



REPORT No.: SZ15070092W01

FCC RF TEST REPORT

APPLICANT : CONVERGENCE SYSTEMS LIMITED

PRODUCT NAME : Intelligent Integrated RFID Reader with
3G/GSM and GPS

MODEL NAME : CS208-3G-2

TRADE NAME : CSL

BRAND NAME : CSL

FCC ID : UB4CS2083G

STANDARD(S) : 47 CFR Part 22 Subpart H
47 CFR Part 24 Subpart E
47 CFR Part 27 Subpart L

ISSUE DATE : 2015-11-17



SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.

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Change History		
Issue	Date	Reason for change
1.0	2015-11-17	First edition



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TEST REPORT DECLARATION

Applicant	CONVERGENCE SYSTEMS LIMITED
Applicant Address	20/F, Chung Nam Building, No.1 Lockhart Road, Wanchai, Hong Kong
Manufacturer	DongGuan DongHongXingYe Electronics Science and Technology Limited
Manufacturer Address	1 Jianxiang Street, Hanxishui, Chashan Town, Dongguan, Guangdong, China
Product Name	Intelligent Integrated RFID Reader with 3G/GSM and GPS
Model Name	CS208-3G-2
Brand Name	CSL
HW Version	Main board (V1.9); GSM board (V4.0); RFID board (V9.0)
SW Version	12.00.006(HE910); 1.5.28(RFID); WinCE6.0(OS)
Test Standards	47 CFR Part 22 Subpart H 47 CFR Part 24 Subpart E 47 CFR Part 27 Subpart L
Test Date	2015-10-10 to 2015-11-16
Test Result	PASS

Tested by : Yuan Ling
Yuan Ling (Test Engineer)

Reviewed by : Qiu Xiaojun
Qiu Xiaojun(RF Manager)

Approved by : Zeng Dexin
Zeng Dexin(Chief Engineer)



1. GENERAL INFORMATION

1.1 EUT Description

EUT Type: Intelligent Integrated RFID Reader with 3G/GSM and GPS
Serial No.: (n.a, marked #1 by test site)
Hardware Version: Main board (V1.9); GSM board (V4.0); RFID board (V9.0)
Software Version: 12.00.006(HE910); 1.5.28(RFID); WinCE6.0(OS)
Applicant: CONVERGENCE SYSTEMS LIMITED
20/F, Chung Nam Building, No.1 Lockhart Road, Wanchai, Hong Kong
Manufacturer: CONVERGENCE SYSTEMS LIMITED
20/F, Chung Nam Building, No.1 Lockhart Road, Wanchai, Hong Kong
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 1700MHz
Tx: 1712.4 - 1752.6MHz (at intervals of 200kHz);
Rx: 2112.4 - 2152.6MHz (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 Class10; EGPRS: Multislot Class10
Antenna Type: Dedicated Antenna
Emission Designators: GSM 850:245KGXW,GSM 1900:249KGXW
EGPRS850:251KG7W, EGPRS1900:256KG7W,



WCDMA 850:4M07F9W , WCDMA1700:4M09F9W
WCDMA1900:4M07F9W

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

Note 2: The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can be represented with the formula $F(n)=1850.2+0.2*(n-512)$, $512 \leq n \leq 810$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

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

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

Note 5: The transmitter (Tx) frequency arrangement of the WCDMA 1700MHz band used by the EUT can be represented with the formula $F(n)=1712.4+0.2*(n-1312)$, $1312 \leq n \leq 1513$; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately 1312 (1712.4MHz), 1412 (1732.4MHz) and 1513 (1752.6MHz).

Note 6: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.2 Antenna Description

Antenna	location	Feature	Gain(dBi)	Refer Plot
Antenna 1	internal	Only for 2G&3G	2.0	Plot 1
Antenna 2	internal	Only for 2G&3G	2.0	Plot 2
Antenna 3	external	Only for 2G&3G	3.0	Plot 3
Antenna 4	external	Only for RF ID	5.0	Plot 4

Note: We just record the data of the Antennal 3 in this report.

Plots:



(Plot 1: Antenna 1)



(Plot 2: Antenna 2)

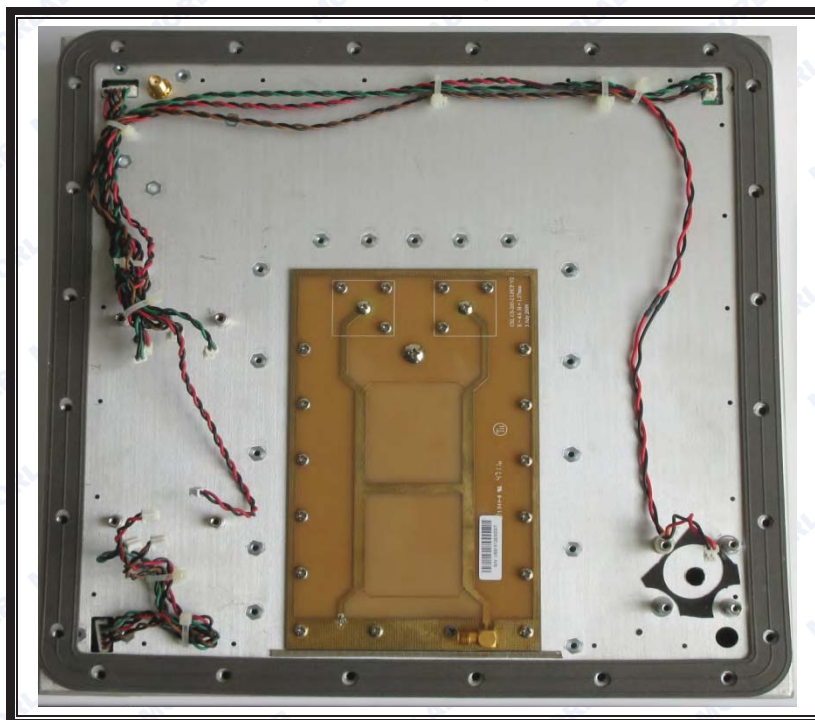


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(Plot 3: Antenna 3)





(Plot 4: Antenna 4)

1.3 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 (10-1-12 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-12 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-12 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

1.4 Facilities and Accreditations

1.4.1 Facilities

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

All measurement facilities used to collect the measurement data are located at FL.1, Building A, FeiYang Science Park, No.8 LongChang Road,Block 67, BaoAn District, ShenZhen, GuangDong Province,P. R. China 518101. The test site is constructed in conformance with the requirements of ANSI C63.7-2009, ANSI C63.4-2009 and CISPR Publication 22:2010; the FCC registration number is 695796.

1.4.2 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

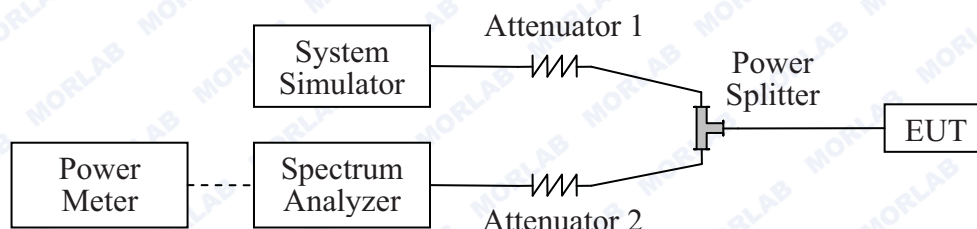
2.1 Conducted RF Output Power

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

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.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2015.02.26	2016.02.25
Spectrum Analyzer	Agilent	E7405A	US44210471	2015.02.26	2016.02.25
Power Meter	Agilent	E4418B	GB43318055	2015.02.26	2016.02.25
Power Sensor	Agilent	8482A	MY41091706	2015.02.26	2016.02.25
Power Splitter	Weinschel	1506A	NW521	2015.02.26	2016.02.25
Attenuator 1	Resnet	20dB	(n.a.)	2015.02.26	2016.02.25
Attenuator 2	Resnet	3dB	(n.a.)	2015.02.26	2016.02.25



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.

GSM Model Test Verdict:

Band	Channel	Frequency (MHz)	Measured Output Power		Limit	Verdict
			dBm	Refer to Plot	dBm	
GPRS 850MHz	128	824.2	32.65	Plot C1 to C3 ^{Note 1}	35	PASS
	190	836.6	32.49			PASS
	251	848.8	32.42			PASS
GPRS 1900MHz	512	1850.2	28.27	Plot D1 to D3 ^{Note 1}	32	PASS
	661	1880.0	28.4			PASS
	810	1909.8	28.66			PASS
EGPRS 850MHz	128	824.2	29.91	Plot E1 to E3 ^{Note 1}	35	PASS
	190	836.6	29.77			PASS
	251	848.8	29.68			PASS
EGPRS 1900MHz	512	1850.2	27.19	Plot F1 to F3 ^{Note 1}	32	PASS
	661	1880.0	27.43			PASS
	810	1909.8	27.79			PASS

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



WCDMA Model Test Verdict:

Item	band	WCDMA 850			WCDMA 1900		
	ARFCN	4132	4175	4233	9262	9400	9538
	subtest	dBm			dBm		
5.2(WCDMA)	non	24.95	24.84	24.82	23.53	23.50	23.56
HSDPA	1	25.61	25.63	25.83	23.67	23.91	23.72
	2	25.55	25.60	25.81	23.66	23.90	23.71
	3	25.19	25.19	25.37	23.15	23.47	23.28
	4	25.18	25.13	25.29	23.14	23.39	23.25
HSUPA	1	26.09	26.07	26.28	23.62	23.92	23.83
	2	24.08	24.09	24.18	21.69	21.97	21.90
	3	25.11	25.18	25.18	22.67	22.99	22.89
	4	24.08	24.10	24.19	21.66	21.89	21.79
	5	26.07	26.09	26.11	23.60	23.89	23.84
HSPA+	1	25.42	25.43	25.77	23.43	23.88	23.94

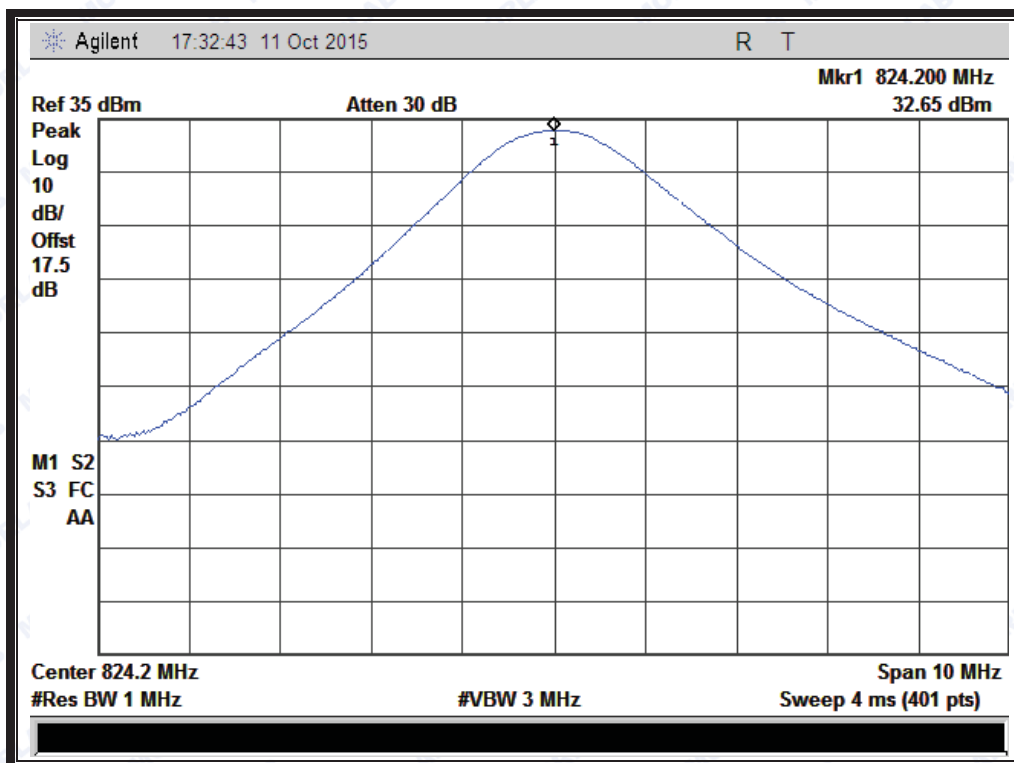
Note: The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA /HSPA+ was tested by power meter.

Item	band	WCDMA 1700		
	ARFCN	1312	1412	1513
	subtest	dBm		
5.2(WCDMA)	non	23.66	23.29	23.11
HSDPA	1	23.27	22.83	22.65
	2	23.29	22.87	22.69
	3	22.78	22.29.	22.18
	4	22.69	22.30	22.15
HSUPA	1	23.28	22.89	22.73
	2	21.20	20.88	20.77
	3	22.29	21.99	21.93
	4	21.20	21.69	20.85
	5	23.19	22.87	22.71
HSPA+	1	23.18	22.90	22.78

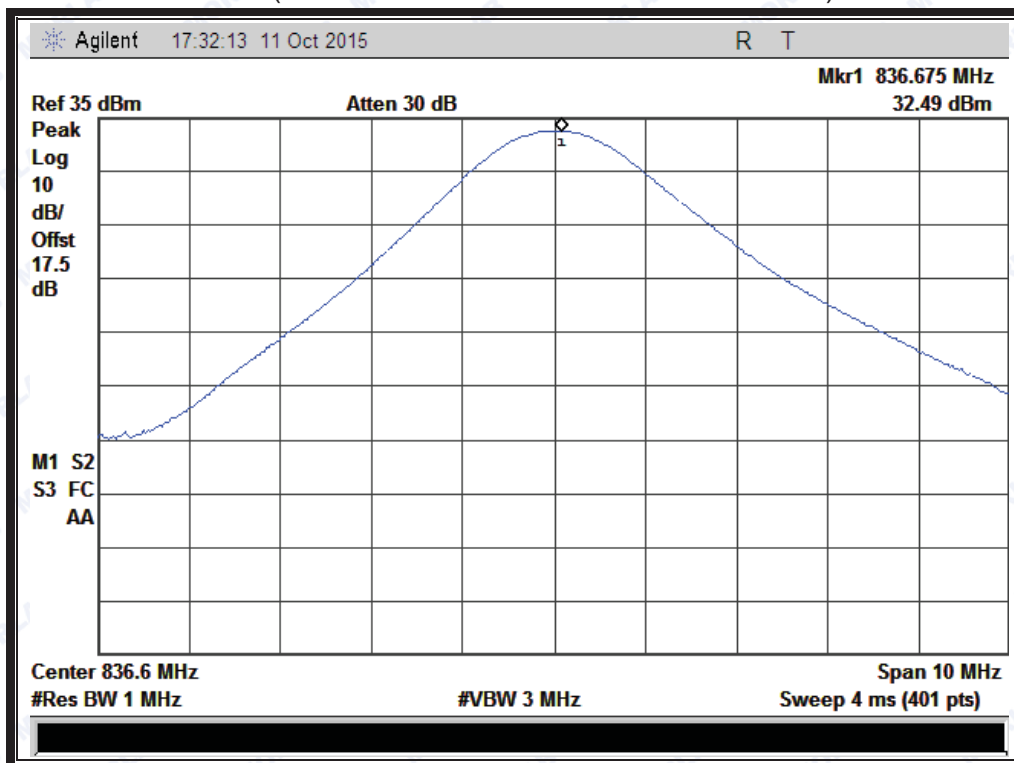
Note: The Conducted RF Output Power test of WCDMA /HSDPA /HSUPA/ HSPA+ was tested by power meter.



GSM Model Test Plots:



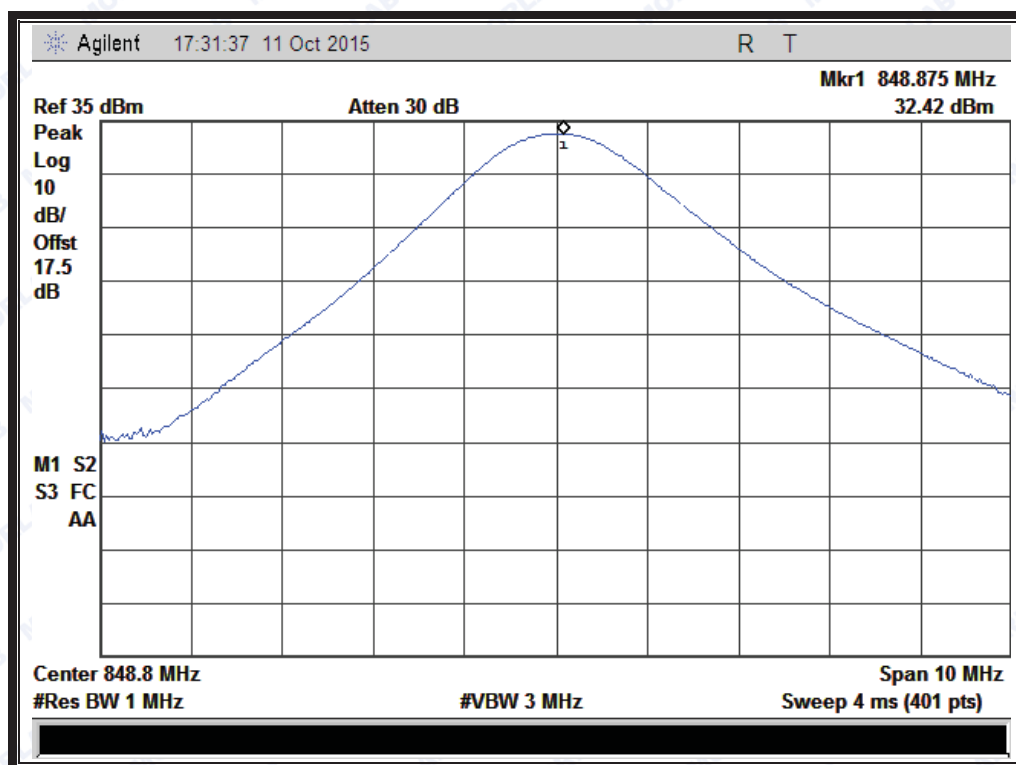
(Plot C1: GPRS 850MHz Channel = 128)



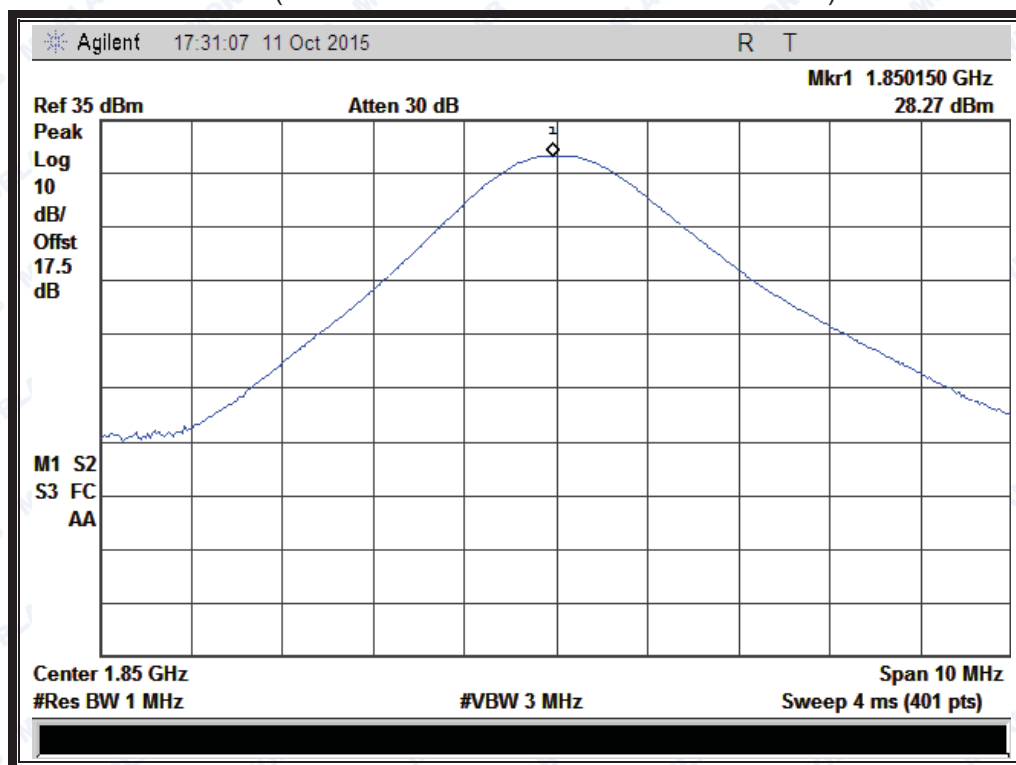
(Plot C2: GPRS 850MHz Channel = 190)



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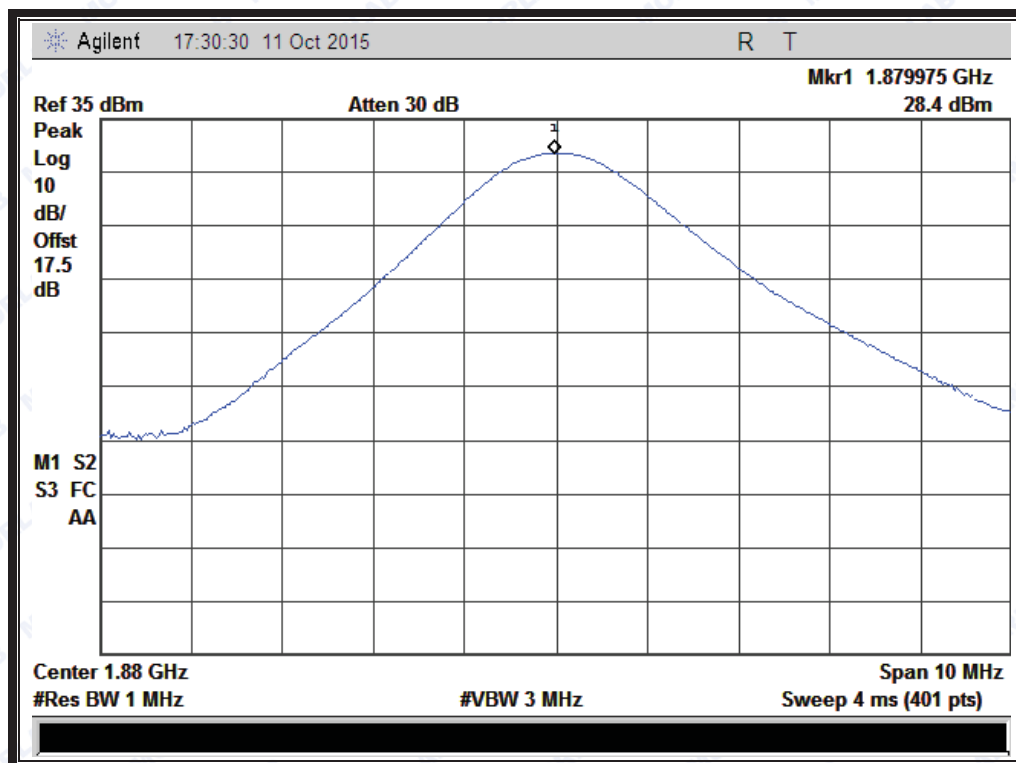
(Plot C3: GPRS 850MHz Channel = 251)



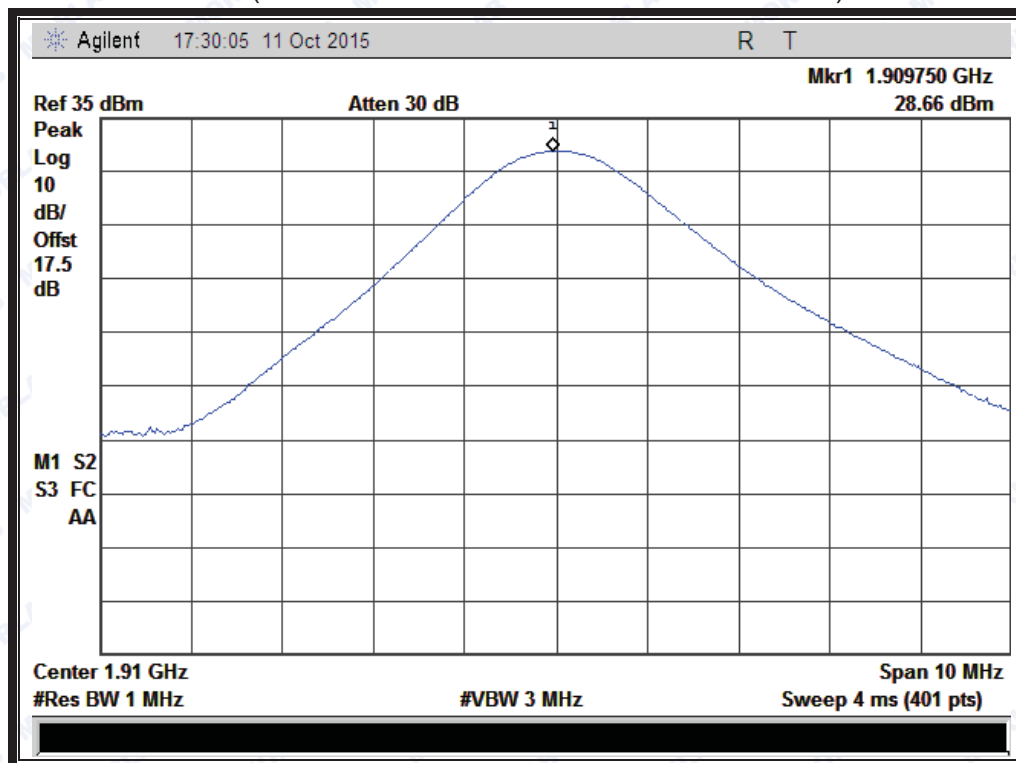
(Plot D1: GPRS 1900MHz Channel = 512)



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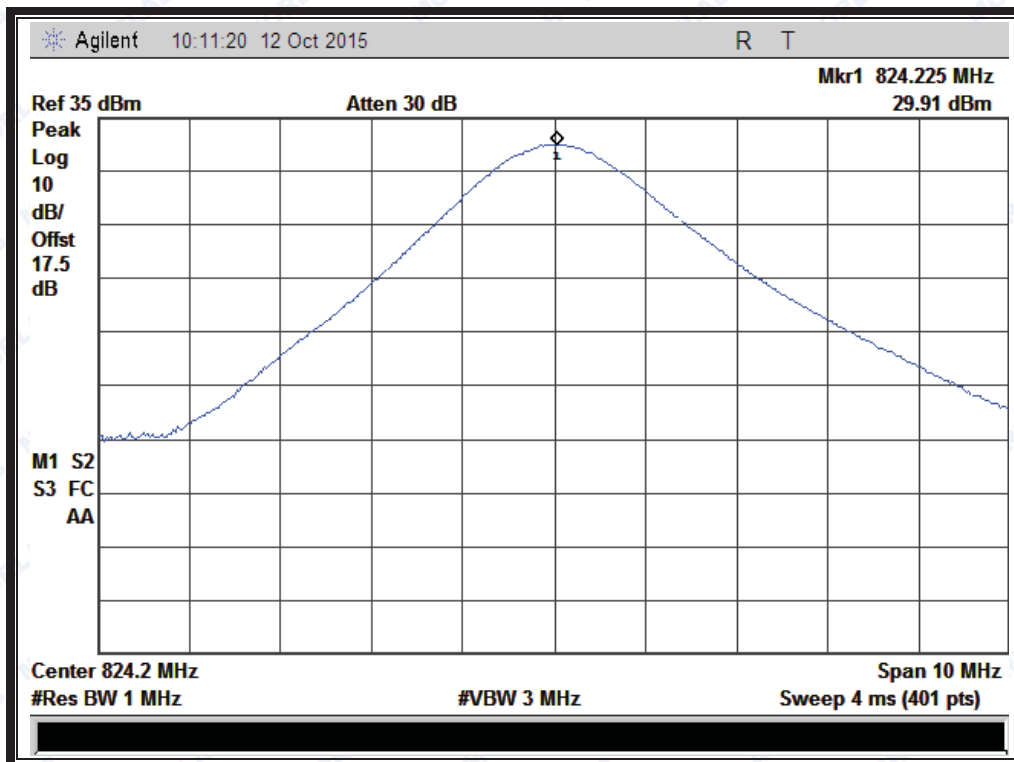
(Plot D2: GPRS 1900MHz Channel = 661)



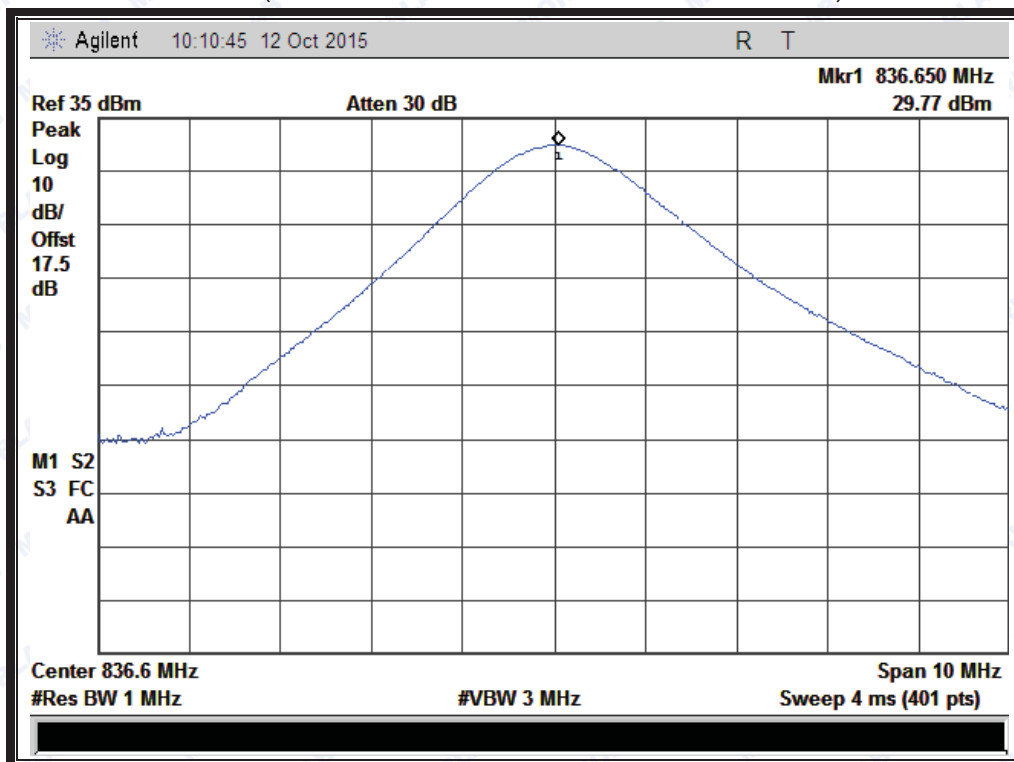
(Plot D3: GPRS 1900Hz Channel = 810)



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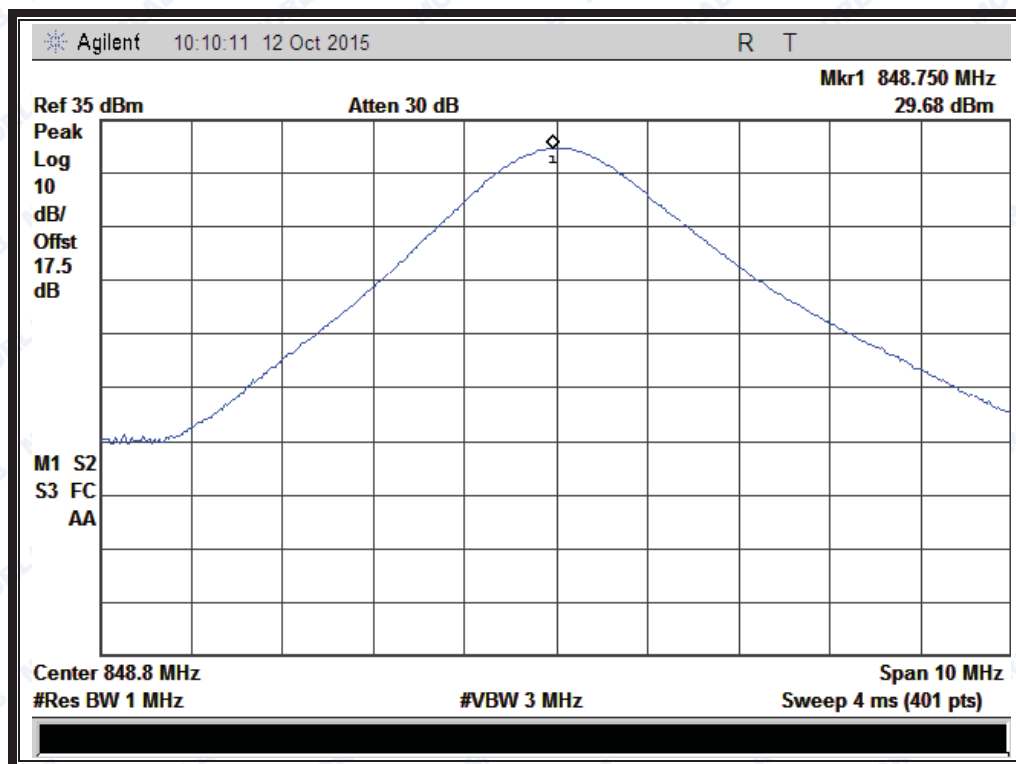
(Plot E1: EGPRS 850MHz Channel = 128)



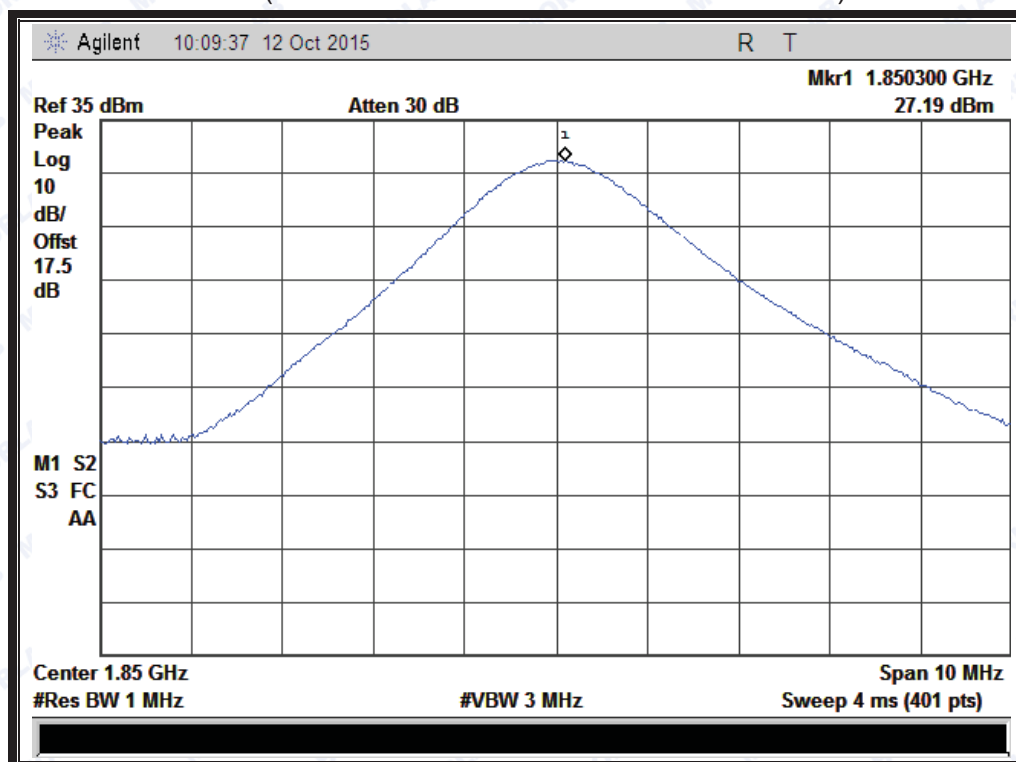
(Plot E2: EGPRS 850MHz Channel = 190)



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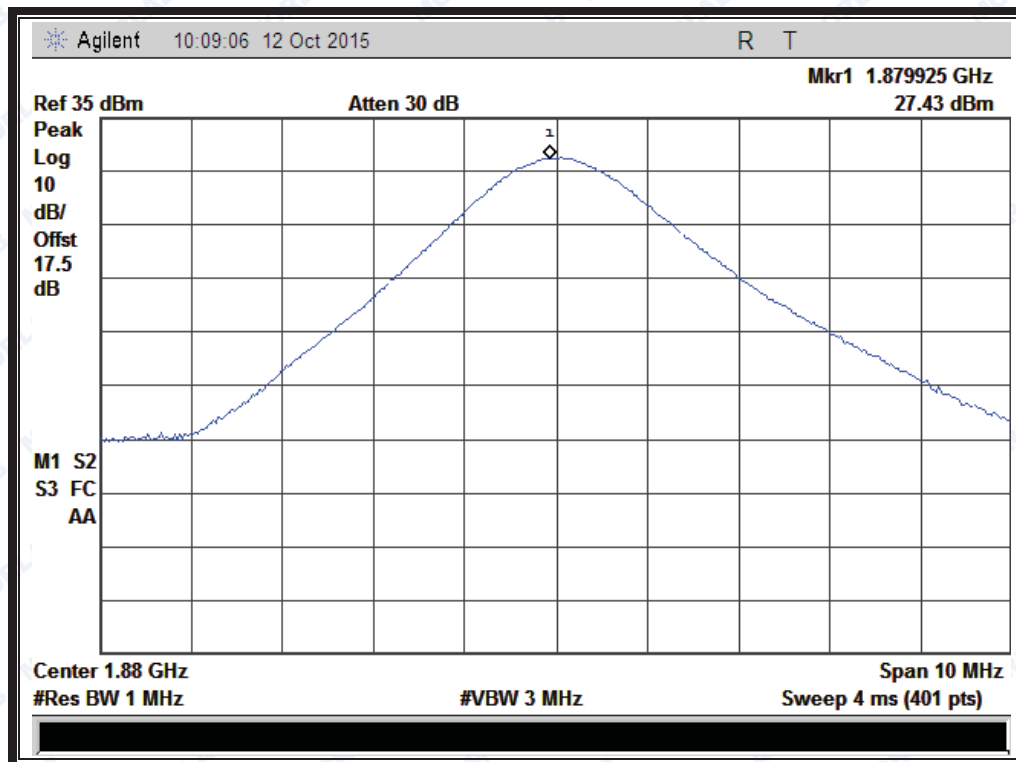
(Plot E3: EGPRS 850MHz Channel = 251)



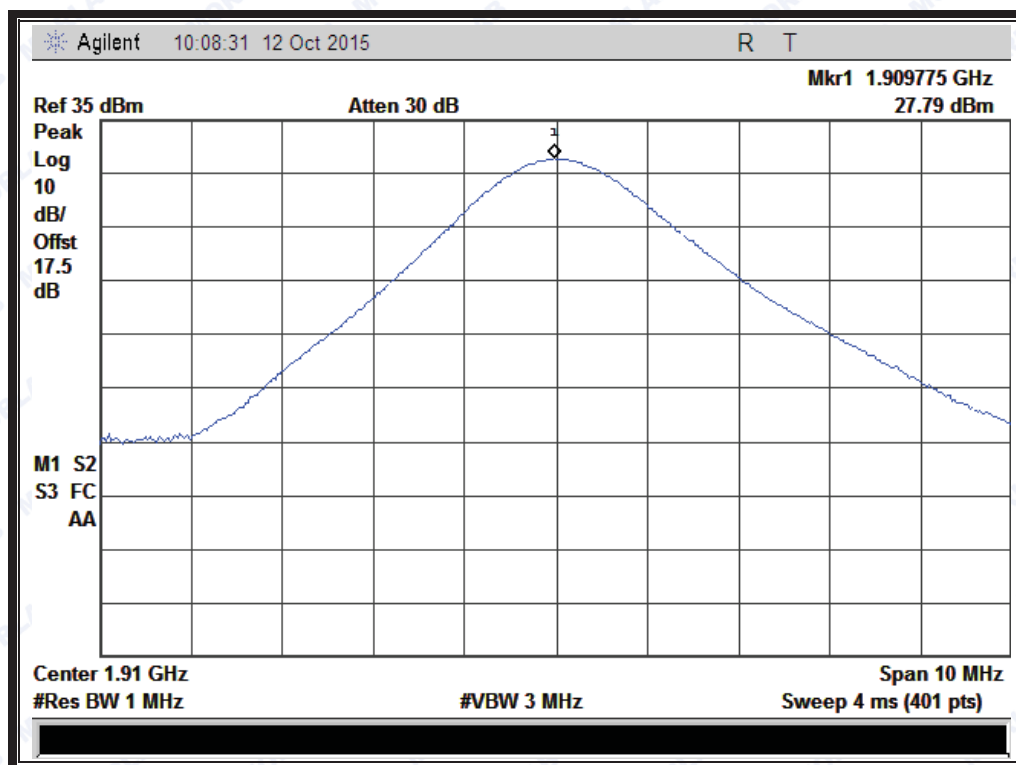
(Plot F1: EGPRS 1900MHz Channel = 512)



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(Plot F2: EGPRS 1900MHz Channel = 661)



(Plot F3: EGPRS 1900Hz Channel = 810)



2.2 Peak to Average Ratio

2.2.1 Definition

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

2.2.2 Test Description

See section 2.1.2 of this report.

2.2.3 Test Verdict

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

Test procedures:

A .For GSM/EGPRS operating mode:

- Set RBW=1MHz, VBW=3MHz, peak detector in spectrum analyzer.
- Set EUT in maximum output power, and triggered the bust signal.
- Measured respectively the peak level and mean level, and the deviation was recorded as Peak to Average ratio.

B. For UMTS operating mode:

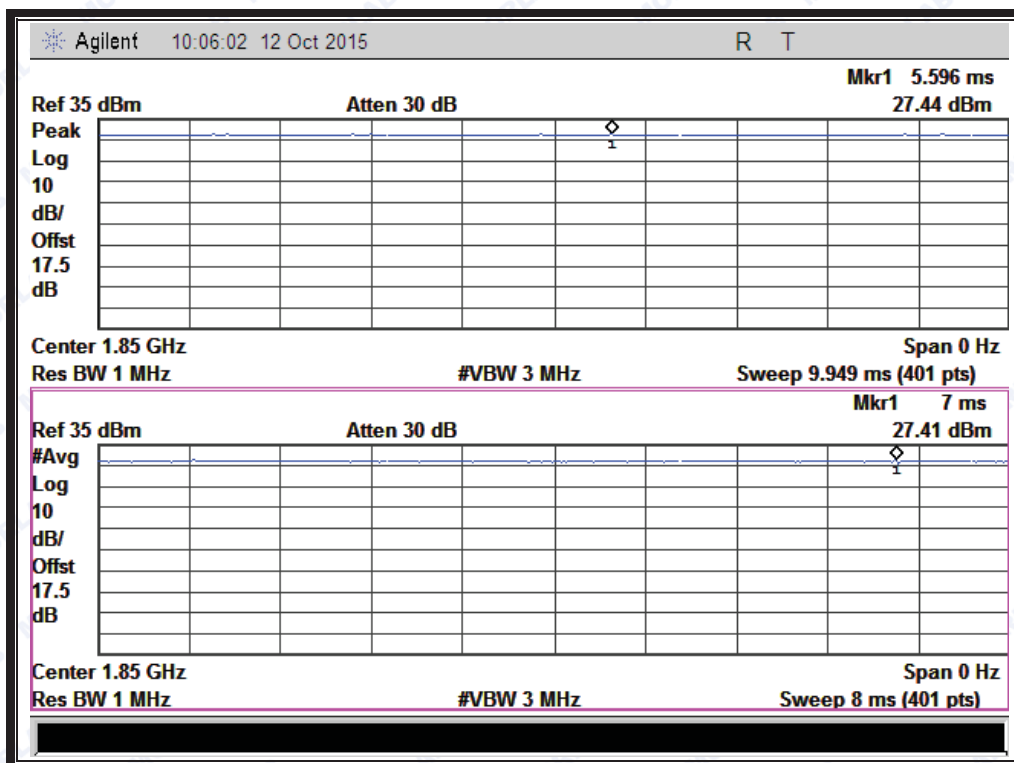
- Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
- The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%.

Test Verdict:

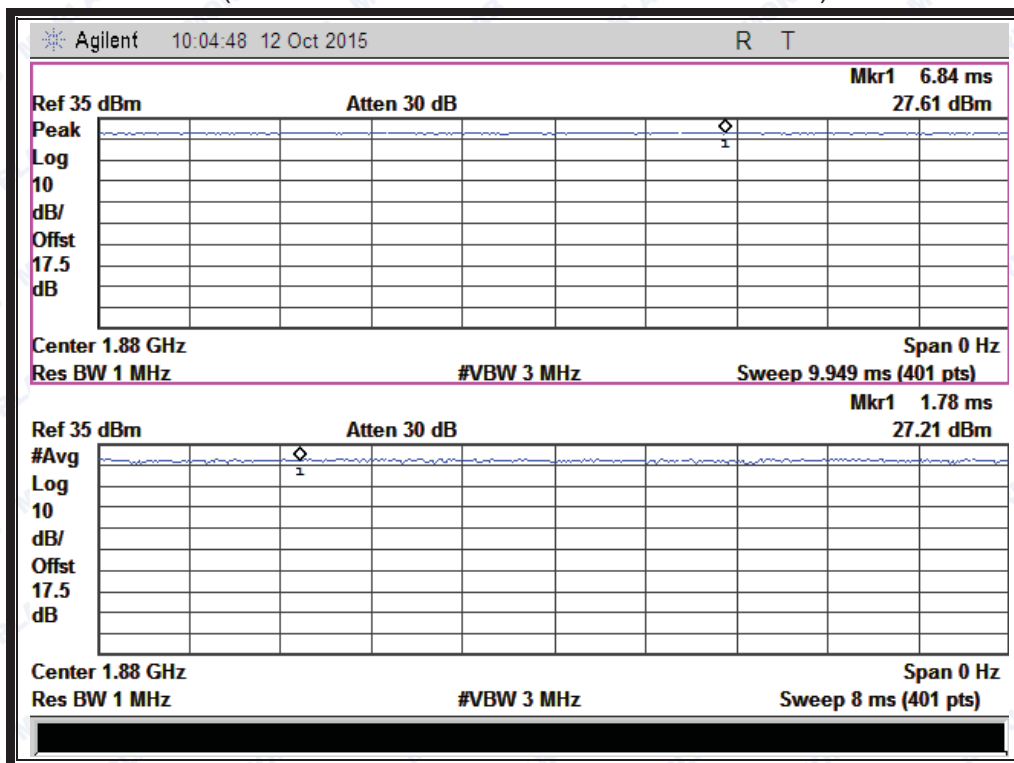
Band	Channel	Frequency (MHz)	Peak to Average ratio		Limit	Verdict
			dB	Refer to Plot	dB	
EGPRS 1900MHz	512	1850.2	0.03	Plot B1 to B3	13	PASS
	661	1880.0	0.40			PASS
	810	1909.8	0.30			PASS
WCDMA 1900MHz	9262	1852.4	2.66	Plot C1 to C3	13	PASS
	9400	1880.0	2.61			PASS
	9538	1907.6	2.58			PASS
WCDMA 1700MHz	1312	1712.4	2.72	Plot D1 to D3	13	PASS
	1412	1732.4	2.66			PASS
	1513	1752.6	2.65			PASS



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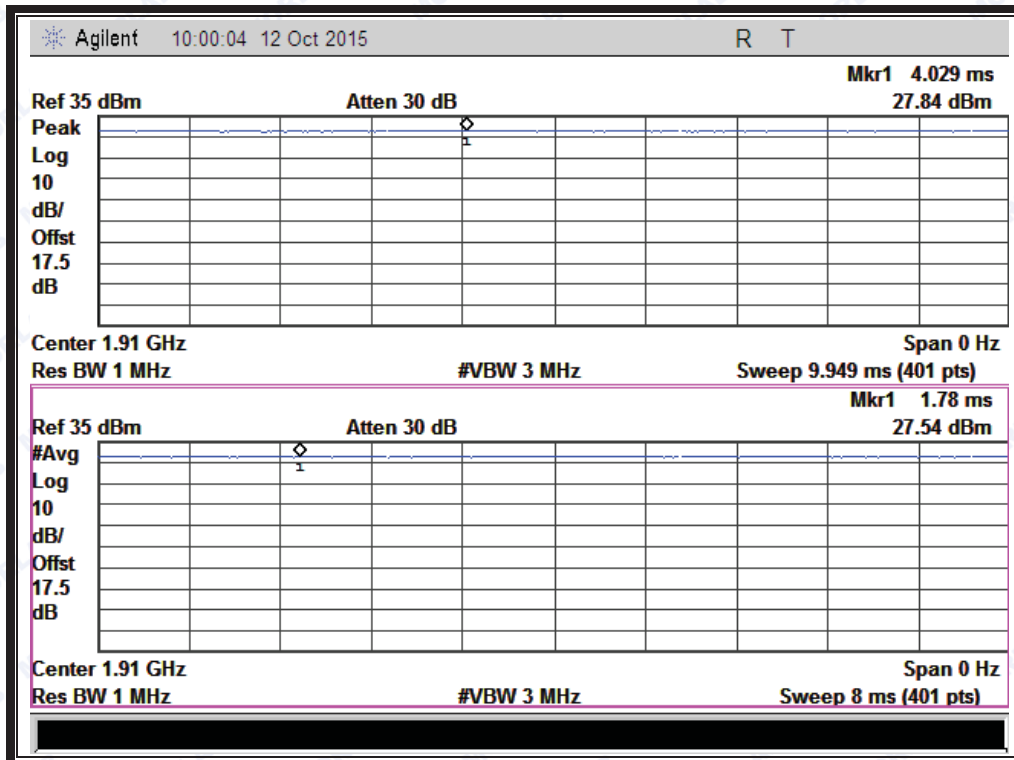
(Plot B1: EGPRS 1900 MHz Channel = 512)



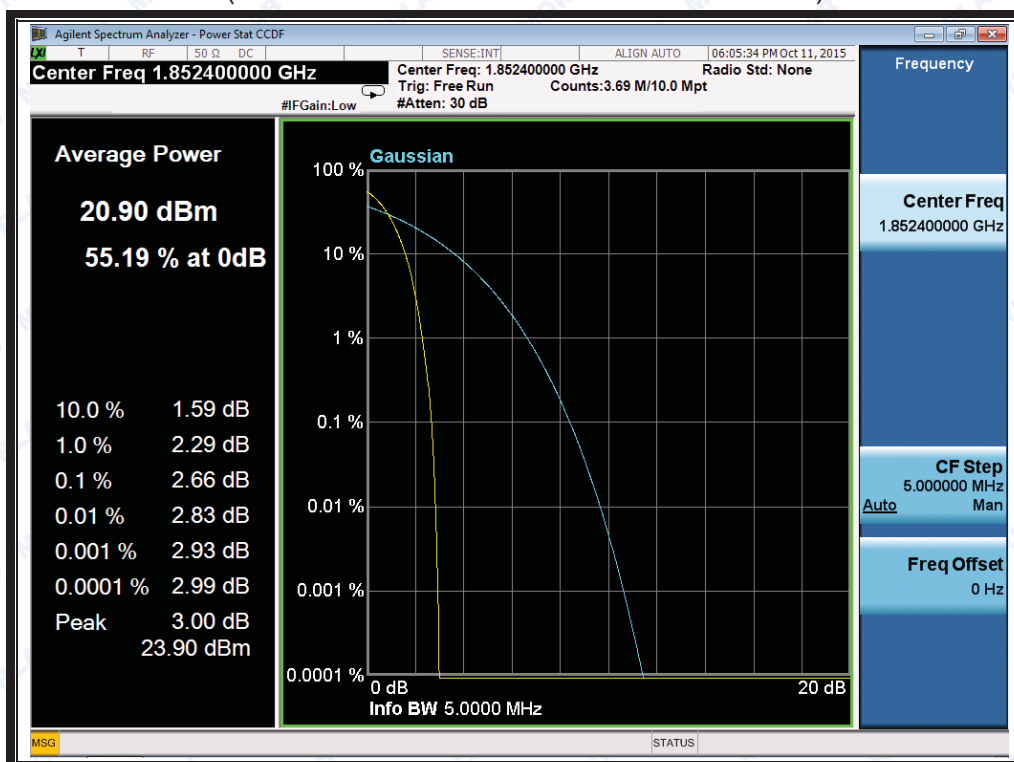
(Plot B2: EGPRS 1900 MHz Channel = 661)



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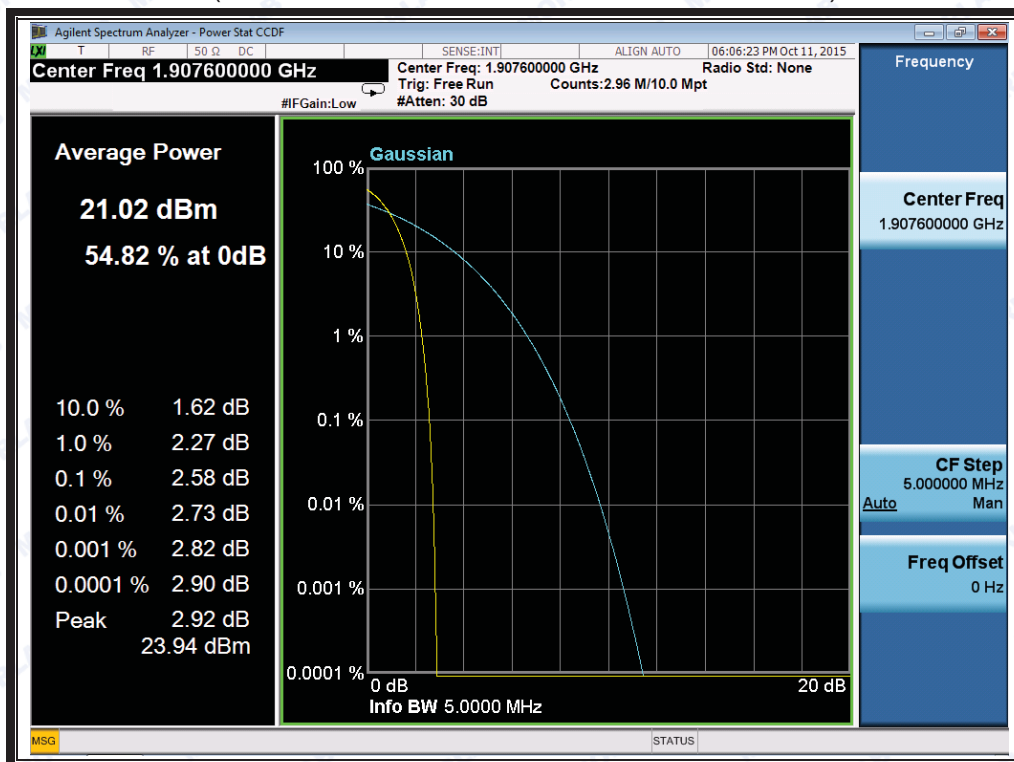
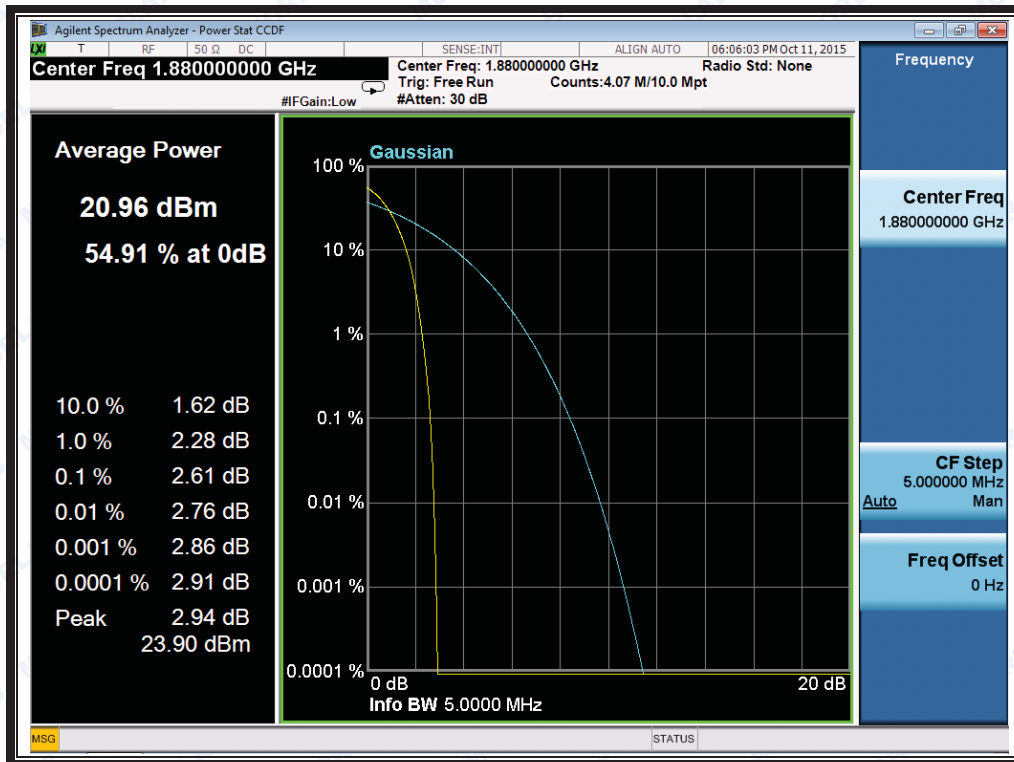
(Plot B3: EGPRS 1900MHz Channel = 810)



(Plot C1: WCDMA 1900MHz Channel = 9262)

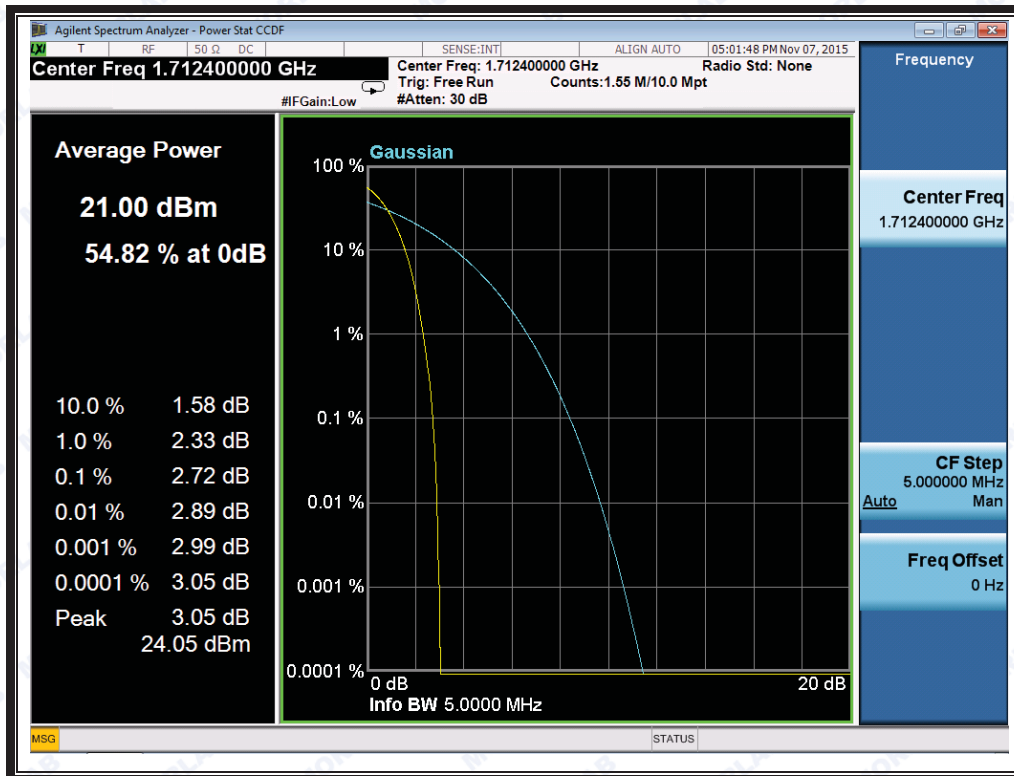


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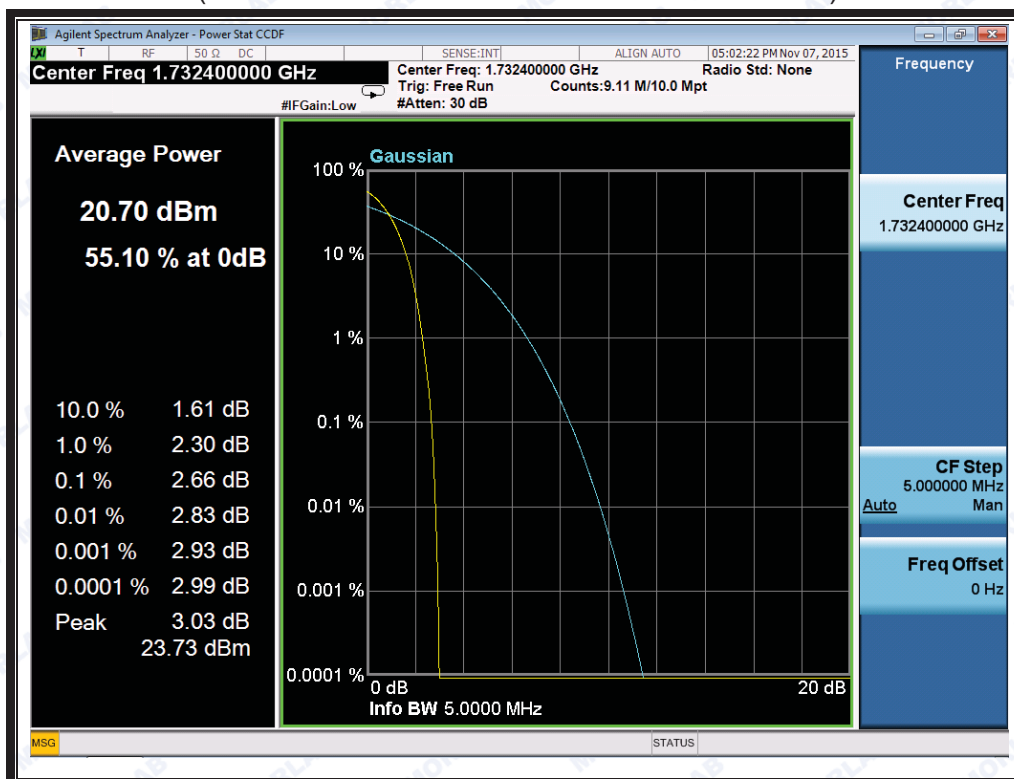




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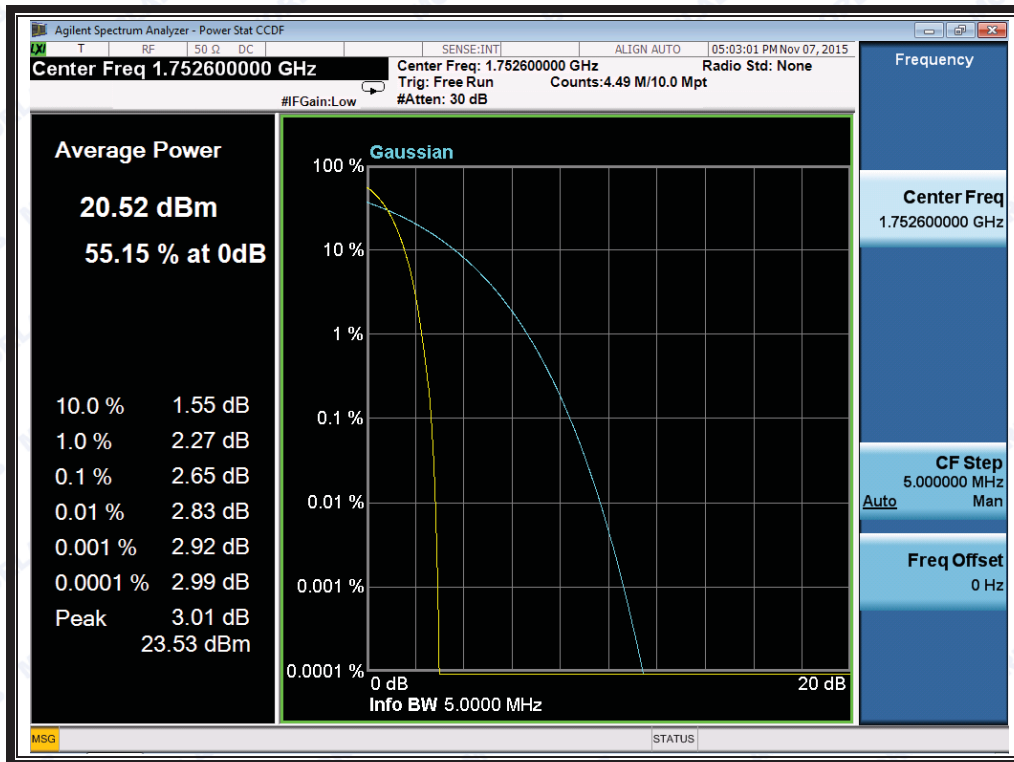
(Plot D1: WCDMA 1700MHz Channel = 1312)



(Plot D2: WCDMA 1700MHz Channel = 1412)



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(Plot D3: WCDMA 1700MHz Channel = 1513)



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.

Test Verdict:

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
GPRS 850MHz	128	824.2	311.72 KHz	245.2180 KHz	Plot A1 to A3
	190	836.6	311.996 KHz	243.7763 KHz	
	251	848.8	324.710 KHz	244.5364 KHz	
GPRS 1900MHz	512	1850.2	324.934 KHz	249.1102 KHz	Plot B1 to B3
	661	1880.0	315.743 KHz	244.3241 KHz	
	810	1909.8	319.964 KHz	248.2245 KHz	
EGPRS 850MHz	128	824.2	320.760 KHz	248.8642 KHz	Plot C1 to C3
	190	836.6	316.528 KHz	248.2275 KHz	
	251	848.8	322.011 KHz	251.0247 KHz	
EGPRS 1900MHz	512	1850.2	316.538 KHz	249.6878 KHz	Plot D1 to D3
	661	1880.0	313.471 KHz	249.2265 KHz	
	810	1909.8	316.788 KHz	246.2060 KHz	
WCDMA 850MHz	4132	826.4	4.605 MHz	4.0733 MHz	Plot E1 to E3
	4175	835.0	4.613 MHz	4.0667 MHz	
	4233	846.6	4.624 MHz	4.0646 MHz	
WCDMA 1700MHz	1312	1712.4	4.643 MHz	4.0615 MHz	Plot F1 to F3
	1412	1732.4	4.662 MHz	4.0855 MHz	
	1513	1752.6	4.674 MHz	4.0841 MHz	
WCDMA 1900MHz	9262	1852.4	4.602 MHz	4.0668 MHz	Plot G1 to G3
	9400	1880.0	4.618 MHz	4.0624 MHz	
	9538	1907.6	4.616 MHz	4.0666 MHz	



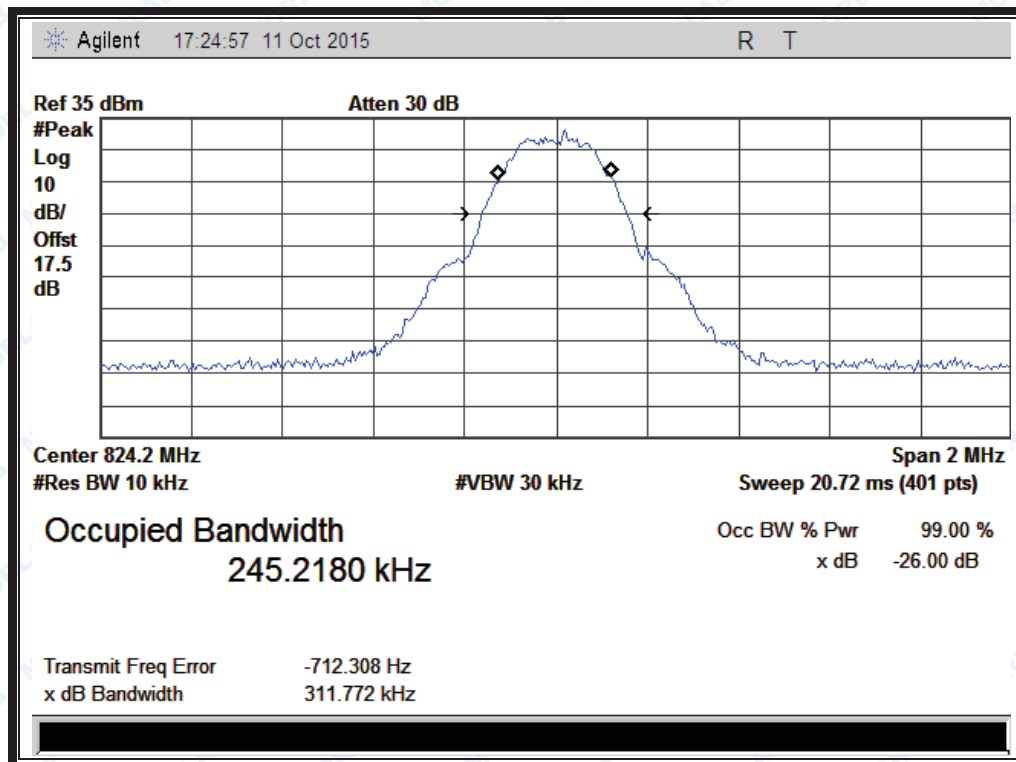
REPORT No.: SZ15070092W01

Band	Channel	Frequency (MHz)	26dB bandwidth	99% Occupied Bandwidth	Refer to Plot
HSDPA 850MHz	4132	826.4	4.563 MHz	4.0293 MHz	Plot H1 to H3
	4175	835.0	4.573 MHz	4.0422 MHz	
	4233	846.6	4.567 MHz	4.0403 MHz	
HSDPA 1700MHz	1312	1712.4	4.640 MHz	4.0701 MHz	Plot I1 to I3
	1412	1732.4	4.664 MHz	4.0724 MHz	
	1513	1752.6	4.664 MHz	4.0793 MHz	
HSDPA 1900MHz	9262	1852.4	4.581 MHz	4.0508 MHz	Plot J1 to J3
	9400	1880.0	4.575 MHz	4.0511 MHz	
	9538	1907.6	4.562 MHz	4.0461 MHz	
HSUPA 850MHz	4132	826.4	4.575 MHz	4.0639 MHz	Plot K1 to K3
	4175	835.0	4.583 MHz	4.0635 MHz	
	4233	846.6	4.595 MHz	4.0600 MHz	
HSUPA 1700MHz	1312	1712.4	4.665 MHz	4.0735 MHz	Plot L1 to L3
	1412	1732.4	4.656 MHz	4.0651 MHz	
	1513	1752.6	4.692 MHz	4.0809 MHz	
HSUPA 1900MHz	9262	1852.4	4.572 MHz	4.0565 MHz	Plot M1 to M3
	9400	1880.0	4.554 MHz	4.0564 MHz	
	9538	1907.6	4.557 MHz	4.0474 MHz	
HSPA+ 850MHz	4132	826.4	4.564 MHz	4.0496 MHz	Plot N1 to N3
	4175	835.0	4.552 MHz	4.0440 MHz	
	4233	846.6	4.563 MHz	4.0473 MHz	
HSPA+ 1700MHz	1312	1712.4	4.661 MHz	4.0702 MHz	Plot O1 to O3
	1412	1732.4	4.644 MHz	4.0782 MHz	
	1513	1752.6	4.665 MHz	4.0891 MHz	
HSPA+ 1900MHz	9262	1852.4	4.575 MHz	4.0485 MHz	Plot P1 to P3
	9400	1880.0	4.574 MHz	4.0451 MHz	
	9538	1907.6	4.568 MHz	4.0478 MHz	

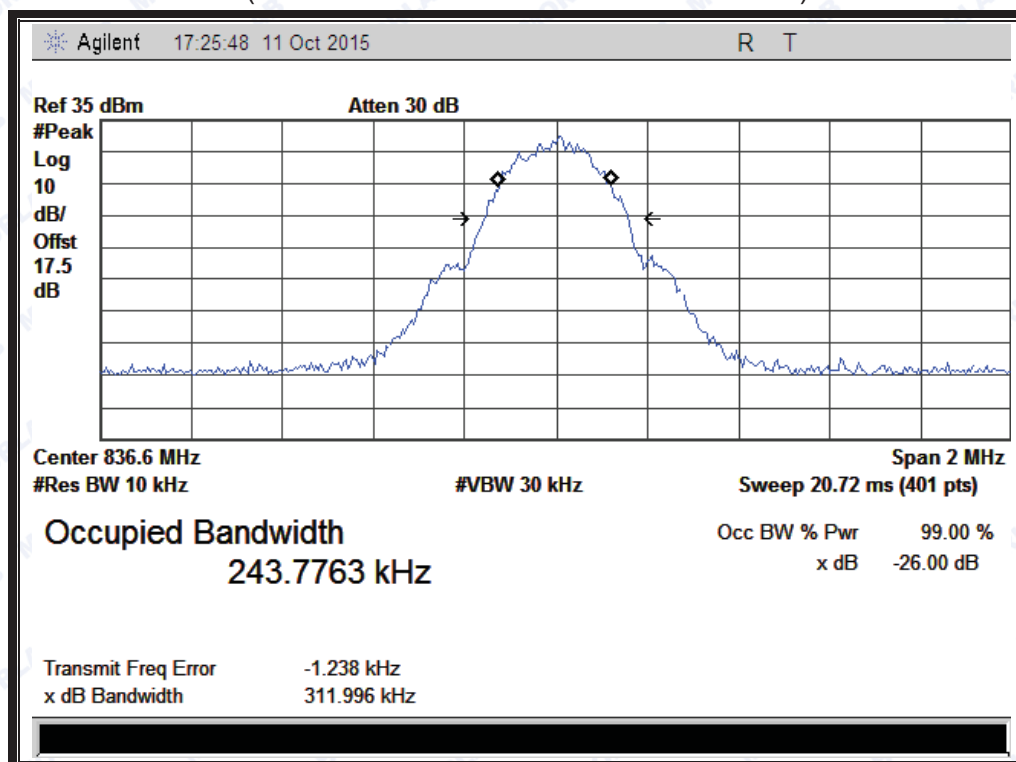
Test Plots:



REPORT No.: SZ15070092W01



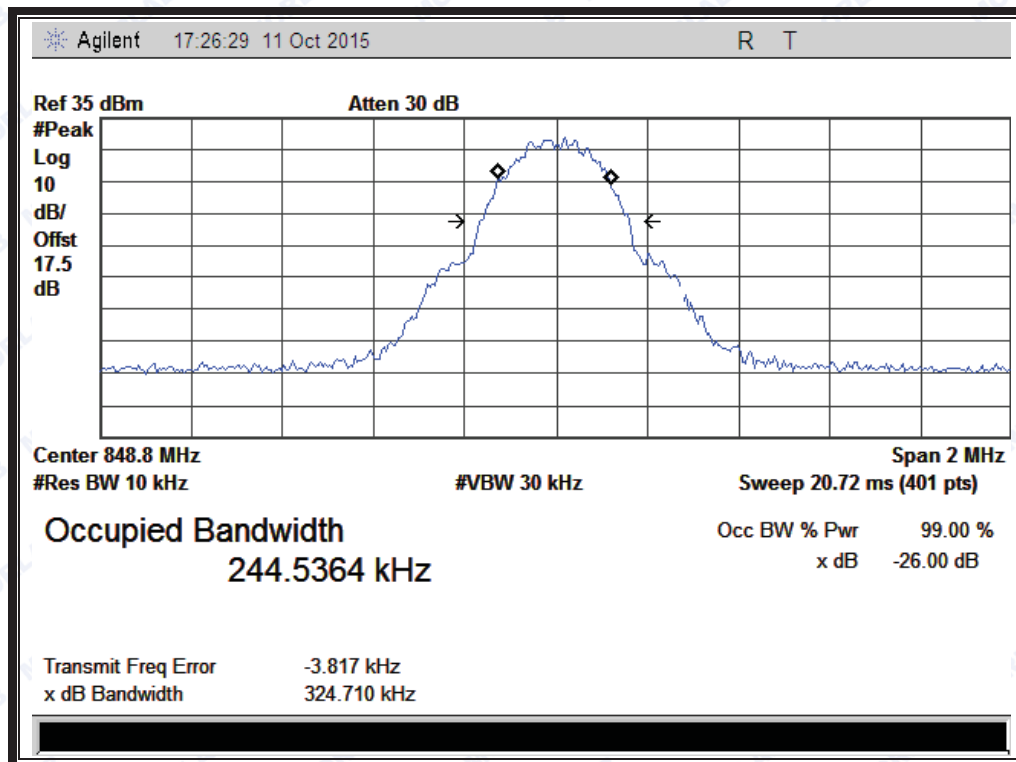
(Plot A1: GPRS 850MHz Channel = 128)



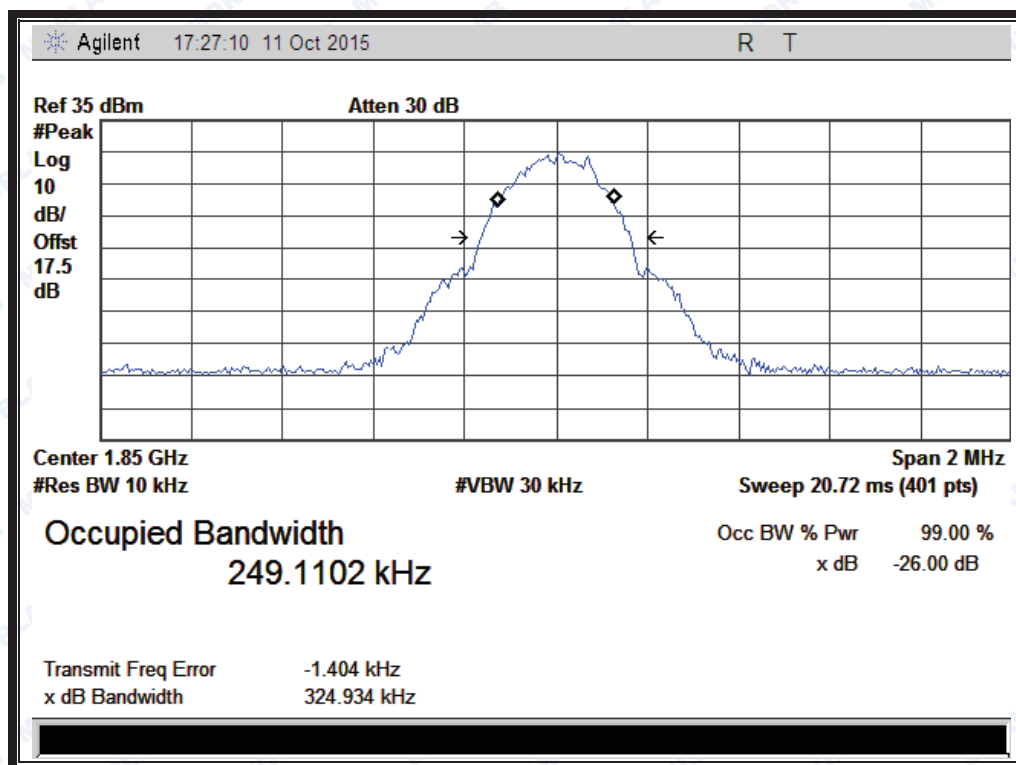
(Plot A2: GPRS 850MHz Channel = 190)



REPORT No.: SZ15070092W01



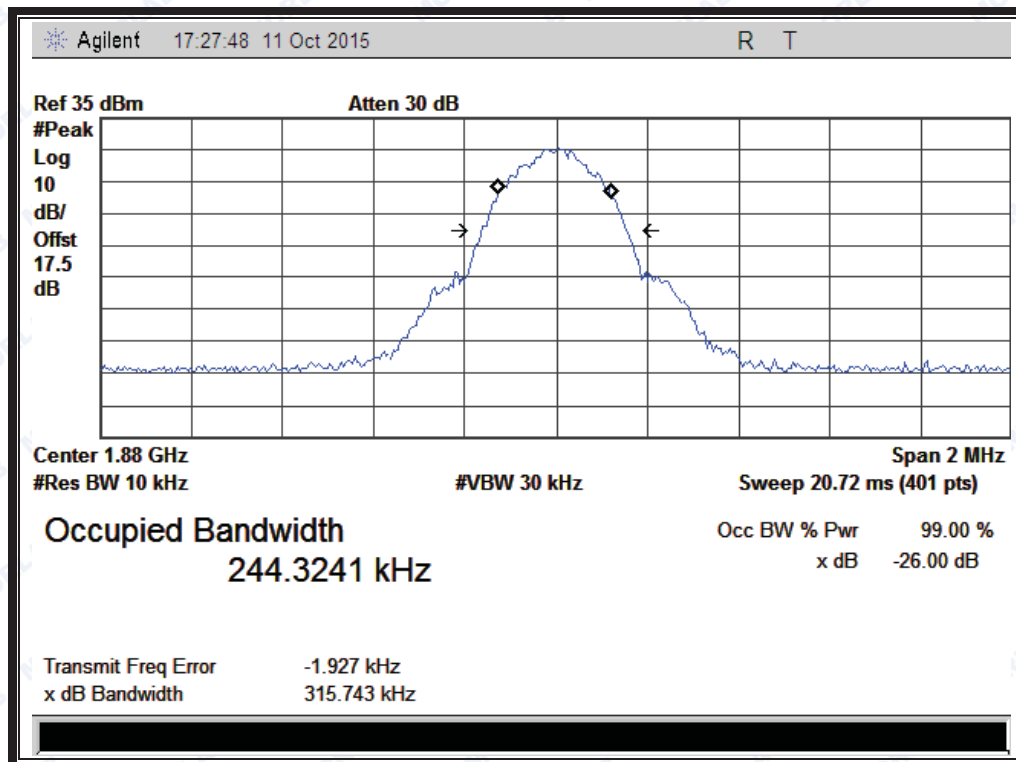
(Plot A3: GPRS 850MHz Channel = 251)



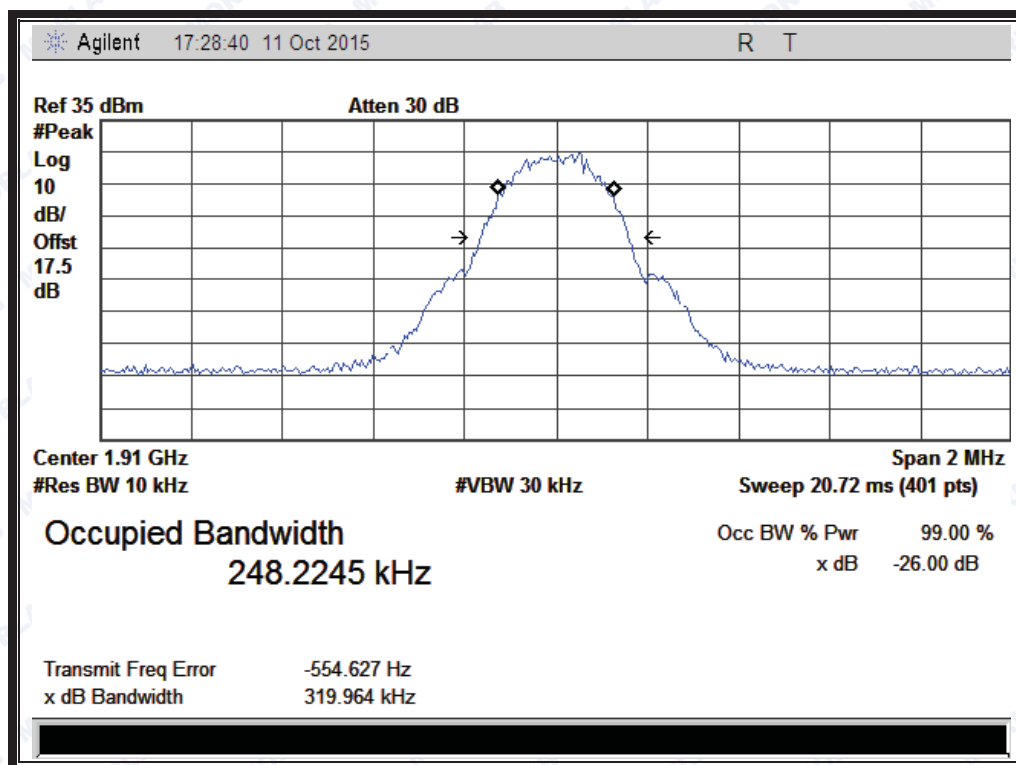
(Plot B1: GPRS1900MHz Channel = 512)



REPORT No.: SZ15070092W01



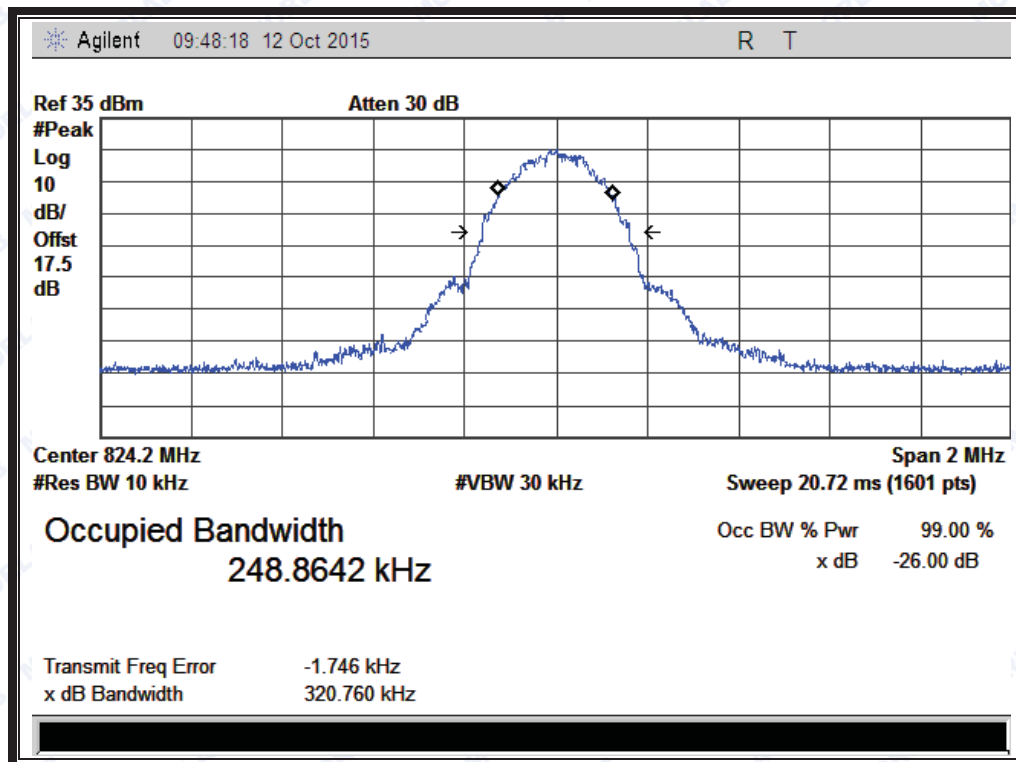
(Plot B2: GPRS1900MHz Channel = 661)



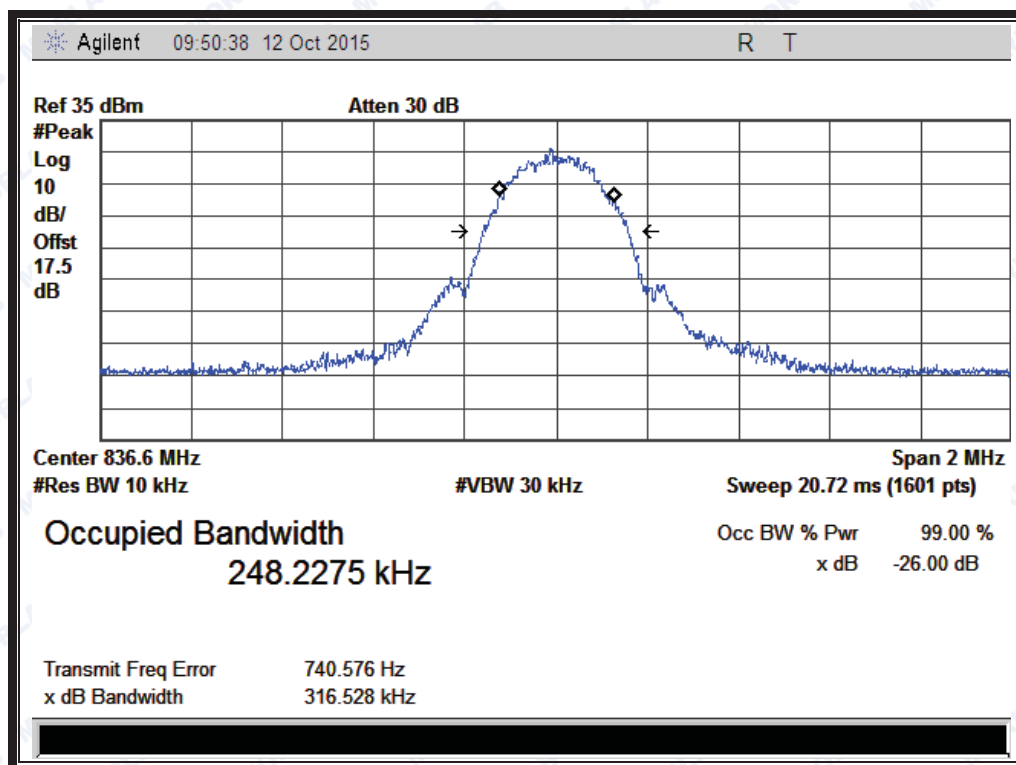
(Plot B3: GPRS 1900MHz Channel = 810)



REPORT No.: SZ15070092W01



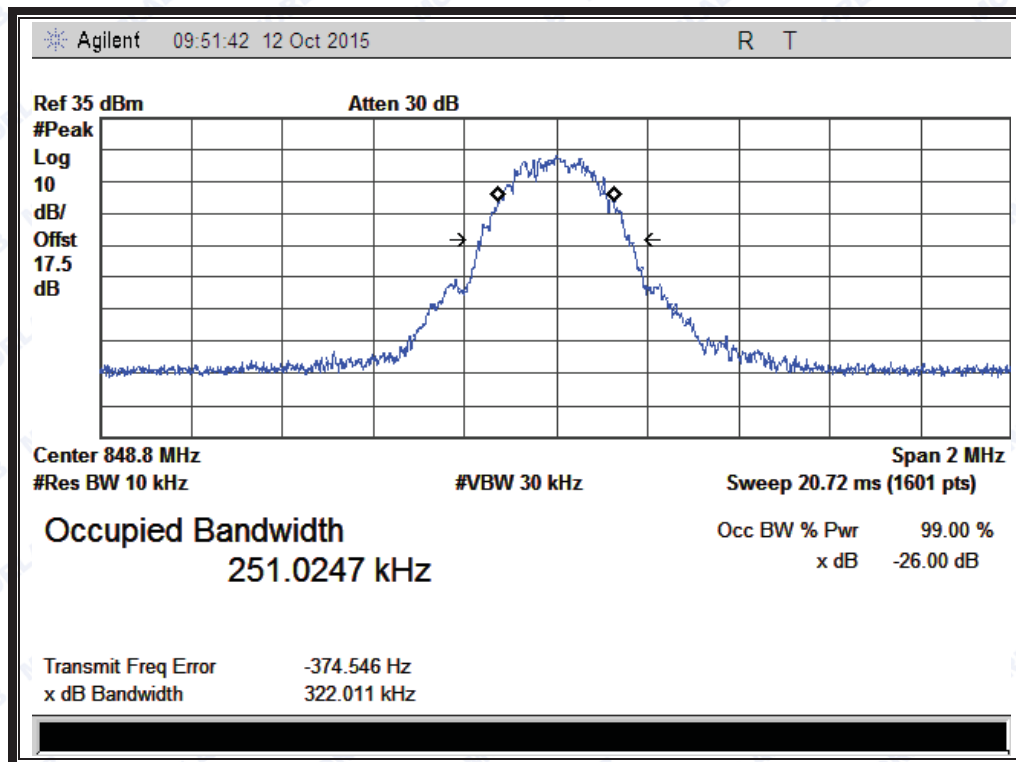
(Plot C1: EGPRS 850MHz Channel = 128)



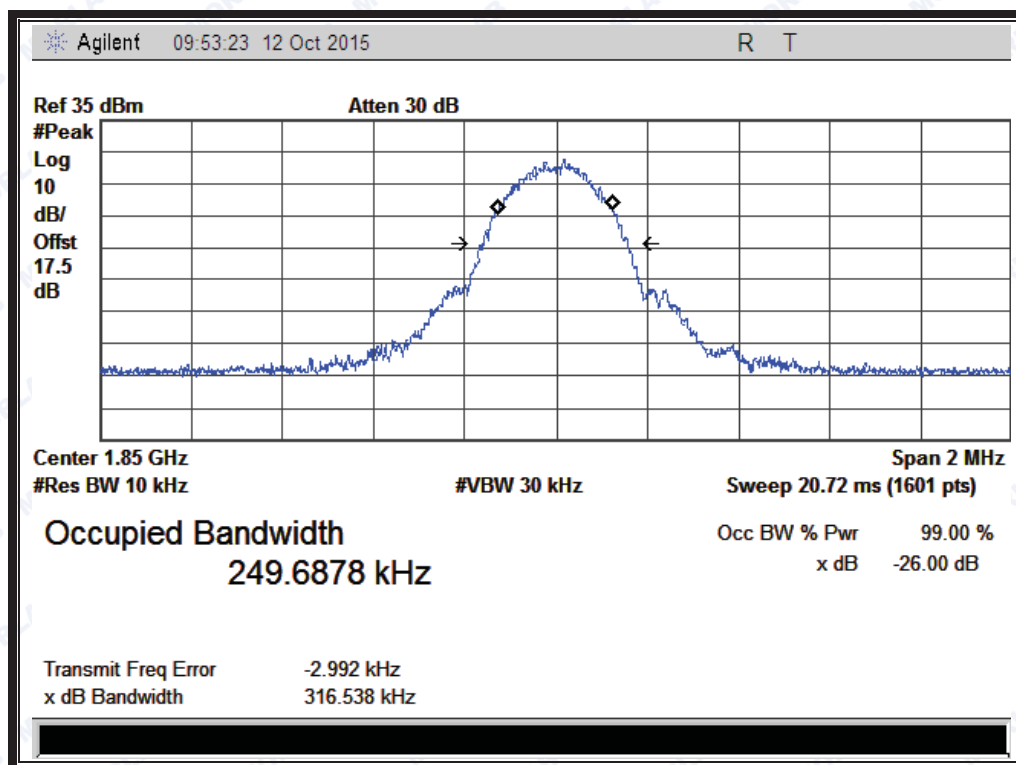
(Plot C2: EGPRS 850MHz Channel = 190)



REPORT No.: SZ15070092W01



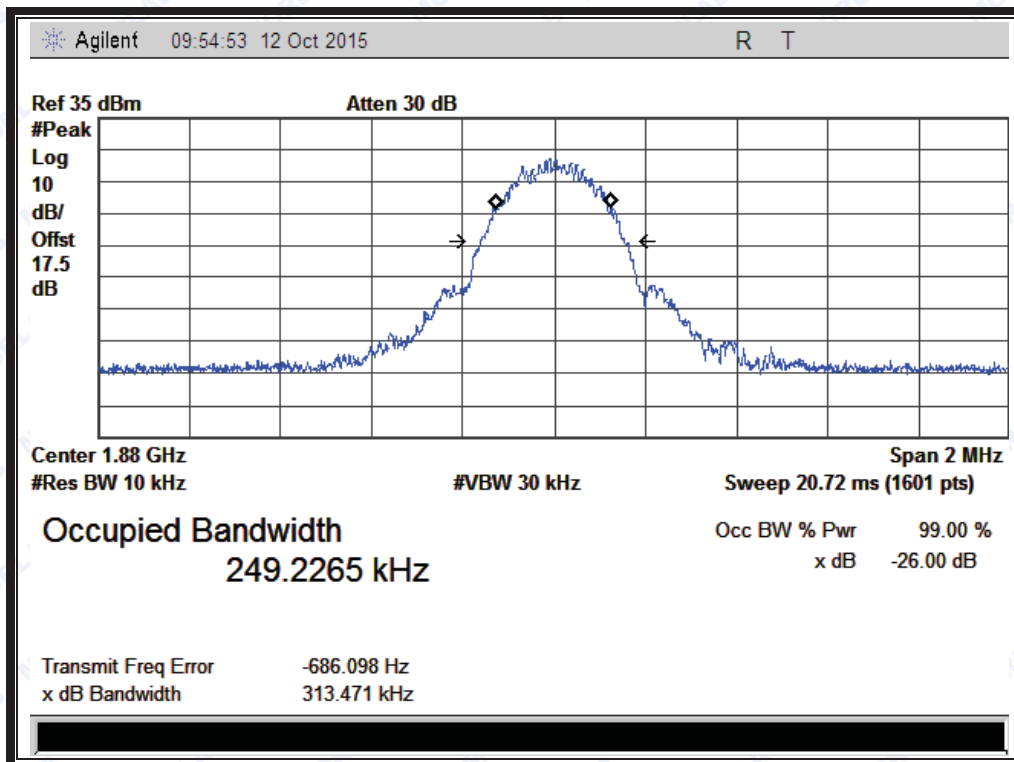
(Plot C3: EGPRS 850MHz Channel = 251)



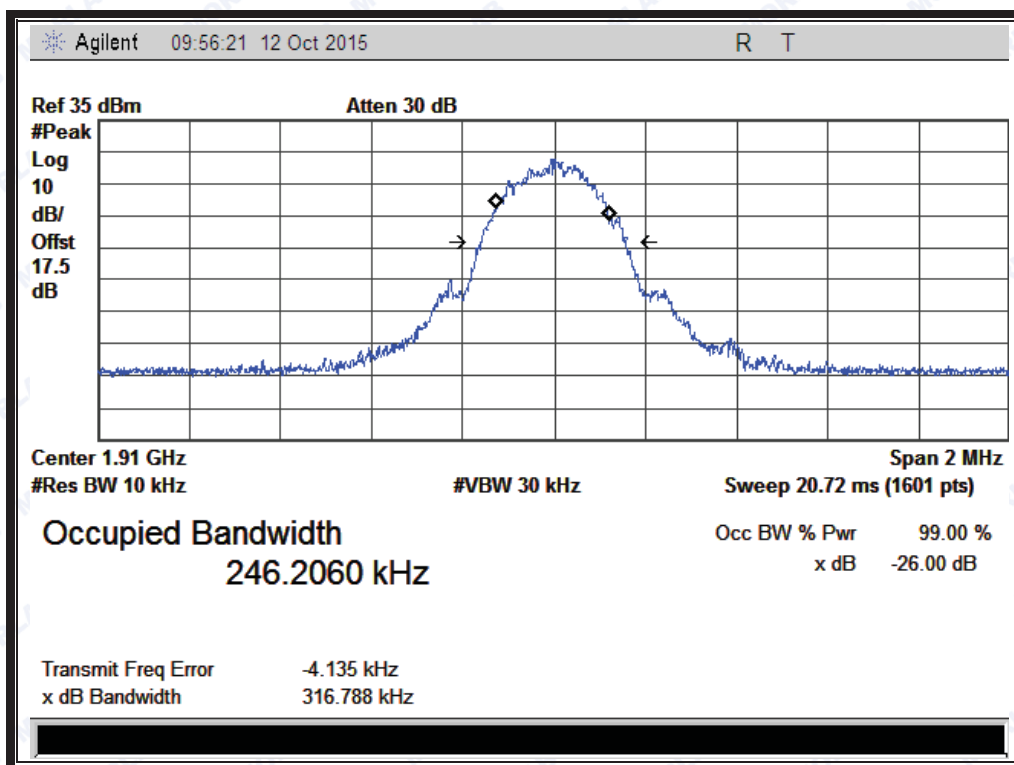
(Plot D1: EGPRS1900MHz Channel = 512)



REPORT No.: SZ15070092W01



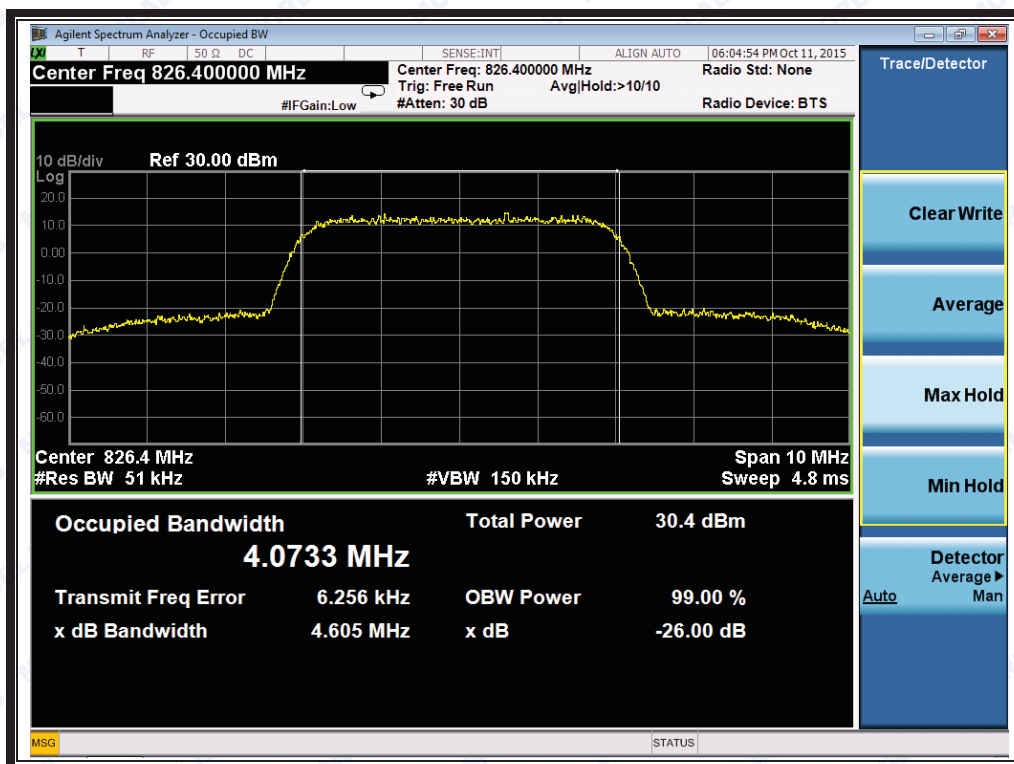
(Plot D2: EGPRS1900MHz Channel = 661)



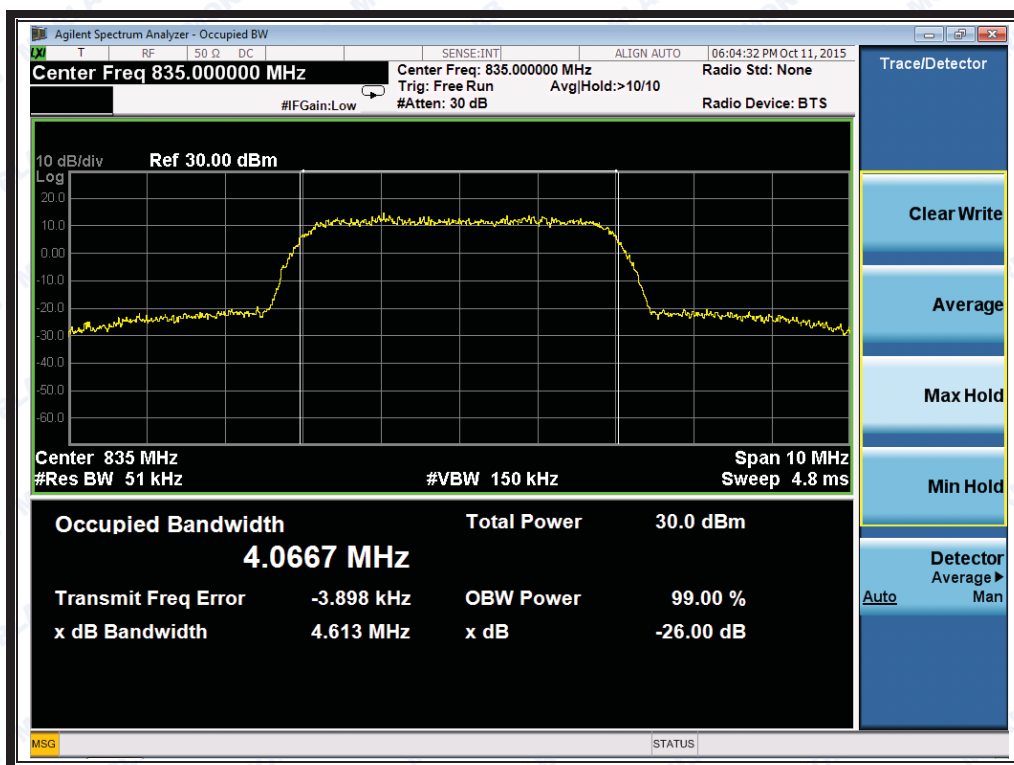
(Plot D3: EGPRS 1900MHz Channel = 810)



REPORT No.: SZ15070092W01



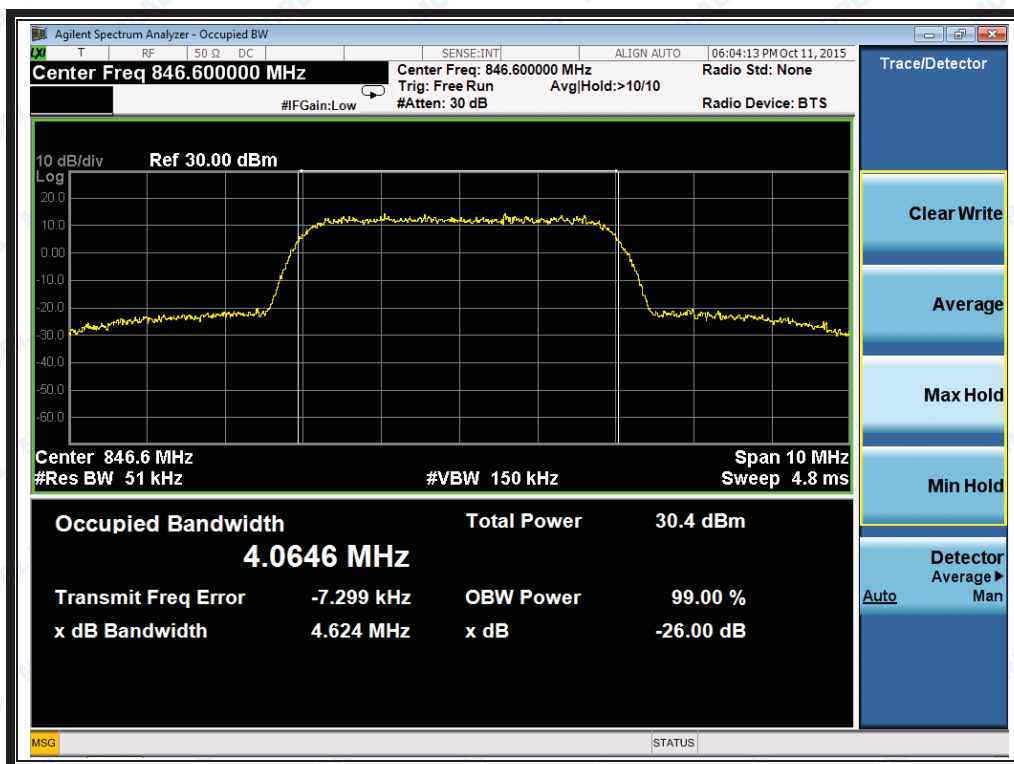
(Plot E1: WCDMA 850MHz Channel = 4132)



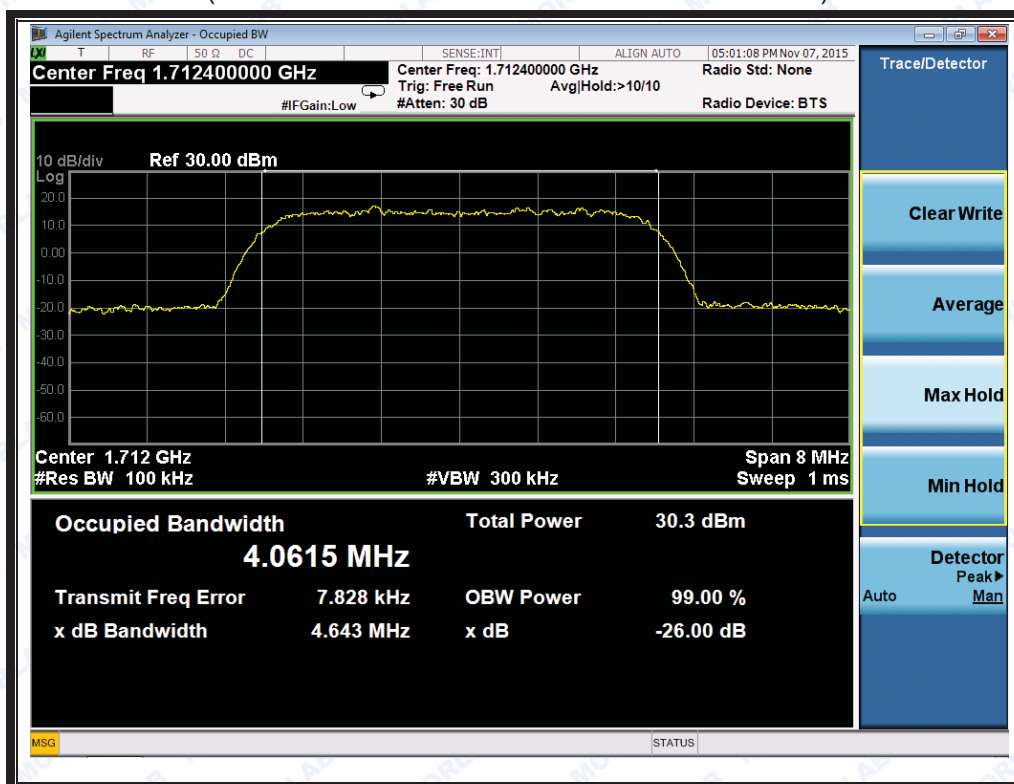
(Plot E2: WCDMA 850 MHz Channel = 4175)



REPORT No.: SZ15070092W01



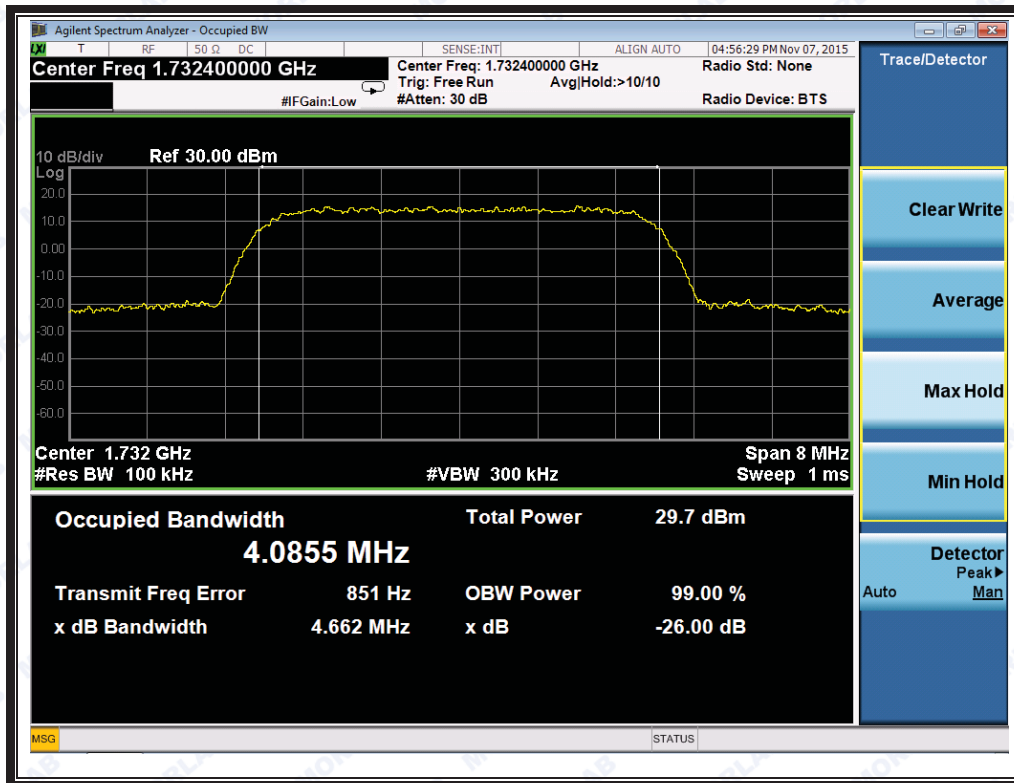
(Plot E3: WCDMA 850MHz Channel = 4233)



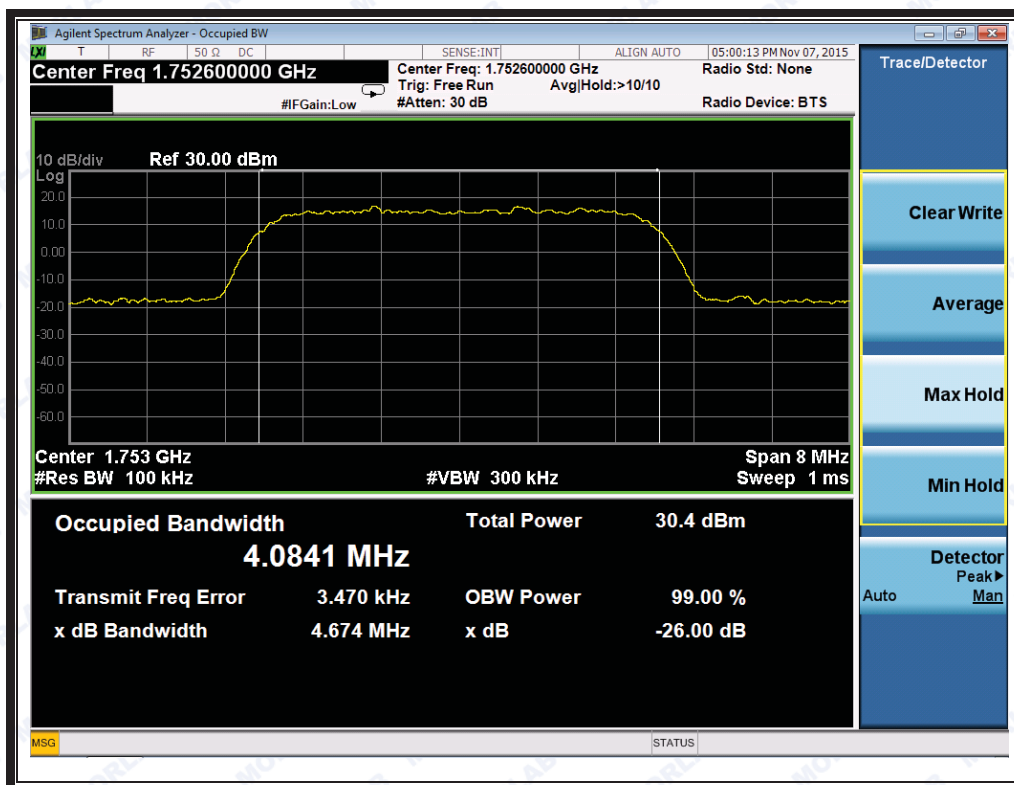
(Plot F1: WCDMA 1700MHz Channel = 1312)



REPORT No.: SZ15070092W01



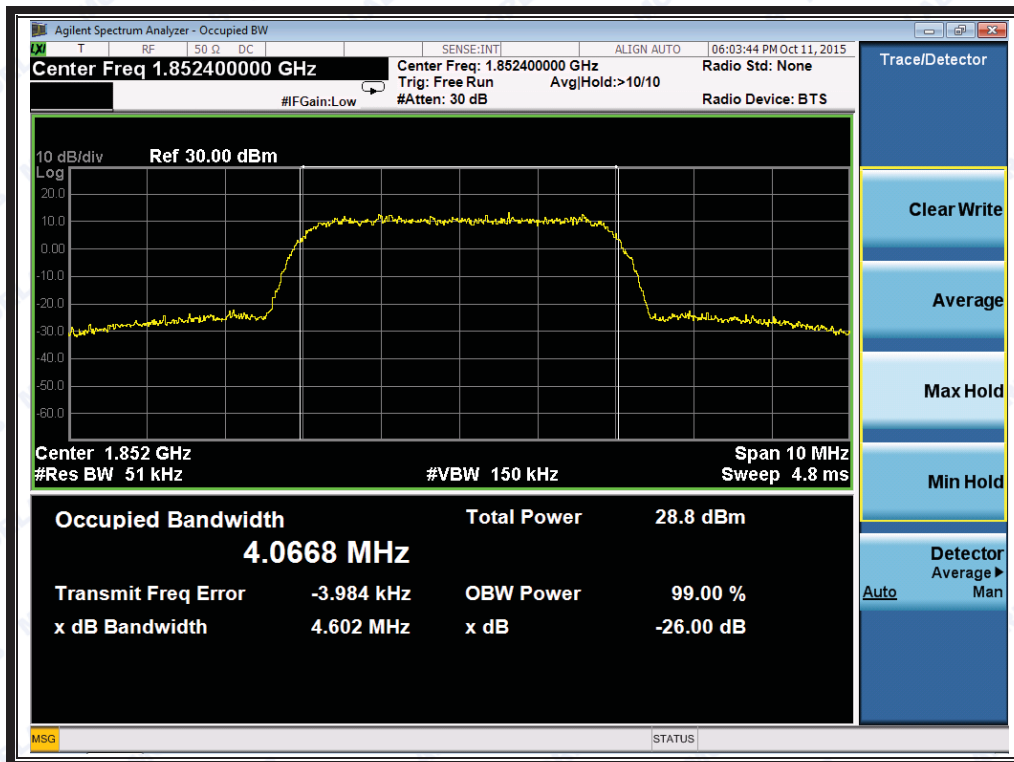
(Plot F2: WCDMA 1700 MHz Channel = 1412)



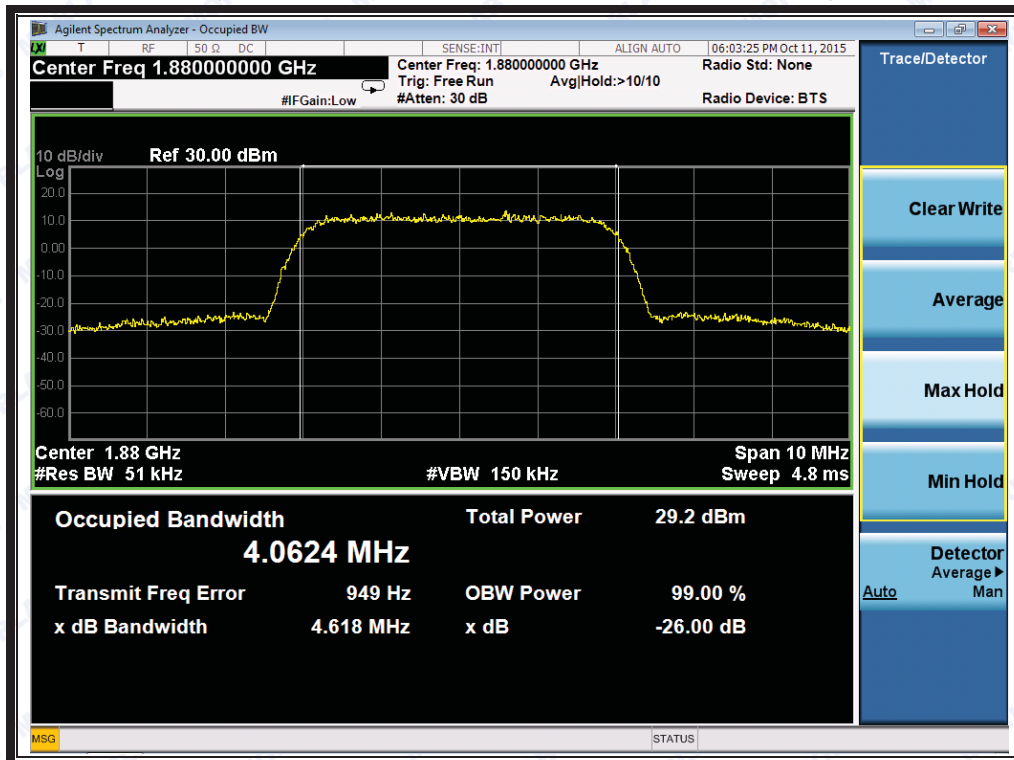
(Plot F3: WCDMA1700MHz Channel = 1513)



REPORT No.: SZ15070092W01



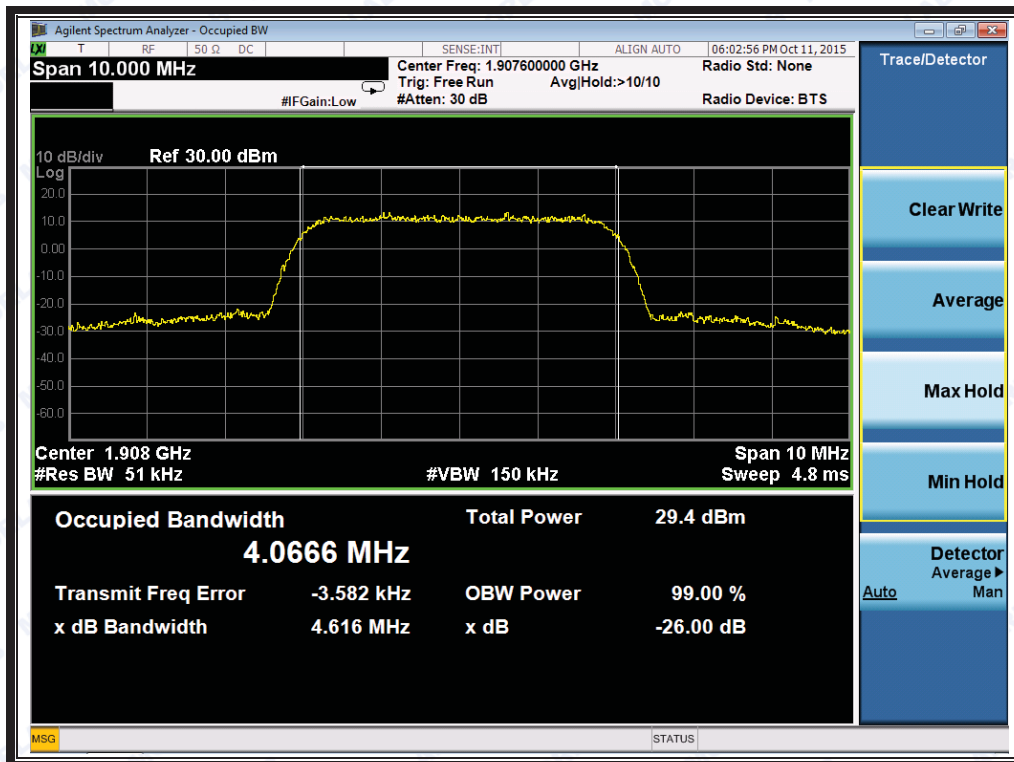
(Plot G1: WCDMA 1900MHz Channel = 9262)



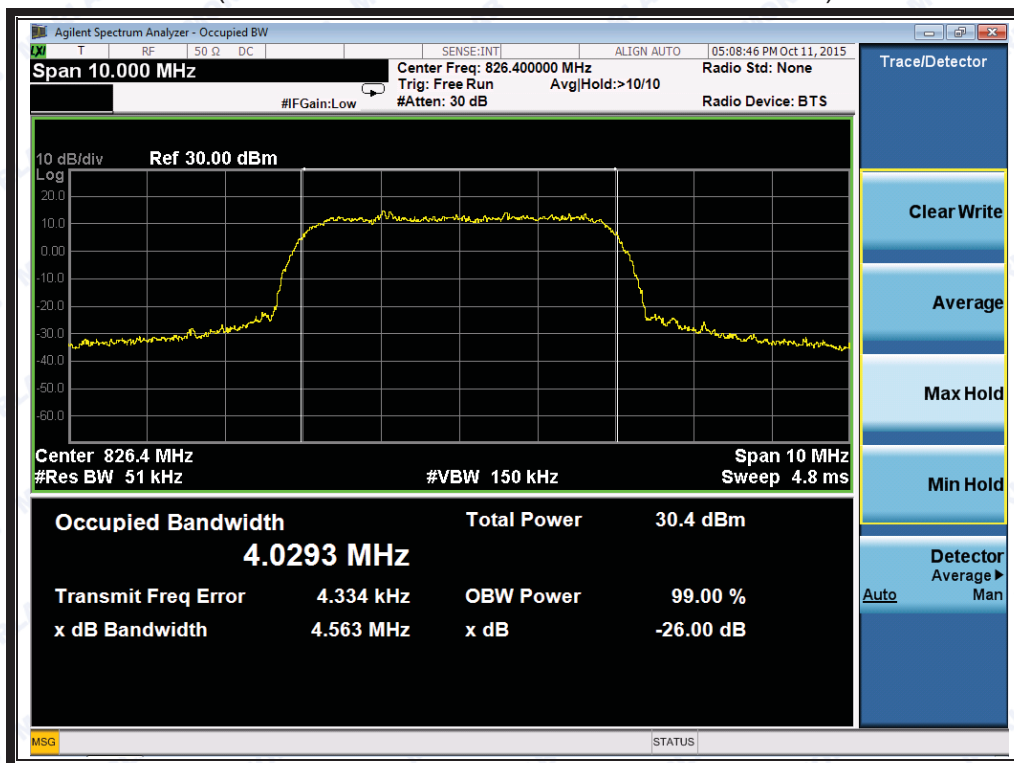
(Plot G2: WCDMA 1900 MHz Channel = 9400)



REPORT No.: SZ15070092W01



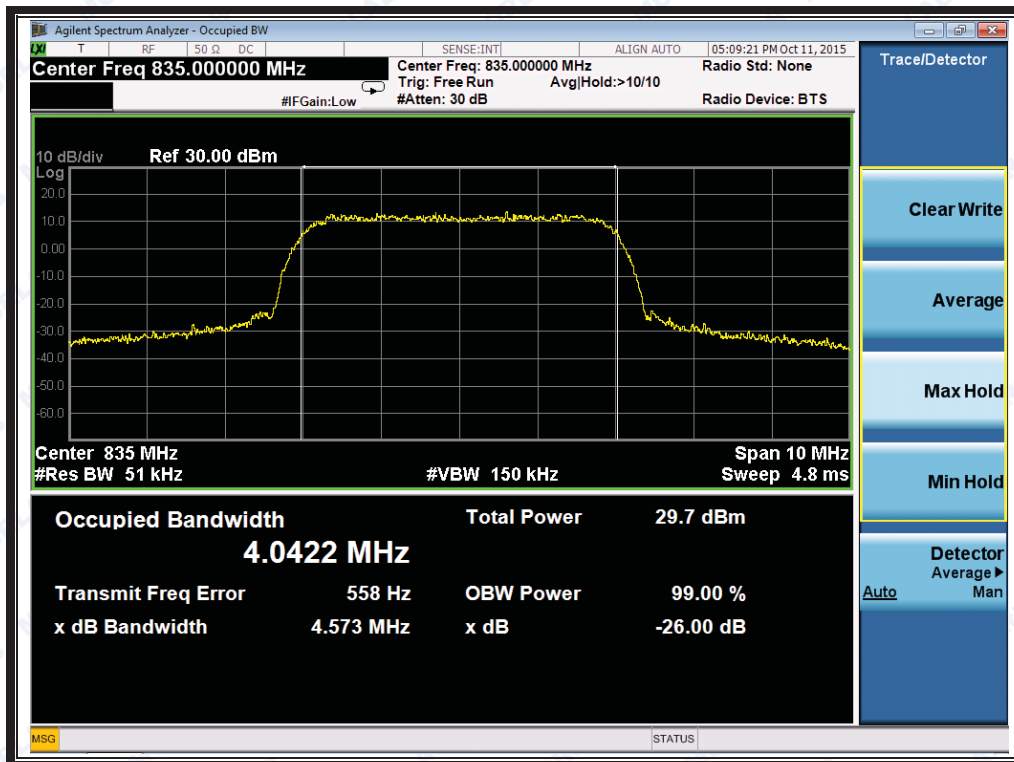
(Plot G3: WCDMA1900MHz Channel = 9538)



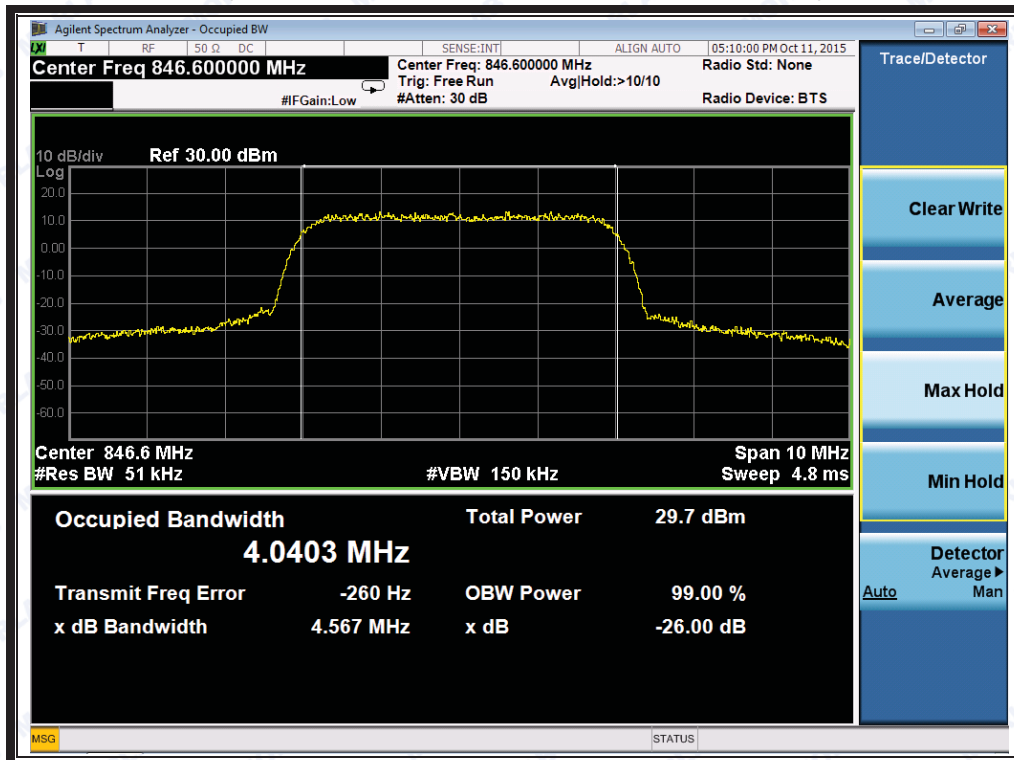
(Plot H1: HSDPA 850MHz Channel = 4132)



REPORT No.: SZ15070092W01



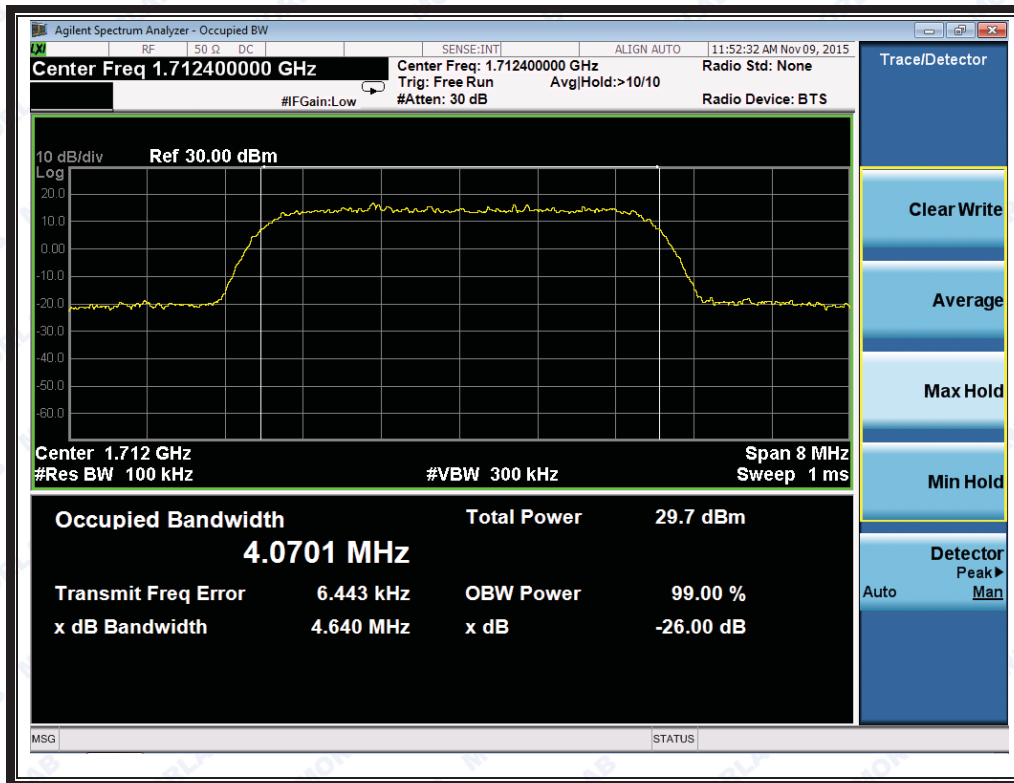
(Plot H2: HSDPA 850 MHz Channel = 4175)



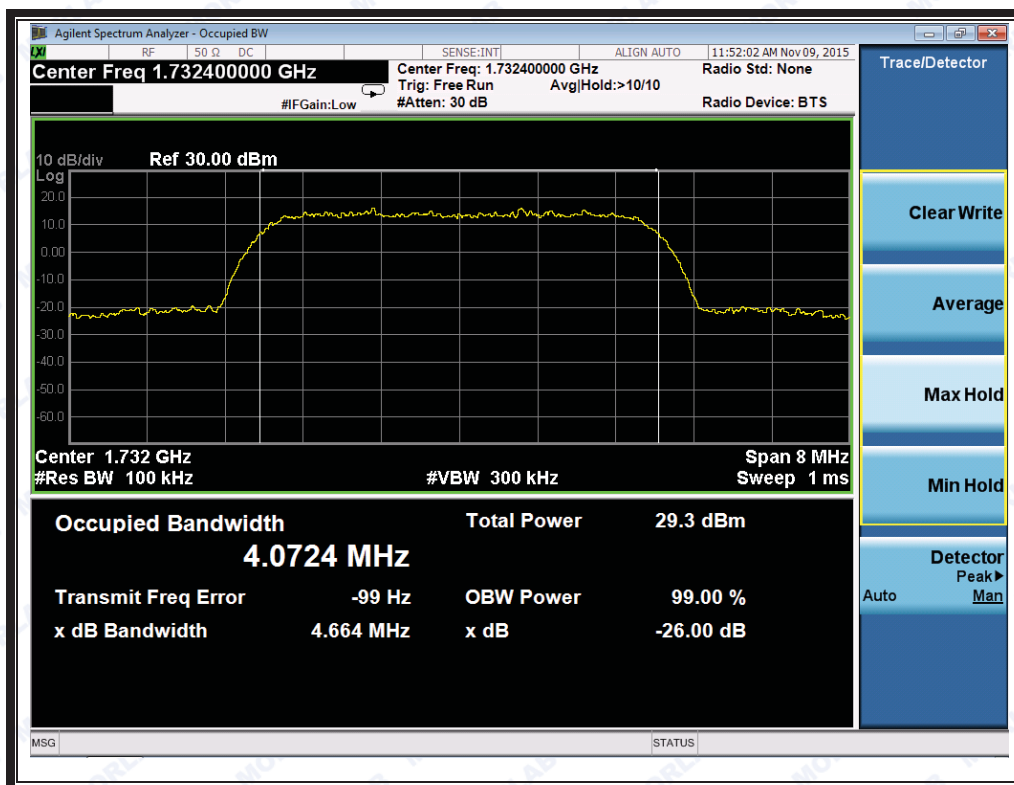
(Plot H3: HSDPA 850MHz Channel = 4233)



REPORT No.: SZ15070092W01



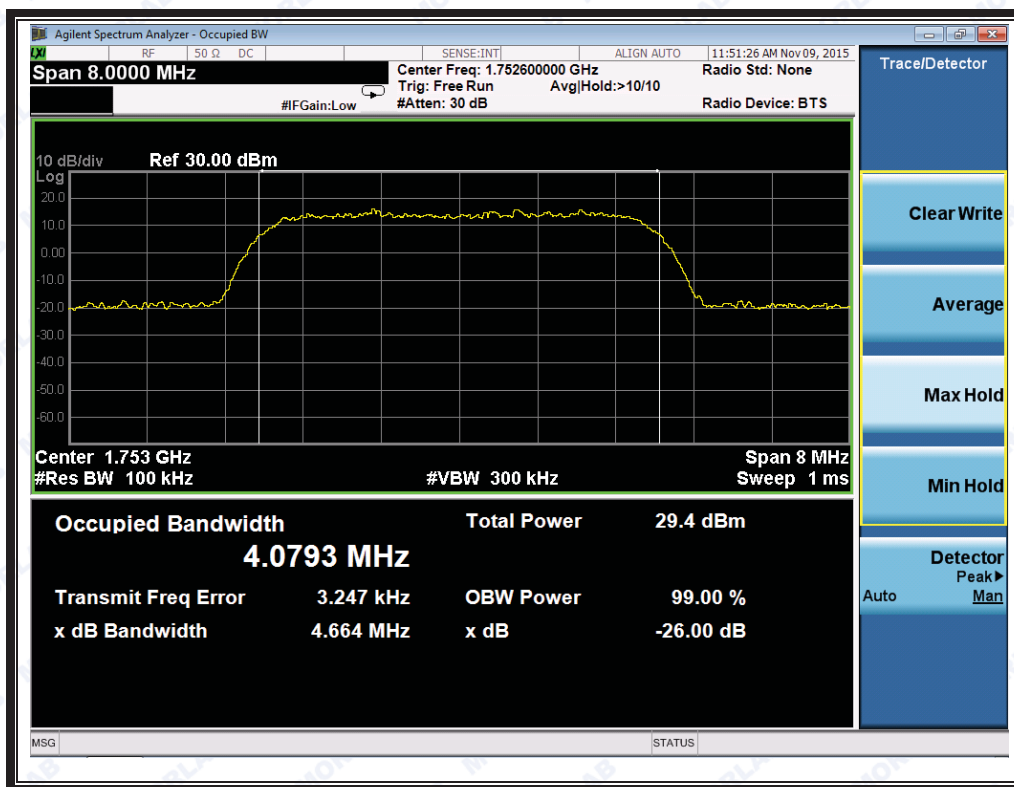
(Plot I1: HSDPA 1700MHz Channel = 1312)



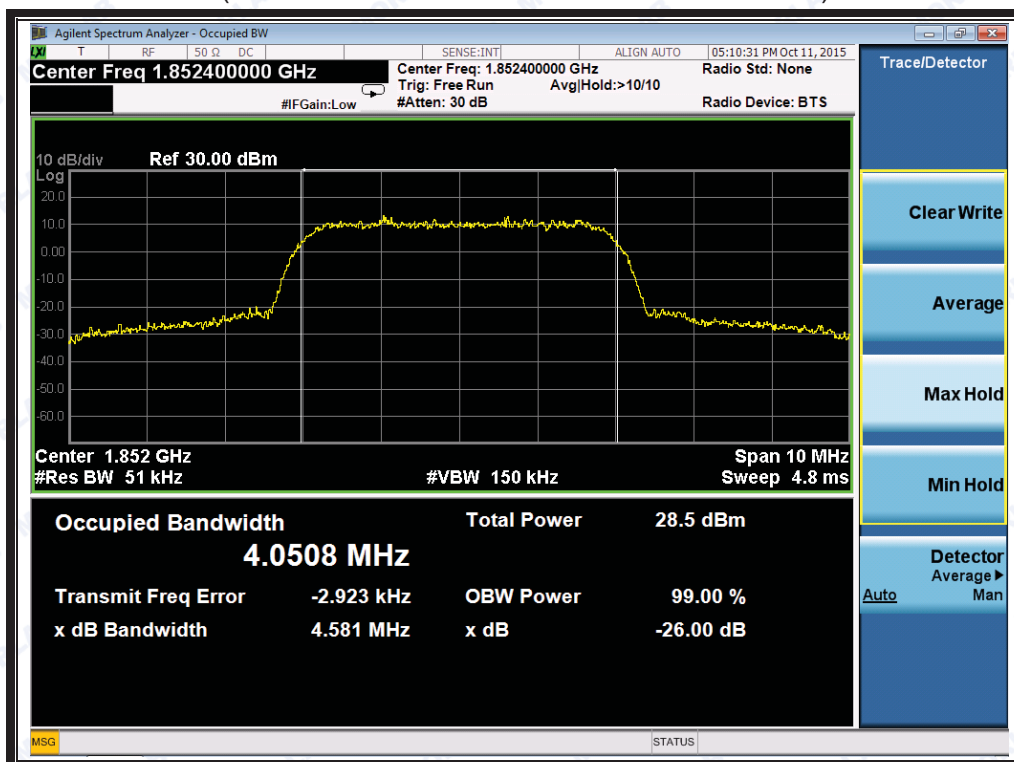
(Plot I2: HSDPA 1700 MHz Channel = 1412)



REPORT No.: SZ15070092W01



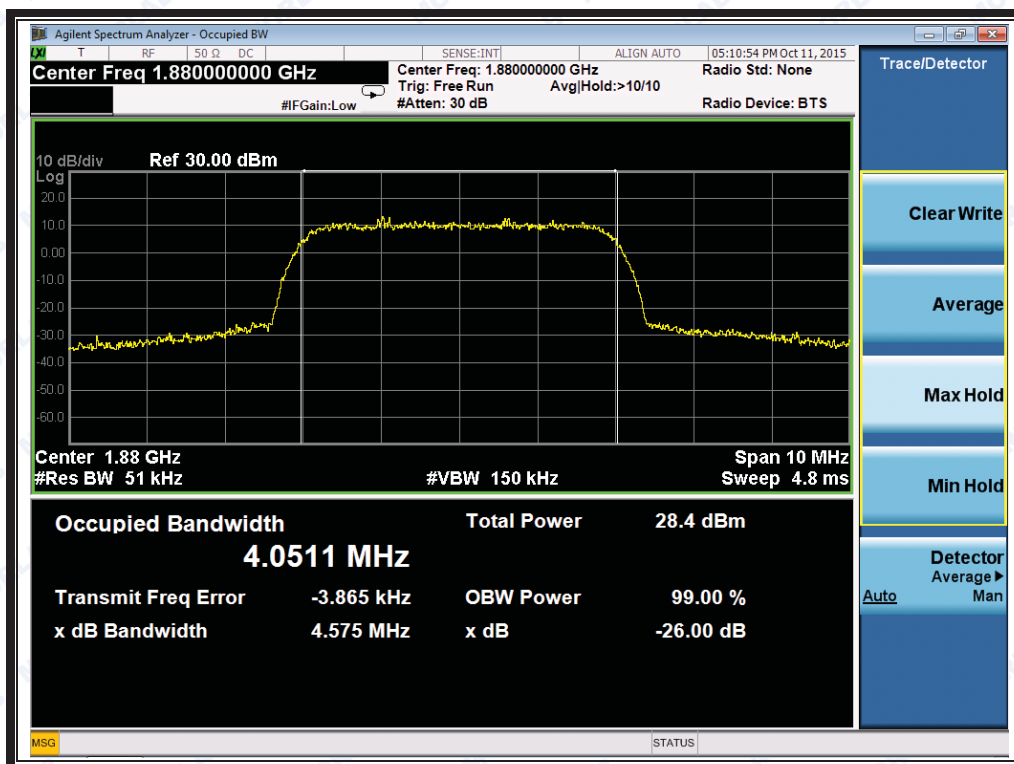
(Plot I3: HSDPA 1700MHz Channel = 1513)



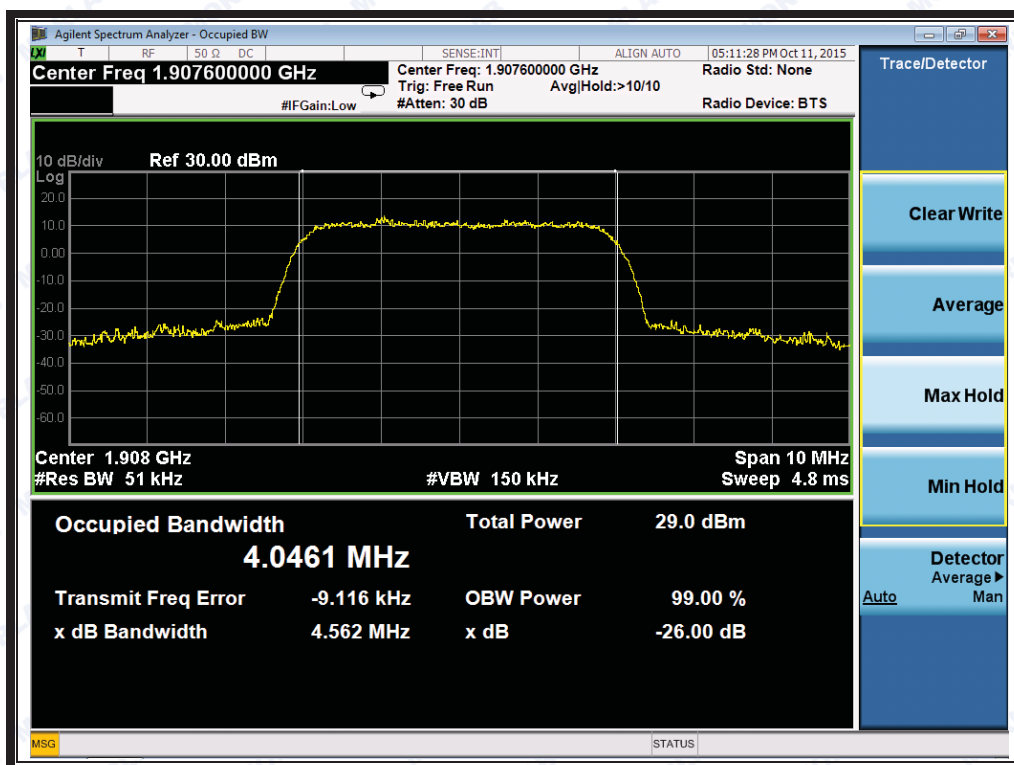
(Plot J1: HSDPA 1900MHz Channel = 9262)



REPORT No.: SZ15070092W01



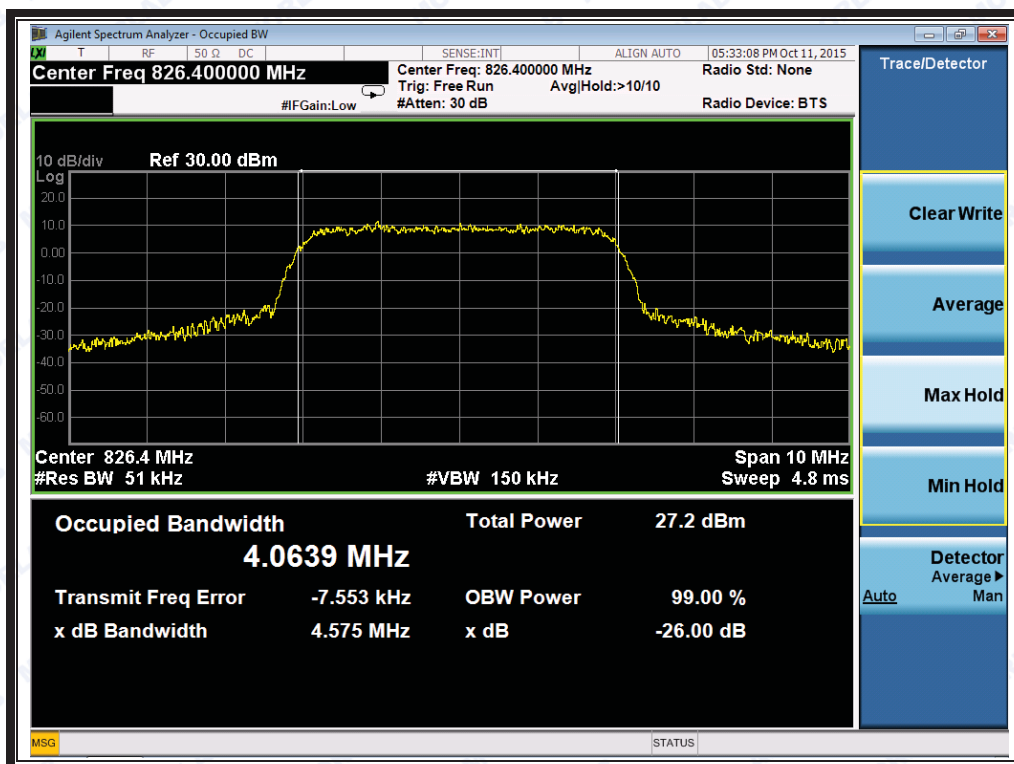
(Plot J2: HSDPA 1900 MHz Channel = 9400)



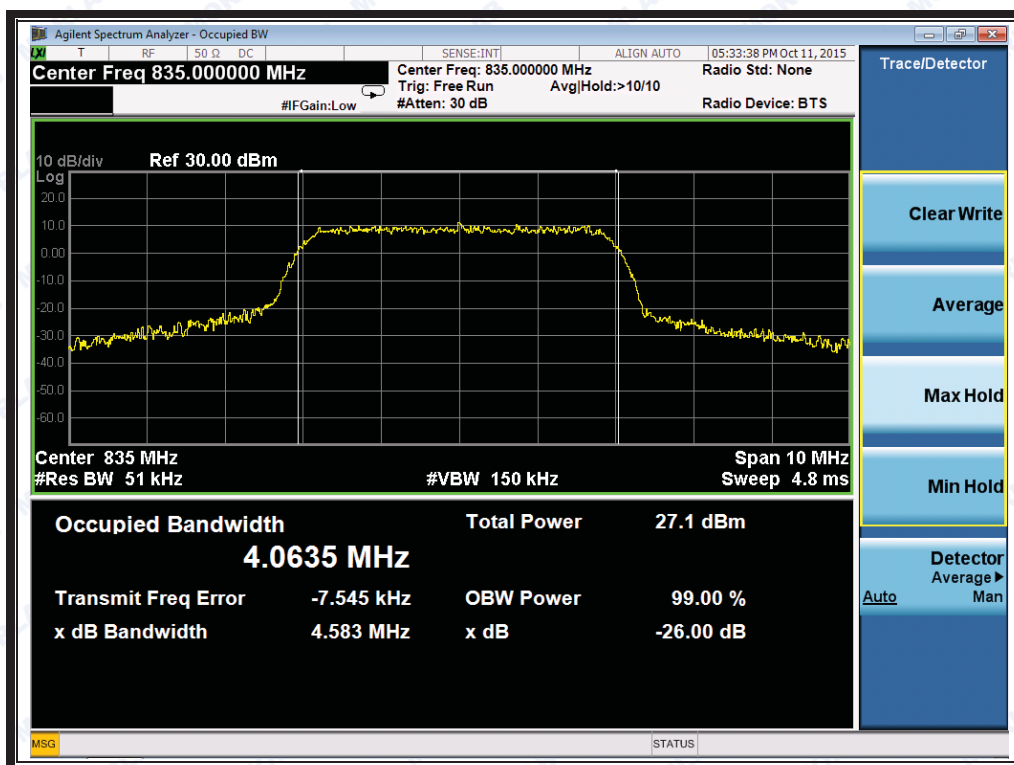
(Plot J3: HSDPA 1900MHz Channel = 9538)



REPORT No.: SZ15070092W01



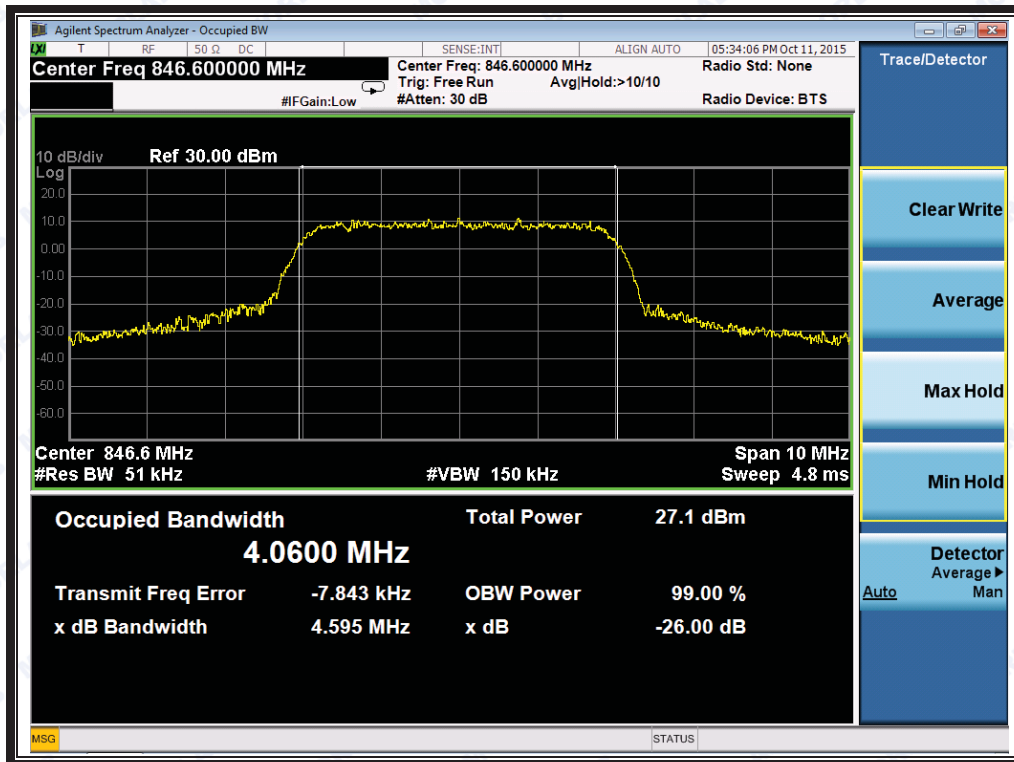
(Plot K1: HSUPA 850MHz Channel = 4132)



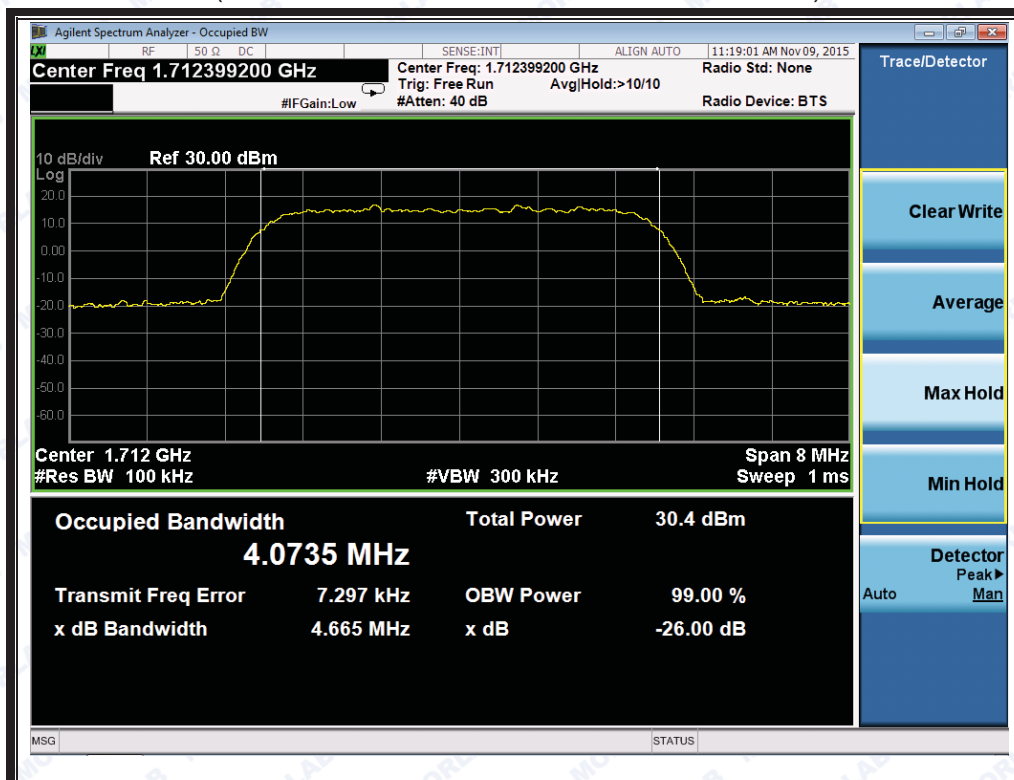
(Plot K2: HSUPA 850 MHz Channel = 4175)



REPORT No.: SZ15070092W01



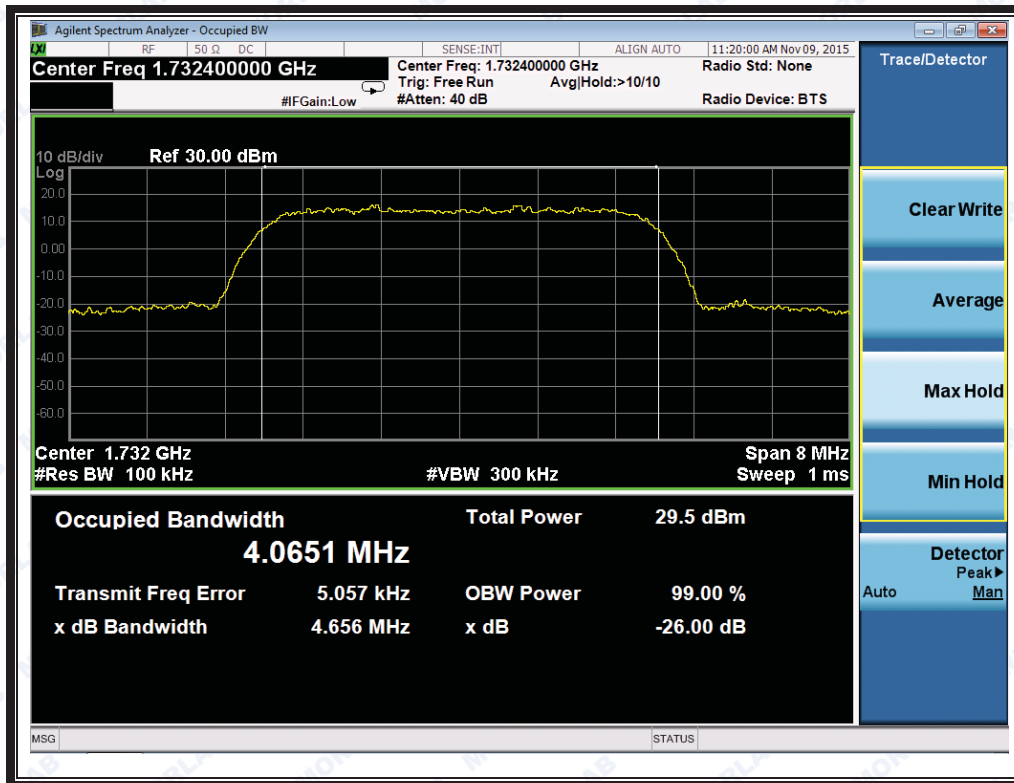
(Plot K3: HSUPA 850MHz Channel = 4233)



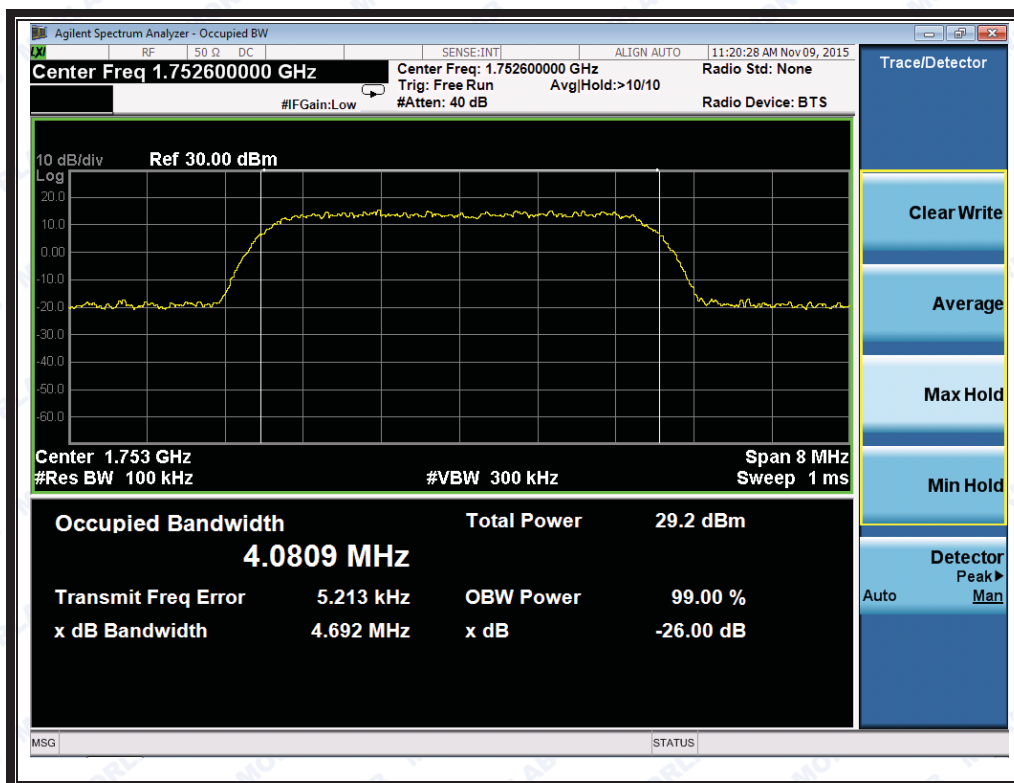
(Plot L1: HSUPA 1700MHz Channel = 1312)



REPORT No.: SZ15070092W01



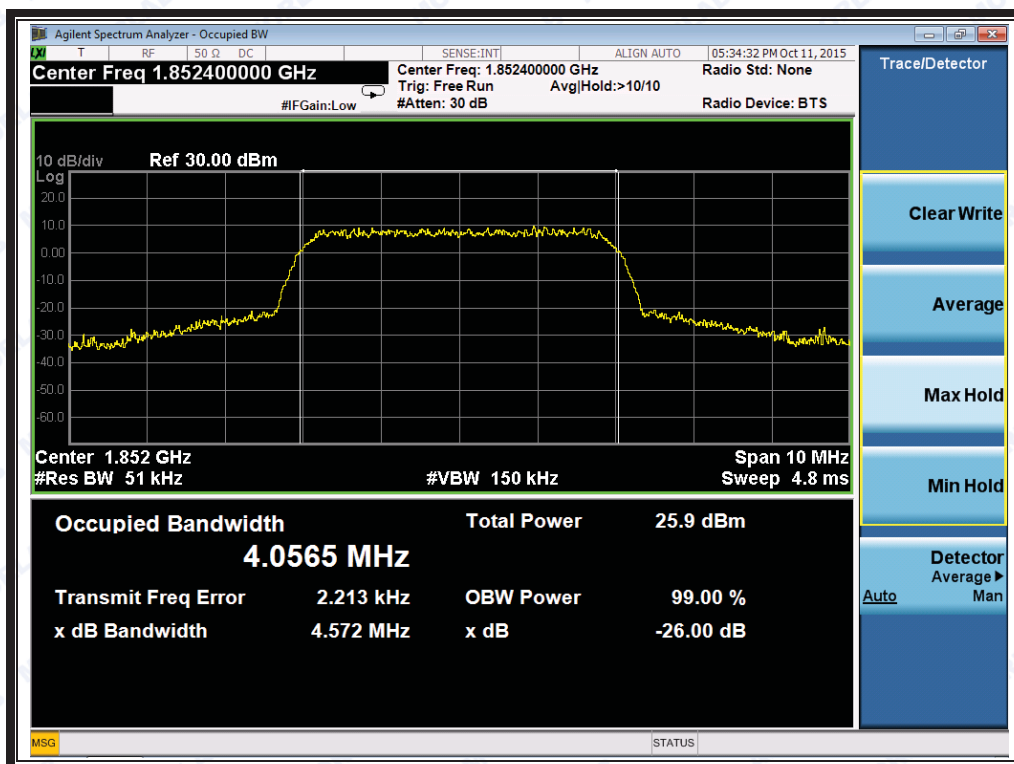
(Plot L2: HSUPA 1700 MHz Channel = 1412)



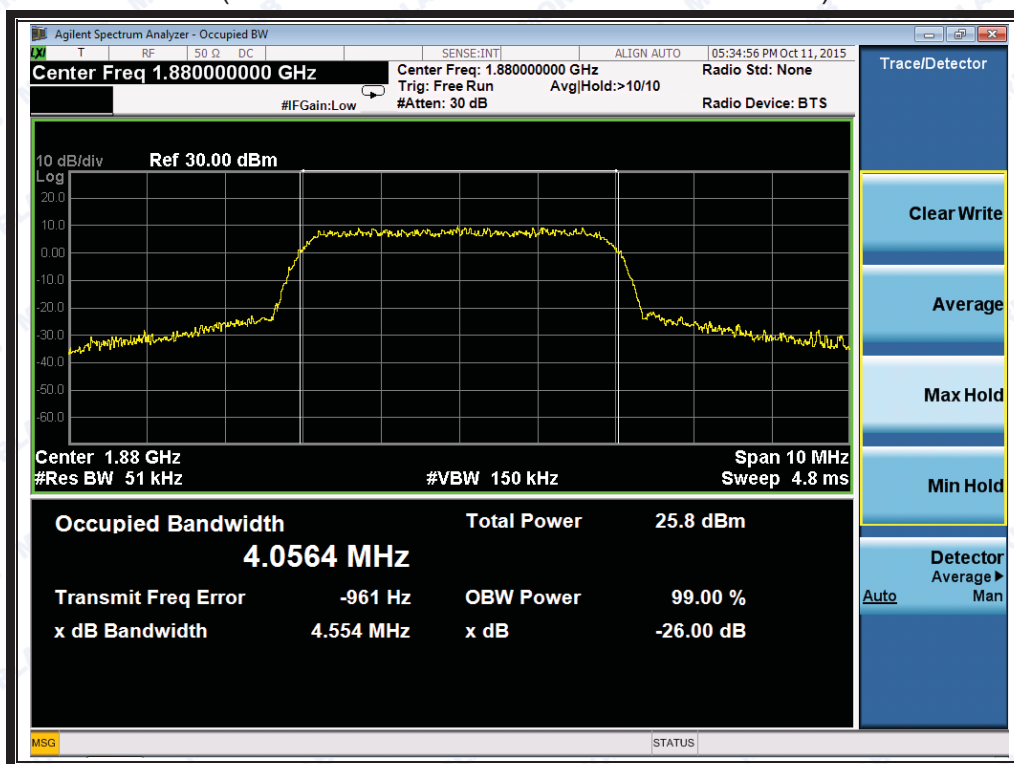
(Plot L3: HSUPA 1700MHz Channel = 1513)



REPORT No.: SZ15070092W01



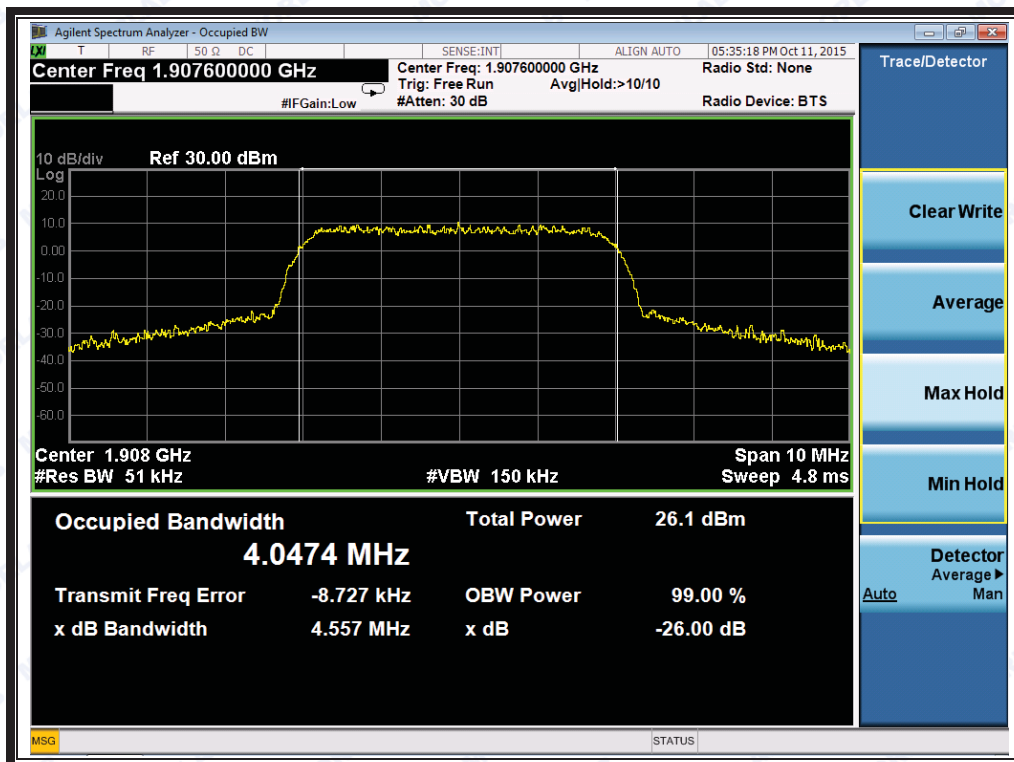
(Plot M1: HSUPA 1900MHz Channel = 9262)



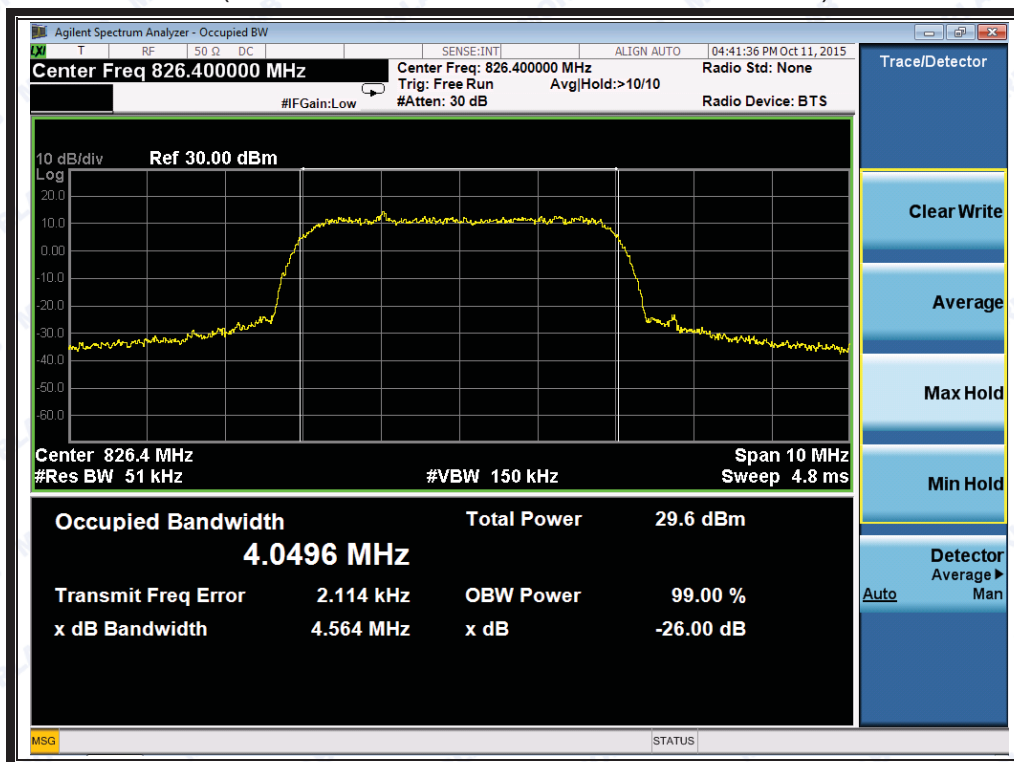
(Plot M2: HSUPA 1900 MHz Channel = 9400)



REPORT No.: SZ15070092W01



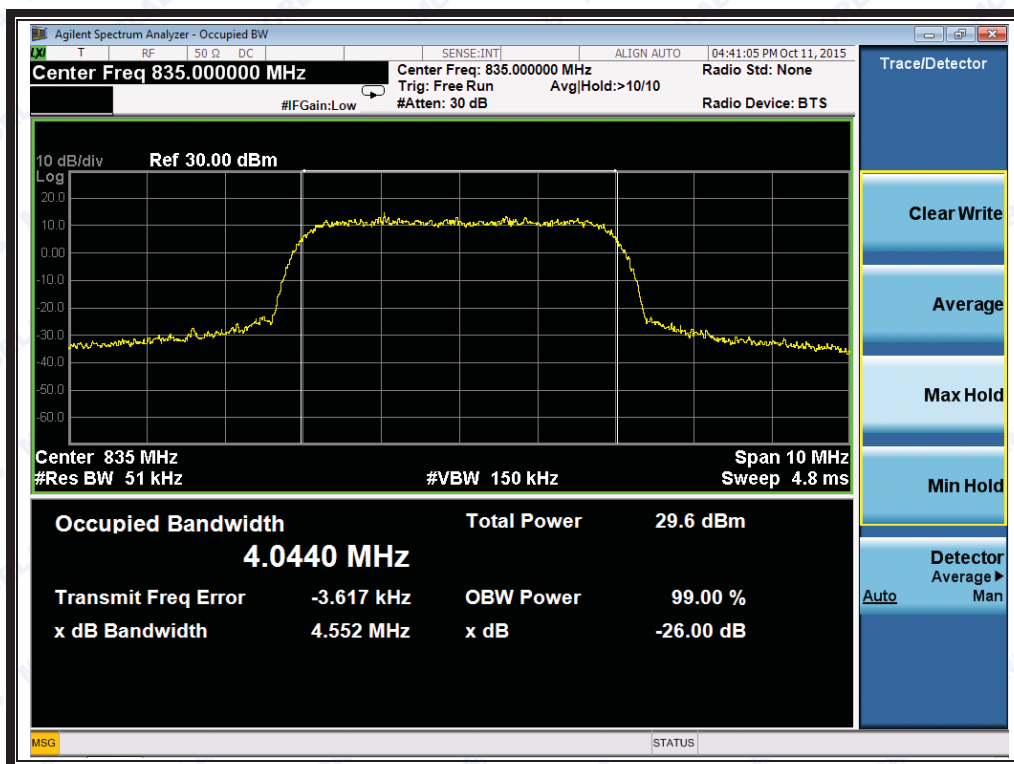
(Plot M3: HSUPA 1900MHz Channel = 9538)



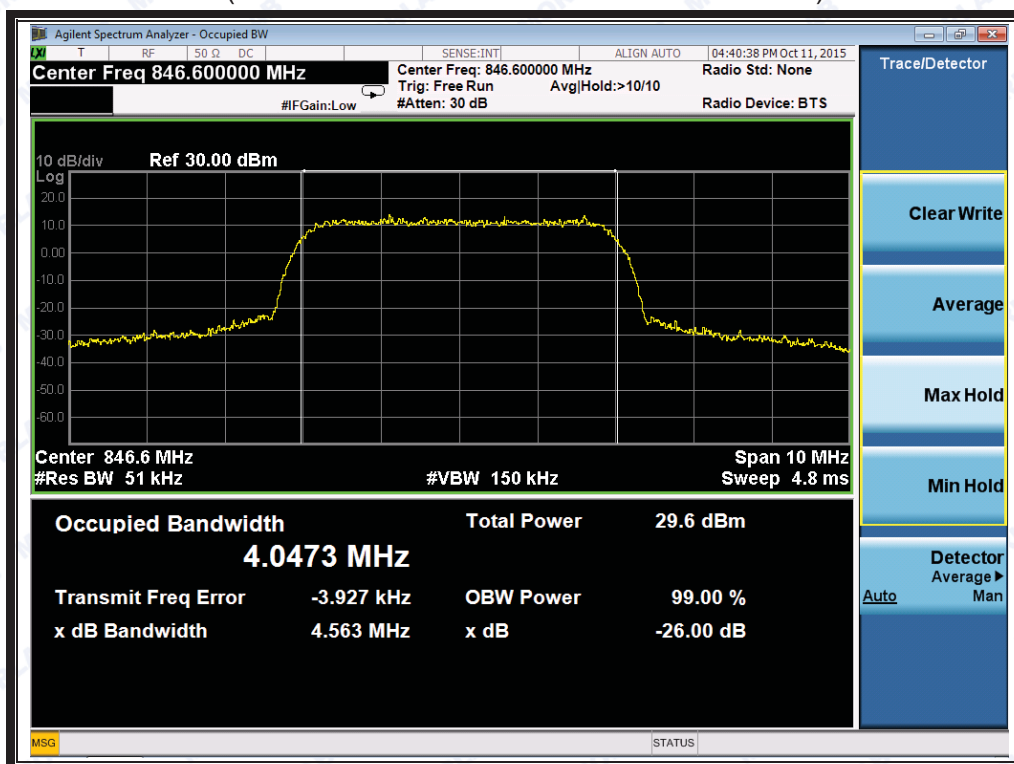
(Plot N1: HSPA+ 850MHz Channel = 4132)



REPORT No.: SZ15070092W01



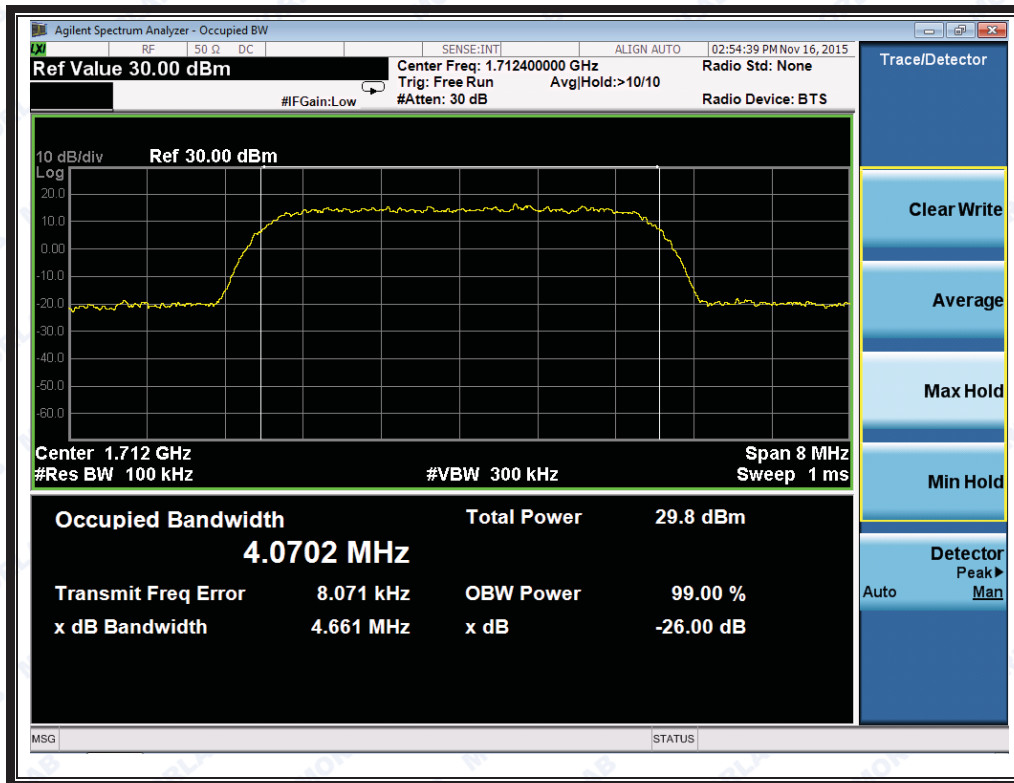
(Plot N2: HSPA+ 850 MHz Channel = 4175)



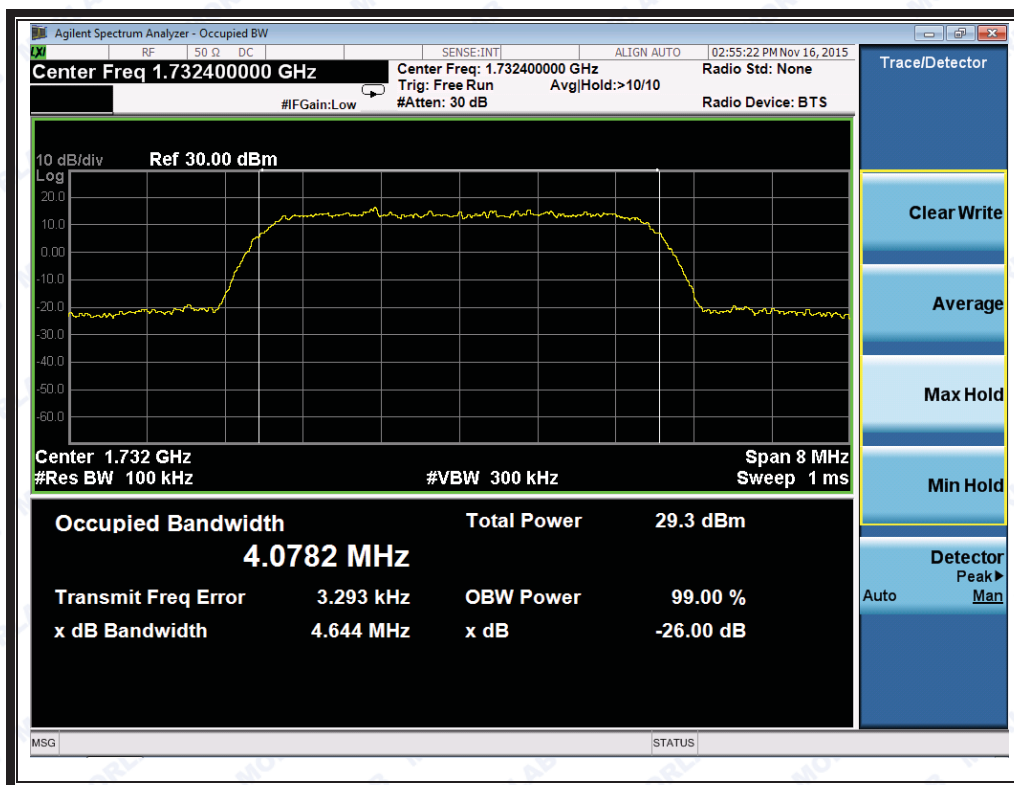
(Plot N3: HSPA+ 850MHz Channel = 4233)



REPORT No.: SZ15070092W01



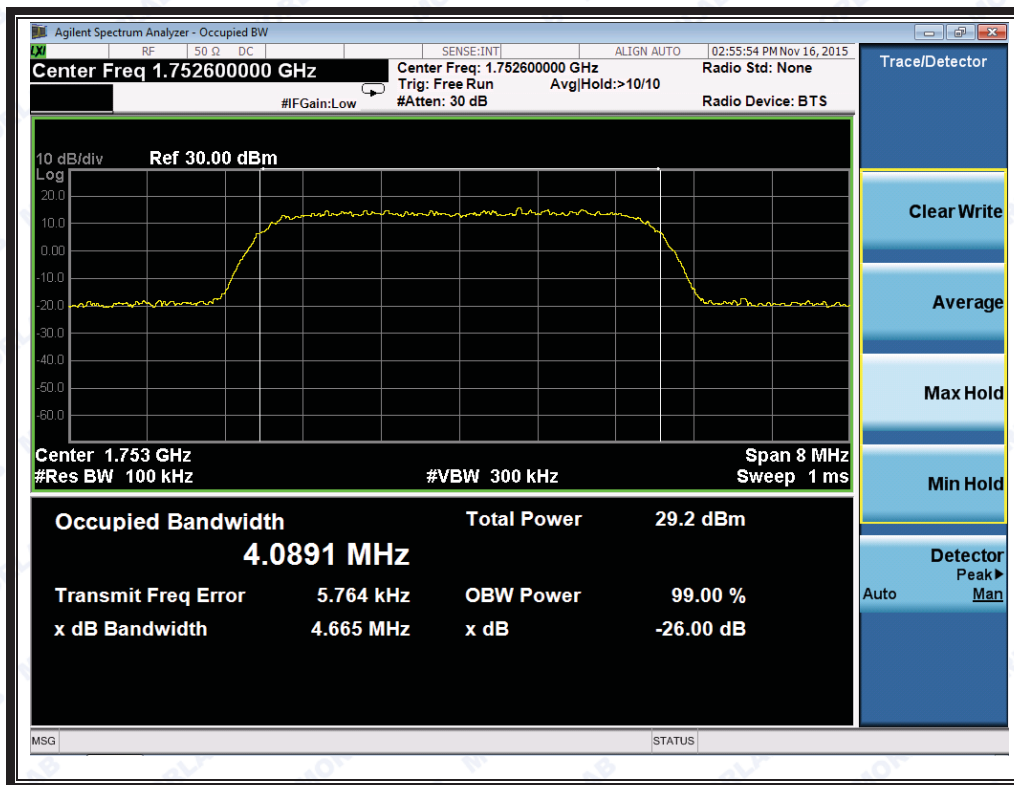
(Plot O1: HSPA+ 1700MHz Channel =1312)



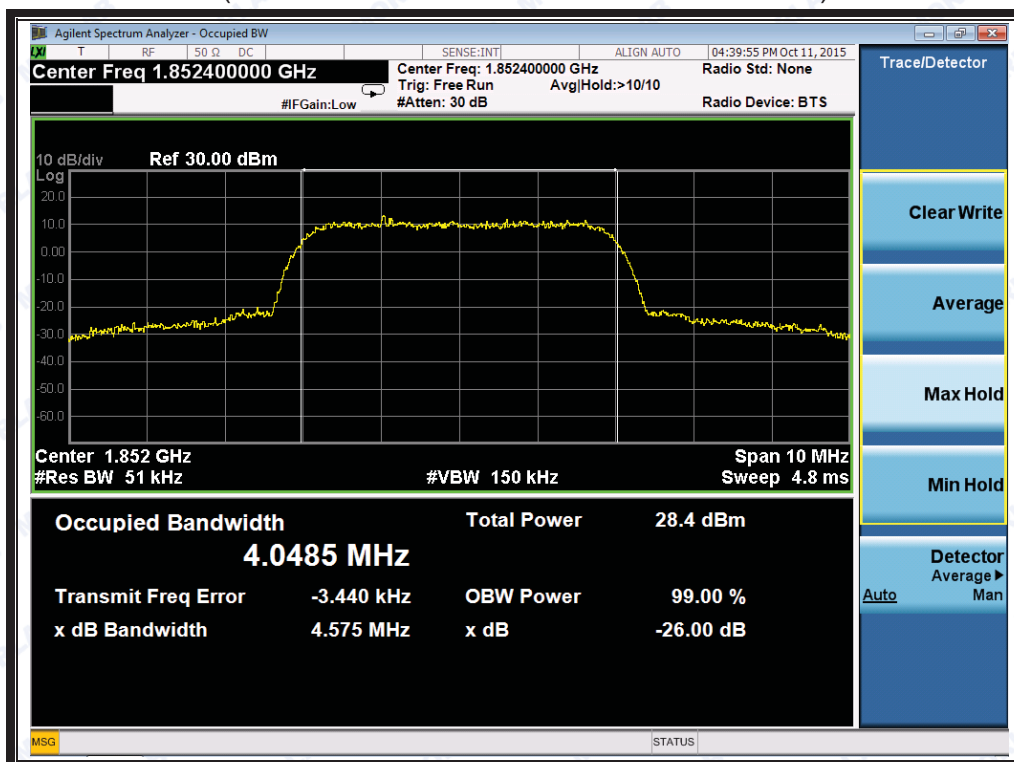
(Plot O2: HSPA+ 1700 MHz Channel = 1412)



REPORT No.: SZ15070092W01



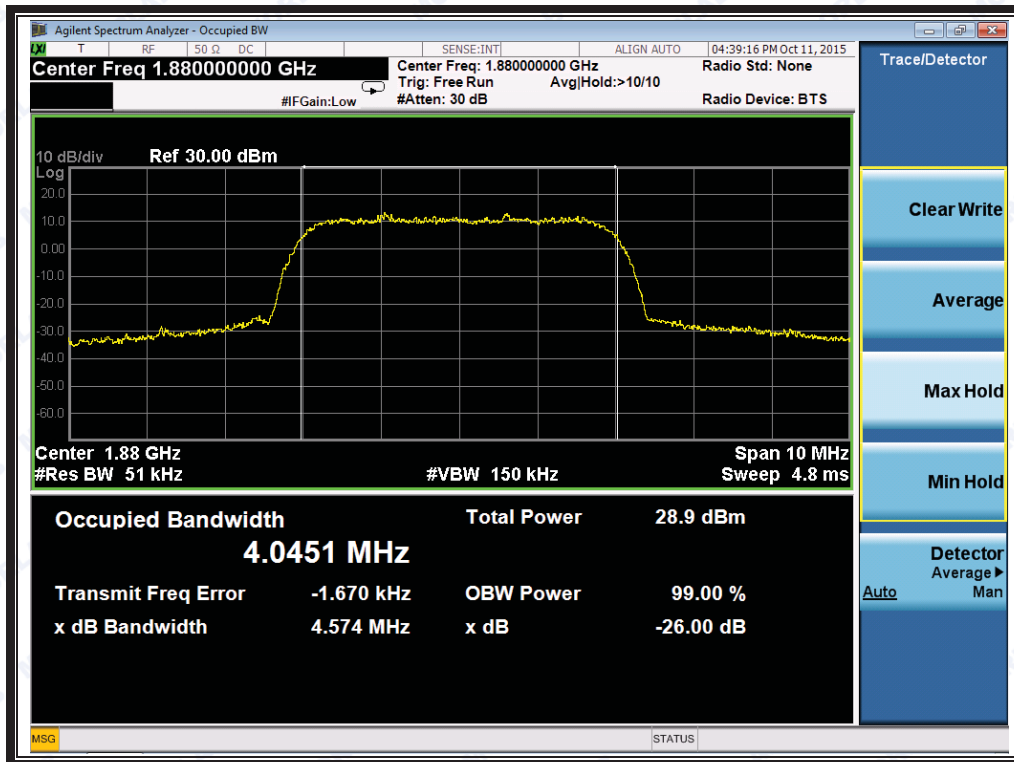
(Plot O3: HSPA+ 1700MHz Channel = 1513)



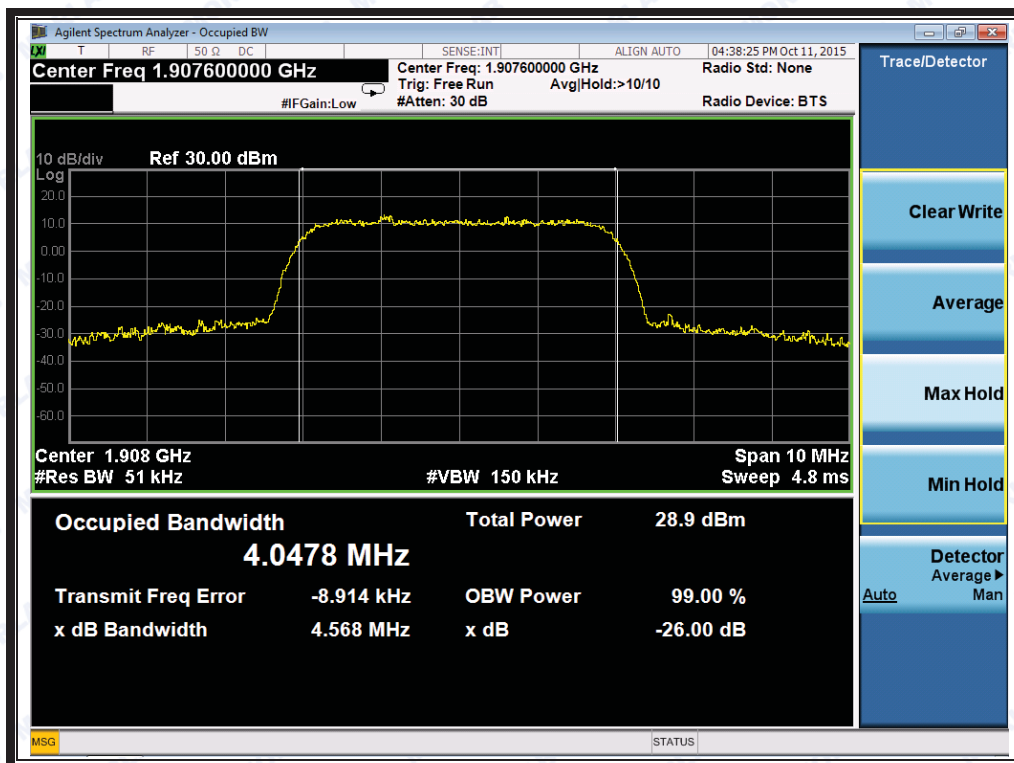
(Plot P1: HSPA+ 1900MHz Channel = 9262)



REPORT No.: SZ15070092W01



(Plot P2: HSPA+ 1900 MHz Channel = 9400)



(Plot P3: HSPA+ 1900MHz Channel = 9538)

2.4 Frequency Stability

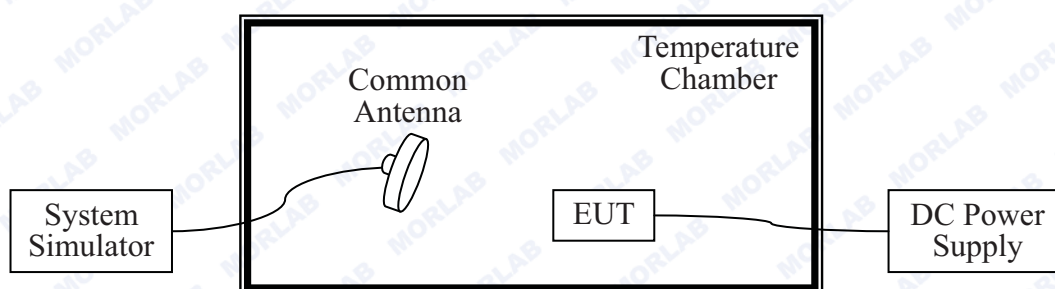
2.4.1 Requirement

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 $+50^{\circ}\text{C}$ 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

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.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2015.02.26	2016.02.25
DC Power Supply	Good Will	GPS -3030DD	EF920938	2015.02.26	2016.02.25
Temperature Chamber	YinHe Experimental Equip.	HL4003T	(n.a.)	2015.02.26	2016.02.25



2.4.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 110VDC, 121VDC and 100VDC, which are specified by the applicant; the normal temperature here used is 25°C. The frequency deviation limit of 850MHz band is $\pm 2.5\text{ppm}$, and 1900MHz is $\pm 1\text{ppm}$.

1. EDGE 850MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 128 (824.2MHz)		Channel = 190 (836.6MHz)		Channel = 251 (848.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
110	-30	-2.5	±2060.5	13.54	±2091.5	-17.09	±2122	<u>PASS</u>
	-20	19.54		29.31		29.08		
	-10	13.54		30.2		45.1		
	0	0.4		-9.85		-16.33		
	+10	-13.43		24.34		11.97		
	+20	29.71		9.23		7.69		
	+30	12.54		-8.04		29.99		
	+40	-13.43		-14.55		20.28		
	+55	-1.5		35		23.25		
121	+25	14.69		1.15		27.85		
100	+25	-37.92		11.32		19.99		

2. EDGE 1900MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 512 (1850.2MHz)		Channel = 661 (1880.0MHz)		Channel = 810 (1909.8MHz)		
		Hz	Limits	Hz	Limits	Hz	Limits	
110	-30	-12.73	±1850.2	5.94	±1880.0	12.45	±1909.8	PASS
	-20	-10.22		-23.07		-17.33		
	-10	13.32		-1.55		38.32		
	0	5.32		-18.97		-21.84		
	+10	35.25		-21.9		-15.89		
	+20	-26.79		14.29		17.98		
	+30	19.53		-0.97		15.86		
	+40	-16.68		36.58		17.55		
	+55	26.78		3.38		-17.33		
121	+25	-10.77		16.66		-16.49		
100	+25	7.77		34.94		-15.48		



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3. 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	
110	-30	27.84	±2066	10.87	±2087.5	-10.83	±2116.5	PASS
	-20	13.35		11.79		36.04		
	-10	25.35		2.73		17.44		
	0	-11.08		-10.5		53.62		
	+10	10.95		-1.85		69.35		
	+20	9.57		13.59		2.79		
	+30	17.19		5.59		9.89		
	+40	11.39		5.59		7.55		
	+55	13.95		-2.3		7.61		
121	+25	27.24		17.86		15.85		
100	+25	12.32		-17.75		14.58		

4. WCDMA 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
110	-30	-12.95	±4281	-13.91	±4331	10.4	±4381.5	PASS
	-20	30.57		-0.27		20.19		
	-10	-8.94		24.45		-16.15		
	0	-14.58		22.86		-14.78		
	+10	-24.94		-12.35		34.39		
	+20	12.22		25.45		-9.13		
	+30	-15.38		19.06		-14.74		
	+40	22.74		-8.53		13.59		
	+55	16.39		13.07		20.73		
121	+25	34.6		-0.27		-25.19		
100	+25	-18.7		24.47		10.2		



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5. 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	
110	-30	-14.48	±1852.4	12.02	±1880	14.88	±1907.6	PASS
	-20	38.69		2.96		-6.64		
	-10	-21.52		-10.27		8.62		
	0	-15.57		-1.62		11.51		
	+10	18.3		13.82		9.66		
	+20	16.18		5.82		7.05		
	+30	4.21		-2.07		-20.22		
	+40	14.49		11.1		-5.81		
	+55	-17.01		13		-16.7		
121	+25	14.49		12.02		-11.24		
100	+25	16.76		-17.28		12.36		

6. 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	
110	-30	12.07	±2066	1.95	±2087.5	12.64	±2116.5	PASS
	-20	21.11		-7.09		-8.88		
	-10	12.57		16.86		6.38		
	0	4.27		-34.91		9.27		
	+10	-4.77		1.95		7.42		
	+20	19.18		-7.09		4.81		
	+30	-32.59		17.85		-22.46		
	+40	28.12		-32.41		-8.05		
	+55	24.75		21		-18.94		
121	+25	-36.05		1.95		-13.48		
100	+25	22.54		-17.44		10.12		



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7. HSDPA 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
110	-30	13.12	±4281	-16.31	±4331	10.2	±4381.5	PASS
	-20	31.87		-2.67		19.99		
	-10	-7.64		22.05		-16.35		
	0	-13.28		20.46		-14.98		
	+10	-23.64		-14.75		34.19		
	+20	13.52		23.05		-9.33		
	+30	-14.08		16.66		-14.94		
	+40	24.04		-10.93		13.39		
	+55	17.69		10.67		20.53		
121	+25	35.9		-2.67		-25.39		
100	+25	-17.4		22.07		10		

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	
110	-30	15.8	±1852.4	14.3	±1880	29.9	±1907.6	PASS
	-20	-16.41		18.11		-12.62		
	-10	-1.14		26.84		-8.03		
	0	1.31		-21.43		-8.51		
	+10	-15.01		-18.72		4.2		
	+20	-10.49		17.14		-7.27		
	+30	0.86		-10.15		34.15		
	+40	1.31		9.57		-7.21		
	+55	25.06		24.24		4.14		
121	+25	-3.27		24.9		13.29		
100	+25	17.55		-11.96		17.12		



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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	
110	-30	6.39	±2066	30.25	±2087.5	-10.34	±2116.5	PASS
	-20	1.71		25.81		2.11		
	-10	-6.05		5.3		2.46		
	0	15.08		-0.01		16.27		
	+10	-3.06		-7.05		-12.8		
	+20	22.22		13.9		-9.34		
	+30	-1.68		-3.87		2.01		
	+40	-13.15		20.84		3.6		
	+55	-7.21		11.47		-5.49		
121	+25	24.18		-9.4		9.26		
100	+25	-18.08		19.26		-0.38		

10. HSUPA 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
110	-30	-18.67	±4281	-13.58	±4331	13.09	±4381.5	PASS
	-20	-5.03		29.94		22.88		
	-10	19.69		-9.57		-13.46		
	0	18.1		-15.21		-12.09		
	+10	-17.11		-25.57		37.08		
	+20	20.69		11.59		-6.44		
	+30	14.3		-16.01		-12.05		
	+40	-13.29		22.11		16.28		
	+55	8.31		15.76		23.42		
121	+25	-5.03		33.97		-22.5		
100	+25	19.71		-19.33		12.89		



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11. 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	
110	-30	13.02	±1852.4	14.61	±1880	30.9	±1907.6	PASS
	-20	26.89		-17.52		26.46		
	-10	35.48		-11.98		5.95		
	0	-8.85		-0.63		0.64		
	+10	-6.44		-0.18		-6.4		
	+20	19.82		-6.83		14.55		
	+30	-7.47		24.06		-3.22		
	+40	12.25		9.44		21.49		
	+55	26.92		23.57		12.12		
121	+25	27.58		-4.76		-8.75		
100	+25	-9.33		4.86		19.91		

12. 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	
110	-30	-11.01	±2066	30.44	±2087.5	5.31	±2116.5	PASS
	-20	1.44		26		0.63		
	-10	1.79		5.49		-7.13		
	0	15.6		0.18		14		
	+10	-13.47		-6.86		-4.14		
	+20	-10.01		14.09		21.14		
	+30	1.34		-3.68		-2.76		
	+40	2.93		21.03		-14.23		
	+55	-6.16		11.66		-8.29		
121	+25	8.59	±2066	-9.21	±2087.5	23.1	±2116.5	PASS
100	+25	-1.05		19.45		-19.16		



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13. HSPA+ 1700MHz Band

Test Conditions		Frequency Deviation						Verdict
Power (VDC)	Temperature (°C)	Channel = 1312 (1712.4MHz)		Channel = 1412 (1732.4MHz)		Channel = 1513 (1752.6MHz)		
		Hz	Limit	Hz	Limit	Hz	Limit	
110	-30	-19.75	±4281	-13.39	±4331	12.42	±4381.5	PASS
	-20	-6.11		30.13		22.21		
	-10	18.61		-9.38		-14.13		
	0	17.02		-15.02		-12.76		
	+10	-18.19		-25.38		36.41		
	+20	19.61		11.78		-7.11		
	+30	13.22		-15.82		-12.72		
	+40	-14.37		22.3		15.61		
	+55	7.23		15.95		22.75		
121	+25	-6.11	±4281	34.16	±4331	-23.17	±4381.5	PASS
100	+25	18.63		-19.14		12.22		

14. 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	
110	-30	29.82	±1852.4	13.21	±1880	13.94	±1907.6	PASS
	-20	25.38		27.08		-18.19		
	-10	4.87		35.67		-12.65		
	0	-0.44		-8.66		-1.3		
	+10	-7.48		-6.25		-0.85		
	+20	13.47		20.01		-7.5		
	+30	-4.3		-7.28		23.39		
	+40	20.41		12.44		8.77		
	+55	11.04		27.11		22.9		
121	+25	-9.83		27.77		-5.43		
100	+25	18.83		-9.14		4.19		



2.5 Conducted Out of Band Emissions

2.5.1 Requirement

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

2.5.2 Test Description

See section 2.1.2 of this report.

2.5.3 Test Result

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

1. Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
System Simulator	Agilent	E5515C	GB43130131	2015.02.26	2016.02.25
Spectrum Analyzer	Agilent	E7405A	US44210471	2015.02.26	2016.02.25
Power Meter	Agilent	E4418B	GB43318055	2015.02.26	2016.02.25
Power Sensor	Agilent	8482A	MY41091706	2015.02.26	2016.02.25
Power Splitter	Weinschel	1506A	NW521	2015.02.26	2016.02.25
Attenuator 1	Resnet	20dB	(n.a.)	2015.02.26	2016.02.25
Attenuator 2	Resnet	3dB	(n.a.)	2015.02.26	2016.02.25

2. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
EGPRS 850MHz	128	824.2	-19.25	Plot A1 to A1.1	-13	PASS
	190	836.6	-19.99	Plot A2 to A2.1		PASS
	251	848.8	-20.61	Plot A3 to A3.1		PASS
EGPRS 1900MHz	512	1850.2	-21.30	Plot B1 to B1.1	-13	PASS
	661	1880.0	-20.16	Plot B2 to B2.1		PASS
	810	1909.8	-18.72	Plot B3 to B3.1		PASS
WCDMA 850MHz	4132	826.4	< -25	Plot C1 to C1.1	-13	PASS
	4175	835.0	< -25	Plot C2 to C2.1		PASS
	4233	846.6	< -25	Plot C3 to C3.1		PASS
WCDMA 1700MHz	1312	1712.4	< -25	Plot D1 to D1.1	-13	PASS
	1412	1732.4	< -25	Plot D2 to D2.1		PASS
	1513	1752.6	< -25	Plot D3 to D3.1		PASS



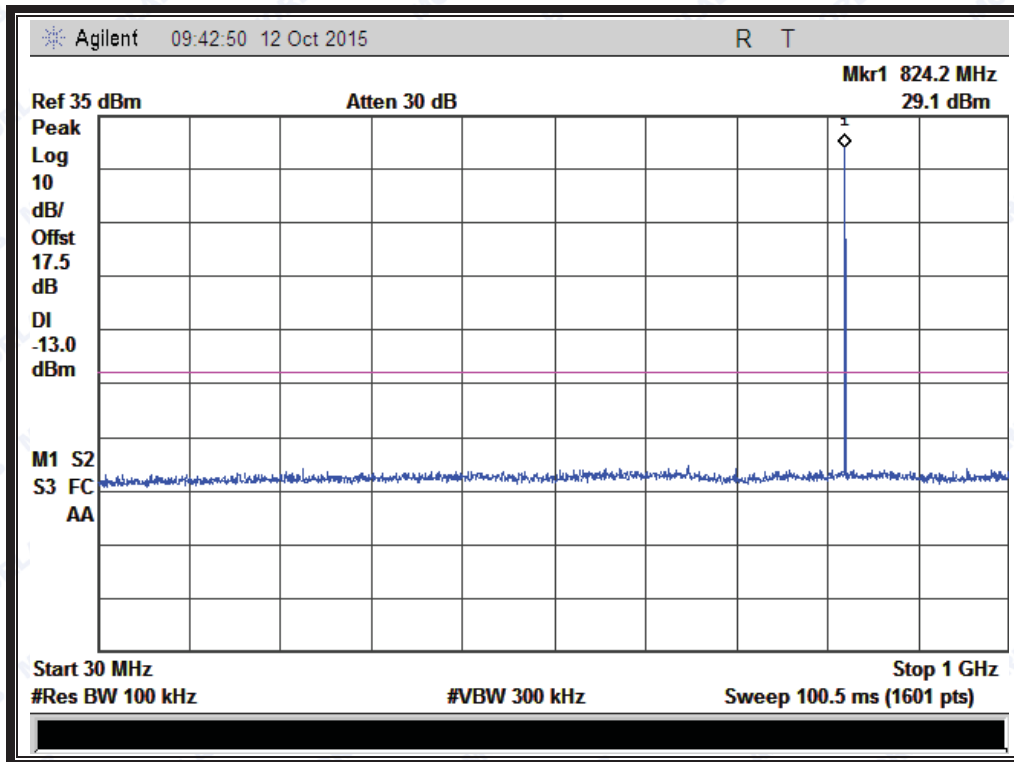
Band	Channel	Frequency (MHz)	Measured Max. Spurious Emission (dBm)	Refer to Plot	Limit (dBm)	Verdict
WCDMA 1900MHz	9262	1852.4	< -25	Plot E1 to E1.1	-13	PASS
	9400	1880.0	< -25	Plot E2 to E2.1		PASS
	9538	1907.6	< -25	Plot E3 to E3.1		PASS
HSDPA 850MHz	4132	826.4	< -25	Plot F1 to F1.1	-13	PASS
	4175	835.0	< -25	Plot F2 to F2.1		PASS
	4233	846.6	< -25	Plot F3 to F3.1		PASS
HSDPA 1700MHz	1312	1712.4	< -25	Plot G1 to G1.1	-13	PASS
	1412	1732.4	< -25	Plot G2 to G2.1		PASS
	1513	1752.6	< -25	Plot G3 to G3.1		PASS
HSDPA 1900MHz	9262	1852.4	< -25	Plot H1 to H1.1	-13	PASS
	9400	1880.0	< -25	Plot H2 to H2.1		PASS
	9538	1907.6	< -25	Plot H3 to H3.1		PASS
HSUPA 850MHz	4132	826.4	< -25	Plot I1 to I1.1	-13	PASS
	4175	835.0	< -25	Plot I2 to I2.1		PASS
	4233	846.6	< -25	Plot I3 to I3.1		PASS
HSUPA 1700MHz	1312	1712.4	< -25	Plot J1 to J1.1	-13	PASS
	1412	1732.4	< -25	Plot J2 to J2.1		PASS
	1513	1752.6	< -25	Plot J3 to J3.1		PASS
HSUPA 1900MHz	9262	1852.4	< -25	Plot K1 to K1.1	-13	PASS
	9400	1880.0	< -25	Plot K2 to K2.1		PASS
	9538	1907.6	< -25	Plot K3 to K3.1		PASS
HSPA+ 850MHz	4132	826.4	< -25	Plot L1 to L1.1	-13	PASS
	4175	835.0	< -25	Plot L2 to L2.1		PASS
	4233	846.6	< -25	Plot L3 to L3.1		PASS
HSPA+ 1700MHz	1312	1712.4	< -25	Plot M1 to M1.1	-13	PASS
	1412	1732.4	< -25	Plot M2 to M2.1		PASS
	1513	1752.6	< -25	Plot M3 to M3.1		PASS
HSPA+ 1900MHz	9262	1852.4	< -25	Plot N1 to N1.1	-13	PASS
	9400	1880.0	< -25	Plot N2 to N2.1		
	9538	1907.6	< -25	Plot N3 to N3.1		

Test Plots for the Whole Measurement Frequency Range:

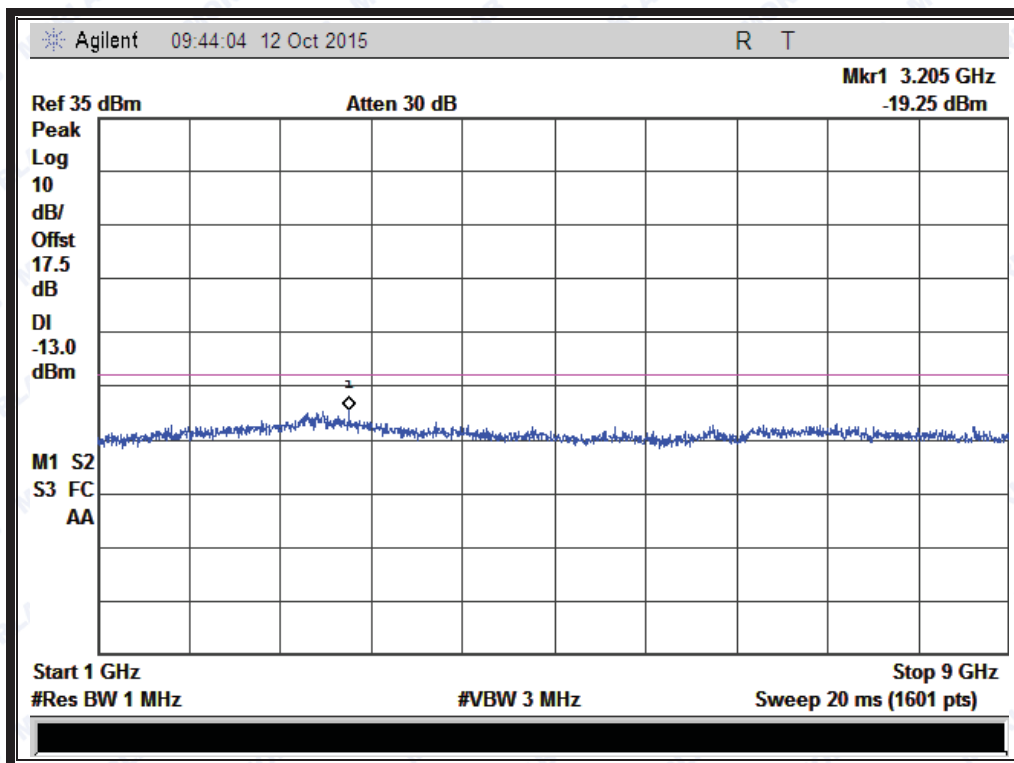
Note: the power of the EUT transmitting frequency should be ignored.



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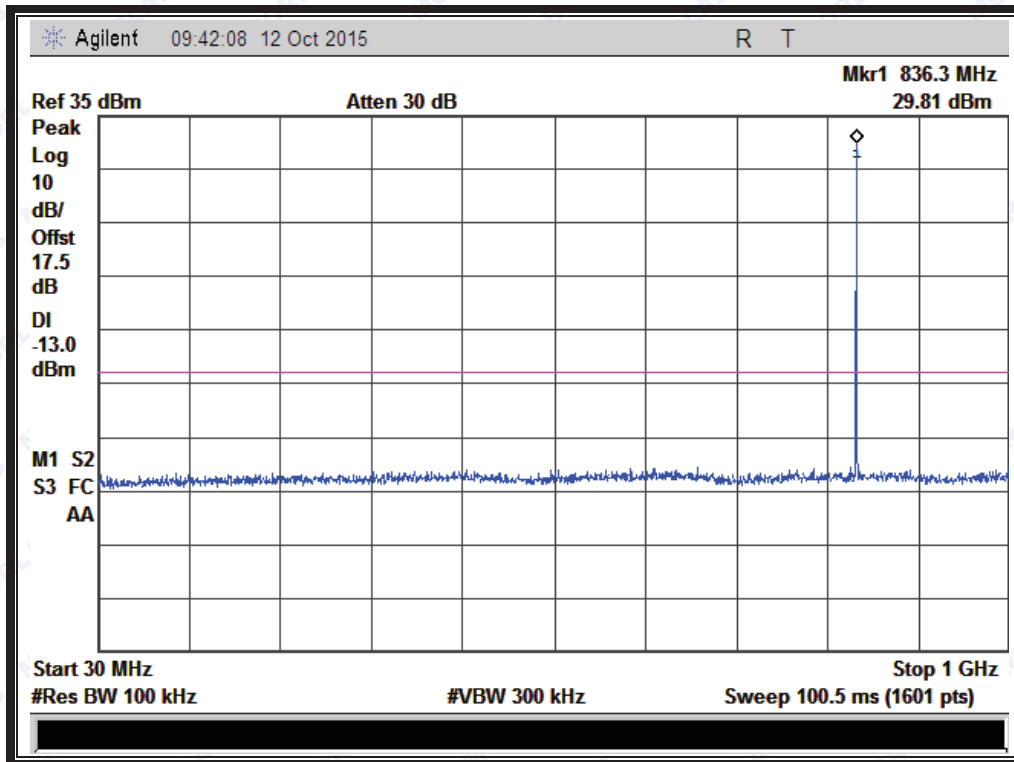
(Plot A1: EGPRS 850MHz Channel = 128, 30MHz to 1GHz)



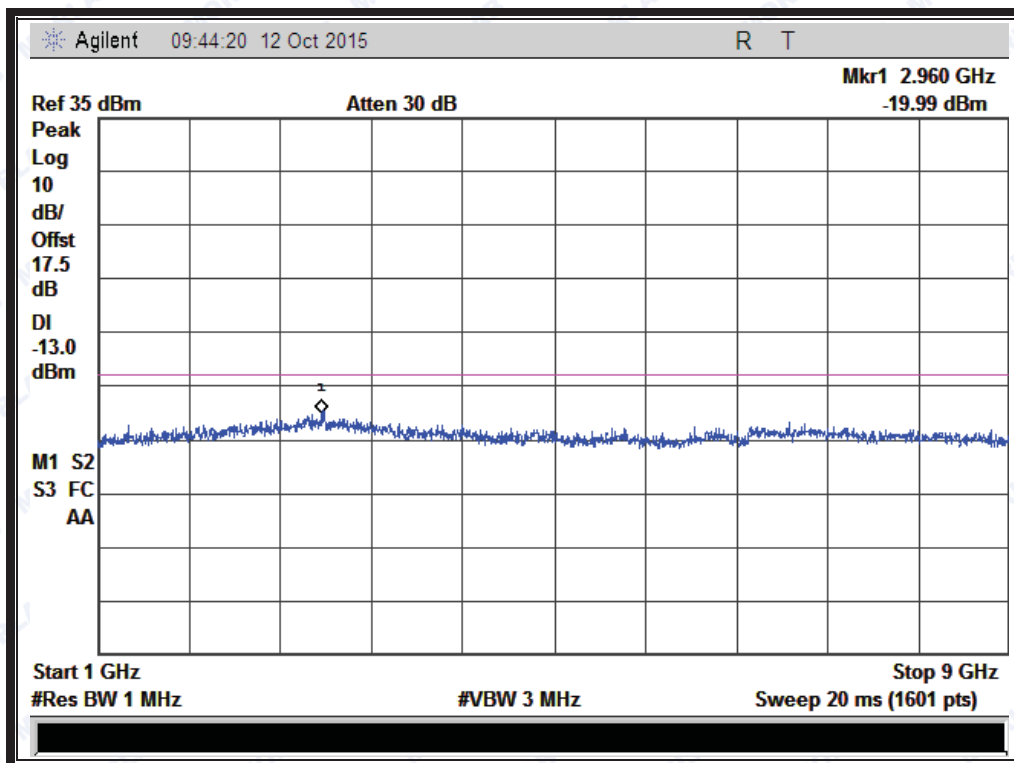
(Plot A1.1: EGPRS 850MHz Channel = 128, 1GHz to 9GHz)



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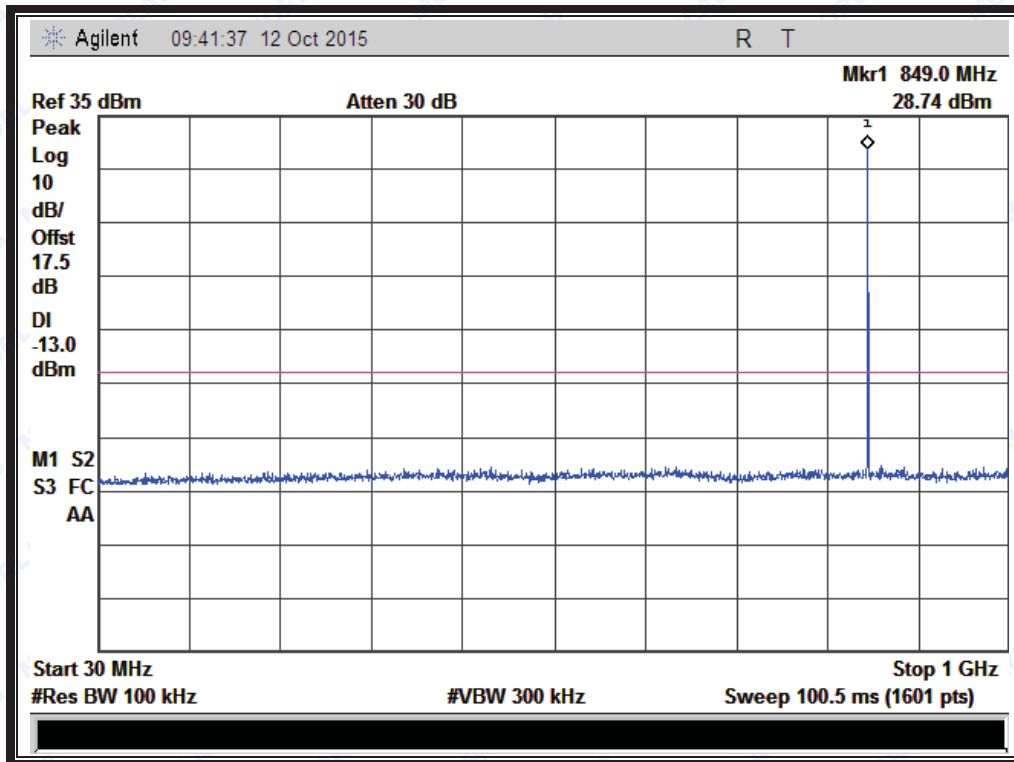
(Plot A2: EGPRS 850MHz Channel = 190, 30MHz to 1GHz)



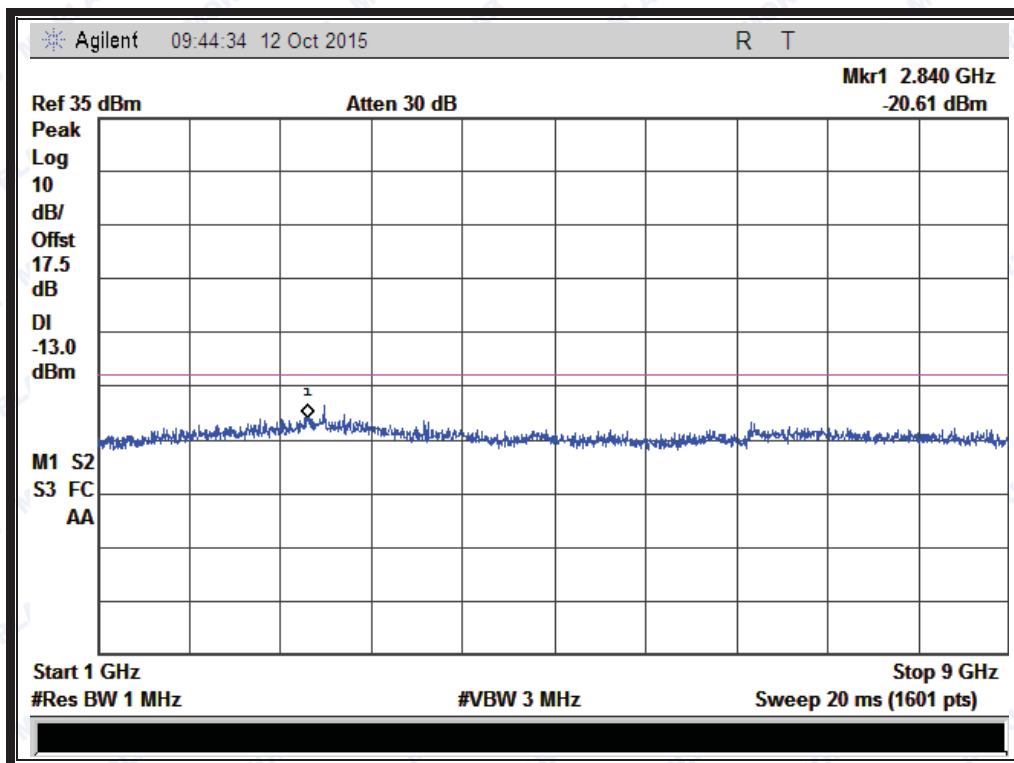
(Plot A2.1: EGPRS 850MHz Channel = 190, 1GHz to 9GHz)



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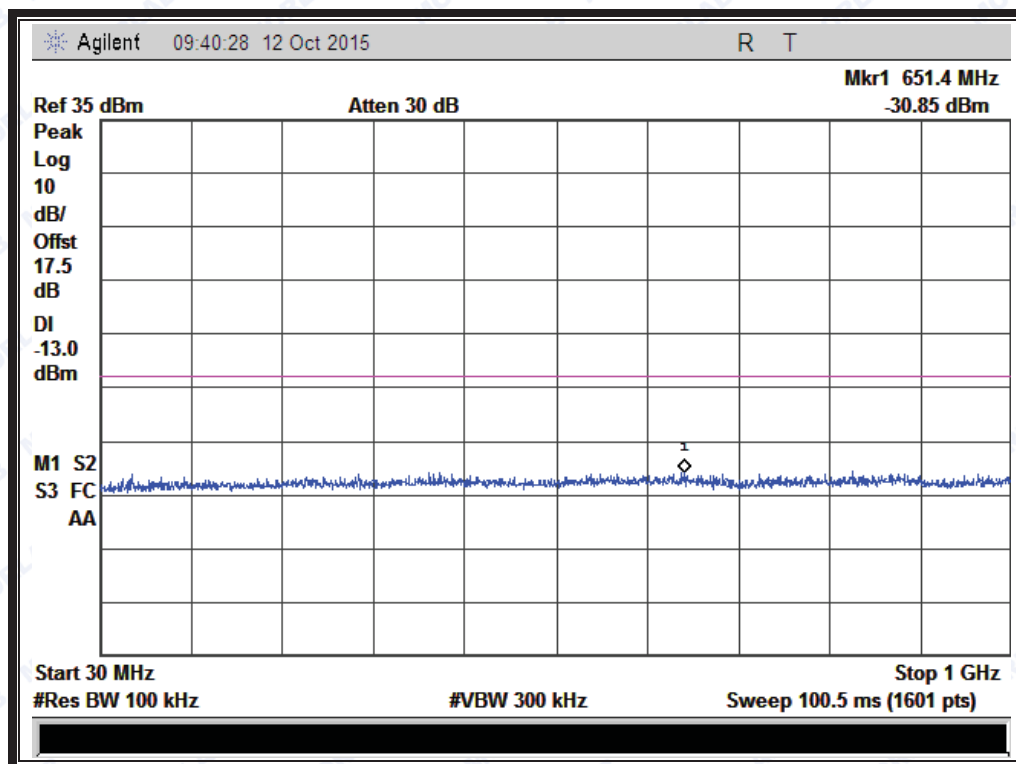
(Plot A3: EGPRS 850MHz Channel = 251, 30MHz to 1GHz)



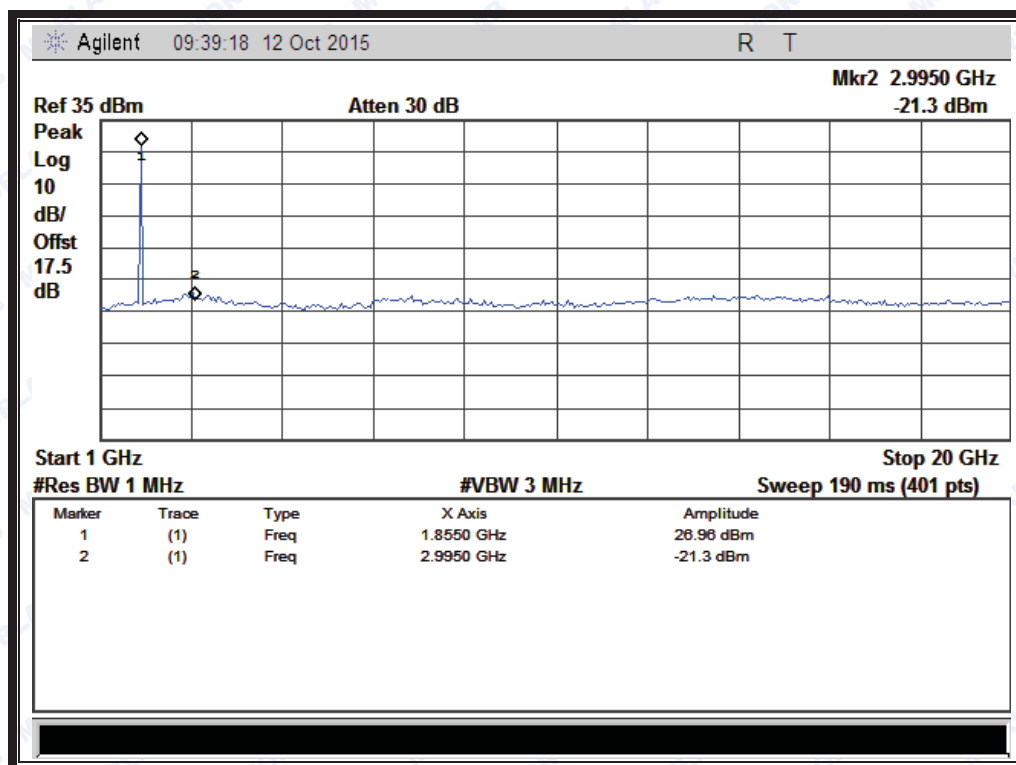
(Plot A3.1: EGPRS 850MHz Channel = 251, 1GHz to 9GHz)



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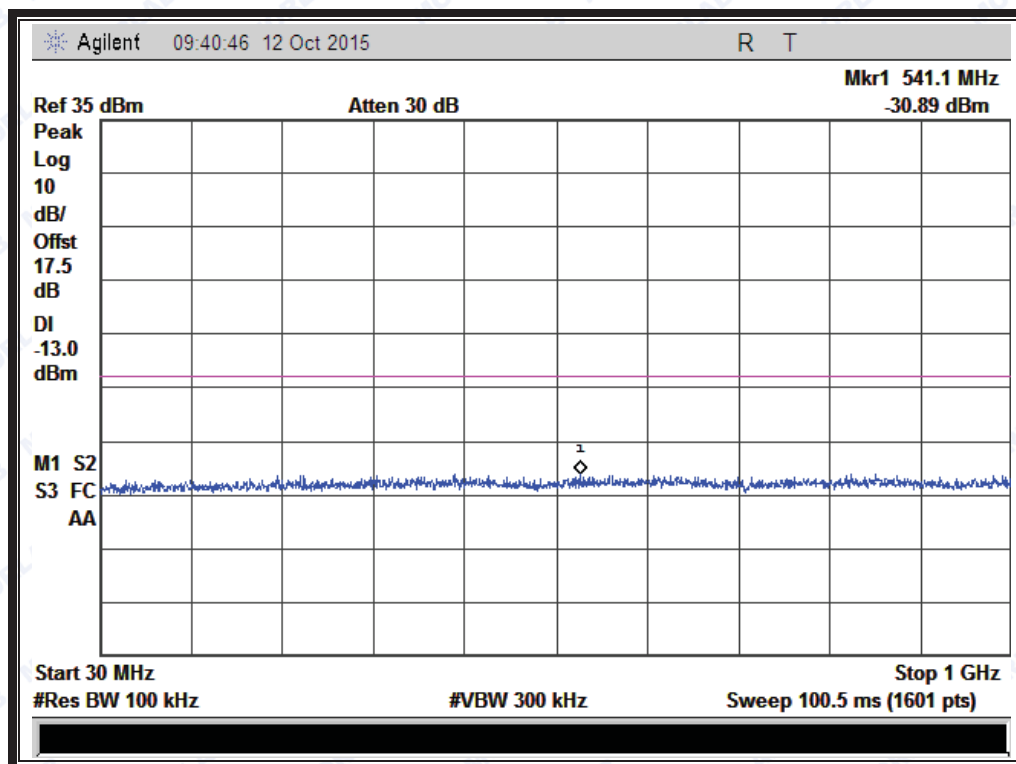
(Plot B1: EGPRS 1900MHz Channel = 512, 30MHz to 1GHz)



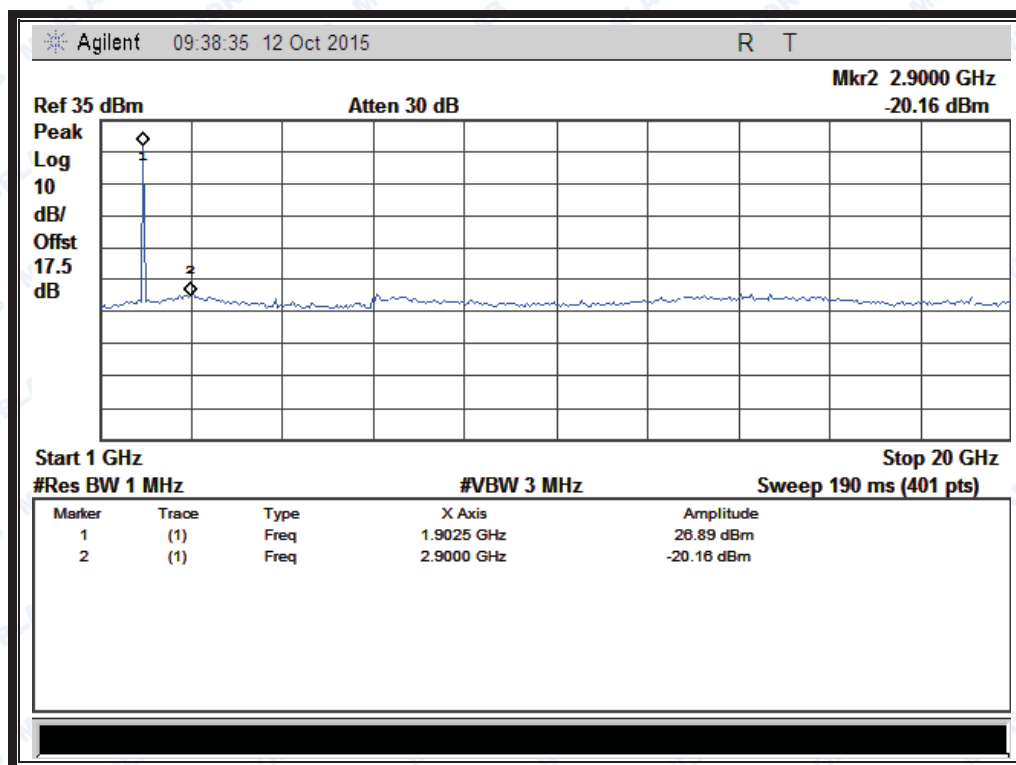
(Plot B1.1: EGPRS 1900MHz Channel = 512, 1GHz to 20GHz)



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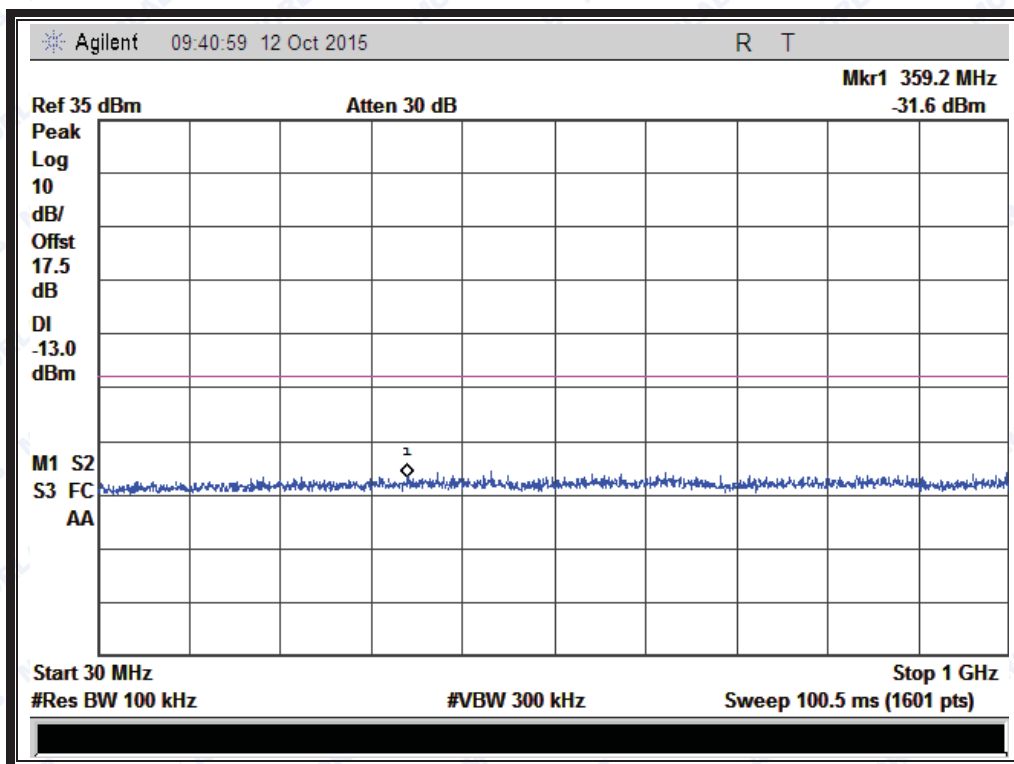
(Plot B2: EGPRS 1900MHz Channel = 661, 30MHz to 1GHz)



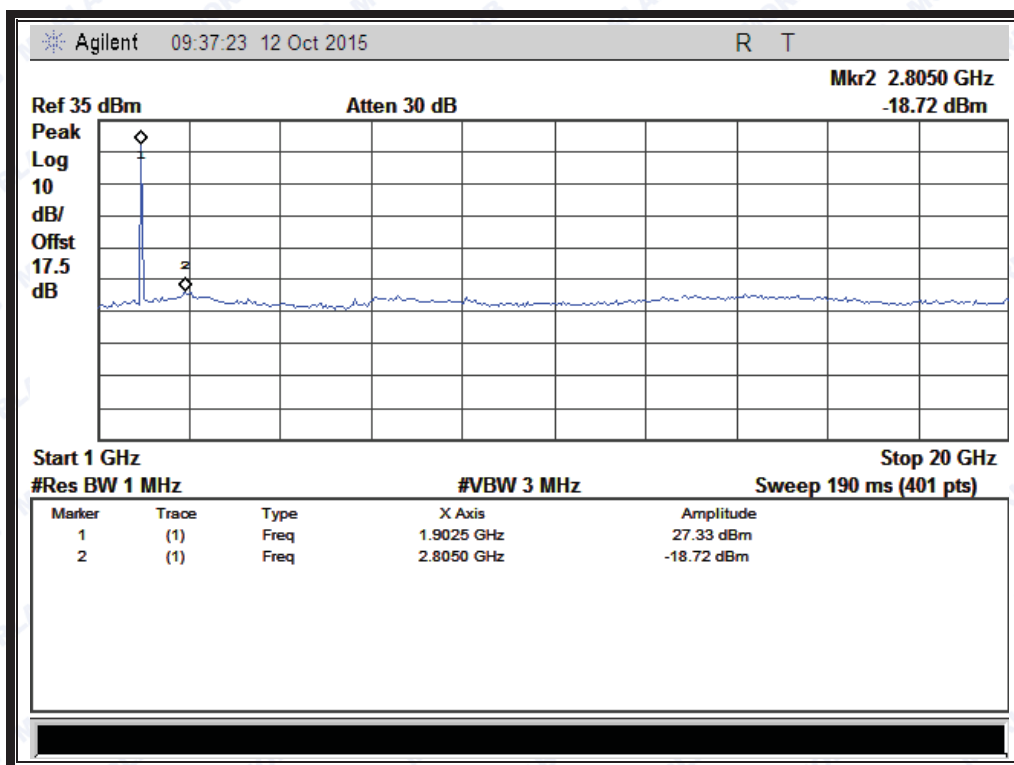
(Plot B2.1: EGPRS 1900MHz Channel = 661, 1GHz to 20GHz)



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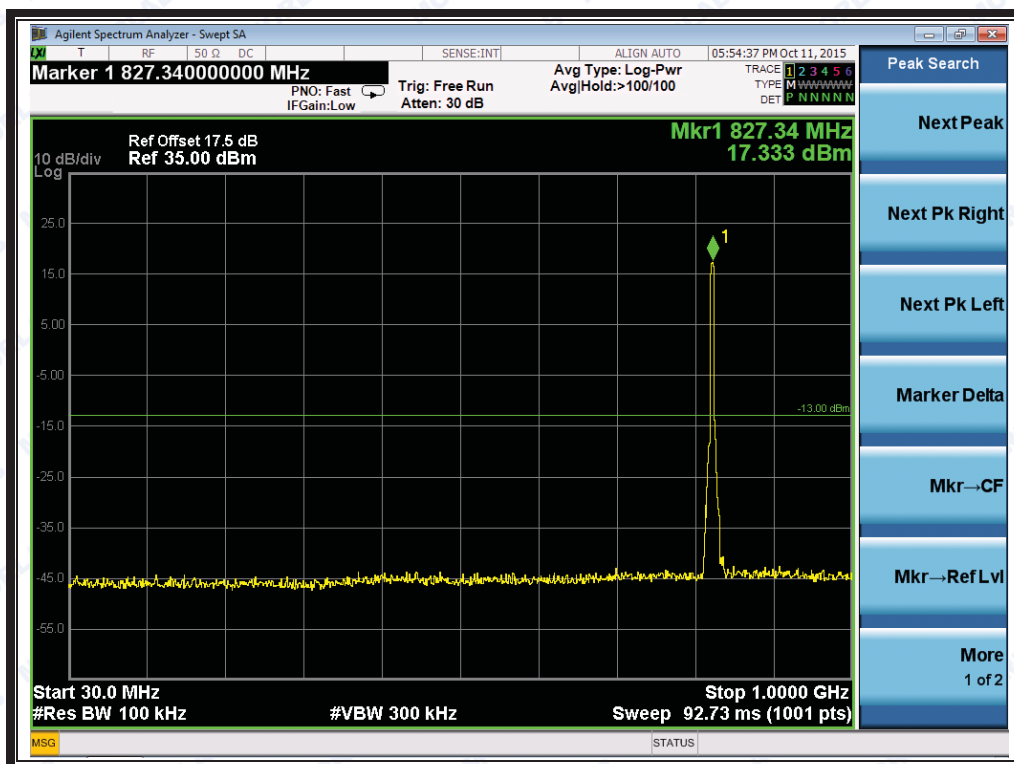
(Plot B3: EGPRS 1900MHz Channel = 810, 30MHz to 1GHz)



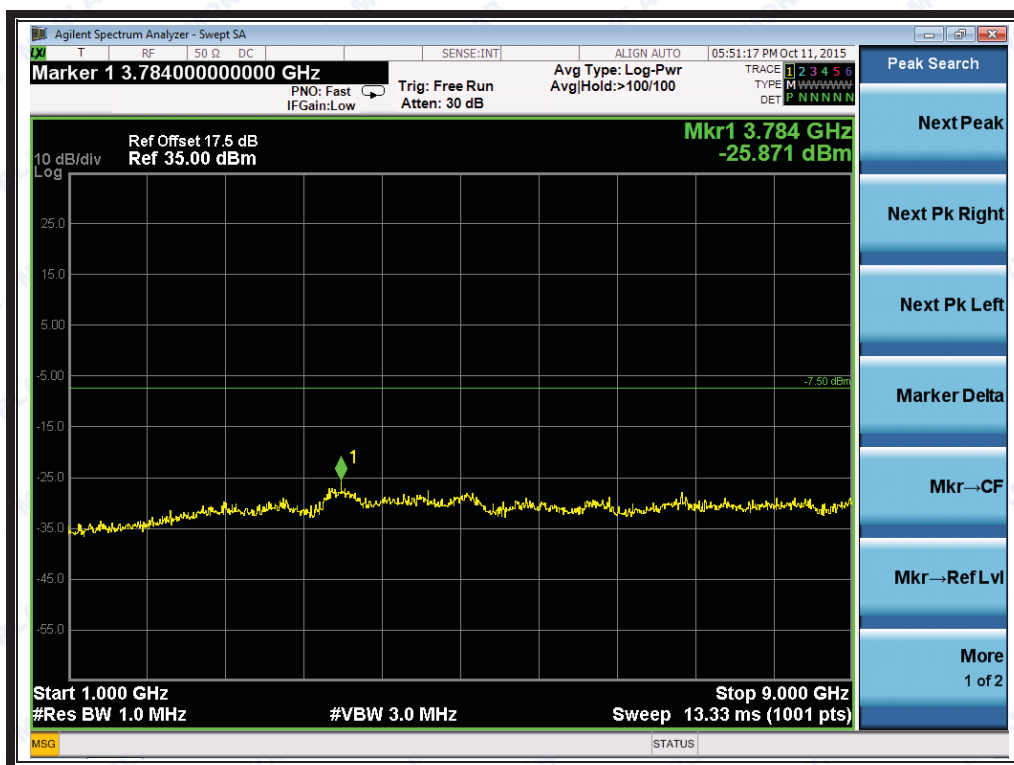
(Plot B3.1: EGPRS 1900MHz Channel = 810, 1GHz to 20GHz)



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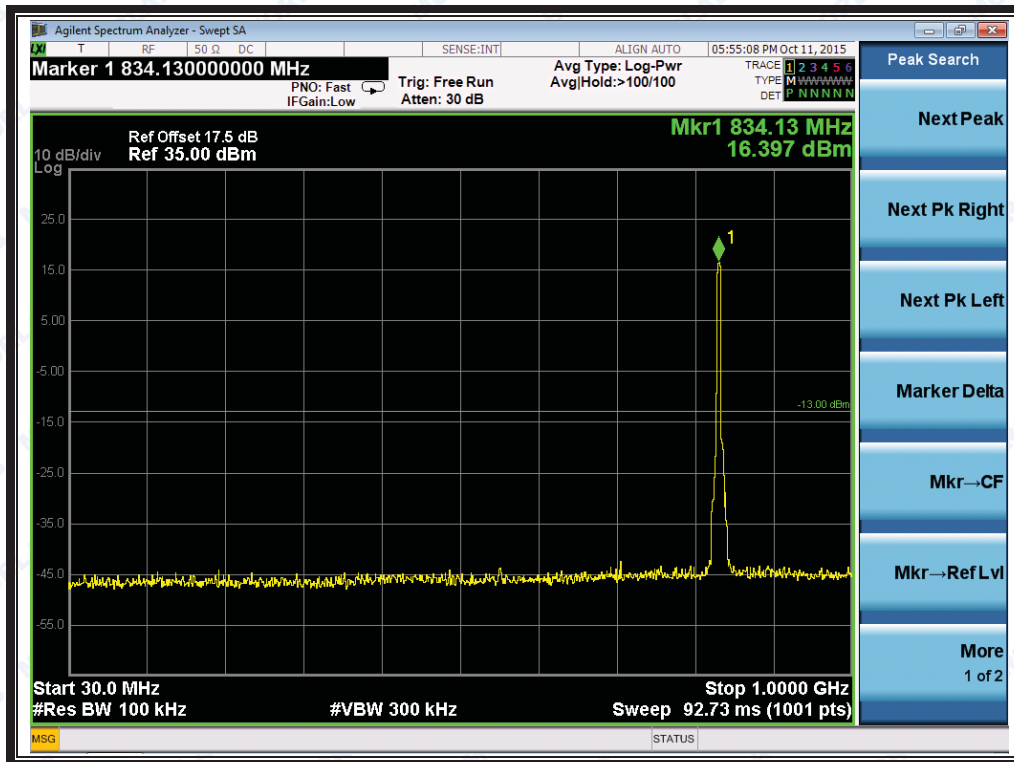
(Plot C1: WCDMA850MHz Channel = 4132, 30MHz to 1GHz)



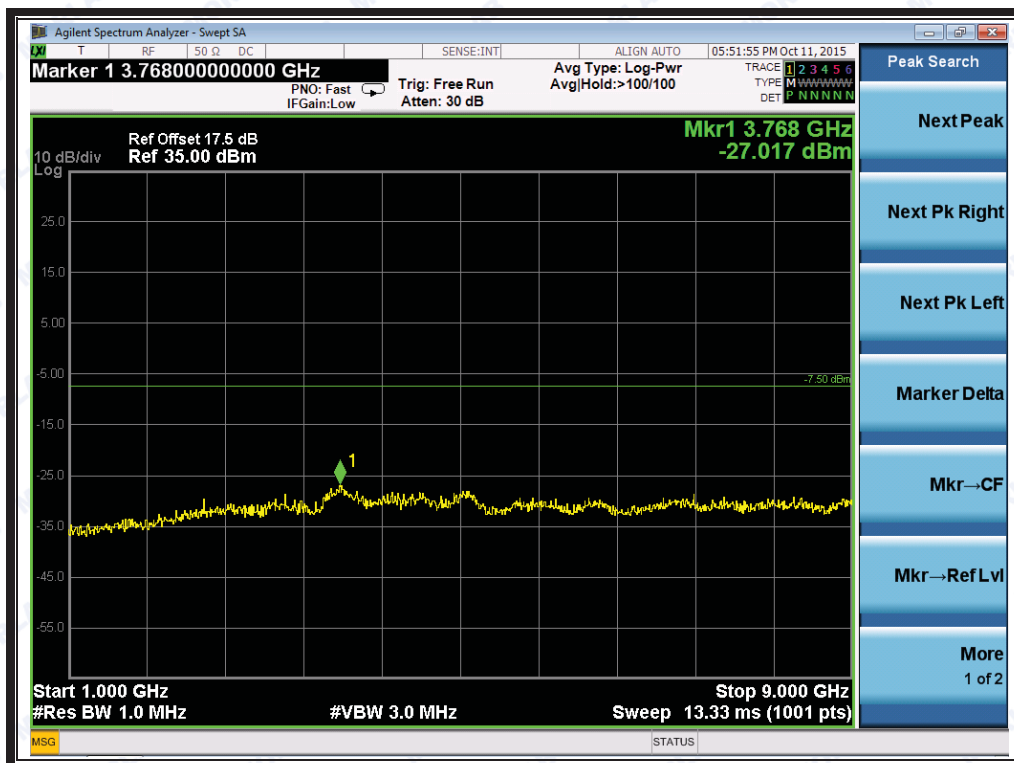
(Plot C1.1: WCDMA850MHz Channel = 4132, 1GHz to 9GHz)



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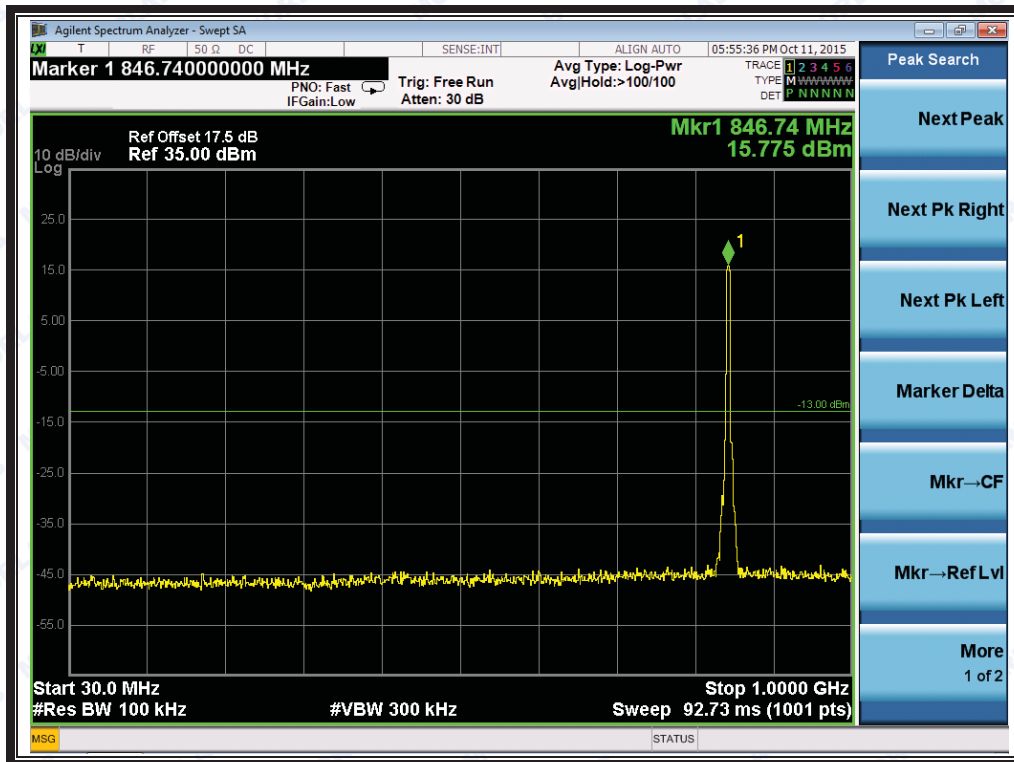
(Plot C2: WCDMA850MHz Channel = 4175, 30MHz to 1GHz)



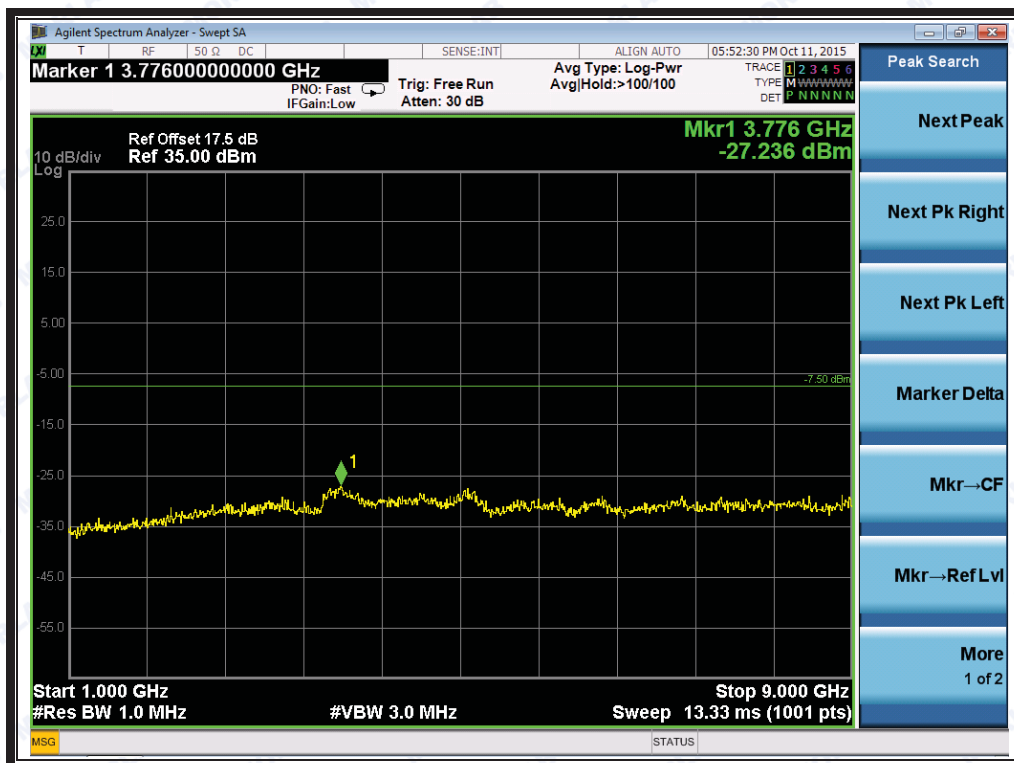
(Plot C2.1: WCDMA850MHz Channel = 4175, 1GHz to 9GHz)



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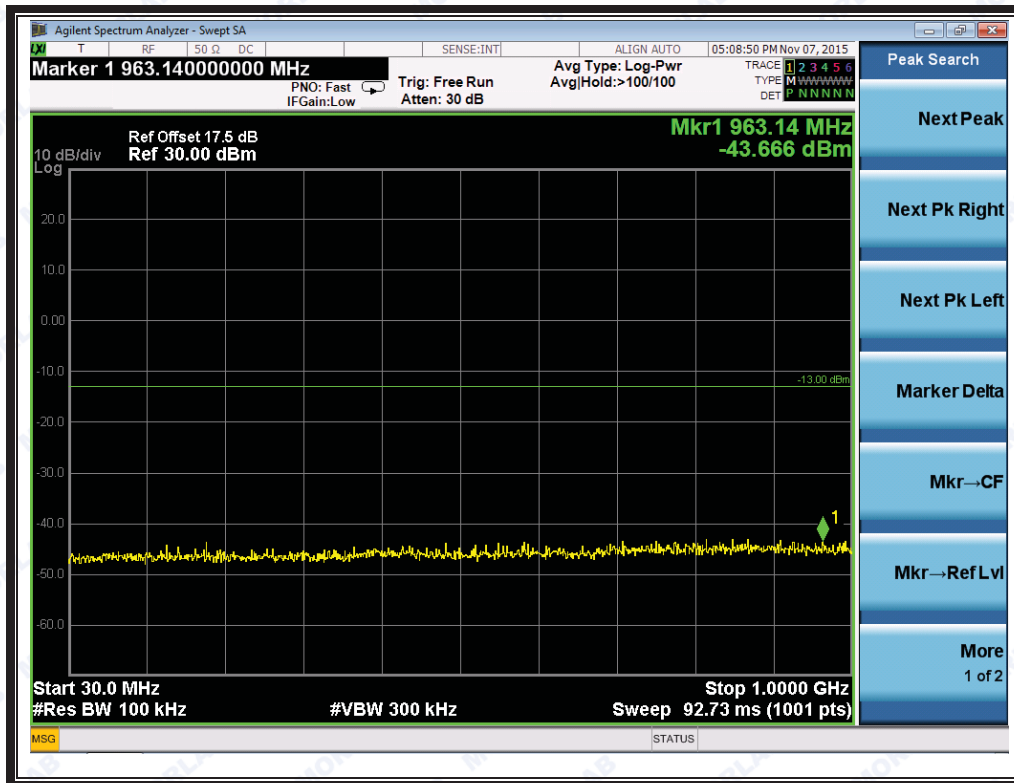
(Plot C3: WCDMA850MHz Channel = 4233, 30MHz to 1GHz)



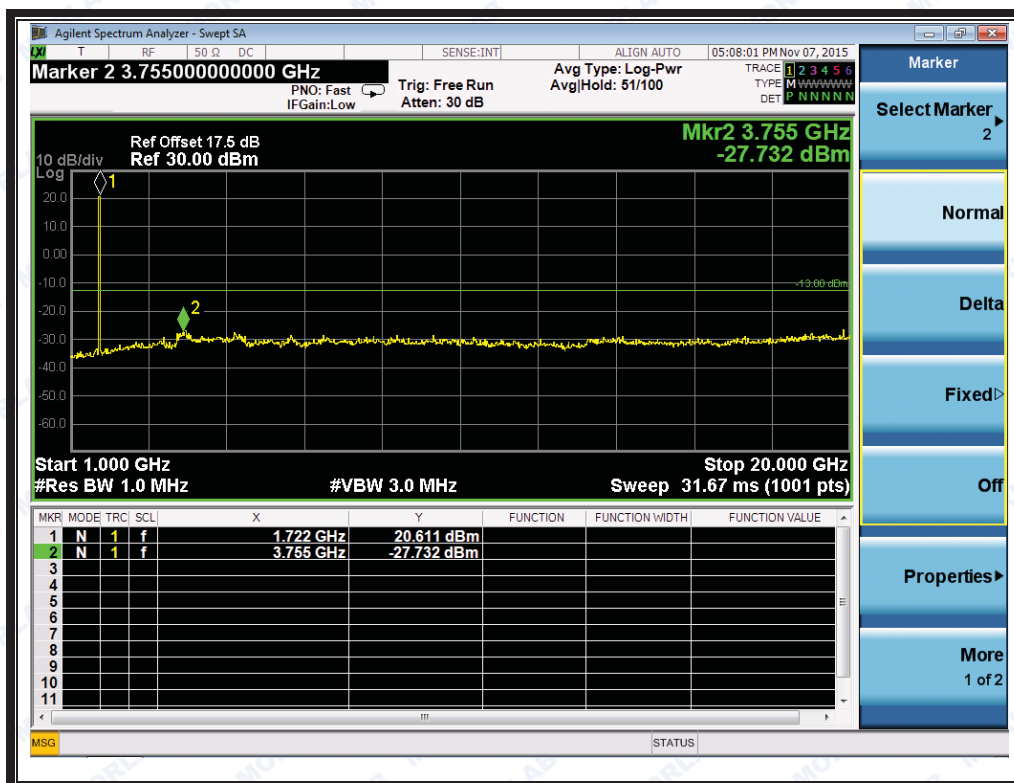
(Plot C3.1: WCDMA850MHz Channel = 4233, 1GHz to 9GHz)



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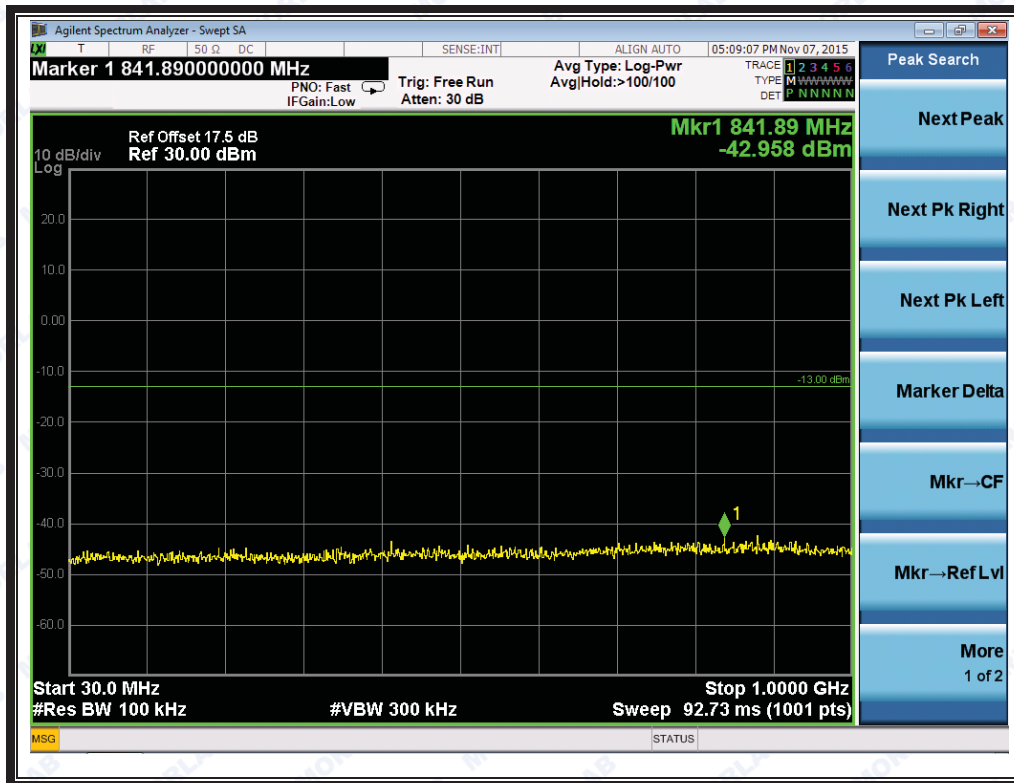
(Plot D1: WCDMA1700MHz Channel = 1312, 30MHz to 1GHz)



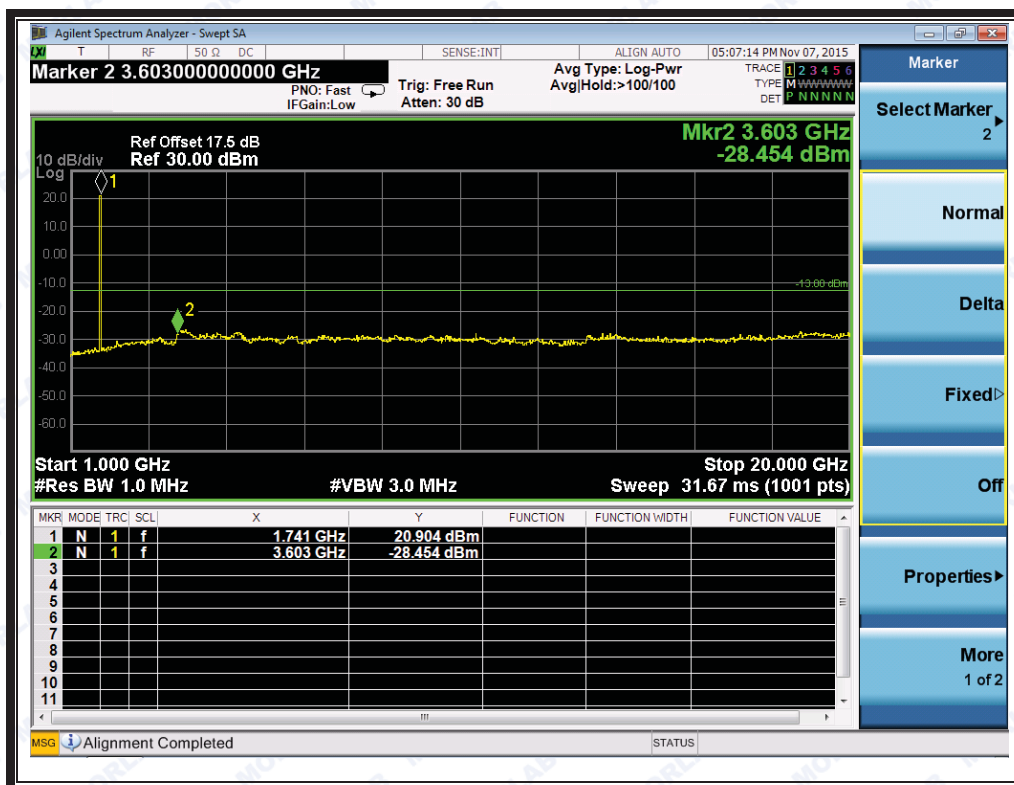
(Plot D1.1: WCDMA1700MHz Channel = 1312, 1GHz to 20GHz)



REPORT No.: SZ15070092W01



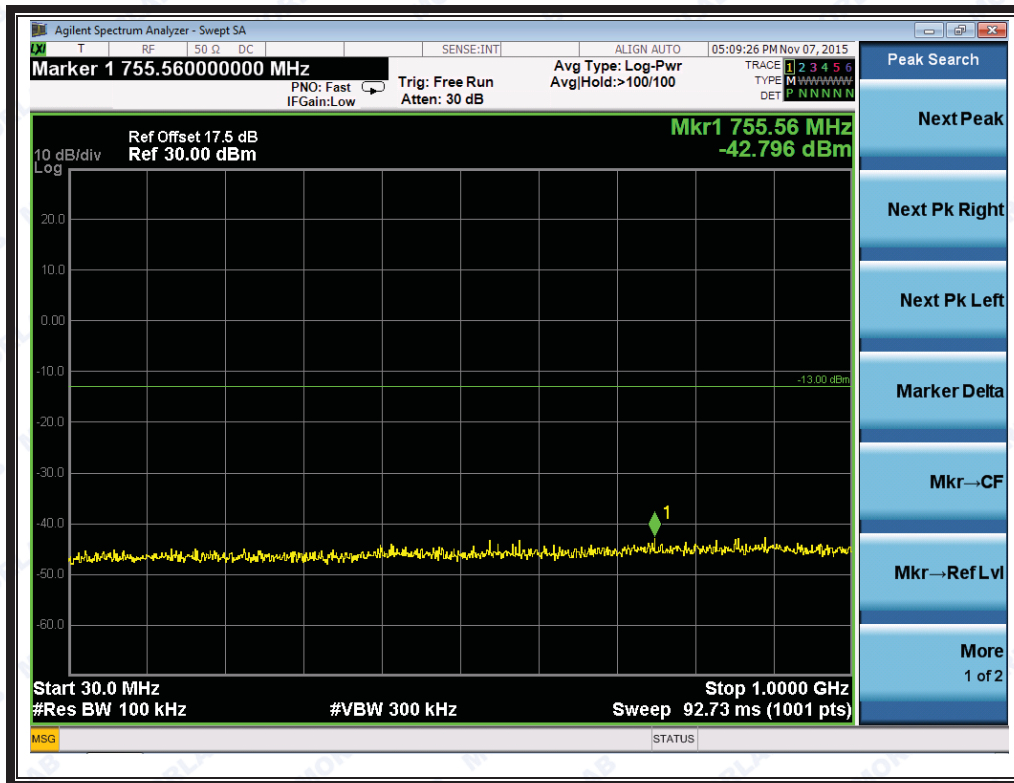
(Plot D2: WCDMA1700MHz Channel = 1412, 30MHz to 1GHz)



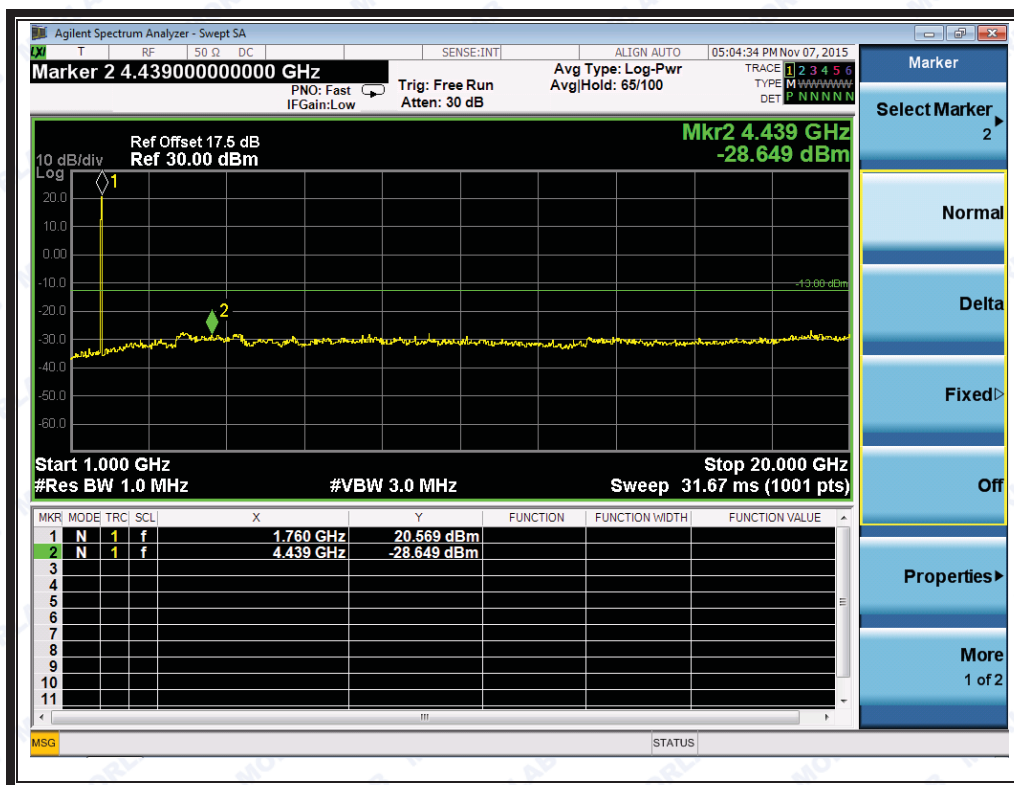
(Plot D2.1: WCDMA1700MHz Channel = 1412, 1GHz to 20GHz)



REPORT No.: SZ15070092W01



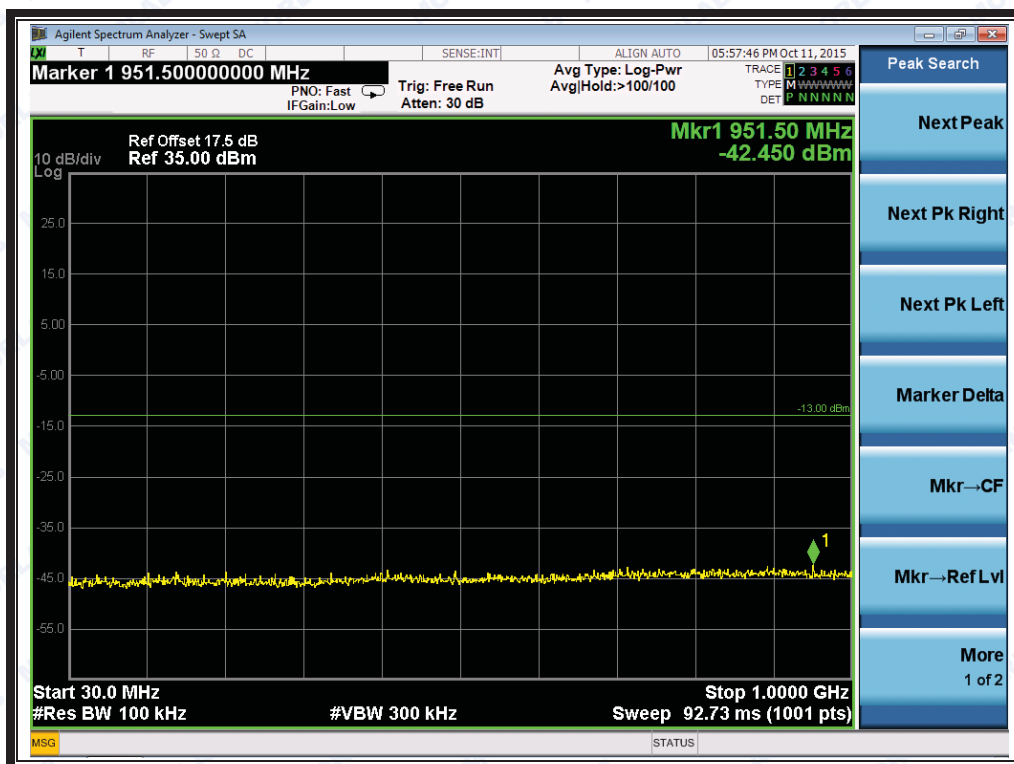
(Plot D3: WCDMA1700MHz Channel = 1513, 30MHz to 1GHz)



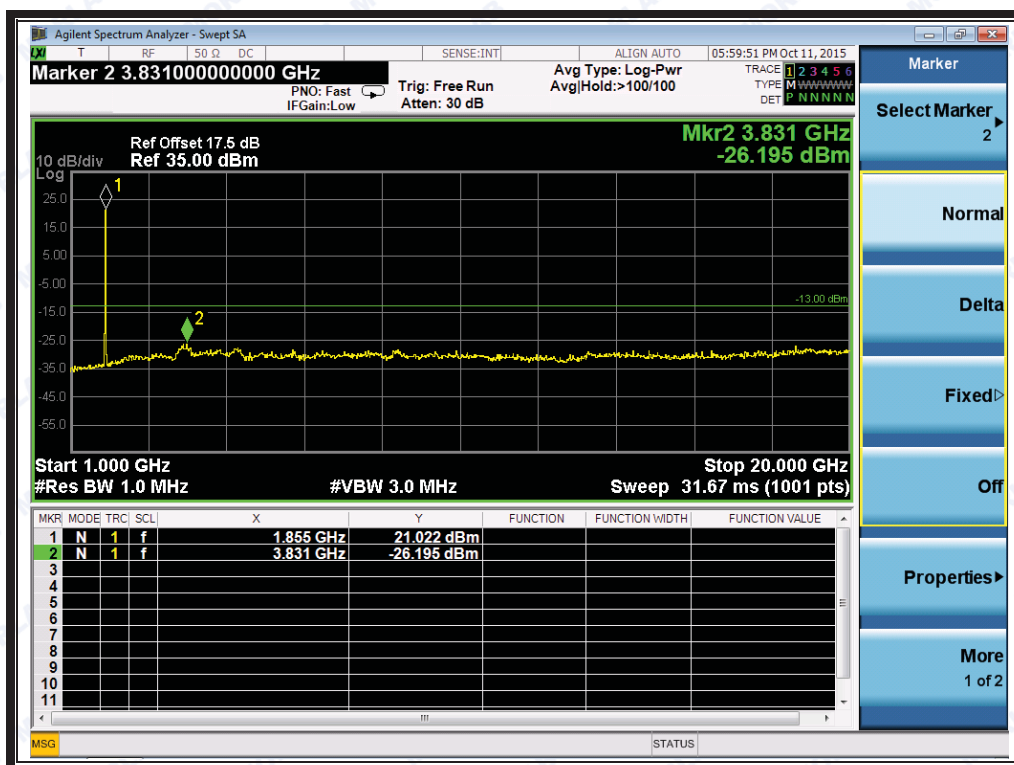
(Plot D3.1: WCDMA1700MHz Channel = 1513, 1GHz to 20GHz)



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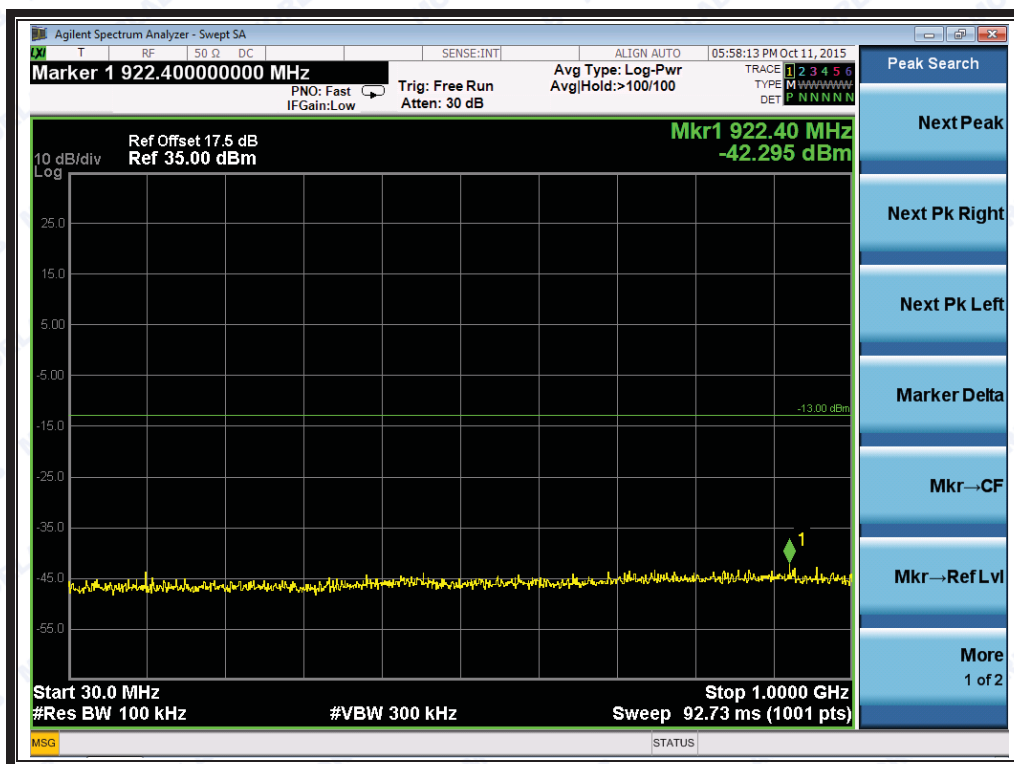
(Plot E1: WCDMA1900MHz Channel = 9262, 30MHz to 1GHz)



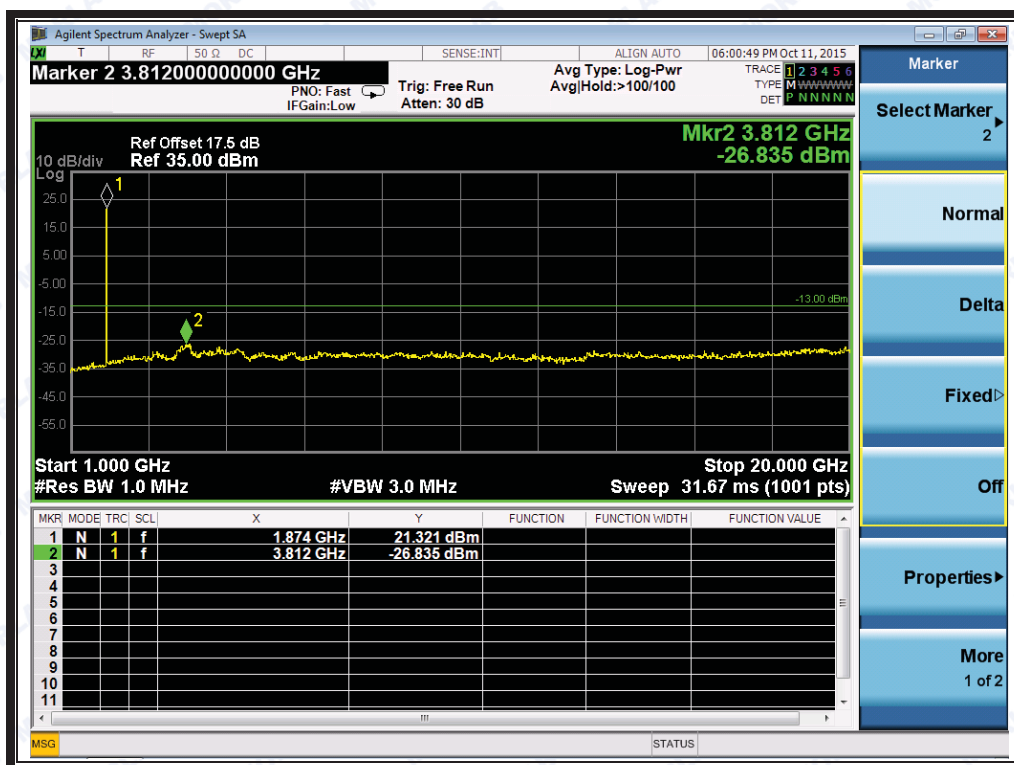
(Plot E1.1: WCDMA1900MHz Channel = 9262, 1GHz to 20GHz)



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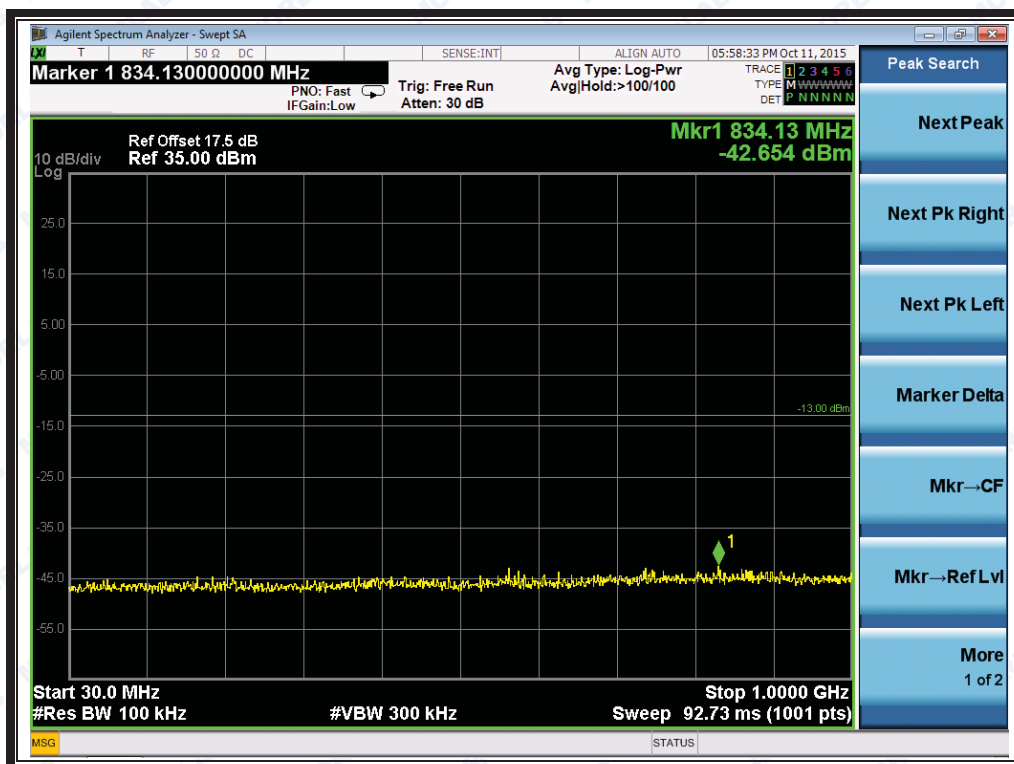
(Plot E2: WCDMA1900MHz Channel = 9400, 30MHz to 1GHz)



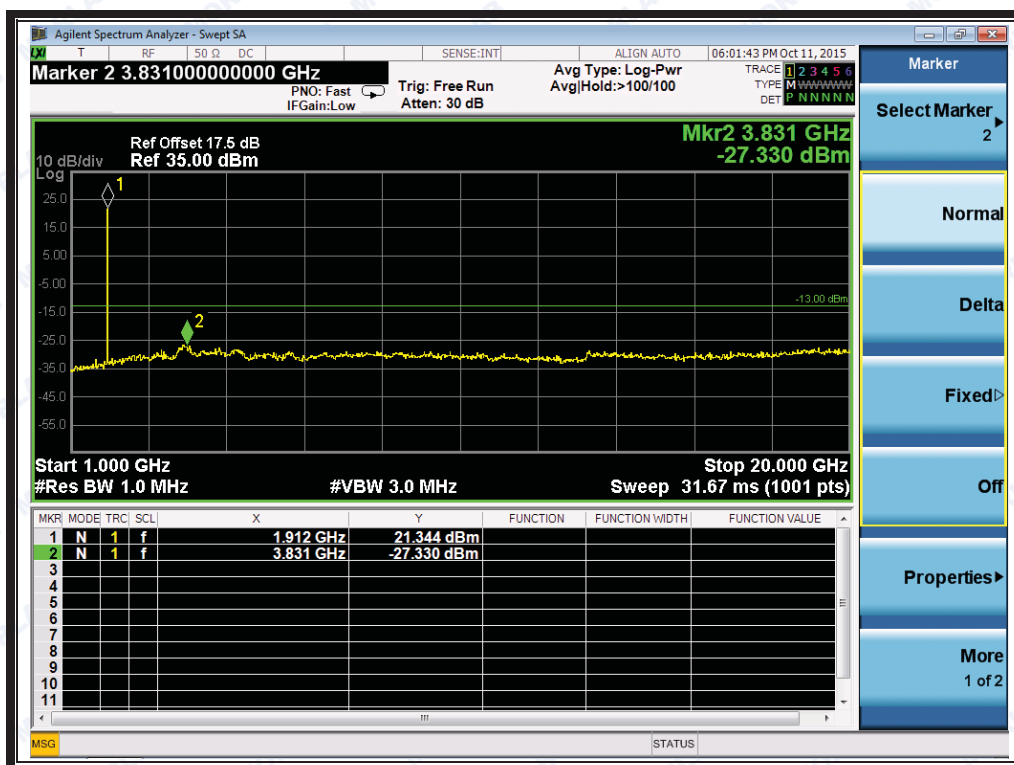
(Plot E2.1: WCDMA1900MHz Channel = 9400, 1GHz to 20GHz)



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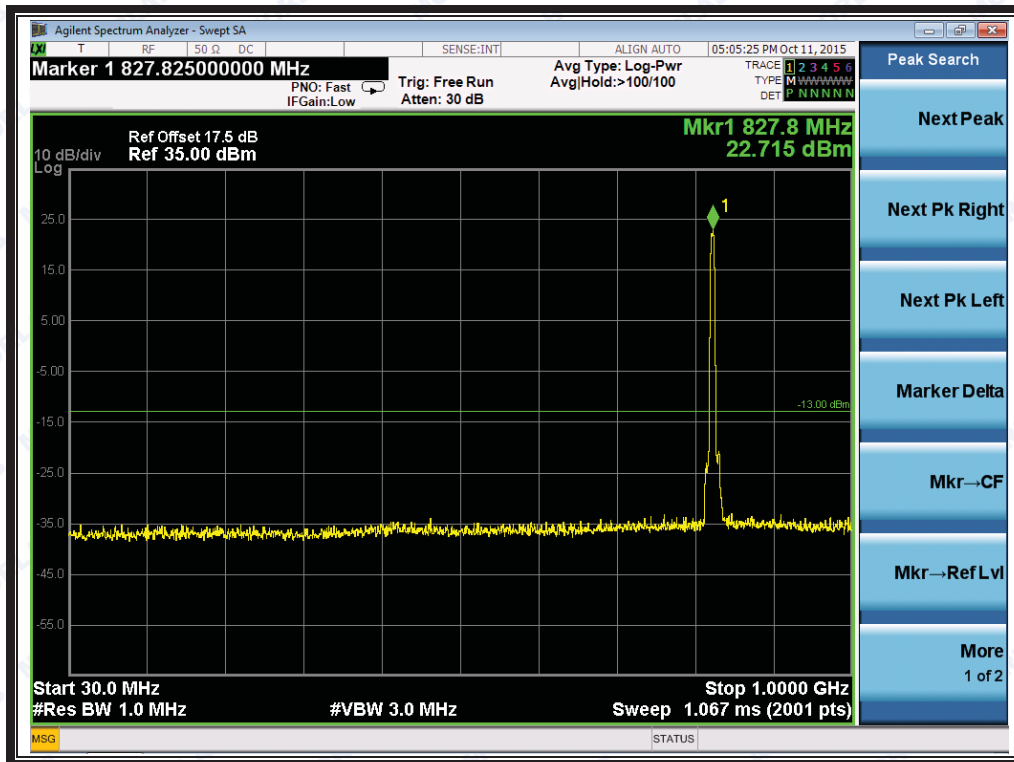
(Plot E3: WCDMA1900MHz Channel = 9538, 30MHz to 1GHz)



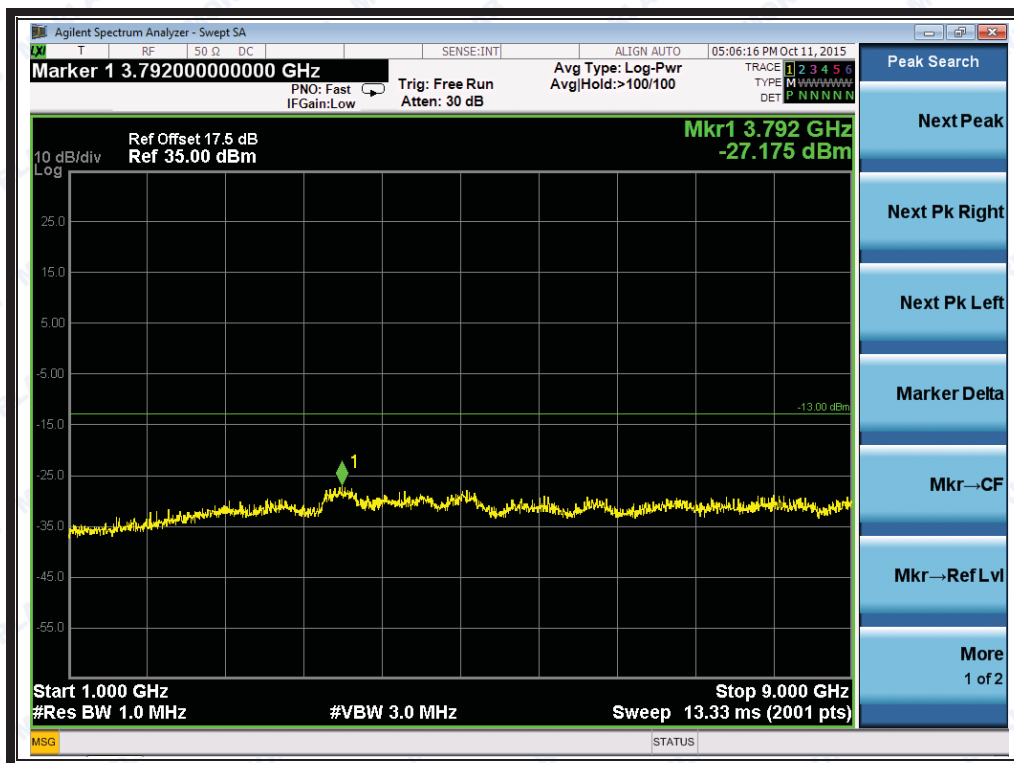
(Plot E3.1: WCDMA1900MHz Channel = 9538 1GHz to 20GHz)



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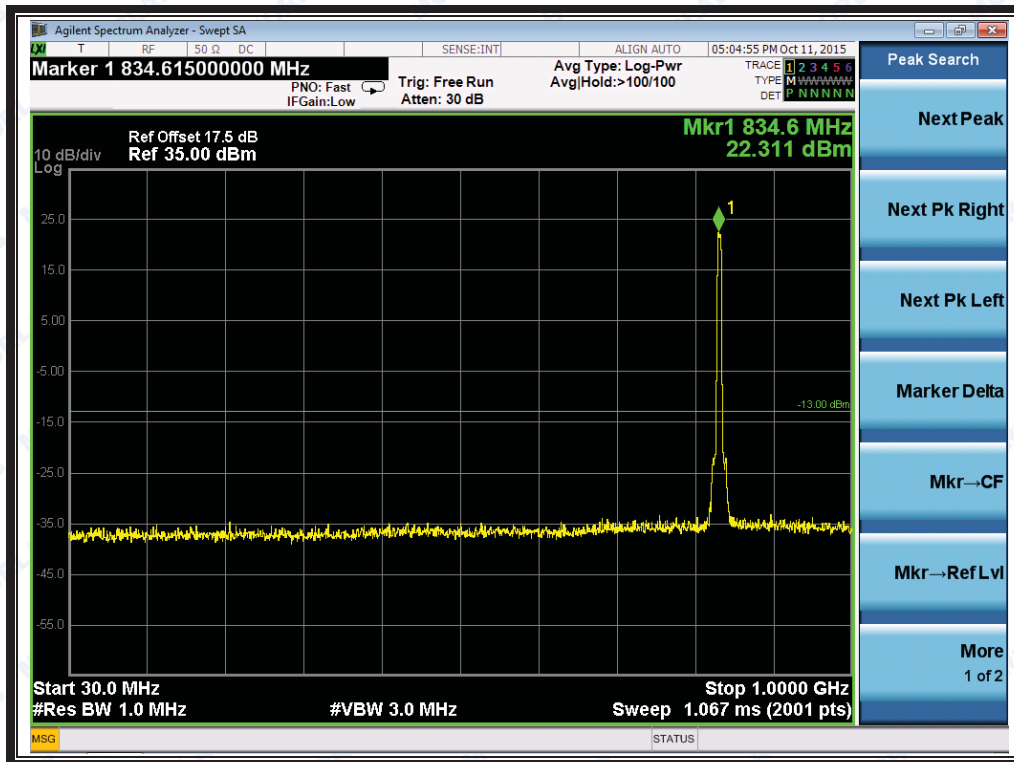
(Plot F1: HSDPA 850MHz Channel = 4132, 30MHz to 1GHz)



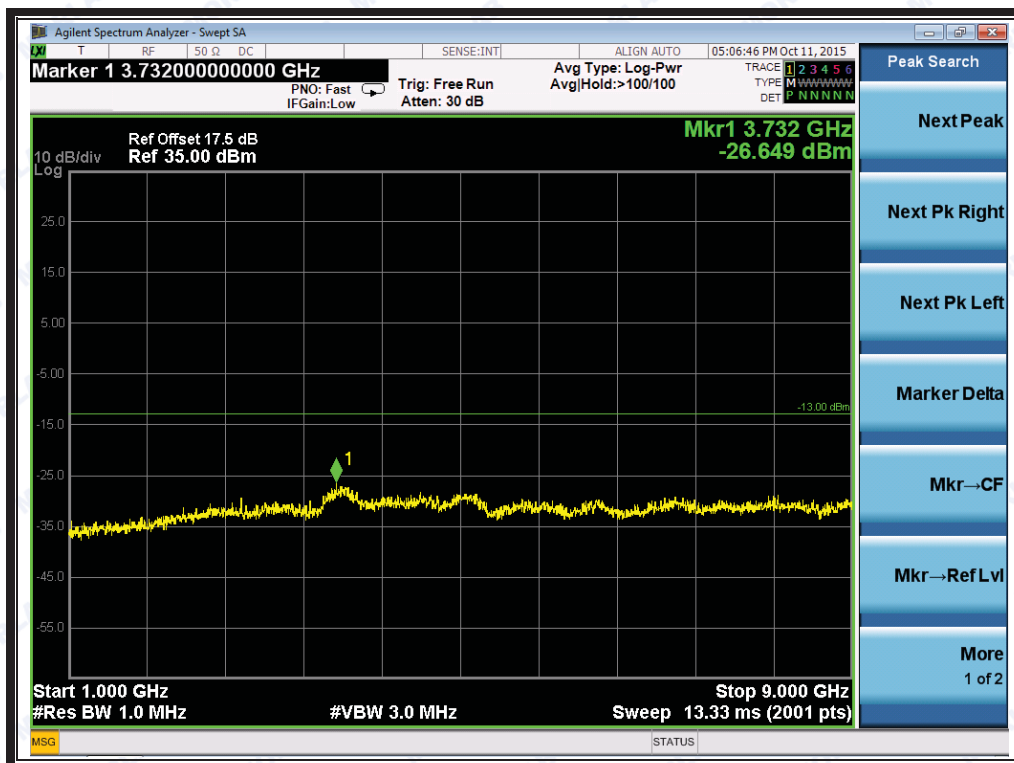
(Plot F1.1: HSDPA 850MHz Channel = 4132, 1GHz to 9GHz)



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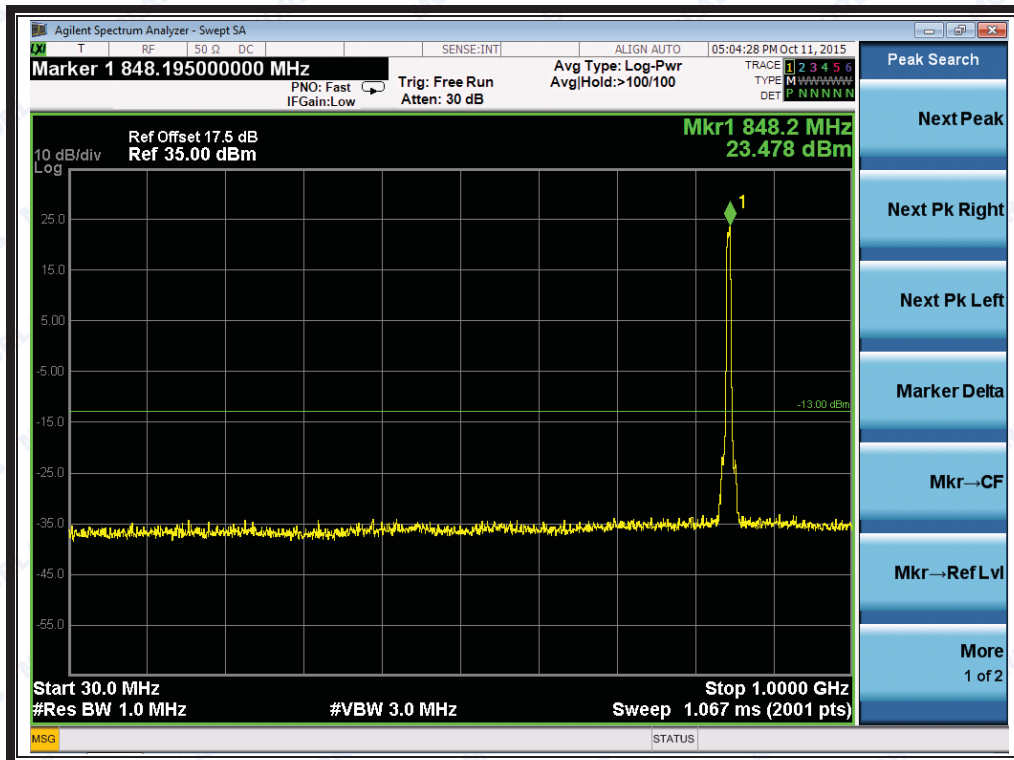
(Plot F2: HSDPA 850MHz Channel = 4175, 30MHz to 1GHz)



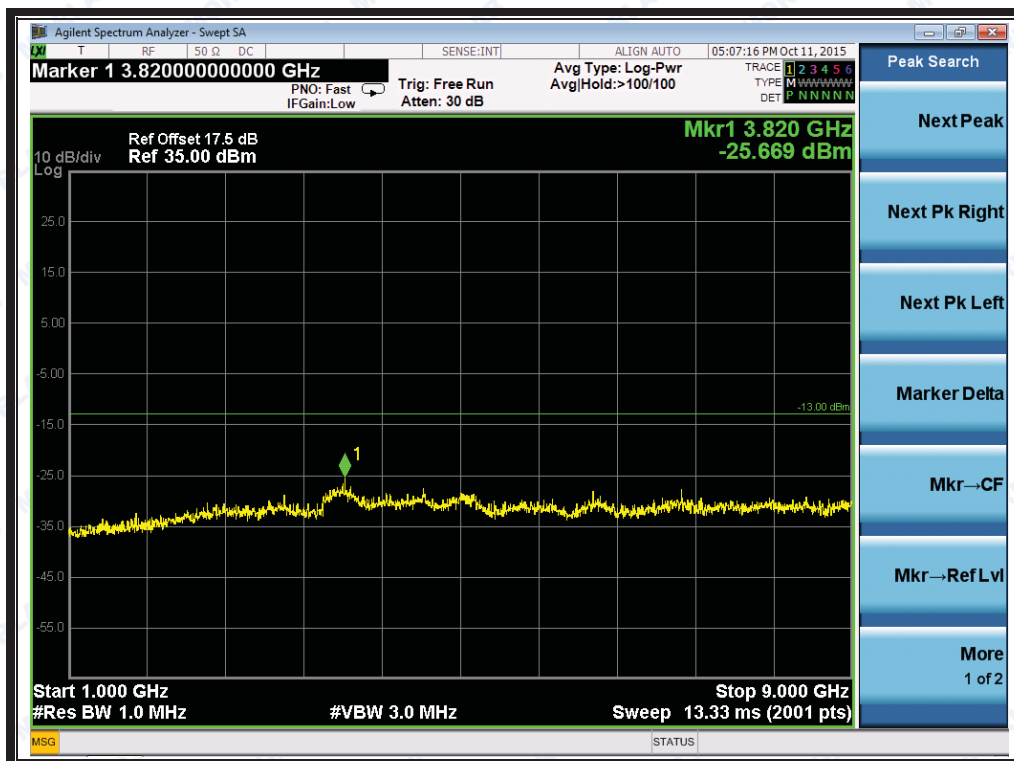
(Plot F2.1: HSDPA 850MHz Channel = 4175, 1GHz to 9GHz)



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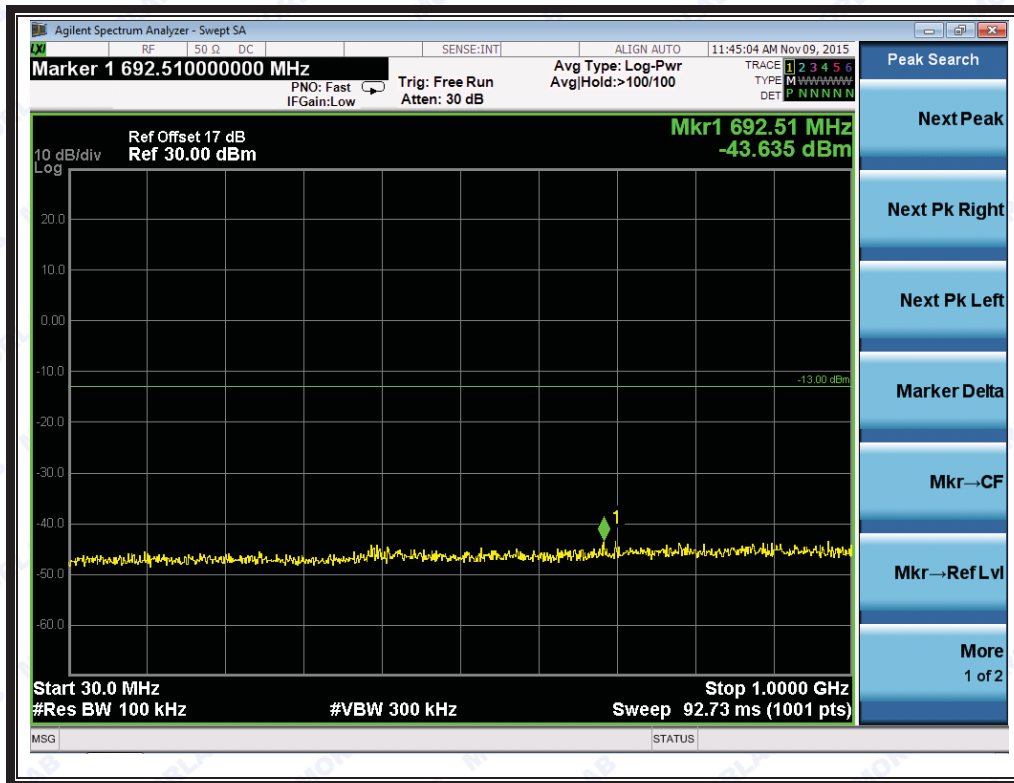
(Plot F3: HSDPA 850MHz Channel = 4233, 30MHz to 1GHz)



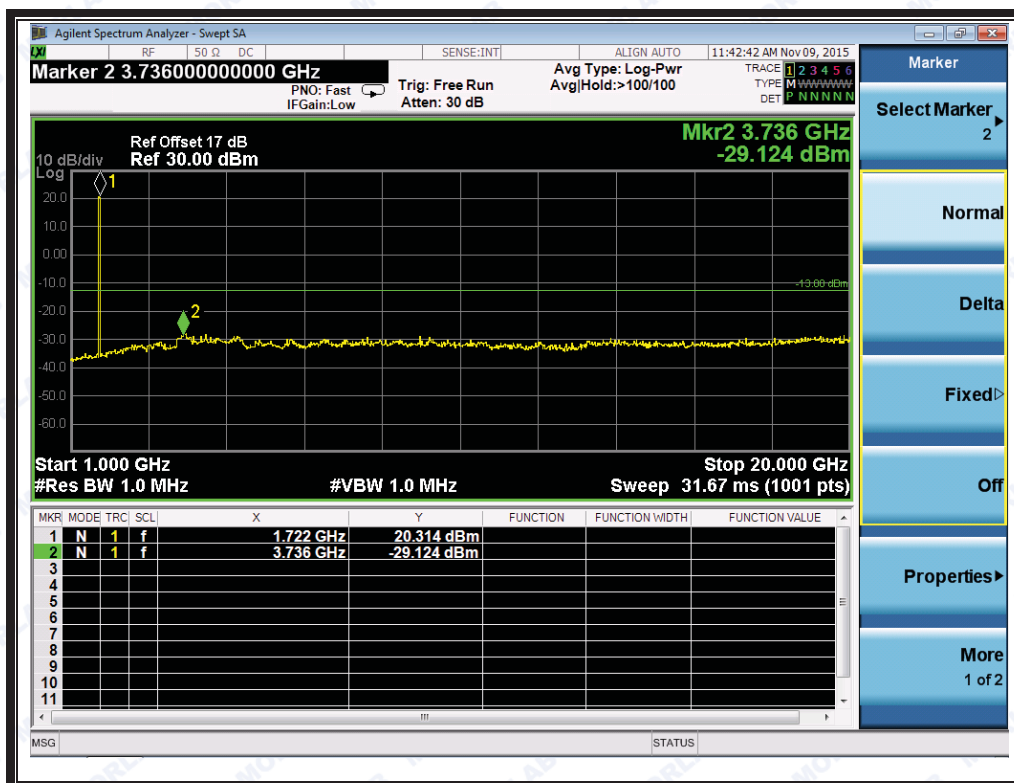
(Plot F3.1: HSDPA 850MHz Channel = 4233, 1GHz to 9GHz)



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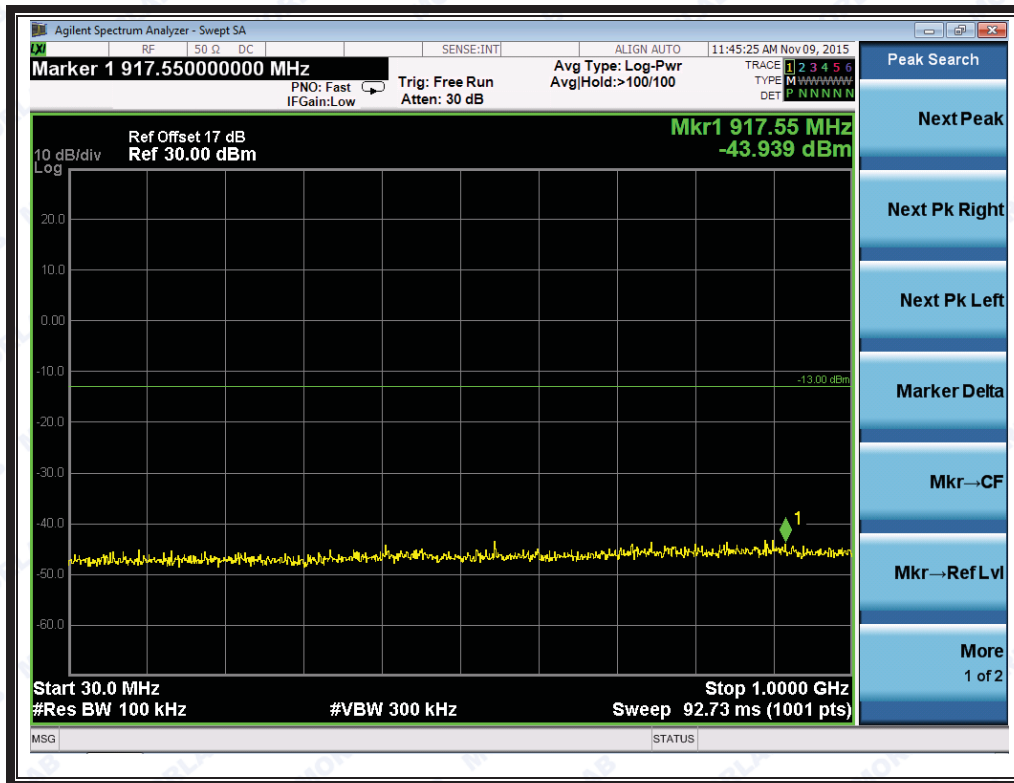
(Plot G1: HSDPA 1700MHz Channel = 1312, 30MHz to 1GHz)



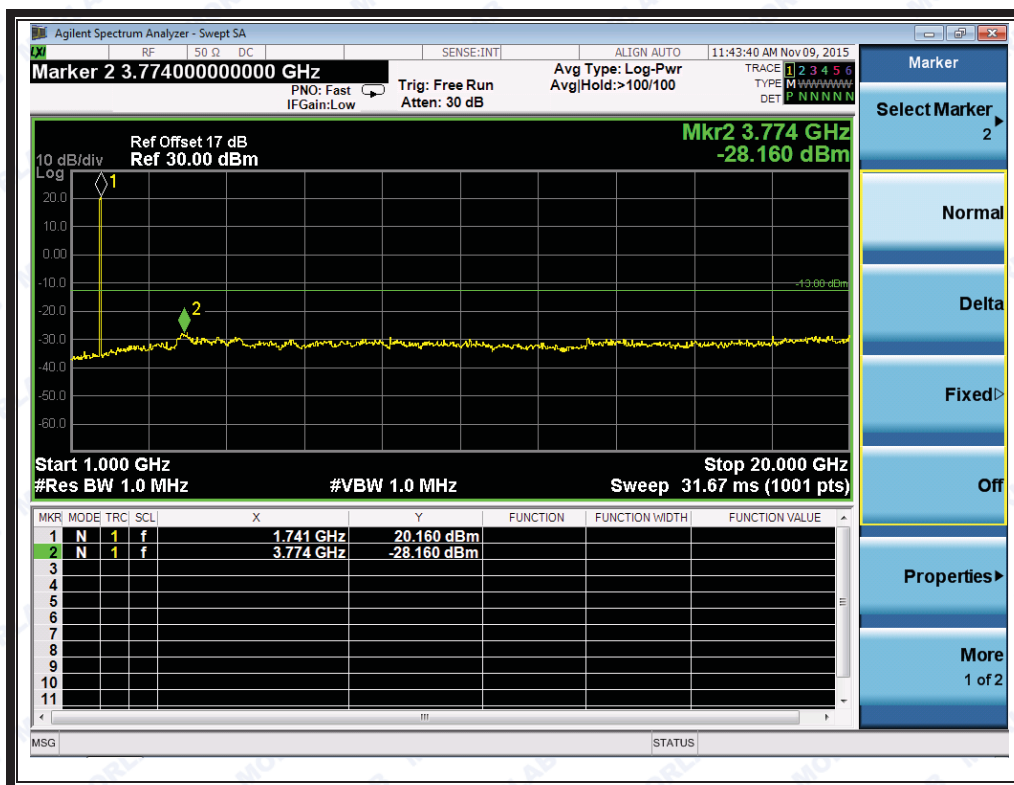
(Plot G1.1: HSDPA 1700MHz Channel = 1312, 1GHz to 20GHz)



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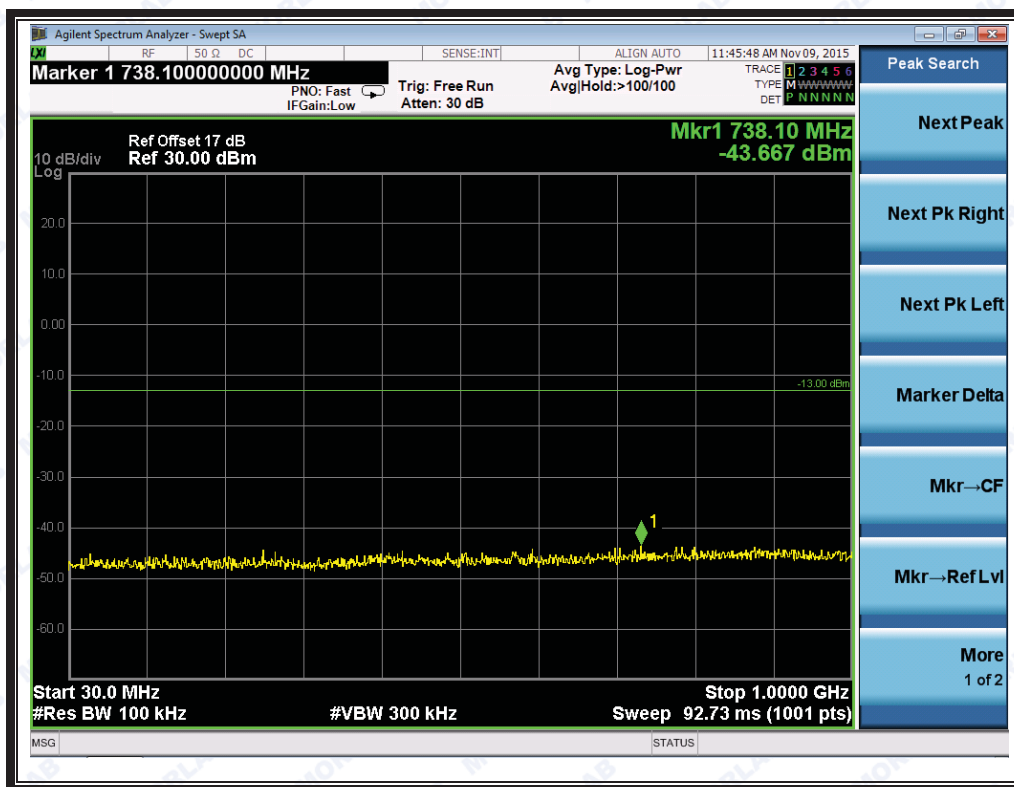
(Plot G2: HSDPA 1700MHz Channel = 1412, 30MHz to 1GHz)



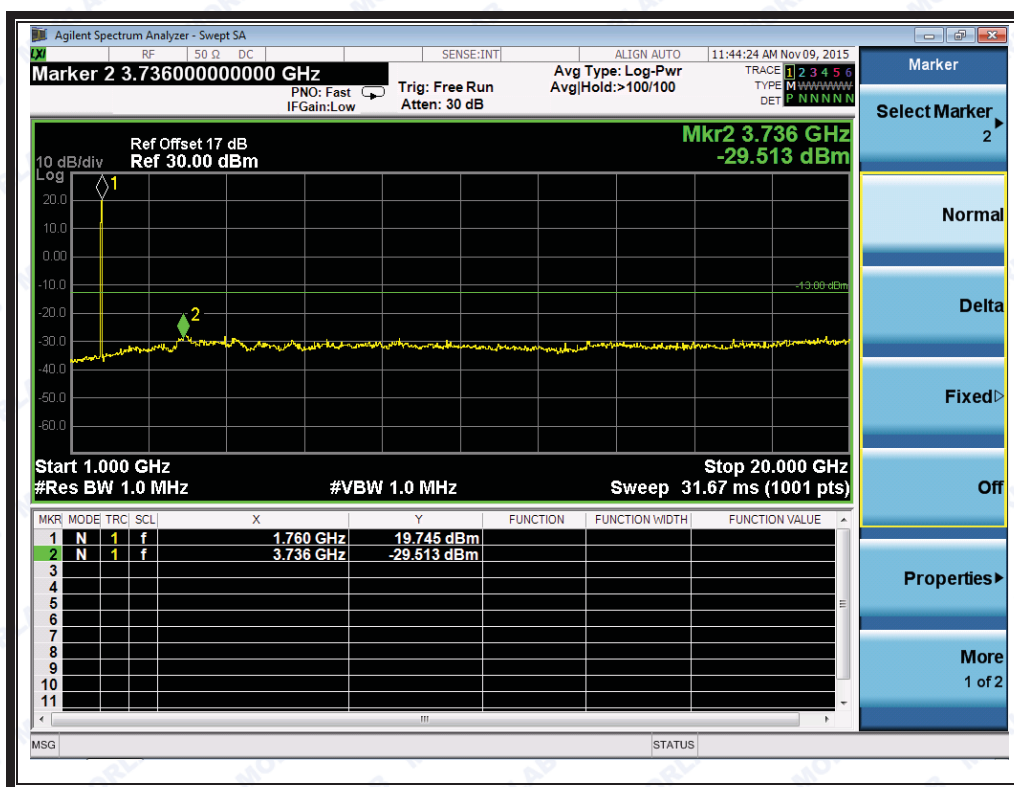
(Plot G2.1: HSDPA1700MHz Channel = 1412, 1GHz to 20GHz)



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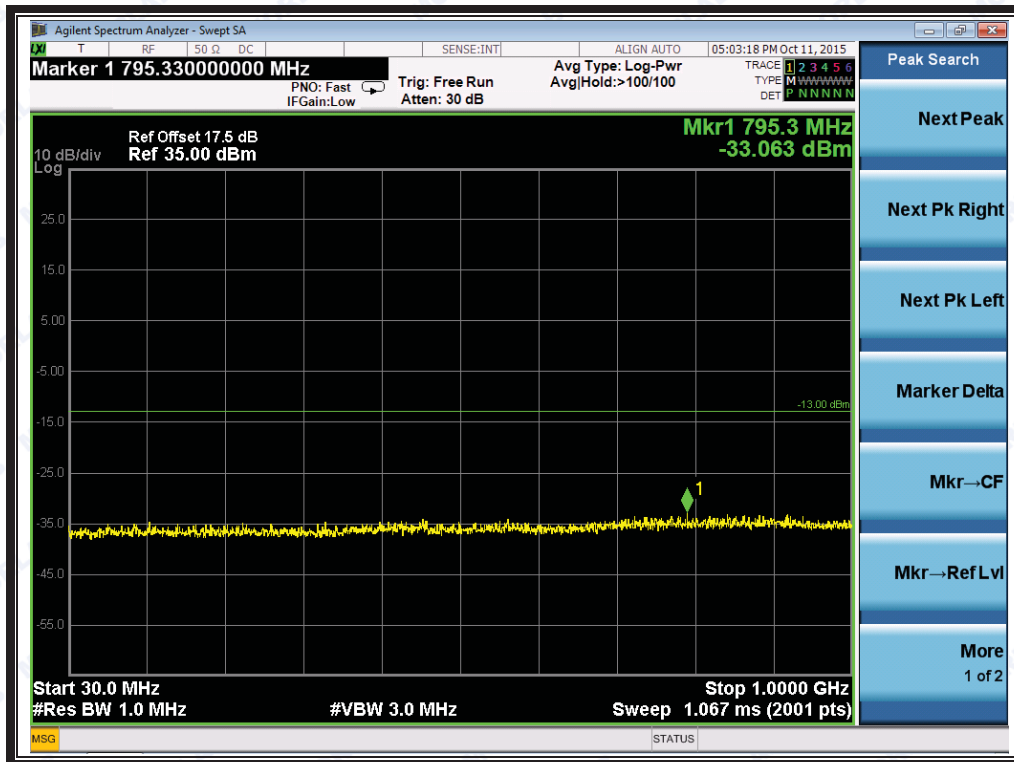
(Plot G3: HSDPA1700MHz Channel = 1513, 30MHz to 1GHz)



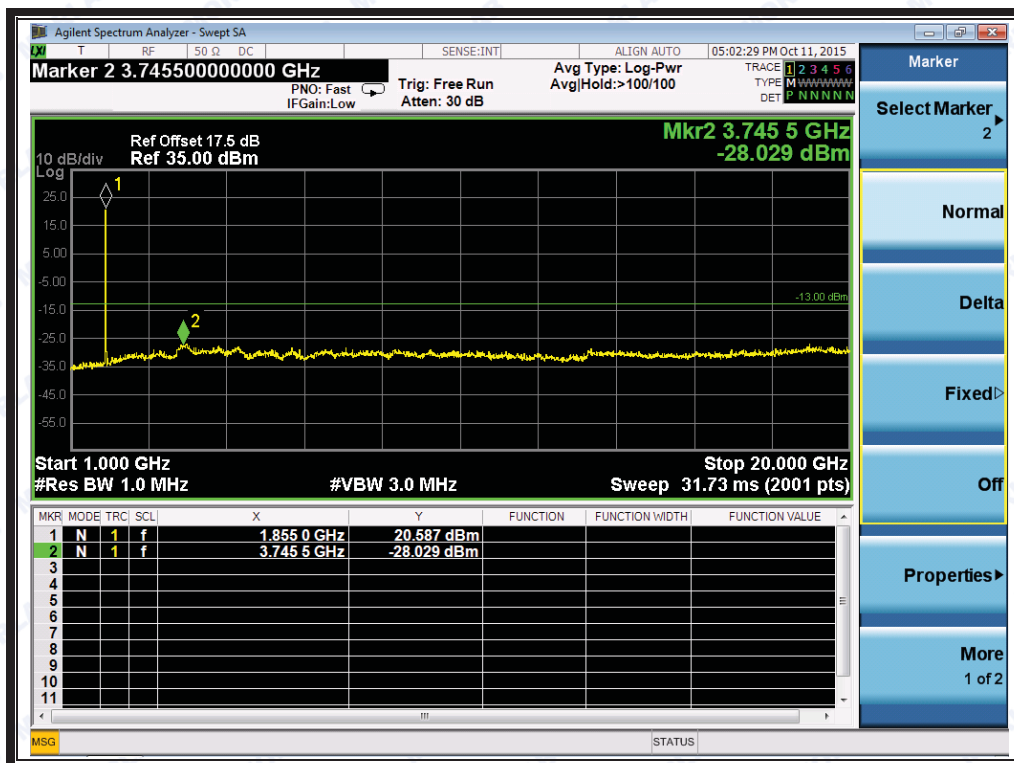
(Plot G3.1: HSDPA1700MHz Channel = 1513 1GHz to 20GHz)



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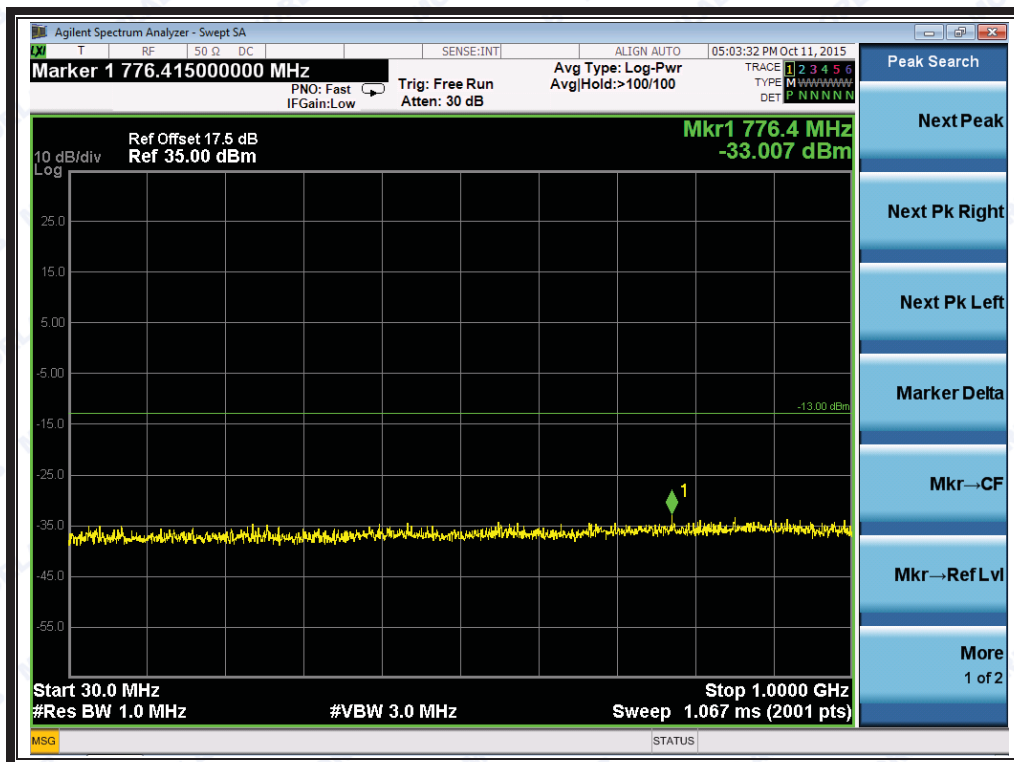
(Plot H1: HSDPA 1900MHz Channel = 9262, 30MHz to 1GHz)



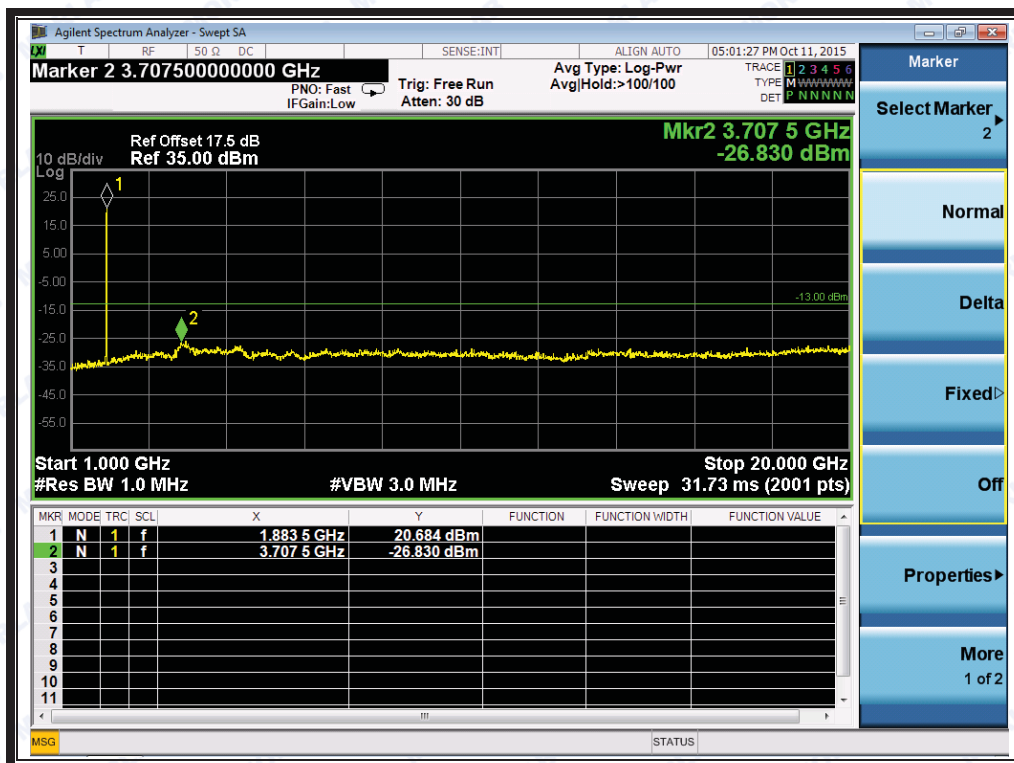
(Plot H1.1: HSDPA 1900MHz Channel = 9262, 1GHz to 20GHz)



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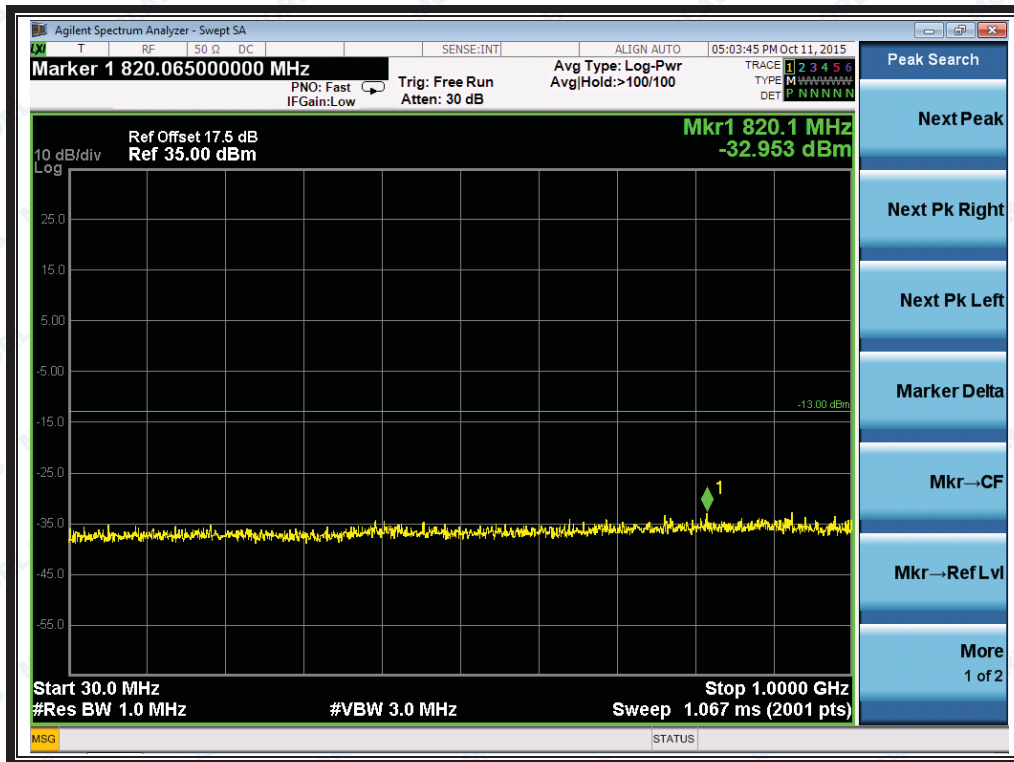
(Plot H2: HSDPA 1900MHz Channel = 9400, 30MHz to 1GHz)



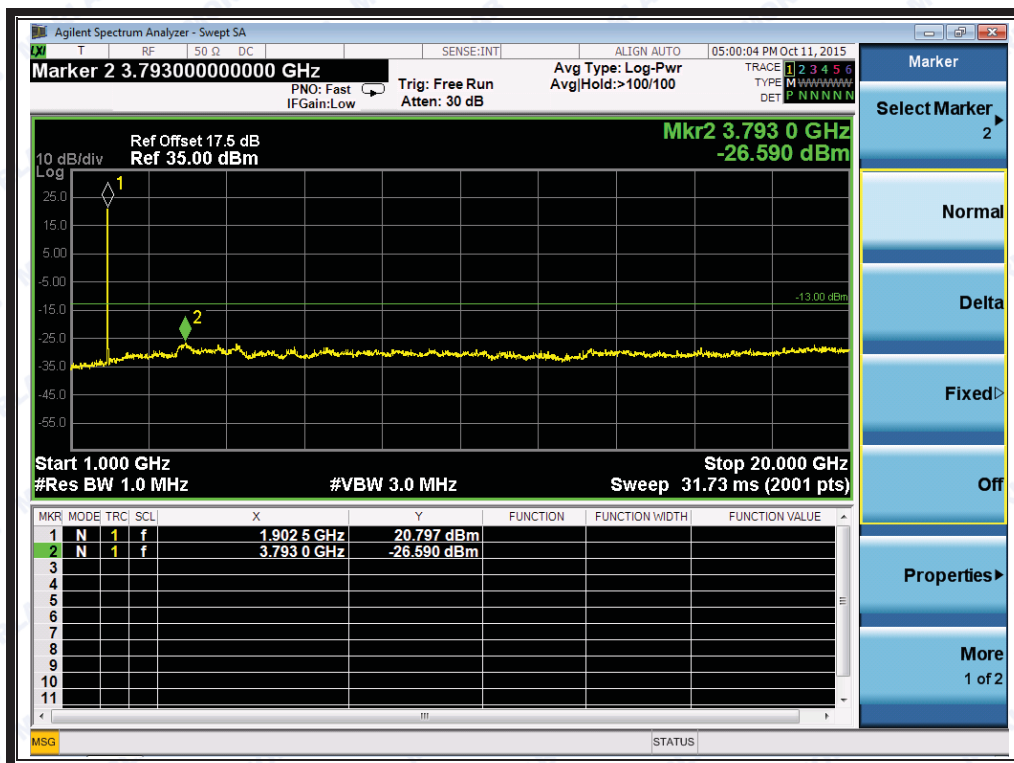
(Plot H2.1: HSDPA1900MHz Channel = 9400, 1GHz to 20GHz)



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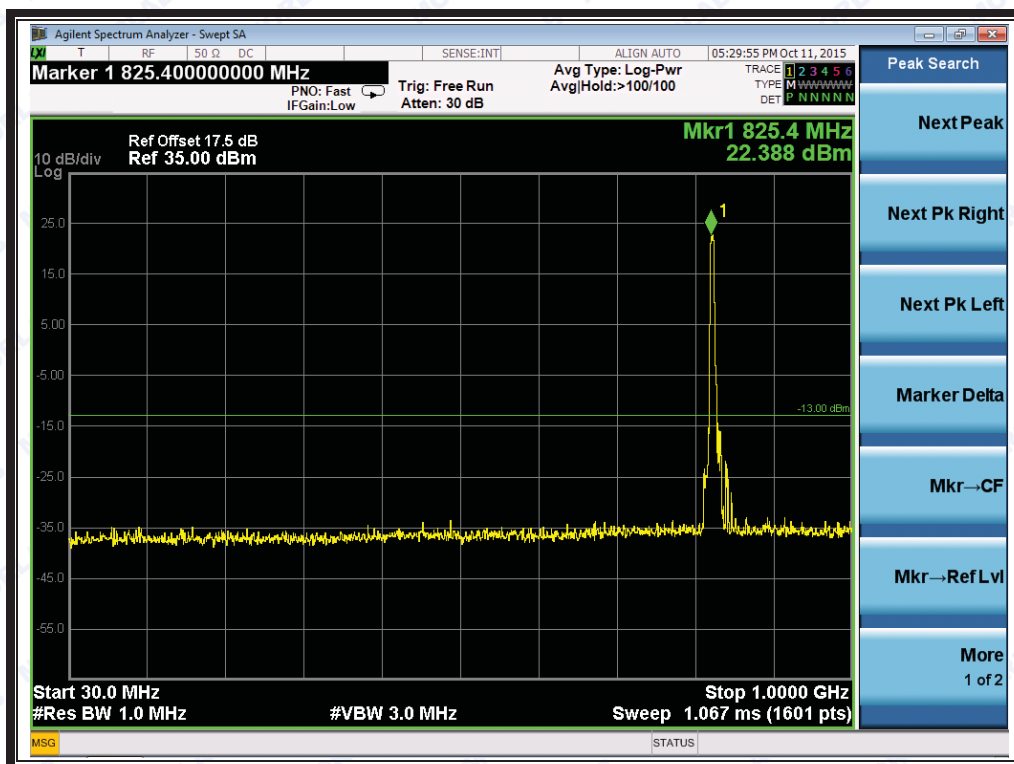
(Plot H3: HSDPA1900MHz Channel = 9538, 30MHz to 1GHz)



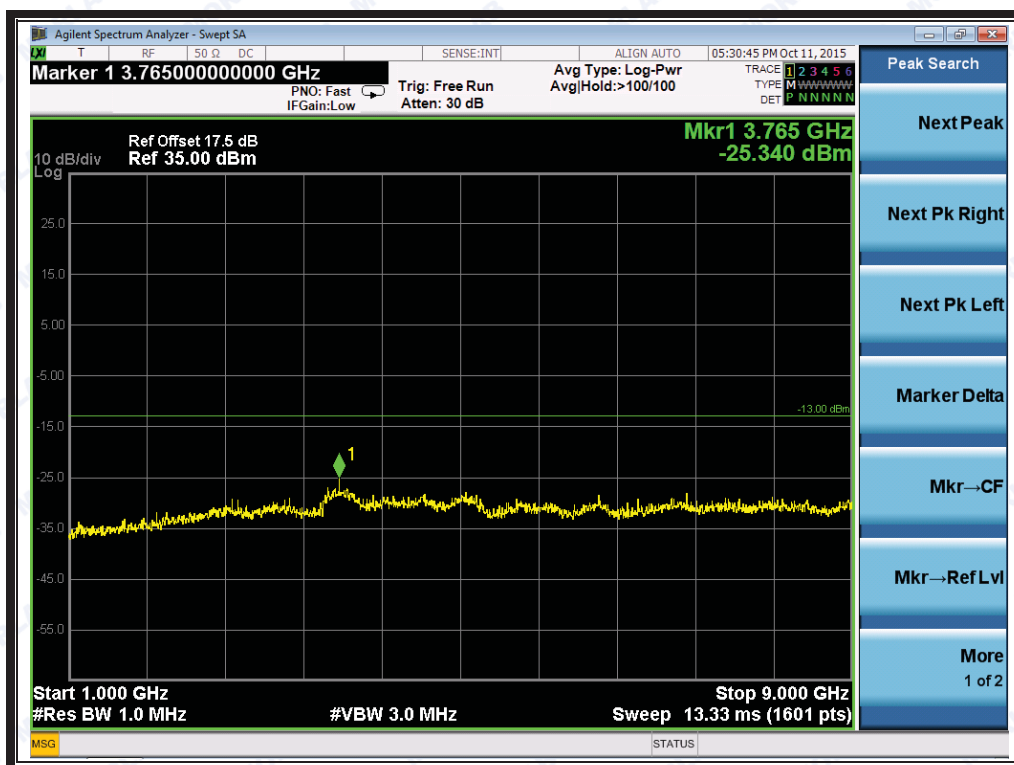
(Plot H3.1: HSDPA1900MHz Channel = 9538 1GHz to 20GHz)



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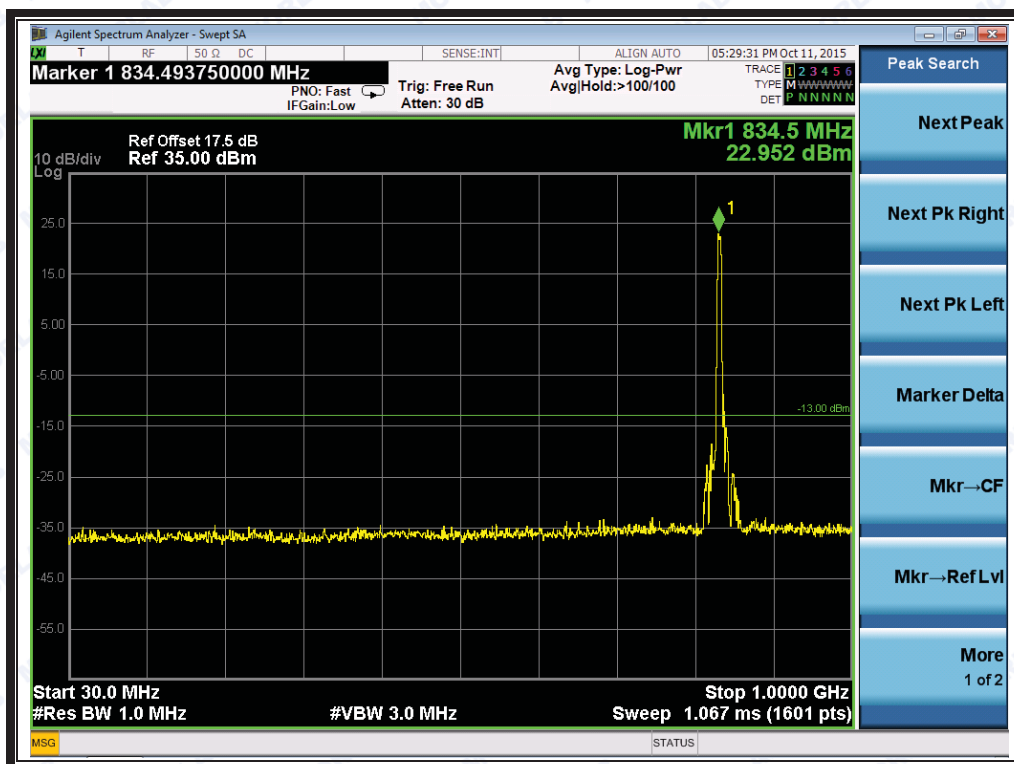
(Plot I1: HSUPA 850MHz Channel = 4132, 30MHz to 1GHz)



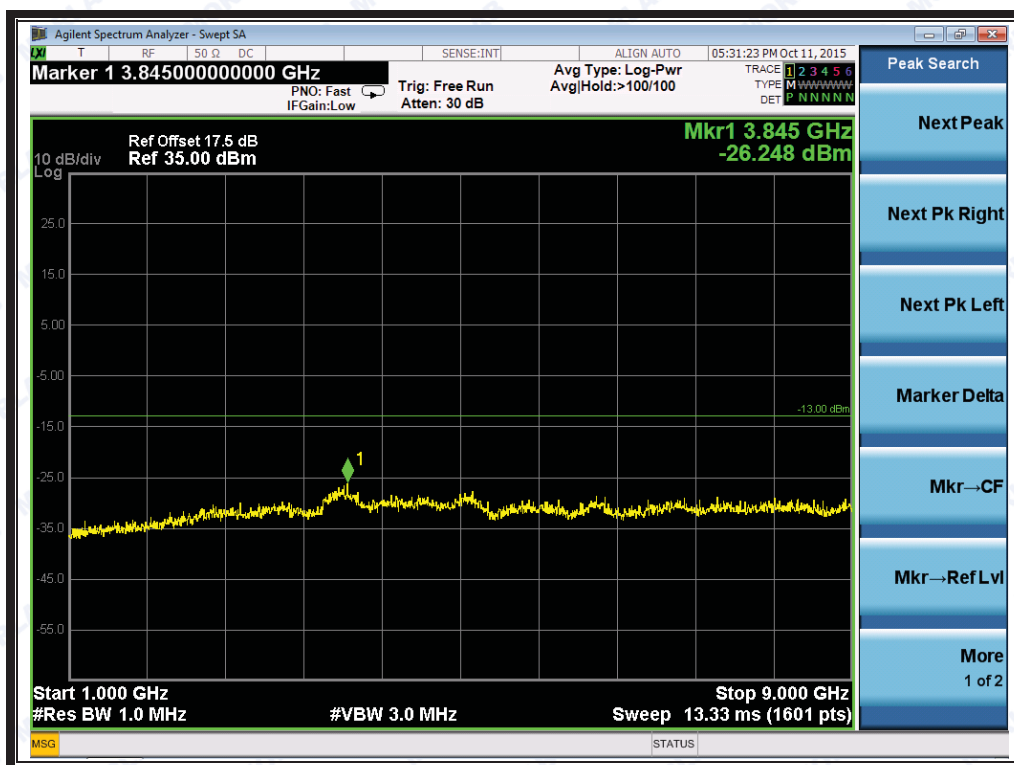
(Plot I1.1: HSUPA 850MHz Channel = 4132, 1GHz to 9GHz)



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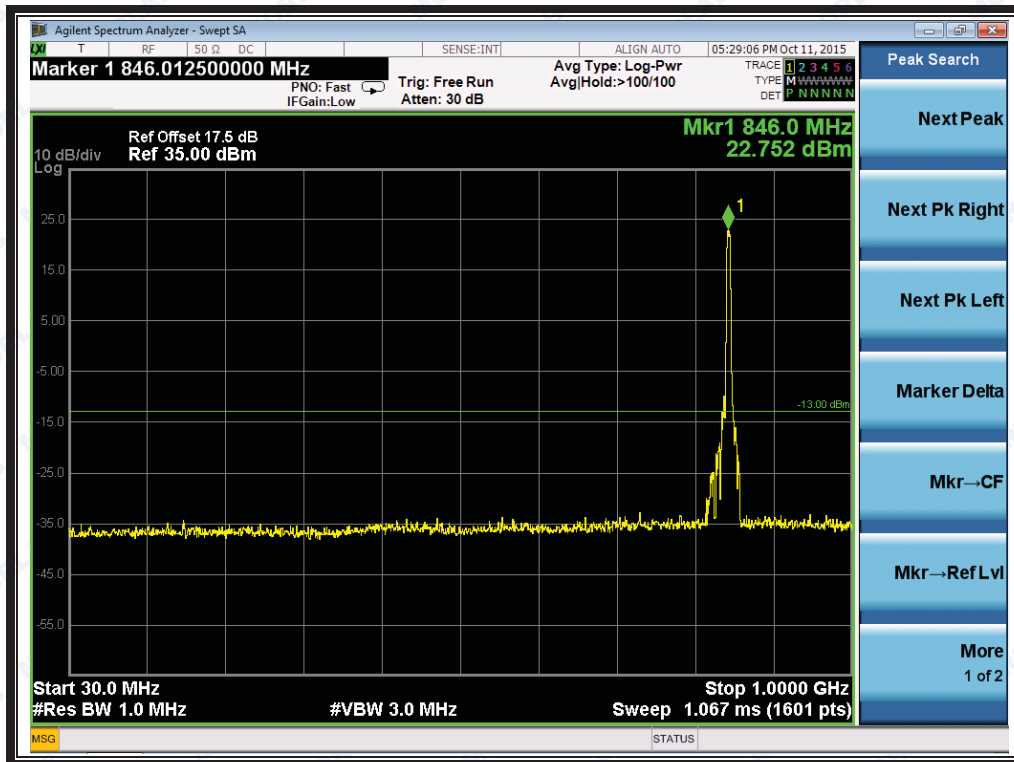
(Plot I2: HSUPA 850MHz Channel = 4175, 30MHz to 1GHz)



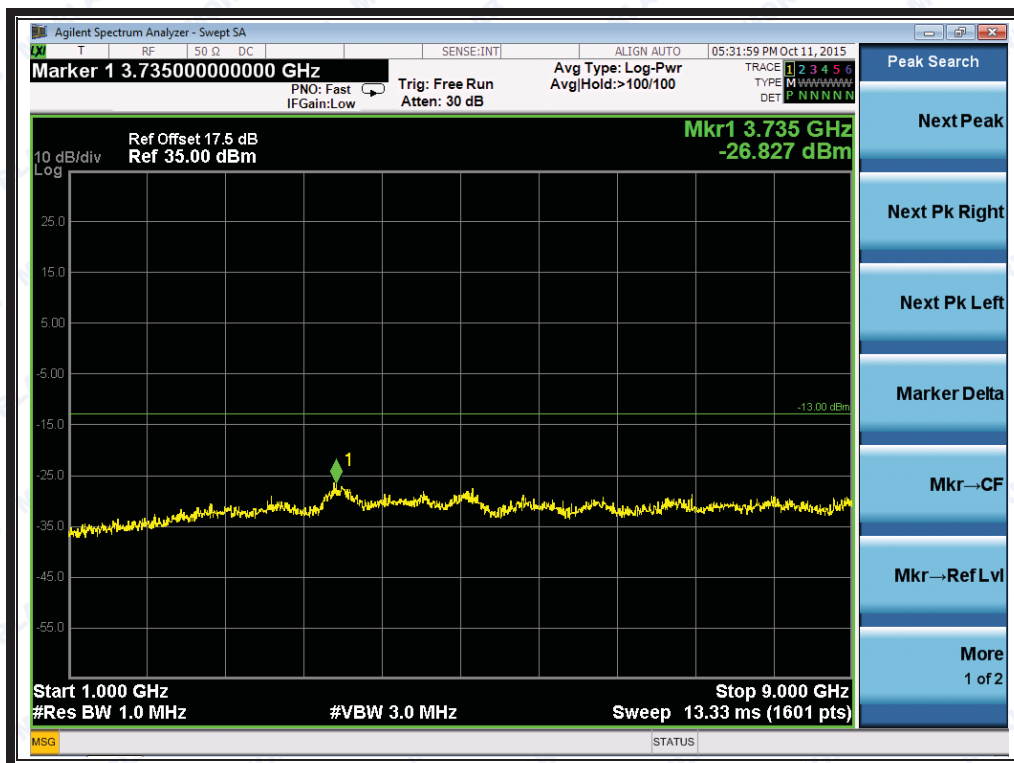
(Plot I2.1: HSUPA 850MHz Channel = 4175, 1GHz to 9GHz)



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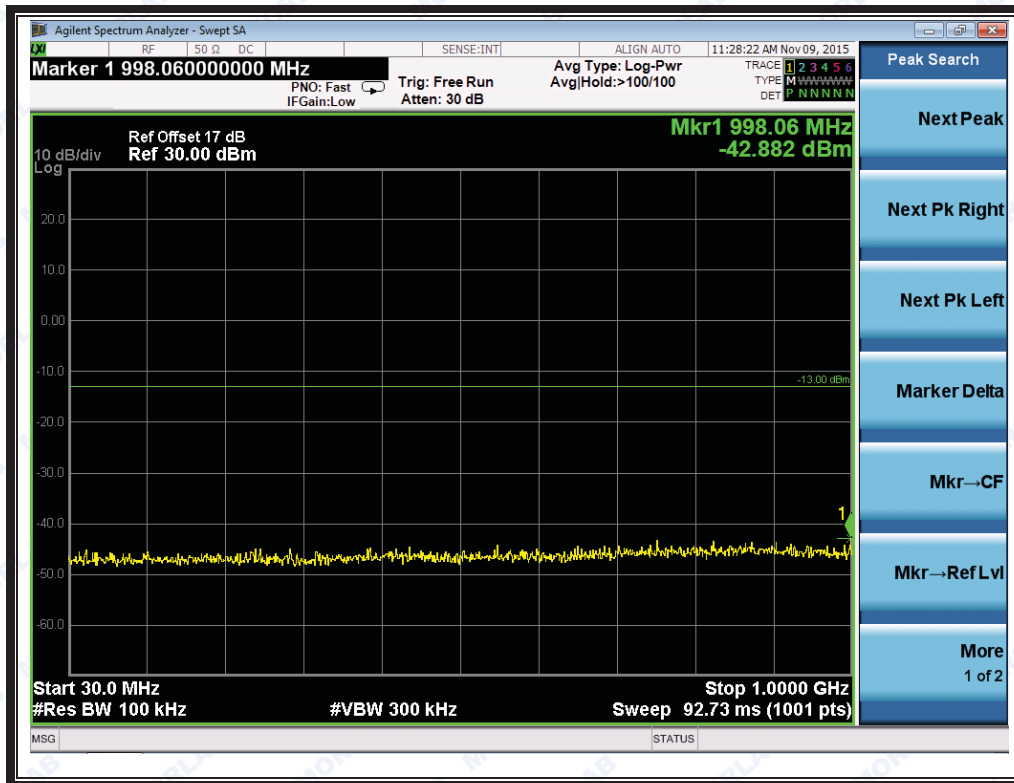
(Plot I3: HSUPA 850MHz Channel = 4233, 30MHz to 1GHz)



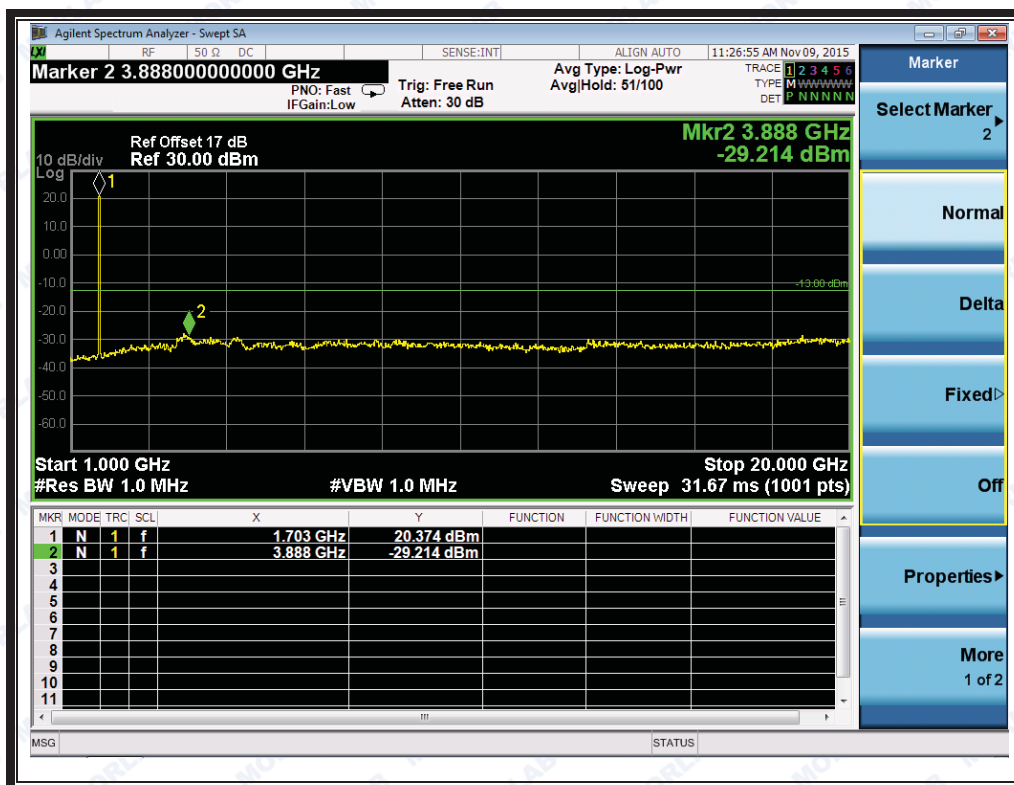
(Plot I3.1: HSUPA 850MHz Channel = 4233, 1GHz to 9GHz)



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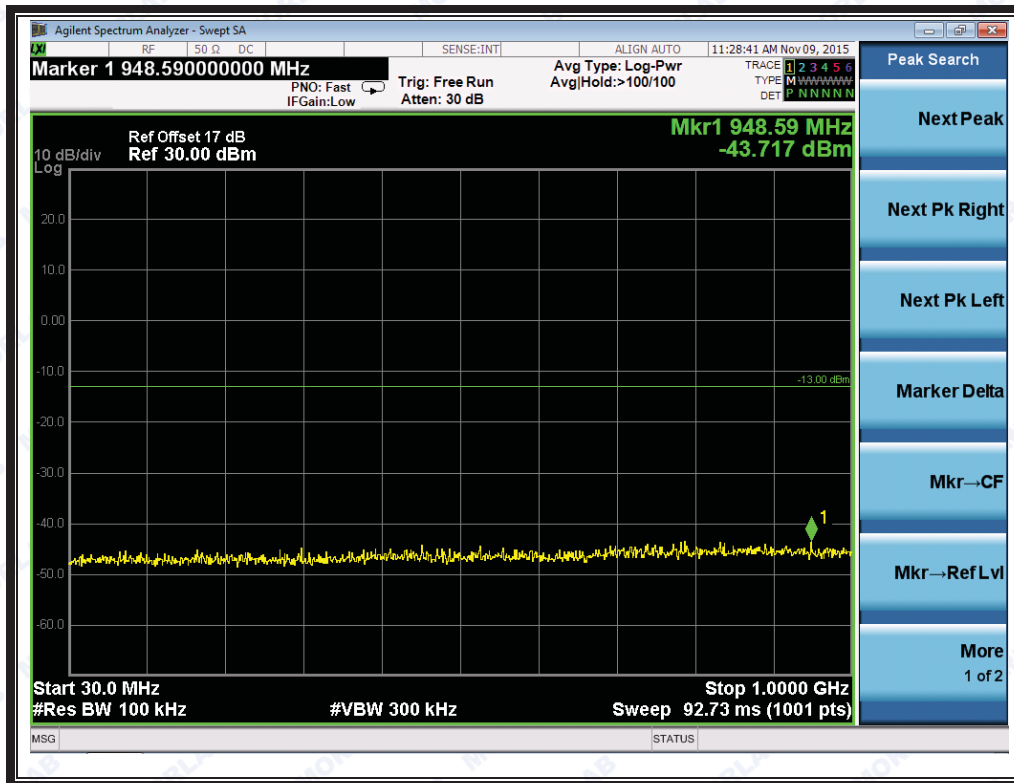
(Plot J1: HSUPA 1700MHz Channel = 1312, 30MHz to 1GHz)



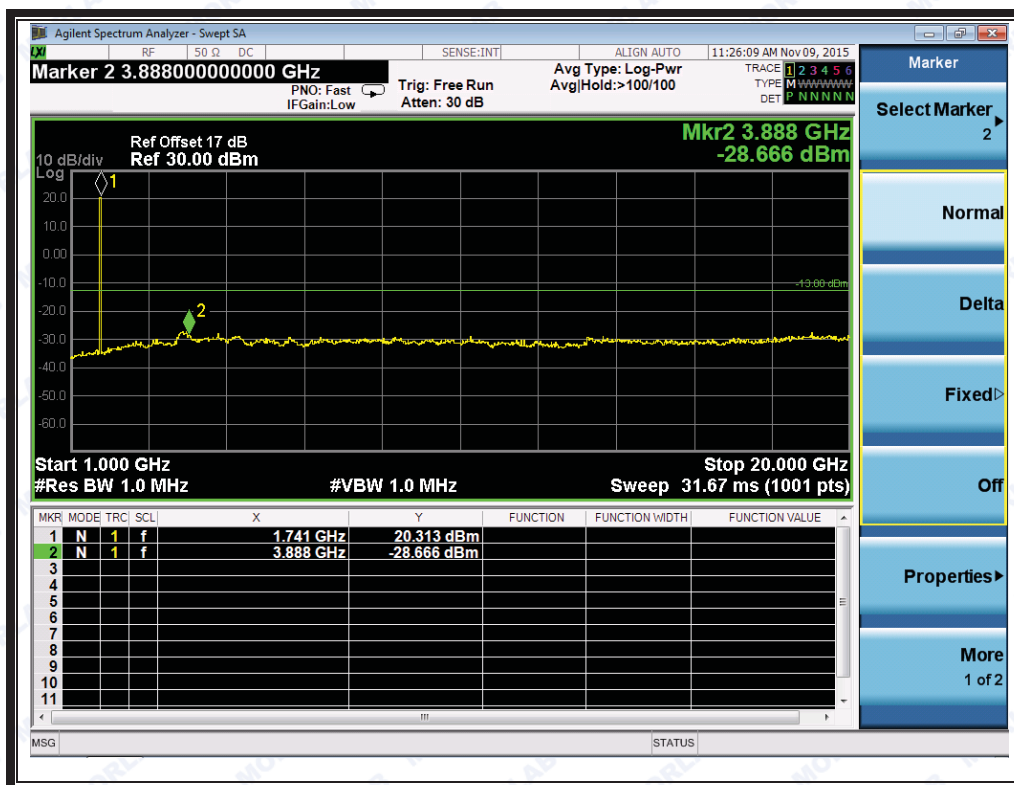
(Plot J1.1: HSUPA 1700MHz Channel = 1312, 1GHz to 20GHz)



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(Plot J2: HSUPA 1700MHz Channel = 1412, 30MHz to 1GHz)



(Plot J2.1: HSUPA1700MHz Channel = 1412, 1GHz to 20GHz)