5795MHz by 802.11ax(40MHz):

5210MHz by 802.11ax(80MHz):

5775MHz by 802.11ax(80MHz):

AV-Ant 1+2 with Beam-forming:

Band I AV Limit=54 dBuV/m-95.2-10lg2（2tx）-9（Directional Gain）=-53.2dbm

5180MHz by 802.11a:

5180MHz by 802.11n(20MHz):

5190MHz by 802.11n(40MHz):

5180MHz by 802.11ac(20MHz):

5190MHz by 802.11ac(40MHz):

5210MHz by 802.11ac(80MHz)

5180MHz by 802.11ax(20MHz):

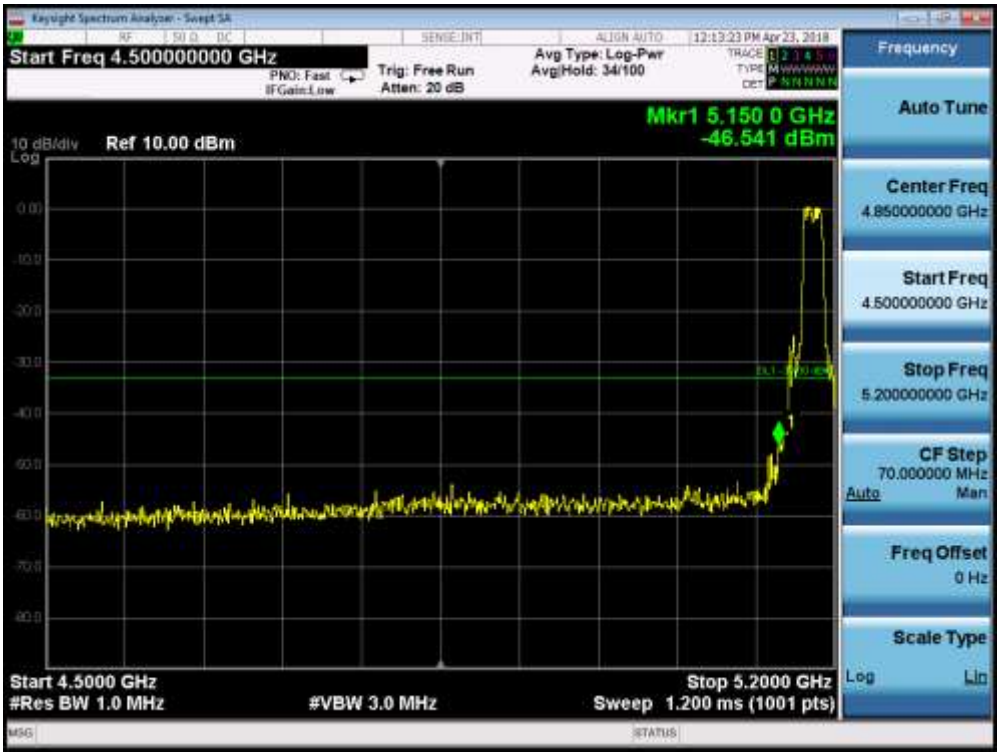
5190MHz by 802.11ax(40MHz):

5210MHz by 802.11ax(80MHz)

PK-Ant 1+2 with Beam-forming:

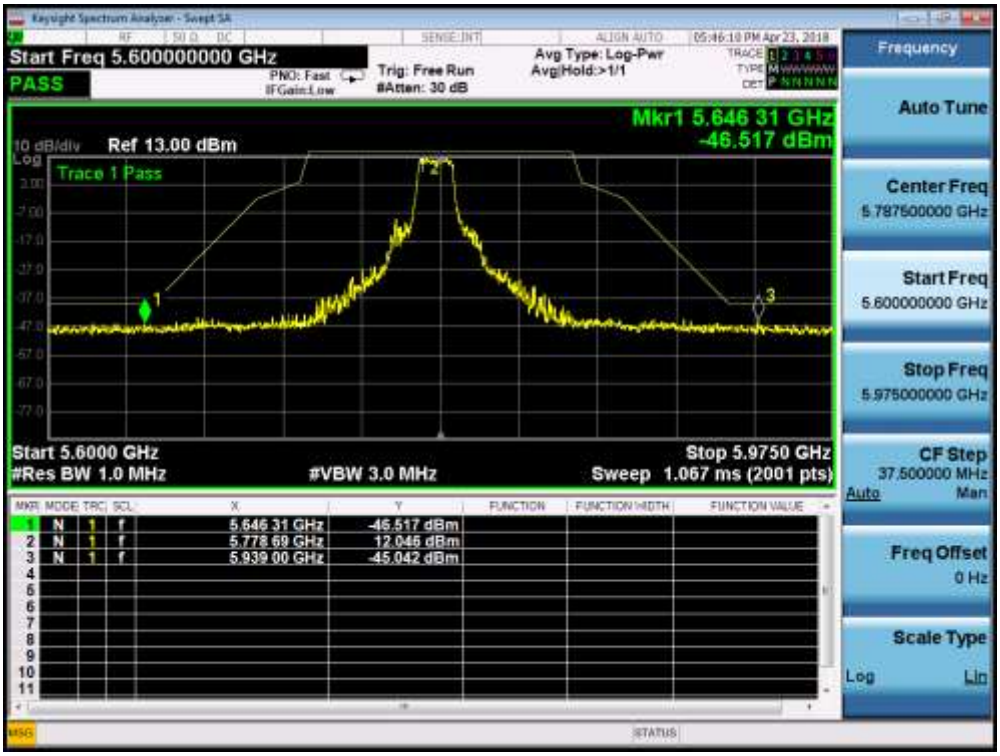
Band I PK Limit=74 dBuV/m-95.2-10lg2（2tx）-9（Directional Gain）=-33.2dbm

5180MHz by 802.11a:

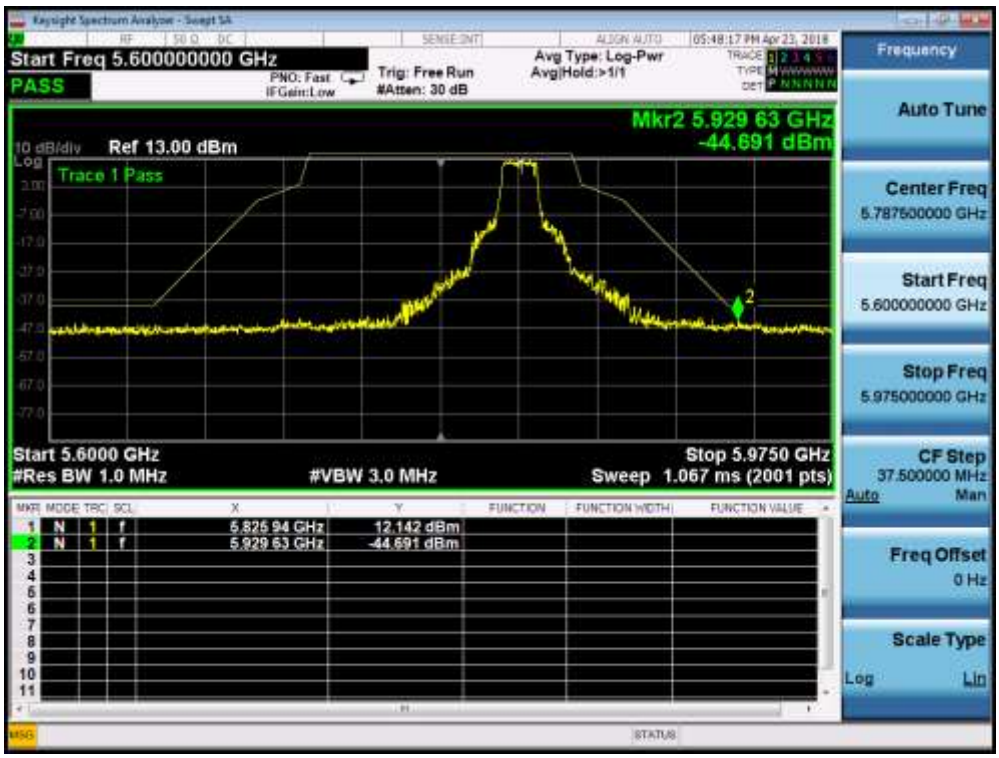


5745MHz by 802.11a:

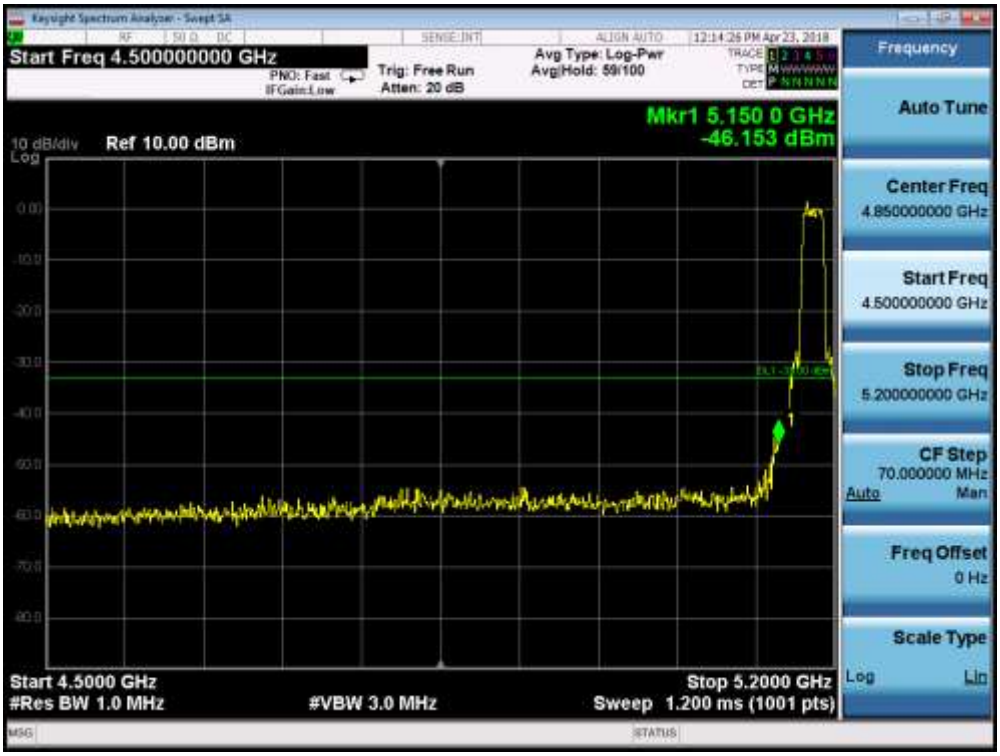
5785MHz by 802.11a:



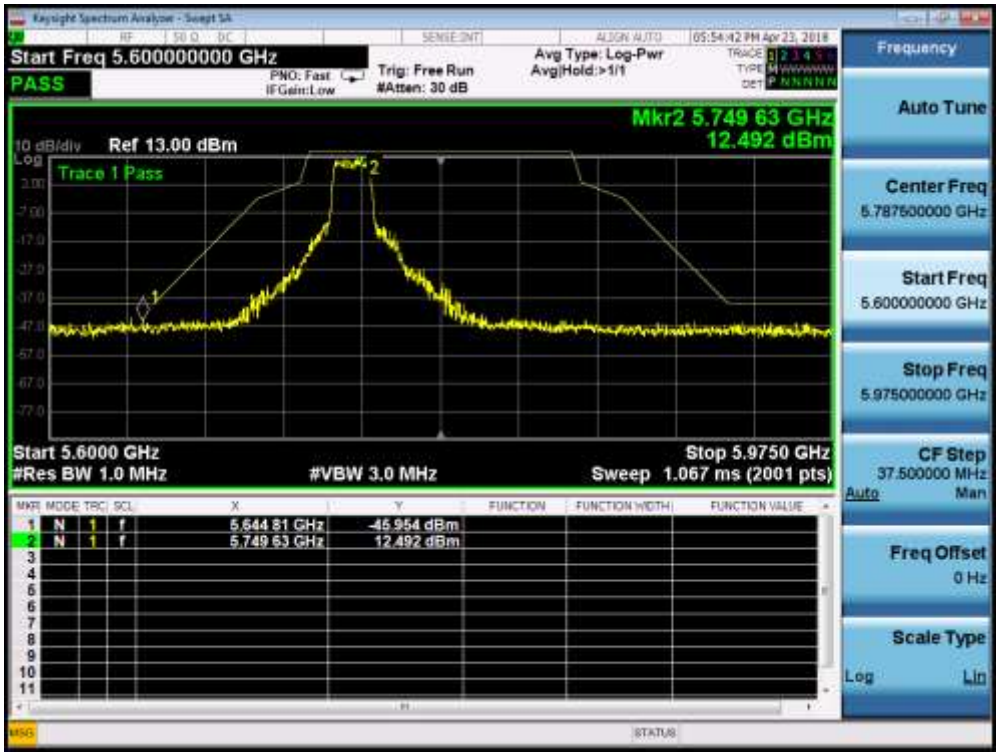
5825MHz by 802.11a:



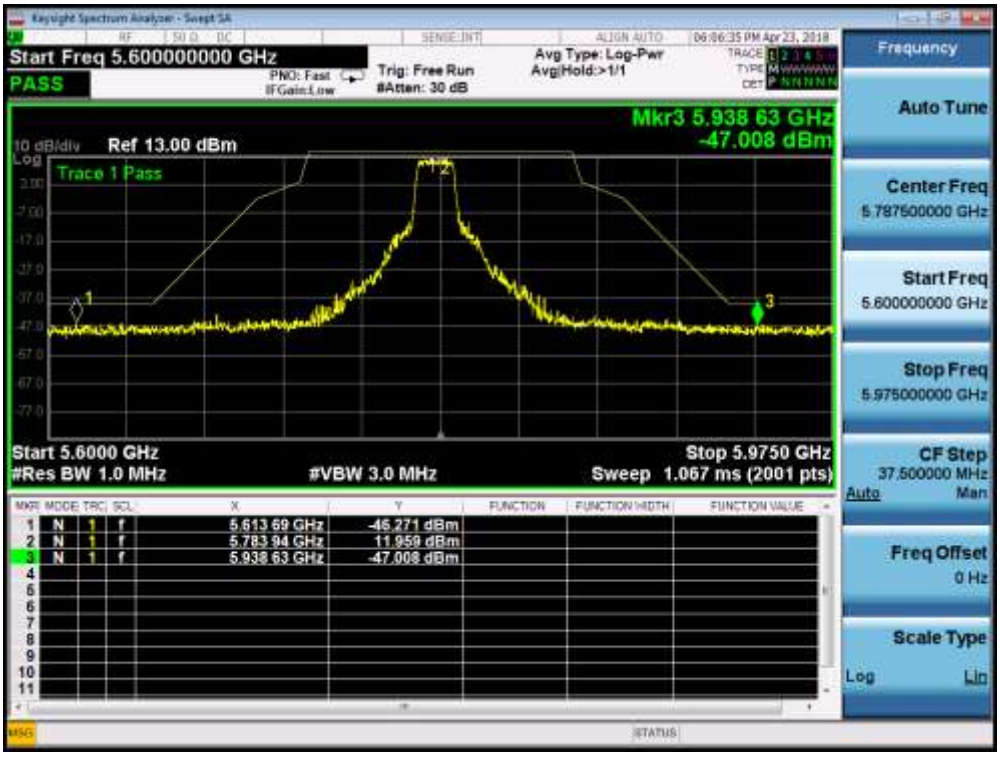
5180MHz by 802.11n(20MHz):



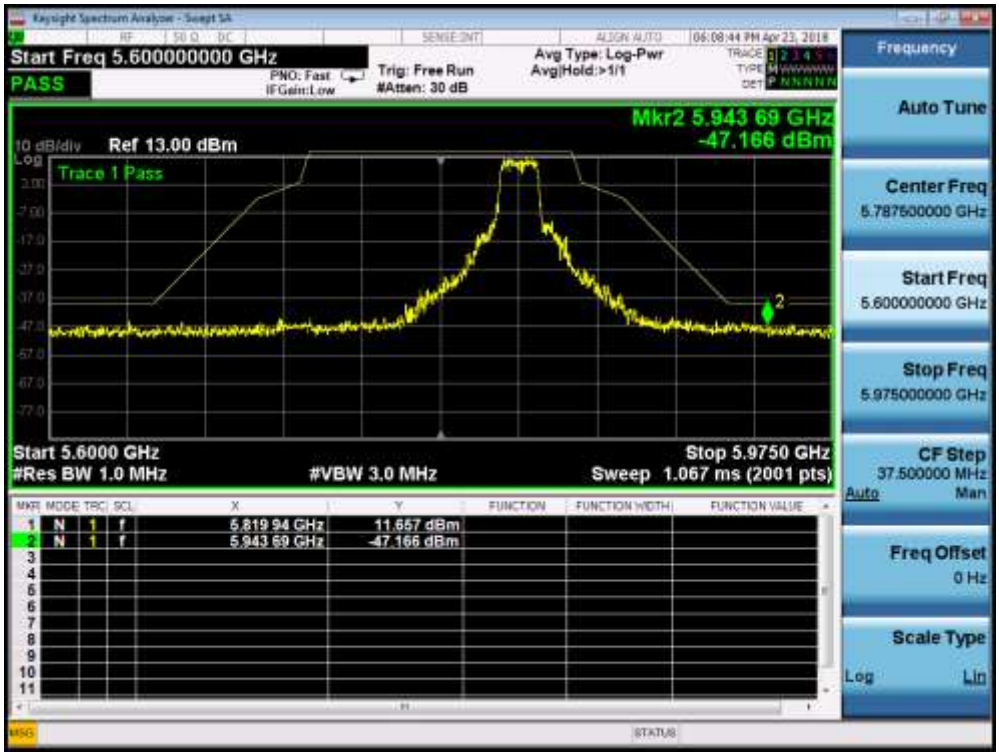
5745MHz by 802.11n(20MHz):



5785MHz by 802.11n(20MHz):



5825MHz by 802.11n(20MHz):

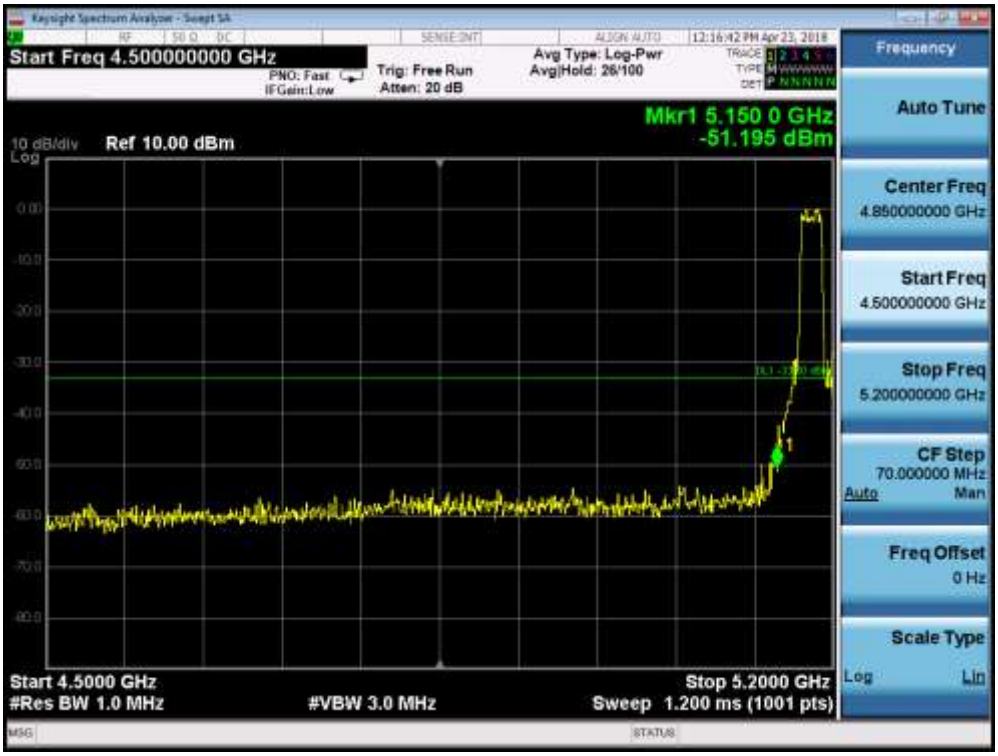


5190MHz by 802.11n(40MHz):

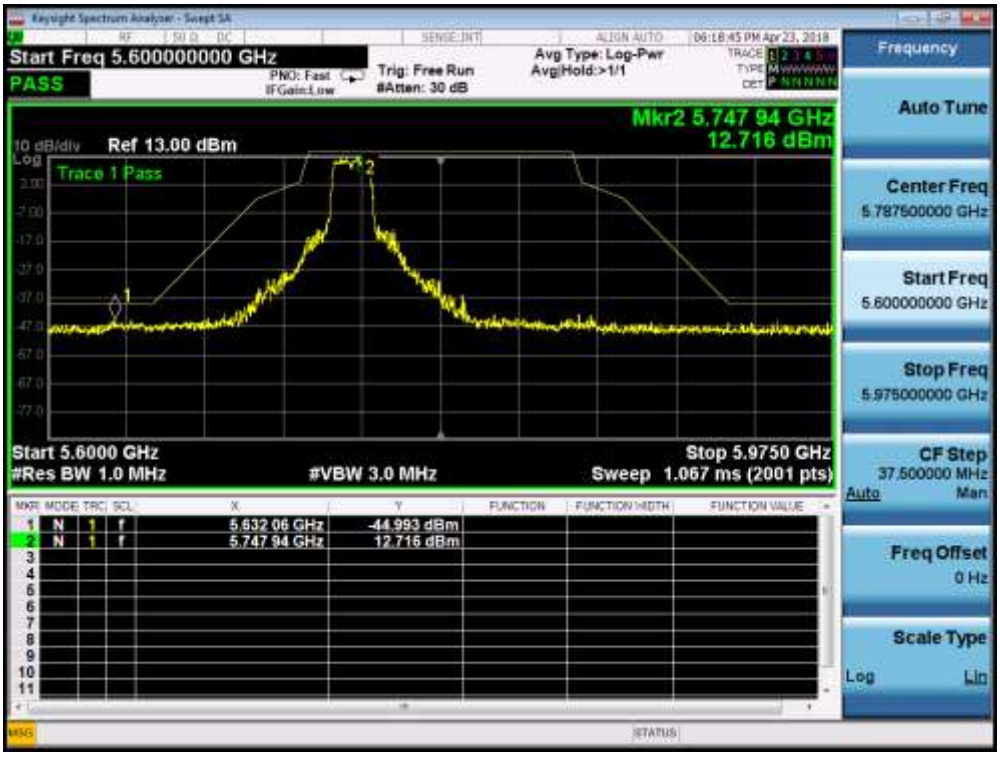
5755MHz by 802.11n(40MHz):

5795MHz by 802.11n(40MHz):

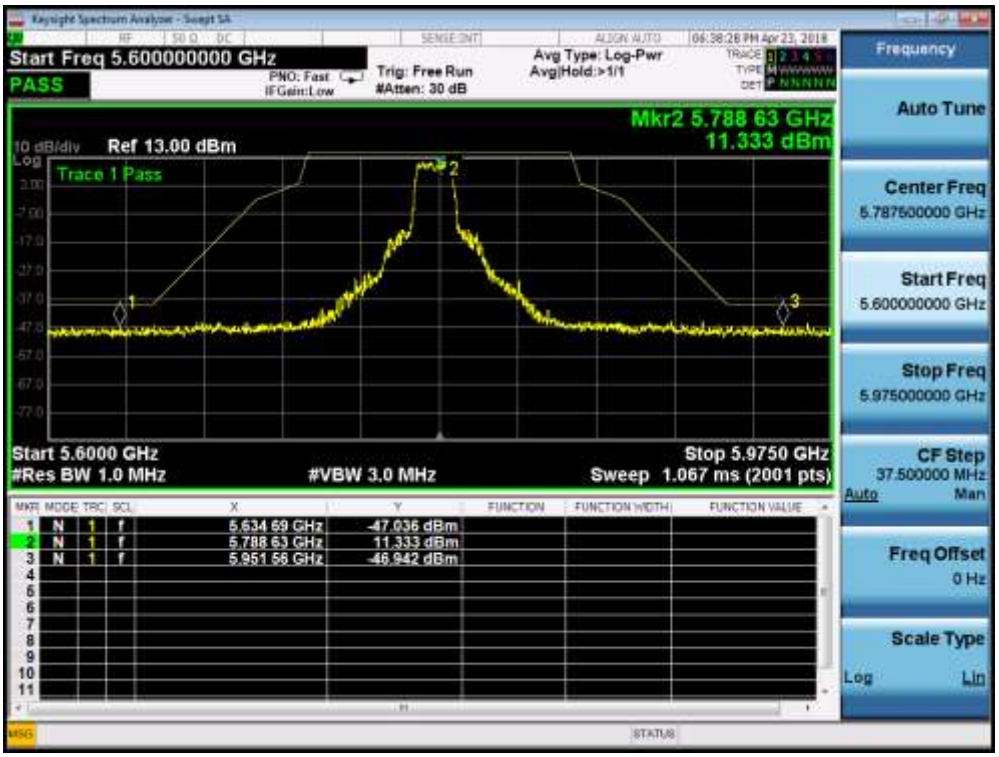
5180MHz by 802.11ac(20MHz):



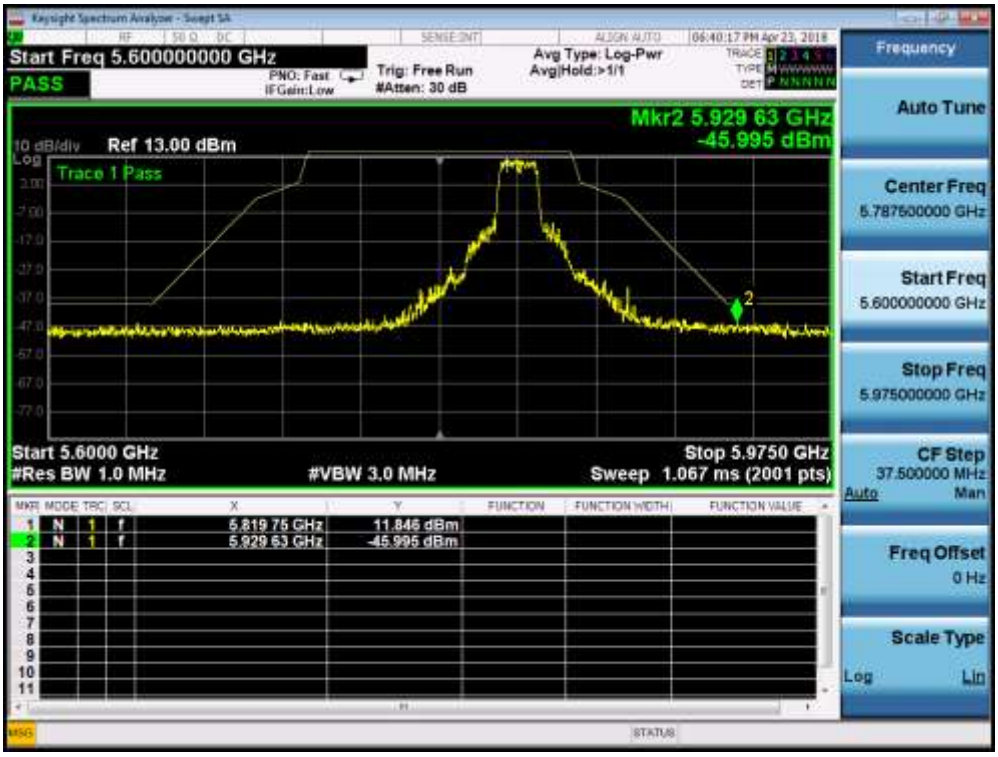
5745MHz by 802.11ac(20MHz):



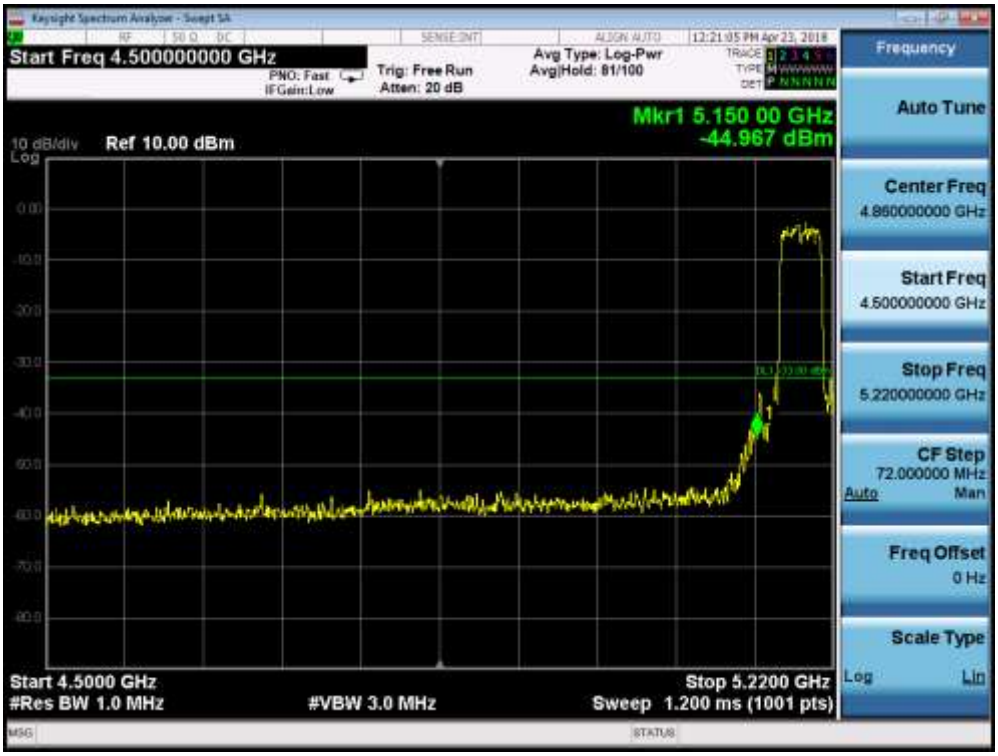
5785MHz by 802.11ac(20MHz):



5825MHz by 802.11ac(20MHz):



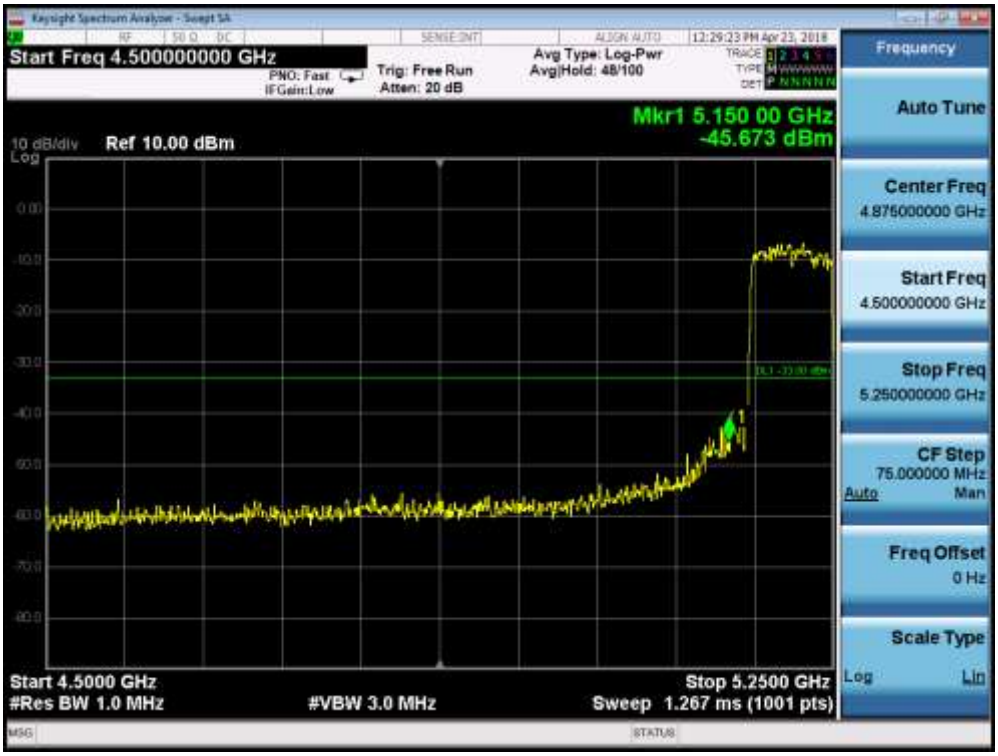
5190MHz by 802.11ac(40MHz):



5755MHz by 802.11ac(40MHz):

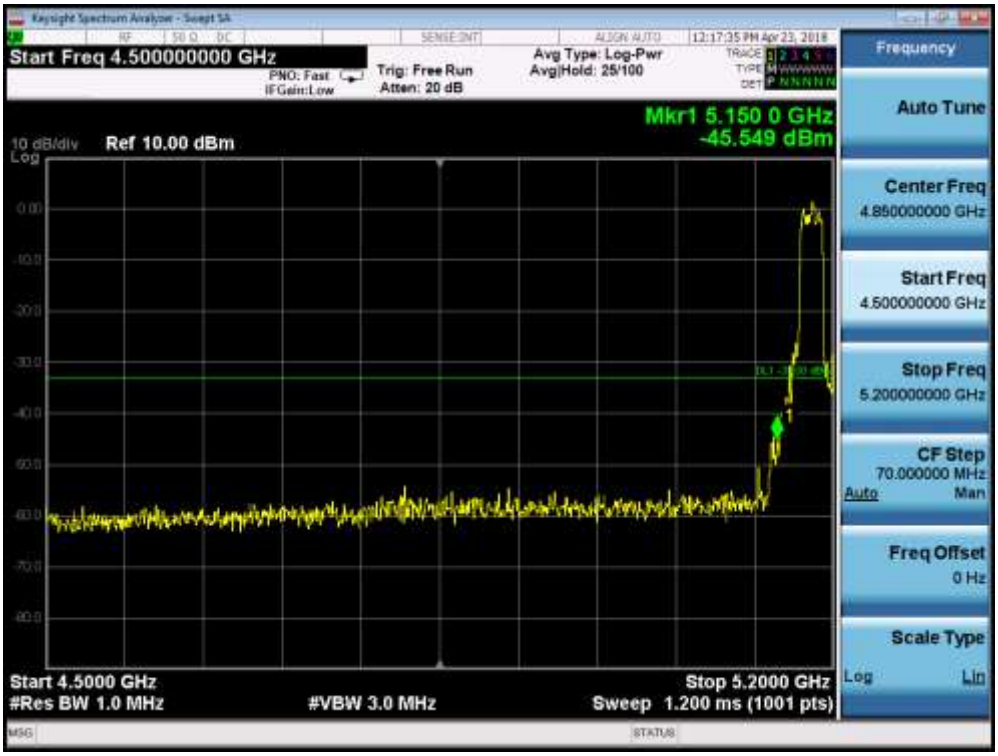
5795MHz by 802.11ac(40MHz):

5210MHz by 802.11ac(80MHz):

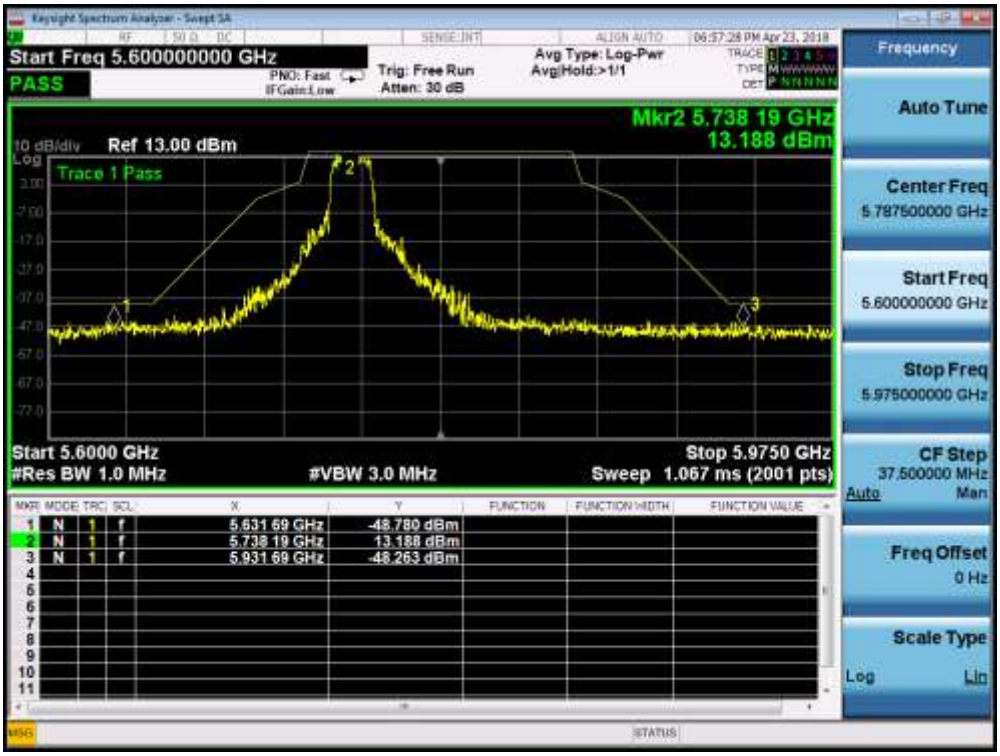


5775MHz by 802.11ac(80MHz):

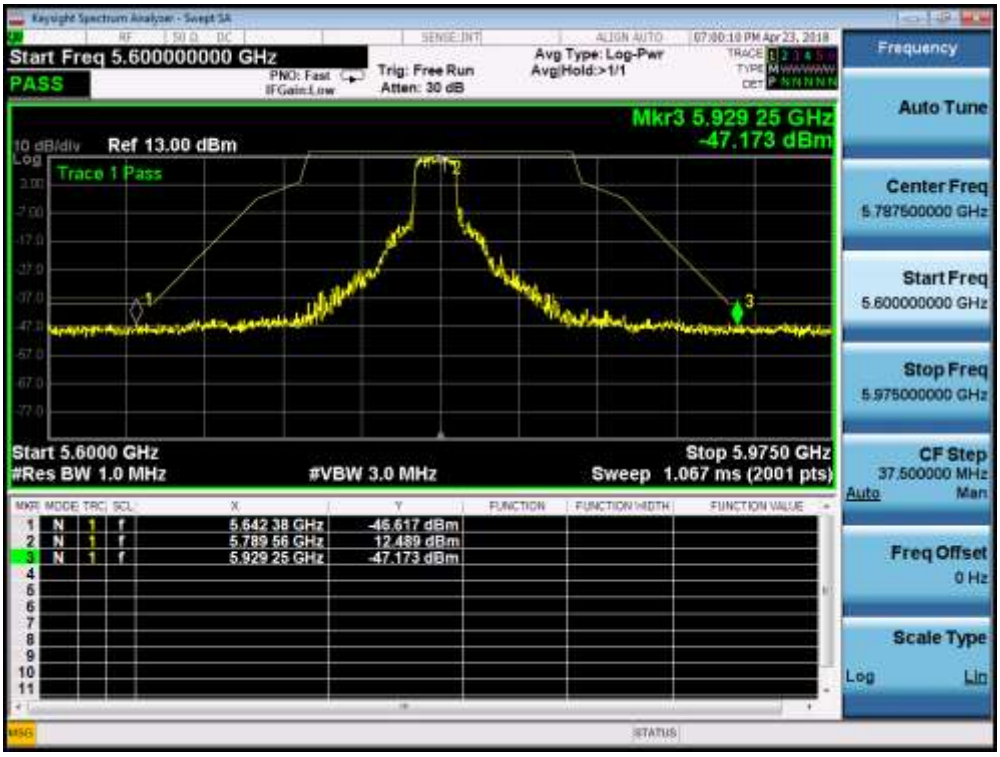
5180MHz by 802.11ax(20MHz):



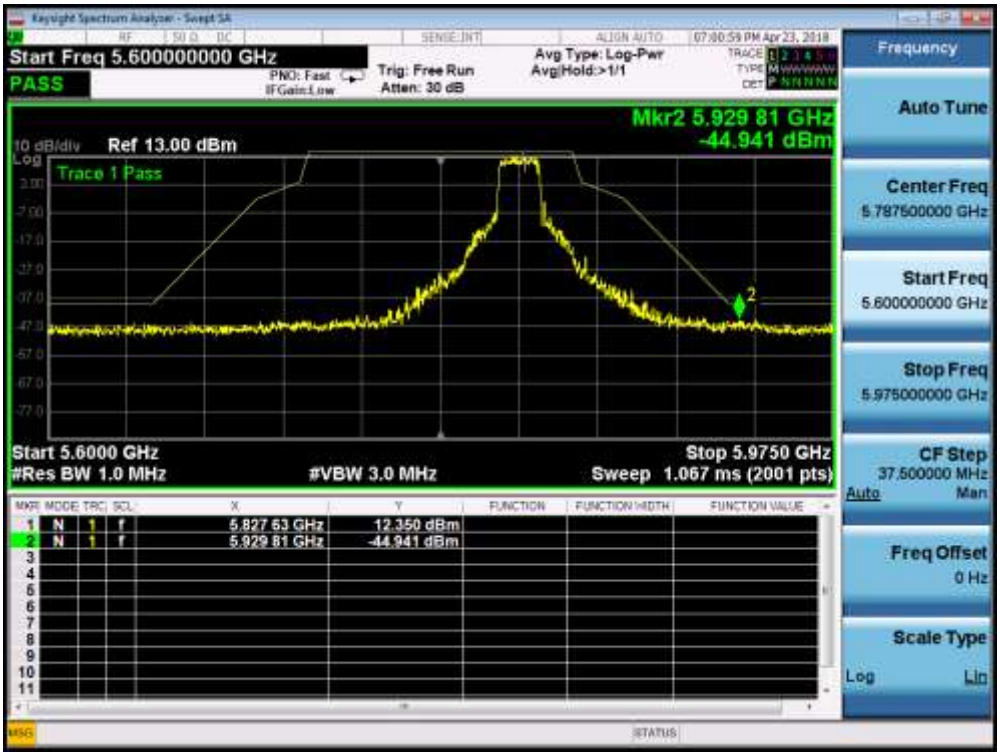
5745MHz by 802.11ax(20MHz):



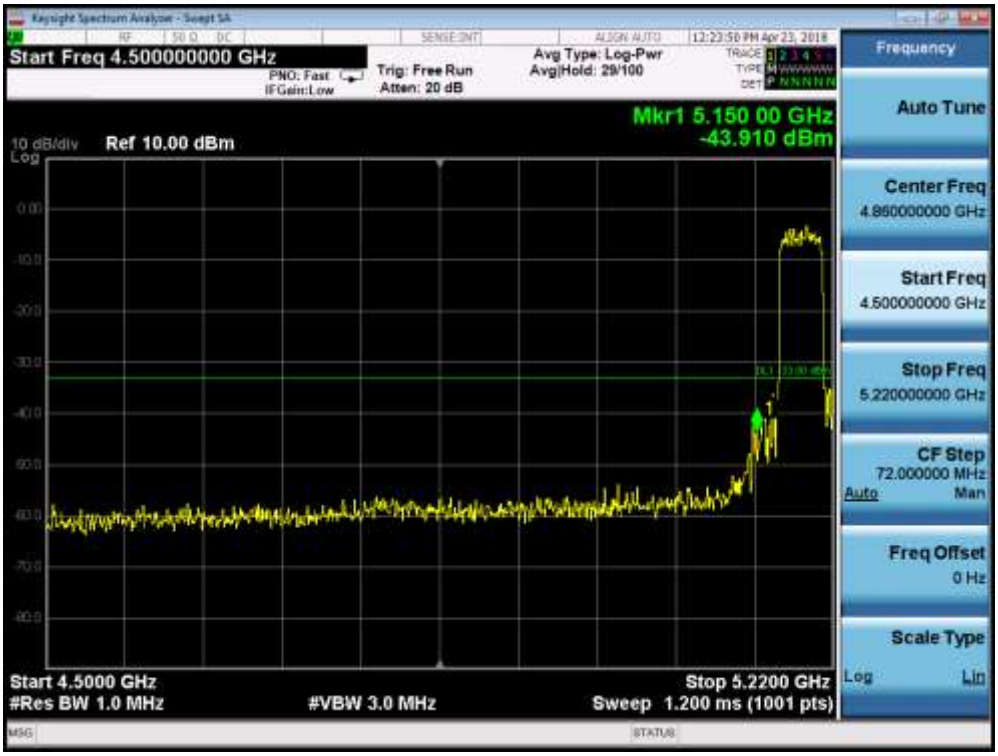
5785MHz by 802.11ax(20MHz):



5825MHz by 802.11ax(20MHz):



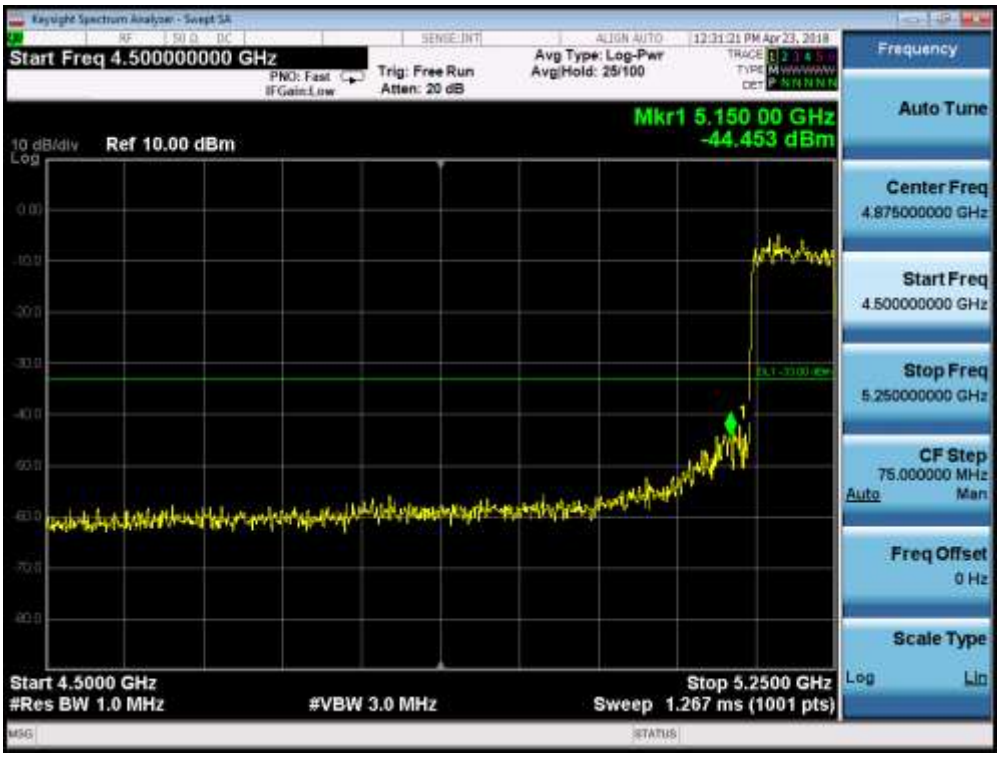
5190MHz by 802.11ax(40MHz):



5755MHz by 802.11ax(40MHz):

5795MHz by 802.11ax(40MHz):

5210MHz by 802.11ax(80MHz):



5775MHz by 802.11ax(80MHz):

AV-Ant 1+2+3+4 with Beam-forming:

Band I AV Limit=54 dBuV/m-95.2-10lg4（4tx）-12（Directional Gain）=-59.3dbm

5180MHz by 802.11a:

5180MHz by 802.11n(20MHz):

5190MHz by 802.11n(40MHz):

5180MHz by 802.11ac(20MHz):

5190MHz by 802.11ac(40MHz):

5210MHz by 802.11ac(80MHz)

5180MHz by 802.11ax(20MHz):

5190MHz by 802.11ax(40MHz):

5210MHz by 802.11ax(80MHz)

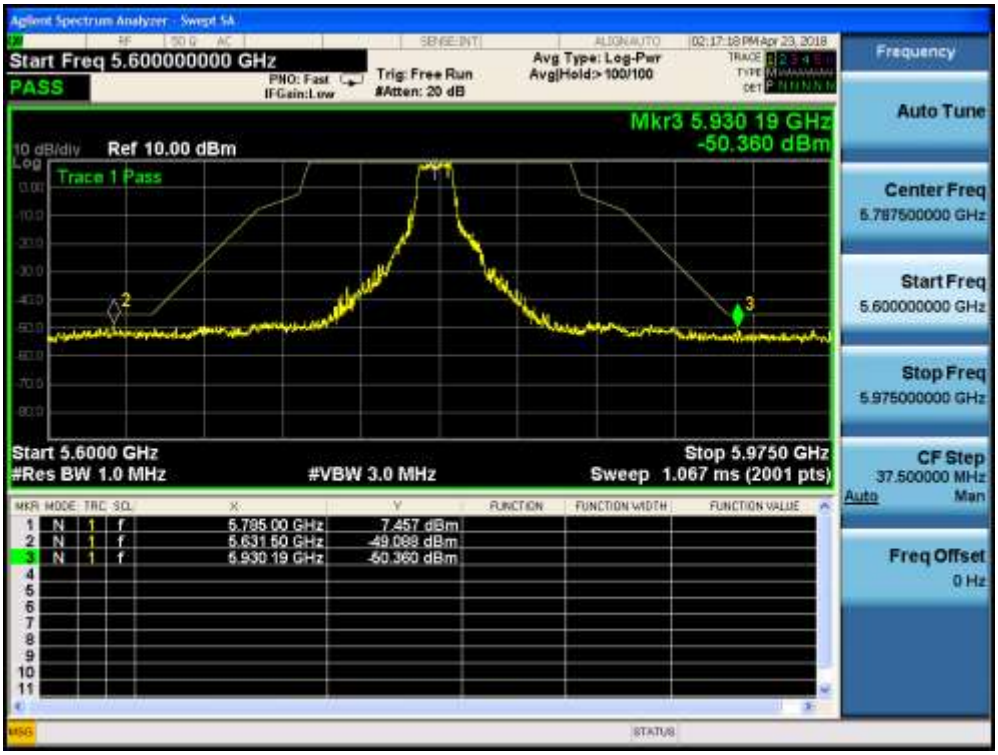
PK-Ant 1+2+3+4 with Beam-forming:

Band I PK Limit=74 dBuV/m-95.2-10lg4（4tx）-12（Directional Gain）=-39.2dbm

5180MHz by 802.11a:

5745MHz by 802.11a:

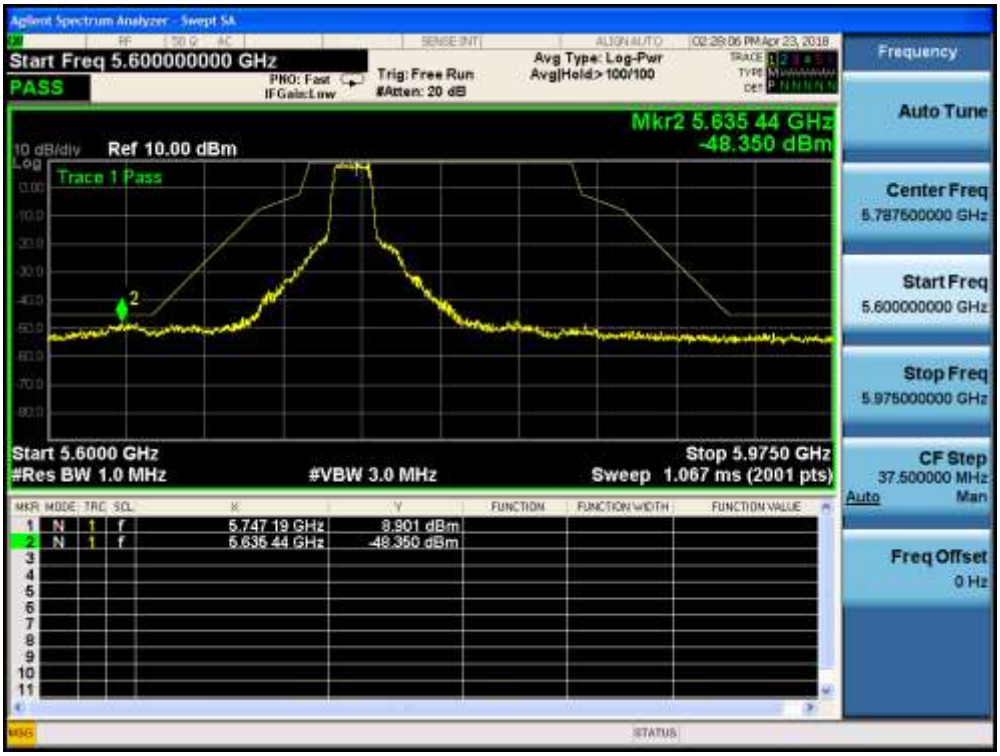
5785MHz by 802.11a:



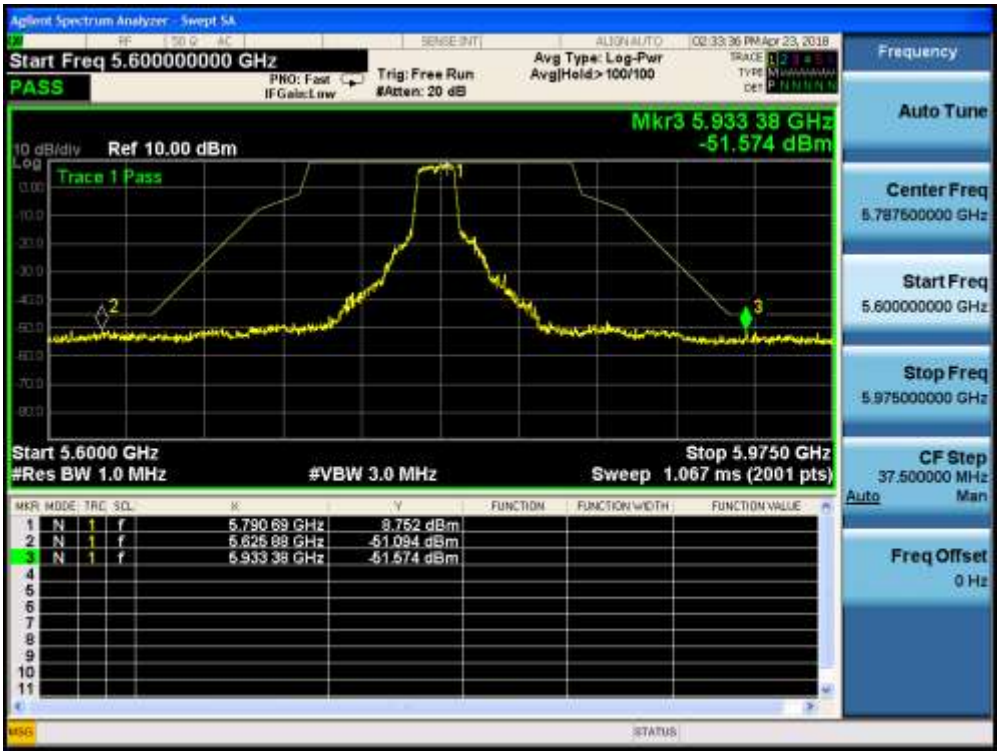
5825MHz by 802.11a:

5180MHz by 802.11n(20MHz):

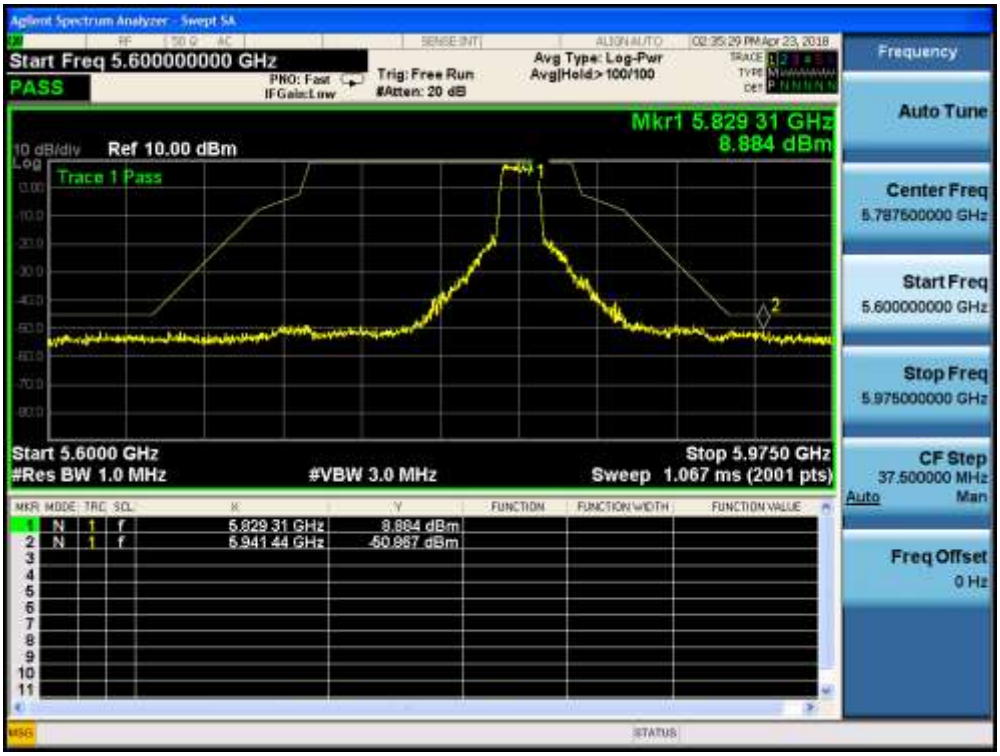
5745MHz by 802.11n(20MHz):



5785MHz by 802.11n(20MHz):



5825MHz by 802.11n(20MHz):



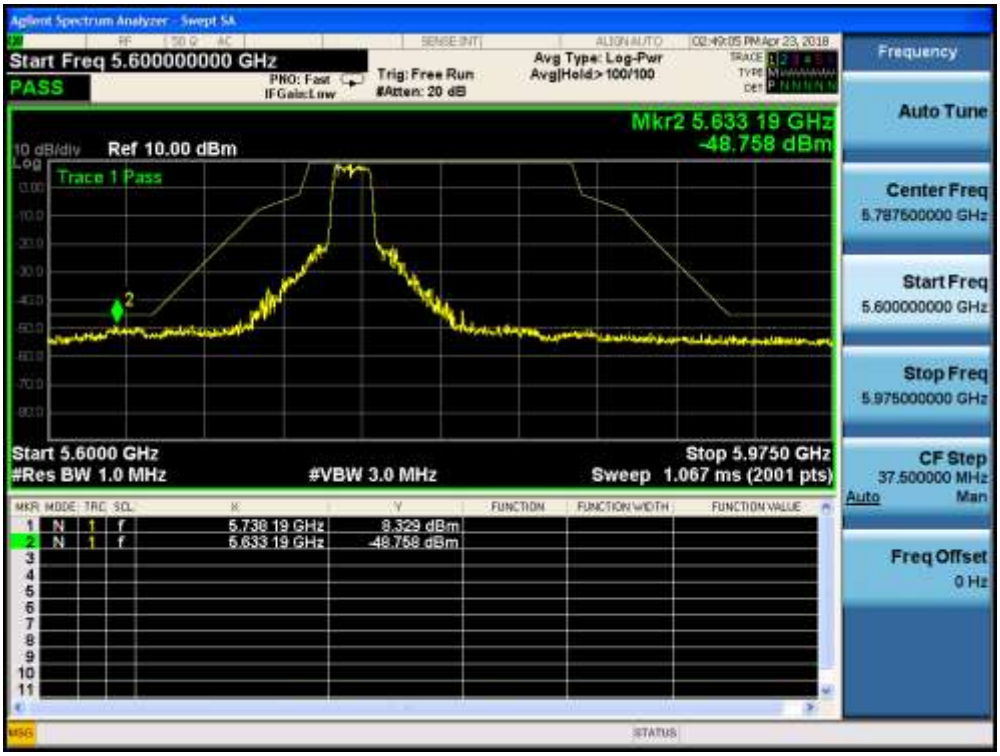
5190MHz by 802.11n(40MHz):

5755MHz by 802.11n(40MHz):

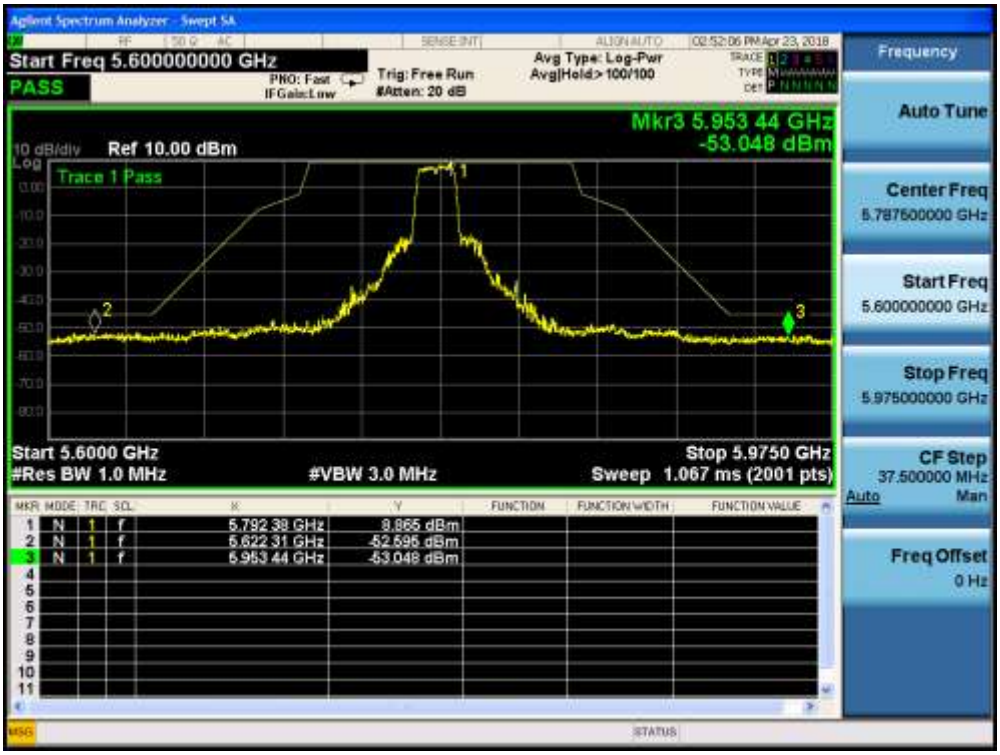
5795MHz by 802.11n(40MHz):

5180MHz by 802.11ac(20MHz):

5745MHz by 802.11ac(20MHz):



5785MHz by 802.11ac(20MHz):



5825MHz by 802.11ac(20MHz):

5190MHz by 802.11ac(40MHz):

5755MHz by 802.11ac(40MHz):

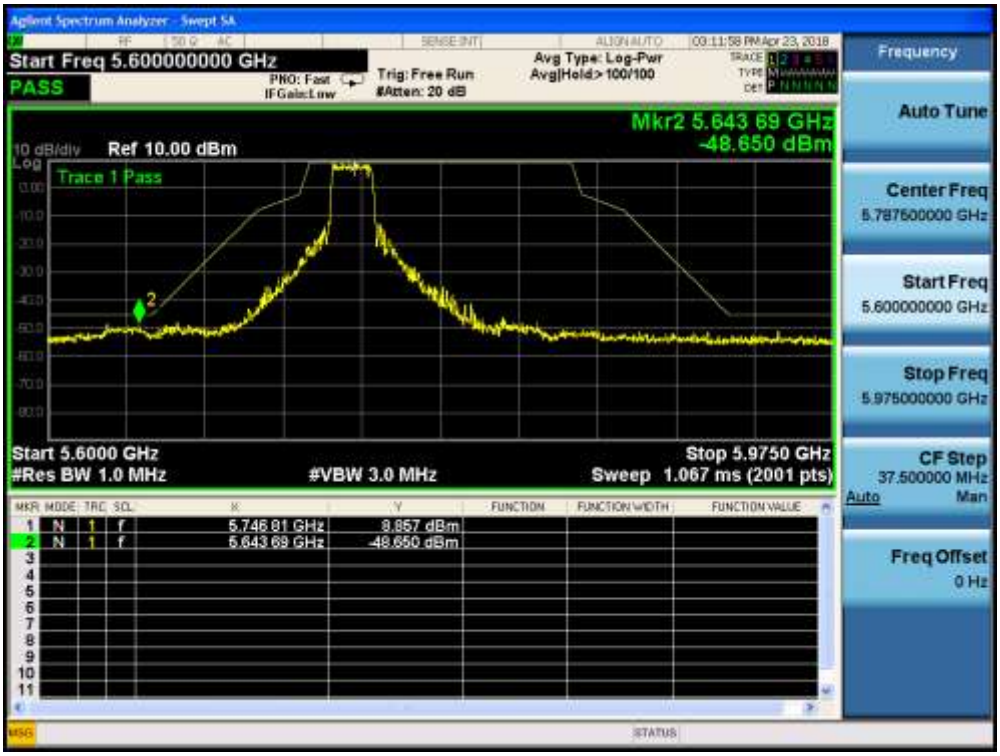
5795MHz by 802.11ac(40MHz):

5210MHz by 802.11ac(80MHz):

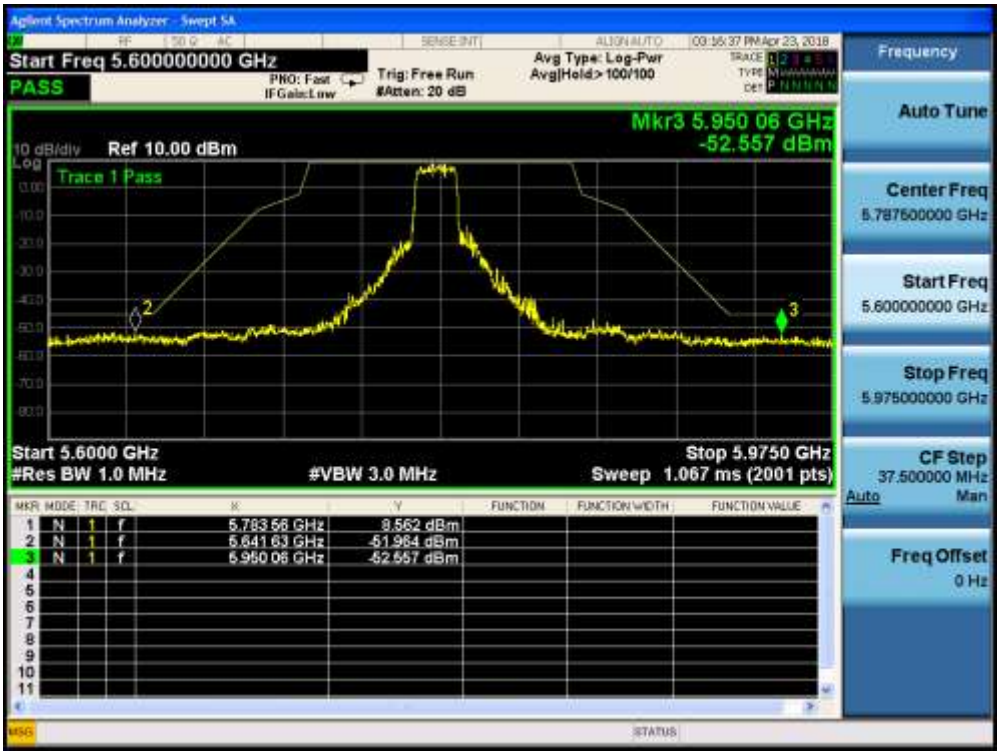
5775MHz by 802.11ac(80MHz):

5180MHz by 802.11ax(20MHz):

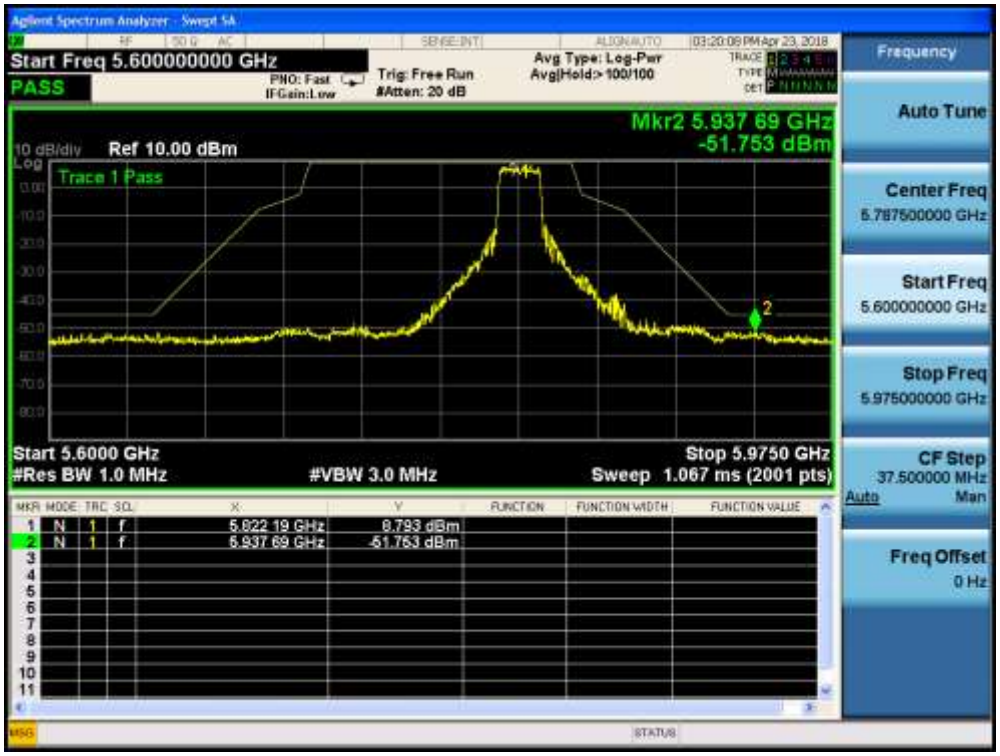
5745MHz by 802.11ax(20MHz):



5785MHz by 802.11ax(20MHz):



5825MHz by 802.11ax(20MHz):



5190MHz by 802.11ax(40MHz):

5755MHz by 802.11ax(40MHz):

5795MHz by 802.11ax(40MHz):

5210MHz by 802.11ax(80MHz):

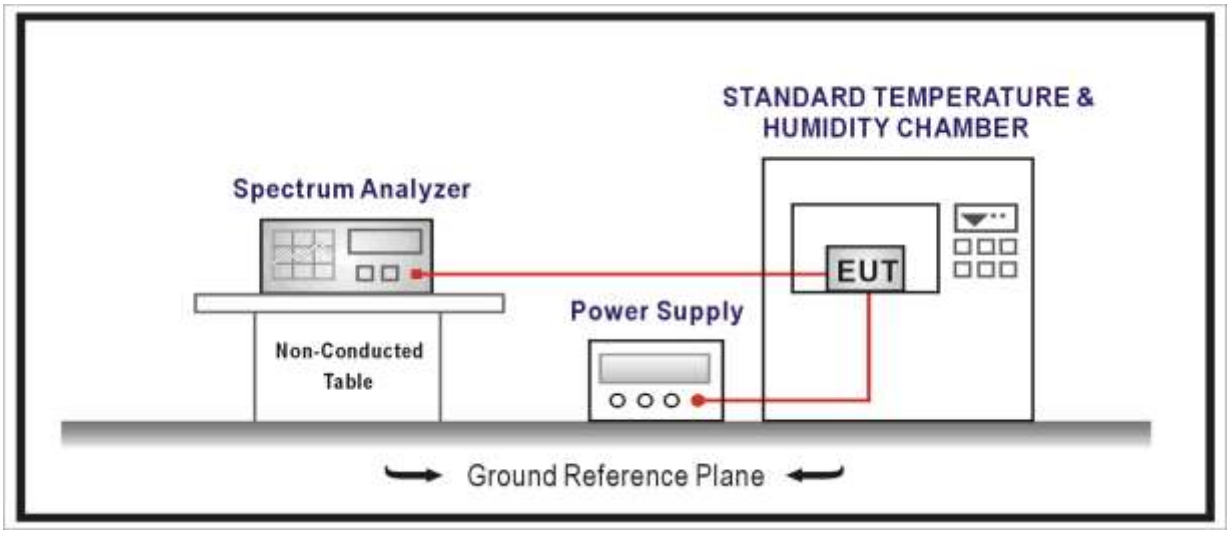
5775MHz by 802.11ax(80MHz):

10. Frequency Stability

10.1. Test Equipment

Frequency Stability / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2018.02.04	2019.02.03
AC Power Supply	IDRC	CF-500TP	979422	2017.09.16	2018.09.15
DC Power Supply	IDRC	CD-035-020PR	977272	2017.09.16	2018.09.15
Programmable Temperature & Humidity Chamber	Gaoyu	TH-1P-B	WIT-05121302	2018.01.03	2019.01.02
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. Test Setup



10.3. Limit

Frequency Stability Limit	
UNII Devices	
☒	In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
IEEE Std. 802.11n-2009	
☒	The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band and ± 25ppm maximum for the 2.4 GHz band.

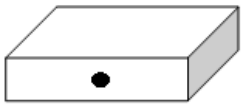
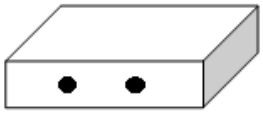
10.4. Test Procedure

Frequency Stability Test Method				
	References Rule		Chapter	Description
☒	ANSI C63.10		6.8	Frequency stability tests
	☒	ANSI C63.10	6.8.1	Frequency stability with respect to ambient temperature
	☒	ANSI C63.10	6.8.2	Frequency stability when varying supply voltage

10.5. Uncertainty

The measurement uncertainty is defined as ± 100 Hz

10.6. EUT test Axis definition

Item	Frequency Stability	
Device Category	☐	Outdoor AP
	☒	Indoor AP
	☐	Fixed point-to-point AP
	☐	Outdoor fixed point-to-multipoint AP
	☒	Client(Peer-to-peer)
Test mode	Carrier Wave	
	☒	Conducted
	☐	Chain 1
		
	☒	Chain 1 / Chain 2
		
	☐	Chain 1 / Chain 2 / Chain 3
		

10.7. Test Result

Product Name	:	Wireless Access point	Power	:	AC 120V/60Hz
Test Mode	:	Carrier Wave	Test Site	:	TR8
Test Date	:	2018.05.20	Test Engineer	:	Eric

Frequency Stability under Temperature at 0min

Temperature Interval (℃)	Test Frequency (MHz)	Deviation (Hz)	ppm	Limit
-30	5220.000	79	0.015	±20
-20	5220.000	215	0.041	±20
-10	5220.000	137	0.026	±20
0	5220.000	-10	-0.002	±20
10	5220.000	33	0.006	±20
20	5220.000	-70	-0.013	±20
30	5220.000	-74	-0.014	±20
40	5220.000	49	0.009	±20
50	5220.000	-3	-0.001	±20

Frequency Stability under Temperature at 2min

Temperature Interval (℃)	Test Frequency (MHz)	Deviation (Hz)	ppm	Limit
-30	5220.000	-210	-0.040	±20
-20	5220.000	-156	-0.030	±20
-10	5220.000	-37	-0.007	±20
0	5220.000	90	0.017	±20
10	5220.000	-90	-0.017	±20
20	5220.000	-119	-0.023	±20
30	5220.000	107	0.020	±20
40	5220.000	-86	-0.016	±20
50	5220.000	-94	-0.018	±20

Frequency Stability under Temperature at 5min

Temperature Interval (℃)	Test Frequency (MHz)	Deviation (Hz)	ppm	Limit
-30	5220.000	-129	-0.025	±20
-20	5220.000	-122	-0.023	±20
-10	5220.000	107	0.020	±20
0	5220.000	-88	-0.017	±20
10	5220.000	113	0.022	±20
20	5220.000	179	0.034	±20
30	5220.000	161	0.031	±20
40	5220.000	-95	-0.018	±20
50	5220.000	-91	-0.017	±20

Frequency Stability under Temperature at 10min

Temperature Interval (℃)	Test Frequency (MHz)	Deviation (Hz)	ppm	Limit
-30	5220.000	123	0.024	±20
-20	5220.000	105	0.020	±20
-10	5220.000	94	0.018	±20
0	5220.000	99	0.019	±20
10	5220.000	-100	-0.019	±20
20	5220.000	148	0.028	±20
30	5220.000	-123	-0.024	±20
40	5220.000	118	0.023	±20
50	5220.000	-94	-0.018	±20

Frequency Stability under Voltage

AC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	ppm	Limit
102	5220.000	114	0.022	±20
120	5220.000	-105	-0.020	±20
138	5220.000	163	0.031	±20

11. Antenna Requirement

11.1. Limit

Antenna Requirement Limit
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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

11.2. Antenna Connector Construction

Antenna Connector Construction	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document “Internal Photograph” to show the antenna connector.	

The End