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# FCC Test Report

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Report No.: AGC07716190801FE06

**FCC ID** : 2AFENXK03S

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION** : LED Projector

**BRAND NAME** : XGIMI

**MODEL NAME** : XK03S, XK04S, XK05S, XK06S, XK07S, XK08S, XK09S, XK10S, XK11S, XK12S, XK13S, XK14S, XK15S, XK16S, XK17S, XK18S, XK19S, XK20S, XK21S, XK22S, XK23S, XK24S, XK25S, XK26S, XK27S, XK28S, XK29S, XK30S, XK31S, XK32S

**APPLICANT** : Chengdu XGimi Technology Co., Ltd.

**DATE OF ISSUE** : Sep. 16, 2019

**STANDARD(S)** : FCC Part 15.407

**TEST PROCEDURE(S)** : KDB 789033 D02 v02r01

**REPORT VERSION** : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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**REPORT REVISE RECORD**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sep. 16, 2019	Valid	Initial Release

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## 1. VERIFICATION OF CONFORMITY

<b>Applicant</b>	Chengdu XGimi Technology Co., Ltd.
<b>Address</b>	Building A4, Tianfu Software Park, High-tech zone, Chengdu, Sichuan, China 610041
<b>Manufacturer</b>	Chengdu XGimi Technology Co., Ltd.
<b>Address</b>	Building A4, Tianfu Software Park, High-tech zone, Chengdu, Sichuan, China 610041
<b>Factory 1</b>	Chengdu Guangqing Technology Co., Ltd.
<b>Address</b>	No.104, Putian Cable Park, No.18 Xinhang Road, West Hi-Tech district, Chengdu, Sichuan, China
<b>Factory 2</b>	TCL KING ELECTRICAL APPLIANCE(CHENG DU)CO., LTD.
<b>Address</b>	No.18 Kexin Road, Hi-Tech Development Zone (West Park), Chengdu, Sichuan
<b>Factory 3</b>	Yibin XGIMI Optoelectronics Co., Ltd.
<b>Address</b>	(1) A3, Intelligent Terminal Industrial Park, Cuiping District, Yibin. (2) Room 328, Enterprise Service Center, No.17, Section 3, West Section of Changjiang North Road, Lingang Economic and Technological Development Zone, Yibin
<b>Product Designation</b>	LED Projector
<b>Brand Name</b>	XGIMI
<b>Test Model</b>	XK03S
<b>Series Model</b>	XK04S, XK05S, XK06S, XK07S, XK08S, XK09S, XK10S, XK11S, XK12S, XK13S, XK14S, XK15S, XK16S, XK17S, XK18S, XK19S, XK20S, XK21S, XK22S, XK23S, XK24S, XK25S, XK26S, XK27S, XK28S, XK29S, XK30S, XK31S, XK32S
<b>Model Difference</b>	All the same except for the model name and different appearance color
<b>Date of test</b>	Aug. 23, 2019 to Sep. 11, 2019
<b>Deviation</b>	None
<b>Condition of Test Sample</b>	Normal
<b>Test Result</b>	Pass
<b>Report Template</b>	AGCRT-US-BGN/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.

Prepared By

*Draven Li*

Draven Li  
(Project Engineer)

Sep. 11, 2019

Reviewed By

*Max Zhang*

Max Zhang  
(Reviewer)

Sep. 16, 2019

Approved By

*Forrest Lei*

Forrest Lei  
(Authorized Officer)

Sep. 16, 2019

## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is designed as “LED Projector”. It is designed by way of utilizing the OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

<b>Operation Frequency</b>	5150 MHz~5250MHz;5725 MHz~5850MHz
<b>Output Power</b>	IEEE 802.11a20:17.12dBm; IEEE 802.11n(20):18.67dBm IEEE802.11n(40):17.31dBm
<b>Modulation</b>	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM,OFDM
<b>Number of channels</b>	13
<b>Hardware Version</b>	V03
<b>Software Version</b>	V1.0.0
<b>Antenna Designation</b>	FPC Antenna
<b>Number of transmit chain</b>	2(802.11a/n20/n40 all used two antennas,but 802.11a support SISO and 802.11n20/n40 support MIMO)
<b>Directional gain</b>	All transmit signals are completely uncorrelated with each other
<b>Antenna Gain</b>	Ant 1: 5.76dBi Ant 2: 6.02dBi
<b>Power Supply</b>	DC 14.4V by battery or DC 19V by adapter

### 2.2. TABLE OF CARRIER FREQUENCIES

Frequency Band	Channel Number	Frequency	Frequency Band	Channel Number	Frequency
5150 GHz~ 5250GHz	36	5180 MHz	5725 GHz~ 5850GHz	149	5745 MHz
	38	5190 MHz		151	5755 MHz
	40	5200 MHz		153	5765 MHz
	44	5220 MHz		157	5785 MHz
	46	5230 MHz		159	5795 MHz
	48	5240 MHz		161	5805 MHz
				165	5825MHz

Note: For 20MHZ bandwidth system use Channel 36,40,44,48,149,153,157,161,165; For 40MHZ bandwidth system use Channel 38,46,151,159.

### **2.3. RELATED SUBMITTAL(S) / GRANT (S)**

This submittal(s) (test report) is intended for **FCC ID: 2AFENXK03S** filing to comply with the FCC Part 15 requirements.

### **2.4. TEST METHODOLOGY**

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013).

Radiated testing was performed at an antenna to EUT distance 3 meters.

Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.407 rules KDB 789033 D02

### **2.5. SPECIAL ACCESSORIES**

Refer to section 5.2.

### **2.6. EQUIPMENT MODIFICATIONS**

Not available for this EUT intended for grant.

### 3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI.

- Uncertainty of Conducted Emission,  $U_c = \pm 3.2$  dB
- Uncertainty of Radiated Emission below 1GHz,  $U_c = \pm 3.9$  dB
- Uncertainty of Radiated Emission above 1GHz,  $U_c = \pm 4.8$  dB



#### 4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate(Mbps)
802.11a/n20	36,40,44,48,149,153,157,161,165	36,38,48,149, 157,165	OFDM	6/6.5
802.11n40	38,46,151,159	38,46, 151,159	OFDM	13.5

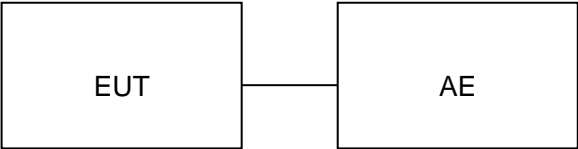
**Note:**

1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. The test software is the SecureCRTSecure\_V7.0.0.326 which can set the EUT into the individual test modes.

5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	LED Projector	XK03S	2AFENXK03S	EUT
3	Adapter	HKA06519034-6J	Input: AC 100-240V, 50/60Hz, 1.5A Output: DC 19V, 3.42A	Market with EUT
4	Loudspeaker	--	--	AE
5	PC	Xiaomi	Air 13.3	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.407	6dB Bandwidth	Compliant
§15.407	Emission Bandwidth	Compliant
§15.407	Maximum conducted output power	Compliant
§15.407	Conducted Spurious Emission	Compliant
§15.407	Maximum Conducted Output Power Density	Compliant
§15.209	Radiated Emission	Compliant
§15.407	Band Edges	Compliant
§15.207	Line Conduction Emission	Compliant

## 6. TEST FACILITY

<b>Test Site</b>	Attestation of Global Compliance (Shenzhen) Co., Ltd
<b>Location</b>	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
<b>Designation Number</b>	CN1259
<b>FCC Test Firm Registration Number</b>	975832
<b>A2LA Cert. No.</b>	5054.02
<b>Description</b>	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA

### TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun. 10, 2019	Jun. 09, 2020
LISN	R&S	ESH2-Z5	100086	Aug. 26, 2019	Aug. 25, 2020

### TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun. 10, 2019	Jun. 09, 2020
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 20, 2018	Dec. 19, 2019
Power sensor	Aglient	U2021XA	MY54110007	Dec. 20, 2018	Dec. 19, 2019
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 21, 2017	Sep. 20, 2020
preamplifier	ChengYi	EMC184045SE	980508	Sep. 21, 2017	Sep. 20, 2020
Active loop antenna (9K-30MHz)	A.H.	SAS-562B	CC&C	May. 26, 2018	May. 25, 2020
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May. 26, 2018	May. 25, 2020
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Sep. 28, 2017	Sep. 27, 2019
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 28, 2017	Sep. 27, 2019

## 7. MAXIMUM CONDUCTED OUTPUT POWER

### 7.1. MEASUREMENT PROCEDURE

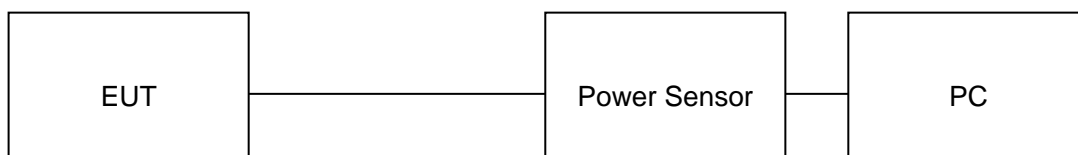
For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

**Note :** The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

### 7.2. TEST SET-UP

#### AVERAGE POWER SETUP



**7.3. LIMITS AND MEASUREMENT RESULT**

<b>LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION</b>					
<b>Frequency (MHz)</b>	<b>Average Power Chain 1(dBm)</b>	<b>Average Power Chain 2(dBm)</b>	<b>Average Power Total(dBm)</b>	<b>Applicable Limits (dBm)</b>	<b>Pass or Fail</b>
5180	<b>17.12</b>	16.95	N/A	29.98	Pass
5200	17.06	17.03	N/A	29.98	Pass
5240	17.11	17.00	N/A	29.98	Pass
5745	17.03	16.99	N/A	29.98	Pass
5785	16.98	16.96	N/A	29.98	Pass
5825	16.93	17.05	N/A	29.98	Pass

<b>LIMITS AND MEASUREMENT RESULT FOR 802.11N20 MODULATION</b>					
<b>Frequency (MHz)</b>	<b>Average Power Chain 1(dBm)</b>	<b>Average Power Chain 2(dBm)</b>	<b>Average Power Total(dBm)</b>	<b>Applicable Limits (dBm)</b>	<b>Pass or Fail</b>
5180	15.76	15.55	<b>18.67</b>	29.98	Pass
5200	15.68	15.62	18.66	29.98	Pass
5240	15.63	15.57	18.61	29.98	Pass
5745	15.72	15.42	18.58	29.98	Pass
5785	15.70	15.51	18.62	29.98	Pass
5825	15.65	15.48	18.58	29.98	Pass

<b>LIMITS AND MEASUREMENT RESULT FOR 802.11N40 MODULATION</b>					
<b>Frequency (MHz)</b>	<b>Average Power Chain 1(dBm)</b>	<b>Average Power Chain 2(dBm)</b>	<b>Average Power Total(dBm)</b>	<b>Applicable Limits (dBm)</b>	<b>Pass or Fail</b>
5190	14.32	14.27	<b>17.31</b>	29.98	Pass
5230	14.28	14.30	17.30	29.98	Pass
5755	14.21	14.25	17.24	29.98	Pass
5795	14.30	14.22	17.27	29.98	Pass

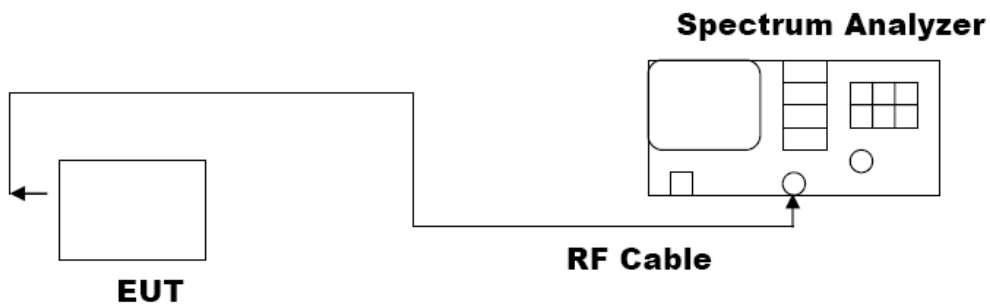
## 8. 6dB BANDWIDTH

### 8.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on operation frequency individually.
3. Set RBW = 100kHz.
4. Set the VBW  $\geq 3 \times$  RBW. Detector = Peak. Trace mode = max hold.
5. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.

**Note:** The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

### 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

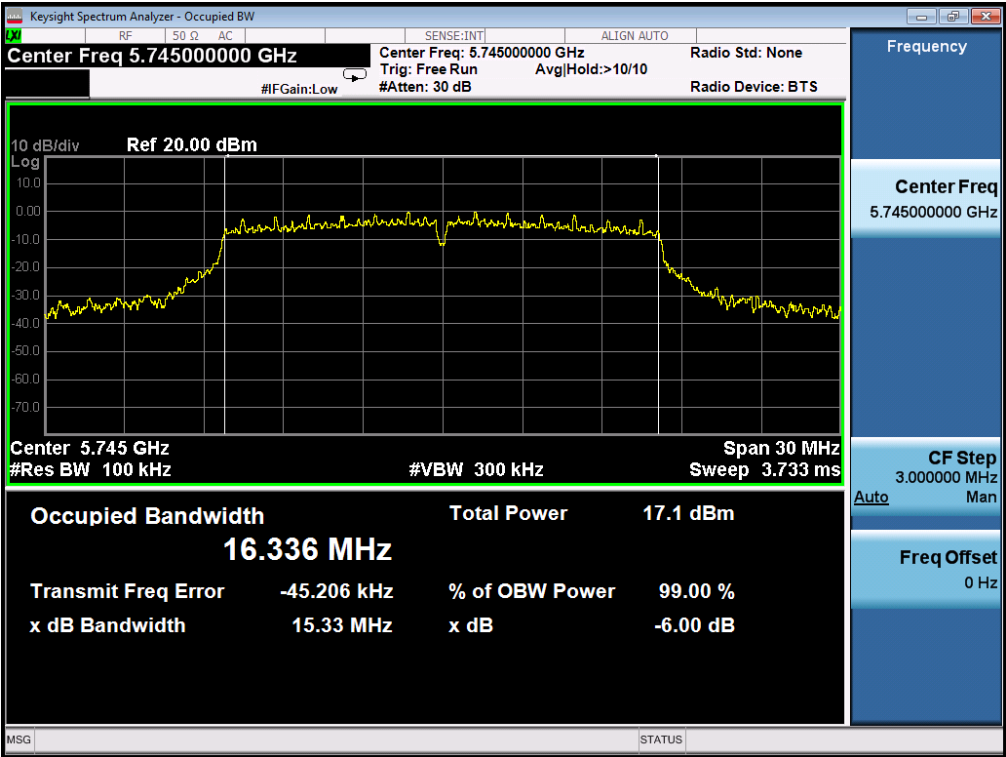


### 8.3. LIMITS AND MEASUREMENT RESULTS

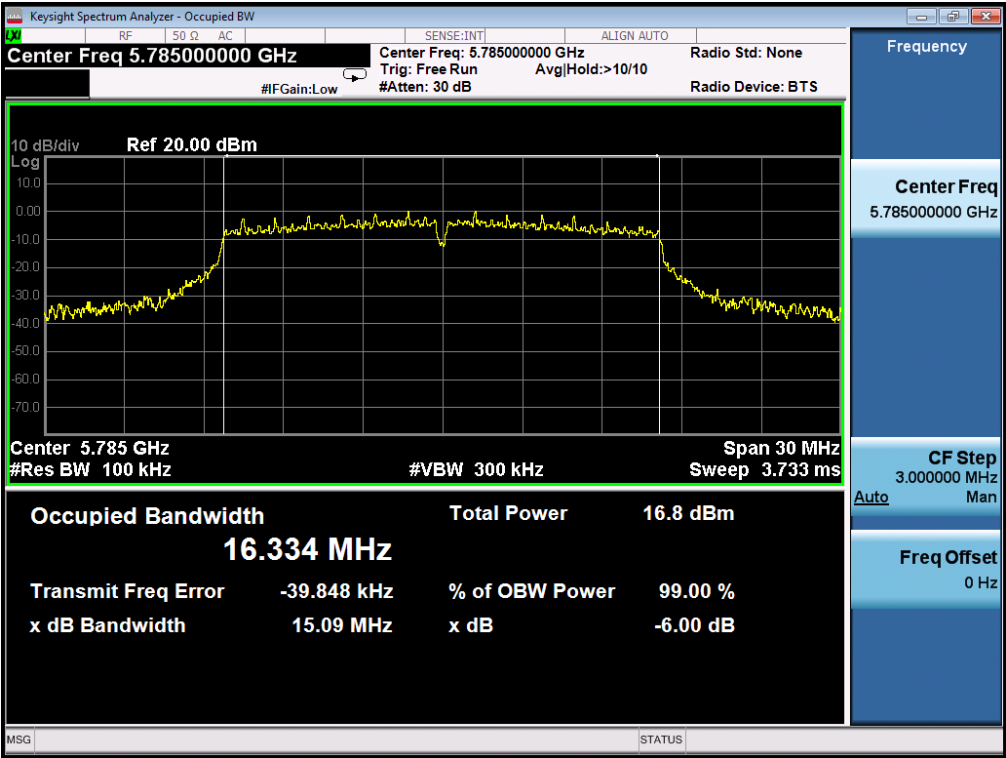
LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	15.33	PASS
	5785MHz	15.09	PASS
	5825MHz	15.11	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	15.90	PASS
	5785MHz	16.30	PASS
	5825MHz	15.92	PASS
	5755MHz	36.31	PASS
	5795MHz	36.33	PASS

802.11a20 TEST RESULT  
TEST PLOT OF BANDWIDTH FOR 5745MHz

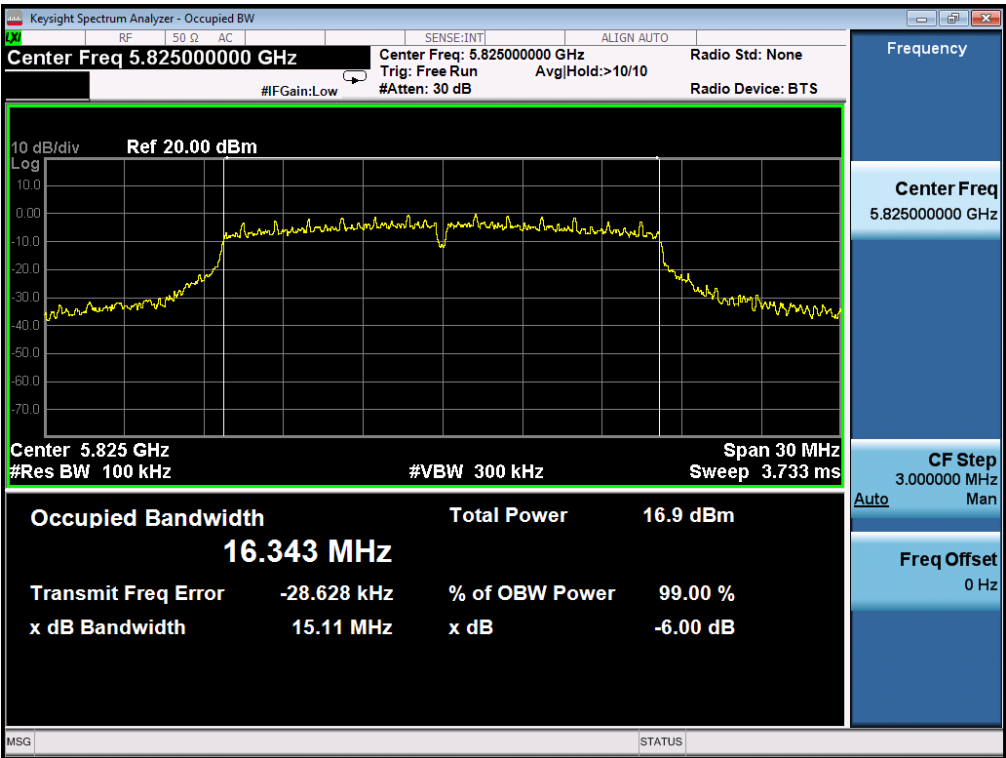


TEST PLOT OF BANDWIDTH FOR 5785MHz



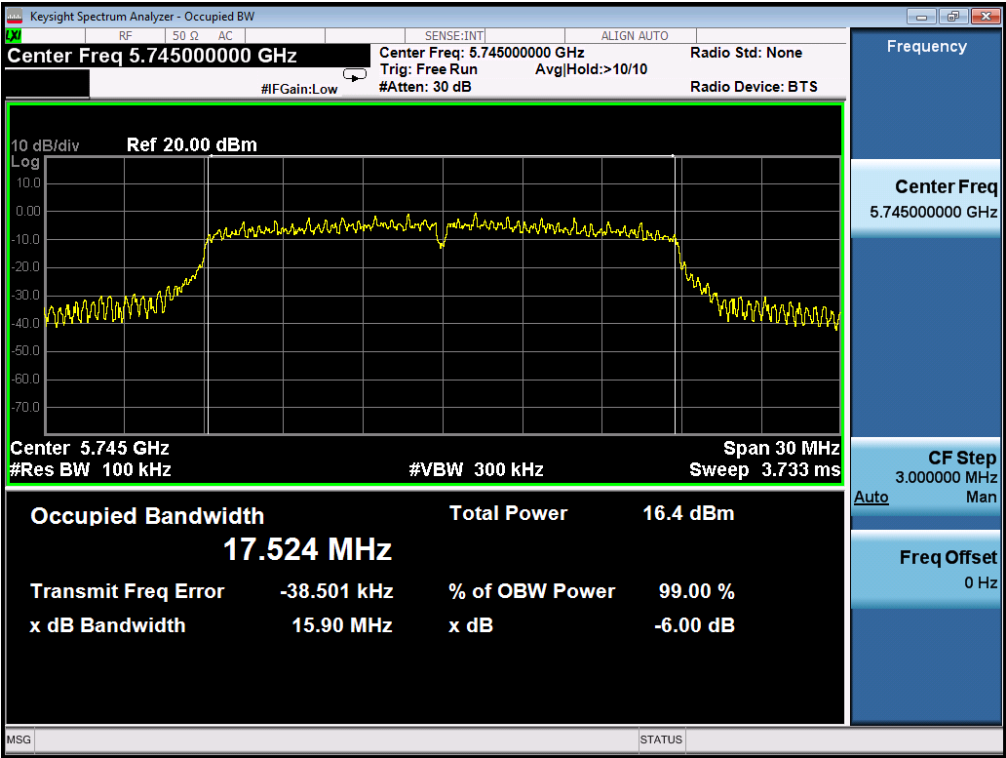


TEST PLOT OF BANDWIDTH FOR 5825MHz

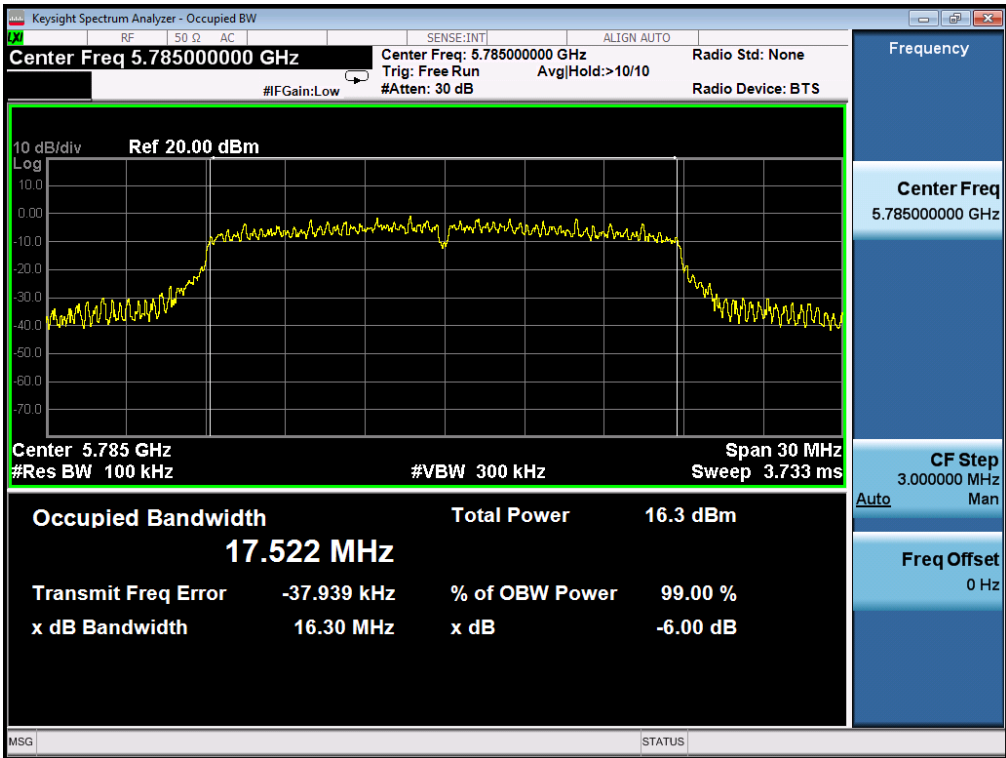


802.11n20 TEST RESULT

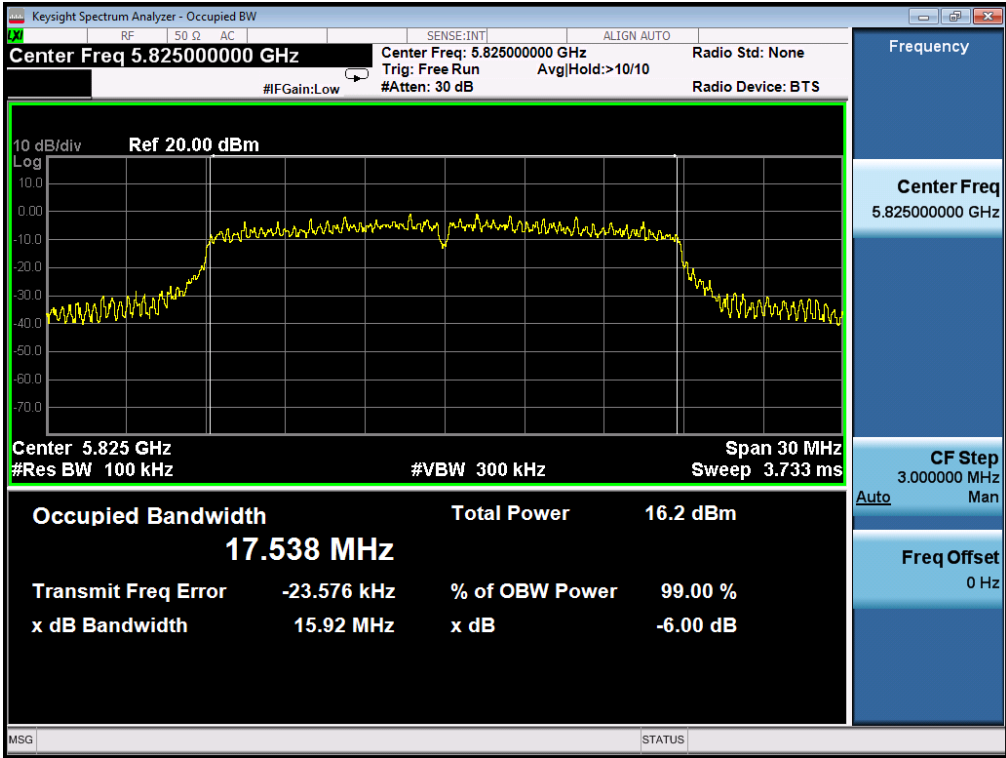
TEST PLOT OF BANDWIDTH FOR 5745MHz



TEST PLOT OF BANDWIDTH FOR 5785MHz

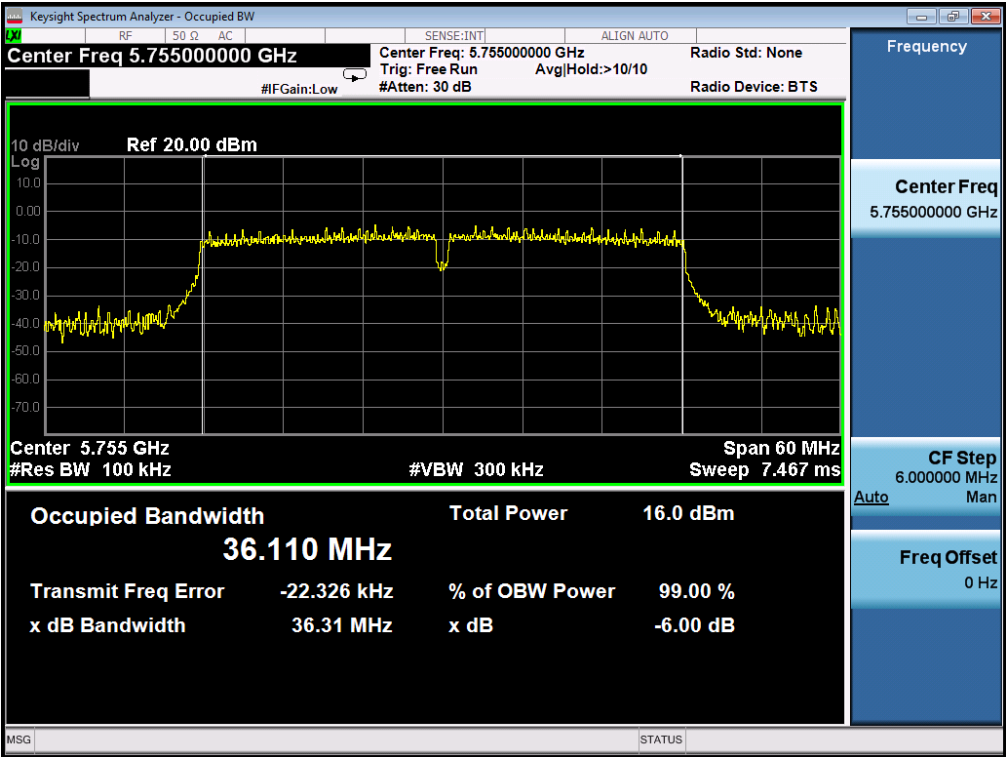


TEST PLOT OF BANDWIDTH FOR 5825MHz

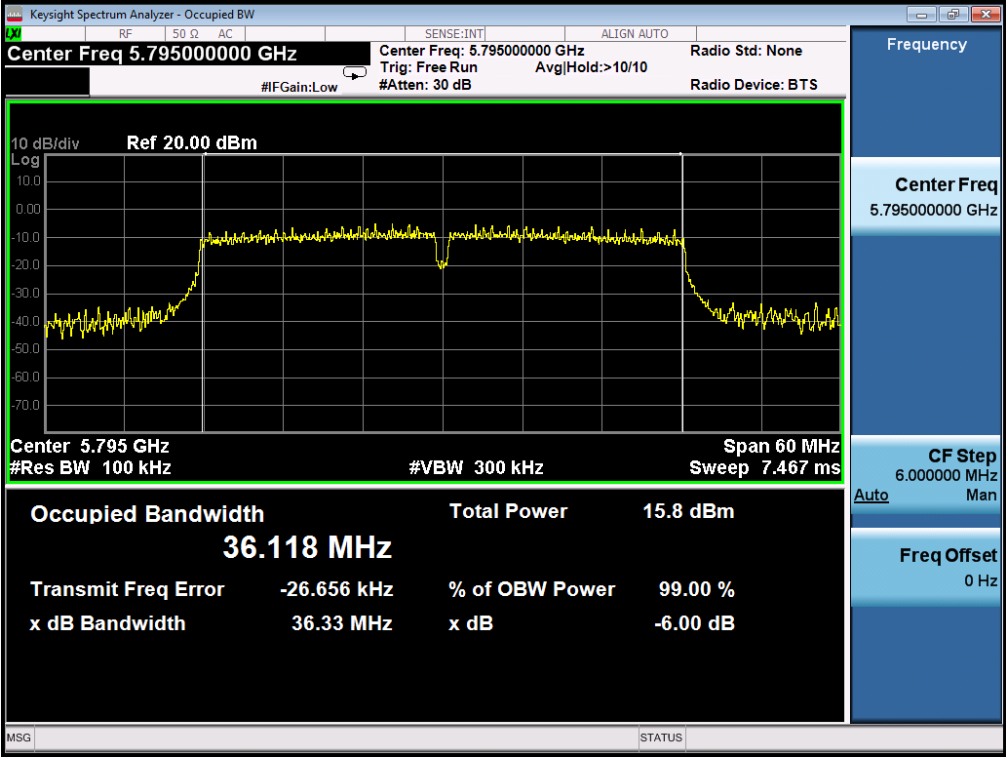


802.11n40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5755MHz



TEST PLOT OF BANDWIDTH FOR 5795MHz



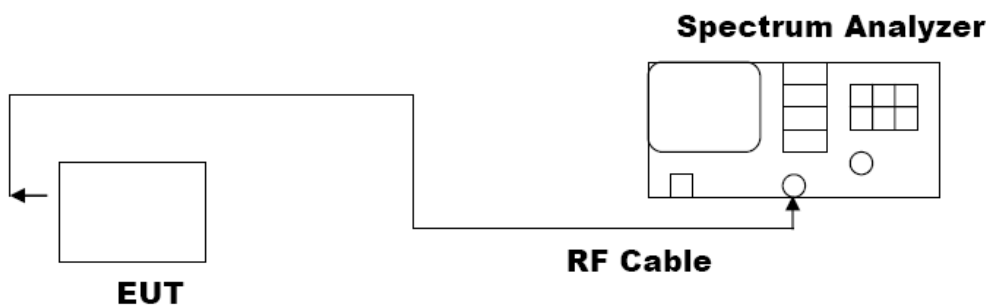
## 9. EMISSION BANDWIDTH

### 9.1. MEASUREMENT 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%.

**Note:** The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

### 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

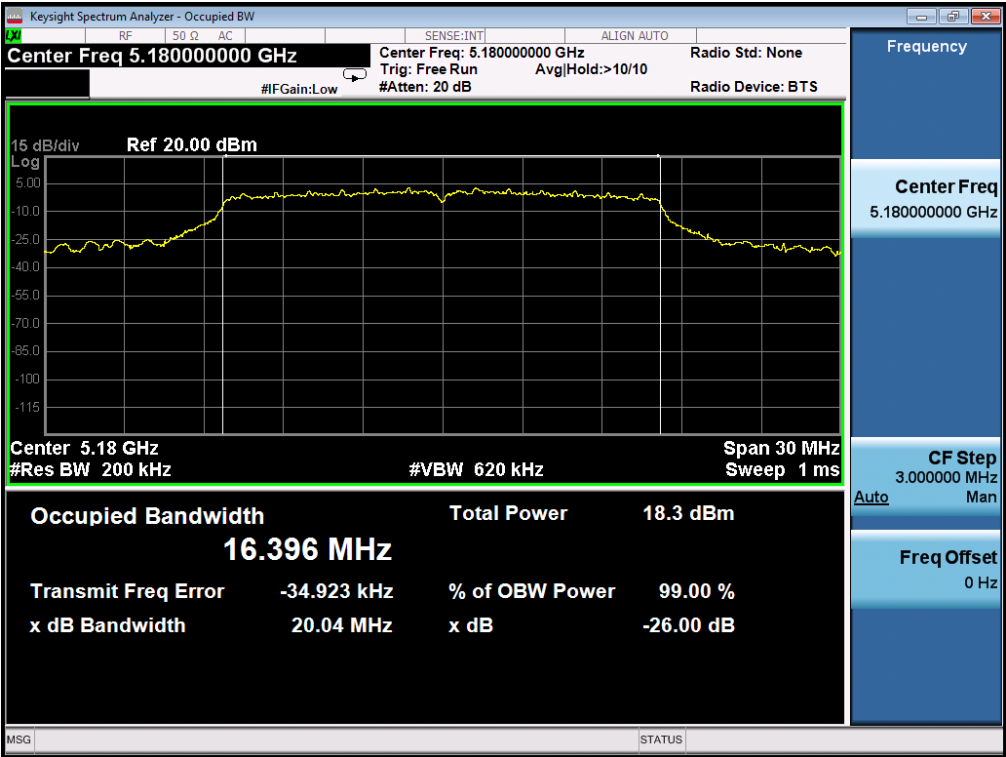


### 9.3. LIMITS AND MEASUREMENT RESULTS

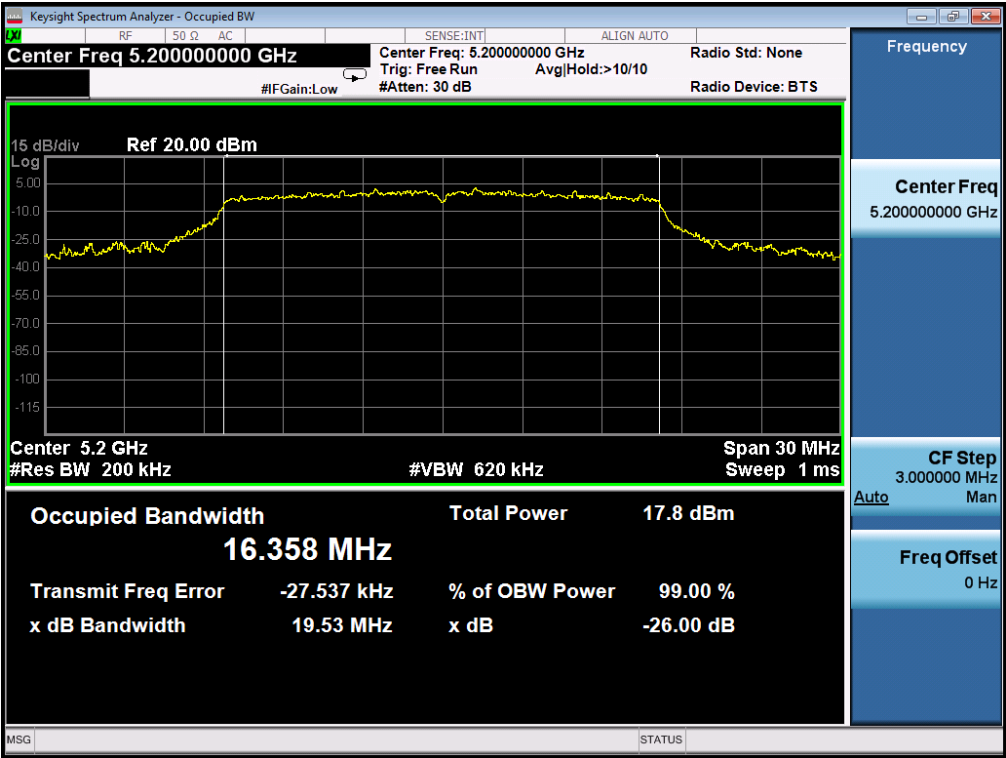
LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
Within the Band	5180MHz	20.04	PASS
	5200MHz	19.53	PASS
	5240MHz	19.35	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
Within the Band	5180MHz	20.11	PASS
	5200MHz	20.03	PASS
	5240MHz	19.90	PASS
	5190MHz	39.99	PASS
	5230MHz	40.11	PASS

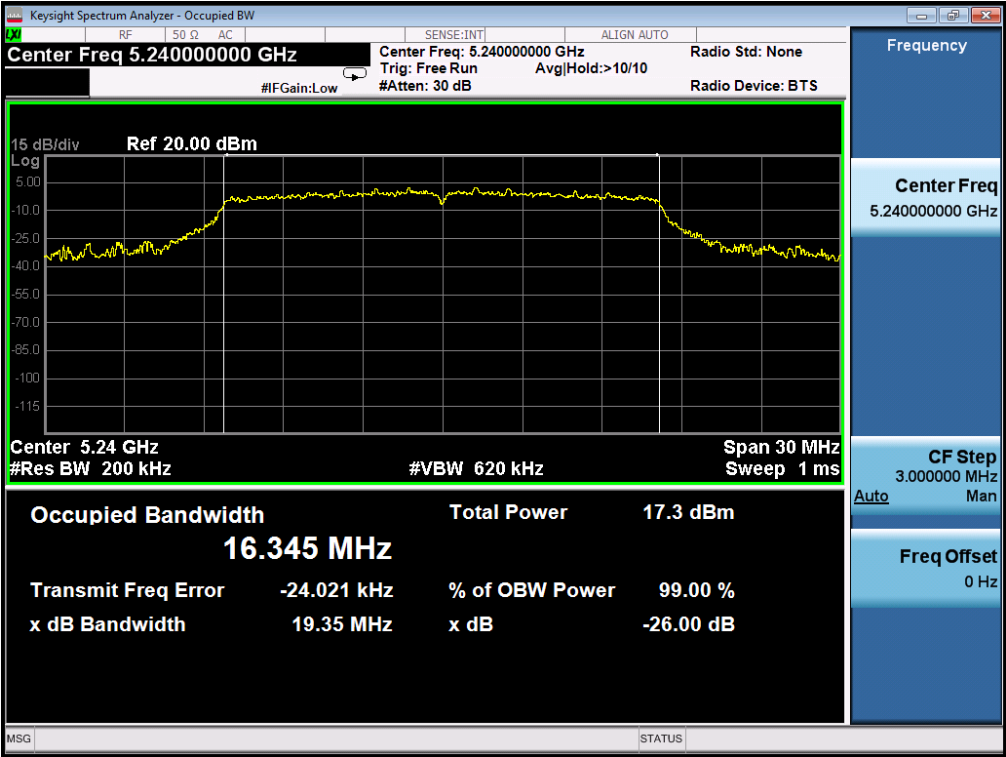
802.11a20 TEST RESULT  
TEST PLOT OF BANDWIDTH FOR 5180MHz



TEST PLOT OF BANDWIDTH FOR 5200MHz

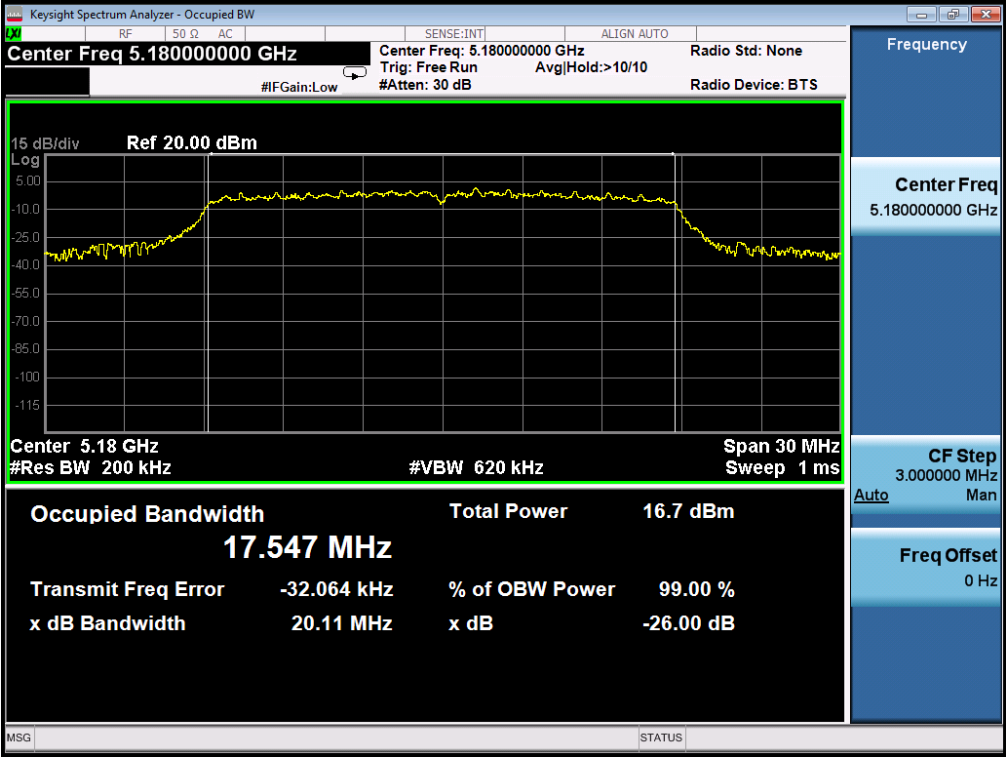


TEST PLOT OF BANDWIDTH FOR 5240MHz

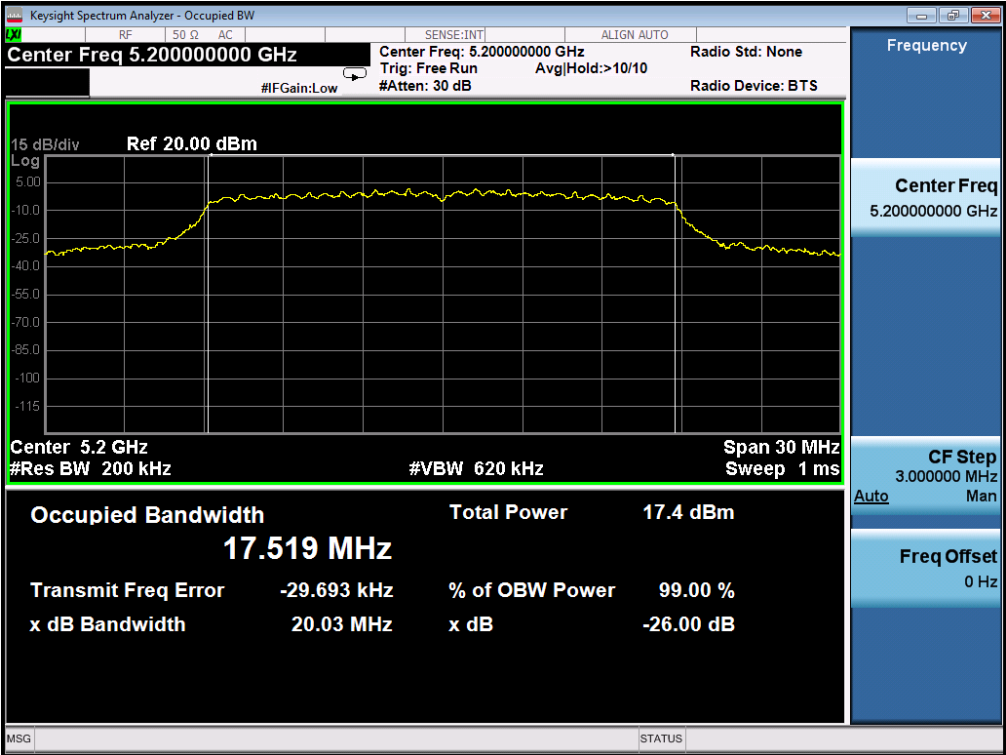


802.11n20 TEST RESULT

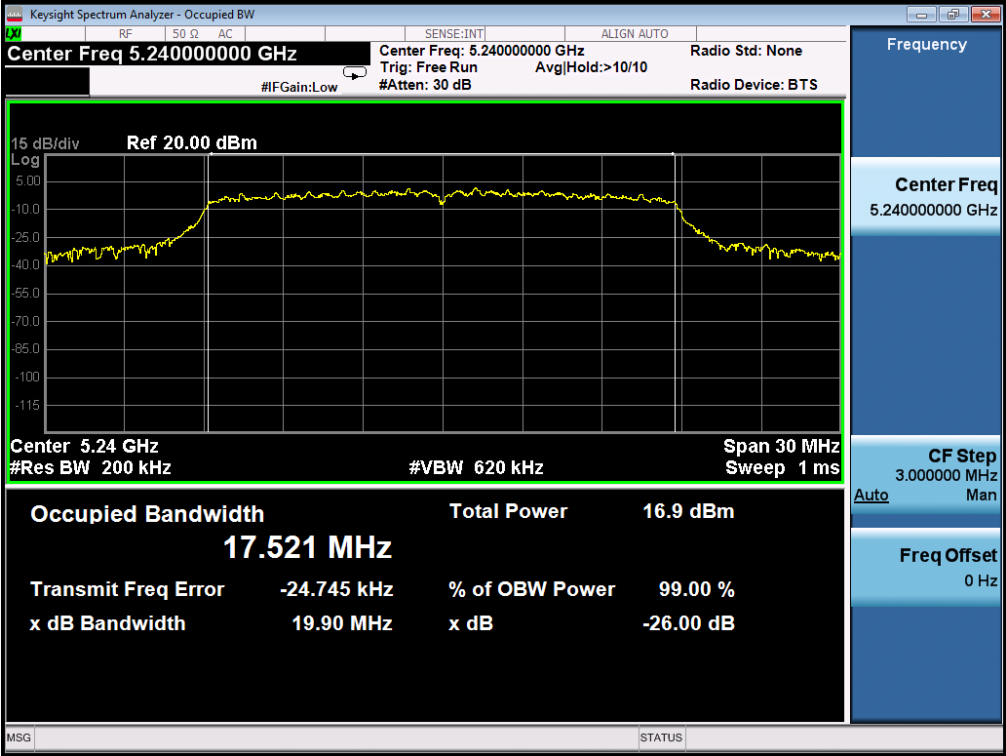
TEST PLOT OF BANDWIDTH FOR 5180MHz



TEST PLOT OF BANDWIDTH FOR 5200MHz

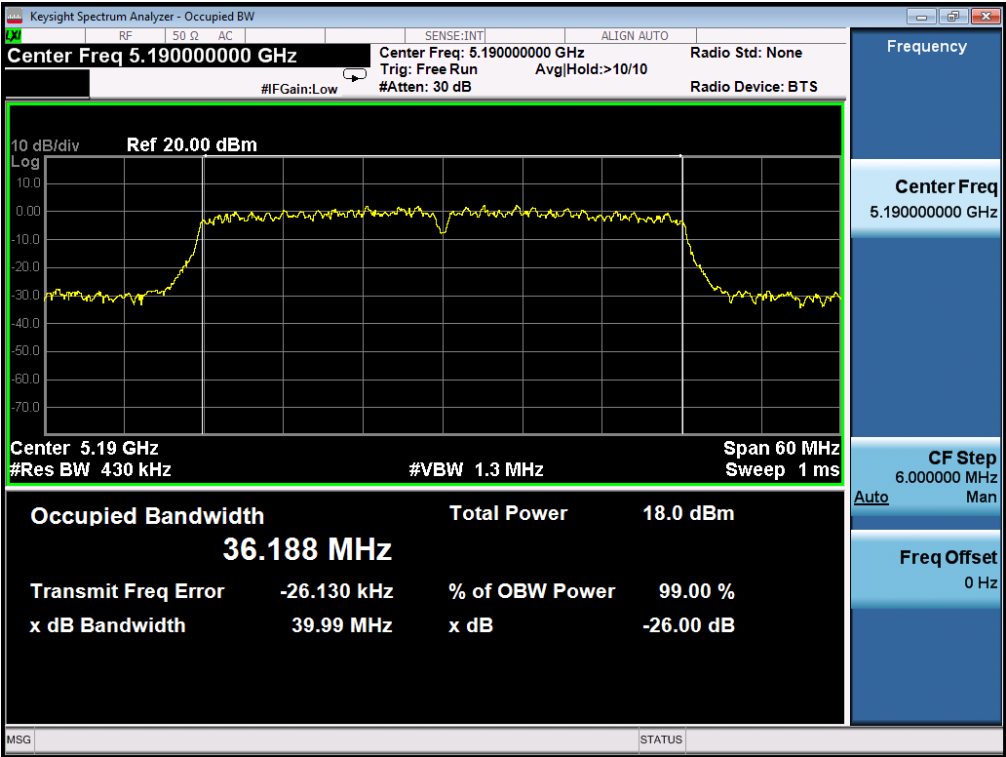


TEST PLOT OF BANDWIDTH FOR 5240MHz

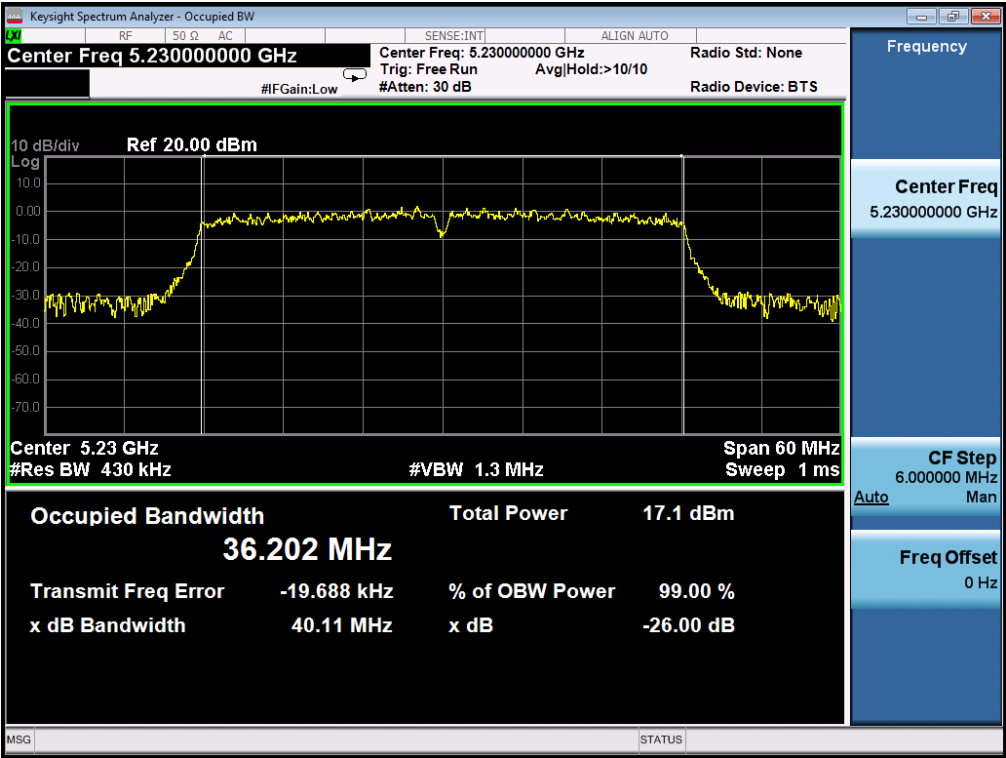




802.11n40 TEST RESULT  
TEST PLOT OF BANDWIDTH FOR 5190MHz



TEST PLOT OF BANDWIDTH FOR 5230MHz



**10. MAXIMUM CONDUCTED OUTPUT PEAK POWER SPECTRAL DENSITY****10.1 MEASUREMENT PROCEDURE**

Refer to KDB 789033 section F

**10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)**

Refer To Section 8.2.

**10.3 MEASUREMENT EQUIPMENT USED**

Refer To Section 6.

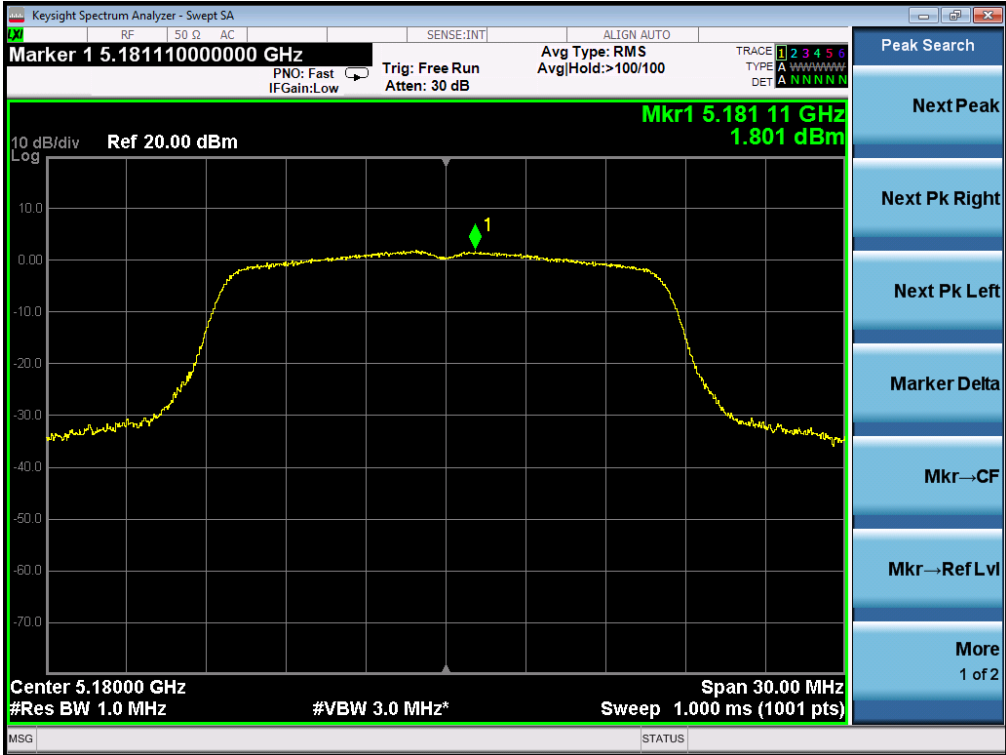
**10.4 LIMITS AND MEASUREMENT RESULT**

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION					
Frequency (MHz)	Power density Chain 1 (dBm/MHz)	Power density Chain 2 (dBm/MHz)	Power density Total (dBm/MHz)	Applicable Limits (dBm/MHz)	Pass or Fail
5180	1.801	1.714	N/A	10.98	Pass
5200	2.110	1.607	N/A	10.98	Pass
5240	1.941	1.643	N/A	10.98	Pass
Frequency (MHz)	Power density Chain 1 (dBm/500kHz)	Power density Chain 2 (dBm/500kHz)	Power density Total (dBm/500kHz)	Applicable Limits (dBm/500kHz)	Pass or Fail
5745	-1.841	-1.682	N/A	29.98	Pass
5785	-1.623	-1.686	N/A	29.98	Pass
5825	-2.023	-2.282	N/A	29.98	Pass

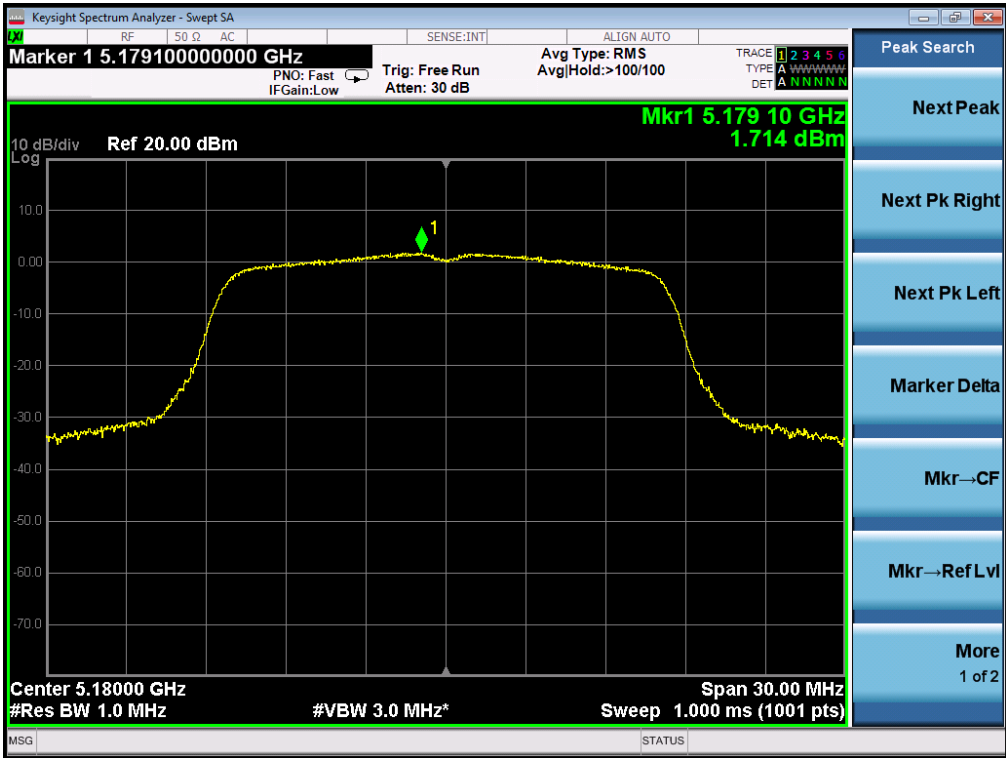
LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION					
Frequency (MHz)	Power density Chain 1 (dBm/MHz)	Power density Chain 2 (dBm/MHz)	Power density Total (dBm/MHz)	Applicable Limits (dBm/MHz)	Pass or Fail
5180	0.610	0.658	3.644	10.98	Pass
5200	0.864	0.755	3.820	10.98	Pass
5240	0.620	0.366	3.505	10.98	Pass
5190	-2.725	-2.799	0.248	10.98	Pass
5230	-2.538	-2.776	0.355	10.98	Pass
Frequency (MHz)	Power density Chain 1 (dBm/500kHz)	Power density Chain 2 (dBm/500kHz)	Power density Total (dBm/500kHz)	Applicable Limits (dBm/500kHz)	Pass or Fail
5745	-2.733	-2.620	0.334	29.98	Pass
5785	-2.550	-2.915	0.282	29.98	Pass
5825	-2.258	-2.658	0.557	29.98	Pass
5755	-6.681	-6.622	-3.641	29.98	Pass
5795	-6.259	-6.868	-3.543	29.98	Pass

802.11a20 TEST RESULT

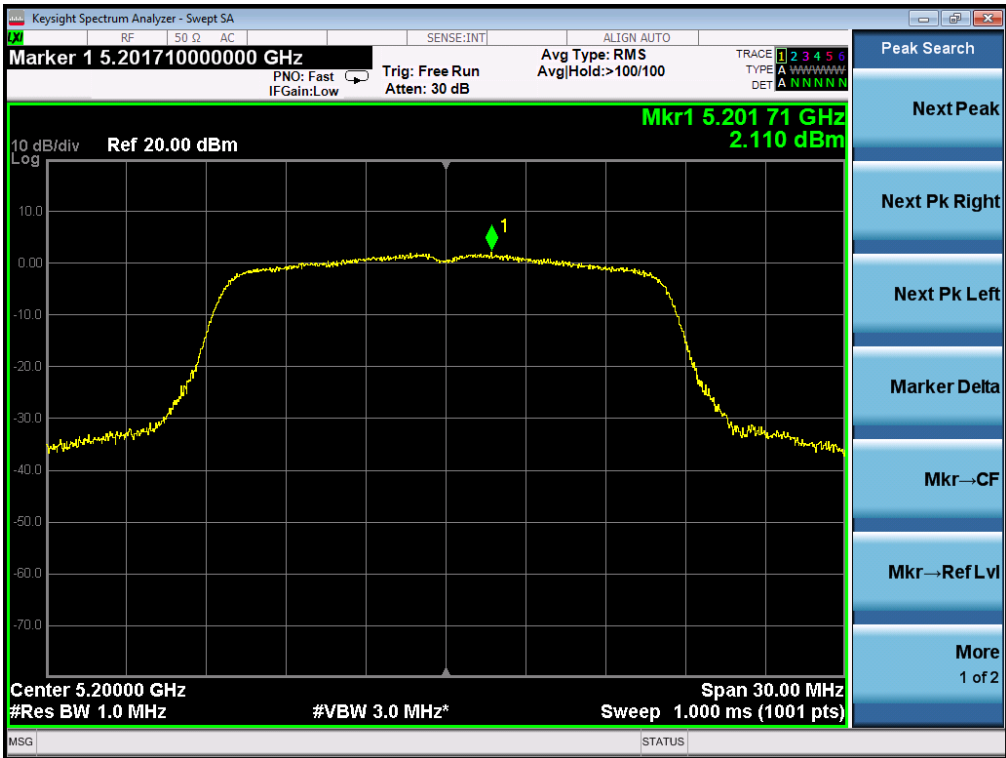
TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 1



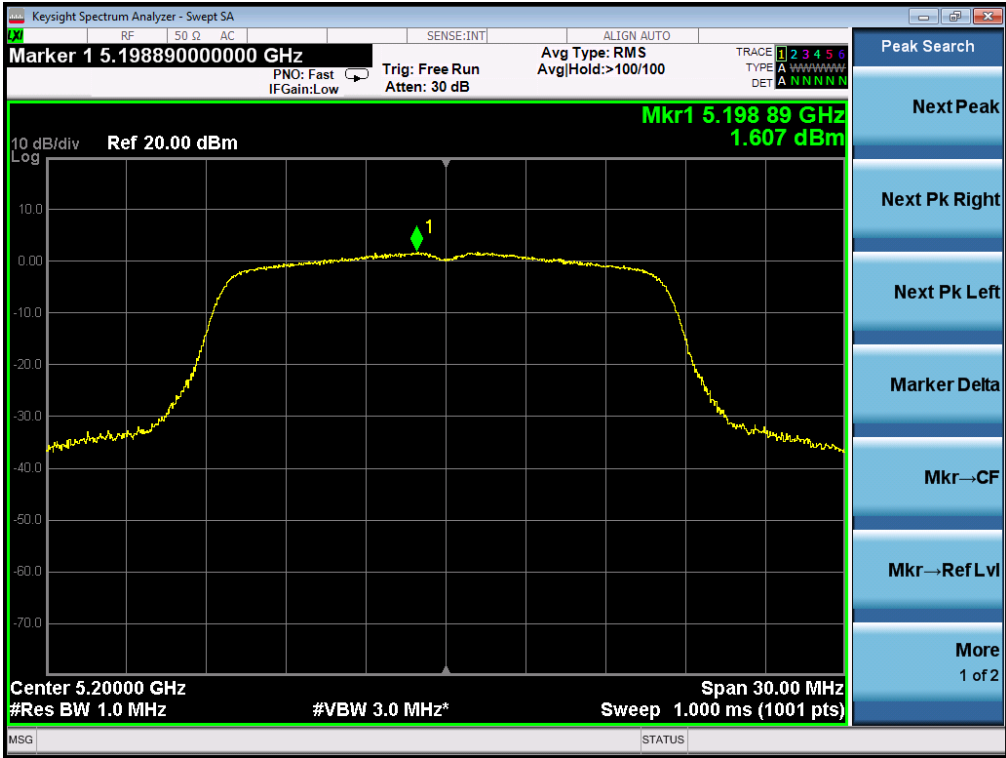
TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 2



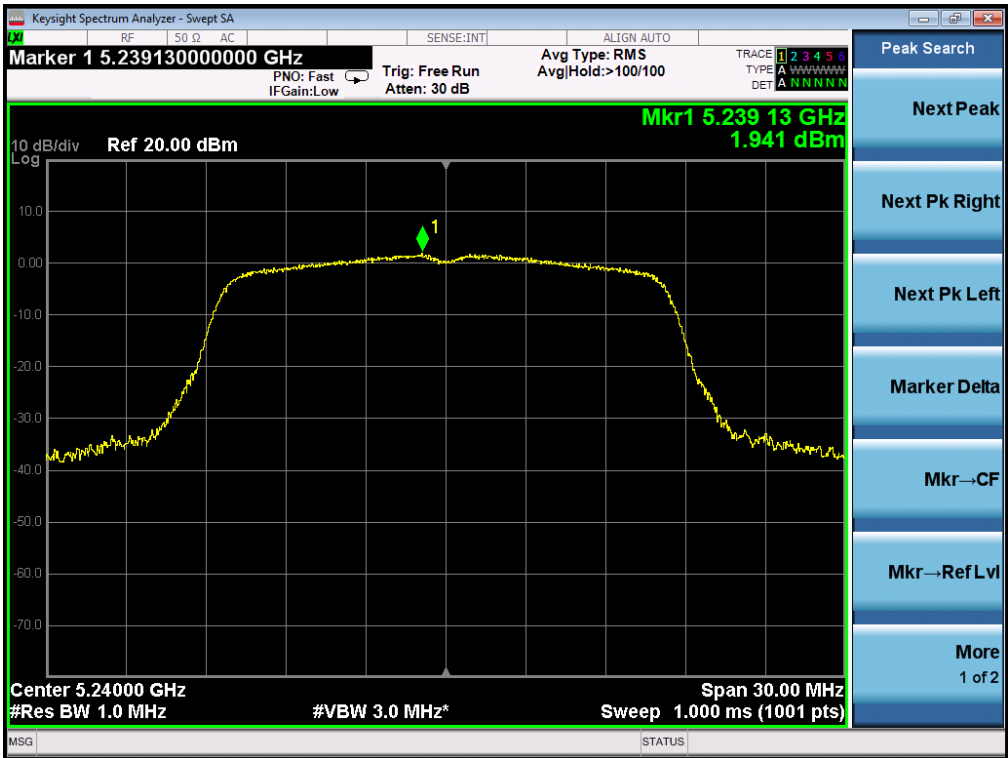
TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 2



TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 2



TEST PLOT OF SPECTRAL DENSITY FOR 5745MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5745MHz AT CHAIN 2



TEST PLOT OF SPECTRAL DENSITY FOR 5785MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5785MHz AT CHAIN 2

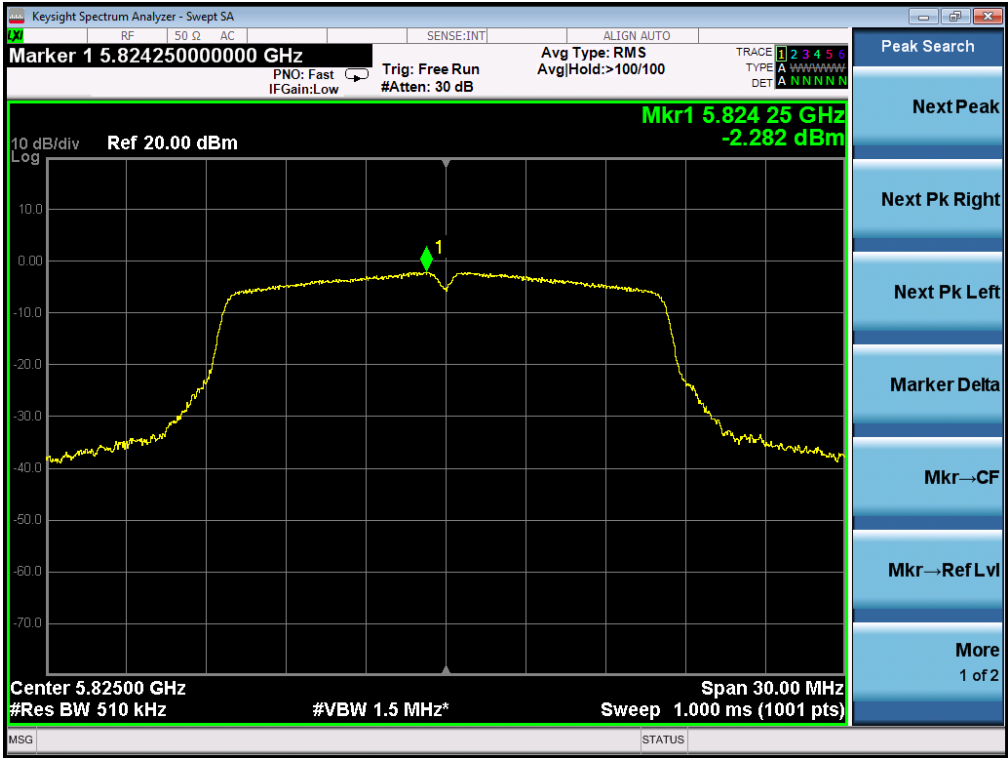




TEST PLOT OF SPECTRAL DENSITY FOR 5825MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5825MHz AT CHAIN 2



802.11n20 TEST RESULT

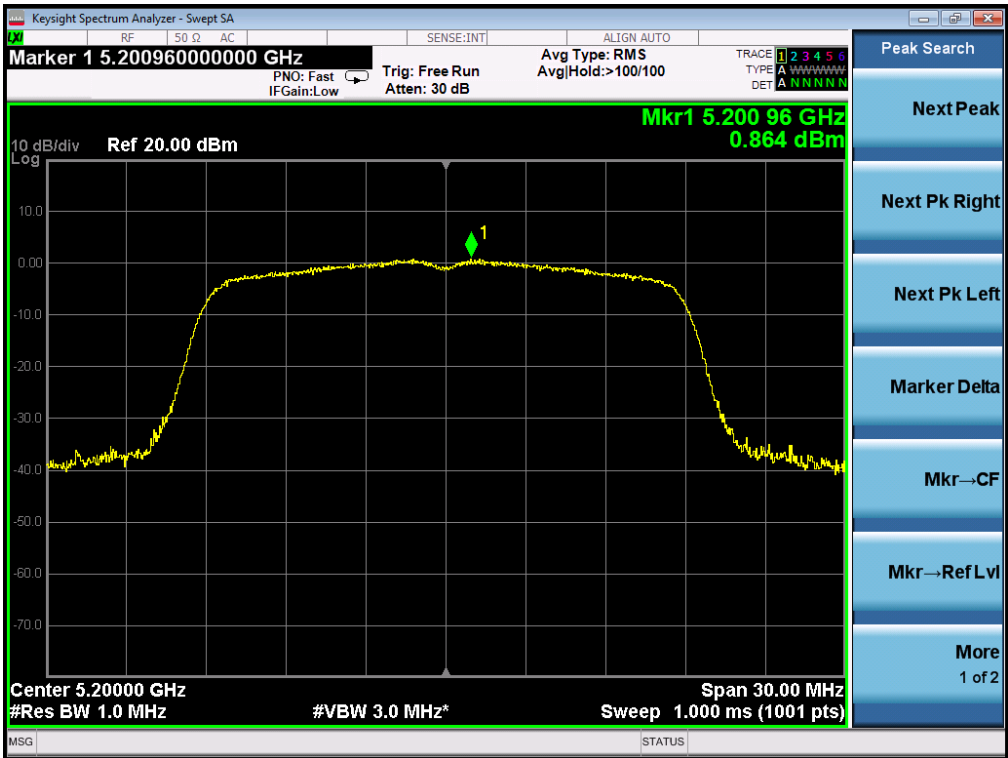
TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 1



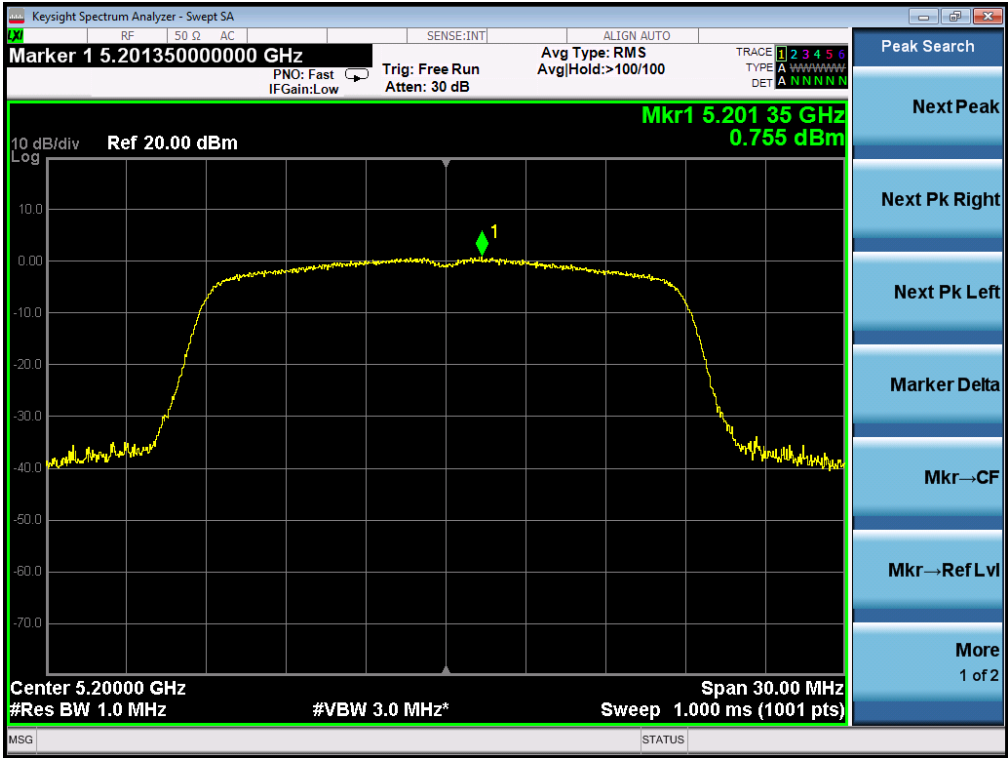
TEST PLOT OF SPECTRAL DENSITY FOR 5180MHz AT CHAIN 2



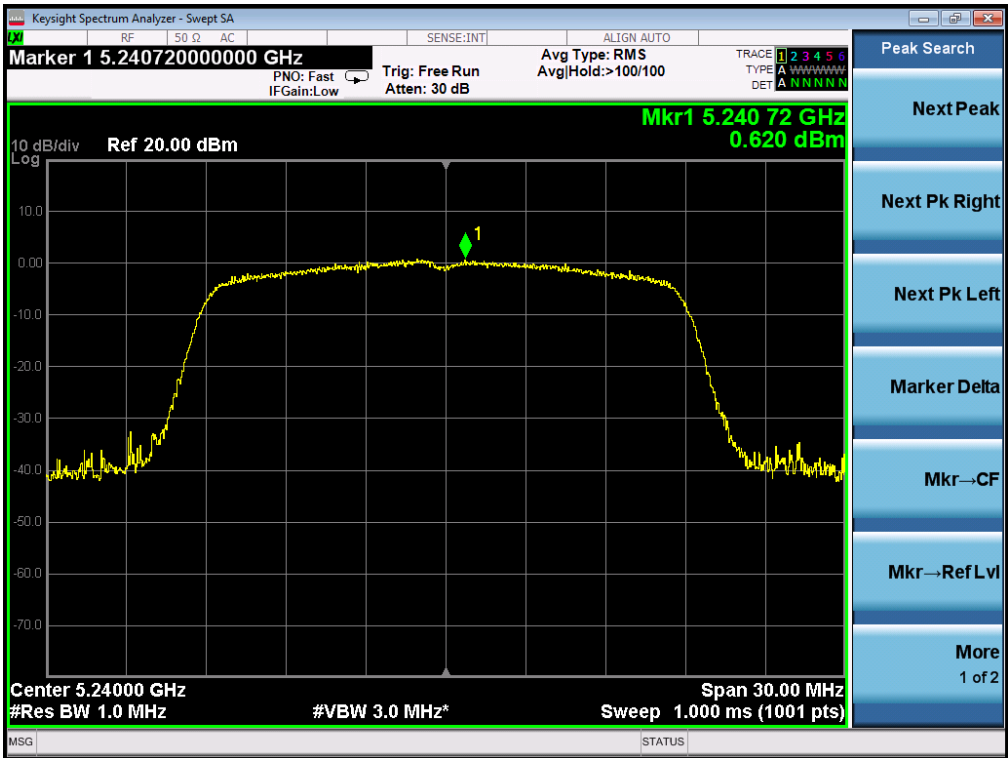
TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 1



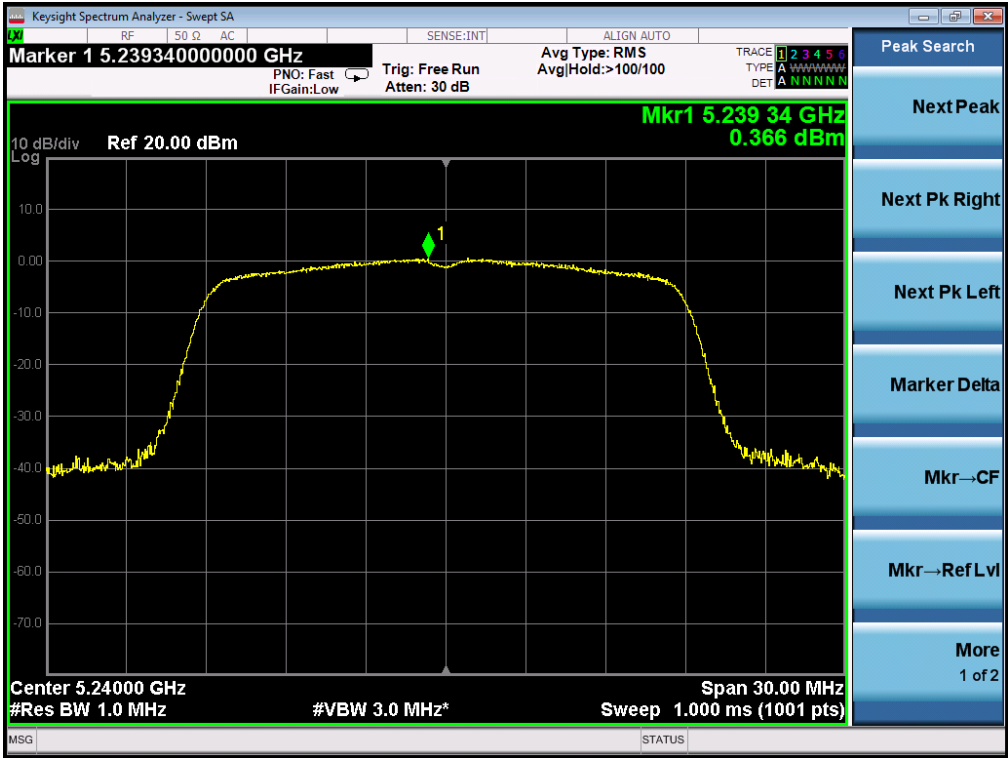
TEST PLOT OF SPECTRAL DENSITY FOR 5200MHz AT CHAIN 2



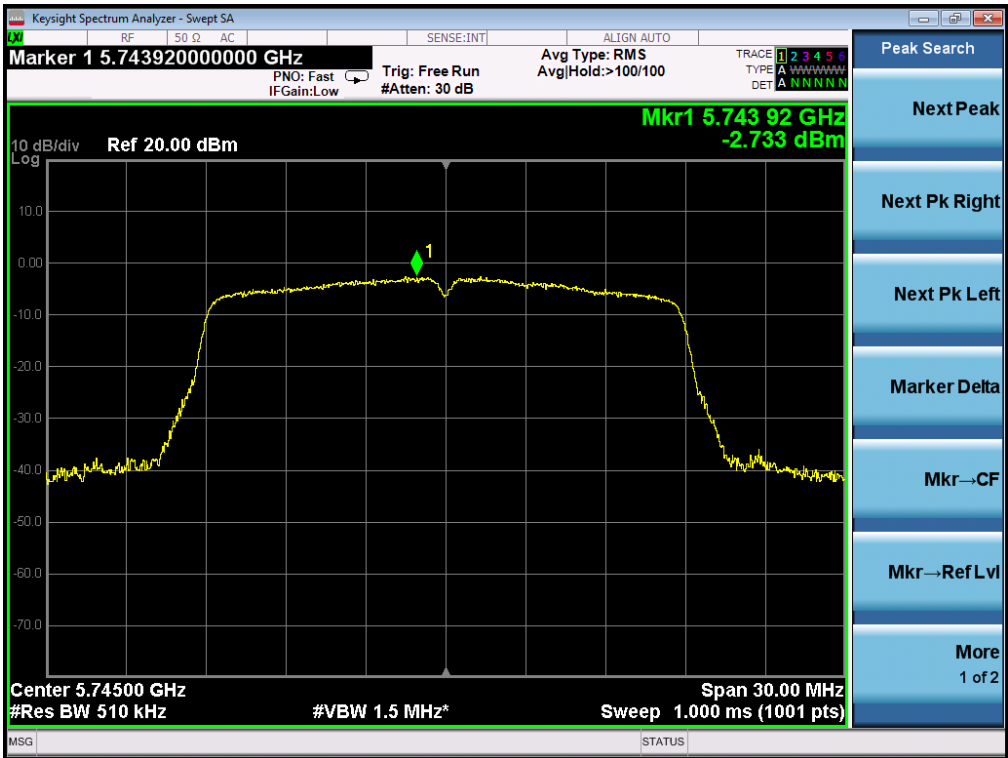
TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5240MHz AT CHAIN 2



TEST PLOT OF SPECTRAL DENSITY FOR 5745MHz AT CHAIN 1



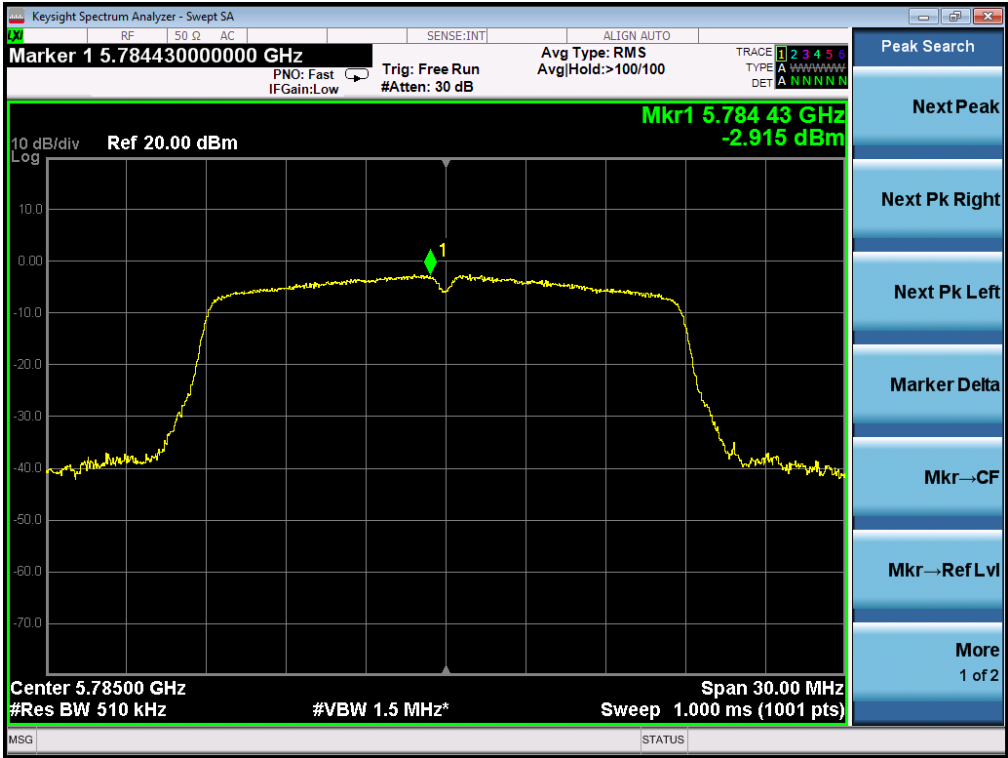
TEST PLOT OF SPECTRAL DENSITY FOR 5745MHz AT CHAIN 2



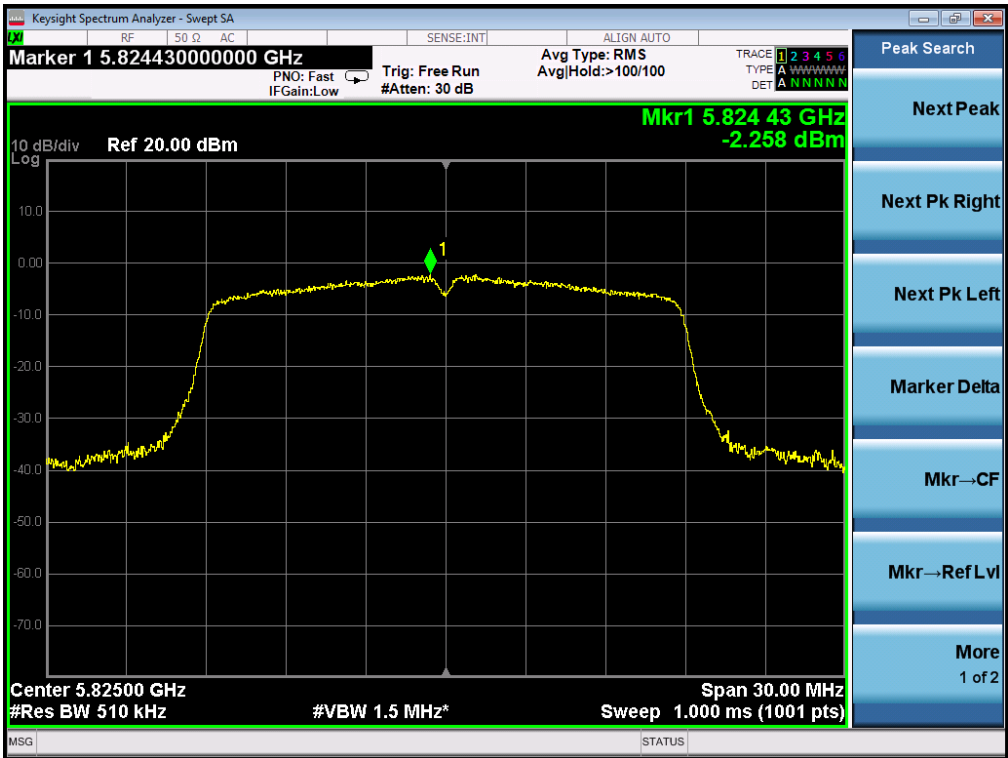
TEST PLOT OF SPECTRAL DENSITY FOR 5785MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5785MHz AT CHAIN 2



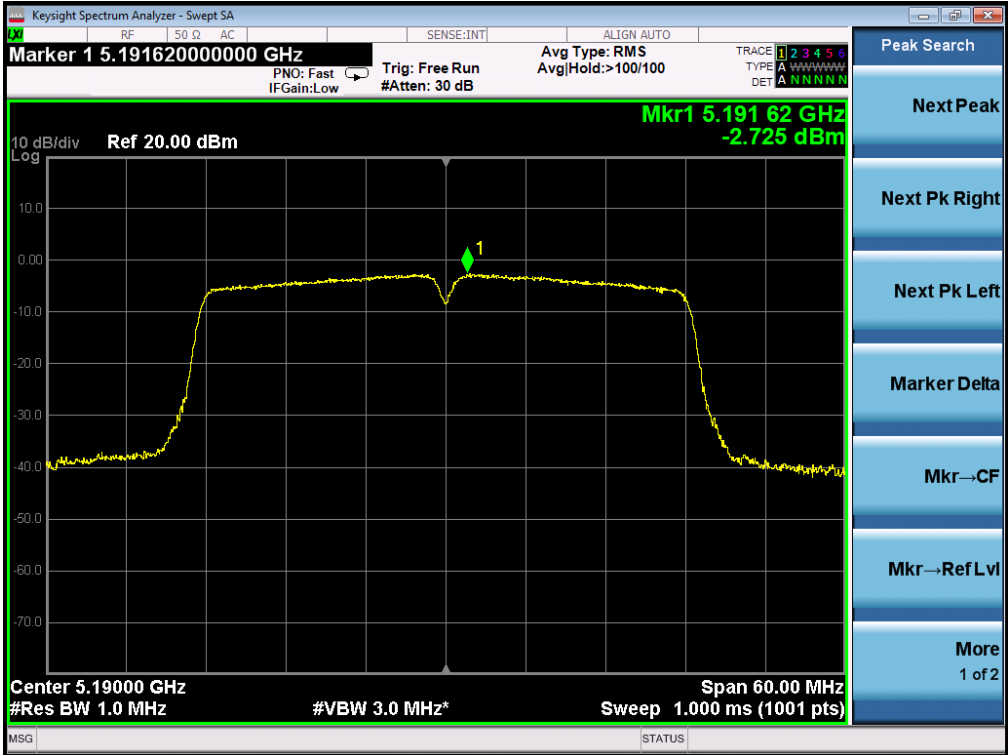
TEST PLOT OF SPECTRAL DENSITY FOR 5825MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5825MHz AT CHAIN 2



802.11n40 TEST RESULT  
TEST PLOT OF SPECTRAL DENSITY FOR 5190MHz AT CHAIN 1

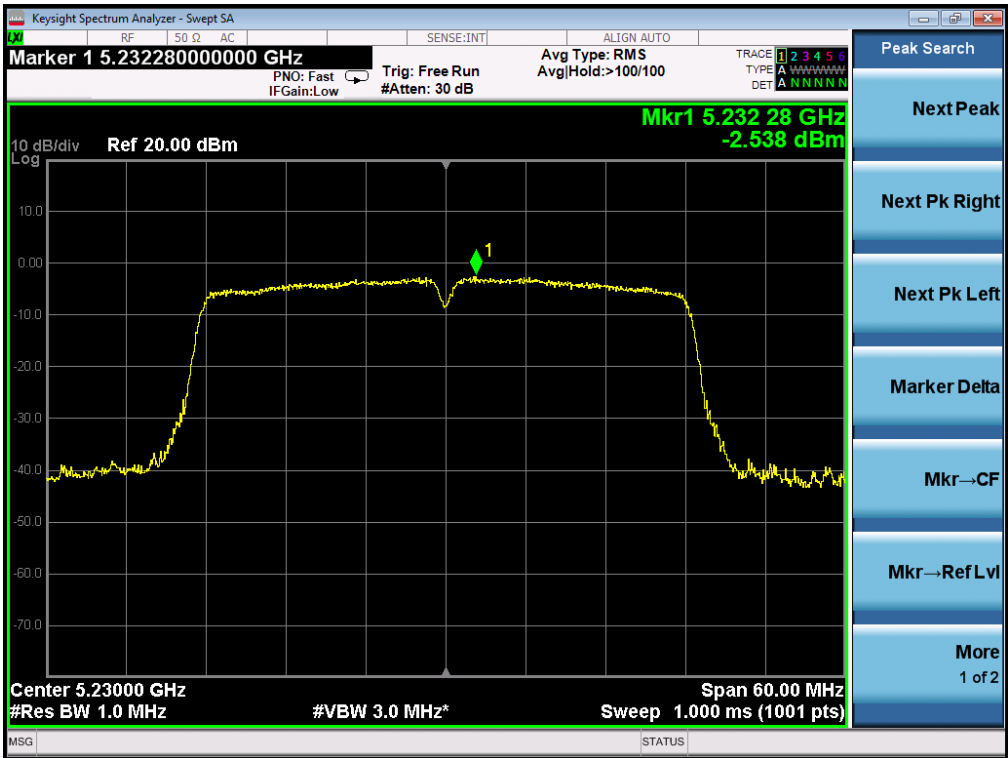


TEST PLOT OF SPECTRAL DENSITY FOR 5190MHz AT CHAIN 2





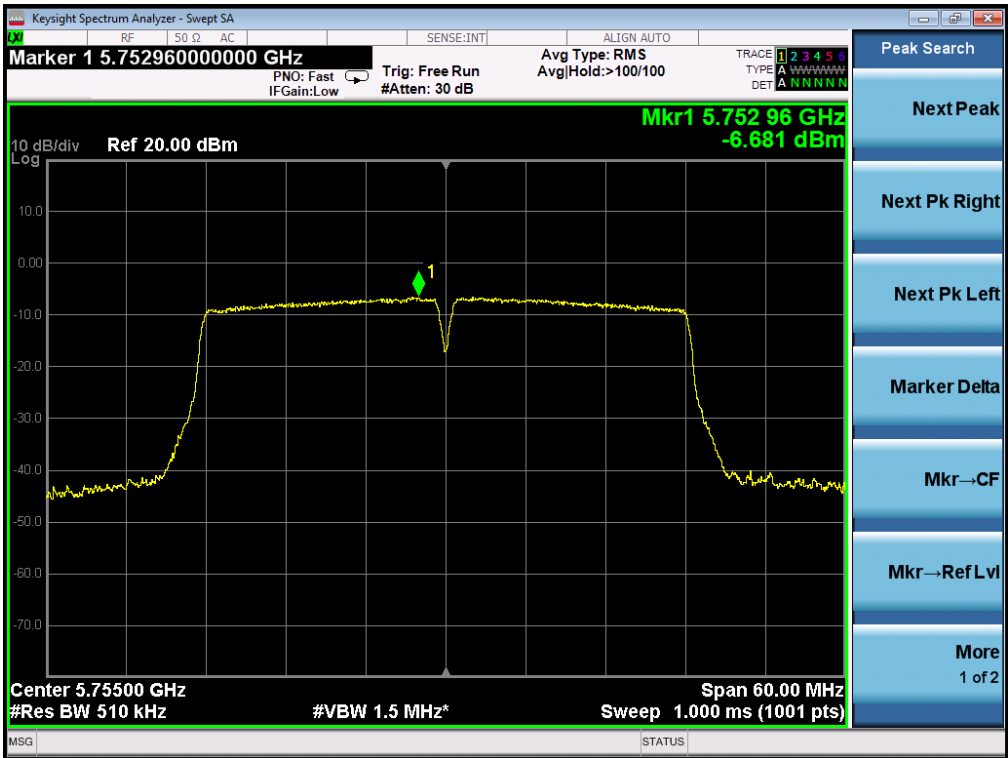
TEST PLOT OF SPECTRAL DENSITY FOR 5230MHz AT CHAIN 1



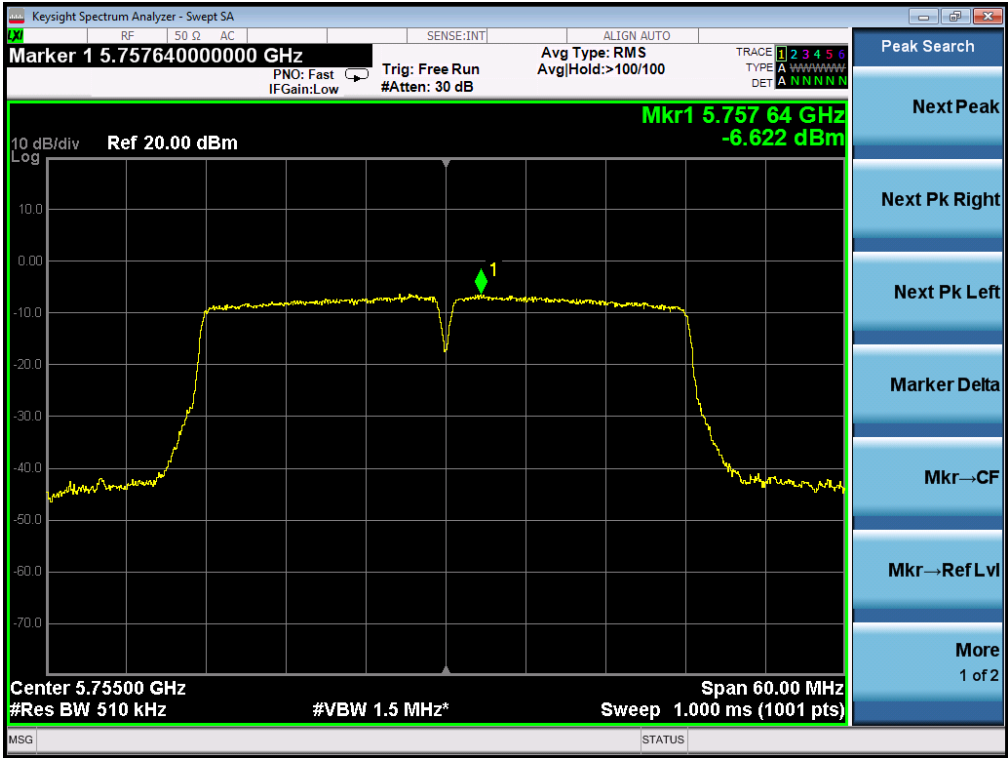
TEST PLOT OF SPECTRAL DENSITY FOR 5230MHz AT CHAIN 2



TEST PLOT OF SPECTRAL DENSITY FOR 5755MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5755MHz AT CHAIN 2



TEST PLOT OF SPECTRAL DENSITY FOR 5795MHz AT CHAIN 1



TEST PLOT OF SPECTRAL DENSITY FOR 5795MHz AT CHAIN 2



## 11. CONDUCTED SPURIOUS EMISSION

### 11.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

**Note:** The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

### 11.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2.

### 11.3. MEASUREMENT EQUIPMENT USED

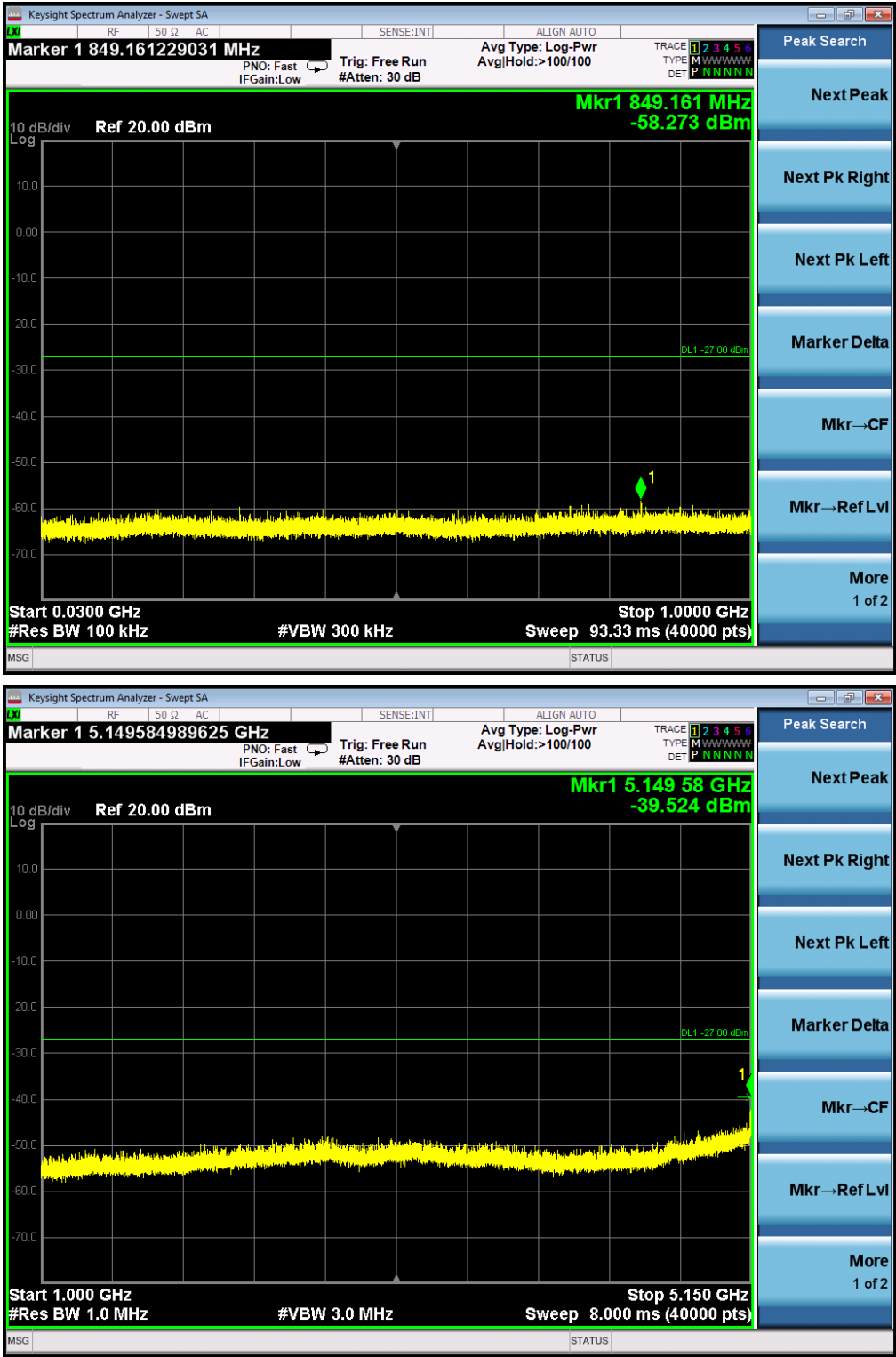
The same as described in section 6.

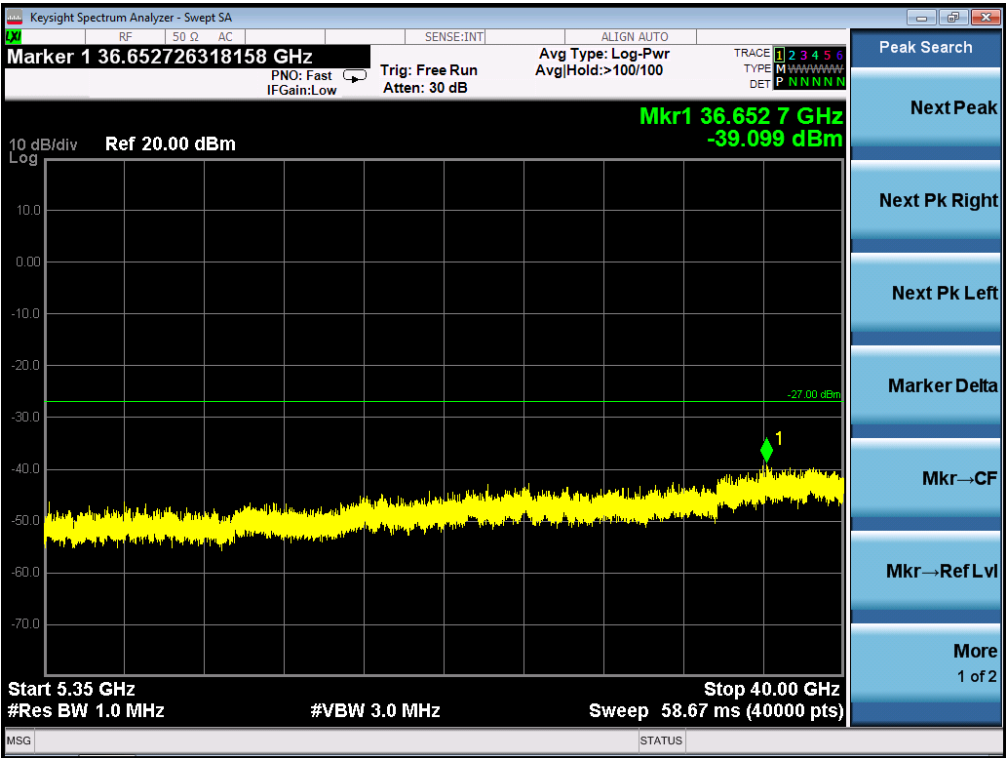
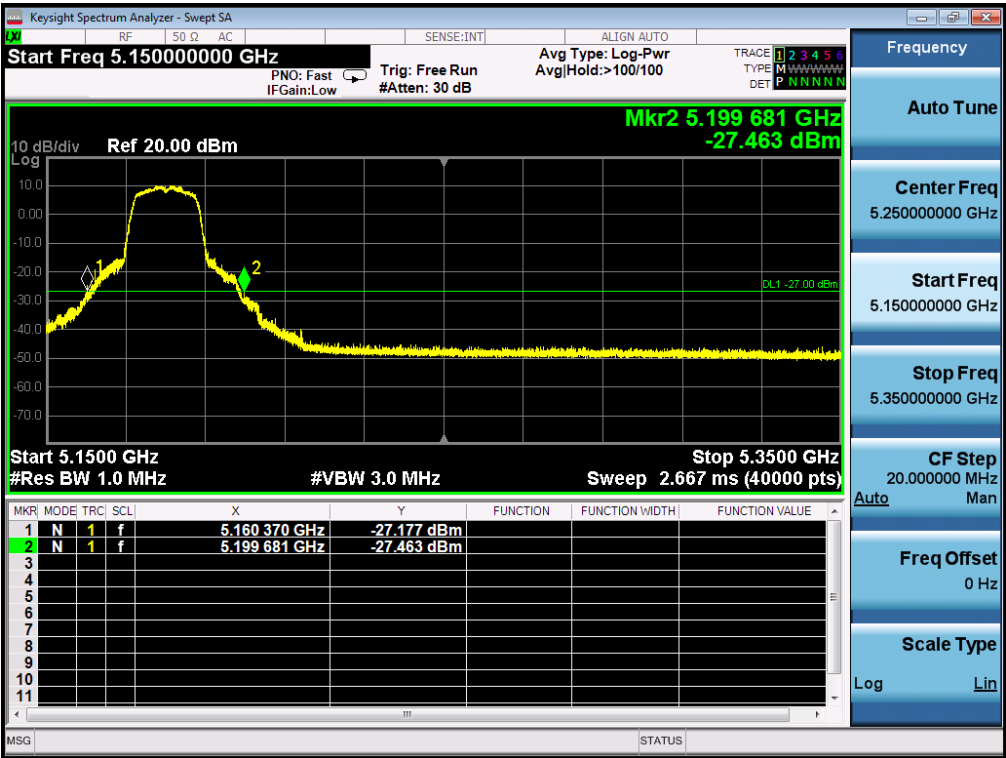
### 11.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT		
Applicable Limits	Measurement Result	
	Test channel	Criteria
-27dBm/MHz	5150MHz-5250MHz	PASS
All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	5725MHz-5850MHz	PASS

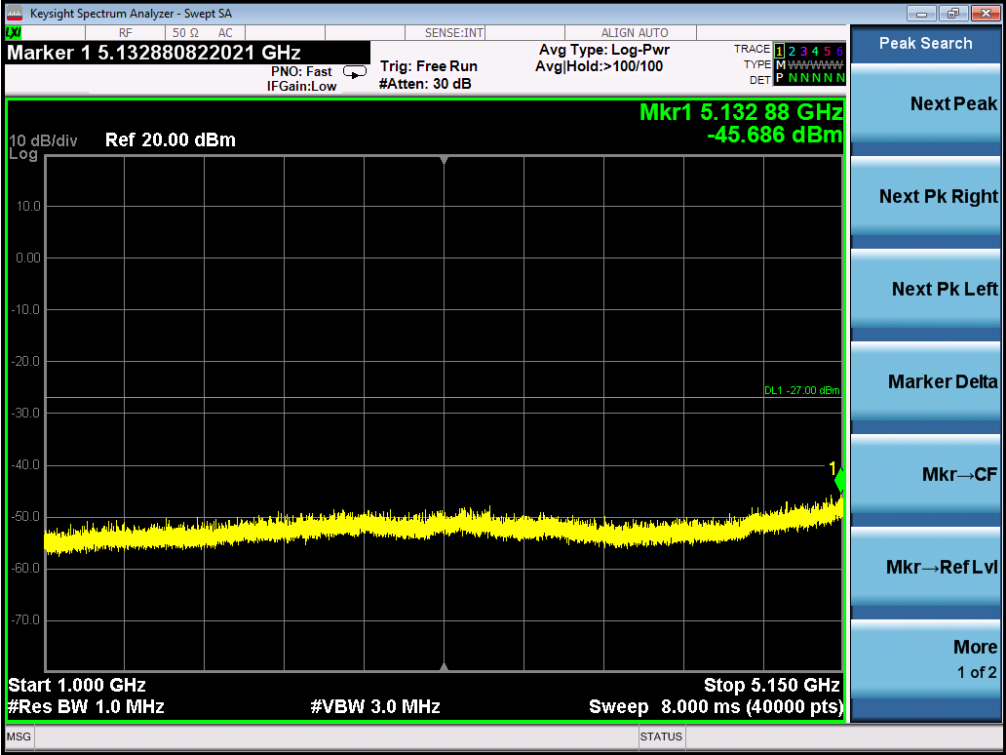
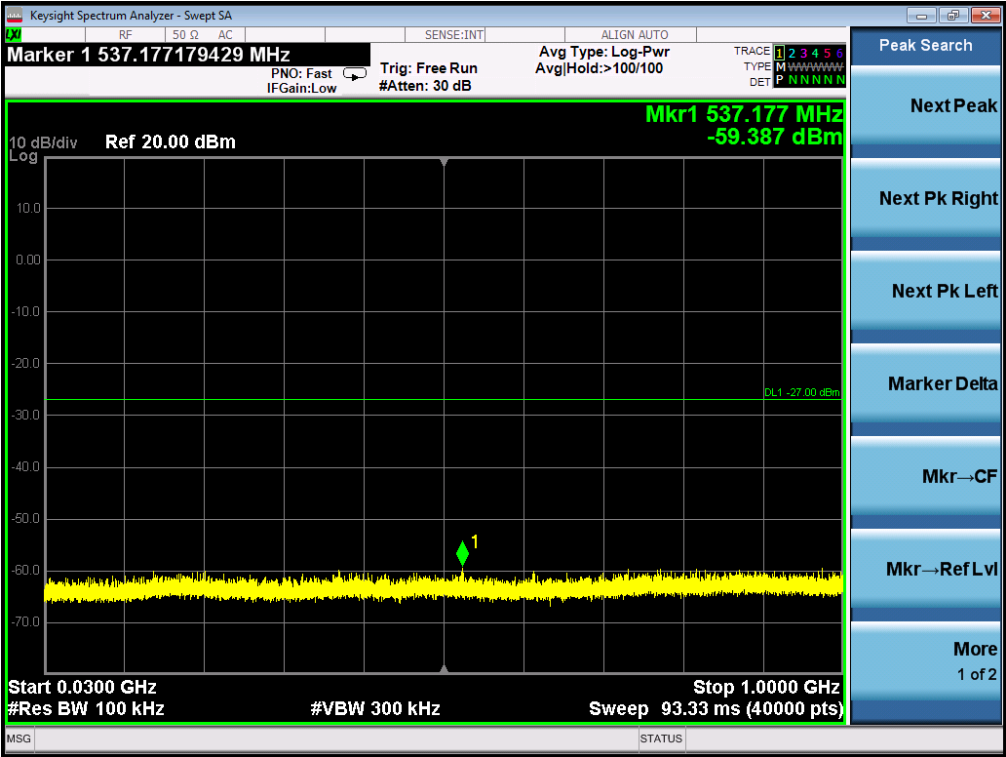
FOR 802.11A20 MODULATION

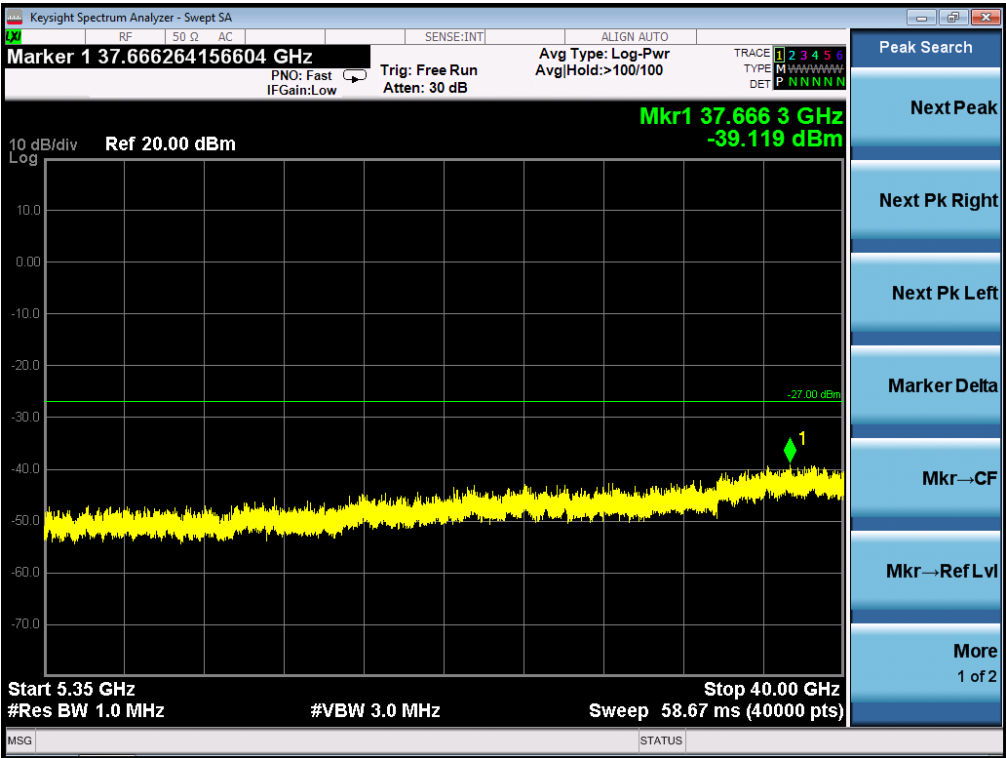
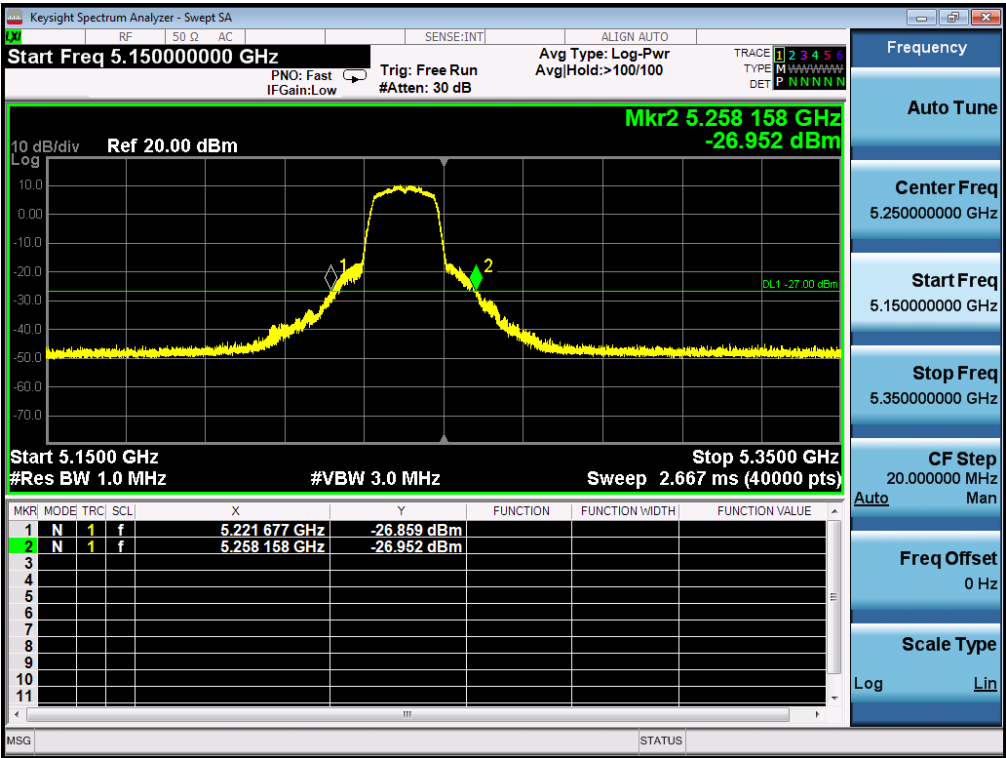
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5180MHz





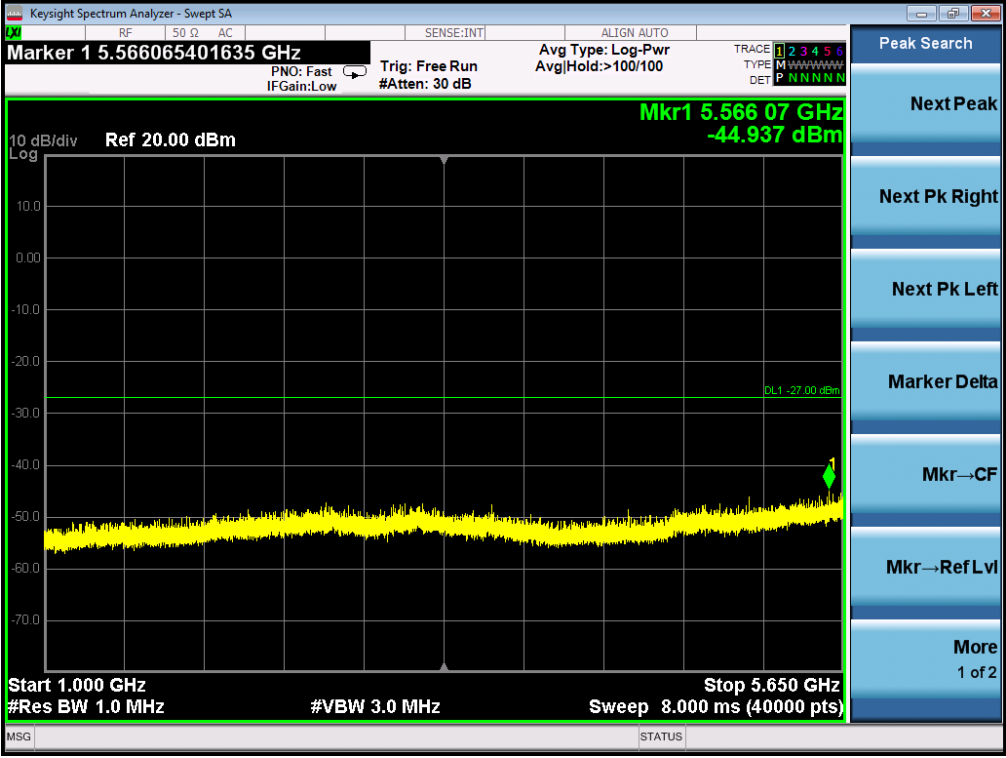
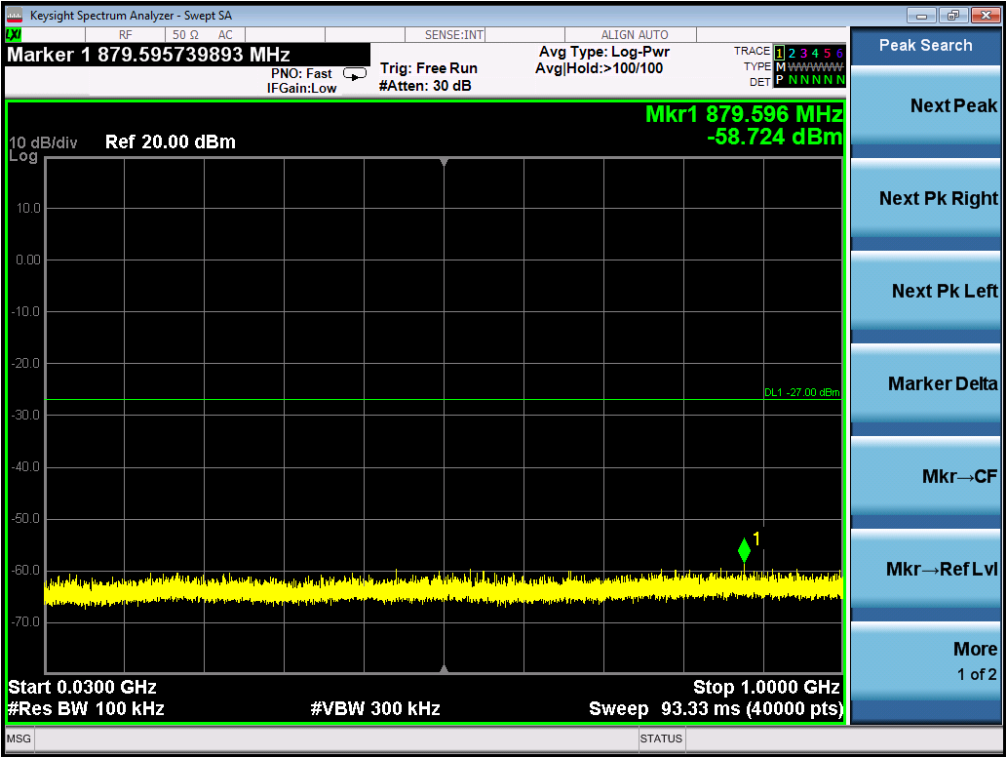
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5240MHz

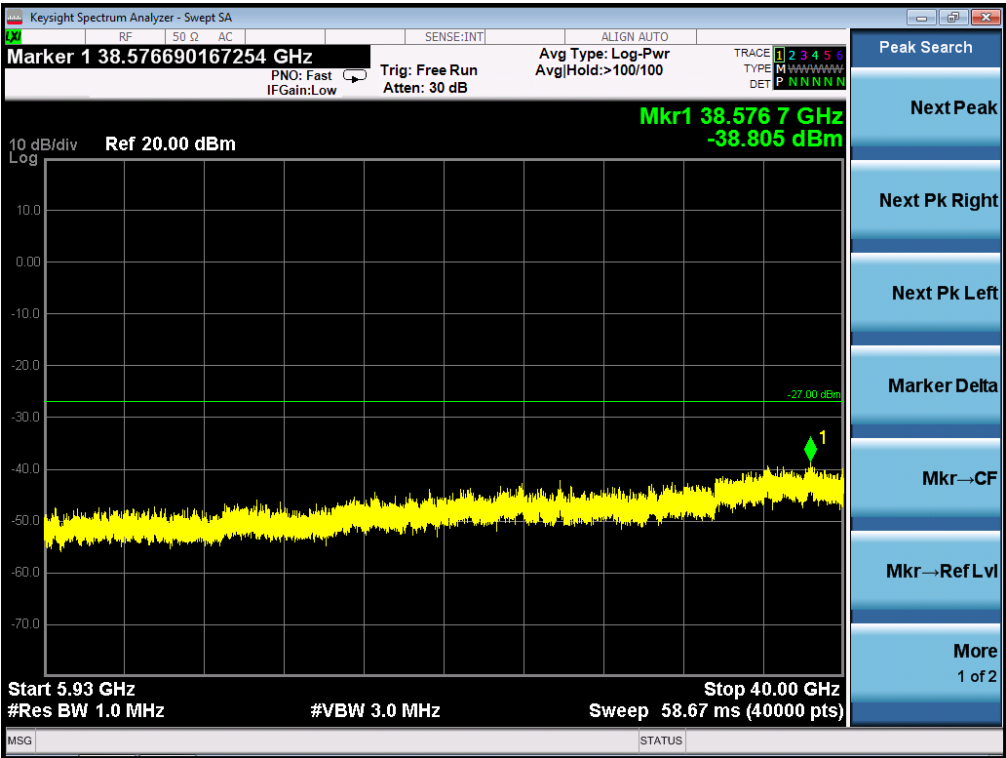
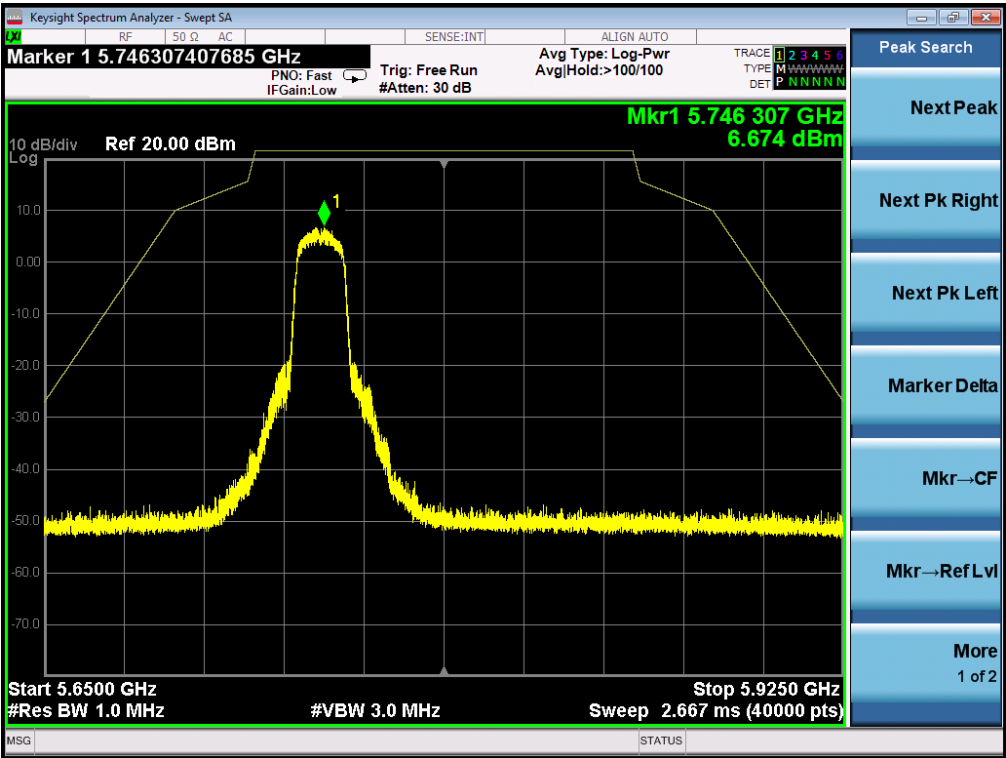




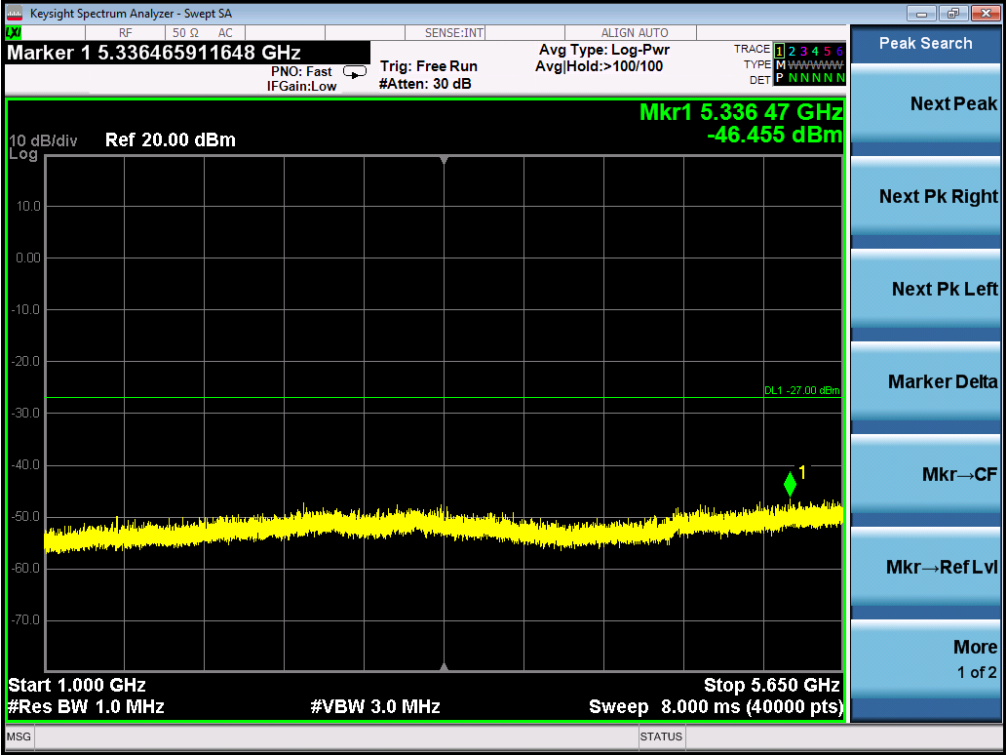
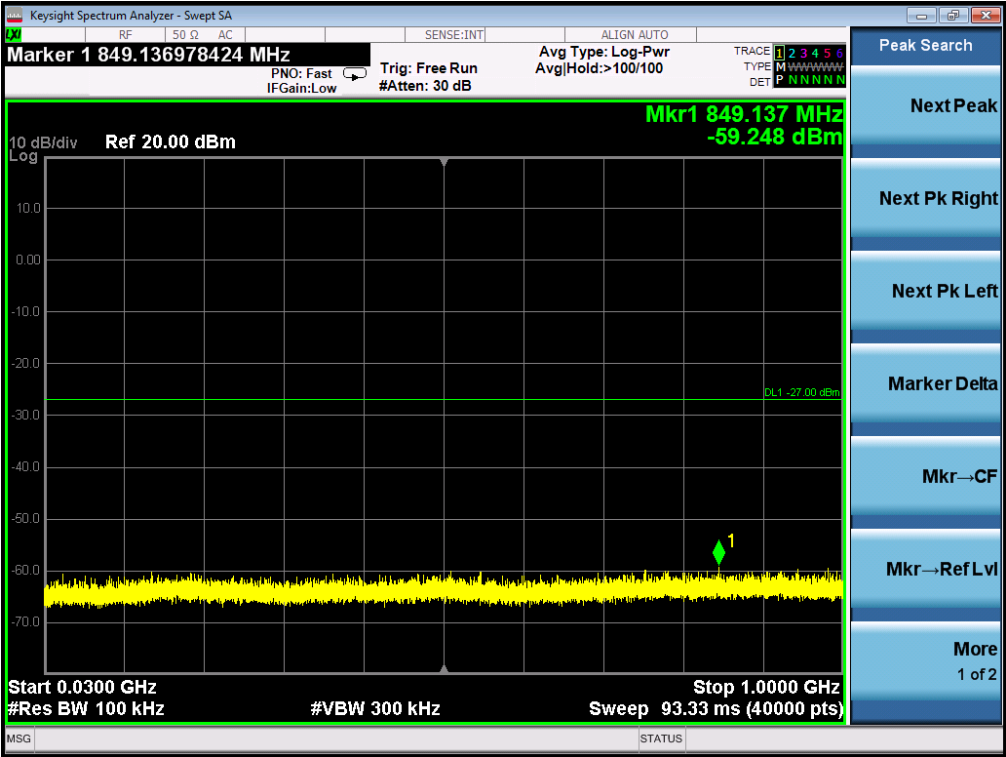


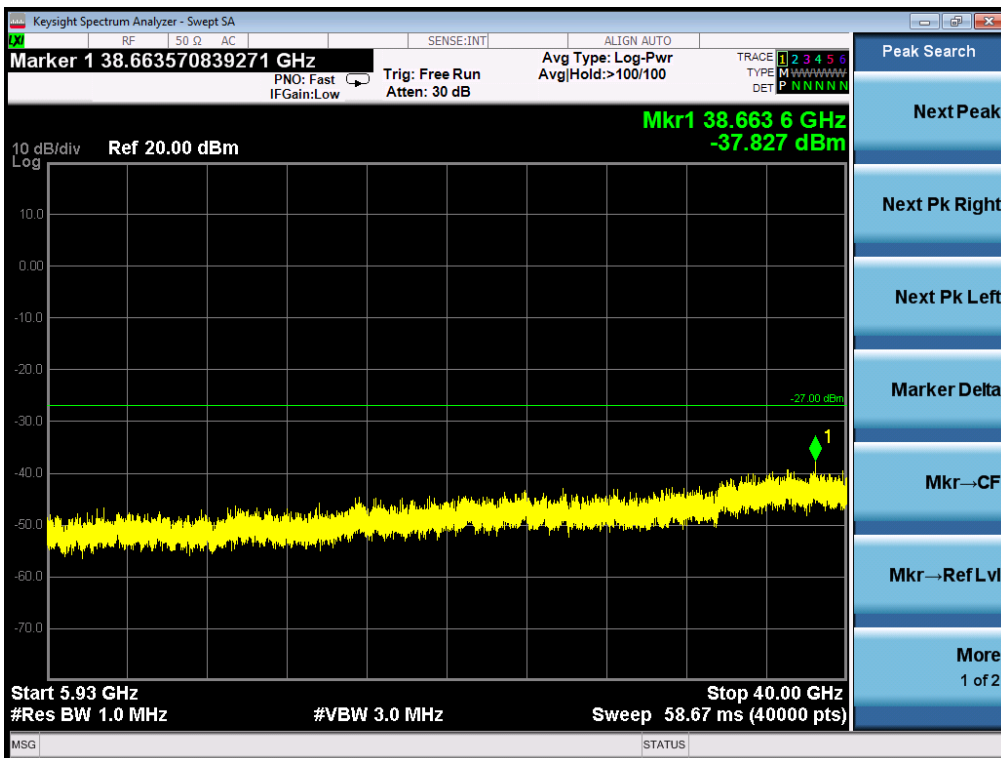
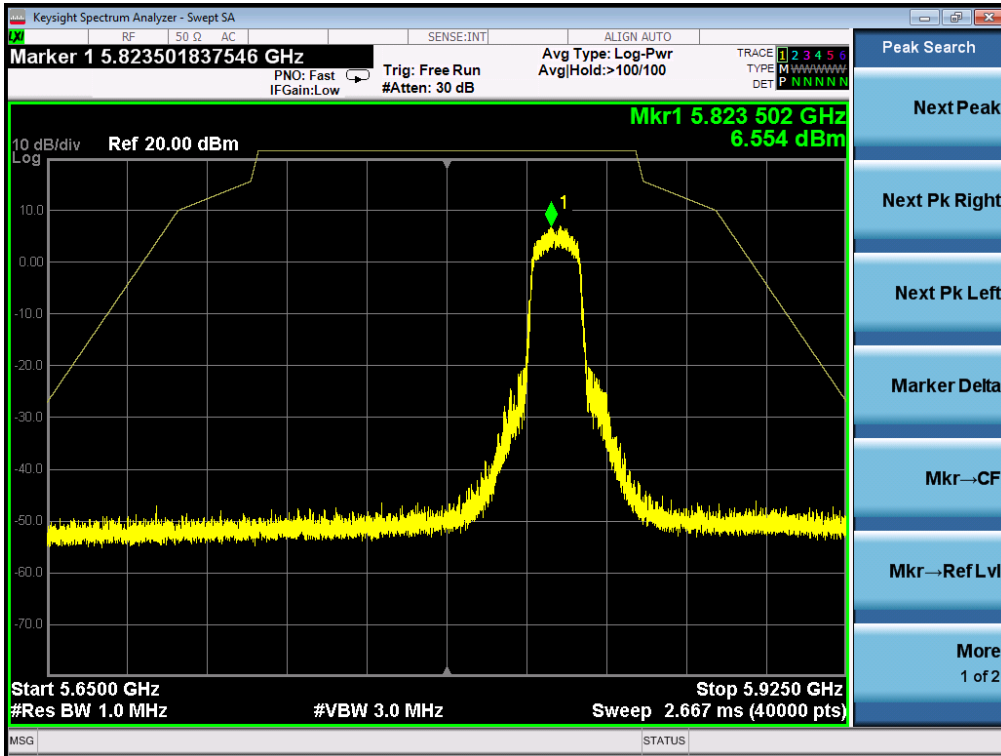
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5745MHz





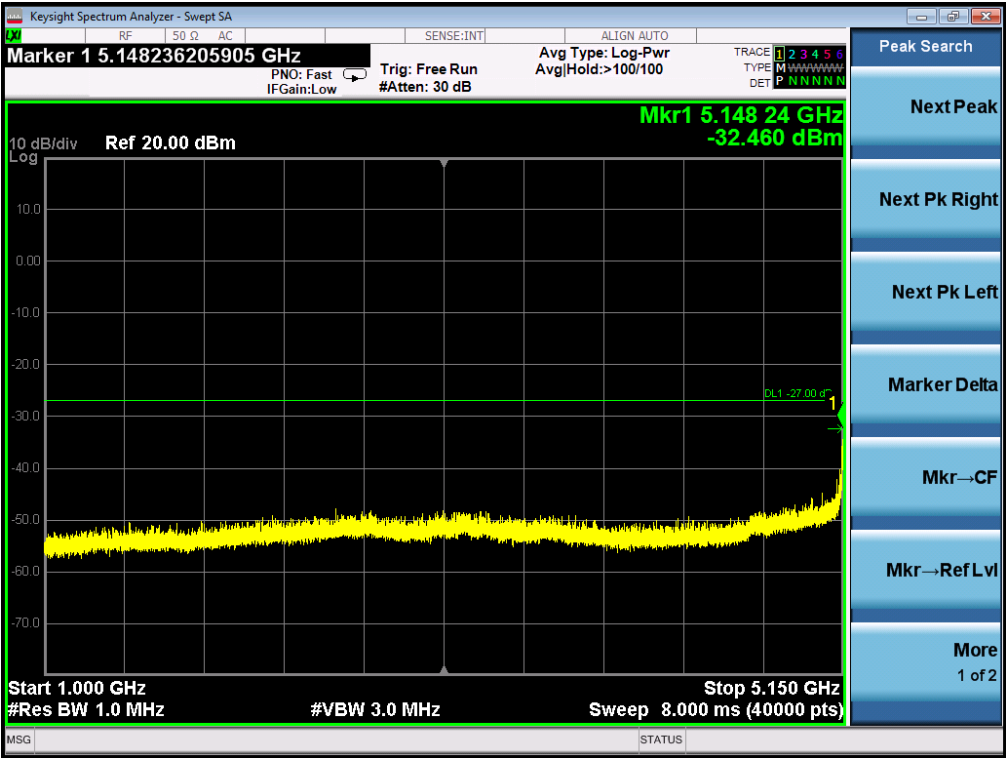
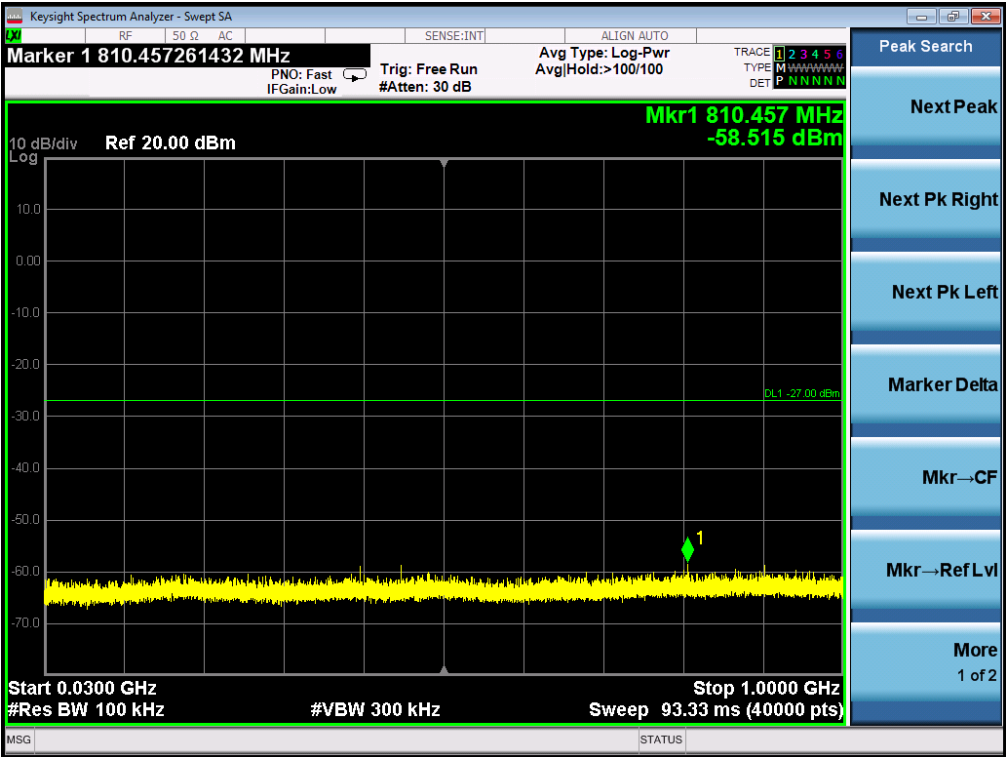
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5825MHz

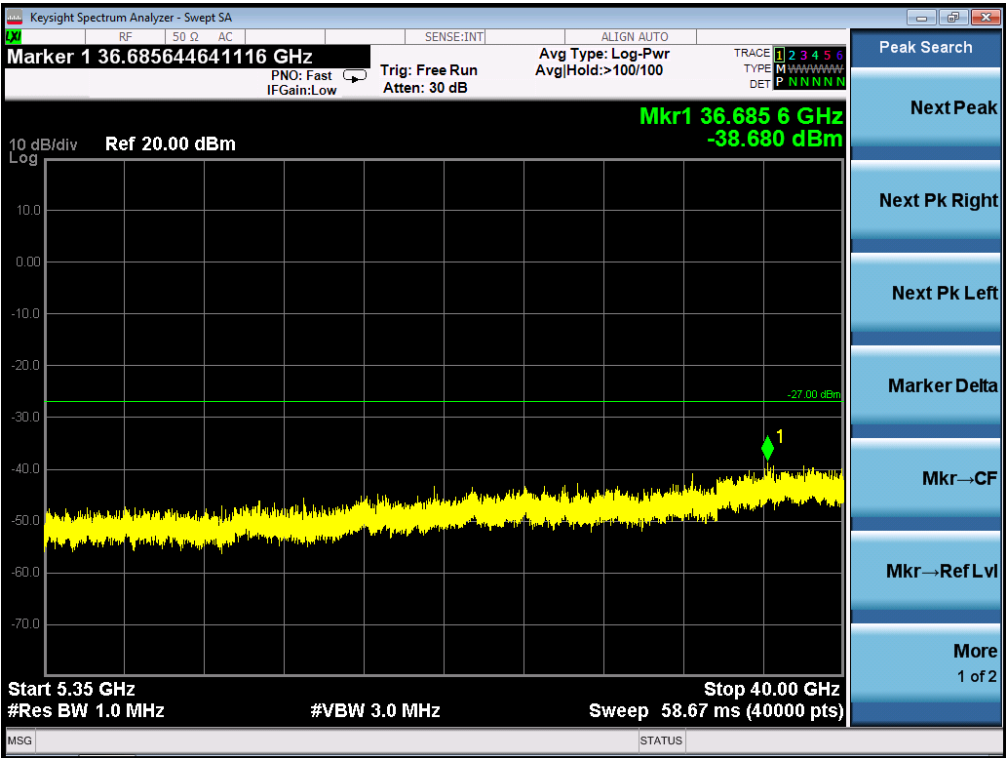
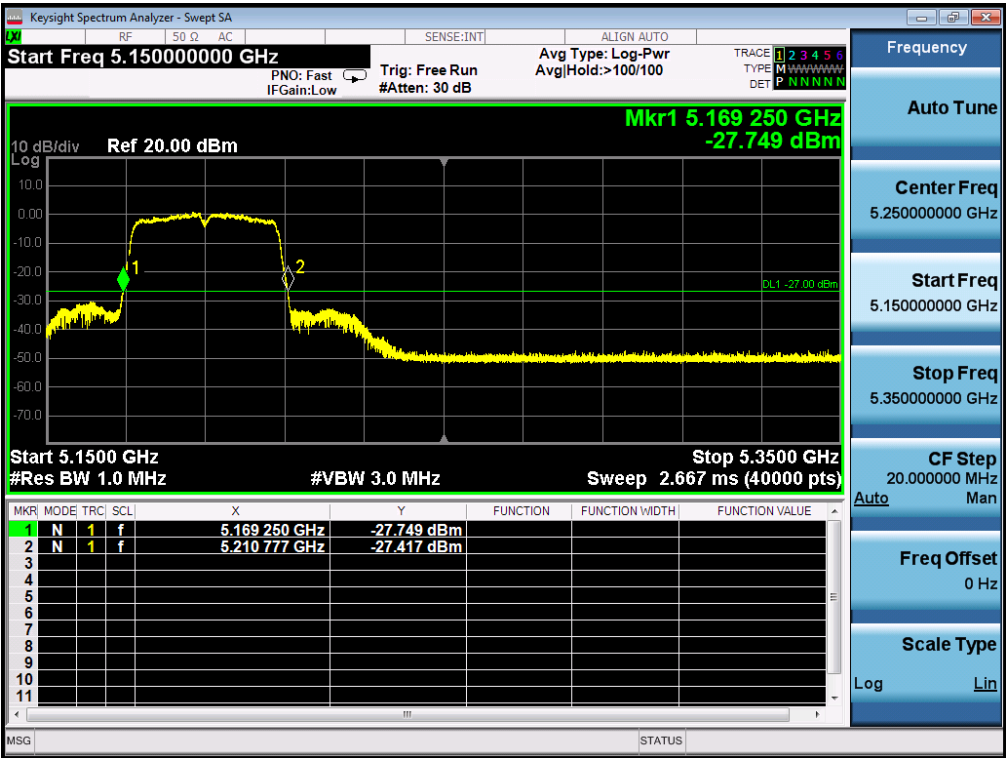




FOR 802.11N40 MODULATION

TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5190MHz





Keysight Spectrum Analyzer - Swept SA

Marker 1 942.938323458 MHz

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 NNNNN

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

Mkr→Ref Lvl

More  
1 of 2

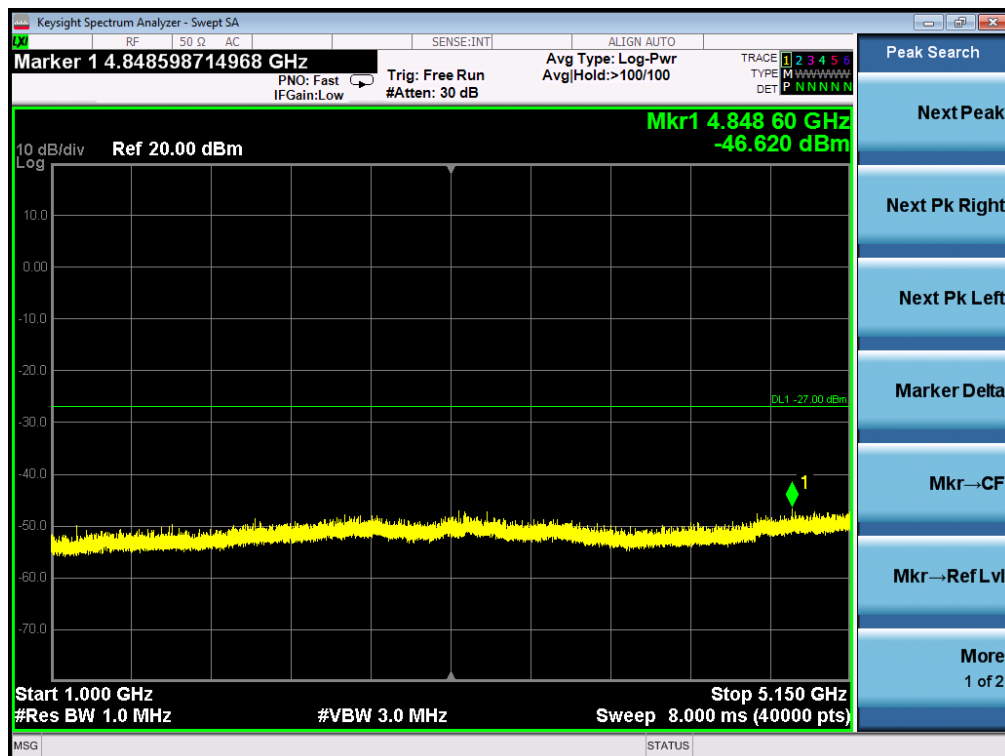
10 dB/div Ref 20.00 dBm

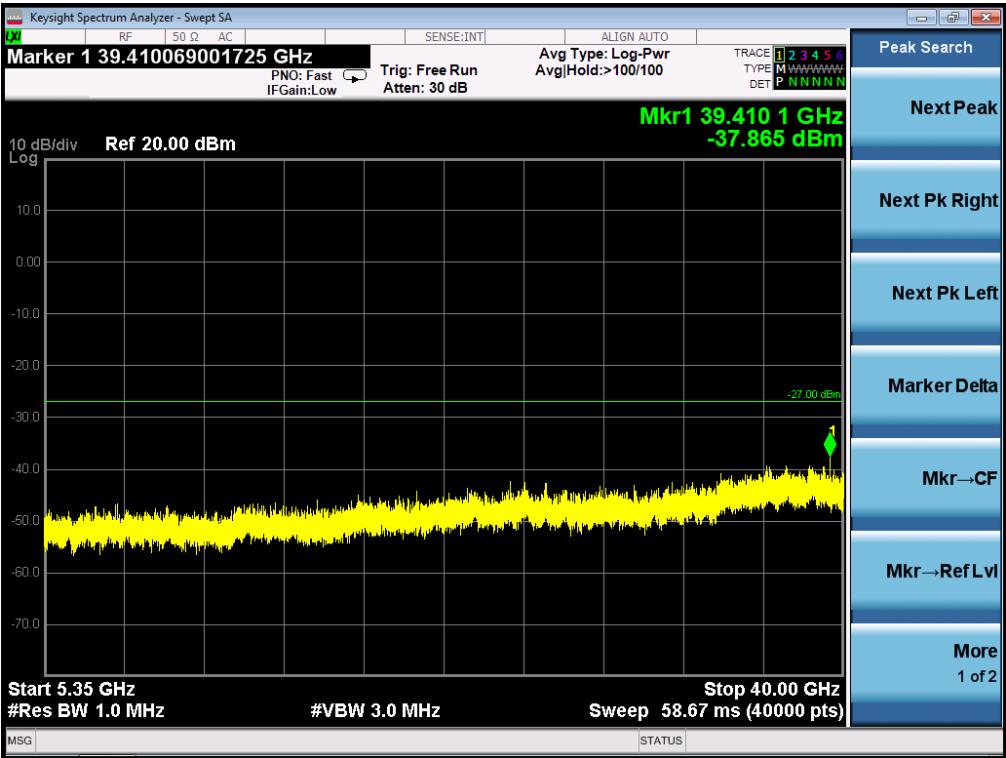
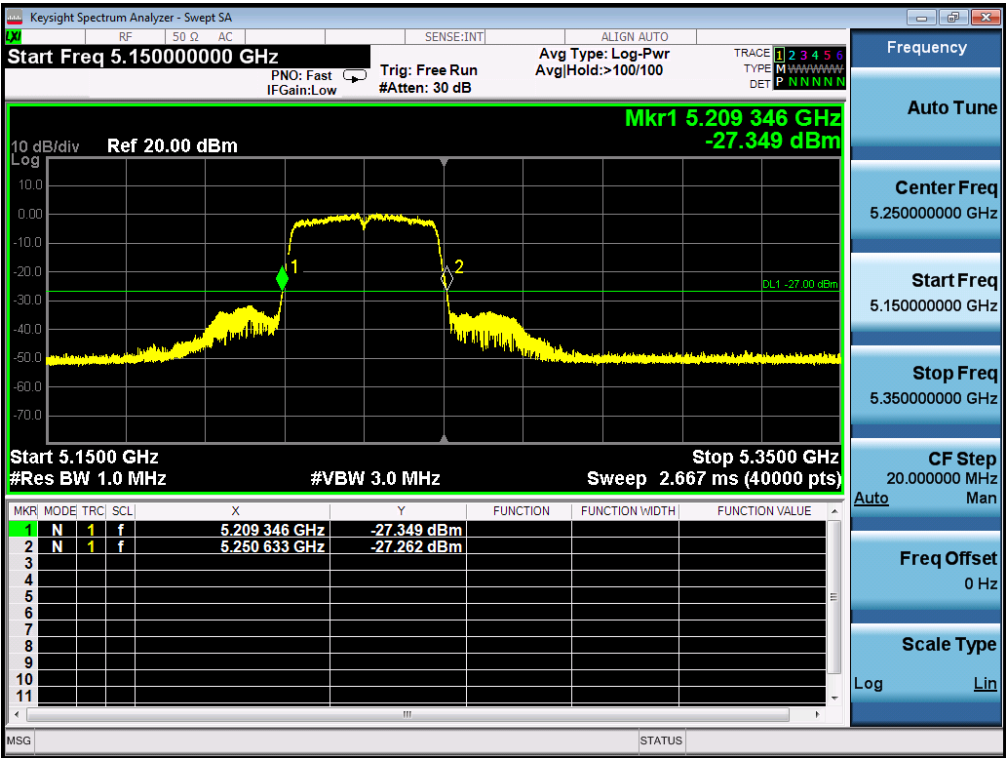
Mkr1 942.938 MHz  
-58.495 dBm

DL1 -27.00 dBm

Start 0.0300 GHz Stop 1.0000 GHz  
#Res BW 100 kHz #VBW 300 kHz Sweep 93.33 ms (40000 pts)

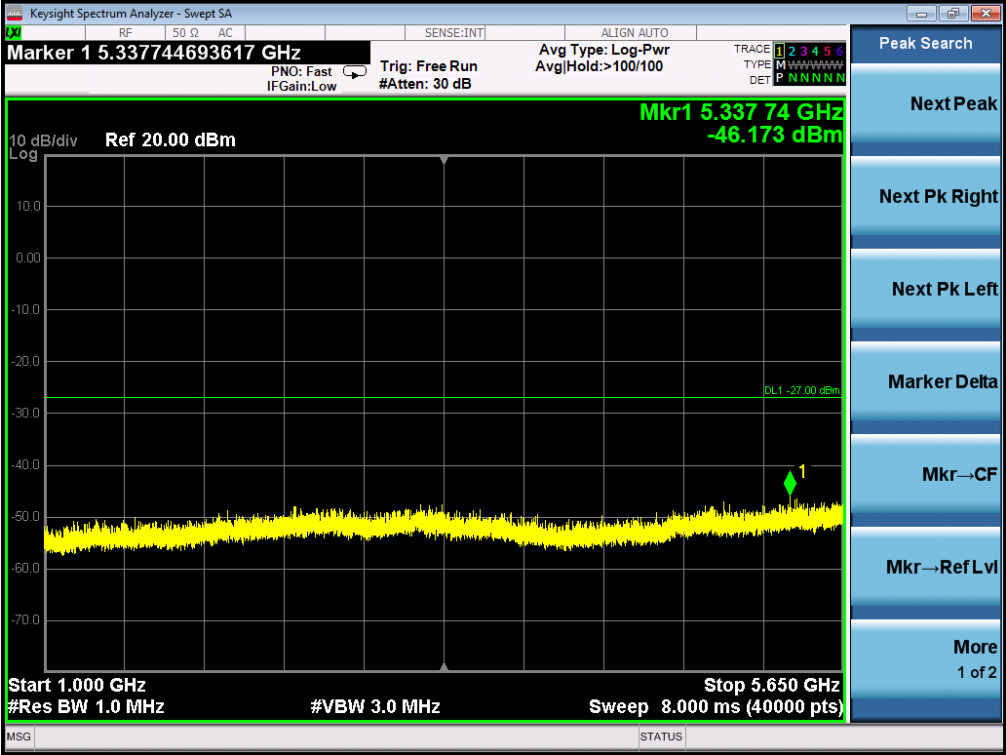
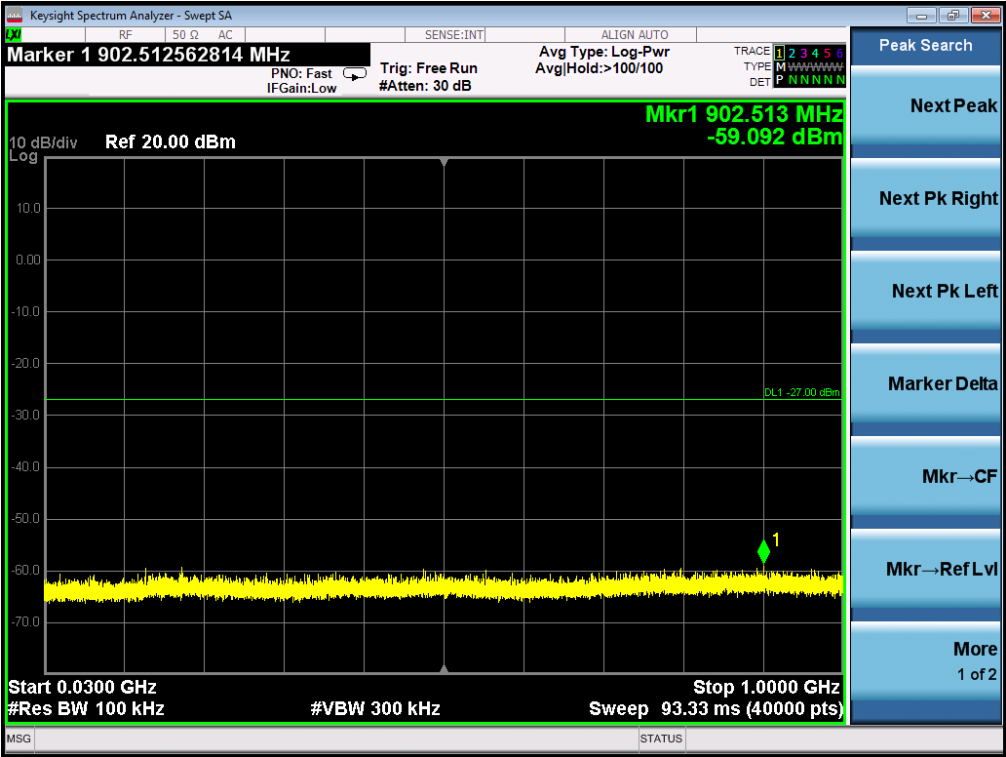
MSG STATUS

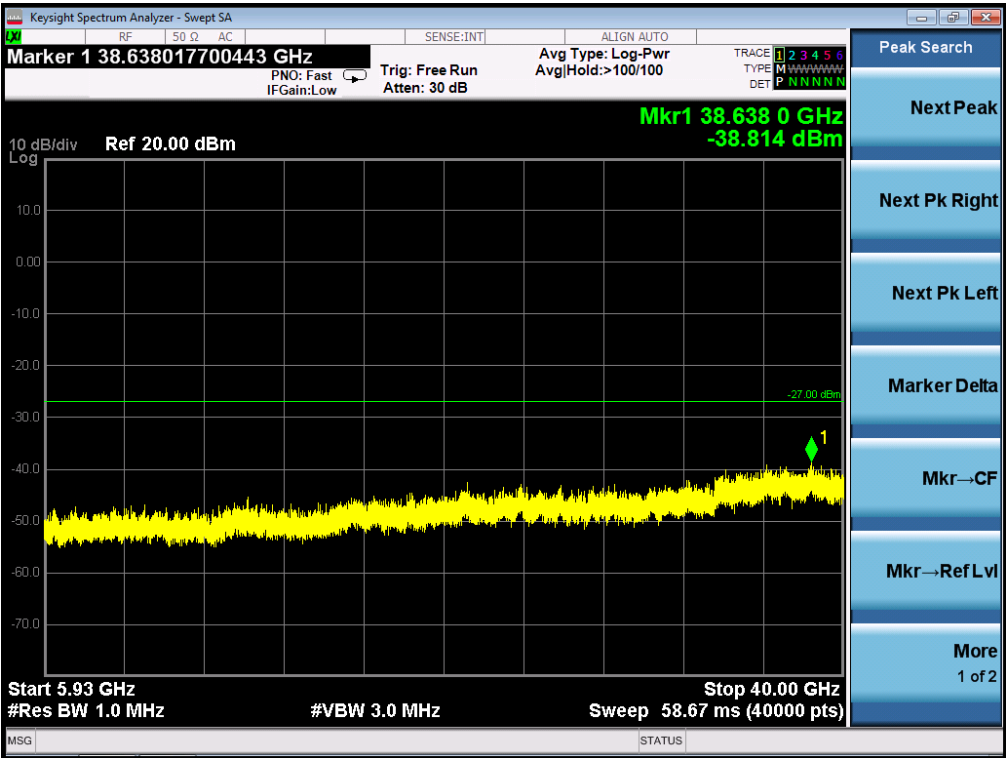
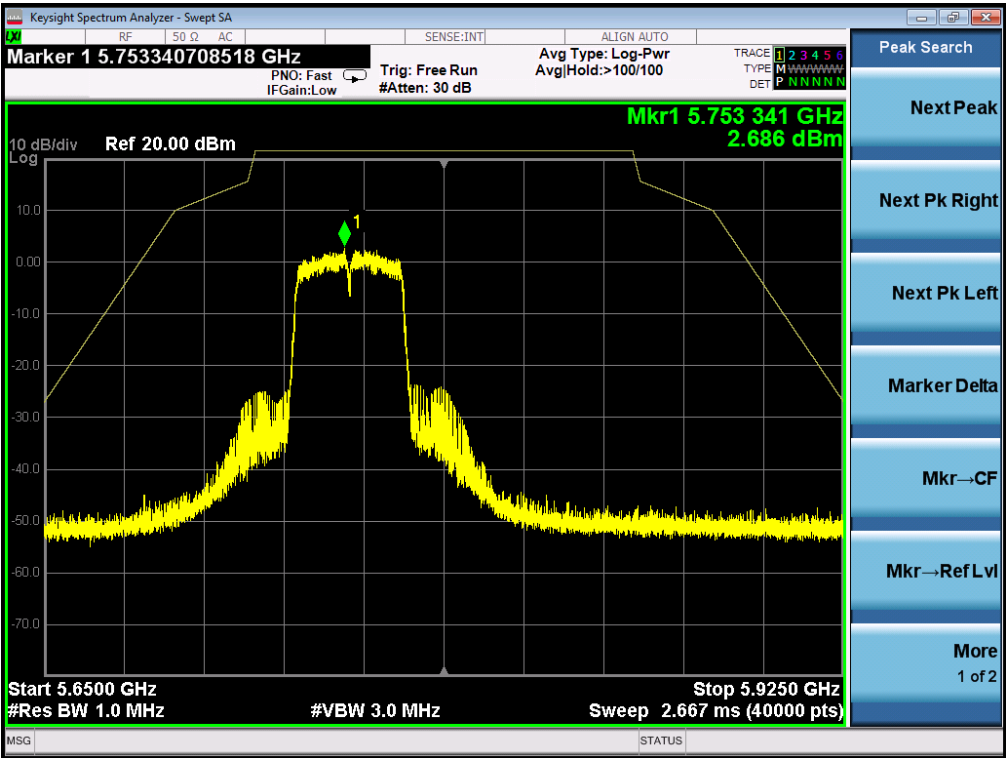




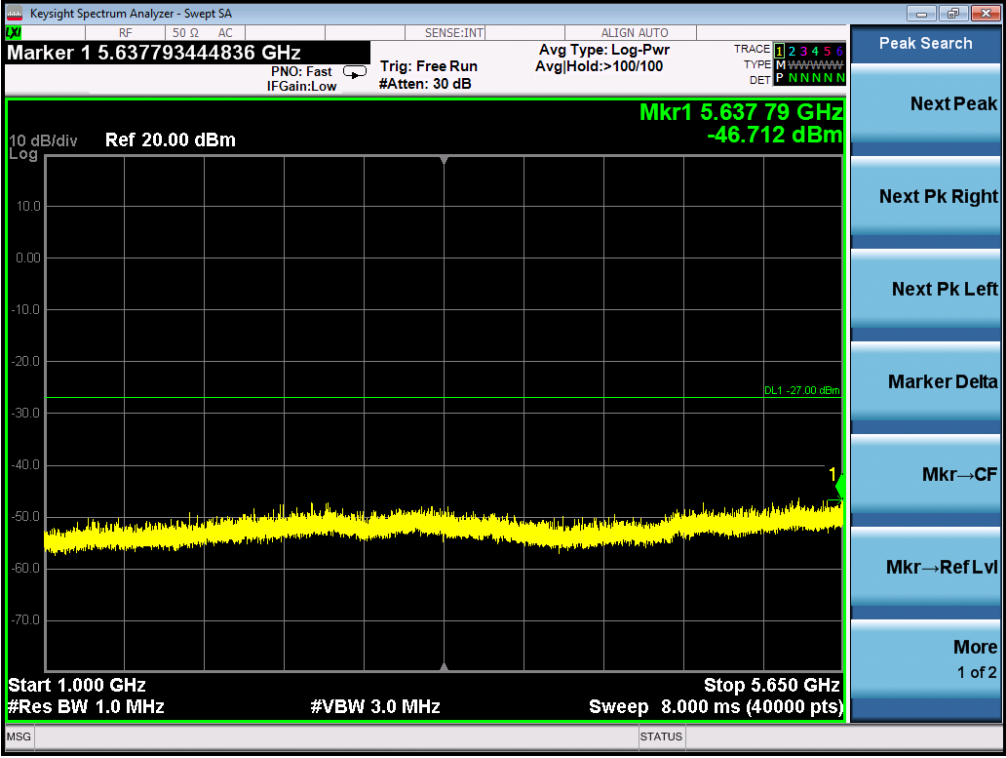
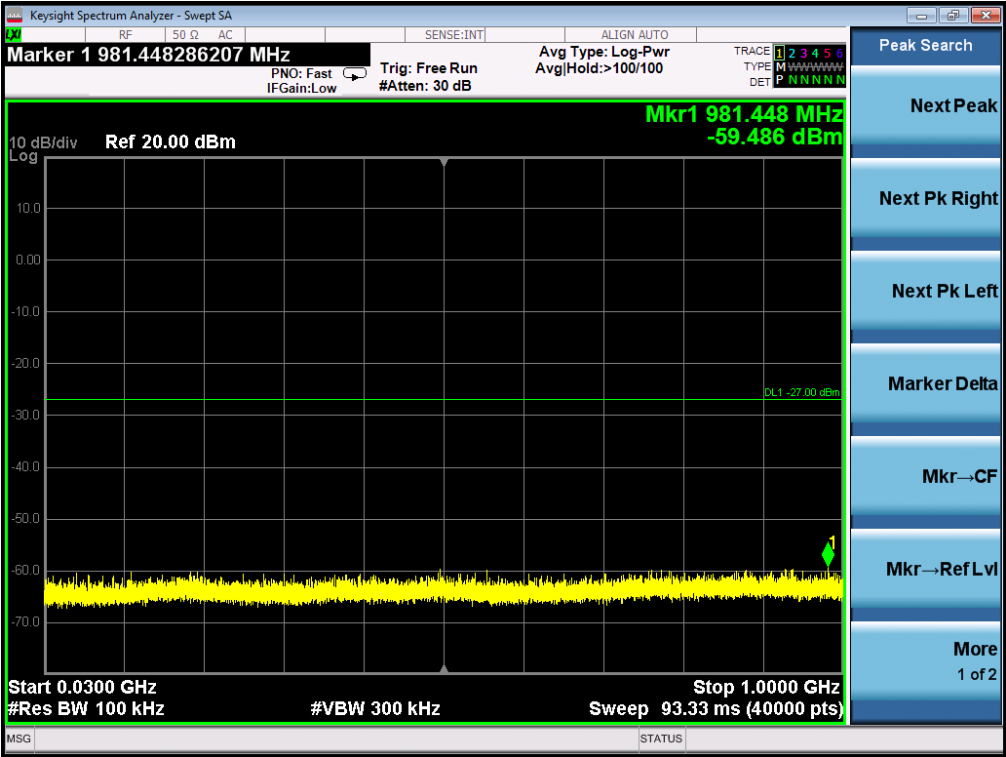


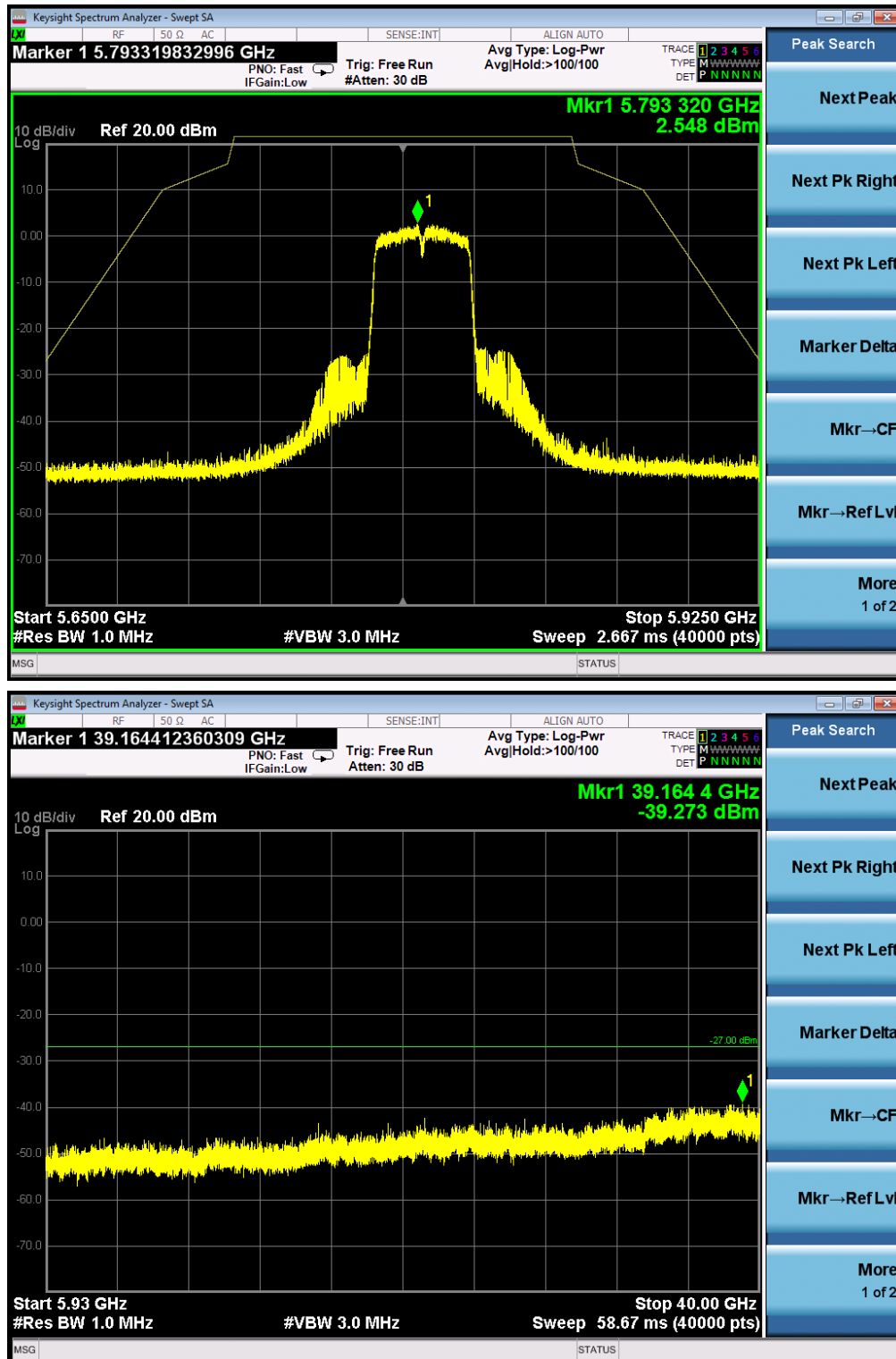
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5755MHz





TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5795M





Note: All the 20MHz bandwidth modulation had been tested, the 802.11a20 was the worst case and record in his test report. All the 40MHz bandwidth modulation had been tested, the 802.11N40 was the worst case and record in his test report.

Two transmit chains had been tested, the chain 1 was the worst case and record in the test report.

The spurious emission at chain 1 is more than 3dB below the limits, so the MIMO results for the spurious emissions are comply with the requirement.

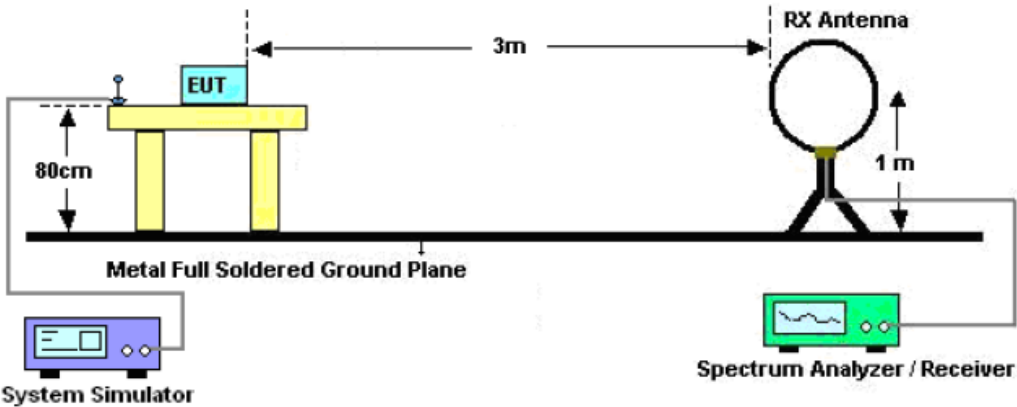
## 12. RADIATED EMISSION

### 12.1. MEASUREMENT PROCEDURE

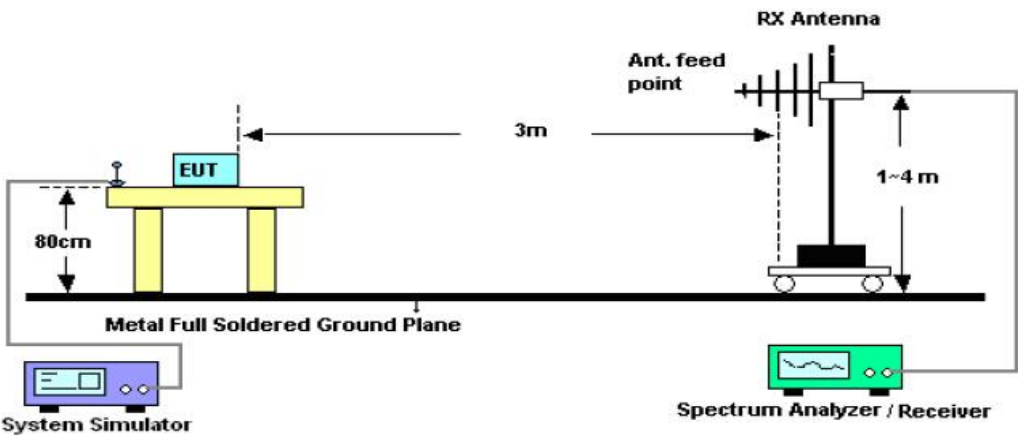
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3M VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

12.2. TEST SETUP

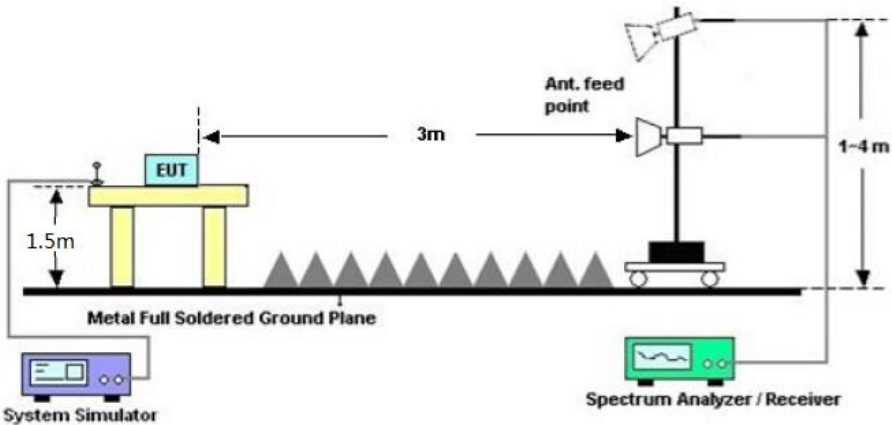
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



### 12.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested For restricted band radiated emission,  
the test records reported below are the worst result compared to other modes.

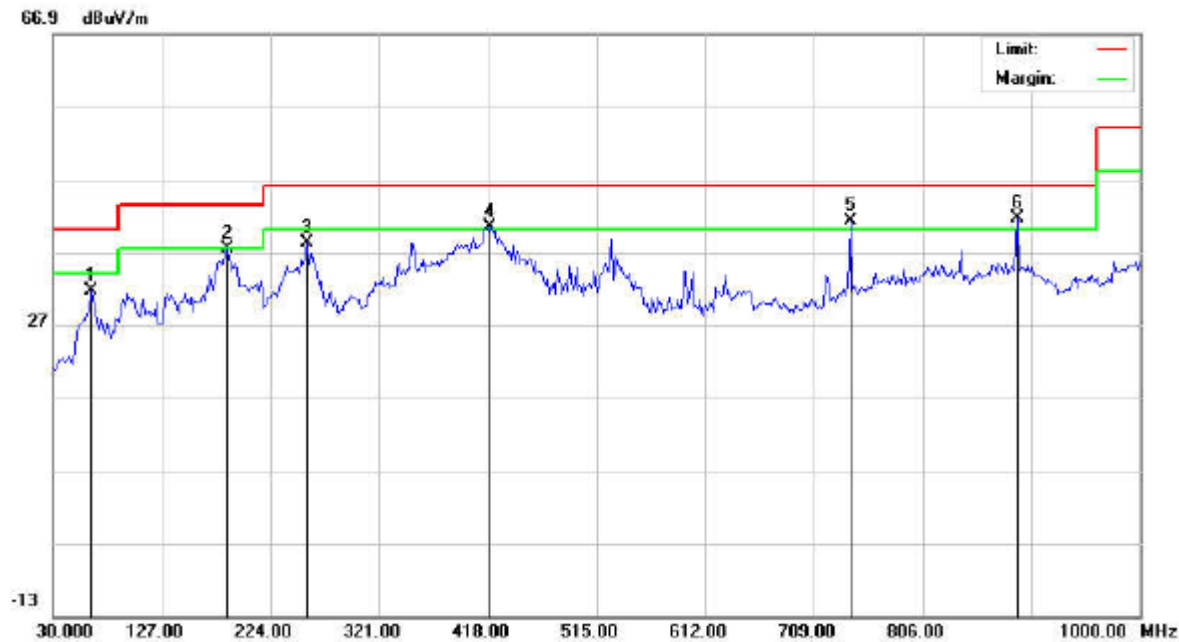
### 12.4. TEST RESULT

#### RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

EUT	LED Projector	Model Name	XK03S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal

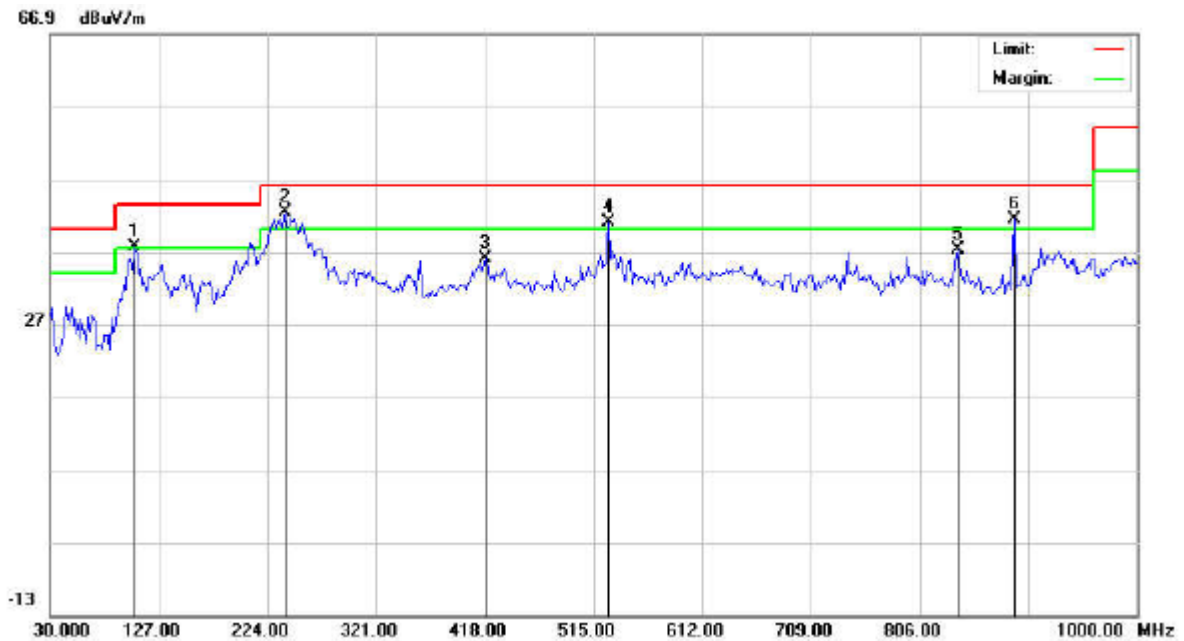


No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		63.9500	13.50	18.17	31.67	40.00	-8.33	peak			
2		185.1999	20.57	16.85	37.42	43.50	-6.08	peak			
3		256.3333	19.88	18.37	38.25	46.00	-7.75	peak			
4	!	419.6166	17.09	23.37	40.46	46.00	-5.54	peak			
5	!	741.3333	12.20	29.08	41.28	46.00	-4.72	peak			
6	*	890.0665	10.01	31.57	41.58	46.00	-4.42	peak			

RESULT: PASS



EUT	LED Projector	Model Name	XK03S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	!	105.9832	21.00	16.60	37.60	43.50	-5.90	peak			
2	*	240.1665	23.70	18.66	42.36	46.00	-3.64	peak			
3		418.0000	12.60	23.34	35.94	46.00	-10.06	peak			
4	!	527.9331	15.50	25.54	41.04	46.00	-4.96	peak			
5		839.9500	6.24	30.93	37.17	46.00	-8.83	peak			
6	!	890.0665	9.92	31.57	41.49	46.00	-4.51	peak			

## RESULT: PASS

**Note:** All test channels had been tested. The 802.11a20 at 5180MHz is the worst case and recorded in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Limit-Level.

The "Factor" value can be calculated automatically by software of measurement system.

**RADIATED EMISSION ABOVE 1GHZ**

<b>EUT</b>	LED Projector	<b>Model Name</b>	XK03S
<b>Temperature</b>	25°C	<b>Relative Humidity</b>	55.4%
<b>Pressure</b>	960hPa	<b>Test Voltage</b>	Normal Voltage
<b>Test Mode</b>	802.11a20 5180MHz	<b>Antenna</b>	Horizontal/Vertical

**RADIATED EMISSION ABOVE 1GHZ–Horizontal**

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.044	42.60	9.14	51.74	74.00	-22.26	peak
10360.044	38.36	9.14	47.50	54.00	-6.50	AVG
15540.066	34.82	10.22	45.04	74.00	-28.96	peak
15540.066	29.78	10.22	40.00	54.00	-14.00	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

**RADIATED EMISSION ABOVE 1GHZ–Vertical**

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.044	46.33	9.14	55.47	74.00	-18.53	peak
10360.044	38.55	9.14	47.69	54.00	-6.31	AVG
15540.066	36.76	10.22	46.98	74.00	-27.02	peak
15540.066	32.82	10.22	43.04	54.00	-10.96	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

<b>EUT</b>	LED Projector	<b>Model Name</b>	XK03S
<b>Temperature</b>	25°C	<b>Relative Humidity</b>	55.4%
<b>Pressure</b>	960hPa	<b>Test Voltage</b>	Normal Voltage
<b>Test Mode</b>	802.11a20 5240MHz	<b>Antenna</b>	Horizontal/Vertical

**RADIATED EMISSION ABOVE 1GHZ–Horizontal**

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.044	42.44	9.27	51.71	74.00	-22.29	peak
10480.044	36.81	9.27	46.08	54.00	-7.92	AVG
15720.066	36.66	10.38	47.04	74.00	-26.96	peak
15720.066	34.56	10.38	44.94	54.00	-9.06	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

**RADIATED EMISSION ABOVE 1GHZ–Vertical**

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.044	43.47	9.27	52.74	74.00	-21.26	peak
10480.044	38.04	9.27	47.31	54.00	-6.69	AVG
15720.066	37.31	10.38	47.69	74.00	-26.31	peak
15720.066	32.70	10.38	43.08	54.00	-10.92	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

<b>EUT</b>	LED Projector	<b>Model Name</b>	XK03S
<b>Temperature</b>	25°C	<b>Relative Humidity</b>	55.4%
<b>Pressure</b>	960hPa	<b>Test Voltage</b>	Normal Voltage
<b>Test Mode</b>	802.11a20 5745MHz	<b>Antenna</b>	Horizontal/Vertical

## RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.042	44.29	9.42	53.71	74.00	-20.29	peak
11490.042	39.27	9.42	48.69	54.00	-5.31	AVG
17235.063	34.49	10.51	45.00	74.00	-29.00	peak
17235.063	32.43	10.51	42.94	54.00	-11.06	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.042	45.29	9.42	54.71	74.00	-19.29	peak
11490.042	39.22	9.42	48.64	54.00	-5.36	AVG
17235.063	34.54	10.51	45.05	74.00	-28.95	peak
17235.063	32.10	10.51	42.61	54.00	-11.39	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

<b>EUT</b>	LED Projector	<b>Model Name</b>	XK03S
<b>Temperature</b>	25°C	<b>Relative Humidity</b>	55.4%
<b>Pressure</b>	960hPa	<b>Test Voltage</b>	Normal Voltage
<b>Test Mode</b>	802.11a20 5825MHz	<b>Antenna</b>	Horizontal/Vertical

## RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.042	42.85	9.62	52.47	74.00	-21.53	peak
11650.042	35.99	9.62	45.61	54.00	-8.39	AVG
17475.063	37.31	10.75	48.06	74.00	-25.94	peak
17475.063	34.91	10.75	45.66	54.00	-8.34	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.042	43.02	9.62	52.64	74.00	-21.36	peak
11650.042	39.02	9.62	48.64	54.00	-5.36	AVG
17475.063	37.91	10.75	48.66	74.00	-25.34	peak
17475.063	33.97	10.75	44.72	54.00	-9.28	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

**Note:** All the case had been tested. The 802.11a modulation is the worst case and recorded in the test report. Other frequencies radiation emission from 1GHz to 40GHz at least have 20dB margin and not recorded in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Limit-Level.

The “Factor” value can be calculated automatically by software of measurement system.

### 13. BAND EDGE EMISSION

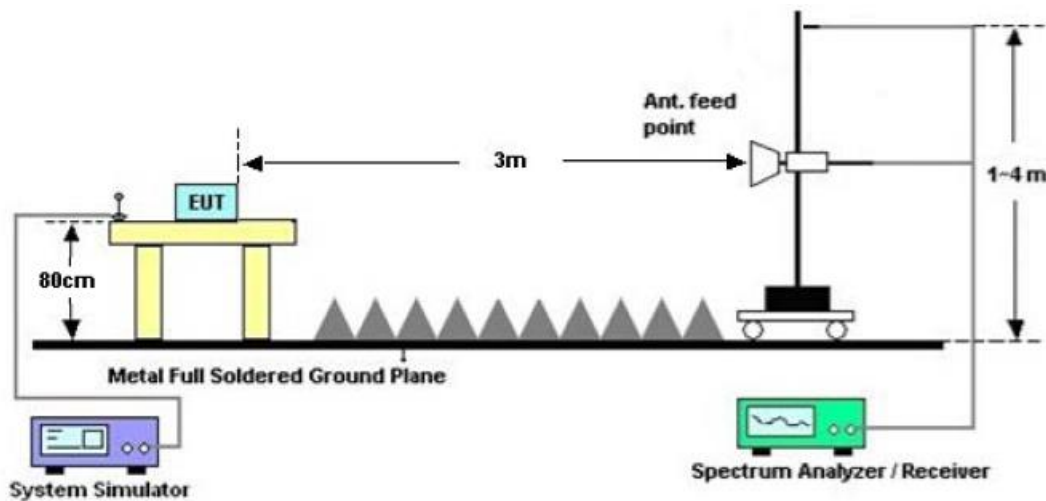
#### 13.1. MEASUREMENT PROCEDURE

1. The EUT operates at transmitting mode. The operate channel is tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.
2. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:  
(a) PEAK: RBW=1MHz, VBW=3MHz / Sweep=AUTO  
(b) AVERAGE: RBW=1MHz ; VBW=1/on time(1KHz) / Sweep=AUTO
3. Other procedures refer to clause 11.2.

**Note:**

1. Factor=Antenna Factor + Cable loss - Amplifier gain. Field Strength=Factor + Reading level
2. The factor had been edited in the "Input Correction" of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB( $\mu$ V) to represent the Amplitude. Use the F dB( $\mu$ V/m) to represent the Field Strength. So A=F.
3. Only the data of band edge emission at the restricted band 4.5GHz-5.15GHz record in the report. Other restricted band 5.35GHz-5.46GHz and 7.25GHz-7.77GHz were considered as ambient noise. No recording in the test report.

#### 13.2. TEST SET-UP



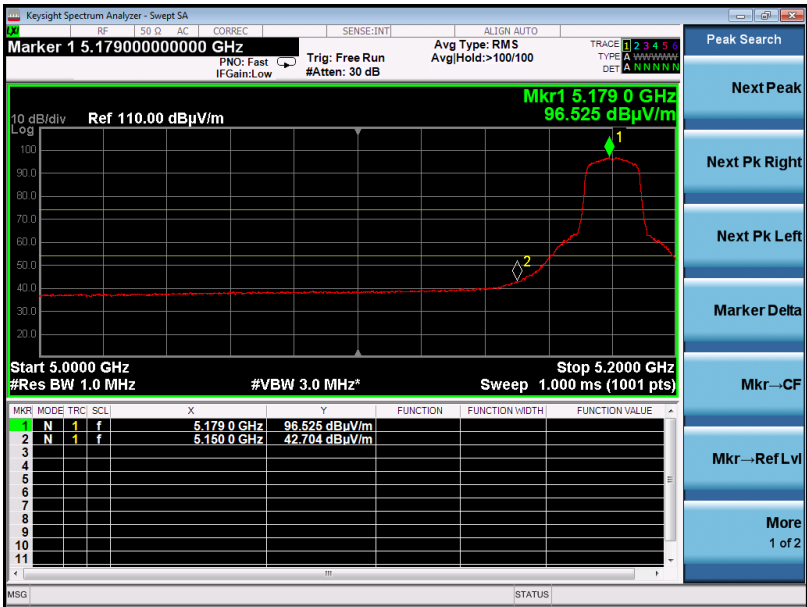
13.3. TEST RESULT

EUT	LED Projector	Model Name	XK03S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal

PK Value



AV Value



EUT	LED Projector	Model Name	XK03S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical

PK Value



AV Value





EUT	LED Projector	Model Name	XK03S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Horizontal

PK Value



AV Value



EUT	LED Projector	Model Name	XK03S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Vertical

PK Value



AV Value



**RESULT: PASS**

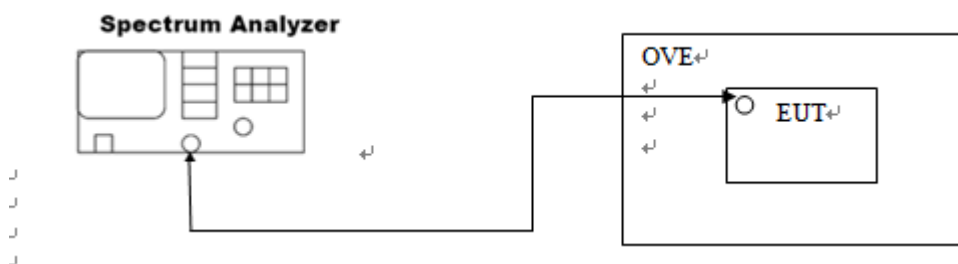
Note: All the 20MHz bandwidth modulation had been tested, the 802.11a20 was the worst case and record in his test report. All the 40MHz bandwidth modulation had been tested, the 802.11N40 was the worst case and record in his test report.

## 14. FREQUENCY STABILITY

### 14.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the operation frequency.
3. Set SPA Centre Frequency = Operation Frequency. SPAN=enough to measure the emission is maintained within the band
4. Set SPA Trace 1 Max hold, then View.
5. Extreme temperature rule is -10°C~60°C.

### 14.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



**14.3. MEASUREMENT RESULTS**

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
802.11a	- 10°C	5180	within the band	PASS
	0°C	5180	within the band	PASS
	10°C	5180	within the band	PASS
	20°C	5180	within the band	PASS
	30°C	5180	within the band	PASS
	40°C	5180	within the band	PASS
	50°C	5180	within the band	PASS
	60°C	5180	within the band	PASS
	- 10°C	5240	within the band	PASS
	0°C	5240	within the band	PASS
	10°C	5240	within the band	PASS
	20°C	5240	within the band	PASS
	30°C	5240	within the band	PASS
	40°C	5240	within the band	PASS
	50°C	5240	within the band	PASS
	60°C	5240	within the band	PASS
	- 10°C	5745	within the band	PASS
	0°C	5745	within the band	PASS
	10°C	5745	within the band	PASS
	20°C	5745	within the band	PASS
	30°C	5745	within the band	PASS
	40°C	5745	within the band	PASS
	50°C	5745	within the band	PASS
	60°C	5240	within the band	PASS
	- 10°C	5825	within the band	PASS
	0°C	5825	within the band	PASS
	10°C	5825	within the band	PASS
	20°C	5825	within the band	PASS
	30°C	5825	within the band	PASS
	40°C	5825	within the band	PASS
	50°C	5825	within the band	PASS
	60°C	5825	within the band	PASS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
802.11n20	- 10°C	5180	within the band	PASS
	0°C	5180	within the band	PASS
	10°C	5180	within the band	PASS
	20°C	5180	within the band	PASS
	30°C	5180	within the band	PASS
	40°C	5180	within the band	PASS
	50°C	5180	within the band	PASS
	60°C	5180	within the band	PASS
	- 10°C	5240	within the band	PASS
	0°C	5240	within the band	PASS
	10°C	5240	within the band	PASS
	20°C	5240	within the band	PASS
	30°C	5240	within the band	PASS
	40°C	5240	within the band	PASS
	50°C	5240	within the band	PASS
	60°C	5240	within the band	PASS
	- 10°C	5745	within the band	PASS
	0°C	5745	within the band	PASS
	10°C	5745	within the band	PASS
	20°C	5745	within the band	PASS
	30°C	5745	within the band	PASS
	40°C	5745	within the band	PASS
	50°C	5745	within the band	PASS
	60°C	5240	within the band	PASS
	- 10°C	5825	within the band	PASS
	0°C	5825	within the band	PASS
	10°C	5825	within the band	PASS
	20°C	5825	within the band	PASS
	30°C	5825	within the band	PASS
	40°C	5825	within the band	PASS
	50°C	5825	within the band	PASS
	60°C	5825	within the band	PASS

Test Mode	Temperature	Measurement Frequency (MHz)	Result	Conclusion
802.11n40	- 10°C	5190	within the band	PASS
	0°C	5190	within the band	PASS
	10°C	5190	within the band	PASS
	20°C	5190	within the band	PASS
	30°C	5190	within the band	PASS
	40°C	5190	within the band	PASS
	50°C	5190	within the band	PASS
	60°C	5190	within the band	PASS
	- 10°C	5230	within the band	PASS
	0°C	5230	within the band	PASS
	10°C	5230	within the band	PASS
	20°C	5230	within the band	PASS
	30°C	5230	within the band	PASS
	40°C	5230	within the band	PASS
	50°C	5230	within the band	PASS
	60°C	5230	within the band	PASS
	- 10°C	5755	within the band	PASS
	0°C	5755	within the band	PASS
	10°C	5755	within the band	PASS
	20°C	5755	within the band	PASS
	30°C	5755	within the band	PASS
	40°C	5755	within the band	PASS
	50°C	5755	within the band	PASS
	60°C	5755	within the band	PASS
	- 10°C	5795	within the band	PASS
	0°C	5795	within the band	PASS
	10°C	5795	within the band	PASS
	20°C	5795	within the band	PASS
	30°C	5795	within the band	PASS
	40°C	5795	within the band	PASS
	50°C	5795	within the band	PASS
	60°C	5795	within the band	PASS

## 15. FCC LINE CONDUCTED EMISSION TEST

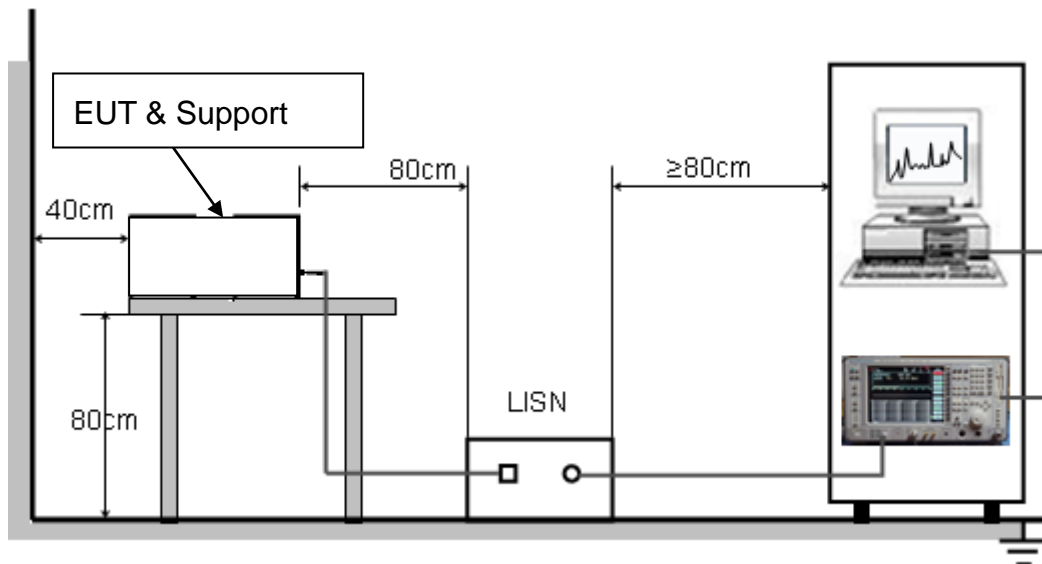
### 15.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.( dBuV)	Average( dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

### 15.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



### 15.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

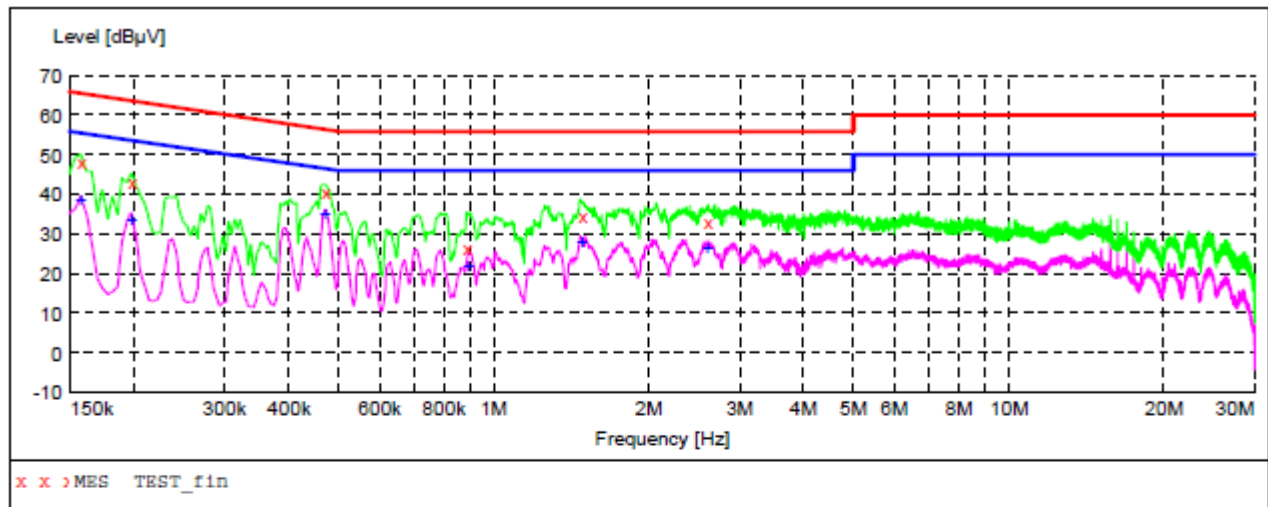
1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received charging voltage by adapter which received 120V/60Hz power by a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 15.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.



**15.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST****LINE CONDUCTED EMISSION TEST-L****MEASUREMENT RESULT: "TEST\_fin"**

8/28/2019 5:04PM

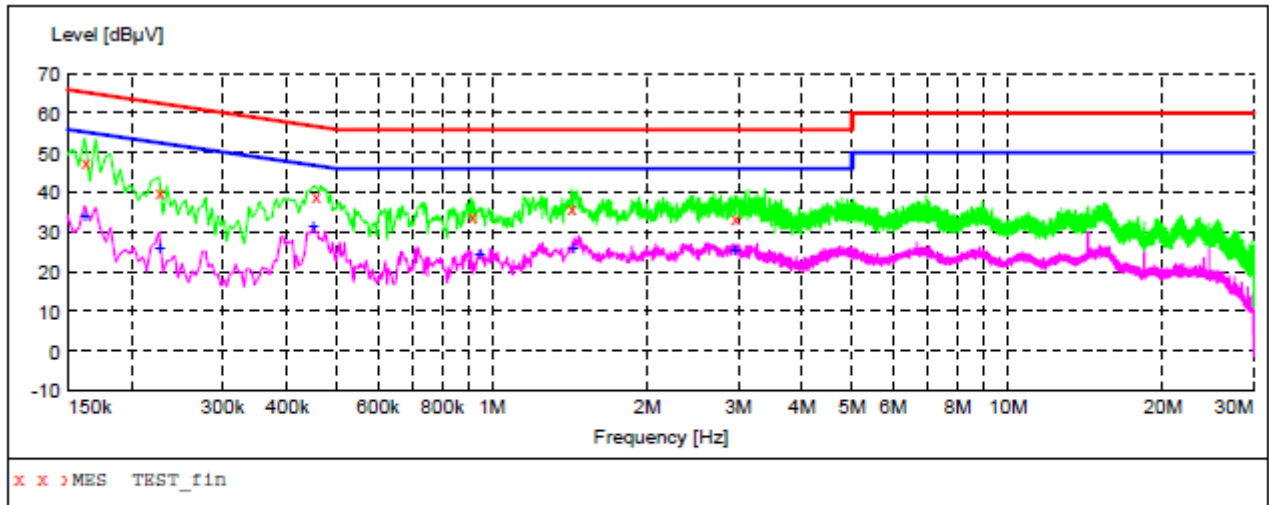
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.158000	48.00	10.8	66	17.6	QP	L1	FLO
0.198000	42.90	10.9	64	20.8	QP	L1	FLO
0.470000	40.60	11.0	57	15.9	QP	L1	FLO
0.886000	26.50	11.1	56	29.5	QP	L1	FLO
1.482000	34.80	11.5	56	21.2	QP	L1	FLO
2.598000	33.00	11.5	56	23.0	QP	L1	FLO

**MEASUREMENT RESULT: "TEST\_fin2"**

8/28/2019 5:04PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.158000	38.50	10.8	56	17.1	AV	L1	FLO
0.198000	33.40	10.9	54	20.3	AV	L1	FLO
0.470000	35.10	11.0	47	11.4	AV	L1	FLO
0.894000	22.10	11.1	46	23.9	AV	L1	FLO
1.482000	28.20	11.5	46	17.8	AV	L1	FLO
2.598000	26.60	11.5	46	19.4	AV	L1	FLO

## LINE CONDUCTED EMISSION TEST-N

**MEASUREMENT RESULT: "TEST\_fin"**

8/28/2019 4:14PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.162000	47.90	10.8	65	17.5	QP	N	FLO
0.226000	40.20	10.9	63	22.4	QP	N	FLO
0.454000	39.30	10.8	57	17.5	QP	N	FLO
0.910000	34.00	11.1	56	22.0	QP	N	FLO
1.426000	36.20	11.5	56	19.8	QP	N	FLO
2.954000	33.70	11.5	56	22.3	QP	N	FLO

**MEASUREMENT RESULT: "TEST\_fin2"**

8/28/2019 4:14PM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.162000	34.50	10.8	55	20.9	AV	N	FLO
0.226000	26.20	10.9	53	26.4	AV	N	FLO
0.450000	31.90	10.8	47	15.0	AV	N	FLO
0.946000	24.30	11.3	46	21.7	AV	N	FLO
1.438000	26.00	11.5	46	20.0	AV	N	FLO
2.954000	25.80	11.5	46	20.2	AV	N	FLO

**RESULT: PASS**

## APPENDIX A: PHOTOGRAPHS OF TEST SETUP

### FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP BELOW 1GHZ



FCC RADIATED EMISSION TEST SETUP ABOVE 1GHZ



----END OF REPORT----