FCC RADIO TEST REPORT

FCC ID:X5B-048074
IC:8814A-048074

Report Reference No.	:	16FAB07005 21
FCC 2.948 No	:	923232
Date of issue	:	2016-07-10
Testing Laboratory	:	ATT Product Service Co., Ltd.
Address	:	No. 3, ChangLianShan Industrial Park, ChangAn Town, DongGuan City, GuangDong, China.
Applicant's name	:	Performance Designed Products, LLC
Address	:	14144 Ventura Blvd, Suite 200 Sherman Oaks,CA 91423 U.S.A
Manufacturer	:	Performance Designed Products, LLC
Test specification:		
Test item description	:	Wireless Fender Jaguar Guitar Controller for Xbox One
Trade Mark	:	--
Model/Type reference	:	048-074
Ratings	:	I/P: Battery 1.5Vdc*2

Responsible Engineer : Smile Wang

Approved by: Jason Wang

Authorized Signatory: King Wang

TABLE OF CONTENTS

TEST REPORT DECLARE

Applicant	:	Performance Designed Products, LLC
Address	:	14144 Ventura Blvd, Suite 200 Sherman Oaks,CA 91423 U.S.A
Equipment under Test	:	Wireless Fender Jaguar Guitar Controller for Xbox One
Test Model No	:	048-074
Trade Mark	:	--
Manufacturer	:	PERFORMANCE DESIGNED PRODUCTS, LLC
Address	:	2300 West Empire Avenue Suite 600 Burbank CA 91504

Test Standard Used: FCC Part15.407: 01 Oct. 2015.

Test procedure used: ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures New Rules v01r01 .

We Declare:

The equipment described above is tested by ATT Product Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and ATT Product Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	16FAB07005 21		
Date of Test:	2016-05-25---2016-07-06	**Date of Report**:	2016-07-10

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of ATT Product Service Co., Ltd.

1. SUMMARY OF TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below.		
FCC Part15 (15.407) , Subpart E		
Description of Test Item	**Standard**	**Results**
AC Power Line Conducted Emissions	FCC §15.207/ RSS-Gen §8.8/RSS-247 §6.2	N/A
Spurious Radiated Emissions	FCC §15.209(a), 15.407(b)/ RSS 247§6.2	PASS
26 dB and 99% Emission Bandwidth	FCC §15.407(a)/ RSS 247§6.2.1(2)	PASS
Minimum 6 dB bandwidth	FCC §15.407(a)/ RSS 247§6.2.1(2)	PASS
Maximum Conducted Output Power	FCC §407(a)(1)/ RSS 247§6.2.1(1)	PASS
Band Edges	FCC §2.1051, §15.407(b)/ RSS 247§6.2.1(2)	PASS
Power Spectral Density	FCC §15.407(a)(1)/RSS 247§6.2.1(1)	PASS
Spurious Emissions at Antenna Terminals	FCC §2.1051, §15.407(b)/ RSS 247§6.2.1(2)	PASS
Frequency Stability	FCC §15.407(a)(6)/ RSS 247§6.2.1(2)	PASS
Antenna Requirement	FCC §15.203/ RSS-Gen §7.1.2	PASS

2. GENERAL TEST INFORMATION

2.1. DESCRIPTION OF EUT

EUT* Name	:	Wireless Fender Jaguar Guitar Controller for Xbox One
Model Number	:	048-074
EUT function description	:	Please reference user manual of this device
Power supply	:	3Vdc
Operation frequency	:	5150-5250MHz for 802.11a/n; 5725-5850MHz for 802.11a/n;
Modulation	:	OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/n;
Data Rate	:	802.11 a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20):MCS0-MCS7; 802.11n(HT40):MCS8-MCS15;
Antenna Type	:	PCB antenna, maximum PK gain: 3.0 dBi
Battery	:	Battery 1.5Vdc*2
Date of Receipt	:	2016/07/10
Sample Type	:	Single production

UNII-1		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190		
40	5200	46	5230		
44	5220				
48	5240				

UNII-3		UNII-3		UNII-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755		
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

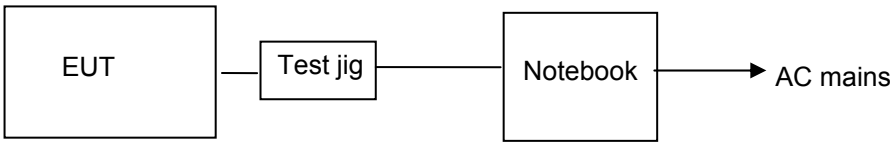
2.2. ACCESSORIES OF EUT

Description of Accessories	Shielded Type	Ferrite Core	Length
/	/	/	/

2.3. ASSISTANT EQUIPMENT USED FOR TEST

Description of Assistant equipment	Manufacturer	Model number or Type	EMC Compliance	SN
Notebook	acer	Aspire E1-472G	FCC DoC	/

2.4. BLOCK DIAGRAM OF EUT CONFIGURATION FOR TEST



2.5. TEST ENVIRONMENT CONDITIONS

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Link Mode
Mode 2	802.11a / n 20 CH36/ CH40/ CH48 802.11a / n 20 CH149/ CH157/ CH 165
Mode 3	802.11n40 CH38/ CH 46 802.11n40 CH 151 / CH 159

For Radiated Emission	
Final Test Mode	Description
Mode 1	Link Mode
Mode 2	802.11a / n 20 CH36/ CH40/ CH48 802.11a / n 20 CH149/ CH157/ CH 165
Mode 3	802.11n40 CH38/ CH 46 802.11n40 CH 151 / CH 159

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.6. TEST ENVIRONMENT CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106kPa

2.7. MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.44dB
Uncertainty for Radiation Emission test (9KHz-30MHz)	3.21dB
Uncertainty for Radiation Emission test (30MHz-200MHz)	3.42 dB (Polarize: V)
	3.52 dB (Polarize: H)
Uncertainty for Radiation Emission test (200MHz-1GHz)	3.52 dB (Polarize: V)
	3.54 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz to 25GHz)	4.20 dB (Polarize: V)
	4.20 dB (Polarize: H)
Uncertainty for radio frequency	1×10-9
Uncertainty for conducted RF Power	0.65dB

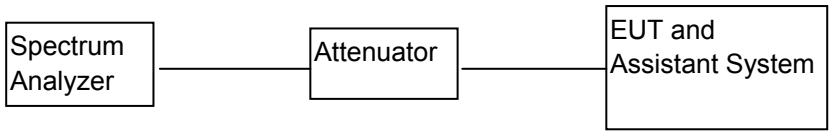
Note：This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. POWER SPECTRAL DENSITY TEST

3.1. TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2017/05/05	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2016/12/19	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2016/12/19	1 Year

3.2. BLOCK DIAGRAM OF TEST SETUP



3.3. APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(3)

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi..

3.4. TEST PROCEDURE

（For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

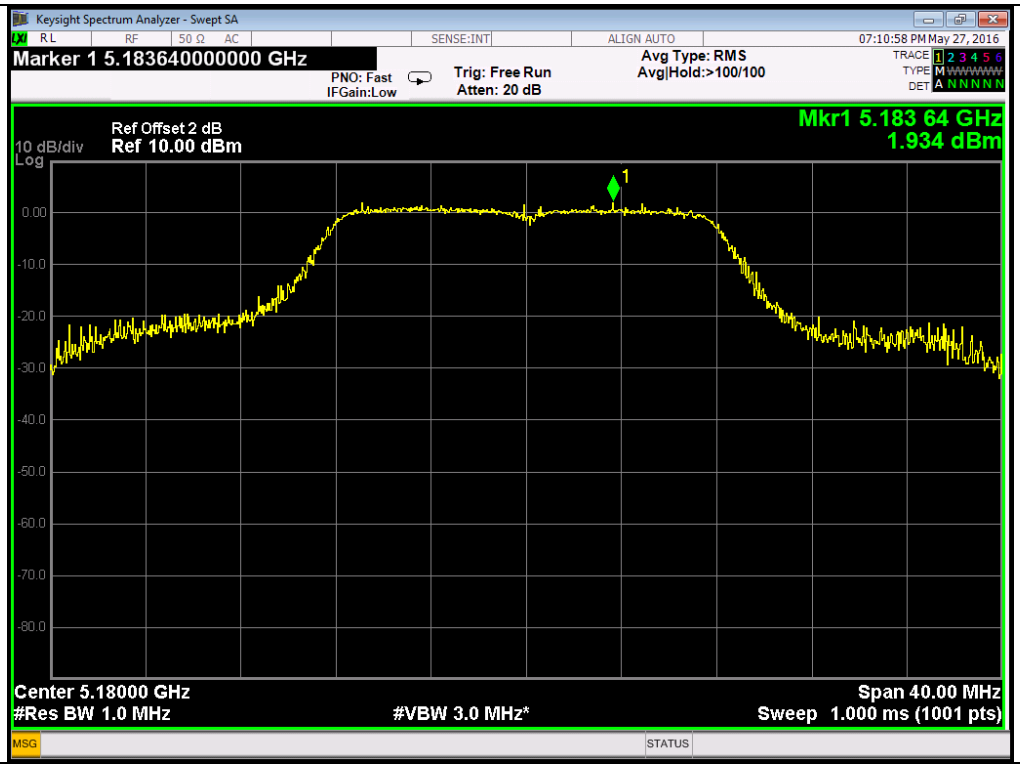
Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

3.5. TEST RESULT

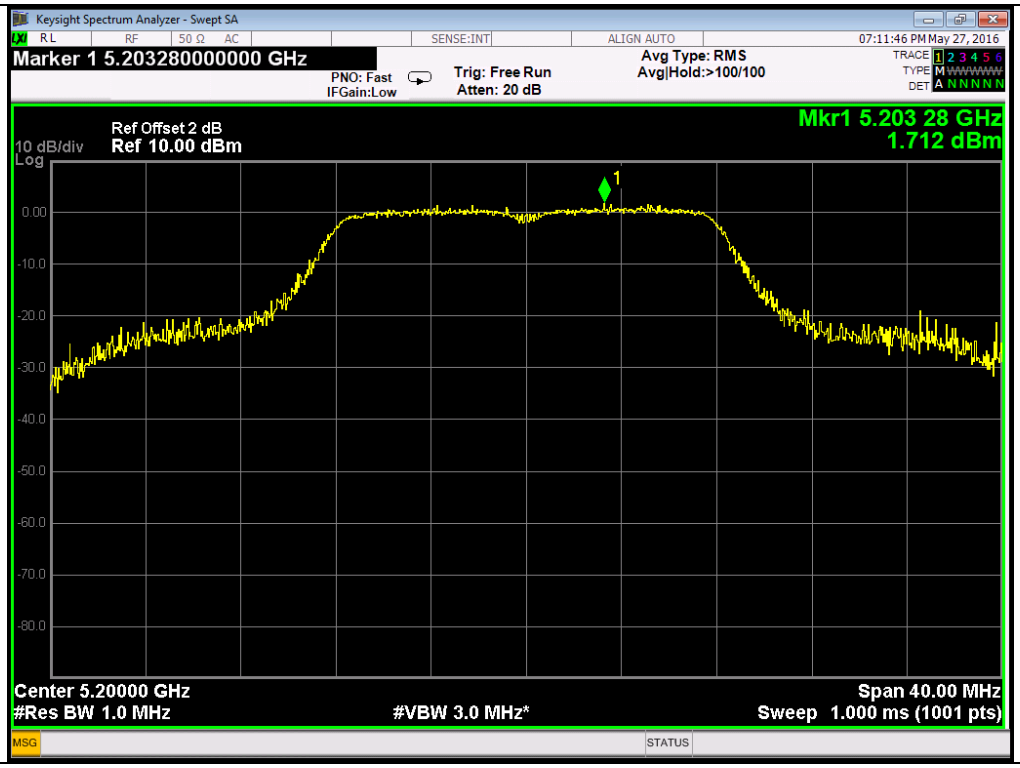
TX(5150-5250MHz)

Mode	Frequency	Measured Power Density (dBm)	Limit (dBm)	Result
802.11 a	5180 MHz	1.934	11	PASS
	5200 MHz	1.712	11	PASS
	5240 MHz	4.107	11	PASS
802.11 n20	5180 MHz	0.468	11	PASS
	5200 MHz	-1.104	11	PASS
	5240 MHz	0.462	11	PASS
802.11 n40	5190 MHz	-2.251	11	PASS
	5230 MHz	-0.756	11	PASS

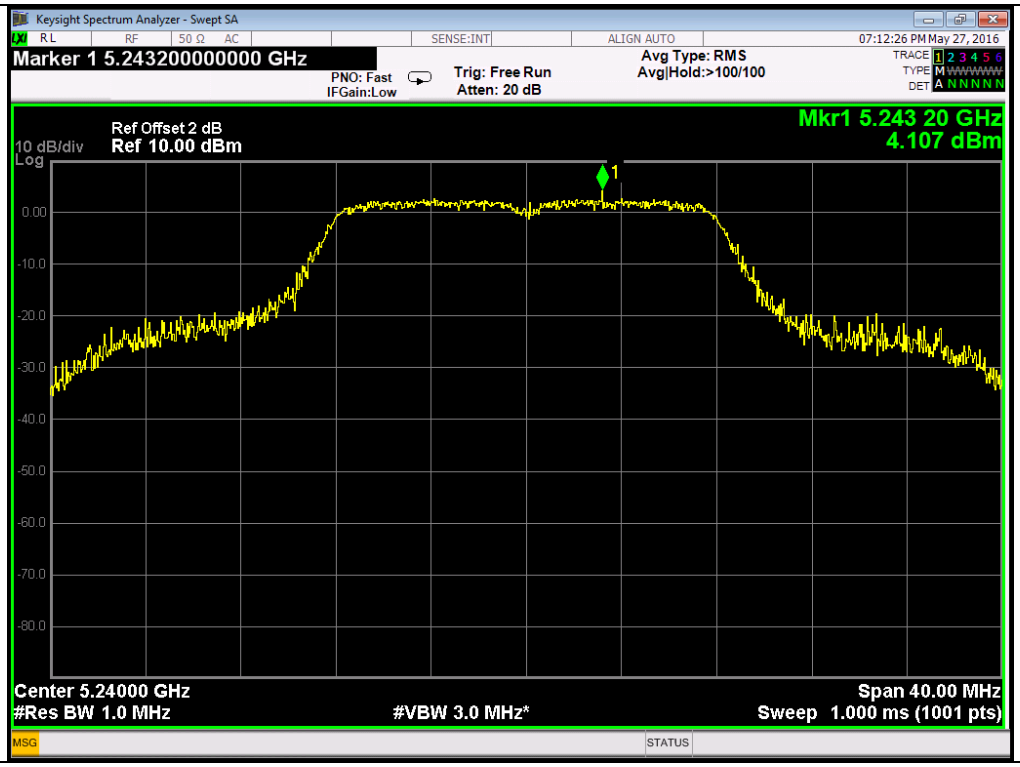
802.11 a Mode
TX CH 36



TX CH 40

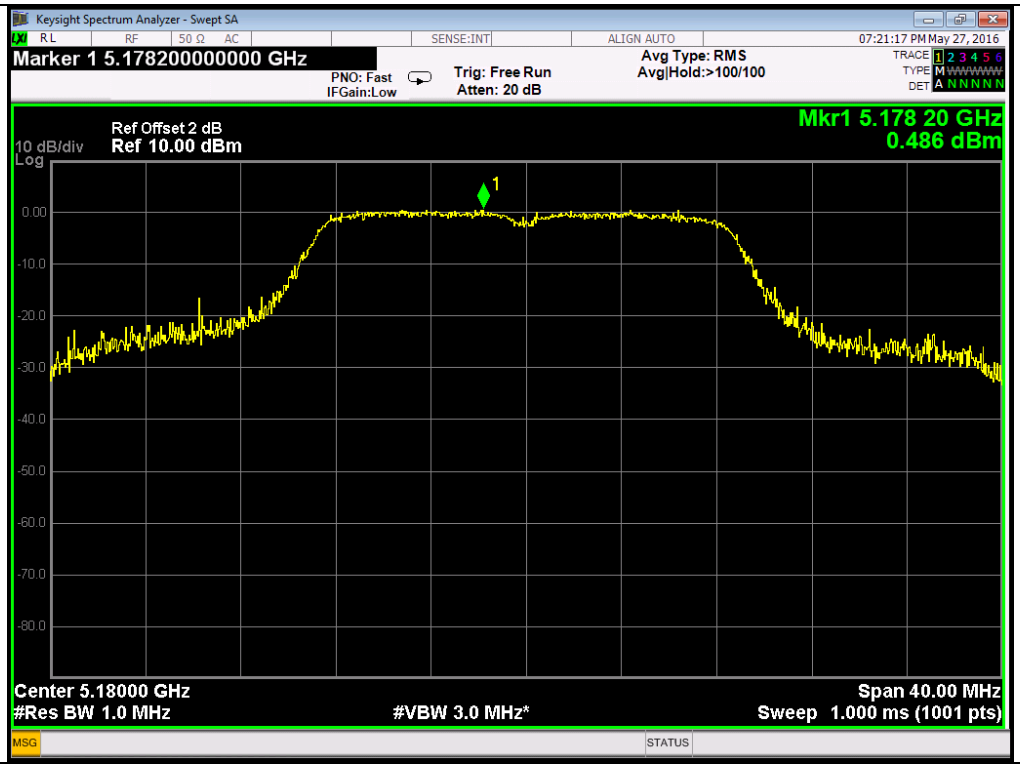


TX CH 48

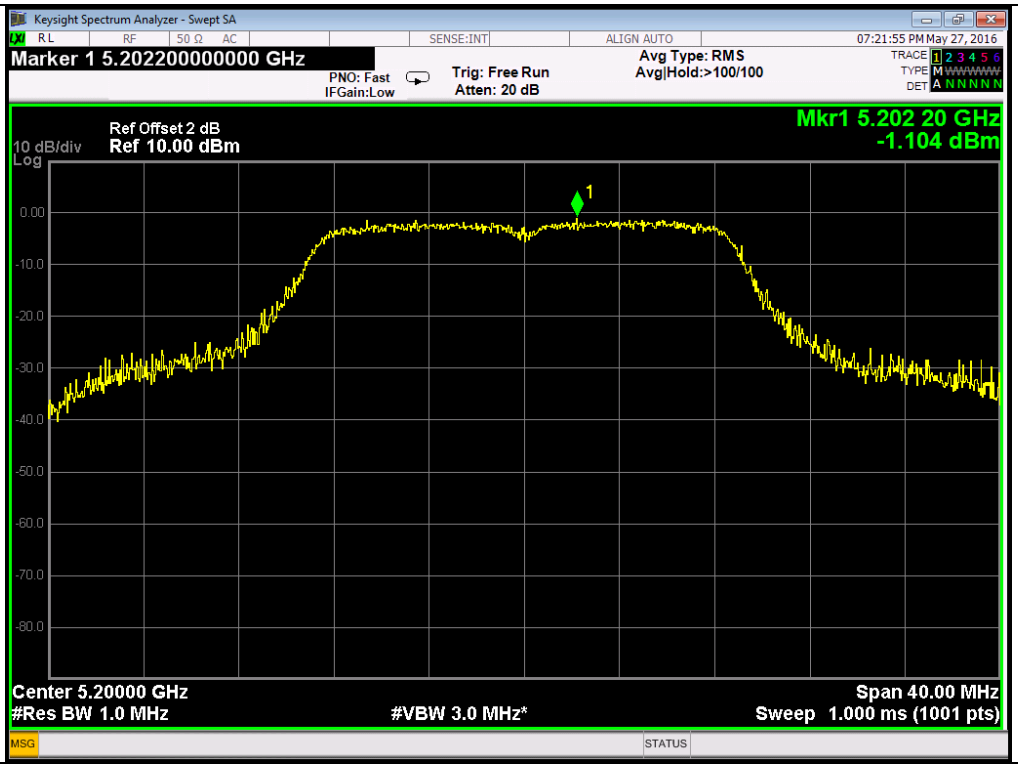


802.11 n20 Mode

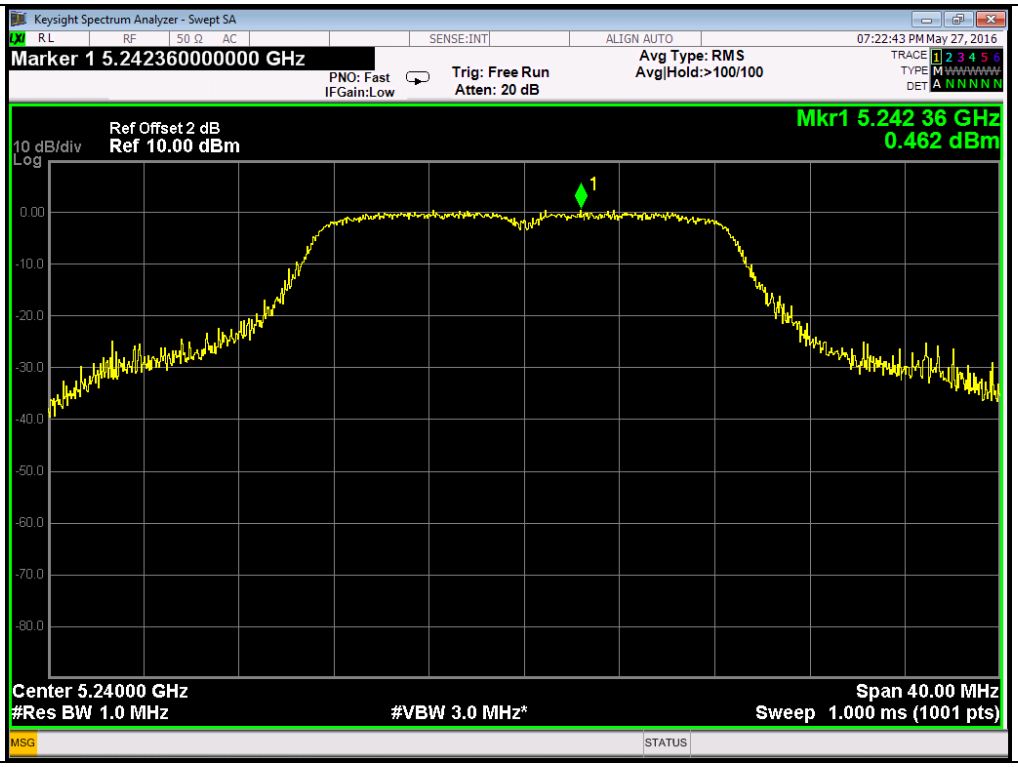
TX CH 36



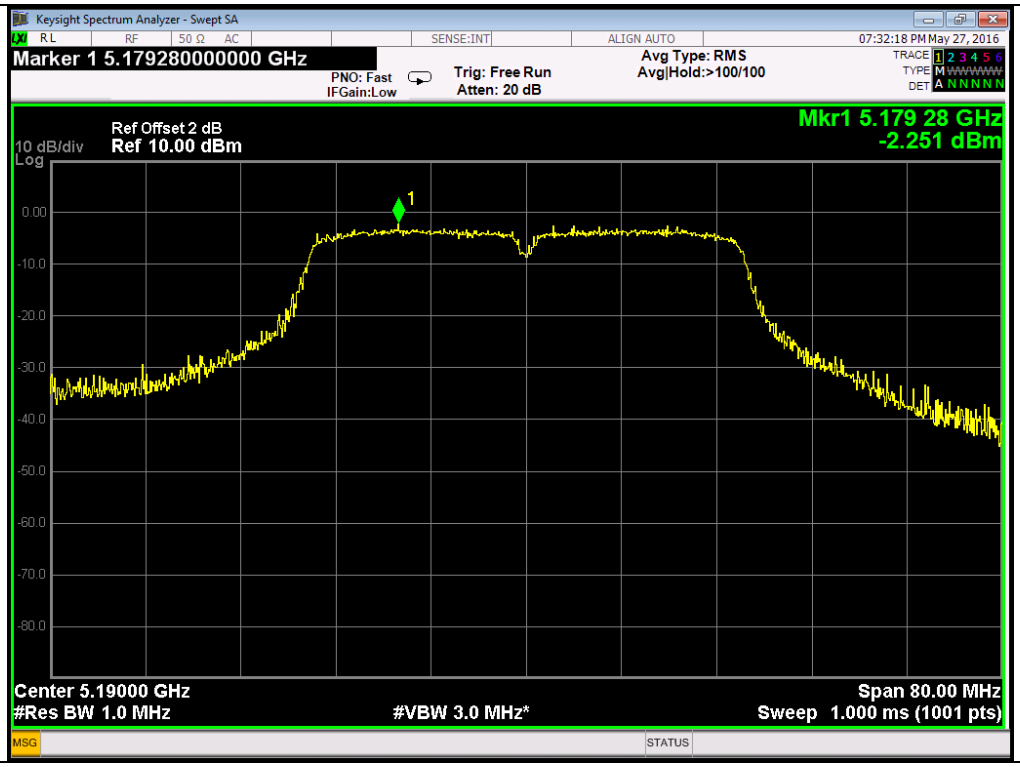
TX CH 40



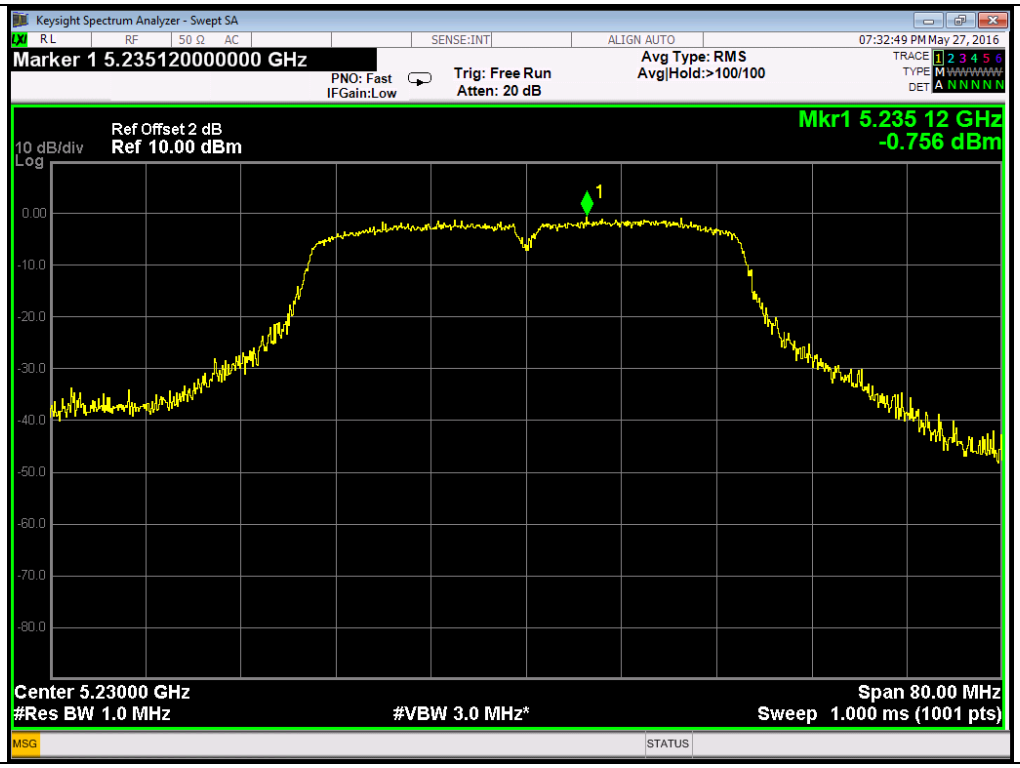
TX CH 48



802.11 n40 Mode
TX CH 38



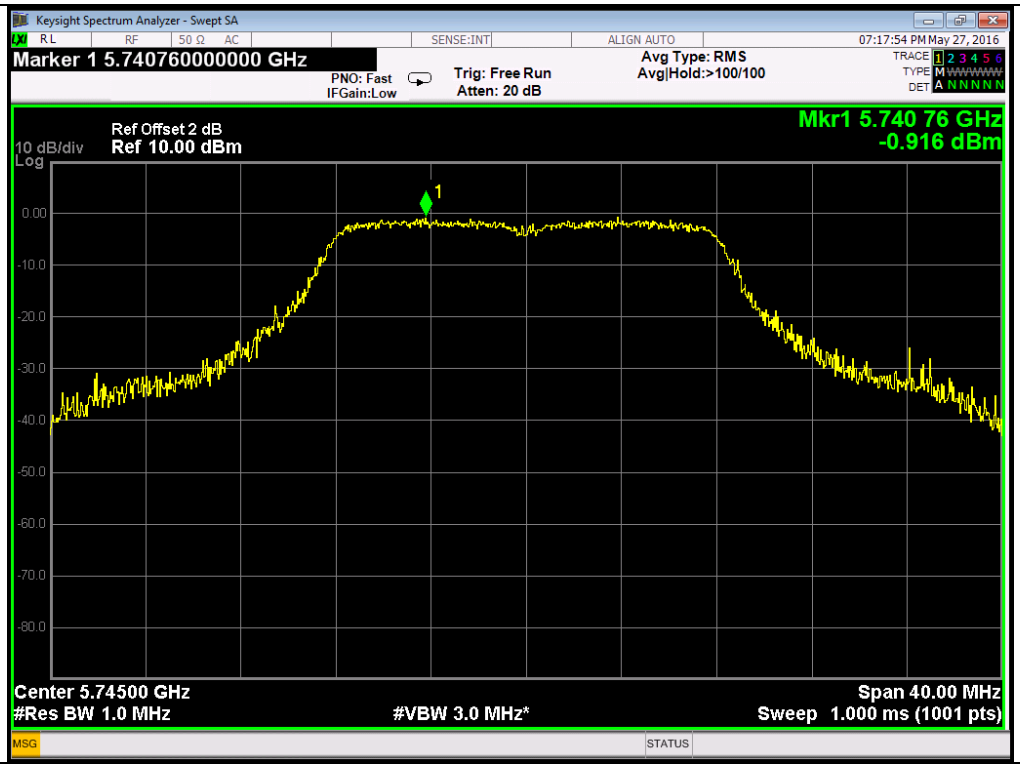
TX CH 46



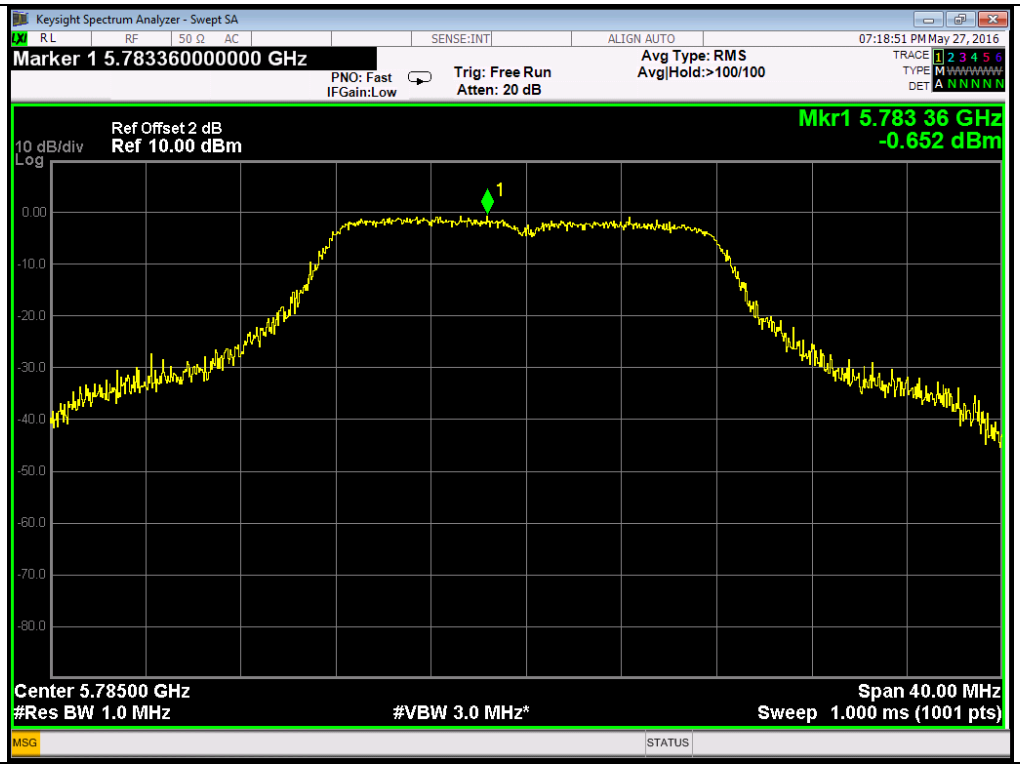
TX(5725-5850MHz)

Mode	Frequency	Measured Power Density (dBm)	Limit (dBm)	Result
802.11 a	5745 MHz	-0.916	30	PASS
	5785 MHz	-0.652	30	PASS
	5825 MHz	-0.399	30	PASS
802.11 n20	5745 MHz	-0.475	30	PASS
	5785 MHz	1.238	30	PASS
	5825 MHz	-1.310	30	PASS
802.11 n40	5755 MHz	-2.744	30	PASS
	5795 MHz	-2.912	30	PASS

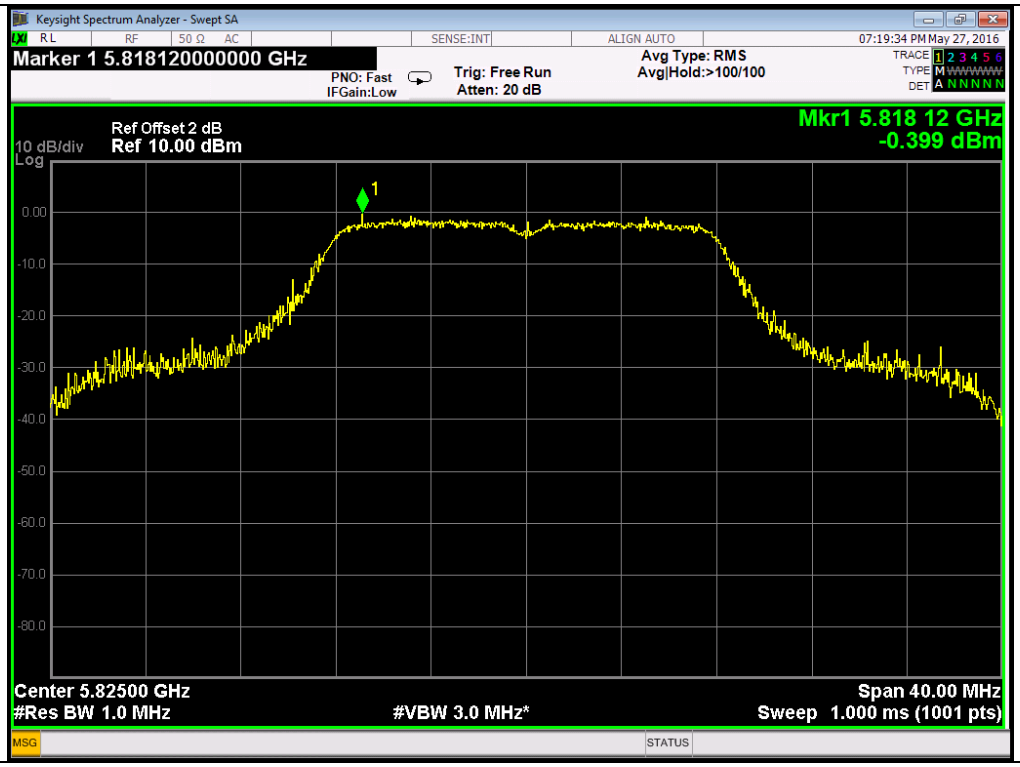
802.11 a Mode
TX CH 149



TX CH 157

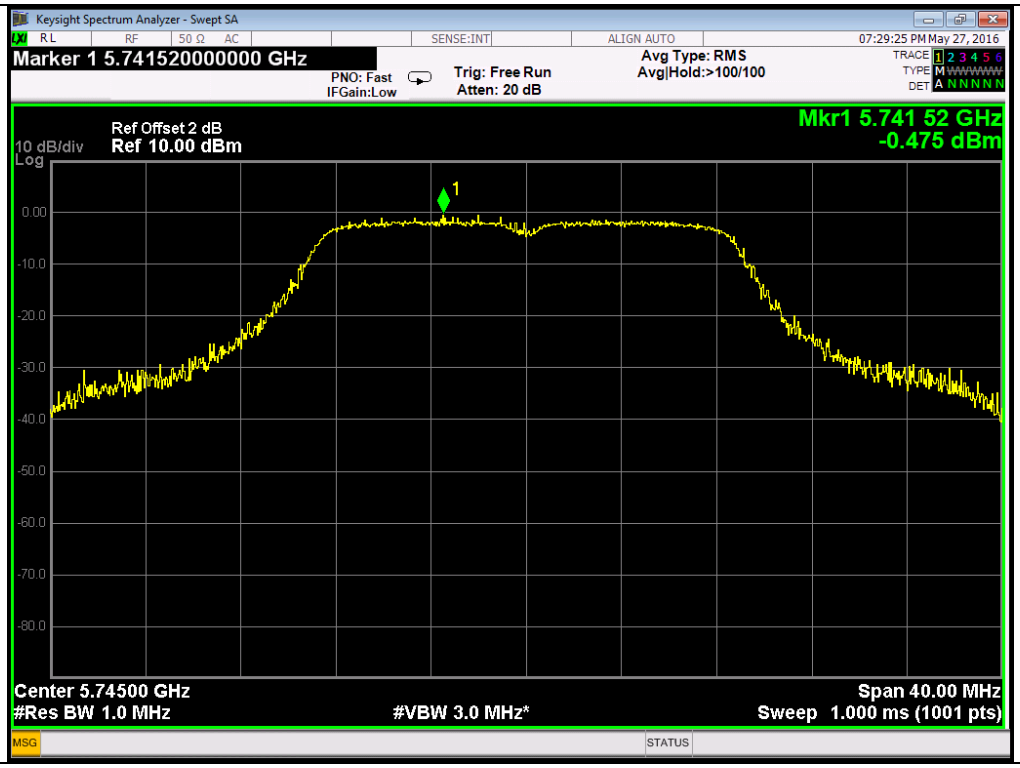


TX CH 165

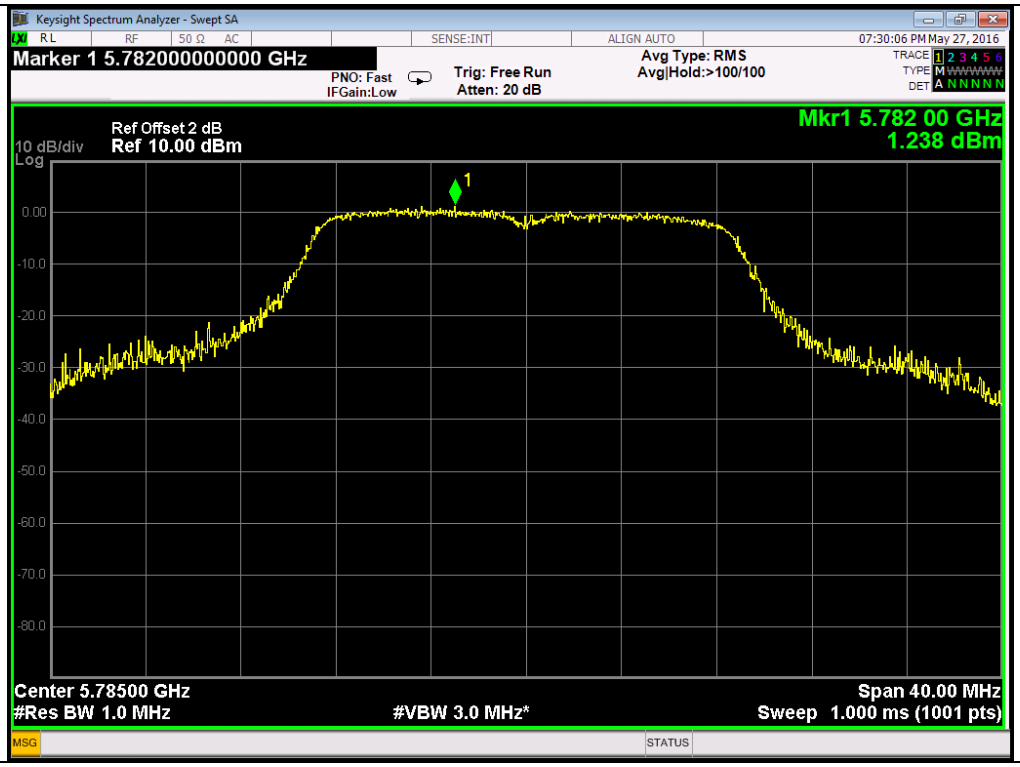


802.11 n20 Mode

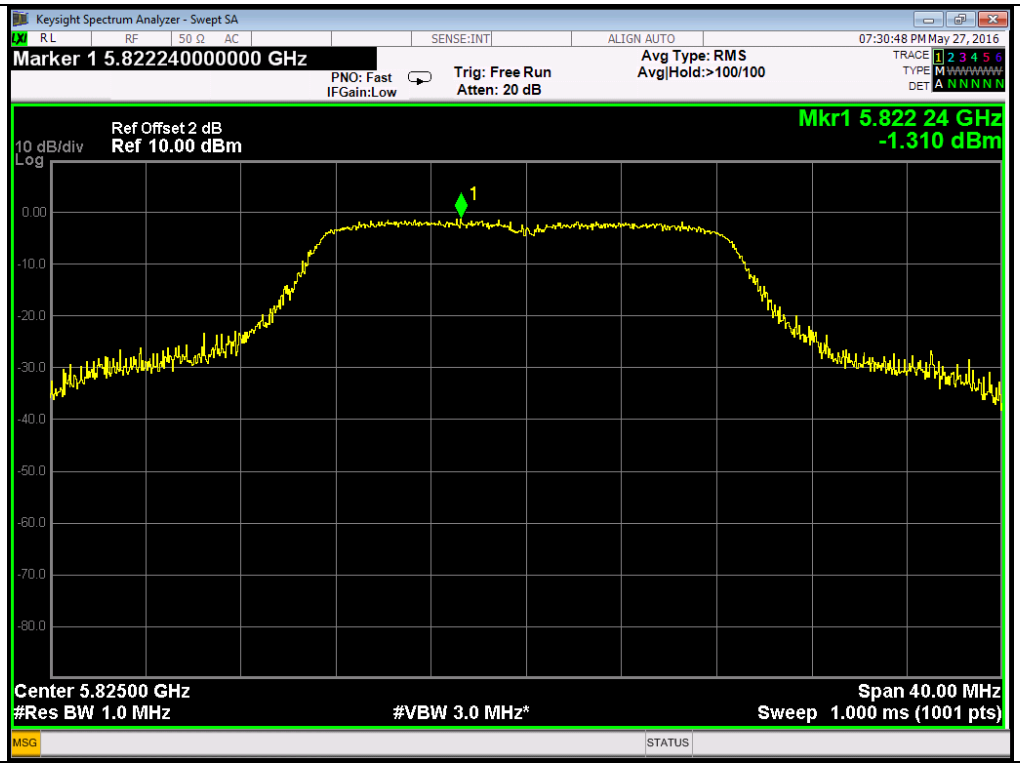
TX CH 149



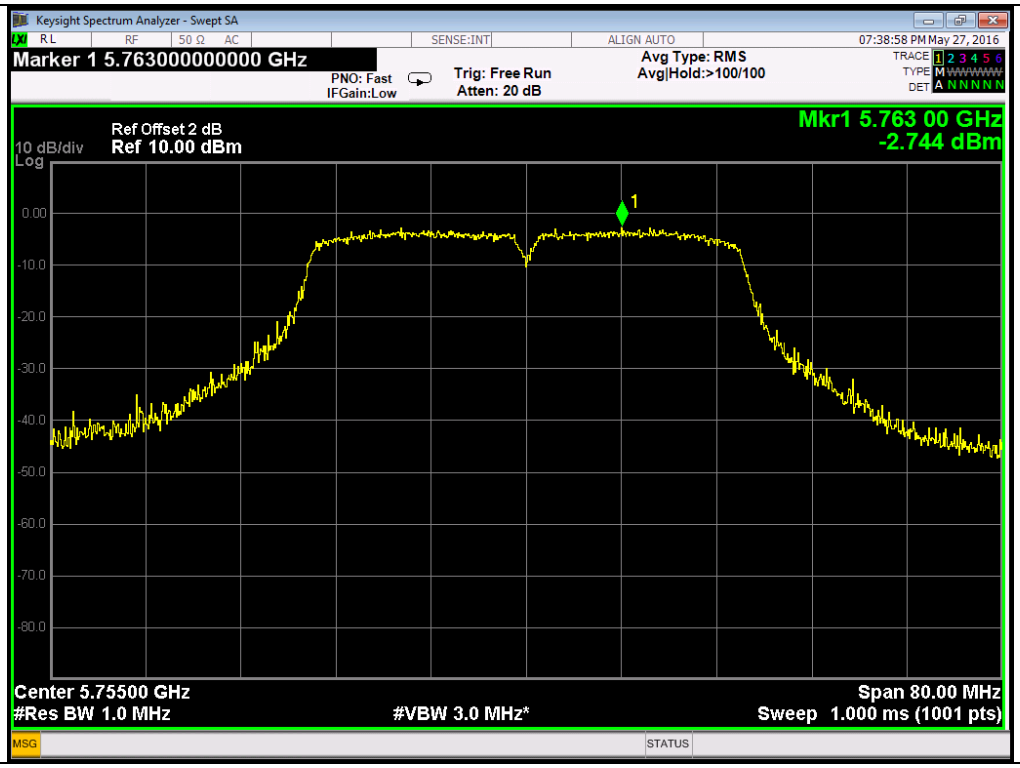
TX CH 157



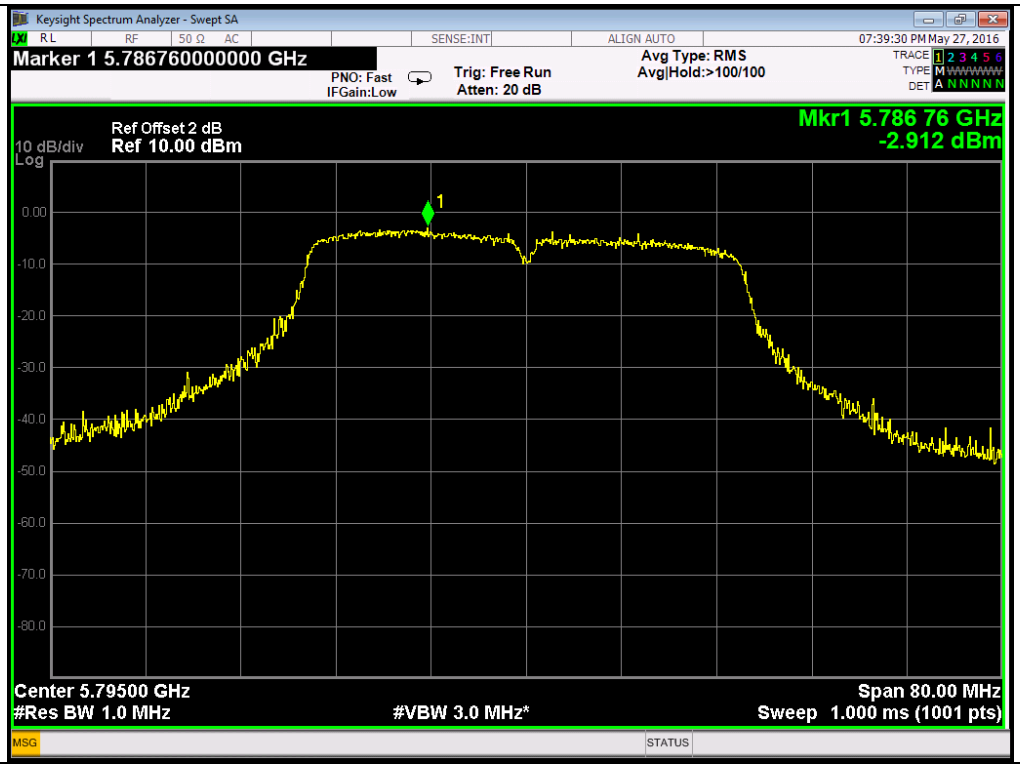
TX CH 165



802.11 n40 Mode
TX CH 151



TX CH 159

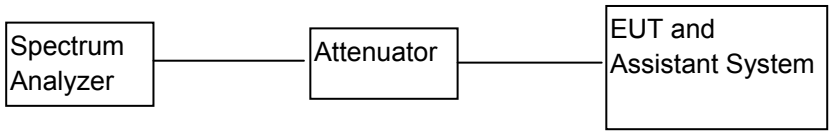


4. 26 dB & 99% Emission Bandwidth

4.1. TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2017/05/05	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2016/12/19	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2016/12/19	1 Year

4.2. BLOCK DIAGRAM OF TEST SETUP



4.3. APPLIED PROCEDURES / LIMIT

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power
is integrated over the full reference bandwidth.

4.4. TEST PROCEDURE

a) Set RBW = approximately 1% of the emission bandwidth.

b) Set the VBW > RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).

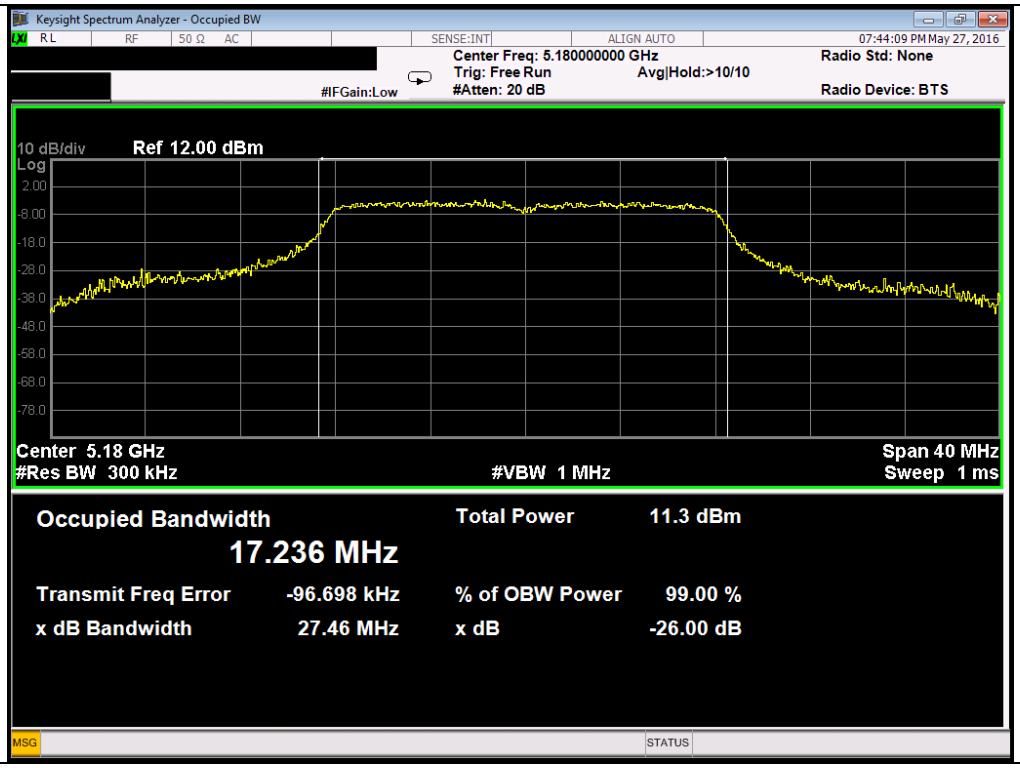
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

4.5. TEST RESULT

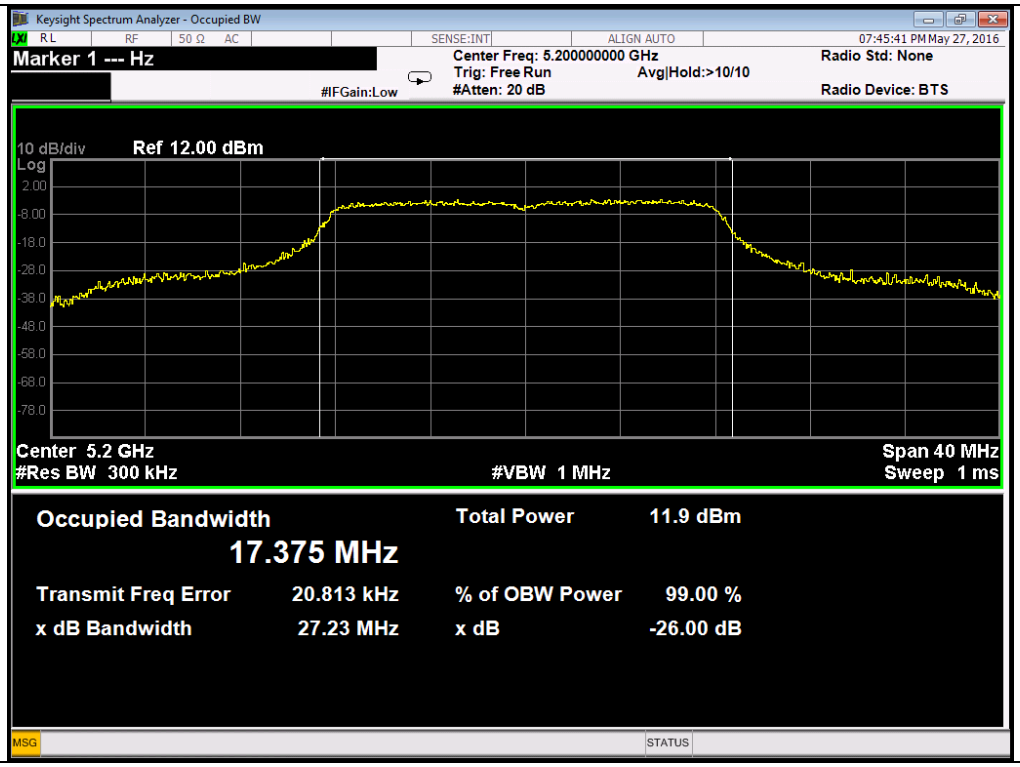
TX(5150-5250MHz)

Mode	Channel	Frequency	99% bandwidth (MHz)	26dB bandwidth (MHz)	Result
802.11 a	CH36	5180 MHz	17.24	27.46	PASS
	CH40	5200 MHz	17.38	27.23	PASS
	CH48	5240 MHz	17.12	23.20	PASS
802.11 n20	CH36	5180 MHz	18.41	26.52	PASS
	CH40	5200 MHz	18.25	25.41	PASS
	CH48	5240 MHz	18.20	29.62	PASS
802.11 n40	CH 38	5190 MHz	36.97	50.35	PASS
	CH 46	5230 MHz	36.50	46.37	PASS

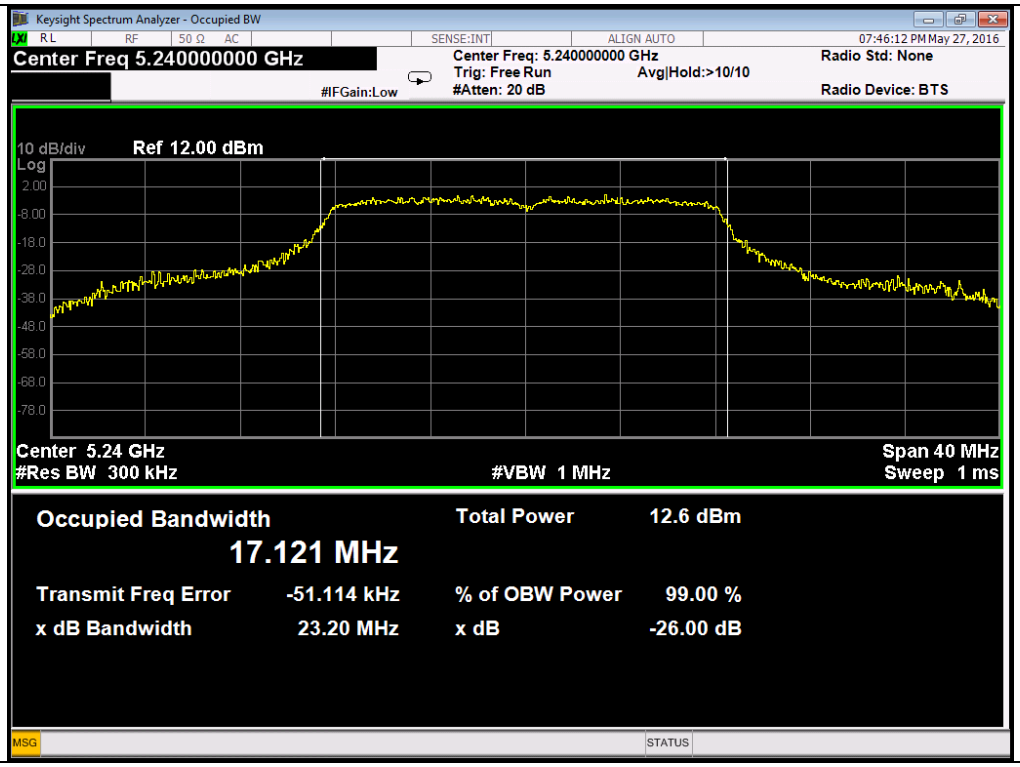
802.11 a Mode
TX CH 36



TX CH 40

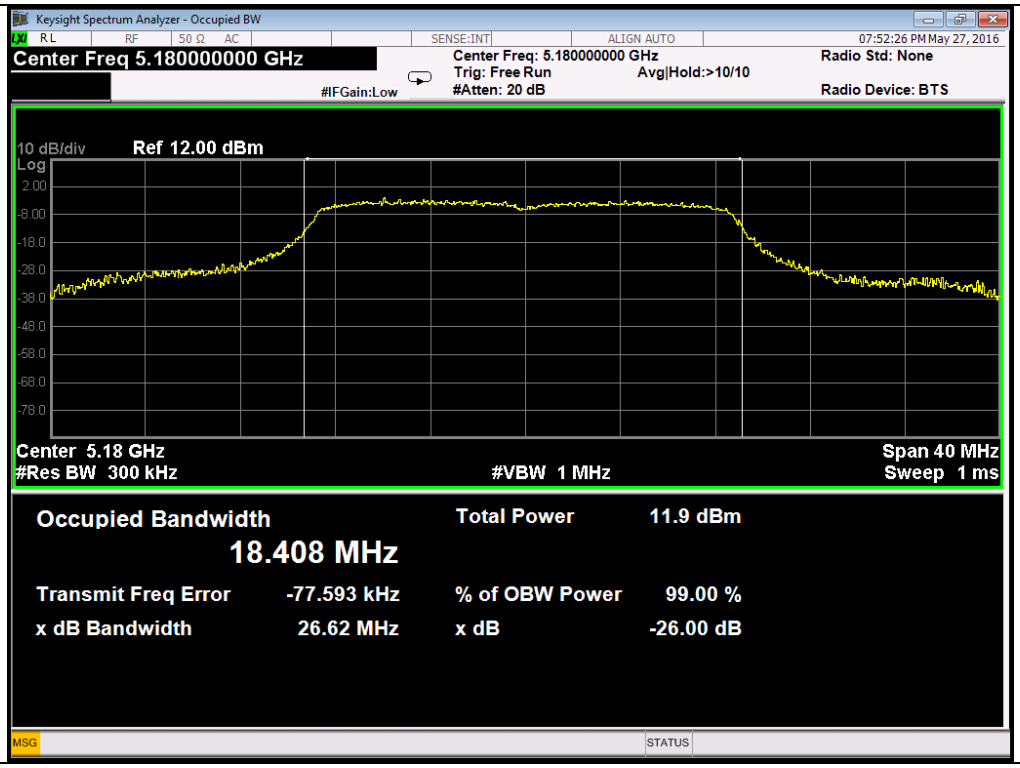


TX CH 48

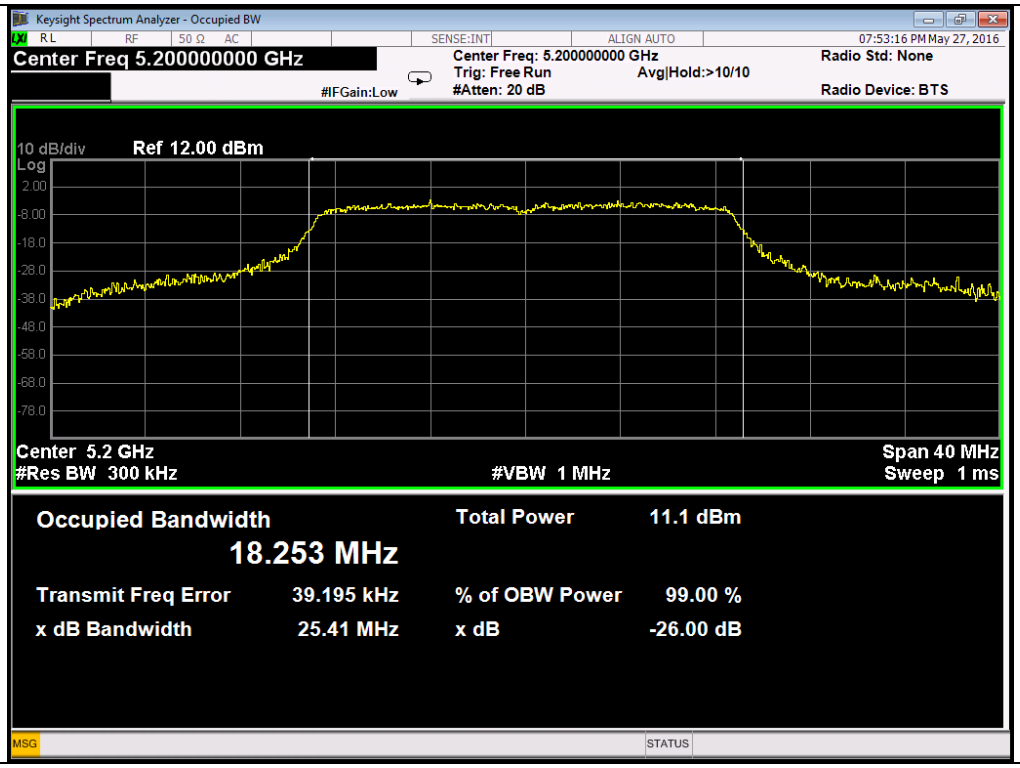


802.11 n20 Mode

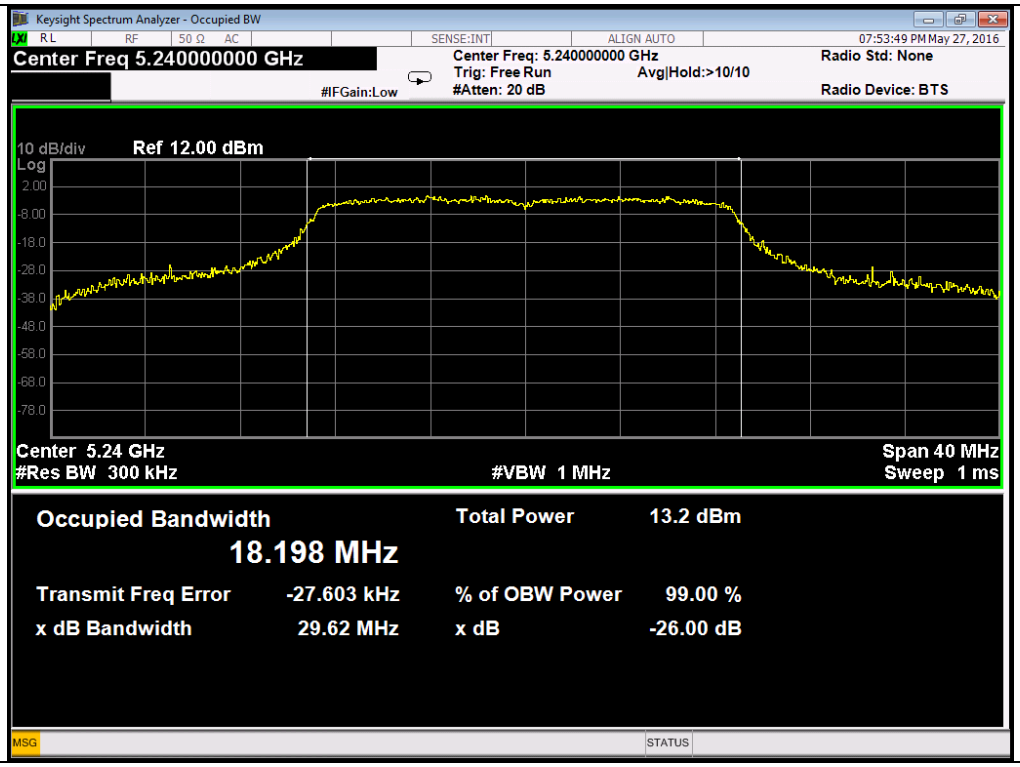
TX CH 36



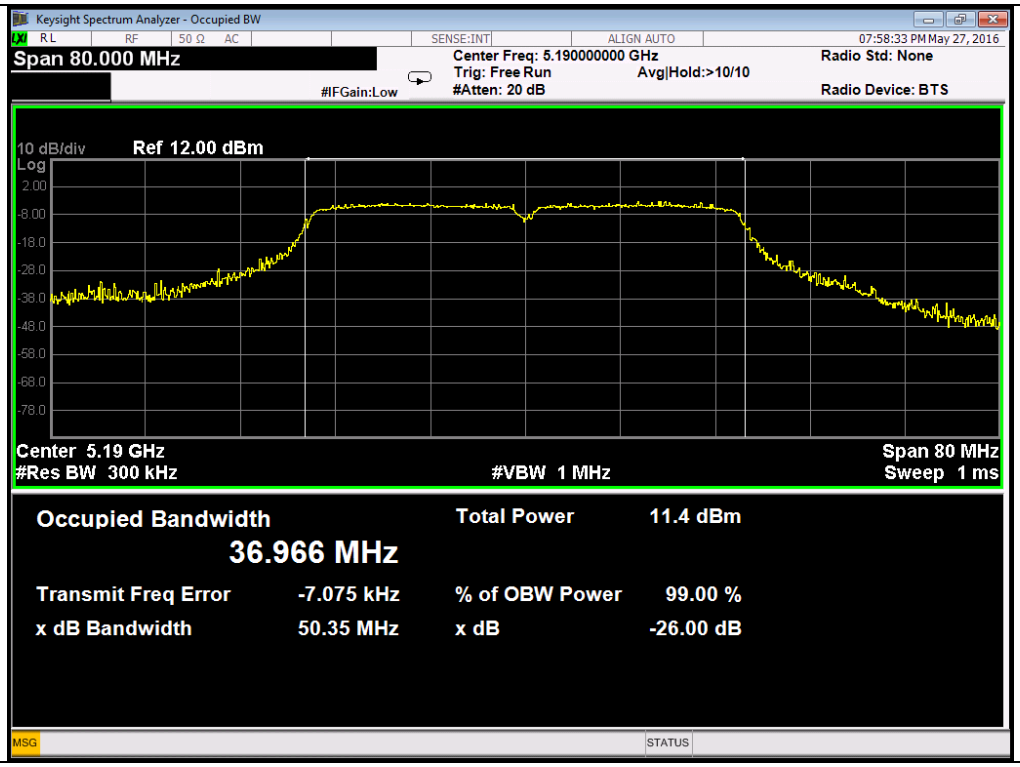
TX CH 40



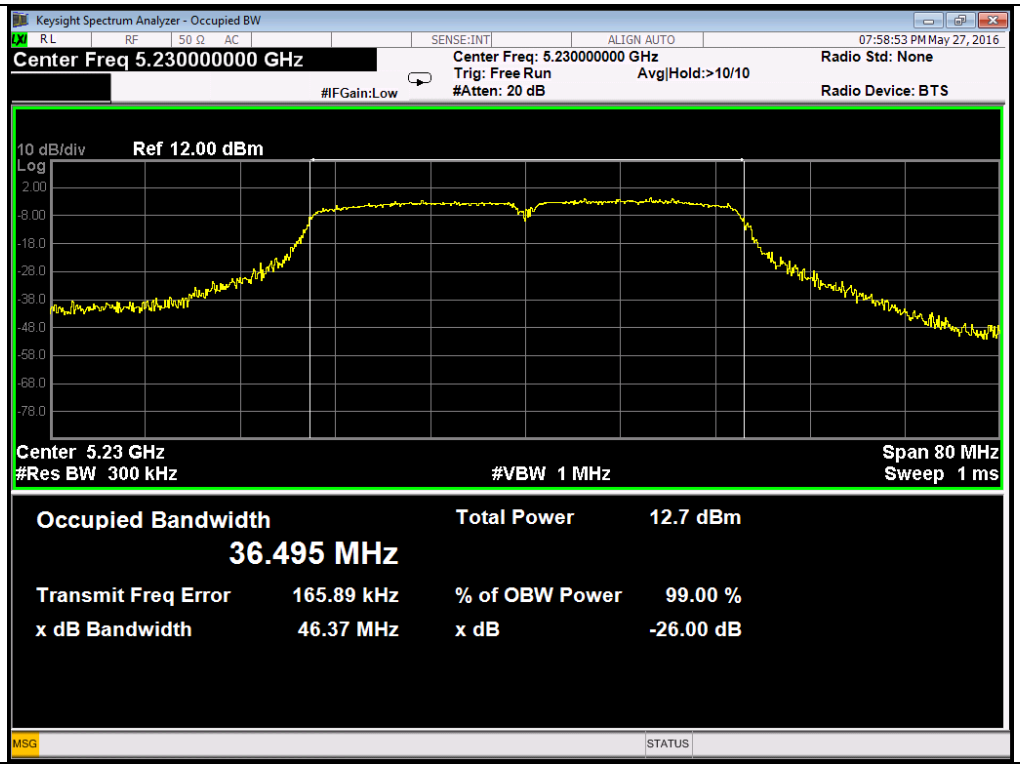
TX CH 48



802.11 n40 Mode
TX CH 38



TX CH 46

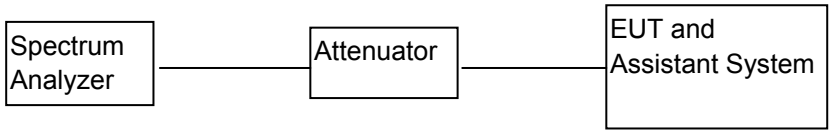


5. MINIMUM 6 DB BANDWIDTH

5.1. TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2017/05/05	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2016/12/19	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2016/12/19	1 Year

5.2. BLOCK DIAGRAM OF TEST SETUP



5.3. APPLIED PROCEDURES / LIMIT

According to FCC §15.407(e)

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.4. TEST PROCEDURE

（Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

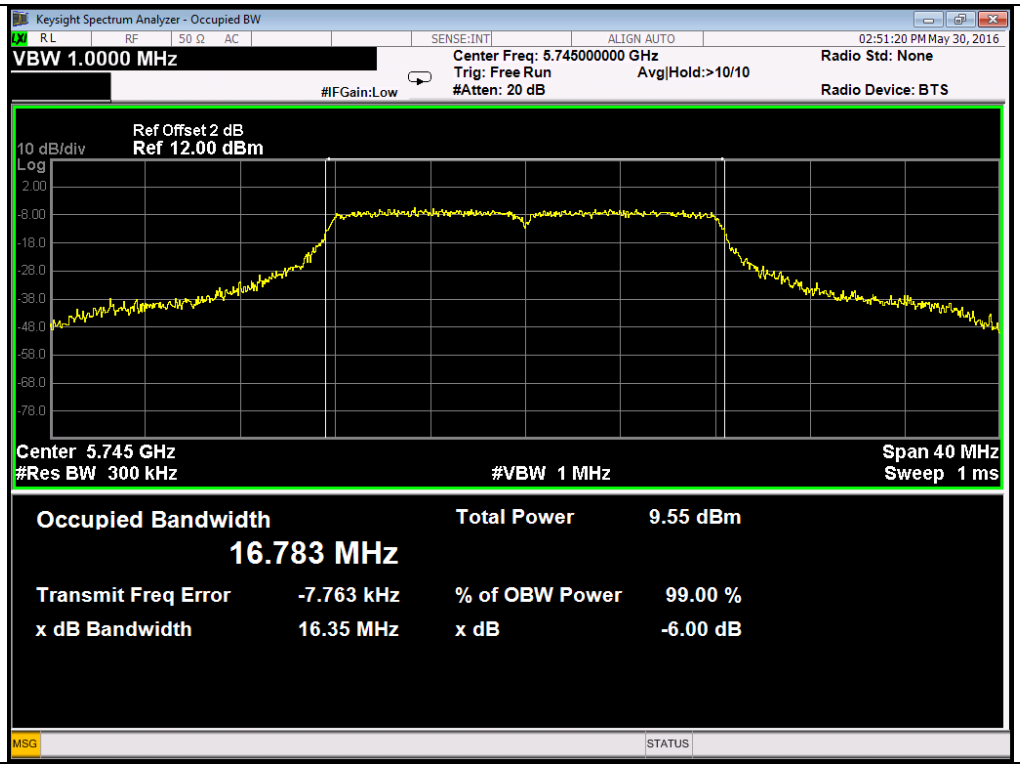
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.5. TEST RESULT

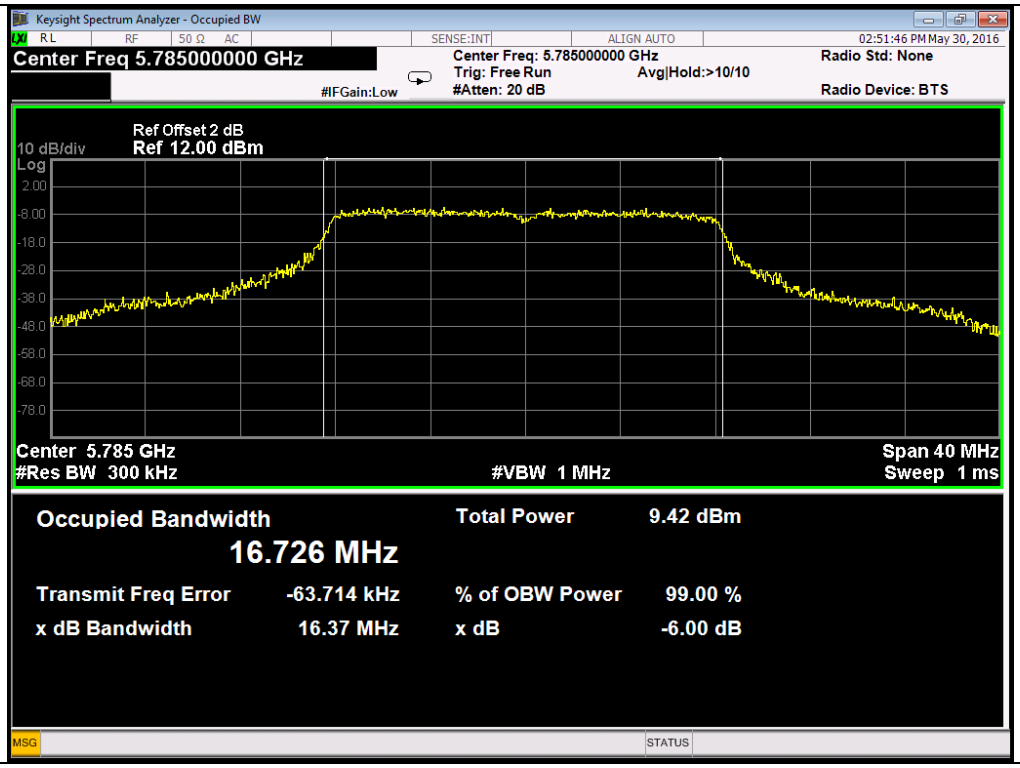
TX(5725-5820MHz)

Mode	Channel	Frequency	99% bandwidth (MHz)	-6dB bandwidth (MHz)	Result
802.11 a	CH149	5745 MHz	16.78	16.35	PASS
	CH157	5785 MHz	16.73	16.37	PASS
	CH165	5825 MHz	16.80	16.30	PASS
802.11 n20	CH149	5745 MHz	17.82	17.71	PASS
	CH157	5785 MHz	17.80	17.47	PASS
	CH165	5825 MHz	17.85	17.60	PASS
802.11 n40	CH 151	5755 MHz	36.11	36.03	PASS
	CH159	5795 MHz	36.06	34.91	PASS

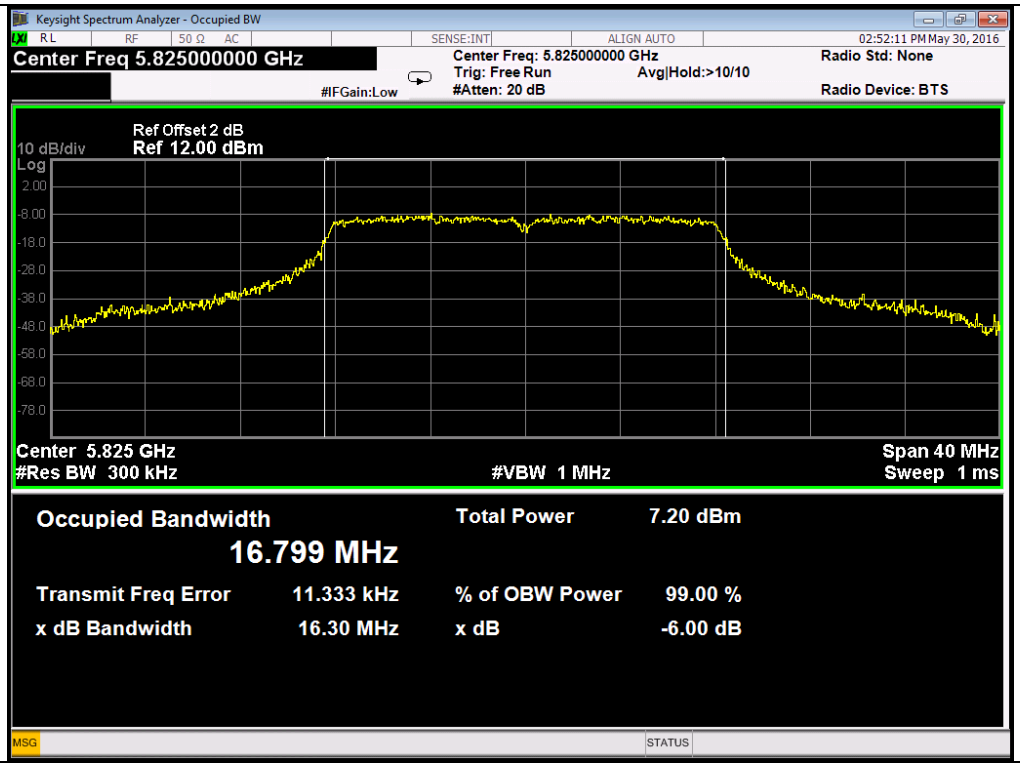
802.11 a Mode
TX CH 149



TX CH 157

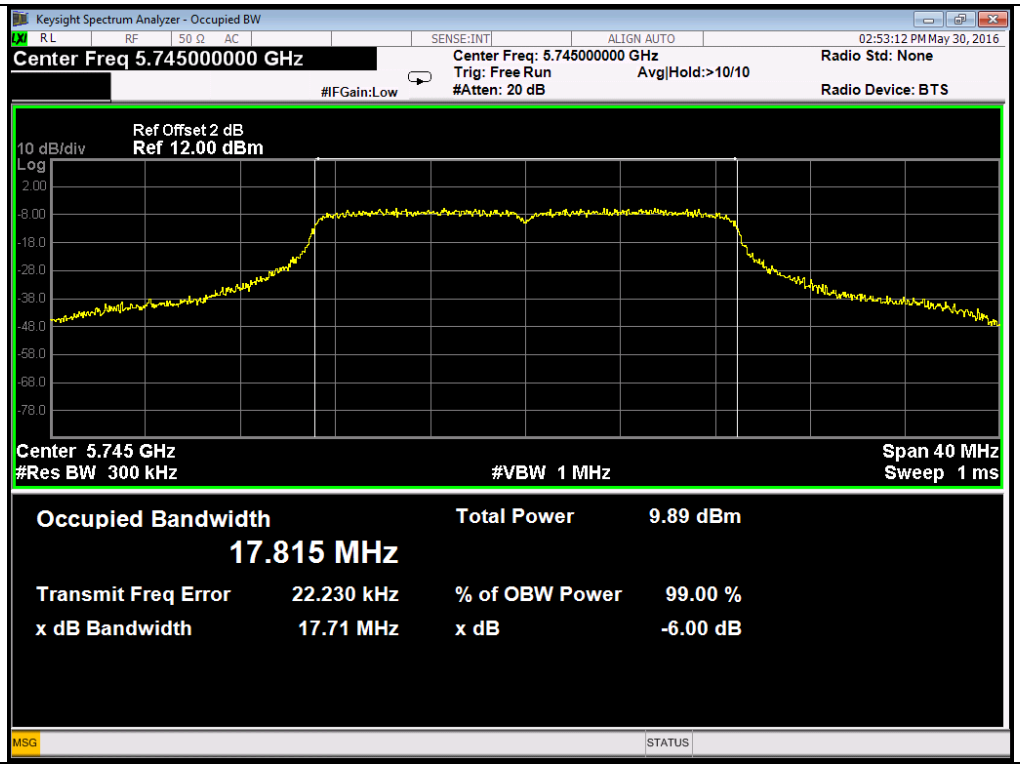


TX CH 165

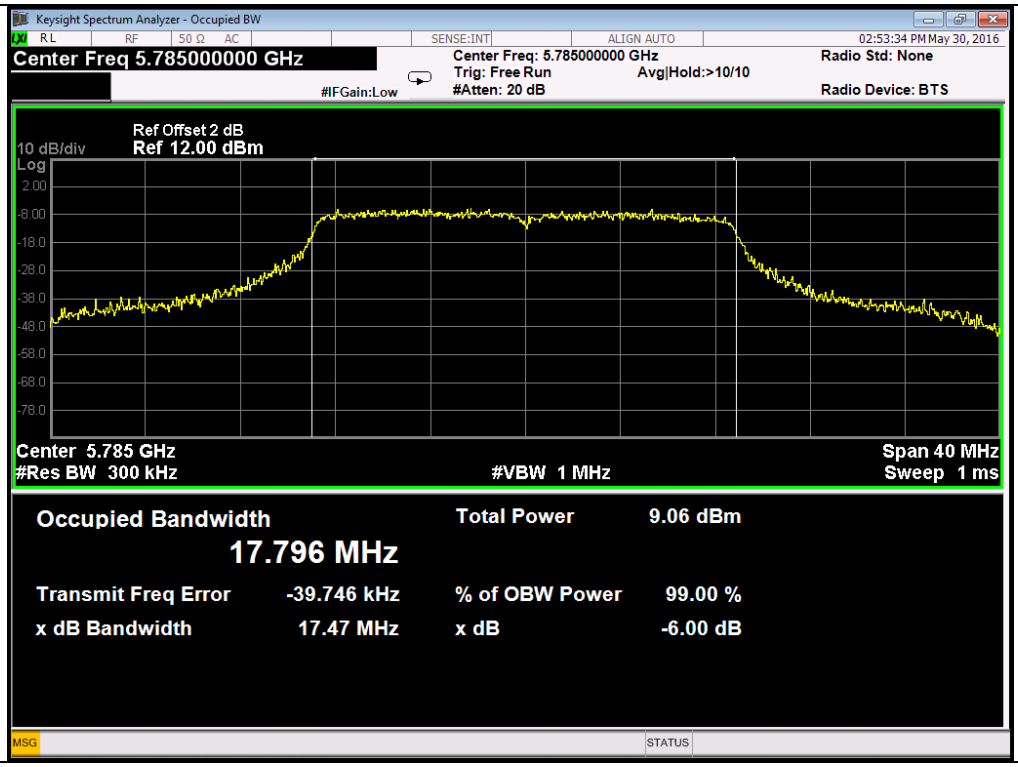


802.11 n20 Mode

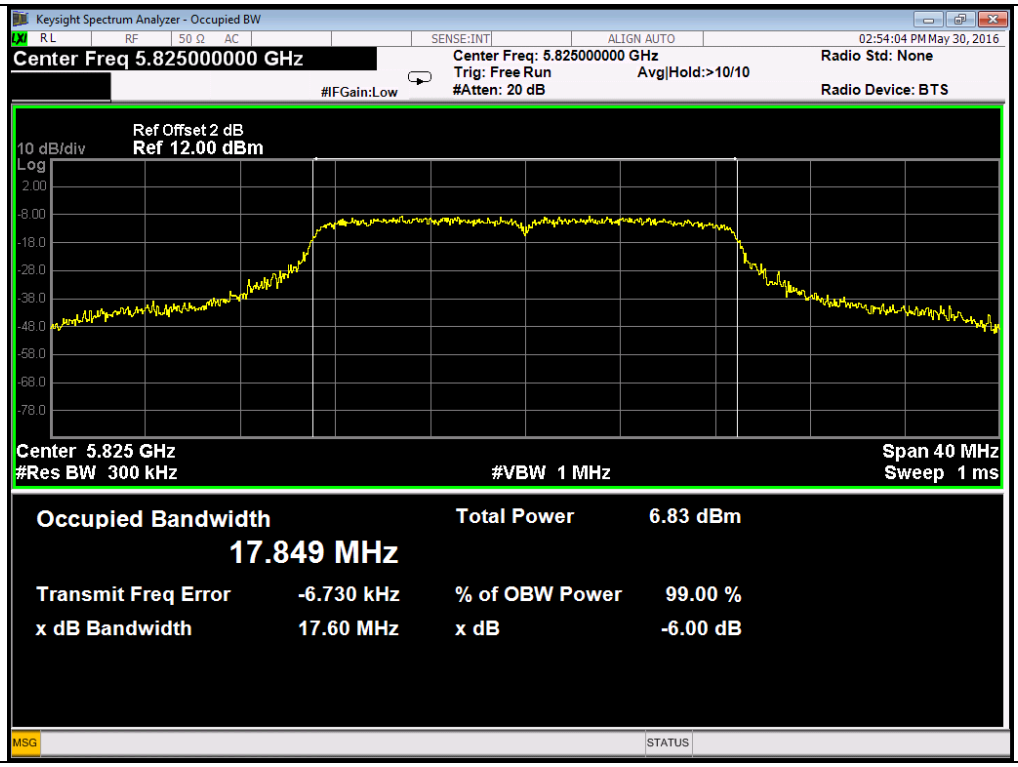
TX CH 149



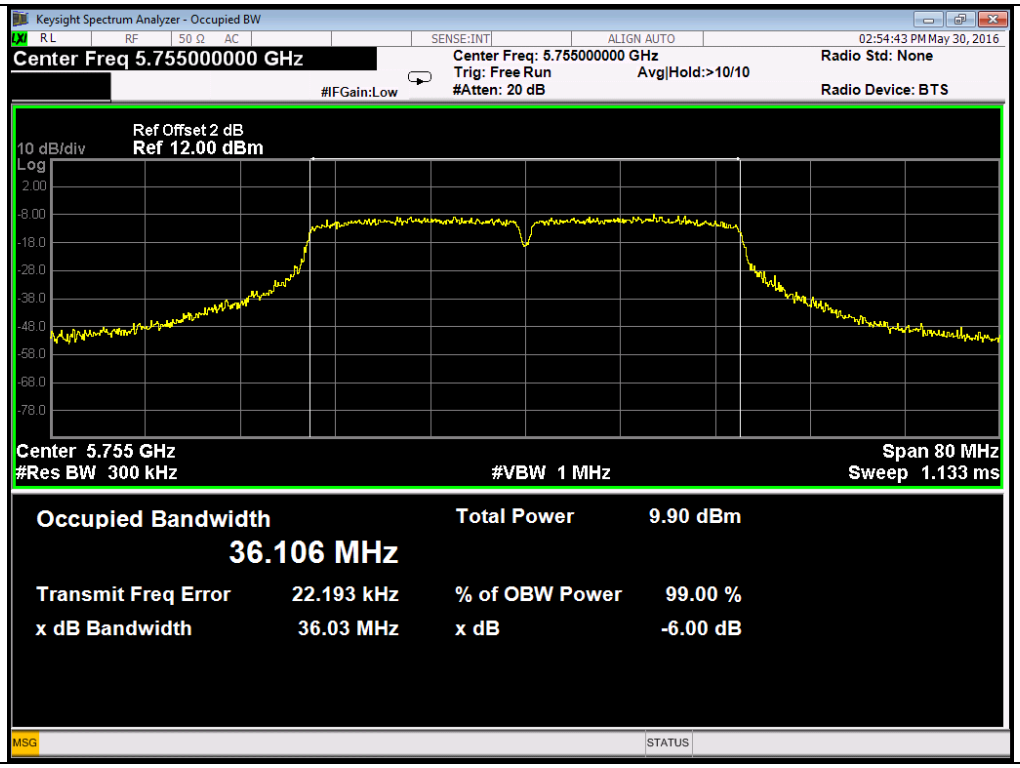
TX CH 157



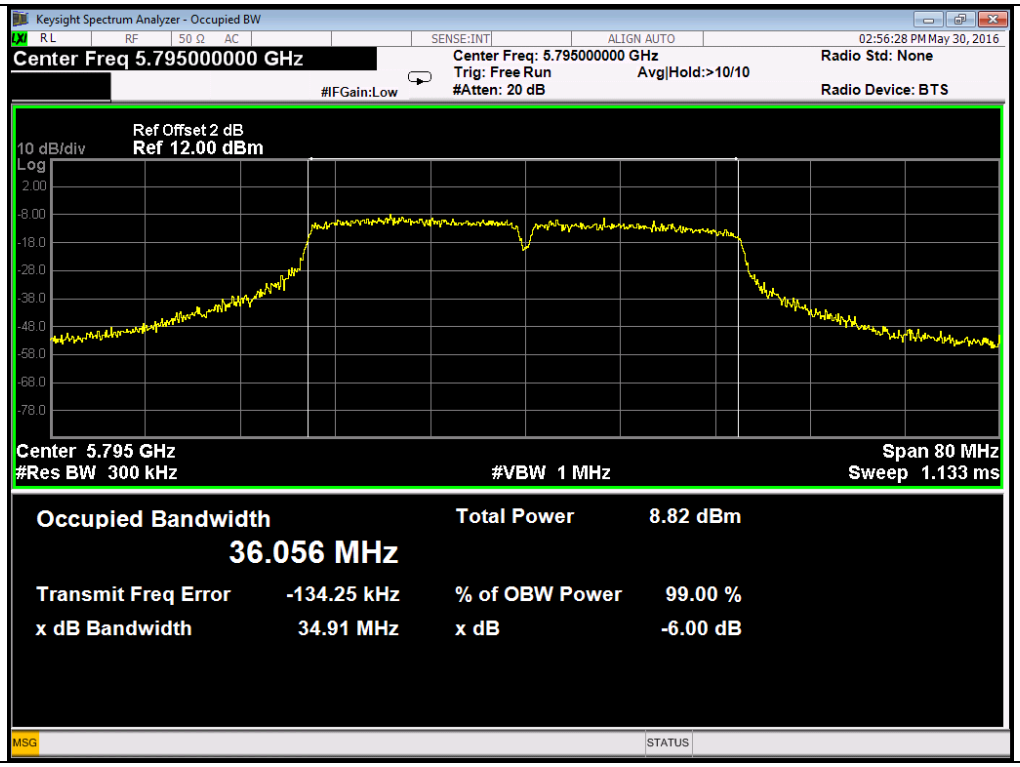
TX CH 165



802.11 n40 Mode
TX CH 151



TX CH 159

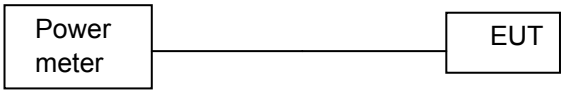


6. MAXIMUM CONDUCTED OUTPUT POWER

6.1. TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Power meter	Agilent	E4417A	MY45100473	2016/12/19	1Y
2	Wireband Power sensor	Agilent	E4427A	MY5100041	2016/12/19	1Y

6.2. BLOCK DIAGRAM OF TEST SETUP



6.3. PPLIED PROCEDURES / LIMIT

According to FCC §15.407

The maximum conduced output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	250mW
5725~5850	1W

6.4. TEST PROCEDURE

Maximum conducted output power may be measured using a spectrum analyzer/EMI receiver or an RF power meter.

1. Device Configuration

If possible, configure or modify the operation of the EUT so that it transmits continuously at its maximum power control level (see section II.B.).

a) The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.

b) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations (e.g., overheating), the EUT shall be operated at its maximum power control level with the transmit duration as long as possible and the duty cycle as high as possible.

6.5. TEST RESULT

TX(5150-5250MHz)

Test Channe	Frequency	Maximum output power. Antenna port (AVG)	LIMIT
	(MHz)	(dBm)	dBm
TX 802.11a Mode			
CH36	5180	2.36	23.98
CH40	5200	2.67	23.98
CH48	5240	2.58	23.98
TX 802.11 n20M Mode			
CH36	5180	2.49	23.98
CH40	5200	2.45	23.98
CH48	5240	2.97	23.98
TX 802.11 n40M Mode			
CH38	5190	2.16	23.98
CH46	5230	2.09	23.98

TX(5725-5850MHz)

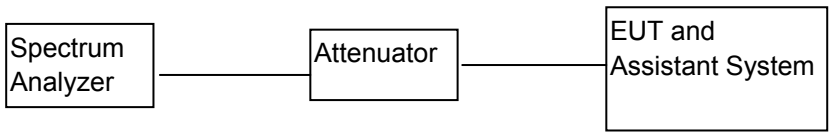
Test Channe	Frequency	Maximum output power. Antenna port (AVG)	LIMIT
	(MHz)	(dBm)	dBm
TX 802.11a Mode			
CH 149	5745	2.66	30
CH 157	5785	2.59	30
CH 165	5825	2.45	30
TX 802.11 n20M Mode			
CH 149	5745	2.32	30
CH 157	5785	2.19	30
CH 165	5825	2.87	30
TX 802.11 n40M Mode			
CH 151	5755	2.04	30
CH 159	5795	2.34	30

7. OUT OF BAND EMISSIONS

7.1. TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2017/05/05	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2016/12/19	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2016/12/19	1 Year

7.2. BLOCK DIAGRAM OF TEST SETUP



7.3. LIMITS

According to FCC §15.407(b)
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

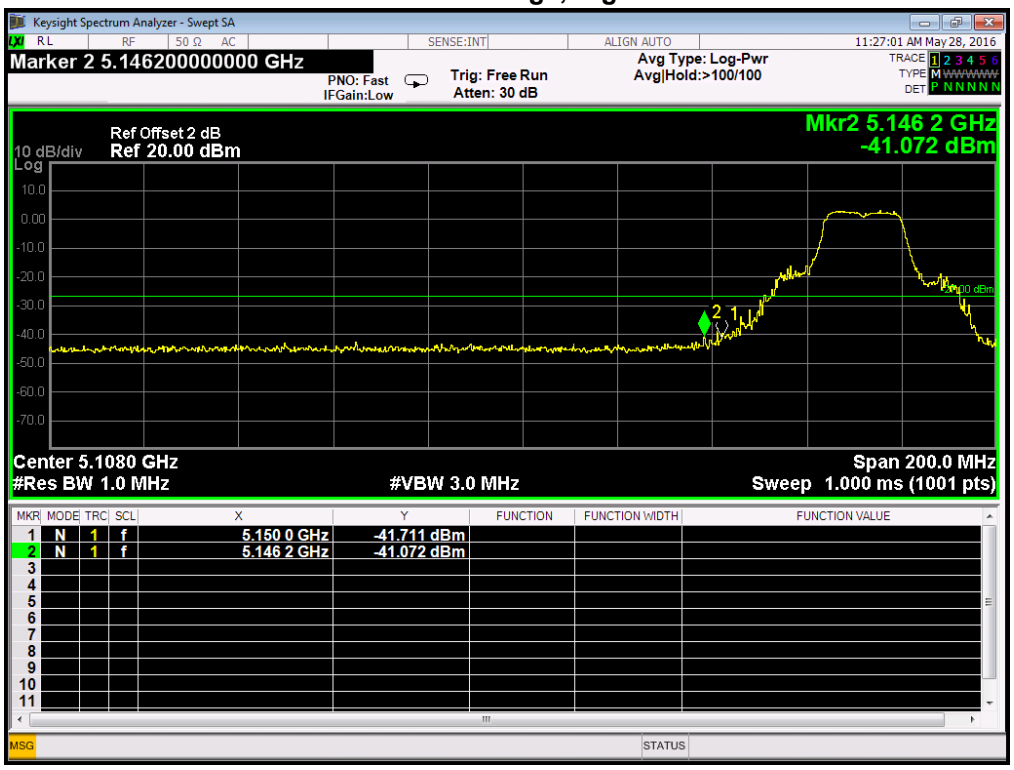
7.4. TEST PROCEDURE

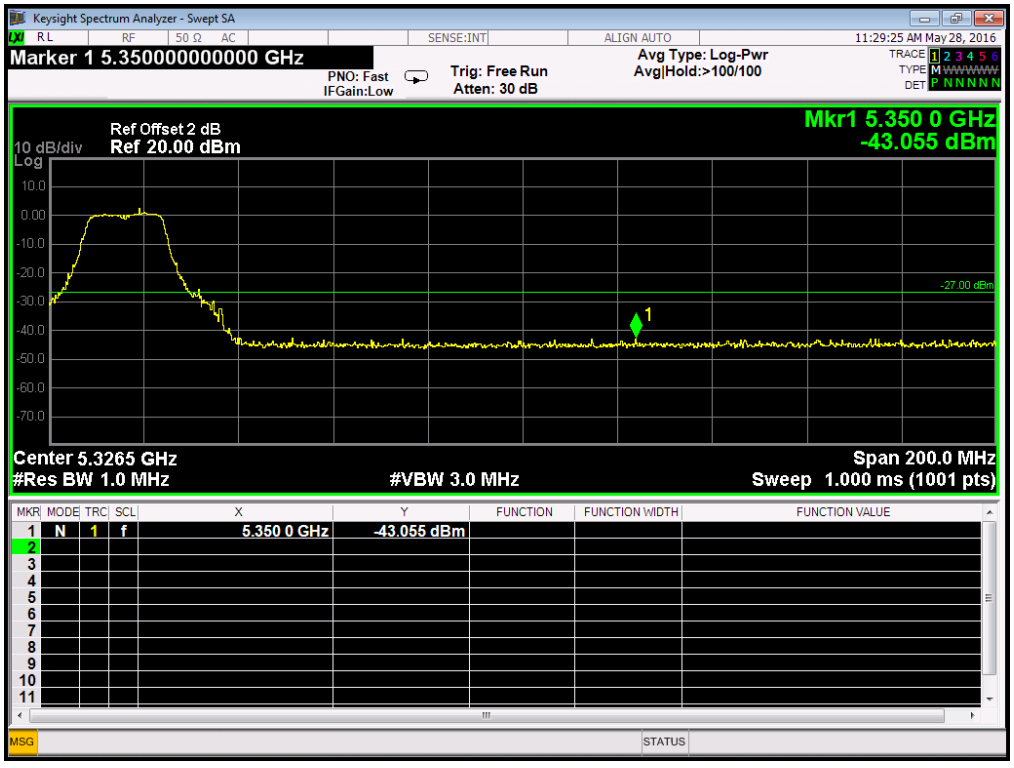
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete..

7.5. TEST RESULT

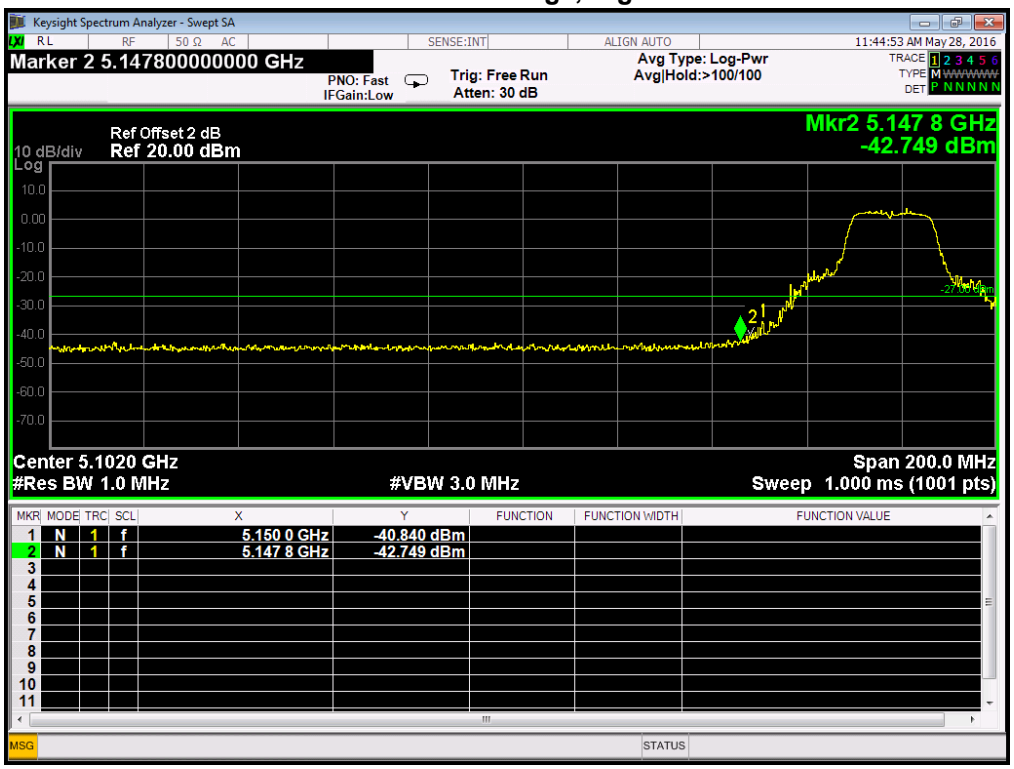
5150-5250MHz

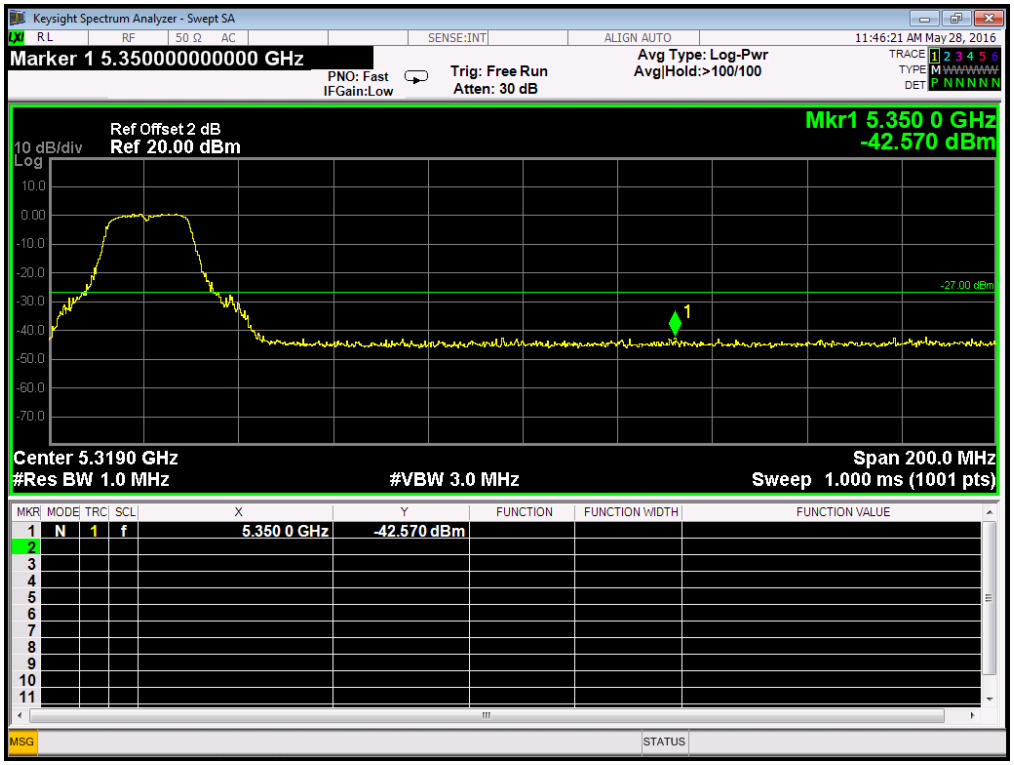
802.11a: Band Edge, Right Side



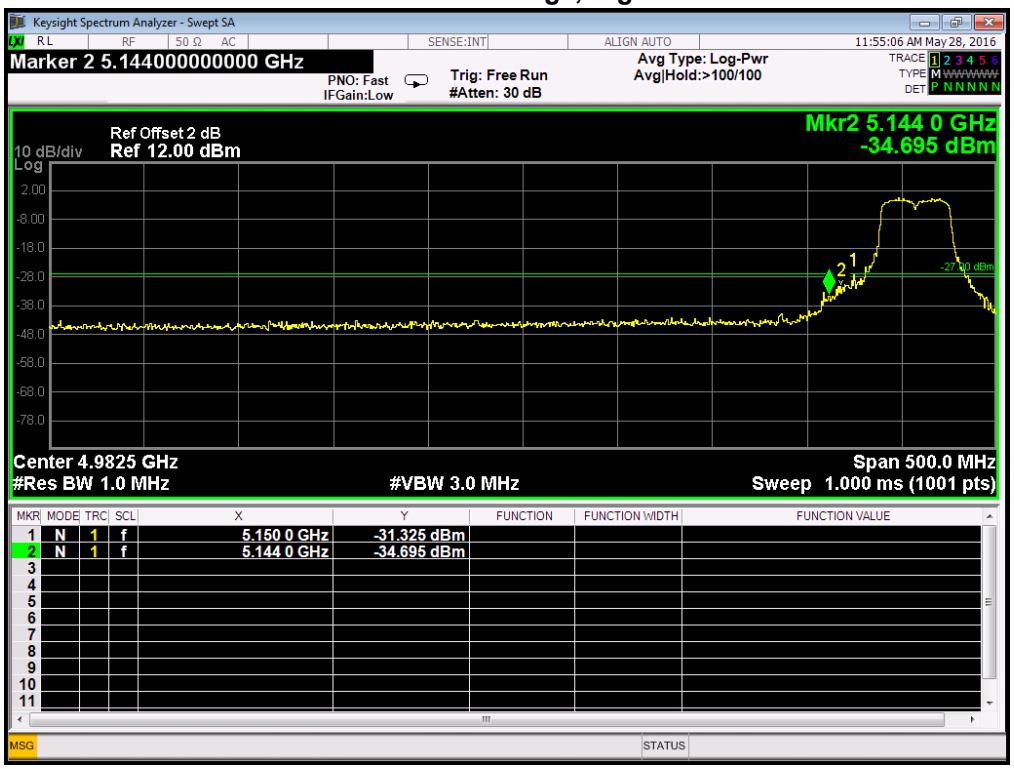


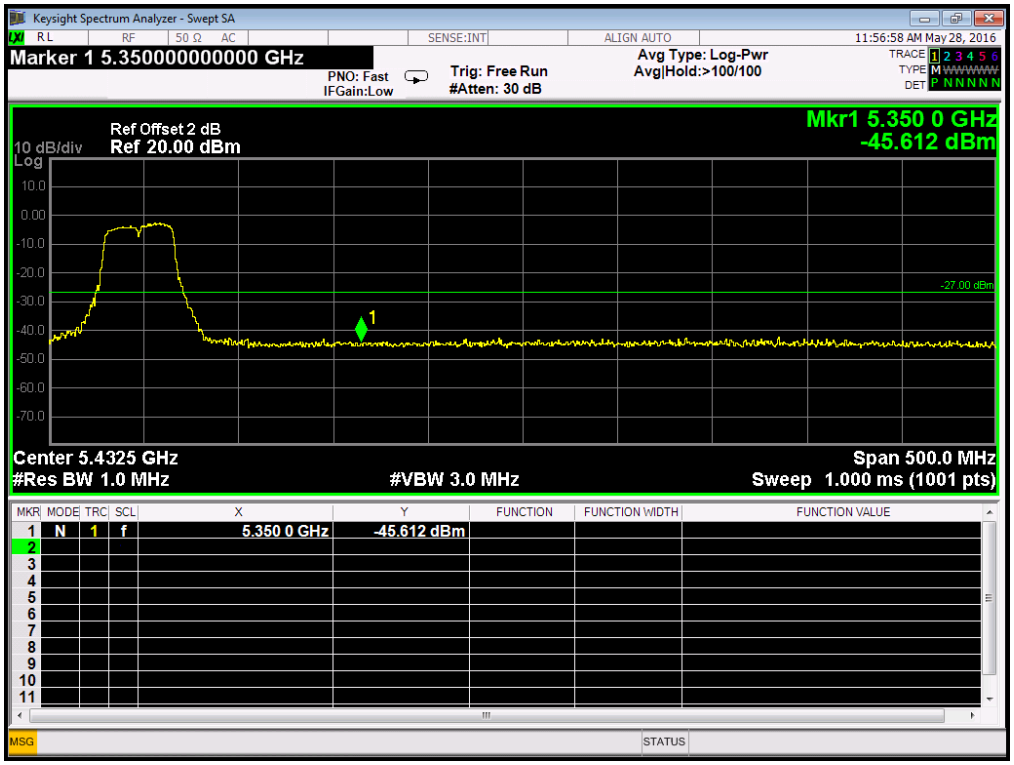
802.11n20: Band Edge, Right Side





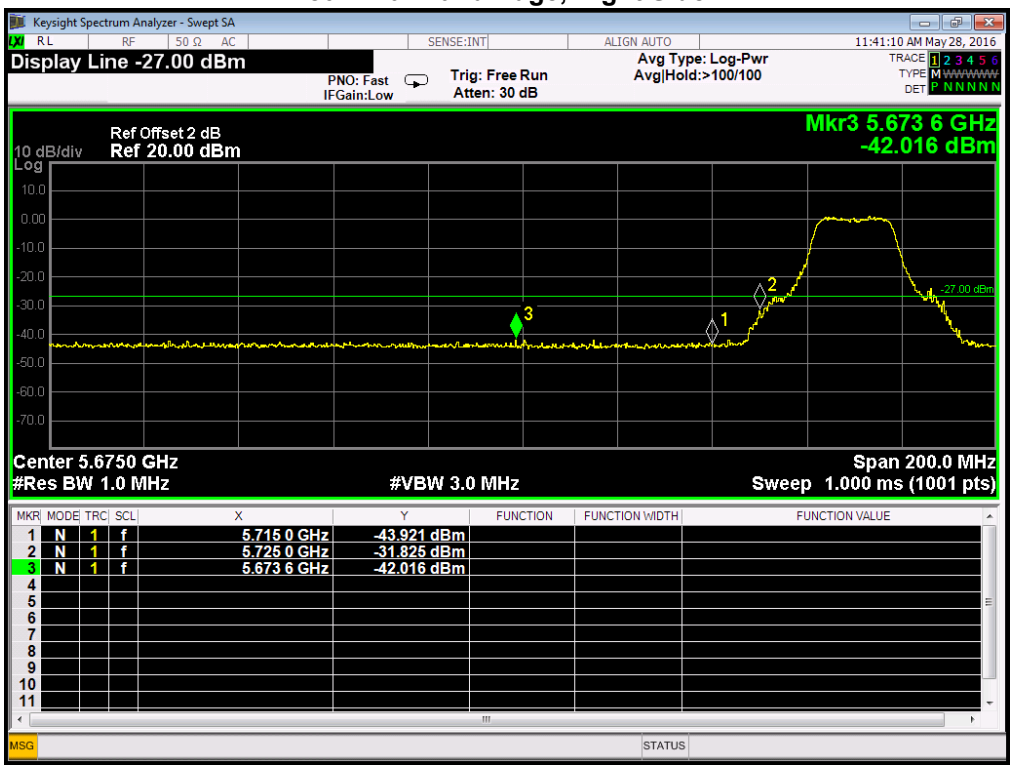
802.11n40: Band Edge, Right Side

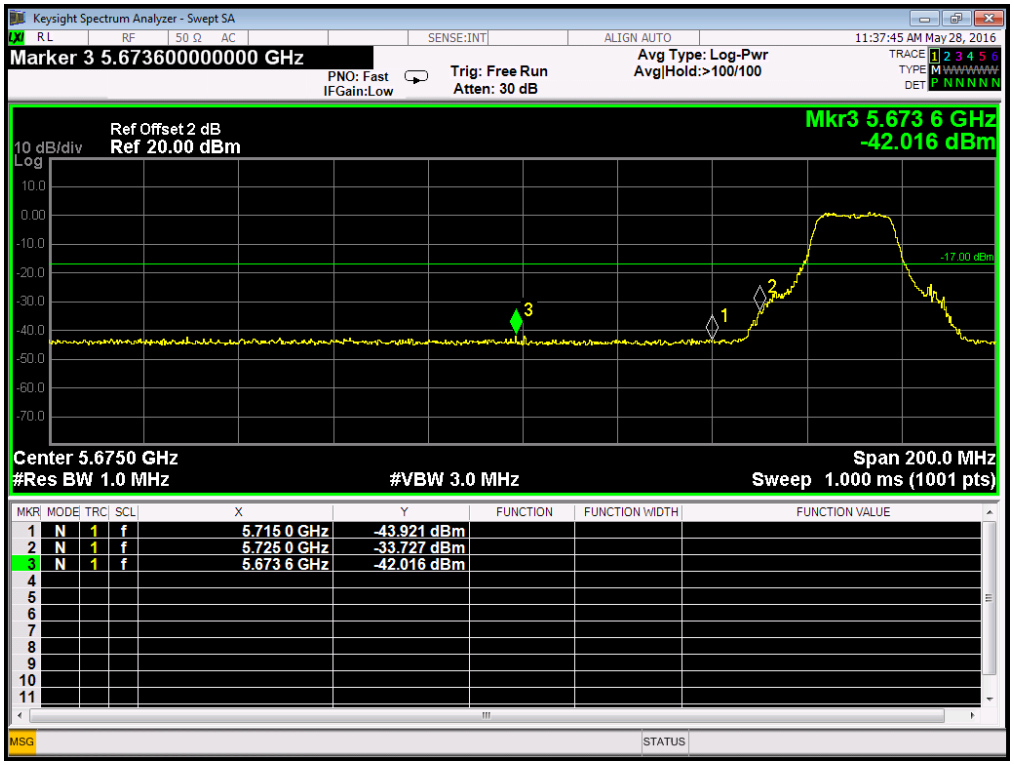




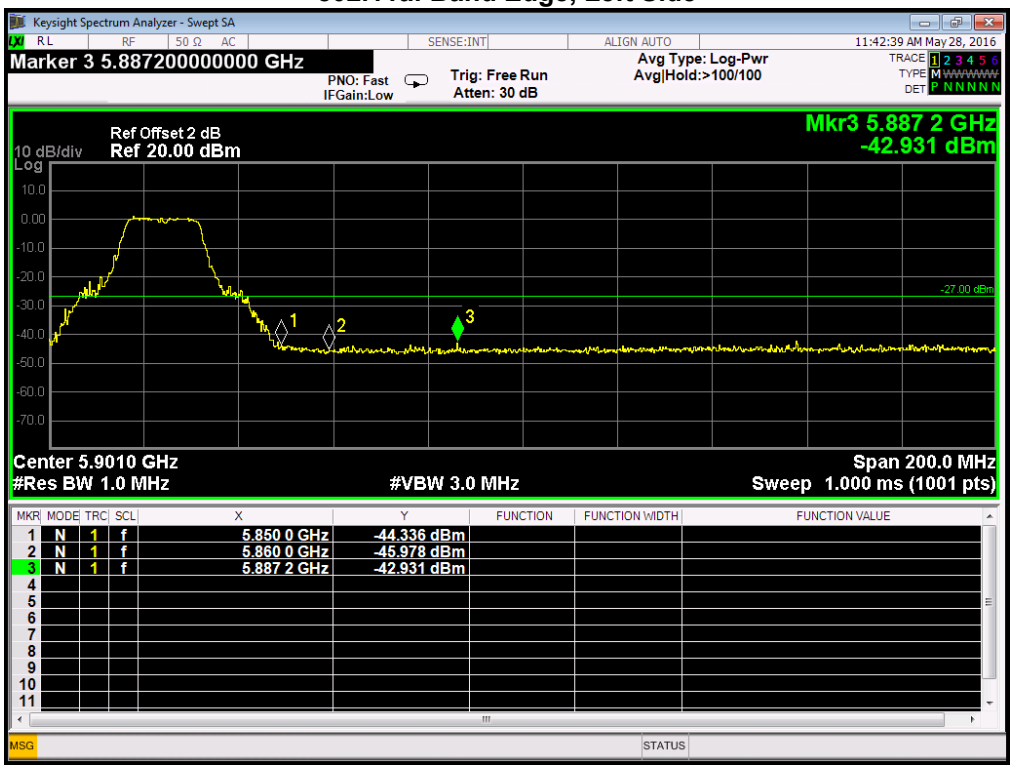
5725-5850MHz

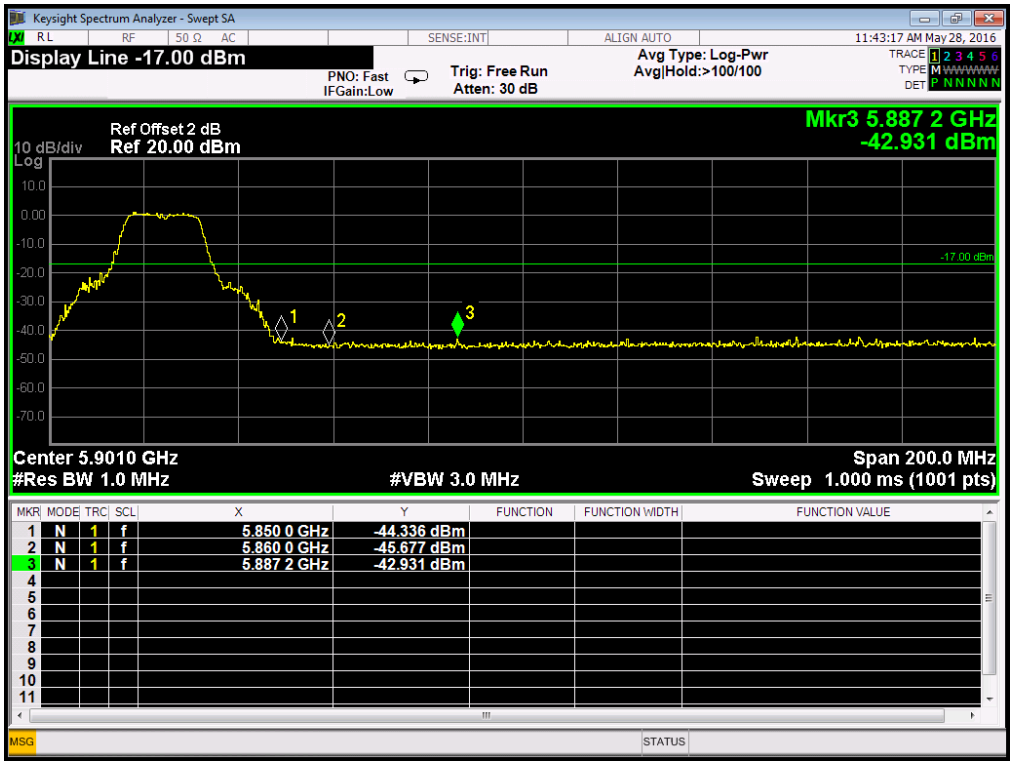
802.11a: Band Edge, Right Side



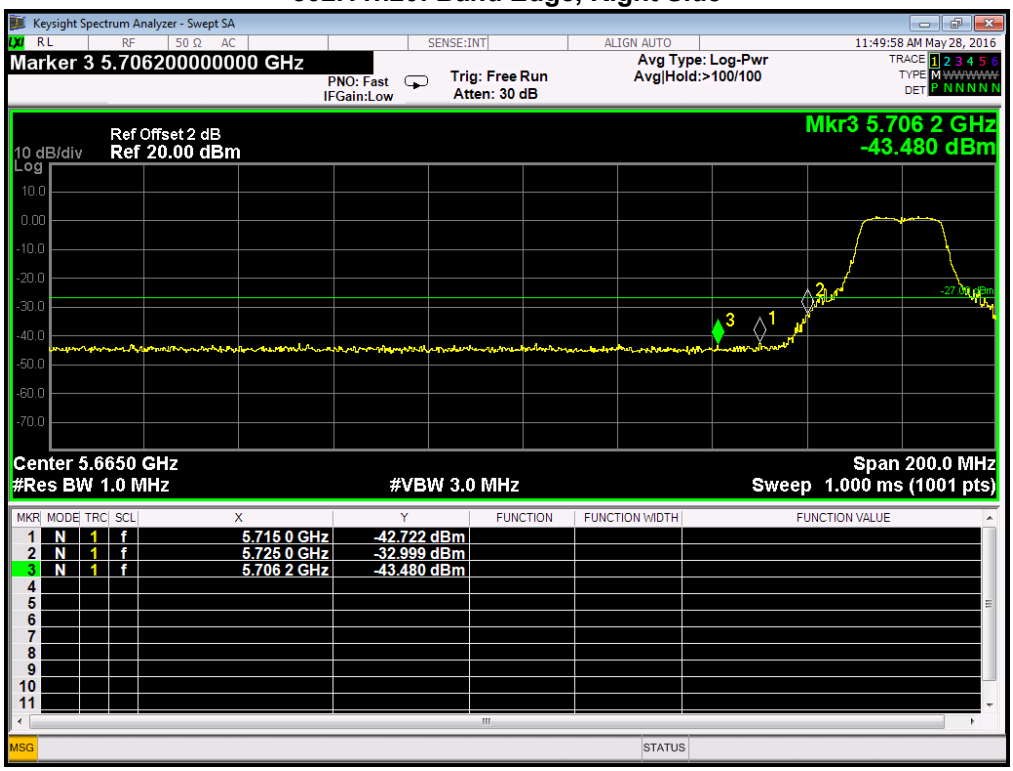


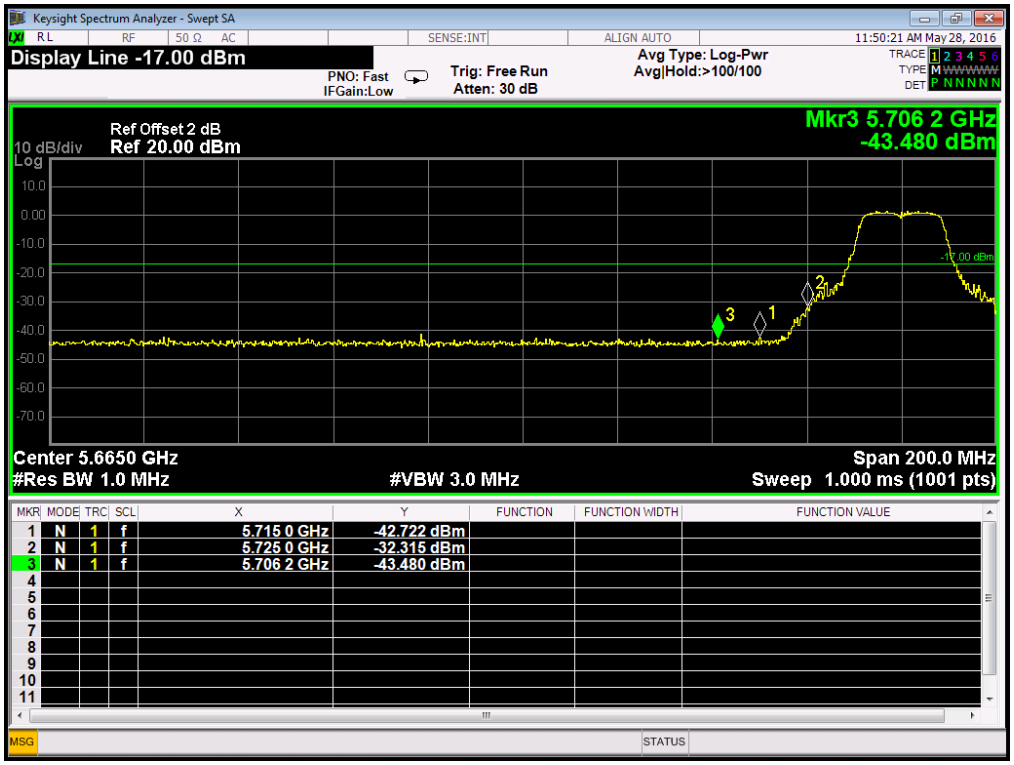
802.11a: Band Edge, Left Side



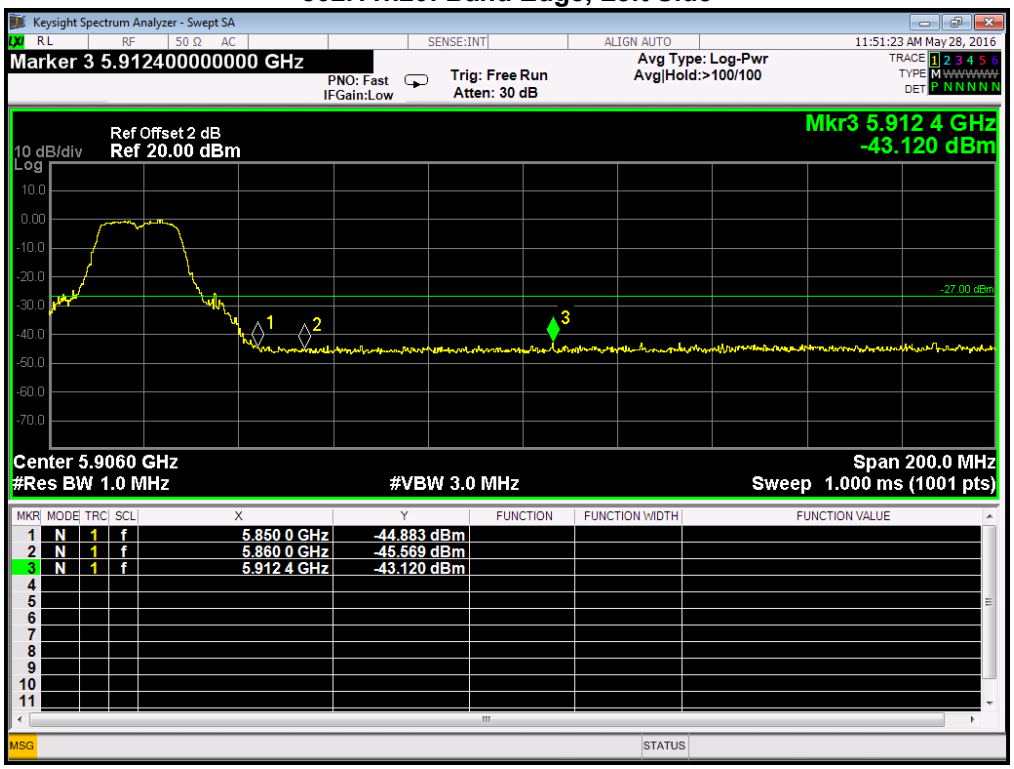


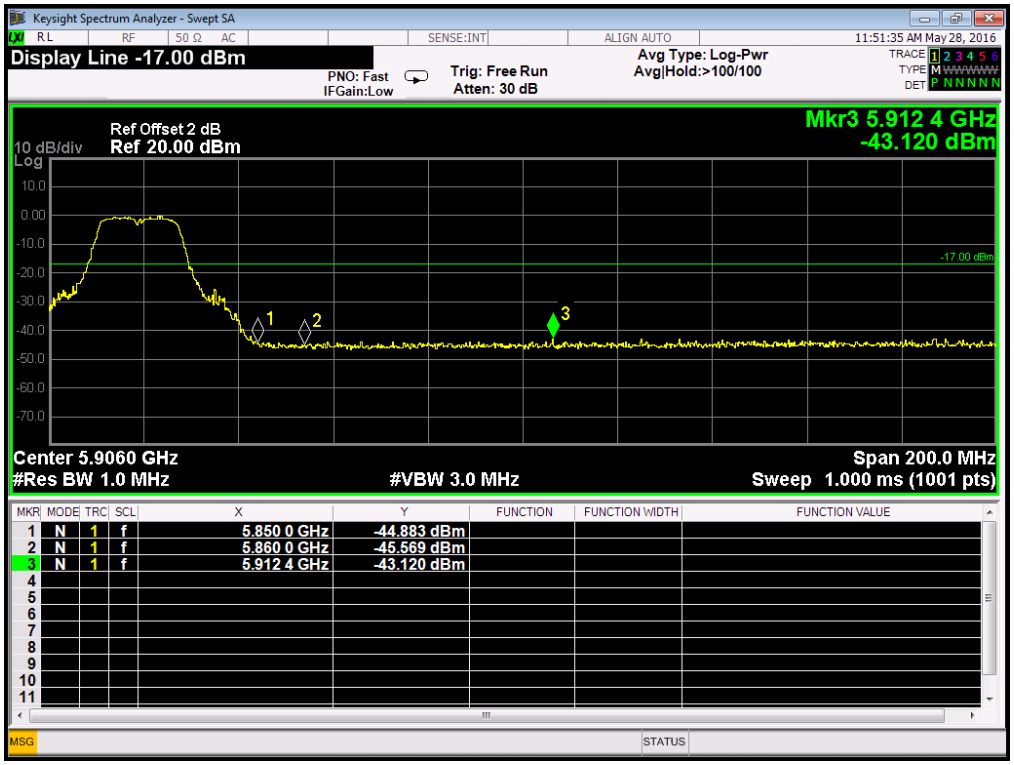
802.11n20: Band Edge, Right Side



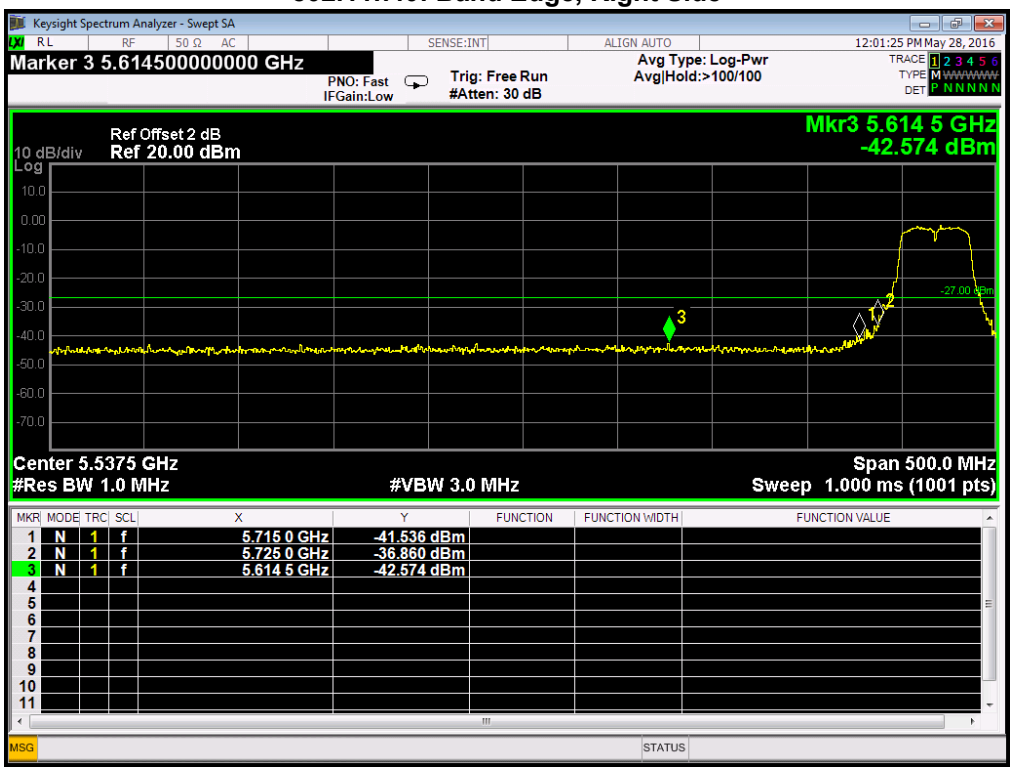


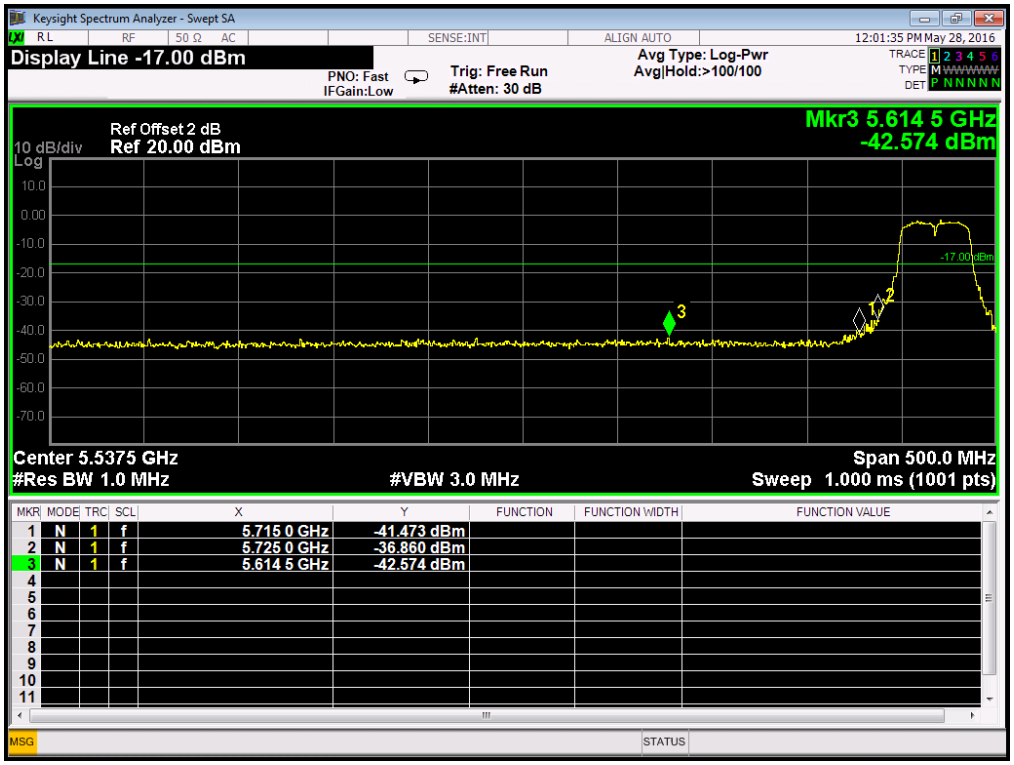
802.11n20: Band Edge, Left Side



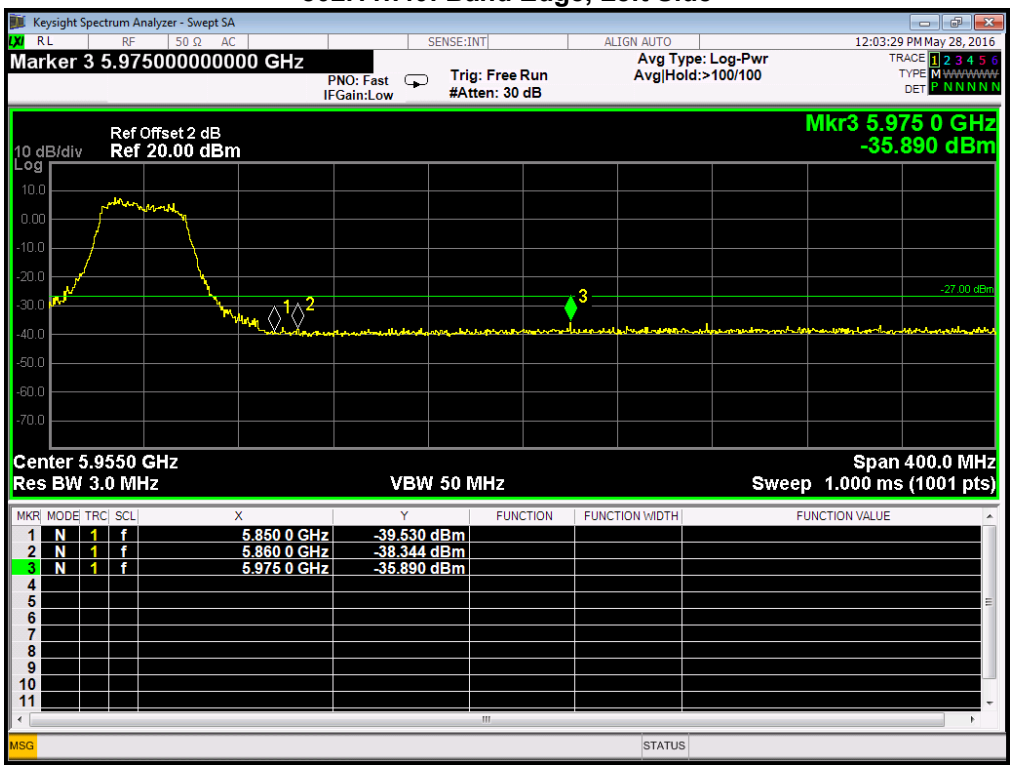


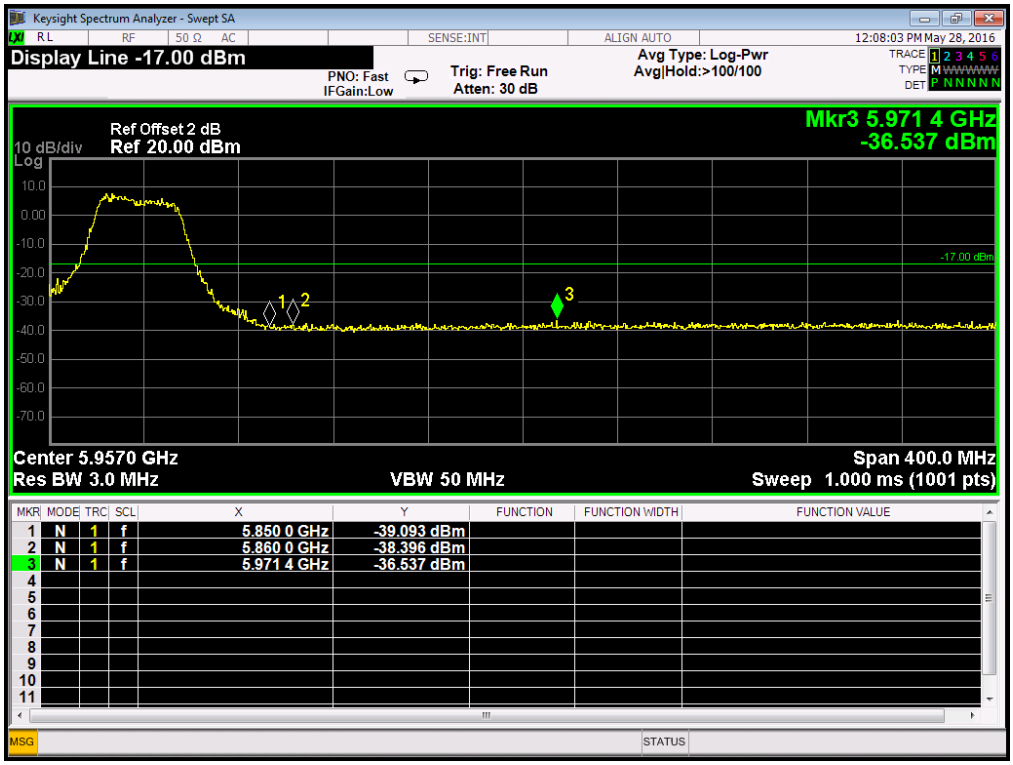
802.11n40: Band Edge, Right Side





802.11n40: Band Edge, Left Side




Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
12:08:03 PM May 28, 2016
Display Line -17.00 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr3 5.971 4 GHz
-36.537 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-17.00 dBm
1
2
3
Center 5.9570 GHz
Res BW 3.0 MHz
VBW 50 MHz
Span 400.0 MHz
Sweep 1.000 ms (1001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 5.850 0 GHz -39.093 dBm
2 N 1 f 5.860 0 GHz -38.396 dBm
3 N 1 f 5.971 4 GHz -36.537 dBm
4
5
6
7
8
9
10
11
MSG
STATUS

Radiated Band Edge：

802.11a

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	FCC 15.407	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350MHz									
5150	25.31	PK	V	28.4	3.57	0	57.28	68.3	-11.02
5150	15.18	AV	V	28.4	3.57	0	47.15	54	-6.85
5150	23.54	PK	H	28.4	3.57	0	55.51	68.3	-12.79
5150	14.36	AV	H	28.4	3.57	0	46.33	54	-7.67
5350	26.54	PK	V	28.4	3.57	0	58.51	68.3	-9.79
5350	14.82	AV	V	28.4	3.57	0	46.79	54	-7.21
5350	24.11	PK	H	28.4	3.57	0	56.08	68.3	-12.22
5350	14.09	AV	H	28.4	3.57	0	46.06	54	-7.94
5725-5850MHz									
5715	23.69	PK	H	32.8	6.34	0	62.83	68.3	-5.47
5725	24.39	PK	H	32.8	6.34	0	63.53	78.3	-14.77
5715	23.08	PK	V	32.8	6.34	0	62.22	68.3	-6.08
5725	24.16	PK	V	32.8	6.34	0	63.3	78.3	-15
5850	23.65	PK	H	34.8	6.26	0	64.71	78.3	-13.59
5860	22.96	PK	H	34.8	6.26	0	64.02	68.3	-4.28
5850	23.41	PK	V	34.8	6.26	0	64.47	78.3	-13.83
5860	23.96	PK	V	34.8	6.26	0	65.02	68.3	-3.28

802.11n20

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	FCC 15.407	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350MHz									
5150	26.75	PK	V	28.4	3.57	0	58.72	68.3	-9.58
5150	15.42	AV	V	28.4	3.57	0	47.39	54	-6.61
5150	24.96	PK	H	28.4	3.57	0	56.93	68.3	-11.37
5150	13.71	AV	H	28.4	3.57	0	45.68	54	-8.32
5350	25.47	PK	V	28.4	3.57	0	57.44	68.3	-10.86
5350	13.64	AV	V	28.4	3.57	0	45.61	54	-8.39
5350	23.55	PK	H	28.4	3.57	0	55.52	68.3	-12.78
5350	13.35	AV	H	28.4	3.57	0	45.32	54	-8.68
5725-5850MHz									
5715	24.25	PK	H	32.8	6.34	0	63.39	68.3	-4.91
5725	24.61	PK	H	32.8	6.34	0	63.75	78.3	-14.55
5715	23.97	PK	V	32.8	6.34	0	63.11	68.3	-5.19
5725	23.77	PK	V	32.8	6.34	0	62.91	78.3	-15.39
5850	24.82	PK	H	34.8	6.26	0	65.88	78.3	-12.42
5860	22.46	PK	H	34.8	6.26	0	63.52	68.3	-4.78
5850	23.74	PK	V	34.8	6.26	0	64.8	78.3	-13.5
5860	23.09	PK	V	34.8	6.26	0	64.15	68.3	-3.28

802.11n40

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	FCC 15.407	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
5150-5350MHz									
5150	25.44	PK	V	28.4	3.57	0	57.41	68.3	-10.89
5150	14.36	AV	V	28.4	3.57	0	46.33	54	-7.67
5150	25.79	PK	H	28.4	3.57	0	57.76	68.3	-10.54
5150	13.55	AV	H	28.4	3.57	0	45.52	54	-8.48
5350	24.71	PK	V	28.4	3.57	0	56.68	68.3	-11.62
5350	14.94	AV	V	28.4	3.57	0	46.91	54	-7.09
5350	24.18	PK	H	28.4	3.57	0	56.15	68.3	-12.15
5350	13.09	AV	H	28.4	3.57	0	45.06	54	-8.94
5725-5850MHz									
5715	25.74	PK	H	32.8	6.34	0	64.88	68.3	-3.42
5725	26.33	PK	H	32.8	6.34	0	65.47	78.3	-12.83
5715	24.97	PK	V	32.8	6.34	0	64.11	68.3	-4.19
5725	26.58	PK	V	32.8	6.34	0	65.72	78.3	-12.58
5850	26.44	PK	H	34.8	6.26	0	67.5	78.3	-10.8
5860	24.56	PK	H	34.8	6.26	0	65.62	68.3	-2.68
5850	24.18	PK	V	34.8	6.26	0	65.24	78.3	-13.06
5860	23.41	PK	V	34.8	6.26	0	64.47	68.3	-3.28

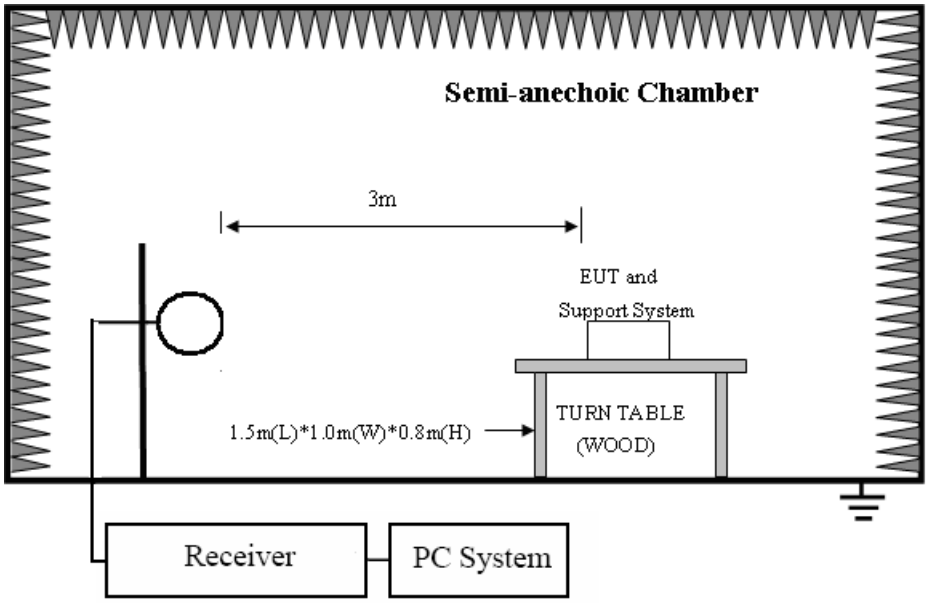
8. RADIATED EMISSION MEASUREMENT

8.1. Test equipment

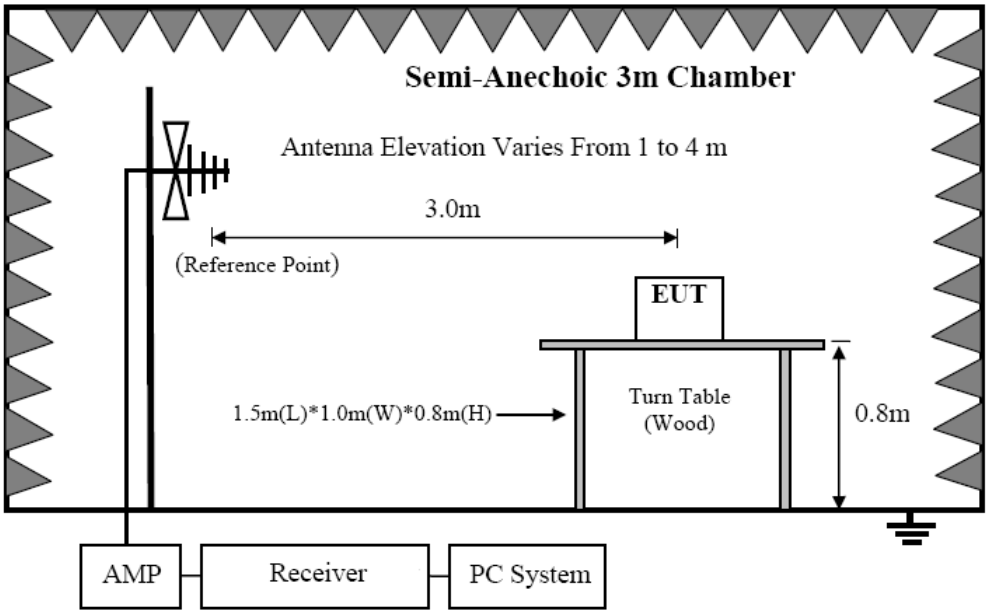
Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	EMI Test Receiver	R&S	ESCI	101308	2016/12/19	1 Year
2	Spectrum analyzer	Agilent	E4407B	US40240708	2016/12/19	1 Year
3	Loop antenna	TESEQ	HLA6120	20129	2016/12/19	1 Year
4	Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	2016/12/19	1 Year
5	Double Ridged Horn Antenna	Schwarzbeck	BBHA9120D	9120D 1065	2016/12/19	1 Year
6	Horn Antenna	Schwarzbeck	BBHA 9170	9170 1248	2016/12/19	1 Year
7	Pre-amplifier	A.H.	PAM-1840VH	562	2016/12/19	1 Year
8	Pre-amplifier	R&S	AFS33-18002 650-30-8P-44	SEL0080	2016/12/19	1 Year
9	Pre-Amplifier	HP	8449B	3274A06298	2016/12/19	1 Year
10	RF Cable	R&S	R01	10403	2016/12/19	1 Year
11	RF Cable	R&S	R02	10512	2016/12/19	1 Year

8.2. Block diagram of test setup

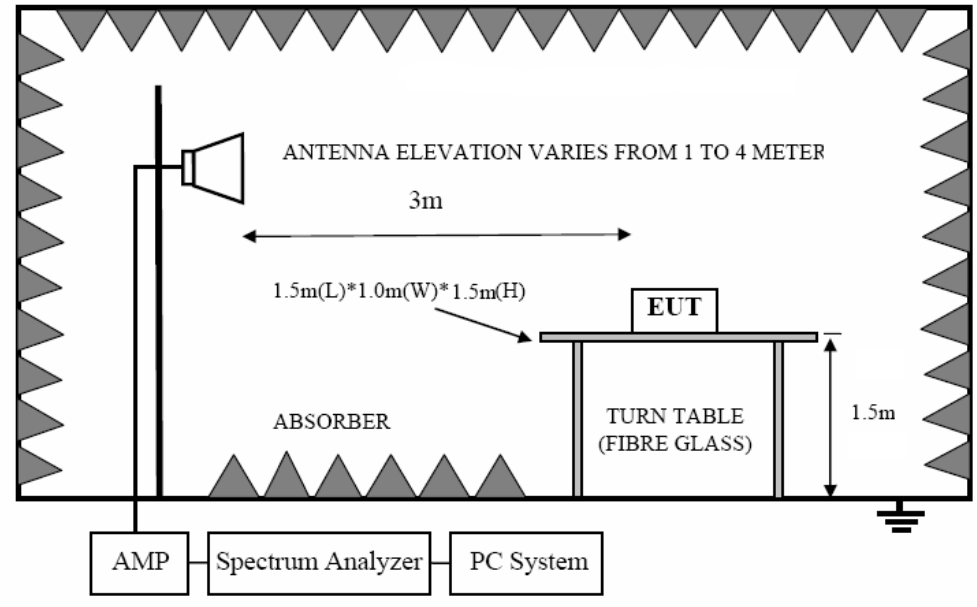
In 3m Anechoic Chamber Test Setup Diagram for 9KHz-30MHz



In 3m Anechoic Chamber Test Setup Diagram for 30MHz-1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

8.3. Limit

9.3.1 FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

9.3.2. FCC 15.209 Limit.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(KHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(KHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30MHz, measurement may be performed at a distance closer then that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$Limit_{3m}(dBuV/m) = Limit_{30m}(dBuV/m) + 40Log(30m/3m)$

9.3.3. Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 30dB below the fundamental emissions, or comply with 15.209 limits.

8.4. Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Setup EUT and assistant system according clause 2.4 and 7.2

(3) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used
9KHz-30MHz	Active Loop antenna
30MHz-1GHz	Trilog Broadband Antenna
1GHz-18GHz	Double Ridged Horn Antenna(1GHz-18GHz)
18GHz-40GHz	Horn Antenna(18GHz-40GHz)

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. for measurement above 30MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(4) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9KHz to 25GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1m to 4m(Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) new battery is used during testing

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18GHz to 25GHz, so below final test was performed with frequency range from 9KHz to 18GHz.

(5) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(6) The emissions from 9KHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz, for emissions from 9KHz-90KHz,110KHz-490KHz and above 1GHz were measured based on average detector, for emissions above 1GHz, peak emissions also be measured and need comply with Peak limit.

(7) The emissions from 9KHz to 1GHz, QP or average values were measured with EMI receiver with below RBW

Frequency band	RBW
9KHz-150KHz	200Hz
150KHz-30MHz	9KHz
30MHz-1GHz	120KHz

（8）For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure(according ANSI C63.10:2013 clause 4.2.3.2.3 procedure for average measure). Peak detector is used for Peak and AV measurement both.

8.5. Test result(Below 30MHz)

EUT:	Wireless Fender Jaguar Guitar Controller for Xbox One	Model No.:	048-074
Temperature:	24℃	Relative Humidity:	55%
Distance:	3m	Test Power:	3Vdc
Polarization:	--	Test Result:	Pass
Test Mode:	Keeping TX mode	Test By:	Smile

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	P
--	--	--	--	P

Note:

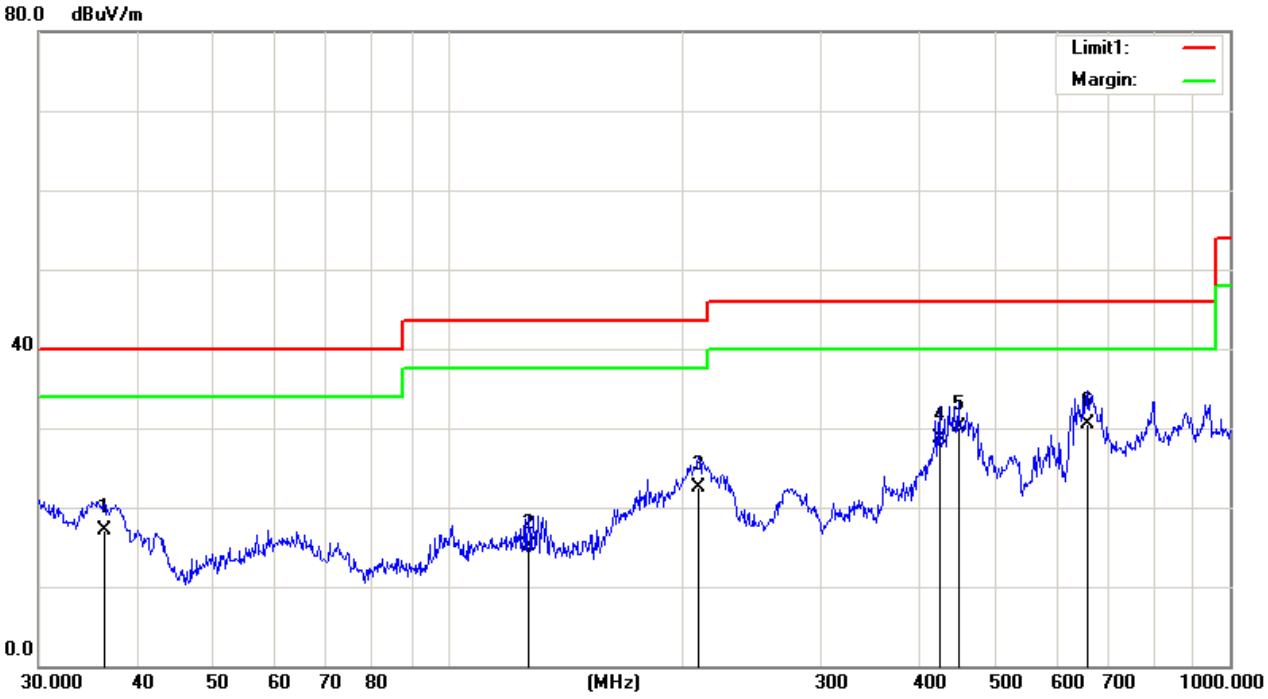
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =20 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

TEST RESULTS (Between 30M – 1000 MHz)

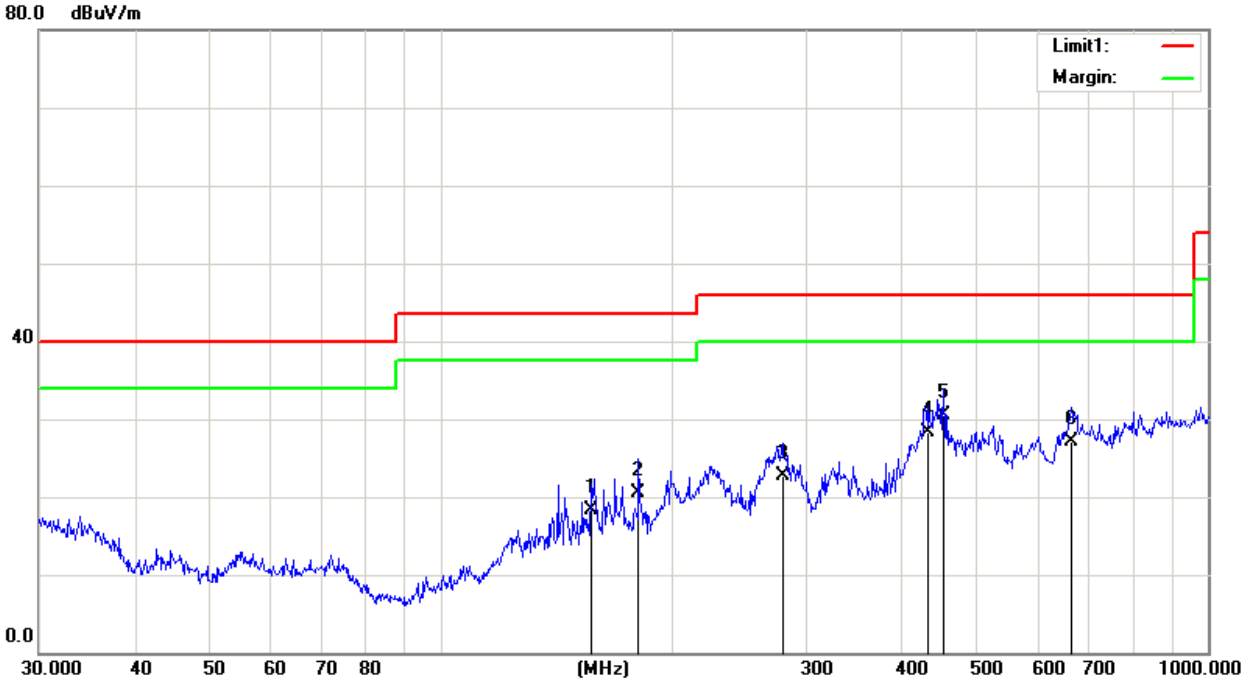
EUT:	Wireless Fender Jaguar Guitar Controller for Xbox One	Model No.:	048-074
Temperature:	24	Relative Humidity:	55%
Distance:	3m	Test Power:	DC 3V
Polarization:	Vertical	Test Result:	Pass
Standard:	(RE)FCC PART 15 class B 3m	Test By:	Smile
Test Mode:	Keeping TX Mdoe		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	36.3814	29.31	-12.28	17.03	40.00	-22.97	QP
2	126.7723	26.34	-11.19	15.15	43.50	-28.35	QP
3	209.3129	30.79	-8.36	22.43	43.50	-21.07	QP
4	425.0280	33.62	-4.86	28.76	46.00	-17.24	QP
5	449.5558	33.21	-3.14	30.07	46.00	-15.93	QP
6	656.5300	31.84	-1.30	30.54	46.00	-15.46	QP

Measurement result=Reading + Correct;Margin=Result-Limit.

EUT:	Wireless Fender Jaguar Guitar Controller for Xbox One	Model No.:	048-074
Temperature:	24	Relative Humidity:	55%
Distance:	3m	Test Power:	DC 3V
Polarization:	Horizontal	Test Result:	Pass
Standard:	(RE)FCC PART 15 class B 3m	Test By:	Smile
Test Mode:	Keeping TX Mdoe		



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	157.5588	29.78	-11.41	18.37	43.50	-25.13	QP
2	181.2834	32.21	-11.80	20.41	43.50	-23.09	QP
3	279.0436	31.51	-8.87	22.64	46.00	-23.36	QP
4	432.5457	31.01	-2.64	28.37	46.00	-17.63	QP
5	452.7197	32.56	-2.04	30.52	46.00	-15.48	QP
6	663.4728	25.65	1.50	27.15	46.00	-18.85	QP

Measurement result=Reading + Correct;Margin=Result-Limit.

TEST RESULTS (Above 1000 MHz)

EUT:	Wireless Fender Jaguar Guitar Controller for Xbox One	Model No.:	048-074
Temperature:	24℃	Relative Humidity:	55%
Distance:	3m	Test Power:	3Vdc
Polarization:	Vertical	Test Result:	Pass
Test Mode:	TX-802.11a 5150MHz~5250MHz	Test By:	Smile

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	FCC 15.407	
(MHz)	Reading (dBμV)	Detector (PK/QP/ AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel (5180)									
5150	25.31	PK	V	28.4	3.57	0	57.28	68.3	-11.02
5150	15.18	AV	V	28.4	3.57	0	47.15	54	-6.85
5150	23.54	PK	H	28.4	3.57	0	55.51	74	-12.79
5150	14.36	AV	H	28.4	3.57	0	46.33	54	-7.67
10360	45.25	PK	V	32.3	5.91	31.78	51.68	74	-22.32
10360	37.31	AV	V	32.3	5.91	31.78	43.74	54	-10.26
10360	44.45	PK	H	32.3	6.34	30.97	50.88	74	-23.12
10360	33.09	AV	H	32.3	6.34	30.97	39.52	54	-14.48
Middle Channel (5200)									
10400	40.98	PK	H	32.6	6.15	31.78	47.98	74	-26.05
10400	31.42	AV	H	32.6	6.15	31.78	38.39	54	-15.61
10400	41.35	PK	V	32.6	6.15	31.78	48.32	74	-25.68
10400	30.46	AV	V	32.6	6.15	31.78	37.43	54	-16.57
High Channel (5240)									
10480	41.32	PK	H	32.8	6.17	31.78	48.51	74	-25.49
10480	32.64	AV	H	32.8	6.17	31.78	39.83	54	-14.17
10480	42.64	PK	V	32.8	6.17	31.78	49.83	74	-24.17
10480	33.29	AV	V	32.8	6.17	31.78	40.48	54	-13.52

Note: Emission Level = ReadingLevel+ Factor, Margin= Emission Level - Limit
802.11a(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record

EUT:	Wireless Fender Jaguar Guitar Controller for Xbox One	Model No.:	048-074
Temperature:	24℃	Relative Humidity:	55%
Distance:	3m	Test Power:	3Vdc
Polarization:	Vertical	Test Result:	Pass
Test Mode:	TX-802.11a 5725MHz~5850MHz	Test By:	Smile

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	FCC 15.407	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low Channel (5745)									
5715	23.69	PK	H	32.8	6.34	0	62.83	68.3	-5.47
5725	24.39	PK	H	32.8	6.34	0	63.53	78.3	-14.77
5715	23.08	PK	V	32.8	6.34	0	62.22	68.3	-6.08
5725	24.16	PK	V	32.8	6.34	0	63.3	78.3	-15
11490	37.65	PK	H	37.9	8.01	30.86	52.7	74	-21.3
11490	23.88	AV	H	37.9	8.01	30.86	38.93	54	-15.07
11490	39.03	PK	V	37.9	8.01	30.86	54.08	74	-19.92
11490	26.18	AV	V	37.9	8.01	30.86	41.23	54	-12.77
Middle Channel (5785)									
11570	37.64	PK	H	38.2	8.11	30.86	53.09	74	-20.91
11570	24.03	AV	H	38.2	8.11	30.86	39.48	54	-14.52
11570	37.33	PK	V	38.2	8.11	30.86	52.78	74	-21.22
11570	24.36	AV	V	38.2	8.11	30.86	39.81	54	-14.19
High Channel (5825)									
5850	23.65	PK	H	34.8	6.26	0	64.71	78.3	-13.59
5860	22.96	PK	H	34.8	6.26	0	64.02	68.3	-4.28
5850	23.41	PK	V	34.8	6.26	0	64.47	78.3	-13.83
5860	23.96	PK	V	34.8	6.26	0	65.02	68.3	-3.28
11650	37.39	PK	H	38.4	8.17	30.86	53.1	74	-20.9
11650	24.36	AV	H	38.4	8.17	30.86	40.07	54	-13.93
11650	37.25	PK	V	38.4	8.17	30.86	52.96	74	-21.04
11650	25.05	AV	V	38.4	8.17	30.86	40.76	54	-13.24

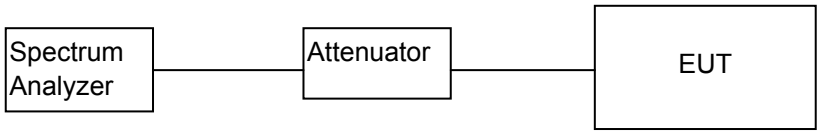
Note: Emission Level = ReadingLevel+ Factor, Margin= Emission Level - Limit
802.11a(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record

9. FREQUENCY STABILITY

9.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2017/05/05	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2016/12/19	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2016/12/19	1 Year
4	Humidity conditioning	Guan Jian.HTH1000	-20-130℃	GJ1000-10D 001	2016/12/20	1.Year

9.2. Block diagram of test setup



9.3. Test Result

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5180.0000
132	5180.0125
120	5180.0136
108	5180.0146
Max. Deviation (MHz)	0.0146
Max. Deviation (ppm)	2.8185

Temperature vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(℃)	5180.0000
-20	5180.0141
-10	5180.0136
0	5180.0158
10	5180.0135
20	5180.0124
30	5180.0168
40	5180.0171
50	5180.0126
55	5180.0113
Max. Deviation (MHz)	0.0171
Max. Deviation (ppm)	3.3012

10. ANTENNA REQUIREMENTS

10.1. Limit

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

10.2. EUT ANTENNA

The EUT antenna is permanent attached antenna. It comply with the standard requirement.