FCC TEST REPORT

APPLICANT	:	ZTE Corporation
PRODUCT NAME	:	LTE Digital Mobile Handset
MODEL NAME	:	ZTE Blade V320/BGH Joy Smart AXS II/BGH Joy Smart AXS II D
TRADE NAME	:	ZTE
BRAND NAME	:	ZTE
FCC ID	:	SRQ- V320
STANDARD(S)	:	47 CFR Part 22 Subpart H 47 CFR Part 24 Subpart E
ISSUE DATE	:	2015-03-12

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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Change History		
Issue	Date	Reason for change
1.0	2015.03.12	First edition

Test Report Declaration

Applicant	ZTE Corporation
Applicant Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park,Nanshan District,Shenzhen,Guangdong,P.R.China
Manufacturer	ZTE Corporation
Manufacturer Address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park,Nanshan District,Shenzhen,Guangdong,P.R.China
Product Name	LTE Digital Mobile Handset
Model Name	ZTE Blade V320/BGH Joy Smart AXS II/BGH Joy Smart AXS II D
Brand Name	ZTE
HW Version	NE502JPAMB_B
SW Version	V320_Z34_ES_JSXPH1ID00H102
Test Standards	47 CFR Part 22 Subpart H 47 CFR Part 24 Subpart E
Test Date	2015-02-11 to 2015-03-11
Test Result	PASS
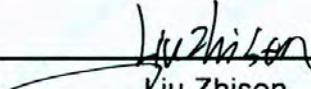
Tested by   :   _____
                                   Liu Zhisen
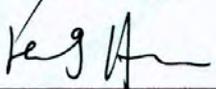
Reviewed by   :   _____
                                   Peng Huarui
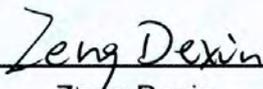
Approved by   :   _____
                                   Zeng Dexin

1. GENERAL INFORMATION

1.1 EUT Description

Frequency Range .... :	GSM 850MHz:
	Tx: 824.20 - 848.80MHz (at intervals of 200kHz);
	Rx: 869.20 - 893.80MHz (at intervals of 200kHz)
	GSM 1900MHz:
	Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz);
	Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz)
	WCDMA 850MHz
	Tx: 826.4 - 846.6MHz (at intervals of 200kHz);
	Rx: 871.4 - 891.6MHz (at intervals of 200kHz)
	WCDMA 1900MHz
	Tx: 1852.4 - 1907.6MHz (at intervals of 200kHz);
	Rx: 1932.4 - 1987.6MHz (at intervals of 200kHz)
Modulation Type.................. :	GSM,GPRS Mode with GMSK Modulation
	EDGE Mode with 8PSK Modulation
	WCDMA Mode with QPSK Modulation
	HSDPA Mode with QPSK Modulation
	HSUPA Mode with QPSK Modulation
	HSPA+ Mode with QPSK Modulation
Multislot Class...................... :	GPRS: Multislot Class 12,EGPRS: Multislot Class 12
Antenna Type...................... :	PIFA Antenna
Emission Designators .... :	GSM 850:252KGXW,GSM 1900:247KGXW
	EGPRS850:248KG6W, EGPRS1900:248KG7W,
	WCDMA 850:4M15F9W ,WCDMA1900:4M15F9W

Note 1: The transmitter (Tx) frequency arrangement of the Cellular 850MHz band used by the EUT can be represented with the formula $F(n)=824.2+0.2*(n-128)$, $128<=n<=251$; 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 $F(n)=1850.2+0.2*(n-512)$, $512<=n<=810$; 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 $F(n)=826.4+0.2*(n-4132)$, $4132<=n<=4233$; 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<=n<=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 (10-1-13 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-13 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-13 Edition)	Personal Communications Services

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

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

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

1.3   Facilities and Accreditations

1.3.1   Facilities

All measurement facilities used to collect the measurement data are located at FL.1, Building A, FeiYang Science Park, No.8 LongChang Road,Block 67, BaoAn District, ShenZhen, GuangDong Province,P. R. China 518101. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 695796.

1.3.2   Test Environment Conditions

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

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

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

2.1 Conducted RF Output Power

2.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

2.1.2 Test Description

1. Test Setup:
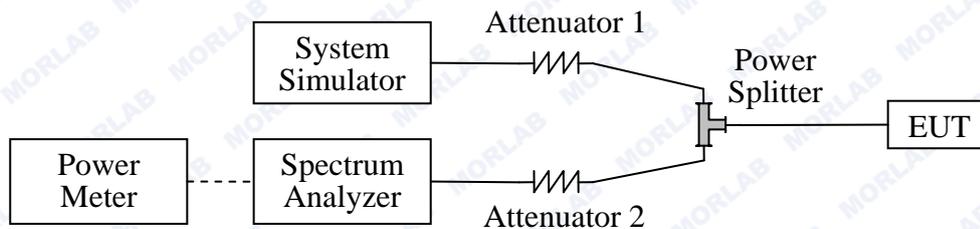
The EUT, which is powered by the Battery, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS.

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

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2015.02.06	2016.02.05
Spectrum Analyzer	Agilent	E7405A	US44210471	2015.02.06	2016.02.05
Power Meter	Agilent	E4418B	GB43318055	2015.02.06	2016.02.05
Power Sensor	Agilent	8482A	MY41091706	2015.02.06	2016.02.05
Power Splitter	Weinschel	1506A	NW521	2015.02.06	2016.02.05
Attenuator 1	Resnet	20dB	(n.a.)	2015.02.06	2016.02.05
Attenuator 2	Resnet	3dB	(n.a.)	2015.02.06	2016.02.05

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 dBm	Verdict
			dBm	Refer to Plot		
GSM 850MHz	128	824.2	33.03	Plot A1 to A3	35	PASS
	190	836.6	32.91			PASS
	251	848.8	33.28			PASS
GSM 1900MHz	512	1850.2	30.28	Plot B1 to B3	32	PASS
	661	1880.0	30.22			PASS
	810	1909.8	30.31			PASS
GPRS 850MHz	128	824.2	31.94	Plot C1 to C3[Note 1]	35	PASS
	190	836.6	32.29			PASS
	251	848.8	32.14			PASS
GPRS 1900MHz	512	1850.2	28.10	Plot D1 to D3[Note 1]	32	PASS
	661	1880.0	28.13			PASS
	810	1909.8	28.22			PASS
EGPRS 850MHz	128	824.2	29.87	Plot E1 to E3[Note 1]	35	PASS
	190	836.6	29.88			PASS
	251	848.8	30.12			PASS
EGPRS 1900MHz	512	1850.2	26.3	Plot F1 to F3[Note 1]	32	PASS
	661	1880.0	26.22			PASS
	810	1909.8	26.32			PASS

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

2. WCDMA Model Test Verdict:

| Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	24.25	24.27	24.13	23.57	23.94	23.53
HSDPA	1	24.26	24.15	24.10	23.48	23.98	23.52
	2	24.25	24.16	24.08	23.50	23.95	23.52
	3	23.76	23.65	23.59	23.00	23.44	23.53
	4	23.74	23.65	23.58	23.01	23.46	23.52
HSUPA	1	24.15	24.09	24.15	23.47	23.99	23.53
	2	22.14	22.08	22.14	21.48	21.98	21.54
	3	23.16	23.09	23.16	22.49	22.97	22.53
	4	22.14	22.07	22.15	21.47	21.99	21.53
	5	24.16	24.10	24.13	23.48	23.98	23.54
HSPA+	1	24.17	24.12	24.12	23.55	23.95	23.54
Note:	The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA /HSPA+ was tested by power meter.						

3. GSM Model Test Plots:
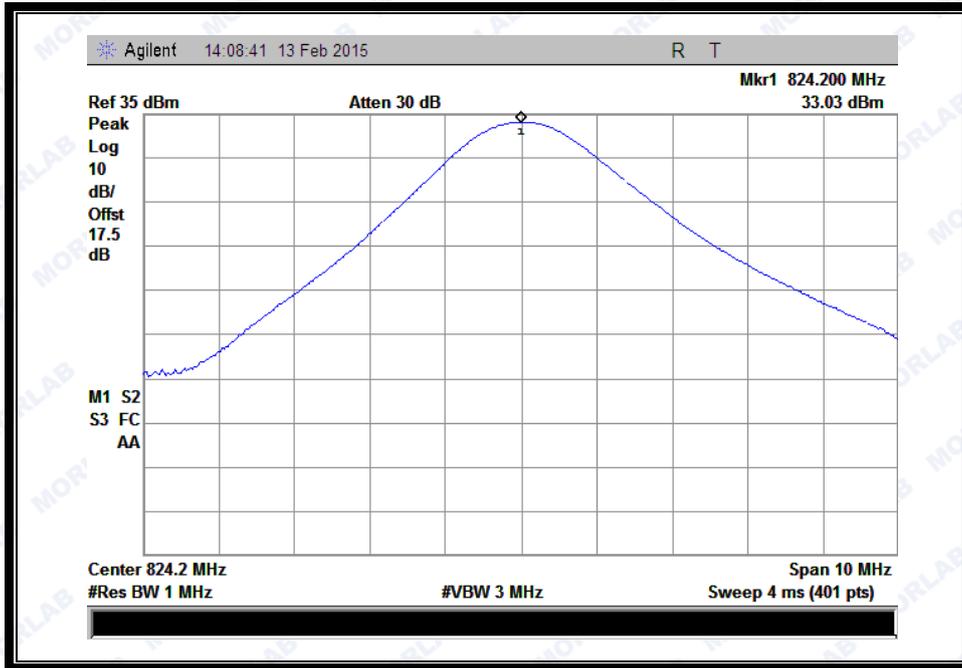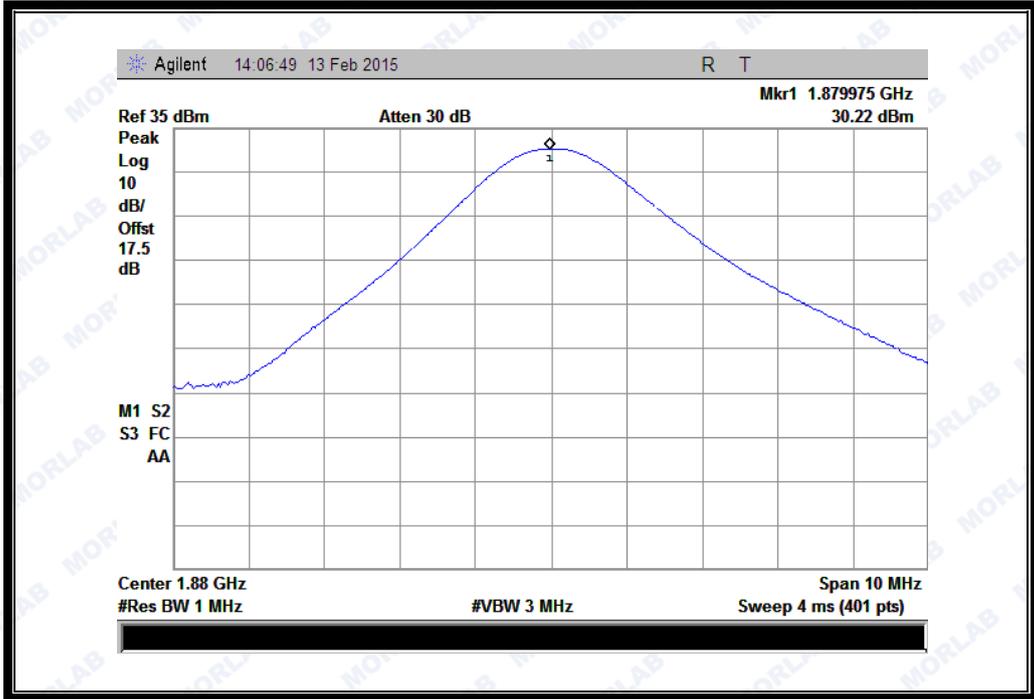

(Plot A1:GSM 850MHz Channel = 128)
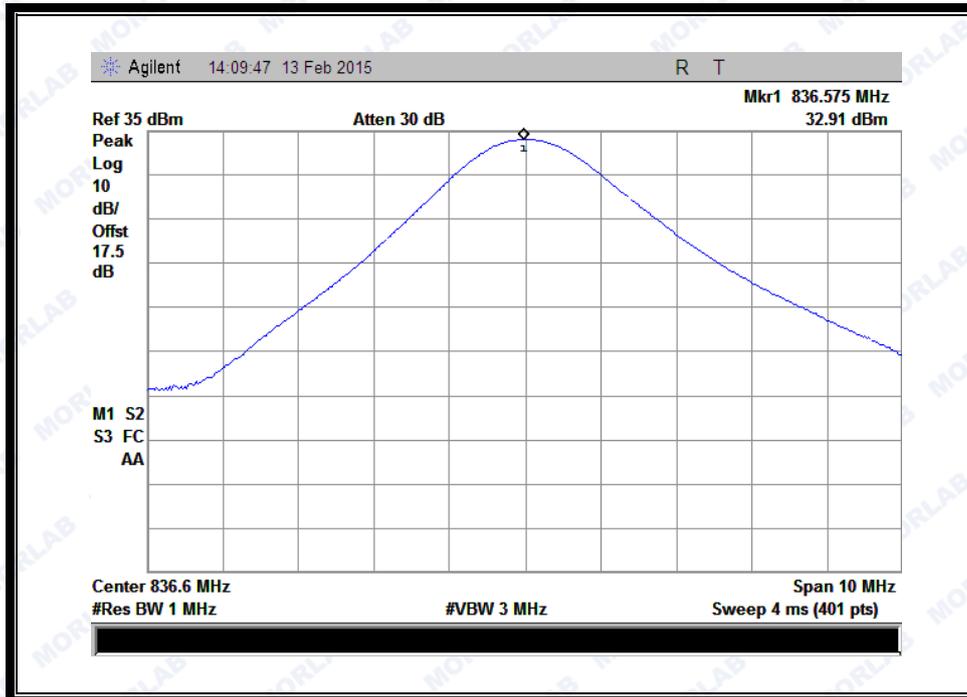
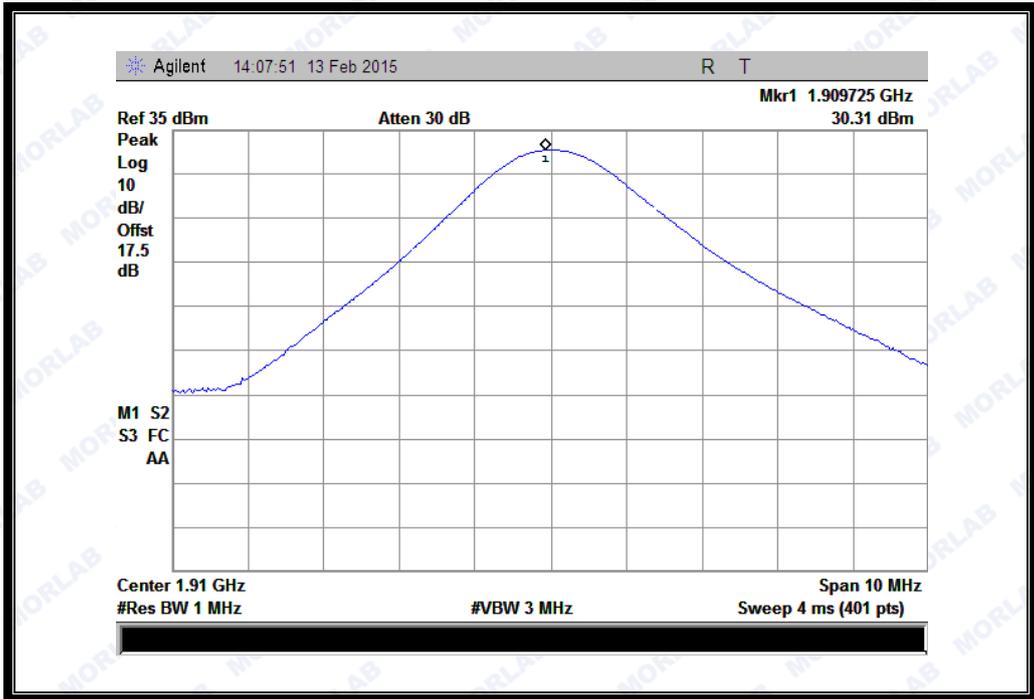(Plot A2:GSM 850MHz Channel = 190)
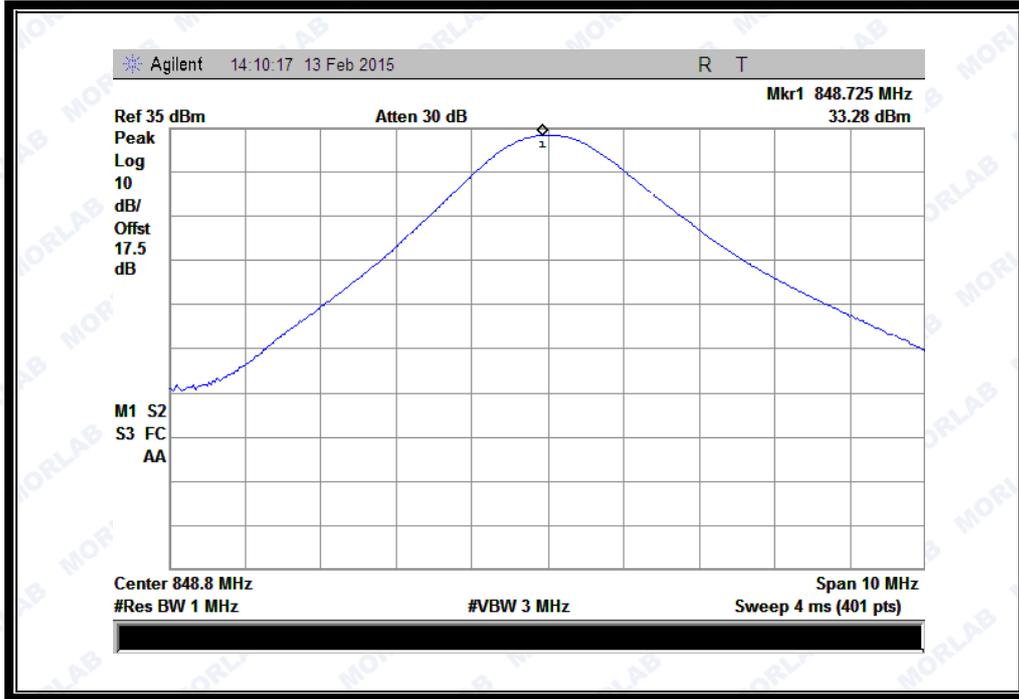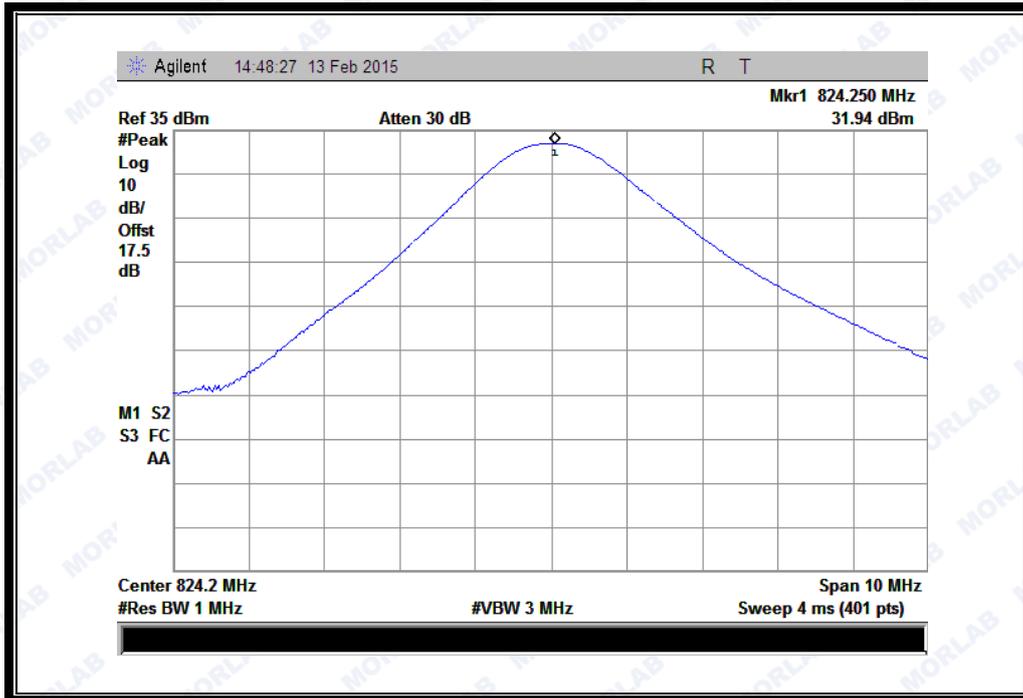
(Plot A3:GSM 850MHz Channel = 251)
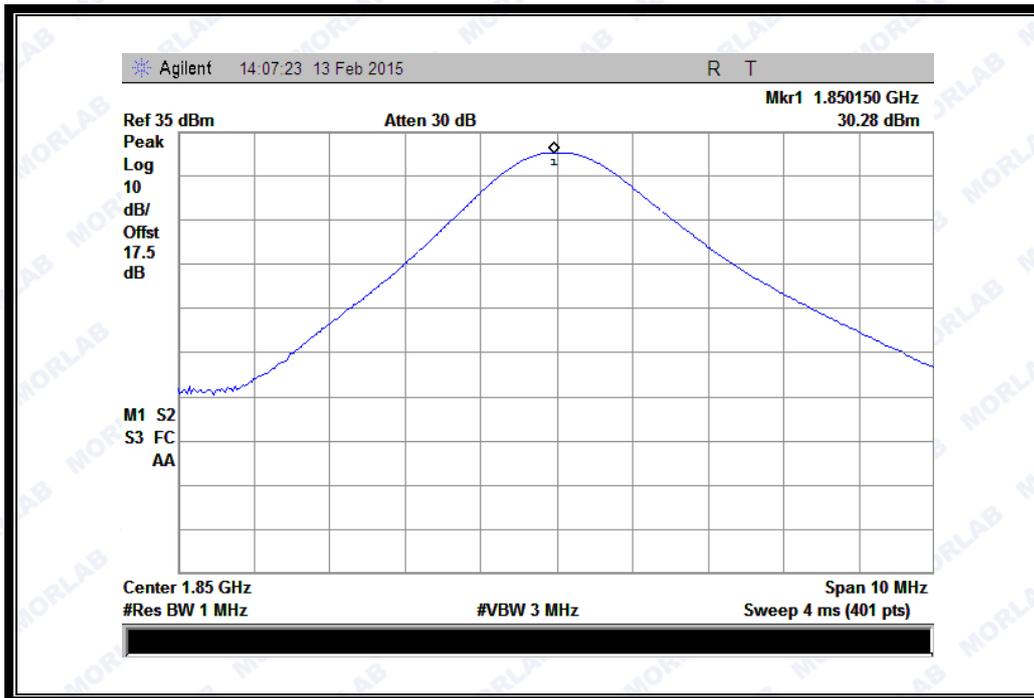
(Plot B1:   GSM 1900MHz Channel = 512)

(Plot B2:   GSM 1900MHz Channel = 661)

(Plot B3:   GSM 1900Hz Channel = 810)

(Plot C 1:   GPRS 850MHz Channel = 128)
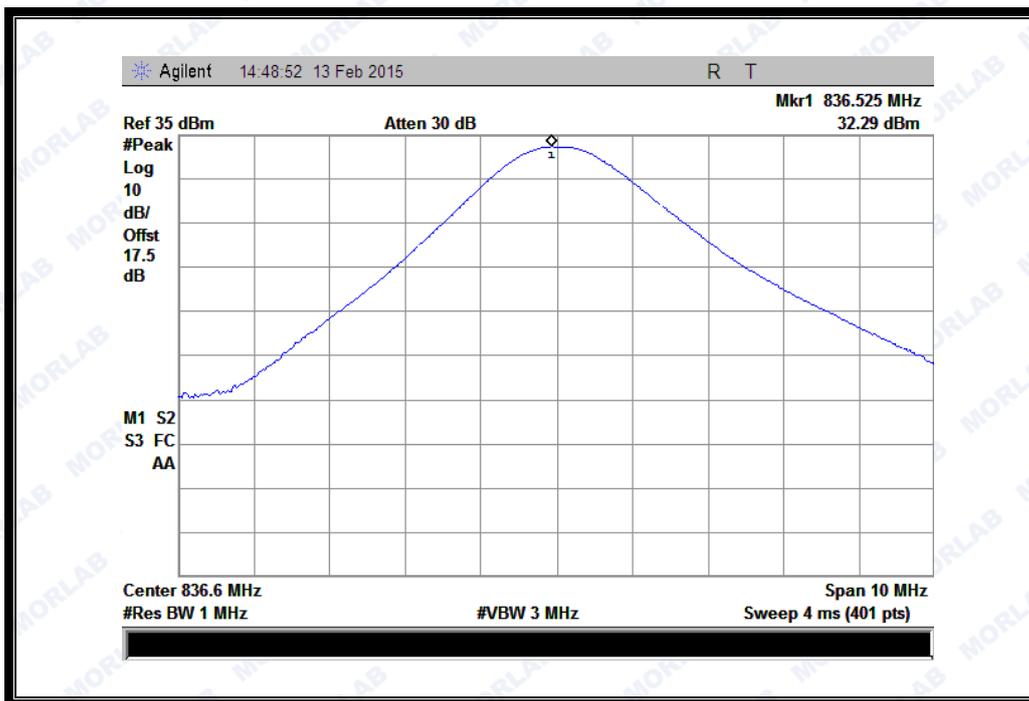
(Plot C 2:   GPRS 850MHz Channel = 190)
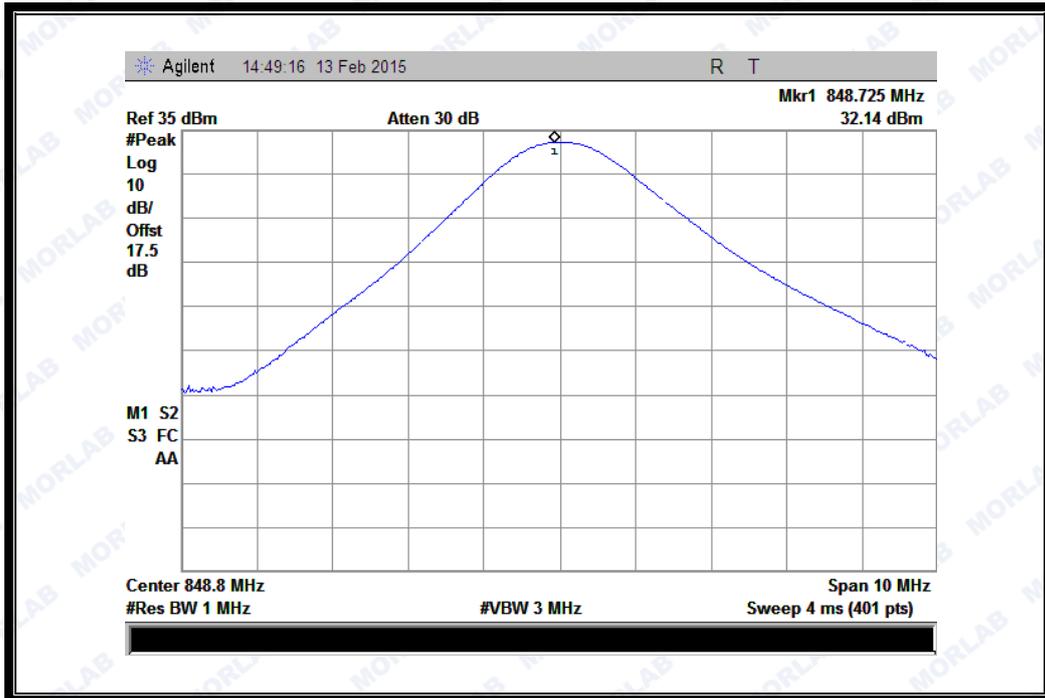
(Plot C 3:   GPRS 850MHz Channel = 251)

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

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

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

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Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China   Http://www.morlab.com   E-mail: service@morlab.cn
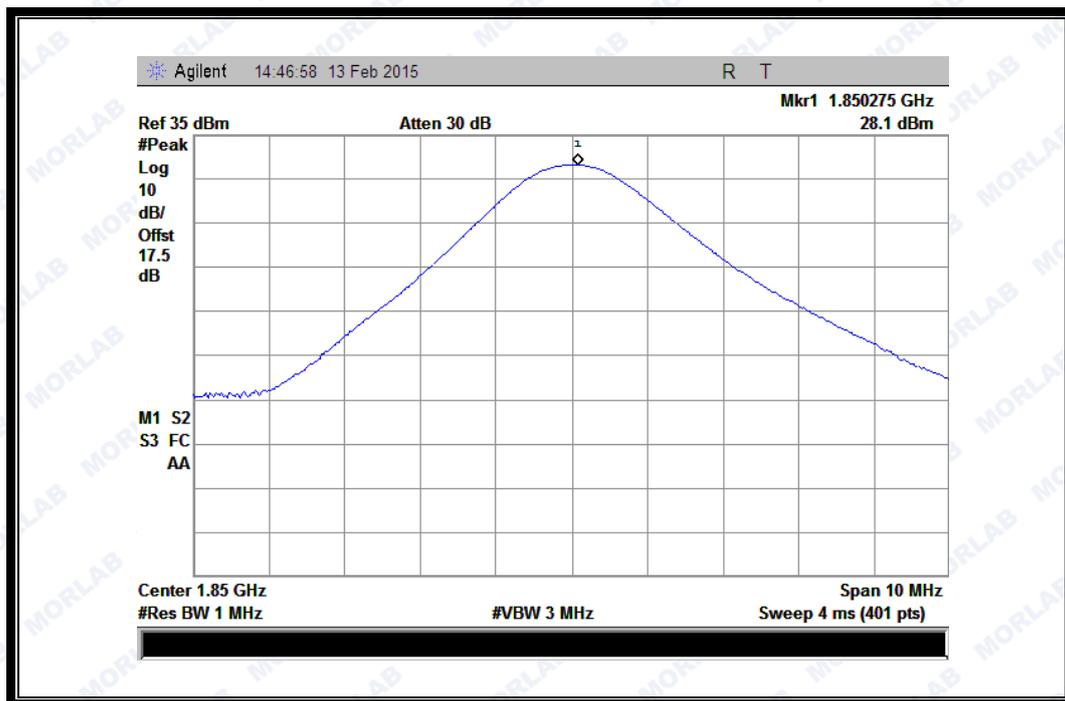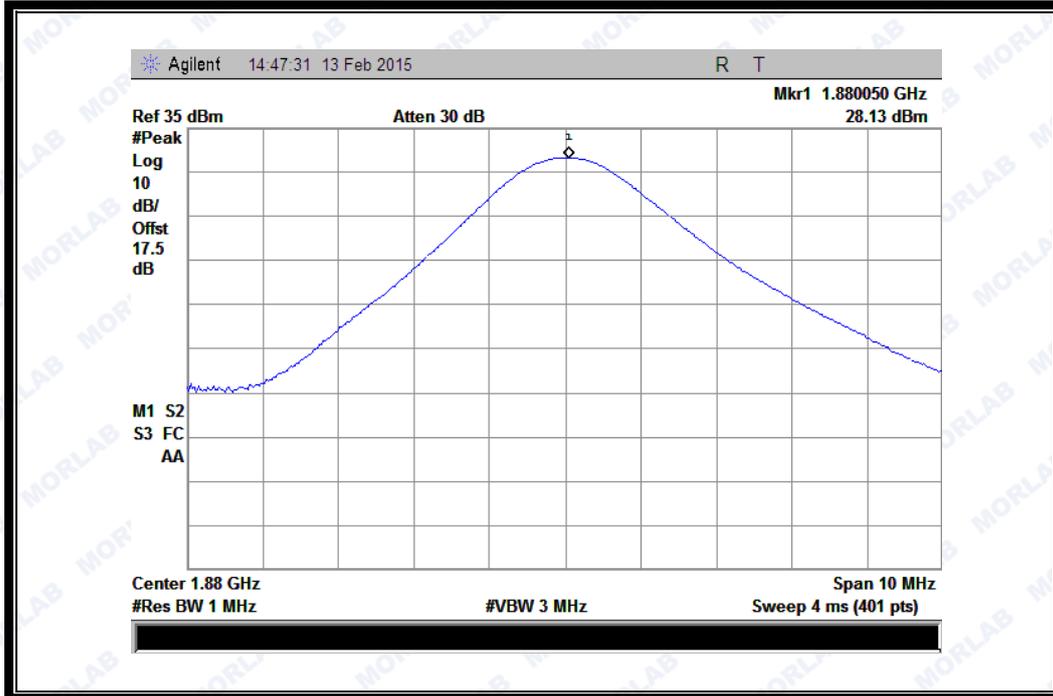
(Plot E1:   EGPRS 850MHz Channel = 128)
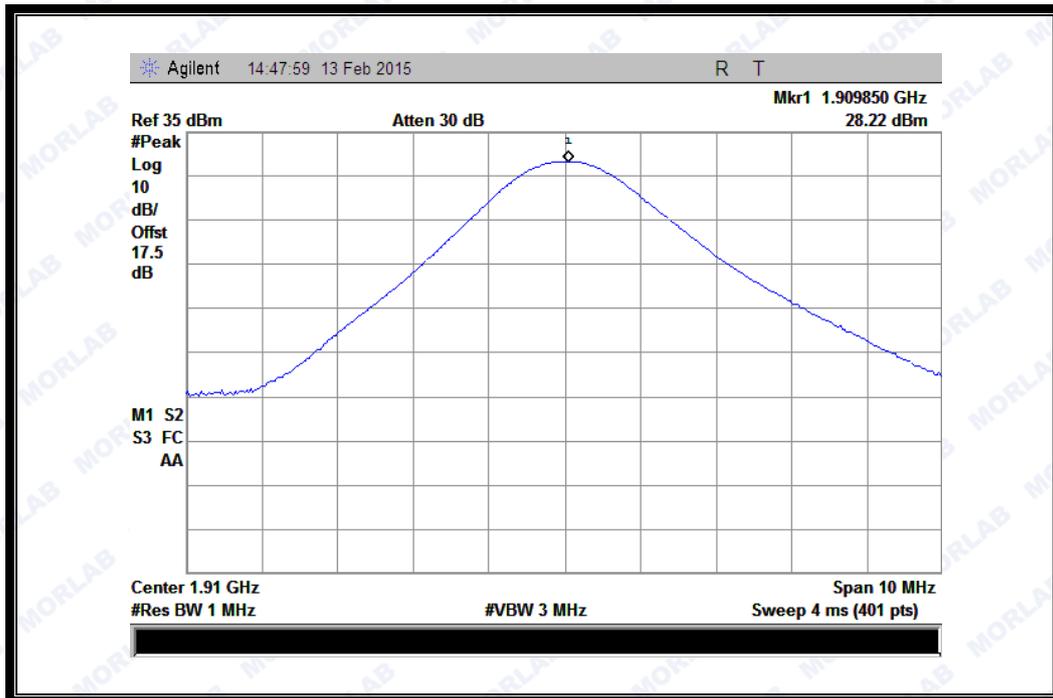

(Plot E2:   EGPRS 850MHz Channel = 190)
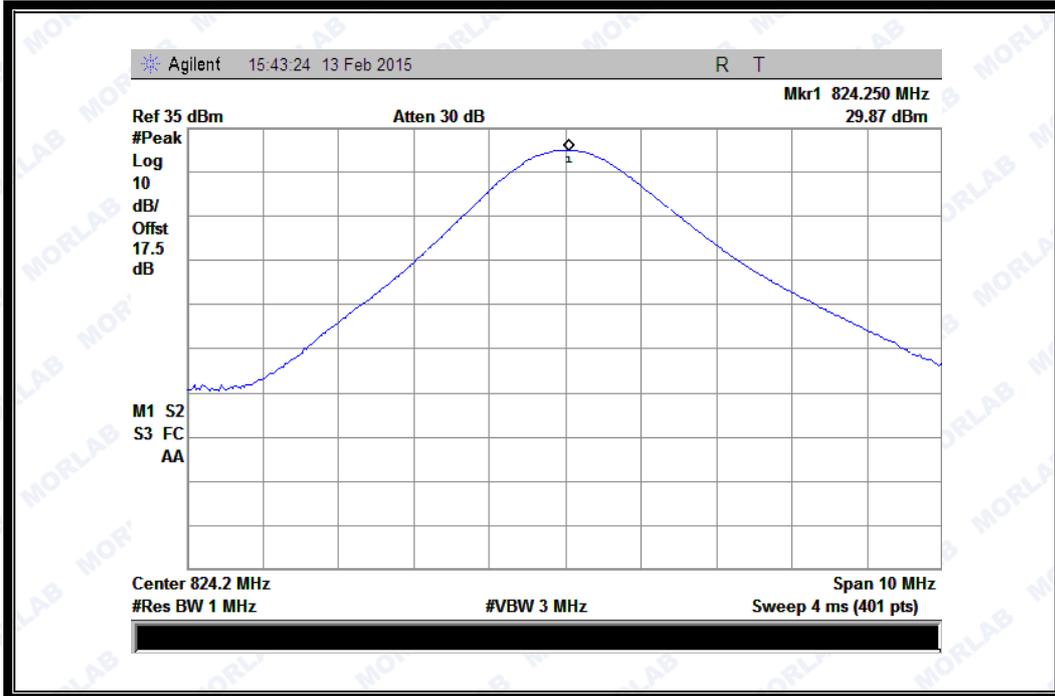
(Plot E3:   EGPRS 850MHz Channel = 251)

(Plot F1:EGPRS 1900MHz Channel = 512)

(Plot F2:EGPRS 1900MHz Channel = 661)
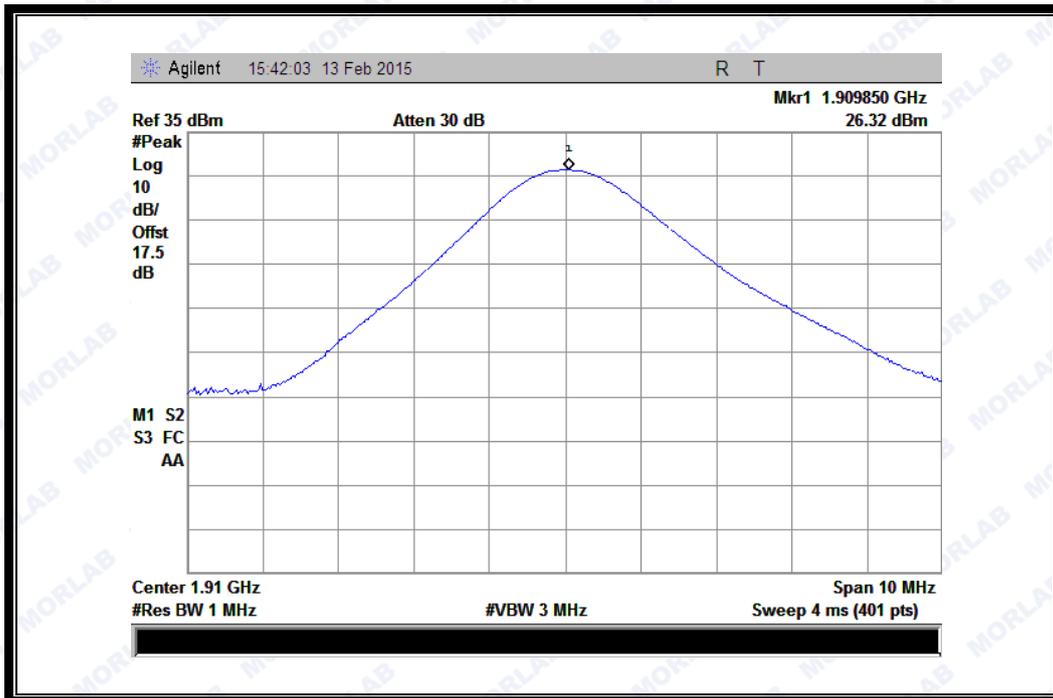
(Plot F3:EGPRS 1900Hz Channel = 810)

2.2 Peak to Average Radio

2.2.1 Definition

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

2.2.2 Test Description

See section 2.1.2 of this report.

2.2.3 Test Verdict

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio.

Test procedures:

A .For GSM/EGPRS operating mode:

a. Set RBW=1MHz, VBW=1MHz, peak detector in spectrum analyzer.

b. Set EUT in maximum output power, and triggered the bust signal.

c. Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average radio.

B. For UMTS operating mode:

a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.

b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

1. Test Verdict:

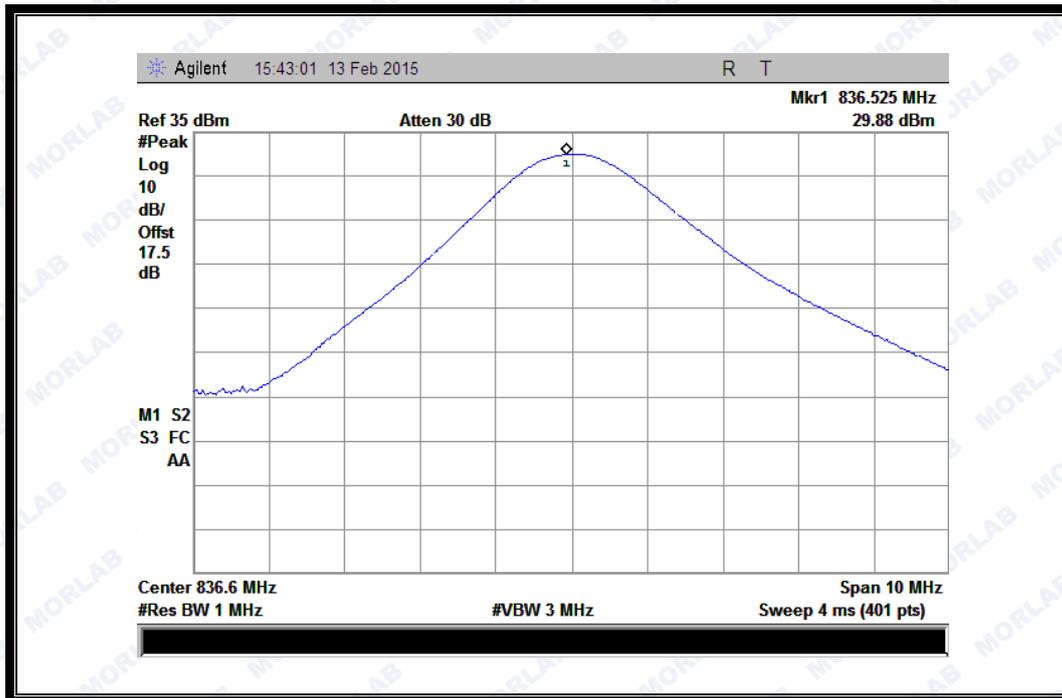| Band	Channel	Frequency (MHz)	Peak to Average radio		Limit dBm	Verdict
			dBm	Refer to Plot		
GSM 1900MHz	512	1850.2	0.4	Plot A1 to A3	13	PASS
	661	1880.0	0.3			PASS
	810	1909.8	0.3			PASS
EGPRS 1900MHz	512	1850.2	0	Plot B1 to B3	13	PASS
	661	1880.0	0.3			PASS
	810	1909.8	0.6			PASS
WCDMA 1900MHz	9262	1852.4	3.10	Plot C1 toC3	13	PASS
	9400	1880	3.11			PASS
	9538	1907.6	3.11			PASS

(Plot A1:GSM 1900 MHz Channel = 512)

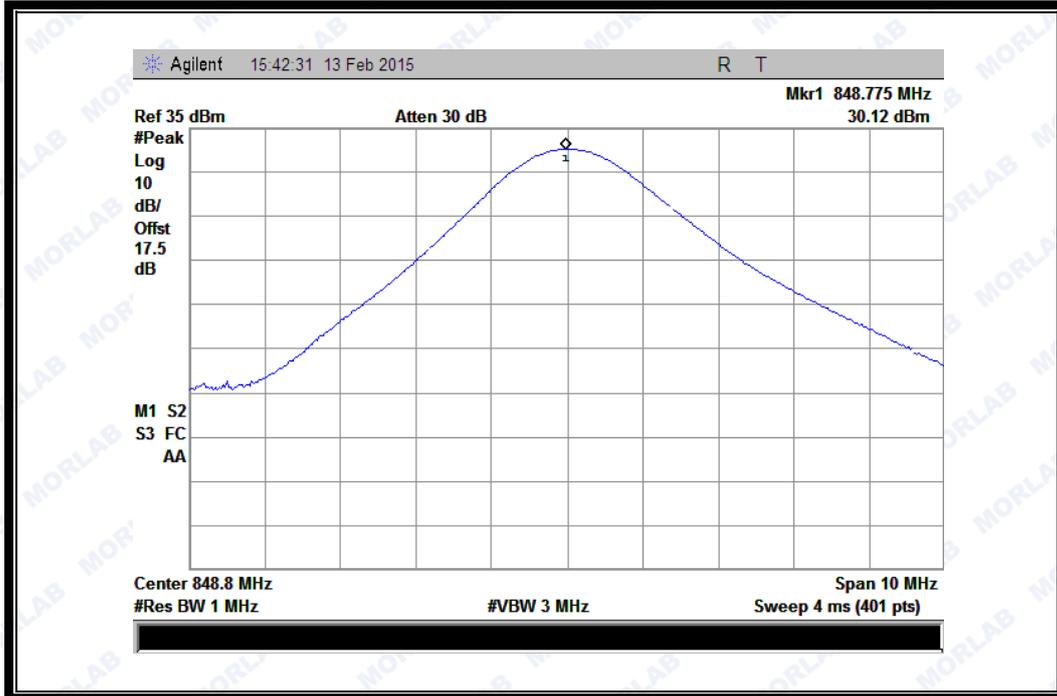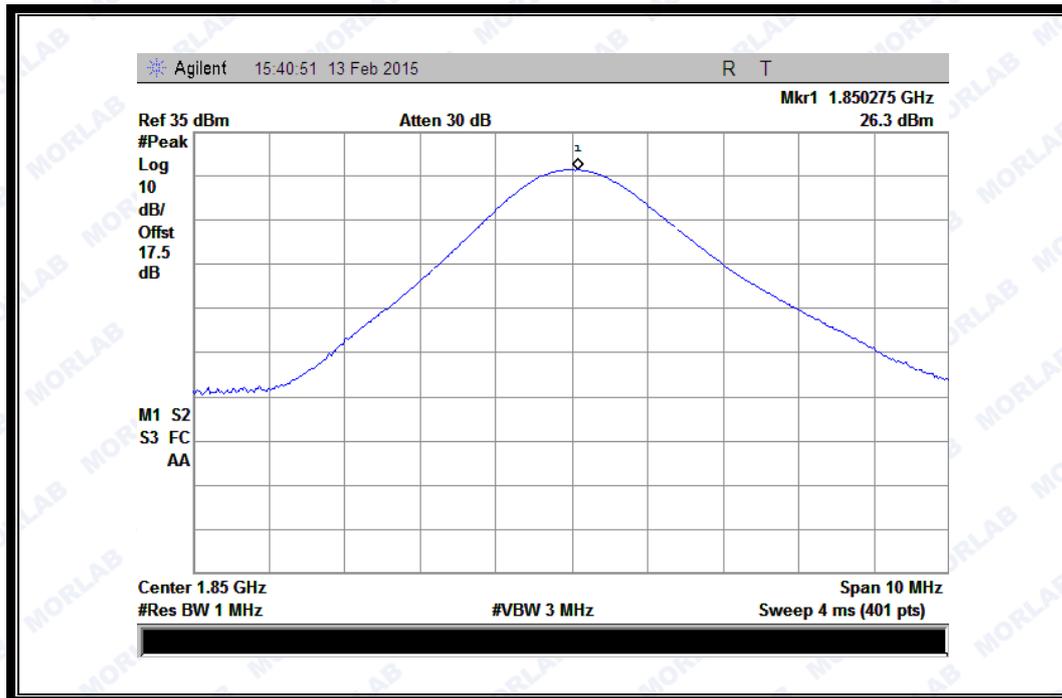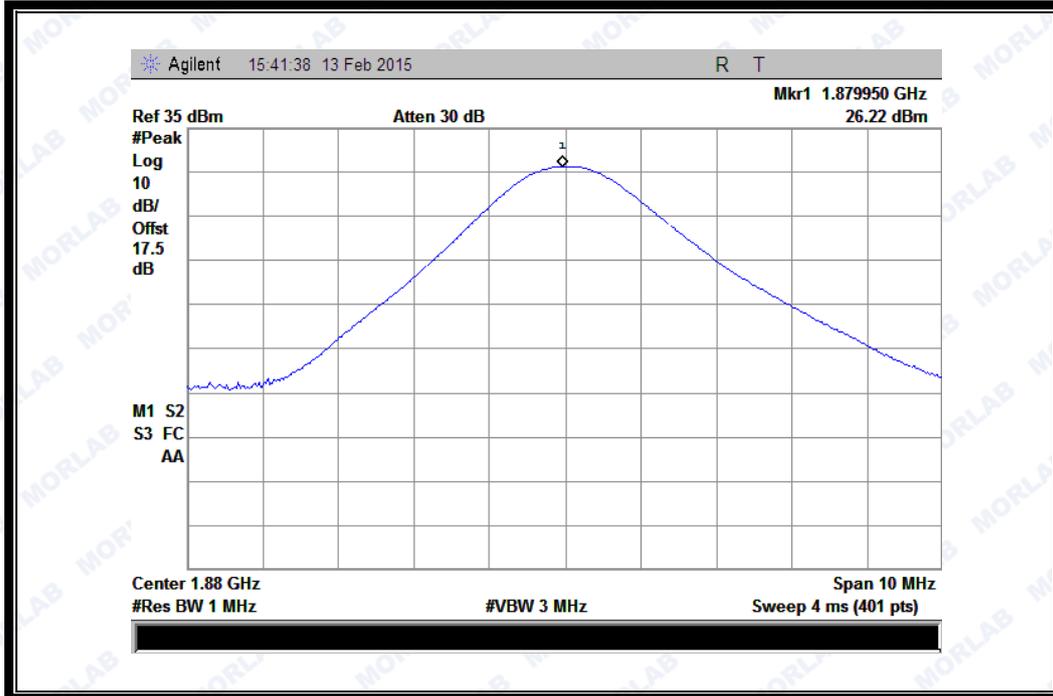(Plot A2:GSM 1900 MHz Channel = 661)

(Plot A3: GSM 1900MHz Channel = 810)

(Plot B1:   EGPRS 1900MHz Channel = 512)

(Plot B2:   EGPRS 1900MHz Channel = 661)

(Plot B3:   EGPRS 1900MHz Channel = 810)
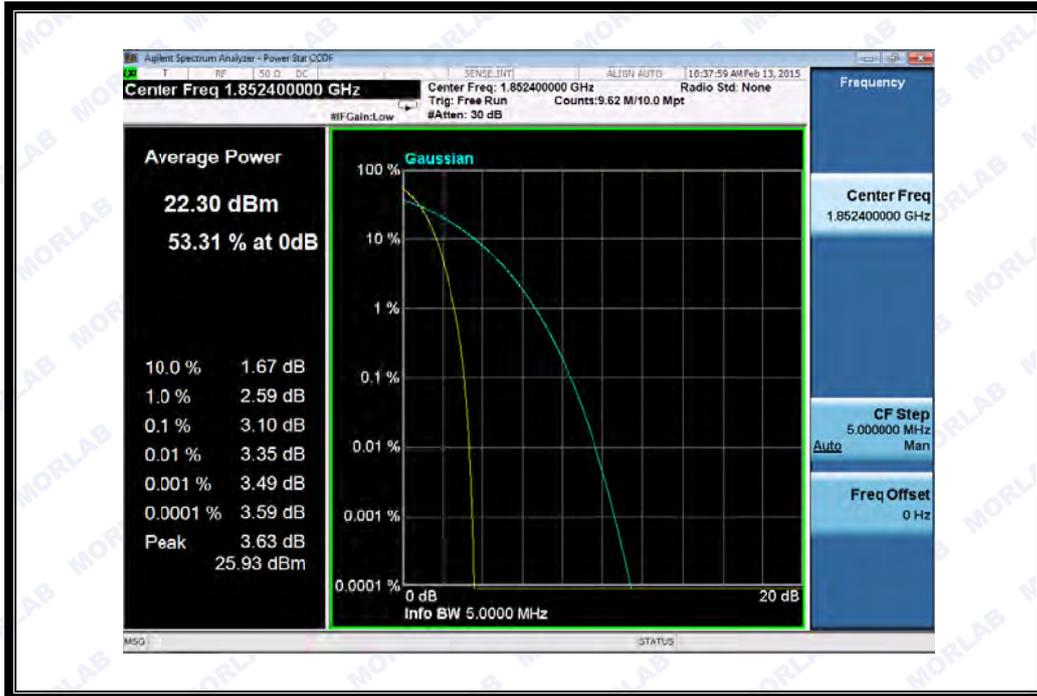
(Plot C1: WCDMA 1900MHz Channel = 9262)
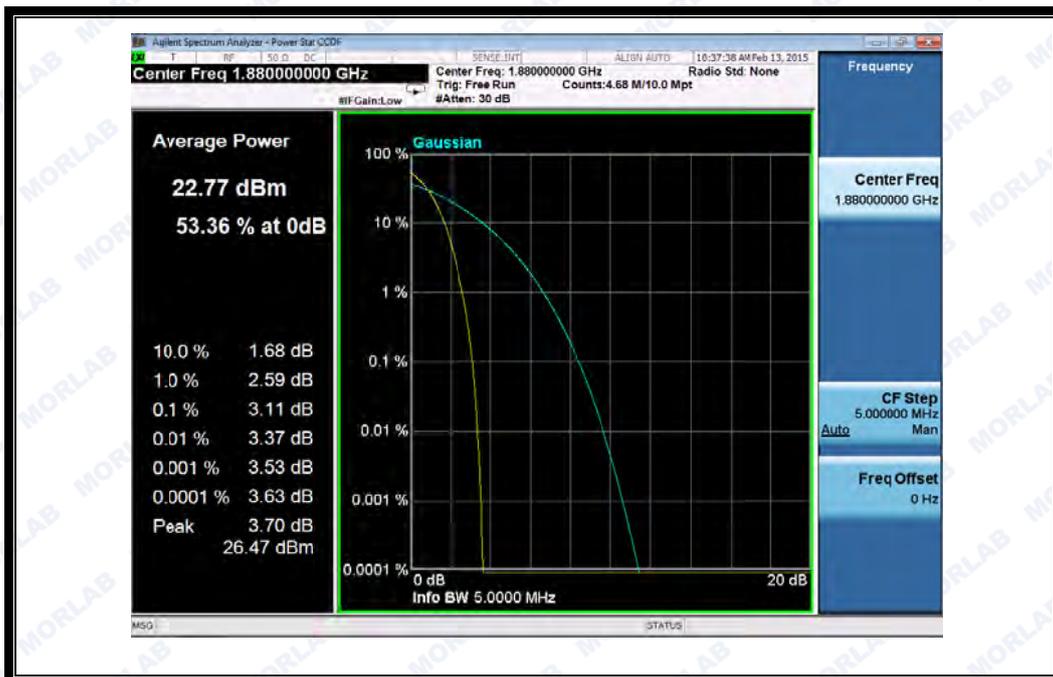
(Plot C2: WCDMA 1900MHz Channel = 9400)

(Plot C3:   WCDMA 1900MHz Channel = 9538)

2.3   99% Occupied Bandwidth

2.3.1   Definition

According to FCC section 2.1049 and FCC § 22.917 &24.238 the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

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

2.3.2   Test Description

See section 2.1.2 of this report.

2.3.3   Test Verdict

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

2.   Test Verdict:

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
EDGE 850MHz	128	824.2	314.26 KHz	248.62 KHz	Plot A
	190	836.6	319.39KHz	248.51 KHz	Plot B
	251	848.8	323.13 KHz	246.16 KHz	Plot C
EDGE 1900MHz	512	1850.2	321.55 KHz	248.60 KHz	Plot D
	661	1880.0	325 KHz	248.24 KHz	Plot E
	810	1909.8	324.32 KHz	246.60 KHz	Plot F
WCDMA 850MHz	4132	826.4	4.606 MHz	4.1278 MHz	Plot G
	4175	835	4.627 MHz	4.1535 MHz	Plot H
	4233	846.6	4.616 MHz	4.1352 MHz	Plot I
WCDMA 1900MHz	9262	1852.4	4.643 MHz	4.1502 MHz	Plot J
	9400	1880	4.641 MHz	4.1464 MHz	Plot K
	9538	1907.6	4.629 MHz	4.1435 MHz	Plot L
HSDPA 850MHz	4132	826.4	4.622 MHz	4.1310 MHz	Plot M
	4175	835	4.624 MHz	4.1510 MHz	Plot N
	4233	846.6	4.621 MHz	4.1399 MHz	Plot O
HSDPA 1900MHz	9262	1852.4	4.647 MHz	4.1626 MHz	Plot P
	9400	1880	4.632 MHz	4.1442 MHz	Plot Q
	9538	1907.6	4.628 MHz	4.1427 MHz	Plot R
HSUPA 850MHz	4132	826.4	4.620 MHz	4.1229 MHz	Plot S
	4175	835	4.641 MHz	4.1583 MHz	Plot T
	4233	846.6	4.627 MHz	4.1422 MHz	Plot U
HSUPA 1900MHz	9262	1852.4	4.641MHz	4.1472 MHz	Plot V

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
	9400	1880	4.627 MHz	4.1376 MHz	Plot W
	9538	1907.6	4.641 MHz	4.1490 MHz	Plot X
HSPA+ 850MHz	4132	826.4	4.662 MHz	4.1298 MHz	Plot Y
	4175	835	4.629 MHz	4.1521MHz	Plot Z
	4233	846.6	4.622 MHz	4.1369 MHz	Plot A1
HSPA+ 1900MHz	9262	1852.4	4.632 MHz	4.1677 MHz	Plot B1
	9400	1880	4.637 MHz	4.1534 MHz	Plot C1
	9538	1907.6	4.630 MHz	4.1477 MHz	Plot D1
GSM 850MHz	128	824.2	319.18 KHz	243.86 KHz	Plot E1
	190	836.6	320.94 KHz	252.24 KHz	Plot F1
	251	848.8	314.53 KHz	245.66 KHz	Plot G1
GSM 1900MHz	512	1850.2	324.36 KHz	243.17 KHz	Plot H1
	661	1880.0	318.15 KHz	240.17 KHz	Plot I1
	810	1909.8	312.77 KHz	247.90 KHz	Plot J2
GPRS 850MHz	128	824.2	314.38 KHz	243.78 KHz	Plot K1
	190	836.6	306.81 KHz	240.36 KHz	Plot L1
	251	848.8	316.29 KHz	247.54KHz	Plot M1
GPRS 1900MHz	512	1850.2	323.784KHz	247.26 KHz	Plot N1
	661	1880.0	322.53 KHz	249.70KHz	Plot O1
	810	1909.8	316.51 KHz	244.10 KHz	Plot P1

3. Test Plots:

(Plot A: EGPRS 850MHz Channel = 128)

(Plot B: EGPRS 850MHz Channel = 190)
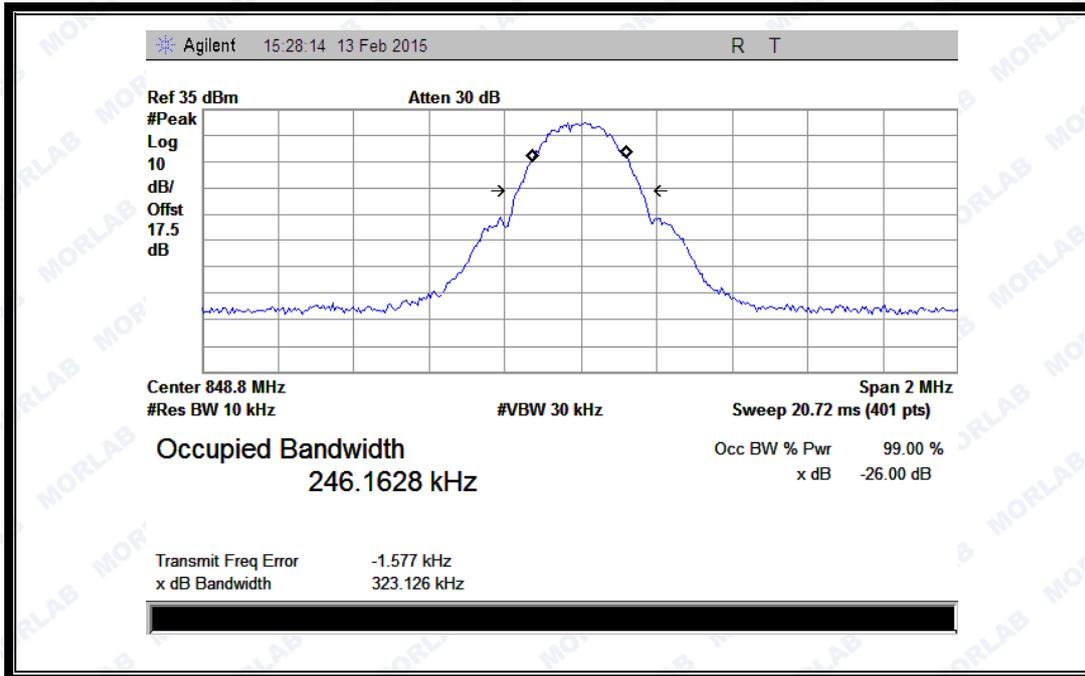
(Plot C: EGPRS 850MHz Channel = 251)
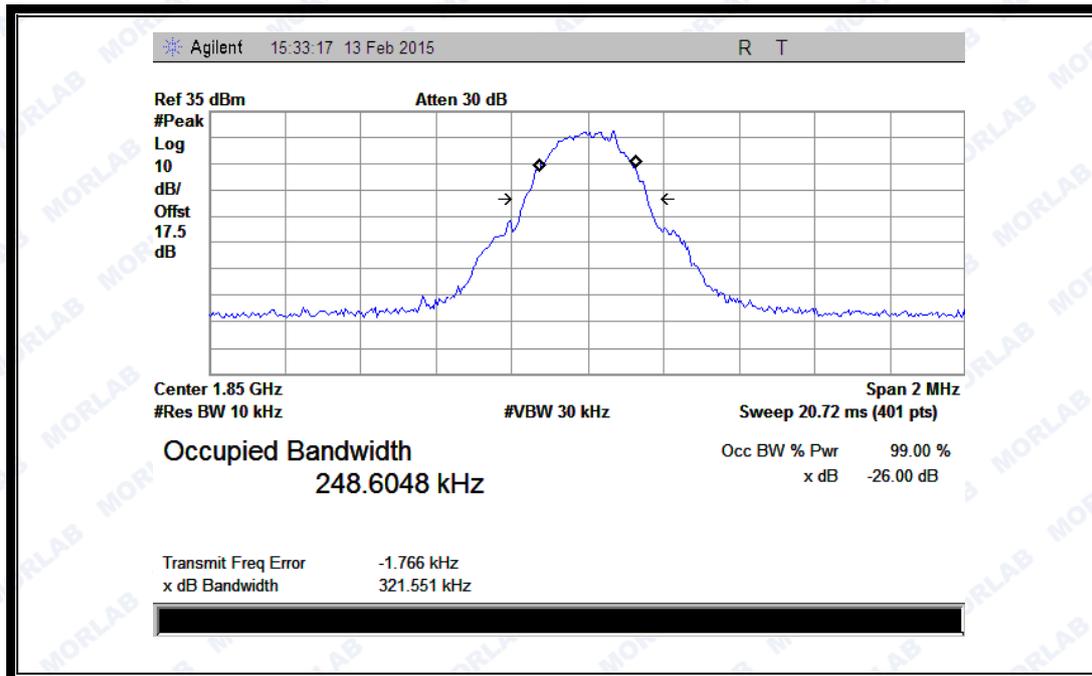
(Plot D: EGPRS1900MHz Channel = 512)
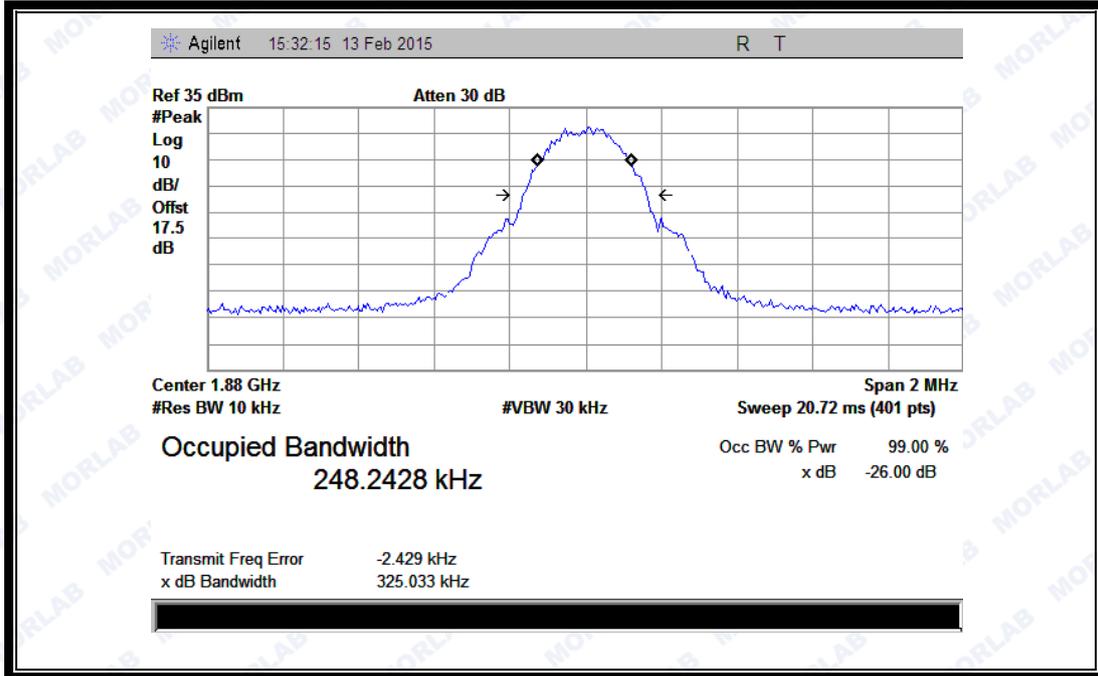
(Plot E: EGPRS1900MHz Channel = 661)
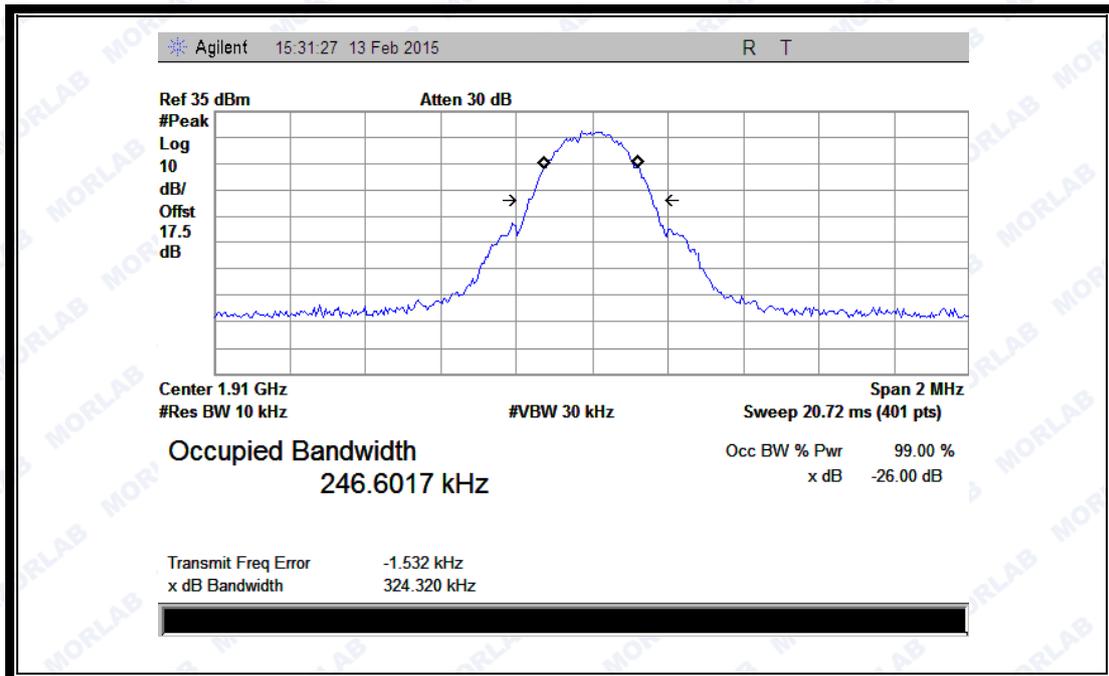
(Plot F: EGPRS 1900MHz Channel = 810)

(Plot G: WCDMA 850MHz Channel = 4132)

(Plot H: WCDMA 850 MHz Channel = 4175)

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(Plot I: WCDMA 850MHz Channel = 4233)

(Plot J: WCDMA 1900MHz Channel = 9262)

(Plot K: WCDMA 1900 MHz Channel = 9400)

(Plot L: WCDMA1900MHz Channel = 9538)

(Plot M: HSDPA 850MHz Channel = 4132)

(Plot N: HSDPA850 MHz Channel = 4175)

(Plot O: HSDPA 850 MHz Channel = 4233)

(Plot P: HSDPA1900 MHz Channel = 9262)

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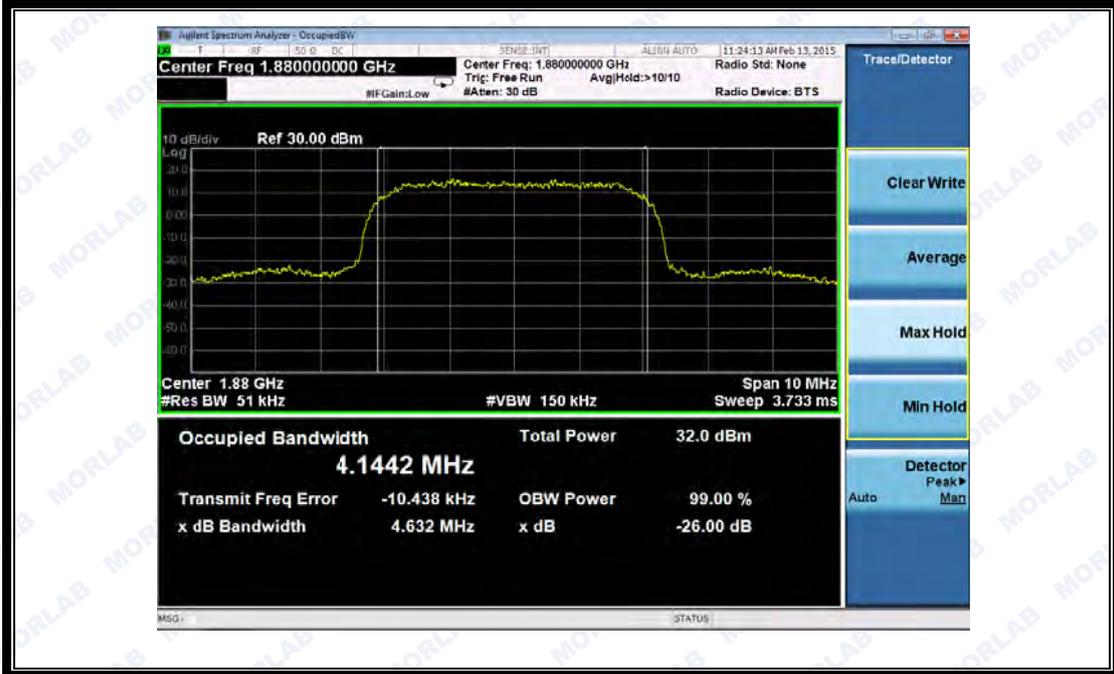
(Plot Q: HSDPA1900 MHz Channel = 9400)
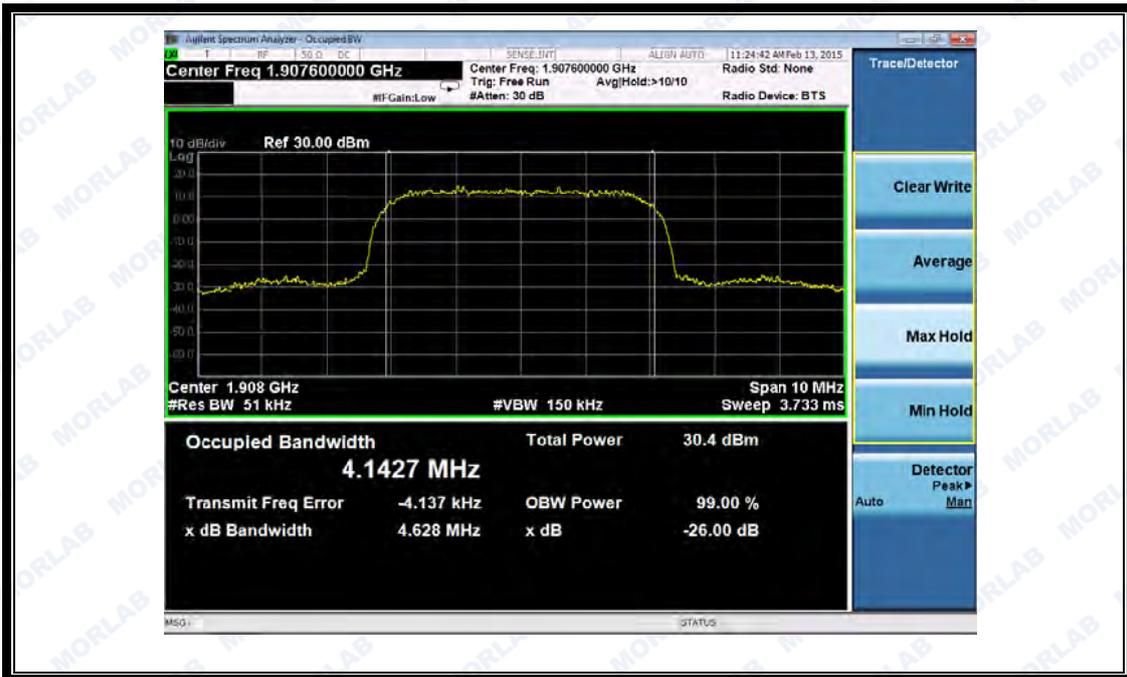
(Plot R: HSDPA 1900 MHz Channel = 9538)

(Plot S: HSUPA850 MHz Channel = 4132)

(Plot T: HSUPA850 MHz Channel = 4175)

(Plot U: HSUPA850 MHz Channel = 4233)

(Plot V: HSUPA1900 MHz Channel = 9262)

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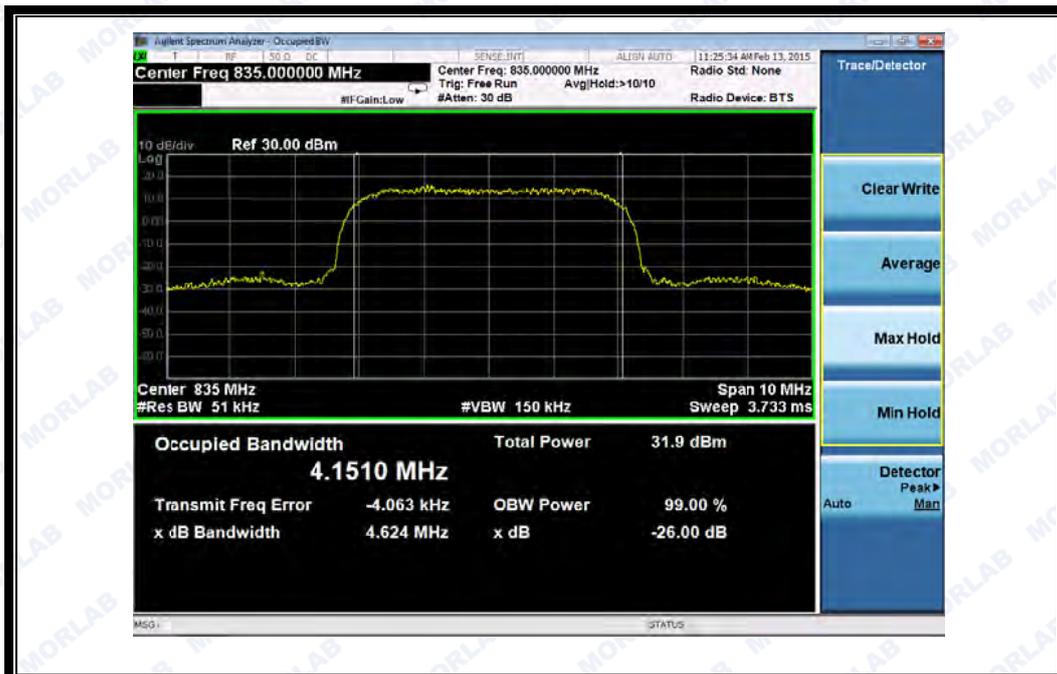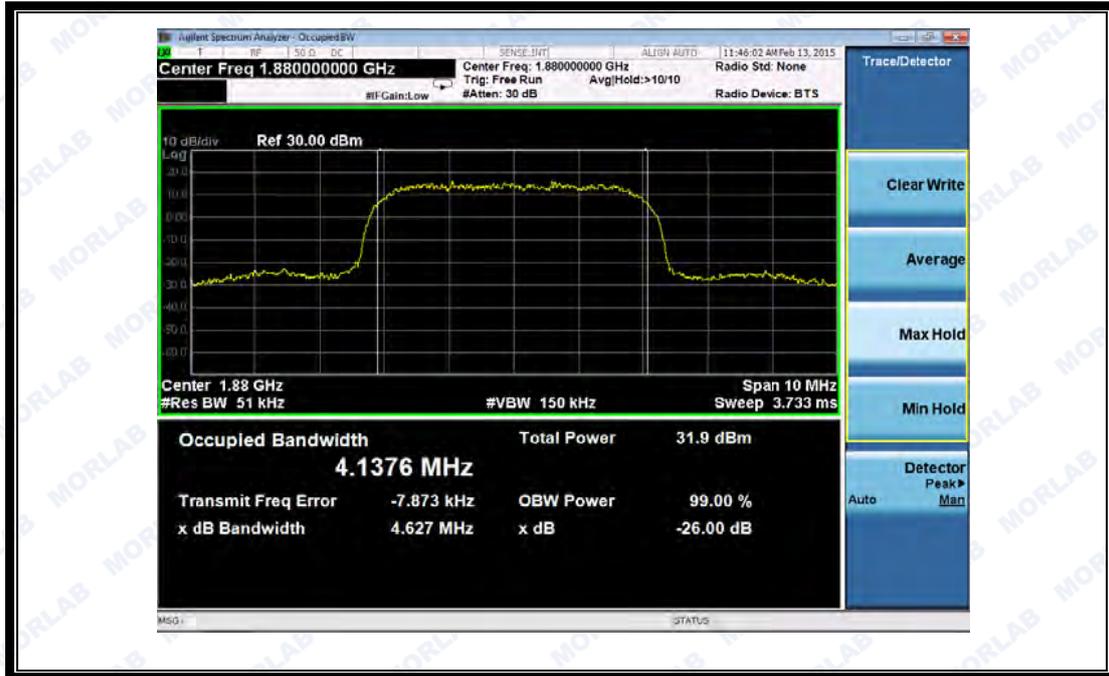
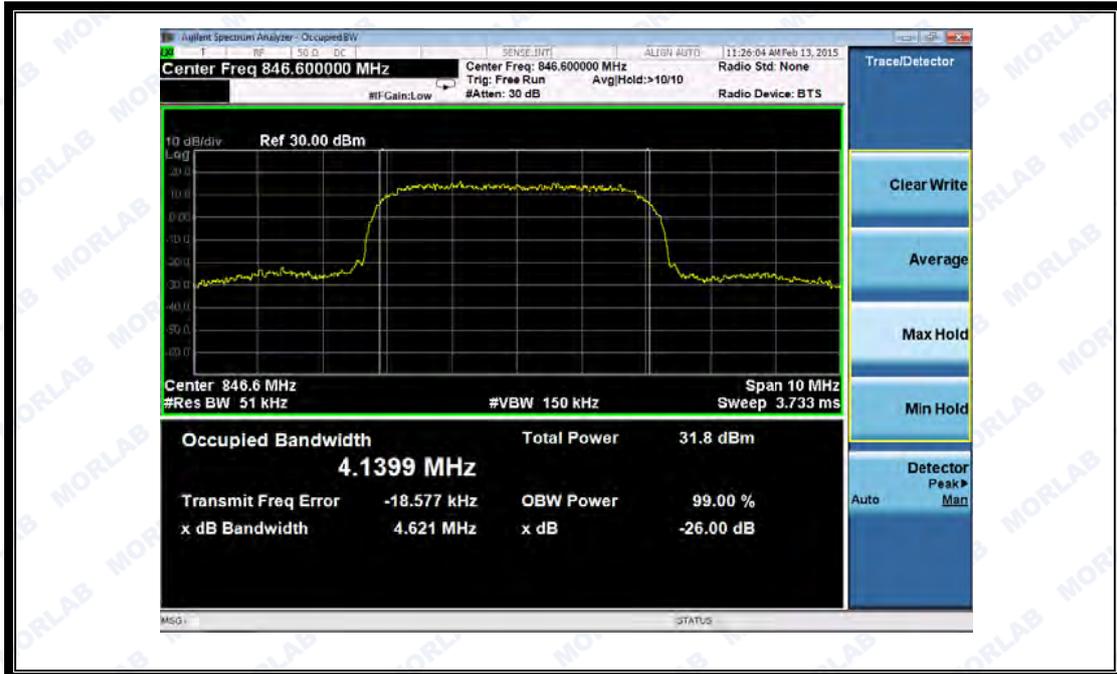(Plot W: HSUPA1900 MHz Channel = 9400)
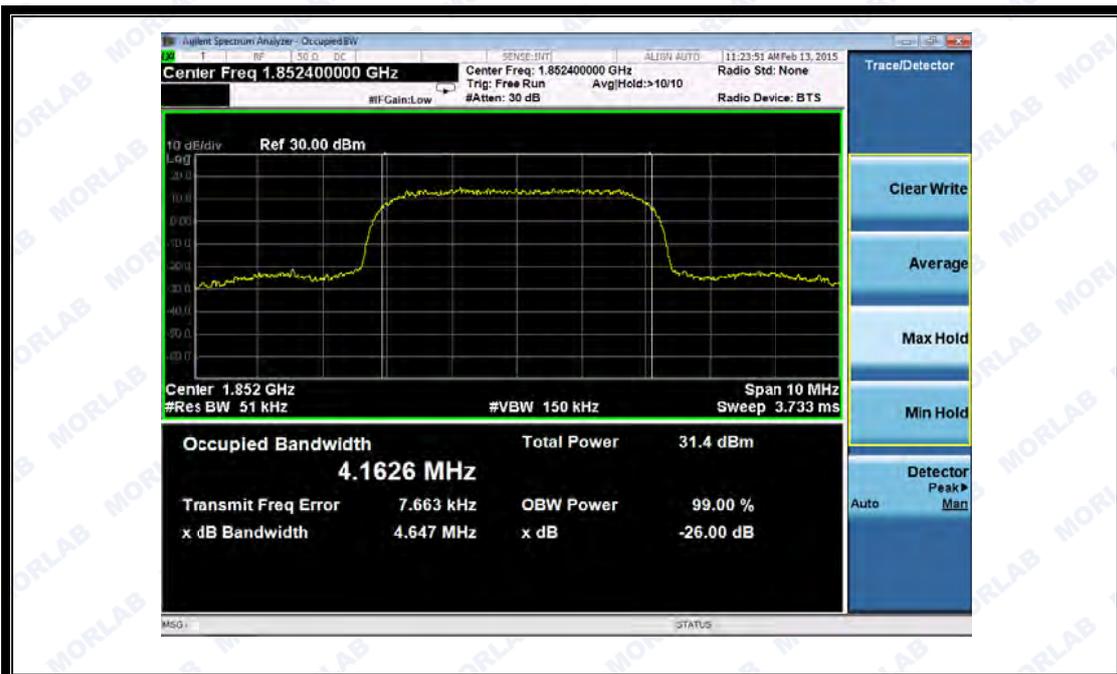

(Plot X: HSUPA1900 MHz Channel = 9538)

(Plot Y: HSPA+850 MHz Channel = 4132)
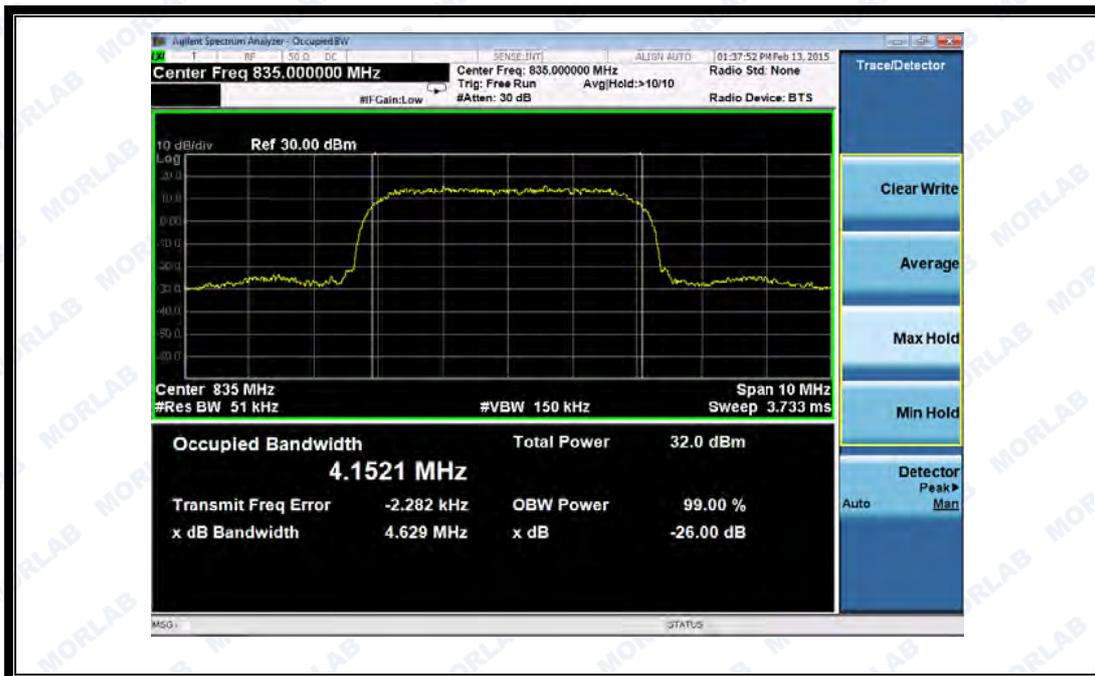
(Plot Z: HSPA+850 MHz Channel = 4175)

(Plot A1:HSPA+850 MHz Channel = 4233)
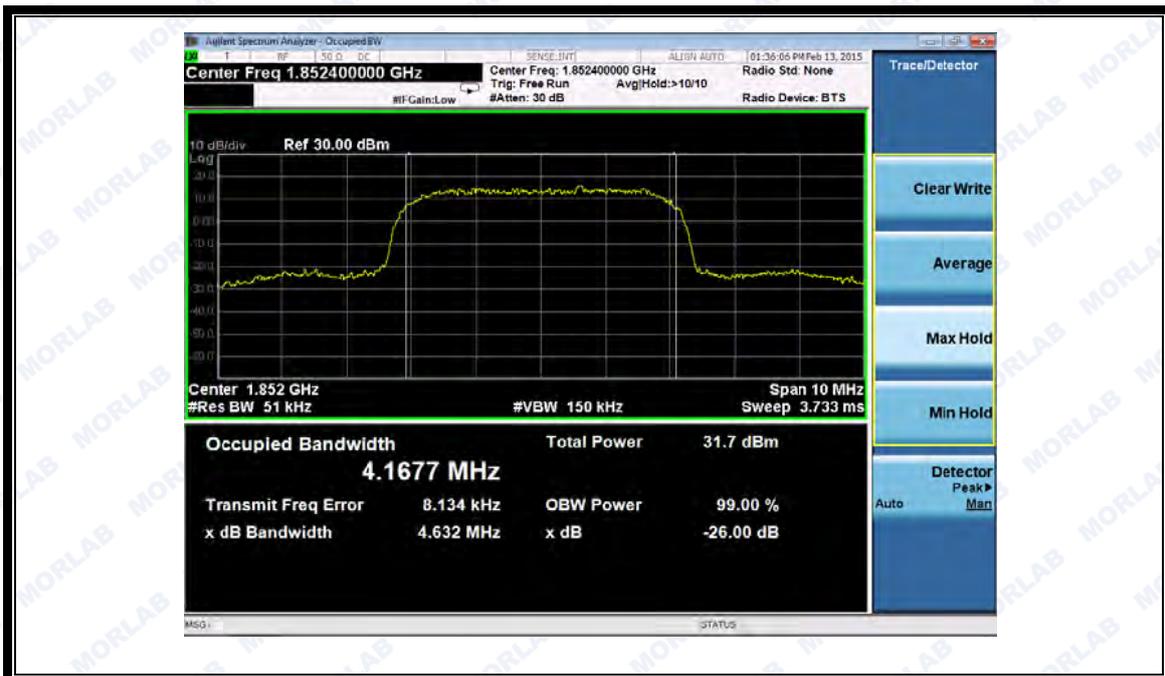
(Plot B1:   HSPA+1900 MHz Channel = 9262)
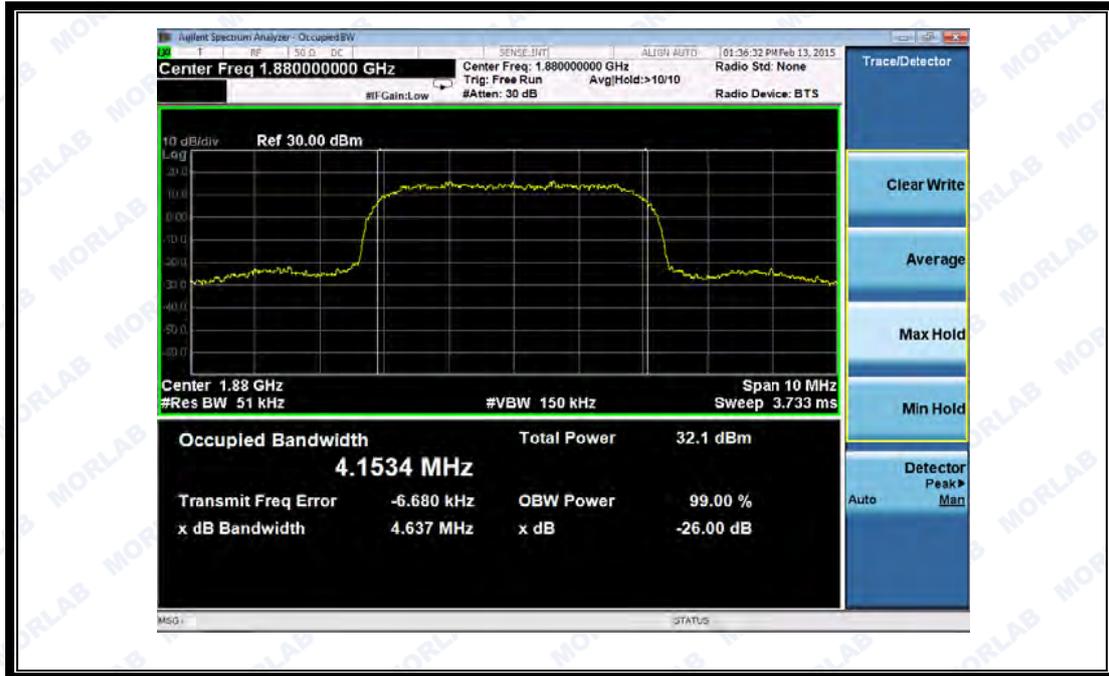
(Plot C1:   HSPA+1900 MHz Channel = 9400)

(Plot D1:   HSPA+1900 MHz Channel = 9538)

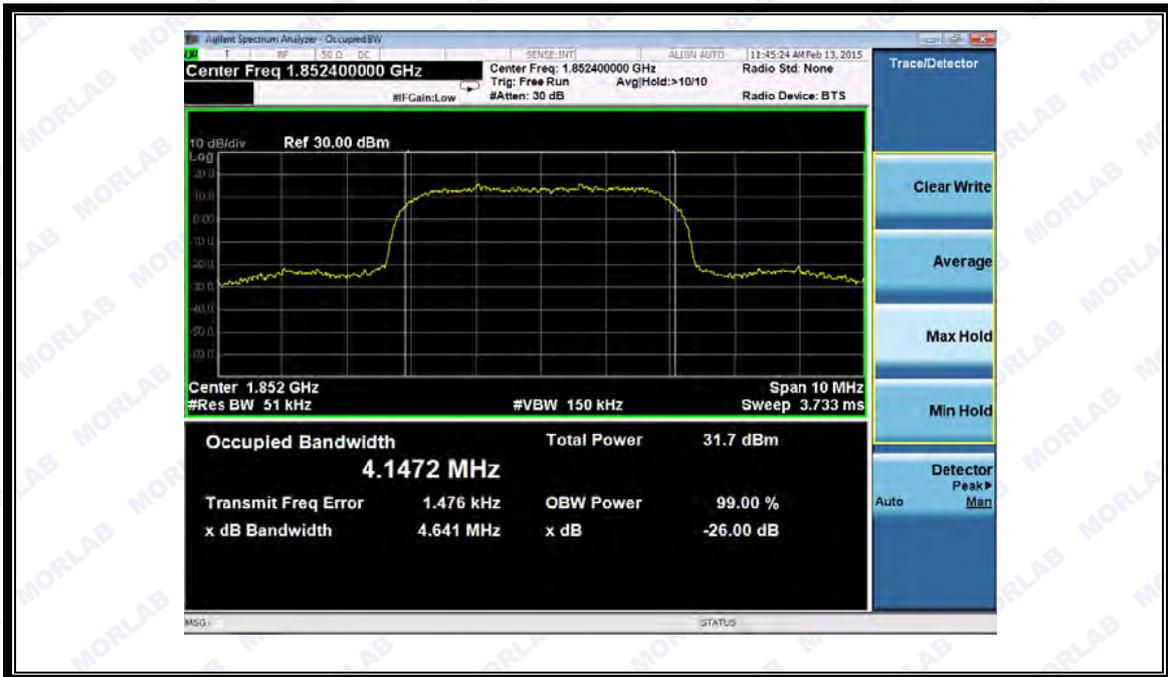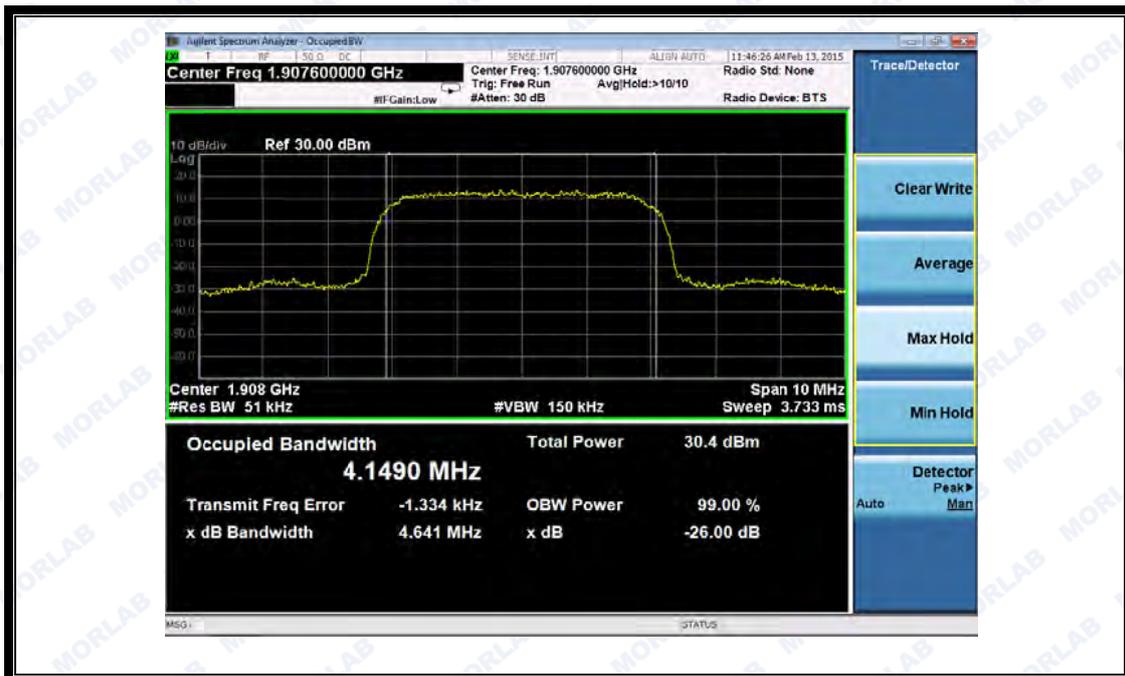**MORLAB GROUP**   FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,   Tel: 86-755-36698555   Fax: 86-755-36698525

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Agilent   14:13:52 13 Feb 2015   R   T

Ref 35 dBm   Atten 30 dB
#Peak
Log
10
dB/
Offst
17.5
dB

Center 824.2 MHz   Span 2 MHz
#Res BW 10 kHz   #VBW 30 kHz   Sweep 20.72 ms (401 pts)

Occupied Bandwidth   Occ BW % Pwr   99.00 %
243.8552 kHz   x dB   -26.00 dB

Transmit Freq Error   -2.272 kHz
x dB Bandwidth   319.183 kHz

(Plot E1:   GSM 850MHz Channel = 128)

Agilent   14:13:15 13 Feb 2015   R   T

Ref 35 dBm   Atten 30 dB
#Peak
Log
10
dB/
Offst
17.5
dB

Center 836.6 MHz   Span 2 MHz
#Res BW 10 kHz   #VBW 30 kHz   Sweep 20.72 ms (401 pts)

Occupied Bandwidth   Occ BW % Pwr   99.00 %
254.2392 kHz   x dB   -26.00 dB

Transmit Freq Error   811.379 Hz
x dB Bandwidth   320.938 kHz

(Plot F1:GSM 850MHz Channel = 190)

(Plot G1:   GSM 850MHz Channel = 251)
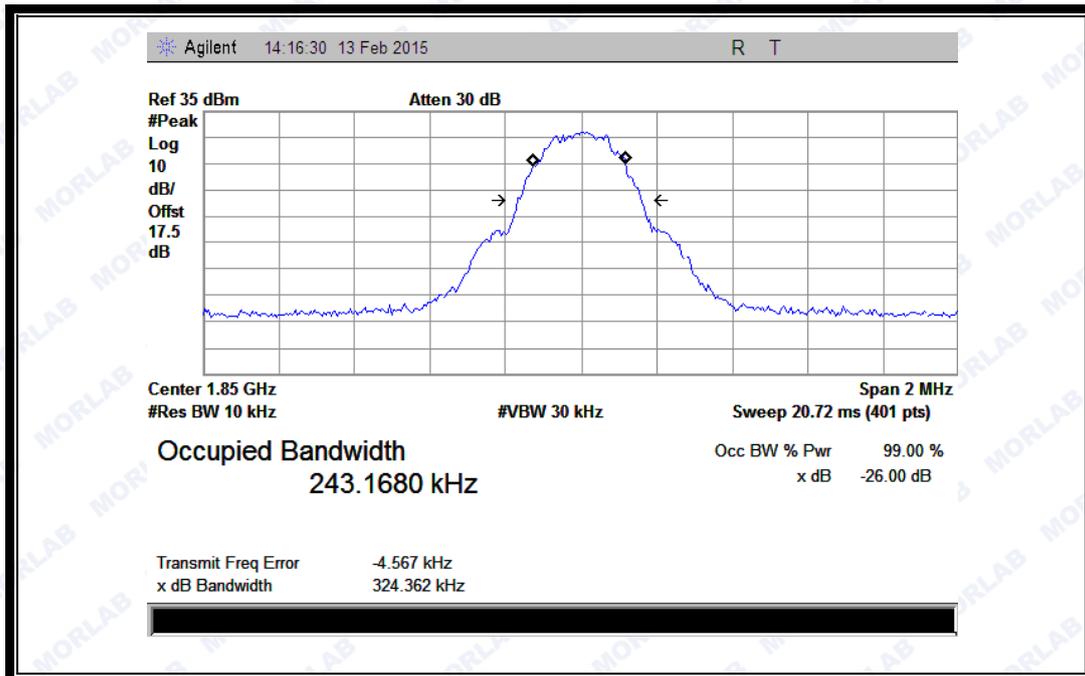
(Plot H1:   GSM 1900MHz Channel = 512)

(Plot I1: GSM 1900MHz Channel = 661)

(Plot J1: GSM 1900MHz Channel = 810)

Agilent   14:57:38 13 Feb 2015   R   T

Ref 35 dBm   Atten 30 dB
#Peak
Log
10
dB/
Offst
17.5
dB

Center 824.2 MHz   Span 2 MHz
#Res BW 10 kHz   #VBW 30 kHz   Sweep 20.72 ms (401 pts)

Occupied Bandwidth   Occ BW % Pwr   99.00 %
      243.7781 kHz   x dB   -26.00 dB

Transmit Freq Error   -2.544 kHz
x dB Bandwidth   314.383 kHz

(Plot K1:   GPRS 850MHz Channel = 128)

Agilent   14:58:15 13 Feb 2015   R   T

Ref 35 dBm   Atten 30 dB
#Peak
Log
10
dB/
Offst
17.5
dB

Center 836.6 MHz   Span 2 MHz
#Res BW 10 kHz   #VBW 30 kHz   Sweep 20.72 ms (401 pts)

Occupied Bandwidth   Occ BW % Pwr   99.00 %
      240.3586 kHz   x dB   -26.00 dB

Transmit Freq Error   -1.383 kHz
x dB Bandwidth   306.809 kHz

(Plot L1:GPRS 850MHz Channel = 190)

(Plot M1:　　GPRS850MHz Channel = 251)

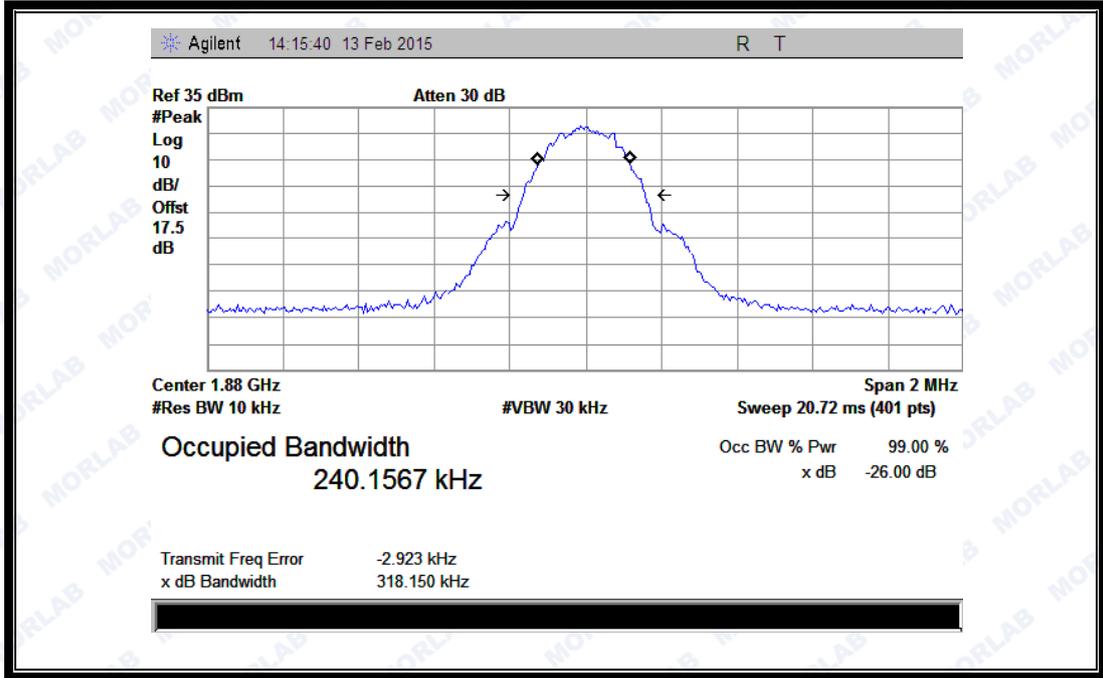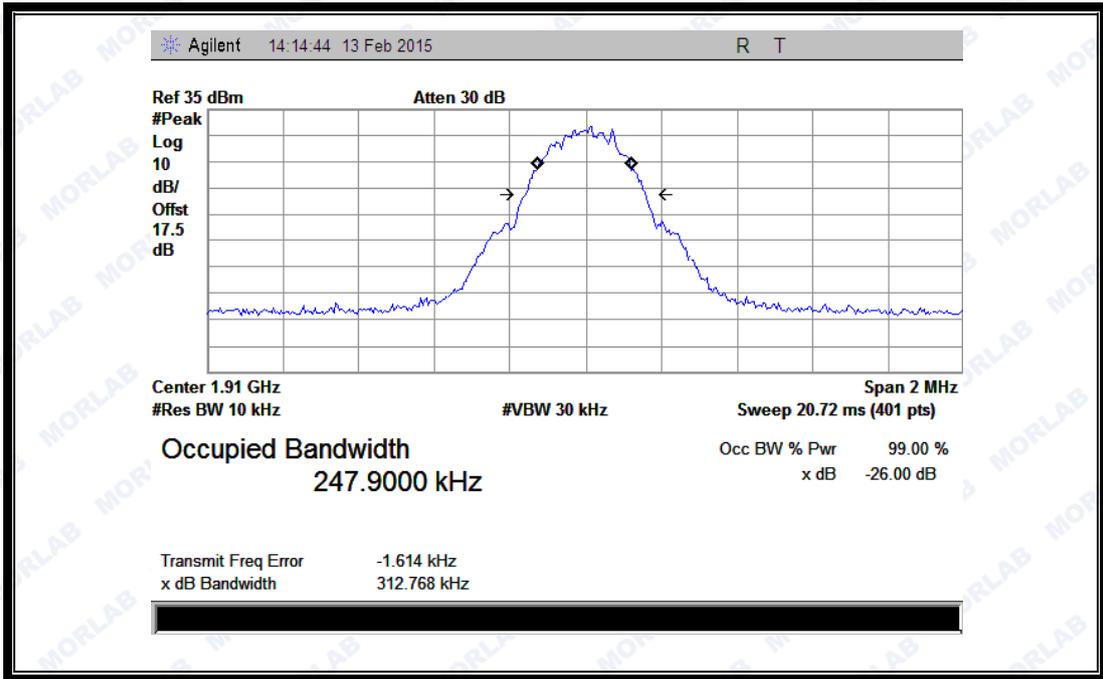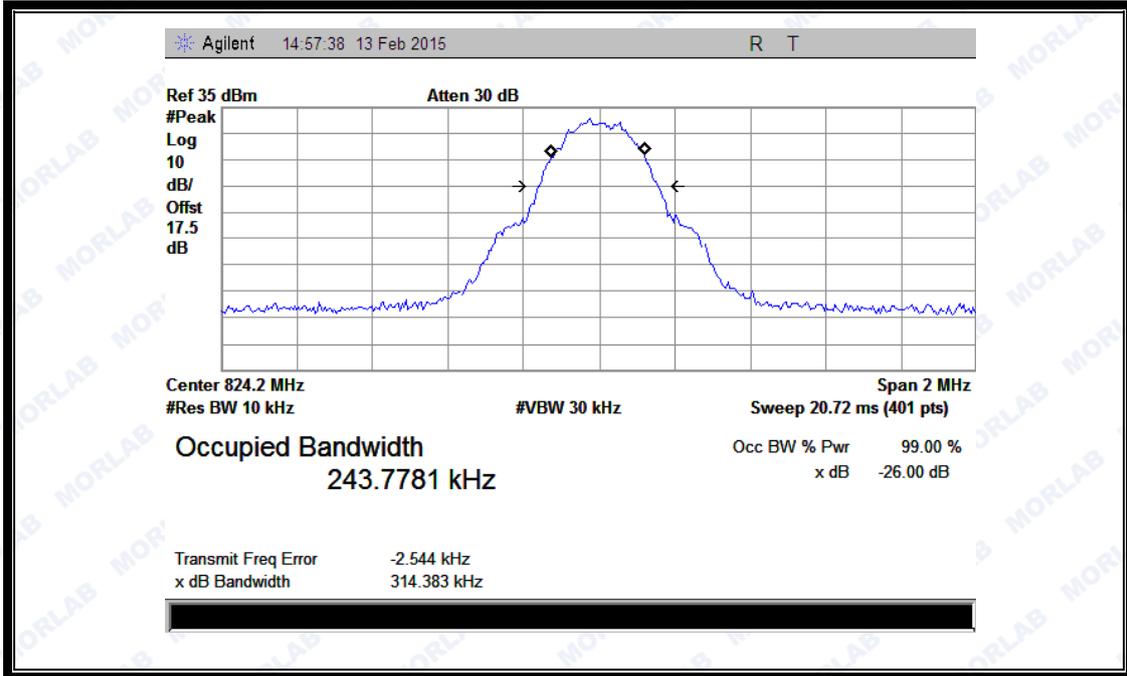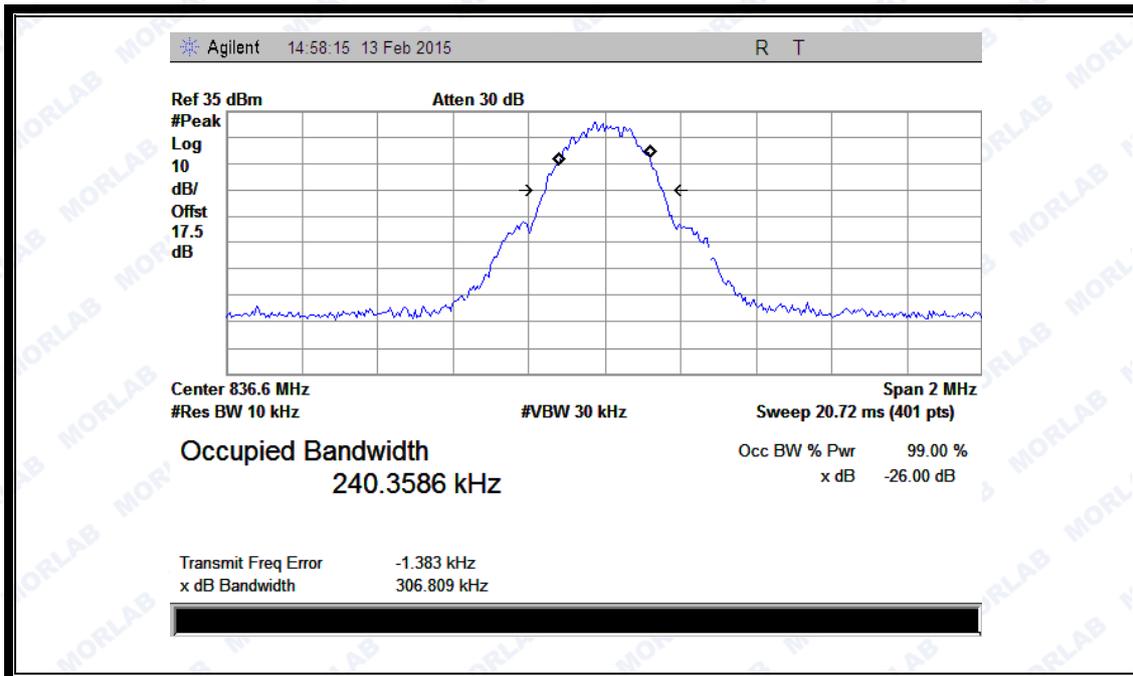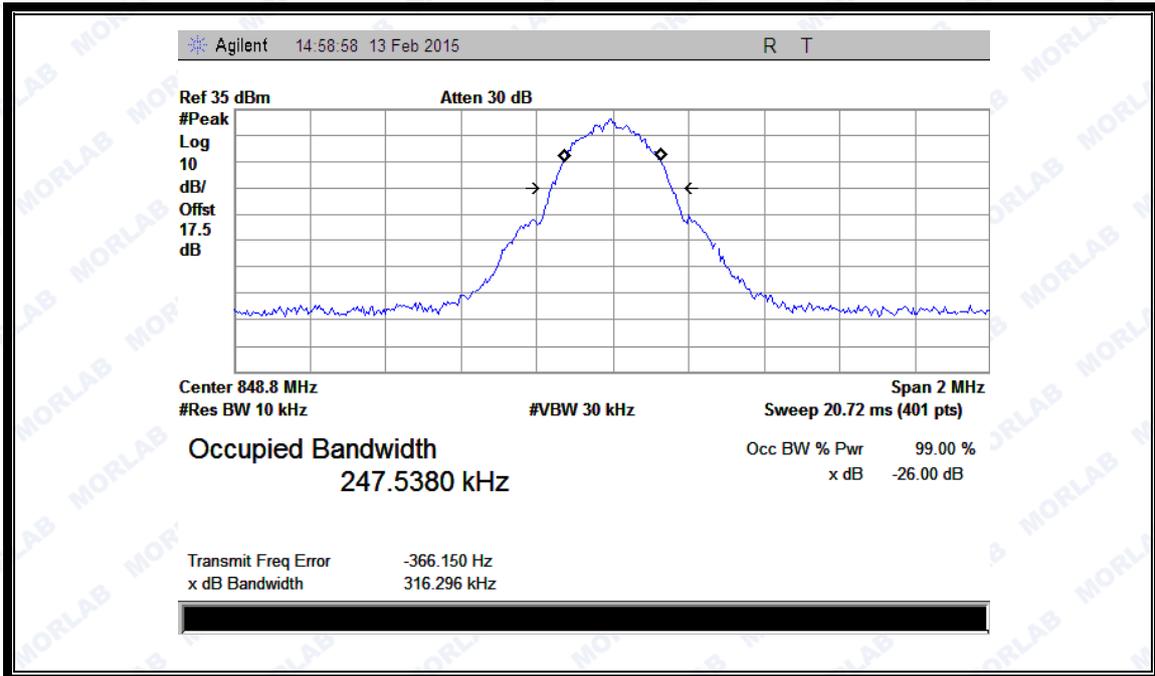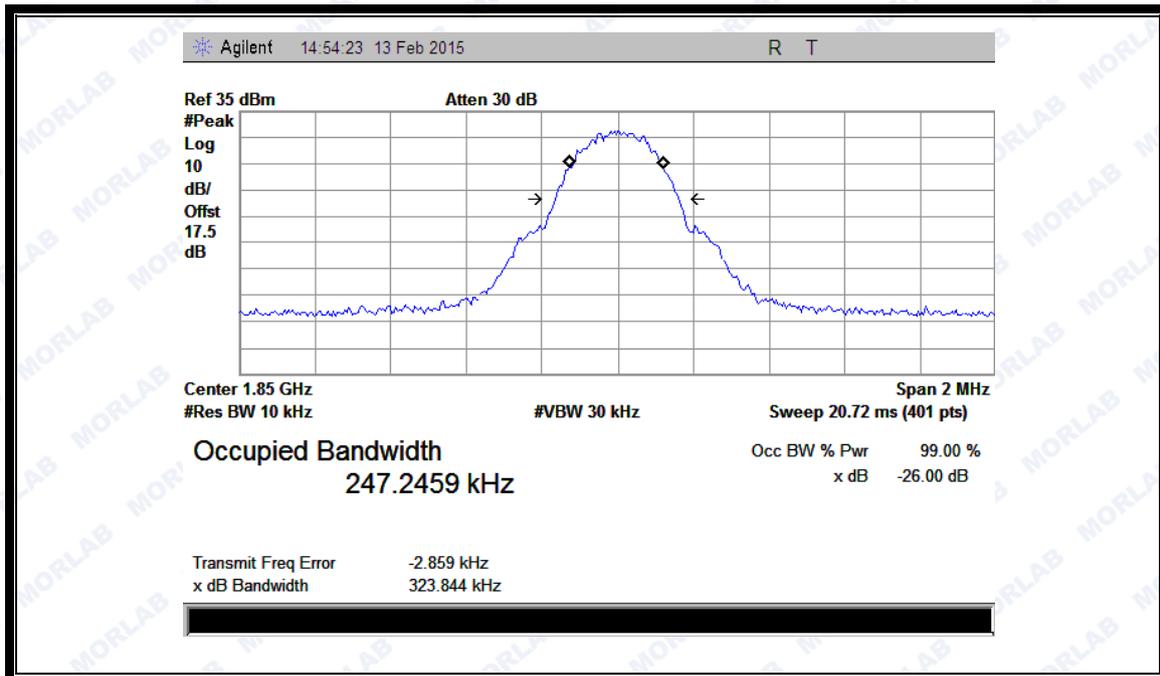(Plot N1:　　GPRS 1900MHz Channel = 512)
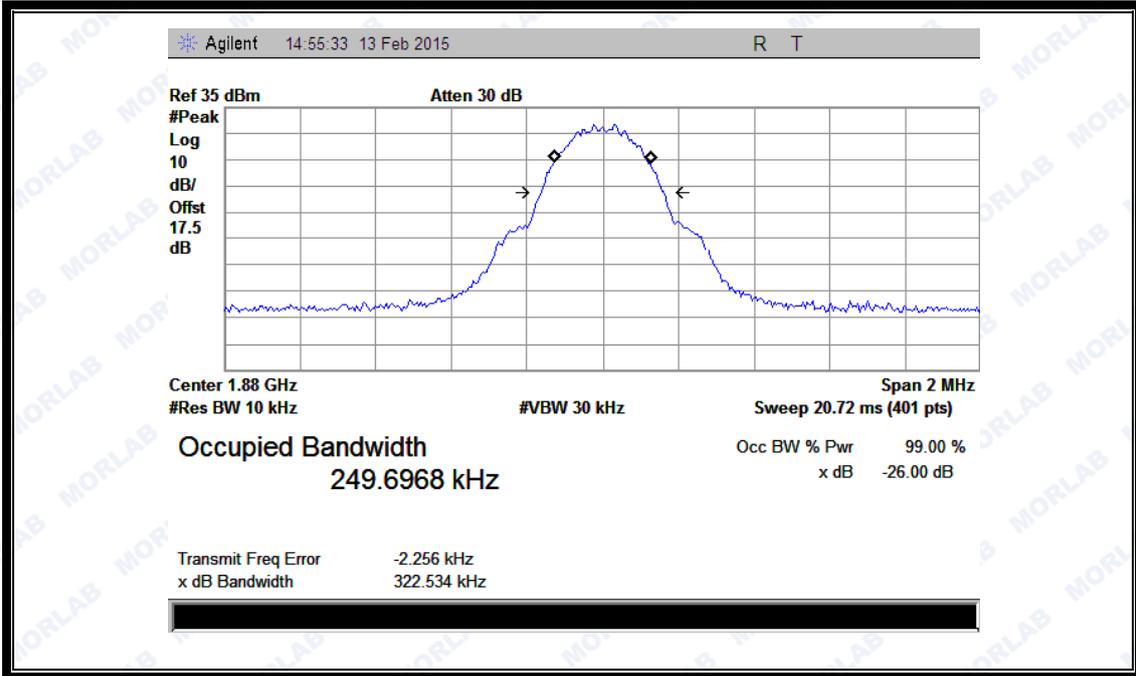
(Plot O1:   GPRS 1900MHz Channel = 661)
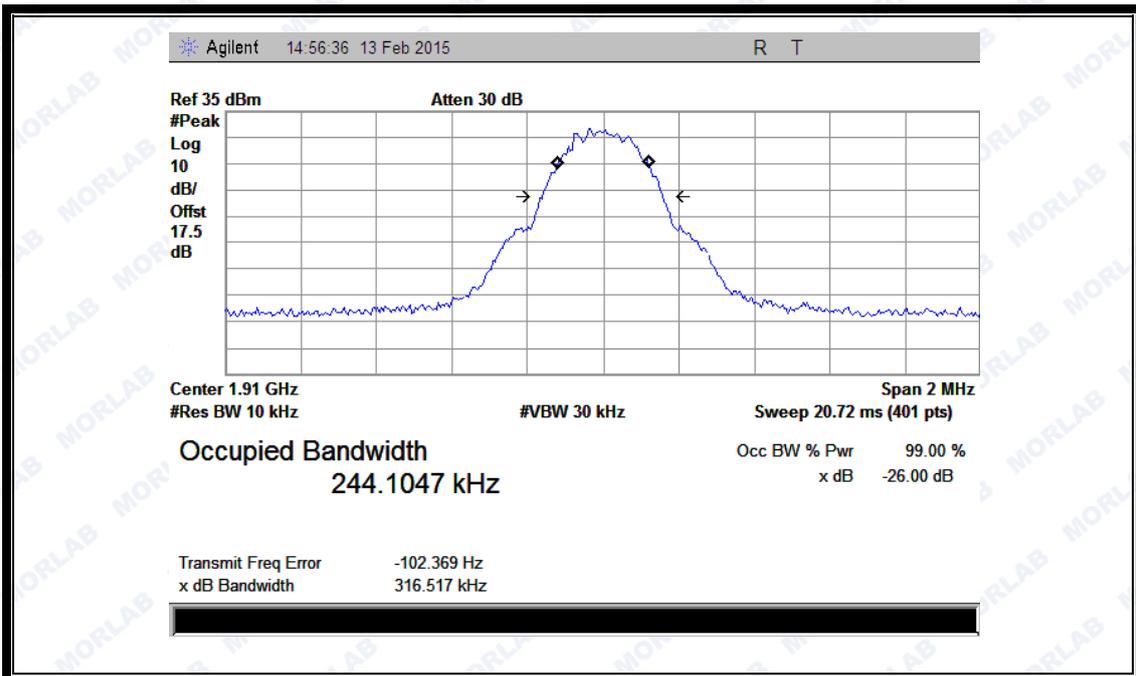
(Plot P1:   GPRS 1900MHz Channel = 810)

2.4 Frequency Stability

2.4.1 Requirement

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

(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°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.

2.4.2 Test Description

1. Test Setup:
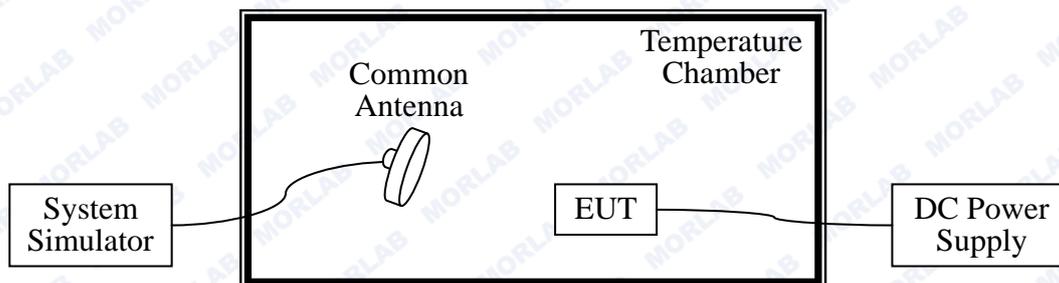
The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the SS via a Common Antenna.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2015.02.06	2016.02.05
DC Power Supply	Good Will	GPS-3030DD	EF920938	2015.02.06	2016.02.05
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2015.02.06	2016.02.05

2.4.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.2VDC and 3.45VDC, which are specified by the applicant; the normal temperature here used is 25°C. The frequency deviation limit of

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

1. GSM 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-23.15	±2060.5	21.12	±2091.5	15.47	±2122	PASS
	-20	21.11		12.43		-11.03		
	-10	-5.25		-17.46		12.51		
	0	30.26		32.14		6.01		
	+10	41.79		-24.93		4.42		
	+20	-29.56		-17.19		10.76		
	+30	14.16		19.36		-14.53		
	+40	31.63		19.64		-2.13		
	+55	15.28		23.27		-2.19		
4.2	+25	-15.73		29.05		-7.55		
3.45	+25	-37.61		37.13		15.18		

2. GSM 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	28.11	±1850.2	21.18	±1880.0	22.35	±1909.8	PASS
	-20	27.19		-21.48		-8.18		
	-10	-4.05		-13.76		-26.18		
	0	20.08		-18.38		29.12		
	+10	0.98		-21.61		15.34		
	+20	-16.75		15.52		25.23		
	+30	39.76		-0.78		-31.26		
	+40	15.51		34.37		21.34		
	+55	29.08		24.02		-14.21		
4.2	+25	27.38		23.72		37.25		
3.45	+25	-5.19		15.22		29.19		

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)		Verdict
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-21.12		26.19		6.22		
	-20	16.98		13.73		-13.80		
	-10	-3.25		-18.35		11.16		
	0	21.06		39.10		5.05		
	+10	1.99		-22.06		3.02		
	+20	-19.86	±2060.5	-16.11	±2091.5	10.76	±2122	PASS
	+30	29.56		17.76		-16.51		
	+40	17.62		15.54		-2.11		
	+55	49.78		3.57		-12.89		
4.2	+25	-5.61		14.05		-7.83		
3.45	+25	-11.04		7.93		6.88		

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)		Verdict
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-11.87		25.12		1.57		
	-20	2.72		7.63		-13.76		
	-10	1.25		-25.78		-13.21		
	0	2.57		-1.36		13.23		
	+10	-10.78		-17.98		5.23		
	+20	-2.11	±1850.2	-21.61	±1880.0	36.16	±1909.8	PASS
	+30	14.03		14.58		-26.88		
	+40	5.43		-0.78		19.34		
	+55	-2.46		38.07		-16.77		
4.2	+25	19.02		4.08		26.59		
3.45	+25	-7.19		14.13		19.03		

5. WCDMA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4175 (835MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	17.11	±2066	12.21	±2087.5	-1.19	±2116.5	PASS
	-20	-7.51		-0.62		-18.68		
	-10	-3.43		22.45		7.37		
	0	11.47		13.25		4.32		
	+10	30.18		1.31		-14.13		
	+20	41.07		-12.22		11.90		
	+30	-7.98		30.62		6.63		
	+40	26.31		13.45		21.53		
	+55	22.10		-12.42		19.76		
4.2	+25	-6.17		31.12		13.89		
3.45	+25	18.56		-17.80		-38.42		

6. WCDMA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	-4.19	±1852.4	-11.67	±1880.0	-1.29	±1907.6	PASS
	-20	19.15		12.28		20.60		
	-10	5.35		-14.36		15.11		
	0	28.93		18.59		-3.17		
	+10	11.40		21.39		38.12		
	+20	43.55		38.27		-20.38		
	+30	2.31		2.37		17.47		
	+40	-13.59		-13.47		21.84		
	+55	-33.65		-5.81		-2.14		
4.2	+25	21.23		14.68		1.05		
3.45	+25	43.12		25.37		-25.11		

7. HSDPA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4175 (835MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	38.46	±2066	-24.87	±2087.5	17.19	±2116.5	PASS
	-20	-8.16		-14.06		14.41		
	-10	20.85		37.23		21.67		
	0	2.78		-8.41		-24.37		
	+10	-11.75		-13.95		-13.96		
	+20	8.78		-24.37		34.11		
	+30	-1.49		12.88		-8.31		
	+40	17.24		-14.75		-33.95		
	+55	-23.61		23.37		15.37		
4.2	+25	33.03		7.93		6.92		
3.45	+25	71.6		-31.21		1.95		

8. HSDPA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	5.57	±1852.4	-3.54	±1880	2.51	±1907.6	PASS
	-20	-6.05		22.71		-8.49		
	-10	8.46		15.37		-14.02		
	0	-3.11		-12.21		-9.03		
	+10	16.73		10.60		5.64		
	+20	30.12		-4.81		-3.84		
	+30	-15.01		35.11		9.57		
	+40	33.71		8.46		28.32		
	+55	26.42		-24.88		-12.47		
4.2	+25	-19.22		29.53		-2.89		
3.45	+25	11.54		-2.17		14.33		

9. HSUPA 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 4123 (826.4MHz)		Channel = 4175 (835MHz)		Channel = 4233 (846.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
3.8	-30	27.13	±2066	14.51	±2087.5	15.04	±2116.5	PASS
	-20	-15.42		-19.43		27.52		
	-10	-12.74		-12.79		38.79		
	0	-14.09		-0.44		-7.31		
	+10	-0.37		0.01		-4.91		
	+20	-11.85		-6.64		12.34		
	+30	28.57		24.25		-5.95		
	+40	-11.81		9.73		13.77		
	+55	-0.45		25.76		28.1		
4.2	+25	2.78		-4.67		9.34		
3.45	+25	3.65		5.65		-6.71		

10. HSUPA 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 9262 (1852.4MHz)		Channel = 9400 (1880.0MHz)		Channel = 9538 (1907.6MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
3.8	-30	33.53	±1852.4	-11.69	±1880	7.15	±1907.6	PASS
	-20	28.11		-0.74		71.4		
	-10	48.2		0.11		-4.83		
	0	34.1		14.82		7.08		
	+10	-9.73		-15.25		-1.87		
	+20	16.21		-11.79		1.52		
	+30	-1.1		-0.44		-0.48		
	+40	9.16		1.25		-2.07		
	+55	14.73		-7.84		-5.81		
4.2	+25	-70.8		6.72		1.38		
3.45	+25	22.71		-1.72		-5.44		

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	
3.8	-30	27.54		13.31		13.41		
	-20	-14.40		-19.33		3.52		
	-10	-12.4		-12.79		1.71		
	0	-14.08		-0.44		-7.32		
	+10	-0.37		0.01		-4.91		
	+20	-11.81	±2066	-6.64	±2087.5	2.35	±2116.5	PASS
	+30	28.4		24.25		-1.94		
	+40	-11.89		9.73		13.78		
	+55	-0.45		25.76		8.5		
4.2	+25	1.78		-4.67		9.1		
3.45	+25	1.31		6.35		-9.3		

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	
3.8	-30	32.61		-12.19		32.3		
	-20	1.23		-0.82		4.2		
	-10	7.12		0.21		-26.5		
	0	5.41		15.82		7.4		
	+10	-4.63		-15.25		-1.1		
	+20	16.4	±1852.4	-11.79	±1880	3.51	±1907.6	PASS
	+30	-1.55		-0.44		-4.48		
	+40	4.16		1.25		-2.3		
	+55	14.1		-7.84		-5.3		
4.2	+25	-60.8		6.76		6.1		
3.45	+25	27.38		-1.22		-12.38		

2.5 Conducted Out of Band Emissions

2.5.1 Requirement

According to FCC section 22.917(a) and FCC section 24.238(a) the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

2.5.2 Test Description

See section of this report.

2.5.3 Test Result

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

1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-19.32	Plot A1toA1.1	-13	PASS
	190	836.6	-20.40	Plot A2toA2.1		PASS
	251	848.8	-19.70	Plot A3toA3.1		PASS
GSM 1900MHz	512	1850.2	-20.74	Plot B1toB1.1	-13	PASS
	661	1880.0	-19.40	Plot B2toB2.1		PASS
	810	1909.8	-20.73	Plot B3toB3.1		PASS
EDGE 850MHz	128	824.2	-20.62	Plot C1toC1.1	-13	PASS
	190	836.6	-20.90	Plot C2toC2.1		PASS
	251	848.8	-21.14	Plot C3toC3.1		PASS
EDGE 1900MHz	512	1850.2	-20.56	Plot D1toD1.1	-13	PASS
	661	1880.0	-19.67	Plot D2toD2.1		PASS
	810	1909.8	-21.06	Plot D3toD3.1		PASS
WCDMA 850MHz	4132	826.4	<-25	Plot E1toE1.1	-13	PASS
	4175	835	<-25	Plot E2toE2.1		PASS
	4233	846.6	<-25	Plot E3toE3.1		PASS
WCDMA 1900MHz	9262	1852.4	<-25	Plot F1toF1.1	-13	PASS
	9400	1880	<-25	Plot F2toF2.1		PASS
	9538	1907.6	<-25	Plot F3toF3.1		PASS
HSDPA	4132	826.4	<-25	Plot G1toG1.1	-13	PASS

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
850MHz	4175	835	<-25	Plot G2toG2.1		PASS
	4233	846.6	<-25	Plot G3toG3.1		PASS
HSDPA 1900MHz	9262	1852.4	<-25	Plot H1toH1.1	-13	PASS
	9400	1880	<-25	Plot H2toH2.1		PASS
	9538	1907.6	<-25	Plot H3toH3.1		PASS
HSUPA 850MHz	4132	826.4	<-25	Plot I1toI1.1	-13	PASS
	4175	835	<-25	Plot I2toI2.1		PASS
	4233	846.6	<-25	Plot I3toI3.1		PASS
HSUPA 1900MHz	9262	1852.4	<-25	Plot J1toJ1.1	-13	PASS
	9400	1880	<-25	Plot J2toJ2.1		PASS
	9538	1907.6	<-25	Plot J3toJ3.1		PASS
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.
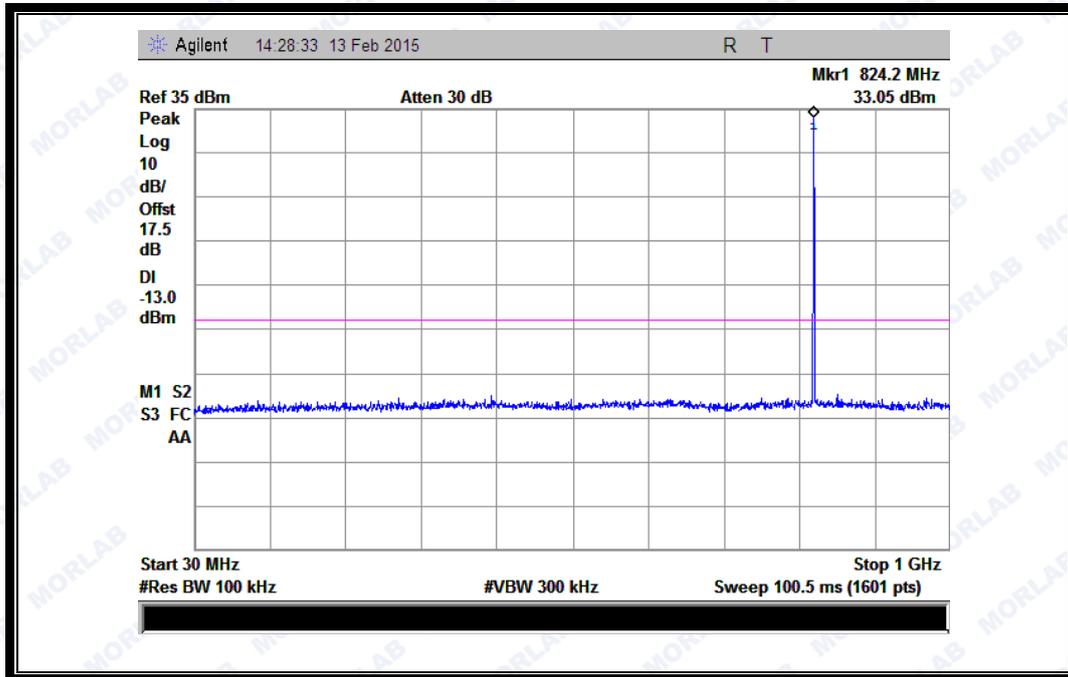
(Plot A1:GSM 850MHz Channel = 128, 30MHz to 1GHz)
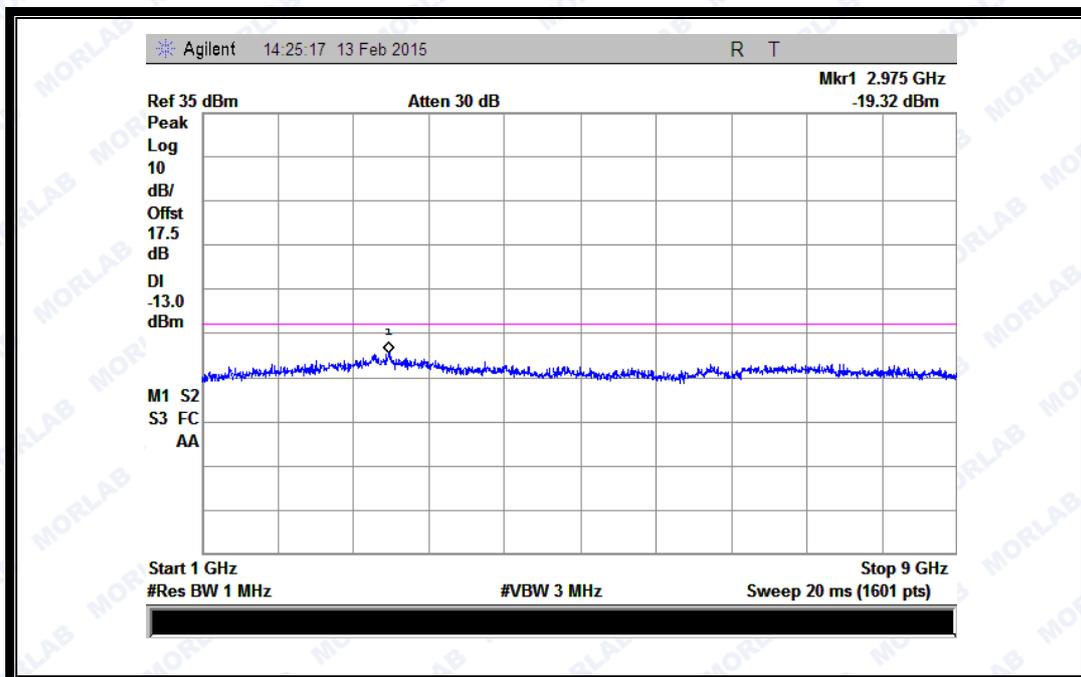
(Plot A1.1:   GSM 850MHz Channel = 128, 1GHz to 9GHz)
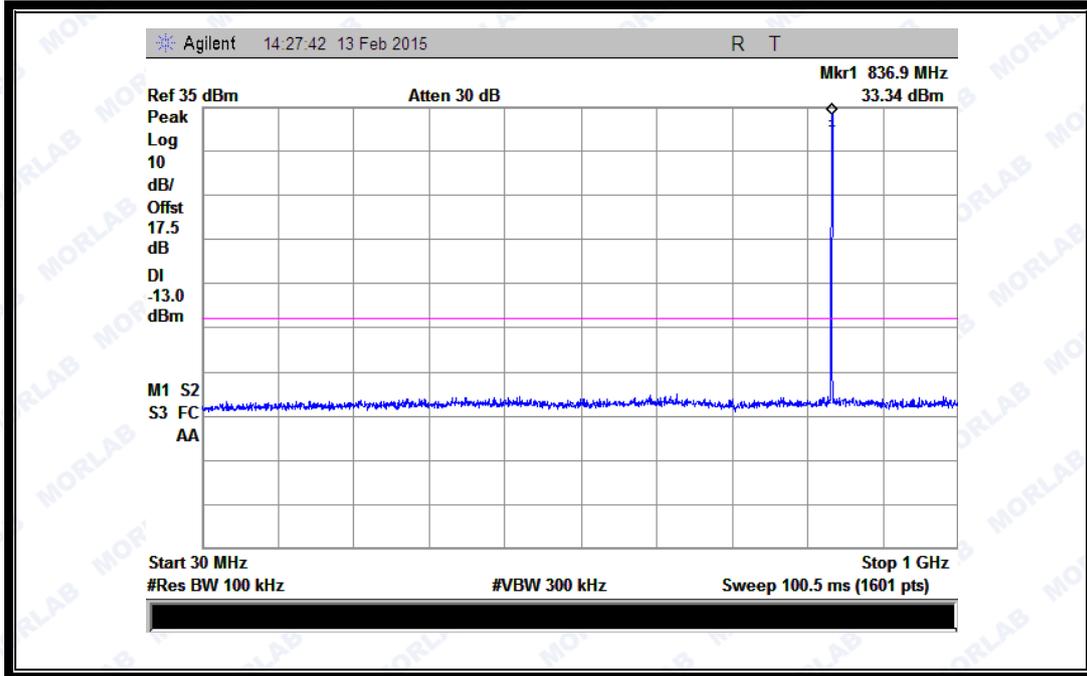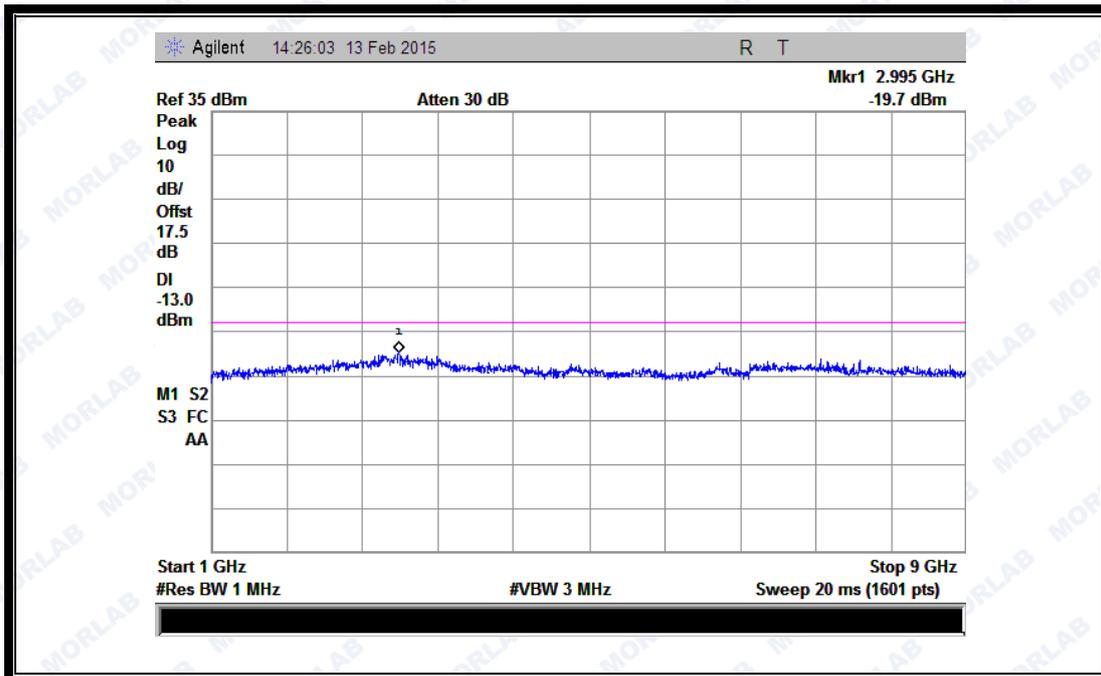
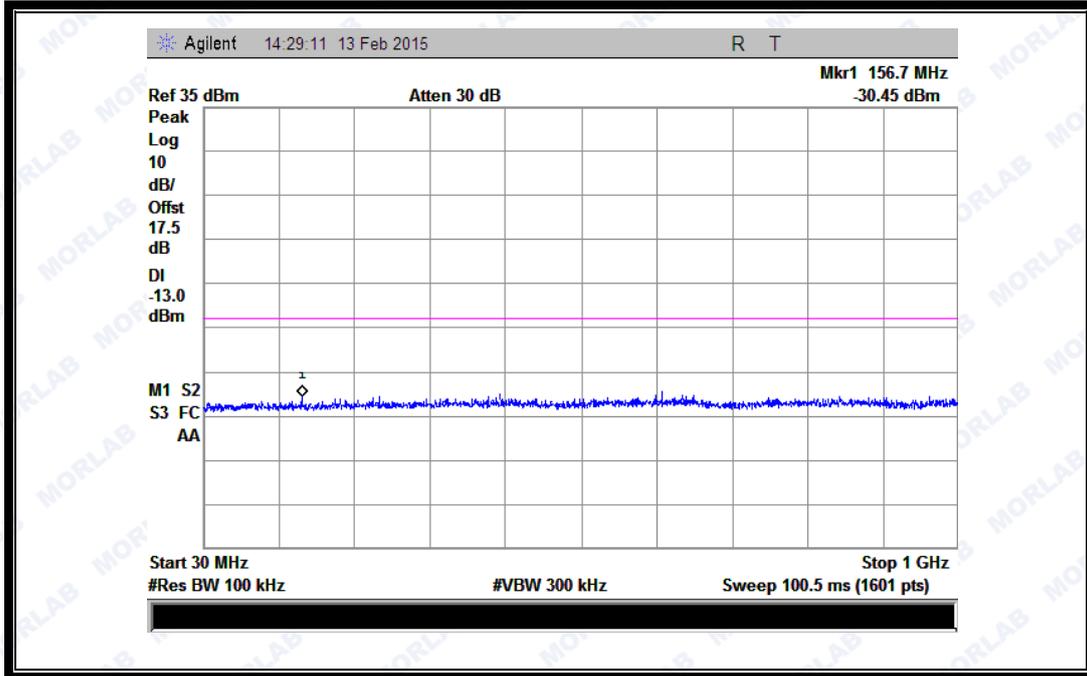(Plot A2:GSM 850MHz Channel = 190, 30MHz to 1GHz)
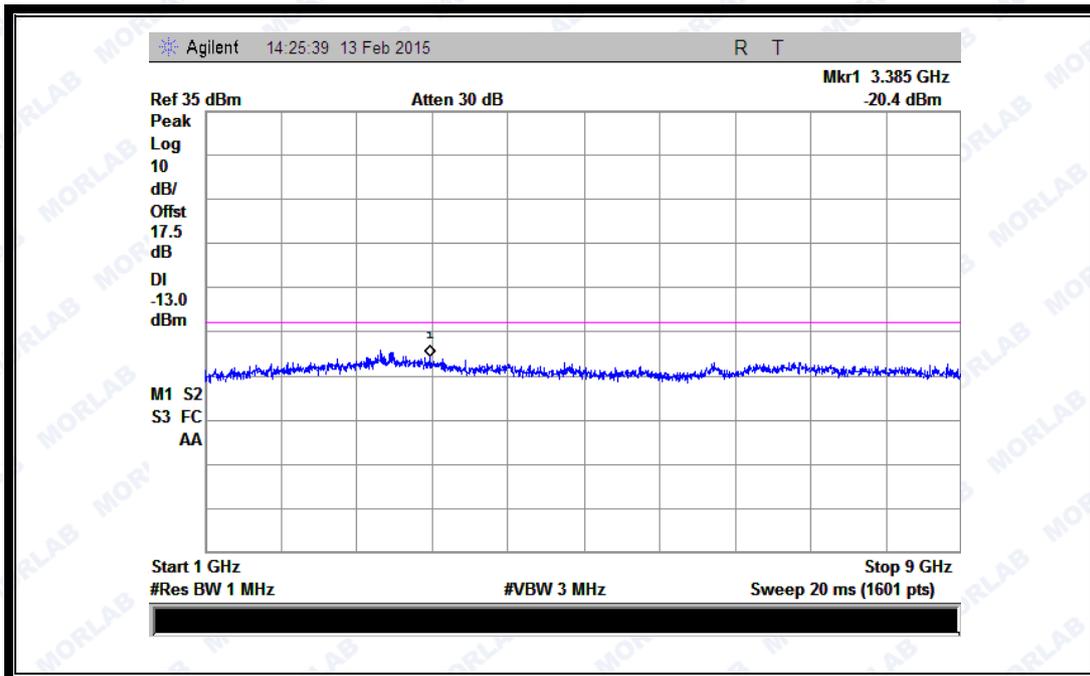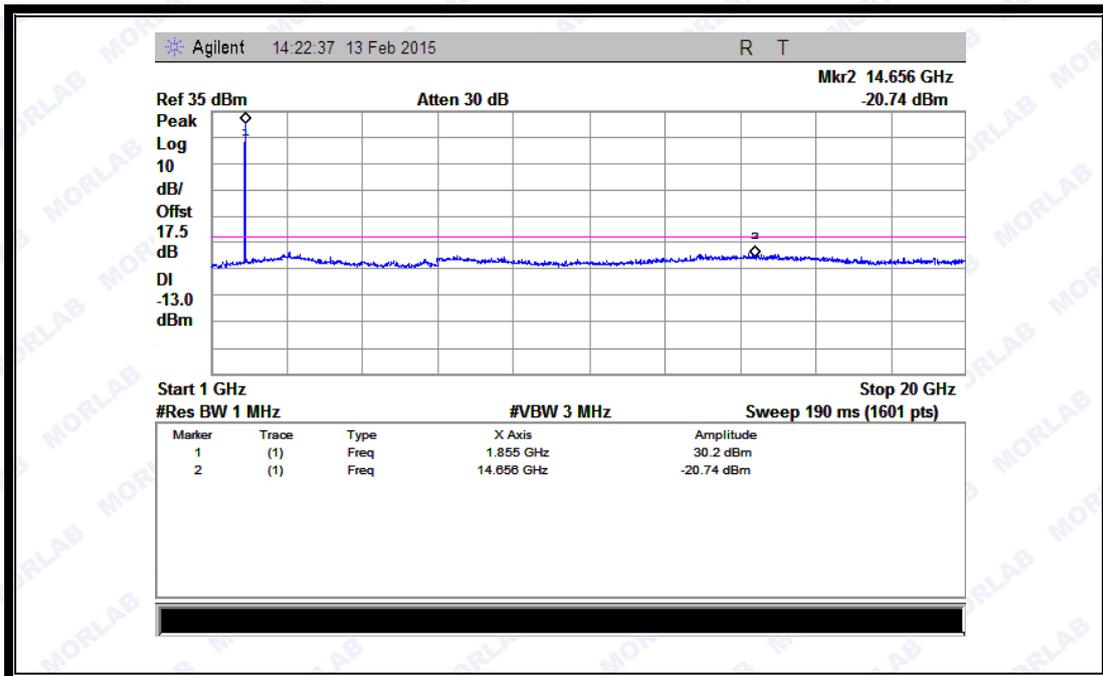

(Plot A2.1:   GSM 850MHz Channel = 190, 1GHz to 9GHz)
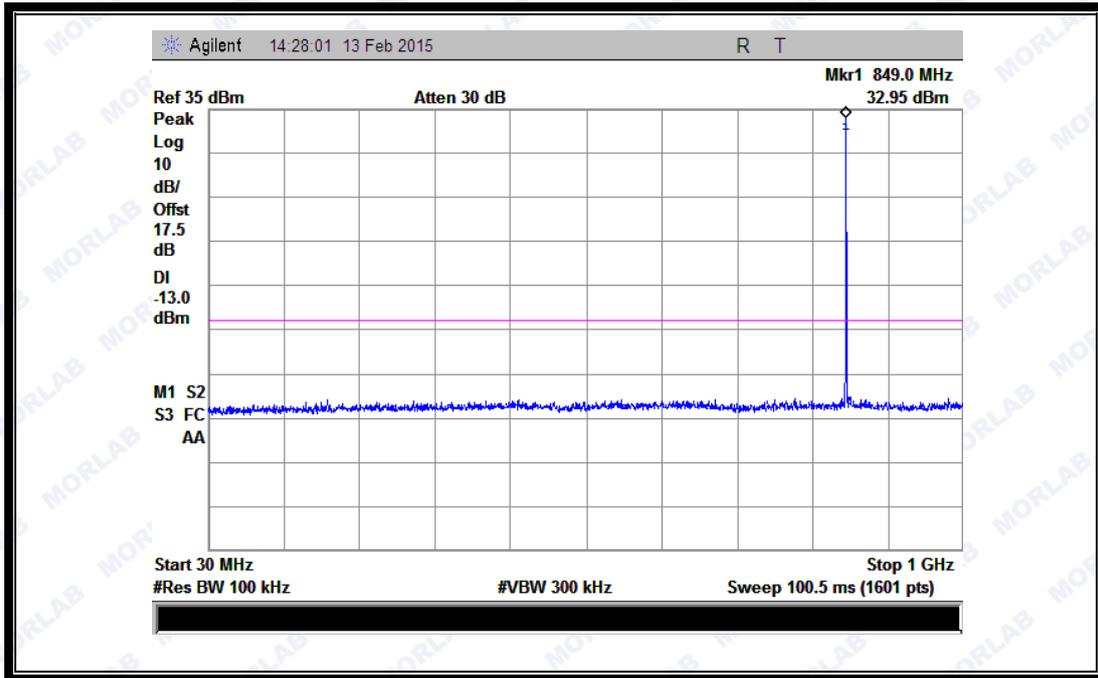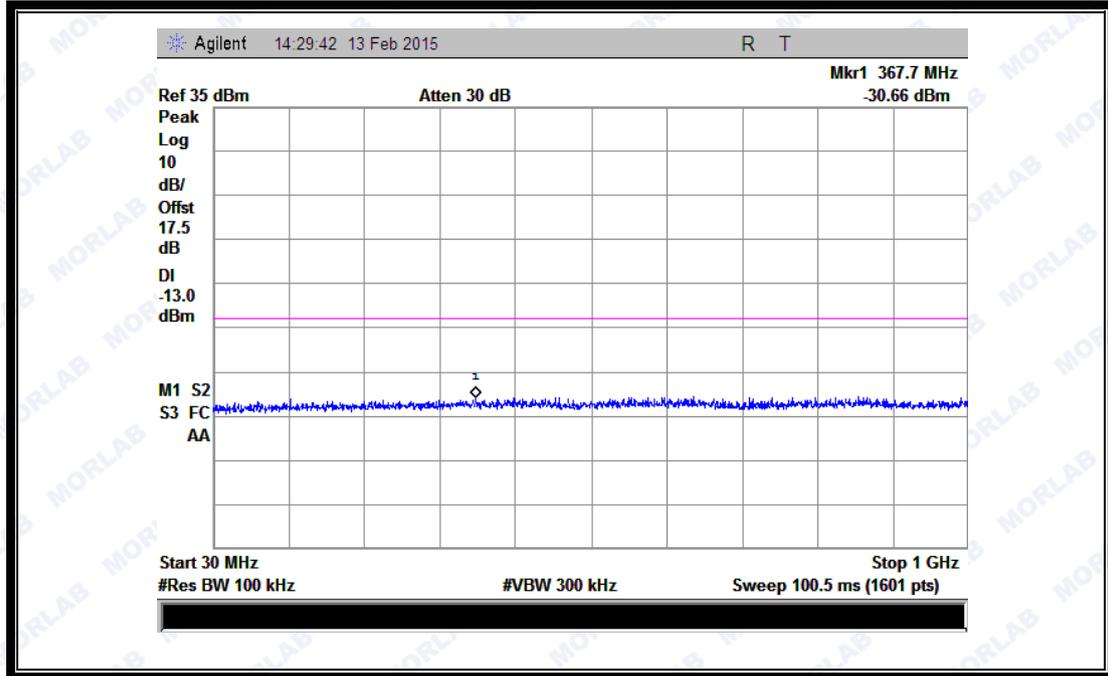
(Plot A3:GSM 850MHz Channel = 251, 30MHz to 1GHz)
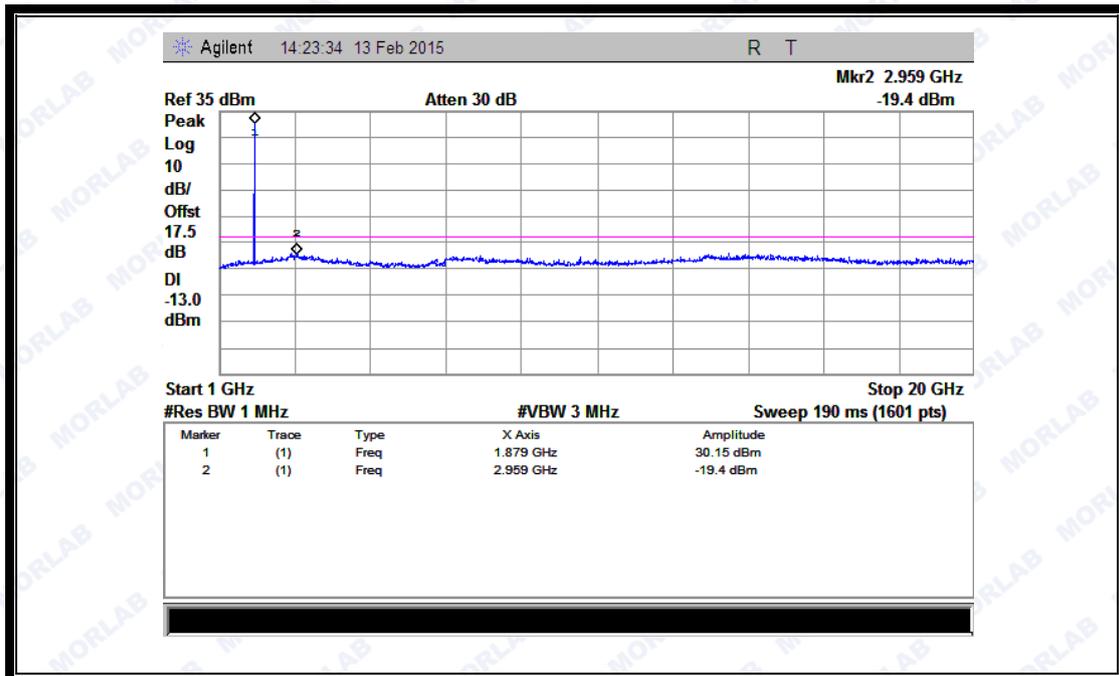

(Plot A3.1:   GSM 850MHz Channel = 251, 1GHz to 9GHz)

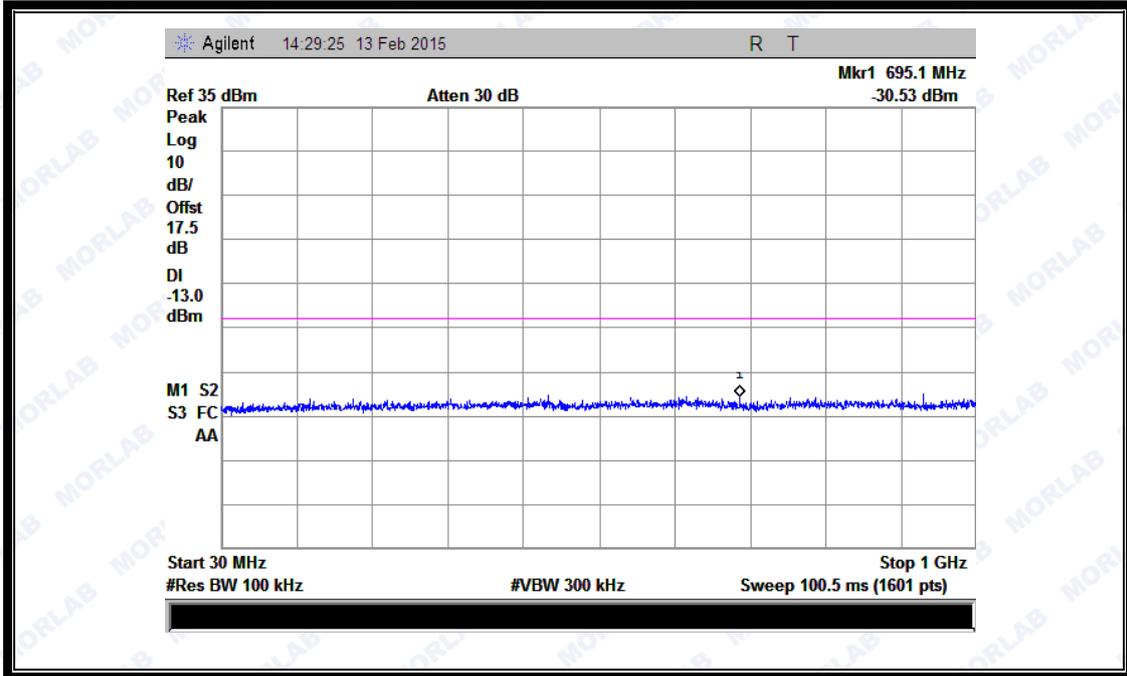(Plot B1:   GSM 1900MHz Channel = 512, 30MHz to 1GHz)

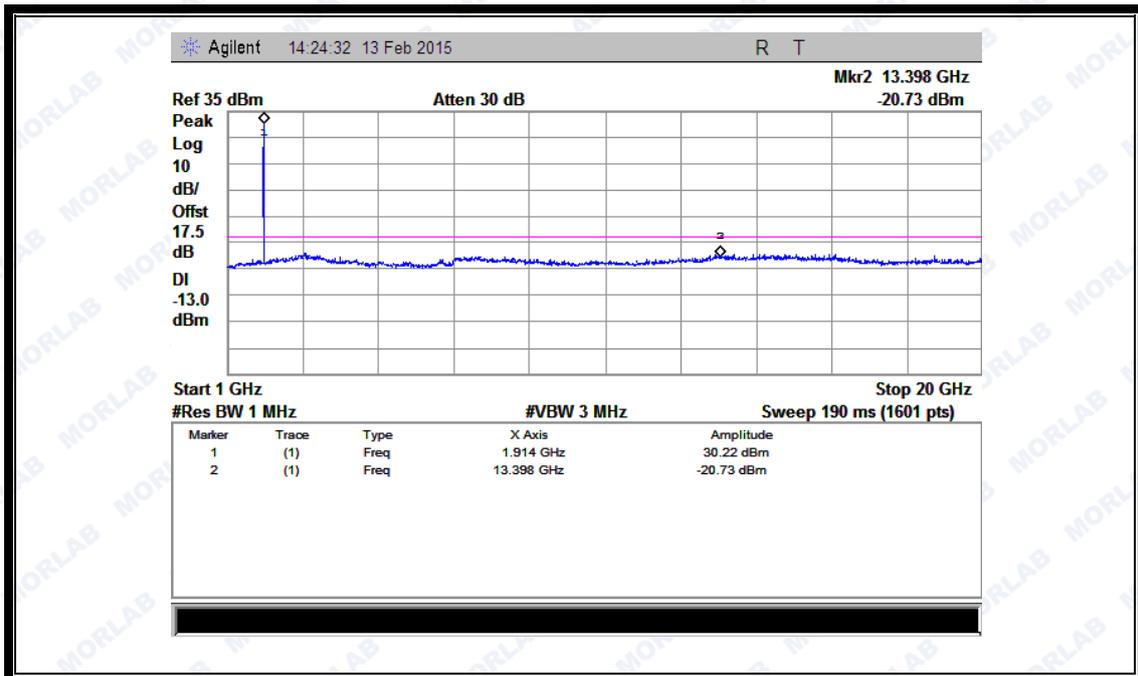(Plot B1.1:   GSM 1900MHz Channel = 512, 1GHz to 20GHz)

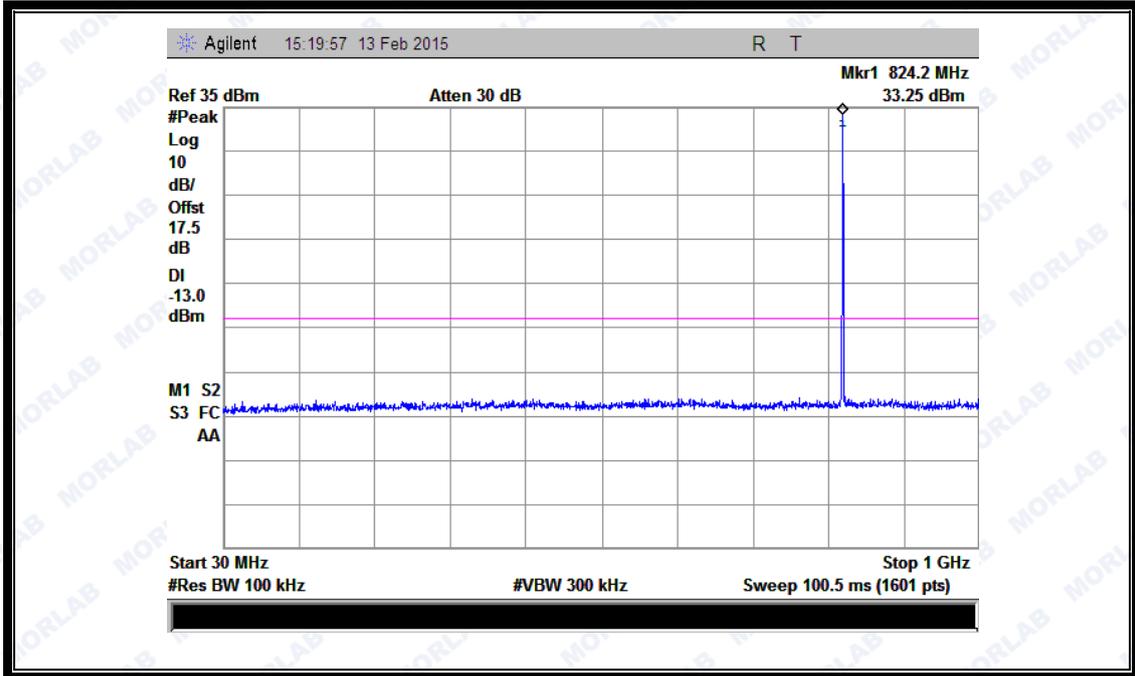(Plot B2:　　GSM 1900MHz Channel = 661, 30MHz to 1GHz)
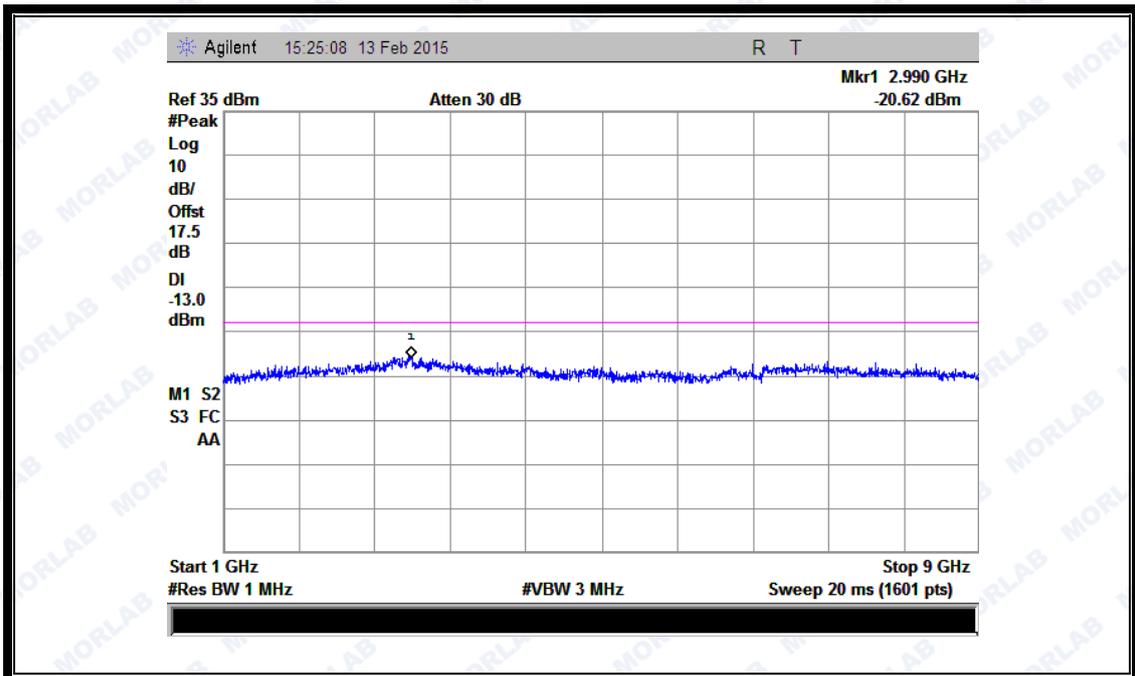

(Plot B2.1:　GSM 1900MHz Channel = 661, 1GHz to 20GHz)

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

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

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

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

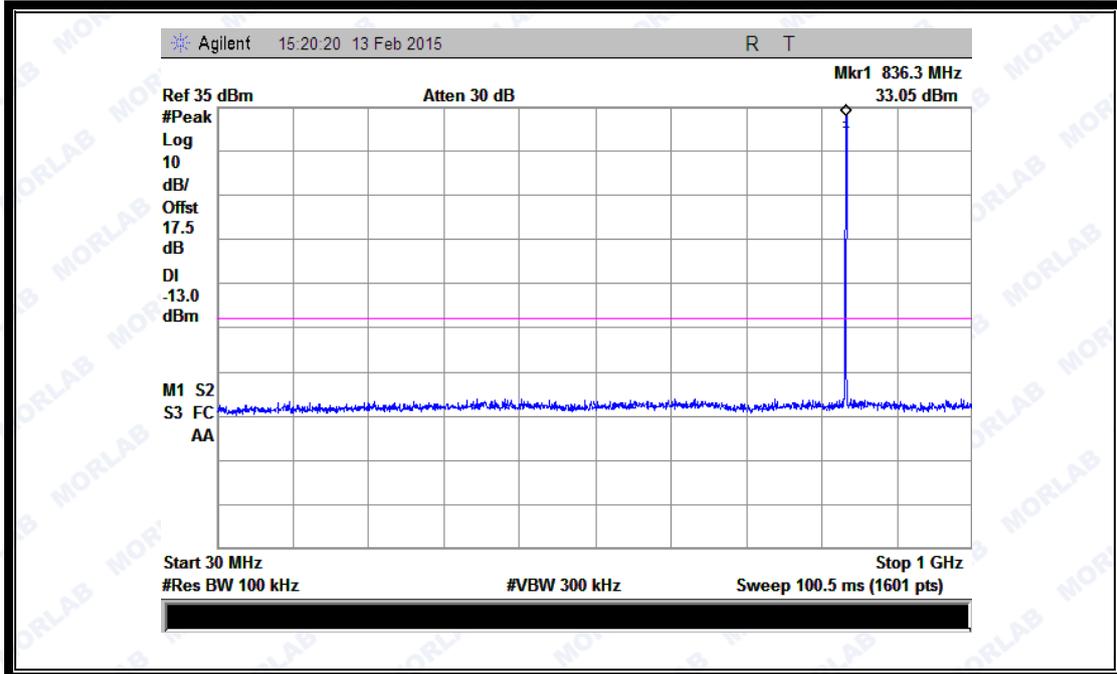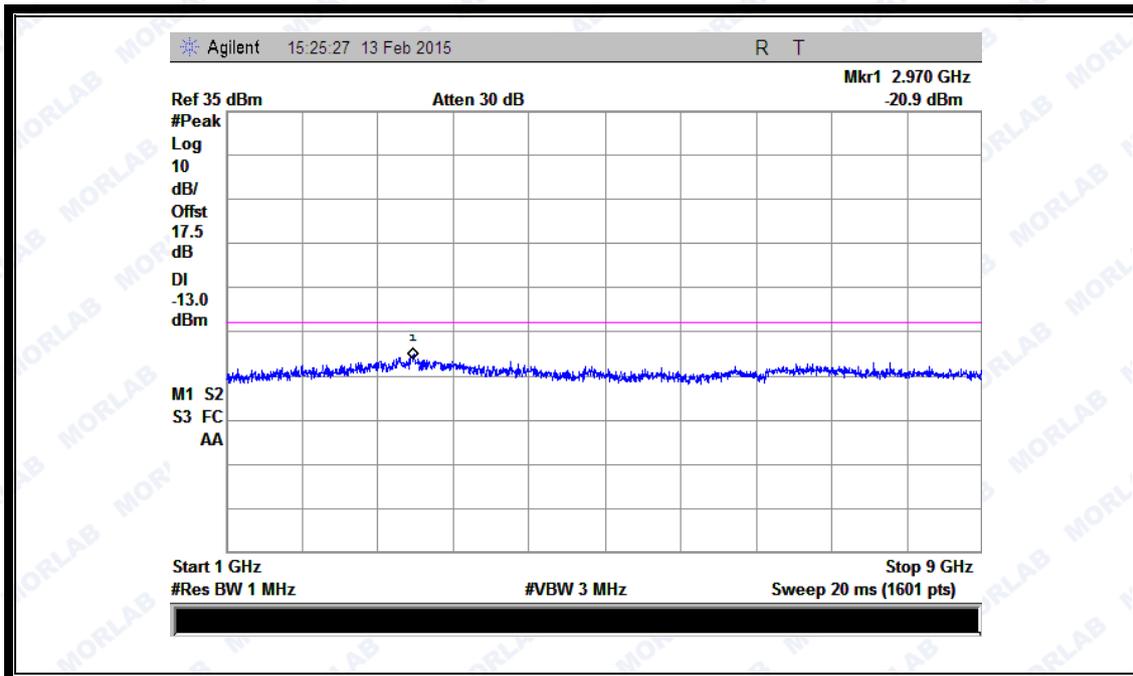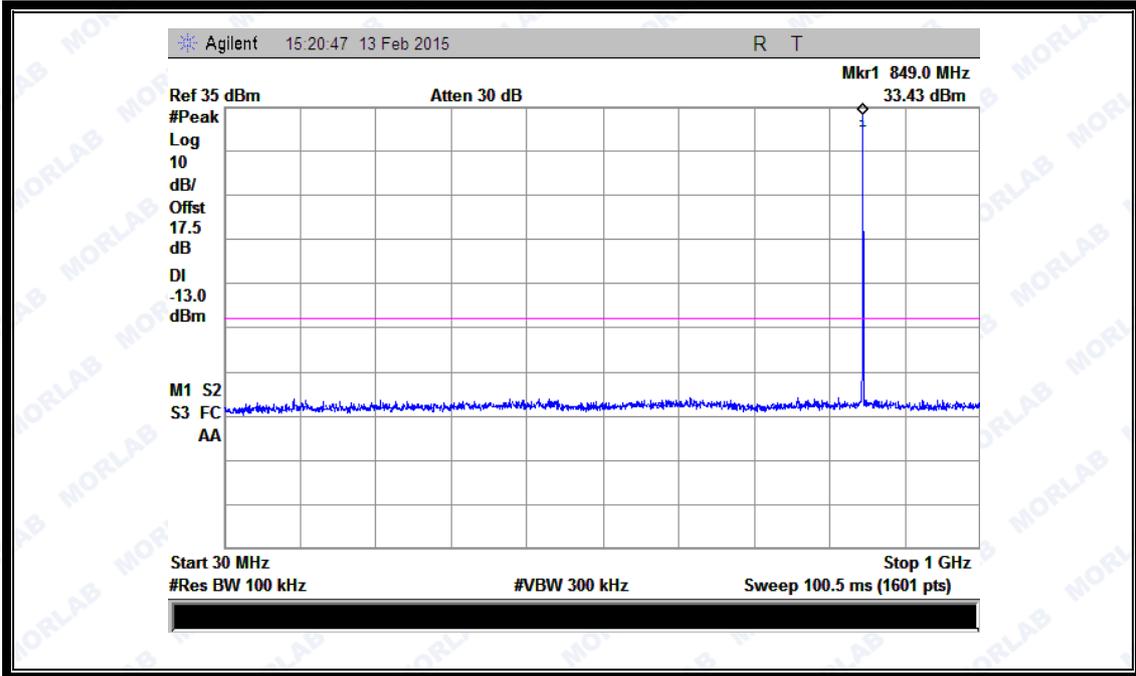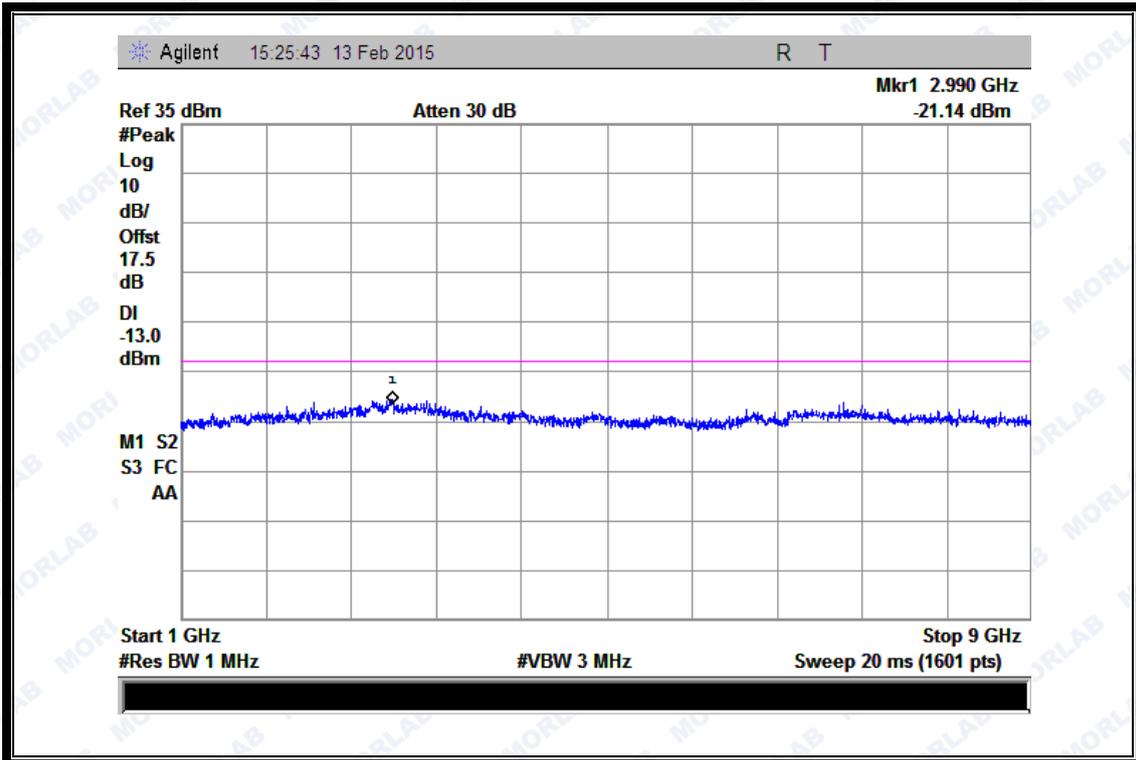(Plot C2:   EDGE 850MHz Channel = 190, 30MHz to 1GHz)
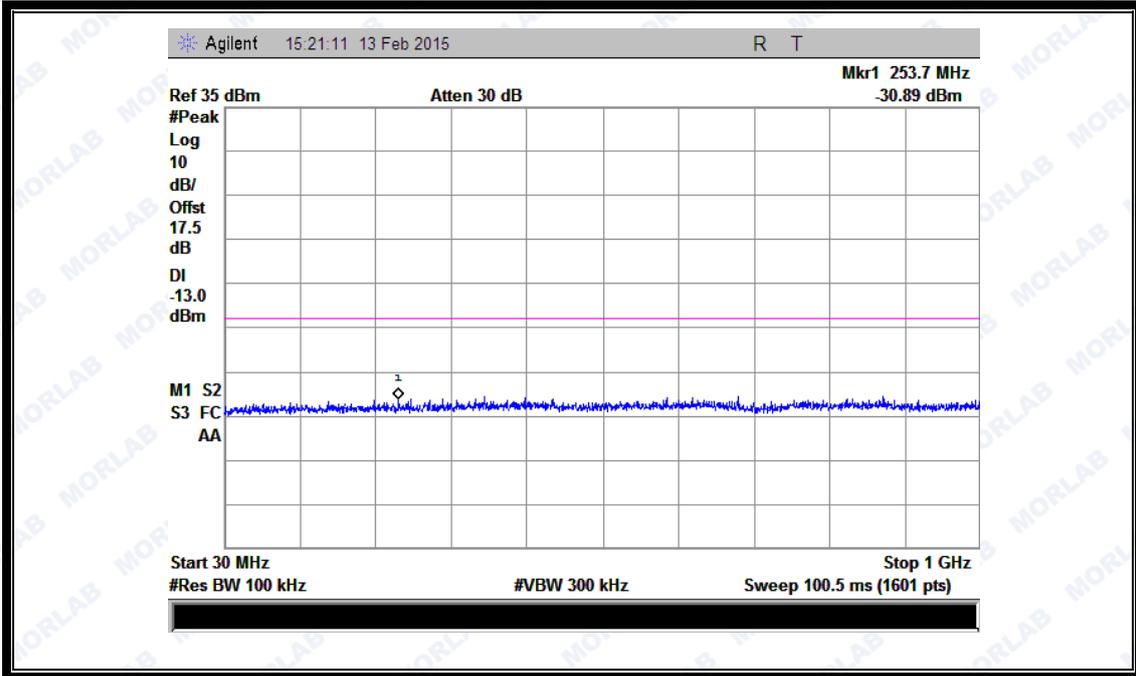

(Plot C2.1:   EDGE 850MHz Channel = 190, 1GHz to 9GHz)

(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)

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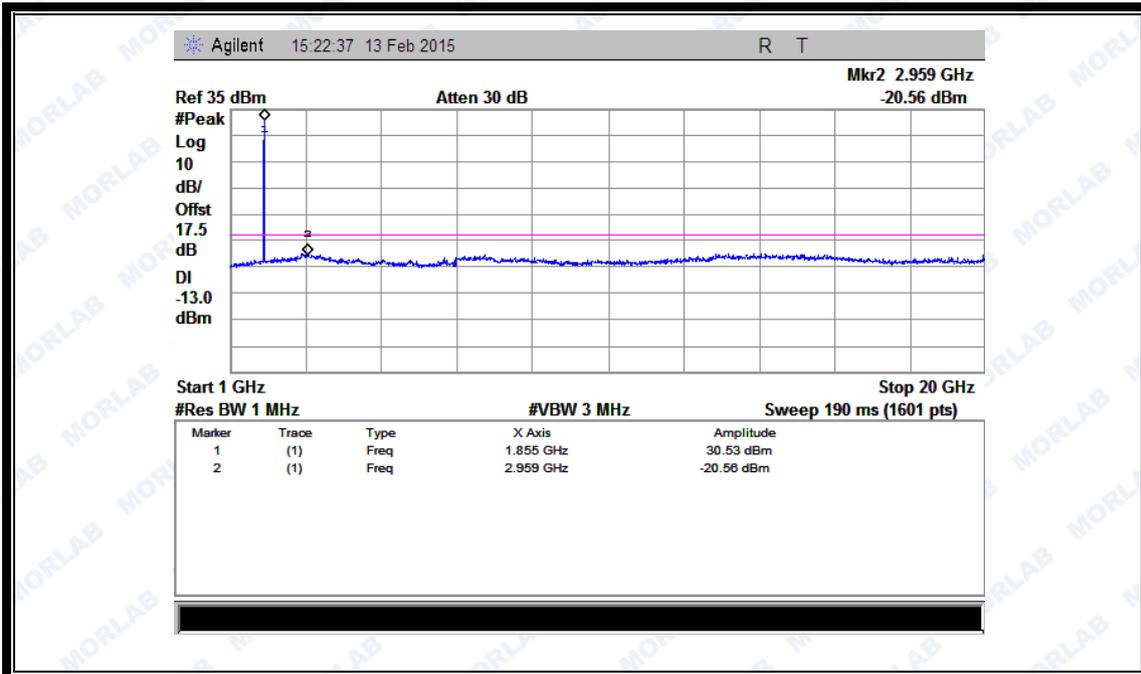
(Plot D2:   EDGE 1900MHz Channel = 661, 30MHz to 1GHz)
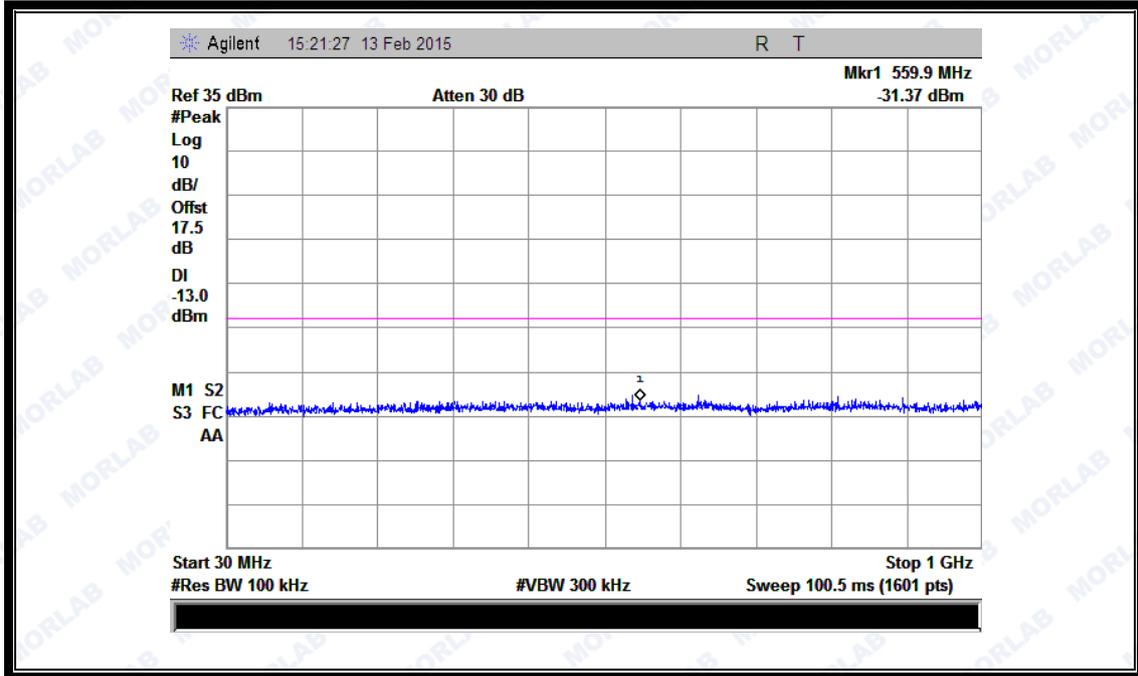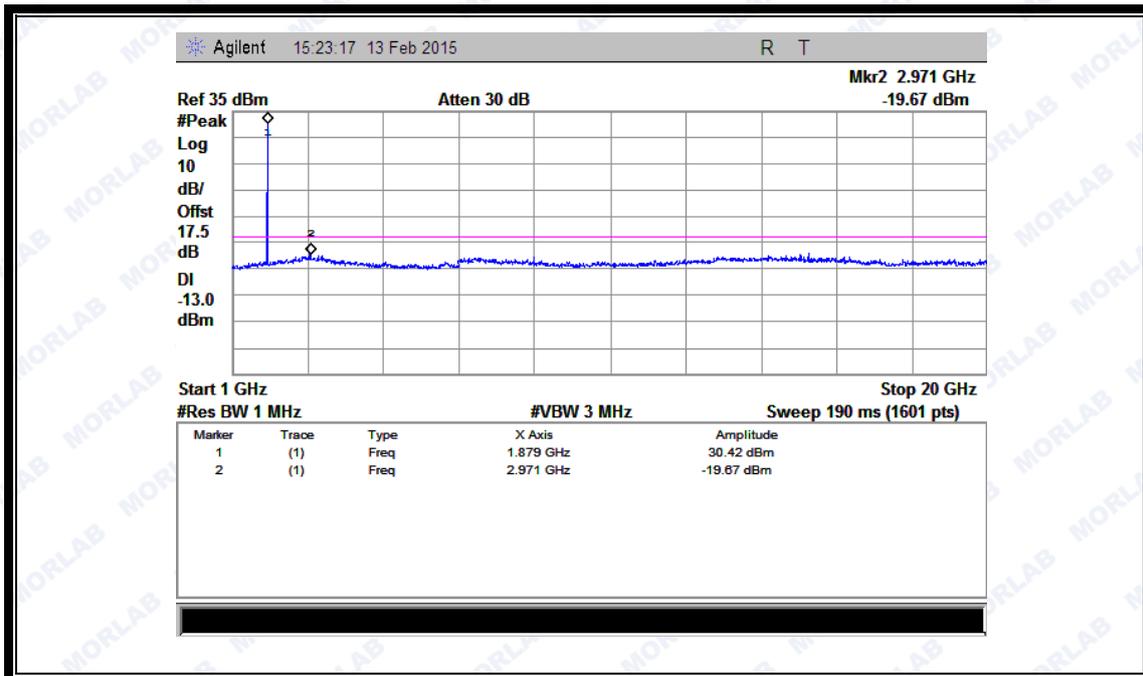

(Plot D2.1:   EDGE 1900MHz Channel = 661,1GHz to 20GHz)
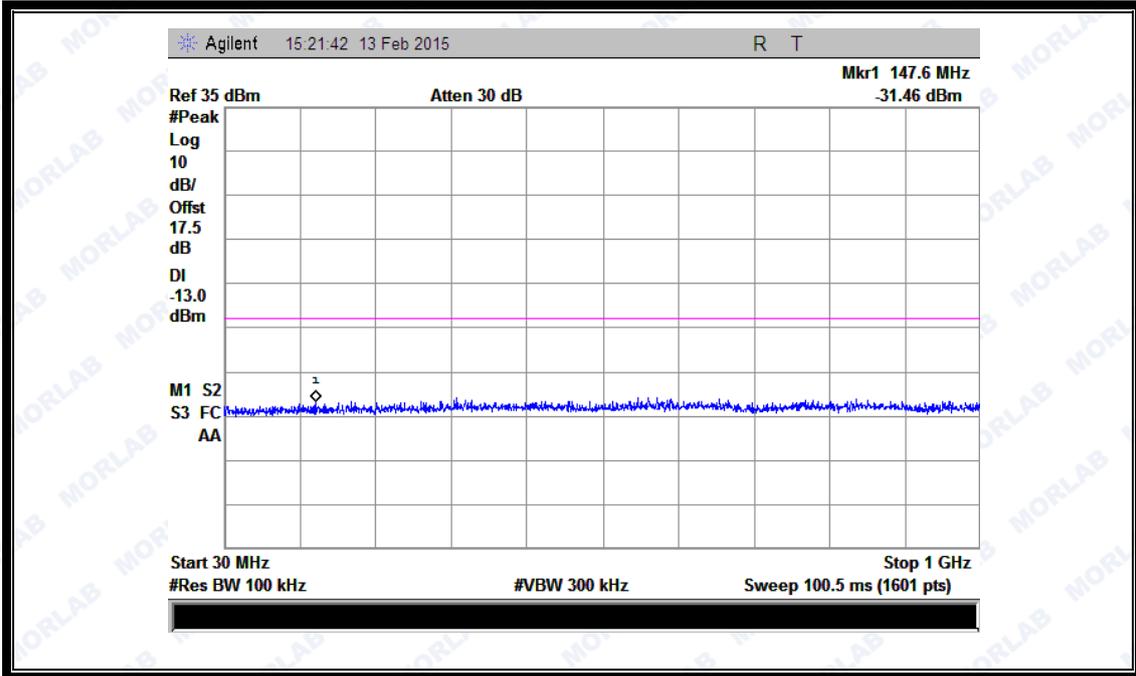
(Plot D3:   EDGE 1900MHz Channel = 810, 30MHz to 1GHz)
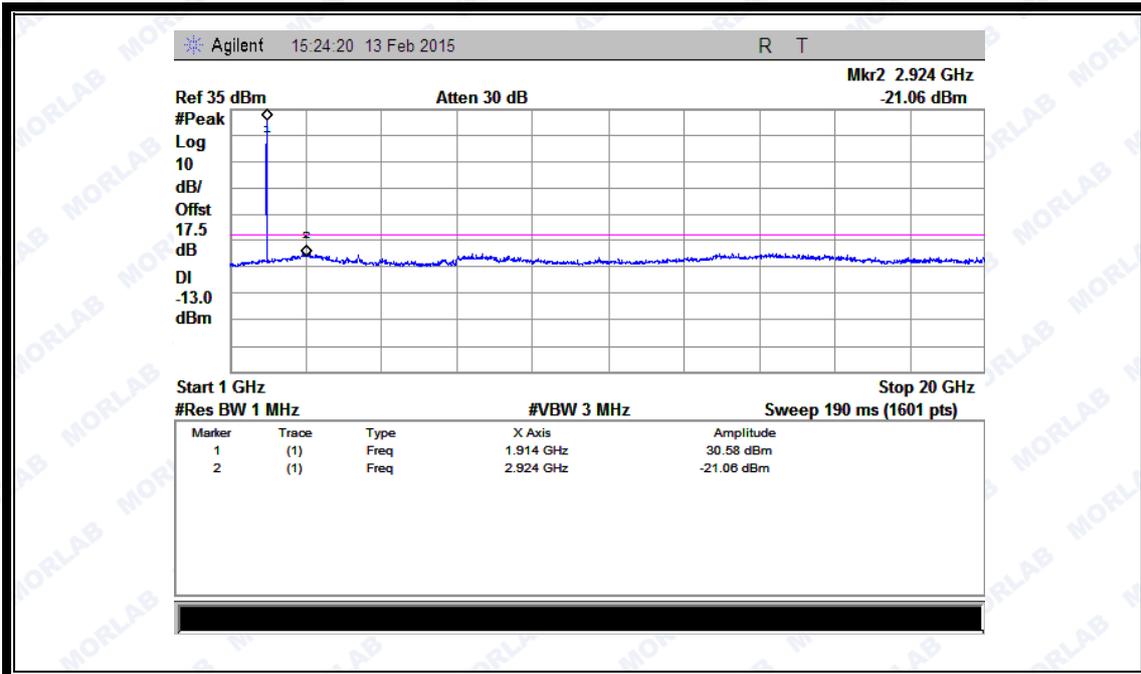
(Plot D3.1:   EDGE 1900MHz Channel = 810, 1GHz to 20GHz)
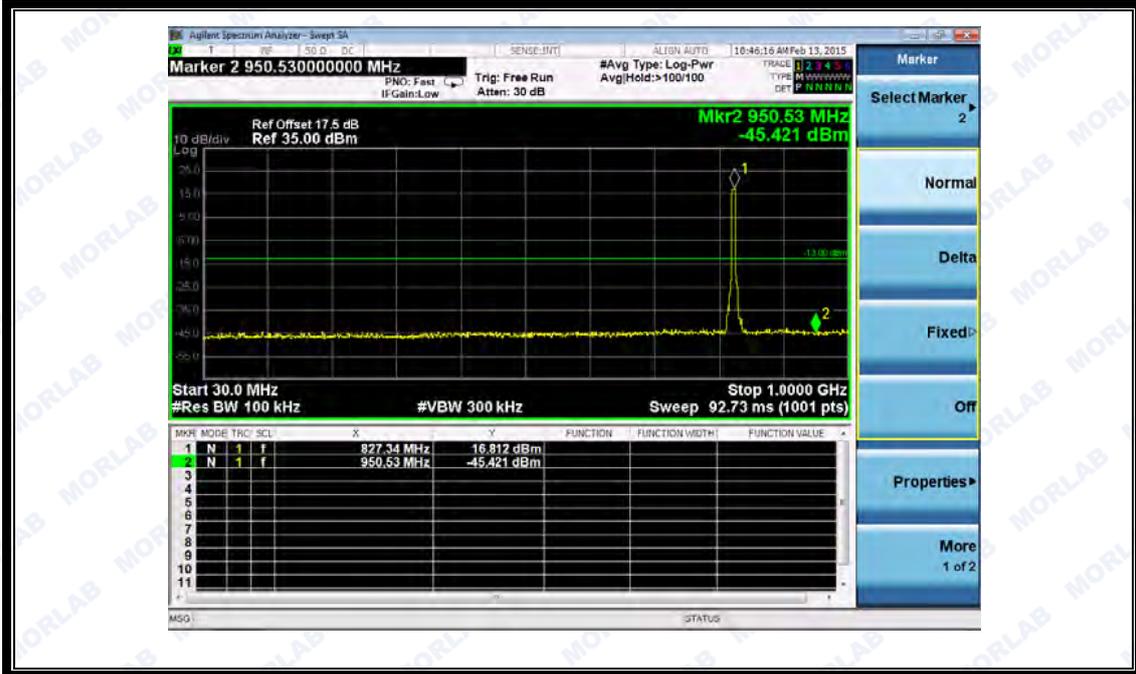
(Plot E1:   WCDMA850MHz Channel = 4132, 30MHz to 1GHz)

(Plot E1.1:   WCDMA850MHz Channel = 4132, 1GHz to 9GHz)
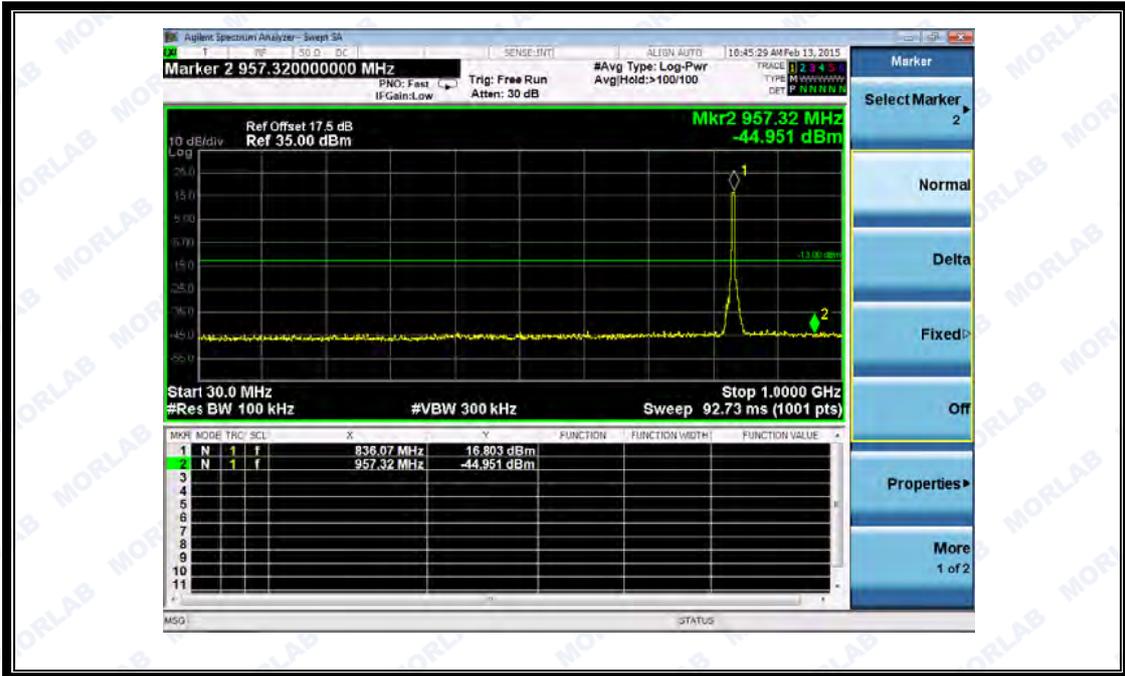
(Plot E2:   WCDMA850MHz Channel = 4175, 30MHz to 1GHz)

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

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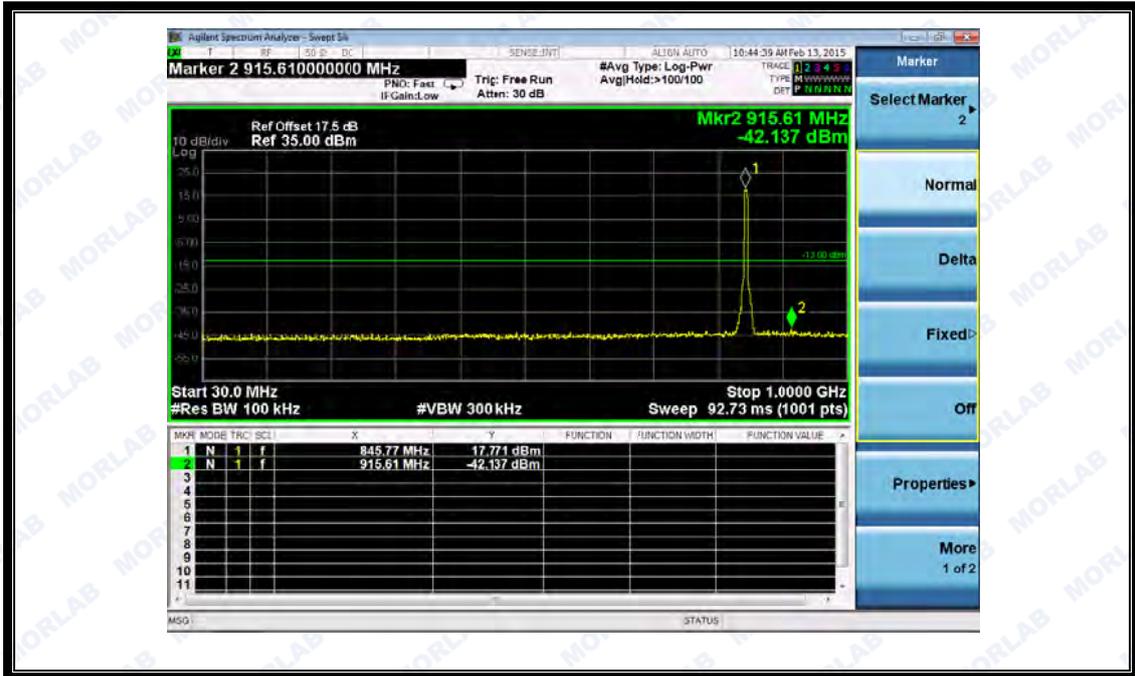
(Plot E3:   WCDMA850MHz Channel = 4233, 30MHz to 1GHz)

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

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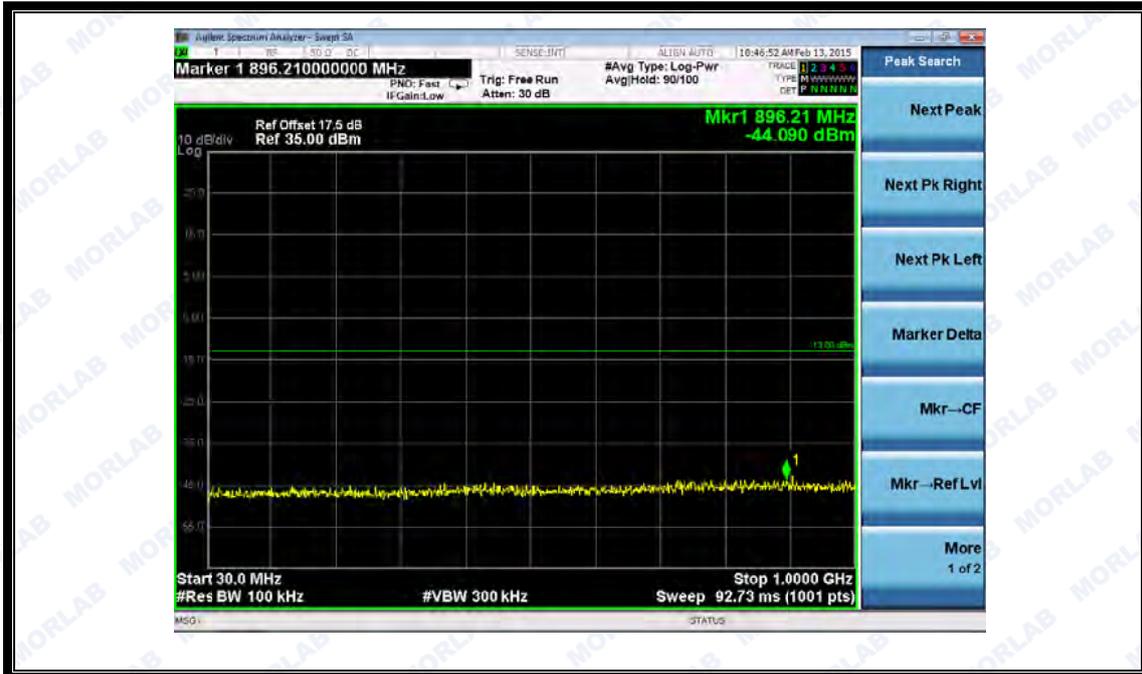
(Plot F1:WCDMA1900MHz Channel = 9262, 30MHz to 1GHz)
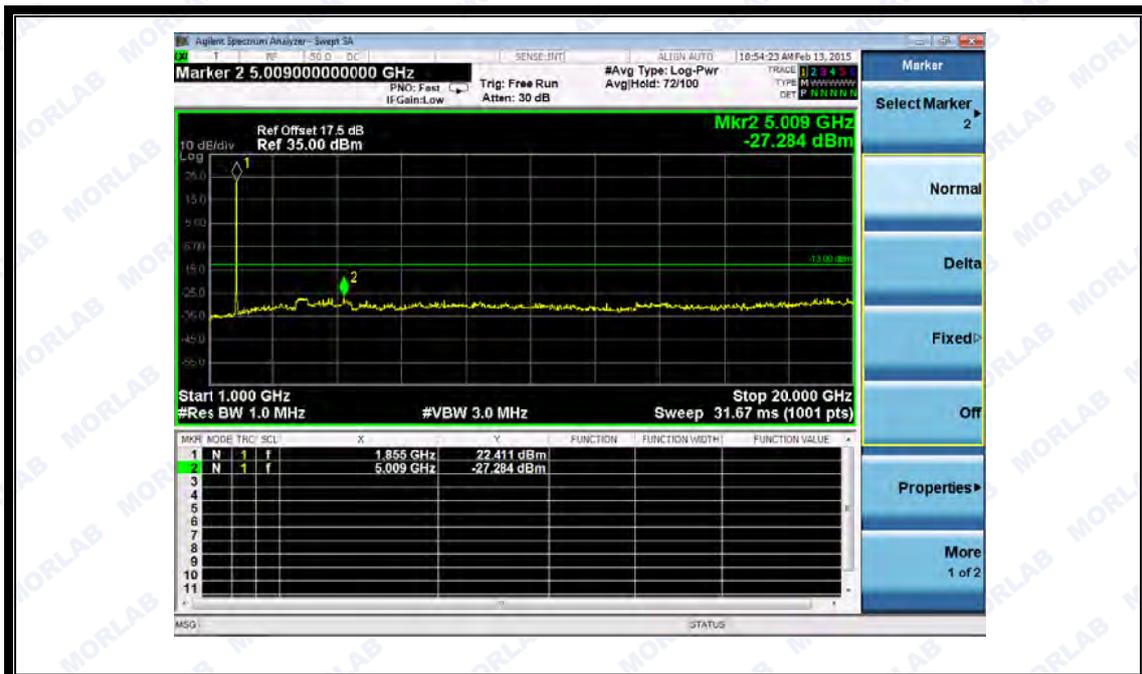
(Plot F1.1:   WCDMA1900MHz Channel = 9262, 1GHz to 20GHz)

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(Plot F2:WCDMA1900MHz Channel = 9400, 30MHz to 1GHz)
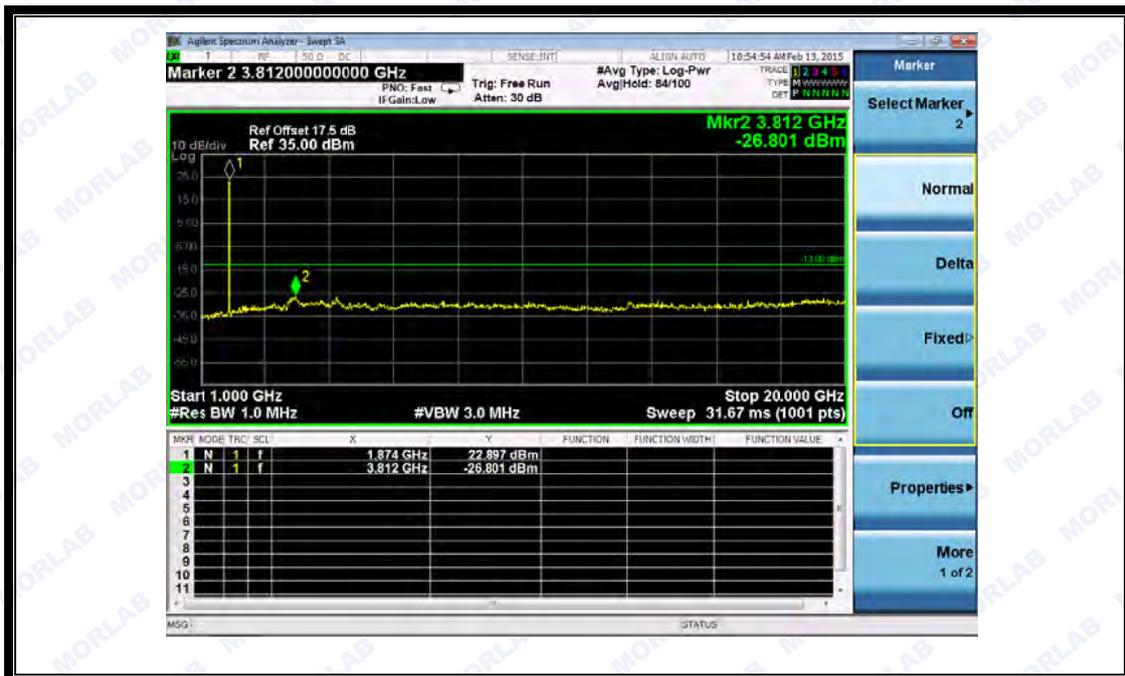
(Plot F2.1:　WCDMA1900MHz Channel = 9400, 1GHz to 20GHz)

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

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

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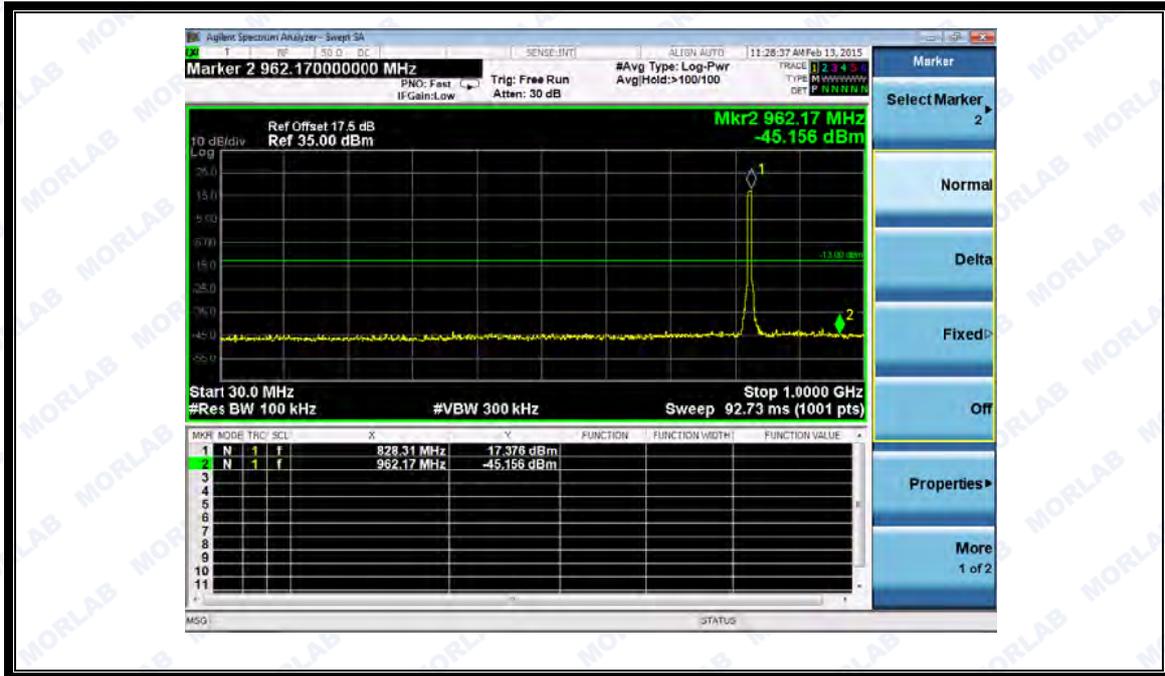
(Plot G1:   HSDPA 850MHz Channel = 4132, 30MHz to 1GHz)

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

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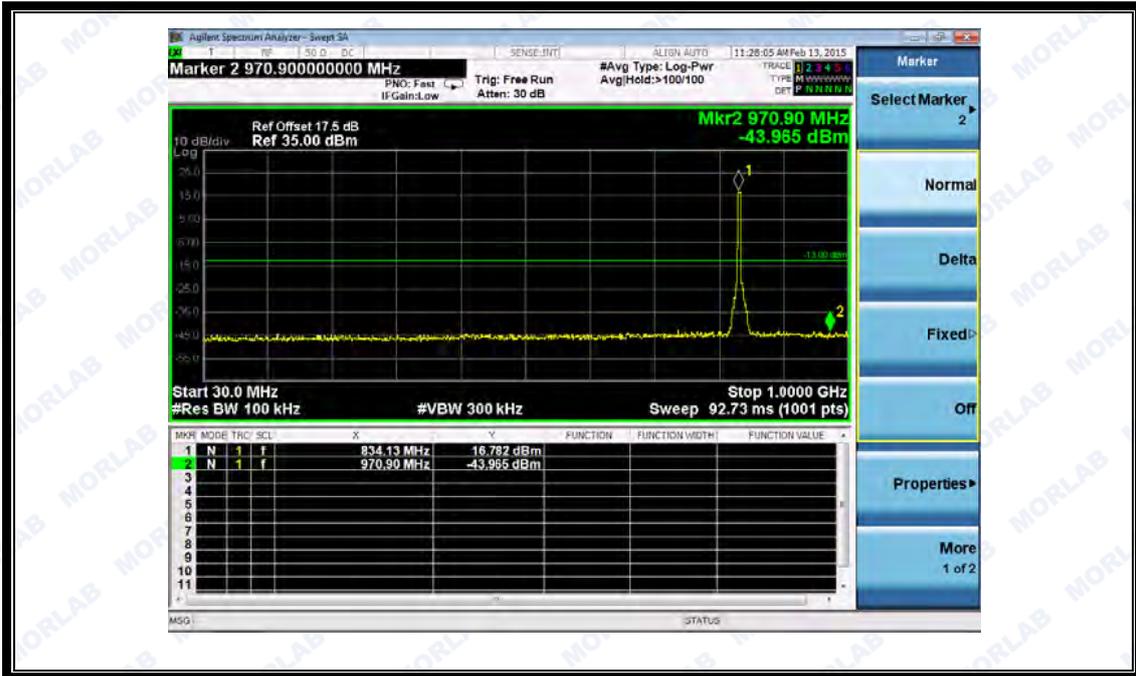
(Plot G2:   HSDPA 850MHz Channel = 4175, 30MHz to 1GHz)

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

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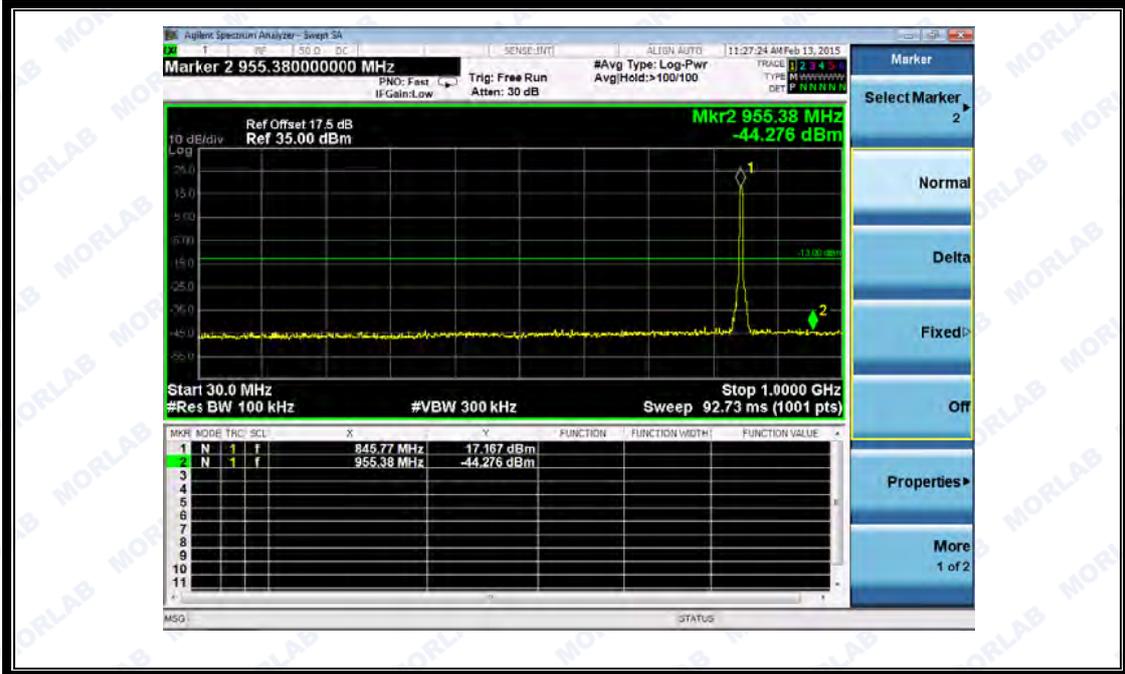
(Plot G3:   HSDPA850MHz Channel = 4233, 30MHz to 1GHz)

(Plot G3.1:   HSDPA850MHz Channel = 4233, 1GHz to 9GHz)
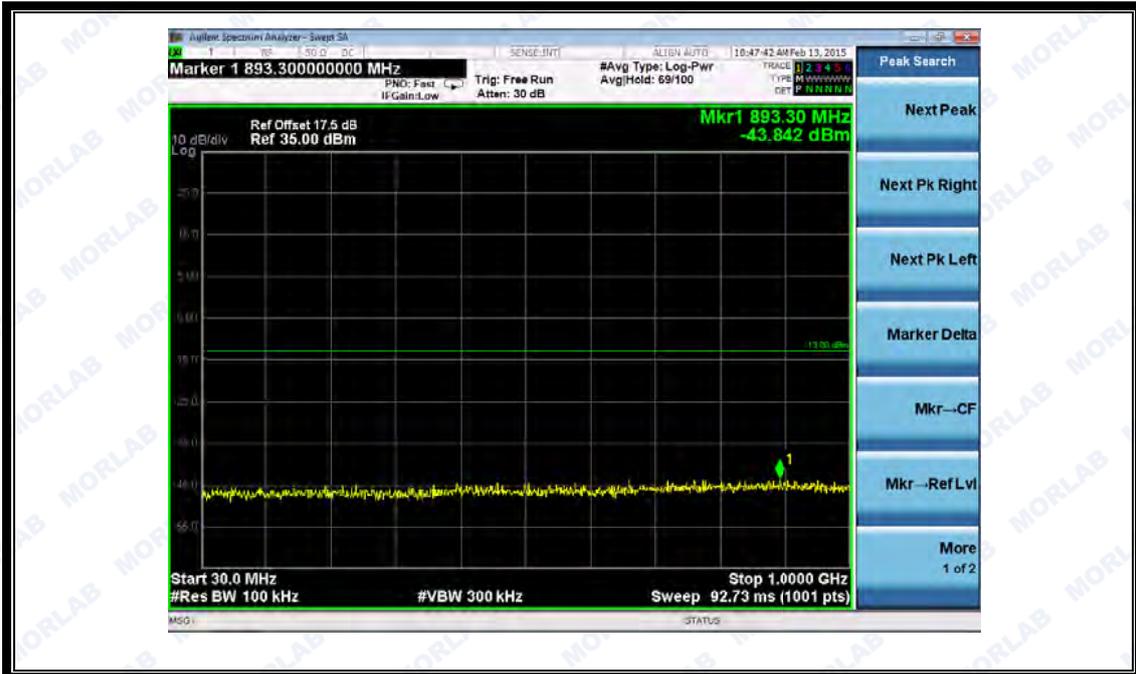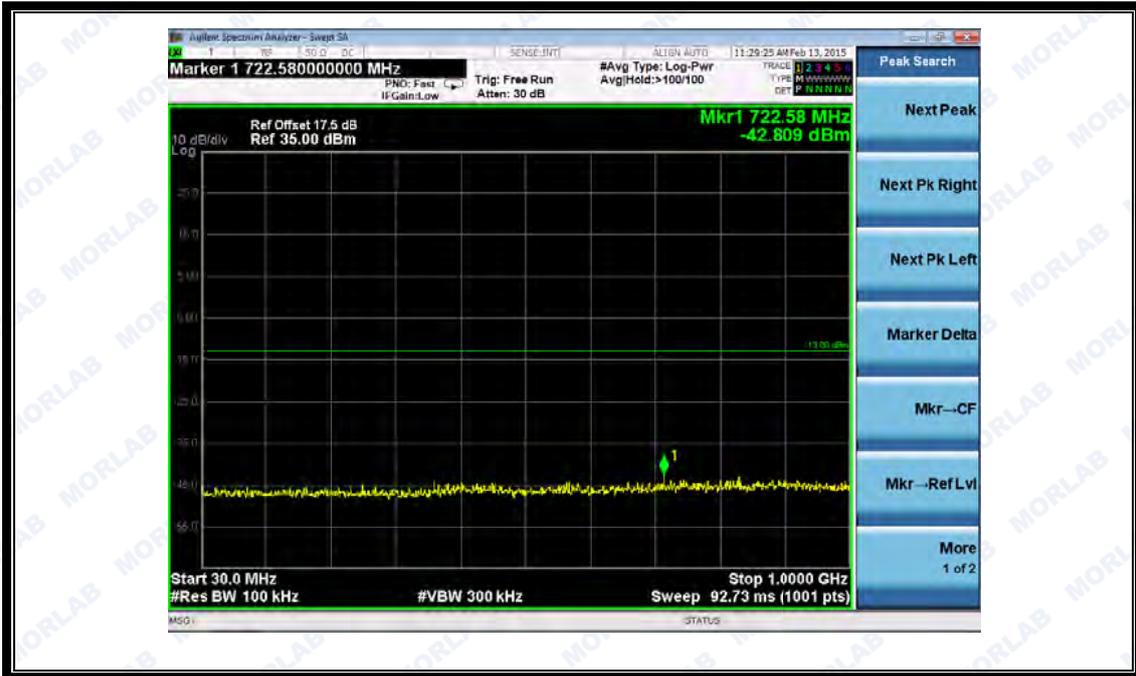
(Plot H1:   HSDPA1900MHz Channel = 9262, 30MHz to 1GHz)

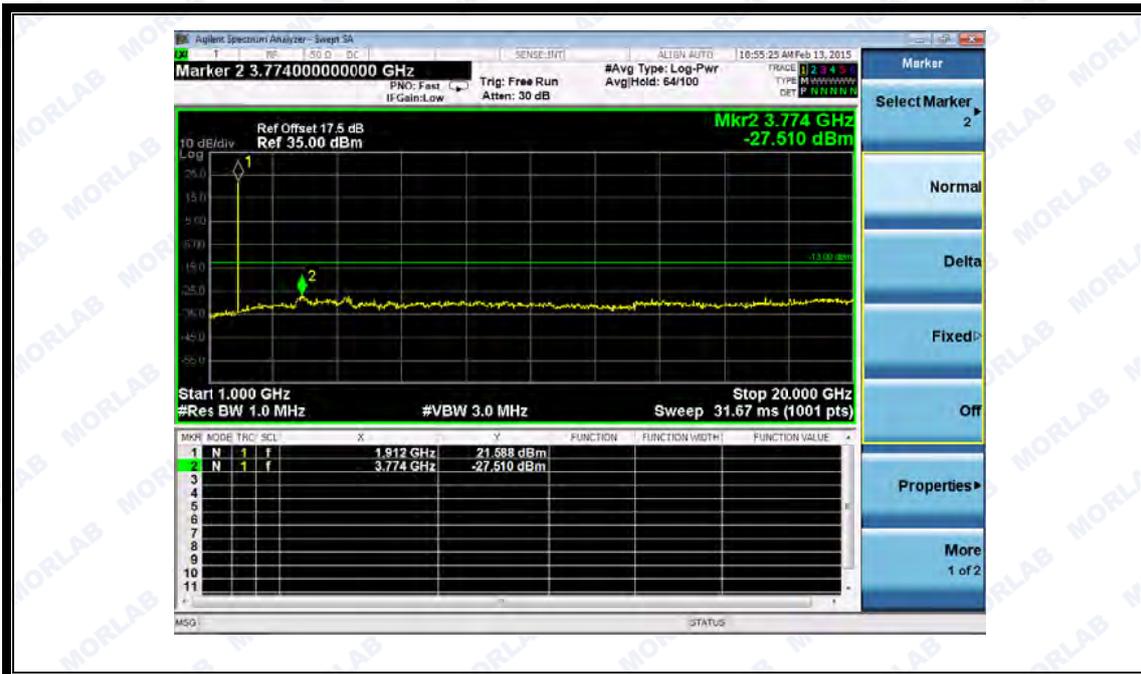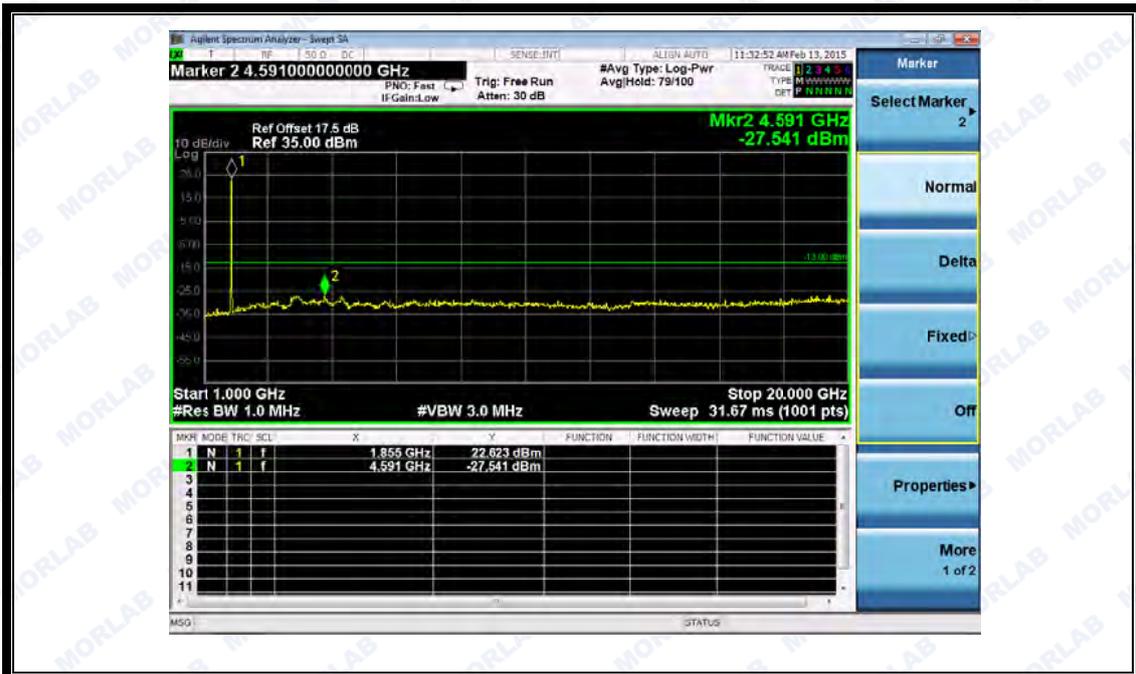
(Plot H1.1:   HSDPA1900MHz Channel = 9262, 1GHz to 20GHz)

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

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

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

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

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

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

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

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

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

(Plot I3.1:   HSUPA850MHz Channel = 4233, 1GHz to 9GHz)
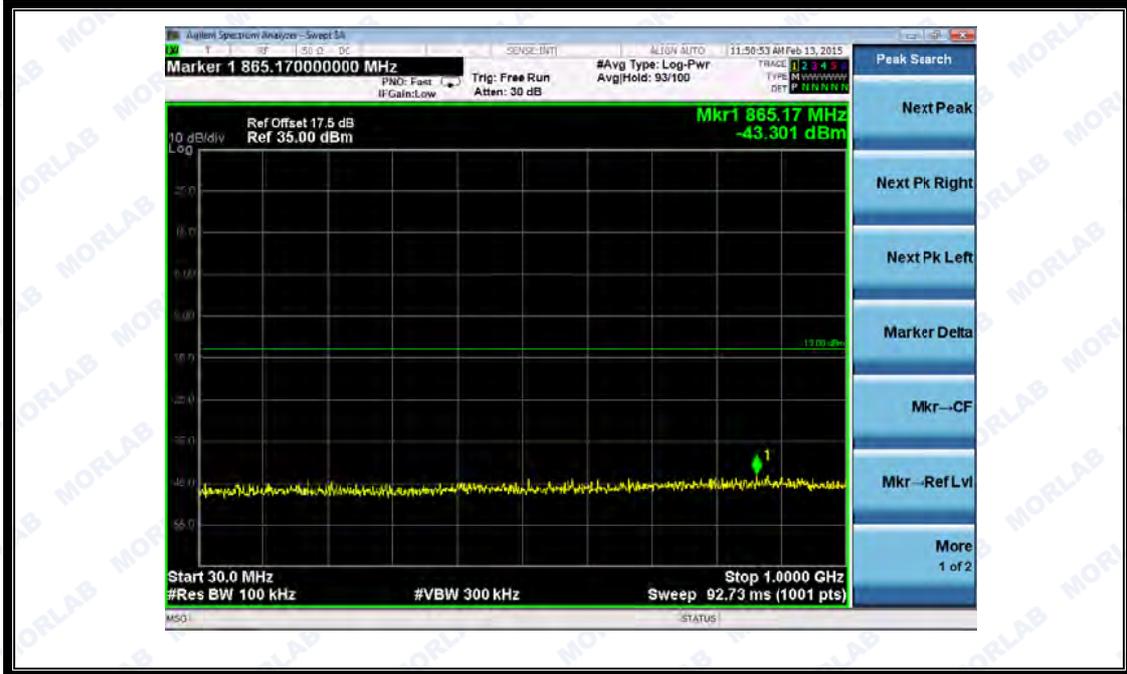
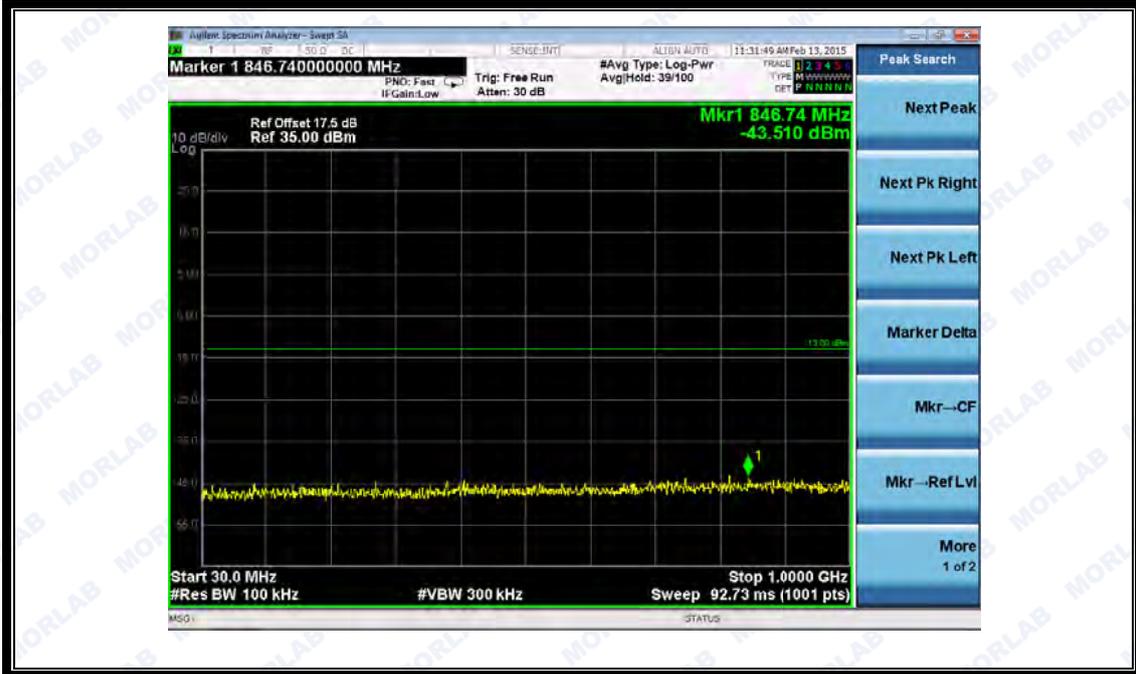(Plot J 1:   HSUPA1900MHz Channel = 9262, 30MHz to 1GHz)
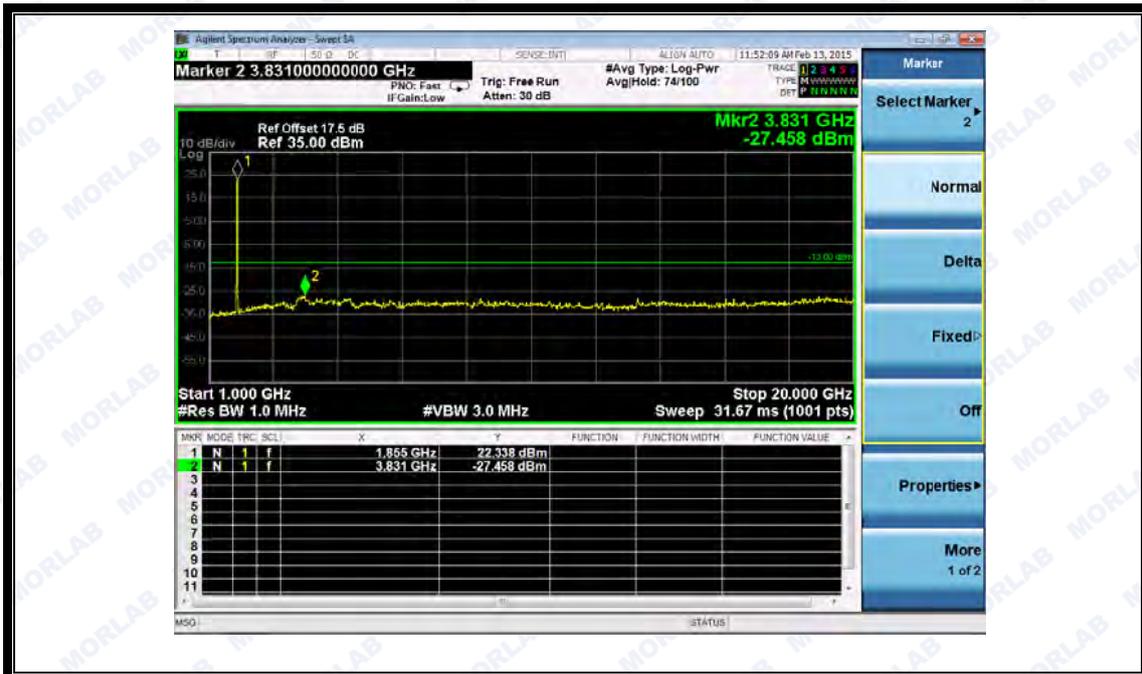
(Plot J1.1:   HSUPA1900MHz Channel = 9262, 1GHz to 20GHz)

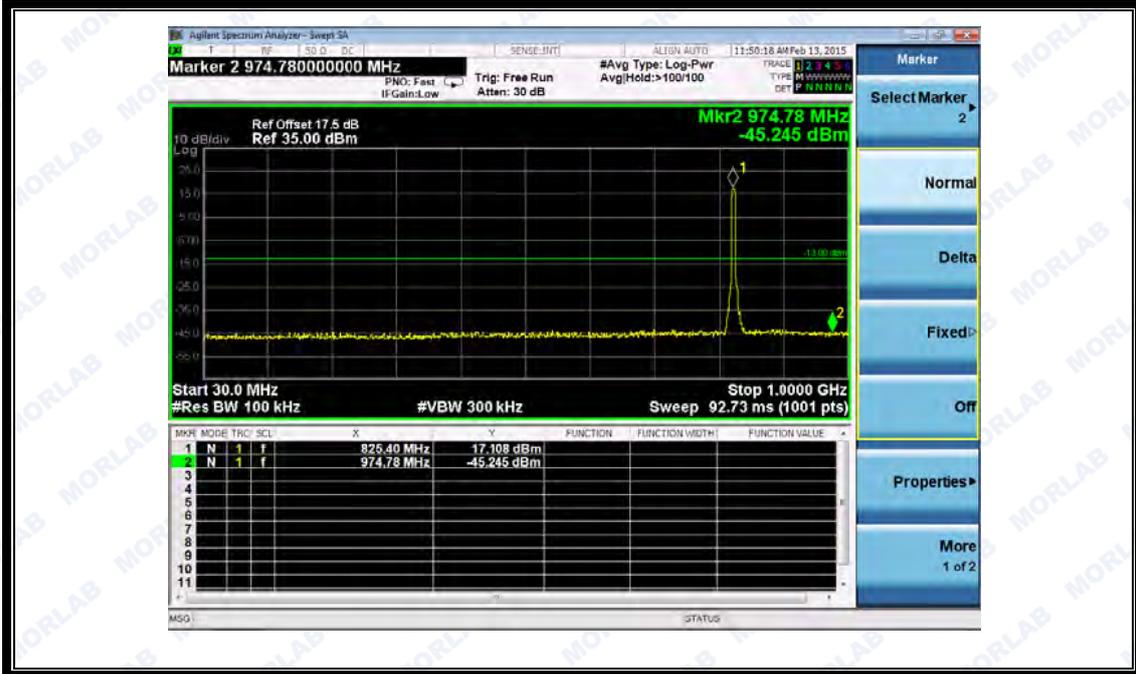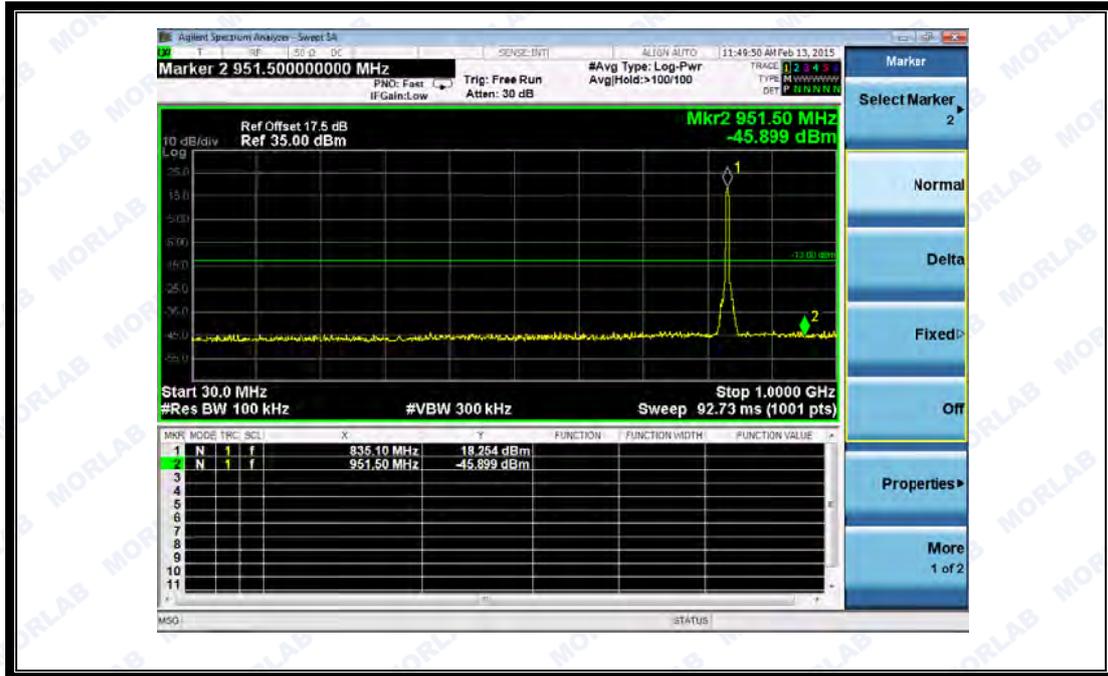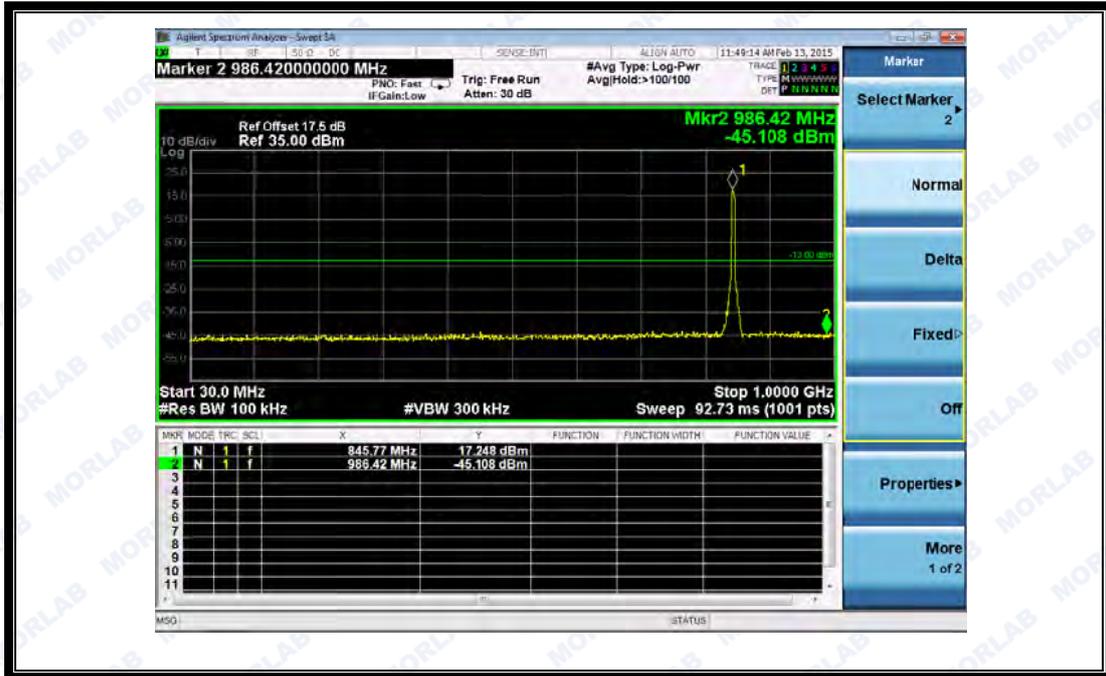(Plot J 2:   HSUPA1900MHz Channel = 9400, 30MHz to 1GHz)

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

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(Plot J 3:   HSUPA1900MHz Channel = 9538, 30MHz to 1GHz)
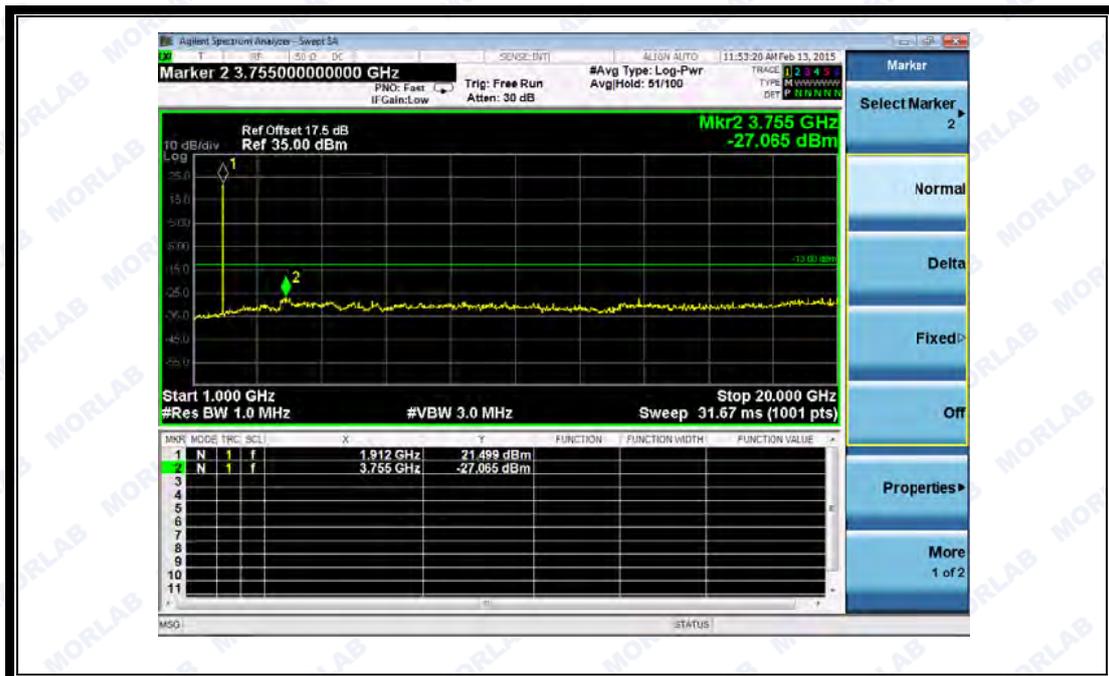
(Plot J3.1:   HSUPA1900MHz Channel = 9538 1GHz to 20GHz)

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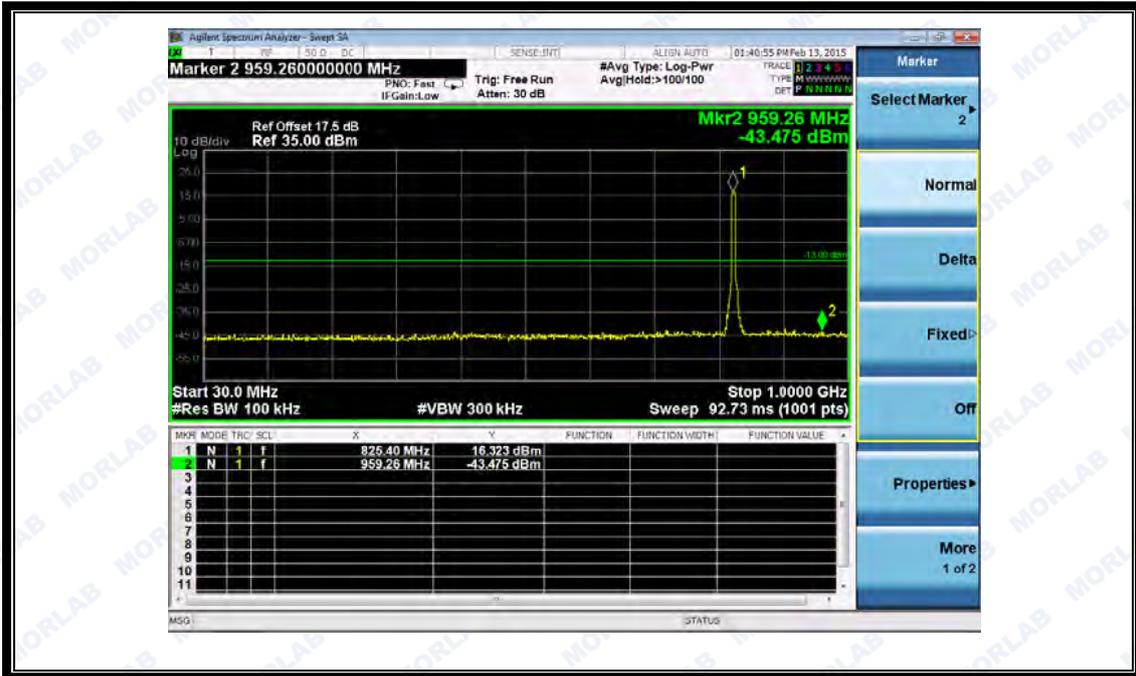
(Plot K 1:   HSPA+ 850MHz Channel = 4132, 30MHz to 1GHz)

(Plot K1.1:   HSPA+ 850MHz Channel = 4132, 1GHz to 9GHz)

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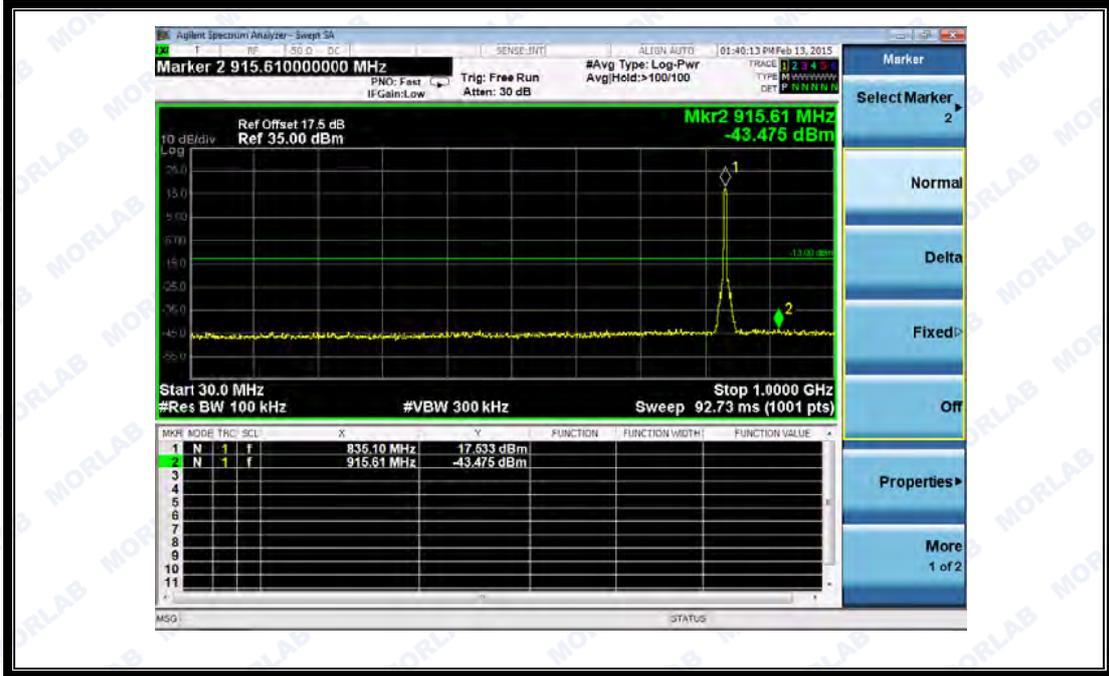
(Plot K 2:   HSPA+ 850MHz Channel = 4175, 30MHz to 1GHz)

(Plot K2.1:   HSPA+ 850MHz Channel = 4175, 1GHz to 9GHz)
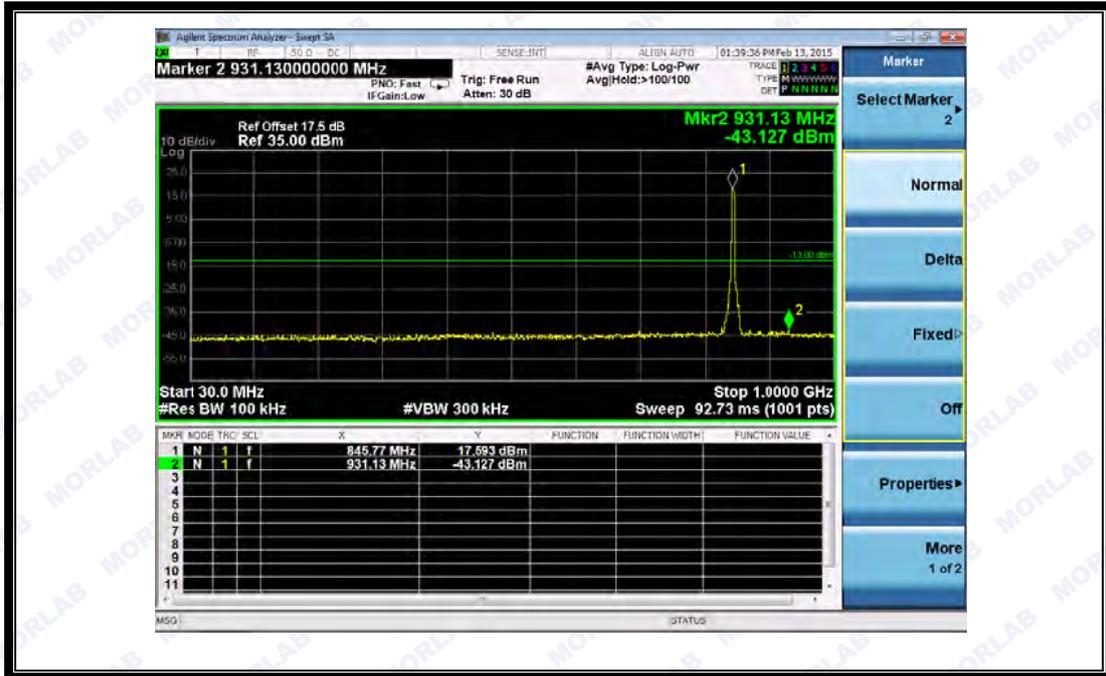
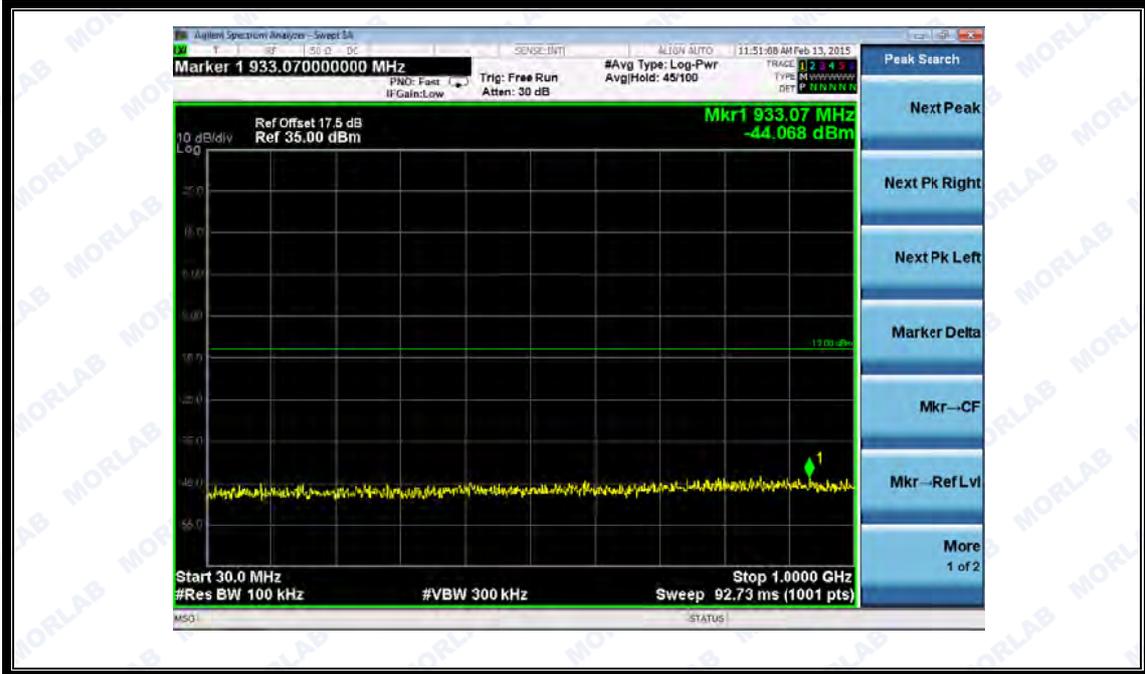(Plot K 3:   HSPA+ 850MHz Channel = 4233, 30MHz to 1GHz)

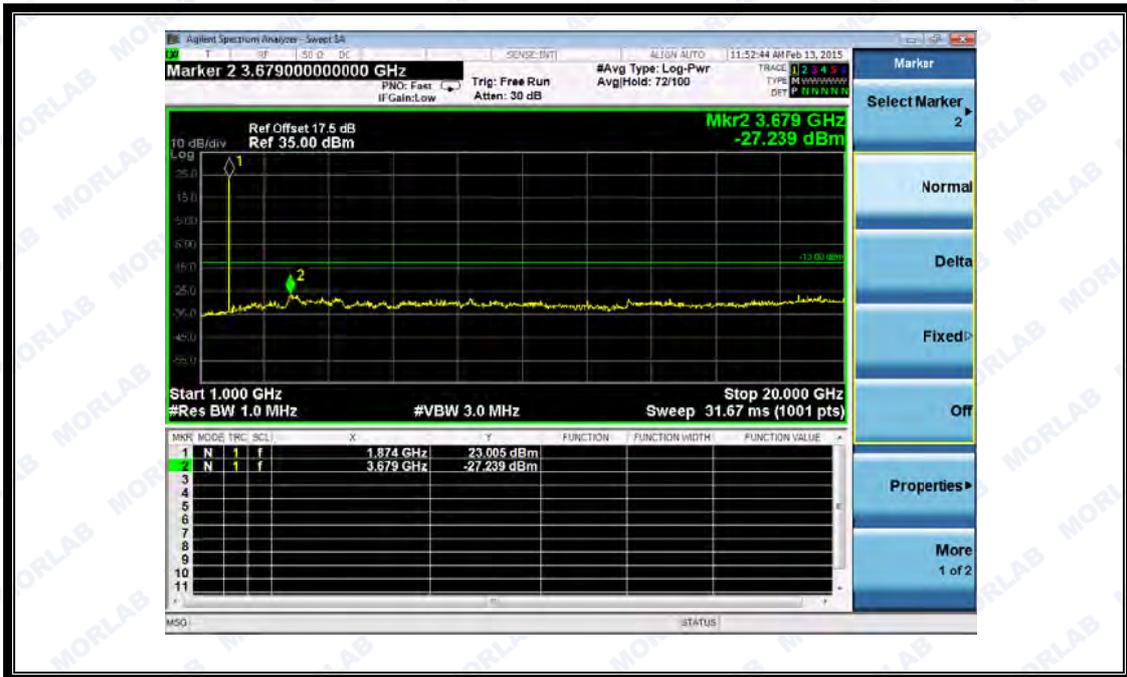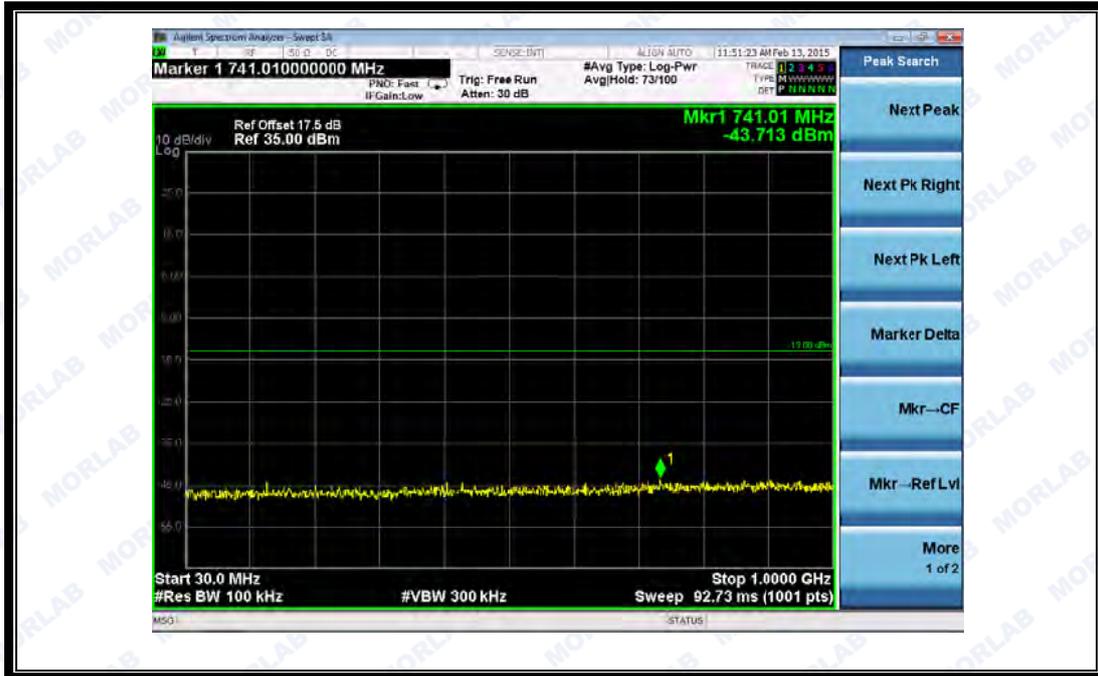(Plot K3.1:   HSPA+ 850MHz Channel = 4233, 1GHz to 9GHz)

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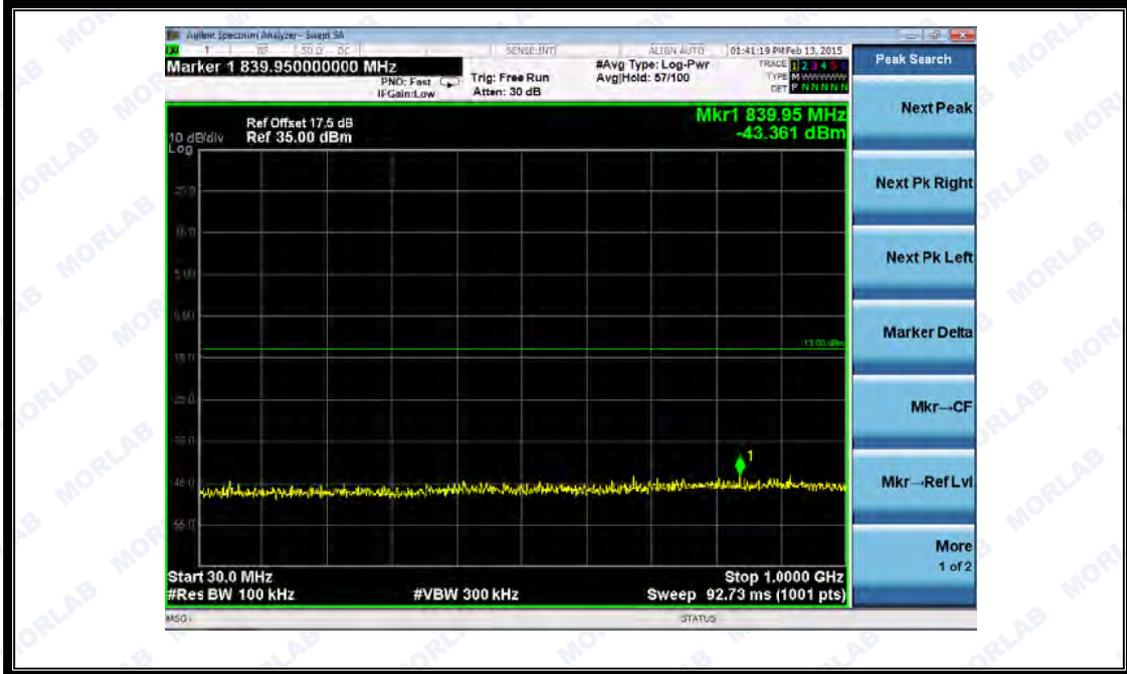
(Plot K 1:   HSPA+ 1900MHz Channel = 9262, 30MHz to 1GHz)

(Plot K1.1:   HSPA+ 1900MHz Channel = 9262, 1GHz to 20GHz)

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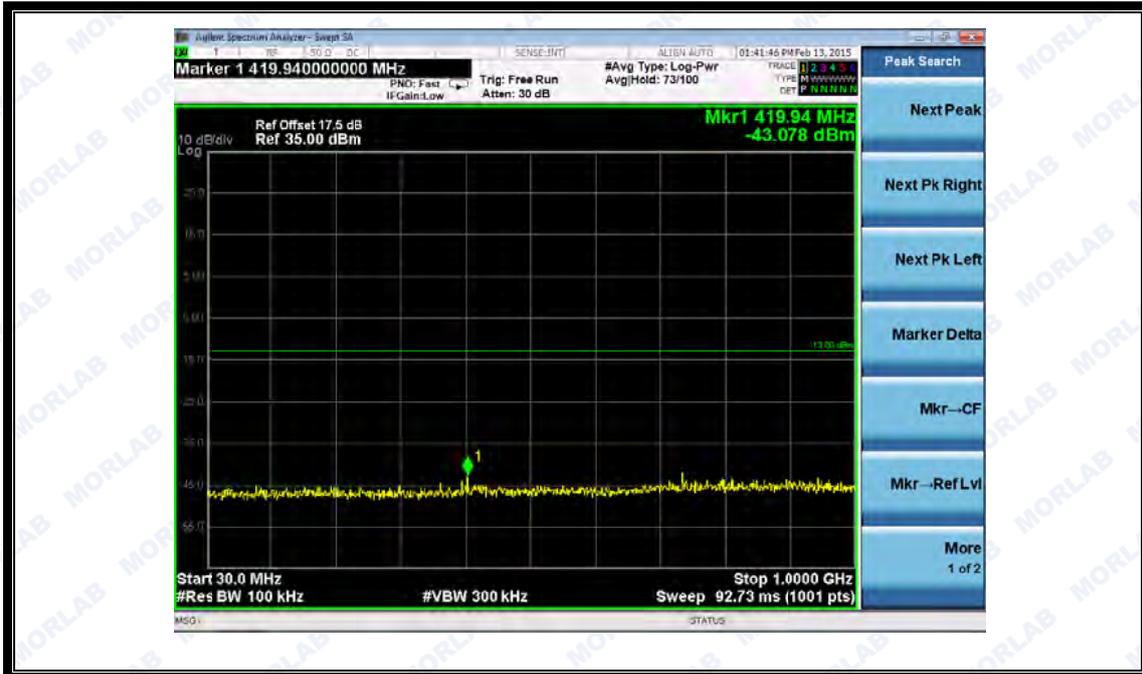
(Plot K 2:   HSPA+ 1900MHz Channel = 9400, 30MHz to 1GHz)
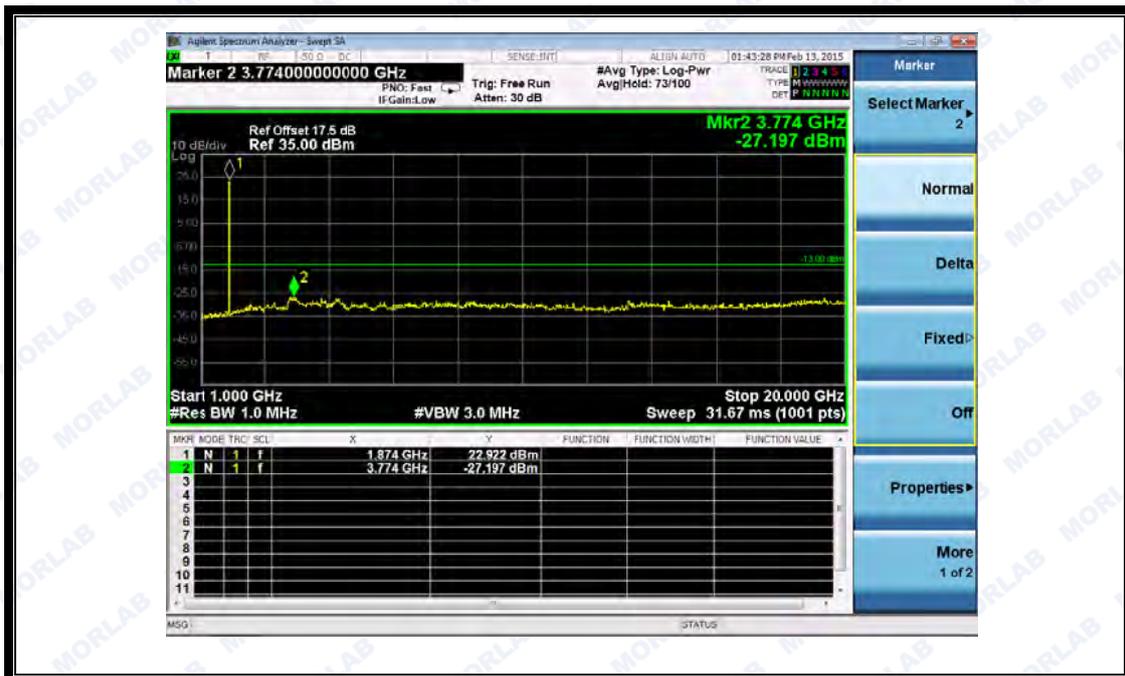
(Plot K2.1:   HSPA+ 1900MHz Channel = 9400, 1GHz to 20GHz)

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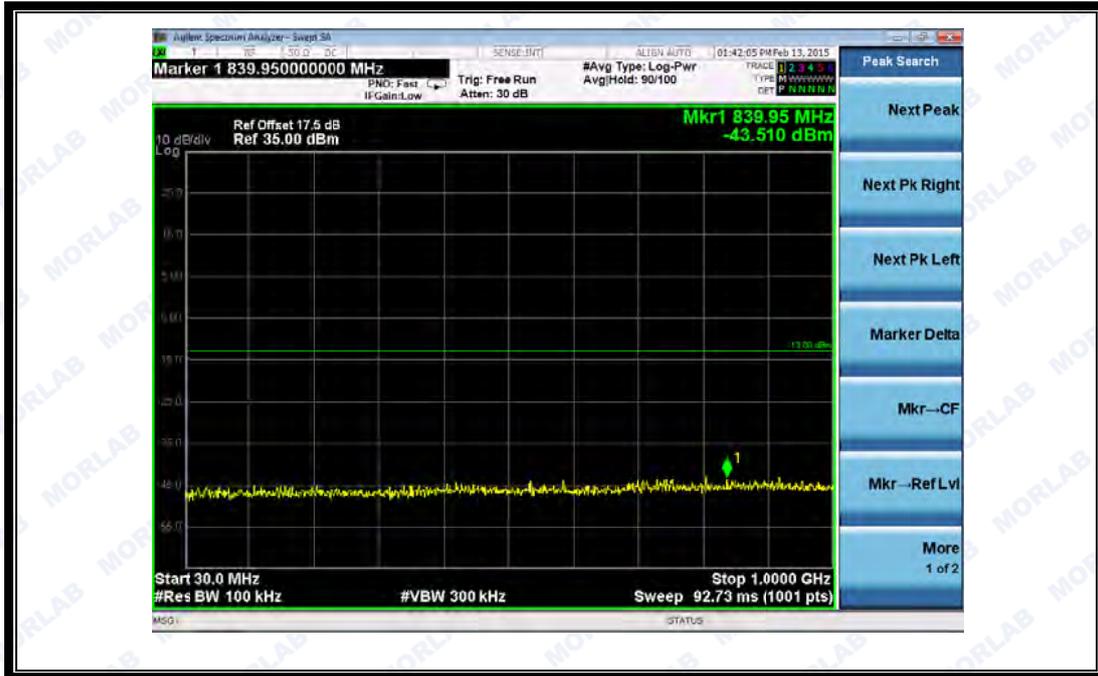
(Plot K 3:   HSPA+ 1900MHz Channel = 9538, 30MHz to 1GHz)
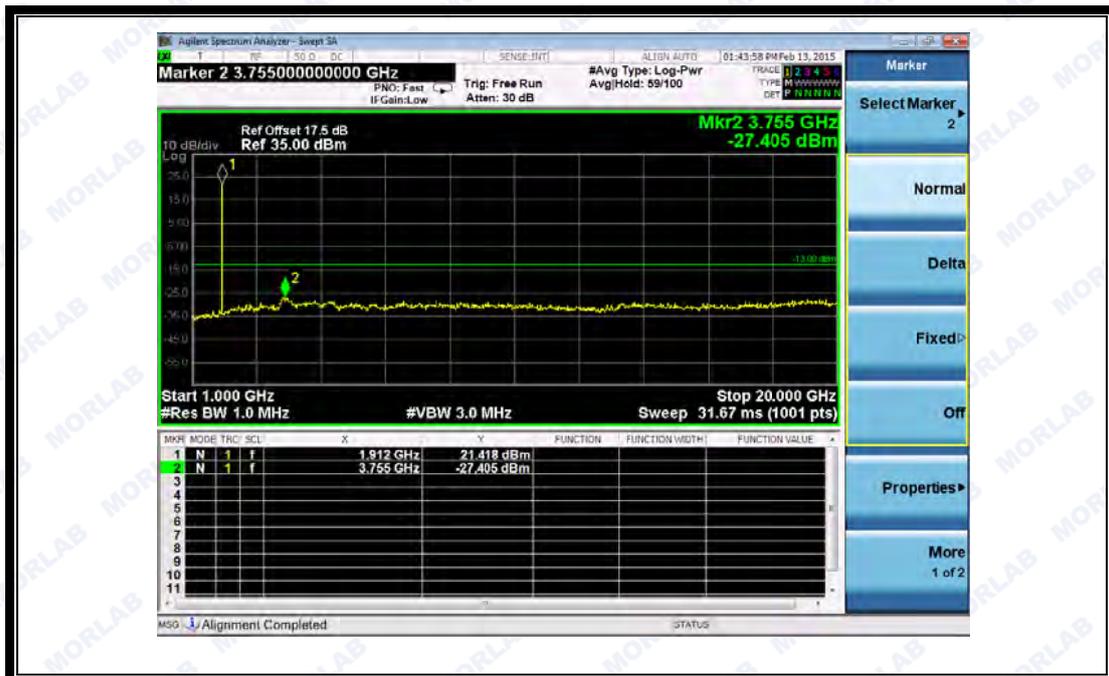
(Plot K3.1:   HSPA+ 1900MHz Channel = 9538 1GHz to 20GHz)

2.6   Band Edge

2.6.1   Requirement

According to FCC section 22.917(b) and FCC section 24.238(b) in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

2.6.2   Test Description

See section 2.1.2 of this report.

2.6.3   Test Result

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

1.   Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Band Edge Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
GSM 850MHz	128	824.2	-18.55	Plat A	-13	PASS
	251	848.8	-19.72	Plot B		PASS
GSM 1900MHz	512	1850.2	-24.28	Plat C	-13	PASS
	810	1909.8	-23.09	Plot D		PASS
EDGE 850MHz	128	824.2	-19.66	Plat E	-13	PASS
	251	848.8	-18.97	Plot F		PASS
EDGE 1900MHz	512	1850.2	-22.06	Plat G	-13	PASS
	810	1909.8	-22.61	Plot H		PASS
WCDMA 850MHz	4132	826.4	-30.155	Plat I	-13	PASS
	4233	846.6	-30.835	Plot J		PASS
WCDMA 1900MHz	9262	1852.4	-29.846	Plat K	-13	PASS
	9538	1907.6	-34.378	Plot L		PASS
HSDPA 850MHz	4132	826.4	-30.169	Plat M	-13	PASS
	4233	846.6	-31.002	Plot N		PASS
HSDPA 1900MHz	9262	1852.4	-30.377	Plat O	-13	PASS
	9538	1907.6	-33.322	Plot P		PASS
HSUPA 850MHz	4132	826.4	-30.804	Plat Q	-13	PASS
	4233	846.6	-30.852	Plot R		PASS
HSUPA	9262	1852.4	-30.630	Plat S	-13	PASS

1900MHz	9538	1907.6	-34.303	Plot T		PASS
HSPA+	4132	826.4	-30.255	Plat U	-13	PASS
850MHz	4233	846.6	-31.049	Plot V		PASS
HSPA+	9262	1852.4	-29.945	Plat W	-13	PASS
1900MHz	9538	1907.6	-34.318	Plot X		PASS

2. Test Plots:
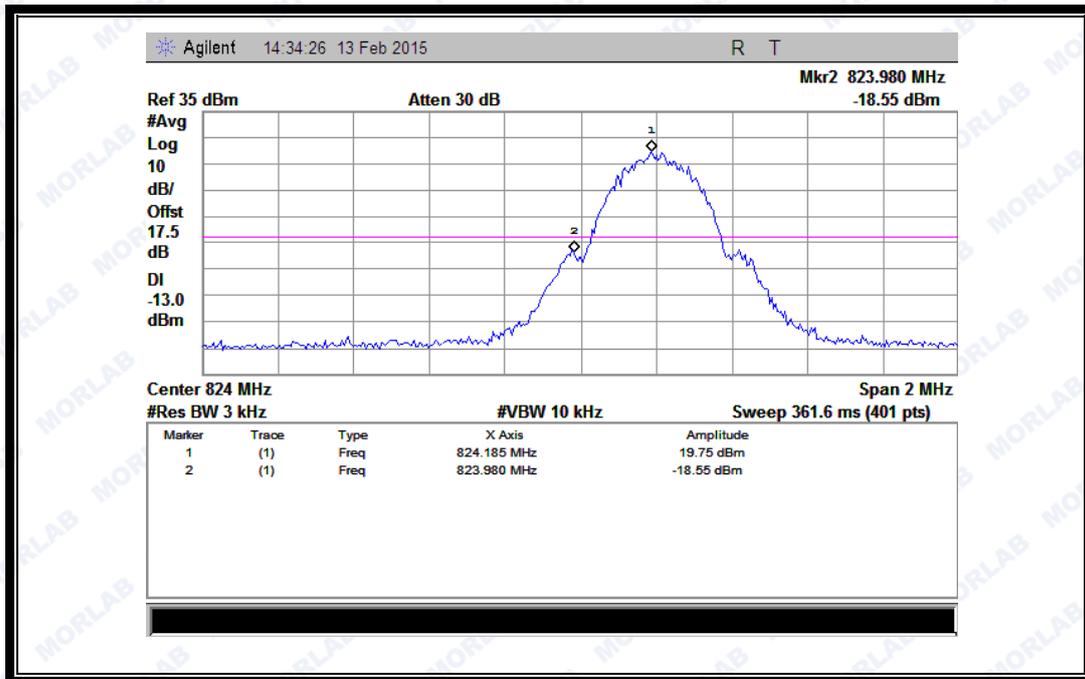
(Plot A: GSM 850 Channel = 128)
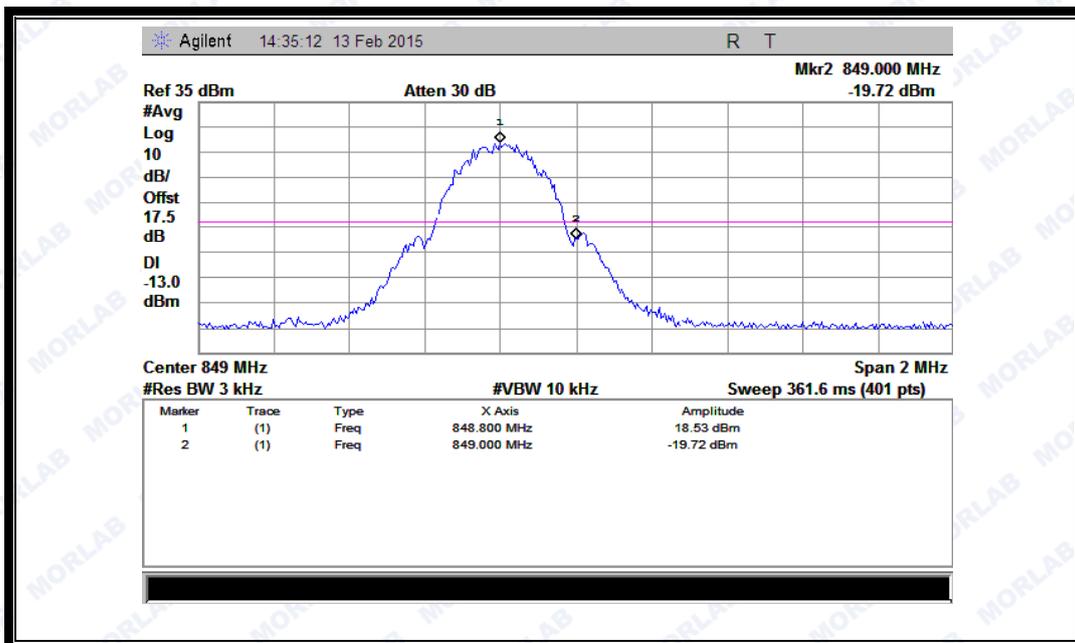
(Plot B: GSM 850 Channel = 251)

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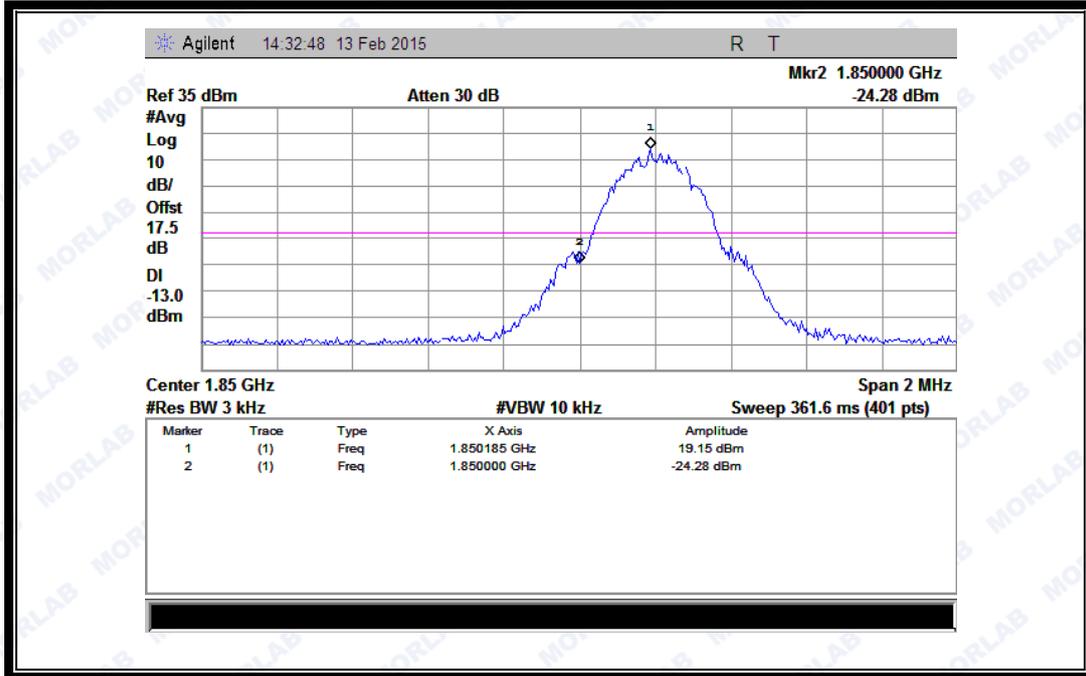
(Plot C: GSM 1900 Channel = 512)
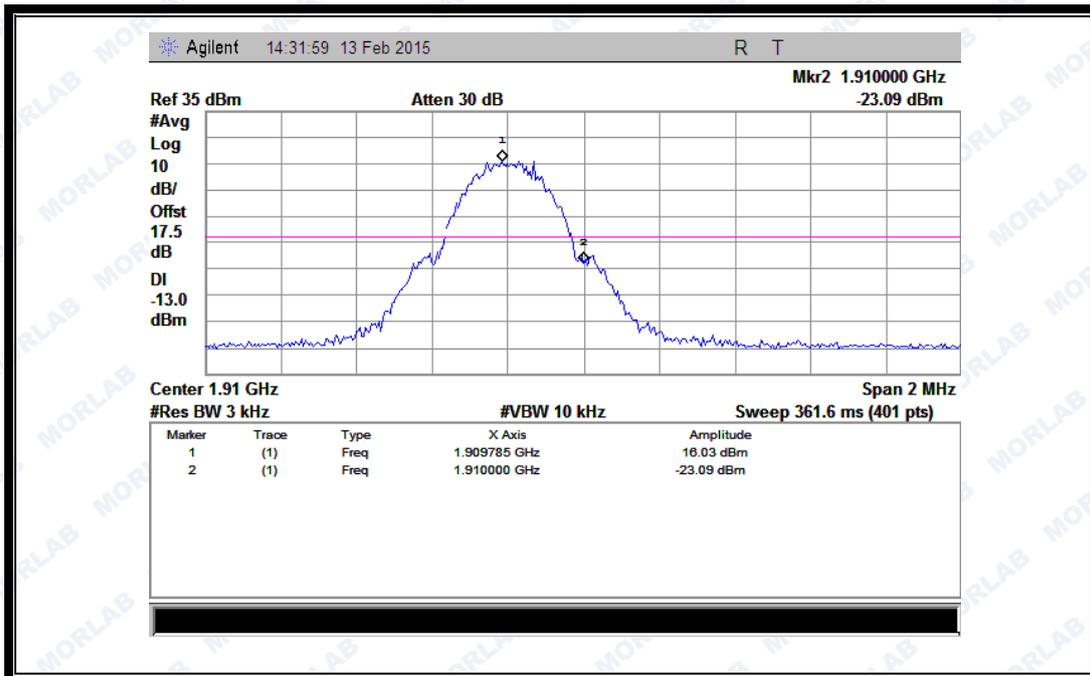
(Plot D: GSM 1900 Channel = 810)
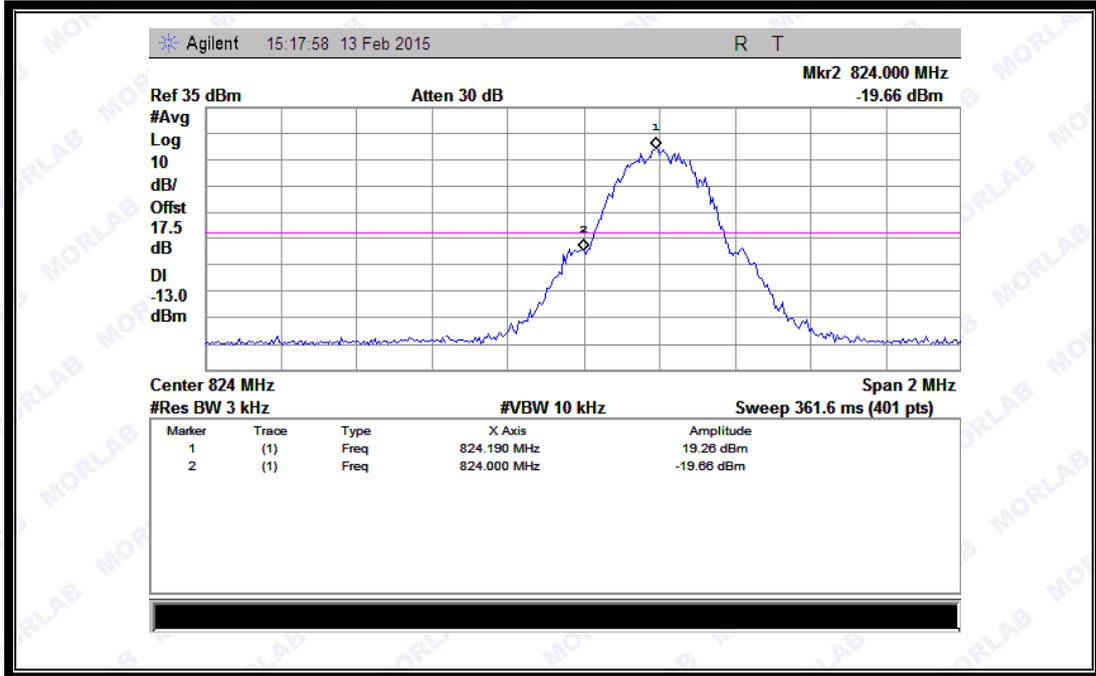
(Plot E: EGPRS 850 Channel = 128)
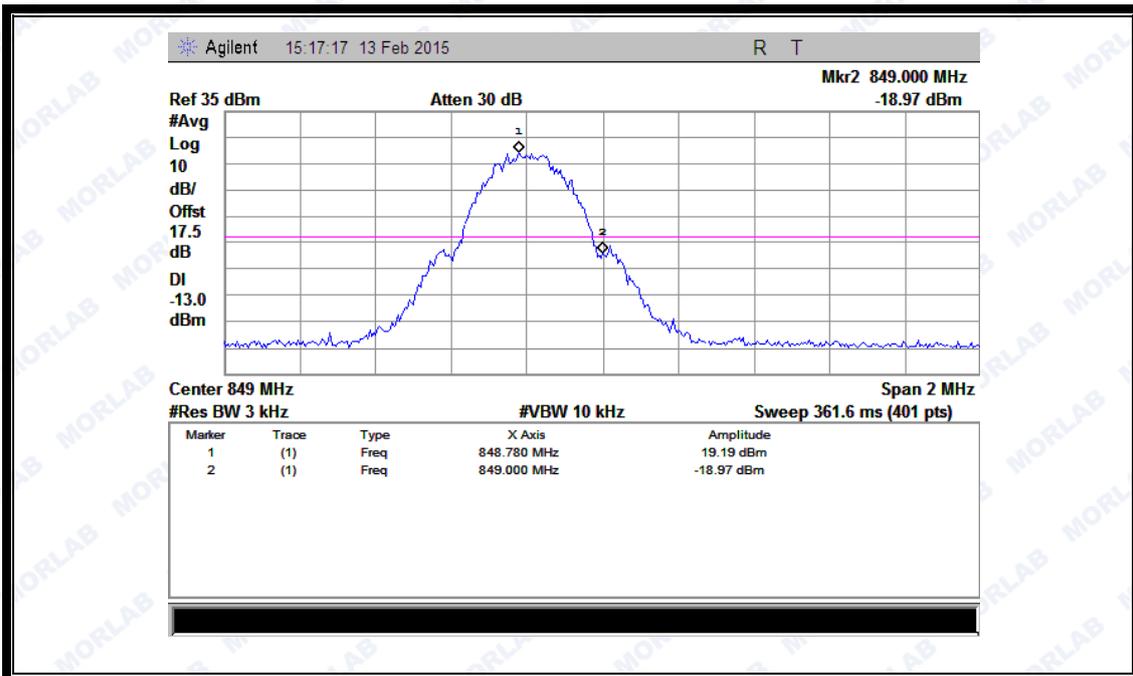
(Plot F: EGPRS 850 Channel = 251)
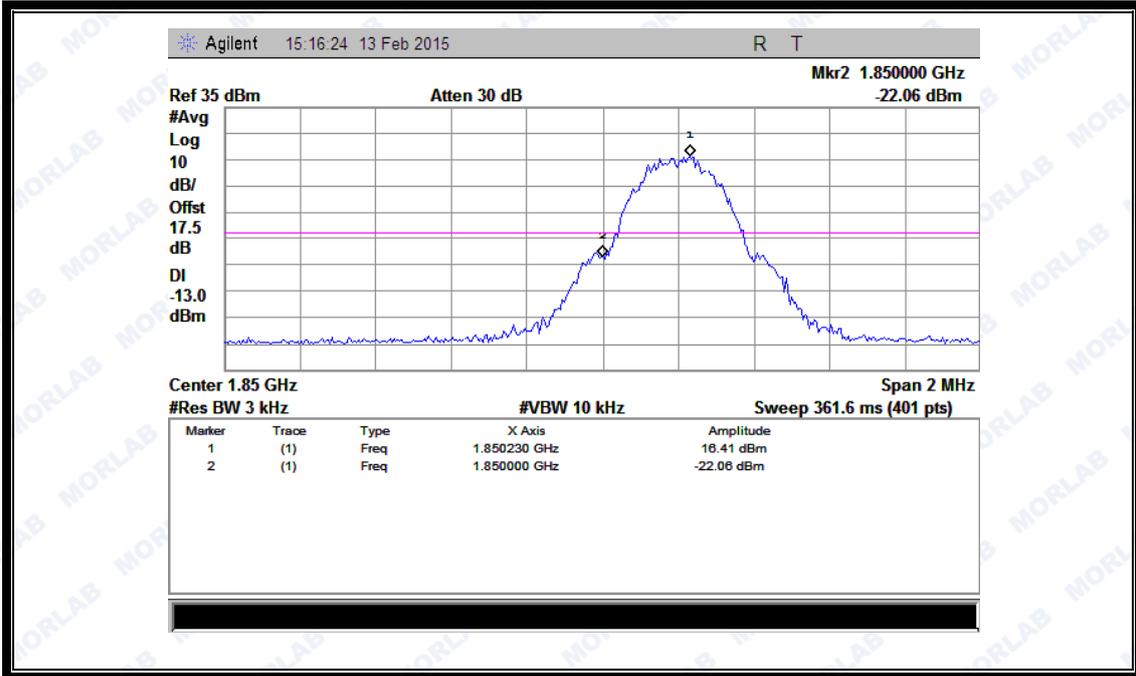
(Plot G: EGPRS 1900 Channel = 512)
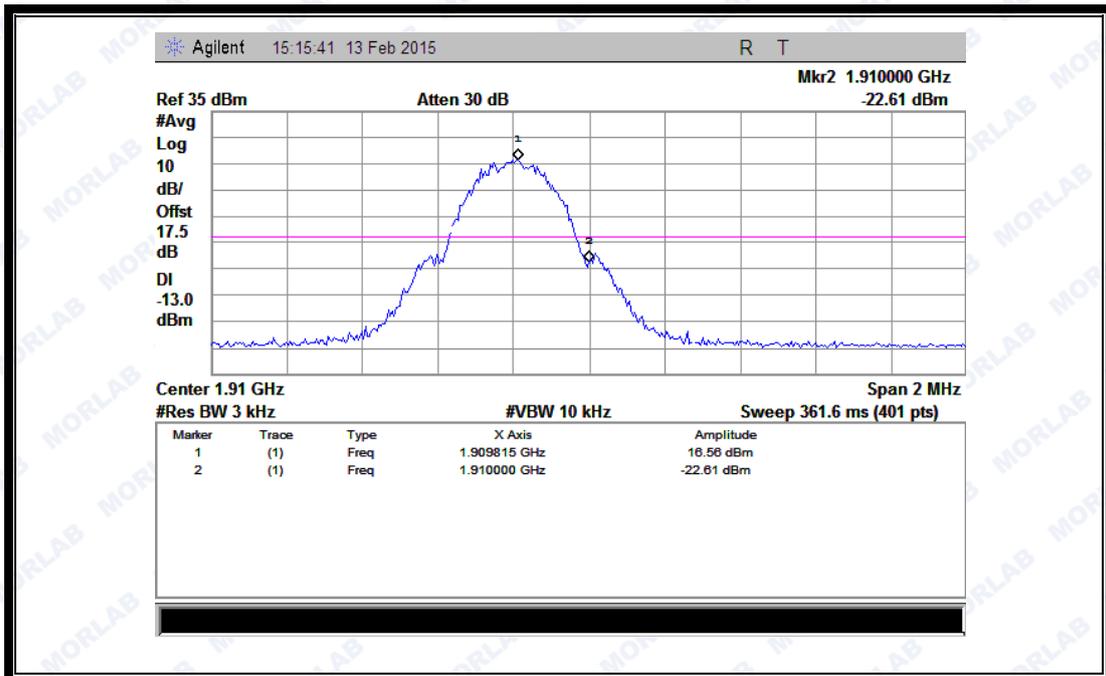
(Plot H: EGPRS 1900 Channel = 810)

(Plot I: WCDMA 850 Channel = 4132)

(Plot J: WCDMA 850 Channel = 4233)

(Plot K: WCDMA 1900 Channel = 9262)

(Plot L: WCDMA 1900 Channel = 9538)

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(Plot M: HSDPA 850 Channel = 4132)

(Plot N: HSDPA850 Channel = 4233)

(Plot O: HSDPA 1900 Channel = 9262)

(Plot P: HSDPA 1900 Channel = 9538)
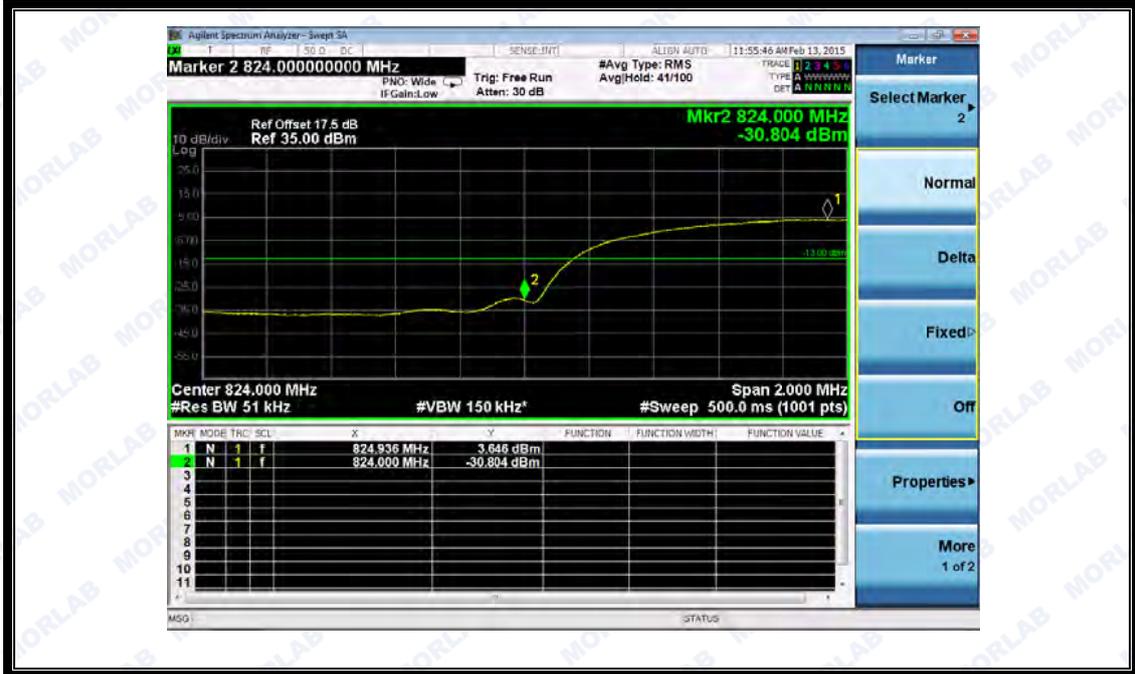
(Plot Q: HSUPA 850 Channel = 4132)

(Plot R: HSUPA850 Channel = 4233)

(Plot S: HSUPA 1900 Channel = 9262)
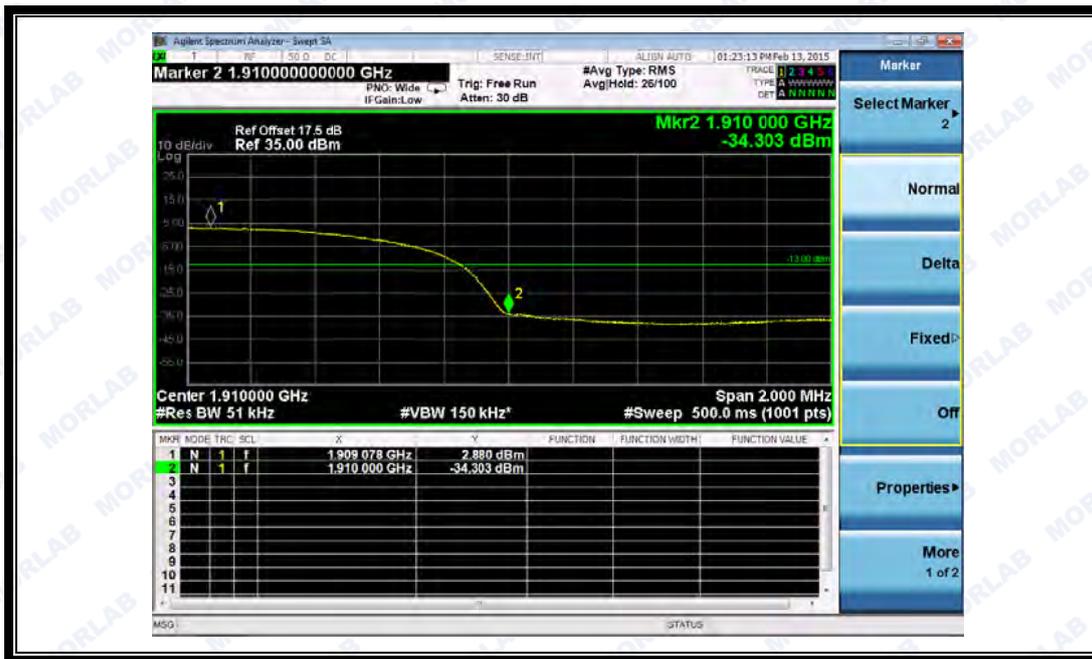
(Plot T: HSUPA 1900 Channel = 9538)

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(Plot U: HSPA+ 850 Channel = 4132)

(Plot V: HSPA+ 850 Channel = 4233)

(Plot W: HSPA+ 1900 Channel = 9262)

(Plot X: HSPA+ 1900 Channel = 9538)

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2.7   Transmitter Radiated Power (EIRP/ERP)

2.7.1   Requirement

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

2.7.2   Test Description

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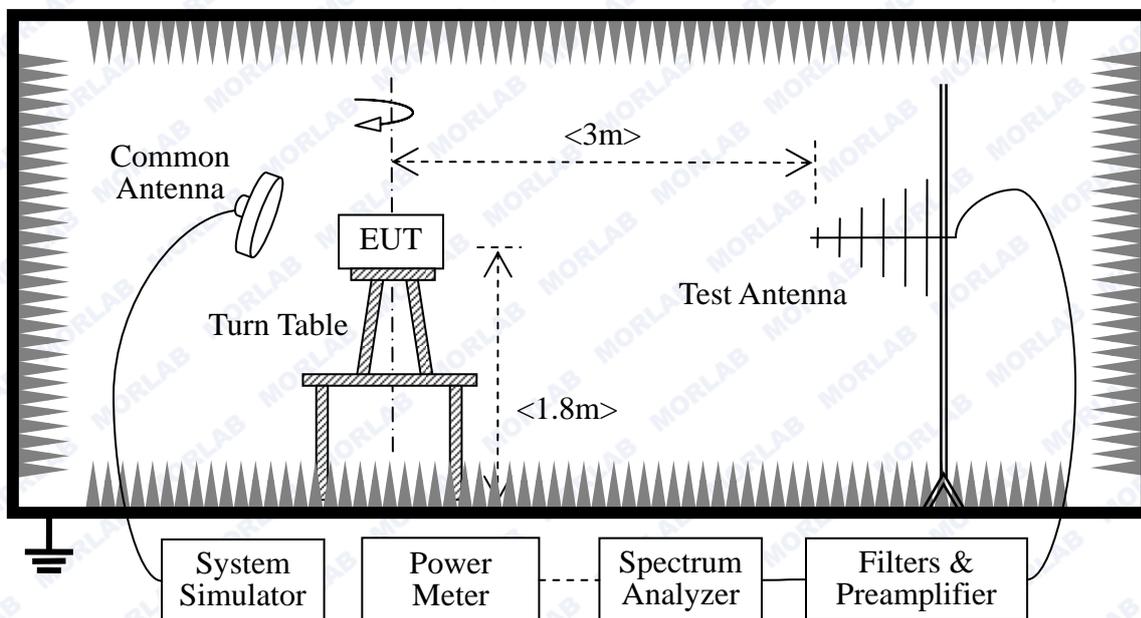
The EUT, which is powered by the Battery charged with the AC Adapter, is located in a 3m Full-Anechoic Chamber; the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

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

- GSM Maximum RF output power: GSM 850 32.64dBm, GSM 1900 29.18dBm, EGPRS 850 32.20dBm，EGPRS 1900 28.79dBm,WCDMA 850 24.19dBm, WCDMA 1900 23.57dBm, Please refer to section 2.1.3 of this report.

- Step size (dB): 3dB

- Minimum RF power: GSM 850 3.1dBm, GSM 1900 0.3dBm，EGPRS 850 3.1dBm, EGPRS 1900 0.21dBm ,WCDMA 850 0.39dBm ,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	**Cal. Due**	2016.02.25
Spectrum Analyzer	Agilent	E7405A	US44210471	2015.02.06	2016.02.05
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2015.02.06	2016.02.05
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2015.02.06	2016.02.05
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2015.02.06	2016.02.05
Substitution Antenna	Schwarzbeck	BBHA 9120C	9120C-384	2015.02.06	2016.02.05
Pre-AMPs	lucix	S10M100L3802	S020180L3203	2015.02.06	2016.02.05
Notch Filter	COM-MW	ZBSF-C836.5-25-X	NA	2015.02.06	2016.02.05
Notch Filter	COM-MW	ZBSF-C1747.5-75-X2	NA	2015.02.06	2016.02.05
Notch Filter	COM-MW	ZBSF-C1880-60-X2	NA	2015.02.06	2016.02.05

2.7.3 Test Result

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

The substitution corrections are obtained as described below:

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

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

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

P_{SUBST_TX} is signal generator level,

P_{SUBST_RX} is receiver level,

L_{SUBST_CABLES} is cable losses including TX cable,

$G_{SUBST\_TX\_ANT}$ is substitution antenna gain.

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

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

1. GSM Model Test Verdict:

Band	Channel	Frequency (MHz)	PCL	Measured ERP			Limit		Verdict
				dBm	W	Refer to Plot	dBm	W	
GSM 850MHz	128	824.20	5	32.45	1.758	Plot A	38.5	7	PASS
	190	836.60	5	32.42	1.746				PASS
	251	848.80	5	32.71	1.866				PASS
GPRS 850MHz	128	824.20	5	31.62	1.452	Plot B Note 1	38.5	7	PASS
	190	836.60	5	31.69	1.475				PASS
	251	848.80	5	31.89	1.545				PASS
EGPRS 850MHz	128	824.20	5	30.82	1.164	Plot C Note 1	38.5	7	PASS
	190	836.60	5	30.4	1.211				PASS
	251	848.80	5	30.44	1.324				PASS

| Band	Channel	Frequency (MHz)	PCL	Measured EIRP			Limit		Verdict
				dBm	W	Refer to Plot	dBm	W	
GSM 1900MHz	512	1850.2	0	29.59	0.910	Plot D	33	2	PASS
	661	1880.0	0	29.96	1.01				PASS
	810	1909.8	0	29.39	0.869				PASS
GPRS 1900MHz	512	1850.2	0	28.58	0.721	Plot E Note 1	33	2	PASS
	661	1880.0	0	28.83	0.764				PASS
	810	1909.8	0	28.40	0.692				PASS
EGPRS 1900MHz	512	1850.2	0	28.45	0.699	Plot F Note 1	33	2	PASS
	661	1880.0	0	28.71	0.743				PASS
	810	1909.8	0	28.27	0.671				PASS
Note 1:	For the GPRS and EGPRS model, all the slots were tested and just the worst data was record in this report.								

2. WCDMA Model Test Verdict:

Band	Channel	Frequency (MHz)	Measured ERP			Limit		Verdict
			dBm	W	Refer to Plot	dBm	W	
WCDMA 850MHz	4132	826.4	26.94	0.494	Plot G	38.5	7	PASS
	4175	835	26.73	0.471				PASS
	4233	846.6	26.40	0.444				PASS
HSDPA 850MHz	4132	826.4	25.37	0.344	Plot H	38.5	7	PASS
	4175	835	25.67	0.369				PASS
	4233	846.6	25.53	0.357				PASS
HSUPA 850MHz	4132	826.4	26.12	0.409	Plot I	38.5	7	PASS
	4175	835	26.06	0.404				PASS
	4233	846.6	26.28	0.425				PASS
HSPA+ 850MHz	4132	826.4	26.01	0.399	Plot J	38.5	7	PASS
	4175	835	25.70	0.372				PASS
	4233	846.6	26.00	0.498				PASS

Band	Channel	Frequency (MHz)	Measured EIRP			Limit		Verdict
			dBm	W		dBm	W	
WCDMA 1900MHz	9262	1852.4	25.78	0.381	Plot K	33	2	PASS
	9400	1880	25.49	0.356				PASS
	9538	1907.6	25.55	0.363				PASS
HSDPA 1900MHz	9262	1852.4	25.25	0.34	Plot L	33	2	PASS
	9400	1880	25.45	0.353				PASS
	9538	1907.6	25.65	0.374				PASS
HSUPA 1900MHz	9262	1852.4	25.35	0.343	Plot M	33	2	PASS
	9400	1880	25.14	0.327				PASS
	9538	1907.6	25.40	0.346				PASS
HSPA+ 1900MHz	9262	1852.4	24.90	0.309	Plot N	33	2	PASS
	9400	1880	25.35	0.342				PASS
	9538	1907.6	25.28	0.337				PASS

3. Test Plots:
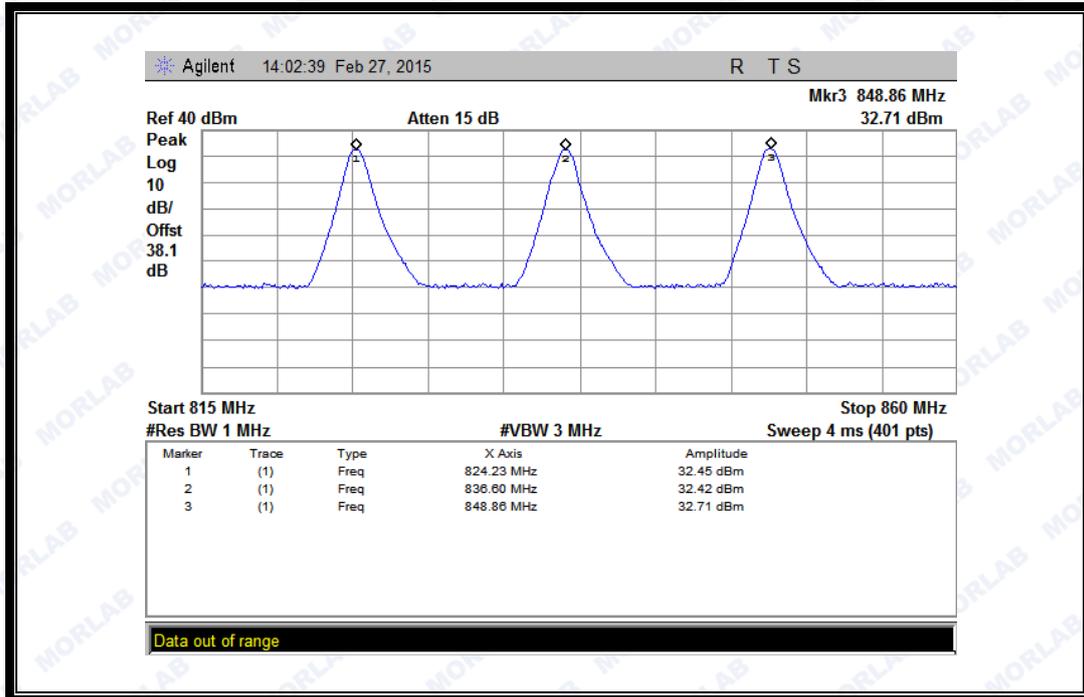
(Plot A: GSM 850MHz Channel = 128, 190, 251)
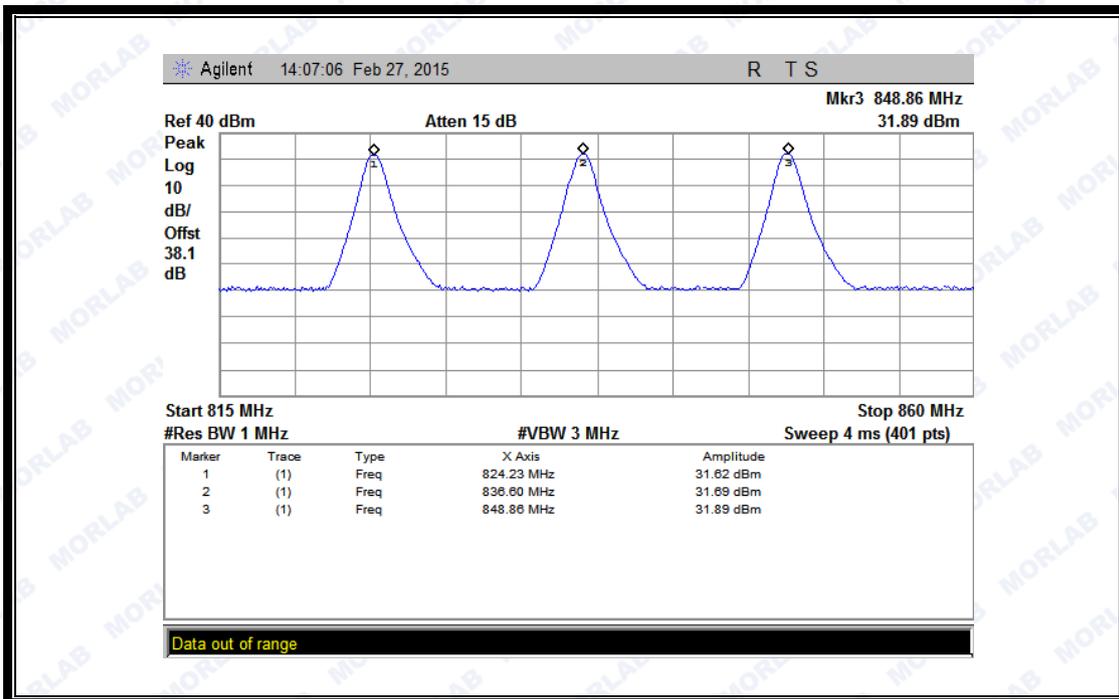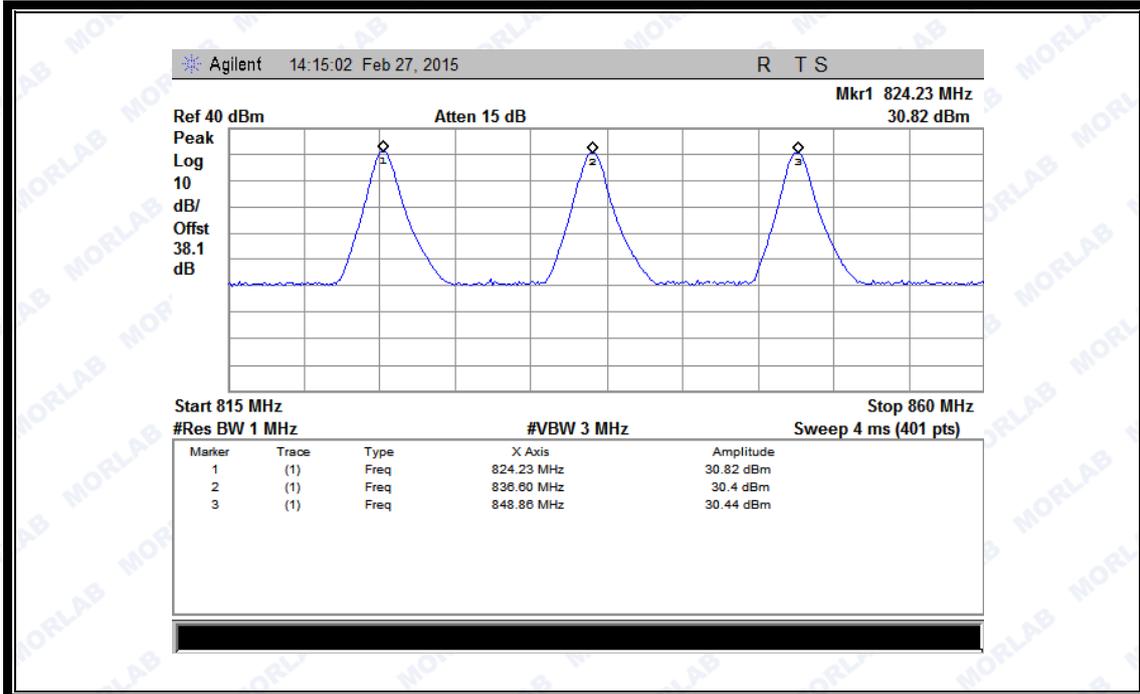

(Plot B: GPRS 850MHz Channel = 128, 190, 251)

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

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

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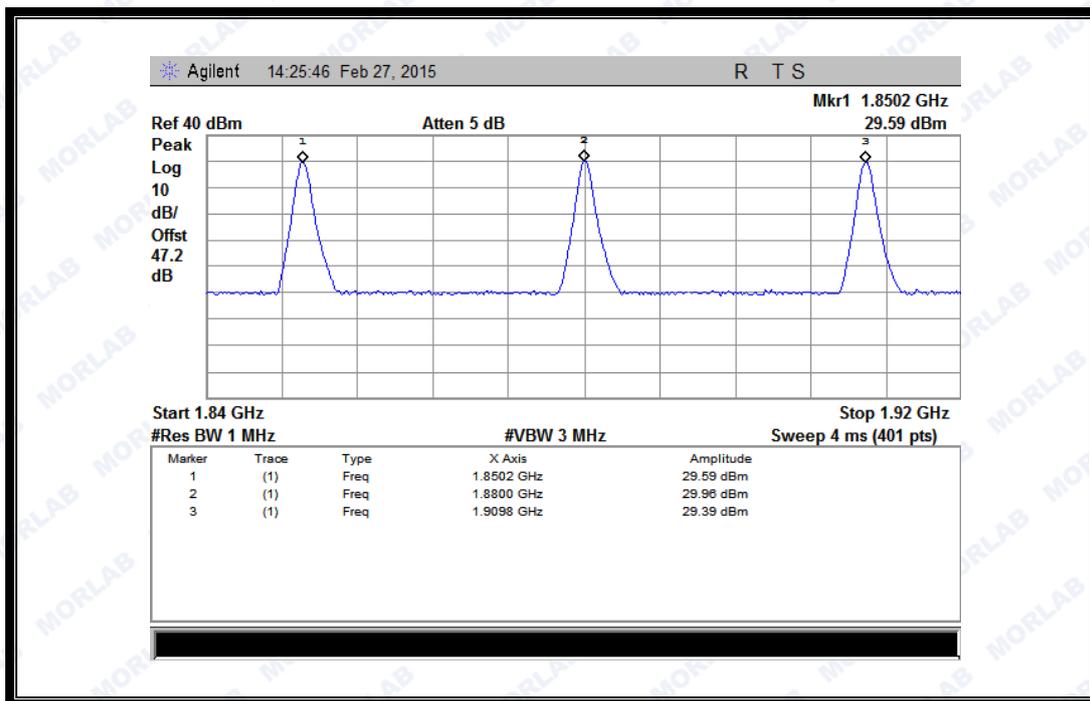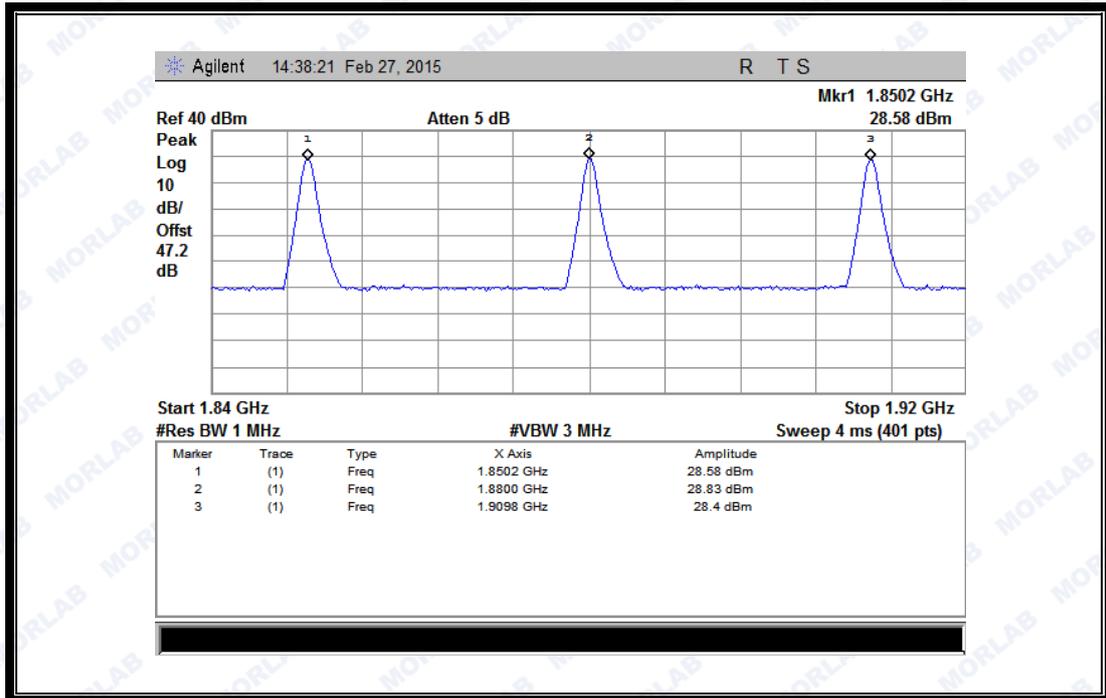
(Plot E: GPRS 1900MHz Channel = 512, 661, 810)
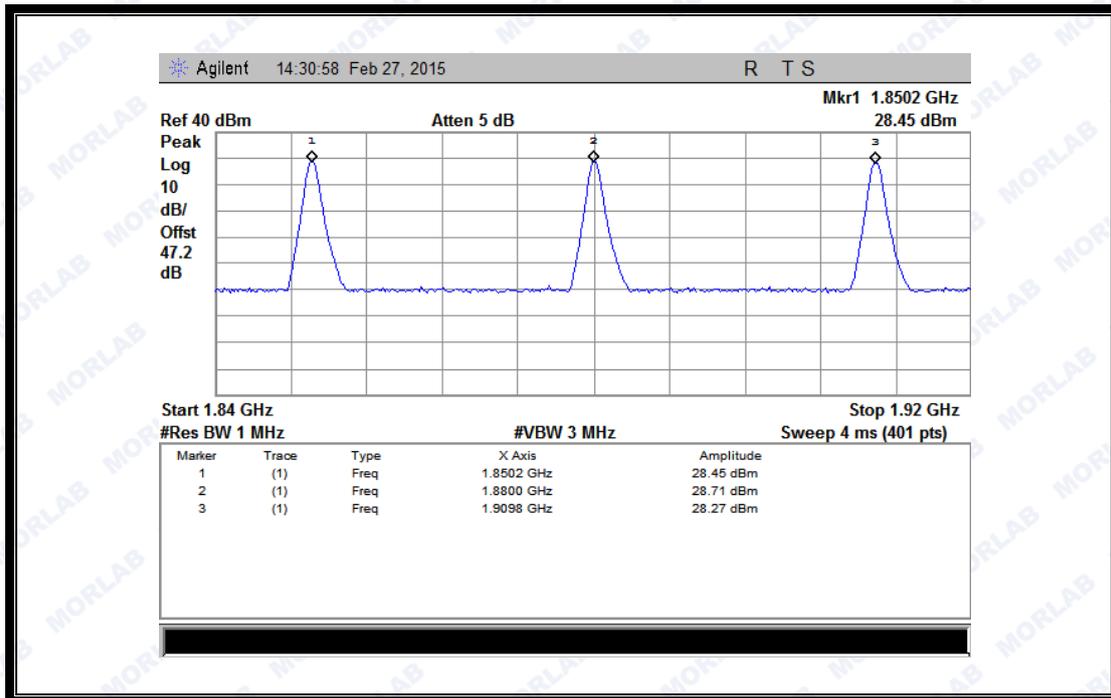
(Plot F: EGPRS 1900MHz Channel = 512, 661, 810)
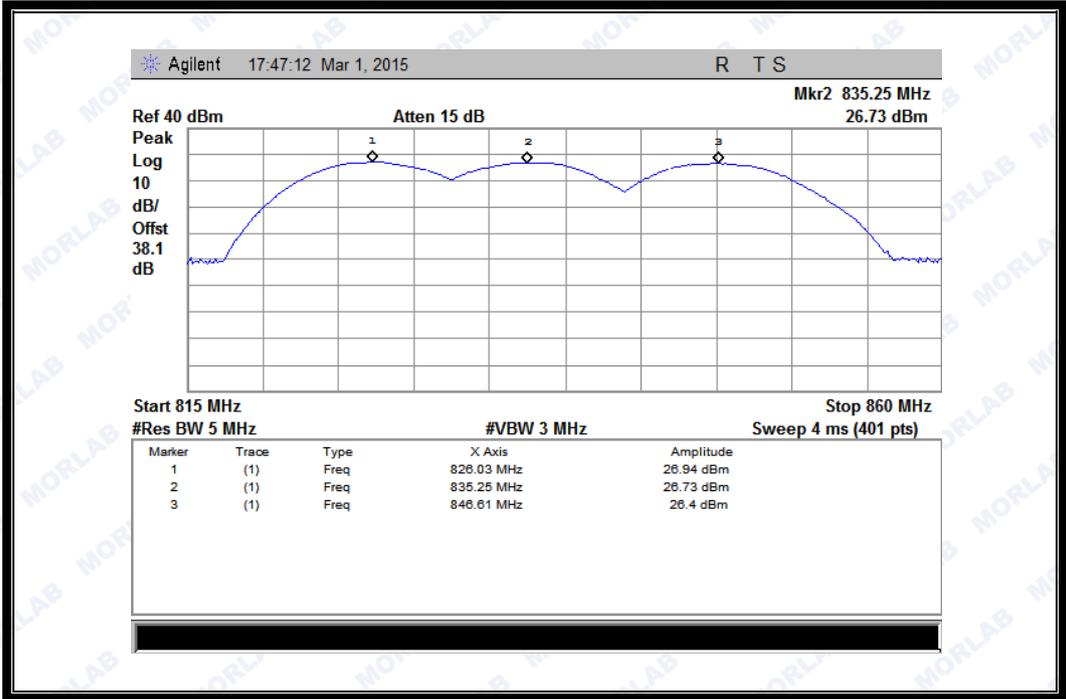
(Plot G: WCDMA 850 MHz Channel = 4132, 4175, 4233)
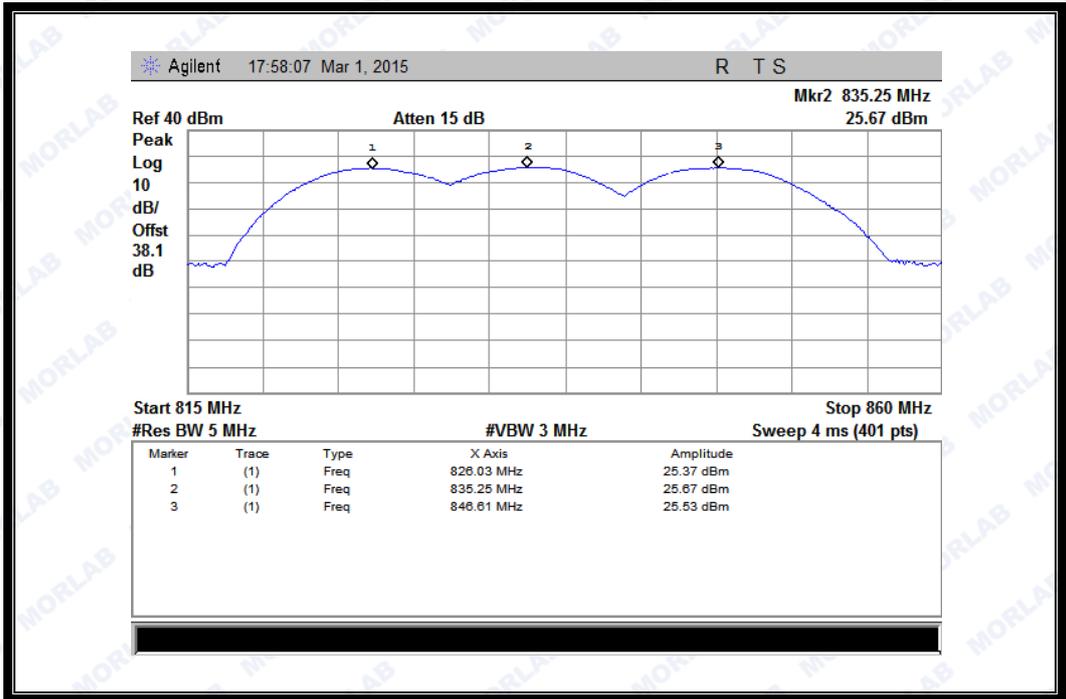
(Plot H: HSDPA 850 MHz Channel = 4132, 4175, 4233)
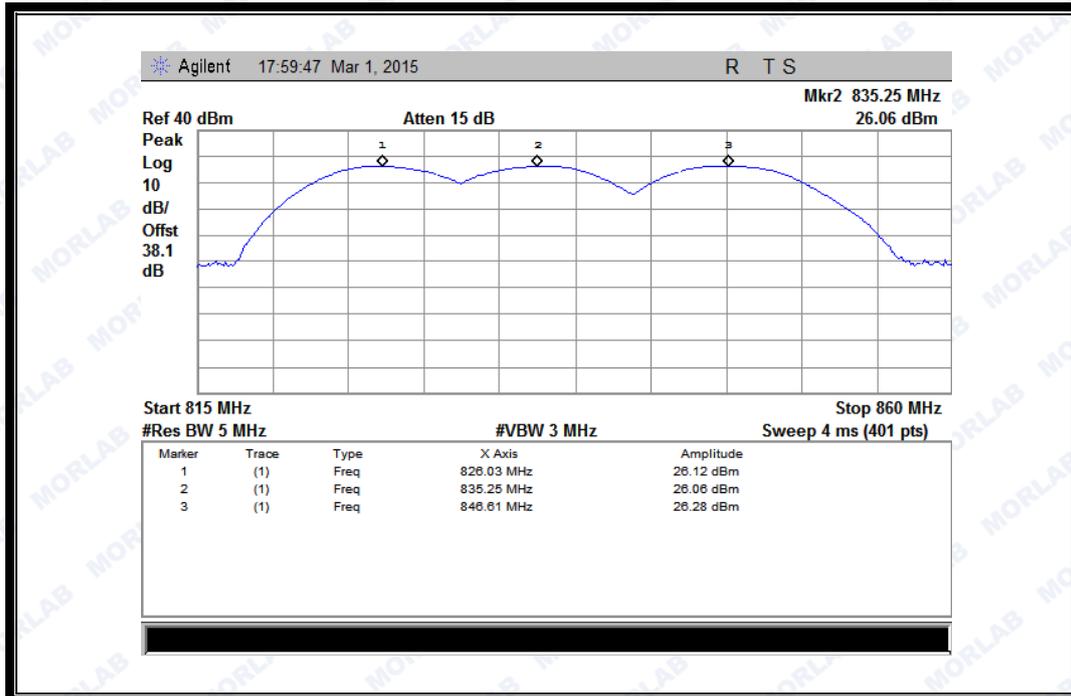
(Plot I: HSUPA 850 MHz Channel = 4132, 4175, 4233)

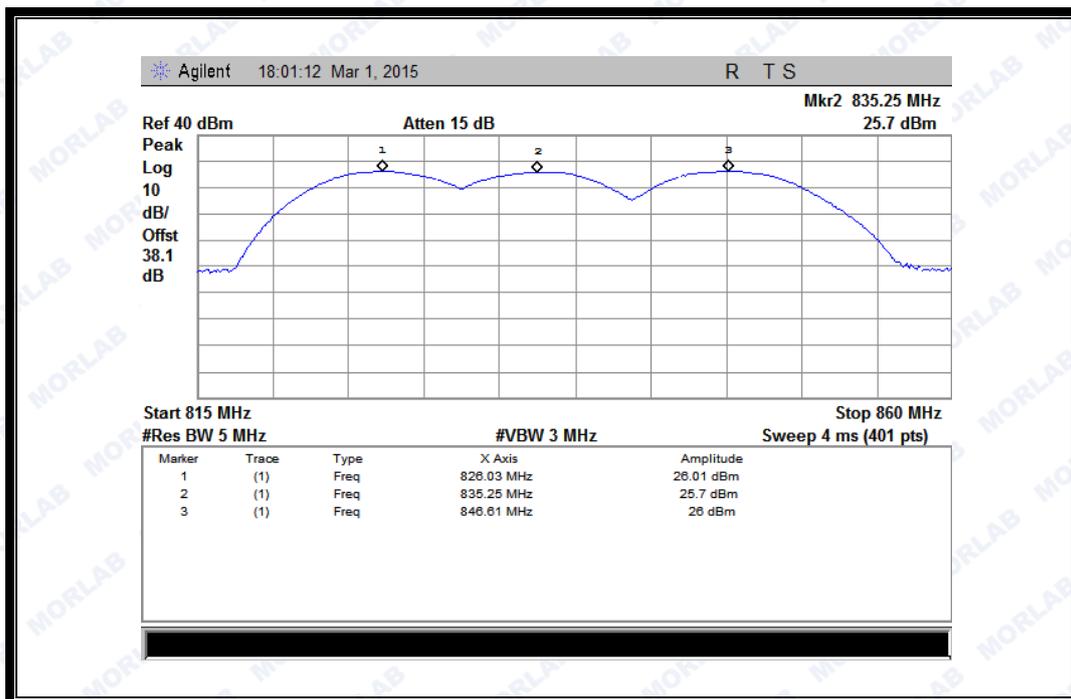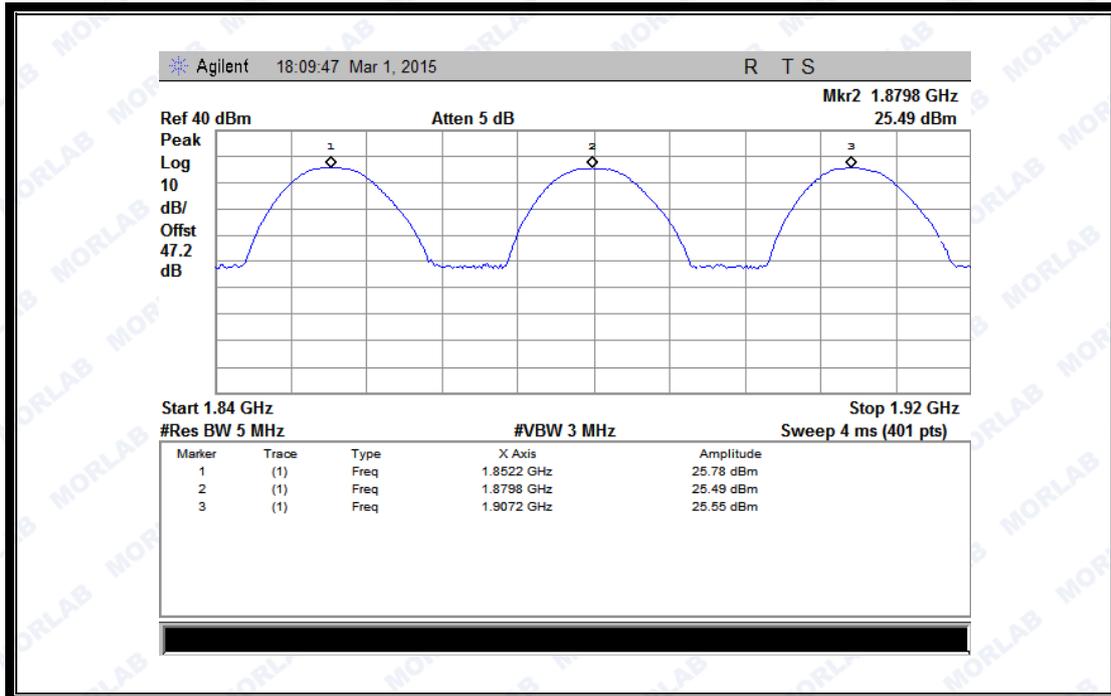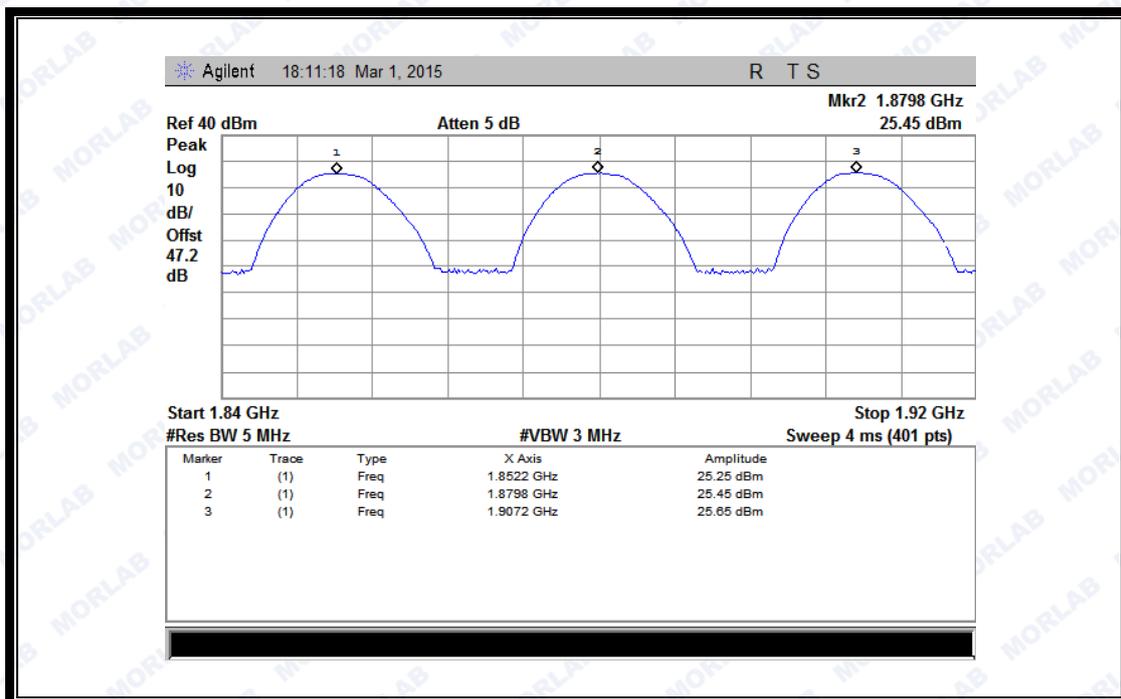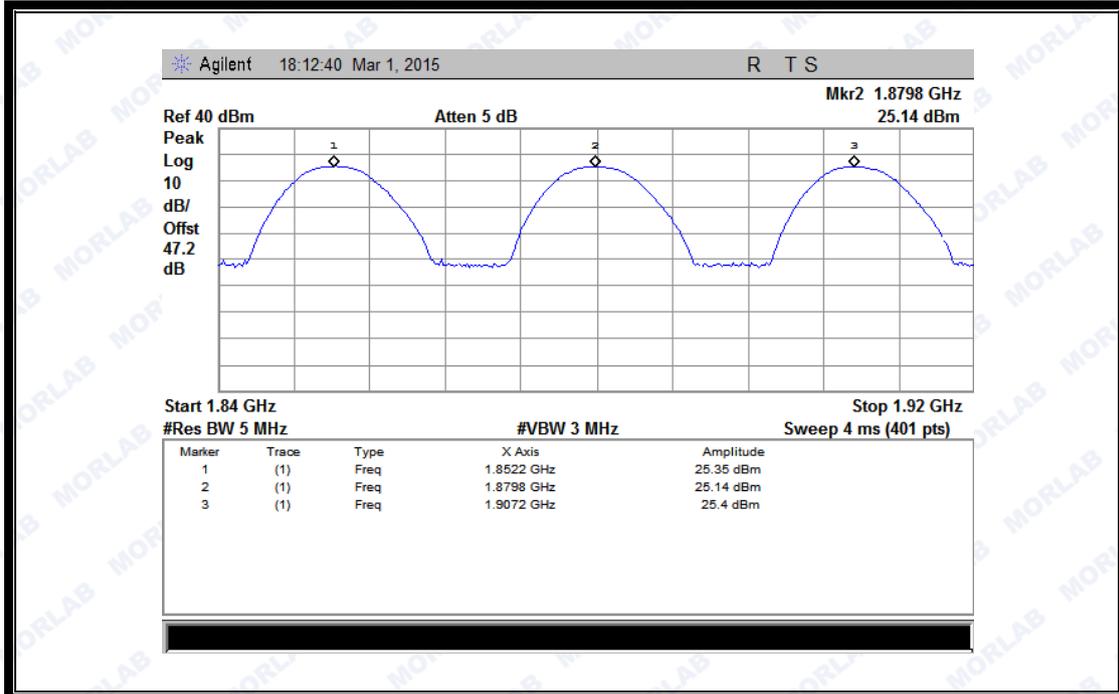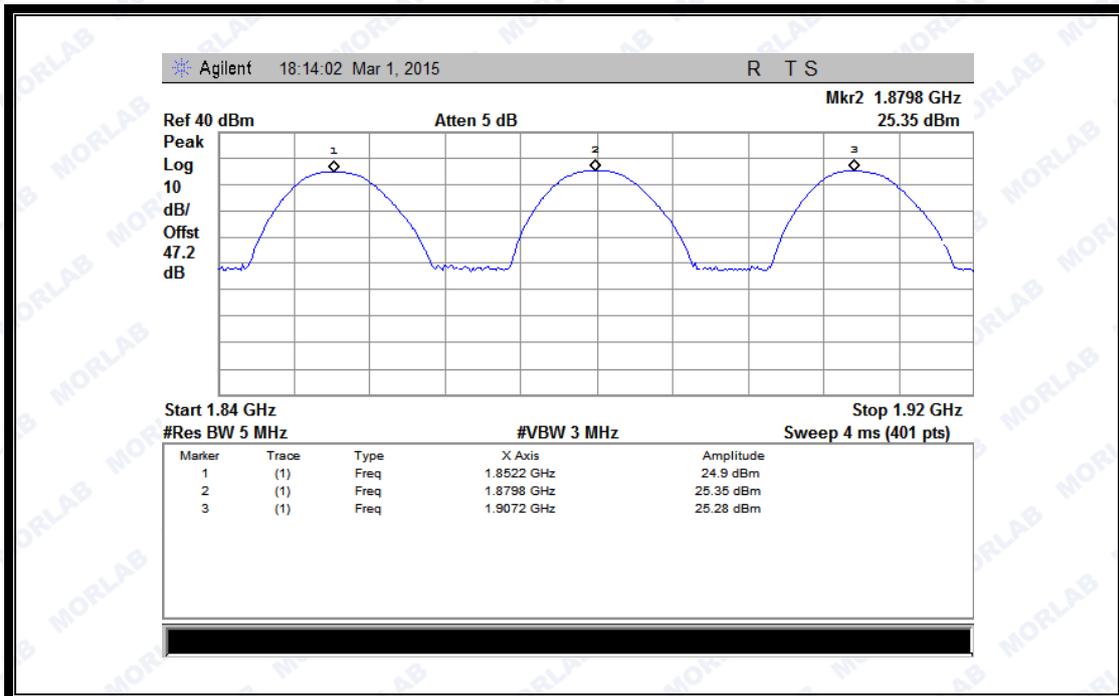(Plot J: HSPA+ 850 MHz Channel = 4132, 4175, 4233)

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

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

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

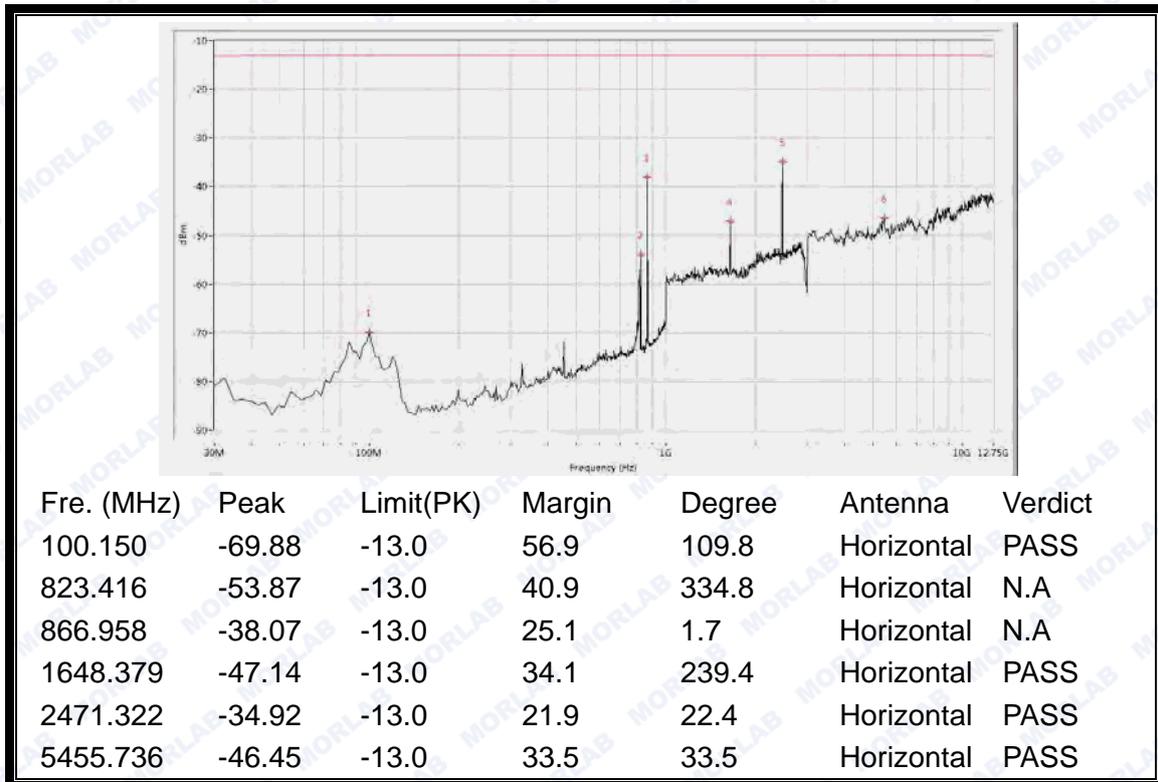(Plot N: HSPA+ 1900 MHz Channel = 9262, 9400, 9538)

1. Test Verdict:

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

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)		Refer to Plot	Limit (dBm)	Verdict
			Test Antenna Horizontal	Test Antenna Vertical			
	9538	1907.6	< -25	< -25	Plot L.5/L.6		<u>PASS</u>

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
100.150	-69.88	-13.0	56.9	109.8	Horizontal	PASS
823.416	-53.87	-13.0	40.9	334.8	Horizontal	N.A
866.958	-38.07	-13.0	25.1	1.7	Horizontal	N.A
1648.379	-47.14	-13.0	34.1	239.4	Horizontal	PASS
2471.322	-34.92	-13.0	21.9	22.4	Horizontal	PASS
5455.736	-46.45	-13.0	33.5	33.5	Horizontal	PASS

(Plot A.1:   GSM 850MHz Channel = 128, Test Antenna Horizontal)
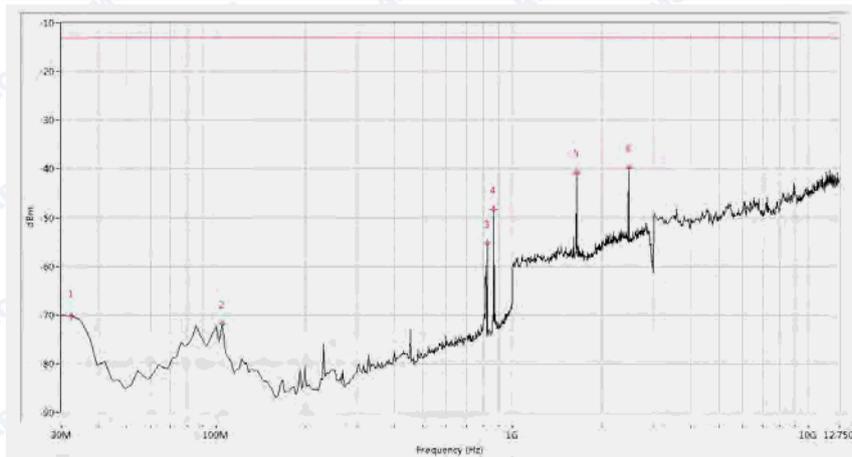
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.25	-13.0	57.2	34.7	Vertical	PASS
104.988	-71.77	-13.0	58.8	148.7	Vertical	PASS
823.416	-55.31	-13.0	42.3	327.6	Vertical	N.A
866.958	-48.34	-13.0	35.3	172.9	Vertical	N.A
1648.379	-40.77	-13.0	27.8	360.0	Vertical	PASS
2471.322	-39.75	-13.0	26.7	358.8	Vertical	PASS

(Plot A.2:   GSM 850MHz Channel = 128, Test Antenna Vertical)
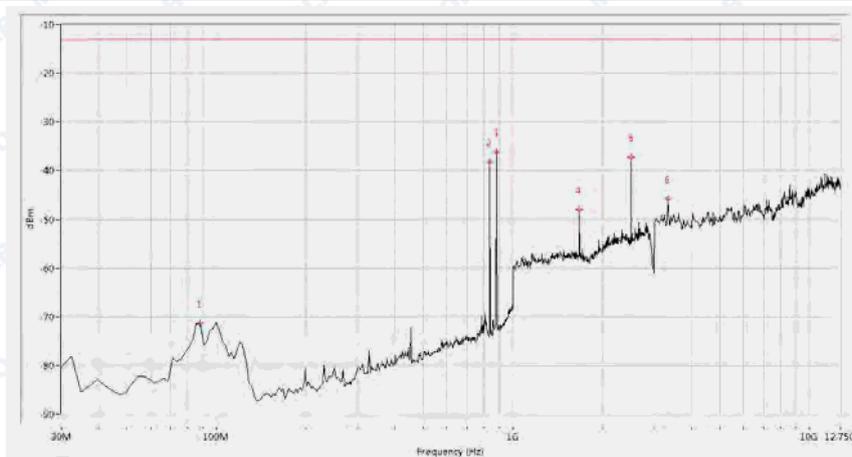
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
88.055	-71.37	-13.0	58.4	324.7	Horizontal	PASS
835.511	-38.25	-13.0	25.3	128.7	Horizontal	N.A
879.052	-36.06	-13.0	23.1	194.2	Horizontal	N.A
1673.317	-48.09	-13.0	35.1	354.9	Horizontal	PASS
2506.234	-37.19	-13.0	24.2	360.0	Horizontal	PASS
3340.399	-45.84	-13.0	32.8	147.7	Horizontal	PASS

(Plot A.3:   GSM 850MHz Channel = 190, Test Antenna Horizontal)
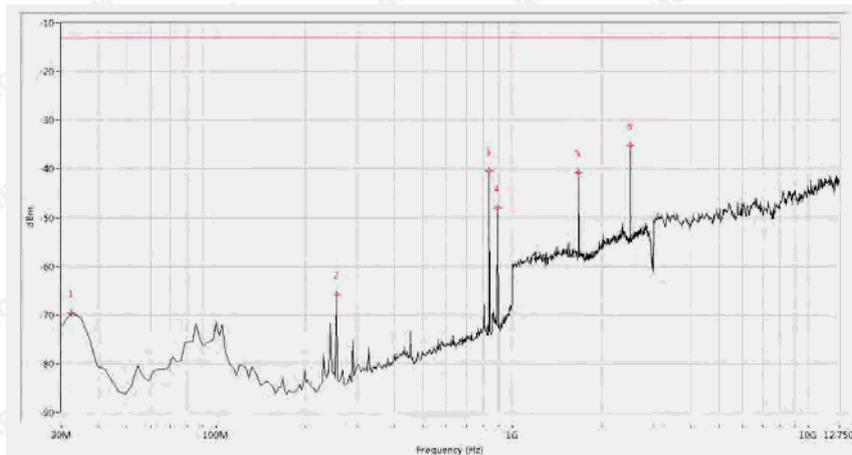
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-69.57	-13.0	56.6	351.2	Vertical	PASS
254.963	-65.81	-13.0	52.8	203.7	Vertical	PASS
835.511	-40.46	-13.0	27.5	159.8	Vertical	N.A
891.147	-48.02	-13.0	35.0	257.6	Vertical	N.A
1673.317	-40.74	-13.0	27.7	311.2	Vertical	PASS
2506.234	-35.24	-13.0	22.2	-0.0	Vertical	PASS

(Plot A.4:   GSM 850MHz Channel = 190, Test Antenna Vertical)
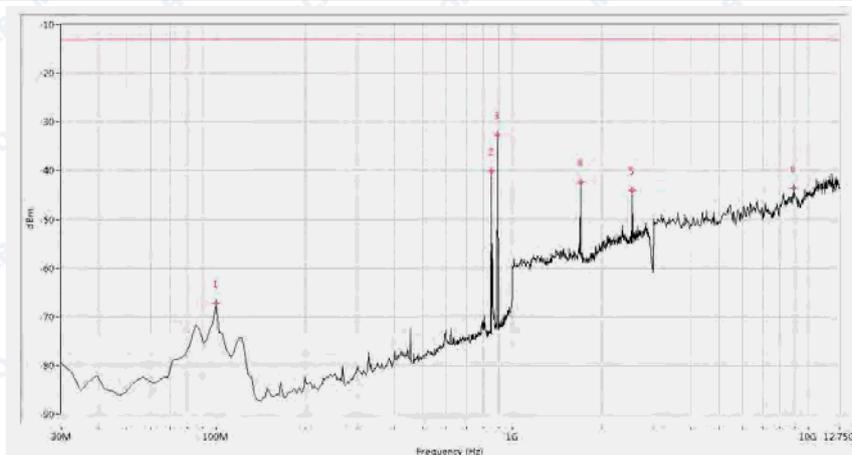
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-67.11	-13.0	54.1	310.5	Horizontal	PASS
847.606	-40.07	-13.0	27.1	126.7	Horizontal	N.A
891.147	-32.69	-13.0	19.7	184.4	Horizontal	N.A
1698.254	-42.25	-13.0	29.3	112.7	Horizontal	PASS
2541.147	-44.04	-13.0	31.0	27.2	Horizontal	PASS
8932.668	-43.65	-13.0	30.7	217.8	Horizontal	PASS

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

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Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China   Http://www.morlab.com   E-mail: service@morlab.cn
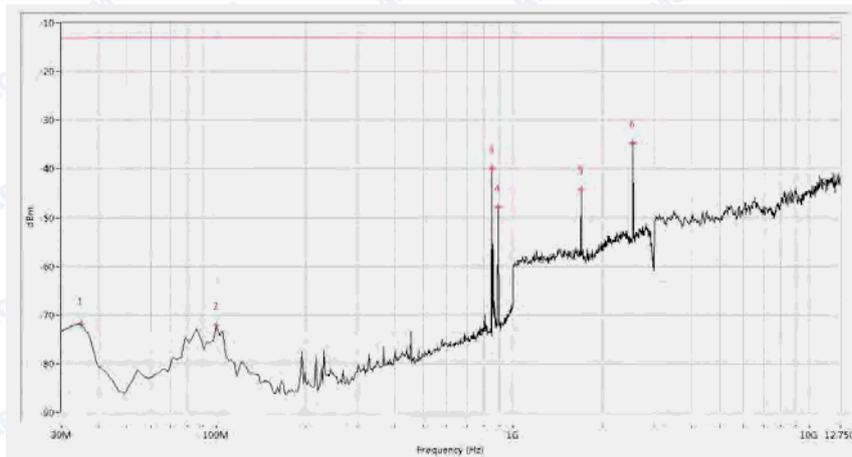
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.81	-13.0	58.8	288.9	Vertical	PASS
100.150	-72.03	-13.0	59.0	36.2	Vertical	PASS
847.606	-39.88	-13.0	26.9	126.9	Vertical	N.A
891.147	-47.87	-13.0	34.9	258.8	Vertical	N.A
1698.254	-44.17	-13.0	31.2	356.5	Vertical	PASS
2541.147	-34.69	-13.0	21.7	326.5	Vertical	PASS

(Plot A.6:　　GSM 850MHz Channel = 251, Test Antenna Vertical)
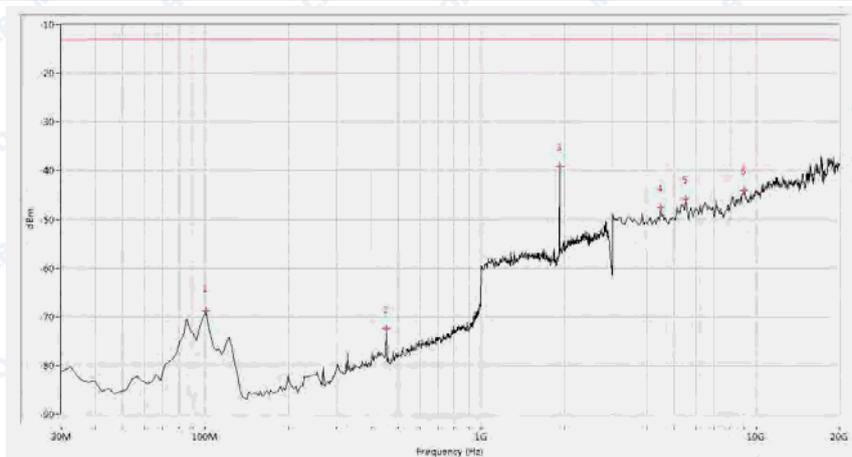
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-68.83	-13.0	55.8	280.4	Horizontal	PASS
453.317	-72.37	-13.0	59.4	71.4	Horizontal	PASS
1927.681	-39.09	-13.0	26.1	137.8	Horizontal	N.A
4483.791	-47.53	-13.0	34.5	1.4	Horizontal	PASS
5543.641	-45.86	-13.0	32.9	55.1	Horizontal	PASS
9019.950	-44.14	-13.0	31.1	4.2	Horizontal	PASS

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

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Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China　Http://www.morlab.com　E-mail: service@morlab.cn
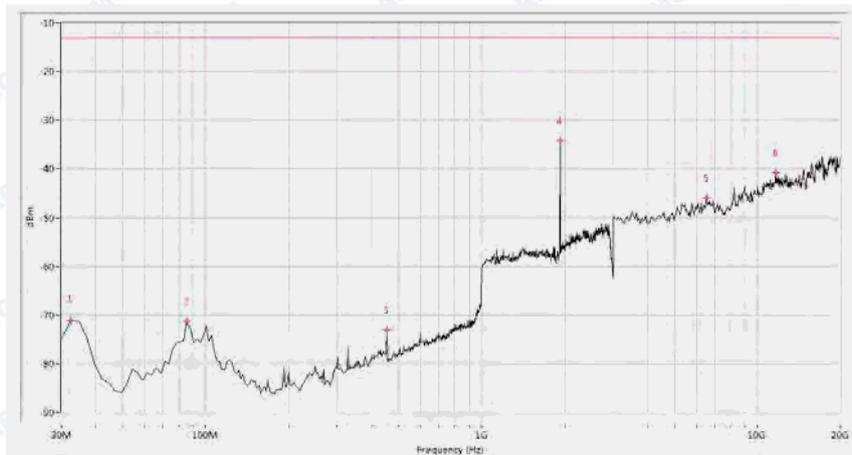
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-71.14	-13.0	58.1	32.8	Vertical	PASS
85.636	-71.30	-13.0	58.3	13.1	Vertical	PASS
453.317	-73.08	-13.0	60.1	296.6	Vertical	PASS
1927.681	-34.30	-13.0	21.3	146.4	Vertical	N.A
6561.097	-45.99	-13.0	33.0	38.8	Vertical	PASS
11648.379	-40.66	-13.0	27.7	326.9	Vertical	PASS

(Plot B.2: GSM 1900MHz Channel = 512, Test Antenna Vertical)
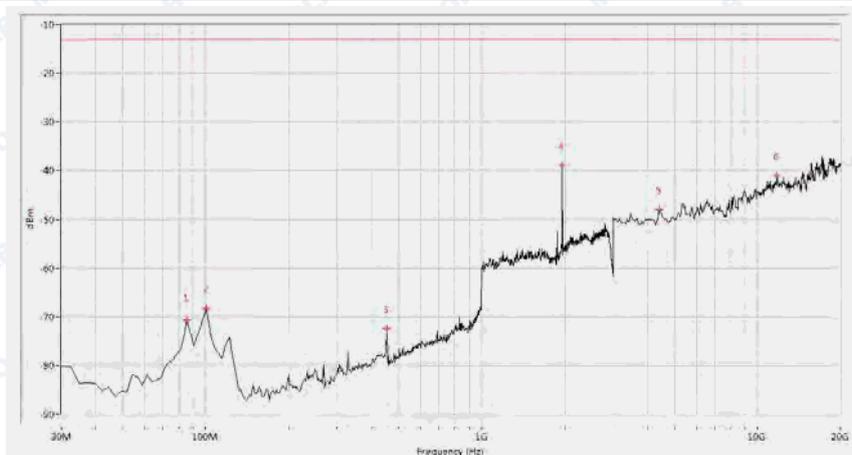
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-70.75	-13.0	57.7	165.0	Horizontal	PASS
100.150	-68.29	-13.0	55.3	287.0	Horizontal	PASS
453.317	-72.47	-13.0	59.5	223.0	Horizontal	PASS
1957.606	-38.91	-13.0	25.9	122.8	Horizontal	N.A
4399.002	-48.05	-13.0	35.0	225.9	Horizontal	PASS
11775.561	-41.06	-13.0	28.1	44.8	Horizontal	PASS

(Plot B.3: GSM 1900MHz Channel = 661, Test Antenna Horizontal)
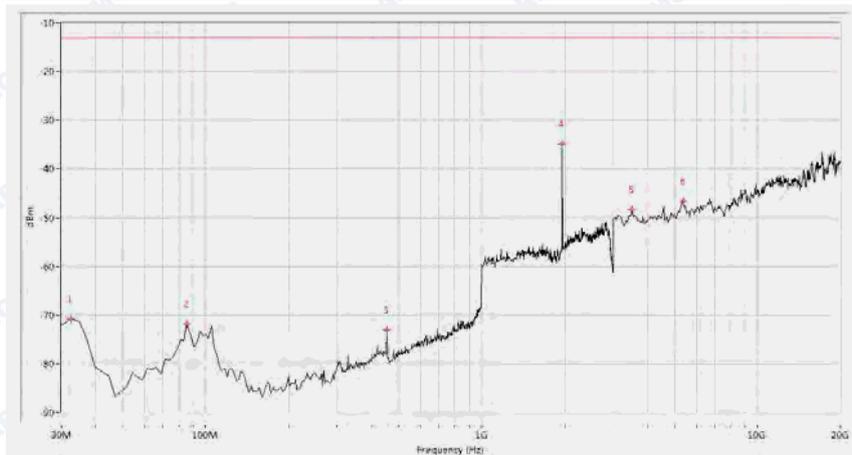
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.88	-13.0	57.9	2.4	Vertical	PASS
85.636	-71.74	-13.0	58.7	268.0	Vertical	PASS
453.317	-73.01	-13.0	60.0	93.5	Vertical	PASS
1957.606	-34.82	-13.0	21.8	35.4	Vertical	N.A
3508.728	-48.29	-13.0	35.3	154.6	Vertical	PASS
5374.065	-46.62	-13.0	33.6	296.3	Vertical	PASS

(Plot B.4:   GSM 1900MHz Channel = 661, Test Antenna Vertical)
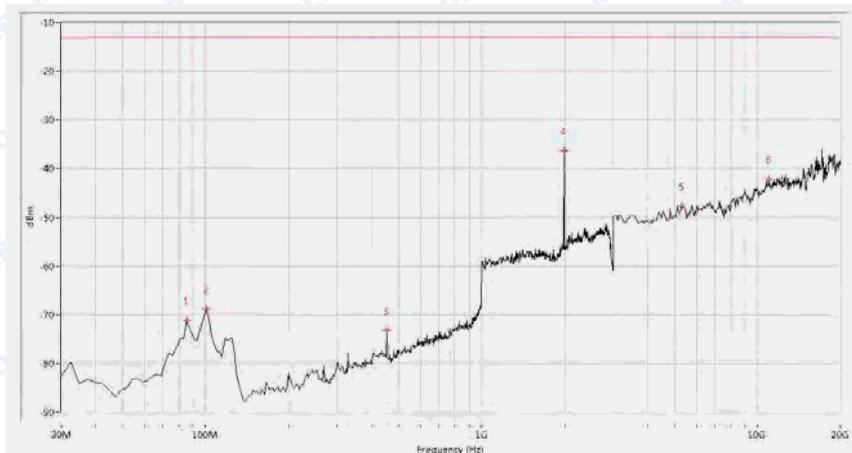
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.14	-13.0	58.1	277.0	Horizontal	PASS
100.150	-68.71	-13.0	55.7	281.9	Horizontal	PASS
453.317	-73.18	-13.0	60.2	65.5	Horizontal	PASS
1987.531	-36.25	-13.0	23.2	141.1	Horizontal	N.A
5331.671	-47.74	-13.0	34.7	-0.0	Horizontal	PASS
10970.075	-42.21	-13.0	29.2	172.2	Horizontal	PASS

(Plot B.5:   GSM 1900MHz Channel = 810, Test Antenna Horizontal)
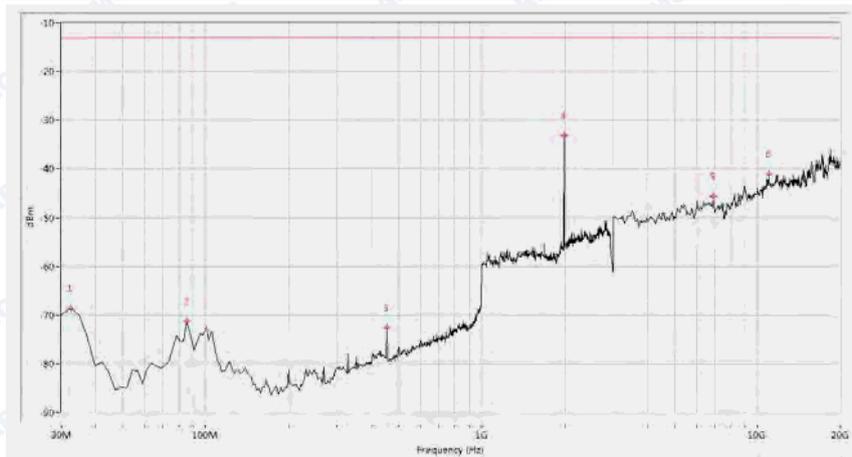
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-68.61	-13.0	55.6	326.2	Vertical	PASS
85.636	-71.25	-13.0	58.2	238.8	Vertical	PASS
453.317	-72.64	-13.0	59.6	183.4	Vertical	PASS
1987.531	-33.10	-13.0	20.1	146.4	Vertical	N.A
6900.249	-45.67	-13.0	32.7	147.3	Vertical	PASS
10970.075	-41.06	-13.0	28.1	54.0	Vertical	PASS

(PlotB.6:   GSM 1900MHz Channel = 810, Test Antenna Vertical)
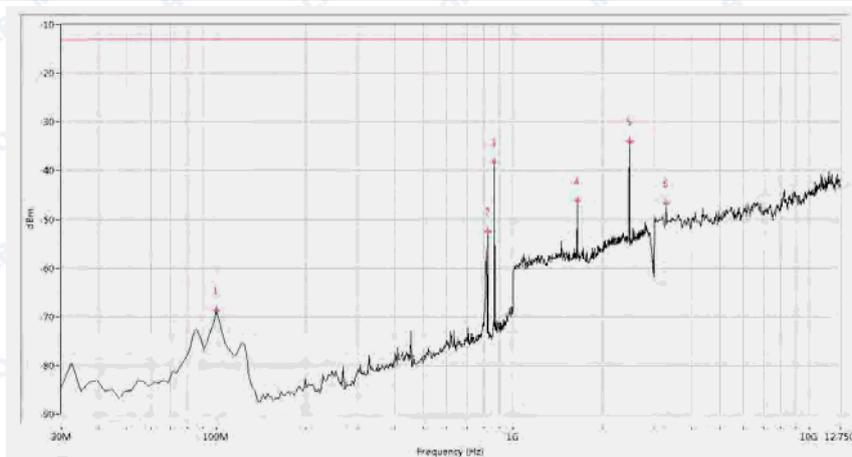
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-68.67	-13.0	55.7	110.5	Horizontal	PASS
823.416	-52.41	-13.0	39.4	115.0	Horizontal	N.A
866.958	-38.27	-13.0	25.3	12.7	Horizontal	N.A
1648.379	-46.16	-13.0	33.2	291.1	Horizontal	PASS
2471.322	-33.89	-13.0	20.9	48.9	Horizontal	PASS
3291.771	-46.52	-13.0	33.5	360.0	Horizontal	PASS

(Plot C.1:   EGPRS 850MHz Channel = 128, Test Antenna Horizontal)
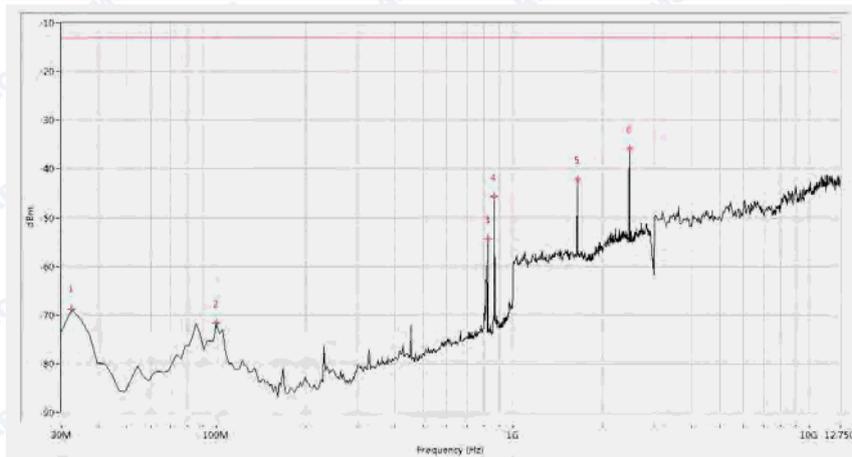
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-68.79	-13.0	55.8	279.0	Vertical	PASS
100.150	-71.58	-13.0	58.6	288.7	Vertical	PASS
823.416	-54.30	-13.0	41.3	299.1	Vertical	N.A
866.958	-45.66	-13.0	32.7	259.7	Vertical	N.A
1648.379	-42.20	-13.0	29.2	152.7	Vertical	PASS
2471.322	-35.77	-13.0	22.8	0.1	Vertical	PASS

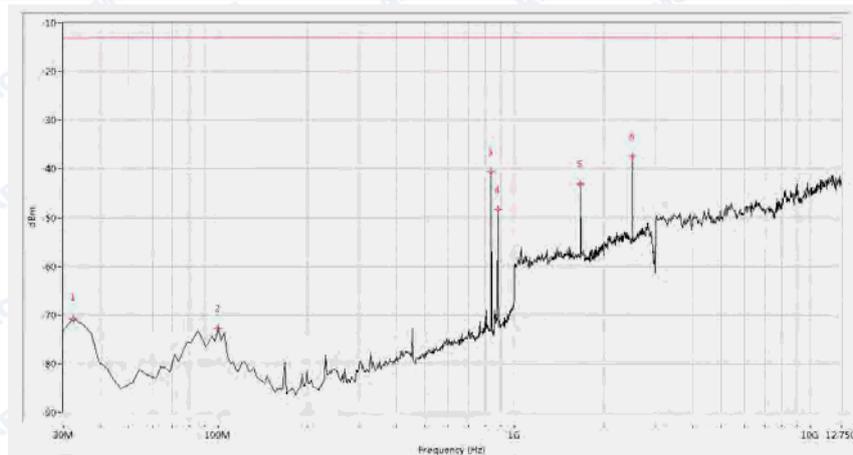(Plot C.2:   EGPRS 850MHz Channel = 128, Test Antenna Vertical)
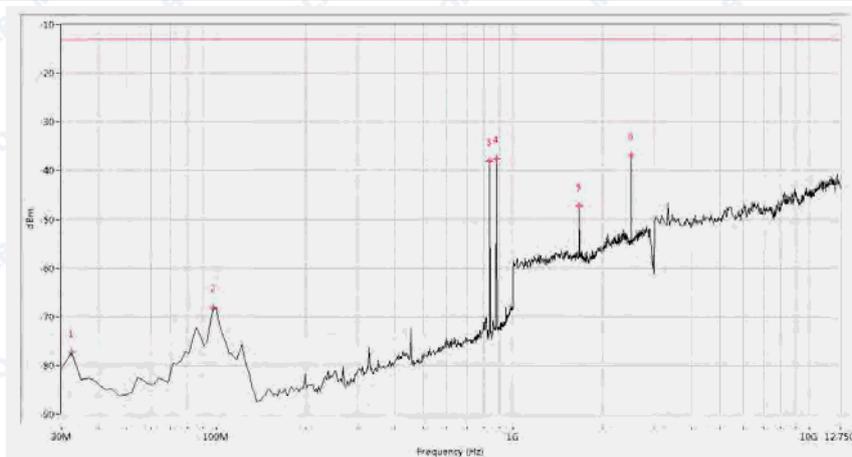
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-77.30	-13.0	64.3	261.3	Horizontal	PASS
97.731	-68.10	-13.0	55.1	295.2	Horizontal	PASS
835.511	-38.06	-13.0	25.1	131.1	Horizontal	N.A
879.052	-37.61	-13.0	24.6	92.8	Horizontal	N.A
1673.317	-47.23	-13.0	34.2	280.2	Horizontal	PASS
2506.234	-36.86	-13.0	23.9	56.2	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.80	-13.0	57.8	-0.0	Vertical	PASS
100.150	-72.73	-13.0	59.7	97.9	Vertical	PASS
835.511	-40.51	-13.0	27.5	240.1	Vertical	N.A
879.052	-48.38	-13.0	35.4	268.8	Vertical	N.A
1673.317	-43.05	-13.0	30.1	185.7	Vertical	PASS
2506.234	-37.41	-13.0	24.4	324.0	Vertical	PASS

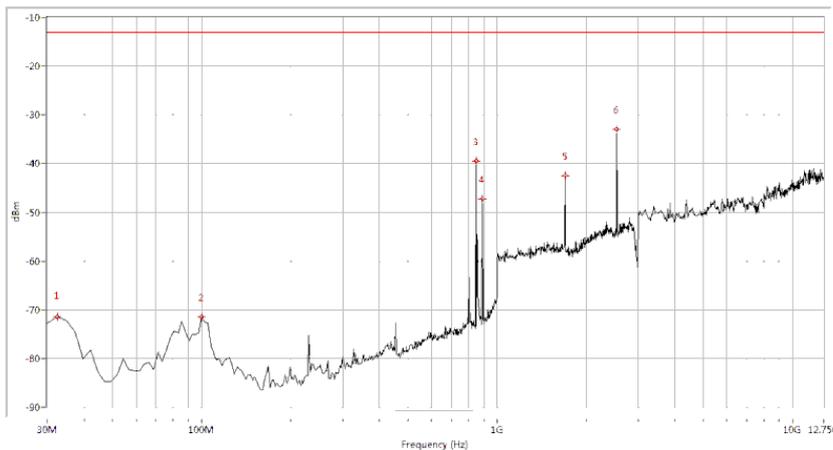(Plot C.4:   EGPRS 850MHz Channel = 190, Test Antenna Vertical)
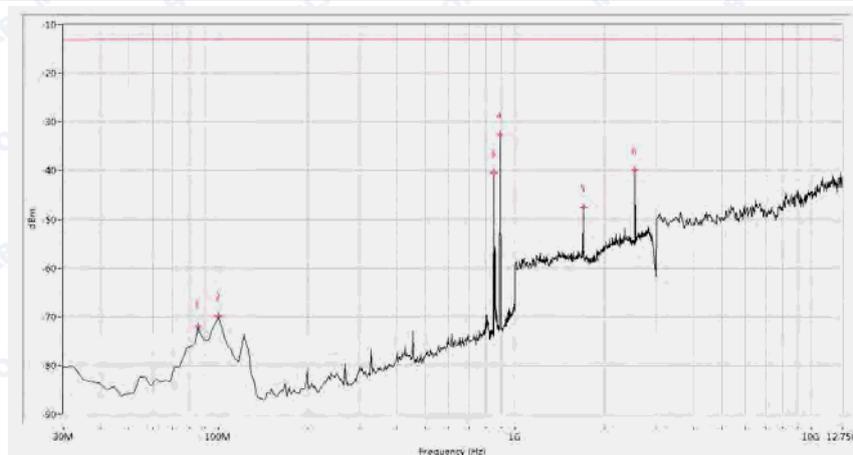
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-72.03	-13.0	59.0	110.9	Horizontal	PASS
100.150	-69.81	-13.0	56.8	284.2	Horizontal	PASS
847.606	-40.35	-13.0	27.4	116.1	Horizontal	N.A
891.147	-32.61	-13.0	19.6	135.1	Horizontal	N.A
1698.254	-47.59	-13.0	34.6	151.2	Horizontal	PASS
2541.147	-39.95	-13.0	26.9	6.3	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-71.44	-13.0	58.4	356.1	Vertical	PASS
100.150	-71.42	-13.0	58.4	157.7	Vertical	PASS
847.606	-39.52	-13.0	26.5	126.5	Vertical	N.A
891.147	-47.26	-13.0	34.3	257.0	Vertical	N.A
1698.254	-42.54	-13.0	29.5	50.8	Vertical	PASS
2541.147	-32.92	-13.0	19.9	320.5	Vertical	PASS

(Plot C.6:   EGPRS 850MHz Channel = 251, Test Antenna Vertical)
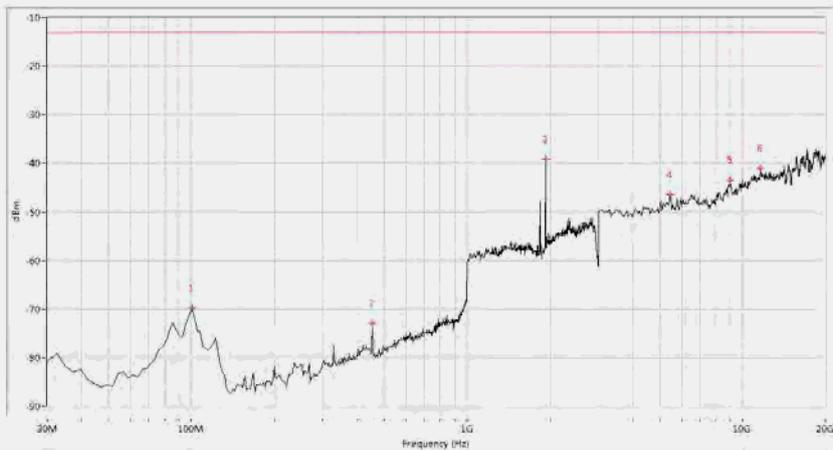
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-69.77	-13.0	56.8	310.5	Horizontal	PASS
453.317	-72.96	-13.0	60.0	51.2	Horizontal	PASS
1927.681	-39.08	-13.0	26.1	123.6	Horizontal	N.A
5458.853	-46.51	-13.0	33.5	298.2	Horizontal	PASS
9019.950	-43.47	-13.0	30.5	227.9	Horizontal	PASS
11563.591	-40.98	-13.0	28.0	212.2	Horizontal	PASS

(Plot D.1:   EGPRS 1900MHz Channel = 512, Test Antenna Horizontal)
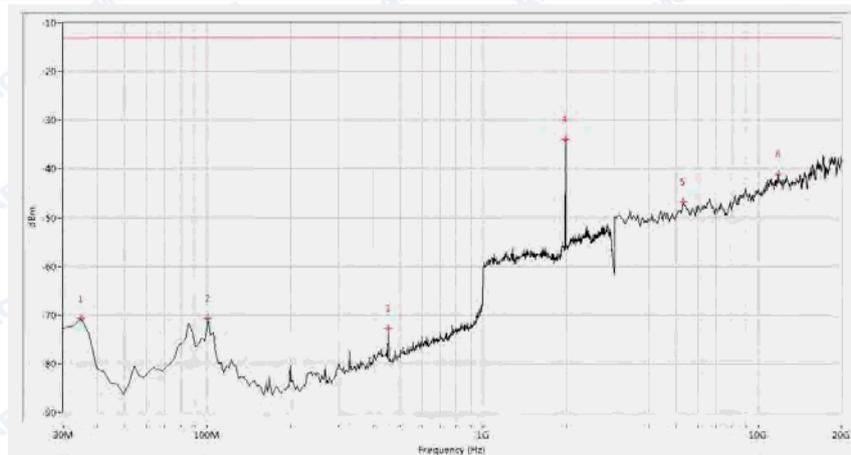
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-70.68	-13.0	57.7	356.8	Vertical	PASS
100.150	-70.64	-13.0	57.6	-0.0	Vertical	PASS
453.317	-72.79	-13.0	59.8	337.2	Vertical	PASS
1987.531	-33.88	-13.0	20.9	144.0	Vertical	N.A
5331.671	-46.79	-13.0	33.8	272.1	Vertical	PASS
11817.955	-41.11	-13.0	28.1	-0.0	Vertical	PASS

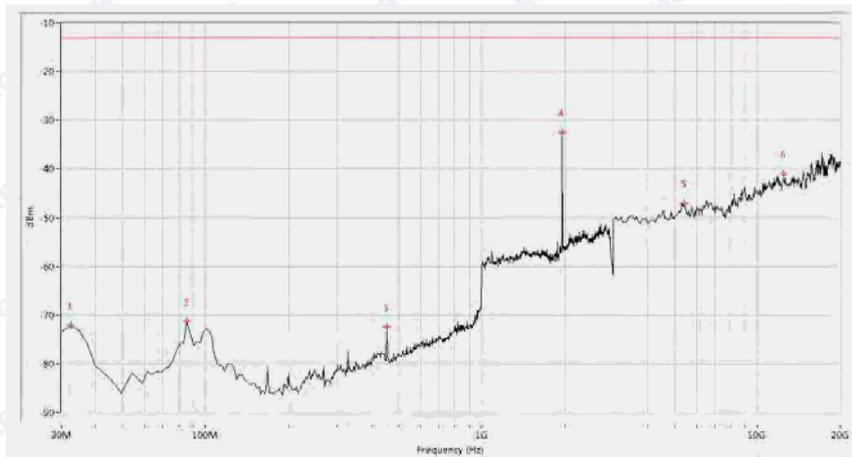(Plot D.2:   EGPRS 1900MHz Channel = 512, Test Antenna Vertical)
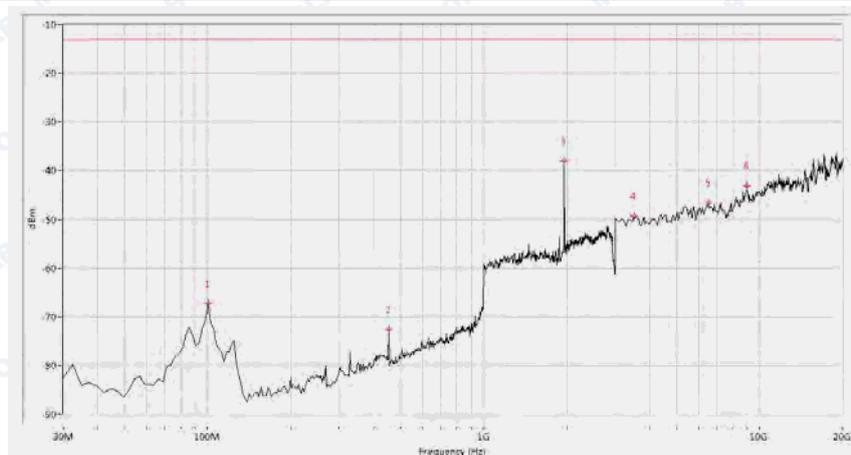
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-67.17	-13.0	54.2	94.8	Horizontal	PASS
453.317	-72.62	-13.0	59.6	360.0	Horizontal	PASS
1957.606	-37.96	-13.0	25.0	119.2	Horizontal	N.A
3508.728	-49.36	-13.0	36.4	350.3	Horizontal	PASS
6561.097	-46.67	-13.0	33.7	179.7	Horizontal	PASS
9019.950	-43.13	-13.0	30.1	356.1	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-72.07	-13.0	59.1	315.4	Vertical	PASS
85.636	-71.26	-13.0	58.3	189.1	Vertical	PASS
453.317	-72.36	-13.0	59.4	198.4	Vertical	PASS
1957.606	-32.49	-13.0	19.5	122.1	Vertical	N.A
5416.459	-47.08	-13.0	34.1	145.5	Vertical	PASS
12453.865	-41.10	-13.0	28.1	161.9	Vertical	PASS

(Plot D.4:   EGPRS 1900MHz Channel = 661, Test Antenna Vertical)
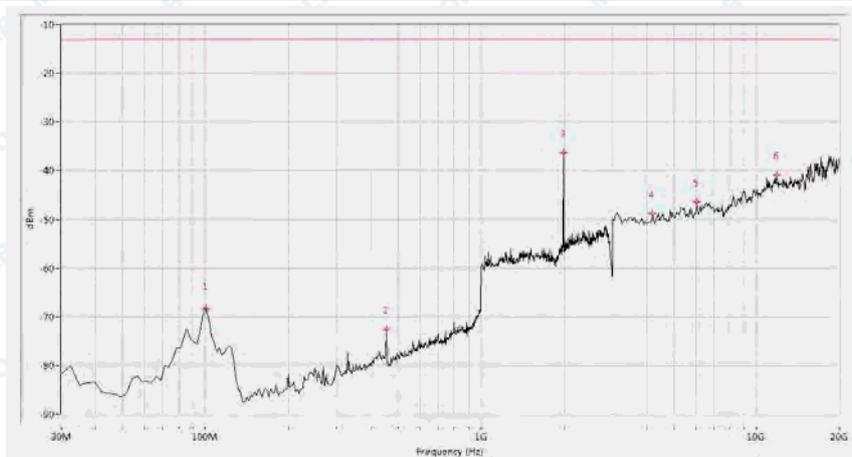
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-68.22	-13.0	55.2	303.4	Horizontal	PASS
453.317	-72.56	-13.0	59.6	356.9	Horizontal	PASS
1987.531	-36.37	-13.0	23.4	115.3	Horizontal	N.A
4187.032	-48.75	-13.0	35.8	253.2	Horizontal	PASS
6052.369	-46.44	-13.0	33.4	270.3	Horizontal	PASS
11817.955	-40.82	-13.0	27.8	-0.0	Horizontal	PASS

(Plot D.5:   EGPRS 1900MHz Channel = 810, Test Antenna Horizontal)
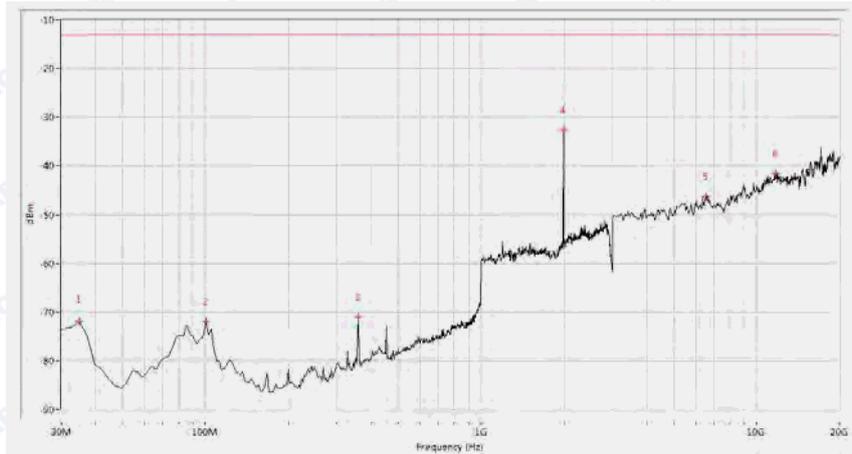
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.89	-13.0	58.9	-0.0	Vertical	PASS
100.150	-71.91	-13.0	58.9	282.9	Vertical	PASS
358.978	-71.00	-13.0	58.0	122.9	Vertical	PASS
1987.531	-32.63	-13.0	19.6	100.9	Vertical	N.A
6561.097	-46.31	-13.0	33.3	240.2	Vertical	PASS
11775.561	-41.54	-13.0	28.5	50.2	Vertical	PASS

(Plot D.6:   EGPRS 1900MHz Channel = 810, Test Antenna Vertical)
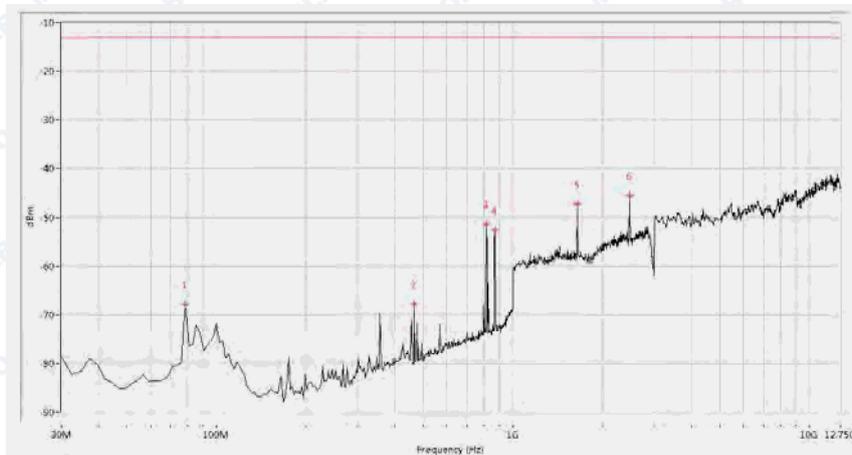
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
78.379	-67.86	-13.0	54.9	267.7	Horizontal	PASS
465.411	-67.87	-13.0	54.9	342.8	Horizontal	PASS
816.160	-51.36	-13.0	38.4	327.9	Horizontal	N.A
871.796	-52.65	-13.0	39.7	63.9	Horizontal	N.A
1648.379	-47.27	-13.0	34.3	220.1	Horizontal	PASS
2471.322	-45.43	-13.0	32.4	4.0	Horizontal	PASS

(Plot E.1:   WCDMA 850MHz Channel = 4132, Test Antenna Horizontal)
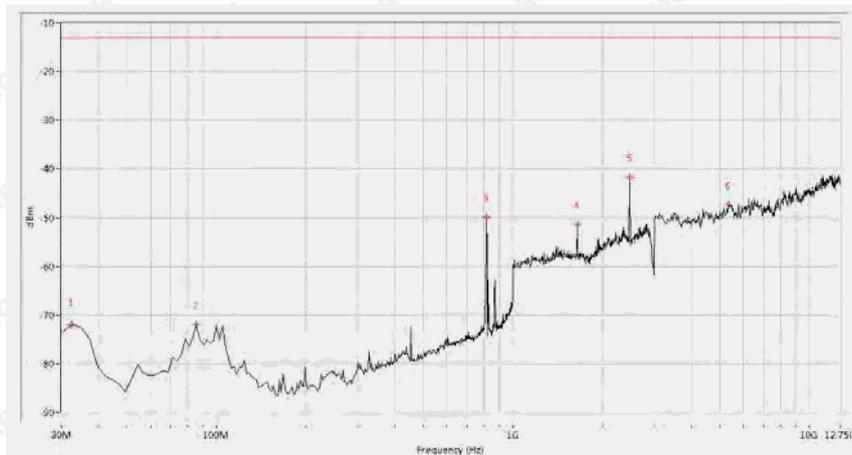
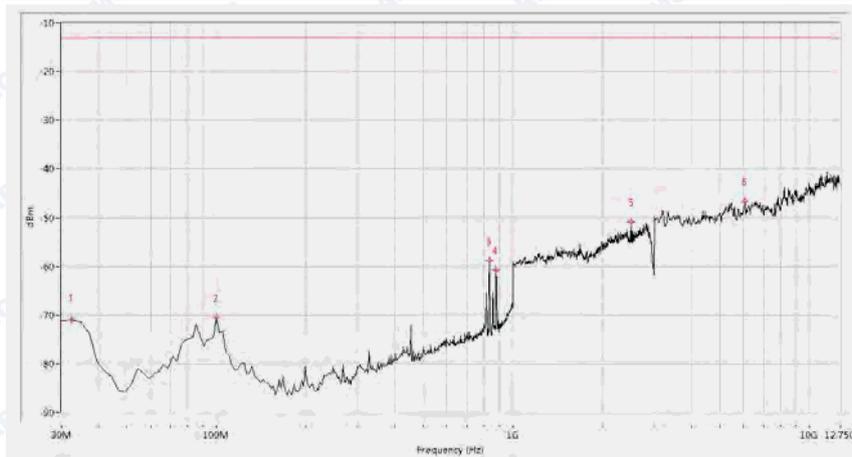| Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-72.00	-13.0	59.0	352.6	Vertical	PASS
85.636	-71.96	-13.0	59.0	69.4	Vertical	PASS
816.160	-49.99	-13.0	37.0	277.0	Vertical	N.A
1648.379	-51.32	-13.0	38.3	316.1	Vertical	PASS
2471.322	-41.64	-13.0	28.6	-0.0	Vertical	PASS
5334.165	-47.33	-13.0	34.3	307.5	Vertical	PASS

(Plot E.2:   WCDMA 850MHz Channel = 4132, Test Antenna Vertical)
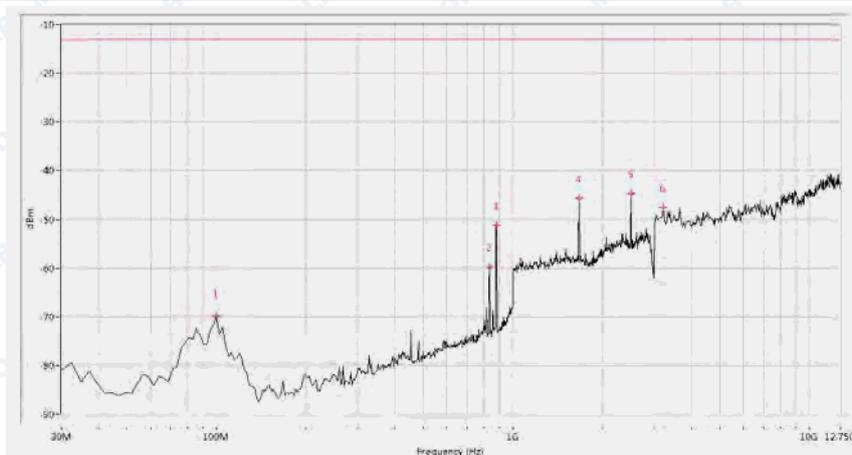
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-69.91	-13.0	56.9	262.3	Horizontal	PASS
835.511	-59.73	-13.0	46.7	312.9	Horizontal	N.A
879.052	-51.26	-13.0	38.3	20.1	Horizontal	N.A
1668.329	-45.64	-13.0	32.6	226.0	Horizontal	PASS
2506.234	-44.77	-13.0	31.8	234.2	Horizontal	PASS
3218.828	-47.60	-13.0	34.6	93.4	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.94	-13.0	57.9	357.9	Vertical	PASS
100.150	-70.46	-13.0	57.5	307.5	Vertical	PASS
835.511	-58.72	-13.0	45.7	210.0	Vertical	N.A
876.633	-60.66	-13.0	47.7	262.1	Vertical	N.A
2506.234	-50.85	-13.0	37.8	0.8	Vertical	PASS
6063.591	-46.63	-13.0	33.6	327.9	Vertical	PASS

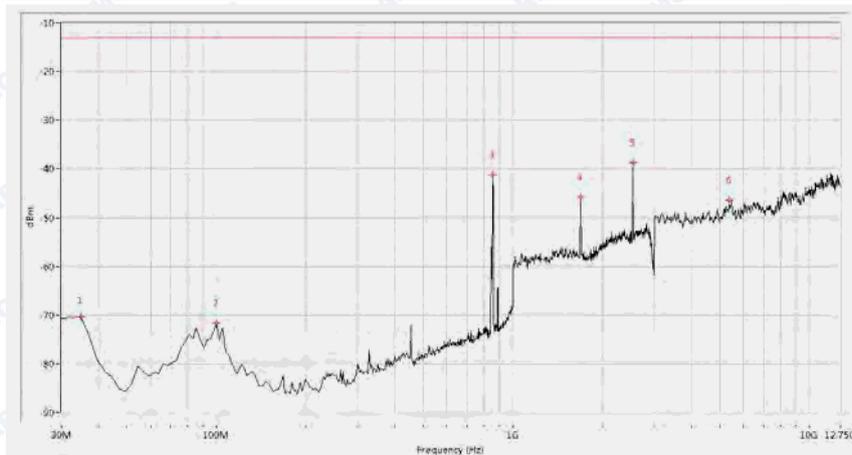(Plot E.4:   WCDMA 850MHz Channel = 4175, Test Antenna Vertical)
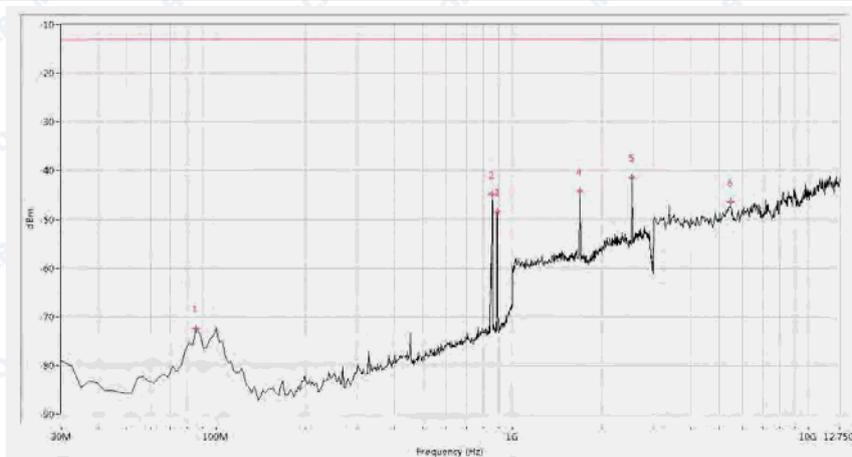
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-72.44	-13.0	59.4	286.6	Horizontal	PASS
854.863	-44.85	-13.0	31.8	327.5	Horizontal	N.A
891.147	-48.50	-13.0	35.5	-0.0	Horizontal	N.A
1693.267	-44.27	-13.0	31.3	229.1	Horizontal	PASS
2541.147	-41.39	-13.0	28.4	163.7	Horizontal	PASS
5480.050	-46.46	-13.0	33.5	7.3	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-70.32	-13.0	57.3	337.3	Vertical	PASS
100.150	-71.63	-13.0	58.6	222.0	Vertical	PASS
854.863	-41.22	-13.0	28.2	116.7	Vertical	N.A
1693.267	-45.86	-13.0	32.9	45.4	Vertical	PASS
2536.160	-38.69	-13.0	25.7	352.4	Vertical	PASS
5382.793	-46.36	-13.0	33.4	0.7	Vertical	PASS

(Plot E.6:   WCDMA 850MHz Channel = 4233, Test Antenna Vertical)
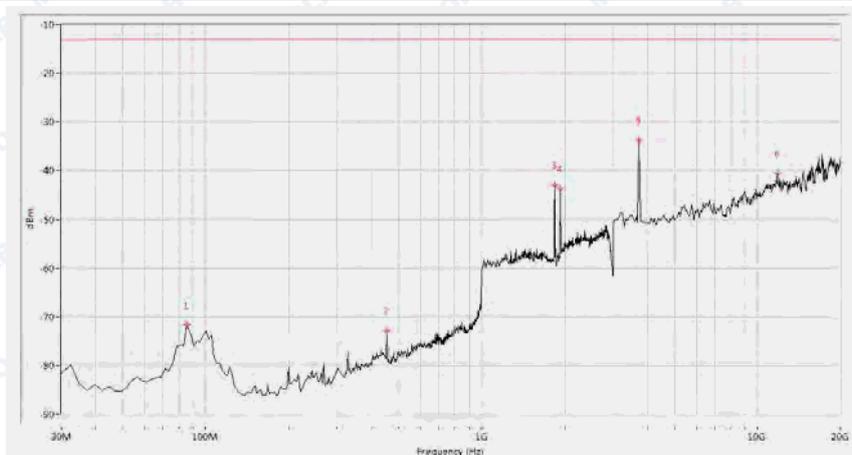
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.66	-13.0	58.7	307.8	Horizontal	PASS
453.317	-72.90	-13.0	59.9	359.2	Horizontal	PASS
1837.905	-42.92	-13.0	29.9	222.4	Horizontal	N.A
1927.681	-43.81	-13.0	30.8	123.1	Horizontal	N.A
3720.698	-33.70	-13.0	20.7	241.2	Horizontal	PASS
11817.955	-40.60	-13.0	27.6	233.4	Horizontal	PASS

(Plot F.1:   WCDMA 1900MHz Channel = 9262, Test Antenna Horizontal)
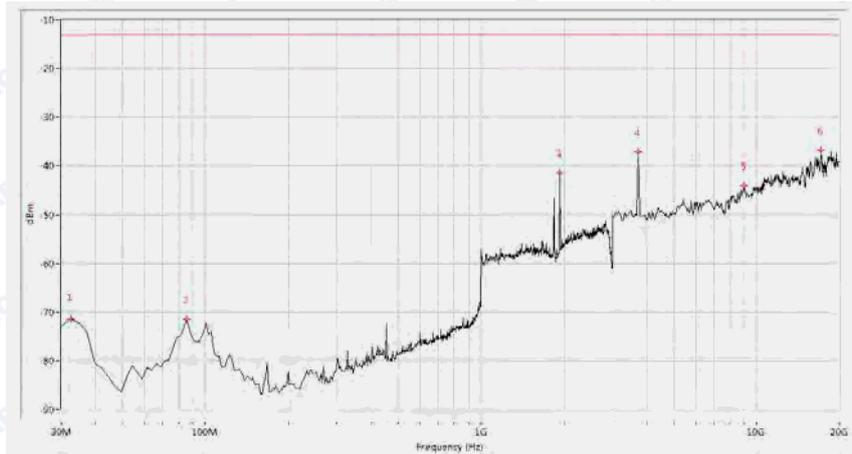
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-71.52	-13.0	58.5	48.3	Vertical	PASS
85.636	-71.48	-13.0	58.5	143.1	Vertical	PASS
1932.668	-41.38	-13.0	28.4	33.2	Vertical	N.A
3720.698	-37.14	-13.0	24.1	78.7	Vertical	PASS
9019.950	-44.07	-13.0	31.1	70.9	Vertical	PASS
17117.207	-36.83	-13.0	23.8	1.5	Vertical	PASS

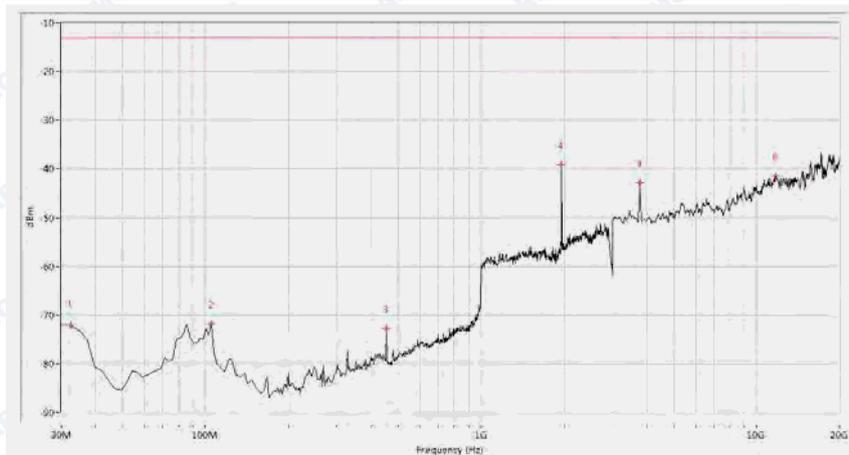(Plot F.2:   WCDMA 1900MHz Channel = 9262, Test Antenna Vertical)
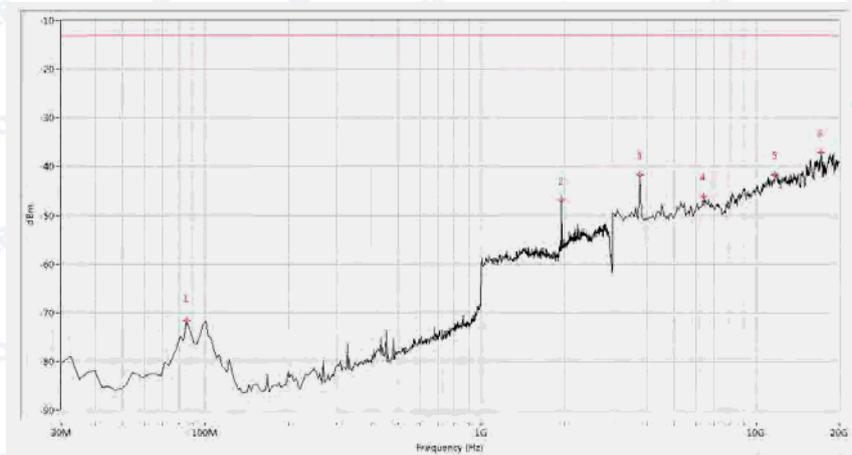
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.59	-13.0	58.6	58.6	Horizontal	PASS
1957.606	-46.95	-13.0	34.0	123.9	Horizontal	N.A
3763.092	-41.68	-13.0	28.7	245.0	Horizontal	PASS
6433.915	-46.06	-13.0	33.1	159.1	Horizontal	PASS
11648.379	-41.74	-13.0	28.7	91.8	Horizontal	PASS
17159.601	-37.03	-13.0	24.0	-0.0	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-72.09	-13.0	59.1	-0.0	Vertical	PASS
104.988	-71.78	-13.0	58.8	161.7	Vertical	PASS
453.317	-72.73	-13.0	59.7	316.7	Vertical	PASS
1957.606	-39.17	-13.0	26.2	119.4	Vertical	N.A
3763.092	-42.78	-13.0	29.8	63.5	Vertical	PASS
11775.561	-41.36	-13.0	28.4	172.9	Vertical	PASS

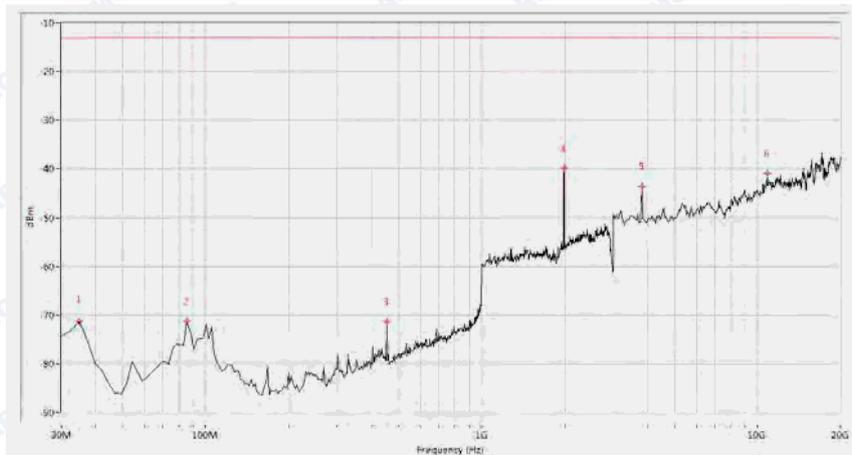(Plot F.4:   WCDMA 1900MHz Channel = 9400, Test Antenna Vertical)
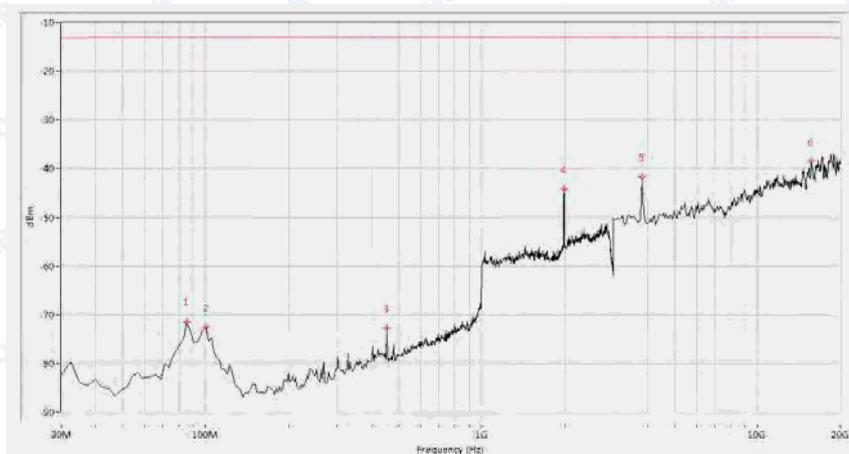
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.53	-13.0	58.5	318.7	Horizontal	PASS
100.150	-72.56	-13.0	59.6	162.2	Horizontal	PASS
453.317	-72.72	-13.0	59.7	209.4	Horizontal	PASS
1987.531	-44.27	-13.0	31.3	197.0	Horizontal	N.A
3805.486	-41.70	-13.0	28.7	243.0	Horizontal	PASS
15675.810	-38.52	-13.0	25.5	4.0	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.37	-13.0	58.4	360.0	Vertical	PASS
85.636	-71.27	-13.0	58.3	298.5	Vertical	PASS
453.317	-71.38	-13.0	58.4	43.3	Vertical	PASS
1987.531	-40.01	-13.0	27.0	100.1	Vertical	N.A
3805.486	-43.63	-13.0	30.6	40.5	Vertical	PASS
10842.893	-40.92	-13.0	27.9	88.4	Vertical	PASS

(Plot F.6:   WCDMA 1900MHz Channel = 9538, Test Antenna Vertical)
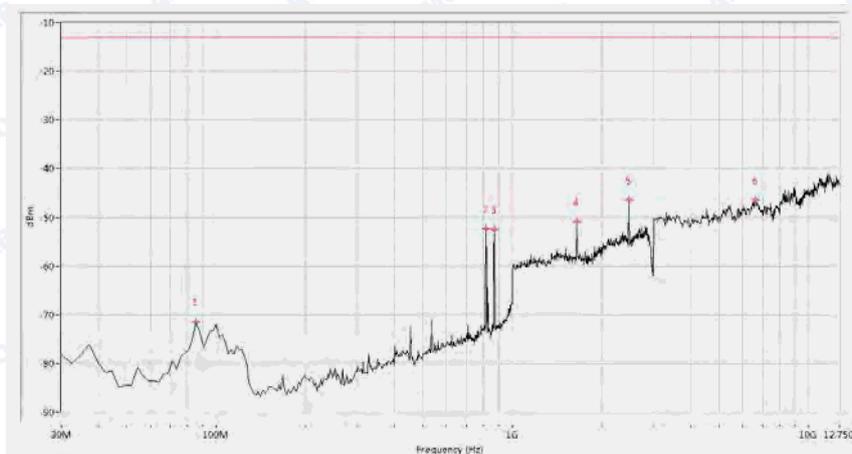
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.51	-13.0	58.5	82.3	Horizontal	PASS
816.160	-52.30	-13.0	39.3	66.7	Horizontal	N.A
869.377	-52.51	-13.0	39.5	97.5	Horizontal	N.A
1653.367	-50.85	-13.0	37.9	249.4	Horizontal	PASS
2471.322	-46.38	-13.0	33.4	241.6	Horizontal	PASS
6647.132	-46.48	-13.0	33.5	359.1	Horizontal	PASS

(Plot G.1:   HSDPA 850MHz Channel = 4132, Test Antenna Horizontal)
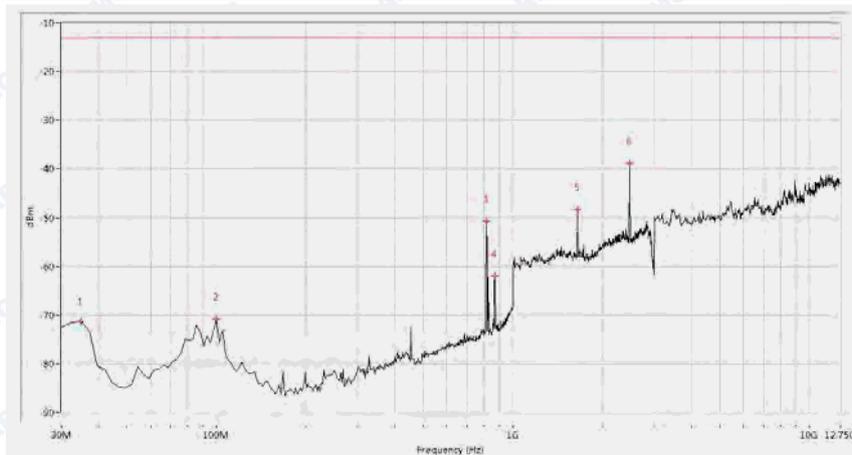
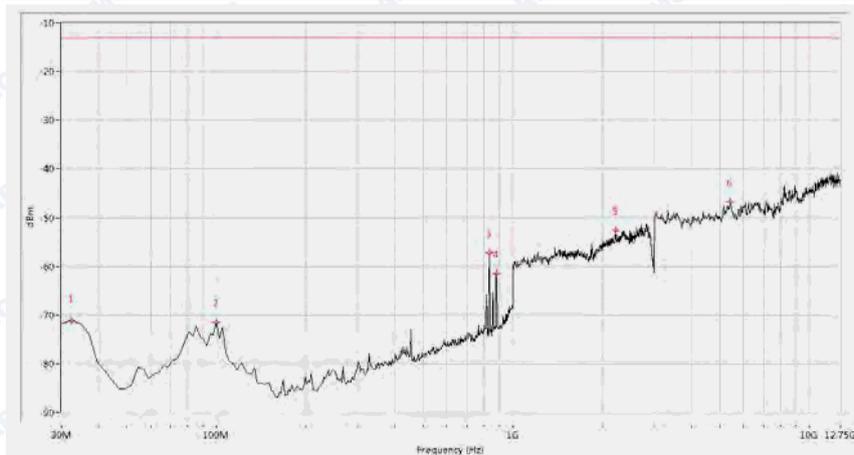| Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.32	-13.0	58.3	85.4	Vertical	PASS
100.150	-70.82	-13.0	57.8	354.9	Vertical	PASS
816.160	-50.72	-13.0	37.7	279.2	Vertical	N.A
869.377	-61.98	-13.0	49.0	260.6	Vertical	N.A
1648.379	-48.39	-13.0	35.4	314.7	Vertical	PASS
2471.322	-38.81	-13.0	25.8	355.0	Vertical	PASS

(Plot G.2: HSDPA 850MHz Channel = 4132, Test Antenna Vertical)
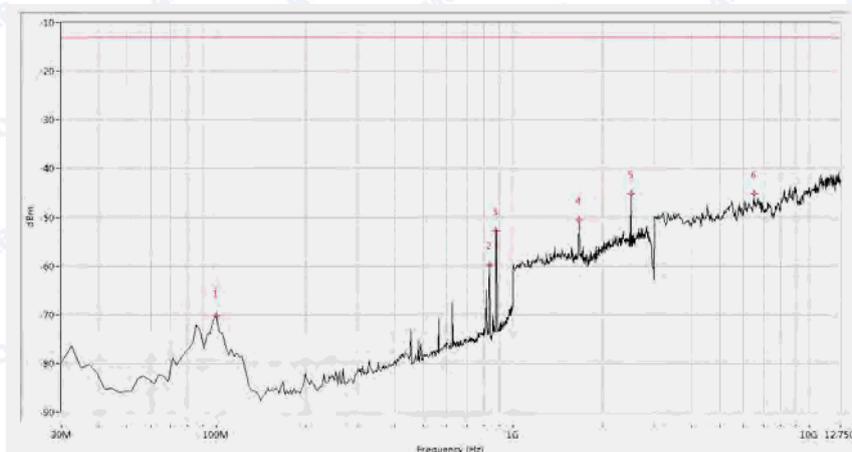
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-70.19	-13.0	57.2	312.7	Horizontal	PASS
835.511	-59.73	-13.0	46.7	322.4	Horizontal	N.A
876.633	-52.81	-13.0	39.8	293.0	Horizontal	N.A
1673.317	-50.59	-13.0	37.6	244.8	Horizontal	PASS
2506.234	-45.18	-13.0	32.2	347.8	Horizontal	PASS
6501.247	-45.23	-13.0	32.2	291.8	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-71.22	-13.0	58.2	30.0	Vertical	PASS
100.150	-71.53	-13.0	58.5	274.3	Vertical	PASS
835.511	-57.20	-13.0	44.2	265.4	Vertical	N.A
879.052	-61.46	-13.0	48.5	260.6	Vertical	N.A
2216.958	-52.62	-13.0	39.6	218.0	Vertical	PASS
5407.107	-46.72	-13.0	33.7	74.2	Vertical	PASS

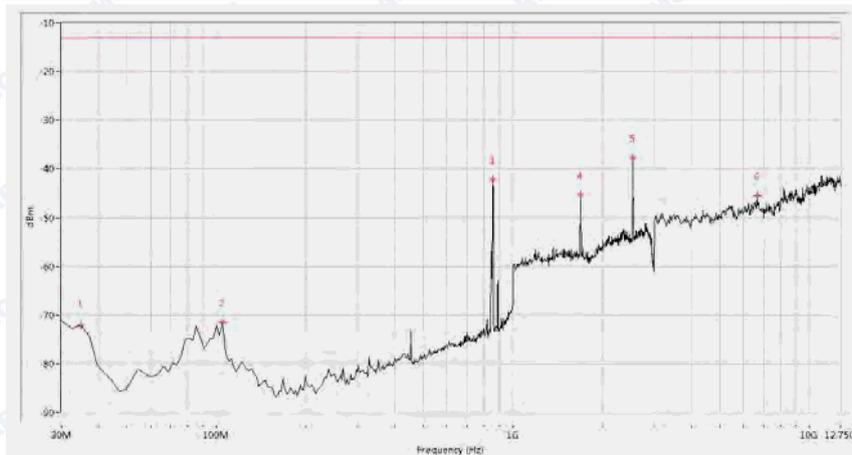(Plot G.4: HSDPA 850MHz Channel = 4175, Test Antenna Vertical)
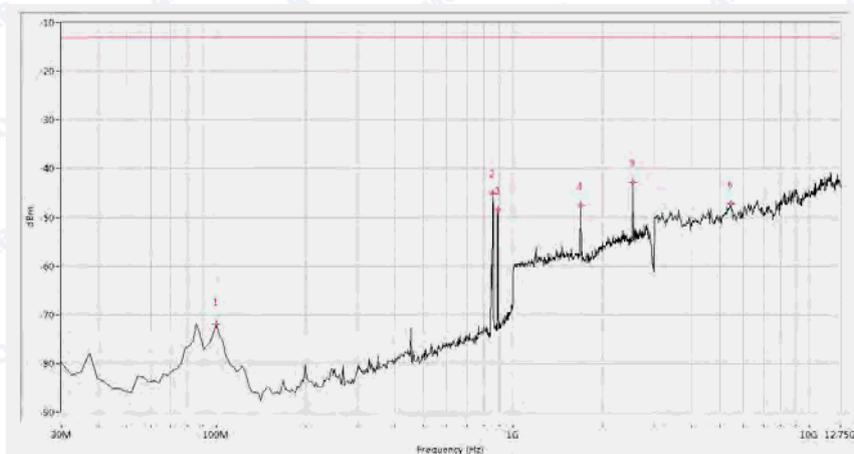
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-71.90	-13.0	58.9	252.6	Horizontal	PASS
854.863	-45.06	-13.0	32.1	349.7	Horizontal	N.A
891.147	-48.48	-13.0	35.5	173.7	Horizontal	N.A
1688.279	-47.47	-13.0	34.5	220.4	Horizontal	PASS
2536.160	-42.77	-13.0	29.8	359.0	Horizontal	PASS
5431.421	-47.26	-13.0	34.3	186.7	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-72.18	-13.0	59.2	81.3	Vertical	PASS
104.988	-71.52	-13.0	58.5	182.8	Vertical	PASS
854.863	-42.11	-13.0	29.1	278.8	Vertical	N.A
1688.279	-45.34	-13.0	32.3	31.7	Vertical	PASS
2541.147	-37.78	-13.0	24.8	360.0	Vertical	PASS
6671.446	-45.53	-13.0	32.5	338.7	Vertical	PASS

(Plot G.6:   HSDPA 850MHz Channel = 4233, Test Antenna Vertical)
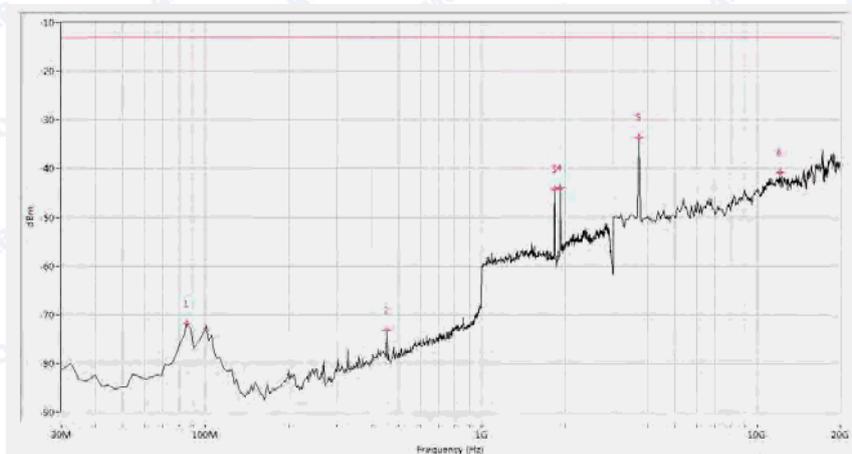
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.84	-13.0	58.8	274.9	Horizontal	PASS
453.317	-73.13	-13.0	60.1	245.9	Horizontal	PASS
1837.905	-44.20	-13.0	31.2	227.9	Horizontal	N.A
1927.681	-43.91	-13.0	30.9	126.3	Horizontal	N.A
3720.698	-33.54	-13.0	20.5	230.0	Horizontal	PASS
12029.925	-40.78	-13.0	27.8	128.4	Horizontal	PASS

(Plot H.1:   HSDPA 1900 MHz Channel = 9262, Test Antenna Horizontal)
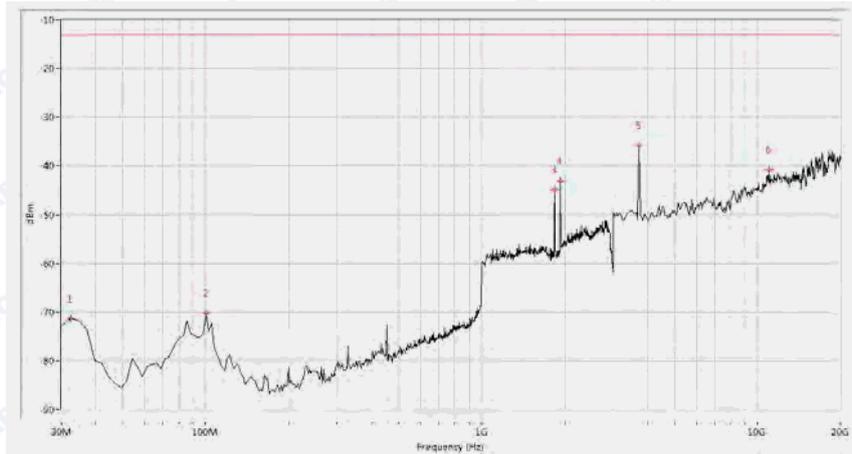
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-71.29	-13.0	58.3	0.5	Vertical	PASS
100.150	-70.24	-13.0	57.2	10.0	Vertical	PASS
1837.905	-44.88	-13.0	31.9	61.0	Vertical	N.A
1932.668	-43.07	-13.0	30.1	146.2	Vertical	N.A
3720.698	-35.85	-13.0	22.8	47.1	Vertical	PASS
10970.075	-40.67	-13.0	27.7	239.8	Vertical	PASS

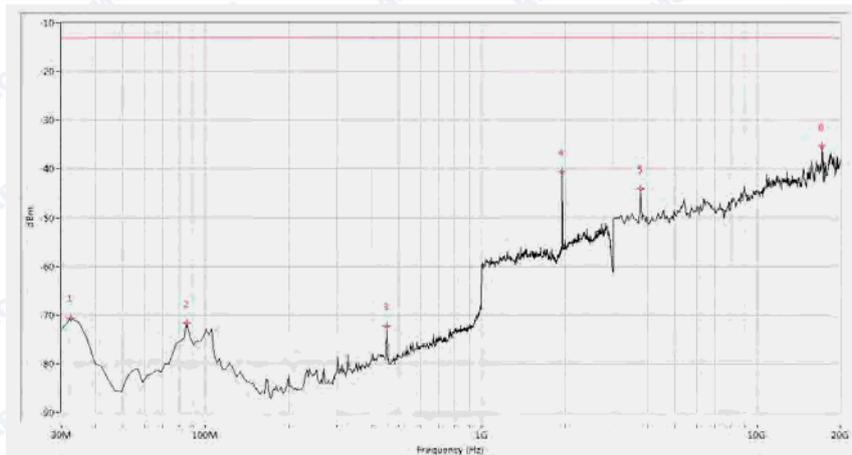(Plot H.2:　HSDPA 1900 MHz Channel = 9262, Test Antenna Vertical)
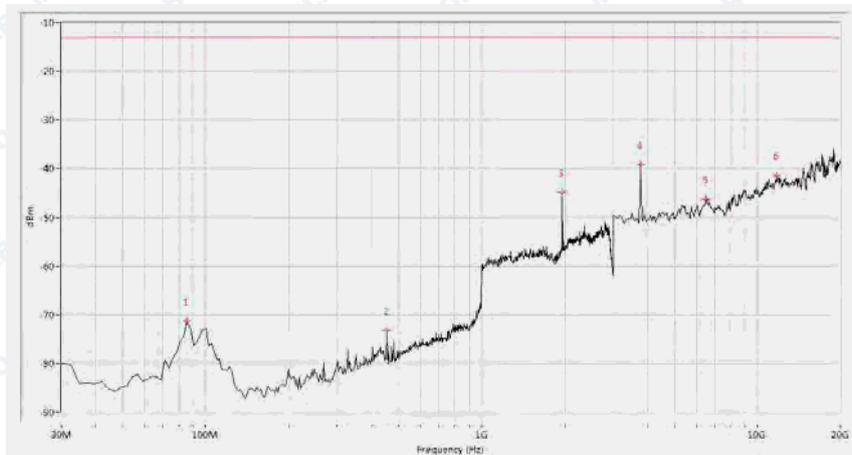
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.39	-13.0	58.4	337.8	Horizontal	PASS
453.317	-73.28	-13.0	60.3	29.5	Horizontal	PASS
1957.606	-44.83	-13.0	31.8	154.2	Horizontal	N.A
3763.092	-39.09	-13.0	26.1	239.1	Horizontal	PASS
6518.703	-46.29	-13.0	33.3	162.6	Horizontal	PASS
11775.561	-41.35	-13.0	28.4	360.0	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.70	-13.0	57.7	352.1	Vertical	PASS
85.636	-71.60	-13.0	58.6	272.9	Vertical	PASS
453.317	-72.27	-13.0	59.3	272.9	Vertical	PASS
1957.606	-40.58	-13.0	27.6	122.0	Vertical	N.A
3763.092	-44.06	-13.0	31.1	28.2	Vertical	PASS
17159.601	-35.31	-13.0	22.3	28.2	Vertical	PASS

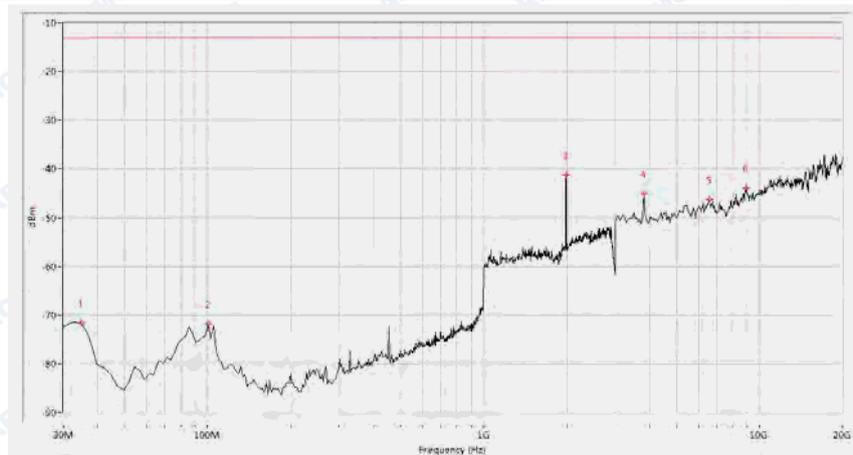(Plot H.4:   HSDPA 1900 MHz Channel = 9400, Test Antenna Vertical)
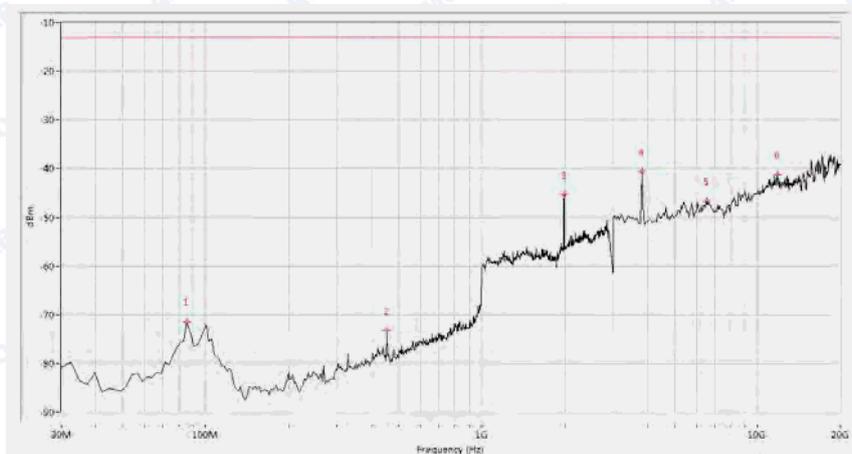
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.46	-13.0	58.5	345.4	Horizontal	PASS
453.317	-73.21	-13.0	60.2	233.4	Horizontal	PASS
1987.531	-45.28	-13.0	32.3	90.1	Horizontal	N.A
3805.486	-40.63	-13.0	27.6	243.8	Horizontal	PASS
6561.097	-46.54	-13.0	33.5	145.9	Horizontal	PASS
11817.955	-41.24	-13.0	28.2	177.9	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.61	-13.0	58.6	1.6	Vertical	PASS
100.150	-71.83	-13.0	58.8	249.5	Vertical	PASS
1987.531	-41.15	-13.0	28.2	113.1	Vertical	N.A
3805.486	-45.02	-13.0	32.0	63.0	Vertical	PASS
6603.491	-46.26	-13.0	33.3	38.8	Vertical	PASS
8935.162	-43.92	-13.0	30.9	271.0	Vertical	PASS

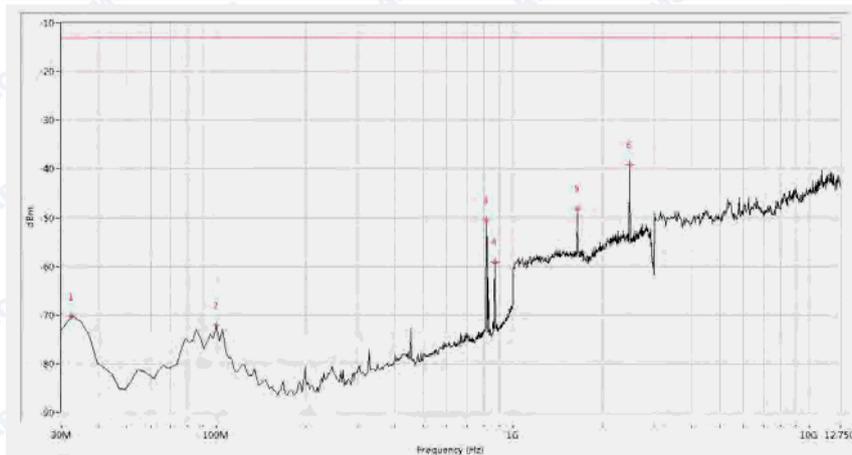(Plot H.6:   HSDPA 1900 MHz Channel = 9538, Test Antenna Vertical)
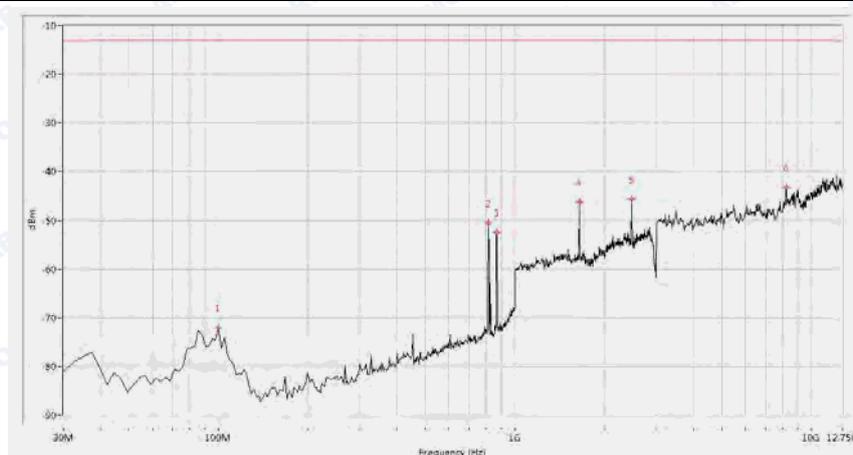
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-72.05	-13.0	59.0	248.5	Horizontal	PASS
816.160	-50.62	-13.0	37.6	297.2	Horizontal	N.A
869.377	-52.41	-13.0	39.4	243.7	Horizontal	N.A
1648.379	-46.34	-13.0	33.3	216.3	Horizontal	PASS
2471.322	-45.70	-13.0	32.7	351.5	Horizontal	PASS
8227.556	-43.31	-13.0	30.3	250.6	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.15	-13.0	57.1	333.2	Vertical	PASS
100.150	-72.08	-13.0	59.1	1.6	Vertical	PASS
816.160	-50.49	-13.0	37.5	271.1	Vertical	N.A
869.377	-59.16	-13.0	46.2	257.4	Vertical	N.A
1648.379	-48.16	-13.0	35.2	23.6	Vertical	PASS
2471.322	-39.21	-13.0	26.2	-0.0	Vertical	PASS

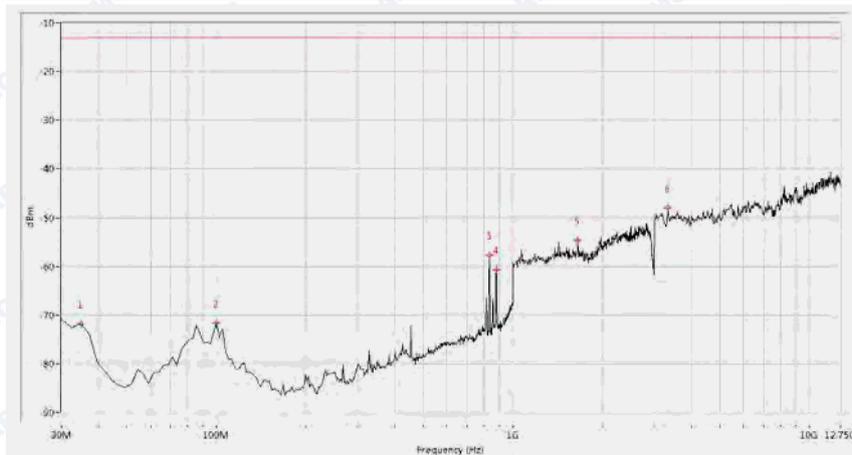(Plot I.2:   HSUPA 850 MHz Channel = 4132, Test Antenna Vertical)
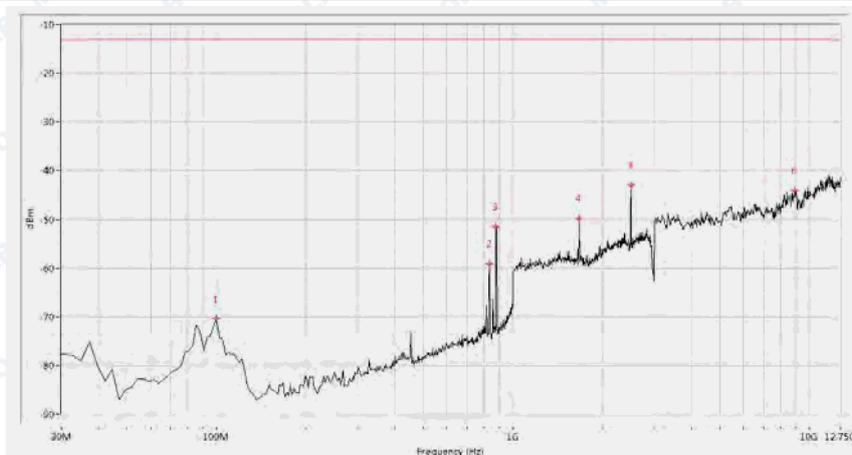
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-70.35	-13.0	57.4	282.6	Horizontal	PASS
835.511	-59.06	-13.0	46.1	310.1	Horizontal	N.A
876.633	-51.53	-13.0	38.5	92.1	Horizontal	N.A
1673.317	-49.82	-13.0	36.8	214.7	Horizontal	PASS
2506.234	-42.96	-13.0	30.0	-0.0	Horizontal	PASS
8932.668	-44.10	-13.0	31.1	283.7	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.83	-13.0	58.8	124.7	Vertical	PASS
100.150	-71.56	-13.0	58.6	324.7	Vertical	PASS
835.511	-57.65	-13.0	44.7	36.9	Vertical	N.A
879.052	-60.73	-13.0	47.7	134.0	Vertical	N.A
1653.367	-54.69	-13.0	41.7	211.2	Vertical	PASS
3340.399	-48.07	-13.0	35.1	180.0	Vertical	PASS

(Plot I.4:   HSUPA 850MHz Channel = 4175, Test Antenna Vertical)
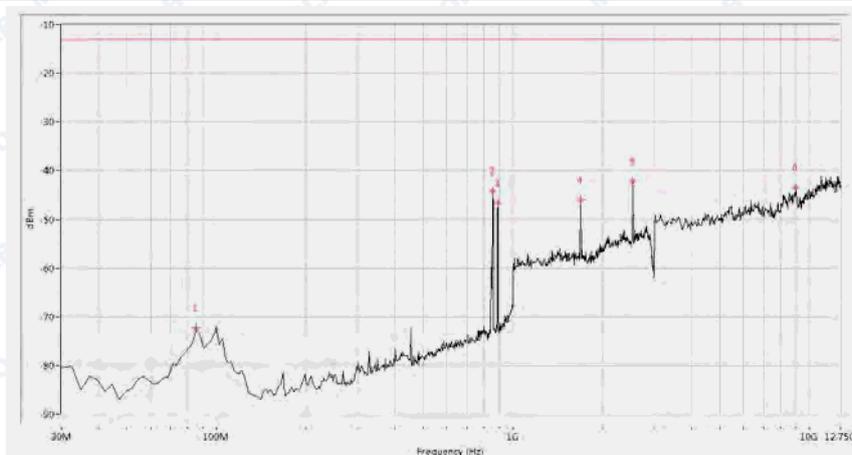
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-72.32	-13.0	59.3	163.7	Horizontal	PASS
854.863	-44.22	-13.0	31.2	296.0	Horizontal	N.A
891.147	-46.60	-13.0	33.6	184.5	Horizontal	N.A
1693.267	-45.89	-13.0	32.9	61.3	Horizontal	PASS
2536.160	-42.08	-13.0	29.1	355.8	Horizontal	PASS
9005.611	-43.41	-13.0	30.4	166.7	Horizontal	PASS

(Plot I.5:   HSUPA 850MHz Channel = 4233, Test Antenna Horizontal)
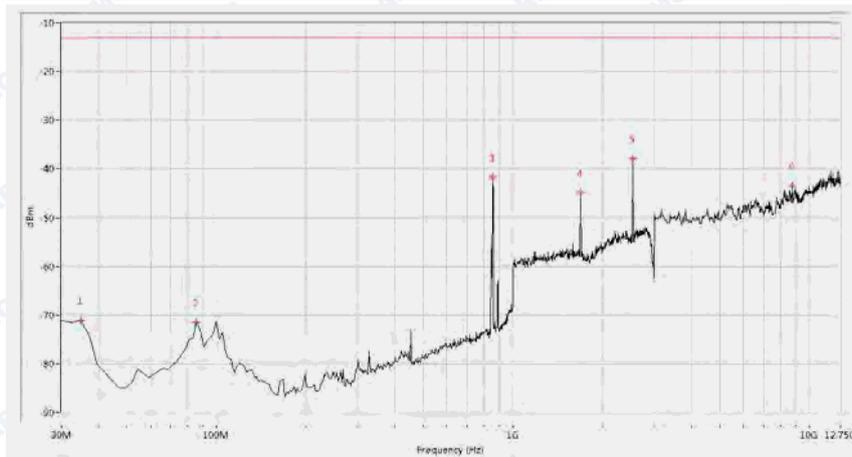
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.16	-13.0	58.2	-0.0	Vertical	PASS
85.636	-71.50	-13.0	58.5	41.0	Vertical	PASS
854.863	-41.66	-13.0	28.7	268.2	Vertical	N.A
1688.279	-44.91	-13.0	31.9	37.0	Vertical	PASS
2531.172	-37.86	-13.0	24.9	-0.0	Vertical	PASS
8762.469	-43.43	-13.0	30.4	344.5	Vertical	PASS

(Plot I.6:   HSUPA 850MHz Channel = 4233, Test Antenna Vertical)
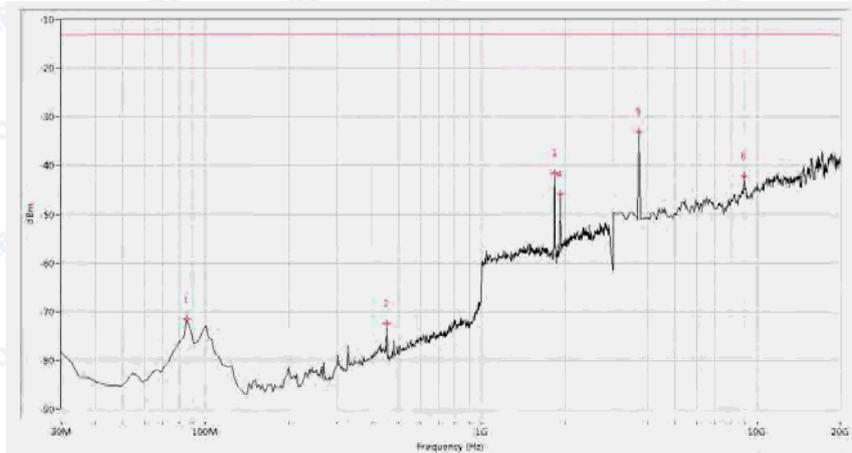
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.40	-13.0	58.4	13.8	Horizontal	PASS
453.317	-72.46	-13.0	59.5	360.0	Horizontal	PASS
1837.905	-41.53	-13.0	28.5	220.8	Horizontal	N.A
1927.681	-45.79	-13.0	32.8	125.9	Horizontal	N.A
3720.698	-33.05	-13.0	20.0	228.7	Horizontal	PASS
8935.162	-42.10	-13.0	29.1	33.2	Horizontal	PASS

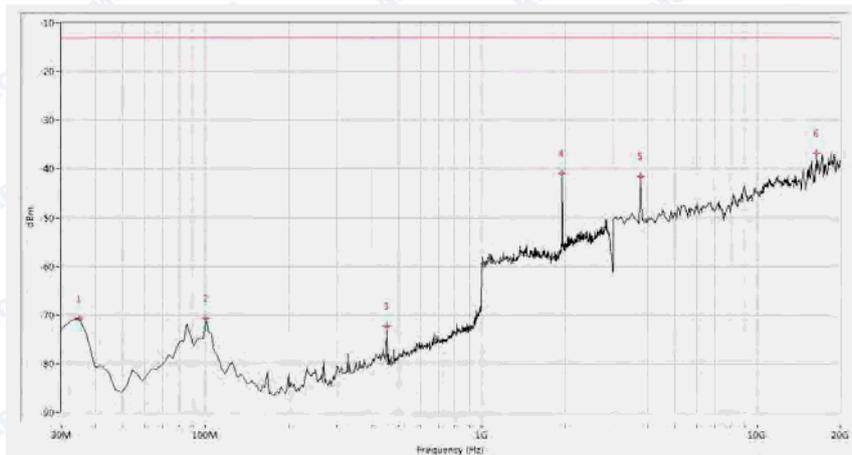(Plot J.1:   HSUPA 1900 MHz Channel = 9262, Test Antenna Horizontal)
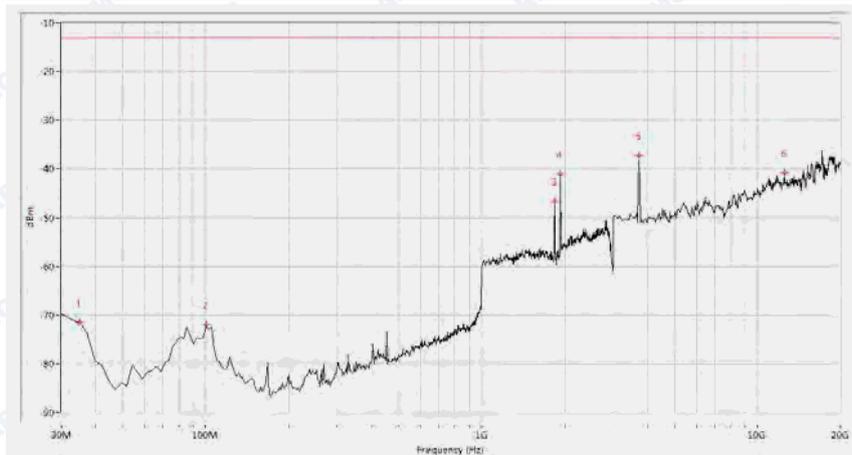
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.54	-13.0	58.5	78.9	Vertical	PASS
100.150	-71.96	-13.0	59.0	337.3	Vertical	PASS
1837.905	-46.58	-13.0	33.6	134.8	Vertical	N.A
1932.668	-40.99	-13.0	28.0	146.4	Vertical	N.A
3720.698	-37.30	-13.0	24.3	31.7	Vertical	PASS
12496.259	-40.77	-13.0	27.8	24.2	Vertical	PASS

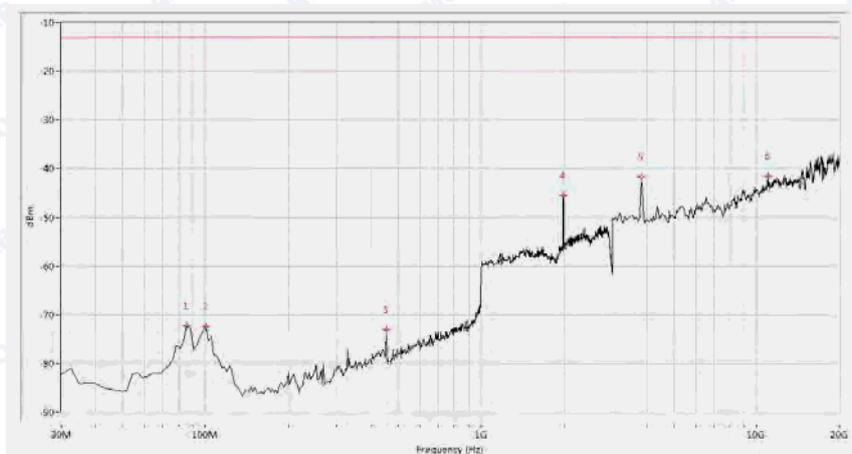(Plot J.2:   HSUPA 1900 MHz Channel = 9262, Test Antenna Vertical)
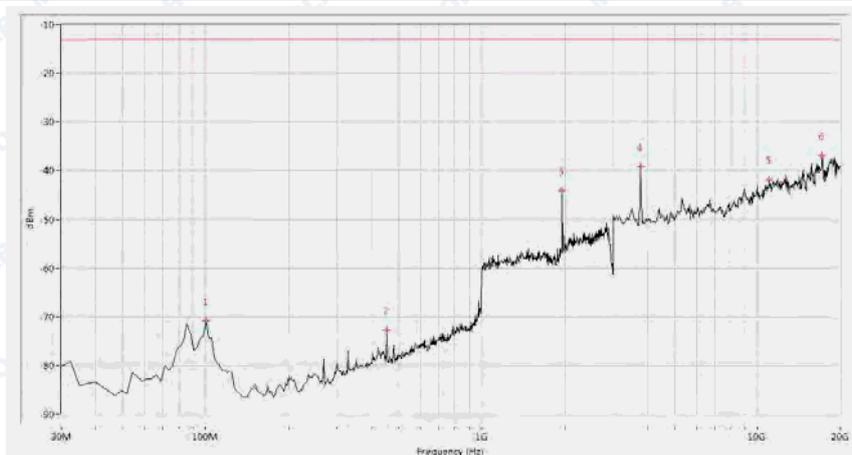
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-70.83	-13.0	57.8	265.0	Horizontal	PASS
453.317	-72.74	-13.0	59.7	34.0	Horizontal	PASS
1957.606	-44.10	-13.0	31.1	126.8	Horizontal	N.A
3763.092	-39.20	-13.0	26.2	249.1	Horizontal	PASS
11012.469	-41.82	-13.0	28.8	-0.0	Horizontal	PASS
17159.601	-36.97	-13.0	24.0	308.2	Horizontal	PASS

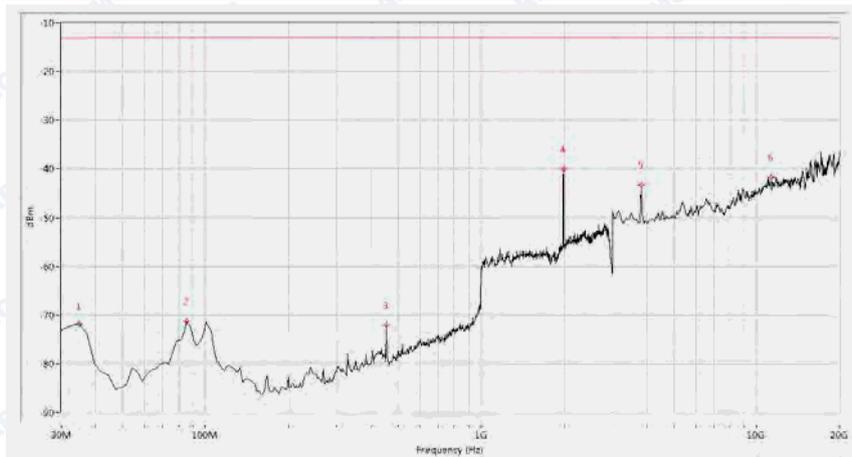(Plot J.3:   HSUPA 1900 MHz Channel = 9400, Test Antenna Horizontal)

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-70.75	-13.0	57.8	1.6	Vertical	PASS
100.150	-70.74	-13.0	57.7	52.5	Vertical	PASS
453.317	-72.30	-13.0	59.3	354.0	Vertical	PASS
1957.606	-40.90	-13.0	27.9	121.4	Vertical	N.A
3763.092	-41.45	-13.0	28.4	49.2	Vertical	PASS
16396.509	-36.82	-13.0	23.8	64.8	Vertical	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-72.20	-13.0	59.2	354.1	Horizontal	PASS
100.150	-72.36	-13.0	59.4	272.1	Horizontal	PASS
453.317	-73.03	-13.0	60.0	89.1	Horizontal	PASS
1987.531	-45.46	-13.0	32.5	90.8	Horizontal	N.A
3805.486	-41.67	-13.0	28.7	244.2	Horizontal	PASS
10970.075	-41.59	-13.0	28.6	326.1	Horizontal	PASS

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

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.83	-13.0	58.8	357.8	Vertical	PASS
85.636	-71.32	-13.0	58.3	200.6	Vertical	PASS
453.317	-72.15	-13.0	59.1	238.1	Vertical	PASS
1987.531	-40.03	-13.0	27.0	158.3	Vertical	N.A
3805.486	-43.31	-13.0	30.3	32.1	Vertical	PASS
11266.833	-41.73	-13.0	28.7	226.5	Vertical	PASS

(Plot J.6:   HSUPA 1900 MHz Channel = 9538, Test Antenna Vertical)
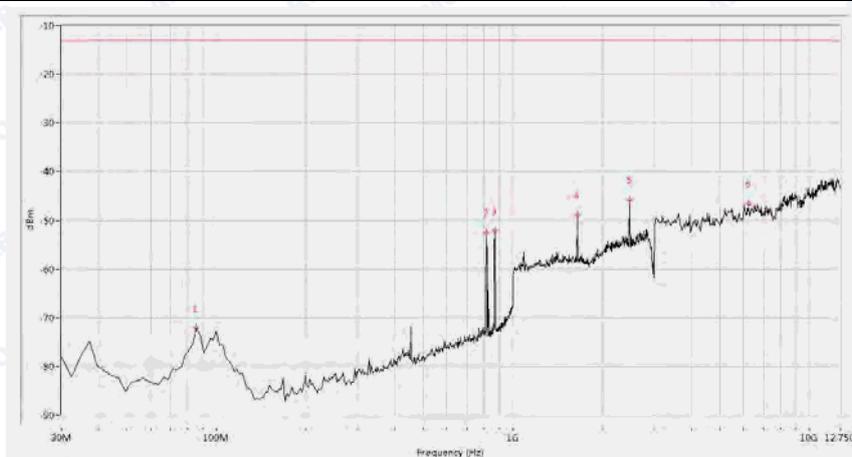
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-72.09	-13.0	59.1	7.5	Horizontal	PASS
816.160	-52.68	-13.0	39.7	82.0	Horizontal	N.A
869.377	-52.22	-13.0	39.2	253.5	Horizontal	N.A
1648.379	-48.95	-13.0	35.9	40.2	Horizontal	PASS
2471.322	-45.74	-13.0	32.7	359.4	Horizontal	PASS
6258.105	-46.58	-13.0	33.6	122.6	Horizontal	PASS

(Plot K.1:   HSPA+ 850MHz Channel = 4132, Test Antenna Horizontal)
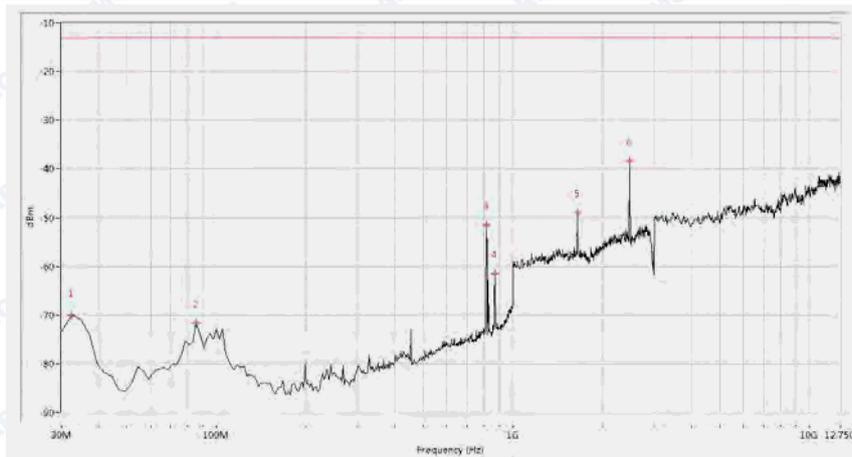
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.02	-13.0	57.0	351.0	Vertical	PASS
85.636	-71.61	-13.0	58.6	102.3	Vertical	PASS
816.160	-51.50	-13.0	38.5	307.1	Vertical	N.A
869.377	-61.44	-13.0	48.4	257.7	Vertical	N.A
1648.379	-48.97	-13.0	36.0	30.8	Vertical	PASS
2471.322	-38.37	-13.0	25.4	5.5	Vertical	PASS

(Plot K.2:   HSPA+ 850 MHz Channel = 4132, Test Antenna Vertical)
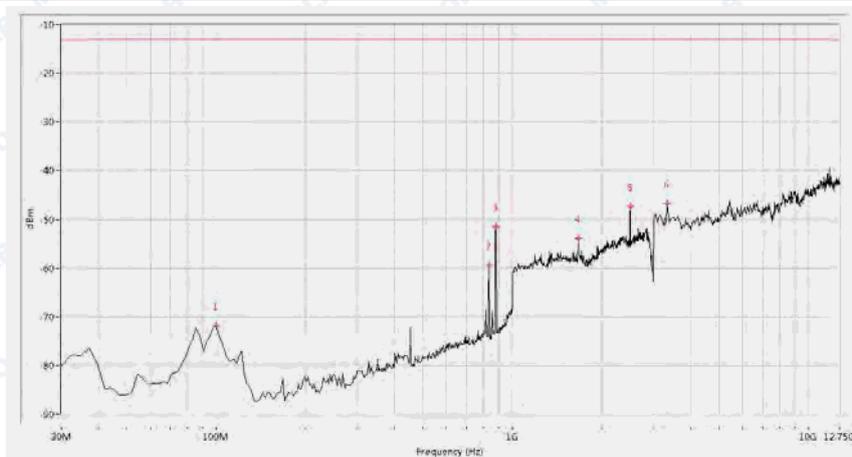
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
100.150	-71.75	-13.0	58.8	67.8	Horizontal	PASS
835.511	-59.50	-13.0	46.5	296.5	Horizontal	N.A
879.052	-51.54	-13.0	38.5	189.1	Horizontal	N.A
1668.329	-53.91	-13.0	40.9	212.7	Horizontal	PASS
2506.234	-47.42	-13.0	34.4	343.2	Horizontal	PASS
3340.399	-46.77	-13.0	33.8	262.1	Horizontal	PASS

(Plot K.3:   HSPA+ 850MHz Channel = 4175, Test Antenna Horizontal)
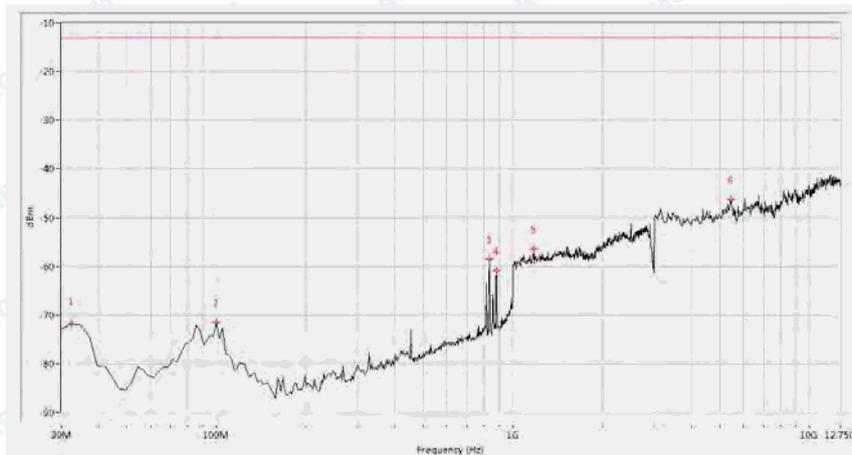
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-71.74	-13.0	58.7	60.7	Vertical	PASS
100.150	-71.46	-13.0	58.5	217.6	Vertical	PASS
835.511	-58.46	-13.0	45.5	189.7	Vertical	N.A
879.052	-60.79	-13.0	47.8	261.1	Vertical	N.A
1174.564	-56.38	-13.0	43.4	73.1	Vertical	PASS
5431.421	-46.24	-13.0	33.2	145.5	Vertical	PASS

(Plot K.4:   HSPA+ 850MHz Channel = 4175, Test Antenna Vertical)
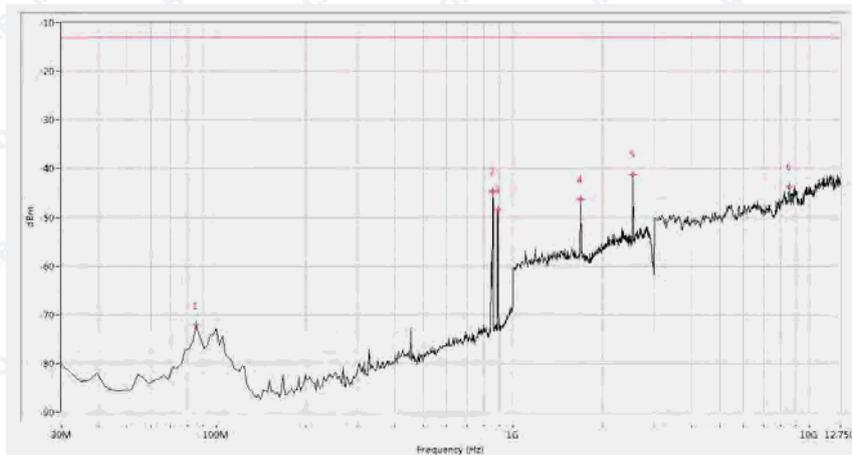
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-72.16	-13.0	59.2	33.3	Horizontal	PASS
854.863	-44.71	-13.0	31.7	306.3	Horizontal	N.A
891.147	-48.52	-13.0	35.5	137.1	Horizontal	N.A
1693.267	-46.24	-13.0	33.2	215.3	Horizontal	PASS
2541.147	-41.28	-13.0	28.3	161.4	Horizontal	PASS
8543.641	-43.80	-13.0	30.8	205.5	Horizontal	PASS

(Plot K.5:   HSPA+ 850MHz Channel = 4233, Test Antenna Horizontal)
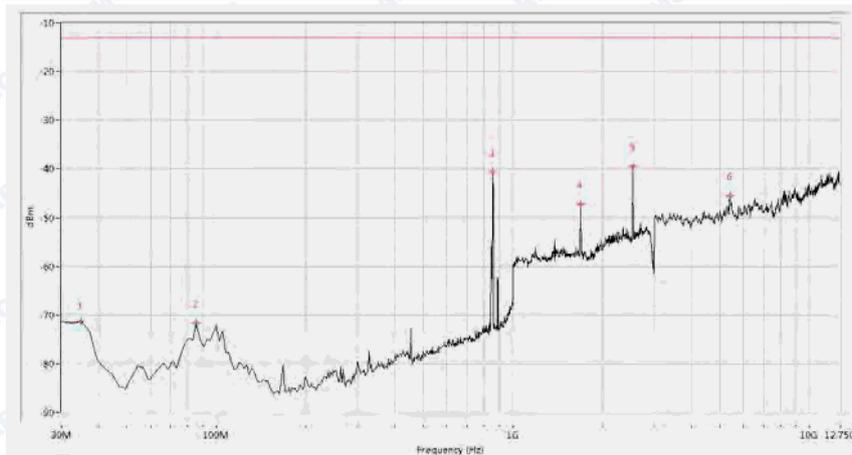
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.36	-13.0	58.4	52.9	Vertical	PASS
85.636	-71.66	-13.0	58.7	265.2	Vertical	PASS
854.863	-40.60	-13.0	27.6	275.3	Vertical	N.A
1688.279	-47.30	-13.0	34.3	46.3	Vertical	PASS
2531.172	-39.50	-13.0	26.5	357.0	Vertical	PASS
5407.107	-45.41	-13.0	32.4	20.1	Vertical	PASS

(Plot K.6:   HSPA+ 850MHz Channel = 4233, Test Antenna Vertical)
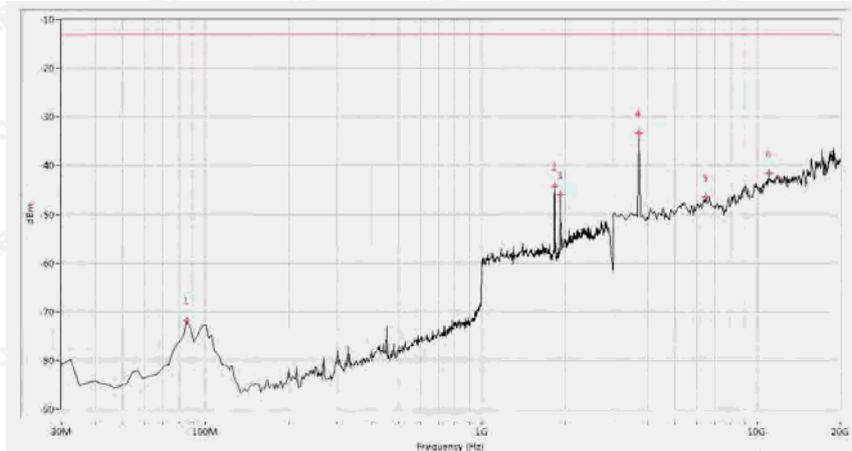
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.74	-13.0	58.7	-0.0	Horizontal	PASS
1837.905	-44.27	-13.0	31.3	225.1	Horizontal	PASS
1932.668	-45.96	-13.0	33.0	121.7	Horizontal	N.A
3720.698	-33.21	-13.0	20.2	229.0	Horizontal	PASS
6518.703	-46.49	-13.0	33.5	27.0	Horizontal	PASS
10970.075	-41.54	-13.0	28.5	272.9	Horizontal	PASS

(Plot L.1:   HSPA+ 1900 MHz Channel = 9262, Test Antenna Horizontal)
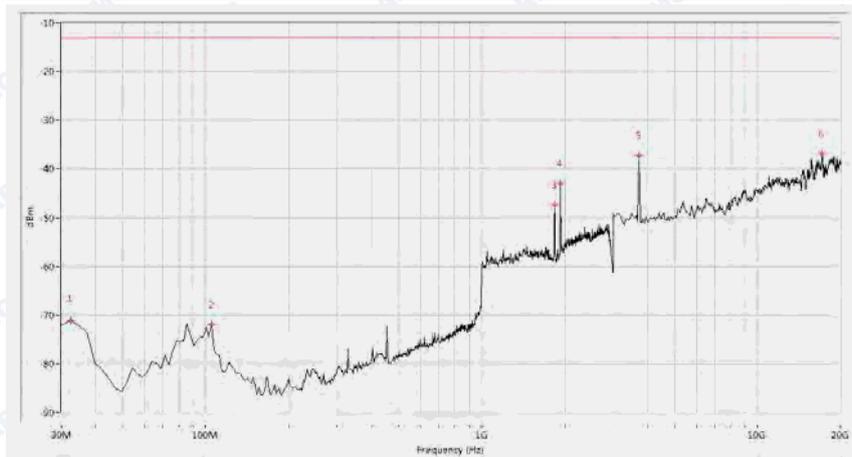
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-71.16	-13.0	58.2	60.3	Vertical	PASS
104.988	-72.01	-13.0	59.0	143.6	Vertical	PASS
1837.905	-47.33	-13.0	34.3	54.2	Vertical	N.A
1932.668	-42.97	-13.0	30.0	43.0	Vertical	N.A
3720.698	-37.22	-13.0	24.2	31.3	Vertical	PASS
17117.207	-36.94	-13.0	23.9	149.6	Vertical	PASS

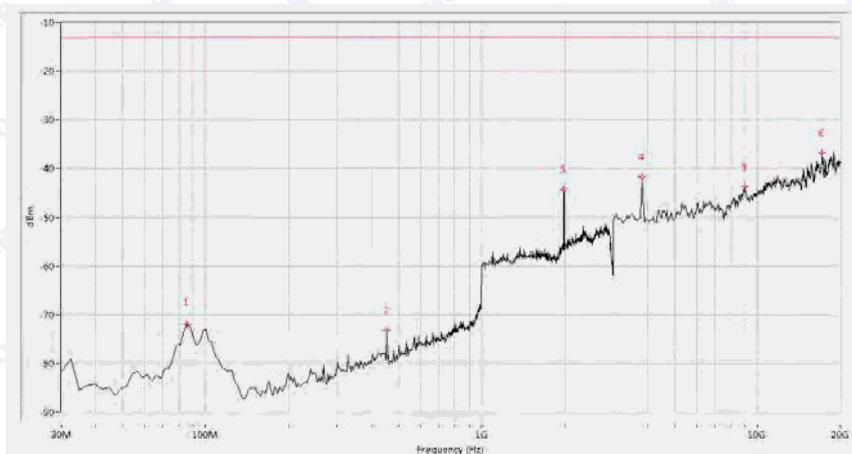(Plot L.2:   HSPA+ 1900 MHz Channel = 9262, Test Antenna Vertical)
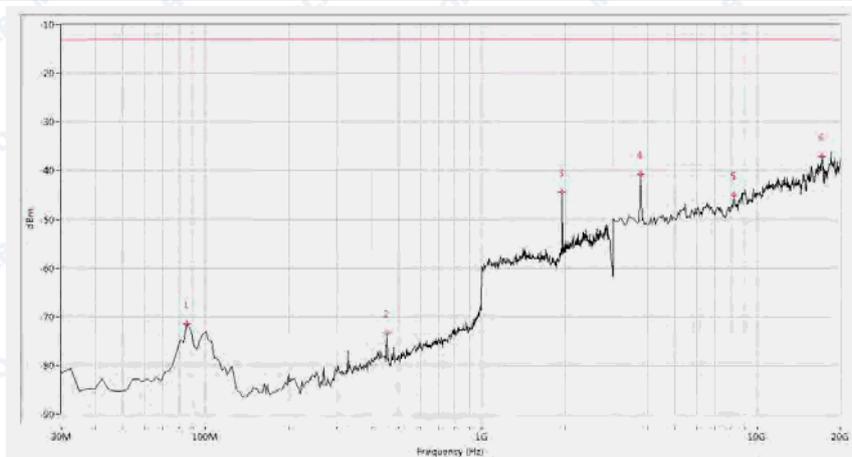
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.50	-13.0	58.5	-0.0	Horizontal	PASS
453.317	-73.41	-13.0	60.4	183.8	Horizontal	PASS
1957.606	-44.39	-13.0	31.4	124.5	Horizontal	N.A
3763.092	-40.70	-13.0	27.7	227.9	Horizontal	PASS
8214.464	-45.08	-13.0	32.1	129.5	Horizontal	PASS
17117.207	-37.02	-13.0	24.0	51.4	Horizontal	PASS

(Plot L.3:   HSPA+ 1900 MHz Channel = 9400, Test Antenna Horizontal)
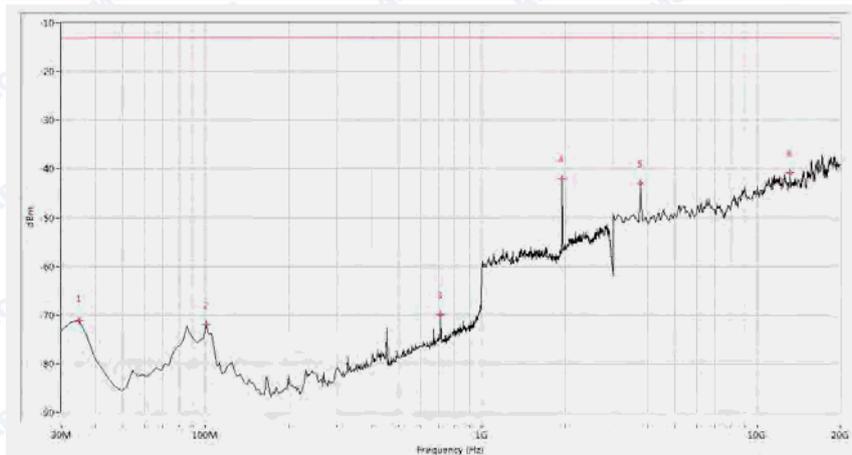
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
34.838	-71.14	-13.0	58.1	50.6	Vertical	PASS
100.150	-71.95	-13.0	59.0	1.4	Vertical	PASS
709.726	-69.91	-13.0	56.9	-0.0	Vertical	PASS
1957.606	-41.95	-13.0	29.0	120.7	Vertical	N.A
3763.092	-42.89	-13.0	29.9	54.8	Vertical	PASS
13132.170	-40.77	-13.0	27.8	278.6	Vertical	PASS

(Plot L.4:   HSPA+ 1900 MHz Channel = 9400, Test Antenna Vertical)

Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
85.636	-71.91	-13.0	58.9	108.3	Horizontal	PASS
453.317	-73.16	-13.0	60.2	349.2	Horizontal	PASS
1982.544	-44.16	-13.0	31.2	360.0	Horizontal	N.A
3805.486	-41.68	-13.0	28.7	237.4	Horizontal	PASS
9019.950	-43.72	-13.0	30.7	164.9	Horizontal	PASS
17117.207	-36.70	-13.0	23.7	52.2	Horizontal	PASS

(Plot L.5:   HSPA+ 1900 MHz Channel = 9538, Test Antenna Horizontal)
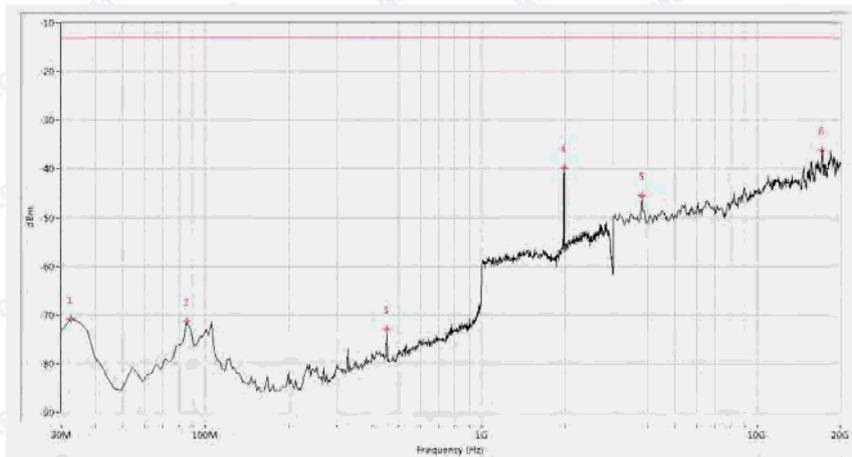
Fre. (MHz)	Peak	Limit(PK)	Margin	Degree	Antenna	Verdict
32.419	-70.80	-13.0	57.8	91.9	Vertical	PASS
85.636	-71.30	-13.0	58.3	300.9	Vertical	PASS
453.317	-72.86	-13.0	59.9	330.6	Vertical	PASS
1987.531	-39.76	-13.0	26.8	147.5	Vertical	N.A
3805.486	-45.46	-13.0	32.5	30.9	Vertical	PASS
17117.207	-36.11	-13.0	23.1	4.0	Vertical	PASS

(Plot L.6: HSPA+ 1900 MHz Channel = 9538, Test Antenna Vertical)

** END OF REPORT **