FCC
MEASUREMENT AND TEST REPORT
For
ZTE Corporation

ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen,
Guangdong, China 518057

FCC ID: Q78-R8860EGU858

Feb 23, 2011

This Report Concerns: ☒ Original Report	**Equipment Type:** GSM/UMTS Dual Mode Remote Radio Unit

Test Engineer: Bloom

Report No.: FCC-2011-001

Test Date: Nov ,28 – Feb 22, 2011

Reviewed By: Xie Yuming

Prepared By: ZTE Corporation.

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1 GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The ZTE Corporation's product, model number: ZXSDR R8860E GU858 or the "EUT" as referred to in this report is a dual-mode RF remote unit. It adopts the multi-carrier technology as its core technology and supports two radio systems: GSM and UMTS.R8860E GU858 can be used as an independent RRU for GSM or an independent RRU for UMTS, and it works with BBU to form the dual-mode base station.

Technical specification:
Size: 370 mm × 320 mm × 197 mm (H x W x D)
Input voltage: -57 ~ - 37VDC
Frequency range: 869MHz to 894MHz,
(Bottom frequency is about 871.6MHz, Middle frequency is about 881.4MHz,Top frequency is about 891.4MHz).
Max RF output power: 49dBm, except GSM (8PSK modulation) :47dBm
Gain of the antenna: 18dBi
Modulation type of emission: UMTS 4 Carriers; GSM 6 TRX; 4 GSM TRX and 1 UMTS carriers or 2 GSM TRX and 2 UMTS carriers
Appearance of EUT:

Objective

This Type approval report is prepared on behalf of ZTE Corporation in accordance with Part 2、Part 15、Part 22 of the Federal Communication Commissions rules.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2. as well as the following parts:
Part 24 Wireless Communication Services
Applicable Standards: TIA EIA 137-A, TIA EIA 97-D, TIA/EIA 603-C, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.
All radiated and conducted measurement was performed at ZTE Corporation Reliability Testing Center. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

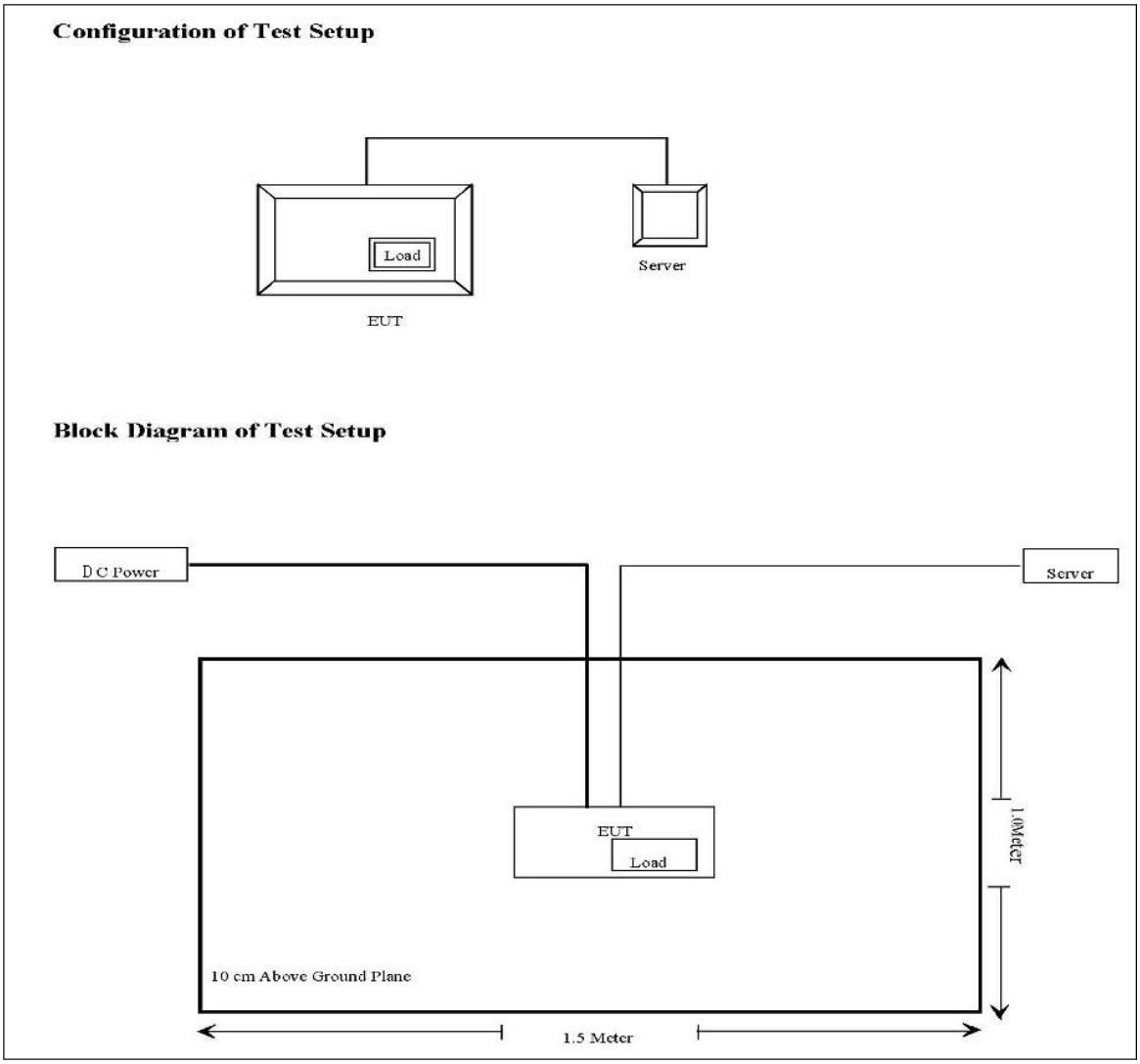
Test Facility

The Test site Registration Number: 373926, used by ZTE Corporation to collect test data is located in the 1/F, B2 Wing, ZTE plaza, Keji Road South Hi-Tech industrial park, Shenzhen, Guangdong, 518057, P.R.China，Tel: +86-755-26771609，Fax: +86-755-26770347. Test site at ZTE Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.
The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 0007895832. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

2 SYSTEM TEST CONFIGURATION

Description of Test Configuration

Justification
The EUT was configured for testing according to TIA/ELA-603C.
The final qualification test was performed with EUT operating at normal mode.
Equipment Modifications
ZTE Corporation has not done any modification on the EUT.



3 UMTS OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1046 §22.913	Transmitter output Power	Compliant
§2.1091 §1.1037	RF Exposure	Compliant
§2.1053	Spurious Radiated Emissions	Compliant
§2.1051, §22.917	Spurious Emissions AT Antenna Terminals	Compliant
§2.1049 §22.917	Occupied Bandwidth	Compliant
§2.1051	Band Edge	Compliant
§ 2.1055	Frequency stability	Compliant

3.1 TRANSMITTER OUTPUT POWER

Applicable Standard： FCC §2.1046 §22.913

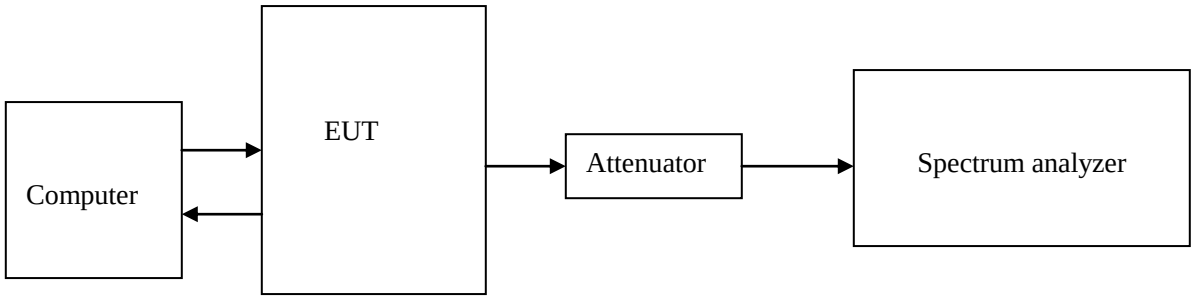
According to FCC §2.1046 &22.913, the ERP(equivalent isotropically radiated power) must not exceed 500 Watts.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2010-4-10	2011-4-9
DTS	DTS100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure



The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. External attenuation Loss is 40dB, Cable Loss is about 3dB

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

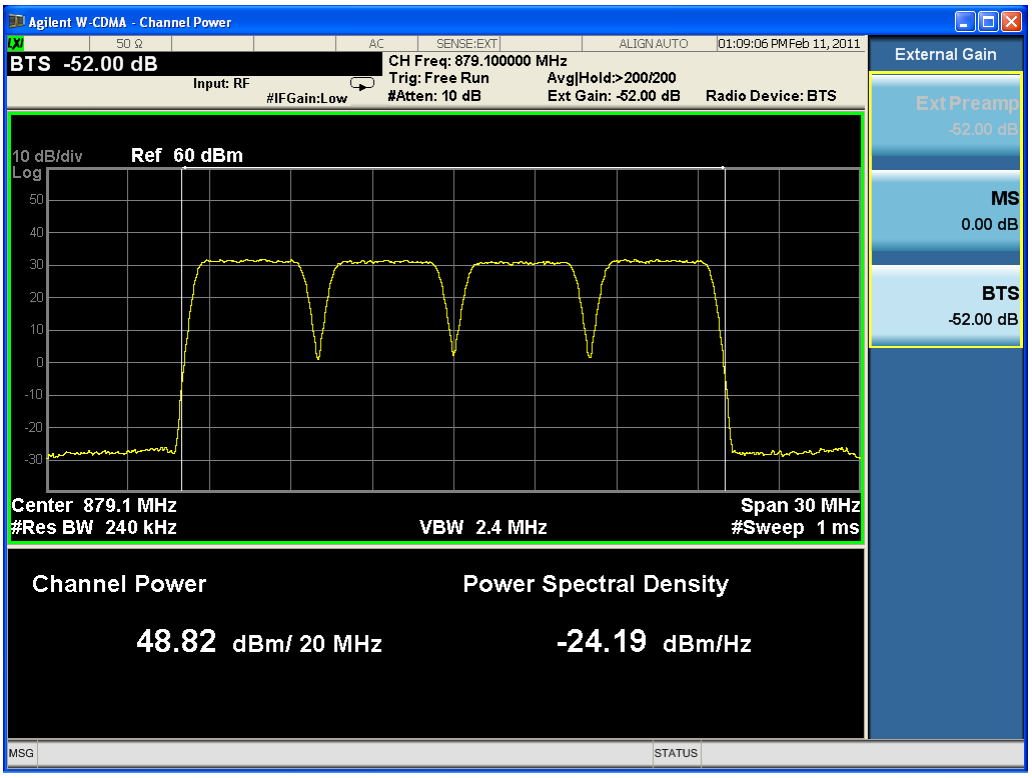
Test Result: Pass

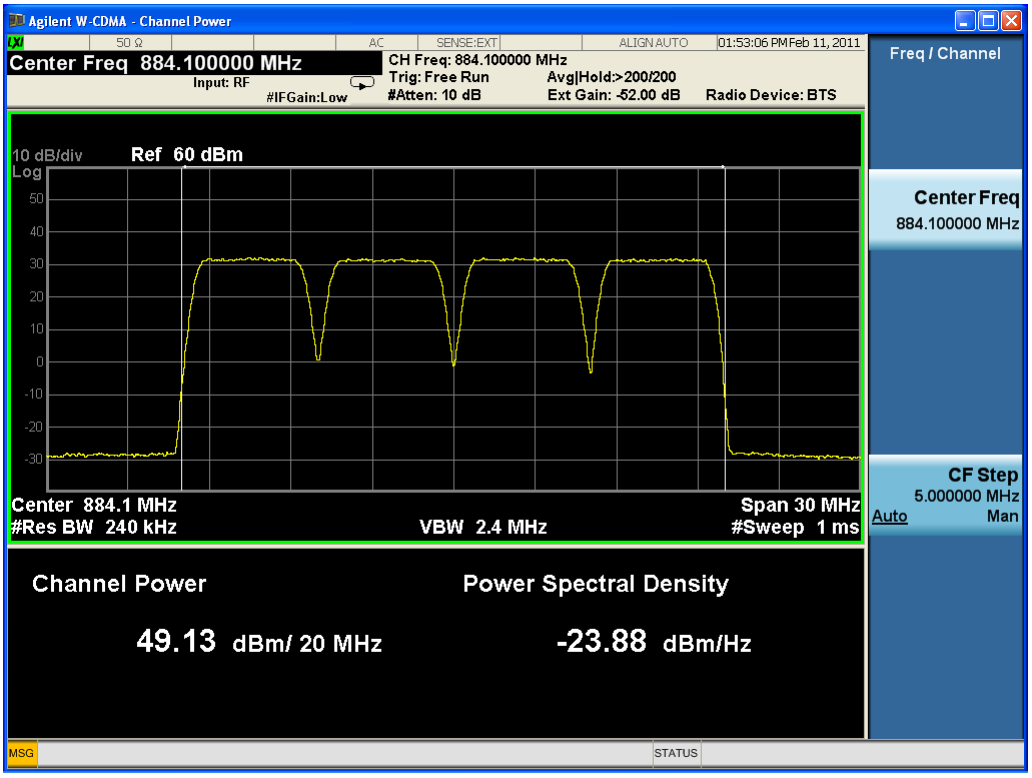
Test Mode: Transmitting UMTS

Test Data:

Four carriers

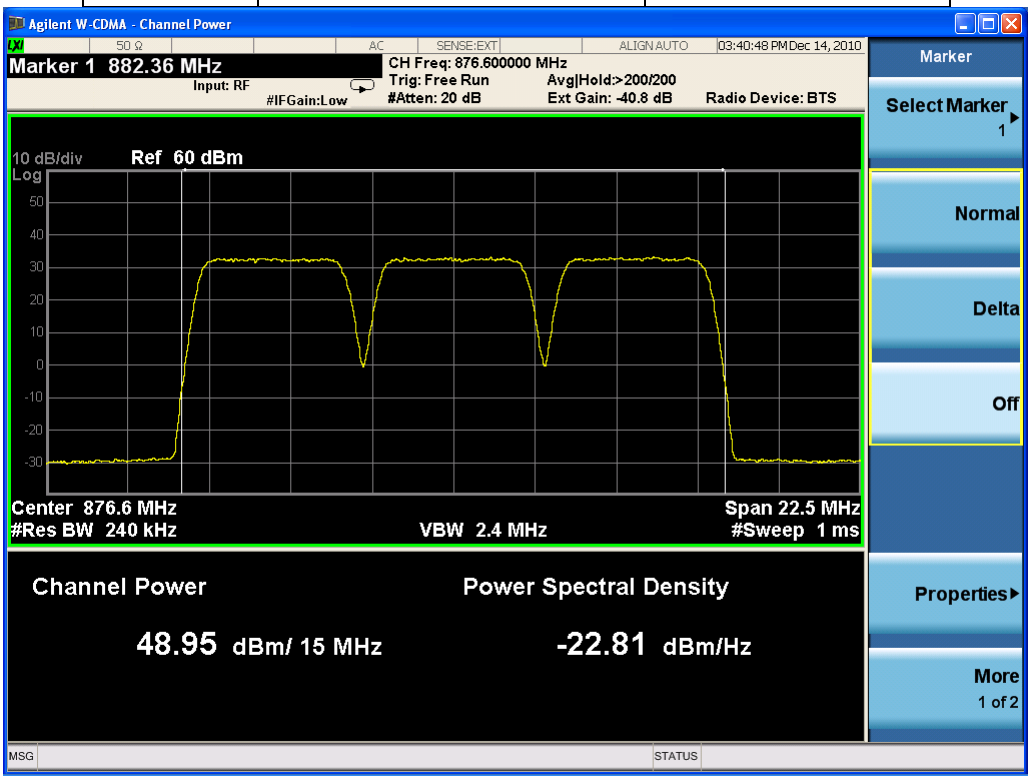
Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
879.1	871.6/876.6/881.6/886.6	48.82
884.1	876.6/881.6/886.6/891.4	49.13

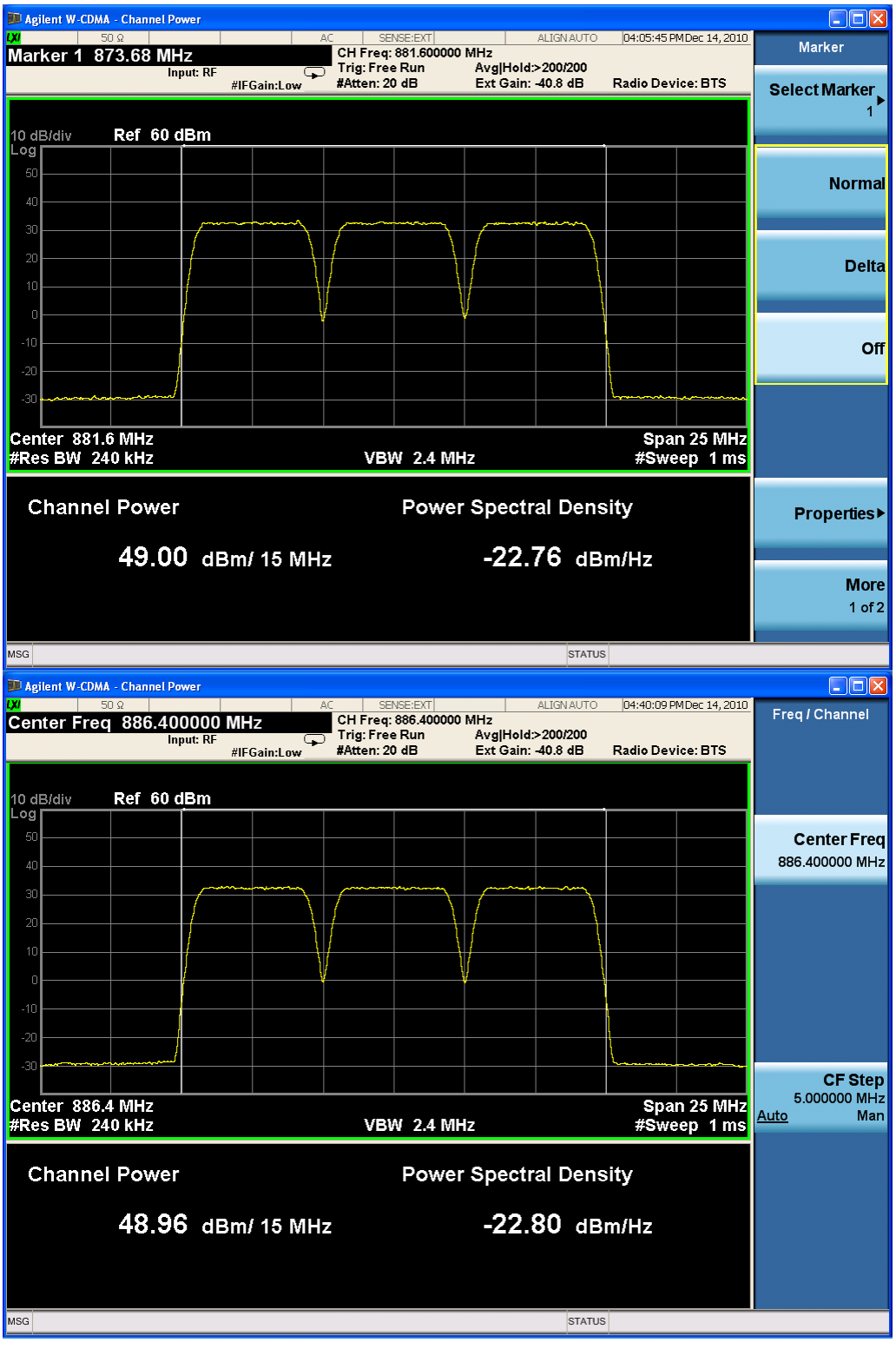

Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
01:09:06 PM Feb 11, 2011
BTS -52.00 dB
Input: RF
#IFGain:Low
CH Freq: 879.100000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 10 dB
Ext Gain: -52.00 dB
Radio Device: BTS
External Gain
Ext Preamp
-52.00 dB
MS
0.00 dB
BTS
-52.00 dB
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center 879.1 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 30 MHz
#Sweep 1 ms
Channel Power
48.82 dBm/ 20 MHz
Power Spectral Density
-24.19 dBm/Hz
MSG
STATUS


Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
01:53:06 PM Feb 11, 2011
Center Freq 884.100000 MHz
Input: RF
#IFGain:Low
CH Freq: 884.100000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 10 dB
Ext Gain: -52.00 dB
Radio Device: BTS
Freq / Channel
Center Freq
884.100000 MHz
CF Step
5.000000 MHz
Auto
Man
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center 884.1 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 30 MHz
#Sweep 1 ms
Channel Power
49.13 dBm/ 20 MHz
Power Spectral Density
-23.88 dBm/Hz
MSG
STATUS

Three carriers

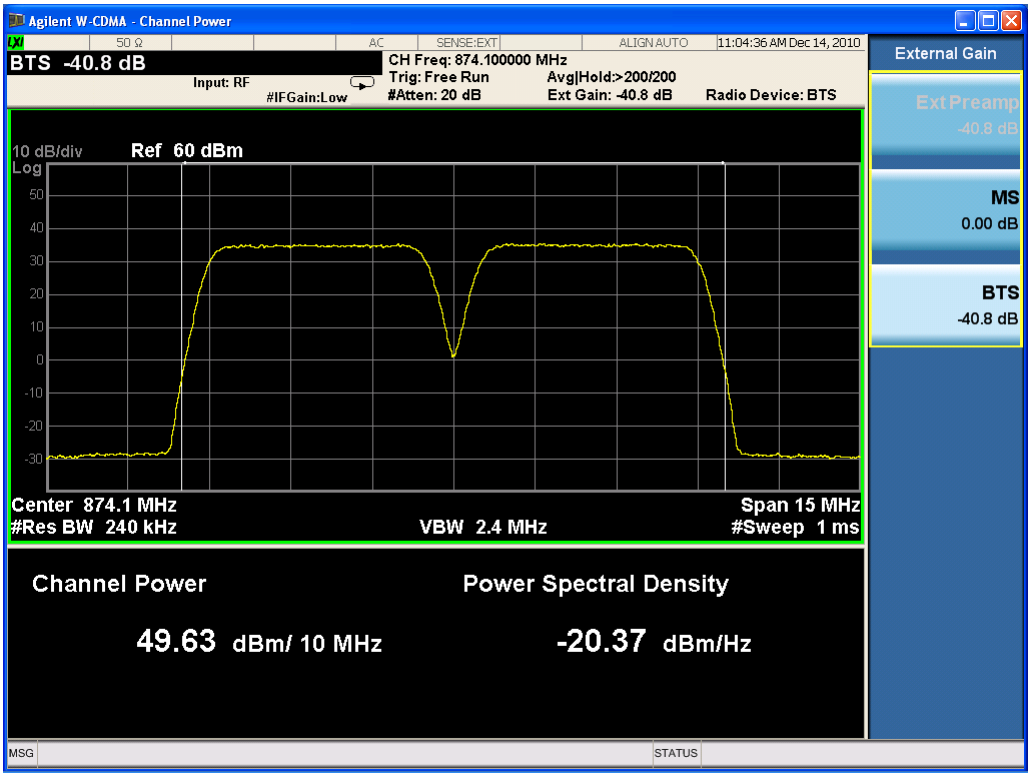
Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
876.6	871.6/876.6/881.6	48.95
881.6	876.6/881.6/886.6	49
886.4	881.4/886.4/891.4	48.96

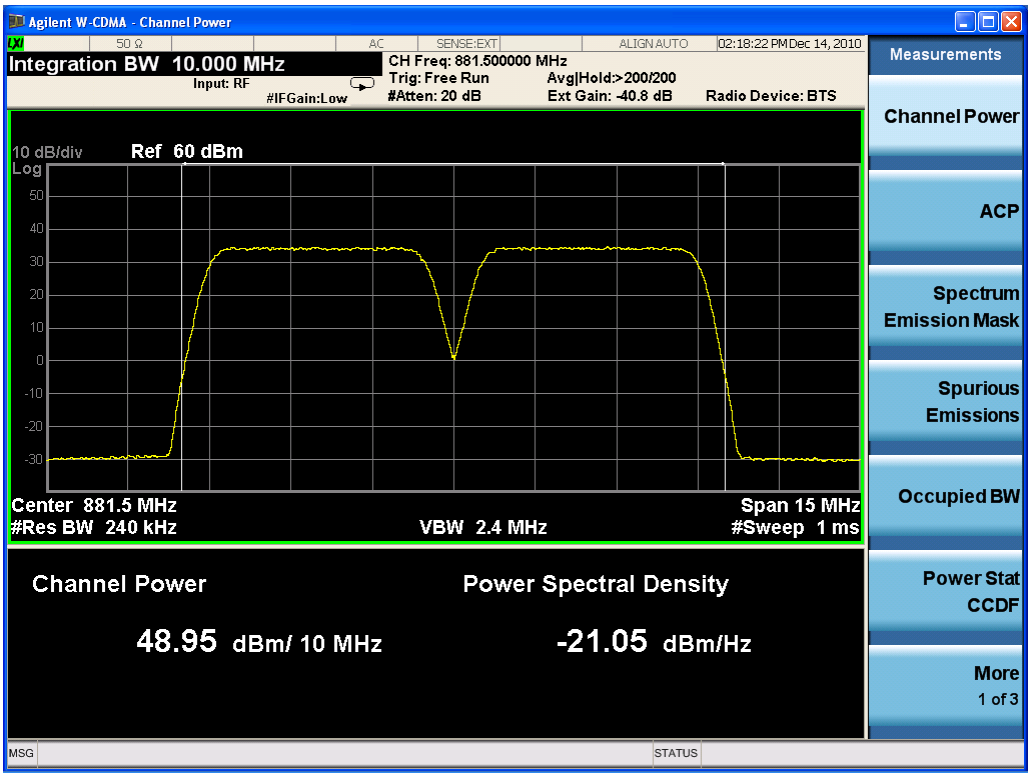


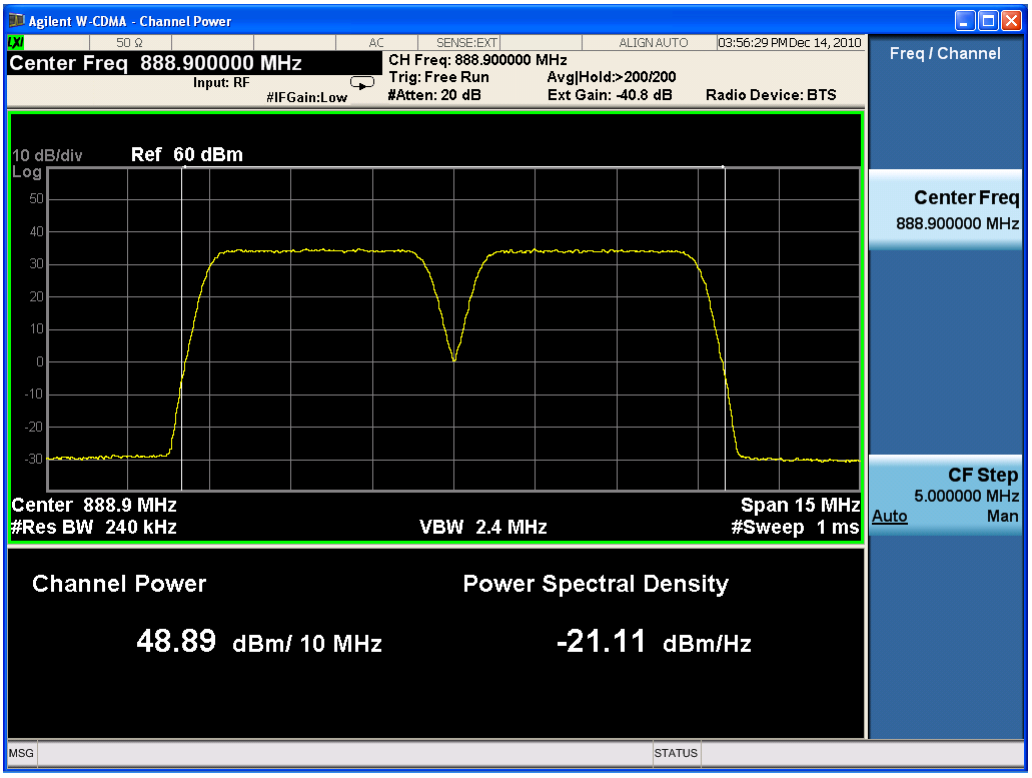

Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
04:05:45 PM Dec 14, 2010
Marker 1 873.68 MHz
Input: RF
#IFGain:Low
CH Freq: 881.600000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 20 dB
Ext Gain: -40.8 dB
Radio Device: BTS
Marker
Select Marker 1
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Normal
Delta
Off
Center 881.6 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 25 MHz
#Sweep 1 ms
Channel Power
49.00 dBm/ 15 MHz
Power Spectral Density
-22.76 dBm/Hz
Properties
More 1 of 2
MSG
STATUS
Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
04:40:09 PM Dec 14, 2010
Center Freq 886.400000 MHz
Input: RF
#IFGain:Low
CH Freq: 886.400000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 20 dB
Ext Gain: -40.8 dB
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center Freq
886.400000 MHz
CF Step
5.000000 MHz
Auto
Man
Center 886.4 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 25 MHz
#Sweep 1 ms
Channel Power
48.96 dBm/ 15 MHz
Power Spectral Density
-22.80 dBm/Hz
MSG
STATUS

Two carriers

Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
874.1	871.6/876.6	49.63
881.5	879/884	48.95
888.9	886.4/891.4	48.89

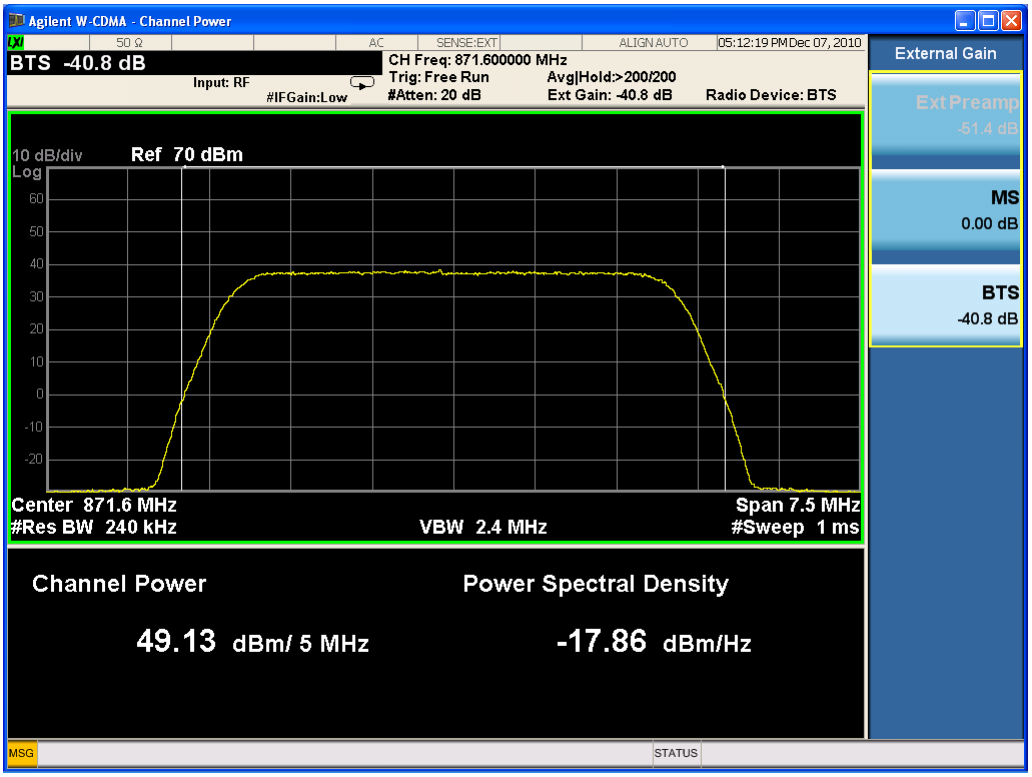


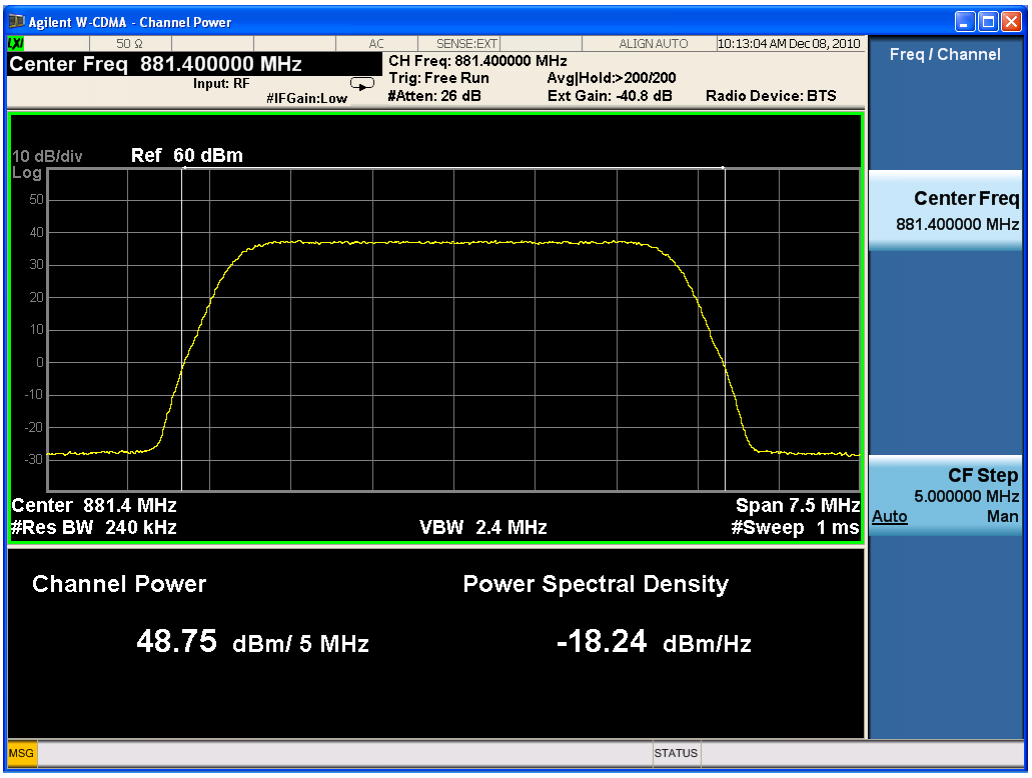

Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
02:18:22 PM Dec 14, 2010
Integration BW 10.000 MHz
Input: RF
#IFGain:Low
CH Freq: 881.500000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 20 dB
Ext Gain: -40.8 dB
Radio Device: BTS
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center 881.5 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 15 MHz
#Sweep 1 ms
Channel Power
48.95 dBm/ 10 MHz
Power Spectral Density
-21.05 dBm/Hz
MSG
STATUS
Measurements
Channel Power
ACP
Spectrum Emission Mask
Spurious Emissions
Occupied BW
Power Stat CCDF
More
1 of 3

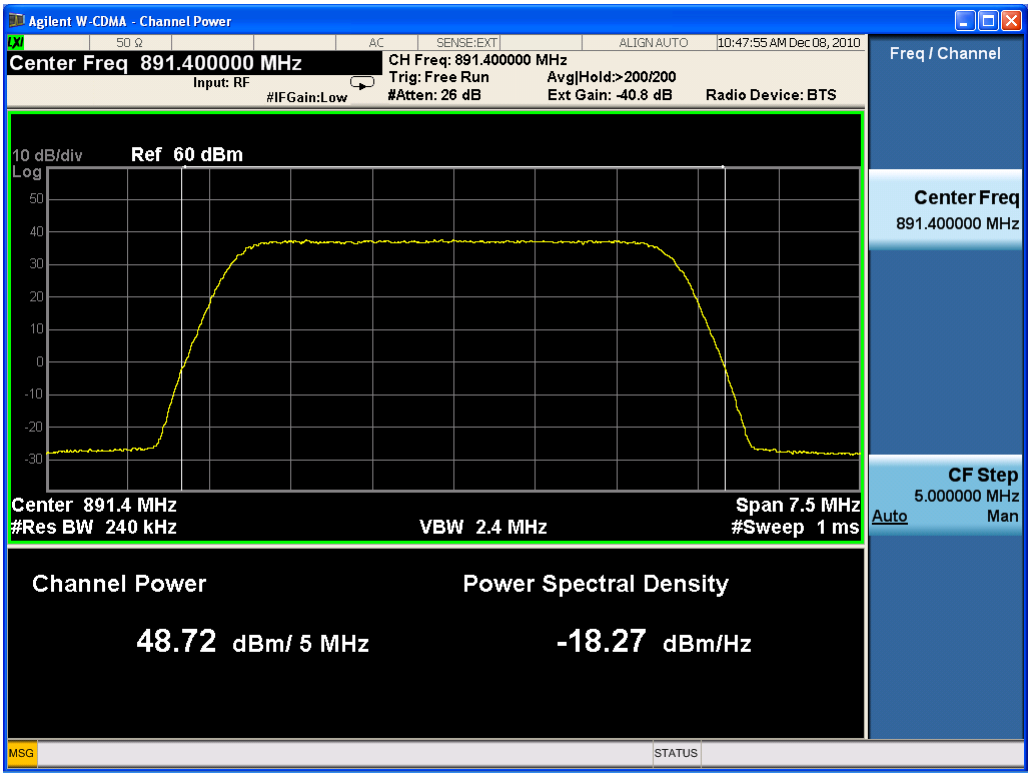

Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
03:56:29 PM Dec 14, 2010
Center Freq 888.900000 MHz
Input: RF
#IFGain:Low
CH Freq: 888.900000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 20 dB
Ext Gain: -40.8 dB
Radio Device: BTS
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center 888.9 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 15 MHz
#Sweep 1 ms
Channel Power
48.89 dBm/ 10 MHz
Power Spectral Density
-21.11 dBm/Hz
MSG
STATUS
Freq / Channel
Center Freq
888.900000 MHz
CF Step
5.000000 MHz
Auto
Man

One carrier

Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
871.6	871.6	49.13
881.4	881.4	48.75
891.4	891.4	48.72




Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
10:13:04 AM Dec 08, 2010
Center Freq 881.400000 MHz
Input: RF
#IFGain:Low
CH Freq: 881.400000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 26 dB
Ext Gain: -40.8 dB
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center Freq
881.400000 MHz
Center 881.4 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 7.5 MHz
#Sweep 1 ms
CF Step
5.000000 MHz
Auto
Man
Channel Power
48.75 dBm/ 5 MHz
Power Spectral Density
-18.24 dBm/Hz
MSG
STATUS


Agilent W-CDMA - Channel Power
50 Ω
AC
SENSE:EXT
ALIGN AUTO
10:47:55 AM Dec 08, 2010
Center Freq 891.400000 MHz
Input: RF
#IFGain:Low
CH Freq: 891.400000 MHz
Trig: Free Run
Avg|Hold:>200/200
#Atten: 26 dB
Ext Gain: -40.8 dB
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center Freq
891.400000 MHz
Center 891.4 MHz
#Res BW 240 kHz
VBW 2.4 MHz
Span 7.5 MHz
#Sweep 1 ms
CF Step
5.000000 MHz
Auto
Man
Channel Power
48.72 dBm/ 5 MHz
Power Spectral Density
-18.27 dBm/Hz
MSG
STATUS

3.2 RF EXPLOSURE

Applicable standard: FCC §2.1091 and §1.1037

Limit

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated. Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

Test Data

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01
$S = EIRP/ 4\pi R^2$
Where: S = power density
EIRP= equivalent isotropically radiated power=ERP+2.15dB
R = distance to the center of radiation of the antenna= $[(ERP+2.15dB)/4\pi S]^{1/2}$

Maximum ERP, In general, the effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts.
Frequency is between 300MHz and 1500MHz, and the Maximum$S=894/1500=0.596Mw/cm^2$
R=3.31m.
This equipment should be installed and operated with minimum distance 3.31m between the radiator& your body .

Test Result: pass

3.3 MODULATION CHARACTERISTIC

Applicable Standard: FCC §2.1047

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2010-4-10	2011-4-9
DTS	DTS100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

UMTS digital mode is used by EUT.

Test Data Environmental Conditions

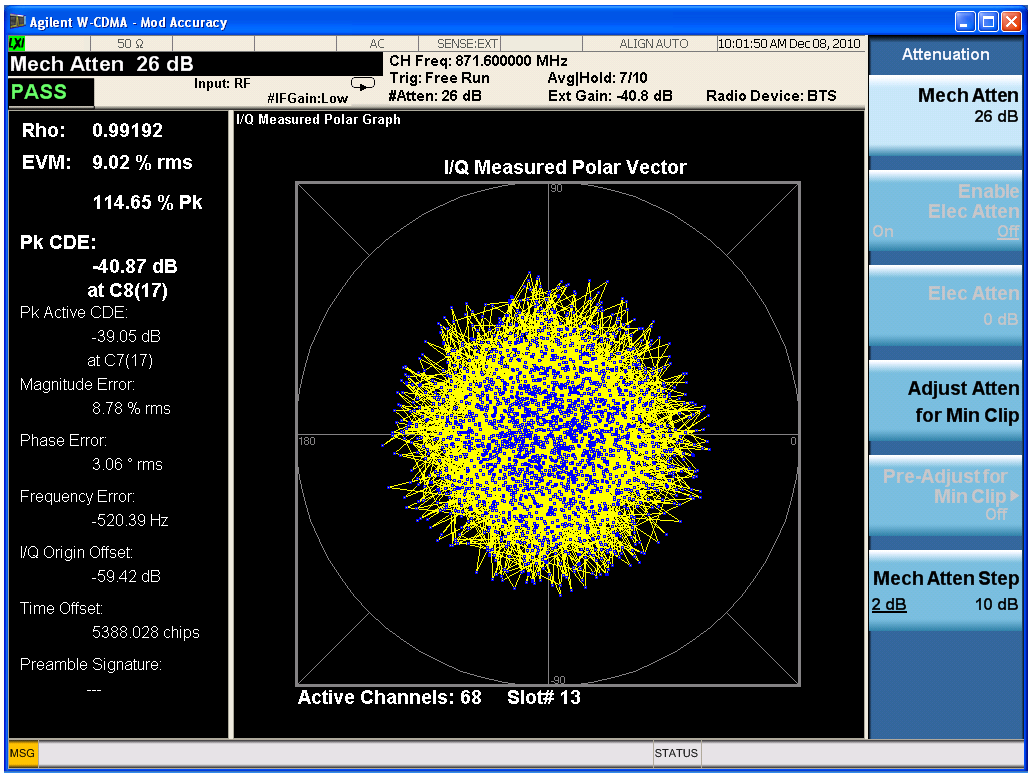
Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

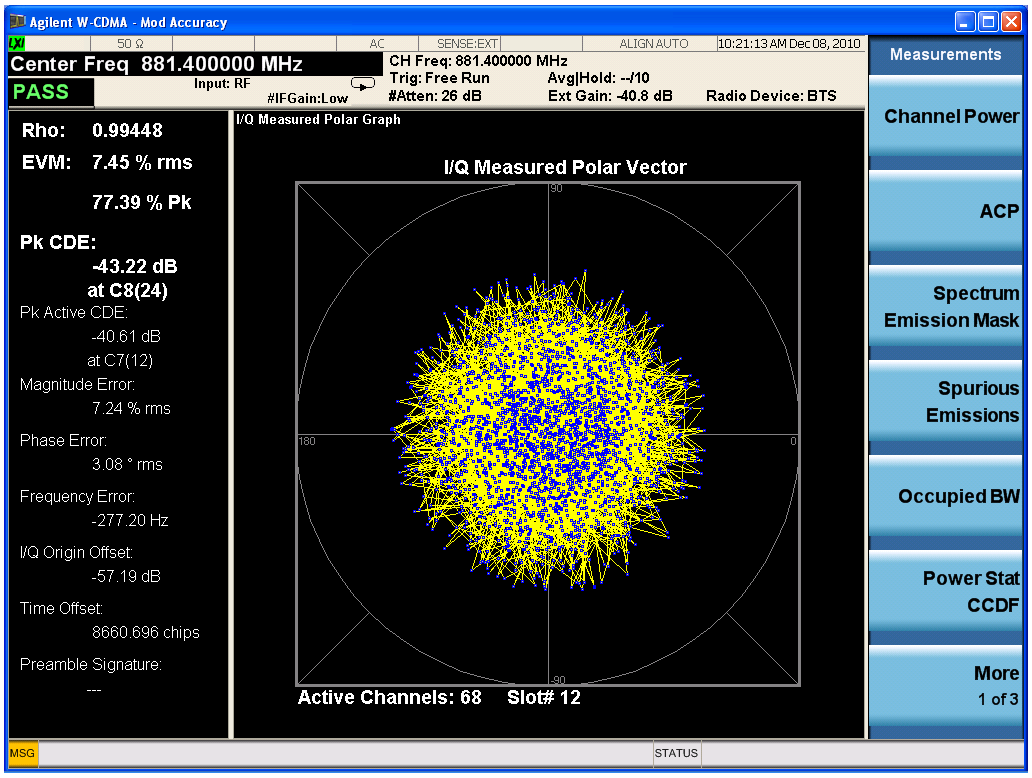
Test Result: Pass

Test Mode: Transmitting UMTS

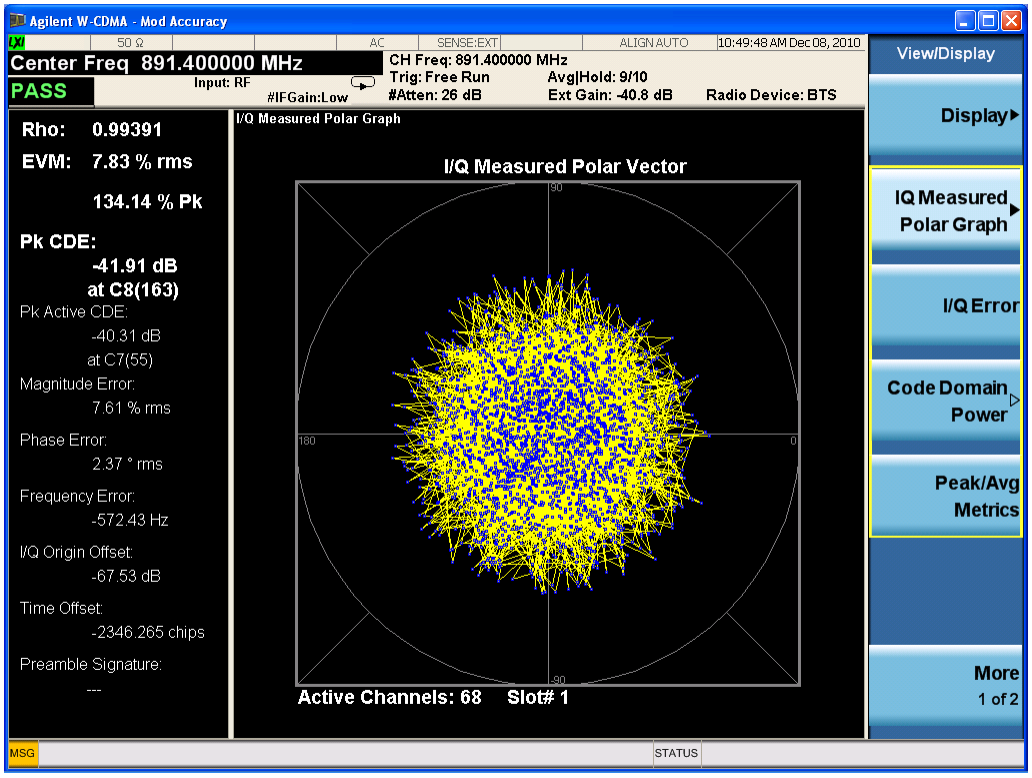
Test Data:

Frequency (MHz)	Rho
871.6	0.99192
881.4	0.99447
891.4	0.99391




Agilent W-CDMA - Mod Accuracy
Center Freq 881.400000 MHz
PASS
Input: RF
#IFGain:Low
CH Freq: 881.400000 MHz
Trig: Free Run
#Atten: 26 dB
Avg|Hold: --/10
Ext Gain: -40.8 dB
Radio Device: BTS
10:21:13 AM Dec 08, 2010
Rho: 0.99448
EVM: 7.45 % rms
77.39 % Pk
Pk CDE:
-43.22 dB
at C8(24)
Pk Active CDE:
-40.61 dB
at C7(12)
Magnitude Error:
7.24 % rms
Phase Error:
3.08 ° rms
Frequency Error:
-277.20 Hz
I/Q Origin Offset:
-57.19 dB
Time Offset:
8660.696 chips
Preamble Signature:

I/Q Measured Polar Graph
I/Q Measured Polar Vector
Active Channels: 68 Slot# 12
Measurements
Channel Power
ACP
Spectrum Emission Mask
Spurious Emissions
Occupied BW
Power Stat CCDF
More 1 of 3
MSG
STATUS


Agilent W-CDMA - Mod Accuracy
Center Freq 891.400000 MHz
PASS
Input: RF
#IFGain:Low
CH Freq: 891.400000 MHz
Trig: Free Run
#Atten: 26 dB
Avg|Hold: 9/10
Ext Gain: -40.8 dB
Radio Device: BTS
10:49:48 AM Dec 08, 2010
Rho: 0.99391
EVM: 7.83 % rms
134.14 % Pk
Pk CDE:
-41.91 dB
at C8(163)
Pk Active CDE:
-40.31 dB
at C7(55)
Magnitude Error:
7.61 % rms
Phase Error:
2.37 ° rms
Frequency Error:
-572.43 Hz
I/Q Origin Offset:
-67.53 dB
Time Offset:
-2346.265 chips
Preamble Signature:

I/Q Measured Polar Graph
I/Q Measured Polar Vector
Active Channels: 68 Slot# 1
View/Display
Display
IQ Measured Polar Graph
I/Q Error
Code Domain Power
Peak/Avg Metrics
More 1 of 2
MSG
STATUS

3.4 SPURIOUS RADIATED EMISSIONS

Applicable Standard: FCC CFR 47, §2.1053

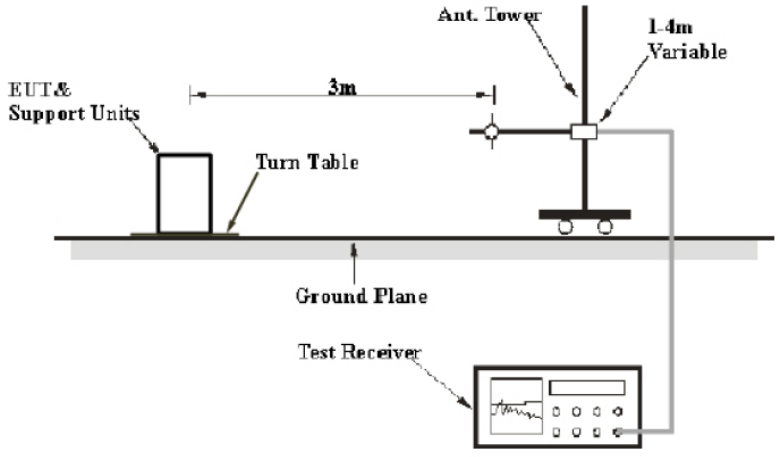
Test Equipment List and Details

Manufacturer	Equipment	Model	Serial Number	Last Cal.	Cal. Interval
Albatross	Anechoic Chamber	3m Site	A00017354	2010-6-30	1 year
R&S	EMI Test Receiver	ESI26	100058	2010-10-29	1 year
R&S	Log periodic Antenna	HL562	100022	2010-8-5	1 year
R&S	Double-Ridged Waveguide Horn Antenna	HF906 TX	100032	2010-8-5	1 year

*__statement of traceability:__ ZTE Corporation Testing lab attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

Measurement Uncertainty
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.
Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiated emissions measurement at the EMC lab of ZTE Corp. is 3.6dB.

EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the FCC part 15.109. The specification used was the FCC 15.109 limits.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.
The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT .The test was performed by placing the EUT on 3-orthogonal axis.
The frequency range up to teeth harmonic of the fundamental frequency was investigated.
Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
Spurious emissions in dB =10 1g (TX pwr in Watts/0.001)-the absolute level
Spurious attenuation limit in dB =43+10 Lg P (power out in Watts)
The resolution bandwidth of the spectrum analyzer was set at 100KHz for 30MHz to 1GHz scanning, set at 1MHz or 3MHz for 1GHz to 20GHz scanning.

Test Results Summary: PASS

Environmental Conditions

Temperature:	26°C
Relative Humidity:	60 %
ATM Pressure:	1009 mbar

Test data

Indicated		Table	Test Antenna		Substituted			Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amp. (dBuV)	Angle Degree	Height (M)	Polar H/V	Frequency (MHz)	Level (dBm)	Antenna Gain Correction				
54.872795	24.4	60.3	1	V	54.872795	-42.23	-31.63	0.5	-76.51	-13	63.51
197.884615	25.2	121.1	1	V	197.884615	-68.69	0.35	1.1	-71.59	-13	58.59
246.073718	24.21	131.4	1	V	246.073718	-73.34	1.49	1.3	-75.3	-13	62.3
606.714744	22.37	88.1	2	V	606.714744	-74.32	-1.39	2	-79.86	-13	66.86
872.532051	64.19	353.9	1	V	872.532051	-33	-1.32	2.5	-38.97	-13	25.97
2977.5641	55.39	202.1	1	V	2977.5641	-46.35	7.95	4.6	-45.15	-13	32.15
138.814103	20.01	100.6	2	H	138.814103	-72.03	-8.42	1	-83.6	-13	70.6
204.102564	28.18	281.1	2	H	204.102564	-71.48	0.87	1.1	-73.86	-13	60.86
246.073718	22.22	271.1	2	H	246.073718	-72.54	1.49	1.3	-74.5	-13	61.5
605.160256	22.93	170.9	2	H	605.160256	-73.72	-1.39	2	-79.26	-13	66.26
870.977564	57.94	120.5	2	H	870.977564	-29.85	-1.32	2.5	-35.82	-13	22.82
2987.17949	55.27	359.7	2	H	2987.17949	-48.84	7.95	4.6	-47.64	-13	34.64

Radiation emission spurious below 3GHz

Indicated		Table	Test Antenna		Substituted			Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amp. (dBuV)	Angle Degree	Height (M)	Polar H/V	Frequency (MHz)	Level (dBm)	Antenna Gain Correction				
5621.24249	46.82	92.9	2	V	5621.24249	-59.81	9.05	6.5	-59.41	-13	46.41
7000	49.95	182.6	2	V	7000	-58.22	9.15	7.3	-58.52	-13	45.52
7729.45892	51.2	138.6	2	V	7729.45892	-61.15	9.25	7.7	-61.75	-13	48.75
10204.4088	58.64	146.7	2	V	10204.4088	-50.18	11.35	8.9	-49.88	-13	36.88
14503.006	62.59	327.5	1	V	14503.006	-46.93	9.15	11	-50.93	-13	37.93
20000	76.99	24	1	V	20000	-33.09	6.45	12.2	-40.99	-13	27.99
5621.24249	46.81	246.7	2	H	5621.24249	-51.8	9.05	6.5	-51.4	-13	38.4
7000	49.96	30.9	2	H	7000	-55.46	9.15	7.3	-55.76	-13	42.76
7729.45892	51.2	23.5	1	H	7729.45892	-57.43	9.25	7.7	-58.03	-13	45.03
10204.4088	58.7	48.8	2	H	10204.4088	-50.24	11.35	8.9	-49.94	-13	36.94
14503.006	62.56	305.50	1	H	14503.006	-42.76	9.15	11	-46.76	-13	33.76
20000	76.96	248.30	2	H	20000	-29.64	6.45	12.2	-37.54	-13	24.54

Radiation emission spurious above 3GHz

3.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard: FCC§2.1051, §22.917

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified .

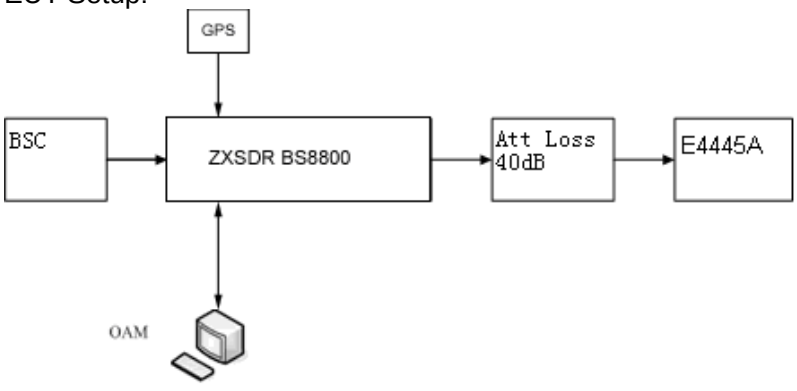
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2010-4-9	2011-4-9
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

EUT Setup:



REMARKS: Attenuator loss (dB)=40dB, Cable Loss (dB)=3dB.

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1 kHz for 9KHz to 150KHZ scaning, set at 10KHz for 150KHz to 30MHz scaning ,set at 100KHz for 30MHz to 1GHz scaning, set at 1MHz or 3MHz for 1GHz to 22GHz scaning. Sufficient scans were

taken to show any out of band emissions up to 10th harmonic.

Test Data Environmental Conditions

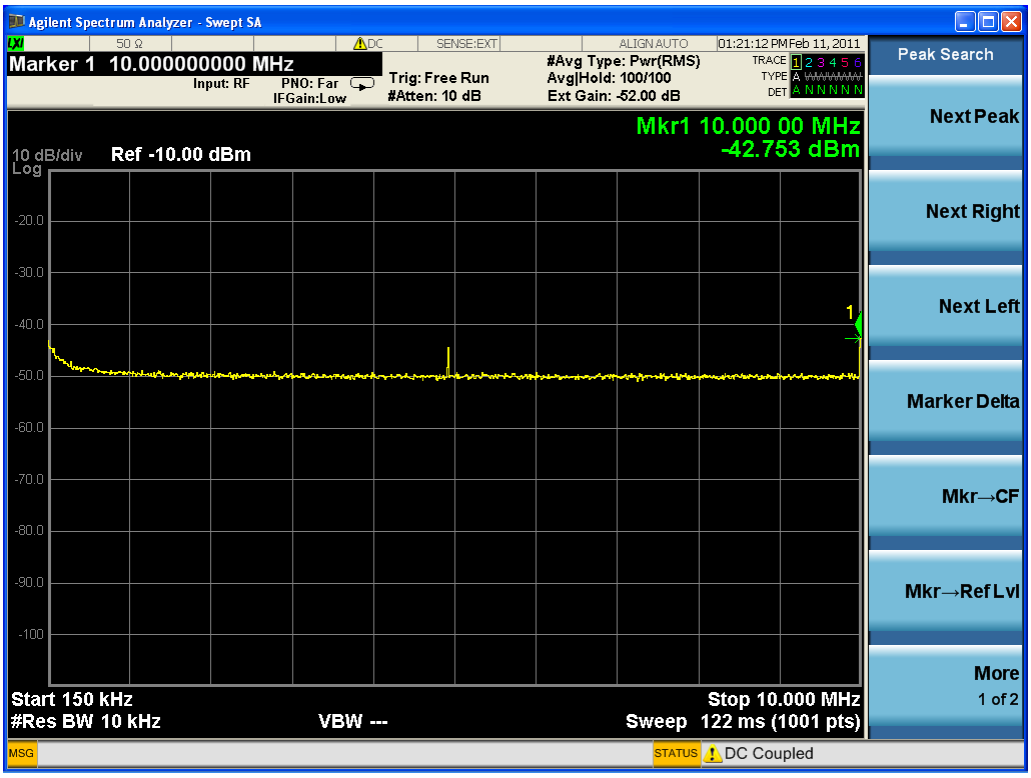
Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

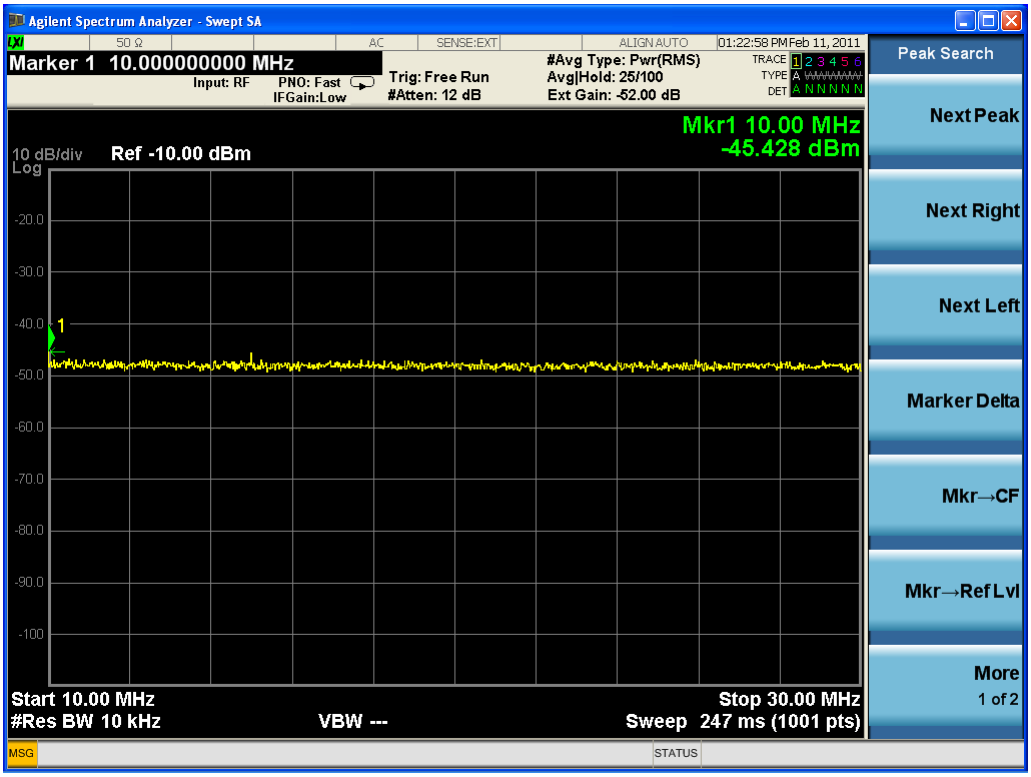
Test Result: Pass

Test Mode: Transmitting UMTS

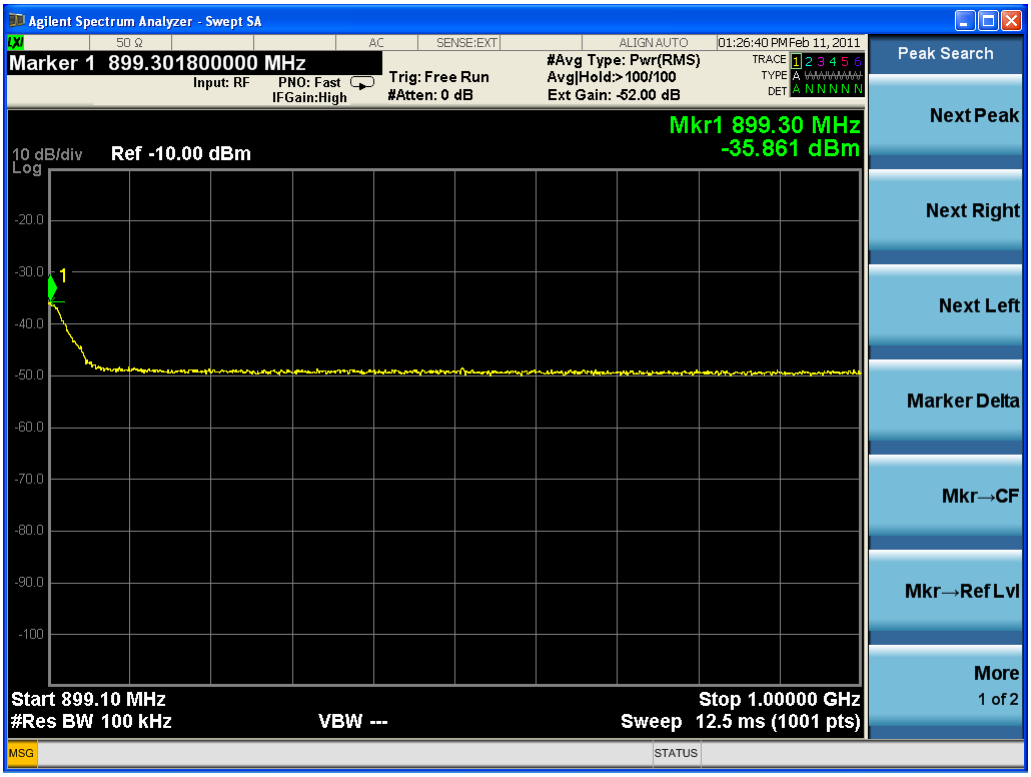
Test Data:

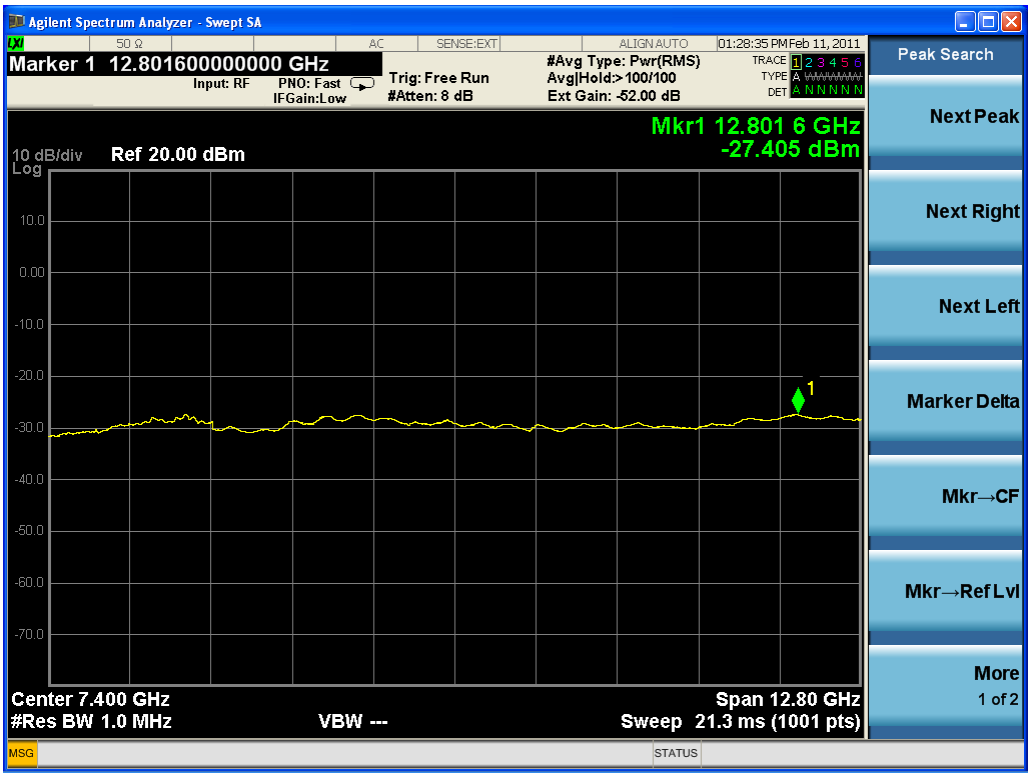
Four Carriers (working in bottom frequency)


Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Far IFGain:Low
Trig: Free Run #Atten: 10 dB
#Avg Type: Pwr(RMS) Avg|Hold: 100/100 Ext Gain: -52.00 dB
01:21:12 PM Feb 11, 2011
Mkr1 10.000 00 MHz -42.753 dBm
10 dB/div Log
Ref -10.00 dBm
Start 150 kHz
#Res BW 10 kHz
VBW ---
Stop 10.000 MHz
Sweep 122 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

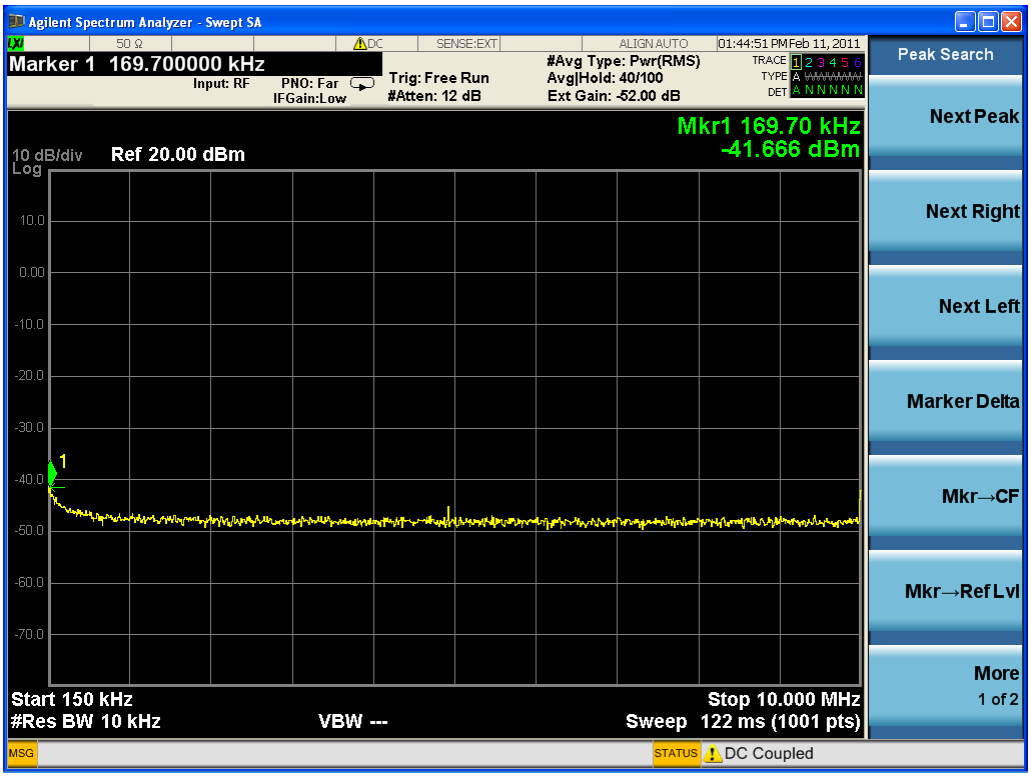

Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 12 dB
#Avg Type: Pwr(RMS) Avg|Hold: 25/100 Ext Gain: -52.00 dB
01:22:58 PM Feb 11, 2011
Mkr1 10.00 MHz -45.428 dBm
10 dB/div Log
Ref -10.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW ---
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

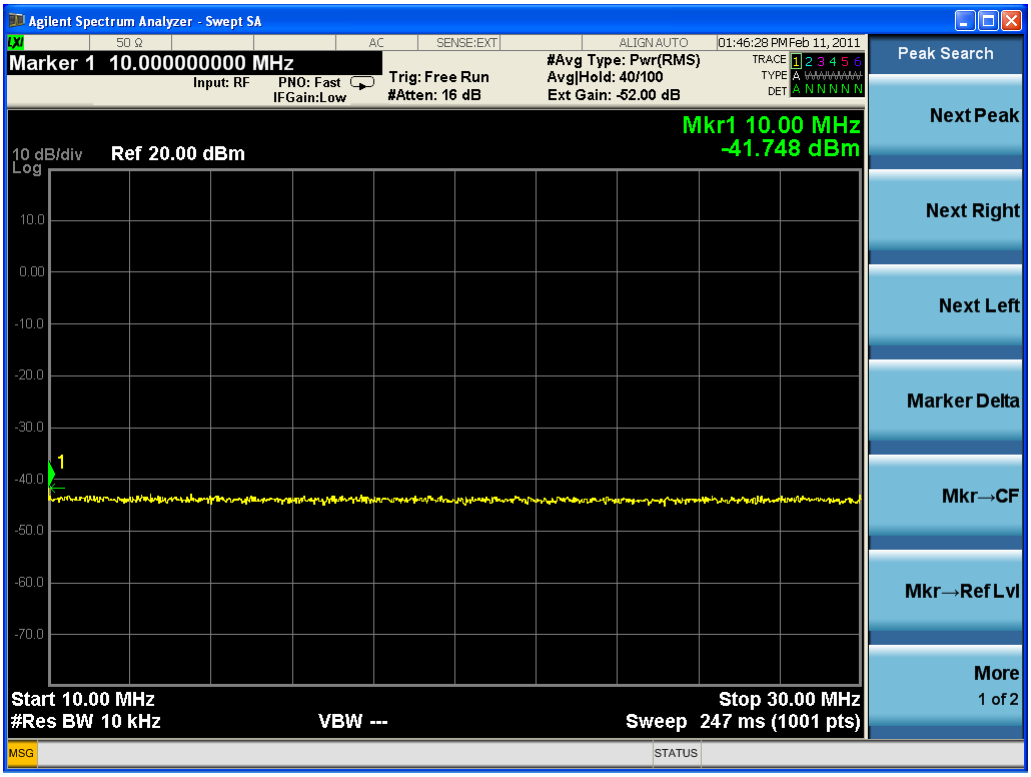

Agilent Spectrum Analyzer - Swept SA
Marker 1 858.270900000 MHz
Input: RF
PNO: Fast
IFGain:High
Trig: Free Run
#Atten: 0 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 64/100
Ext Gain: -52.00 dB
01:25:22 PM Feb 11, 2011
Mkr1 858.3 MHz
-45.041 dBm
10 dB/div
Log
Ref -10.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW ---
Stop 859.1 MHz
Sweep 102 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

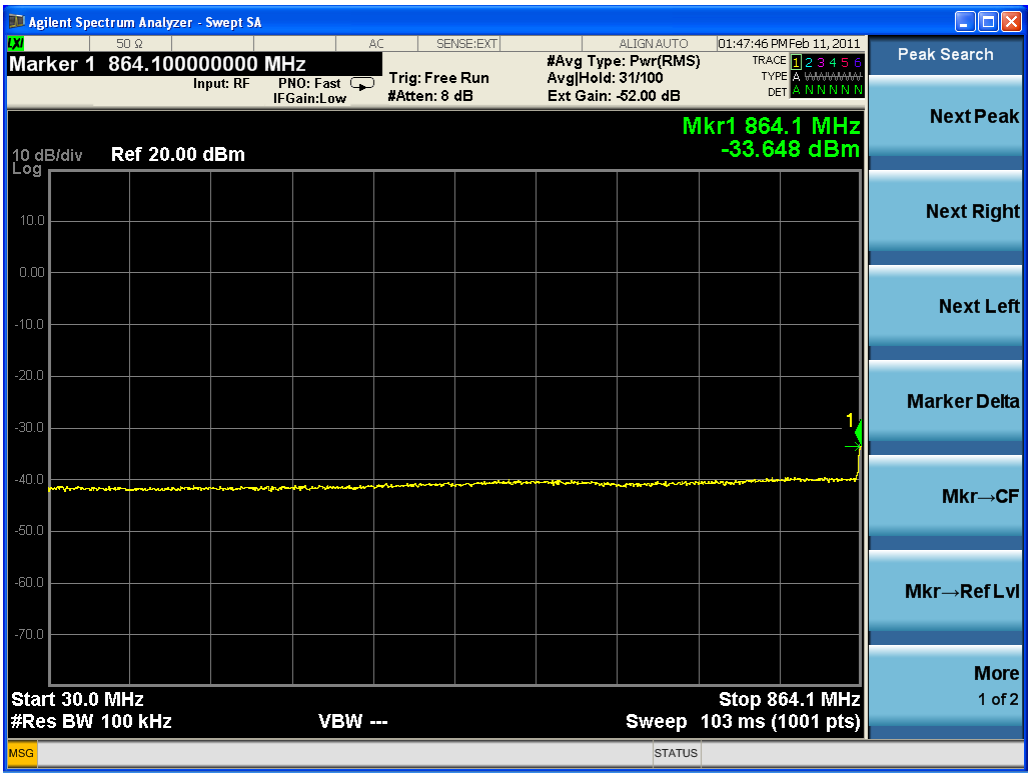

Agilent Spectrum Analyzer - Swept SA
Marker 1 899.301800000 MHz
Input: RF
PNO: Fast
IFGain:High
Trig: Free Run
#Atten: 0 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>100/100
Ext Gain: -52.00 dB
01:26:40 PM Feb 11, 2011
Mkr1 899.30 MHz
-35.861 dBm
10 dB/div
Log
Ref -10.00 dBm
Start 899.10 MHz
#Res BW 100 kHz
VBW ---
Stop 1.00000 GHz
Sweep 12.5 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

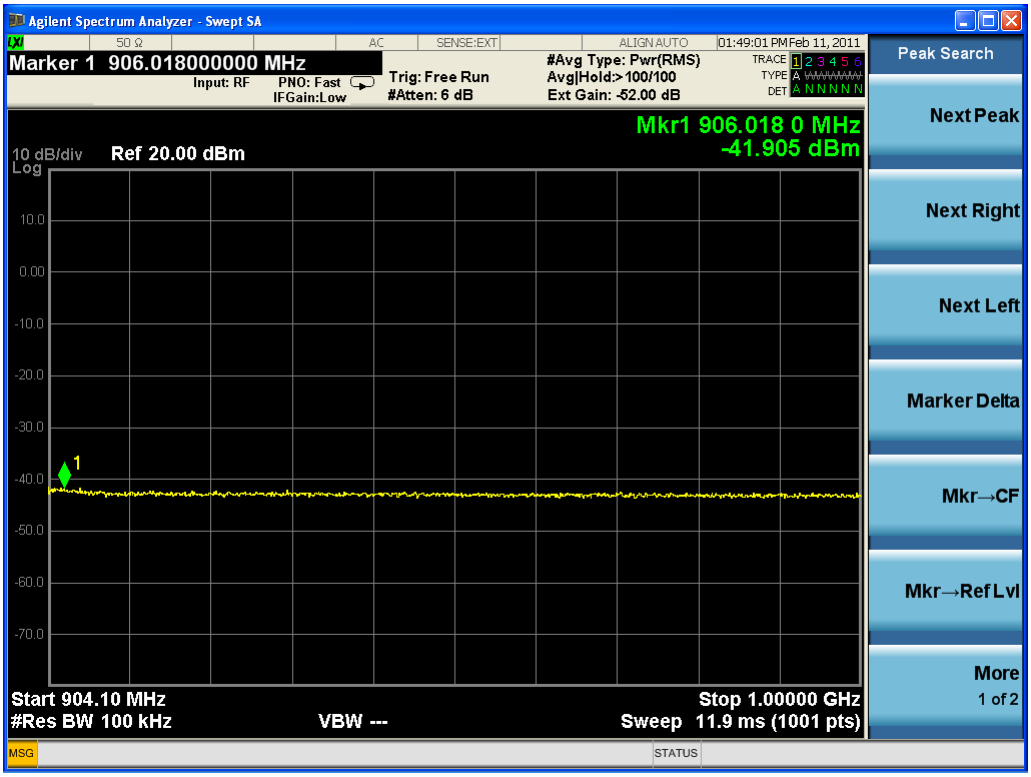


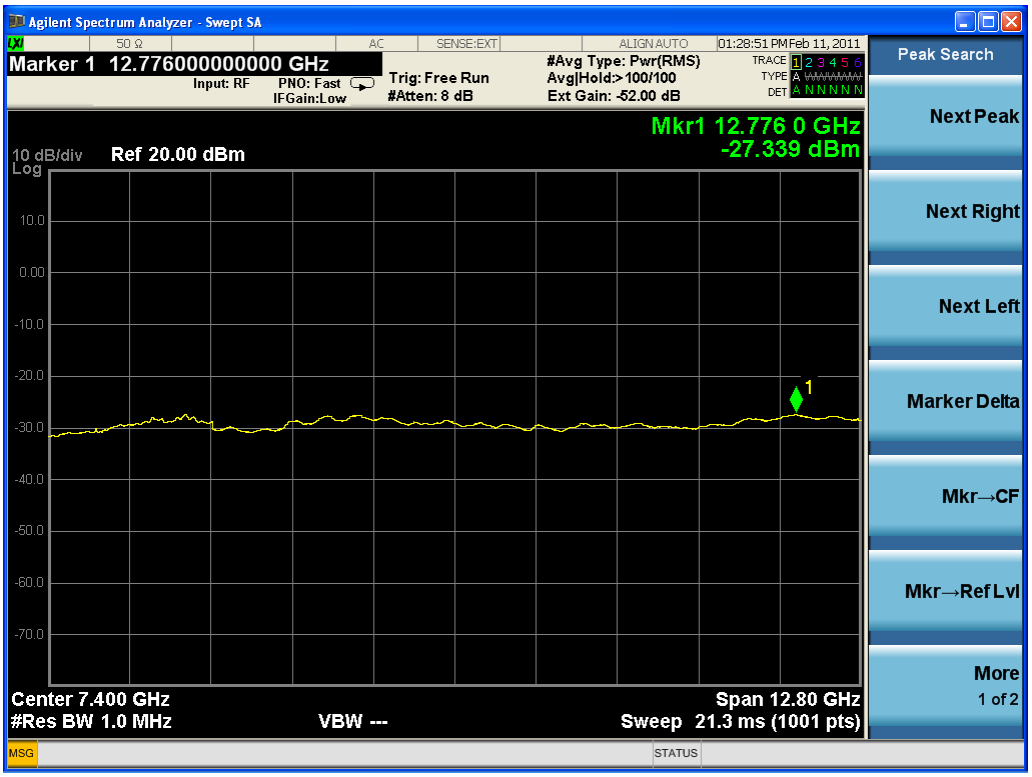
Four Carriers (working in top frequency)


Agilent Spectrum Analyzer - Swept SA
50 Ω
DC
SENSE:EXT
ALIGN AUTO
01:44:51 PM Feb 11, 2011
Marker 1 169.700000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 12 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 40/100
Ext Gain: -52.00 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET A N N N N N
Mkr1 169.70 kHz
-41.666 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
Start 150 kHz
#Res BW 10 kHz
VBW ---
Stop 10.000 MHz
Sweep 122 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS
DC Coupled


Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:EXT
ALIGN AUTO
01:46:28 PM Feb 11, 2011
Marker 1 10.000000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 40/100
Ext Gain: -52.00 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET A N N N N N
Mkr1 10.00 MHz
-41.748 dBm
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
1
Start 10.00 MHz
#Res BW 10 kHz
VBW ---
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
Marker 1 864.100000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 8 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 31/100
Ext Gain: -52.00 dB
01:47:46 PM Feb 11, 2011
Mkr1 864.1 MHz
-33.648 dBm
10 dB/div
Log
Ref 20.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW ---
Stop 864.1 MHz
Sweep 103 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

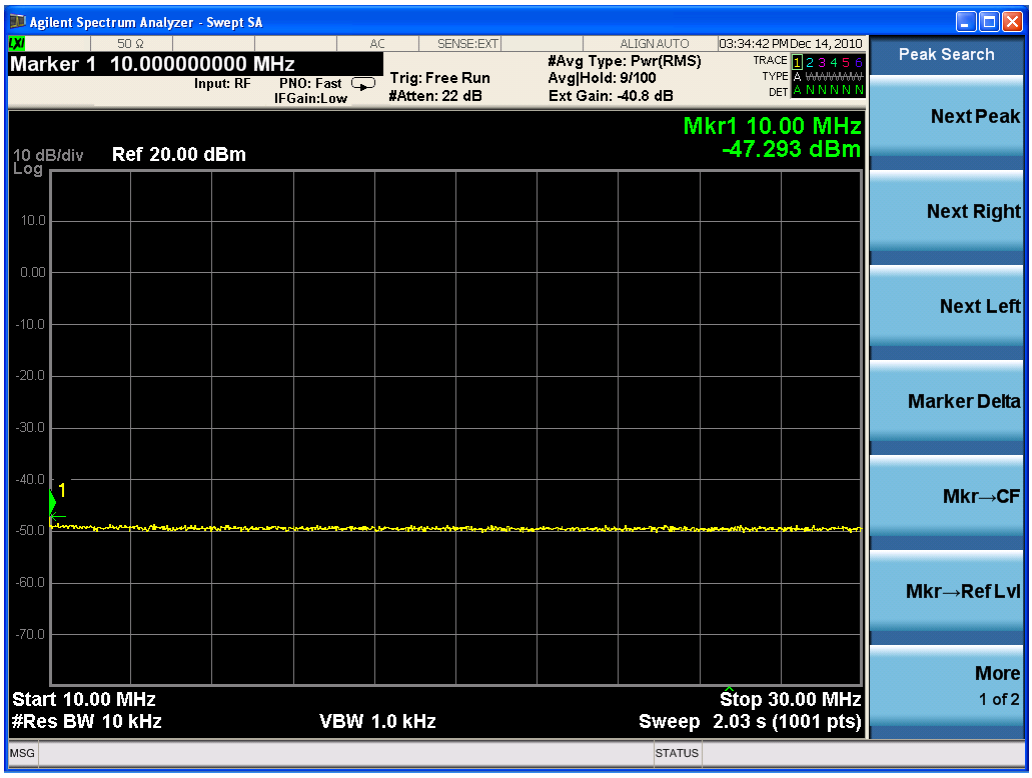

Agilent Spectrum Analyzer - Swept SA
Marker 1 906.018000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 6 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>100/100
Ext Gain: -52.00 dB
01:49:01 PM Feb 11, 2011
Mkr1 906.018 0 MHz
-41.905 dBm
10 dB/div
Log
Ref 20.00 dBm
Start 904.10 MHz
#Res BW 100 kHz
VBW ---
Stop 1.00000 GHz
Sweep 11.9 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

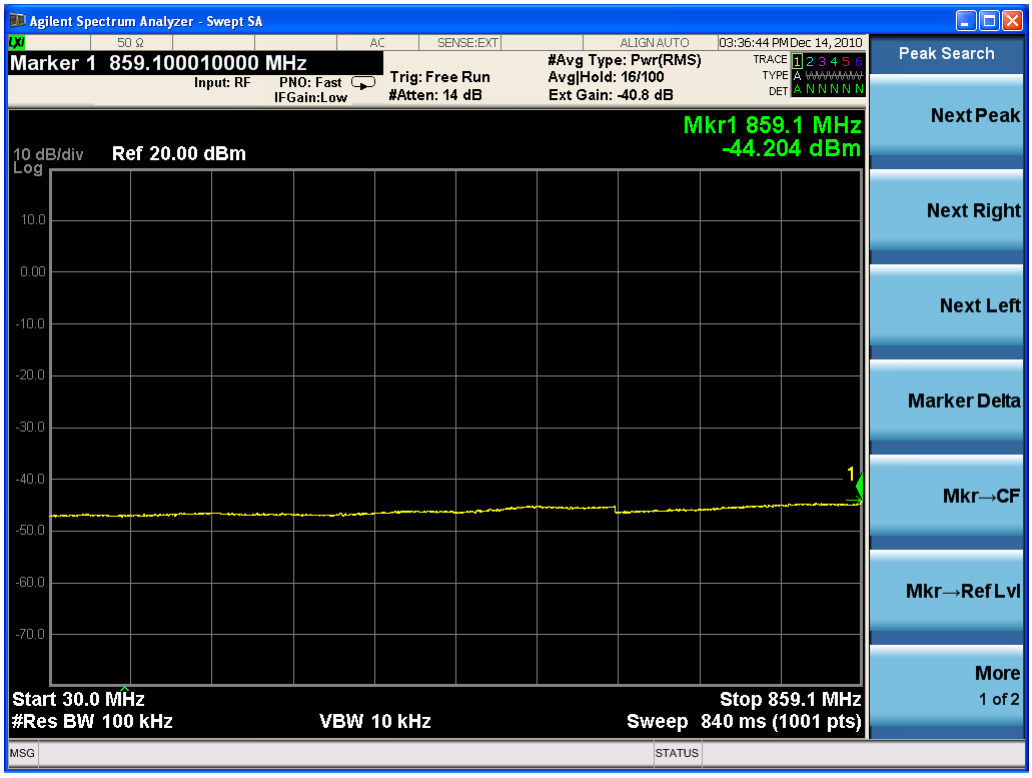


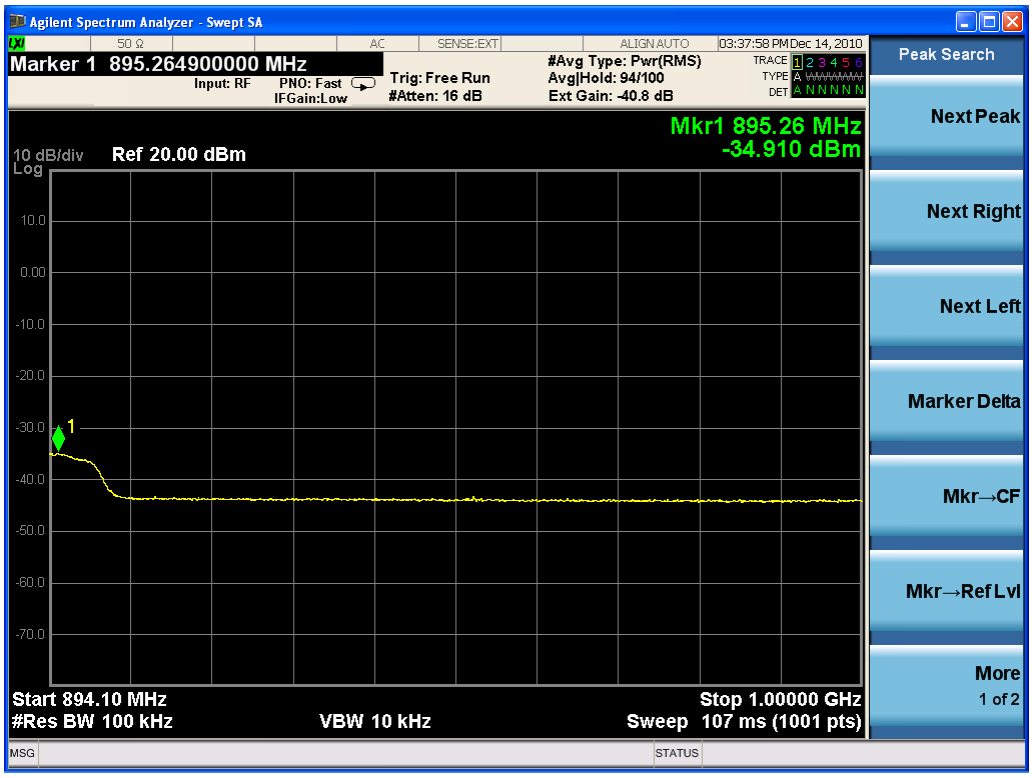
Three Carriers (working in bottom frequency)

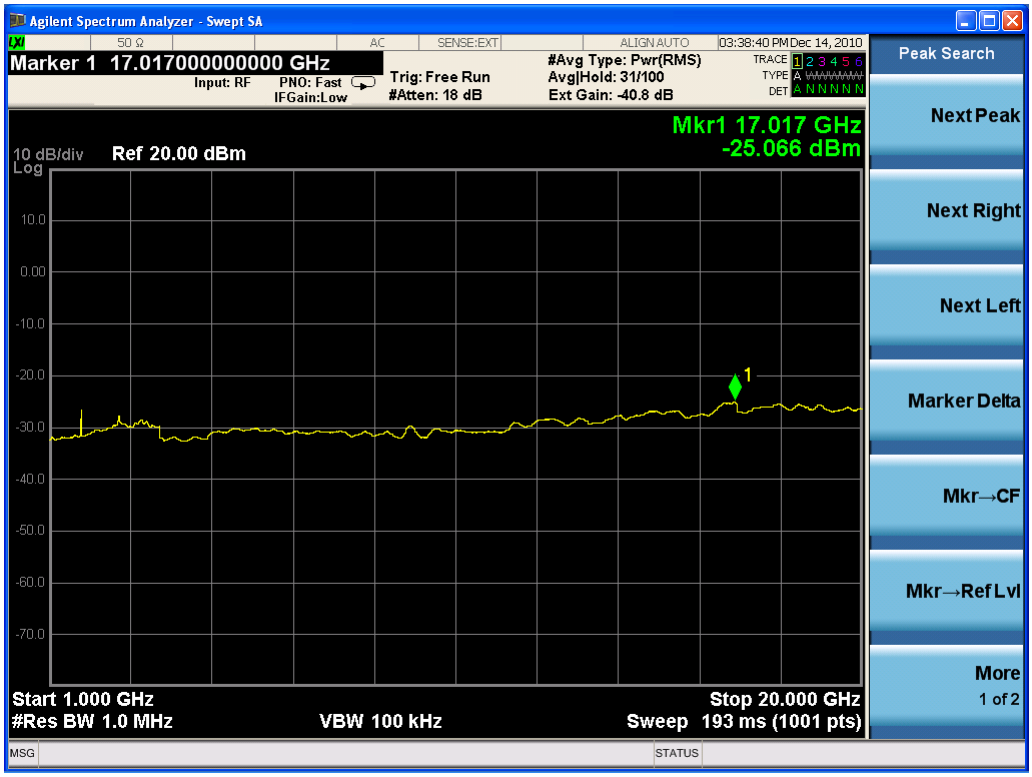

Agilent Spectrum Analyzer - Swept SA
Marker 1 9.564000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
Atten: 6 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 32/100
Ext Gain: -40.8 dB
03:31:57 PM Dec 14, 2010
Mkr1 9.564 kHz
-41.873 dBm
10 dB/div
Log
Ref 20.00 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
VBW 100 Hz
Stop 150.00 kHz
Sweep 1.43 s (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 150.000000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 18 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 21/100
Ext Gain: -40.8 dB
03:33:17 PM Dec 14, 2010
Mkr1 150.00 kHz
-42.766 dBm
10 dB/div
Log
Ref 20.00 dBm
Start 150 kHz
#Res BW 10 kHz
VBW 1.0 kHz
Stop 10.000 MHz
Sweep 998 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

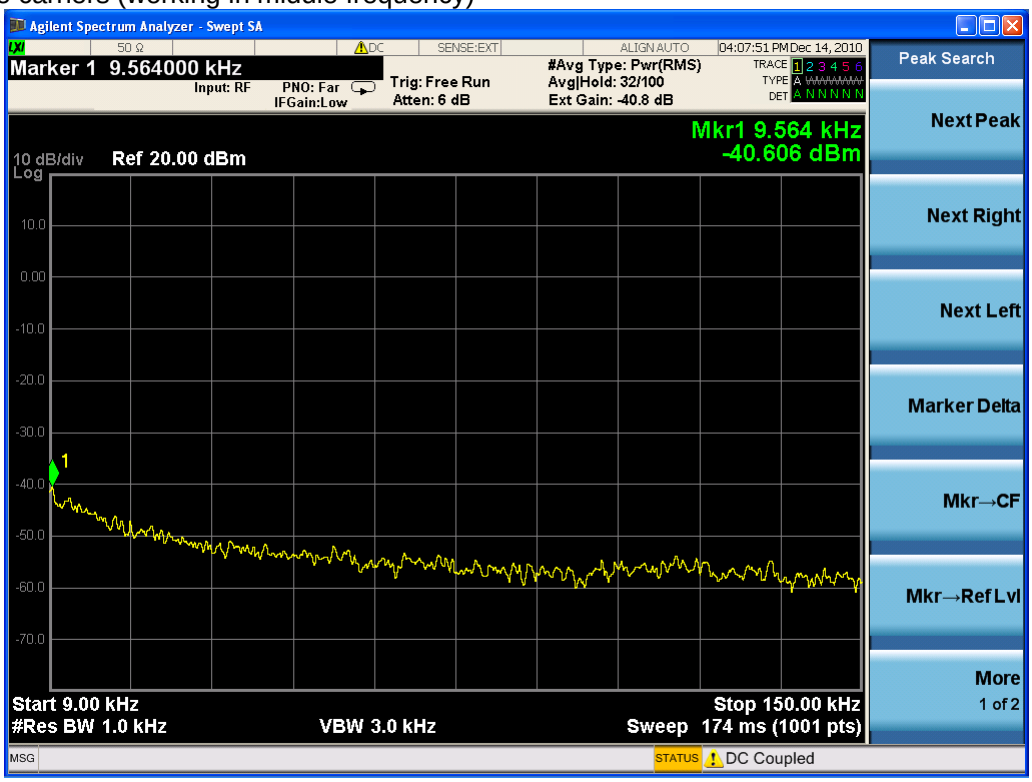

Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 22 dB
#Avg Type: Pwr(RMS) Avg|Hold: 9/100 Ext Gain: -40.8 dB
03:34:42 PM Dec 14, 2010
Mkr1 10.00 MHz -47.293 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 1.0 kHz
Stop 30.00 MHz
Sweep 2.03 s (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
MSG
STATUS

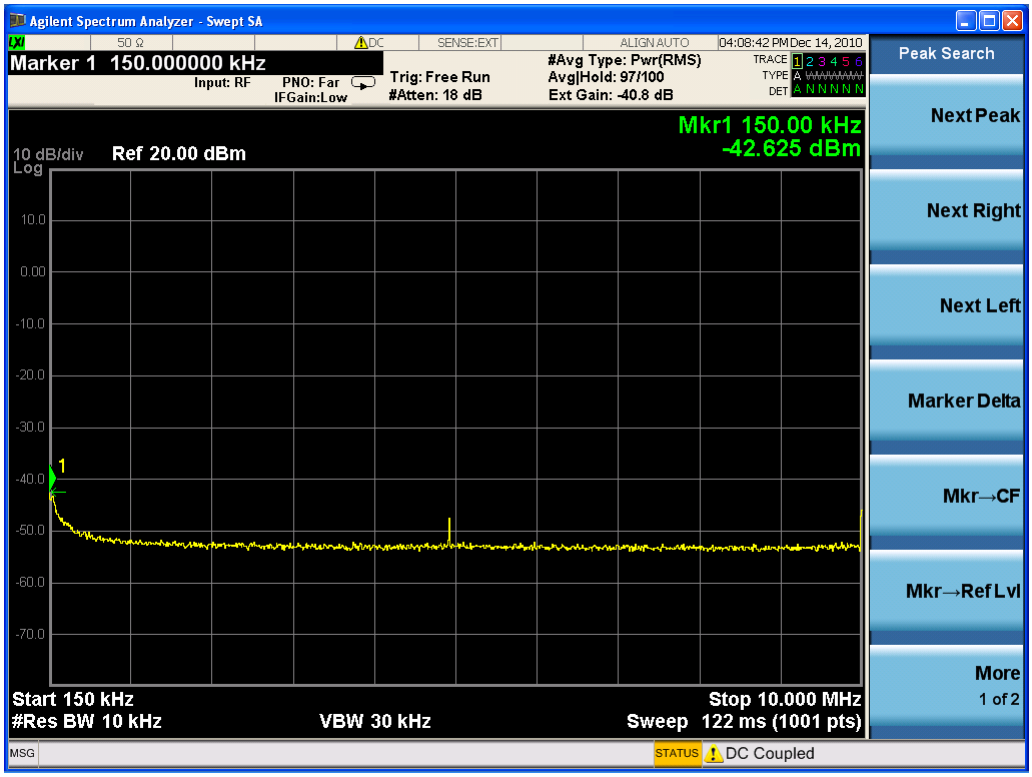

Agilent Spectrum Analyzer - Swept SA
Marker 1 859.100010000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
#Avg Type: Pwr(RMS) Avg|Hold: 16/100 Ext Gain: -40.8 dB
03:36:44 PM Dec 14, 2010
Mkr1 859.1 MHz -44.204 dBm
10 dB/div Log
Ref 20.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 10 kHz
Stop 859.1 MHz
Sweep 840 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
MSG
STATUS

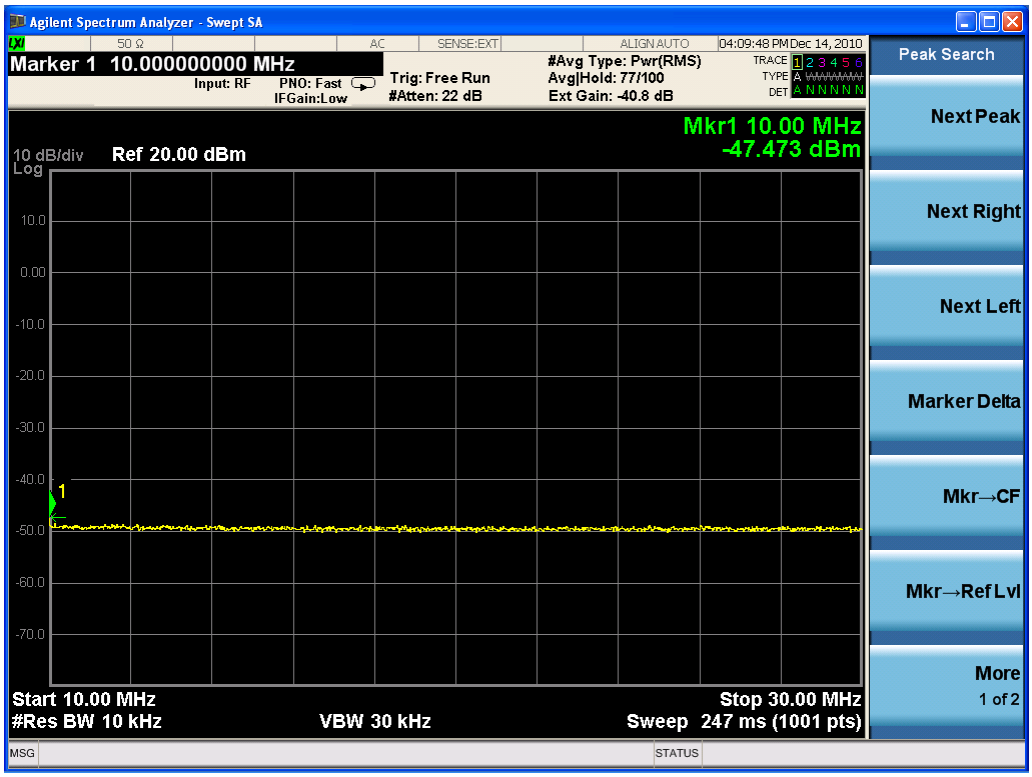

Agilent Spectrum Analyzer - Swept SA
Marker 1 895.264900000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 16 dB
#Avg Type: Pwr(RMS) Avg|Hold: 94/100 Ext Gain: -40.8 dB
03:37:58 PM Dec 14, 2010
Mkr1 895.26 MHz -34.910 dBm
10 dB/div Log
Ref 20.00 dBm
Start 894.10 MHz
#Res BW 100 kHz
VBW 10 kHz
Stop 1.00000 GHz
Sweep 107 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

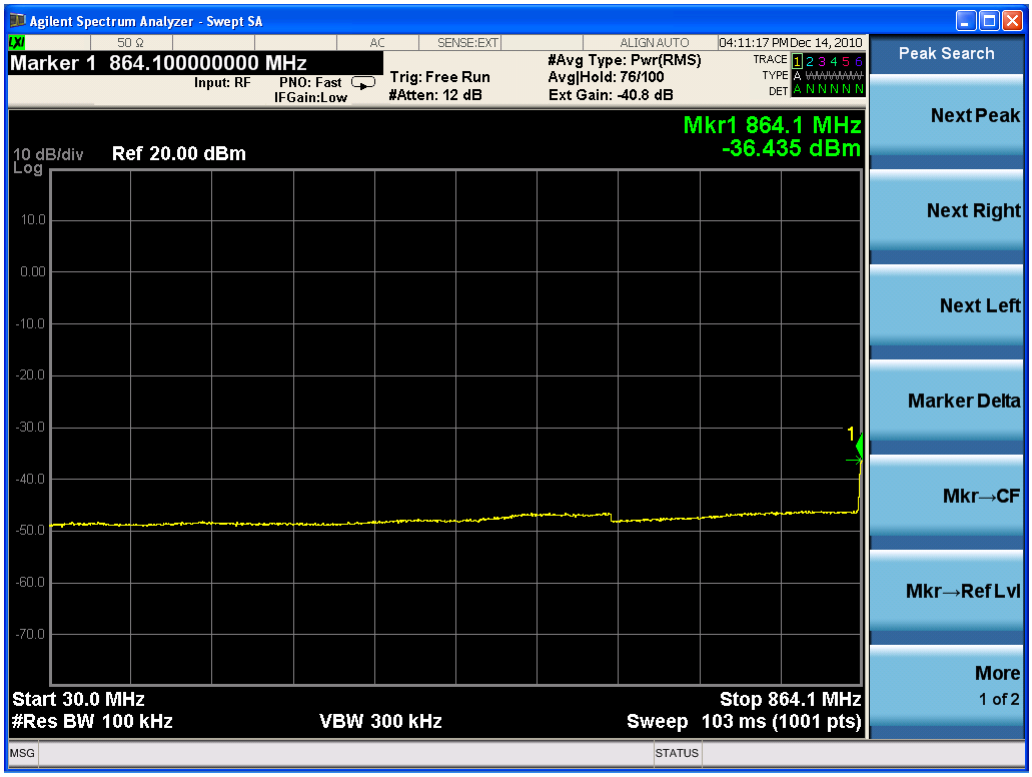

Agilent Spectrum Analyzer - Swept SA
Marker 1 17.017000000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
#Avg Type: Pwr(RMS) Avg|Hold: 31/100 Ext Gain: -40.8 dB
03:38:40 PM Dec 14, 2010
Mkr1 17.017 GHz -25.066 dBm
10 dB/div Log
Ref 20.00 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
VBW 100 kHz
Stop 20.000 GHz
Sweep 193 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

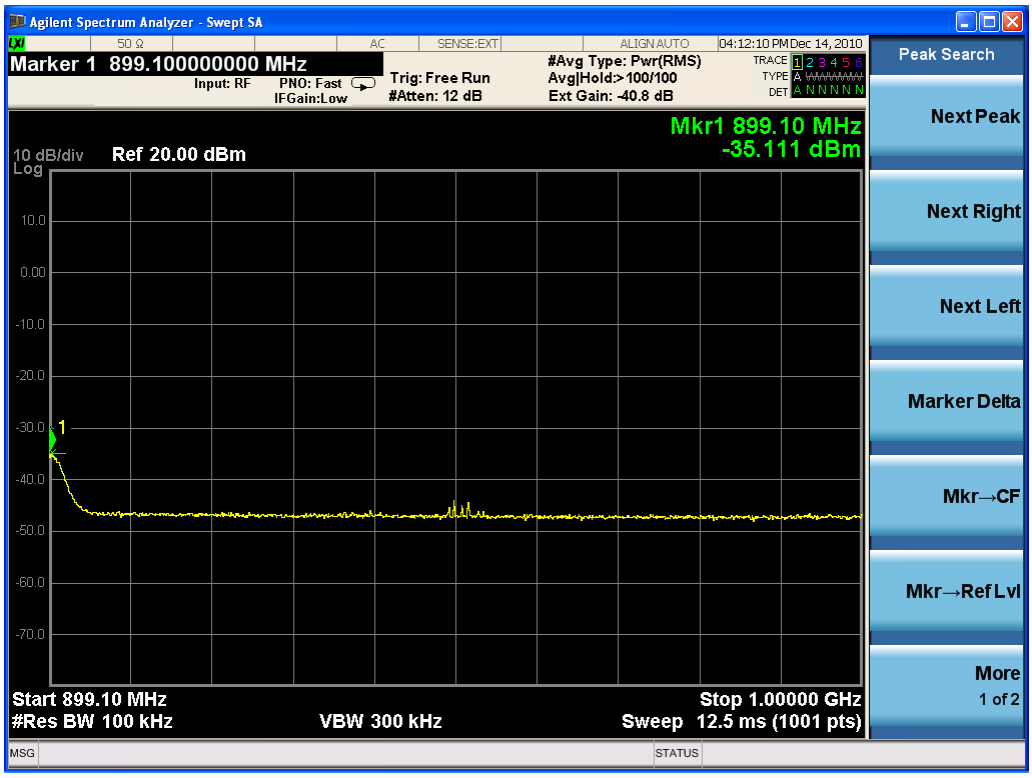
Three carriers (working in middle frequency)

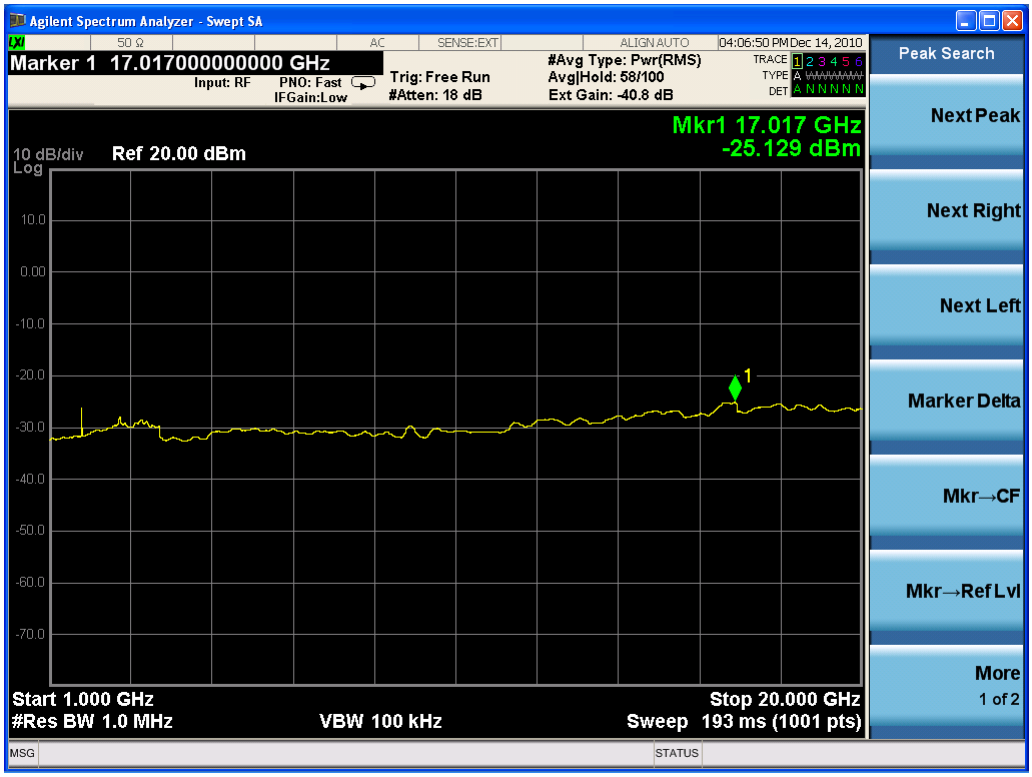




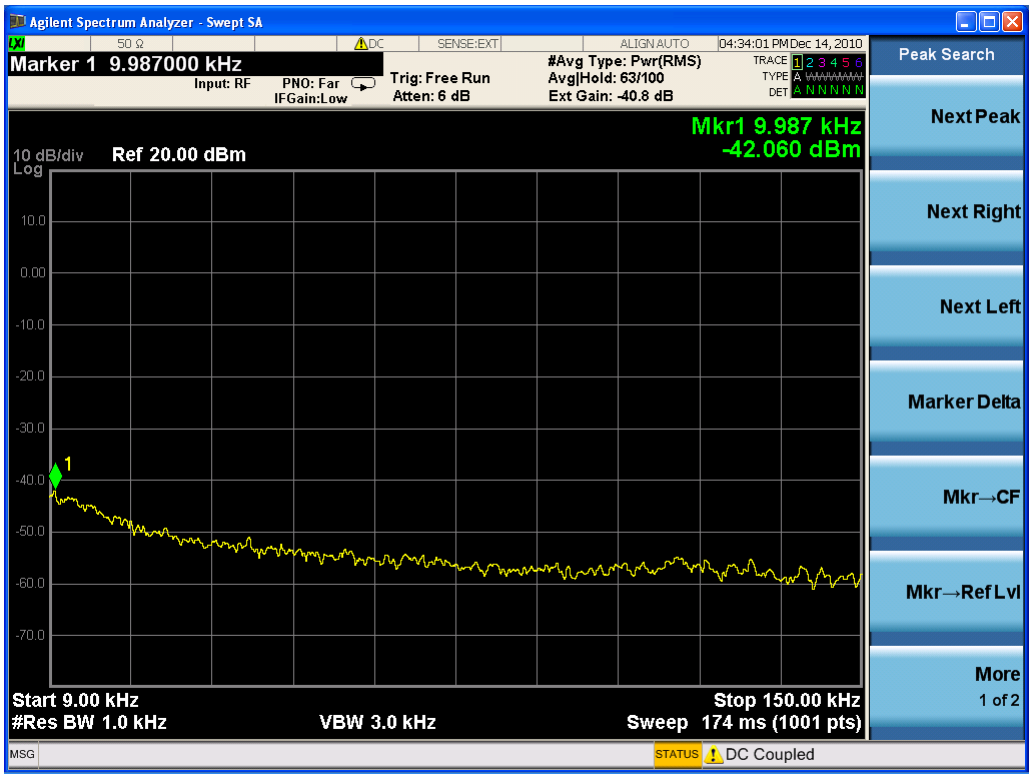

Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 22 dB
#Avg Type: Pwr(RMS) Avg|Hold: 77/100 Ext Gain: -40.8 dB
04:09:48 PM Dec 14, 2010
Mkr1 10.00 MHz -47.473 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

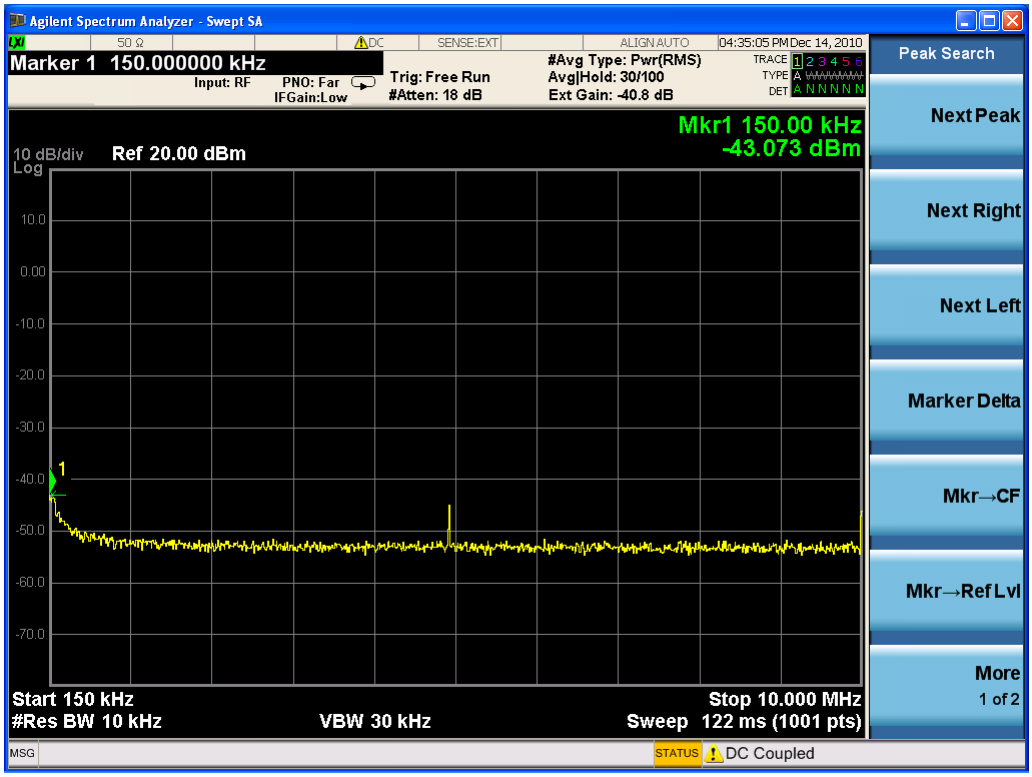

Agilent Spectrum Analyzer - Swept SA
Marker 1 864.100000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 12 dB
#Avg Type: Pwr(RMS) Avg|Hold: 76/100 Ext Gain: -40.8 dB
04:11:17 PM Dec 14, 2010
Mkr1 864.1 MHz -36.435 dBm
10 dB/div Log
Ref 20.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 864.1 MHz
Sweep 103 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

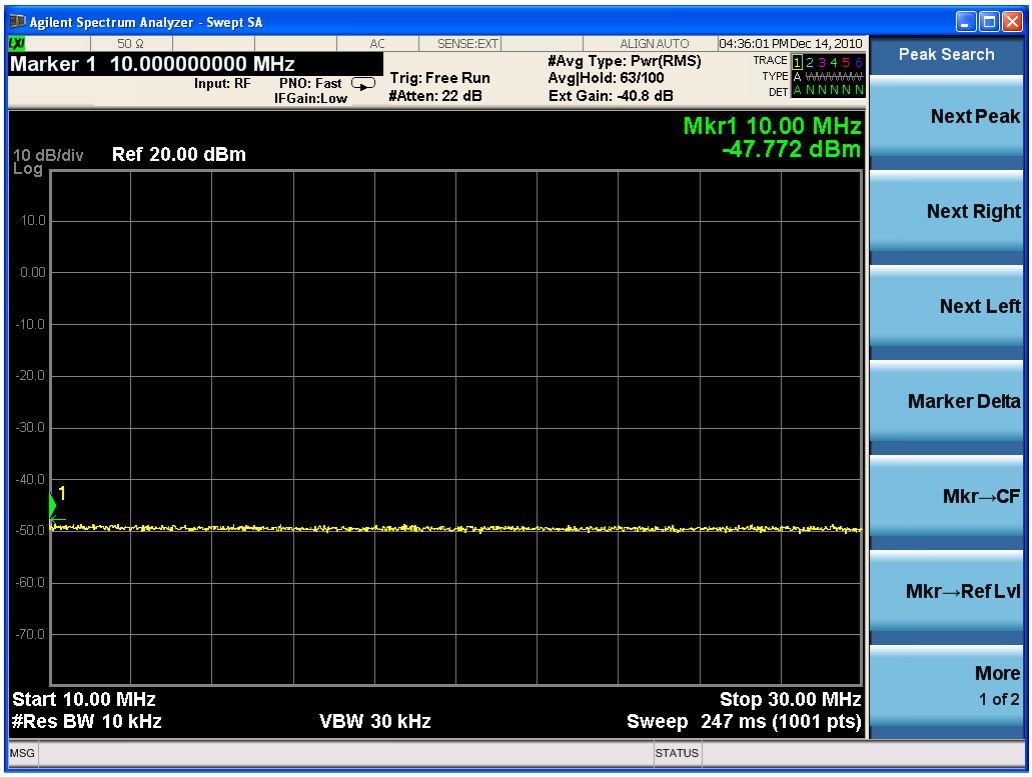


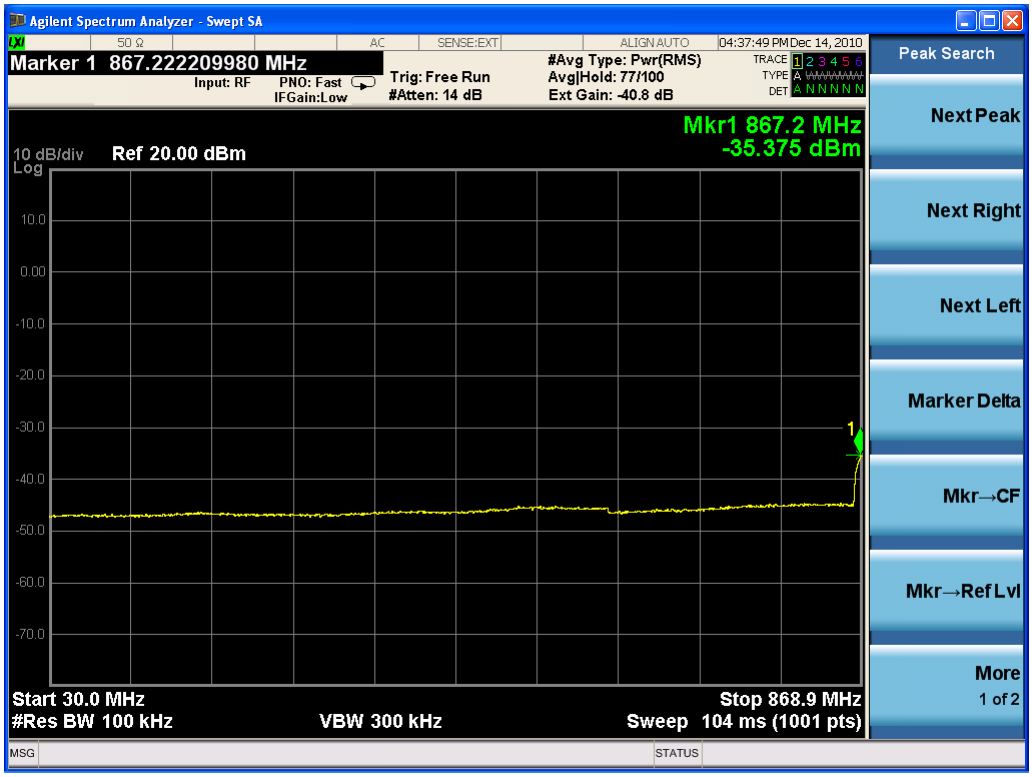


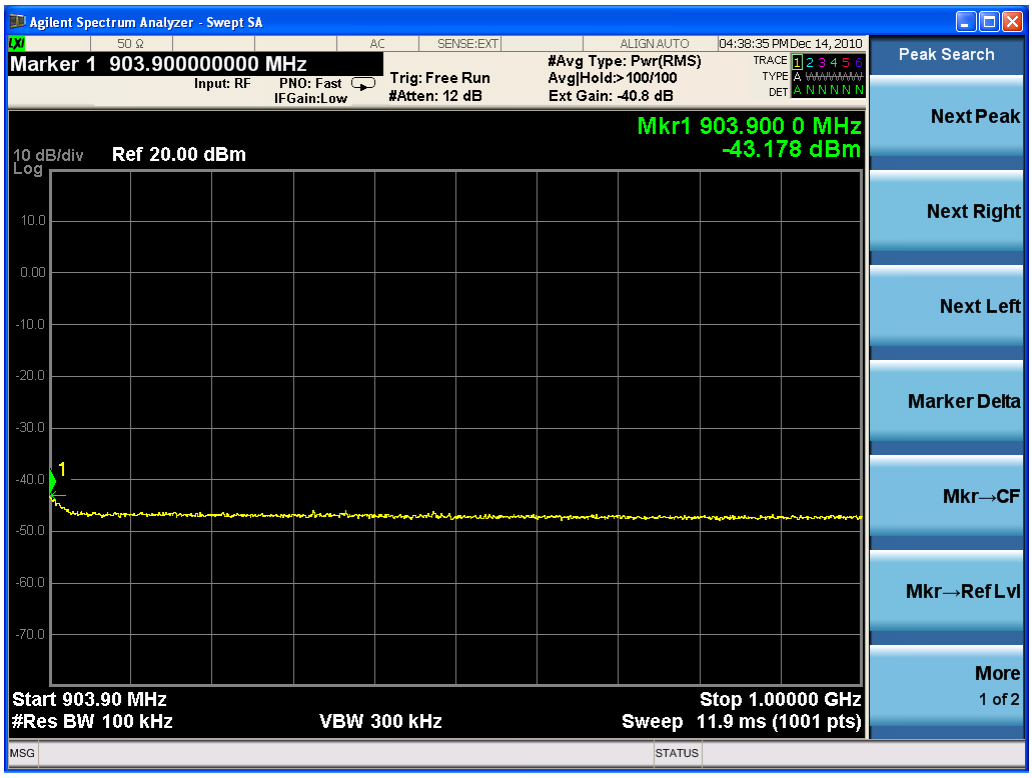
Three Carriers (working in top frequency)

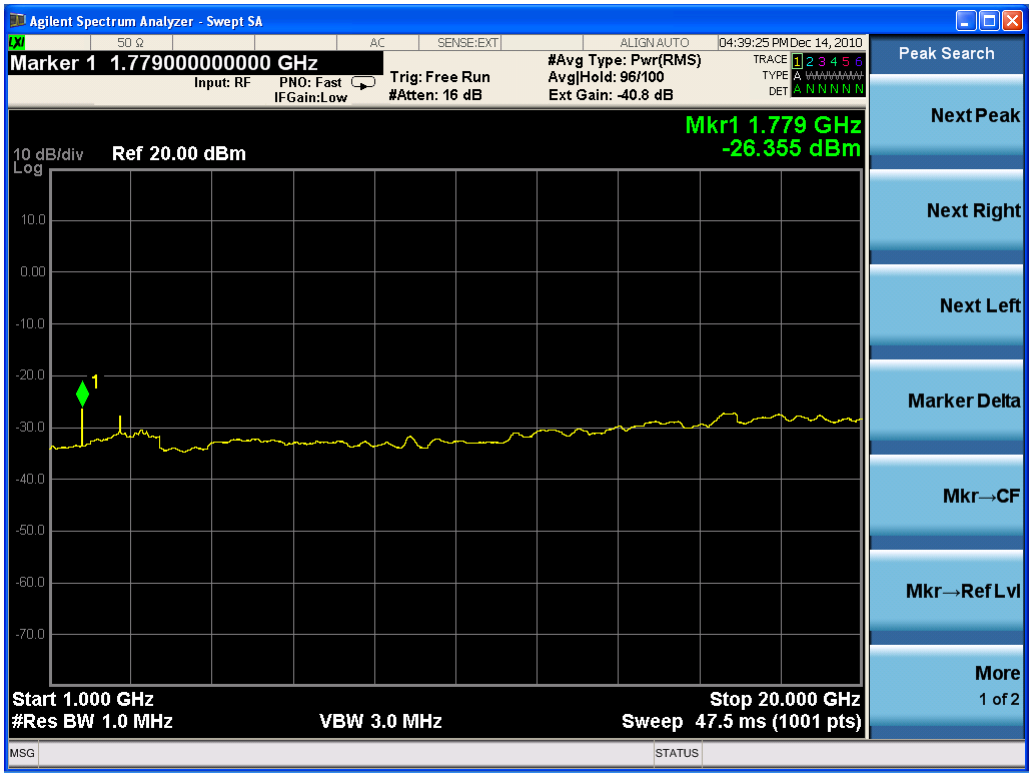

Agilent Spectrum Analyzer - Swept SA
Marker 1 9.987000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
Atten: 6 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 63/100
Ext Gain: -40.8 dB
04:34:01 PM Dec 14, 2010
Mkr1 9.987 kHz
-42.060 dBm
10 dB/div
Log
Ref 20.00 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
VBW 3.0 kHz
Stop 150.00 kHz
Sweep 174 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Marker 1 150.000000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 18 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 30/100
Ext Gain: -40.8 dB
04:35:05 PM Dec 14, 2010
Mkr1 150.00 kHz
-43.073 dBm
10 dB/div
Log
Ref 20.00 dBm
Start 150 kHz
#Res BW 10 kHz
VBW 30 kHz
Stop 10.000 MHz
Sweep 122 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
DC Coupled

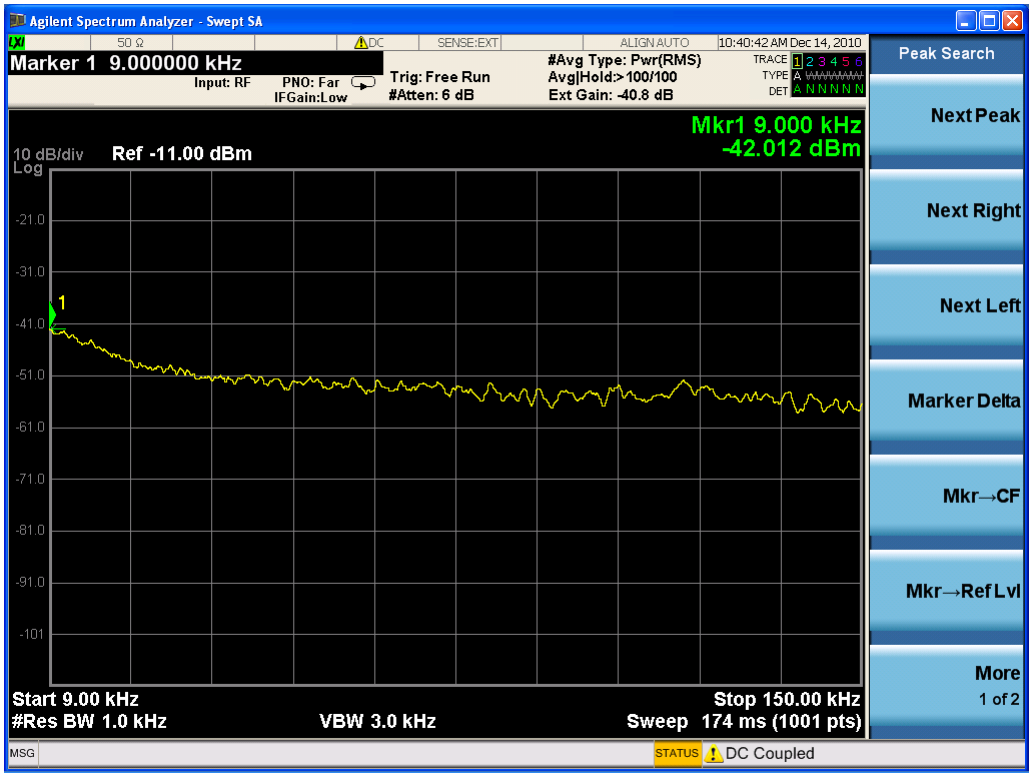

Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 22 dB
#Avg Type: Pwr(RMS) Avg|Hold: 63/100 Ext Gain: -40.8 dB
04:36:01 PM Dec 14, 2010
Mkr1 10.00 MHz -47.772 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

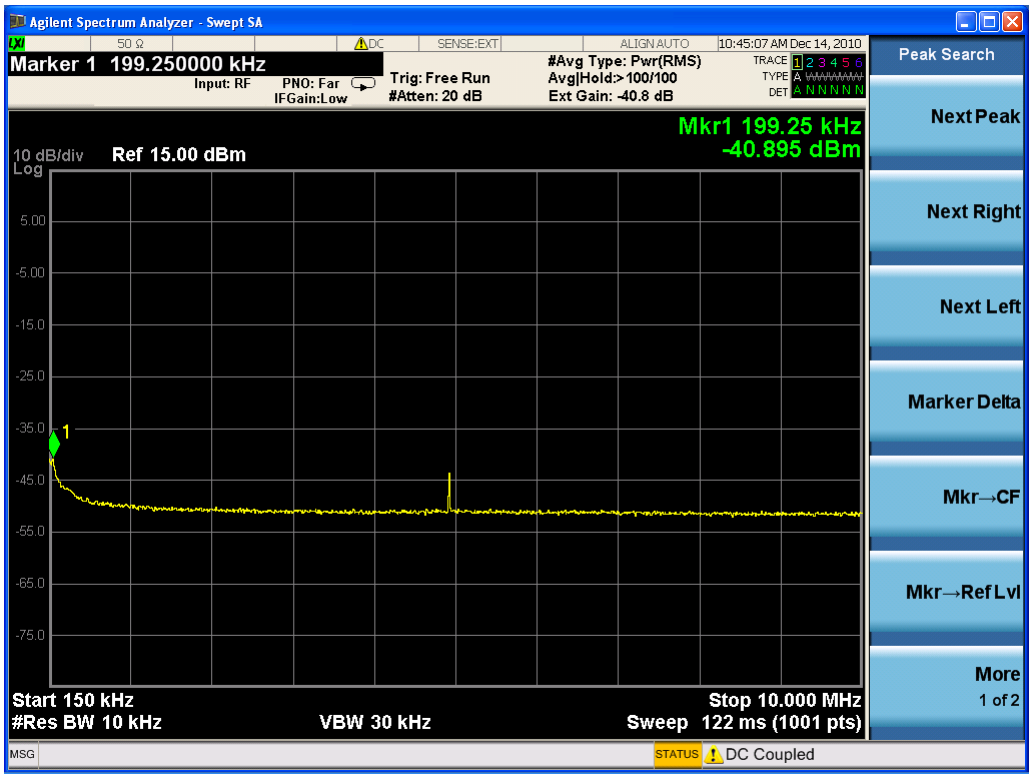

Agilent Spectrum Analyzer - Swept SA
Marker 1 867.222209980 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
#Avg Type: Pwr(RMS) Avg|Hold: 77/100 Ext Gain: -40.8 dB
04:37:49 PM Dec 14, 2010
Mkr1 867.2 MHz -35.375 dBm
10 dB/div Log
Ref 20.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 868.9 MHz
Sweep 104 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

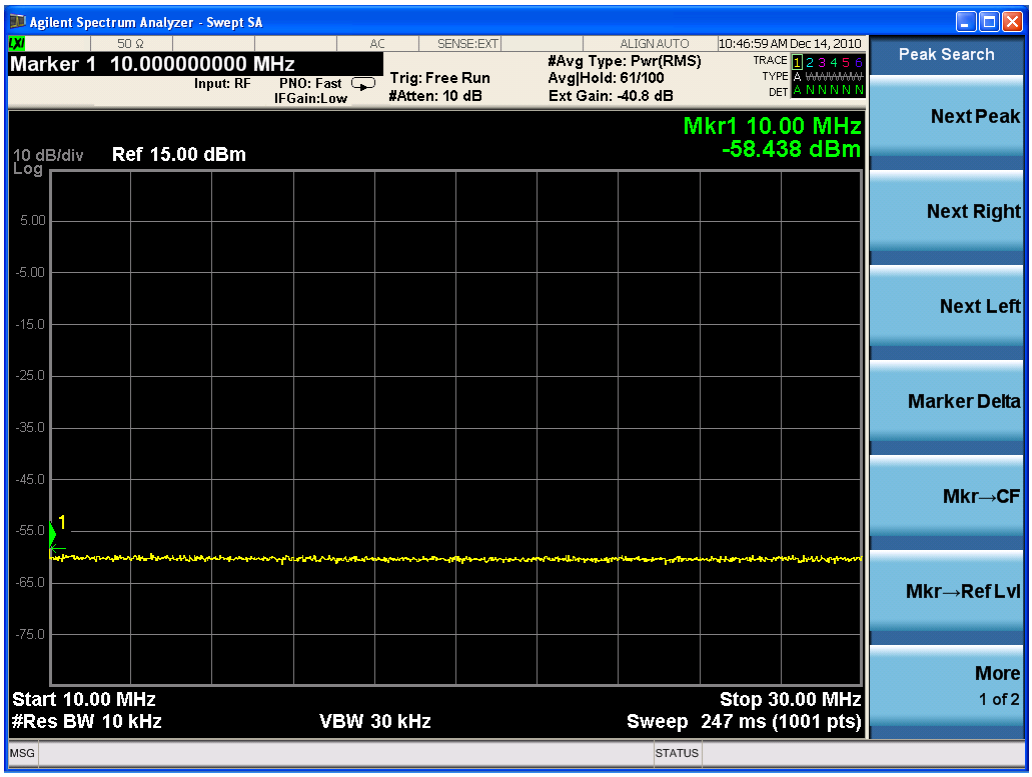

Agilent Spectrum Analyzer - Swept SA
Marker 1 903.900000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 12 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
04:38:35 PM Dec 14, 2010
Mkr1 903.900 0 MHz -43.178 dBm
10 dB/div Log
Ref 20.00 dBm
Start 903.90 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 1.00000 GHz
Sweep 11.9 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

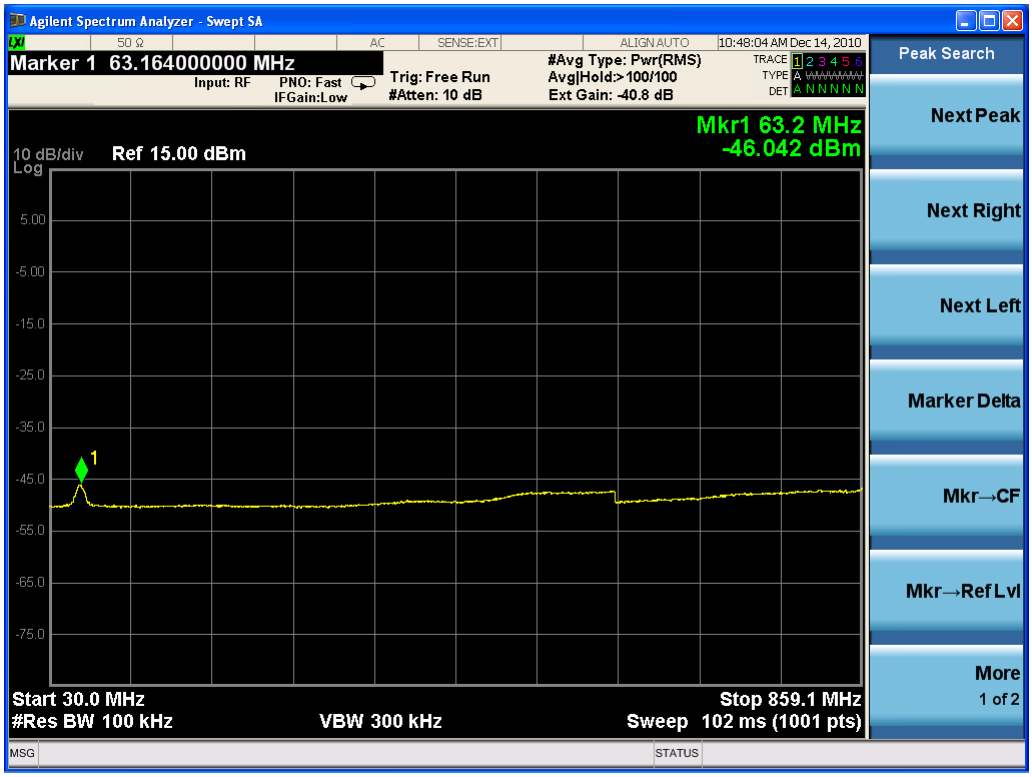

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.779000000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 16 dB
#Avg Type: Pwr(RMS) Avg|Hold: 96/100 Ext Gain: -40.8 dB
04:39:25 PM Dec 14, 2010
Mkr1 1.779 GHz -26.355 dBm
10 dB/div Log
Ref 20.00 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 20.000 GHz
Sweep 47.5 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

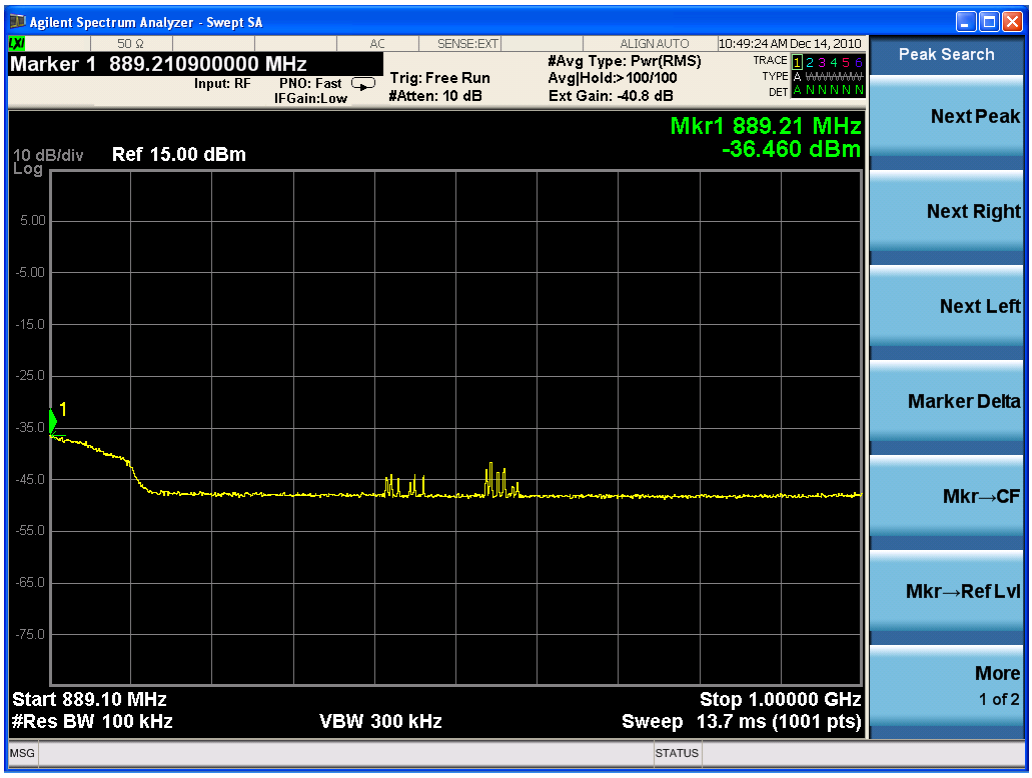
Two carriers (working in bottom frequency)

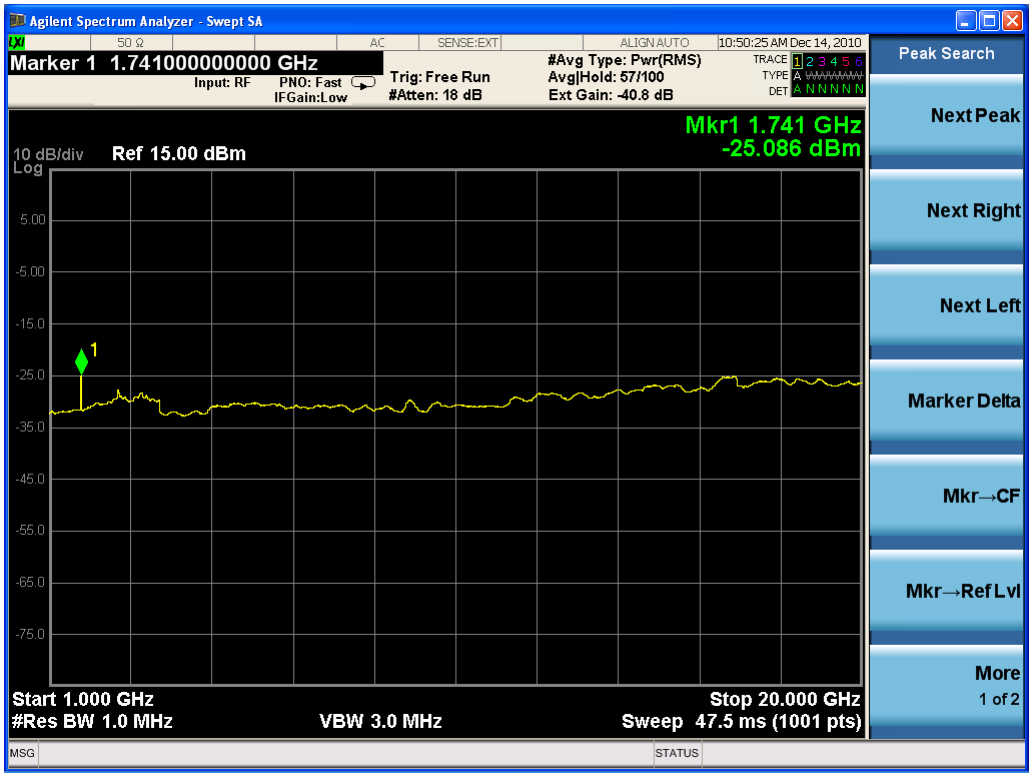




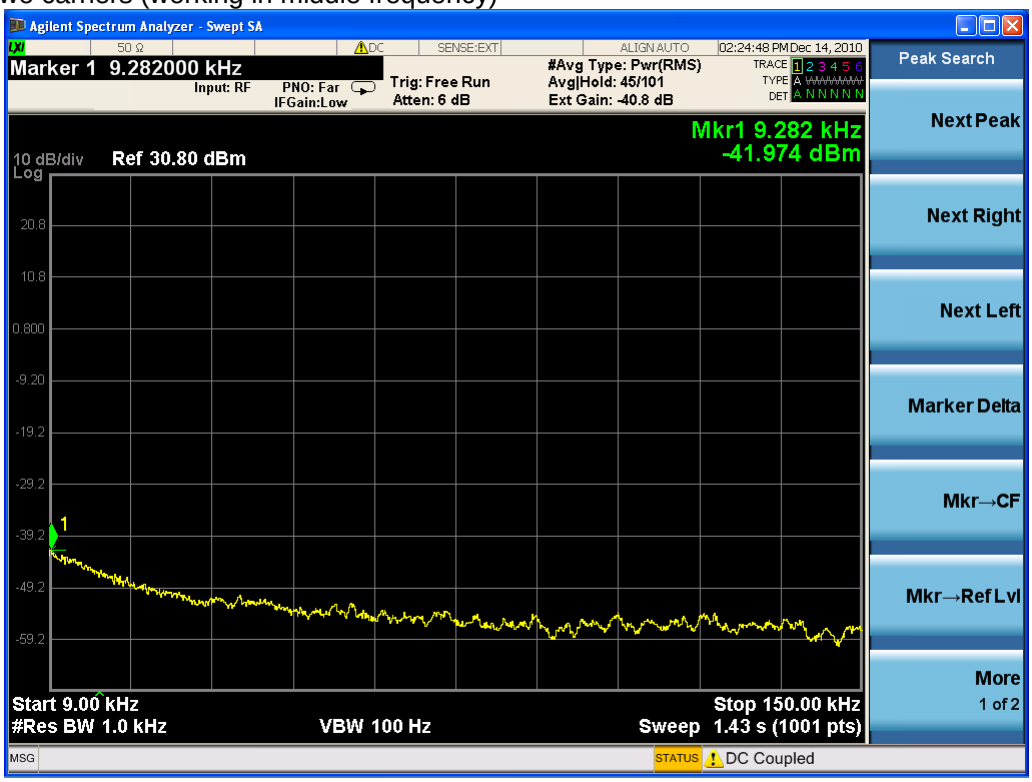

Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 10 dB
#Avg Type: Pwr(RMS) Avg|Hold: 61/100 Ext Gain: -40.8 dB
10:46:59 AM Dec 14, 2010
Mkr1 10.00 MHz -58.438 dBm
10 dB/div Log
Ref 15.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

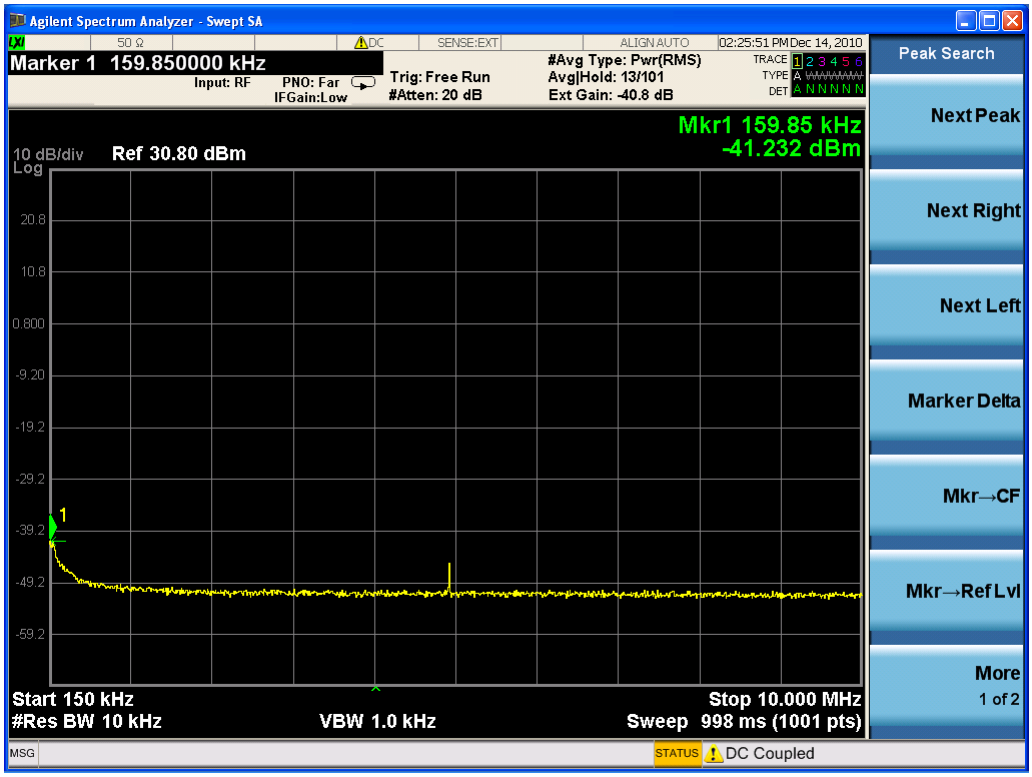

Agilent Spectrum Analyzer - Swept SA
Marker 1 63.164000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 10 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
10:48:04 AM Dec 14, 2010
Mkr1 63.2 MHz -46.042 dBm
10 dB/div Log
Ref 15.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 859.1 MHz
Sweep 102 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

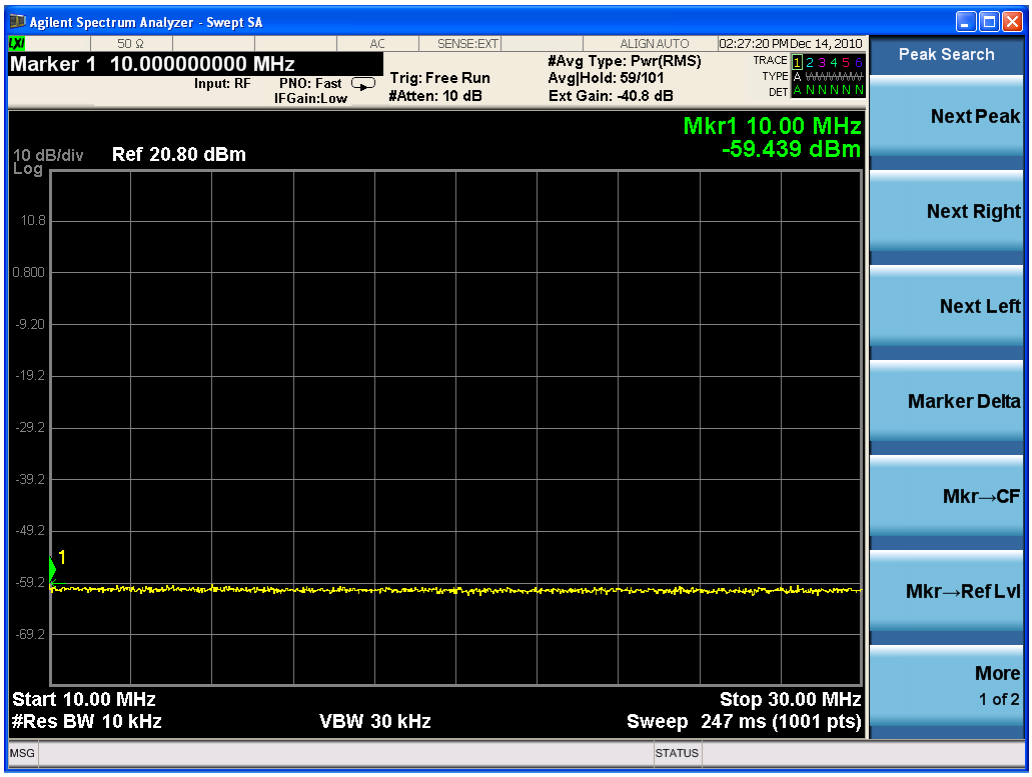

Agilent Spectrum Analyzer - Swept SA
Marker 1 889.210900000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 10 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
10:49:24 AM Dec 14, 2010
Mkr1 889.21 MHz -36.460 dBm
10 dB/div Log
Ref 15.00 dBm
Start 889.10 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 1.00000 GHz
Sweep 13.7 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

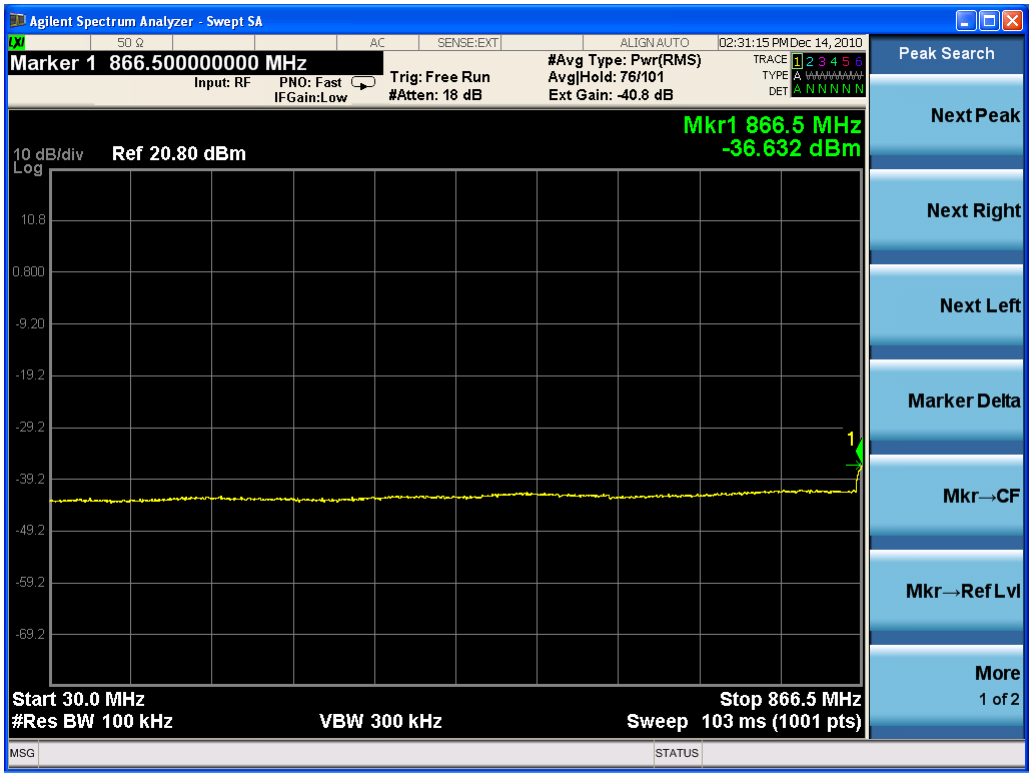

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.741000000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
#Avg Type: Pwr(RMS) Avg|Hold: 57/100 Ext Gain: -40.8 dB
10:50:25 AM Dec 14, 2010
Mkr1 1.741 GHz -25.086 dBm
10 dB/div Log
Ref 15.00 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 20.000 GHz
Sweep 47.5 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

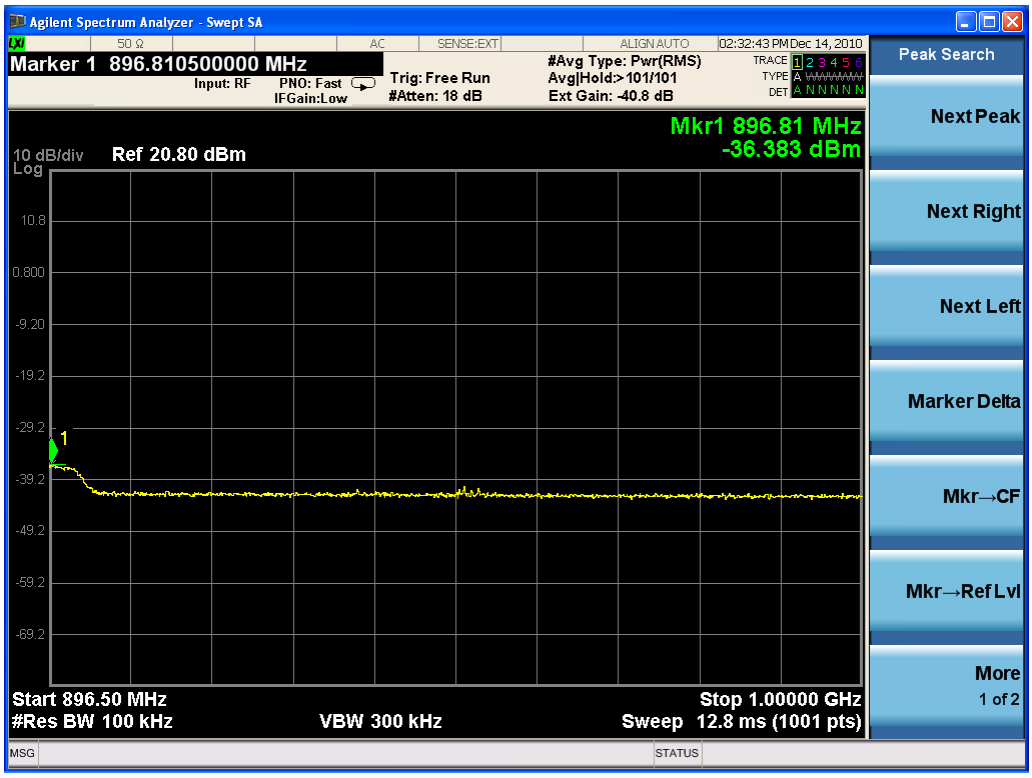
Two carriers (working in middle frequency)

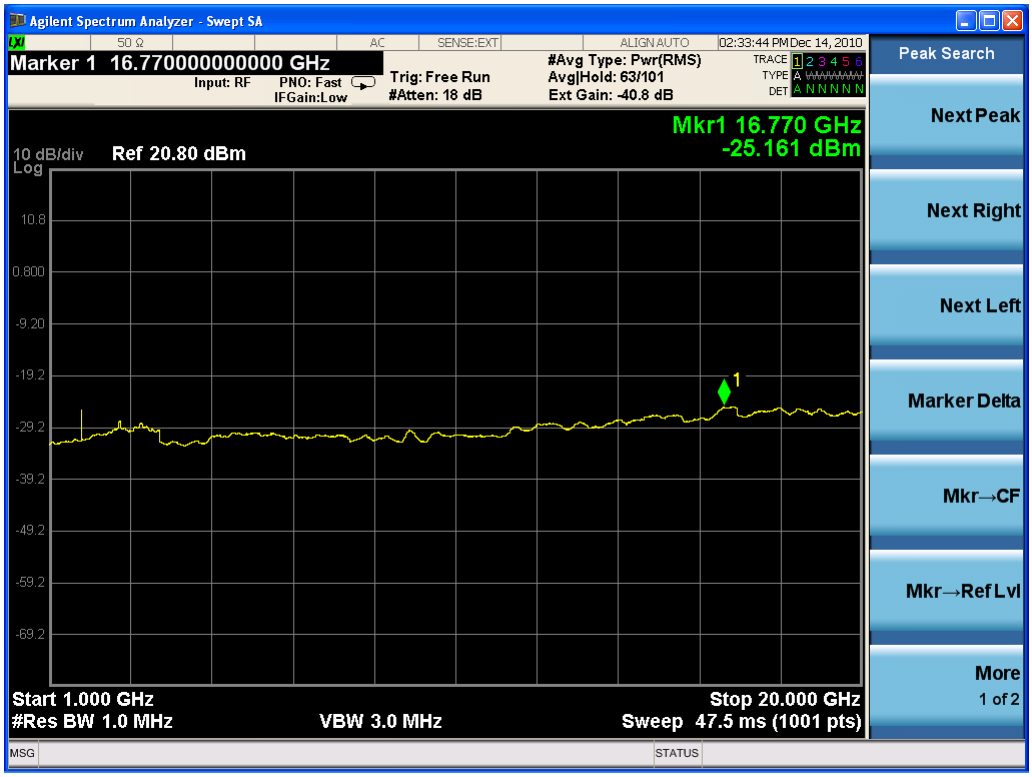





Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 10 dB
#Avg Type: Pwr(RMS) Avg|Hold: 59/101 Ext Gain: -40.8 dB
02:27:20 PM Dec 14, 2010
Mkr1 10.00 MHz -59.439 dBm
10 dB/div Log
Ref 20.80 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

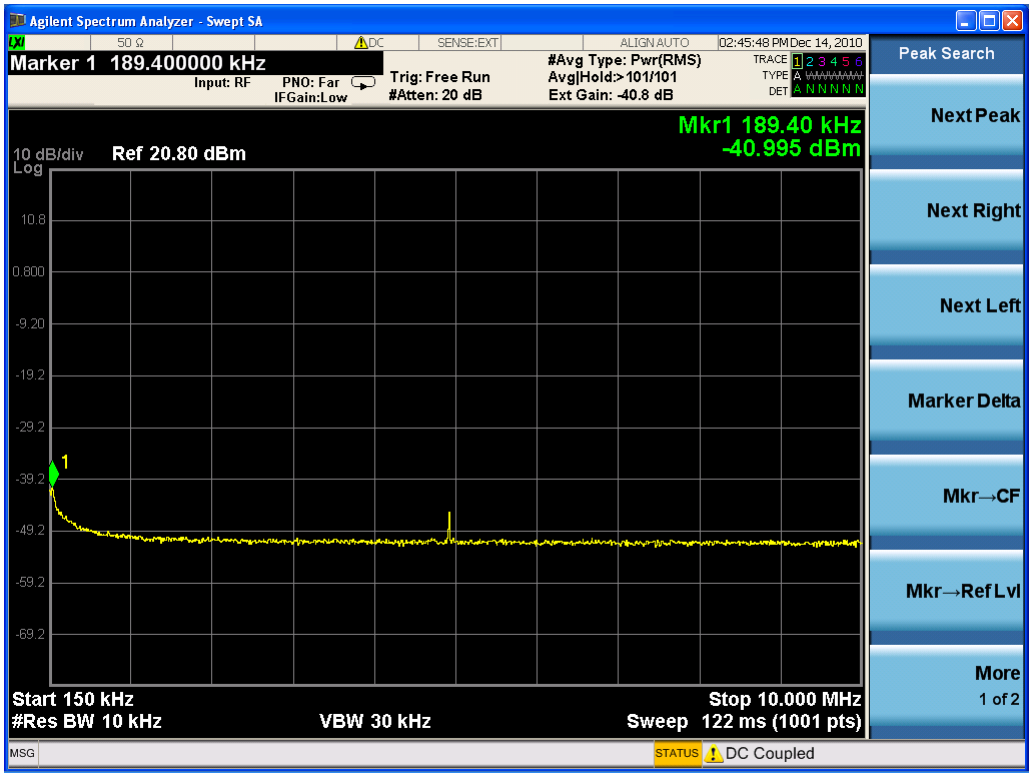

Agilent Spectrum Analyzer - Swept SA
Marker 1 866.500000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
#Avg Type: Pwr(RMS) Avg|Hold: 76/101 Ext Gain: -40.8 dB
02:31:15 PM Dec 14, 2010
Mkr1 866.5 MHz -36.632 dBm
10 dB/div Log
Ref 20.80 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 866.5 MHz
Sweep 103 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

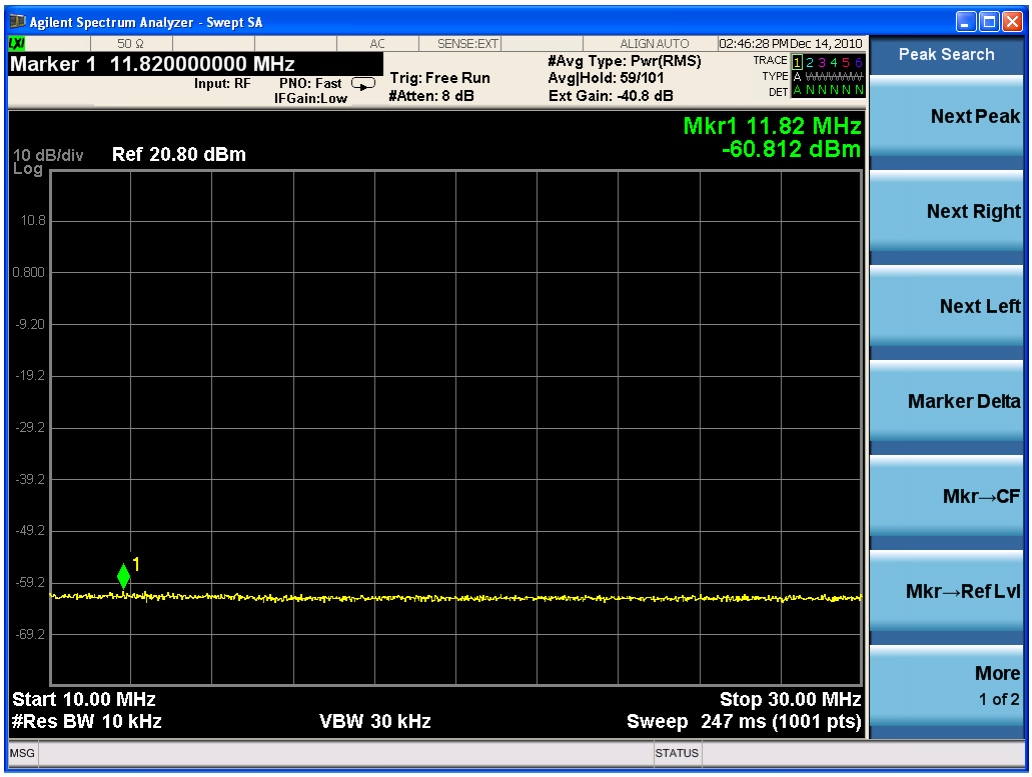




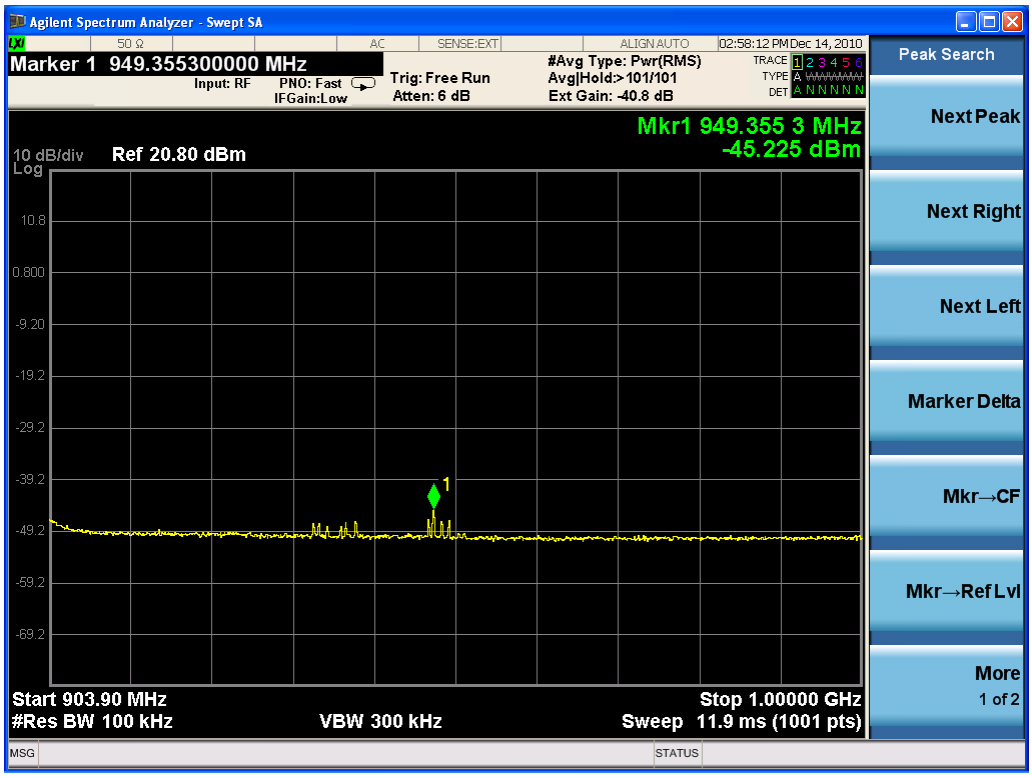
Two carriers (working in top frequency)

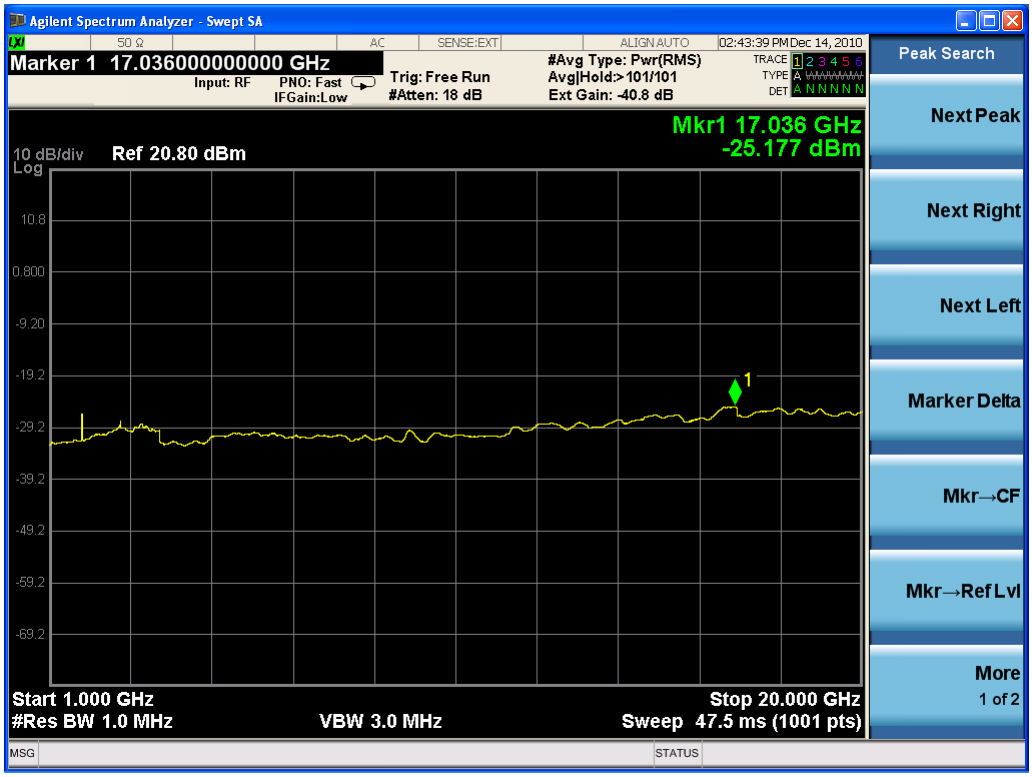

Agilent Spectrum Analyzer - Swept SA
Marker 1 9.141000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
Atten: 6 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>101/101
Ext Gain: -40.8 dB
02:45:00 PM Dec 14, 2010
Mkr1 9.141 kHz
-42.268 dBm
10 dB/div
Log
Ref 20.80 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
VBW 3.0 kHz
Stop 150.00 kHz
Sweep 174 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Marker 1 189.400000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>101/101
Ext Gain: -40.8 dB
02:45:48 PM Dec 14, 2010
Mkr1 189.40 kHz
-40.995 dBm
10 dB/div
Log
Ref 20.80 dBm
Start 150 kHz
#Res BW 10 kHz
VBW 30 kHz
Stop 10.000 MHz
Sweep 122 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
DC Coupled

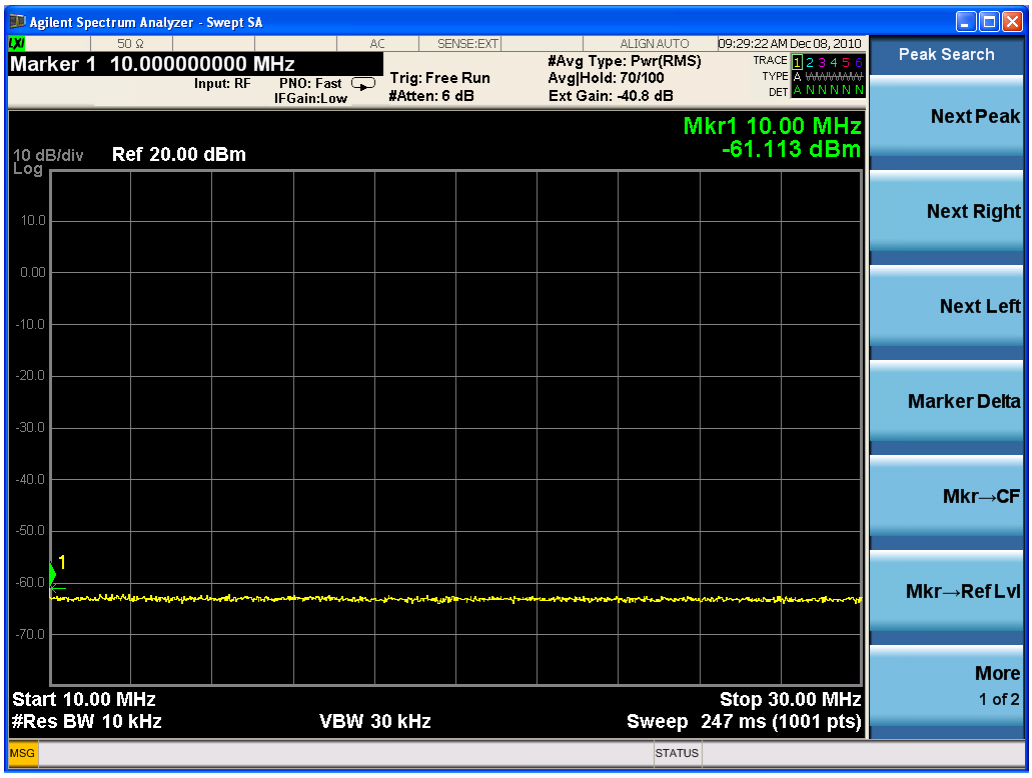

Agilent Spectrum Analyzer - Swept SA
Marker 1 11.820000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 8 dB
#Avg Type: Pwr(RMS) Avg|Hold: 59/101 Ext Gain: -40.8 dB
02:46:28 PM Dec 14, 2010
Mkr1 11.82 MHz -60.812 dBm
10 dB/div Log
Ref 20.80 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 873.900000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 16 dB
#Avg Type: Pwr(RMS) Avg|Hold:>101/101 Ext Gain: -40.8 dB
02:57:19 PM Dec 14, 2010
Mkr1 873.9 MHz -36.333 dBm
10 dB/div Log
Ref 20.80 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 873.9 MHz
Sweep 104 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

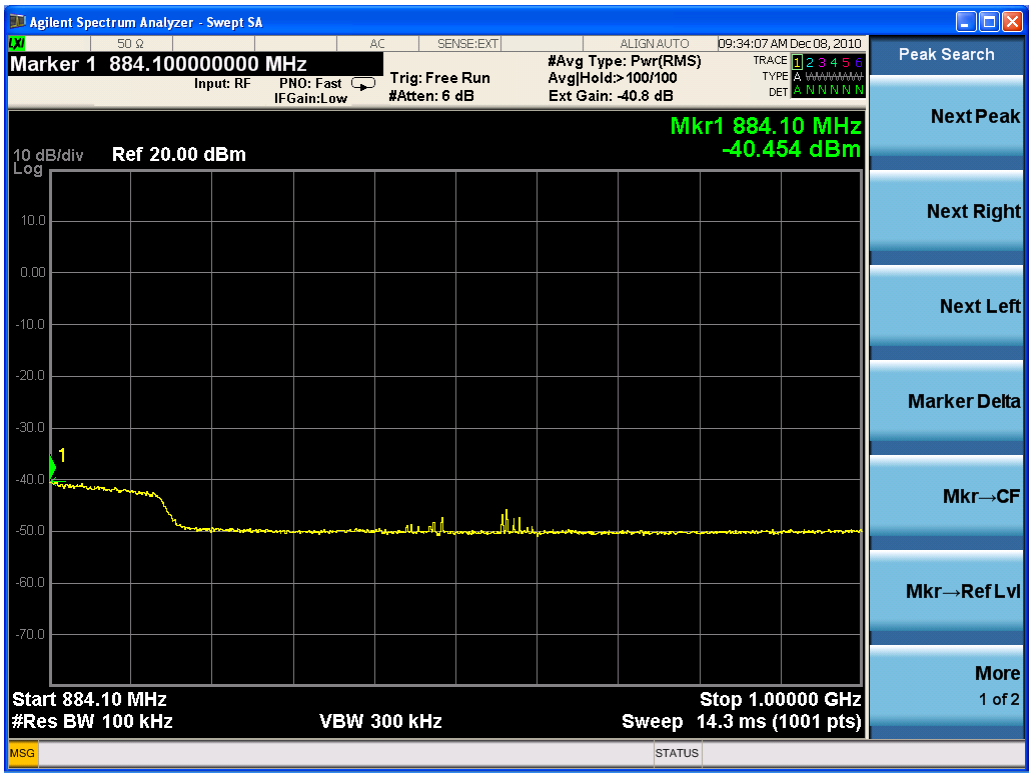

Agilent Spectrum Analyzer - Swept SA
Marker 1 949.355300000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run Atten: 6 dB
#Avg Type: Pwr(RMS) Avg|Hold:>101/101 Ext Gain: -40.8 dB
02:58:12 PM Dec 14, 2010
Mkr1 949.355 3 MHz -45.225 dBm
10 dB/div Log
Ref 20.80 dBm
Start 903.90 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 1.00000 GHz
Sweep 11.9 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

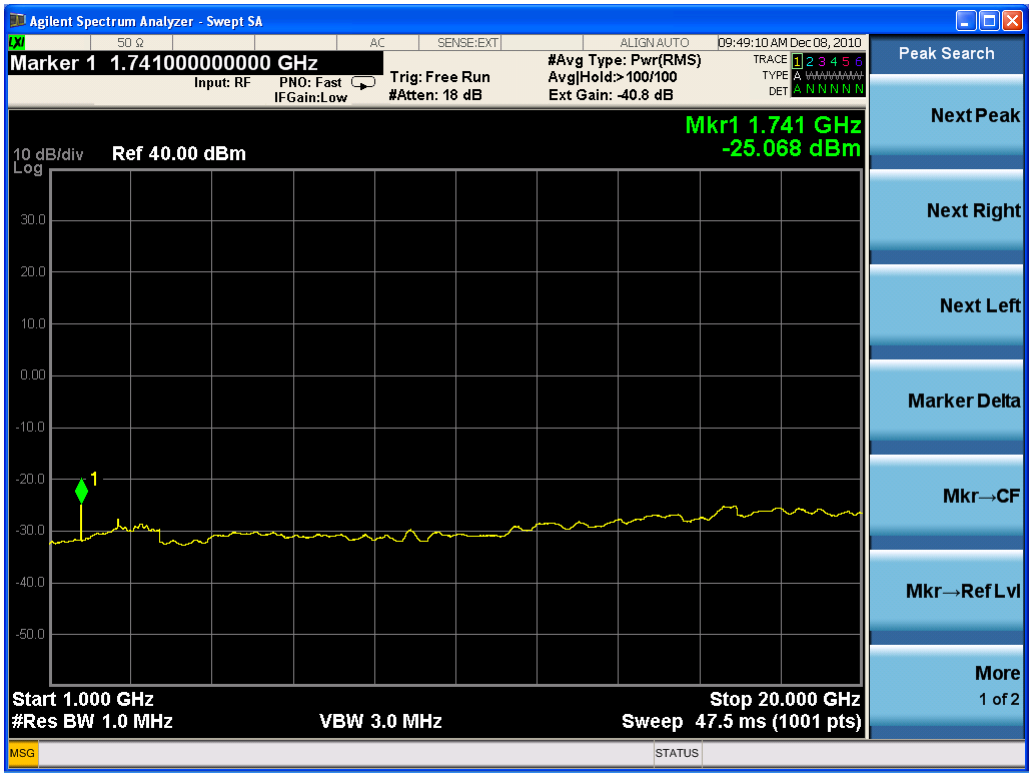

Agilent Spectrum Analyzer - Swept SA
Marker 1 17.036000000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
#Avg Type: Pwr(RMS) Avg|Hold:>101/101 Ext Gain: -40.8 dB
02:43:39 PM Dec 14, 2010
Mkr1 17.036 GHz -25.177 dBm
10 dB/div Log
Ref 20.80 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 20.000 GHz
Sweep 47.5 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

One carrier (working in bottom frequency)

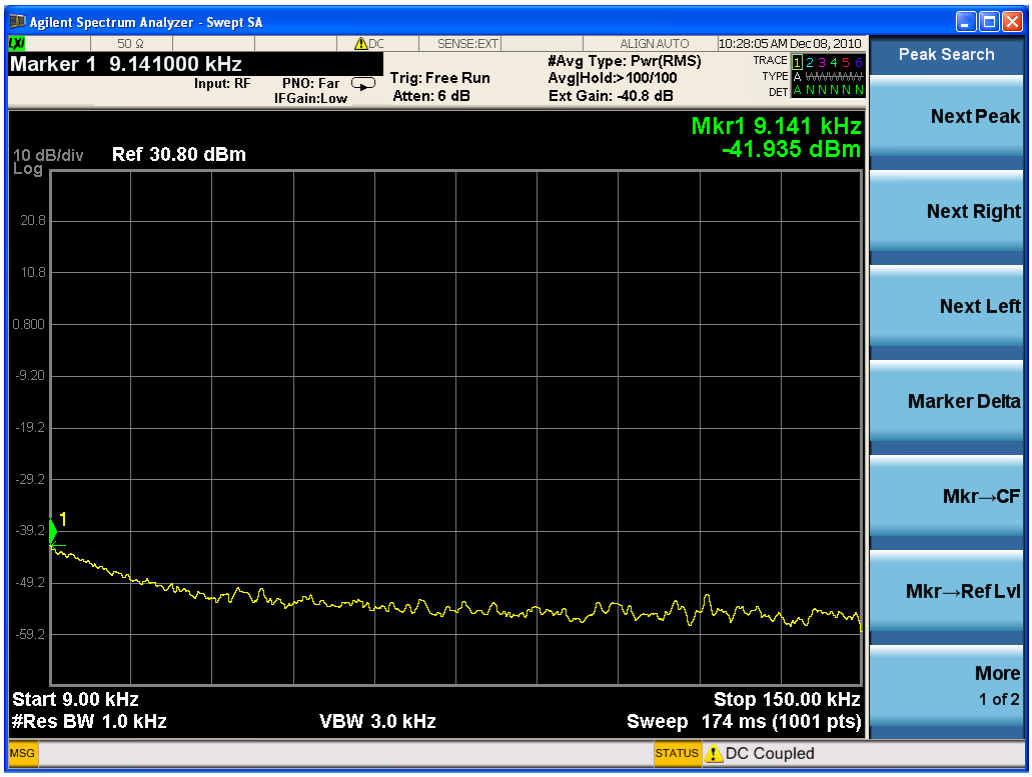

Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 6 dB
#Avg Type: Pwr(RMS) Avg|Hold: 70/100 Ext Gain: -40.8 dB
09:29:22 AM Dec 08, 2010
Mkr1 10.00 MHz -61.113 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

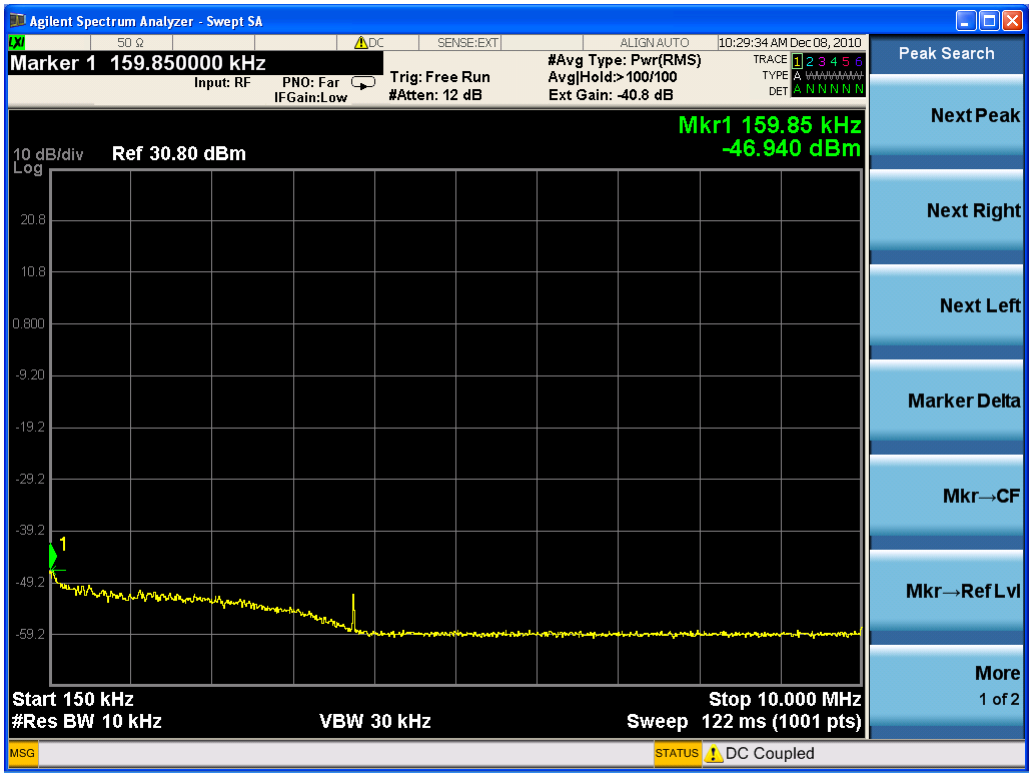

Agilent Spectrum Analyzer - Swept SA
Marker 1 859.100000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 10 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
09:32:09 AM Dec 08, 2010
Mkr1 859.1 MHz -47.051 dBm
10 dB/div Log
Ref 20.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 859.1 MHz
Sweep 102 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

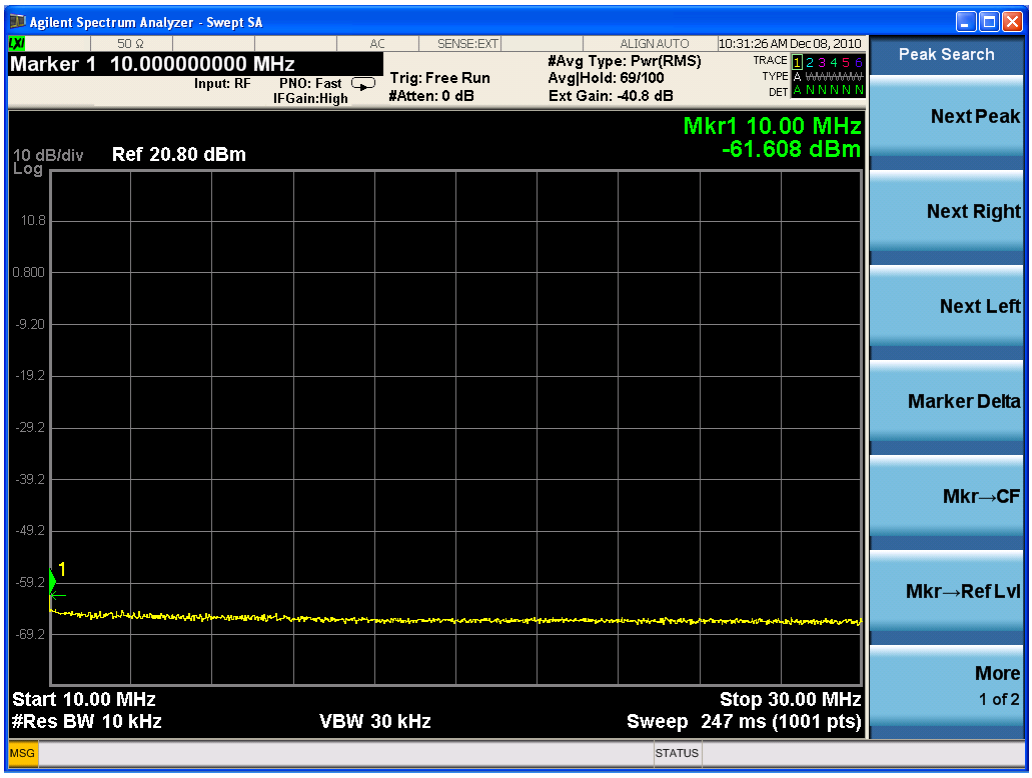


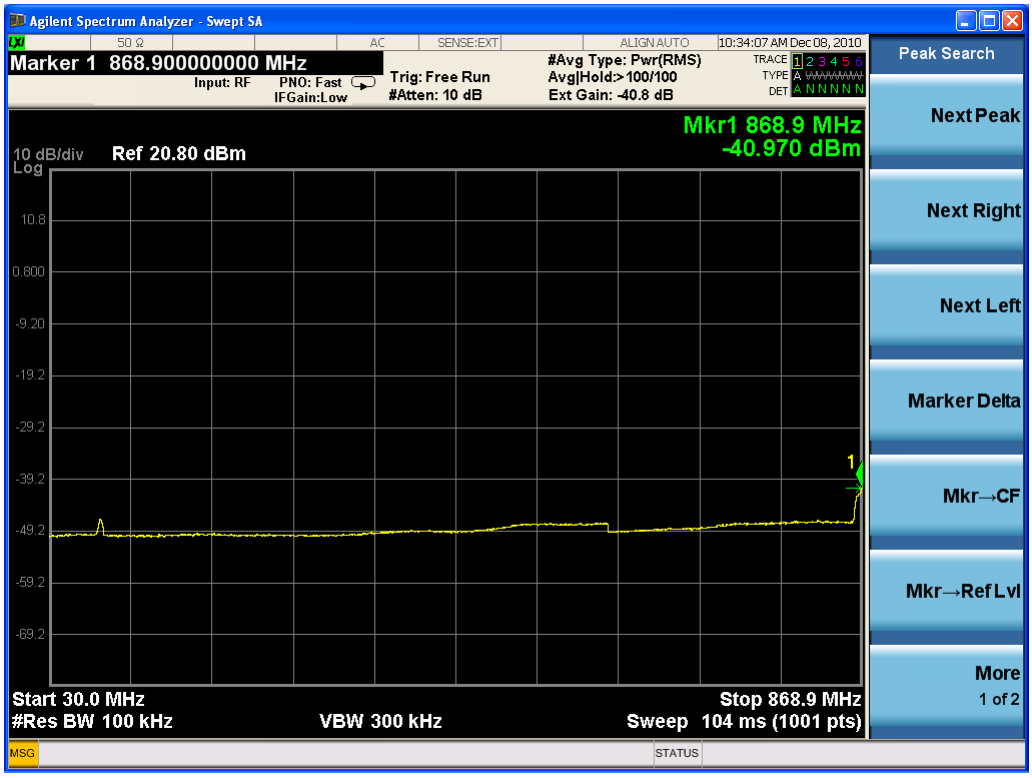


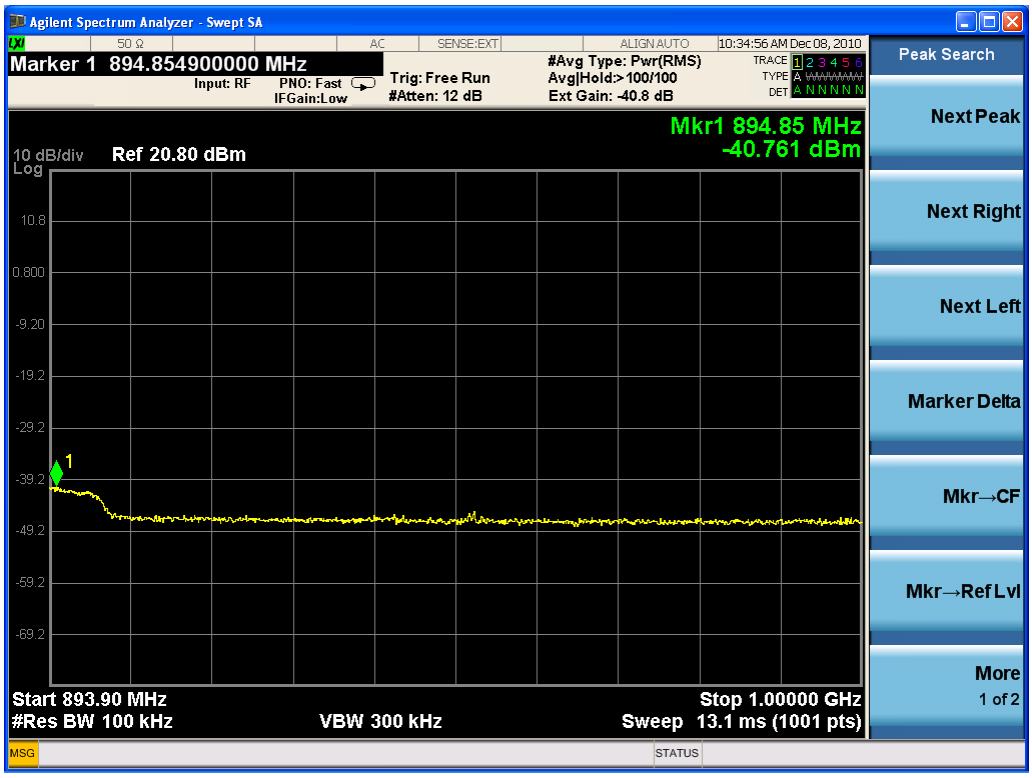
One carrier (working in middle frequency)

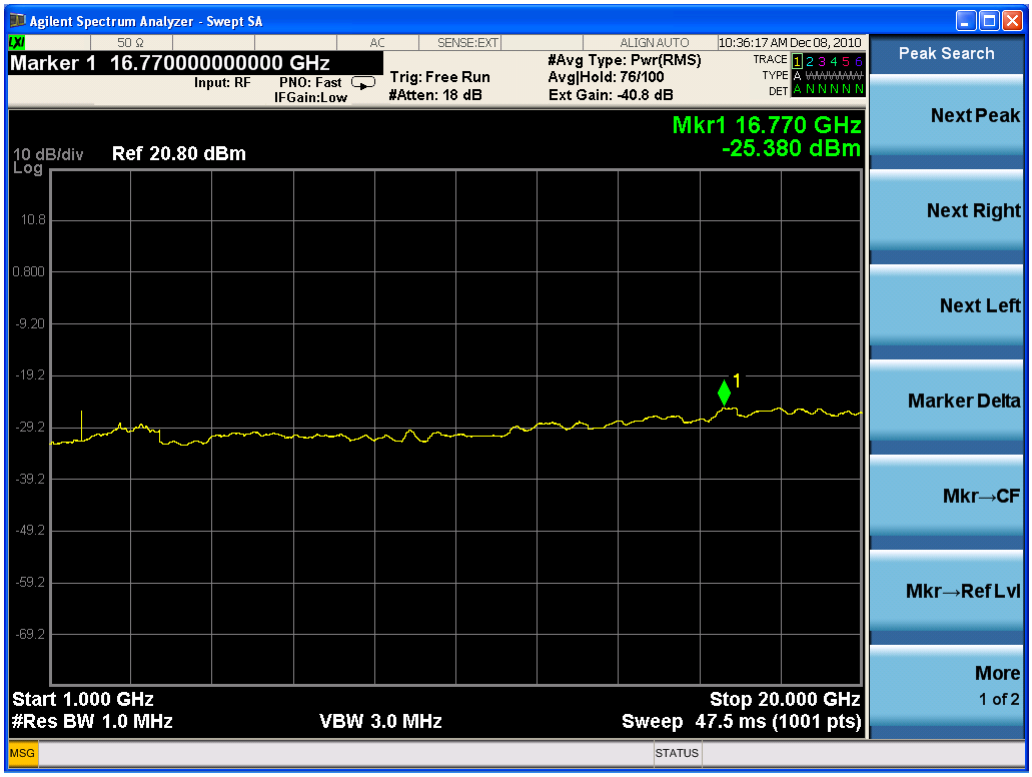

Agilent Spectrum Analyzer - Swept SA
Marker 1 9.141000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
Atten: 6 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>100/100
Ext Gain: -40.8 dB
10:28:05 AM Dec 08, 2010
Mkr1 9.141 kHz
-41.935 dBm
10 dB/div
Log
Ref 30.80 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
VBW 3.0 kHz
Stop 150.00 kHz
Sweep 174 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 159.850000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 12 dB
#Avg Type: Pwr(RMS)
Avg|Hold:>100/100
Ext Gain: -40.8 dB
10:29:34 AM Dec 08, 2010
Mkr1 159.85 kHz
-46.940 dBm
10 dB/div
Log
Ref 30.80 dBm
Start 150 kHz
#Res BW 10 kHz
VBW 30 kHz
Stop 10.000 MHz
Sweep 122 ms (1001 pts)
DC Coupled
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

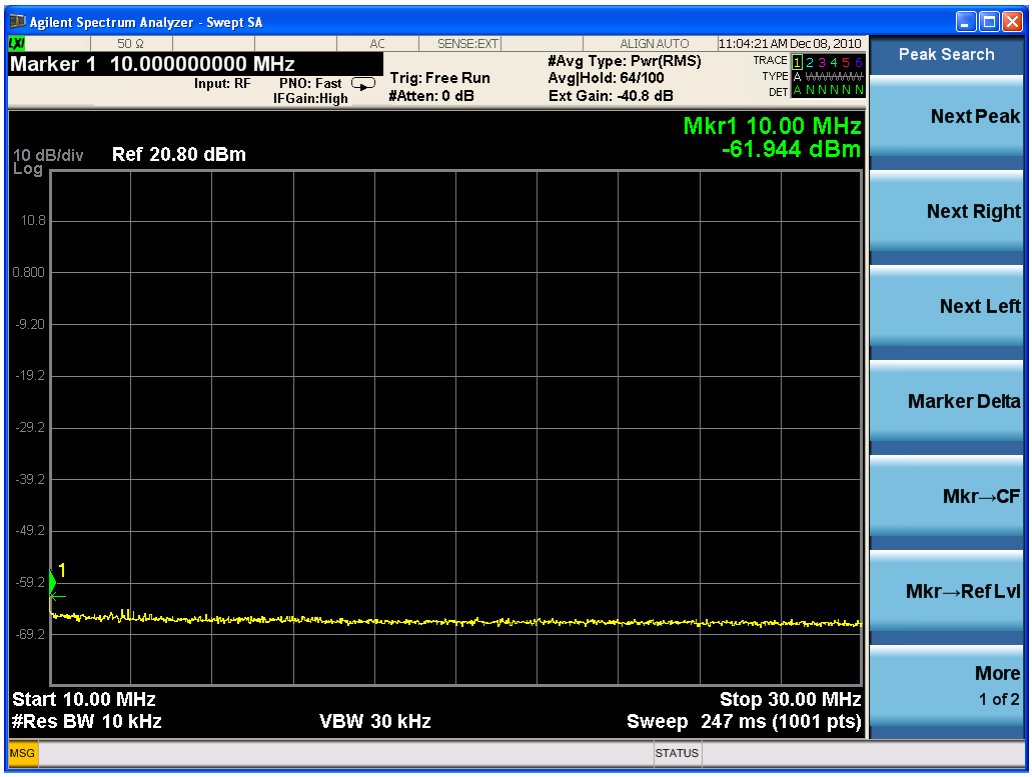

Agilent Spectrum Analyzer - Swept SA
Marker 1 10.000000000 MHz
Input: RF PNO: Fast IFGain:High
Trig: Free Run #Atten: 0 dB
#Avg Type: Pwr(RMS) Avg|Hold: 69/100 Ext Gain: -40.8 dB
10:31:26 AM Dec 08, 2010
Mkr1 10.00 MHz -61.608 dBm
10 dB/div Log
Ref 20.80 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 868.900000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 10 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
10:34:07 AM Dec 08, 2010
Mkr1 868.9 MHz -40.970 dBm
10 dB/div Log
Ref 20.80 dBm
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 868.9 MHz
Sweep 104 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

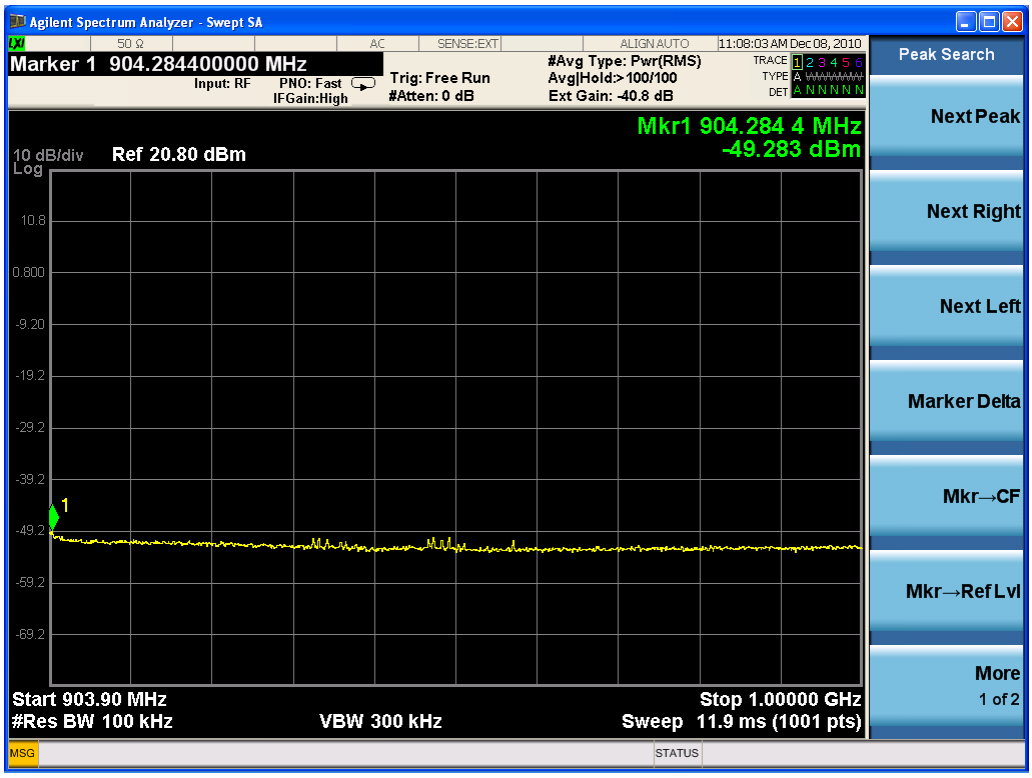

Agilent Spectrum Analyzer - Swept SA
Marker 1 894.854900000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 12 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
10:34:56 AM Dec 08, 2010
Mkr1 894.85 MHz -40.761 dBm
10 dB/div Log
Ref 20.80 dBm
Start 893.90 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 1.00000 GHz
Sweep 13.1 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

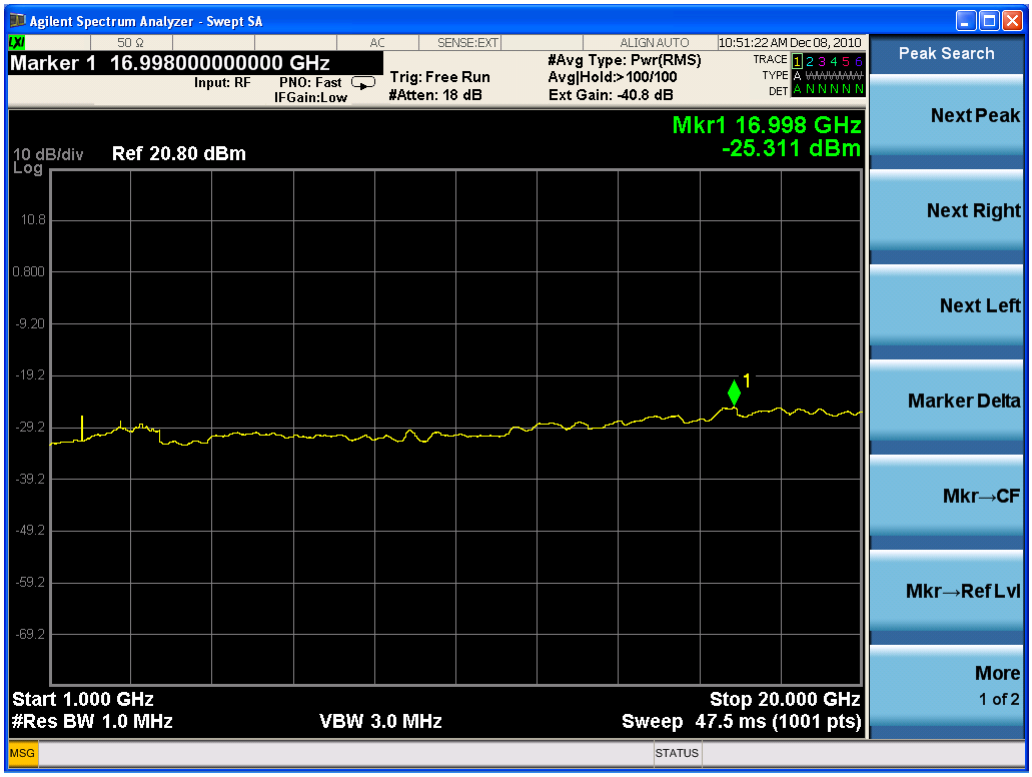

Agilent Spectrum Analyzer - Swept SA
Marker 1 16.770000000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
#Avg Type: Pwr(RMS) Avg|Hold: 76/100 Ext Gain: -40.8 dB
10:36:17 AM Dec 08, 2010
Mkr1 16.770 GHz -25.380 dBm
10 dB/div Log
Ref 20.80 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 20.000 GHz
Sweep 47.5 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

One carrier (working in top frequency)


Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:EXT
ALIGN AUTO
11:04:21 AM Dec 08, 2010
Marker 1 10.000000000 MHz
Input: RF
PNO: Fast
IFGain:High
Trig: Free Run
#Atten: 0 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 64/100
Ext Gain: -40.8 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET A N N N N N
Mkr1 10.00 MHz
-61.944 dBm
10 dB/div
Log
Ref 20.80 dBm
10.8
0.800
-9.20
-19.2
-29.2
-39.2
-49.2
-59.2
-69.2
1
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
Sweep 247 ms (1001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:EXT
ALIGN AUTO
11:06:12 AM Dec 08, 2010
Marker 1 878.900000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
#Avg Type: Pwr(RMS)
Avg|Hold: 90/100
Ext Gain: -40.8 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET A N N N N N
Mkr1 878.9 MHz
-40.418 dBm
10 dB/div
Log
Ref 20.80 dBm
10.8
0.800
-9.20
-19.2
-29.2
-39.2
-49.2
-59.2
-69.2
1
Start 30.0 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 878.9 MHz
Sweep 105 ms (1001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 904.284400000 MHz
Input: RF PNO: Fast IFGain:High
Trig: Free Run #Atten: 0 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
11:08:03 AM Dec 08, 2010
Mkr1 904.284 4 MHz -49.283 dBm
10 dB/div Log
Ref 20.80 dBm
Start 903.90 MHz
#Res BW 100 kHz
VBW 300 kHz
Stop 1.00000 GHz
Sweep 11.9 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 16.998000000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
#Avg Type: Pwr(RMS) Avg|Hold:>100/100 Ext Gain: -40.8 dB
10:51:22 AM Dec 08, 2010
Mkr1 16.998 GHz -25.311 dBm
10 dB/div Log
Ref 20.80 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 20.000 GHz
Sweep 47.5 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

3.6 OCCUPIED BANDWIDTH

Applicable Standard: FCC §2.1049 §22.917

Test Equipment List and Details :

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2010-4-10	2011-4-9
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

The RF out of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth of the spectrum analyzer was set at 1% of the span or higher and 99%Power bandwidth was recorded.

Environmental Conditions

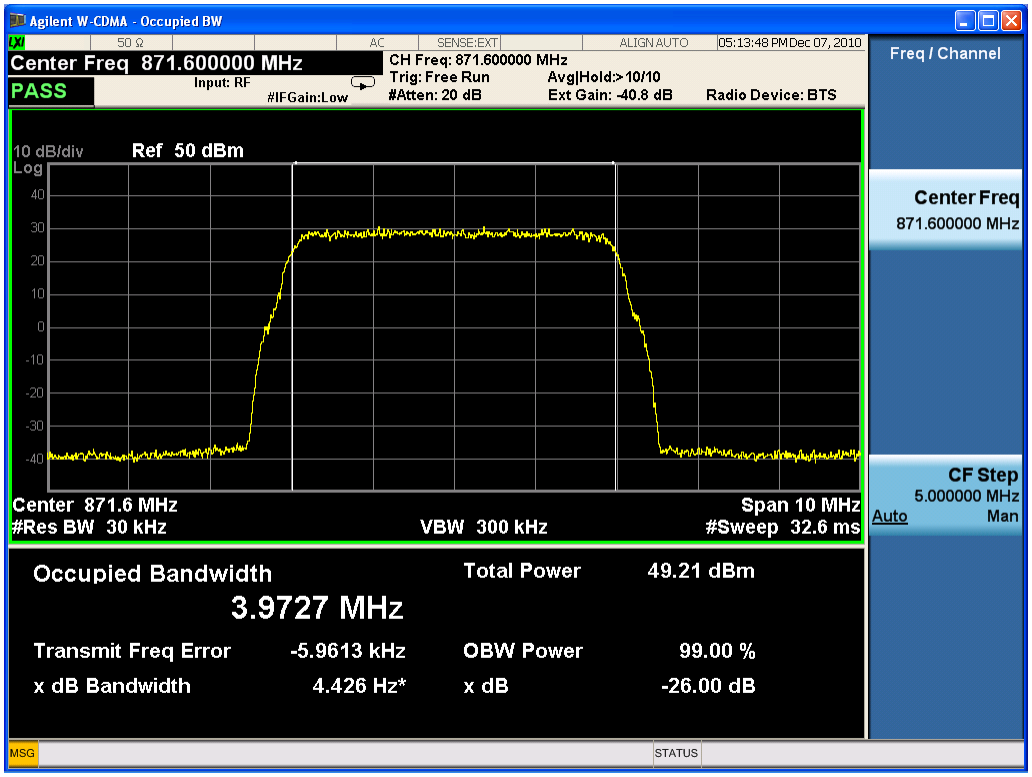
Temperature:	20 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

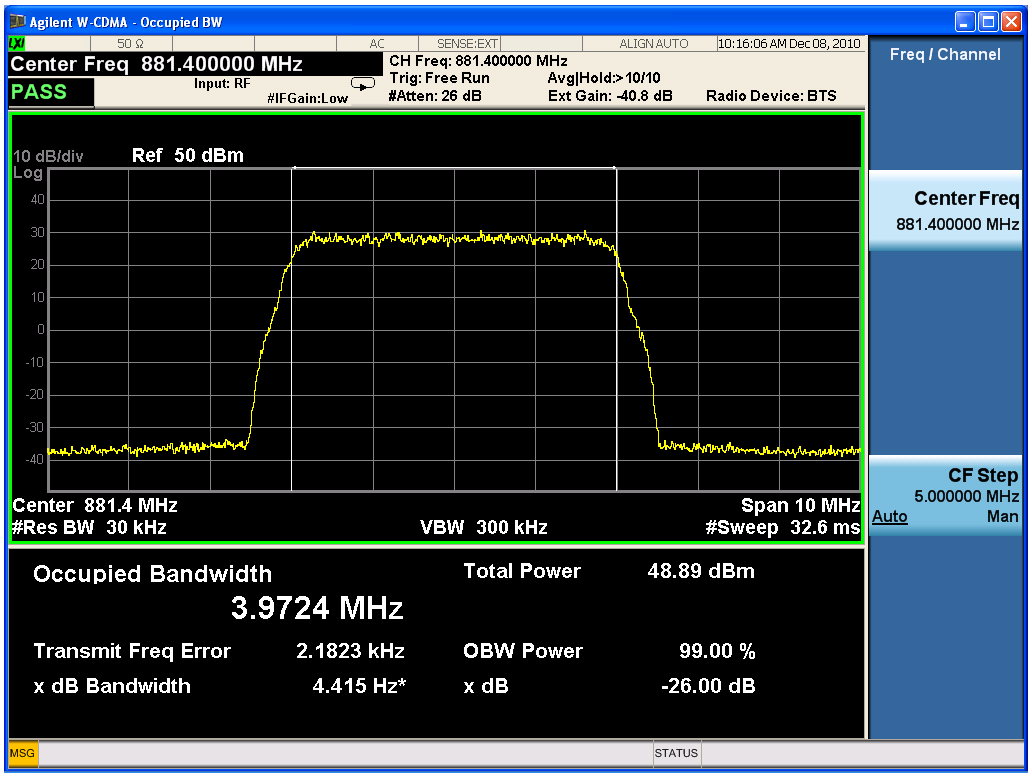
Test Result: Pass

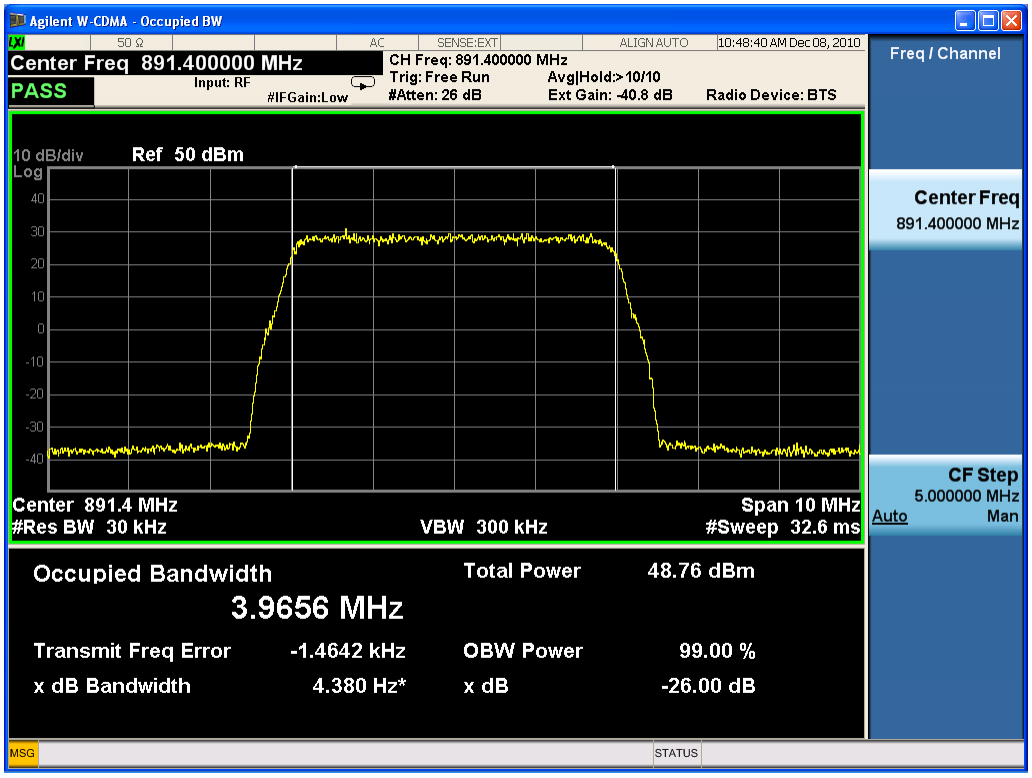
Test Mode: Transmitting UMTS

Test Data

Frequency (MHz)	99% Power Bandwidth (MHz)	Limit (MHz)
871.6/881.4/891.4	3.9727/3.9724/3.9656	<4.2




Agilent W-CDMA - Occupied BW
50 Ω
AC
SENSE:EXT
ALIGN AUTO
10:16:06 AM Dec 08, 2010
Center Freq 881.400000 MHz
PASS
Input: RF
#IFGain:Low
CH Freq: 881.400000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 26 dB
Ext Gain: -40.8 dB
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center Freq
881.400000 MHz
CF Step
5.000000 MHz
Auto
Man
Center 881.4 MHz
#Res BW 30 kHz
VBW 300 kHz
Span 10 MHz
#Sweep 32.6 ms
Occupied Bandwidth
3.9724 MHz
Total Power
48.89 dBm
Transmit Freq Error
2.1823 kHz
OBW Power
99.00 %
x dB Bandwidth
4.415 Hz*
x dB
-26.00 dB
MSG
STATUS


Agilent W-CDMA - Occupied BW
50 Ω
AC
SENSE:EXT
ALIGN AUTO
10:48:40 AM Dec 08, 2010
Center Freq 891.400000 MHz
PASS
Input: RF
#IFGain:Low
CH Freq: 891.400000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 26 dB
Ext Gain: -40.8 dB
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center Freq
891.400000 MHz
CF Step
5.000000 MHz
Auto
Man
Center 891.4 MHz
#Res BW 30 kHz
VBW 300 kHz
Span 10 MHz
#Sweep 32.6 ms
Occupied Bandwidth
3.9656 MHz
Total Power
48.76 dBm
Transmit Freq Error
-1.4642 kHz
OBW Power
99.00 %
x dB Bandwidth
4.380 Hz*
x dB
-26.00 dB
MSG
STATUS

3.7 BAND EDGES

Applicable Standard: FCC §2.1051

According to §2.1051, 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. The limit (dBm) should < P –(43+10log(P)) = -13dBm.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2010-4-9	2011-4-9
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.
The center of the spectrum analyzer was set to block edge frequency.

Test Data Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53%
ATM Pressure:	1009mbar

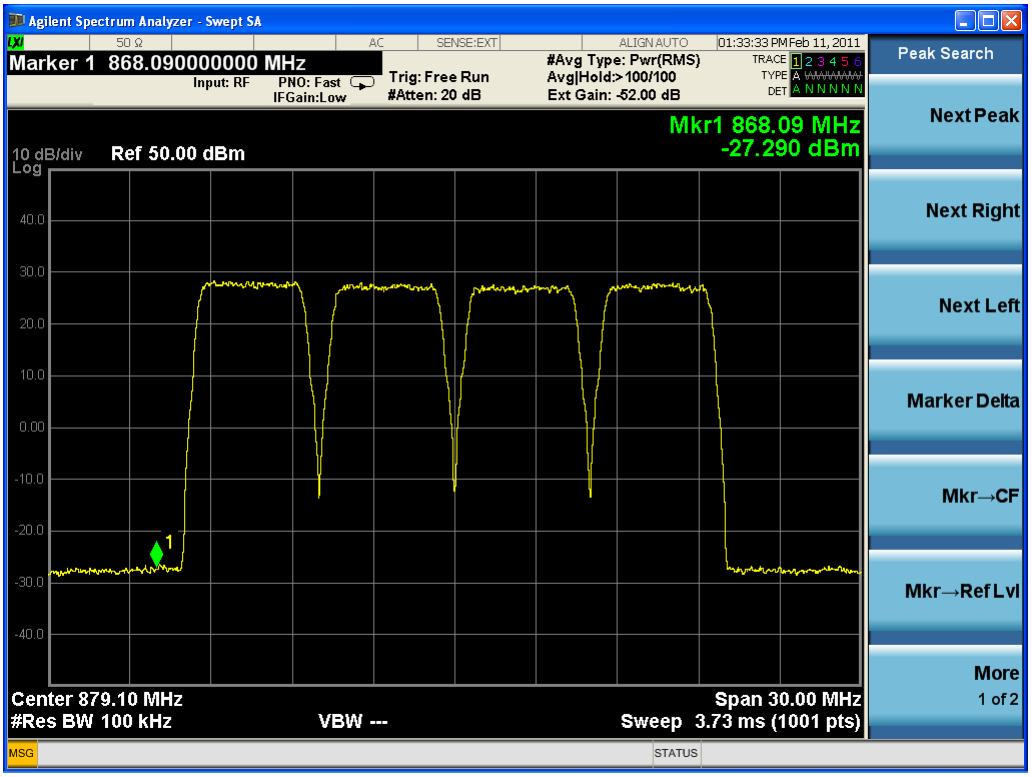
Test Result: Pass

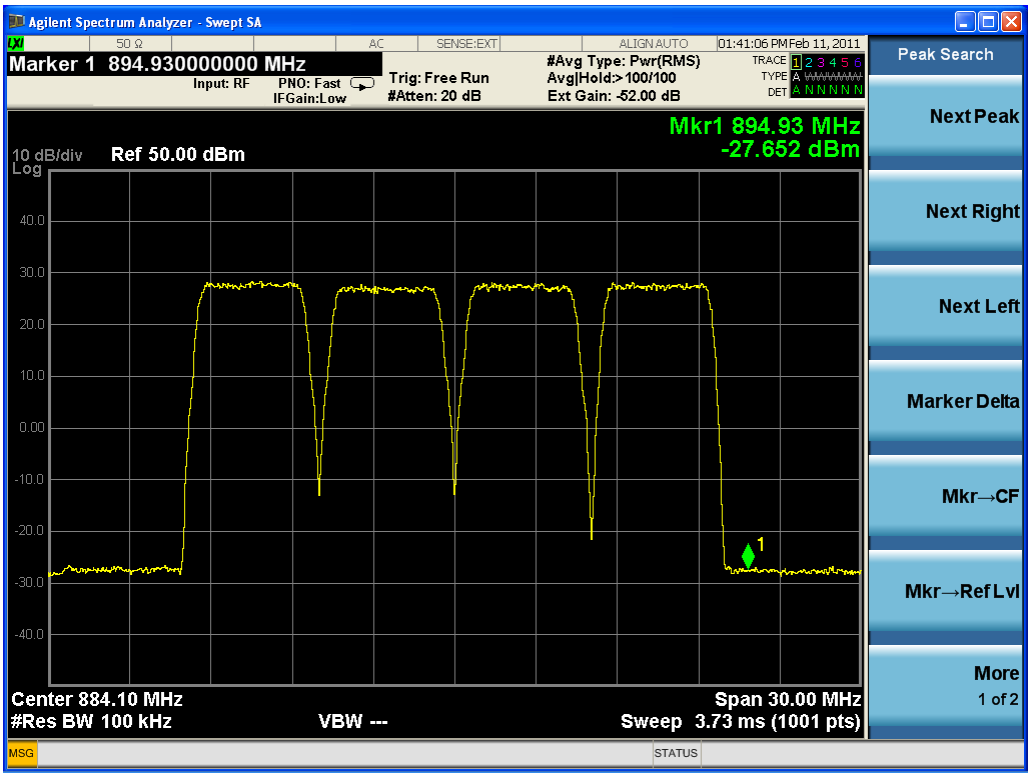
Test Mode: Transmitting UMTS

Test Data

Four carriers

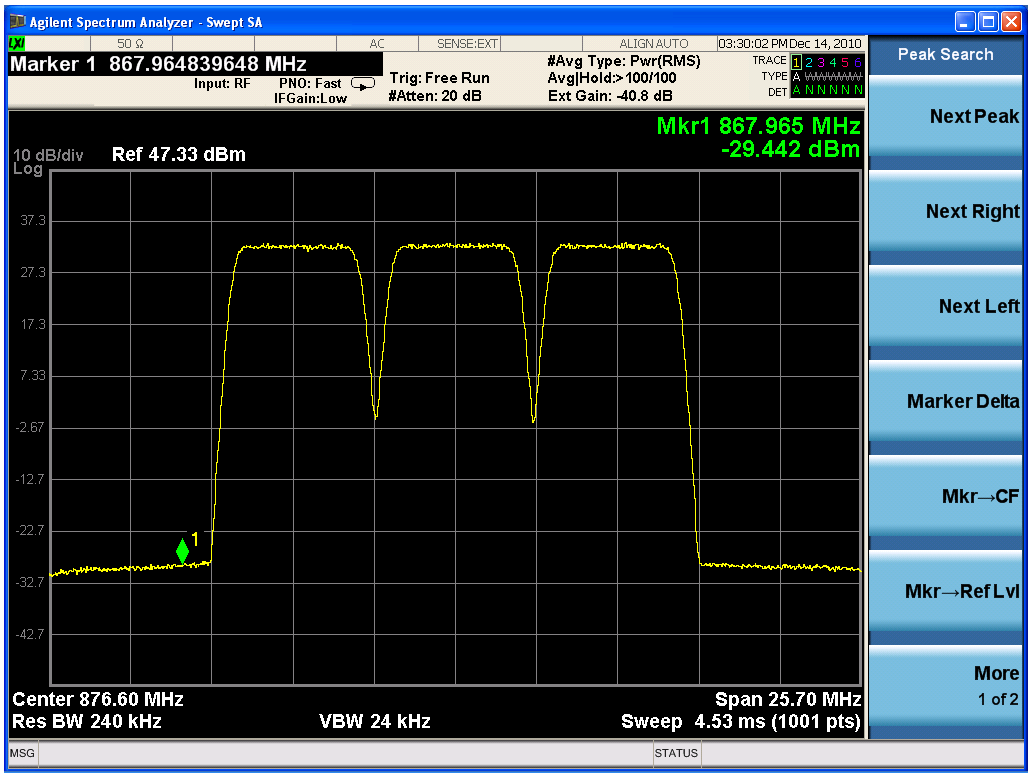
Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
871.6/876.6/881.6/886.6	-27.29	-13.00
876.6/881.6/886.6/891.4	-27.652	-13.00

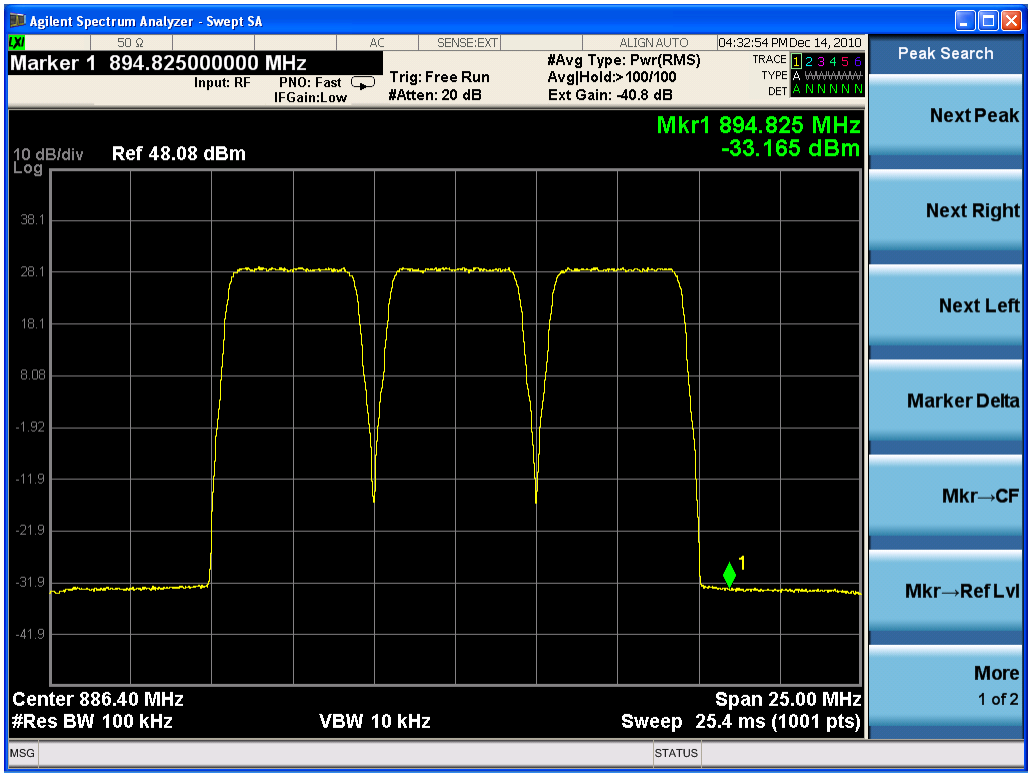




Three carriers

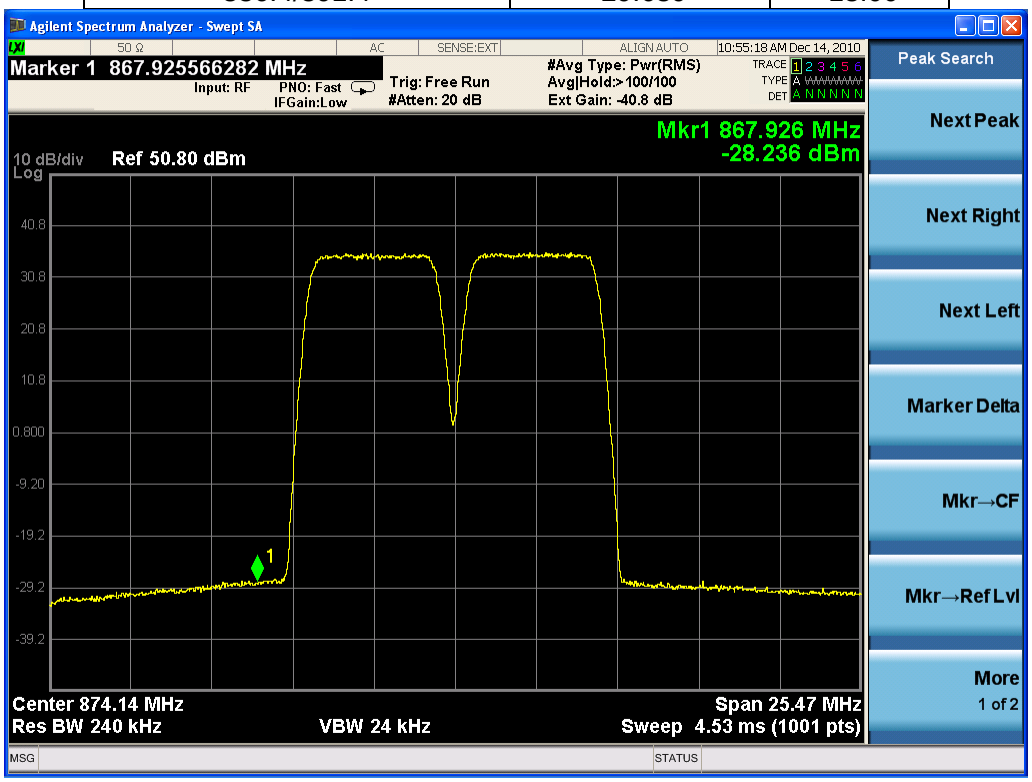
Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
871.6/876.6/881.6	-29.442	-13.00
881.4/886.4/891.4	-33.165	-13.00

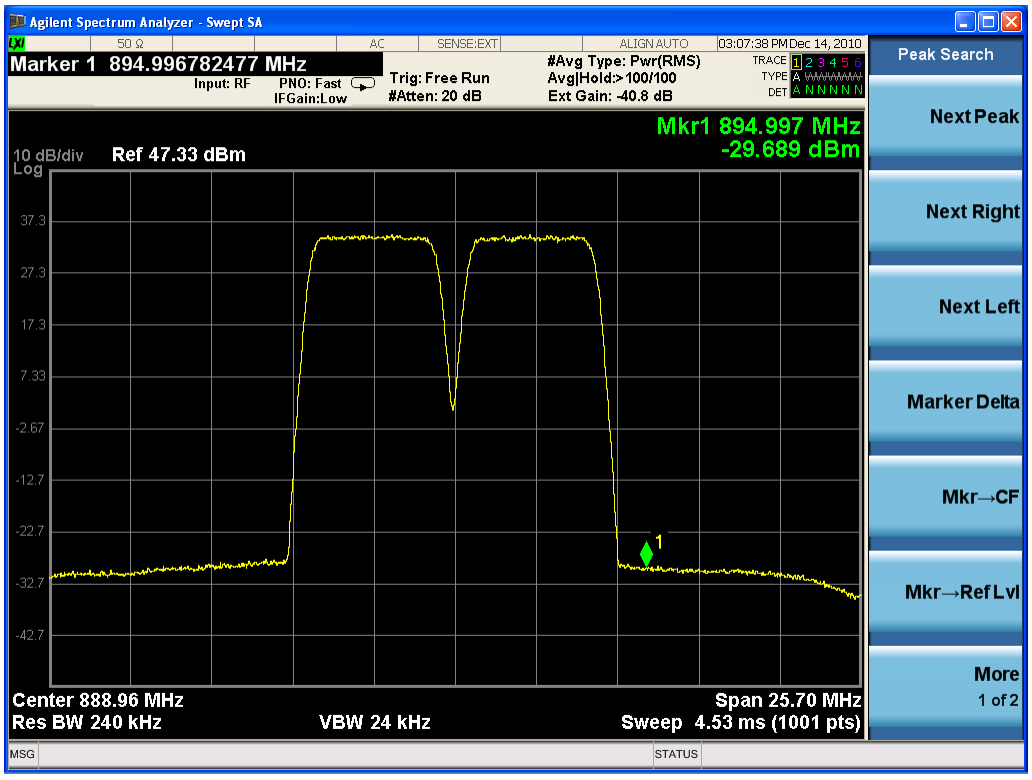




Two carriers

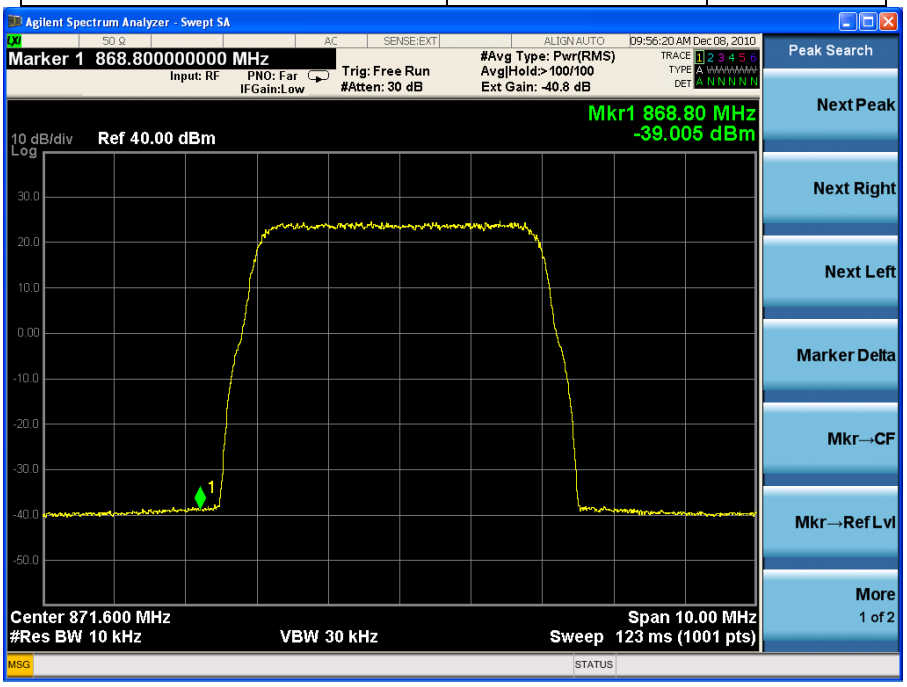
Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
871.6/876.6	-28.236	-13.00
886.4/891.4	-29.689	-13.00

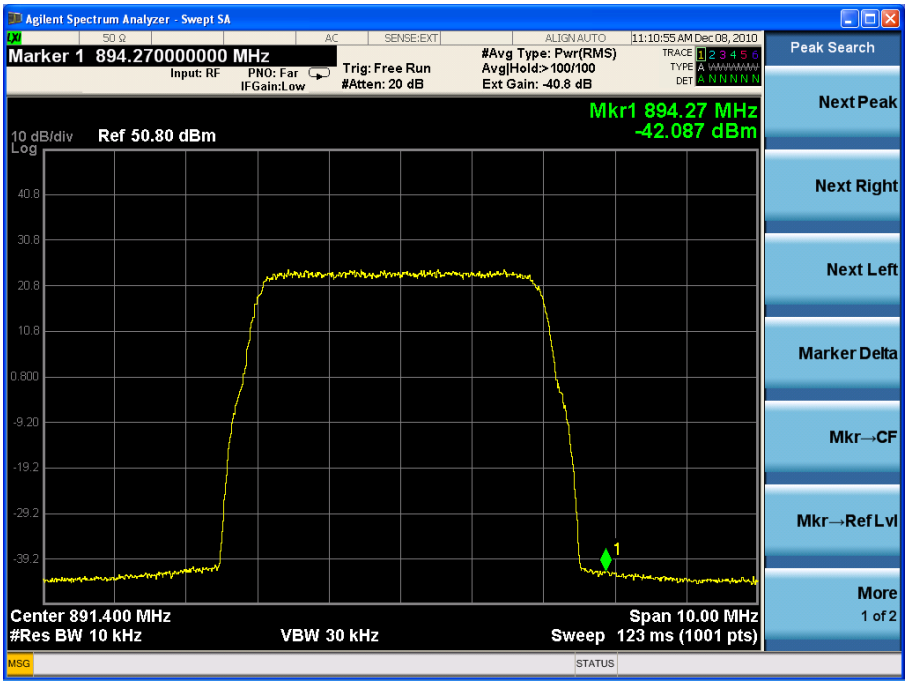




One carrier

Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
871.6	-39.005	-13.00
891.4	-42.087	-13.00





3.8 FREQUENCY STABILITY

Applicable Standard: FCC § 2.1055

Requirements: FCC § 2.1055 (a)(d)
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
GZ-ESPEC	Temperature Chamber	EW0470	6113028	2010-1-22	2011-1-22
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2010-4-9	2011-4-9
DST	DST100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements , traceable to NIST.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a Spectrum Analyzer via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.
After the temperature stabilized for approximately 150 minutes, the frequency output was recorded from the counter.
Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

Environmental Conditions

Normal condition:	25° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

Test Result: Pass

Test Mode: Transmitting UMTS

Test Data

Frequency Stability Versus Temperature

Frequency Stability vs. Temperature					
Temperature ℃	Power Supplied VDC	Frequency Measure Error Hz	Error ppm	Limit	Result
f=871.6MHz					
-40	-48	3.7	0.004	0.05ppm	PASS
-30	-48	-6.1	-0.007	0.05ppm	PASS
-20	-48	-4.4	-0.005	0.05ppm	PASS
-10	-48	1.7	0.002	0.05ppm	PASS
0	-48	-3.3	-0.004	0.05ppm	PASS
10	-48	2.9	0.003	0.05ppm	PASS
20	-48	3.4	0.004	0.05ppm	PASS
30	-48	2.8	0.003	0.05ppm	PASS
40	-48	-1.9	-0.002	0.05ppm	PASS
50	-48	-4.3	-0.005	0.05ppm	PASS
55	-48	5.1	0.006	0.05ppm	PASS
f=881.4MHz					
-40	-48	3.2	0.004	0.05ppm	PASS
-30	-48	1.9	0.002	0.05ppm	PASS

-20	-48	-2.7	-0.003	0.05ppm	PASS
-10	-48	4.4	0.005	0.05ppm	PASS
0	-48	-3.8	-0.004	0.05ppm	PASS
10	-48	3.4	0.004	0.05ppm	PASS
20	-48	2.8	0.003	0.05ppm	PASS
30	-48	-3.6	-0.004	0.05ppm	PASS
40	-48	-4.6	-0.005	0.05ppm	PASS
50	-48	5.7	0.006	0.05ppm	PASS
55	-48	4.3	0.005	0.05ppm	PASS
f=891.4MHz					
-40	-48	-4.5	-0.005	0.05ppm	PASS
-30	-48	-3.9	-0.004	0.05ppm	PASS
-20	-48	4.2	0.005	0.05ppm	PASS
-10	-48	3.3	0.004	0.05ppm	PASS
0	-48	2.4	0.003	0.05ppm	PASS
10	-48	1.9	0.002	0.05ppm	PASS
20	-48	-2.1	-0.002	0.05ppm	PASS
30	-48	-2.6	-0.003	0.05ppm	PASS
40	-48	3.4	0.004	0.05ppm	PASS
50	-48	4.9	0.005	0.05ppm	PASS
55	-48	3.8	0.004	0.05ppm	PASS

Frequency Stability Versus Voltage

Frequency Stability vs. Voltage					
VoltageVDC	Temperature ℃	Frequency Measure Error Hz	Error ppm	Limit	Result
f=871.6MHz					
-37	20	2.5	0.003	0.05ppm	PASS
-40	20	2.8	0.003	0.05ppm	PASS
-44	20	-2.9	-0.003	0.05ppm	PASS
-47	20	-3.4	-0.004	0.05ppm	PASS
-50	20	4.1	0.005	0.05ppm	PASS
-53	20	-3.8	-0.004	0.05ppm	PASS
-56	20	-1.9	-0.002	0.05ppm	PASS
-57	20	2.5	0.003	0.05ppm	PASS
-60	20	2.8	0.003	0.05ppm	PASS
f=881.4MHz					
-37	20	3.1	0.004	0.05ppm	PASS
-40	20	2.5	0.003	0.05ppm	PASS
-44	20	-2.9	-0.003	0.05ppm	PASS
-47	20	2.3	0.003	0.05ppm	PASS
-50	20	3.3	0.004	0.05ppm	PASS
-53	20	-2.7	-0.003	0.05ppm	PASS
-56	20	3.9	0.004	0.05ppm	PASS
-57	20	4.1	0.005	0.05ppm	PASS
-60	20	3.2	0.004	0.05ppm	PASS
f=891.4MHz					
-37	20	1.8	0.002	0.05ppm	PASS
-40	20	2.1	0.002	0.05ppm	PASS
-44	20	-2.4	-0.003	0.05ppm	PASS
-47	20	-3.8	-0.004	0.05ppm	PASS
-50	20	-2.7	-0.003	0.05ppm	PASS
-53	20	-2.9	-0.003	0.05ppm	PASS
-56	20	4.4	0.005	0.05ppm	PASS
-57	20	3.2	0.004	0.05ppm	PASS
-60	20	2.5	0.003	0.05ppm	PASS

4 GSM OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1046 §22.913	Transmitter output Power	Compliant
§2.1091 §1.1037	RF Exposure	Compliant
§2.1053	Spurious Radiated Emissions	Compliant
§2.1051, §22.917	Spurious Emissions AT Antenna Terminals	Compliant
§2.1049 §22.917	Occupied Bandwidth	Compliant
§2.1051	Band Edge	Compliant
§ 2.1055	Frequency stability	Compliant

4.1 TRANSMITTER OUTPUT POWER

Applicable Standard： FCC §2.1046 §22.913

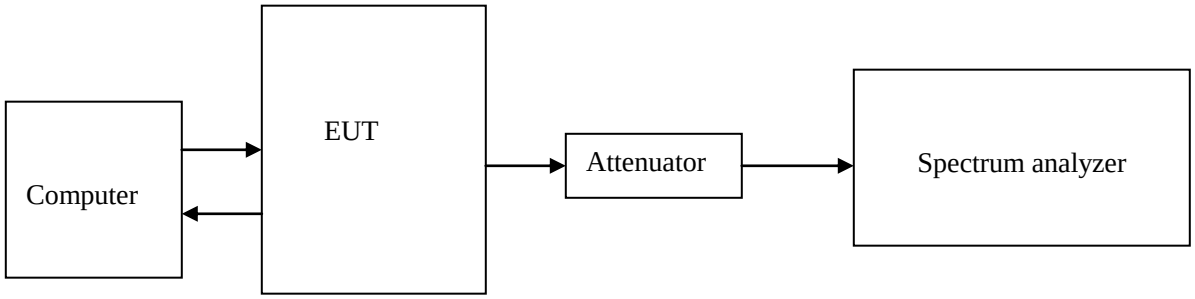
According to FCC §2.1046 &22.913, the ERP(equivalent isotropically radiated power) must not exceed 500 Watts.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2010-4-10	2011-4-9
DTS	DTS100 40dB Attenuator	DTS100-40dB-N	N/A	N/A	N/A
Hewlett Packard	Hewlett Packard RF Cable	8120-6192	01428251	N/A	N/A

*__statement of traceability:__ ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure



The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. External attenuation Loss is 40dB, Cable Loss is about 3dB

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

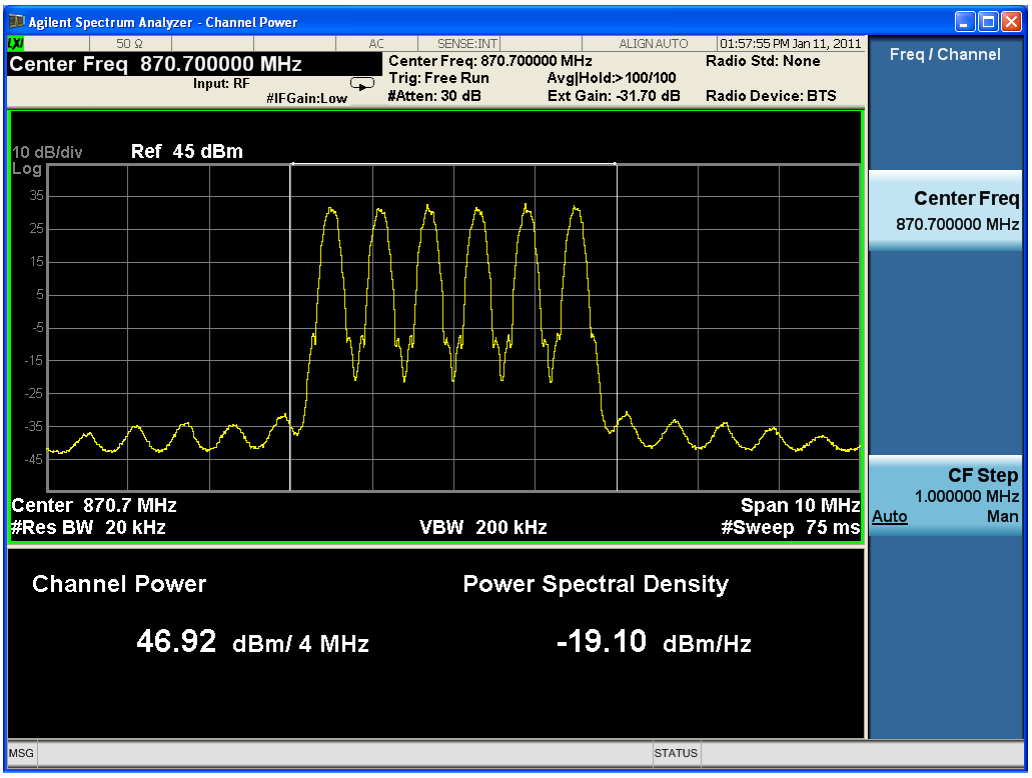
Test Result: Pass

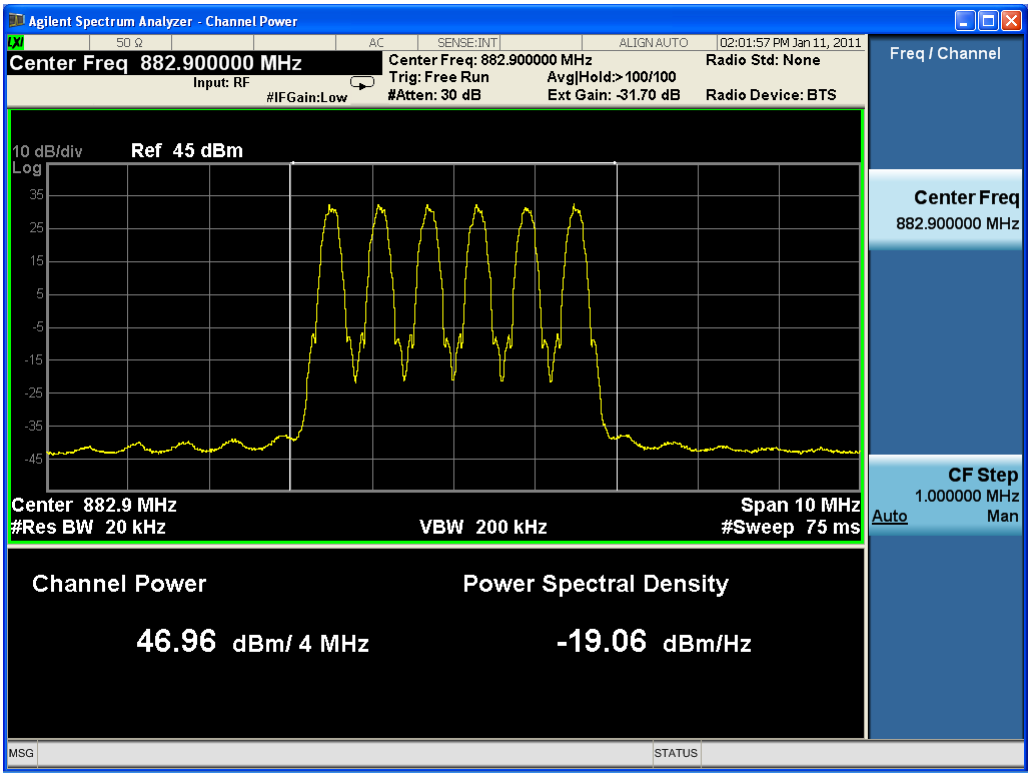
Test Mode: Transmitting GSM

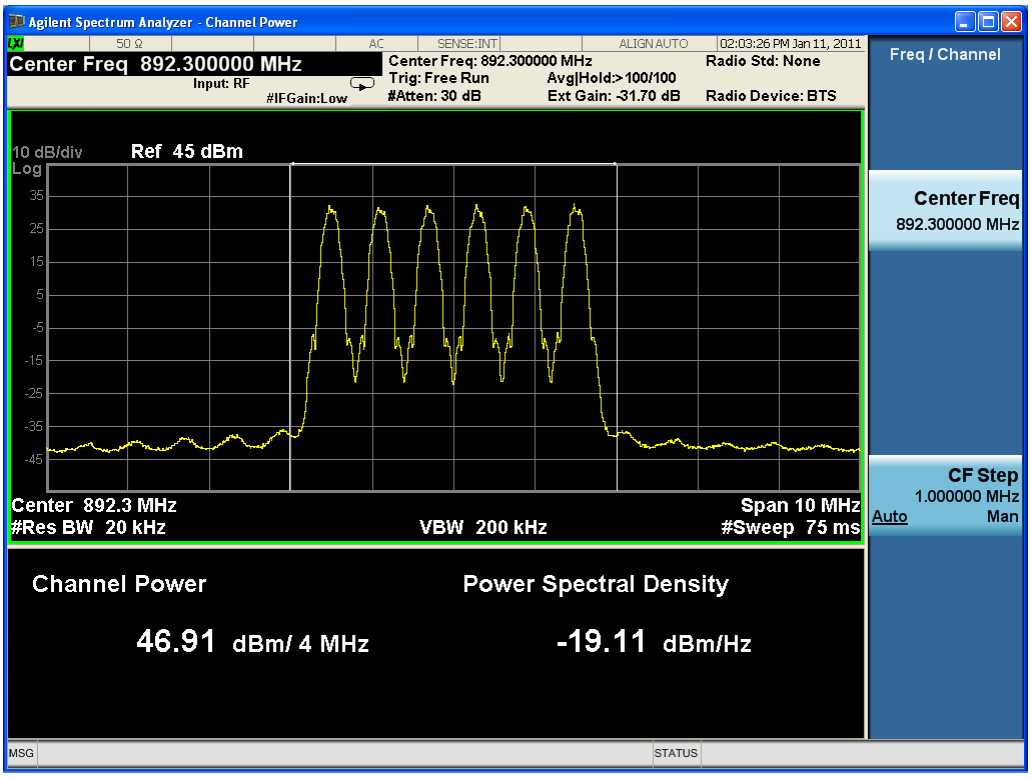
Test Data:

Six carriers

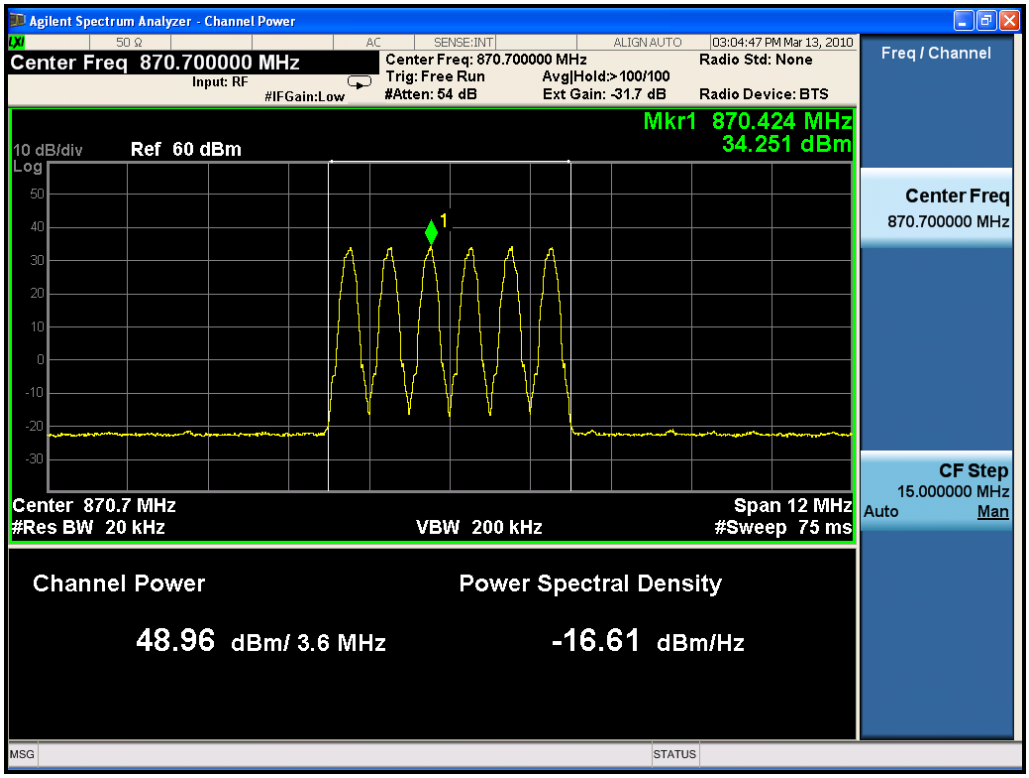
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
8PSK	870.7	869.2/869.8/ 870.4 /871 /871.6/ 872.2	46.92
	882.9	881.4/882/882.6/883.2/883.8/884.4	46.96
	892.3	890.8/891.4/892/892.6/893.2/893.8	46.91

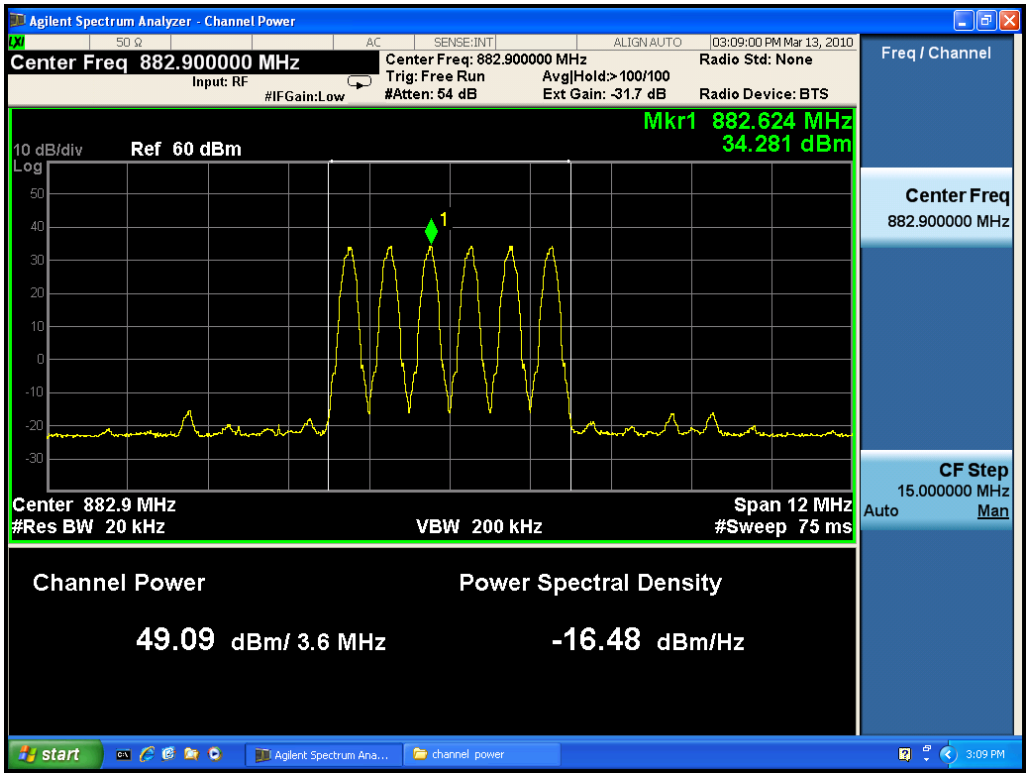

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
01:57:55 PM Jan 11, 2011
Center Freq 870.700000 MHz
Input: RF
#IFGain:Low
Center Freq: 870.700000 MHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -31.70 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 45 dBm
35
25
15
5
-5
-15
-25
-35
-45
Center 870.7 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 10 MHz
#Sweep 75 ms
Channel Power
46.92 dBm/ 4 MHz
Power Spectral Density
-19.10 dBm/Hz
Center Freq
870.700000 MHz
CF Step
1.000000 MHz
Auto
Man
MSG
STATUS

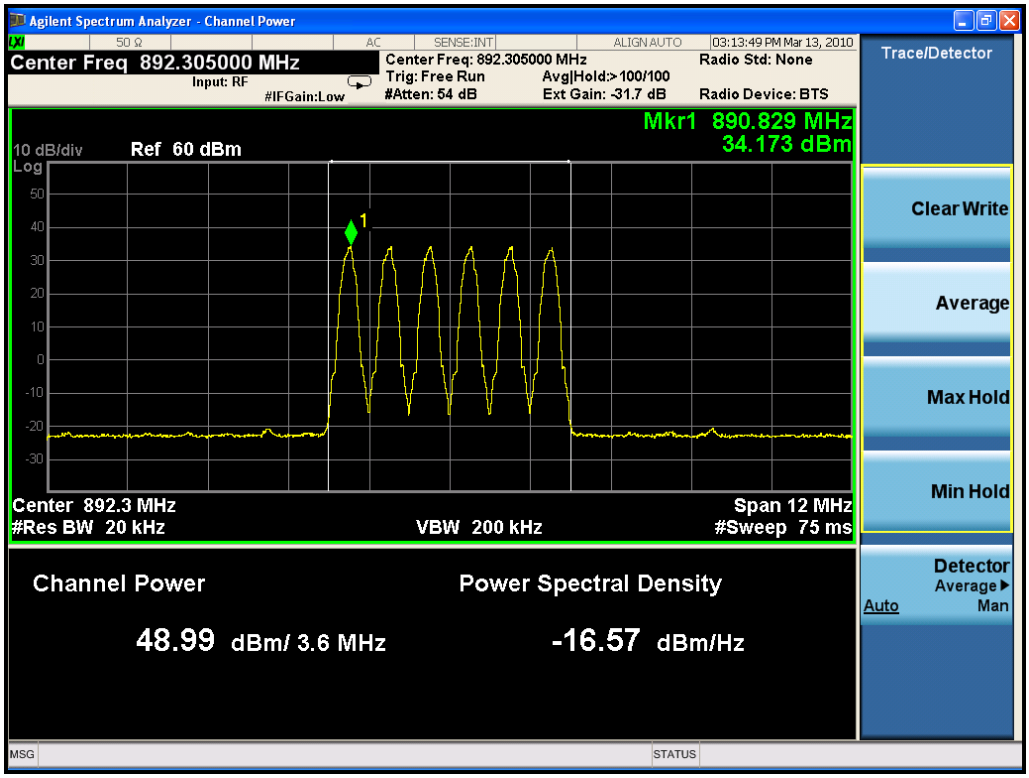

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
02:01:57 PM Jan 11, 2011
Center Freq 882.900000 MHz
Input: RF
#IFGain:Low
Center Freq: 882.900000 MHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -31.70 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 45 dBm
35
25
15
5
-5
-15
-25
-35
-45
Center 882.9 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 10 MHz
#Sweep 75 ms
Channel Power
46.96 dBm/ 4 MHz
Power Spectral Density
-19.06 dBm/Hz
Center Freq
882.900000 MHz
CF Step
1.000000 MHz
Auto
Man
MSG
STATUS



modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
GMSK	870.7	869.2/869.8/ 870.4 /871 /871.6/ 872.2	48.96
	882.9	881.4/882/882.6/883.2/883.8/884.4	49.09
	892.3	890.8/891.4/892/892.6/893.2/893.8	48.99

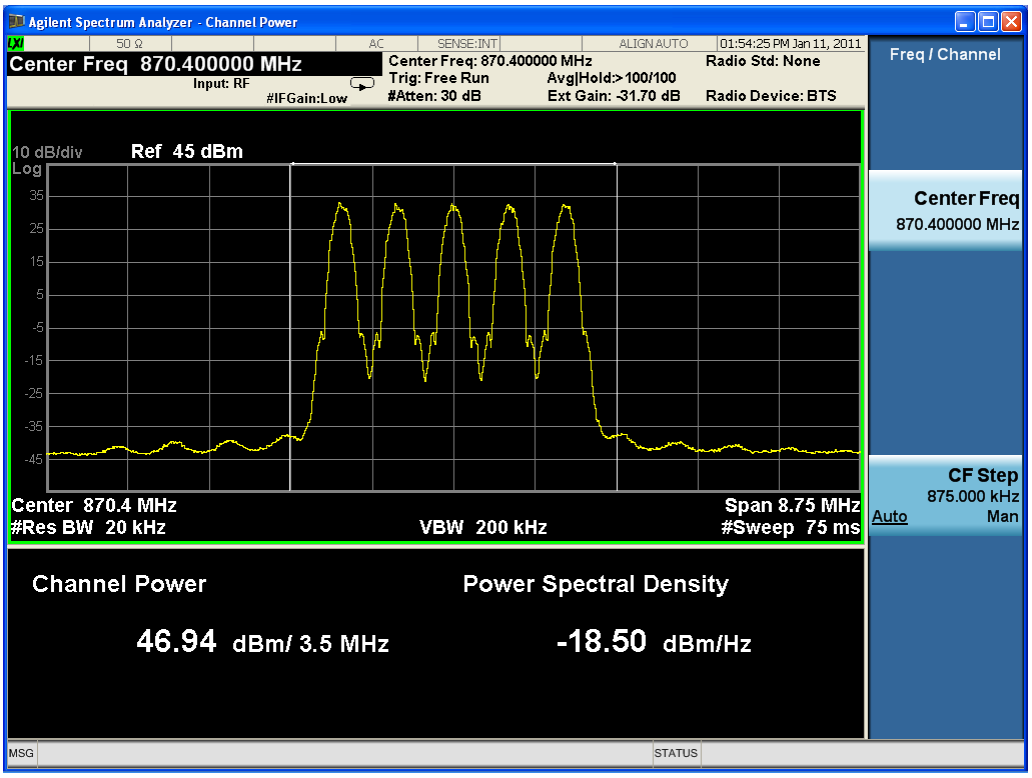

Agilent Spectrum Analyzer - Channel Power
Center Freq 870.700000 MHz
Input: RF
#IFGain:Low
Center Freq: 870.700000 MHz
Trig: Free Run
#Atten: 54 dB
Avg|Hold:>100/100
Ext Gain: -31.7 dB
Radio Std: None
Radio Device: BTS
03:04:47 PM Mar 13, 2010
Mkr1 870.424 MHz
34.251 dBm
10 dB/div
Ref 60 dBm
Log
Center 870.7 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 12 MHz
#Sweep 75 ms
Channel Power
48.96 dBm/ 3.6 MHz
Power Spectral Density
-16.61 dBm/Hz
Freq / Channel
Center Freq
870.700000 MHz
CF Step
15.000000 MHz
Auto
Man
MSG
STATUS

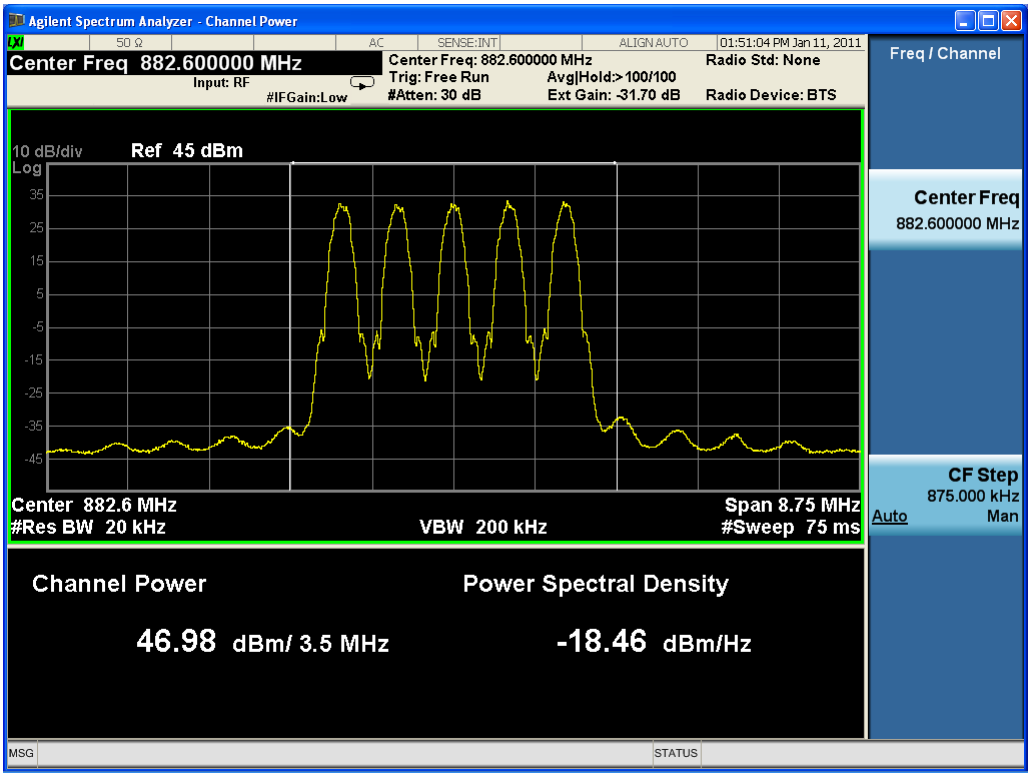

Agilent Spectrum Analyzer - Channel Power
Center Freq 882.900000 MHz
Input: RF
#IFGain:Low
Center Freq: 882.900000 MHz
Trig: Free Run
#Atten: 54 dB
Avg|Hold:>100/100
Ext Gain: -31.7 dB
Radio Std: None
Radio Device: BTS
03:09:00 PM Mar 13, 2010
Mkr1 882.624 MHz
34.281 dBm
10 dB/div
Ref 60 dBm
Log
Center 882.9 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 12 MHz
#Sweep 75 ms
Channel Power
49.09 dBm/ 3.6 MHz
Power Spectral Density
-16.48 dBm/Hz
Freq / Channel
Center Freq
882.900000 MHz
CF Step
15.000000 MHz
Auto
Man
start
Agilent Spectrum Ana...
channel power
3:09 PM

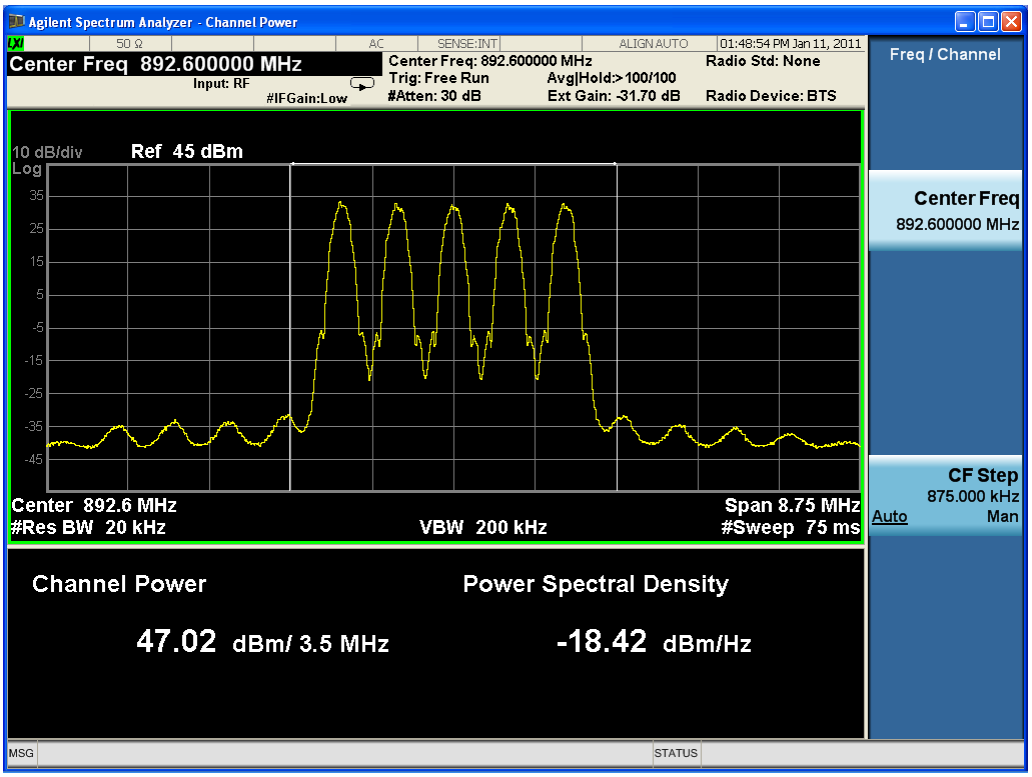


Five carriers

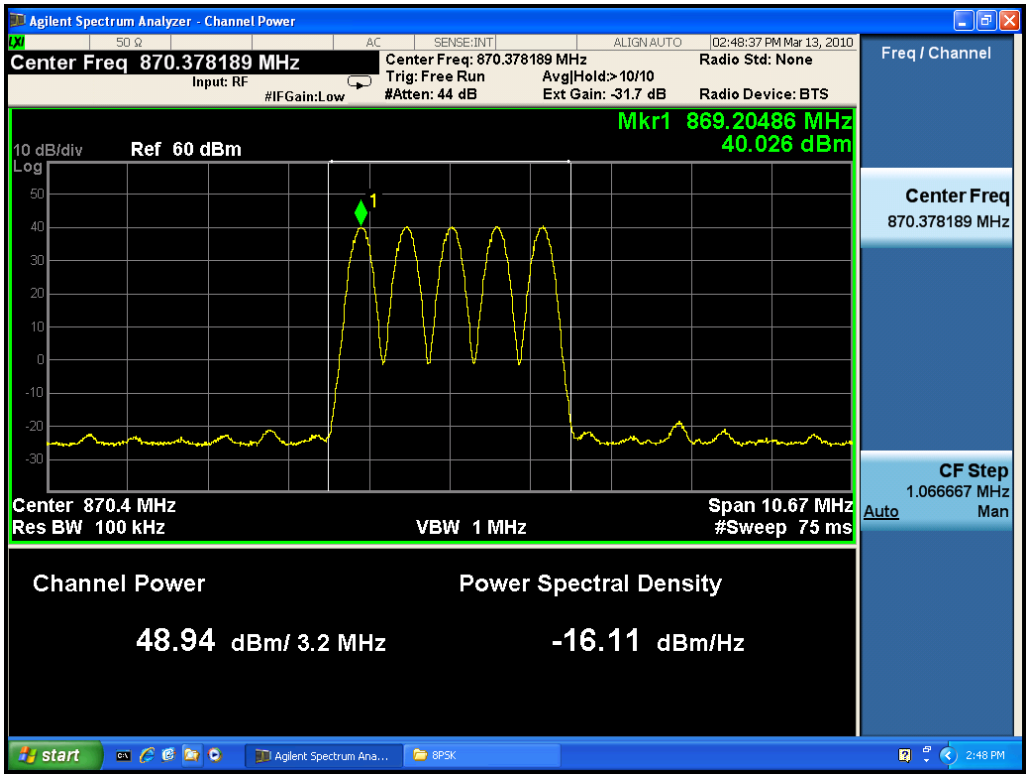
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
8PSK	870.4	869.2/869.8/ 870.4 /871 /871.6	46.94
	882.6	881.4/882/882.6/883.2/883.8	46.98
	892.6	891.4/892/892.6/893.2/893.8	47.02

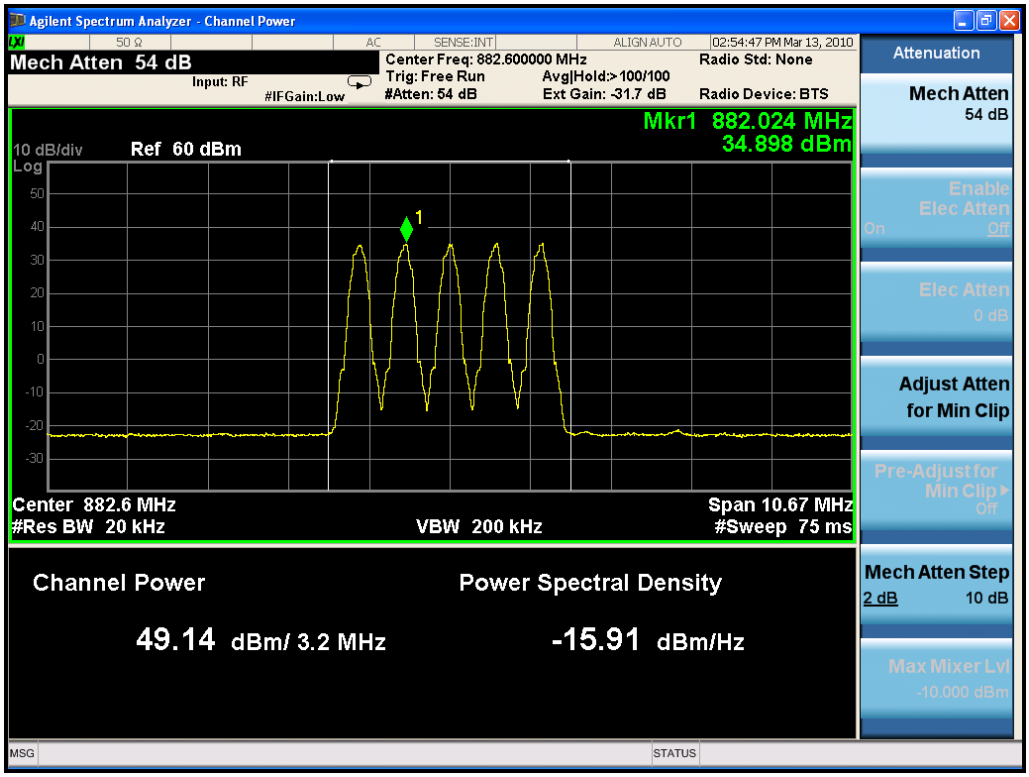

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
01:54:25 PM Jan 11, 2011
Center Freq 870.400000 MHz
Input: RF
#IFGain:Low
Center Freq: 870.400000 MHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -31.70 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 45 dBm
35
25
15
5
-5
-15
-25
-35
-45
Center 870.4 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 8.75 MHz
#Sweep 75 ms
Center Freq
870.400000 MHz
CF Step
875.000 kHz
Auto
Man
Channel Power
46.94 dBm/ 3.5 MHz
Power Spectral Density
-18.50 dBm/Hz
MSG
STATUS

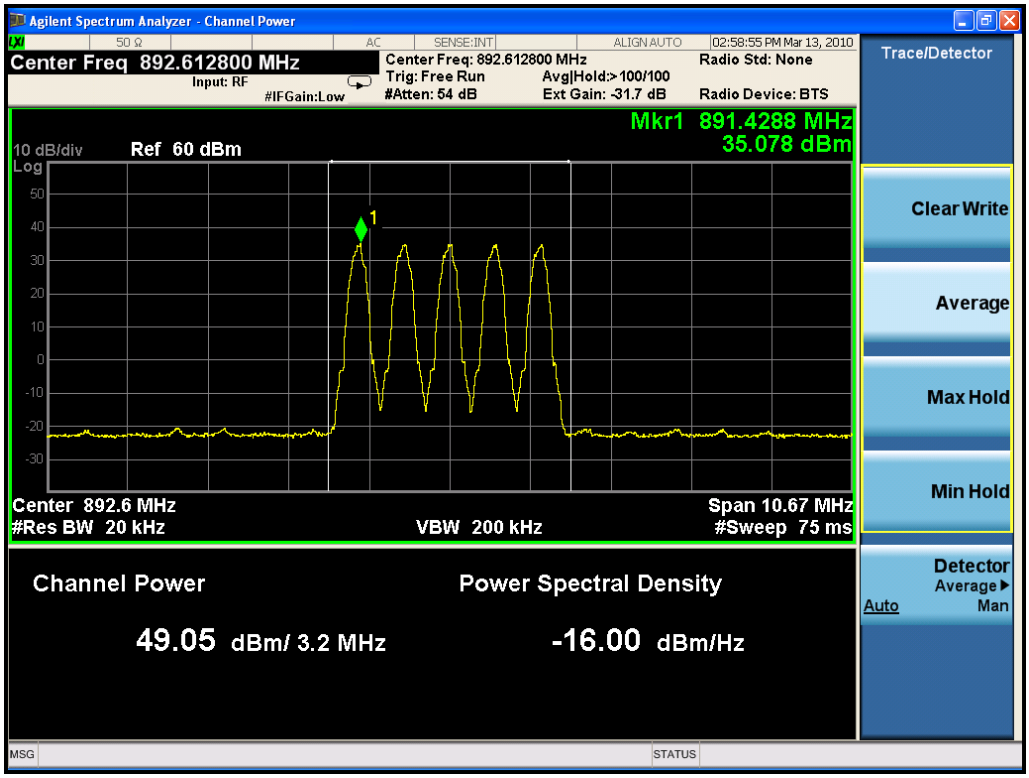

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
01:51:04 PM Jan 11, 2011
Center Freq 882.600000 MHz
Input: RF
#IFGain:Low
Center Freq: 882.600000 MHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -31.70 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 45 dBm
35
25
15
5
-5
-15
-25
-35
-45
Center 882.6 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 8.75 MHz
#Sweep 75 ms
Center Freq
882.600000 MHz
CF Step
875.000 kHz
Auto
Man
Channel Power
46.98 dBm/ 3.5 MHz
Power Spectral Density
-18.46 dBm/Hz
MSG
STATUS



modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
GMSK	870.4	869.2/869.8/ 870.4 /871 /871.6	48.94
	882.6	881.4/882/882.6/883.2/883.8	49.14
	892.6	891.4/892/892.6/893.2/893.8	49.05

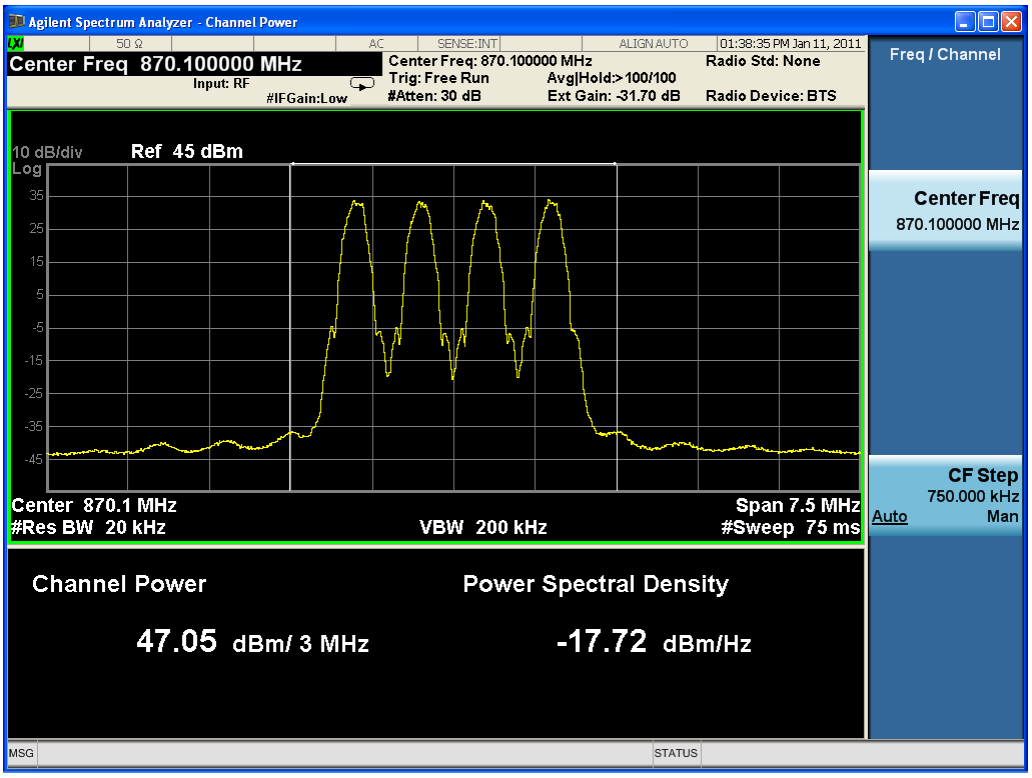

Agilent Spectrum Analyzer - Channel Power
Center Freq 870.378189 MHz
Input: RF
#IFGain:Low
Center Freq: 870.378189 MHz
Trig: Free Run
#Atten: 44 dB
Avg|Hold:>10/10
Ext Gain: -31.7 dB
Radio Std: None
Radio Device: BTS
02:48:37 PM Mar 13, 2010
Mkr1 869.20486 MHz
40.026 dBm
10 dB/div
Ref 60 dBm
Log
Center 870.4 MHz
Res BW 100 kHz
VBW 1 MHz
Span 10.67 MHz
#Sweep 75 ms
Channel Power
48.94 dBm/ 3.2 MHz
Power Spectral Density
-16.11 dBm/Hz
Freq / Channel
Center Freq
870.378189 MHz
CF Step
1.066667 MHz
Auto
Man
start
Agilent Spectrum Ana...
8PSK
2:48 PM

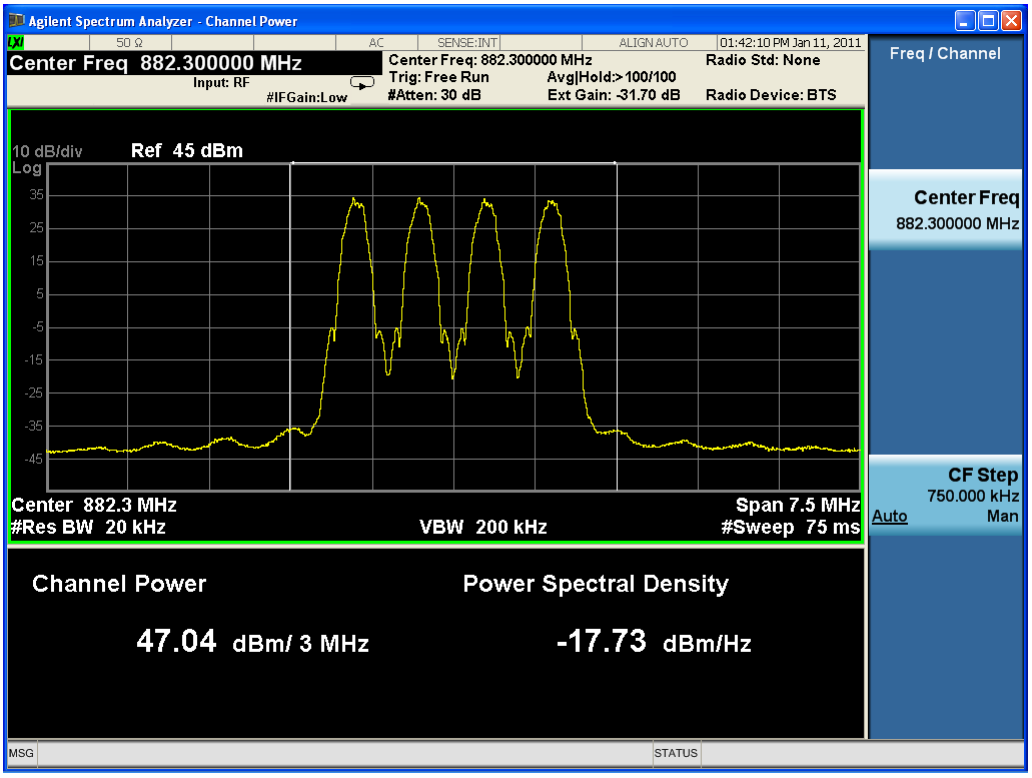

Agilent Spectrum Analyzer - Channel Power
Mech Atten 54 dB
Input: RF
#IFGain:Low
Center Freq: 882.600000 MHz
Trig: Free Run
#Atten: 54 dB
Avg|Hold:>100/100
Ext Gain: -31.7 dB
Radio Std: None
Radio Device: BTS
02:54:47 PM Mar 13, 2010
Mkr1 882.024 MHz
34.898 dBm
10 dB/div
Ref 60 dBm
Log
Center 882.6 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 10.67 MHz
#Sweep 75 ms
Channel Power
49.14 dBm/ 3.2 MHz
Power Spectral Density
-15.91 dBm/Hz
Attenuation
Mech Atten
54 dB
Enable Elec Atten
On
Off
Elec Atten
0 dB
Adjust Atten for Min Clip
Pre-Adjust for Min Clip
Off
Mech Atten Step
2 dB
10 dB
Max Mixer Lvl
-10.000 dBm
MSG
STATUS

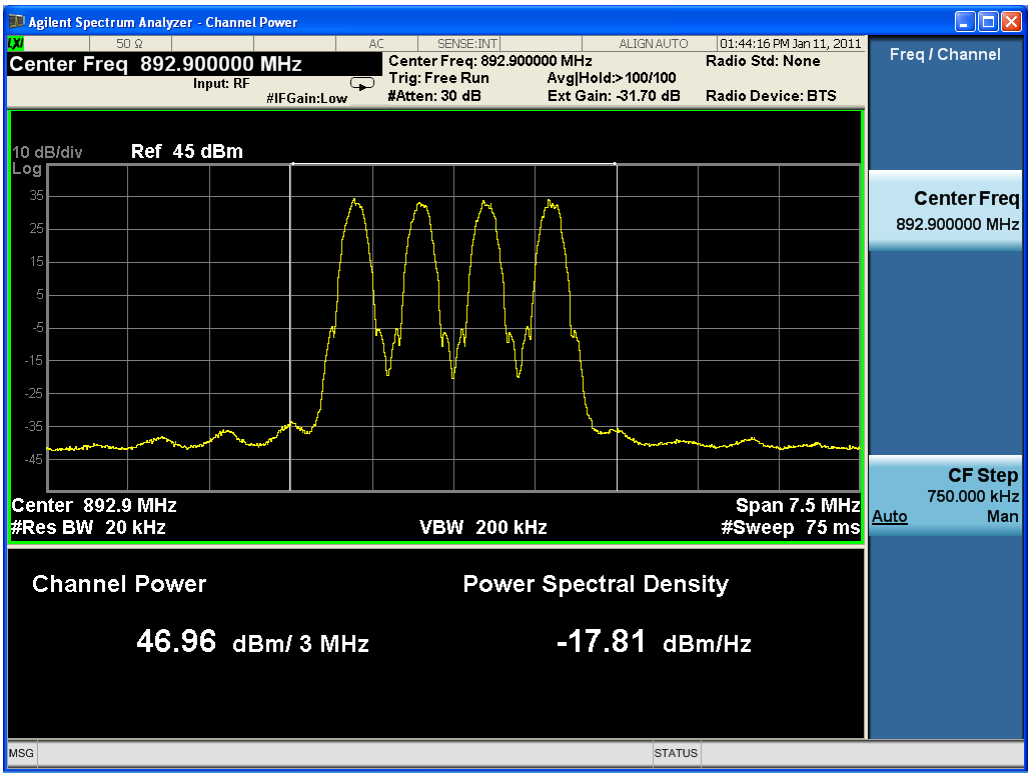


Four carriers

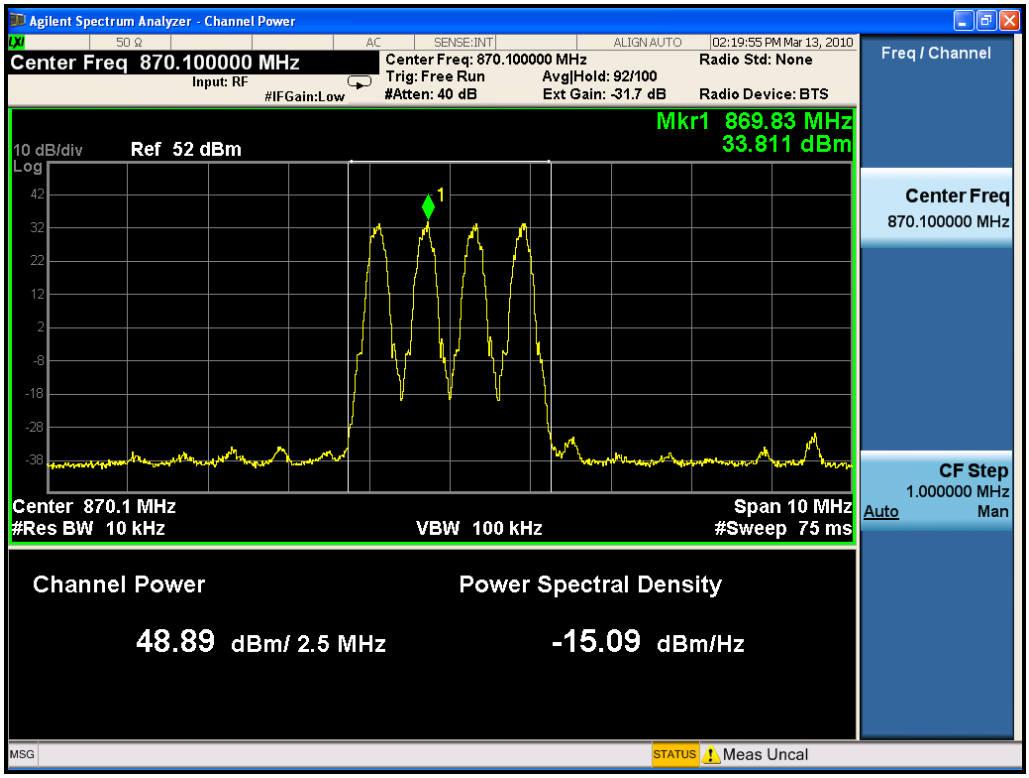
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
8PSK	870.1	869.2/869.8/ 870.4 /871	47.05
	882.3	881.4/882/882.6/883.2	47.04
	892.9	892/892.6/893.2/893.8	46.96

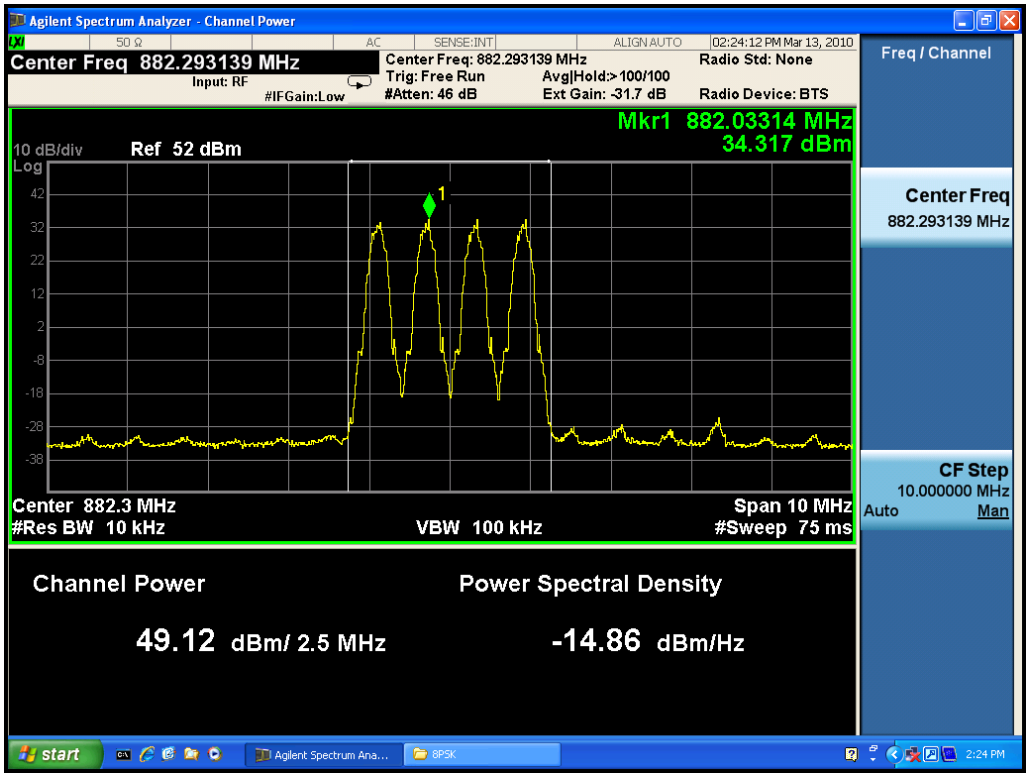

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
01:38:35 PM Jan 11, 2011
Center Freq 870.100000 MHz
Input: RF
#IFGain:Low
Center Freq: 870.100000 MHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -31.70 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 45 dBm
35
25
15
5
-5
-15
-25
-35
-45
Center 870.1 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 7.5 MHz
#Sweep 75 ms
Center Freq
870.100000 MHz
CF Step
750.000 kHz
Auto
Man
Channel Power
47.05 dBm/ 3 MHz
Power Spectral Density
-17.72 dBm/Hz
MSG
STATUS


Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
01:42:10 PM Jan 11, 2011
Center Freq 882.300000 MHz
Input: RF
#IFGain:Low
Center Freq: 882.300000 MHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -31.70 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 45 dBm
35
25
15
5
-5
-15
-25
-35
-45
Center 882.3 MHz
#Res BW 20 kHz
VBW 200 kHz
Span 7.5 MHz
#Sweep 75 ms
Center Freq
882.300000 MHz
CF Step
750.000 kHz
Auto
Man
Channel Power
47.04 dBm/ 3 MHz
Power Spectral Density
-17.73 dBm/Hz
MSG
STATUS



modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
GMSK	870.1	869.2/869.8/ 870.4 /871	48.89
	882.3	881.4/882/882.6/883.2	49.12
	892.9	892/892.6/893.2/893.8	49.10


Agilent Spectrum Analyzer - Channel Power
Center Freq 870.100000 MHz
Input: RF
#IFGain:Low
Center Freq: 870.100000 MHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold: 92/100
Ext Gain: -31.7 dB
Radio Std: None
Radio Device: BTS
02:19:55 PM Mar 13, 2010
Freq / Channel
Mkr1 869.83 MHz
33.811 dBm
10 dB/div
Log
Ref 52 dBm
Center Freq
870.100000 MHz
CF Step
1.000000 MHz
Auto
Man
Center 870.1 MHz
#Res BW 10 kHz
VBW 100 kHz
Span 10 MHz
#Sweep 75 ms
Channel Power
48.89 dBm/ 2.5 MHz
Power Spectral Density
-15.09 dBm/Hz
MSG
STATUS
Meas Uncal


Agilent Spectrum Analyzer - Channel Power
Center Freq 882.293139 MHz
Input: RF
#IFGain:Low
Center Freq: 882.293139 MHz
Trig: Free Run
#Atten: 46 dB
Avg|Hold:>100/100
Ext Gain: -31.7 dB
Radio Std: None
Radio Device: BTS
02:24:12 PM Mar 13, 2010
Freq / Channel
Mkr1 882.03314 MHz
34.317 dBm
10 dB/div
Log
Ref 52 dBm
Center Freq
882.293139 MHz
CF Step
10.000000 MHz
Auto
Man
Center 882.3 MHz
#Res BW 10 kHz
VBW 100 kHz
Span 10 MHz
#Sweep 75 ms
Channel Power
49.12 dBm/ 2.5 MHz
Power Spectral Density
-14.86 dBm/Hz
start
Agilent Spectrum Ana...
8PSK
2:24 PM