

FCC MEASUREMENT AND TEST REPORT

For

ZTE Corporation

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

FCC ID: Q78-RSU60EGU858

October 10, 2011

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Dual Mode Enhanced Radio System Unit
<p>Test Engineer: <i>Bloom</i></p> <p>Report No.: FCC-2011-056</p> <p>Test Date: August ,28 – September 31, 2011</p> <p>Reviewed By: <i>Xie Yuming</i></p> <p>Prepared By: ZTE Corporation.</p> <p>ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, China 518057, P.R.China Tel: +86-755-26770000 Fax: +86-755-26771999</p>	

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1 GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The ZTE Corporation's product, model number: ZXSDR RSU60E 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. RSU60E 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: 482.6(H) × 88 (W) × 360.0 (D)

Input voltage: -57 ~ -40VDC

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 used by ZTE Corporation to collect test data is located in the ZTE Plaza, Hi-tech Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China, Tel: +86-755-26770000, Fax: +86-755-26771999. 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

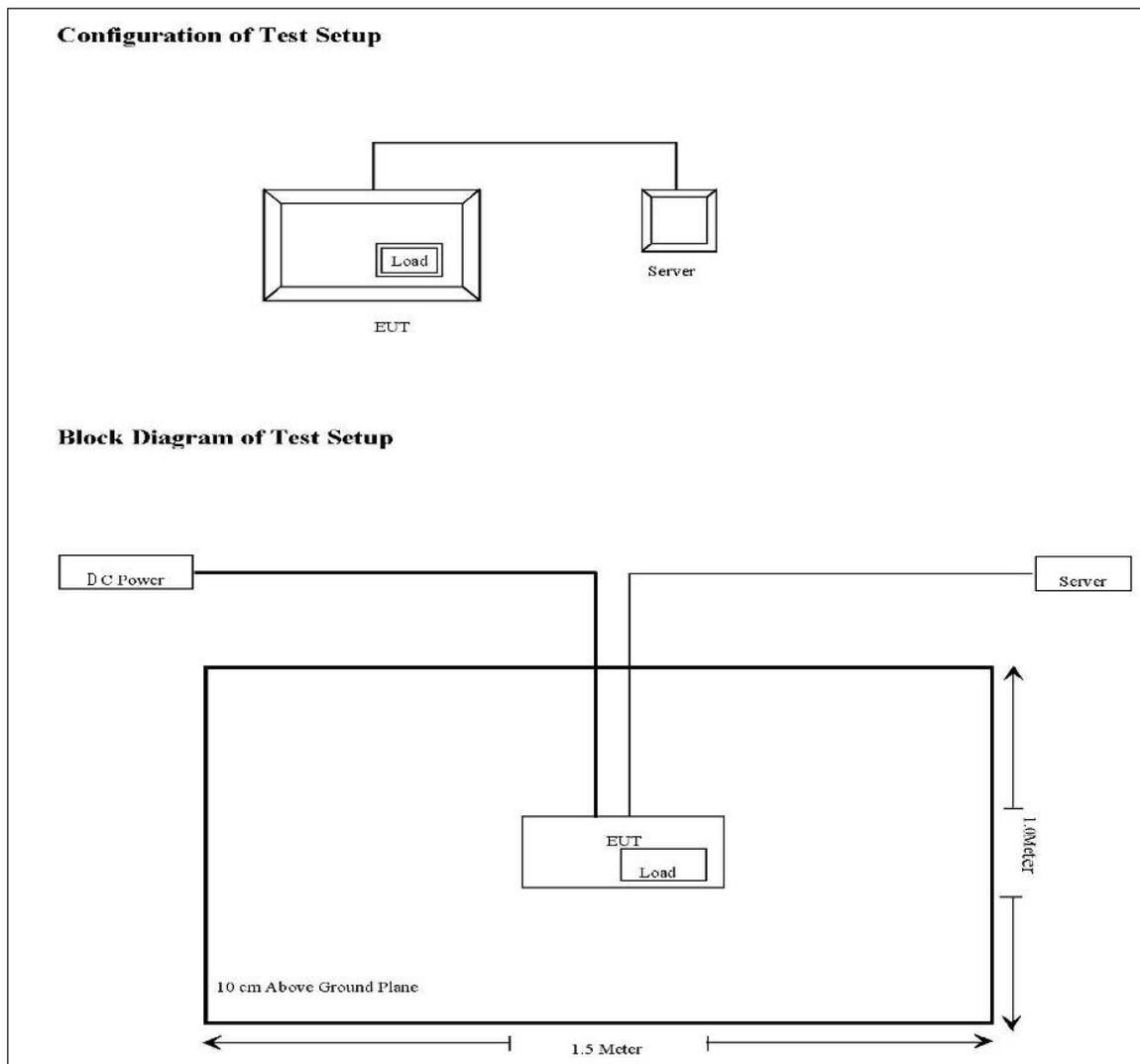
Justification

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

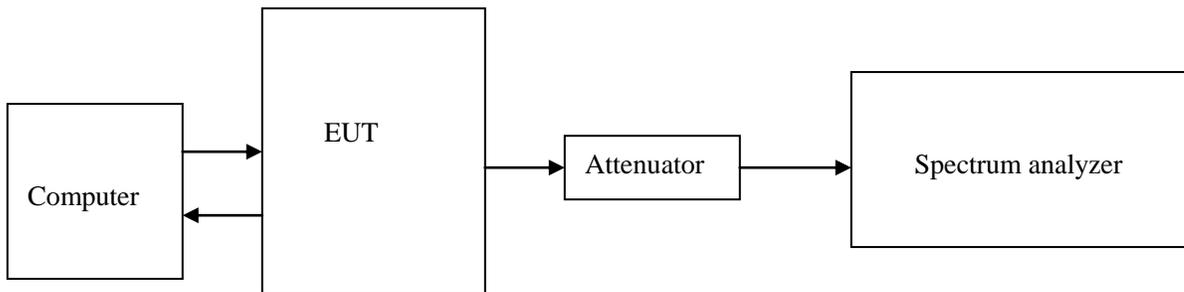
According to FCC §2.1046 & §22.913, the ERP (equivalent isotropically radiated power) must not exceed 500 Watts.

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

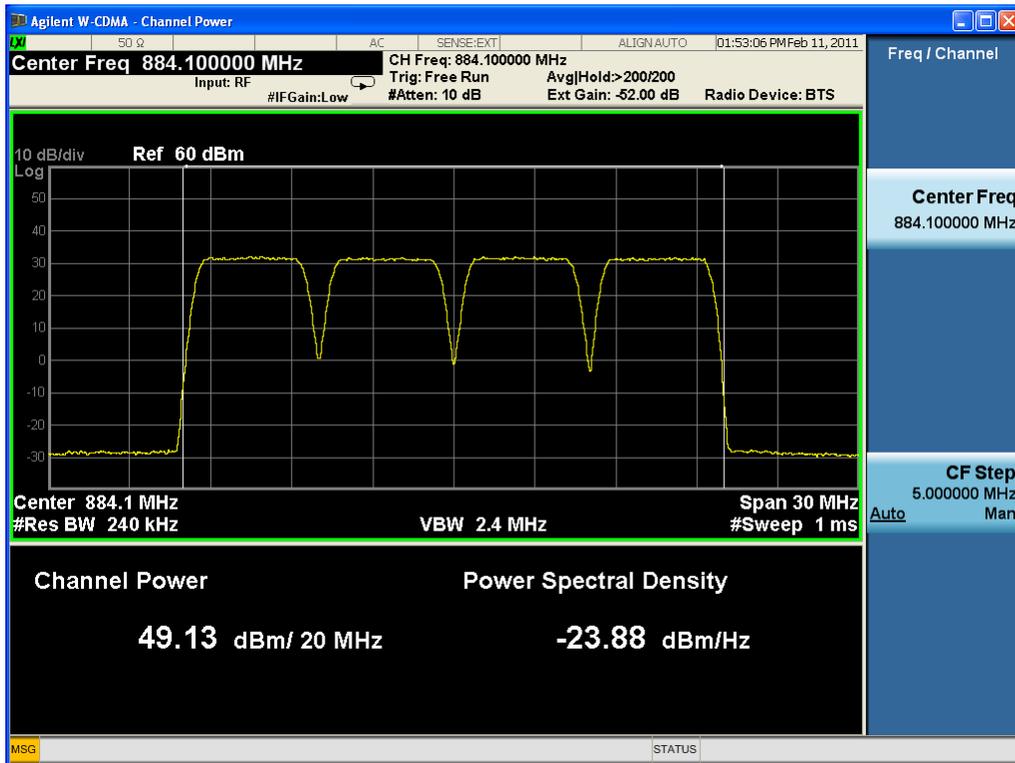
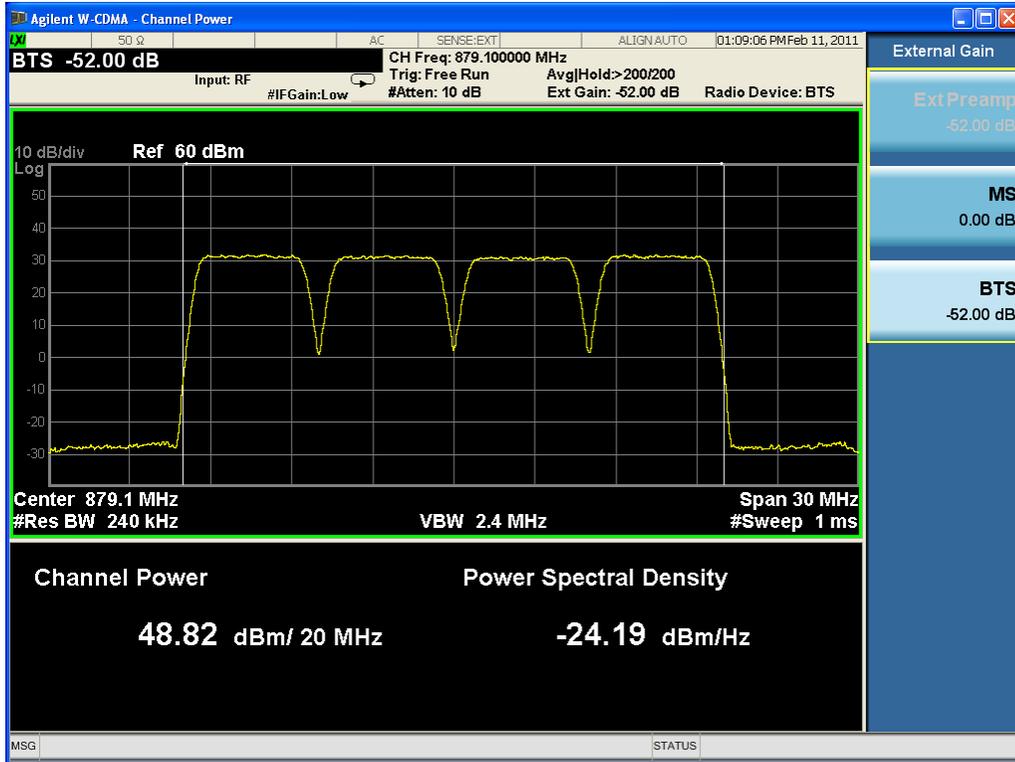
Test Result: Pass

Test Mode: Transmitting UMTS

Test Data:

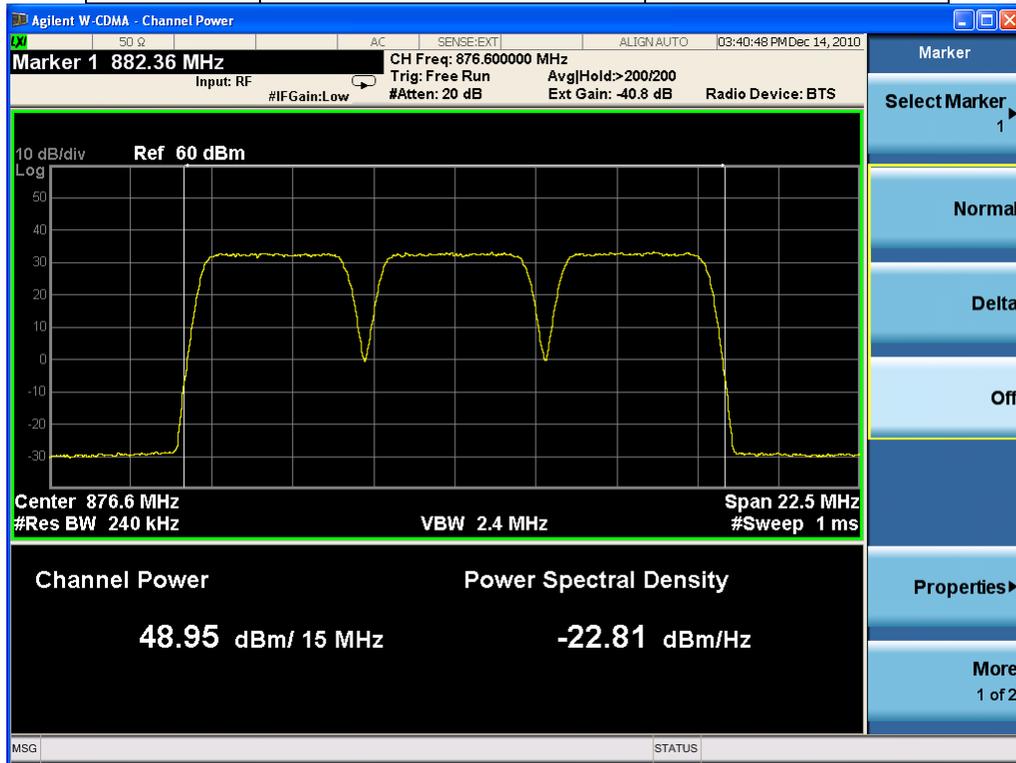
Four carriers

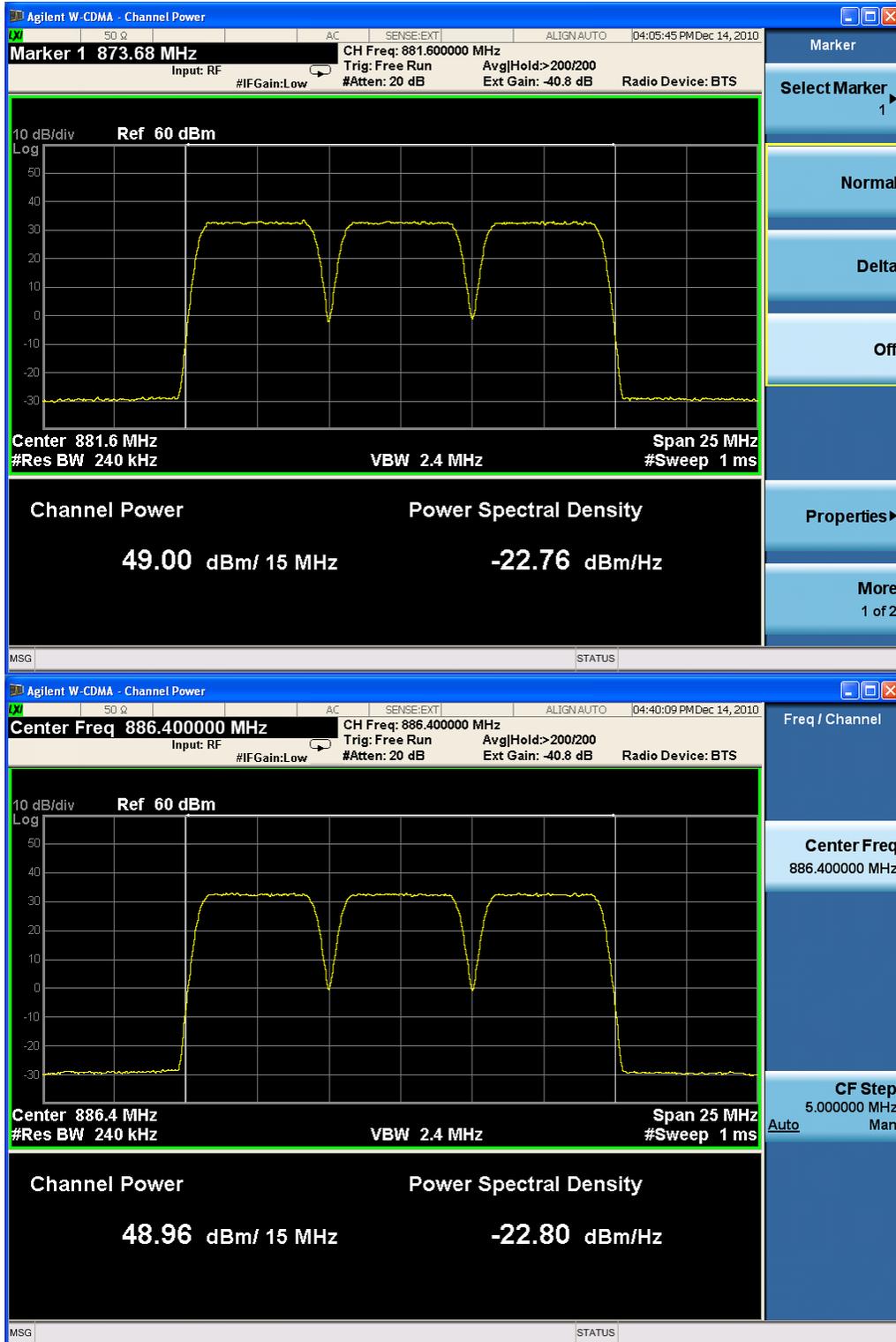
Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
879.1	871.6/876.6/881.6/886.6	48.82
884.1	876.6/881.6/886.6/891.4	49.13



Three carriers

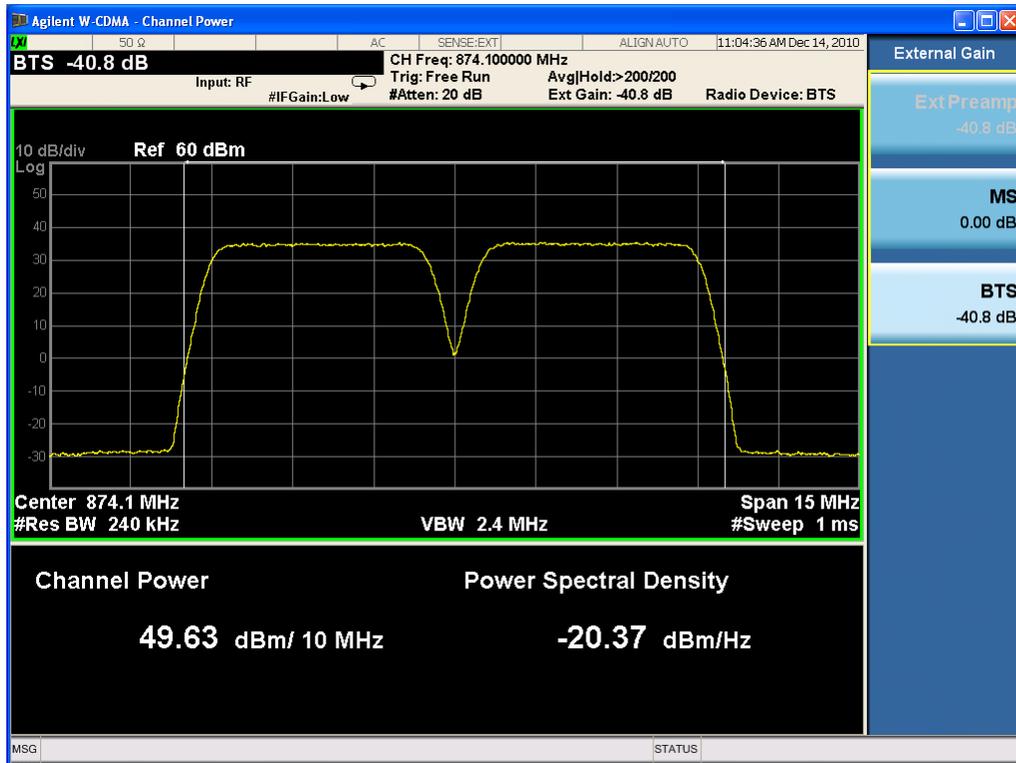
Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
876.6	871.6/876.6/881.6	48.95
881.6	876.6/881.6/886.6	49
886.4	881.4/886.4/891.4	48.96

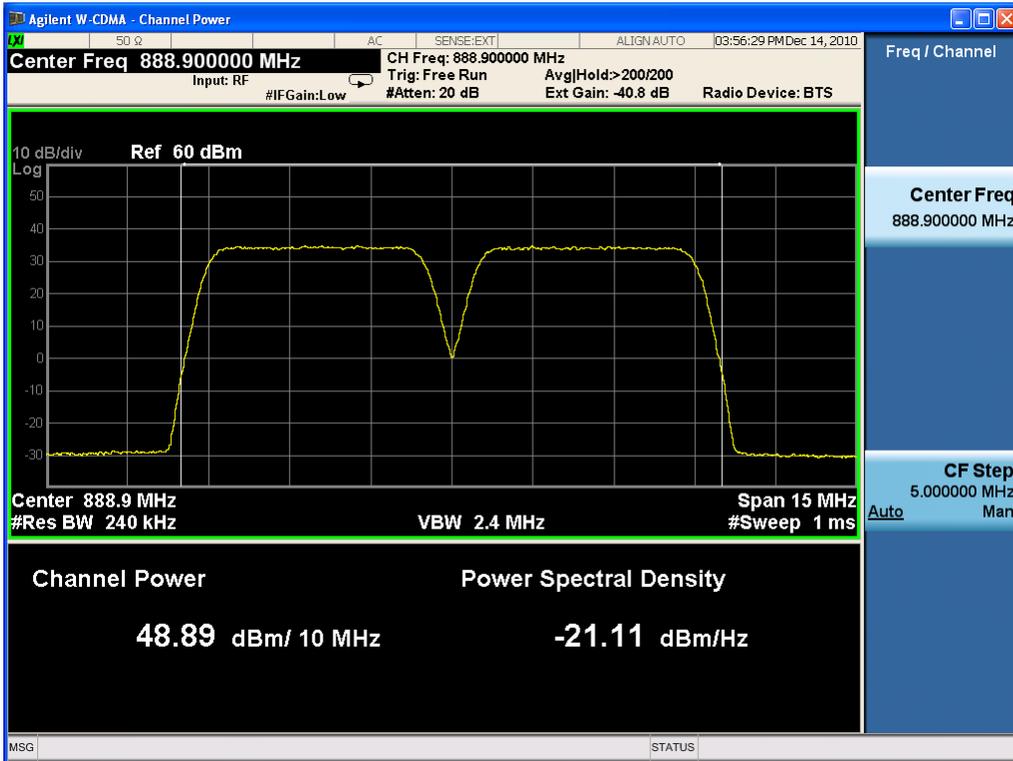
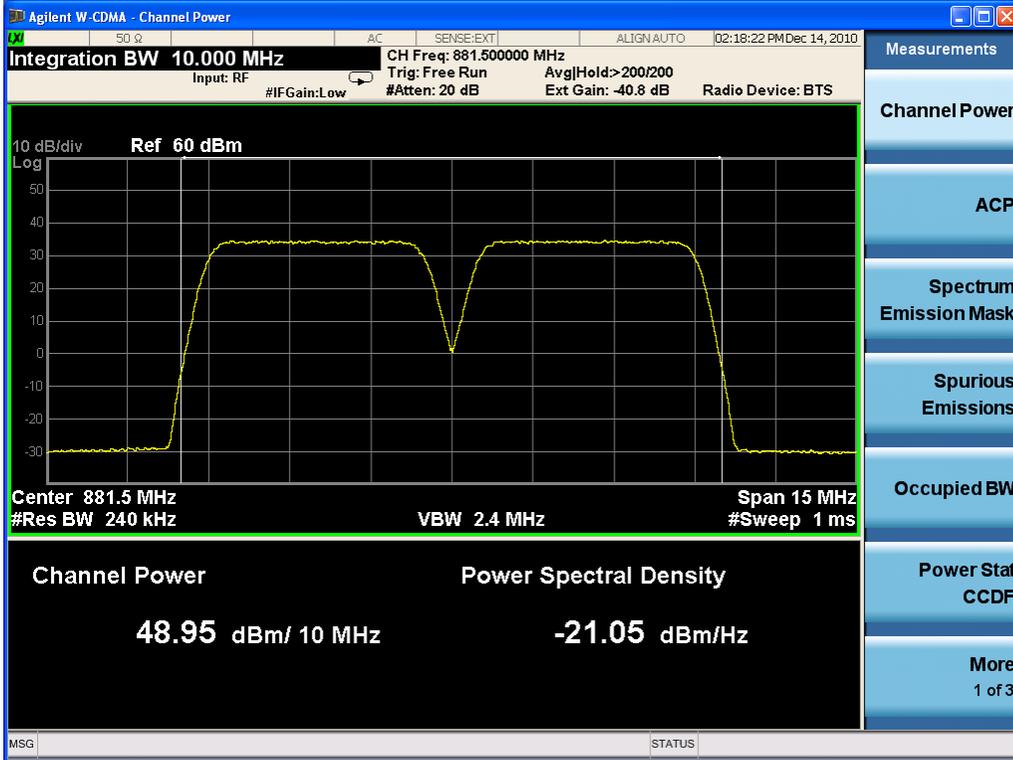




Two carriers

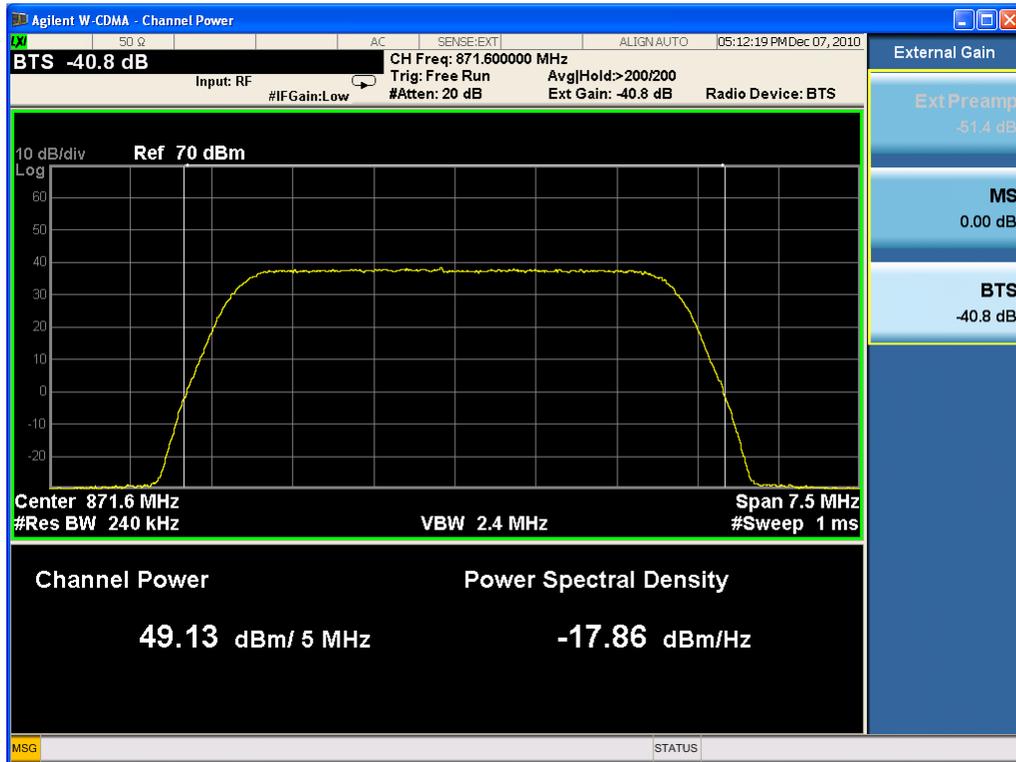
Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
874.1	871.6/876.6	49.63
881.5	879/884	48.95
888.9	886.4/891.4	48.89

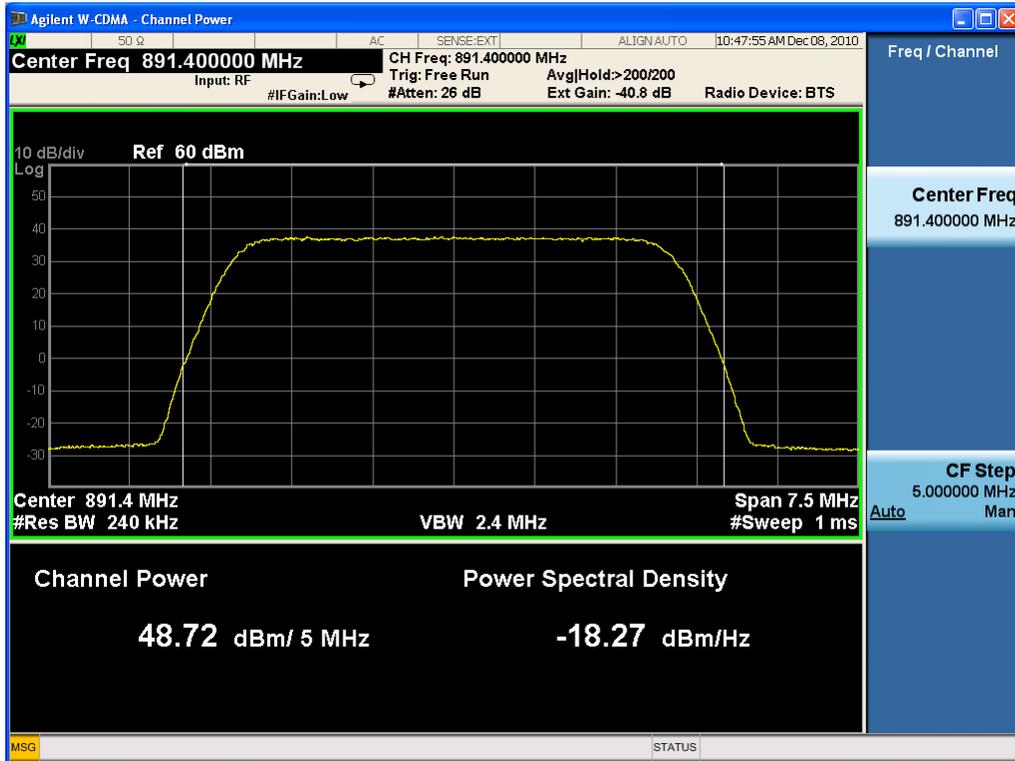
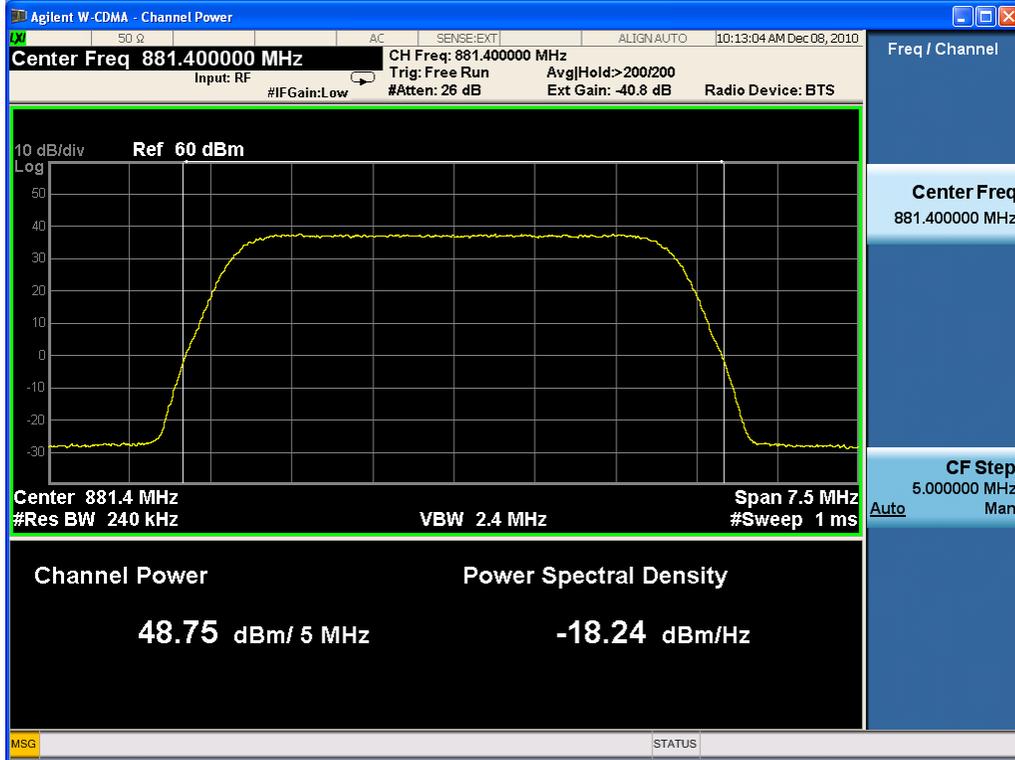




One carrier

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





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)/4πS]^{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/cm²
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

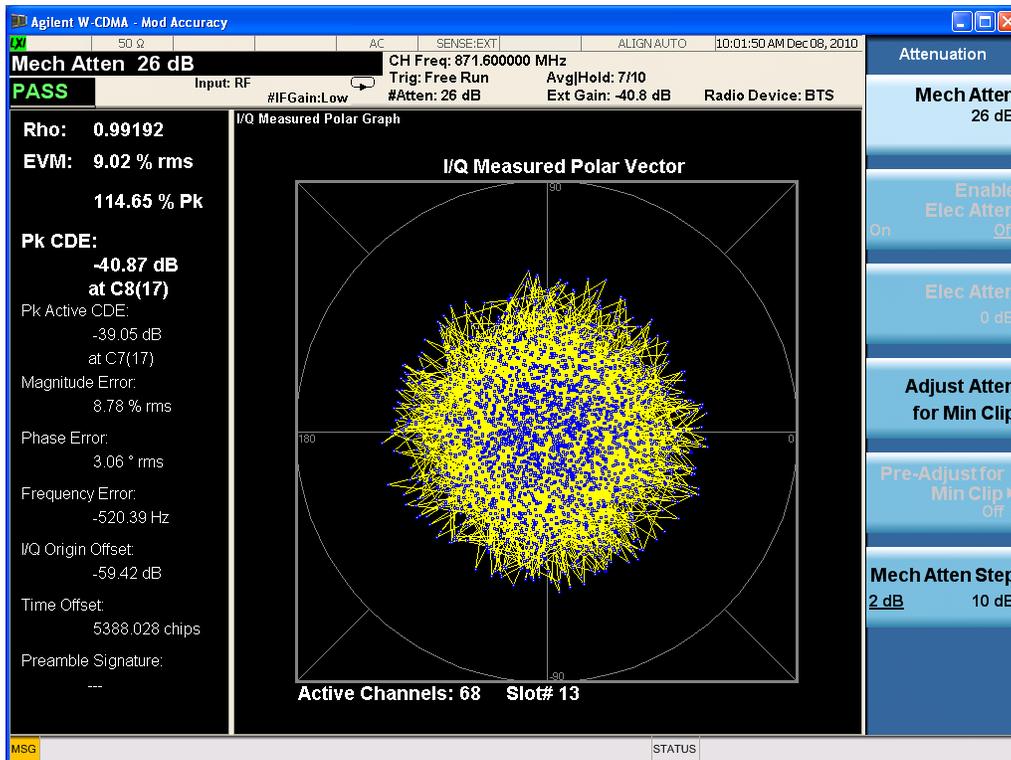
Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

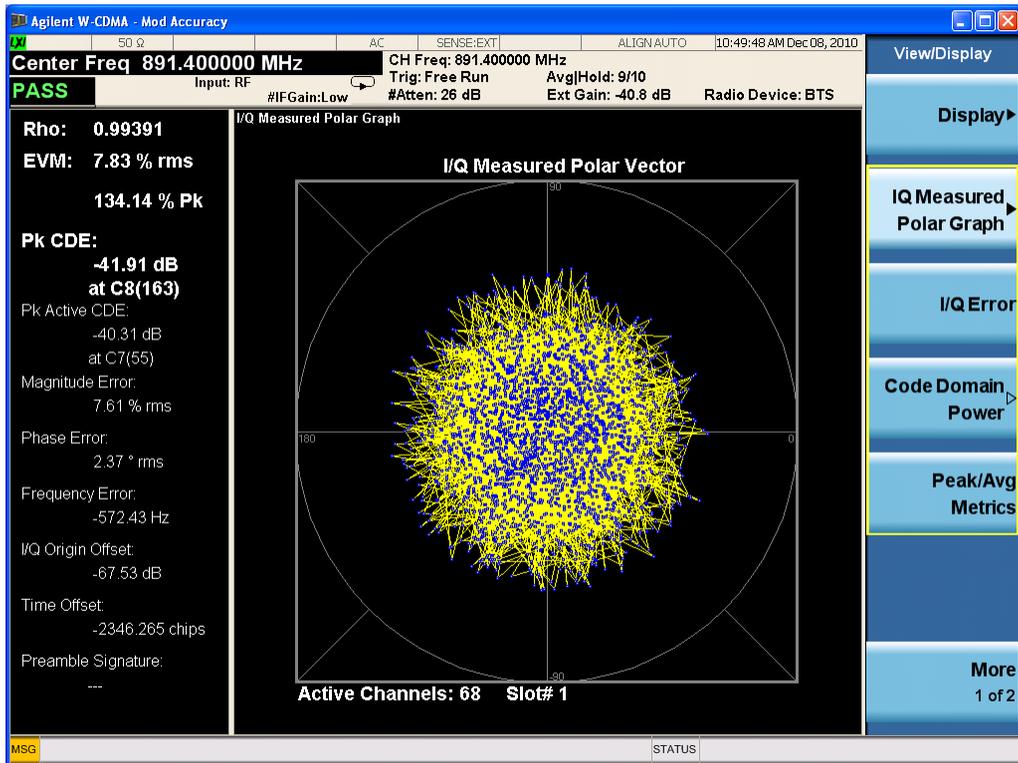
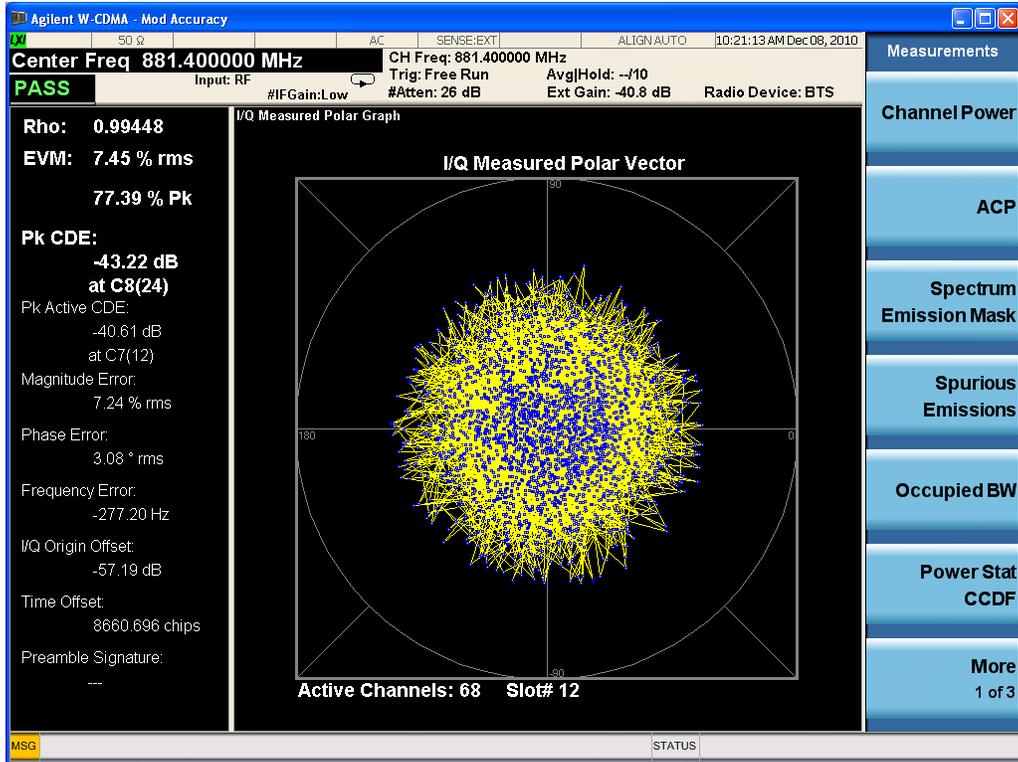
Test Result: Pass

Test Mode: Transmitting UMTS

Test Data:

Frequency (MHz)	Rho
871.6	0.99192
881.4	0.99447
891.4	0.99391





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

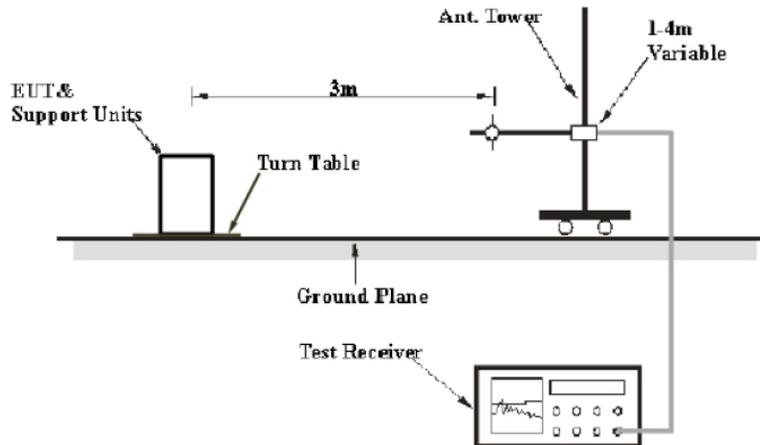
***statement of traceability:** ZTE Corporation Testing lab attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

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 lg (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 .

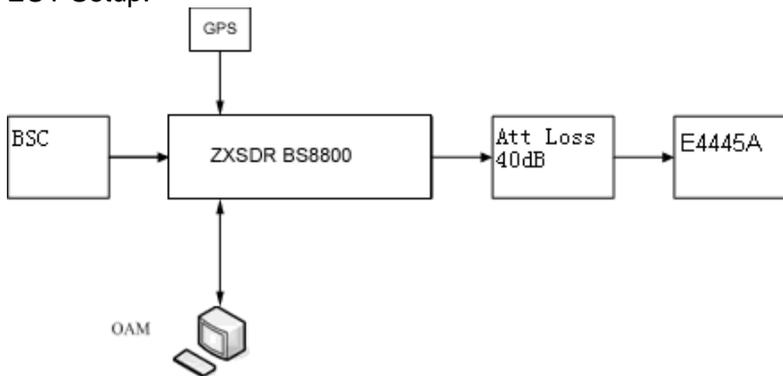
Test Equipment List and Details

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 scanning, set at 10KHz for 150KHz to 30MHz scanning ,set at 100KHz for 30MHz to 1GHz scanning, set at 1MHz or 3MHz for 1GHz to 22GHz scanning. 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

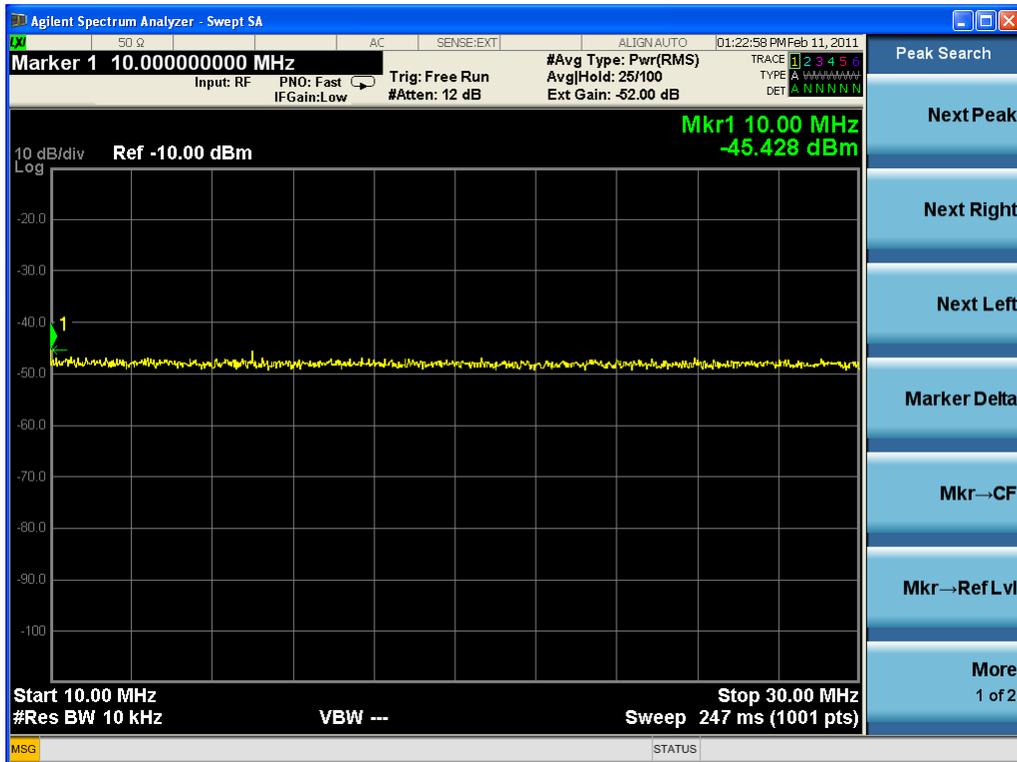
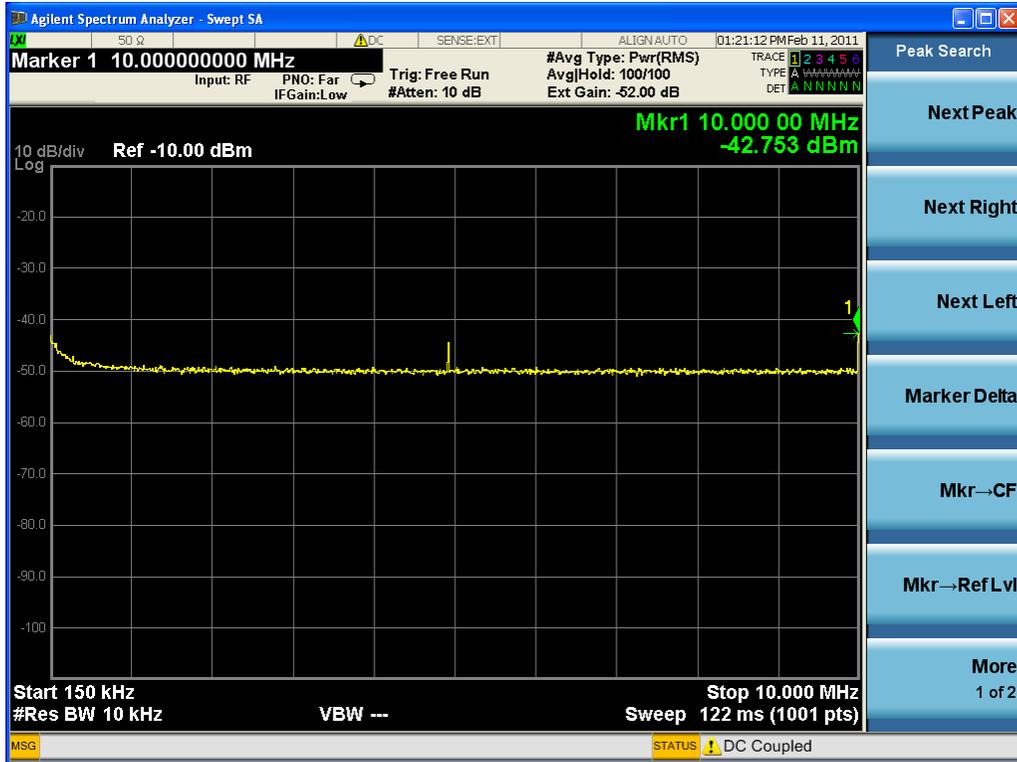
Test Result: Pass

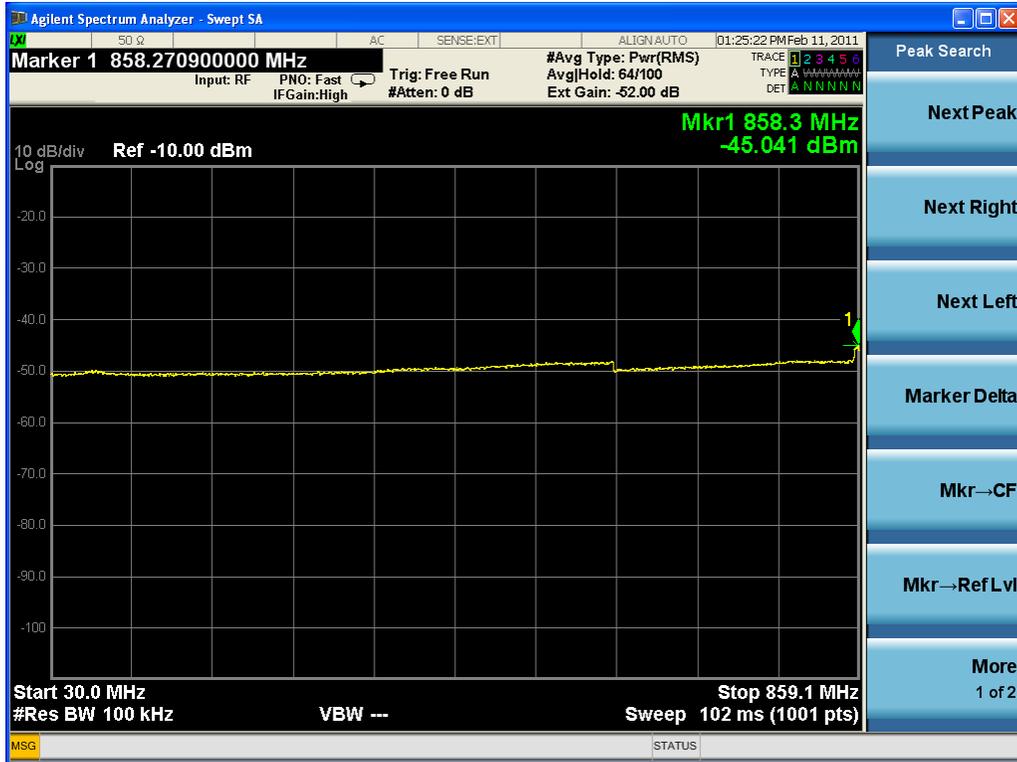
Test Mode: Transmitting UMTS

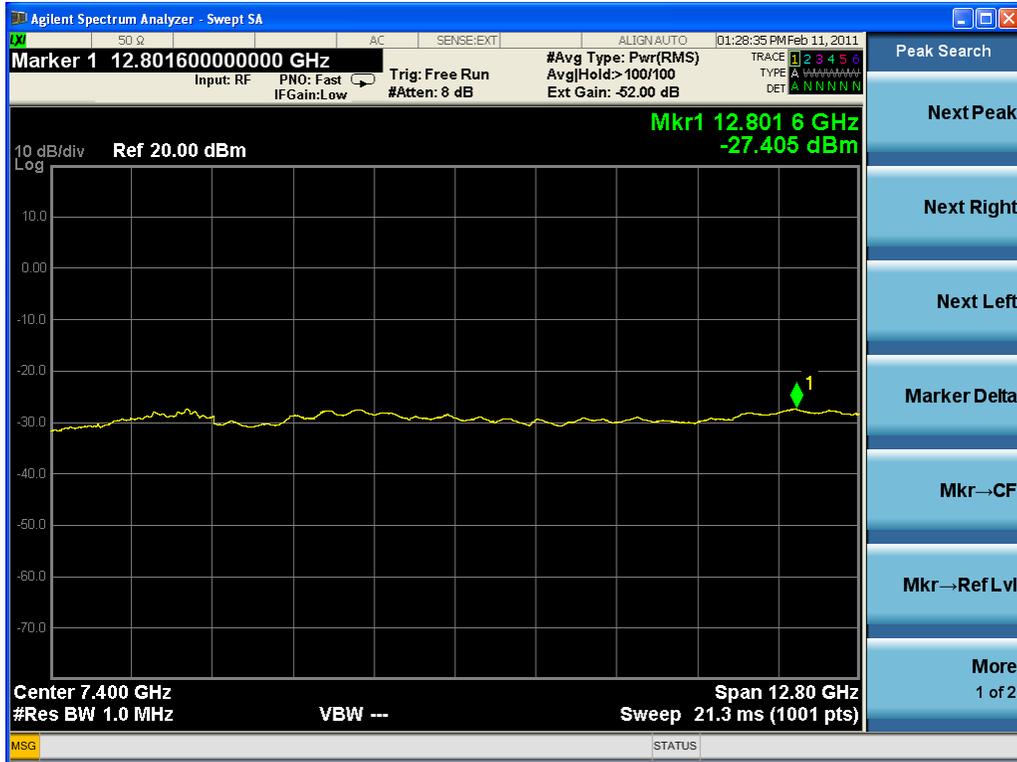
Test Data:

Four Carriers (working in bottom frequency)



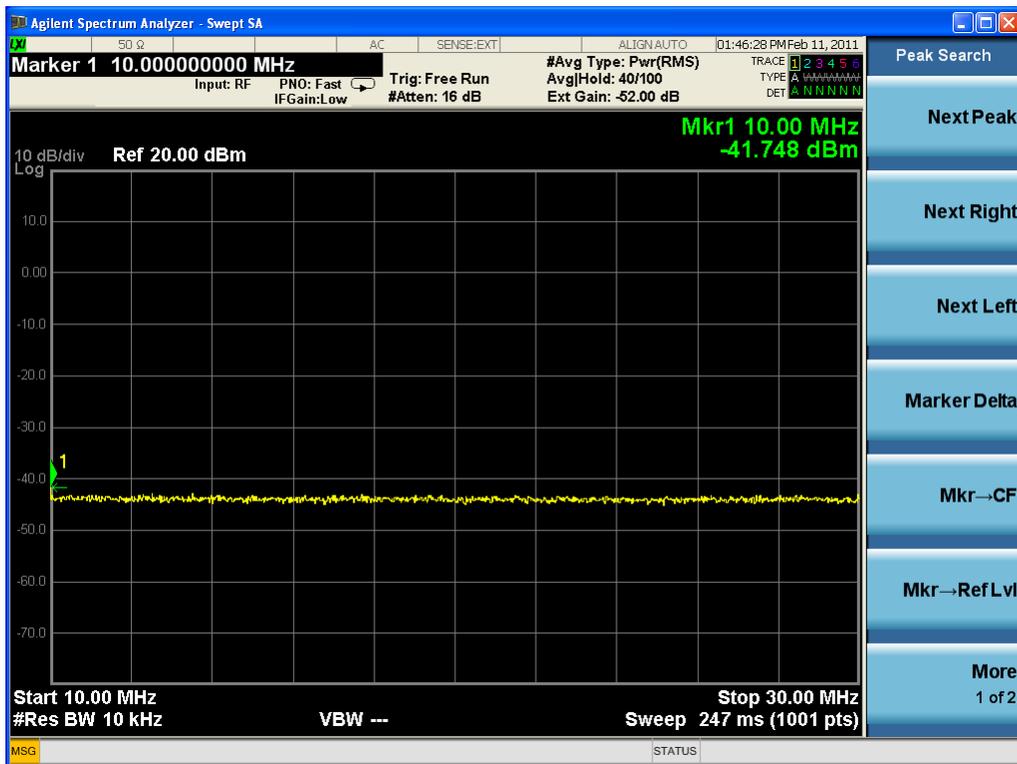
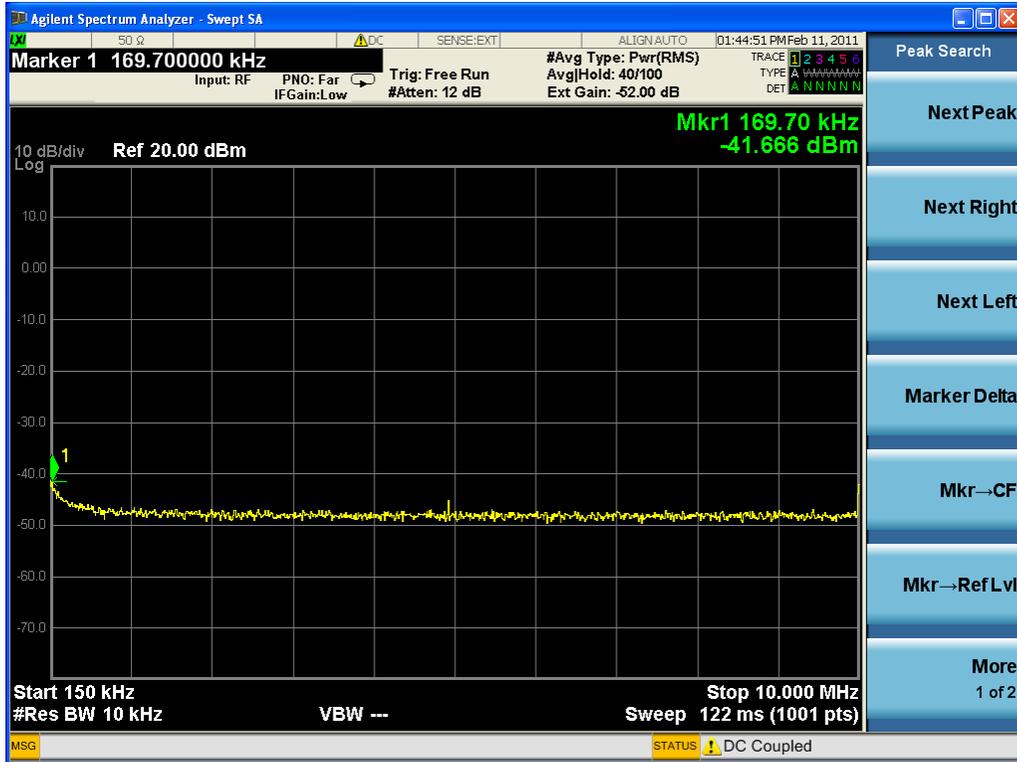


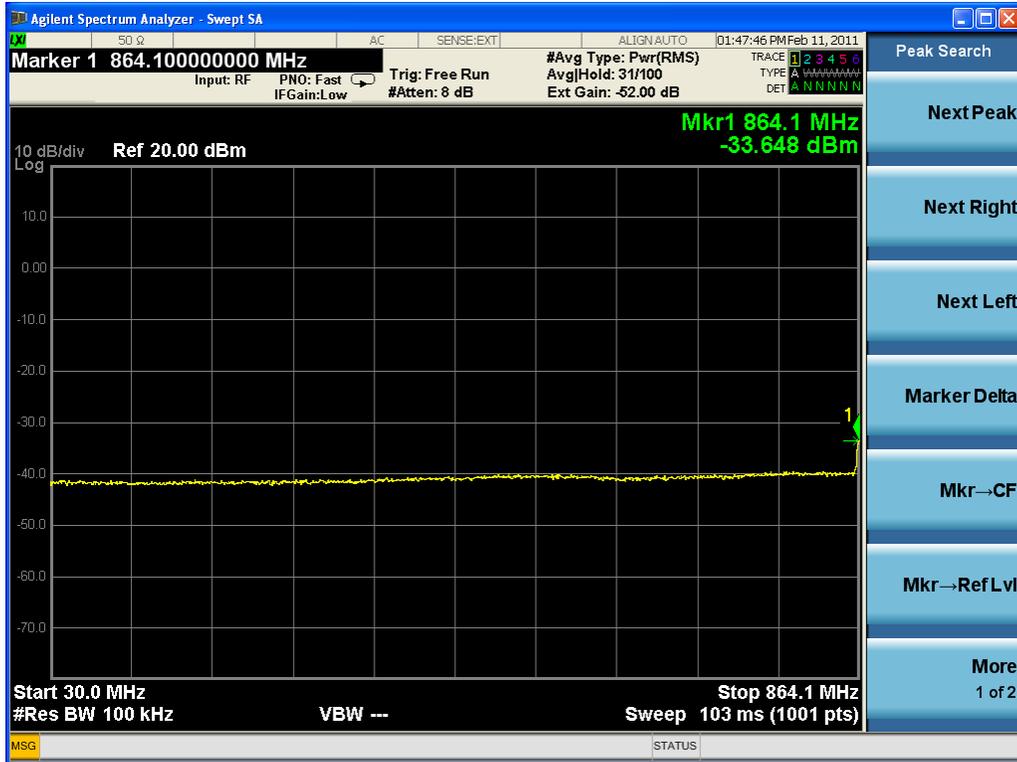


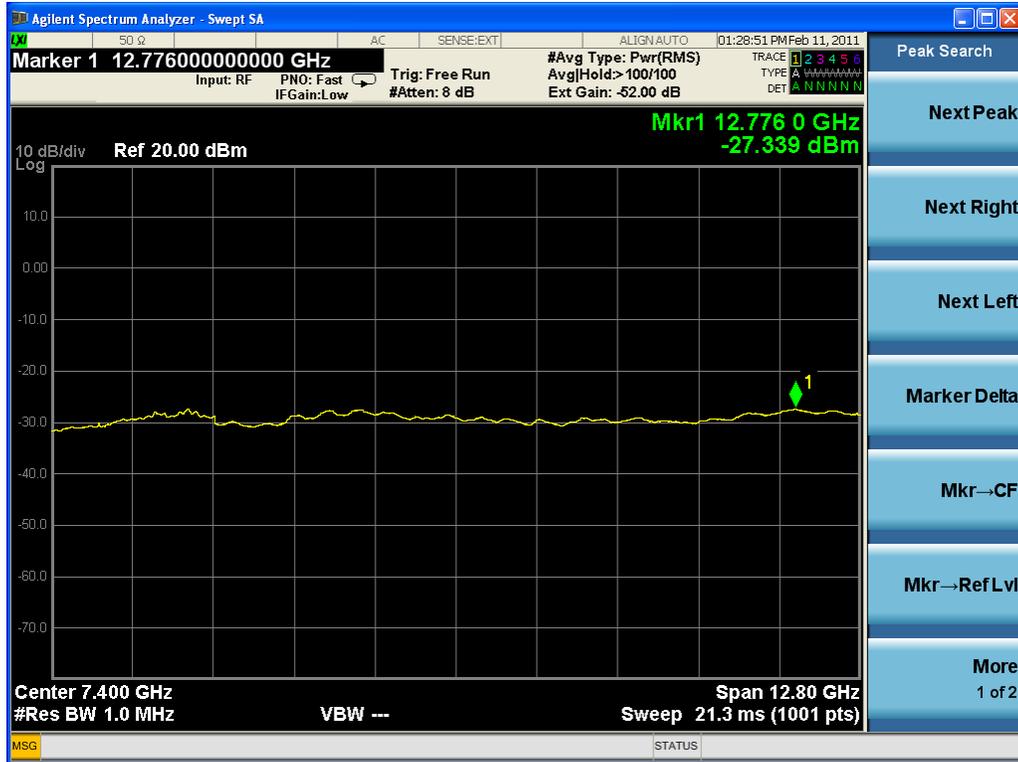


Four Carriers (working in top frequency)

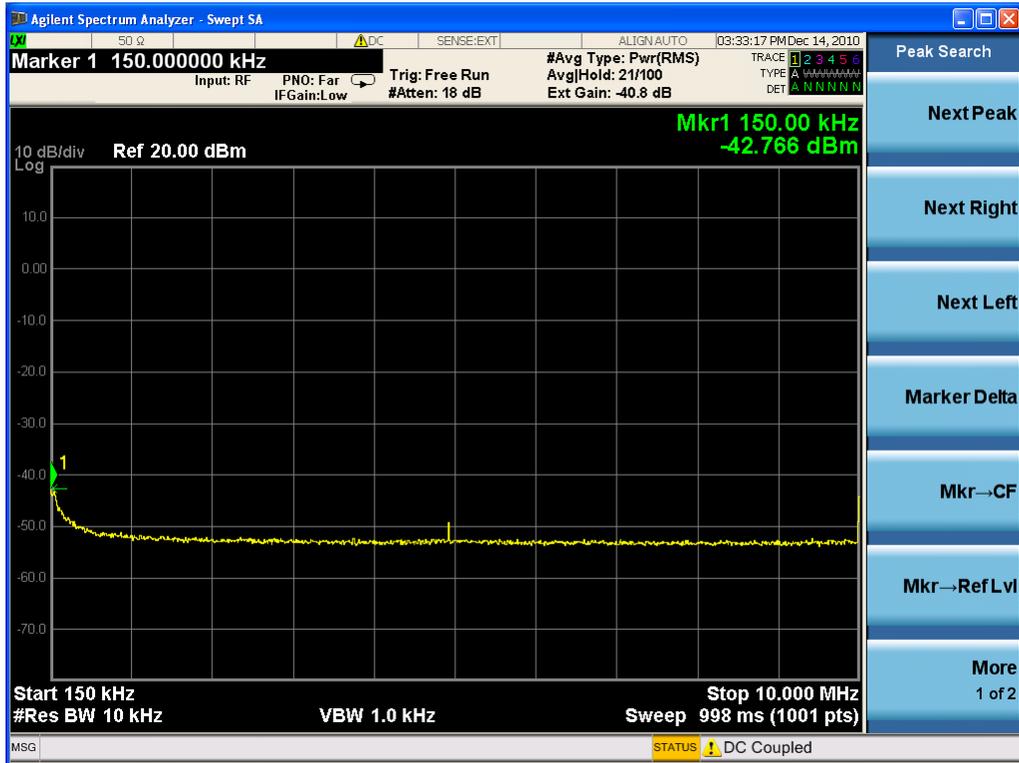


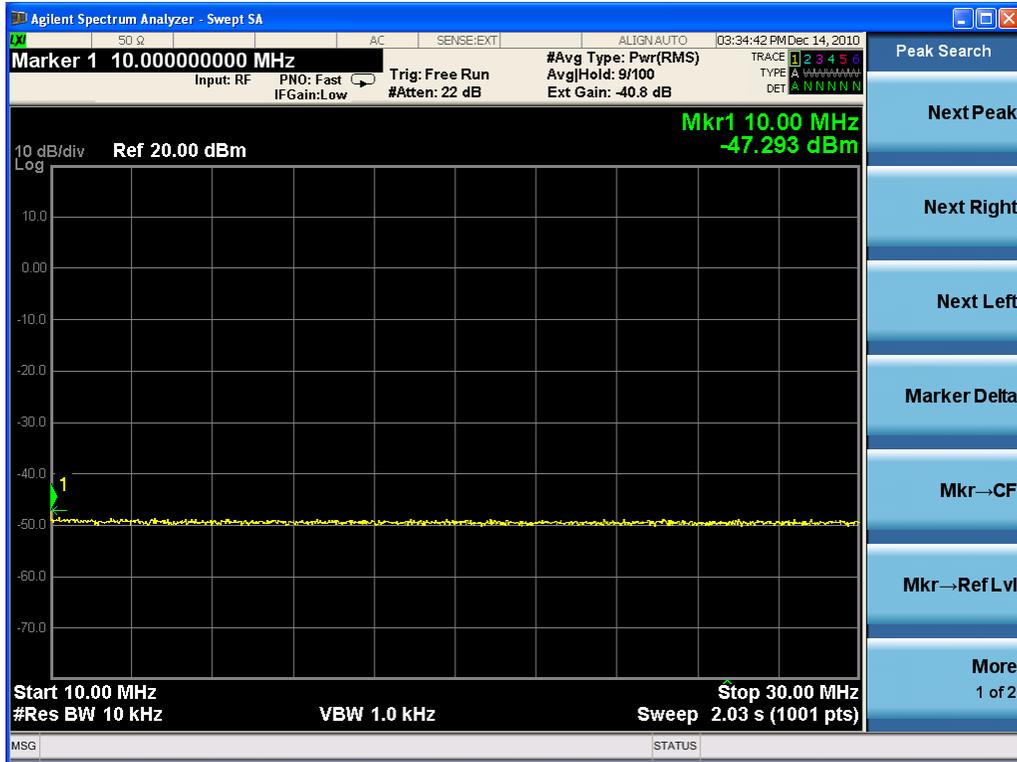


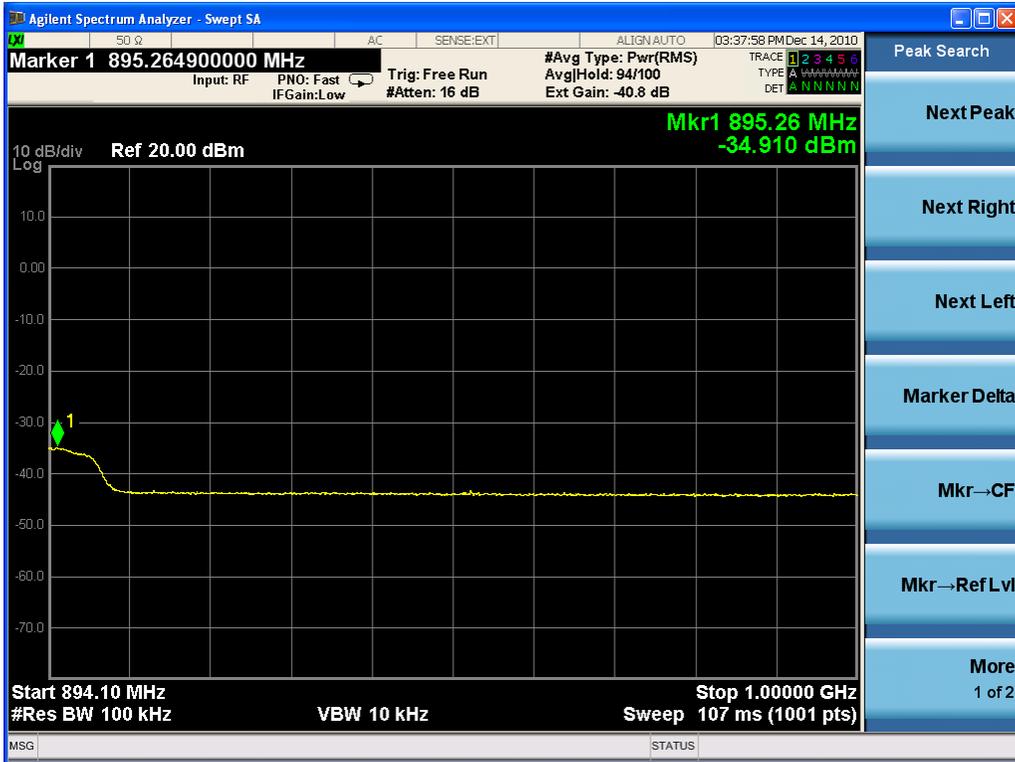




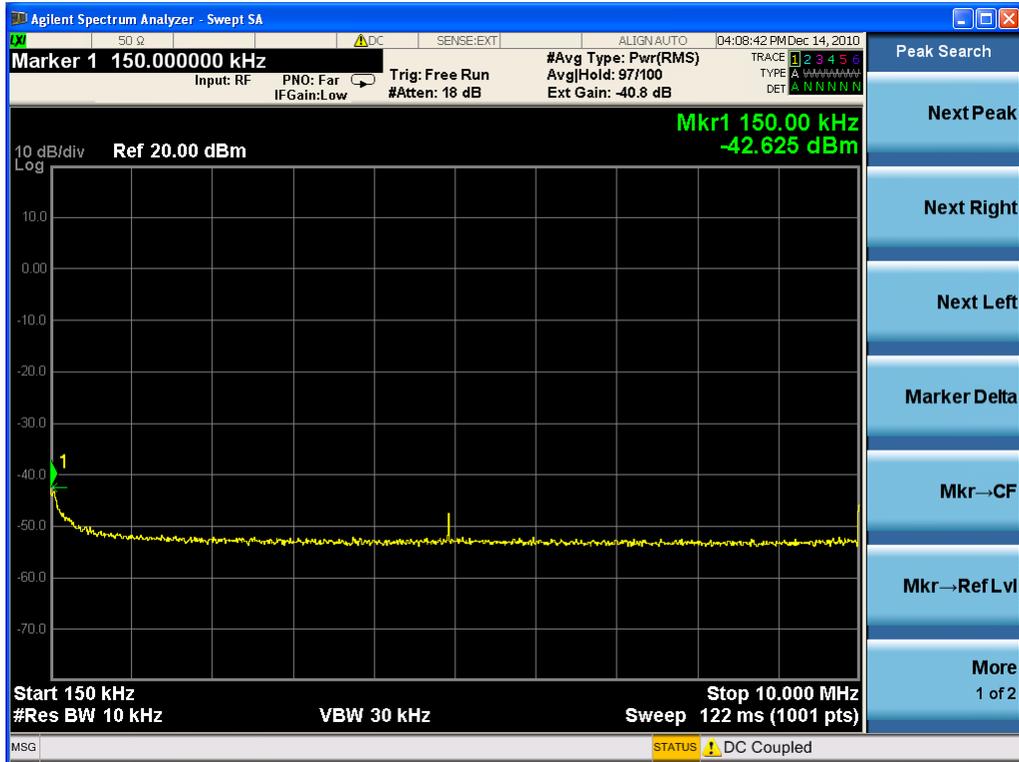
Three Carriers (working in bottom frequency)

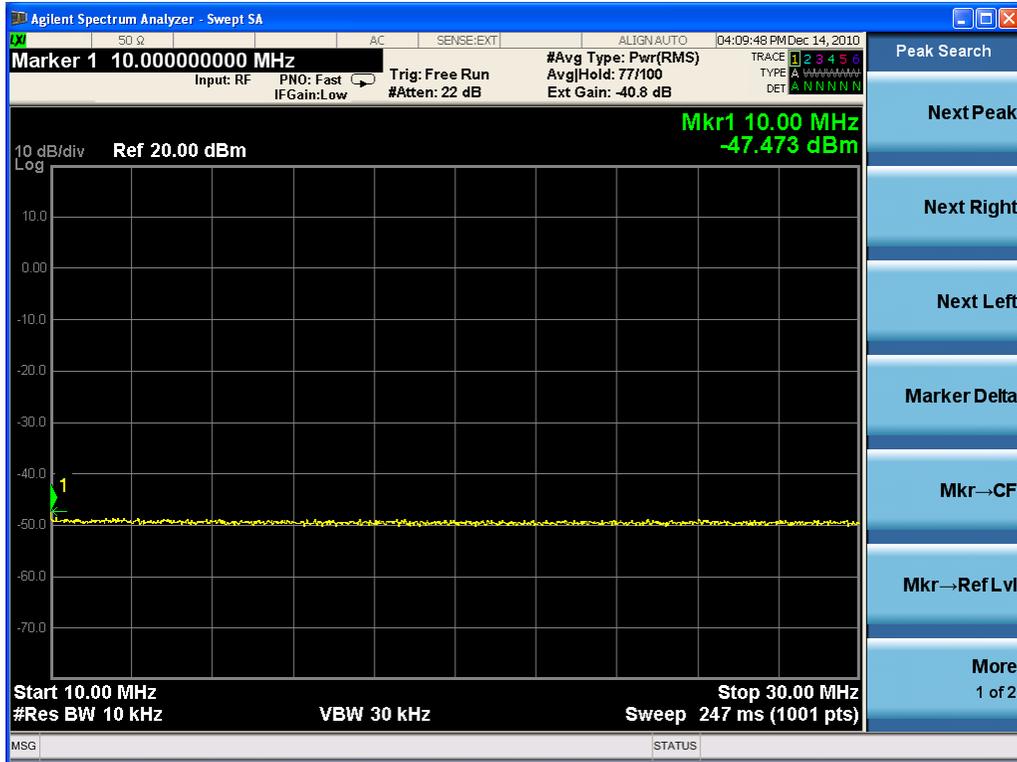






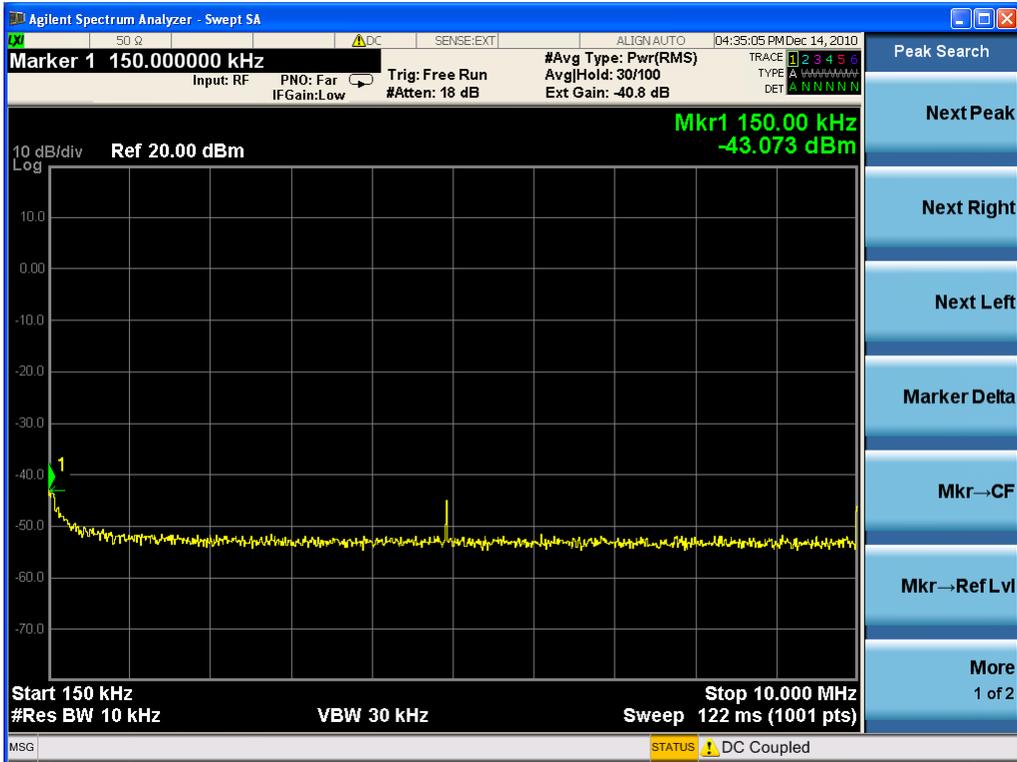
Three carriers (working in middle frequency)

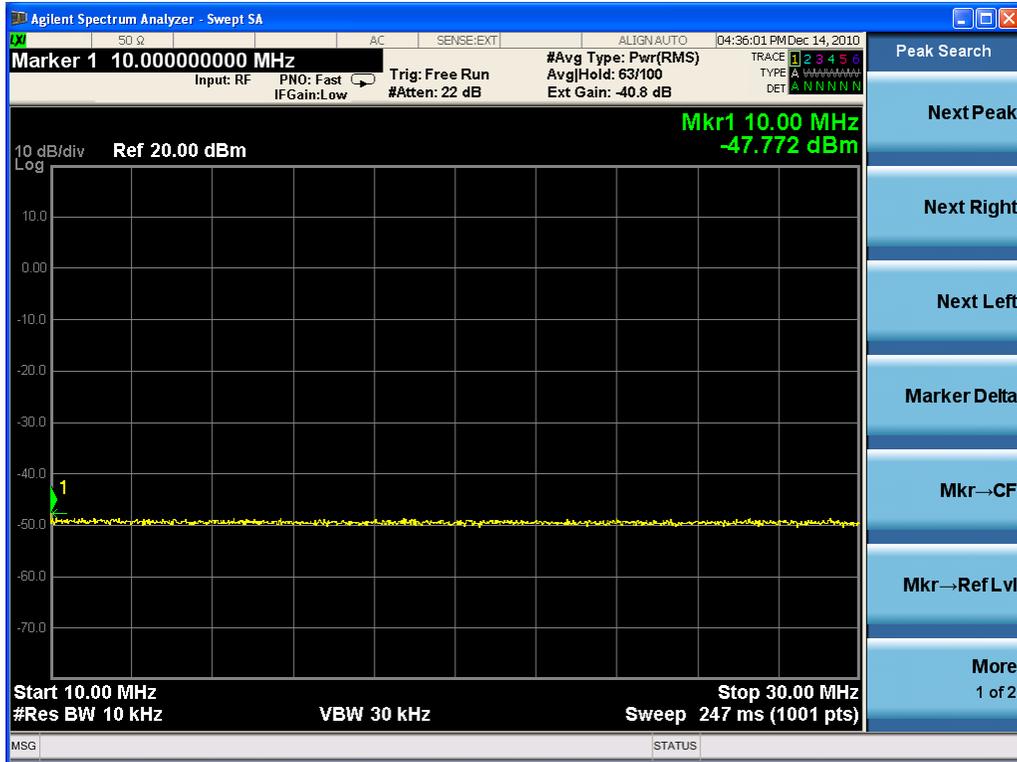


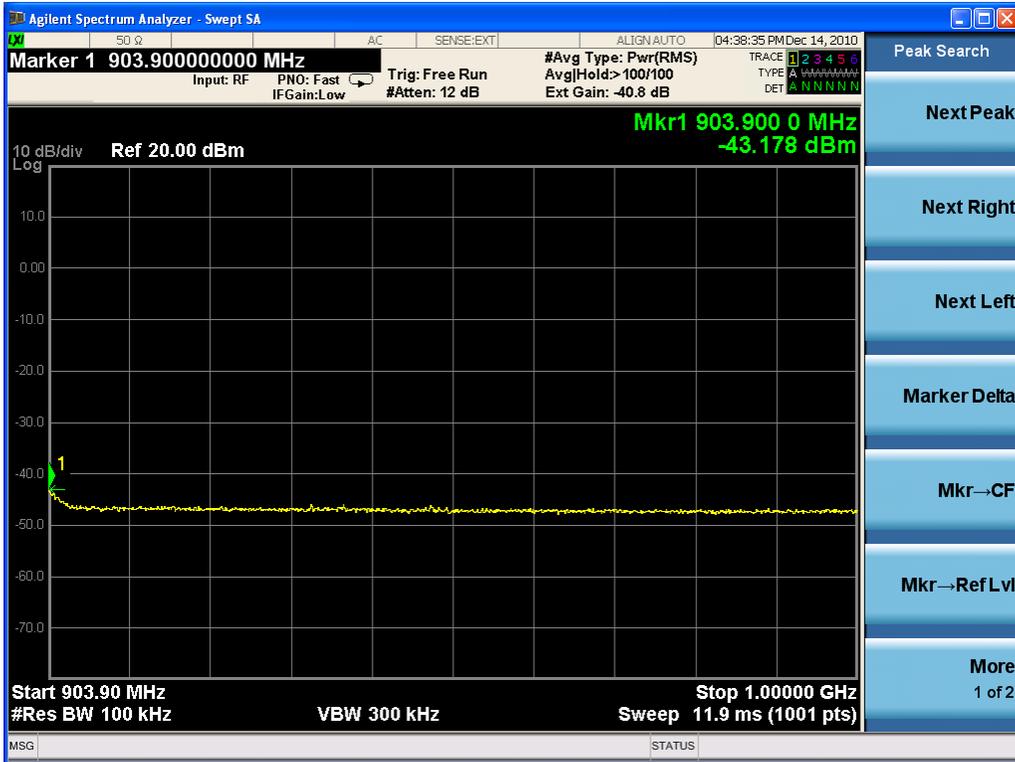




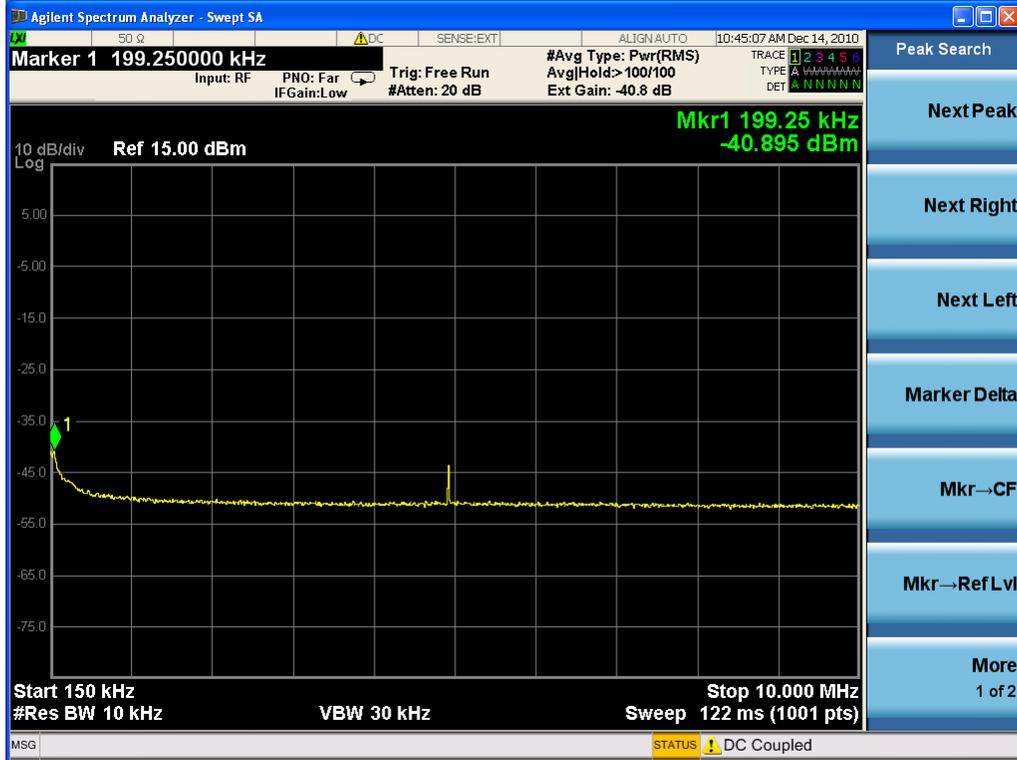
Three Carriers (working in top frequency)

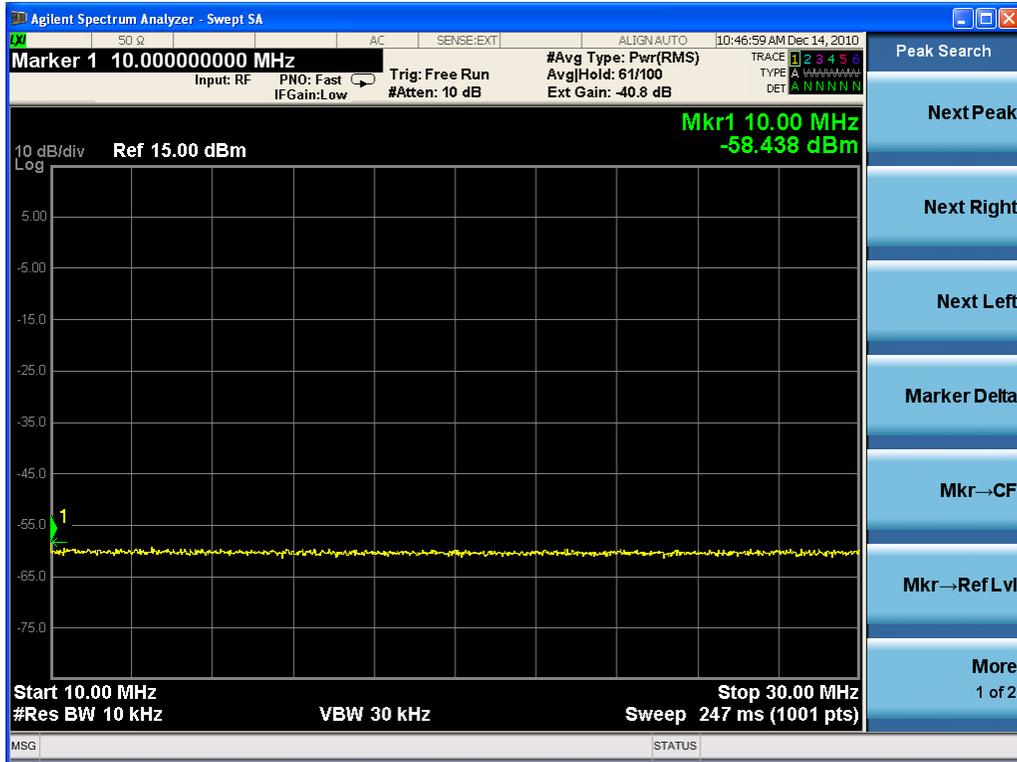


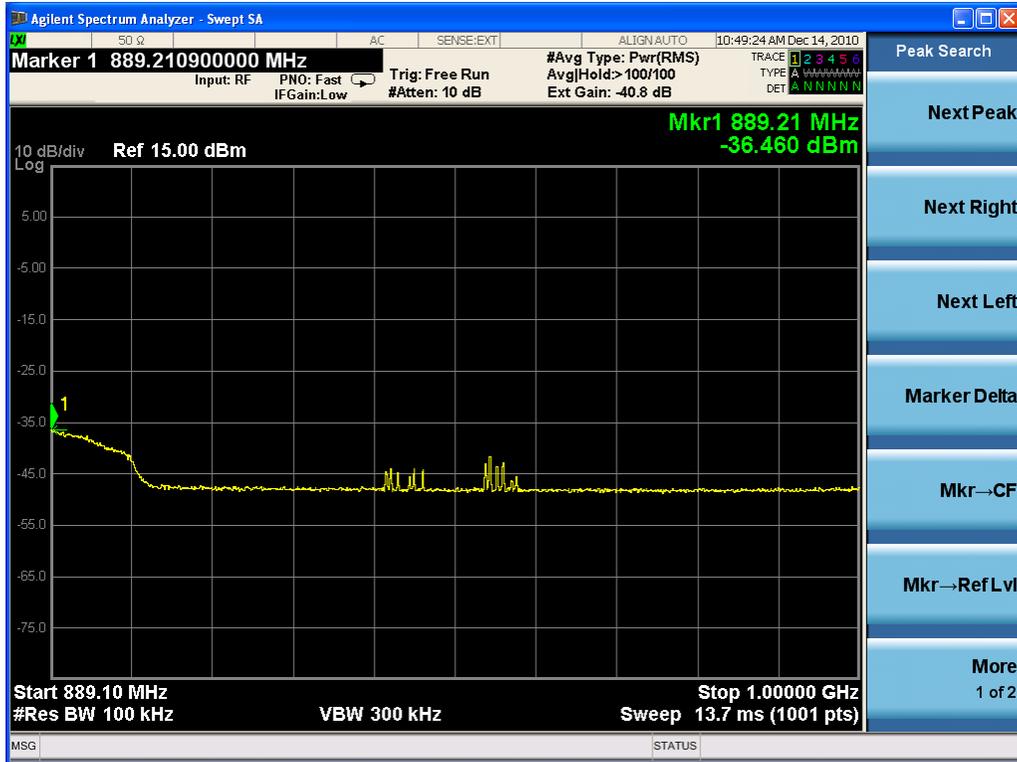




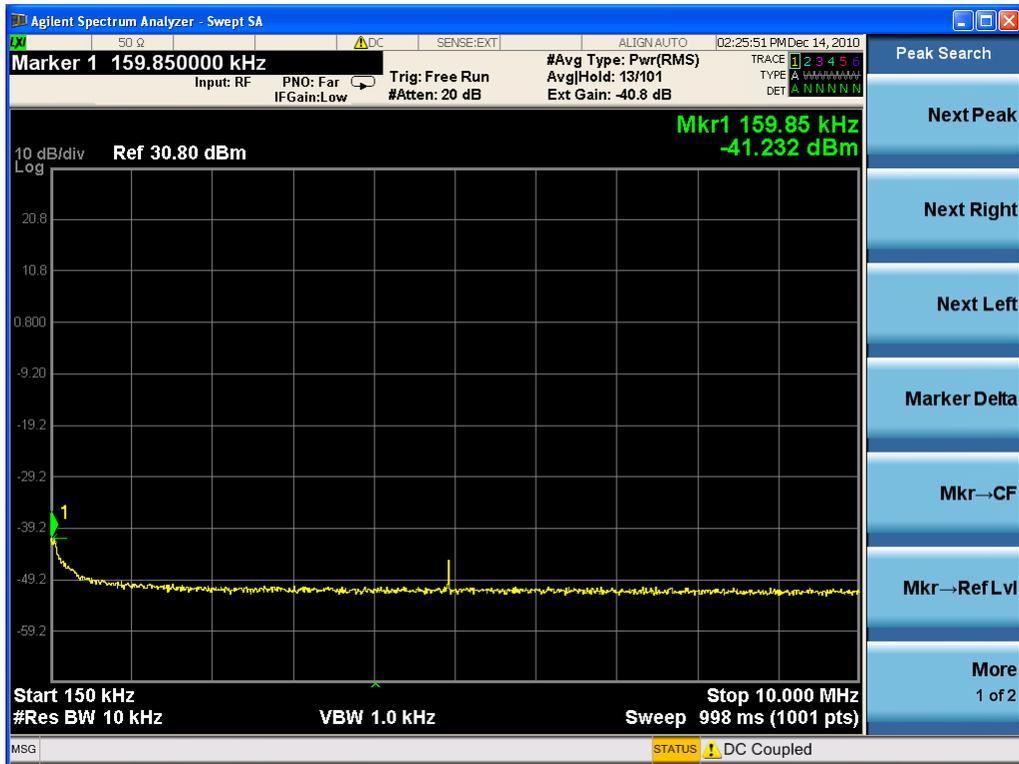
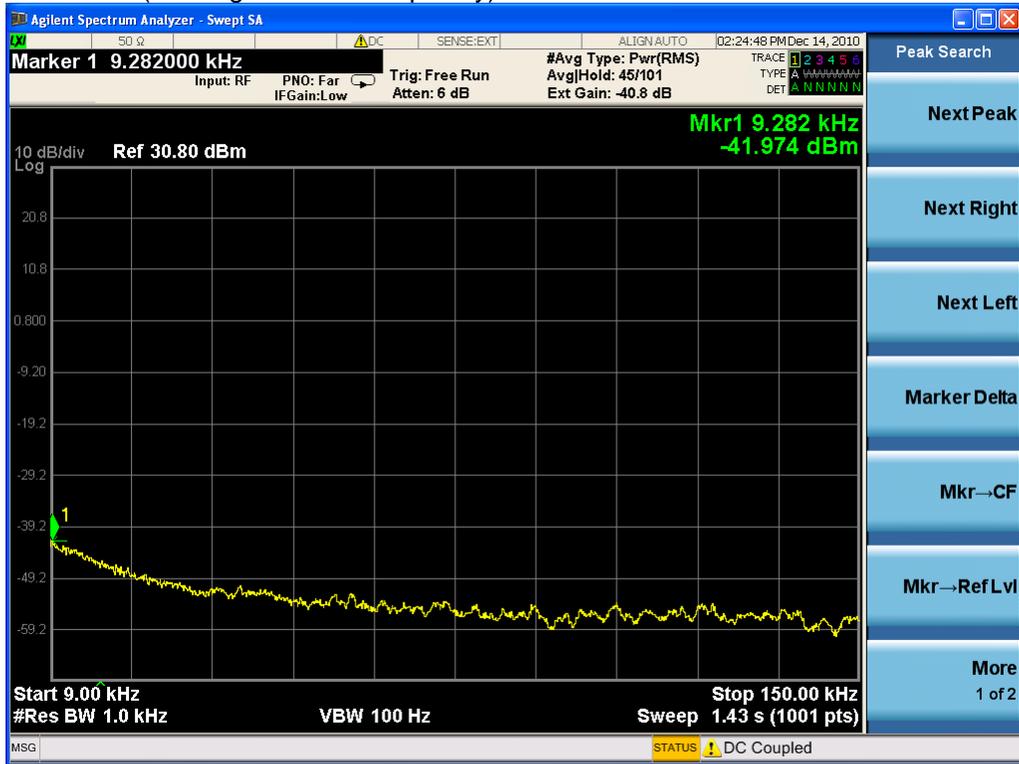
Two carriers (working in bottom frequency)

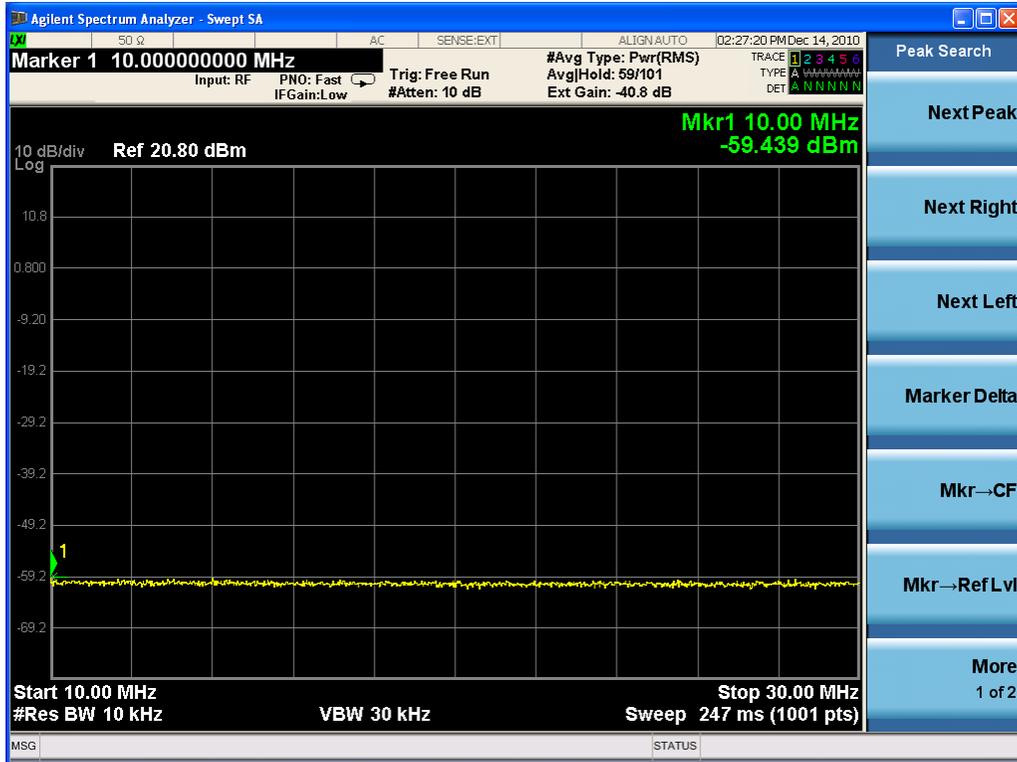






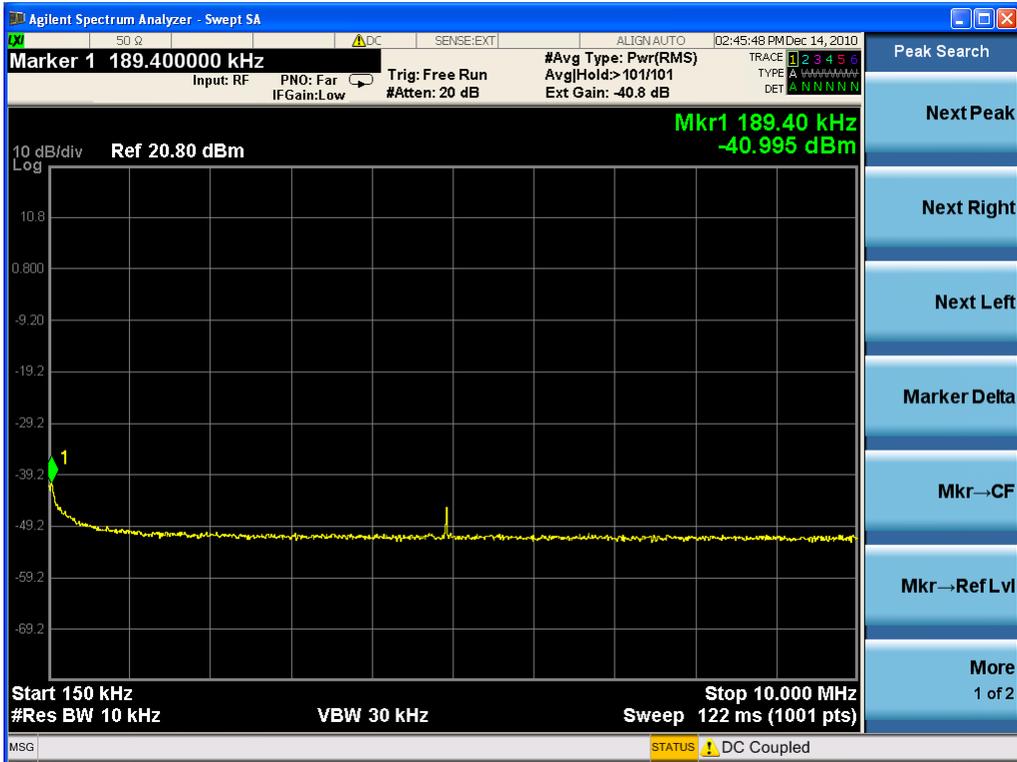
Two carriers (working in middle frequency)

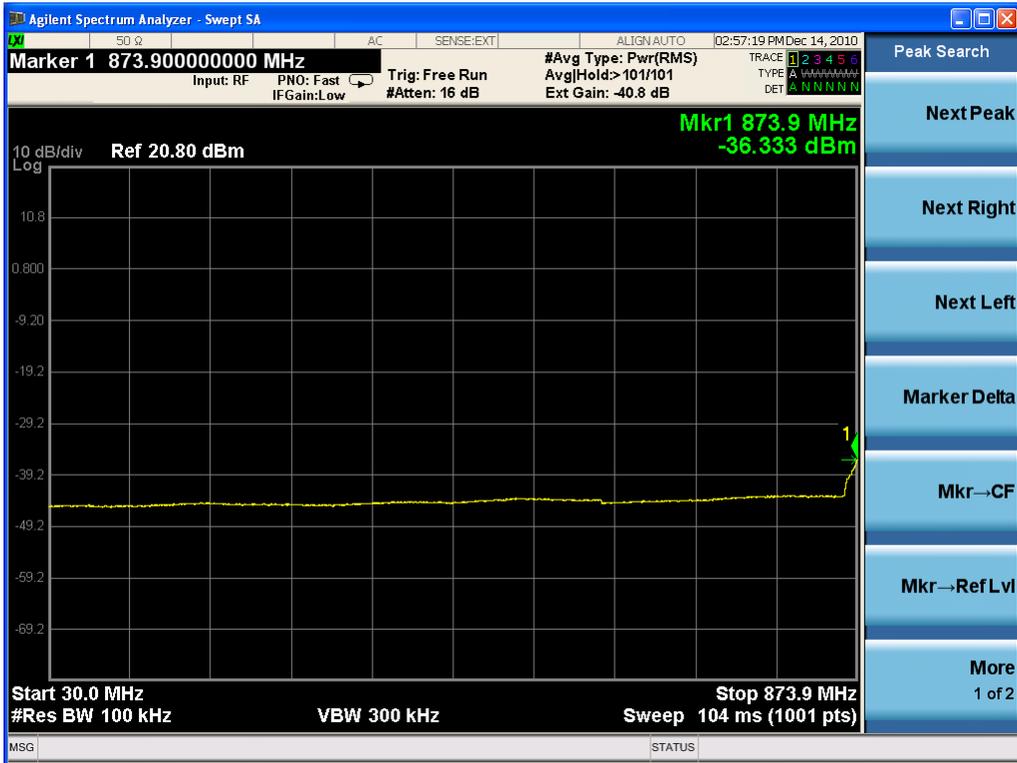
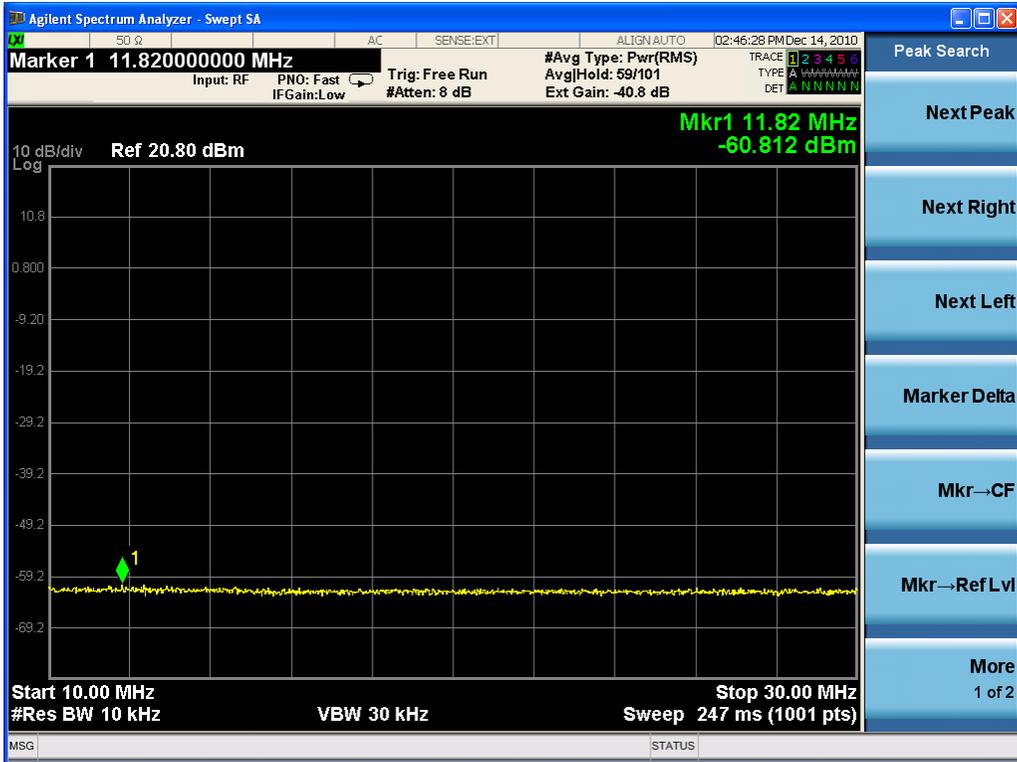


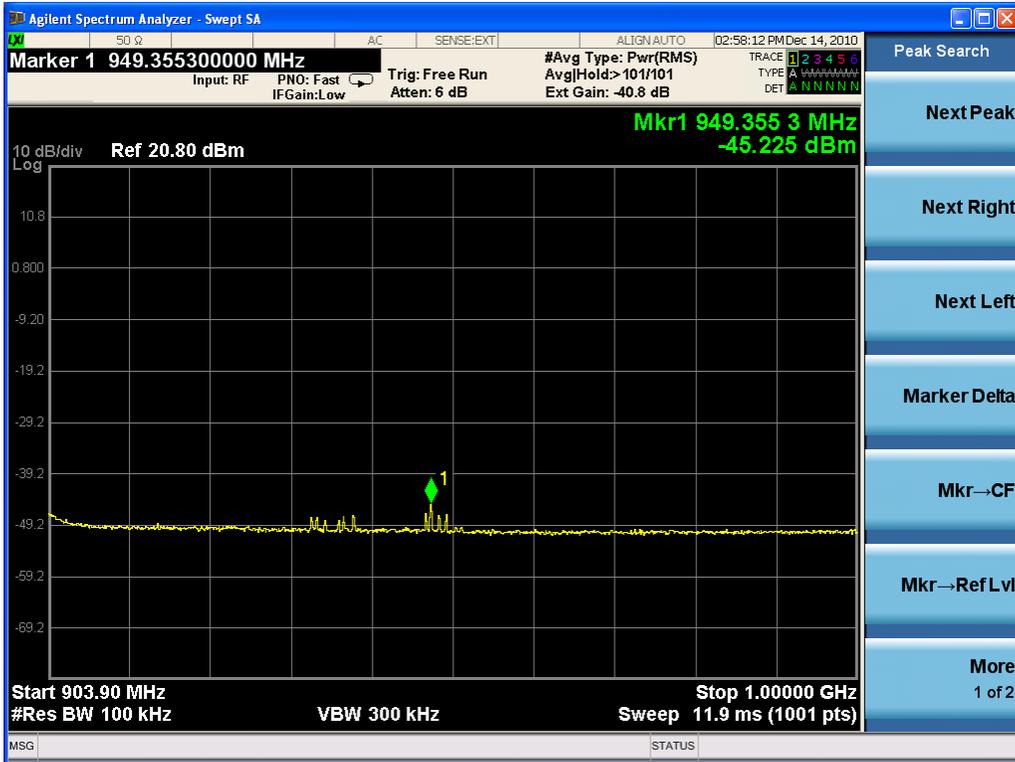




Two carriers (working in top frequency)

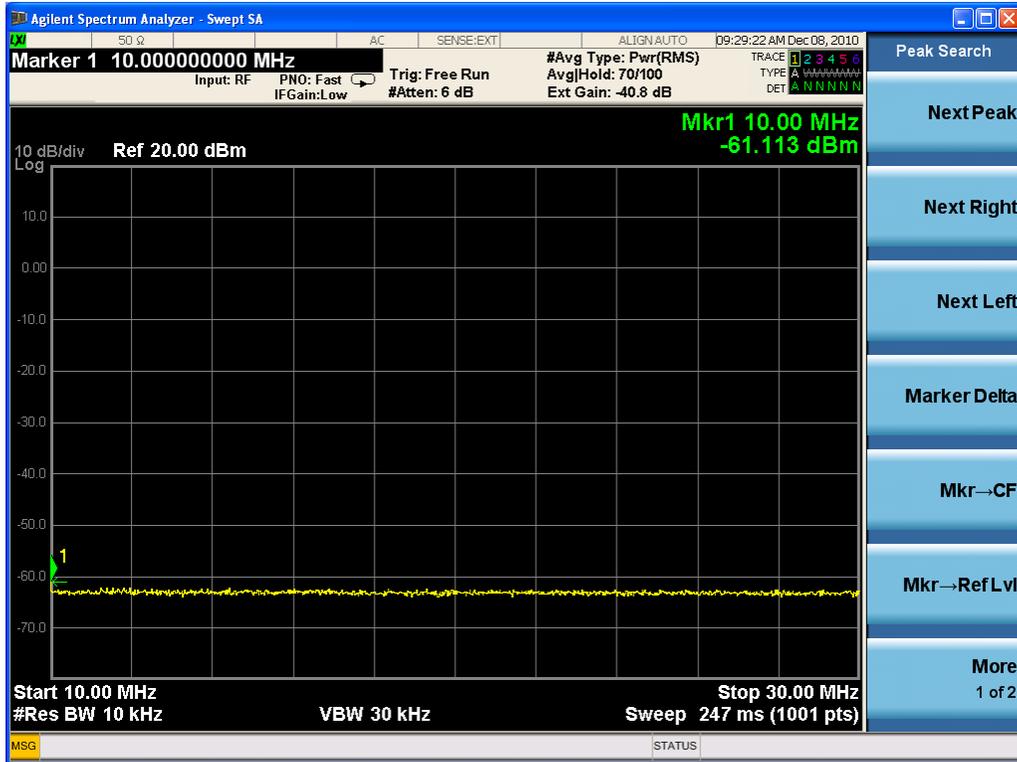


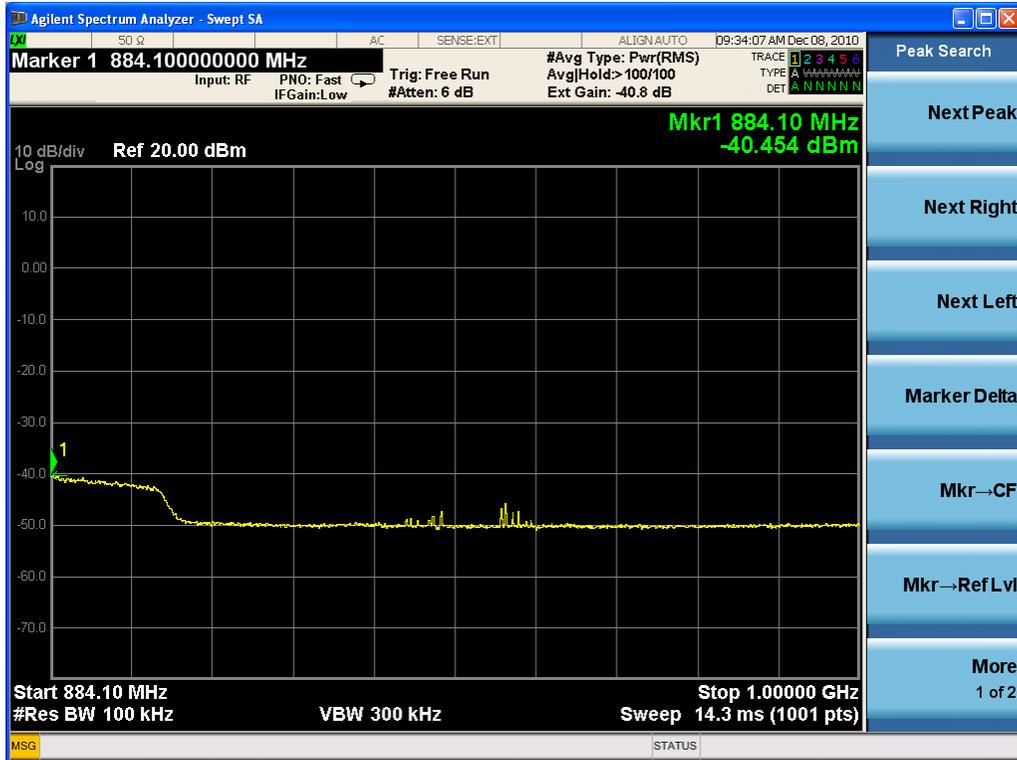




One carrier (working in bottom frequency)

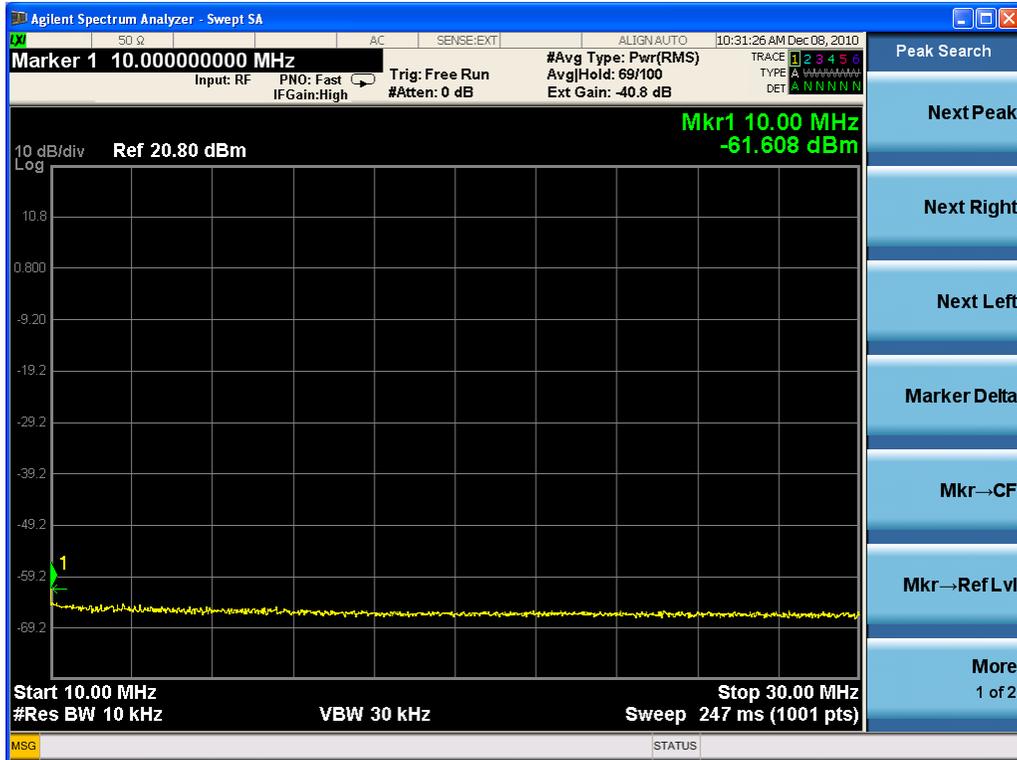


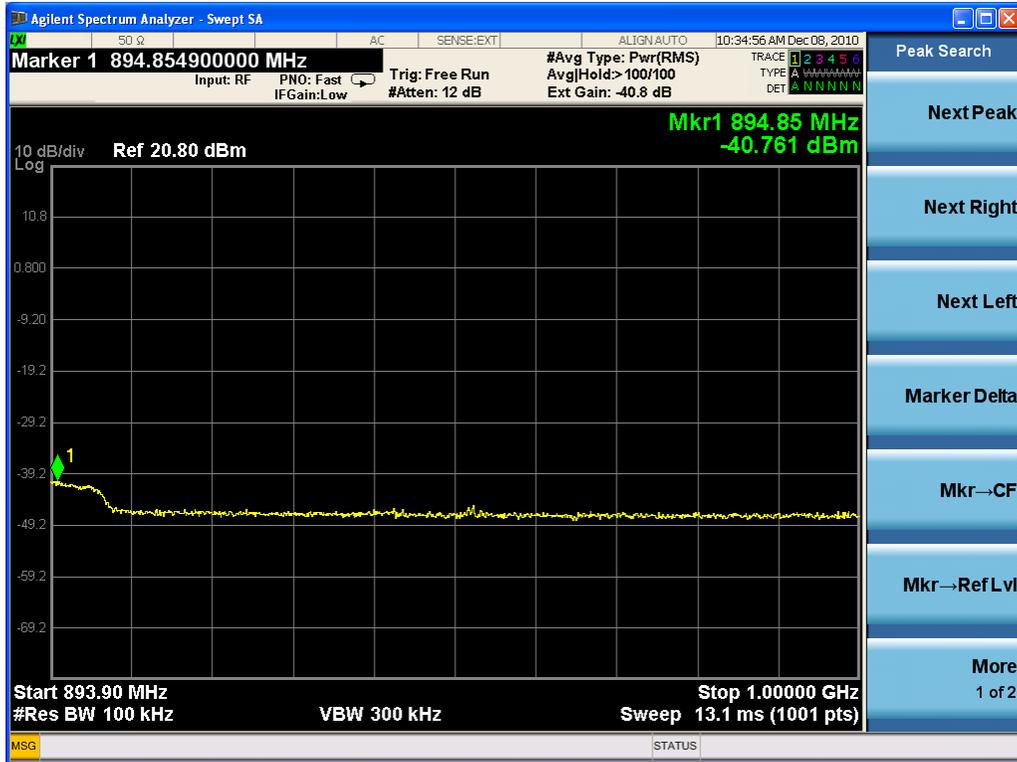




One carrier (working in middle frequency)

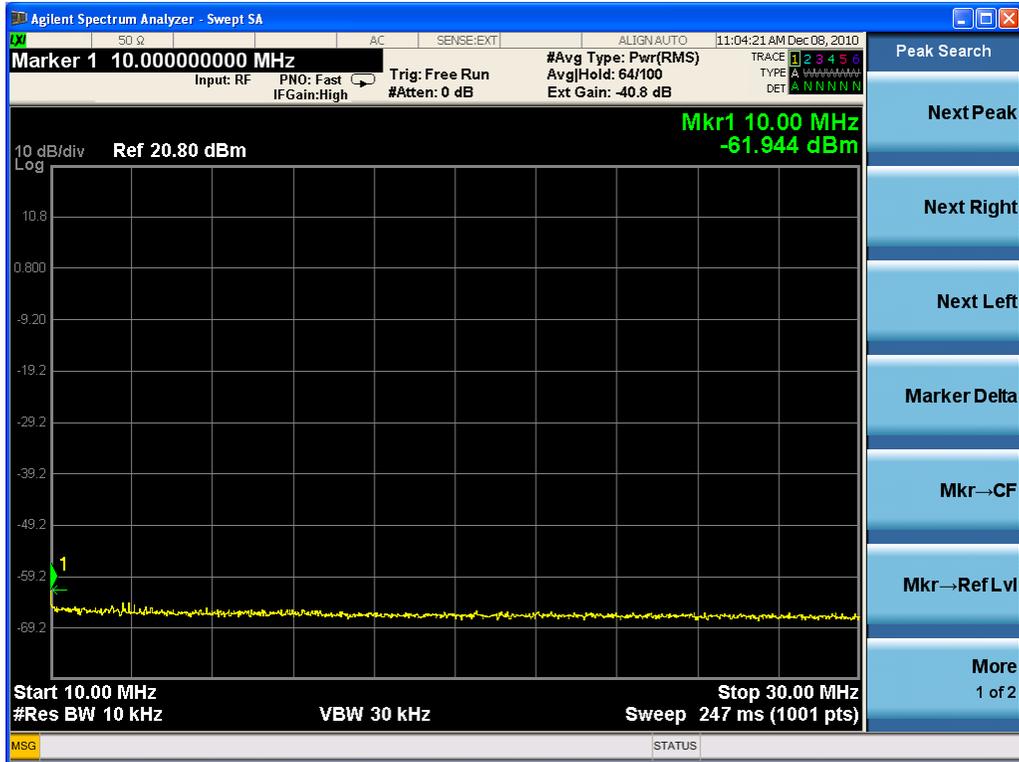


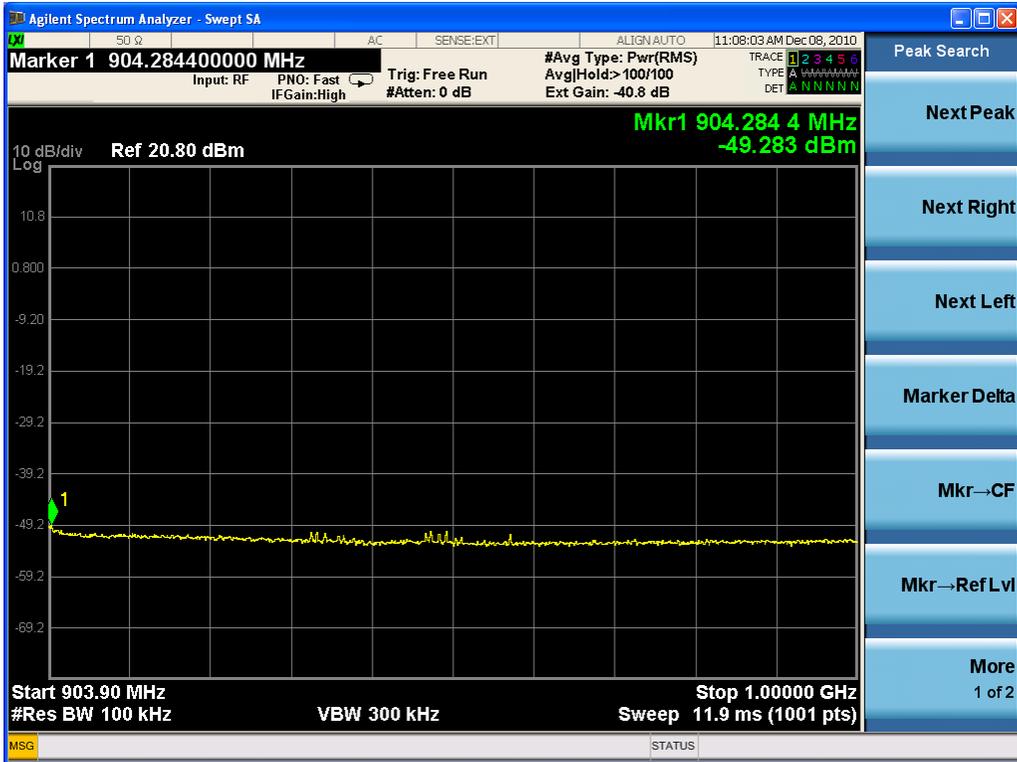




One carrier (working in top frequency)







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

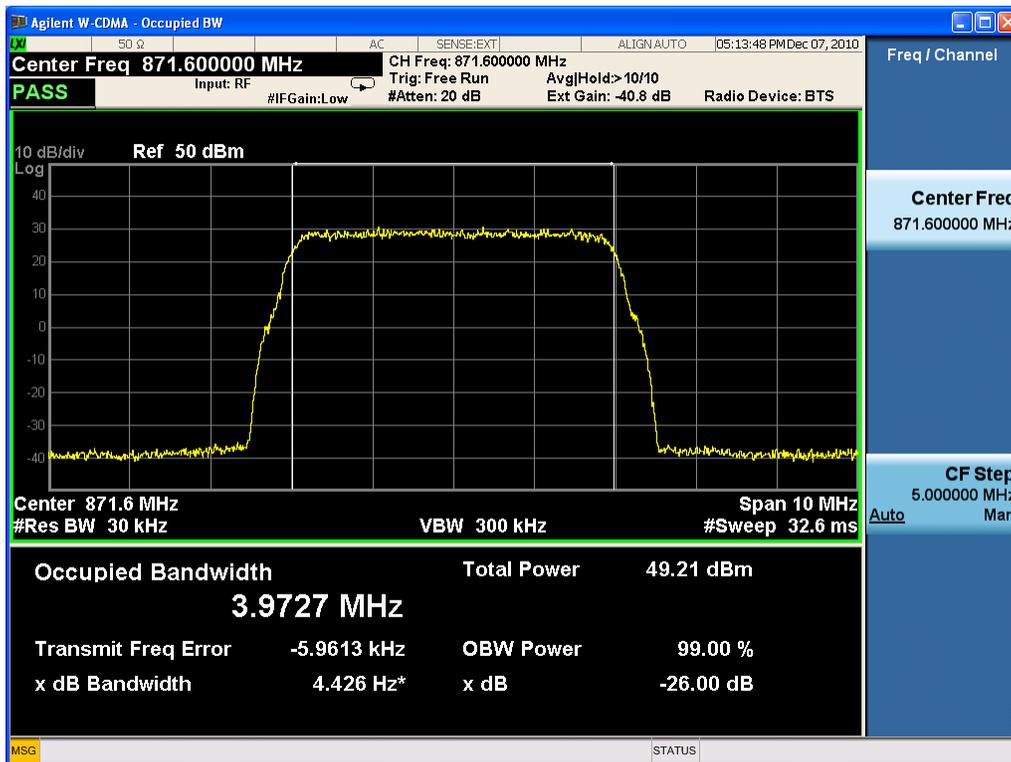
Temperature:	20 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

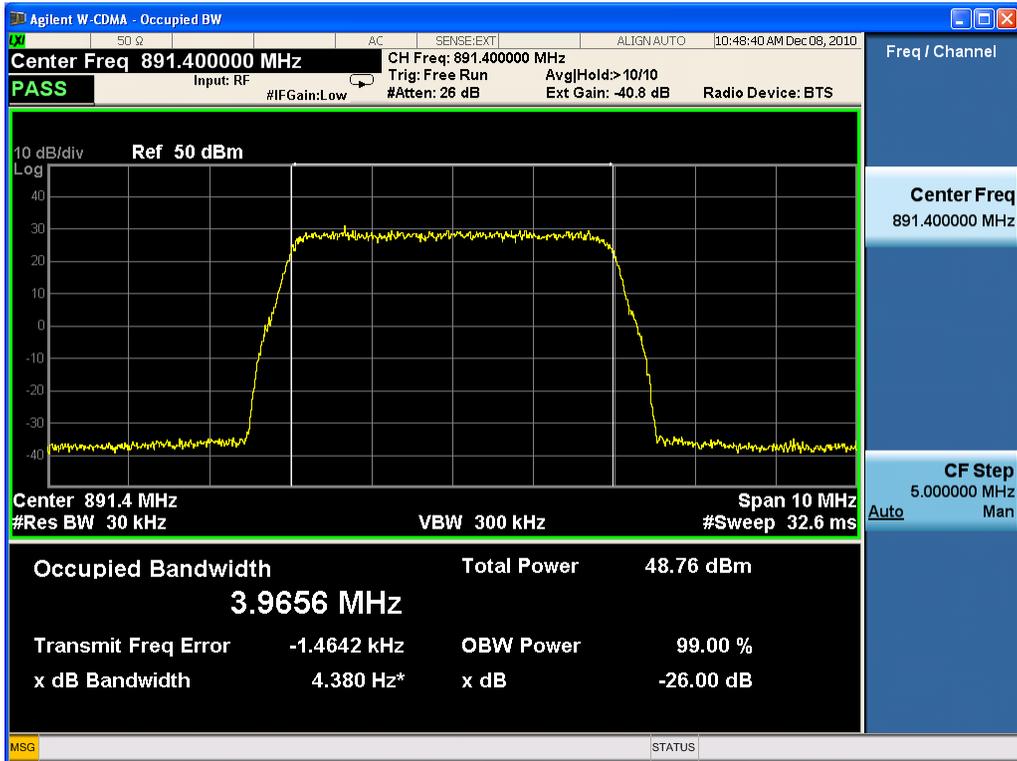
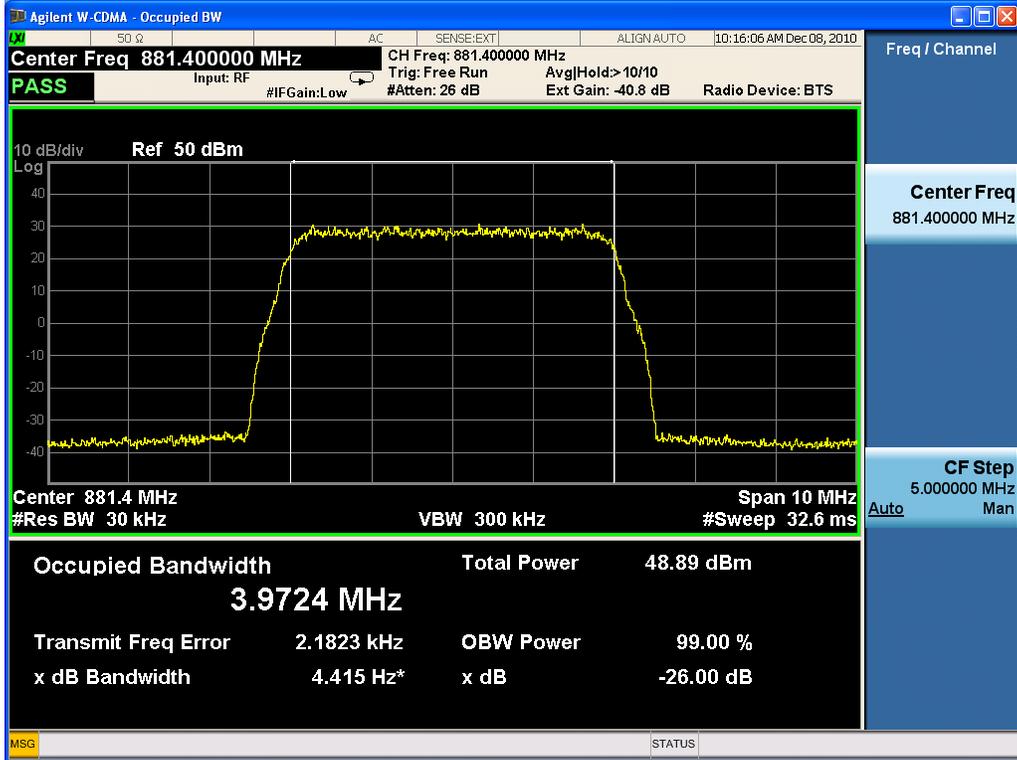
Test Result: Pass

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





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 $< P - (43 + 10 \log(P)) = -13 \text{dBm}$.

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

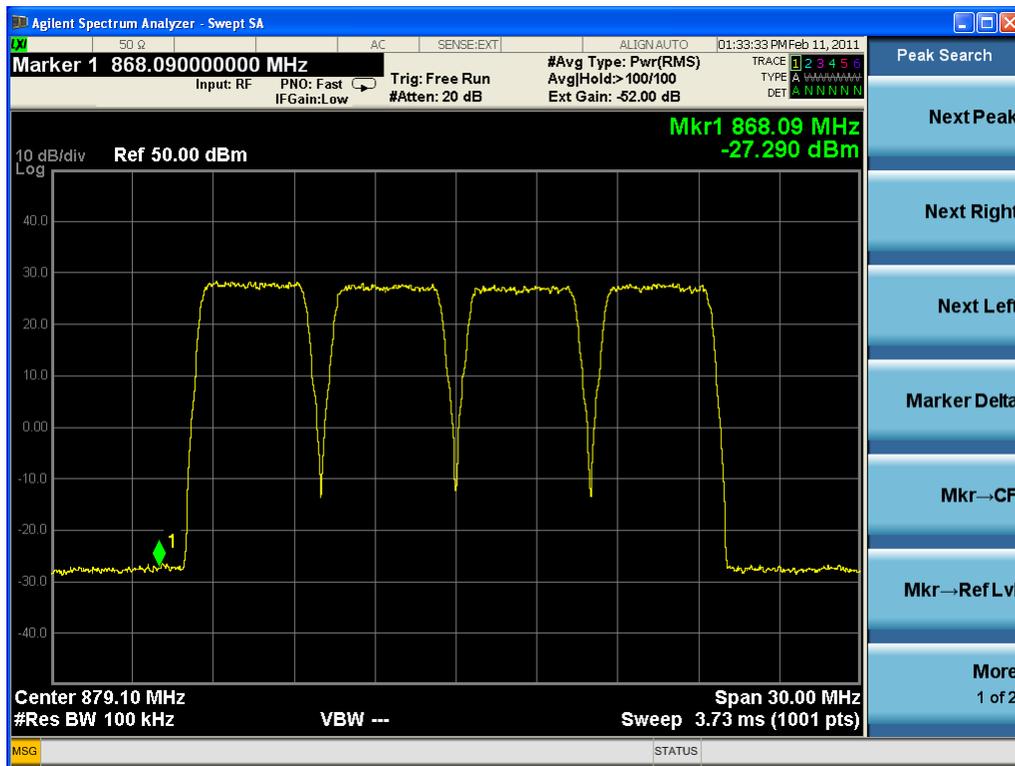
Test Result: Pass

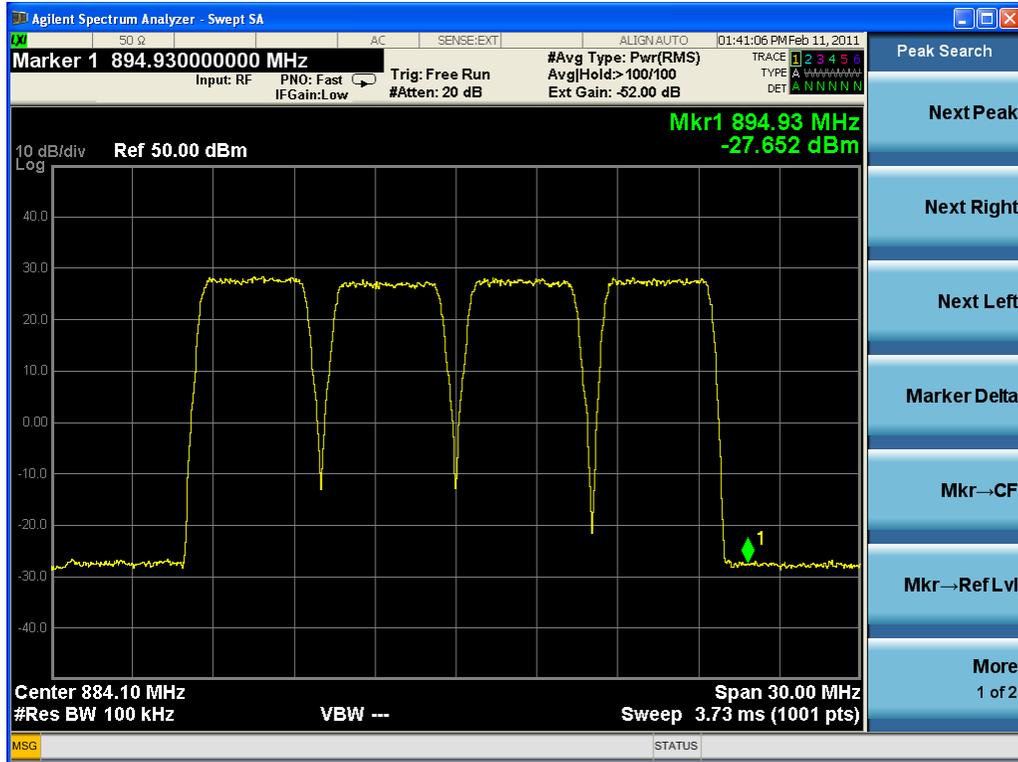
Test Mode: Transmitting UMTS

Test Data

Four carriers

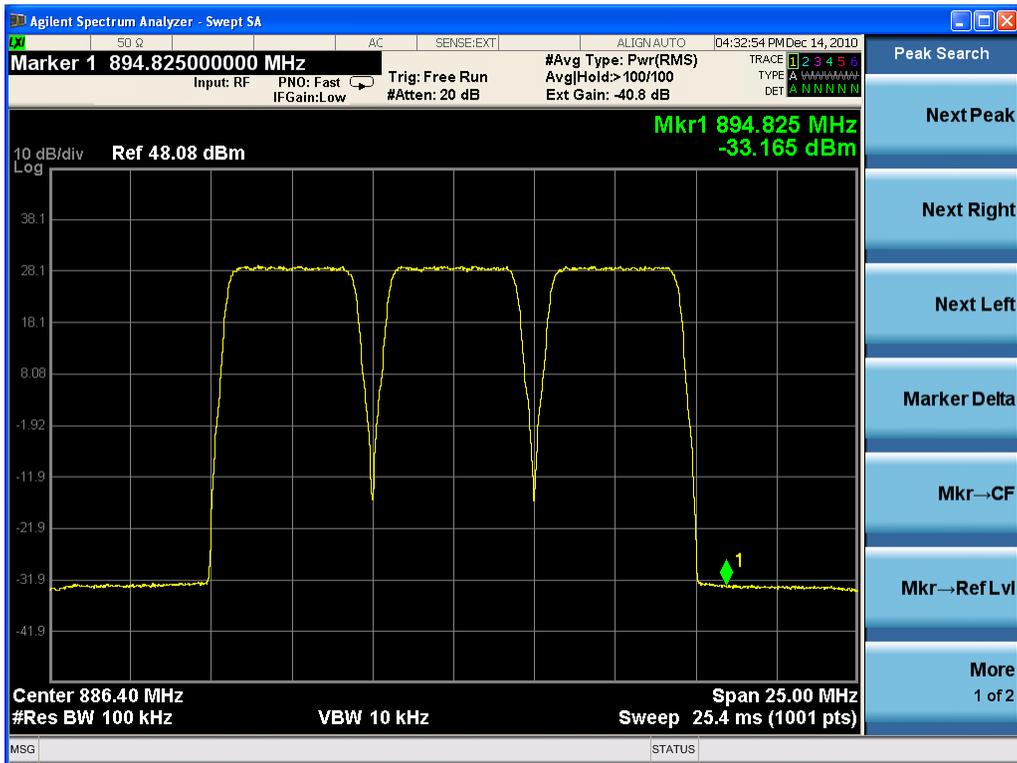
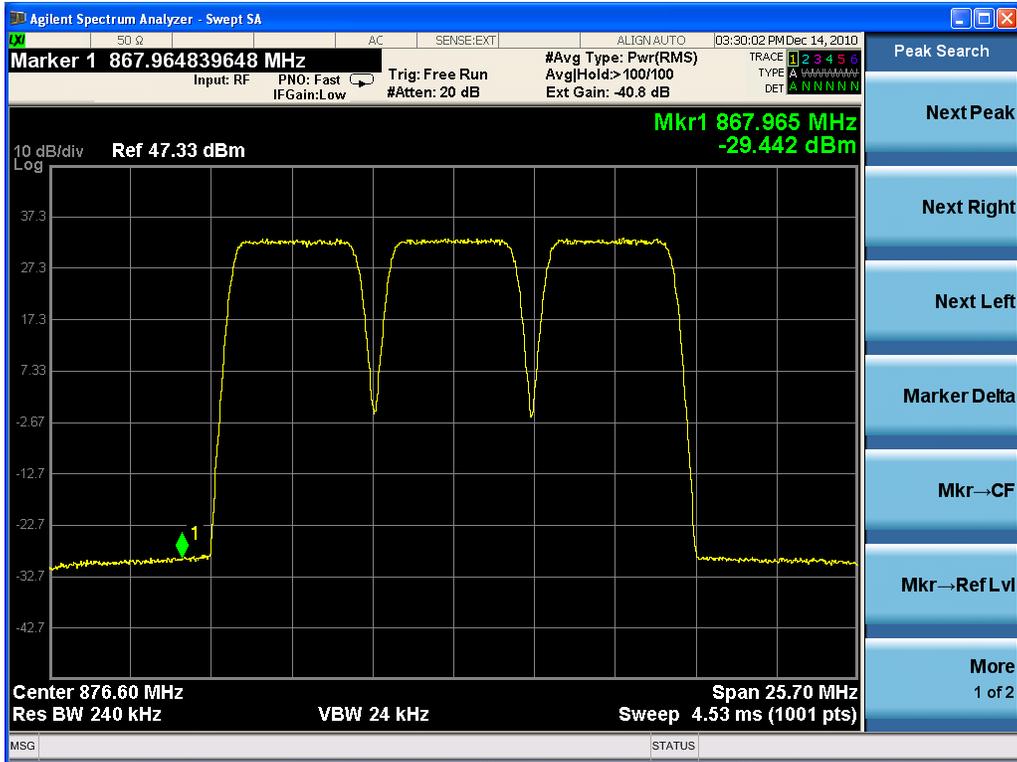
Frequency channel	Max bandedge Emission (dBm)	Limit (dBm)
871.6/876.6/881.6/886.6	-27.29	-13.00
876.6/881.6/886.6/891.4	-27.652	-13.00





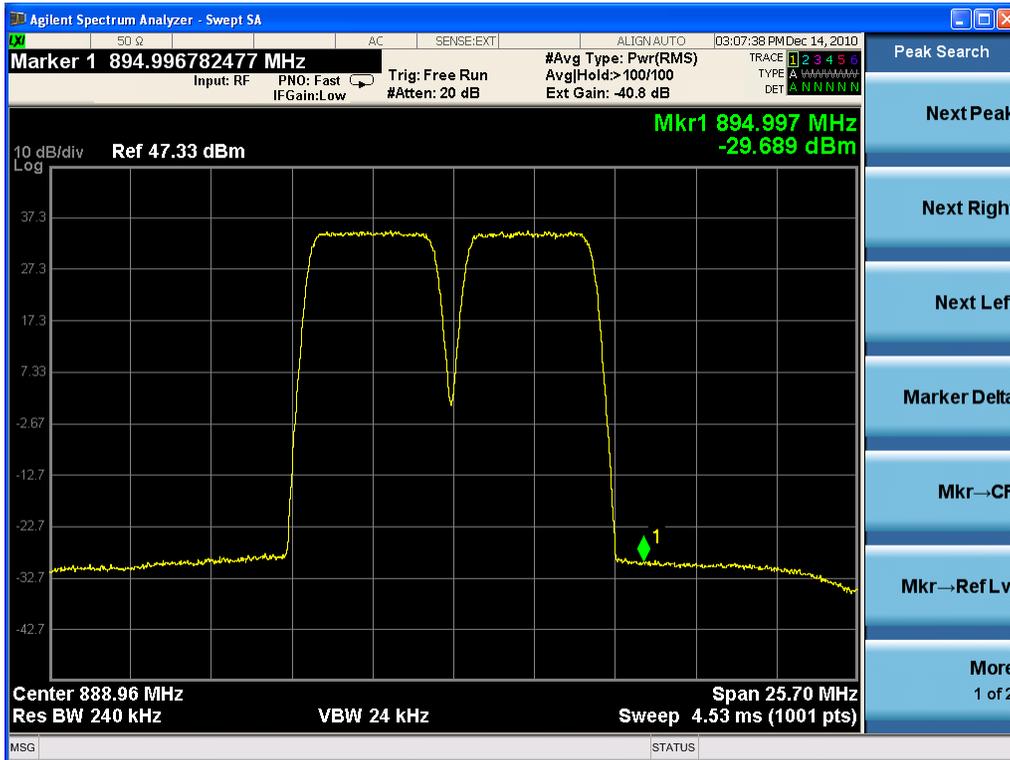
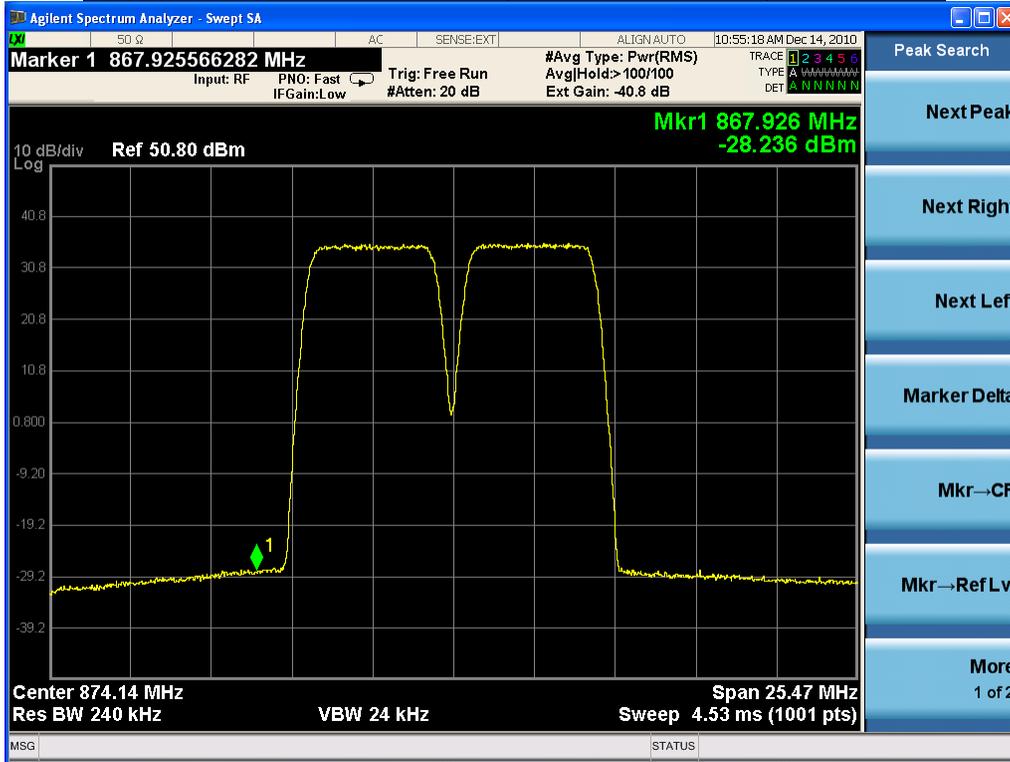
Three carriers

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



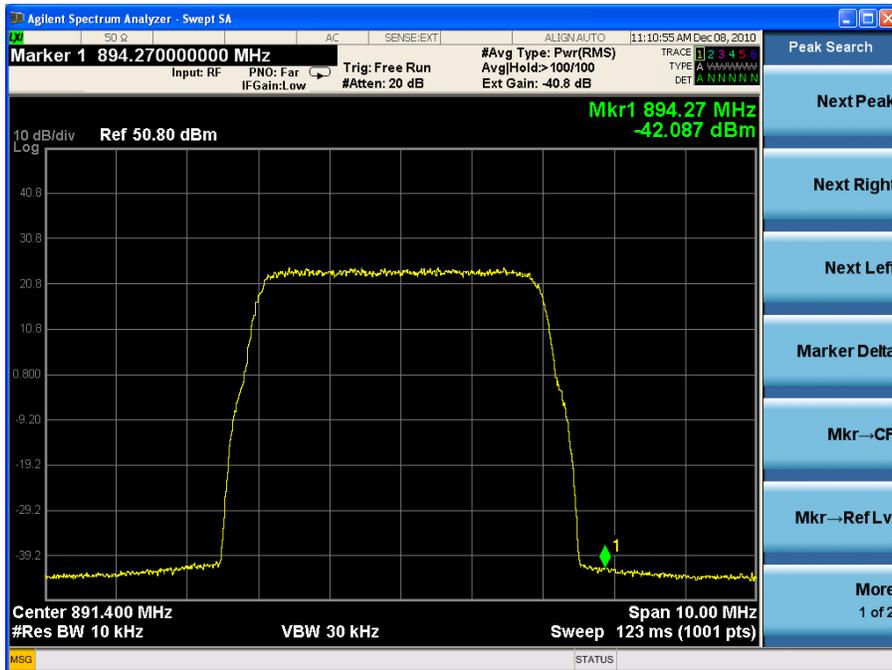
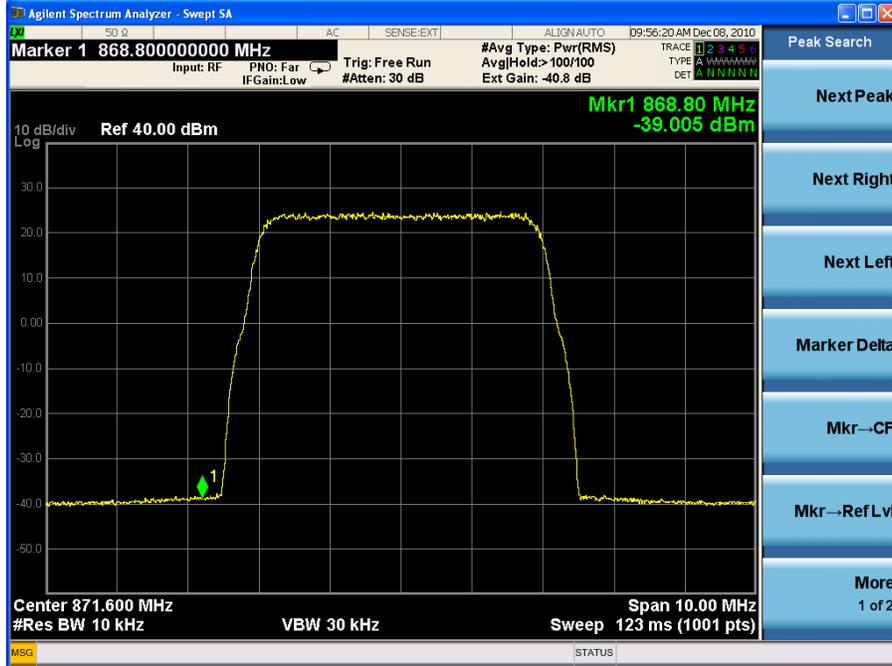
Two carriers

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 °C	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 °C	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

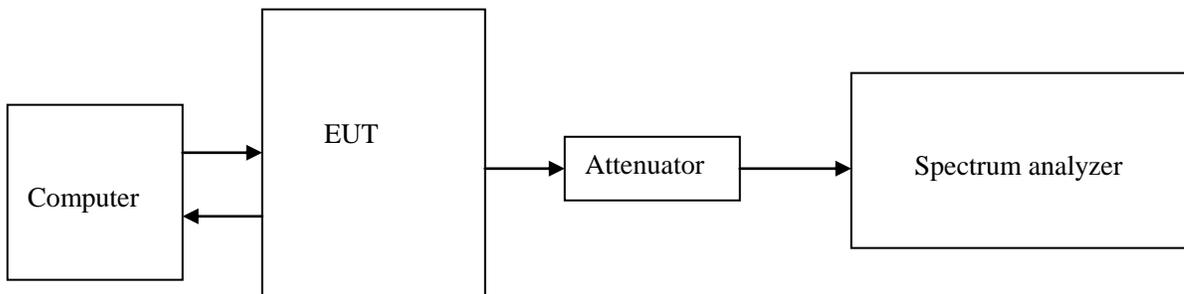
According to FCC §2.1046 & §22.913, the ERP (equivalent isotropically radiated power) must not exceed 500 Watts.

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

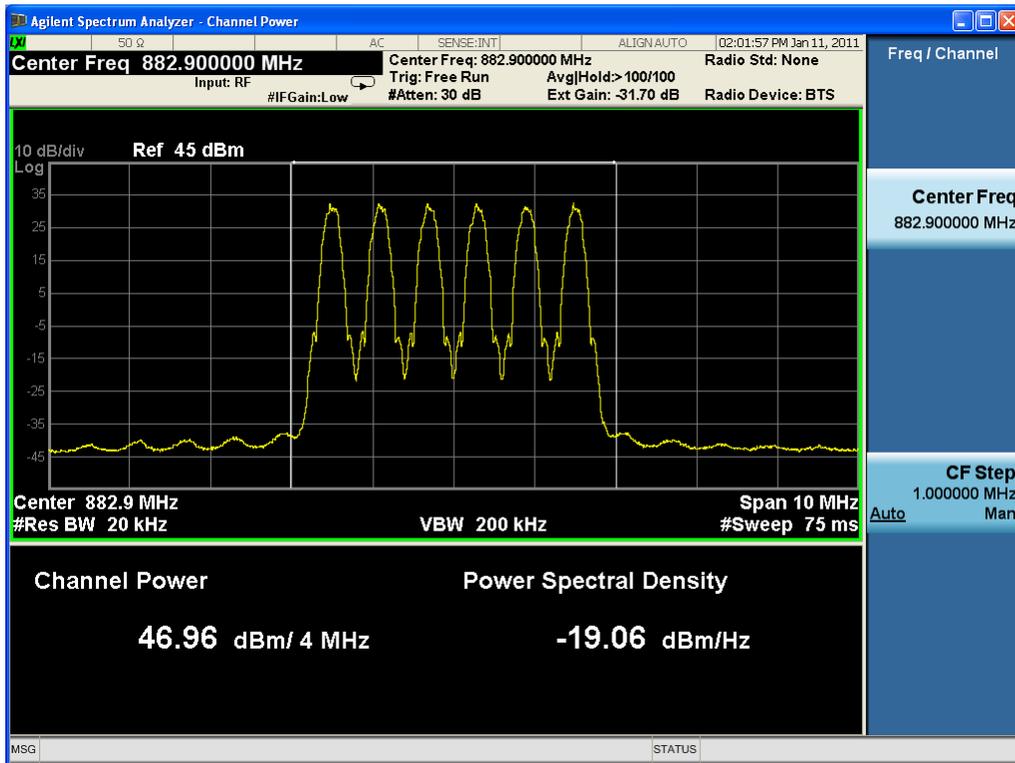
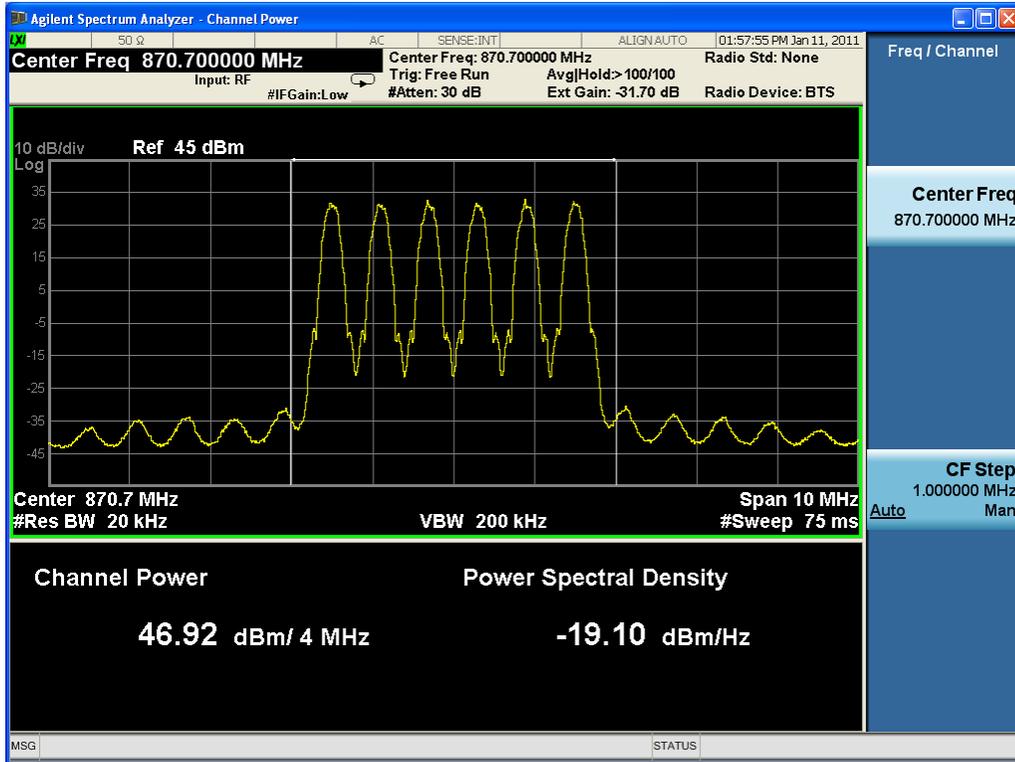
Test Result: Pass

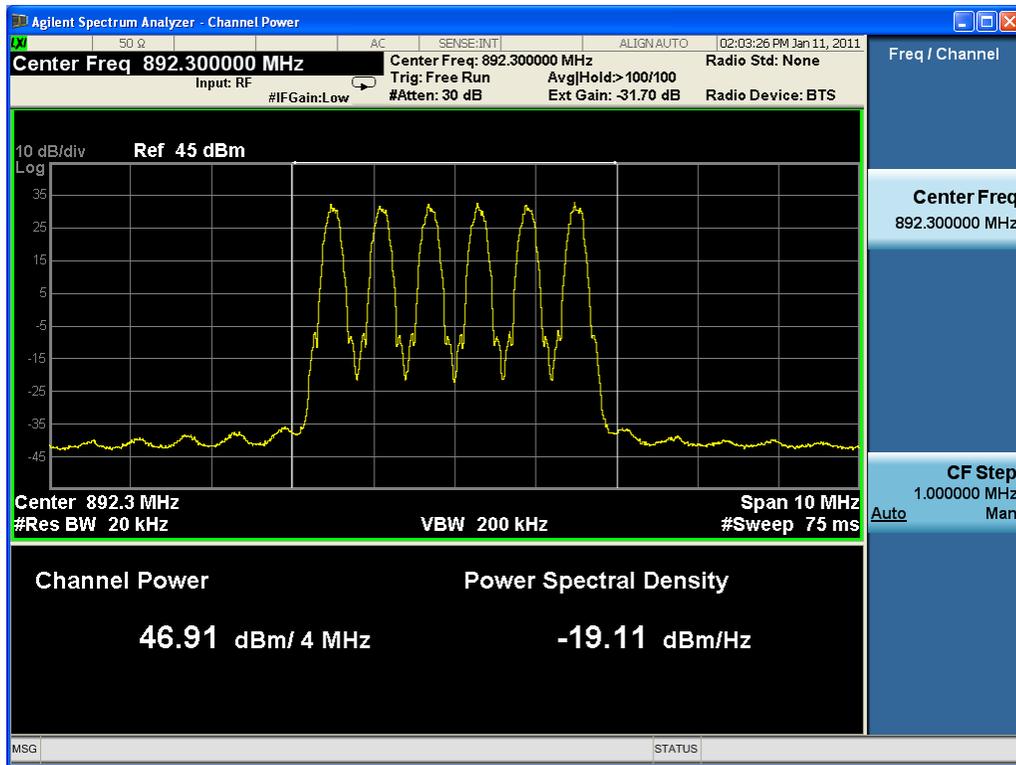
Test Mode: Transmitting GSM

Test Data:

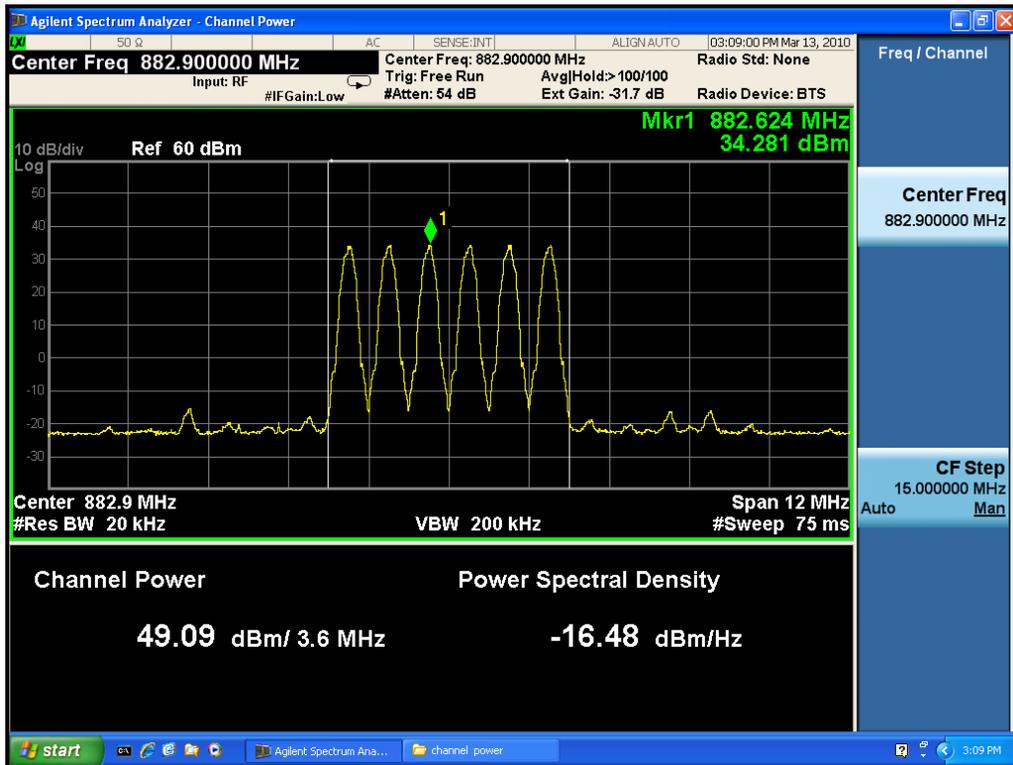
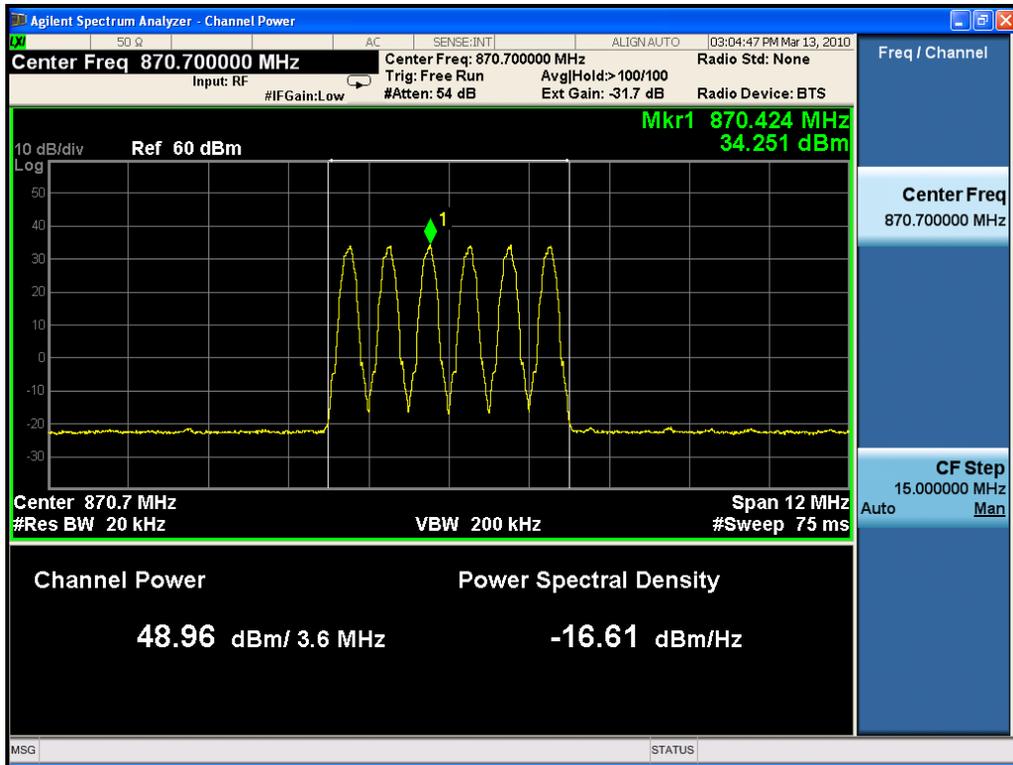
Six carriers

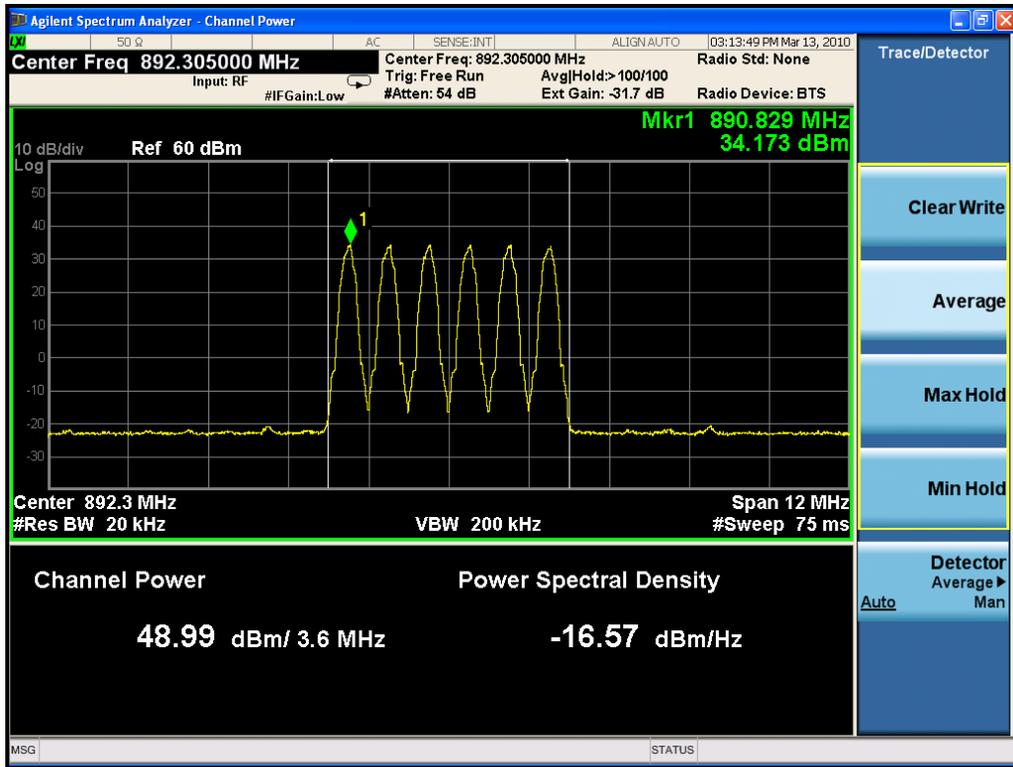
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
8PSK	870.7	869.2/869.8/ 870.4 /871 /871.6/ 872.2	46.92
	882.9	881.4/882/882.6/883.2/883.8/884.4	46.96
	892.3	890.8/891.4/892/892.6/893.2/893.8	46.91





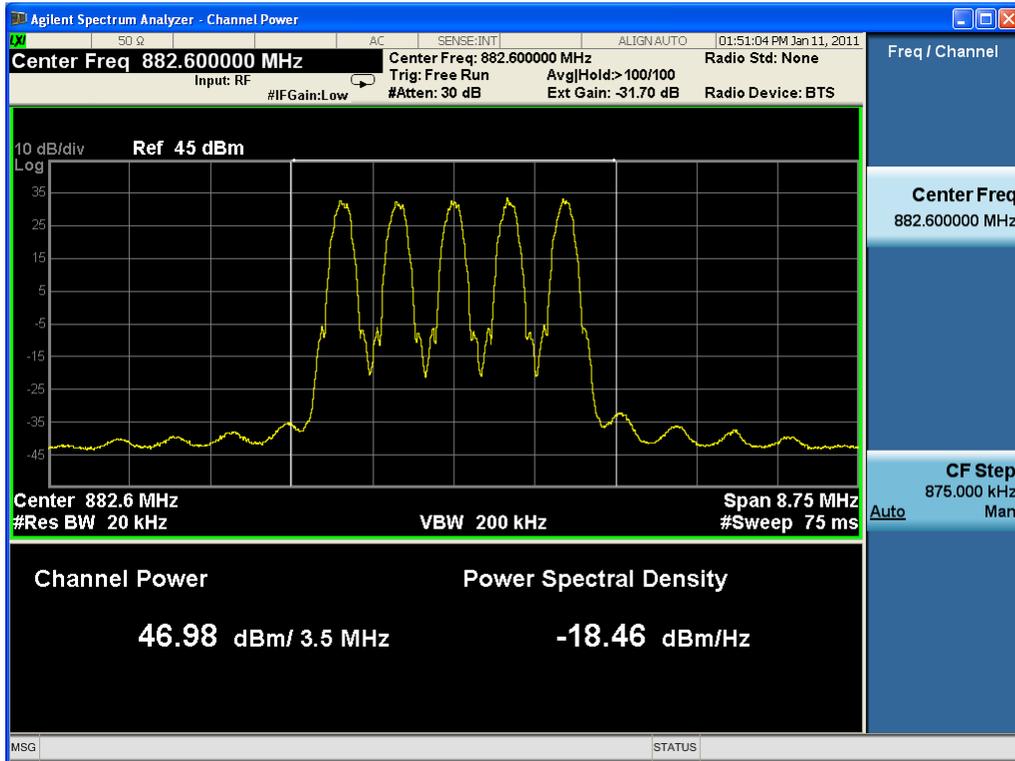
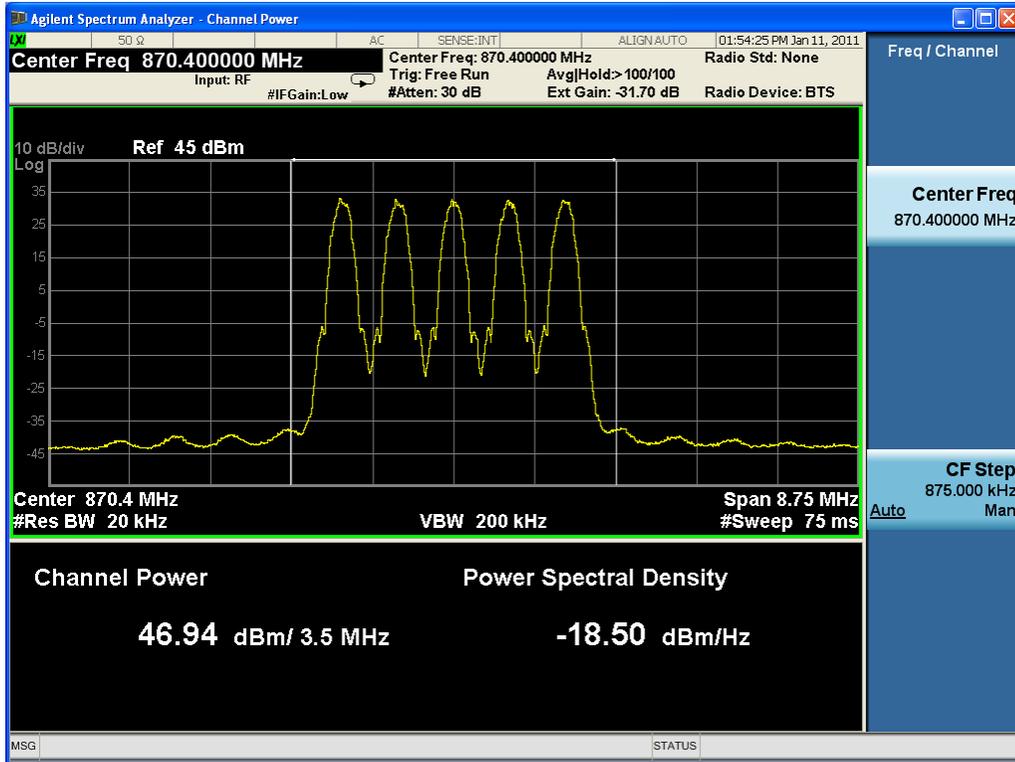
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
GMSK	870.7	869.2/869.8/ 870.4 /871 /871.6/ 872.2	48.96
	882.9	881.4/882/882.6/883.2/883.8/884.4	49.09
	892.3	890.8/891.4/892/892.6/893.2/893.8	48.99

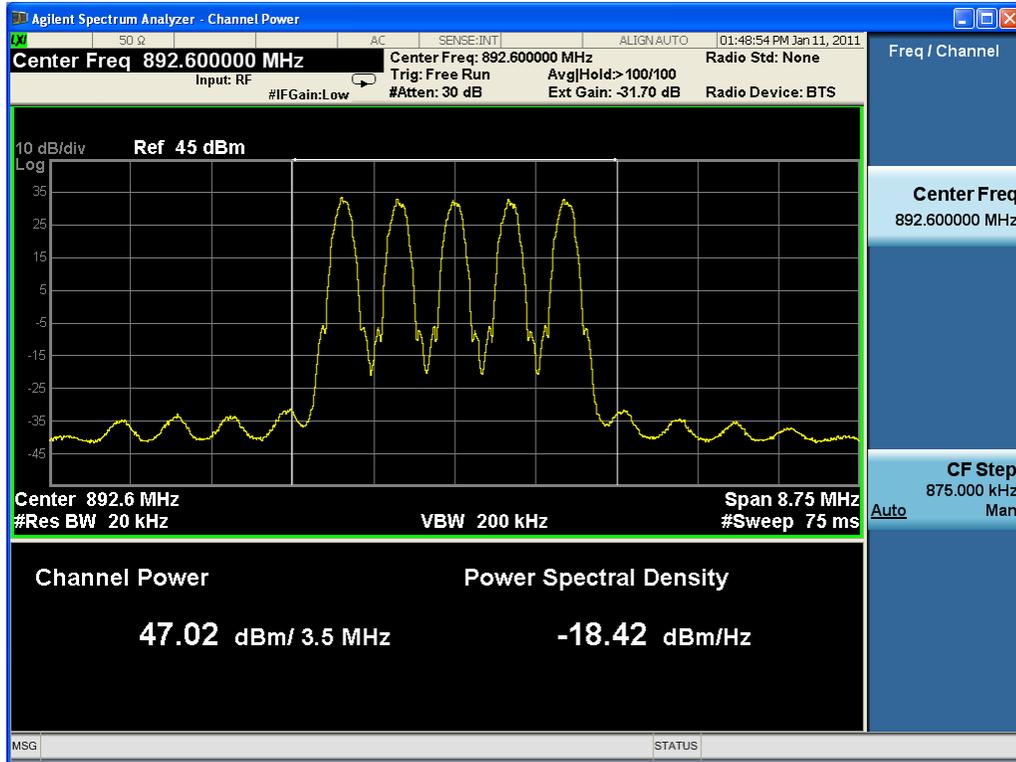




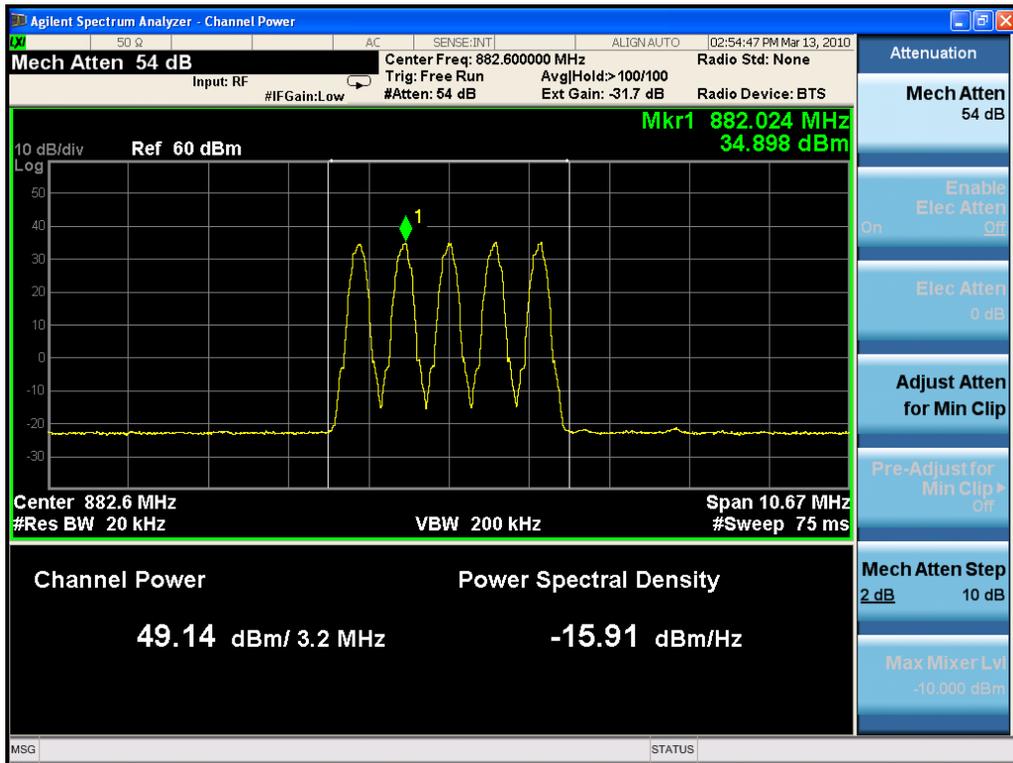
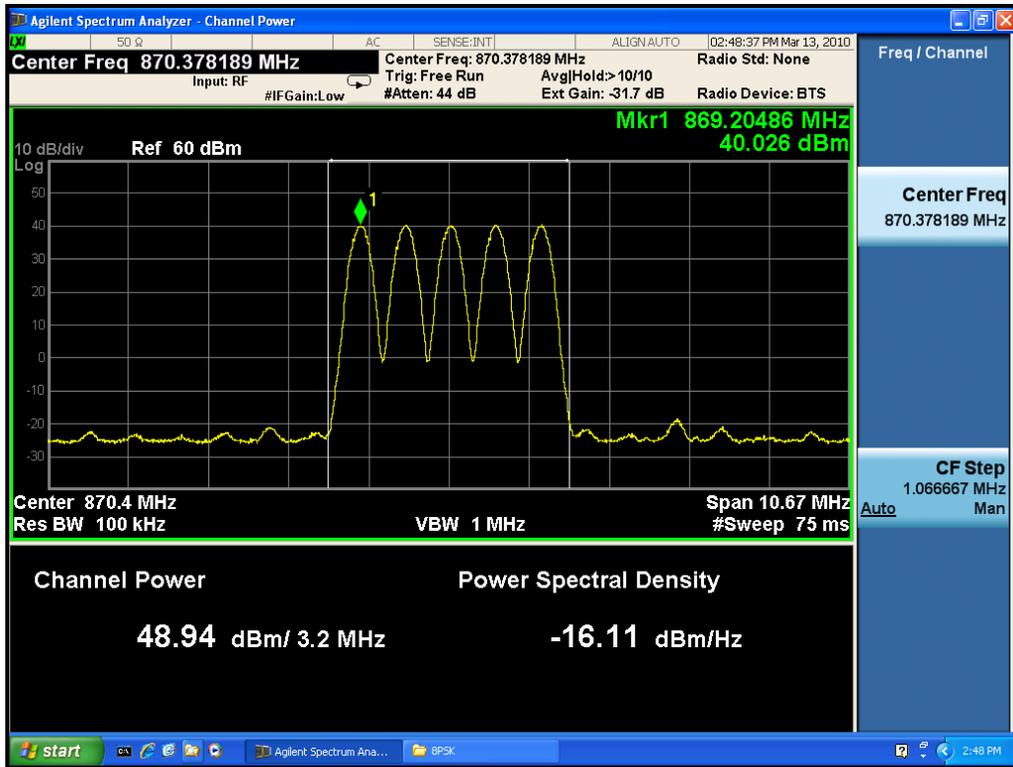
Five carriers

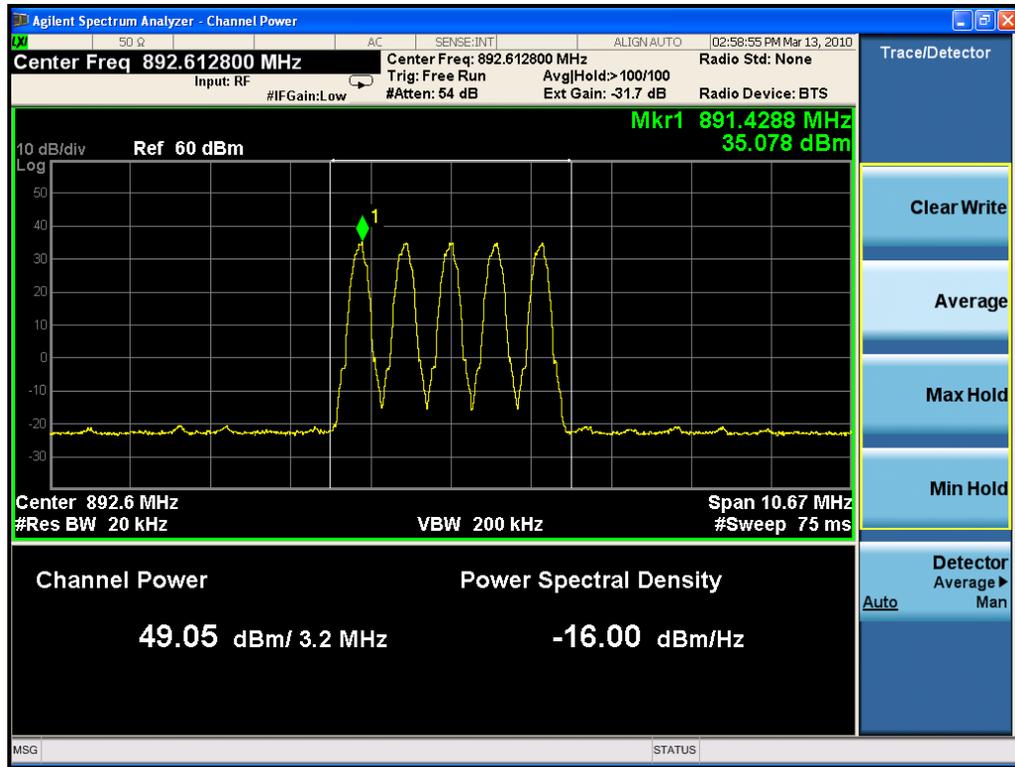
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
8PSK	870.4	869.2/869.8/ 870.4 /871 /871.6	46.94
	882.6	881.4/882/882.6/883.2/883.8	46.98
	892.6	891.4/892/892.6/893.2/893.8	47.02





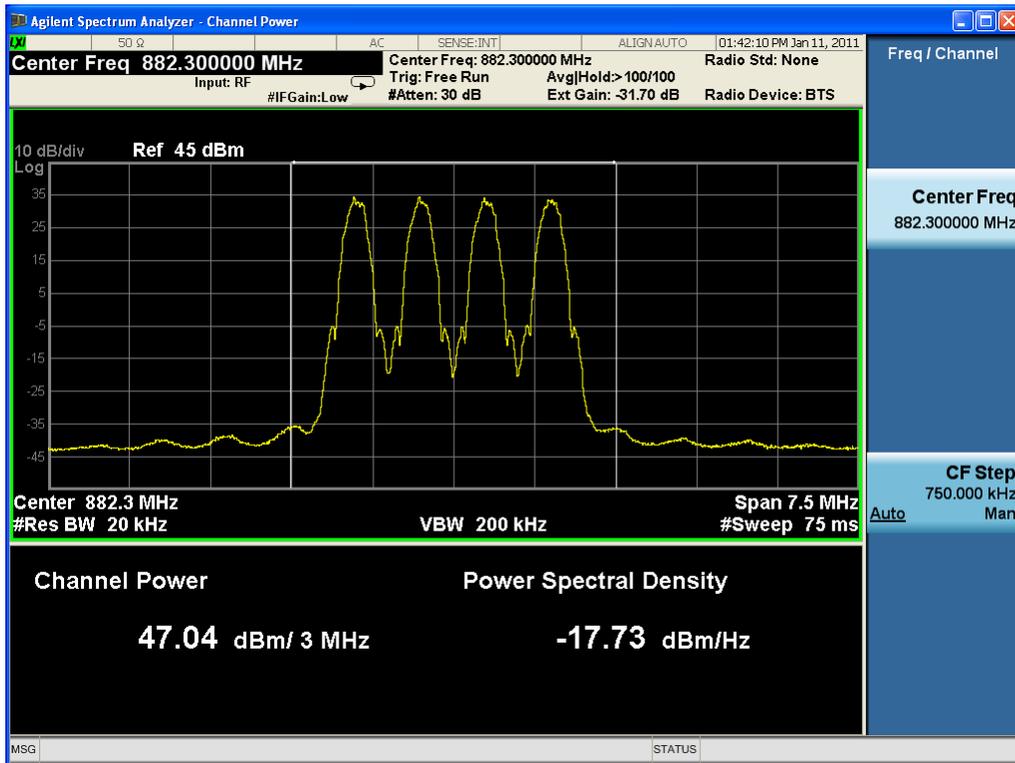
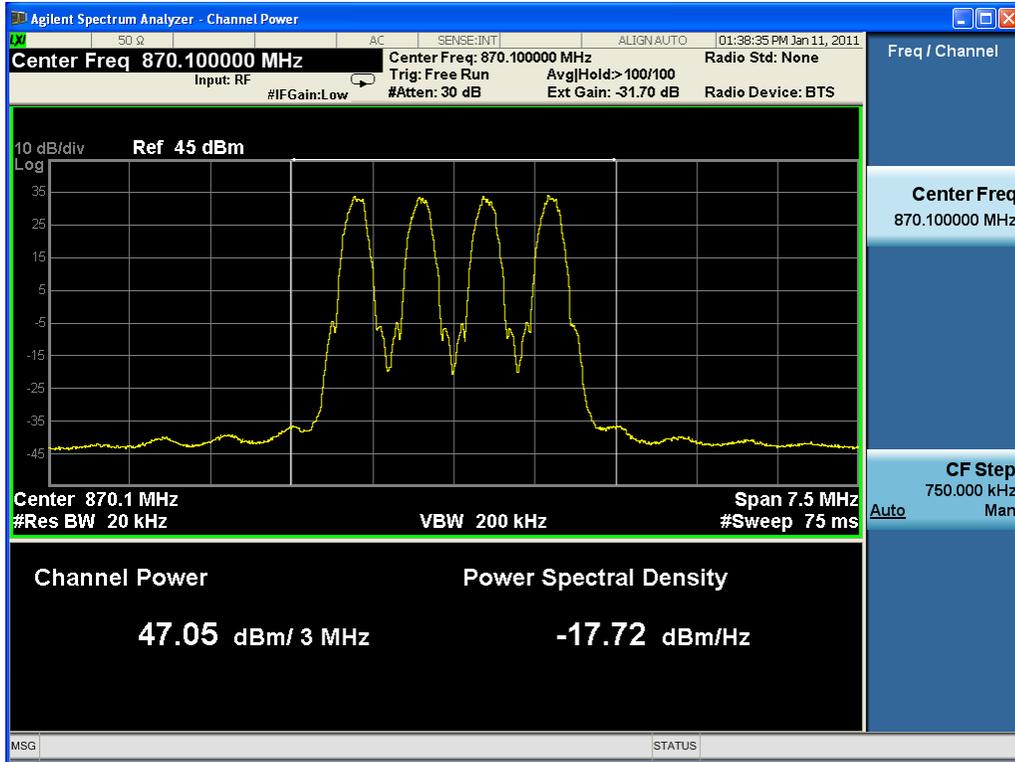
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
GMSK	870.4	869.2/869.8/ 870.4 /871 /871.6	48.94
	882.6	881.4/882/882.6/883.2/883.8	49.14
	892.6	891.4/892/892.6/893.2/893.8	49.05

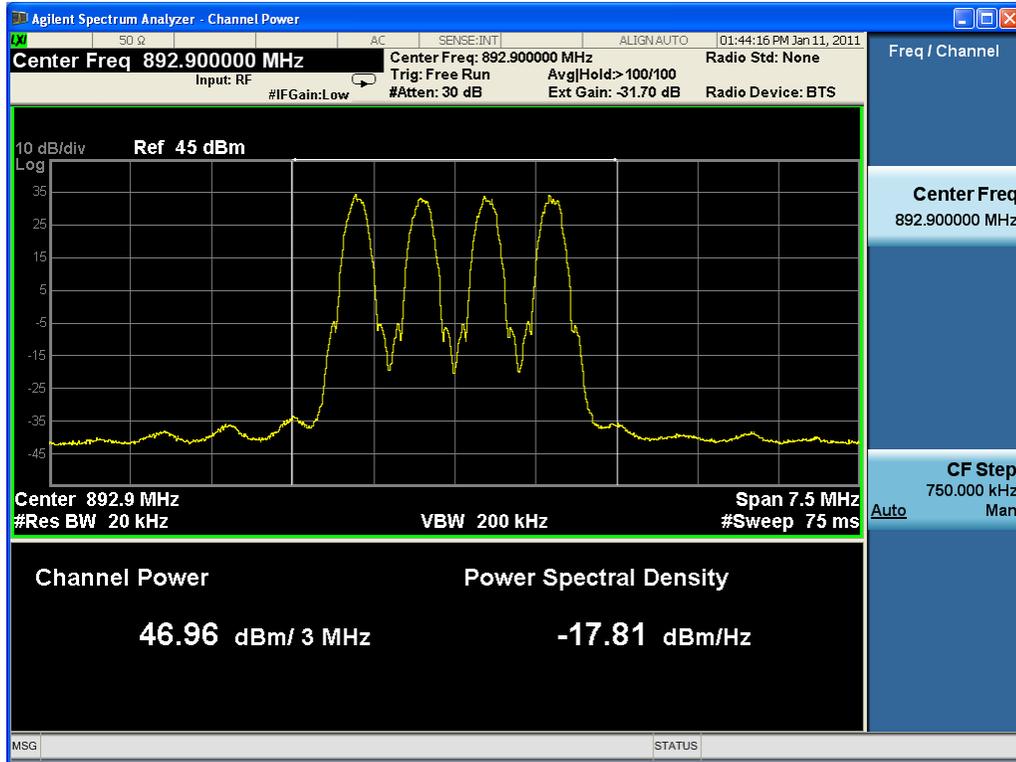




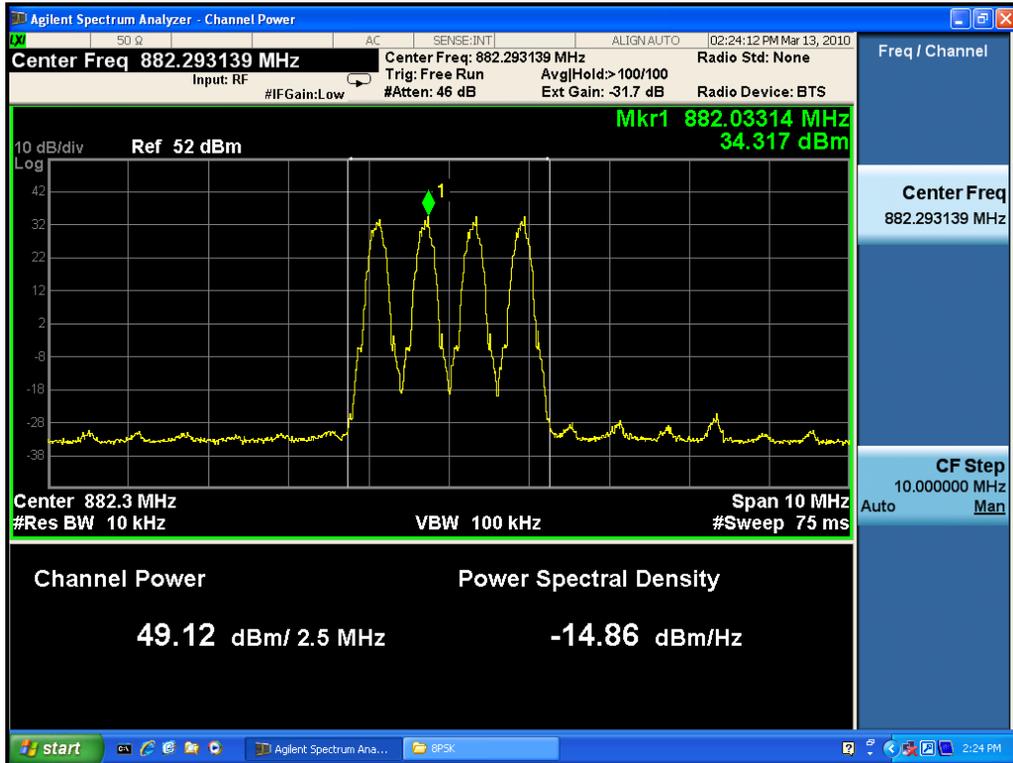
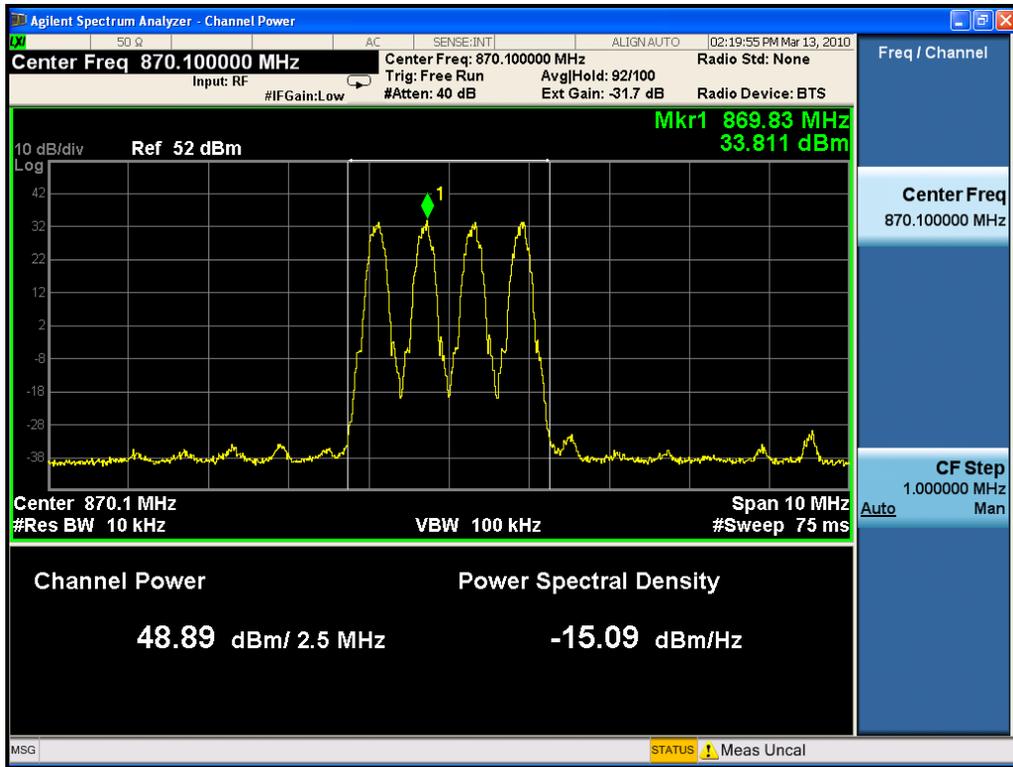
Four carriers

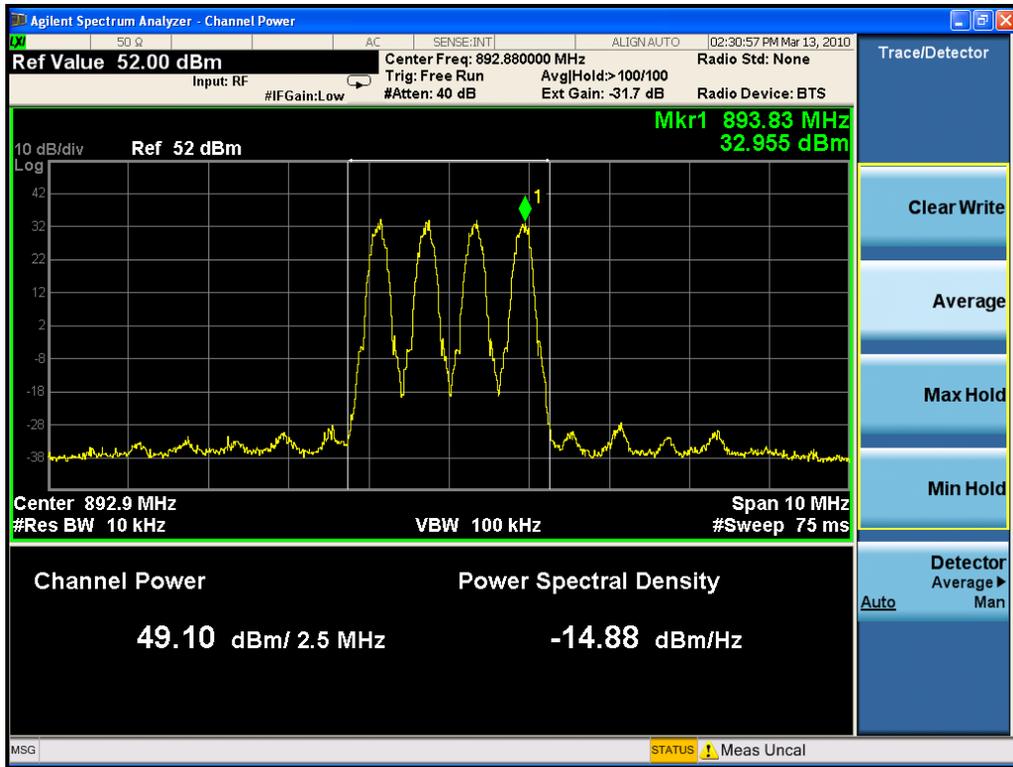
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
8PSK	870.1	869.2/869.8/ 870.4 /871	47.05
	882.3	881.4/882/882.6/883.2	47.04
	892.9	892/892.6/893.2/893.8	46.96





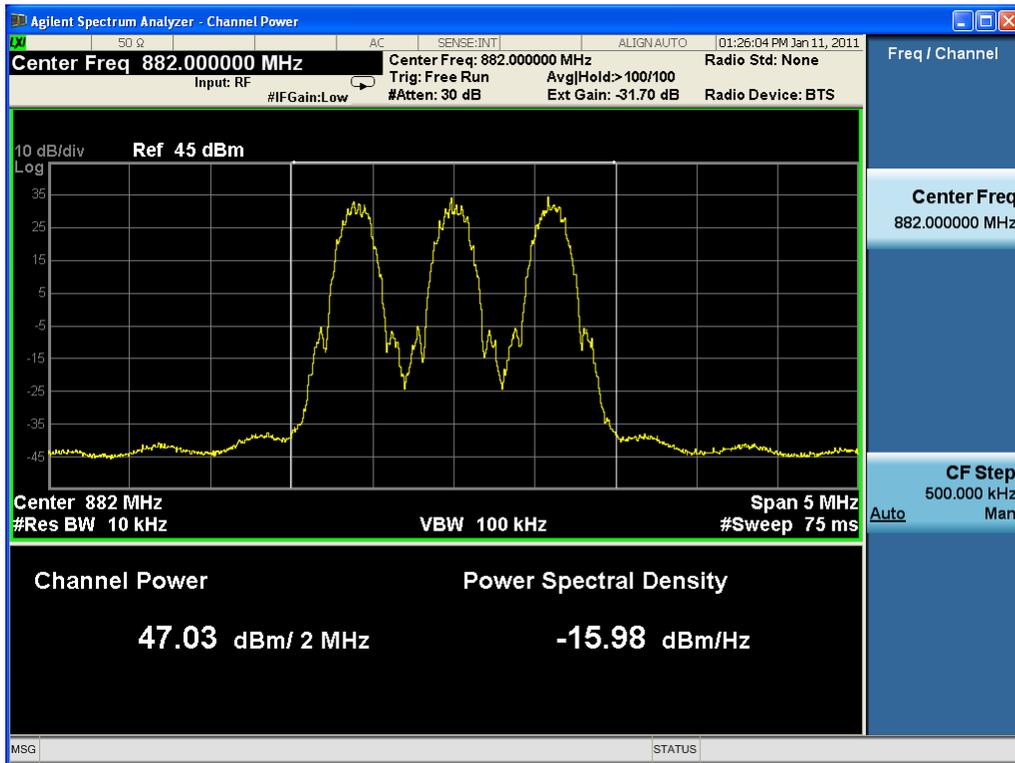
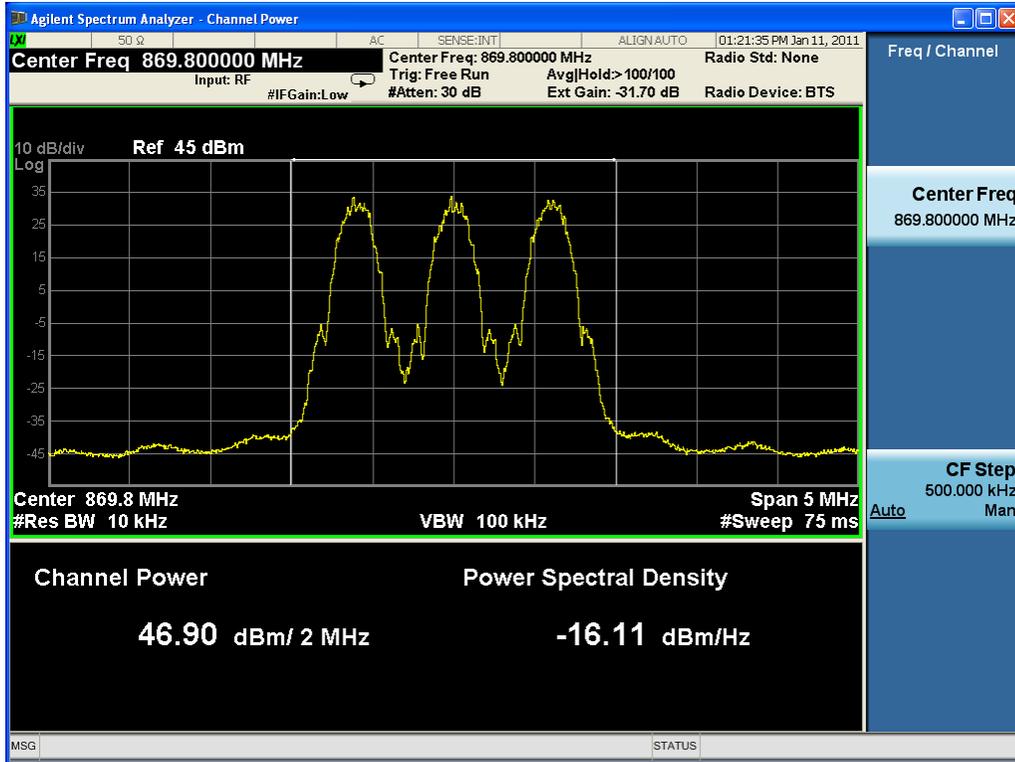
modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
GMSK	870.1	869.2/869.8/ 870.4 /871	48.89
	882.3	881.4/882/882.6/883.2	49.12
	892.9	892/892.6/893.2/893.8	49.10

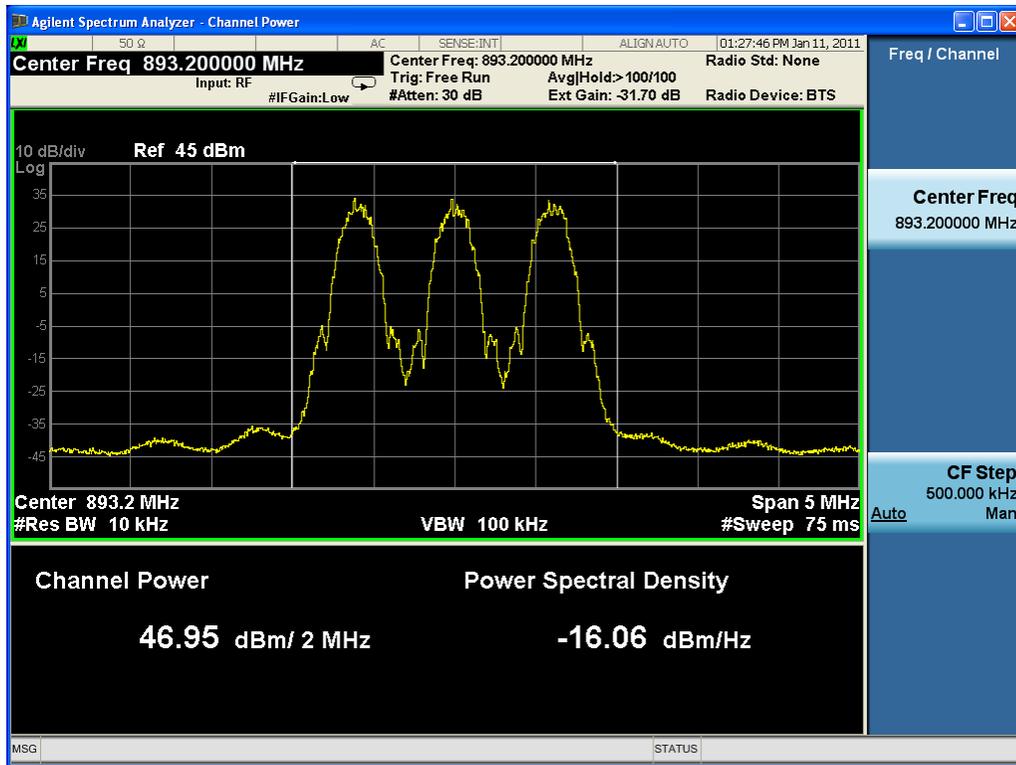




Three carriers

modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
8PSK	869.8	869.2/869.8/ 870.4	46.90
	882	881.4/882/882.6	47.03
	893.2	892.6/893.2/893.8	46.95





modulation	Center Freq. (MHz)	Frequency (MHz)	Max output Power in dBm
GMSK	869.8	869.2/869.8/ 870.4	48.87
	882	881.4/882/882.6	49
	893.2	892.6/893.2/893.8	49.1