

5. RF antenna conducted test

5.1. Test Equipment

The following test equipments are used during the test:

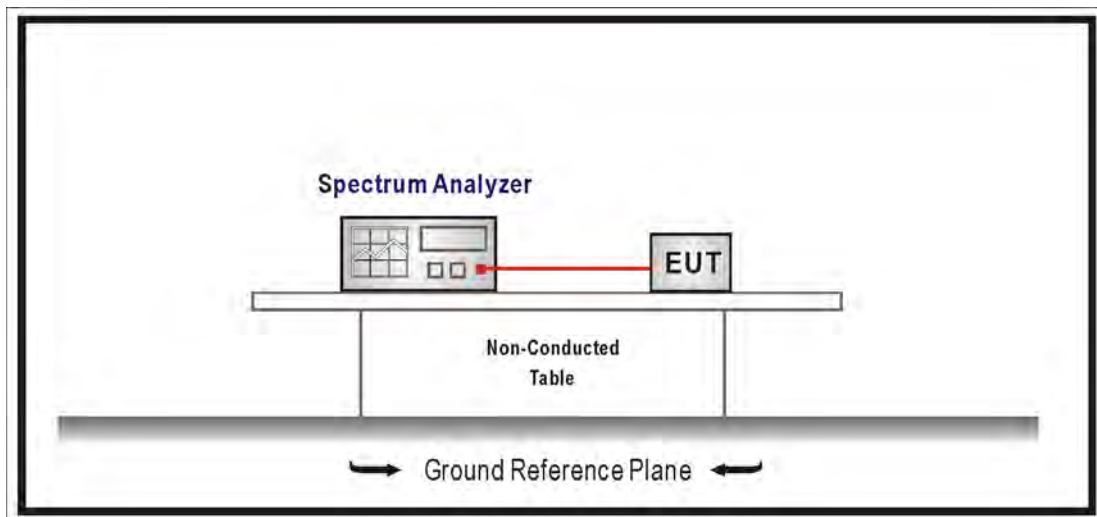
RF antenna conducted test / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

5.2. Test Setup

RF Antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on an RF conducted or radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of Oct. 2012 KDB5580744 for compliance to FCC 47CFR 15.247 requirements Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.5. Test Specification

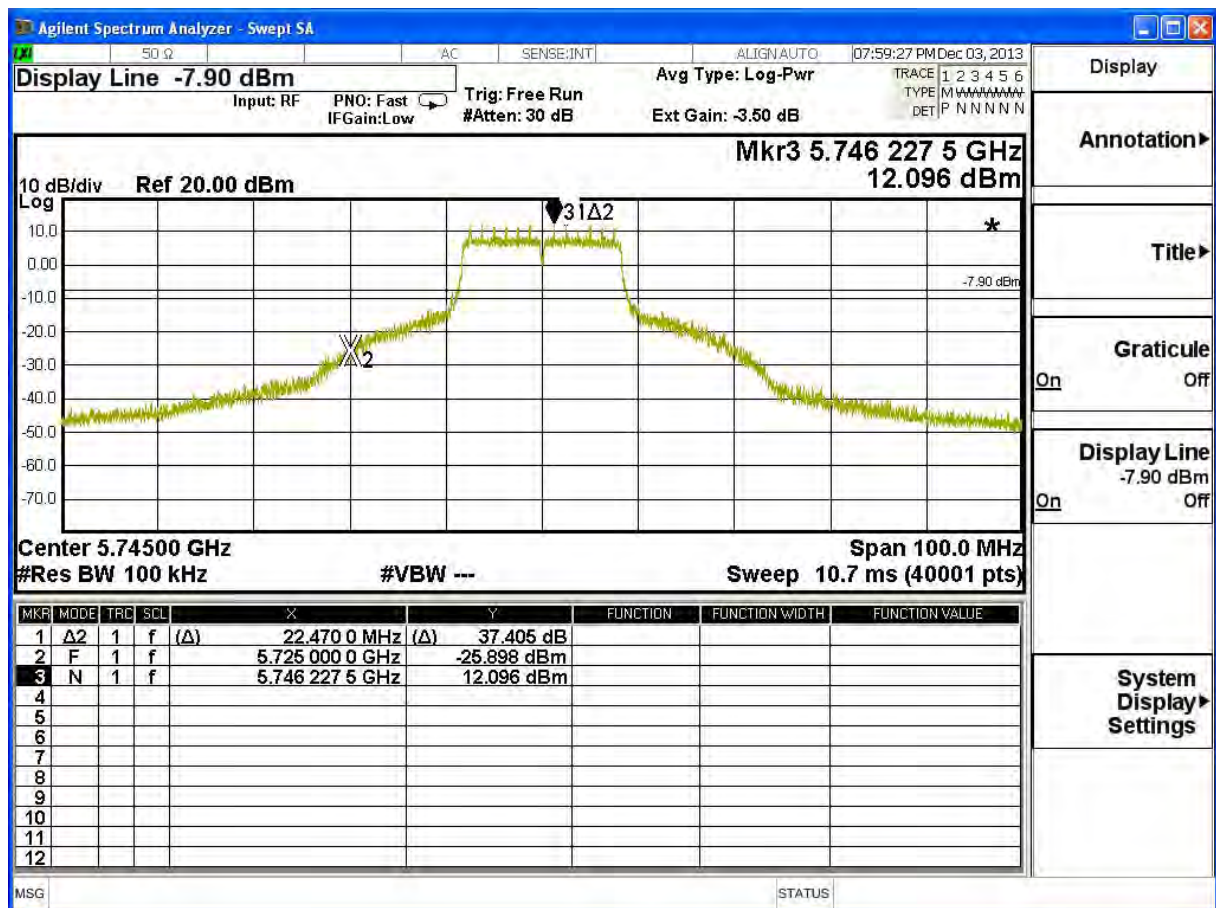
According to FCC Part 15 Subpart C Paragraph 15.247: 2012

5.6. Uncertainty

Conducted is defined as $\pm 1.27\text{dB}$

Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
149	5745	37.40	≥ 20	Pass
157	5785	57.73	≥ 20	Pass
161	5805	58.83	≥ 20	Pass



Agilent Spectrum Analyzer - Swept SA

50 Ω

AC

SENSE:INT

ALIGN: AUTO

07:55:58 PM Dec 03, 2013

Display Line -8.50 dBm

Input: RF

PNO: Fast

IF Gain: Low

Trig: Free Run

#Atten: 30 dB

Avg Type: Log-Pwr

Avg/Hold: > 100/100

Ext Gain: -3.50 dB

TRACE 1 2 3 4 5 6

TYPE: M M M M M M M M

DET: P N N N N N

10 dB/div

Ref 20.00 dBm

Mkr5 5.786 240 GHz

11.500 dBm

Center 5.7850 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 200.0 MHz

Sweep 21.3 ms (40001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	Δ2	1	f	(Δ) 61.240 MHz	(Δ) 58.359 dB			
2	F	1	f	5.725 000 GHz	-46.869 dBm			
3	Δ4	1	f	(Δ) 38.760 MHz	(Δ) 57.733 dB			
4	F	1	f	5.825 000 GHz	-46.233 dBm			
5	N	1	f	5.786 240 GHz	11.500 dBm			
6								
7								
8								
9								
10								
11								
12								

MSG

STATUS

Display

Annotation

Title

Graticule

On

Off

Display Line

-8.50 dBm

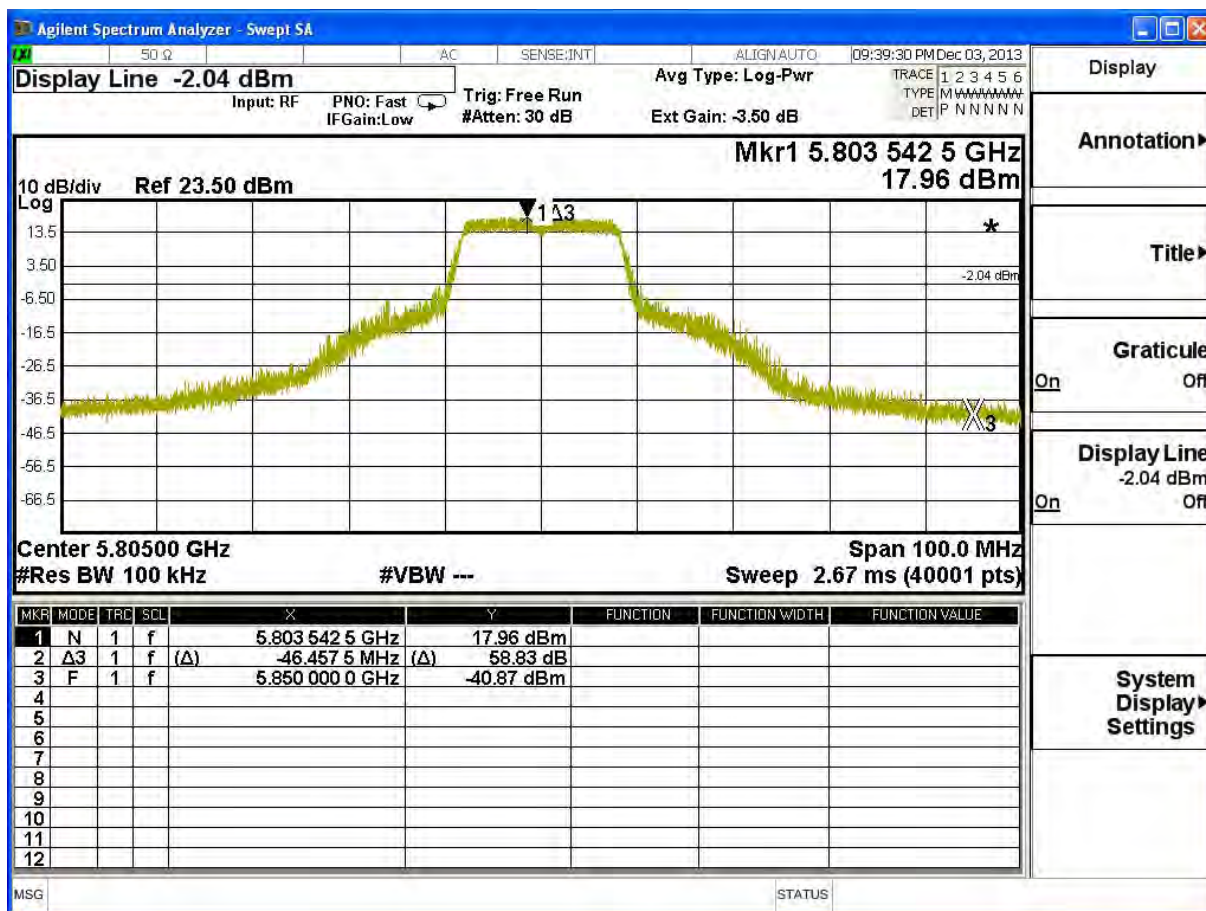
On

Off

System Display

Settings

Channel 161 (5805MHz)

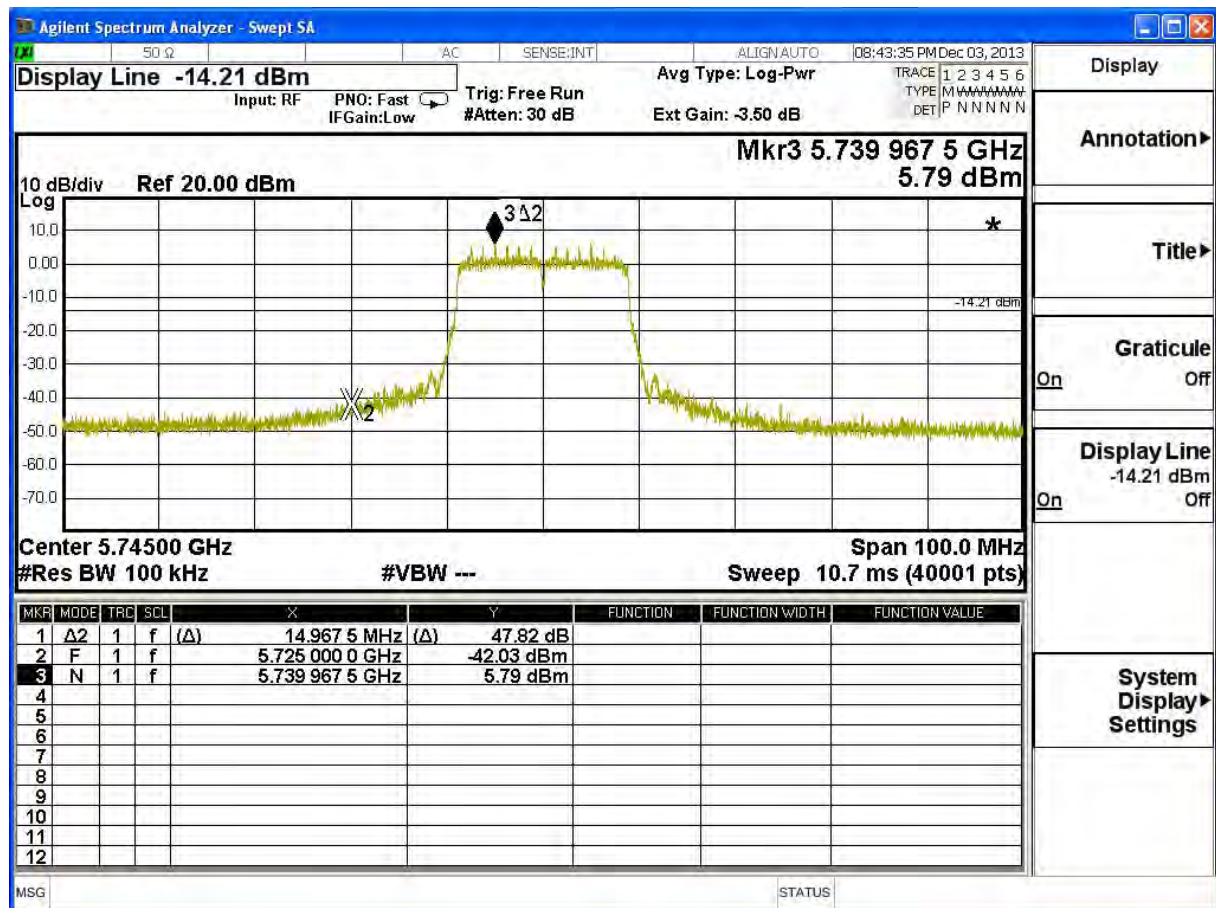


Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

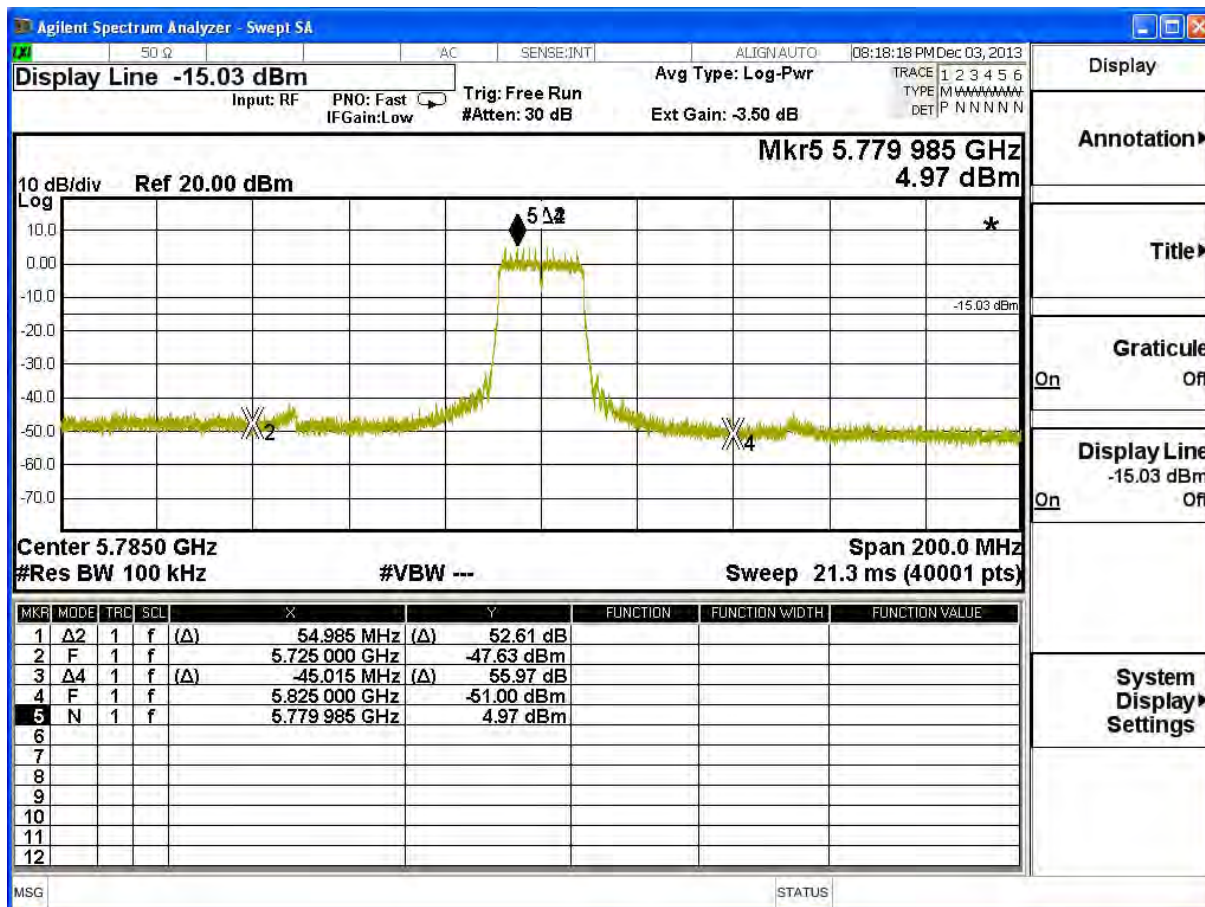
IEEE 802.11n 20MHz (ANT0), Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
149	5745	47.82	≥ 20	Pass
157	5785	52.61	≥ 20	Pass
161	5805	55.26	≥ 20	Pass

Channel 149 (5745MHz)



Channel 157 (5785MHz)



Agilent Spectrum Analyzer - Swept SA

50 Ω AC SENSE:INT ALIGN: AUTO 08:49:14 PM Dec 03, 2013

Display Line -14.81 dBm Input: RF PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Ext Gain: -3.50 dB

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P N N N N N

Mkr1 5.806 290 0 GHz 5.19 dBm

10 dB/div Ref 20.00 dBm

Log

10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0

-14.81 dBm

3

Center 5.80500 GHz **Span 100.0 MHz**
#Res BW 100 kHz **#VBW ---** **Sweep 10.7 ms (40001 pts)**

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.806 290 0 GHz	5.19 dBm			
2	Δ3	1	f (Δ)	43.710 0 MHz (Δ)	55.264 dB			
3	F	1	f	5.850 000 0 GHz	-50.079 dBm			
4								
5								
6								
7								
8								
9								
10								
11								
12								

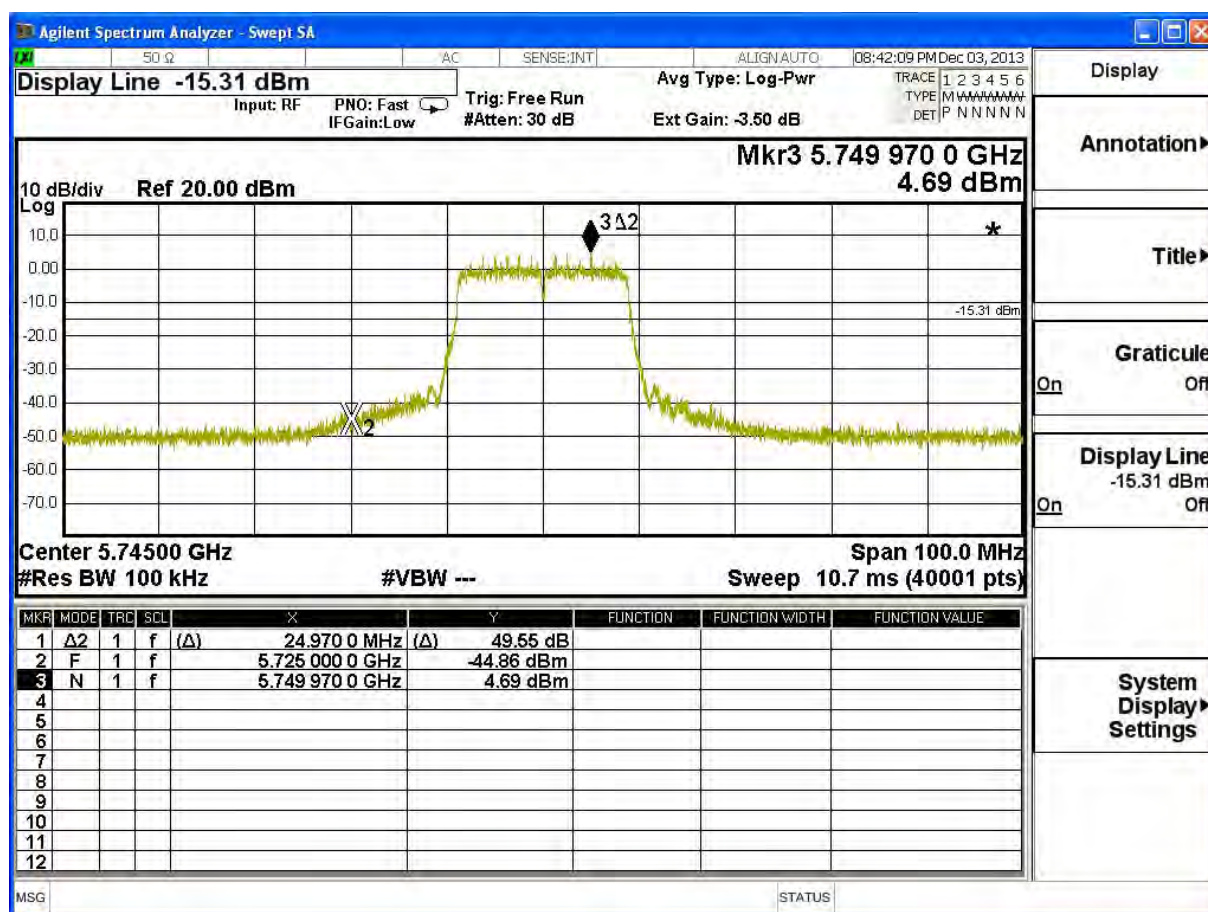
MSG STATUS

Display
Annotation
Title
Graticule
On Off
Display Line
-14.81 dBm
On Off
System Display Settings

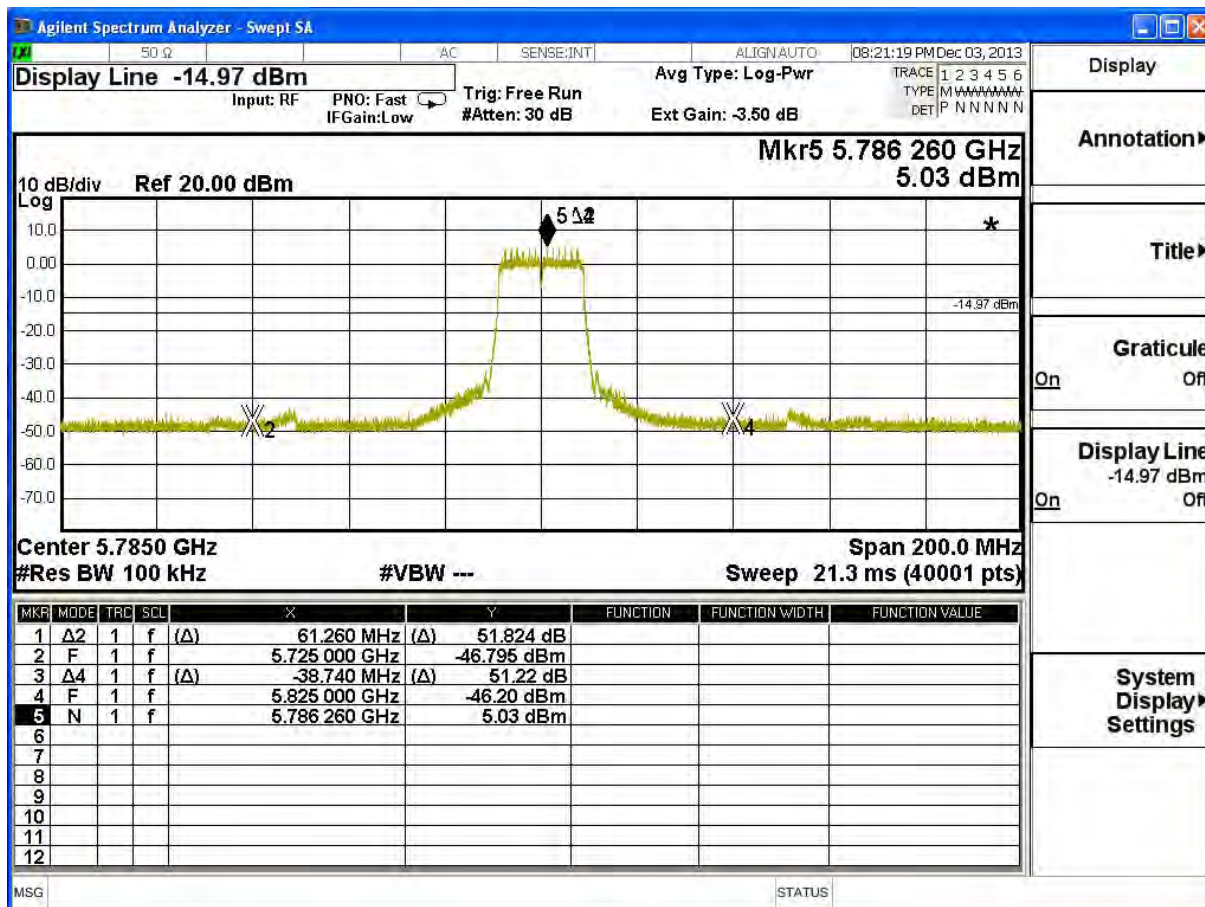
Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

IEEE 802.11n 20MHz (ANT1), Duty Cycle: 1				
Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
149	5745	49.55	≥ 20	Pass
157	5785	51.22	≥ 20	Pass
161	5805	54.86	≥ 20	Pass

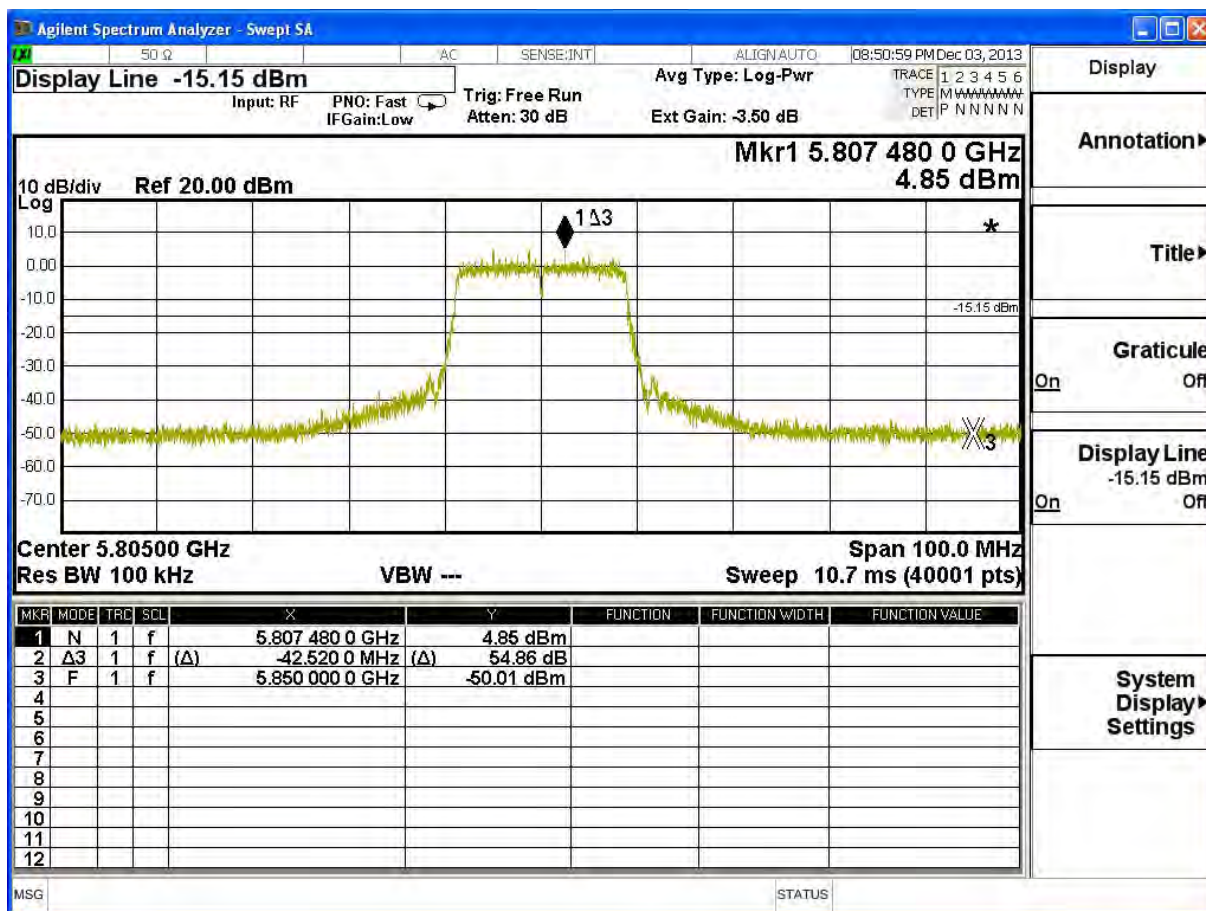
Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 161 (5805MHz)

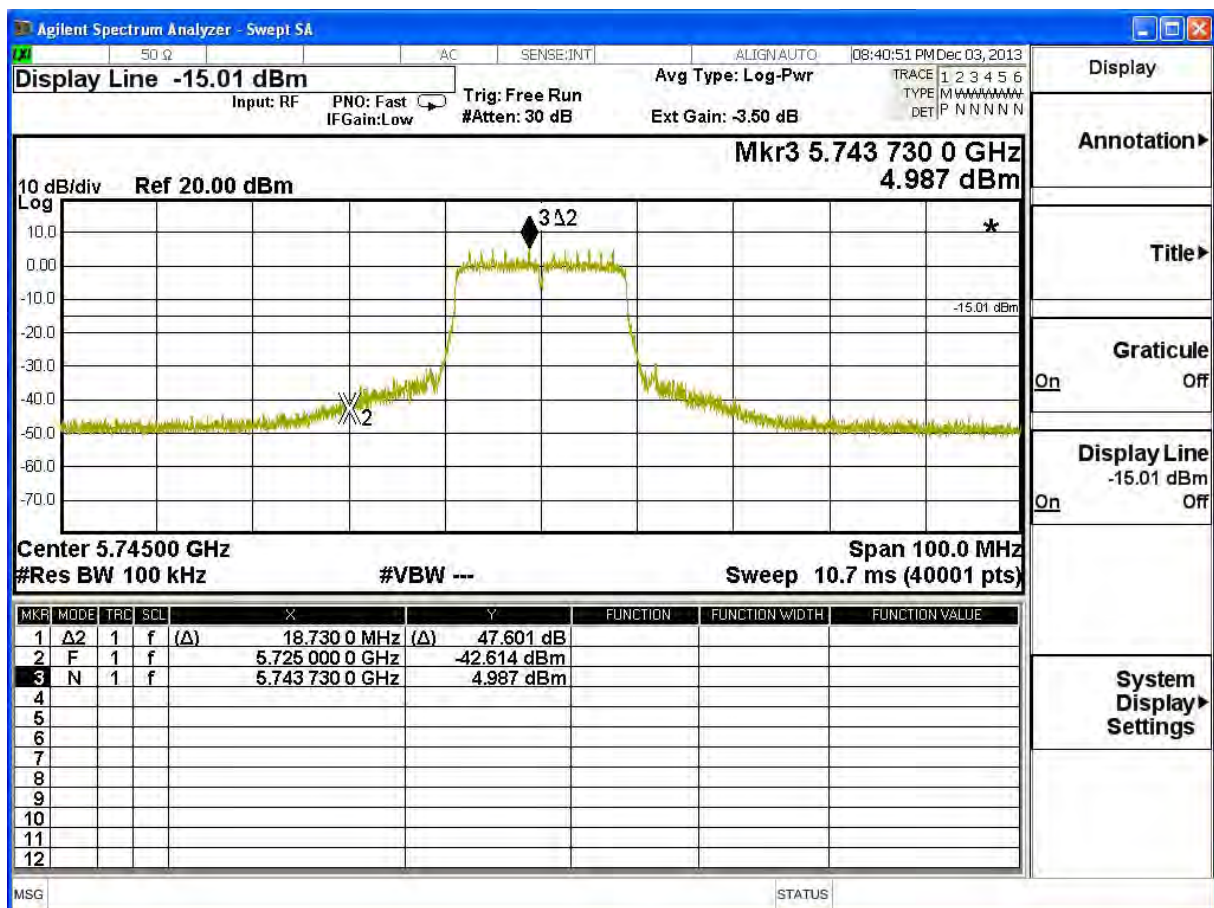


Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

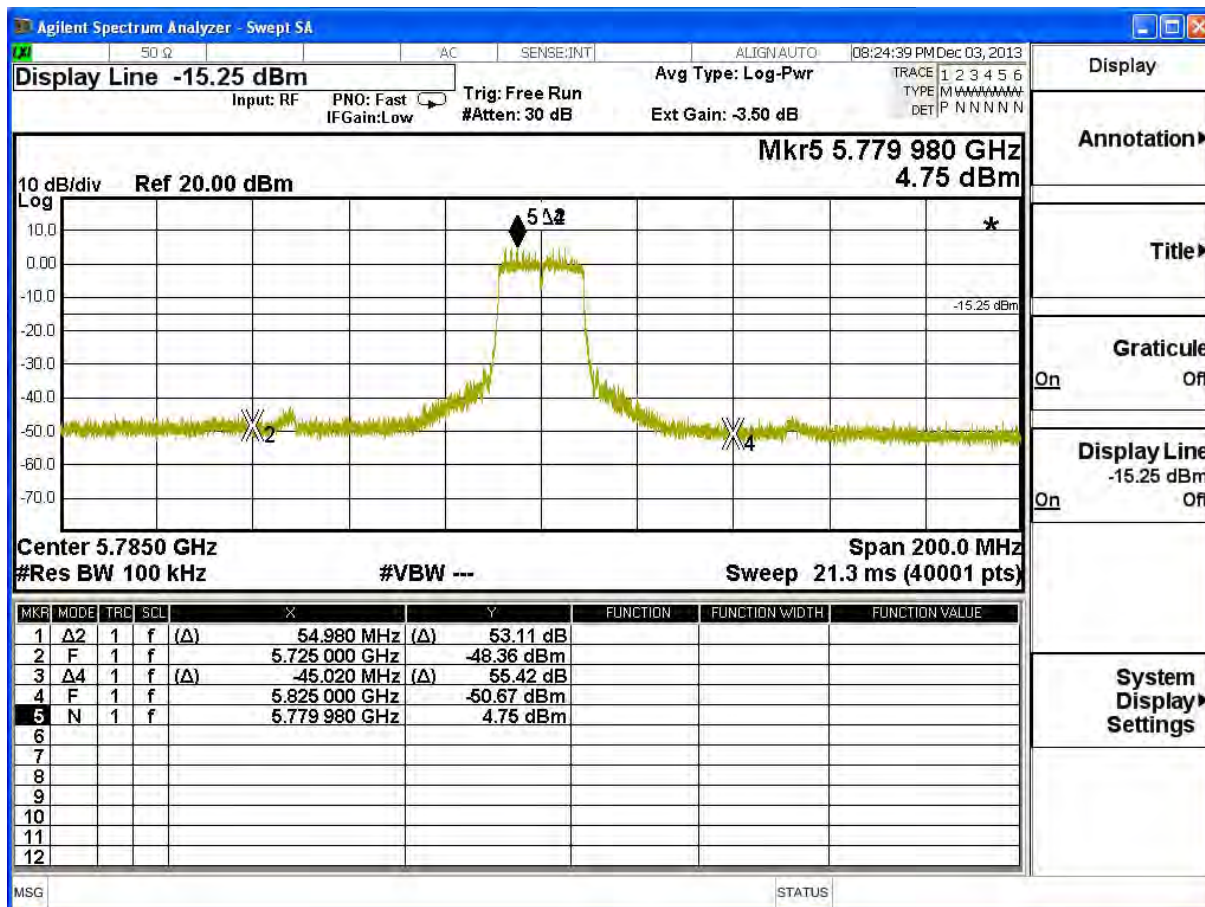
IEEE 802.11n 20MHz (ANT2), Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
149	5745	47.60	≥ 20	Pass
157	5785	53.11	≥ 20	Pass
161	5805	55.41	≥ 20	Pass

Channel 149 (5745MHz)



Channel 157 (5785MHz)



Agilent Spectrum Analyzer - Swept SA

50 Ω

AC

SENSE:INT

ALIGN:AUTO

08:54:41 PM Dec 03, 2013

Display Line -7.11 dBm

Input: RF

PNO: Fast IF Gain: Low

Trig: Free Run

Atten: 30 dB

Avg Type: Log-Pwr

Avg/Hold: > 100/100

Ext Gain: -3.50 dB

TRACE 1 2 3 4 5 6

TYPE M M M M M M M M

DET P N N N N N

10 dB/div

Ref 20.00 dBm

Log

Mkr1 5.809 422 5 GHz

12.886 dBm

Center 5.80500 GHz

#Res BW 100 kHz

#VBW ---

Span 100.0 MHz

Sweep 2.67 ms (40001 pts)

MkR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	5.809 422 5 GHz	12.886 dBm			
2	Δ3	1	f (Δ)	-40.577 5 MHz (Δ)	55.412 dB			
3	F	1	f	5.850 000 0 GHz	-42.526 dBm			
4								
5								
6								
7								
8								
9								
10								
11								
12								

Display

Annotation

Title

Graticule

On

Off

Display Line

-7.11 dBm

On

Off

System Display

Settings

MSG

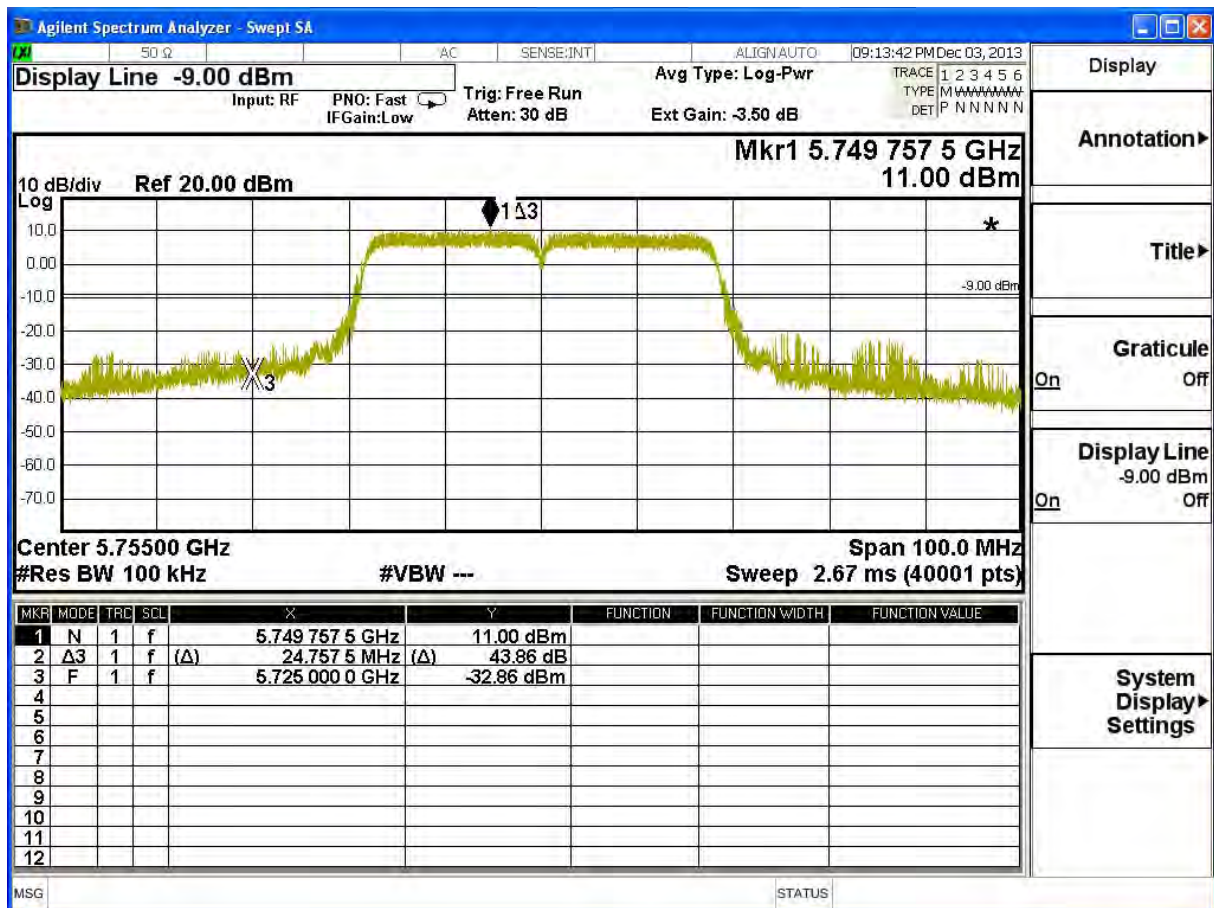
STATUS

Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

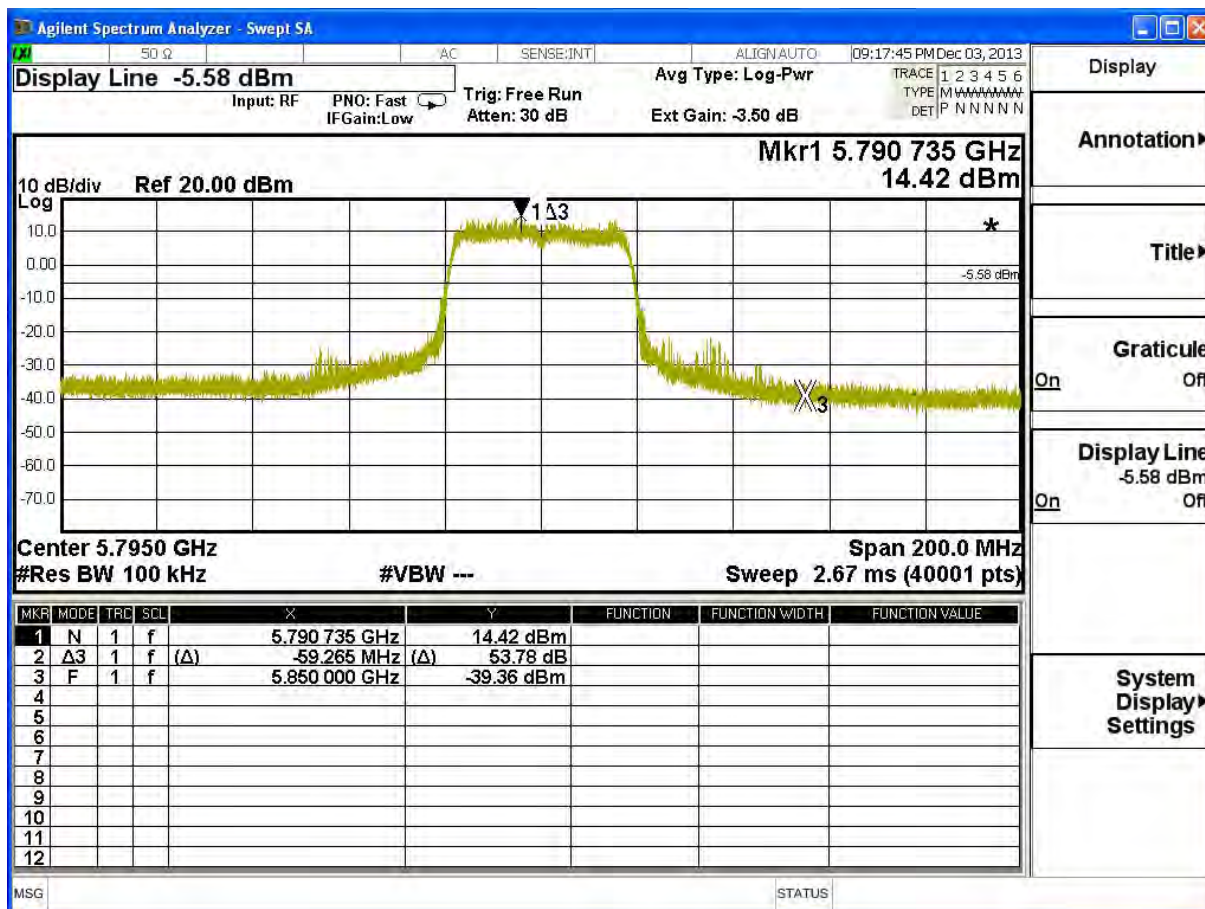
IEEE 802.11n 40MHz (ANT0), Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
151	5755	43.86	≥ 20	Pass
159	5795	53.78	≥ 20	Pass

Channel 151 (5755MHz)



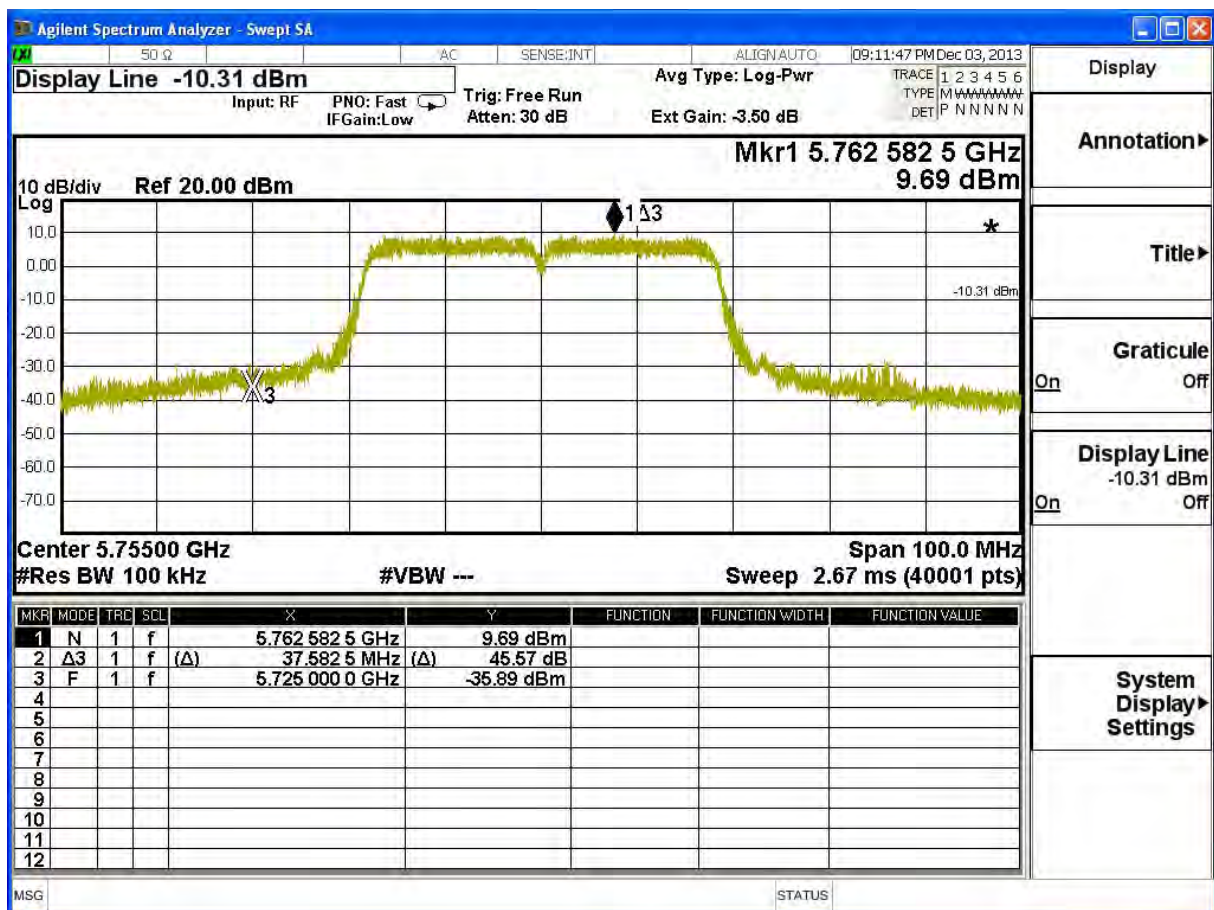
Channel 159 (5795MHz)



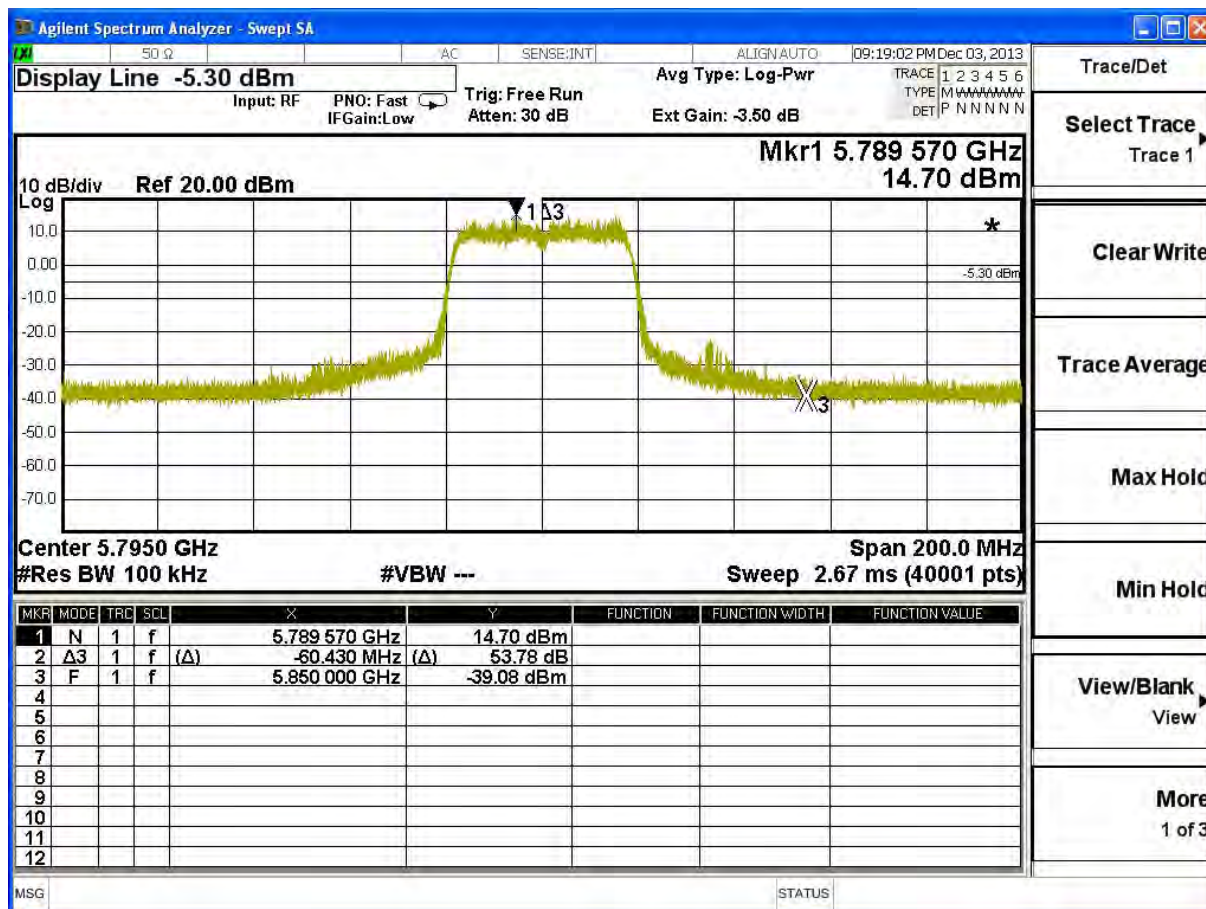
Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

IEEE 802.11n 40MHz (ANT1), Duty Cycle: 1				
Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
151	5755	45.57	≥ 20	Pass
159	5795	53.78	≥ 20	Pass

Channel 151 (5755MHz)



Channel 159 (5795MHz)

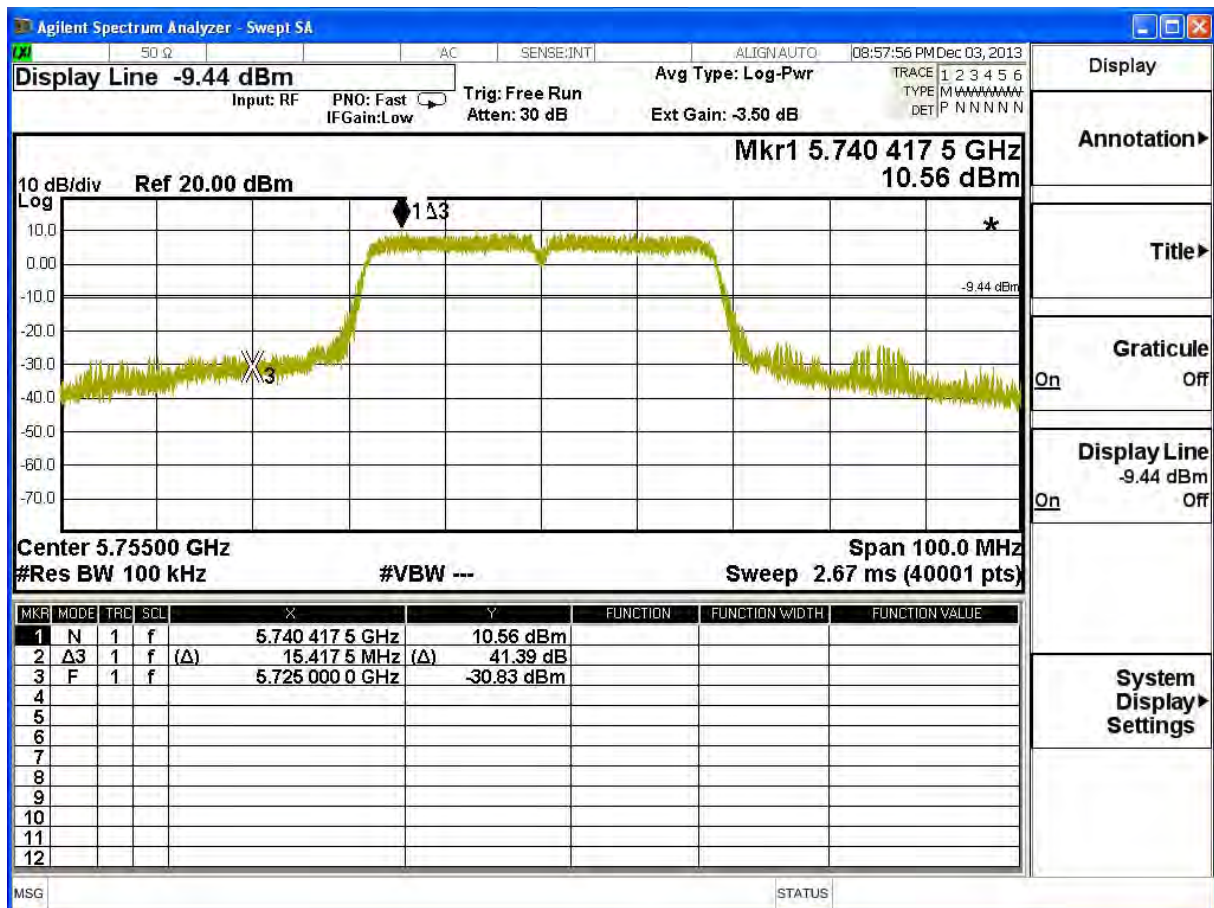


Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

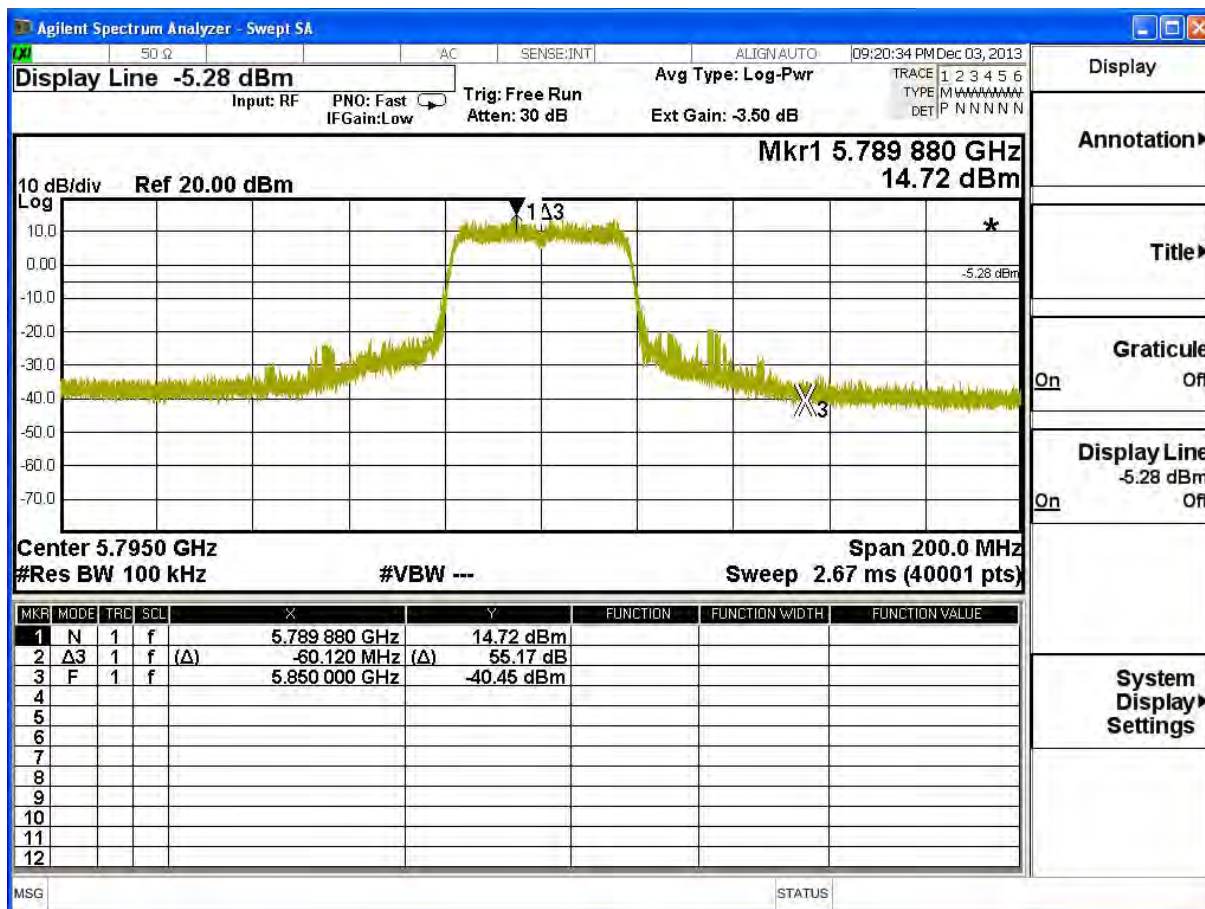
IEEE 802.11n 40MHz, (ANT 2) Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
151	5755	41.39	≥ 20	Pass
159	5795	55.17	≥ 20	Pass

Channel 151 (5755MHz)

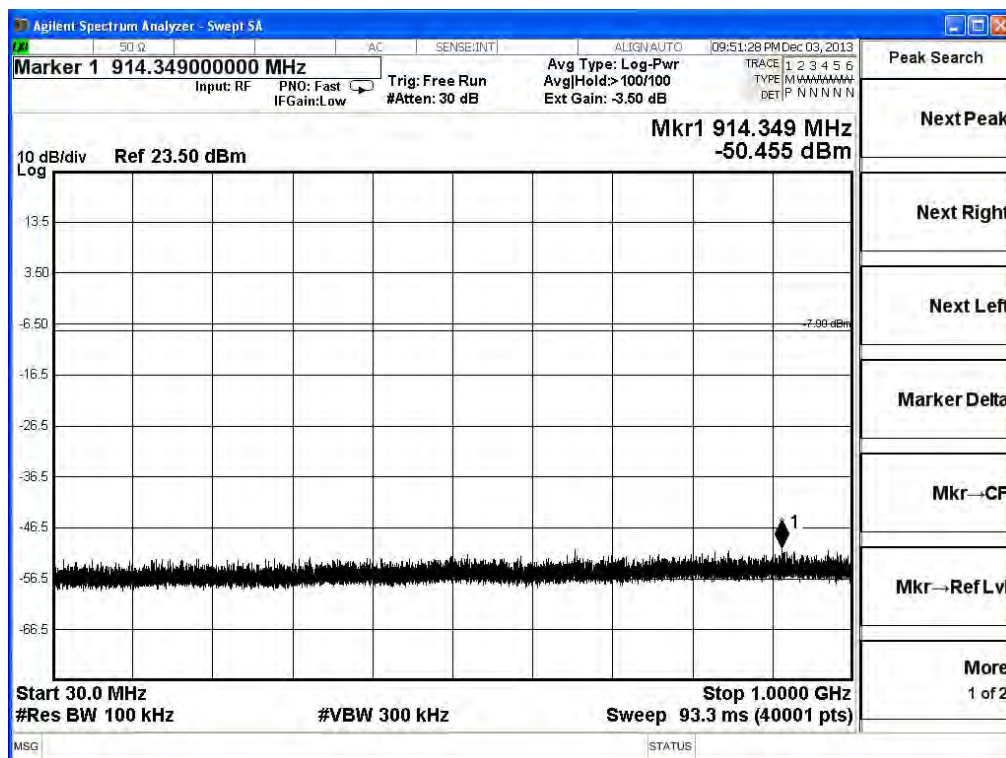


Channel 159 (5795MHz)

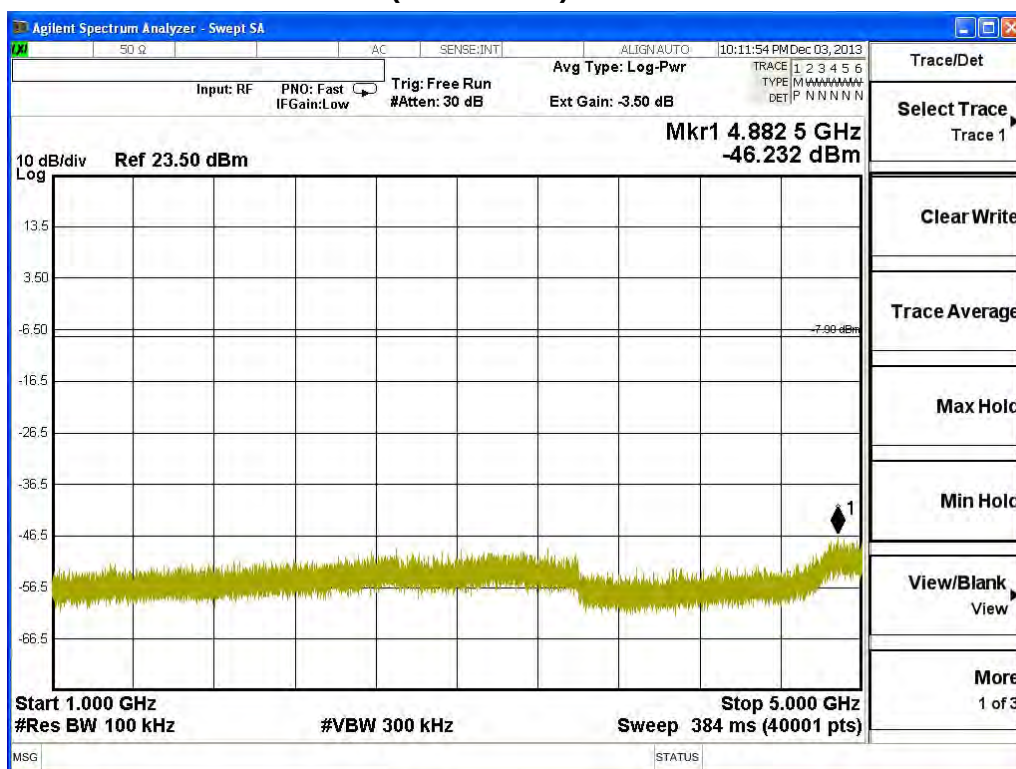


Product	Wireless Extender		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

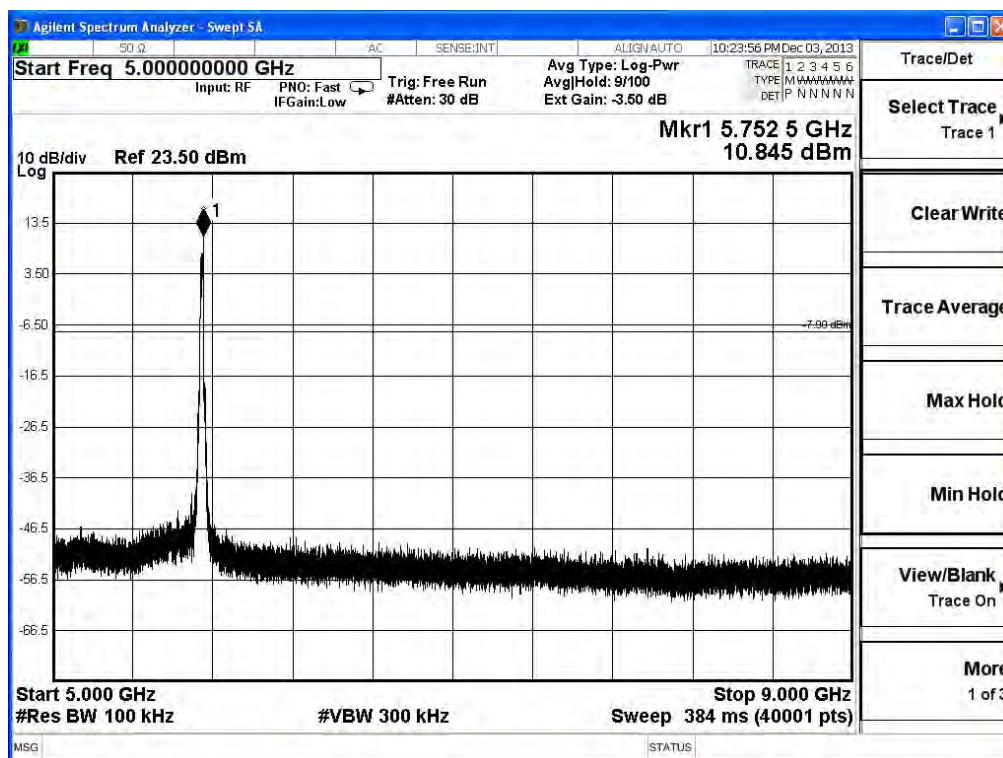
5745MHz (30MHz-1GHz)- 80211a -ANT0



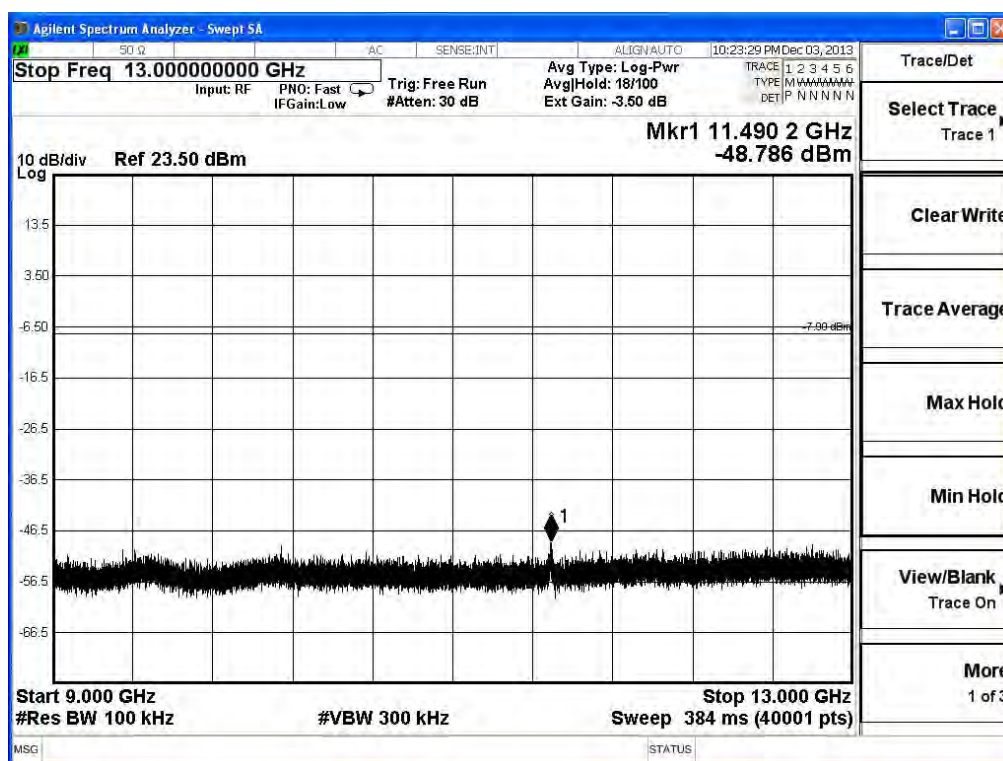
5745MHz (1GHz-5GHz)- 80211a -ANT0



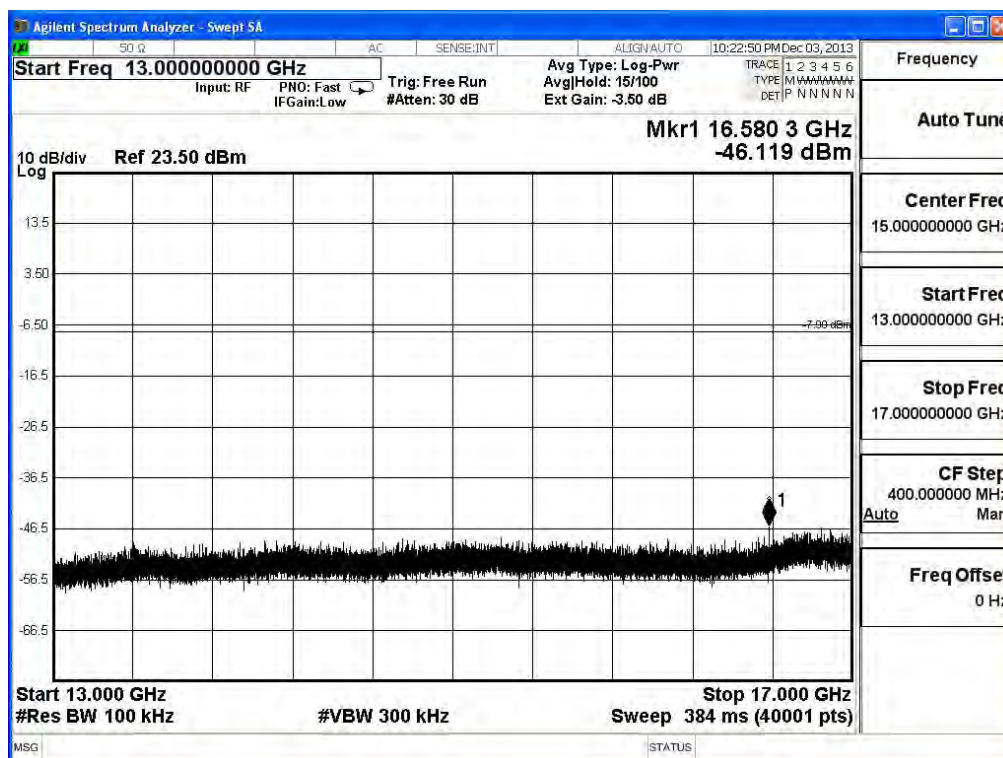
5745MHz (5GHz-9GHz) - 80211a -ANT0



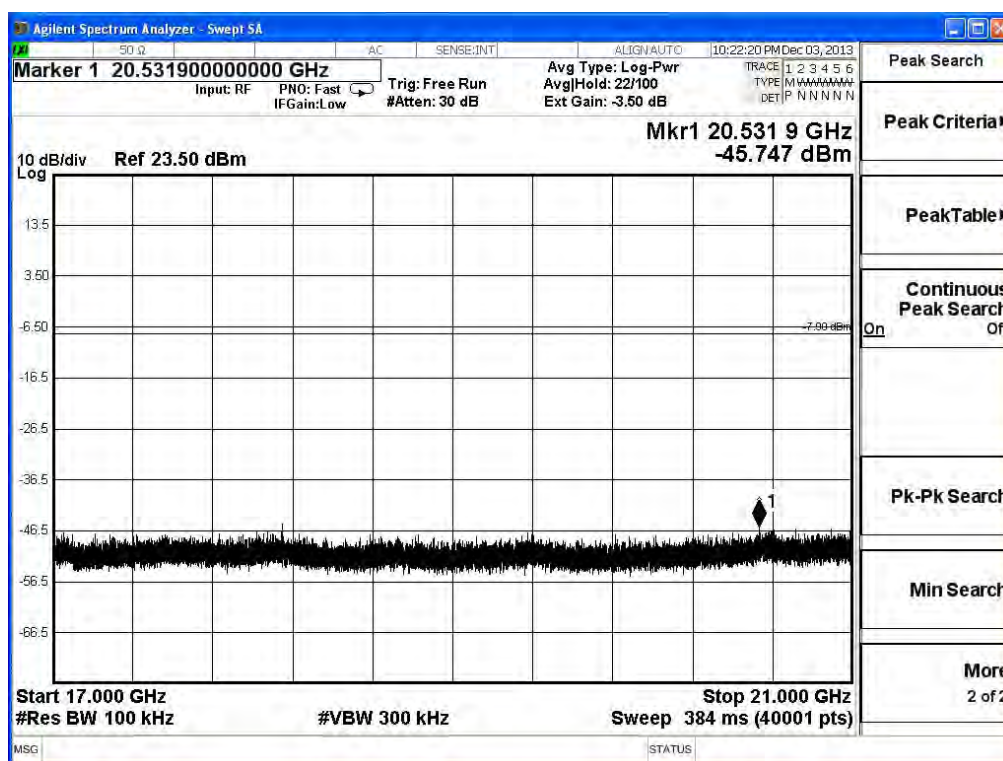
5745MHz (9GHz-13GHz)- 80211a -ANT0



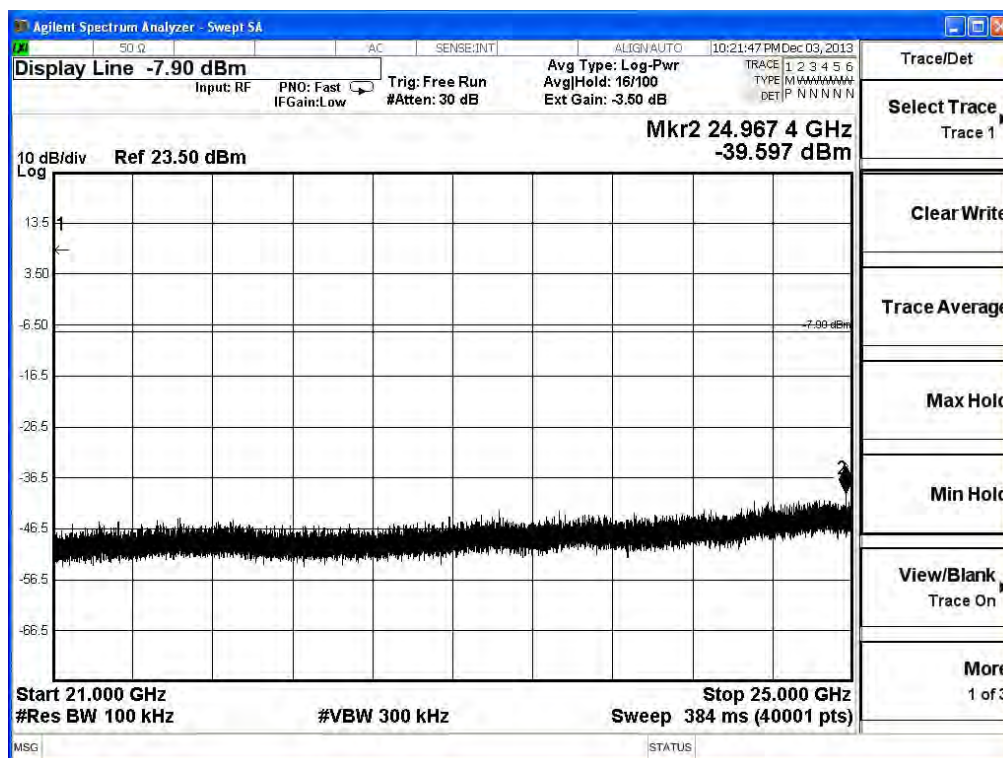
5745MHz (13GHz-17GHz) - 80211a -ANT0



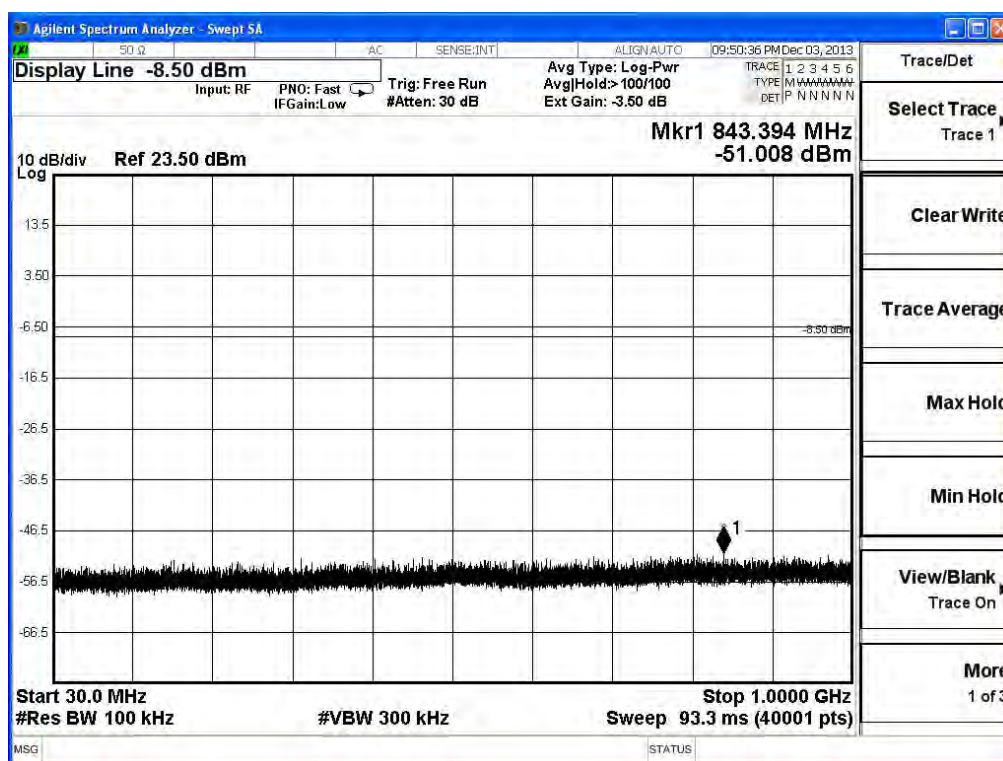
5745MHz (17GHz-21GHz)- 80211a -ANT0



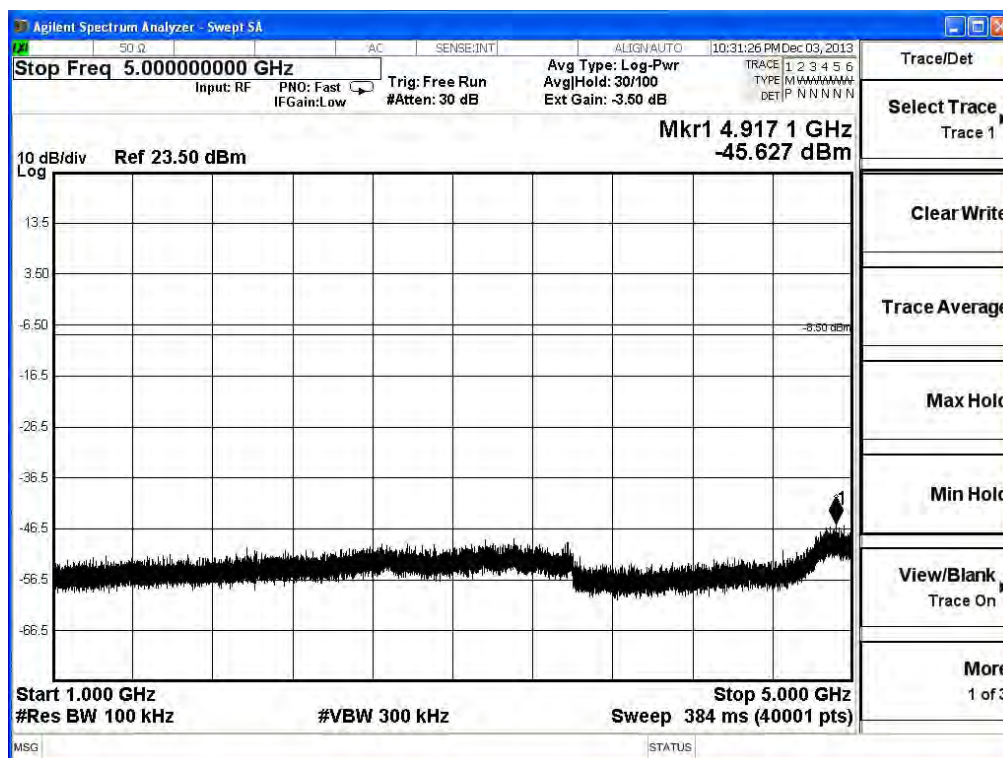
5745MHz (21GHz-25GHz) - 80211a -ANT0



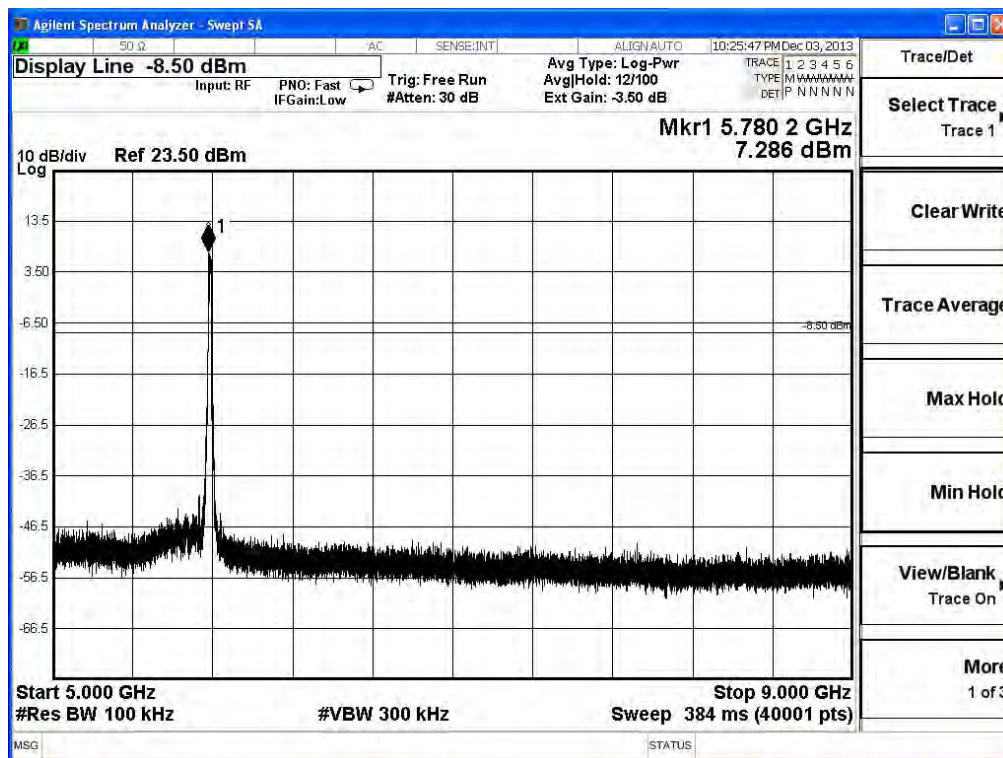
5785MHz (30MHz-1GHz)- 80211a -ANT0



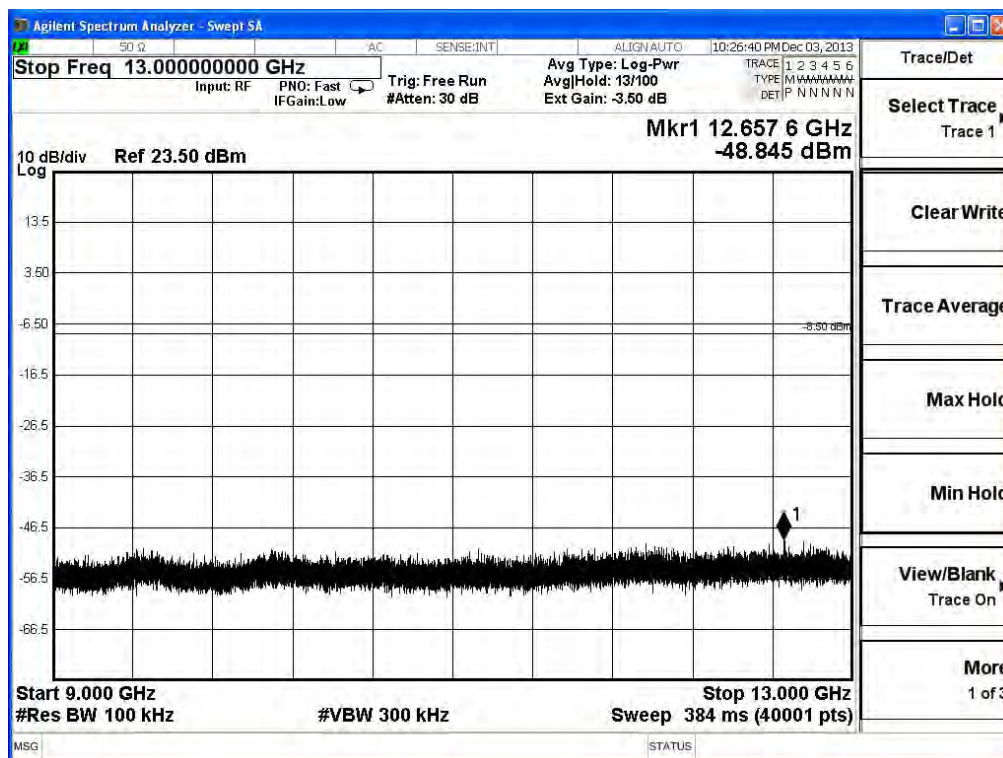
5785MHz (1GHz-5GHz) - 80211a -ANT0



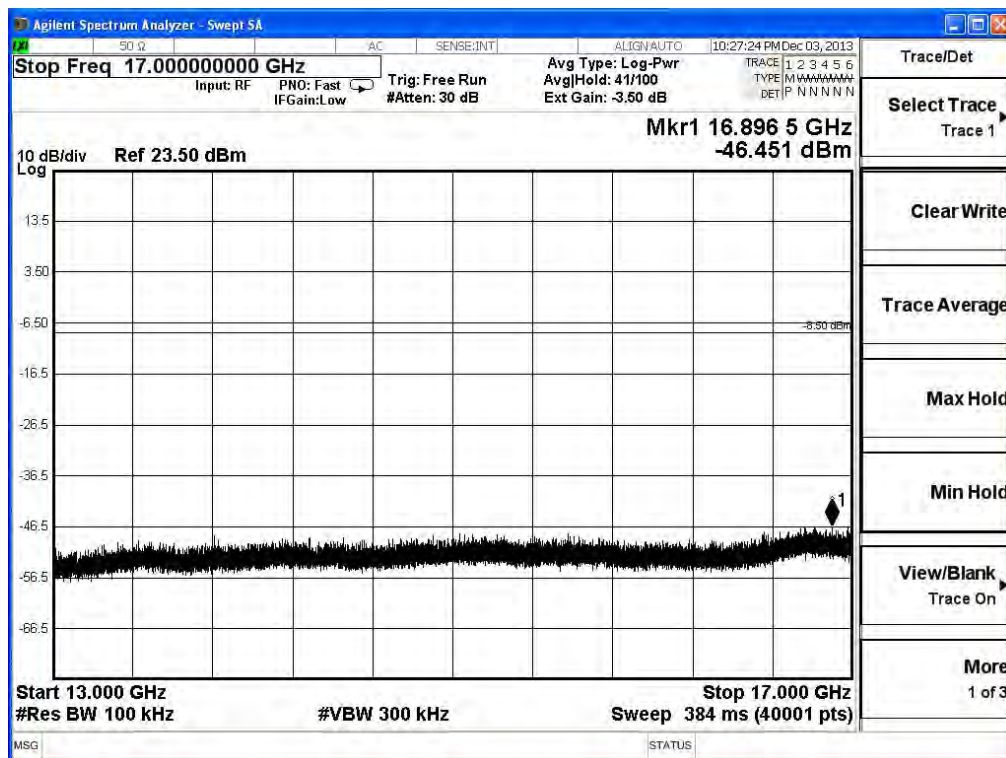
5785MHz (5GHz-9GHz) - 80211a -ANT0



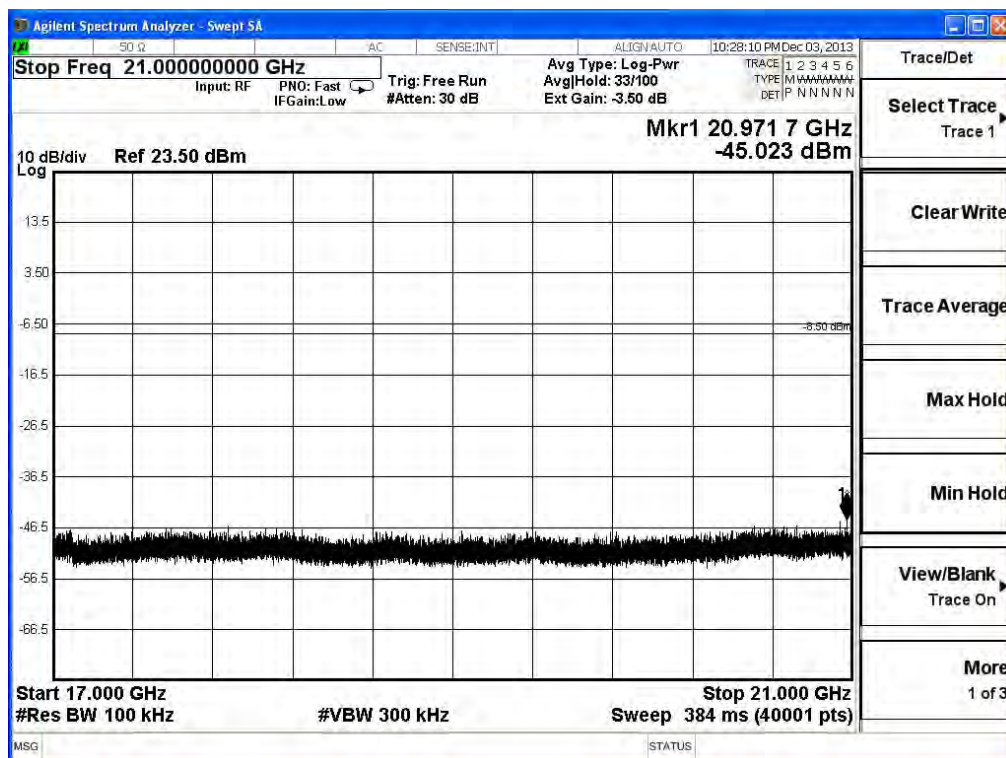
5785MHz (9GHz-13GHz)- 80211a -ANT0



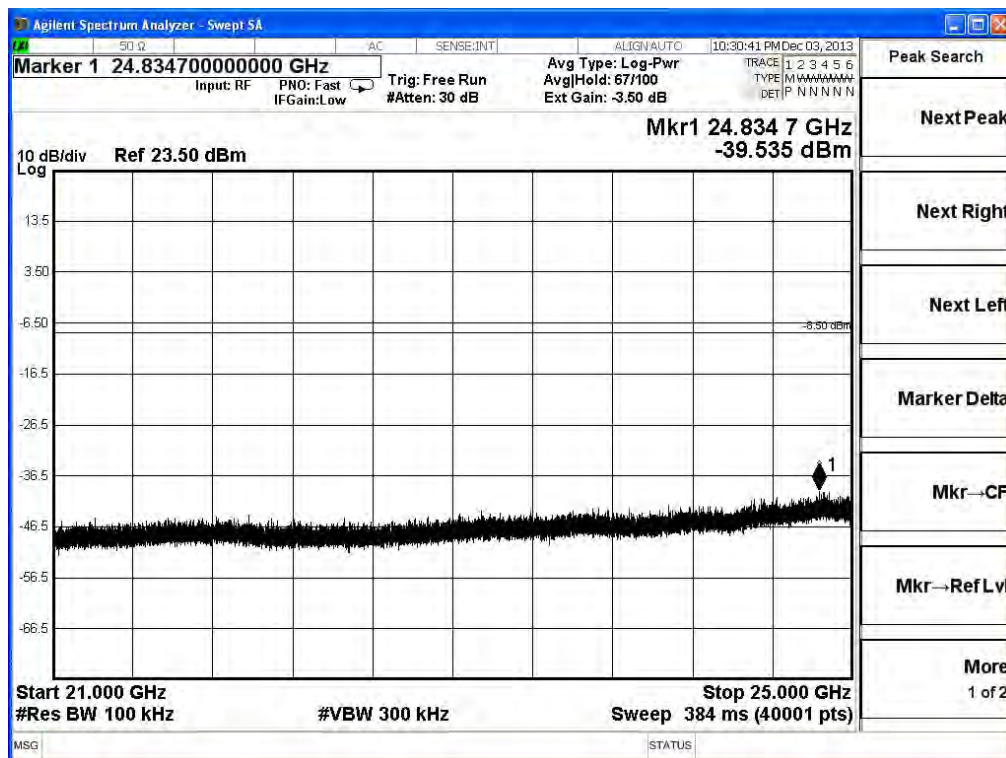
5785MHz (13GHz-17GHz) - 80211a -ANT0



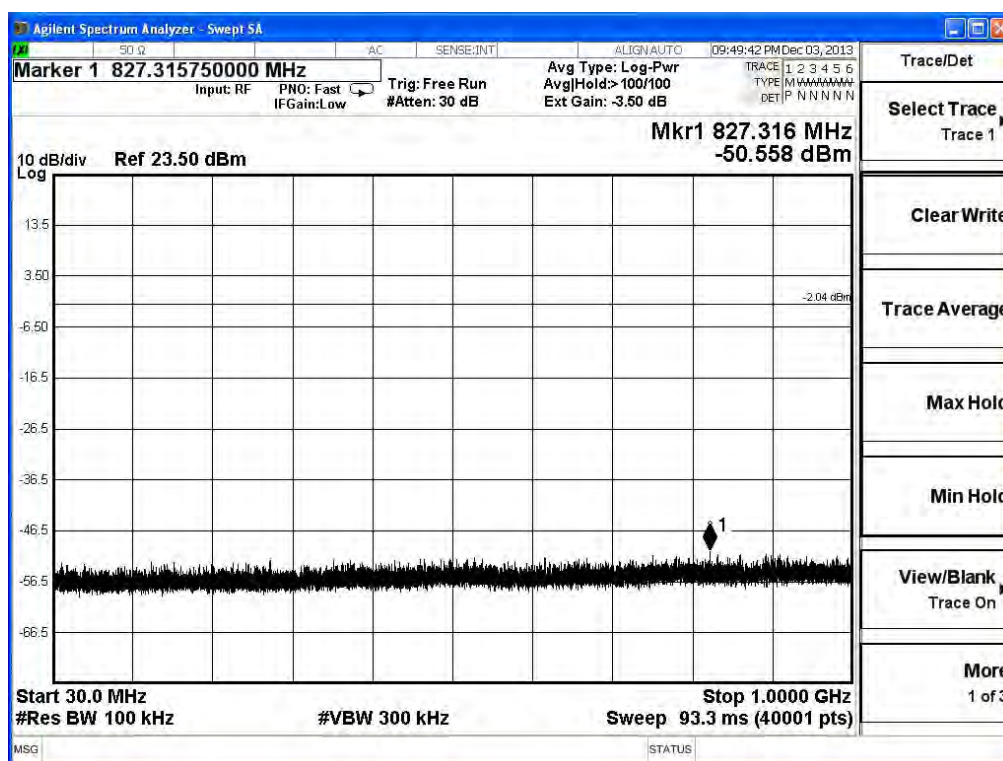
5785MHz (17GHz-25GHz)- 80211a -ANT01



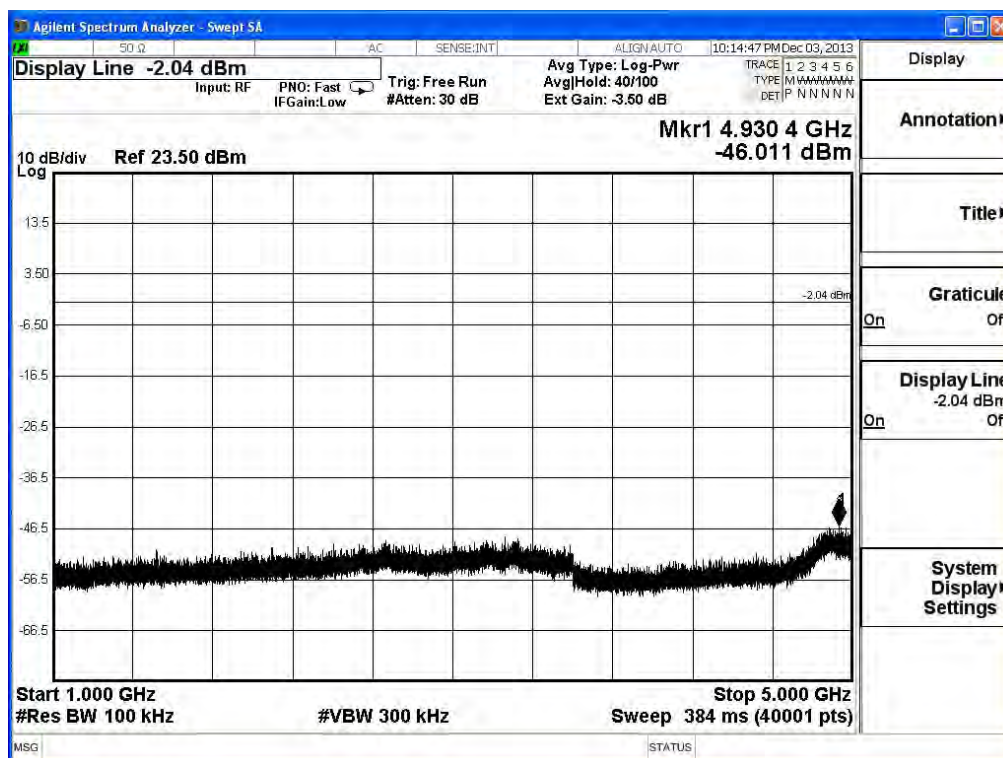
5785MHz (21GHz-25GHz) - 80211a -ANT0



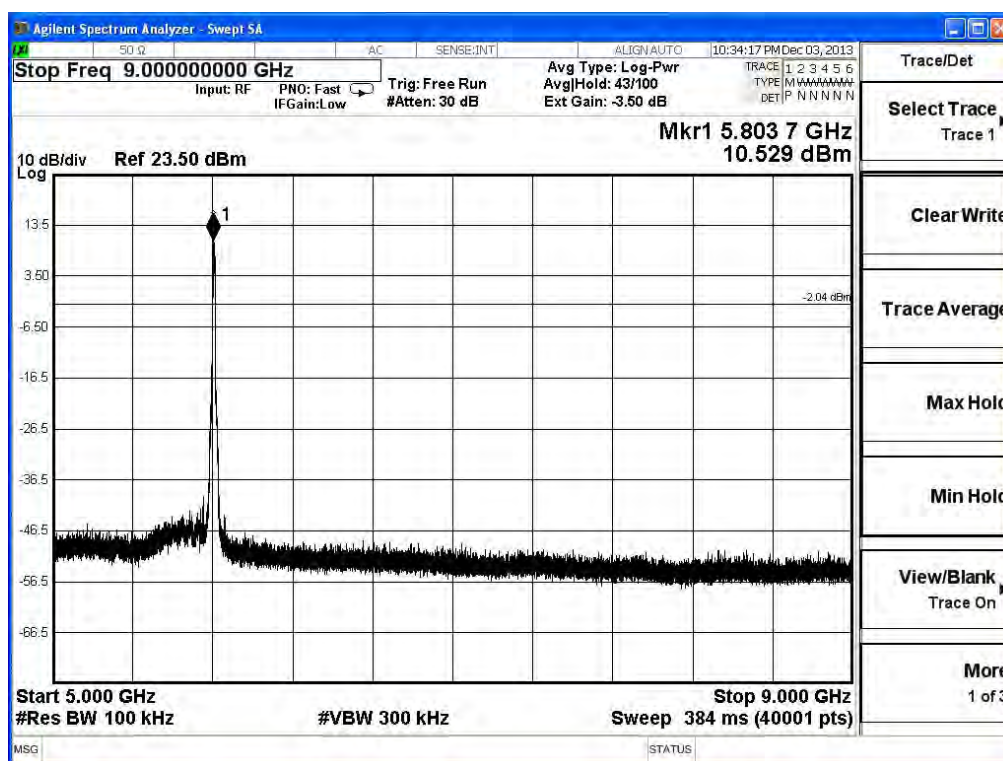
5805MHz (30MHz-1GHz)- 80211a -ANT0



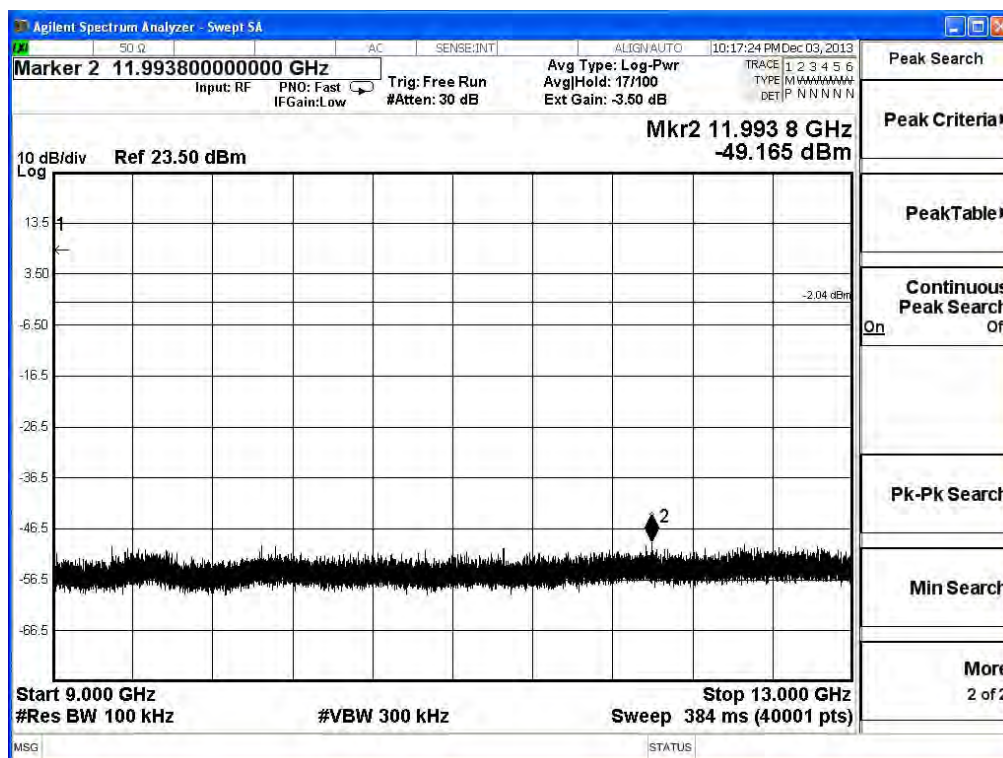
5805MHz (1GHz-5GHz)- 80211a -ANT0



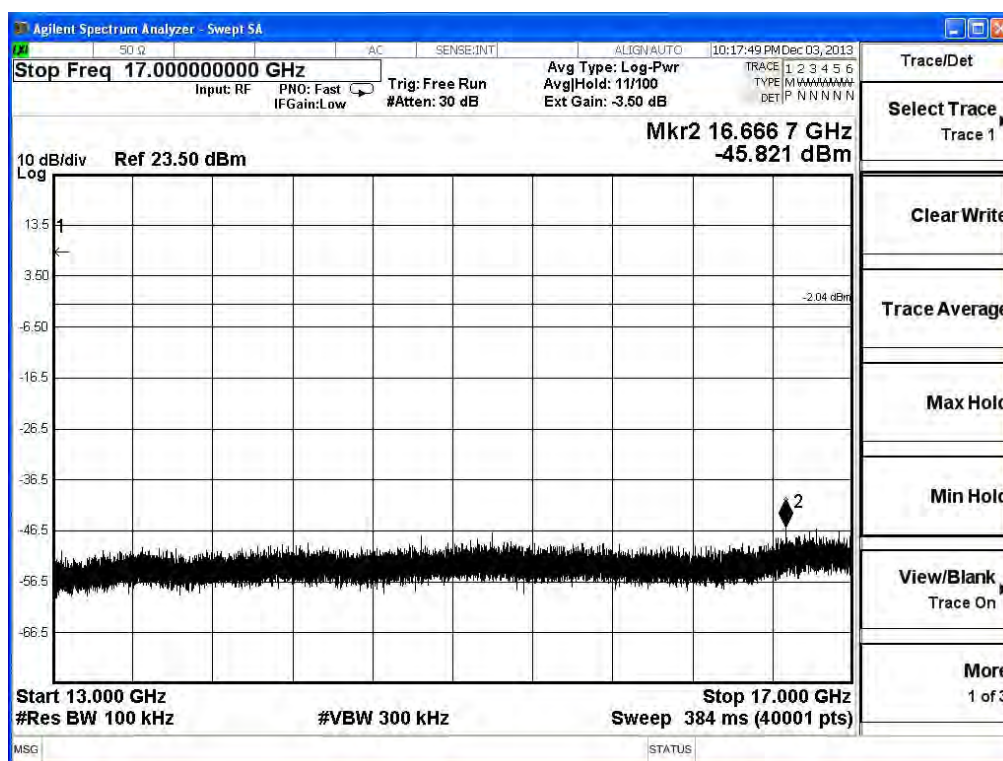
5805MHz (5GHz-9GHz)- 80211a -ANT0



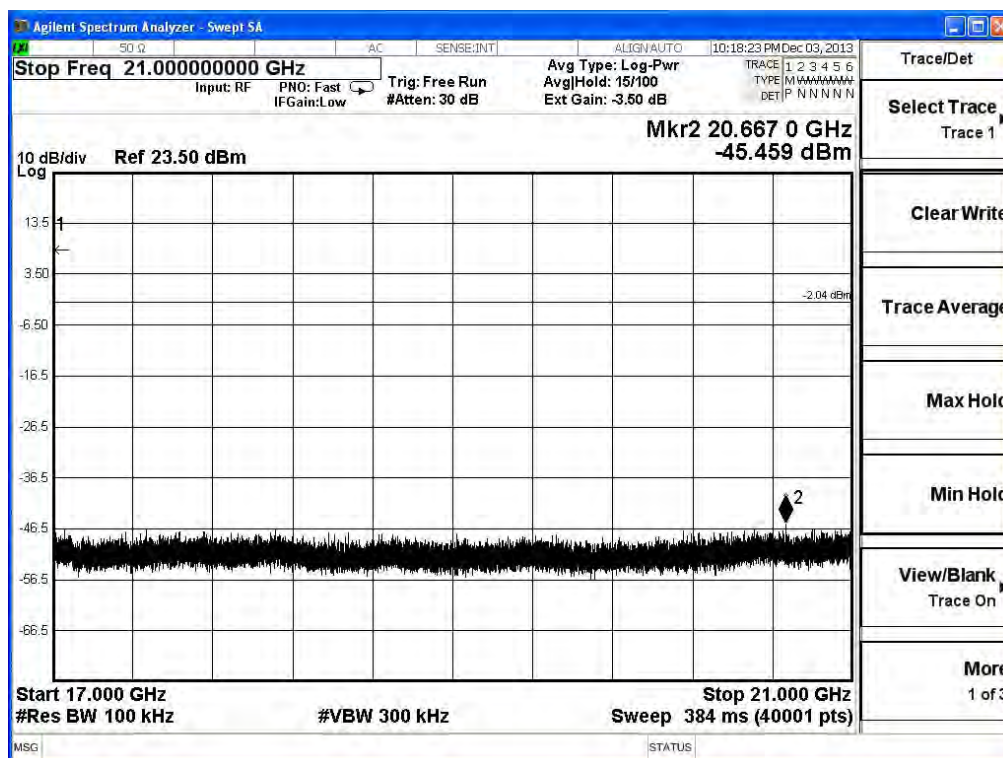
5805MHz (9GHz-13GHz)- 80211a -ANT0



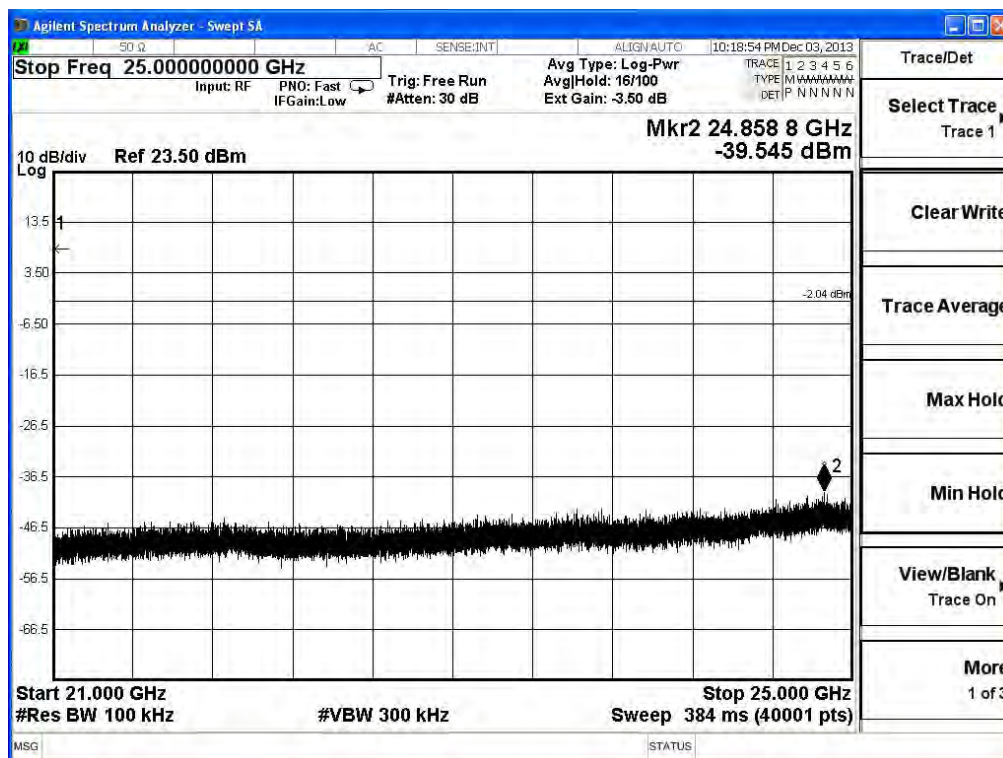
5805MHz (13GHz-17GHz)- 80211a -ANT0



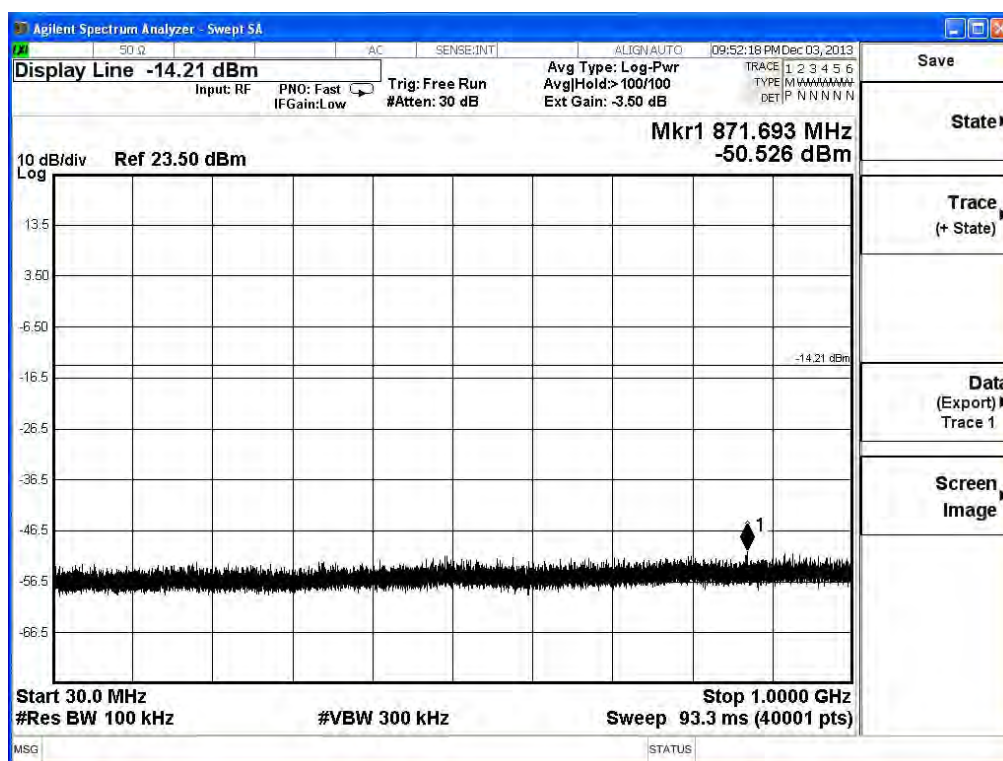
5805MHz (17GHz-21GHz)- 80211a -ANT0



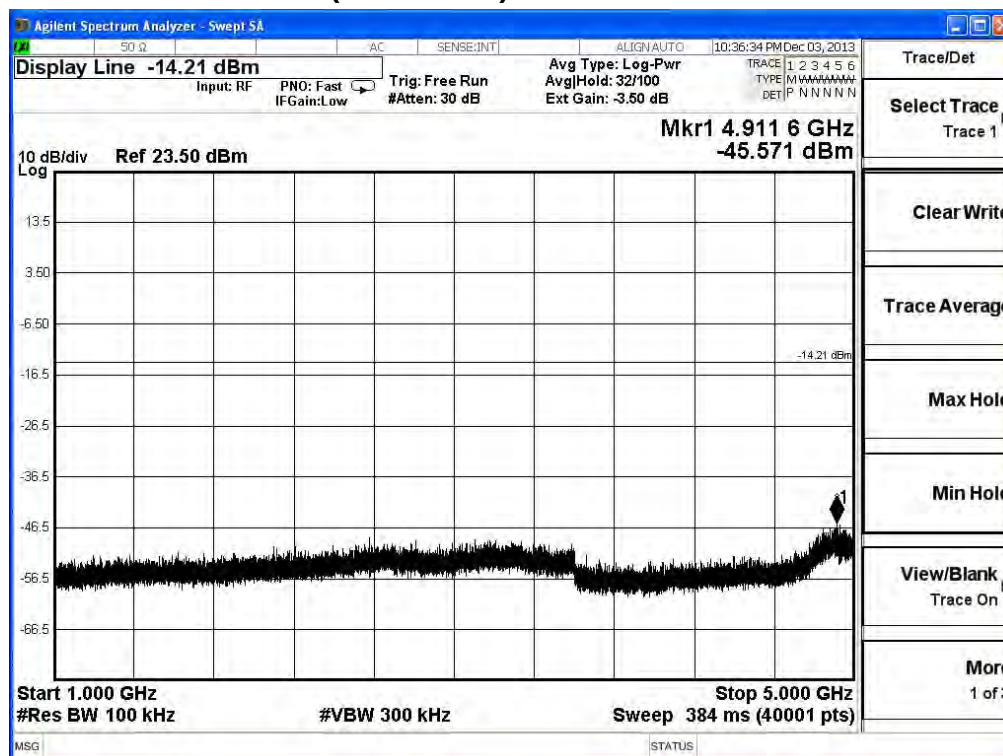
5785MHz (21GHz-25GHz) - 80211a -ANT0



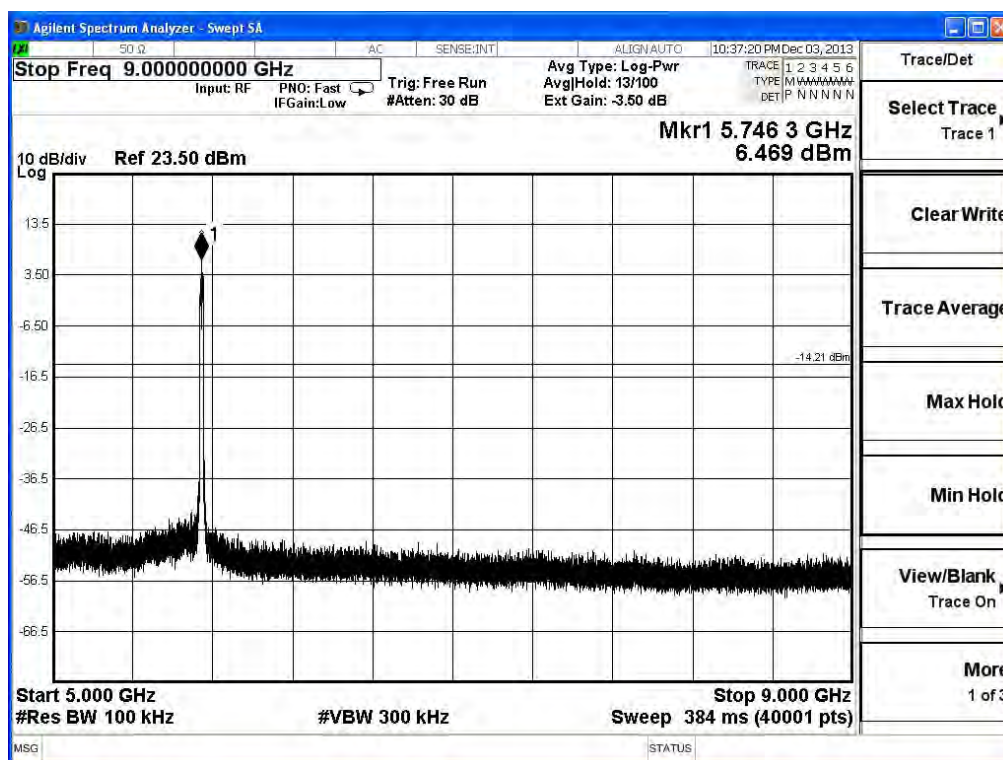
5745MHz (30MHz-1GHz)- 802.11n 20MHz -ANT0



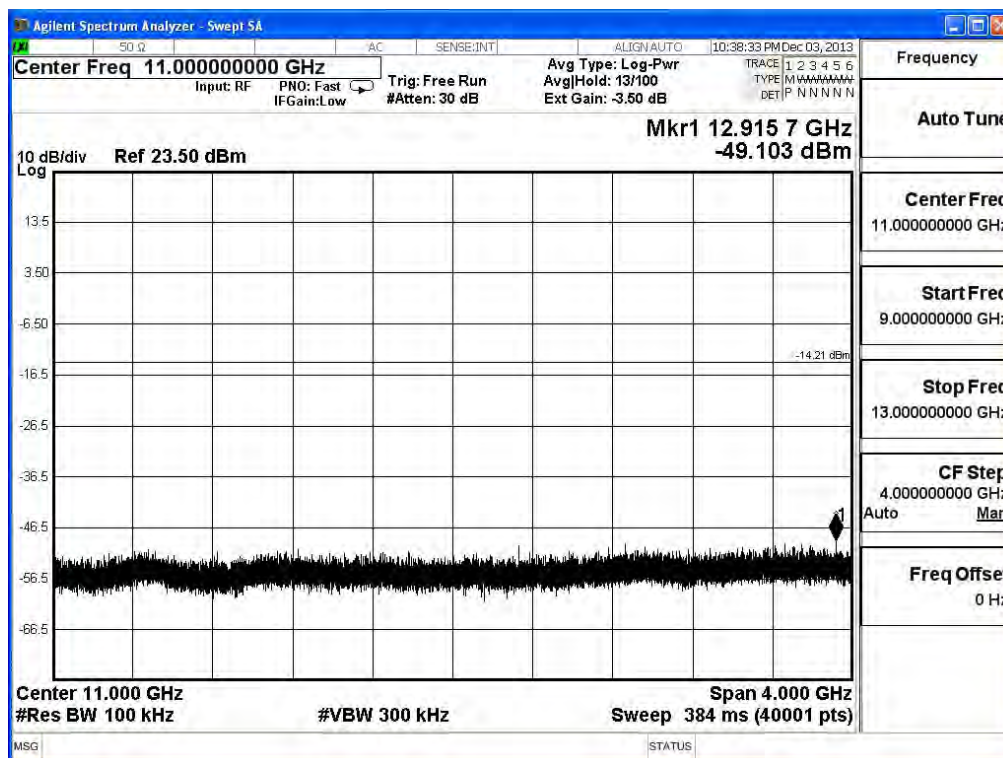
5745MHz (1GHz-5GHz)- 802.11n 20MHz -ANT0



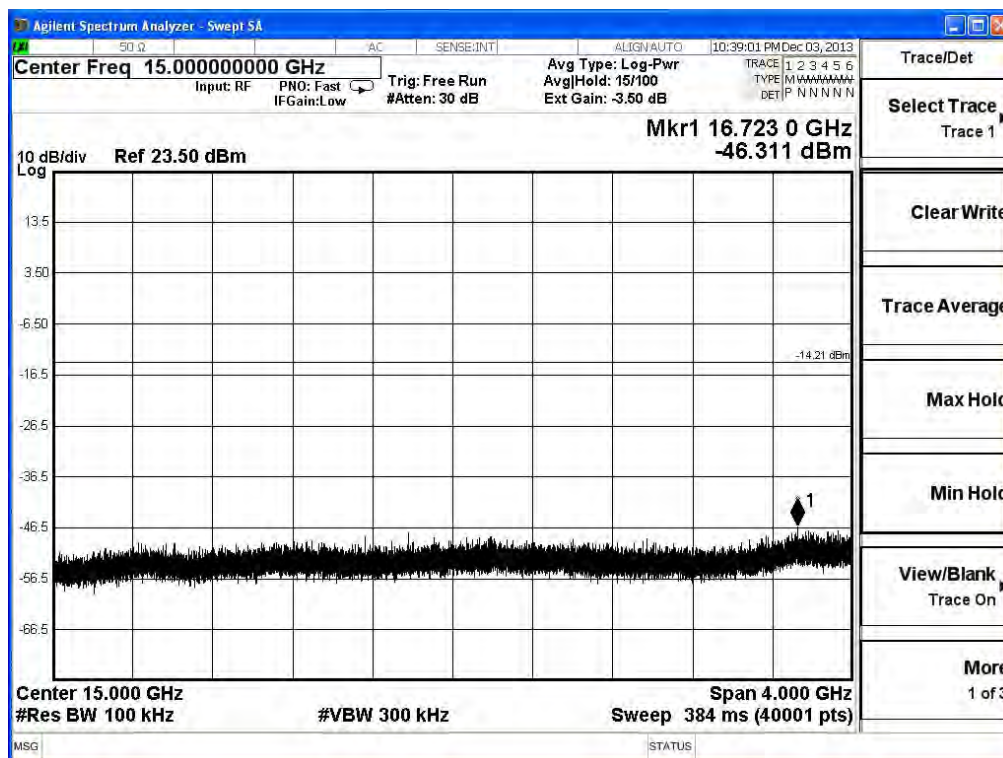
5745MHz (5GHz-9GHz)- 802.11n 20MHz -ANT0



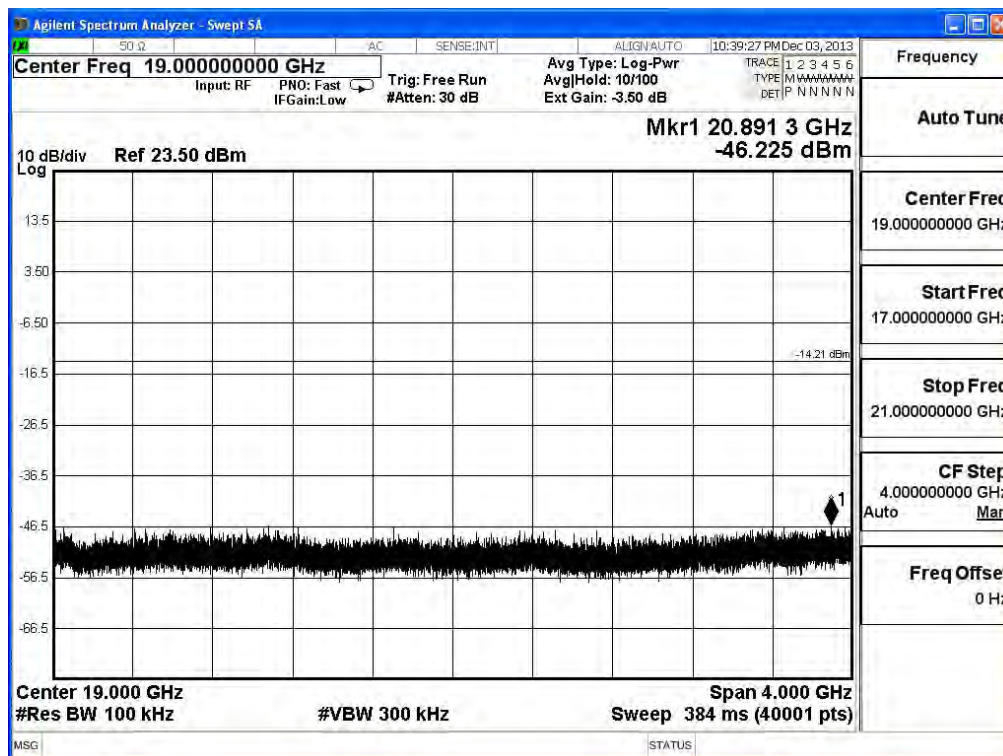
5745MHz (9GHz-13GHz)- 802.11n 20MHz -ANT0



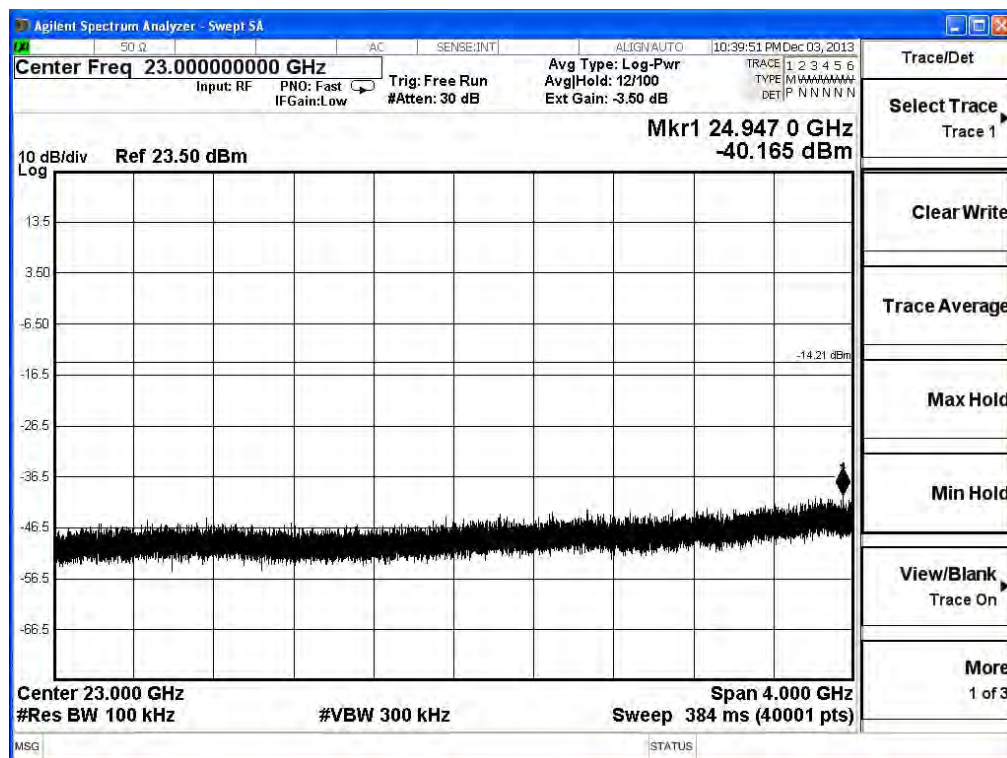
5745MHz (13GHz-17GHz)- 802.11n 20MHz -ANT0



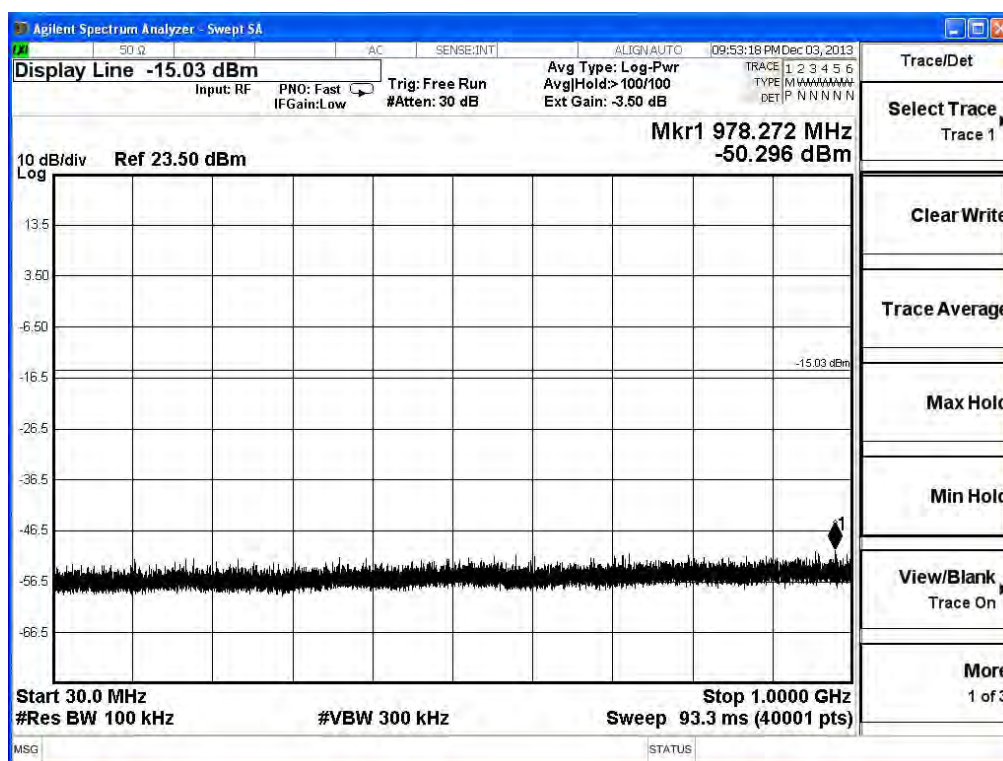
5745MHz (17GHz-21GHz)- 802.11n 20MHz -ANT0



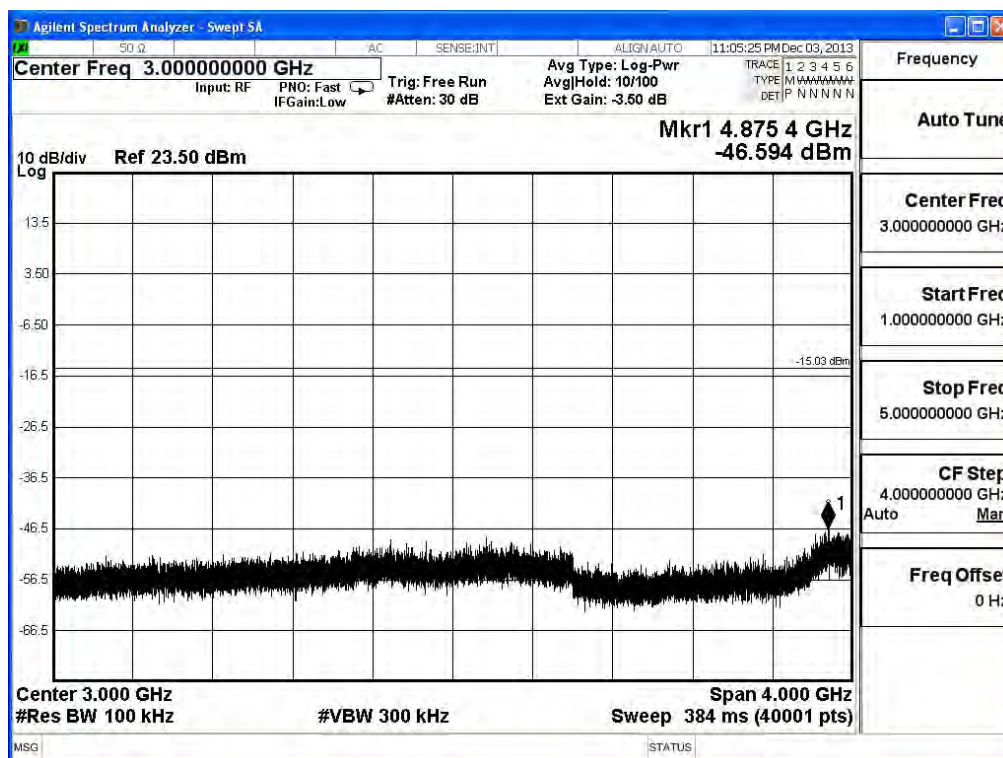
5745MHz (21GHz-25GHz)- 802.11n 20MHz -ANT0



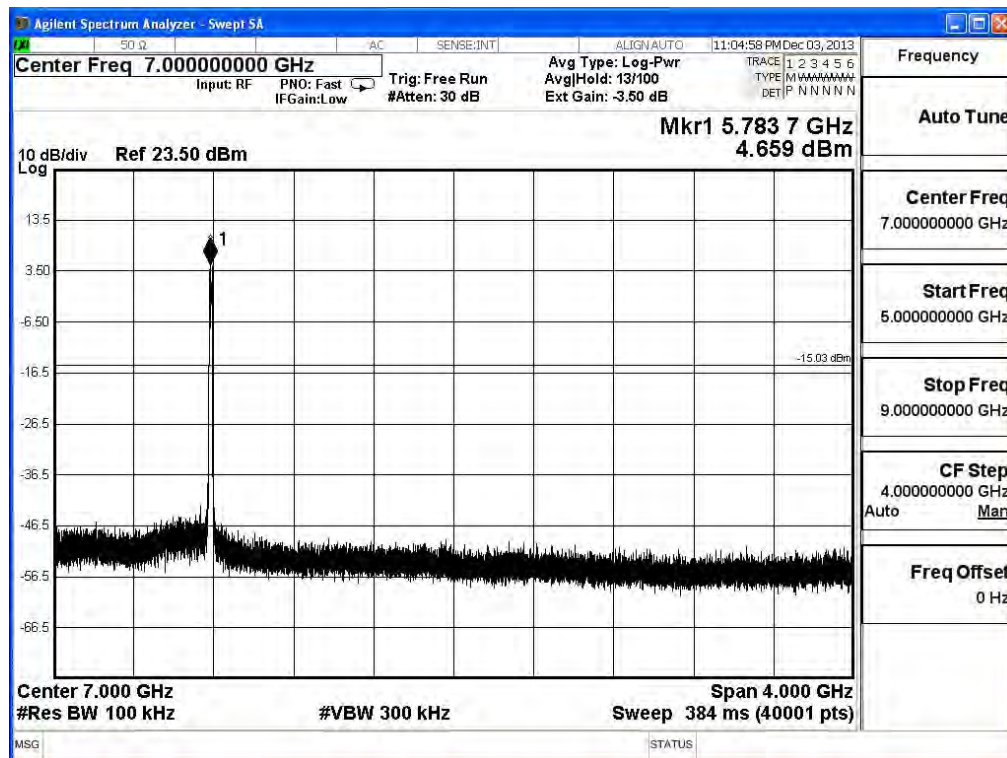
5785MHz (30MHz-1GHz)- 802.11n 20MHz -ANT0



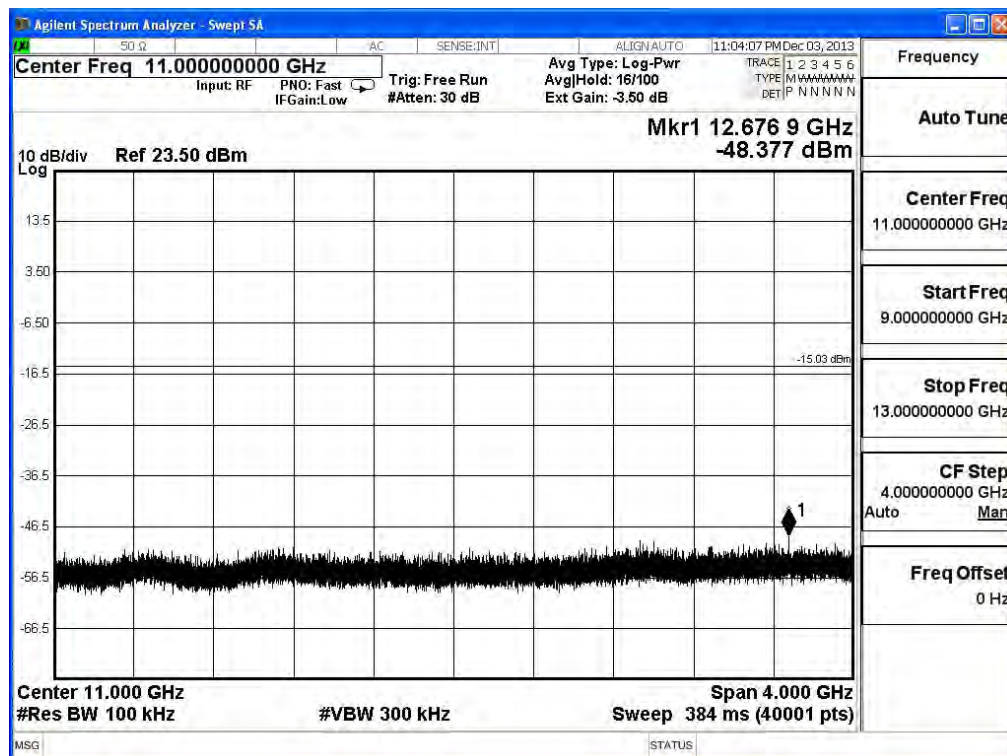
5785MHz (1GHz-5GHz)- 802.11n 20MHz -ANT0



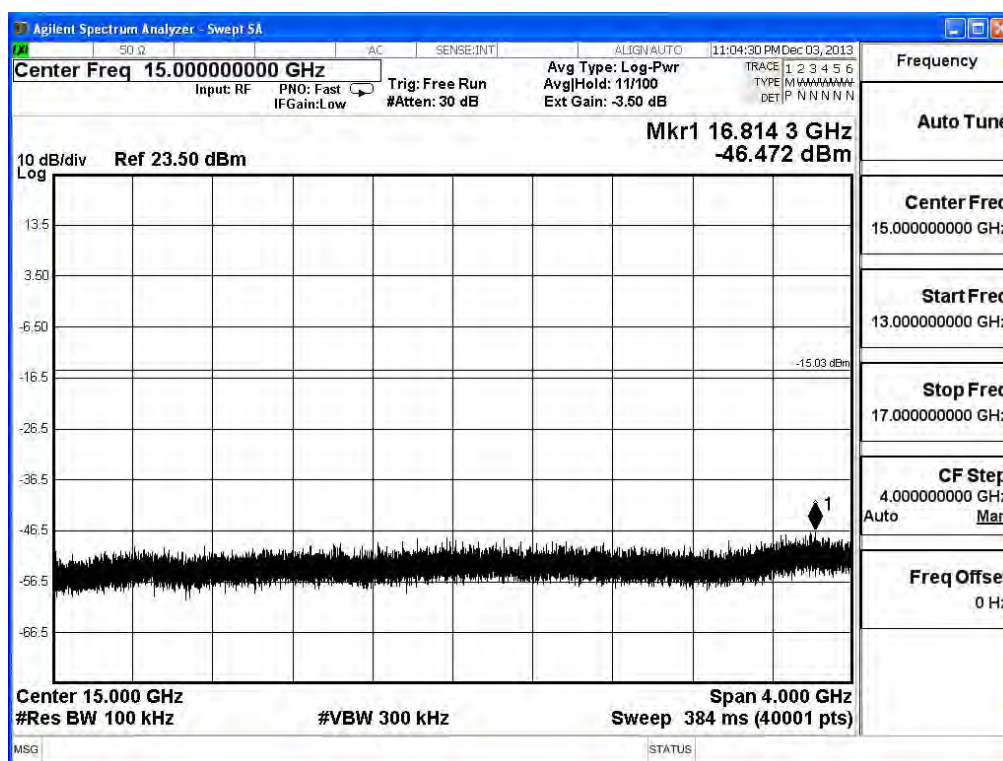
5785MHz (5GHz-9GHz)- 802.11n 20MHz -ANT0



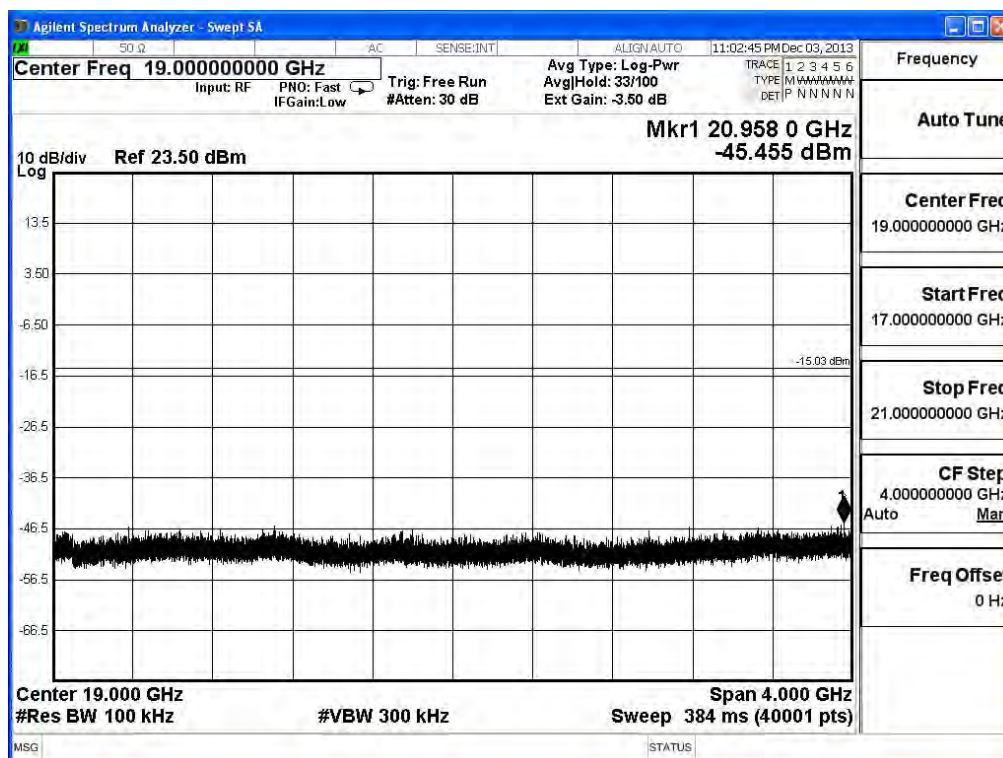
5785MHz (9GHz-13GHz)- 802.11n 20MHz -ANT0



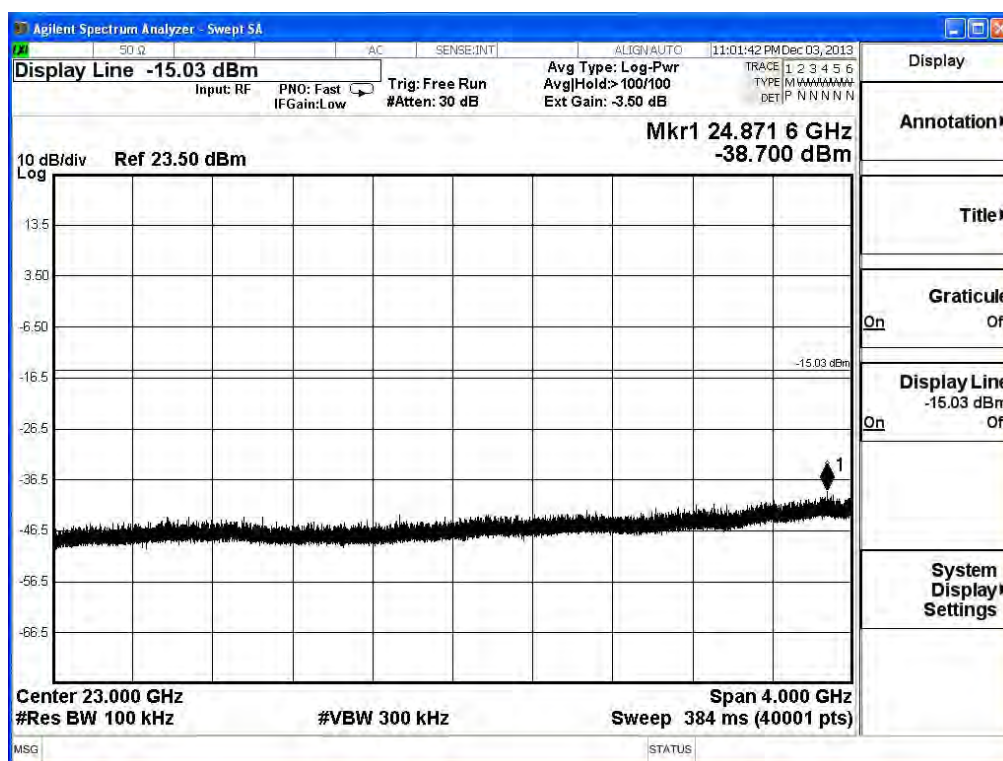
5785MHz (13GHz-17GHz)- 802.11n 20MHz -ANT0



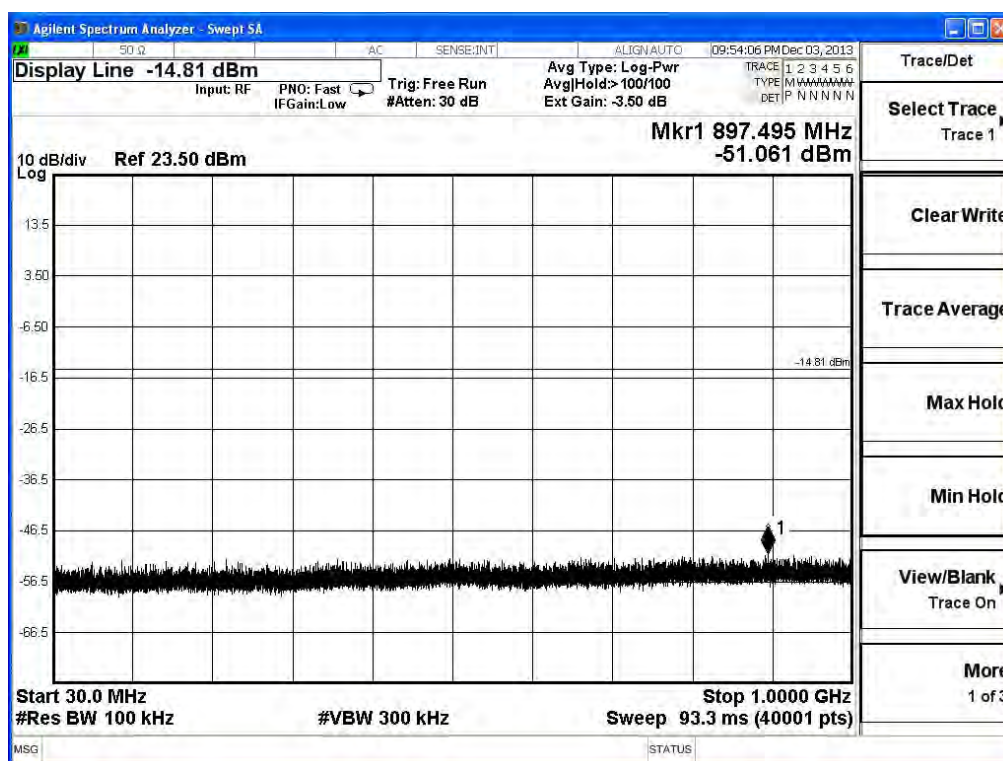
5785MHz (17GHz-21GHz)- 802.11n 20MHz -ANT0



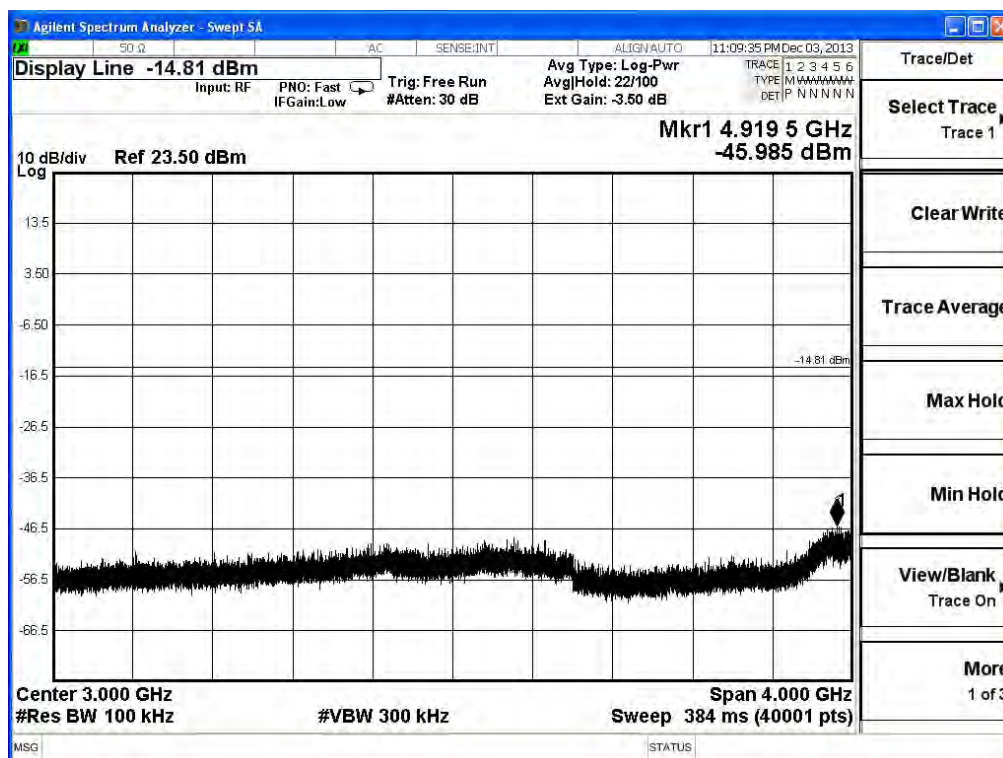
5785MHz (21GHz-25GHz)- 802.11n 20MHz -ANT0



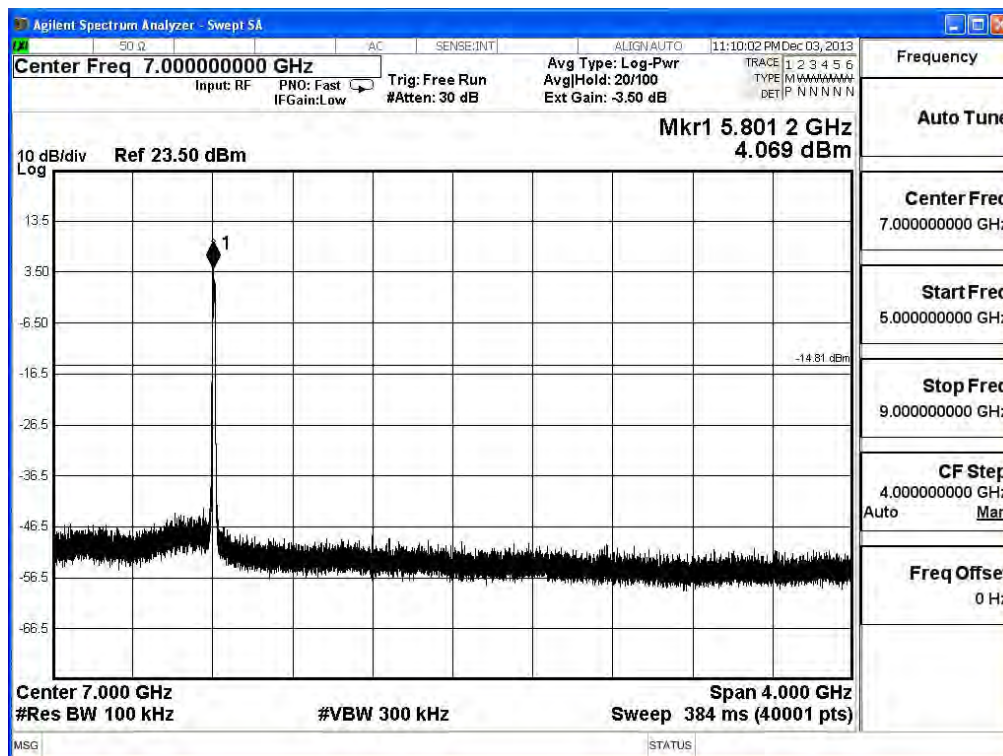
5805MHz (30MHz-1GHz)- 802.11n 20MHz -ANT0



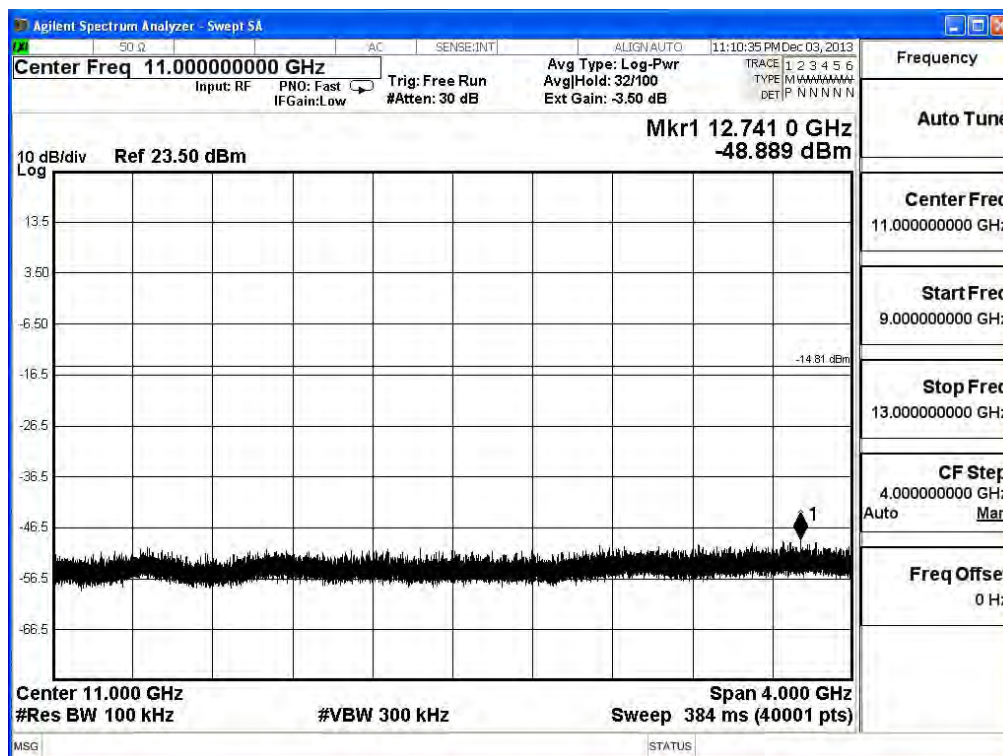
5805MHz (1GHz-5GHz)- 802.11n 20MHz -ANT0



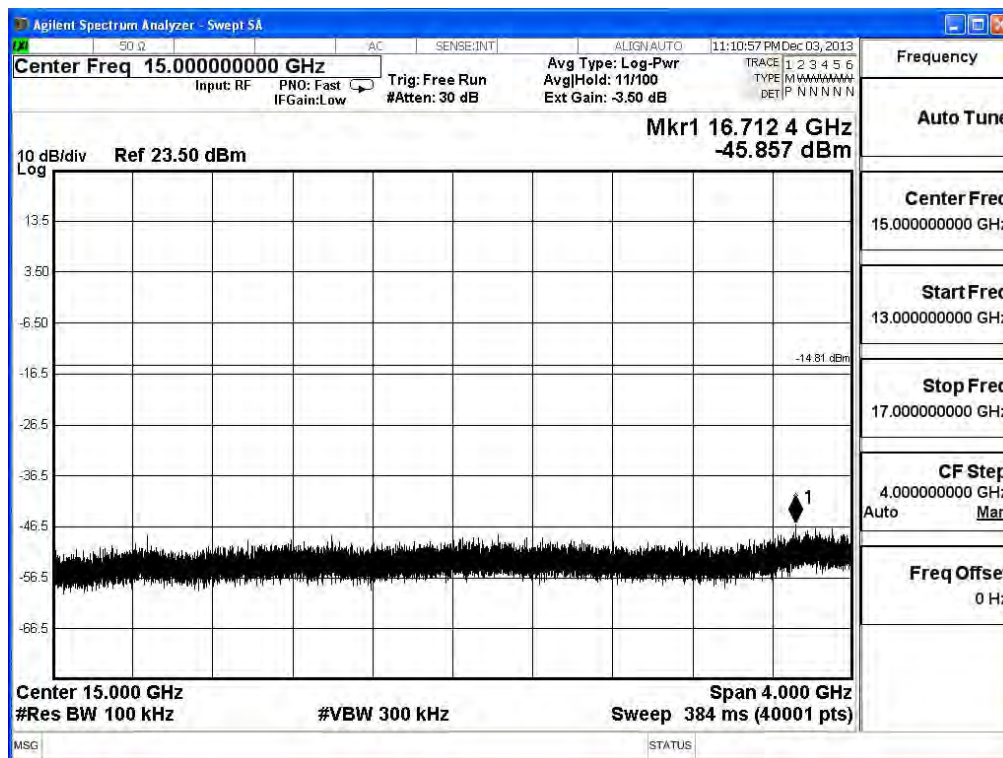
5805MHz (5GHz-9GHz)- 802.11n 20MHz -ANT0



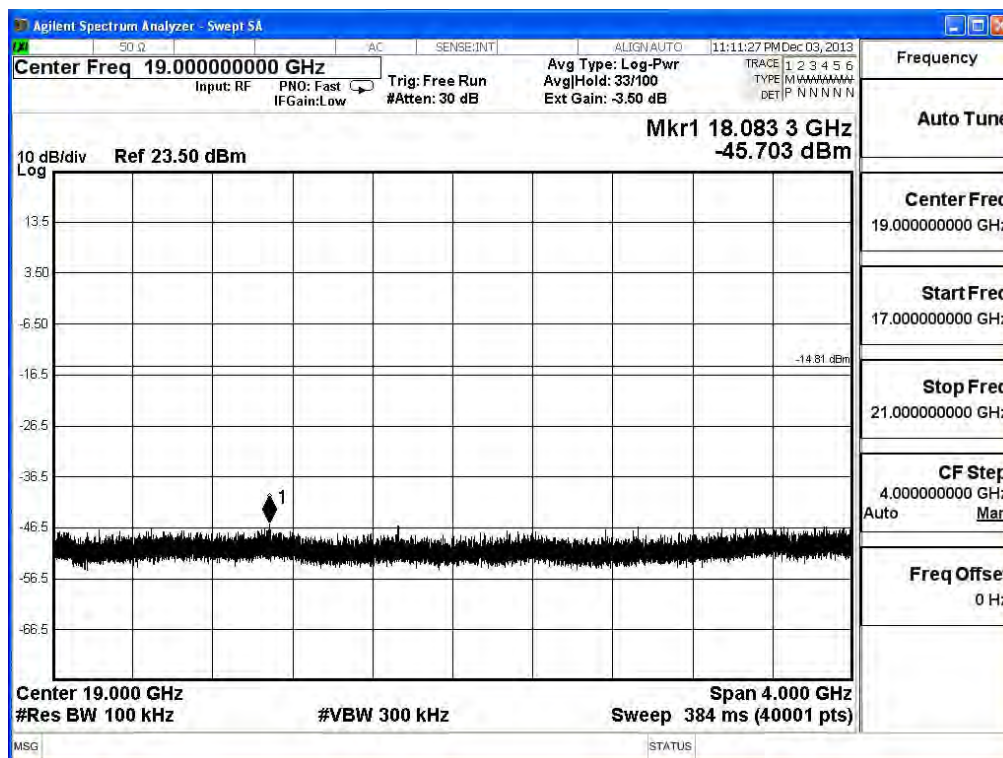
5805MHz (9GHz-13GHz)- 802.11n 20MHz -ANT0



5805MHz (13GHz-17GHz)- 802.11n 20MHz -ANT0



5805MHz (17GHz-21GHz)- 802.11n 20MHz -ANT0



5805MHz (21GHz-25GHz)- 802.11n 20MHz -ANT0

