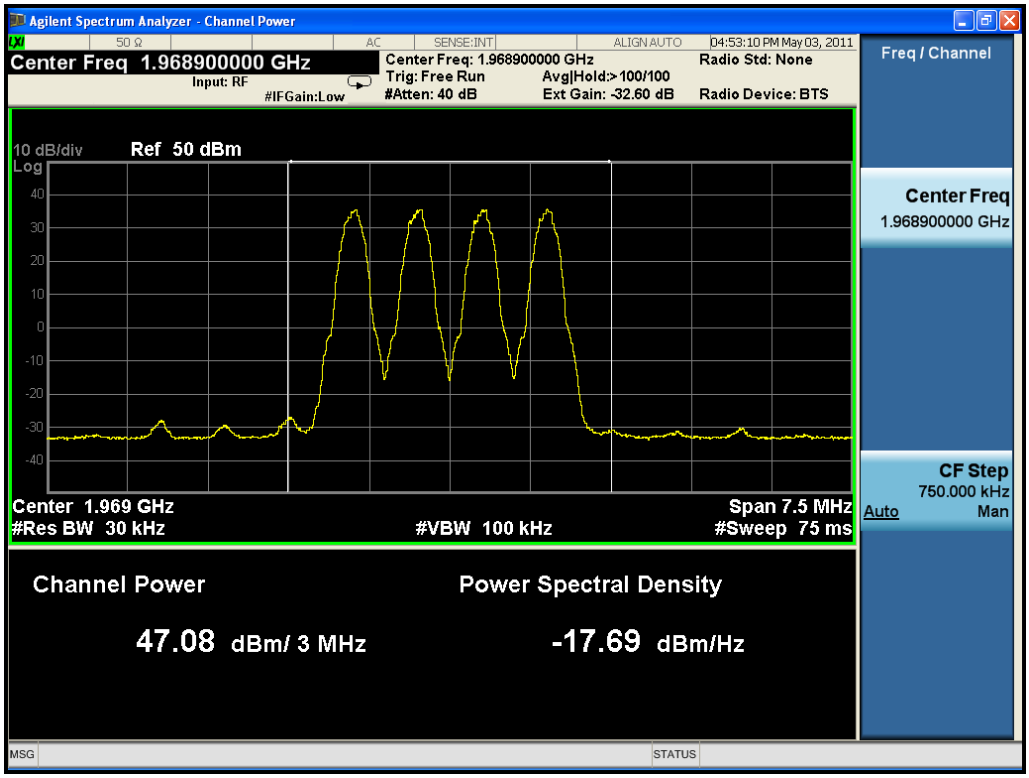
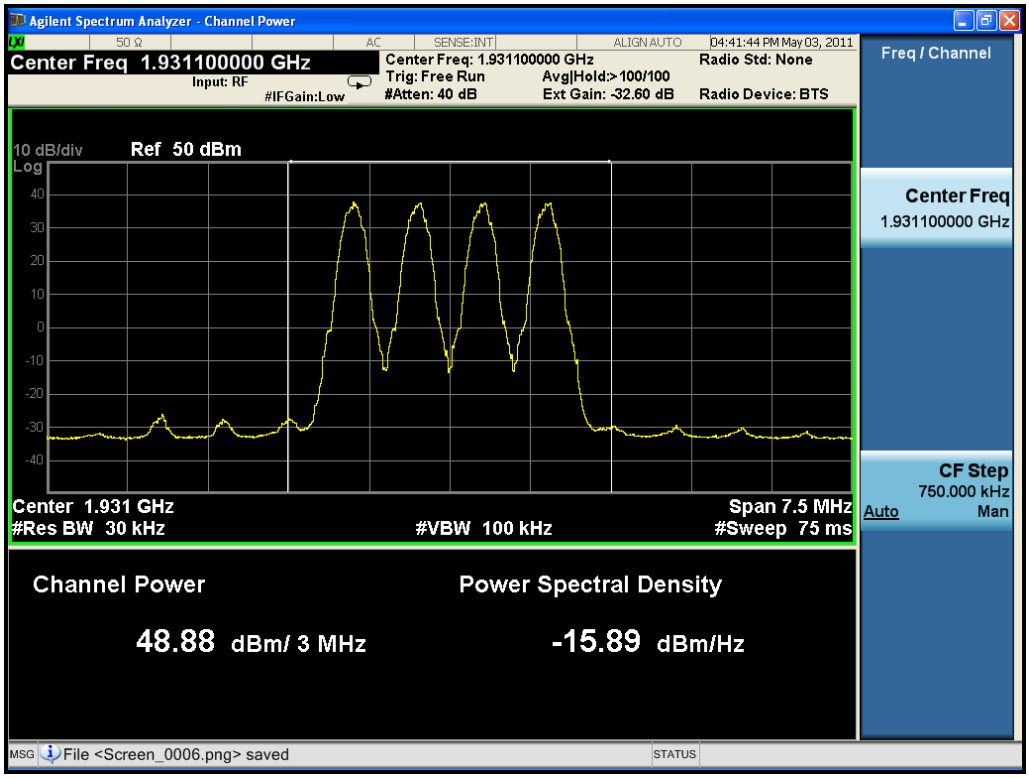
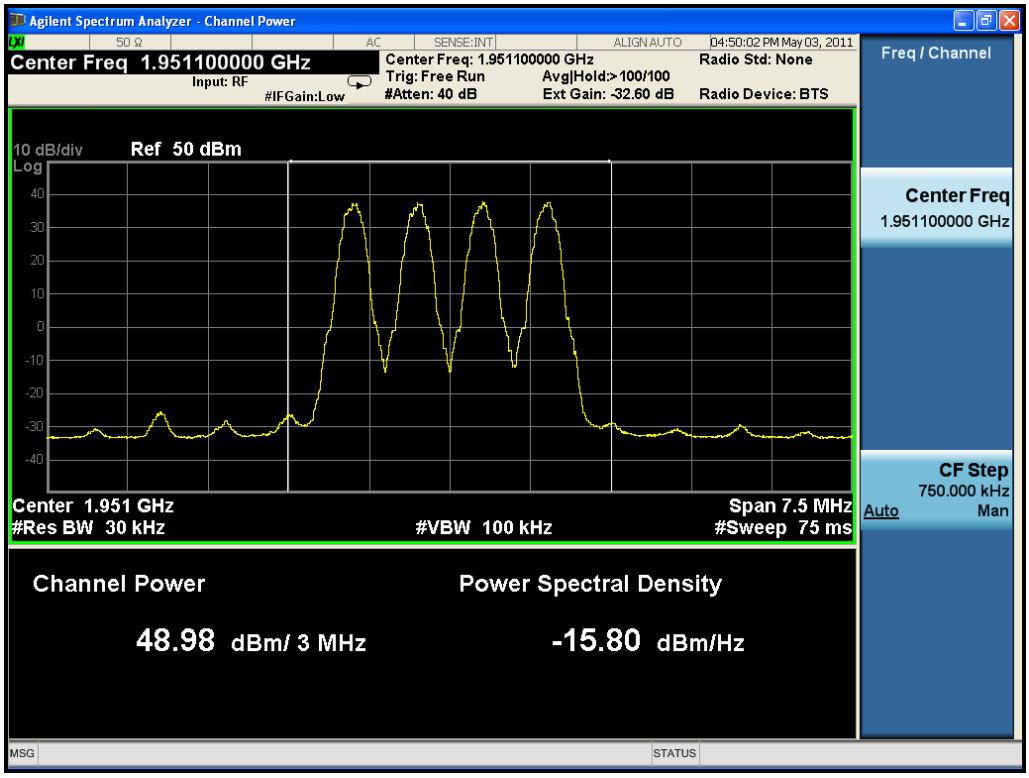
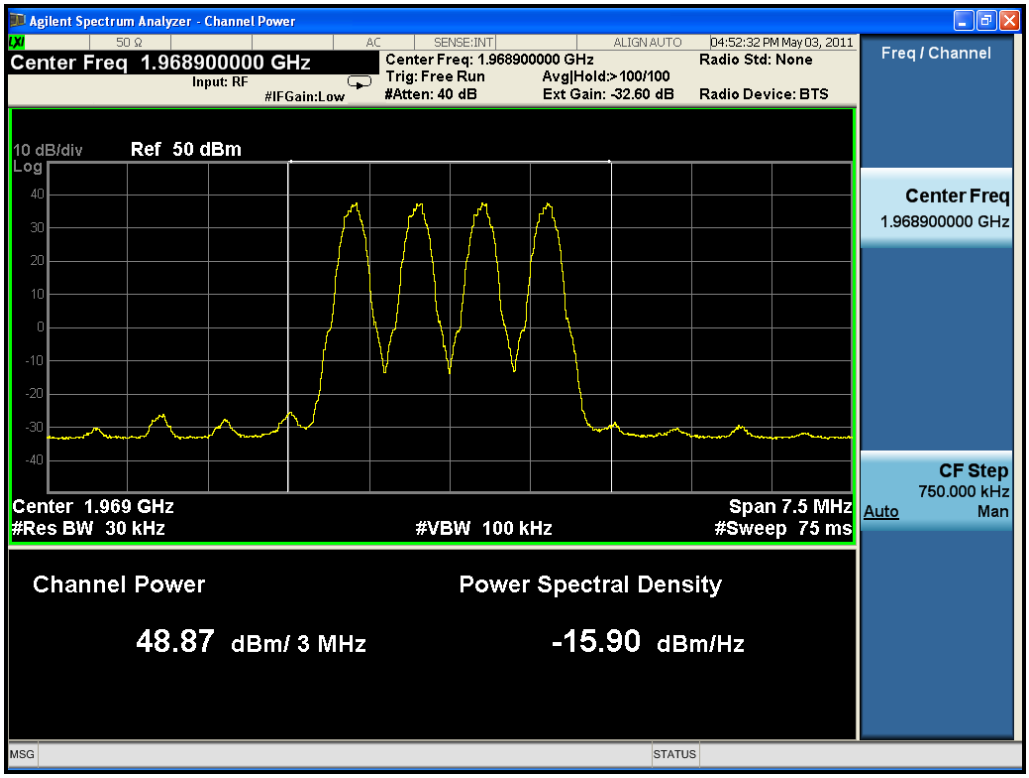



| Modulation | Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|---|
| GMSK | 1931.1 | 1930.2/1930.8/1931.4/1932 | 48.88 |
| | 1951.1 | 1950.2/1950.8/1951.4/1952 | 48.98 |
| | 1968.9 | 1968/1968.6/1969.2/1969.8 | 48.87 |

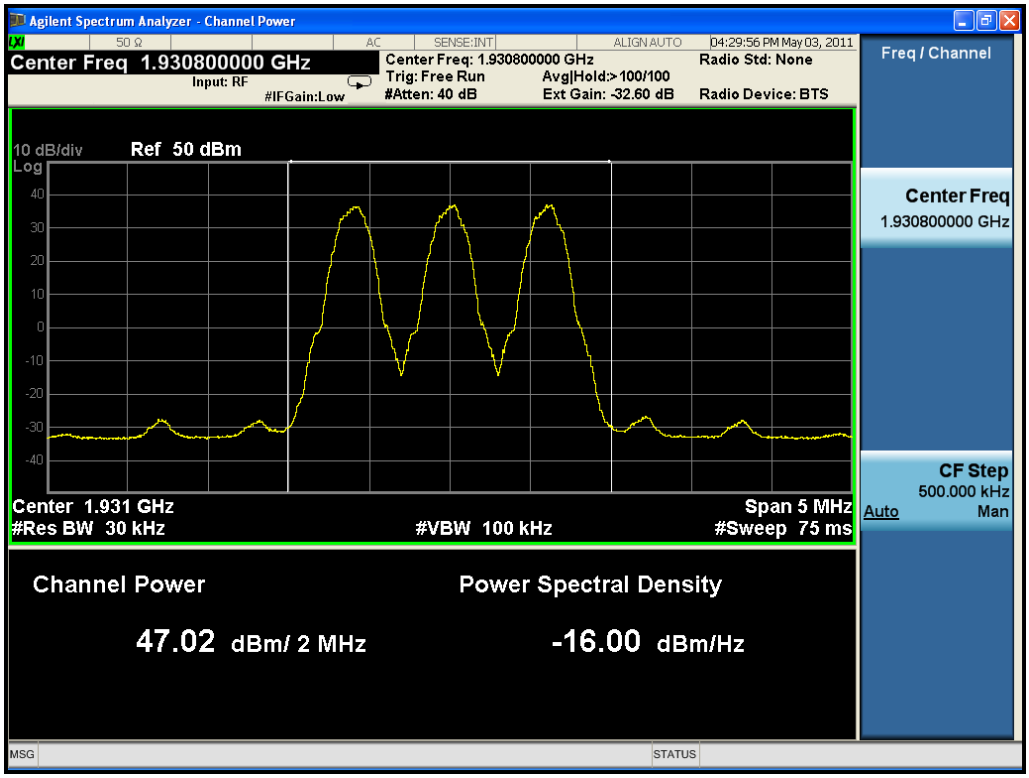

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:41:44 PM May 03, 2011
Center Freq 1.931100000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.931100000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 40 dB
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Center Freq
1.931100000 GHz
CF Step
750.000 kHz
Auto
Man
Channel Power
48.88 dBm/ 3 MHz
Power Spectral Density
-15.89 dBm/Hz
MSG
File <Screen_0006.png> saved
STATUS

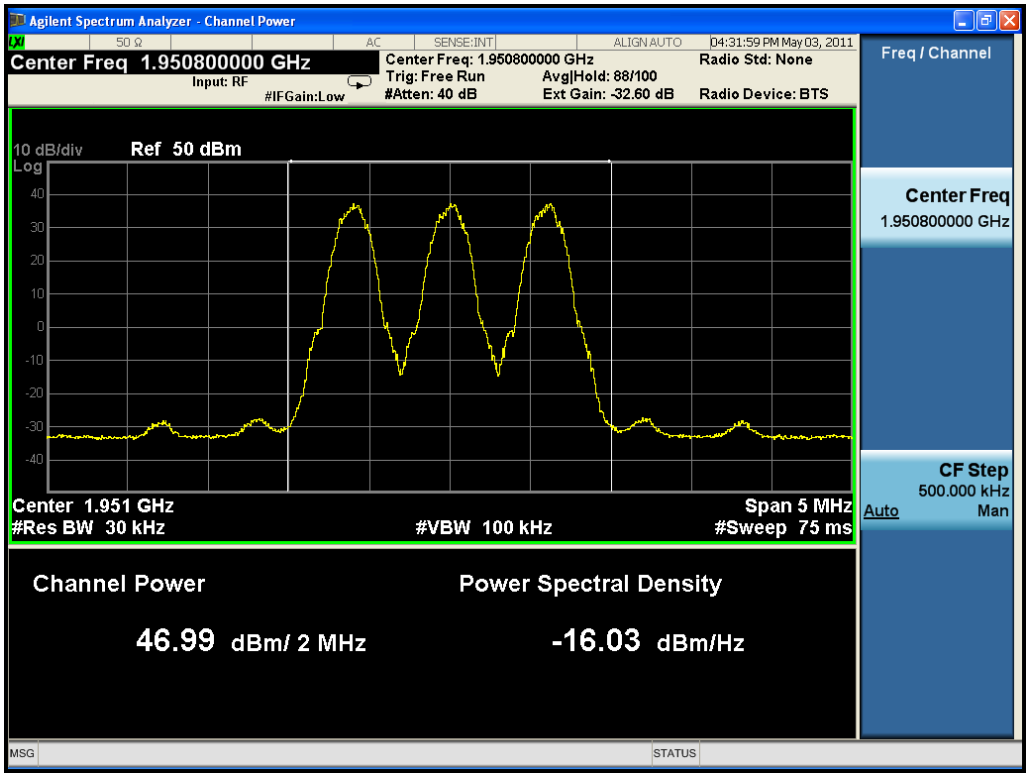

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:50:02 PM May 03, 2011
Center Freq 1.951100000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.951100000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 40 dB
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.951 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 7.5 MHz
#Sweep 75 ms
Center Freq
1.951100000 GHz
CF Step
750.000 kHz
Auto
Man
Channel Power
48.98 dBm/ 3 MHz
Power Spectral Density
-15.80 dBm/Hz
MSG
STATUS

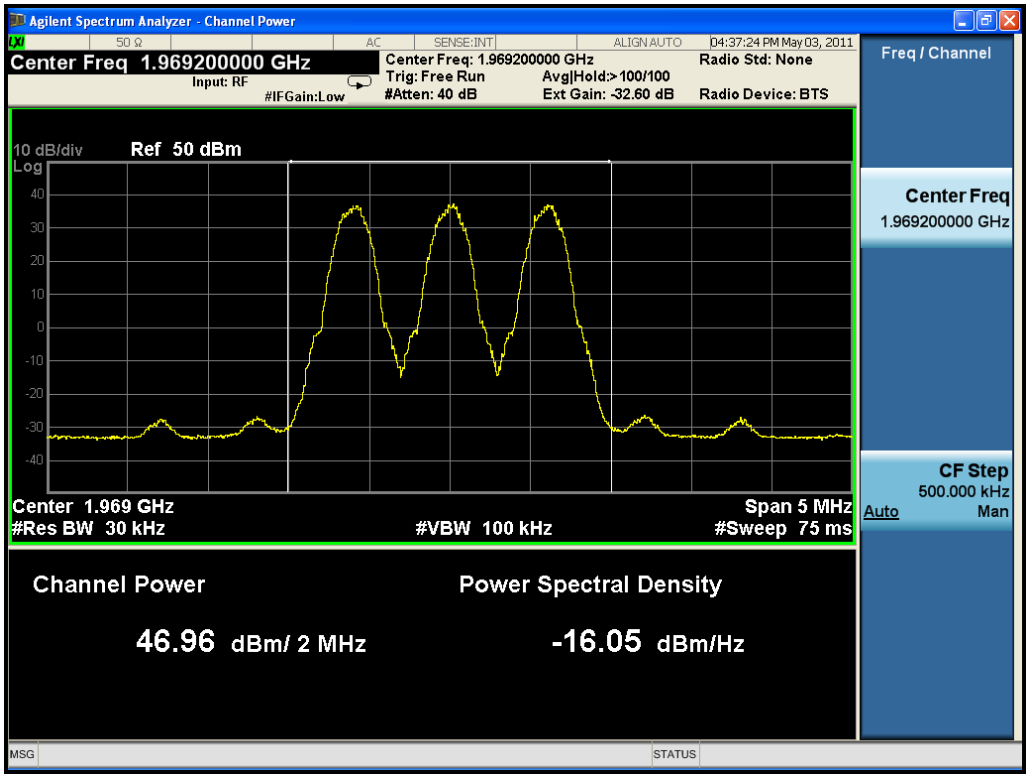



**Three carriers**

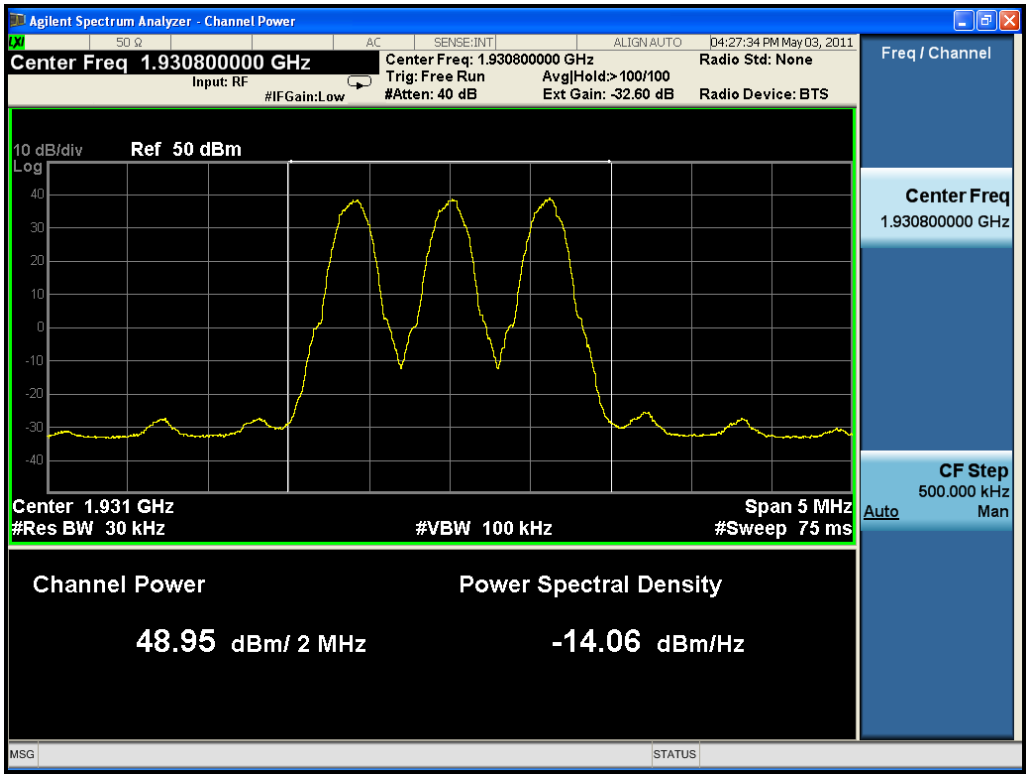
| Modulation | Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|---|
| 8PSK | 1930.8 | 1930.2/1930.8/1931.4 | 47.02 |
| | 1950.8 | 1950.2/1950.8/1951.4 | 46.99 |
| | 1969.2 | 1968.6/1969.2/1969.8 | 46.96 |

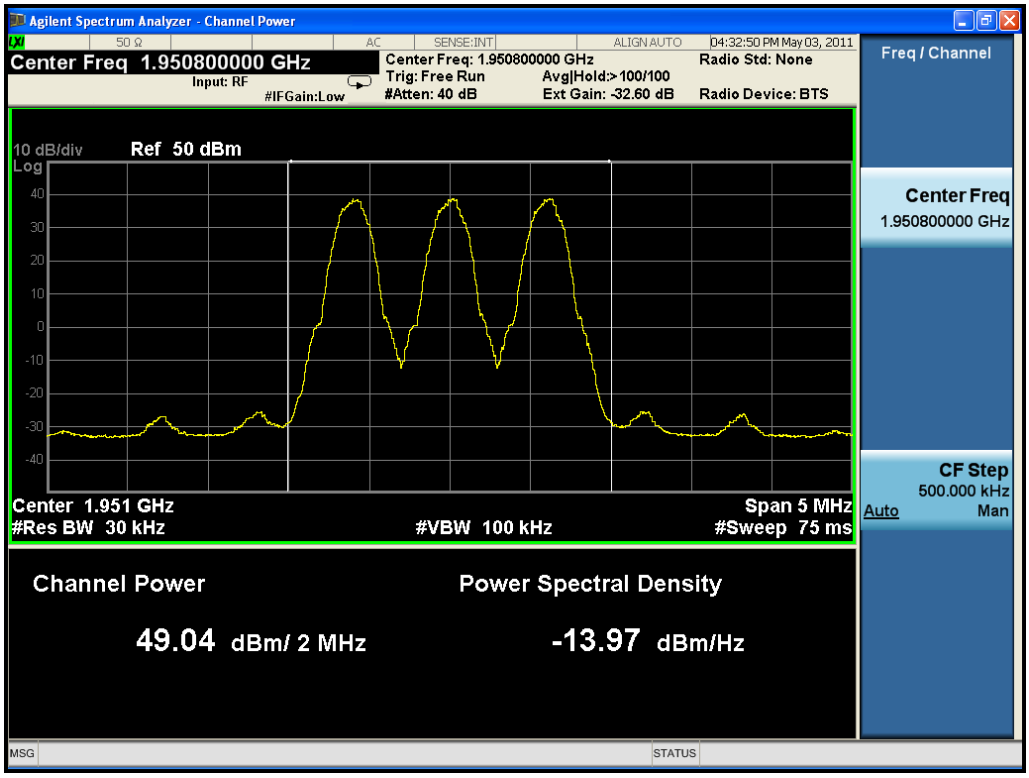

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930800000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.930800000 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
04:29:56 PM May 03, 2011
Freq / Channel
10 dB/div
Log
Ref 50 dBm
Center Freq
1.930800000 GHz
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
CF Step
500.000 kHz
Auto
Man
Channel Power
47.02 dBm/ 2 MHz
Power Spectral Density
-16.00 dBm/Hz
MSG
STATUS

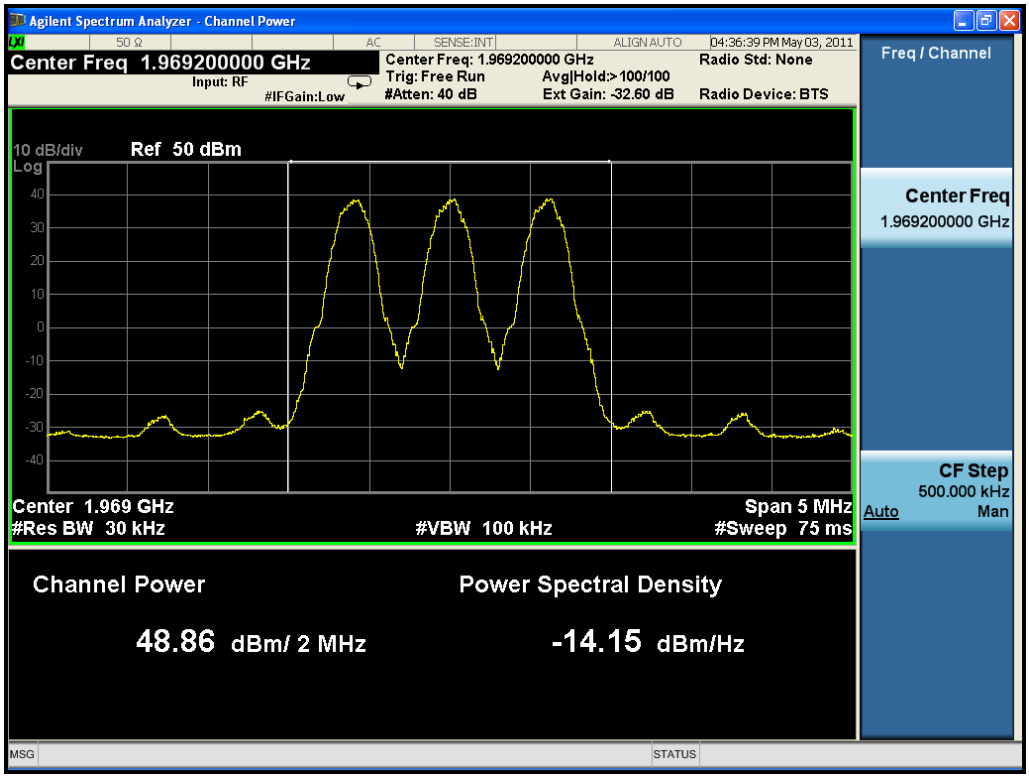

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.950800000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.950800000 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold: 88/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
04:31:59 PM May 03, 2011
Freq / Channel
10 dB/div
Log
Ref 50 dBm
Center Freq
1.950800000 GHz
Center 1.951 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
CF Step
500.000 kHz
Auto
Man
Channel Power
46.99 dBm/ 2 MHz
Power Spectral Density
-16.03 dBm/Hz
MSG
STATUS




| Modulation | Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|---|
| GMSK | 1930.8 | 1930.2/1930.8/1931.4 | 48.95 |
| | 1950.8 | 1950.2/1950.8/1951.4 | 49.04 |
| | 1969.2 | 1968.6/1969.2/1969.8 | 48.86 |

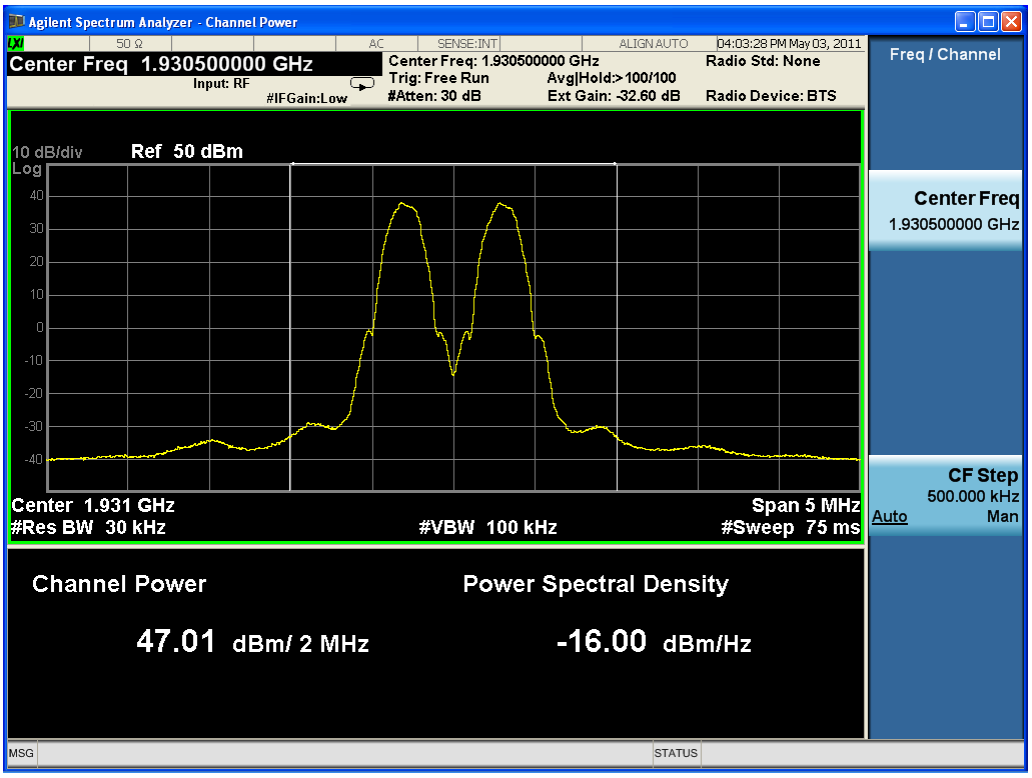

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.930800000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.930800000 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
04:27:34 PM May 03, 2011
Freq / Channel
10 dB/div
Log
Ref 50 dBm
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.930800000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
48.95 dBm/ 2 MHz
Power Spectral Density
-14.06 dBm/Hz
MSG
STATUS

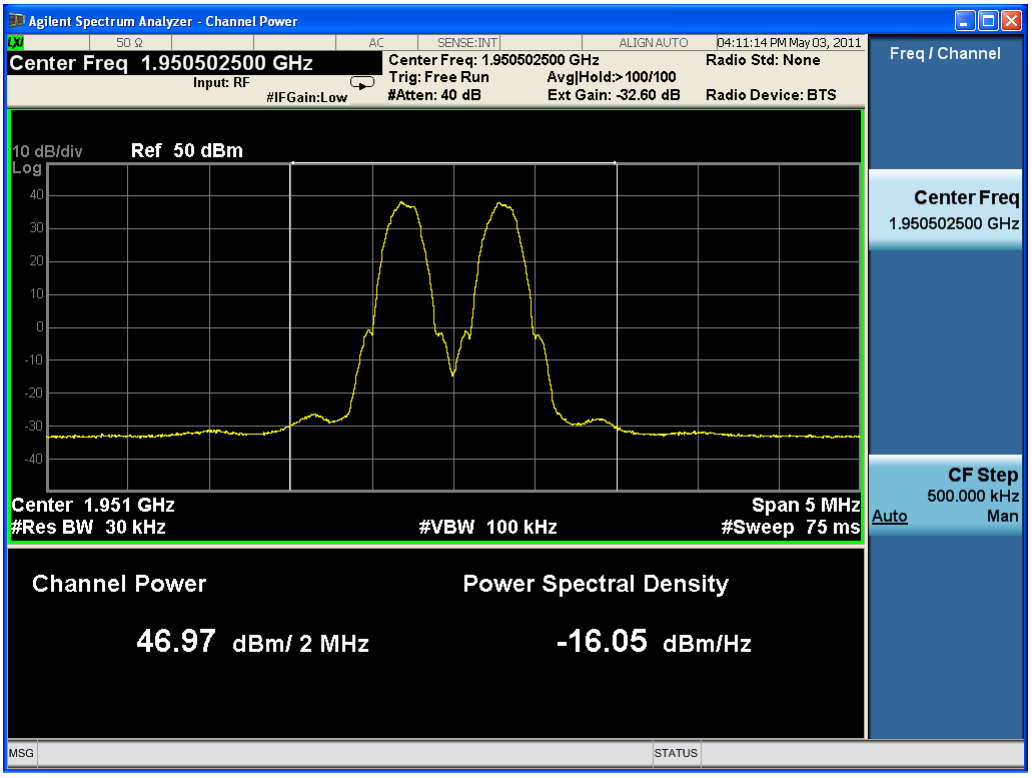

Agilent Spectrum Analyzer - Channel Power
Center Freq 1.950800000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.950800000 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
04:32:50 PM May 03, 2011
Freq / Channel
10 dB/div
Log
Ref 50 dBm
Center 1.951 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.950800000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
49.04 dBm/ 2 MHz
Power Spectral Density
-13.97 dBm/Hz
MSG
STATUS

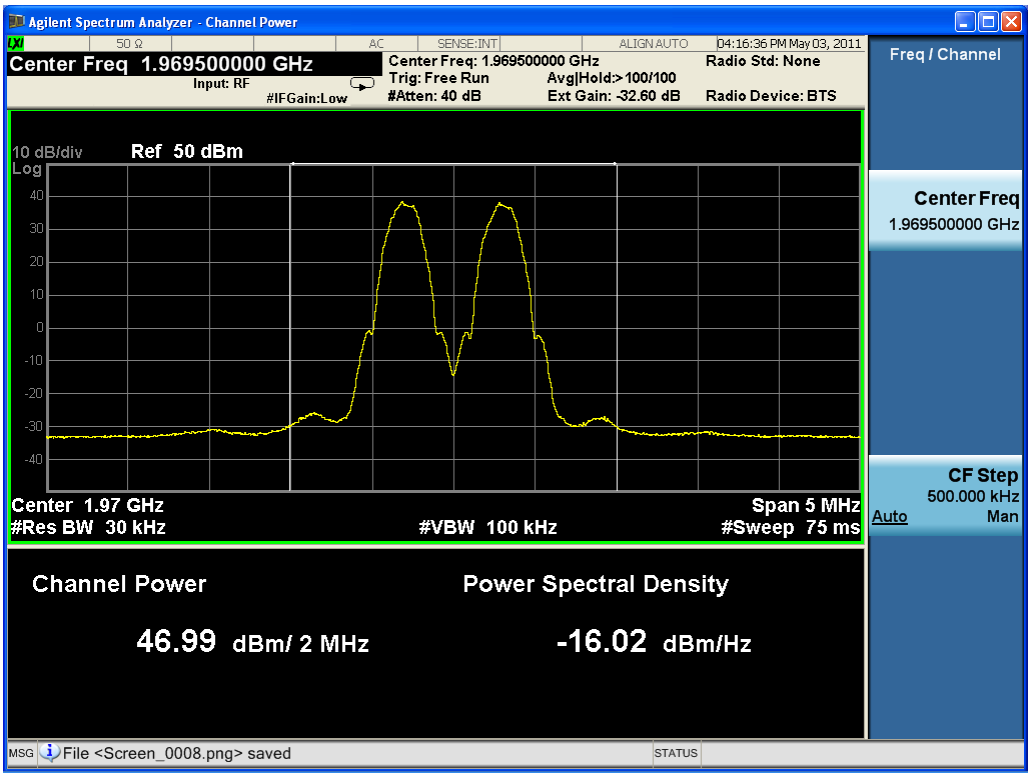



**Two carriers**

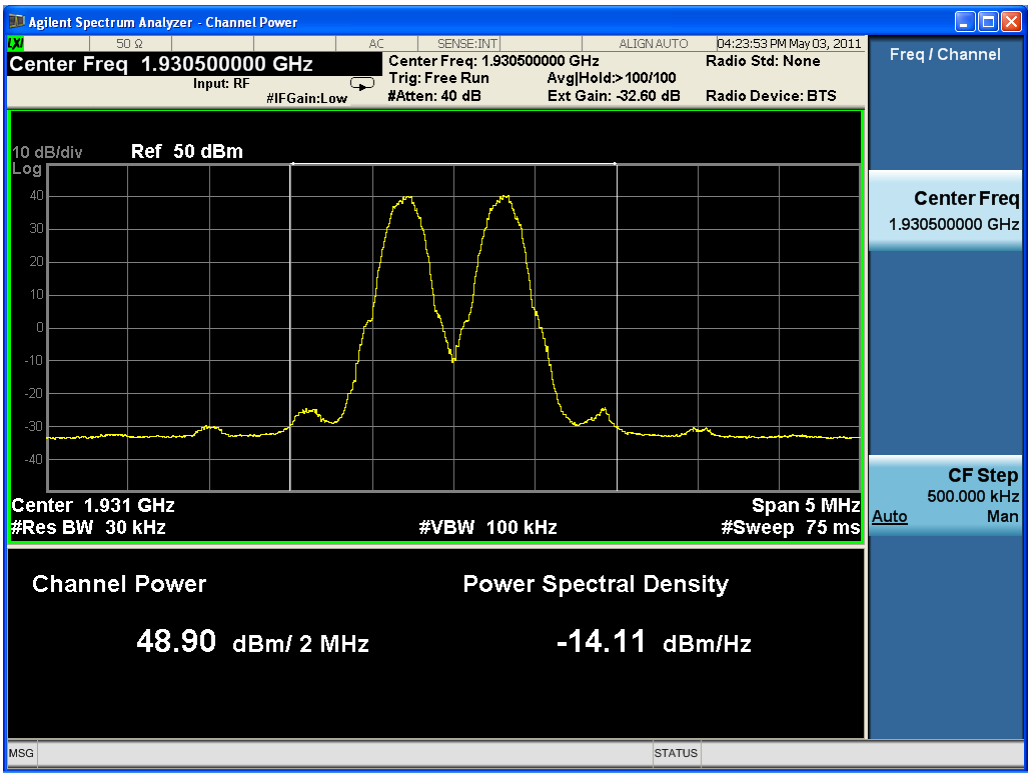
| Modulation | Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|---|
| 8PSK | 1930.5 | 1930.2/1930.8 | 47.01 |
| | 1950.5 | 1950.2/1950.8 | 46.97 |
| | 1969.5 | 1969.2/1969.8 | 46.99 |

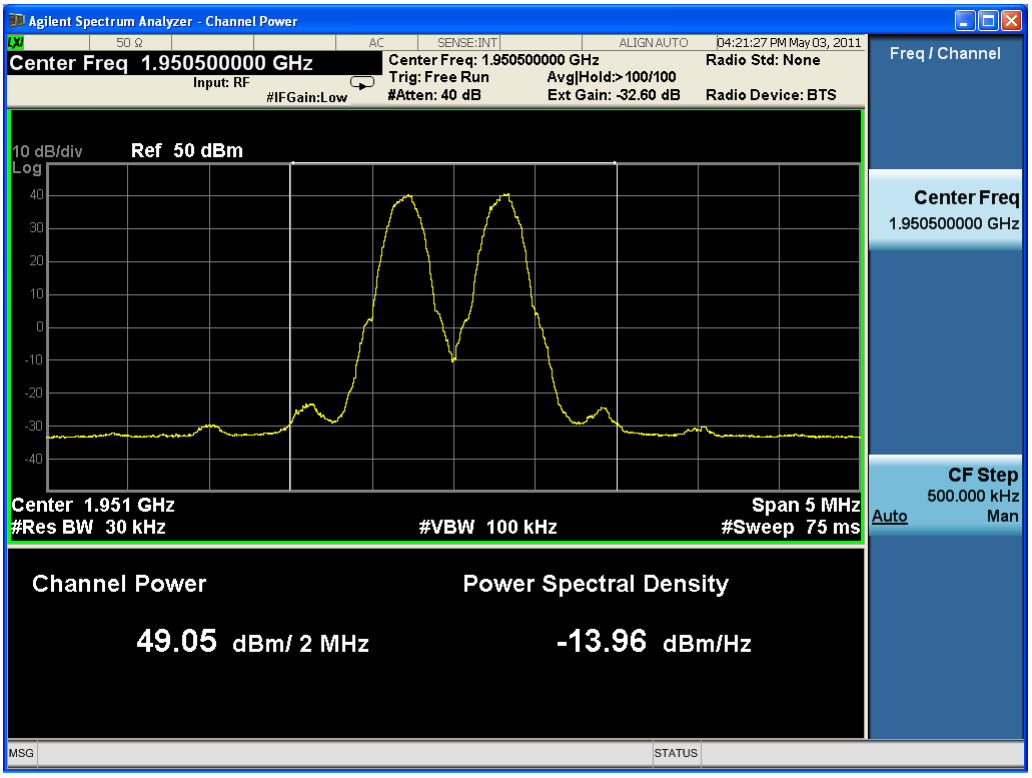

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:03:28 PM May 03, 2011
Center Freq 1.930500000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.930500000 GHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center Freq
1.930500000 GHz
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
CF Step
500.000 kHz
Auto
Man
Channel Power
47.01 dBm/ 2 MHz
Power Spectral Density
-16.00 dBm/Hz
MSG
STATUS

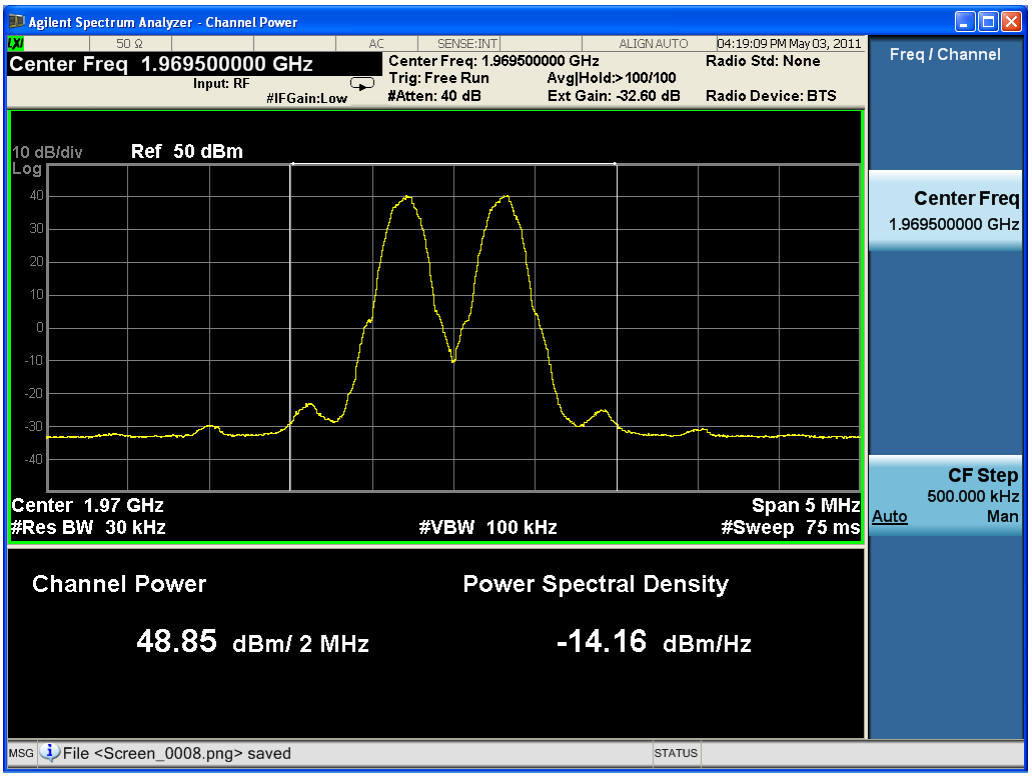

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:11:14 PM May 03, 2011
Center Freq 1.950502500 GHz
Input: RF
#IFGain:Low
Center Freq: 1.950502500 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center Freq
1.950502500 GHz
Center 1.951 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
CF Step
500.000 kHz
Auto
Man
Channel Power
46.97 dBm/ 2 MHz
Power Spectral Density
-16.05 dBm/Hz
MSG
STATUS




| Modulation | Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|---|
| GMSK | 1930.5 | 1930.2/1930.8 | 48.90 |
| | 1950.5 | 1950.2/1950.8 | 49.05 |
| | 1969.5 | 1969.2/1969.8 | 48.85 |

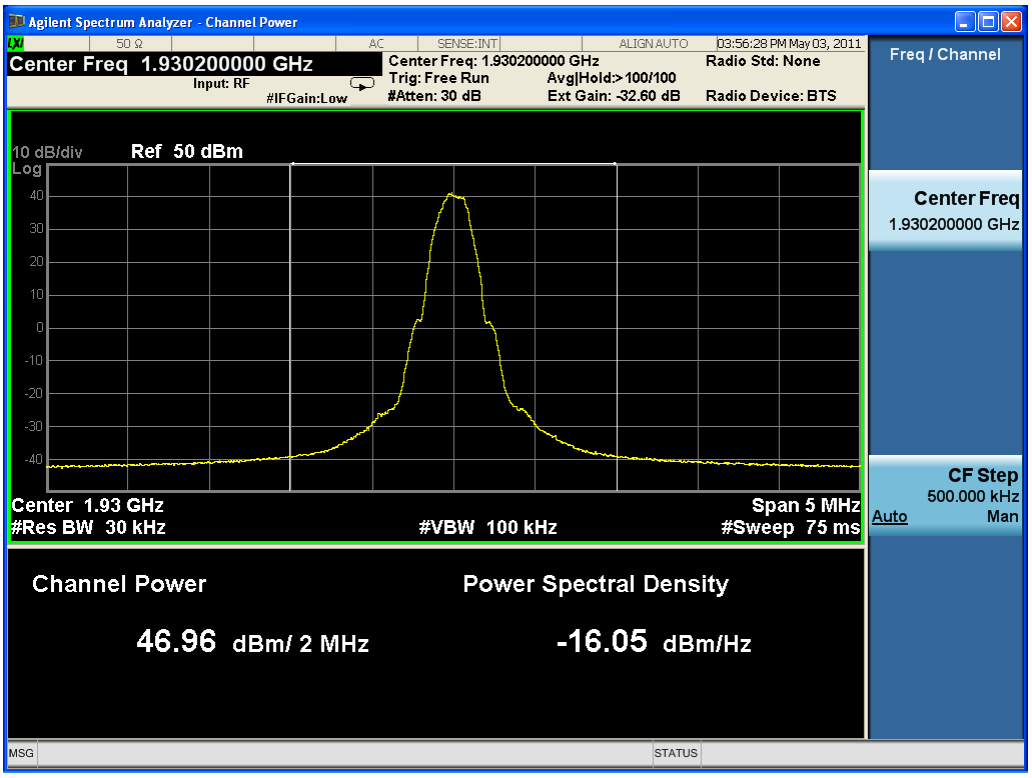

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:23:53 PM May 03, 2011
Center Freq 1.930500000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.930500000 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.931 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.930500000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
48.90 dBm/ 2 MHz
Power Spectral Density
-14.11 dBm/Hz
MSG
STATUS

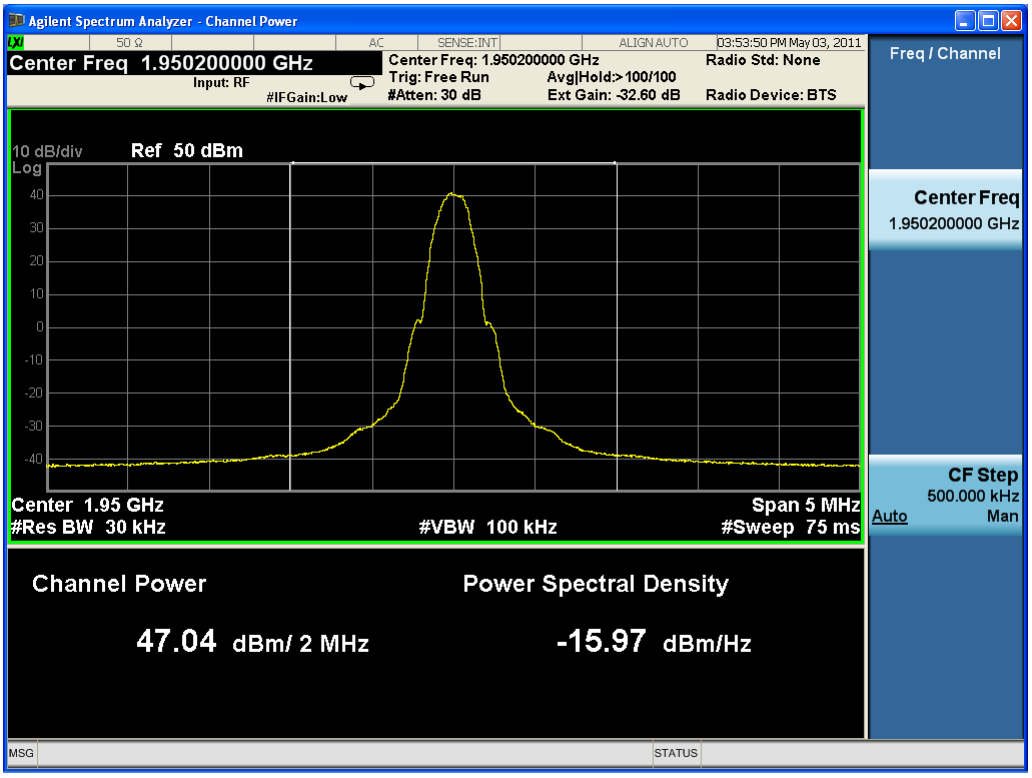

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
04:21:27 PM May 03, 2011
Center Freq 1.950500000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.950500000 GHz
Trig: Free Run
#Atten: 40 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.951 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.950500000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
49.05 dBm/ 2 MHz
Power Spectral Density
-13.96 dBm/Hz
MSG
STATUS

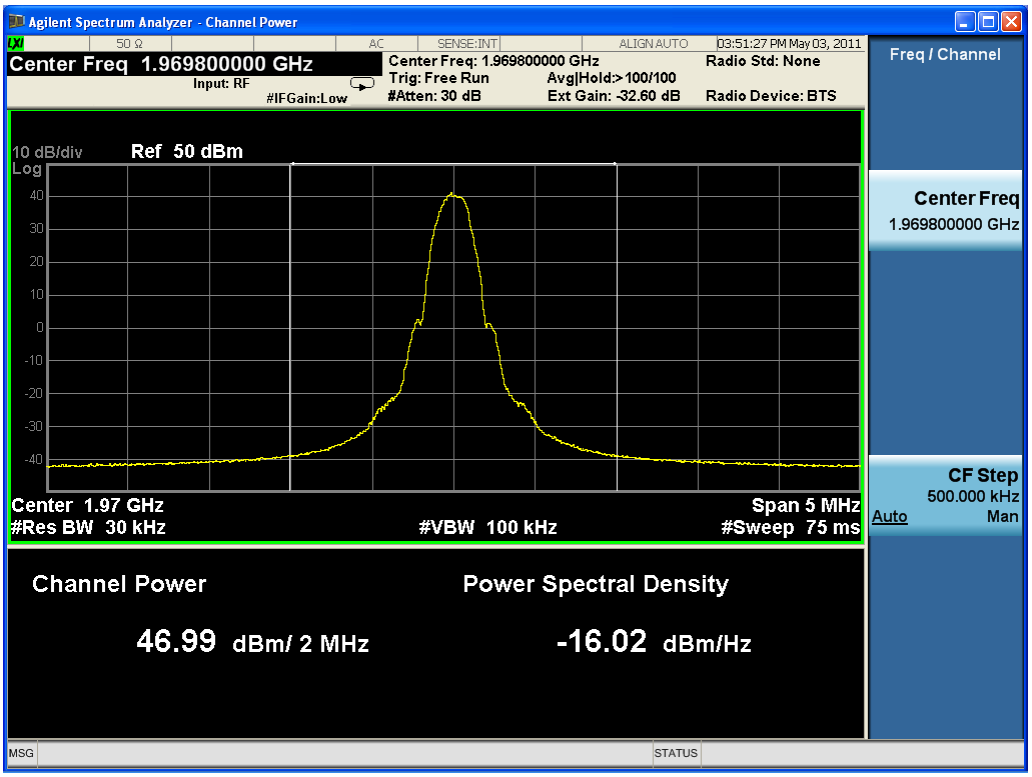



**One carrier**

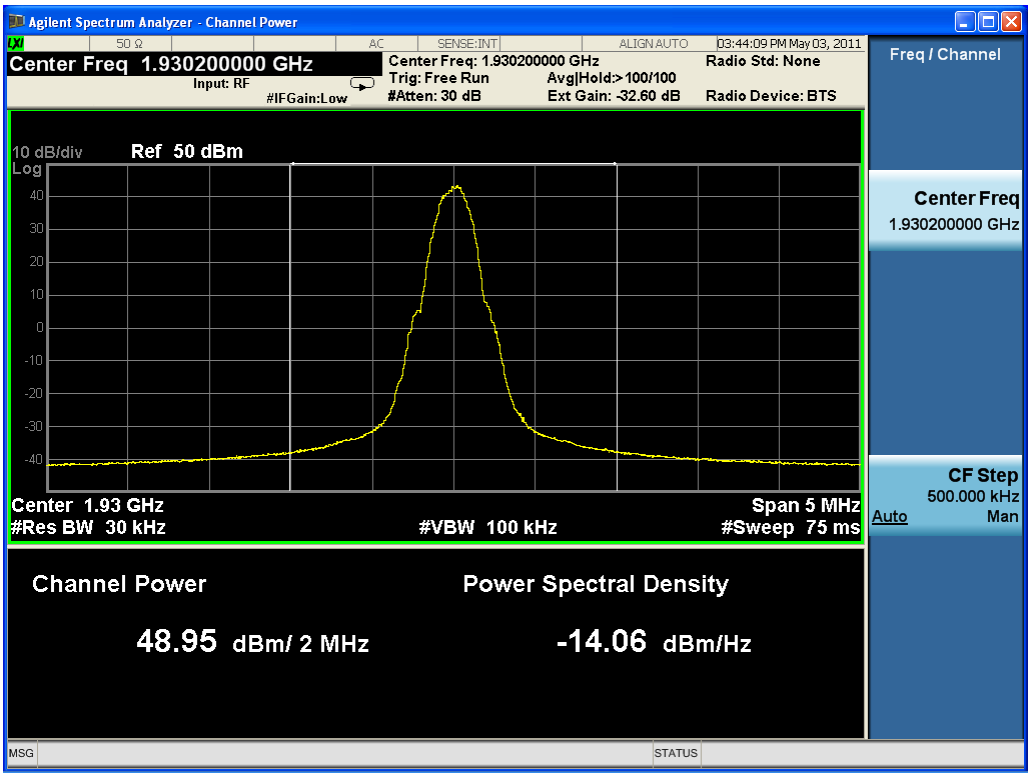
| Modulation | Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|---|
| 8PSK | 1930.2 | 1930.2 | 46.96 |
| | 1950.2 | 1950.2 | 47.04 |
| | 1968.6 | 1968.6 | 46.99 |

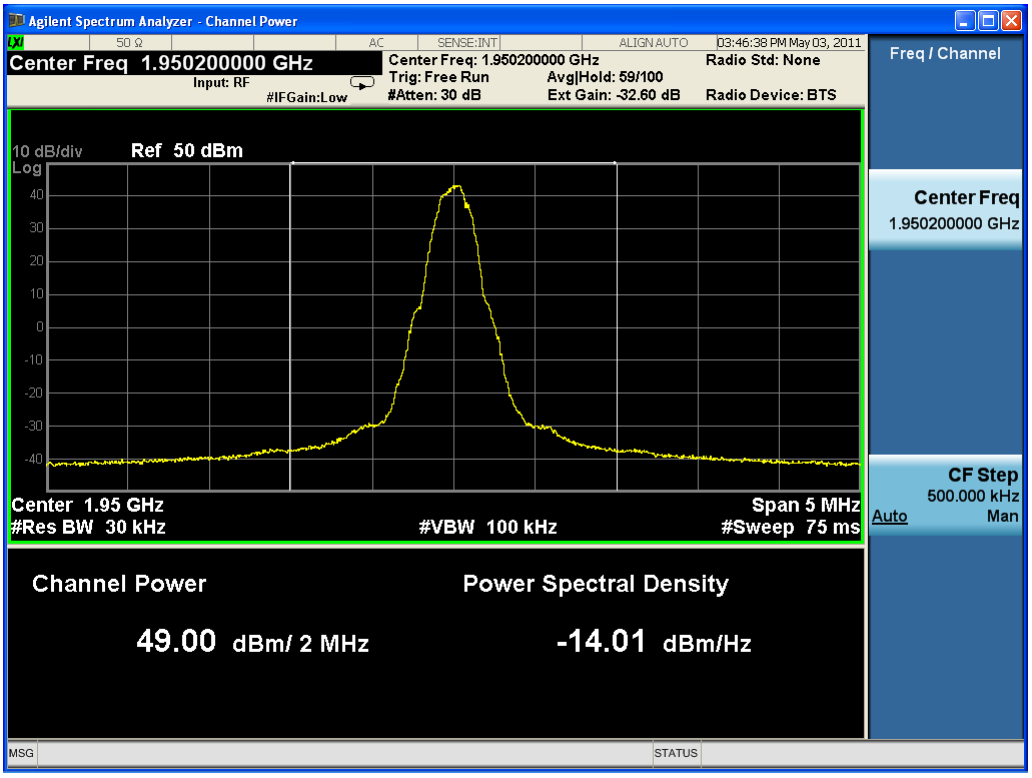

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:56:28 PM May 03, 2011
Center Freq 1.930200000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.930200000 GHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.93 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.930200000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
46.96 dBm/ 2 MHz
Power Spectral Density
-16.05 dBm/Hz
MSG
STATUS

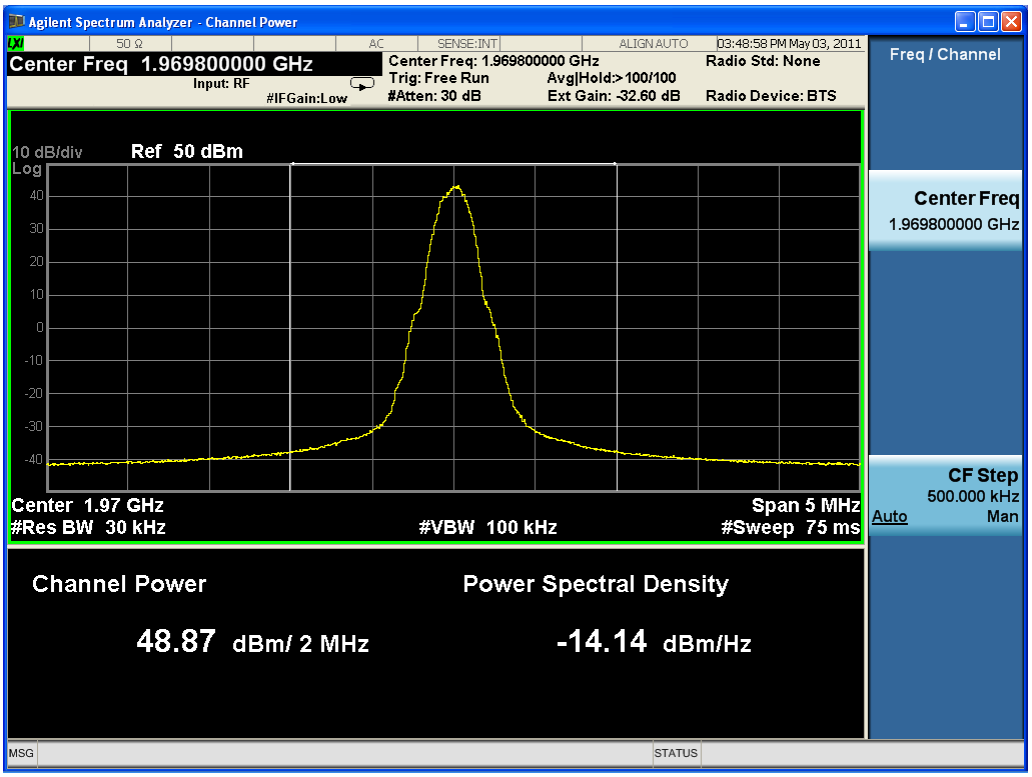

Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:53:50 PM May 03, 2011
Center Freq 1.950200000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.950200000 GHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.95 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.950200000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
47.04 dBm/ 2 MHz
Power Spectral Density
-15.97 dBm/Hz
MSG
STATUS




| Modulation | Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|---|
| 8PSK | 1930.2 | 1930.2 | 48.95 |
| | 1950.2 | 1950.2 | 49.00 |
| | 1968.6 | 1968.6 | 48.87 |


Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:44:09 PM May 03, 2011
Center Freq 1.930200000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.930200000 GHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.93 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.930200000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
48.95 dBm/ 2 MHz
Power Spectral Density
-14.06 dBm/Hz
MSG
STATUS


Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:46:38 PM May 03, 2011
Center Freq 1.950200000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.950200000 GHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold: 59/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center 1.95 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Center Freq
1.950200000 GHz
CF Step
500.000 kHz
Auto
Man
Channel Power
49.00 dBm/ 2 MHz
Power Spectral Density
-14.01 dBm/Hz
MSG
STATUS


Agilent Spectrum Analyzer - Channel Power
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:48:58 PM May 03, 2011
Center Freq 1.969800000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.969800000 GHz
Trig: Free Run
#Atten: 30 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 50 dBm
40
30
20
10
0
-10
-20
-30
-40
Center Freq
1.969800000 GHz
CF Step
500.000 kHz
Auto
Man
Center 1.97 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 5 MHz
#Sweep 75 ms
Channel Power
48.87 dBm/ 2 MHz
Power Spectral Density
-14.14 dBm/Hz
MSG
STATUS

# 4.2 RF EXPOSURE

***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 EIRP, In general, the equivalent isotropically radiated power (EIRP) of base transmitters and cellular repeaters must not exceed 1640 Watts.
Frequency is between 1500MHz and 100000MHz, and the Maximum $S=1.0mW/cm^2$
R=3.61m.
This equipment should be installed and operated with minimum distance 3.61m between the radiator& your body .

**Test Result:** pass

# 4.3 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 | 2011-4-8 | 2012-4-7 |
| 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

GSM digital mode is used by EUT.

## Test Data Environmental Conditions

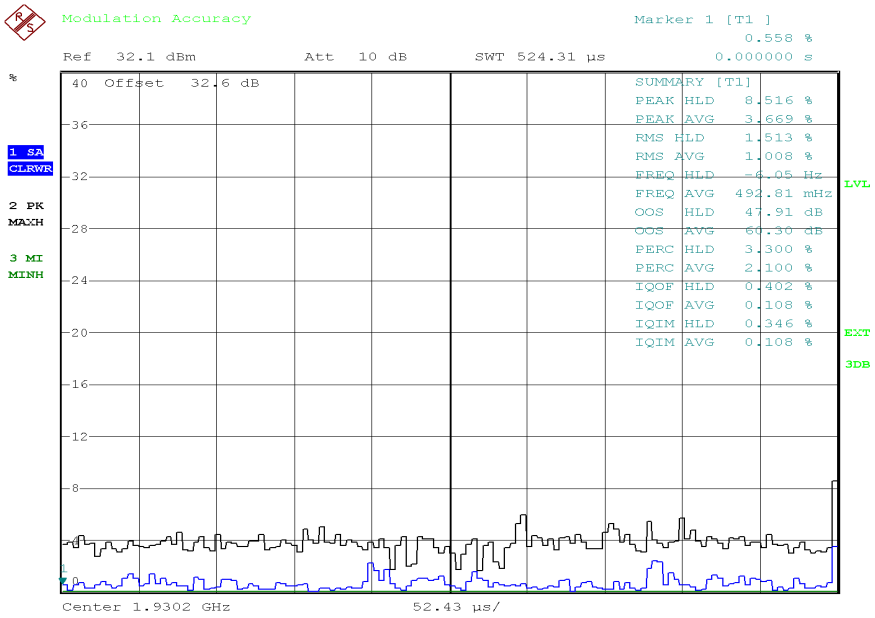
| | |
|---|---|
| Temperature: | 20 °C |
| Relative Humidity: | 53 % |
| ATM Pressure: | 1009 mbar |

## Test Result: Pass

## Test Mode: Transmitting GSM

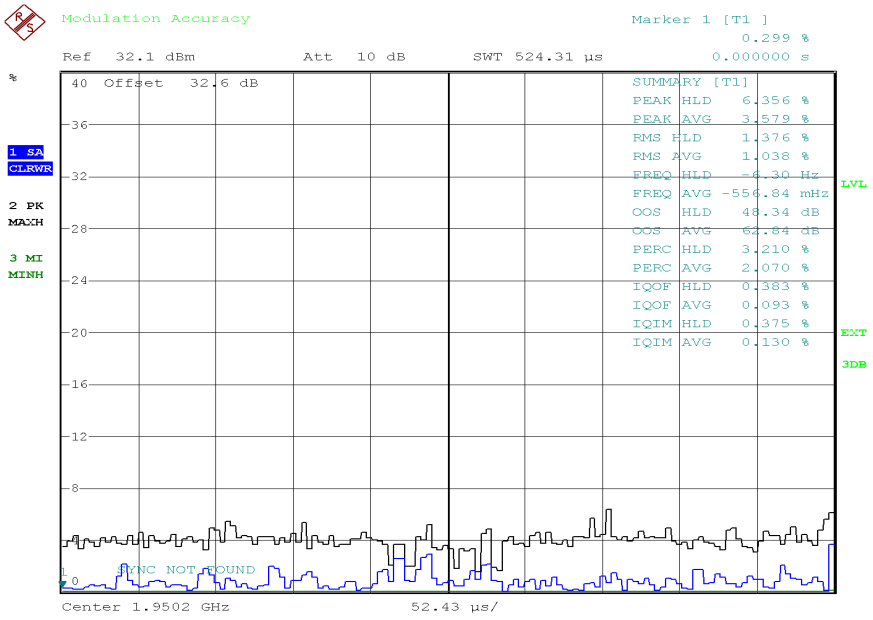
# Test Data:

| Modulation | Frequency (MHz) | Phase Error(%) | Frequency Error(Hz) |
|---|---|---|---|
| 8PSK | 1930.2 | 3.669% | 0.49 |
| | 1950.2 | 3.579% | 0.56 |
| | 1969 | 3.660% | 0.85 |



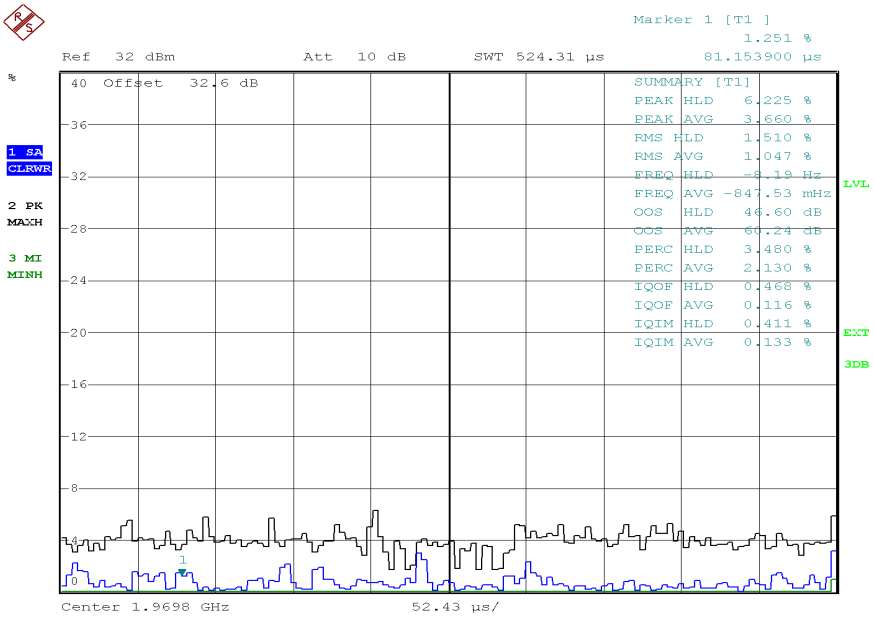

DEMO-BORD-46M-76DB

Date: 13.MAY.2011 15:36:00




DEMO-BORD-46M-76DB

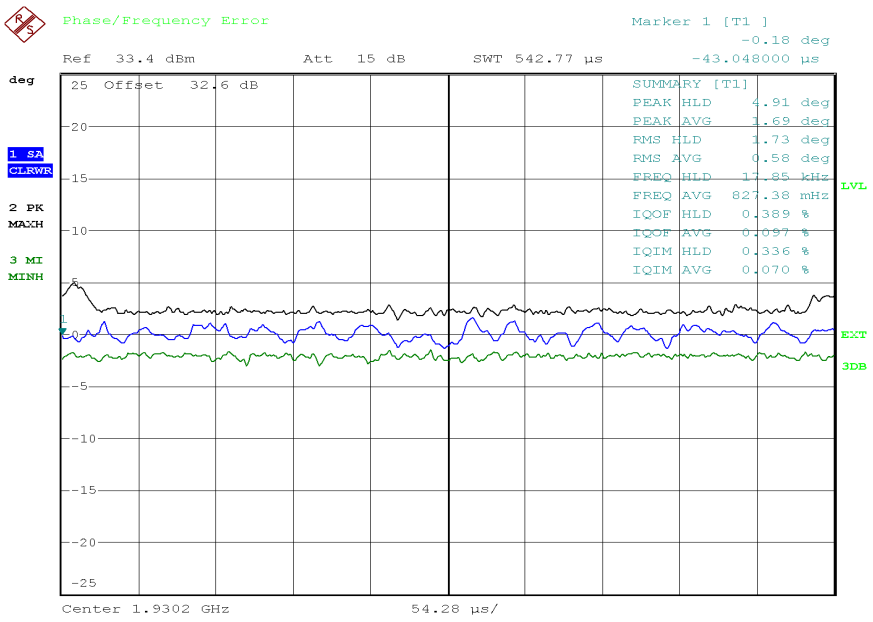
Date: 13.MAY.2011 15:34:09




DEMO-BORD-46M-76DB

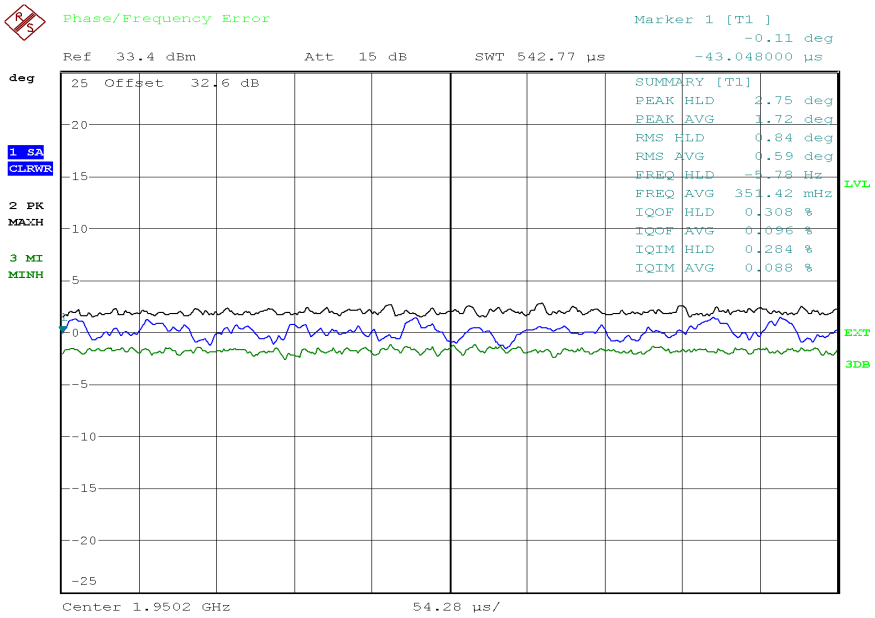
Date: 13.MAY.2011 15:30:09

| Modulation | Frequency (MHz) | Phase Error(°) | Frequency Error(Hz) |
|---|---|---|---|
| GMSK | 1930.2 | 1.69 | 0.83 |
| | 1950.2 | 1.72 | 0.35 |
| | 1969 | 1.80 | 0.30 |



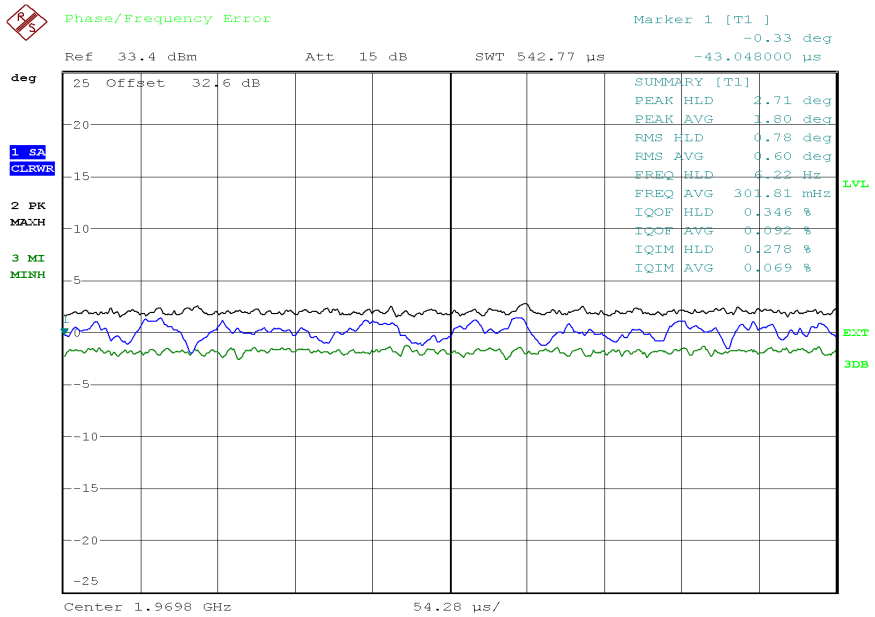

DEMO-BORD-46M-76DB

Date: 13.MAY.2011 14:54:01




DEMO-BORD-46M-76DB

Date: 13.MAY.2011 14:58:02




DEMO-BORD-46M-76DB

Date: 13.MAY.2011 15:00:34

# 4.4 SPURIOUS RADIATED EMISSIONS

## Applicable Standard: FCC CFR 47, §2.1053

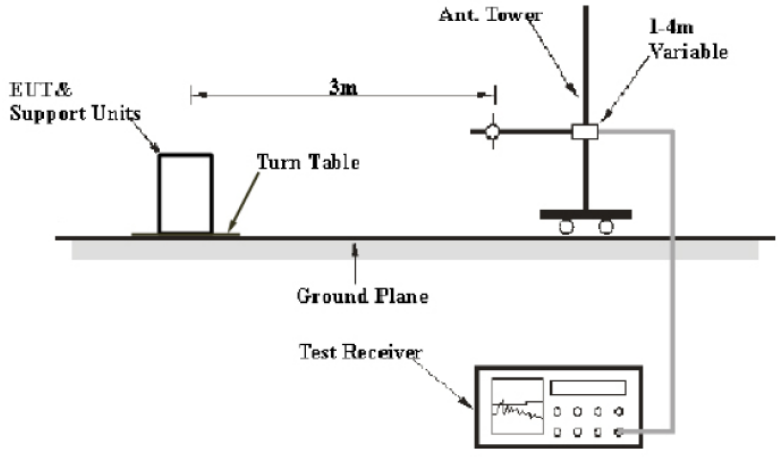
## Test Equipment List and Details

| 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 2.1053.The specification used was the FCC 2.1053 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) | Effective radiated power （dBm） | Dipole Antenna | Absolute Level (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (GHz) | Amp. (dBuV) | Angle Degree | Height(M) | Polar H/V | Level (dBm) | Antenna Gain Correction | | | | | | |
| 57.214429 | 49.2 | 129.50 | 1 | V | -18 | -29.52 | 0.5 | -48.02 | 2.15 | -50.17 | -13 | 37.17 |
| 986.392786 | 43.81 | 230.40 | 2 | V | -52.3 | -4.1 | 2.7 | -59.1 | 2.15 | -61.25 | -13 | 48.25 |
| 1000 | 42.81 | 303.20 | 1 | V | -53.3 | 4.25 | 2.7 | -51.75 | 2.15 | -53.9 | -13 | 40.9 |
| 1388.77756 | 48.18 | 230.40 | 2 | V | -55.61 | 4.25 | 3.1 | -54.46 | 2.15 | -56.61 | -13 | 43.61 |
| 1933.86774 | 85.67 | 56.00 | 2 | V | -21.69 | 6.55 | 3.7 | -18.84 | 2.15 | -20.99 | -13 | 7.99 |
| 2995.99198 | 60.27 | 216.30 | 1 | V | -41.47 | 7.95 | 4.6 | -38.12 | 2.15 | -40.27 | -13 | 27.27 |
| 210.781563 | 40.82 | 143.10 | 2 | H | -58.43 | 1.23 | 1.2 | -58.4 | 2.15 | -60.55 | -13 | 47.55 |
| 601.503006 | 37.85 | 319.20 | 2 | H | -58.8 | -1.39 | 2 | -62.19 | 2.15 | -64.34 | -13 | 51.34 |
| 963.066132 | 43.35 | 0.00 | 2 | H | -53.2 | -2.82 | 2.6 | -58.62 | 2.15 | -60.77 | -13 | 47.77 |
| 1348.6974 | 48.24 | 216.10 | 1 | H | -57.86 | 4.25 | 3.1 | -56.71 | 2.15 | -58.86 | -13 | 45.86 |
| 1933.86774 | 90.59 | 216.10 | 1 | H | -16.01 | 6.55 | 3.7 | -13.16 | 2.15 | -15.31 | -13 | 2.31 |
| 2791.58317 | 60.34 | 216.10 | 1 | H | -48.06 | 7.95 | 4.5 | -44.61 | 2.15 | -46.76 | -13 | 33.76 |

Radiation emission spurious below 3GHz

| Indicated | | Table | Test Antenna | | Substituted | | Cable Loss (dB) | Effective radiated power （dBm） | Dipole Antenna | Absolute Level (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (GHz) | Amp. (dBuV) | Angle Degree | Height(M) | Polar H/V | Level (dBm) | Antenna Gain Correction | | | | | | |
| 3873.7475 | 53.38 | 251.00 | 1 | V | -52.27 | 7.75 | 5.2 | -49.72 | 2.15 | -51.87 | -13 | 38.87 |
| 5621.24249 | 48.01 | 178.60 | 1 | V | -58.62 | 9.05 | 6.5 | -56.07 | 2.15 | -58.22 | -13 | 45.22 |
| 5813.62726 | 64.37 | 175.70 | 2 | V | -39.11 | 9.05 | 6.6 | -36.66 | 2.15 | -38.81 | -13 | 25.81 |
| 10204.4088 | 58.45 | 175.70 | 2 | V | -50.37 | 11.35 | 8.9 | -47.92 | 2.15 | -50.07 | -13 | 37.07 |
| 14503.006 | 63.04 | 0.10 | 2 | V | -46.48 | 9.15 | 11 | -48.33 | 2.15 | -50.48 | -13 | 37.48 |
| 3873.7475 | 52.1 | 248.90 | 2 | H | -49.46 | 7.75 | 5.2 | -46.91 | 2.15 | -49.06 | -13 | 36.06 |
| 5533.06613 | 48.02 | 322.40 | 2 | H | -52.88 | 9.05 | 6.4 | -50.23 | 2.15 | -52.38 | -13 | 39.38 |
| 5813.62726 | 63.98 | 194.40 | 1 | H | -34.63 | 9.05 | 6.6 | -32.18 | 2.15 | -34.33 | -13 | 21.33 |
| 10204.4088 | 58.17 | 266.80 | 1 | H | -50.77 | 11.35 | 8.9 | -48.32 | 2.15 | -50.47 | -13 | 37.47 |
| 14529.0581 | 63.33 | 35.00 | 1 | H | -43.92 | 9.15 | 11 | -45.77 | 2.15 | -47.92 | -13 | 34.92 |

Radiation emission spurious above 3GHz

# 4.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

## Applicable Standard: FCC§2.1051, §24.238

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

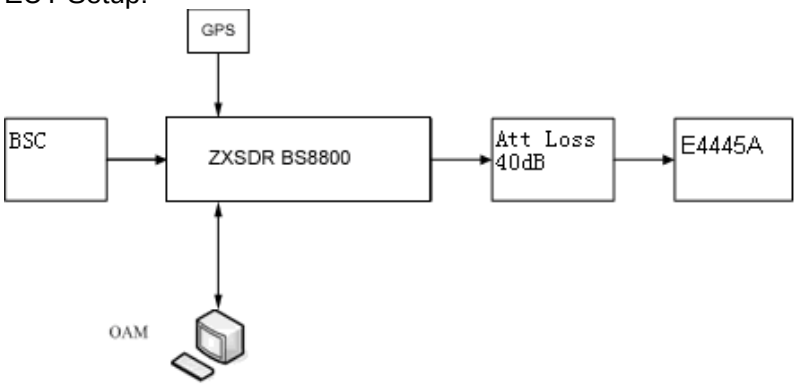
## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Agilent | MXA Series Spectrum Analyzer | N9020A | MY48011941 | 2011-4-8 | 2012-4-7 |
| 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

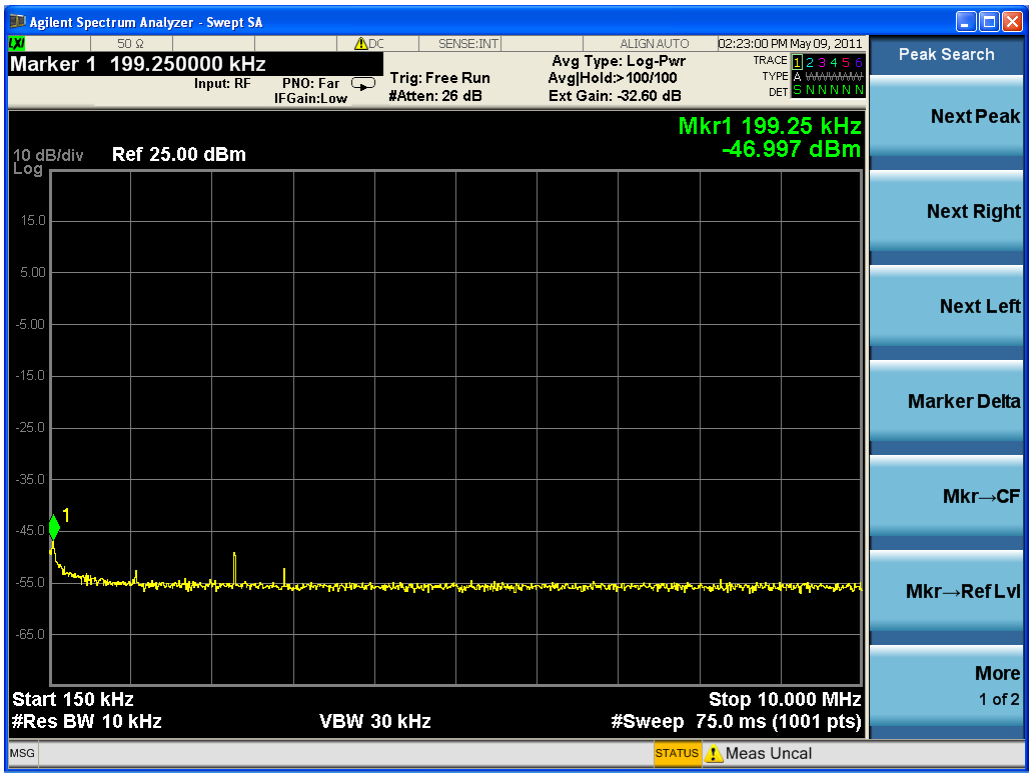
| | |
|---|---|
| Temperature: | 20 °C |
| Relative Humidity: | 53 % |
| ATM Pressure: | 1009 mbar |

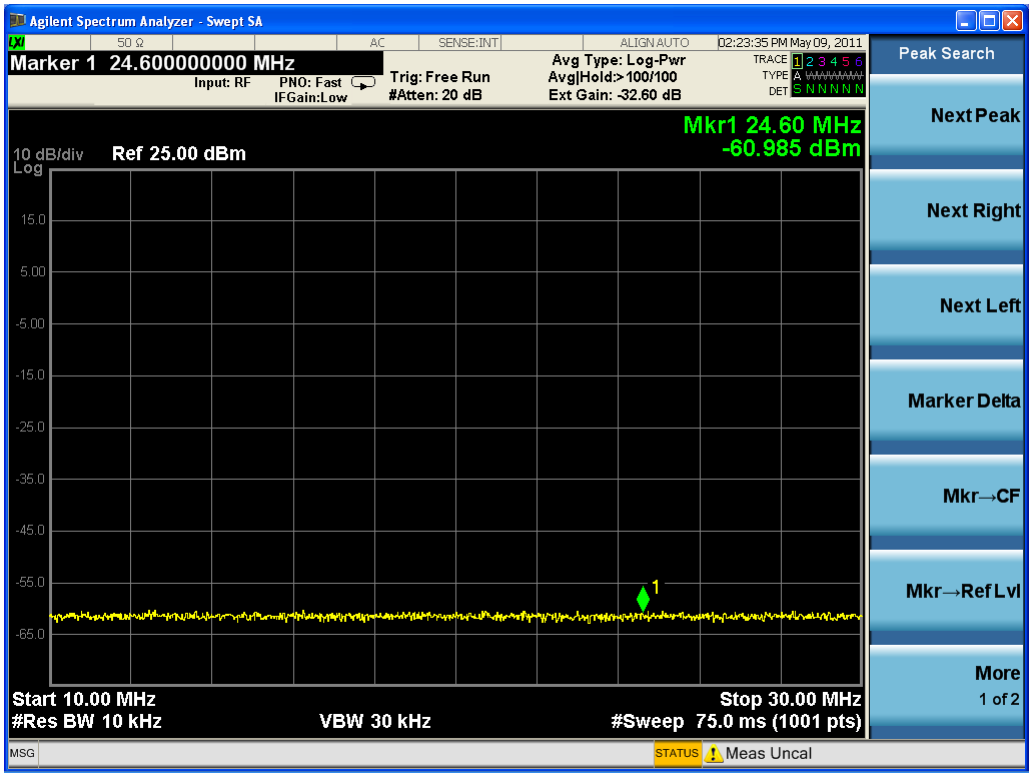
## Test Result: Pass

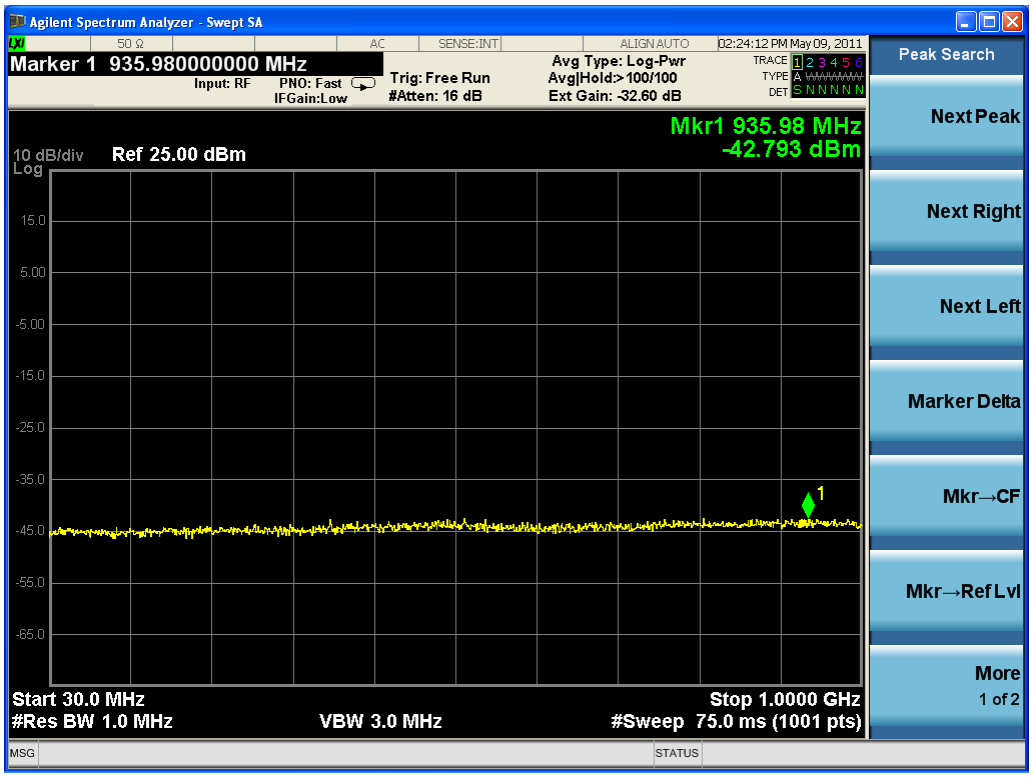
## Test Mode: Transmitting GSM

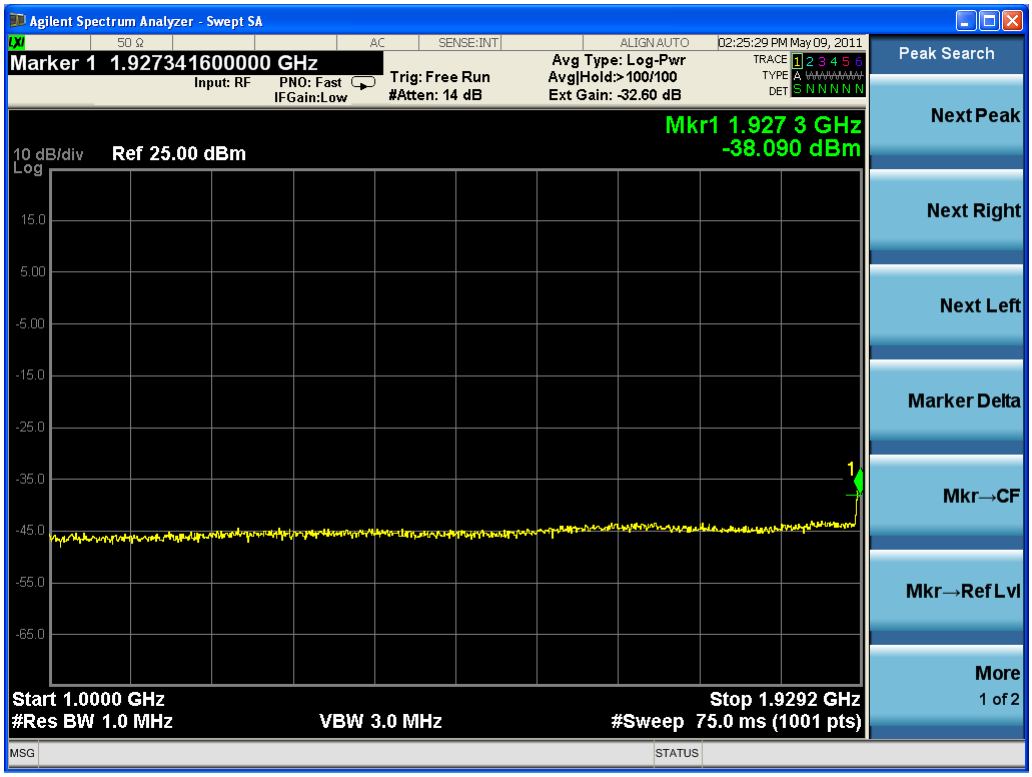
## Test Data:

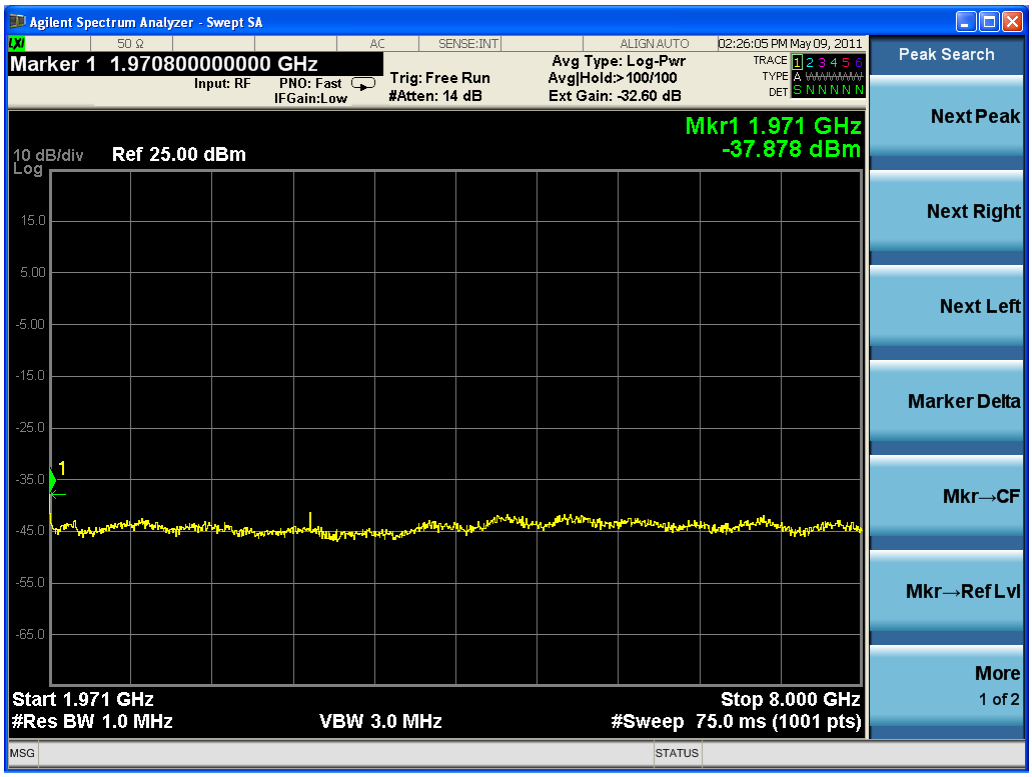
Six Carriers


Agilent Spectrum Analyzer - Swept SA
50 Ω
DC
SENSE:INT
ALIGN AUTO
02:23:00 PM May 09, 2011
Marker 1 199.250000 kHz
Input: RF
PNO: Far
IFGain:Low
Trig: Free Run
#Atten: 26 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S N N N N N
Mkr1 199.25 kHz
-46.997 dBm
10 dB/div
Log
Ref 25.00 dBm
15.0
5.00
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
1
Start 150 kHz
#Res BW 10 kHz
VBW 30 kHz
Stop 10.000 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS
Meas Uncal

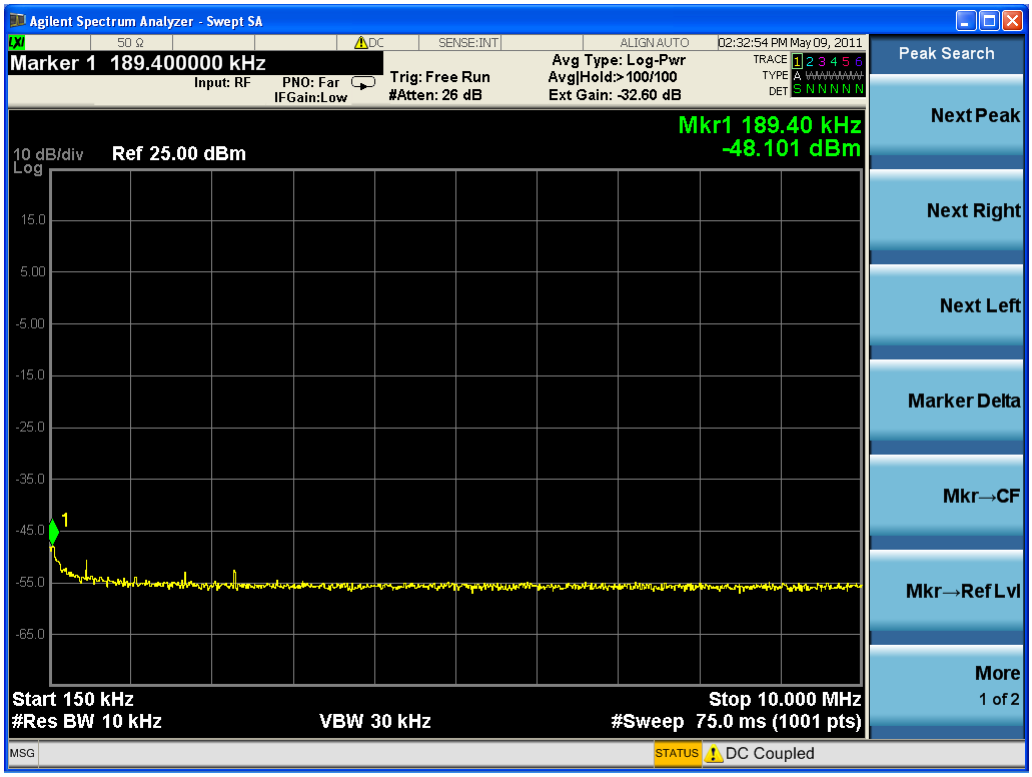

Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:INT
ALIGN AUTO
02:23:35 PM May 09, 2011
Marker 1 24.600000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S N N N N N
Mkr1 24.60 MHz
-60.985 dBm
10 dB/div
Log
Ref 25.00 dBm
15.0
5.00
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
1
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS
Meas Uncal

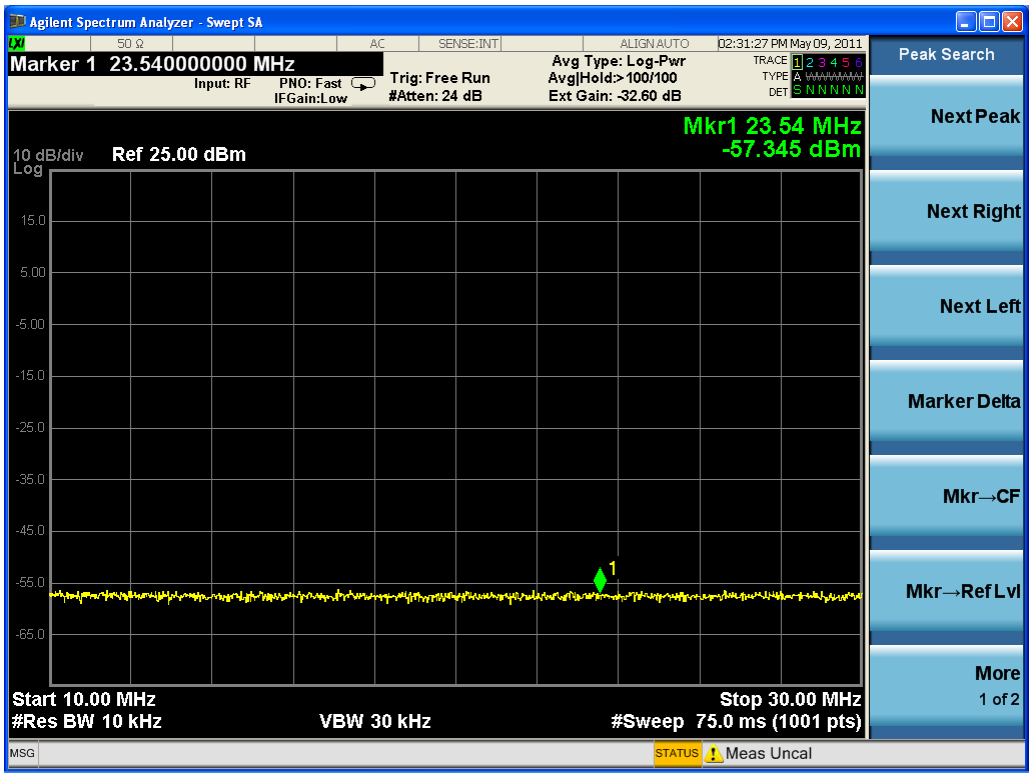

Agilent Spectrum Analyzer - Swept SA
Marker 1 935.980000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 16 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:24:12 PM May 09, 2011
Mkr1 935.98 MHz -42.793 dBm
10 dB/div Log
Ref 25.00 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

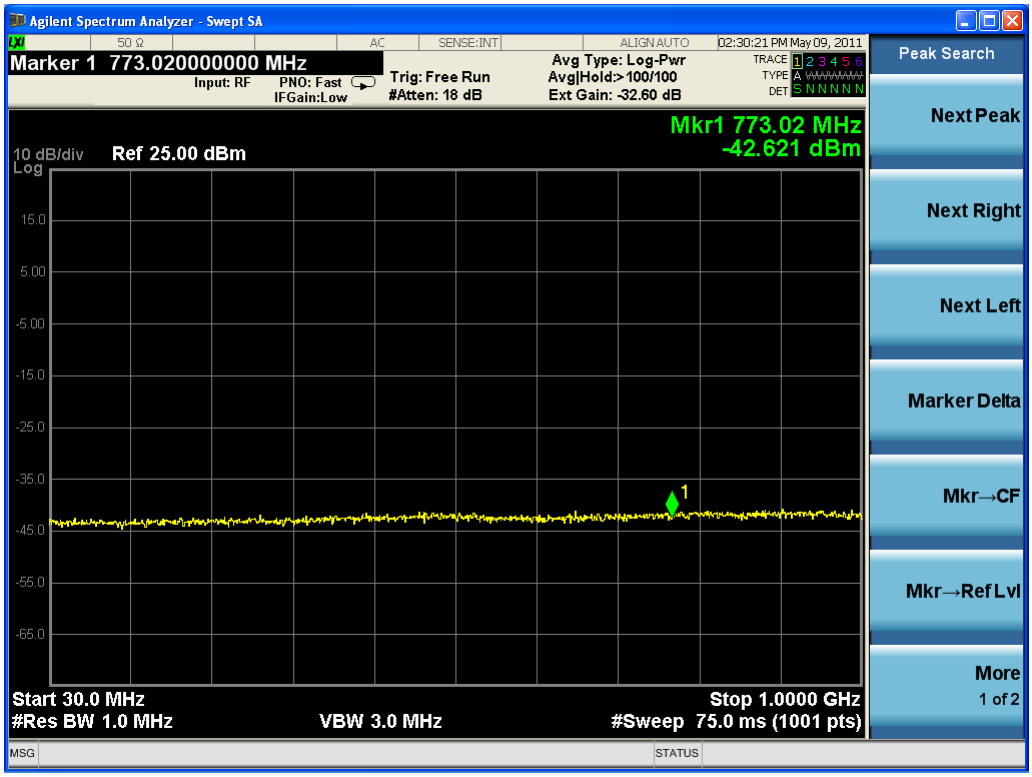

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.927341600000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:25:29 PM May 09, 2011
Mkr1 1.927 3 GHz -38.090 dBm
10 dB/div Log
Ref 25.00 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

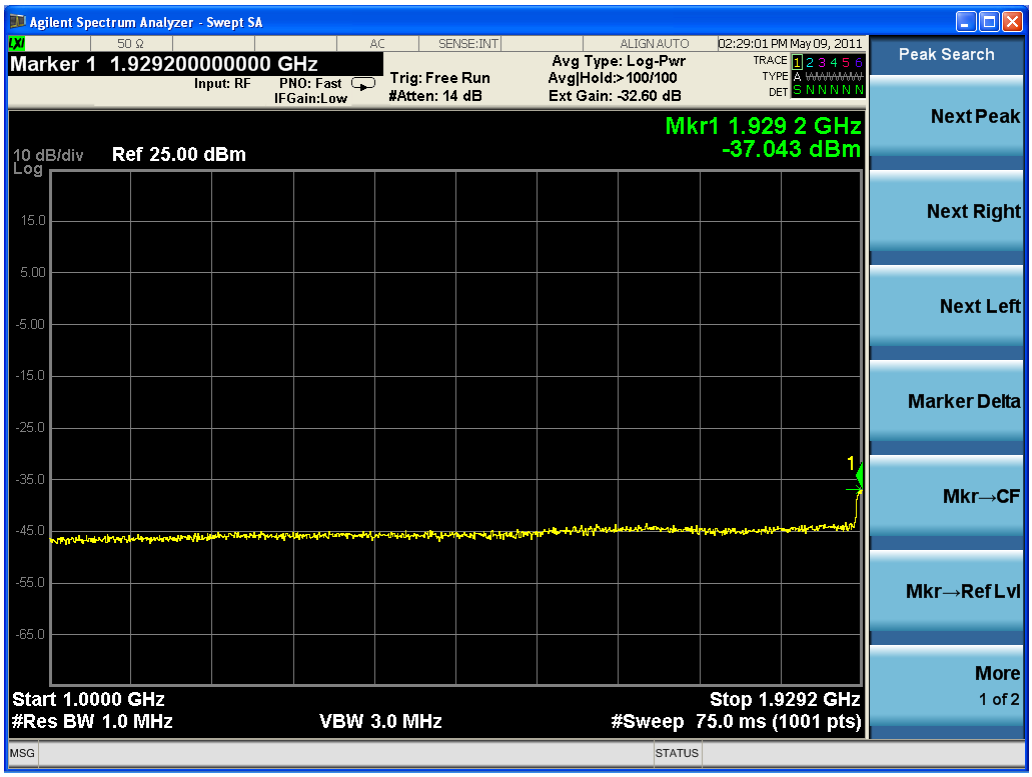

Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:INT
ALIGN AUTO
02:26:05 PM May 09, 2011
Marker 1 1.970800000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 14 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S N N N N N
Mkr1 1.971 GHz
-37.878 dBm
10 dB/div
Log
Ref 25.00 dBm
15.0
5.00
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-65.0
1
Start 1.971 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

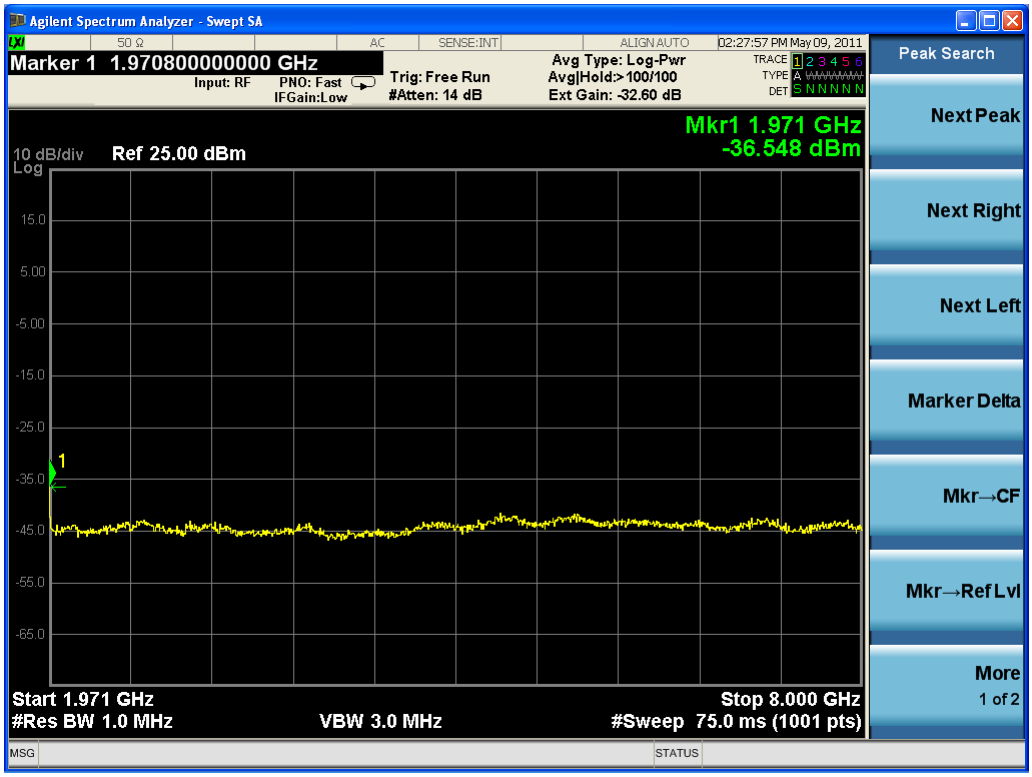
Five carriers

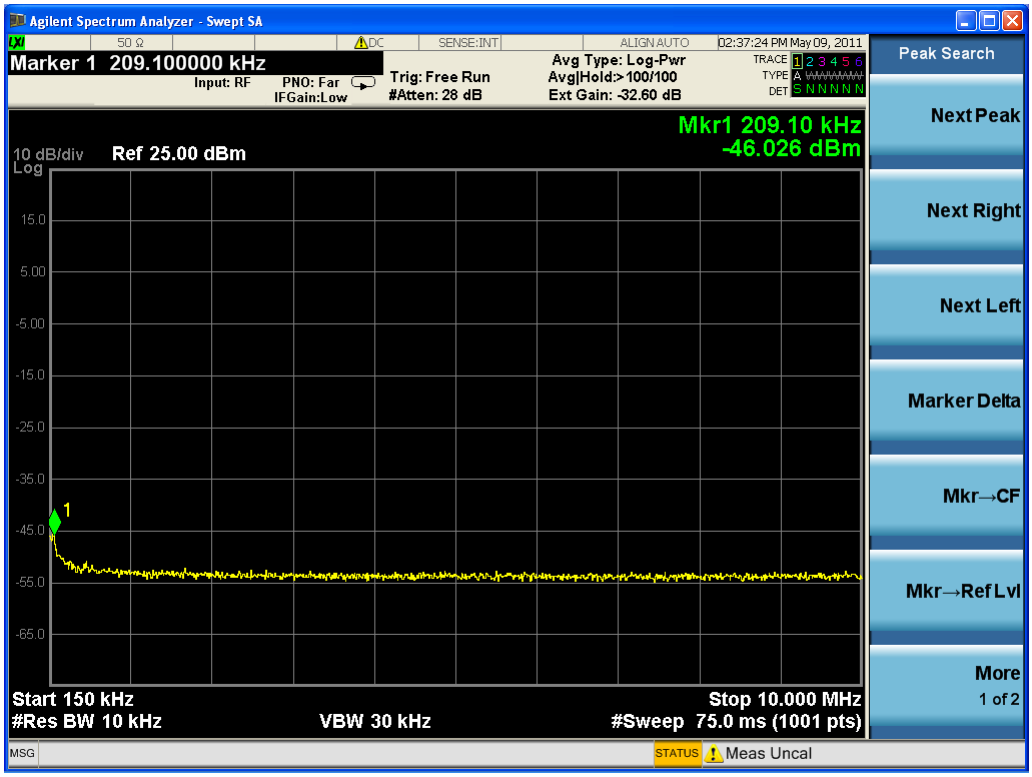

Agilent Spectrum Analyzer - Swept SA
Marker 1 23.540000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
02:31:27 PM May 09, 2011
Mkr1 23.54 MHz
-57.345 dBm
10 dB/div
Log
Ref 25.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Meas Uncal

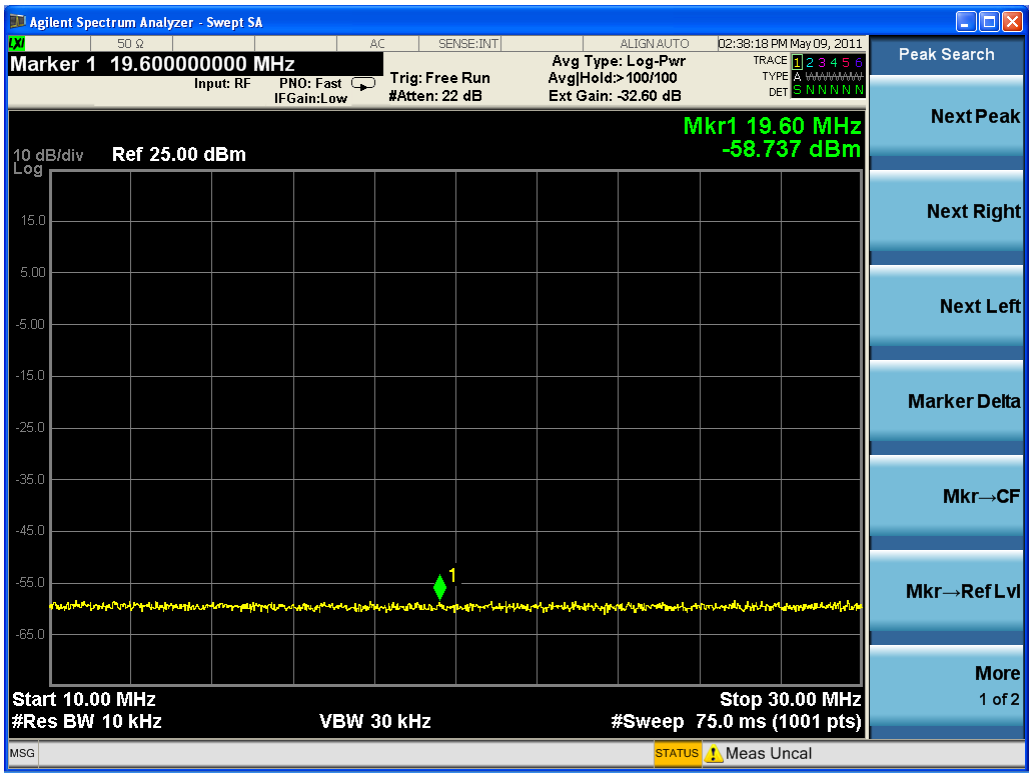

Agilent Spectrum Analyzer - Swept SA
Marker 1 773.020000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 18 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
02:30:21 PM May 09, 2011
Mkr1 773.02 MHz
-42.621 dBm
10 dB/div
Log
Ref 25.00 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

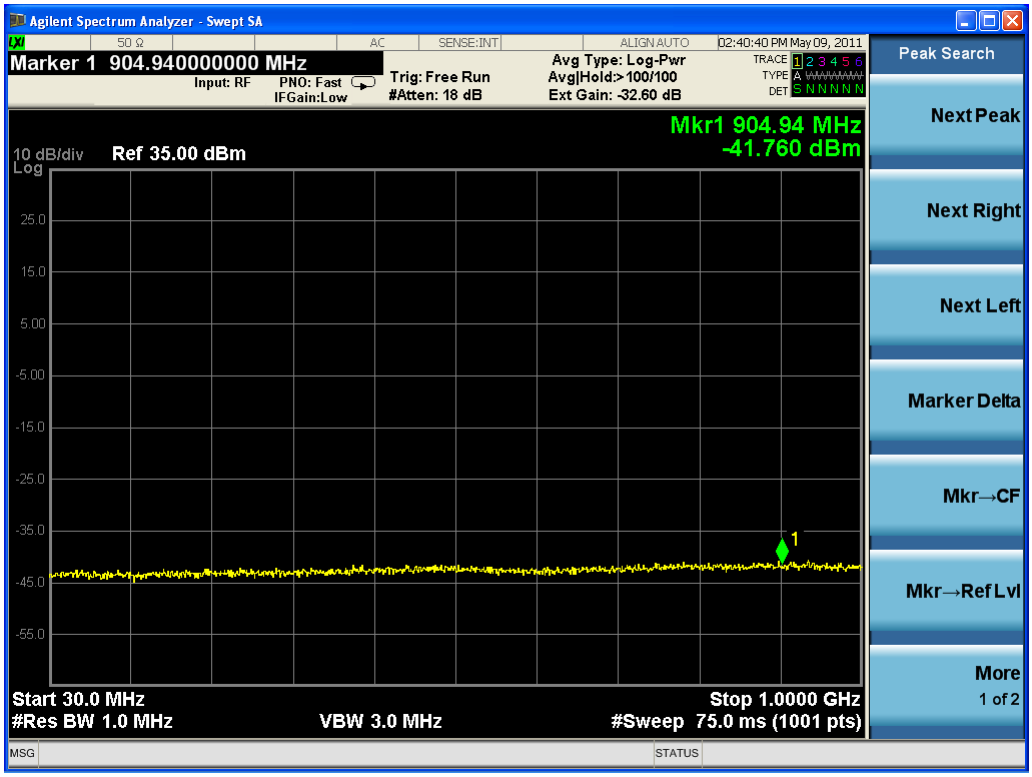

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929200000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:29:01 PM May 09, 2011
Mkr1 1.929 2 GHz -37.043 dBm
10 dB/div Log
Ref 25.00 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

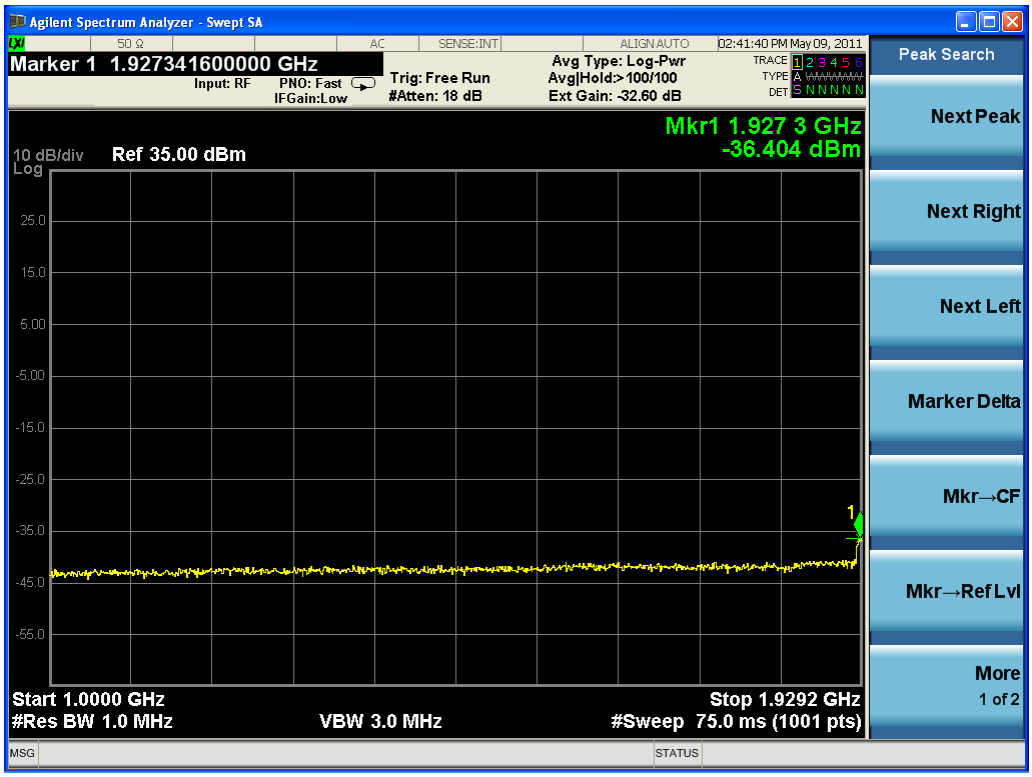

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.970800000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:27:57 PM May 09, 2011
Mkr1 1.971 GHz -36.548 dBm
10 dB/div Log
Ref 25.00 dBm
Start 1.971 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

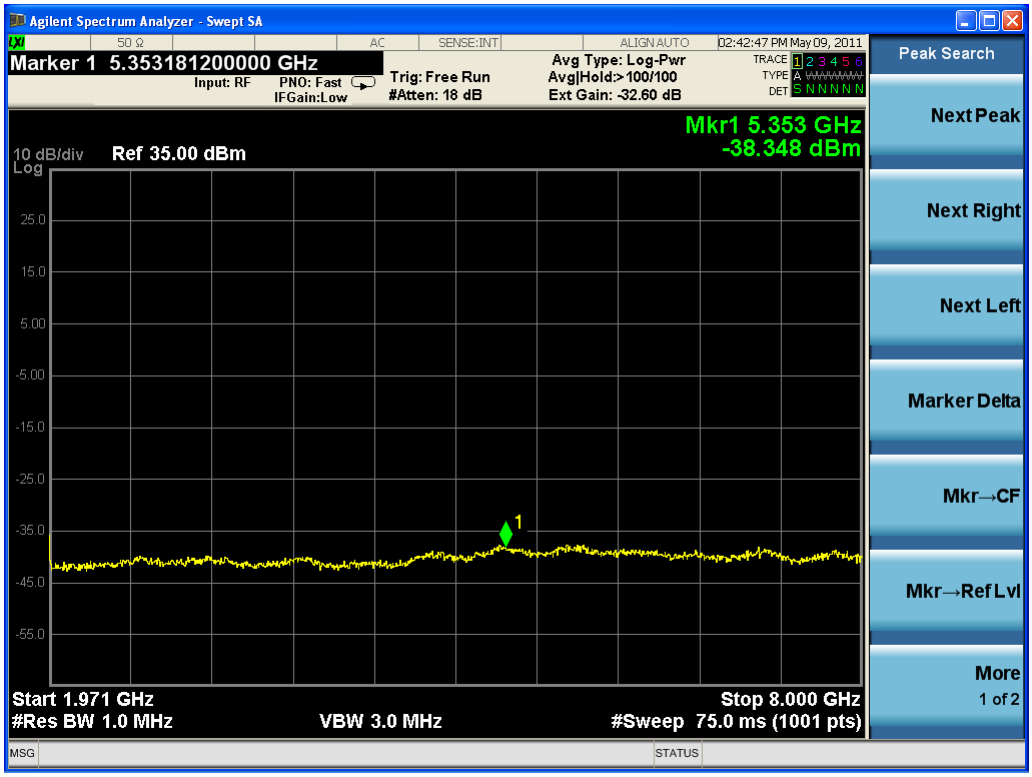
Four Carriers

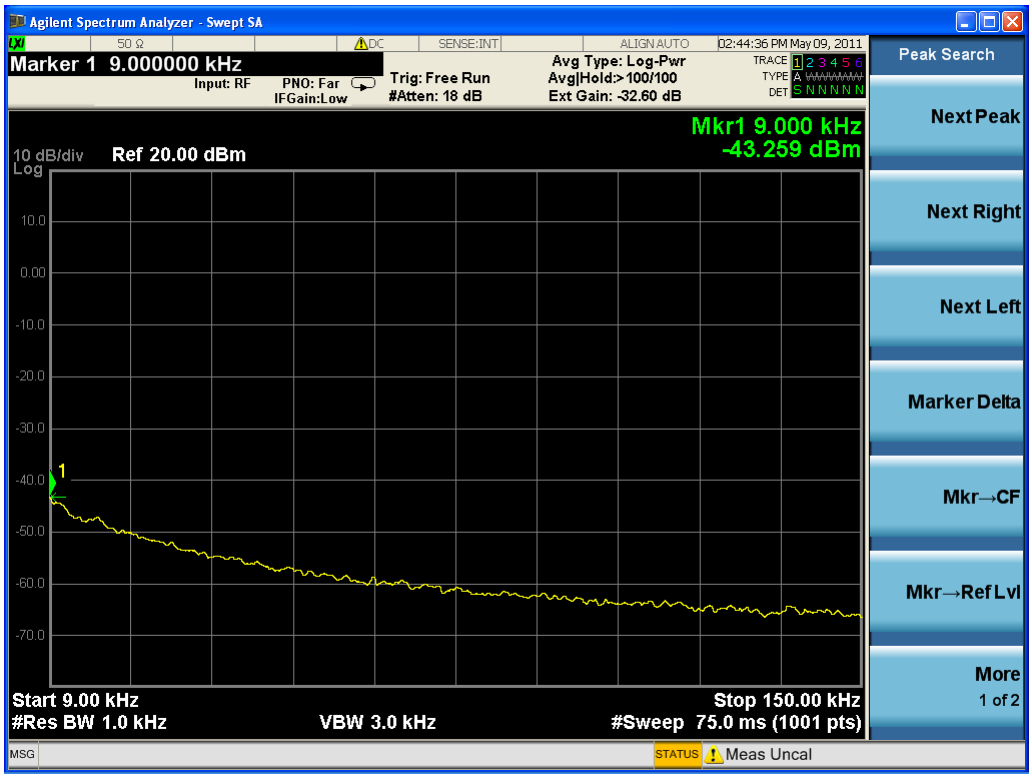

Agilent Spectrum Analyzer - Swept SA
Marker 1 19.600000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 22 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:38:18 PM May 09, 2011
Mkr1 19.60 MHz -58.737 dBm
10 dB/div Log
Ref 25.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
Meas Uncal

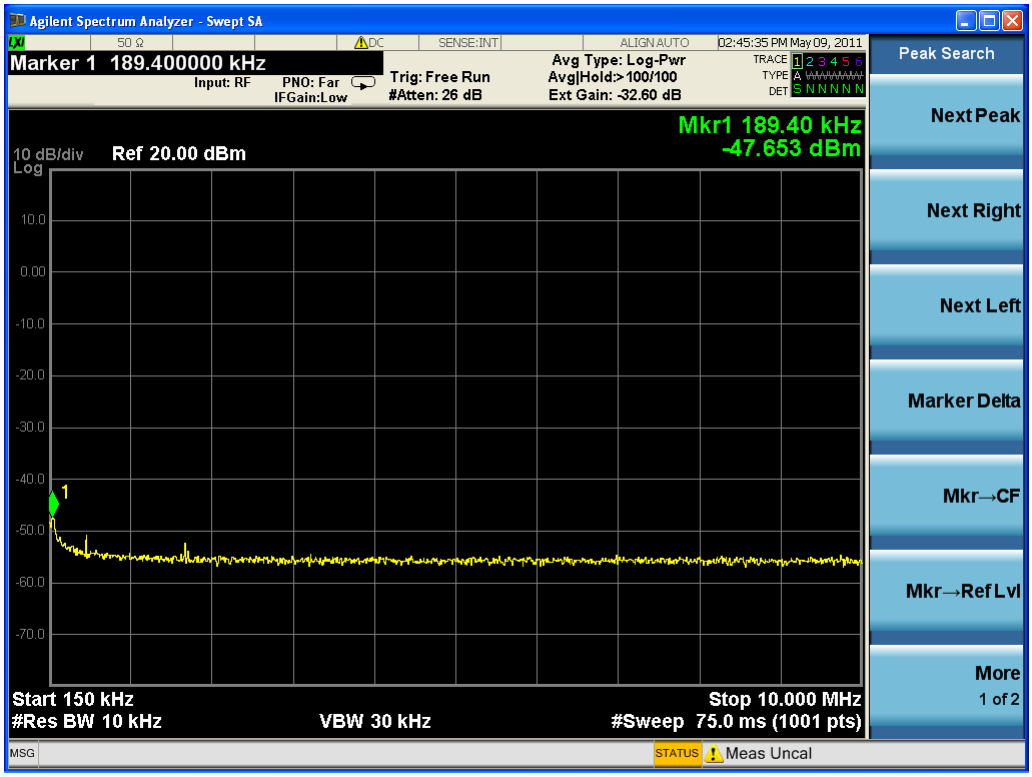

Agilent Spectrum Analyzer - Swept SA
Marker 1 904.940000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:40:40 PM May 09, 2011
Mkr1 904.94 MHz -41.760 dBm
10 dB/div Log
Ref 35.00 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

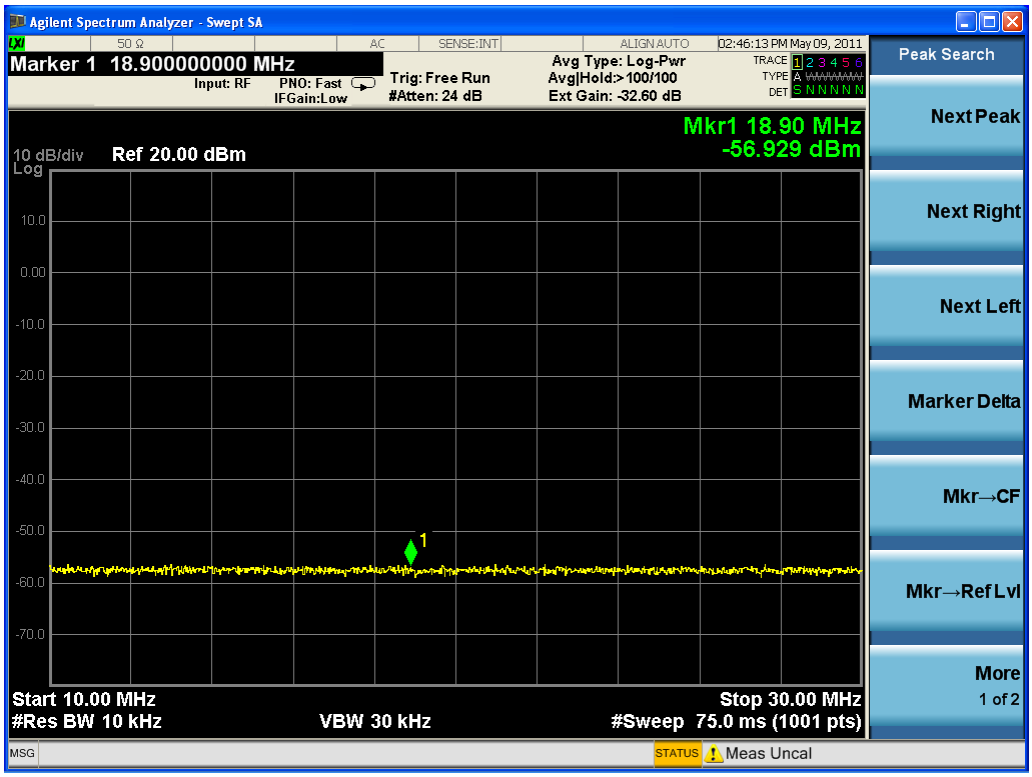

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.927341600000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:41:40 PM May 09, 2011
Mkr1 1.927 3 GHz -36.404 dBm
10 dB/div Log
Ref 35.00 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

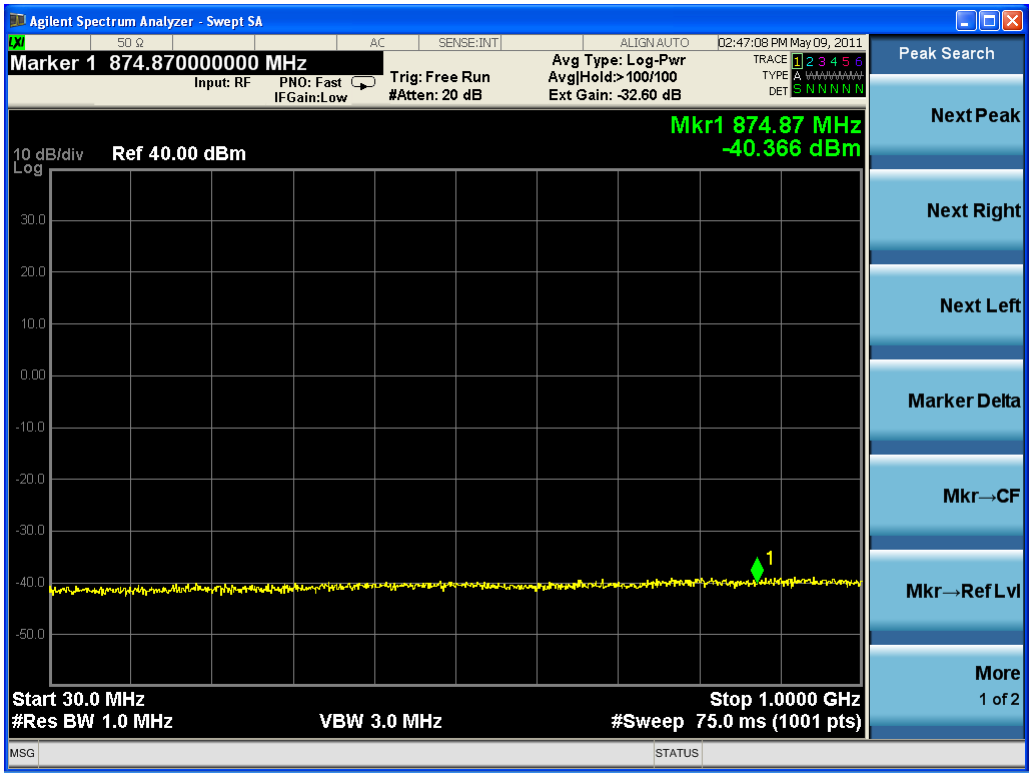

Agilent Spectrum Analyzer - Swept SA
Marker 1 5.353181200000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:42:47 PM May 09, 2011
Mkr1 5.353 GHz -38.348 dBm
10 dB/div Log
Ref 35.00 dBm
Start 1.971 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

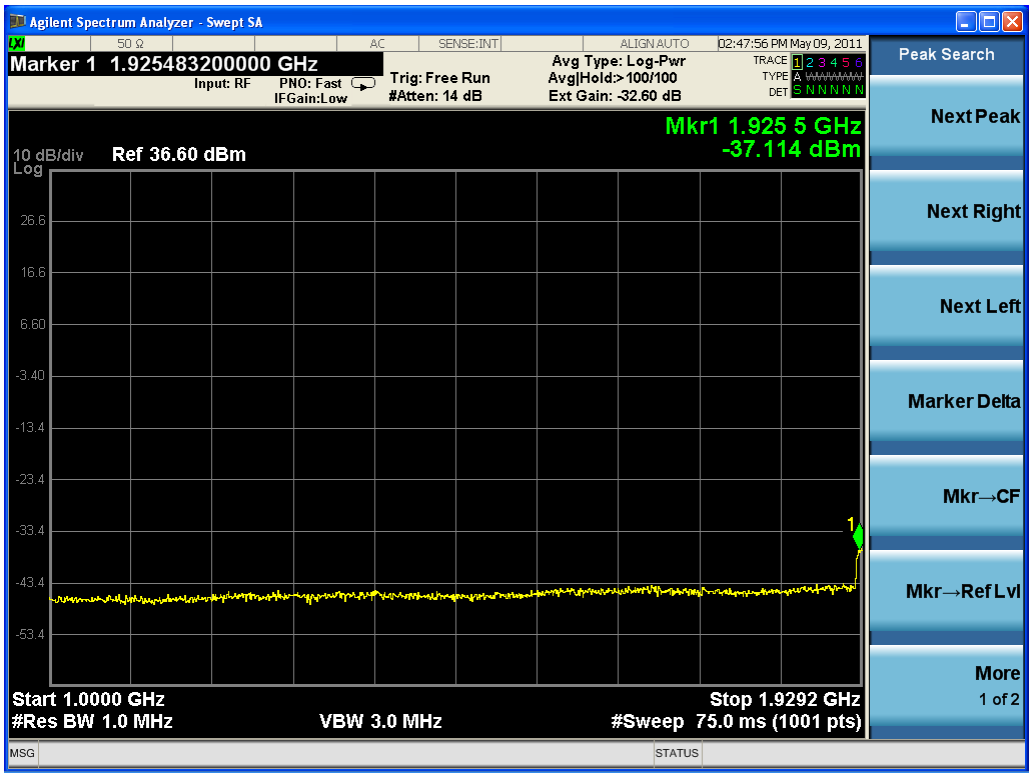
Three carriers

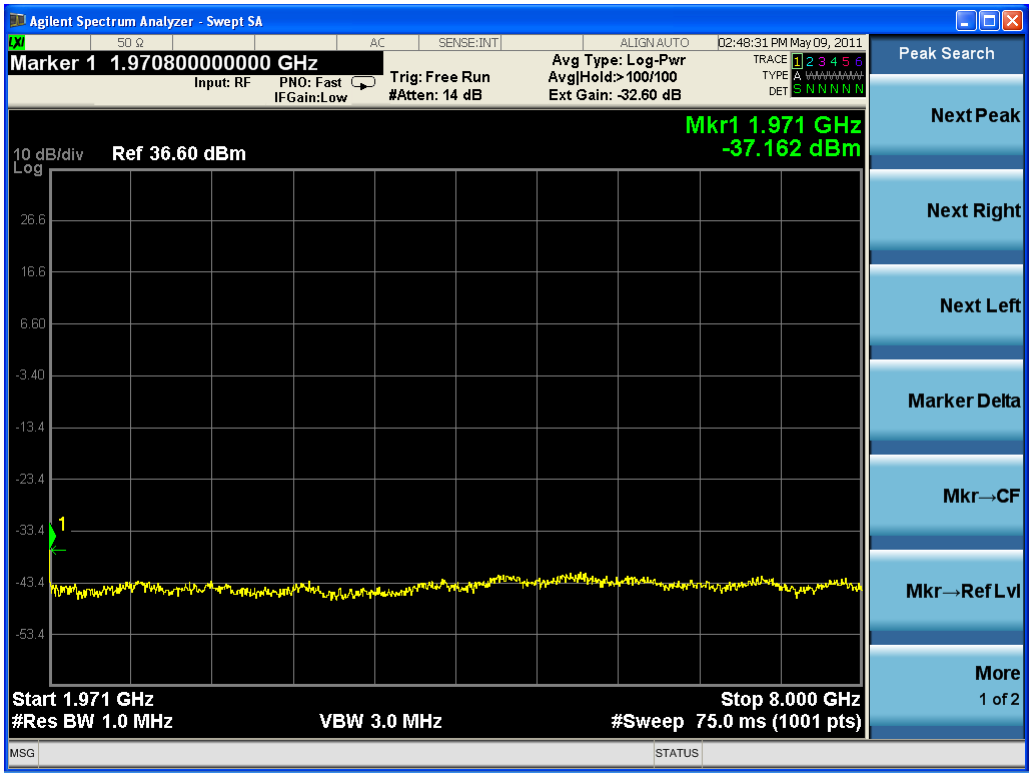


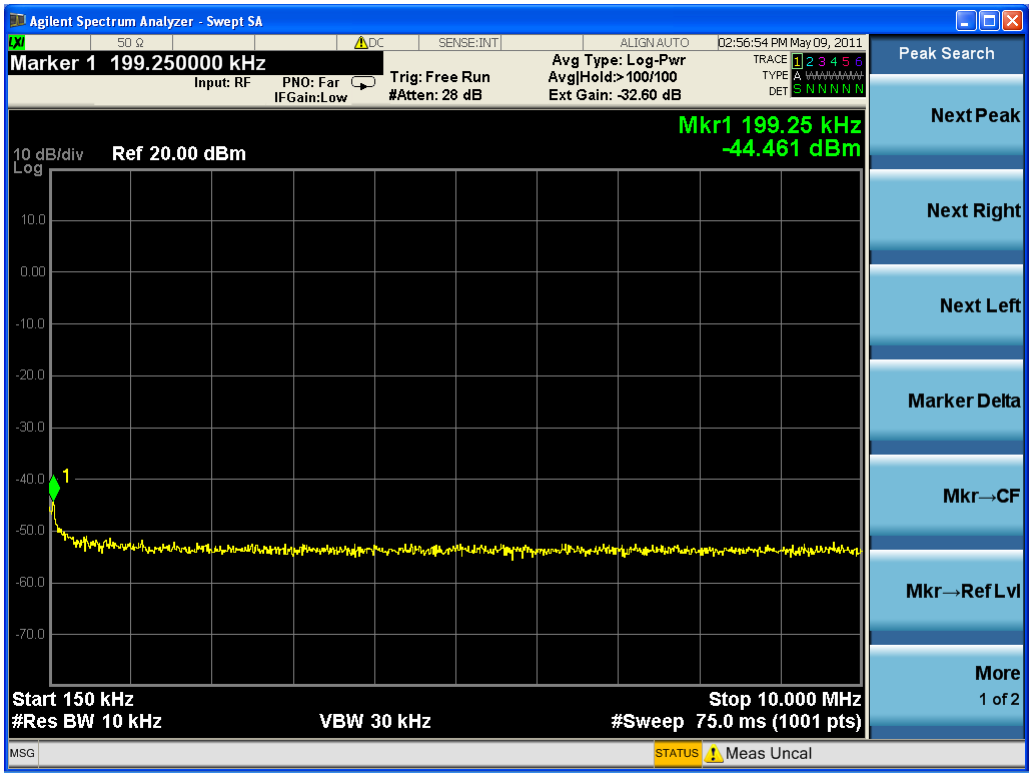

Agilent Spectrum Analyzer - Swept SA
Marker 1 18.900000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 24 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:46:13 PM May 09, 2011
Mkr1 18.90 MHz -56.929 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
Meas Uncal

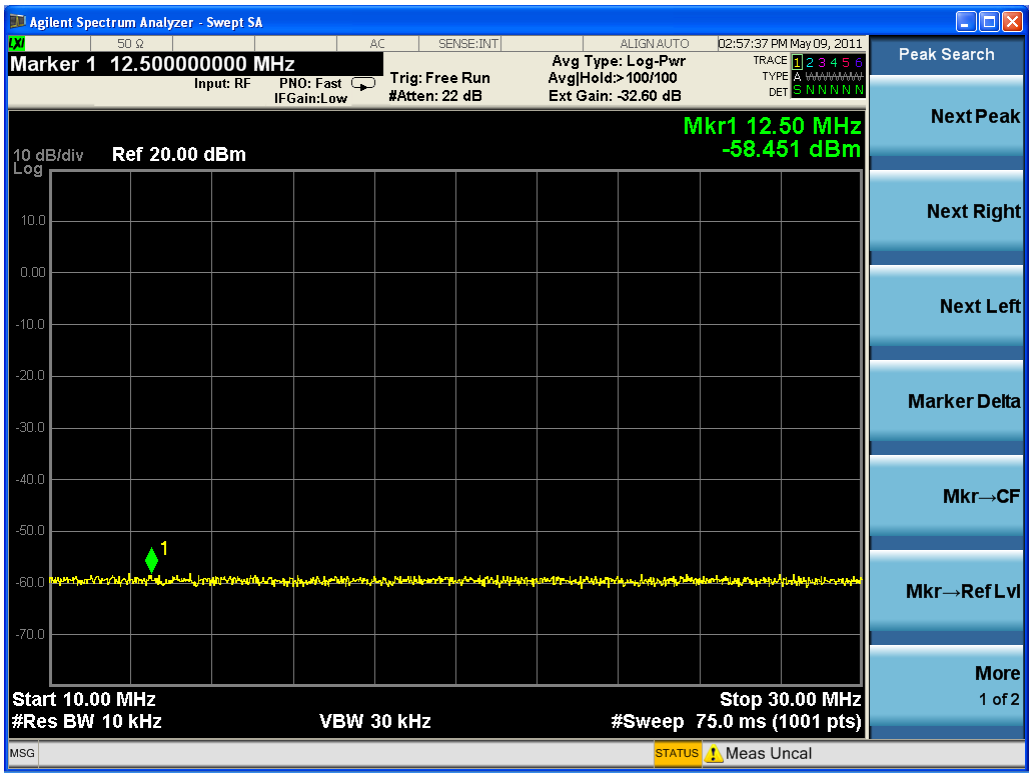

Agilent Spectrum Analyzer - Swept SA
Marker 1 874.870000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 20 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:47:08 PM May 09, 2011
Mkr1 874.87 MHz -40.366 dBm
10 dB/div Log
Ref 40.00 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

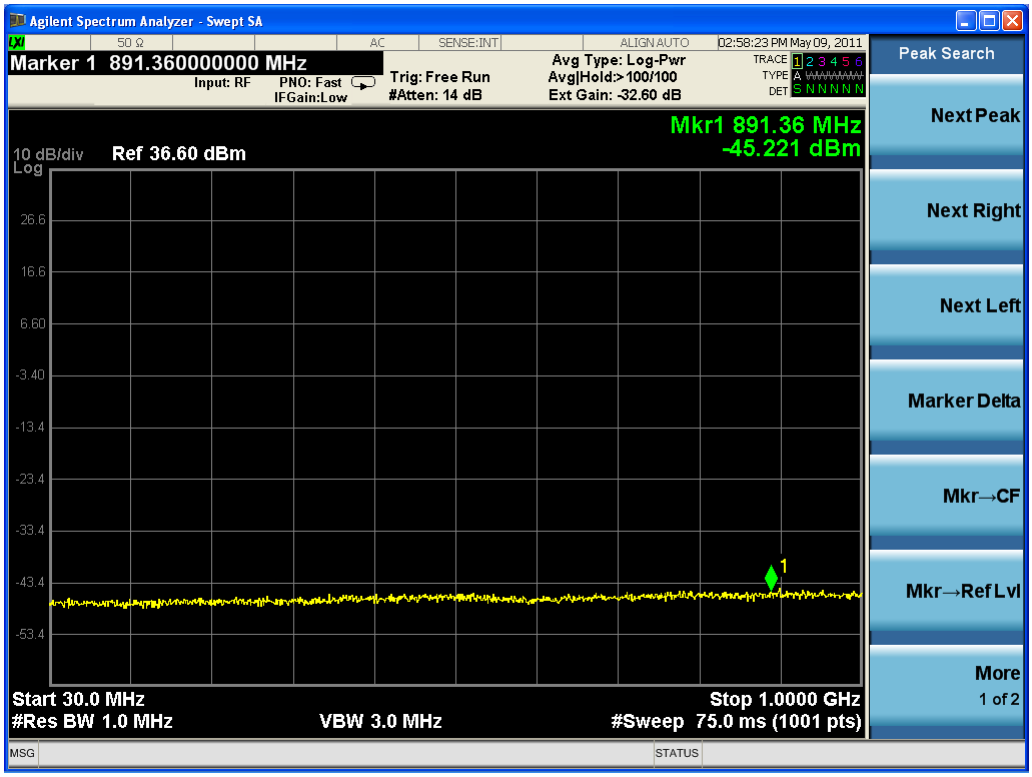

Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:INT
ALIGN AUTO
02:47:56 PM May 09, 2011
Marker 1 1.925483200000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 14 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S N N N N N
Mkr1 1.925 5 GHz
-37.114 dBm
10 dB/div
Log
Ref 36.60 dBm
26.6
16.6
6.60
-3.40
-13.4
-23.4
-33.4
-43.4
-53.4
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 ms (1001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

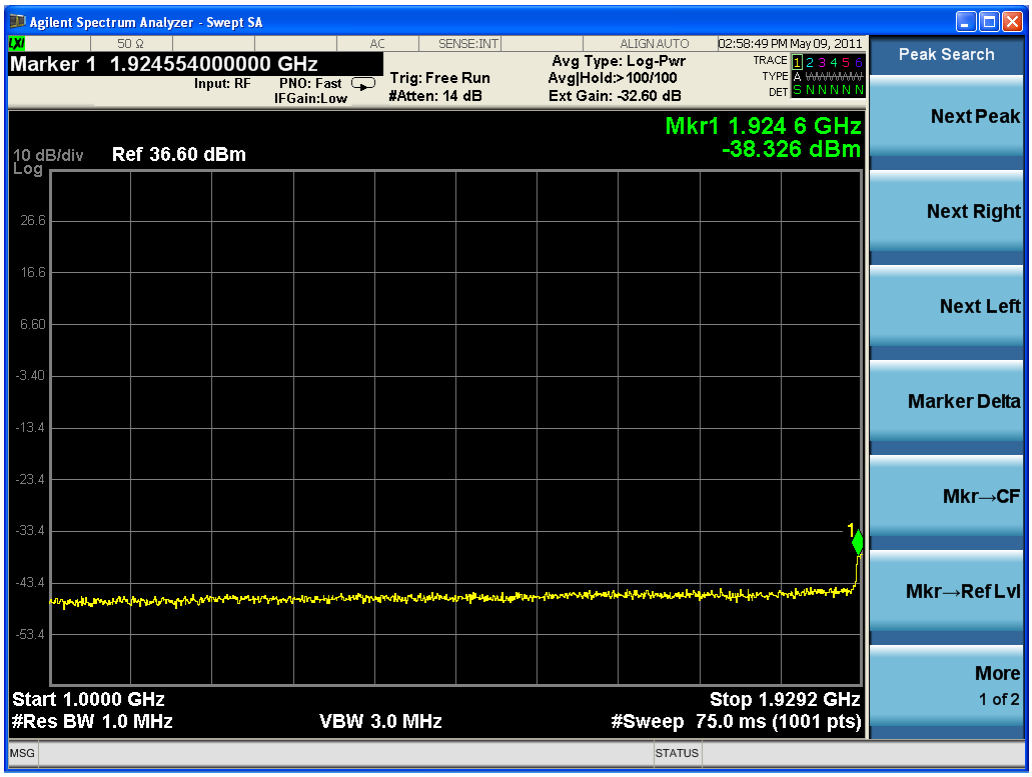

Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:INT
ALIGN AUTO
02:48:31 PM May 09, 2011
Marker 1 1.970800000000 GHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 14 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S N N N N N
Mkr1 1.971 GHz
-37.162 dBm
10 dB/div
Log
Ref 36.60 dBm
26.6
16.6
6.60
-3.40
-13.4
-23.4
-33.4
-43.4
-53.4
Start 1.971 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000 GHz
#Sweep 75.0 ms (1001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

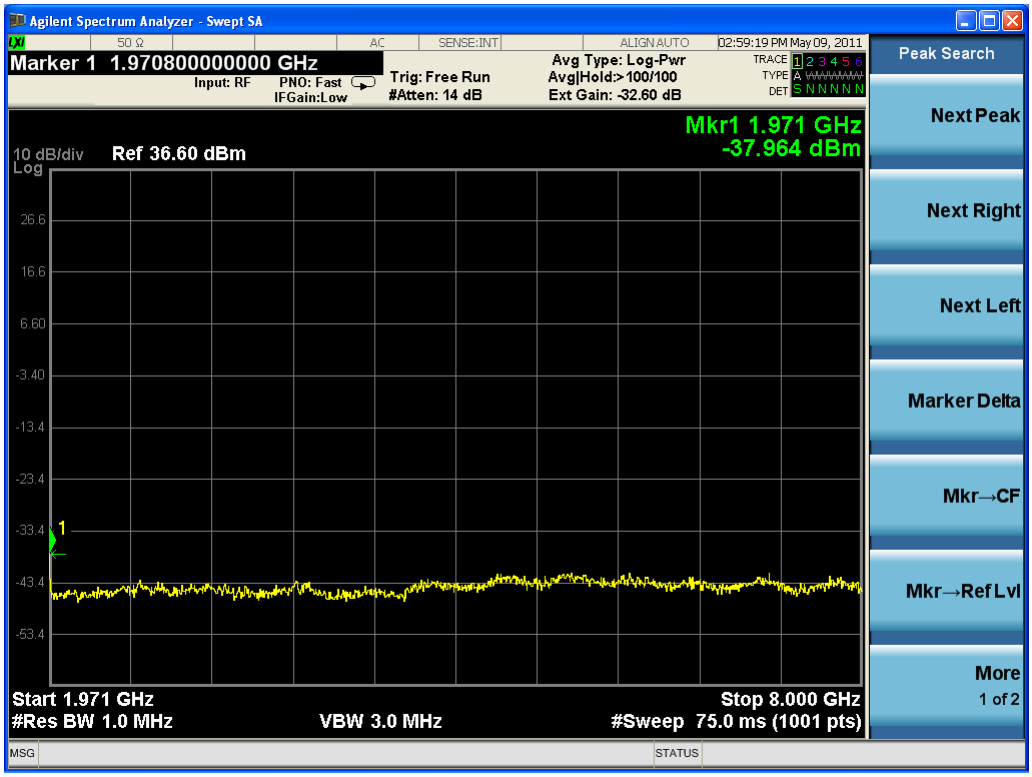
Two carriers

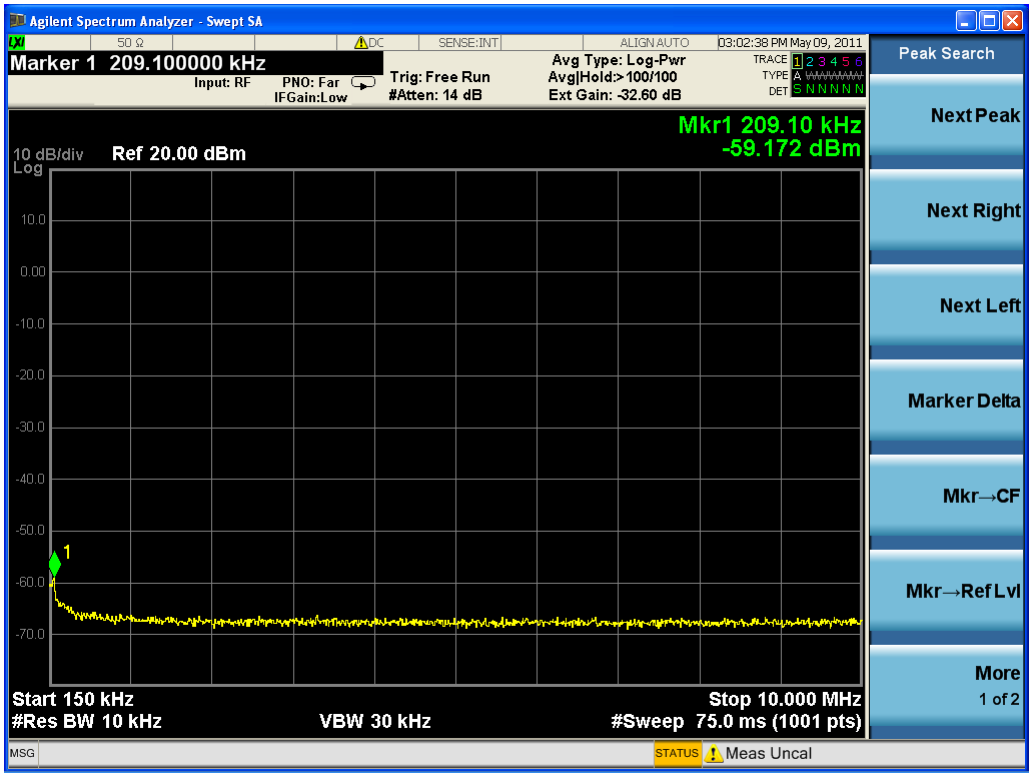

Agilent Spectrum Analyzer - Swept SA
Marker 1 12.500000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 22 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:57:37 PM May 09, 2011
Mkr1 12.50 MHz -58.451 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
Meas Uncal

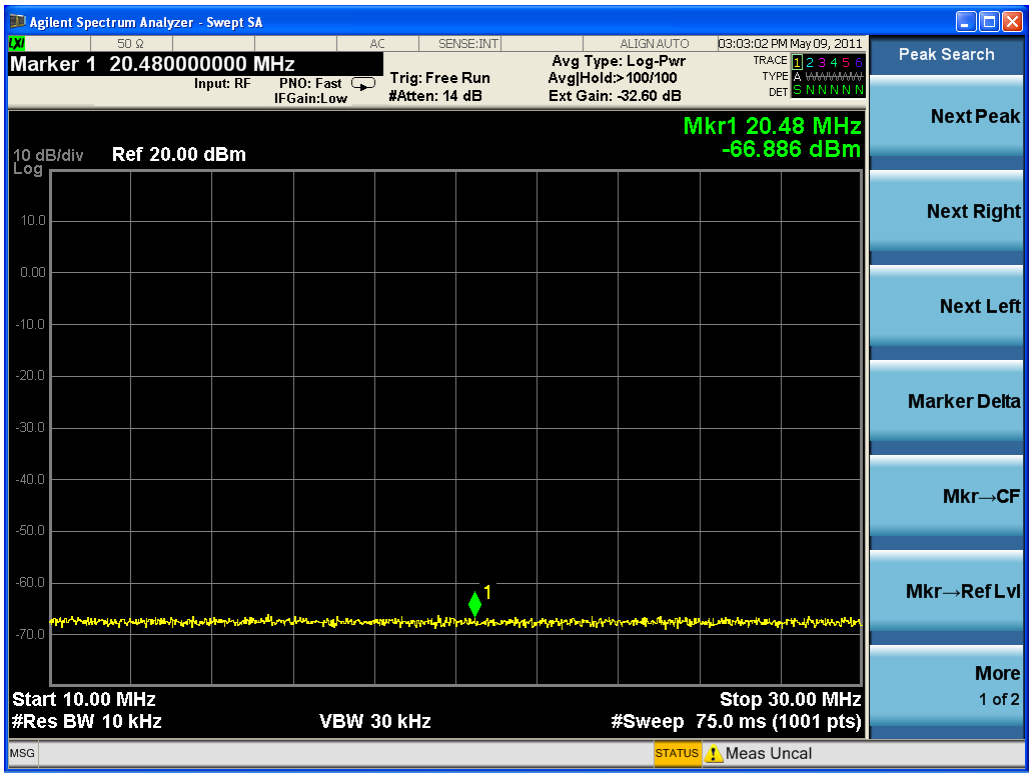

Agilent Spectrum Analyzer - Swept SA
Marker 1 891.360000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:58:23 PM May 09, 2011
Mkr1 891.36 MHz -45.221 dBm
10 dB/div Log
Ref 36.60 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

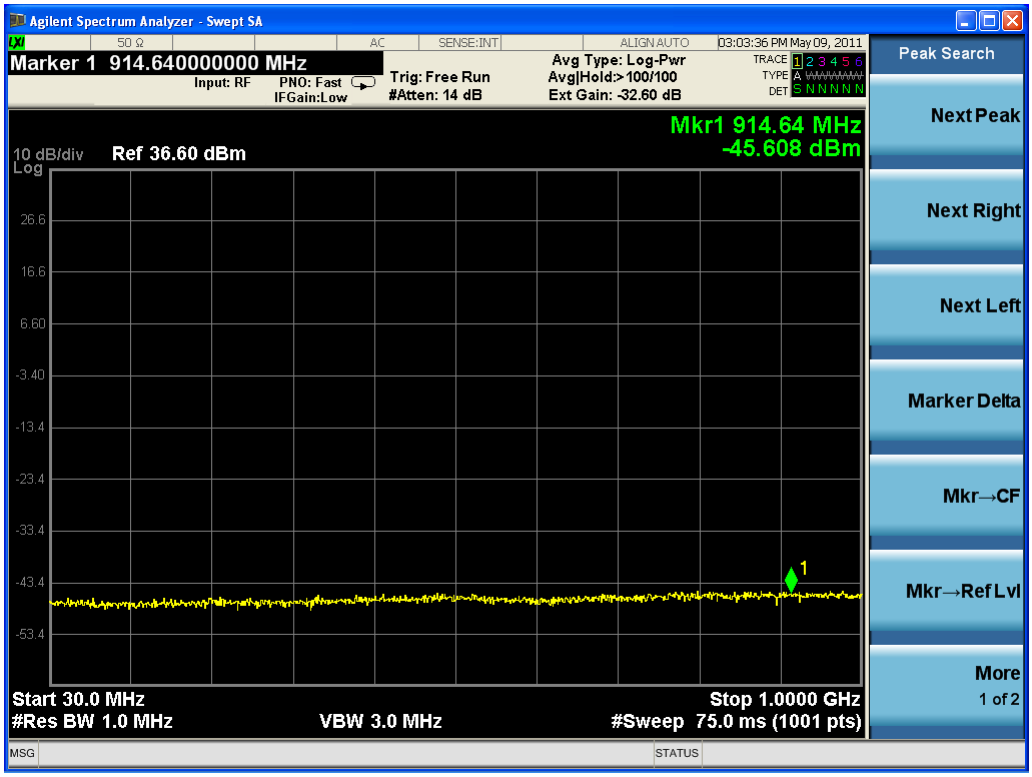

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.924554000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:58:49 PM May 09, 2011
Mkr1 1.924 6 GHz -38.326 dBm
10 dB/div Log
Ref 36.60 dBm
26.6
16.6
6.60
-3.40
-13.4
-23.4
-33.4
-43.4
-53.4
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
MSG
STATUS

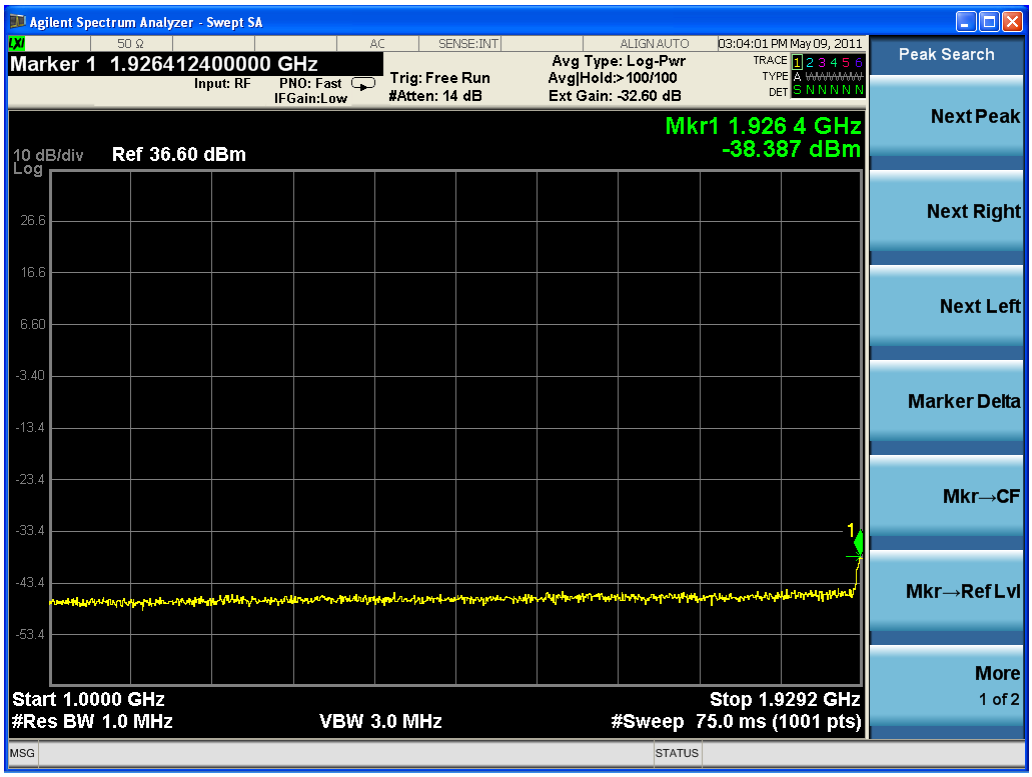

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.970800000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
02:59:19 PM May 09, 2011
Mkr1 1.971 GHz -37.964 dBm
10 dB/div Log
Ref 36.60 dBm
26.6
16.6
6.60
-3.40
-13.4
-23.4
-33.4
-43.4
-53.4
Start 1.971 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
MSG
STATUS

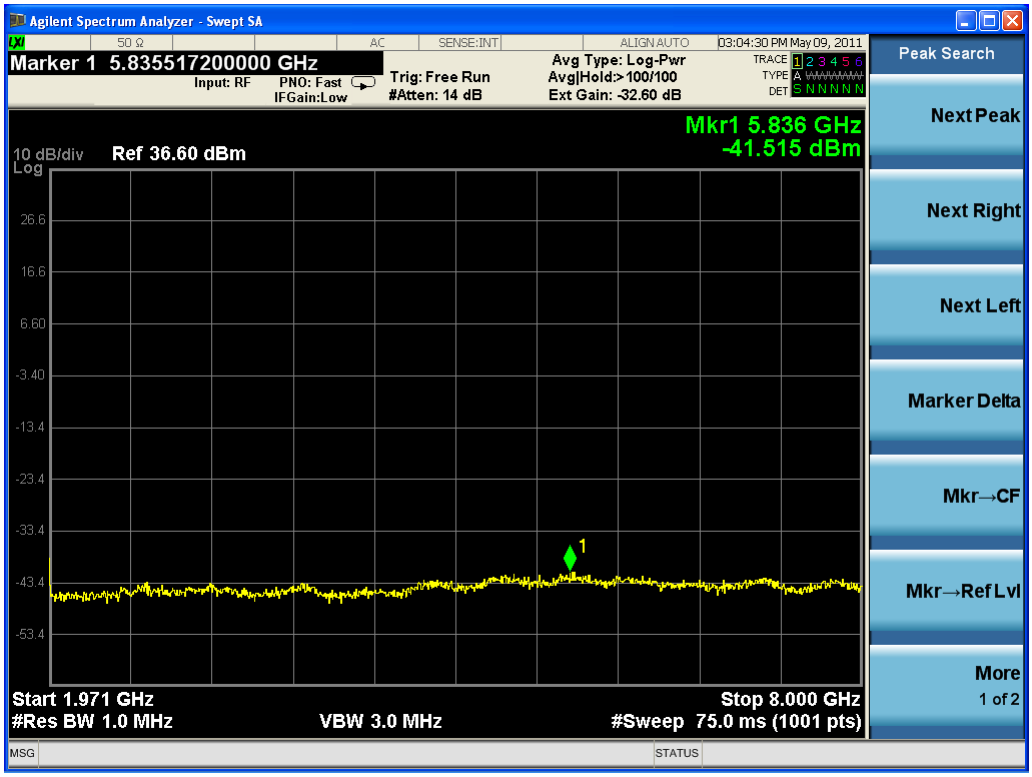
One carrier (working in bottom frequency)

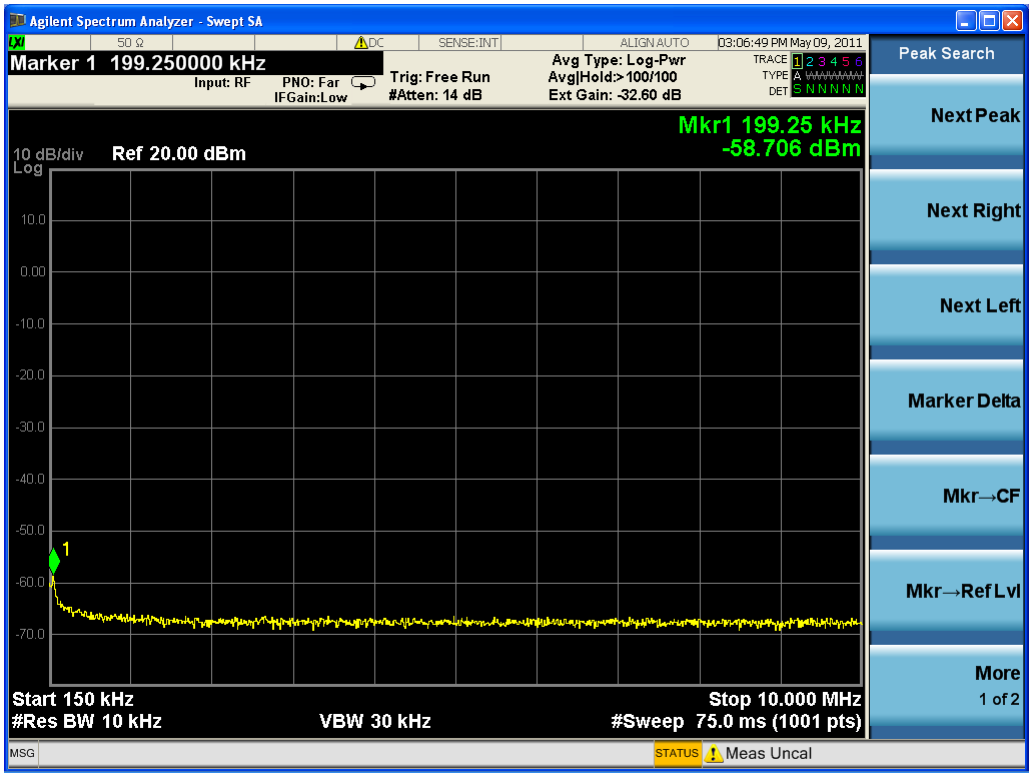

Agilent Spectrum Analyzer - Swept SA
Marker 1 20.480000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:03:02 PM May 09, 2011
Mkr1 20.48 MHz -66.886 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
Meas Uncal

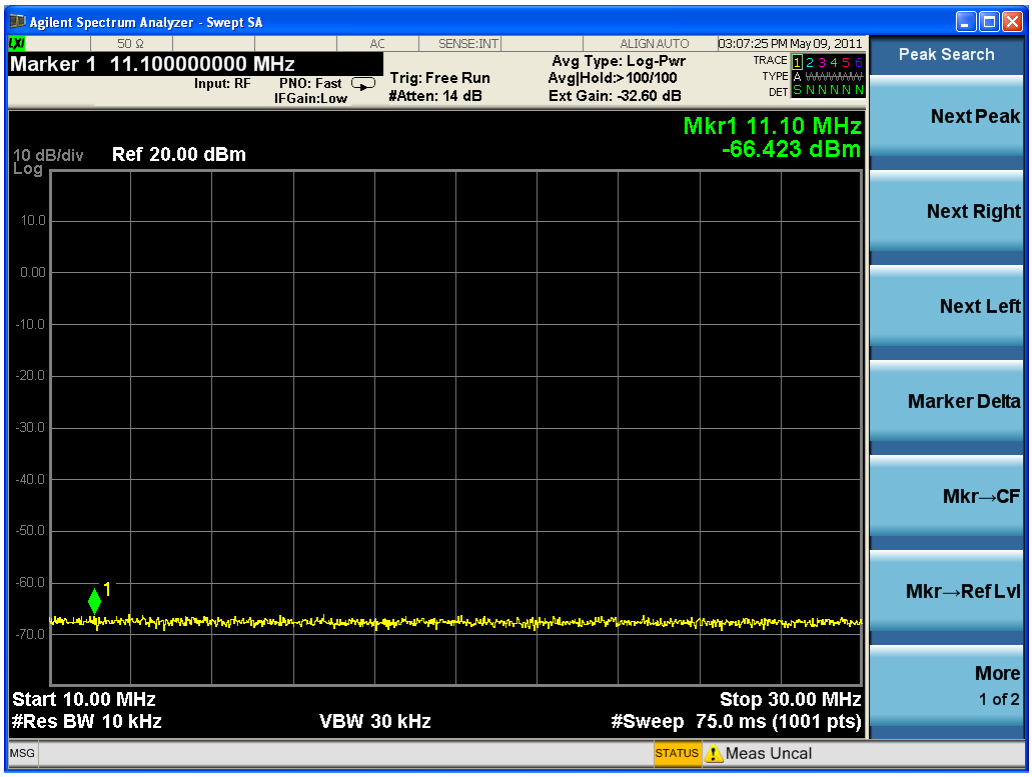

Agilent Spectrum Analyzer - Swept SA
Marker 1 914.640000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:03:36 PM May 09, 2011
Mkr1 914.64 MHz -45.608 dBm
10 dB/div Log
Ref 36.60 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

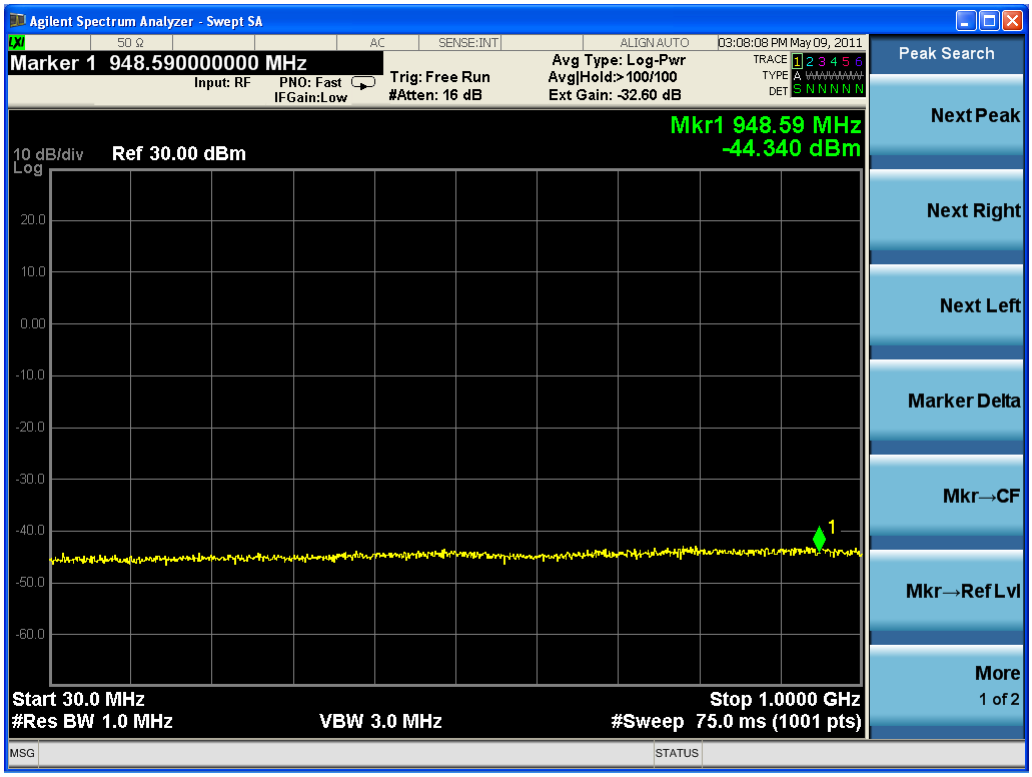

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.926412400000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:04:01 PM May 09, 2011
Mkr1 1.926 4 GHz -38.387 dBm
10 dB/div Log
Ref 36.60 dBm
26.6
16.6
6.60
-3.40
-13.4
-23.4
-33.4
-43.4
-53.4
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
MSG
STATUS

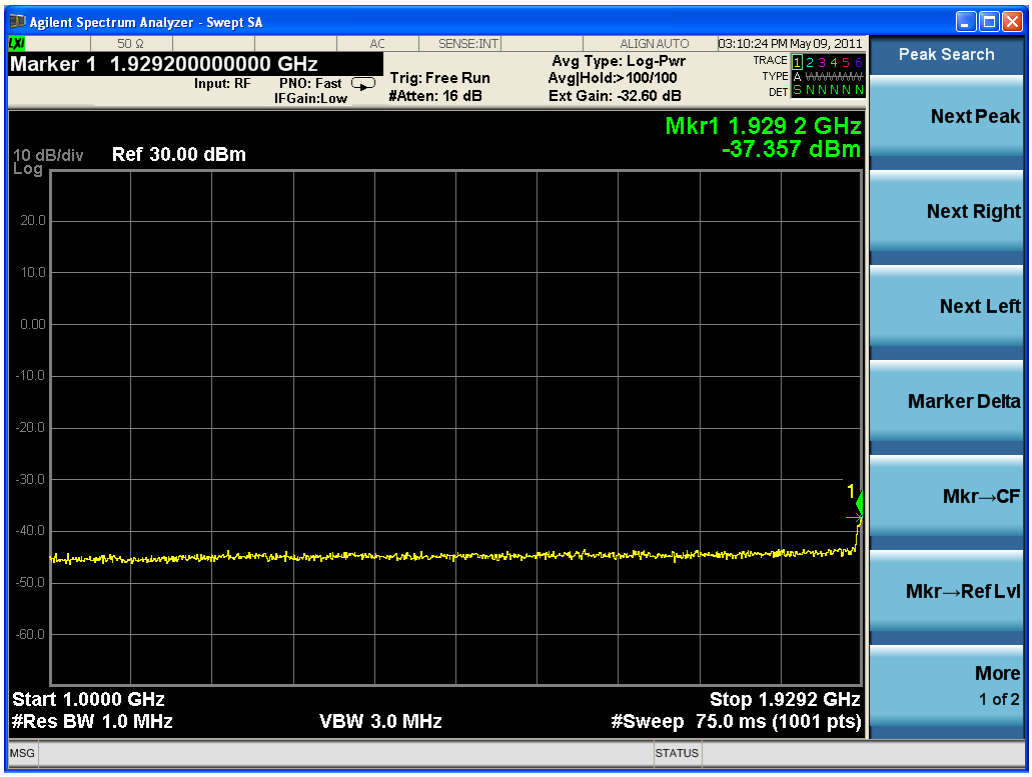

Agilent Spectrum Analyzer - Swept SA
Marker 1 5.835517200000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:04:30 PM May 09, 2011
Mkr1 5.836 GHz -41.515 dBm
10 dB/div Log
Ref 36.60 dBm
26.6
16.6
6.60
-3.40
-13.4
-23.4
-33.4
-43.4
-53.4
Start 1.971 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
MSG
STATUS

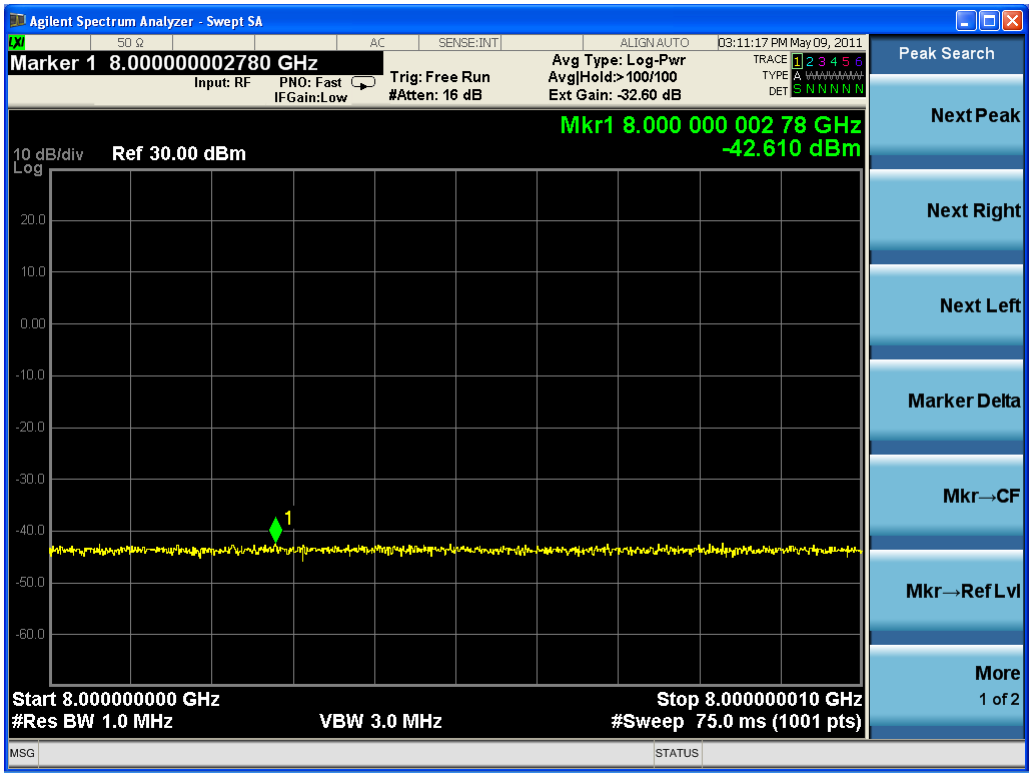
One carrier (working in middle frequency)

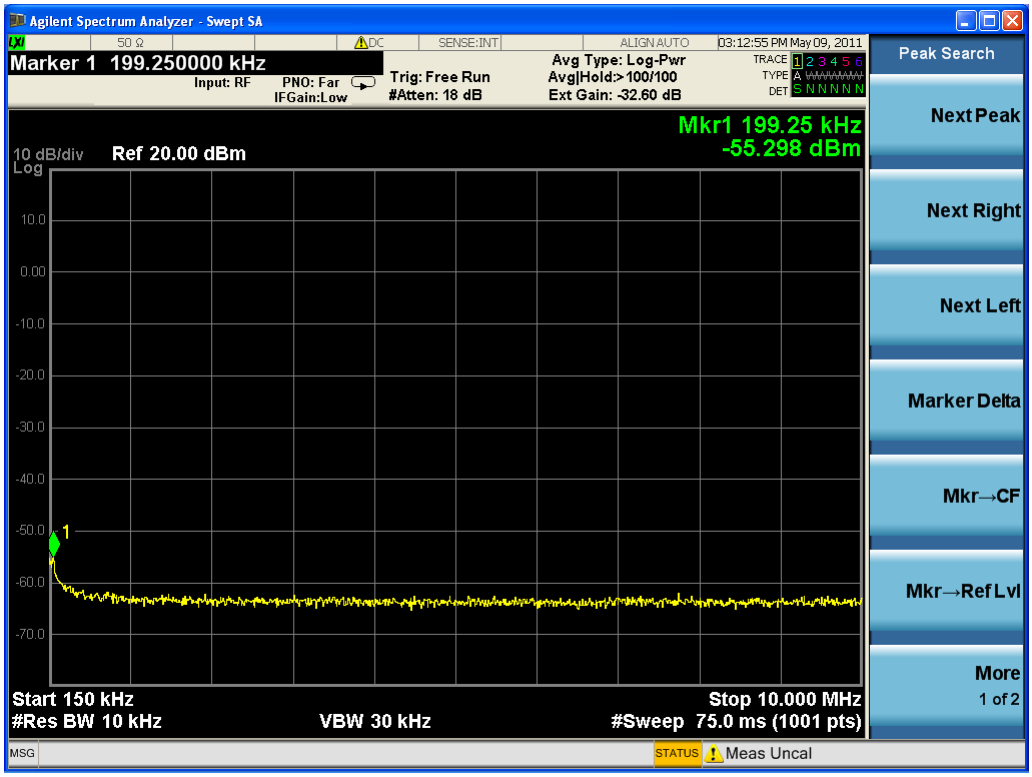

Agilent Spectrum Analyzer - Swept SA
Marker 1 11.100000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 14 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:07:25 PM May 09, 2011
Mkr1 11.10 MHz -66.423 dBm
10 dB/div Log
Ref 20.00 dBm
Start 10.00 MHz
#Res BW 10 kHz
VBW 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
Meas Uncal

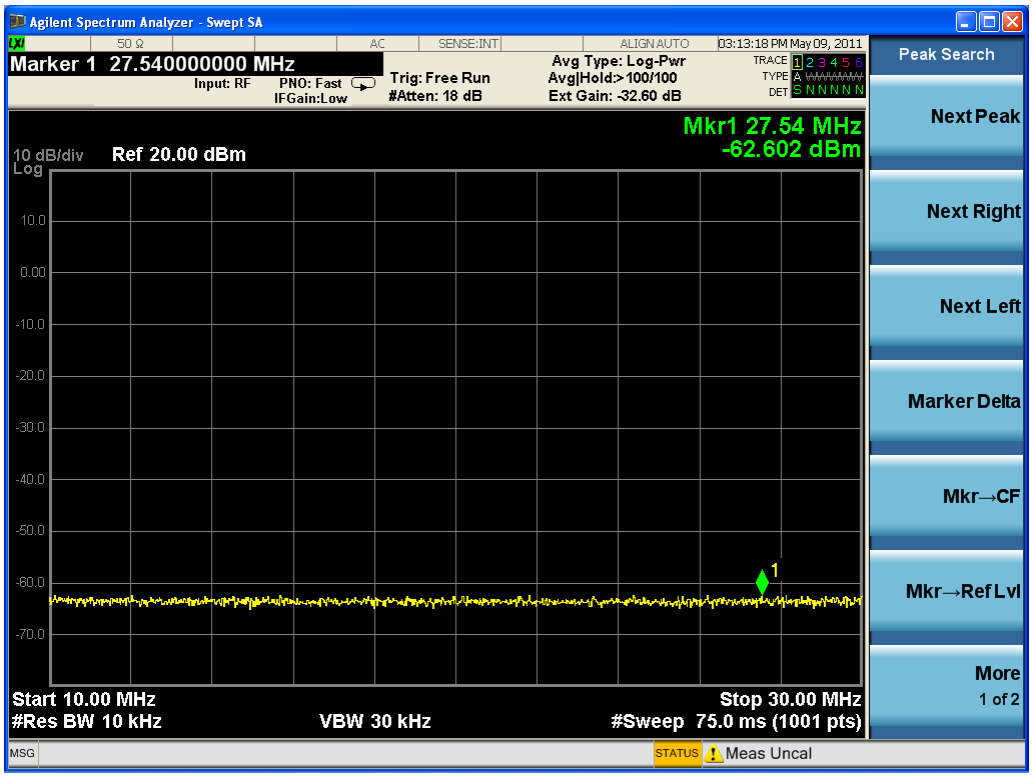

Agilent Spectrum Analyzer - Swept SA
Marker 1 948.590000000 MHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 16 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:08:08 PM May 09, 2011
Mkr1 948.59 MHz -44.340 dBm
10 dB/div Log
Ref 30.00 dBm
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

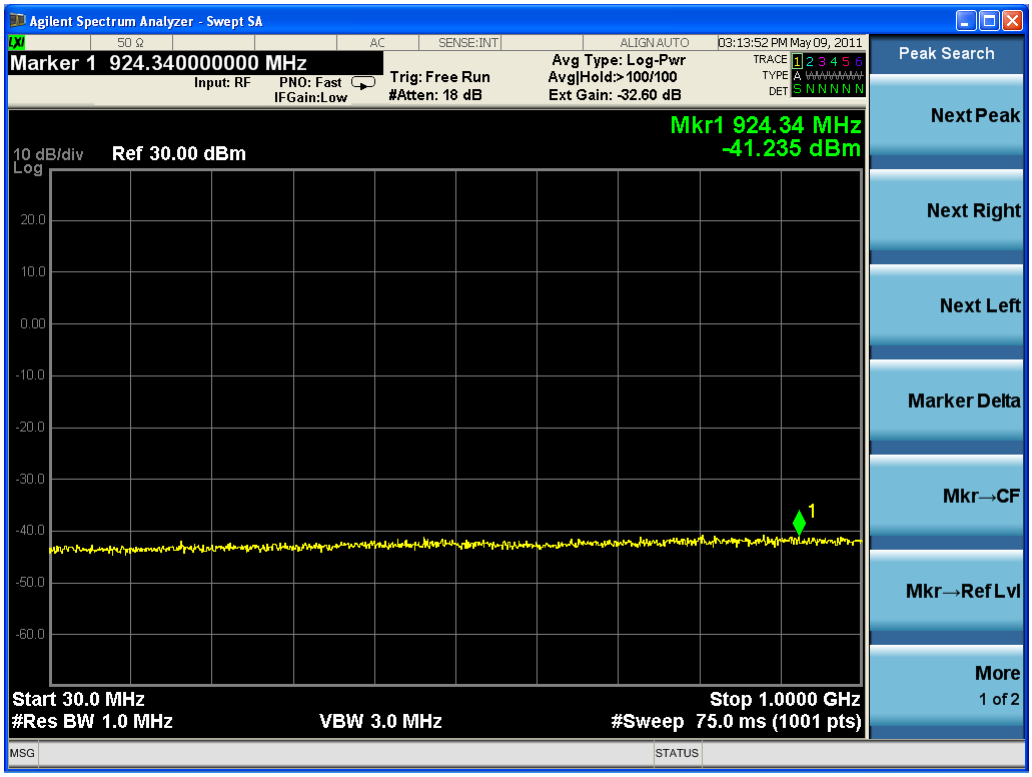

Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929200000000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 16 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:10:24 PM May 09, 2011
Mkr1 1.929 2 GHz -37.357 dBm
10 dB/div Log
Ref 30.00 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

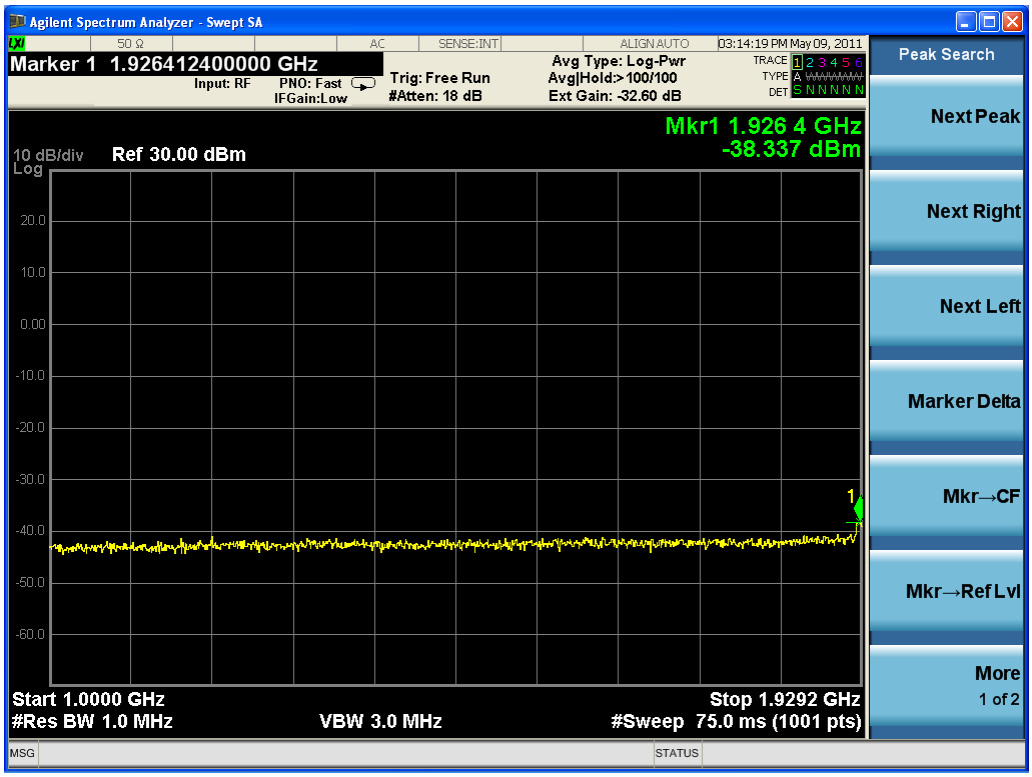

Agilent Spectrum Analyzer - Swept SA
Marker 1 8.000000002780 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 16 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:11:17 PM May 09, 2011
Mkr1 8.000 000 002 78 GHz -42.610 dBm
10 dB/div Log
Ref 30.00 dBm
Start 8.000000000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000000010 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

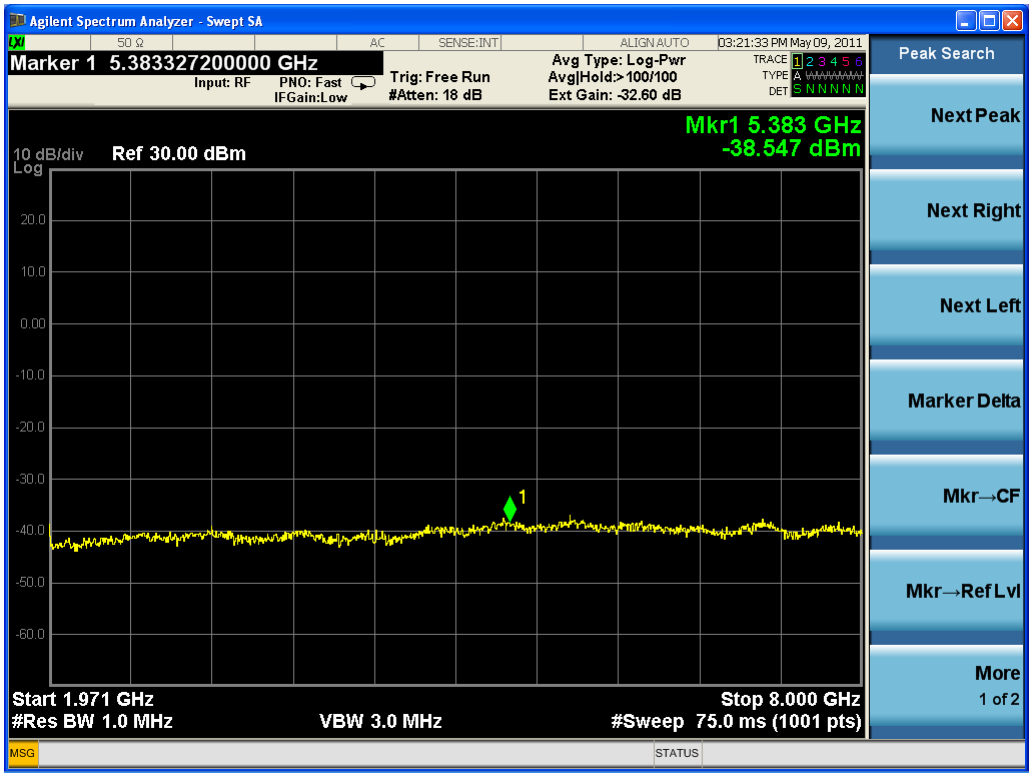
One carrier (working in top frequency)


Agilent Spectrum Analyzer - Swept SA
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:13:18 PM May 09, 2011
Marker 1 27.540000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 18 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S N N N N N
Mkr1 27.54 MHz
-62.602 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 30 kHz
Stop 30.00 MHz
#Sweep 75.0 ms (1001 pts)
MSG
STATUS
Meas Uncal
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:INT
ALIGN AUTO
03:13:52 PM May 09, 2011
Marker 1 924.340000000 MHz
Input: RF
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 18 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ext Gain: -32.60 dB
TRACE 1 2 3 4 5 6
TYPE A WWWWW
DET S N N N N N
Mkr1 924.34 MHz
-41.235 dBm
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
1
Start 30.0 MHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.0000 GHz
#Sweep 75.0 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 1.926412400000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:14:19 PM May 09, 2011
Mkr1 1.926 4 GHz -38.337 dBm
10 dB/div Log
Ref 30.00 dBm
Start 1.0000 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 1.9292 GHz
#Sweep 75.0 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 5.383327200000 GHz
Input: RF PNO: Fast IFGain:Low
Trig: Free Run #Atten: 18 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
03:21:33 PM May 09, 2011
Mkr1 5.383 GHz -38.547 dBm
10 dB/div Log
Ref 30.00 dBm
Start 1.971 GHz
#Res BW 1.0 MHz
VBW 3.0 MHz
Stop 8.000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2

# 4.6 OCCUPIED BANDWIDTH

## Applicable Standard: FCC§2.1049, §24.229, §24.238

## Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Agilent | MXA Series Spectrum Analyzer | N9020A | MY48011941 | 2011-4-8 | 2012-4-7 |
| 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

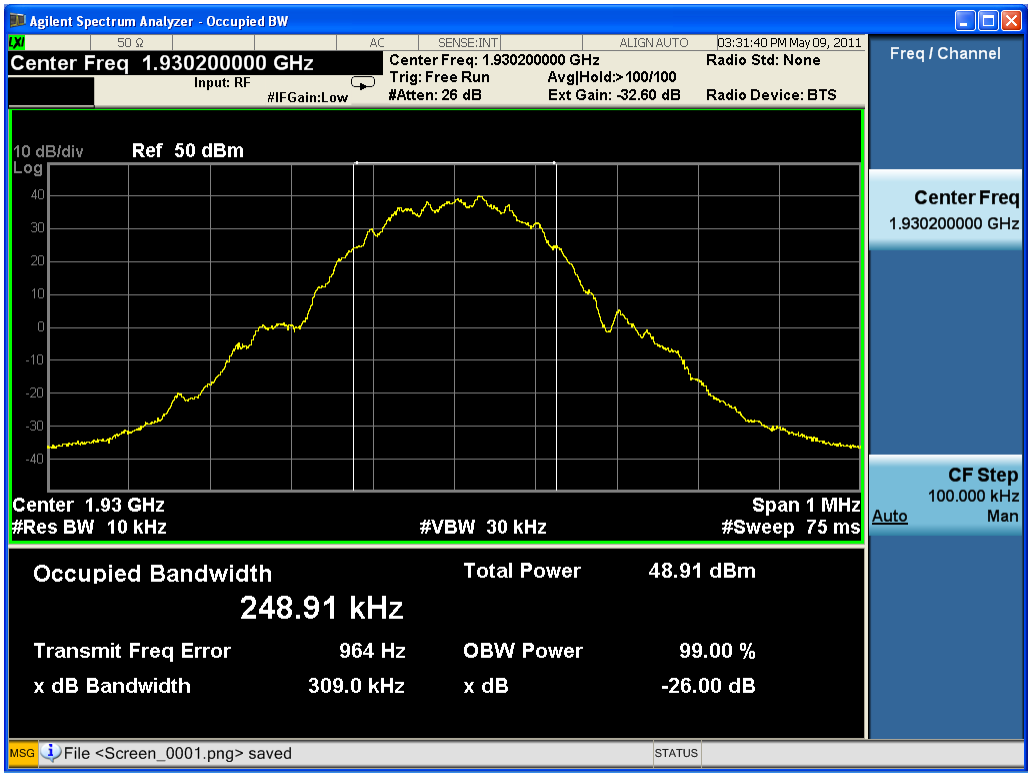
| | |
|---|---|
| Temperature: | 20 ° C |
| Relative Humidity: | 53% |
| ATM Pressure: | 1009mbar |

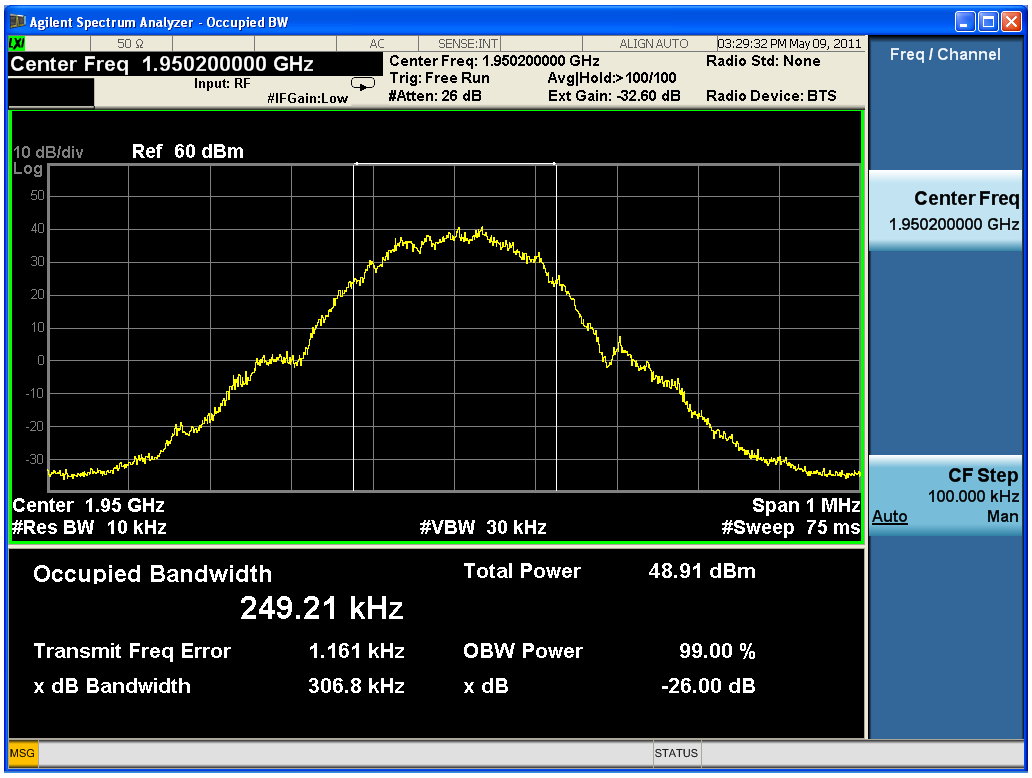
## Test Result: Pass

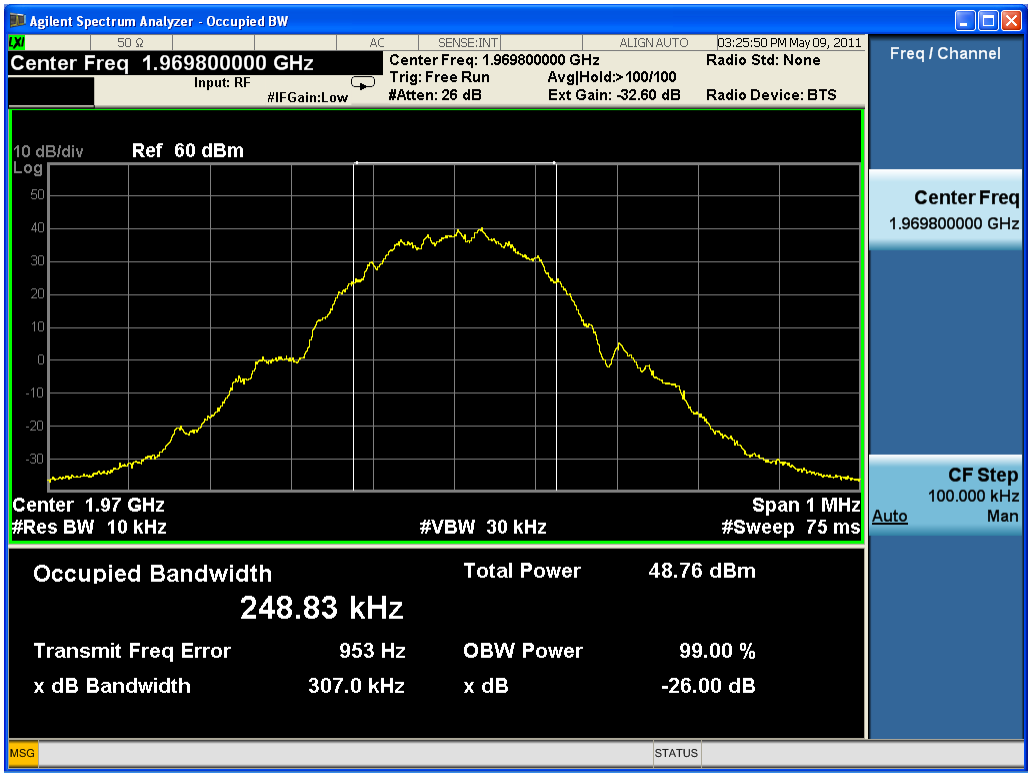
## Test Mode: Transmitting GSM

## Test Data

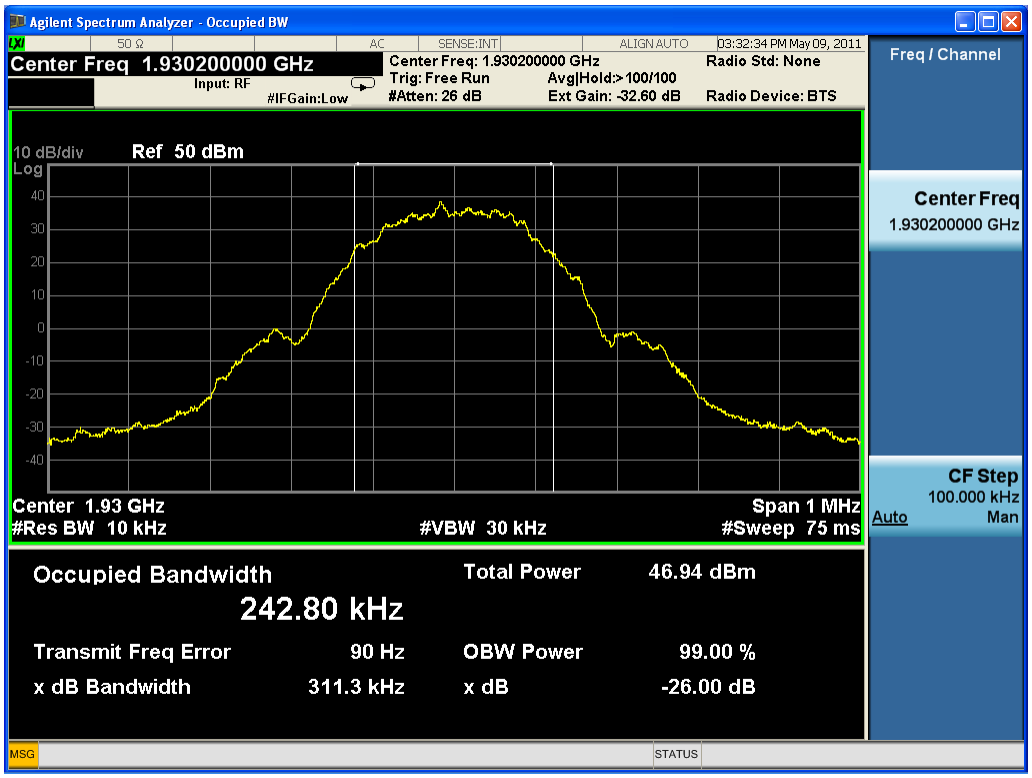
| Modulation | Frequency (MHz) | 99% Power Bandwidth (kHz) | Limit (kHz) |
|---|---|---|---|
| GMSK | 1930.2/1950.2/1969.8 | 248.91/249.21/248.83 | 250 |

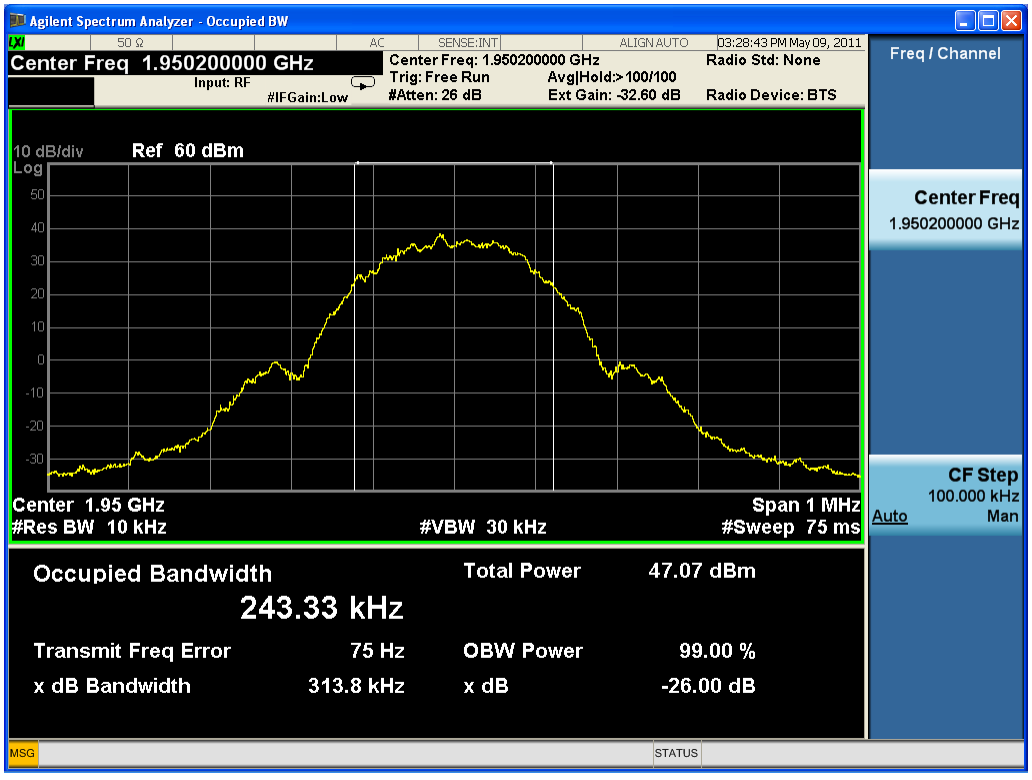


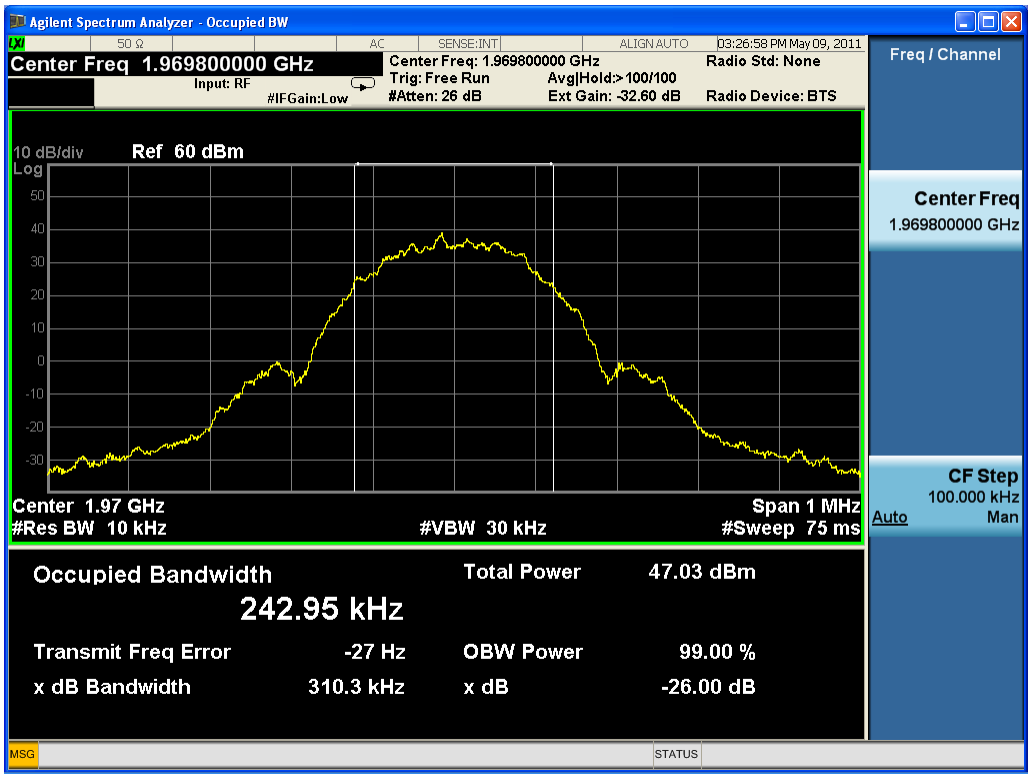

Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.950200000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.950200000 GHz
Trig: Free Run
#Atten: 26 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
03:29:32 PM May 09, 2011
Freq / Channel
10 dB/div
Log
Ref 60 dBm
Center 1.95 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
249.21 kHz
Total Power 48.91 dBm
Transmit Freq Error 1.161 kHz
OBW Power 99.00 %
x dB Bandwidth 306.8 kHz
x dB -26.00 dB
Center Freq
1.950200000 GHz
CF Step
100.000 kHz
Auto
Man
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
Center Freq 1.969800000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.969800000 GHz
Trig: Free Run
#Atten: 26 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
03:25:50 PM May 09, 2011
Freq / Channel
10 dB/div
Log
Ref 60 dBm
Center 1.97 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
248.83 kHz
Total Power 48.76 dBm
Transmit Freq Error 953 Hz
OBW Power 99.00 %
x dB Bandwidth 307.0 kHz
x dB -26.00 dB
Center Freq
1.969800000 GHz
CF Step
100.000 kHz
Auto
Man
MSG
STATUS

| Modulation | Frequency (MHz) | 99% Power Bandwidth (kHz) | Limit (kHz) |
|---|---|---|---|
| 8PSK | 1930.2/1950.2/1969.8 | 242.8/243.33/242.95 | 250 |




Agilent Spectrum Analyzer - Occupied BW
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:26:58 PM May 09, 2011
Center Freq 1.969800000 GHz
Input: RF
#IFGain:Low
Center Freq: 1.969800000 GHz
Trig: Free Run
#Atten: 26 dB
Avg|Hold:>100/100
Ext Gain: -32.60 dB
Radio Std: None
Radio Device: BTS
Freq / Channel
10 dB/div
Log
Ref 60 dBm
50
40
30
20
10
0
-10
-20
-30
Center Freq
1.969800000 GHz
CF Step
100.000 kHz
Auto
Man
Center 1.97 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 1 MHz
#Sweep 75 ms
Occupied Bandwidth
242.95 kHz
Total Power
47.03 dBm
Transmit Freq Error
-27 Hz
OBW Power
99.00 %
x dB Bandwidth
310.3 kHz
x dB
-26.00 dB
MSG
STATUS

# 4.7 BAND EDGES

## Applicable Standard: FCC §2.1051 §24.238

According to §2.1051 and §24.238, 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 | 2011-4-8 | 2012-4-7 |
| 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 GSM

## Test Data

Six carriers

| Frequency channel | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1930.2/1930.8/1931.4/1932/1932.6/1933.2 | -15.298 | -13.00 |
| 1966.8/1967.4/1968/1968.6/1969.2/1969.8 | -14.008 | -13.00 |


Five carriers

| Frequency channel | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1930.2/1930.8/1931.4/1932/1932.6 | -14.760 | -13.00 |
| 1967.4/1968/1968.6/1969.2/1969.8 | -13.877 | -13.00 |


Agilent Spectrum Analyzer - Swept SA
Marker 1 1.929979000000 GHz
Input: RF PNO: Far IFGain:Low
Trig: Free Run #Atten: 16 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
10:02:10 AM May 10, 2011
Mkr1 1.929 979 GHz -14.760 dBm
10 dB/div Log
Ref 20.00 dBm
Start 1.9290000 GHz
Res BW 9.1 kHz
#VBW 10 kHz
Stop 1.9300000 GHz
#Sweep 75.0 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 1.970008000000 GHz
Input: RF PNO: Far IFGain:Low
Trig: Free Run #Atten: 16 dB
Avg Type: Log-Pwr Avg|Hold:>100/100 Ext Gain: -32.60 dB
09:56:33 AM May 10, 2011
Mkr1 1.970 008 GHz -13.877 dBm
10 dB/div Log
Ref 20.00 dBm
Start 1.9700000 GHz
Res BW 9.1 kHz
#VBW 10 kHz
Stop 1.9710000 GHz
#Sweep 75.0 ms (1001 pts)
Peak Search
Next Peak
Next Right
Next Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More 1 of 2
MSG
STATUS

Four carriers

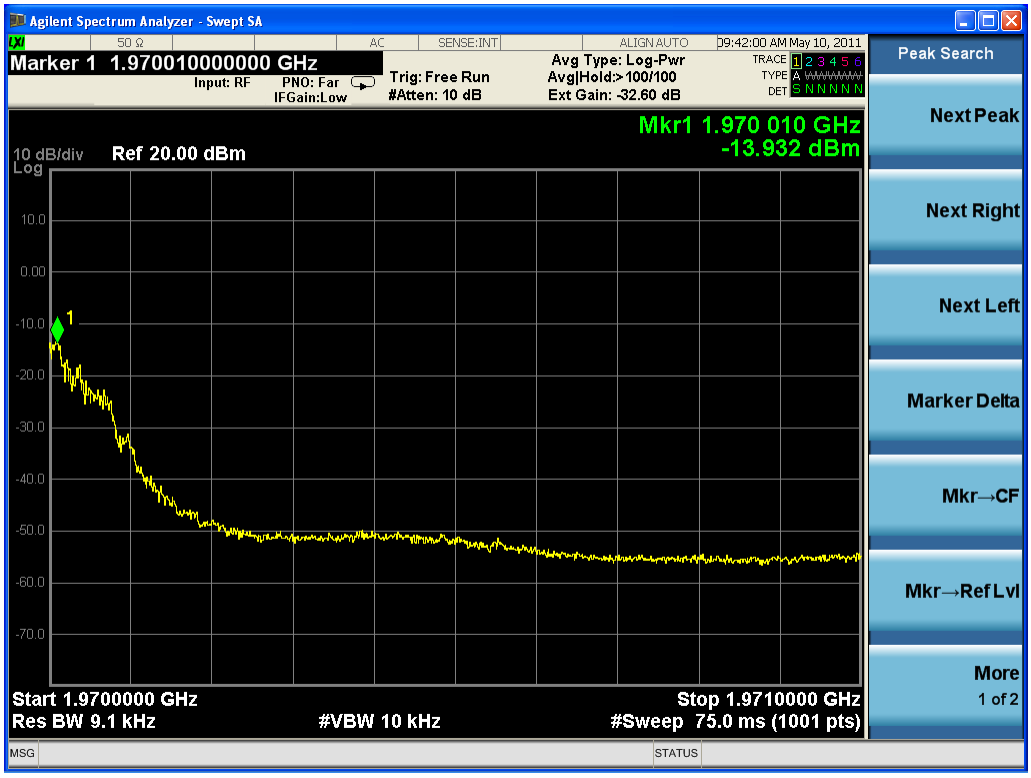
| Frequency channel | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1930.2/1930.8/1931.4/1932 | -14.799 | -13.00 |
| 1968/1968.6/1969.2/1969.8 | -14.045 | -13.00 |

Three carriers

| Frequency channel | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1930.2/1930.8/1931.4 | -16.634 | -13.00 |
| 1968.6/1969.2/1969.8 | -13.953 | -13.00 |

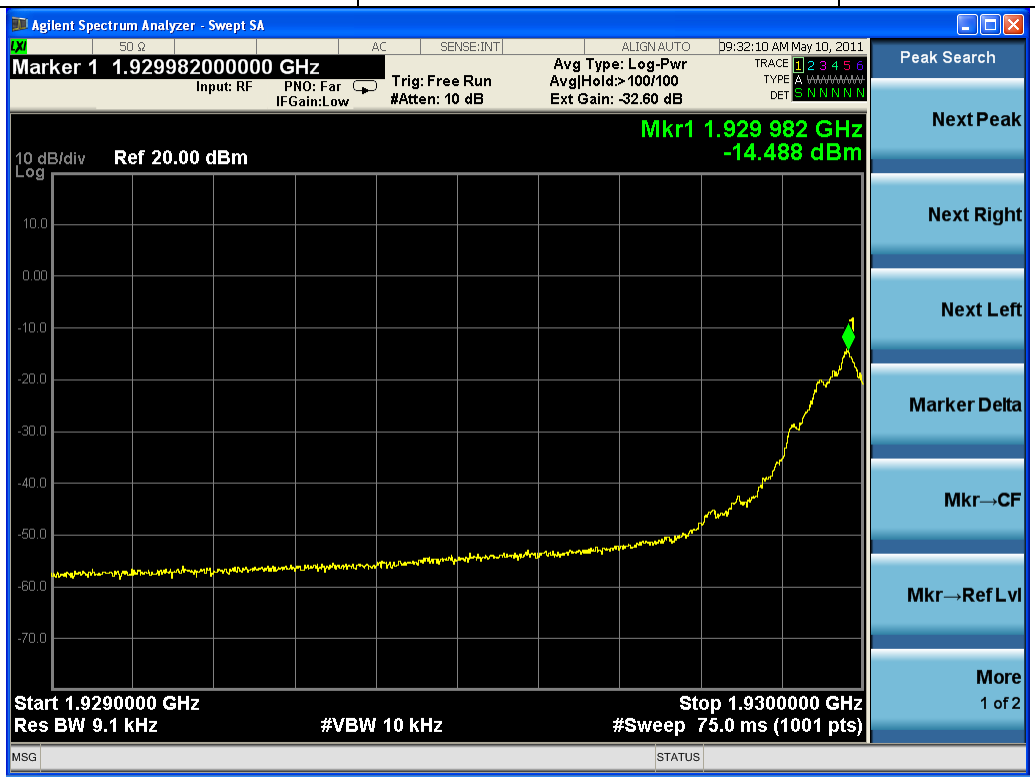

Two carriers

| Frequency channel | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1930.2/1930.8 | -15.717 | -13.00 |
| 1969.2/1969.8 | -13.932 | -13.00 |

One carrier

| Frequency channel | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1930.2 | -14.488 | -13.00 |
| 1968.6 | -14.975 | -13.00 |




# 4.8 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 | 06113028 | 2011-1-26 | 2012-1-26 |
| Agilent | MXA Series Spectrum Analyzer | N9020A | MY48011941 | 2011-4-8 | 2012-4-7 |
| 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 GSM

## Test Data

## Frequency Stability Versus Temperature

| Frequency Stability vs. Temperature (1930-1970M) | | | | | |
|---|---|---|---|---|---|
| **B(1930.2M)** | | | | | |
| **Temperature** | **Power Supplied Vdc** | **Frequency Measure Error Hz** | **Error ppm** | **Limit ppm** | **Result** |
| -40 | -48 | 11.48 | 0.006 | 0.02 | PASS |
| -30 | -48 | -15.35 | -0.008 | 0.02 | PASS |
| -20 | -48 | -17.24 | -0.009 | 0.02 | PASS |
| -10 | -48 | -20.49 | -0.011 | 0.02 | PASS |
| 0 | -48 | 24.99 | 0.013 | 0.02 | PASS |
| 10 | -48 | 32.99 | 0.017 | 0.02 | PASS |
| 20 | -48 | -21.74 | -0.011 | 0.02 | PASS |
| 30 | -48 | 24.83 | 0.013 | 0.02 | PASS |
| 40 | -48 | 22.55 | 0.012 | 0.02 | PASS |
| 50 | -48 | -22.83 | -0.012 | 0.02 | PASS |
| 55 | -48 | 24.5 | 0.013 | 0.02 | PASS |
| **M(1950.2M)** | | | | | |
| -40 | -48 | 15.52 | 0.008 | 0.02 | PASS |
| -30 | -48 | 13.26 | 0.007 | 0.02 | PASS |
| -20 | -48 | -13.19 | -0.007 | 0.02 | PASS |
| -10 | -48 | -17.88 | -0.009 | 0.02 | PASS |
| 0 | -48 | -21.58 | -0.011 | 0.02 | PASS |
| 10 | -48 | -25.89 | -0.013 | 0.02 | PASS |
| 20 | -48 | -24.52 | -0.013 | 0.02 | PASS |
| 30 | -48 | 21.53 | 0.011 | 0.02 | PASS |

| | | | | | |
|---|---|---|---|---|---|
| 40 | -48 | -20.16 | -0.010 | 0.02 | PASS |
| 50 | -48 | -19.73 | -0.010 | 0.02 | PASS |
| 55 | -48 | -21.69 | -0.011 | 0.02 | PASS |
| **T(1969.8M) 710** | | | | | |
| -40 | -48 | -9.7 | -0.005 | 0.02 | PASS |
| -30 | -48 | -15.82 | -0.008 | 0.02 | PASS |
| -20 | -48 | -14.13 | -0.007 | 0.02 | PASS |
| -10 | -48 | -17.95 | -0.009 | 0.02 | PASS |
| 0 | -48 | -25.3 | -0.013 | 0.02 | PASS |
| 10 | -48 | -24.22 | -0.012 | 0.02 | PASS |
| 20 | -48 | -23.14 | -0.012 | 0.02 | PASS |
| 30 | -48 | 24.11 | 0.012 | 0.02 | PASS |
| 40 | -48 | -20.49 | -0.010 | 0.02 | PASS |
| 50 | -48 | 23.58 | 0.012 | 0.02 | PASS |
| 55 | -48 | 26.98 | 0.014 | 0.02 | PASS |

# Frequency Stability Versus Voltage

| **Frequency Stability vs. Voltage (1930-1970M)** | | | | | |
|---|---|---|---|---|---|
| **B(1930.2M)** | | | | | |
| **Voltage Vdc** | **Temperature** | **Frequency Measure Error Hz** | **Error ppm** | **Limit ppm** | **Result** |
| -37 | 20 | 27.08 | 0.014 | 0.02 | PASS |
| -39 | 20 | -22.65 | -0.012 | 0.02 | PASS |
| -41 | 20 | -20.94 | -0.011 | 0.02 | PASS |
| -43 | 20 | -14.74 | -0.008 | 0.02 | PASS |
| -45 | 20 | -20.51 | -0.011 | 0.02 | PASS |
| -47 | 20 | -20.82 | -0.011 | 0.02 | PASS |
| -49 | 20 | 17.40 | 0.009 | 0.02 | PASS |
| -51 | 20 | -15.17 | -0.008 | 0.02 | PASS |
| -53 | 20 | -29.29 | -0.015 | 0.02 | PASS |
| -55 | 20 | 21.83 | 0.011 | 0.02 | PASS |
| -57 | 20 | 21.11 | 0.011 | 0.02 | PASS |
| -59 | 20 | 21.95 | 0.014 | 0.02 | PASS |
| -61 | 20 | 24.17 | -0.012 | 0.02 | PASS |
| -62 | 20 | 24.72 | -0.011 | 0.02 | PASS |
| **M(1950.2M)** | | | | | |
| -37 | 20 | 24.53 | 0.013 | 0.02 | PASS |
| -39 | 20 | 6.06 | 0.003 | 0.02 | PASS |
| -41 | 20 | 19.51 | 0.010 | 0.02 | PASS |

| | | | | | |
|---|---|---|---|---|---|
| -43 | 20 | -25.10 | -0.013 | 0.02 | PASS |
| -45 | 20 | -23.34 | -0.012 | 0.02 | PASS |
| -47 | 20 | -19.25 | -0.010 | 0.02 | PASS |
| -49 | 20 | -22.26 | -0.011 | 0.02 | PASS |
| -51 | 20 | 16.98 | 0.009 | 0.02 | PASS |
| -53 | 20 | -21.93 | -0.011 | 0.02 | PASS |
| -55 | 20 | 20.11 | 0.010 | 0.02 | PASS |
| -57 | 20 | 19.54 | 0.010 | 0.02 | PASS |
| -59 | 20 | 20.66 | 0.013 | 0.02 | PASS |
| -61 | 20 | 18.43 | 0.003 | 0.02 | PASS |
| -62 | 20 | 23.93 | 0.010 | 0.02 | PASS |
| **T(1969.8M)** | | | | | |
| -37 | 20 | 21.64 | 0.011 | 0.02 | PASS |
| -39 | 20 | 35.54 | 0.018 | 0.02 | PASS |
| -41 | 20 | 19.22 | 0.010 | 0.02 | PASS |
| -43 | 20 | 20.79 | 0.011 | 0.02 | PASS |
| -45 | 20 | 21.82 | 0.011 | 0.02 | PASS |
| -47 | 20 | -20.82 | -0.011 | 0.02 | PASS |
| -49 | 20 | 19.73 | 0.010 | 0.02 | PASS |
| -51 | 20 | 23.73 | 0.012 | 0.02 | PASS |
| -53 | 20 | 22.99 | 0.012 | 0.02 | PASS |
| -55 | 20 | -22.27 | -0.011 | 0.02 | PASS |
| -57 | 20 | 22.81 | 0.012 | 0.02 | PASS |
| -59 | 20 | 21.16 | 0.011 | 0.02 | PASS |
| -61 | 20 | -20.10 | 0.018 | 0.02 | PASS |
| -62 | 20 | -21.93 | 0.010 | 0.02 | PASS |

# 5 DUAL-MODE OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST | RESULT |
|---|---|---|
| §2.1046 §24.232 | Transmitter output Power | Compliant |
| §2.1091 §1.1037 | RF Exposure | Compliant |
| §2.1053 | Spurious Radiated Emissions | Compliant |
| §2.1051, §24.238 | Spurious Emissions AT Antenna Terminals | Compliant |
| §2.1051, §24.238 | Band edges | Compliant |
| §2.1049 §24.229 §24.238 | Occupied Bandwidth | Compliant |

# 5.1 TRANSMITTER OUTPUT POWER

According to FCC §2.1046 &24.232, the EIRP(equivalent isotropically radiated power) must not exceed 1640 Watts.
According to RSS-133, SRSP 510 5.1.1the EIRP(equivalent isotropically radiated power) must not exceed 3280Watts/MHz for base station transmitters operating in the band of 1930 MHz to 1995MHz with the antenna height above average terrain up to 300 meters. If used in urban area, the limit should be 1640Watts/MHz.

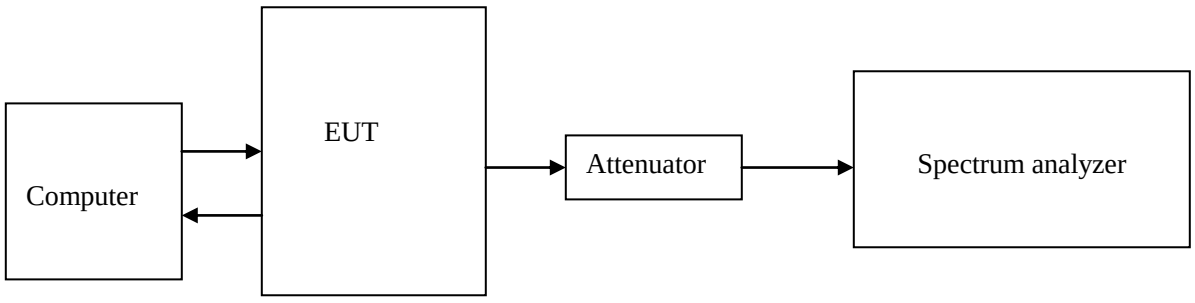
## Applicable Standard： FCC §2.1046 §24.232

## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Agilent | MXA Series Spectrum Analyzer | N9020A | MY48011941 | 2011-4-8 | 2012-4-7 |
| 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 |

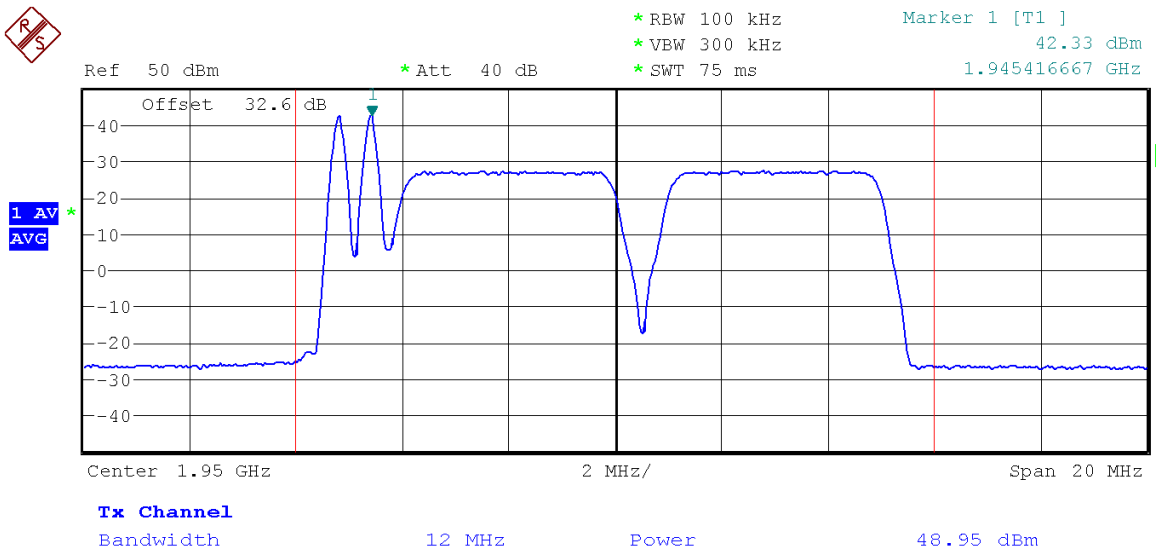
## Test Result: Pass

## Test Mode: Transmitting 2GSMTRX and 2UMTS carriers and 4GSM TRX and 1UMTS carriers

## Test Data:

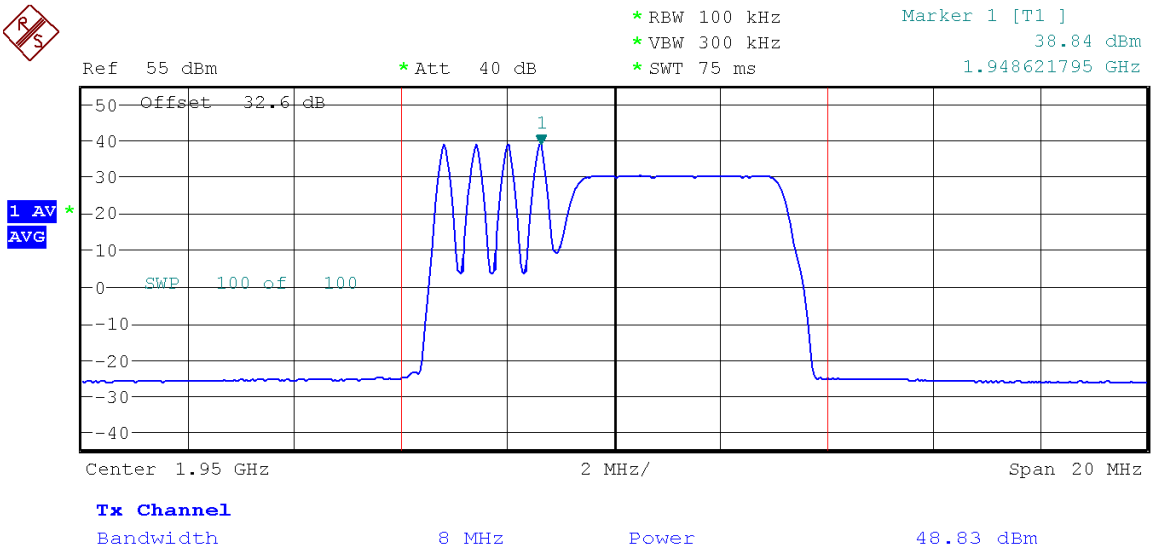
2GSMTRX and 2UMTS carriers

| Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|
| 1950 | 1950 | 48.95 |



4GSM TRX and 1UMTS carriers

| Center Freq. (MHz) | Frequency (MHz) | Max output Power in dBm |
|---|---|---|
| 1950 | 1950 | 48.83 |



# 5.2 RF EXPOSURE

***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 EIRP, In general, the equivalent isotropically radiated power (EIRP) of base transmitters and cellular repeaters must not exceed 1640 Watts.
Frequency is between 1500MHz and 100000MHz, and the Maximum $S=1.0mW/cm^2$
R=3.61m.
This equipment should be installed and operated with minimum distance 3.61m between the radiator& your body.

**Test Result:** pass

# 5.3 SPURIOUS RADIATED EMISSIONS

## Applicable Standard: FCC CFR 47, §2.1053

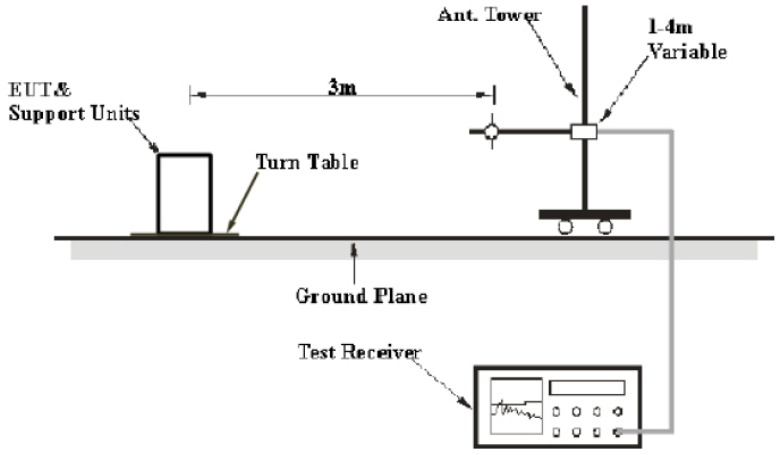
## Test Equipment List and Details

| 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 2.1053.The specification used was the FCC 2.1053 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) | Effective radiated power （dBm） | Dipole Antenna | Absolute Level (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (GHz) | Amp. (dBuV) | Angle Degree | Height(M) | Polar H/V | Level (dBm) | Antenna Gain Correction | | | | | | |
| 57.214429 | 49.91 | 129.10 | 1 | V | -17.29 | -29.52 | 0.5 | -47.31 | 2.15 | -49.46 | -13 | 36.46 |
| 64.98998 | 42.18 | 359.90 | 1 | V | -25.02 | -27.24 | 0.6 | -52.86 | 2.15 | -55.01 | -13 | 42.01 |
| 972.785571 | 43.1 | 0.00 | 1 | V | -53.01 | -2.82 | 2.6 | -58.43 | 2.15 | -60.58 | -13 | 47.58 |
| 1360.72144 | 48.43 | 0.00 | 1 | V | -55.36 | 4.25 | 3.1 | -54.21 | 2.15 | -56.36 | -13 | 43.36 |
| 1933.86774 | 86.28 | 53.30 | 2 | V | -21.08 | 6.55 | 3.7 | -18.23 | 2.15 | -20.38 | -13 | 7.38 |
| 2955.91182 | 60.14 | 0.00 | 2 | V | -41.6 | 7.95 | 4.6 | -38.25 | 2.15 | -40.4 | -13 | 27.4 |
| 208.837675 | 43.48 | 142.90 | 2 | H | -55.77 | 0.87 | 1.1 | -56 | 2.15 | -58.15 | -13 | 45.15 |
| 580.12024 | 38.35 | 128.90 | 1 | H | -58.3 | -1.21 | 2 | -61.51 | 2.15 | -63.66 | -13 | 50.66 |
| 922.244489 | 43.5 | 318.90 | 2 | H | -52.65 | -2.69 | 2.5 | -57.84 | 2.15 | -59.99 | -13 | 46.99 |
| 1376.75351 | 47.78 | 230.80 | 2 | H | -58.32 | 4.25 | 3.1 | -57.17 | 2.15 | -59.32 | -13 | 46.32 |
| 1937.87575 | 90.65 | 215.80 | 1 | H | -15.95 | 6.55 | 3.7 | -13.1 | 2.15 | -15.25 | -13 | 2.25 |
| 2735.47094 | 60.61 | 55.70 | 2 | H | -44.13 | 7.95 | 4.4 | -40.58 | 2.15 | -42.73 | -13 | 29.73 |

Radiation emission spurious below 3GHz

| Indicated | | Table | Test Antenna | | Substituted | | Cable Loss (dB) | Effective radiated power （dBm） | Dipole Antenna | Absolute Level (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency (GHz) | Amp. (dBuV) | Angle Degree | Height(M) | Polar H/V | Level (dBm) | Antenna Gain Correction | | | | | | |
| 3873.7475 | 52.78 | 253.20 | 1 | V | -52.87 | 7.75 | 5.2 | -50.32 | 2.15 | -52.47 | -13 | 39.47 |
| 5428.85772 | 49.03 | 253.20 | 1 | V | -57.6 | 8.55 | 6.3 | -55.35 | 2.15 | -57.5 | -13 | 44.5 |
| 5805.61122 | 64.12 | 175.30 | 2 | V | -39.36 | 9.05 | 6.6 | -36.91 | 2.15 | -39.06 | -13 | 26.06 |
| 10204.4088 | 58.93 | 321.50 | 2 | V | -49.89 | 11.35 | 8.9 | -47.44 | 2.15 | -49.59 | -13 | 36.59 |
| 14503.006 | 63.63 | 253.20 | 1 | V | -45.89 | 9.15 | 11 | -47.74 | 2.15 | -49.89 | -13 | 36.89 |
| 3873.7475 | 55.13 | 324.30 | 2 | H | -46.43 | 7.75 | 5.2 | -43.88 | 2.15 | -46.03 | -13 | 33.03 |
| 5364.72946 | 48.17 | 35.30 | 1 | H | -52.73 | 8.55 | 6.3 | -50.48 | 2.15 | -52.63 | -13 | 39.63 |
| 5813.62726 | 63.72 | 251.80 | 2 | H | -34.89 | 9.05 | 6.6 | -32.44 | 2.15 | -34.59 | -13 | 21.59 |
| 10204.4088 | 58.24 | 0.00 | 2 | H | -50.7 | 11.35 | 8.9 | -48.25 | 2.15 | -50.4 | -13 | 37.4 |
| 14503.006 | 63.76 | 248.20 | 1 | H | -41.56 | 9.15 | 11 | -43.41 | 2.15 | -45.56 | -13 | 32.56 |

Radiation emission spurious above 3GHz

# 5.4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

## Applicable Standard: FCC§2.1051, §24.238

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

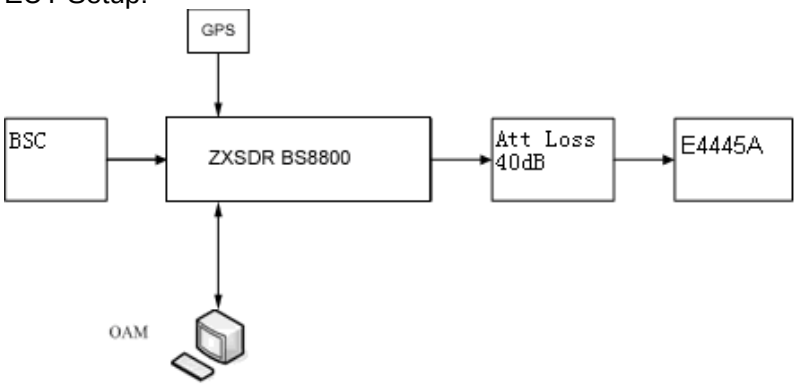
## Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Agilent | MXA Series Spectrum Analyzer | N9020A | MY48011941 | 2011-4-8 | 2012-4-7 |
| 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

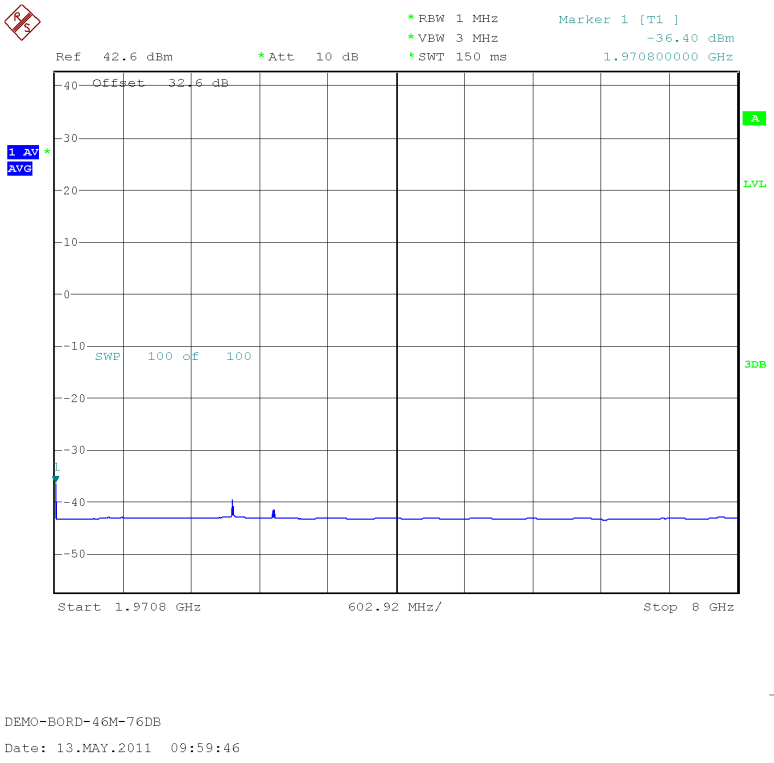
| | |
|---|---|
| Temperature: | 20 °C |
| Relative Humidity: | 53 % |
| ATM Pressure: | 1009 mbar |

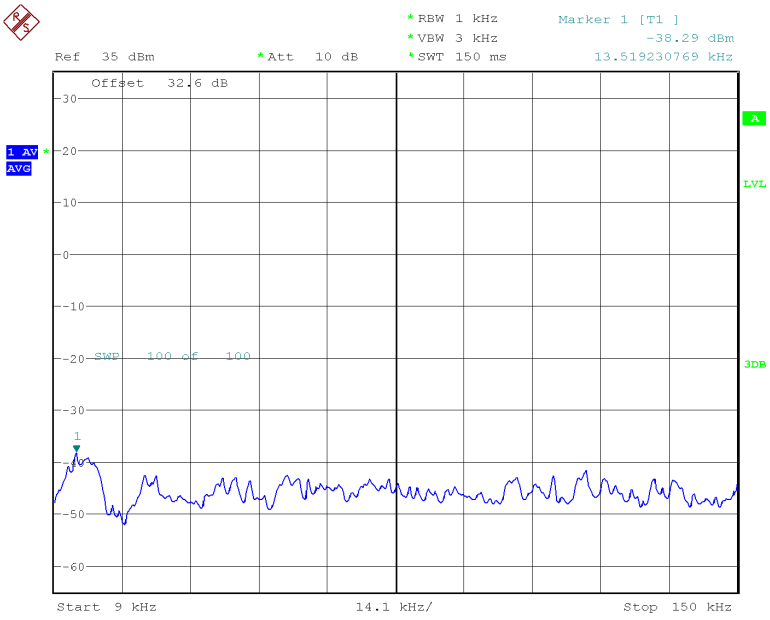
## Test Result: Pass

## Test Mode: Transmitting 2GSMTRX and 2UMTS carriers and 4GSM TRX and 1UMTS carriers

## Test Data:

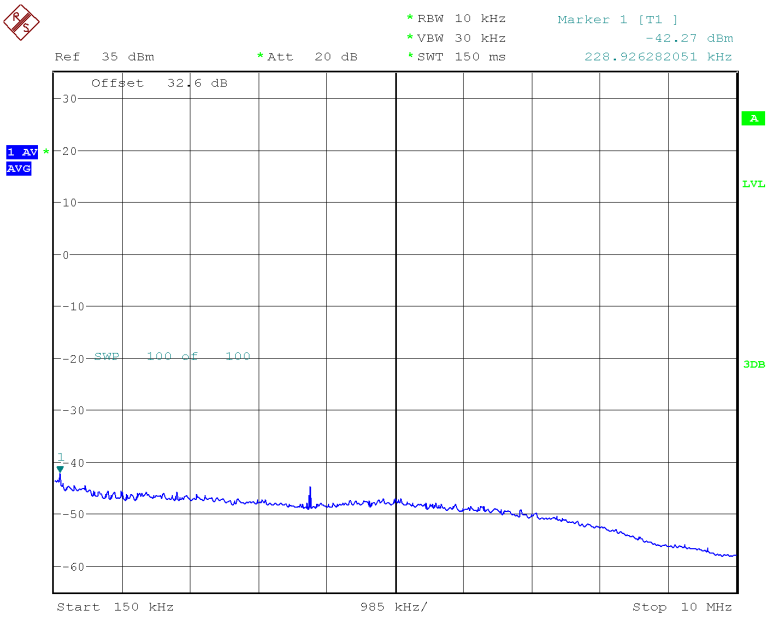
2GSMTRX and 2UMTS carriers





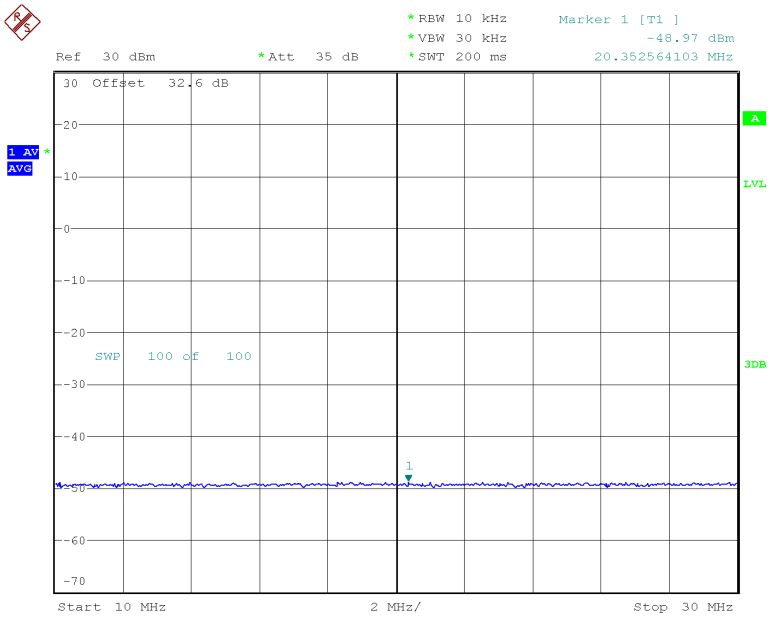

DEMO-BORD-46M-76DB

Date: 13.MAY.2011 09:52:06




DEMO-BORD-46M-76DB

Date: 13.MAY.2011 09:53:24

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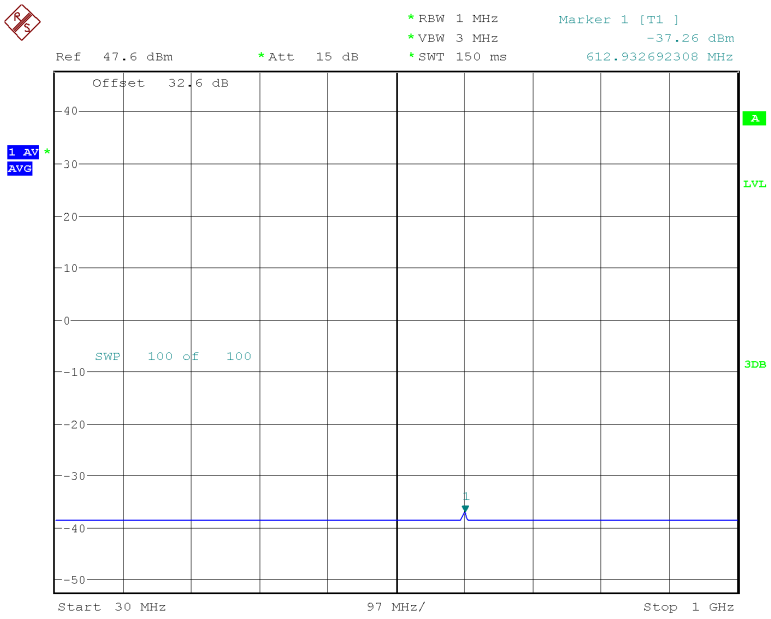
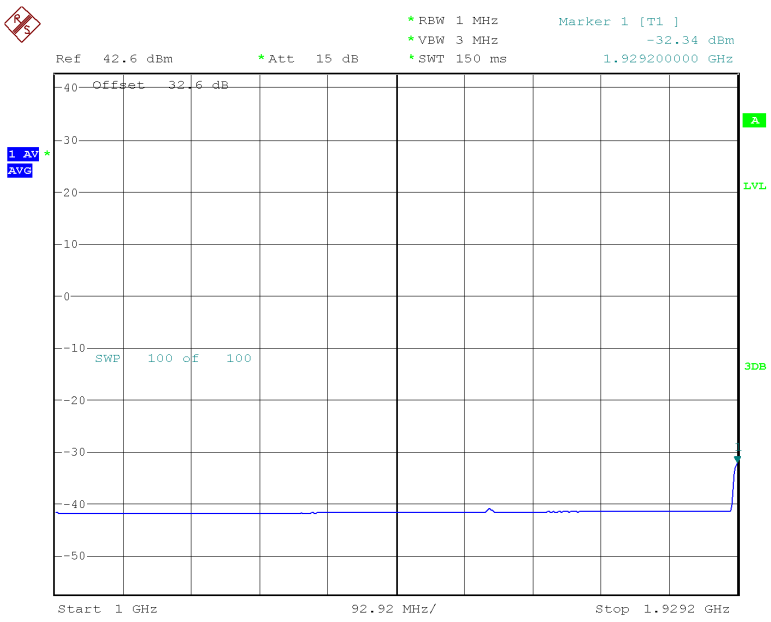
Date: 13.MAY.2011 09:54:57




DEMO-BORD-46M-76DB

Date: 13.MAY.2011 09:56:45

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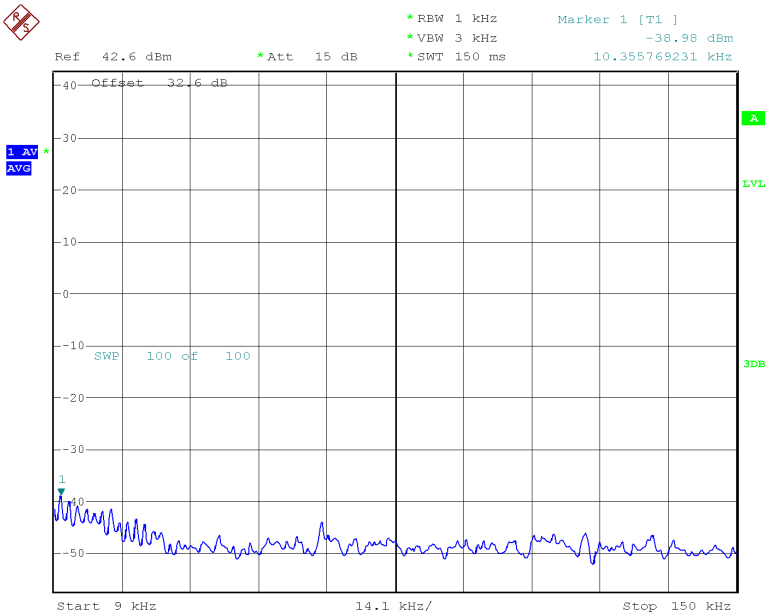
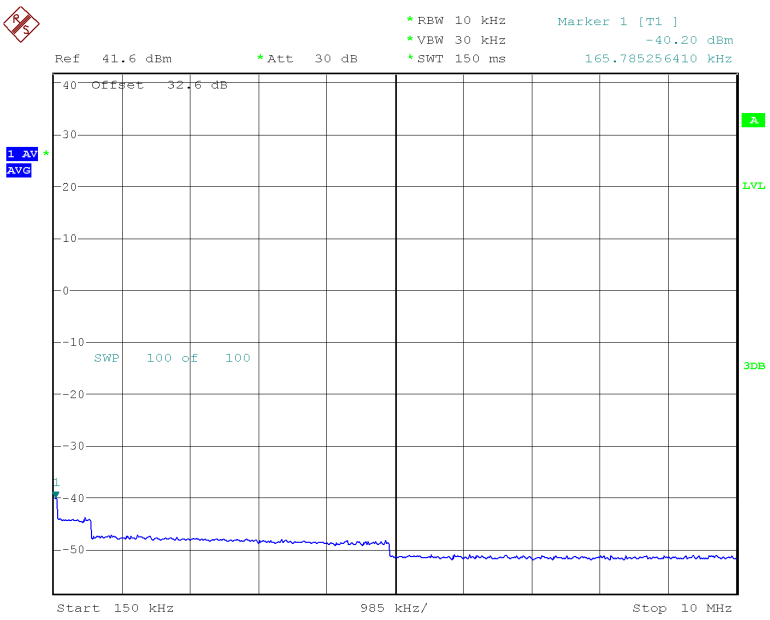
Date: 13.MAY.2011 09:58:12

4GSM TRX and 1UMTS carriers



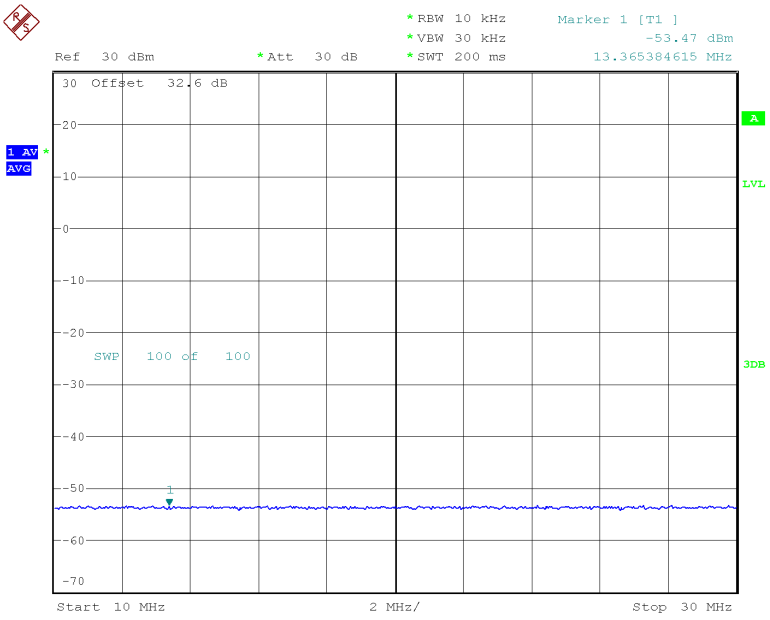

DEMO-BORD-46M-76DB

Date: 13.MAY.2011 10:40:15




DEMO-BORD-46M-76DB

Date: 13.MAY.2011 10:46:35

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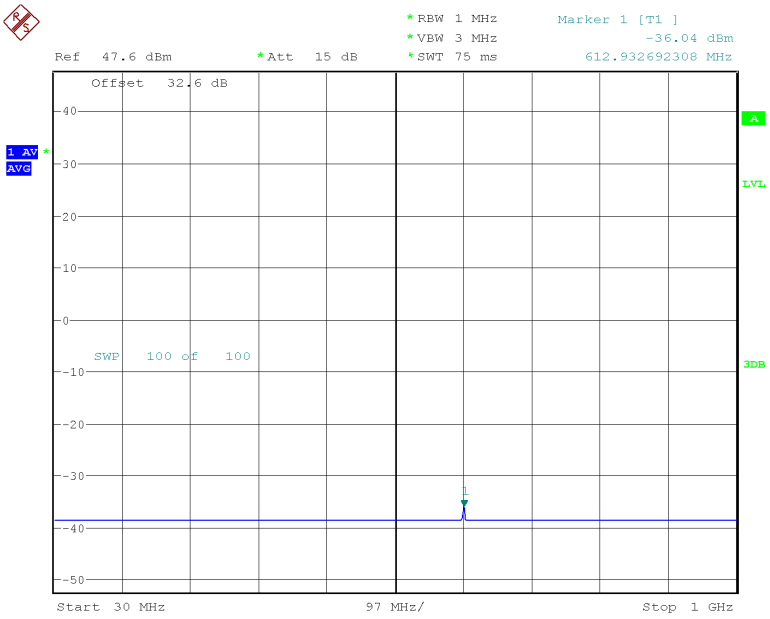
Date: 13.MAY.2011 10:47:52

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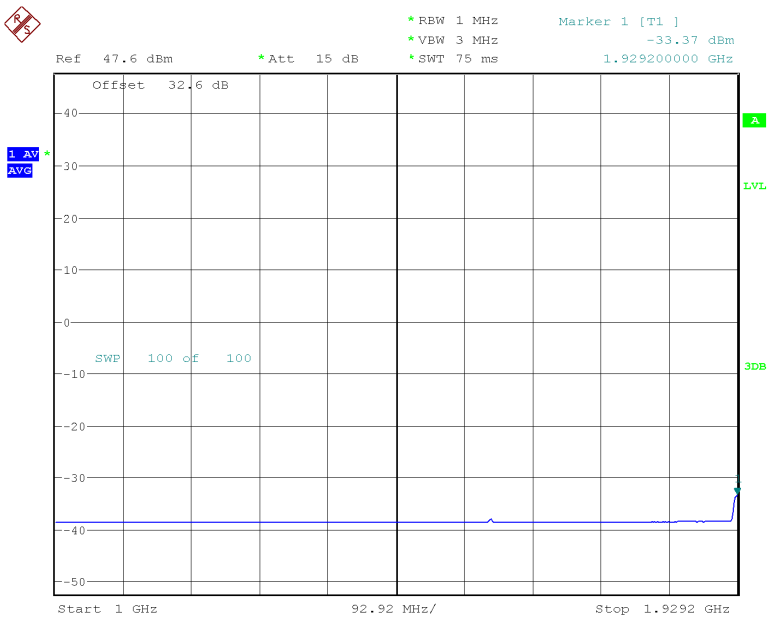
Date: 13.MAY.2011 10:49:20

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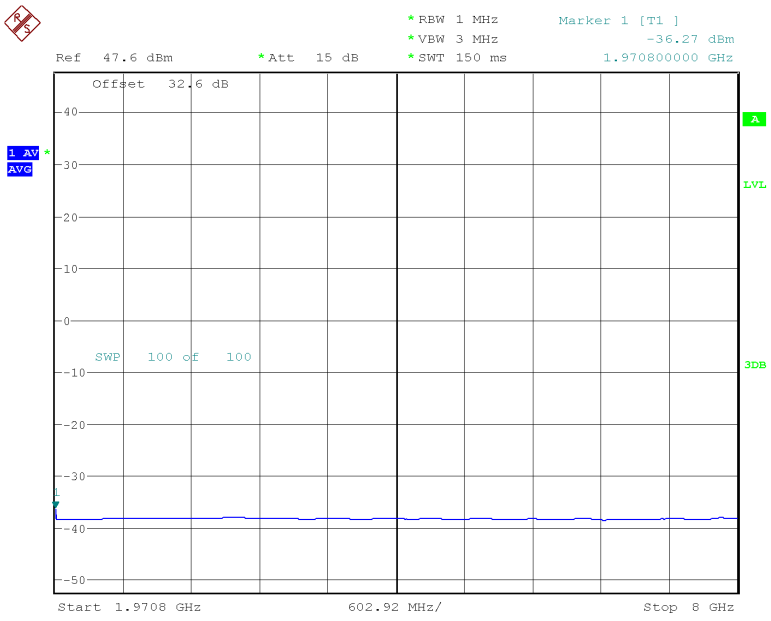
Date: 13.MAY.2011 10:50:27




DEMO-BORD-46M-76DB

Date: 13.MAY.2011 10:52:19

# 5.5 BAND EDGES

## Applicable Standard: FCC §2.1051, §24.238

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 | 2011-4-8 | 2012-4-7 |
| 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 |

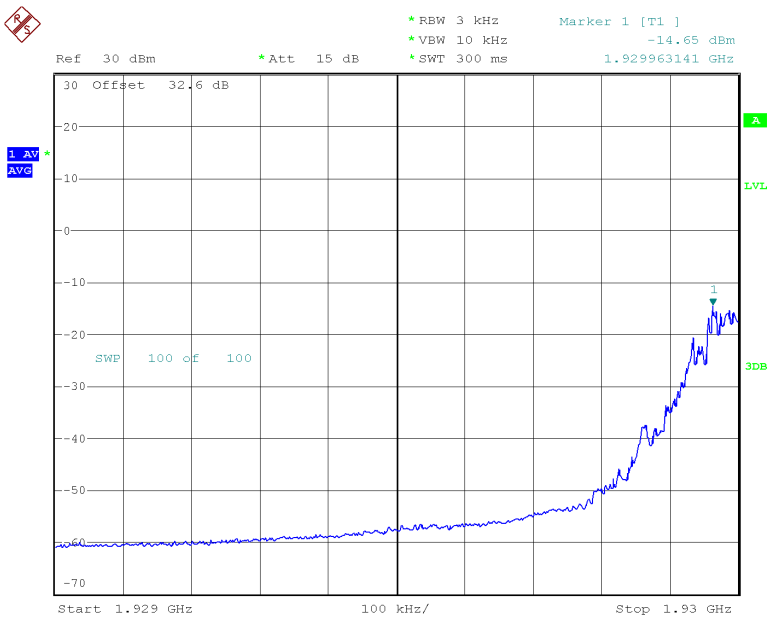
## Test Result: Pass

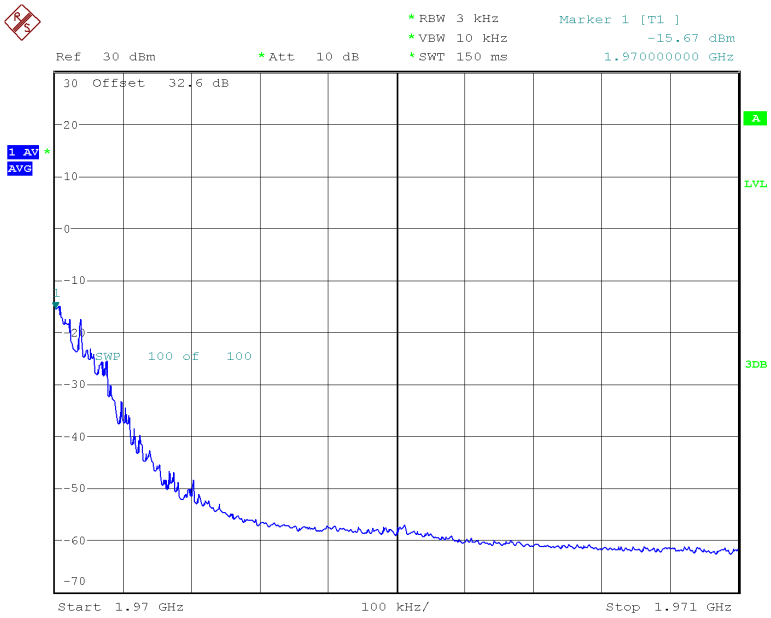
## Test Mode: Transmitting 2GSMTRX and 2UMTS carriers and 4GSM TRX and 1UMTS carriers

## Test Data

2GSMTRX and 2UMTS carriers

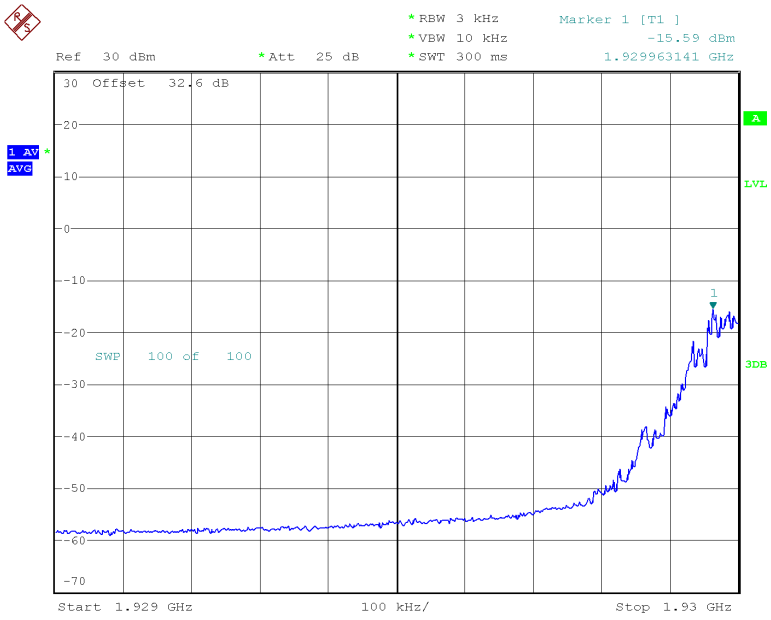
| Frequency channel | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1929~1930 | -14.65 | -13.00 |
| 1970~1971 | -15.67 | -13.00 |






4GSM TRX and 1UMTS carriers

| Frequency | Max bandedge Emission (dBm) | Limit (dBm) |
|---|---|---|
| 1929~1930 | -15.59 | -13.00 |
| 1970~1971 | -14.87 | -13.00 |

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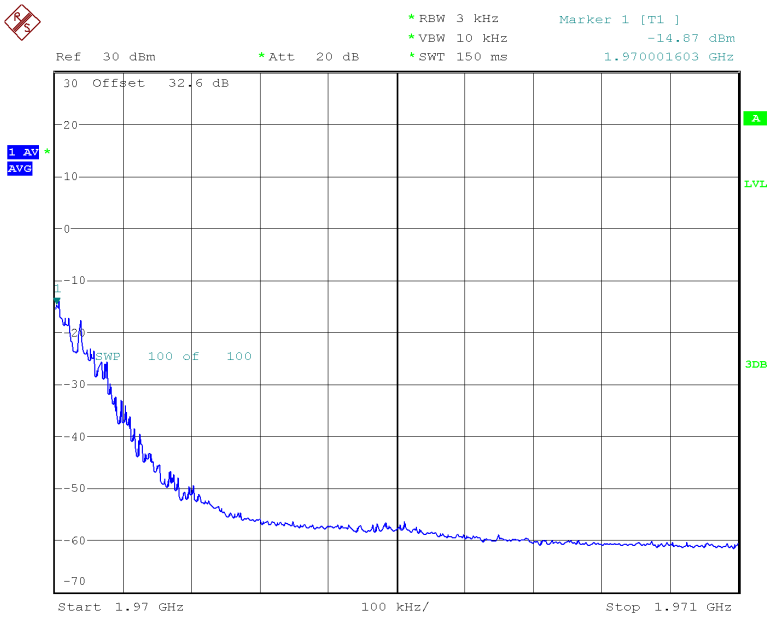
Date: 12.MAY.2011 16:48:57

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Date: 13.MAY.2011 09:21:06

# 5.6 OCCUPIED BANDWIDTH

## Applicable Standard: FCC §2.1049 §24.229 §24.238

## Test Equipment List and Details:

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Agilent | MXA Series Spectrum Analyzer | N9020A | MY48011941 | 2011-4-8 | 2012-4-7 |
| 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 |

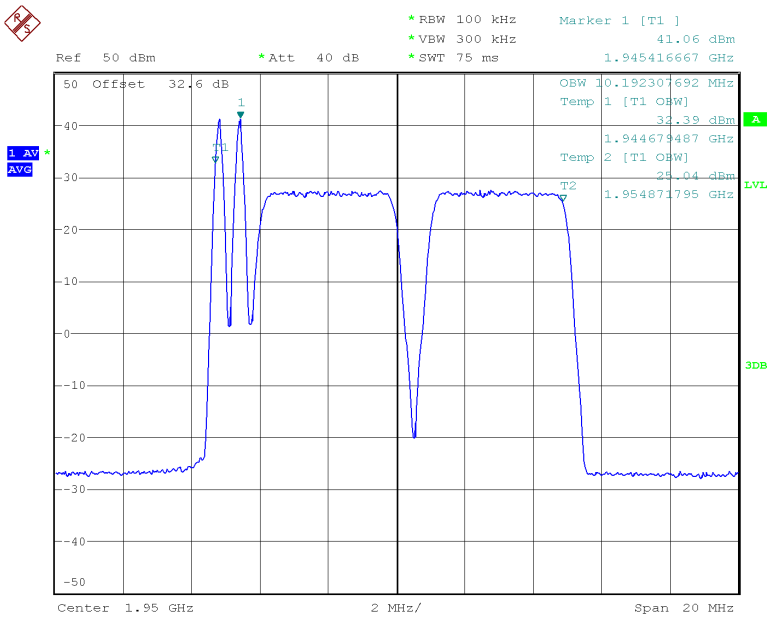
# Test Result: Pass

# Test Mode: Transmitting 2GSMTRX and 2UMTS carriers and 4GSM TRX and 1UMTS carriers

# Test Data

2GSMTRX and 2UMTS carriers

| Frequency (MHz) | 99% Power Bandwidth (MHz) |
|---|---|
| 1950 | 10.1923 |



4GSM TRX and 1UMTS carriers

| Frequency (MHz) | 99% Power Bandwidth (MHz) |
|---|---|
| 1950 | 6.4423 |