



Report No.: SZ12110030W01



# FCC TEST REPORT

Issued to

**TCT Mobile Limited**

For

**LTE USB Modem**

Model Name: One Touch L100G  
 Trade Name: Alcatel  
 Brand Name: Alcatel  
 FCC ID : RAD341  
 Standard: 47 CFR Part 22 Subpart H  
 47 CFR Part 24 Subpart E  
 Test date: 2012-11-9 to 2012-12-26  
 Issue date: 2012-12-27

Shenzhen Morlab Communication Technology Co., Ltd.



Tested by Nie Quan  
Nie Quan

Date 2012.12.27

Reviewed by Peng Huarui  
Peng Huarui

Date 2012-12-27



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Change History		
Issue	Date	Reason for change
1.0	Dec 27, 2012	First edition

## 1. GENERAL INFORMATION

### 1.1 EUT Description

EUT Type .....: LTE USB Modem  
Serial No.....: (n.a, marked #1 by test site)  
Hardware Version.....: V3.0  
Software Version .....: S1\_B15001S\_1110000\_B10001S  
Applicant .....: TCT Mobile Limited  
5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech  
Park, Pudong Area Shanghai, P.R. China. 201203  
Manufacturer .....: TCL COMMUNICATION TECHNOLOGY HOLDINGS  
LIMITED  
70 Huifeng 4rd,ZhongKai Hi-tech Development District ,  
Huizhou, Guangdong 516006 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.....: GPRS/GSM Mode with GMSK Modulation  
EDGE Mode with 8PSK Modulation  
WCDMA Mode with QPSK Modulation  
HSDPA Mode with QPSK Modulation  
HSUPA Mode with QPSK Modulation  
HSPA+ Mode with QPSK Modulation  
Multislot Class.....: GPRS: Multislot Class12,EGPRS: Multislot Class12  
Antenna Type.....: PIFA Antenna  
Emission Designators .....: GSM850:249KGXW, GSM1900:249 KGXW  
EGPRS850:243KG7W, EGPRS1900:252KG7W,  
WCDMA850:4M15F9W,WCDMA1900:4M16F9W  
HSDPA850:4M15F9W,HSDPA1900:4M15F9W  
HSUPA850:4M15F9W,HSUPA1900:4M15F9W  
HSPA+850:4M15F9W,HSPA+1900:4M16F9W

## GPRS850:247KGXW,GPRS1900: 1900:246KG7W

- 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	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 3/F, Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

#### 1.3.2 Test Environment Conditions

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

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

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

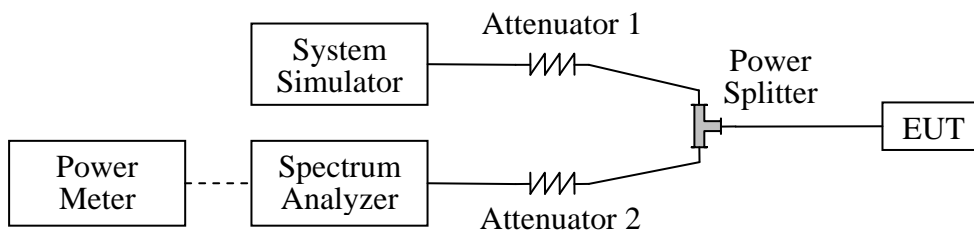
### 2.1 Conducted RF Output Power

#### 2.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified 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	2013.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2013.05
Power Meter	Agilent	E4418B	GB43318055	2012.05	2013.05
Power Sensor	Agilent	8482A	MY41091706	2012.05	2013.05
Power Splitter	Weinschel	1506A	NW521	2012.05	2013.05
Attenuator 1	Resnet	20dB	(n.a.)	2012.05	2013.05
Attenuator 2	Resnet	3dB	(n.a.)	2012.05	2013.05

### 2.1.3 Test 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	33.27	Plot A1 to A3	35	PASS
	190	836.6	32.85			PASS
	251	848.8	32.61			PASS
GSM 1900MHz	512	1850.2	29.72	Plot B1 to B3	32	PASS
	661	1880.0	29.06			PASS
	810	1909.8	29.14			PASS
GPRS 850MHz	128	824.2	32.16	Plot C1 to C3 <sup>Note 1</sup>	35	PASS
	190	836.6	32.16			PASS
	251	848.8	31.97			PASS
GPRS 1900MHz	512	1850.2	27.85	Plot D1 to D3 <sup>Note 1</sup>	32	PASS
	661	1880.0	28.34			PASS
	810	1909.8	28.59			PASS
EGPRS 850MHz	128	824.2	33.27	Plot E1 to E3 <sup>Note 1</sup>	35	PASS
	190	836.6	32.85			PASS
	251	848.8	32.61			PASS
EGPRS 1900MHz	512	1850.2	29.72	Plot F1 to F3 <sup>Note 1</sup>	32	PASS
	661	1880.0	29.06			PASS
	810	1909.8	29.14			PASS

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



## GPRS Mode Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	32.16	30.63	29.07	28.32
	190	836.6	32.16	30.88	29.34	28.40
	251	848.8	31.97	31.26	29.44	27.94
PCS 1900	512	1850.2	27.85	26.58	25.56	24.55
	661	1880.0	28.34	26.38	25.50	24.29
	810	1909.8	28.59	26.40	25.55	24.26

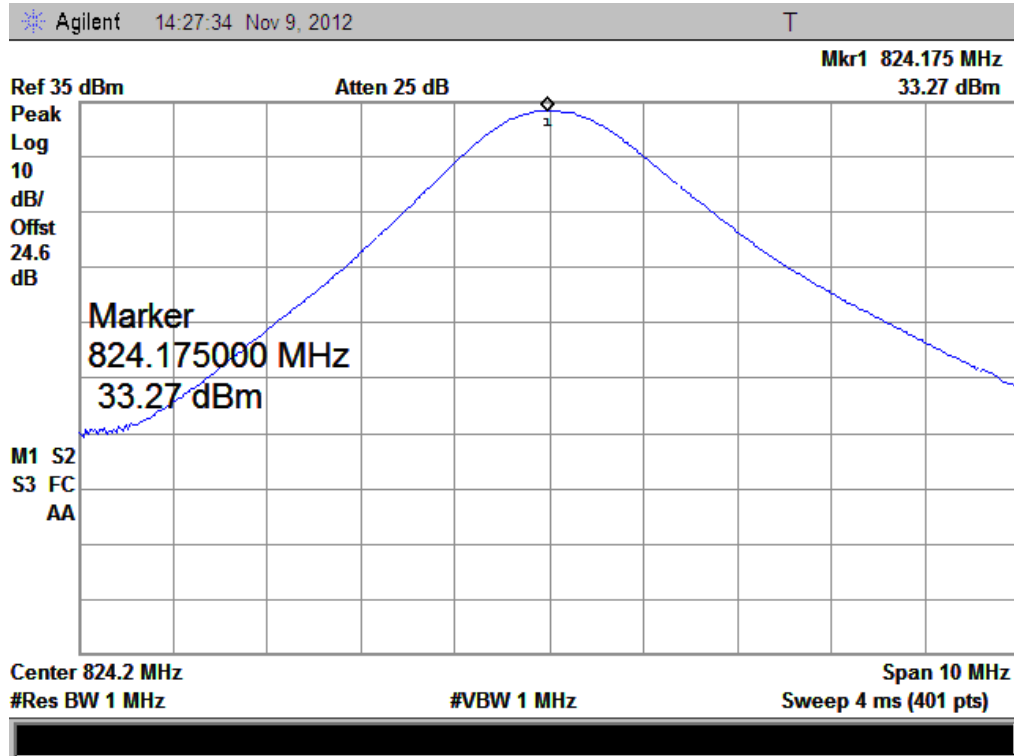
## EDGE Mode Conducted peak output power

Band	Channel	Frequency (MHz)	Output Power(dBm)			
			Slot 1	Slot 2	Slot 3	Slot 4
GSM 850	128	824.2	33.27	30.75	29.00	28.27
	190	836.6	32.85	31.05	29.28	28.30
	251	848.8	32.61	31.43	29.34	28.10
PCS 1900	512	1850.2	29.72	27.60	26.42	25.52
	661	1880.0	29.06	27.47	26.33	25.43
	810	1909.8	29.14	26.55	25.43	24.37

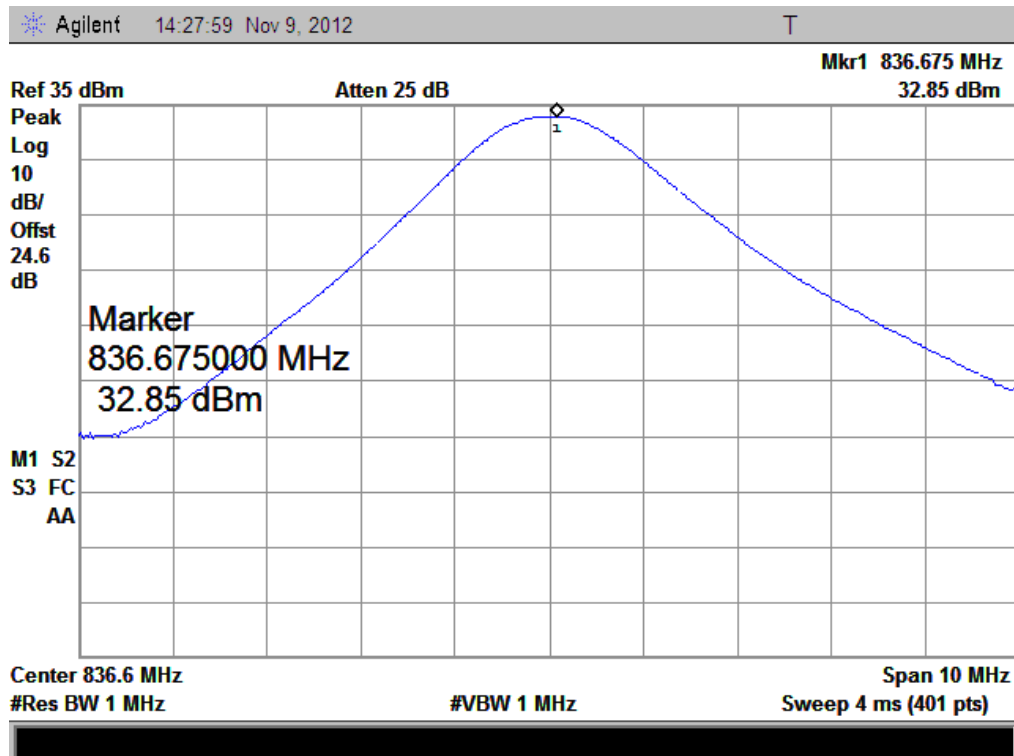
## 2. WCDMA Model Test Verdict:

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	22.2	21.89	22.19	21.63	21.98	21.92
HSDPA	1	22.13	21.78	22.16	21.62	21.79	21.77
	2	22.15	21.71	22.15	21.59	21.77	21.72
	3	21.67	21.25	21.62	21.13	21.29	21.22
	4	21.66	21.21	21.68	21.09	21.23	21.21
HSUPA	1	22.09	21.75	22.12	21.59	21.75	21.76
	2	20.08	19.76	20.13	19.56	19.77	19.76
	3	21.59	21.72	21.15	20.57	20.76	20.75
	4	20.71	19.69	20.12	19.59	19.76	19.73
	5	22.07	21.71	22.09	21.57	21.73	21.76
HSPA+	1	22.16	21.83	22.15	19.14	18.82	20.00
Note:	The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA /HSPA+ was tested by power meter.						

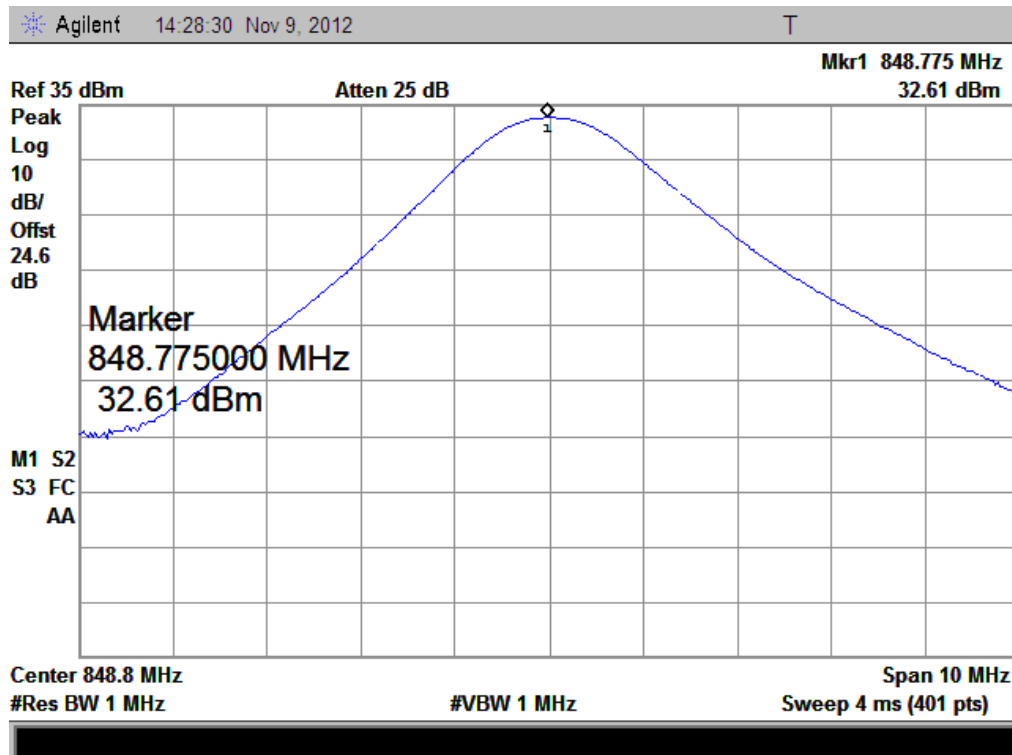
3. GSM Model Test Plots:



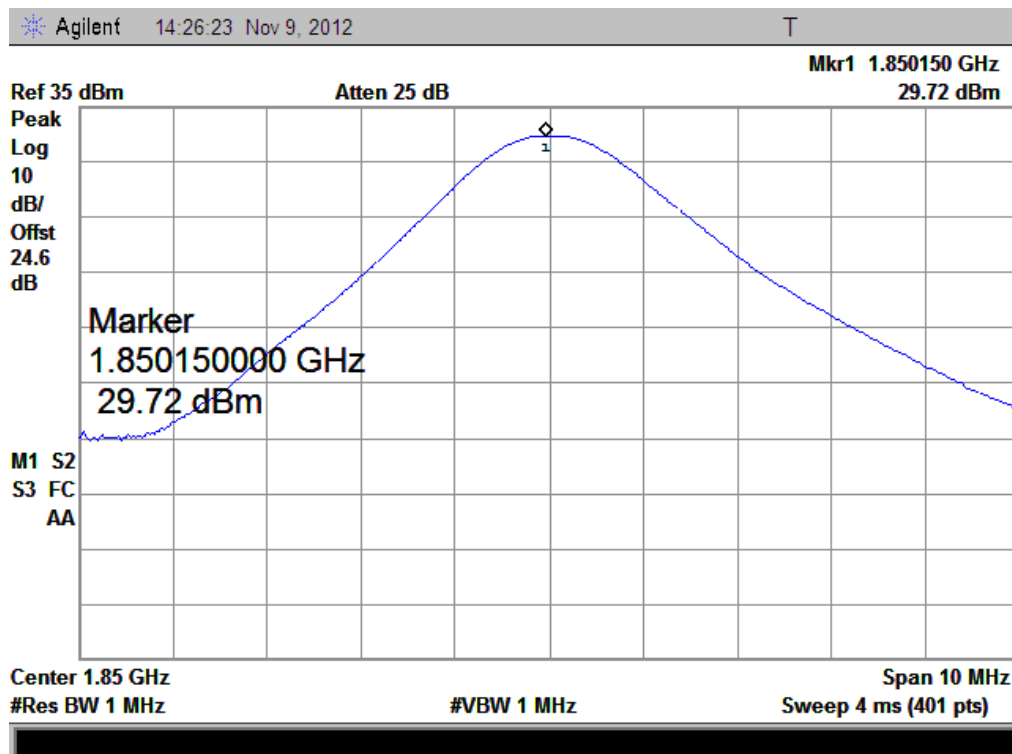
(Plot A1: GSM 850MHz Channel = 128)



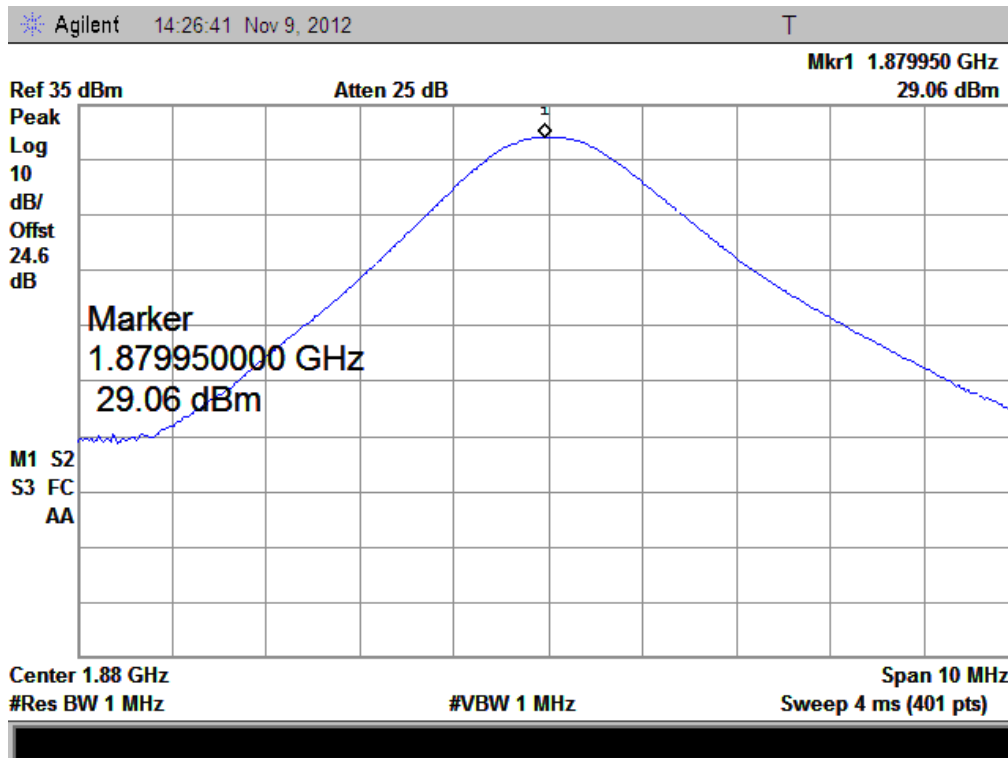
(Plot A2: GSM 850MHz Channel = 190)



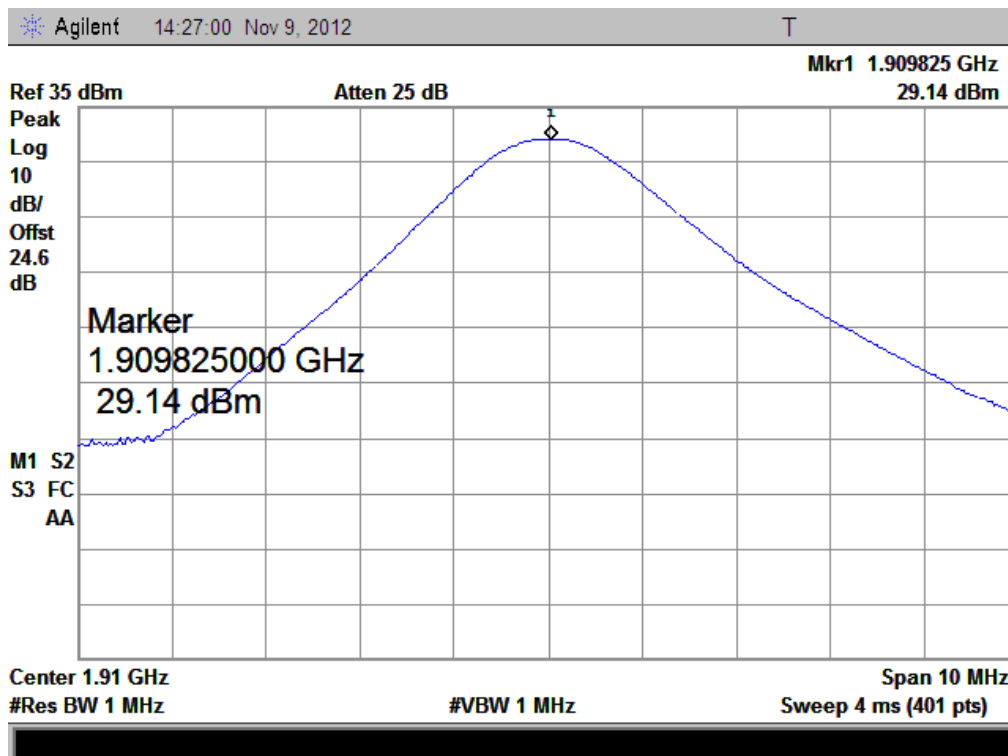
(Plot A3: GSM 850MHz Channel = 251)



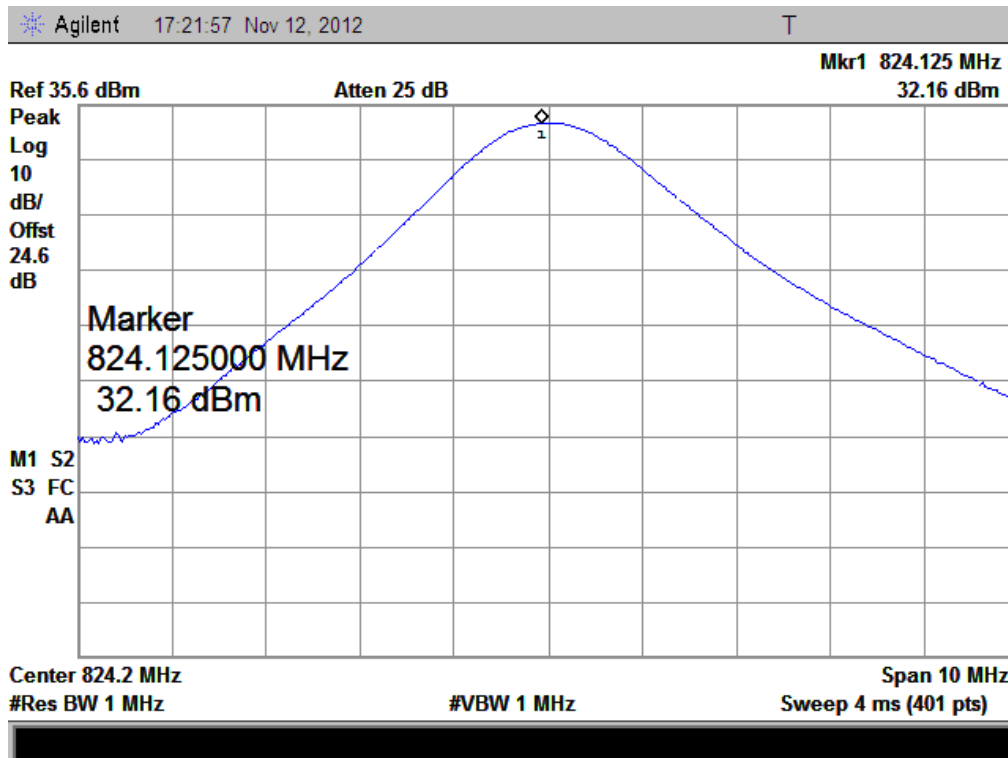
(Plot B1: GSM 1900MHz Channel = 512)



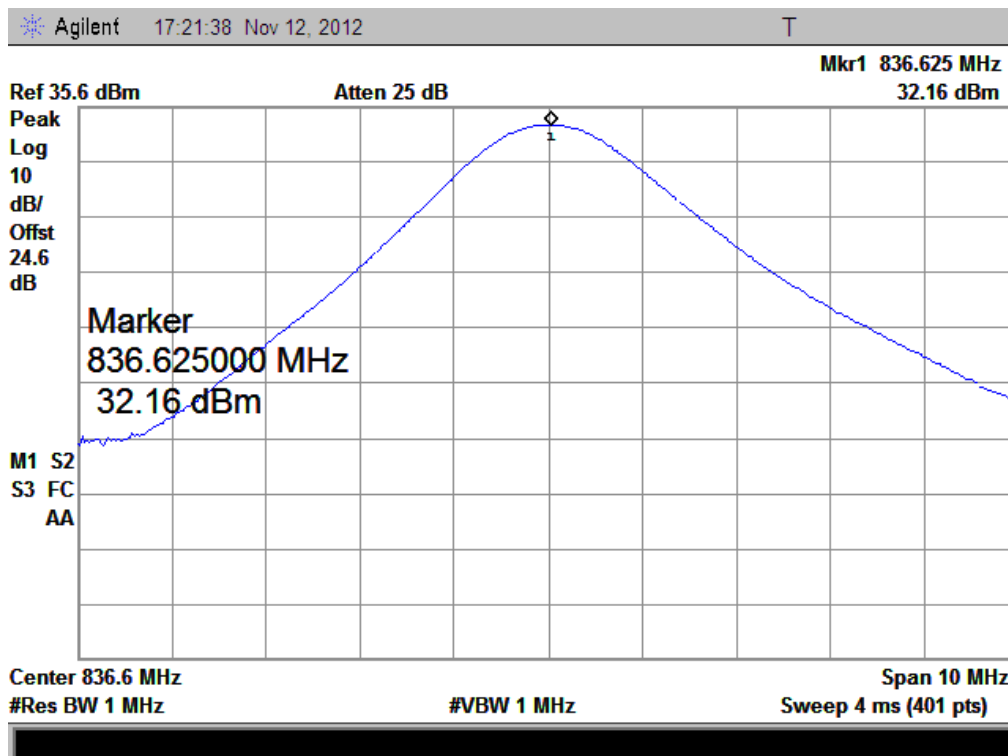
(Plot B2: GSM 1900MHz Channel = 661)



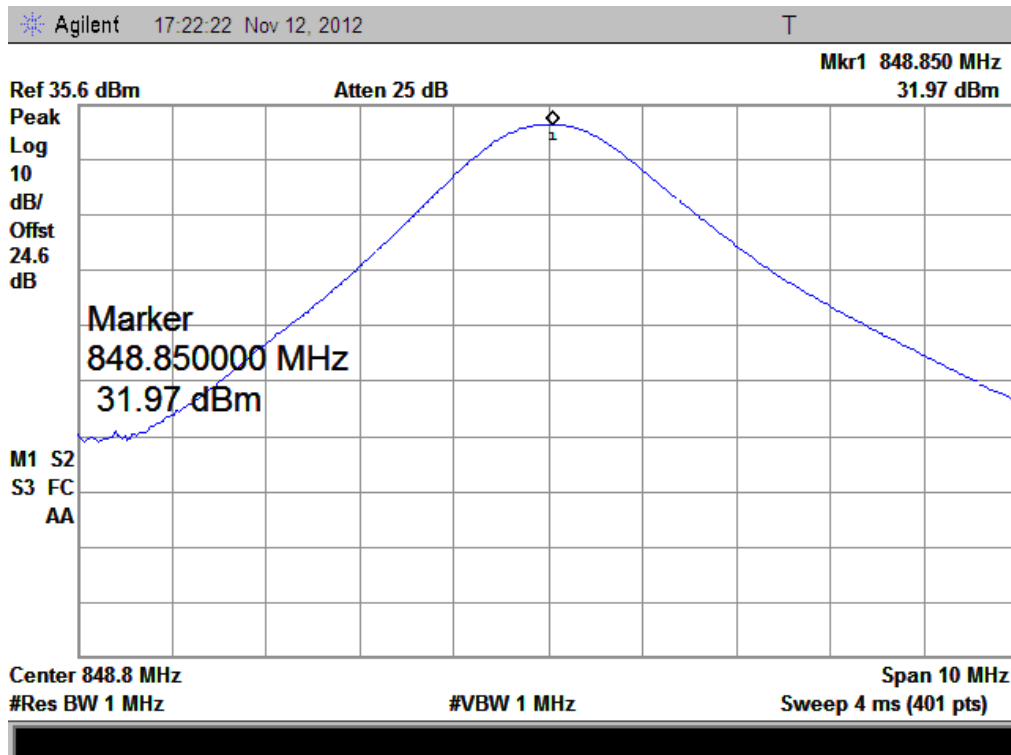
(Plot B3: GSM 1900MHz Channel = 810)



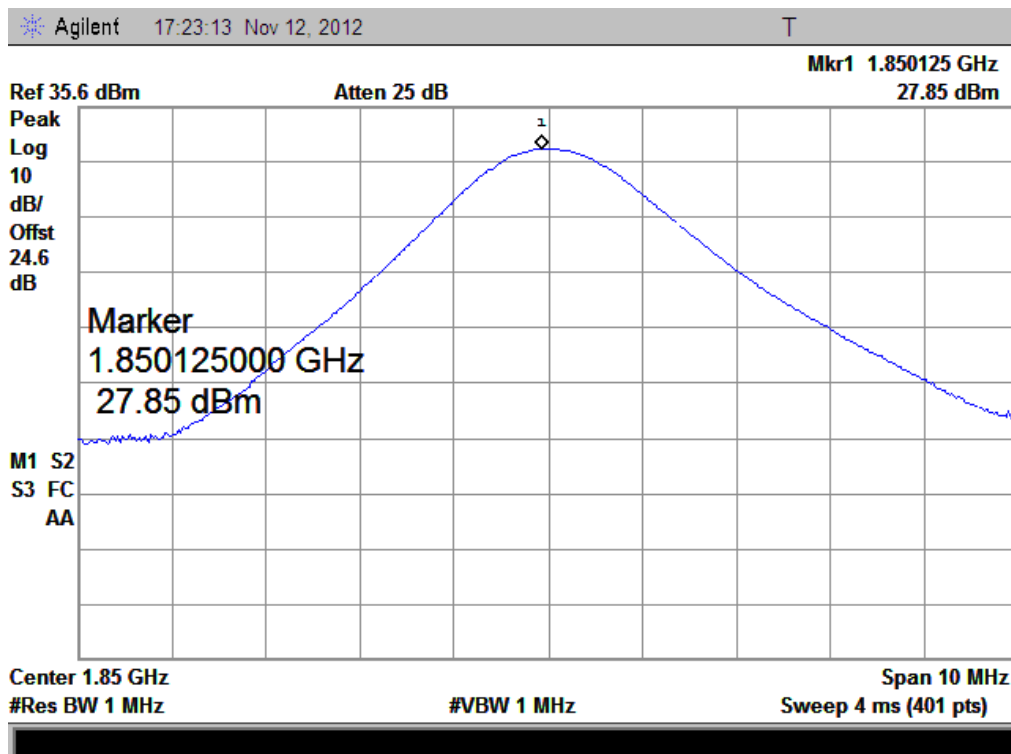
(Plot C1: GPRS 850MHz Channel = 128)



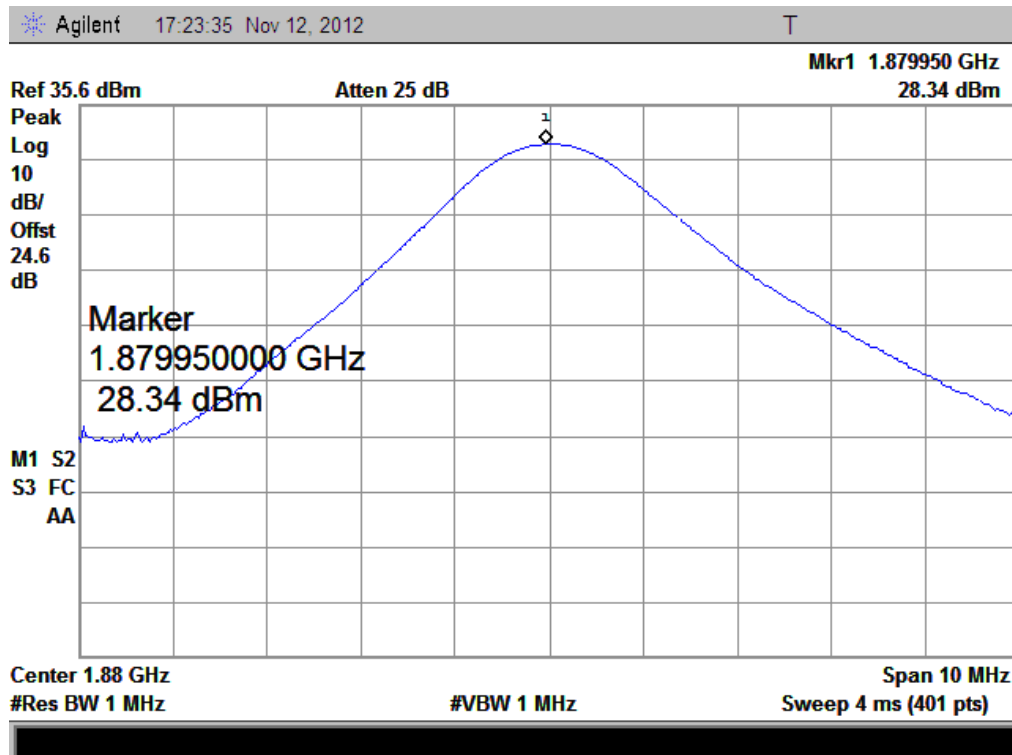
(Plot C2: GPRS 850MHz Channel = 190)



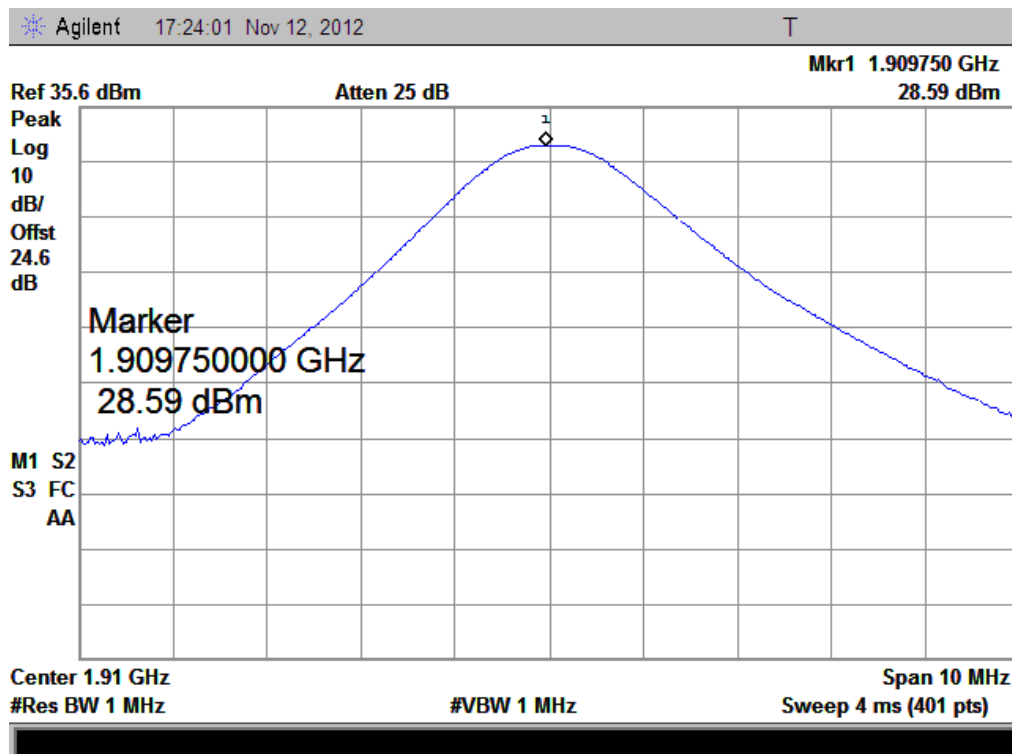
(Plot C3: GPRS 850MHz Channel = 251)



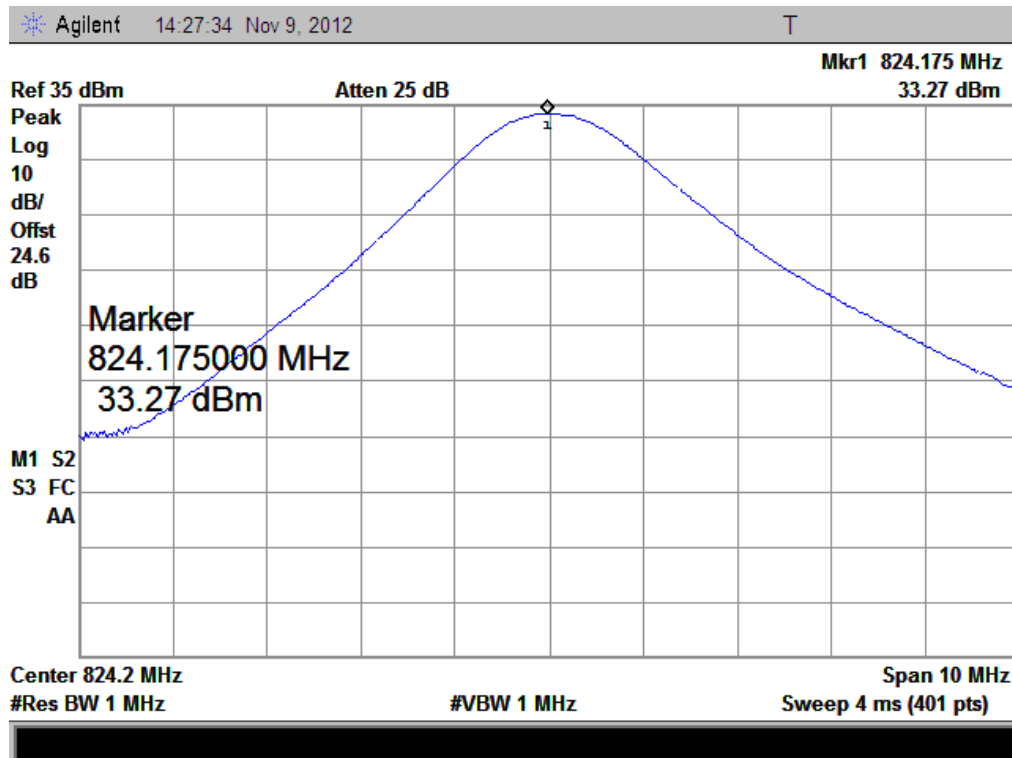
(Plot D1: GPRS 1900MHz Channel = 512)



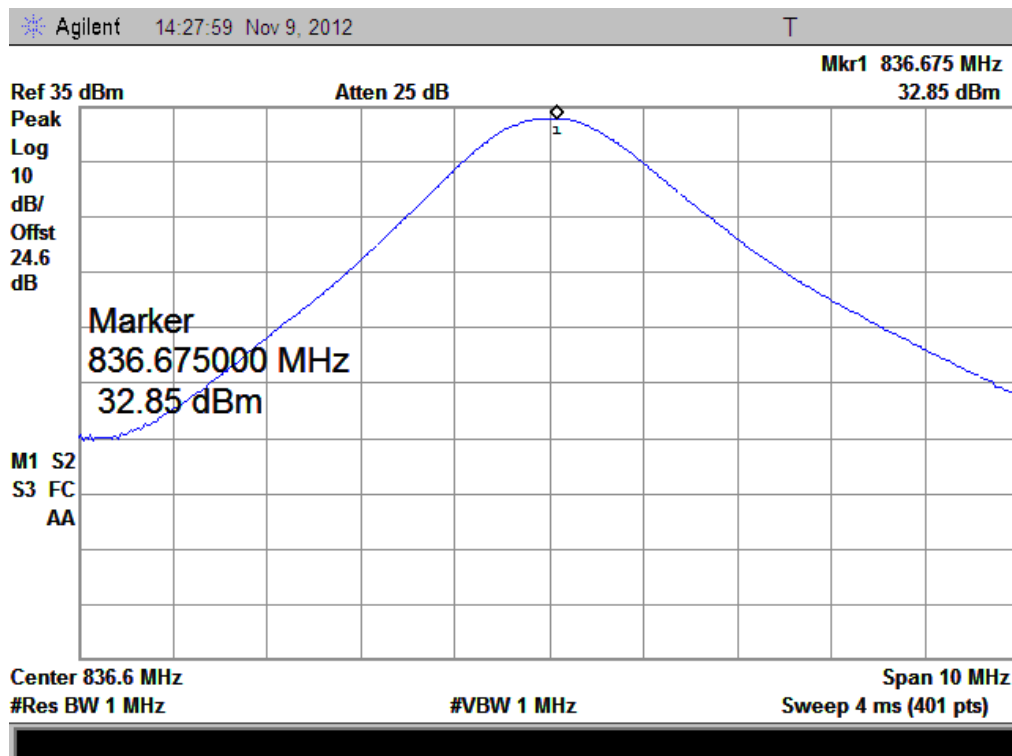
(Plot D2: GPRS 1900MHz Channel = 661)



(Plot D3: GPRS 1900Hz Channel = 810)

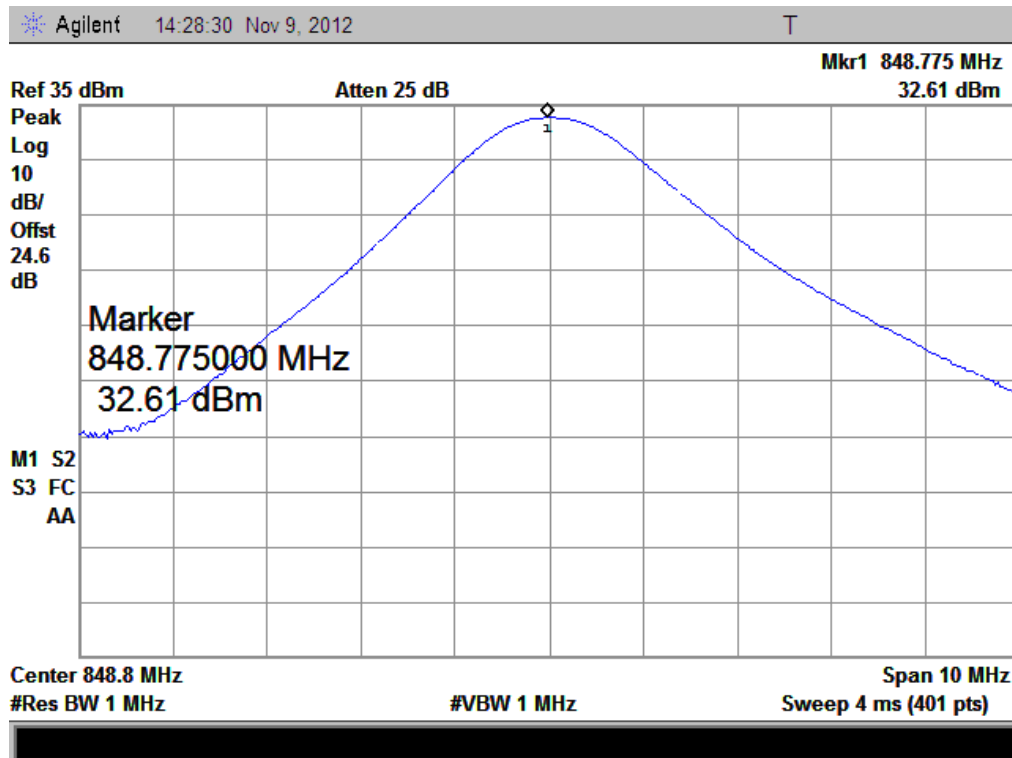


(Plot E 1: EGPRS 850MHz Channel = 128)

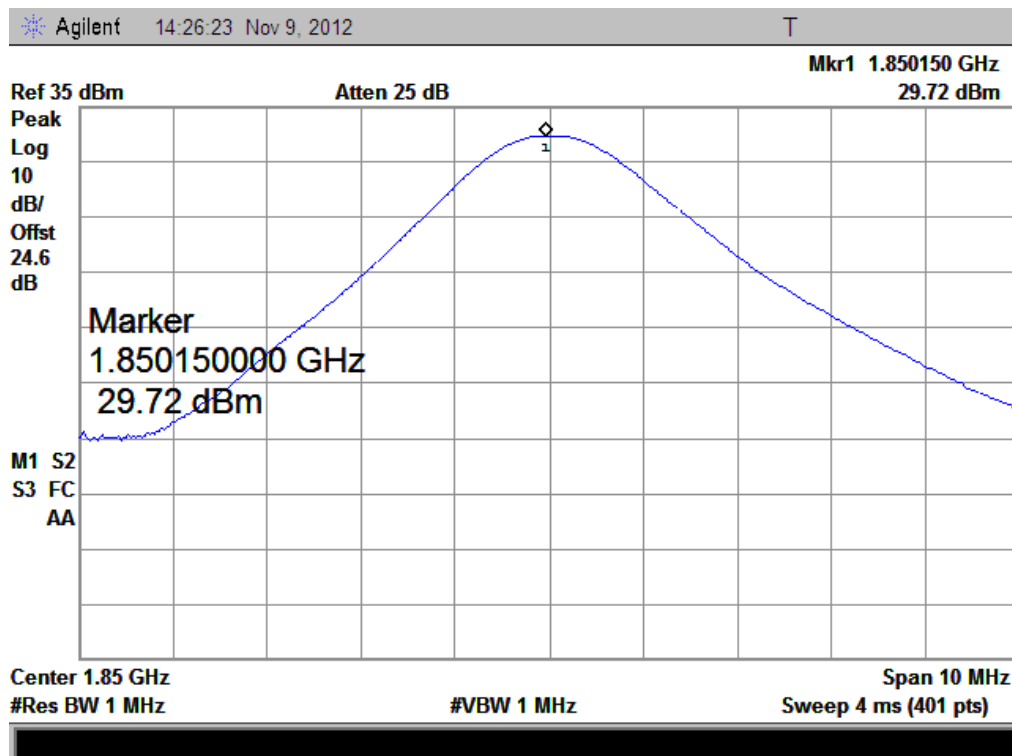


(Plot E 2: EGPRS 850MHz Channel = 190)

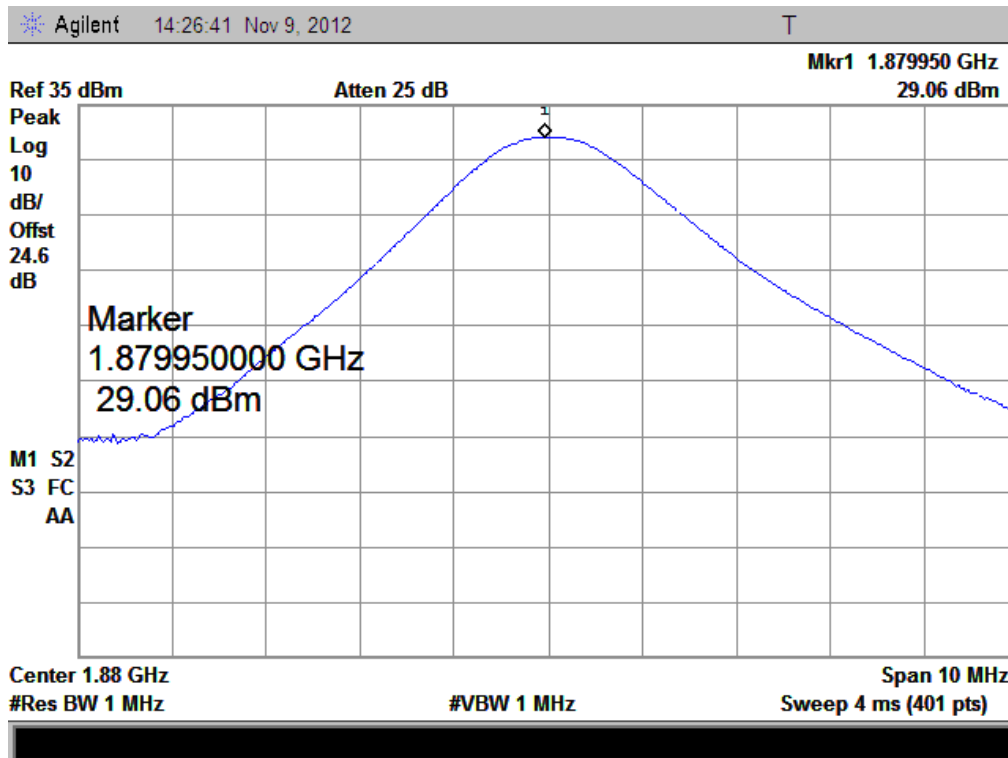




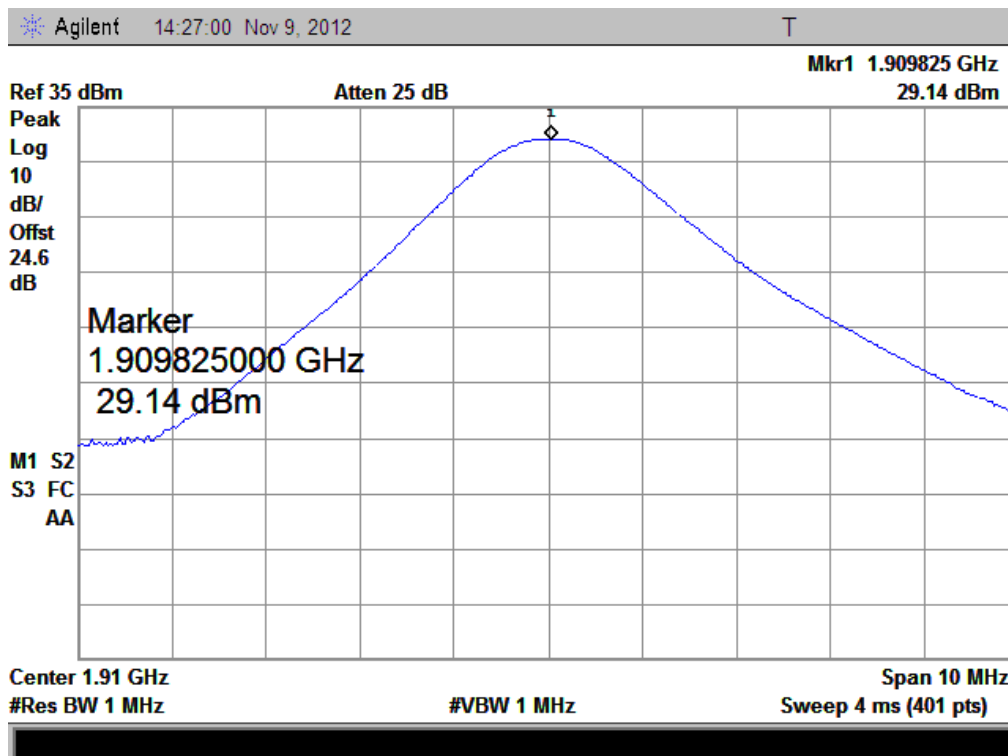
(Plot E 3: EGPRS 850MHz Channel = 251)



(Plot F 1: EGPRS 1900MHz Channel = 512)



(Plot F 2: EGPRS 1900MHz Channel = 661)



(Plot F 3: EGPRS 1900MHz Channel = 810)

## 2.2 99% Occupied Bandwidth

### 2.2.1 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,

### 2.2.2 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 99% occupied bandwidth.

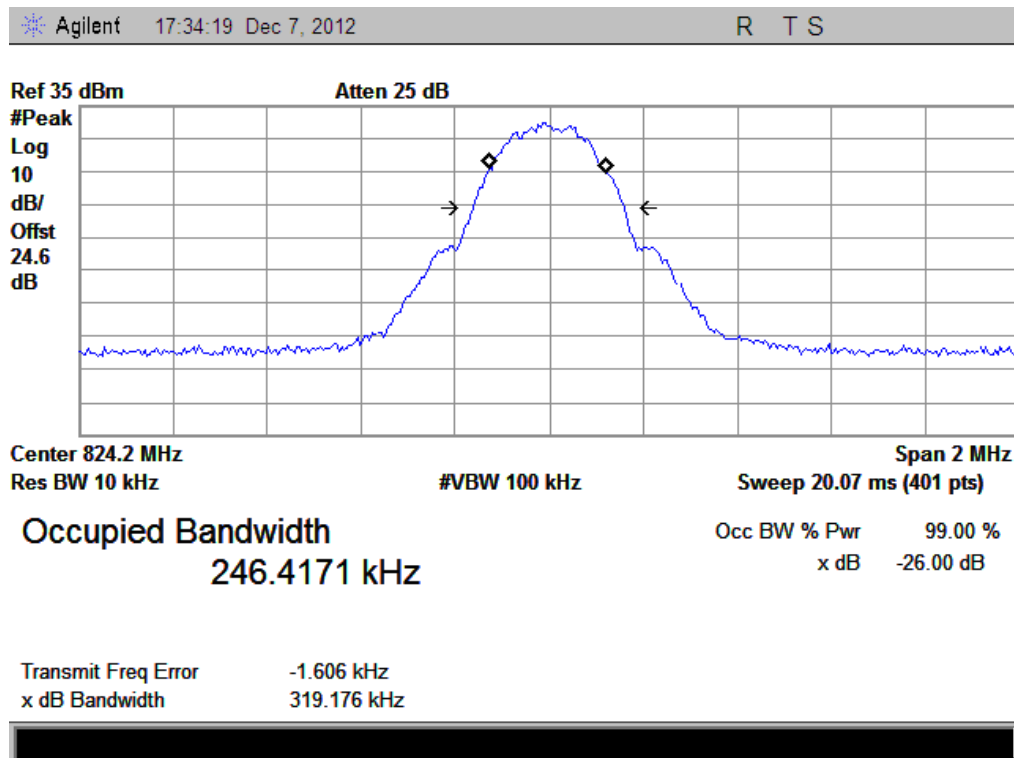
#### 1. Test Verdict:

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
GSM 850MHz	128	824.2	319.176 KHz	246.4171 KHz	Plot A
	190	836.6	321.839 KHz	246.6703 KHz	Plot B
	251	848.8	323.547 KHz	248.8229 KHz	Plot C
GSM 1900MHz	512	1850.2	315.962 KHz	240.7165 KHz	Plot D
	661	1880.0	317.884 KHz	247.4214 KHz	Plot E
	810	1909.8	321.014 KHz	249.2578 KHz	Plot F
EDGE 850MHz	128	824.2	324.127 KHz	242.1915 KHz	Plot G
	190	836.6	315.339 KHz	240.1830 KHz	Plot H
	251	848.8	303.576 KHz	243.2046 KHz	Plot I
EDGE 1900MHz	512	1850.2	325.572 KHz	251.5897 KHz	Plot J
	661	1880.0	323.360 KHz	243.8615 KHz	Plot K
	810	1909.8	320.192 KHz	242.4944 KHz	Plot L
WCDMA 850MHz	4175	835	4.678 MHz	4.1460 MHz	Plot M
WCDMA 1900MHz	9400	1880	4.690 MHz	4.1569 MHz	Plot N
HSDPA 850MHz	4175	835	4.672 MHz	4.1518 MHz	Plot O
HSDPA 1900MHz	9400	1880	4.687 MHz	4.1520 MHz	Plot P
HSUPA 850MHz	4175	835	4.679 MHz	4.1518 MHz	Plot Q
HSUPA 1900MHz	9400	1880	4.694 MHz	4.1538 MHz	Plot R
HSPA+ 850MHz	4175	835	4.679 MHz	4.1518 MHz	Plot S

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
HSPA+ 1900MHz	9400	1880	4.683 MHz	4.1616 MHz	Plot T
GPRS 850MHz	128	824.2	319.973 KHz	246.1391 KHz	Plot U
	190	836.6	318.088 KHz	242.8775 KHz	Plot V
	251	848.8	321.972 KHz	247.3940 KHz	Plot W
GPRS 1900MHz	512	1850.2	319.798 KHz	245.5720 KHz	Plot X
	661	1880.0	320.629 KHz	246.1470 KHz	Plot Y
	810	1909.8	319.767 KHz	245.1534 KHz	Plot Z

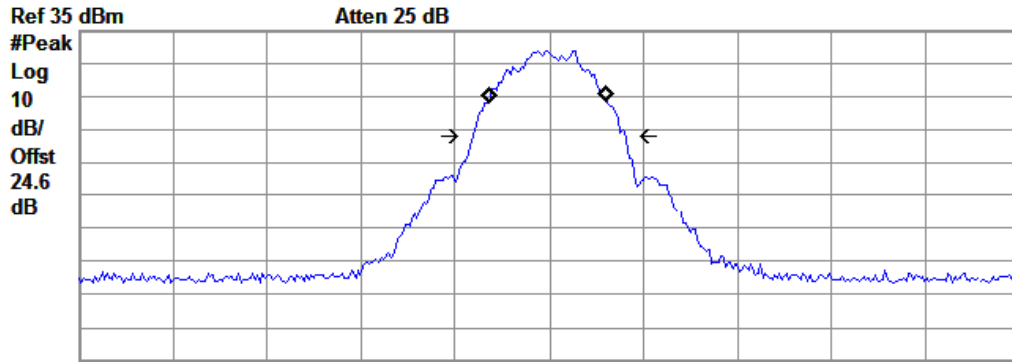
Note 1: For the GPRS and EGPRS model, all the slots were tested and just the worst data was record in this report.

2. Test Plots:



(Plot A: GSM 850MHz Channel = 128)

Agilent 17:33:10 Dec 7, 2012 R T S



Center 836.6 MHz Span 2 MHz  
Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

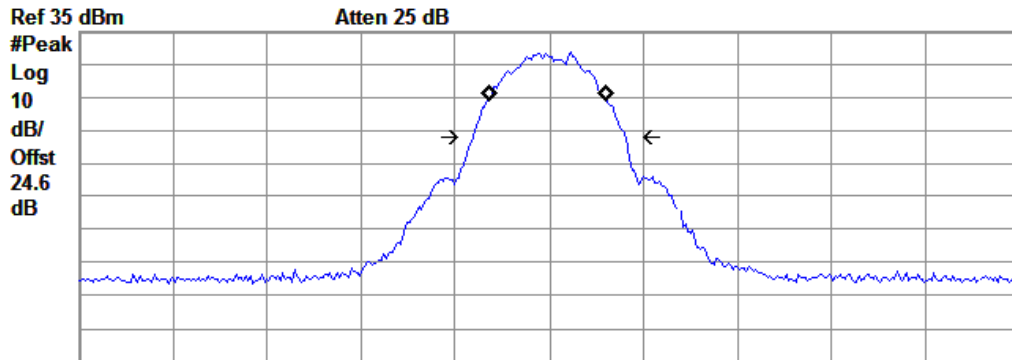
Occupied Bandwidth  
246.6703 kHz

Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error -2.257 kHz  
x dB Bandwidth 321.839 kHz

(Plot B: GSM 850MHz Channel = 190)

Agilent 17:32:33 Dec 7, 2012 R T S



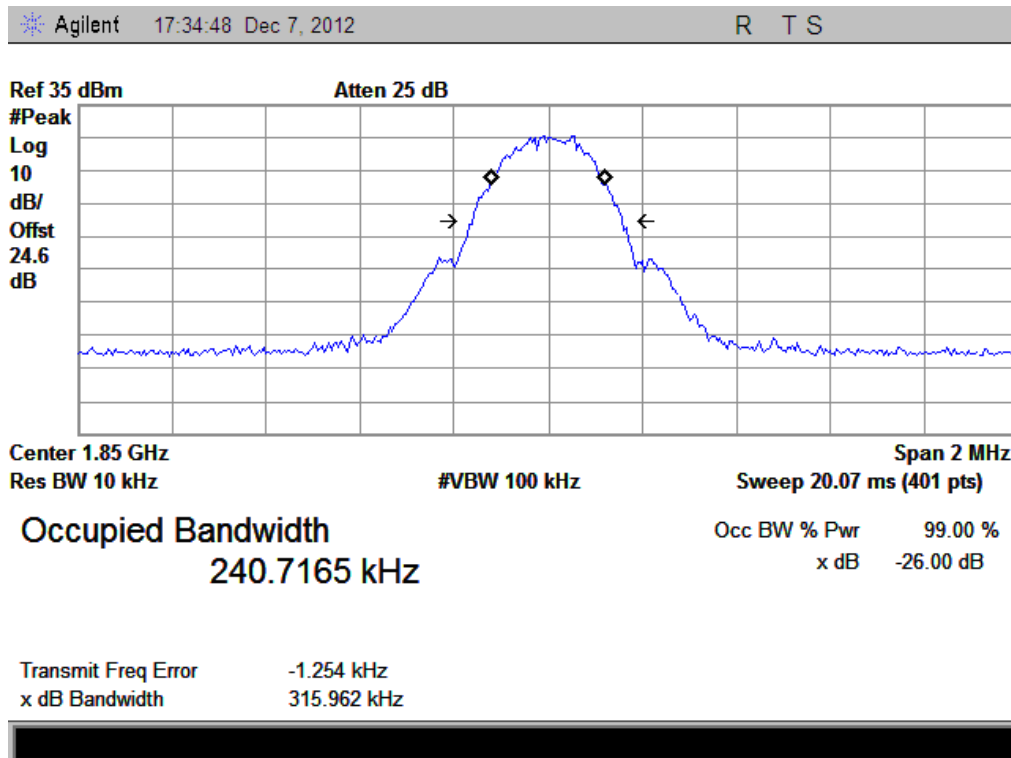
Center 848.8 MHz Span 2 MHz  
Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

Occupied Bandwidth  
248.8229 kHz

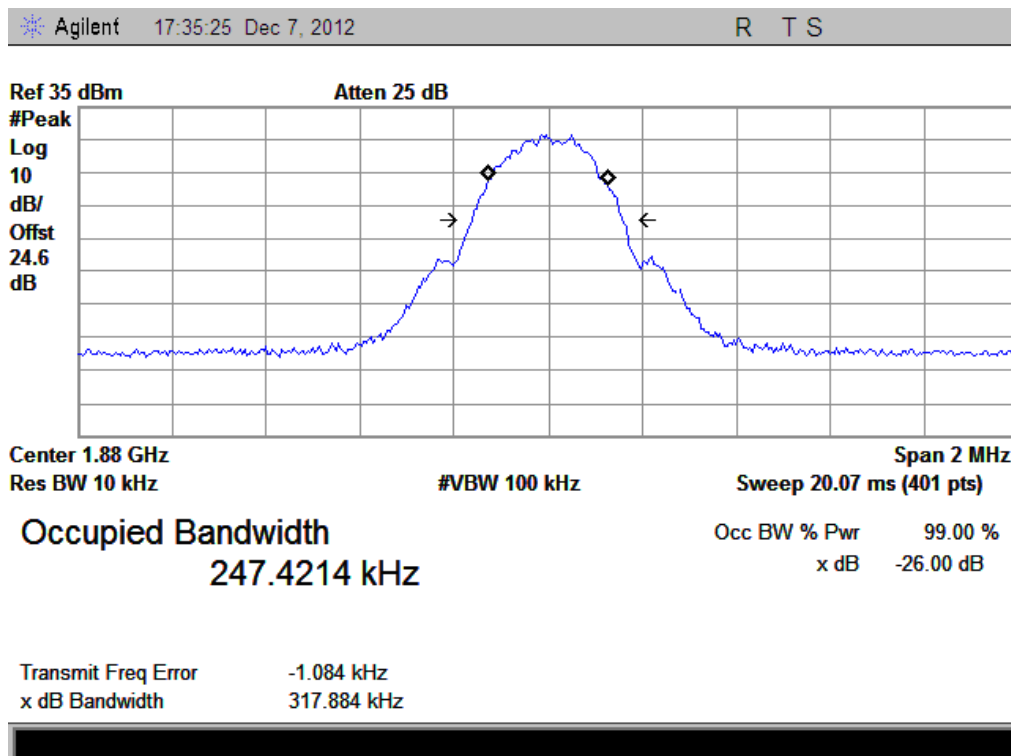
Occ BW % Pwr 99.00 %  
x dB -26.00 dB

Transmit Freq Error -2.299 kHz  
x dB Bandwidth 323.547 kHz

(Plot C: GSM 850MHz Channel = 251)

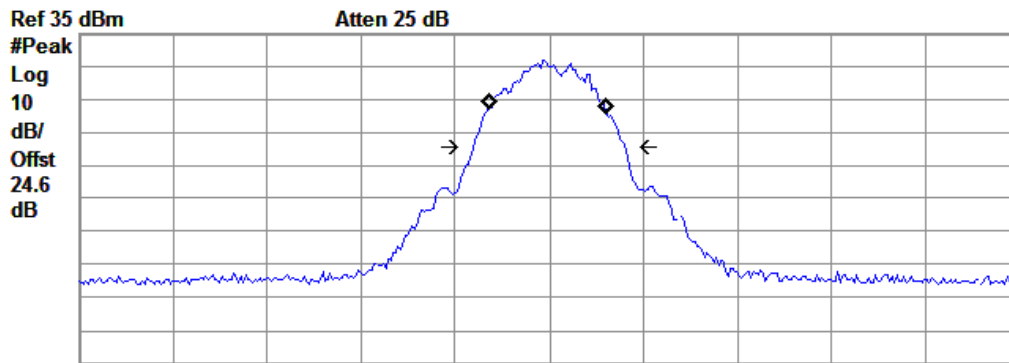


(Plot D: GSM 1900MHz Channel = 512)



(Plot E: GSM 1900MHz Channel = 661)

Agilent 17:36:32 Dec 7, 2012 R T S



Center 1.91 GHz Span 2 MHz  
 Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

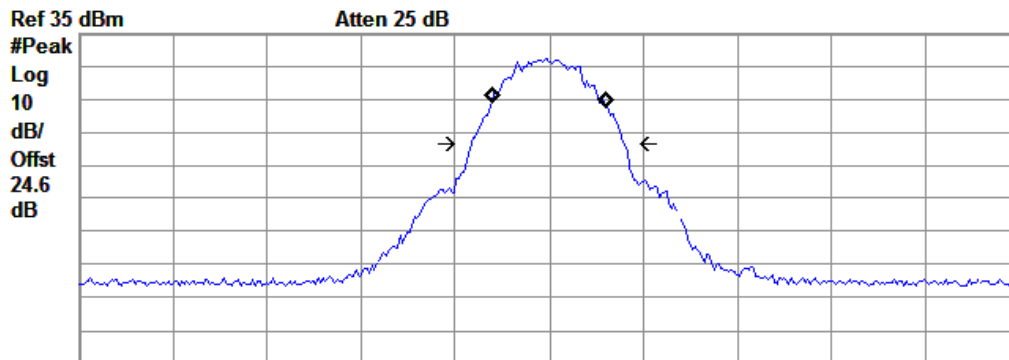
**Occupied Bandwidth**  
 249.2578 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -2.862 kHz  
 x dB Bandwidth 321.014 kHz

(Plot F: GSM 1900MHz Channel = 810)

Agilent 18:02:56 Dec 7, 2012 R T S



Center 824.2 MHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

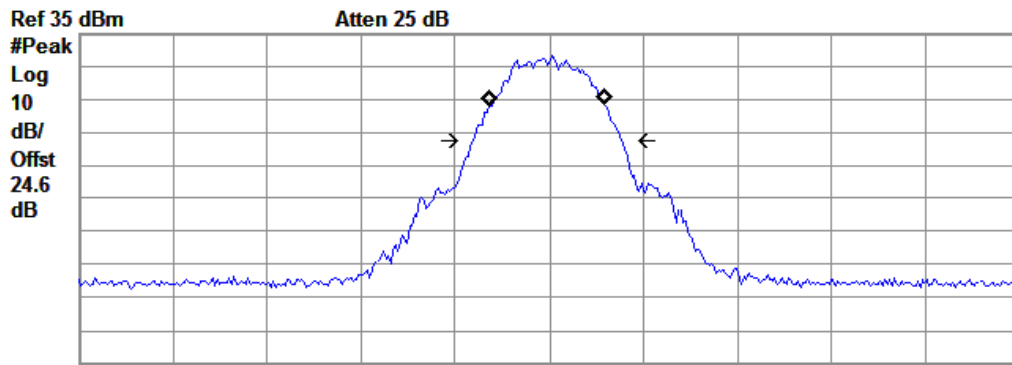
**Occupied Bandwidth**  
 242.1915 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error 96.483 Hz  
 x dB Bandwidth 324.127 kHz

(Plot G: EDGE 850MHz Channel = 128)

Agilent 18:02:10 Dec 7, 2012 R T S



Center 836.6 MHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

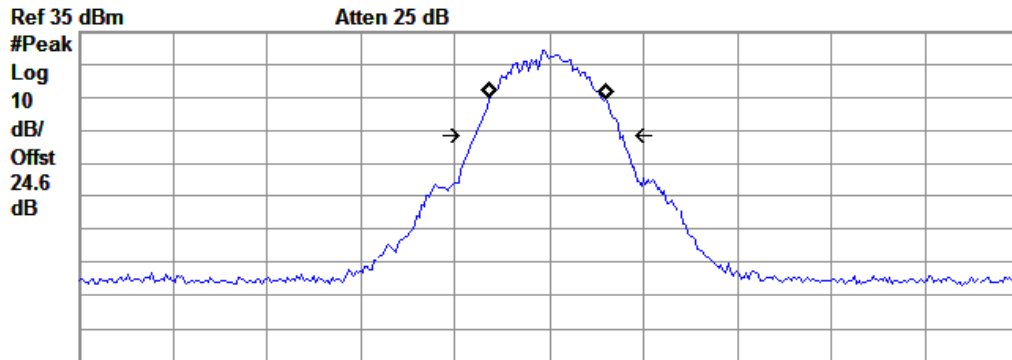
Occupied Bandwidth  
 240.1830 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -3.212 kHz  
 x dB Bandwidth 315.339 kHz

(Plot H: EDGE 850MHz Channel = 190)

Agilent 18:01:40 Dec 7, 2012 R T S



Center 848.8 MHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

Occupied Bandwidth  
 243.2046 kHz

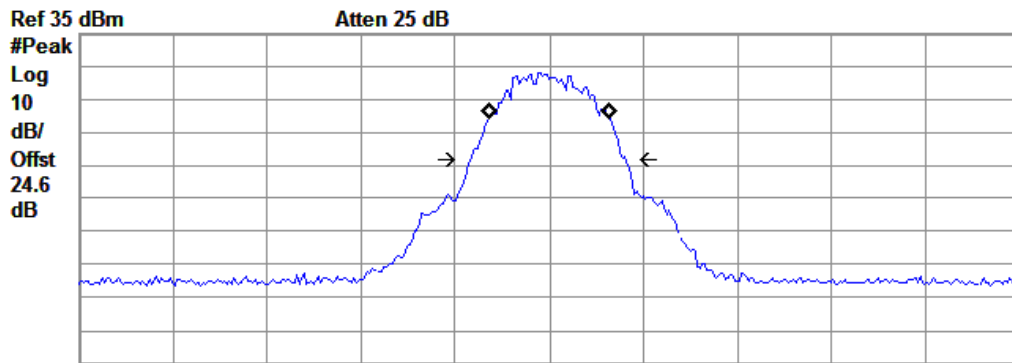
Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -1.147 kHz  
 x dB Bandwidth 303.576 kHz

(Plot I: EDGE 850MHz Channel = 251)



Agilent 18:05:18 Dec 7, 2012 R T S



Center 1.85 GHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

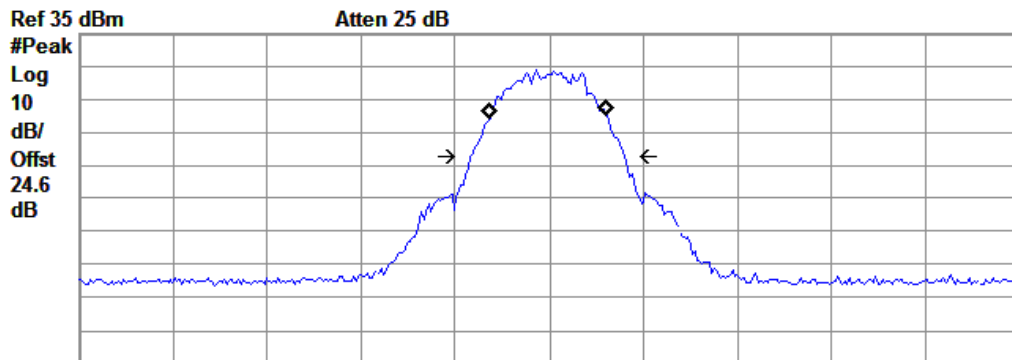
**Occupied Bandwidth**  
 251.5897 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error 415.178 Hz  
 x dB Bandwidth 325.572 kHz

(Plot J: EDGE 1900MHz Channel = 512)

Agilent 18:04:37 Dec 7, 2012 R T S



Center 1.88 GHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

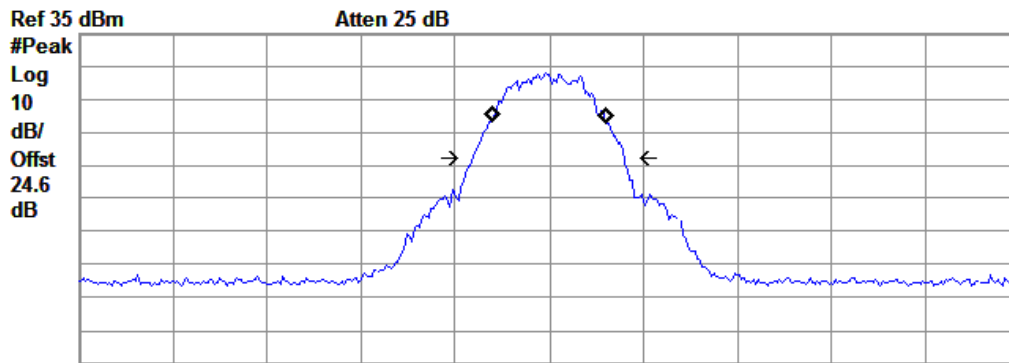
**Occupied Bandwidth**  
 243.8615 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -1.563 kHz  
 x dB Bandwidth 323.360 kHz

(Plot K: EDGE 1900MHz Channel = 661)

Agilent 18:03:37 Dec 7, 2012 R T S



Center 1.91 GHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

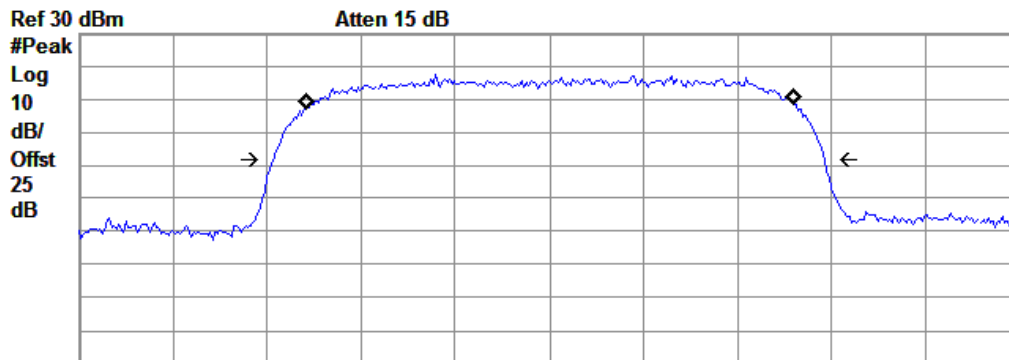
**Occupied Bandwidth**  
 242.4944 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -958.523 Hz  
 x dB Bandwidth 320.192 kHz

(Plot L: EDGE 1900MHz Channel = 810)

Agilent 15:14:54 Dec 10, 2012 R T



Center 835 MHz Span 8 MHz  
 #Res BW 100 kHz #VBW 100 kHz Sweep 5 ms (401 pts)

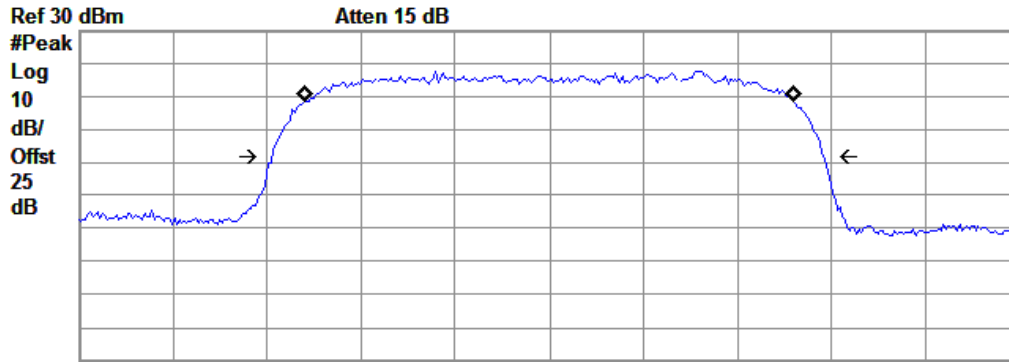
**Occupied Bandwidth**  
 4.1460 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error 16.450 kHz  
 x dB Bandwidth 4.678 MHz

(Plot M: WCDMA 850MHz Channel = 4175)

Agilent 15:14:04 Dec 10, 2012 R T



Center 1.88 GHz Span 8 MHz  
 #Res BW 100 kHz #VBW 100 kHz Sweep 5 ms (401 pts)

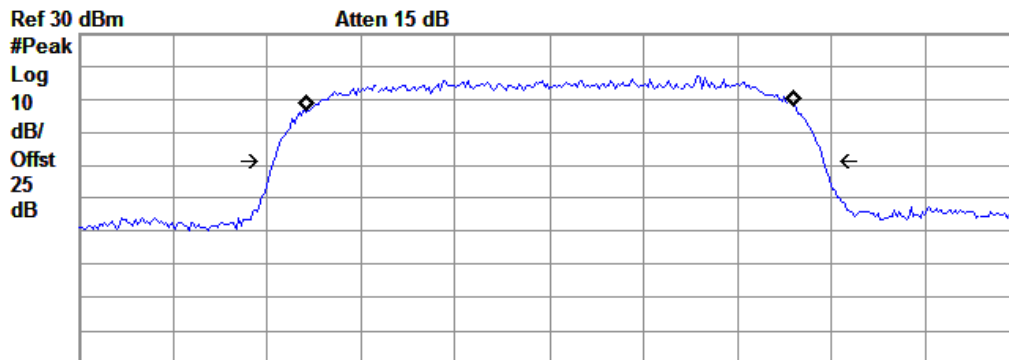
Occupied Bandwidth  
 4.1569 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -3.060 kHz  
 x dB Bandwidth 4.690 MHz

(Plot N: WCDMA 1900MHz Channel = 9400)

Agilent 16:07:24 Dec 10, 2012 R T



Center 835 MHz Span 8 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

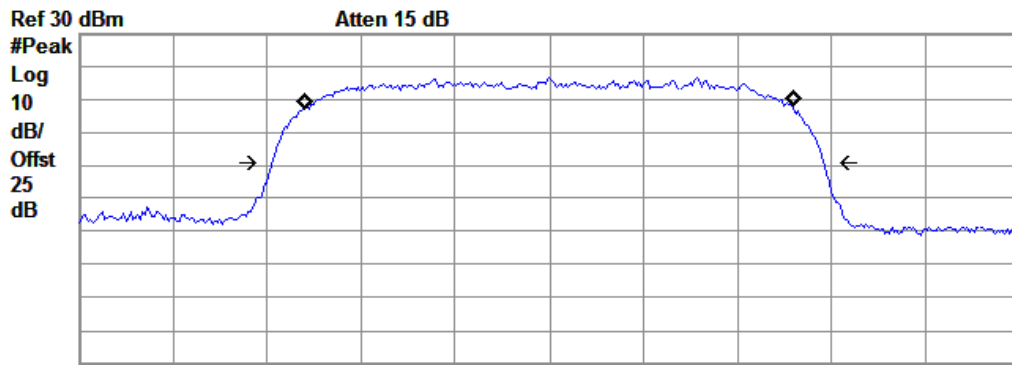
Occupied Bandwidth  
 4.1518 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error 8.768 kHz  
 x dB Bandwidth 4.672 MHz

(Plot O: HSDPA 850MHz Channel = 4175)

Agilent 16:06:30 Dec 10, 2012 R T



Center 1.88 GHz Span 8 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

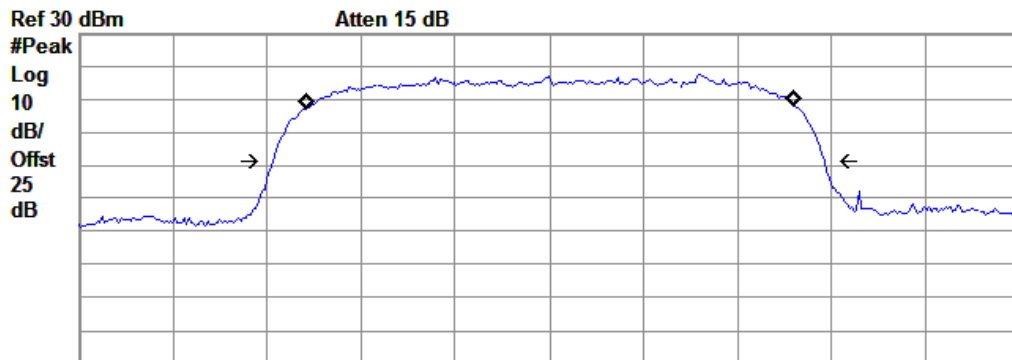
Occupied Bandwidth  
 4.1520 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -5.926 kHz  
 x dB Bandwidth 4.687 MHz

(Plot P: HSDPA1900MHz Channel = 9400)

Agilent 16:08:23 Dec 10, 2012 R T



Center 835 MHz Span 8 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

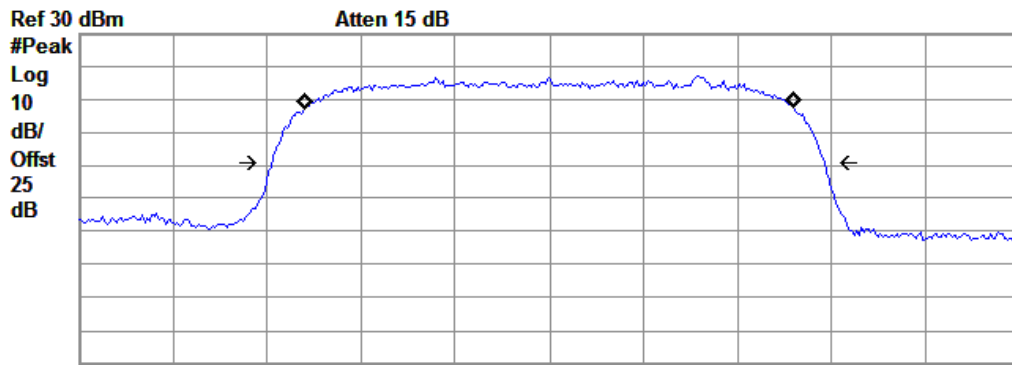
Occupied Bandwidth  
 4.1518 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error 13.113 kHz  
 x dB Bandwidth 4.679 MHz

(Plot Q: HSUPA 850MHz Channel = 4175)

Agilent 16:09:18 Dec 10, 2012 R T



Center 1.88 GHz Span 8 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

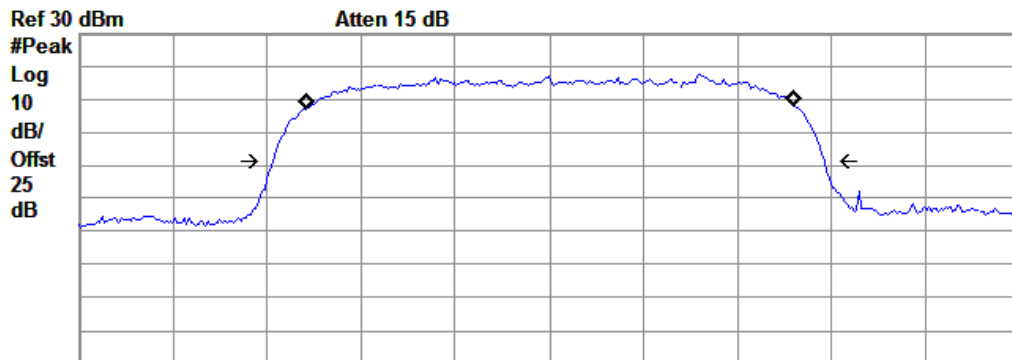
Occupied Bandwidth  
 4.1538 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -4.437 kHz  
 x dB Bandwidth 4.694 MHz

(Plot R: HSUPA1900MHz Channel = 9400)

Agilent 16:08:23 Dec 10, 2012 R T



Center 835 MHz Span 8 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

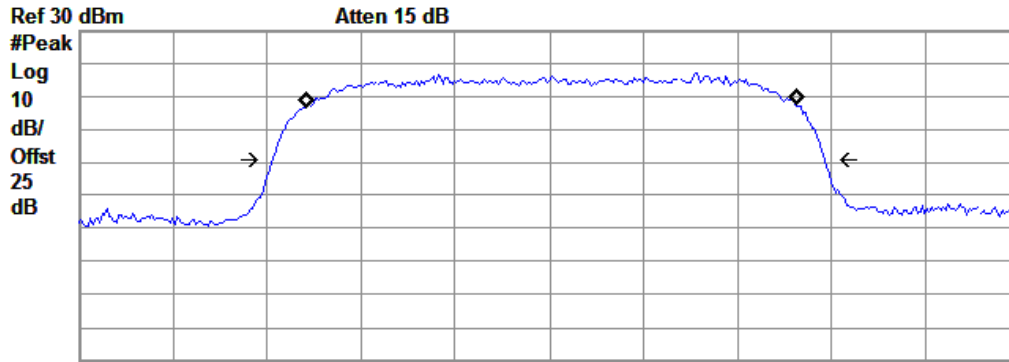
Occupied Bandwidth  
 4.1518 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error 13.113 kHz  
 x dB Bandwidth 4.679 MHz

(Plot S: HSPA+ 850MHz Channel = 4175)

Agilent 16:10:48 Dec 10, 2012 R T



Center 835 MHz Span 8 MHz  
 #Res BW 100 kHz #VBW 300 kHz Sweep 5 ms (401 pts)

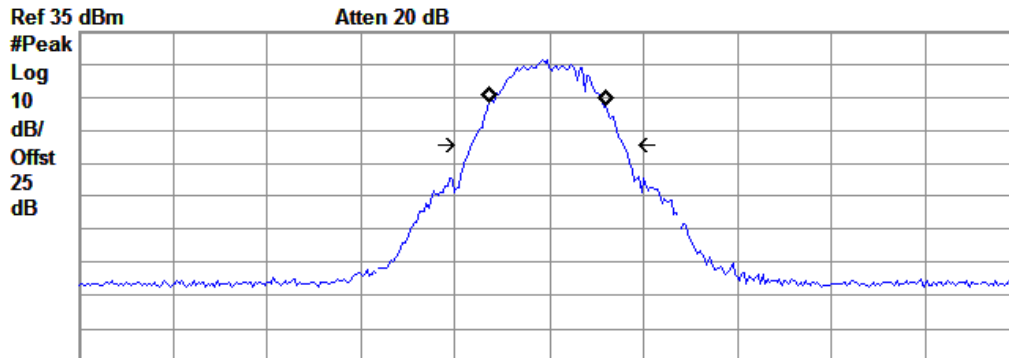
Occupied Bandwidth  
 4.1616 MHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error 11.340 kHz  
 x dB Bandwidth 4.683 MHz

(Plot T: HSPA+1900MHz Channel = 9400)

Agilent 15:54:10 Dec 26, 2012 R T S



Center 824.2 MHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

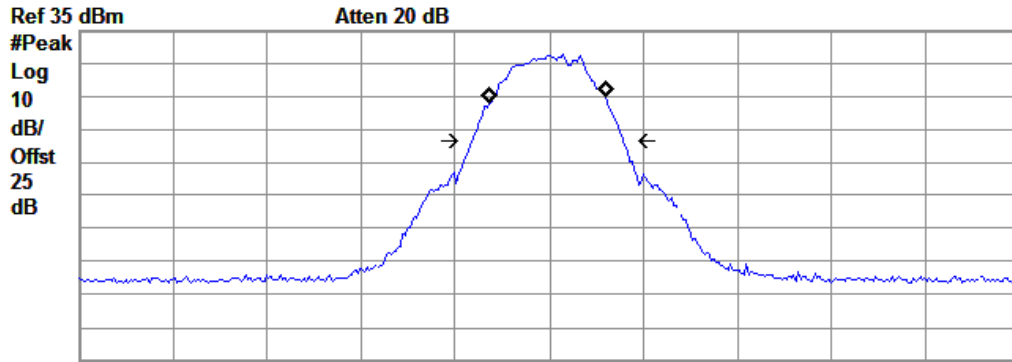
Occupied Bandwidth  
 246.1391 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -2.657 kHz  
 x dB Bandwidth 319.973 kHz

(Plot U: GPRS 850MHz Channel = 128)

Agilent 15:59:03 Dec 26, 2012 R T S



Center 836.6 MHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

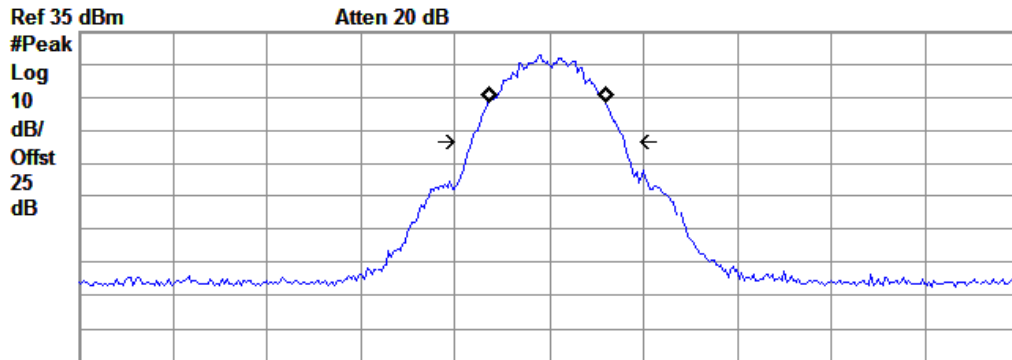
**Occupied Bandwidth**  
 242.8775 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -1.780 kHz  
 x dB Bandwidth 318.088 kHz

(Plot V: GPRS 850MHz Channel = 190)

Agilent 15:56:22 Dec 26, 2012 R T S



Center 848.8 MHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

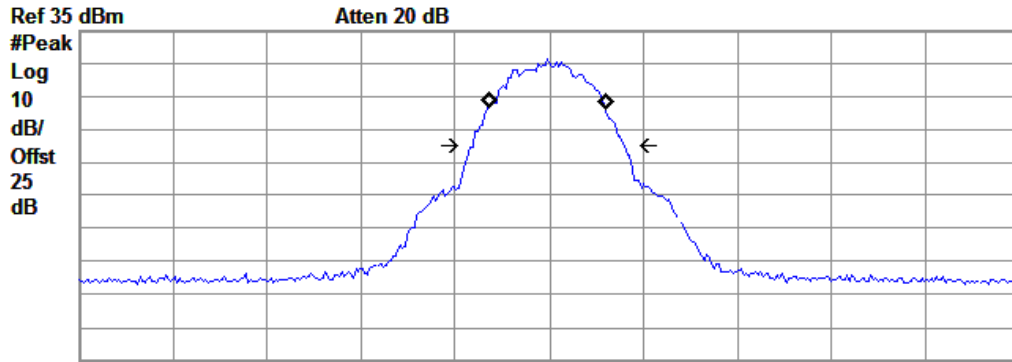
**Occupied Bandwidth**  
 247.3940 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -3.393 kHz  
 x dB Bandwidth 321.972 kHz

(Plot W: GPRS 850MHz Channel = 251)

Agilent 15:53:00 Dec 26, 2012 R T S



Center 1.85 GHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

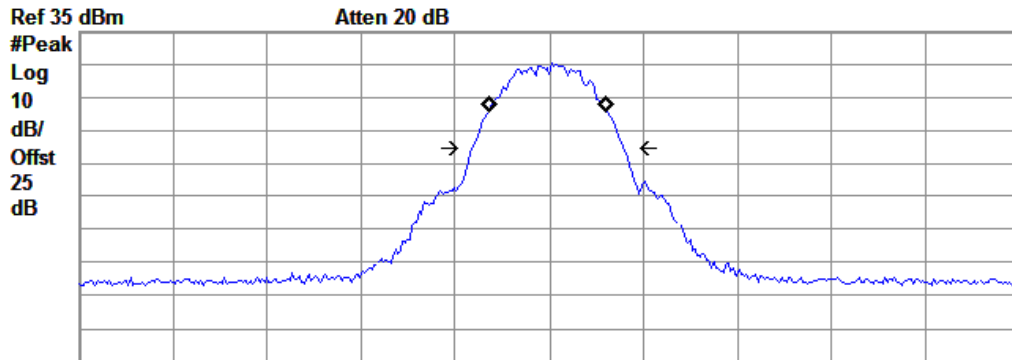
Occupied Bandwidth  
 245.5720 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -4.051 kHz  
 x dB Bandwidth 319.798 kHz

(Plot X: GPRS 1900MHz Channel = 512)

Agilent 15:51:52 Dec 26, 2012 R T S



Center 1.88 GHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

Occupied Bandwidth  
 246.1470 kHz

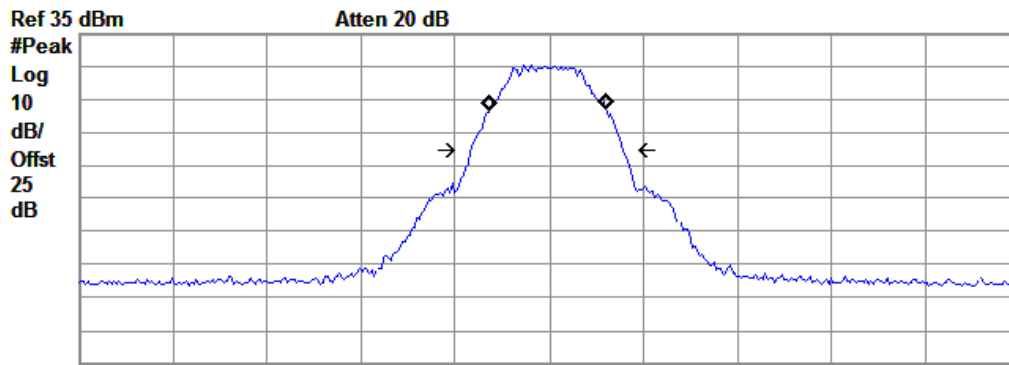
Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -2.085 kHz  
 x dB Bandwidth 320.629 kHz

(Plot Y: GPRS 1900MHz Channel = 661)



Agilent 15:50:53 Dec 26, 2012 R T S



Center 1.91 GHz Span 2 MHz  
 #Res BW 10 kHz #VBW 100 kHz Sweep 20.07 ms (401 pts)

**Occupied Bandwidth**  
 245.1534 kHz

Occ BW % Pwr 99.00 %  
 x dB -26.00 dB

Transmit Freq Error -1.776 kHz  
 x dB Bandwidth 319.767 kHz

(Plot Z: GPRS 1900MHz Channel = 810)

## 2.3 Frequency Stability

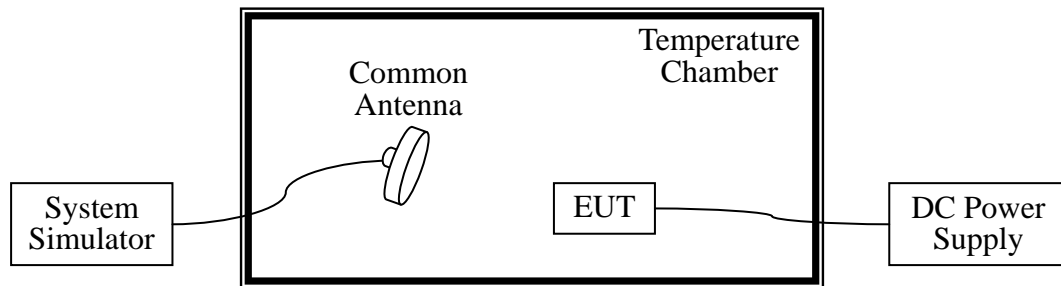
### 2.3.1 Requirement

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

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

### 2.3.2 Test Description

#### 1. Test Setup:



The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power 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	2013.05
DC Power Supply	Good Will	GPS-3030DD	EF920938	2012.05	2013.05
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2012.05	2013.05

### 2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 5.0VDC, 5.25VDC and 4.75VDC, which are specified by the applicant; the normal temperature here used is  $25^{\circ}\text{C}$ . The frequency

deviation limit of 850MHz band is  $\pm 2.5\text{ppm}$ , and 1900MHz is  $\pm 1\text{ppm}$

### 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	
5.0	-30	10.72	$\pm 2060.5$	-9.66	$\pm 2091.5$	5.05	$\pm 2122$	
	-20	-11.17		19.70		8.41		
	-10	17.28		-11.06		1.19		
	0	-23.03		21.06		34.30		
	+10	-13.02		13.05		17.11		
	+20	-10.39		-12.76		-15.51		
	+30	27.75		-2.05		19.46		
	+40	5.31		-3.77		-6.80		
	+50	-22.19	5.39	7.58				
5.25	+25	23.74		19.65		23.11		
4.75	+25	23.29		-20.70		-14.93		

### 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	
5.0	-30	-10.39	$\pm 1850.2$	38.28	$\pm 1880.0$	27.27	$\pm 1909.8$	
	-20	27.75		-2.15		9.49		
	-10	5.31		40.06		-12.90		
	0	-22.19		1.99		12.66		
	+10	23.74		-19.86		5.05		
	+20	-10.39		-2.32		3.02		
	+30	-18.89		23.12		-13.01		
	+40	44.49		11.33		0.51		
	+50	40.72	-17.55	21.45				
5.25	+25	16.15		38.10		-16.04		
4.75	+25	32.34		-22.06		-21.86		

**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	
5.0	-30	-3.10	±2060.5	23.12	±2091.5	8.51	±2122	PASS
	-20	38.28		11.33		-12.90		
	-10	-2.15		-17.55		12.66		
	0	40.06		38.10		5.05		
	+10	1.99		-22.06		3.02		
	+20	-19.86		-16.11		10.76		
	+30	39.56		17.76		-16.51		
	+40	46.60		15.64		-2.10		
	+50	39.98		3.67		-12.99		
5.25	+25	-15.71	13.95	-7.53				
4.75	+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	
5.0	-30	-13.77	±1850.2	23.62	±1880.0	2.47	±1909.8	PASS
	-20	0.62		7.23		-11.76		
	-10	1.65		-24.78		-12.21		
	0	2.47		-1.26		13.33		
	+10	-10.76		-18.68		5.33		
	+20	-2.11		-21.61		35.26		
	+30	13.33		14.58		-26.78		
	+40	5.33		-0.68		19.54		
	+50	-2.56		36.87		-16.67		
5.25	+25	17.60	3.88	26.79				
4.75	+25	-8.09	13.12	19.93				

## 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	
5.0	-30	17.29	±2066	11.87	±2087.5	-9.81	±2116.5	PASS
	-20	-7.32		-0.59		-23.82		
	-10	-3.40		21.45		26.39		
	0	16.47		13.45		30.98		
	+10	30.18		1.31		-2.65		
	+20	32.07		-12.52		18.30		
	+30	-7.98		30.62		-12.57		
	+40	26.21		13.45		28.93		
	+50	11.10		-12.52		19.66		
5.25	+25	-6.18	30.62	22.19				
4.75	+25	18.66	-18.00	-18.70				

## 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	
5.0	-30	17.29	±1852.4	18.25	±1880.0	-8.99	±1907.6	PASS
	-20	-7.32		2.49		23.60		
	-10	-3.40		-10.71		14.81		
	0	16.47		-7.77		-3.07		
	+10	30.18		21.97		17.42		
	+20	-2.62		11.87		-10.39		
	+30	22.31		-0.59		17.47		
	+40	0.32		21.45		27.84		
	+50	-13.55		-5.71		-2.53		
5.25	+25	23.21	14.58	20.95				
4.75	+25	22.00	26.37	-23.22				

## 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	
5.0	-30	27.46	±2066	-24.37	±2087.5	15.81	±2116.5	PASS
	-20	-8.56		-13.96		14.41		
	-10	20.65		35.23		21.57		
	0	12.88		-8.31		-24.37		
	+10	-14.75		-13.95		-13.96		
	+20	8.78		-24.37		35.23		
	+30	-1.49		12.88		-8.31		
	+40	17.14		-14.75		-13.95		
	+50	-23.61		23.37		26.37		
5.25	+25	32.03		7.93		7.90		
4.75	+25	17.51		-31.21		1.78		

## 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	
5.0	-30	11.87	±1852.4	-3.01	±1880	2.61	±1907.6	PASS
	-20	-16.65		21.71		-8.38		
	-10	20.12		14.37		-13.02		
	0	-3.01		-11.21		-8.51		
	+10	21.71		10.60		5.64		
	+20	20.12		-4.81		-3.85		
	+30	-15.01		34.31		9.57		
	+40	22.71		8.36		27.54		
	+50	16.32		-25.88		-12.52		
5.25	+25	-11.28		29.43		-2.83		
4.75	+25	10.33		-2.27		14.42		

## 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	
5.0	-30	29.57	±2066	13.5	±2087.5	13.55	±2116.5	PASS
	-20	-6.20		-15.31		7.43		
	-10	-12.61		-11.79		7.00		
	0	-13.09		-0.44		-7.32		
	+10	-0.38		0.01		-4.91		
	+20	-11.85		-6.64		21.35		
	+30	29.57		24.25		-5.94		
	+40	-11.79		9.63		13.78		
	+50	-0.44		23.76		28.45		
5.25	+25	1.71	-4.57	29.11				
4.75	+25	1.54	5.25	-7.70				

## 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	
5.0	-30	11.57	±1852.4	-11.79	±1880	8.69	±1907.6	PASS
	-20	21.13		-0.44		2.01		
	-10	7.62		0.01		-4.75		
	0	2.31		13.82		16.38		
	+10	-4.73		-15.25		-1.76		
	+20	16.22		-11.79		23.52		
	+30	-1.55		-0.44		-0.38		
	+40	23.16		1.15		-11.85		
	+50	13.79		-7.94		-5.91		
5.25	+25	-7.08	6.81	25.48				
4.75	+25	22.58	-1.83	-15.78				

## 11. HSPA+ 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		
5.0	-30	29.57	±2066	21.71	±2087.5	-16.65	±2116.5	PASS	
	-20	-6.20		20.12		20.12			
	-10	-12.61		-15.01		-3.01			
	0	-13.09		-5.94		21.71			
	+10	-0.38		13.78		20.12			
	+20	-11.85		-6.64		-15.01			-15.01
	+30	29.57		24.25		-5.94			
	+40	-11.79		9.63		15.72			
	+50	-0.44		23.76		25.25			
5.25	+25	3.71	-4.57	23.11					
4.75	+25	2.24	6.35	-21.56					

## 12. HSPA+ 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		
5.0	-30	12.11	±1852.4	-15.31	±1880	3.31	±1907.6	PASS	
	-20	20.15		-11.79		-5.73			
	-10	11.61		-0.44		18.22			
	0	3.31		0.01		-33.55			
	+10	-5.73		-15.31		3.31			
	+20	18.22		-11.79		-5.73			-5.73
	+30	-33.55		-0.44		19.21			
	+40	27.16		0.01		-31.05			
	+50	23.79		-6.64		22.36			
5.25	+25	-37.01	24.25	3.31					
4.75	+25	22.58	9.63	-17.08					



## 2.4 Conducted Out of Band Emissions

### 2.4.1 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.

### 2.4.2 Test Description

See section 2.1.2 of this report.

### 2.4.3 Test Result

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

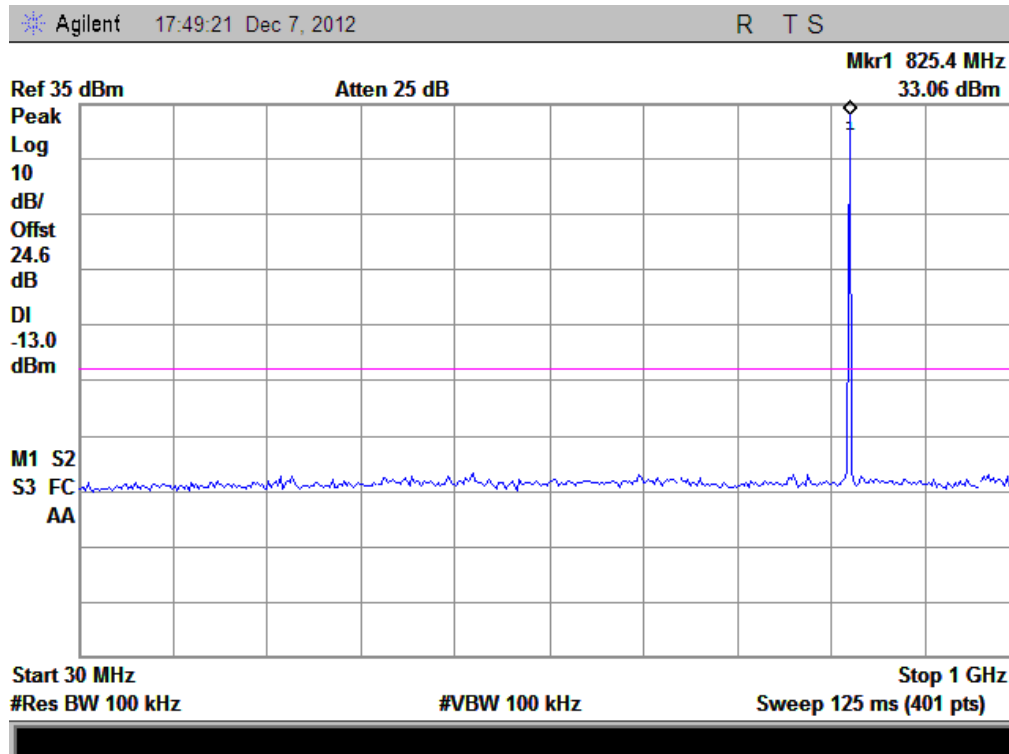
#### 1. Test Verdict:

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	-19.81	Plot A2toA2.1		PASS
	251	848.8	-20.12	Plot A3toA3.1		PASS
GSM 1900MHz	512	1850.2	-18.52	Plot B1toB1.1	-13	PASS
	661	1880.0	-18.77	Plot B2toB2.1		PASS
	810	1909.8	-18.13	Plot B3toB3.1		PASS
EDGE 850MHz	128	824.2	-19.82	Plot C1toC1.1	-13	PASS
	190	836.6	-19.62	Plot C2toC2.1		PASS
	251	848.8	-20.16	Plot C3toC3.1		PASS
EDGE 1900MHz	512	1850.2	-18.43	Plot D1toD1.1	-13	PASS
	661	1880.0	-20.5	Plot D2toD2.1		PASS
	810	1909.8	-19.05	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 850MHz	4132	826.4	< -25	Plot G1toG1.1	-13	PASS
	4175	835	< -25	Plot G2toG2.1		PASS

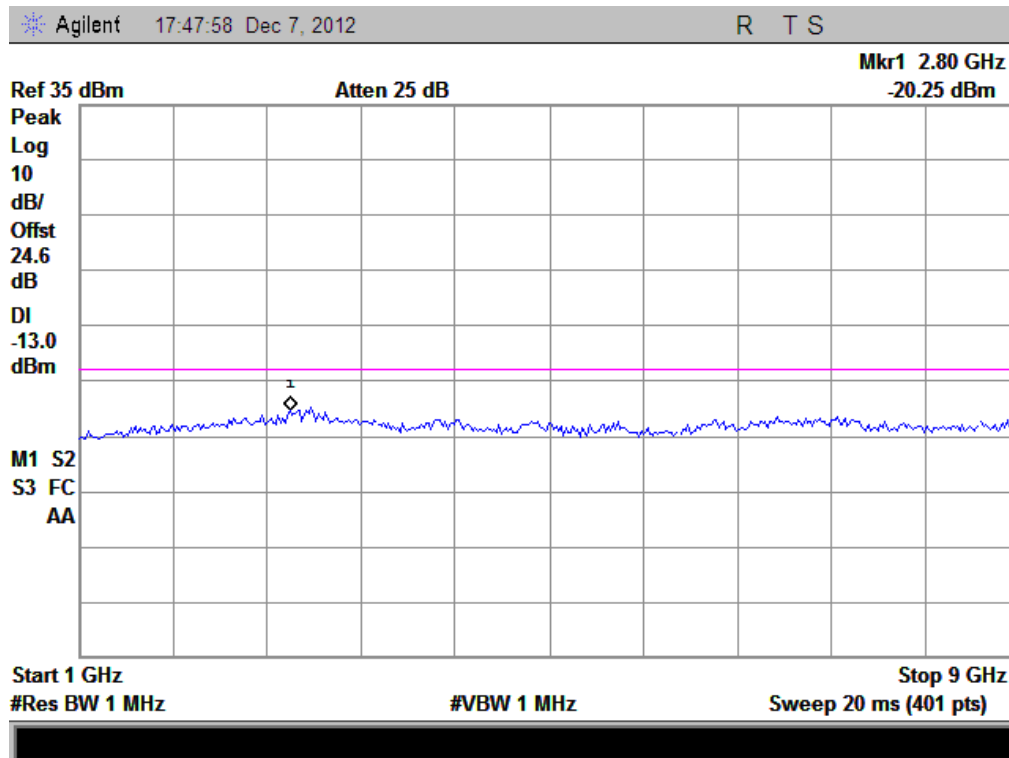
Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
	4233	846.6	< -25	Plot G3toG3.1		PASS
HSDPA 1900MHz	9262	1852.4	< -25	Plot H1toH1.1	-13	PASS
	9400	1880	< -25	Plot H2toH2.1		PASS
	9538	1907.6	< -25	Plot H3toH3.1		PASS
HSUPA 850MHz	4132	826.4	< -25	Plot 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
HSPA+ 850MHz	4132	826.4	< -25	Plot K1toK1.1	-13	PASS
	4175	835	< -25	Plot K2toK2.1		PASS
	4233	846.6	< -25	Plot K3toK3.1		PASS
HSPA+ 1900MHz	9262	1852.4	< -25	Plot L1toL1.1	-13	PASS
	9400	1880	< -25	Plot L2toL2.1		PASS
	9538	1907.6	< -25	Plot L3toL3.1		PASS

2. Test Plots for the Whole Measurement Frequency Range:

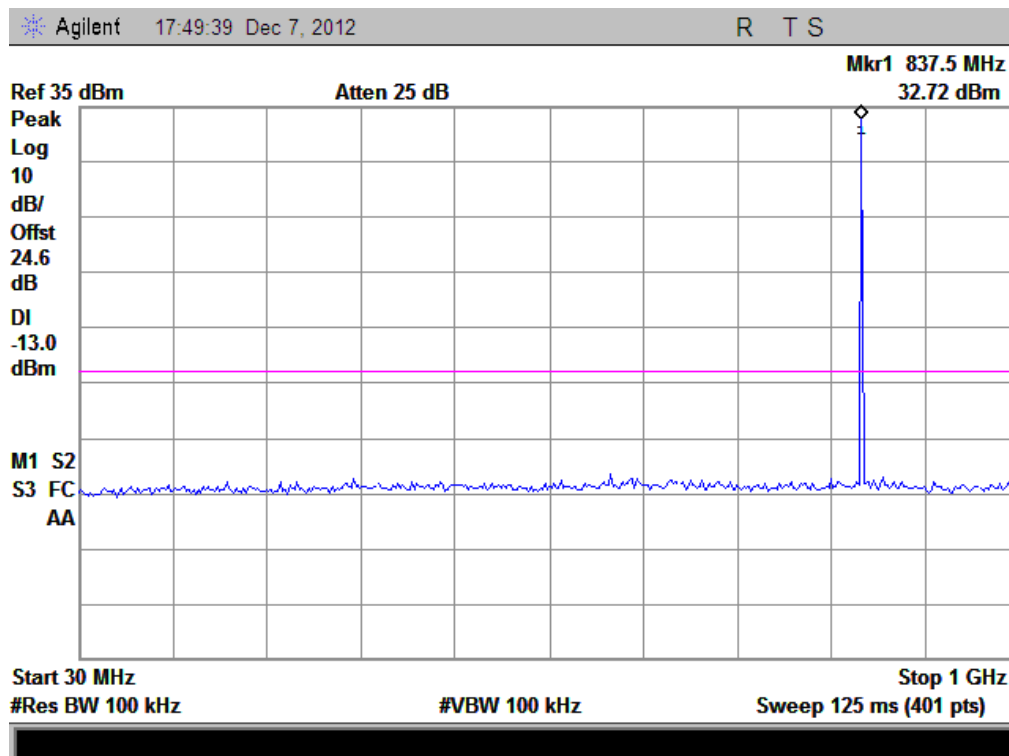
Note: the power of the EUT transmitting frequency should be ignored.



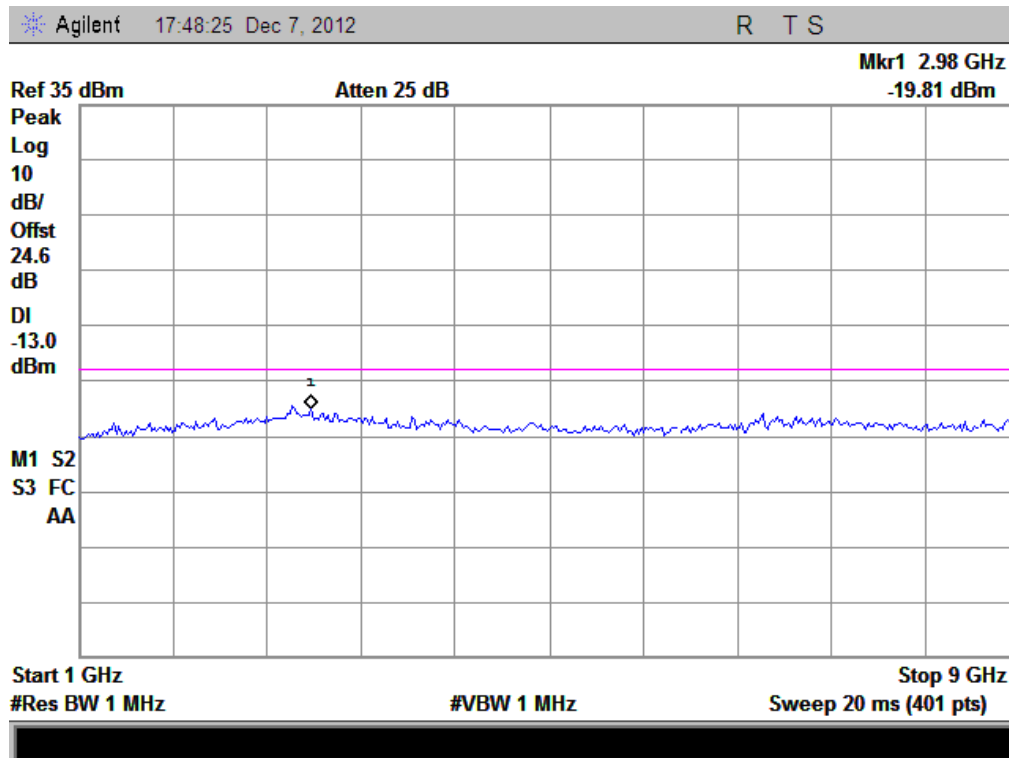
(Plot A1: GSM 850MHz Channel = 128, 30MHz to 1GHz)



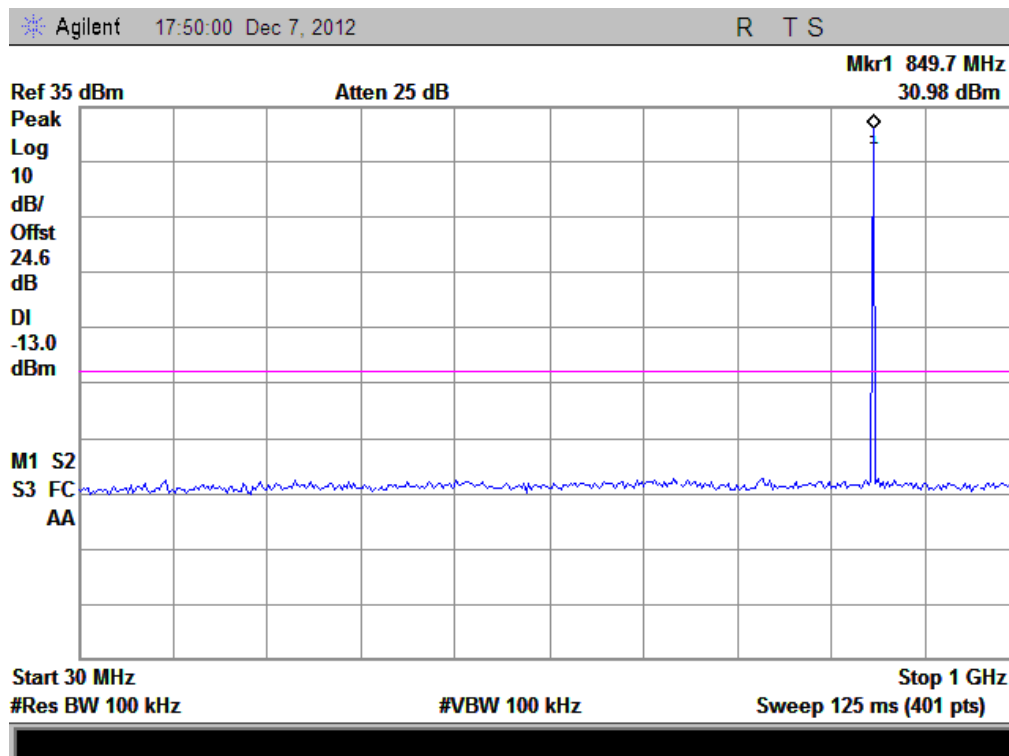
(Plot A1.1: GSM 850MHz Channel = 128, 1GHz to 9GHz)



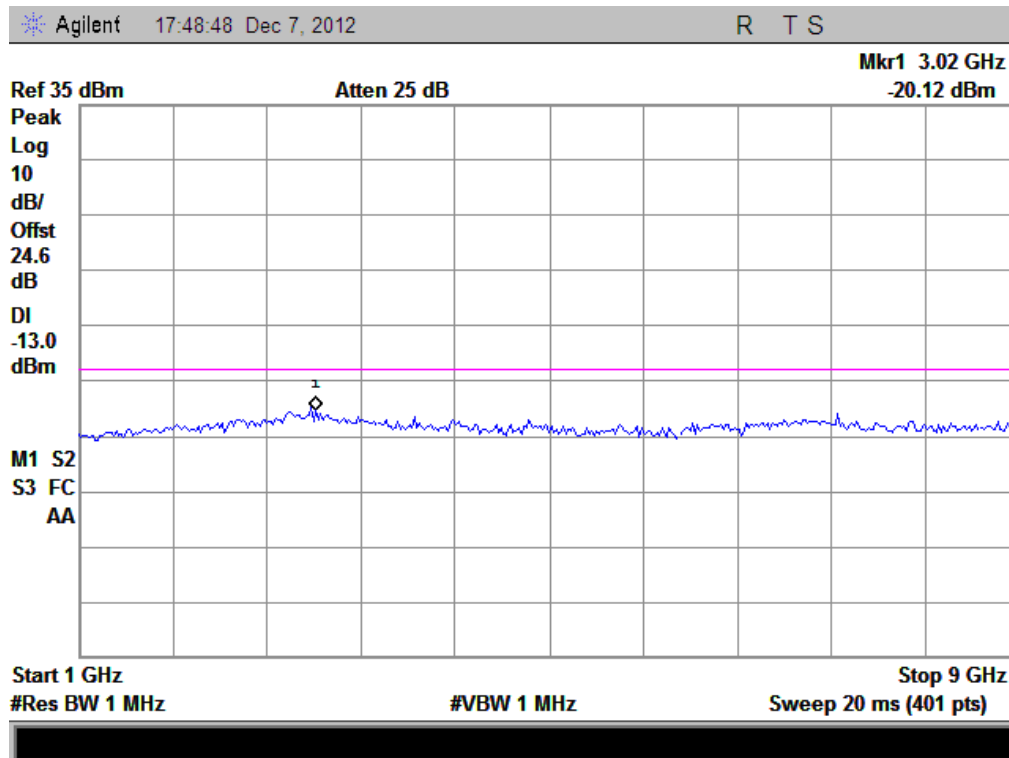
(Plot A2: GSM 850MHz Channel = 190, 30MHz to 1GHz)



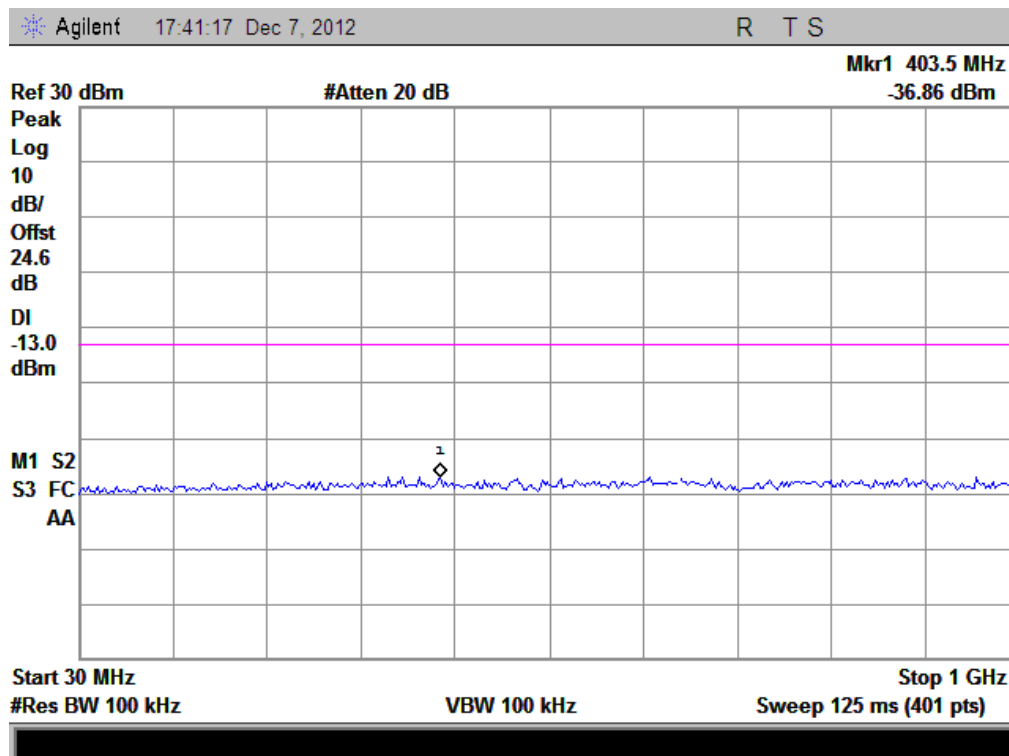
(Plot A2.1: GSM 850MHz Channel = 190, 1GHz to 9GHz)



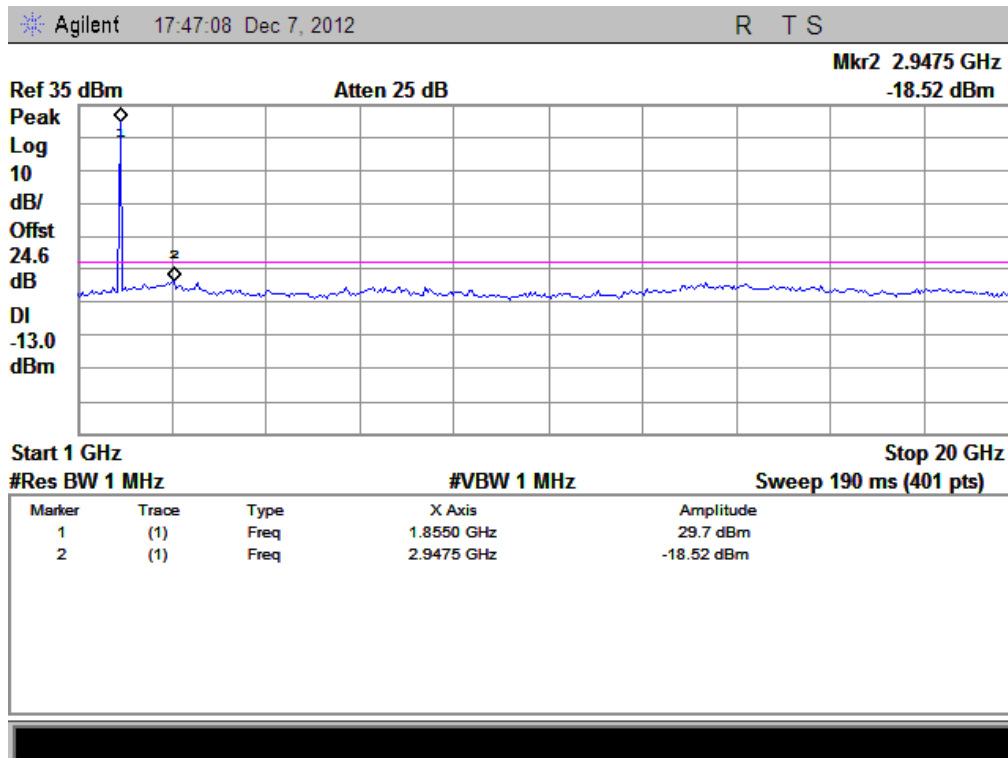
(Plot A3: GSM 850MHz Channel = 251, 30MHz to 1GHz)



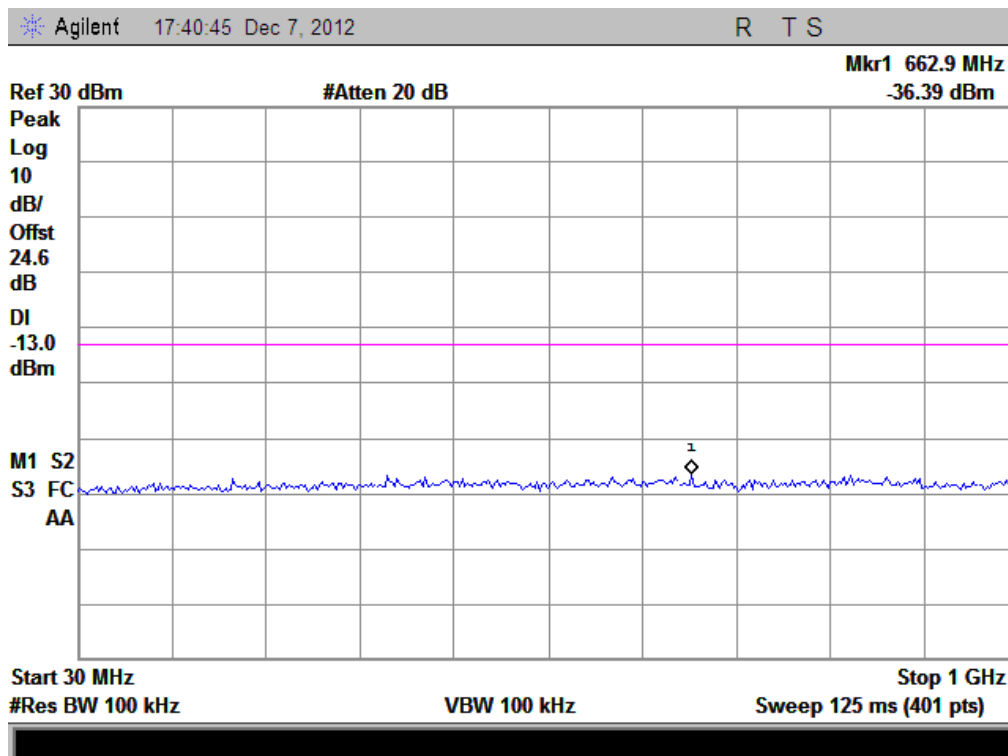
(Plot A3.1: GSM 850MHz Channel = 251, 1GHz to 9GHz)



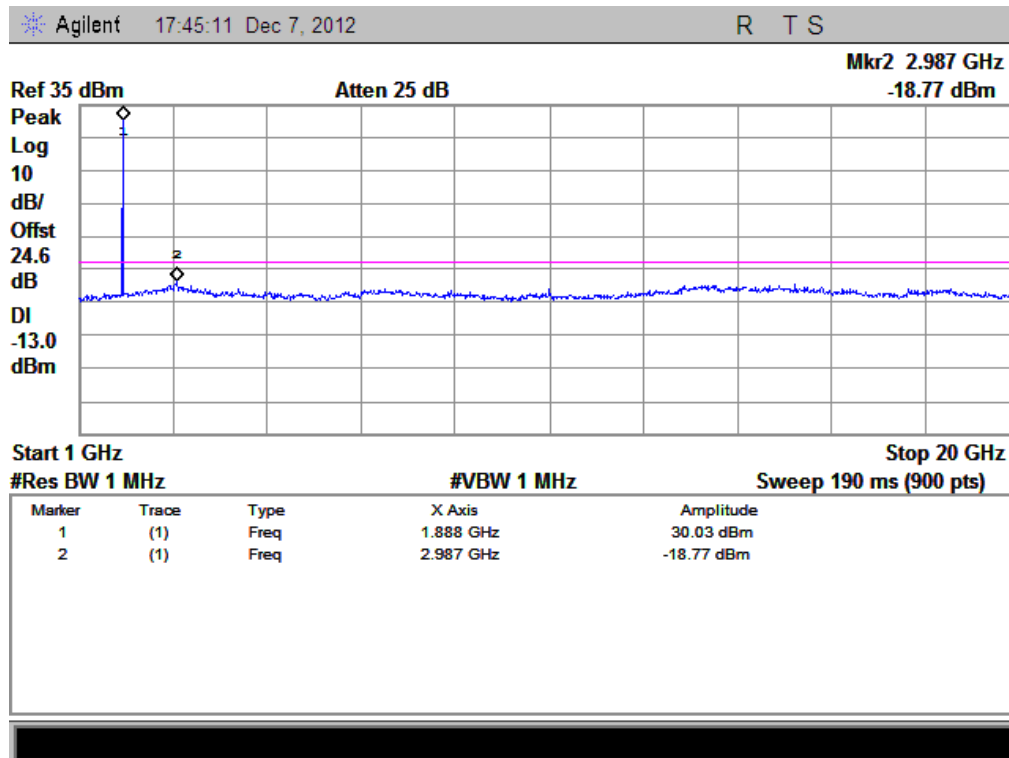
(Plot B1: GSM 1900MHz Channel = 512, 30MHz to 1GHz)



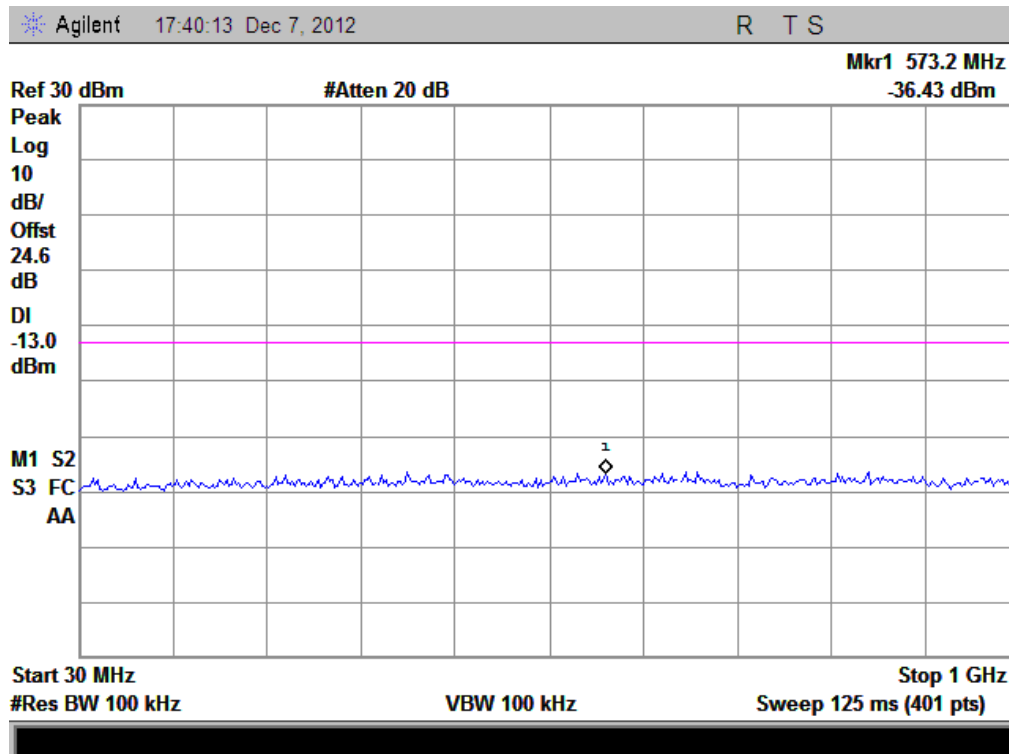
(Plot B1.1: GSM 1900MHz Channel = 512, 1GHz to 20GHz)



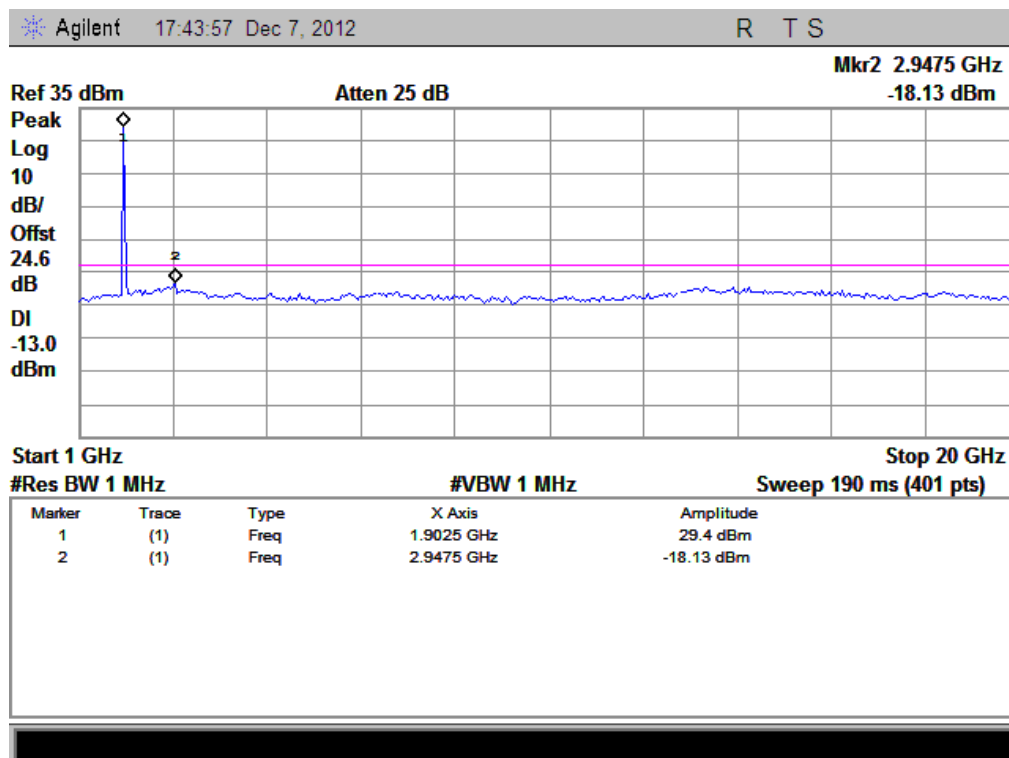
(Plot B2: GSM 1900MHz Channel = 661, 30MHz to 1GHz)



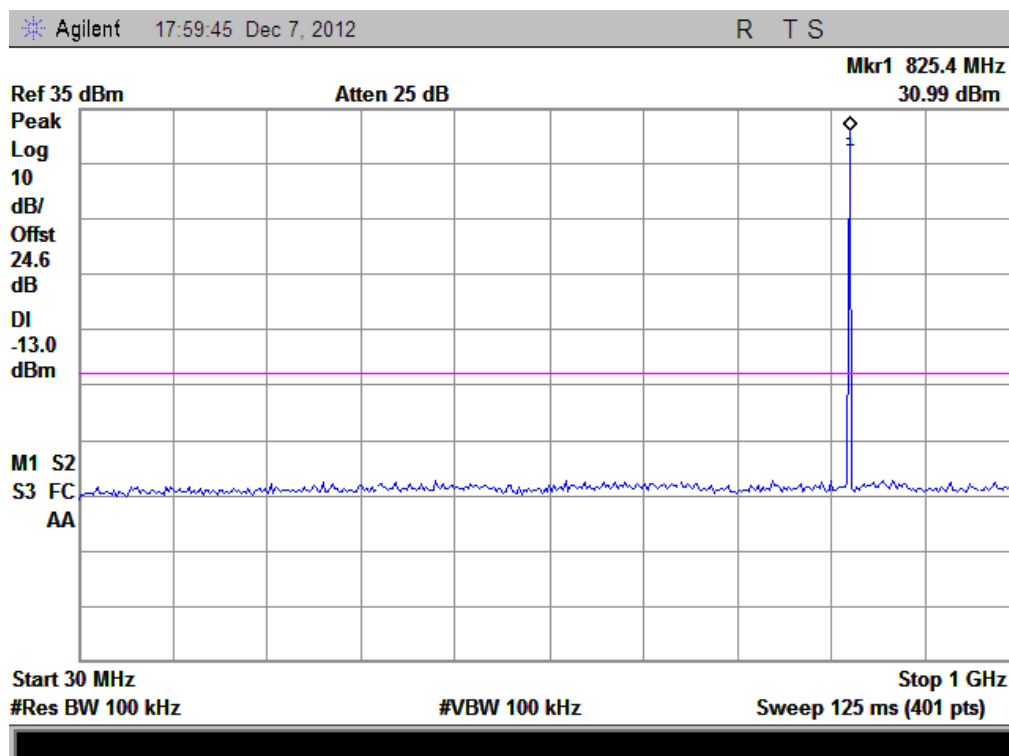
(Plot B2.1: GSM 1900MHz Channel = 661, 1GHz to 20GHz)



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

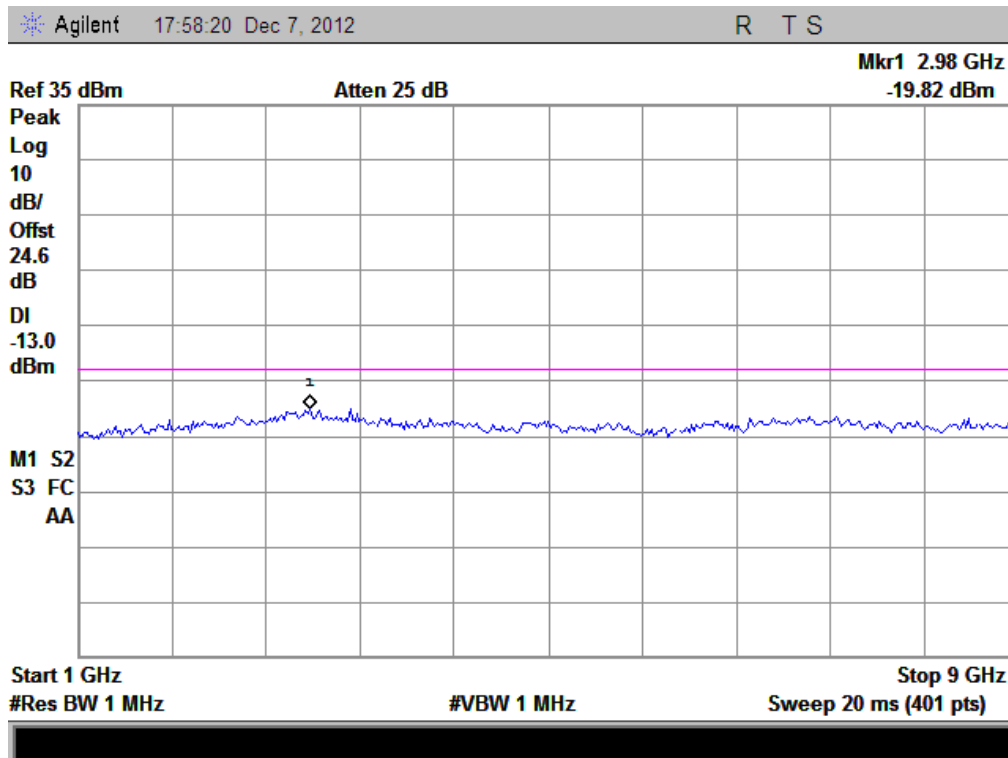


(Plot B3.1: GSM 1900MHz Channel = 810, 1GHz to 20GHz)

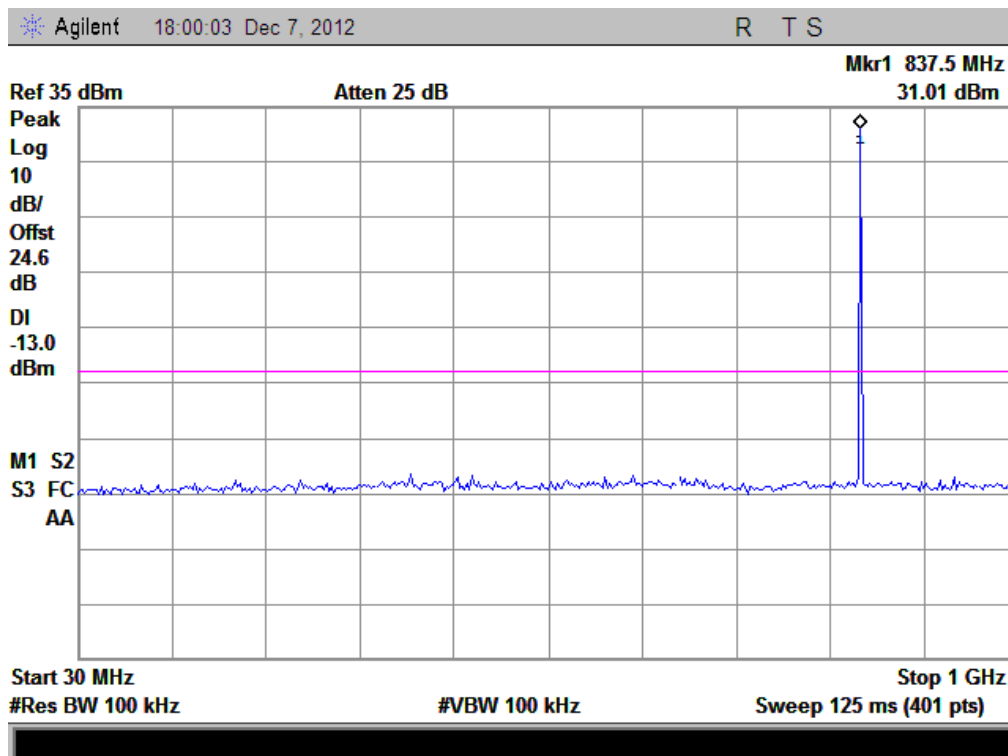


(Plot C1: EDGE 850MHz Channel = 128, 30MHz to 1GHz)

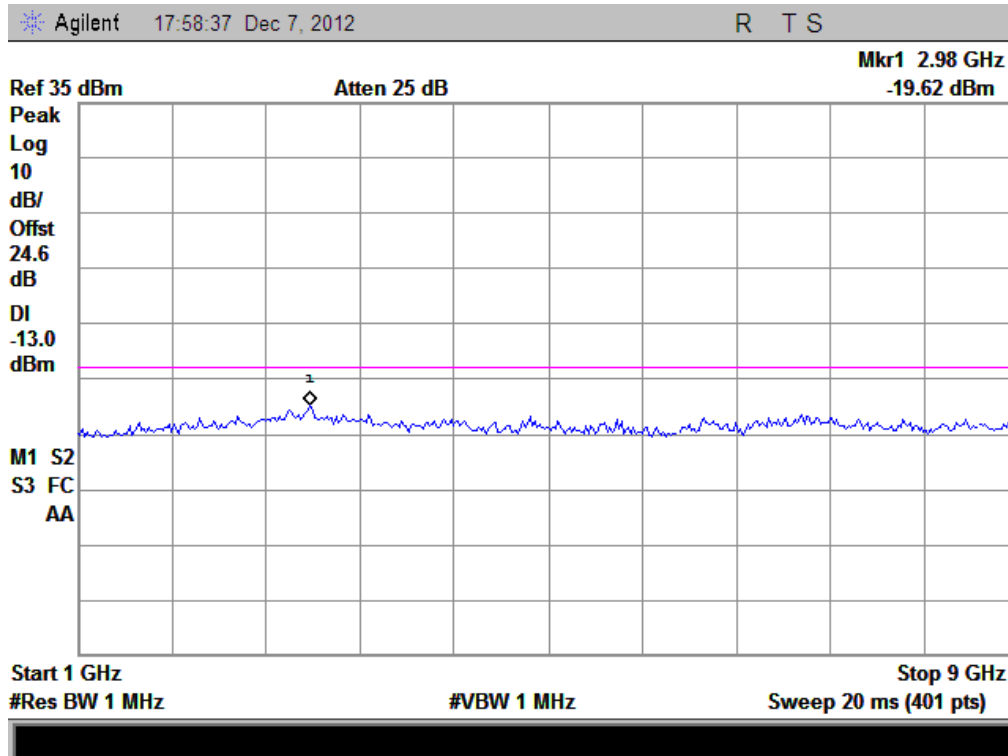




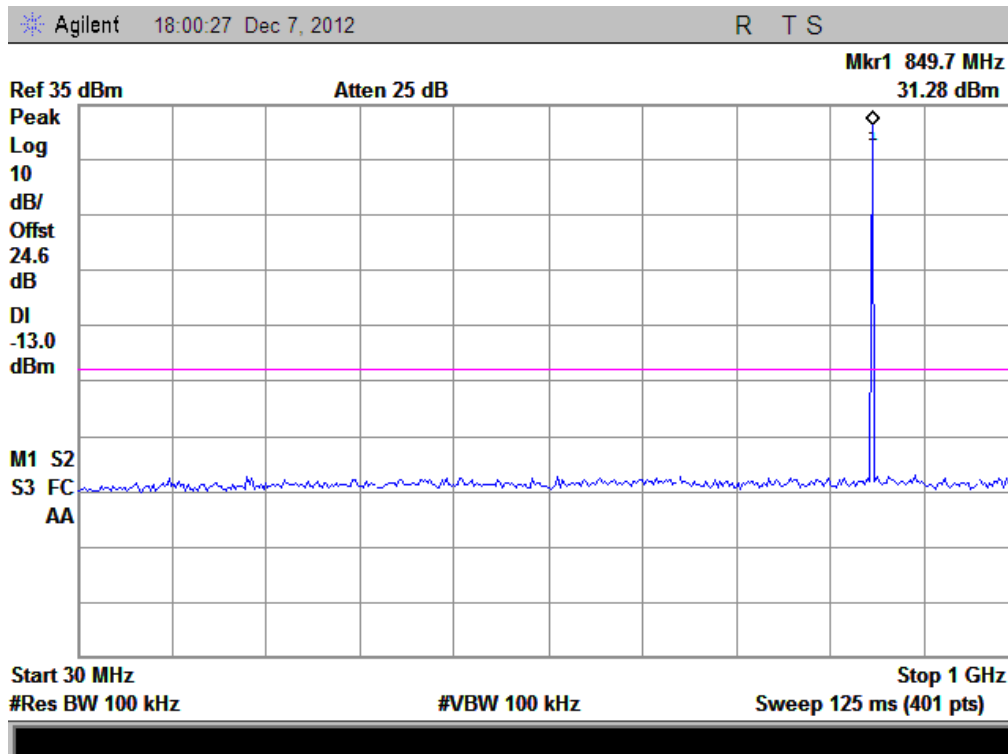
(Plot C1.1: EDGE 850MHz Channel = 128, 1GHz to 9GHz)



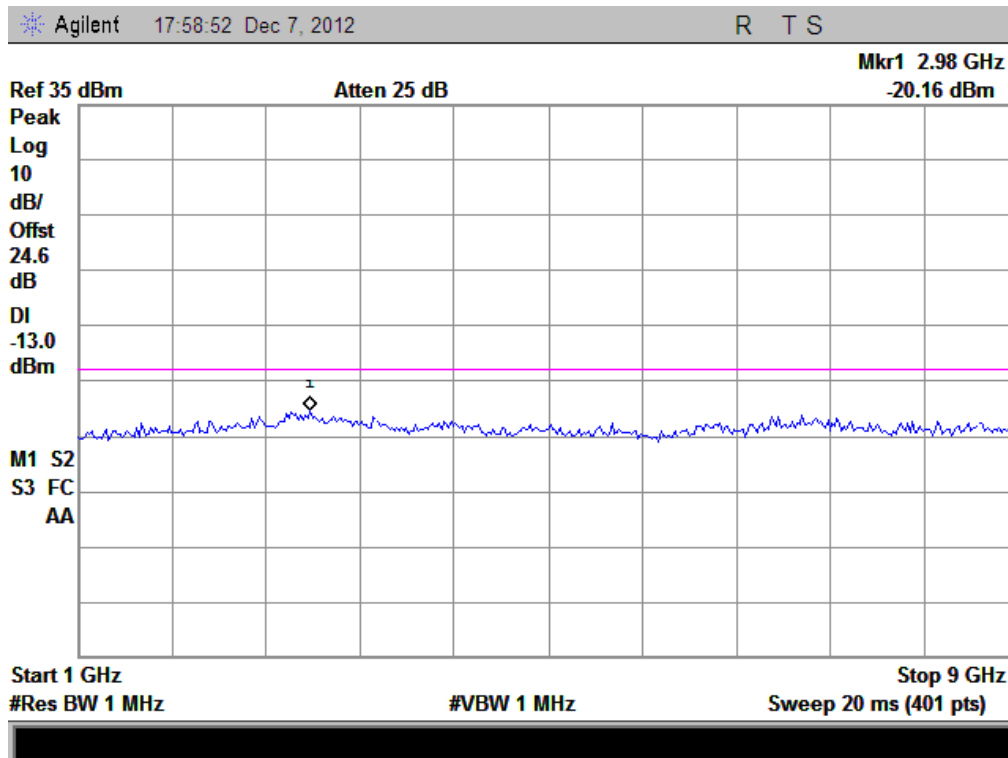
(Plot C2: EDGE 850MHz Channel = 190, 30MHz to 1GHz)



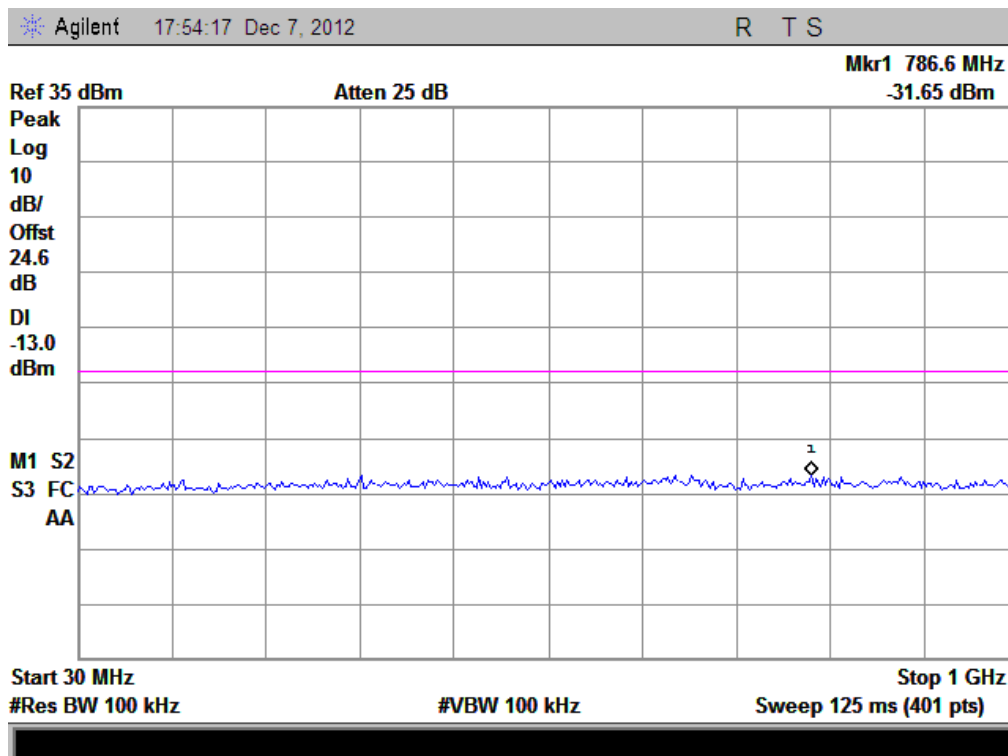
(Plot C2.1: EDGE 850MHz Channel = 190, 1GHz to 9GHz)



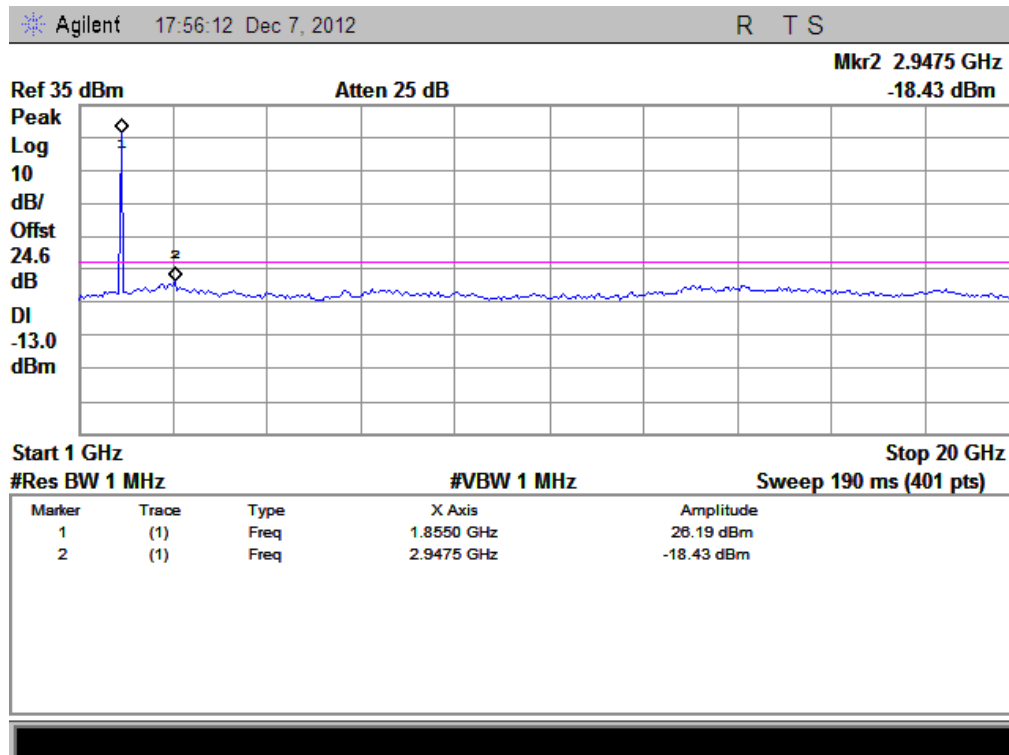
(Plot C3: EDGE 850MHz Channel = 251, 30MHz to 1GHz)



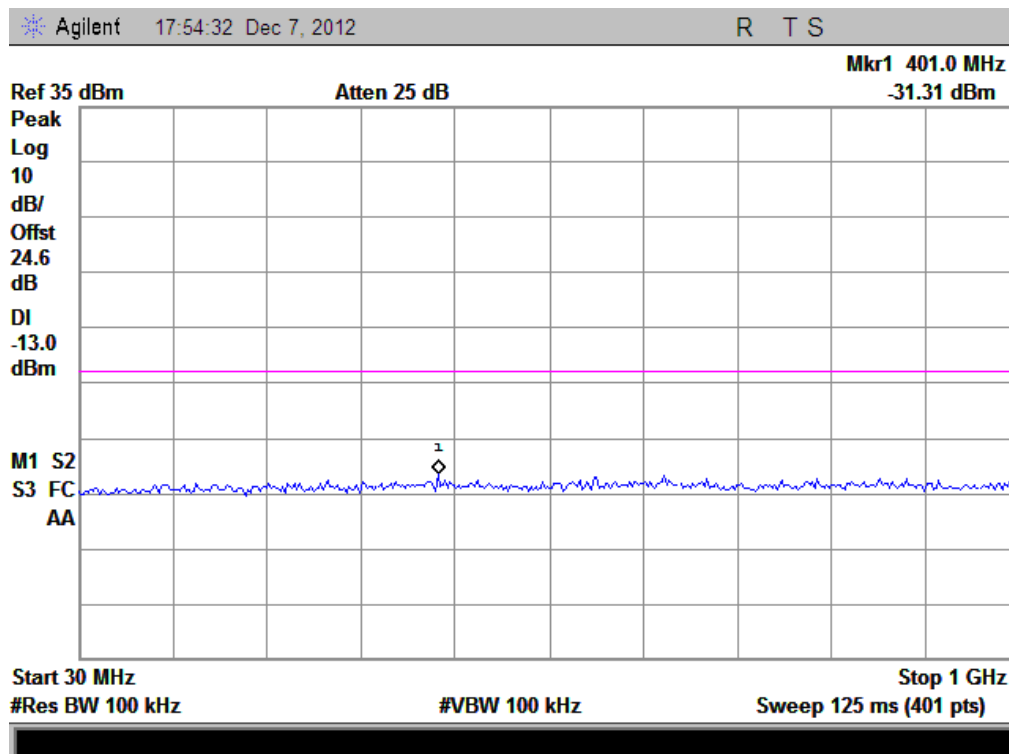
(Plot C3.1: EDGE 850MHz Channel = 251, 1GHz to 9GHz)



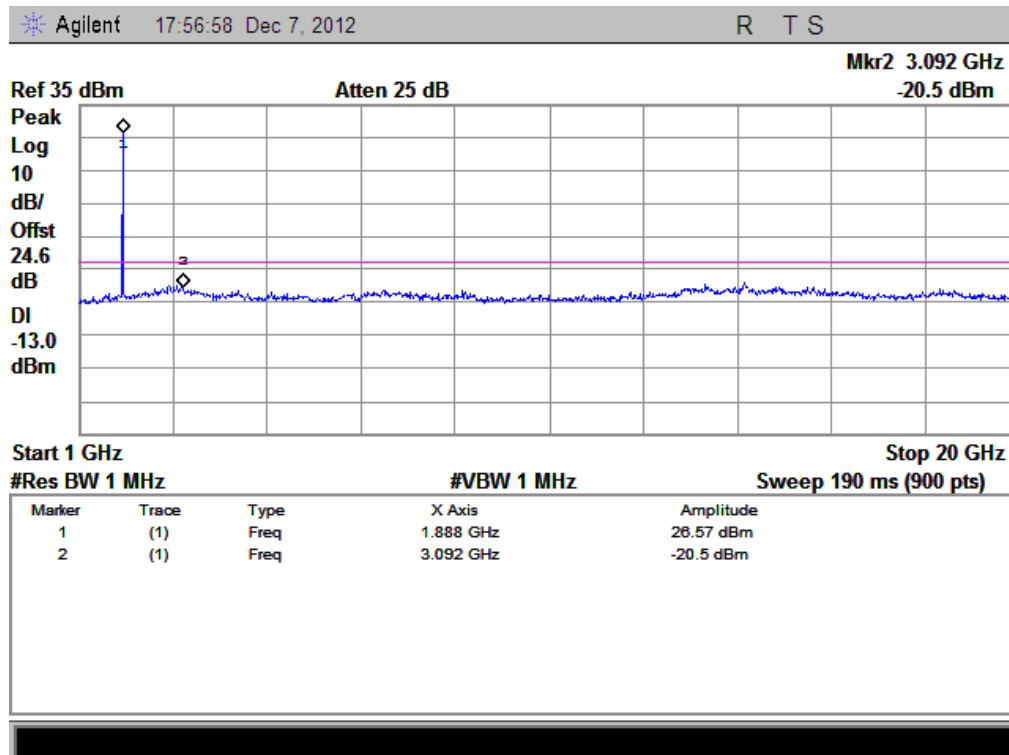
(Plot D1: EDGE 1900MHz Channel = 512, 30MHz to 1GHz)



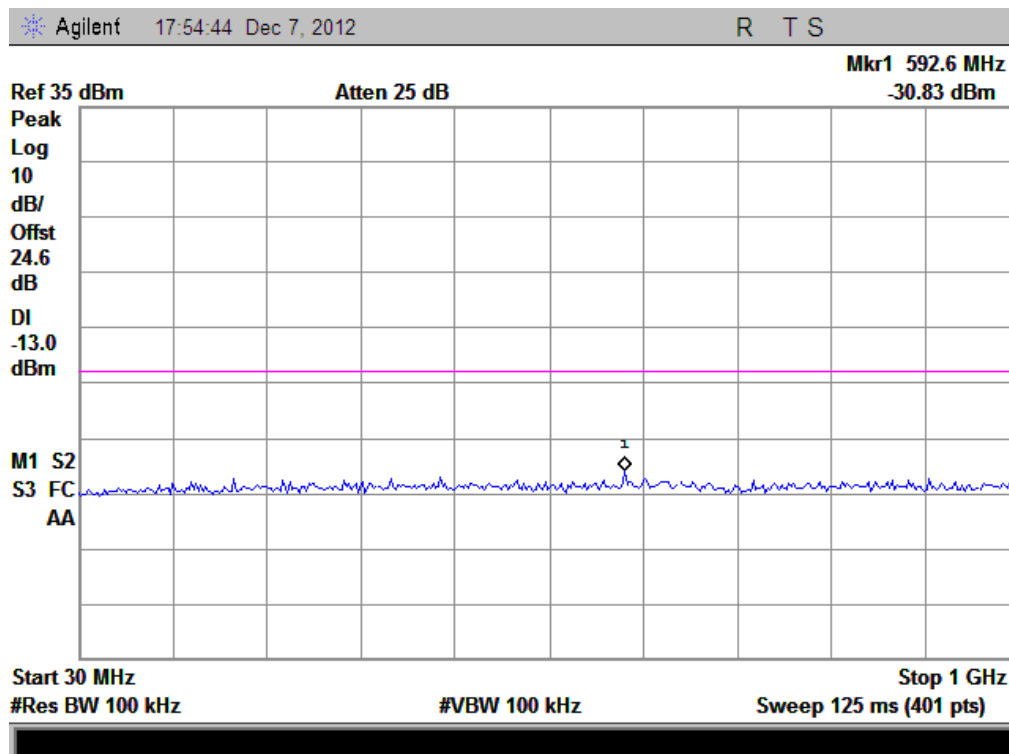
(Plot D1.1: EDGE 1900MHz Channel = 512, 1GHz to 20GHz)



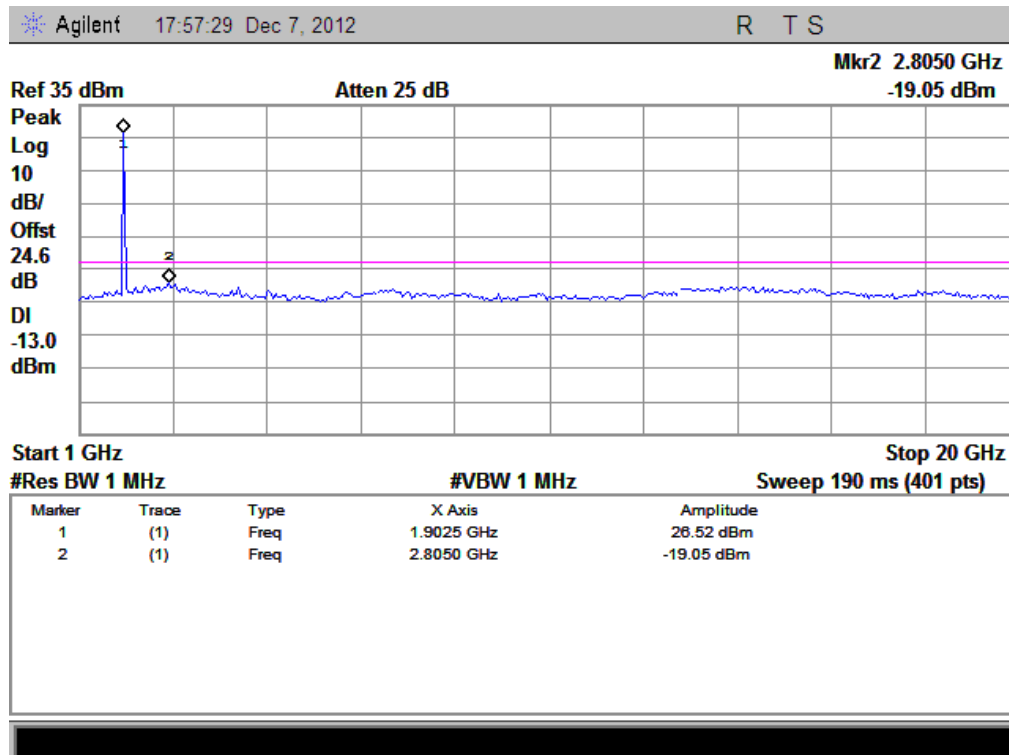
(Plot D2: EDGE 1900MHz Channel = 661, 30MHz to 1GHz)



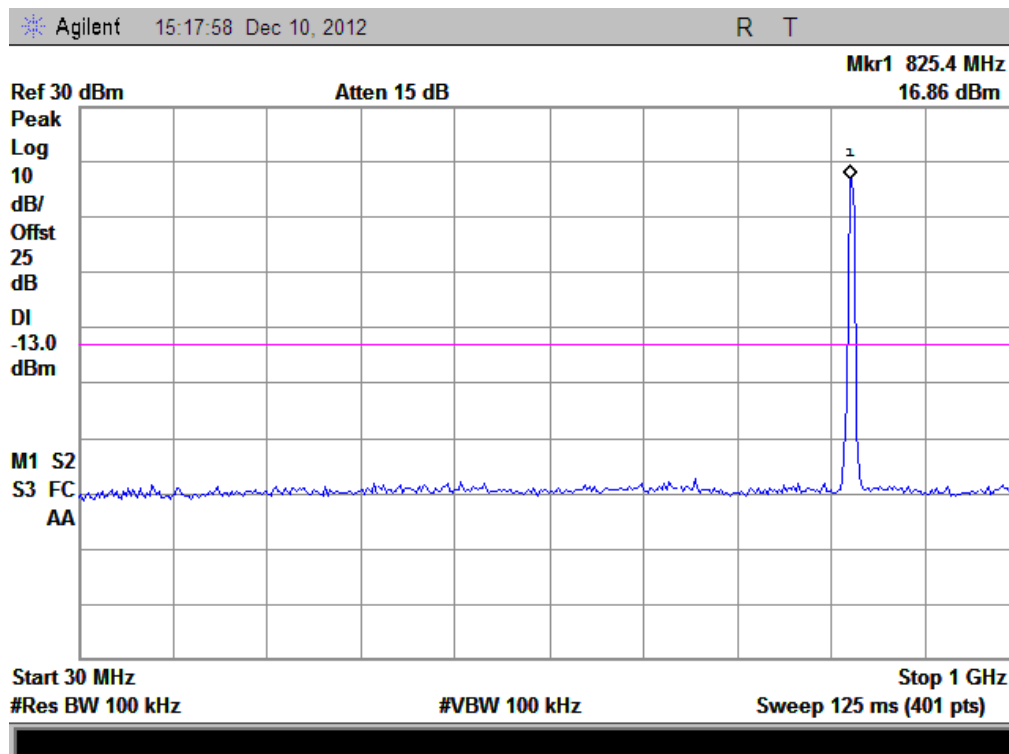
(Plot D2.1: EDGE 1900MHz Channel = 661,1GHz to 20GHz)



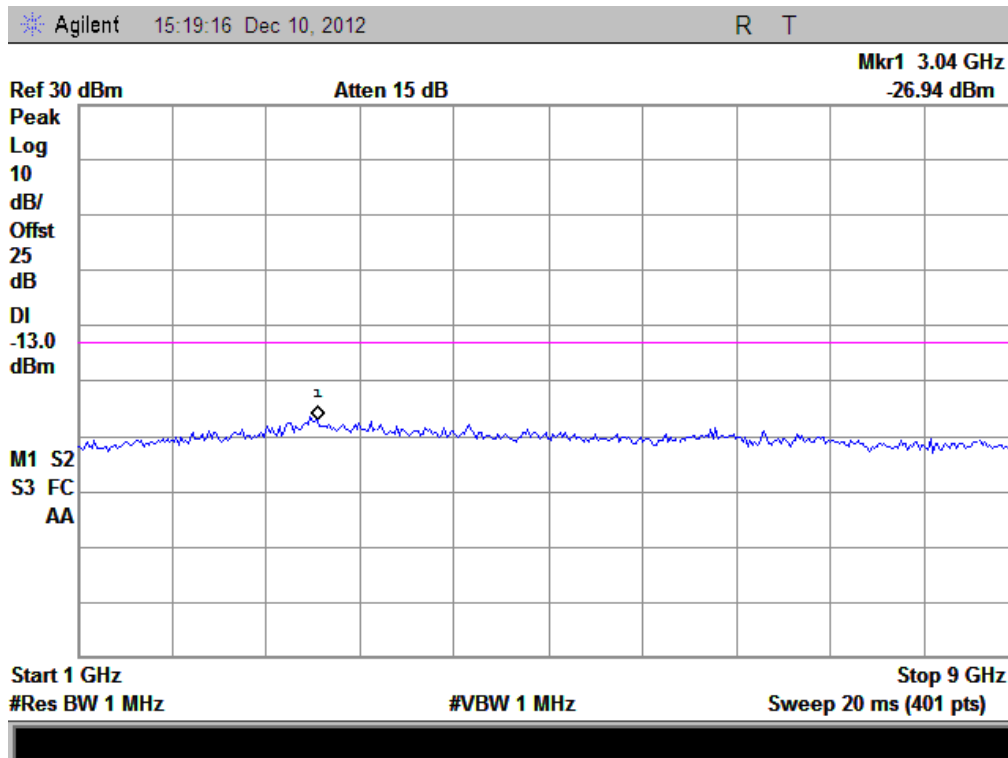
(Plot D3: EDGE 1900MHz Channel = 810, 30MHz to 1GHz)



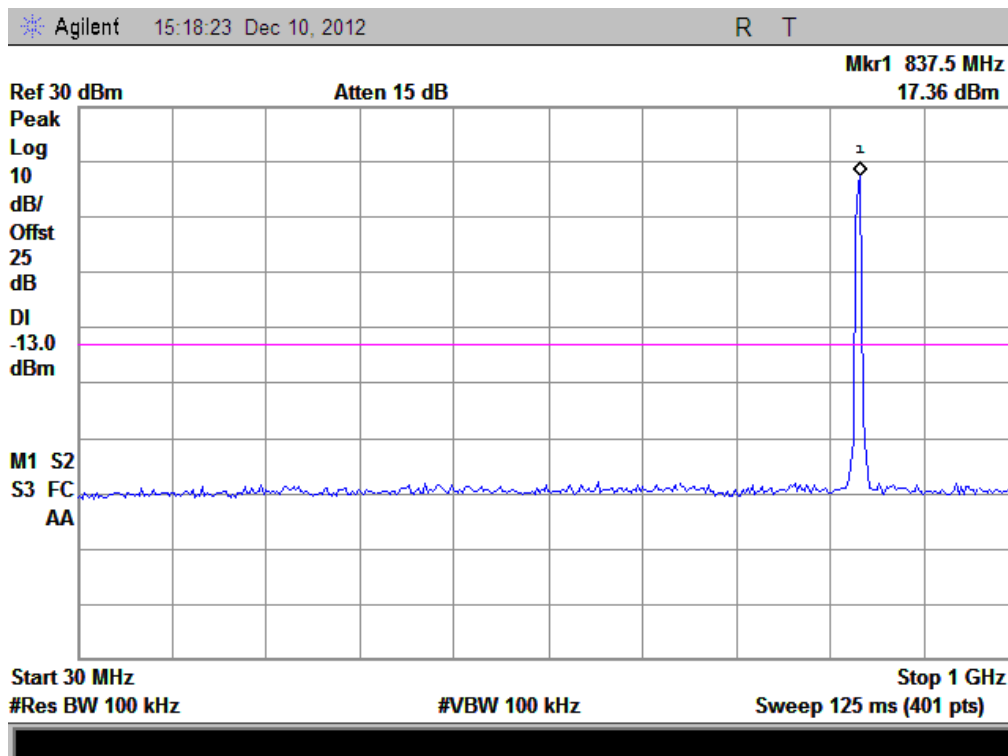
(Plot D3.1: EDGE 1900MHz Channel = 810, 1GHz to 20GHz)



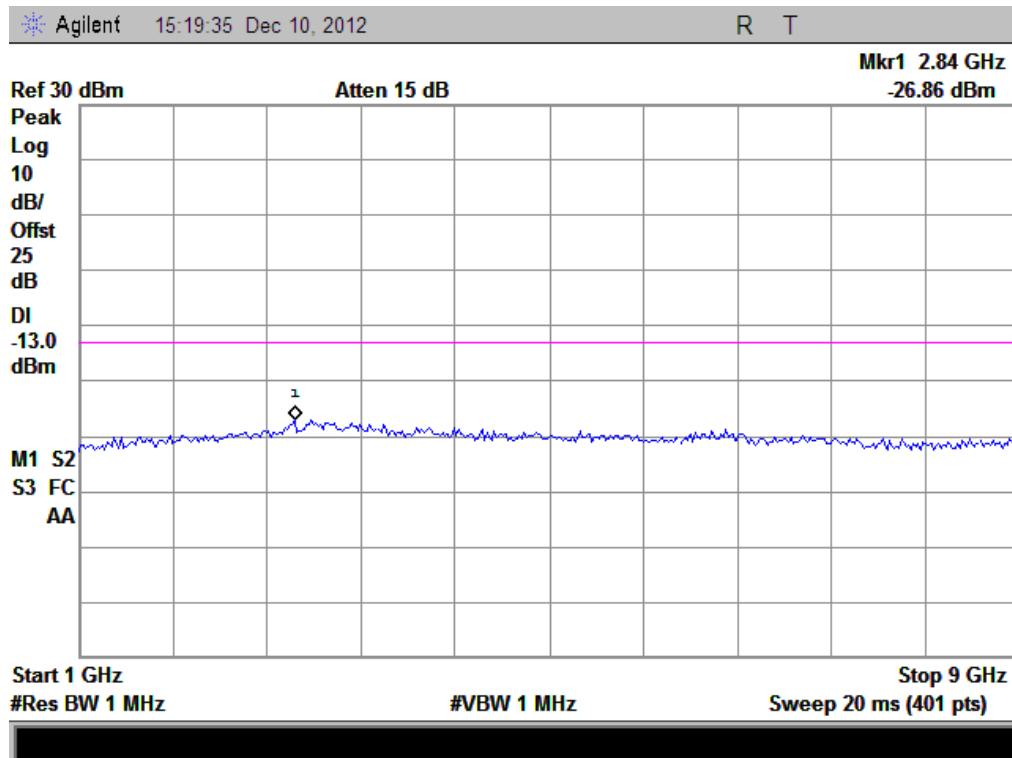
(Plot E1: WCDMA850MHz Channel = 4132, 30MHz to 1GHz)



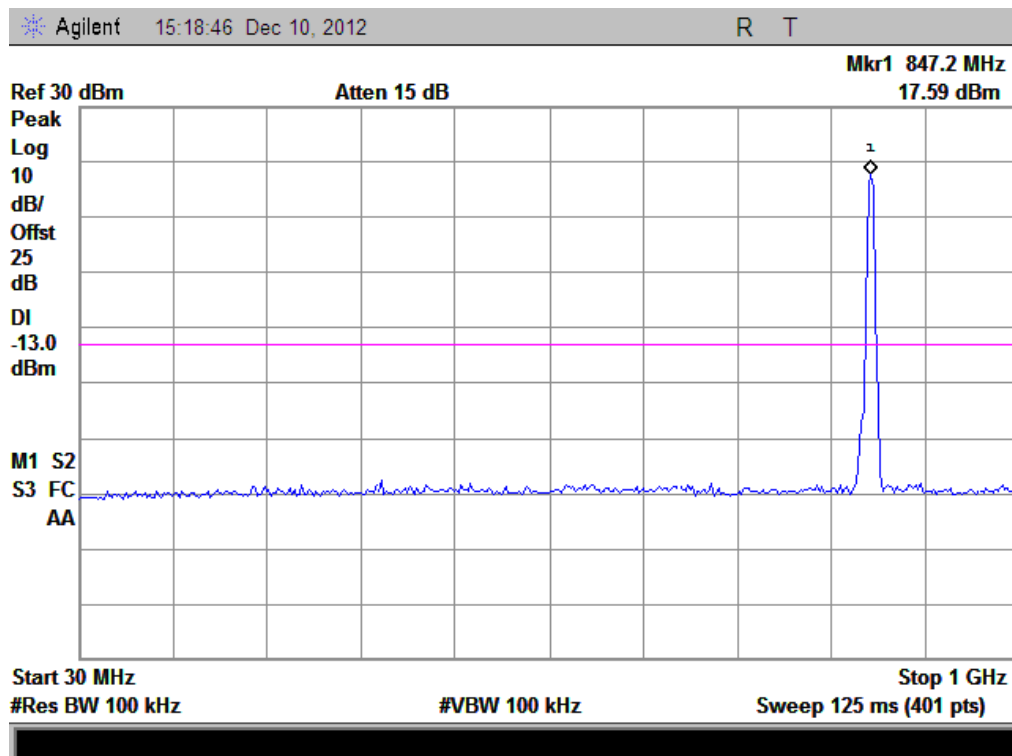
(Plot E1.1: WCDMA850MHz Channel = 4132, 1GHz to 9GHz)



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

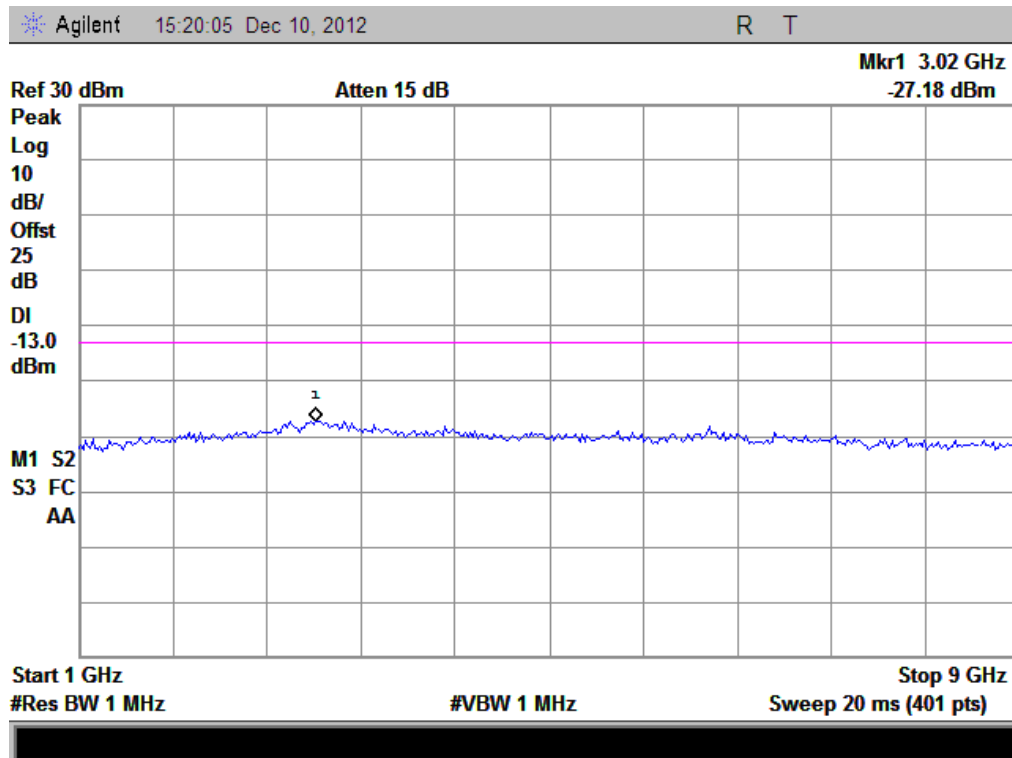


(Plot E2.1: WCDMA850MHz Channel = 4175, 1GHz to 9GHz)

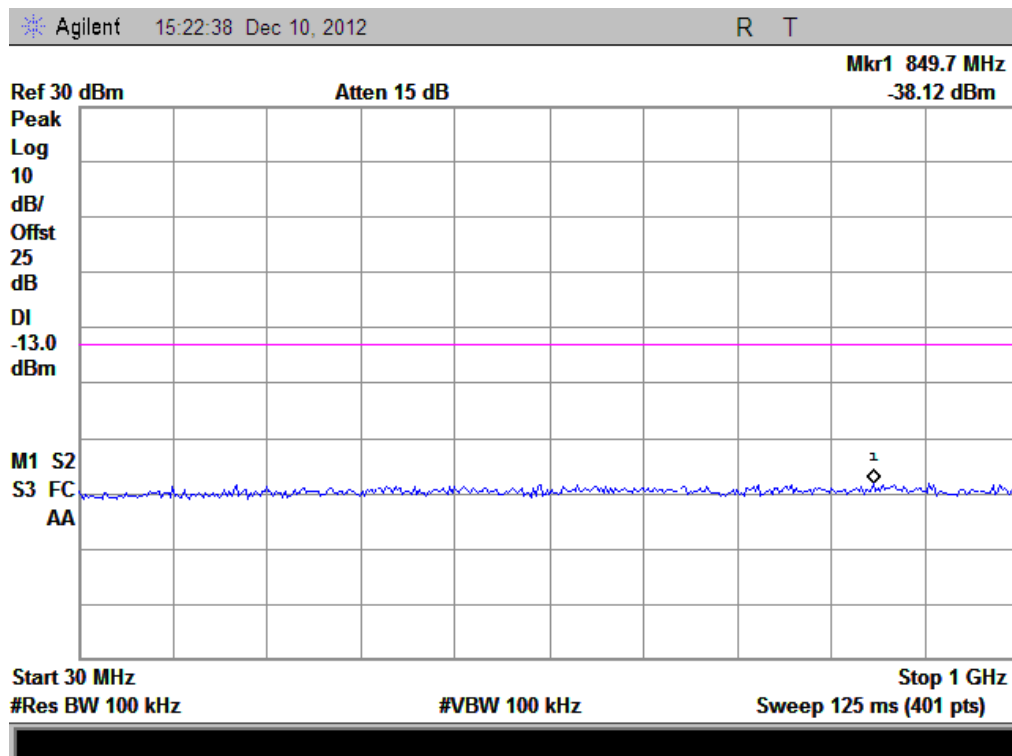


(Plot E3: WCDMA850MHz Channel = 4233, 30MHz to 1GHz)

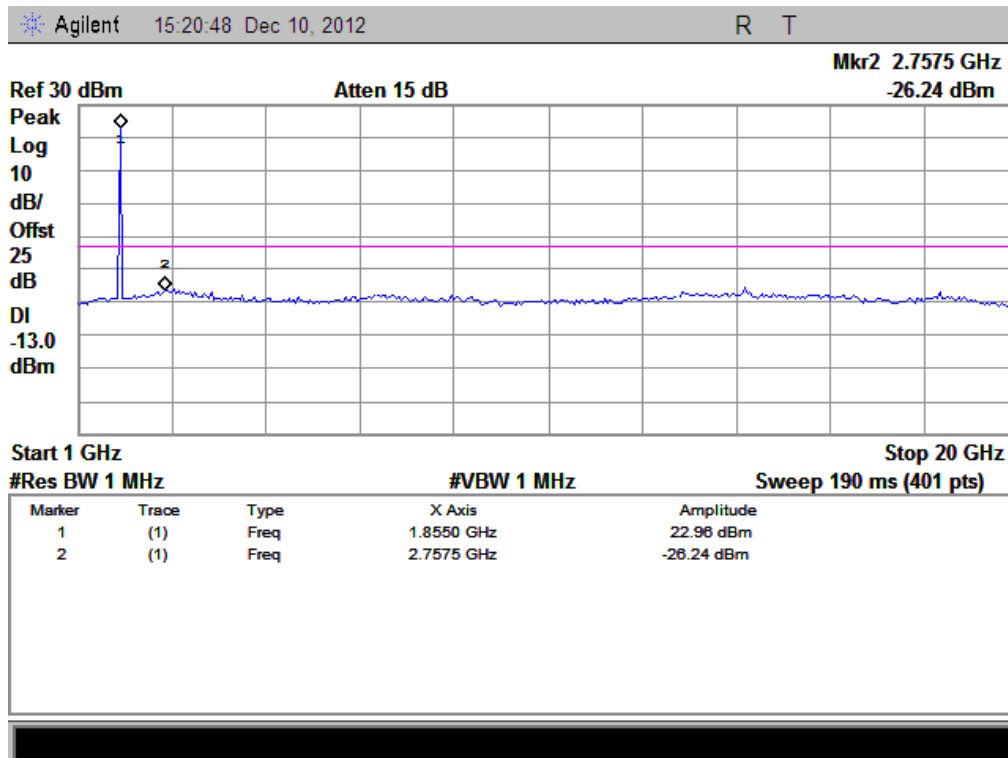




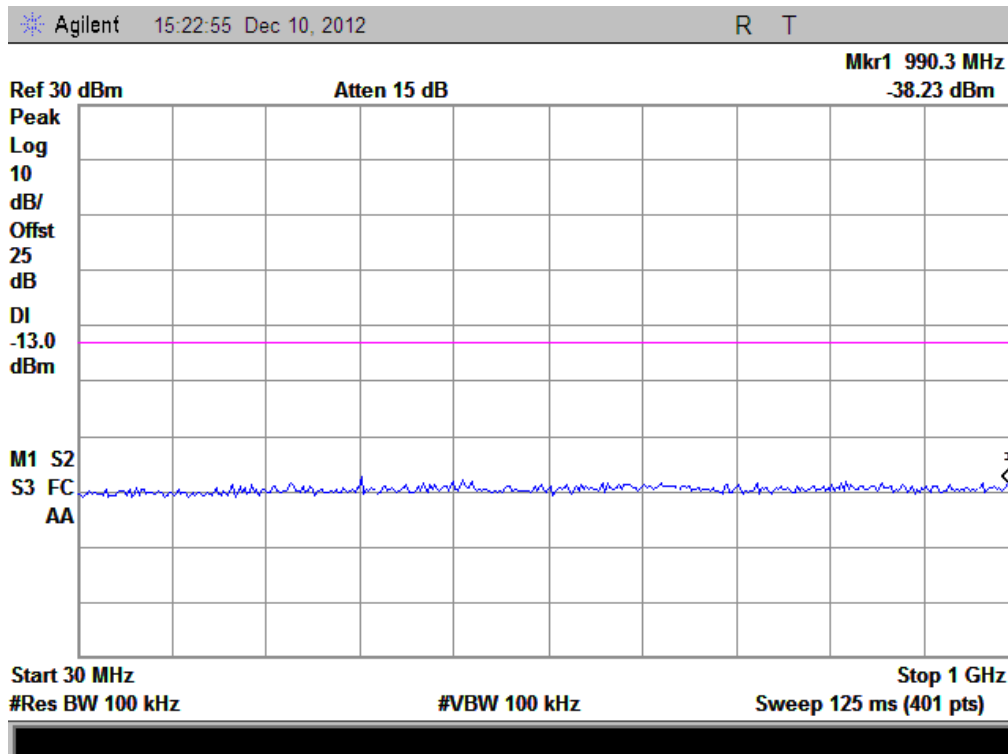
(Plot E3.1: WCDMA850MHz Channel = 4233, 1GHz to 9GHz)



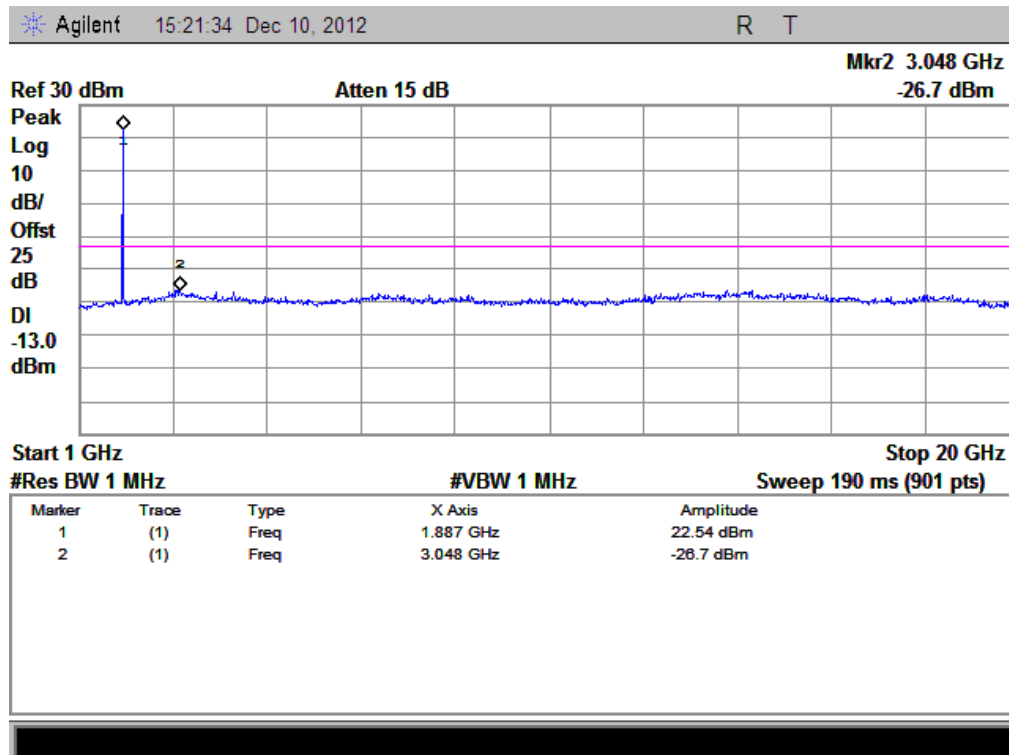
(Plot F1: WCDMA1900MHz Channel = 9262, 30MHz to 1GHz)



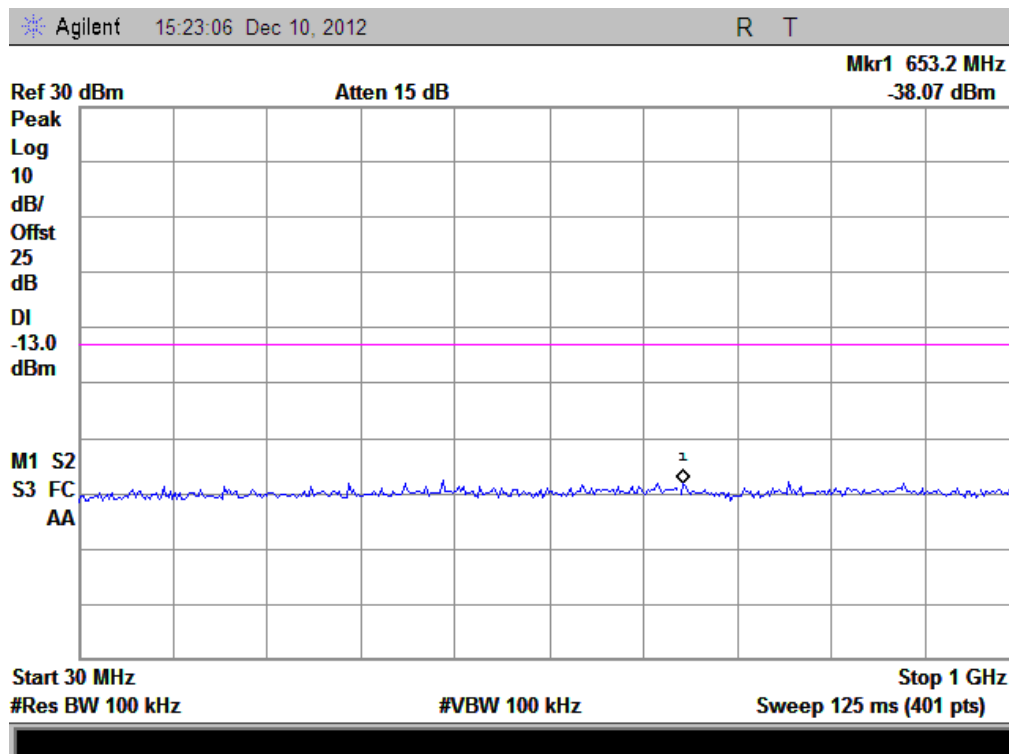
(Plot F1.1: WCDMA1900MHz Channel = 9262, 1GHz to 20GHz)



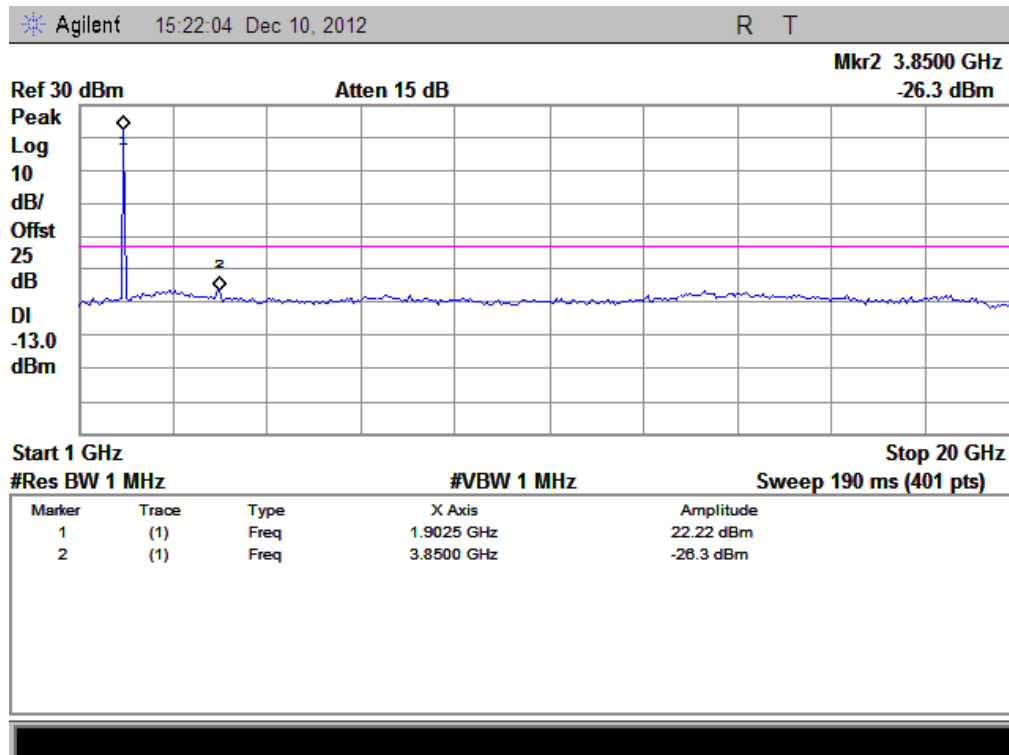
(Plot F2: WCDMA1900MHz Channel = 9400, 30MHz to 1GHz)



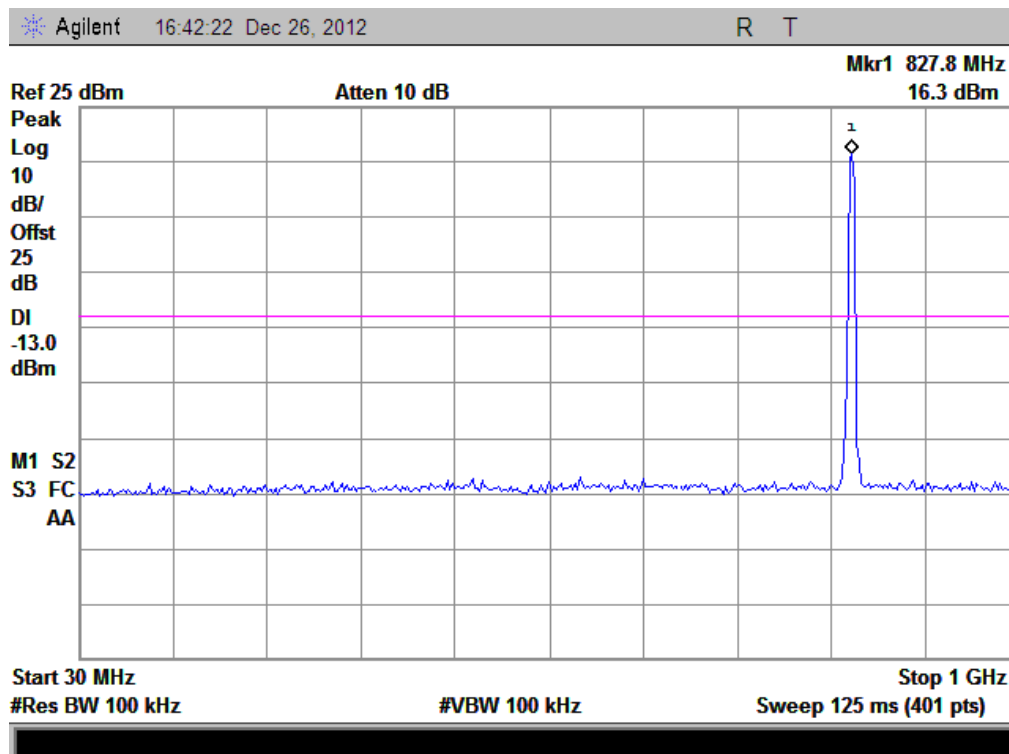
(Plot F2.1: WCDMA1900MHz Channel = 9400, 1GHz to 20GHz)



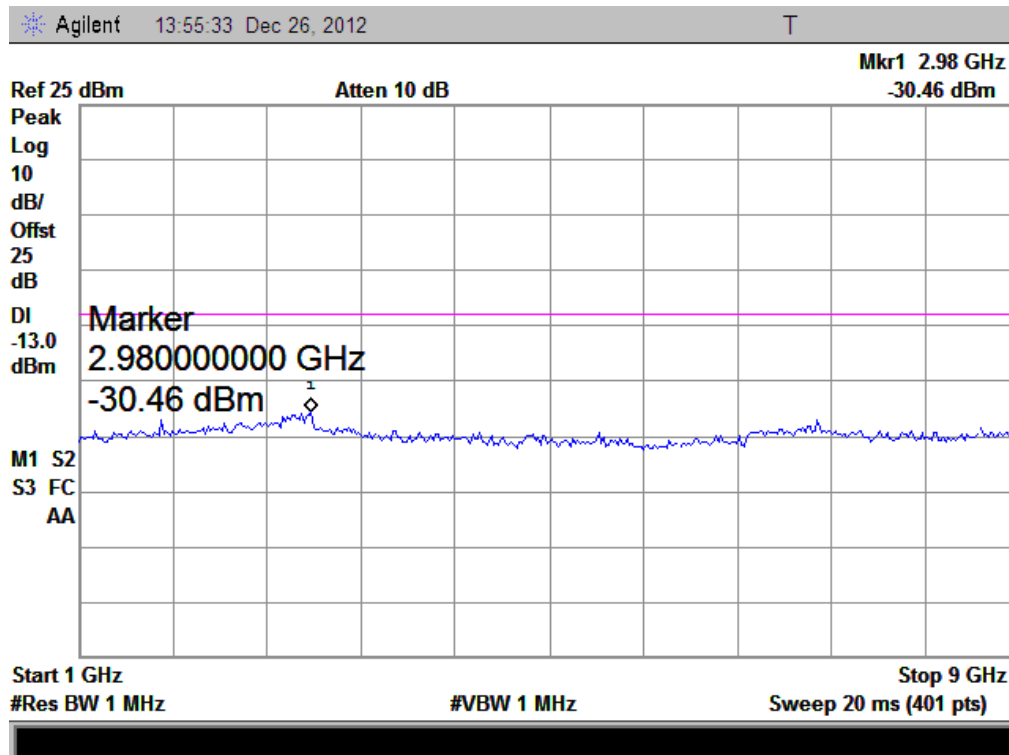
(Plot F3: WCDMA1900MHz Channel = 9538, 30MHz to 1GHz)



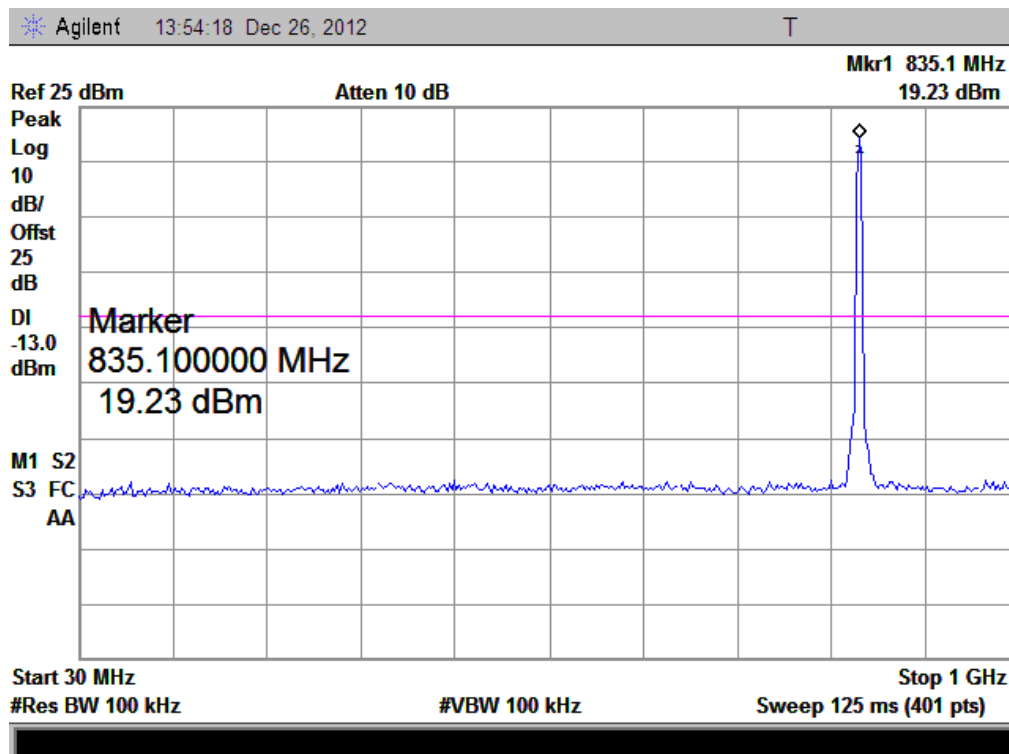
(Plot F3.1: WCDMA1900MHz Channel = 9538 1GHz to 20GHz)



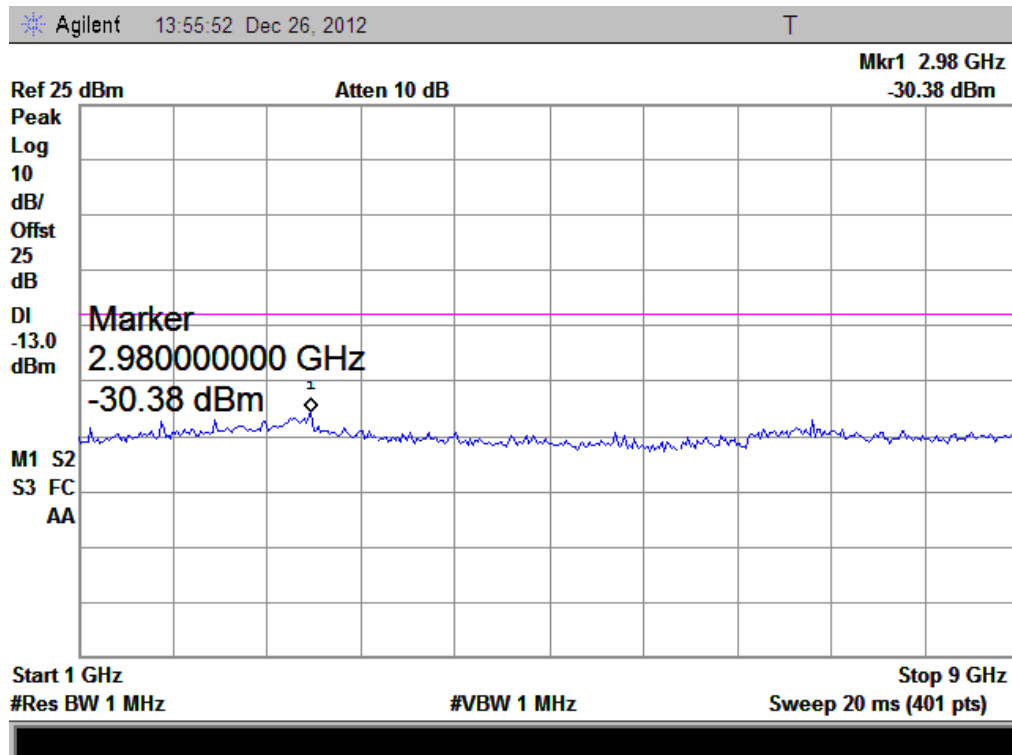
(Plot G1: HSDPA 850MHz Channel = 4132, 30MHz to 1GHz)



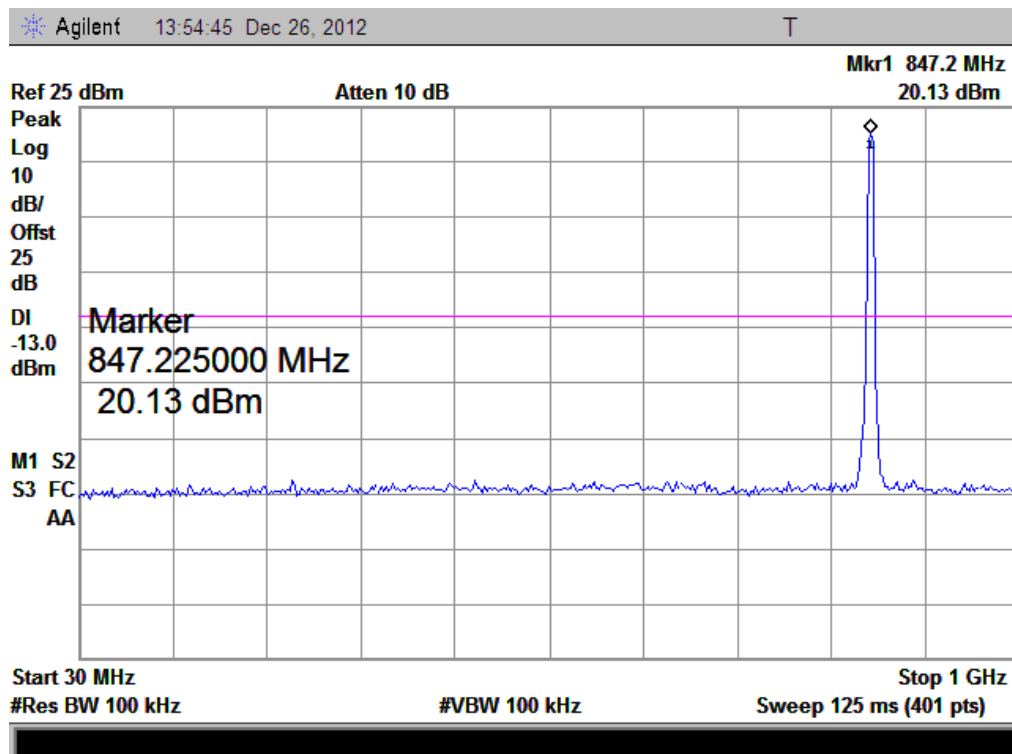
(Plot G1.1: HSDPA 850MHz Channel = 4132, 1GHz to 9GHz)



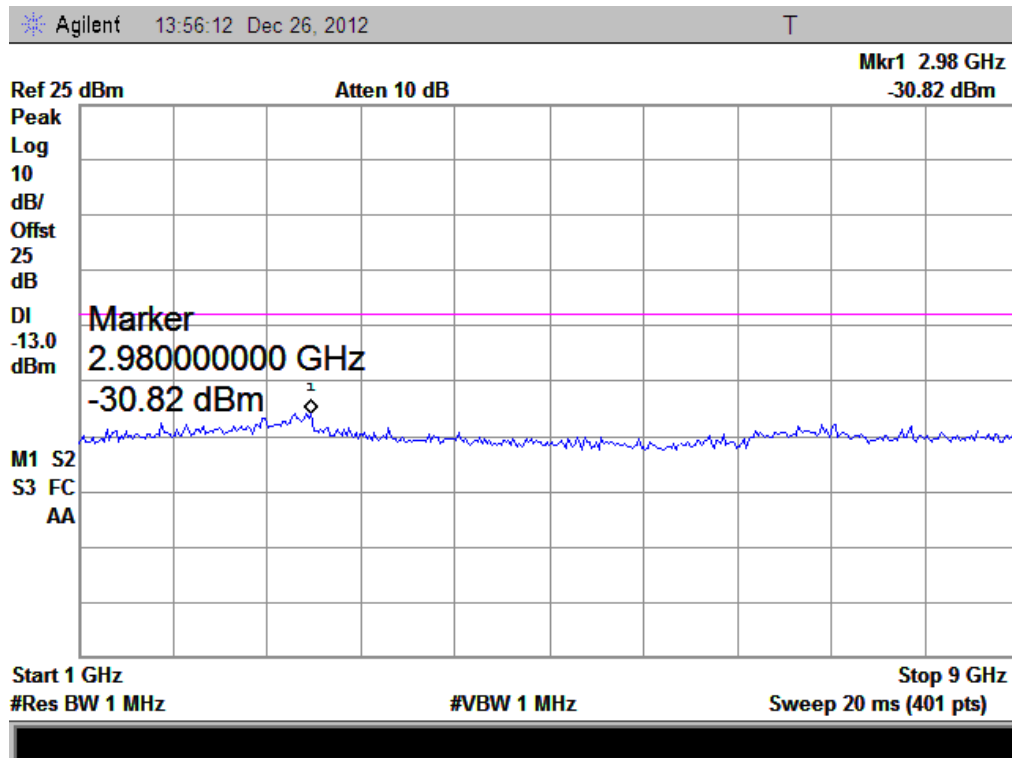
(Plot G2: HSDPA 850MHz Channel = 4175, 30MHz to 1GHz)



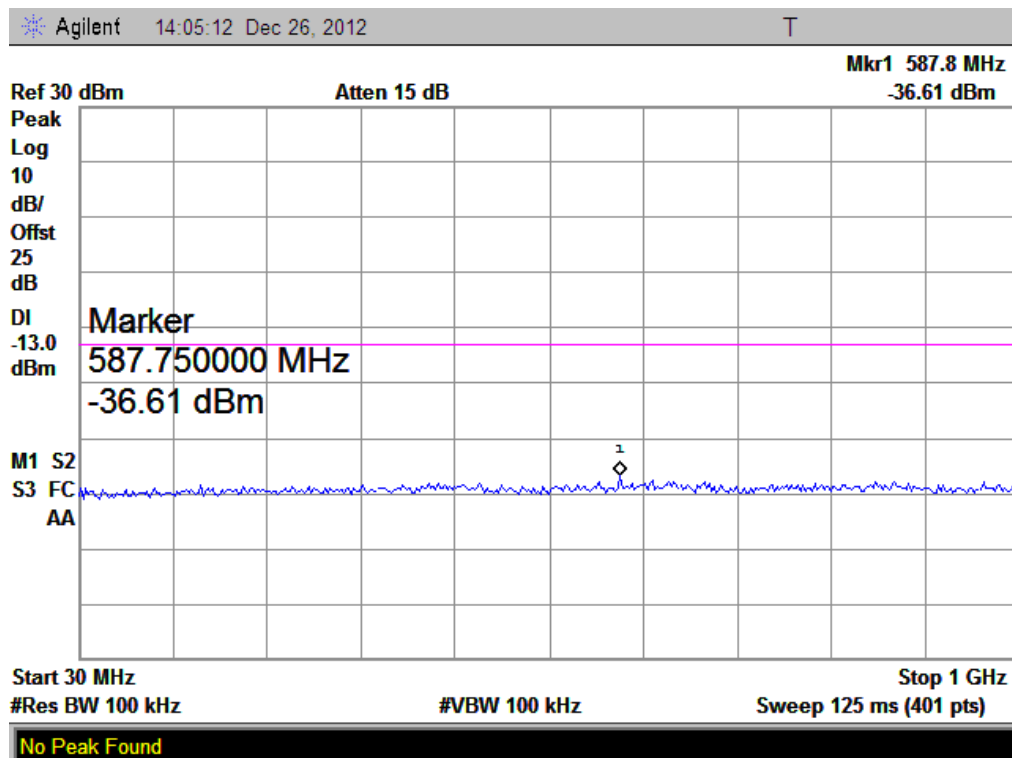
(Plot G2.1: HSDPA 850MHz Channel = 4175, 1GHz to 9GHz)



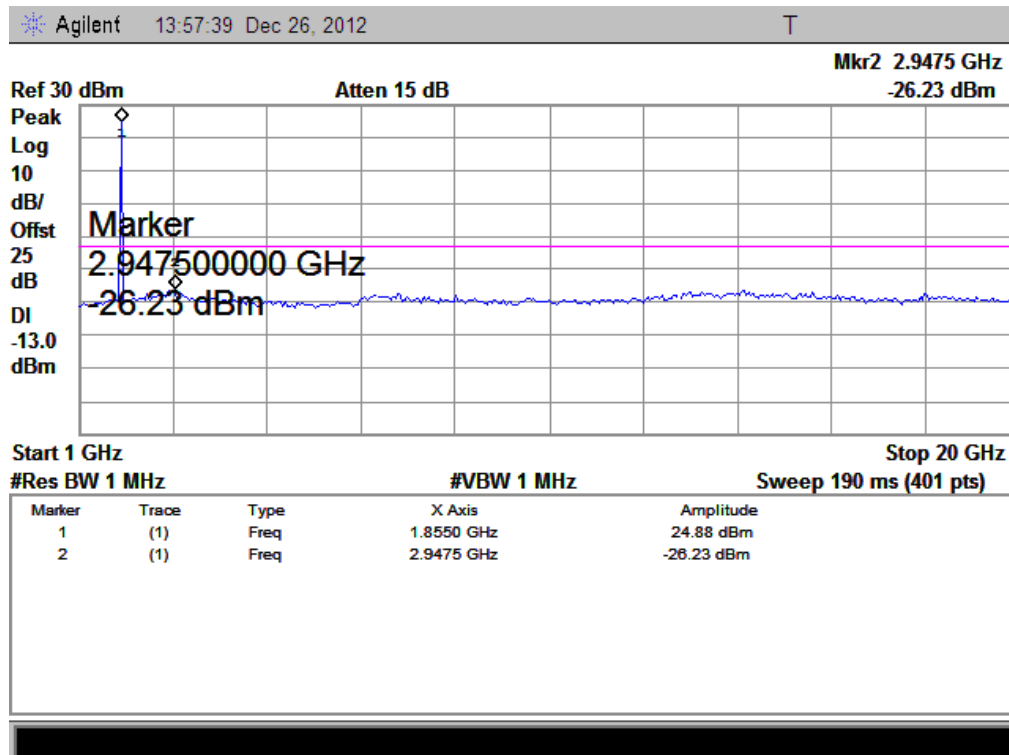
(Plot G3: HSDPA850MHz Channel = 4233, 30MHz to 1GHz)



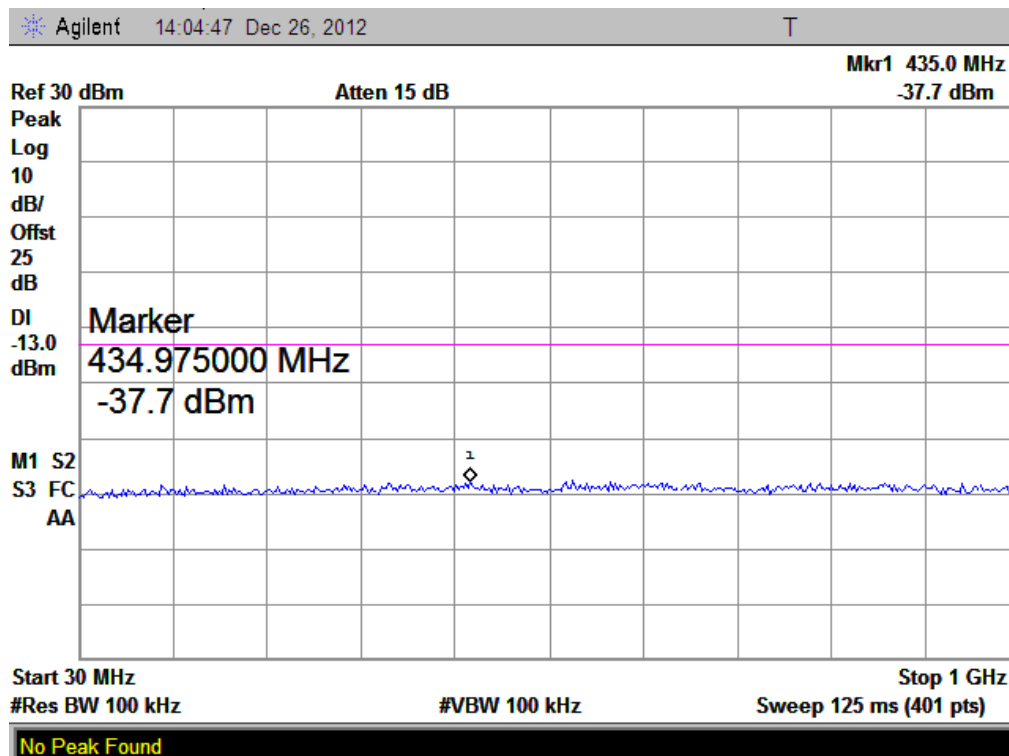
(Plot G3.1: HSDPA850MHz Channel = 4233, 1GHz to 9GHz)



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

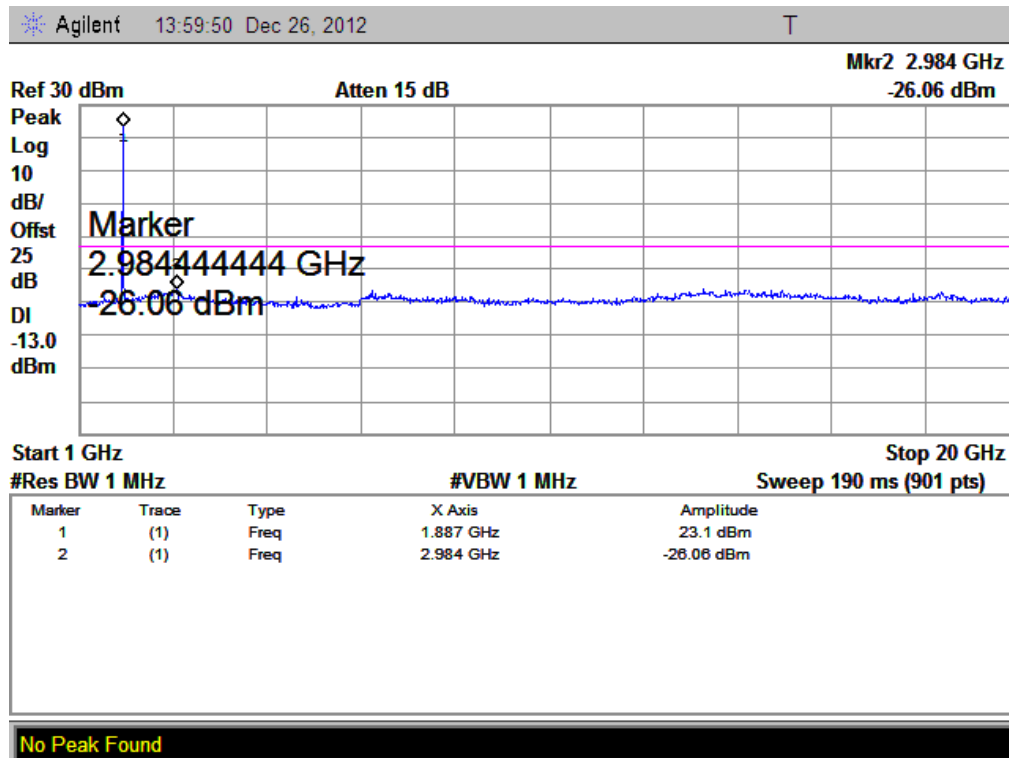


(Plot H1.1: HSDPA1900MHz Channel = 9262, 1GHz to 20GHz)

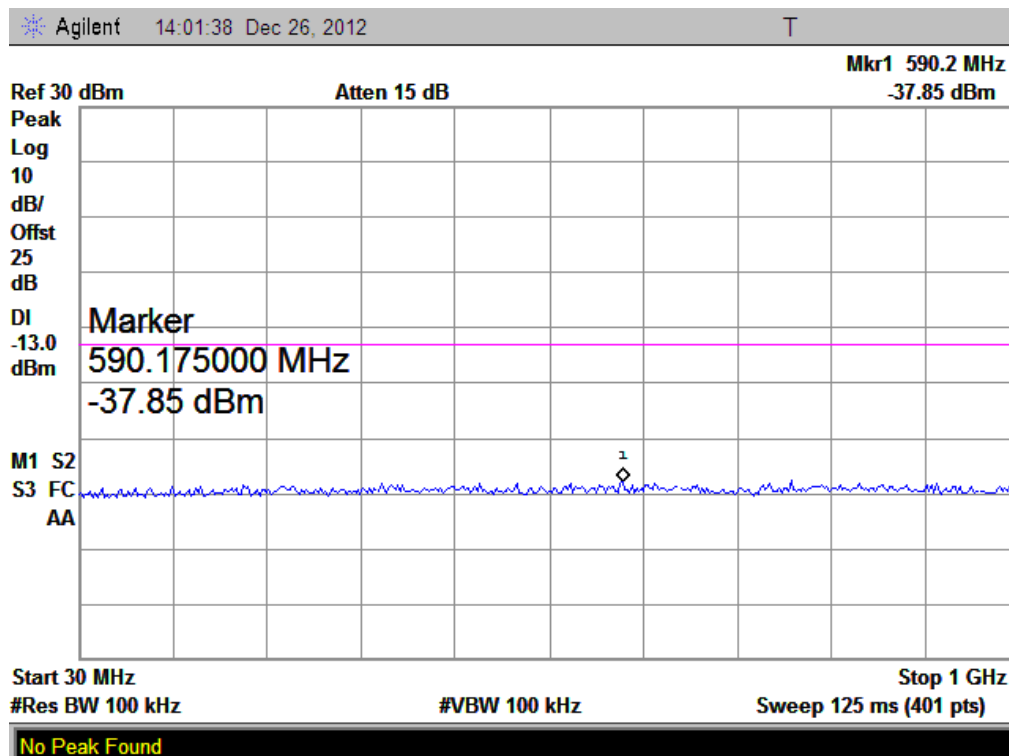


(Plot H2: HSDPA1900MHz Channel = 9400, 30MHz to 1GHz)

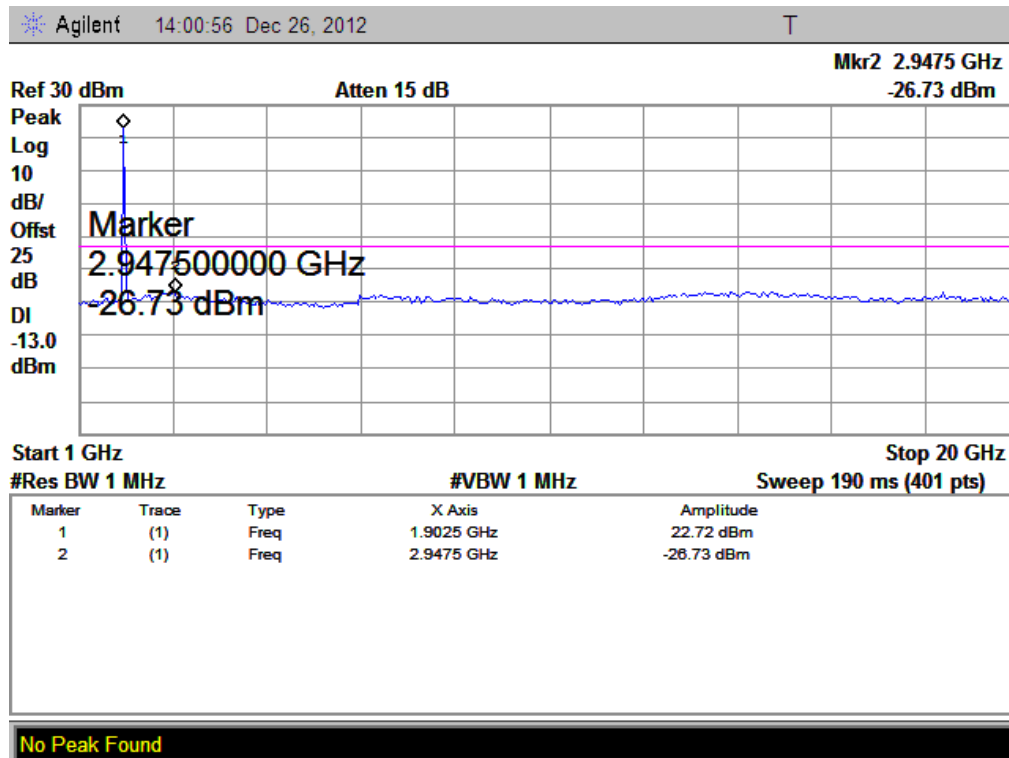




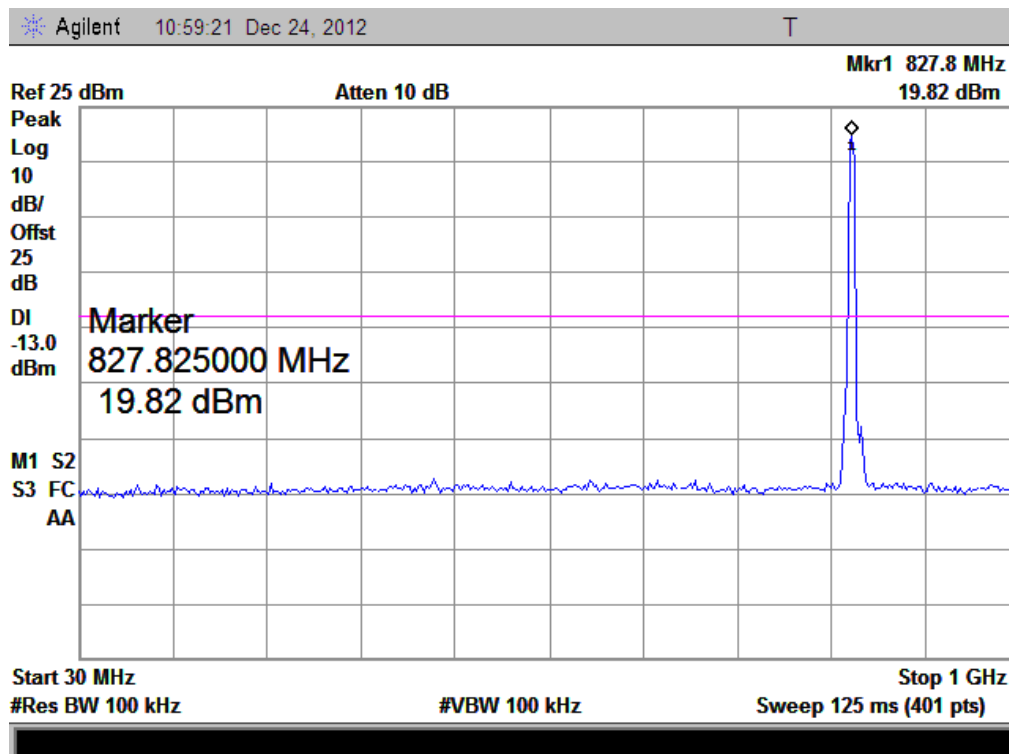
(Plot H2.1: HSDPA1900MHz Channel = 9400, 1GHz to 20GHz)



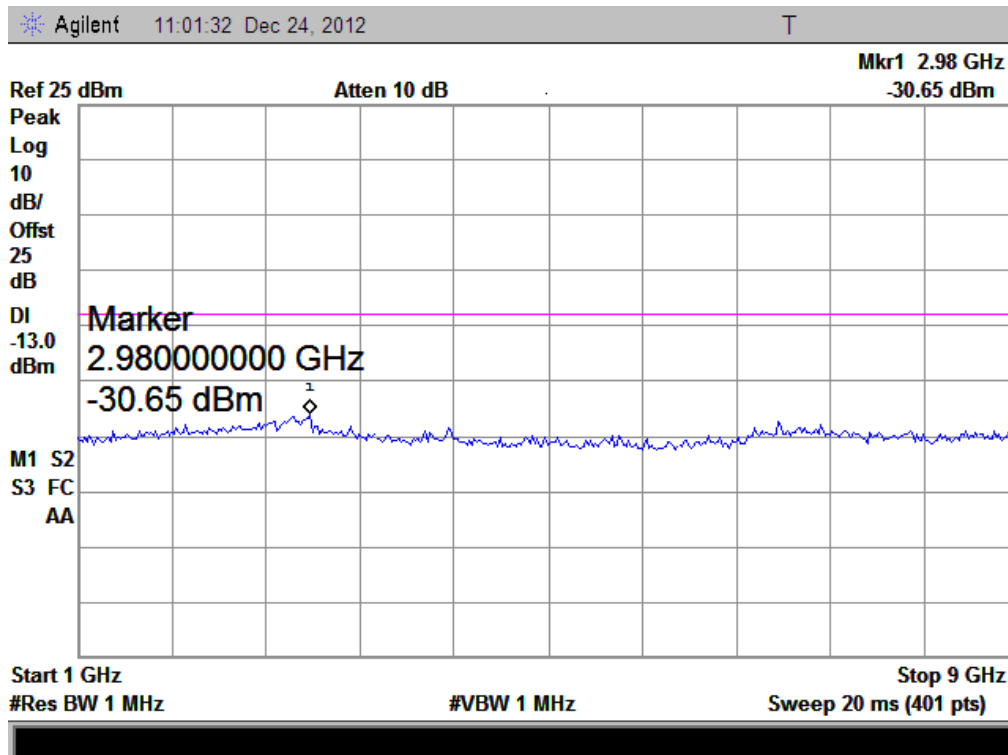
(Plot H3: HSDPA1900MHz Channel = 9538, 30MHz to 1GHz)



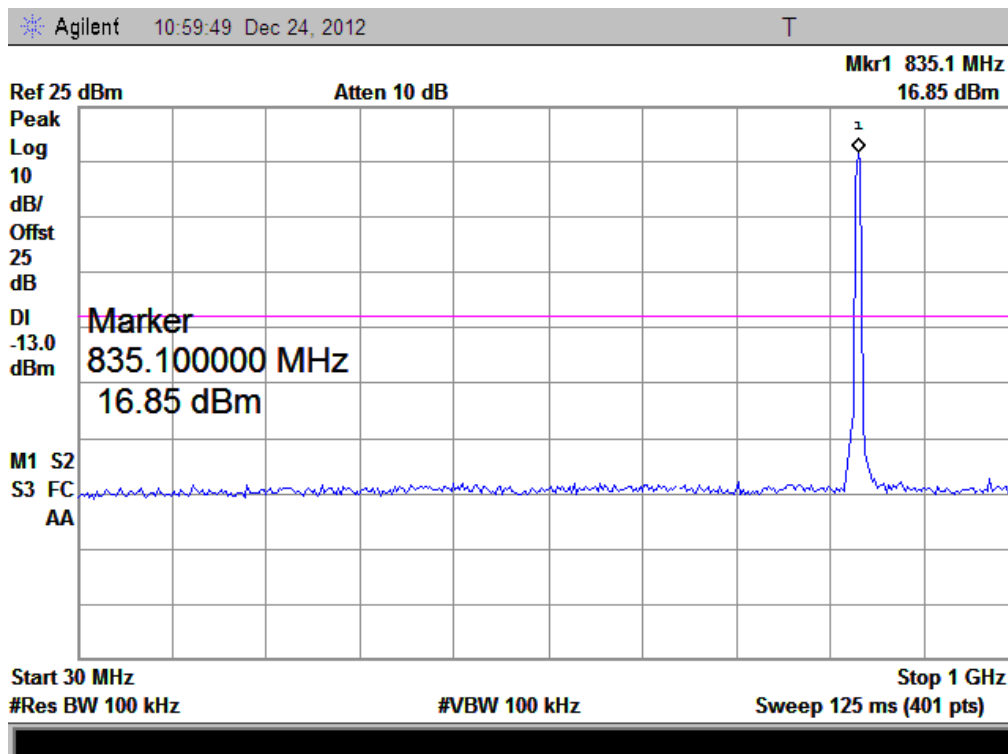
(Plot H3.1: HSDPA1900MHz Channel = 9538 1GHz to 20GHz)



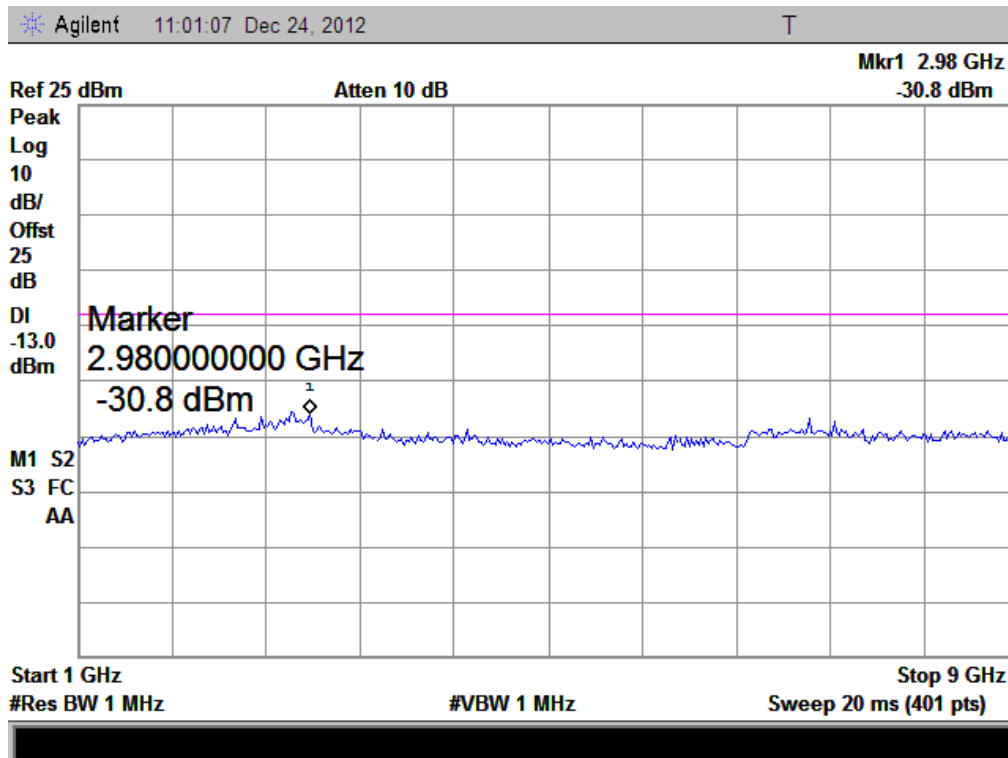
(Plot I 1: HSUPA 850MHz Channel = 4132, 30MHz to 1GHz)



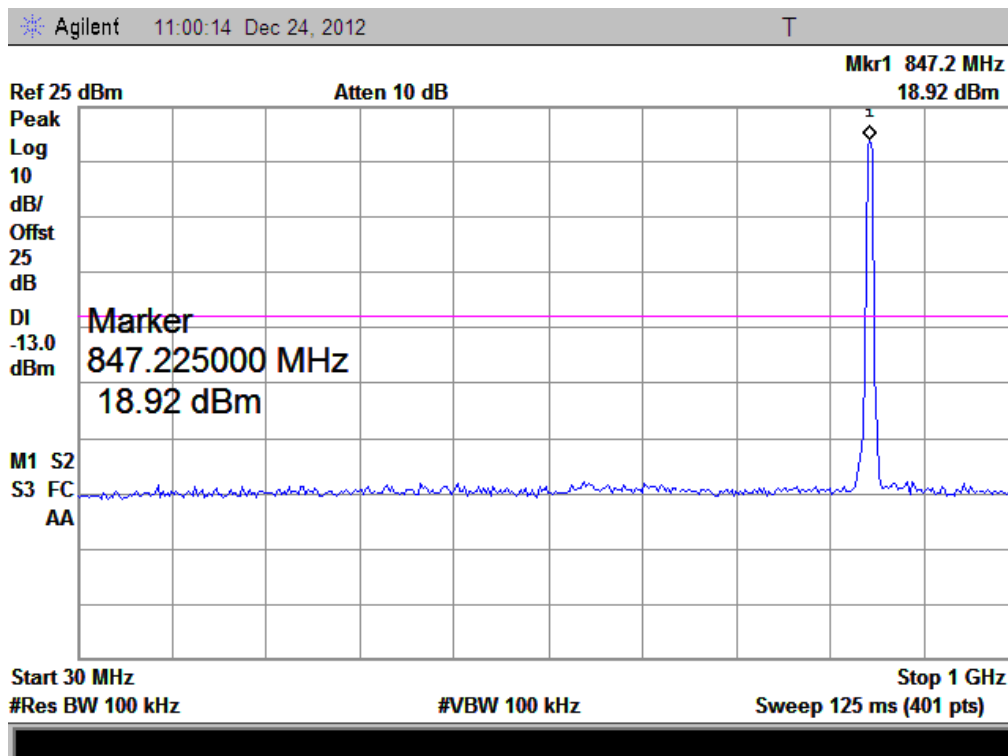
(Plot I1.1: HSUPA 850MHz Channel = 4132, 1GHz to 9GHz)



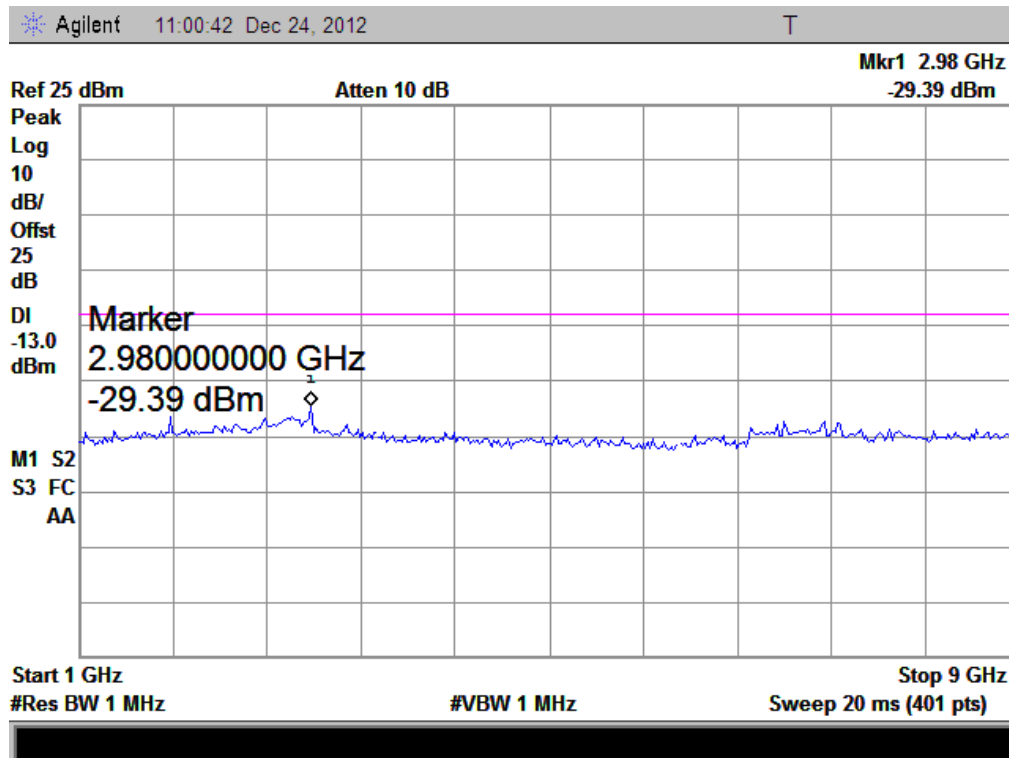
(Plot I 2: HSUPA 850MHz Channel = 4175, 30MHz to 1GHz)



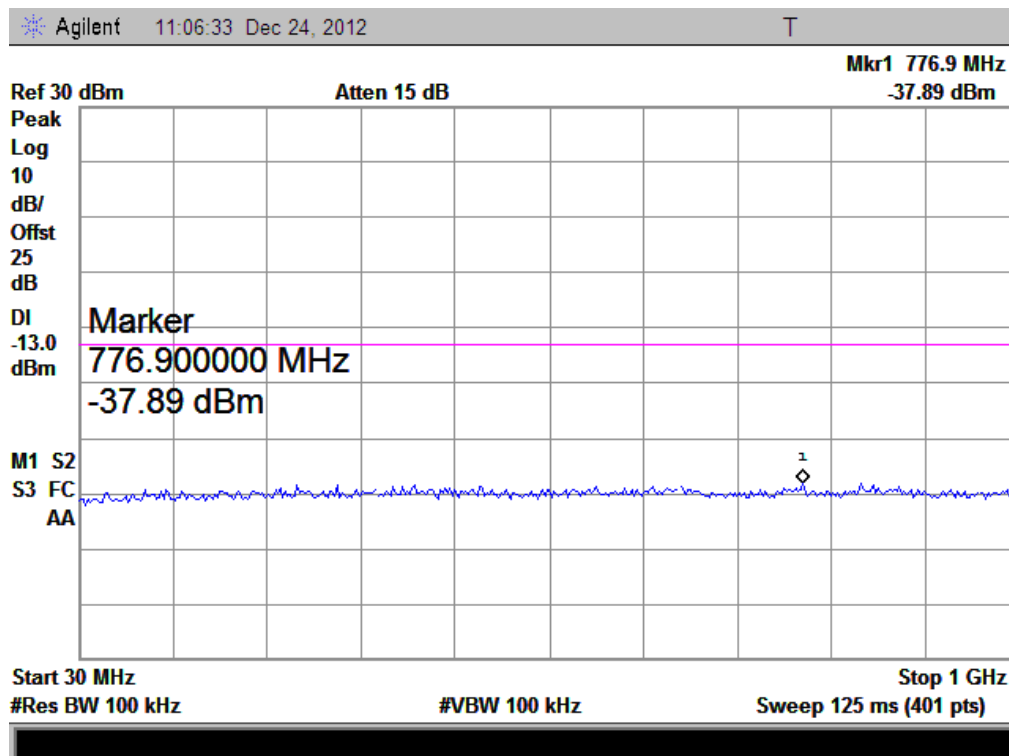
(Plot I2.1: HSUPA 850MHz Channel = 4175, 1GHz to 9GHz)



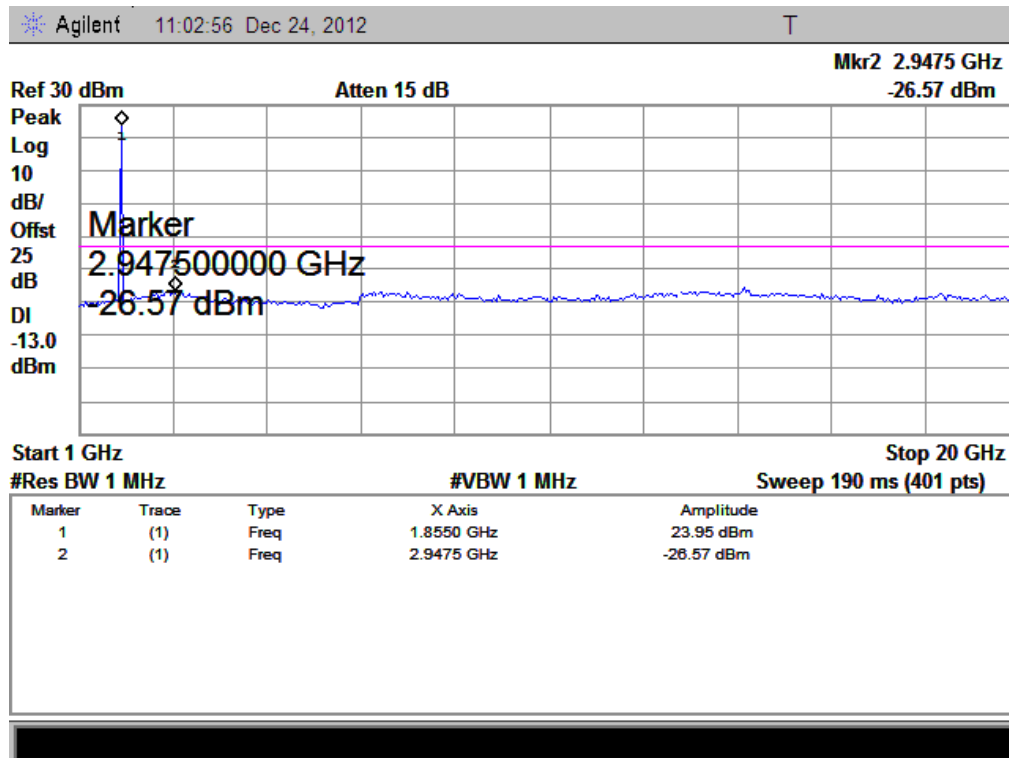
(Plot I 3: HSUPA850MHz Channel = 4233, 30MHz to 1GHz)



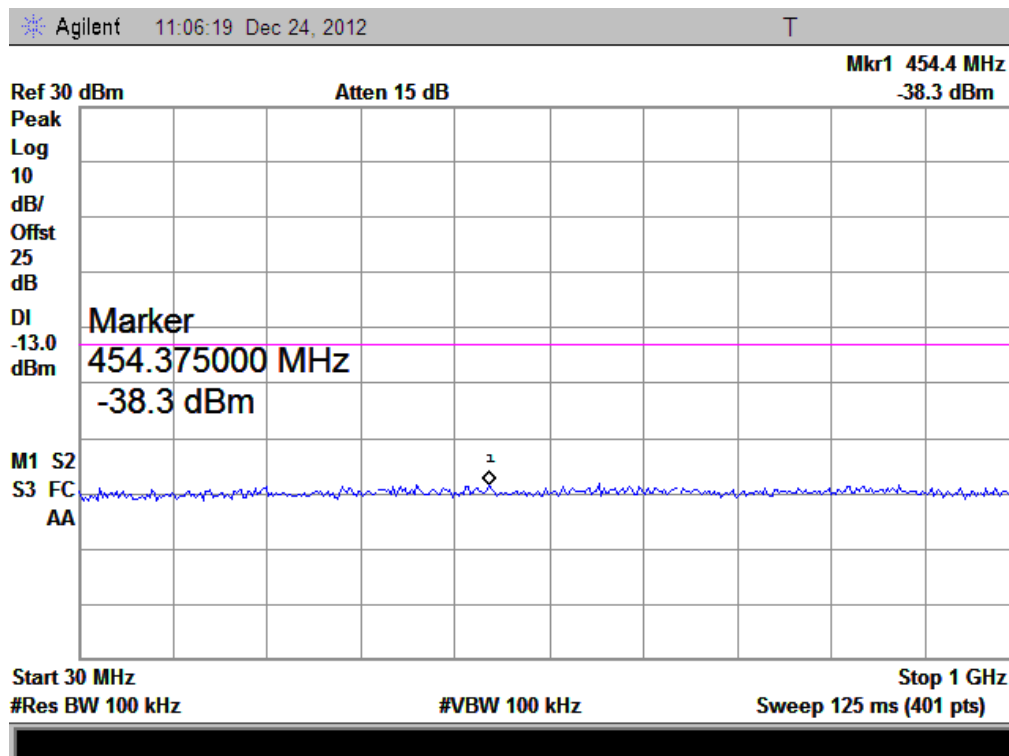
(Plot I3.1: HSUPA850MHz Channel = 4233, 1GHz to 9GHz)



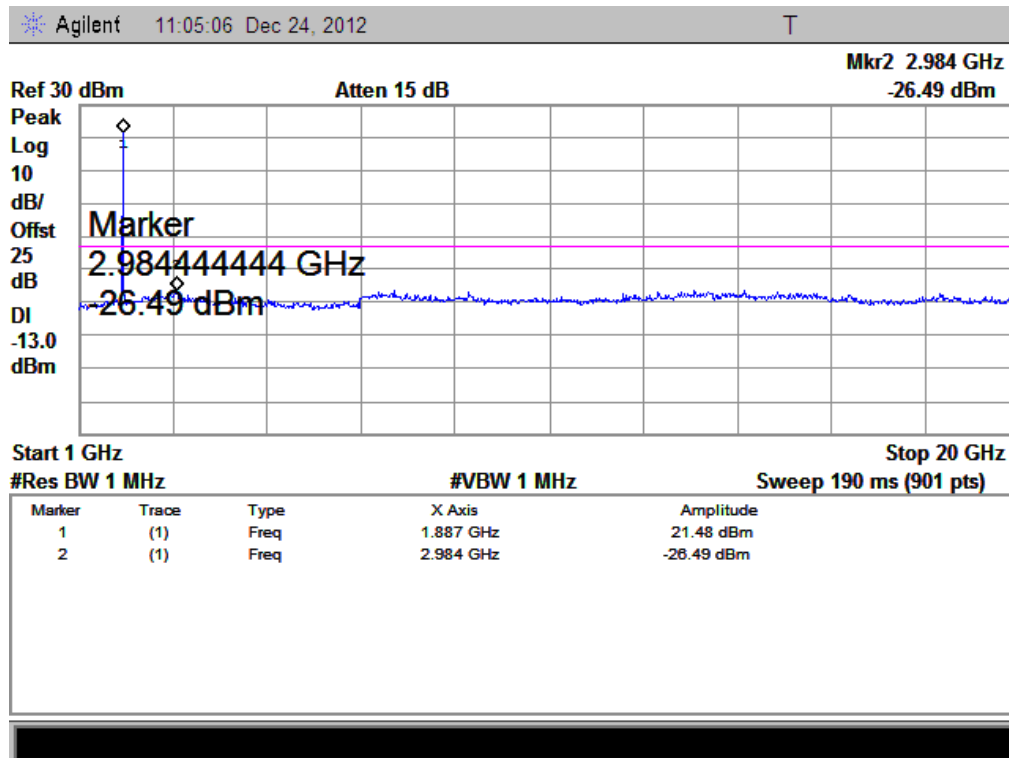
(Plot J 1: HSUPA1900MHz Channel = 9262, 30MHz to 1GHz)



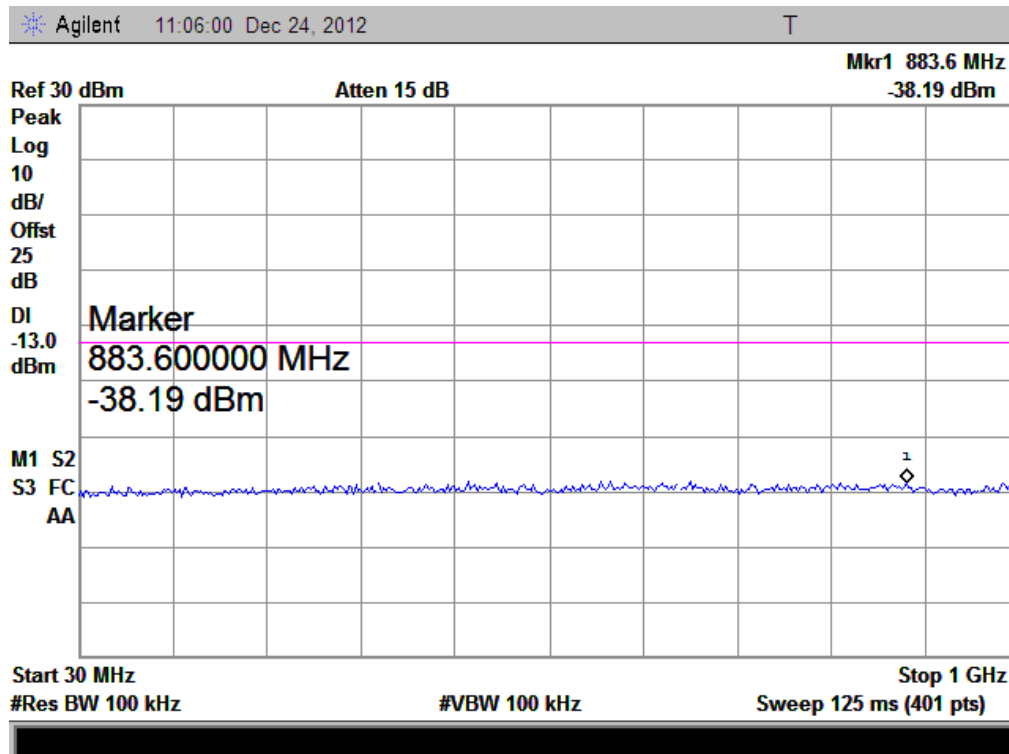
(Plot J1.1: HSUPA1900MHz Channel = 9262, 1GHz to 20GHz)



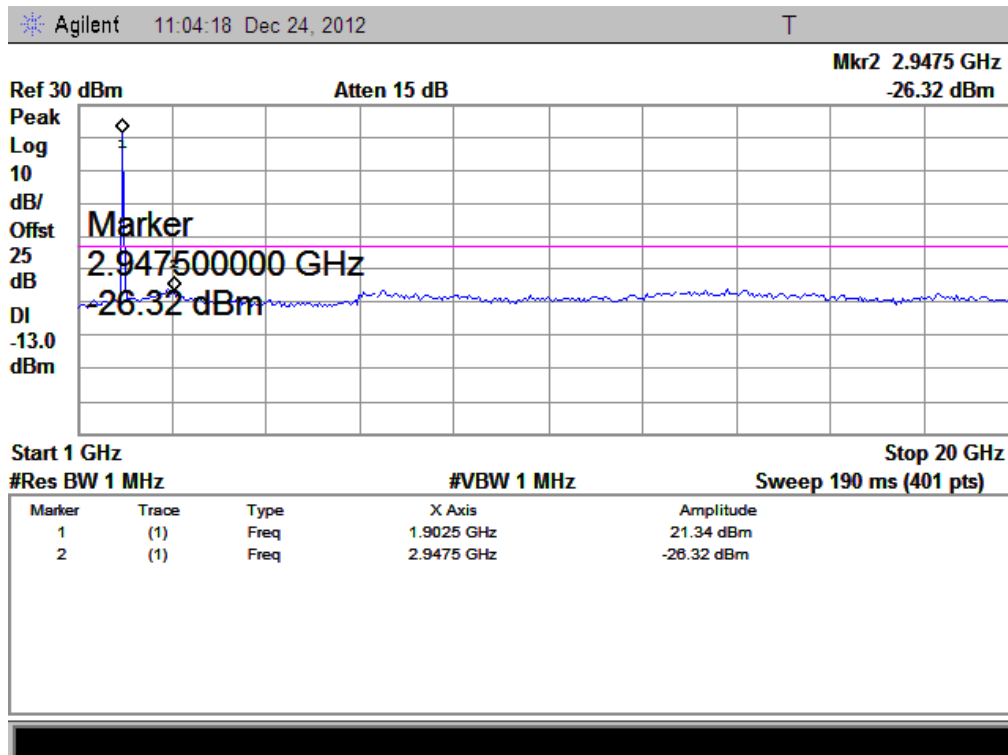
(Plot J 2: HSUPA1900MHz Channel = 9400, 30MHz to 1GHz)



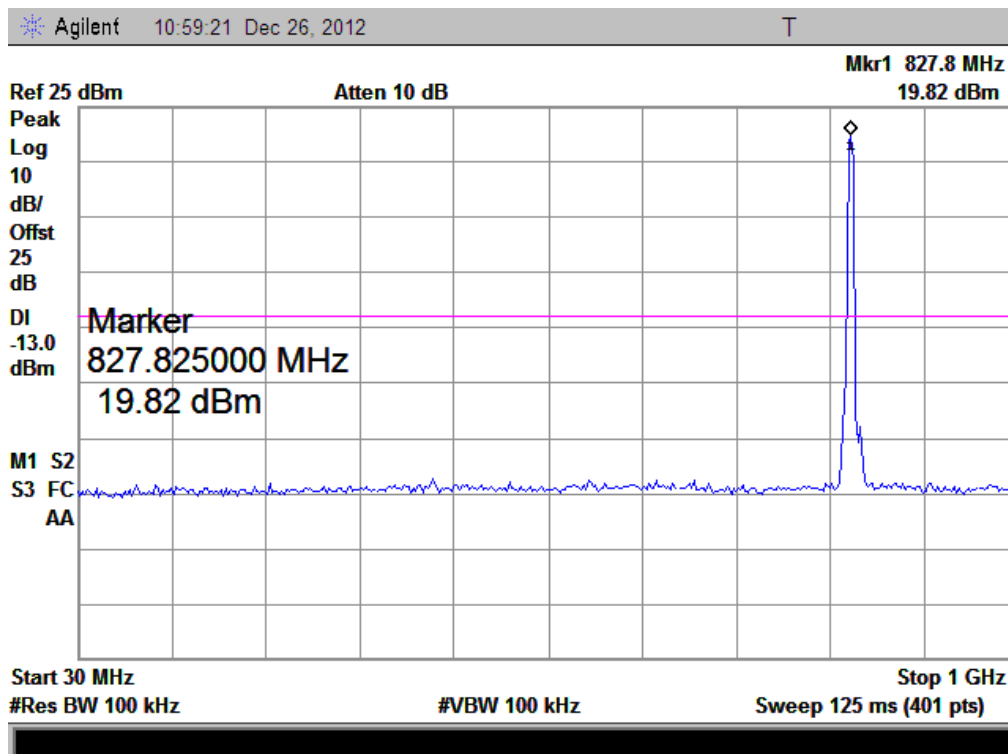
(Plot J2.1: HSUPA1900MHz Channel = 9400, 1GHz to 20GHz)



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

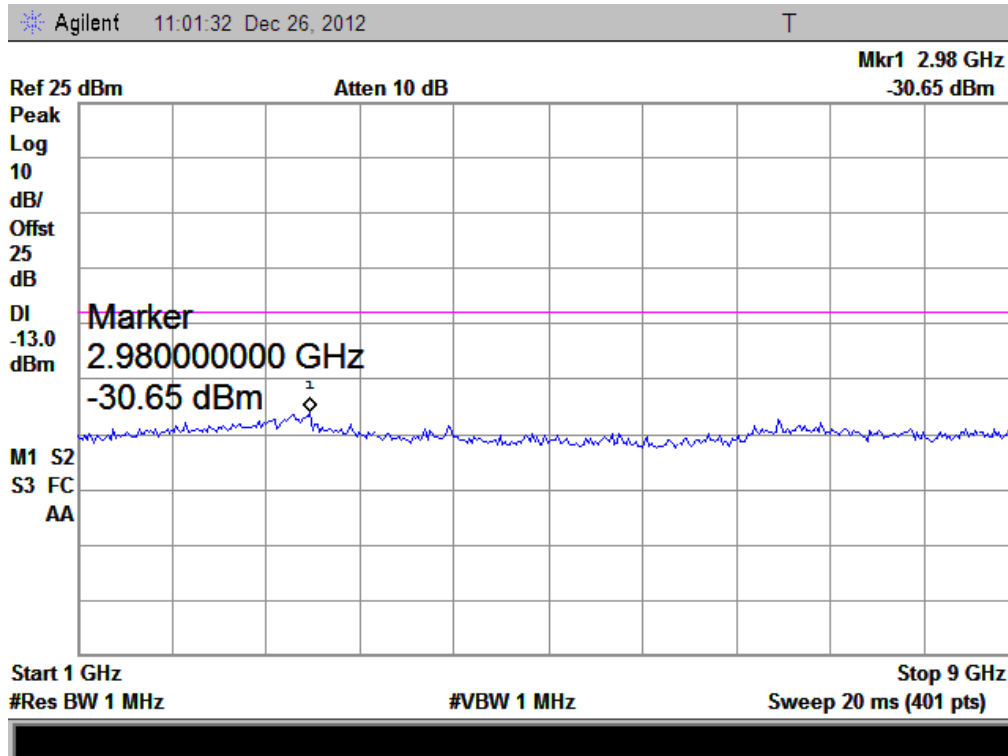


(Plot J3.1: HSUPA1900MHz Channel = 9538 1GHz to 20GHz)

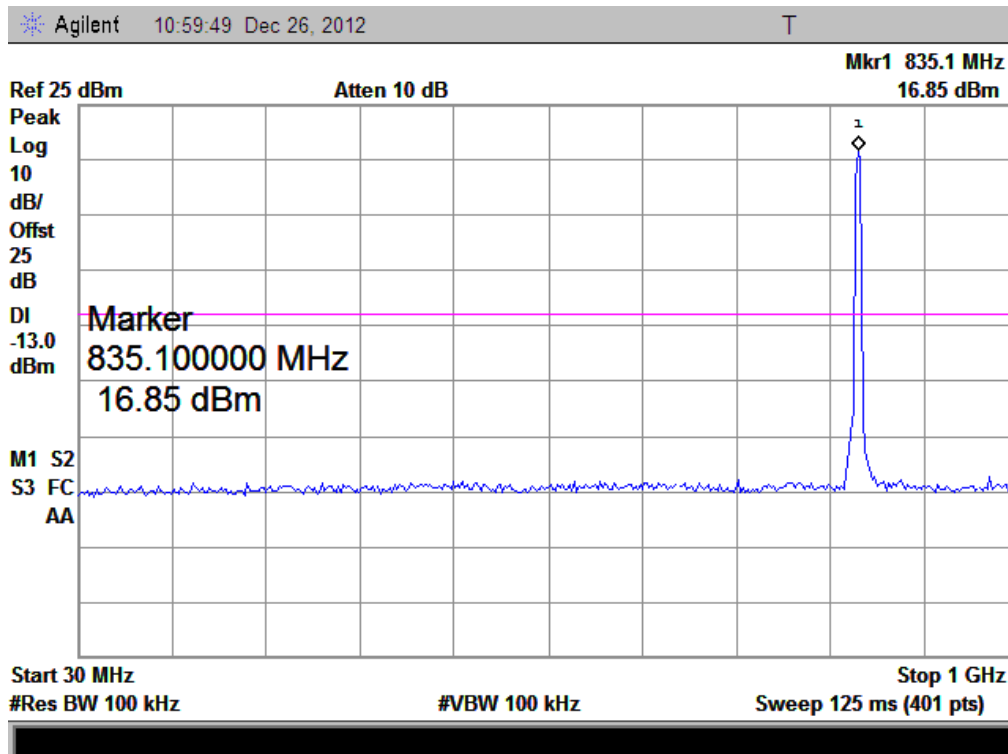


(Plot K 1: HSPA+ 850MHz Channel = 4132, 30MHz to 1GHz)

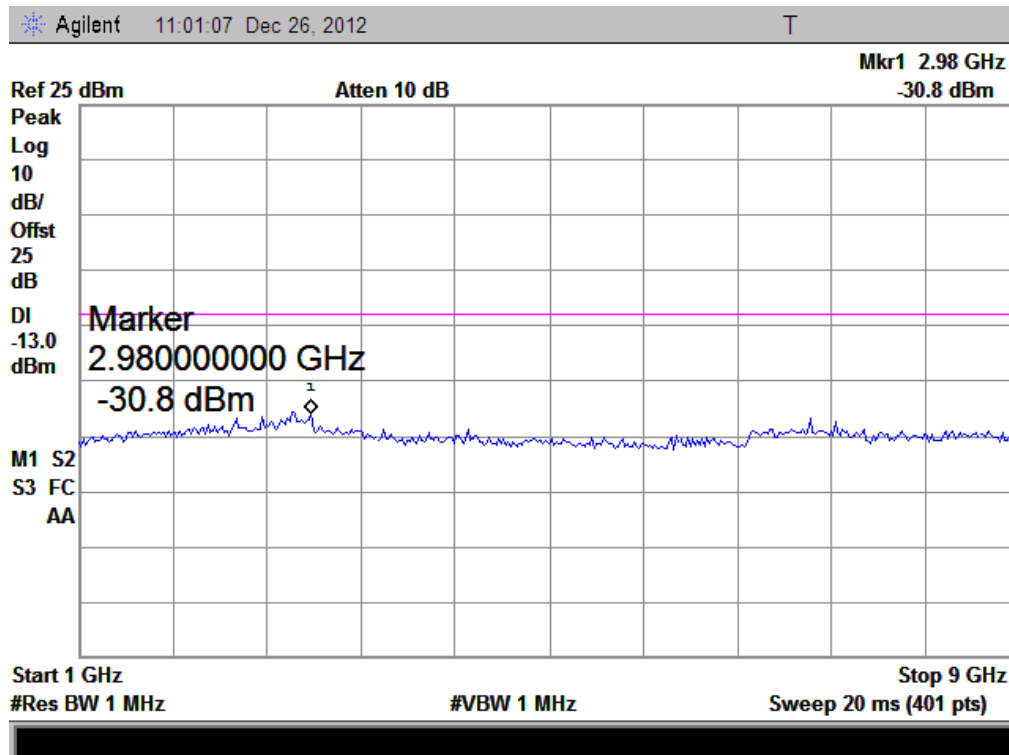




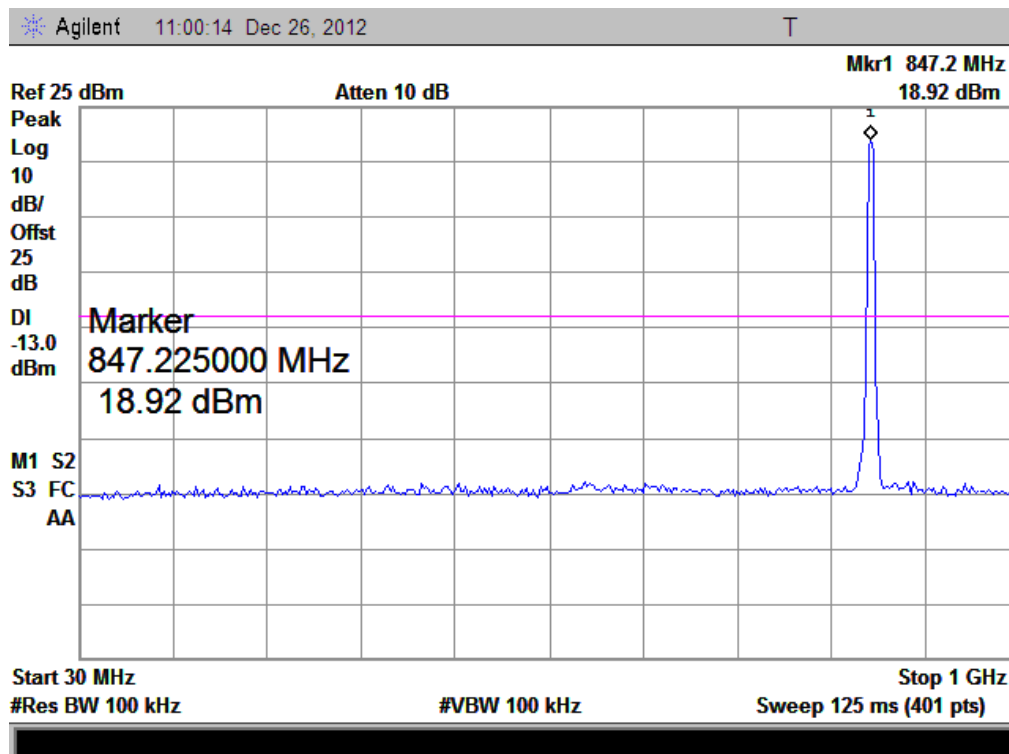
(Plot K 1.1: HSPA+ 850MHz Channel = 4132, 1GHz to 9GHz)



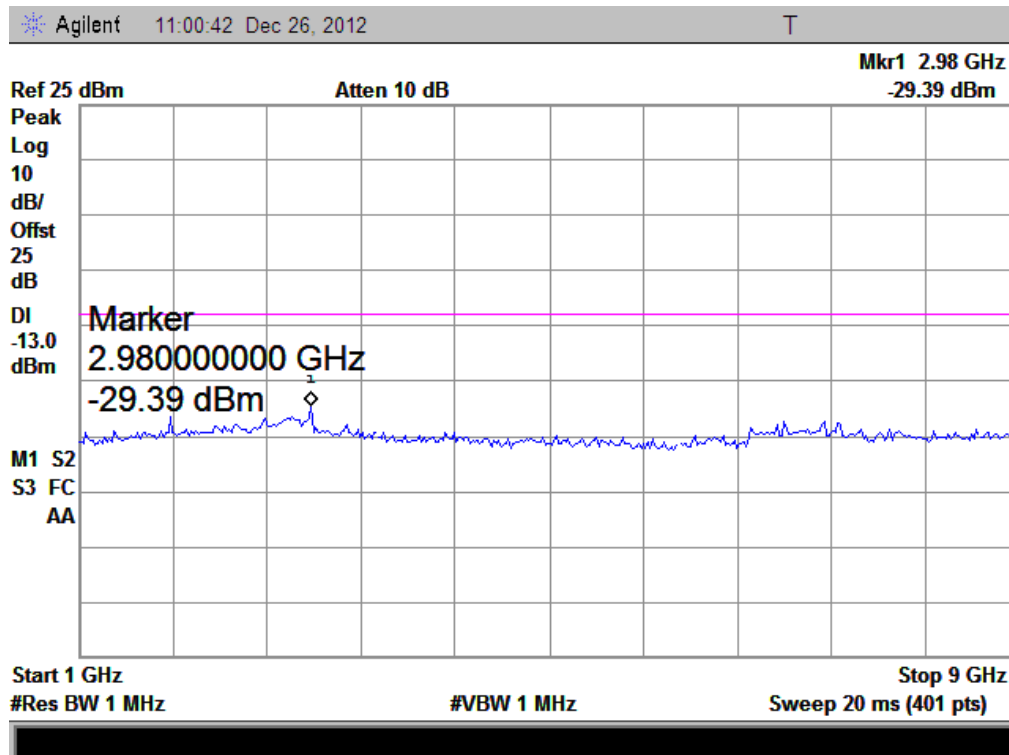
(Plot K 2: HSPA+ 850MHz Channel = 4175, 30MHz to 1GHz)



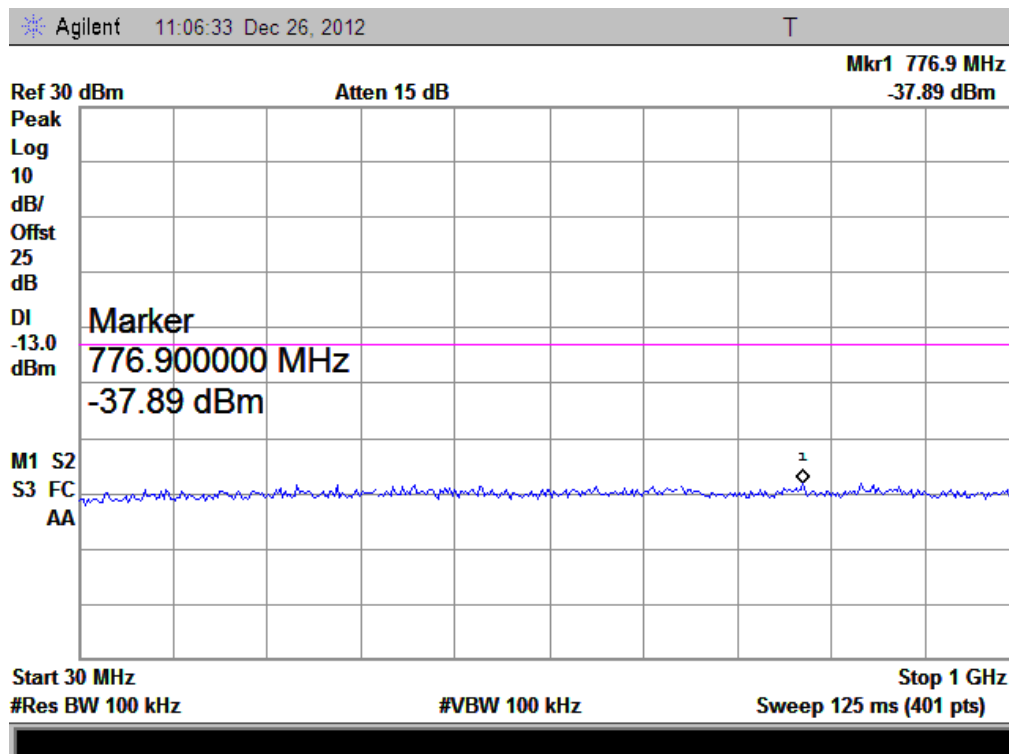
(Plot K2.1: HSPA+ 850MHz Channel = 4175, 1GHz to 9GHz)



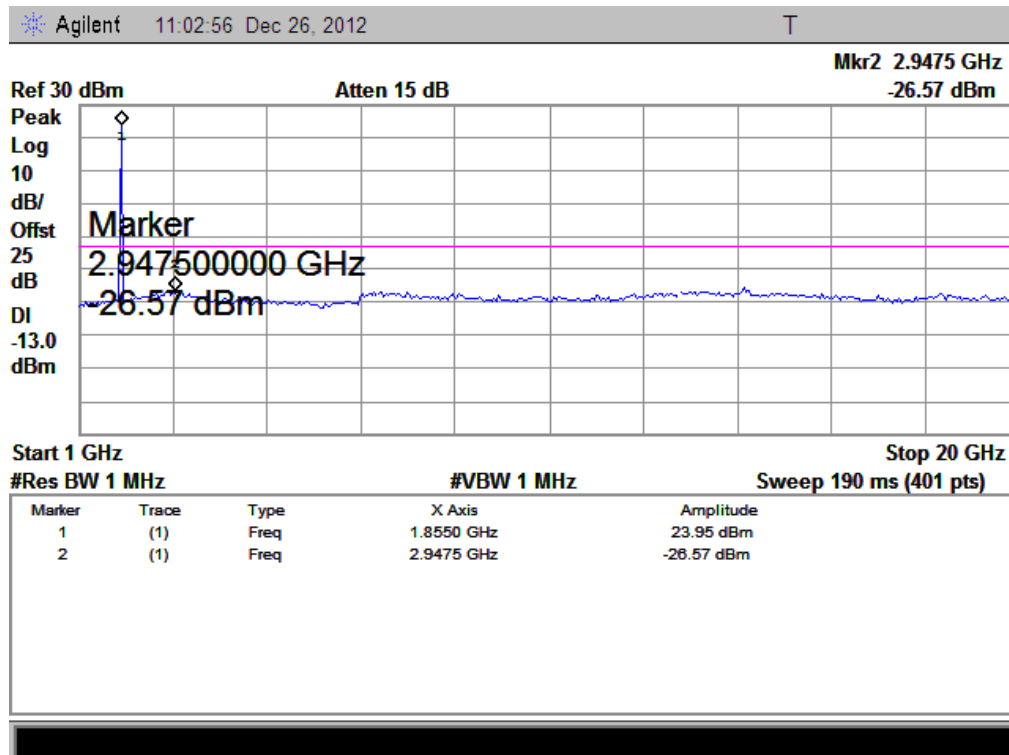
(Plot K 3: HSPA+850MHz Channel = 4233, 30MHz to 1GHz)



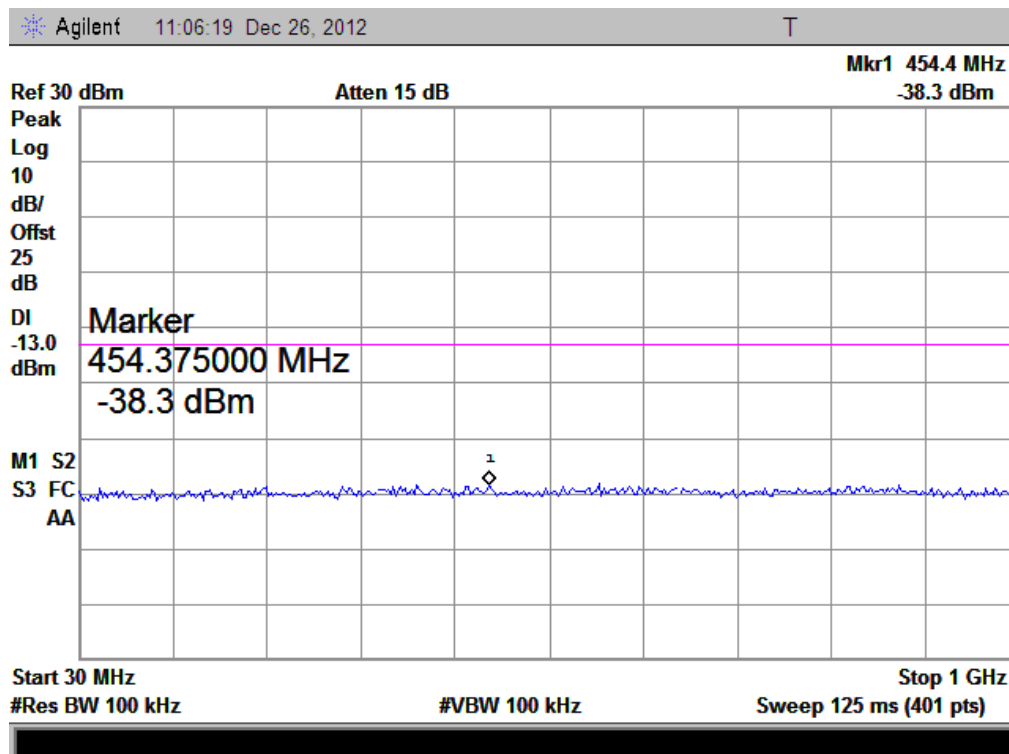
(Plot K3.1: HSPA+850MHz Channel = 4233, 1GHz to 9GHz)



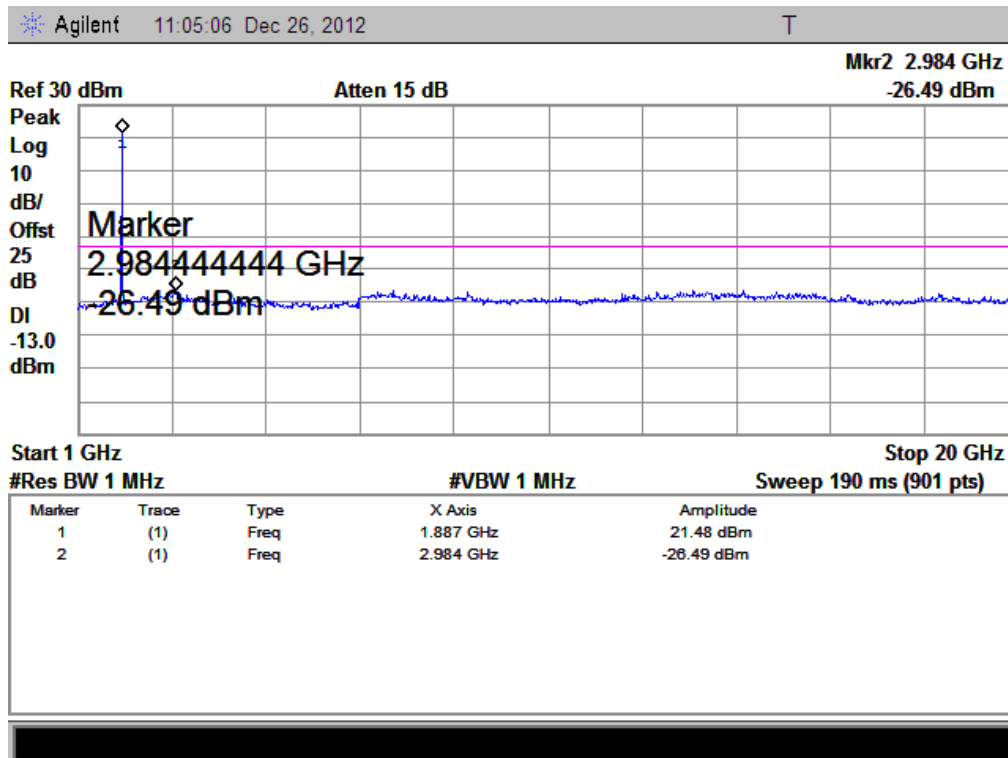
(Plot L 1: HSPA+1900MHz Channel = 9262, 30MHz to 1GHz)



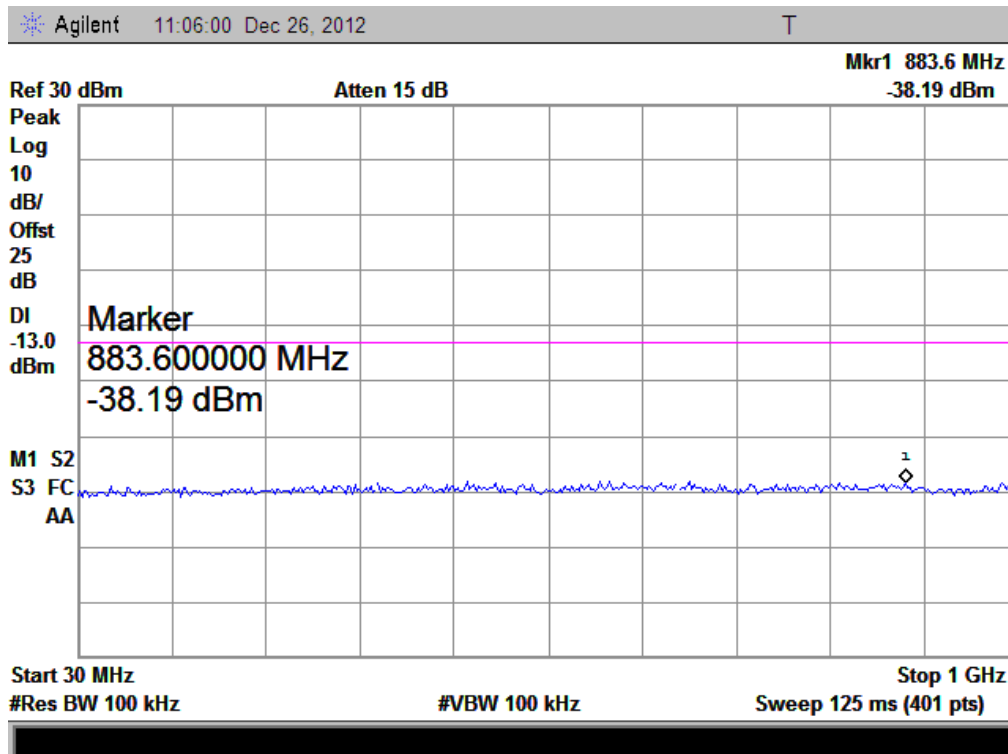
(Plot L1.1: HSPA+1900MHz Channel = 9262, 1GHz to 20GHz)



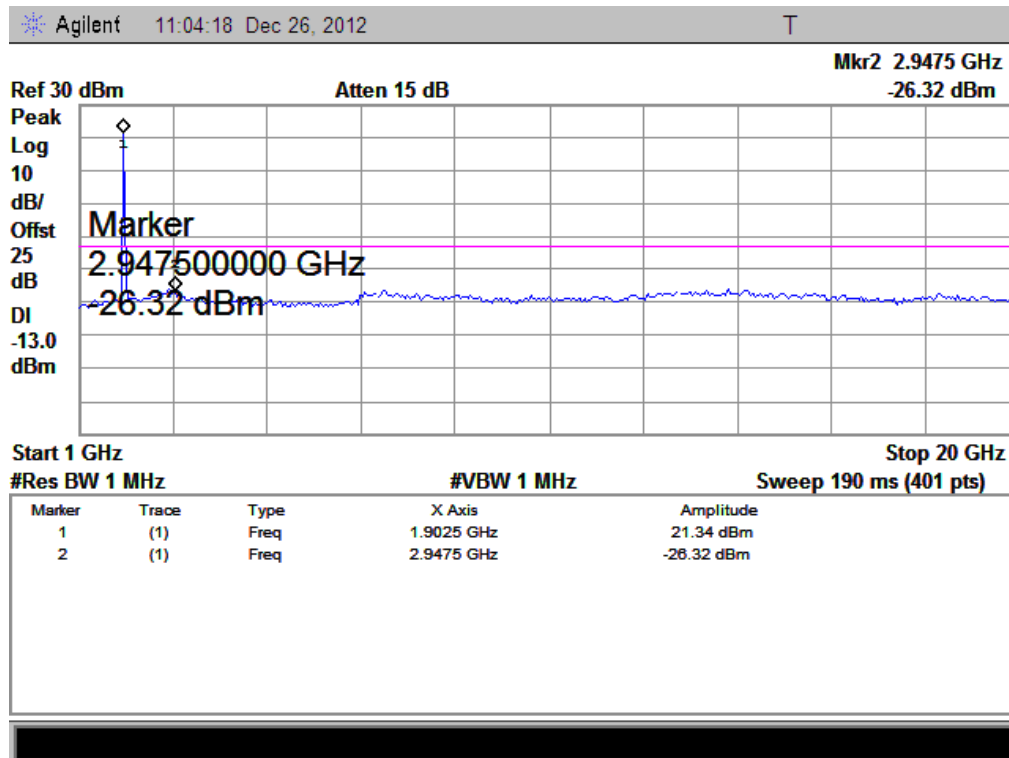
(Plot L 2: HSPA+1900MHz Channel = 9400, 30MHz to 1GHz)



(Plot L2.1: HSPA+1900MHz Channel = 9400, 1GHz to 20GHz)



(Plot L 3: HSPA+1900MHz Channel = 9538, 30MHz to 1GHz)



(Plot L3.1: HSPA+1900MHz Channel = 9538 1GHz to 20GHz)

## 2.5 Band Edge

### 2.5.1 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.

### 2.5.2 Test Description

See section 2.1.2 of this report.

### 2.5.3 Test Result

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

#### 1. Test Verdict:

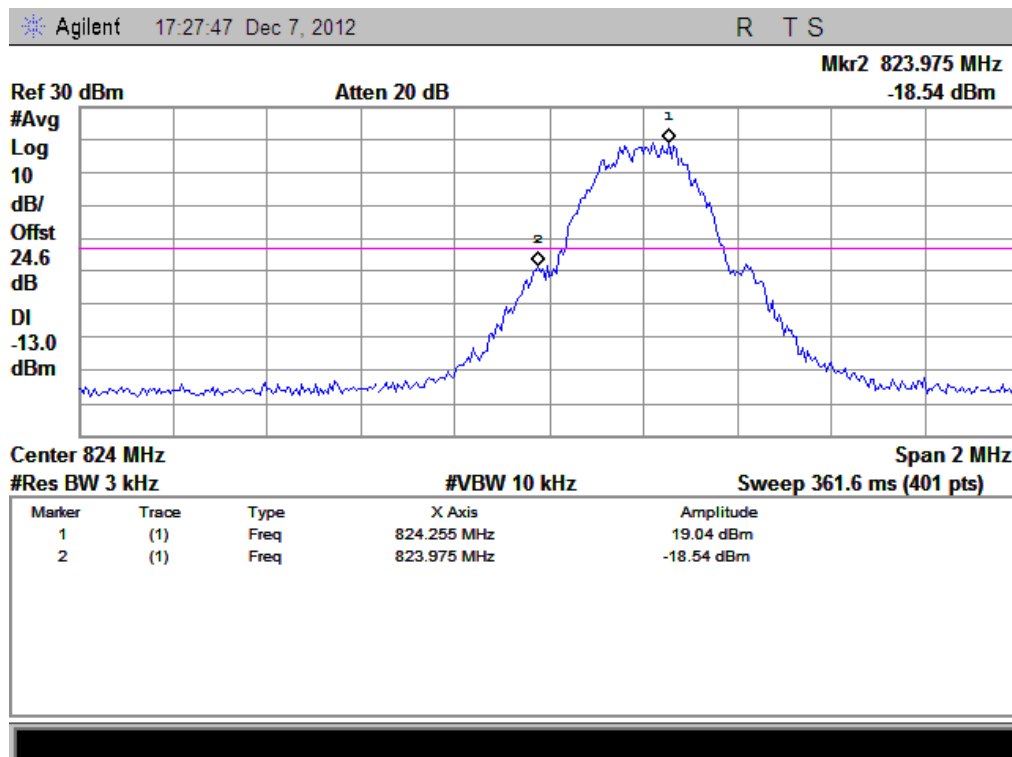
Band	Channel	Frequency (MHz)	Measured Max. Band Edge Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-18.54	Plat A	-13	PASS
	251	848.8	-18.7	Plot B		PASS
GSM 1900MHz	512	1850.2	-21.12	Plat C	-13	PASS
	810	1909.8	-22.47	Plot D		PASS
EDGE 850MHz	128	824.2	-15.96	Plat E	-13	PASS
	251	848.8	-14.31	Plot F		PASS
EDGE 1900MHz	512	1850.2	-18.8	Plat G	-13	PASS
	810	1909.8	-17.73	Plot H		PASS
WCDMA 850MHz	4132	826.4	-15.49	Plat I	-13	PASS
	4233	846.6	-13.67	Plot J		PASS
WCDMA 1900MHz	9262	1852.4	-16.42	Plat K	-13	PASS
	9538	1907.6	-15.6	Plot L		PASS
HSDPA 850MHz	4132	826.4	-17.52	Plat M	-13	PASS
	4233	846.6	-17.24	Plot N		PASS
HSDPA 1900MHz	9262	1852.4	-19.23	Plat O	-13	PASS
	9538	1907.6	-18.55	Plot P		PASS
HSUPA 850MHz	4132	826.4	-18.21	Plat Q	-13	PASS
	4233	846.6	-17.41	Plot R		PASS
HSUPA	9262	1852.4	-18.4	Plat S	-13	PASS



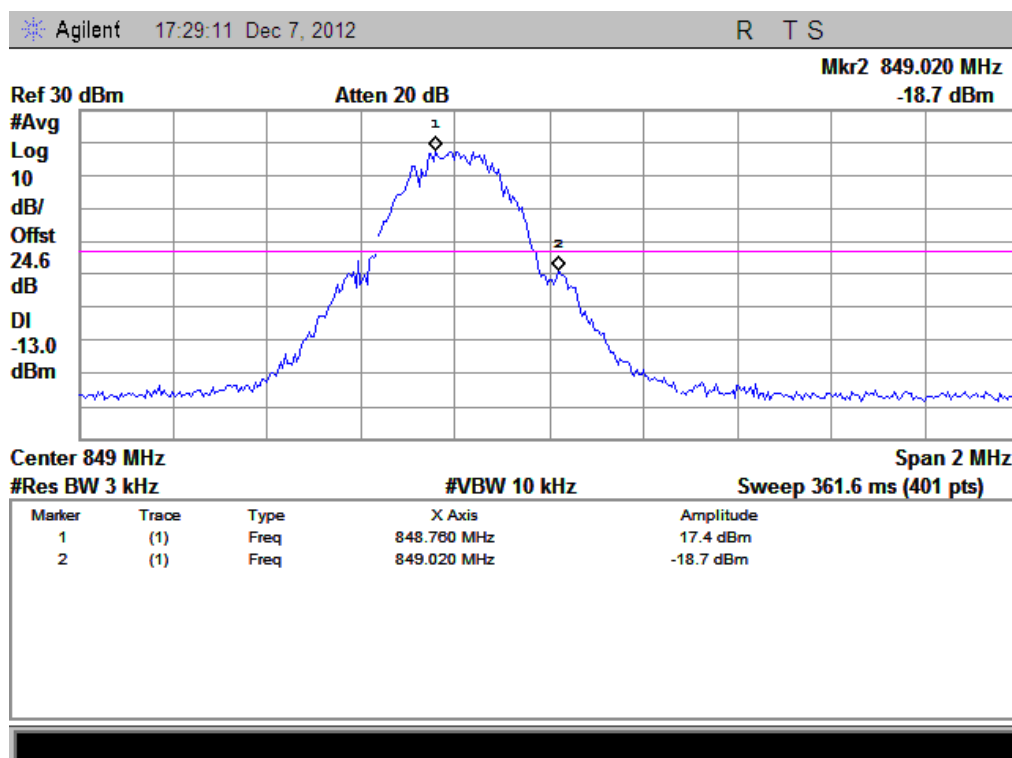
1900MHz	9538	1907.6	-18.3	Plot T		PASS
HSPA+	4132	826.4	-17.12	Plat U	-13	PASS
850MHz	4233	846.6	-17.05	Plot V		PASS
HSPA+	9262	1852.4	-17.94	Plat W	-13	PASS
1900MHz	9538	1907.6	-18.4	Plot X		PASS
GPRS	128	824.2	-15.93	Plat Y	-13	PASS
850MHz	251	848.8	-15.67	Plot Z		PASS
GPRS	512	1850.2	-16.74	Plat A1	-13	PASS
1900MHz	810	1909.8	-17.39	Plot A2		PASS



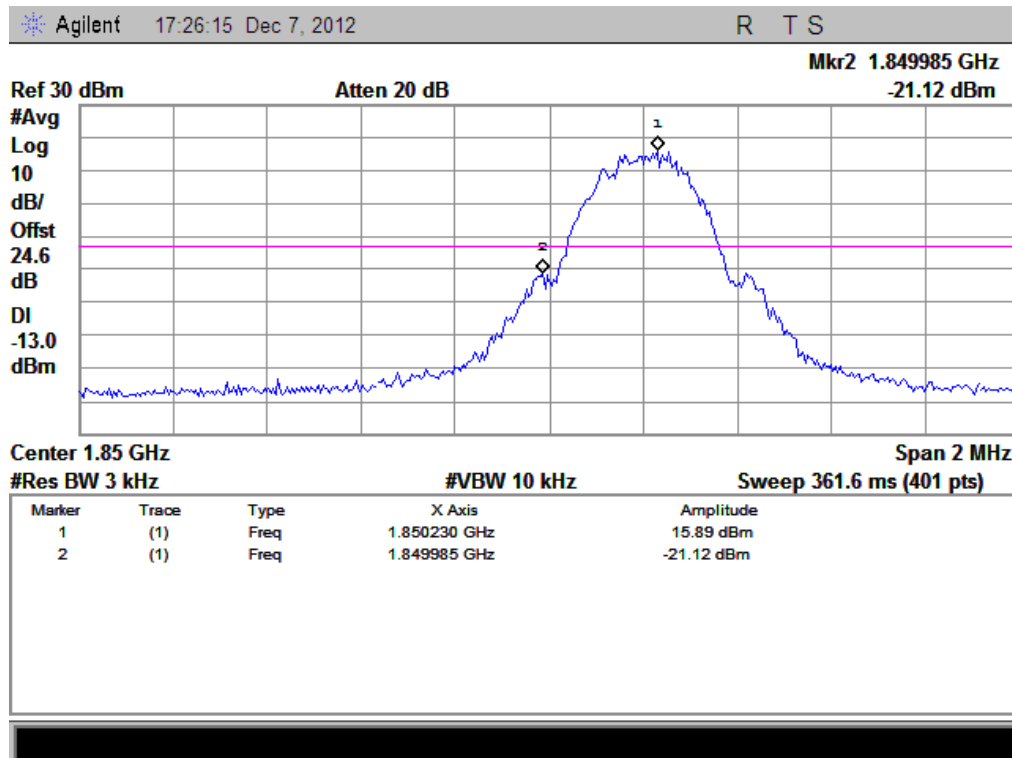
## 2. Test Plots:



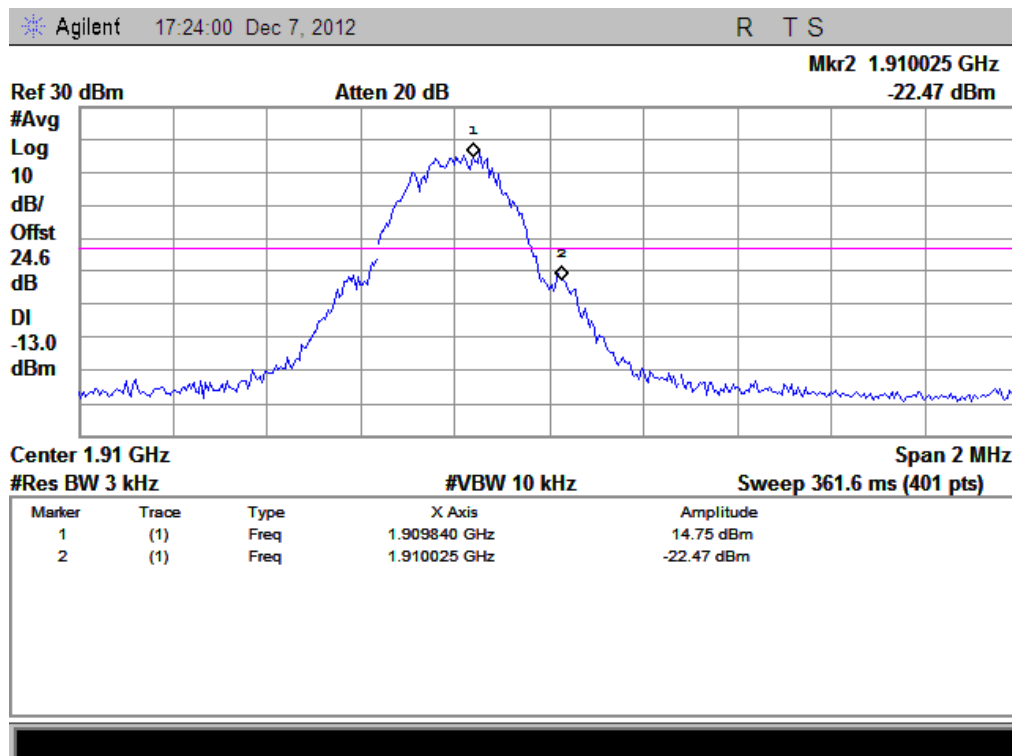
(Plot A: GSM 850 Channel = 128)



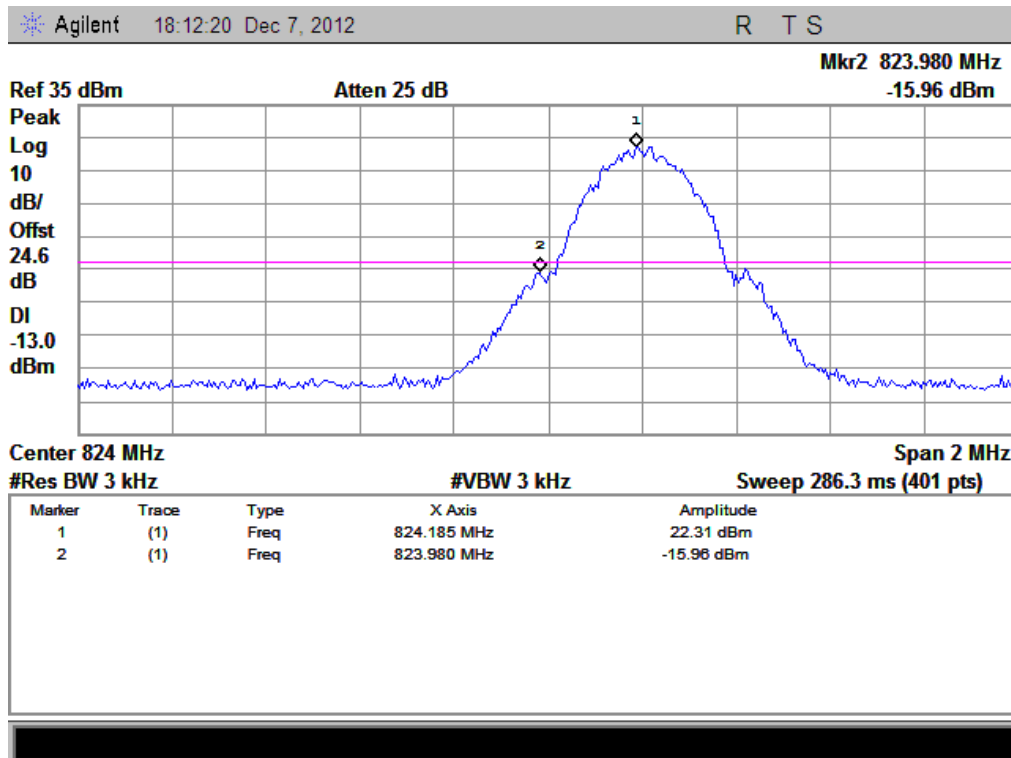
(Plot B: GSM 850 Channel = 251)



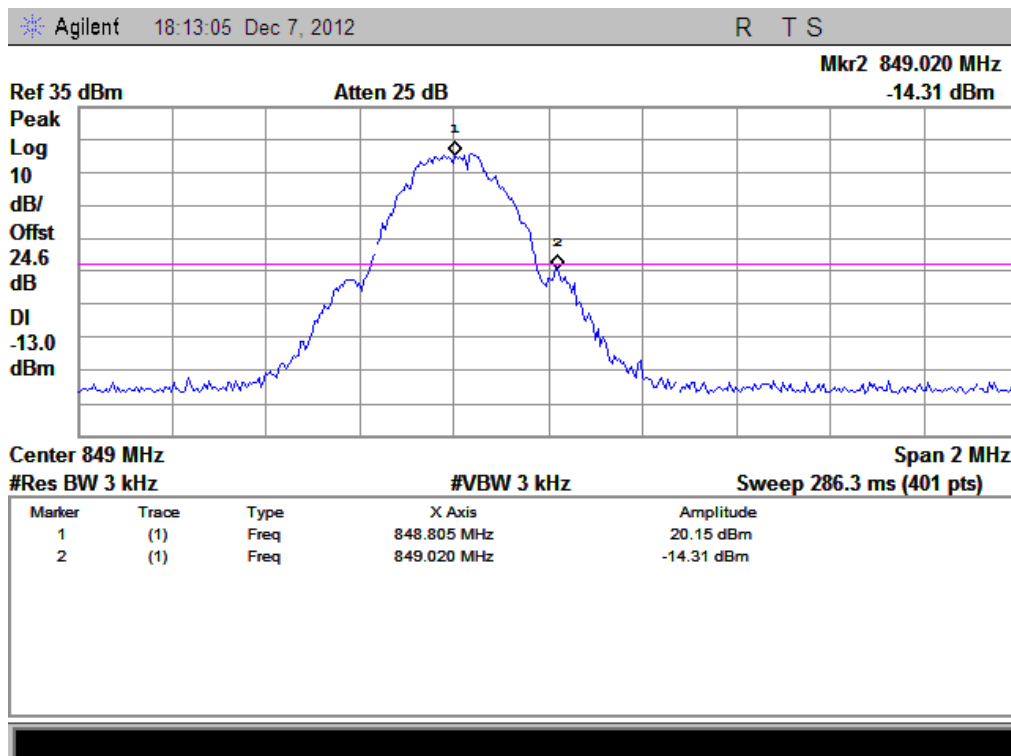
(Plot C: GSM 1900 Channel = 512)



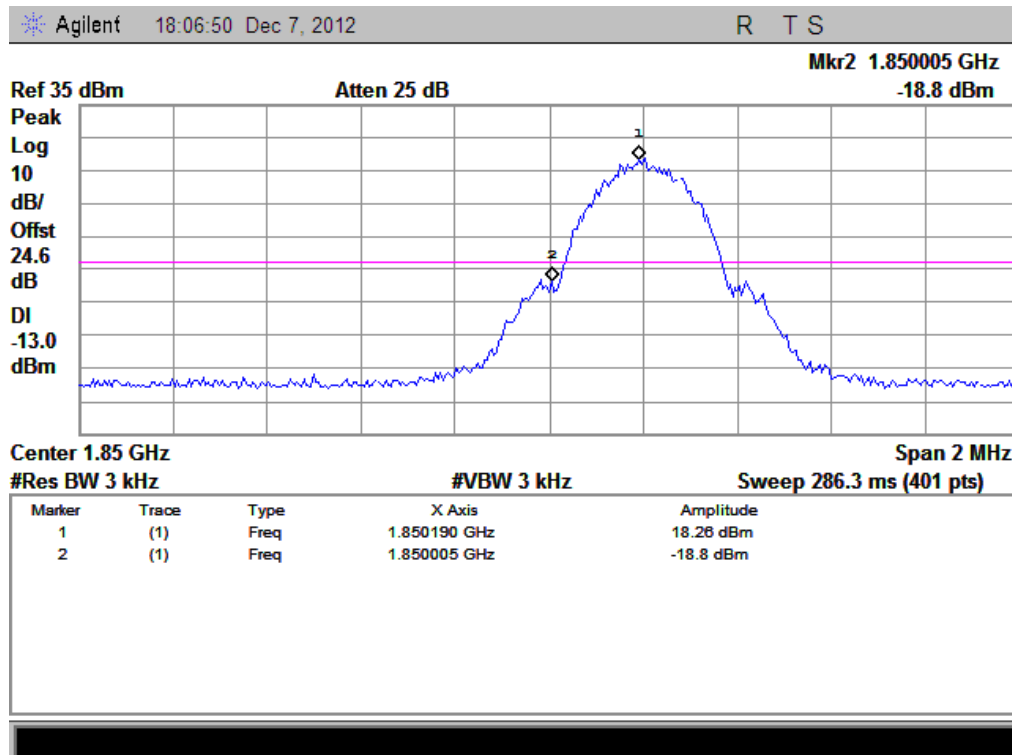
(Plot D: GSM 1900 Channel = 810)



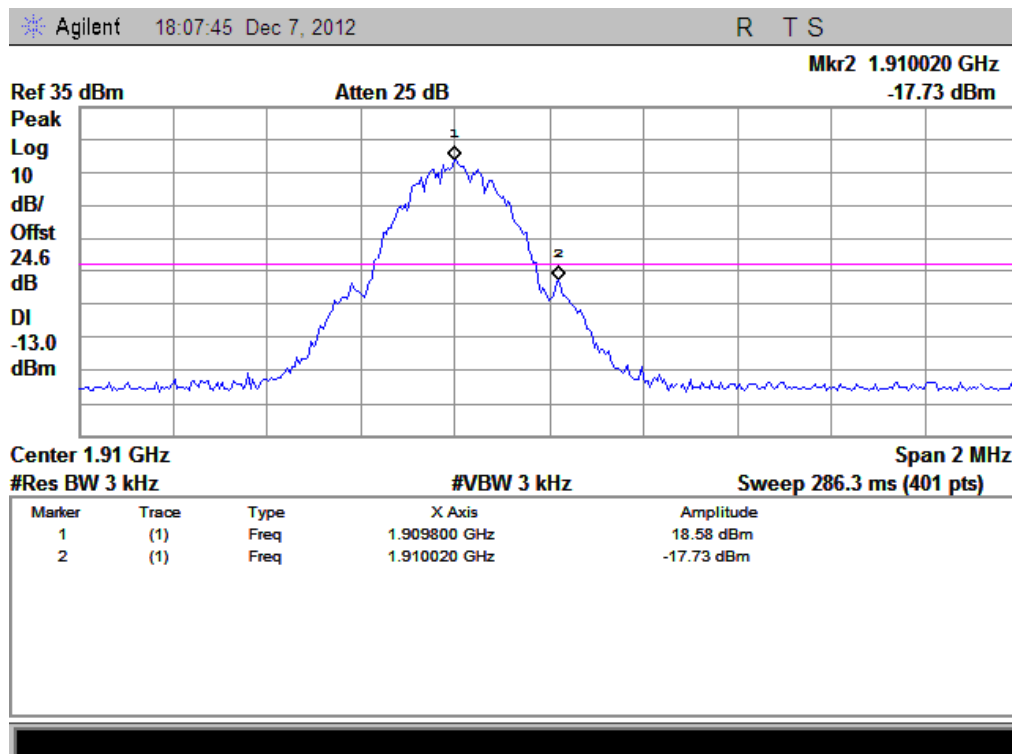
(Plot E: EDGE 850 Channel = 128)



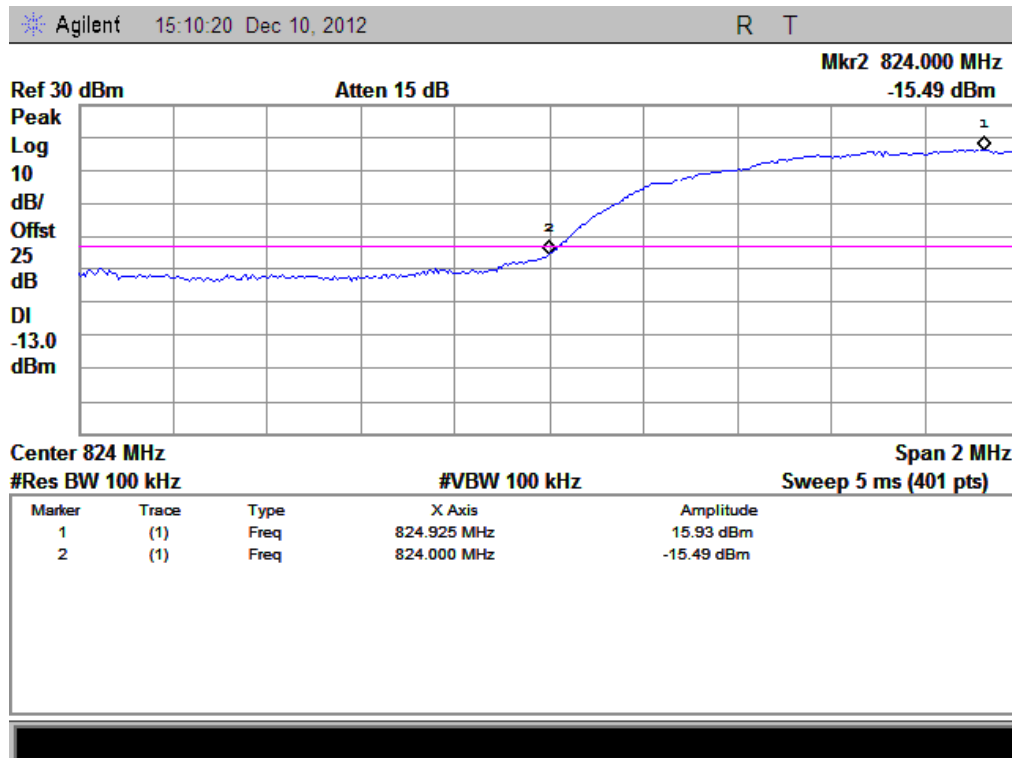
(Plot F: EDGE 850 Channel = 251)



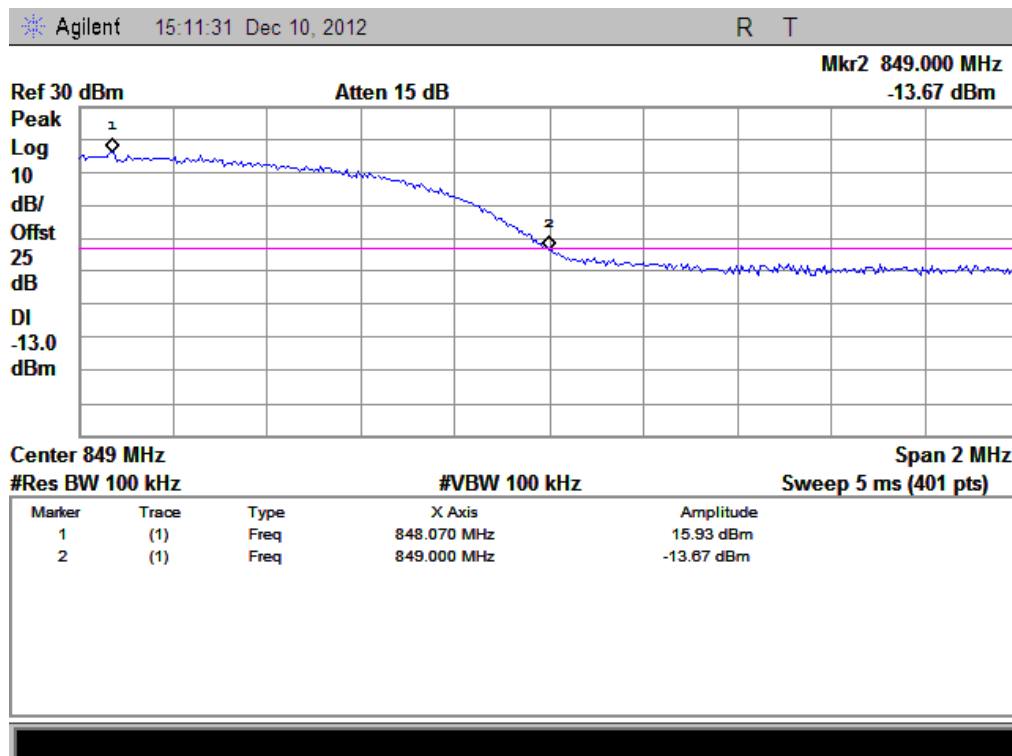
(Plot G: EDGE 1900 Channel = 512)



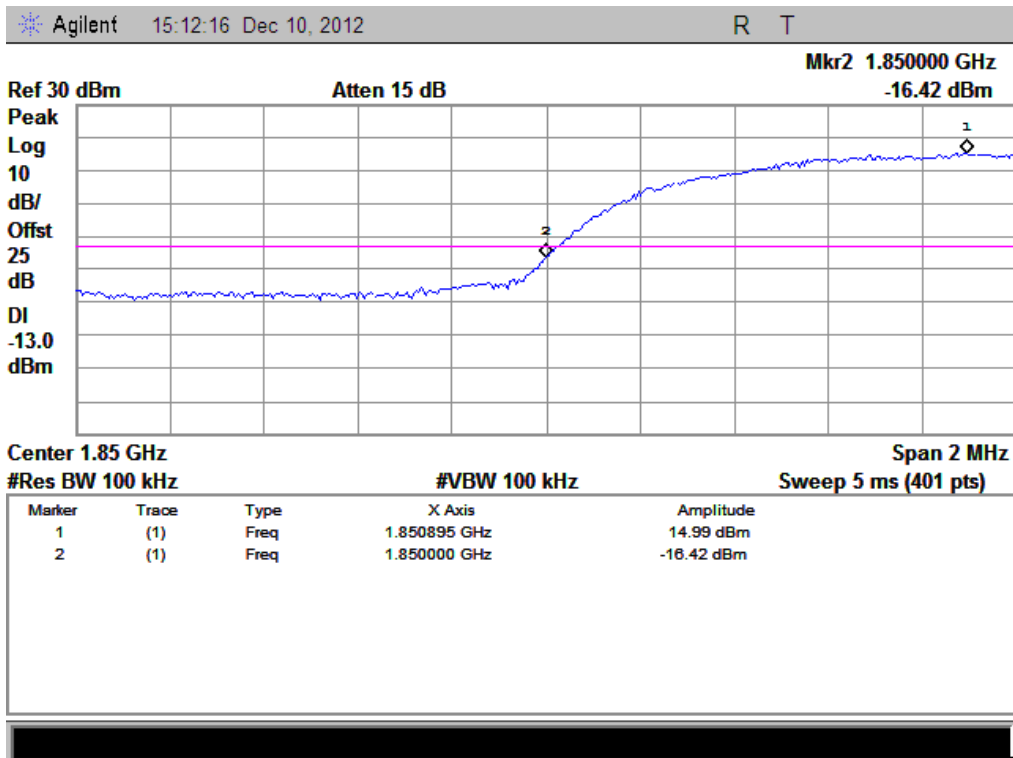
(Plot H: EDGE 1900 Channel = 810)



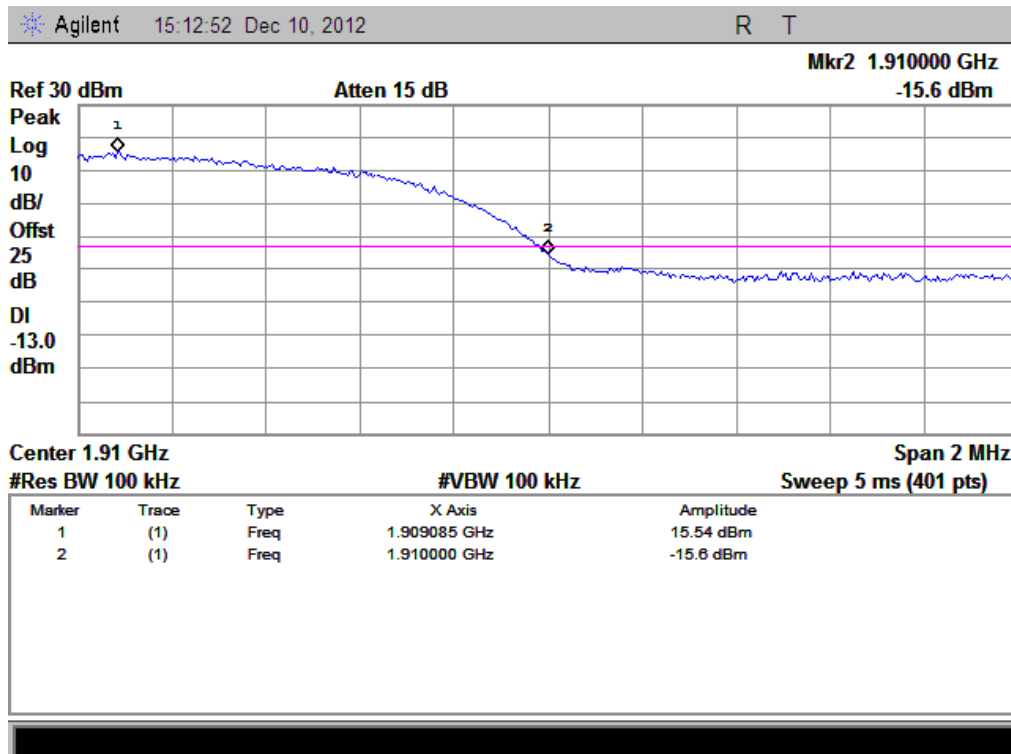
(Plot I: WCDMA 850 Channel = 4132)



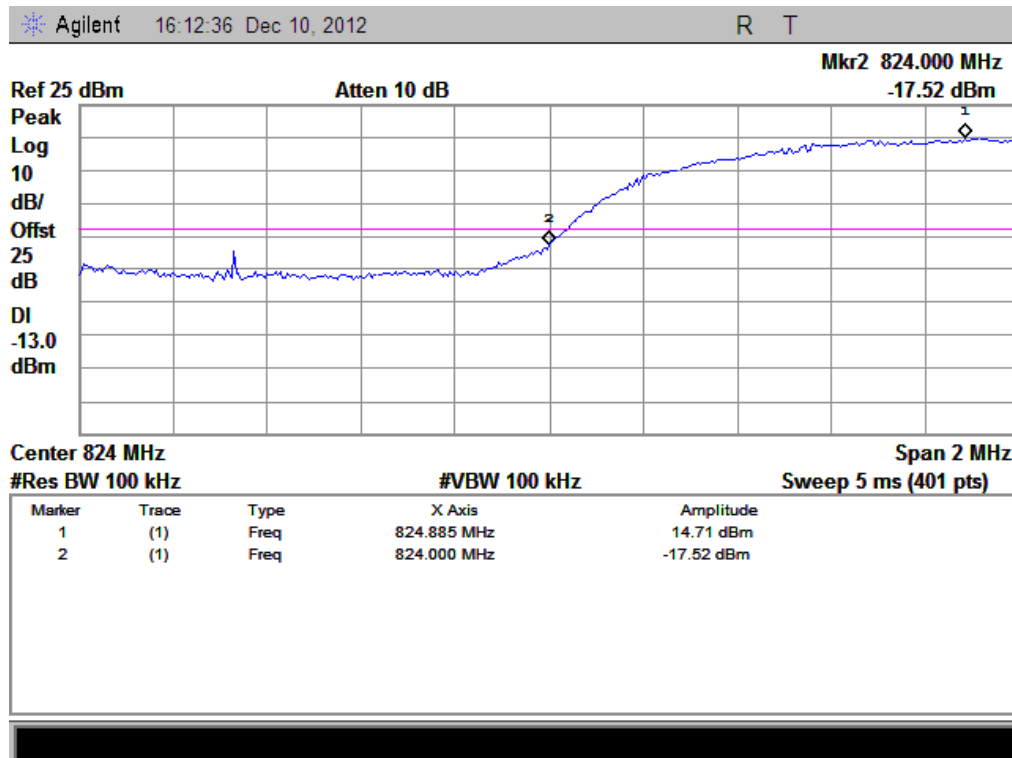
(Plot J: WCDMA 850 Channel = 4233)



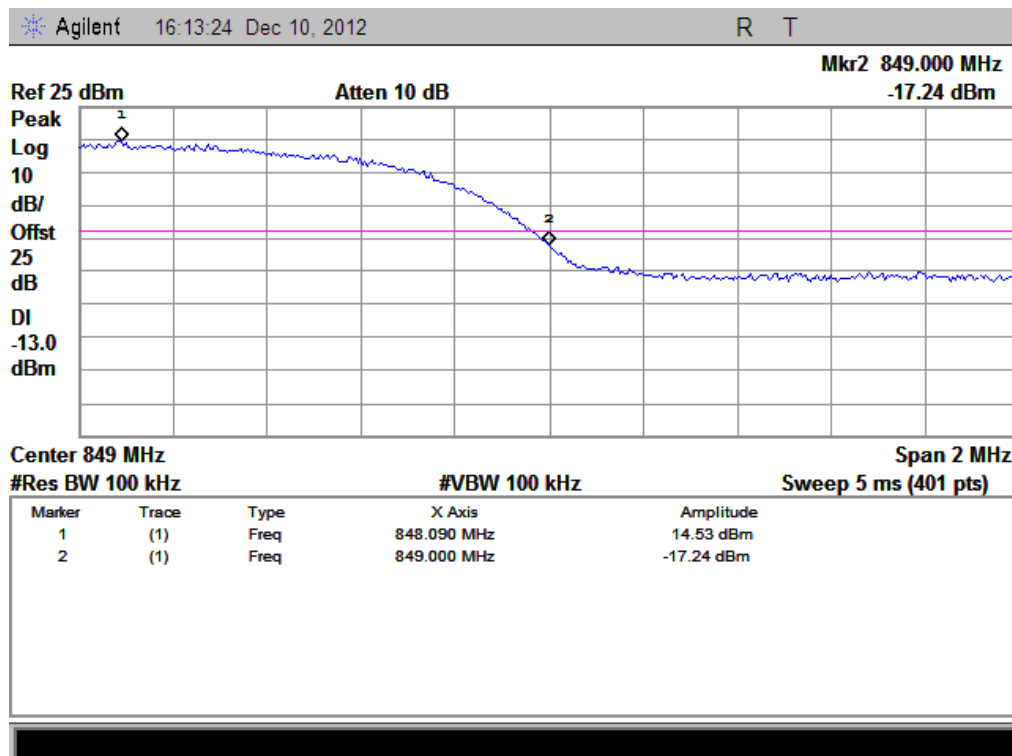
(Plot K: WCDMA 1900 Channel = 9262)



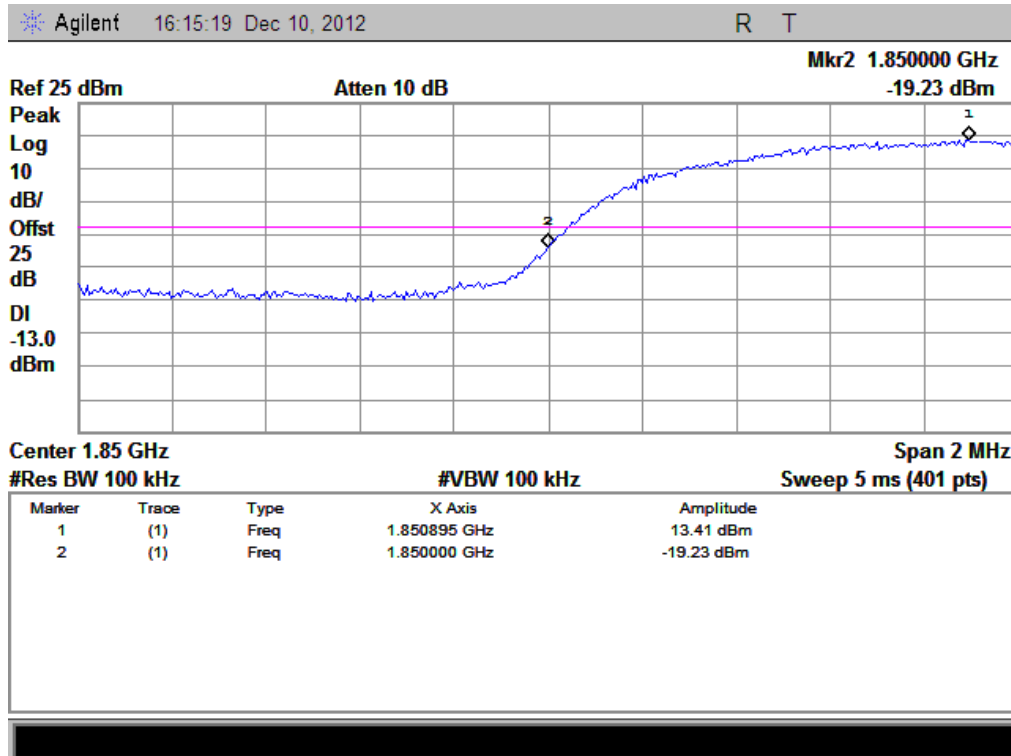
(Plot L: WCDMA 1900 Channel = 9538)



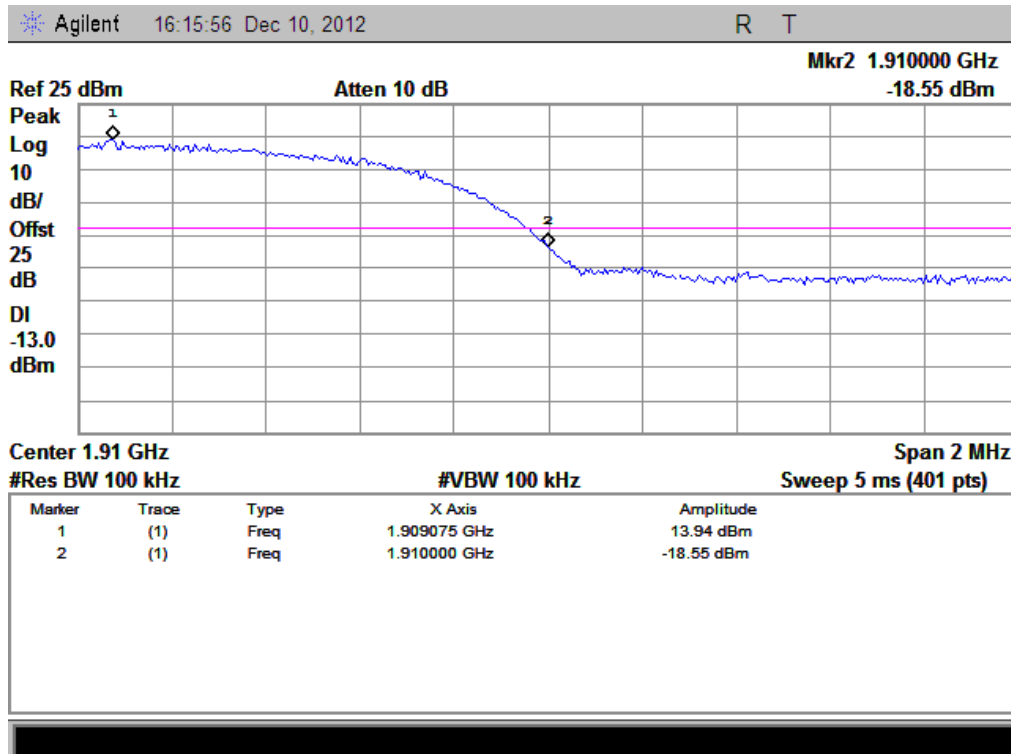
(Plot M: HSDPA 850 Channel = 4132)



(Plot N: HSDPA850 Channel = 4233)

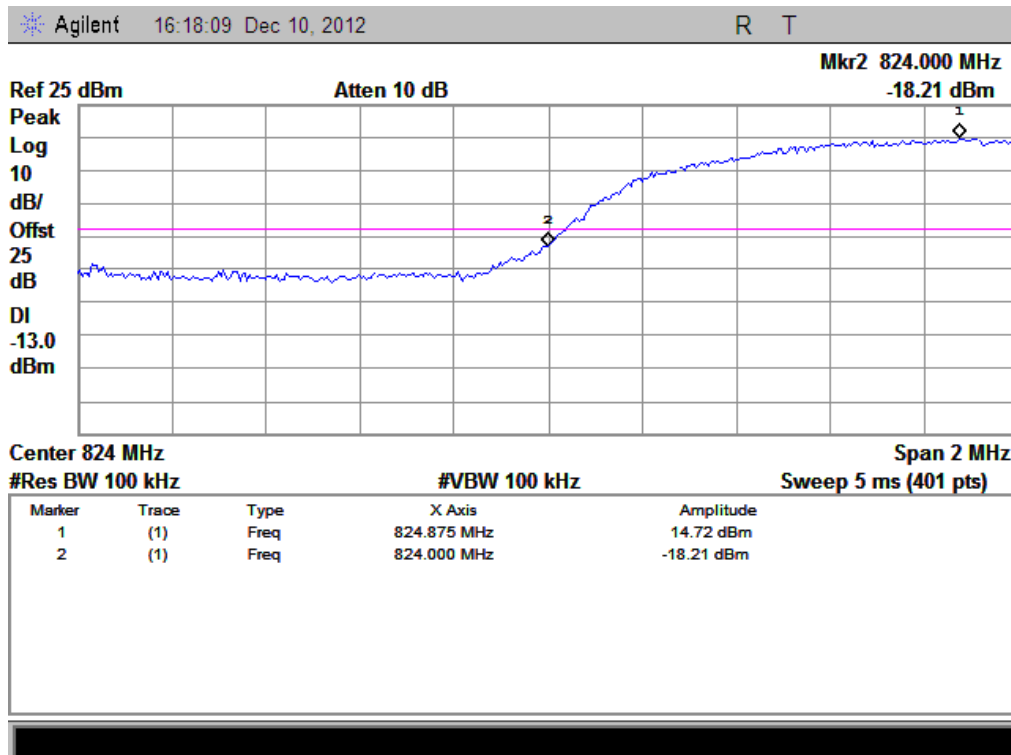


(Plot O: HSDPA 1900 Channel = 9262)

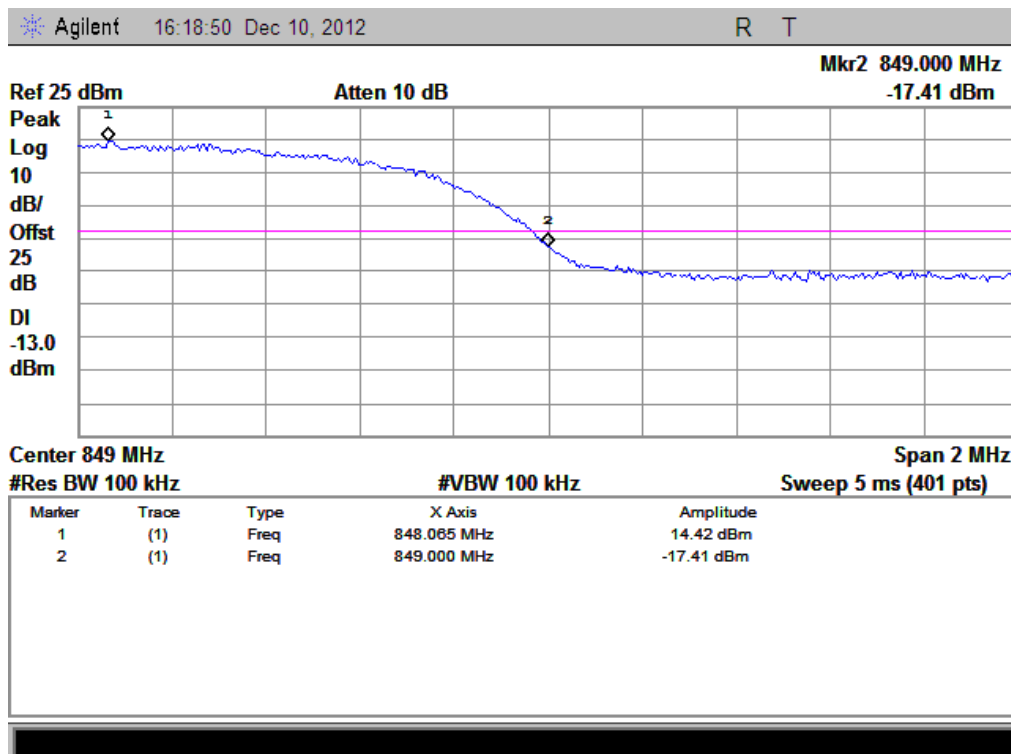


(Plot P: HSDPA 1900 Channel = 9538)

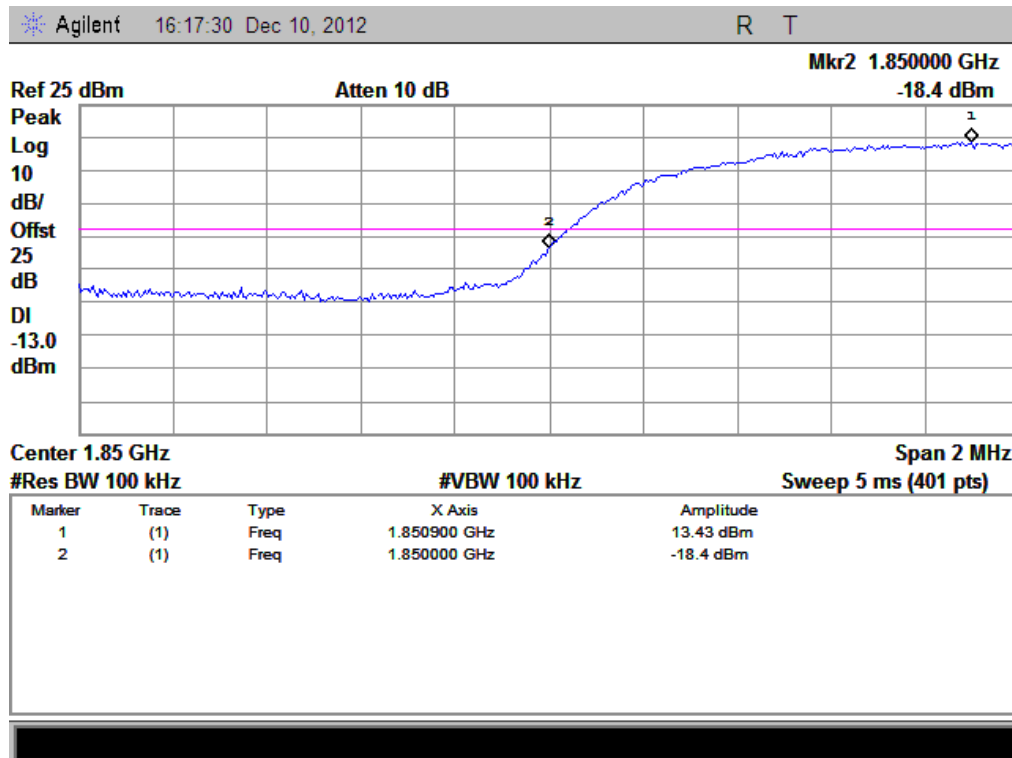




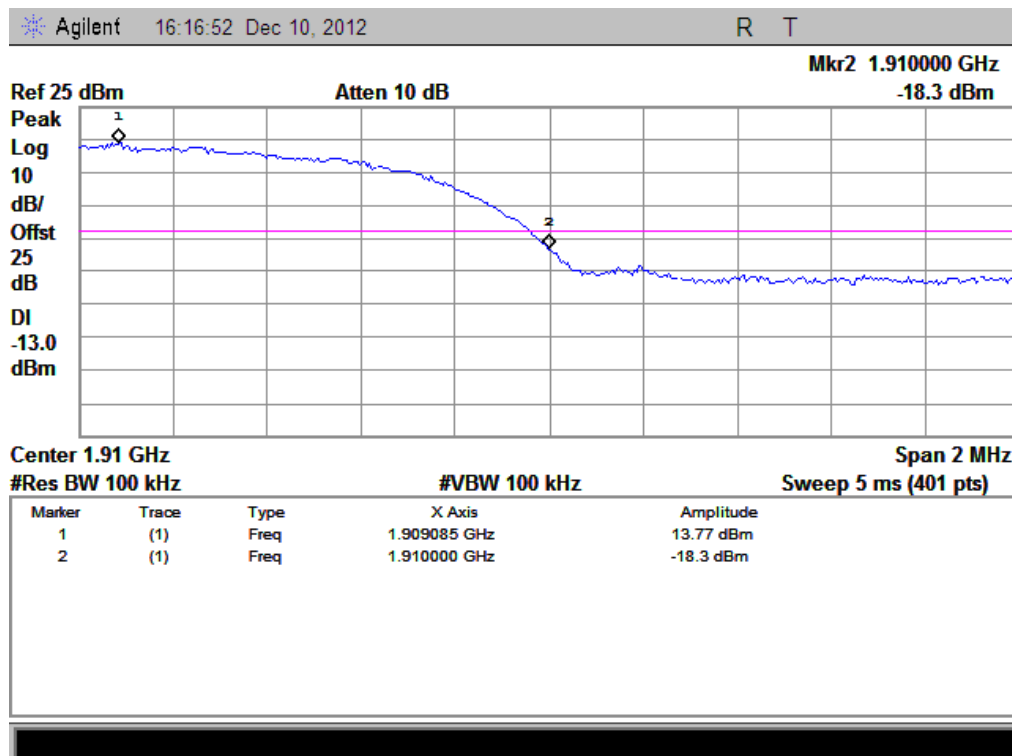
(Plot Q: HSUPA 850 Channel = 4132)



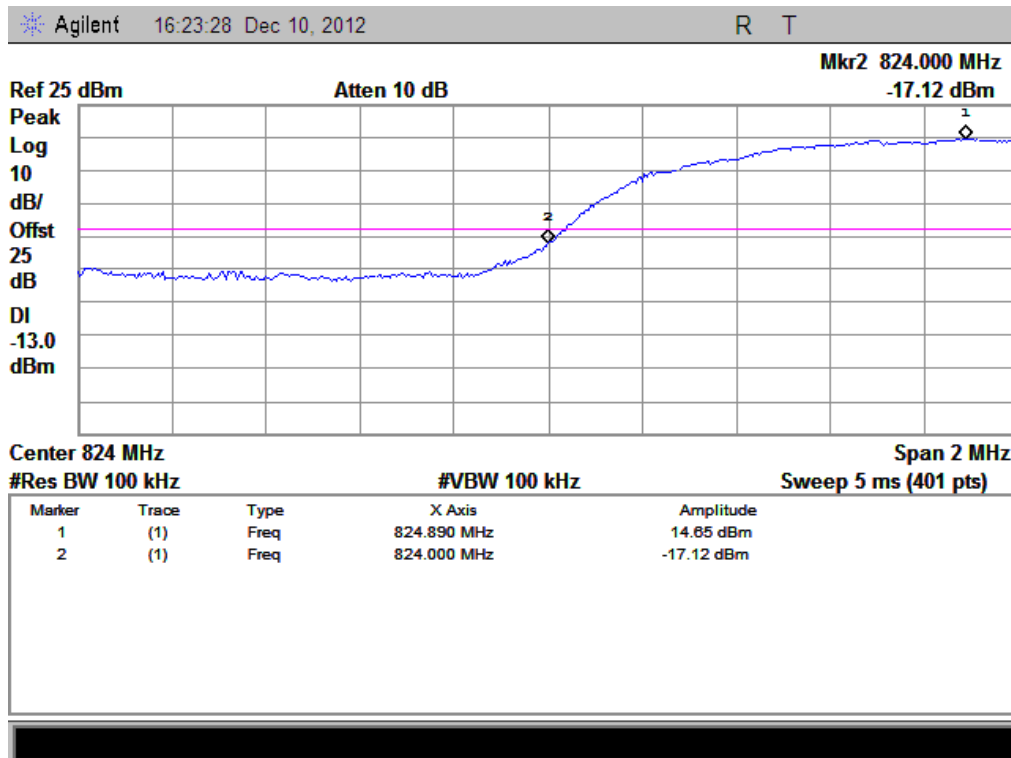
(Plot R: HSUPA850 Channel = 4233)



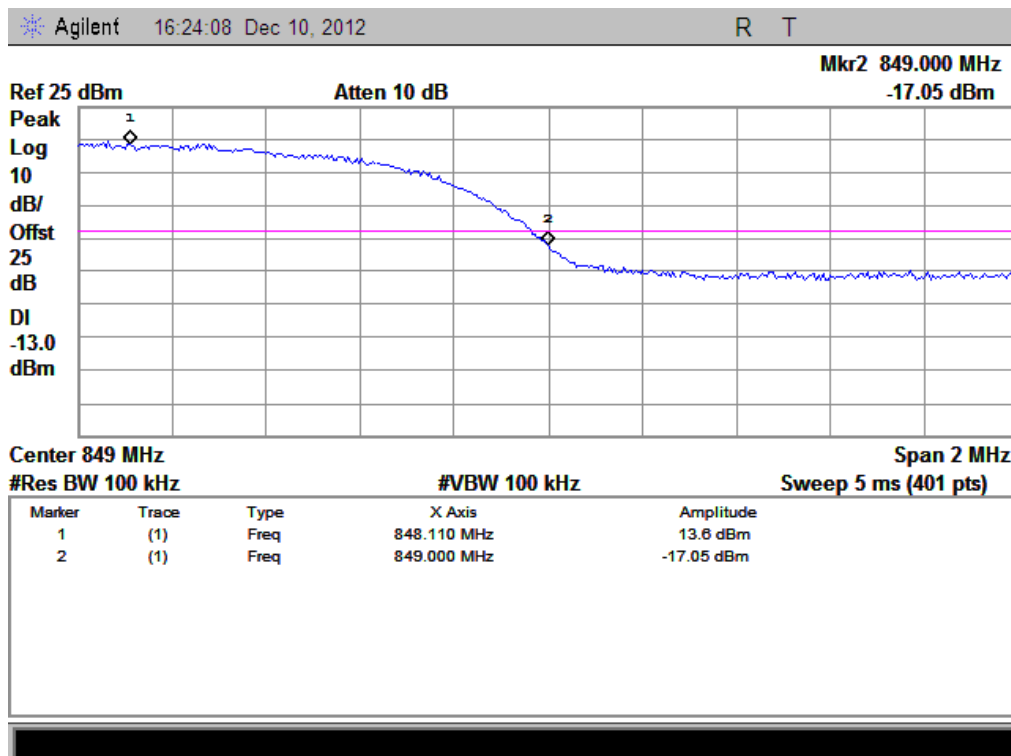
(Plot S: HSUPA 1900 Channel = 9262)



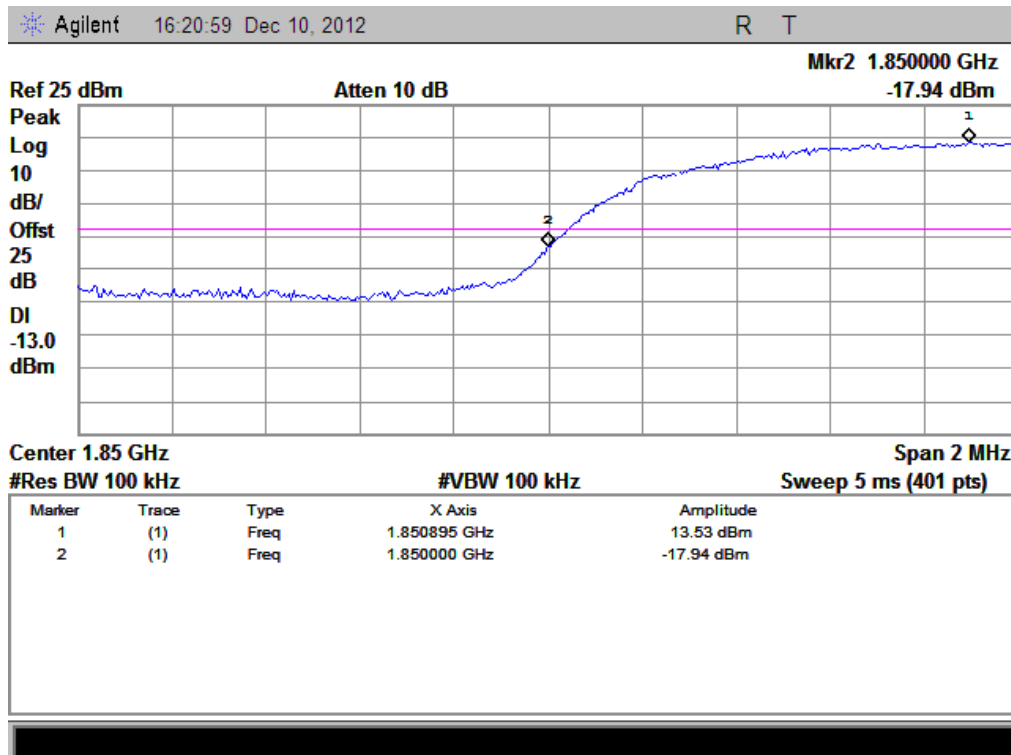
(Plot T: HSUPA 1900 Channel = 9538)



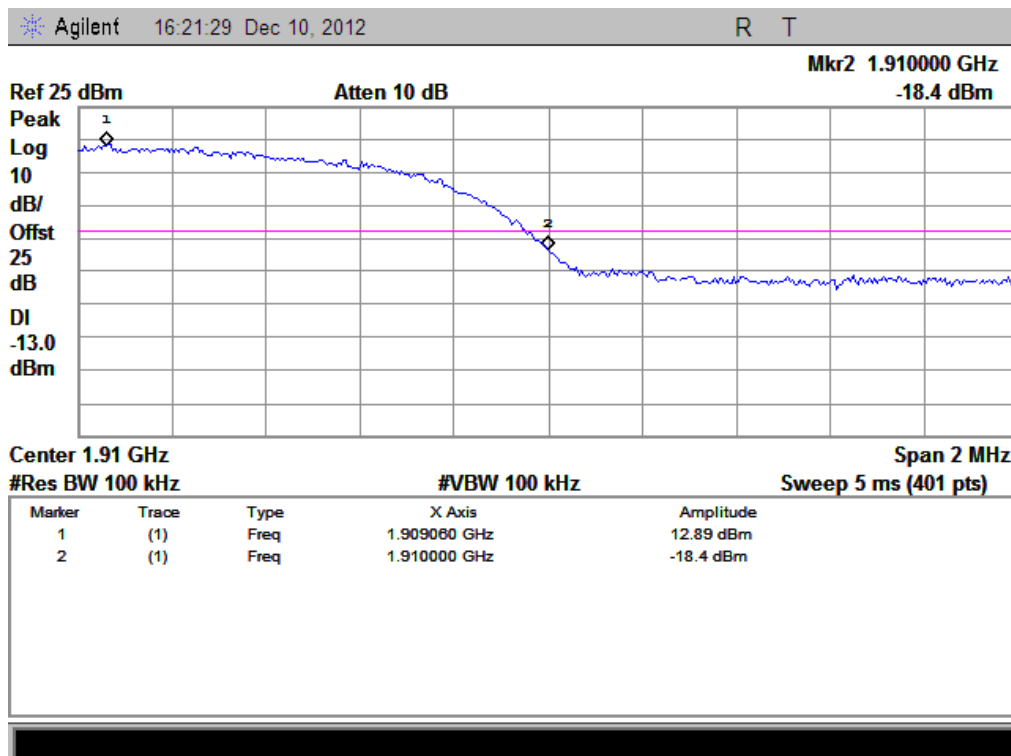
(Plot U: HSPA+ 850 Channel = 4132)



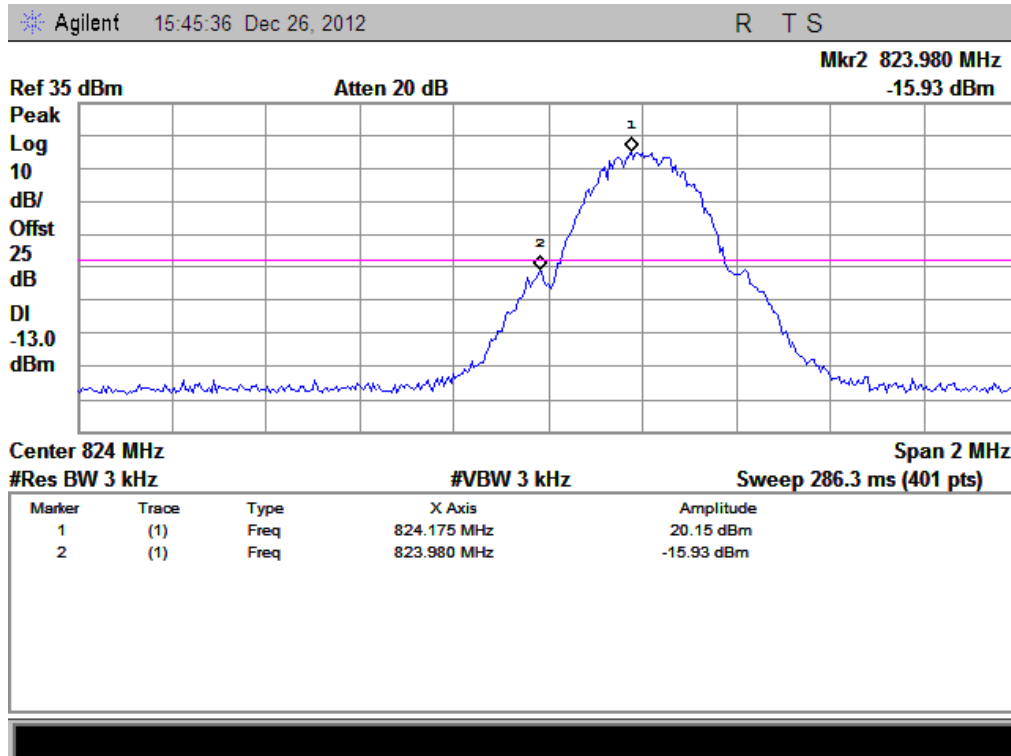
(Plot V: HSPA+850 Channel = 4233)



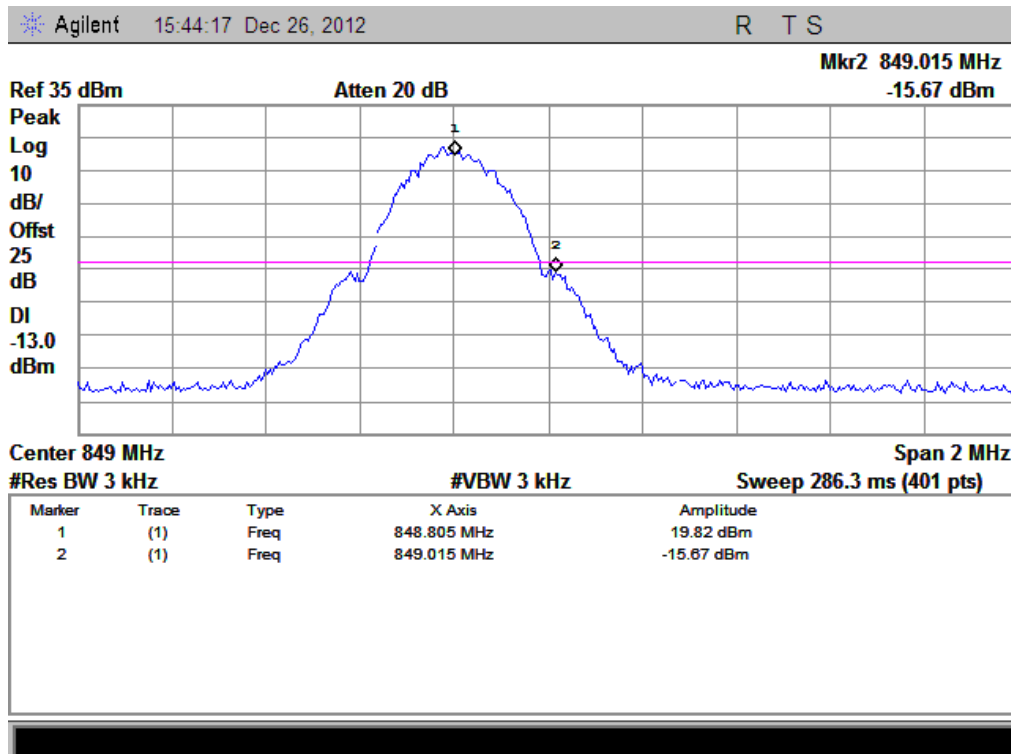
(Plot W: HSPA+ 1900 Channel = 9262)



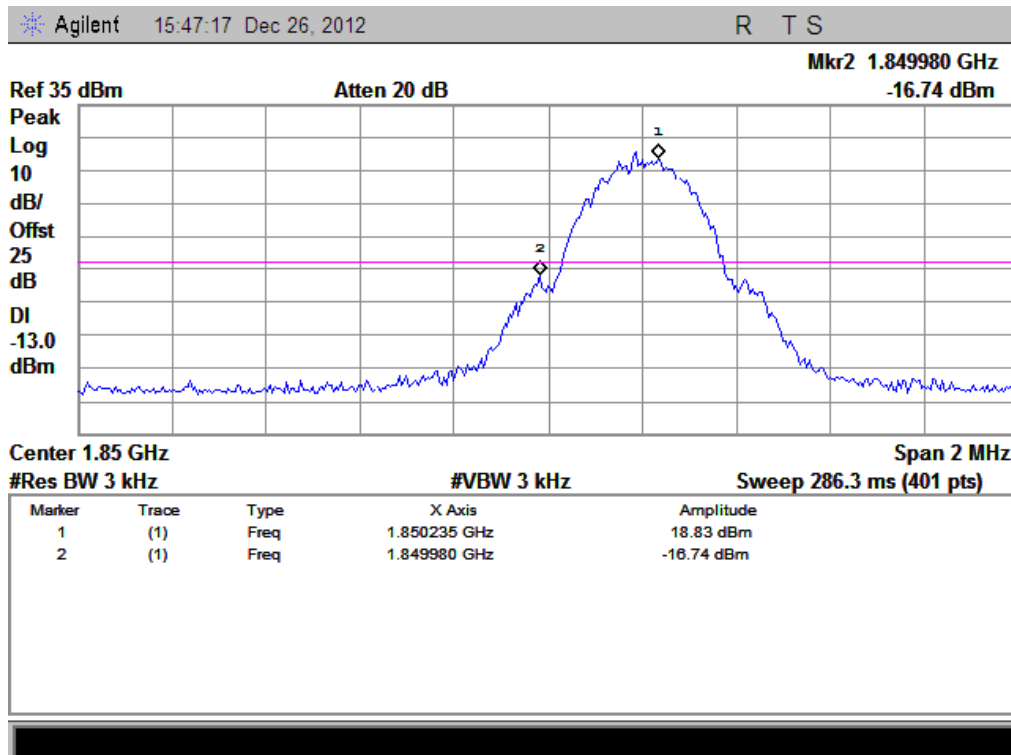
(Plot X: HSPA+ 1900 Channel = 9538)



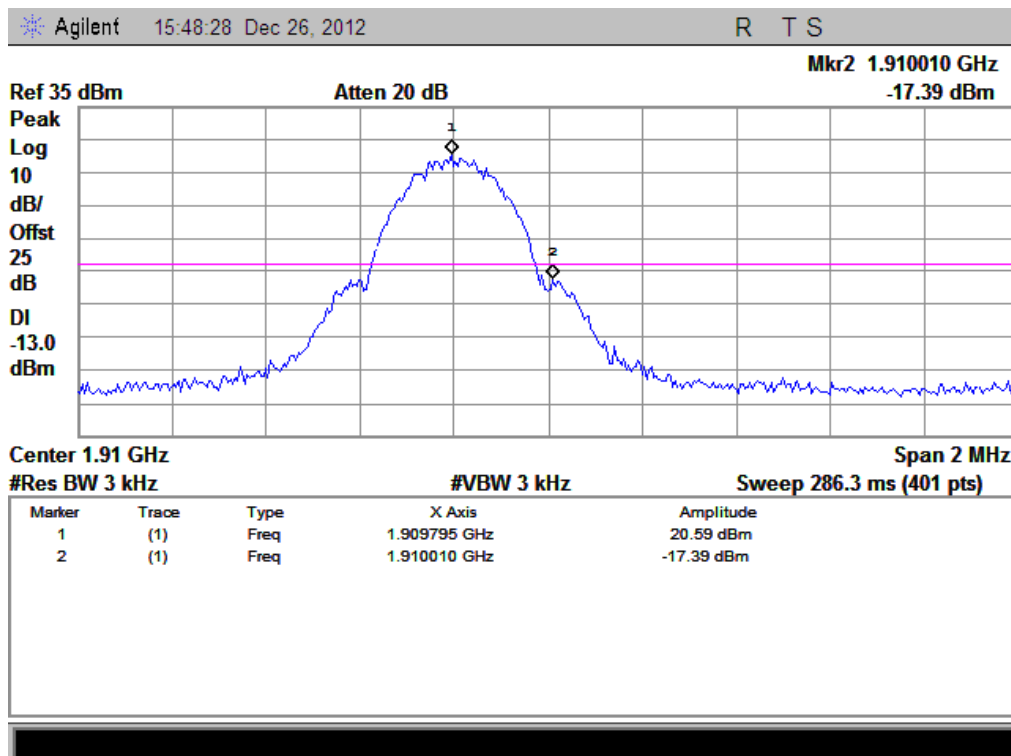
(Plot Y: GPRS 850 Channel = 128)



(Plot Z: GPRS 850 Channel = 251)



(Plot A 1: GPRS 1900 Channel = 512)



(Plot A2: GPRS 1900 Channel = 810)

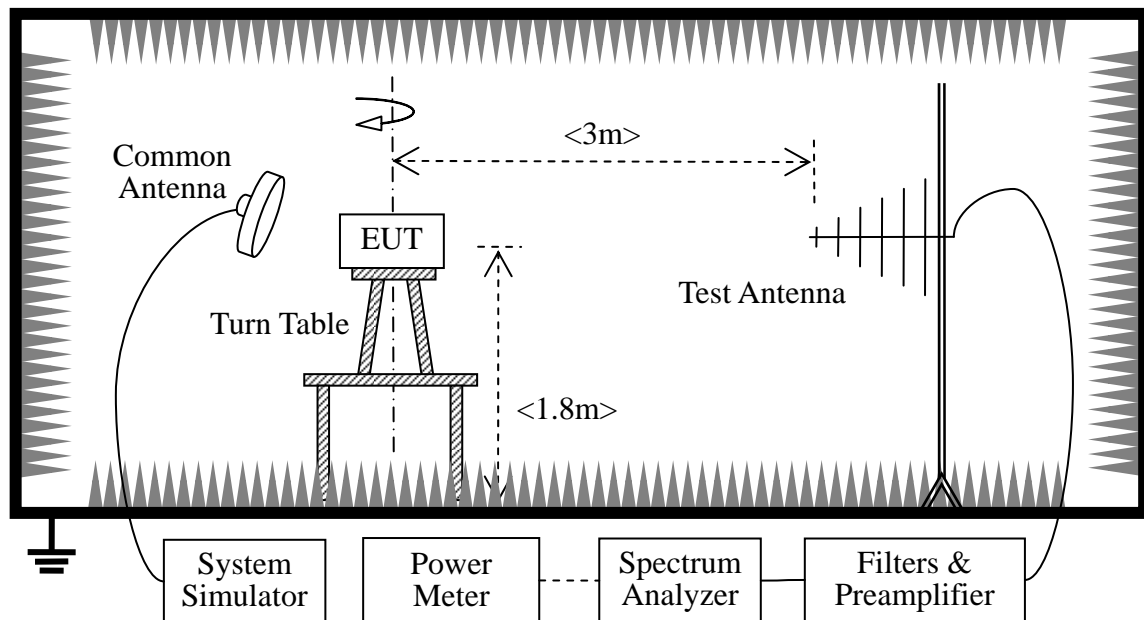
## 2.6 Transmitter Radiated Power (EIRP/ERP)

### 2.6.1 Requirement

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

### 2.6.2 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: GSM850 33.27dBm, GSM 1900 29.72dBm, WCDMA 850 22.2, WCDMA 1900 21.98, Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

- Minimum RF power: GSM850 3.1dBm, GSM 1900 0.3dBm, WCDMA 850 2.09dBm, WCDMA 1900 0.5dBm.

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	2013.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2012.05	2013.05
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2012.05	2013.05
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2012.05	2013.05
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2012.05	2013.05

### 2.6.3 Test Result

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

The substitution corrections are obtained as described below:

$$A_{\text{SUBST}} = P_{\text{SUBST\_TX}} - P_{\text{SUBST\_RX}} - L_{\text{SUBST\_CABLES}} + G_{\text{SUBST\_TX\_ANT}}$$

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

Where  $A_{\text{SUBST}}$  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.

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

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



## 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	33.21	2.094	Plot A	38.5	7	PASS
	190	836.60	5	32.75	1.884				PASS
	251	848.80	5	31.8	1.514				PASS
GPRS 850MHz	128	824.20	5	29.68	0.929	Plot B <sup>Note 1</sup>	38.5	7	PASS
	190	836.60	5	29.85	0.966				PASS
	251	848.80	5	31.15	1.303				PASS
EGPRS 850MHz	128	824.20	5	31.14	1.300	Plot C <sup>Note 1</sup>	38.5	7	PASS
	190	836.60	5	30.69	1.172				PASS
	251	848.80	5	30.54	1.132				PASS

Band	Channel	Frequency (MHz)	PCL	Measured EIRP			Limit		Verdict
				dBm	W	Refer to Plot	dBm	W	
GSM 1900MHz	512	1850.2	0	28.3	0.676	Plot D	33	2	PASS
	661	1880.0	0	27.48	0.560				PASS
	810	1909.8	0	29.11	0.815				PASS
GPRS 1900MHz	512	1850.2	0	27.17	0.521	Plot E <sup>Note 1</sup>	33	2	PASS
	661	1880.0	0	26.72	0.470				PASS
	810	1909.8	0	27.33	0.541				PASS
EGPRS 1900MHz	512	1850.2	0	29.28	0.847	Plot F <sup>Note 1</sup>	33	2	PASS
	661	1880.0	0	28.48	0.705				PASS
	810	1909.8	0	28.91	0.778				PASS

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

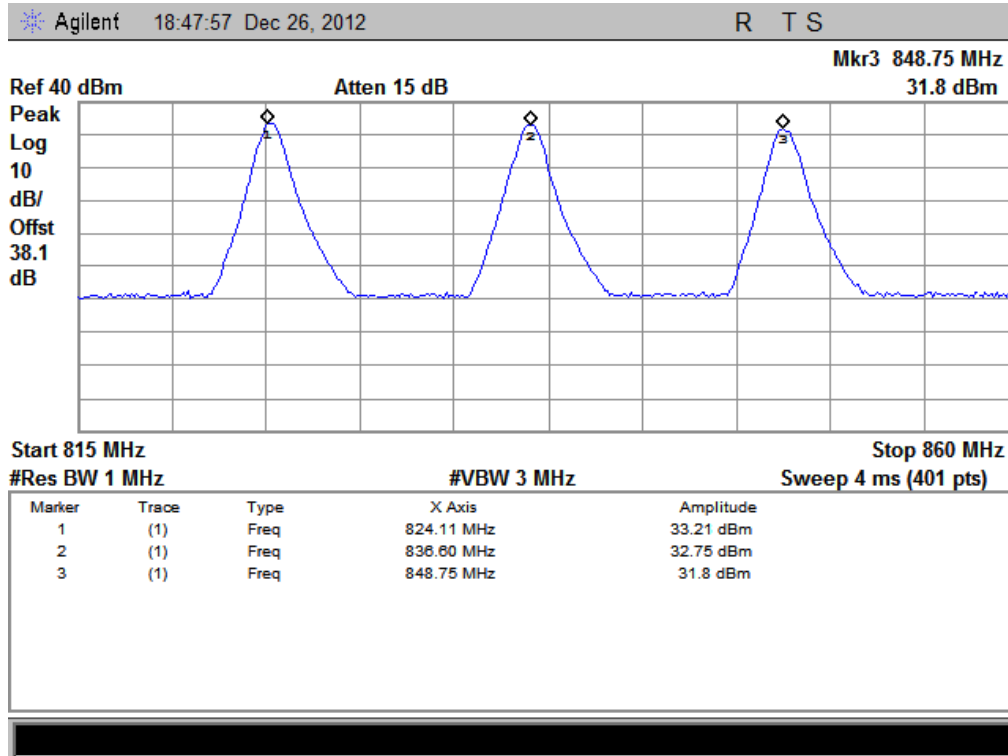
## 2. WCDMA Model Test Verdict:

Band	Channel	Frequency (MHz)	Measured ERP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA 850MHz	4132	826.4	22.16	0.164	38.5	7	PASS
	4175	835	21.77	0.150			PASS
	4233	846.6	22.13	0.163			PASS
HSDPA 850MHz	4132	826.4	22.09	0.162	38.5	7	PASS
	4175	835	21.59	0.144			PASS
	4233	846.6	22.11	0.163			PASS
HSUPA 850MHz	4132	826.4	21.92	0.156	38.5	7	PASS
	4175	835	21.71	0.148			PASS
	4233	846.6	21.83	0.152			PASS
HSPA+ 850MHz	4132	826.4	22.11	0.163	38.5	7	PASS
	4175	835	21.65	0.146			PASS
	4233	846.6	22.09	0.162			PASS

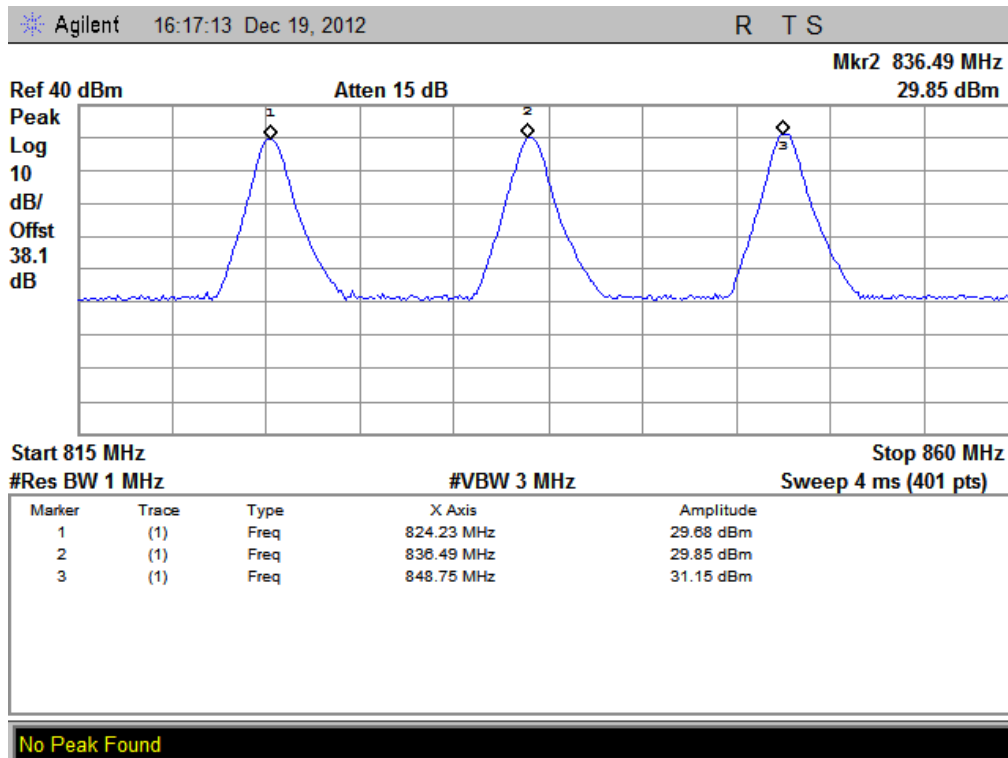
Band	Channel	Frequency (MHz)	Measured EIRP		Limit		Verdict
			dBm	W	dBm	W	
WCDMA 1900MHz	9262	1852.4	21.55	0.143	33	2	PASS
	9400	1880	21.67	0.147			PASS
	9538	1907.6	21.83	0.152			PASS
HSDPA 1900MHz	9262	1852.4	21.51	0.142	33	2	PASS
	9400	1880	21.75	0.150			PASS
	9538	1907.6	21.67	0.147			PASS
HSUPA 1900MHz	9262	1852.4	21.47	0.140	33	2	PASS
	9400	1880	21.68	0.147			PASS
	9538	1907.6	21.72	0.149			PASS
HSPA+ 1900MHz	9262	1852.4	19.11	0.081	33	2	PASS
	9400	1880	18.77	0.076			PASS
	9538	1907.6	19.33	0.086			PASS

Note2: For the WCDMA and HSDPA test band, the measured output power was calculated by the reading of the Power Meter.

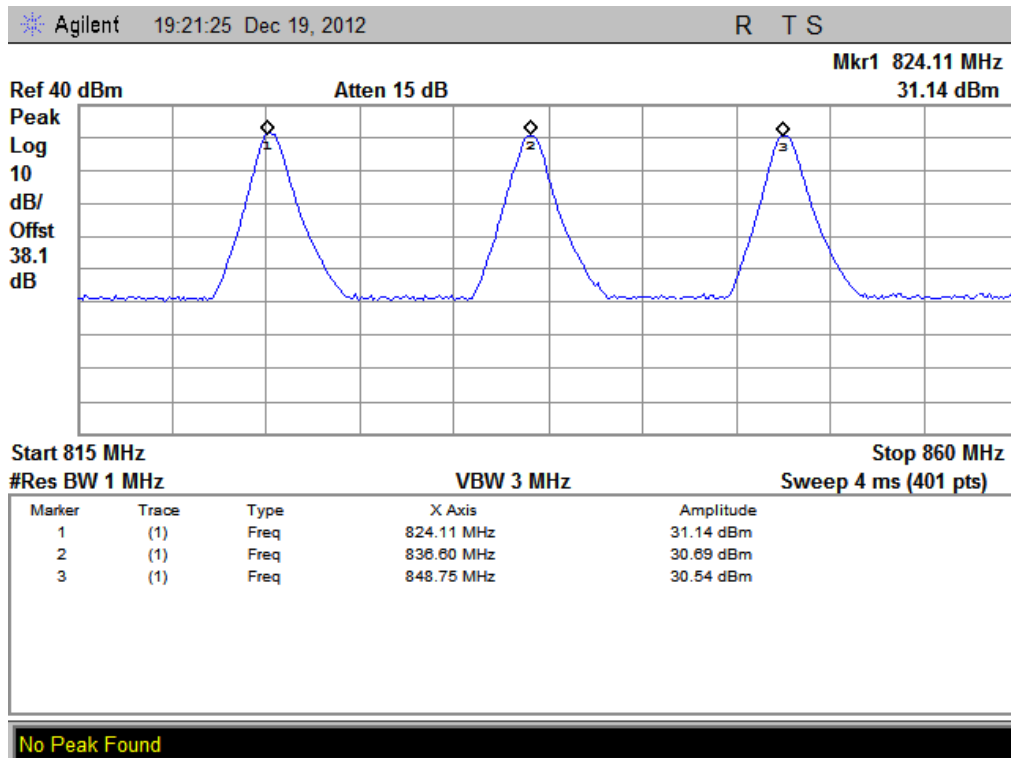
3. Test Plots:



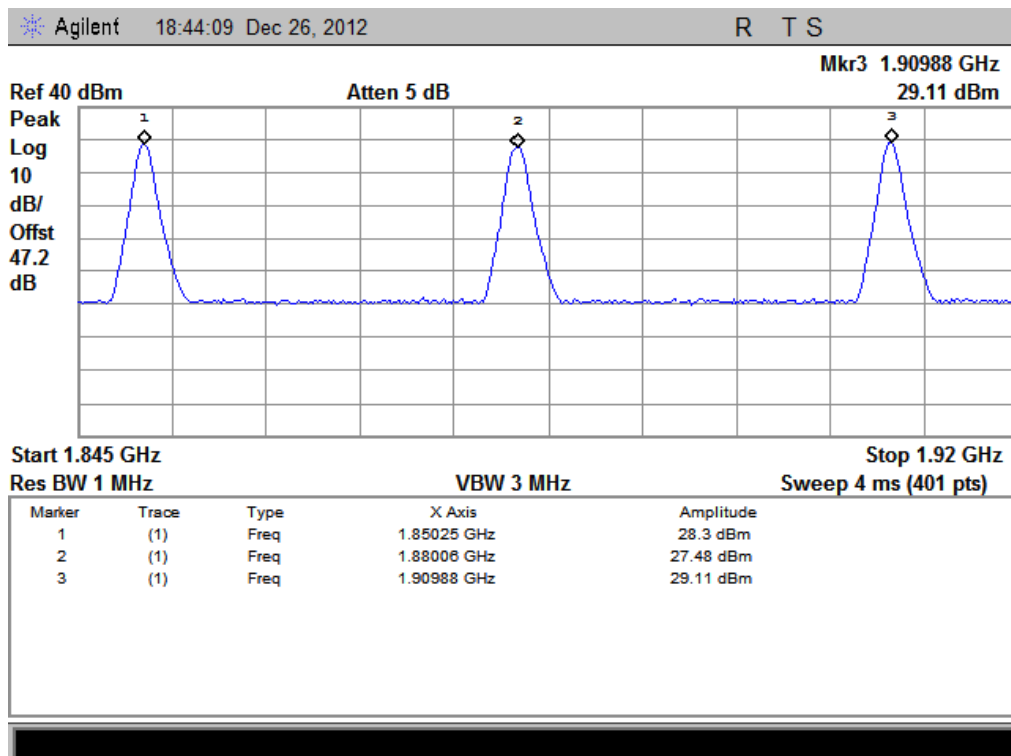
(Plot A: GSM 850MHz Channel = 128, 190, 251)



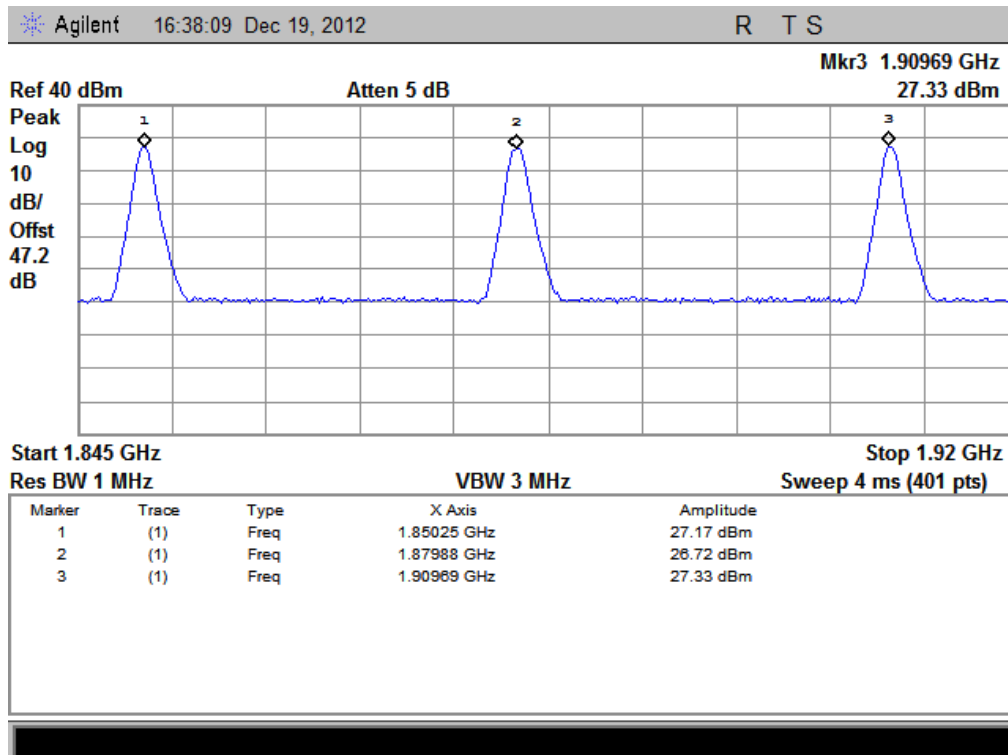
(Plot B: GPRS 850MHz Channel = 128, 190, 251)



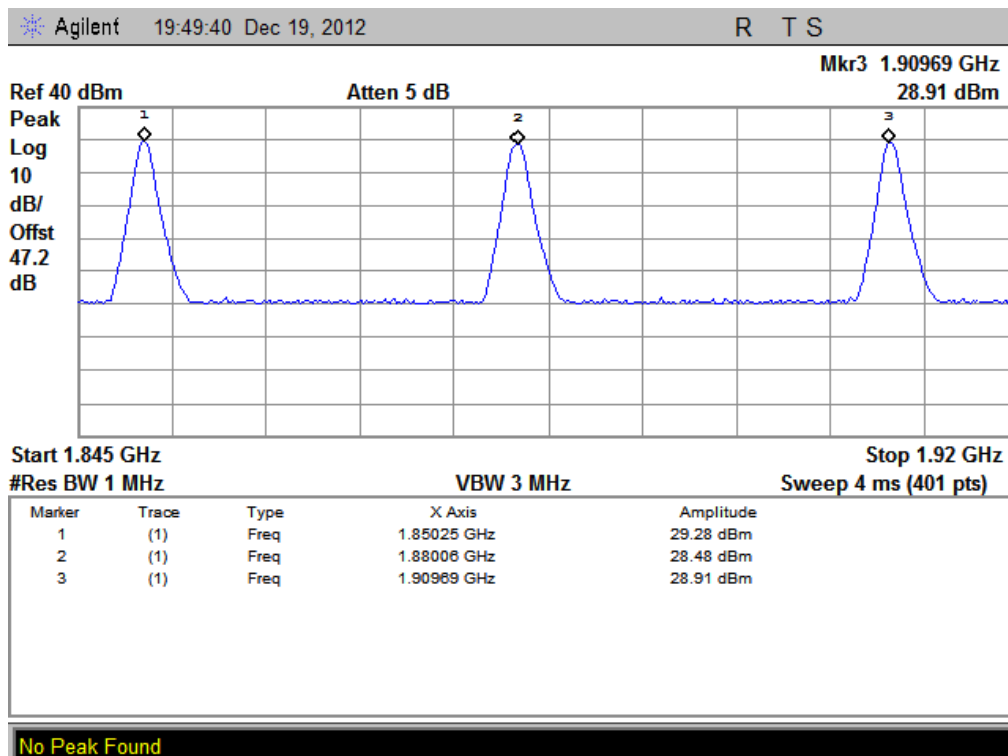
(Plot C: EDGE 850MHz Channel = 128, 190, 251)



(Plot D: GSM1900MHz Channel = 512, 661, 810)



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



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

## 2.7 Radiated Out of Band Emissions

### 2.7.1 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.

### 2.7.2 Test Description

See section 2.6.2 of this report.

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

### 2.7.3 Test Result

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

#### 1. Test Verdict:

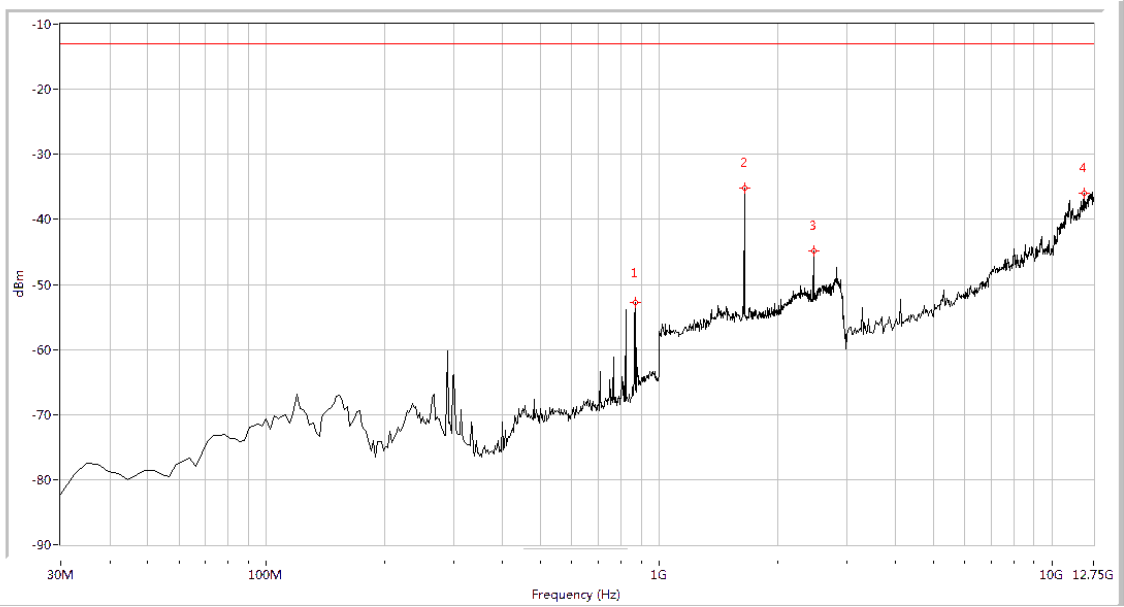
Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical			
GSM 850MHz	128	824.2	< -25	< -25	Plot A.1/A.2	-13	PASS
	190	836.6	< -25	< -25	Plot A.3/A.4		PASS
	251	848.8	< -25	< -25	Plot A.5/A.6		PASS
GSM 1900MHz	512	1850.2	-22.90	< -25	Plot B.1/B.2	-13	PASS
	661	1880.0	-20.8	< -25	Plot B.3/B.4		PASS
	810	1909.8	-17.2	-23.55	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	-24.62	< -25	Plot D.1/D.2	-13	PASS
	661	1880.0	-20.27	< -25	Plot D.3/D.4		PASS
	810	1909.8	-20.54	< -25	Plot D.5/D.6		PASS

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical			
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
HSPA+ 850MHz	4357	826.4	< -25	< -25	Plot K.1/K.2	-13	PASS
	4400	835	< -25	< -25	Plot K.3/K.4		PASS
	4458	846.6	< -25	< -25	Plot K.5/K.6		PASS
HSPA+ 1900MHz	9662	1852.4	< -25	< -25	Plot L.1/L.2	-13	PASS
	9800	1880	< -25	< -25	Plot L.3/L.4		PASS
	9938	1907.6	< -25	< -25	Plot L.5/L.6		PASS

## 2. Test Plots for the Whole Measurement Frequency Range:

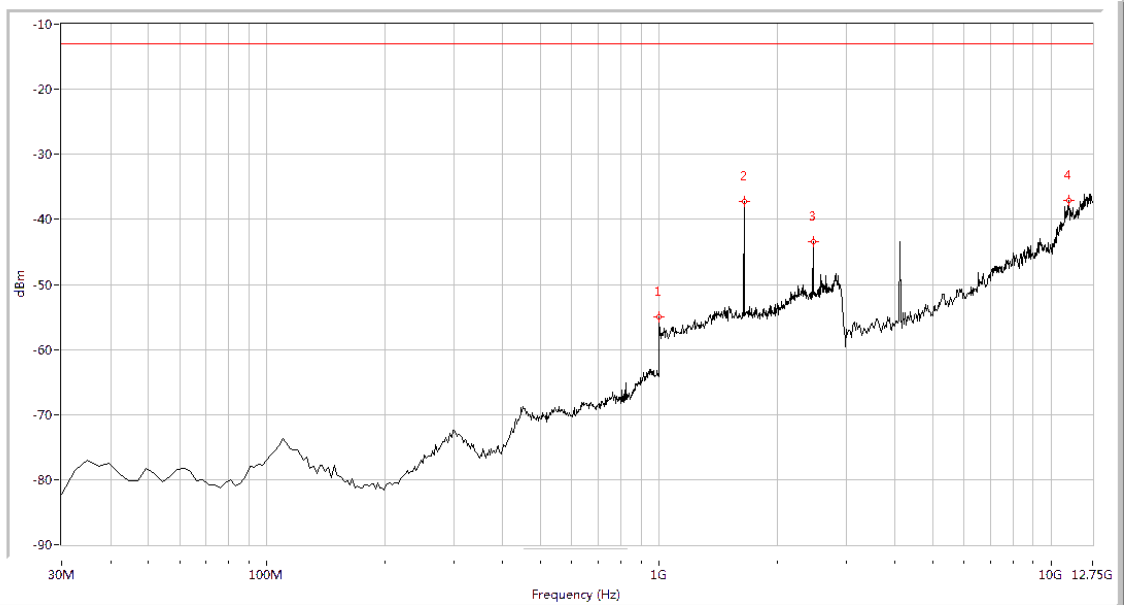
Note1: the power of the EUT transmitting frequency should be ignored.

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
871.796	-52.74	-13.0	39.7	180.3	Horizontal	PASS
1648.379	-35.21	-13.0	22.2	35.0	Horizontal	PASS
2471.322	-44.81	-13.0	31.8	224.2	Horizontal	PASS
12069.202	-35.92	-13.0	22.9	223.5	Horizontal	PASS

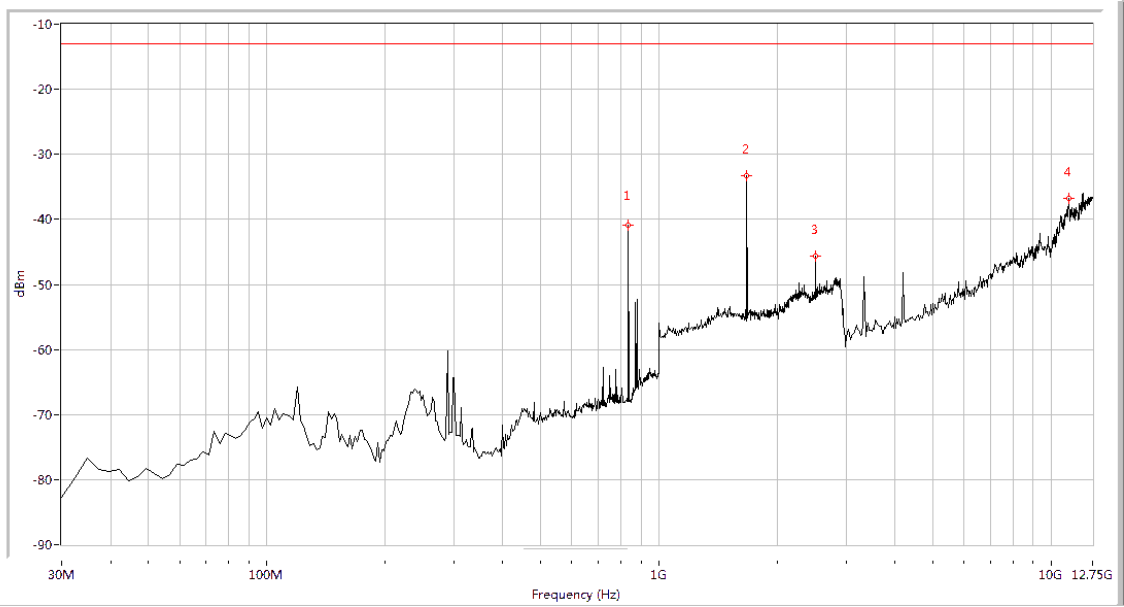
(Plot A.1: GSM 850MHz Channel = 128, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-54.95	-13.0	42.0	171.9	Vertical	PASS
1648.379	-37.31	-13.0	24.3	259.6	Vertical	PASS
2471.322	-43.48	-13.0	30.5	327.3	Vertical	PASS
11072.319	-37.08	-13.0	24.1	-0.0	Vertical	PASS

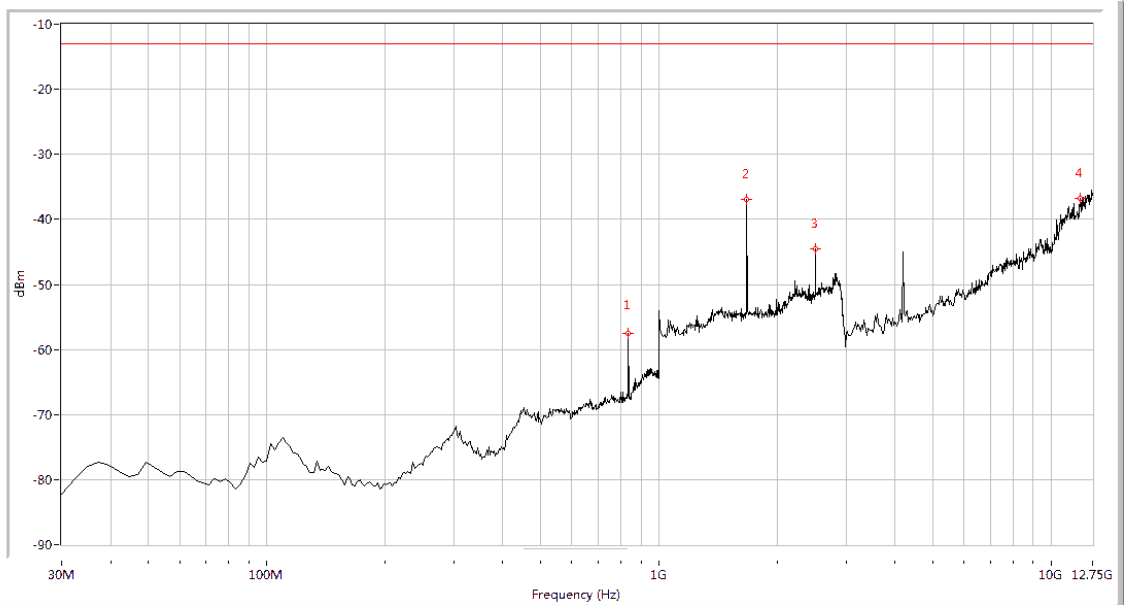
(Plot A.2: GSM 850MHz Channel = 128, Test Antenna Vertical)





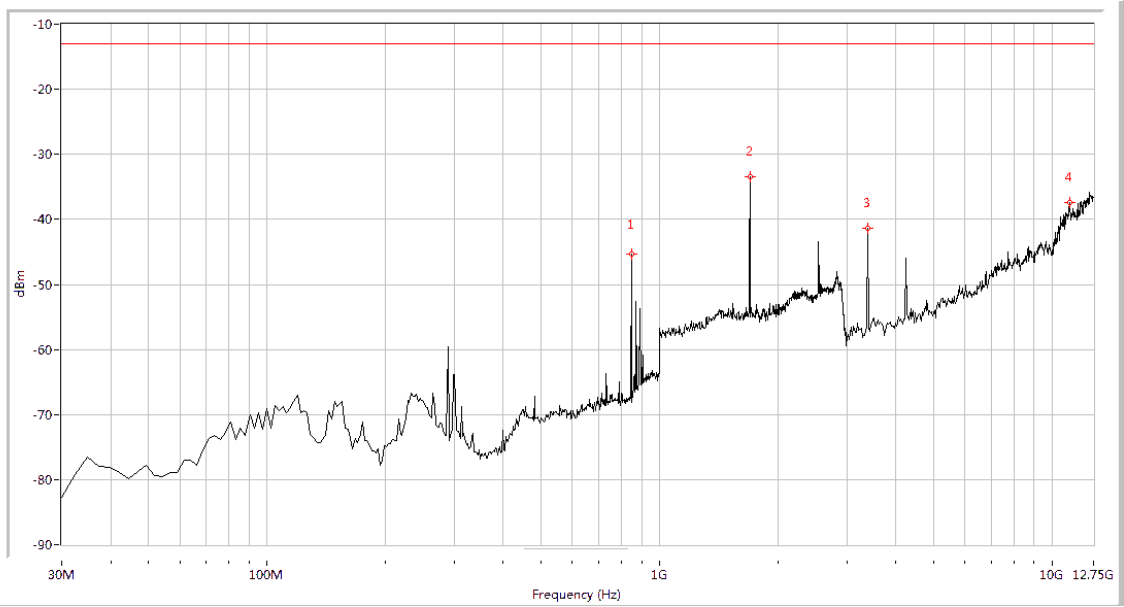
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
835.511	-40.97	-13.0	28.0	57.0	Horizontal	PASS
1673.317	-33.24	-13.0	20.2	56.1	Horizontal	PASS
2506.234	-45.67	-13.0	32.7	360.0	Horizontal	PASS
11096.633	-36.72	-13.0	23.7	97.5	Horizontal	PASS

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



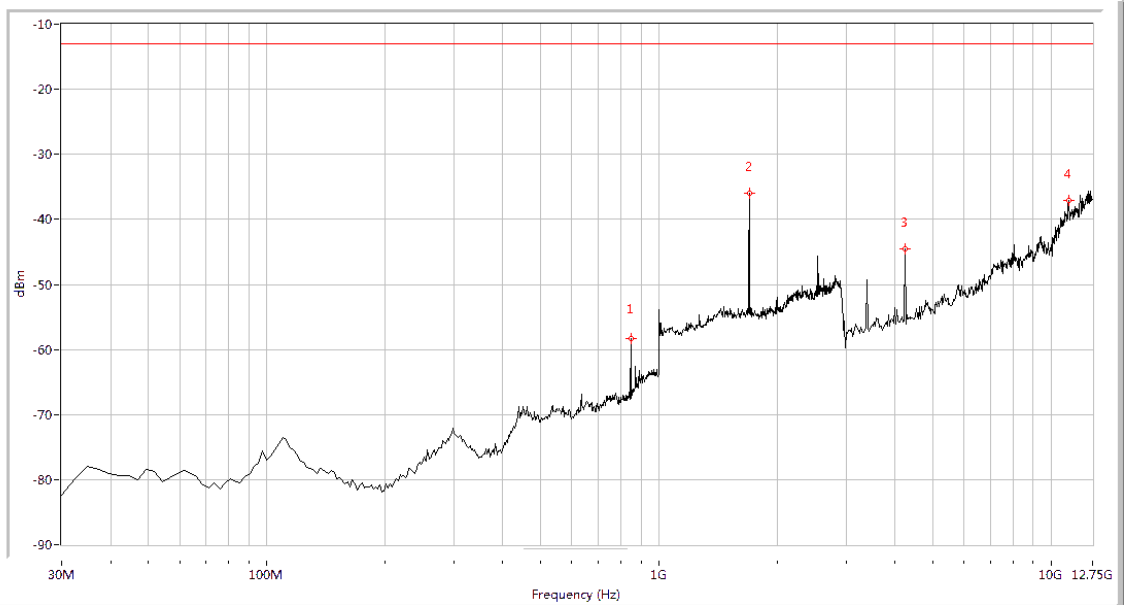
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
835.511	-57.48	-13.0	44.5	90.4	Vertical	PASS
1673.317	-36.99	-13.0	24.0	248.7	Vertical	PASS
2506.234	-44.52	-13.0	31.5	339.5	Vertical	PASS
11850.374	-36.72	-13.0	23.7	87.1	Vertical	PASS

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



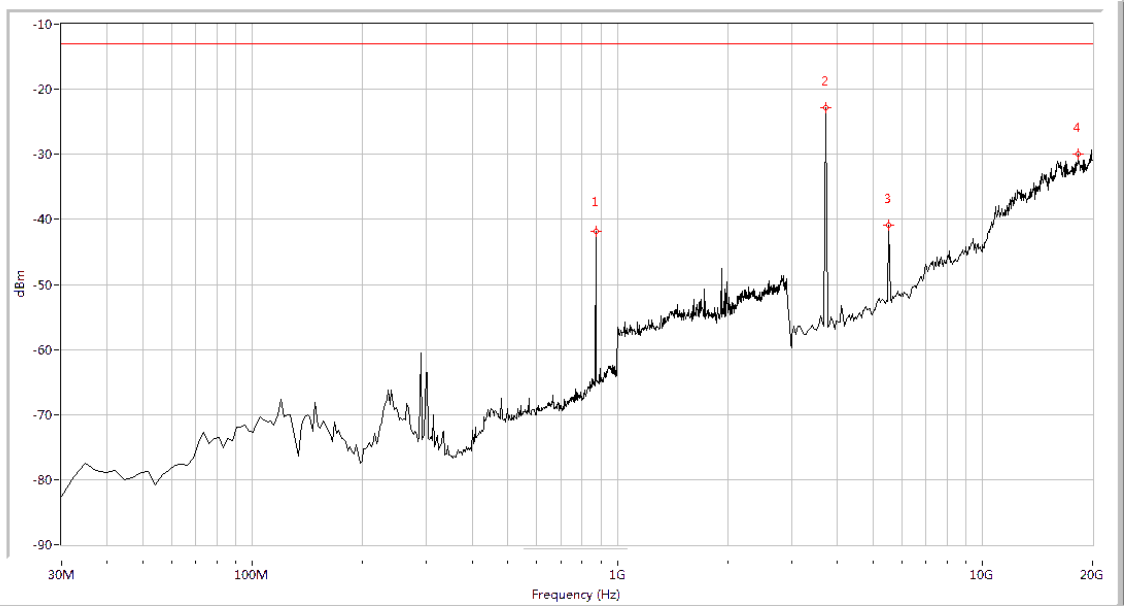
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
847.606	-45.39	-13.0	32.4	161.6	Horizontal	PASS
1698.254	-33.43	-13.0	20.4	62.6	Horizontal	PASS
3389.027	-41.43	-13.0	28.4	258.3	Horizontal	PASS
11096.633	-37.33	-13.0	24.3	35.2	Horizontal	PASS

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



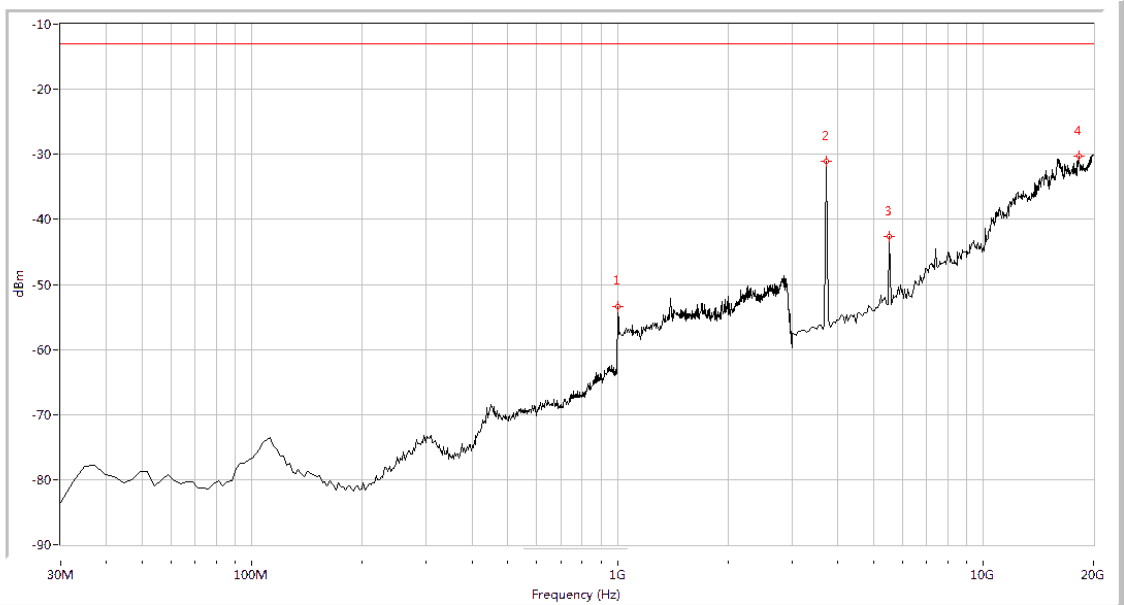
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
847.606	-58.38	-13.0	45.4	97.3	Vertical	PASS
1698.254	-35.98	-13.0	23.0	148.0	Vertical	PASS
4240.025	-44.61	-13.0	31.6	271.0	Vertical	PASS
11072.319	-37.02	-13.0	24.0	25.5	Vertical	PASS

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



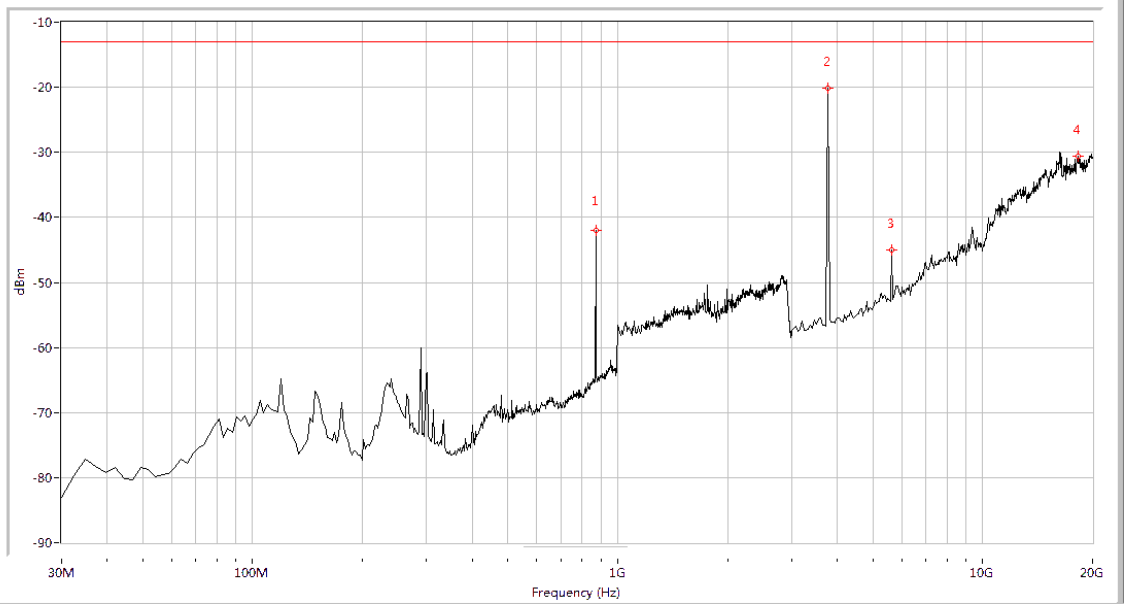
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-41.83	-13.0	28.8	175.1	Horizontal	PASS
3720.698	-22.90	-13.0	9.9	242.4	Horizontal	PASS
5543.641	-40.81	-13.0	27.8	24.4	Horizontal	PASS
18261.845	-30.02	-13.0	17.0	107.3	Horizontal	PASS

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



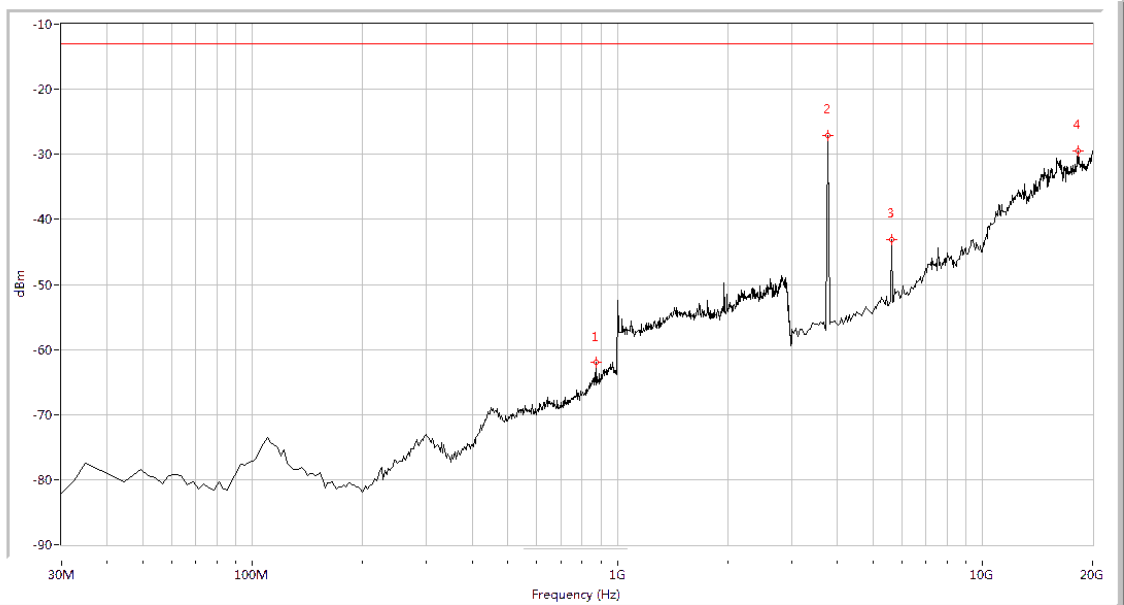
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-53.35	-13.0	40.3	205.9	Vertical	PASS
3720.698	-31.10	-13.0	18.1	173.8	Vertical	PASS
5543.641	-42.65	-13.0	29.7	343.0	Vertical	PASS
18261.845	-30.30	-13.0	17.3	166.4	Vertical	PASS

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



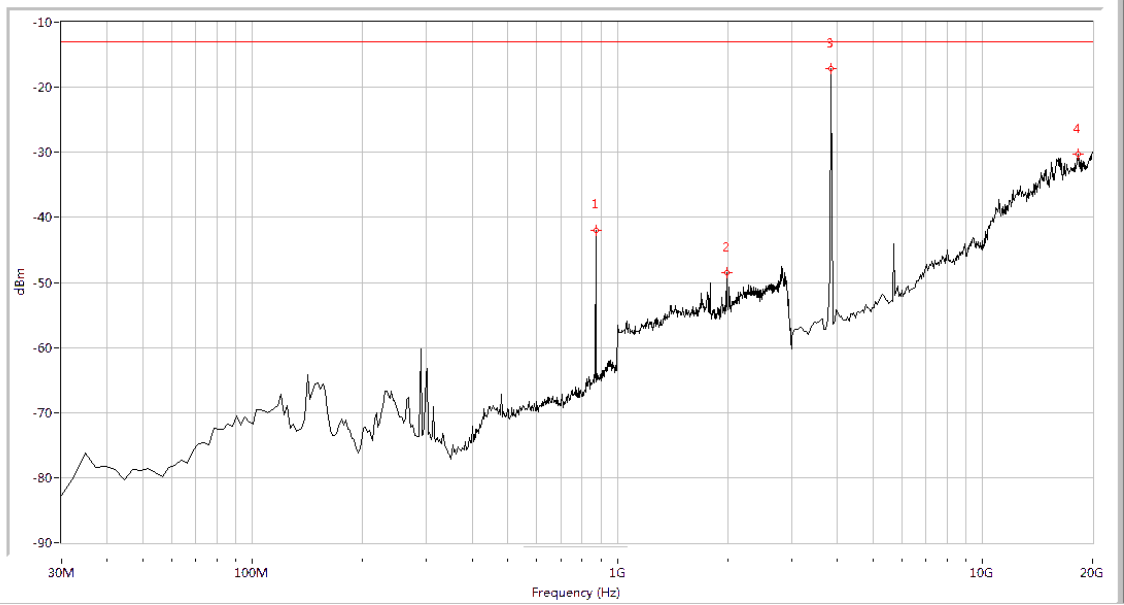
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-41.98	-13.0	29.0	183.8	Horizontal	PASS
3763.092	-20.08	-13.0	7.1	236.6	Horizontal	PASS
5628.429	-45.09	-13.0	32.1	359.8	Horizontal	PASS
18304.239	-30.60	-13.0	17.6	360.0	Horizontal	PASS

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



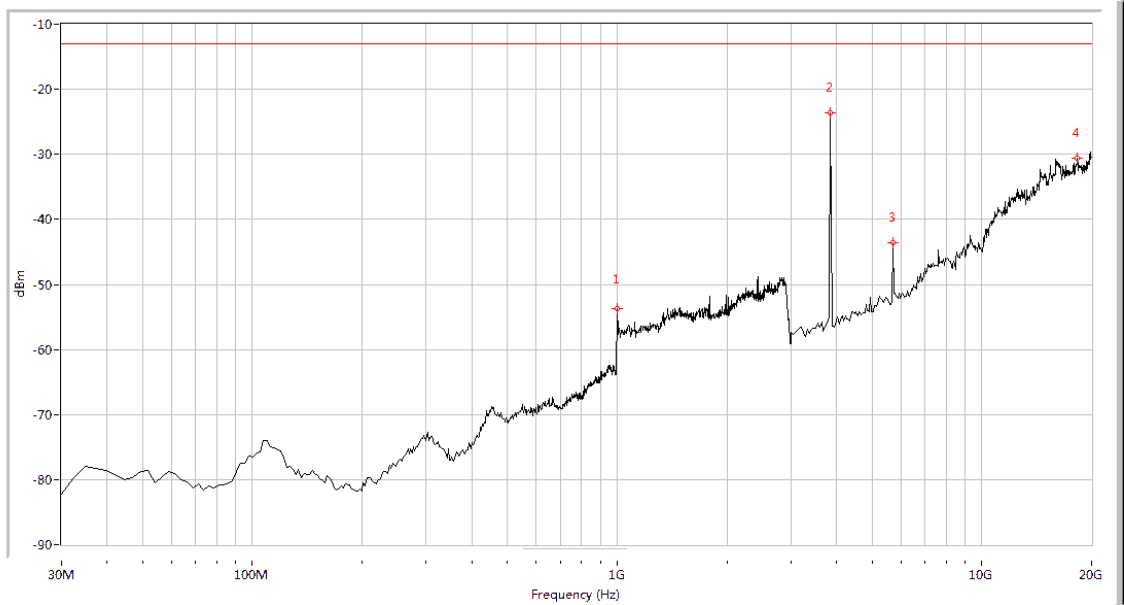
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-62.03	-13.0	49.0	50.1	Vertical	PASS
3763.092	-27.11	-13.0	14.1	185.4	Vertical	PASS
5628.429	-43.09	-13.0	30.1	223.8	Vertical	PASS
18304.239	-29.54	-13.0	16.5	3.0	Vertical	PASS

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



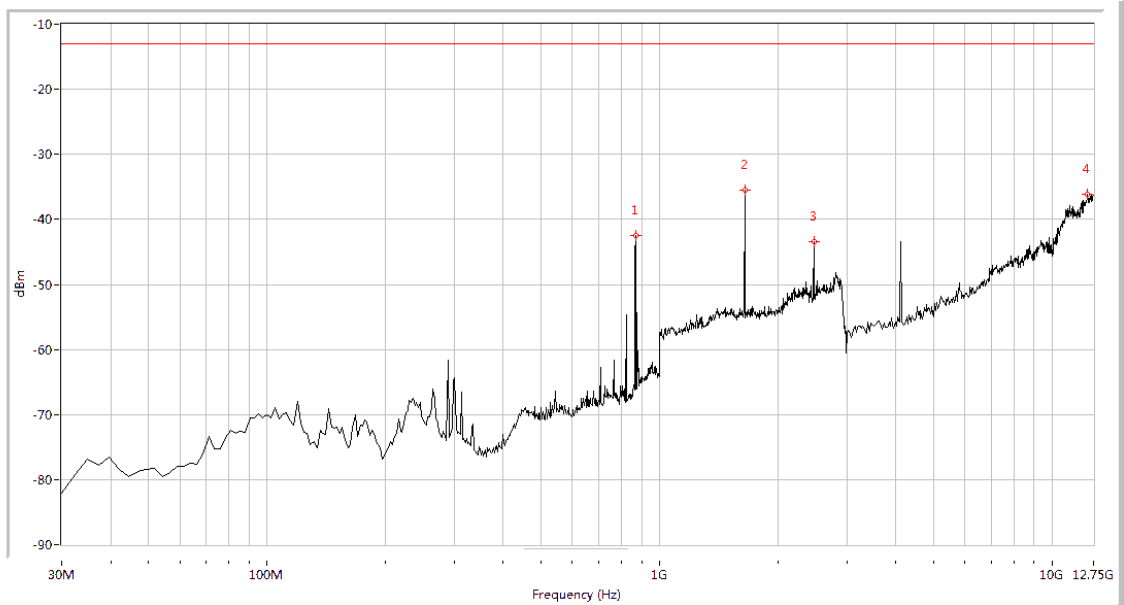
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-42.01	-13.0	29.0	348.5	Horizontal	PASS
1987.531	-48.55	-13.0	35.6	92.1	Horizontal	PASS
3847.880	-17.12	-13.0	4.1	235.8	Horizontal	PASS
18261.845	-30.35	-13.0	17.4	10.1	Horizontal	PASS

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



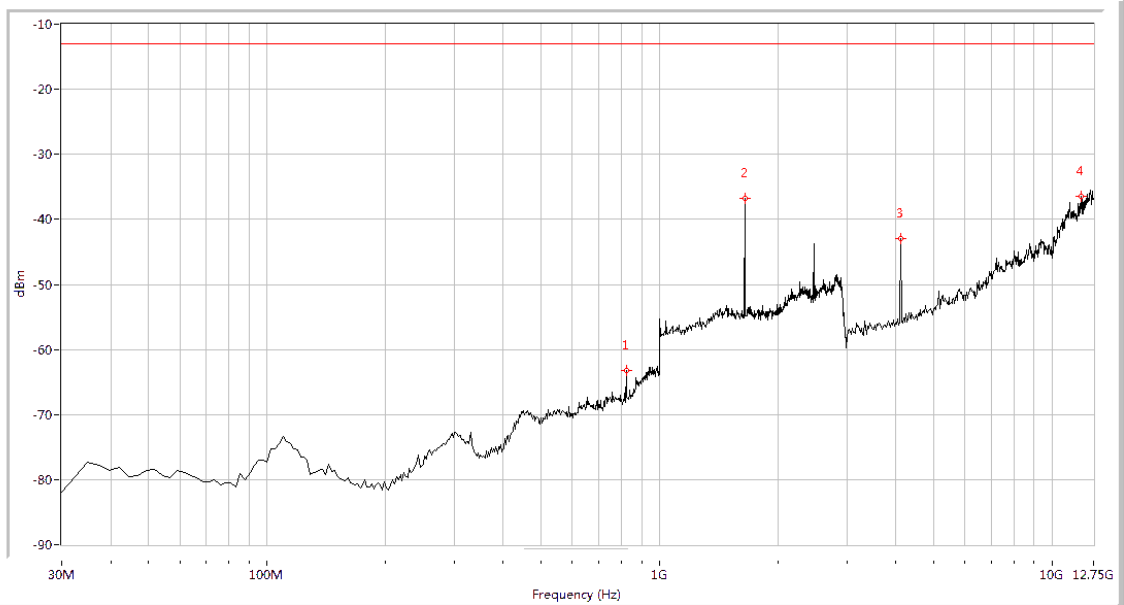
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-53.65	-13.0	40.7	204.4	Vertical	PASS
3847.880	-23.55	-13.0	10.6	168.2	Vertical	PASS
5713.217	-43.55	-13.0	30.6	51.4	Vertical	PASS
18304.239	-30.59	-13.0	17.6	343.7	Vertical	PASS

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



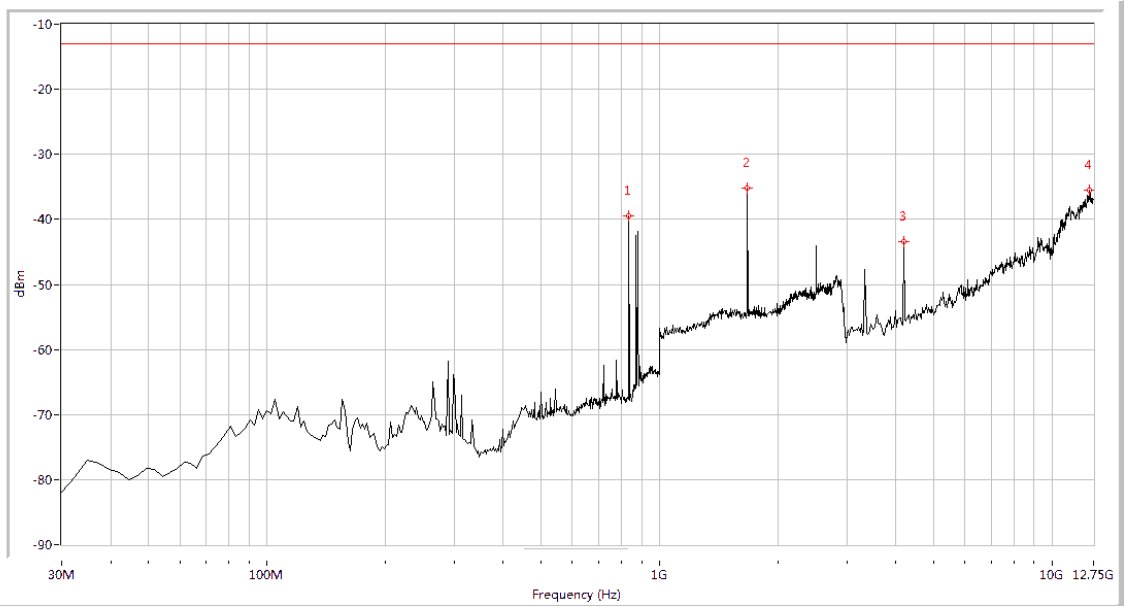
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-42.54	-13.0	29.5	116.6	Horizontal	PASS
1648.379	-35.56	-13.0	22.6	23.9	Horizontal	PASS
2471.322	-43.41	-13.0	30.4	359.2	Horizontal	PASS
12288.030	-36.17	-13.0	23.2	359.1	Horizontal	PASS

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



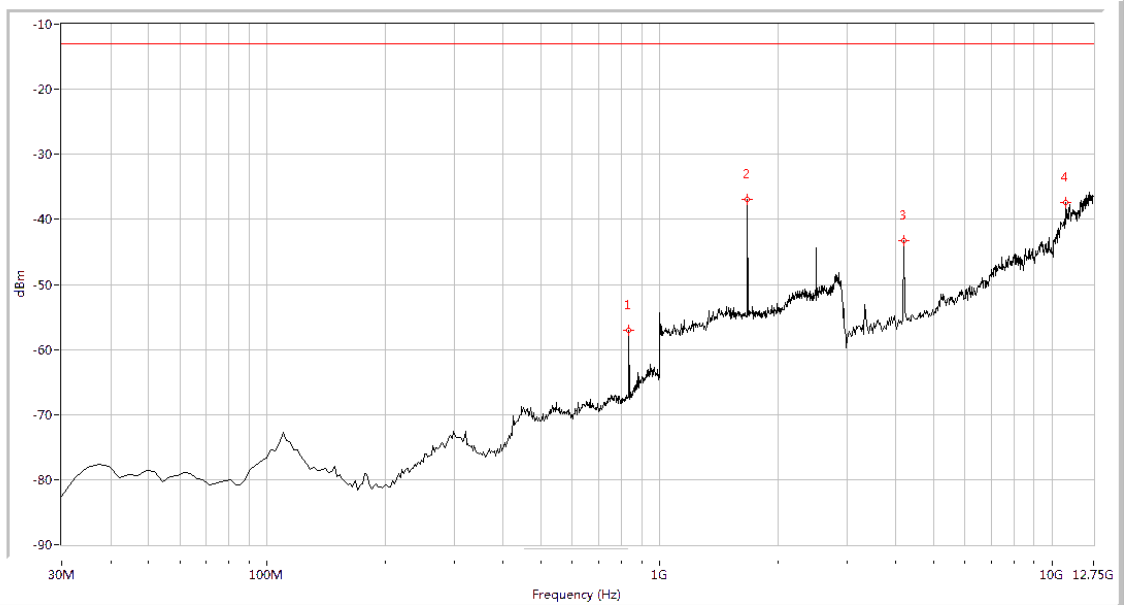
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
823.416	-63.23	-13.0	50.2	106.8	Vertical	PASS
1648.379	-36.77	-13.0	23.8	197.4	Vertical	PASS
4118.454	-43.00	-13.0	30.0	8.8	Vertical	PASS
11874.688	-36.44	-13.0	23.4	350.8	Vertical	PASS

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



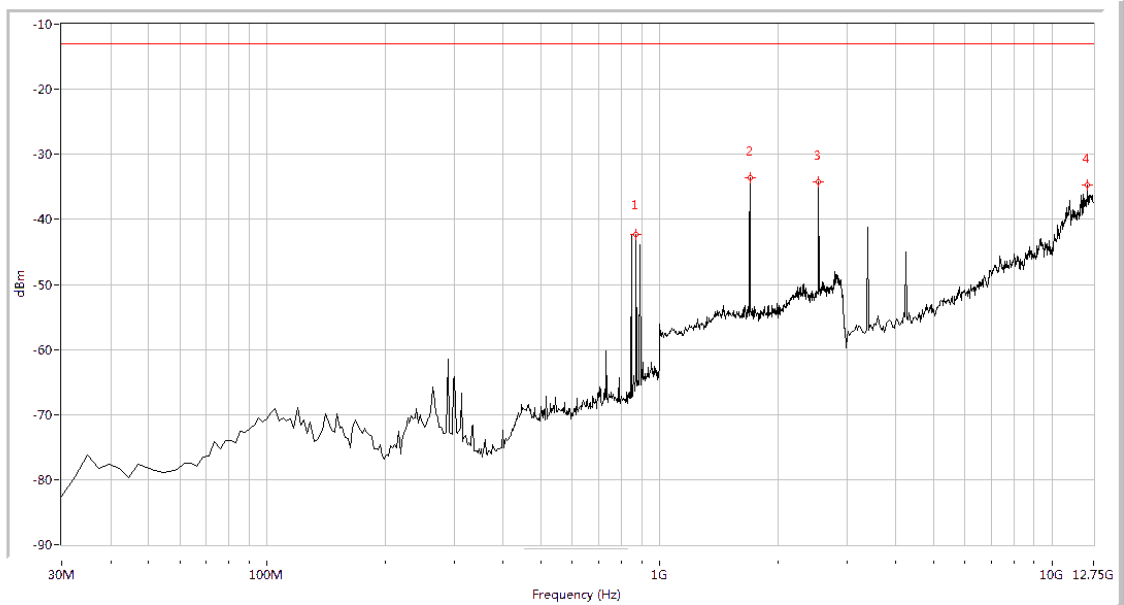
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
835.511	-39.50	-13.0	26.5	124.3	Horizontal	PASS
1673.317	-35.19	-13.0	22.2	252.0	Horizontal	PASS
4191.397	-43.41	-13.0	30.4	319.1	Horizontal	PASS
12458.229	-35.58	-13.0	22.6	276.0	Horizontal	PASS

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



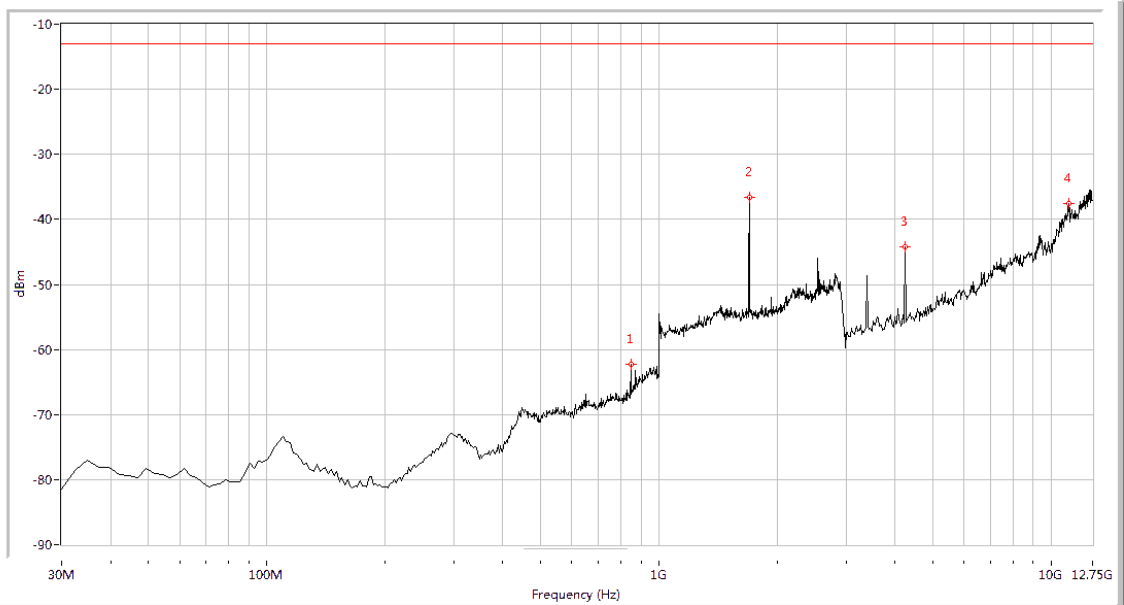
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
835.511	-57.07	-13.0	44.1	116.2	Vertical	PASS
1673.317	-37.00	-13.0	24.0	147.6	Vertical	PASS
4191.397	-43.33	-13.0	30.3	296.7	Vertical	PASS
10853.491	-37.34	-13.0	24.3	271.7	Vertical	PASS

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



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-42.26	-13.0	29.3	176.9	Horizontal	PASS
1698.254	-33.63	-13.0	20.6	93.4	Horizontal	PASS
2541.147	-34.31	-13.0	21.3	359.3	Horizontal	PASS
12288.030	-34.67	-13.0	21.7	236.4	Horizontal	PASS

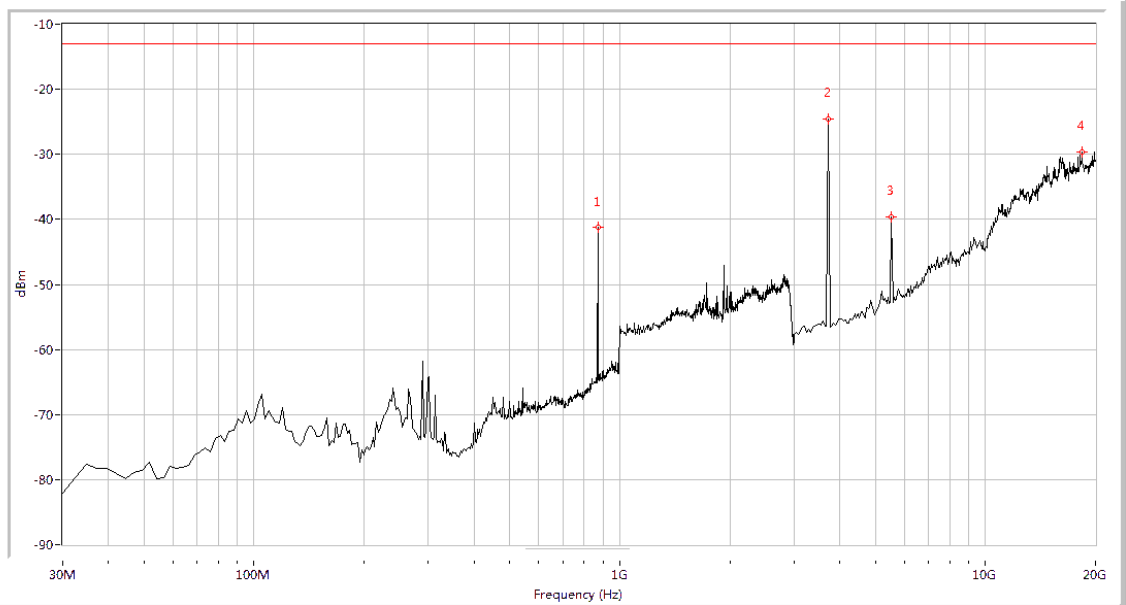
(Plot C.5: EGPRS 850MHz Channel = 251, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
847.606	-62.33	-13.0	49.3	46.2	Vertical	PASS
1698.254	-36.57	-13.0	23.6	151.6	Vertical	PASS
4240.025	-44.16	-13.0	31.2	319.9	Vertical	PASS
11096.633	-37.58	-13.0	24.6	21.3	Vertical	PASS

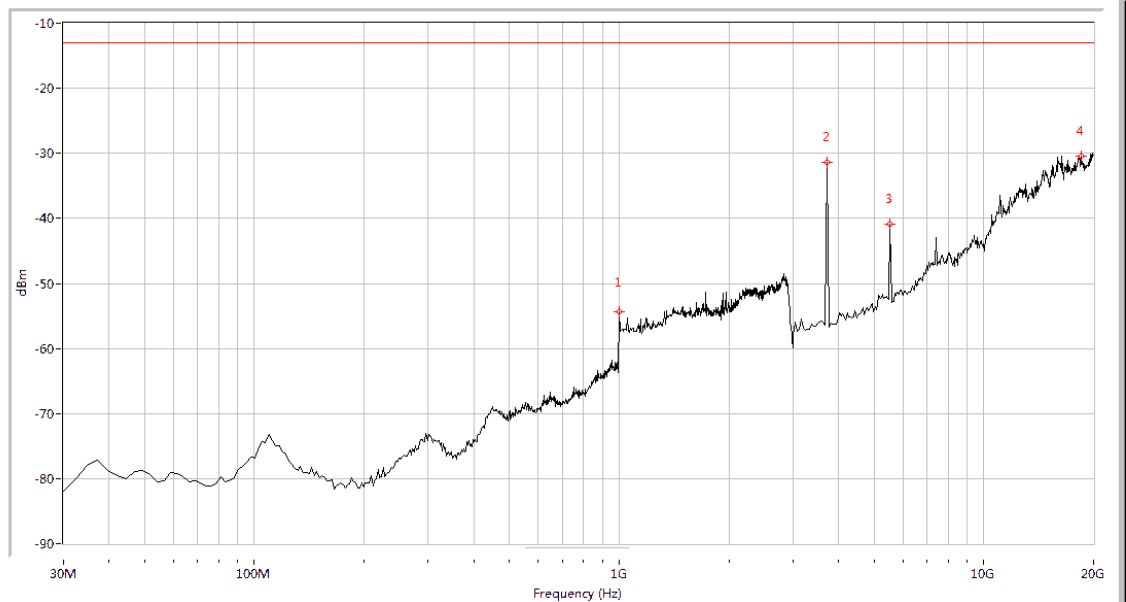
(Plot C.6: EGPRS 850MHz Channel = 251, Test Antenna Vertical)





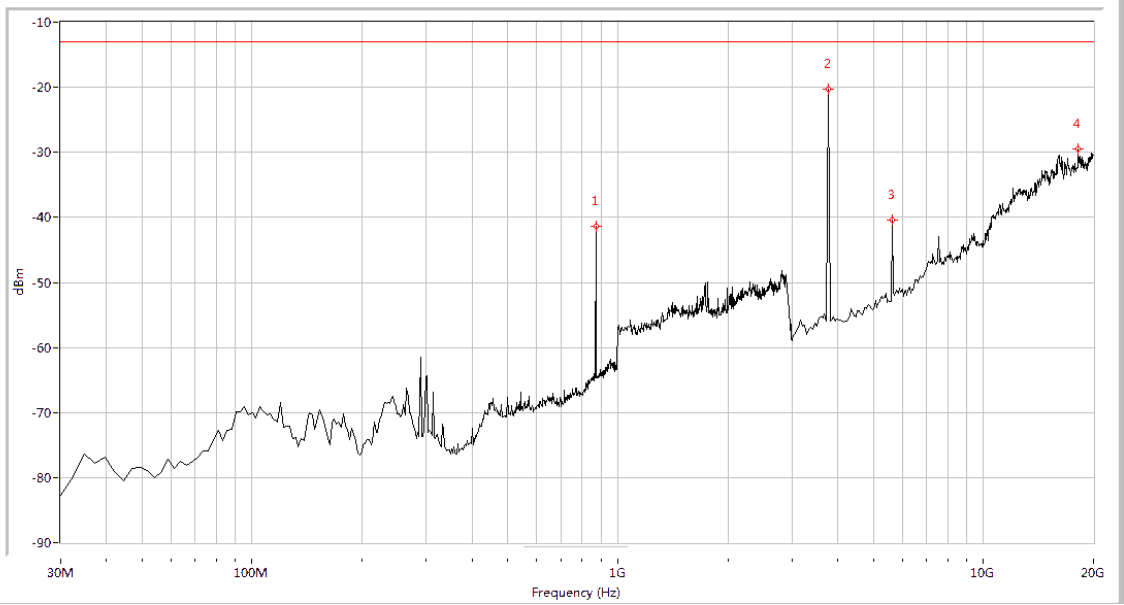
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-41.18	-13.0	28.2	170.0	Horizontal	PASS
3720.698	-24.62	-13.0	11.6	213.5	Horizontal	PASS
5543.641	-39.68	-13.0	26.7	262.6	Horizontal	PASS
18389.027	-29.69	-13.0	16.7	89.7	Horizontal	PASS

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



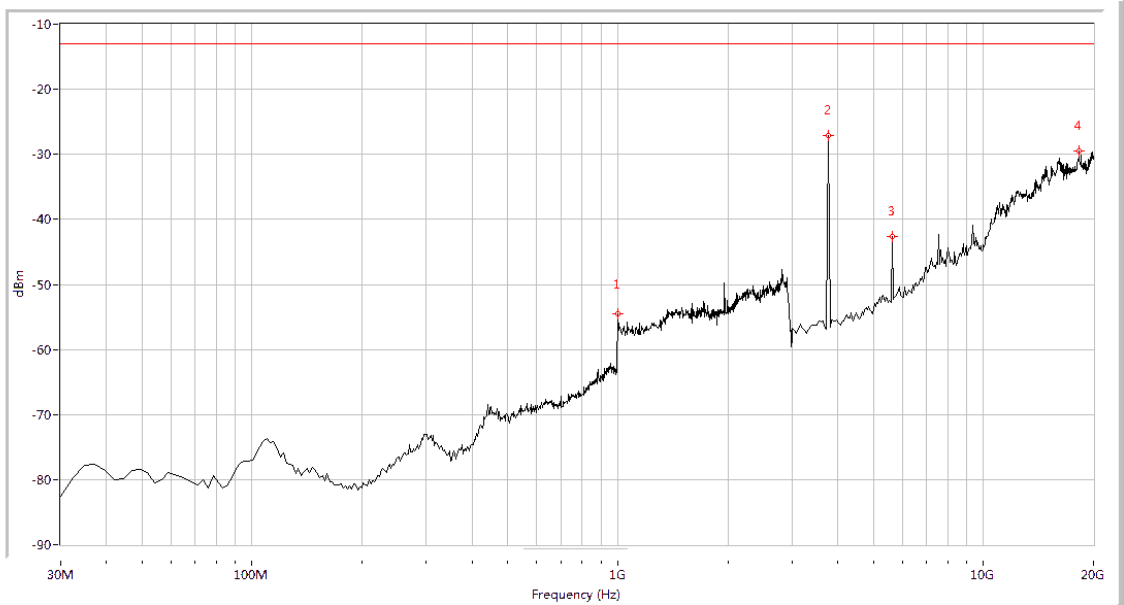
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-54.32	-13.0	41.3	188.3	Vertical	PASS
3720.698	-31.35	-13.0	18.3	31.5	Vertical	PASS
5543.641	-40.84	-13.0	27.8	237.5	Vertical	PASS
18516.209	-30.40	-13.0	17.4	72.4	Vertical	PASS

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



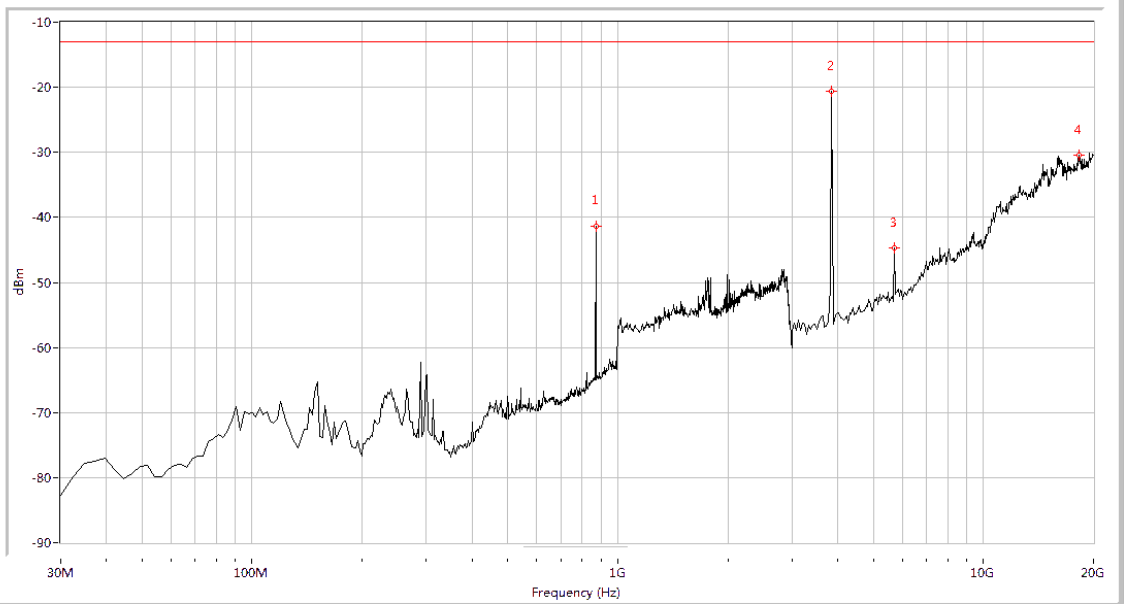
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-41.43	-13.0	28.4	311.6	Horizontal	PASS
3763.092	-20.27	-13.0	7.3	251.3	Horizontal	PASS
5628.429	-40.42	-13.0	27.4	268.4	Horizontal	PASS
18134.663	-29.44	-13.0	16.4	-0.0	Horizontal	PASS

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



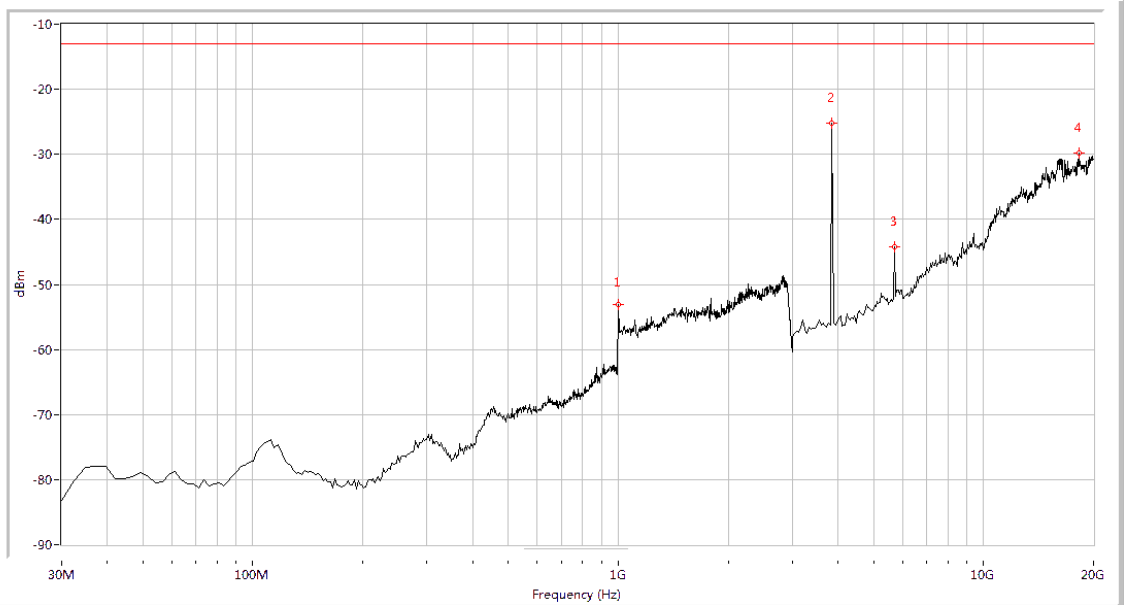
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-54.47	-13.0	41.5	177.1	Vertical	PASS
3763.092	-27.14	-13.0	14.1	33.9	Vertical	PASS
5628.429	-42.61	-13.0	29.6	58.8	Vertical	PASS
18261.845	-29.53	-13.0	16.5	26.5	Vertical	PASS

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



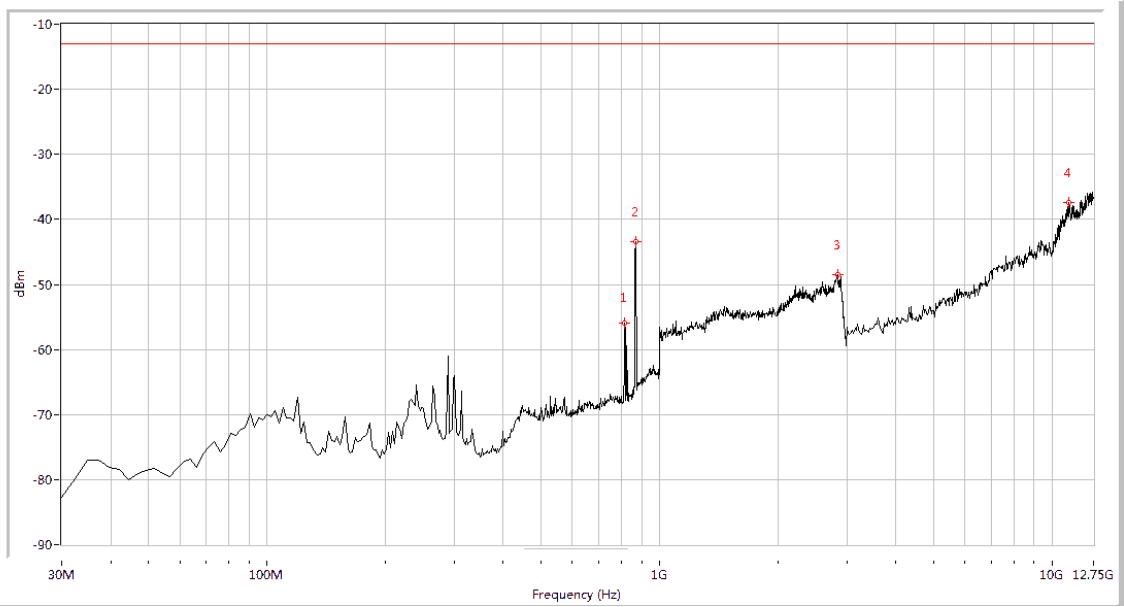
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
871.796	-41.30	-13.0	28.3	118.3	Horizontal	PASS
3847.880	-20.54	-13.0	7.5	193.5	Horizontal	PASS
5713.217	-44.69	-13.0	31.7	41.7	Horizontal	PASS
18219.451	-30.37	-13.0	17.4	360.0	Horizontal	PASS

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



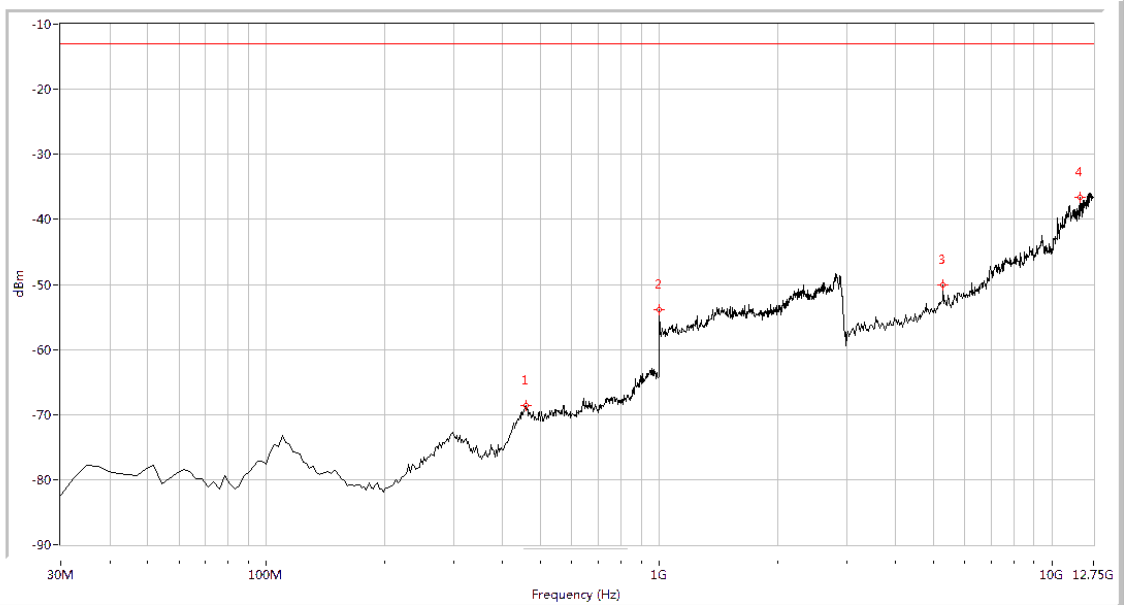
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-53.12	-13.0	40.1	204.6	Vertical	PASS
3847.880	-25.25	-13.0	12.3	295.6	Vertical	PASS
5713.217	-44.16	-13.0	31.2	44.2	Vertical	PASS
18219.451	-29.79	-13.0	16.8	19.6	Vertical	PASS

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



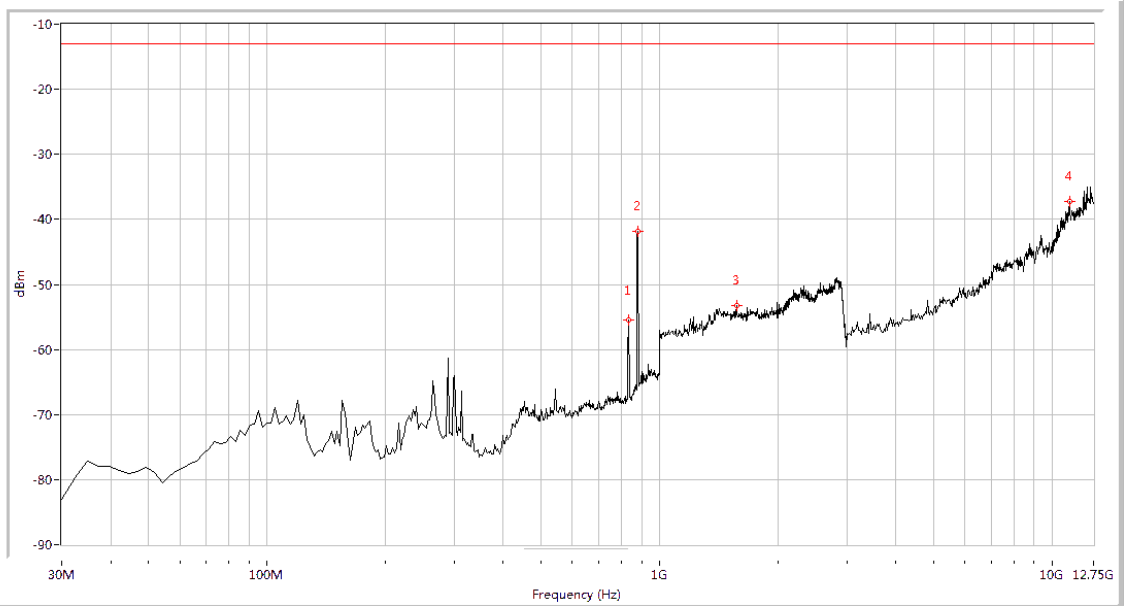
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
816.160	-55.88	-13.0	42.9	144.3	Horizontal	PASS
869.377	-43.40	-13.0	30.4	162.1	Horizontal	PASS
2840.399	-48.47	-13.0	35.5	320.8	Horizontal	PASS
11048.005	-37.42	-13.0	24.4	177.9	Horizontal	PASS

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



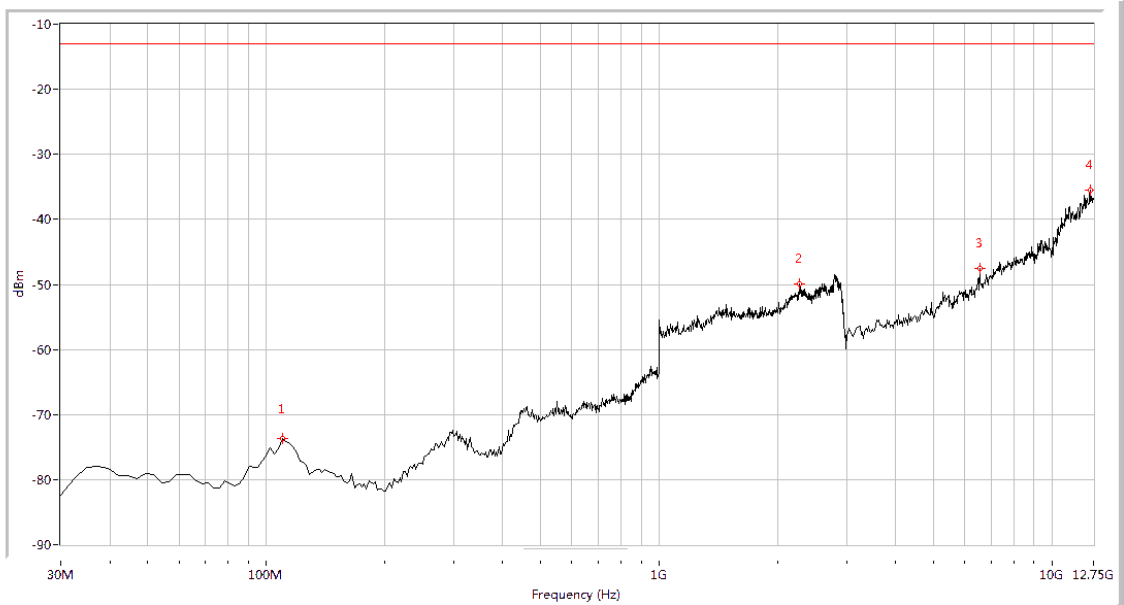
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
458.155	-68.59	-13.0	55.6	360.0	Vertical	PASS
1000.000	-53.81	-13.0	40.8	190.7	Vertical	PASS
5285.536	-50.08	-13.0	37.1	139.2	Vertical	PASS
11801.746	-36.67	-13.0	23.7	64.4	Vertical	PASS

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



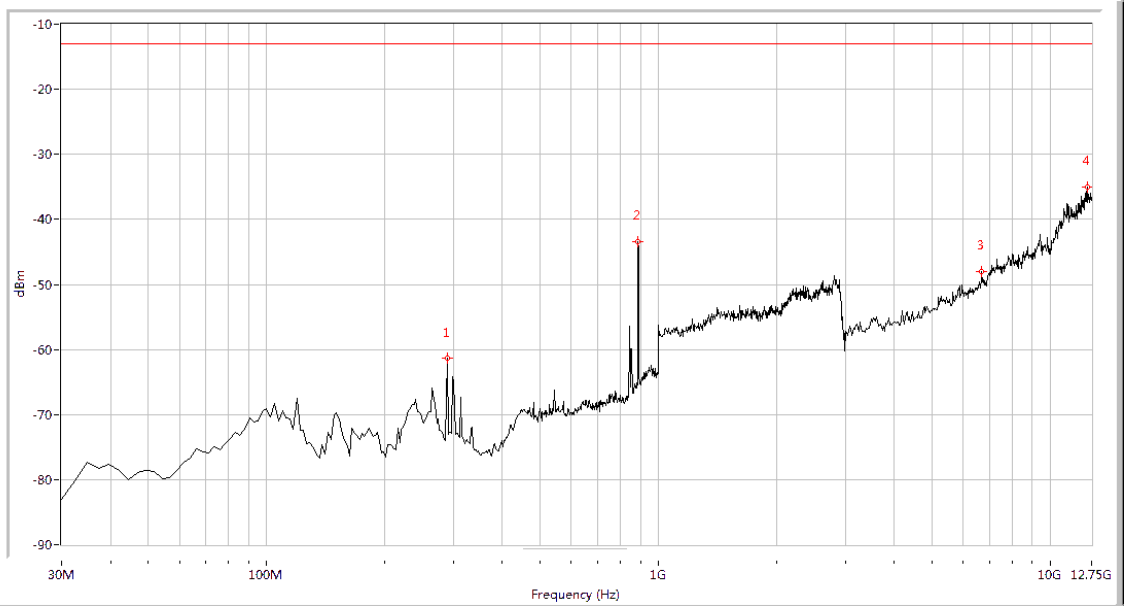
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
835.511	-55.42	-13.0	42.4	131.7	Horizontal	PASS
879.052	-41.87	-13.0	28.9	321.4	Horizontal	PASS
1573.566	-53.27	-13.0	40.3	331.6	Horizontal	PASS
11072.319	-37.25	-13.0	24.3	2.7	Horizontal	PASS

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



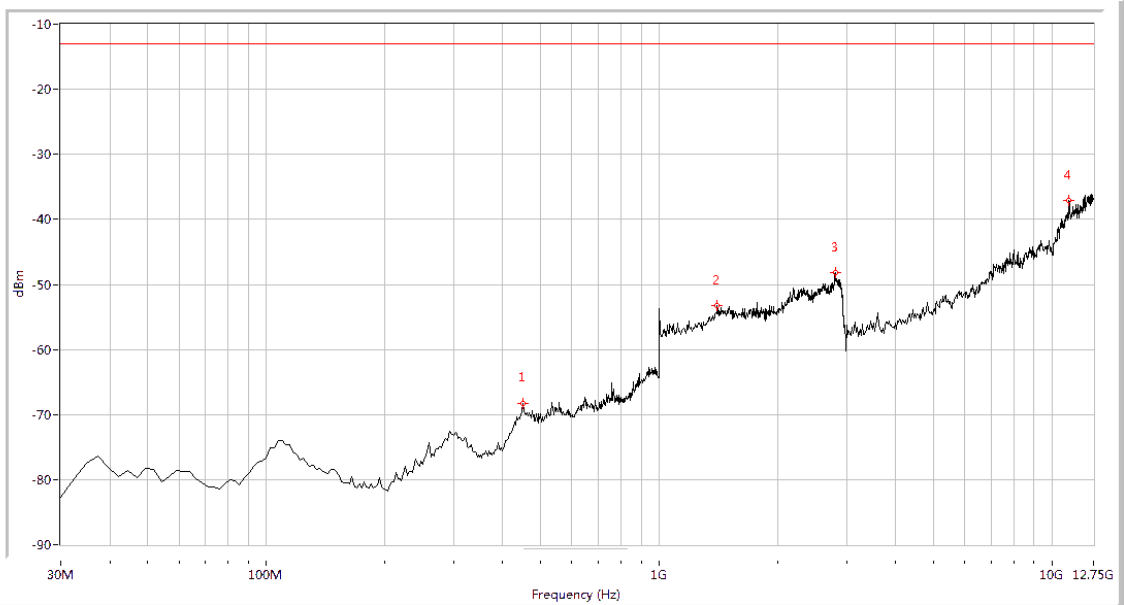
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.61	-13.0	60.6	358.4	Vertical	PASS
2281.796	-49.93	-13.0	36.9	275.1	Vertical	PASS
6549.875	-47.53	-13.0	34.5	207.5	Vertical	PASS
12555.486	-35.47	-13.0	22.5	-0.0	Vertical	PASS

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



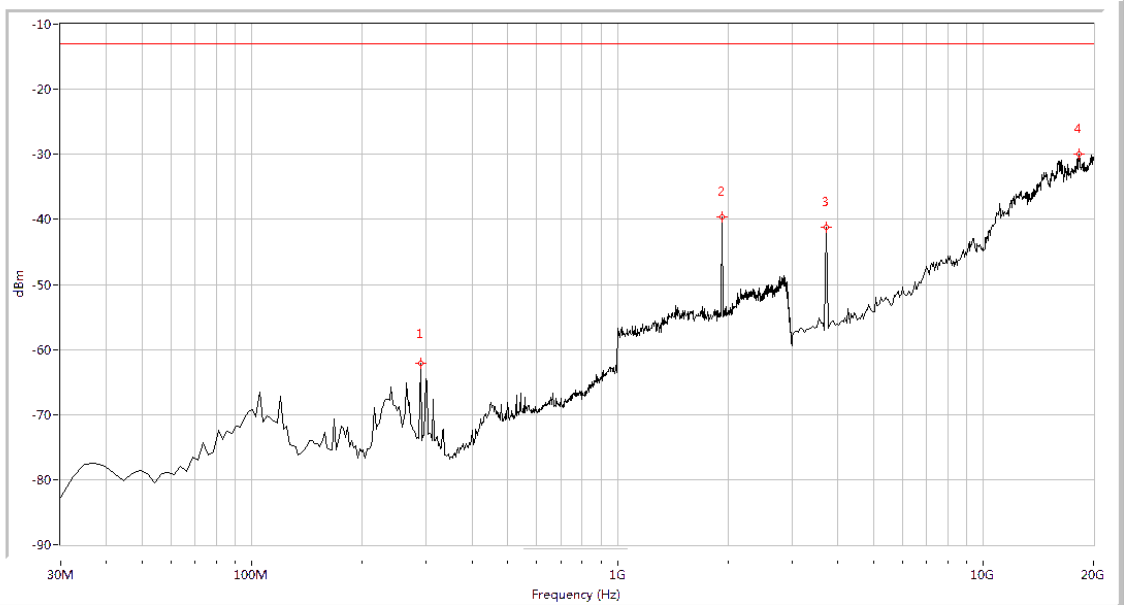
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-61.38	-13.0	48.4	243.2	Horizontal	PASS
888.728	-43.39	-13.0	30.4	360.0	Horizontal	PASS
6695.761	-47.97	-13.0	35.0	25.4	Horizontal	PASS
12409.601	-34.98	-13.0	22.0	220.3	Horizontal	PASS

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



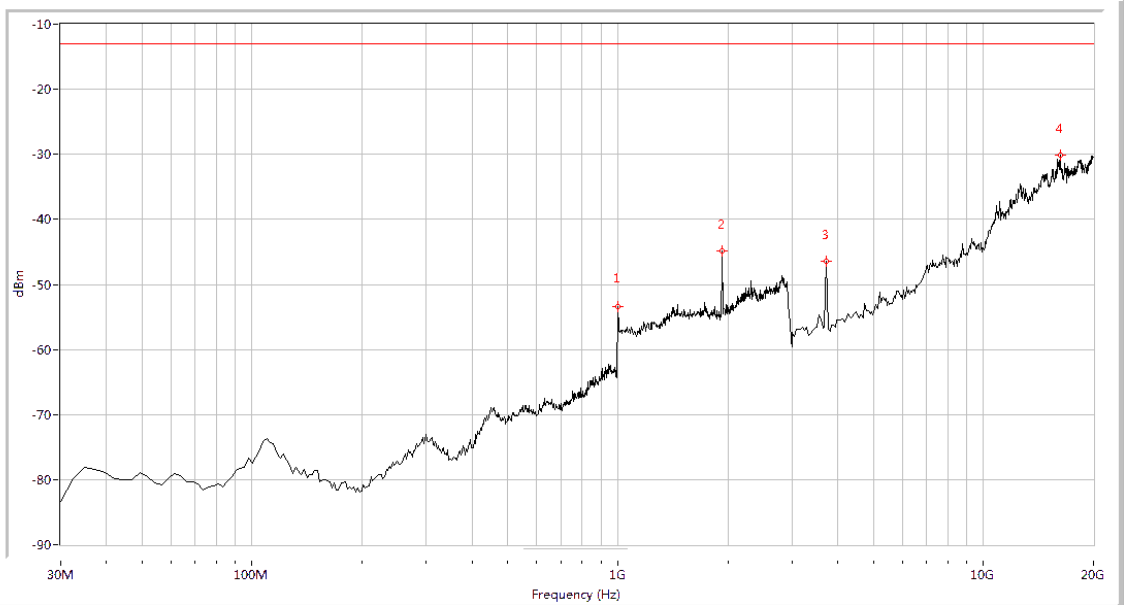
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
450.898	-68.24	-13.0	55.2	43.2	Vertical	PASS
1403.990	-53.27	-13.0	40.3	165.4	Vertical	PASS
2815.461	-48.21	-13.0	35.2	354.1	Vertical	PASS
11048.005	-37.15	-13.0	24.2	203.9	Vertical	PASS

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



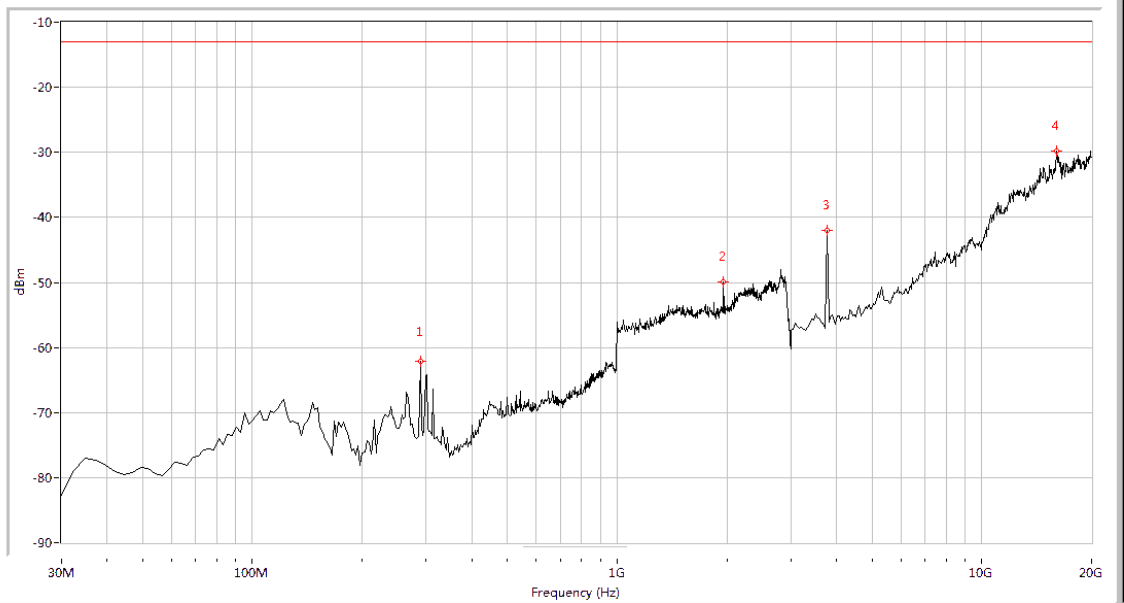
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-62.17	-13.0	49.2	263.0	Horizontal	PASS
1927.681	-39.64	-13.0	26.6	41.9	Horizontal	PASS
3720.698	-41.26	-13.0	28.3	241.8	Horizontal	PASS
18304.239	-30.03	-13.0	17.0	232.9	Horizontal	PASS

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



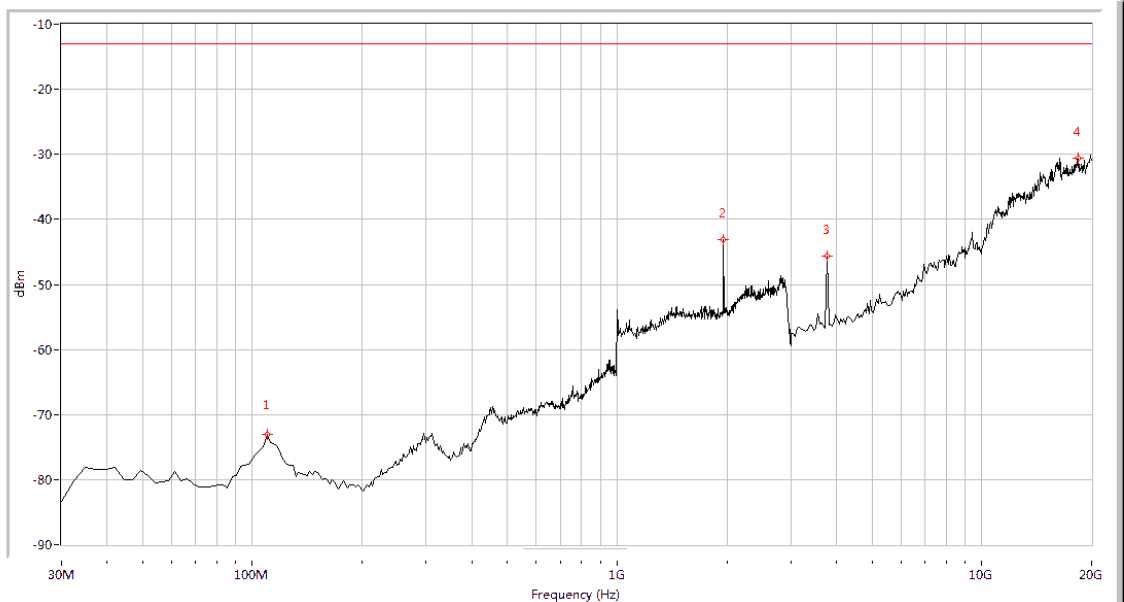
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-53.42	-13.0	40.4	204.1	Vertical	PASS
1932.668	-44.80	-13.0	31.8	85.8	Vertical	PASS
3720.698	-46.49	-13.0	33.5	353.3	Vertical	PASS
16226.933	-30.05	-13.0	17.0	181.2	Vertical	PASS

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



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-62.18	-13.0	49.2	255.3	Horizontal	PASS
1957.606	-49.85	-13.0	36.8	151.9	Horizontal	PASS
3763.092	-41.95	-13.0	28.9	237.7	Horizontal	PASS
16057.357	-29.81	-13.0	16.8	188.3	Horizontal	PASS

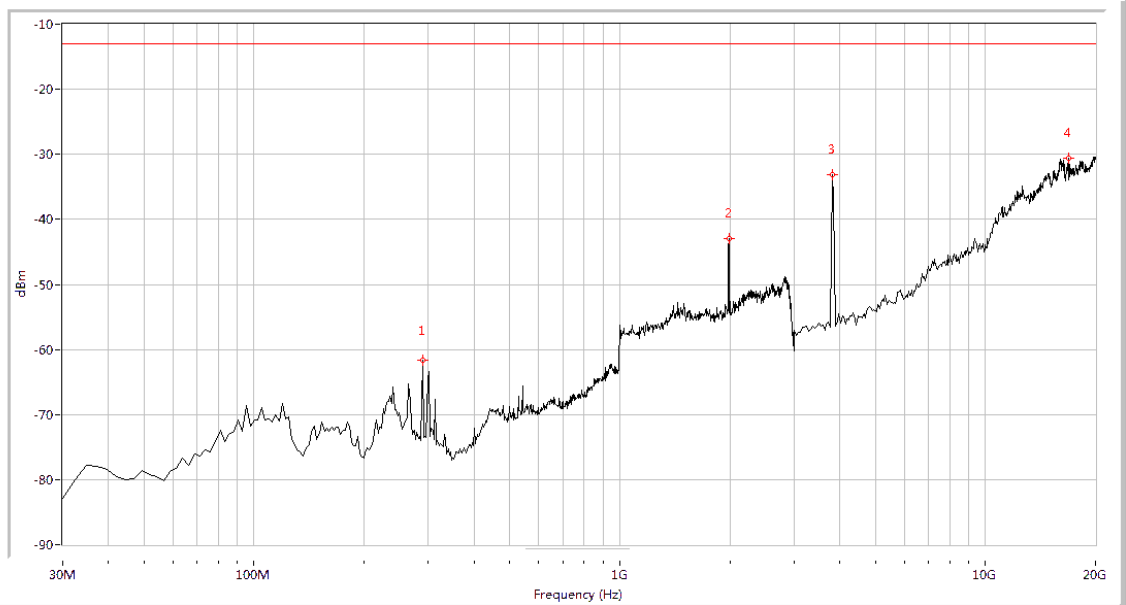
(Plot F.3: WCDMA 1900MHz Channel = 9400, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.08	-13.0	60.1	176.7	Vertical	PASS
1957.606	-43.16	-13.0	30.2	109.2	Vertical	PASS
3763.092	-45.72	-13.0	32.7	289.4	Vertical	PASS
18431.421	-30.58	-13.0	17.6	167.4	Vertical	PASS

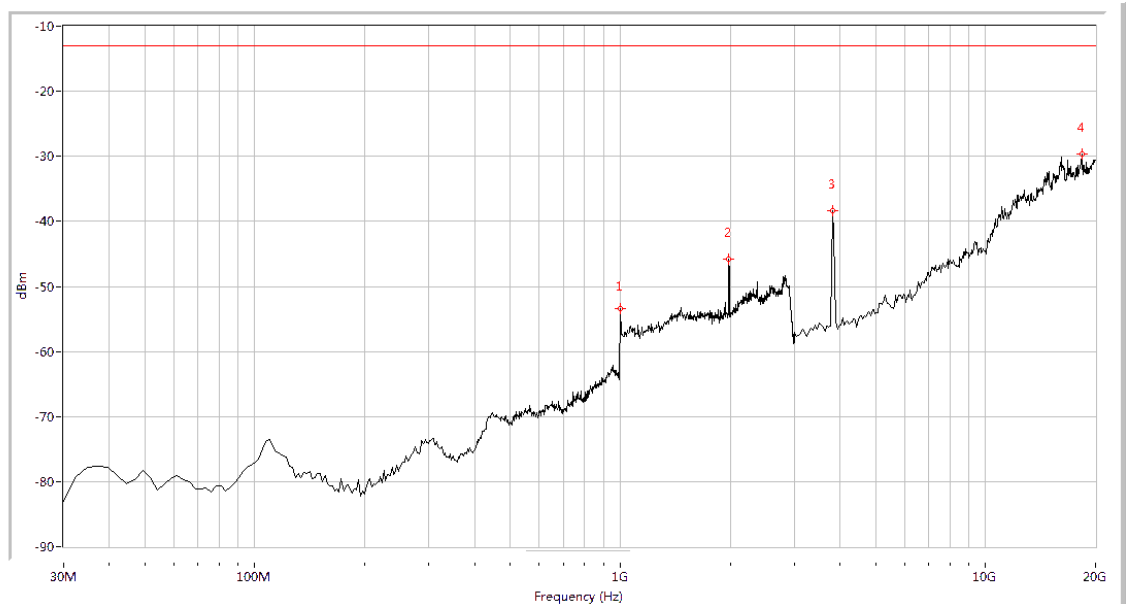
(Plot F.4: WCDMA 1900MHz Channel = 9400, Test Antenna Vertical)





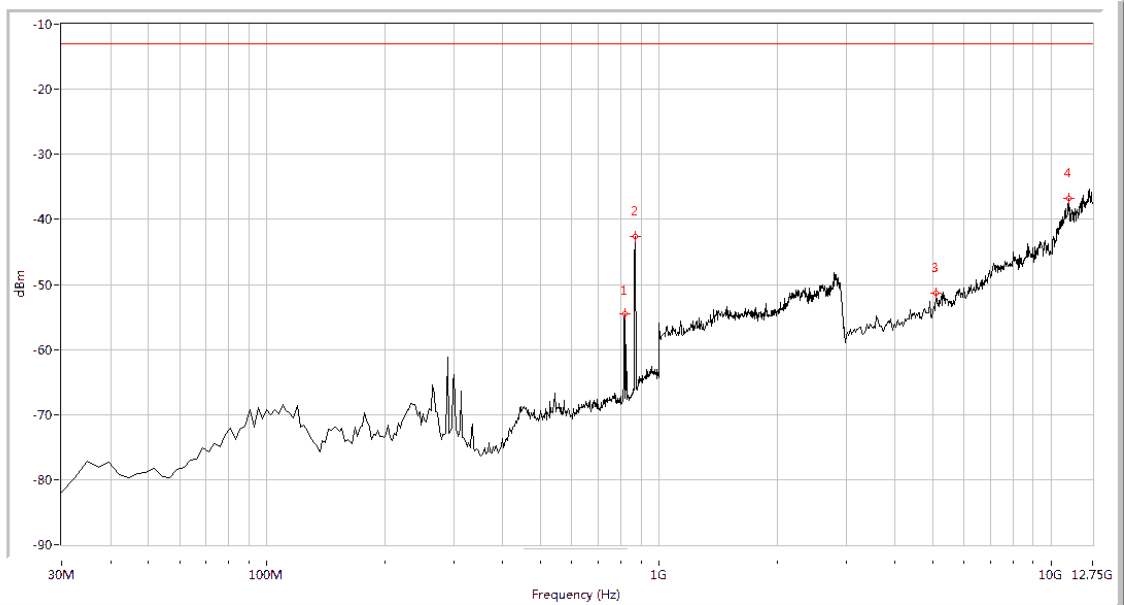
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-61.67	-13.0	48.7	250.3	Horizontal	PASS
1987.531	-43.00	-13.0	30.0	336.1	Horizontal	PASS
3805.486	-33.11	-13.0	20.1	240.0	Horizontal	PASS
16862.843	-30.62	-13.0	17.6	360.0	Horizontal	PASS

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



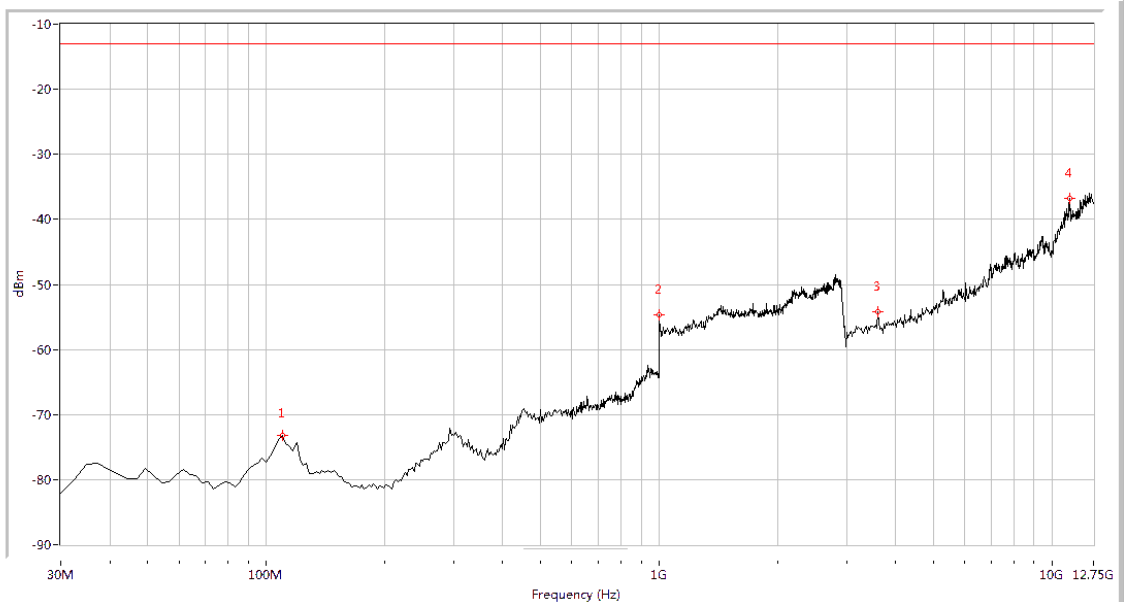
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-53.42	-13.0	40.4	197.8	Vertical	PASS
1982.544	-45.85	-13.0	32.9	106.6	Vertical	PASS
3805.486	-38.35	-13.0	25.3	-0.0	Vertical	PASS
18346.633	-29.63	-13.0	16.6	116.1	Vertical	PASS

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



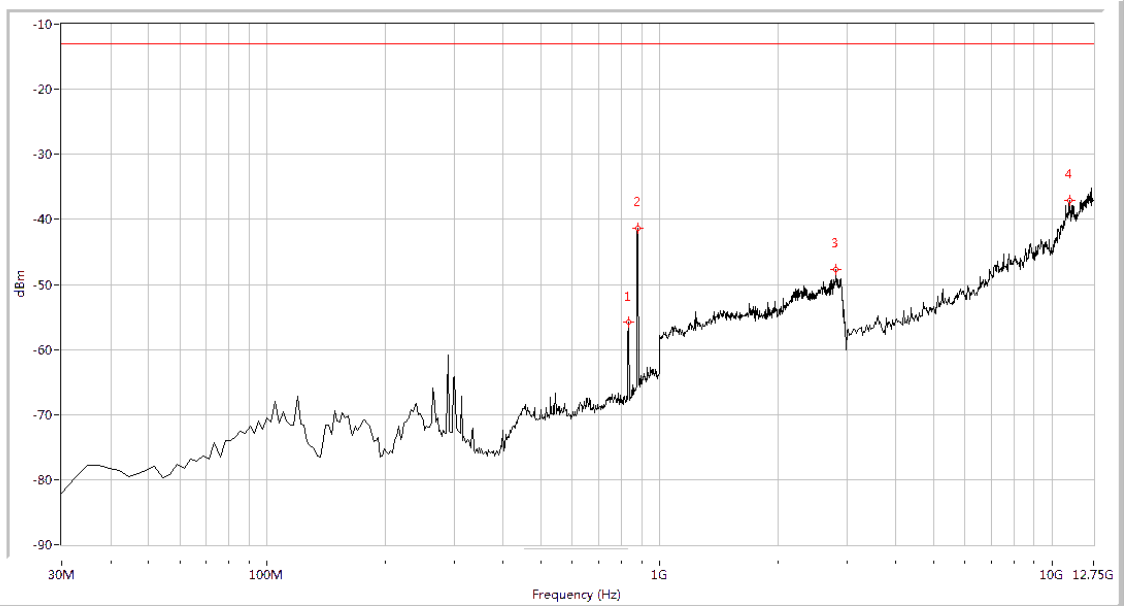
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
818.579	-54.51	-13.0	41.5	138.2	Horizontal	PASS
871.796	-42.64	-13.0	29.6	359.1	Horizontal	PASS
5091.022	-51.34	-13.0	38.3	201.1	Horizontal	PASS
11072.319	-36.79	-13.0	23.8	326.8	Horizontal	PASS

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



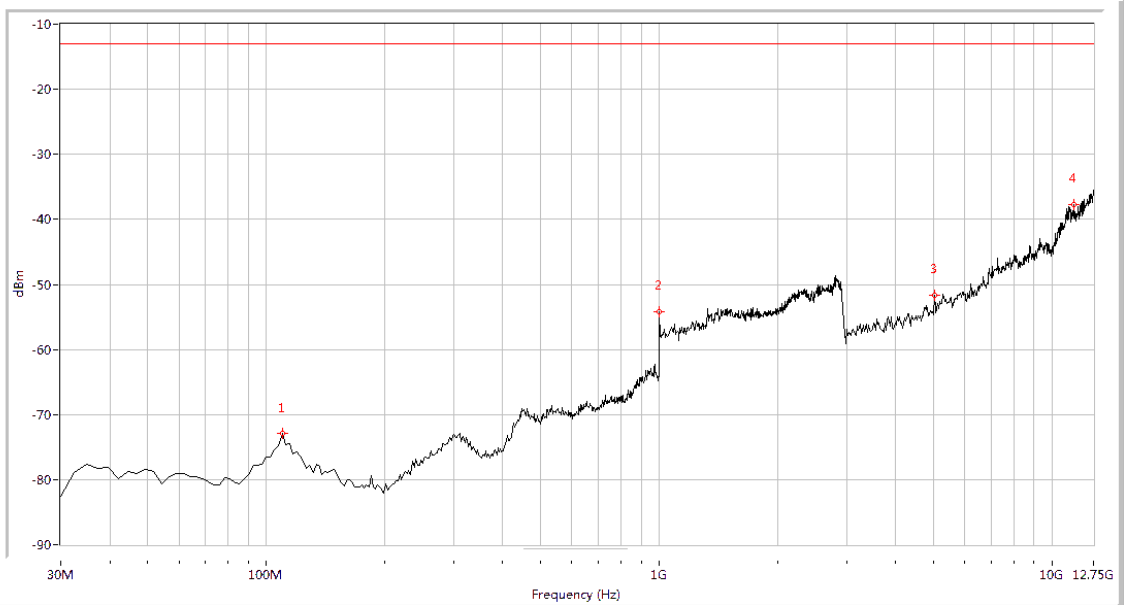
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.27	-13.0	60.3	63.4	Vertical	PASS
1000.000	-54.68	-13.0	41.7	222.1	Vertical	PASS
3607.855	-54.22	-13.0	41.2	40.0	Vertical	PASS
11072.319	-36.74	-13.0	23.7	107.3	Vertical	PASS

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



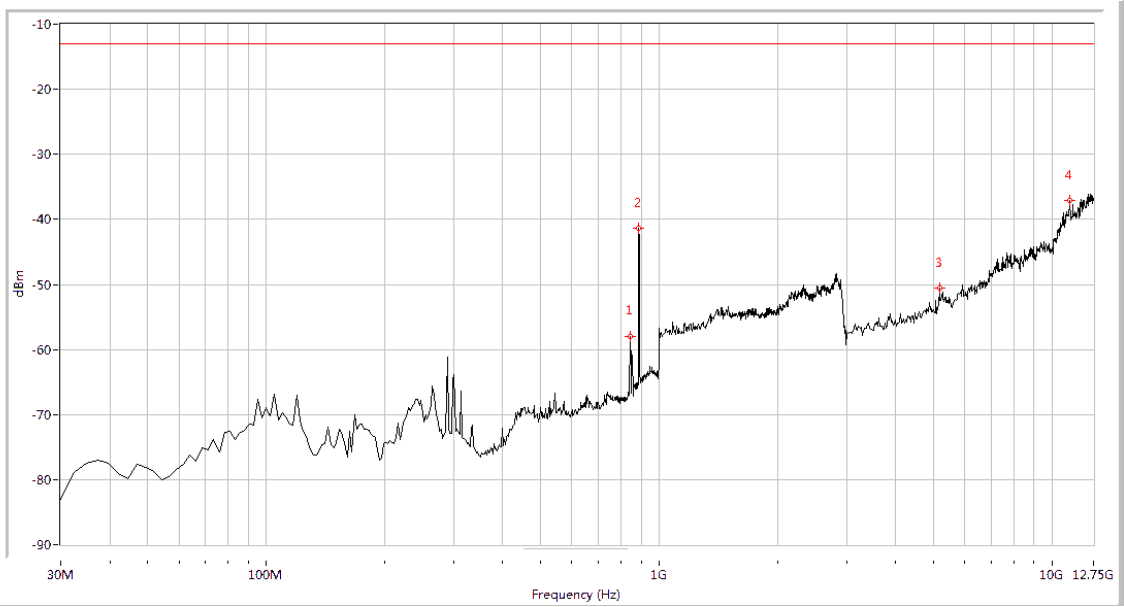
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
833.092	-55.77	-13.0	42.8	138.2	Horizontal	PASS
879.052	-41.39	-13.0	28.4	283.3	Horizontal	PASS
2810.474	-47.75	-13.0	34.8	119.5	Horizontal	PASS
11072.319	-37.03	-13.0	24.0	274.0	Horizontal	PASS

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



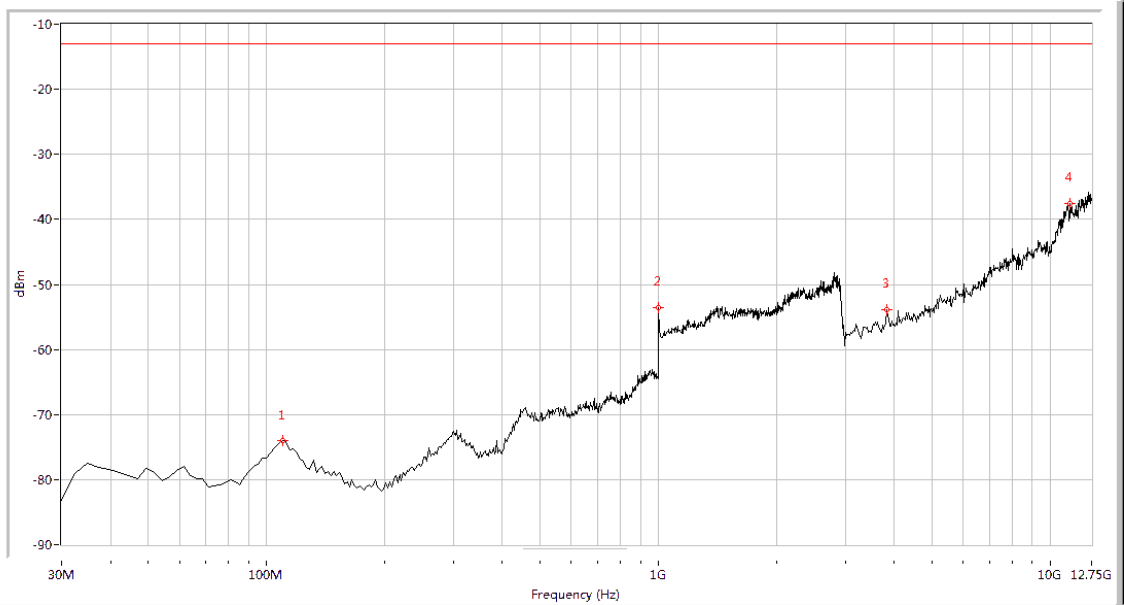
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-72.96	-13.0	60.0	191.8	Vertical	PASS
1000.000	-54.25	-13.0	41.2	194.5	Vertical	PASS
5018.080	-51.68	-13.0	38.7	-0.0	Vertical	PASS
11388.404	-37.75	-13.0	24.7	187.4	Vertical	PASS

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



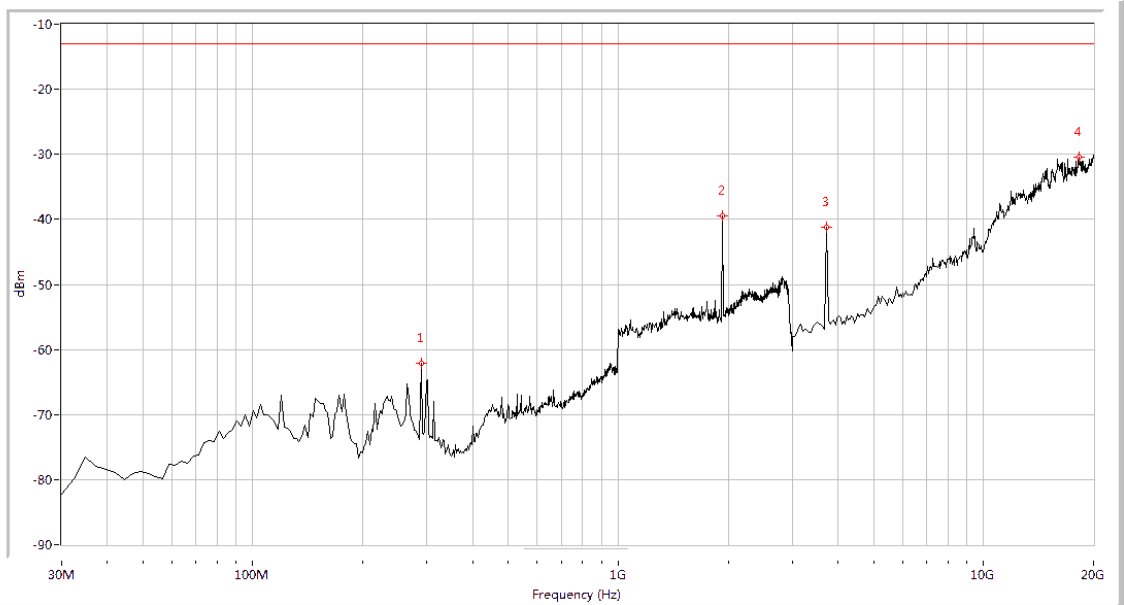
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
842.768	-58.08	-13.0	45.1	169.1	Horizontal	PASS
888.728	-41.40	-13.0	28.4	329.0	Horizontal	PASS
5163.965	-50.49	-13.0	37.5	224.8	Horizontal	PASS
11120.948	-37.10	-13.0	24.1	158.6	Horizontal	PASS

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



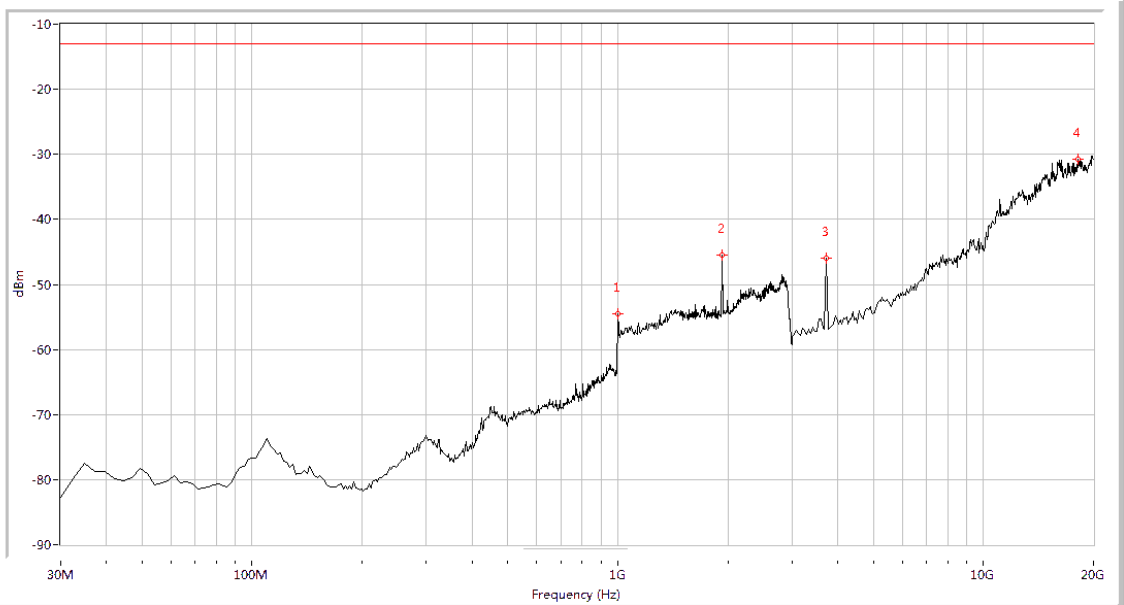
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.95	-13.0	60.9	69.4	Vertical	PASS
1000.000	-53.56	-13.0	40.6	199.5	Vertical	PASS
3826.683	-53.84	-13.0	40.8	298.6	Vertical	PASS
11242.519	-37.61	-13.0	24.6	339.8	Vertical	PASS

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



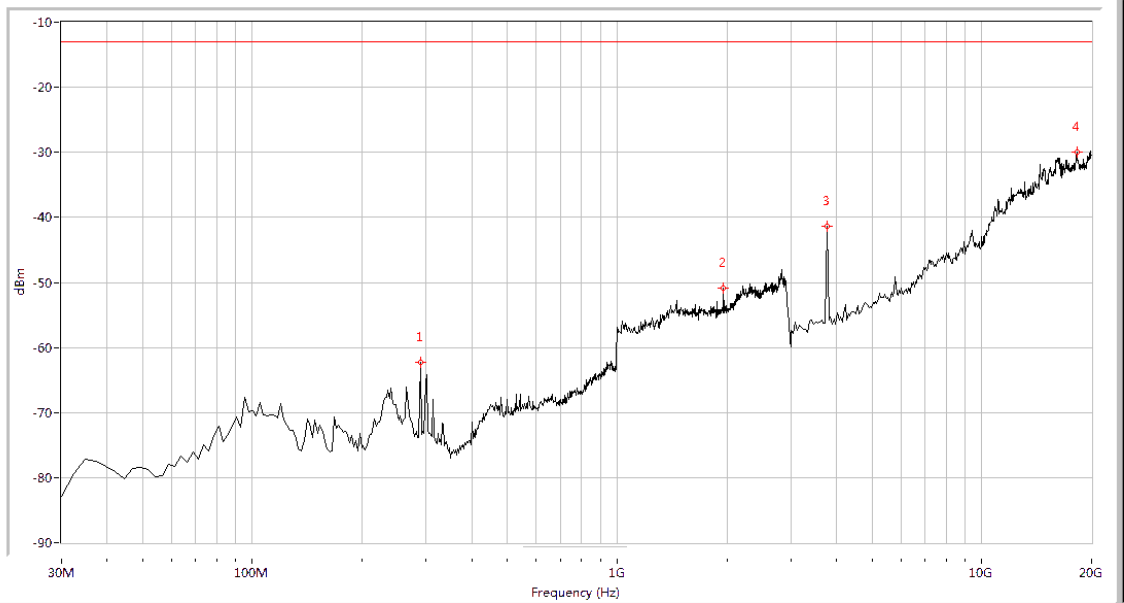
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-62.13	-13.0	49.1	261.7	Horizontal	PASS
1932.668	-39.52	-13.0	26.5	276.8	Horizontal	PASS
3720.698	-41.15	-13.0	28.2	252.8	Horizontal	PASS
18219.451	-30.42	-13.0	17.4	102.0	Horizontal	PASS

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



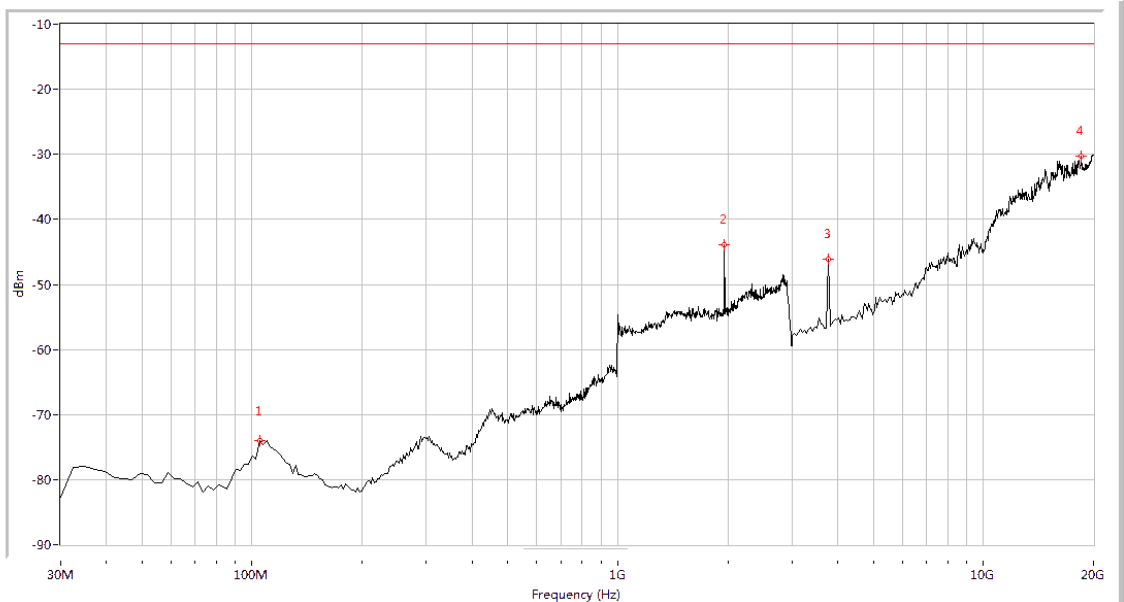
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-54.52	-13.0	41.5	209.4	Vertical	PASS
1932.668	-45.50	-13.0	32.5	231.7	Vertical	PASS
3720.698	-45.98	-13.0	33.0	356.0	Vertical	PASS
18177.057	-30.69	-13.0	17.7	336.5	Vertical	PASS

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



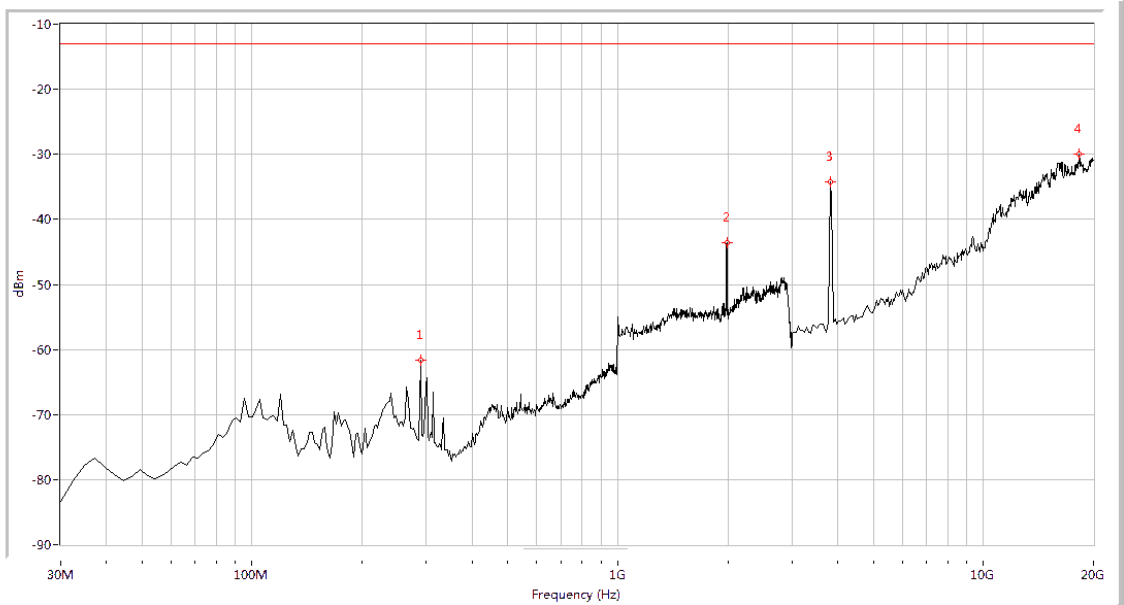
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-62.28	-13.0	49.3	253.5	Horizontal	PASS
1957.606	-50.93	-13.0	37.9	299.4	Horizontal	PASS
3763.092	-41.37	-13.0	28.4	242.3	Horizontal	PASS
18219.451	-30.03	-13.0	17.0	88.7	Horizontal	PASS

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



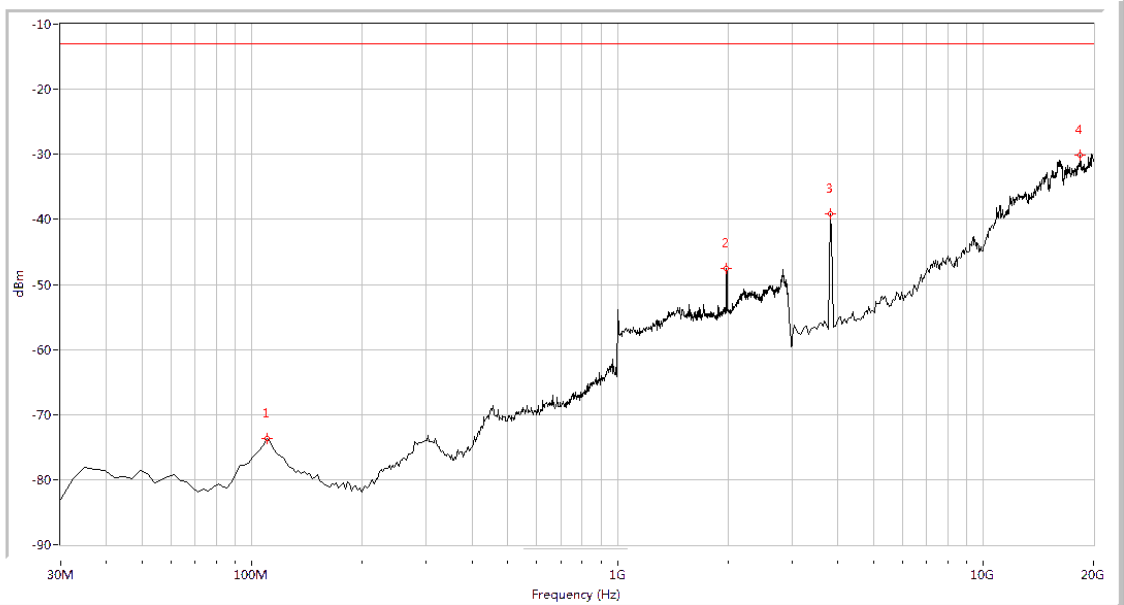
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
104.988	-74.02	-13.0	61.0	170.1	Vertical	PASS
1957.606	-43.84	-13.0	30.8	80.8	Vertical	PASS
3763.092	-46.13	-13.0	33.1	343.5	Vertical	PASS
18558.603	-30.34	-13.0	17.3	343.5	Vertical	PASS

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



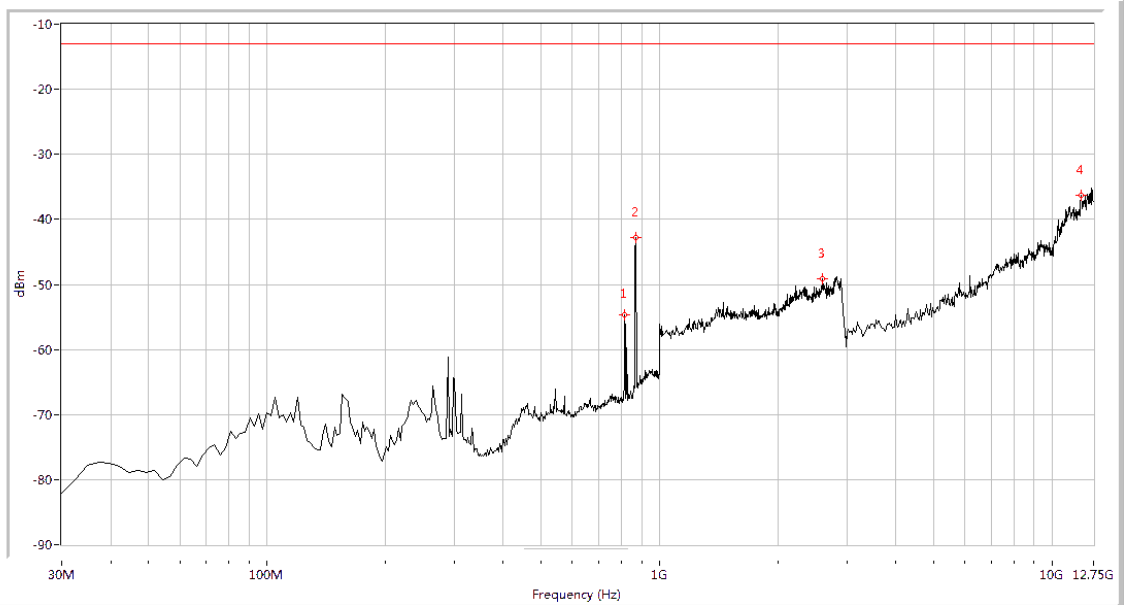
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-61.58	-13.0	48.6	262.1	Horizontal	PASS
1987.531	-43.66	-13.0	30.7	142.5	Horizontal	PASS
3805.486	-34.29	-13.0	21.3	246.9	Horizontal	PASS
18304.239	-29.89	-13.0	16.9	335.0	Horizontal	PASS

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



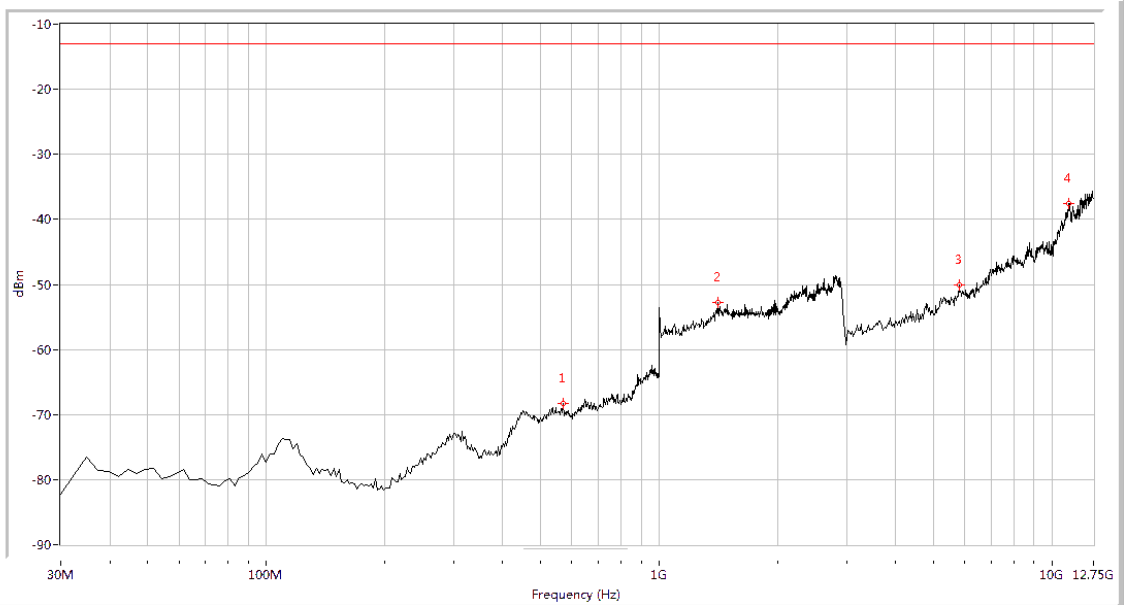
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.64	-13.0	60.6	291.1	Vertical	PASS
1982.544	-47.50	-13.0	34.5	64.4	Vertical	PASS
3805.486	-39.12	-13.0	26.1	360.0	Vertical	PASS
18389.027	-30.13	-13.0	17.1	92.9	Vertical	PASS

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



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
816.160	-54.73	-13.0	41.7	65.9	Horizontal	PASS
871.796	-42.72	-13.0	29.7	156.3	Horizontal	PASS
2596.010	-49.20	-13.0	36.2	167.2	Horizontal	PASS
11874.688	-36.29	-13.0	23.3	344.8	Horizontal	PASS

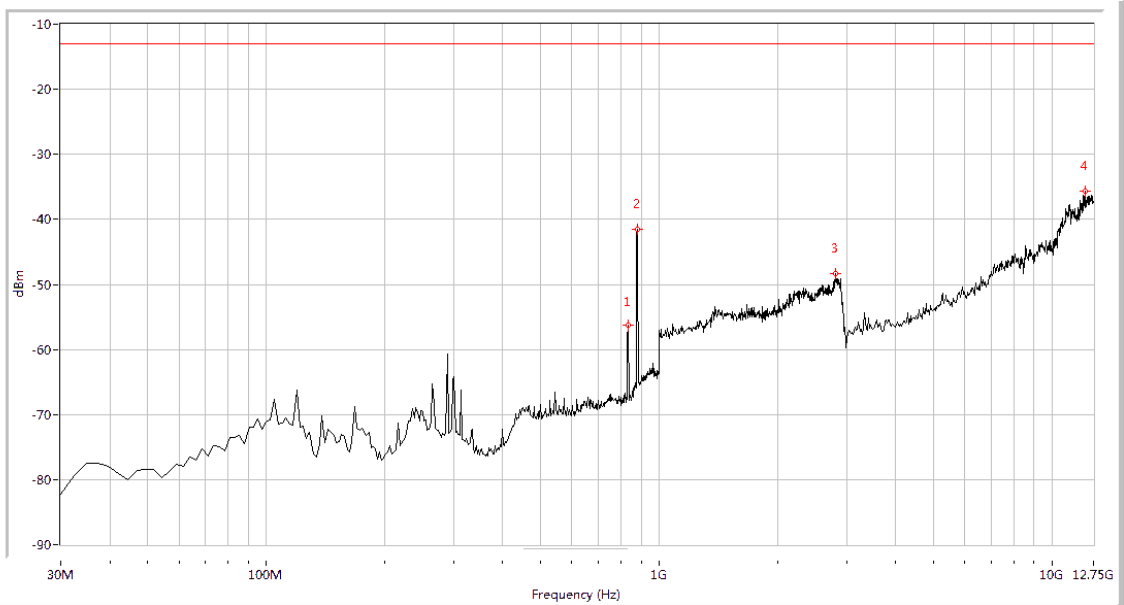
(Plot I.1: HSUPA 850MHz Channel = 4132, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
569.426	-68.25	-13.0	55.3	123.6	Vertical	PASS
1413.965	-52.82	-13.0	39.8	295.2	Vertical	PASS
5796.135	-50.10	-13.0	37.1	196.8	Vertical	PASS
11048.005	-37.64	-13.0	24.6	247.0	Vertical	PASS

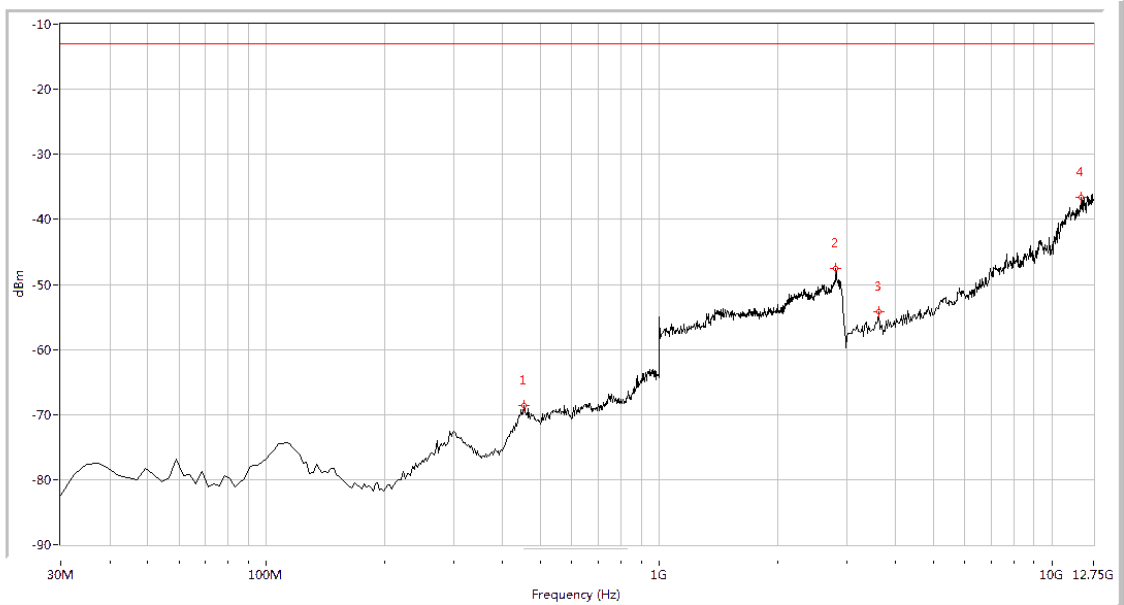
(Plot I.2: HSUPA 850 MHz Channel = 4132, Test Antenna Vertical)





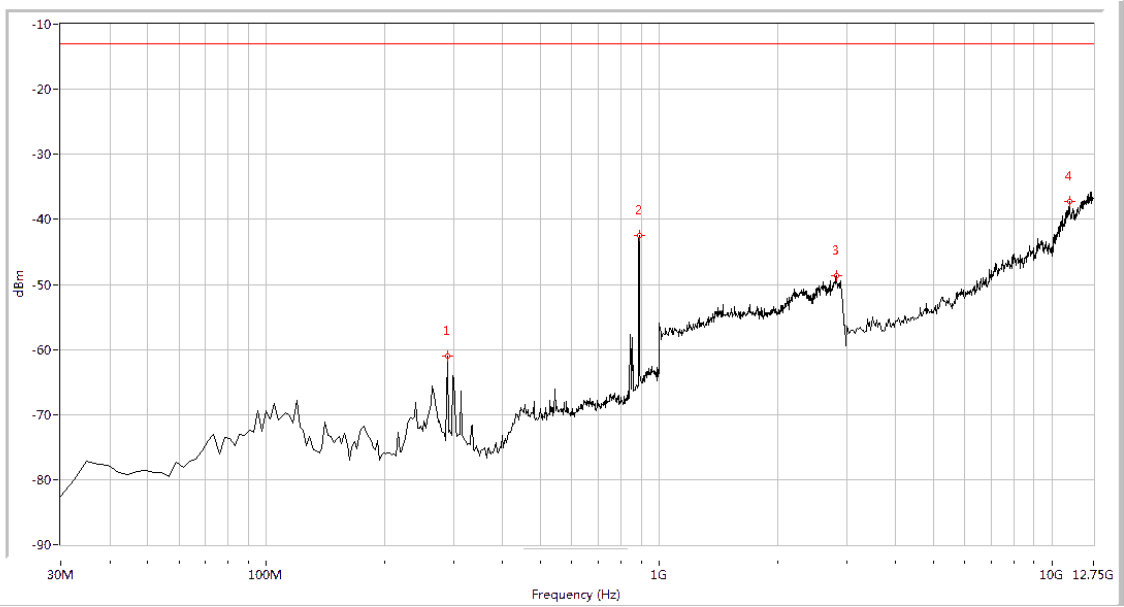
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
833.092	-56.31	-13.0	43.3	122.8	Horizontal	PASS
879.052	-41.59	-13.0	28.6	122.8	Horizontal	PASS
2820.449	-48.39	-13.0	35.4	181.4	Horizontal	PASS
12117.830	-35.69	-13.0	22.7	215.3	Horizontal	PASS

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



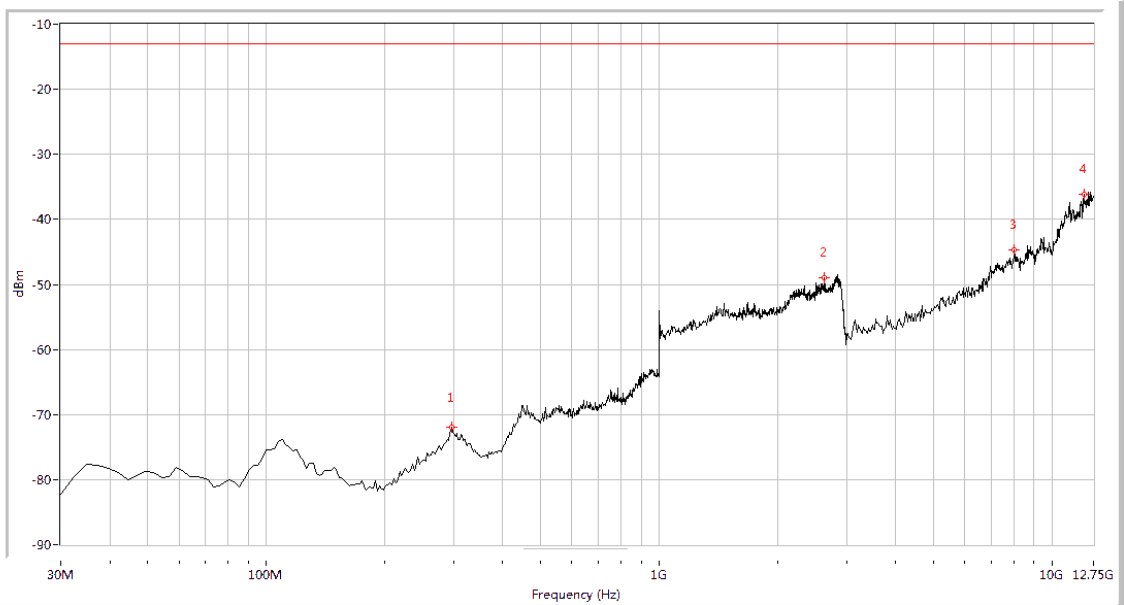
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
453.317	-68.66	-13.0	55.7	307.8	Vertical	PASS
2820.449	-47.57	-13.0	34.6	338.9	Vertical	PASS
3632.170	-54.28	-13.0	41.3	297.4	Vertical	PASS
11874.688	-36.64	-13.0	23.6	308.6	Vertical	PASS

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



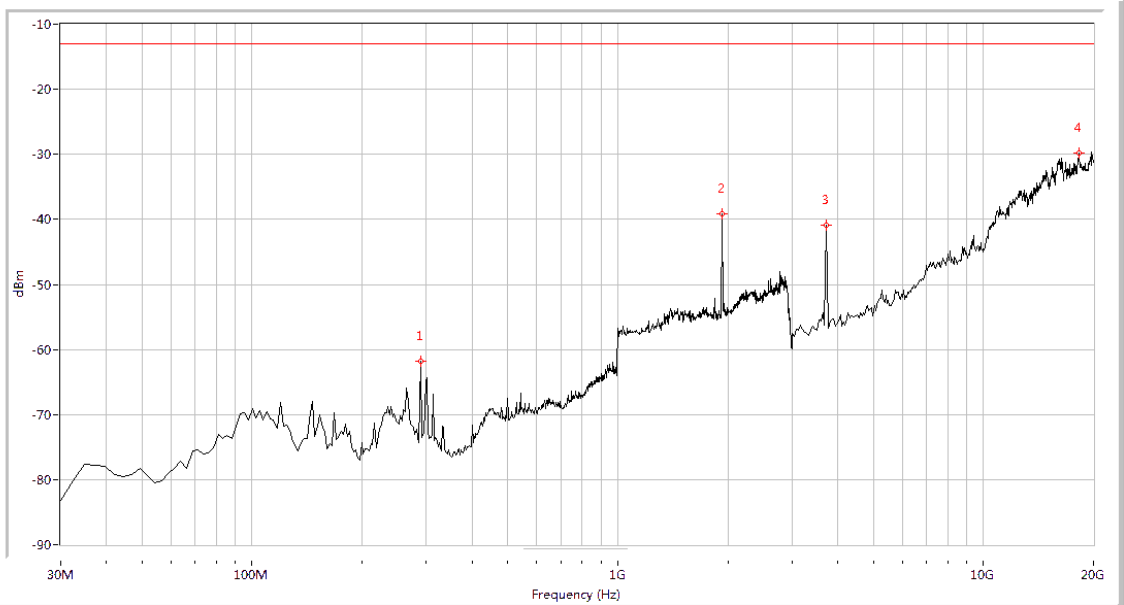
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-60.99	-13.0	48.0	252.6	Horizontal	PASS
891.147	-42.47	-13.0	29.5	17.2	Horizontal	PASS
2825.436	-48.71	-13.0	35.7	1.5	Horizontal	PASS
11072.319	-37.25	-13.0	24.3	193.4	Horizontal	PASS

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



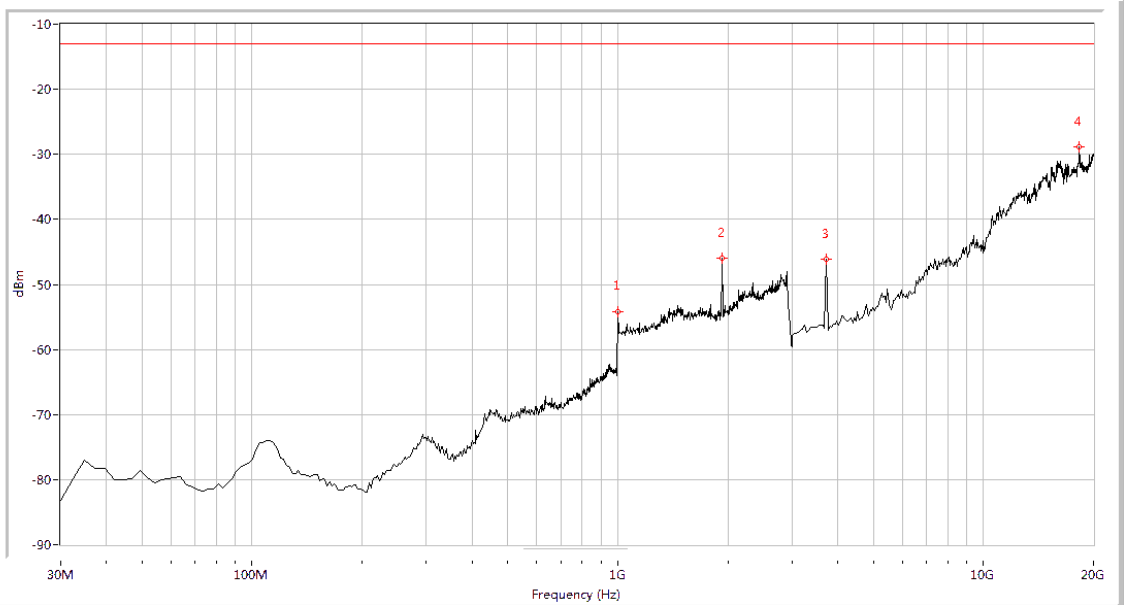
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
296.085	-71.88	-13.0	58.9	139.5	Vertical	PASS
2635.910	-48.96	-13.0	36.0	61.9	Vertical	PASS
8008.728	-44.66	-13.0	31.7	293.9	Vertical	PASS
12044.888	-36.10	-13.0	23.1	91.5	Vertical	PASS

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



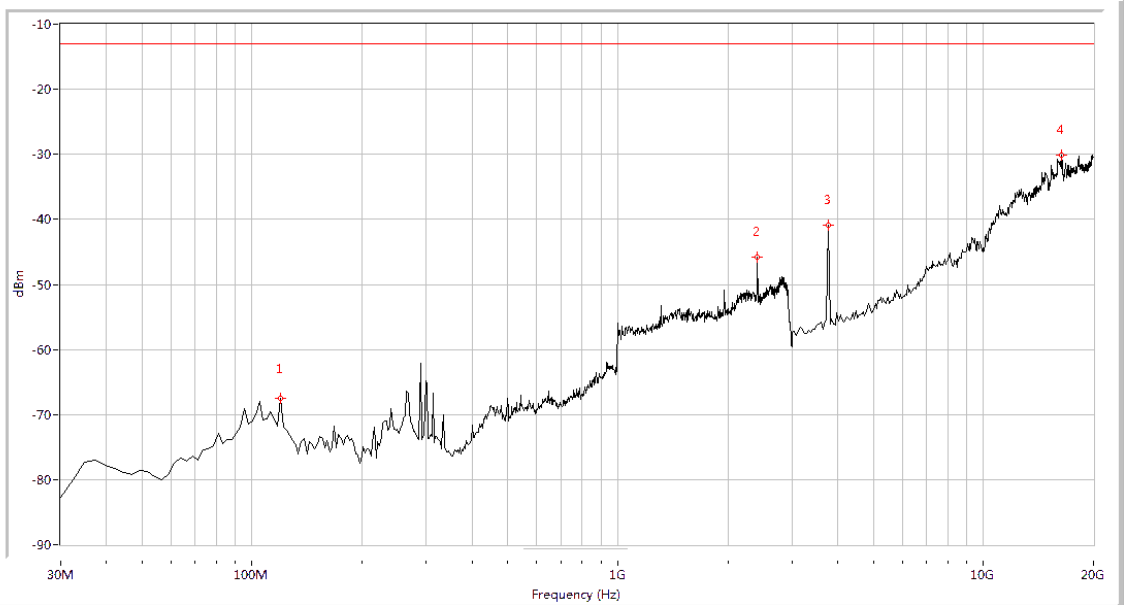
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-61.77	-13.0	48.8	244.8	Horizontal	PASS
1932.668	-39.09	-13.0	26.1	92.9	Horizontal	PASS
3720.698	-40.87	-13.0	27.9	237.8	Horizontal	PASS
18219.451	-29.83	-13.0	16.8	287.6	Horizontal	PASS

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



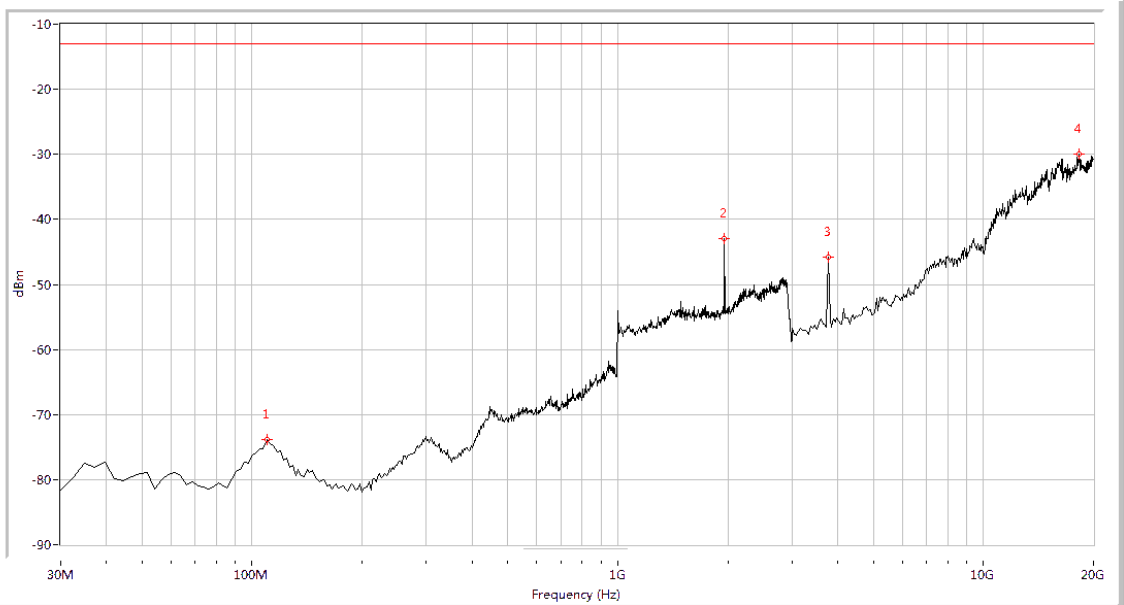
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-54.18	-13.0	41.2	213.8	Vertical	PASS
1932.668	-46.01	-13.0	33.0	60.9	Vertical	PASS
3720.698	-46.17	-13.0	33.2	39.9	Vertical	PASS
18304.239	-28.82	-13.0	15.8	164.5	Vertical	PASS

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



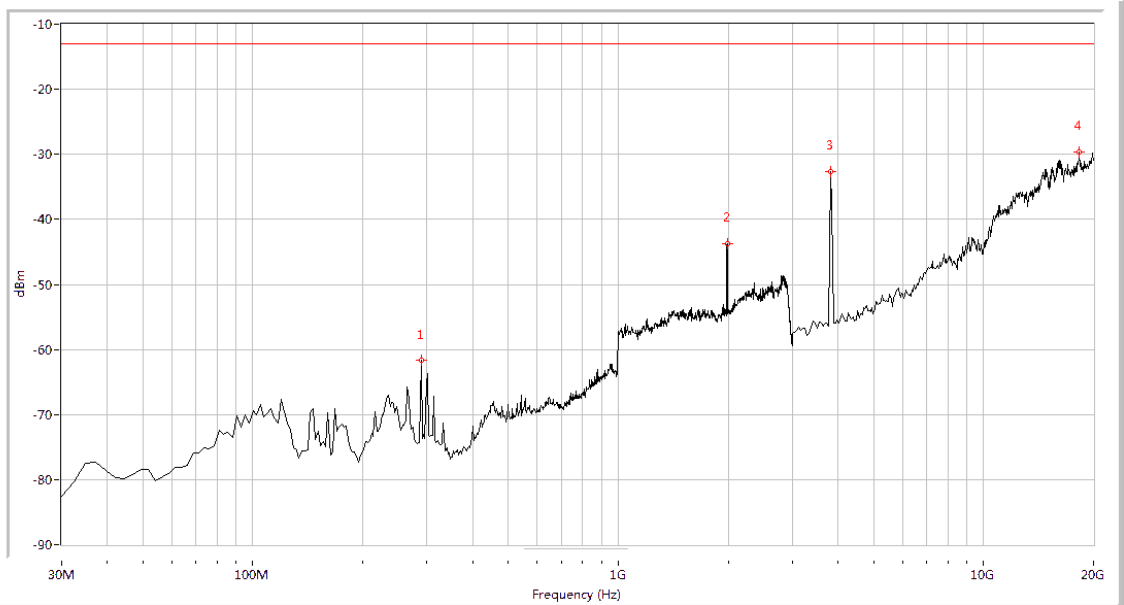
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
119.501	-67.55	-13.0	54.5	55.5	Horizontal	PASS
2411.471	-45.80	-13.0	32.8	231.9	Horizontal	PASS
3763.092	-40.85	-13.0	27.8	239.2	Horizontal	PASS
16396.509	-30.05	-13.0	17.0	359.4	Horizontal	PASS

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



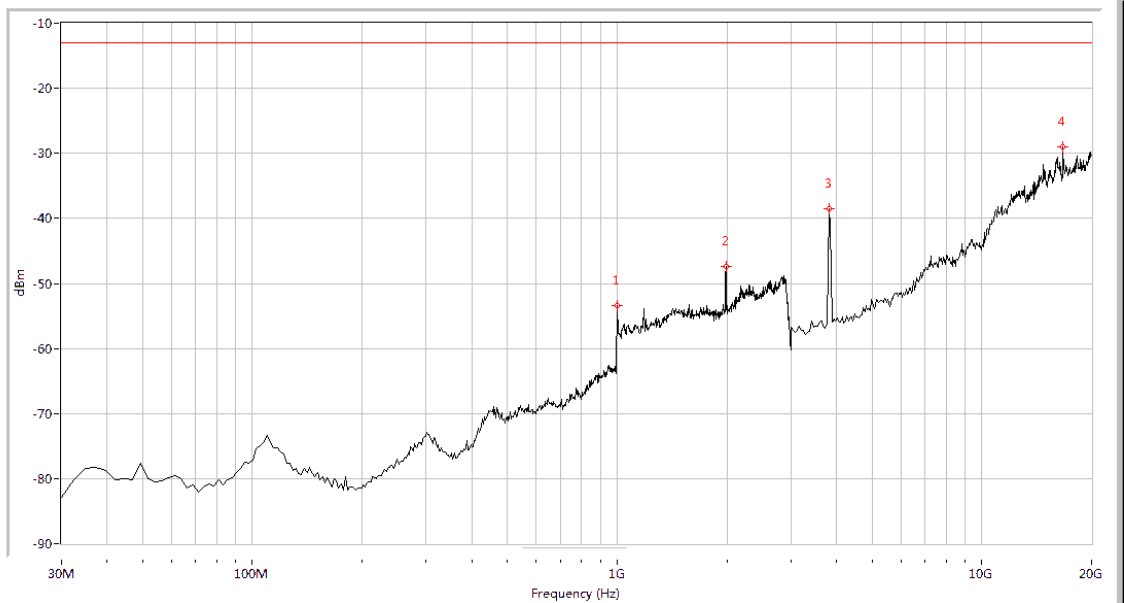
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.87	-13.0	60.9	28.3	Vertical	PASS
1957.606	-43.00	-13.0	30.0	62.3	Vertical	PASS
3763.092	-45.81	-13.0	32.8	356.2	Vertical	PASS
18304.239	-29.95	-13.0	16.9	82.2	Vertical	PASS

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



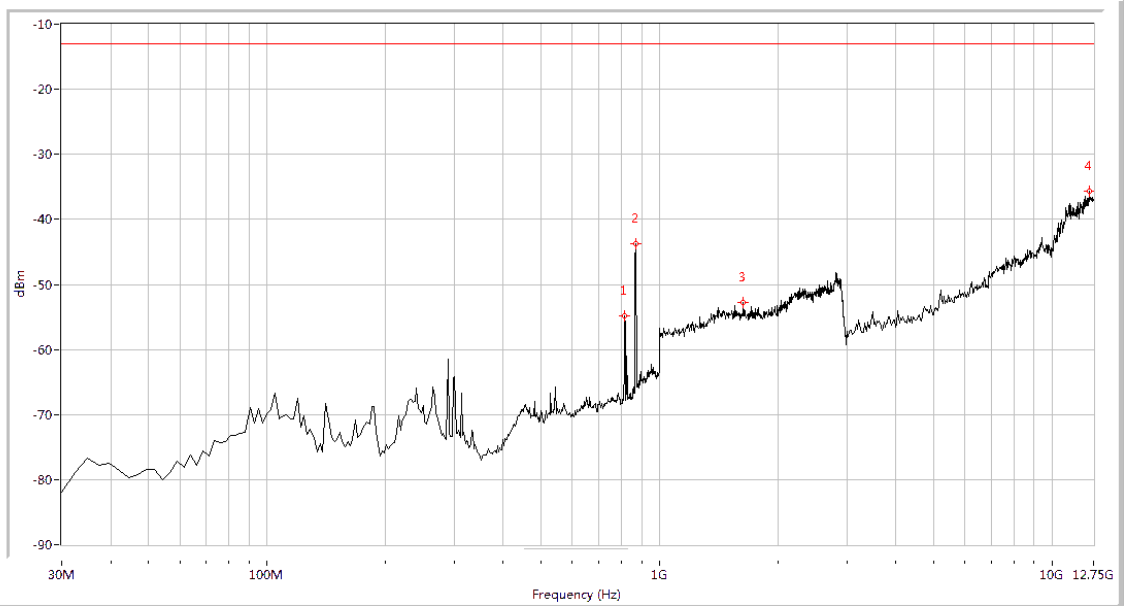
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-61.58	-13.0	48.6	233.9	Horizontal	PASS
1987.531	-43.68	-13.0	30.7	337.2	Horizontal	PASS
3805.486	-32.72	-13.0	19.7	241.4	Horizontal	PASS
18304.239	-29.71	-13.0	16.7	159.6	Horizontal	PASS

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



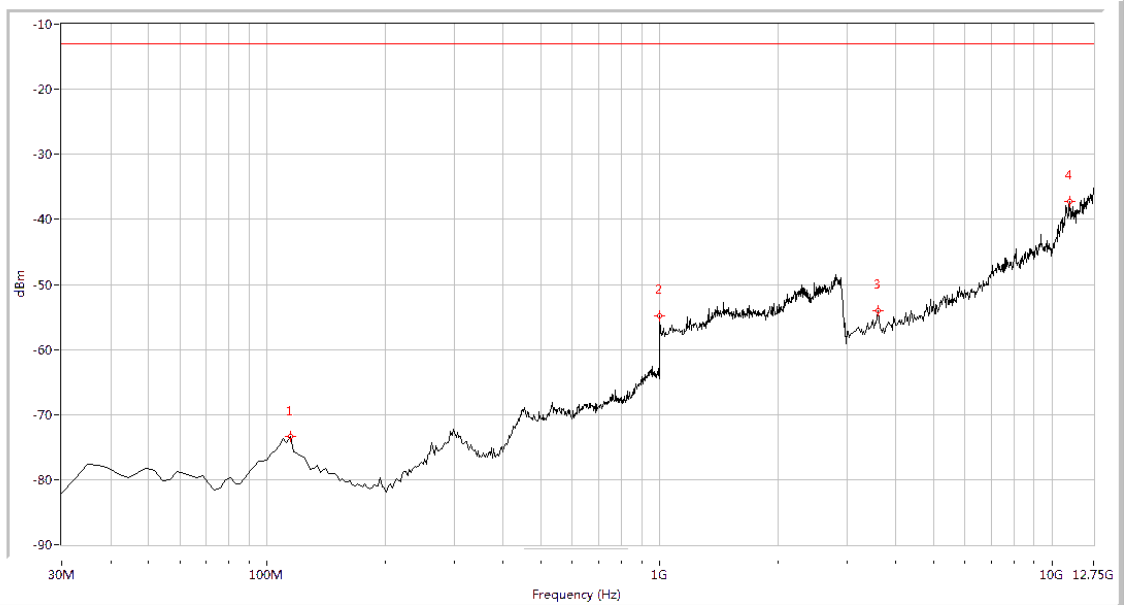
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-53.47	-13.0	40.5	215.2	Vertical	PASS
1987.531	-47.32	-13.0	34.3	110.7	Vertical	PASS
3805.486	-38.58	-13.0	25.6	359.9	Vertical	PASS
16693.267	-29.00	-13.0	16.0	247.0	Vertical	PASS

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



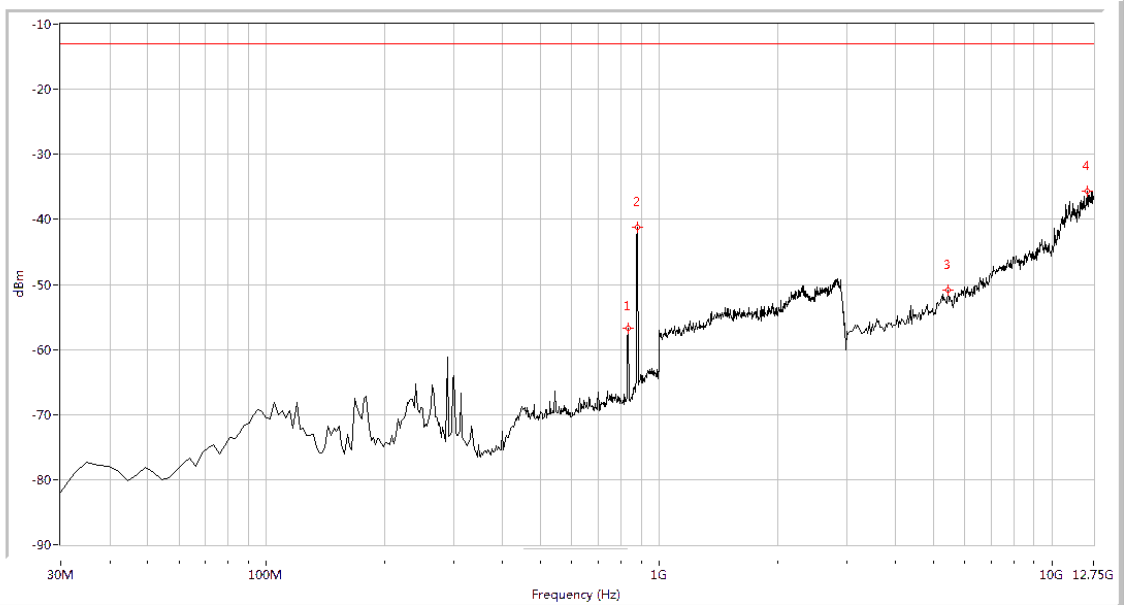
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
816.160	-54.79	-13.0	41.8	175.8	Horizontal	PASS
871.796	-43.74	-13.0	30.7	197.7	Horizontal	PASS
1633.416	-52.82	-13.0	39.8	287.1	Horizontal	PASS
12458.229	-35.61	-13.0	22.6	351.5	Horizontal	PASS

(Plot K.1: HSPA+ 850 MHz Channel = 4132, Test Antenna Horizontal)



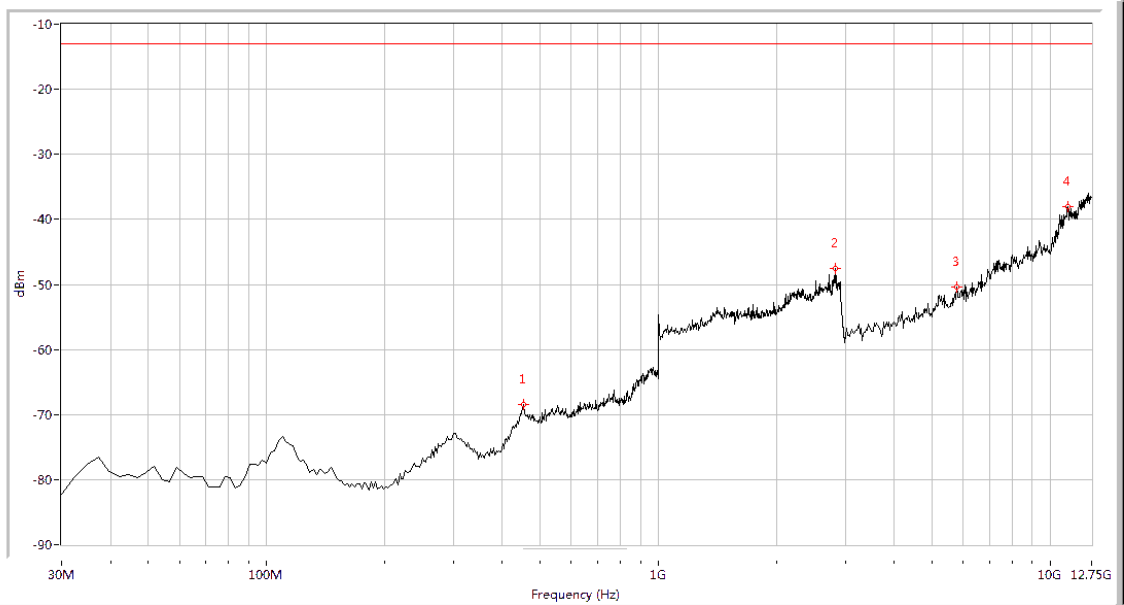
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
114.663	-73.44	-13.0	60.4	336.9	Vertical	PASS
1000.000	-54.86	-13.0	41.9	204.0	Vertical	PASS
3607.855	-53.99	-13.0	41.0	31.9	Vertical	PASS
11120.948	-37.20	-13.0	24.2	80.6	Vertical	PASS

(Plot K.2: HSPA+ 850 MHz Channel = 4132, Test Antenna Vertical)



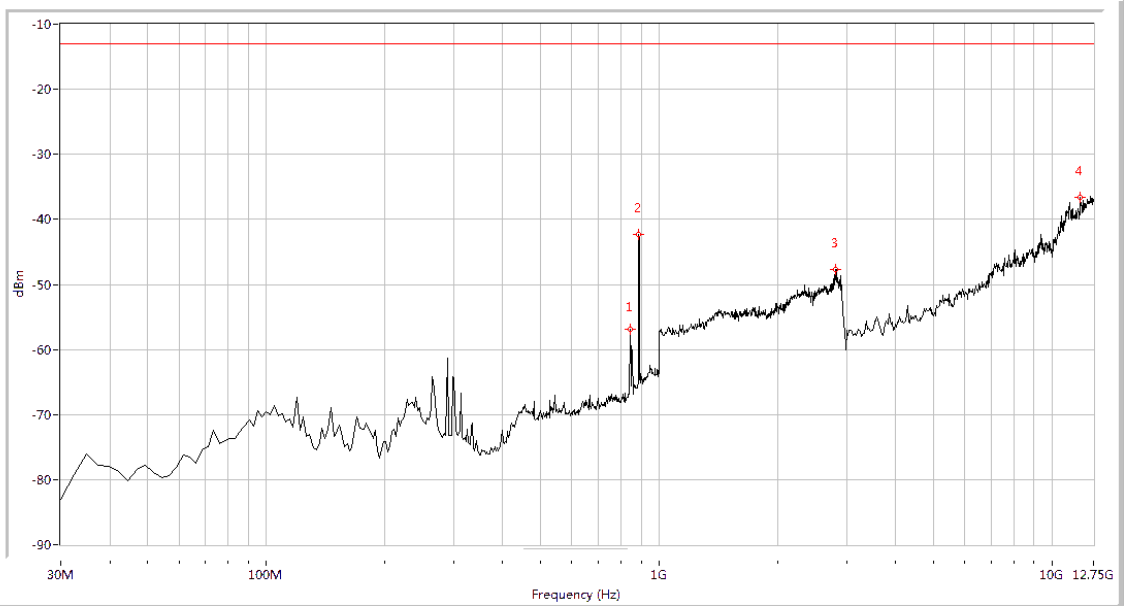
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
833.092	-56.78	-13.0	43.8	184.3	Horizontal	PASS
879.052	-41.16	-13.0	28.2	19.5	Horizontal	PASS
5431.421	-50.92	-13.0	37.9	120.3	Horizontal	PASS
12263.716	-35.74	-13.0	22.7	241.2	Horizontal	PASS

(Plot K.3: HSPA+ 850 MHz Channel = 4175, Test Antenna Horizontal)



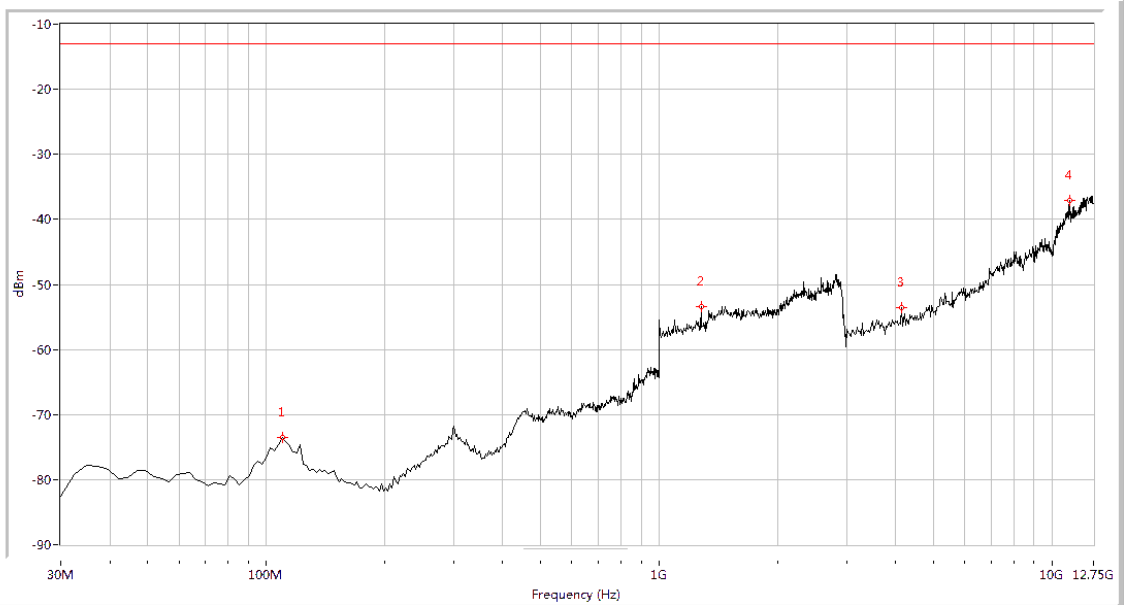
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
453.317	-68.53	-13.0	55.5	83.0	Vertical	PASS
2835.411	-47.54	-13.0	34.5	355.5	Vertical	PASS
5771.820	-50.47	-13.0	37.5	299.8	Vertical	PASS
11072.319	-38.01	-13.0	25.0	252.2	Vertical	PASS

(Plot K.4: HSPA+ 850 MHz Channel = 4175, Test Antenna Vertical)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
845.187	-56.91	-13.0	43.9	123.4	Horizontal	PASS
888.728	-42.34	-13.0	29.3	9.9	Horizontal	PASS
2805.486	-47.76	-13.0	34.8	185.6	Horizontal	PASS
11801.746	-36.67	-13.0	23.7	41.9	Horizontal	PASS

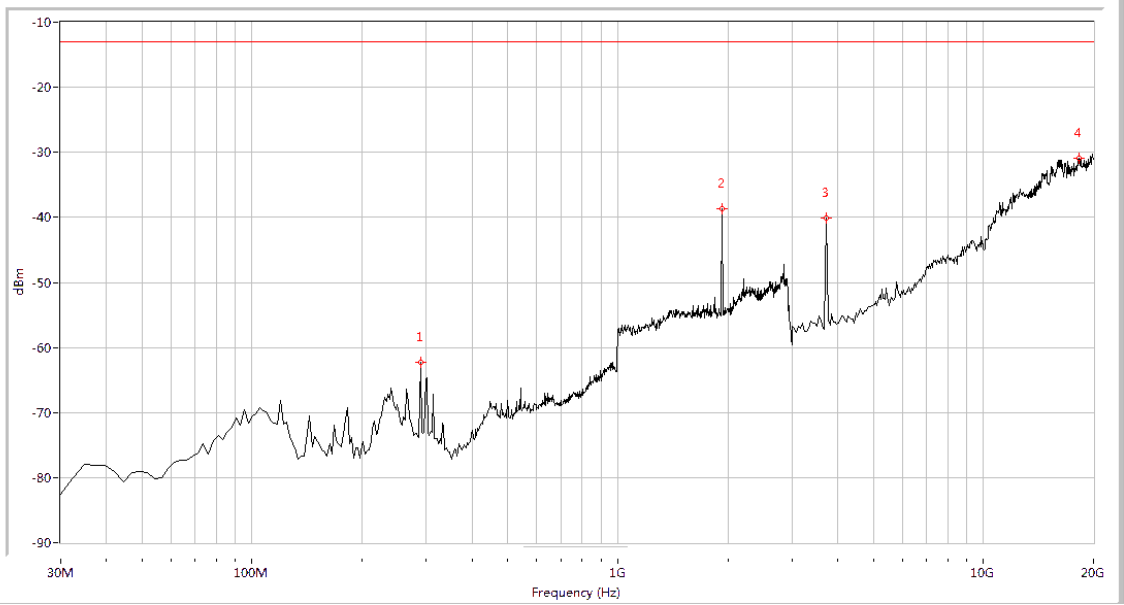
(Plot K.5: HSPA+ 850 MHz Channel = 4233, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.57	-13.0	60.6	357.6	Vertical	PASS
1279.302	-53.48	-13.0	40.5	114.6	Vertical	PASS
4142.768	-53.64	-13.0	40.6	242.7	Vertical	PASS
11072.319	-37.11	-13.0	24.1	30.8	Vertical	PASS

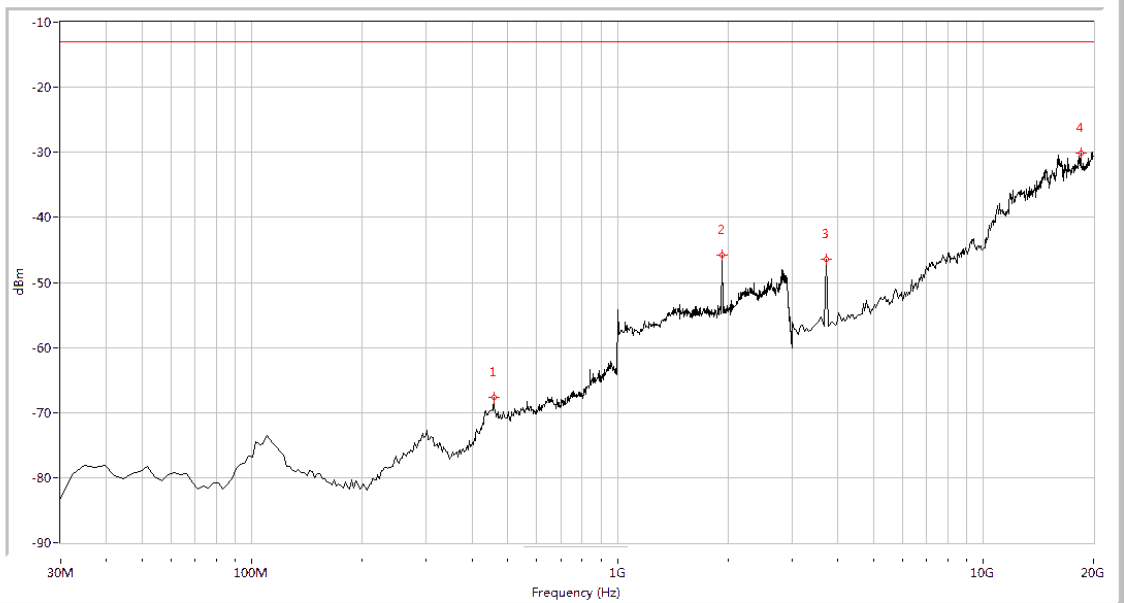
(Plot K.6: HSPA+ 850 MHz Channel = 4233, Test Antenna Vertical)





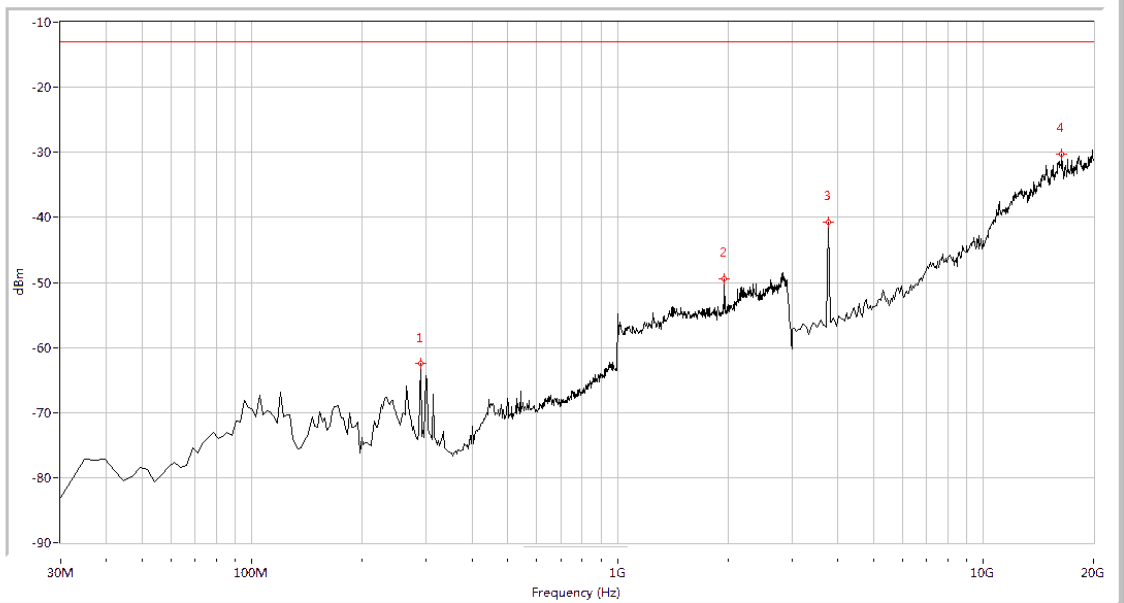
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-62.26	-13.0	49.3	239.4	Horizontal	PASS
1927.681	-38.70	-13.0	25.7	53.6	Horizontal	PASS
3720.698	-40.05	-13.0	27.0	237.9	Horizontal	PASS
18219.451	-30.91	-13.0	17.9	31.8	Horizontal	PASS

(Plot K.1: HSPA+ 1900 MHz Channel = 9262, Test Antenna Horizontal)



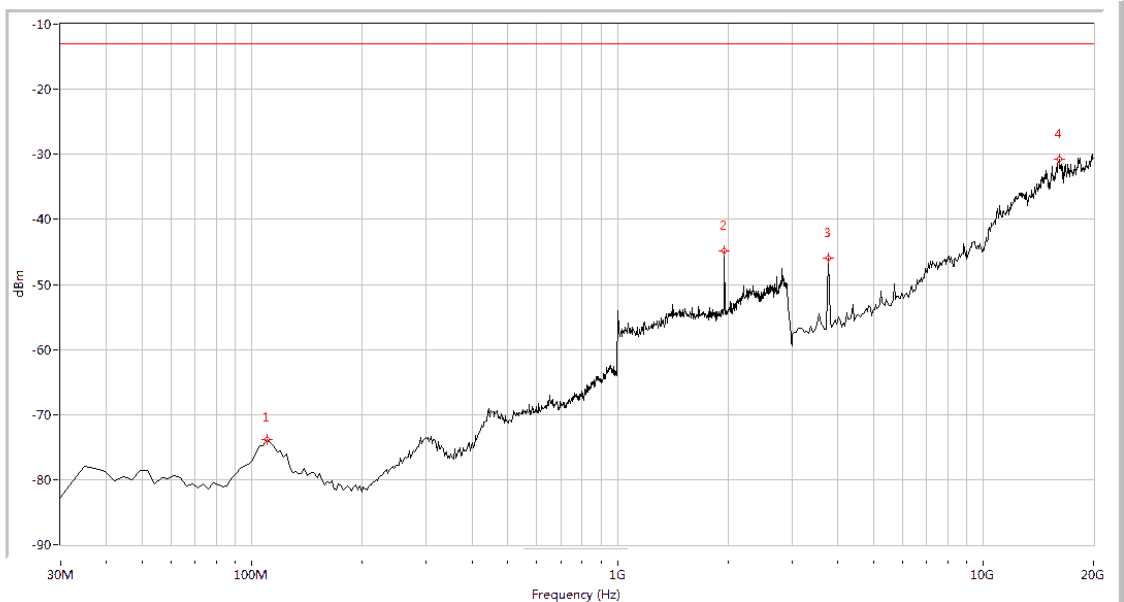
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
458.155	-67.62	-13.0	54.6	349.5	Vertical	PASS
1932.668	-45.81	-13.0	32.8	80.4	Vertical	PASS
3720.698	-46.46	-13.0	33.5	45.6	Vertical	PASS
18473.815	-30.07	-13.0	17.1	356.5	Vertical	PASS

(Plot K.2: HSPA+ 1900 MHz Channel = 9262, Test Antenna Vertical)



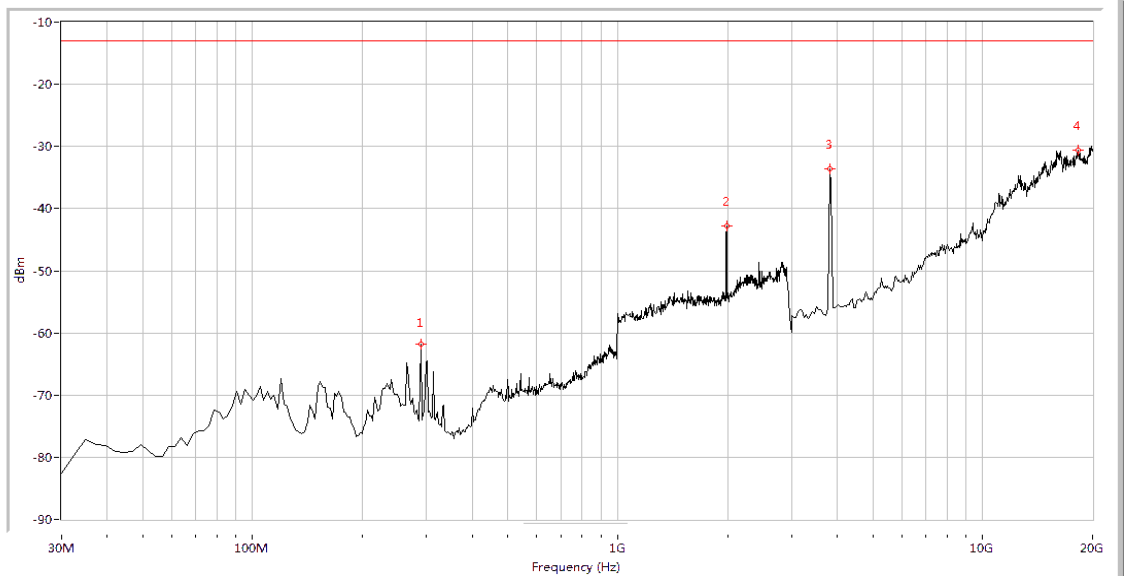
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-62.43	-13.0	49.4	256.5	Horizontal	PASS
1957.606	-49.52	-13.0	36.5	173.4	Horizontal	PASS
3763.092	-40.76	-13.0	27.8	245.0	Horizontal	PASS
16396.509	-30.31	-13.0	17.3	303.0	Horizontal	PASS

(Plot K.3: HSPA+ 1900 MHz Channel = 9400, Test Antenna Horizontal)



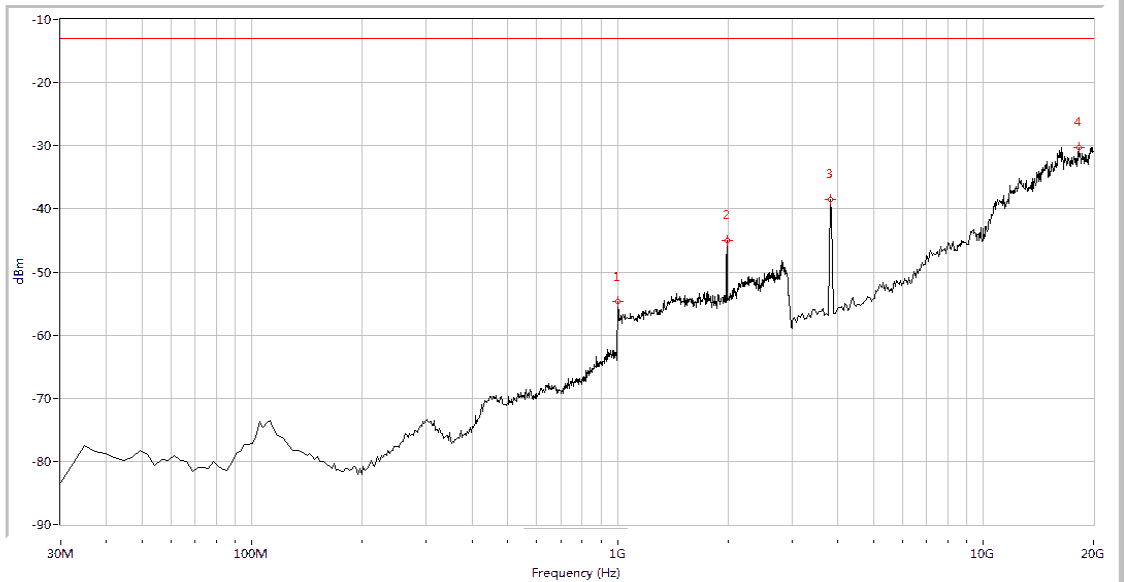
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
109.825	-73.79	-13.0	60.8	229.4	Vertical	PASS
1957.606	-44.91	-13.0	31.9	236.6	Vertical	PASS
3763.092	-45.95	-13.0	33.0	291.1	Vertical	PASS
16099.751	-30.69	-13.0	17.7	224.1	Vertical	PASS

(Plot K.4: HSPA+ 850 MHz Channel = 9400, Test Antenna Vertical)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
288.828	-61.79	-13.0	48.8	243.5	Horizontal	PASS
1987.531	-42.75	-13.0	29.8	20.9	Horizontal	PASS
3805.486	-33.65	-13.0	20.6	249.8	Horizontal	PASS
18304.239	-30.53	-13.0	17.5	226.4	Horizontal	PASS

(Plot K.5: HSPA+ 850 MHz Channel = 9538, Test Antenna Horizontal)



Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
1000.000	-54.68	-13.0	41.7	217.6	Vertical	PASS
1987.531	-44.95	-13.0	32.0	110.1	Vertical	PASS
3805.486	-38.44	-13.0	25.4	28.4	Vertical	PASS
18219.451	-30.24	-13.0	17.2	196.9	Vertical	PASS

(Plot K.6: HSPA+ 850 MHz Channel = 9538, Test Antenna Vertical)

\*\* END OF REPORT \*\*