5. CONDUCTED SPURIOUS EMISSIONS

5.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	N9030A	MY51380221	Oct.29, 14	1Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr. 28,14	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	Apr. 28,14	1 Year

5.2.Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

5.3.Test Procedure

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

5.4.Test result

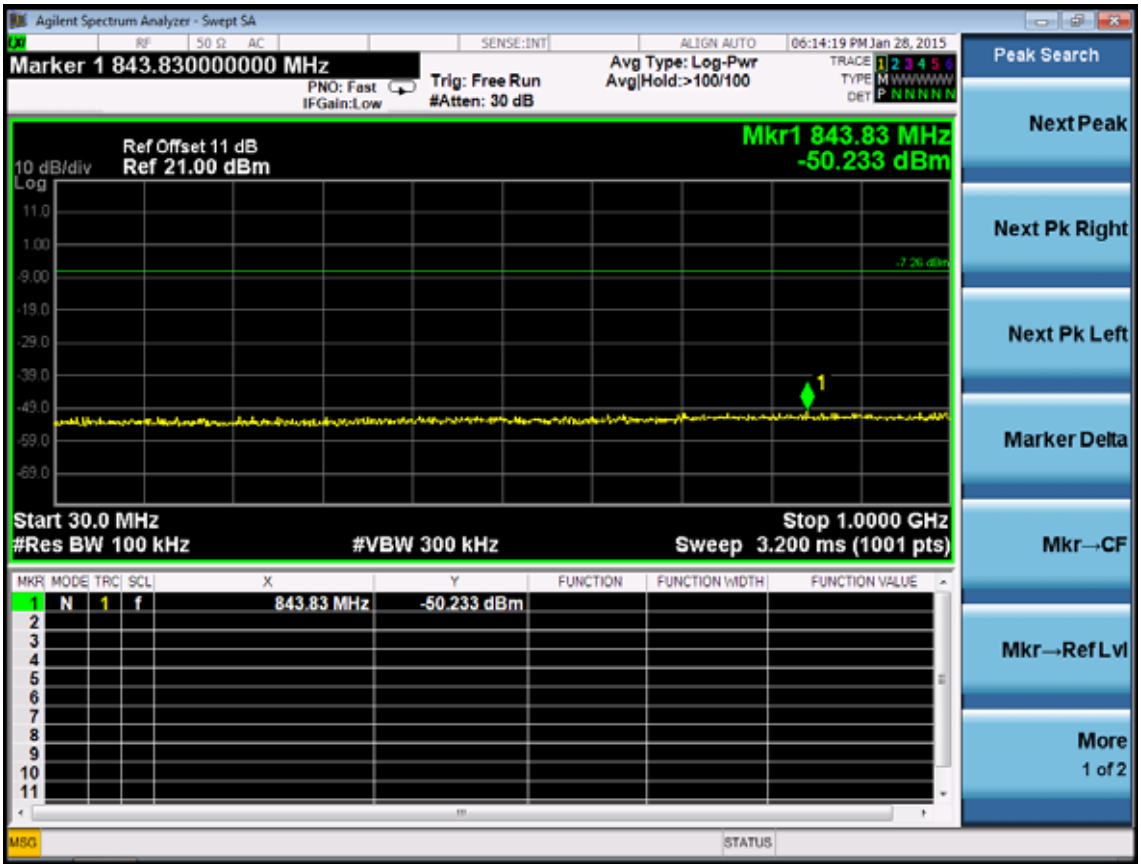
PASS (The testing data was attached in the next pages.)

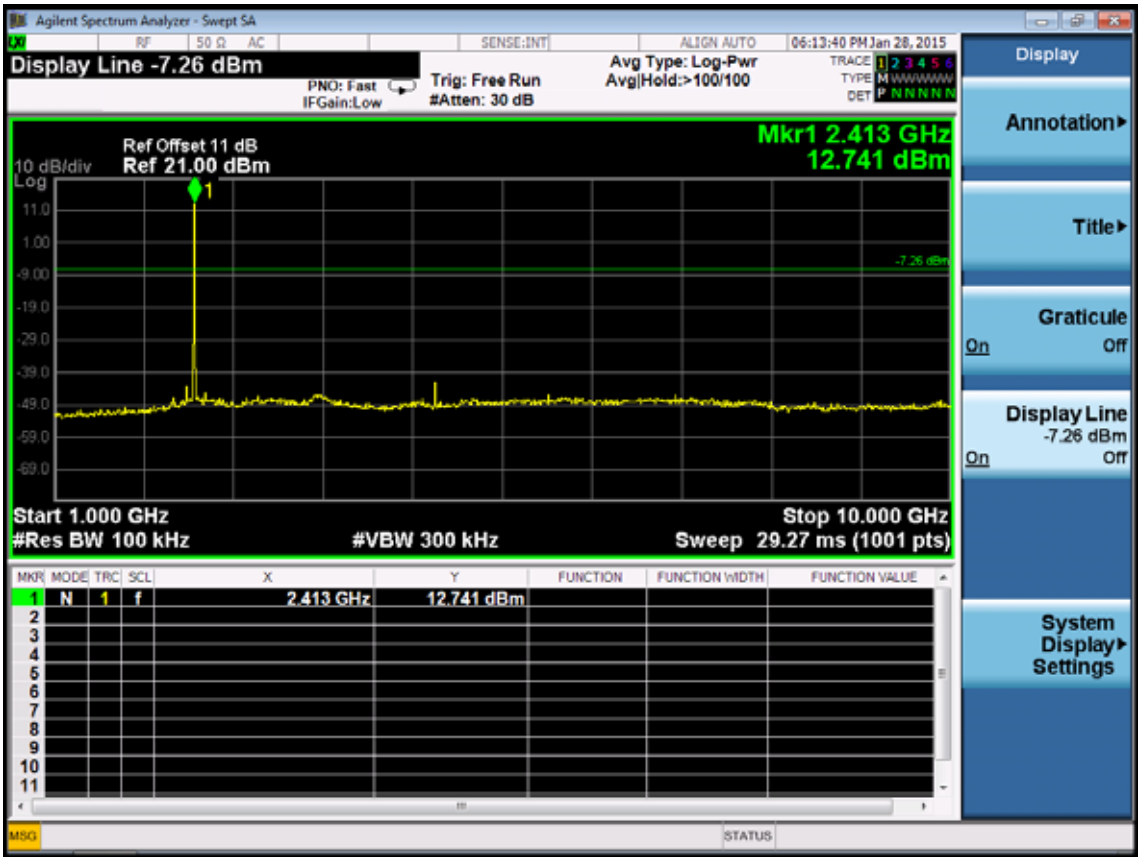
Conducted emission test data:

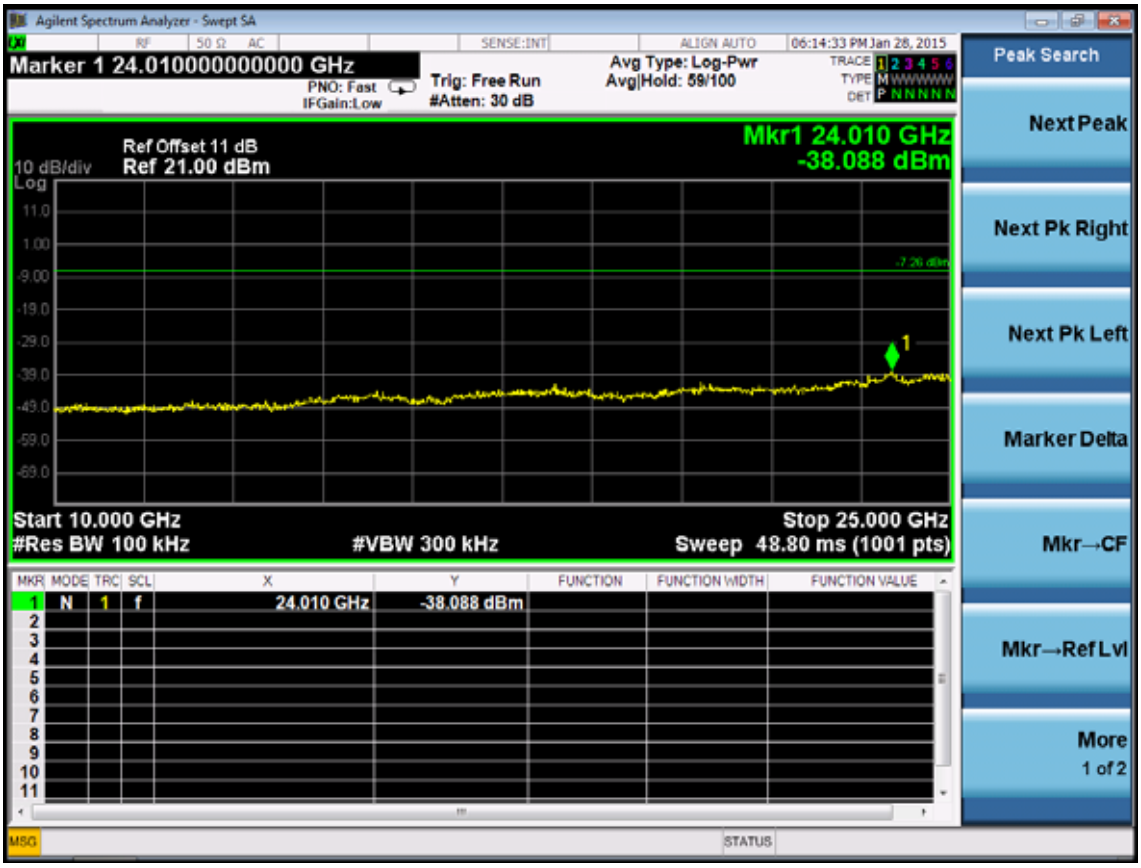
5MHz Antenna 1

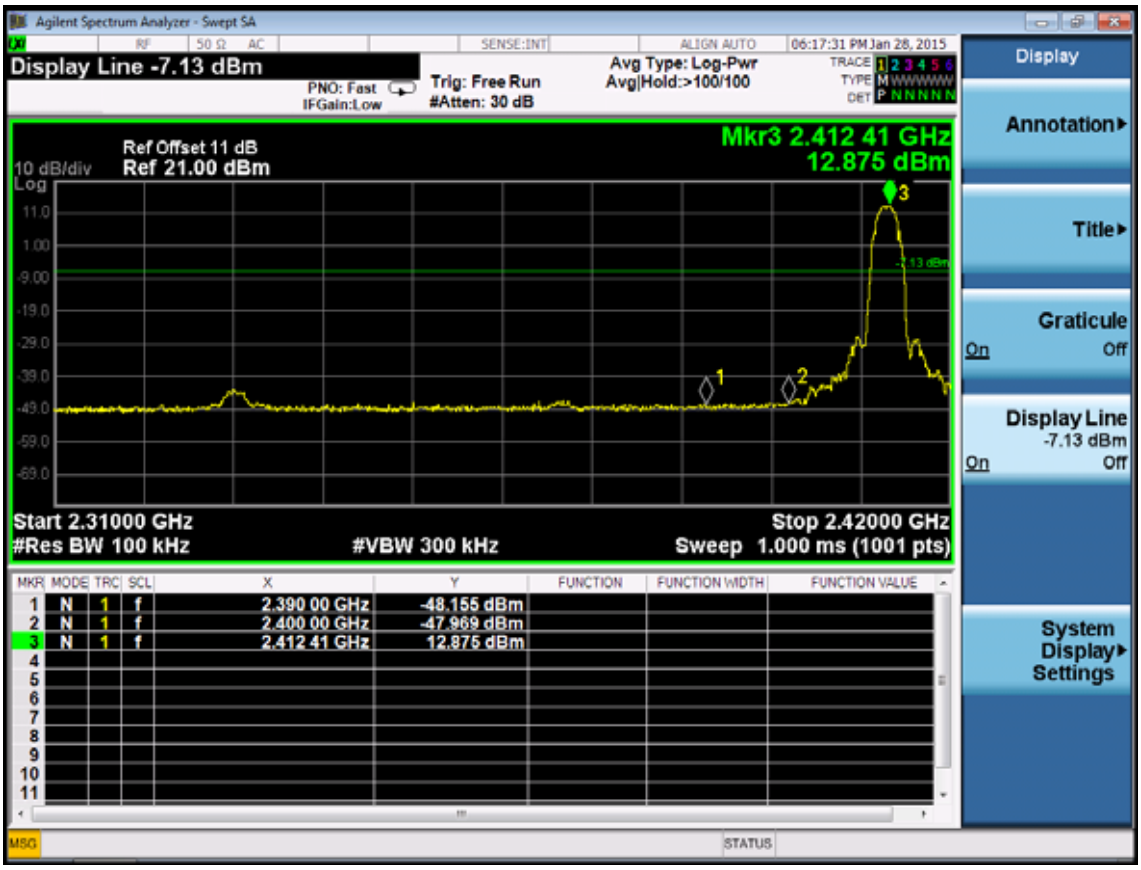
Test Mode: IEEE 802.11b

Test CH1: 2412MHz

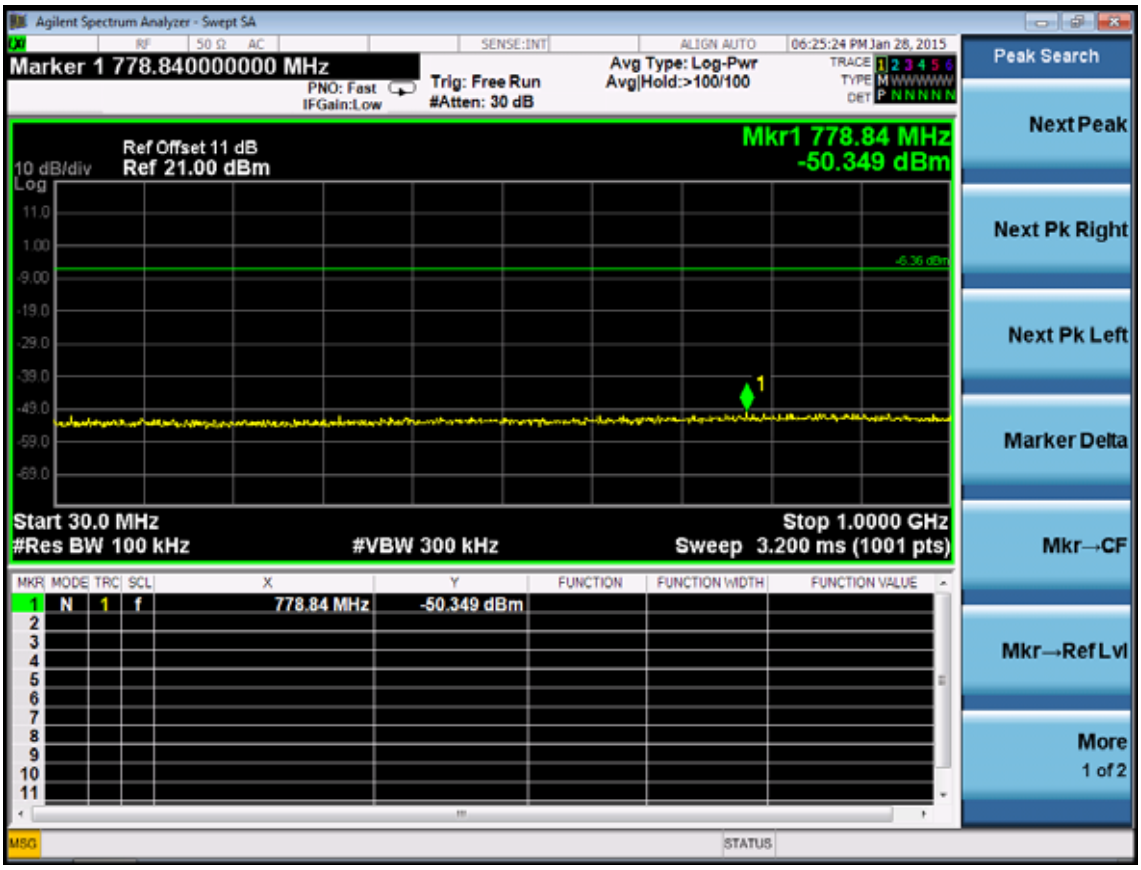


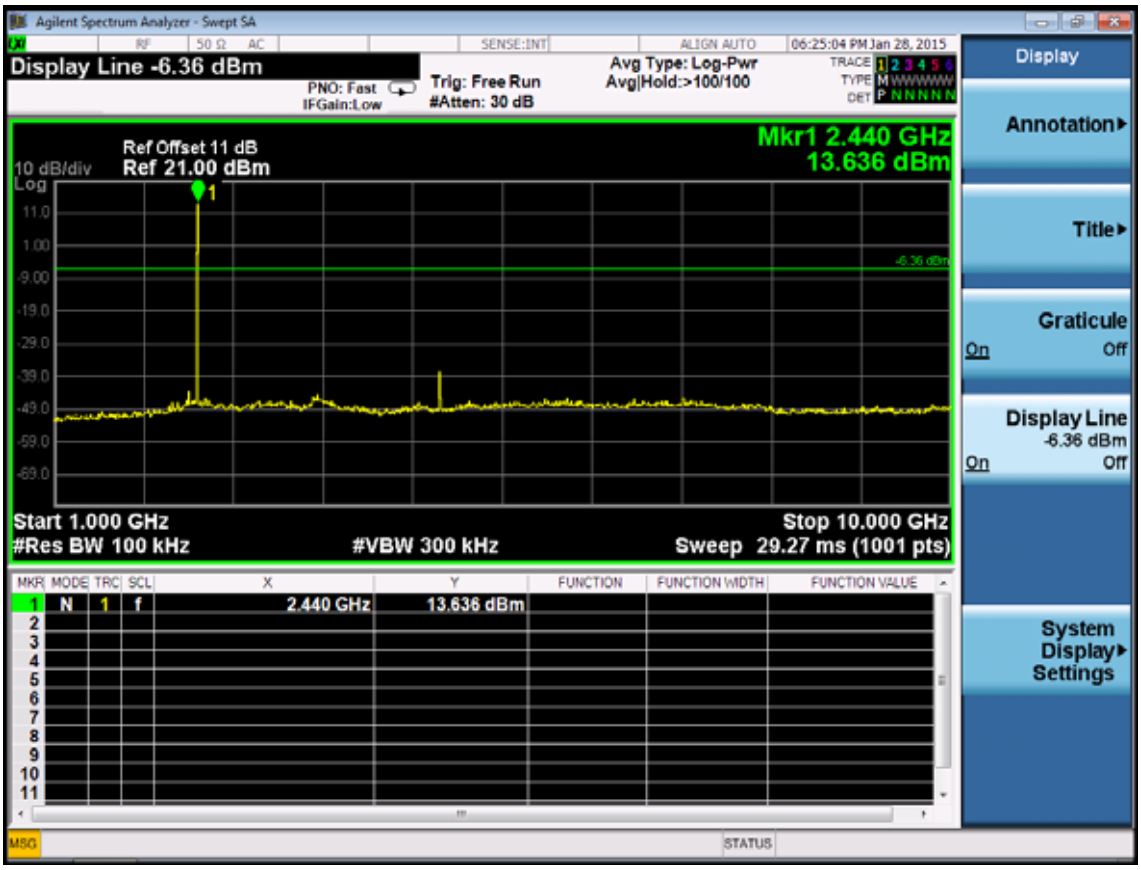


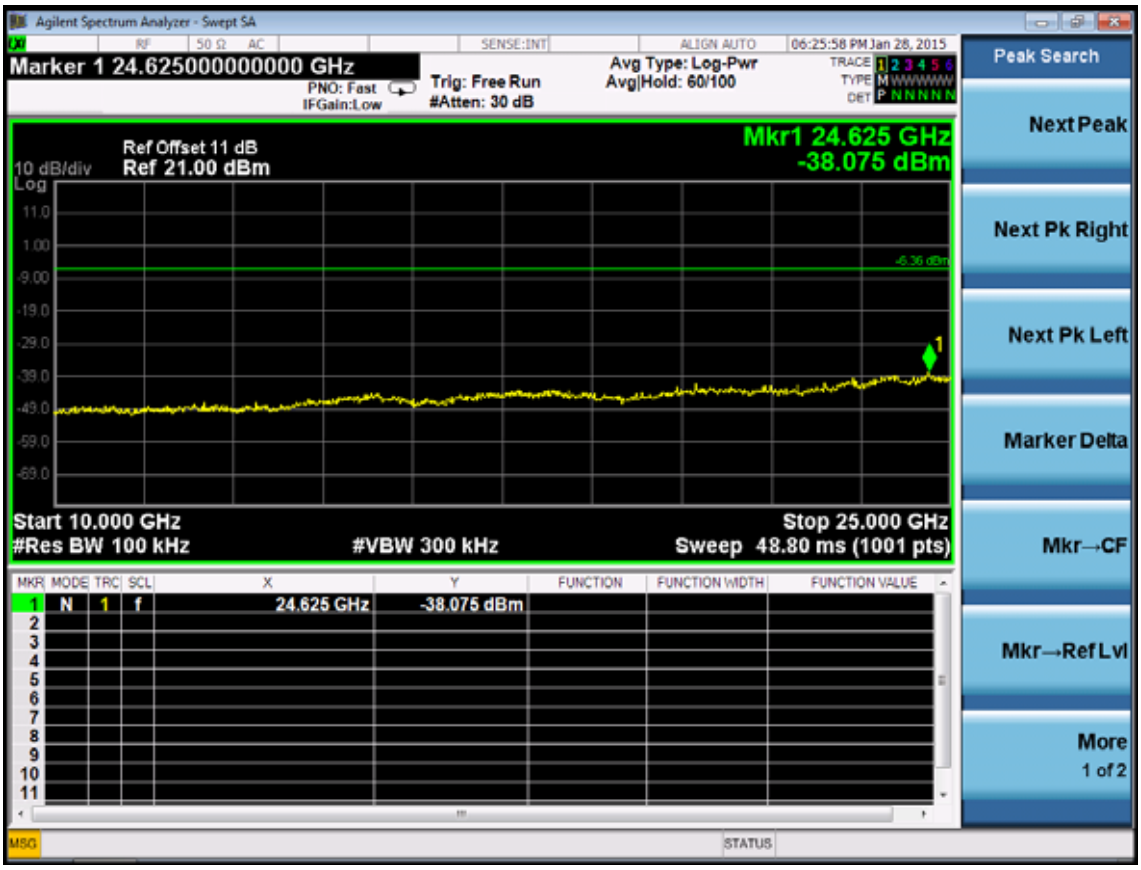

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.010000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 59/100
06:14:33 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 24.010 GHz
-38.088 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.010 GHz -38.088 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Display Line -7.13 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:17:31 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr3 2.412 41 GHz
12.875 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.42000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 2.390 00 GHz -48.155 dBm
2 N 1 f 2.400 00 GHz -47.969 dBm
3 N 1 f 2.412 41 GHz 12.875 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-7.13 dBm
On Off
System Display Settings

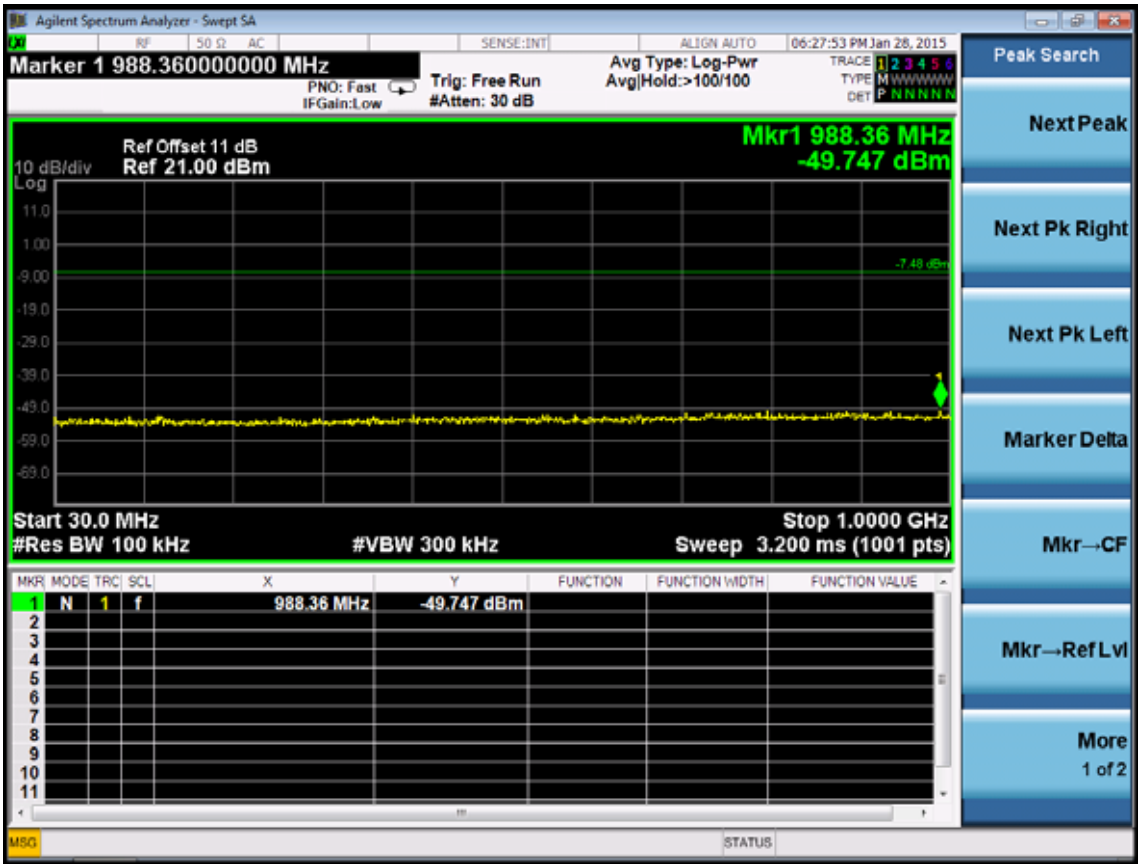
Test CH6: 2437MHz

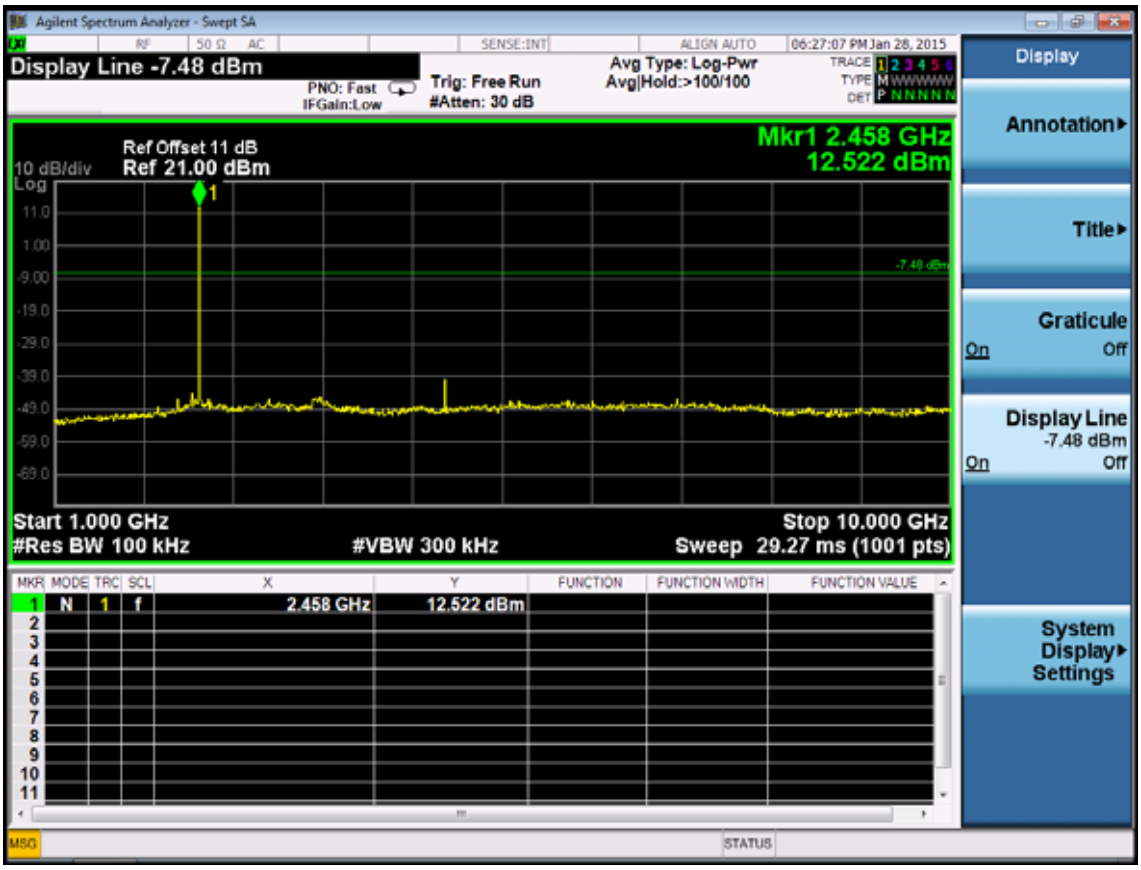


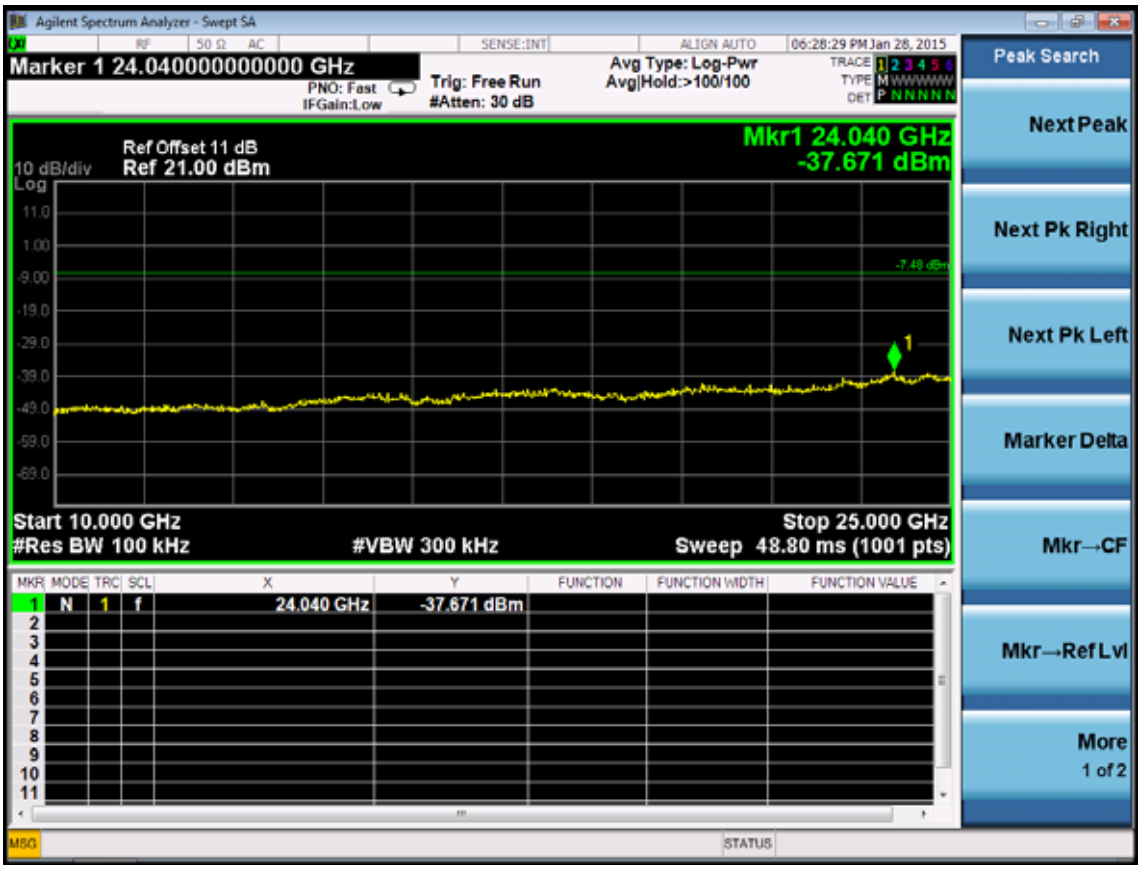




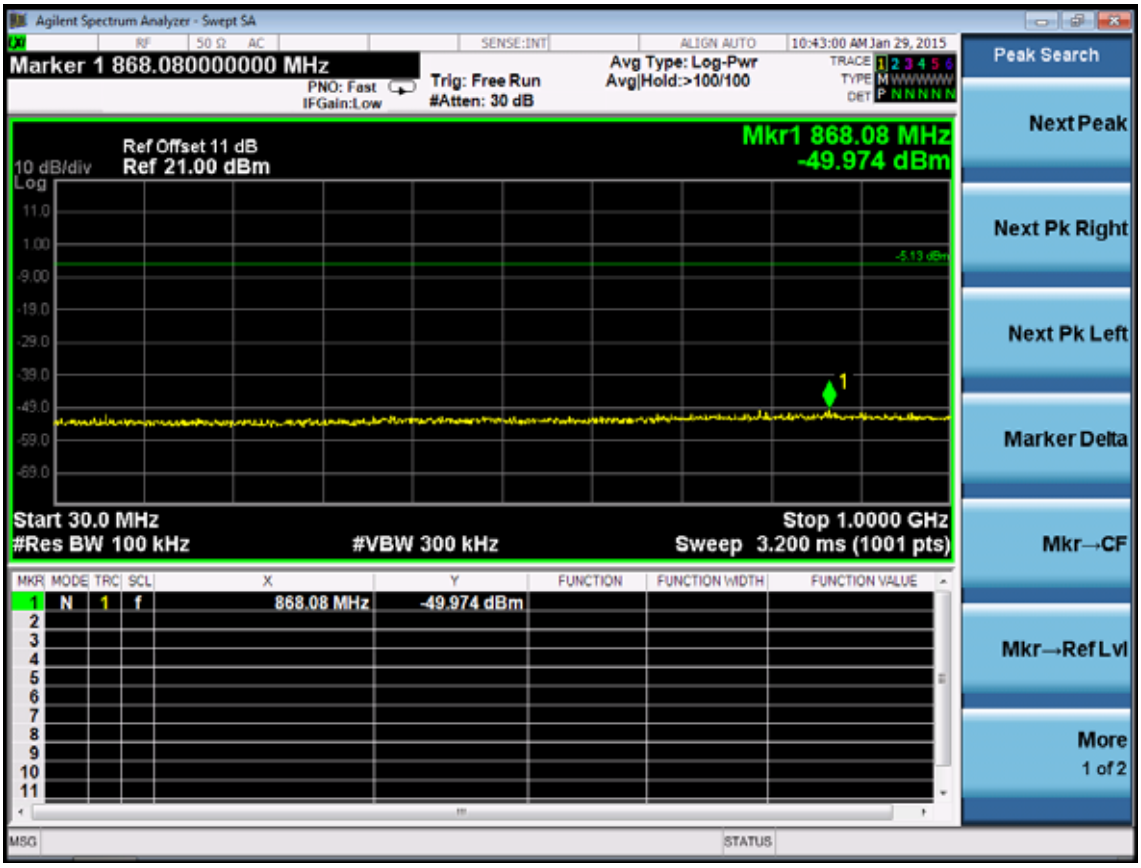
Test CH11: 2462MHz

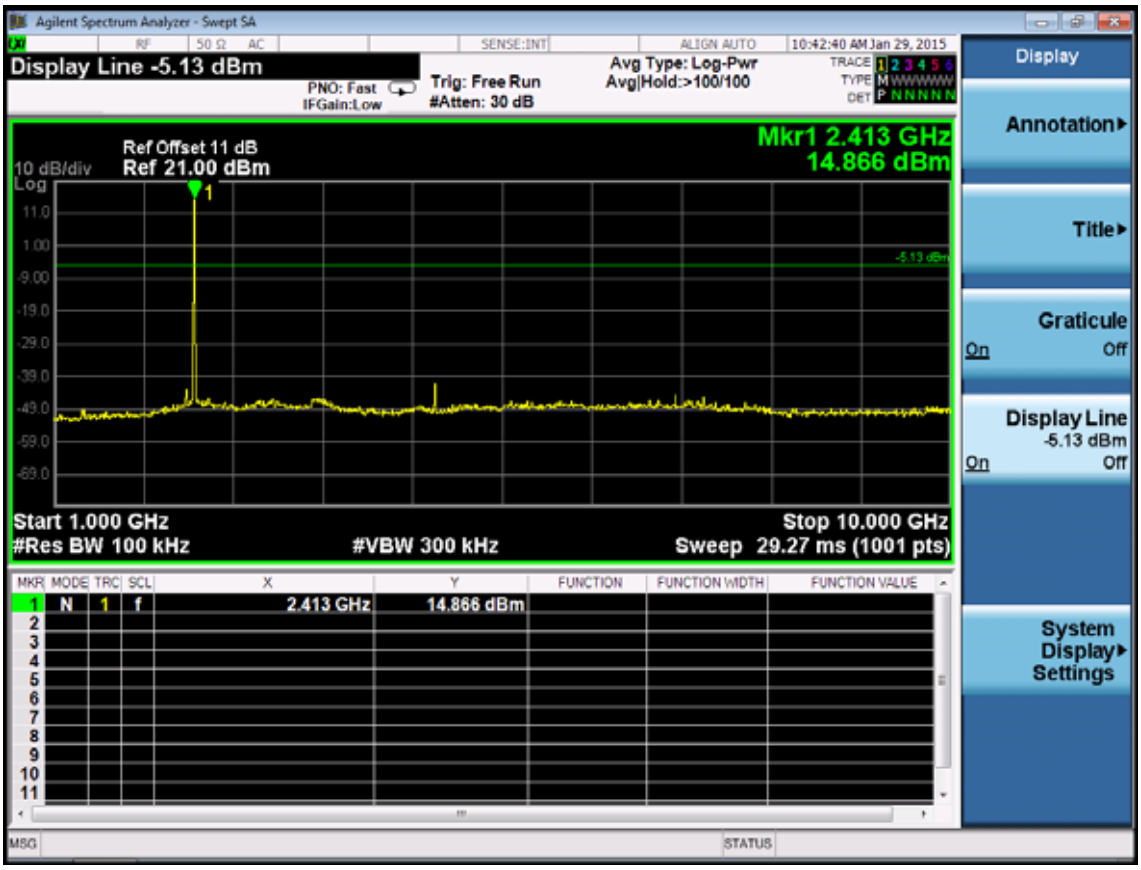


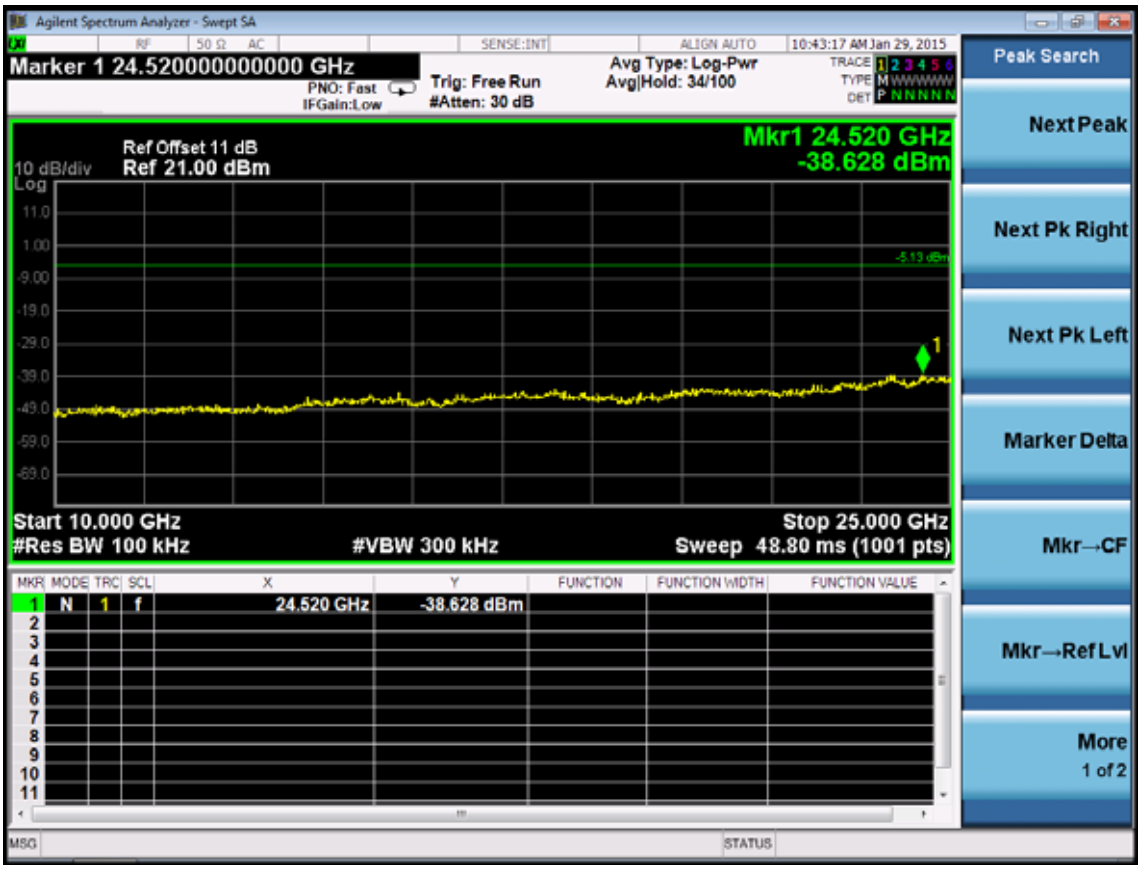

Agilent Spectrum Analyzer - Swept SA
06:27:07 PM Jan 28, 2015
Display Line -7.48 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Log
Mkr1 2.458 GHz
12.522 dBm
-7.48 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 29.27 ms (1001 pts)
1 N 1 f 2.458 GHz 12.522 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-7.48 dBm
On Off
System Display Settings
MSG
STATUS

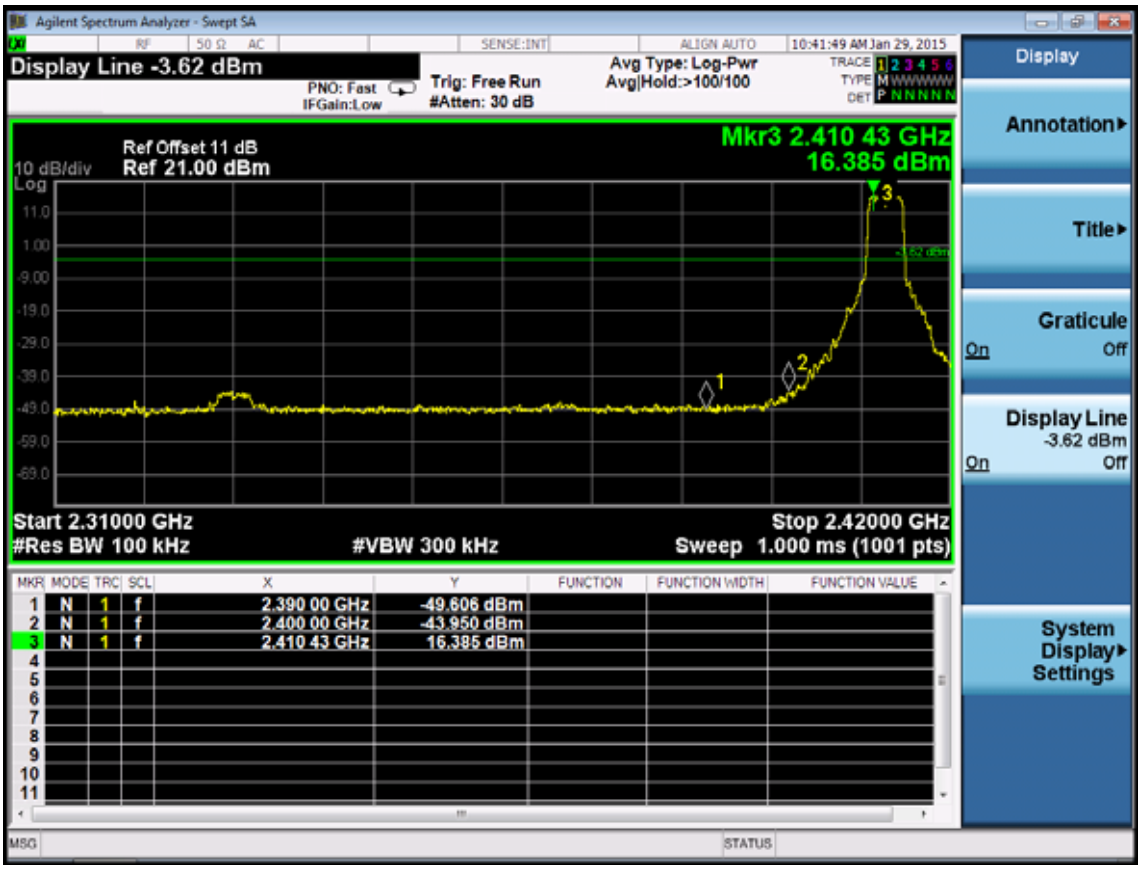

Agilent Spectrum Analyzer - Swept SA
06:28:29 PM Jan 28, 2015
Marker 1 24.040000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Log
Mkr1 24.040 GHz
-37.671 dBm
-7.48 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.040 GHz -37.671 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

Test Mode: IEEE 802.11g
Test CH1: 2412MHz

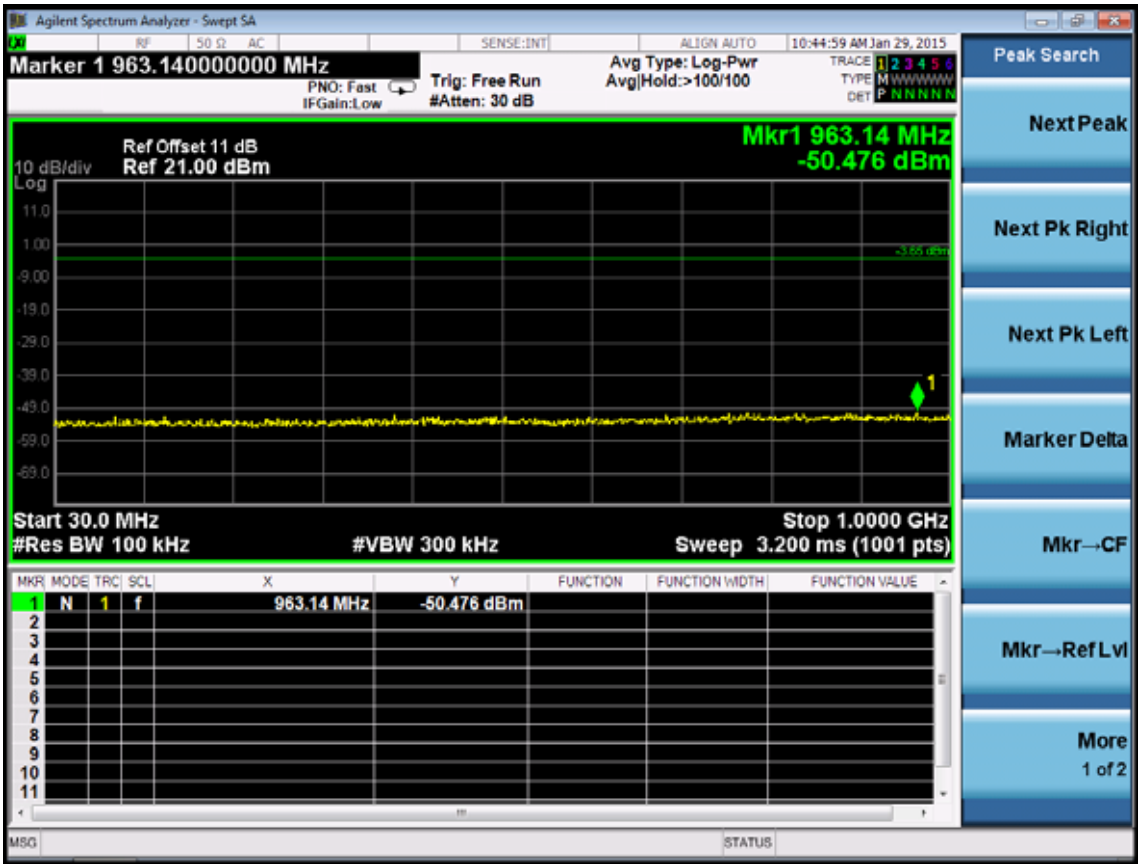


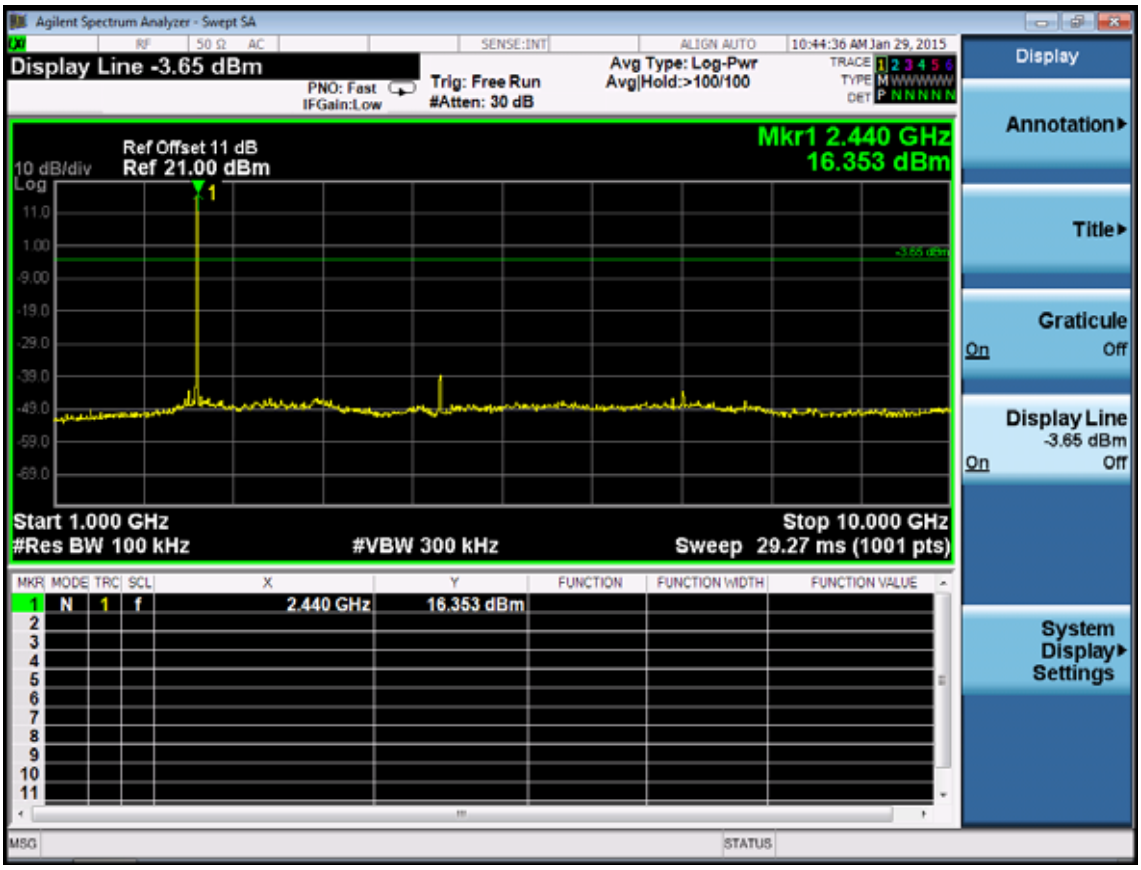

Agilent Spectrum Analyzer - Swept SA
Display Line -5.13 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
10:42:40 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 2.413 GHz
14.866 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 29.27 ms (1001 pts)
1 N 1 f 2.413 GHz 14.866 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-5.13 dBm
On Off
System Display Settings

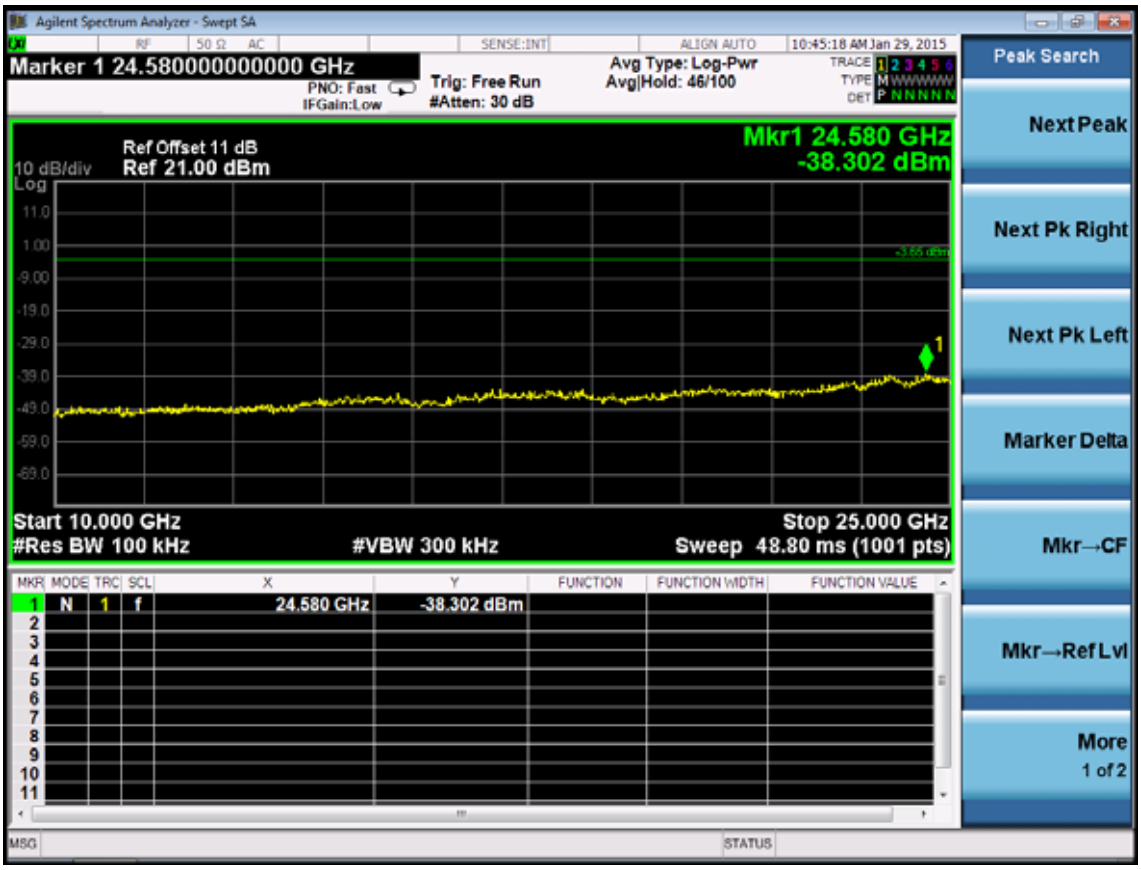

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.520000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 34/100
10:43:17 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 24.520 GHz
-38.628 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.520 GHz -38.628 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



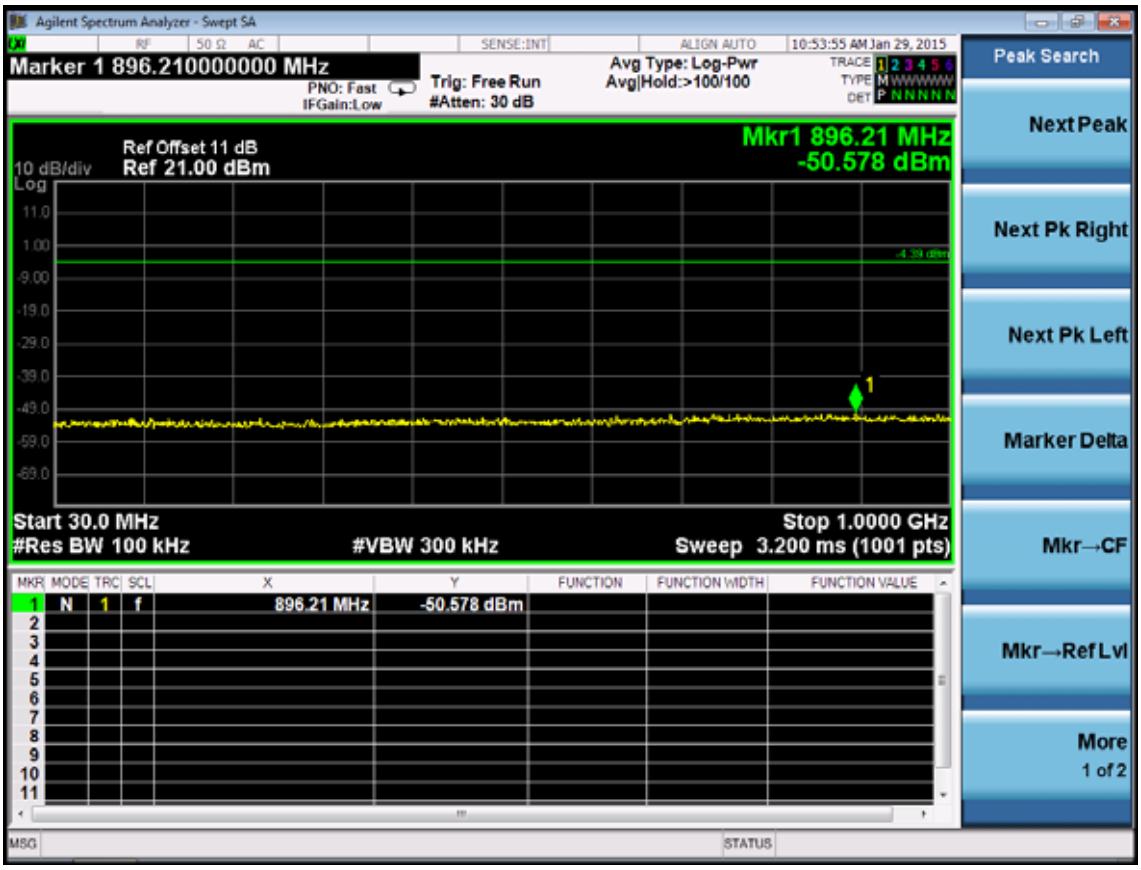
Test CH6: 2437MHz

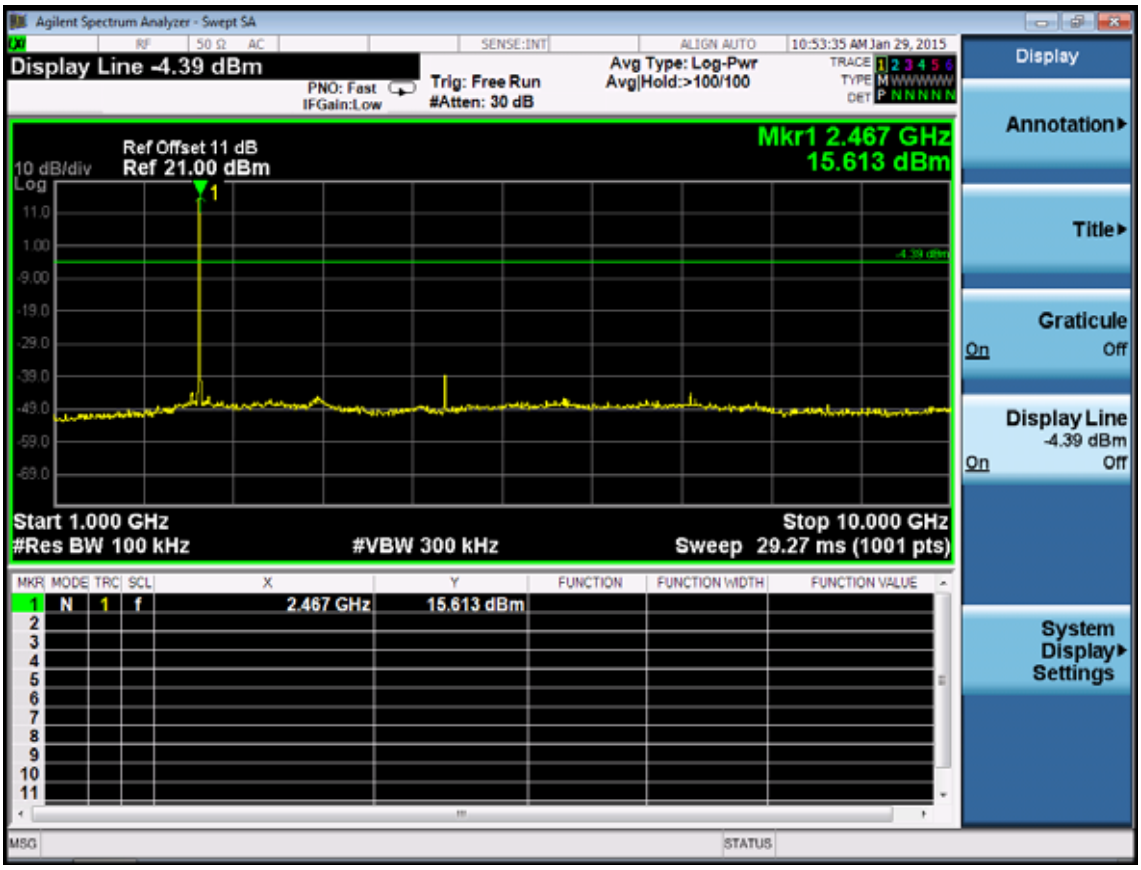


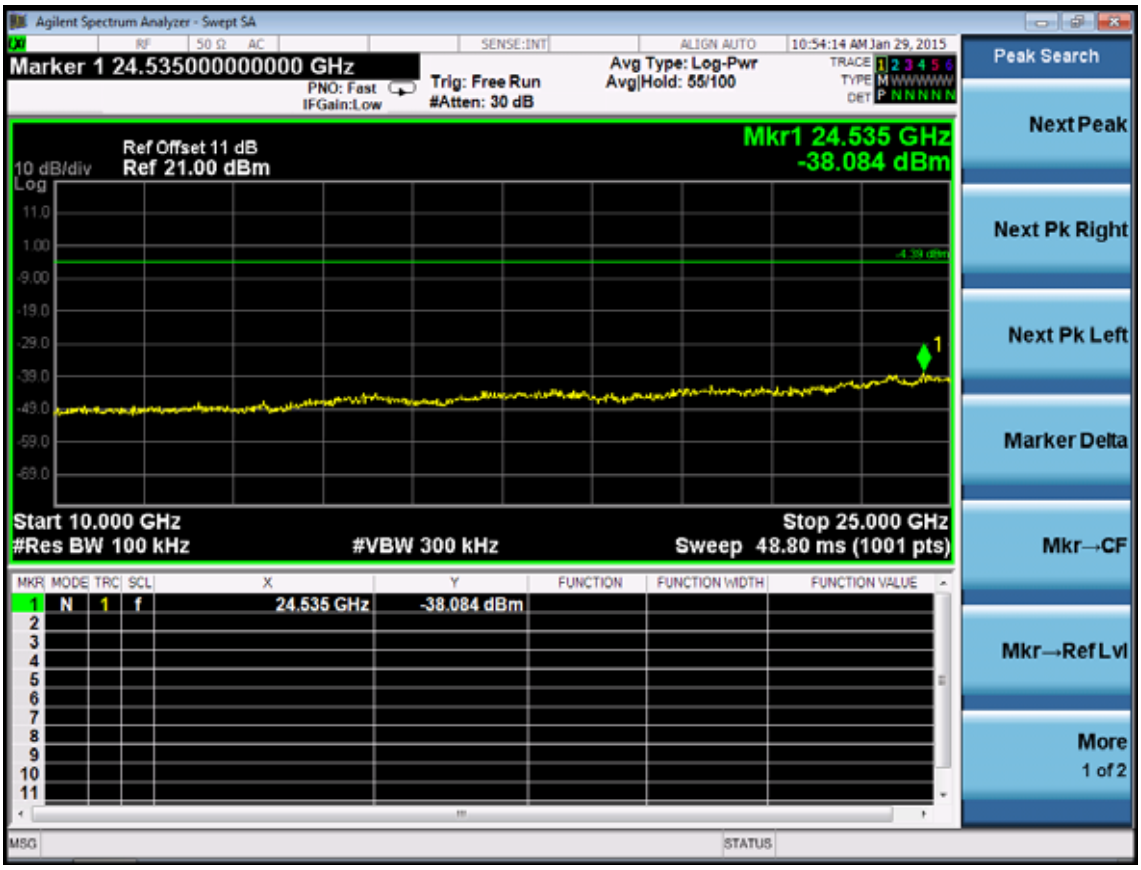

Agilent Spectrum Analyzer - Swept SA
Display Line -3.65 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
10:44:36 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 2.440 GHz
16.353 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 29.27 ms (1001 pts)
1 N 1 f 2.440 GHz 16.353 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-3.65 dBm
On Off
System Display Settings


Agilent Spectrum Analyzer - Swept SA
Marker 1 24.580000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 46/100
10:45:18 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 24.580 GHz
-38.302 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.580 GHz -38.302 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Test CH11: 2462MHz



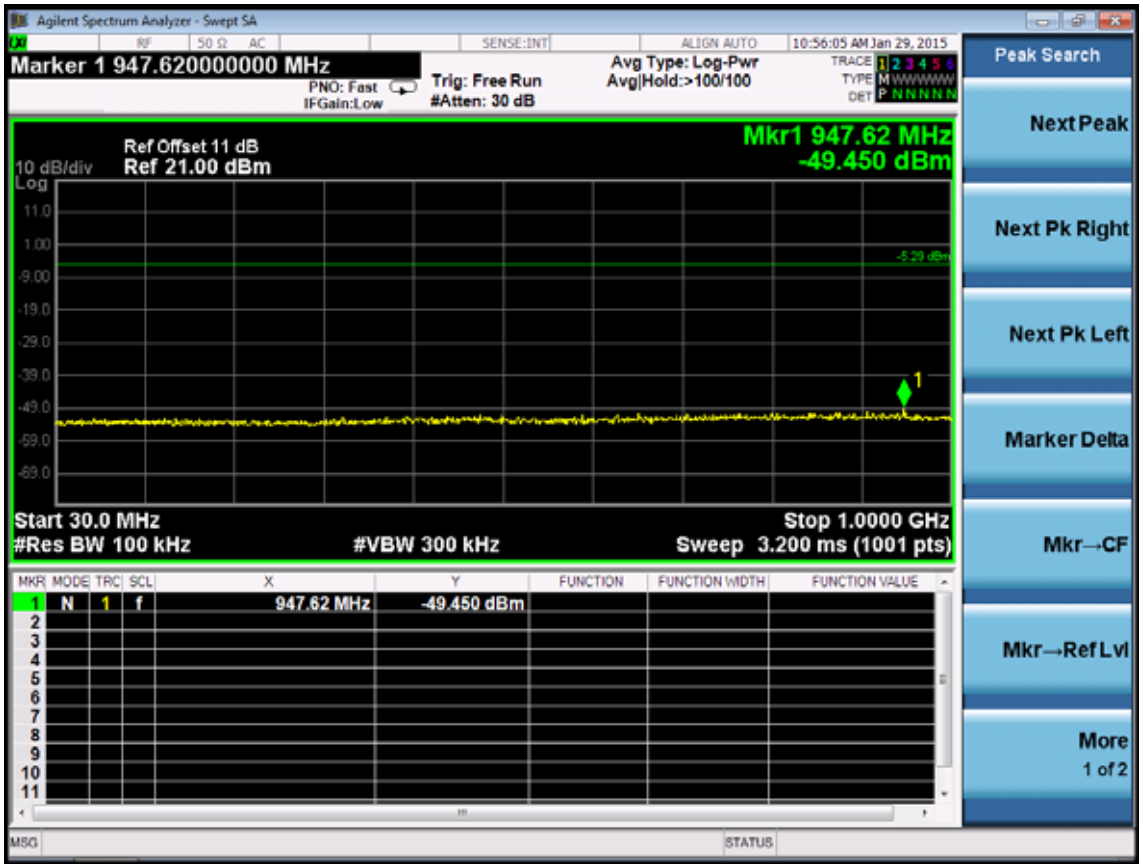


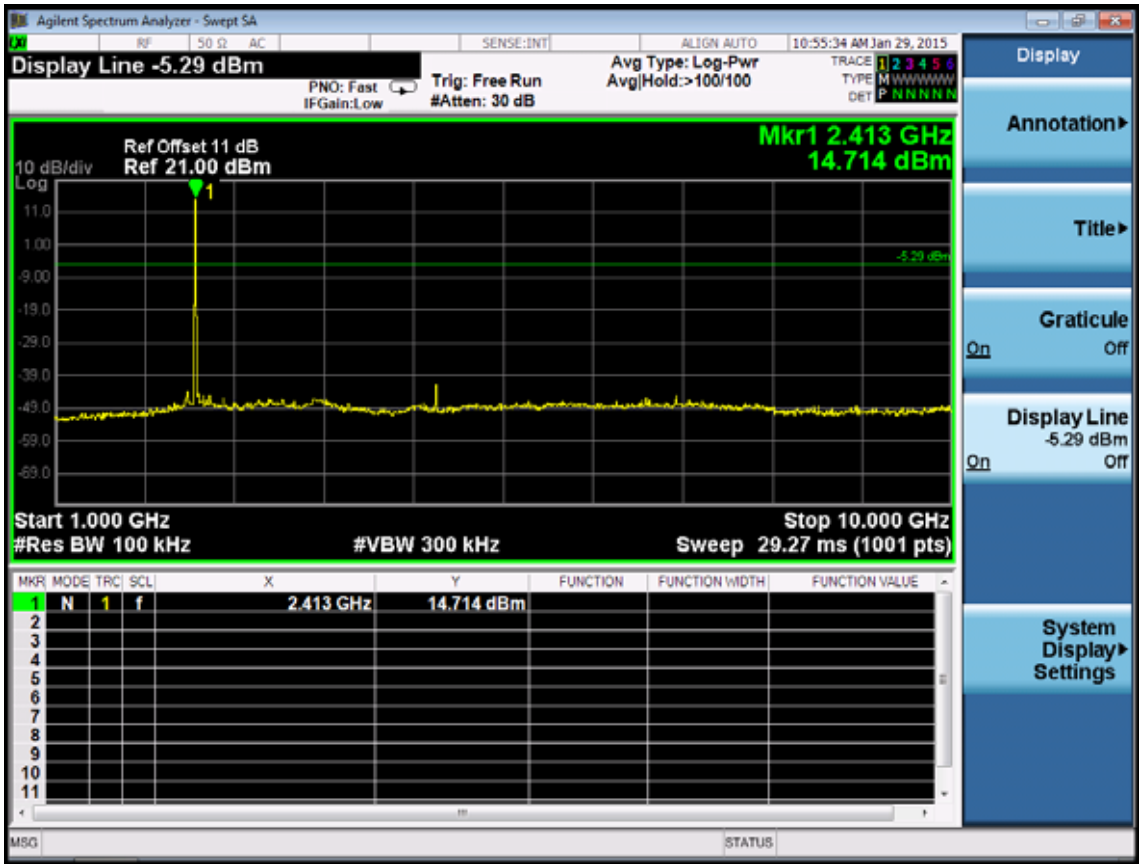

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.535000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 55/100
10:54:14 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 24.535 GHz
-38.084 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.535 GHz -38.084 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

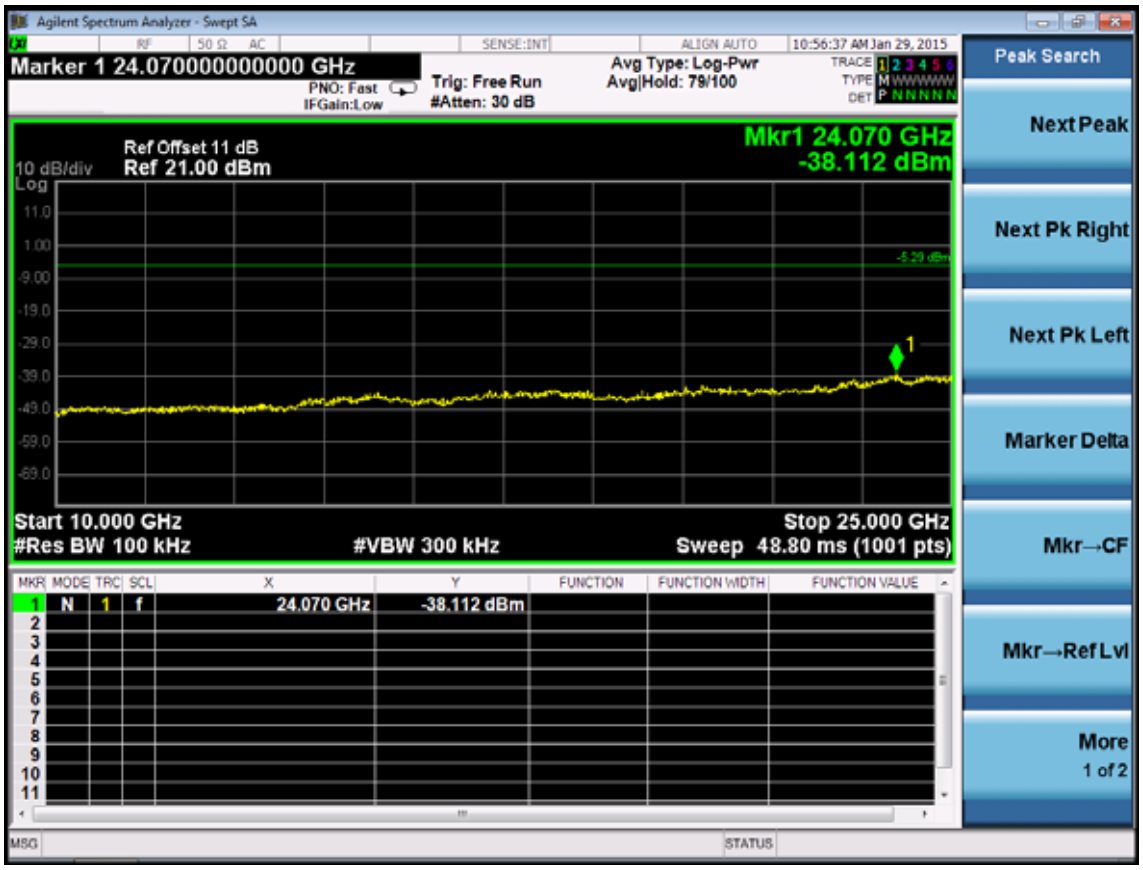
Agilent Spectrum Analyzer - Swept SA
Display Line -4.04 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
10:52:40 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr3 2.463 910 GHz
15.959 dBm
Start 2.45500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.51000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 2.483 500 GHz -49.506 dBm
2 N 1 f 2.500 000 GHz -48.545 dBm
3 N 1 f 2.463 910 GHz 15.959 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-4.04 dBm
On Off
System Display Settings

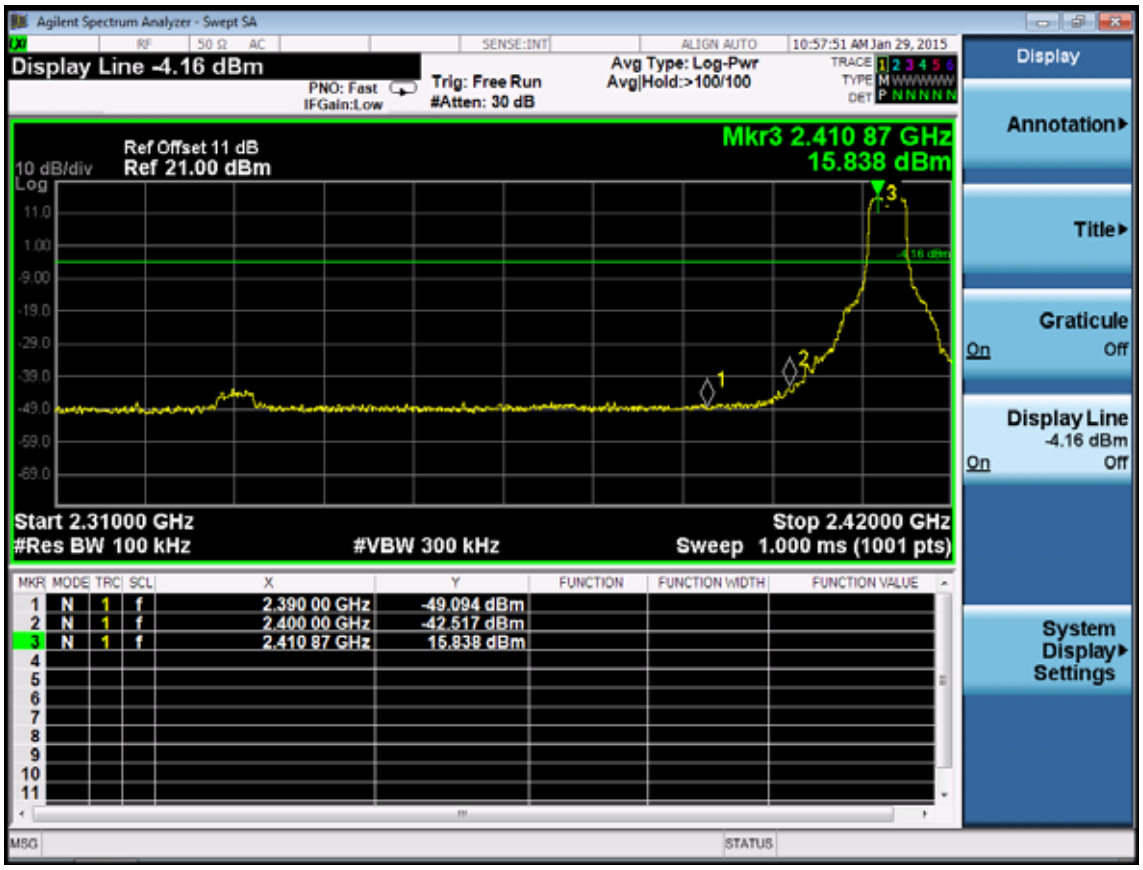
Test Mode: IEEE 11nTH20

Test CH1: 2412MHz

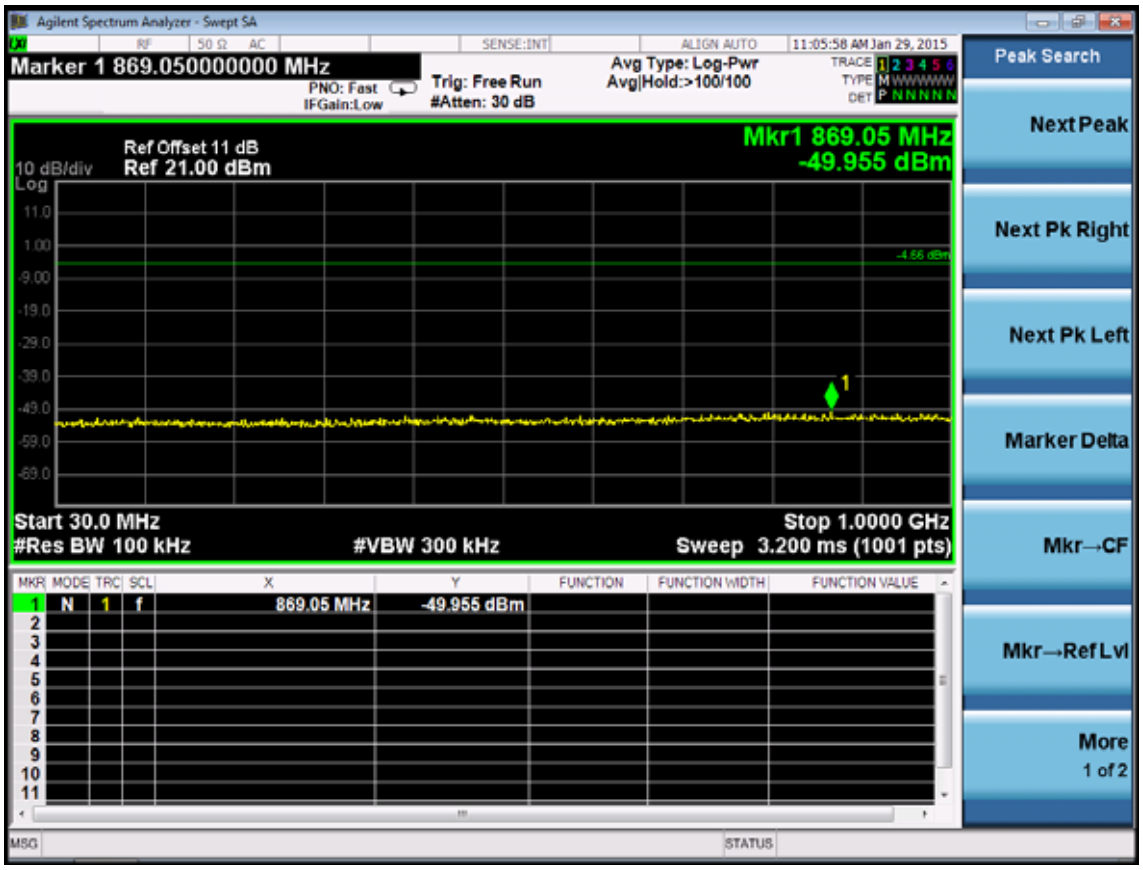


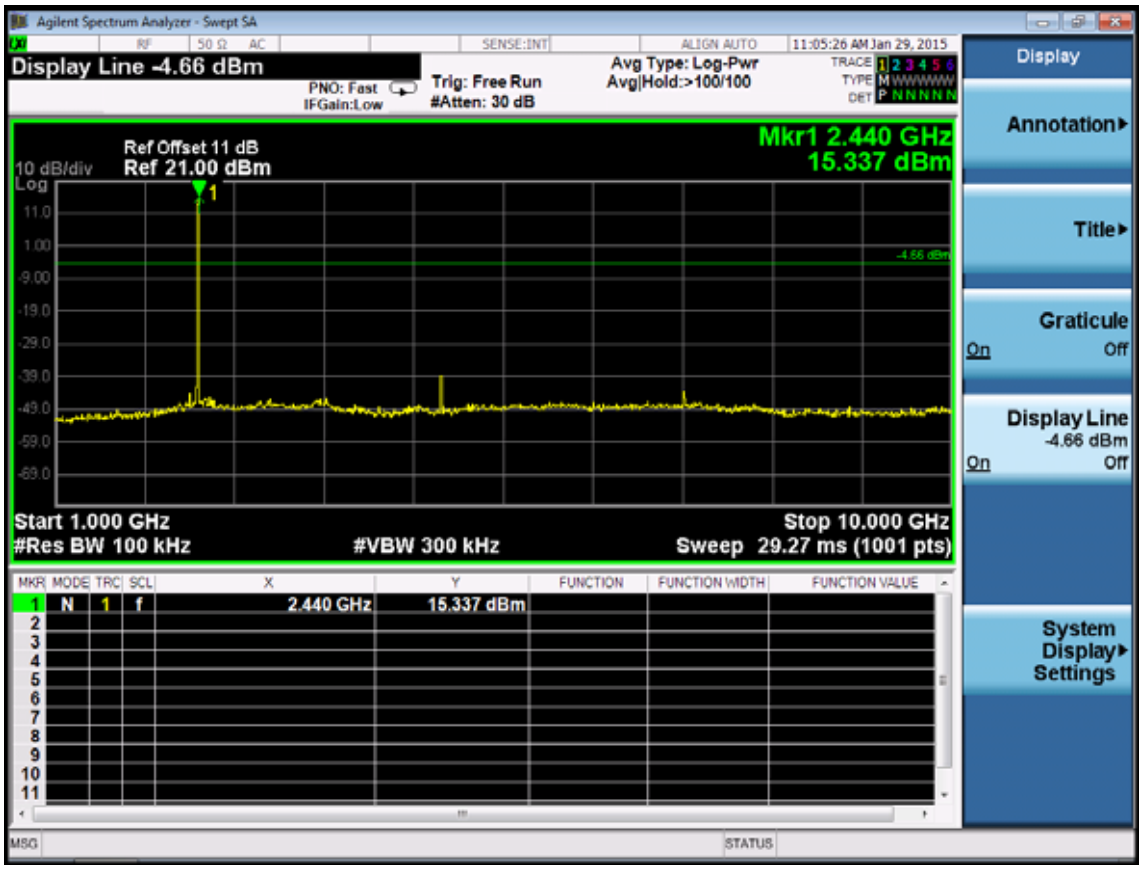


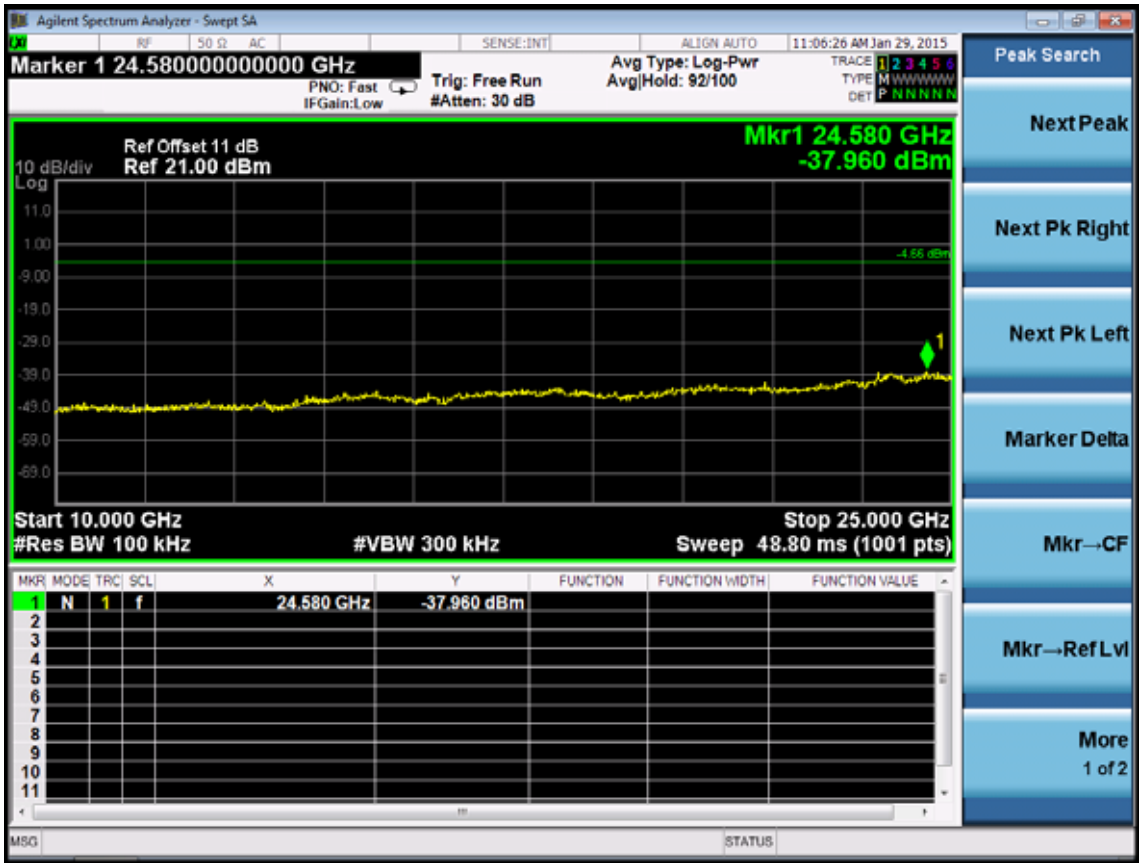

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.070000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 79/100
10:56:37 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Log
Mkr1 24.070 GHz
-38.112 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.070 GHz -38.112 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Display Line -4.16 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
10:57:51 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Log
Mkr3 2.410 87 GHz
15.838 dBm
Start 2.31000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.42000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 2.390 00 GHz -49.094 dBm
2 N 1 f 2.400 00 GHz -42.517 dBm
3 N 1 f 2.410 87 GHz 15.838 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-4.16 dBm
On Off
System Display Settings

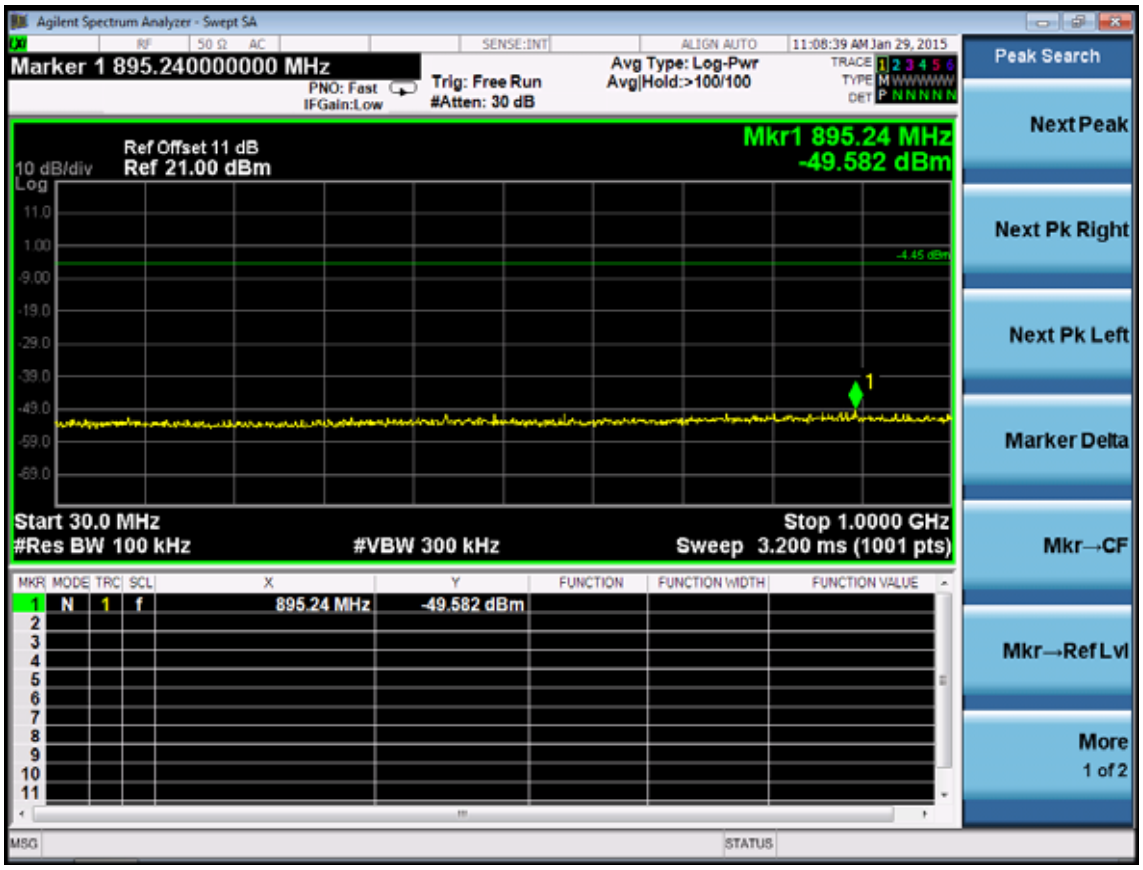
Test CH6: 2437MHz

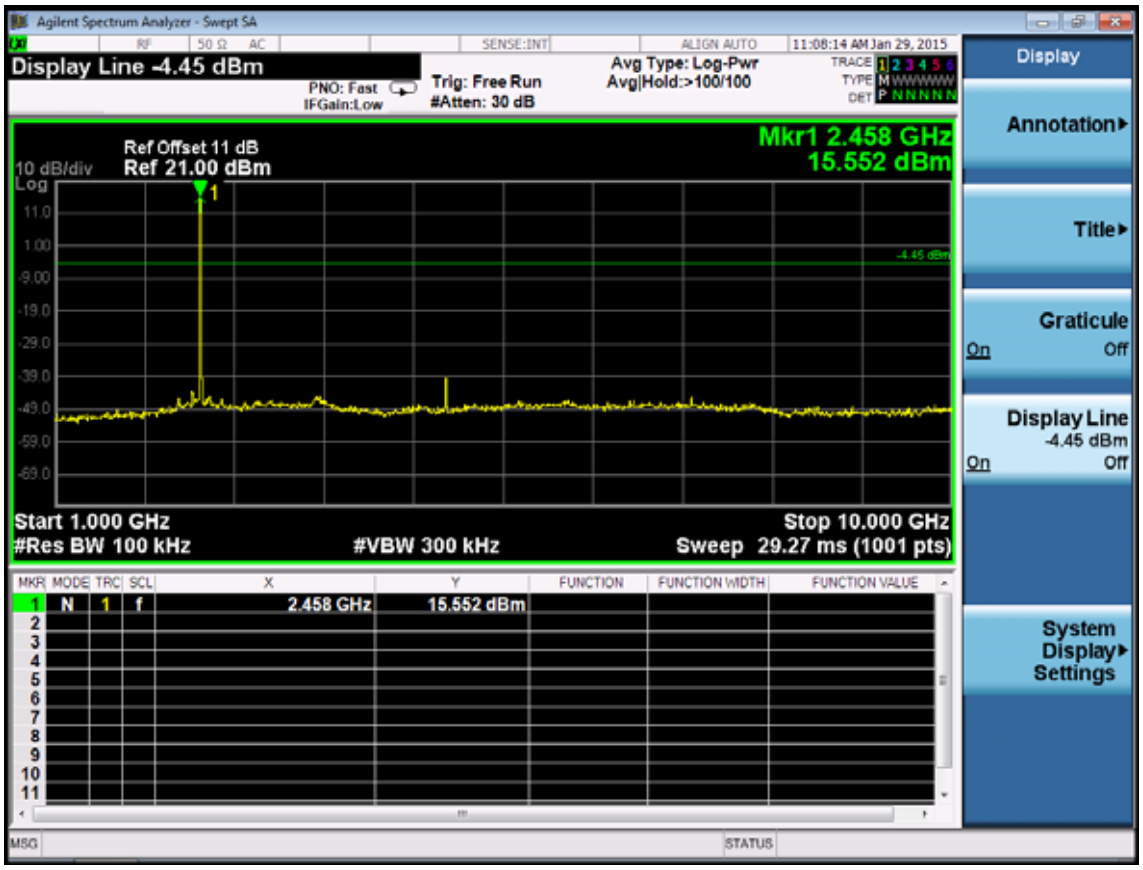


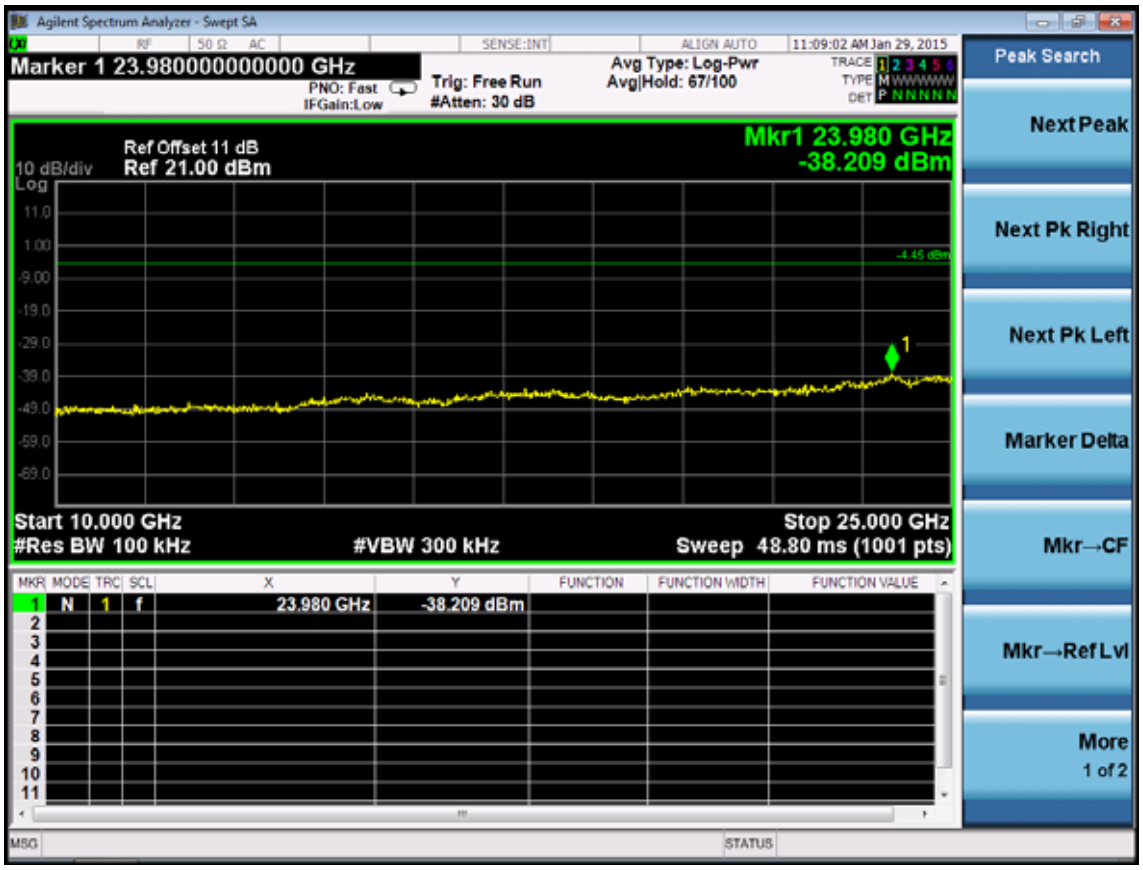


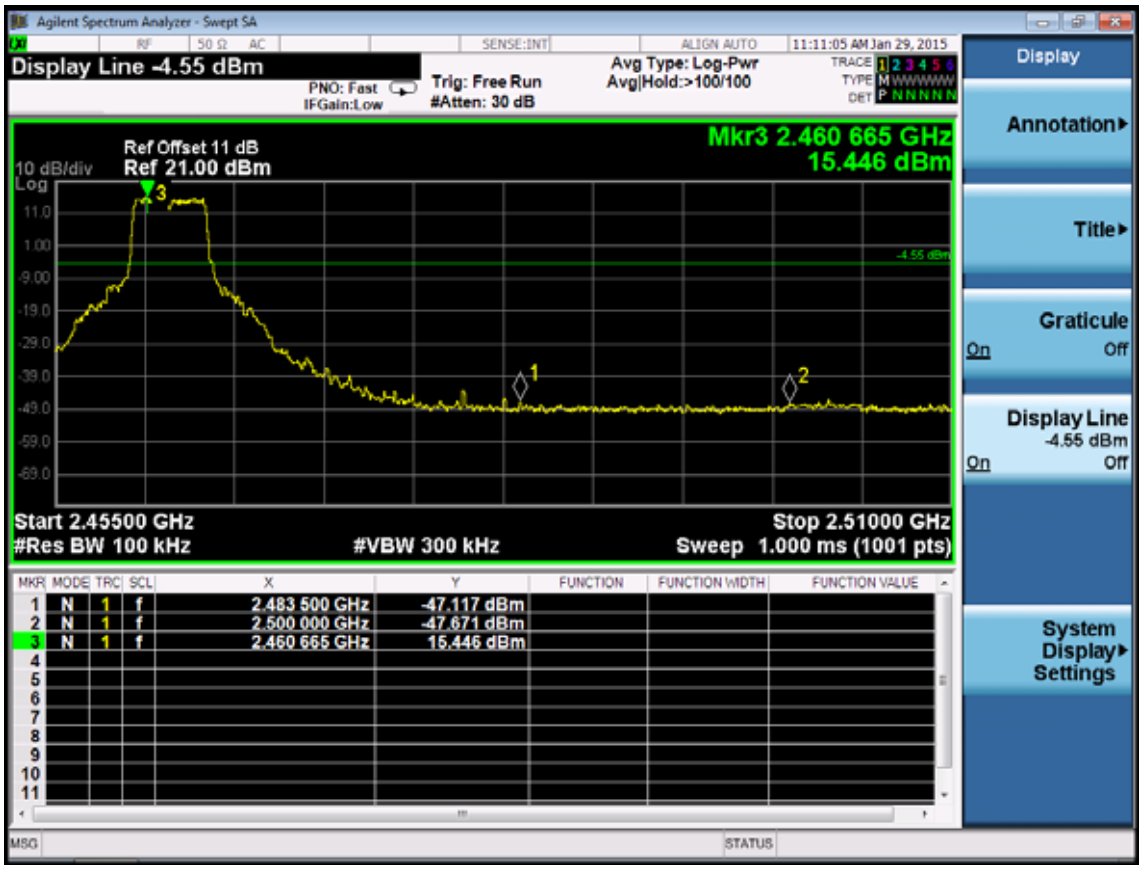


Test CH11: 2462MHz




Agilent Spectrum Analyzer - Swept SA
Display Line -4.45 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:08:14 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 2.458 GHz
15.552 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 29.27 ms (1001 pts)
1 N 1 f 2.458 GHz 15.552 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-4.45 dBm
On Off
System Display Settings

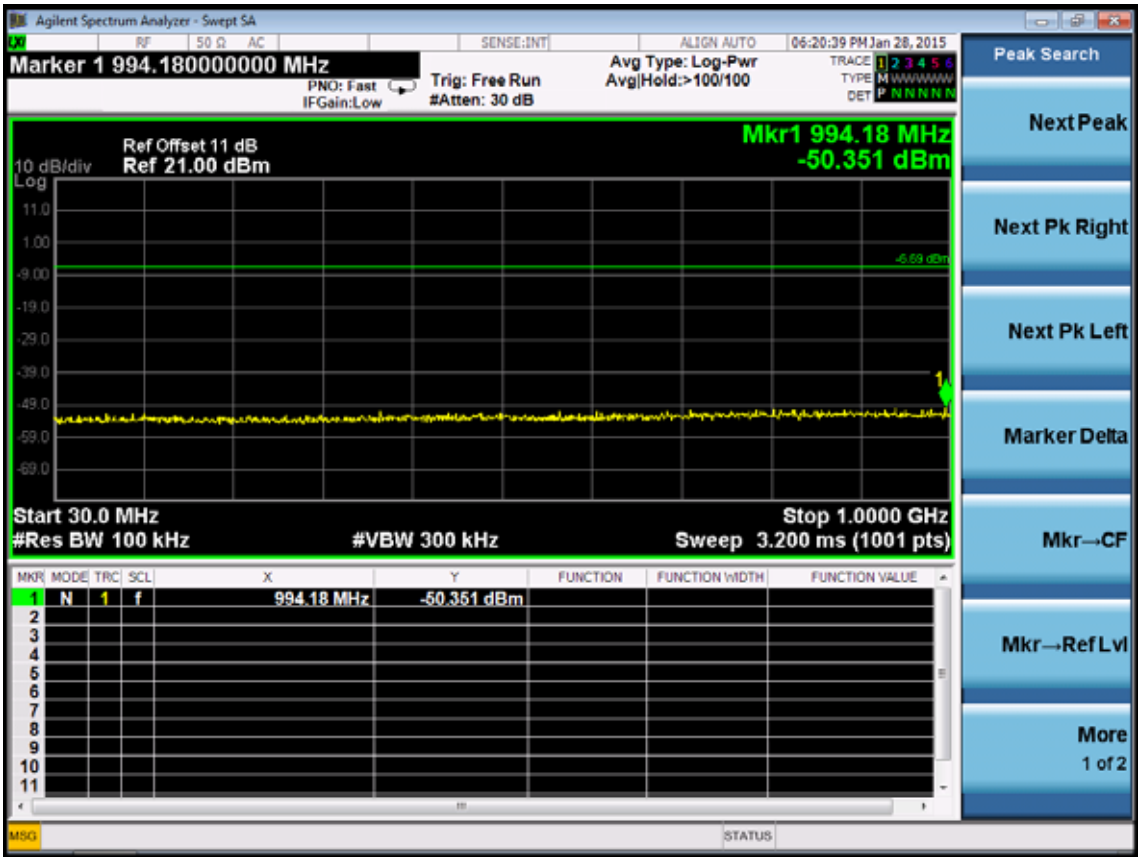

Agilent Spectrum Analyzer - Swept SA
Marker 1 23.980000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 67/100
11:09:02 AM Jan 29, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 23.980 GHz
-38.209 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 23.980 GHz -38.209 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

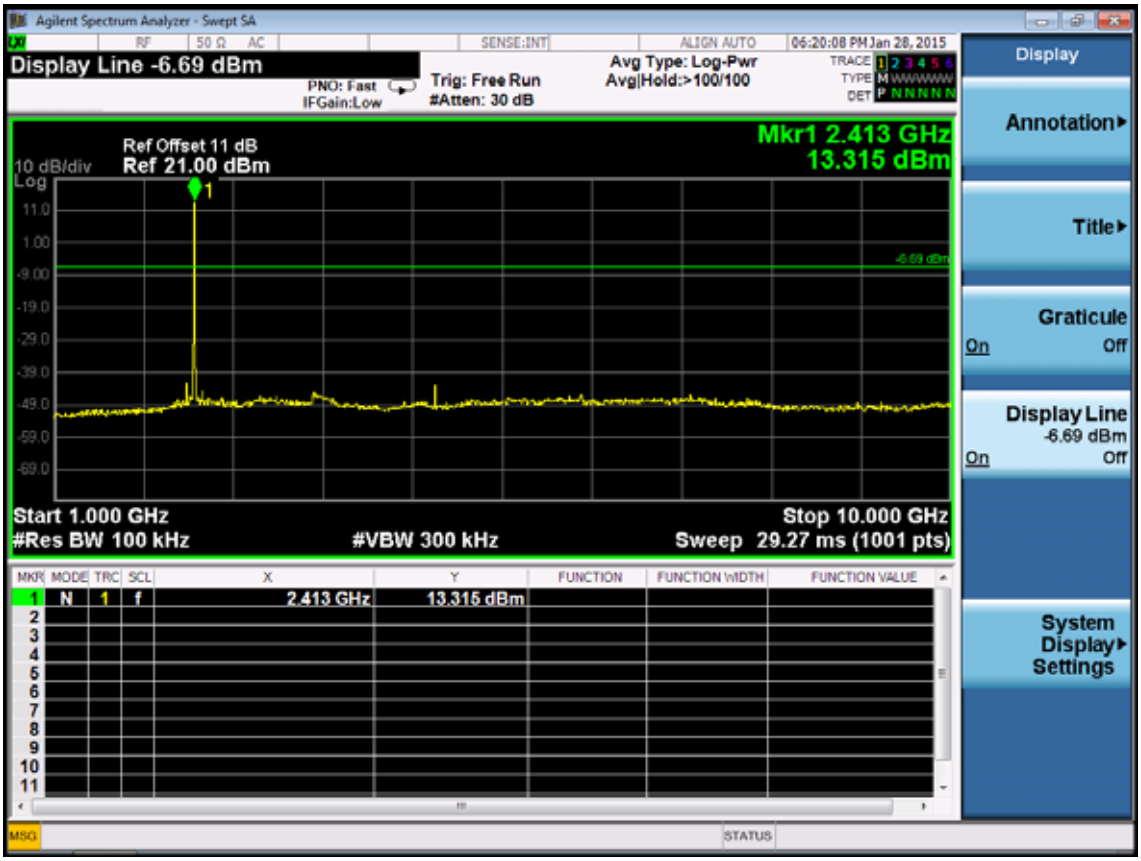


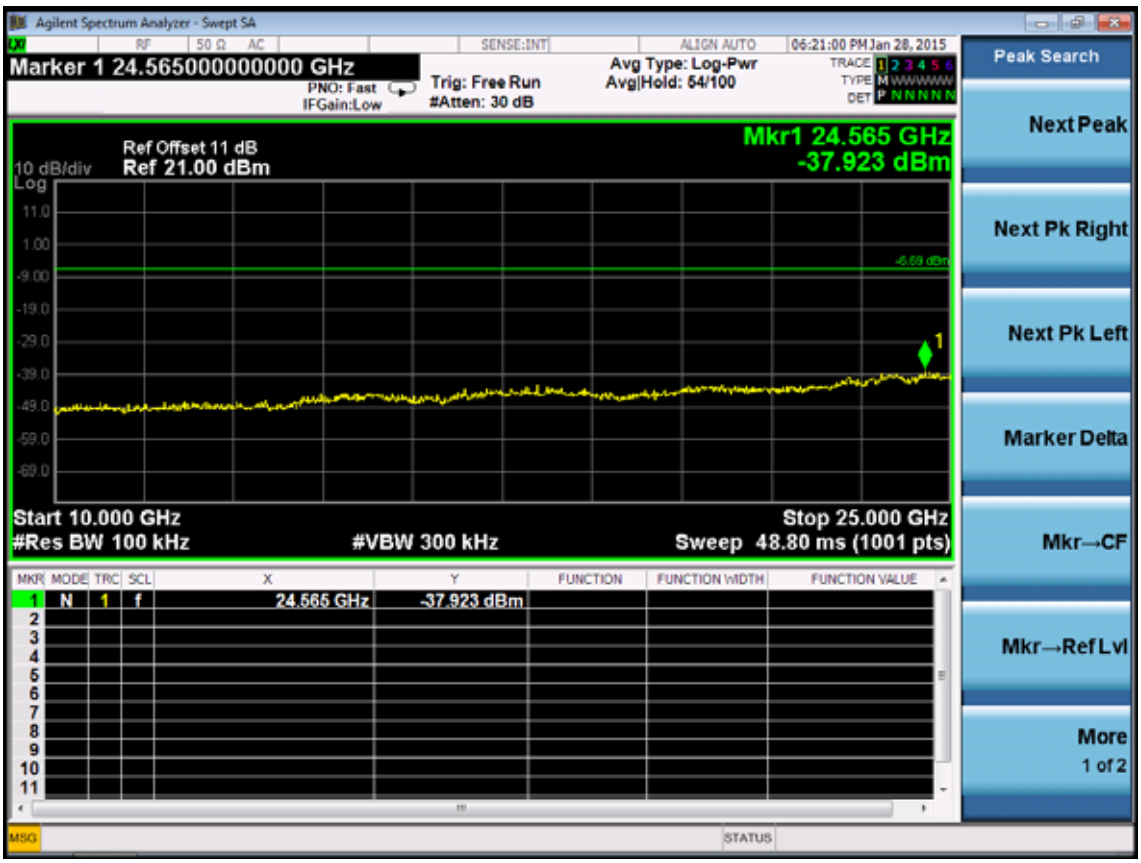
5MHz Antenna 2

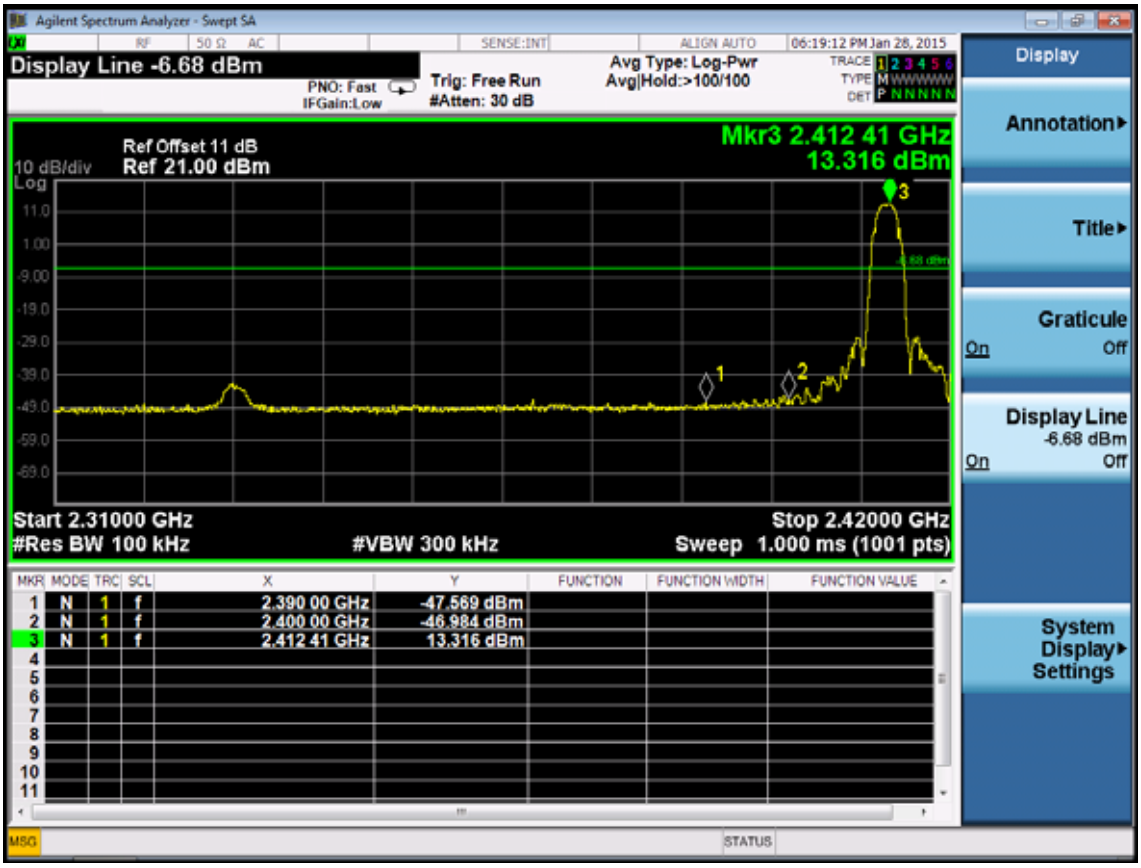
Test Mode: IEEE 802.11b

Test CH1: 2412MHz

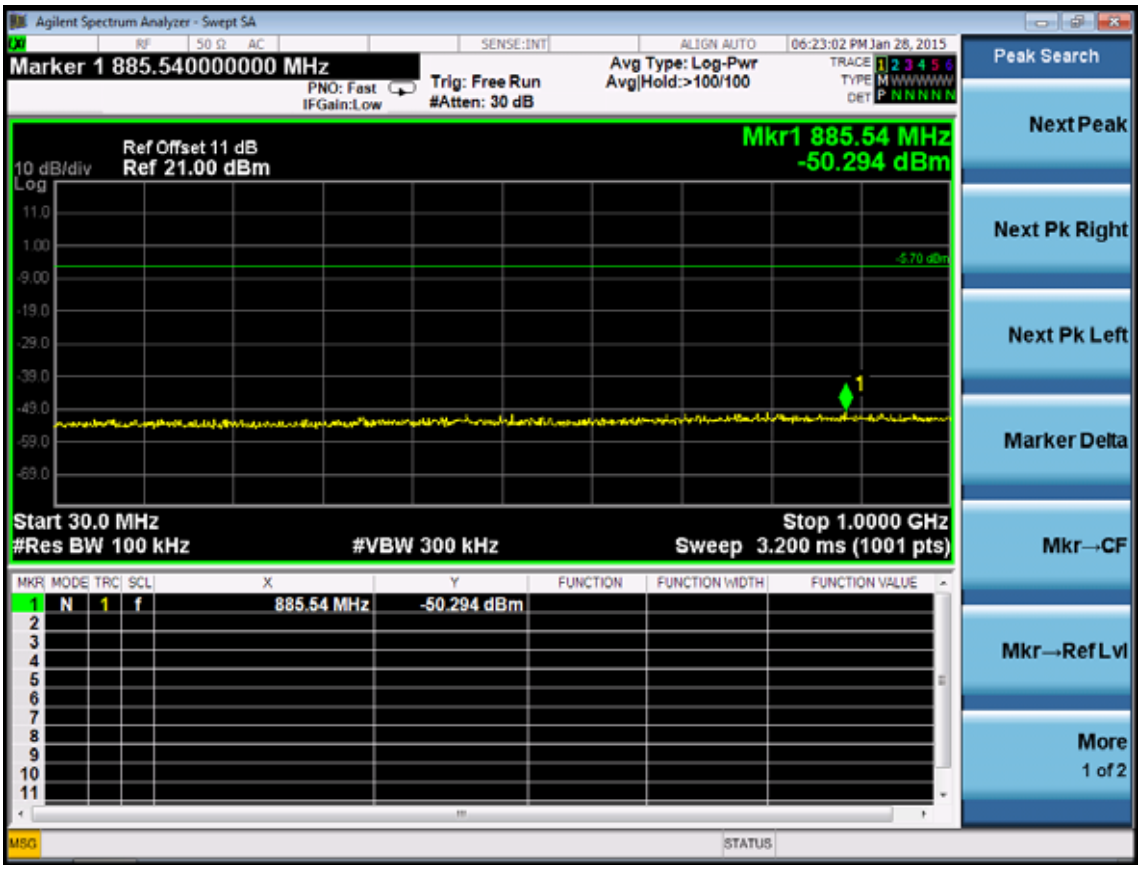


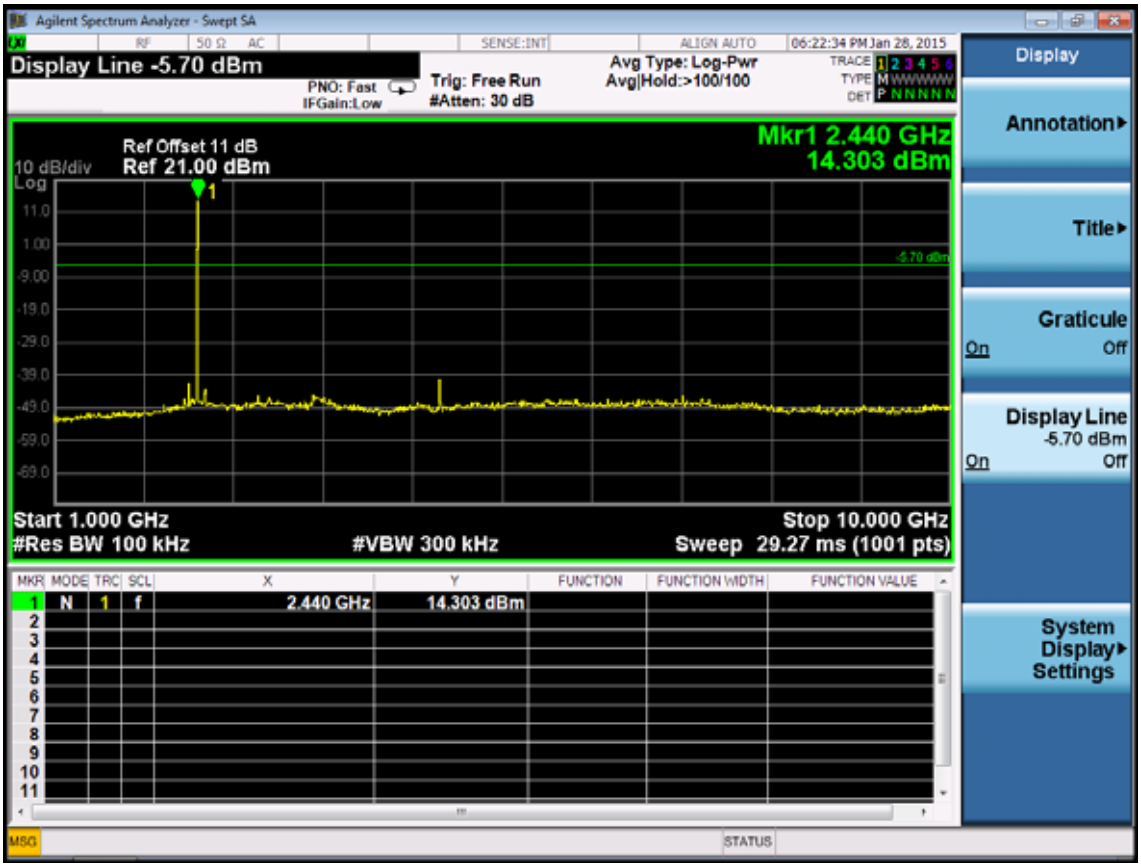

Agilent Spectrum Analyzer - Swept SA
Display Line -6.69 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:20:08 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 2.413 GHz
13.315 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 29.27 ms (1001 pts)
1 N 1 f 2.413 GHz 13.315 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-6.69 dBm
On Off
System Display Settings

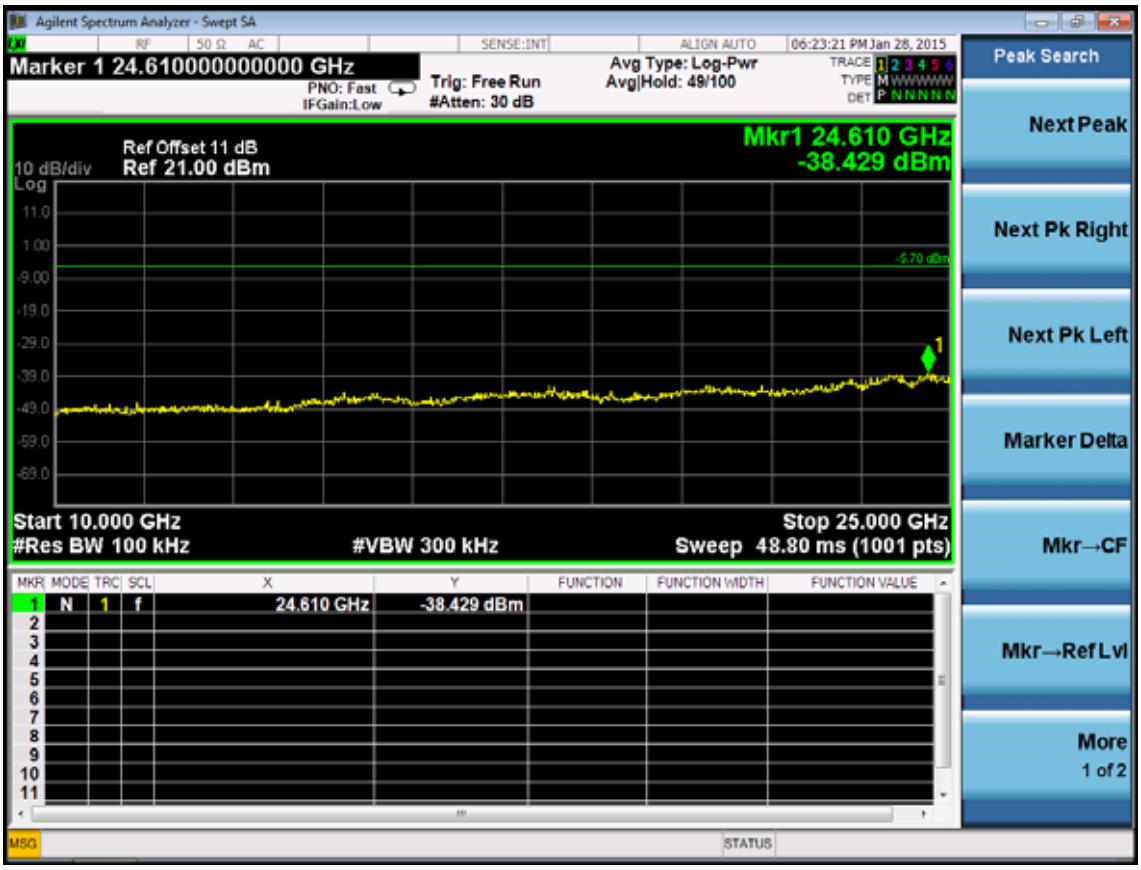

Agilent Spectrum Analyzer - Swept SA
Marker 1 24.565000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 54/100
06:21:00 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 24.565 GHz
-37.923 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.565 GHz -37.923 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2



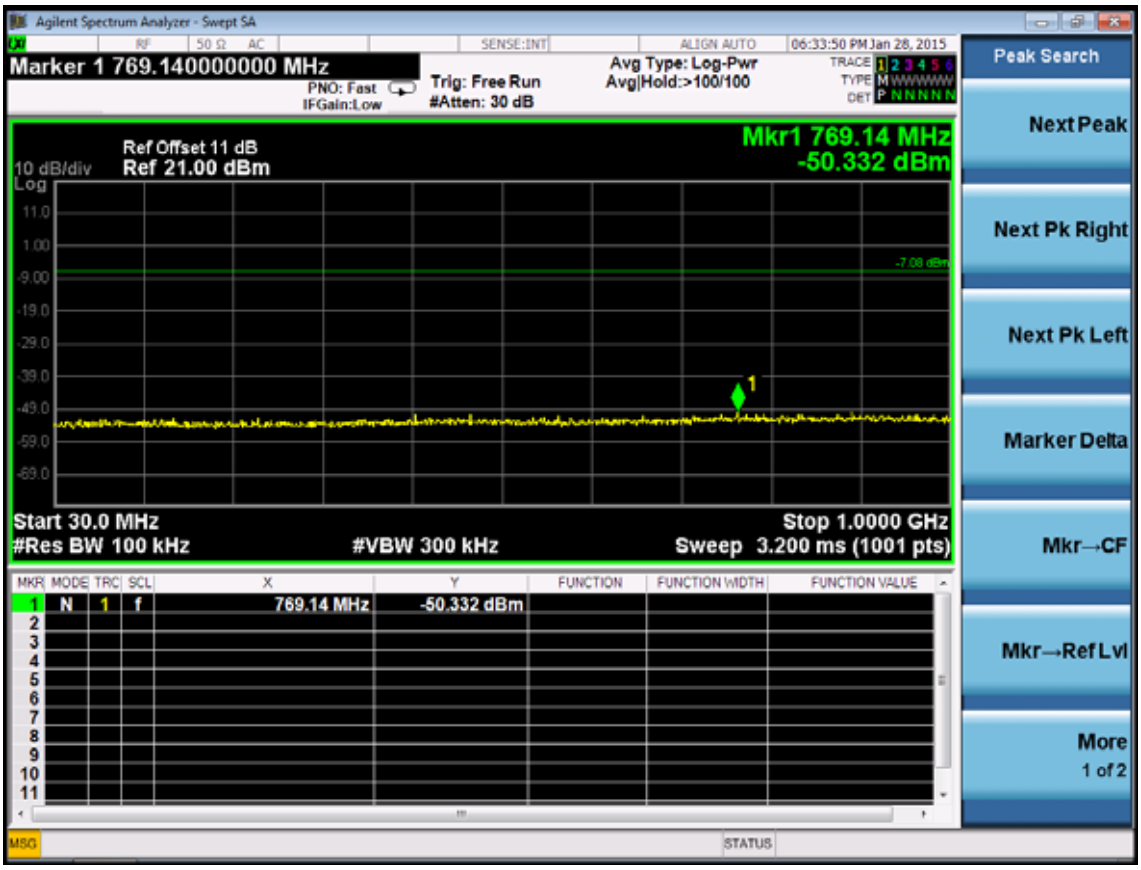
Test CH6: 2437MHz

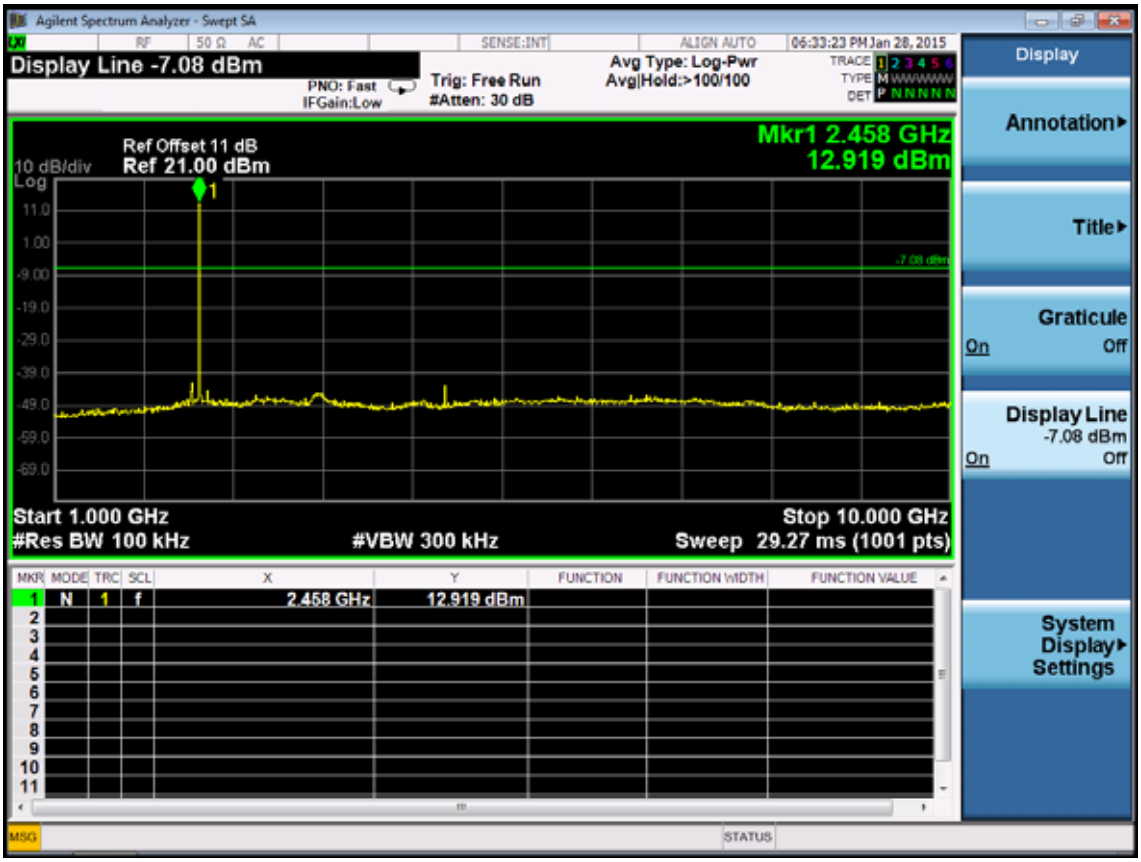


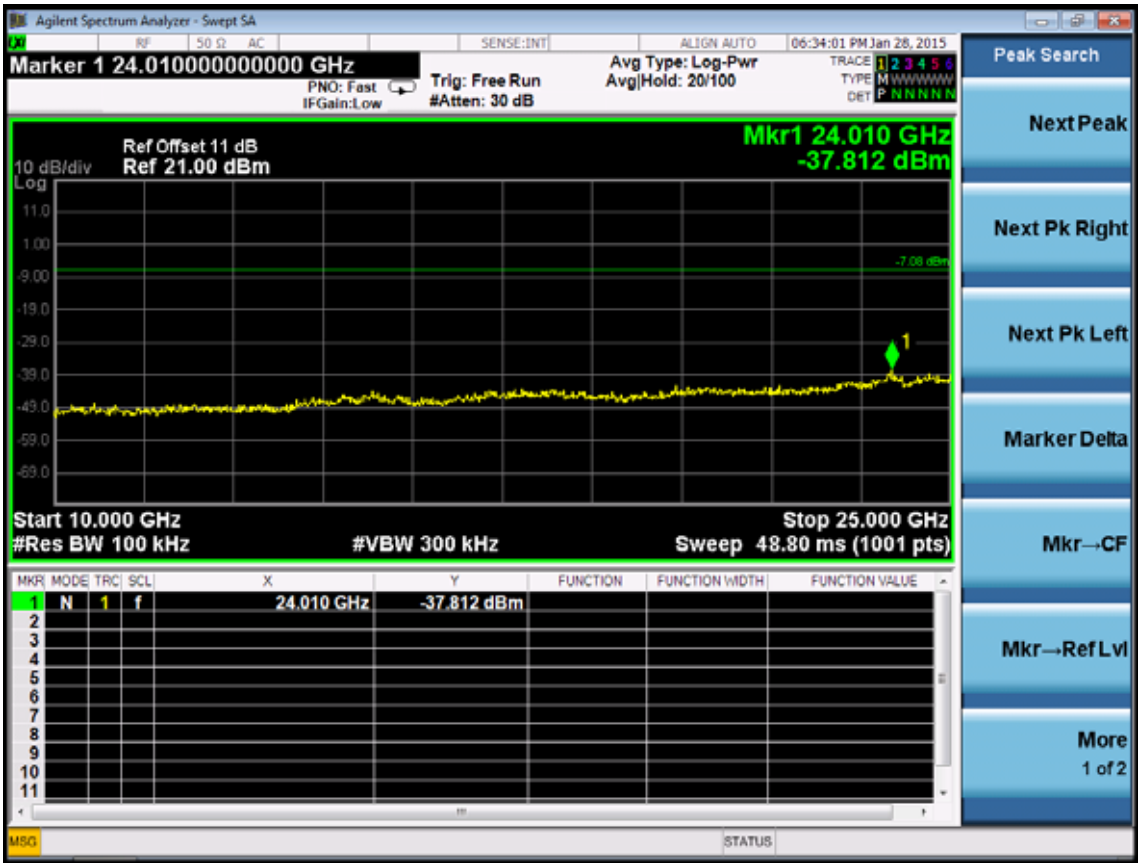

Agilent Spectrum Analyzer - Swept SA
Display Line -5.70 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:22:34 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 2.440 GHz
14.303 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 29.27 ms (1001 pts)
1 N 1 f 2.440 GHz 14.303 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-5.70 dBm
On Off
System Display Settings


Agilent Spectrum Analyzer - Swept SA
Marker 1 24.610000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 49/100
06:23:21 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 24.610 GHz
-38.429 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.610 GHz -38.429 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Test CH11: 2462MHz






Agilent Spectrum Analyzer - Swept SA
Marker 1 24.010000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 20/100
06:34:01 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr1 24.010 GHz
-37.812 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 48.80 ms (1001 pts)
1 N 1 f 24.010 GHz -37.812 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

Agilent Spectrum Analyzer - Swept SA
Display Line -7.19 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:31:32 PM Jan 28, 2015
Ref Offset 11 dB
10 dB/div
Ref 21.00 dBm
Mkr3 2.461 820 GHz
12.806 dBm
Start 2.45500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.51000 GHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 2.483 500 GHz -49.973 dBm
2 N 1 f 2.500 000 GHz -49.819 dBm
3 N 1 f 2.461 820 GHz 12.806 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-7.19 dBm
On Off
System Display Settings