CFR 47 FCC PART 15 SUBPART E
ISED RSS-247 ISSUE 2

TEST REPORT

For

IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth 2.1+EDR/4.2/5.1

MODEL NUMBER: SKI.WB663U.2

REPORT NUMBER: 4790553410-RF-4

ISSUE DATE: September 20, 2022

FCC ID:2AR82-SKIWB663U21

IC:24728-SKIWB663U21

Prepared for

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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	September 20, 2022	Initial Issue	

Note: This is a C2PC test report. The applicant added three types of antennas and applied for C2PC on December 18, 2021, the antennas information showed in table 1. Now the applicant wants to add one more type of antenna and the antenna information showed in table 2. We retest conducted output power, power spectral density and all radiated emission then show in this report, the power of module remained unchanged, for more data and information, please refer to the original report 4790010773.1-4.

Table 1

Antenna	Antenna Model	Frequency (MHz)	Antenna Type	Cable Loss (dB)	Maximum Antenna Gain without Cable (dBi)	Final Antenna Gain (dBi)
1	INNO-EWFDKT-237	5150-5850	Dipole Antenna	2.5	5.20	2.70
2	A100-0062	5150-5850	Dipole Antenna	2.5	4.33	1.83
3	3D0504BK07-001	5150-5850	Dipole Antenna	2.5	3.14	0.64

Table 2

Antenna	Frequency (MHz)	Antenna Type	Maximum Antenna Gain (dBi)
1	5150-5850	FPC	5.19
2	5150-5850	FPC	5.10

Note: The antenna information showed in table 1 comes from report 4790176872-4.

Summary of Test Results

Test Item	Clause	Limit/Requirement	Result
Radiated Emissions and Band Edge Measurement	KDB 789033 D02 v02r01 Section G.3, G.4, G.5, and G.6	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	Pass

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART E and ISED RSS-247 ISSUE 2> when <Accuracy Method> decision rule is applied.

CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Guangzhou Shikun Electronics Co., Ltd
Address:	NO.6 Liankun Road, Huangpu District, Guangzhou, China

Manufacturer Information

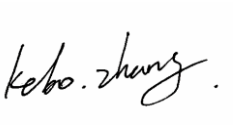
Company Name:	Guangzhou Shikun Electronics Co., Ltd
Address:	NO.6 Liankun Road, Huangpu District, Guangzhou, China

EUT Information

EUT Name:	IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth 2.1+EDR/4.2/5.1
Model:	SKI.WB663U.2
Sample Received Date:	September 2, 2022
Sample Status:	Normal
Sample ID:	5303796
Date of Tested:	September 5, 2022 ~ September 20, 2022

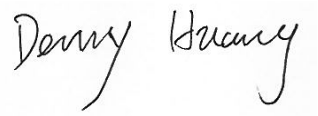
APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART E	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 5	PASS

Prepared By:



Kebo Zhang
Senior Project Engineer

Checked By:



Denny Huang
Senior Project Engineer

Approved By:

Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15, KDB 789033 D02 v02r01, RSS-GEN Issue 5, RSS-247 Issue 2, KDB414788 D01 Radiated Test Site v01, KDB 662911 D01 Multiple Transmitter Output v02r01.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note1:
All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.

Note2:
The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd.
Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note3:
For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	IEEE 802.11a/b/g/n/ac 2T2R USB Wi-Fi Module Integrated Bluetooth 2.1+EDR/4.2/5.1
Model	SKI.WB663U.2
Radio Technology	IEEE802.11a IEEE802.11n HT20/n HT40 IEEE802.11ac VHT20/VHT40/VHT80
Operation Frequency	UNII-1/ UNII-2A/ UNII-2C/UNII-3
Modulation	OFDM (BPSK, QPSK,16QAM, 64QAM, 256QAM only in ac mode)
Power Supply	DC 3.3 V

5.2. CHANNEL LIST

UNII-1 (For Bandwidth=20MHz)		UNII-1 (For Bandwidth=40MHz)		UNII-1 (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

UNII-2A (For Bandwidth=20MHz)		UNII-2A (For Bandwidth=40MHz)		UNII-2A (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

UNII-2C (For Bandwidth=20MHz)		UNII-2C (For Bandwidth=40MHz)		UNII-2C (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590	138	5690
112	5560	126	5630		
116	5580	134	5670		
120	5600	142	5710		
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				
144	5720				

UNII-3 (For Bandwidth=20MHz)		UNII-3 (For Bandwidth=40MHz)		UNII-3 (For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

5.3. MAXIMUM EIRP

UNII-1 BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)	Max Average EIRP (dBm)
a	5150 ~ 5250	10.76	15.95
n HT20		11.30	16.49
n HT40		12.95	18.14
ac VHT80		13.05	18.24

UNII-2A BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a	5250 ~ 5350	10.68
n HT20		11.81
n HT40		12.55
ac VHT80		12.63

UNII-2C BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a	5470 ~ 5725	11.33
n HT20		12.71
n HT40		12.86
ac VHT80		13.65

UNII-3 BAND(FCC&ISED)

IEEE Std. 802.11	Frequency (MHz)	Maximum Average Conducted Power (dBm)
a	5725 ~ 5850	10.33
n HT20		12.00
n HT40		12.51
ac VHT80		12.86

5.4. TEST CHANNEL CONFIGURATION

UNII-1 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT20	CH 36(Low Channel), CH 40(MID Channel), CH 48(High Channel)	5180 MHz, 5200 MHz, 5240 MHz
802.11n HT40	CH 38(Low Channel), CH 46(High Channel)	5190 MHz, 5230 MHz
802.11ac VHT80	CH 42(Low Channel)	5210 MHz

UNII-2A Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 52(Low Channel), CH 56(MID Channel), CH 64(High Channel)	5260 MHz, 5280 MHz, 5320 MHz
802.11n HT20	CH 52(Low Channel), CH 56(MID Channel), CH 64(High Channel)	5260 MHz, 5280 MHz, 5320 MHz
802.11n HT40	CH 54(Low Channel), CH 62(High Channel)	5270 MHz, 5310 MHz
802.11ac VHT80	CH 58(Low Channel)	5290 MHz

UNII-2C Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 100(Low Channel), CH 116(MID Channel), CH 140(High Channel)	5500 MHz, 5580 MHz, 5700 MHz
802.11n HT20	CH 100(Low Channel), CH 116(MID Channel), CH 140(High Channel)	5500 MHz, 5580 MHz, 5700 MHz
802.11n HT40	CH 102(Low Channel), CH 110(MID Channel), CH 134(High Channel)	5510 MHz, 5550 MHz, 5670 MHz
802.11ac VHT80	CH 102(Low Channel), CH 122(High Channel)	5530 MHz, 5610 MHz

UNII-3 Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT20	CH 149(Low Channel), CH 157(MID Channel), CH 165(High Channel)	5745 MHz, 5785 MHz, 5825 MHz
802.11n HT40	CH 151(Low Channel), CH 159(High Channel)	5755MHz, 5795MHz
802.11ac VHT80	CH 155(Low Channel)	5775 MHz

Straddle Test Channel Configuration		
IEEE Std.	Test Channel Number	Frequency
802.11a	CH 144	5720 MHz
802.11n HT20	CH 144	5720 MHz
802.11n HT40	CH 142	5710 MHz
802.11ac VHT80	CH 138	5690 MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter	
Test Software	QA tool

UNII-1

Mode	Rate	Channel	Soft set value	
			ANT 1	ANT 2
11a	6M	36	1A	1A
		40	1A	1A
		48	1A	1A
11n HT20	MCS0	36	18	18
		40	18	18
		48	18	18
11n HT40	MCS0	38	1A	1A
		46	1A	1A
11ac VHT80	MCS0	42	1A	1A

UNII-2A

Mode	Rate	Channel	Soft set value	
			ANT 1	ANT 2
11a	6M	52	1A	1A
		56	1A	1A
		64	1A	1A
11n HT20	MCS0	52	1A	1A
		56	1A	1A
		64	1A	1A
11n HT40	MCS0	54	1A	1A
		62	1A	1A
11ac VHT80	MCS0	58	1A	1A

UNII-2C

Mode	Rate	Channel	Soft set value	
			ANT 1	ANT 2
11a	6M	100	1A	1A
		116	1A	1A
		140	1A	1A
11n HT20	MCS0	100	1A	1A
		116	1A	1A
		140	1A	1A
11n HT40	MCS0	102	1A	1A
		118	1A	1A
		134	1A	1A
11ac VHT80	MCS0	106	1A	1A
		122	1A	1A

UNII-3

Mode	Rate	Channel	Soft set value	
			ANT1	ANT 2
11a	6M	149	1A	1A
		157	1A	1A
		165	1A	1A
11n HT20	MCS0	149	1A	1A
		157	1A	1A
		165	1A	1A
11n HT40	MCS0	151	1A	1A
		159	1A	1A
11ac VHT80	MCS0	155	1A	1A

5.6. THE WORSE CASE CONFIGURATIONS

The EUT was tested in the following configuration(s):

Controlled in test mode using a software application on the EUT supplied by customer. The application was used to enable a continuous transmission and to select the mode, test channels, bandwidth, data rates as required.

Test channels referring to section 5.4.

Maximum power setting referring to section 5.6.

Worst case Data Rates declared by the customer:

802.11a 20 mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11n HT40 mode: MCS0
802.11ac VHT20 mode: MCS0
802.11ac VHT40 mode: MCS0
802.11ac VHT80 mode: MCS0

802.11ac VHT20 and VHT40 mode are different from 802.11n HT20 and HT40 only in control messages, so for these 4 modes, only 802.11n HT20 and 802.11n HT40 worst case power modes radiated emission test data are recorded in the report.

802.11ac&n SISO mode and MIMO mode have the same power setting, so only the worst case power mode (MIMO) will be record in the report.

The EUT has 2 separate antennas which correspond to 2 separate antenna ports. Core 1 and Core 2 correspond to antenna 1 and antenna 2 respectively.

Antenna 1 and Antenna 2 have the same power setting, and the power test data are the same. (Declared by customer.)

The measured additional path loss was included in any path loss calculations for all RF cable used during tested.

Conducted output power, power spectral density tests separately on each port with all supported SISO & MIMO port combinations.

Conducted bandedge and spurious emissions tests were performed with SISO mode, as this port was found to have the worst case in terms of power settings amongst all supported possible SISO & MIMO port combinations.

Radiated emissions tests were performed with the MIMO modes. These were found to be the worst modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest conducted output power level, it was deemed to be the worst case.

The EUT support rotating antennas, we have done pre-tests under different angle combinations. so only the worst measurement position (X axis) was recorded in the report only the worst as shown in the setup photo.

5.7. DESCRIPTION OF AVAILABLE ANTENNAS

Table 2			
Antenna	Frequency (MHz)	Antenna Type	Maximum Antenna Gain (dBi)
1	5150-5850	FPC	5.19
2	5150-5850	FPC	5.10

The EUT support Cyclic Shift Diversity (CDD) mode.
MIMO output power port and MIMO PSD port summing were performed in accordance with KDB 662911 D01. For the CDD results the Directional Gain was calculated in accordance with the following mothed.
For output power measurements:
Directional gain= G_{ANT+} Array Gain = 5.19 dBi
G_{ANT} : equal to the gain of the antenna having the highest gain
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$

For power spectral density (PSD) measurements:
Directional gain= G_{ANT+} Array Gain =8.20 dBi
Array Gain = 10 log(N_{ANT}/N_{SS}) dB.
N_{ANT} : number of transmit antennas
N_{SS} : number of spatial streams, The worst case directional gain will occur when N_{SS} = 1

IEE Std. 802.11	Transmit and Receive Mode	Description
802.11a	☒2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11n HT20	☒2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11n HT40	☒2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT20	☒2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT40	☒2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
802.11ac VHT80	☒2TX, 2RX	ANT 1 and ANT 2 can be used as transmitting/receiving antenna.
Note: 1.BT&WLAN 2.4G, BT & WLAN 5G, WLAN 2.4G & WLAN 5G can't transmit simultaneously. (Declared by client)		

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Dell	Vostro 3902	/
2	Laptop	ThinkPad	E480	/
3	Test fixture	/	/	/
4	Switching Adapter	FLYPOWER	PS65IBCAY5000H	Input: AC 100-240 V, 50/60 Hz, 1.5A Output: DC 12.0 V, 5000 mA

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	USB	Unshielded	1.0	/

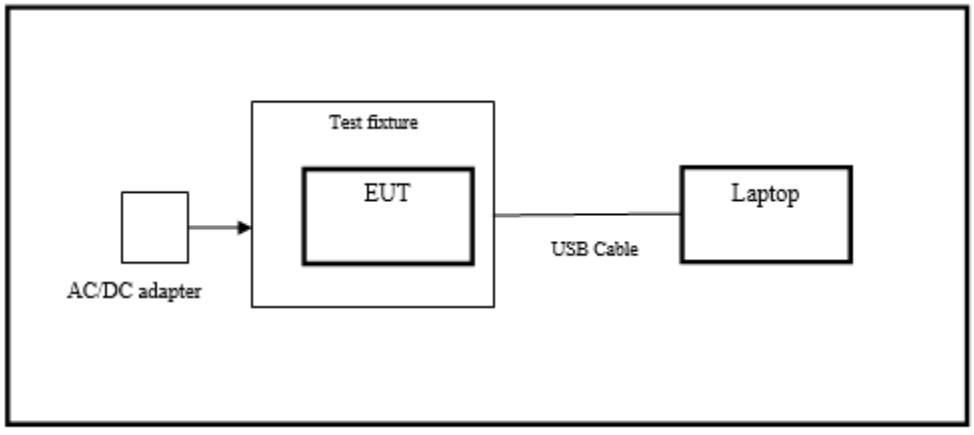
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	/	/	/	/

TEST SETUP

The EUT can work in engineering mode with a software through a PC.

SETUP DIAGRAM FOR TESTS



6. MEASURING EQUIPMENT AND SOFTWARE USED

R&S TS 8997 Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Power sensor, Power Meter	R&S	OSP120	100921	Apr.02,2022	Apr.01,2023
Signal Analyzer	R&S	FSV40	101118	Oct.30, 2021	Oct.29, 2022
Software					
Description	Manufacturer	Name	Version		
For R&S TS 8997 Test System	Rohde & Schwarz	EMC 32	10.60.10		

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.30, 2021	Oct.29, 2022
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.30, 2021	Oct.29, 2022
EMI Measurement Receiver	R&S	ESR26	101377	Oct.30, 2021	Oct.29, 2022
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Oct.30, 2021	Oct.29, 2022
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307-00003	Oct.31, 2021	Oct.30, 2022
Preamplifier	TDK	PA-02-3	TRS-308-00002	Oct.31, 2021	Oct.30, 2022
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.31, 2021	Oct.30, 2022
Highpass Filter	Wainwright	WHKX10-5850-6500-1800-40SS	4	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCJV20-5120-5150-5350-5380-60SS	2	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCJV20-5440-5470-5725-5755-60SS	1	Oct.31, 2021	Oct.30, 2022
Software					
Description		Manufacturer	Name	Version	
Test Software for Radiated Emissions		Farad	EZ-EMC	Ver. UL-3A1	

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

LIMITS

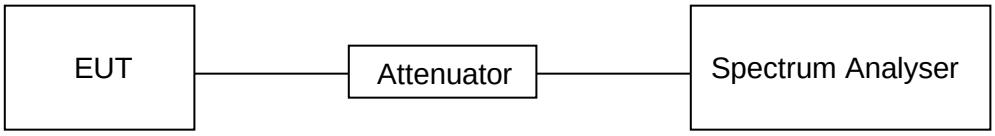
None; for reporting purposes only.

PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.B.

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW ≥ EBW if possible; otherwise, set RBW to the largest available value. Set VBW ≥ RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T, where T is defined in II.B.1.a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T ≤ 16.7 microseconds.)

TEST SETUP



TEST RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
11A	1.40	1.44	0.9722	97.22	0.12	0.71	1
11N20MIMO	1.30	1.34	0.9701	97.01	0.13	0.77	1
11N40MIMO	0.64	0.69	0.9275	92.75	0.33	1.56	2
11AC20MIMO	0.68	0.72	0.9444	94.44	0.25	1.47	2
11AC40MIMO	0.35	0.40	0.8750	87.50	0.58	2.86	3
11AC80MIMO	0.19	0.23	0.8261	82.61	0.83	5.26	6

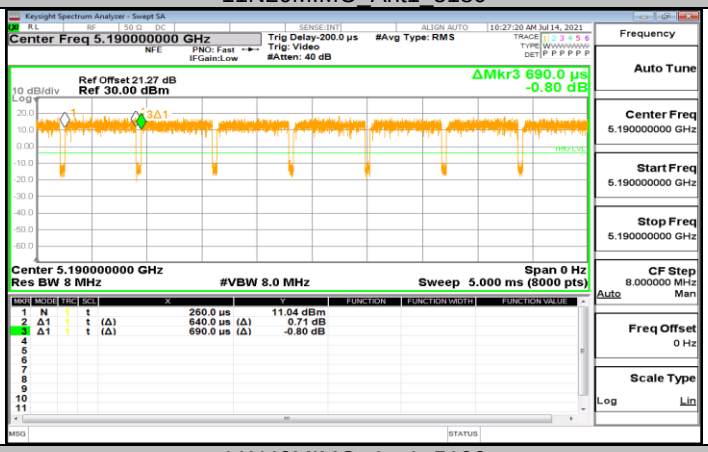
Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
If that calculated VBW is not available on the analyzer then the next higher value should be used.

Note: All the test result comes from the original test report.

TEST GRAPHS

11A_Ant1_5180

11N20MIMO_Ant1_5180



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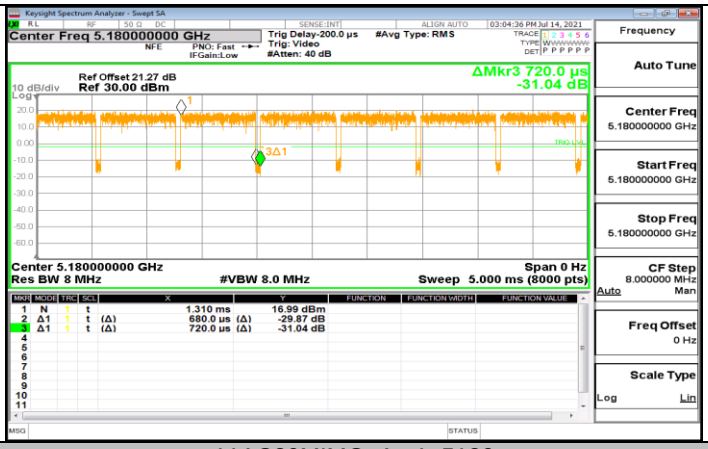

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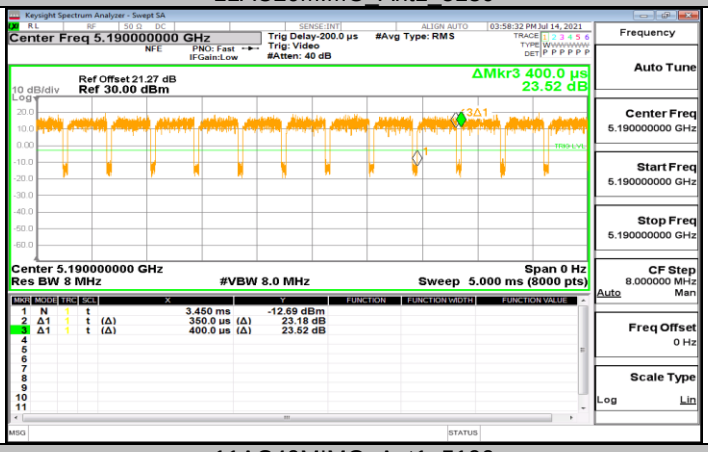
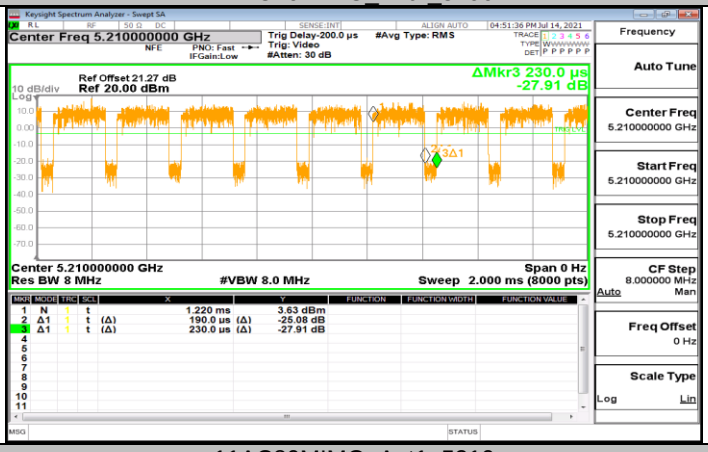


11AC40MIMO_Ant1_5190



11AC80MIMO_Ant1_5210

Note: All the test result comes from the original test report.

7.2. AVERAGE CONDUCTED OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	☐ Outdoor Access Point: 1 W (30 dBm) ☐ Indoor Access Point: 1 W (30 dBm) ☐ Fixed Point-To-Point Access Points: 1 W (30 dBm) ☒ Client Devices: 250 mW (24 dBm)	5150 ~ 5250
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850

ISED RSS-247 ISSUE 2		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power or e.i.r.p.	The maximum e.i.r.p. shall not exceed 200 mW (23 dBm) or $10 + 10 \log_{10}B$, dBm, whichever power is less. B is the 99 % emission bandwidth in megahertz.	5150 ~ 5250
	a. The maximum conducted output power shall not exceed 250 mW (24 dBm) or $11 + 10 \log_{10}B$ dBm, whichever is less. b. The maximum e.i.r.p. shall not exceed 1.0 W (30 dBm) or $17 + 10 \log_{10}B$ dBm, whichever is less. B is the 99 % emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	Shall not exceed 1 Watt (30 dBm). The e.i.r.p. shall not exceed 4 W	5725 ~ 5850

Note:
The above limits are based upon the maximum antenna gain does not exceed 6 dBi.
If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

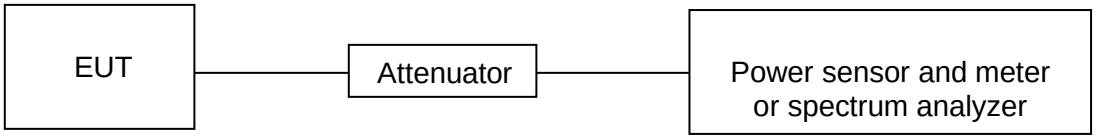
Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):
(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
(ii) Set RBW = 1 MHz.
(iii) Set VBW ≥ 3 MHz.
(iv) Number of points in sweep ≥ 2 × span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
(v) Sweep time = auto.
(vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
(vii) If transmit duty cycle < 98 %, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”
(viii) Trace average at least 100 traces in power averaging (rms) mode.
(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

Method PM (Measurement using an RF average power meter):
(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
a. The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
b. At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
c. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in II.B.
(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
(iv) Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log (1/0.25) if the duty cycle is 25 %).

Method PM-G (Measurement using a gated RF average power meter):
Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Straddle channel power was measured using spectrum analyzer.

TEST SETUP



TEST ENVIRONMENT

Temperature	25.3 °C	Relative Humidity	62.4 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V

TEST RESULTS

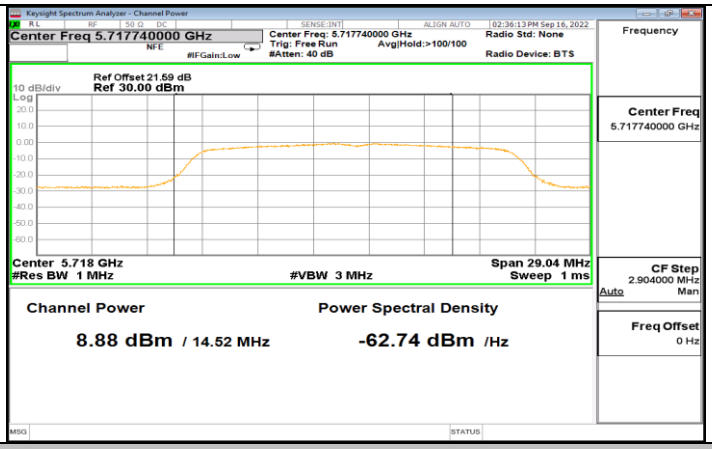
Test Mode	Antenna	Channel	Power [dBm]	FCC Limit [dBm]	ISED Limit [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	10.44	≤23.98	≤17.01	5.19	≤20.01	PASS
	Ant2	5180	**10.76**	≤23.98	≤17.09	5.1	≤20.09	PASS
	Ant1	5200	10.39	≤23.98	≤17.02	5.19	≤20.02	PASS
	Ant2	5200	10.22	≤23.98	≤17.09	5.1	≤20.09	PASS
	Ant1	5240	10.17	≤23.98	≤17.01	5.19	≤20.01	PASS
	Ant2	5240	10.63	≤23.98	≤17.11	5.1	≤20.11	PASS
	Ant1	5260	10.59	≤23.90	≤21.80	5.19	≤27.80	PASS
	Ant2	5260	10.33	≤23.97	≤21.89	5.1	≤27.89	PASS
	Ant1	5280	**10.68**	≤23.91	≤21.80	5.19	≤27.80	PASS
	Ant2	5280	10.46	≤23.98	≤21.89	5.1	≤27.89	PASS
	Ant1	5320	10.11	≤23.94	≤21.80	5.19	≤27.80	PASS
	Ant2	5320	10.52	≤23.97	≤21.89	5.1	≤27.89	PASS
	Ant1	5500	10.32	≤23.89	≤21.80	5.19	≤27.80	PASS
	Ant2	5500	10.47	≤23.94	≤21.89	5.1	≤27.89	PASS
	Ant1	5580	10.71	≤23.94	≤21.80	5.19	≤27.80	PASS
	Ant2	5580	**11.33**	≤23.87	≤21.89	5.1	≤27.89	PASS
	Ant1	5700	10.56	≤23.98	≤21.80	5.19	≤27.80	PASS
	Ant2	5700	11.12	≤23.98	≤21.89	5.1	≤27.89	PASS
	Ant1	5720_UNII-2C	8.88	≤22.62	≤21.80	5.19	≤27.80	PASS
	Ant2	5720_UNII-2C	8.91	≤22.75	≤21.89	5.1	≤27.89	PASS
	Ant1	5720_UNII-3	1.35	≤30.00	≤30.00	5.19	---	PASS
	Ant2	5720_UNII-3	1.26	≤30.00	≤30.00	5.1	---	PASS
	Ant1	5745	**10.33**	≤30.00	≤30.00	5.19	---	PASS
	Ant2	5745	10.13	≤30.00	≤30.00	5.1	---	PASS
	Ant1	5785	9.51	≤30.00	≤30.00	5.19	---	PASS
	Ant2	5785	10.02	≤30.00	≤30.00	5.1	---	PASS
	Ant1	5825	9.29	≤30.00	≤30.00	5.19	---	PASS
	Ant2	5825	9.43	≤30.00	≤30.00	5.1	---	PASS
11N20MIMO	Ant1	5180	8.31	≤23.98	≤17.31	13.50	≤20.31	PASS
	Ant2	5180	7.96	≤23.98	≤17.37	13.06	≤20.37	PASS
	total	5180	11.15	≤23.98	≤17.37	16.30	≤20.37	PASS
	Ant1	5200	8.04	≤23.98	≤17.29	13.23	≤20.29	PASS
	Ant2	5200	8.12	≤23.98	≤17.37	13.22	≤20.37	PASS
	total	5200	11.09	≤23.98	≤17.37	16.24	≤20.37	PASS
	Ant1	5240	8.32	≤23.98	≤17.28	13.51	≤20.28	PASS

	Ant2	5240	8.25	≤23.98	≤17.39	13.35	≤20.39	PASS
	total	5240	**11.30**	≤23.98	≤17.37	16.44	≤20.37	PASS
	Ant1	5260	8.83	≤23.98	≤21.80	14.02	≤27.80	PASS
	Ant2	5260	8.77	≤23.98	≤21.89	13.87	≤27.89	PASS
	total	5260	**11.81**	≤23.98	≤21.89	16.96	≤27.89	PASS
	Ant1	5280	8.84	≤23.98	≤21.80	14.03	≤27.80	PASS
	Ant2	5280	8.75	≤23.93	≤21.89	13.85	≤27.89	PASS
	total	5280	11.81	≤23.98	≤21.89	16.95	≤27.89	PASS
	Ant1	5320	8.62	≤23.98	≤21.80	13.81	≤27.80	PASS
	Ant2	5320	8.45	≤23.98	≤21.89	13.55	≤27.89	PASS
	total	5320	11.55	≤23.98	≤21.89	16.69	≤27.89	PASS
	Ant1	5500	8.88	≤23.96	≤21.80	14.07	≤27.80	PASS
	Ant2	5500	8.92	≤23.98	≤21.89	14.02	≤27.89	PASS
	total	5500	11.91	≤23.98	≤21.89	17.06	≤27.89	PASS
	Ant1	5580	9.88	≤23.98	≤21.80	15.07	≤27.80	PASS
	Ant2	5580	9.51	≤23.98	≤21.89	14.61	≤27.89	PASS
	total	5580	**12.71**	≤23.98	≤21.89	17.86	≤27.89	PASS
	Ant1	5700	9.55	≤23.98	≤21.80	14.74	≤27.80	PASS
	Ant2	5700	9.40	≤23.98	≤21.89	14.50	≤27.89	PASS
	total	5700	12.49	≤23.98	≤21.89	17.63	≤27.89	PASS
	Ant1	5720_UNII-2C	8.24	≤22.69	≤21.80	13.43	≤27.80	PASS
	Ant2	5720_UNII-2C	8.12	≤22.63	≤21.89	13.22	≤27.89	PASS
	total	5720_UNII-2C	11.19	≤23.98	≤21.89	16.34	≤27.89	PASS
	Ant1	5720_UNII-3	1.00	≤30.00	≤30.00	6.19	---	PASS
	Ant2	5720_UNII-3	1.05	≤30.00	≤30.00	6.15	---	PASS
	total	5720_UNII-3	4.04	≤30.00	≤30.00	9.18	---	PASS
	Ant1	5745	9.09	≤30.00	≤30.00	14.28	---	PASS
	Ant2	5745	8.89	≤30.00	≤30.00	13.99	---	PASS
	total	5745	**12.00**	≤30.00	≤30.00	17.15	---	PASS
	Ant1	5785	8.96	≤30.00	≤30.00	14.15	---	PASS
	Ant2	5785	8.66	≤30.00	≤30.00	13.76	---	PASS
	total	5785	11.82	≤30.00	≤30.00	16.97	---	PASS
	Ant1	5825	8.25	≤30.00	≤30.00	13.44	---	PASS
	Ant2	5825	8.10	≤30.00	≤30.00	13.20	---	PASS
	total	5825	11.19	≤30.00	≤30.00	16.33	---	PASS
11N40MIMO	Ant1	5190	10.12	≤23.98	≤17.82	15.31	≤23	PASS
	Ant2	5190	9.75	≤23.98	≤17.91	14.85	≤23	PASS
	total	5190	**12.95**	≤23.98	≤17.91	18.10	≤23	PASS
	Ant1	5230	9.66	≤23.98	≤17.82	14.85	≤23	PASS
	Ant2	5230	9.32	≤23.98	≤17.91	14.42	≤23	PASS
	total	5230	12.50	≤23.98	≤17.91	17.65	≤23	PASS
	Ant1	5270	9.62	≤23.98	≤21.80	14.81	≤30	PASS
	Ant2	5270	9.45	≤23.98	≤21.89	14.55	≤30	PASS
	total	5270	**12.55**	≤23.98	≤21.89	17.69	≤30	PASS
	Ant1	5310	8.89	≤23.98	≤21.80	14.08	≤30	PASS
	Ant2	5310	8.70	≤23.98	≤21.89	13.80	≤30	PASS
	total	5310	11.81	≤23.98	≤21.89	16.95	≤30	PASS
	Ant1	5510	9.51	≤23.98	≤21.80	14.70	≤30	PASS
	Ant2	5510	9.14	≤23.98	≤21.89	14.24	≤30	PASS
	total	5510	12.34	≤23.98	≤21.89	17.49	≤30	PASS
	Ant1	5550	9.60	≤23.98	≤21.80	14.79	≤30	PASS
	Ant2	5550	9.09	≤23.98	≤21.89	14.19	≤30	PASS
	total	5550	12.36	≤23.98	≤21.89	17.51	≤30	PASS
	Ant1	5670	10.04	≤23.98	≤21.80	15.23	≤30	PASS
	Ant2	5670	9.65	≤23.98	≤21.89	14.75	≤30	PASS
	total	5670	**12.86**	≤23.98	≤21.89	18.01	≤30	PASS
	Ant1	5710_UNII-2C	10.21	≤23.98	≤21.80	15.40	≤30	PASS

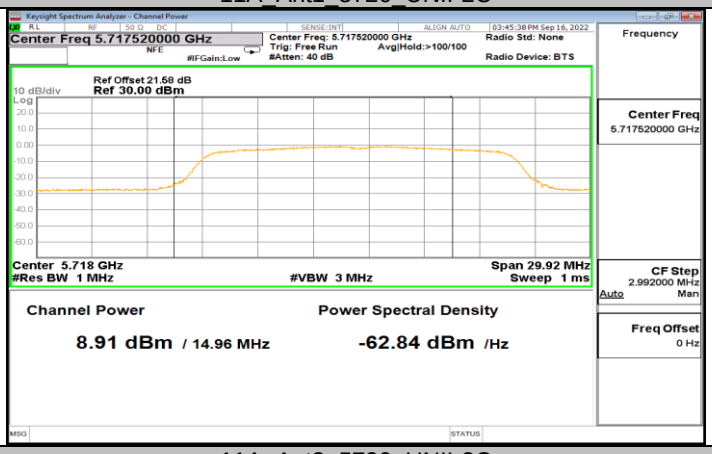
	Ant2	5710_UNII-2C	10.10	≤23.98	≤21.89	15.20	≤30	PASS
	total	5710_UNII-2C	13.17	≤23.98	≤21.89	18.31	≤30	PASS
	Ant1	5710_UNII-3	-2.74	≤30.00	≤30.00	2.45	---	PASS
	Ant2	5710_UNII-3	-2.60	≤30.00	≤30.00	2.51	---	PASS
	total	5710_UNII-3	0.34	≤30.00	≤30.00	5.49	---	PASS
	Ant1	5755	9.53	≤30.00	≤30.00	14.72	---	PASS
	Ant2	5755	9.46	≤30.00	≤30.00	14.56	---	PASS
	total	5755	**12.51**	≤30.00	≤30.00	17.65	---	PASS
	Ant1	5795	8.89	≤30.00	≤30.00	14.08	---	PASS
	Ant2	5795	8.98	≤30.00	≤30.00	14.08	---	PASS
	total	5795	11.95	≤30.00	≤30.00	17.09	---	PASS
11AC80MIMO	Ant1	5210	10.03	≤23.98	≤17.82	15.22	≤23	PASS
	Ant2	5210	10.05	≤23.98	≤17.91	15.15	≤23	PASS
	total	5210	**13.05**	≤23.98	≤17.91	18.20	≤23	PASS
	Ant1	5290	9.67	≤23.98	≤21.80	14.86	≤30	PASS
	Ant2	5290	9.56	≤23.98	≤21.89	14.66	≤30	PASS
	total	5290	**12.63**	≤23.98	≤21.89	17.77	≤30	PASS
	Ant1	5530	9.89	≤23.98	≤21.80	15.08	≤30	PASS
	Ant2	5530	9.73	≤23.98	≤21.89	14.83	≤30	PASS
	total	5530	12.82	≤23.98	≤21.89	17.97	≤30	PASS
	Ant1	5610	10.67	≤23.98	≤21.80	15.86	≤30	PASS
	Ant2	5610	10.61	≤23.98	≤21.89	15.71	≤30	PASS
	total	5610	**13.65**	≤23.98	≤21.89	18.80	≤30	PASS
	Ant1	5690_UNII-2C	10.31	≤23.98	≤21.80	15.50	≤30	PASS
	Ant2	5690_UNII-2C	10.63	≤23.98	≤21.89	15.73	≤30	PASS
	total	5690_UNII-2C	13.48	≤23.98	≤21.89	18.63	≤30	PASS
	Ant1	5690_UNII-3	-5.76	≤30.00	≤30.00	-0.57	---	PASS
	Ant2	5690_UNII-3	-5.74	≤30.00	≤30.00	-0.64	---	PASS
	total	5690_UNII-3	-2.74	≤30.00	≤30.00	2.41	---	PASS
	Ant1	5775	9.83	≤30.00	≤30.00	15.02	---	PASS
	Ant2	5775	9.87	≤30.00	≤30.00	14.97	---	PASS
	total	5775	**12.86**	≤30.00	≤30.00	18.01	---	PASS

Note：The Duty Cycle Factor is compensated in the graph.

TEST GRAPHS



11A_Ant1_5720_UNII-2C



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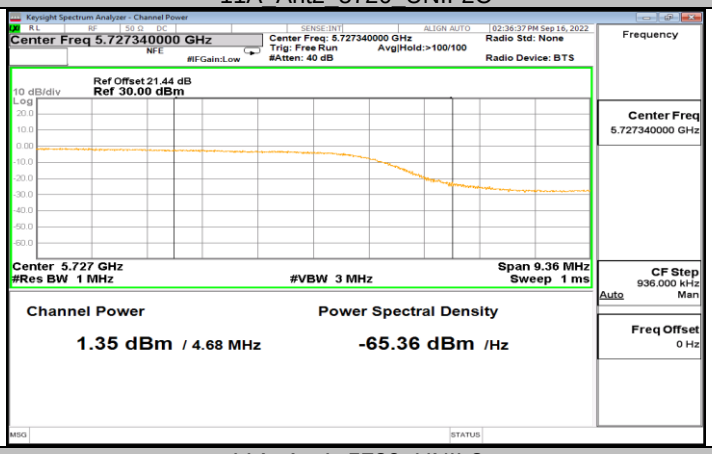

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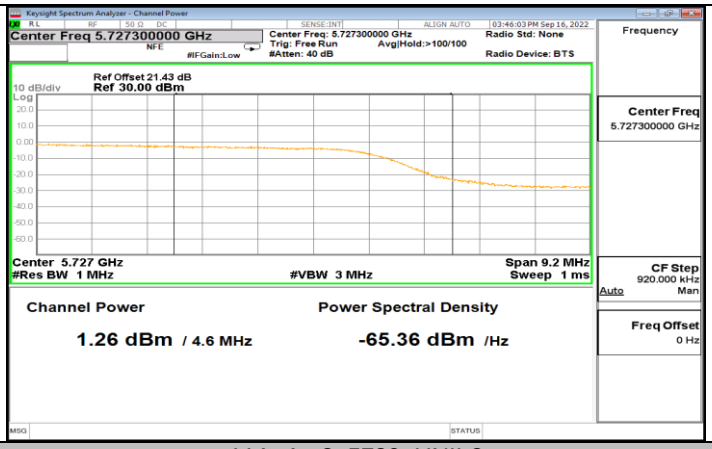
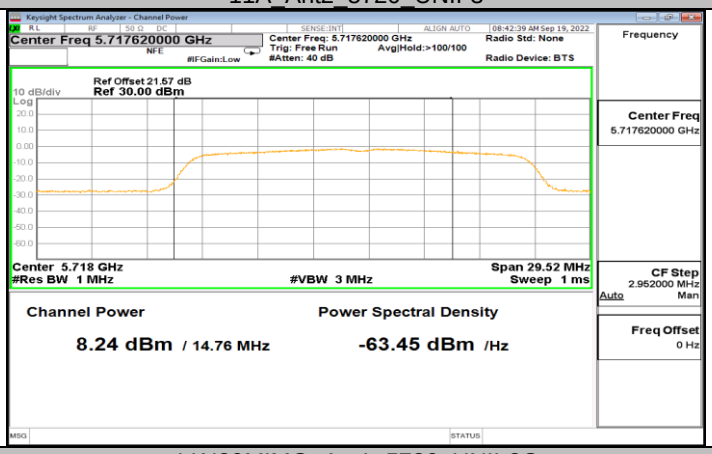


11A_Ant2_5720_UNII-3



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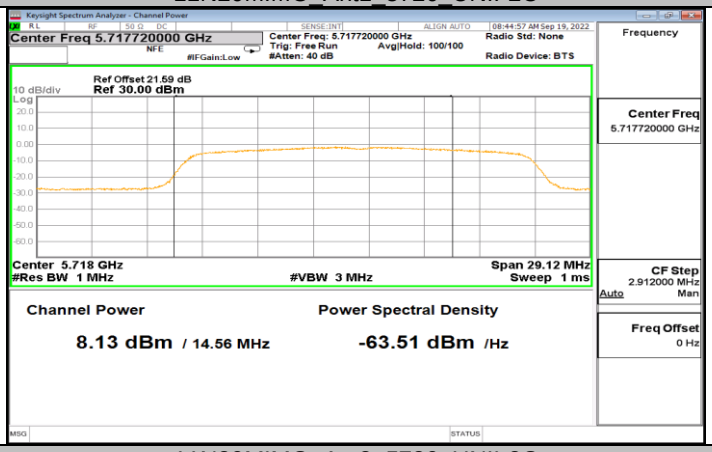

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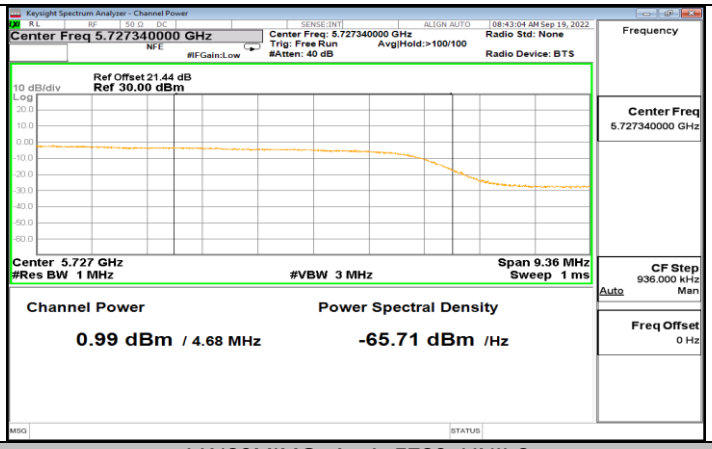

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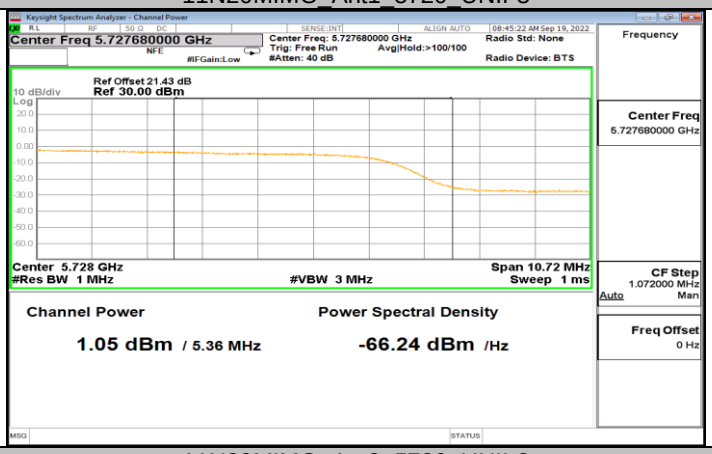

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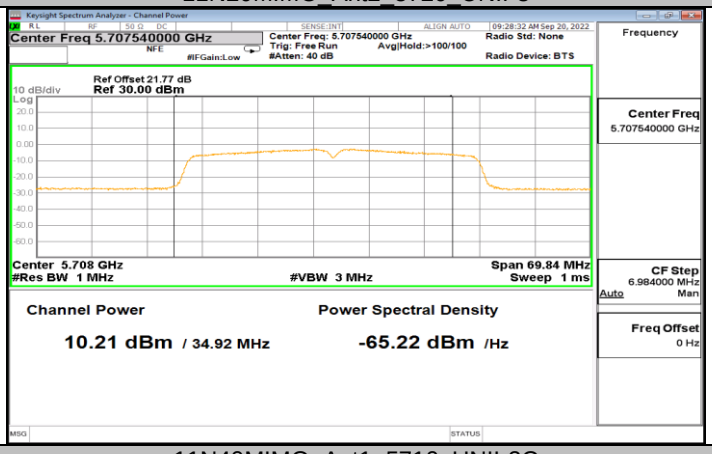
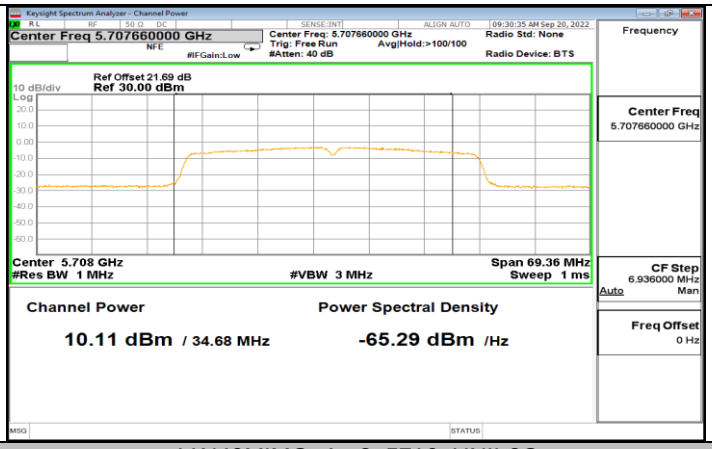


11N40MIMO_Ant1_5710_UNII-2C



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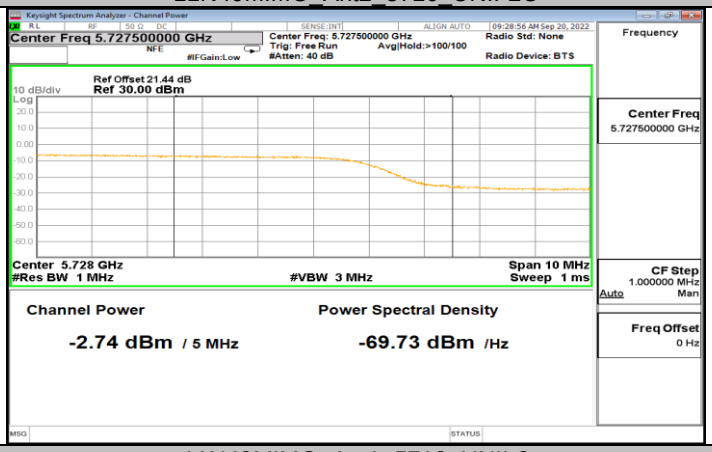

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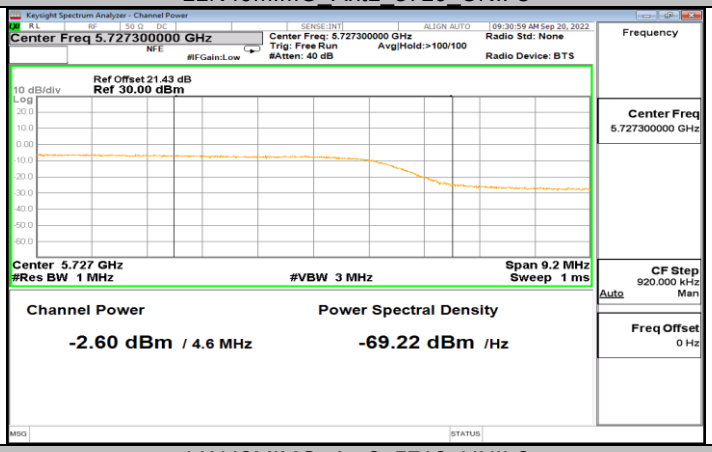

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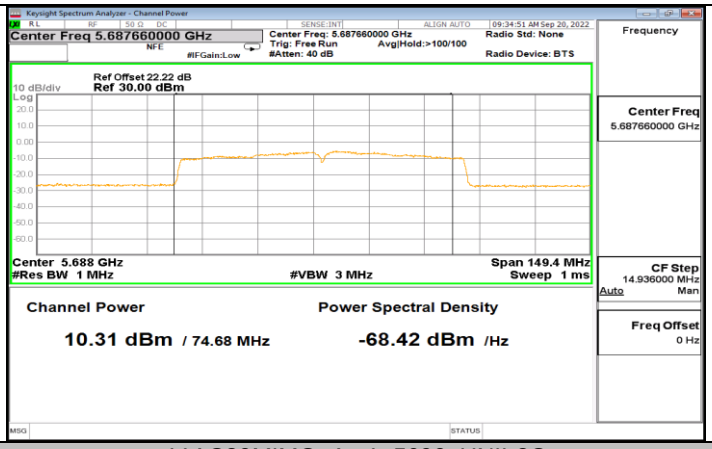
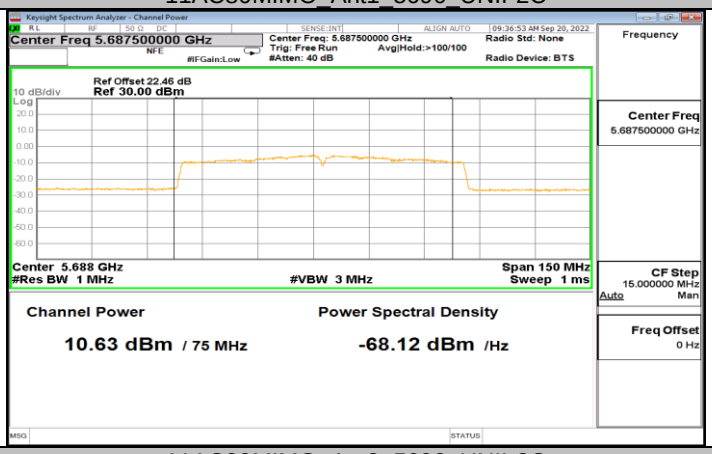
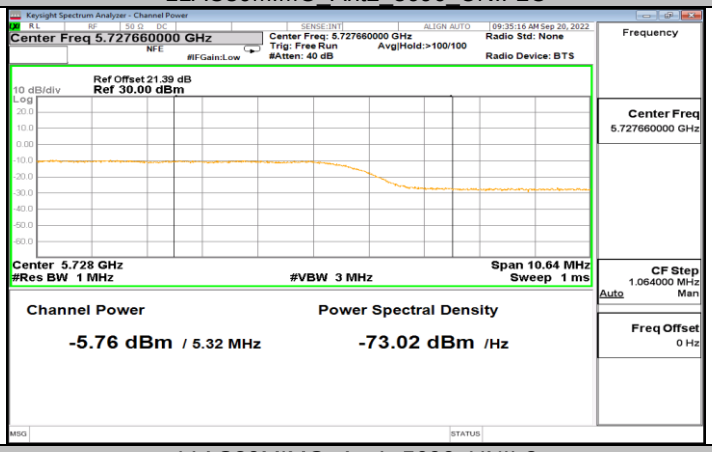


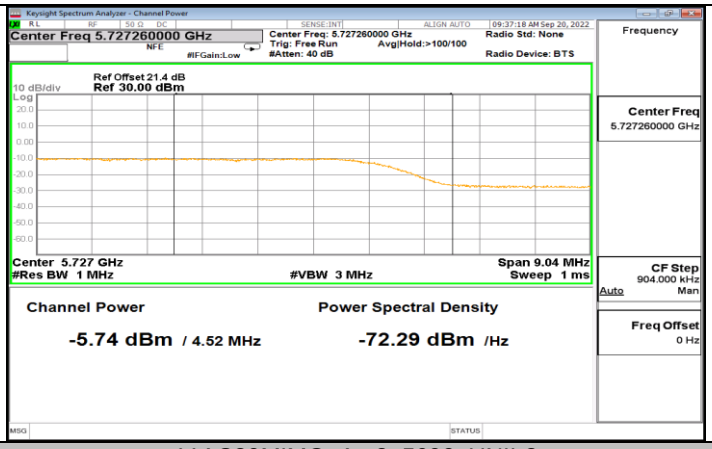
11AC80MIMO_Ant1_5690_UNII-2C



11AC80MIMO_Ant2_5690_UNII-2C



11AC80MIMO_Ant1_5690_UNII-3



11AC80MIMO_Ant2_5690_UNII-3

7.3. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	☐ Outdoor Access Point: 17 dBm/MHz ☐ Indoor Access Point: 17 dBm/MHz ☐ Fixed Point-To-Point Access Points: 17 dBm/MHz ☒ Client Devices: 11 dBm/MHz	5150 ~ 5250
	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725
	30 dBm/500kHz	5725 ~ 5850

ISED RSS-247 ISSUE 2		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.	5150 ~ 5250
	The power spectral density shall not exceed 11 dBm inany 1.0 MHz band.	5250 ~ 5350 5470 ~ 5600 5650 ~ 5725
	30 dBm / 500 kHz	5725 ~ 5850

Note:
The above limits are based upon the maximum antenna gain does not exceed 6 dBi.
If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.

Connect the EUT to the spectrum analyser and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

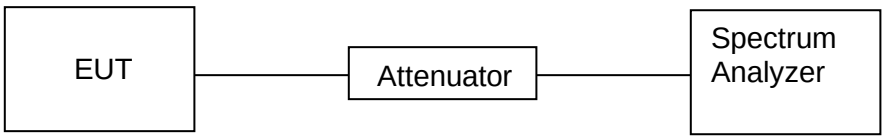
Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1 MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and Use the peak search function on the instrument to find the peak of the spectrum and record its value.
Add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

TEST SETUP



TEST ENVIRONMENT

Temperature	25.3 °C	Relative Humidity	62.4 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V

TEST RESULTS

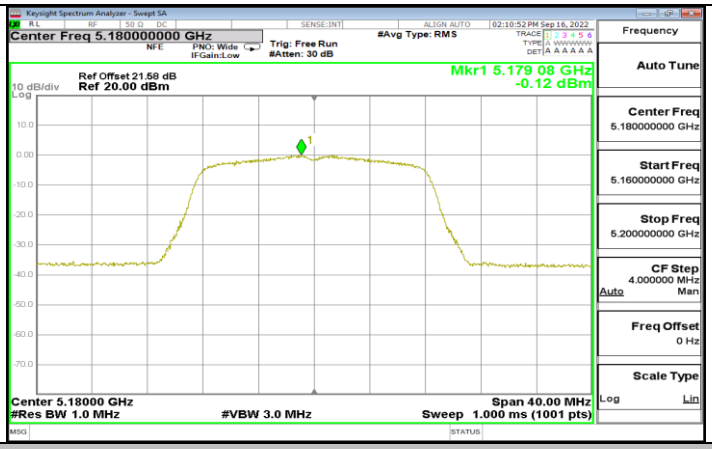
Test Mode	Antenna	Channel	Power [dBm/MHz]	Limit [dBm/MHz]	EIRP [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	-0.12	<=8.8	5.07	10	PASS
	Ant2	5180	-0.12	<=8.8	5.07	10	PASS
	Ant1	5200	-0.32	<=8.8	4.87	10	PASS
	Ant2	5200	-0.37	<=8.8	4.82	10	PASS
	Ant1	5240	-0.17	<=8.8	5.02	10	PASS
	Ant2	5240	-0.32	<=8.8	4.87	10	PASS
	Ant1	5260	-0.44	<=8.8	4.75	---	PASS
	Ant2	5260	-0.5	<=8.8	4.69	---	PASS
	Ant1	5280	-0.5	<=8.8	4.69	---	PASS
	Ant2	5280	-0.49	<=8.8	4.70	---	PASS
	Ant1	5320	-0.4	<=8.8	4.79	---	PASS
	Ant2	5320	-0.45	<=8.8	4.74	---	PASS
	Ant1	5500	-0.54	<=8.8	4.65	---	PASS
	Ant2	5500	-0.27	<=8.8	4.92	---	PASS
	Ant1	5580	0.11	<=8.8	5.30	---	PASS
	Ant2	5580	0.05	<=8.8	5.24	---	PASS
	Ant1	5700	-0.16	<=8.8	5.03	---	PASS
	Ant2	5700	-0.17	<=8.8	5.02	---	PASS
	Ant1	5720_UNII-2C	-0.33	<=8.8	4.86	---	PASS
	Ant2	5720_UNII-2C	-0.18	<=8.8	5.01	---	PASS
	Ant1	5720_UNII-3	-5.26	<=8.8	-0.07	---	PASS
	Ant2	5720_UNII-3	-4.82	<=8.8	0.37	---	PASS
	Ant1	5745	-3.01	<=27.8	2.18	---	PASS
	Ant2	5745	-2.75	<=27.8	2.44	---	PASS
	Ant1	5785	-3.5	<=27.8	1.69	---	PASS
	Ant2	5785	-2.79	<=27.8	2.4	---	PASS
	Ant1	5825	-3.48	<=27.8	1.71	---	PASS
	Ant2	5825	-3.43	<=27.8	1.76	---	PASS
11N20MIMO	Ant1	5180	-2.05	≤11.00	6.15	10	PASS
	Ant2	5180	-2.4	≤11.00	5.80	10	PASS
	total	5180	0.79	≤11.00	8.99	10	PASS
	Ant1	5200	-2.48	≤11.00	5.72	10	PASS
	Ant2	5200	-2.21	≤11.00	5.99	10	PASS
	total	5200	0.67	≤11.00	8.87	10	PASS
	Ant1	5240	-2.06	≤11.00	6.14	10	PASS
	Ant2	5240	-1.91	≤11.00	6.29	10	PASS
	total	5240	1.03	≤11.00	9.23	10	PASS
	Ant1	5260	-1.25	≤11.00	6.95	---	PASS
	Ant2	5260	-1.51	≤11.00	6.69	---	PASS
	total	5260	1.63	≤11.00	9.83	---	PASS
	Ant1	5280	-1.36	≤11.00	6.84	---	PASS
	Ant2	5280	-1.67	≤11.00	6.53	---	PASS
	total	5280	1.50	≤11.00	9.70	---	PASS
	Ant1	5320	-1.59	≤11.00	6.61	---	PASS
	Ant2	5320	-1.65	≤11.00	6.55	---	PASS
	total	5320	1.39	≤11.00	9.59	---	PASS
	Ant1	5500	-1.39	≤11.00	6.81	---	PASS
	Ant2	5500	-1.47	≤11.00	6.73	---	PASS
	total	5500	1.58	≤11.00	9.78	---	PASS
	Ant1	5580	-0.44	≤11.00	7.76	---	PASS
	Ant2	5580	-0.6	≤11.00	7.60	---	PASS
	total	5580	2.49	≤11.00	10.69	---	PASS
	Ant1	5700	-0.87	≤11.00	7.33	---	PASS
	Ant2	5700	-0.86	≤11.00	7.34	---	PASS
	total	5700	2.15	≤11.00	10.35	---	PASS
	Ant1	5720_UNII-2C	-0.88	≤11.00	7.32	---	PASS

	Ant2	5720_UNII-2C	-1.17	≤11.00	7.03	---	PASS
	total	5720_UNII-2C	1.99	≤11.00	10.19	---	PASS
	Ant1	5720_UNII-3	-5.78	≤11.00	2.42	---	PASS
	Ant2	5720_UNII-3	-6.09	≤11.00	2.11	---	PASS
	total	5720_UNII-3	-2.92	≤11.00	5.28	---	PASS
	Ant1	5745	-3.96	≤30.00	4.24	---	PASS
	Ant2	5745	-4.01	≤30.00	4.19	---	PASS
	total	5745	-0.97	≤30.00	7.23	---	PASS
	Ant1	5785	-4.08	≤30.00	4.12	---	PASS
	Ant2	5785	-4.38	≤30.00	3.82	---	PASS
	total	5785	-1.22	≤30.00	6.98	---	PASS
	Ant1	5825	-4.96	≤30.00	3.24	---	PASS
	Ant2	5825	-4.97	≤30.00	3.23	---	PASS
	total	5825	-1.95	≤30.00	6.25	---	PASS
11N40MIMO	Ant1	5190	-3.3	≤11.00	4.90	10	PASS
	Ant2	5190	-3.73	≤11.00	4.47	10	PASS
	total	5190	-0.50	≤11.00	7.70	10	PASS
	Ant1	5230	-3.59	≤11.00	4.61	10	PASS
	Ant2	5230	-3.94	≤11.00	4.26	10	PASS
	total	5230	-0.75	≤11.00	7.45	10	PASS
	Ant1	5270	-3.78	≤11.00	4.42	---	PASS
	Ant2	5270	-3.93	≤11.00	4.27	---	PASS
	total	5270	-0.84	≤11.00	7.36	---	PASS
	Ant1	5310	-4.34	≤11.00	3.86	---	PASS
	Ant2	5310	-4.47	≤11.00	3.73	---	PASS
	total	5310	-1.39	≤11.00	6.81	---	PASS
	Ant1	5510	-4.15	≤11.00	4.05	---	PASS
	Ant2	5510	-4.26	≤11.00	3.94	---	PASS
	total	5510	-1.19	≤11.00	7.01	---	PASS
	Ant1	5550	-3.98	≤11.00	4.22	---	PASS
	Ant2	5550	-4.16	≤11.00	4.04	---	PASS
	total	5550	-1.06	≤11.00	7.14	---	PASS
	Ant1	5670	-3.38	≤11.00	4.82	---	PASS
	Ant2	5670	-3.9	≤11.00	4.30	---	PASS
	total	5670	-0.62	≤11.00	7.58	---	PASS
	Ant1	5710_UNII-2C	-3.58	≤11.00	4.62	---	PASS
	Ant2	5710_UNII-2C	-3.74	≤11.00	4.46	---	PASS
	total	5710_UNII-2C	-0.65	≤11.00	7.55	---	PASS
	Ant1	5710_UNII-3	-10.11	≤11.00	-1.91	---	PASS
	Ant2	5710_UNII-3	-9.82	≤11.00	-1.62	---	PASS
	total	5710_UNII-3	-6.95	≤11.00	1.25	---	PASS
	Ant1	5755	-6.68	≤30.00	1.52	---	PASS
	Ant2	5755	-6.82	≤30.00	1.38	---	PASS
	total	5755	-3.74	≤30.00	4.46	---	PASS
	Ant1	5795	-7.43	≤30.00	0.77	---	PASS
	Ant2	5795	-7.19	≤30.00	1.01	---	PASS
	total	5795	-4.30	≤30.00	3.90	---	PASS
11AC80MIMO	Ant1	5210	-6.5	≤11.00	1.70	10	PASS
	Ant2	5210	-6.27	≤11.00	1.93	10	PASS
	total	5210	-3.37	≤11.00	4.83	10	PASS
	Ant1	5290	-7.04	≤11.00	1.16	---	PASS
	Ant2	5290	-6.5	≤11.00	1.70	---	PASS
	total	5290	-3.75	≤11.00	4.45	---	PASS
	Ant1	5530	-6.23	≤11.00	1.97	---	PASS
	Ant2	5530	-6.41	≤11.00	1.79	---	PASS
	total	5530	-3.31	≤11.00	4.89	---	PASS

	Ant1	5610	-5.76	≤11.00	2.44	---	PASS
	Ant2	5610	-5.1	≤11.00	3.10	---	PASS
	total	5610	-2.41	≤11.00	5.79	---	PASS
	Ant1	5690_UNII-2C	-5.92	≤11.00	2.28	---	PASS
	Ant2	5690_UNII-2C	-5.4	≤11.00	2.80	---	PASS
	total	5690_UNII-2C	-2.64	≤11.00	5.56	---	PASS
	Ant1	5690_UNII-3	-11.91	≤11.00	-3.71	---	PASS
	Ant2	5690_UNII-3	-12.08	≤11.00	-3.88	---	PASS
	total	5690_UNII-3	-8.98	≤11.00	-0.78	---	PASS
	Ant1	5775	-8.81	≤30.00	-0.61	---	PASS
	Ant2	5775	-9.01	≤30.00	-0.81	---	PASS
	total	5775	-5.90	≤30.00	2.30	---	PASS

Note: 1. The Result and Limit Unit is dBm/500 kHz in the band 5.725 ~ 5.85 GHz.
2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
3. For power spectral density (PSD) measurements, the directional gain is 8.20 dBi for 802.11n/802.11ac modes and exceed 2.2 when comparing to 6 dBi, so the limit shall be 11-2.2=8.8 dBm/MHz and 30-2.2=27.8 dBm/MHz.

TEST GRAPHS



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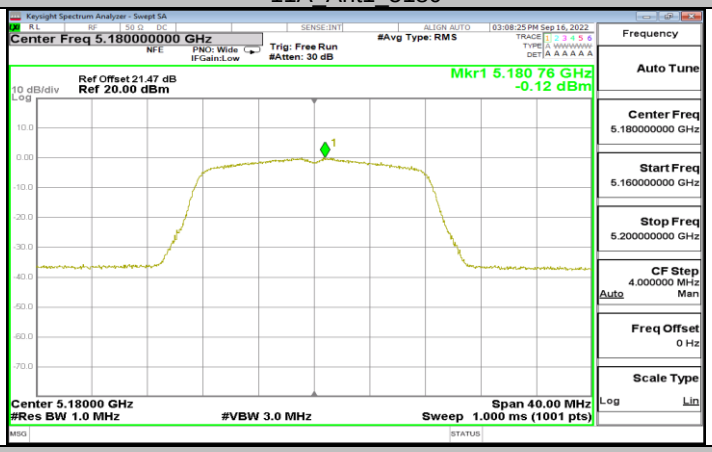

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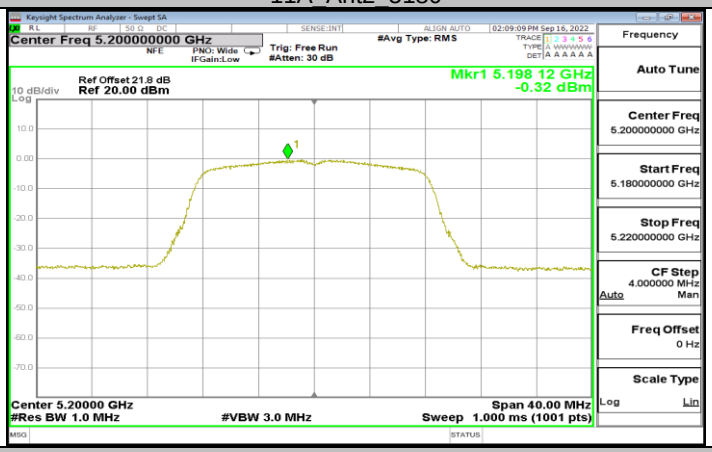

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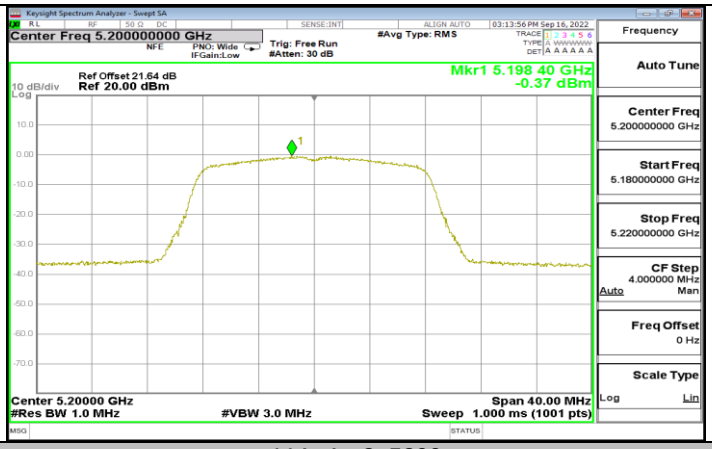
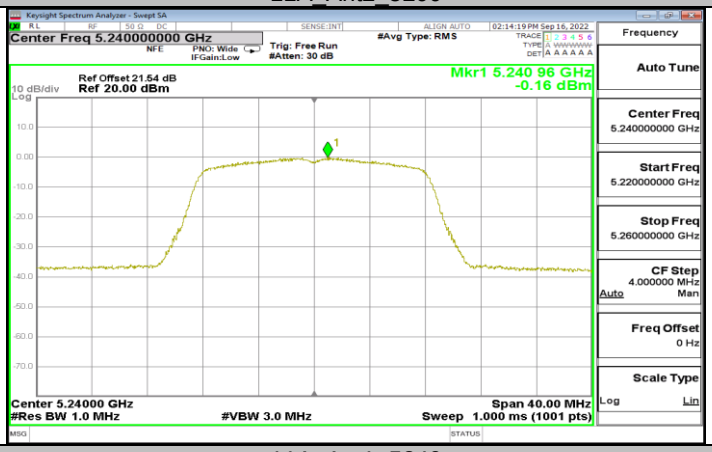


11A_Ant2_5200



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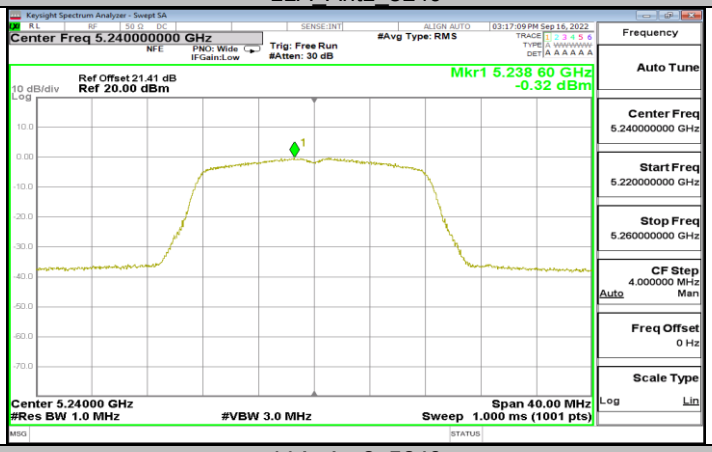

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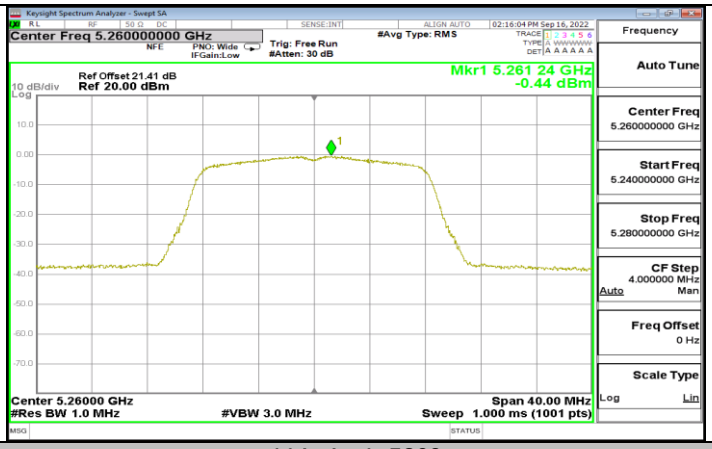

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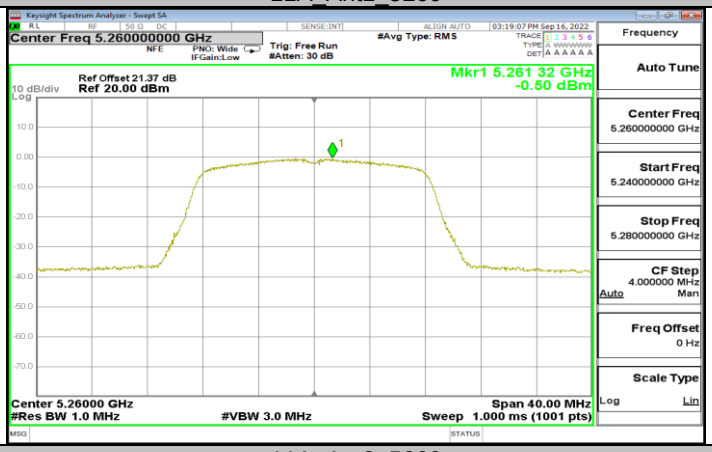
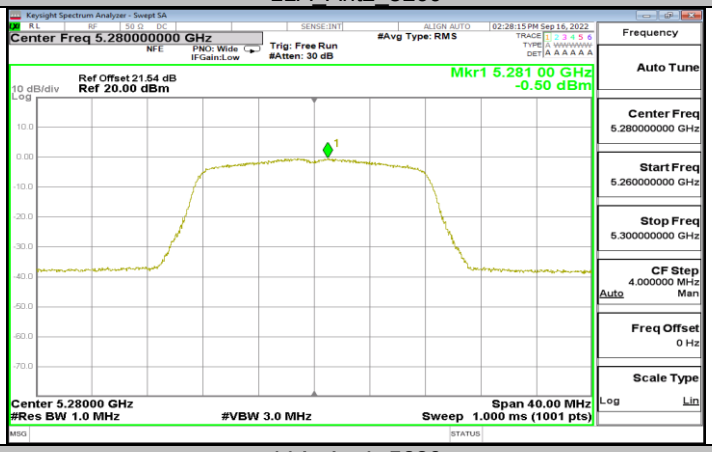


11A_Ant2_5260



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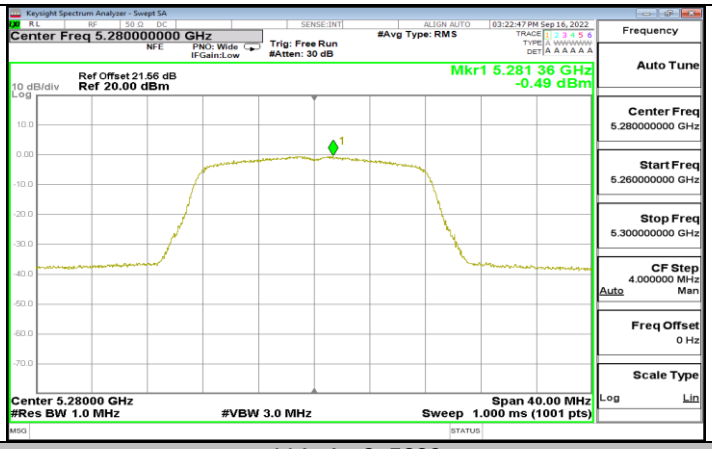

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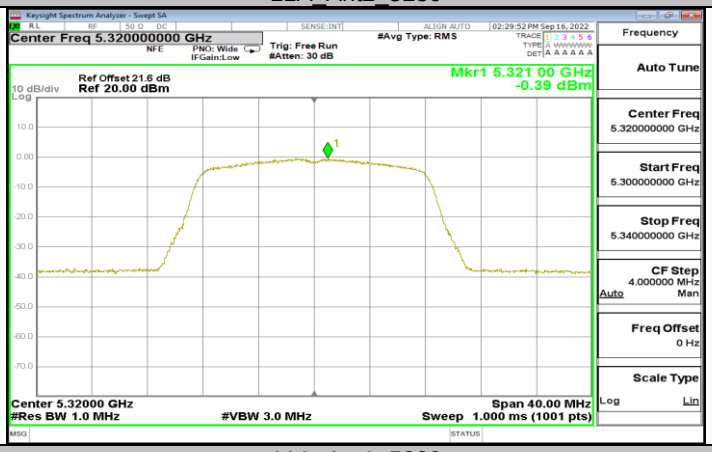

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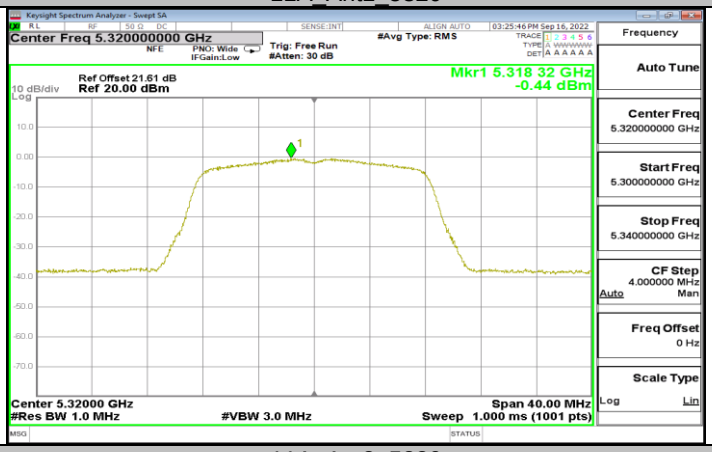
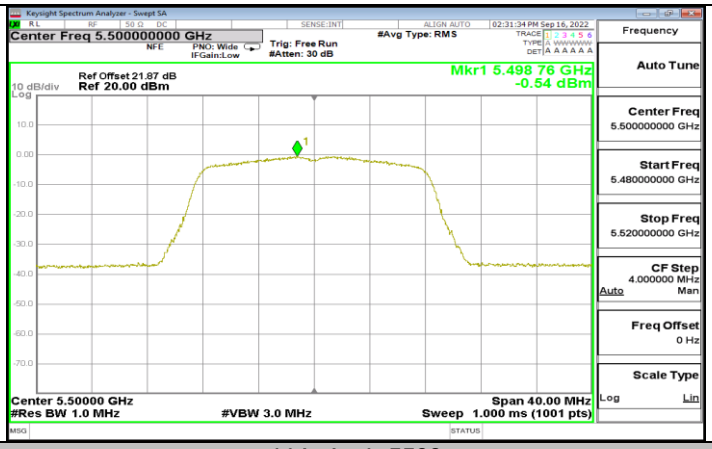
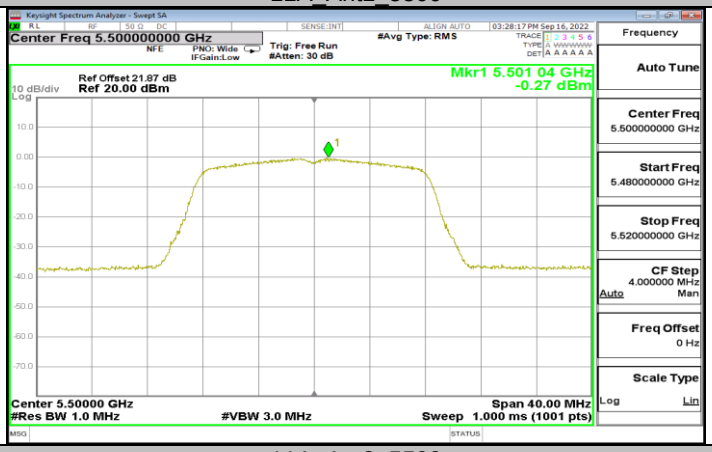


11A_Ant2_5320



11A_Ant1_5500



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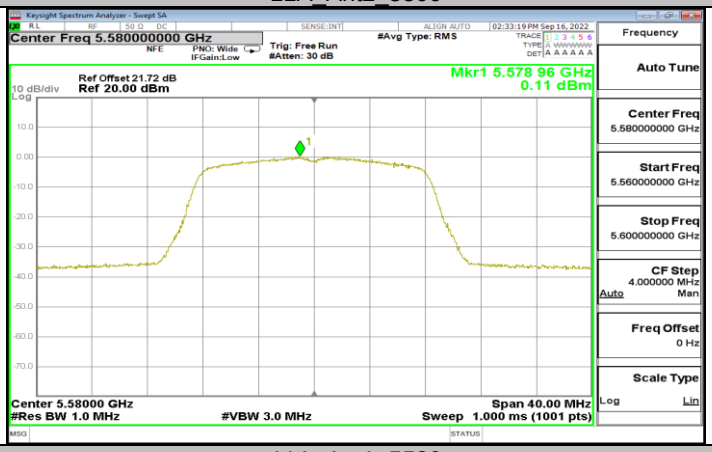

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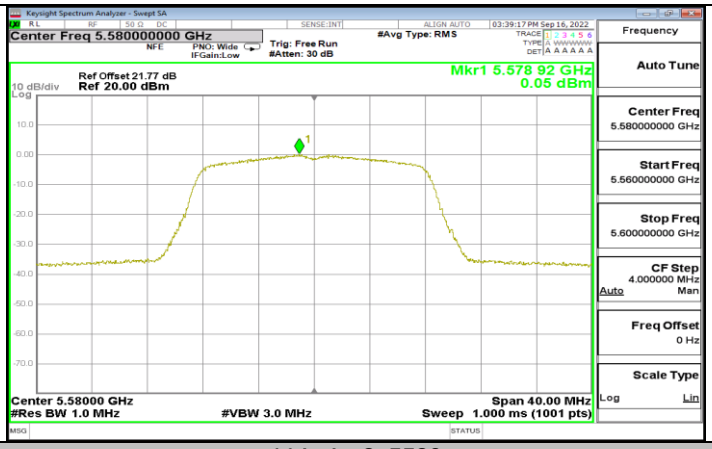

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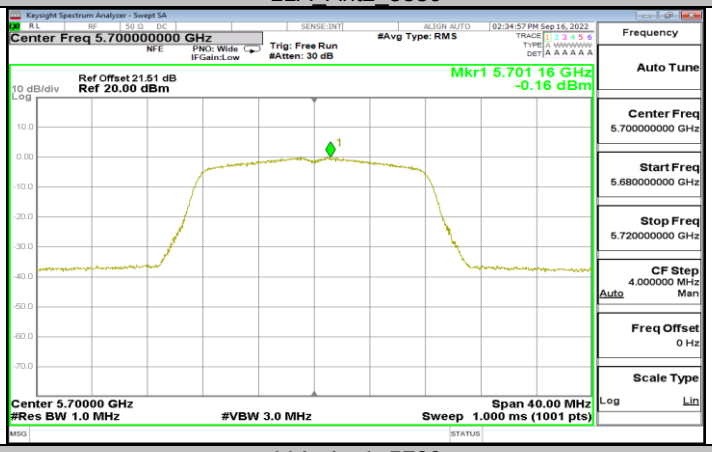
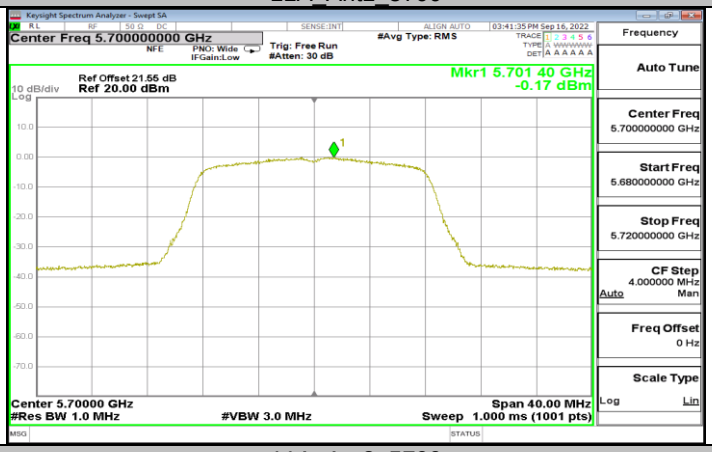
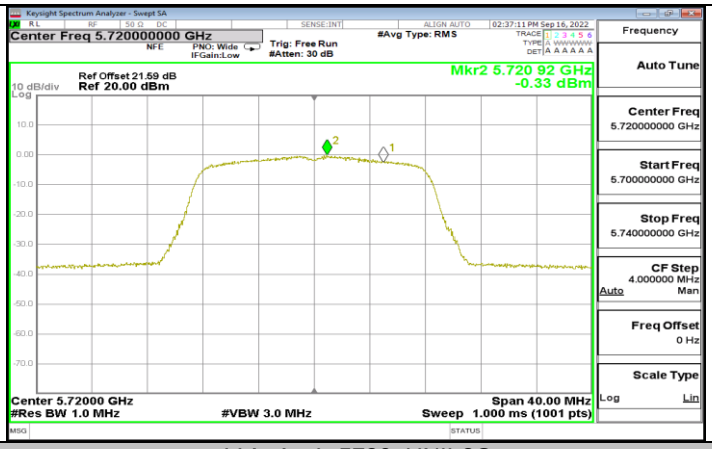


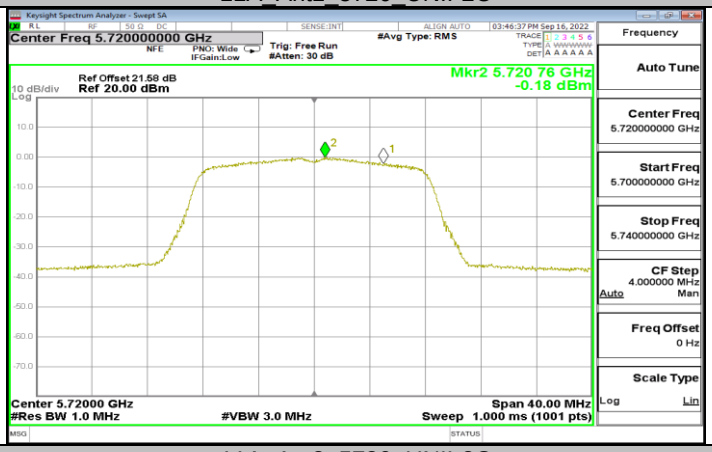
11A_Ant1_5700



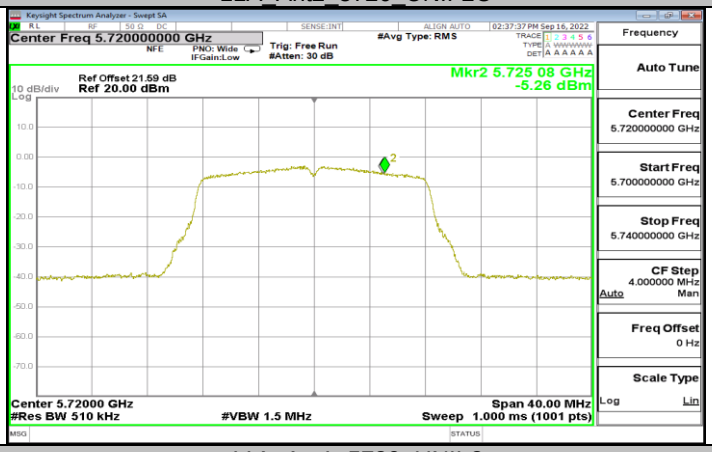
11A_Ant2_5700



11A_Ant1_5720_UNII-2C



11A_Ant2_5720_UNII-2C



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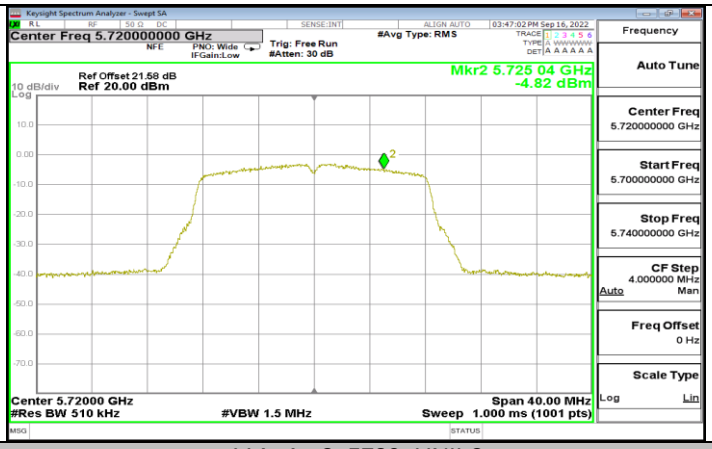
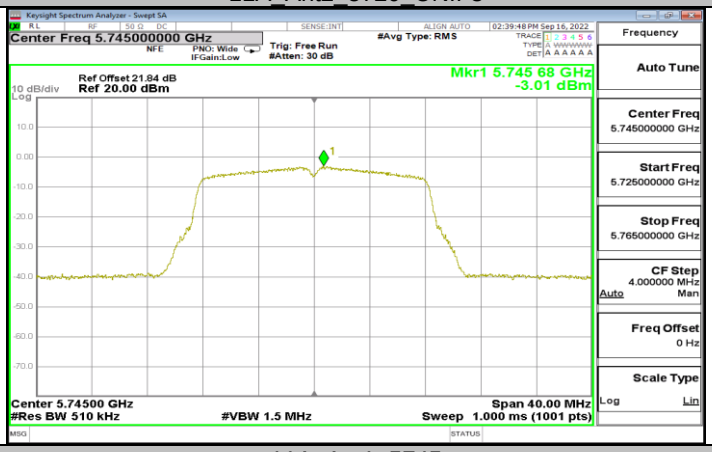


11A_Ant2_5720_UNII-3



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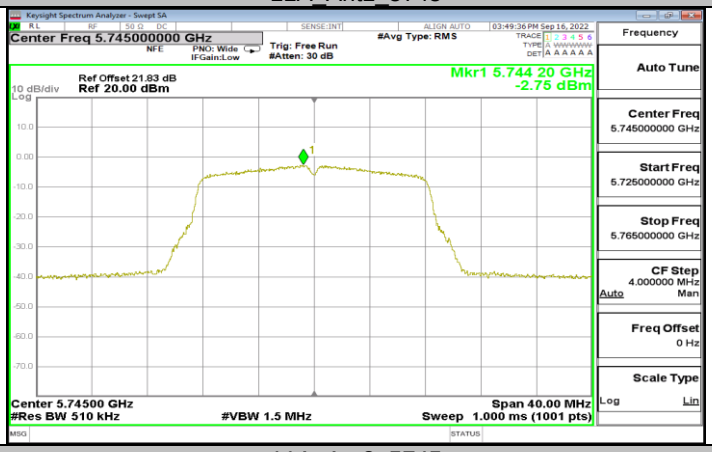
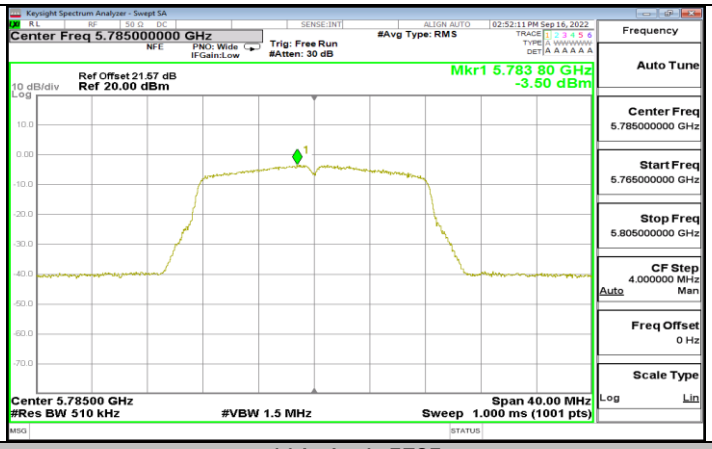
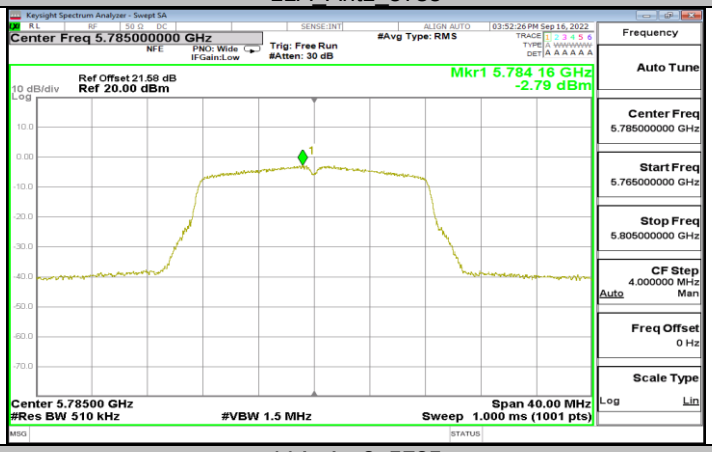


11A_Ant2_5745



11A_Ant1_5785



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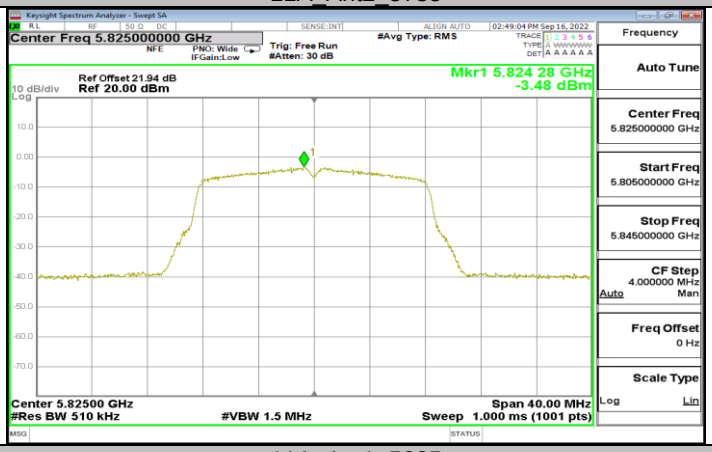

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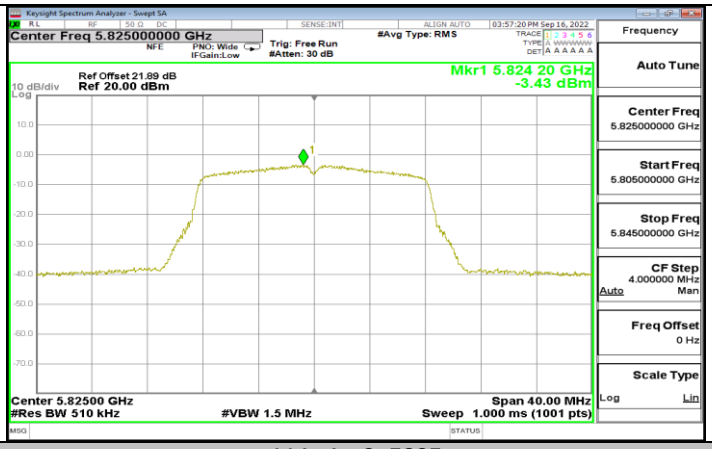

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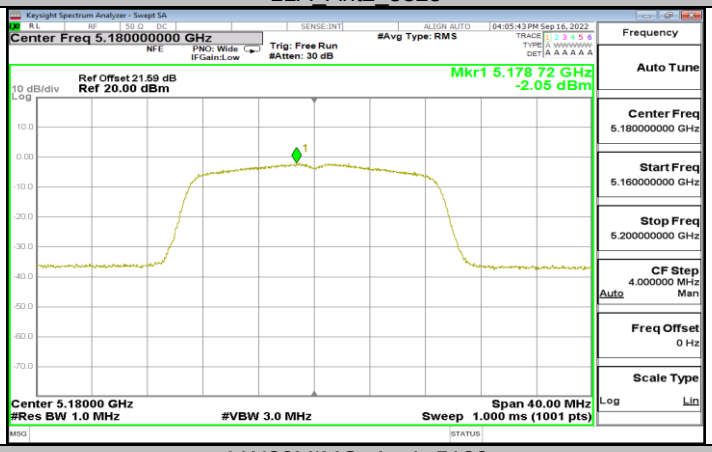
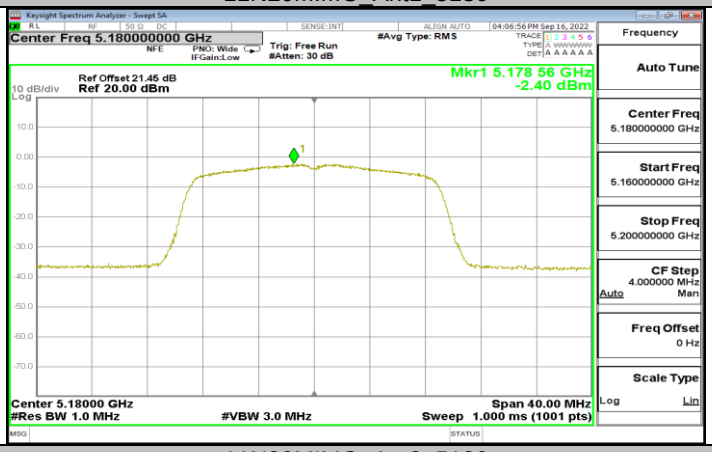


11N20MIMO_Ant1_5180



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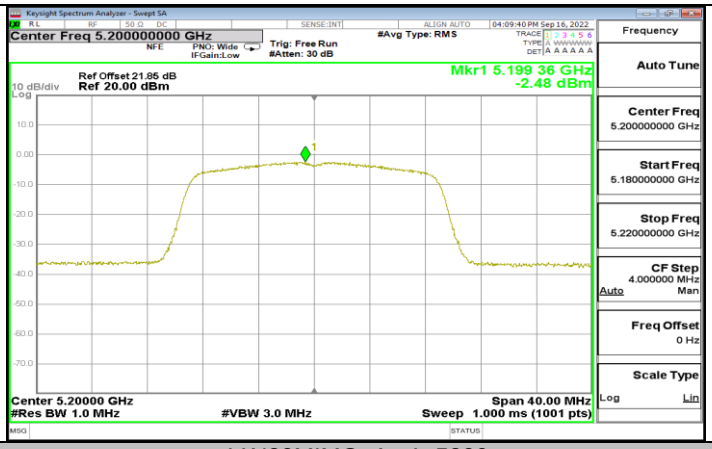

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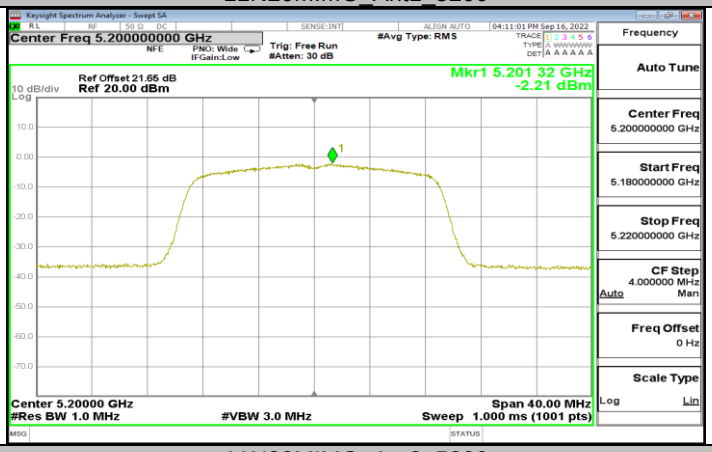
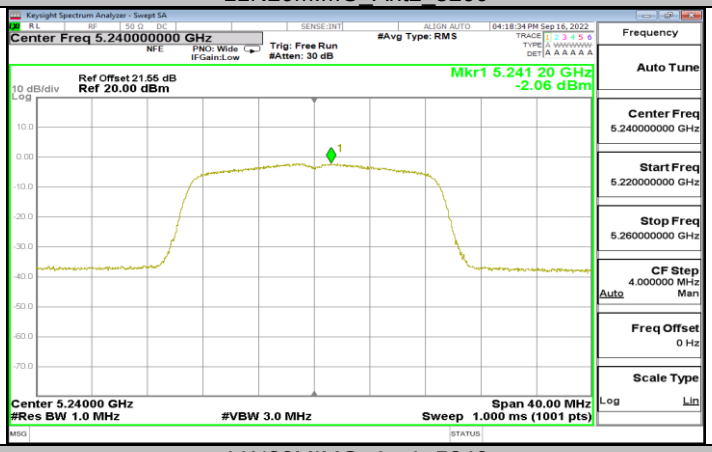
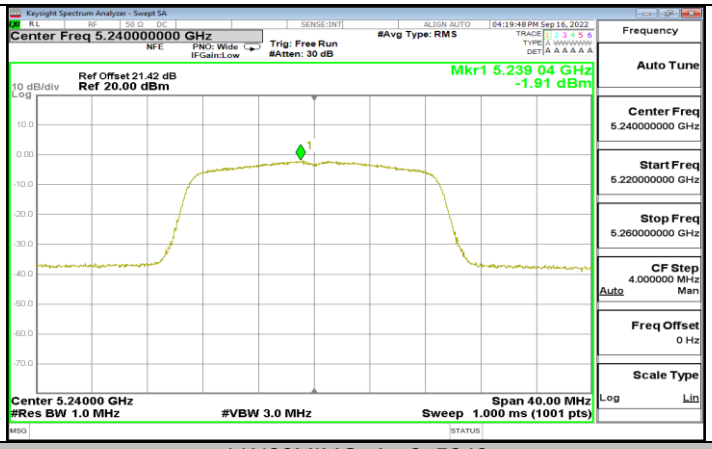


11N20MIMO_Ant2_5200



11N20MIMO_Ant1_5240



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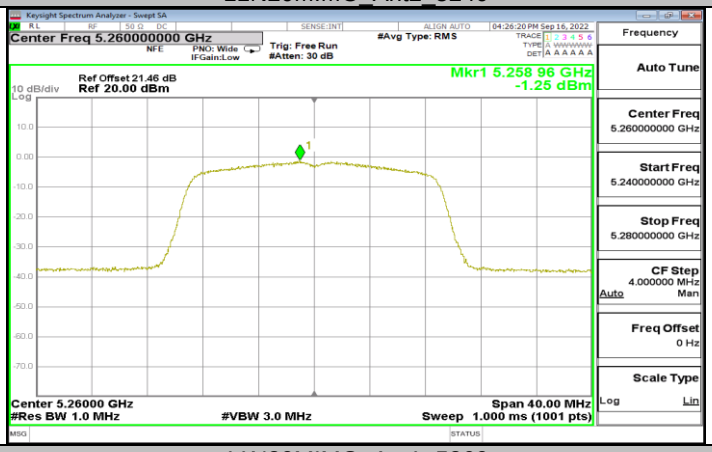

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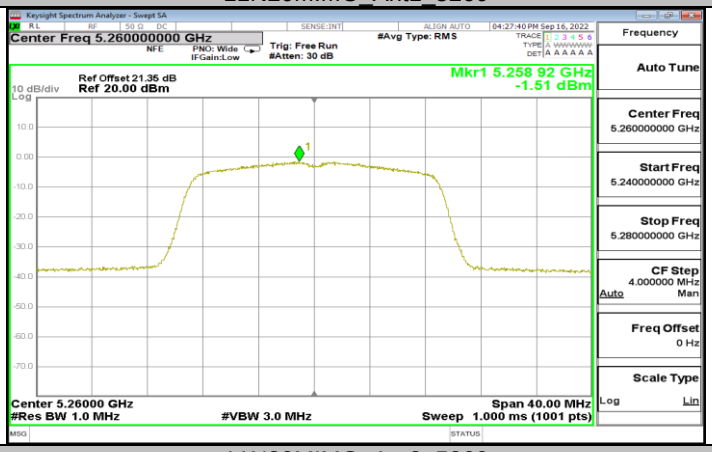

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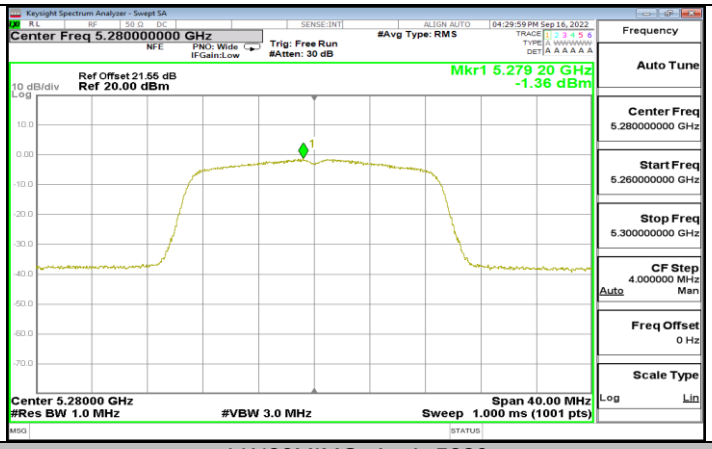

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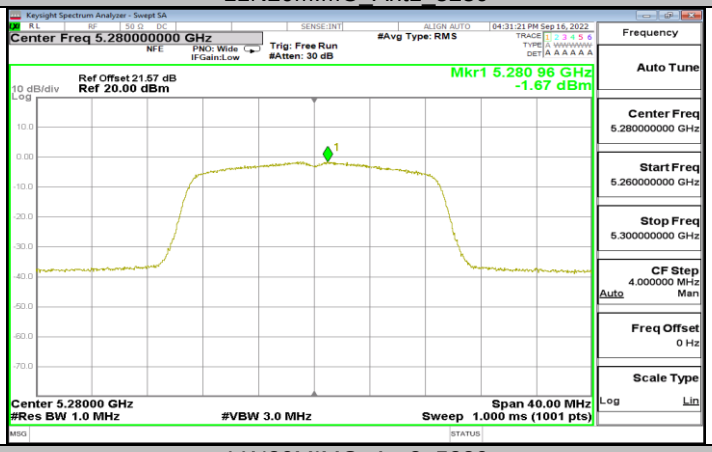

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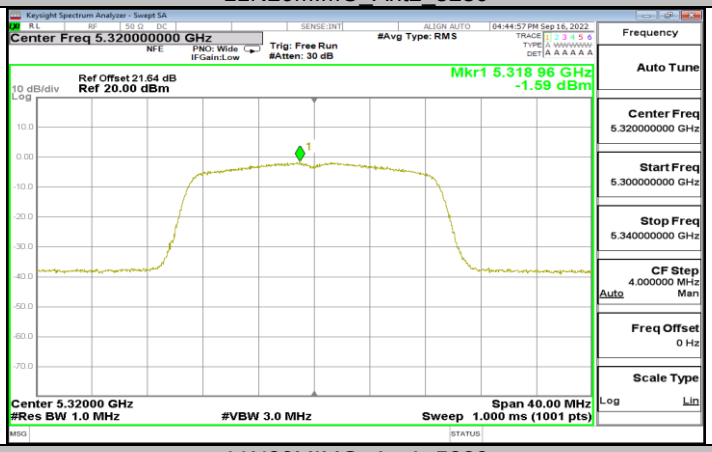

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