FCC TEST REPORT

For

WCDMA Module
Model Number:H380

Report Number : WT148001757

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection National Digital Electronic Product Testing Center
Site Location	:	NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China
Tel	:	0086-755-86928965
Fax	:	0086-755-86009898-31396
Web	:	www.smq.com.cn

Test report declaration

Applicant	:	: Fibocom Wireless Inc.
Address	:	: 5/F, Block A, Shekou Technology Building II, 1057 Nanhai Blvd, Nanshan, Shenzhen, China
Manufacturer	:	: Fibocom Wireless Inc.
Address	:	: 5/F, Block A, Shekou Technology Building II, 1057 Nanhai Blvd, Nanshan, Shenzhen, China
EUT Description	:	: WCDMA Module
Model No	:	: H380
Trade mark	:	: /
Serial Number	:	: /
FCC ID	:	: ZMOH38F

Test Standards:

FCC PART 22H AND 24E (2012)

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with FCC Rules Part 22H AND 24E.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Project Engineer: _____ Date: Jun.04.2014

(Liu Zheng)

Checked by: _____ Date: Jun.04.2014

(Yang Dongping)

Approved by: _____ Date: Jun.04.2014

(Lin Bin)

TABLE OF CONTENTS

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

FCC Measurement Specification	FCC Limits Part(s)	Description	Result
2.1046	22.913 24.232	Effective Radiated Power of Transmitter	PASS
2.1046	22.913 24.232(b)	Conducted Power of Transmitter	PASS
2.1046	24.232(d)	Peak to Average Radio	PASS
2.1047	/	Modulation Characteristics	PASS
2.1049	22.917(b) 24.238(b)	Occupied Bandwidth	PASS
2.1051	22.917 24.238	Spurious Emission at Antenna Terminal	PASS
2.1053	22.917 24.238	Radiated Spurious Emissions	PASS
2.1055	22.355 24.235	Frequency Stability	PASS

CFR 47 (FCC) part 24 subpart E

Remark: “N/A” means “Not applicable.”
The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22 Part 24.

2. GENERAL INFORMATION

2.1. Report information

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.
The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number are 446246 806614 994606(semi anechoic chamber).

The Laboratory is listed in Voluntary Control Council for Interference by Information Technology Equipment (VCCI), and the registration number are R-1974(open area test site) , R-1966(semi anechoic chamber),C-2117(mains ports conducted interference measurement) and T-180(telecommunication ports conducted interference measurement).

The Laboratory is registered to perform emission tests with Industry Canada (IC), and the registration number is IC4174.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is E2024086Z02.

2.3. Measurement Uncertainty

Conducted Emission
9kHz~30MHz 3.5dB

Radiated Emission
30MHz~1000MHz 4.5dB
1GHz~26.5GHz 4.6dB

3. PRODUCT DESCRIPTION

3.1. EUT Description

Table 2 Specification of the Equipment under Test

Product Type:	H380
Hardware Version:	V1.0
Software Version :	H380_V5H
FCC-ID:	ZMOH38F
Frequency:	GSM850/PCS1900MHz/WCDMA850MHz/WCDMA1900MHz
Type(s) of Modulation:	--
Antenna Type:	External Omni directional antenna
Antenna Gain	2.5dBi
Operating voltage:	3.135V-4.4V

Remark:

--

Table 3 Identification of the Equipment Under Test (EUT)

EUT	Serial Number/IMEI	HW Version	SW Version	Notes
1	865204020001592	V1.0	H380_V5H	Conducted testing sample.
2	865204020001592	V1.0	H380_V5H	Radiated testing sample.

3.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **ZMOH38F** filing to comply with FCC PART 22H AND 24E.

3.3. Block Diagram of EUT Configuration

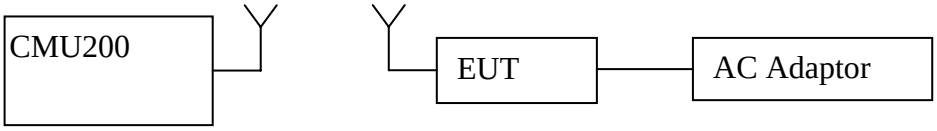


Figure 1 EUT setup of test mode 1&2

3.4. Operating Condition of EUT

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission (X plane).

TM1: GPRS/GSM Mode with GMSK Modulation
TM2: EGPRS Mode with 8PSK Modulation
TM3: WCDMA Mode with QPSK Modulation

The maximum power levels are GSM mode for GMSK link and 8PSK link, RMC 12.2Kbps mode for WCDMA, only these modes were used for all tests.

The conducted power tables are as follows:

GSM/GPRS850: GMSK Mode	
CHANNEL FREQUENCY (MHz)	Burst AV power (dBm)
824.2	32.61
836.6	32.63
848.8	32.47
EGPRS850: 8PSK Mode	
CHANNEL FREQUENCY (MHz)	Burst AV power (dBm)
824.2	27.25
836.6	27.14
848.8	27.26
WCDMA850	
CHANNEL FREQUENCY (MHz)	Burst AV power (dBm)
826.4	22.49
836.6	22.72
846.6	22.85
GSM/GPRS1900: GMSK Mode	
CHANNEL FREQUENCY (MHz)	Burst AV power (dBm)
1850.2	29.61
1880.0	29.69
1909.8	29.85
EGPRS1900: 8PSK Mode	
CHANNEL FREQUENCY (MHz)	Burst AV power (dBm)
1850.2	26.38
1880.0	26.18
1909.8	26.07
WCDM1900	
CHANNEL FREQUENCY (MHz)	Burst AV power (dBm)
1852.4	22.45
1880.0	22.62
1907.6	22.53

3.5. Support Equipment List

Table 4 Support Equipment List

Name	Model No	S/N	Manufacturer
AC Adapter	CHD-SU0520	--	SIHONGDA Electronic Co.,Ltd
External Antenna connector	HYT-800-2100G L-5	--	Huayuan communication antenna factory

3.6. Test Conditions

Date of test：May 27,2014-Jun 04, 2014
Date of EUT Receive：May 27,2014
Temperature: -20-75 ℃
Relative Humidity: 45-56%

3.7. Special Accessories

Not available for this EUT intended for grant.

3.8. Equipment Modifications

Not available for this EUT intended for grant.

4. TEST EQUIPMENT USED

Table 5 Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.20, 2014	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.20, 2014	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.20, 2014	1 Year
SB8501/09	EMI Test Receiver	Rohde & Schwarz	ESU40	May.16, 2014	1 Year
SB8501/04	Bilog Antenna	Schwarzbeck	VULB9163	May 13, 2014	1 Year
SB5472/02	Bilog Antenna	Schwarzbeck	VULB9163	Jan.20, 2014	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.20, 2014	1 Year
SB3434	Horn Antenna	Rohde & Schwarz	HF906	Jan.20, 2014	1 Year
SB3435/01	Amplifier(1-18GHz)	Rohde & Schwarz	---	Jan.20, 2014	1 Year
SB3435/02	Amplifier(18-40GHz)	Rohde & Schwarz	---	May.16, 2014	1 Year
SB5392/02	Horn Antenna	Amplifier Research	AT4560	May.16, 2014	1 Year
SB3450/01	3m Semi-anechoic chamber	Albatross Projects	9X6X6	Oct.12, 2012	2 Years
SB8501/02	Communication Test Unit	Rohde & Schwarz	CMU200	Jan.7, 2014	1 Year
SB9721/02	Signal Analyzer	Agilent	N9020A	Feb.3, 2014	1 Year
SB3611	DC Power Supply	KENWOOD	PDS36-10	May.16, 2014	1 Year
SB6691	Climatic Chamber	NANYA	DW-0150	Apr 13, 2014	1 Year

5. TEST RESULTS

5.1. RF Power Output

5.1.1.Test Standard

FCC: CFR Part 2.1046, CFR Part 22.913, CFR Part 24.232

5.1.2.Test Limit

FCC 22.913 (a) Effective radiated power limits.
The effective radiated power (ERP) of mobile transmitters must not exceed 7 Watts.

FCC 24.232 (b)(c) Power limits.
(b) Mobile/portable stations are limited to 2 Watts effective isotropic radiated power (EIRP). (c) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement over the full bandwidth of the channel.

.

5.1.3.Test Procedure

Radiated Output Power Measurement procedure
Ref: TIA-603C 2004 -2.2.17.2 Effective Radiated Power (ERP) or Effective Isotropic
1. Connect the equipment as shown in the above diagram with the EUT's antenna in a vertical orientation.
2. Adjust the settings of the Universal Radio Communication Tester (CMU) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to the channel frequency. Set the analyzer to measure peak hold with the required settings.
4. Rotate the EUT 360 . Record the peak level in dBm (LVL).
5. Replace the EUT with a vertically polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
6. Connect the antenna to a signal generator with known output power and record the path loss in dB (LOSS). LOSS = Generator Output Power (dBm) – Analyzer reading (dBm).
7. Determine the ERP using the following equation:
ERP (dBm) = LVL (dBm) + LOSS (dB)
8. Determine the EIRP using the following equation:
EIRP (dBm) = ERP (dBm) + 2.15 (dB)
9. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

5.1.4.Test Data

Table 6 Substitution Results

Test Mode	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBd]	Substitution Level (ERP) [dBm]	Limit [dBm]	Polarization	Result
TM1	824.2	26.23	0.5	5.28	31.01	38.5	Vertical	Pass
TM1	836.6	27.37	0.5	5.28	32.15	38.5	Vertical	Pass
TM1	848.8	27.59	0.5	5.28	32.37	38.5	Vertical	Pass
TM2	824.2	21.96	0.5	5.28	26.74	38.5	Vertical	Pass
TM2	836.6	21.80	0.5	5.28	26.58	38.5	Vertical	Pass
TM2	848.8	21.56	0.5	5.28	26.34	38.5	Vertical	Pass
TM3	826.4	13.5	0.5	5.28	18.28	38.5	Vertical	Pass
TM3	836.6	14.5	0.5	5.28	19.28	38.5	Vertical	Pass
TM3	846.6	14.62	0.5	5.28	19.40	38.5	Vertical	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 7 Substitution Results

Test Mode	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Limit [dBm]	Polarization	Result
TM1	1850.2	17.26	0.97	8.92	25.21	33	Vertical	Pass
TM1	1880	17.78	0.97	8.92	25.73	33	Vertical	Pass
TM1	1909.8	18.09	0.97	8.92	26.04	33	Vertical	Pass
TM2	1850.2	15.38	0.97	8.92	23.33	33	Vertical	Pass
TM2	1880	15.53	0.97	8.92	23.48	33	Vertical	Pass
TM2	1909.8	15.44	0.97	8.92	23.39	33	Vertical	Pass
TM3	1852.4	12.21	0.97	8.92	20.16	33	Vertical	Pass
TM3	1880.0	12.55	0.97	8.92	20.50	33	Vertical	Pass
TM3	1907.6	12.58	0.97	8.92	20.53	33	Vertical	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

5.2. Peak to Average Radio

5.2.1. Test Standard

CFR 47 (FCC) part 24 subpart E

5.2.2. Test Limit

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.2.3. Test Procedure

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

5.2.4. Test Data

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
GSM/GPRS1900	TM1	1850.2	0.24	13	PASS
		1880	0.26	13	PASS
		1909.8	0.28	13	PASS
EGPRS1900	TM2	1850.2	2.92	13	PASS
		1880	2.90	13	PASS
		1909.8	2.92	13	PASS
WCDMA1900	TM3	1852.4	2.31	13	PASS
		1880.0	2.58	13	PASS
		1907.6	2.43	13	PASS

5.3. Occupied Bandwidth/Emission Bandwidth

5.3.1. Test Standard

FCC: CFR Part 2.1049, CFR Part 22.917, CFR Part 24.238

5.3.2. Test Limit

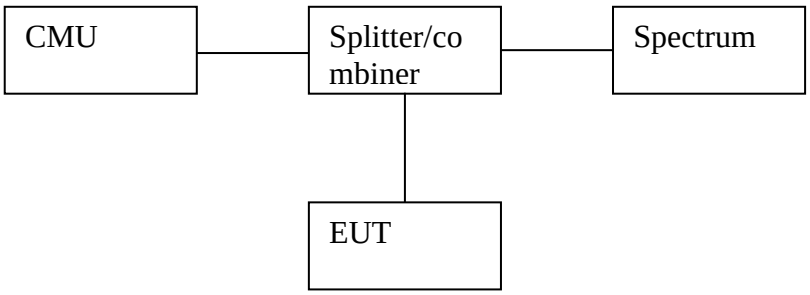
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable.
(h) Transmitters employing digital modulation techniques-when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated.

5.3.3. Test Procedure

1. Connect the equipment as shown in the above diagram.
2. Adjust the settings of the Universal Radio Communication Tester (CMU) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to measure the 99% occupied bandwidth. Record the value.
4. Set the spectrum analyzer to measure the -26 dB emission bandwidth. Record the value.
5. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

Spectrum analyzer settings: Measurement bandwidth of at least 1% of the occupied bandwidth.

5.3.4. Test Setup

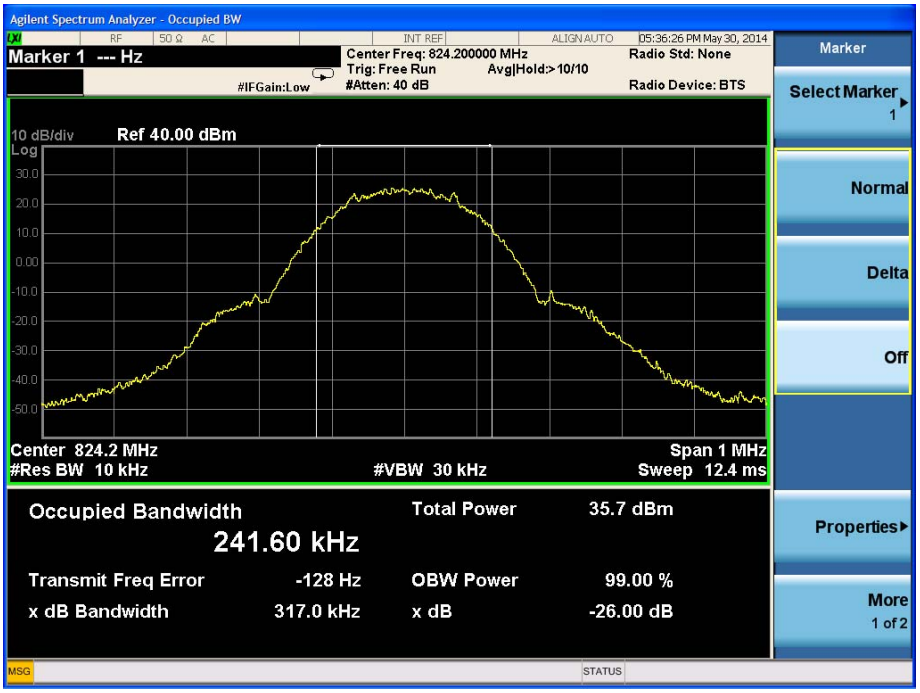


5.3.5.Test Data

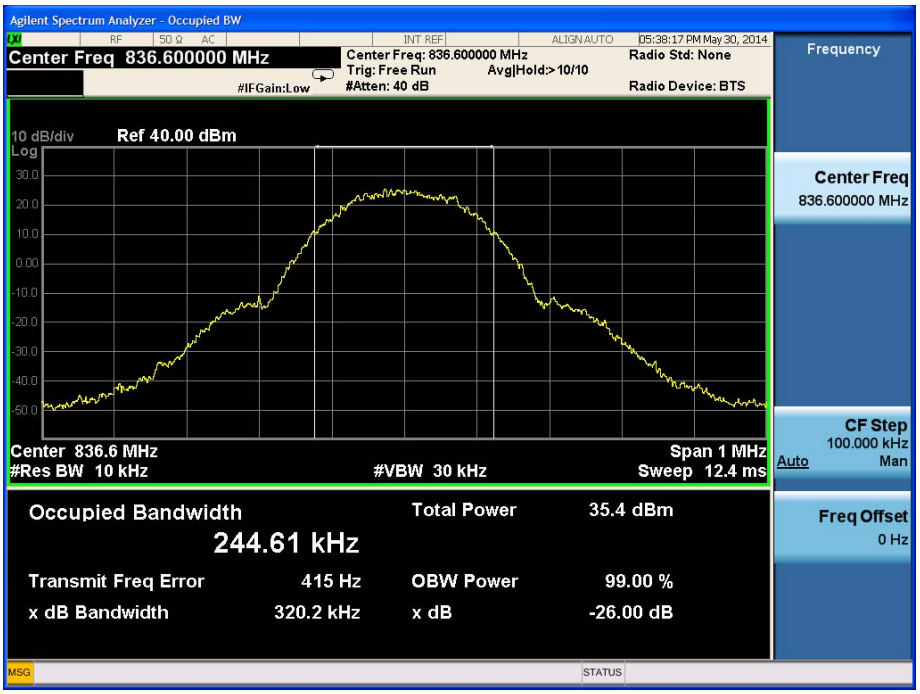
Table 8 Occupied Bandwidth Test Data

GSM/GPRS850: GMSK Mode		
CHANNEL FREQUENCY (MHz)	99% OBW (kHz)	26dBc BANDWIDTH (kHz)
824.2	241.60	317.0
836.6	244.61	320.2
848.8	243.03	320.3
EGPRS850: 8PSK Mode		
CHANNEL FREQUENCY (MHz)	99% OBW (kHz)	26dBc BANDWIDTH (kHz)
824.2	243.70	317.9
836.6	241.57	312.0
848.8	244.38	316.0
WCDMA850		
CHANNEL FREQUENCY (MHz)	99% OBW (MHz)	26dBc BANDWIDTH (MHz)
826.4	4.0548	4.598
836.6	4.0664	4.612
846.6	4.0468	4.560
GSM/GPRS1900: GMSK Mode		
CHANNEL FREQUENCY (MHz)	99% OBW (kHz)	26dBc BANDWIDTH (kHz)
1850.2	245.07	317.4
1880.0	245.41	317.1
1909.8	244.17	315.7
EGPRS1900: 8PSK Mode		
CHANNEL FREQUENCY (MHz)	99% OBW (kHz)	26dBc BANDWIDTH (kHz)
1850.2	246.54	312.8
1880.0	242.83	315.8
1909.8	244.70	316.9
WCDMA1900		
CHANNEL FREQUENCY (MHz)	99% OBW (kHz)	26dBc BANDWIDTH (kHz)
1852.4	4.0540	4.577
1880.0	4.0551	4.599
1907.6	4.0560	4.563

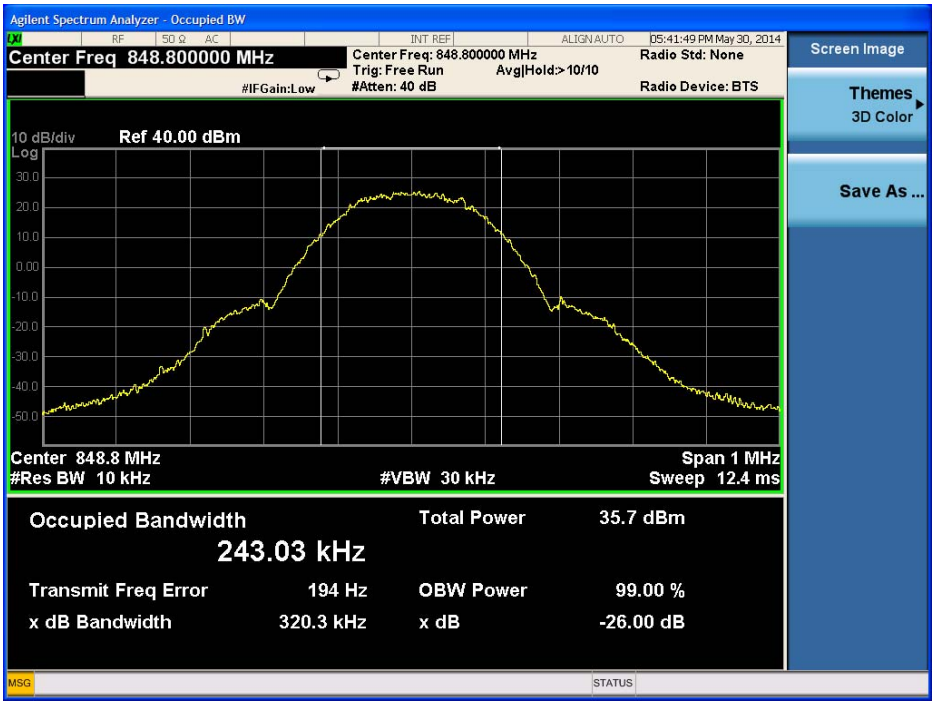
Test Band = GSM/GPRS850
Test Mode = TM1
Test Channel = LCH



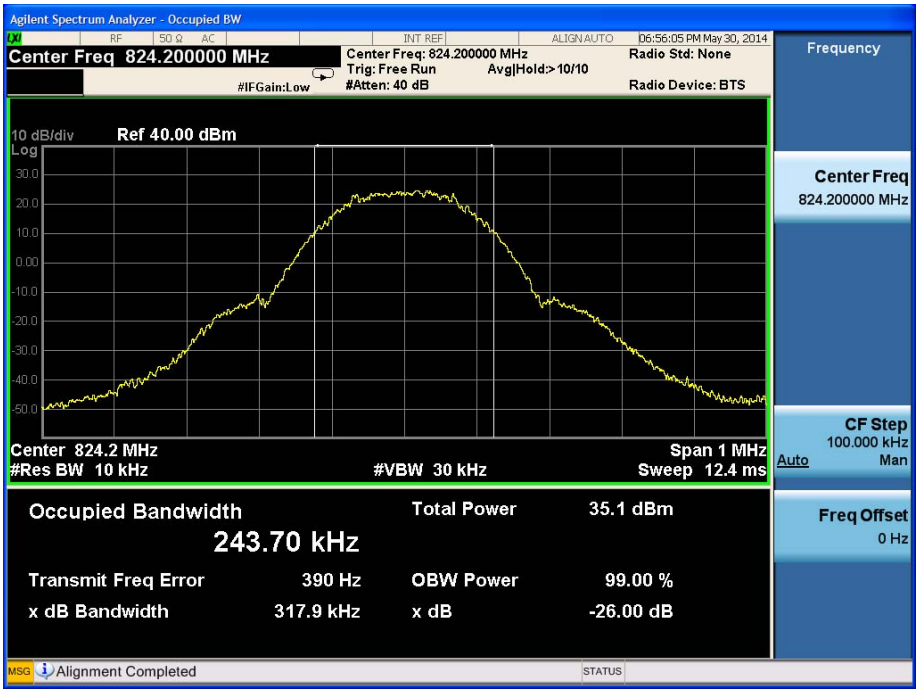
Test Band = GSM/GPRS850
Test Mode = TM1
Test Channel = MCH



Test Band = GSM/GPRS850
Test Mode = TM1
Test Channel = HCH

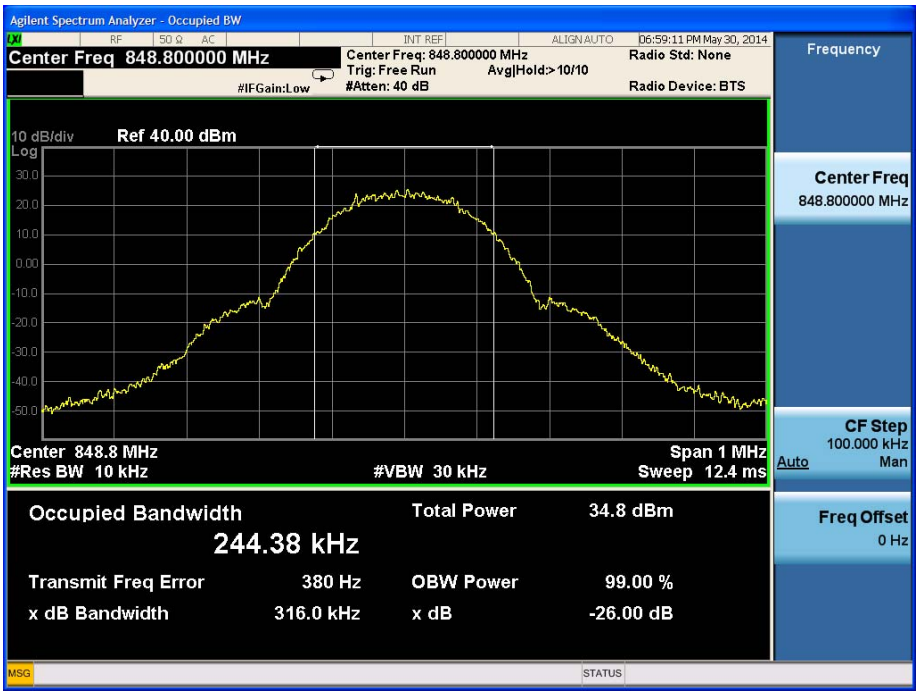


Test Band = EGPRS850
Test Mode =TM2
Test Channel = LCH

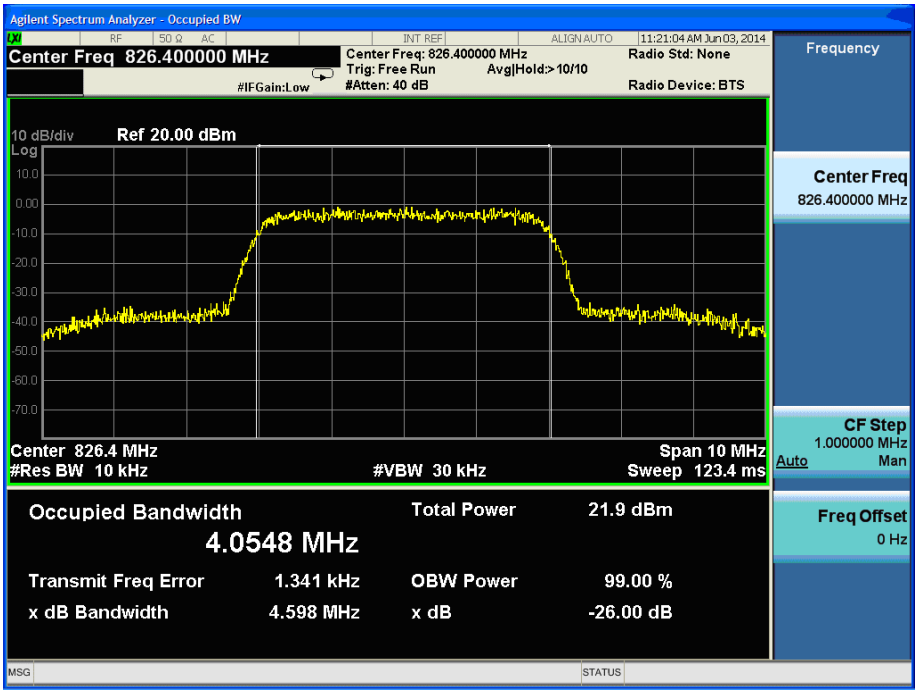


Test Band = EGPRS850
Test Mode = TM2
Test Channel = MCH

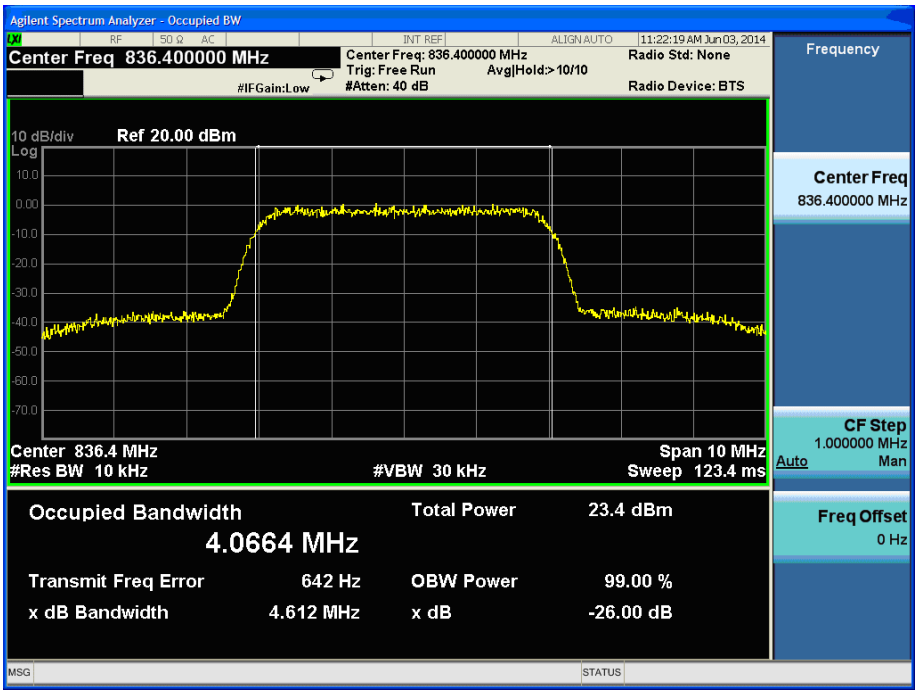
Test Band = EGPRS850
Test Mode = TM2
Test Channel = HCH



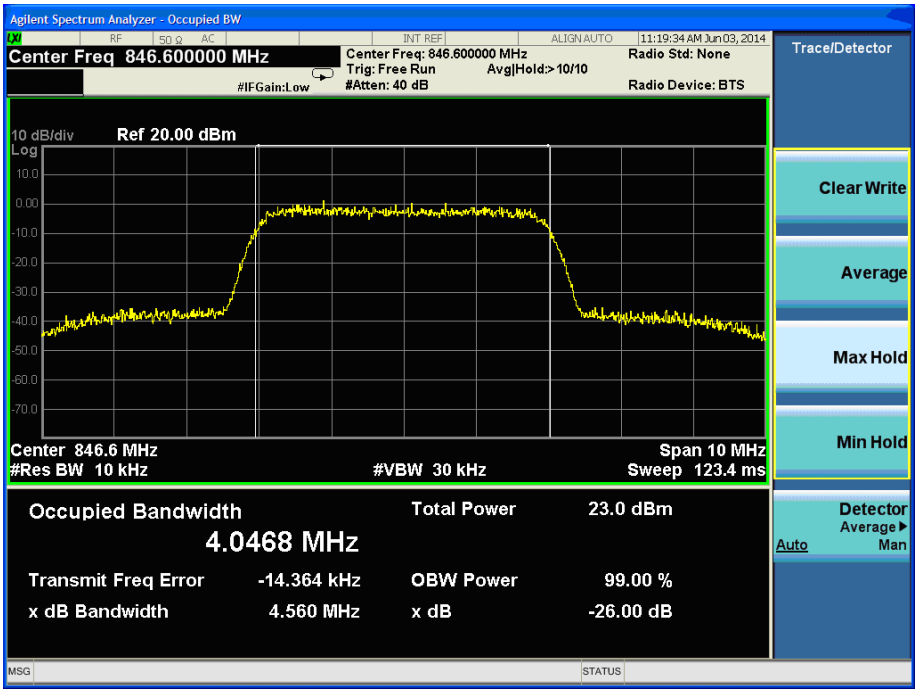
Test Band = WCDMA850
Test Mode = TM3
Test Channel = LCH



Test Band = WCDMA850
Test Mode =TM3
Test Channel = MCH

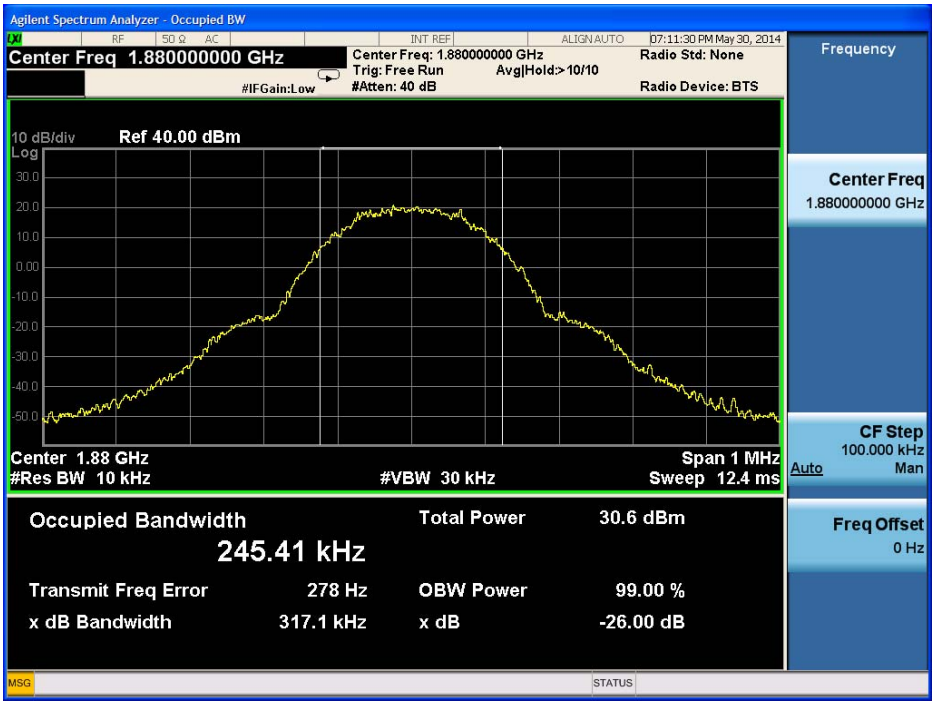


Test Band = WCDMA850
Test Mode = TM3
Test Channel = HCH

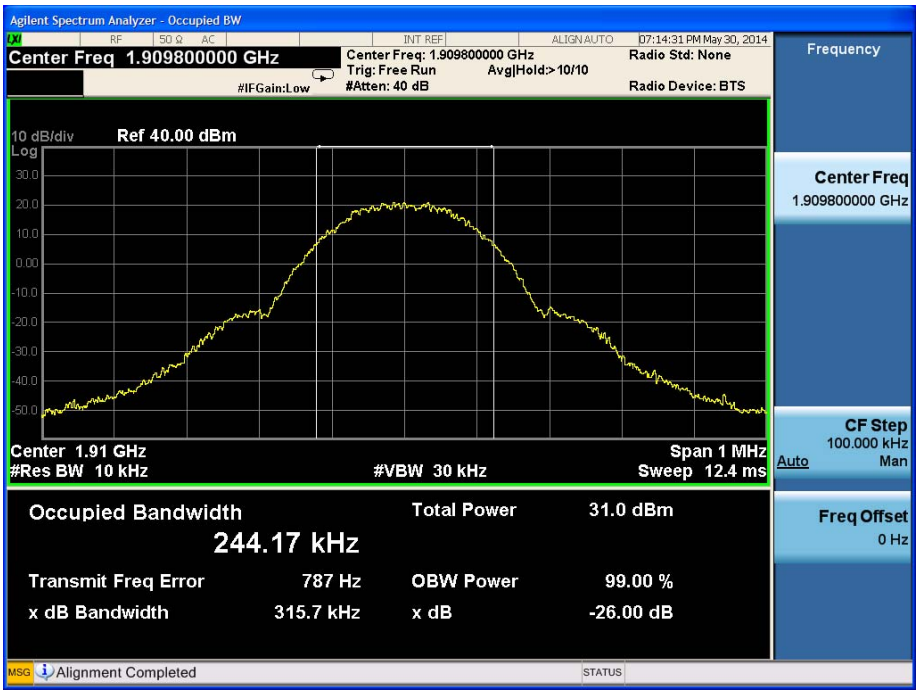


Test Band = GSM/GPRS1900
Test Mode = TM1
Test Channel = LCH

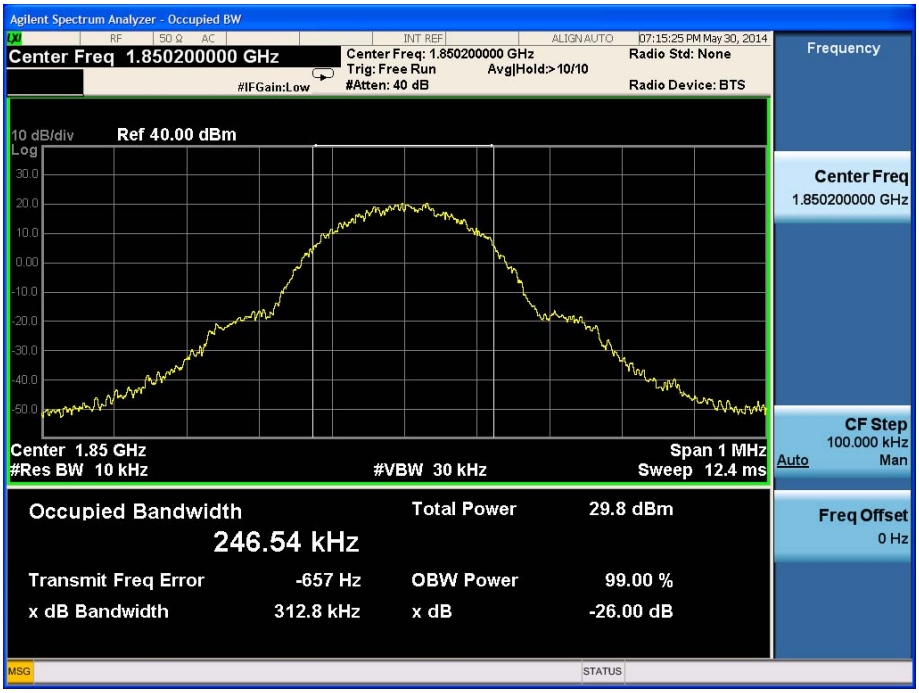
Test Band = GSM/GPRS1900
Test Mode = TM1
Test Channel = MCH



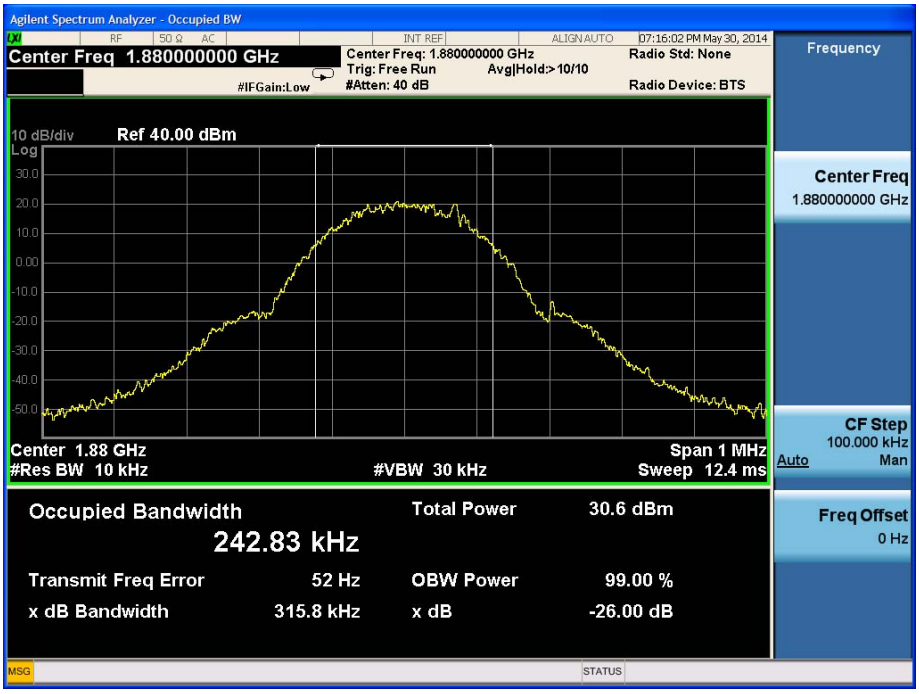
Test Band = GSM/GPRS1900
Test Mode = TM1
Test Channel = HCH



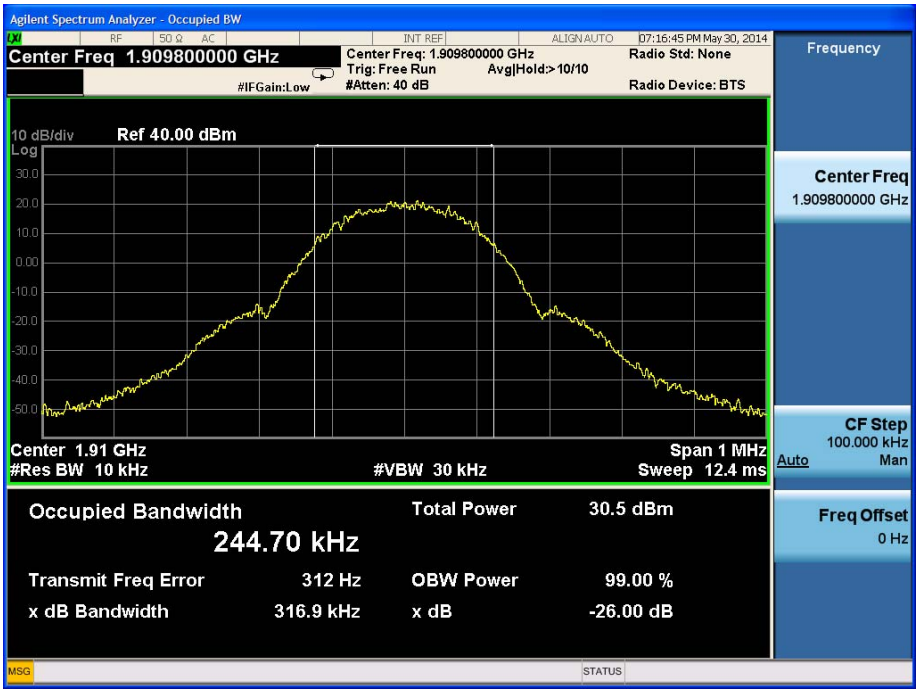
Test Band = EGPRS1900
Test Mode = TM2
Test Channel = LCH



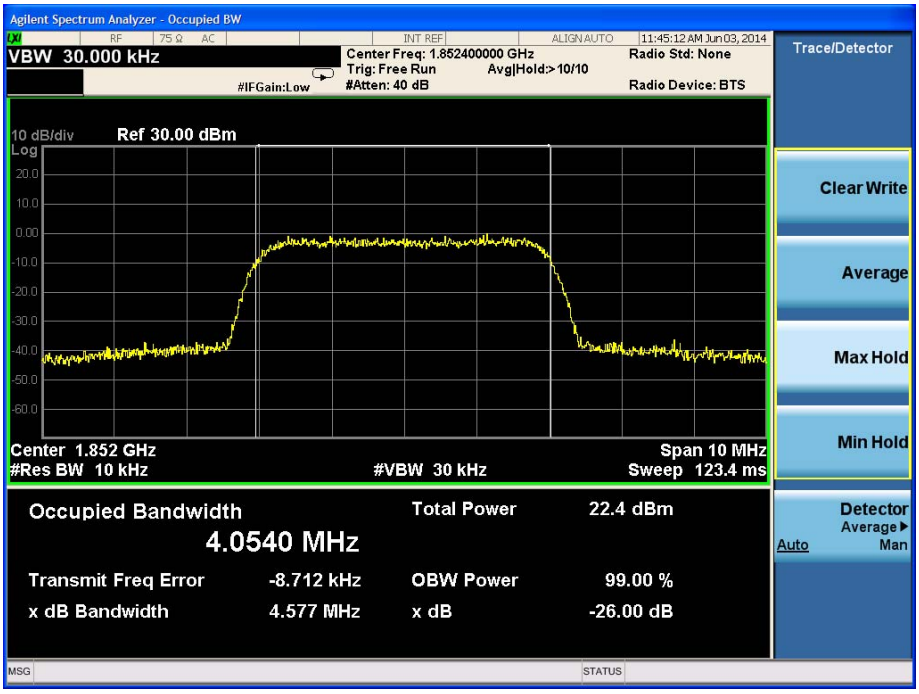
Test Band = EGPRS1900
Test Mode = TM2
Test Channel = MCH



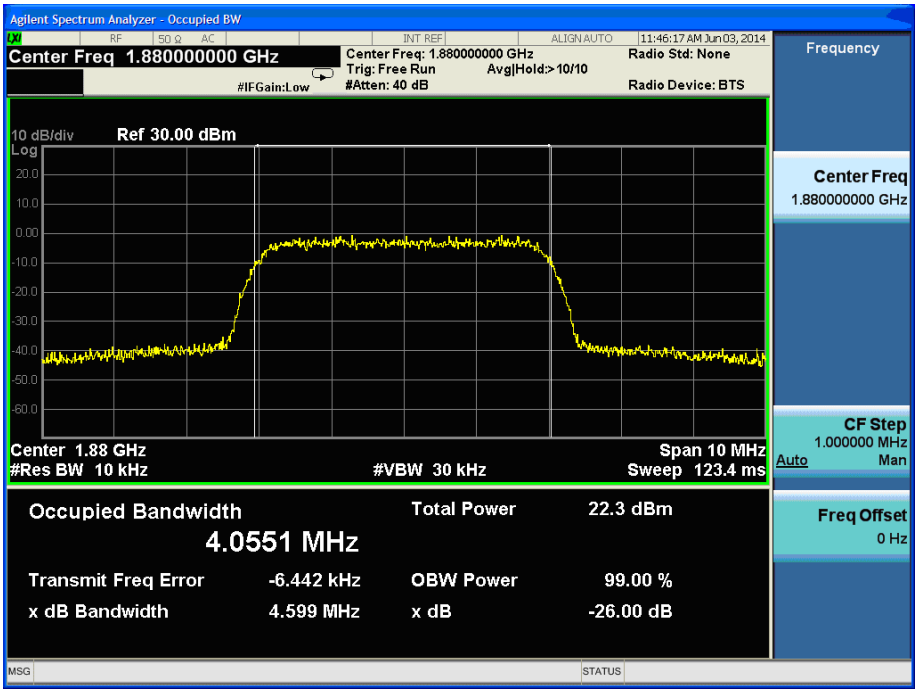
Test Band = EGPRS1900
Test Mode = TM2
Test Channel = HCH



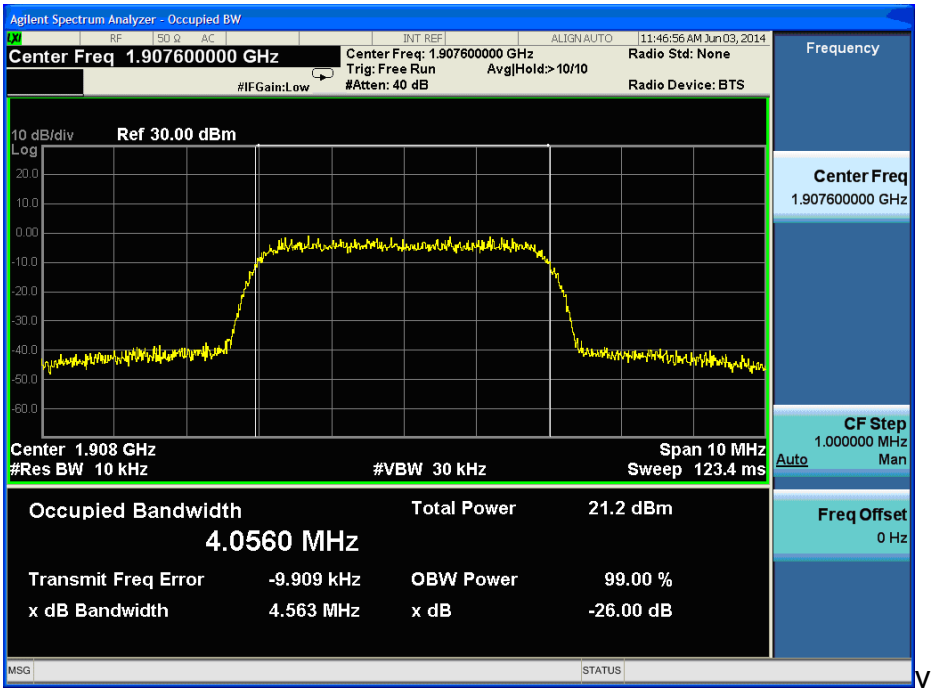
Test Band = WCDMA1900
Test Mode = TM3
Test Channel = LCH



Test Band = WCDMA1900
Test Mode = TM3
Test Channel = MCH



Test Band = WCDMA1900
Test Mode = TM3
Test Channel = HCH



5.4. Spurious Emission at Antenna Terminal

5.4.1. Test Standard

FCC: CFR Part 2.1051, CFR Part 22.917, CFR Part 24.238

5.4.2. Test Limit

The radio frequency voltage or power generated within the equipment and appearing on a
spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in FCC 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.
(a) Out of band emissions. 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. For all power levels +30dBm to 0dBm, this becomes a constant specification of -13dBm.

FCC 22.917 Emission limitations for cellular equipment.
The rules in this section govern the spectral characteristics of emissions in the Cellular
Radiotelephone Service.
(b) Measurement procedure. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

FCC 24.238 Emission limitations for Broadband PCS equipment.
The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.
(b) Measurement procedure. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100

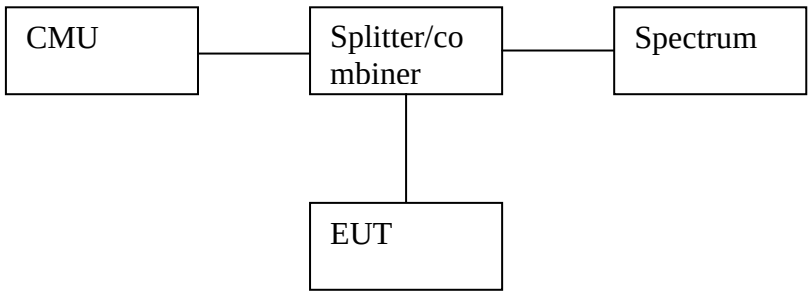
kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

5.4.3.Test Procedure

1. Connect the equipment as shown in the above diagram.
2. Set the spectrum analyzer to measure peak hold with the required settings.
3. Set the signal generator to a known output power and record the path loss in dB (LOSS) for frequencies up to the tenth harmonic of the EUT's carrier frequency. \
LOSS = Generator Output Power (dBm) – Analyzer reading (dBm).
4. Replace the signal generator with the EUT.
5. Adjust the settings of the Universal Radio Communication Tester (CMU) to set the EUT to its maximum power at the required channel.
6. Set the spectrum analyzer to measure peak hold with the required settings. Offset the spectrum analyzer reference level by the path loss measured above.
7. Measure and record all spurious emissions up to the tenth harmonic of the carrier frequency.
8. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.
9. If necessary steps 6 and 7 may be performed with the spectrum analyzer set to average detector.

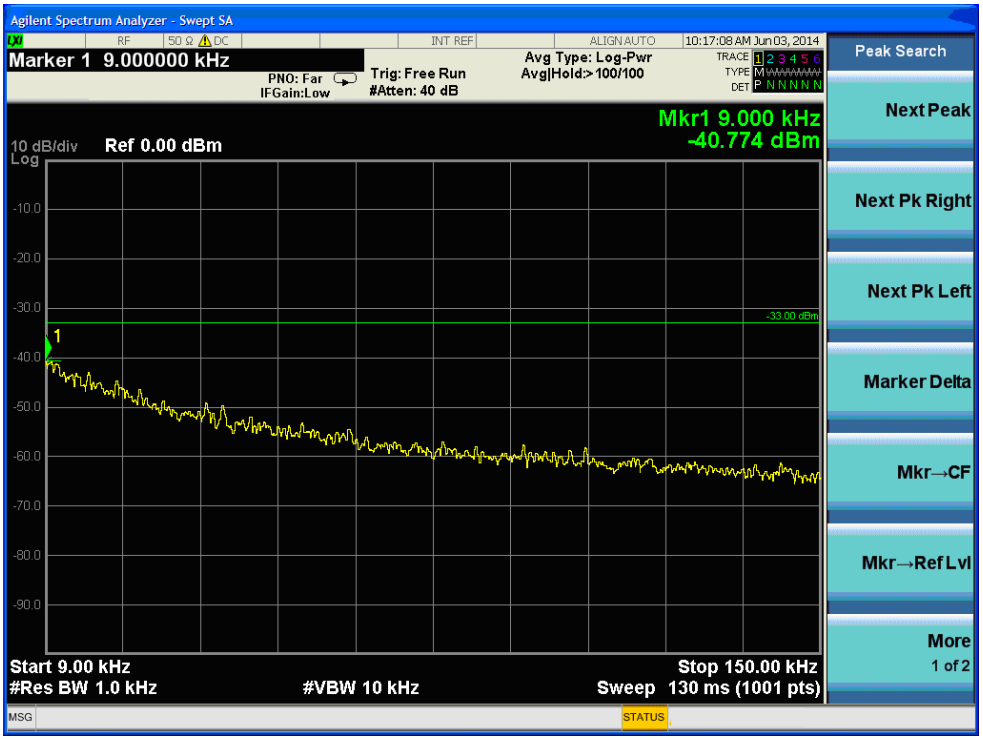
(Note: Step 3 above is performed prior to testing and LOSS is recorded by test software. Steps 2, 6, and 7 above are performed with test software.)

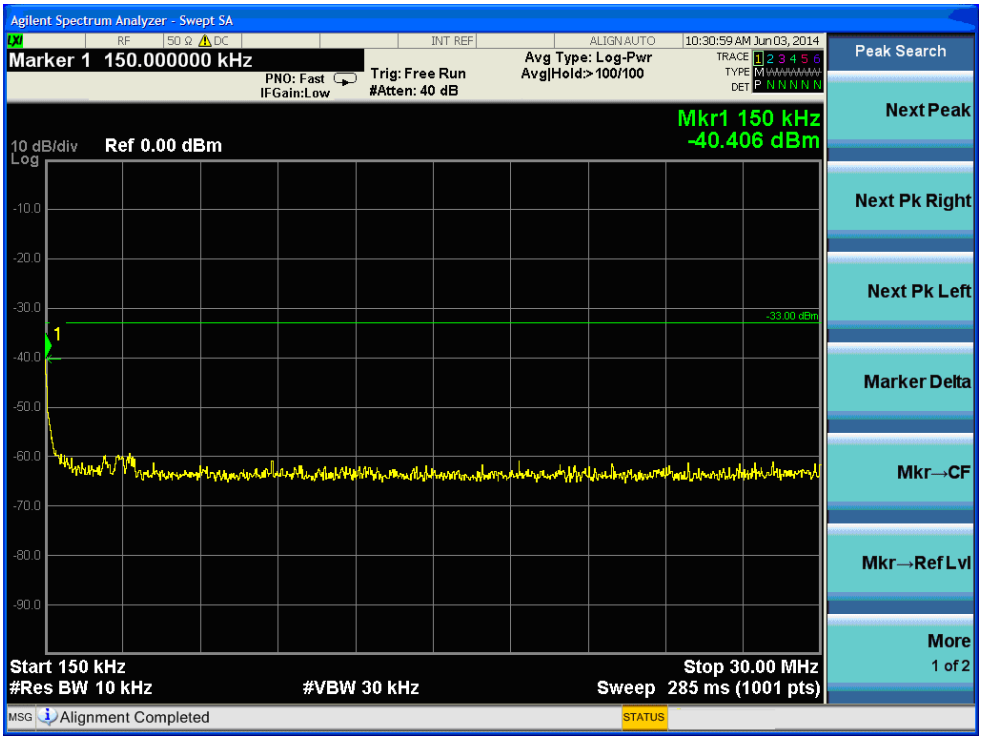
5.4.4.Test Setup



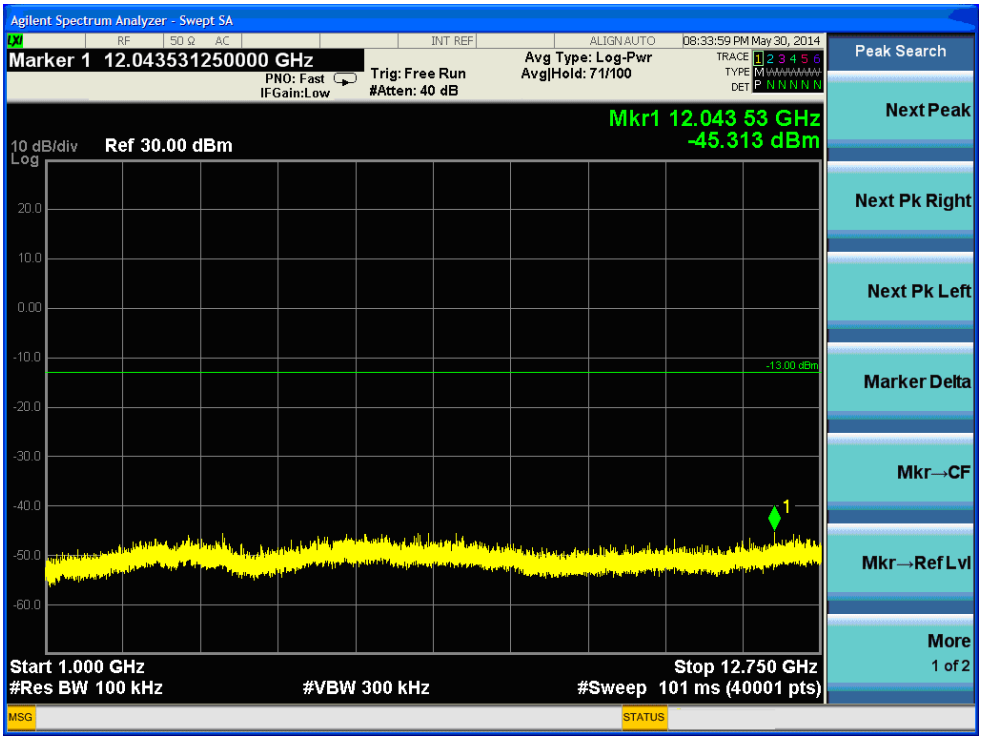
5.4.5.Test Data

Out of band measurement
Test Band = GSM/GPRS850
Test Mode = TM1
Test Channel = LCH

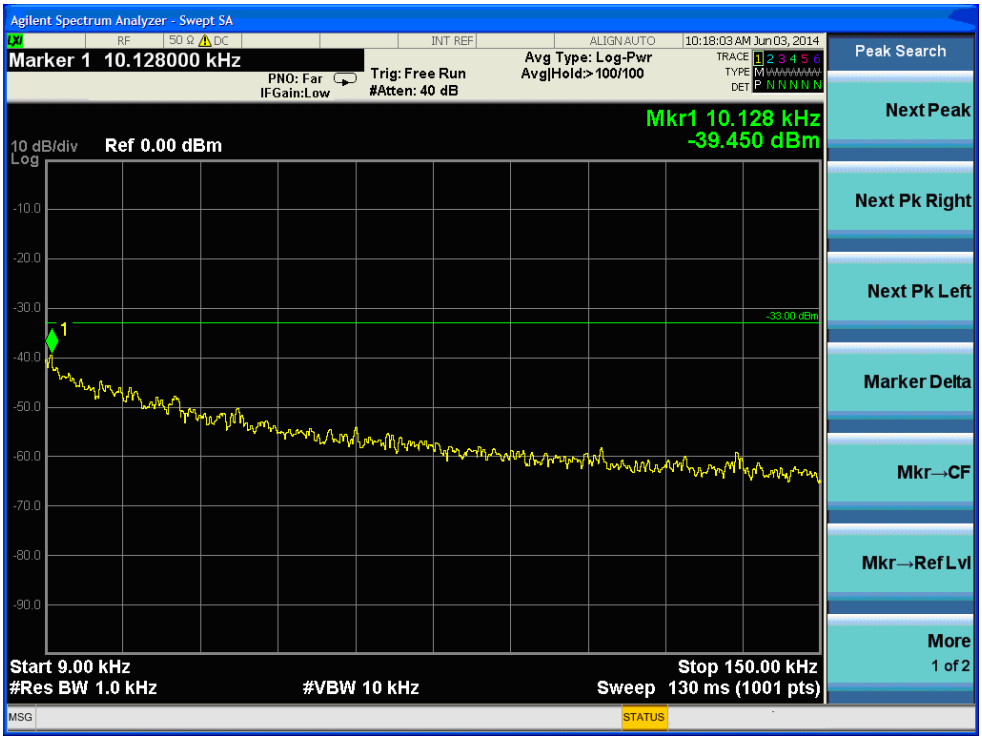


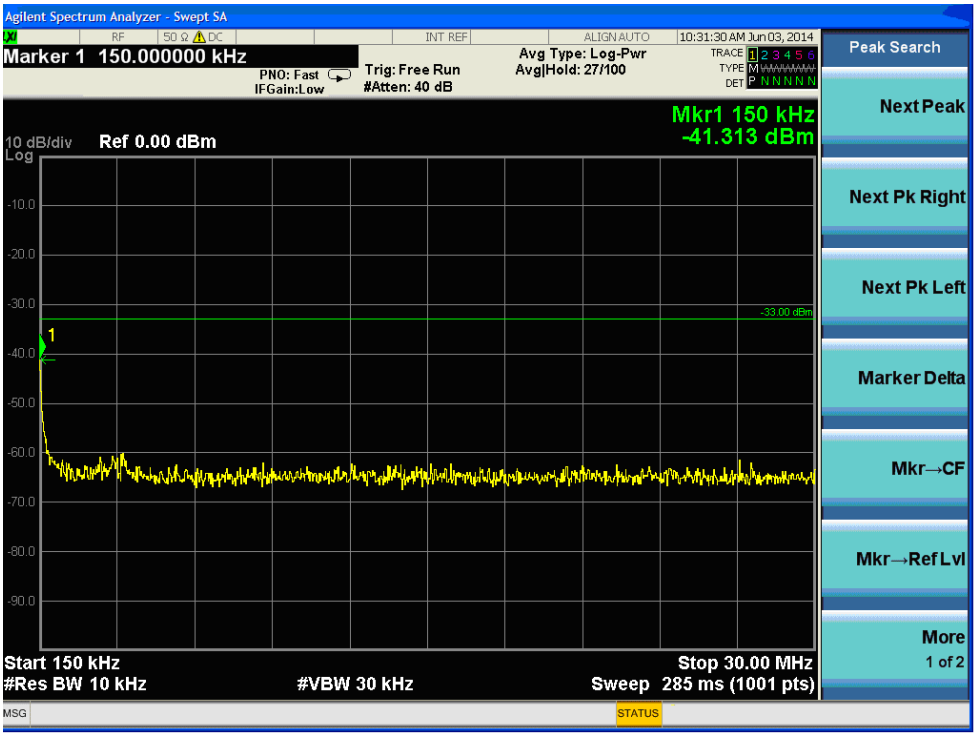


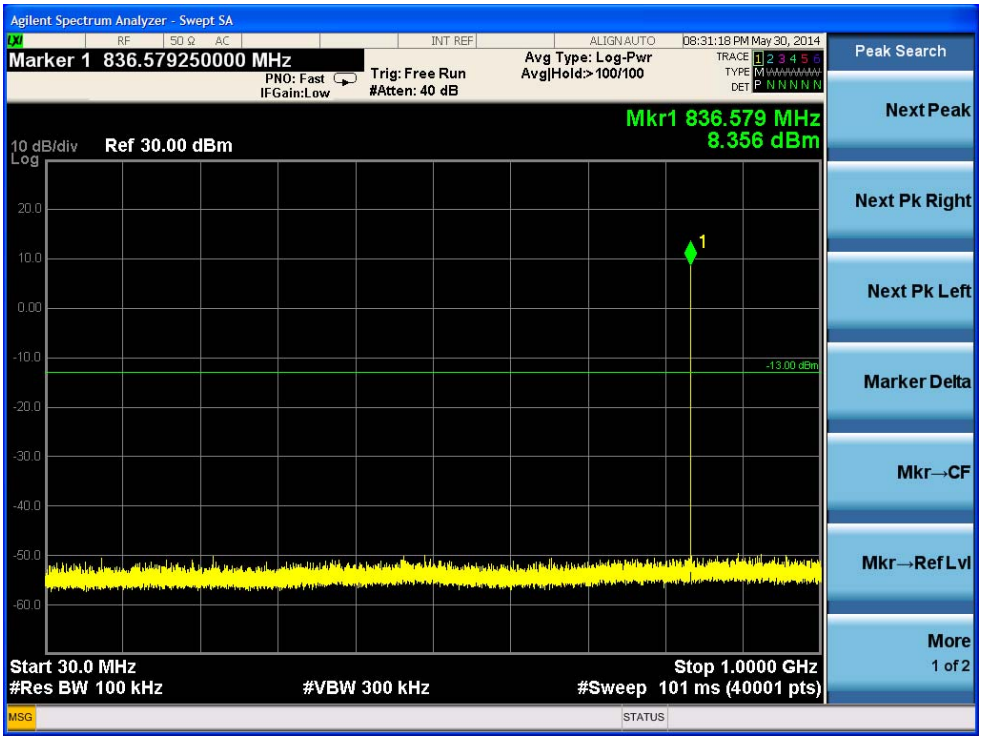

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
08:29:15 PM May 30, 2014
Marker 1 824.139000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 20/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 824.139 MHz
8.129 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
#Sweep 3.00 s (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

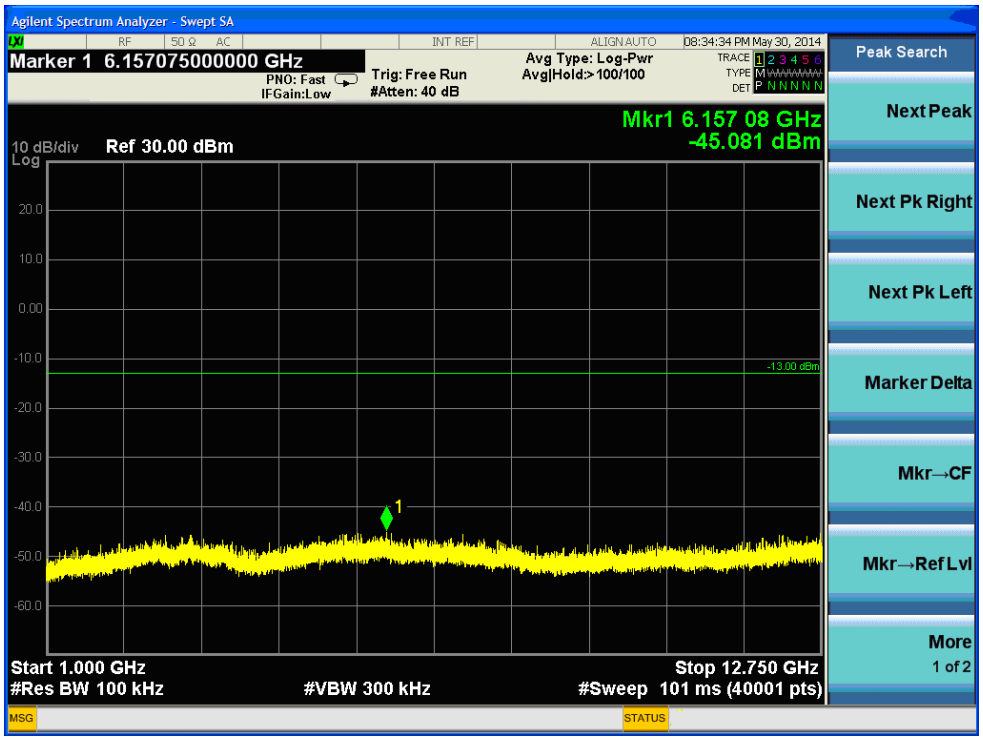

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
08:33:59 PM May 30, 2014
Marker 1 12.043531250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 71/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 12.043 53 GHz
-45.313 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Out of band measurement
Test Band = GSM/GPRS850
Test Mode = TM1
Test Channel = MCH

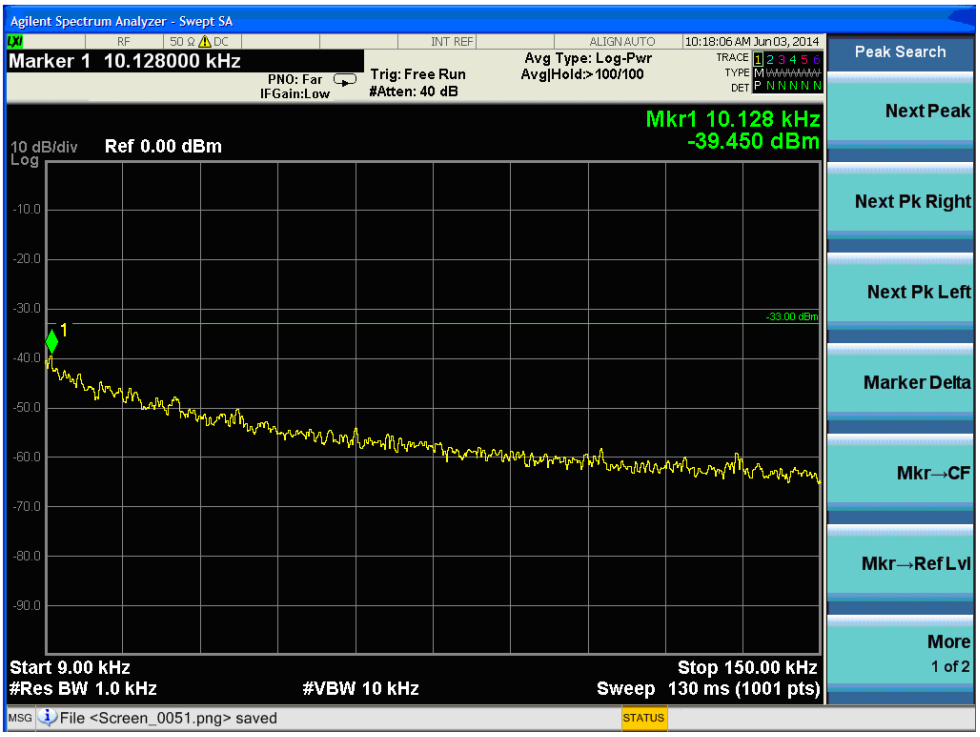


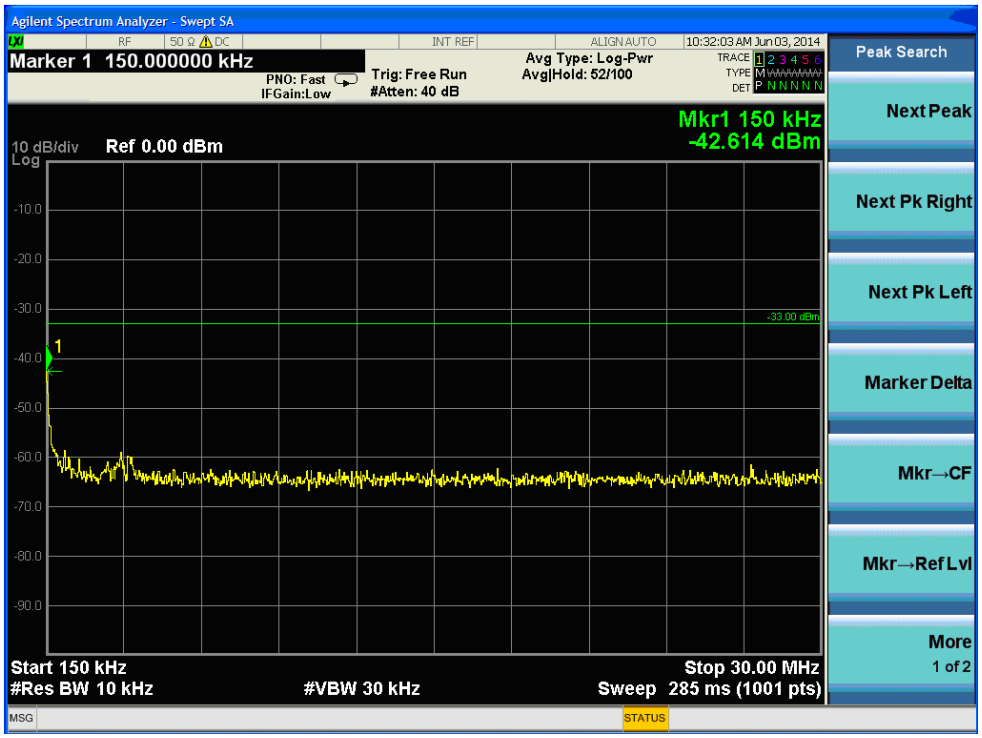


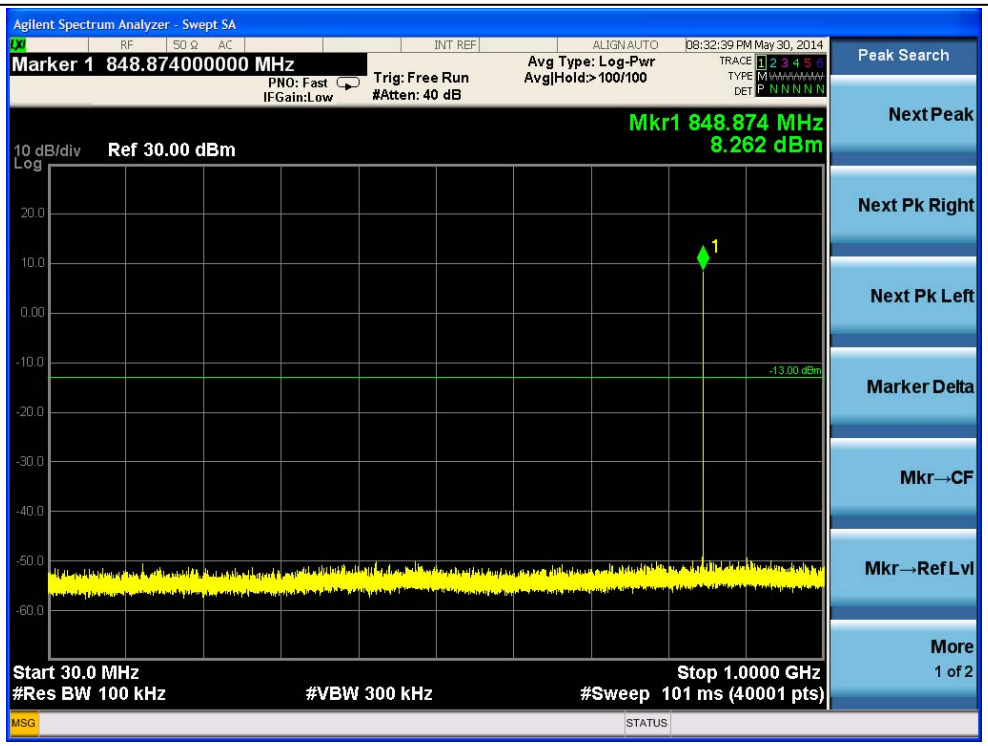

Agilent Spectrum Analyzer - Swept SA
Marker 1 836.579250000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
08:31:18 PM May 30, 2014
Mkr1 836.579 MHz
8.356 dBm
10 dB/div
Log
Ref 30.00 dBm
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
#Sweep 101 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

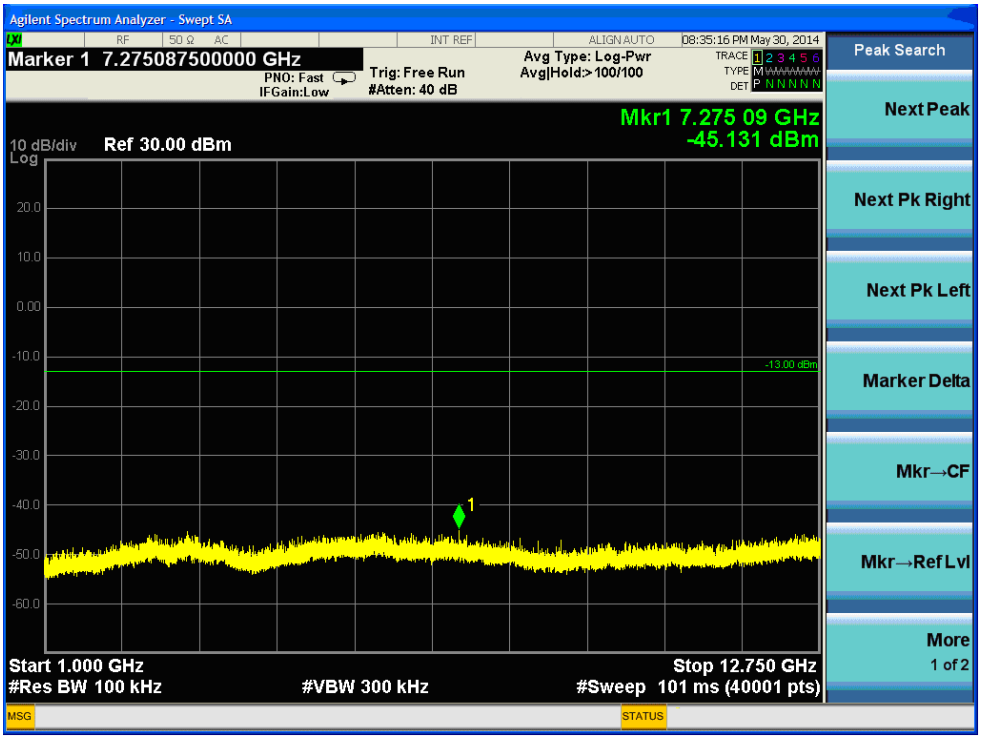

Agilent Spectrum Analyzer - Swept SA
Marker 1 6.157075000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
08:34:34 PM May 30, 2014
Mkr1 6.157 08 GHz
-45.081 dBm
10 dB/div
Log
Ref 30.00 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
#Sweep 101 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

Out of band measurement
Test Band = GSM/GPRS850
Test Mode = TM1
Test Channel = HCH

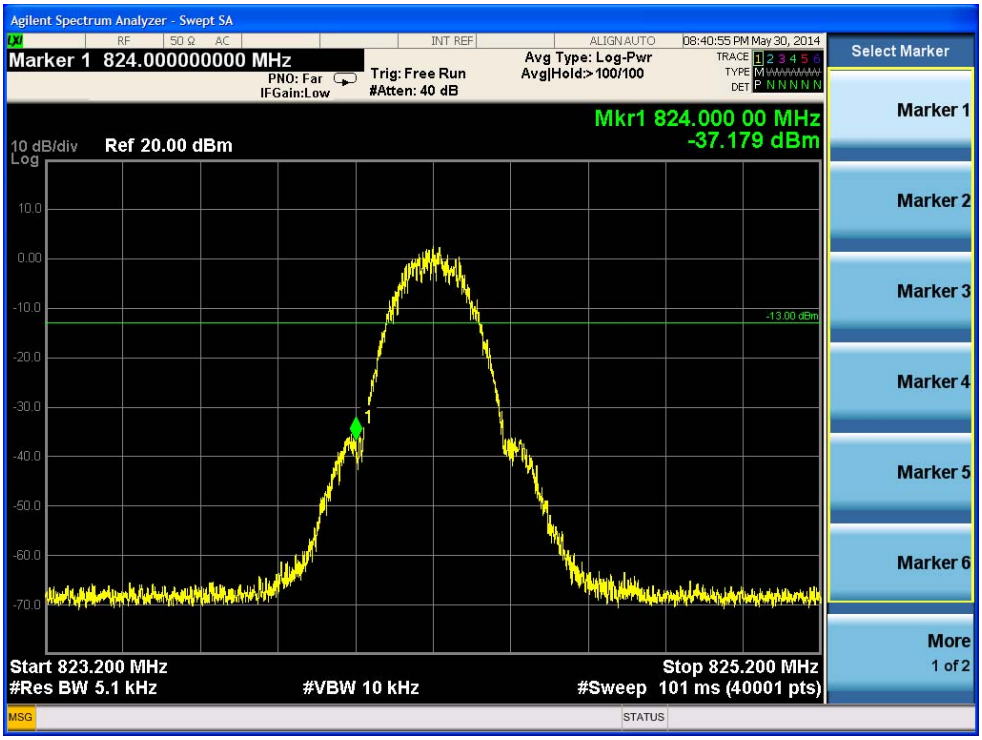


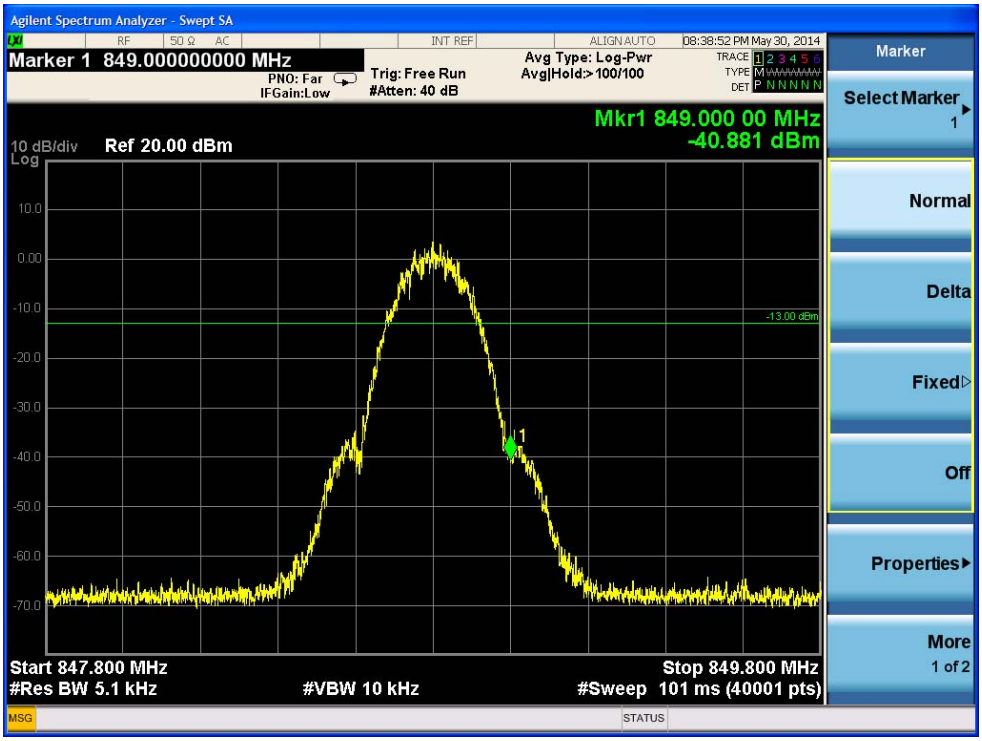



Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:32:39 PM May 30, 2014
Marker 1 848.874000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 848.874 MHz
8.262 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

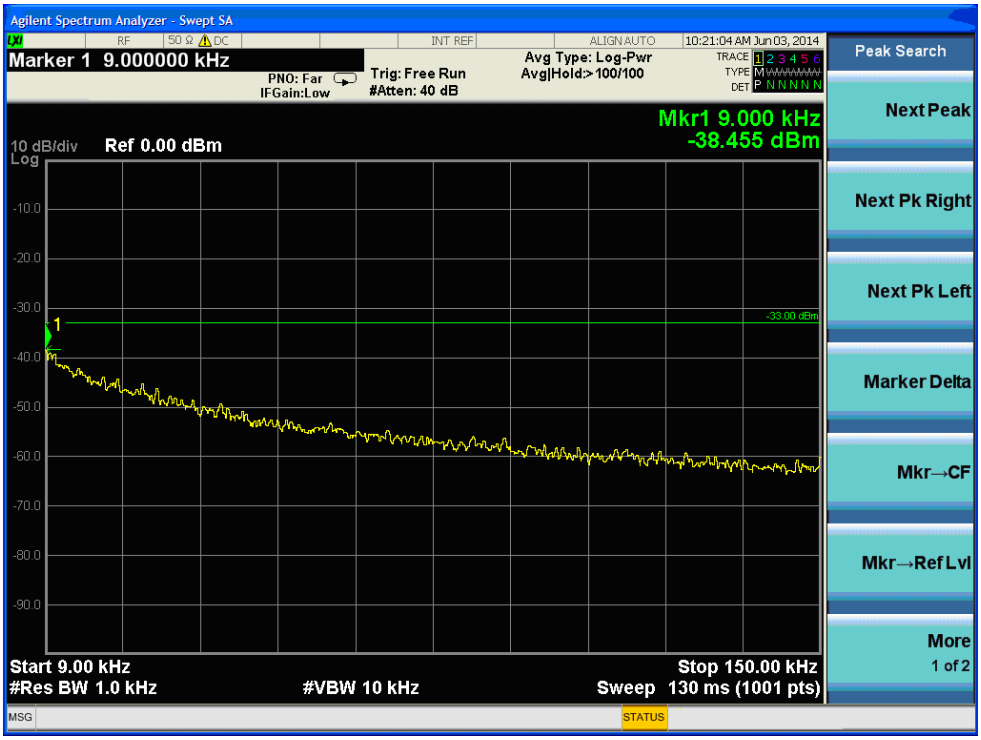

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:35:16 PM May 30, 2014
Marker 1 7.275087500000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 7.275 09 GHz
-45.131 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

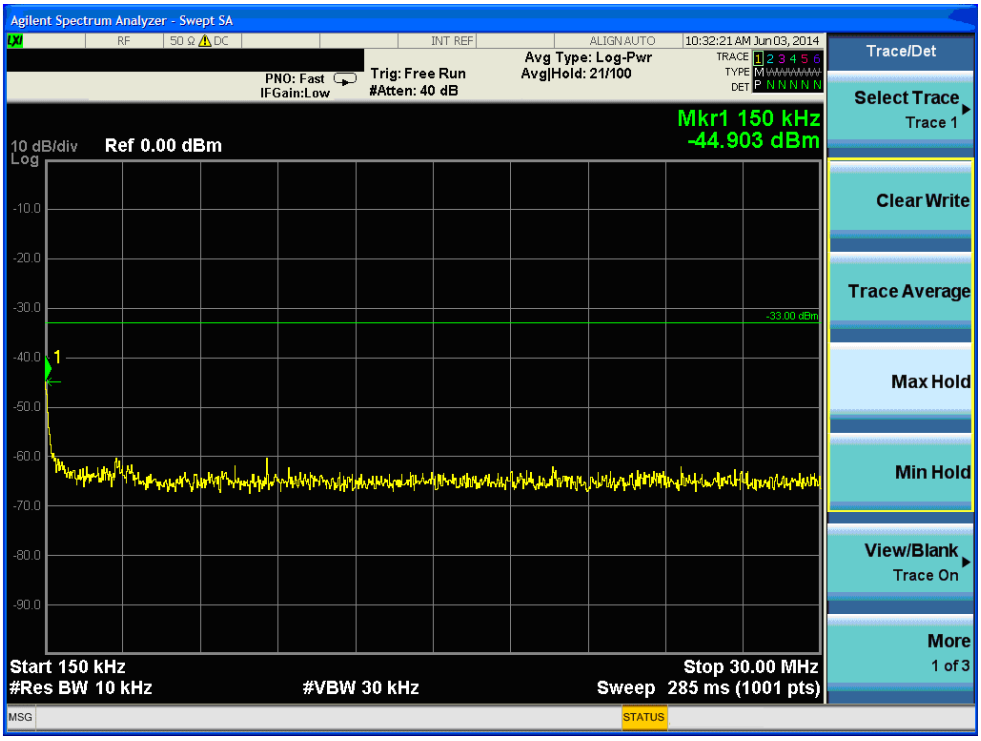
Band edge measurement
Test Band = GSM/GPRS850
Test Mode = TM1
Test Channel = LCH/HCH

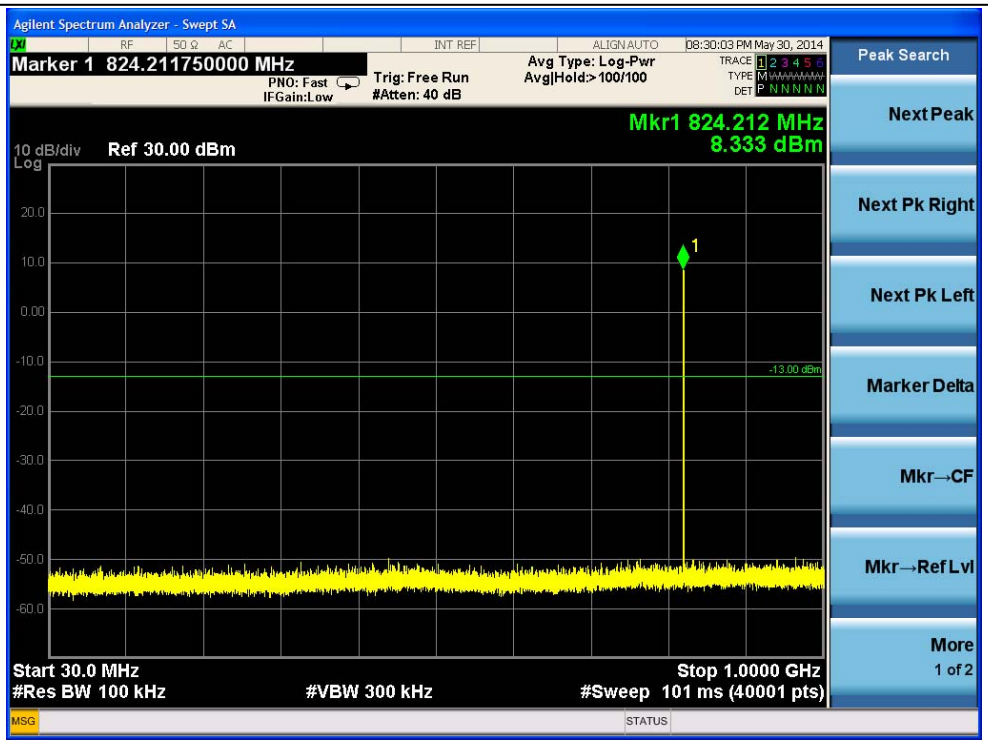


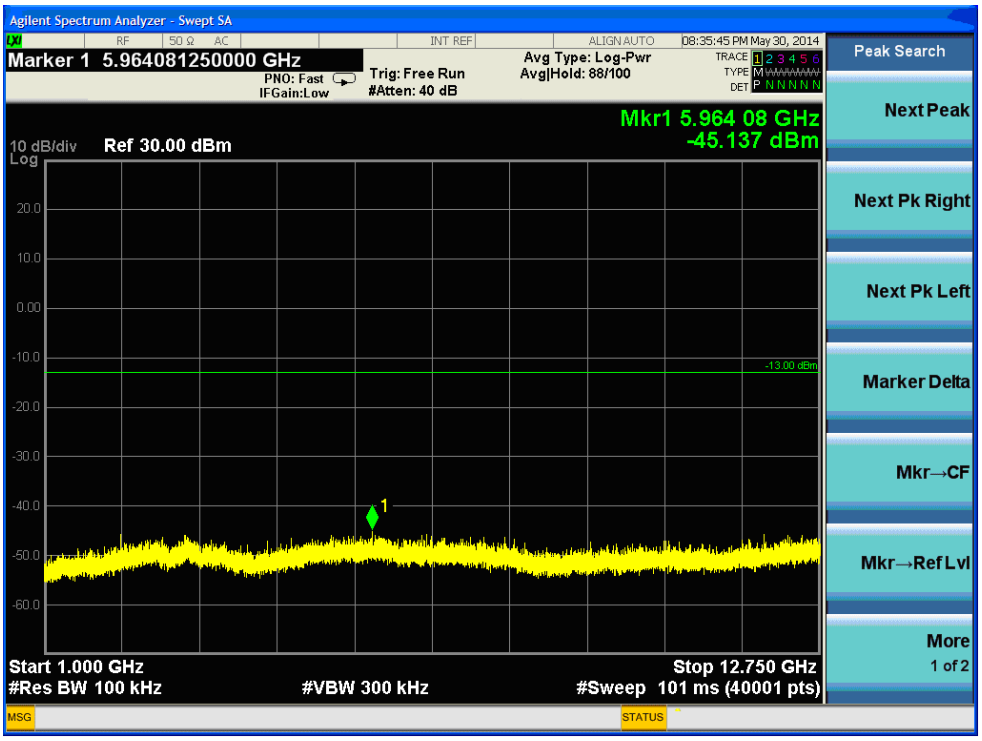


Out of band measurement
Test Band = EGPRS850
Test Mode = TM2
Test Channel = LCH

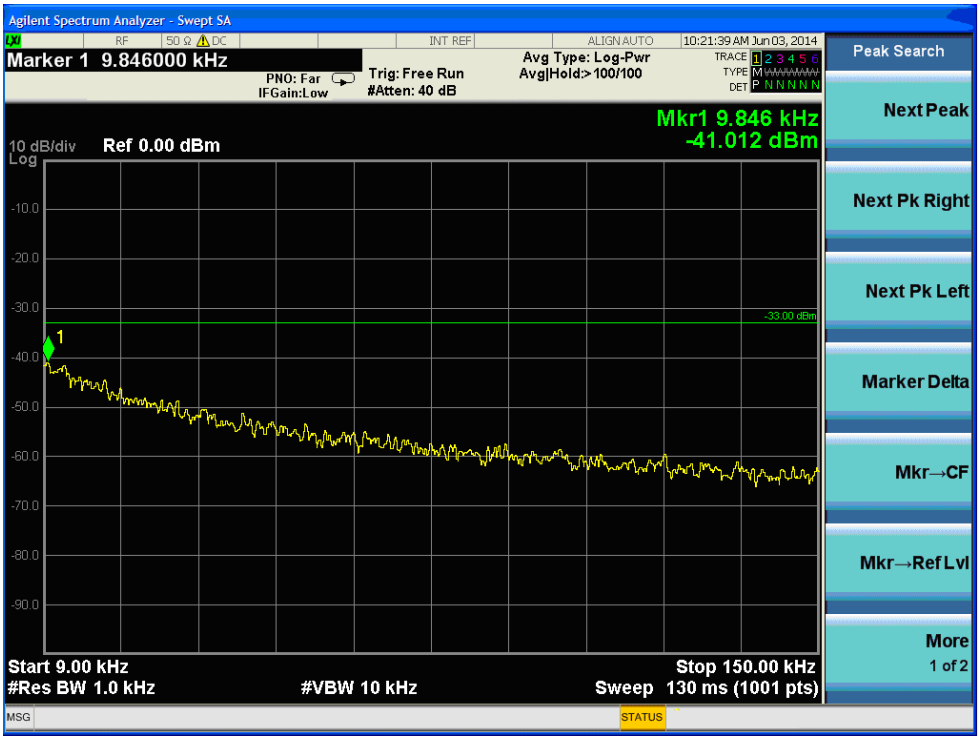


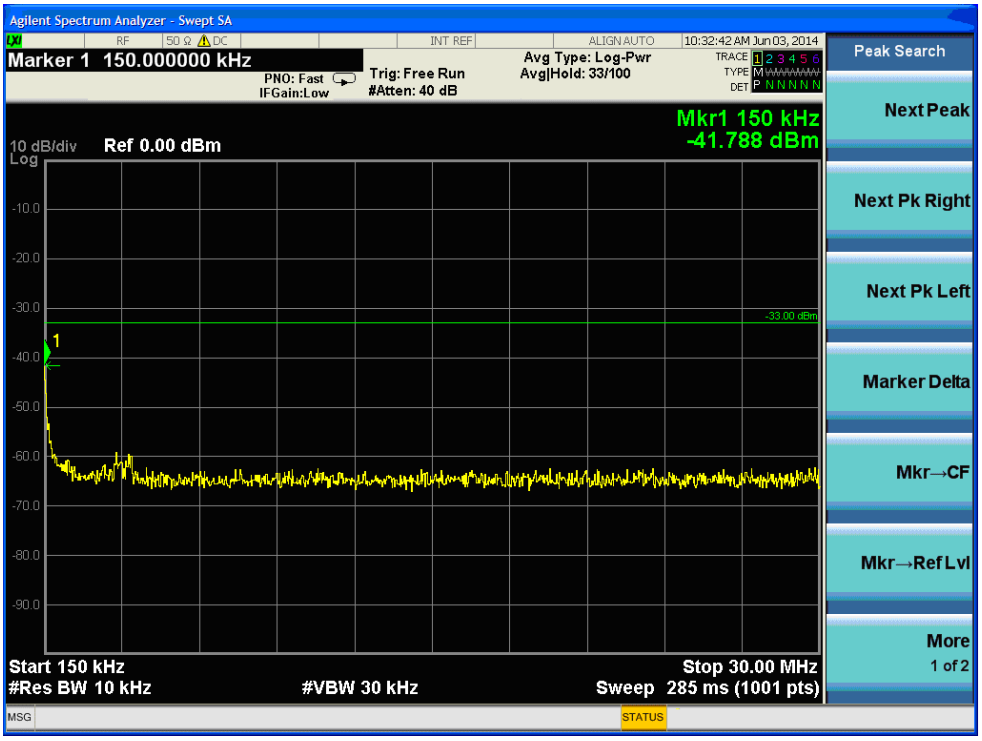


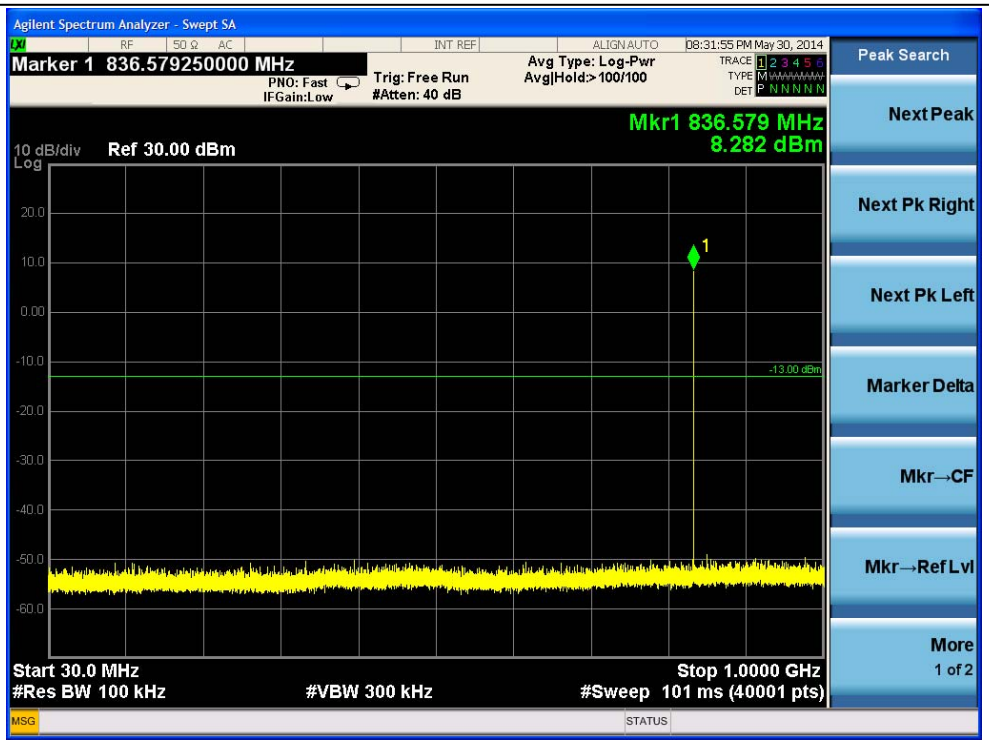

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
08:30:03 PM May 30, 2014
Marker 1 824.211750000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Mkr1 824.212 MHz
8.333 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
#Sweep 101 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

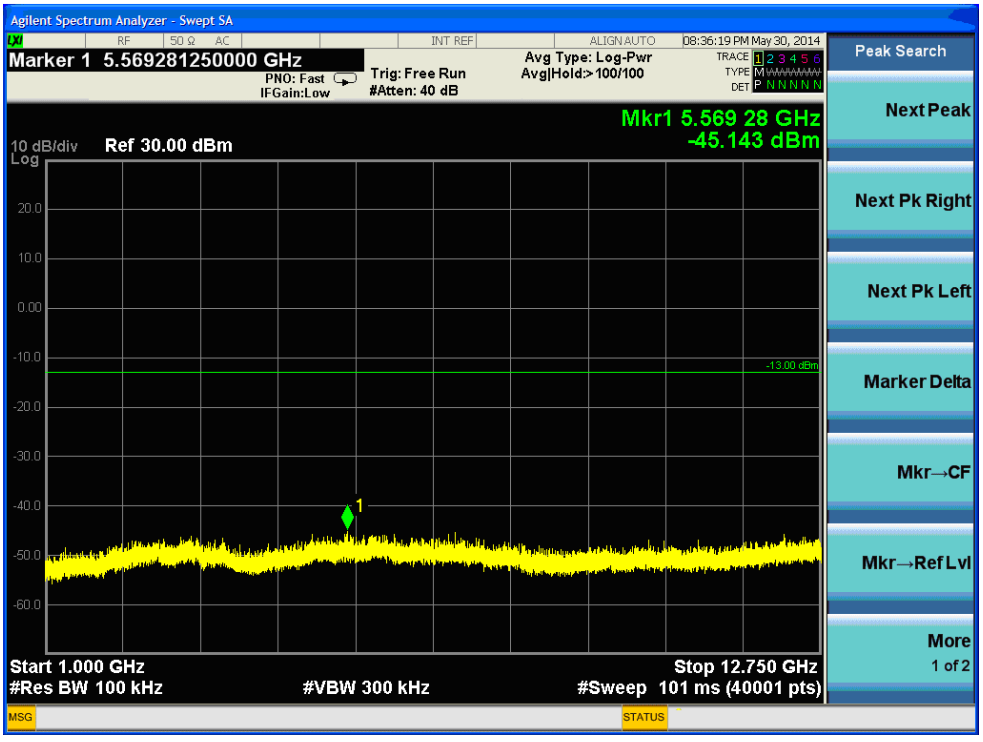

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
08:35:45 PM May 30, 2014
Marker 1 5.964081250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 88/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Mkr1 5.964 08 GHz
-45.137 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
#Sweep 101 ms (40001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

Out of band measurement
Test Band = EGPRS850
Test Mode = TM2
Test Channel = MCH

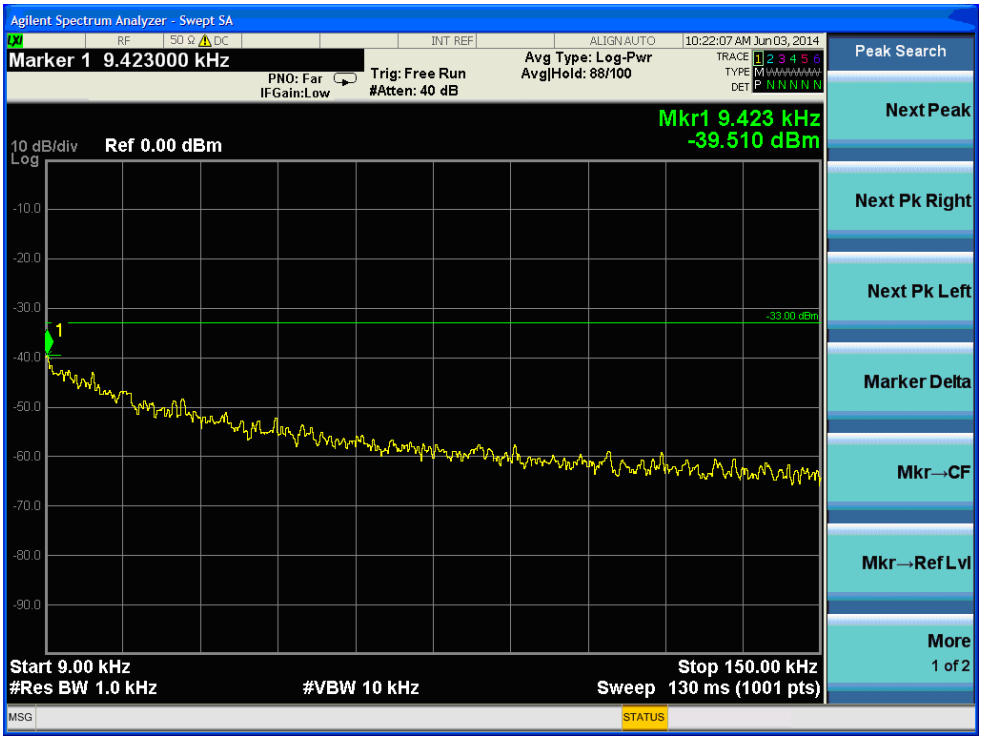


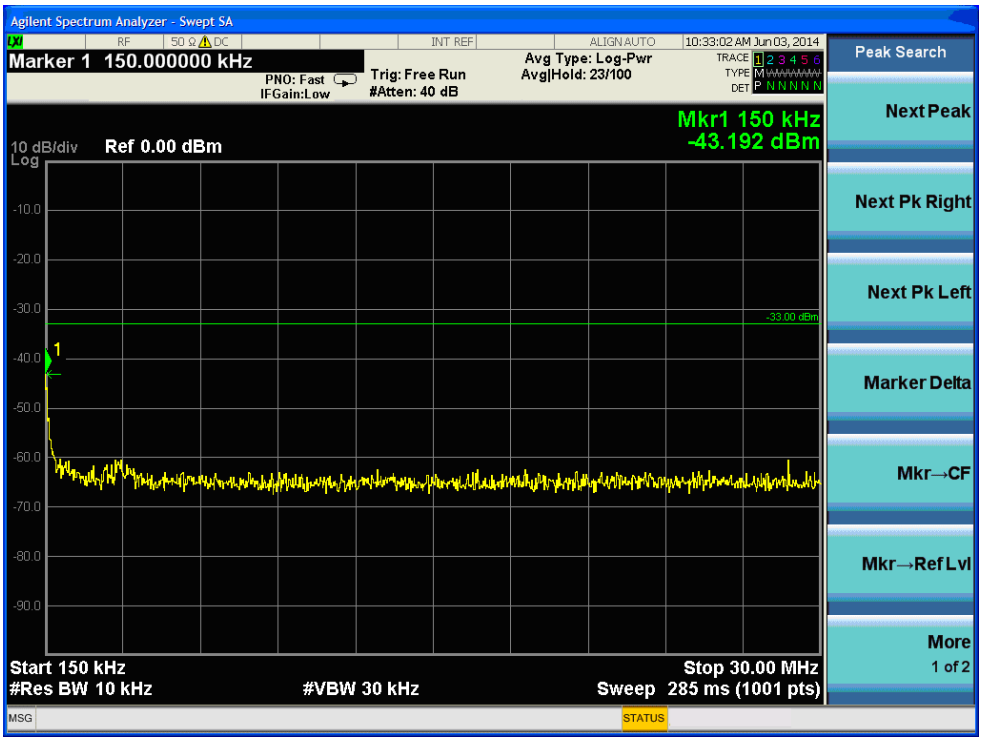


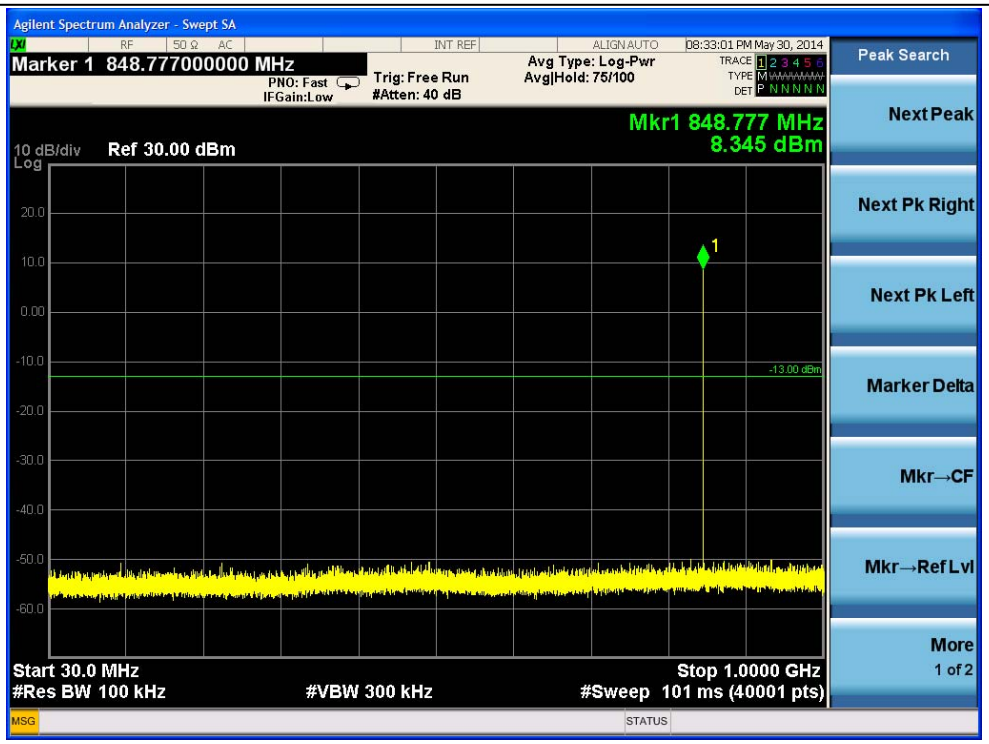

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:31:55 PM May 30, 2014
Marker 1 836.579250000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 836.579 MHz
8.282 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

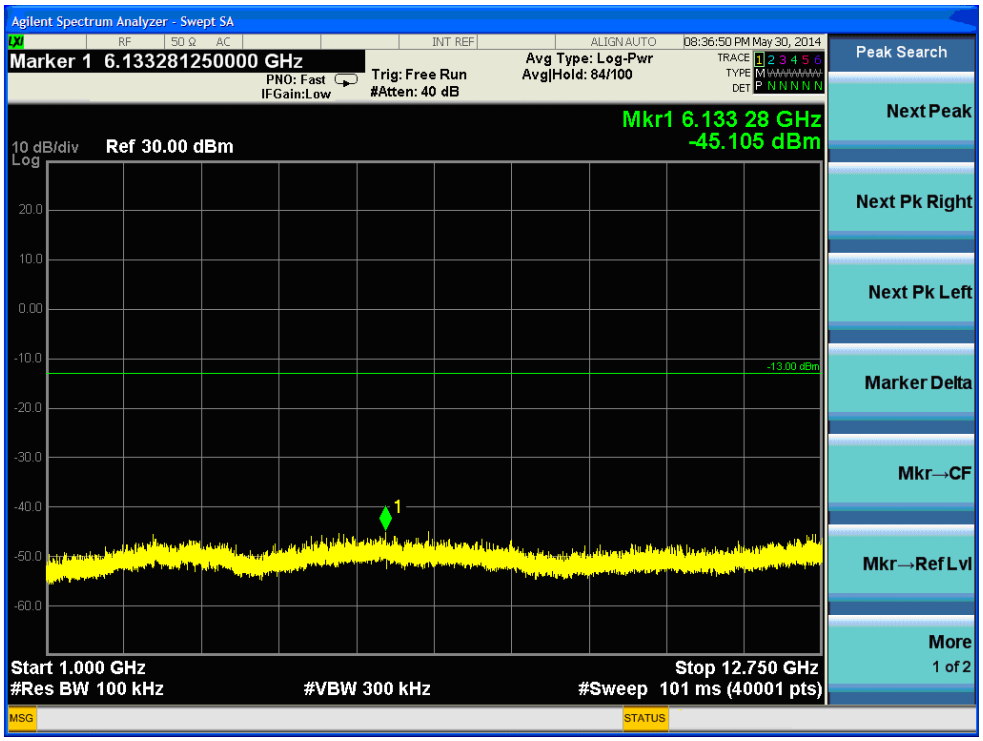

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:36:19 PM May 30, 2014
Marker 1 5.569281250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 5.569 28 GHz
-45.143 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Out of band measurement
Test Band = EGPRS850
Test Mode = TM2
Test Channel = HCH

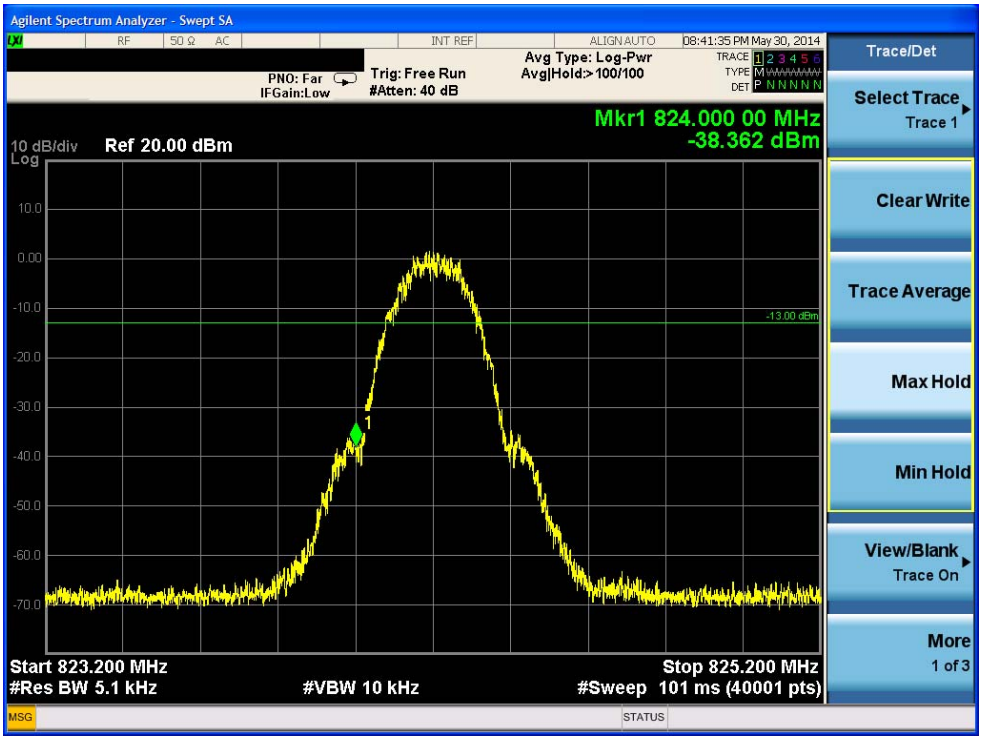


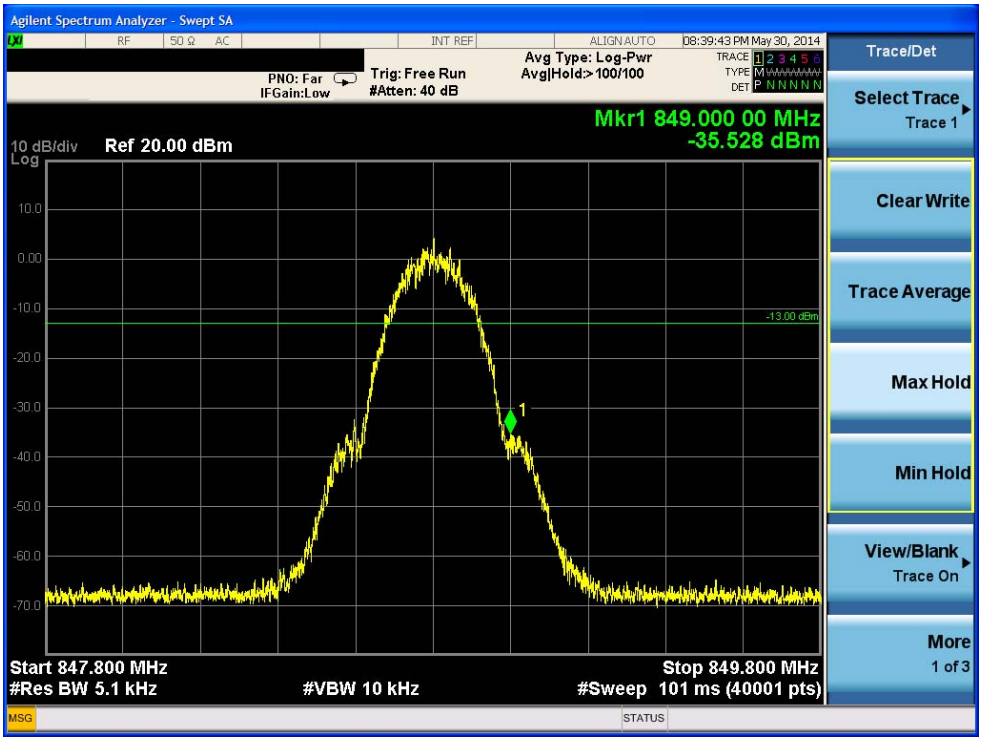



Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:33:01 PM May 30, 2014
Marker 1 848.777000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 75/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 848.777 MHz
8.345 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

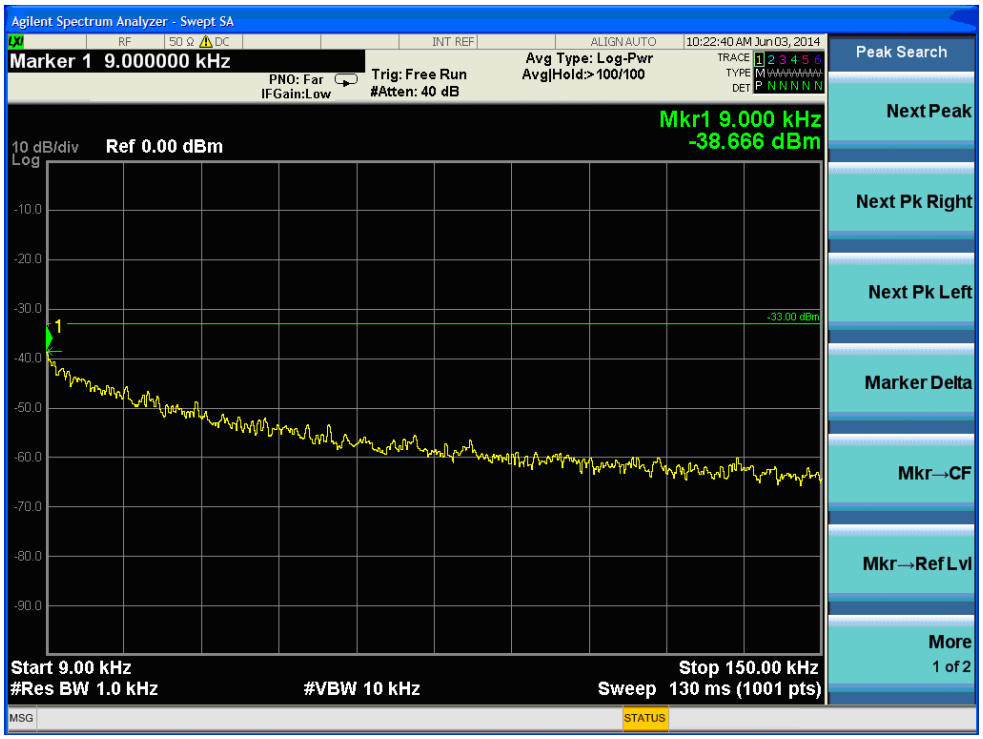

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:36:50 PM May 30, 2014
Marker 1 6.133281250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 84/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 6.133 28 GHz
-45.105 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

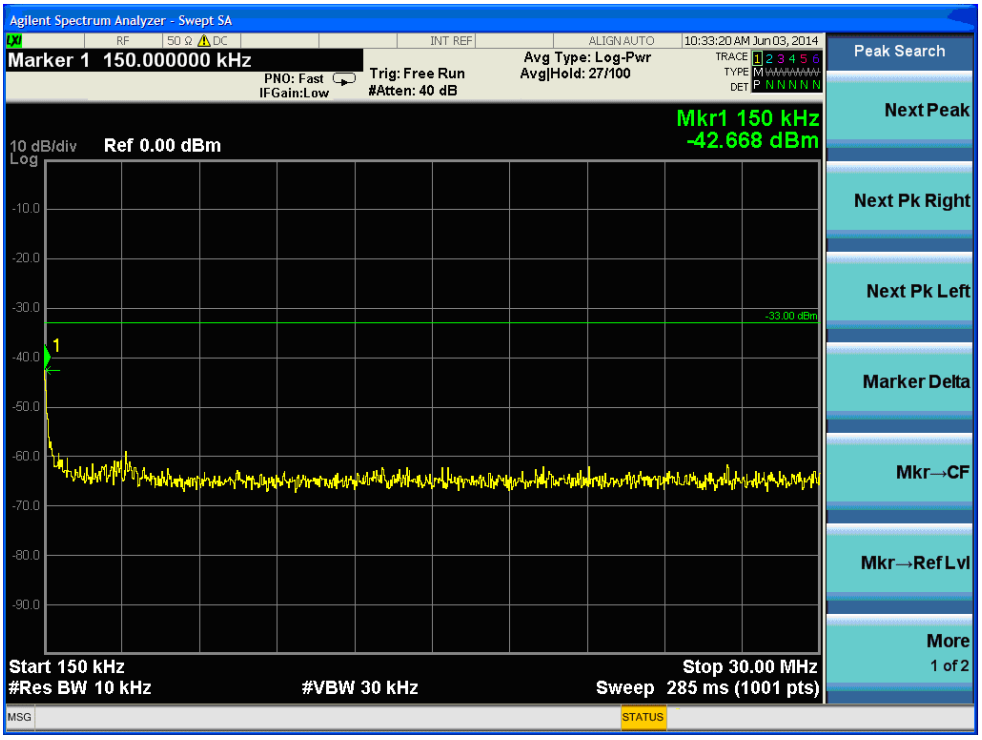
Band edge measurement
Test Band = EGPRS850
Test Mode = TM2
Test Channel = LCH/HCH

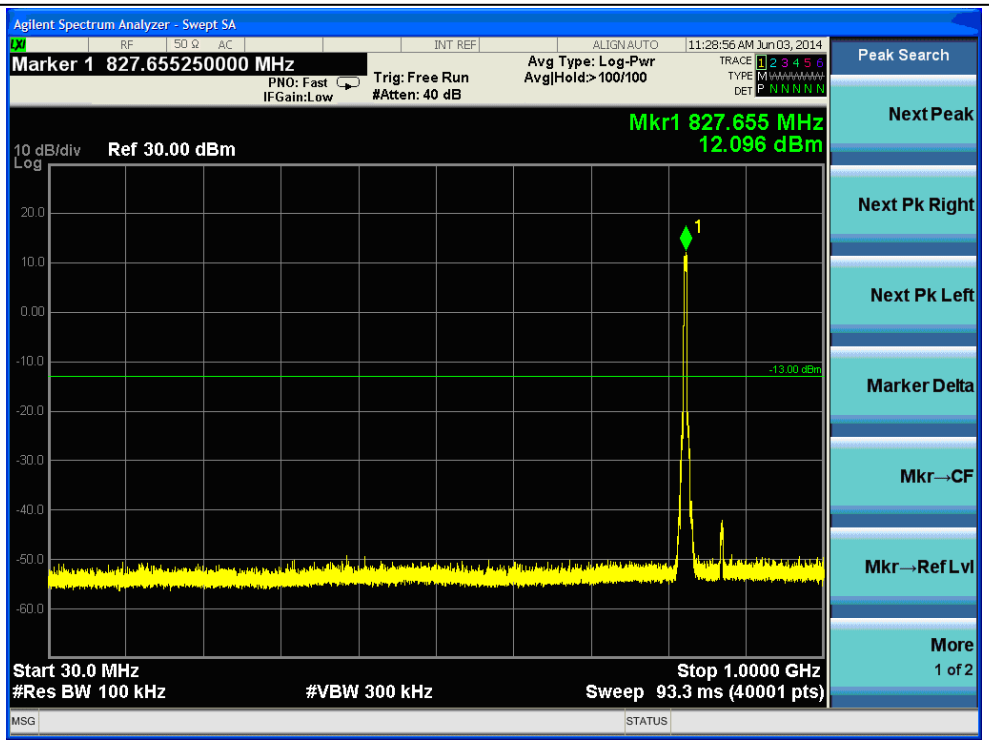


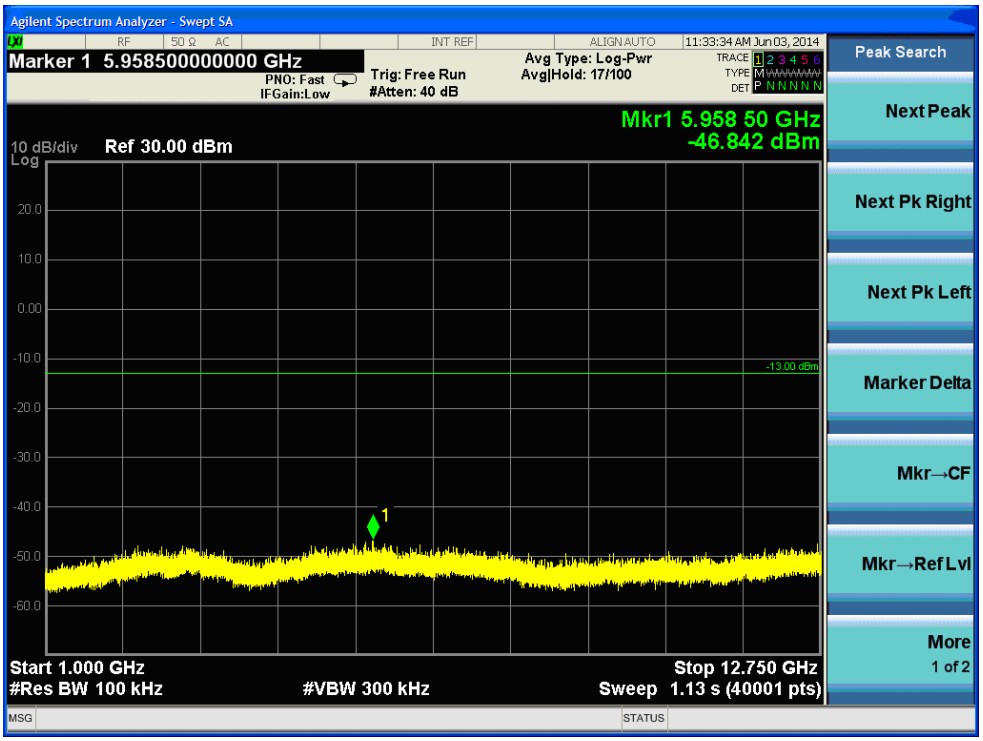


Out of band measurement
Test Band = WCDMA850
Test Mode = TM3
Test Channel = LCH

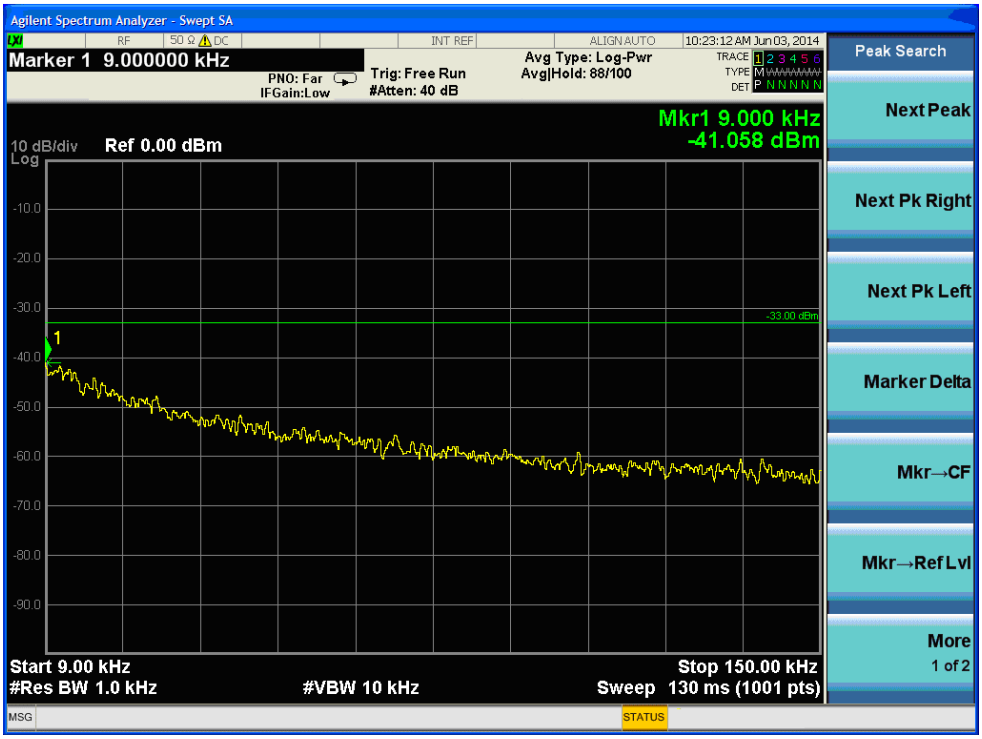


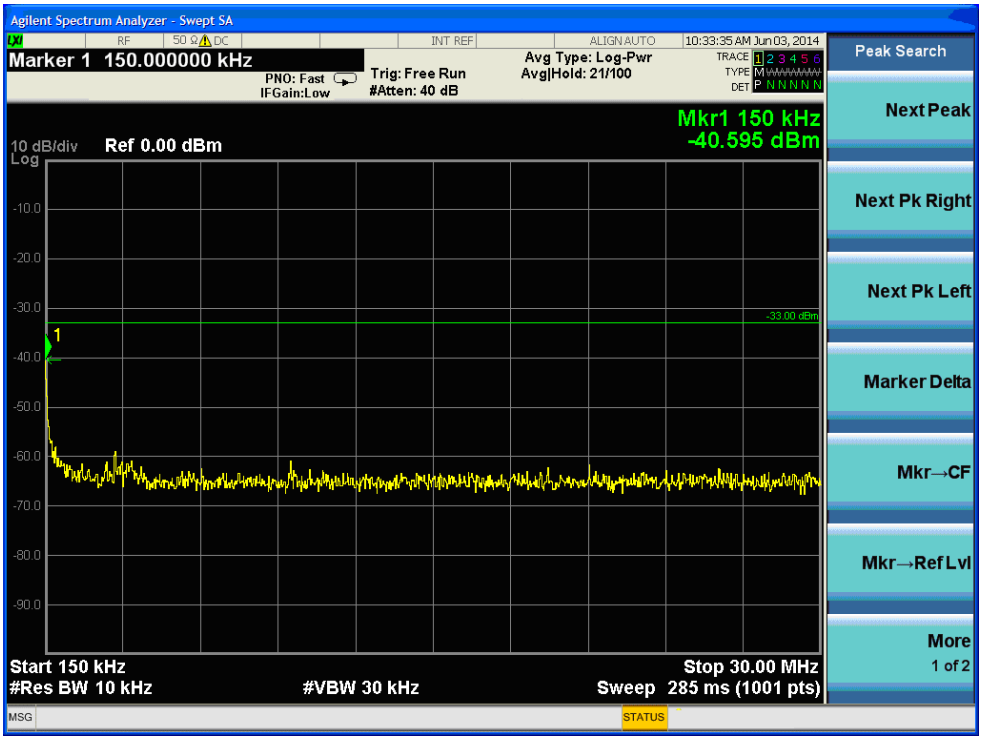


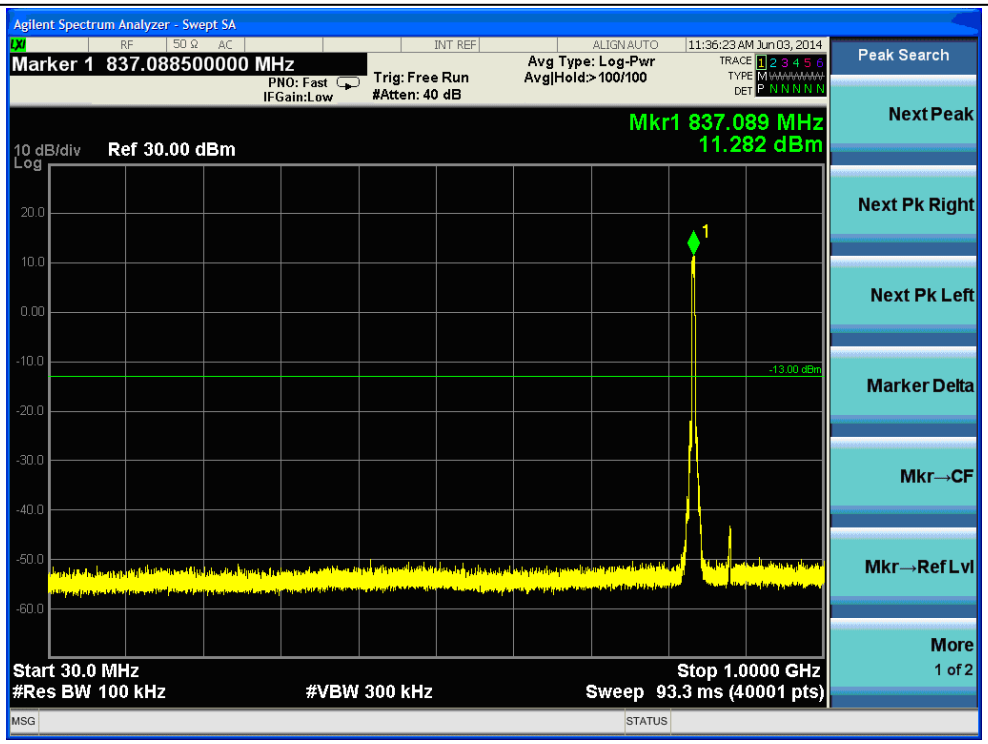

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
11:28:56 AM Jun 03, 2014
Marker 1 827.655250000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 827.655 MHz
12.096 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

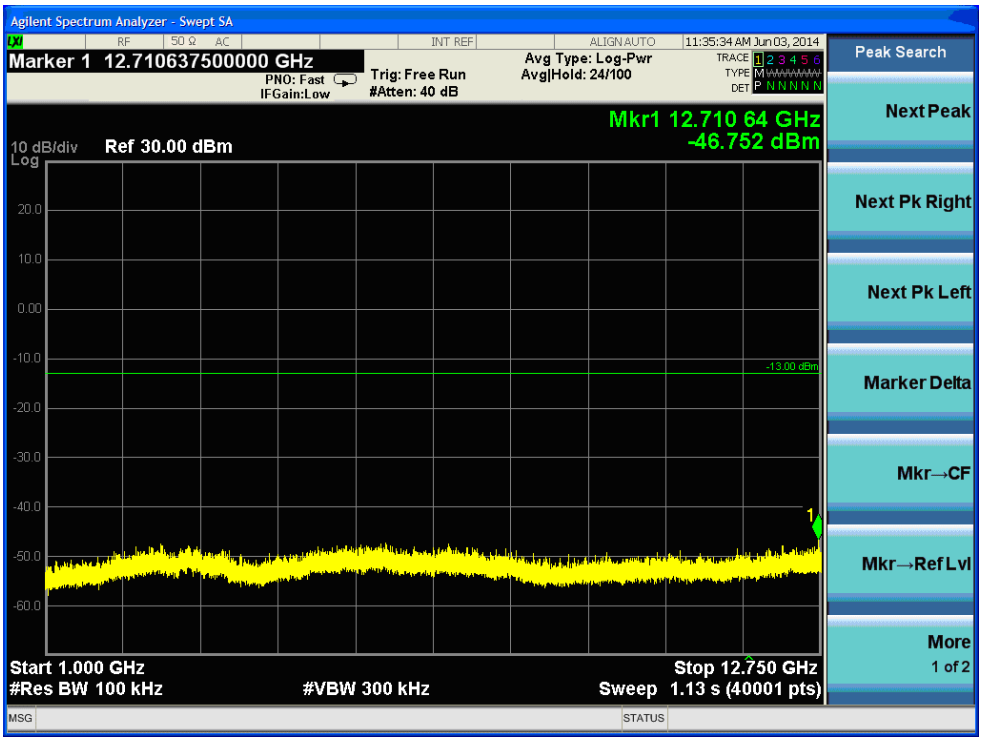

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
11:33:34 AM Jun 03, 2014
Marker 1 5.958500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 17/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 5.958 50 GHz
-46.842 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Out of band measurement
Test Band = WCDMA850
Test Mode = TM3
Test Channel = MCH

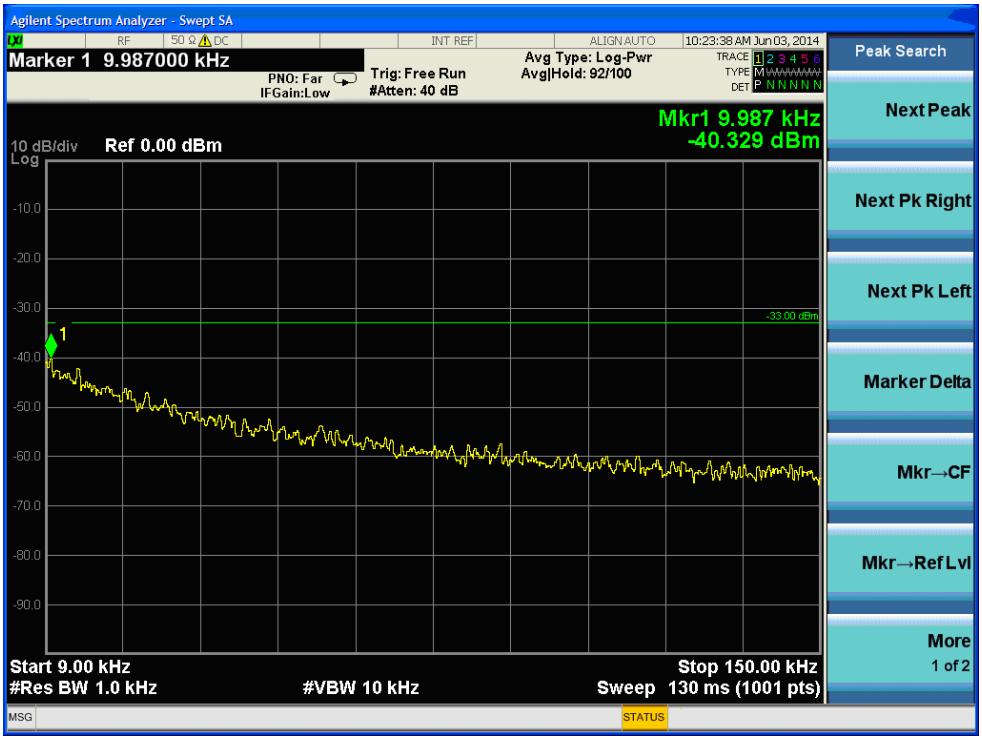


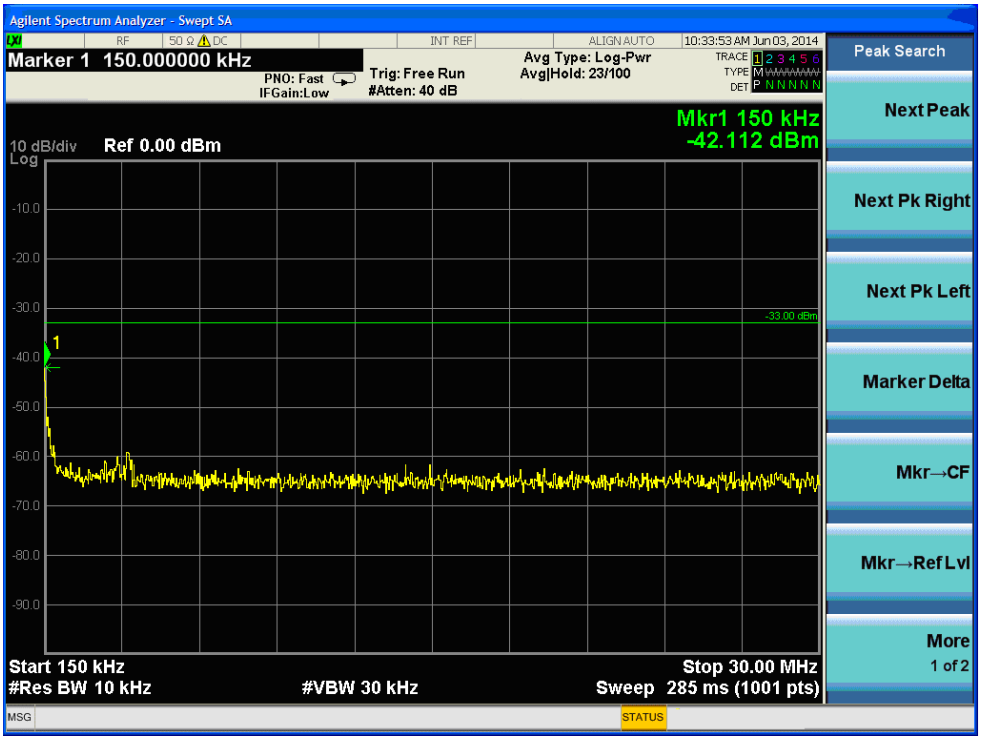


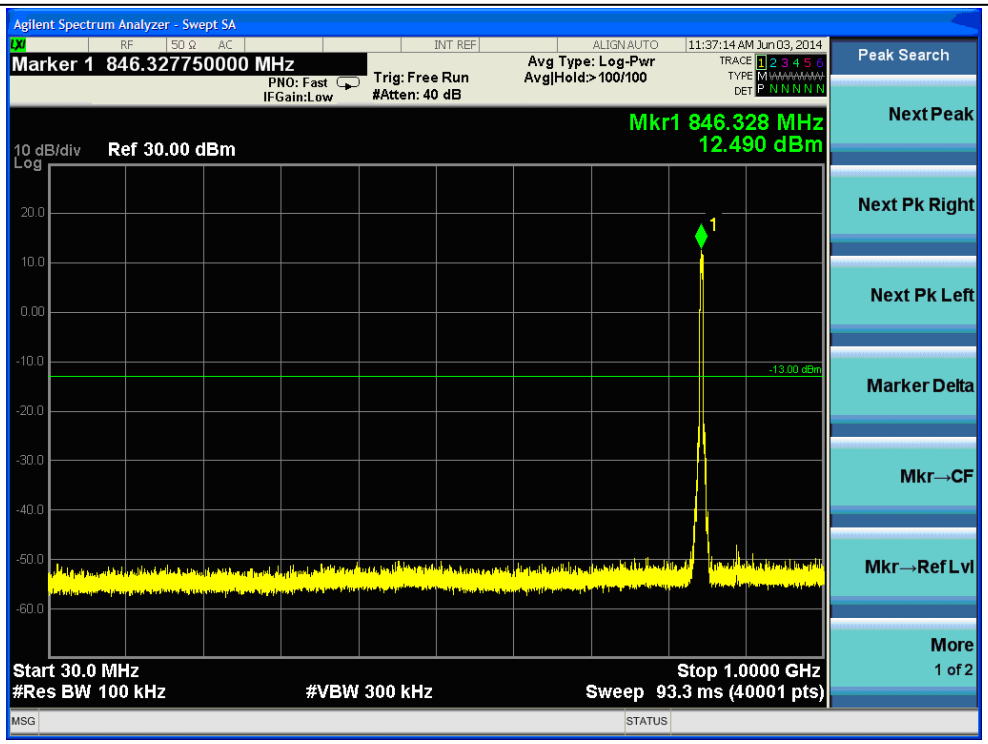

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
11:36:23 AM Jun 03, 2014
Marker 1 837.088500000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 837.089 MHz
11.282 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

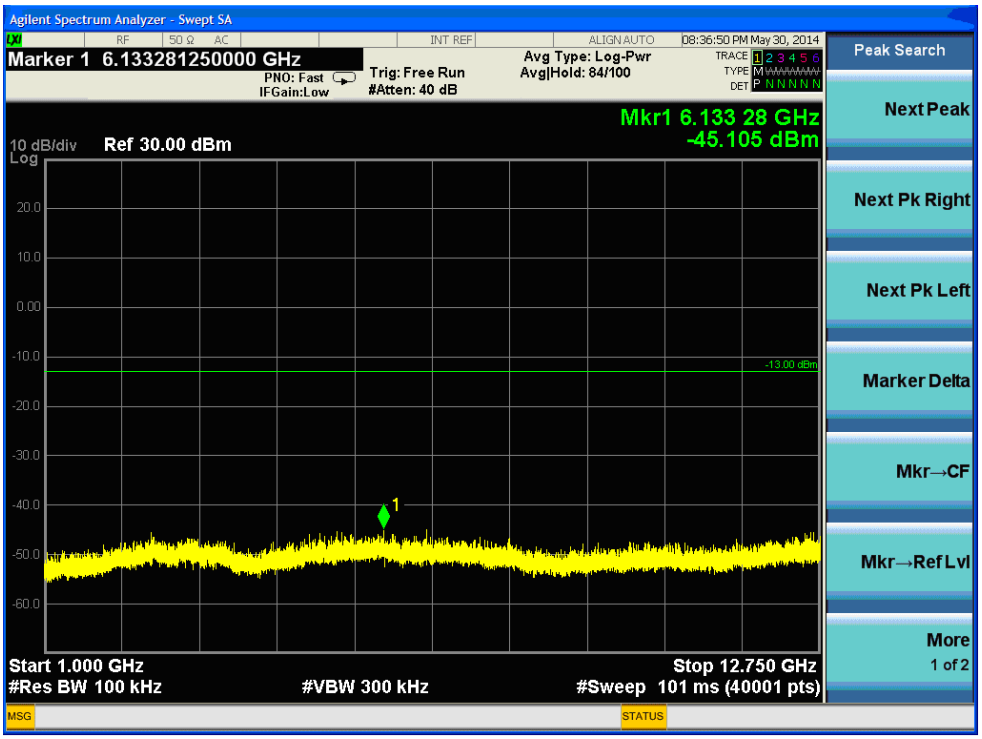

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
11:35:34 AM Jun 03, 2014
Marker 1 12.710637500000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 24/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 12.710 64 GHz
-46.752 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Out of band measurement
Test Band = WCDMA850
Test Mode = TM3
Test Channel = HCH

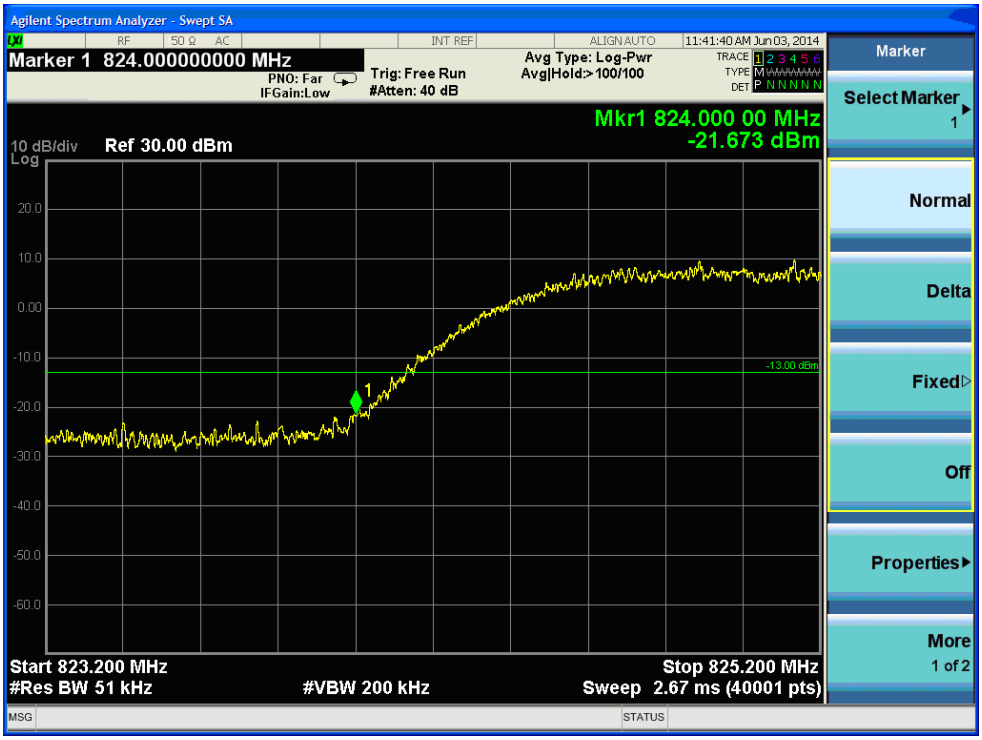


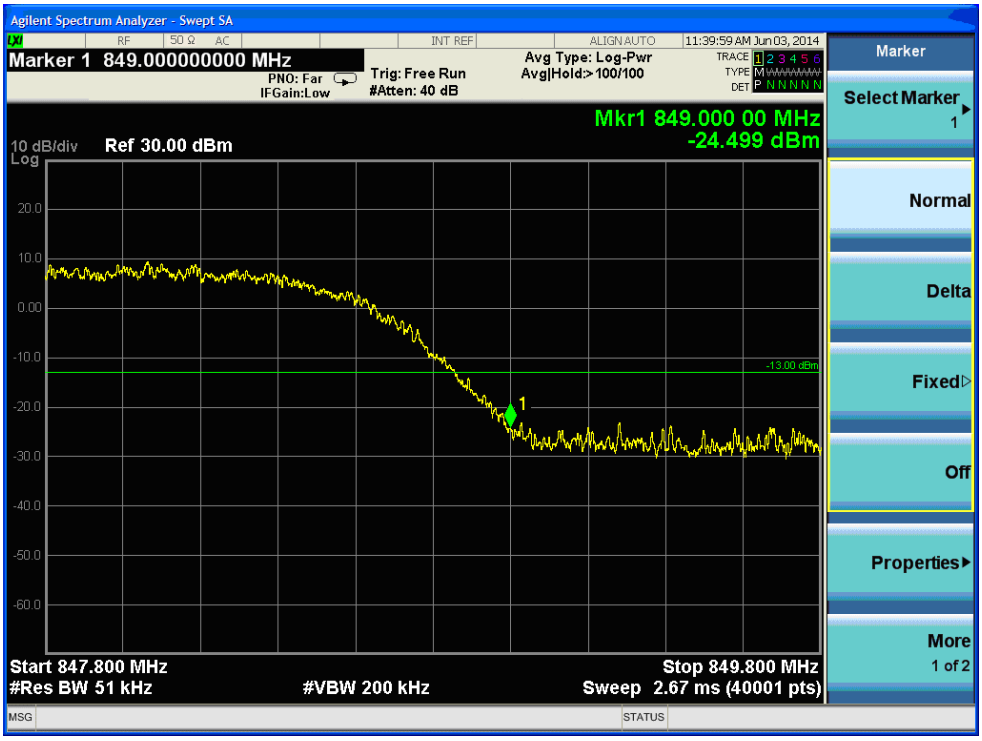



Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
11:37:14 AM Jun 03, 2014
Marker 1 846.327750000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 846.328 MHz
12.490 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

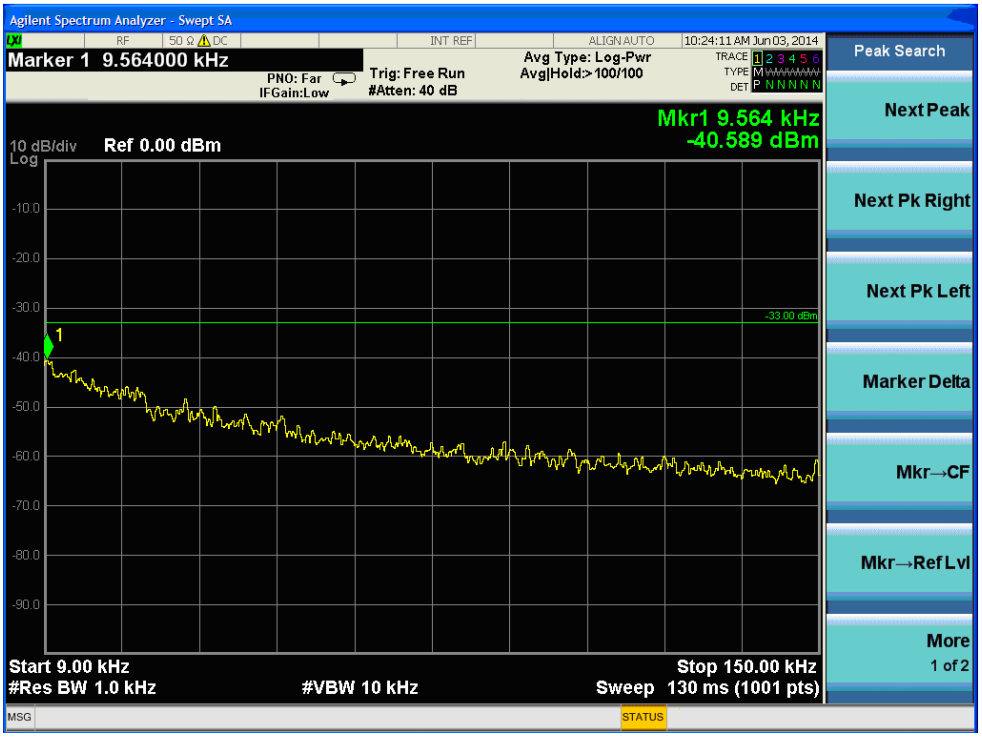

Agilent Spectrum Analyzer - Swept SA
RF
50 Ω AC
INT REF
ALIGN AUTO
08:36:50 PM May 30, 2014
Marker 1 6.133281250000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 84/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 6.133 28 GHz
-45.105 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
#Sweep 101 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

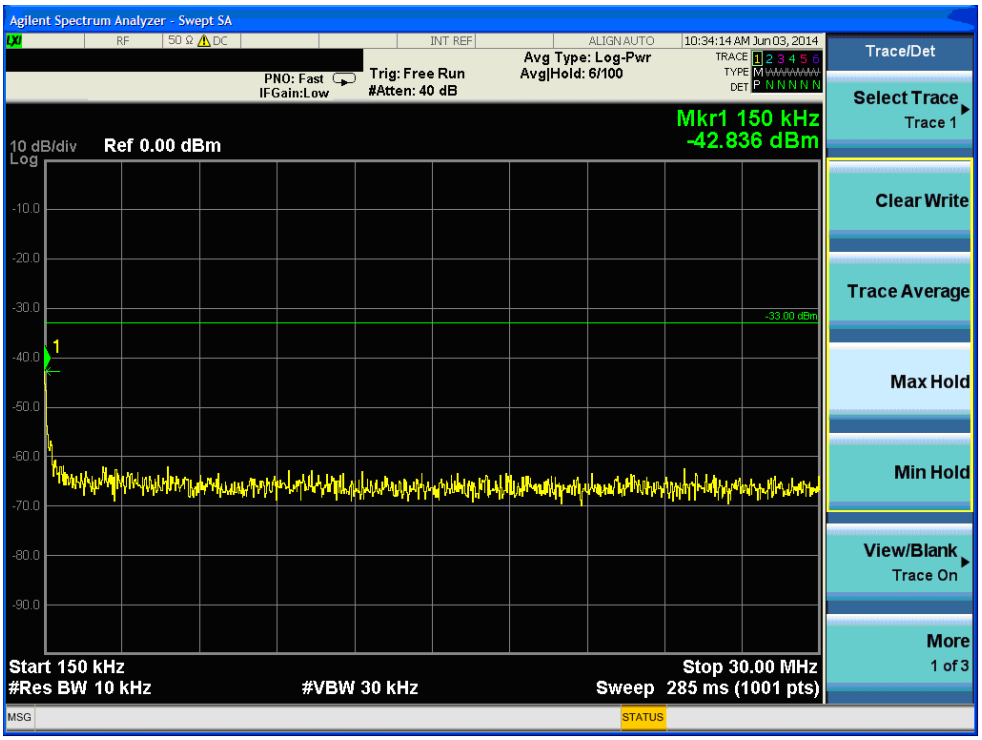
Band edge measurement
Test Band = WCDMA850
Test Mode = TM3
Test Channel = LCH/HCH

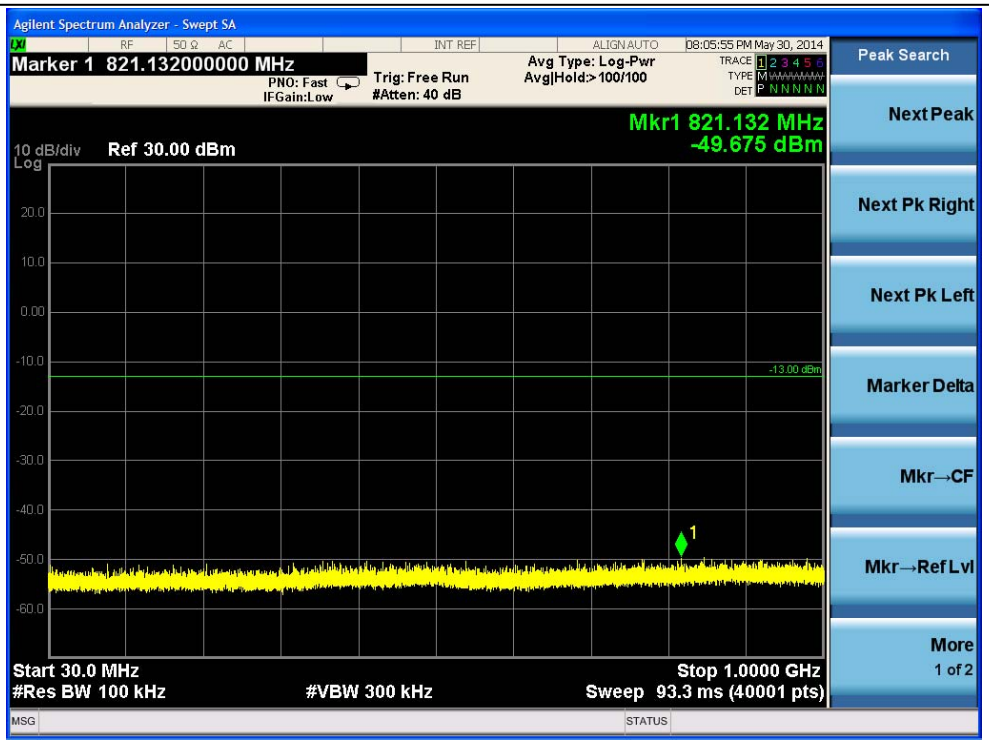


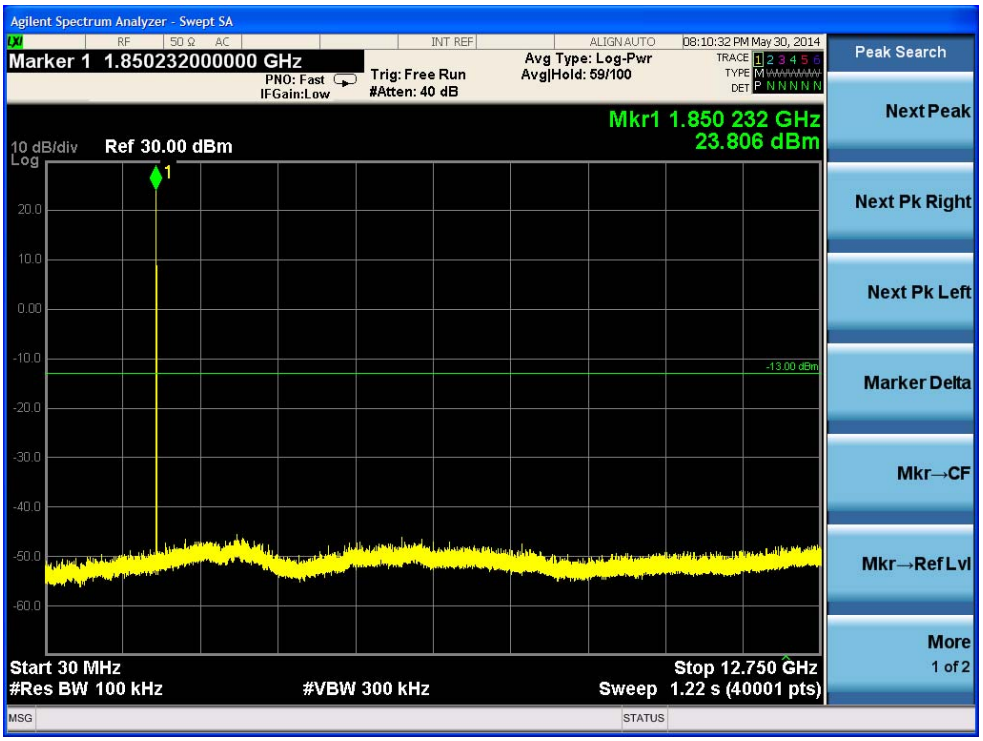


Out of band measurement
Test Band = GSM/GPRS1900
Test Mode = TM1
Test Channel = LCH






Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:05:55 PM May 30, 2014
Marker 1 821.132000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 821.132 MHz
-49.675 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
INT REF
ALIGN AUTO
08:10:32 PM May 30, 2014
Marker 1 1.850232000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 59/100
TRACE 1 2 3 4 5
TYPE M
DET P N N N N N
Mkr1 1.850 232 GHz
23.806 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
1
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.22 s (40001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2