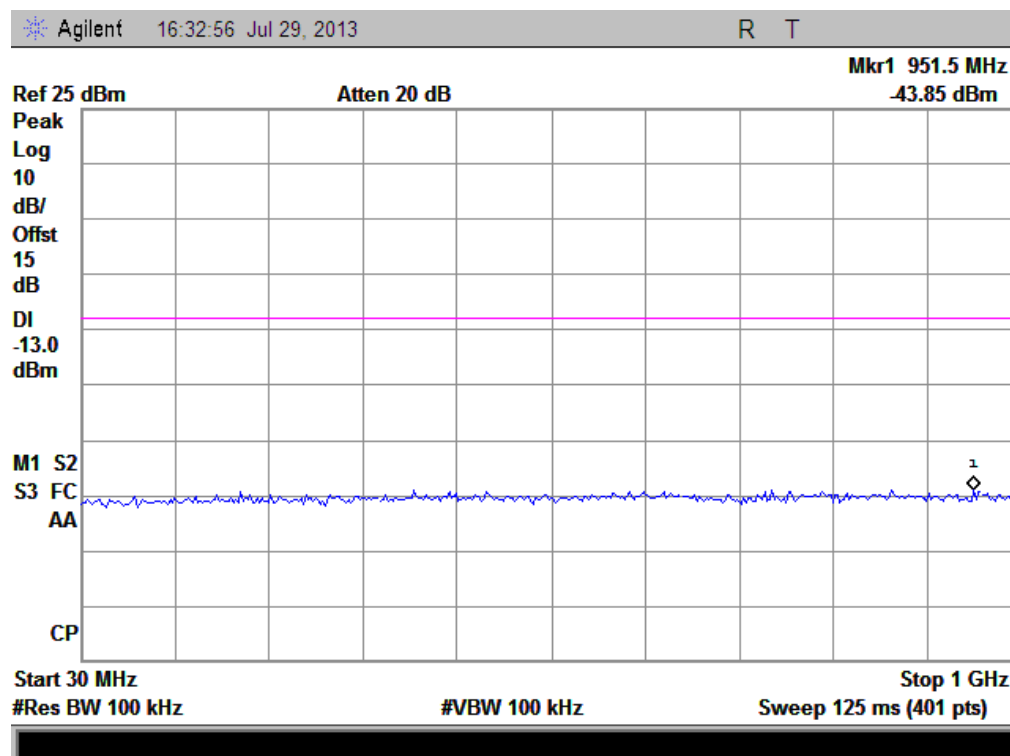
(Plot F1.1: WCDMA1900MHz Channel = 9262, 1GHz to 20GHz)



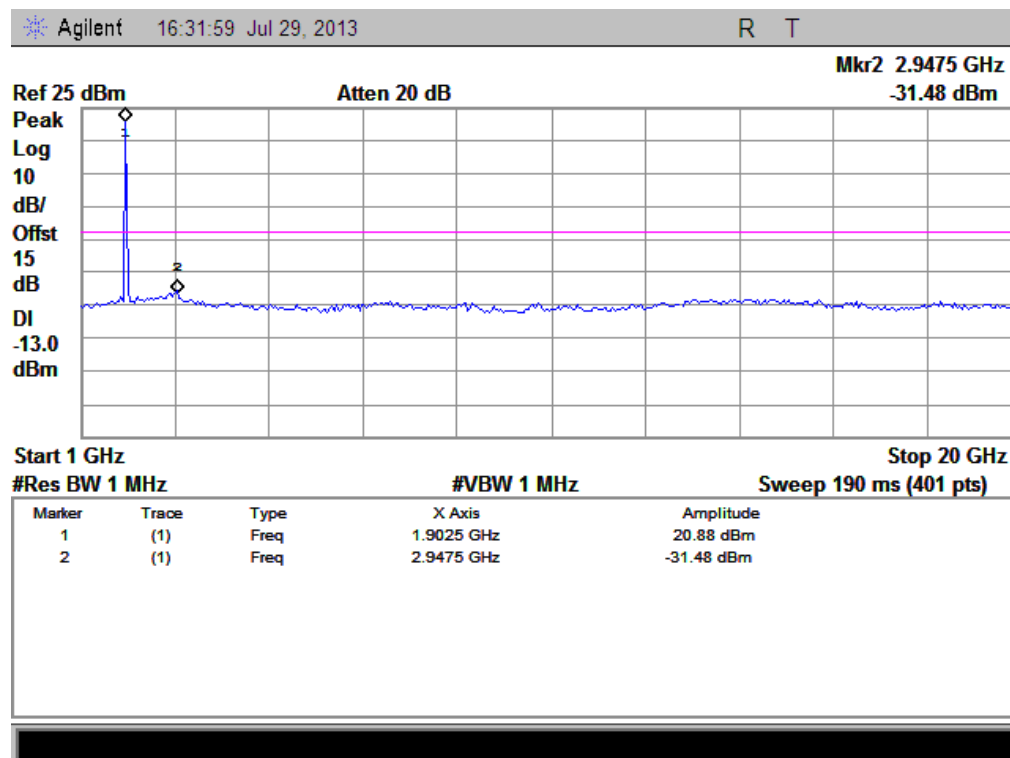
(Plot F2: WCDMA1900MHz Channel = 9400, 30MHz to 1GHz)



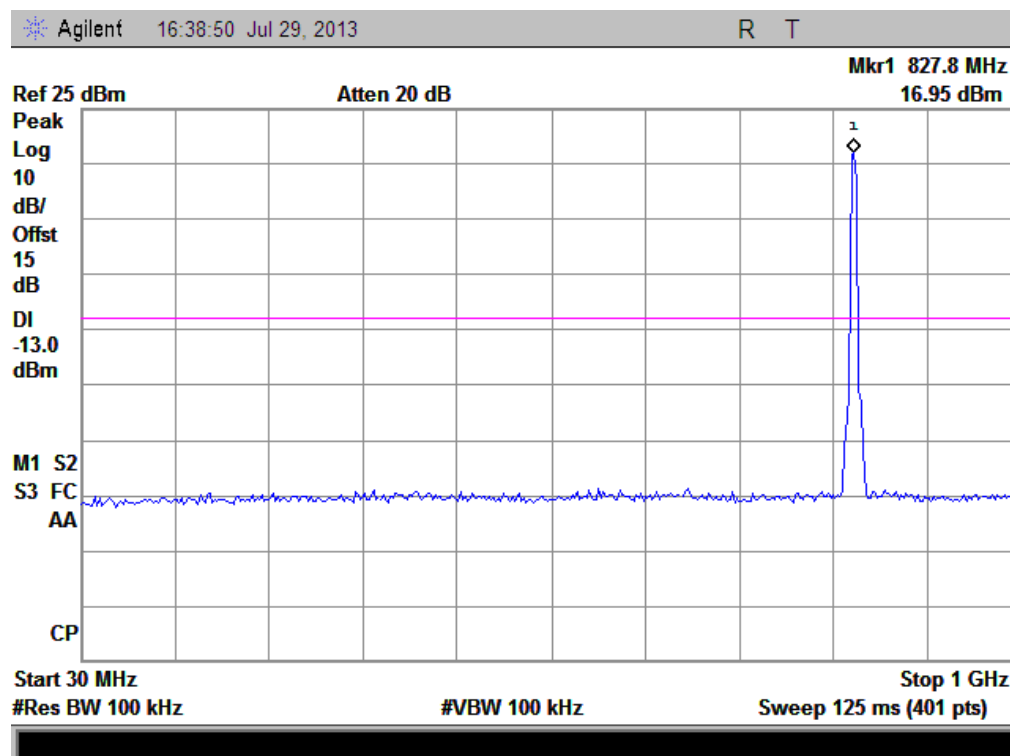
(Plot F2.1: WCDMA1900MHz Channel = 9400, 1GHz to 20GHz)



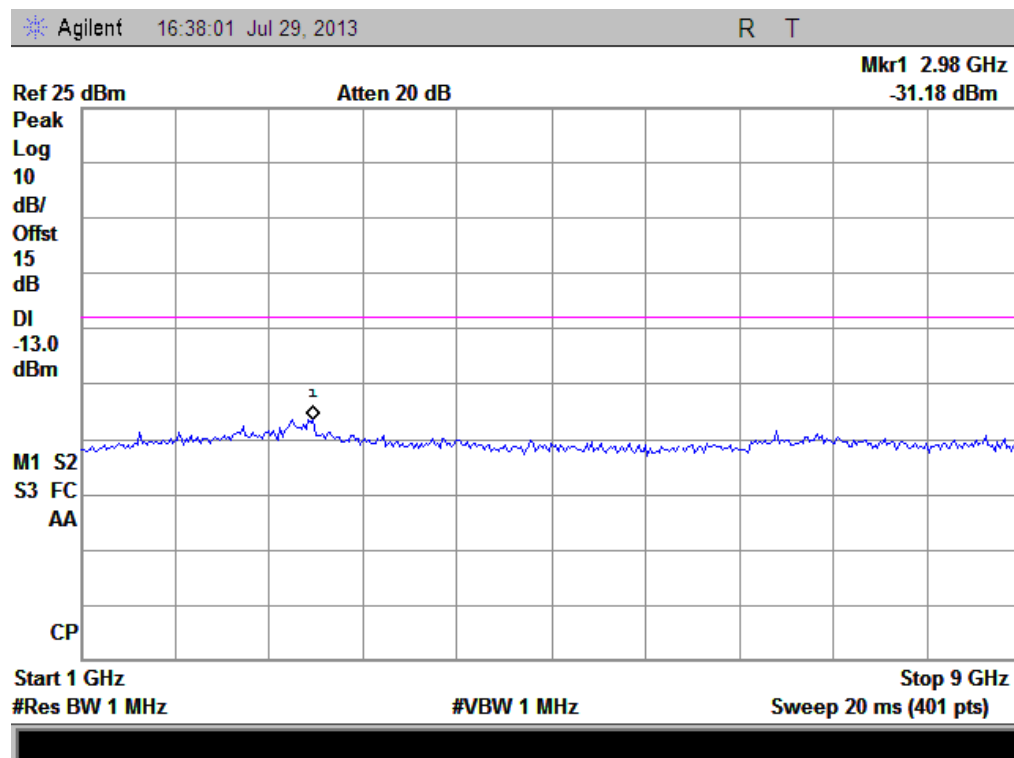
(Plot F3: WCDMA1900MHz Channel = 9538, 30MHz to 1GHz)



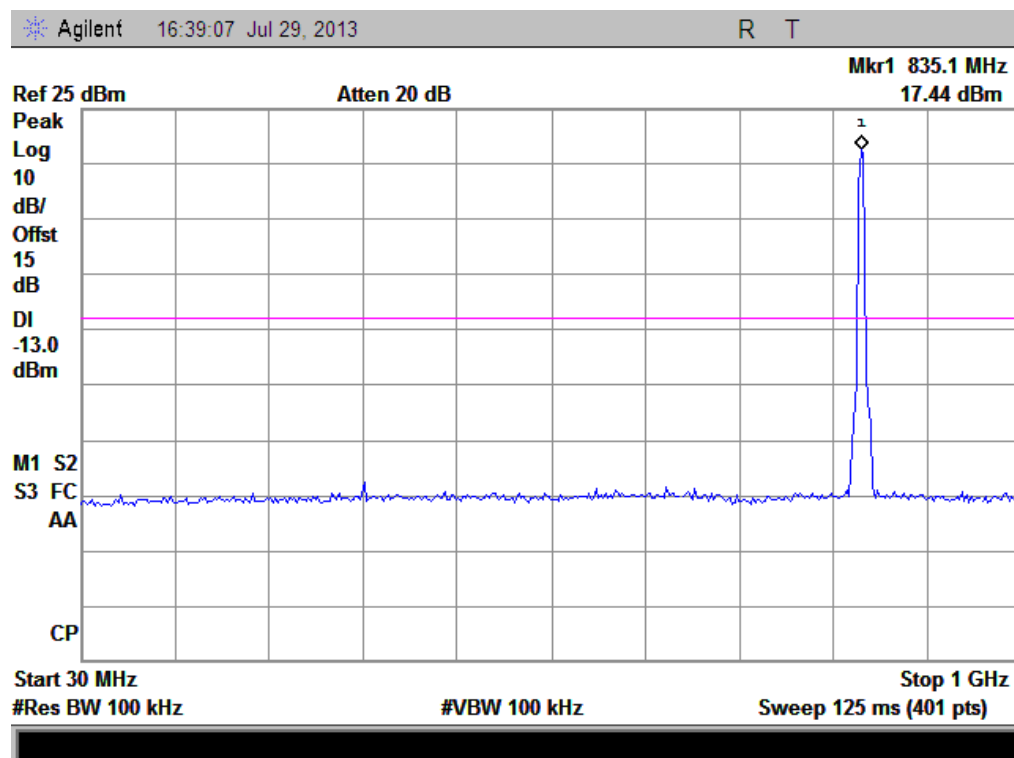
(Plot F3.1: WCDMA1900MHz Channel = 9538 1GHz to 20GHz)



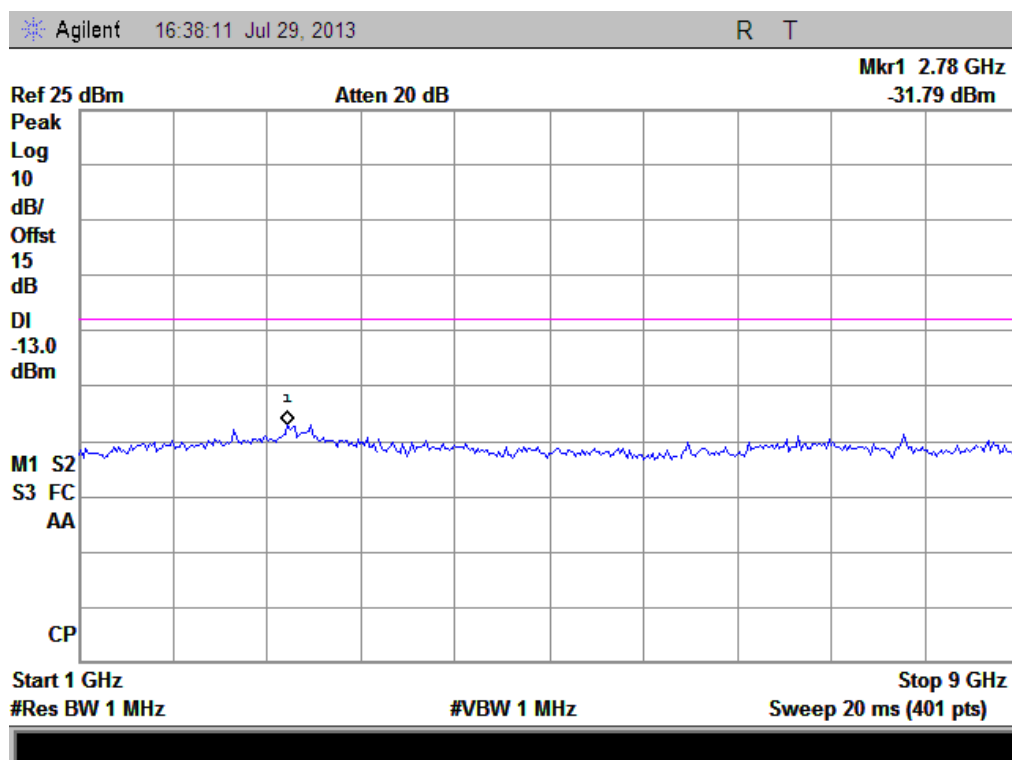
(Plot G1: HSDPA 850MHz Channel = 4132, 30MHz to 1GHz)



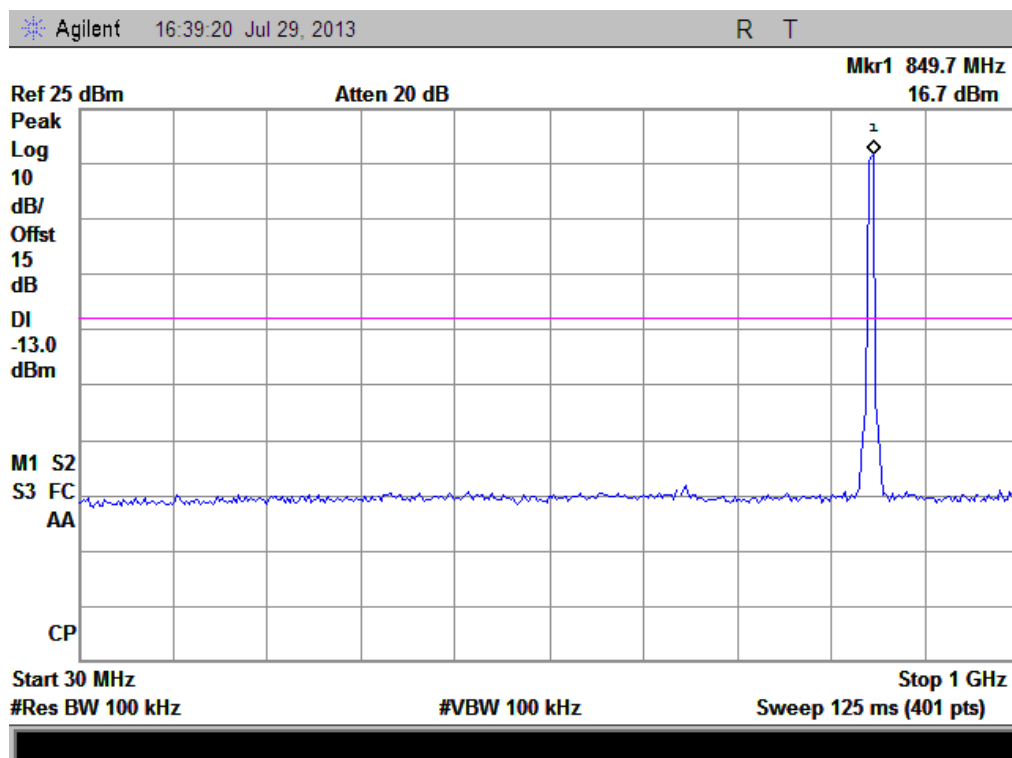
(Plot G1.1: HSDPA 850MHz Channel = 4132, 1GHz to 9GHz)



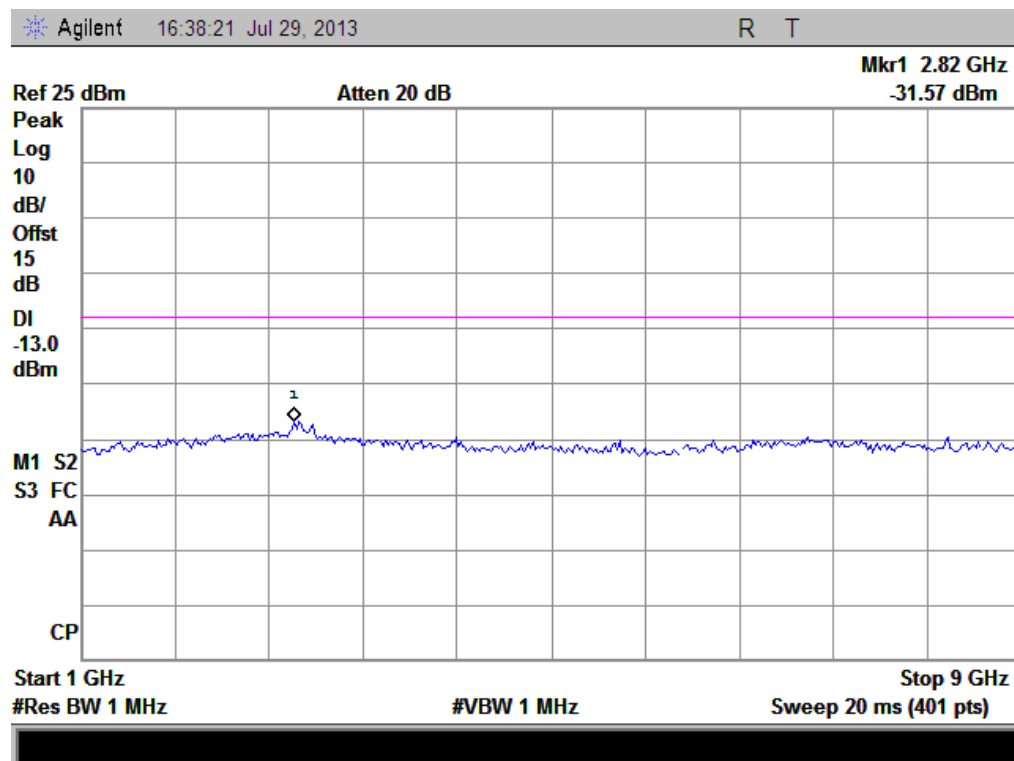
(Plot G2: HSDPA 850MHz Channel = 4175, 30MHz to 1GHz)



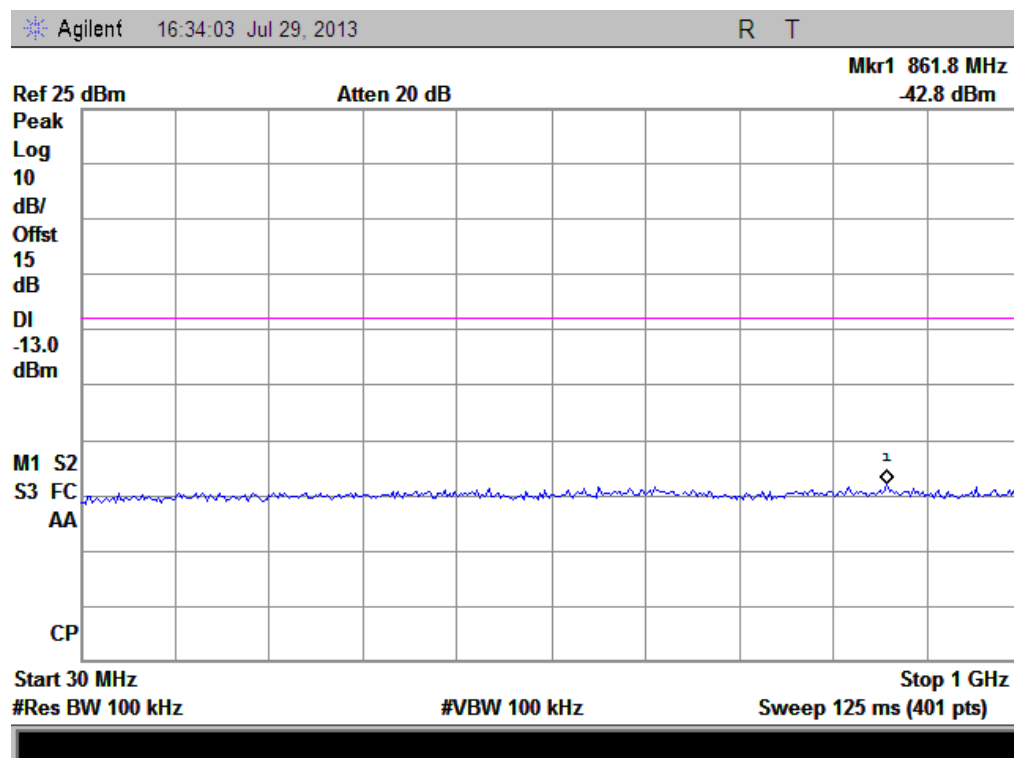
(Plot G2.1: HSDPA 850MHz Channel = 4175, 1GHz to 9GHz)



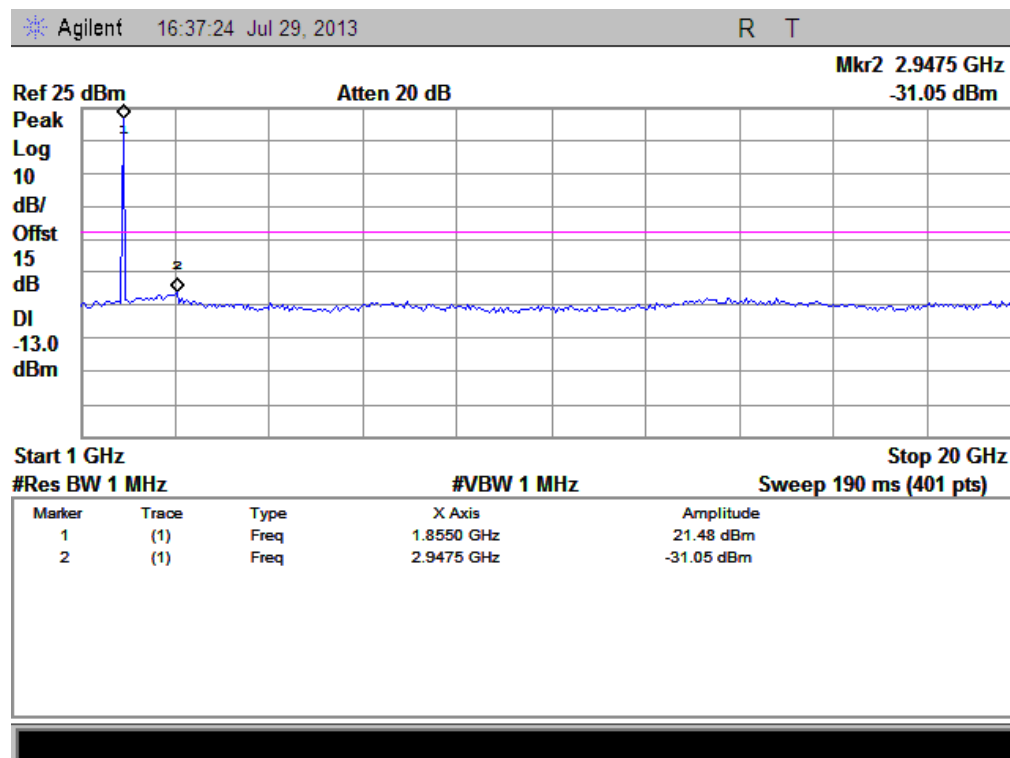
(Plot G3: HSDPA850MHz Channel = 4233, 30MHz to 1GHz)



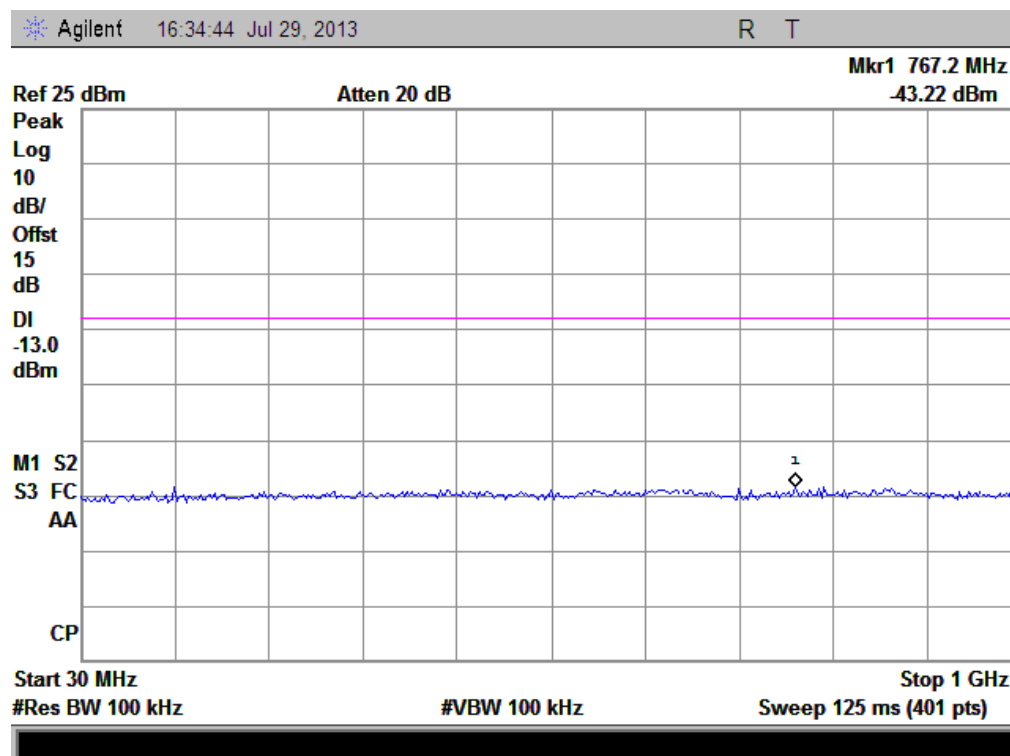
(Plot G3.1: HSDPA850MHz Channel = 4233, 1GHz to 9GHz)



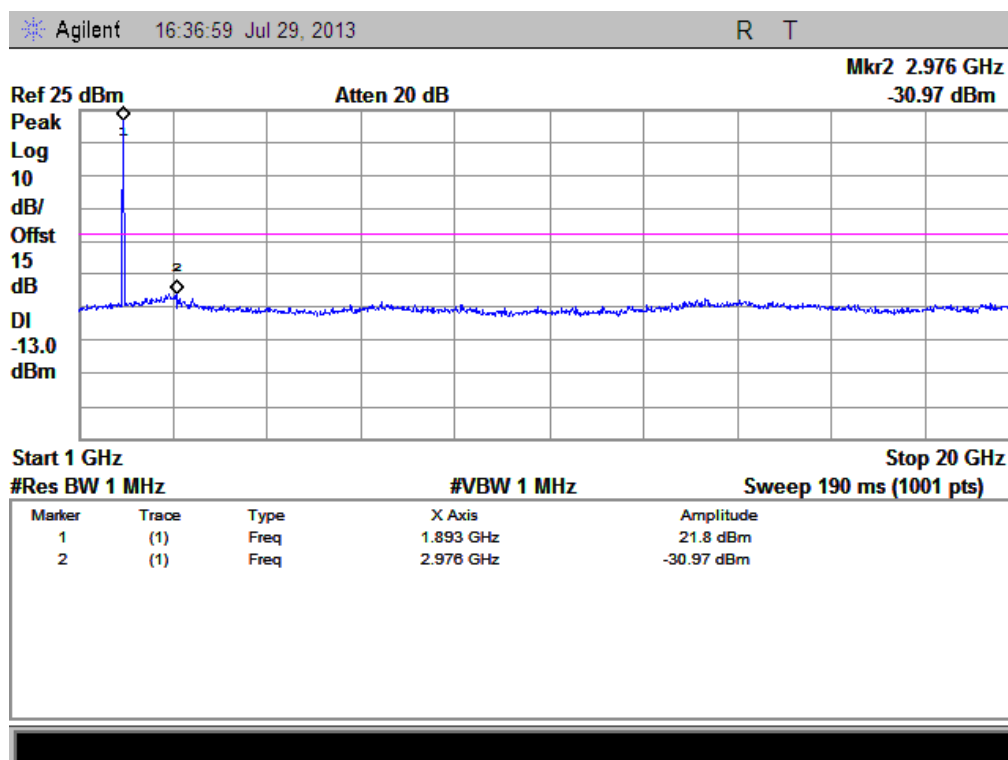
(Plot H1: HSDPA1900MHz Channel = 9262, 30MHz to 1GHz)



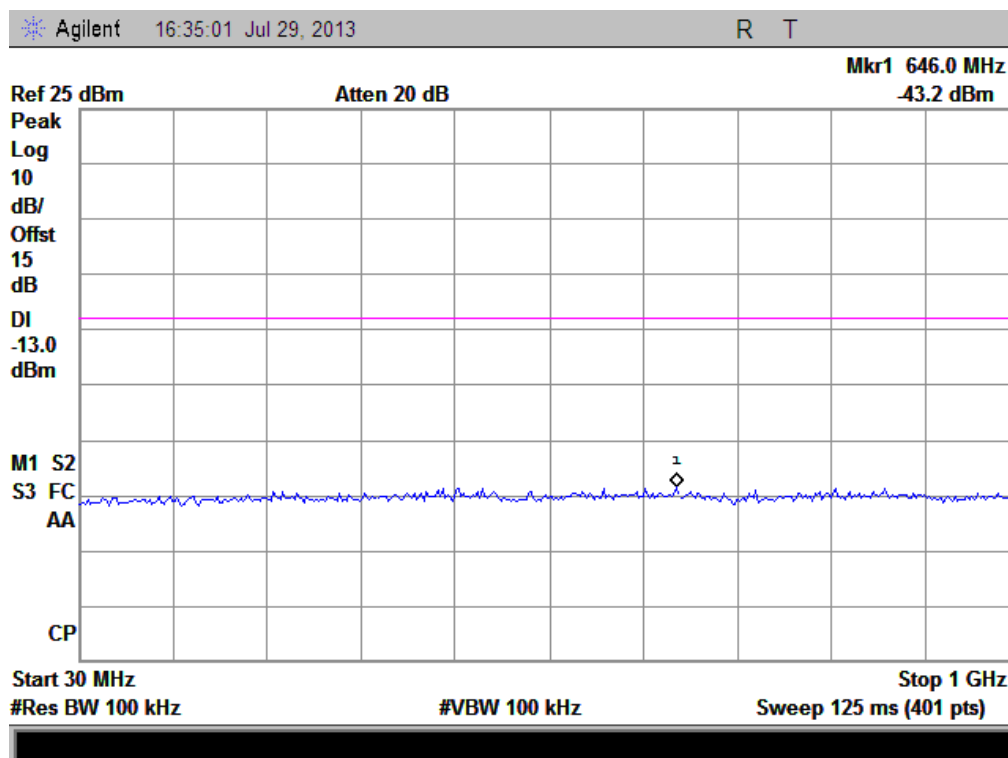
(Plot H1.1: HSDPA1900MHz Channel = 9262, 1GHz to 20GHz)



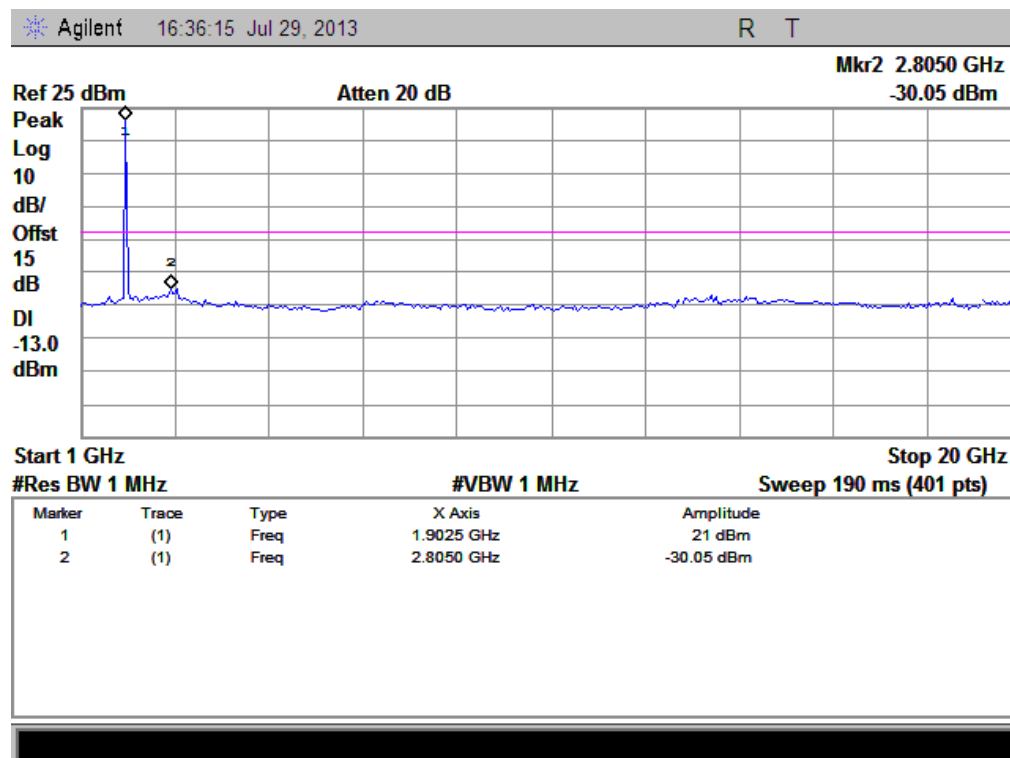
(Plot H2: HSDPA1900MHz Channel = 9400, 30MHz to 1GHz)



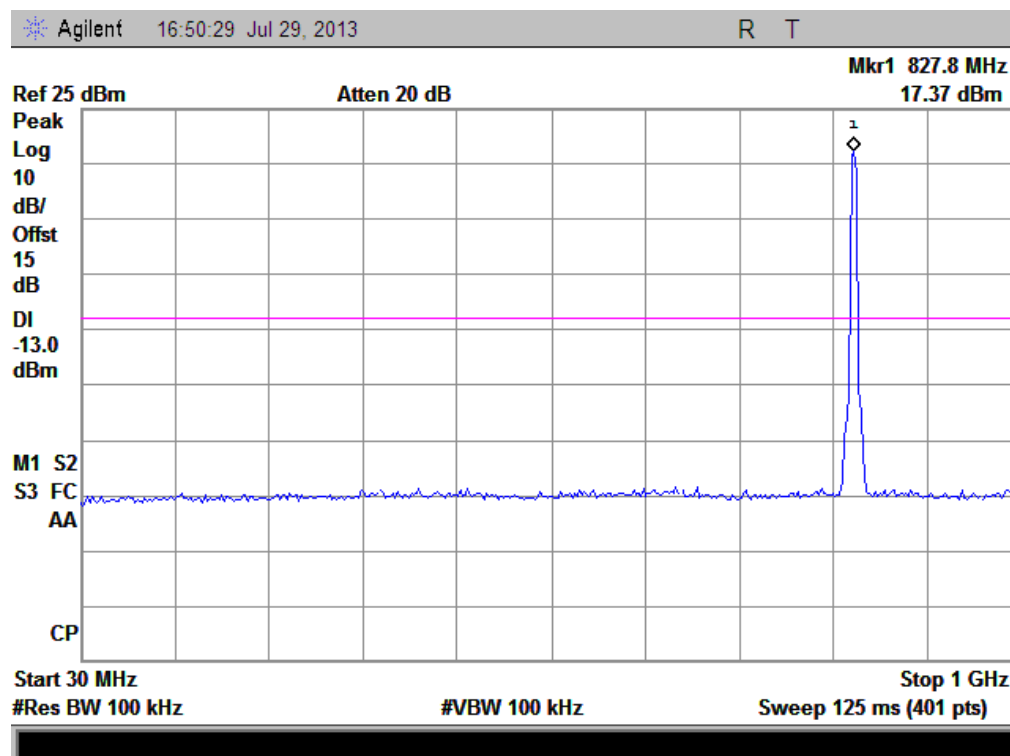
(Plot H2.1: HSDPA1900MHz Channel = 9400, 1GHz to 20GHz)



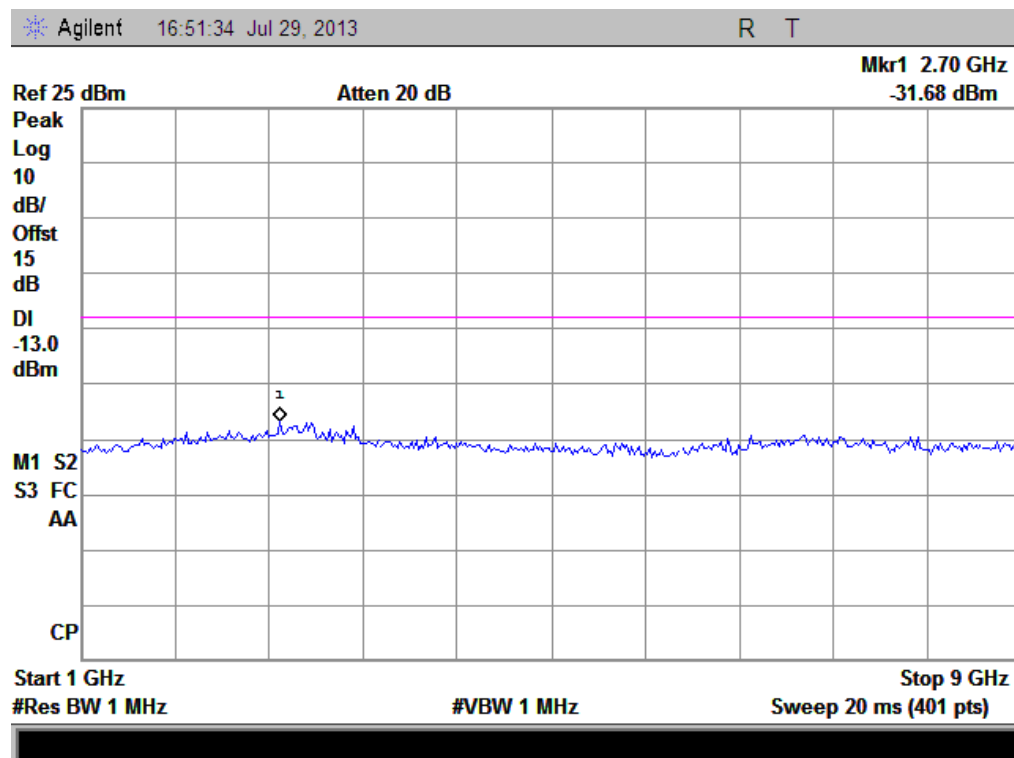
(Plot H3: HSDPA1900MHz Channel = 9538, 30MHz to 1GHz)



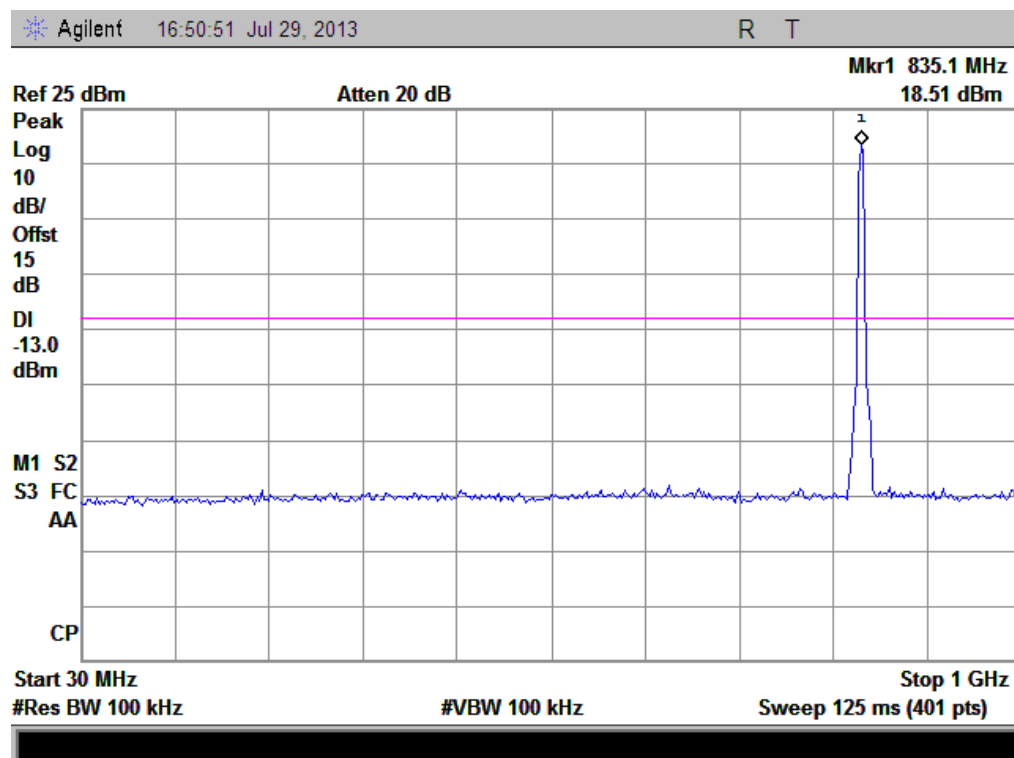
(Plot H3.1: HSDPA1900MHz Channel = 9538 1GHz to 20GHz)



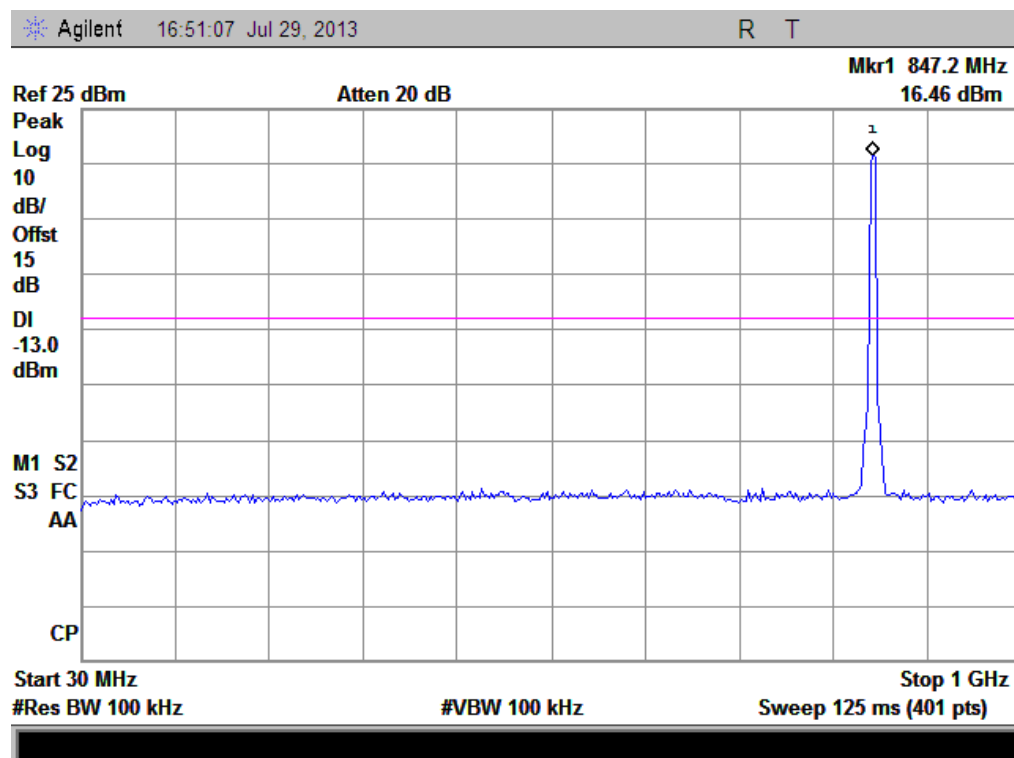
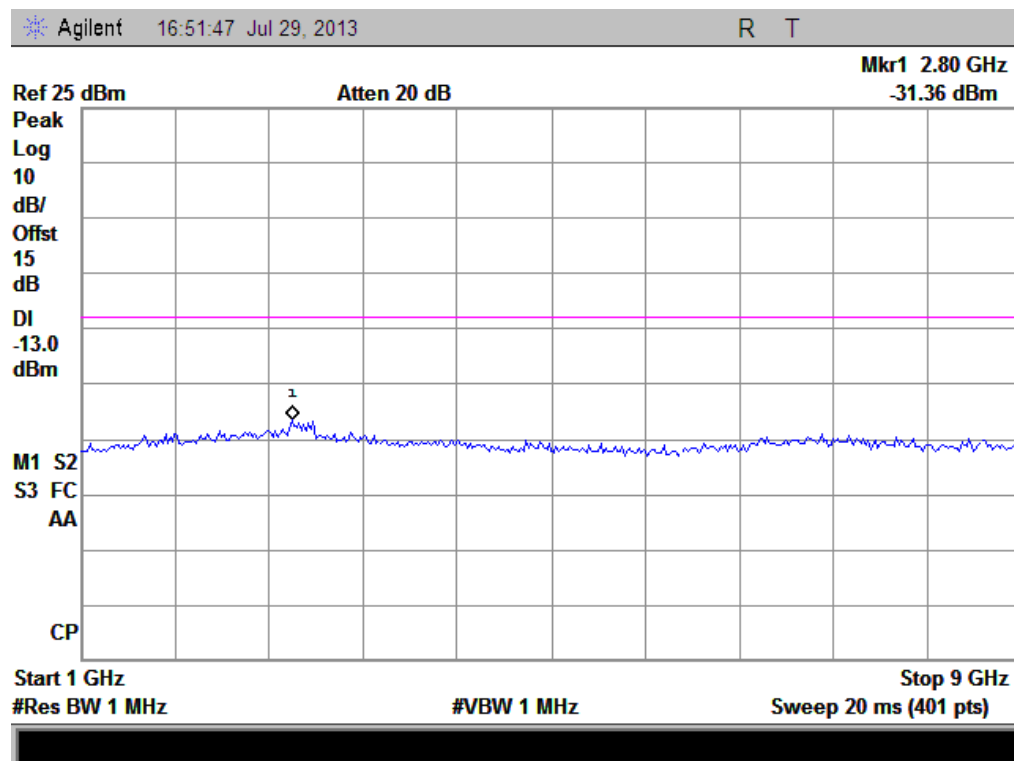
(Plot I 1: HSUPA 850MHz Channel = 4132, 30MHz to 1GHz)

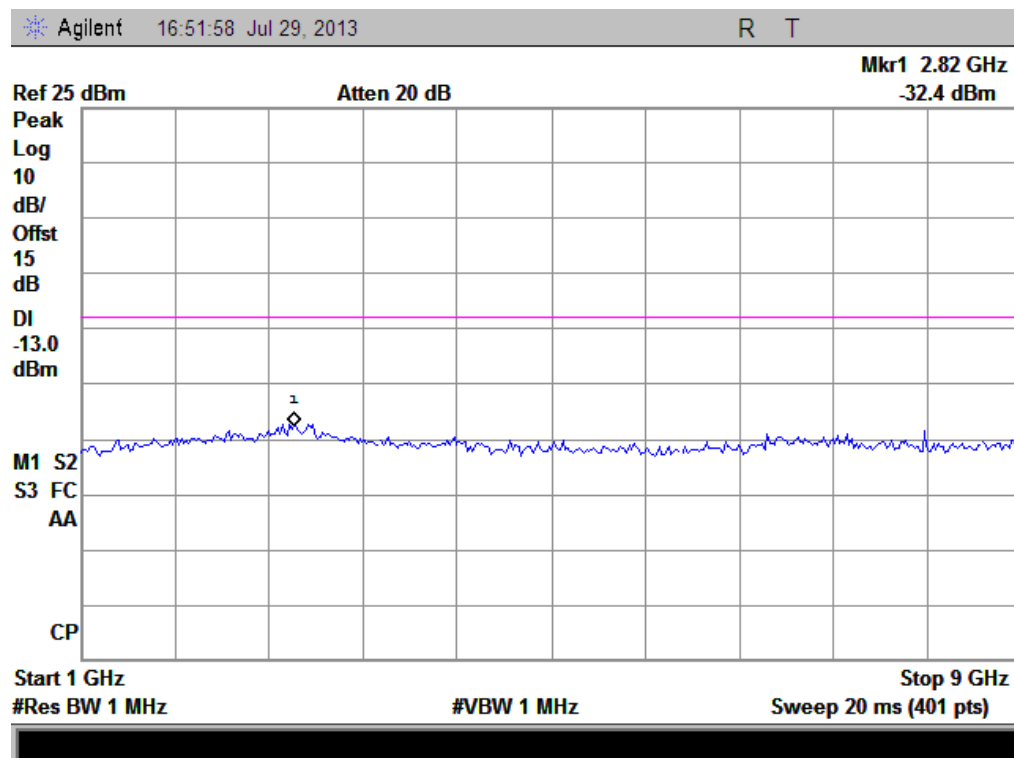


(Plot I1.1: HSUPA 850MHz Channel = 4132, 1GHz to 9GHz)

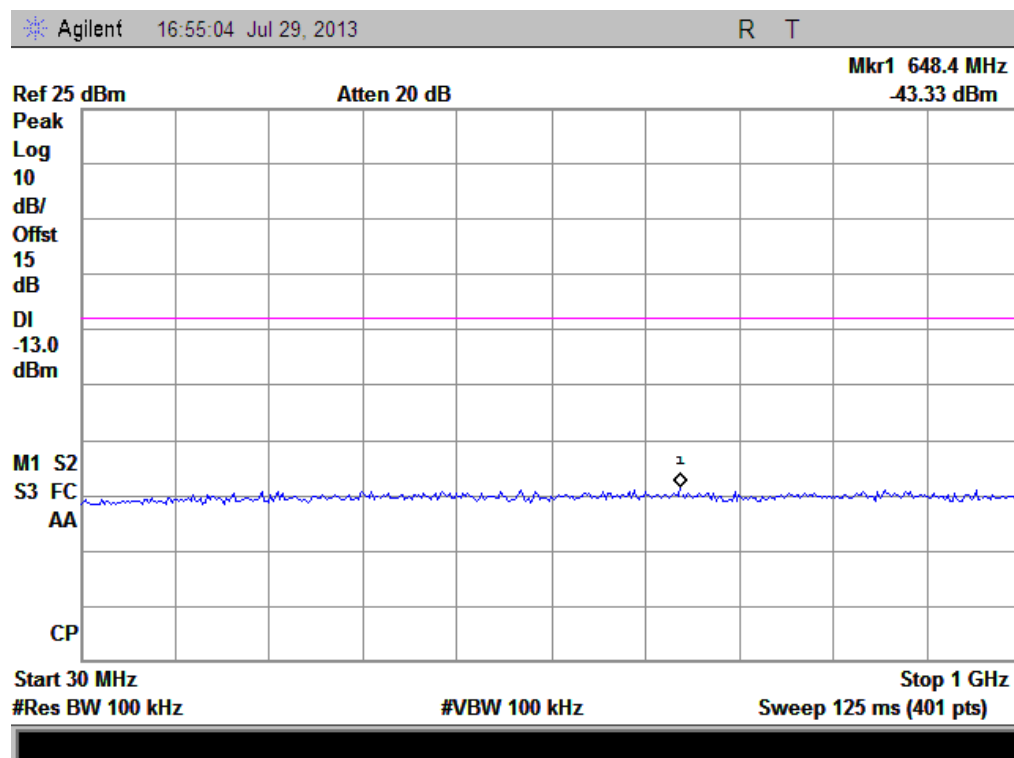


(Plot I 2: HSUPA 850MHz Channel = 4175, 30MHz to 1GHz)

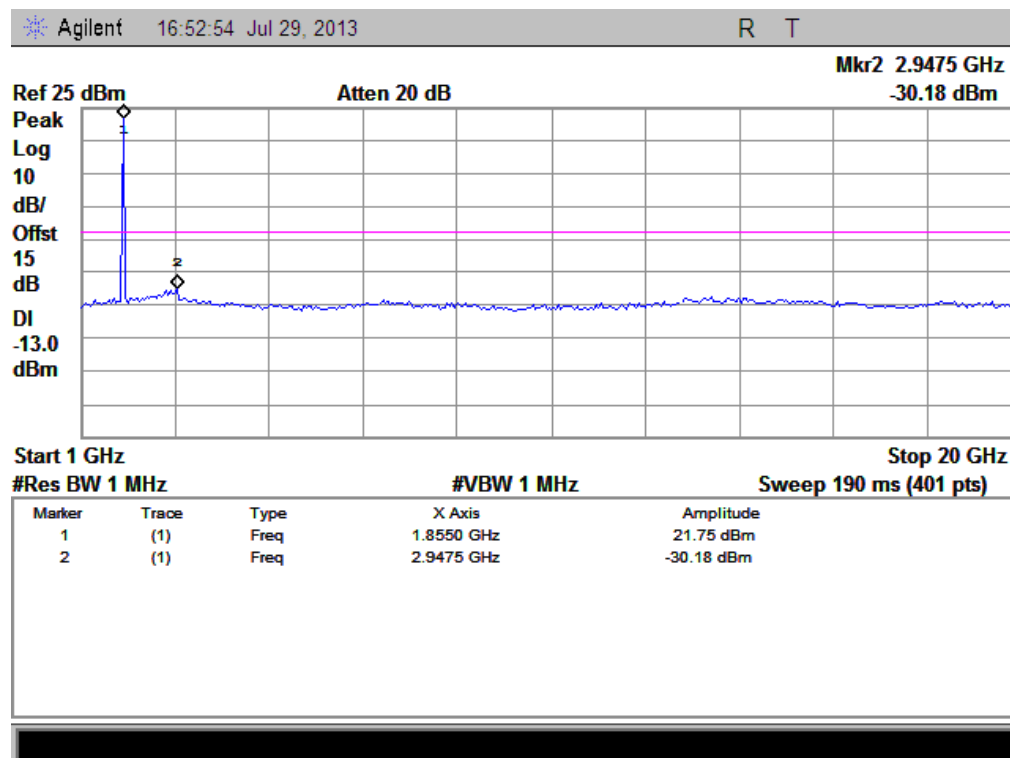




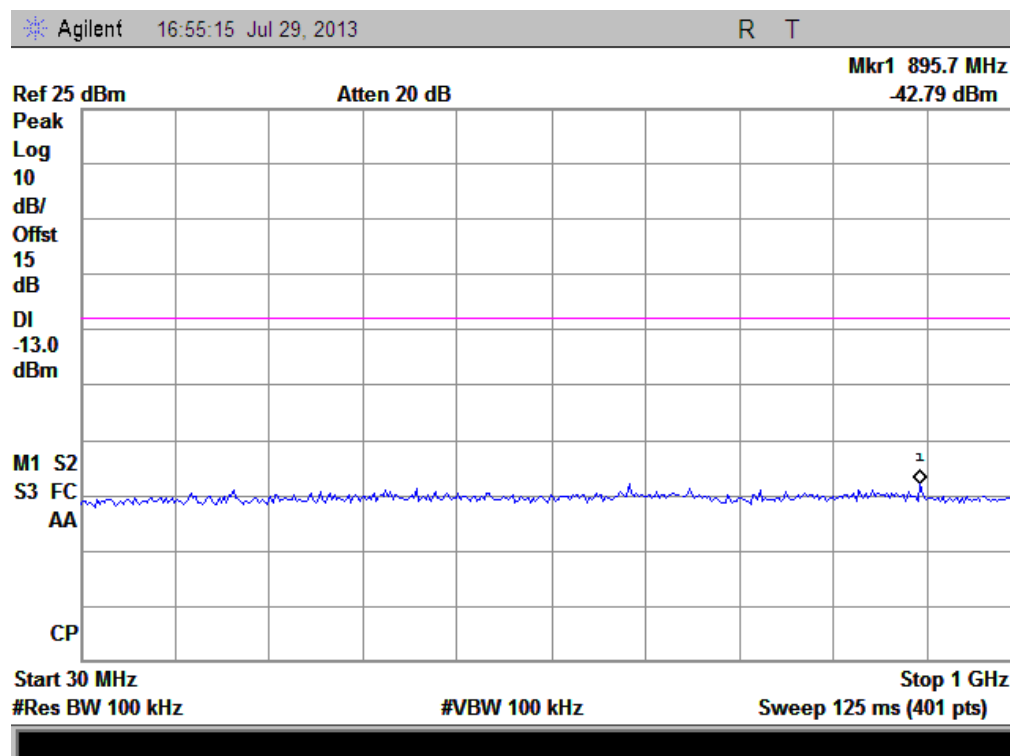
(Plot I3.1: HSUPA850MHz Channel = 4233, 1GHz to 9GHz)



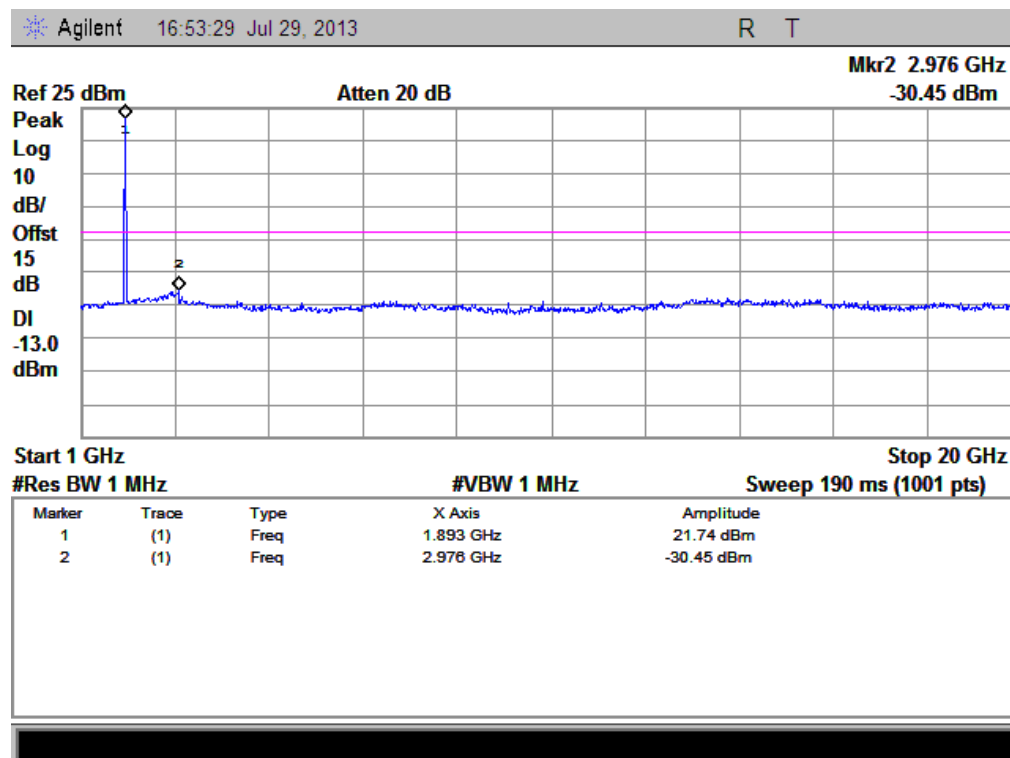
(Plot J 1: HSUPA1900MHz Channel = 9262, 30MHz to 1GHz)



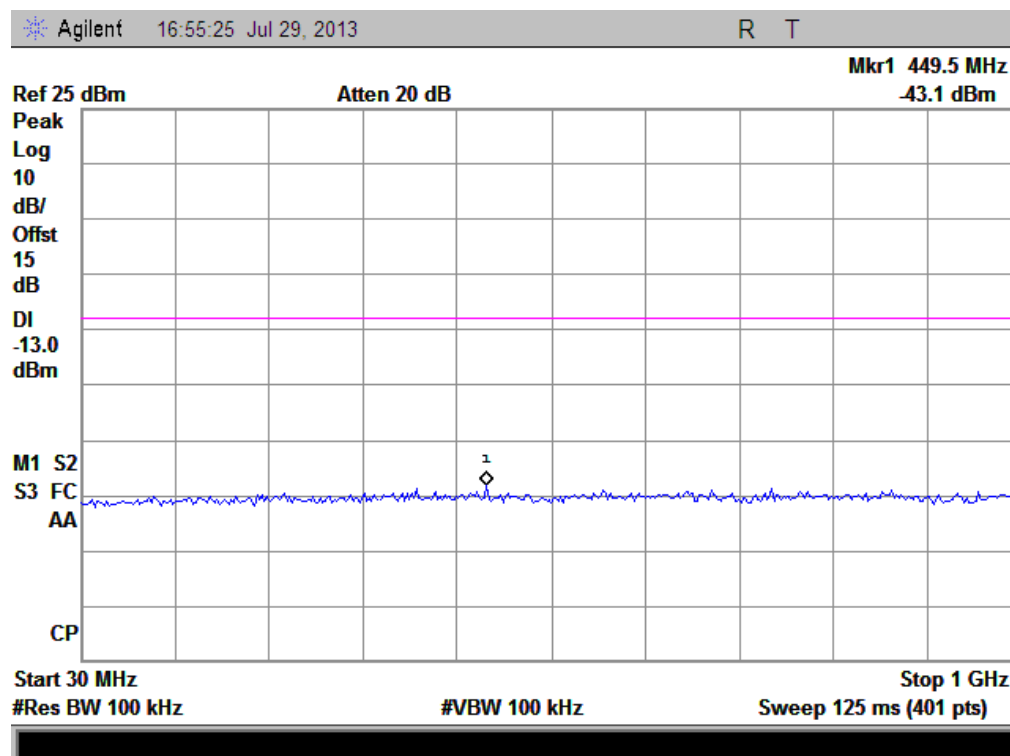
(Plot J1.1: HSUPA1900MHz Channel = 9262, 1GHz to 20GHz)



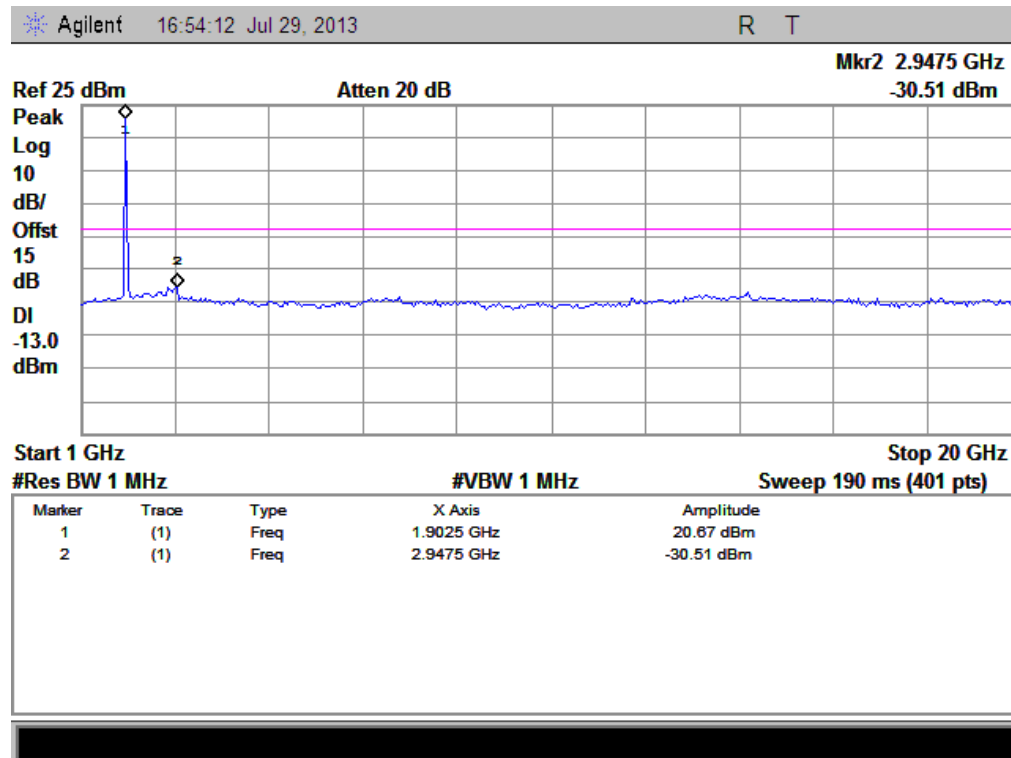
(Plot J 2: HSUPA1900MHz Channel = 9400, 30MHz to 1GHz)



(Plot J2.1: HSUPA1900MHz Channel = 9400, 1GHz to 20GHz)



(Plot J 3: HSUPA1900MHz Channel = 9538, 30MHz to 1GHz)



(Plot J3.1: HSUPA1900MHz Channel = 9538 1GHz to 20GHz)

2.6 Band Edge

2.6.1 Requirement

According to FCC section 22.917(b) and FCC section 24.238(b) 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.

2.6.2 Test Description

See section 2.1.2 of this report.

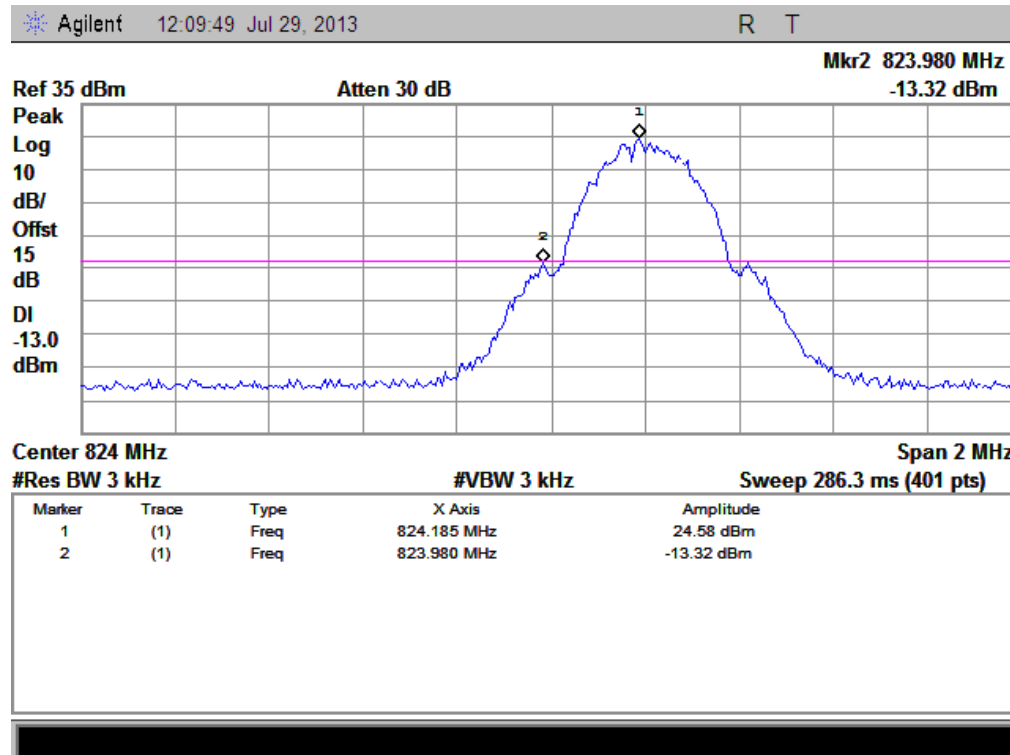
2.6.3 Test Result

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

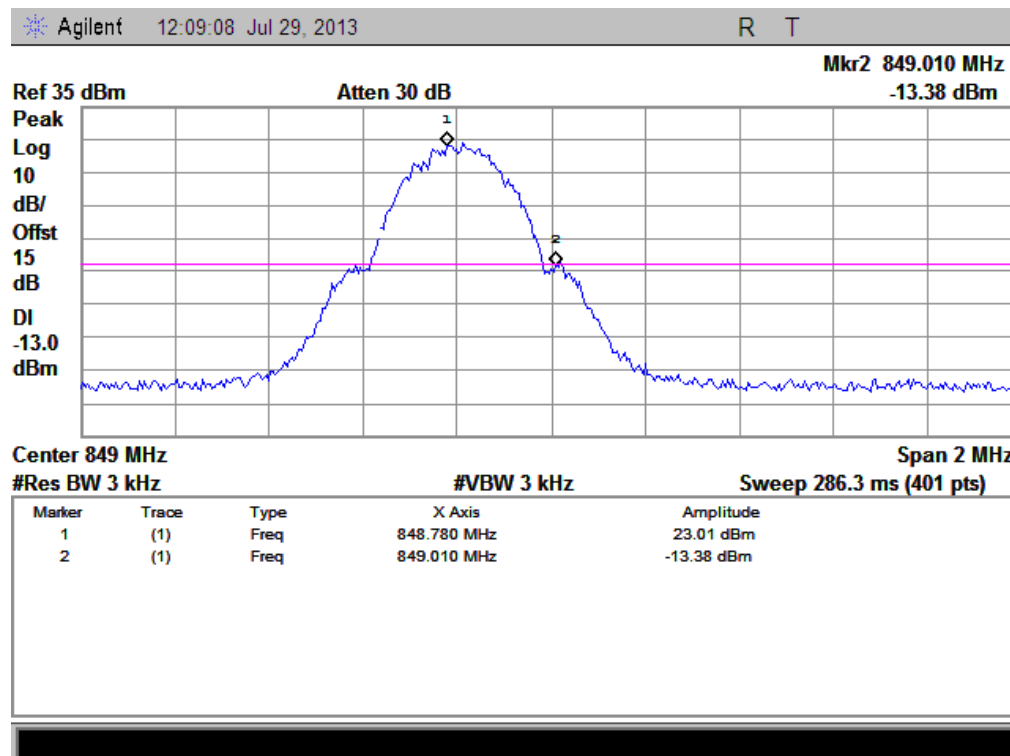
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Band Edge Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-13.32	Plat A	-13	PASS
	251	848.8	-13.38	Plot B		PASS
GSM 1900MHz	512	1850.2	-16.97	Plat C	-13	PASS
	810	1909.8	-17.04	Plot D		PASS
EDGE 850MHz	128	824.2	-15.43	Plat E	-13	PASS
	251	848.8	-14.06	Plot F		PASS
EDGE 1900MHz	512	1850.2	-17.50	Plat G	-13	PASS
	810	1909.8	-19.77	Plot H		PASS
WCDMA 850MHz	4132	826.4	-14.44	Plat I	-13	PASS
	4233	846.6	-13.69	Plot J		PASS
WCDMA 1900MHz	9262	1852.4	-15.15	Plat K	-13	PASS
	9538	1907.6	-15.97	Plot L		PASS
HSDPA 850MHz	4132	826.4	-15.27	Plat M	-13	PASS
	4233	846.6	-14.60	Plot N		PASS
HSDPA 1900MHz	9262	1852.4	-15.71	Plat O	-13	PASS
	9538	1907.6	-16.99	Plot P		PASS
HSUPA 850MHz	4132	826.4	-15.46	Plat Q	-13	PASS
	4233	846.6	-14.41	Plot R		PASS
HSUPA 1900MHz	9262	1852.4	-15.40	Plat S	-13	PASS
	9538	1907.6	-16.10	Plot T		PASS

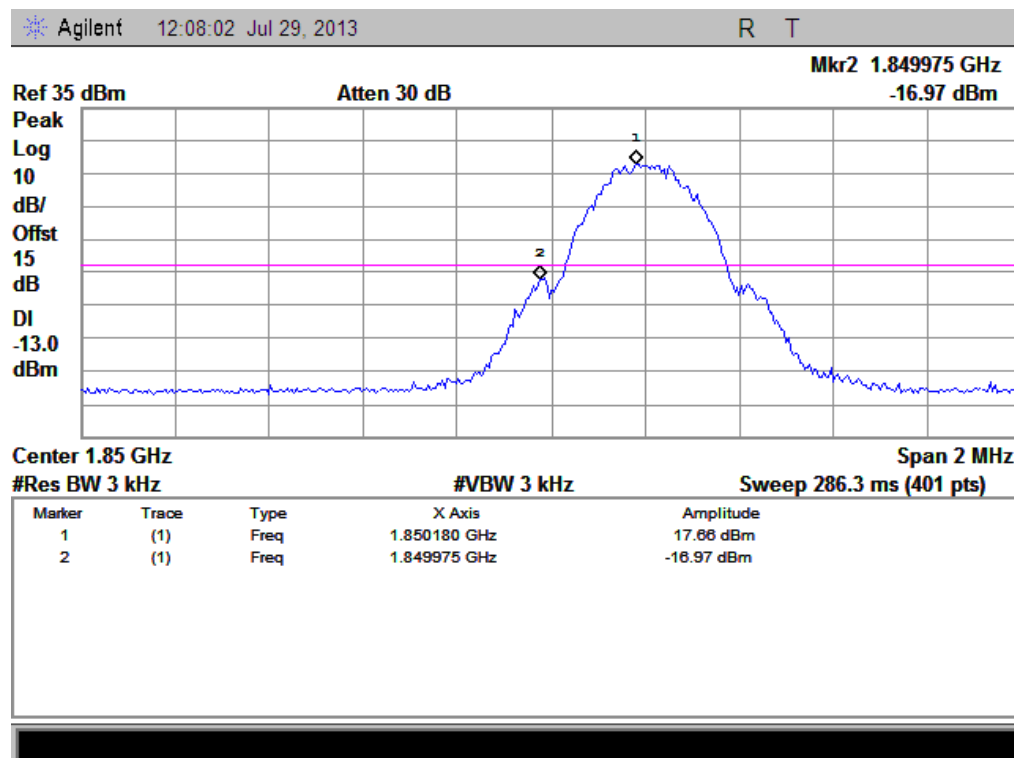
2. Test Plots:



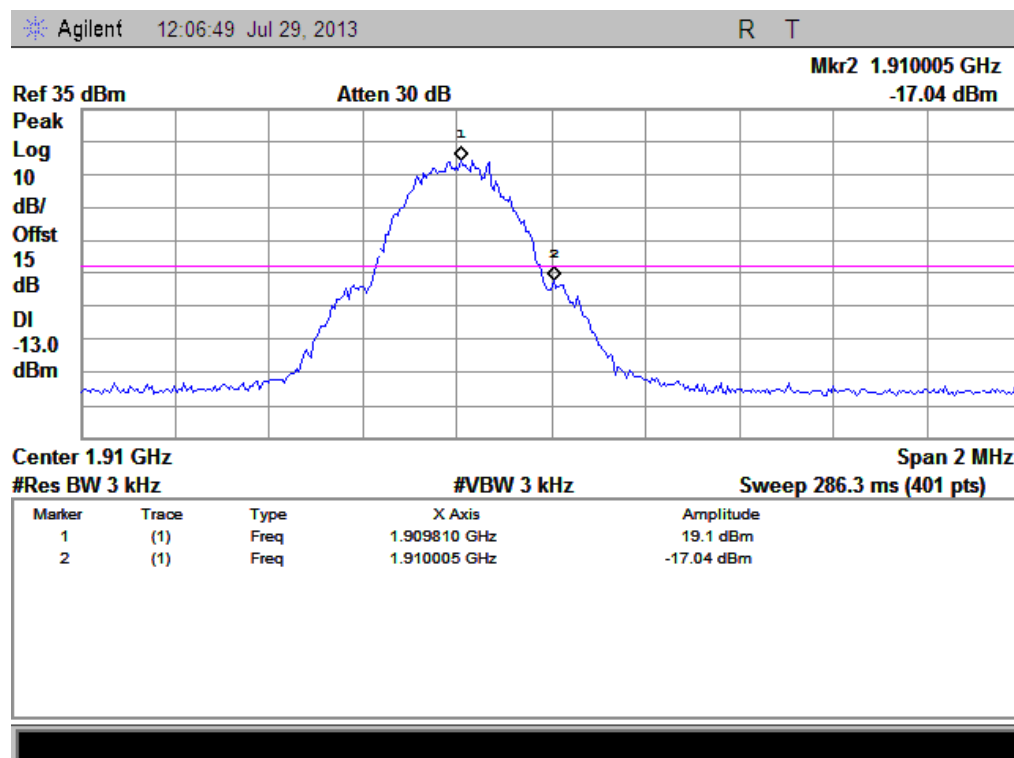
(Plot A: GSM 850 Channel = 128)



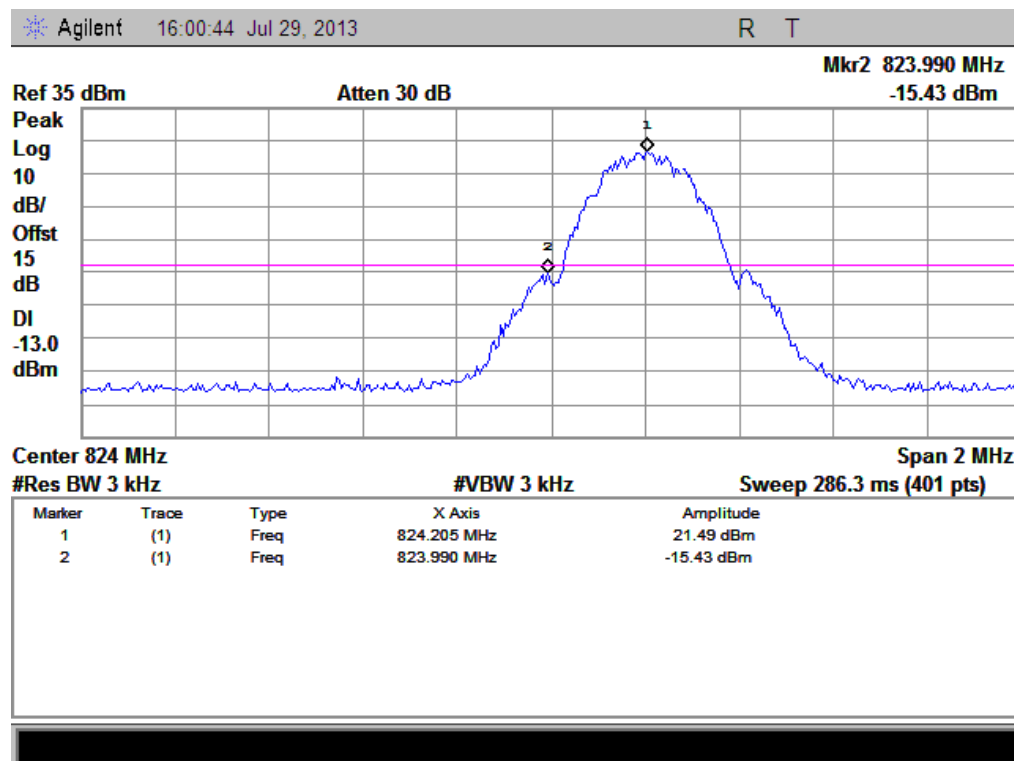
(Plot B: GSM 850 Channel = 251)



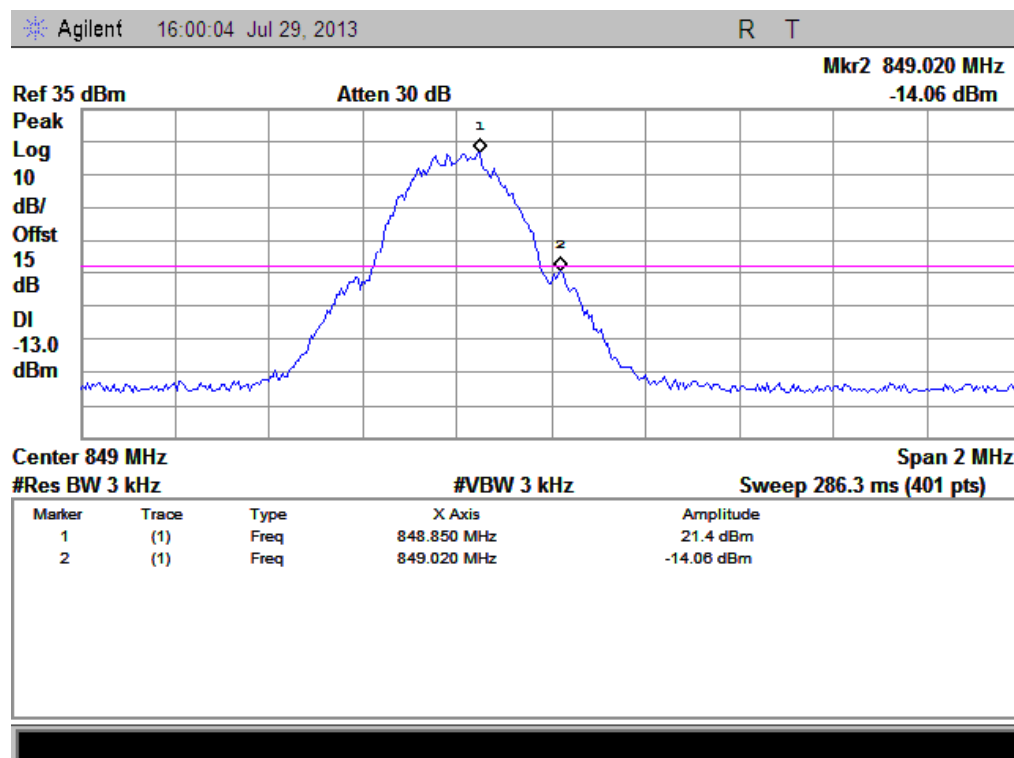
(Plot C: GSM 1900 Channel = 512)



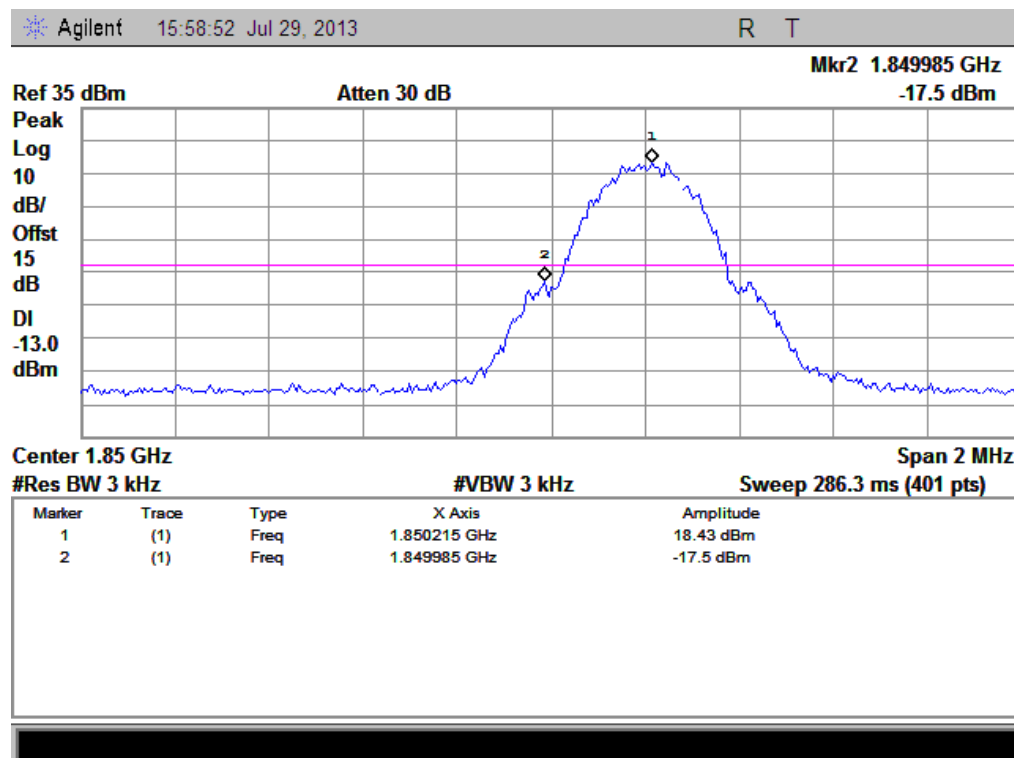
(Plot D: GSM 1900 Channel = 810)



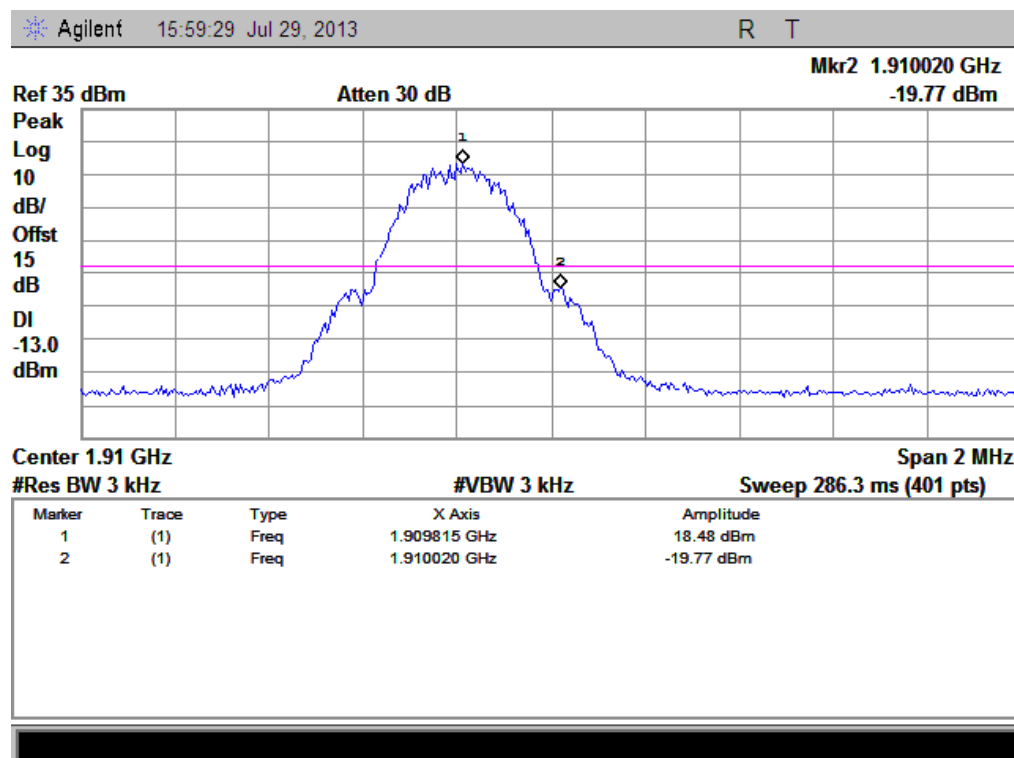
(Plot E: EGPRS 850 Channel = 128)



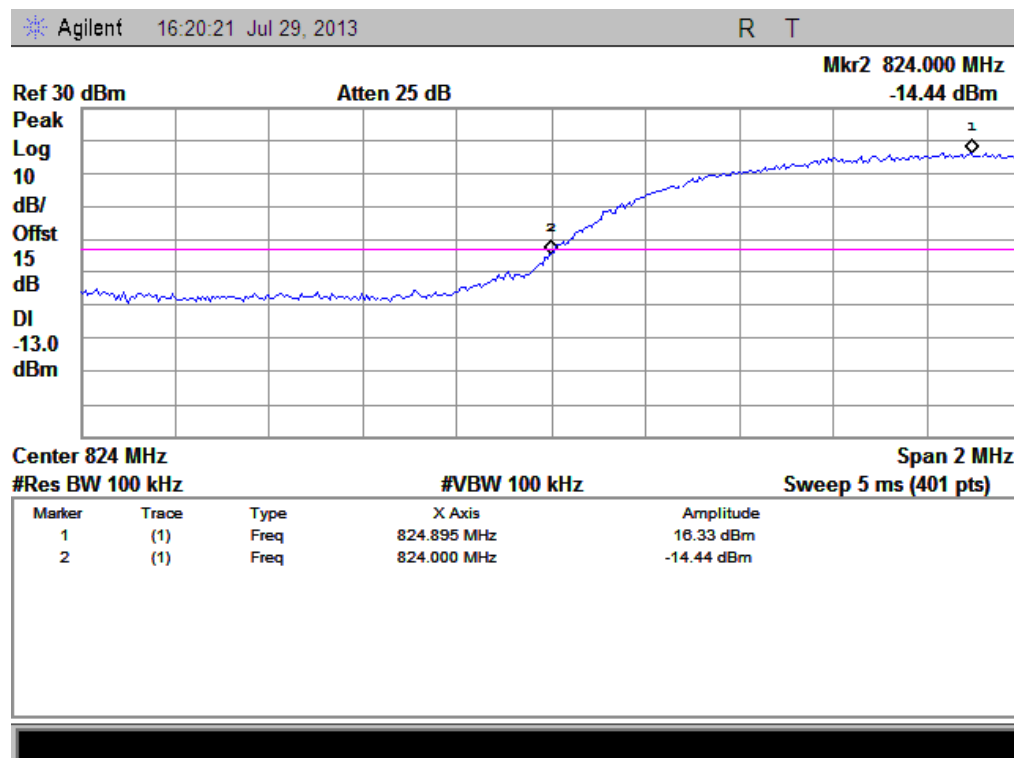
(Plot F: EGPRS 850 Channel = 251)



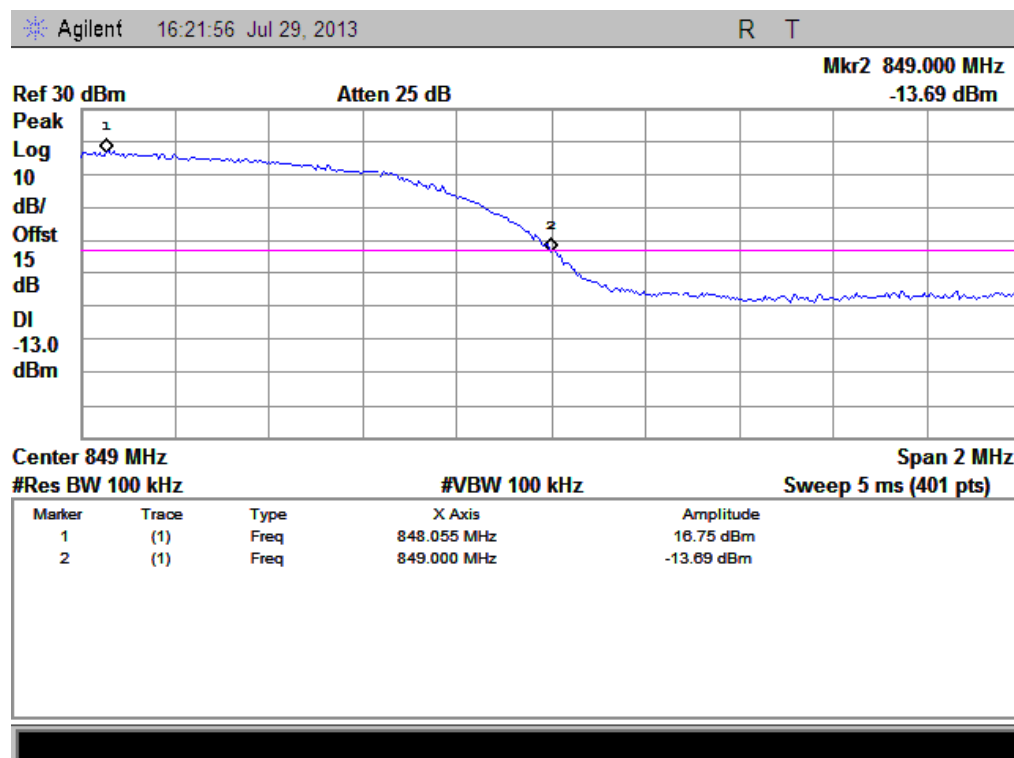
(Plot G: EGPRS 1900 Channel = 512)



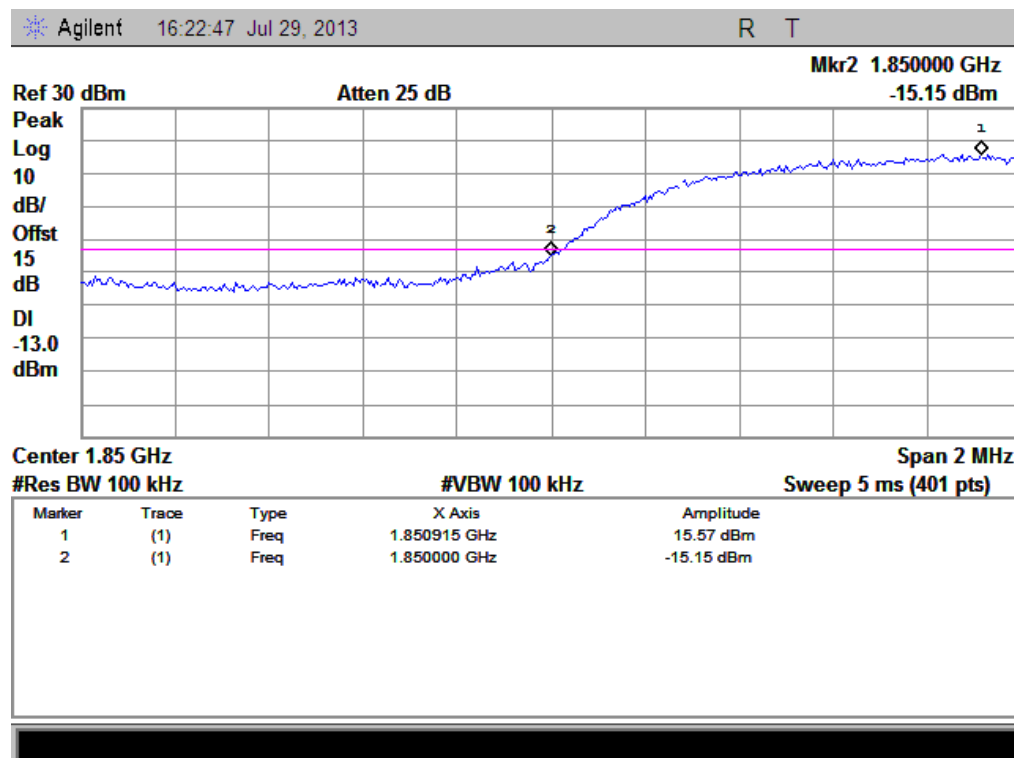
(Plot H: EGPRS 1900 Channel = 810)



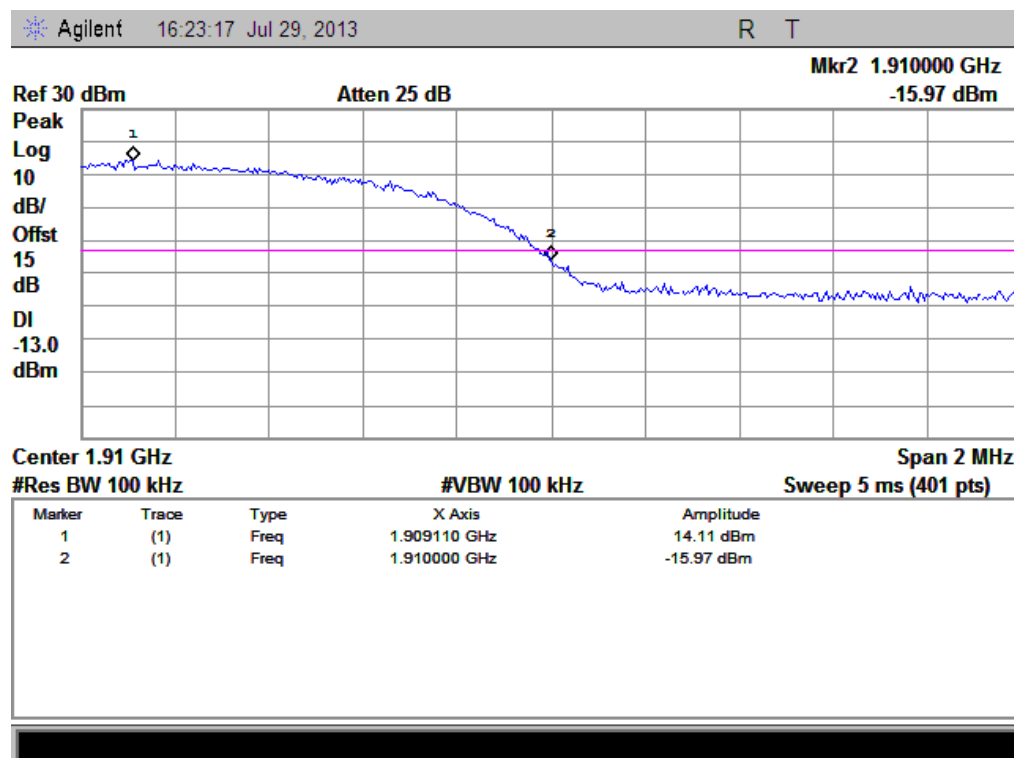
(Plot I: WCDMA 850 Channel = 4132)



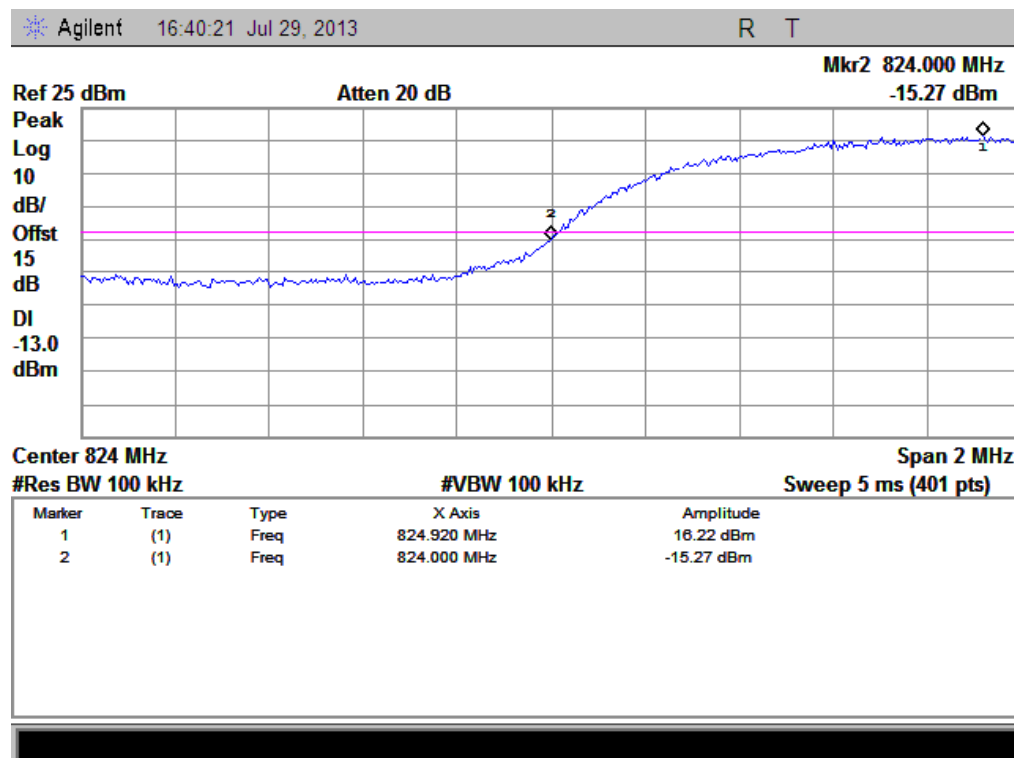
(Plot J: WCDMA 850 Channel = 4233)



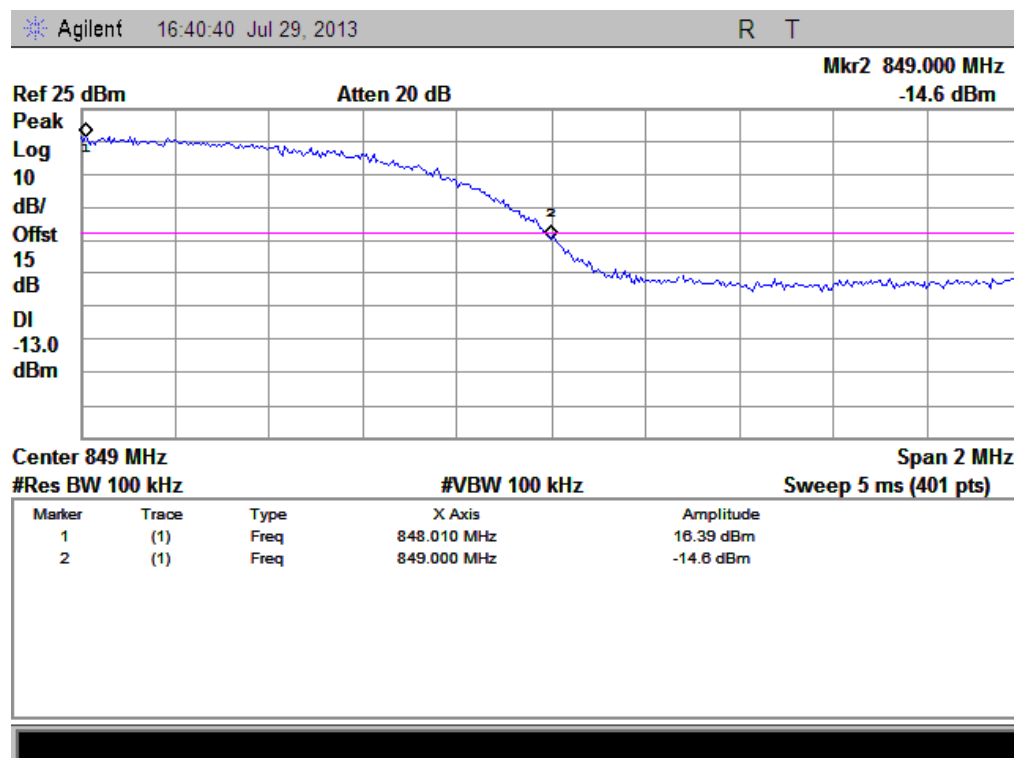
(Plot K: WCDMA 1900 Channel = 9262)



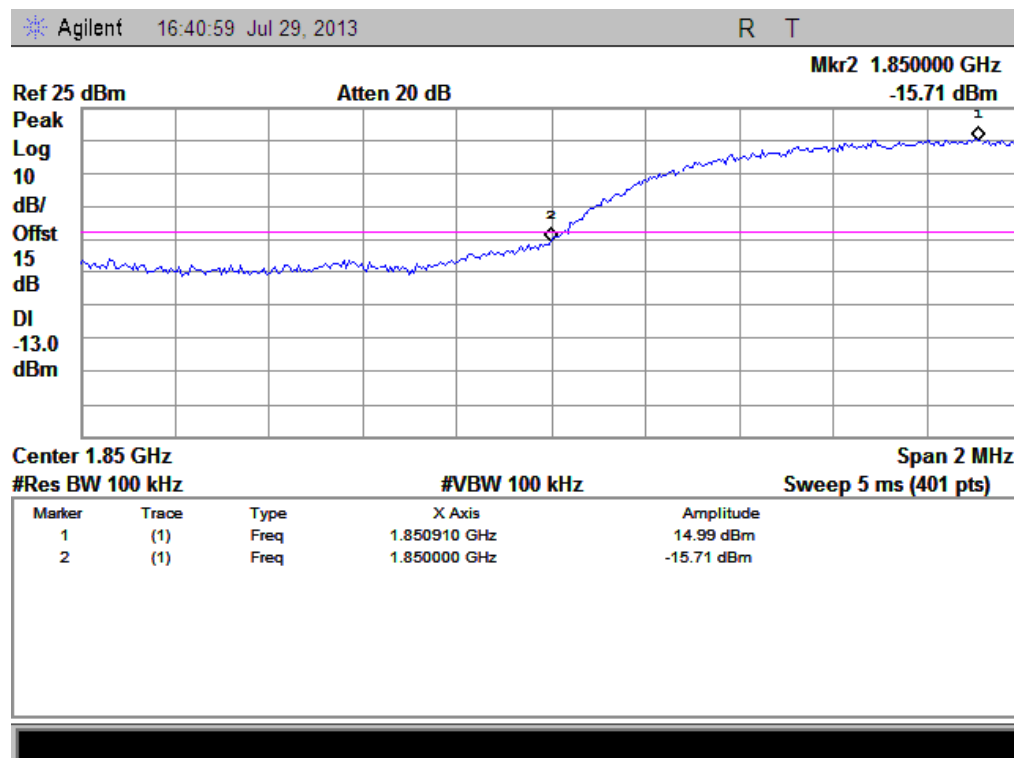
(Plot L: WCDMA 1900 Channel = 9538)



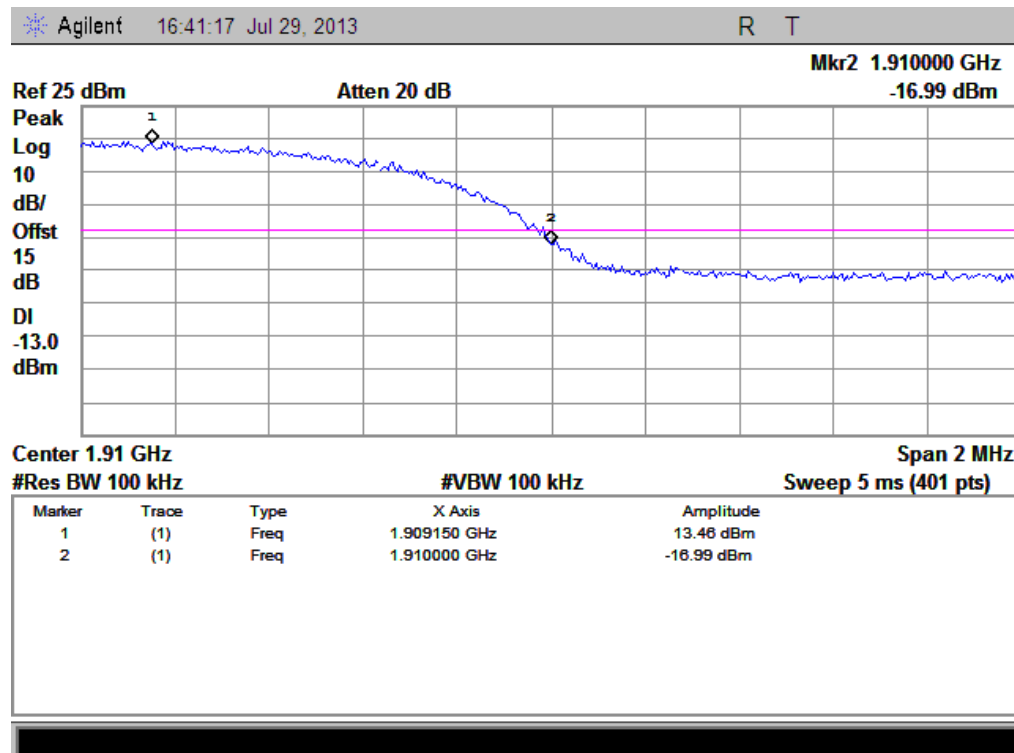
(Plot M: HSDPA 850 Channel = 4132)



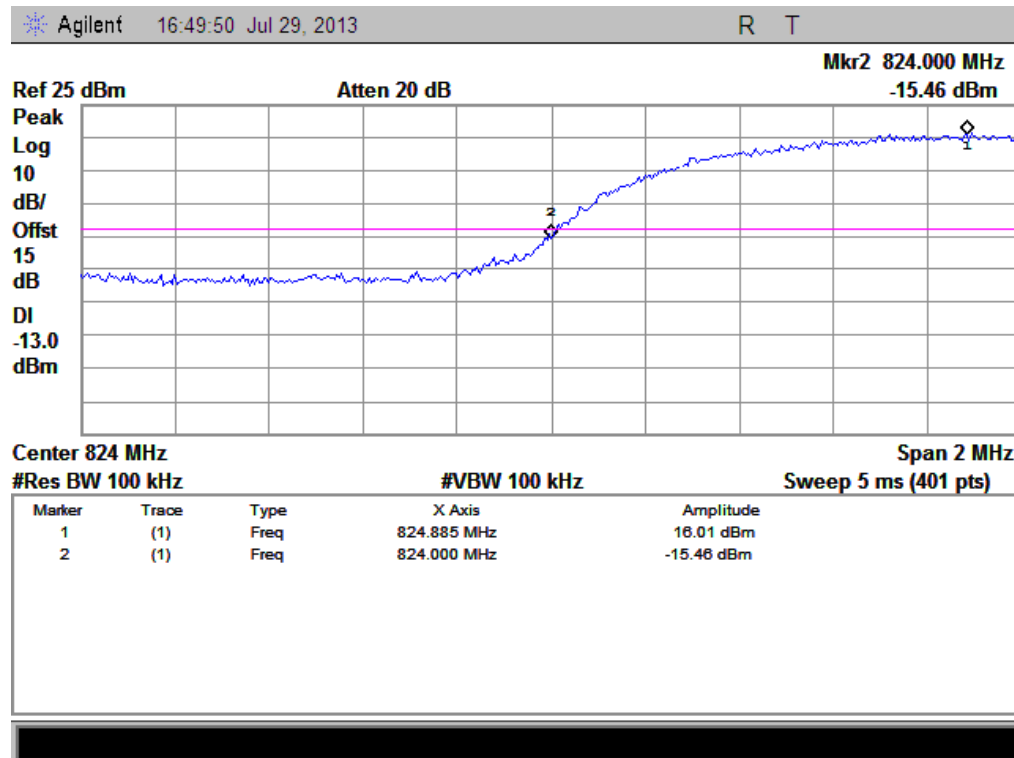
(Plot N: HSDPA850 Channel = 4233)



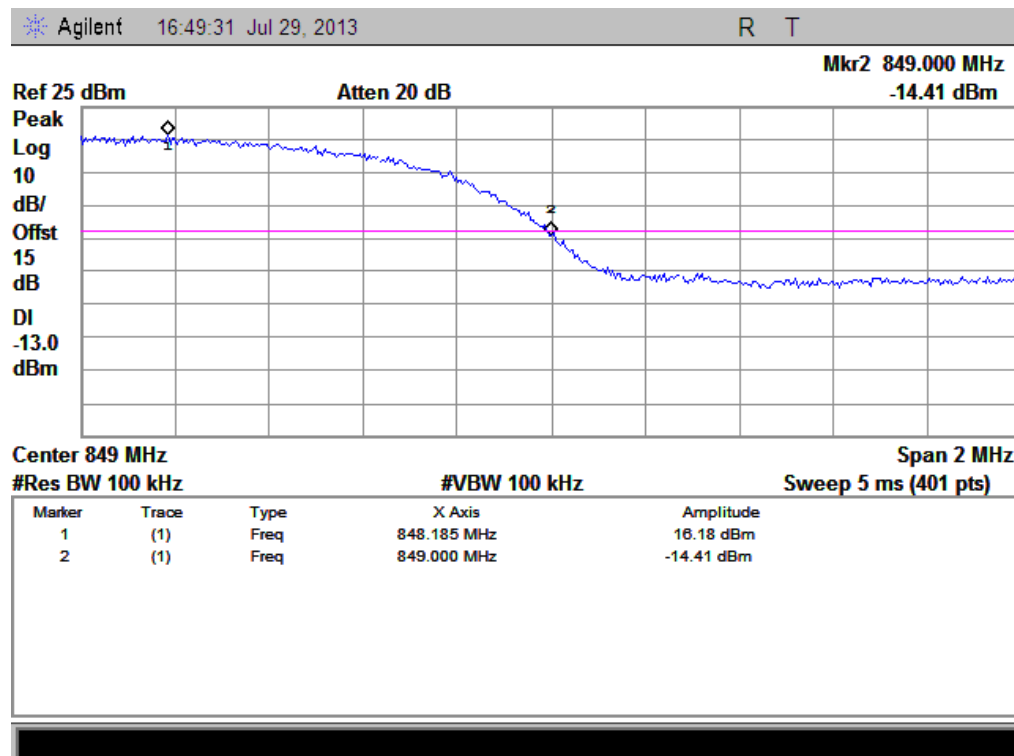
(Plot O: HSDPA 1900 Channel = 9262)



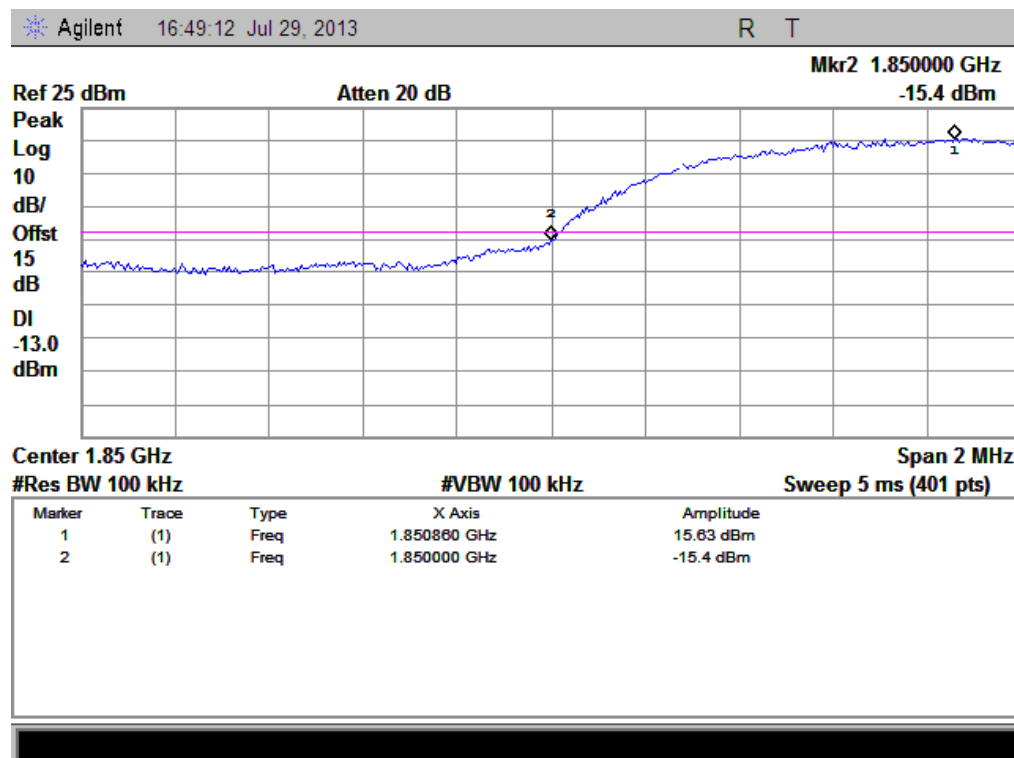
(Plot P: HSDPA 1900 Channel = 9538)



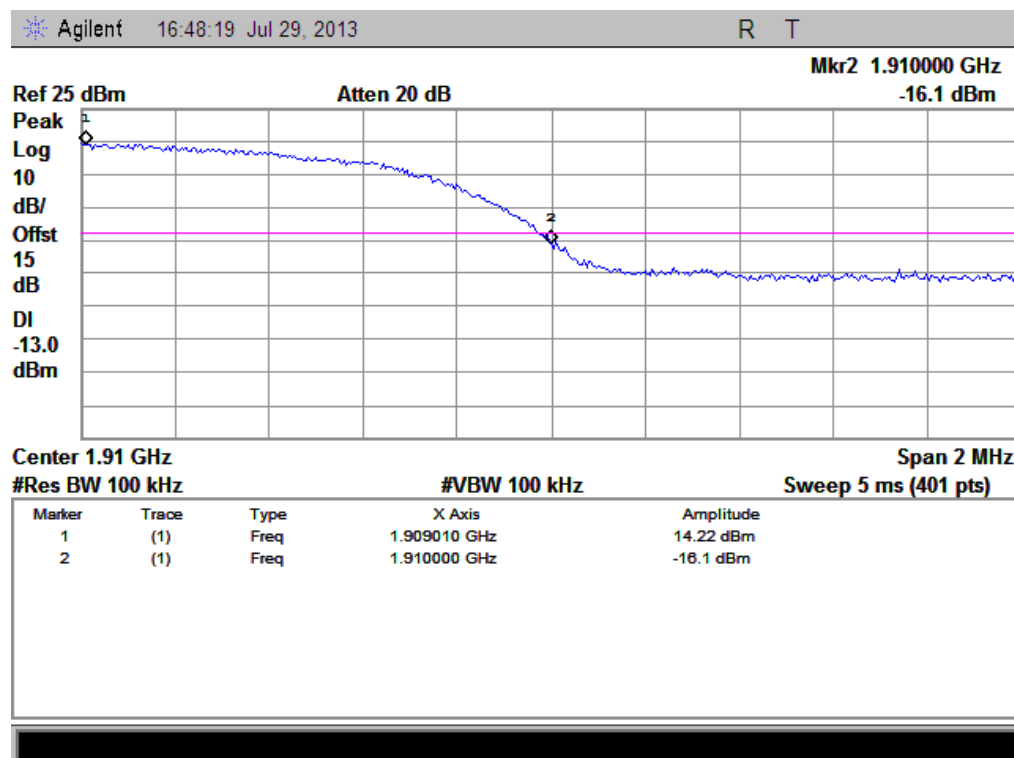
(Plot Q: HSUPA 850 Channel = 4132)



(Plot R: HSUPA850 Channel = 4233)



(Plot S: HSUPA 1900 Channel = 9262)



(Plot T: HSUPA 1900 Channel = 9538)

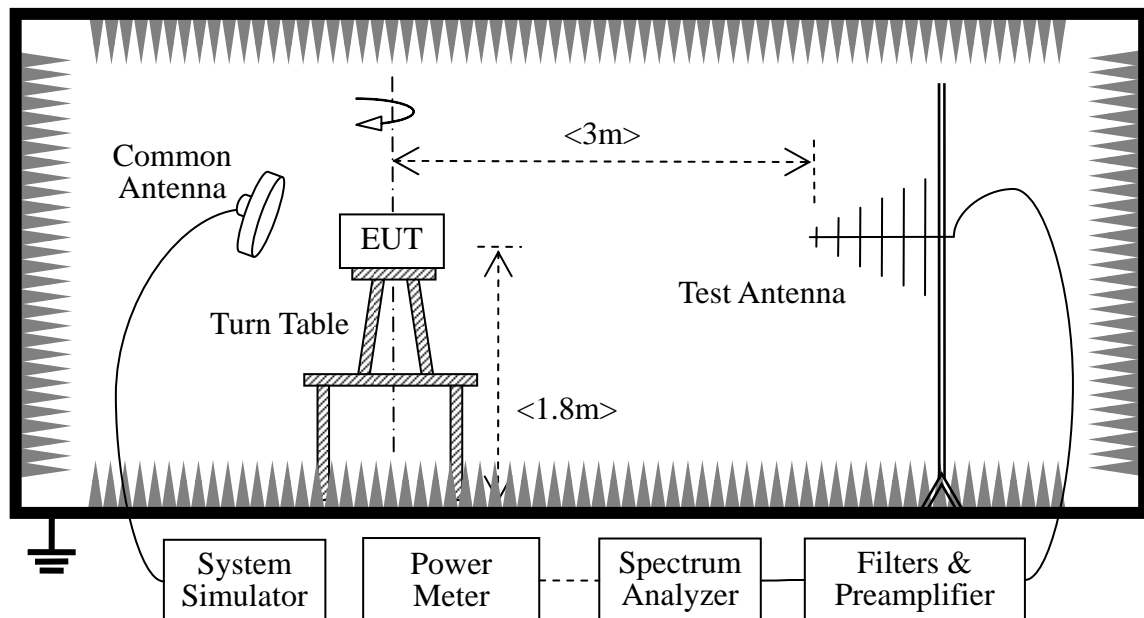
2.7 Transmitter Radiated Power (EIRP/ERP)

2.7.1 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 2 Watts e.i.r.p. peak power.

2.7.2 Test Description

1. Test Setup:



The EUT, which is powered by the Battery charged with the AC Adapter, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power (i.e. GSM850MHz band Power Control Level (PCL) = 5/19 and Power Class = 4, GSM1900MHz band Power Control Level (PCL) = 0/15 and Power Class = 1), and only the test result of the maximum output power was recorded.

- GSM Maximum RF output power: GSM 850 32.25dBm, GSM 1900 27.96dBm, EGPRS 850 32.39dBm, EGPRS 27.54.WCDMA 850 23.79dBm, WCDMA 1900 24.86 dBm Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

- Minimum RF power: GSM 850 3.0dBm, GSM 1900 0.3dBm, EGPRS 850 3.0dBm, EGPRS 1900

0.25dBm ,WCDMA 850 0.36dBm ,WCDMA 1900 0.52dBm.

The Test Antenna is a Bi-Log one (used for 30MHz to 1GHz) or a Horn one (used for above 3GHz), and it's located at the same height as the EUT. The Filters consists of Notch Filters and High Pass Filter.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2012.05	2014.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2014.05
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2012.05	2014.05
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2012.05	2014.05
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2014.05
Substitution Antenna	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2014.05
Pre-AMPs	lucix	S10M100L3802	S020180L3203	2012.05	2014.05
Notch Filter	COM-MW	ZBSF-C836.5-25-X	NA	2012.05	2014.05
Notch Filter	COM-MW	ZBSF-C1747.5-75-X2	NA	2012.05	2014.05
Notch Filter	COM-MW	ZBSF-C1880-60-X2	NA	2012.05	2014.05

2.7.3 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. GSM Model Test Verdict:

Band	Channel	Frequency (MHz)	PCL	Measured ERP			Limit		Verdict
				dBm	W	Refer to Plot	dBm	W	
GSM 850MHz	128	824.20	5	33.48	2.228	Plot A	38.5	7	PASS
	190	836.60	5	33.38	2.178				PASS
	251	848.80	5	32.71	1.866				PASS
GPRS 850MHz	128	824.20	5	33.44	2.208	Plot B ^{Note 1}	38.5	7	PASS
	190	836.60	5	33.17	2.075				PASS
	251	848.80	5	32.71	1.866				PASS
EGPRS 850MHz	128	824.20	5	33.57	2.275	Plot C ^{Note 1}	38.5	7	PASS
	190	836.60	5	33.22	2.099				PASS
	251	848.80	5	32.48	1.770				PASS

Band	Channel	Frequency (MHz)	PCL	Measured EIRP			Limit		Verdict
				dBm	W	Refer to Plot	dBm	W	
GSM 1900MHz	512	1850.2	0	25.21	0.332	Plot D	33	2	PASS
	661	1880.0	0	23.96	0.249				PASS
	810	1909.8	0	25.64	0.366				PASS
GPRS 1900MHz	512	1850.2	0	25.11	0.324	Plot E ^{Note 1}	33	2	PASS
	661	1880.0	0	23.93	0.247				PASS
	810	1909.8	0	25.50	0.355				PASS
EGPRS 1900MHz	512	1850.2	0	25.10	0.324	Plot F ^{Note 1}	33	2	PASS
	661	1880.0	0	23.85	0.243				PASS
	810	1909.8	0	25.51	0.356				PASS

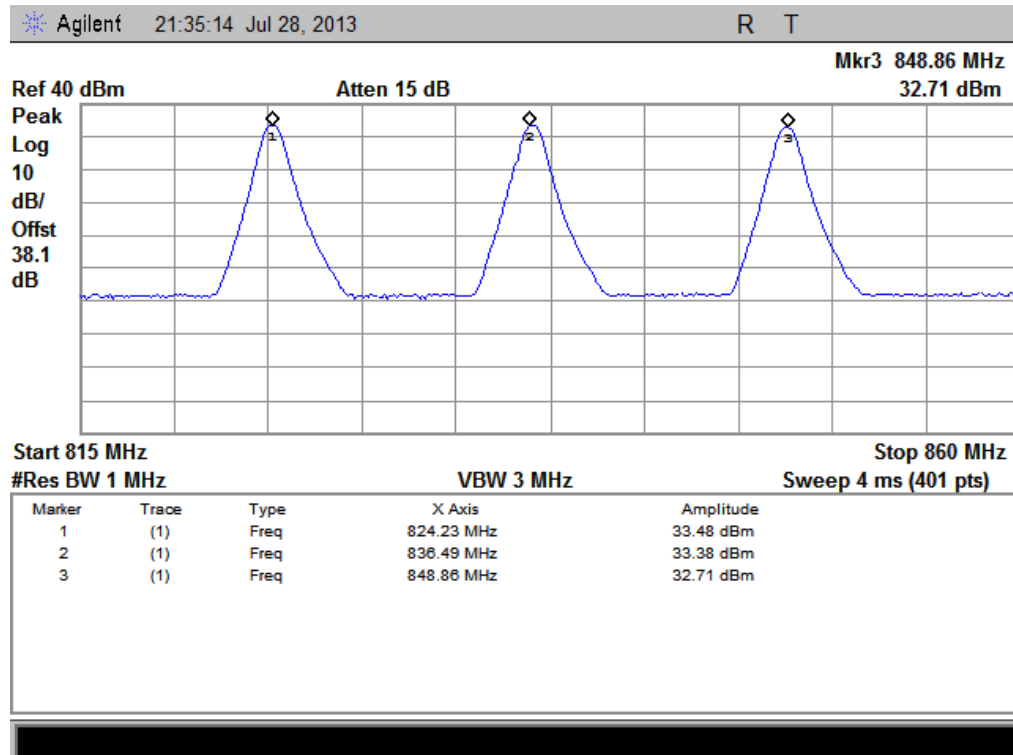
Note 1: For the GPRS and EGPRS model, all the slots were tested and just the worst data was record in this report.

2. WCDMA Model Test Verdict:

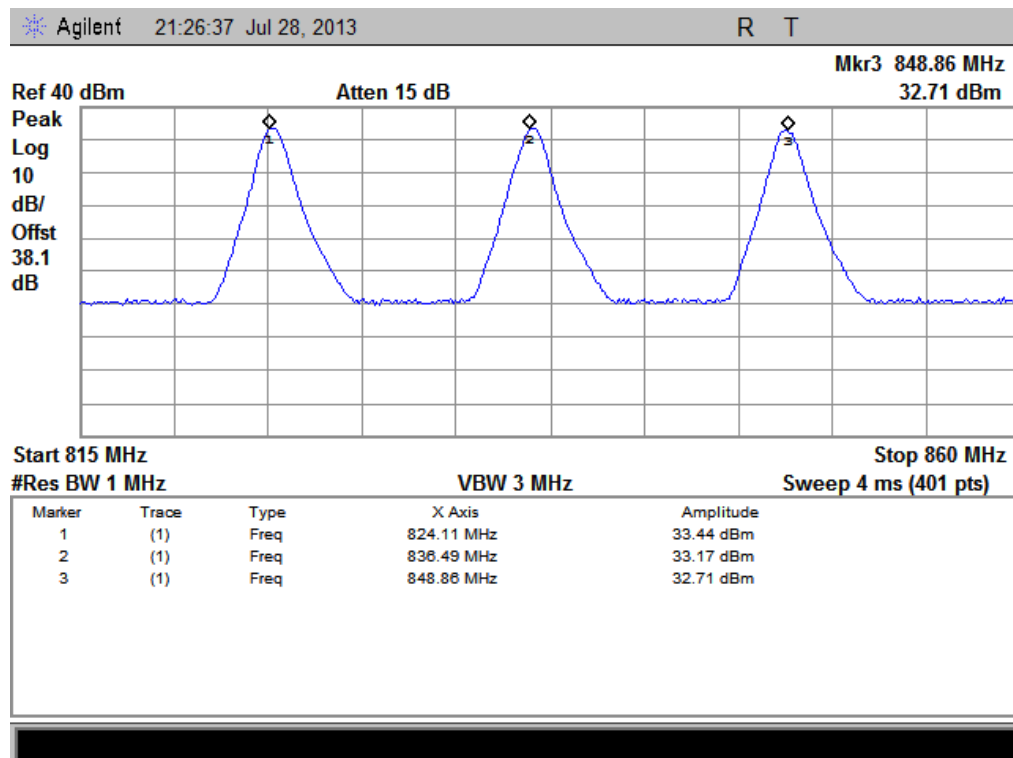
Band	Channel	Frequency (MHz)	Measured ERP			Limit		Verdict
			dBm	W	Refer to Plot	dBm	W	
WCDMA 850MHz	4132	826.4	26.57	0.454	Plot G	38.5	7	PASS
	4175	835	28.17	0.656				PASS
	4233	846.6	25.86	0.385				PASS
HSDPA 850MHz	4132	826.4	26.44	0.441	Plot H	38.5	7	PASS
	4175	835	28.15	0.653				PASS
	4233	846.6	25.83	0.383				PASS
HSUPA 850MHz	4132	826.4	26.43	0.440	Plot I	38.5	7	PASS
	4175	835	28.09	0.644				PASS
	4233	846.6	25.72	0.373				PASS

Band	Channel	Frequency (MHz)	Measured EIRP			Limit		Verdict
			dBm	W		dBm	W	
WCDMA 1900MHz	9262	1852.4	21.04	0.127	Plot J	33	2	PASS
	9400	1880	19.50	0.089				PASS
	9538	1907.6	21.36	0.137				PASS
HSDPA 1900MHz	9262	1852.4	21.02	0.126	Plot K	33	2	PASS
	9400	1880	19.46	0.088				PASS
	9538	1907.6	21.31	0.135				PASS
HSUPA 1900MHz	9262	1852.4	21.01	0.126	Plot L	33	2	PASS
	9400	1880	19.38	0.087				PASS
	9538	1907.6	21.33	0.136				PASS

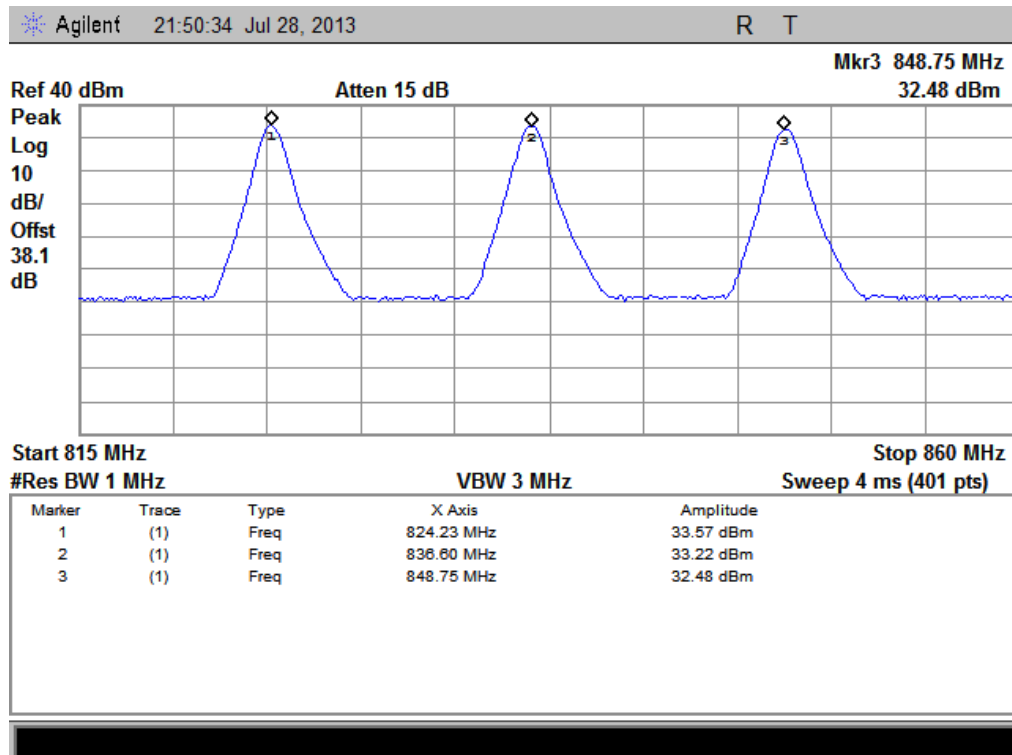
3. Test Plots:



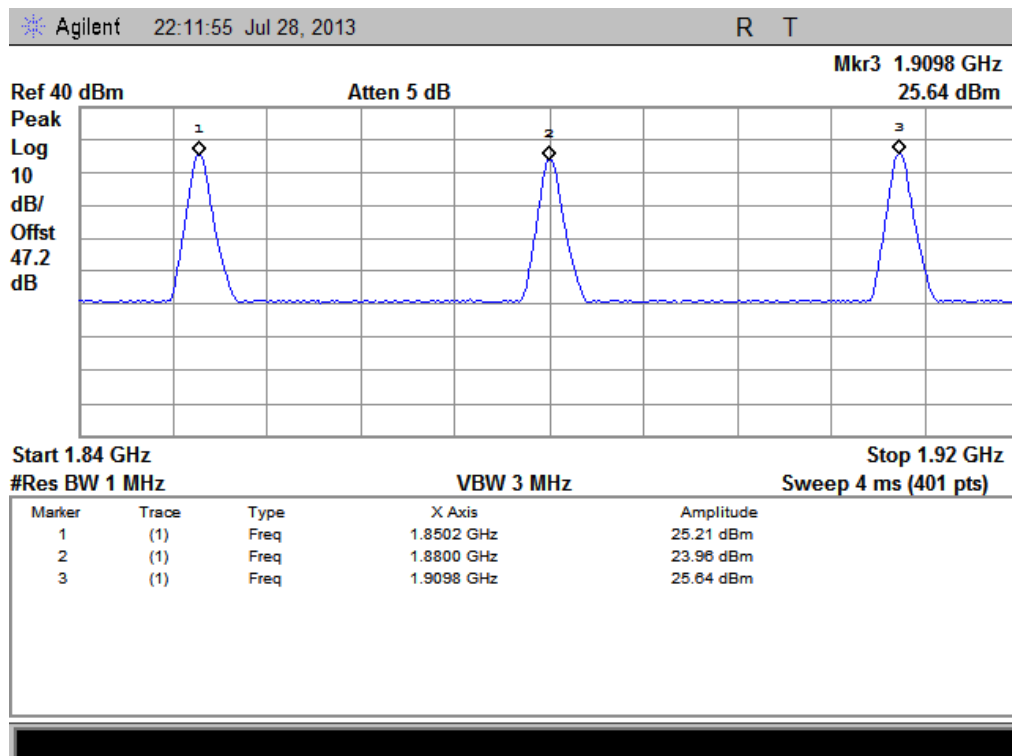
(Plot A: GSM 850MHz Channel = 128, 190, 251)



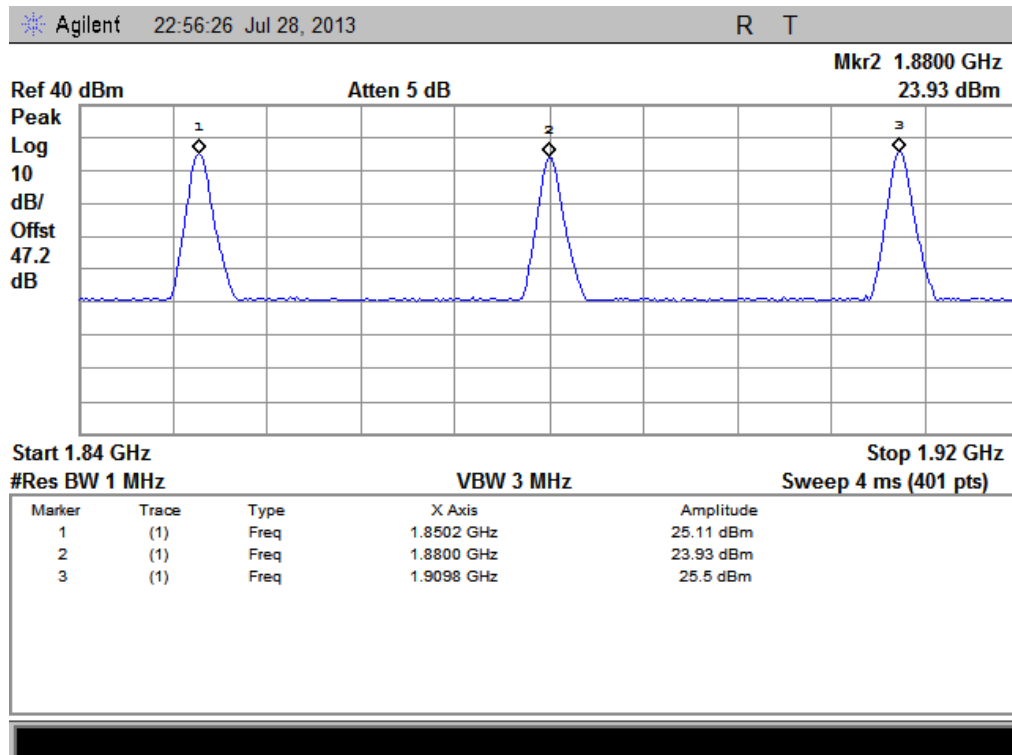
(Plot B: GPRS 850MHz Channel = 128, 190, 251)



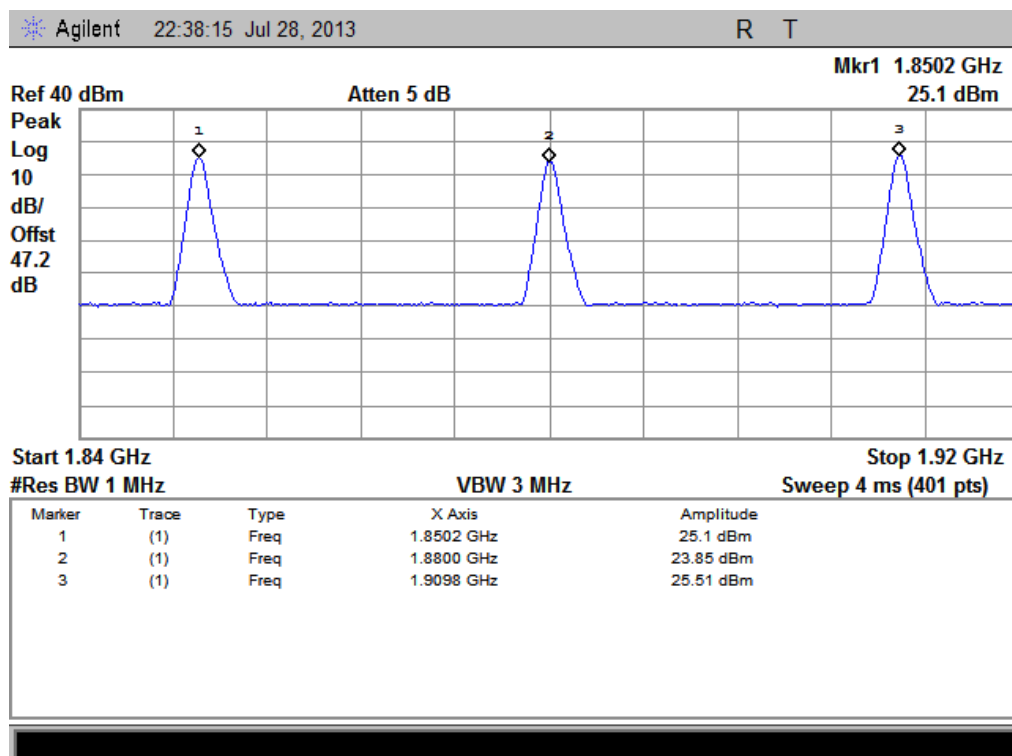
(Plot C: EGPRS 850MHz Channel = 128, 190, 251)



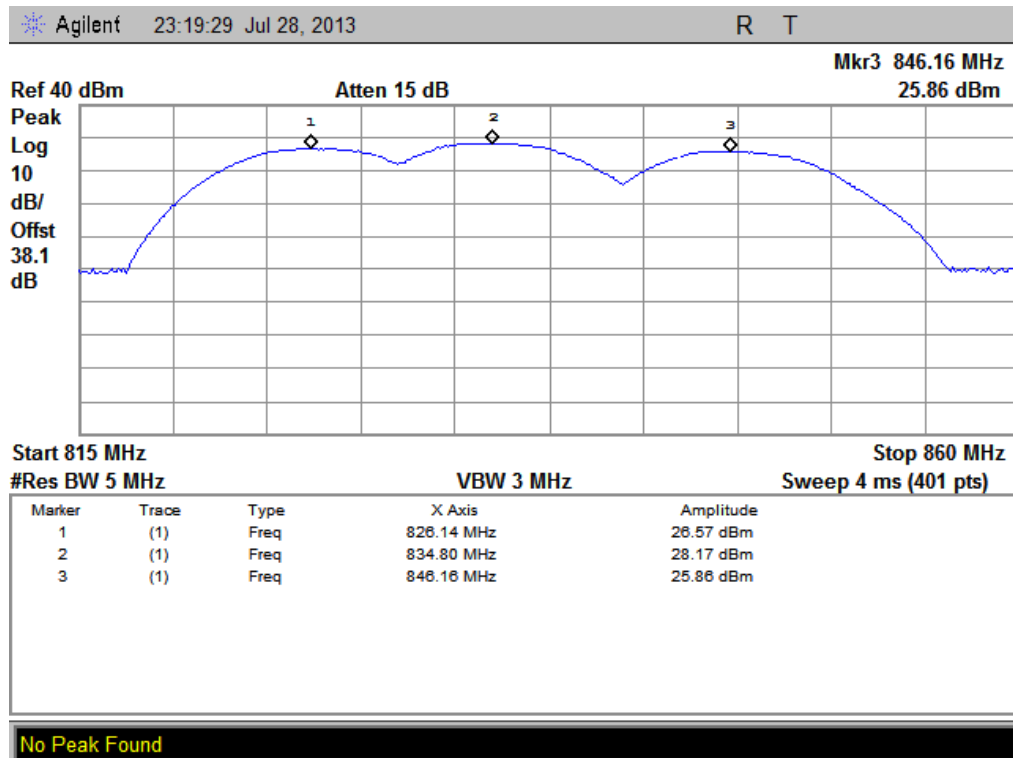
(Plot D: GSM 1900MHz Channel = 512, 661, 810)



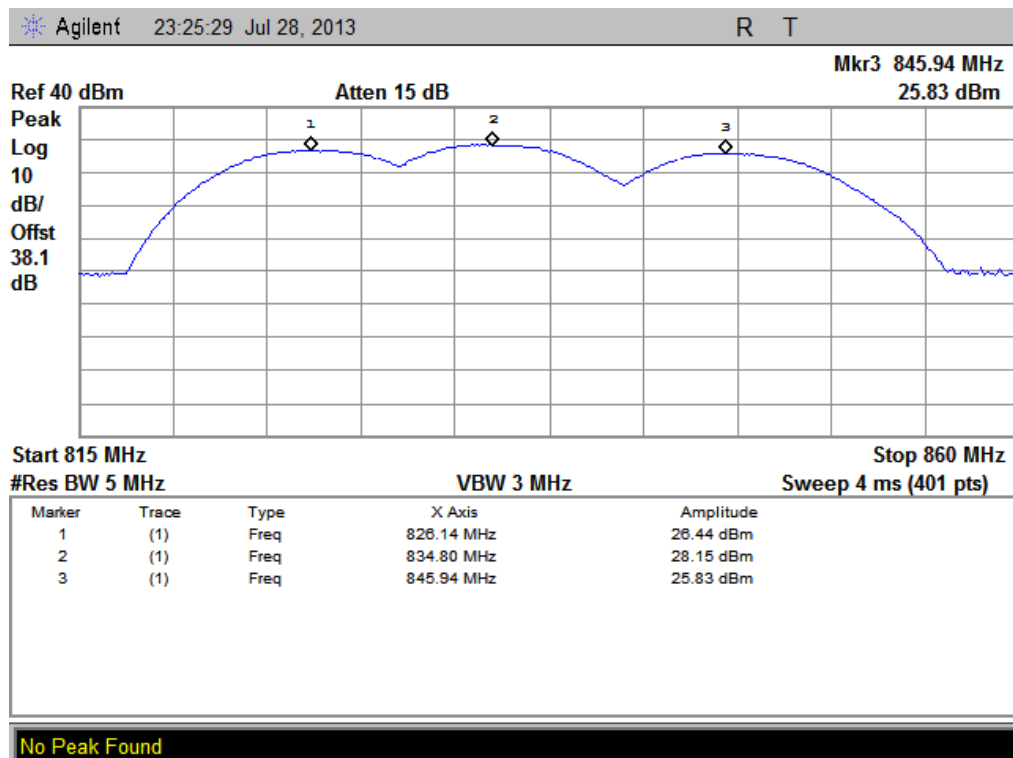
(Plot E: GPRS 1900MHz Channel = 512, 661, 810)



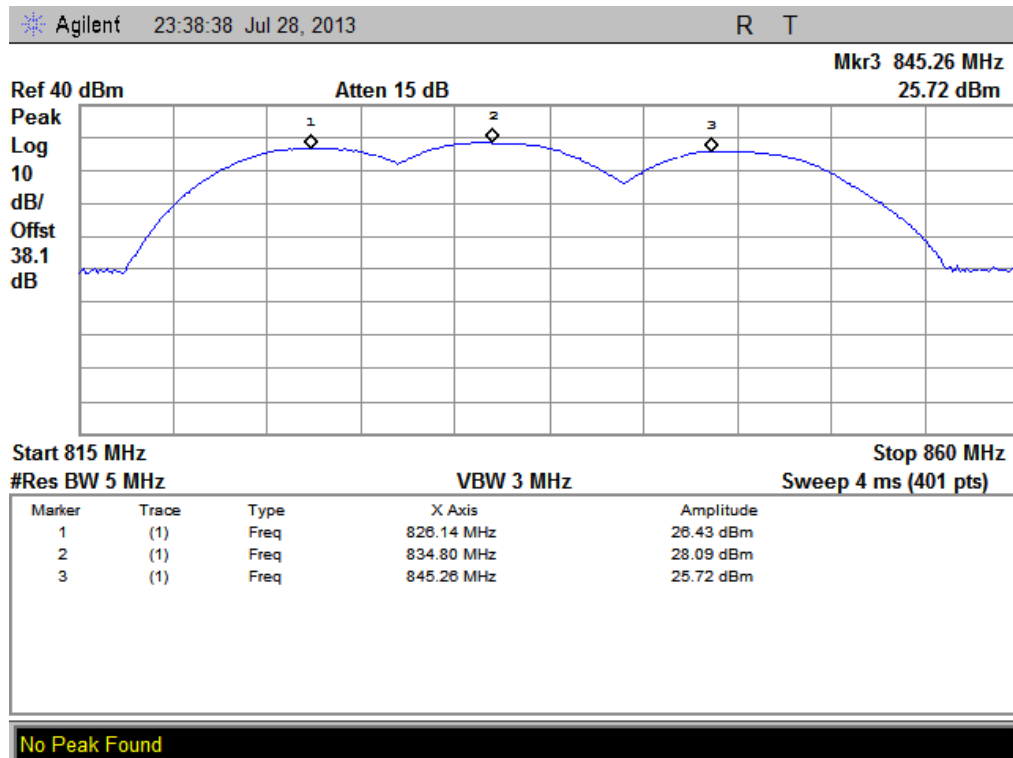
(Plot F: EGPRS 1900MHz Channel = 512, 661, 810)



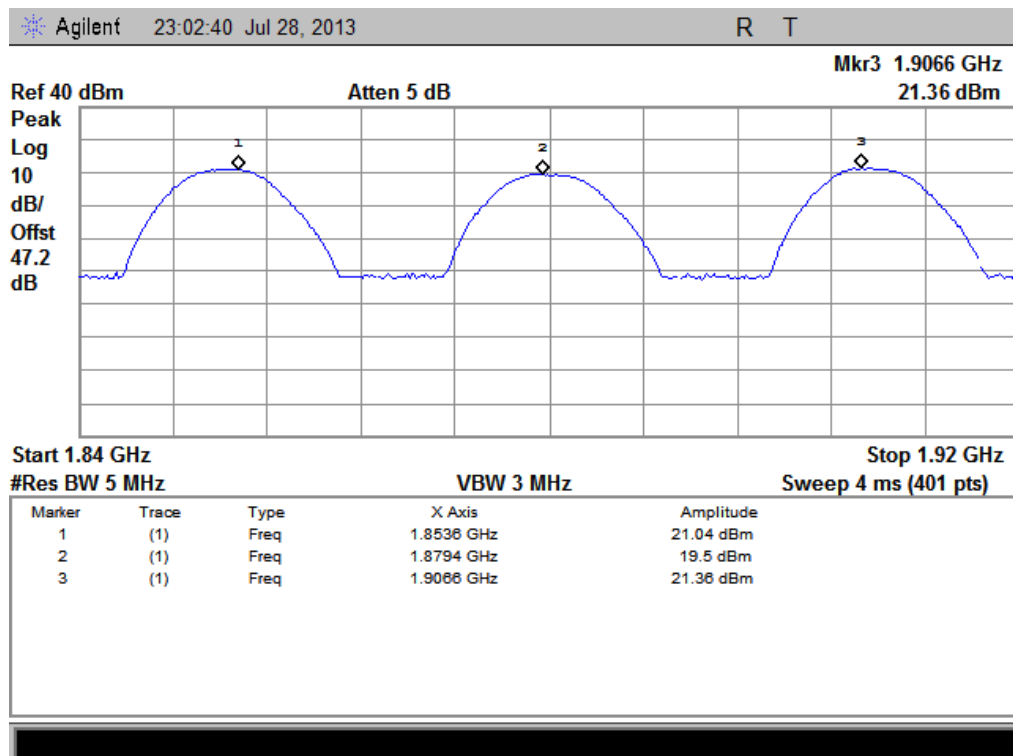
(Plot G: WCDMA 850 MHz Channel = 4132, 4175, 4233)



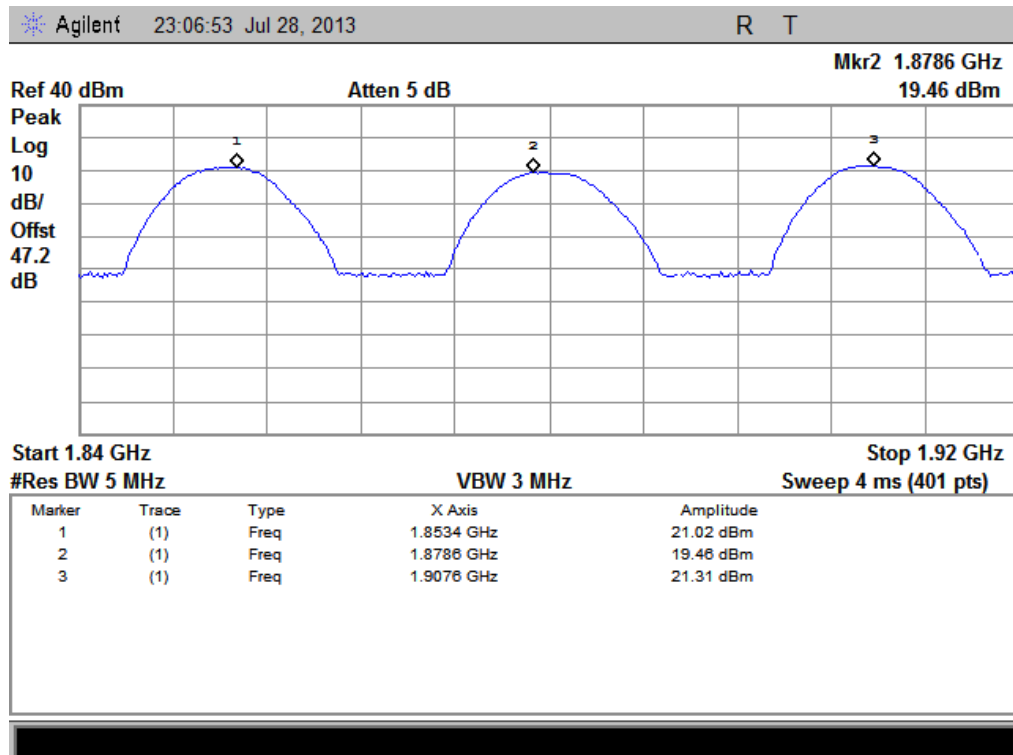
(Plot H: HSDPA 850 MHz Channel = 4132, 4175, 4233)



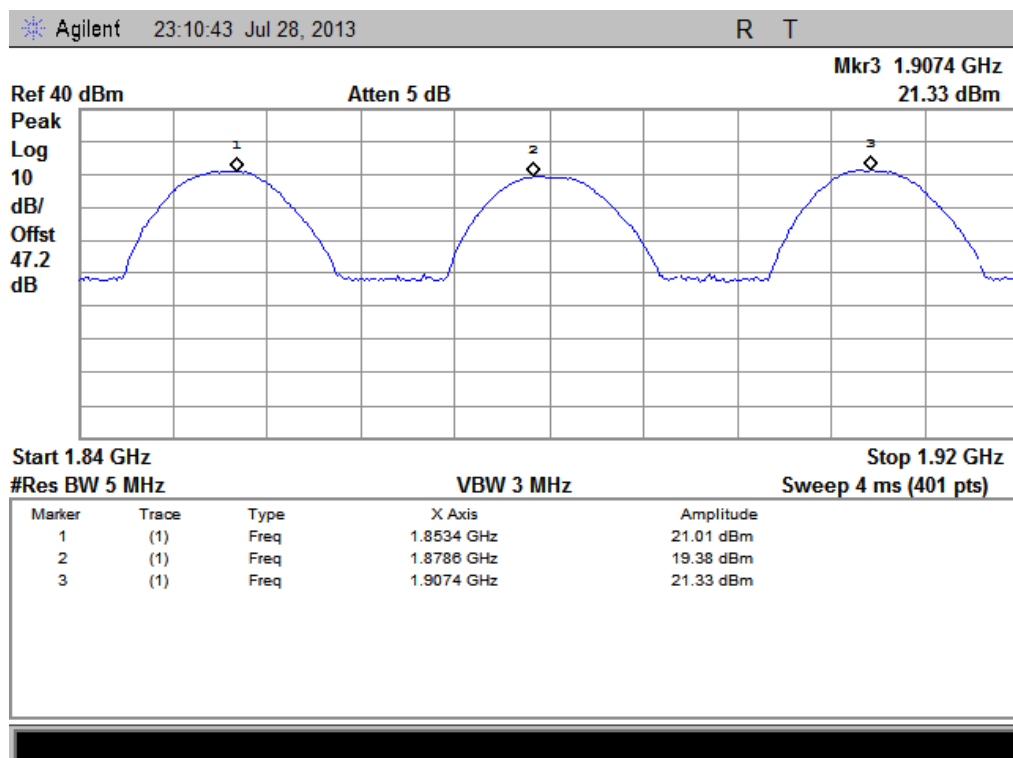
(Plot I: HSUPA 850 MHz Channel = 4132, 4175, 4233)



(Plot J: WCDMA 1900 MHz Channel = 9262, 9400, 9538)



(Plot K: HSDPA1900 MHz Channel = 9262, 9400, 9538)



(Plot L: HSUPA1900 MHz Channel = 9262, 9400, 9538)

2.8 Radiated Out of Band Emissions

2.8.1 Requirement

According to FCC section 22.917(a) and section 24.238(a) 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.

The spurious emission with frequency band 1900 according to FCC section 2.1057.

2.8.2 Test Description

See section 2.7.2 of this report.

Equipment List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2012.05	2014.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2014.05
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2012.05	2014.05
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2012.05	2014.05
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2014.05
Substitution Antenna	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2014.05
Pre-AMPs	lucix	S10M100L3802	S020180L3203	2012.05	2014.05
Notch Filter	COM-MW	ZBSF-C836.5-25-X	NA	2012.05	2014.05
Notch Filter	COM-MW	ZBSF-C1747.5-75-X2	NA	2012.05	2014.05
Notch Filter	COM-MW	ZBSF-C1880-60-X2	NA	2012.05	2014.05

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

2.8.3 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.

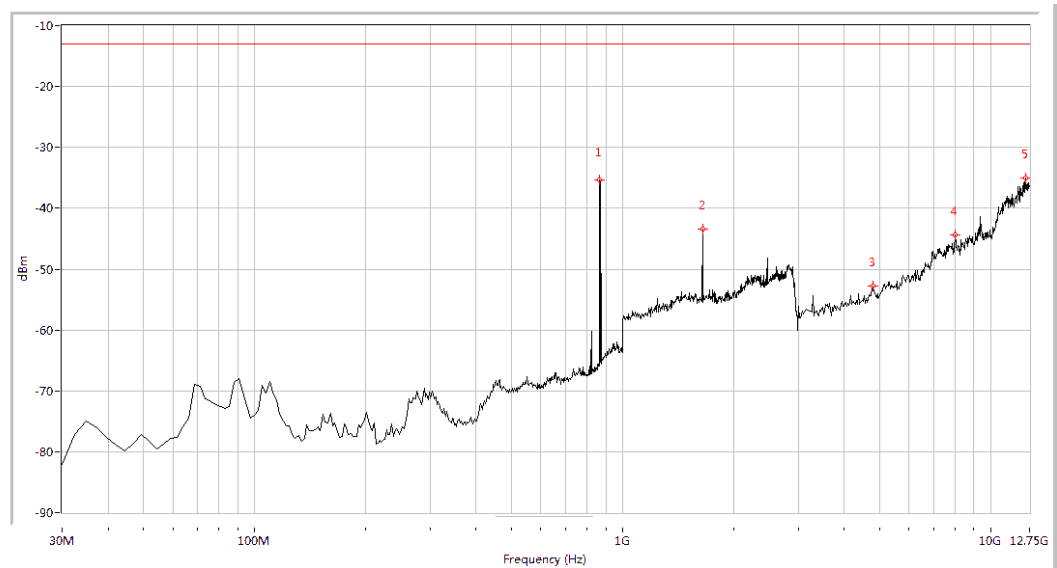
1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical			
GSM 850MHz	128	824.2	< -25	< -25	Plot A.1/A.2	-13	PASS
	190	836.6	< -25	< -25	Plot A.3/A.4		PASS
	251	848.8	< -25	< -25	Plot A.5/A.6		PASS
GSM 1900MHz	512	1850.2	< -25	< -25	Plot B.1/B.2	-13	PASS
	661	1880.0	< -25	< -25	Plot B.3/B.4		PASS
	810	1909.8	< -25	< -25	Plot B.5/B.6		PASS
EDGE 850MHz	128	824.2	< -25	< -25	Plot C.1/C.2	-13	PASS
	190	836.6	< -25	< -25	Plot C.3/C.4		PASS
	251	848.8	< -25	< -25	Plot C.5/C.6		PASS
EDGE 1900MHz	512	1850.2	< -25	< -25	Plot D.1/D.2	-13	PASS
	661	1880.0	< -25	< -25	Plot D.3/D.4		PASS
	810	1909.8	< -25	< -25	Plot D.5/D.6		PASS
WCDMA 850MHz	4132	826.4	< -25	< -25	Plot E.1/E.2	-13	PASS
	4175	835	< -25	< -25	Plot E.3/E.4		PASS
	4233	846.6	< -25	< -25	Plot E.5/E.6		PASS
WCDMA 1900MHz	9262	1852.4	< -25	< -25	Plot F.1/F.2	-13	PASS
	9400	1880	< -25	< -25	Plot F.3/F.4		PASS
	9538	1907.6	< -25	< -25	Plot F.5/F.6		PASS
HSDPA 850MHz	4132	826.4	< -25	< -25	Plot G.1/G.2	-13	PASS
	4175	835	< -25	< -25	Plot G.3/G.4		PASS
	4233	846.6	< -25	< -25	Plot G.5/G.6		PASS
HSDPA 1900MHz	9262	1852.4	< -25	< -25	Plot H.1/H.2	-13	PASS
	9400	1880	< -25	< -25	Plot H.3/H.4		PASS
	9538	1907.6	< -25	< -25	Plot H.5/H.6		PASS
HSUPA 850MHz	4132	826.4	< -25	< -25	Plot I.1/I.2	-13	PASS
	4175	835	< -25	< -25	Plot I.3/I.4		PASS
	4233	846.6	< -25	< -25	Plot I.5/I.6		PASS
HSUPA 1900MHz	9262	1852.4	< -25	< -25	Plot J.1/J.2	-13	PASS
	9400	1880	< -25	< -25	Plot J.3/J.4		PASS
	9538	1907.6	< -25	< -25	Plot J.5/J.6		PASS

2. Test Plots for the Whole Measurement Frequency Range:

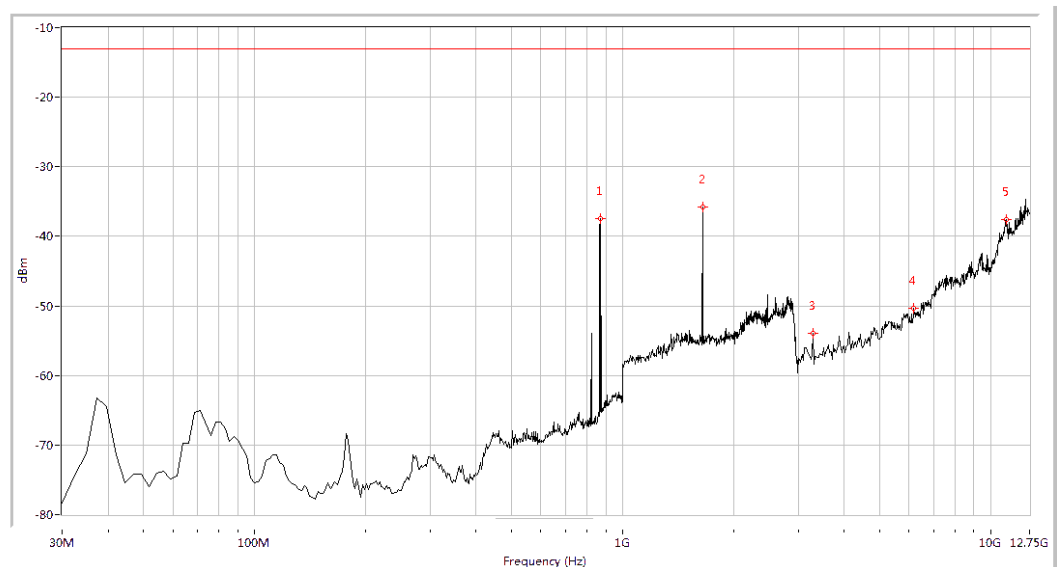
Note1: the power of the EUT transmitting frequency should be ignored.

Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.



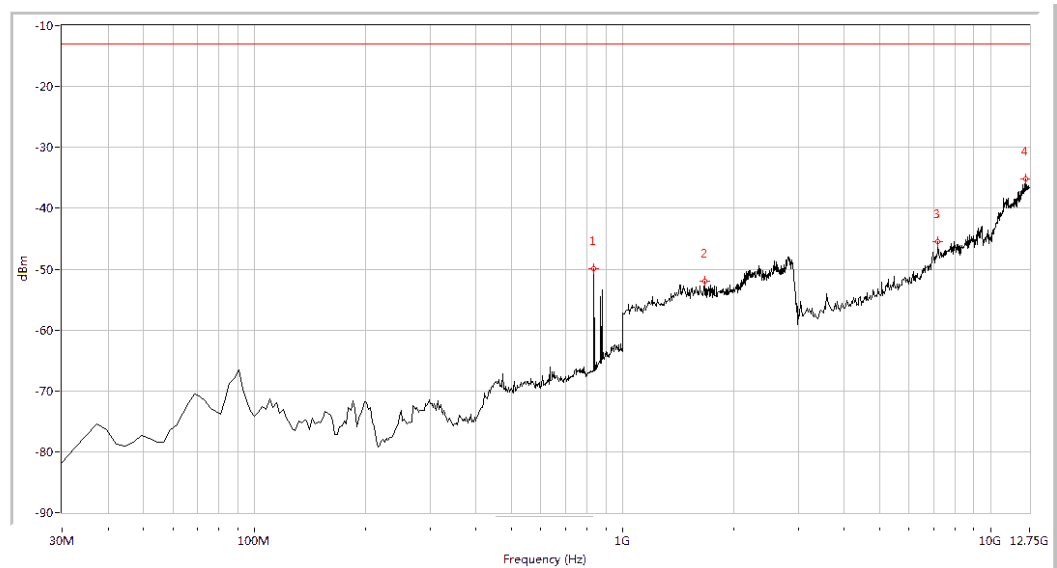
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
866.958	-35.42	-13.0	22.4	164.4	Horizontal	PASS
1648.379	-43.38	-13.0	30.4	263.3	Horizontal	PASS
4799.252	-52.70	-13.0	39.7	207.4	Horizontal	PASS
7984.414	-44.37	-13.0	31.4	-0.0	Horizontal	PASS
12409.601	-35.09	-13.0	22.1	237.0	Horizontal	PASS

(Plot A.1: GSM 850MHz Channel = 128, Test Antenna Horizontal)



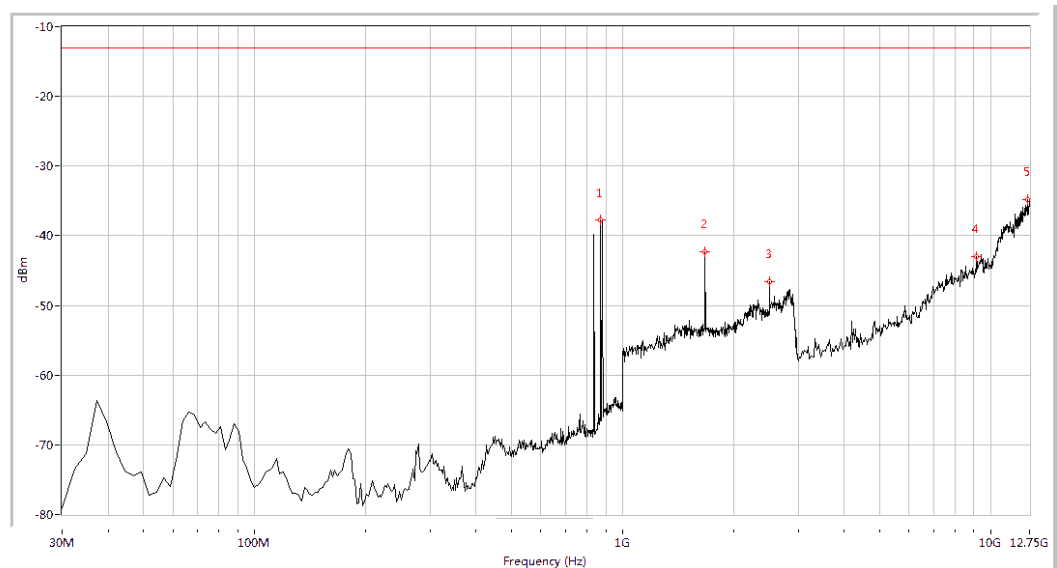
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-37.41	-13.0	24.4	315.7	Vertical	PASS
1648.379	-35.77	-13.0	22.8	122.3	Vertical	PASS
3291.771	-53.91	-13.0	40.9	57.2	Vertical	PASS
6185.162	-50.40	-13.0	37.4	299.2	Vertical	PASS
11048.005	-37.58	-13.0	24.6	355.9	Vertical	PASS

(Plot A.2: GSM 850MHz Channel = 128, Test Antenna Vertical)



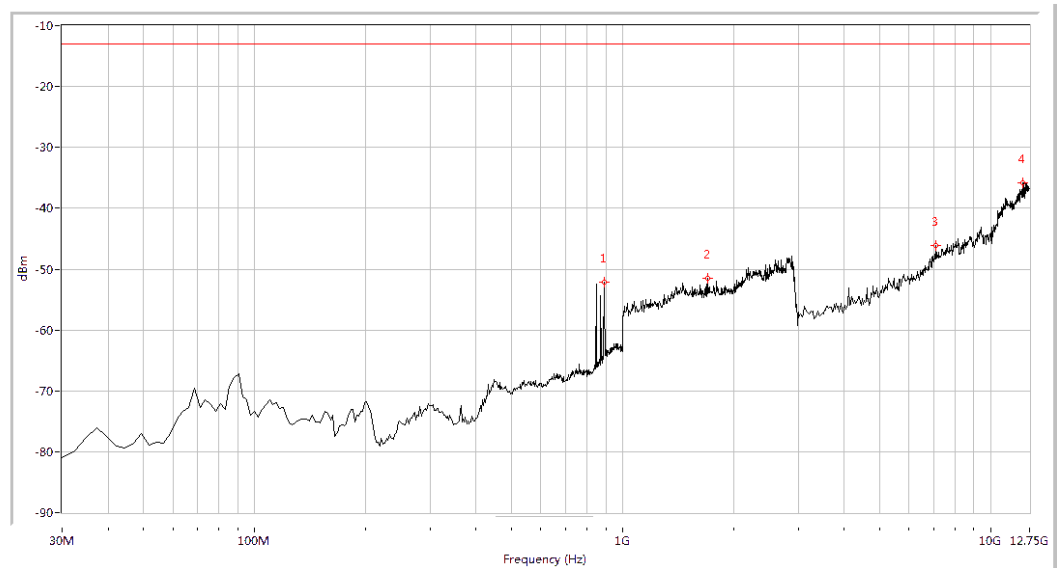
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
835.511	-49.87	-13.0	36.9	176.1	Horizontal	PASS
1673.317	-51.99	-13.0	39.0	1.5	Horizontal	PASS
7182.045	-45.48	-13.0	32.5	1.1	Horizontal	PASS
12409.601	-35.20	-13.0	22.2	68.9	Horizontal	PASS

(Plot A.3: GSM 850MHz Channel = 190, Test Antenna Horizontal)



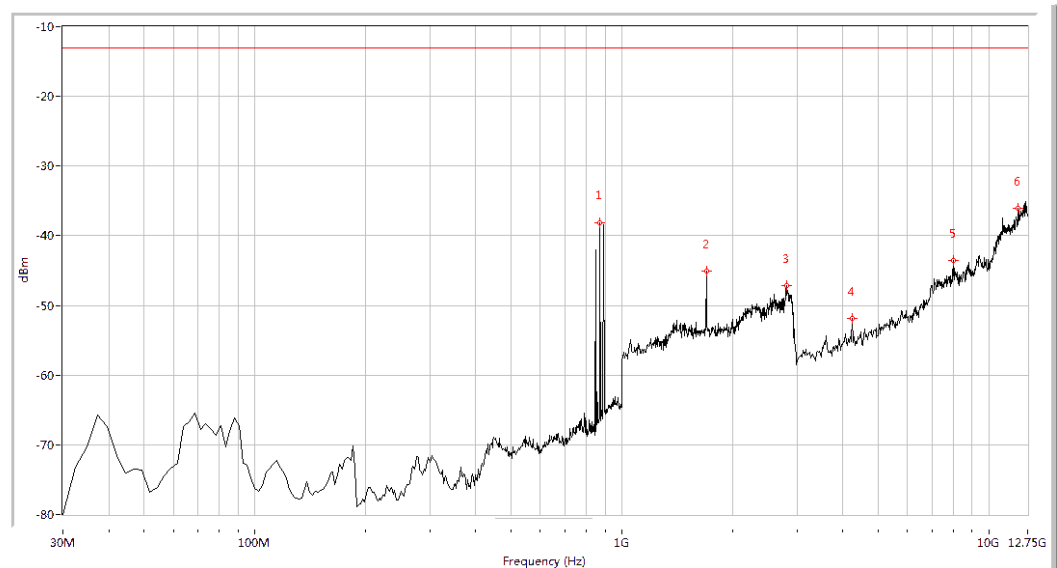
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-37.69	-13.0	24.7	63.3	Vertical	PASS
1673.317	-42.23	-13.0	29.2	350.2	Vertical	PASS
2506.234	-46.61	-13.0	33.6	284.8	Vertical	PASS
9151.496	-42.95	-13.0	30.0	347.8	Vertical	PASS
12628.429	-34.75	-13.0	21.7	31.7	Vertical	PASS

(Plot A.4: GSM 850MHz Channel = 190, Test Antenna Vertical)



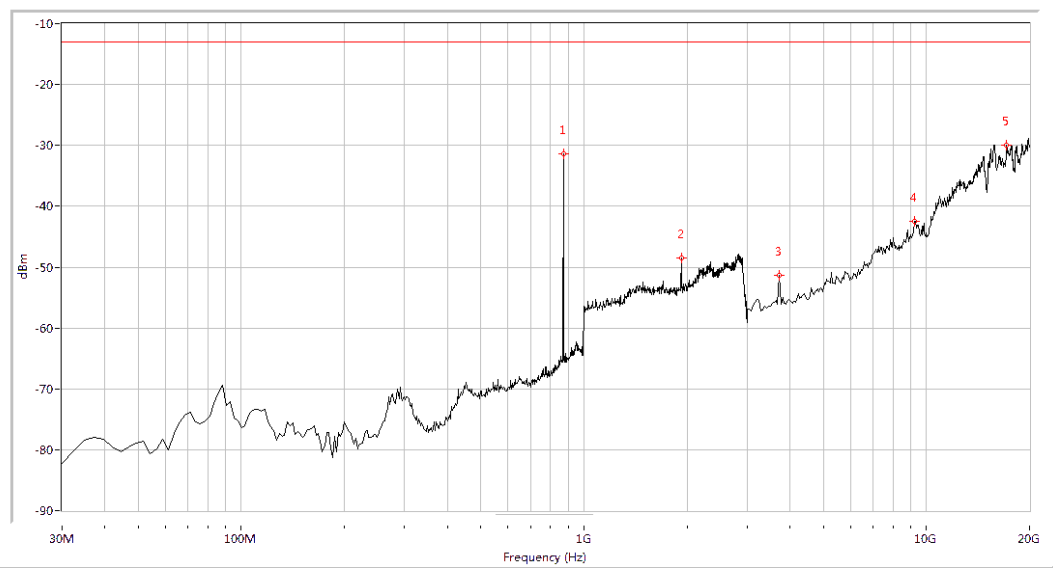
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
891.147	-52.18	-13.0	39.2	122.5	Horizontal	PASS
1698.254	-51.47	-13.0	38.5	172.4	Horizontal	PASS
7109.102	-46.12	-13.0	33.1	280.9	Horizontal	PASS
12239.401	-35.85	-13.0	22.8	80.1	Horizontal	PASS

(Plot A.5: GSM 850MHz Channel = 251, Test Antenna Horizontal)



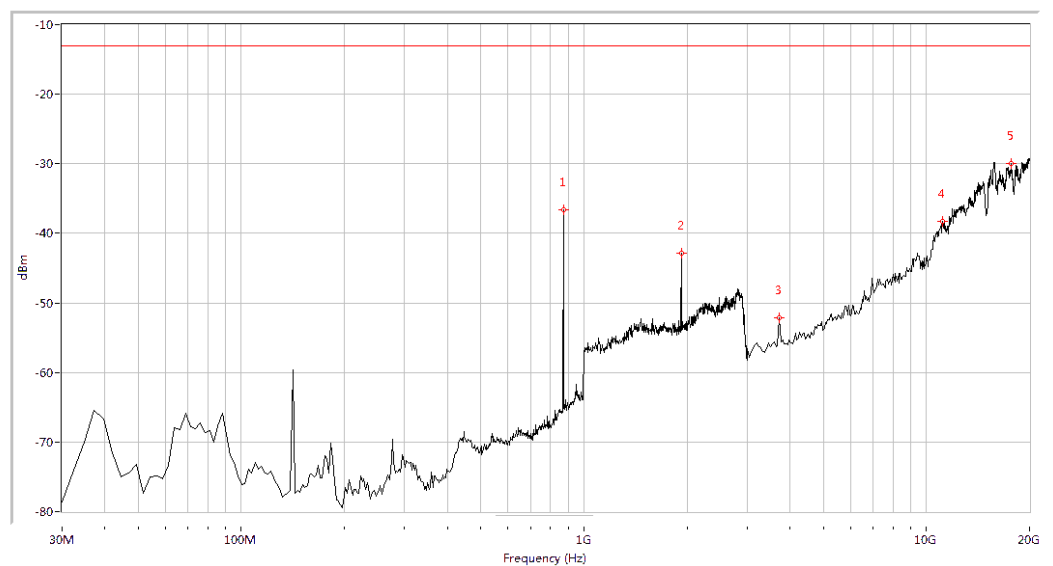
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-38.13	-13.0	25.1	70.4	Vertical	PASS
1698.254	-45.10	-13.0	32.1	44.7	Vertical	PASS
2805.486	-47.18	-13.0	34.2	307.7	Vertical	PASS
4240.025	-51.85	-13.0	38.8	309.7	Vertical	PASS
7984.414	-43.49	-13.0	30.5	142.6	Vertical	PASS
12020.574	-36.13	-13.0	23.1	89.1	Vertical	PASS

(Plot A.6: GSM 850MHz Channel = 251, Test Antenna Vertical)



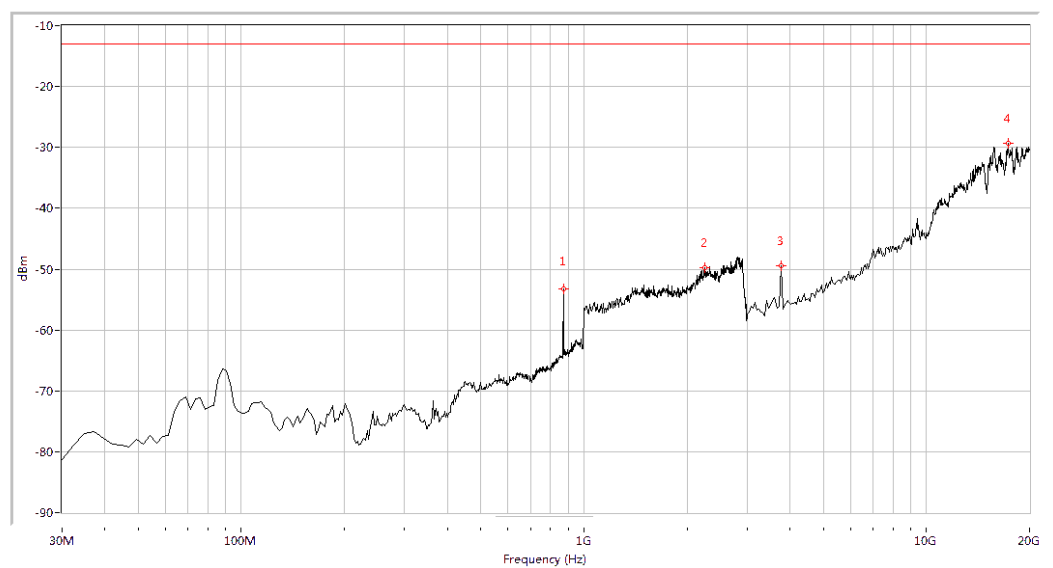
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-31.46	-13.0	18.5	142.9	Horizontal	PASS
1927.681	-48.56	-13.0	35.6	53.0	Horizontal	PASS
3720.698	-51.30	-13.0	38.3	1.3	Horizontal	PASS
9231.920	-42.40	-13.0	29.4	121.7	Horizontal	PASS
17159.601	-29.88	-13.0	16.9	-0.0	Horizontal	PASS

(Plot B.1: GSM 1900MHz Channel = 512, Test Antenna Horizontal)



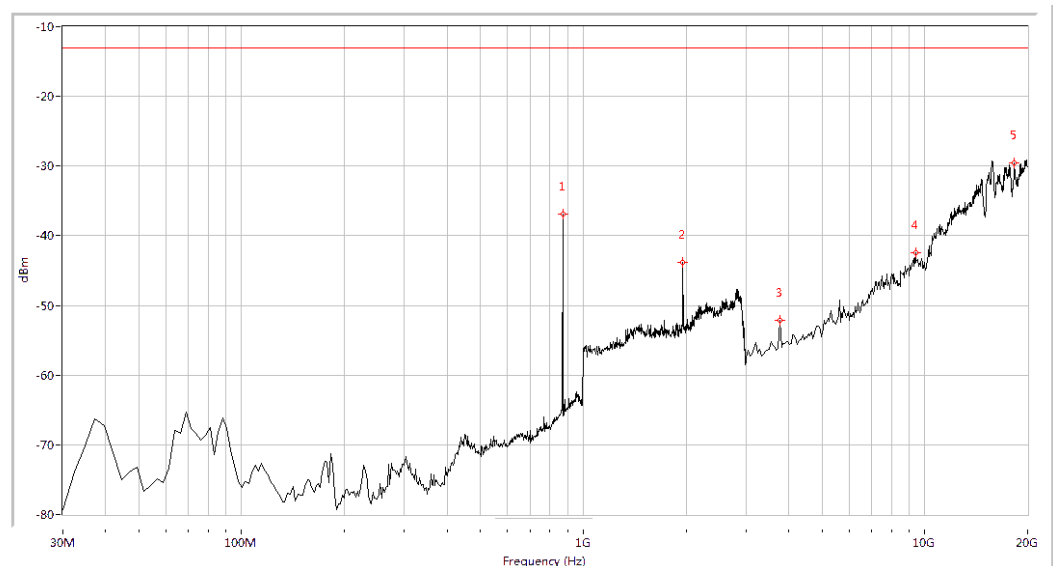
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-36.62	-13.0	23.6	145.6	Vertical	PASS
1927.681	-42.90	-13.0	29.9	55.2	Vertical	PASS
3720.698	-52.15	-13.0	39.1	261.3	Vertical	PASS
11139.651	-38.29	-13.0	25.3	360.0	Vertical	PASS
17625.935	-30.00	-13.0	17.0	202.9	Vertical	PASS

(Plot B.2: GSM 1900MHz Channel = 512, Test Antenna Vertical)



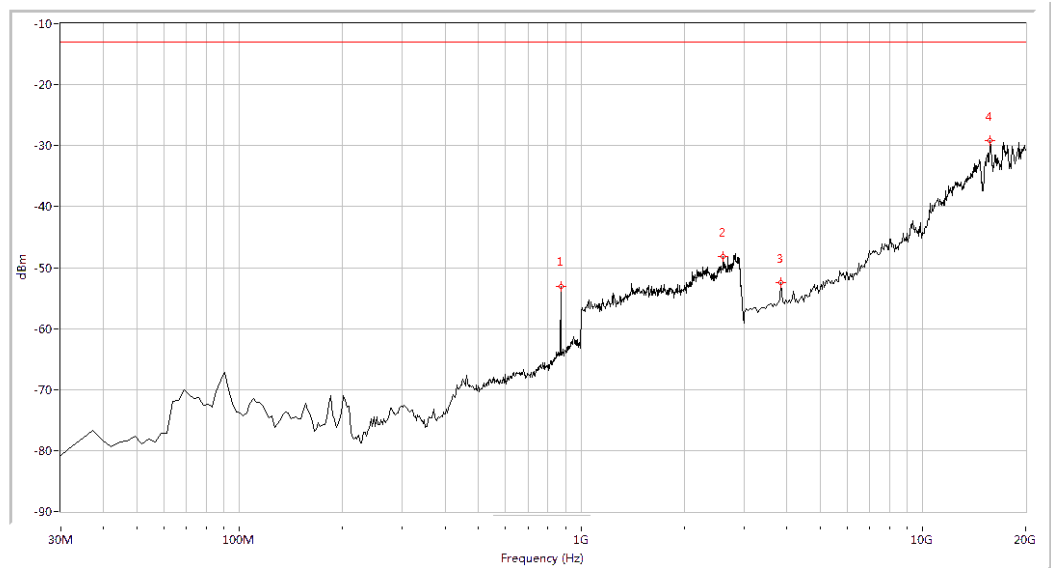
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-53.29	-13.0	40.3	105.7	Horizontal	PASS
2251.870	-49.78	-13.0	36.8	212.9	Horizontal	PASS
3763.092	-49.46	-13.0	36.5	356.5	Horizontal	PASS
17286.783	-29.40	-13.0	16.4	74.2	Horizontal	PASS

(Plot B.3: GSM 1900MHz Channel = 661, Test Antenna Horizontal)



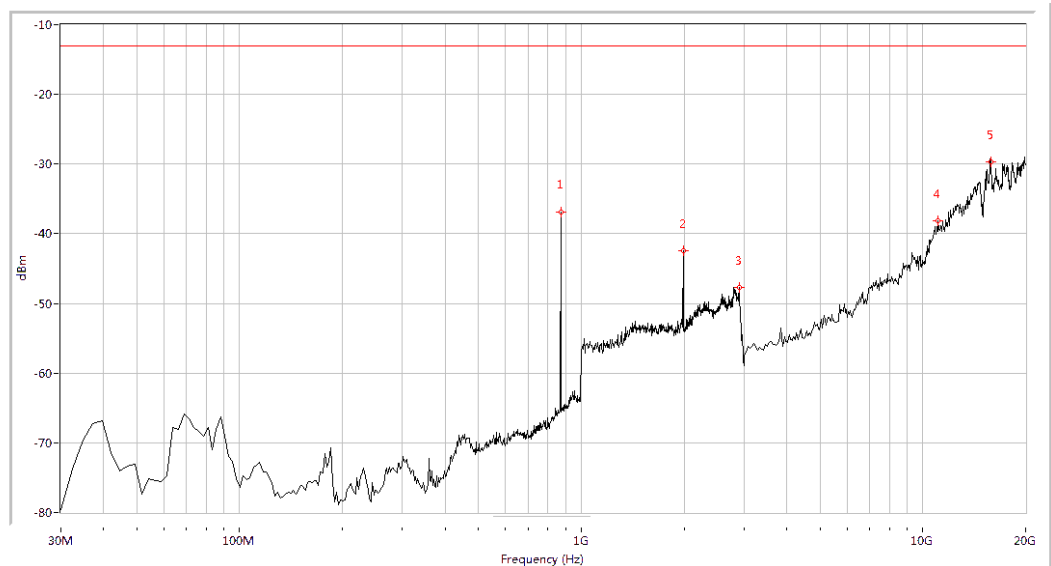
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-36.92	-13.0	23.9	139.7	Vertical	PASS
1957.606	-43.87	-13.0	30.9	211.1	Vertical	PASS
3763.092	-52.18	-13.0	39.2	269.4	Vertical	PASS
9401.496	-42.41	-13.0	29.4	3.5	Vertical	PASS
18304.239	-29.59	-13.0	16.6	66.3	Vertical	PASS

(Plot B.4: GSM 1900MHz Channel = 661, Test Antenna Vertical)



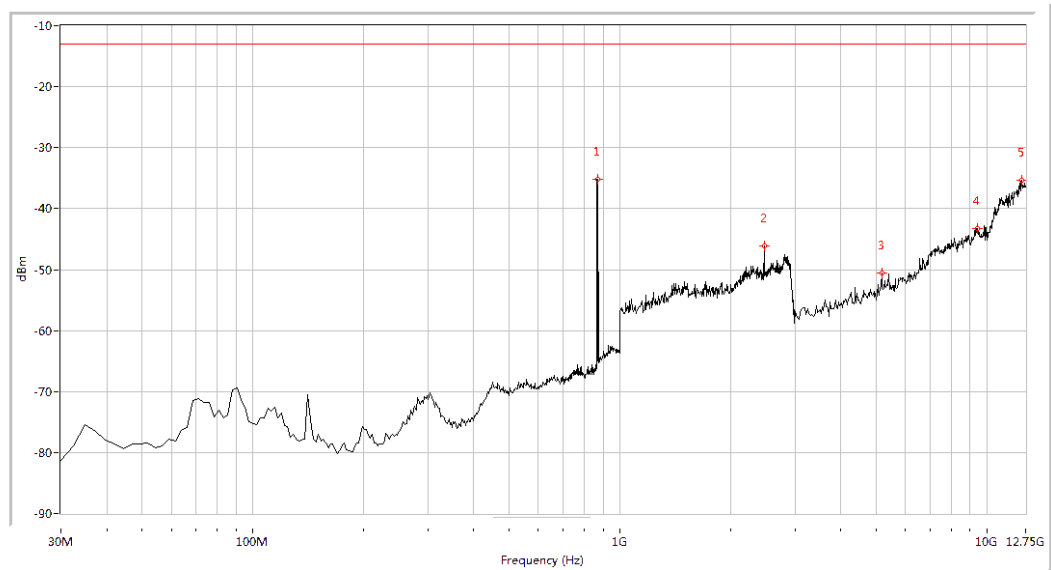
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-53.04	-13.0	40.0	100.5	Horizontal	PASS
2600.998	-48.15	-13.0	35.2	214.1	Horizontal	PASS
3847.880	-52.49	-13.0	39.5	242.6	Horizontal	PASS
15760.599	-29.10	-13.0	16.1	64.8	Horizontal	PASS

(Plot B.5: GSM 1900MHz Channel = 810, Test Antenna Horizontal)



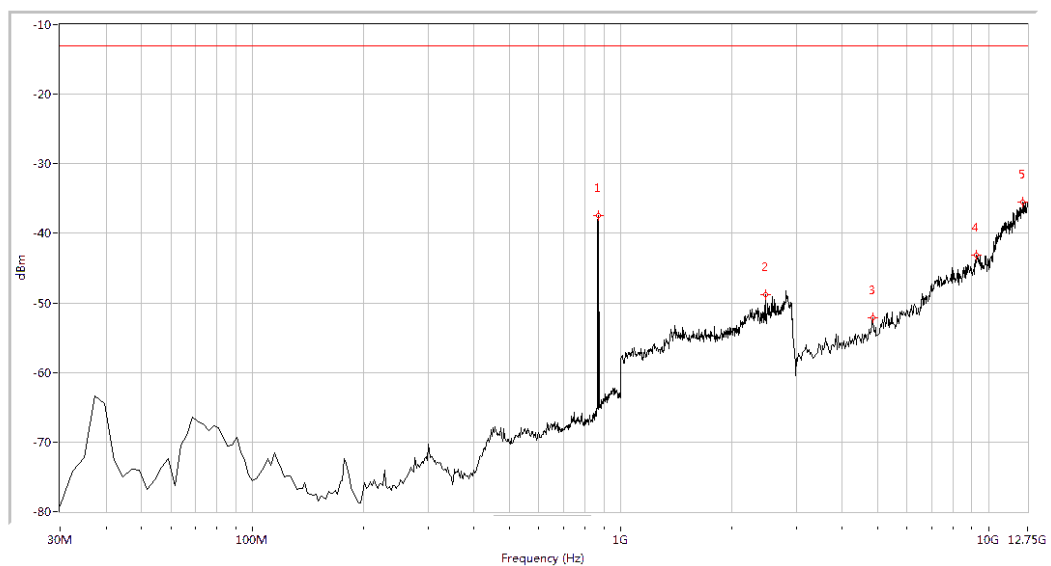
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-36.87	-13.0	23.9	71.2	Vertical	PASS
1987.531	-42.39	-13.0	29.4	62.6	Vertical	PASS
2900.249	-47.67	-13.0	34.7	5.3	Vertical	PASS
11097.257	-38.18	-13.0	25.2	351.2	Vertical	PASS
15802.993	-29.67	-13.0	16.7	87.9	Vertical	PASS

(PlotB.6: GSM 1900MHz Channel = 810, Test Antenna Vertical)



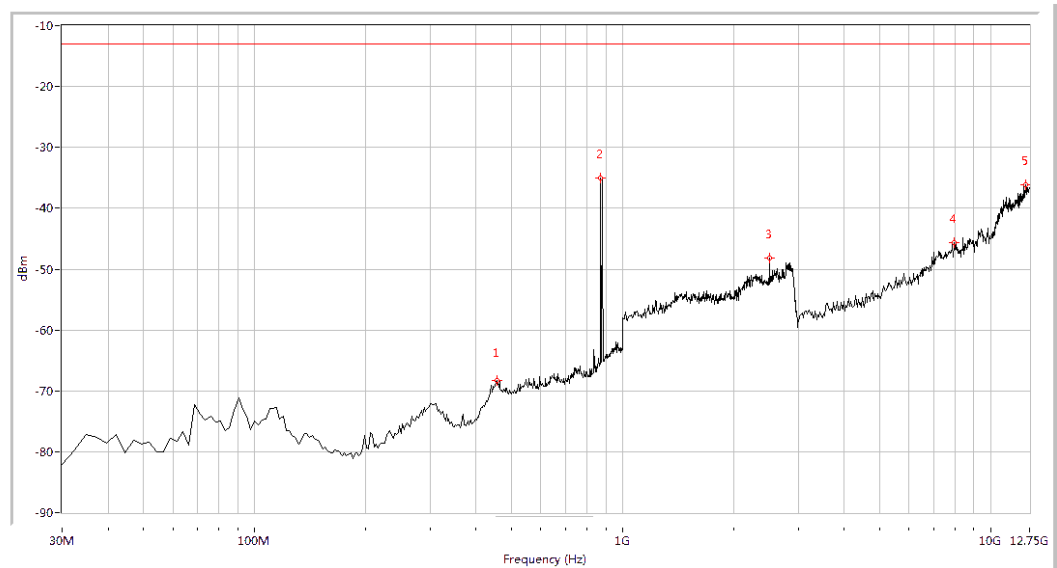
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-35.12	-13.0	22.1	167.4	Horizontal	PASS
2471.322	-46.05	-13.0	33.0	86.7	Horizontal	PASS
5163.965	-50.56	-13.0	37.6	-0.0	Horizontal	PASS
9418.953	-43.25	-13.0	30.3	304.6	Horizontal	PASS
12409.601	-35.40	-13.0	22.4	219.0	Horizontal	PASS

(Plot C.1: EGPRS 850MHz Channel = 128, Test Antenna Horizontal)



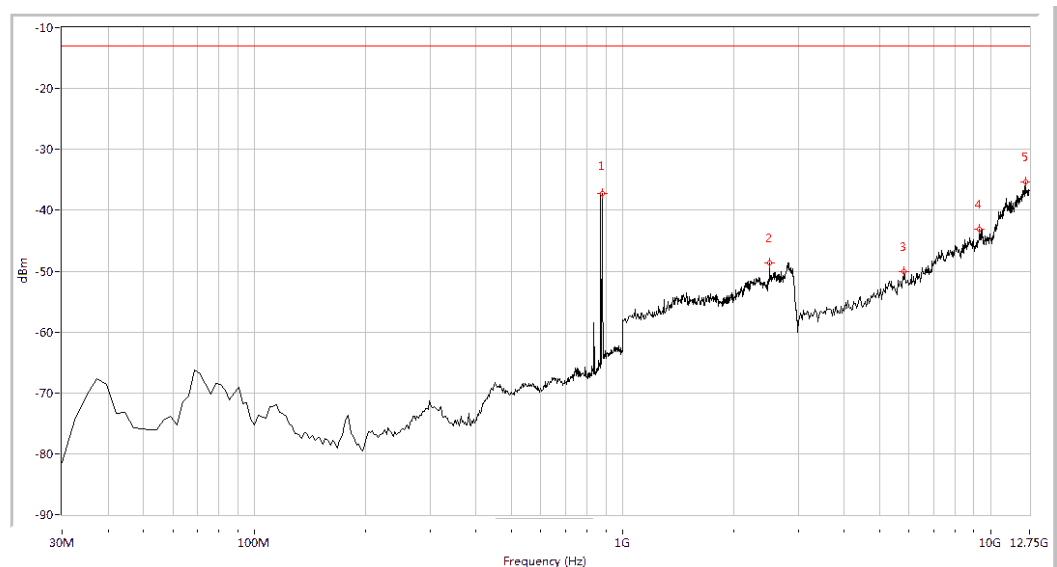
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-37.41	-13.0	24.4	226.5	Vertical	PASS
2471.322	-48.81	-13.0	35.8	323.4	Vertical	PASS
4847.880	-52.21	-13.0	39.2	49.3	Vertical	PASS
9248.753	-43.19	-13.0	30.2	0.9	Vertical	PASS
12385.287	-35.53	-13.0	22.5	71.8	Vertical	PASS

(Plot C.2: EGPRS 850MHz Channel = 128, Test Antenna Vertical)



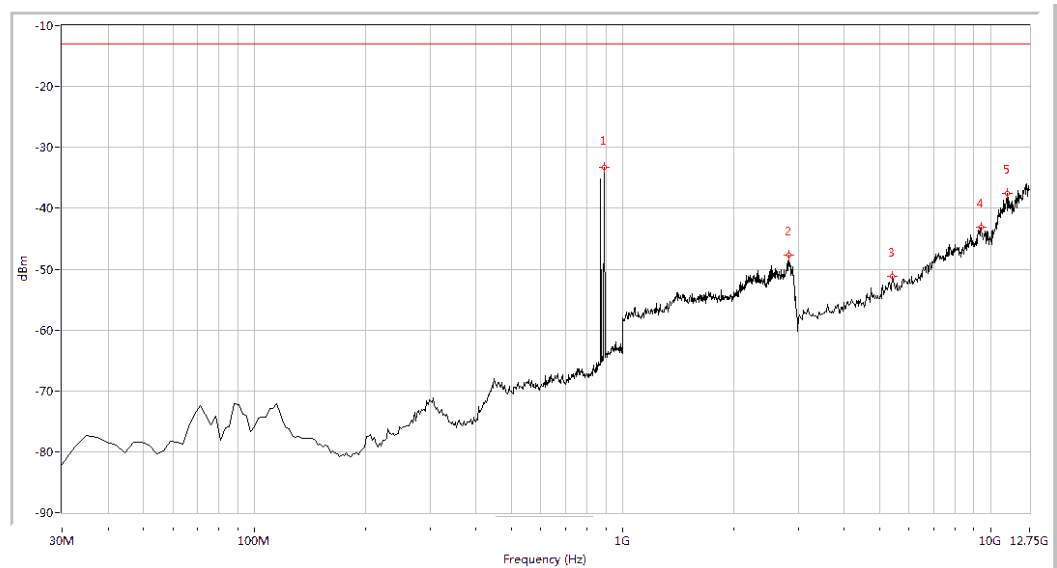
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
455.736	-68.23	-13.0	55.2	31.1	Horizontal	PASS
871.796	-35.08	-13.0	22.1	337.1	Horizontal	PASS
2506.234	-48.17	-13.0	35.2	69.6	Horizontal	PASS
7960.100	-45.57	-13.0	32.6	5.7	Horizontal	PASS
12458.229	-36.21	-13.0	23.2	69.3	Horizontal	PASS

(Plot C.3: EGPRS 850MHz Channel = 190, Test Antenna Horizontal)



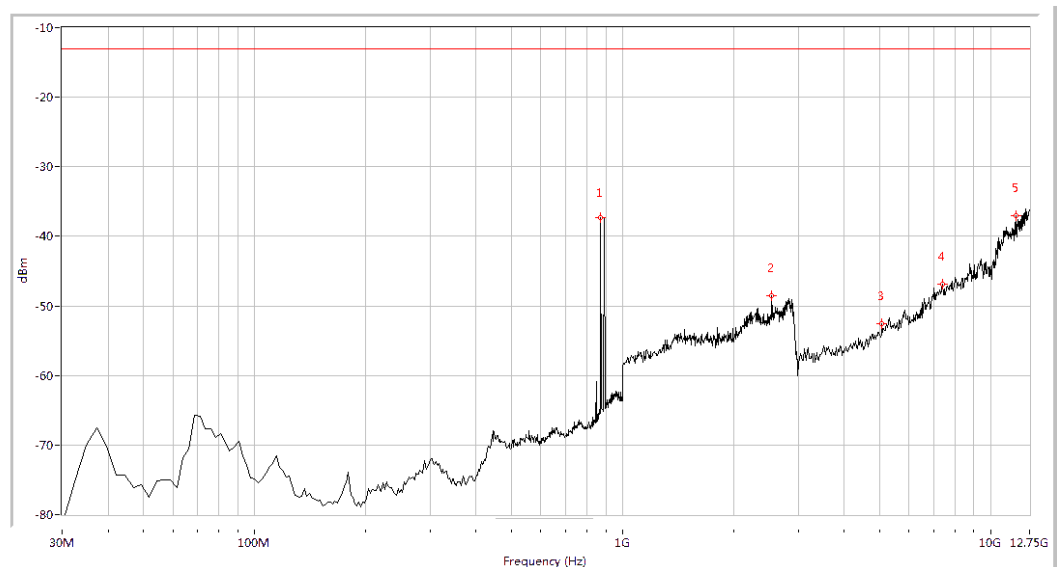
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
879.052	-37.17	-13.0	24.2	131.9	Vertical	PASS
2506.234	-48.67	-13.0	35.7	238.2	Vertical	PASS
5820.449	-50.14	-13.0	37.1	69.8	Vertical	PASS
9321.696	-43.14	-13.0	30.1	55.6	Vertical	PASS
12409.601	-35.28	-13.0	22.3	265.6	Vertical	PASS

(Plot C.4: EGPRS 850MHz Channel = 190, Test Antenna Vertical)



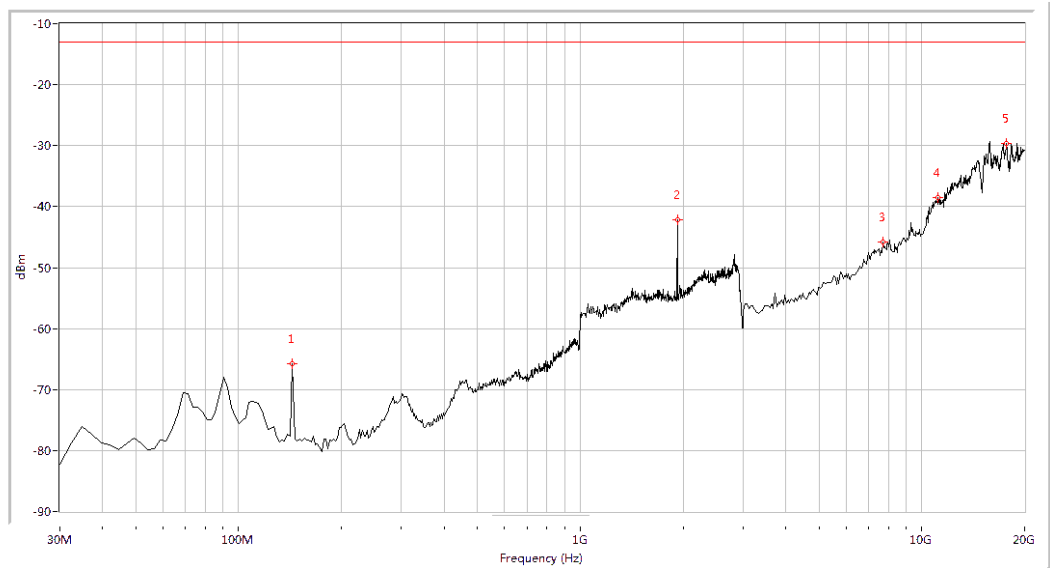
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
891.147	-33.36	-13.0	20.4	37.8	Horizontal	PASS
2825.436	-47.77	-13.0	34.8	150.6	Horizontal	PASS
5407.107	-51.18	-13.0	38.2	90.1	Horizontal	PASS
9418.953	-43.04	-13.0	30.0	344.3	Horizontal	PASS
11096.633	-37.61	-13.0	24.6	123.1	Horizontal	PASS

(Plot C.5: EGPRS 850MHz Channel = 251, Test Antenna Horizontal)



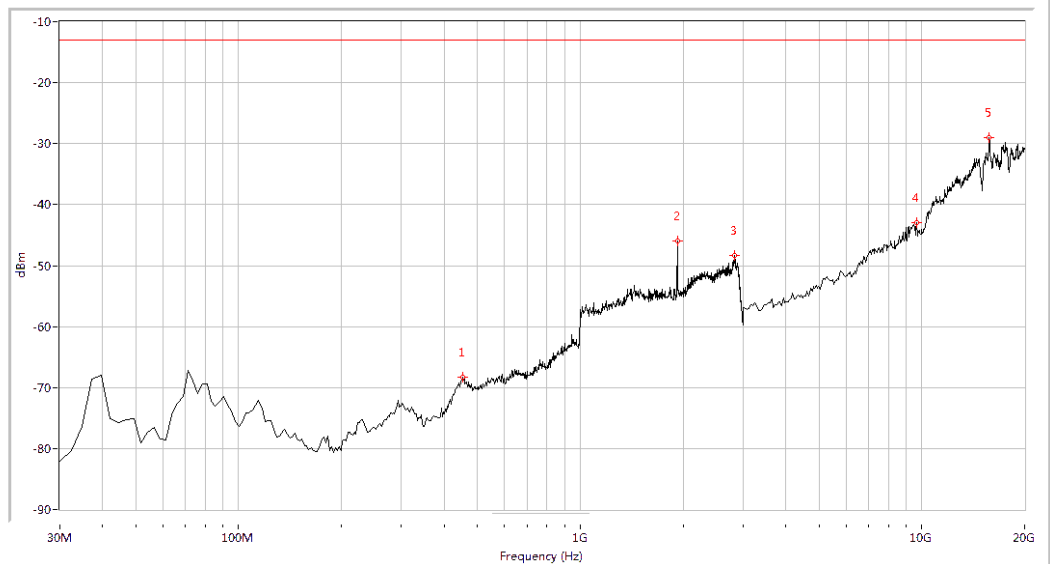
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-37.35	-13.0	24.3	226.8	Vertical	PASS
2541.147	-48.55	-13.0	35.5	322.2	Vertical	PASS
5066.708	-52.60	-13.0	39.6	61.6	Vertical	PASS
7400.873	-46.86	-13.0	33.9	360.0	Vertical	PASS
11680.175	-37.02	-13.0	24.0	307.7	Vertical	PASS

(Plot C.6: EGPRS 850MHz Channel = 251, Test Antenna Vertical)



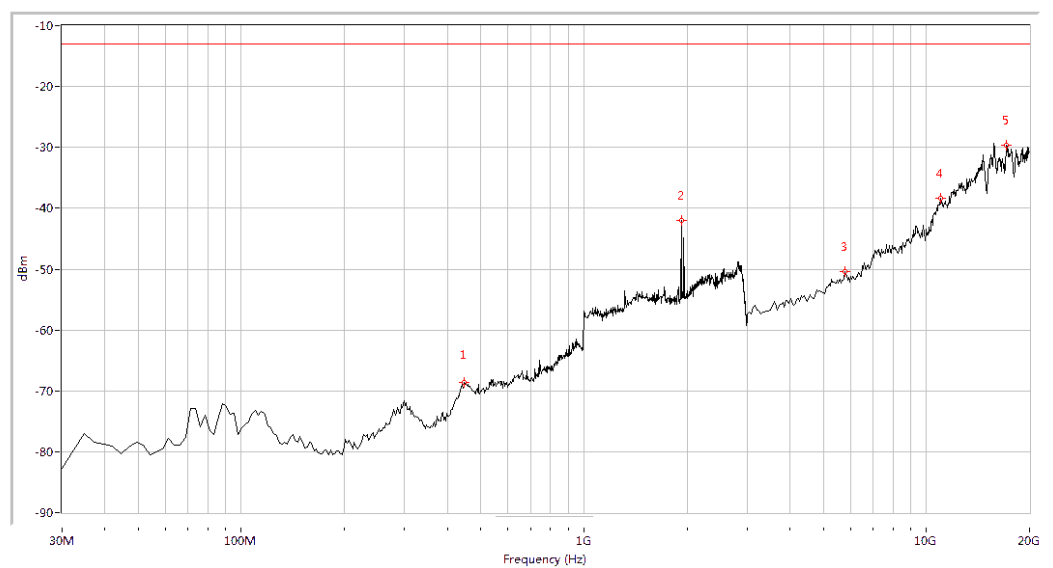
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
143.691	-65.83	-13.0	52.8	137.2	Horizontal	PASS
1927.681	-42.10	-13.0	29.1	234.9	Horizontal	PASS
7705.736	-45.73	-13.0	32.7	168.3	Horizontal	PASS
11182.045	-38.54	-13.0	25.5	270.6	Horizontal	PASS
17710.723	-29.69	-13.0	16.7	31.1	Horizontal	PASS

(Plot D.1: EGPRS 1900MHz Channel = 512, Test Antenna Horizontal)



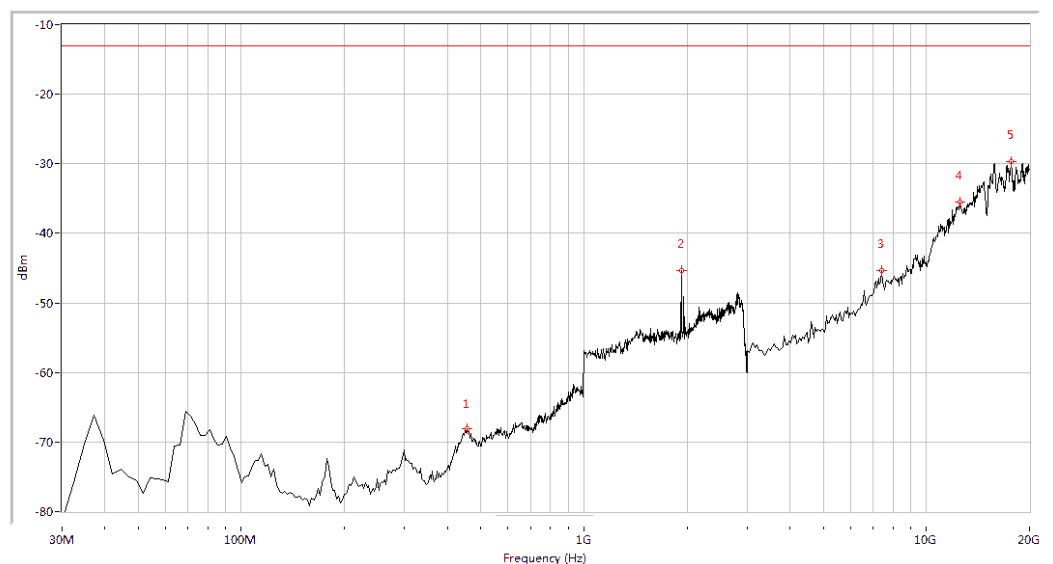
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
453.317	-68.29	-13.0	55.3	196.8	Vertical	PASS
1927.681	-45.99	-13.0	33.0	232.3	Vertical	PASS
2825.436	-48.30	-13.0	35.3	358.2	Vertical	PASS
9655.860	-42.99	-13.0	30.0	241.3	Vertical	PASS
15760.599	-28.94	-13.0	15.9	-0.0	Vertical	PASS

(Plot D.2: EGPRS 1900MHz Channel = 512, Test Antenna Vertical)



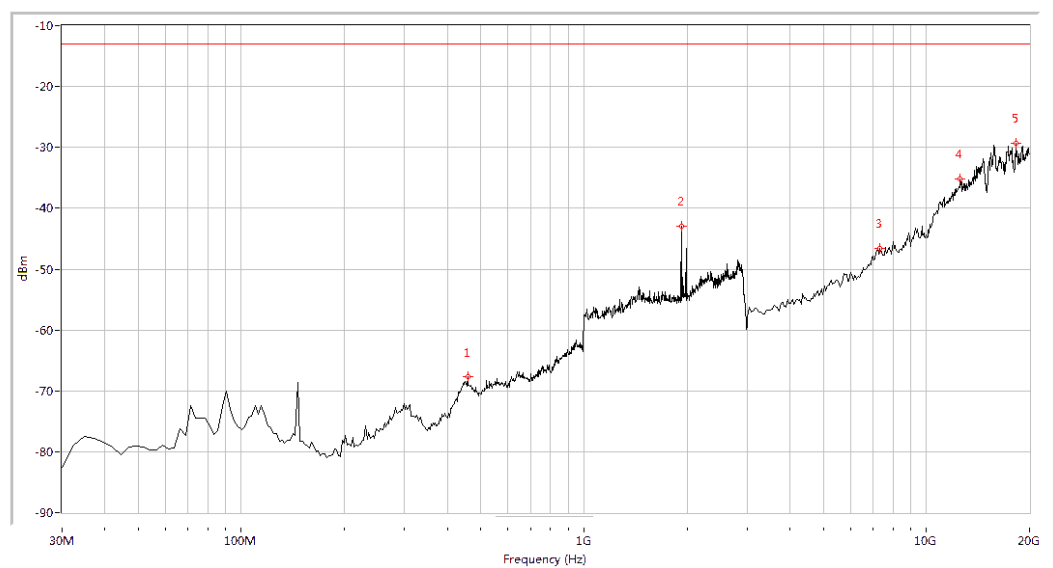
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
448.479	-68.57	-13.0	55.6	13.1	Horizontal	PASS
1927.681	-42.01	-13.0	29.0	234.5	Horizontal	PASS
5798.005	-50.47	-13.0	37.5	55.8	Horizontal	PASS
10970.075	-38.36	-13.0	25.4	241.3	Horizontal	PASS
17159.601	-29.72	-13.0	16.7	254.9	Horizontal	PASS

(Plot D.3: EGPRS 1900MHz Channel = 661, Test Antenna Horizontal)



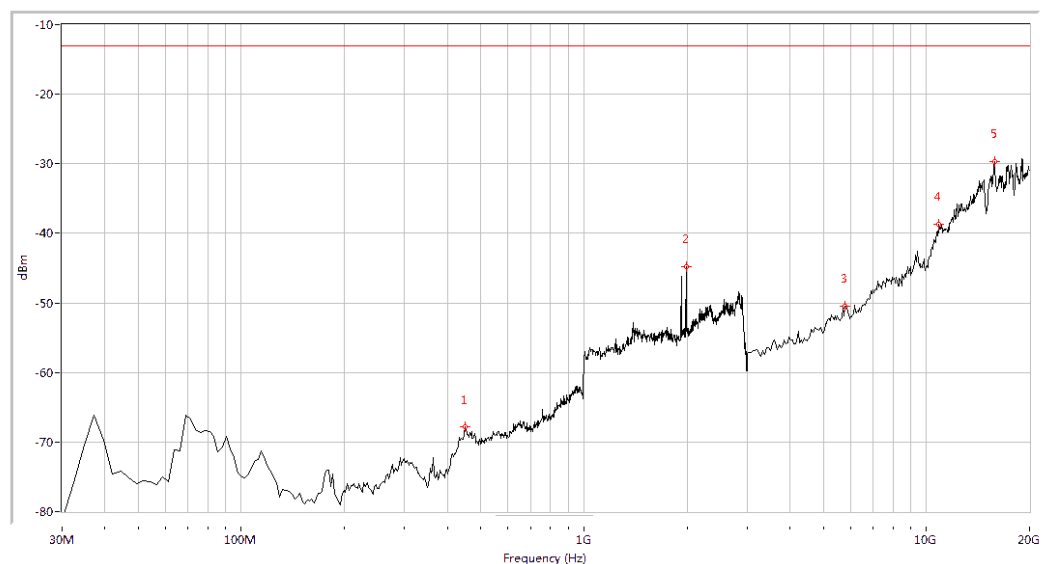
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
455.736	-68.04	-13.0	55.0	224.9	Vertical	PASS
1927.681	-45.33	-13.0	32.3	239.4	Vertical	PASS
7408.978	-45.34	-13.0	32.3	281.7	Vertical	PASS
12496.259	-35.55	-13.0	22.6	129.3	Vertical	PASS
17710.723	-29.69	-13.0	16.7	227.1	Vertical	PASS

(Plot D.4: EGPRS 1900MHz Channel = 661, Test Antenna Vertical)



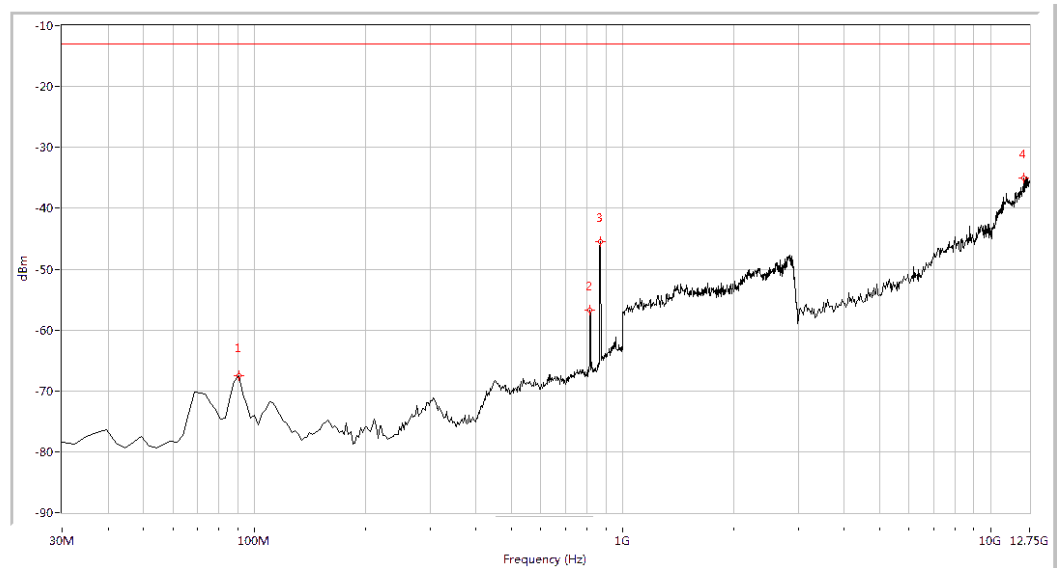
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
458.155	-67.70	-13.0	54.7	206.0	Horizontal	PASS
1927.681	-42.95	-13.0	29.9	237.0	Horizontal	PASS
7324.190	-46.63	-13.0	33.6	35.2	Horizontal	PASS
12538.653	-35.15	-13.0	22.1	-0.0	Horizontal	PASS
18304.239	-29.30	-13.0	16.3	75.7	Horizontal	PASS

(Plot D.5: EGPRS 1900MHz Channel = 810, Test Antenna Horizontal)



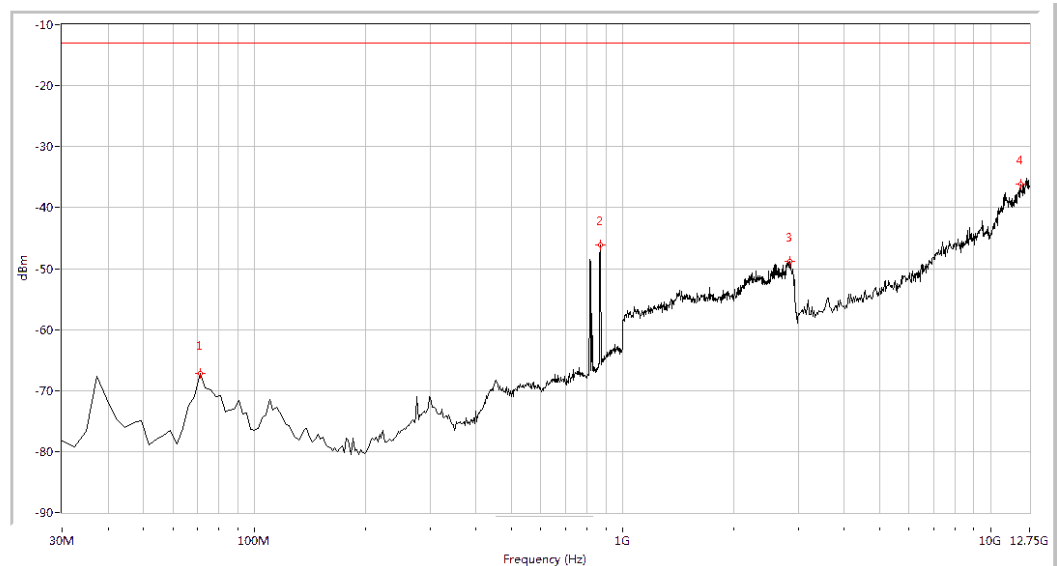
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
450.898	-67.83	-13.0	54.8	56.3	Vertical	PASS
1987.531	-44.84	-13.0	31.8	70.3	Vertical	PASS
5798.005	-50.50	-13.0	37.5	68.3	Vertical	PASS
10885.287	-38.75	-13.0	25.8	68.3	Vertical	PASS
15802.993	-29.69	-13.0	16.7	358.8	Vertical	PASS

(Plot D.6: EGPRS 1900MHz Channel = 810, Test Antenna Vertical)



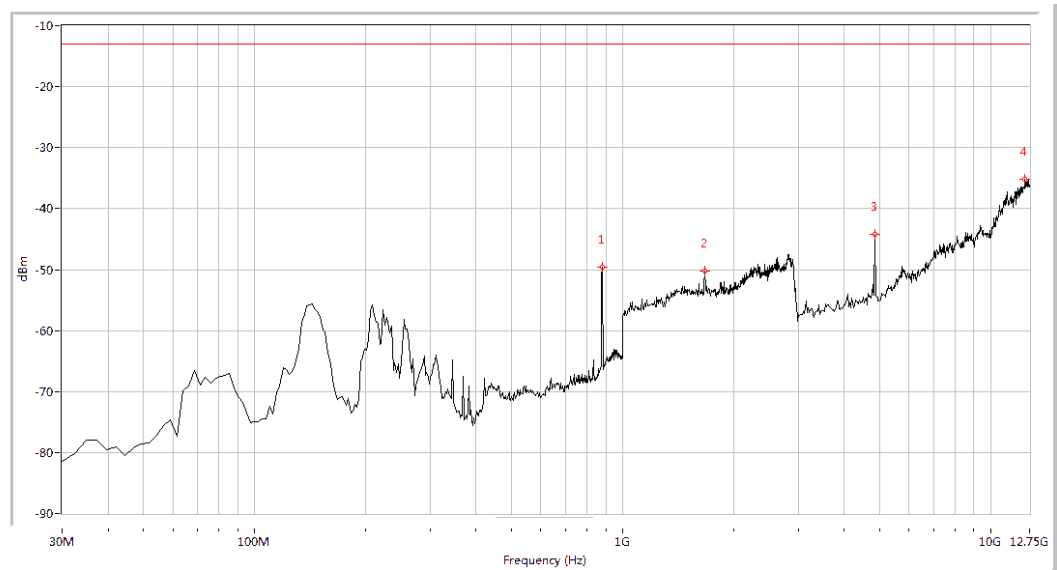
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-67.56	-13.0	54.6	108.4	Horizontal	PASS
816.160	-56.80	-13.0	43.8	90.2	Horizontal	PASS
869.377	-45.50	-13.0	32.5	36.4	Horizontal	PASS
12288.030	-35.10	-13.0	22.1	215.0	Horizontal	PASS

(Plot E.1: WCDMA 850MHz Channel = 4132, Test Antenna Horizontal)



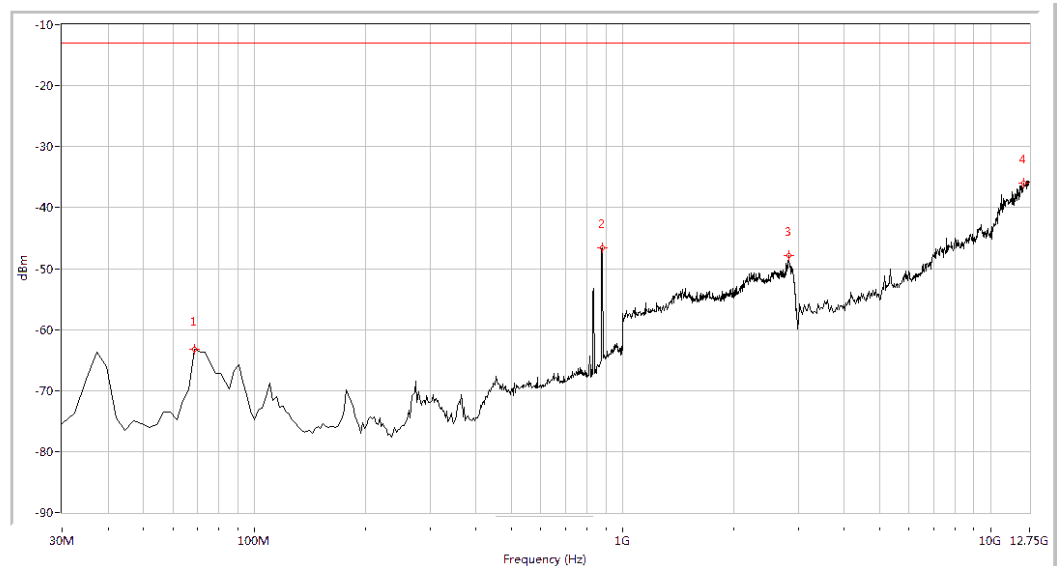
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
71.122	-67.18	-13.0	54.2	356.3	Vertical	PASS
869.377	-46.04	-13.0	33.0	299.9	Vertical	PASS
2840.399	-48.75	-13.0	35.8	48.3	Vertical	PASS
12044.888	-36.06	-13.0	23.1	322.5	Vertical	PASS

(Plot E.2: WCDMA 850MHz Channel = 4132, Test Antenna Vertical)



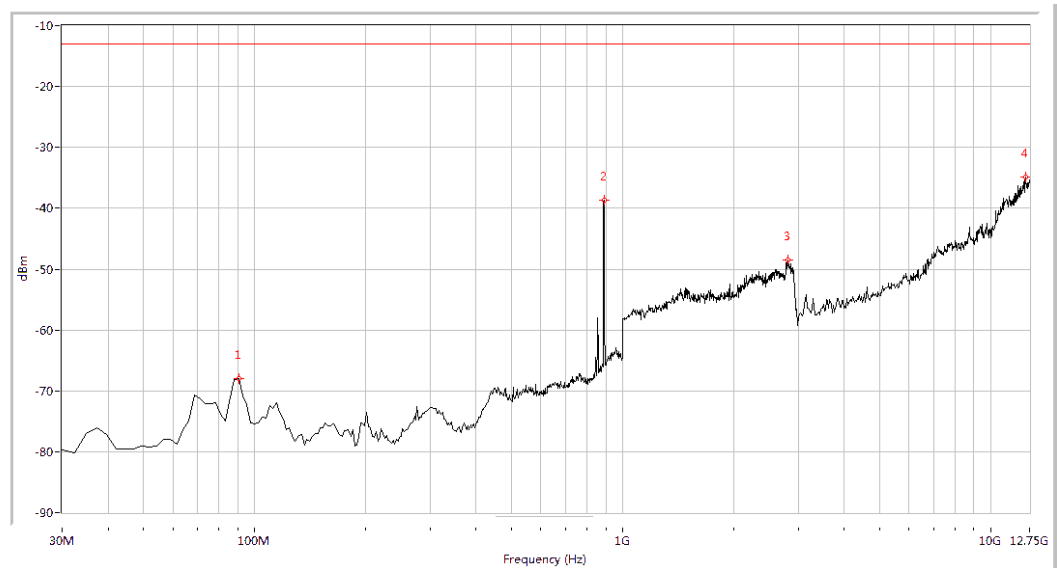
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
879.052	-49.60	-13.0	36.6	58.4	Horizontal	PASS
1668.329	-50.22	-13.0	37.2	49.0	Horizontal	PASS
4847.880	-44.27	-13.0	31.3	81.9	Horizontal	PASS
12385.287	-35.20	-13.0	22.2	159.1	Horizontal	PASS

(Plot E.3: WCDMA 850MHz Channel = 4175, Test Antenna Horizontal)



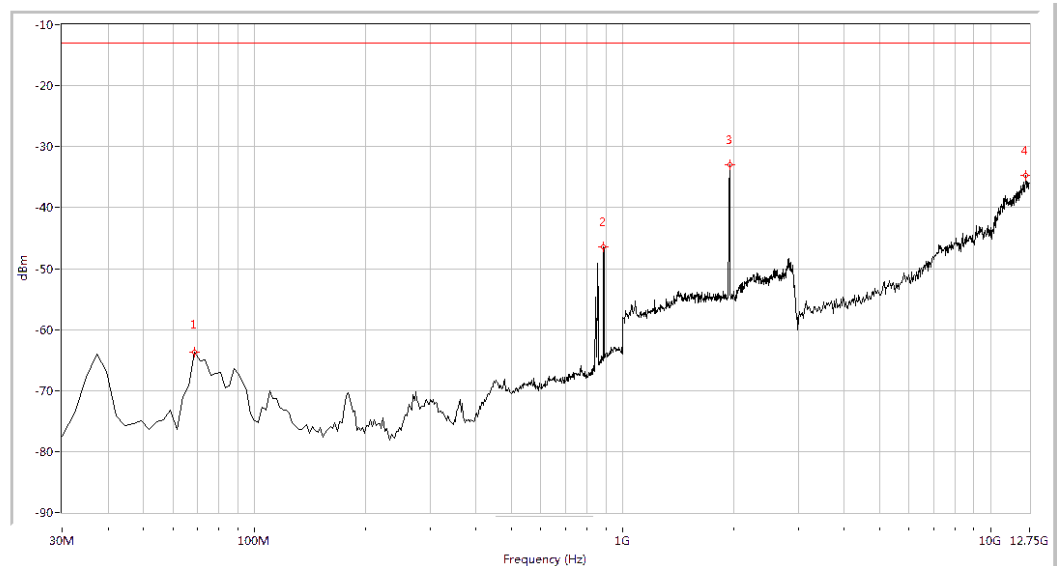
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
68.703	-63.18	-13.0	50.2	22.7	Vertical	PASS
879.052	-46.66	-13.0	33.7	44.0	Vertical	PASS
2825.436	-47.83	-13.0	34.8	358.4	Vertical	PASS
12312.344	-36.02	-13.0	23.0	172.5	Vertical	PASS

(Plot E.4: WCDMA 850MHz Channel = 4175, Test Antenna Vertical)



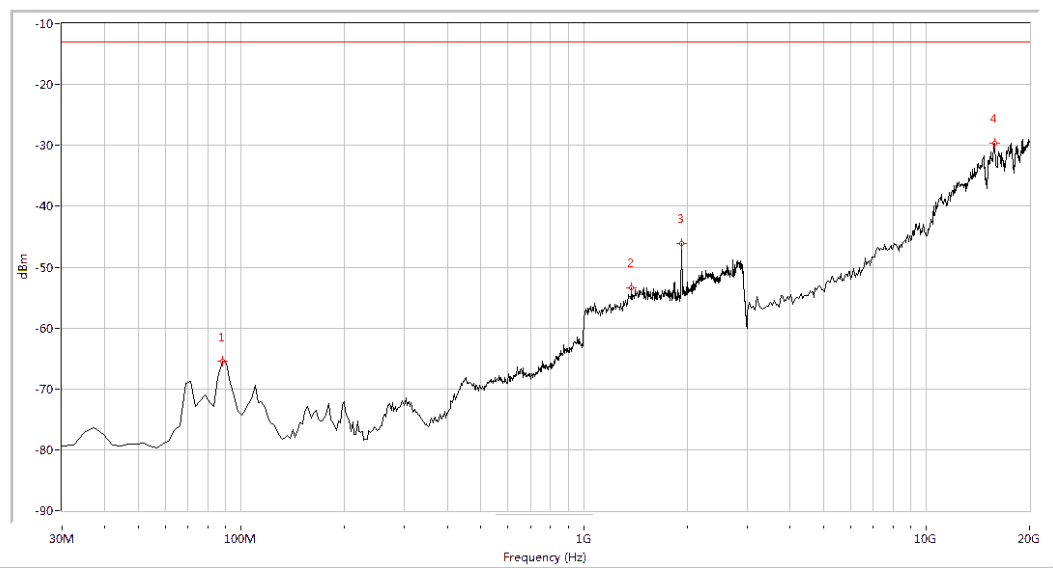
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-67.93	-13.0	54.9	93.6	Horizontal	PASS
891.147	-38.75	-13.0	25.7	-0.0	Horizontal	PASS
2805.486	-48.46	-13.0	35.5	308.0	Horizontal	PASS
12409.601	-34.89	-13.0	21.9	97.0	Horizontal	PASS

(Plot E.5: WCDMA 850MHz Channel = 4233, Test Antenna Horizontal)



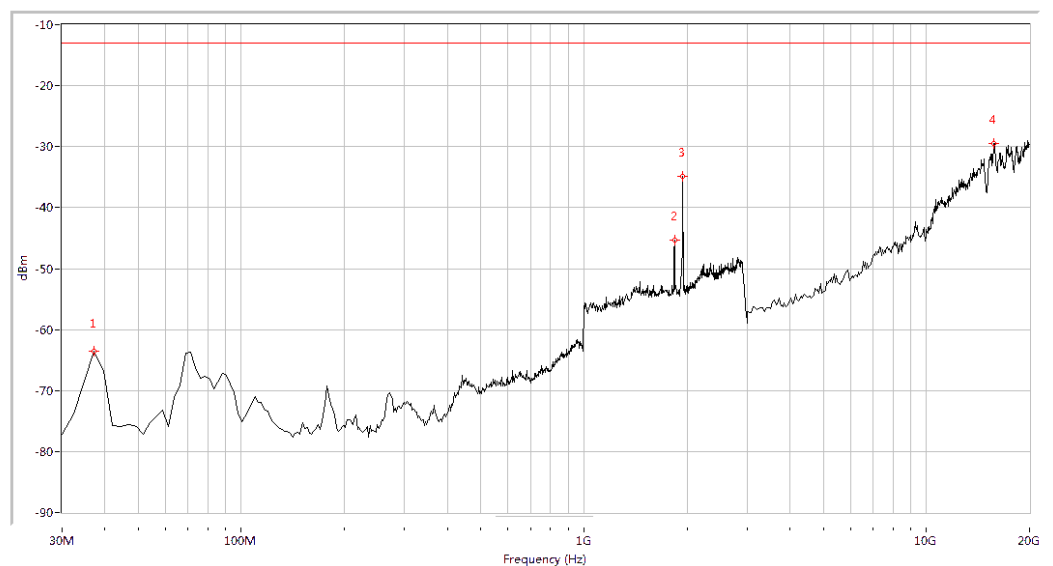
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
68.703	-63.73	-13.0	50.7	-0.0	Vertical	PASS
888.728	-46.46	-13.0	33.5	328.9	Vertical	PASS
1952.618	-32.97	-13.0	20.0	293.8	Vertical	PASS
12433.915	-34.78	-13.0	21.8	116.2	Vertical	PASS

(Plot E.6: WCDMA 850MHz Channel = 4233, Test Antenna Vertical)



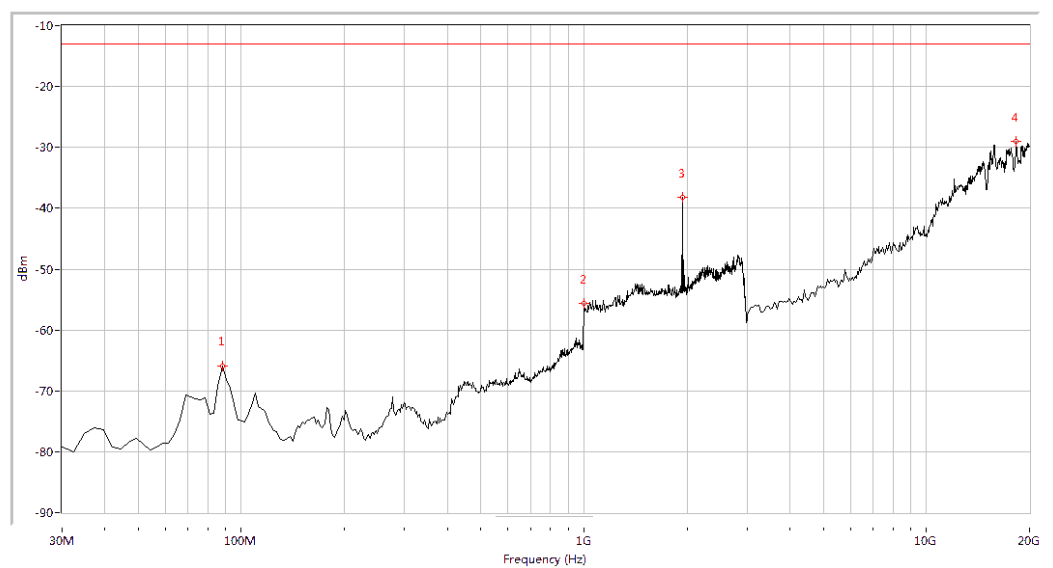
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-65.52	-13.0	52.5	74.9	Horizontal	PASS
1379.052	-53.41	-13.0	40.4	126.4	Horizontal	PASS
1932.668	-46.07	-13.0	33.1	239.4	Horizontal	PASS
15802.993	-29.71	-13.0	16.7	136.3	Horizontal	PASS

(Plot F.1: WCDMA 1900MHz Channel = 9262, Test Antenna Horizontal)



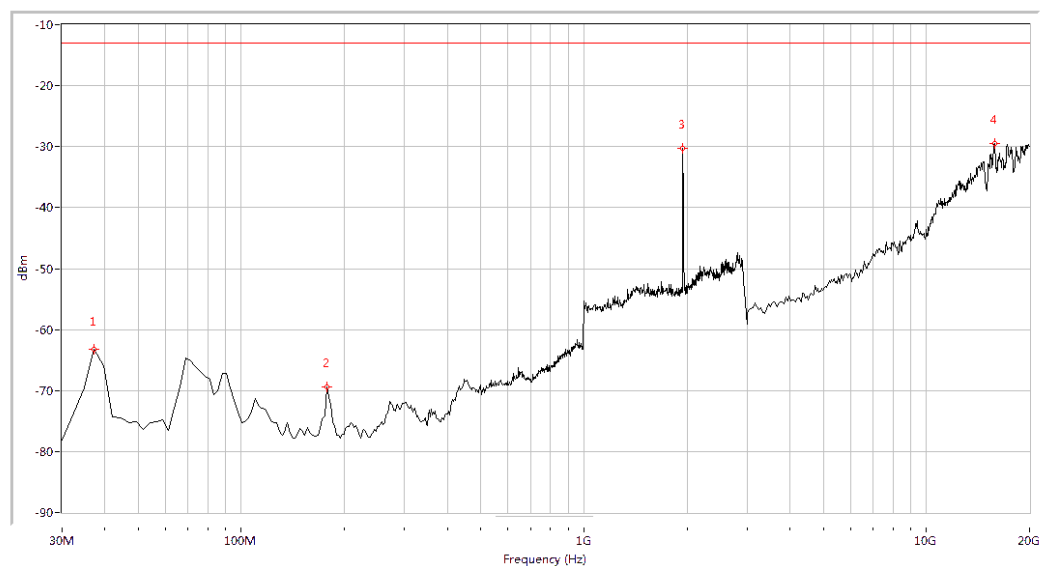
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.58	-13.0	50.6	229.3	Vertical	PASS
1837.905	-45.38	-13.0	32.4	287.6	Vertical	PASS
1947.631	-34.86	-13.0	21.9	360.0	Vertical	PASS
15760.599	-29.50	-13.0	16.5	213.5	Vertical	PASS

(Plot F.2: WCDMA 1900MHz Channel = 9262, Test Antenna Vertical)



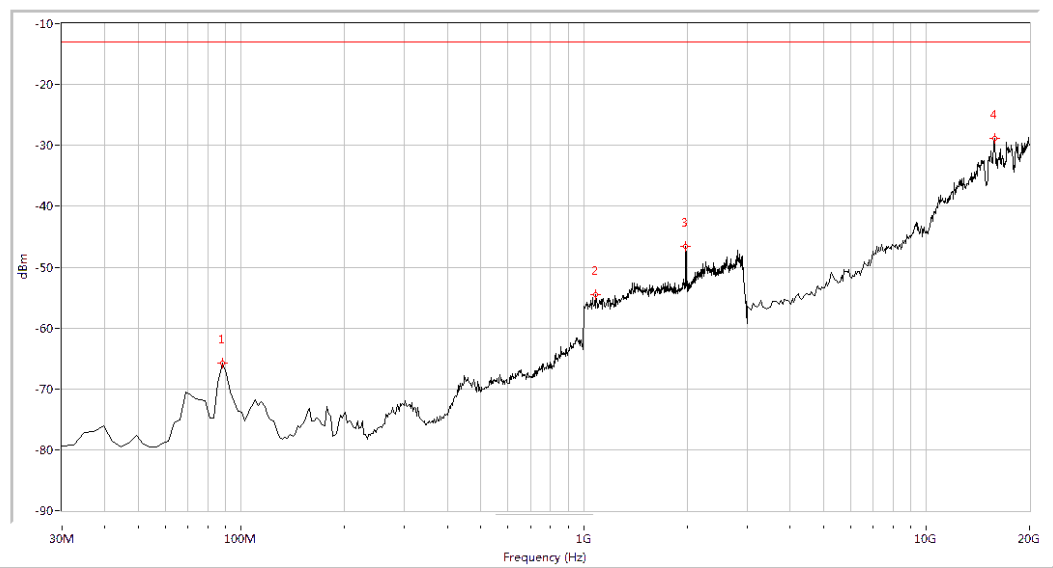
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-65.93	-13.0	52.9	83.5	Horizontal	PASS
1000.000	-55.64	-13.0	42.6	62.1	Horizontal	PASS
1942.643	-38.17	-13.0	25.2	148.3	Horizontal	PASS
18304.239	-29.06	-13.0	16.1	86.3	Horizontal	PASS

(Plot F.3: WCDMA 1900MHz Channel = 9400, Test Antenna Horizontal)



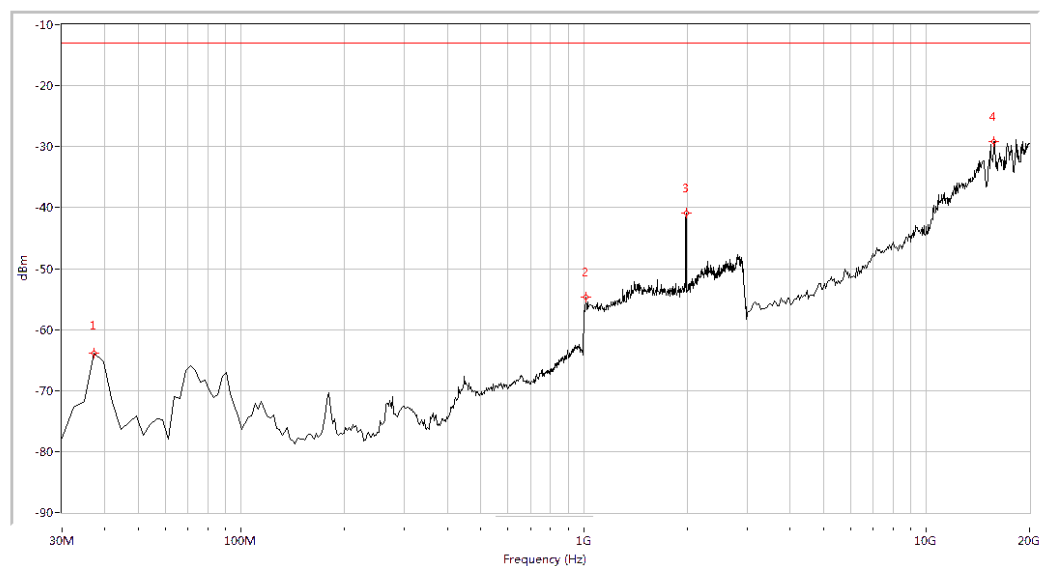
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.19	-13.0	50.2	203.0	Vertical	PASS
177.556	-69.41	-13.0	56.4	224.3	Vertical	PASS
1942.643	-30.32	-13.0	17.3	7.4	Vertical	PASS
15802.993	-29.46	-13.0	16.5	26.3	Vertical	PASS

(Plot F.4: WCDMA 1900MHz Channel = 9400, Test Antenna Vertical)



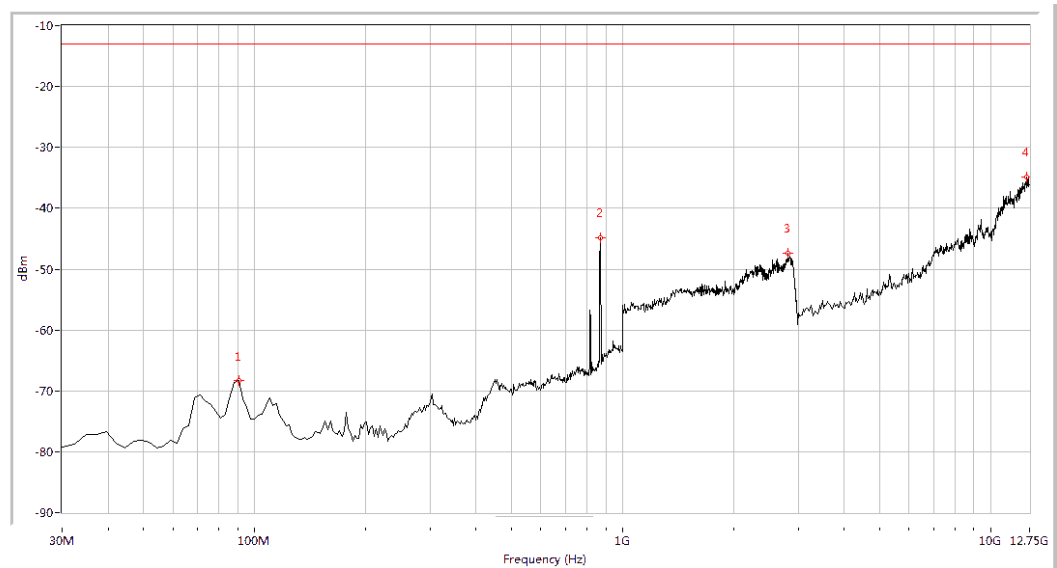
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-65.77	-13.0	52.8	99.5	Horizontal	PASS
1079.800	-54.59	-13.0	41.6	173.1	Horizontal	PASS
1982.544	-46.67	-13.0	33.7	236.7	Horizontal	PASS
15802.993	-28.86	-13.0	15.9	351.8	Horizontal	PASS

(Plot F.5: WCDMA 1900MHz Channel = 9538, Test Antenna Horizontal)



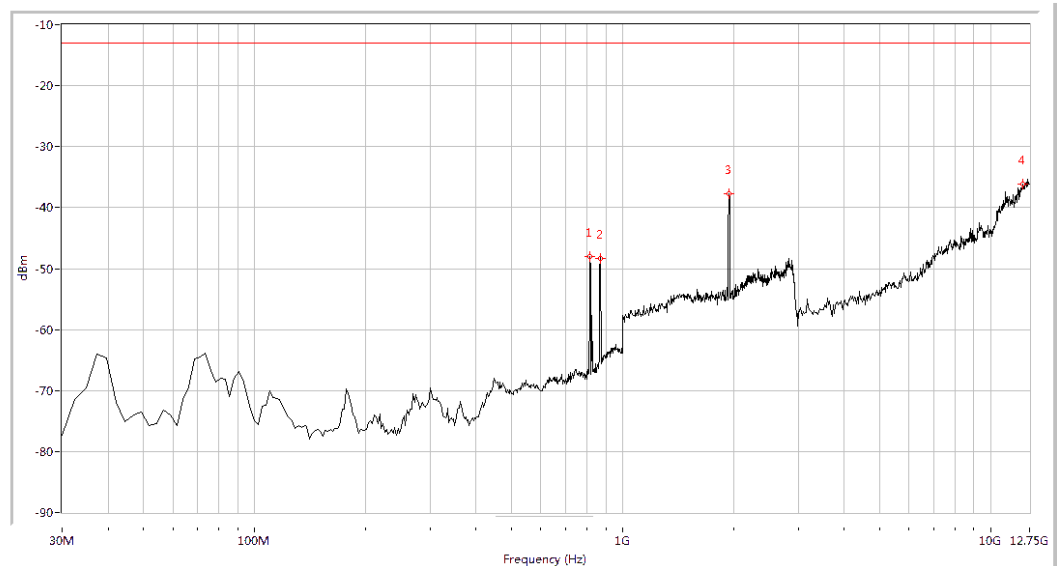
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.79	-13.0	50.8	205.5	Vertical	PASS
1014.963	-54.73	-13.0	41.7	0.8	Vertical	PASS
1987.531	-40.93	-13.0	27.9	3.6	Vertical	PASS
15760.599	-29.20	-13.0	16.2	30.4	Vertical	PASS

(Plot F.6: WCDMA 1900MHz Channel = 9538, Test Antenna Vertical)



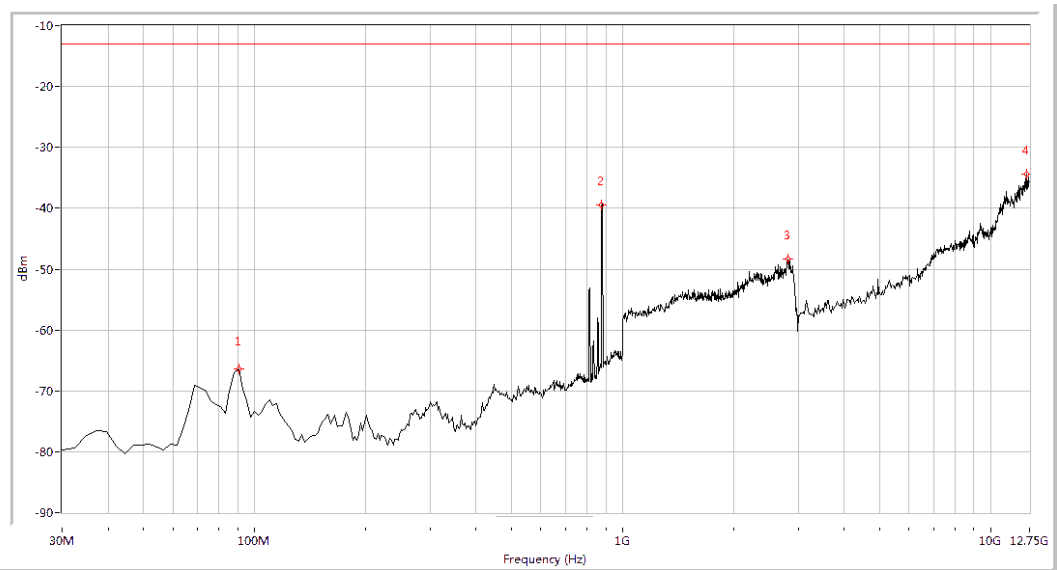
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-68.27	-13.0	55.3	99.6	Horizontal	PASS
869.377	-44.93	-13.0	31.9	154.6	Horizontal	PASS
2820.449	-47.41	-13.0	34.4	334.2	Horizontal	PASS
12555.486	-34.94	-13.0	21.9	249.2	Horizontal	PASS

(Plot G.1: HSDPA 850MHz Channel = 4132, Test Antenna Horizontal)



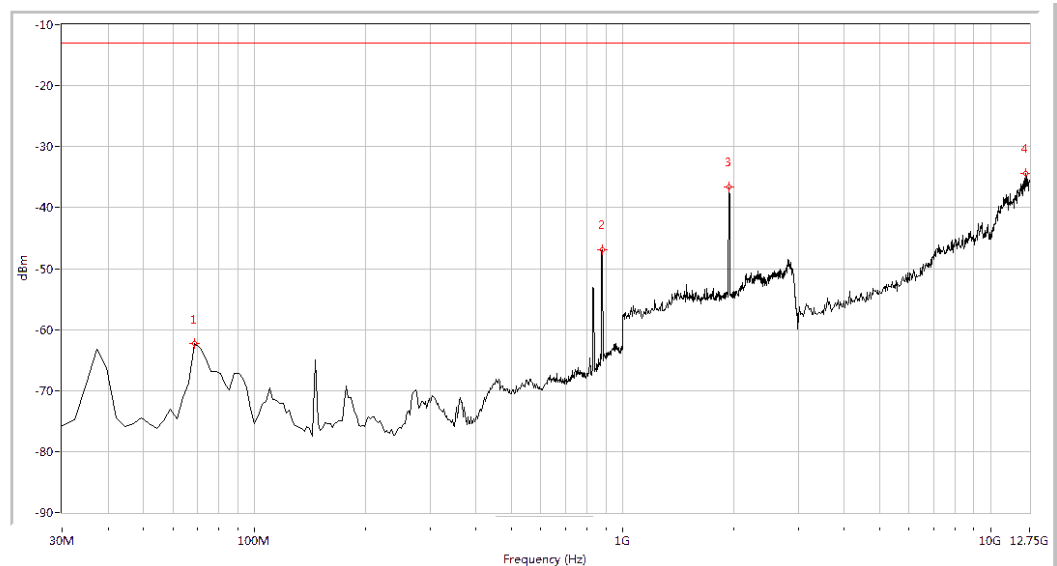
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
816.160	-47.94	-13.0	34.9	172.5	Vertical	PASS
871.796	-48.33	-13.0	35.3	212.1	Vertical	PASS
1942.643	-37.67	-13.0	24.7	360.0	Vertical	PASS
12239.401	-36.18	-13.0	23.2	21.8	Vertical	PASS

(Plot G.2: HSDPA 850MHz Channel = 4132, Test Antenna Vertical)



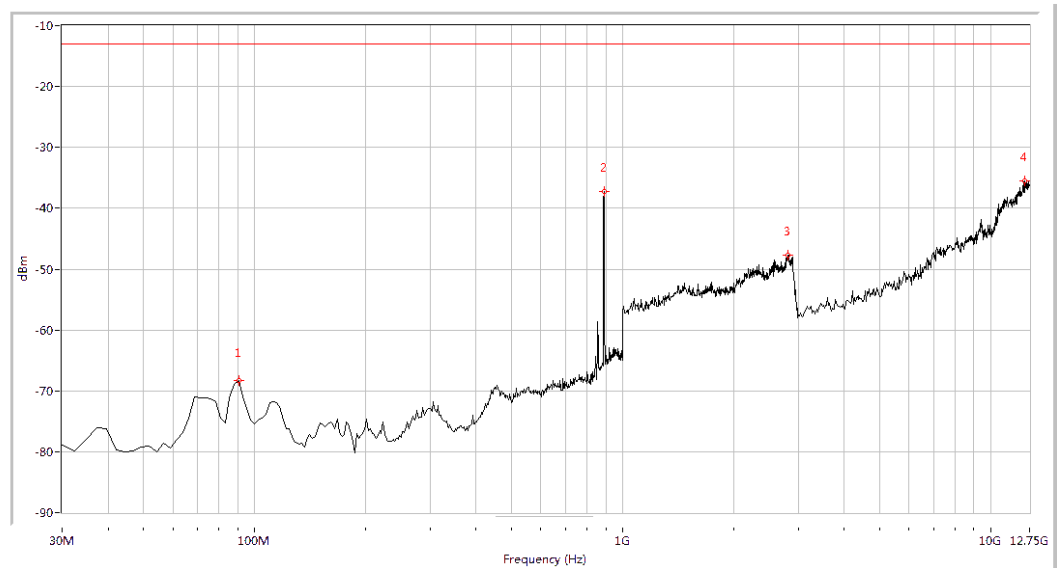
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-66.36	-13.0	53.4	100.4	Horizontal	PASS
876.633	-39.47	-13.0	26.5	40.5	Horizontal	PASS
2810.474	-48.40	-13.0	35.4	225.9	Horizontal	PASS
12555.486	-34.38	-13.0	21.4	2.8	Horizontal	PASS

(Plot G.3: HSDPA 850MHz Channel = 4175, Test Antenna Horizontal)



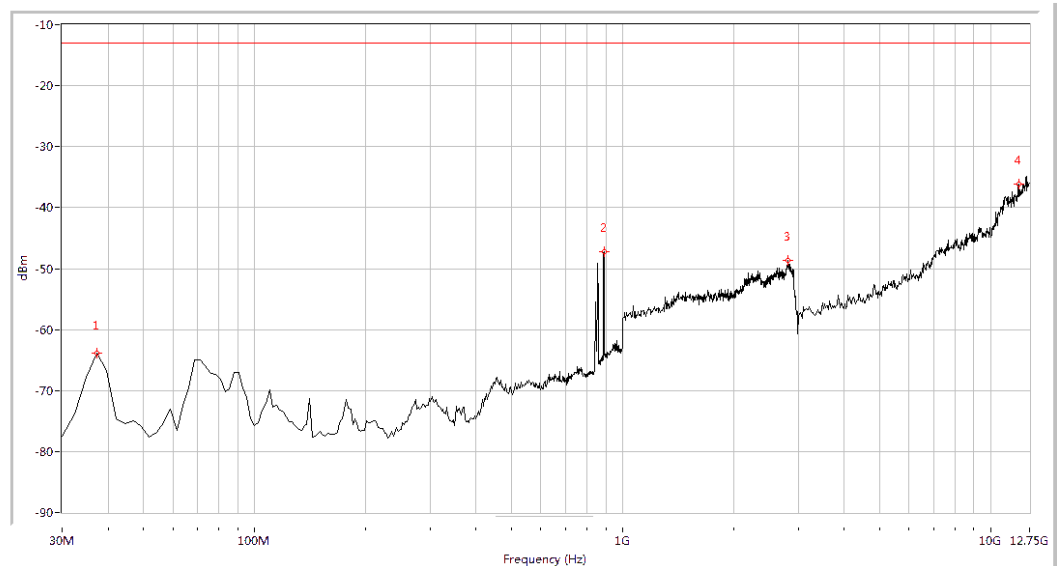
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
68.703	-62.28	-13.0	49.3	265.1	Vertical	PASS
879.052	-46.87	-13.0	33.9	52.9	Vertical	PASS
1947.631	-36.60	-13.0	23.6	225.2	Vertical	PASS
12482.544	-34.44	-13.0	21.4	313.8	Vertical	PASS

(Plot G.4: HSDPA 850MHz Channel = 4175, Test Antenna Vertical)



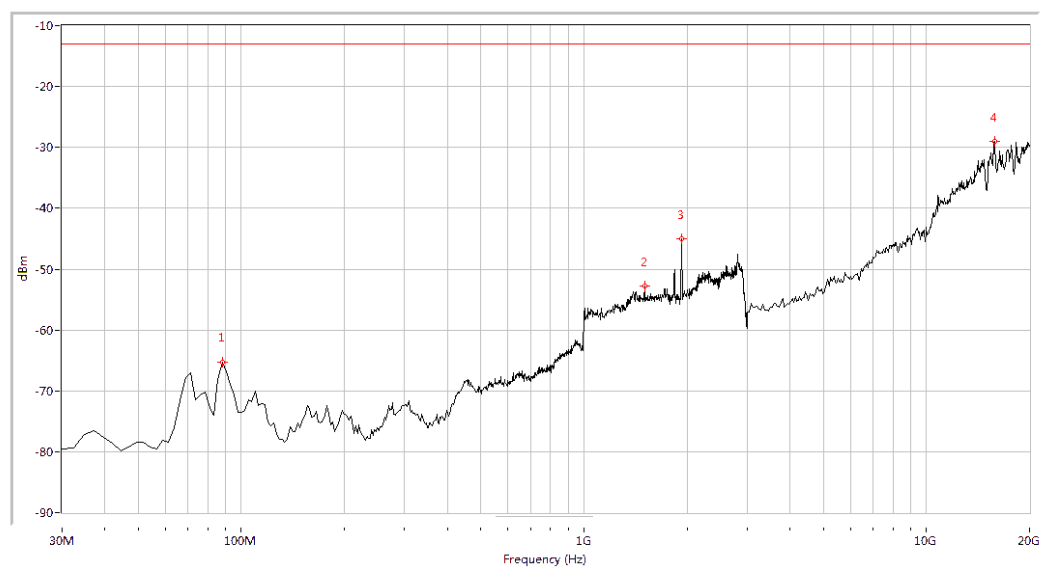
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-68.24	-13.0	55.2	103.0	Horizontal	PASS
891.147	-37.31	-13.0	24.3	73.4	Horizontal	PASS
2820.449	-47.74	-13.0	34.7	358.9	Horizontal	PASS
12385.287	-35.51	-13.0	22.5	0.9	Horizontal	PASS

(Plot G.5: HSDPA 850MHz Channel = 4233, Test Antenna Horizontal)



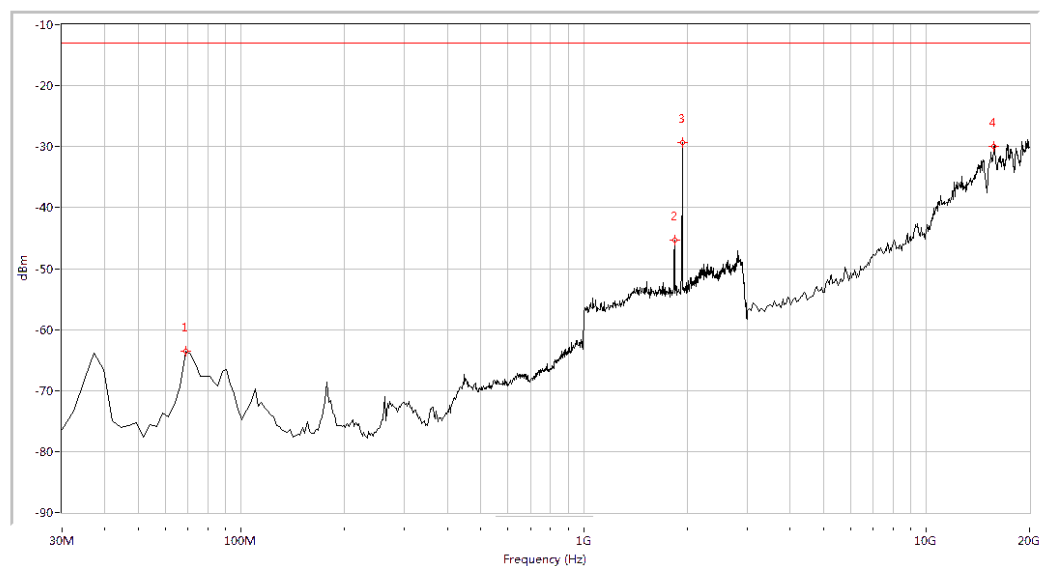
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.84	-13.0	50.8	360.0	Vertical	PASS
891.147	-47.19	-13.0	34.2	295.8	Vertical	PASS
2815.461	-48.73	-13.0	35.7	270.9	Vertical	PASS
11899.002	-36.13	-13.0	23.1	53.9	Vertical	PASS

(Plot G.6: HSDPA 850MHz Channel = 4233, Test Antenna Vertical)



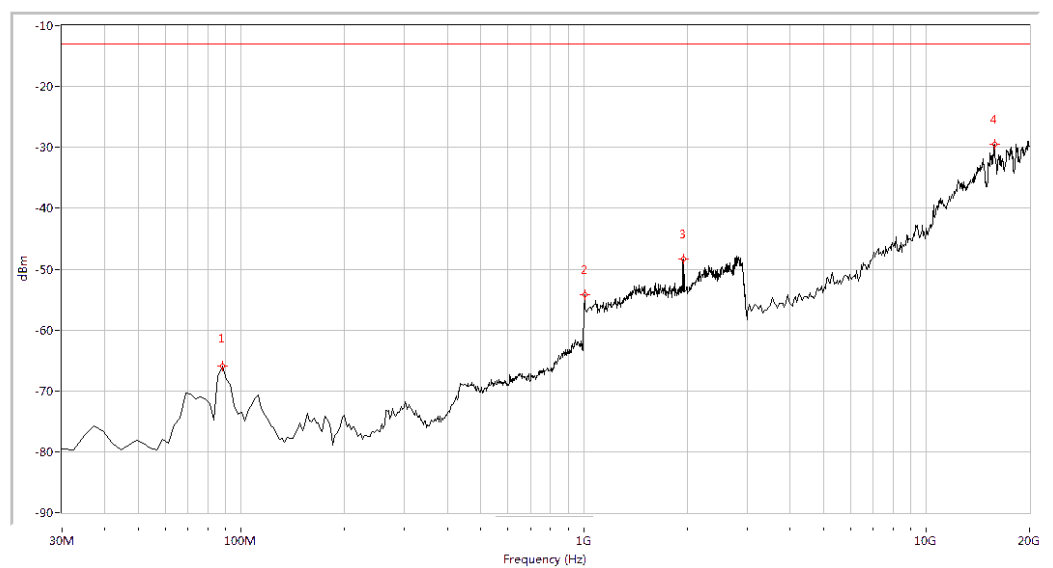
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-65.36	-13.0	52.4	87.8	Horizontal	PASS
1503.741	-52.80	-13.0	39.8	234.5	Horizontal	PASS
1927.681	-45.08	-13.0	32.1	239.8	Horizontal	PASS
15802.993	-29.03	-13.0	16.0	-0.0	Horizontal	PASS

(Plot H.1: HSDPA 1900 MHz Channel = 9262, Test Antenna Horizontal)



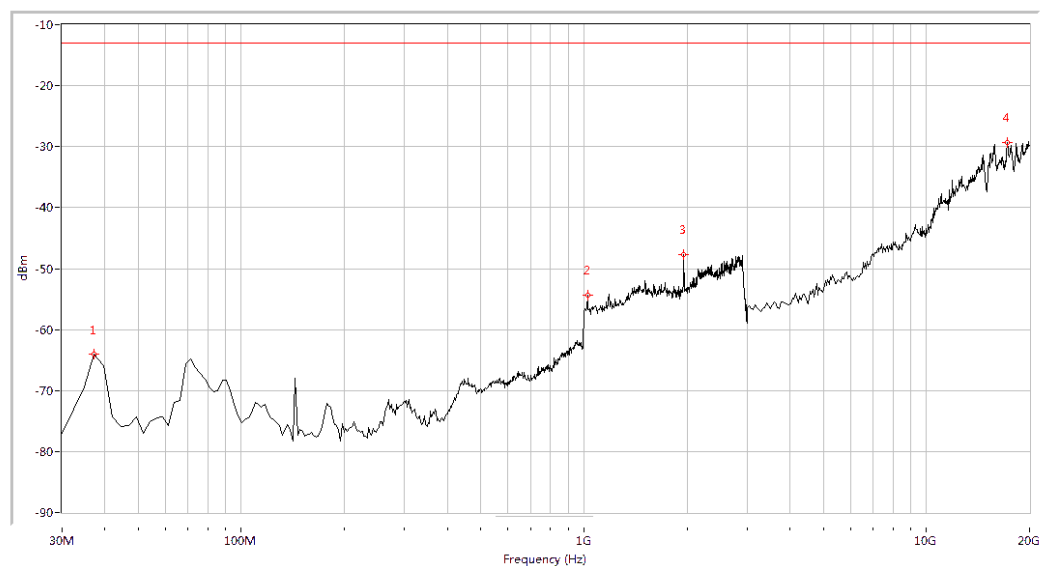
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
68.703	-63.56	-13.0	50.6	356.5	Vertical	PASS
1837.905	-45.35	-13.0	32.4	324.3	Vertical	PASS
1942.643	-29.39	-13.0	16.4	360.0	Vertical	PASS
15760.599	-29.93	-13.0	16.9	235.4	Vertical	PASS

(Plot H.2: HSDPA 1900 MHz Channel = 9262, Test Antenna Vertical)



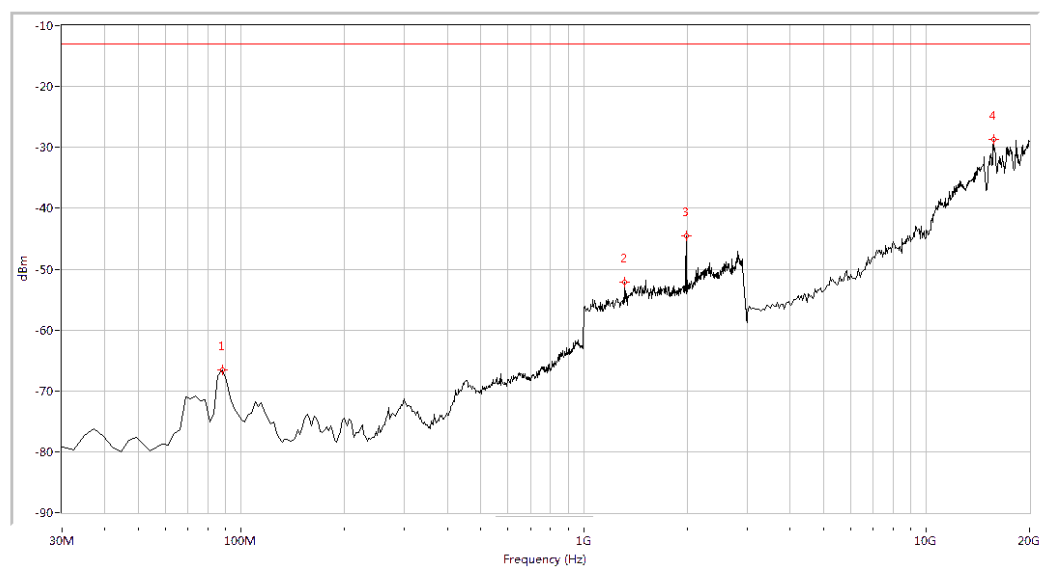
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-65.92	-13.0	52.9	108.5	Horizontal	PASS
1004.988	-54.14	-13.0	41.1	35.4	Horizontal	PASS
1957.606	-48.39	-13.0	35.4	236.9	Horizontal	PASS
15802.993	-29.52	-13.0	16.5	126.7	Horizontal	PASS

(Plot H.3: HSDPA 1900 MHz Channel = 9400, Test Antenna Horizontal)



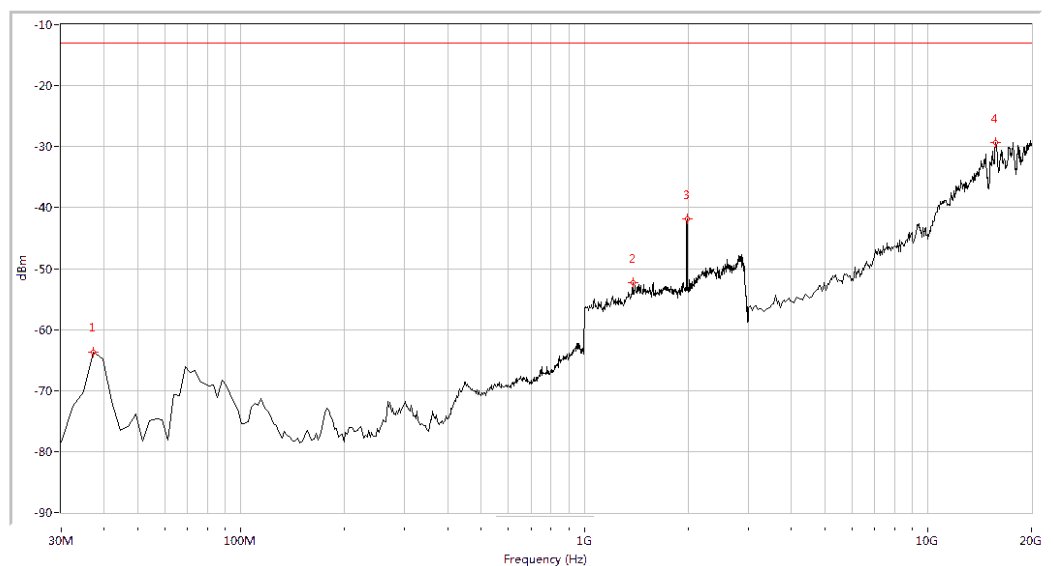
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.96	-13.0	51.0	360.0	Vertical	PASS
1024.938	-54.33	-13.0	41.3	64.3	Vertical	PASS
1957.606	-47.69	-13.0	34.7	360.0	Vertical	PASS
17244.389	-29.29	-13.0	16.3	290.3	Vertical	PASS

(Plot H.4: HSDPA 1900 MHz Channel = 9400, Test Antenna Vertical)



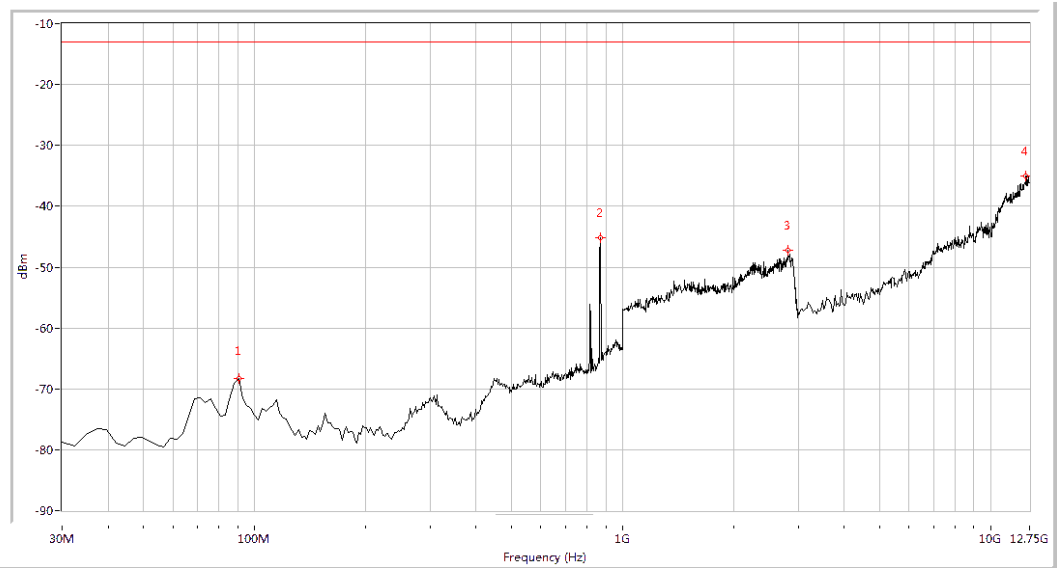
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-66.50	-13.0	53.5	99.2	Horizontal	PASS
1319.202	-52.10	-13.0	39.1	190.3	Horizontal	PASS
1987.531	-44.57	-13.0	31.6	237.3	Horizontal	PASS
15718.204	-28.69	-13.0	15.7	224.6	Horizontal	PASS

(Plot H.5: HSDPA 1900 MHz Channel = 9538, Test Antenna Horizontal)



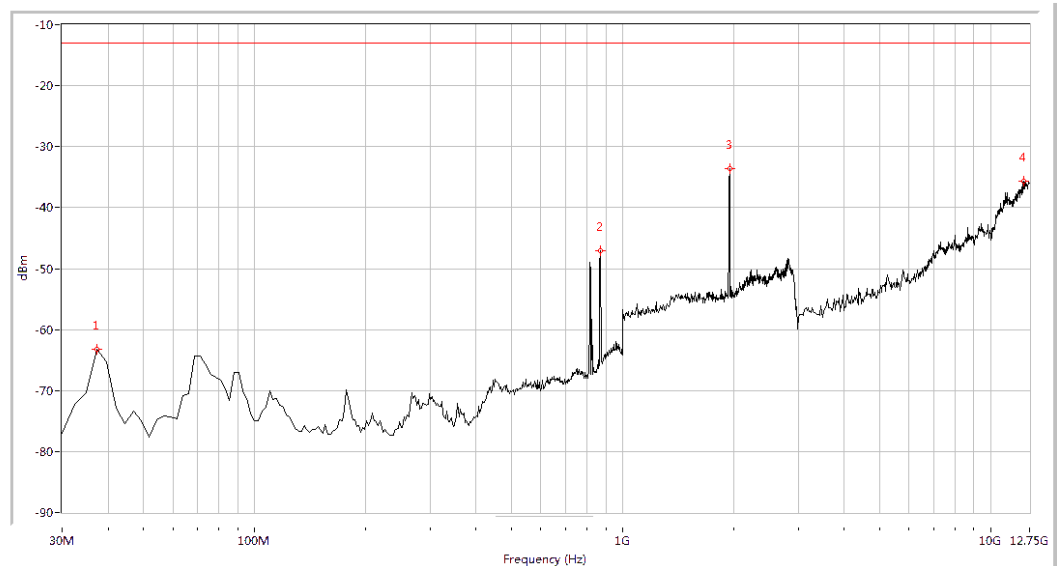
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.76	-13.0	50.8	-0.0	Vertical	PASS
1384.040	-52.26	-13.0	39.3	313.5	Vertical	PASS
1987.531	-41.77	-13.0	28.8	359.4	Vertical	PASS
15718.204	-29.26	-13.0	16.3	-0.0	Vertical	PASS

(Plot H.6: HSDPA 1900 MHz Channel = 9538, Test Antenna Vertical)



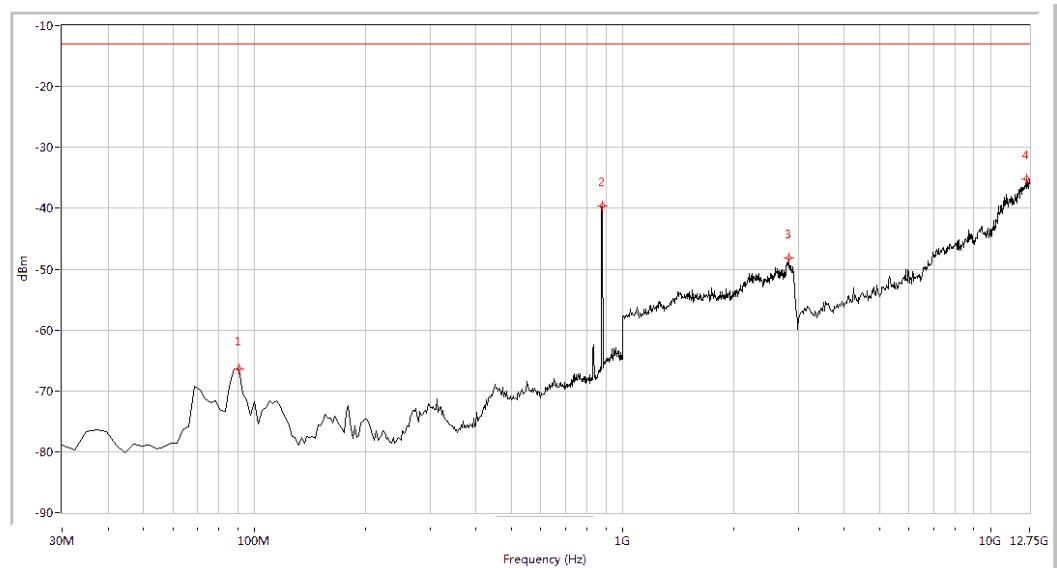
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-68.28	-13.0	55.3	107.2	Horizontal	PASS
869.377	-45.24	-13.0	32.2	71.5	Horizontal	PASS
2810.474	-47.30	-13.0	34.3	329.0	Horizontal	PASS
12482.544	-35.10	-13.0	22.1	237.5	Horizontal	PASS

(Plot I.1: HSUPA 850MHz Channel = 4132, Test Antenna Horizontal)



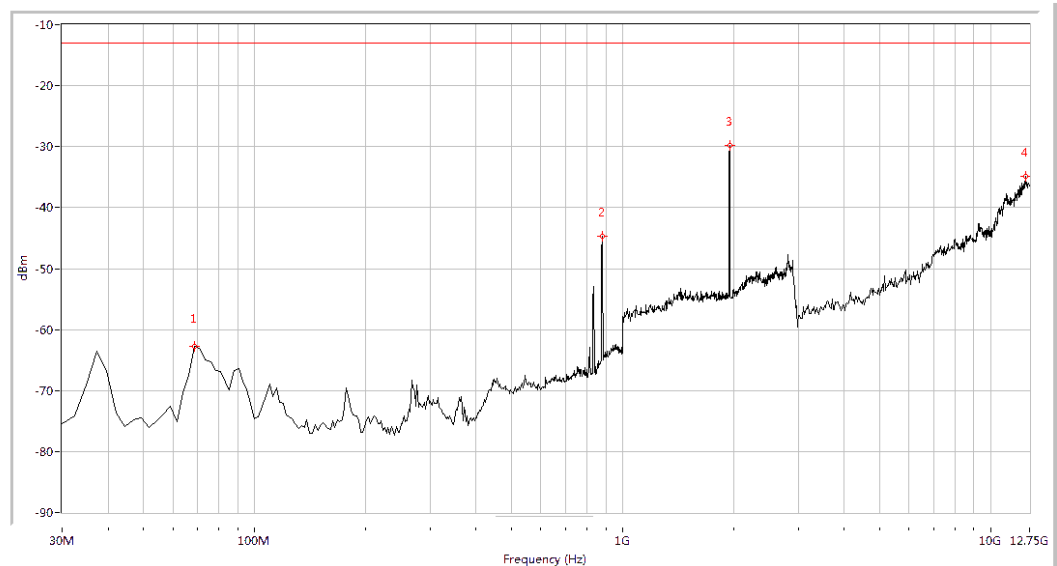
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.26	-13.0	50.3	178.6	Vertical	PASS
869.377	-47.07	-13.0	34.1	26.0	Vertical	PASS
1952.618	-33.55	-13.0	20.6	288.2	Vertical	PASS
12263.716	-35.69	-13.0	22.7	83.5	Vertical	PASS

(Plot I.2: HSUPA 850 MHz Channel = 4132, Test Antenna Vertical)



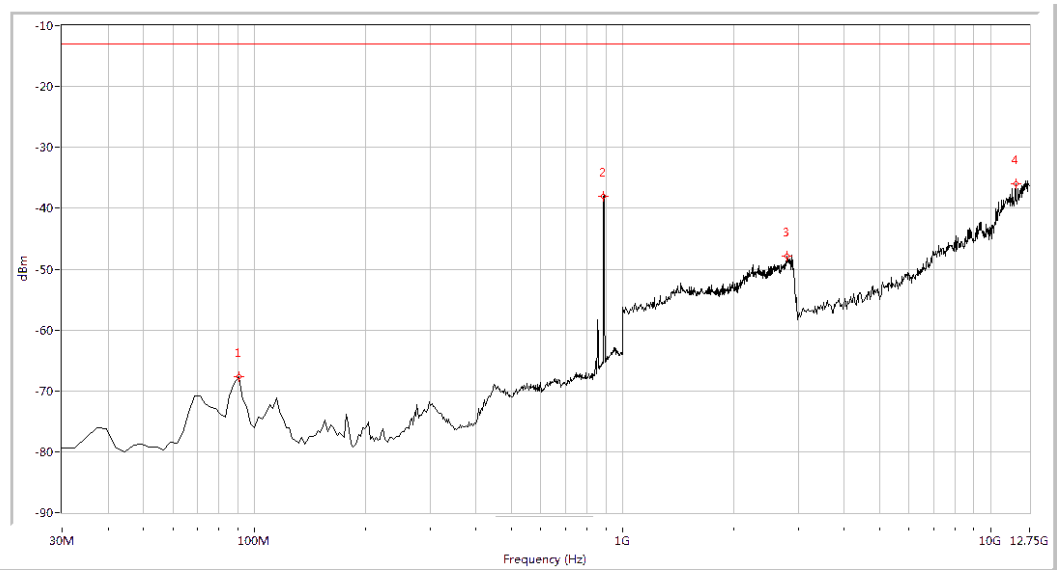
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-66.47	-13.0	53.5	86.0	Horizontal	PASS
879.052	-39.64	-13.0	26.6	360.0	Horizontal	PASS
2830.424	-48.25	-13.0	35.2	-0.0	Horizontal	PASS
12555.486	-35.21	-13.0	22.2	58.3	Horizontal	PASS

(Plot I.3: HSUPA 850MHz Channel = 4175, Test Antenna Horizontal)



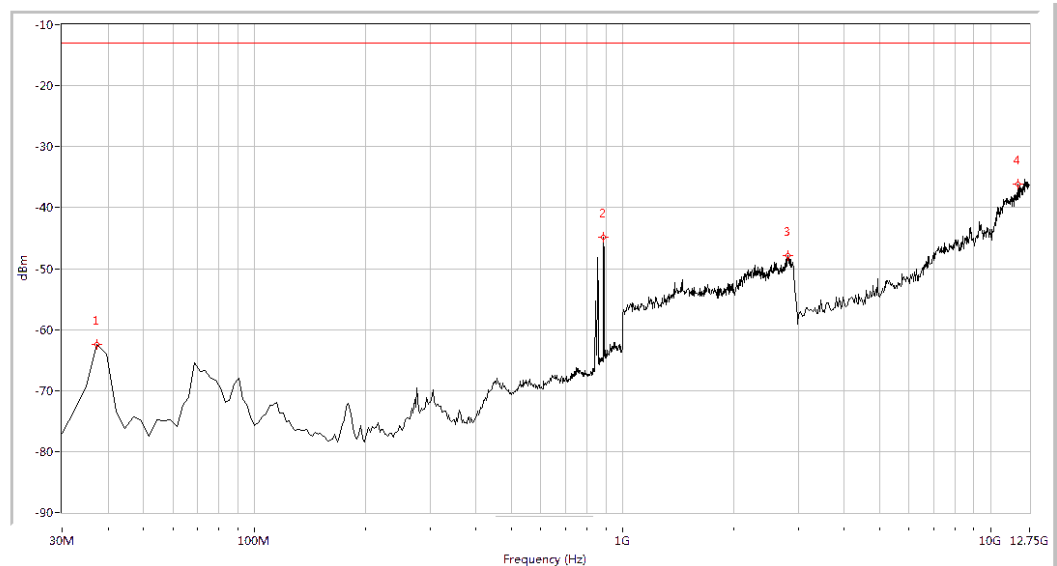
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
68.703	-62.76	-13.0	49.8	344.4	Vertical	PASS
879.052	-44.77	-13.0	31.8	218.8	Vertical	PASS
1952.618	-29.80	-13.0	16.8	307.0	Vertical	PASS
12409.601	-34.88	-13.0	21.9	135.4	Vertical	PASS

(Plot I.4: HSUPA 850MHz Channel = 4175, Test Antenna Vertical)



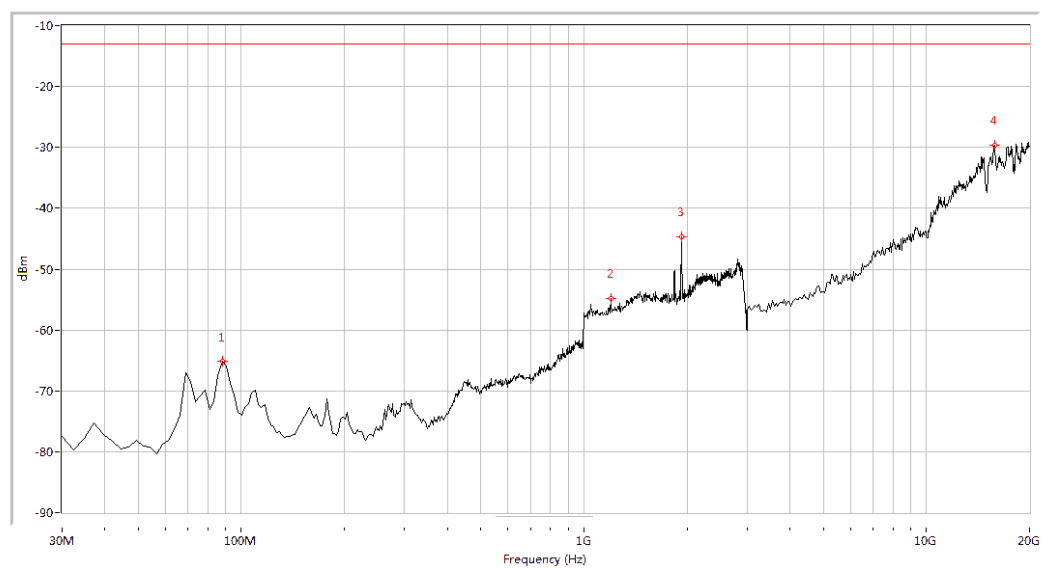
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
90.474	-67.70	-13.0	54.7	108.8	Horizontal	PASS
888.728	-38.06	-13.0	25.1	-0.0	Horizontal	PASS
2800.499	-47.80	-13.0	34.8	93.5	Horizontal	PASS
11680.175	-36.03	-13.0	23.0	210.4	Horizontal	PASS

(Plot I.5: HSUPA 850MHz Channel = 4233, Test Antenna Horizontal)



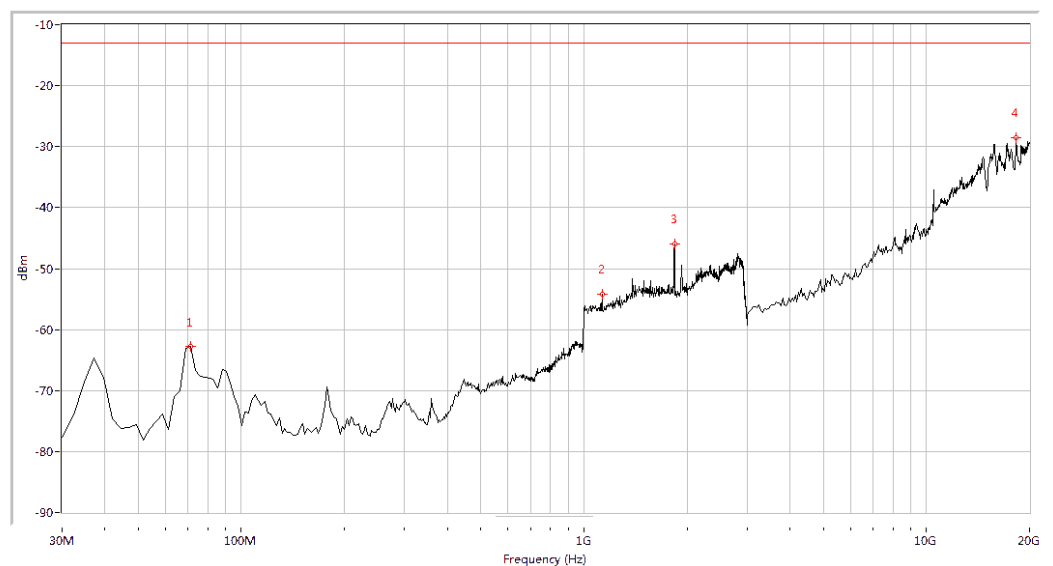
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-62.40	-13.0	49.4	36.5	Vertical	PASS
888.728	-44.80	-13.0	31.8	313.5	Vertical	PASS
2805.486	-47.79	-13.0	34.8	78.6	Vertical	PASS
11874.688	-36.11	-13.0	23.1	78.1	Vertical	PASS

(Plot I.6: HSUPA 850MHz Channel = 4233, Test Antenna Vertical)



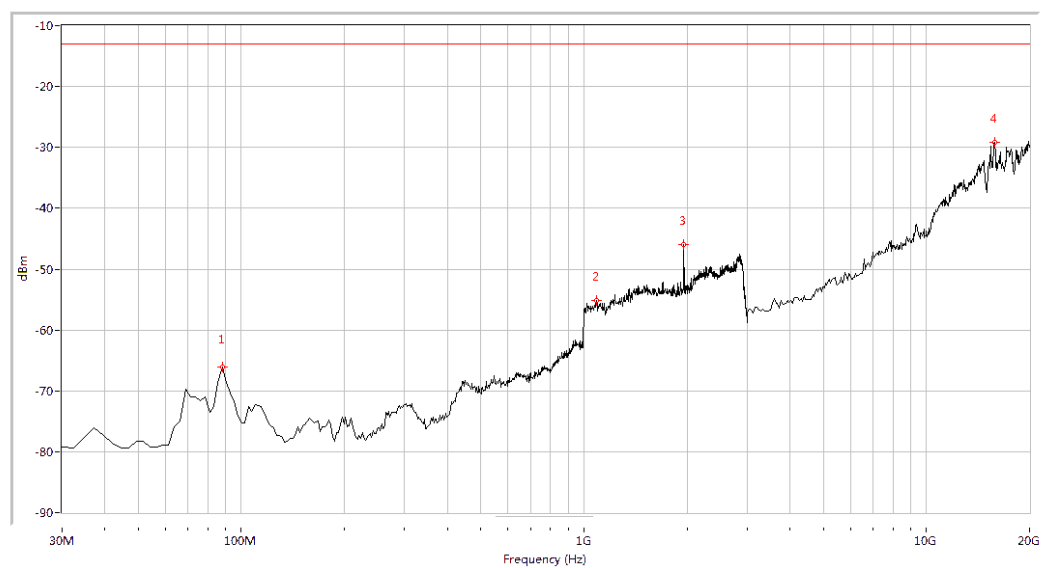
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-65.18	-13.0	52.2	78.6	Horizontal	PASS
1199.501	-54.79	-13.0	41.8	220.8	Horizontal	PASS
1927.681	-44.63	-13.0	31.6	235.4	Horizontal	PASS
15802.993	-29.67	-13.0	16.7	127.4	Horizontal	PASS

(Plot J.1: HSUPA 1900 MHz Channel = 9262, Test Antenna Horizontal)



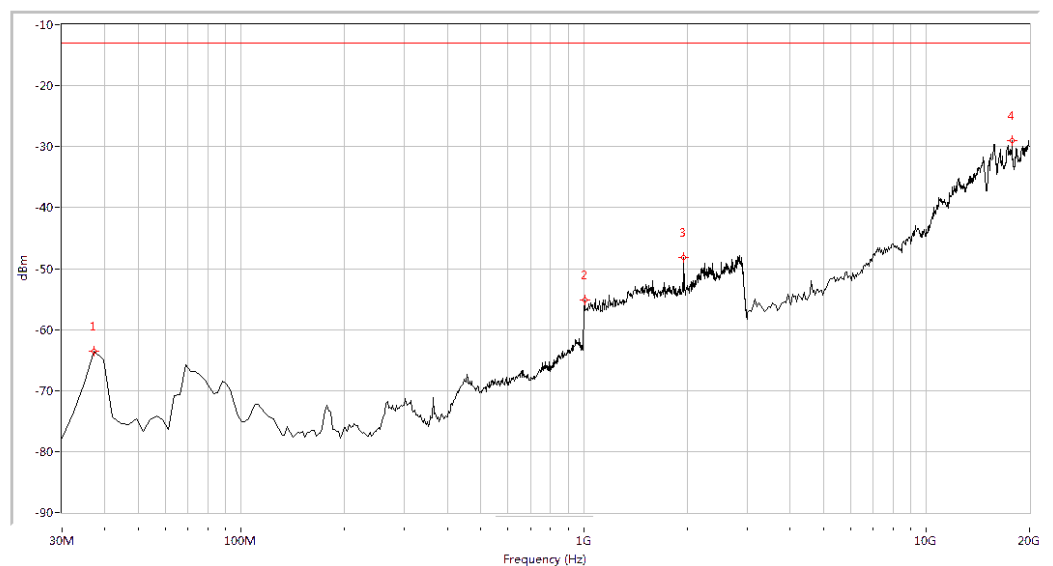
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
71.122	-62.81	-13.0	49.8	360.0	Vertical	PASS
1129.676	-54.25	-13.0	41.2	92.4	Vertical	PASS
1837.905	-45.88	-13.0	32.9	355.6	Vertical	PASS
18304.239	-28.59	-13.0	15.6	36.0	Vertical	PASS

(Plot J.2: HSUPA 1900 MHz Channel = 9262, Test Antenna Vertical)



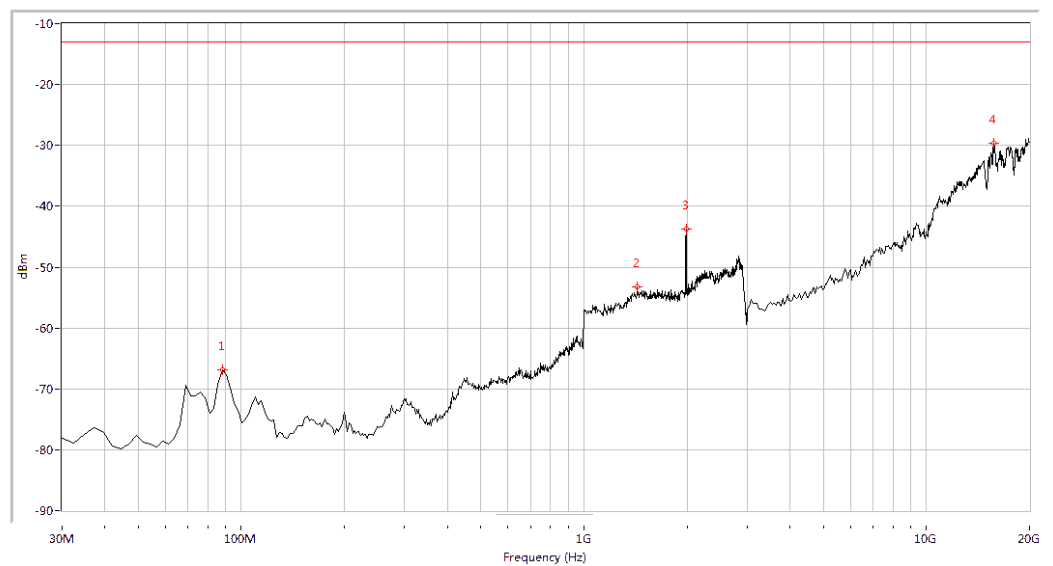
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-66.11	-13.0	53.1	85.1	Horizontal	PASS
1089.776	-55.12	-13.0	42.1	352.1	Horizontal	PASS
1957.606	-45.91	-13.0	32.9	238.5	Horizontal	PASS
15802.993	-29.19	-13.0	16.2	254.8	Horizontal	PASS

(Plot J.3: HSUPA 1900 MHz Channel = 9400, Test Antenna Horizontal)



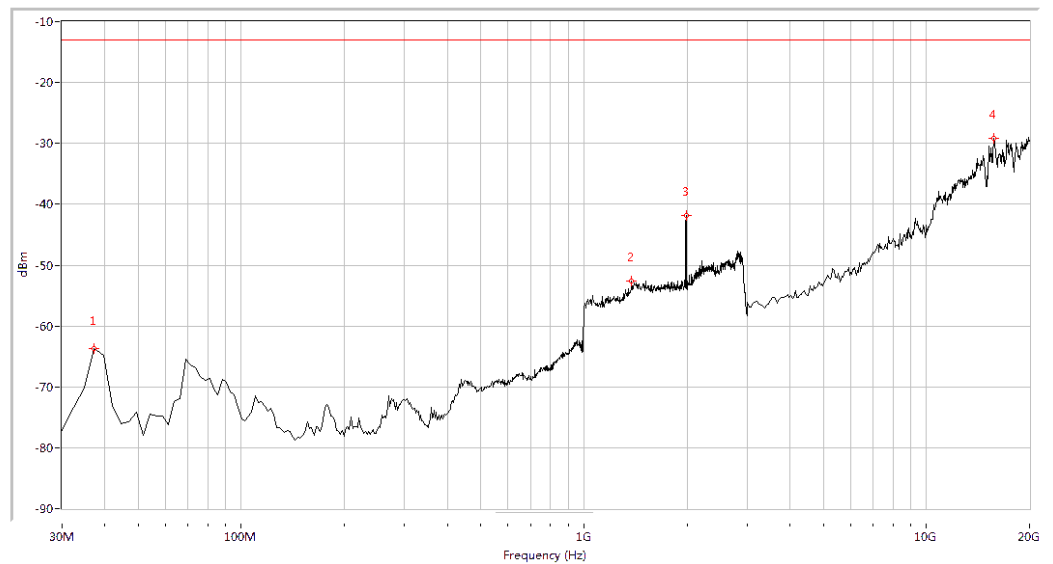
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.47	-13.0	50.5	280.2	Vertical	PASS
1004.988	-55.17	-13.0	42.2	222.5	Vertical	PASS
1957.606	-48.23	-13.0	35.2	151.8	Vertical	PASS
17795.511	-29.00	-13.0	16.0	47.0	Vertical	PASS

(Plot J.4: HSUPA 1900 MHz Channel = 9400, Test Antenna Vertical)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-66.87	-13.0	53.9	111.0	Horizontal	PASS
1433.915	-53.30	-13.0	40.3	180.2	Horizontal	PASS
1987.531	-43.79	-13.0	30.8	240.1	Horizontal	PASS
15760.599	-29.65	-13.0	16.7	6.8	Horizontal	PASS

(Plot J.5: HSUPA 1900 MHz Channel = 9538, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
37.257	-63.74	-13.0	50.7	243.8	Vertical	PASS
1379.052	-52.69	-13.0	39.7	79.7	Vertical	PASS
1987.531	-41.80	-13.0	28.8	62.4	Vertical	PASS
15760.599	-29.24	-13.0	16.2	1.5	Vertical	PASS

(Plot J.6: HSUPA 1900 MHz Channel = 9538, Test Antenna Vertical)

** END OF REPORT **