Test Report

Product: Android board

Trade Mark: Rcstars

Model Number: RCS-3901

FCC ID: 2BAL6-RCS-3901

Prepared for

Rcstars Industrial (Shenzhen) Co., LTD.

7/F, 2ND Bldg, Senyang High-Tech Park, No.7 Road, Guangming High-Tech Park District, Shenzhen, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's Name..... :	Rcstars Industrial (Shenzhen) Co., LTD.
Address ..... :	7/F, 2ND Bldg, Senyang High-Tech Park, No.7 Road, Guangming High-Tech Park District, Shenzhen, China
Manufacturer's Name ..... :	Rcstars Industrial (Shenzhen) Co., LTD.
Address ..... :	7/F, 2ND Bldg, Senyang High-Tech Park, No.7 Road, Guangming High-Tech Park District, Shenzhen, China

Product description

Product name ..... :	Android board
Model Number ..... :	RCS-3901
Standards ..... :	FCC Part 15.407
Test procedure..... :	IEEE/ANSI C63.10-2020 KDB 789033 D02 v02r01

This device described above has been tested by Shenzhen HongBiao Certification& Testing Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

Date of Test

Date (s) of performance of tests..... :	Oct. 12, 2023~Dec. 08, 2023
Test Result..... :	**Pass**

Testing Engineer : Zoe Su

(Zoe Su)

Technical Manager : Gary Lu

(Gary Lu)

Authorized Signatory : Leo Su

(Leo Su)

Revision History

Revised No.	Date of Issue	Description
01	Dec. 08, 2023	Original

1 General Description

1.1 Description of EUT

Product name:	Android board
Model name:	RCS-3901
Series Model:	N/A
Different of series model:	N/A
Frequency range:	U-NII-1: 5180 MHz to 5240 MHz, U-NII-2A: 5260 MHz to 5320 MHz, U-NII-2C: 5500 MHz to 5700 MHz, U-NII-3: 5745 MHz to 5825 MHz
Modulation type:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz IEEE 802.11n-HT40/ac-VHT40: 40 MHz IEEE 802.11ac-VHT80: 80 MHz
Transfer rate:	IEEE 802.11a: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7 IEEE 802.11n-HT40: Up to MCS7 IEEE 802.11ac-VHT20: Up to MCS8 IEEE 802.11ac-VHT40: Up to MCS9 IEEE 802.11ac-VHT80: Up to MCS9
Channel bandwidth:	IEEE 802.11a/n-HT20/ac-VHT20: 20 MHz IEEE 802.11n-HT40/ac-VHT40: 40 MHz IEEE 802.11ac-VHT80: 80 MHz
Antenna type:	Built-in antenna
Antenna gain:	U-NII-1: 3.32dBi U-NII-2A: 1.83dBi U-NII-2C: 3.55dBi U-NII-3: 3.55dBi
Max. output power:	U-NII-1: 12.64dBm U-NII-2A: 11.87dBm U-NII-2C: 11.98dBm U-NII-3: 14.92dBm
Hardware version:	RCS-3901 V2.0
Software version:	Android 11
Battery:	N/A

Power supply:	DC 12V from adapter AC 120V/60Hz
Adapter information:	N/A

1.2 Operation Channel List

For U-NII-1:

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230	--	--
44	5220	--	--	--	--
48	5240	--	--	--	--

For U-NII-2A:

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310	--	--
60	5300	--	--	--	--
64	5320	--	--	--	--
--	--	--	--	--	--

For U-NII-2C:

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590	--	--
112	5560	126	5630	--	--
116	5580	134	5670	--	--
120	5600	--	--	--	--
124	5620	--	--	--	--
128	5640	--	--	--	--
132	5660	--	--	--	--
136	5680	--	--	--	--
140	5700	--	--	--	--
--	--	--	--	--	--

For U-NII-3:

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795	--	--

157	5785	--	--	--	--
161	5805	--	--	--	--
165	5825	--	--	--	--

1.3 Test Mode

For 802.11a/n(HT20)/ ac(VHT20)

U-NII-1 (5150 - 5250 MHz)			U-NII-2A(5250 - 5350 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
36	Low	5180	52	Low	5260
40	Mid	5200	56	Mid	5280
48	High	5240	64	High	5320

For 802.11n (HT40)/ac (VHT40)

U-NII-1 (5150 - 5250 MHz)			U-NII-2A(5250 - 5350 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
38	Low	5190	54	Low	5270
46	High	5230	62	High	5310

For 802.11ac (VHT80)

U-NII-1 (5150 - 5250 MHz)	
Channel Number	Frequency (MHz)
42	5210

U-NII-2A(5250 - 5350 MHz)	
Channel Number	Frequency (MHz)
58	5290

For 802.11a/n(HT20)/ ac(VHT20)

U-NII-2C (5470 - 5725 MHz)			U-NII-3(5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
100	Low	5500	149	Low	5745
120	Mid	5600	157	Mid	5785
140	High	5700	165	High	5825

For 802.11n (HT40)/ac (VHT40)

U-NII-2C (5470 - 5725 MHz)			U-NII-3(5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
102	Low	5510	151	Low	5755
110	Mid	5550	159	High	5795
134	High	5670	--	--	--

For 802.11ac (VHT80)

U-NII-2C (5470 - 5725 MHz)	
Channel Number	Frequency (MHz)

106	5530
122	5610

U-NII-3(5725 - 5850 MHz)	
Channel Number	Frequency (MHz）
155	5775

During testing, Channel and Power Controlling Software provided by the customer was used to control theoperating channel as well as the output power level. The RF output power selection is for the setting of RFoutput power expected by the customer and is going to be fixed on the firmware of the final end product.Transmitting duty cycle is no less 98%.
The software is TermAssist and SecureCRT tool Use together.

Test Items	Mode	Data Rate	TX/RX
Radiated Emissions	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCSO	TX
Duty Cycle	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCSO	TX
Band Edge	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCSO	TX
6dB Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCSO	TX
26dB Bandwidth and 99% Occupied Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCSO	TX
Conducted Output Power	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCSO	TX
Power Spectral Density	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40/80)	MCSO	TX
Frequency Stability	Un-modulation	/	TX

1.4 Test Setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

1.5 Ancillary Equipment

Equipment	Model	S/N	Manufacturer
Adapter	GST40A12	EN94C51258	SuZhou MEAN WELL Technology Co., Ltd.
Notebook computer	NbDE-WFH9	XYKPM22A13001799	Huawei Terminal Co., Ltd
/	/	/	/

2 Summary of Test Result

No.	Standard Section	Test Item	Result	Remark
1	15.203/15.407	Antenna Requirement	Pass	
2	15.207	Power Line Conducted Emission	Pass	
3	15.407(b) 15.209	Radiation Spurious Emission	Pass	
4	15.407(a)	RF Output Power	Pass	
5	15.407(a)	Power Spectral Density	Pass	
6	15.407(a)	26dB Emission Bandwidth and Occupied bandwidth	Pass	
7	15.407(e)	6 dB bandwidth	Pass	
8	15.407(b)	Out Of Band Emission	Pass	
9	15.407(b)	Spurious RF Conducted Emissions	Pass	

3 Test Facilities and Accreditations

3.1 Test Laboratory

Test Site	Shenzhen HongBiao Certification& Testing Co., Ltd
Test Site Location	Room 102, 201, Building 2, Yuanwanggu RFID Industrial Park, Tongguan Road, Tianliao Community, Yutang Street, Guangming District, Shenzhen, China
Telephone:	(86-755) 2998 9321
Fax:	(86-755) 2998 5110
FCC Registration No.:	CN1341
A2LA Certificate No.:	6765.01

3.2 Environmental Conditions

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

Temperature:	15ºC~35ºC
Relative Humidity:	20%~75%
Air Pressure:	98kPa~101kPa

3.3 Measurement Uncertainty

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Measurement Frequency Range	U，(dB)	Note
RF frequency	$2x\ 10^{-5}$	
RF power, conducted	± 0.57 dB	
Conducted emission(150kHz~30MHz)	± 2.5 dB	
Radiated emission(30MHz~1GHz)	± 4.2 dB	
Radiated emission (above 1GHz)	± 4.7 dB	
Temperature	±1 degree	
Humidity	± 5 %	
Occupied channel bandwidth	±3 %	

3.4 Test Software

Software name	Manufacturer	Model	Version
EMI Measurement	Farad	EZ-EMC	V1.1.4.2

Conducted test system	MWRF-test	MTS 8310	V2.0.0

4 List of Test Equipment

Radiation emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E001	Horn Antenna	Schwarzbeck	BBHA 9120D	02592	2022-04-02	2024-04-01
2	HB-E002	Biconical log-periodic composite antenna	Schwarzbeck	VULB 9168	01340	2022-04-06	2024-04-05
3	HB-E003	SHF-EHF Horn	Schwarzbeck	BBHA 91270	01193	2022-04-02	2024-04-01
4	HB-E004	Preamplifier	Noyetec	LAN-0910	NYCM1420101	2023-05-11	2024-05-10
5	HB-E005	Preamplifier	Noyetec	LAN-0118	NYCM1420102	2023-05-12	2024-05-11
6	HB-E006	Preamplifier	Noyetec	LAN-1840	NYCM1420103	2023-06-11	2024-06-10
7	HB-E007	EMI TEST RECEIVER	R&S	ESR7	102520	2023-05-12	2024-05-11
8	HB-E044	Signal& spectrum Analyzer	R&S	FSV3044	101264	2023-05-11	2024-05-10
9	HB-E009	POSITINAL COTROLLER	Noyetec	N/A	N/A	/	/
10	HB-E013	RF switch	Noyetec	NY-RF4	NY0CM1420204	/	/
11	HB-E066	Illuminance Tester	TASI	TA8121	N/A	2023-05-11	2024-05-10
12	HB-E075	Active loop antenna	Schwarzbeck	FMZB 1519B	1519B-245	2022-07-24	2024-07-23
Conduction emission							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E014	4 Path V-LISN	Schwarzbeck	NNLK 8121	00770	2023-05-12	2024-05-11
2	HB-E015	Pulse Limiter	Schwarzbeck	VTSD 9561-F	00949	2023-05-12	2024-05-11
3	HB-E016	ZN23201	Noyetec	ZN23201	N/A	2023-05-11	2024-05-10
4	HB-E059	Attenuator	Xianghua	TS2-6-1	220215166	2023-05-12	2024-05-11
5	HB-E069	EMI TEST RECEIVER	R&S	ESCI	N/A	2023-05-12	2024-05-11

RF							
Item	Equipmen	Equipment	Manufact	Model	Serial No.	Calibration	Due date

	t No.	name	urer			date	
1	HB-E041	MXG Anaiog Signal Generator	Agilent	N5181A	MY47070421	2023-05-11	2024-05-10
2	HB-E042	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW500	132108	2023-05-11	2024-05-10
3	HB-E043	MXG Anaiog Signal Generator	Agilent	N5182A	US46240335	2023-05-11	2024-05-10
4	HB-E044	Signal& spectrum Analyzer	R&S	FSV3044	101264	2023-05-11	2024-05-10
5	HB-E045	RF Control Box	Noyetec	NY100-RFCB	N/A	/	/
6	HB-E058	Thermometer Clock Humidity Monitor	N/A	HTC-1	N/A	/	/

Note: the calibration interval of the above test instruments is 12&24 months and the calibrations are traceable to international system unit (SI).

5 Test Item And Results

5.1 Antenna Requirement

5.1.1 Standard Requirement

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

5.1.2 Test Result

The EUT antenna is Built-in antenna. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used.

5.2 Power Line Conducted Emission

5.2.1 Limits

Limits – Class B		
Frequency (MHz)	Limit (dBμV)	
	Quasi-Peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50
Note: 1. the tighter limit applies at the band edges. 2. the limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.		

5.2.2 Test Procedures

a) EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

b) The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

c) The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

d) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

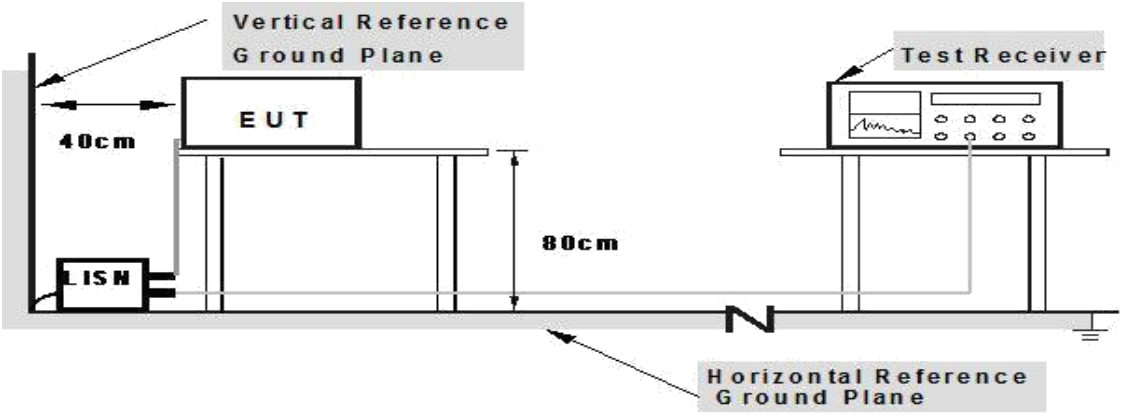
e) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

f) LISN is at least 80 cm from nearest part of EUT chassis.

g) For the actual test configuration, please refer to the related Item – photographs of the test

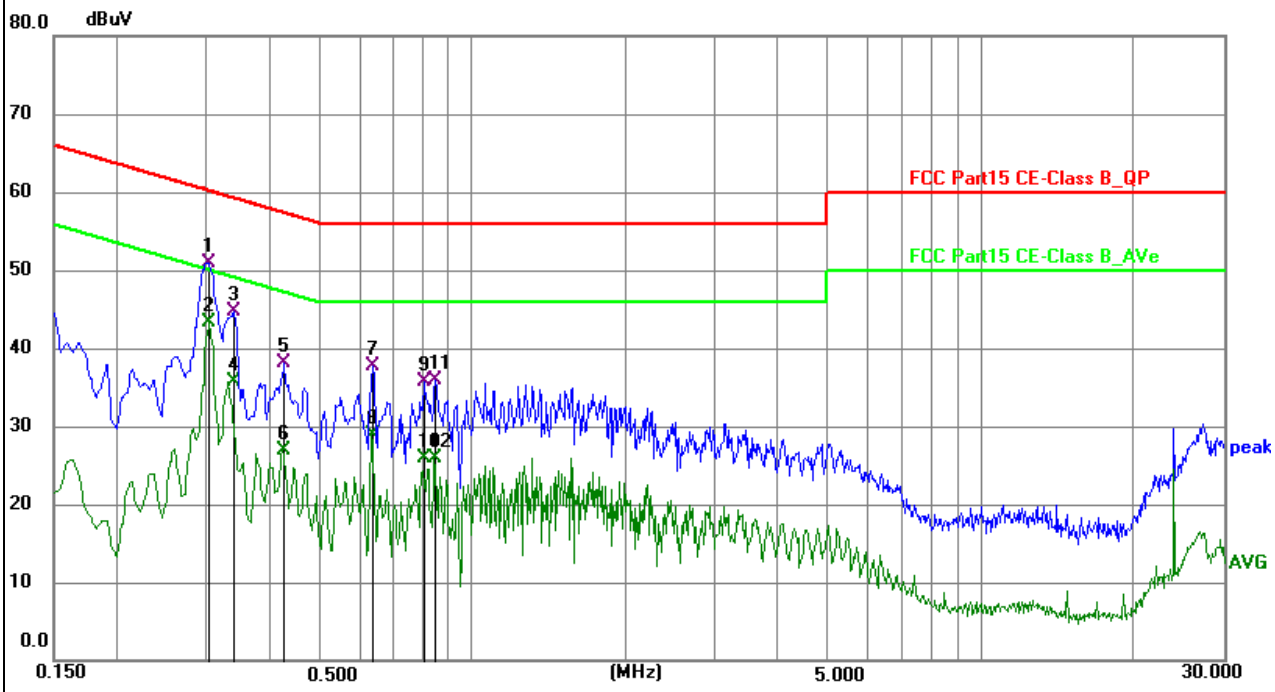
setup.

5.2.3 Test Setup



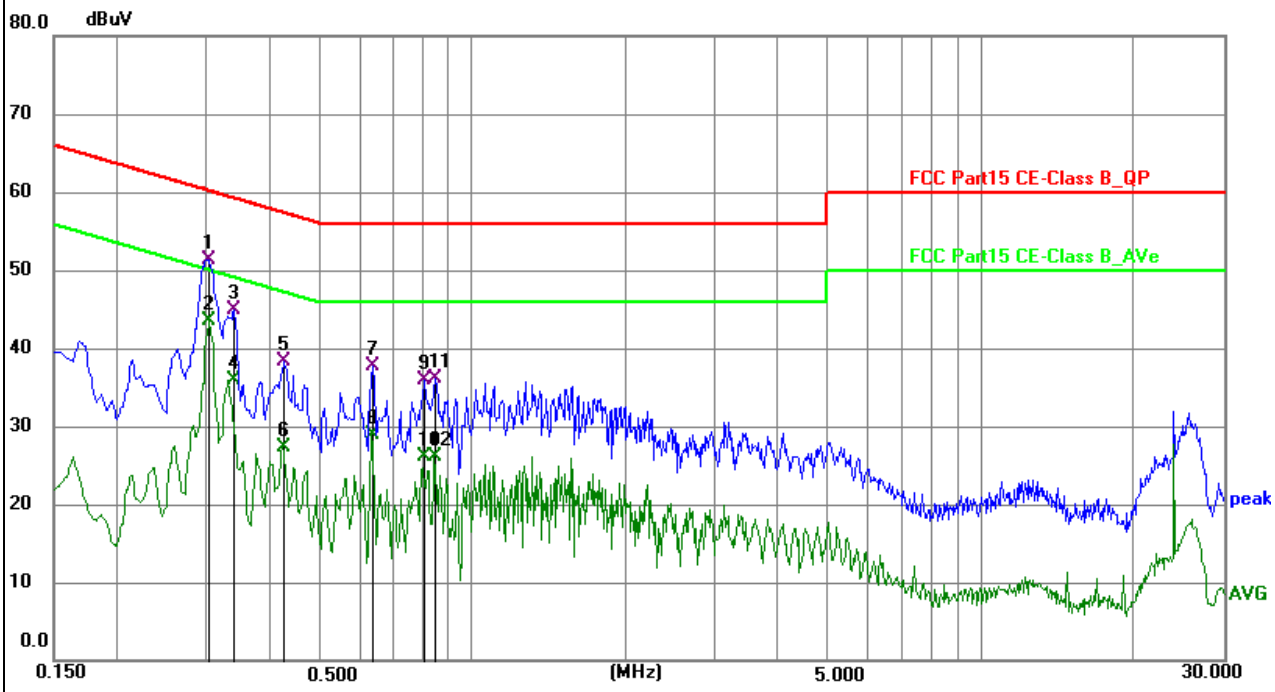
5.2.4 Test Result

EUT:	Android board	Model Name:	RCS-3901
Test Mode:	TX	Phase:	L
Test Voltage:	DC 12V from adapter AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.302900	40.75	10.07	50.82	60.16	-9.34	QP
2 *	0.302900	33.23	10.07	43.30	50.16	-6.86	AVG
3	0.339000	34.63	10.09	44.72	59.23	-14.51	QP
4	0.339000	25.67	10.09	35.76	49.23	-13.47	AVG
5	0.424300	27.96	10.09	38.05	57.36	-19.31	QP
6	0.424300	16.74	10.09	26.83	47.36	-20.53	AVG
7	0.636000	27.73	10.07	37.80	56.00	-18.20	QP
8	0.636000	18.87	10.07	28.94	46.00	-17.06	AVG
9	0.802400	25.60	10.07	35.67	56.00	-20.33	QP
10	0.802400	15.92	10.07	25.99	46.00	-20.01	AVG
11	0.847500	25.90	10.07	35.97	56.00	-20.03	QP
12	0.847500	15.88	10.07	25.95	46.00	-20.05	AVG

EUT:	Android board	Model Name:	RCS-3901
Test Mode:	TX	Phase:	N
Test Voltage:	DC 12V from adapter AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.302900	41.20	10.07	51.27	60.16	-8.89	QP
2 *	0.302900	33.42	10.07	43.49	50.16	-6.67	AVG
3	0.339000	34.73	10.09	44.82	59.23	-14.41	QP
4	0.339000	25.87	10.09	35.96	49.23	-13.27	AVG
5	0.424300	28.26	10.09	38.35	57.36	-19.01	QP
6	0.424300	17.13	10.09	27.22	47.36	-20.14	AVG
7	0.636000	27.66	10.07	37.73	56.00	-18.27	QP
8	0.636000	18.88	10.07	28.95	46.00	-17.05	AVG
9	0.807000	25.92	10.07	35.99	56.00	-20.01	QP
10	0.807000	16.00	10.07	26.07	46.00	-19.93	AVG
11	0.847500	26.01	10.07	36.08	56.00	-19.92	QP
12	0.847500	16.11	10.07	26.18	46.00	-19.82	AVG

5.3 Radiated Emission

5.3.1 Limits

1. For transmitters operating in the 5.15-5.25 GHz band:

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

2. For transmitters operating in the 5.25-5.35 GHz band:

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

3. For transmitters operating in the 5.47-5.725 GHz band:

All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

4. For transmitters operating in the 5.725-5.85 GHz band:

(i) 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.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

Frequencies (MHz)	Field Strength (microvolts/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

Frequency Range	RBW	VBW	Measurement
30MHz-1GHz	1MHz	3MHz	Peak
Above 1GHz	1MHz	10Hz Note1	Average
	1MHz	>1/T Note2	Average
Note1	When duty cycle is no less than 98%		

Note2	When duty cycle is less than 98%

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

5.3.2 Test Procedures

The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the floor on a support that is RF transparent for the frequencies of interest. Final measurements for the EUT require a measurement antenna height scan of 1 m to 4 m.

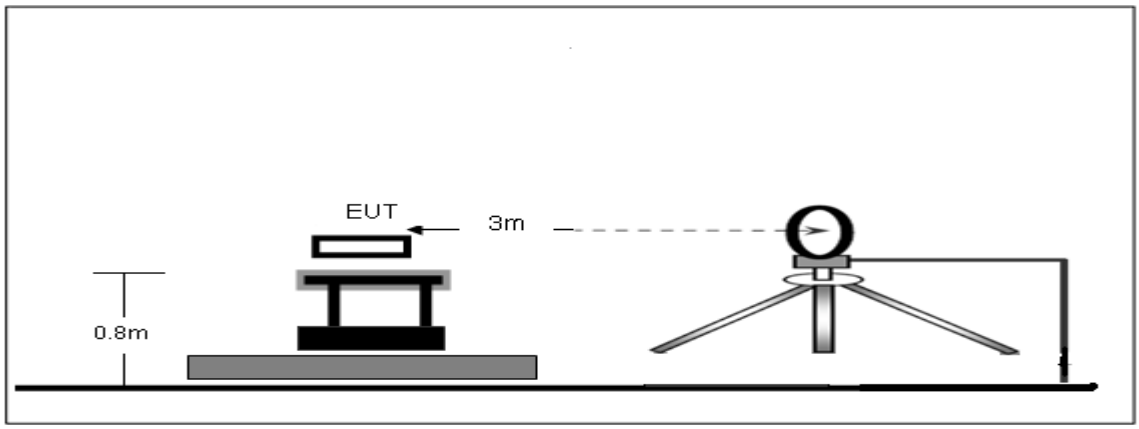
The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
For the actual test configuration, please refer to the related Item –EUT Test Photos.

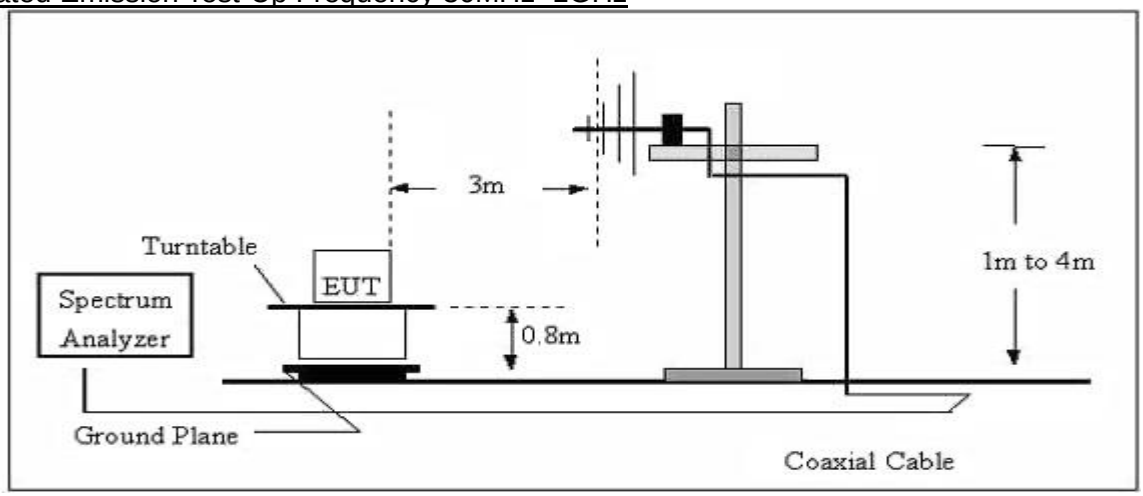
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3.3 Test Setup

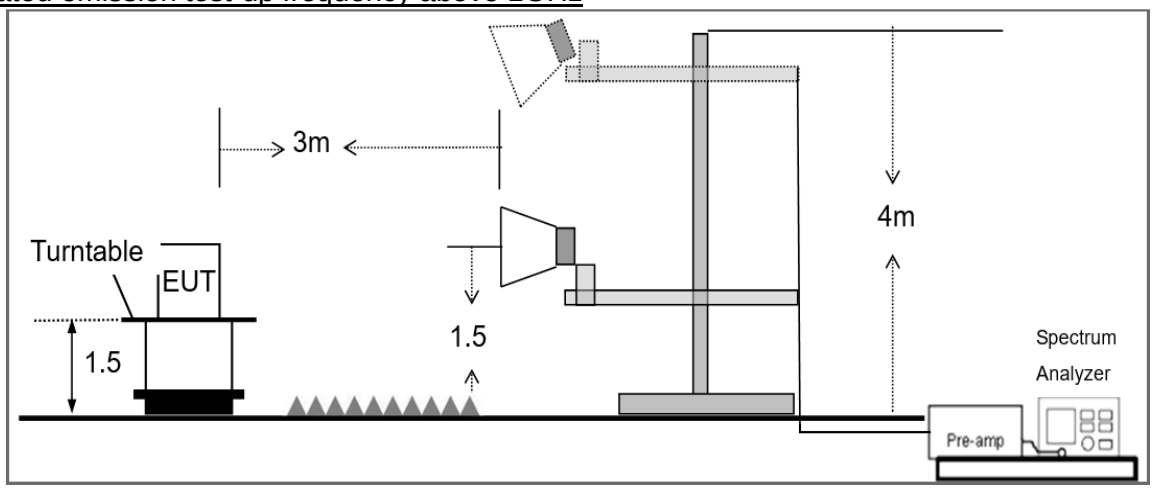
Radiated Emission Test-Up Frequency Below 30MHz



Radiated Emission Test-Up Frequency 30MHz~1GHz



Radiated emission test-up frequency above 1GHz



5.3.4 Test Result

Below 30MHz

EUT:	Android board	Model Name:	RCS-3901
Pressure:	1010 hPa	Test Voltage:	DC 12V from adapter AC 120V/60Hz
Test Mode:	TX	Polarization:	--

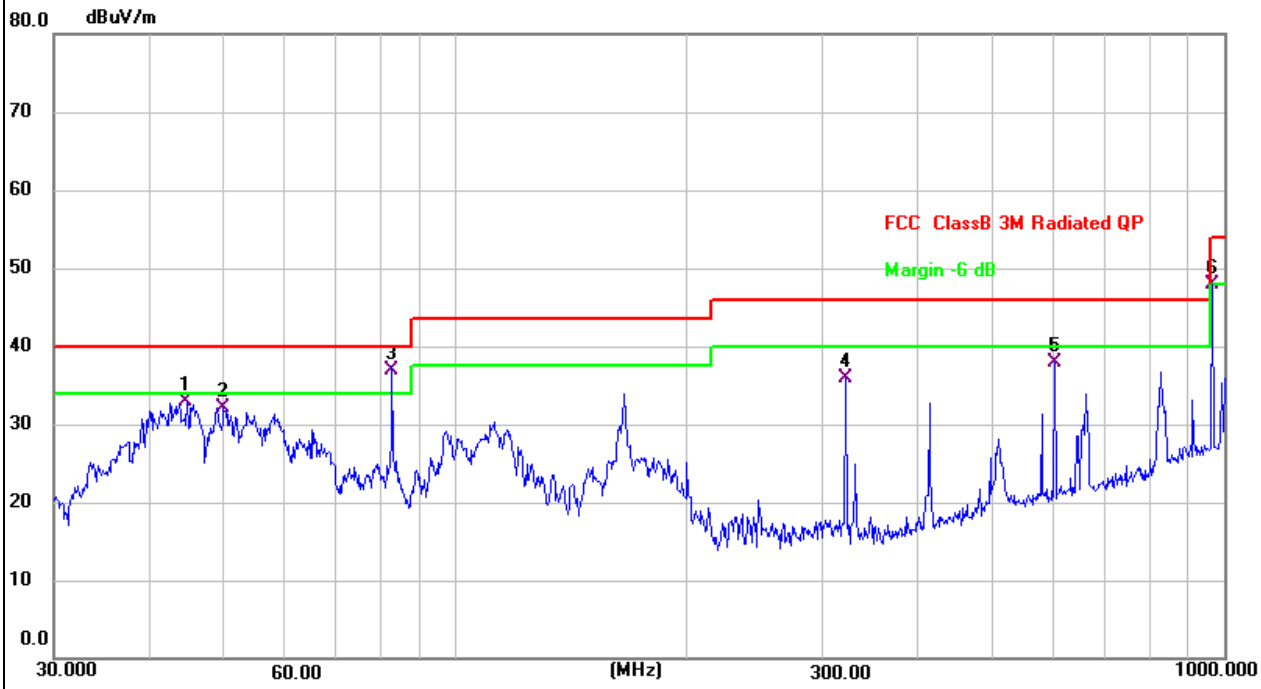
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

Note:

1. For 9kHz-30MHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor =40 log (specific distance/test distance)(dB);
3. Limit line = specific limits (dBuV) + distance extrapolation factor.

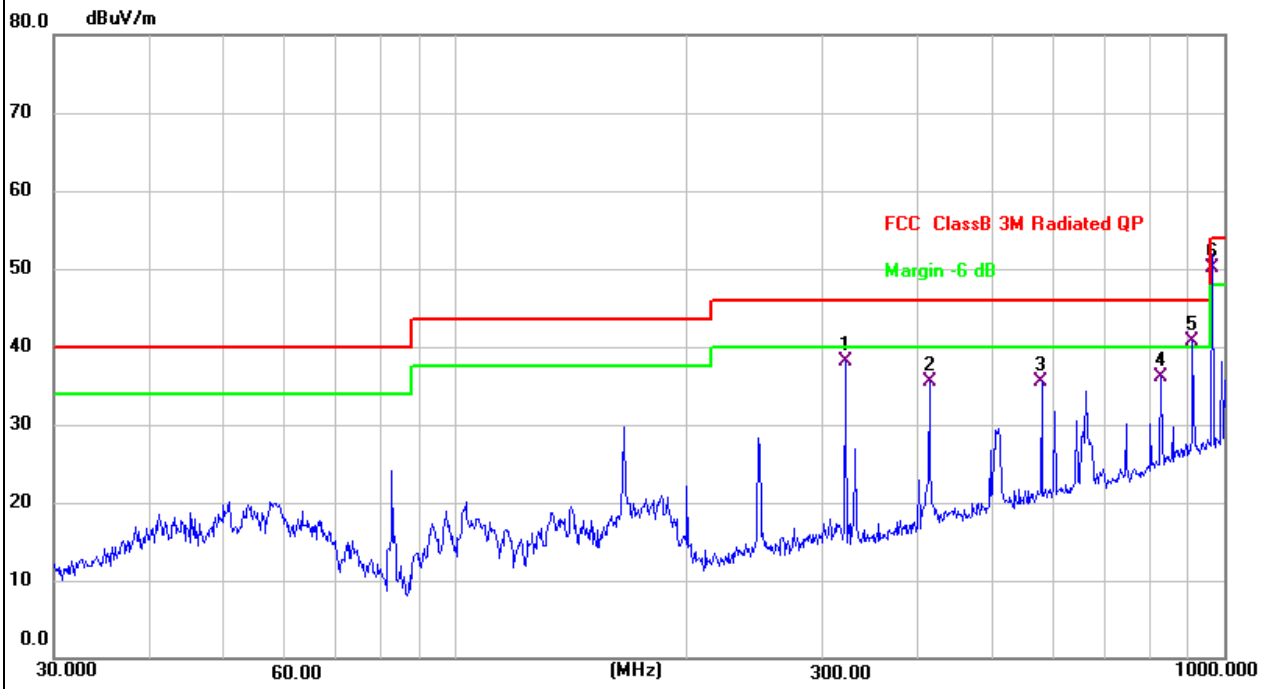
Frequency range (30MHz – 1GHz)

EUT:	Android board	Model Name:	RCS-3901
Test Mode:	Band: 5G / BW: 20 / CH: 36 / U-NII-1	Phase:	Vertical
Test Voltage:	DC 12V from adapter AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	44.7433	47.08	-14.23	32.85	40.00	-7.15	QP
2	49.8814	46.63	-14.46	32.17	40.00	-7.83	QP
3 *	82.6482	55.85	-18.95	36.90	40.00	-3.10	QP
4	322.1886	48.37	-12.45	35.92	46.00	-10.08	QP
5	601.4265	42.84	-4.85	37.99	46.00	-8.01	QP
6	965.5421	46.11	1.88	47.99	54.00	-6.01	QP

EUT:	Android board	Model Name:	RCS-3901
Test Mode:	Band: 5G / BW: 20 / CH: 36 / U-NII-1	Phase:	Horizontal
Test Voltage:	DC 12V from adapter AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	321.0608	50.58	-12.49	38.09	46.00	-7.91	QP
2	413.2706	45.32	-9.90	35.42	46.00	-10.58	QP
3	578.6699	40.90	-5.42	35.48	46.00	-10.52	QP
4	827.4934	36.54	-0.49	36.05	46.00	-9.95	QP
5 !	909.6667	39.58	1.07	40.65	46.00	-5.35	QP
6 *	965.5421	48.22	1.88	50.10	54.00	-3.90	QP

Frequency range (1GHz-40GHz)
For U-NII-1

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	4435.906	54.88	5.94	35.40	44.00	52.22	74.00	-21.78	Pk
Vertical	4435.775	43.71	5.94	35.40	44.00	41.05	54.00	-12.95	AV
Vertical	10372.044	62.65	8.46	39.75	44.50	66.36	68.20	-1.84	Pk
Vertical	15541.730	56.88	10.12	38.80	44.10	61.70	68.20	-6.50	Pk
Vertical	15541.142	42.80	10.12	38.80	42.70	49.02	54.00	-4.98	AV
Horizontal	4434.266	58.61	5.94	35.18	44.00	55.73	74.00	-18.27	Pk
Horizontal	4435.799	42.80	5.94	35.18	44.00	39.92	54.00	-14.08	AV
Horizontal	10370.475	60.97	8.46	38.71	44.50	63.64	68.20	-4.56	Pk
Horizontal	15540.393	57.62	10.12	38.38	44.10	62.02	68.20	-6.18	Pk
Horizontal	15540.588	43.39	10.12	38.38	44.10	47.79	54.00	-6.21	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	4593.636	56.89	6.48	36.35	44.05	55.67	74.00	-18.33	Pk
Vertical	4593.463	43.51	6.48	36.35	44.05	42.29	54.00	-11.71	AV
Vertical	10402.643	46.91	8.47	37.88	44.51	48.75	68.20	-19.45	AV
Vertical	15601.147	57.93	10.12	38.8	44.10	62.75	68.20	-5.45	Pk
Vertical	15601.228	42.04	10.12	38.8	42.70	48.26	54.00	-5.74	AV
Horizontal	4593.094	60.45	6.48	36.37	44.05	59.25	74.00	-14.75	Pk
Horizontal	4593.849	42.95	6.48	36.37	44.05	41.75	54.00	-12.25	AV
Horizontal	10400.500	48.14	8.47	38.64	44.50	50.75	68.20	-17.45	AV
Horizontal	15601.000	59.45	10.12	38.38	44.10	63.85	68.20	-4.35	Pk
Horizontal	15601.574	42.11	10.12	38.38	44.10	46.51	54.00	-7.49	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4740.062	58.77	7.10	37.24	43.50	59.61	74.00	-14.39	Pk
Vertical	4739.253	45.77	7.10	37.24	43.50	46.61	54.00	-7.39	AV
Vertical	10481.069	61.73	8.46	37.68	44.50	63.37	68.20	-4.83	Pk
Vertical	15722.023	58.02	10.12	38.8	44.10	62.84	68.20	-5.36	Pk
Vertical	15722.234	42.94	10.12	38.8	42.70	49.16	54.00	-4.84	AV
Horizontal	4739.769	59.72	7.10	37.24	43.50	60.56	74.00	-13.44	Pk
Horizontal	4740.088	44.64	7.10	37.24	43.50	45.48	54.00	-8.52	AV
Horizontal	10483.033	42.74	8.46	38.57	44.50	45.27	68.20	-22.93	AV
Horizontal	15720.679	56.44	10.12	38.38	44.10	60.84	68.20	-7.36	Pk
Horizontal	15721.549	42.04	10.12	38.38	44.10	46.44	54.00	-7.56	AV

Frequency range (1GHz-40GHz)
U-NII-2A

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5260 MHz)-Above 1G									
Vertical	4434.478	56.25	5.94	35.40	44.00	53.59	74.00	-20.41	Pk
Vertical	4436.156	45.21	5.94	35.40	44.00	42.55	54.00	-11.45	AV
Vertical	10370.275	62.05	8.46	39.75	44.50	65.76	74.00	-8.24	Pk
Vertical	10371.150	44.04	8.46	39.75	44.50	47.75	54.00	-6.25	AV
Vertical	15542.017	55.34	10.12	38.80	44.10	60.16	74.00	-13.84	Pk
Horizontal	15540.460	42.01	10.12	38.80	42.70	48.23	54.00	-5.77	AV
Horizontal	4436.306	59.64	5.94	35.18	44.00	56.76	74.00	-17.24	Pk
Horizontal	4434.956	42.51	5.94	35.18	44.00	39.63	54.00	-14.37	AV
Horizontal	10370.413	61.15	8.46	38.71	44.50	63.82	74.00	-10.18	Pk
Horizontal	10730.122	45.96	8.46	38.71	44.50	48.63	54.00	-5.37	AV
middle Channel (5280 MHz)-Above 1G									
Vertical	4594.210	57.18	6.48	36.35	44.05	55.96	74.00	-18.04	Pk
Vertical	4592.620	41.68	6.48	36.35	44.05	40.46	54.00	-13.54	AV
Vertical	10403.143	61.55	8.47	37.88	44.51	63.39	74.00	-10.61	Pk
Vertical	10402.992	46.46	8.47	37.88	44.51	48.30	54.00	-5.70	AV
Vertical	15600.261	57.38	10.12	38.8	44.10	62.20	74.00	-11.80	Pk
Horizontal	15602.040	42.17	10.12	38.8	42.70	48.39	54.00	-5.61	AV
Horizontal	4592.640	58.70	6.48	36.37	44.05	57.50	74.00	-16.50	Pk
Horizontal	4592.755	41.64	6.48	36.37	44.05	40.44	54.00	-13.56	AV
Horizontal	10401.213	61.08	8.47	38.64	44.50	63.69	74.00	-10.31	Pk
Horizontal	10400.462	46.71	8.47	38.64	44.50	49.32	54.00	-4.68	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4739.939	58.84	7.10	37.24	43.50	59.68	74.00	-14.32	Pk
Vertical	4741.278	46.47	7.10	37.24	43.50	47.31	54.00	-6.69	AV
Vertical	10480.470	60.53	8.46	37.68	44.50	62.17	74.00	-11.83	Pk
Vertical	10481.355	46.14	8.46	37.68	44.50	47.78	54.00	-6.22	AV
Vertical	15720.280	59.09	10.12	38.8	44.10	63.91	74.00	-10.09	Pk
Horizontal	15720.800	43.72	10.12	38.8	42.70	49.94	54.00	-4.06	AV
Horizontal	4740.639	59.37	7.10	37.24	43.50	60.21	74.00	-13.79	Pk
Horizontal	4740.700	44.11	7.10	37.24	43.50	44.95	54.00	-9.05	AV
Horizontal	10482.674	58.71	8.46	38.57	44.50	61.24	74.00	-12.76	Pk
Horizontal	10481.887	43.85	8.46	38.57	44.50	46.38	54.00	-7.62	AV

Note:
All modes have been tested, and only the worst mode 802.11a mode is mentioned in the report.

Frequency range (1GHz-40GHz)
U-NII-2C

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5500 MHz)-Above 1G									
Vertical	4435.030	55.61	5.94	35.40	44.00	52.95	74.00	-21.05	Pk
Vertical	4434.263	45.10	5.94	35.40	44.00	42.44	54.00	-11.56	AV
Vertical	10371.878	62.55	8.46	39.75	44.50	66.26	74.00	-7.74	Pk
Vertical	10371.463	42.83	8.46	39.75	44.50	46.54	54.00	-7.46	AV
Vertical	15541.258	55.25	10.12	38.80	44.10	60.07	74.00	-13.93	Pk
Horizontal	15540.586	42.57	10.12	38.80	42.70	48.79	54.00	-5.21	AV
Horizontal	4435.335	58.33	5.94	35.18	44.00	55.45	74.00	-18.55	Pk
Horizontal	4434.618	44.10	5.94	35.18	44.00	41.22	54.00	-12.78	AV
Horizontal	10371.985	62.23	8.46	38.71	44.50	64.90	74.00	-9.10	Pk
Horizontal	10730.857	46.28	8.46	38.71	44.50	48.95	54.00	-5.05	AV
middle Channel (5600 MHz)-Above 1G									
Vertical	4592.151	57.61	6.48	36.35	44.05	56.39	74.00	-17.61	Pk
Vertical	4593.344	42.73	6.48	36.35	44.05	41.51	54.00	-12.49	AV
Vertical	10402.424	61.22	8.47	37.88	44.51	63.06	74.00	-10.94	Pk
Vertical	10402.839	45.59	8.47	37.88	44.51	47.43	54.00	-6.57	AV
Vertical	15600.719	57.65	10.12	38.8	44.10	62.47	74.00	-11.53	Pk
Horizontal	15601.106	42.70	10.12	38.8	42.70	48.92	54.00	-5.08	AV
Horizontal	4594.038	60.64	6.48	36.37	44.05	59.44	74.00	-14.56	Pk
Horizontal	4593.396	43.18	6.48	36.37	44.05	41.98	54.00	-12.02	AV
Horizontal	10400.442	62.29	8.47	38.64	44.50	64.90	74.00	-9.10	Pk
Horizontal	10401.877	47.86	8.47	38.64	44.50	50.47	54.00	-3.53	AV
High Channel (5700 MHz)-Above 1G									
Vertical	4739.999	59.51	7.10	37.24	43.50	60.35	74.00	-13.65	Pk
Vertical	4740.577	45.25	7.10	37.24	43.50	46.09	54.00	-7.91	AV
Vertical	10480.888	61.52	8.46	37.68	44.50	63.16	74.00	-10.84	Pk
Vertical	10481.460	47.26	8.46	37.68	44.50	48.90	54.00	-5.10	AV
Vertical	15720.955	58.79	10.12	38.8	44.10	63.61	74.00	-10.39	Pk
Horizontal	15720.477	42.39	10.12	38.8	42.70	48.61	54.00	-5.39	AV
Horizontal	4739.444	59.06	7.10	37.24	43.50	59.90	74.00	-14.10	Pk
Horizontal	4740.891	44.78	7.10	37.24	43.50	45.62	54.00	-8.38	AV
Horizontal	10483.147	57.93	8.46	38.57	44.50	60.46	74.00	-13.54	Pk
Horizontal	10482.548	42.27	8.46	38.57	44.50	44.80	54.00	-9.20	AV

Note:
All modes have been tested, and only the worst mode 802.11a mode is mentioned in the report.

Frequency range (1GHz-40GHz)
U-NII-3

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	4679.613	57.61	5.94	35.40	44.00	54.95	74.00	-19.05	Pk
Vertical	4679.719	45.98	5.94	35.40	44.00	43.32	54.00	-10.68	AV
Vertical	11491.008	59.12	8.46	39.75	44.50	62.83	74.00	-11.17	Pk
Vertical	17236.200	47.57	5.94	35.40	44.00	44.91	54.00	-9.09	Pk
Vertical	17235.969	41.40	10.12	38.80	42.70	47.62	68.20	-20.58	AV
Horizontal	4680.897	59.43	5.94	35.18	44.00	56.55	74.00	-17.45	Pk
Horizontal	4680.389	44.57	5.94	35.18	44.00	41.69	54.00	-12.31	AV
Horizontal	11491.763	61.11	8.46	38.71	44.50	63.78	74.00	-10.22	Pk
Horizontal	17236.683	60.56	10.12	38.38	44.10	64.96	54.00	10.96	Pk
Horizontal	17237.389	43.76	10.12	38.38	44.10	48.16	68.20	-20.04	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	4592.453	58.40	6.48	36.35	44.05	57.18	74.00	-16.82	Pk
Vertical	4592.452	44.99	6.48	36.35	44.05	43.77	54.00	-10.23	AV
Vertical	11571.445	59.93	8.47	37.88	44.51	61.77	74.00	-12.23	Pk
Vertical	17355.865	45.41	6.48	36.37	44.05	44.21	54.00	-9.79	Pk
Vertical	17357.009	41.33	10.12	38.8	42.70	47.55	68.20	-20.65	AV
Horizontal	4592.652	60.84	6.48	36.37	44.05	59.64	74.00	-14.36	Pk
Horizontal	4593.069	44.92	6.48	36.37	44.05	43.72	54.00	-10.28	AV
Horizontal	11571.760	46.87	8.47	38.64	44.50	49.48	74.00	-24.52	AV
Horizontal	17355.306	60.70	10.12	38.38	44.10	65.10	54.00	11.10	Pk
Horizontal	17356.893	44.60	10.12	38.38	44.10	49.00	68.20	-19.20	AV
High Channel (5825 MHz)-Above 1G									
Vertical	5040.392	61.48	7.10	37.24	43.50	62.32	74.00	-11.68	Pk
Vertical	5039.673	47.67	7.10	37.24	43.50	48.51	54.00	-5.49	AV
Vertical	11652.038	55.22	8.46	37.68	44.50	56.86	74.00	-17.14	Pk
Vertical	17477.418	61.44	10.12	38.8	44.10	66.26	54.00	12.26	Pk
Vertical	17476.685	40.42	10.12	38.8	42.70	46.64	68.20	-21.56	AV
Horizontal	5041.234	67.57	7.10	37.24	43.50	68.41	74.00	-5.59	Pk
Horizontal	5040.906	43.15	7.10	37.24	43.50	43.99	54.00	-10.01	AV
Horizontal	11652.172	44.36	8.46	38.57	44.50	46.89	74.00	-27.11	AV
Horizontal	17476.429	42.38	7.10	37.24	43.50	43.22	54.00	-10.78	Pk
Horizontal	17475.855	46.14	10.12	38.38	44.10	50.54	68.20	-17.66	AV

Note:
All modes have been tested, and only the worst mode 802.11a mode is mentioned in the report.

5.3.5 Radiated Band Edge

For U-NII-1&U-NII-2A
For 802.11a mode: (CH36 5180MHz&CH64 5320MHz)

Polarization	Frequency	Read Lavel	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	66.06	8.69	29.4	42.59	61.56	74	-12.44	Pk
Horizontal	5350	63.28	9.37	30.41	43.25	59.81	74	-14.19	Pk
Horizontal	5460	47.13	8.69	29.4	42.59	42.63	74	-31.37	Pk
Vertical	5150	69.08	9.21	29.4	42.59	65.10	74	-8.90	Pk
Vertical	5350	60.86	9.12	30.41	43.25	57.14	74	-16.86	Pk
Vertical	5460	51.38	9.12	30.41	43.25	47.66	74	-26.34	Pk

Polarization	Frequency	Read Lavel	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	46.21	8.69	29.4	42.59	41.71	54	-12.29	AV
Horizontal	5350	47.10	8.69	29.4	42.59	42.60	54	-11.40	AV
Horizontal	5460	47.42	8.69	29.4	42.59	42.92	54	-11.08	AV
Vertical	5150	47.44	8.69	29.4	42.59	42.94	54	-11.06	AV
Vertical	5350	50.50	9.12	30.41	43.25	46.78	54	-7.22	AV
Vertical	5460	50.38	9.12	30.41	43.25	46.66	54	-7.34	AV

Note:
All modes have been tested, and only the worst mode 802.11a mode is mentioned in the report.

For U-NII-2C
For 802.11a mode: (CH100 5500MHz&CH140 5700MHz)

Polarization	Frequency	Read Lavel	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5470	67.15	8.69	29.4	42.59	62.65	74	-11.35	Pk
Horizontal	5725	66.50	9.37	30.41	43.25	63.03	74	-10.97	Pk
Vertical	5470	61.05	9.21	29.4	42.59	57.07	74	-16.93	Pk
Vertical	5725	60.21	9.12	30.41	43.25	56.49	74	-17.51	Pk
Horizontal	5470	44.64	8.69	29.4	42.59	40.14	54	-13.86	AV
Horizontal	5725	47.20	8.46	30.41	43.25	42.82	54	-11.18	AV
Vertical	5470	46.17	9.21	29.4	42.59	42.19	54	-11.81	AV
Vertical	5725	48.39	9.12	30.41	43.25	44.67	54	-9.33	AV

Note:
All modes have been tested, and only the worst mode 802.11a mode is mentioned in the report.

For U-NII-3
For 802.11a mode: (CH149 5745MHz&CH165 5825MHz)

Polarization	Frequency	Read Lavel	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5650	68.04	8.69	29.4	42.59	63.54	68.2	-4.66	Pk
Horizontal	5700	64.35	9.37	30.41	43.25	60.88	85.2	-24.32	Pk
Horizontal	5720	46.89	8.69	29.4	42.59	42.39	110.8	-68.41	Pk
Horizontal	5725	51.97	8.46	30.41	43.25	47.59	122.2	-74.61	Pk
Vertical	5650	50.31	9.21	29.4	42.59	46.33	68.2	-21.87	Pk
Vertical	5700	50.22	9.12	30.41	43.25	46.50	85.2	-38.70	Pk
Vertical	5720	70.51	9.21	29.4	42.59	66.53	110.8	-44.27	Pk
Vertical	5725	61.94	9.12	30.41	43.25	58.22	122.2	-63.98	Pk

Note:
All modes have been tested, and only the worst mode 802.11a mode is mentioned in the report.

5.4 Peak Output Power

5.4.1 Limit

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz band

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

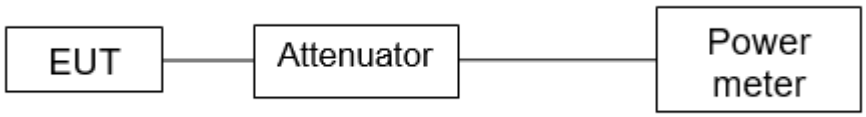
For the band 5.725-5.85 GHz

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. 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.

5.4.2 Test Procedure

The maximum peak conducted output power may be measured using a broadband Average RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the emission bandwidth and utilize a fast-responding diode detector.

5.4.3 Test Setup



5.4.4 Test Results

EUT:	Android board	Model Name:	RCS-3901
Test Mode:	TX	Test Voltage:	DC 12V from adapter AC 120V/60Hz

For U-NII-1

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11a	CH36	5180	12.64	18.37	250
11a	CH40	5200	11.85	15.31	250
11a	CH48	5240	11.62	14.52	250
11n (HT20)	CH36	5180	11.54	14.26	250
11n (HT20)	CH40	5200	11.46	14.00	250
11n (HT20)	CH48	5240	11.34	13.61	250
11n (HT40)	CH38	5190	12.64	18.37	250
11n (HT40)	CH46	5230	11.85	15.31	250

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11ac (HT20)	CH36	5180	11.46	14.00	250
11ac (HT20)	CH40	5200	11.41	13.84	250
11ac (HT20)	CH48	5240	11.25	13.34	250
11ac (HT40)	CH38	5190	11.92	15.56	250
11ac (HT40)	CH46	5230	11.8	15.14	250
11ac (HT80)	CH42	5210	10.02	10.05	250

U-NII-2A

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11a	CH52	5260	11.49	14.10	250
11a	CH56	5280	11.07	12.79	250
11a	CH64	5320	11.68	14.72	250
11n (HT20)	CH52	5260	11.34	13.61	250
11n (HT20)	CH56	5280	10.7	11.75	250
11n (HT20)	CH64	5320	11.44	13.93	250
11n (HT40)	CH54	5270	11.87	15.38	250
11n (HT40)	CH62	5310	10.62	11.53	250

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11ac (HT20)	CH52	5260	11.43	13.90	250
11ac (HT20)	CH56	5280	10.74	11.86	250
11ac (HT20)	CH64	5320	11.57	14.35	250

11ac (HT40)	CH54	5270	10.67	11.67	250
11ac (HT40)	CH62	5310	10.55	11.35	250
11ac (HT80)	CH58	5290	9.83	9.62	250

U-NII-2C

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11a	CH100	5500	10.97	12.50	250
11a	CH120	5600	11.29	13.46	250
11a	CH140	5700	11.98	15.78	250
11n (HT20)	CH100	5500	10.97	12.50	250
11n (HT20)	CH120	5600	10.9	12.30	250
11n (HT20)	CH140	5700	10.79	11.99	250
11n (HT40)	CH102	5510	11.06	12.76	250
11n (HT40)	CH110	5550	10.09	10.21	250
11n (HT40)	CH134	5670	11.55	14.29	250

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11ac (HT20)	CH100	5500	10.76	11.91	250
11ac (HT20)	CH120	5600	10.9	12.30	250
11ac (HT20)	CH140	5700	11.83	15.24	250
11ac (HT40)	CH102	5510	11	12.59	250
11ac (HT40)	CH110	5550	11.47	14.03	250
11ac (HT40)	CH134	5670	11.27	13.40	250
11ac (HT80)	CH106	5530	10.83	12.11	250
11ac (HT80)	CH122	5610	10.54	11.32	250

For U-NII-3

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11a	CH149	5745	14.23	26.49	1000
11a	CH157	5785	14.52	28.31	1000
11a	CH165	5825	14.7	29.51	1000
11n (HT20)	CH149	5745	14.21	26.36	1000
11n (HT20)	CH157	5785	14.45	27.86	1000
11n (HT20)	CH165	5825	14.66	29.24	1000
11n (HT40)	CH151	5755	13.05	20.184	1000
11n (HT40)	CH159	5795	13.94	24.77	1000

Modulation mode	Test Channel	Frequency(MHz)	Average Conducted Power		Limit(mW)
			(dBm)	(mW)	
11ac (HT20)	CH149	5745	14.51	28.25	1000
11ac (HT20)	CH157	5785	14.71	29.58	1000
11ac (HT20)	CH165	5825	14.92	31.05	1000
11ac (HT40)	CH151	5755	12.67	18.50	1000
11ac (HT40)	CH159	5795	12.47	17.66	1000
11ac (HT80)	CH155	5775	13.75	23.71	1000

5.5 Power Spectral Density

5.5.1 Limit

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

For the band 5.25-5.35 GHz and 5.47-5.725 GHz
The maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

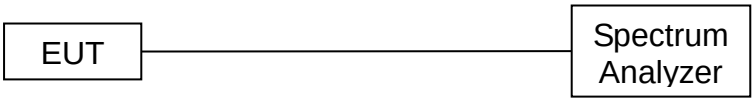
For the band 5.725-5.85 GHz
The maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds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

5.5.2 Test Procedure

For U-NII-1
1. Set analyzer center frequency to NII channel center frequency.
2. Set the RBW ≥ 1MHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

For U-NII-3
1. Set analyzer center frequency to NII channel center frequency.
2. Set the RBW ≥ 510kHz.
3. Set the VBW ≥ 3 x RBW.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

5.5.3 Test Setup



5.5.4 Test Results

For U-NII-1

Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH36	5180	2.75	0.86	3.61	11	Pass
11a	CH44	5220	2.78	0.13	2.91	11	Pass
11a	CH48	5240	2.5	0.13	2.63	11	Pass
11n(HT20)	CH36	5180	1.39	0.96	2.35	11	Pass
11n(HT20)	CH44	5220	1.69	0.96	2.65	11	Pass
11n(HT20)	CH48	5240	1.22	0.96	2.18	11	Pass
11n(HT40)	CH38	5190	-0.3	0.18	-0.12	11	Pass
11n(HT40)	CH46	5230	-1.84	1.39	-0.45	11	Pass
11ac(HT20)	CH36	5180	1.6	0.94	2.54	11	Pass
11ac (HT20)	CH40	5200	1.4	0.94	2.34	11	Pass
11ac (HT20)	CH48	5240	1.49	0.94	2.43	11	Pass
11ac (HT40)	CH38	5190	-2.19	1.51	-0.68	11	Pass
11ac (HT40)	CH46	5230	-1.36	1.25	-0.11	11	Pass
11ac (HT80)	CH42	5210	-5.24	0.37	-4.87	11	Pass

U-NII-2A

Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH52	5260	2.53	0.13	2.66	11	Pass
11a	CH56	5280	1.94	0.13	2.07	11	Pass
11a	CH64	5320	2.51	0.13	2.64	11	Pass
11n(HT20)	CH52	5260	1.43	0.96	2.39	11	Pass
11n(HT20)	CH56	5280	0.86	0.97	1.83	11	Pass
11n(HT20)	CH64	5320	1.46	0.96	2.42	11	Pass
11n(HT40)	CH54	5270	-1.71	1.51	-0.2	11	Pass
11n(HT40)	CH62	5310	-2.89	1.51	-1.38	11	Pass
11ac(HT20)	CH52	5260	1.35	0.94	2.29	11	Pass
11ac (HT20)	CH56	5280	0.65	0.95	1.6	11	Pass
11ac (HT20)	CH64	5320	1.57	0.94	2.51	11	Pass
11ac (HT40)	CH54	5270	-2.66	1.46	-1.2	11	Pass
11ac (HT40)	CH62	5310	-3	1.46	-1.54	11	Pass
11ac (HT80)	CH58	5290	-6.53	1.99	-4.54	11	Pass

U-NII-2C

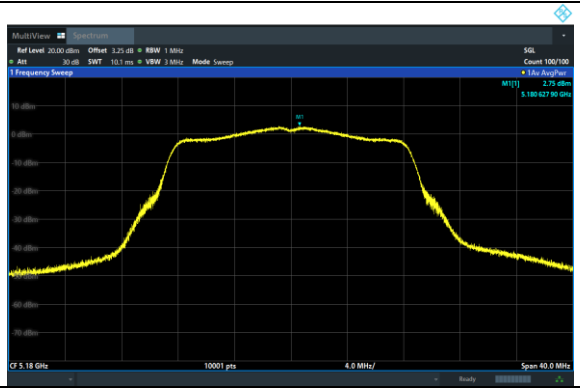
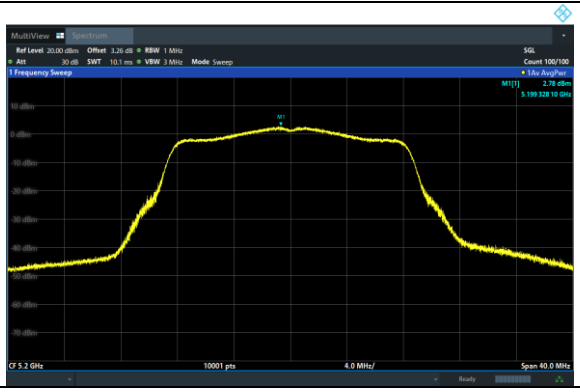
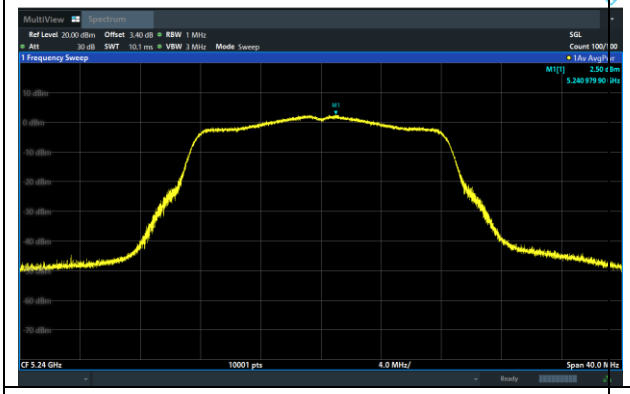
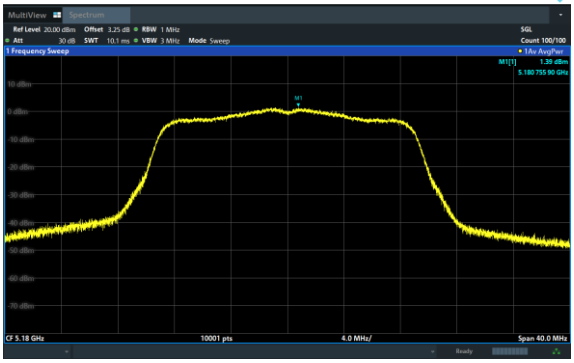
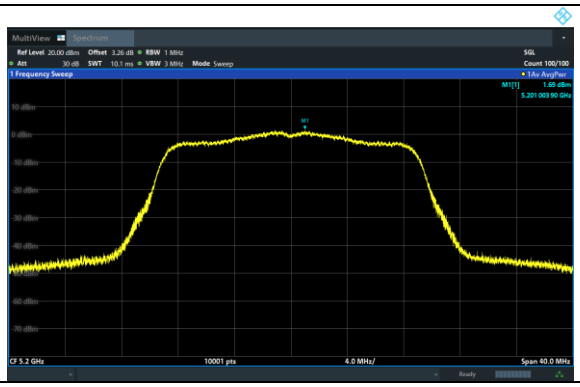
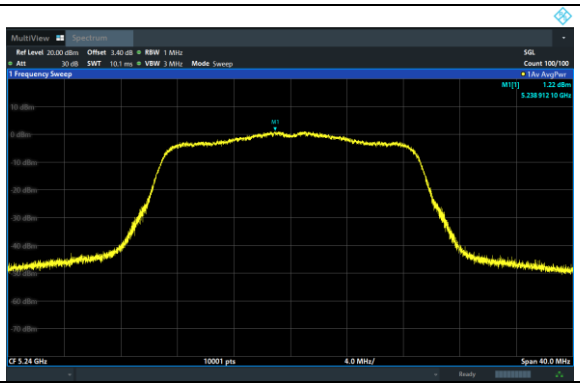
Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH100	5500	1.94	0.13	2.07	11	Pass
11a	CH120	5600	2.12	0.13	2.25	11	Pass
11a	CH140	5700	2.83	0.13	2.96	11	Pass
11n(HT20)	CH100	5500	-0.33	0.99	0.66	11	Pass
11n(HT20)	CH120	5600	2.27	0.96	3.23	11	Pass
11n(HT20)	CH140	5700	0.68	0.96	1.64	11	Pass
11n(HT40)	CH102	5510	-2.32	1.39	-0.93	11	Pass
11n(HT40)	CH110	5550	-3.43	1.51	-1.92	11	Pass
11n(HT40)	CH134	5670	-2.15	1.35	-0.8	11	Pass
11ac(HT20)	CH100	5500	-0.19	0.94	0.75	11	Pass
11ac (HT20)	CH120	5600	0.84	0.95	1.79	11	Pass
11ac (HT20)	CH140	5700	1.91	0.94	2.85	11	Pass
11ac (HT40)	CH102	5510	-2.53	1.46	-1.07	11	Pass
11ac (HT40)	CH110	5550	-1.92	1.46	-0.46	11	Pass
11ac (HT40)	CH134	5670	-2.36	1.42	-0.94	11	Pass
11ac (HT80)	CH106	5530	-6.05	1.99	-4.06	11	Pass
11ac (HT80)	CH122	5610	-6.15	9.54	3.39	11	Pass

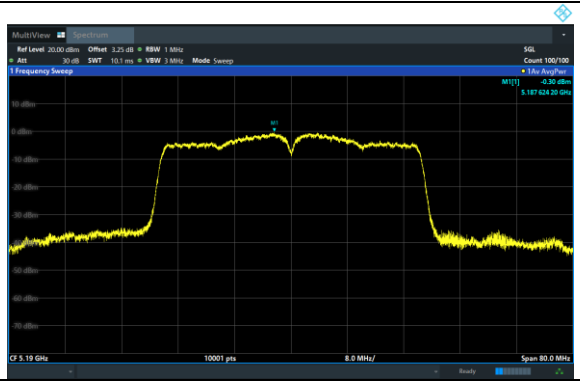
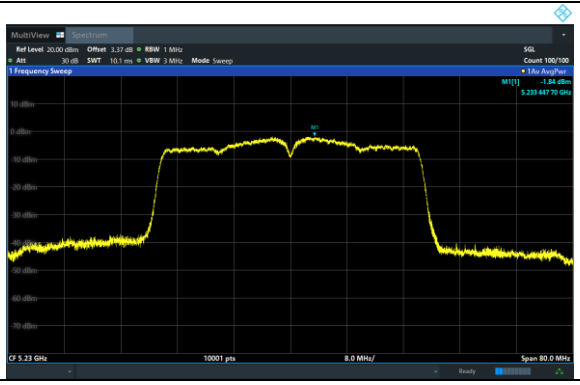
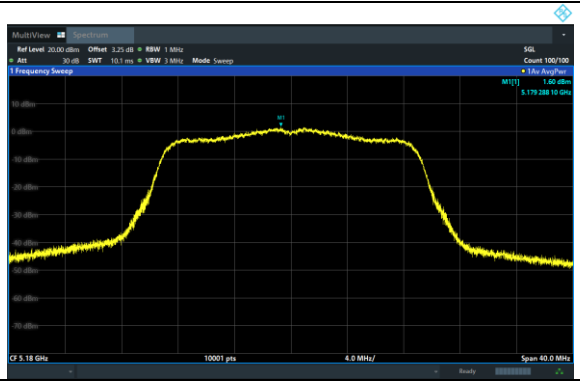
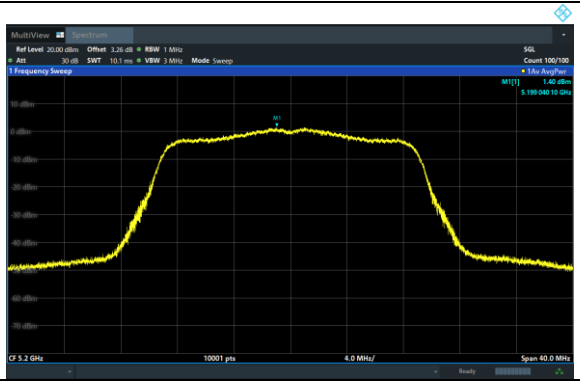
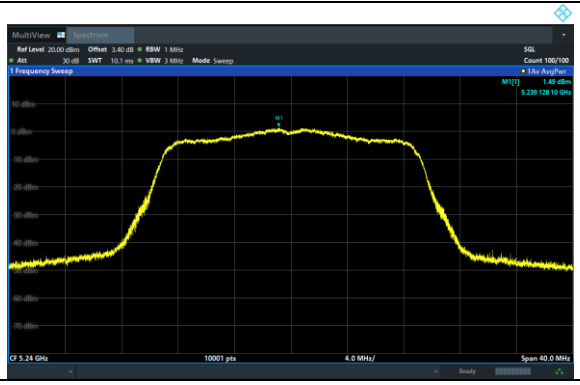
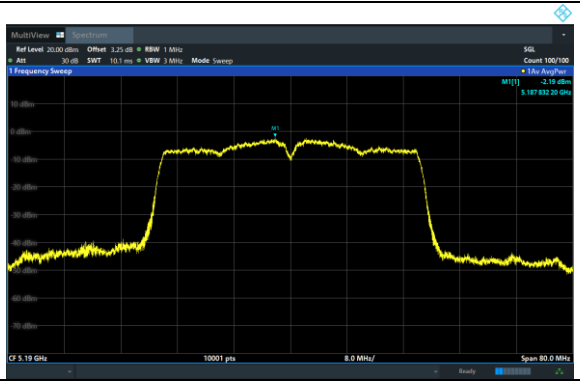
For U-NII-3

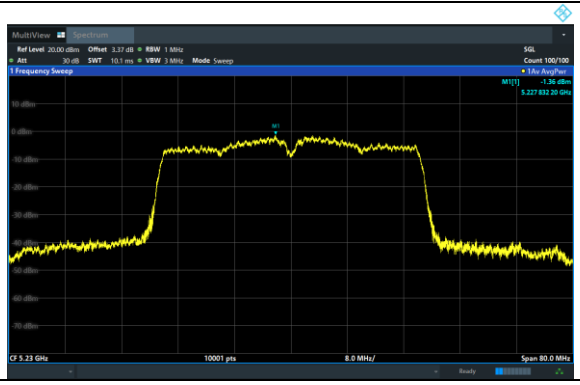
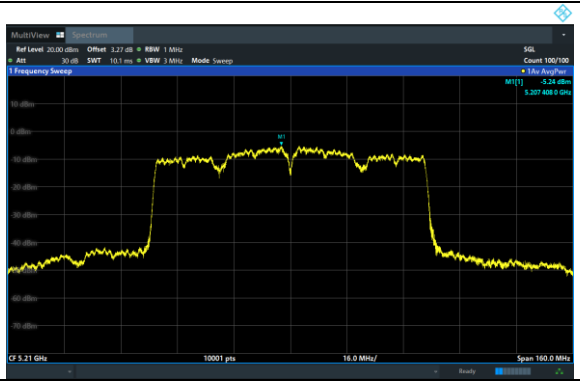
Mode	Channel	Frequency (MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH149	5745	2.87	0.13	3	30	Pass
11a	CH157	5785	2.93	0.13	3.06	30	Pass
11a	CH165	5825	3.02	0.13	3.15	30	Pass
11n(HT20)	CH149	5745	2.42	0.13	2.55	30	Pass
11n(HT20)	CH157	5785	2.57	0.13	2.7	30	Pass
11n(HT20)	CH165	5825	2.64	0.13	2.77	30	Pass
11n(HT40)	CH151	5755	-2.25	1.05	-1.2	30	Pass
11n(HT40)	CH159	5795	-1.73	11.56	9.83	30	Pass
11ac(HT20)	CH149	5745	2.18	0.94	3.12	30	Pass
11ac (HT20)	CH157	5785	1.91	0.94	2.85	30	Pass
11ac (HT20)	CH165	5825	2.47	0.94	3.41	30	Pass
11ac (HT40)	CH151	5755	-2.46	10.51	8.05	30	Pass
11ac (HT40)	CH159	5795	-2.13	0.14	-1.99	30	Pass
11ac (HT80)	CH155	5775	-4.53	2.12	-2.41	30	Pass

Test plots

For U-NII-1

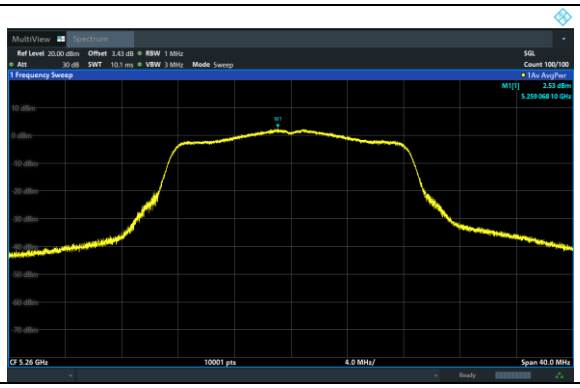
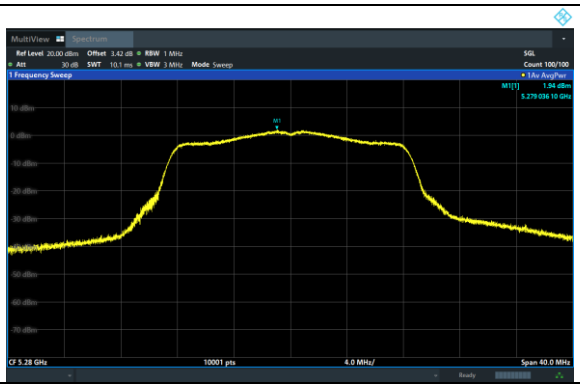
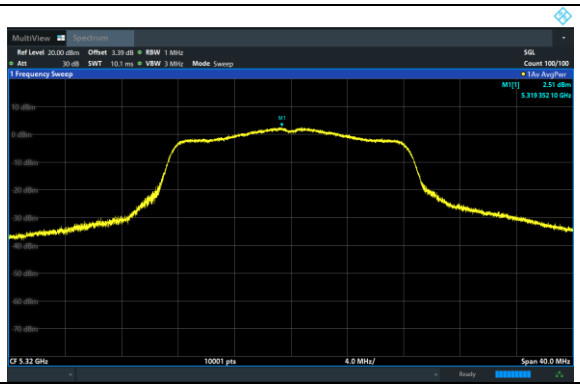
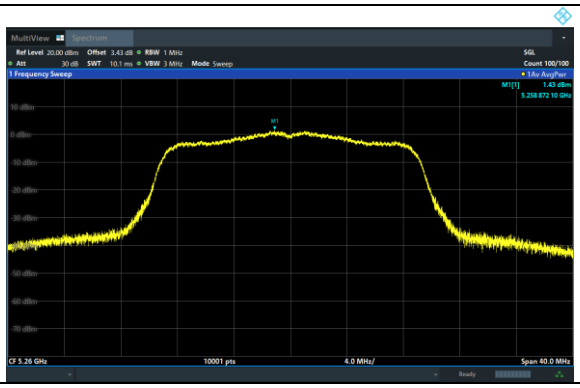
11a CH36	11a CH44
	
11a CH48	**11n20 CH36**
	
11n20 CH44	**11n20 CH48**
	

11n40 CH38	11n40 CH46
	
11ac20 CH36	**11ac20 CH40**
	
11ac20 CH48	**11ac40 CH38**
	

11ac40 CH46	11ac80 CH42
	

Test plots

U-NII-2A

11a CH52	11a CH56
	
11a CH64	**11n20 CH52**
	
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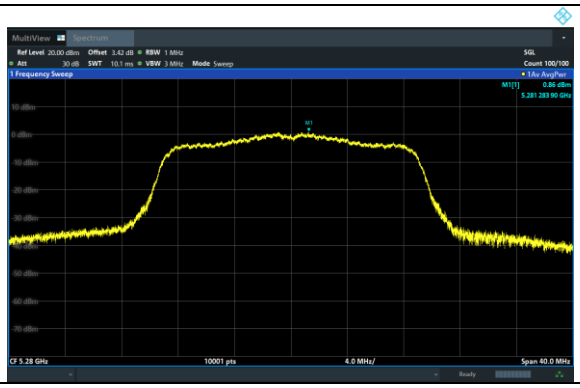
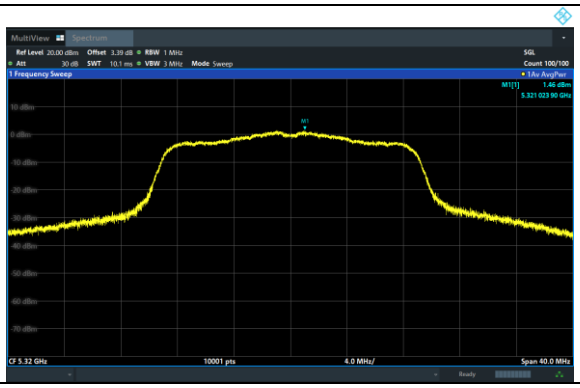
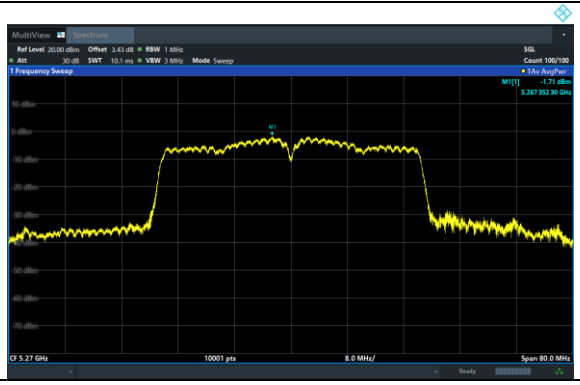
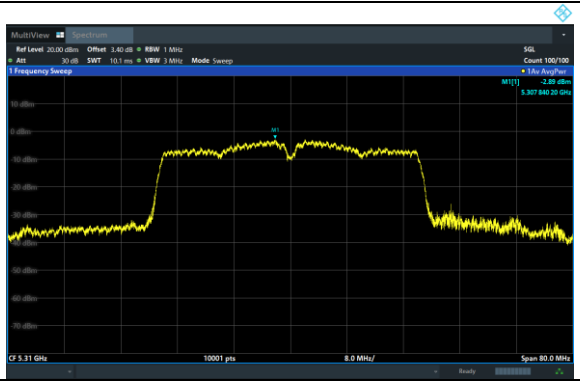
	

11n40 CH54	11n40 CH62
	
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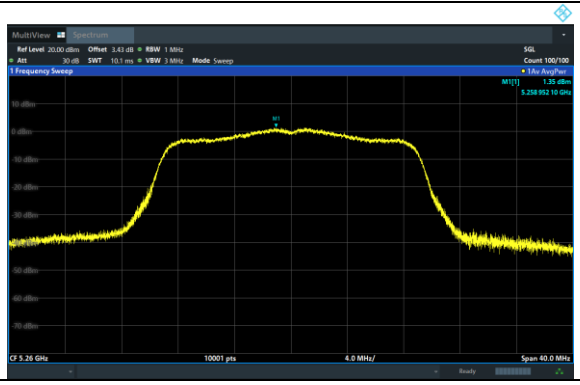	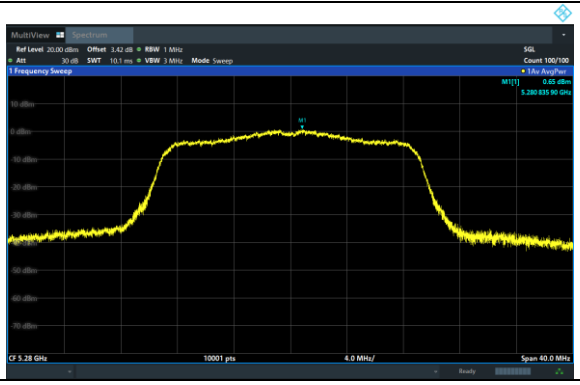
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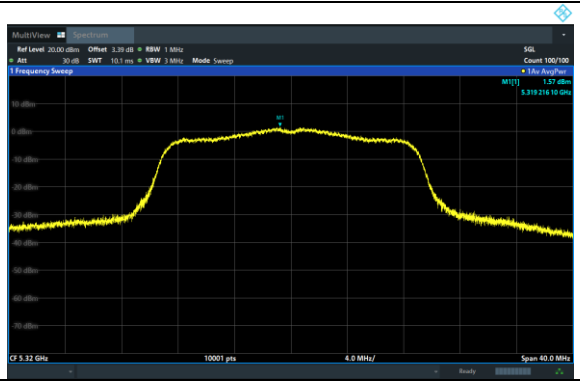	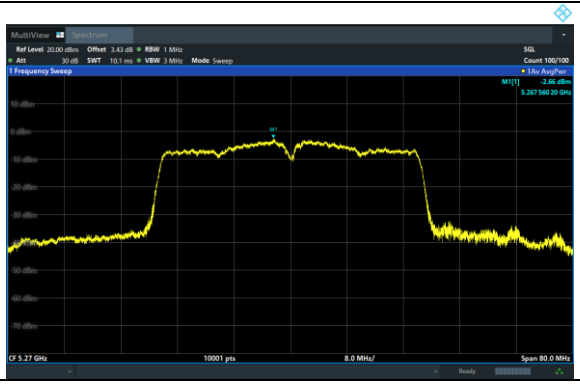

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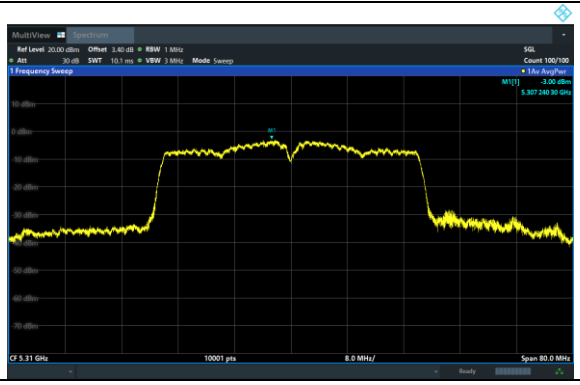
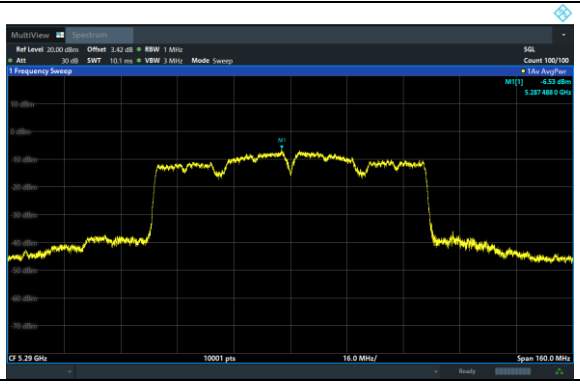
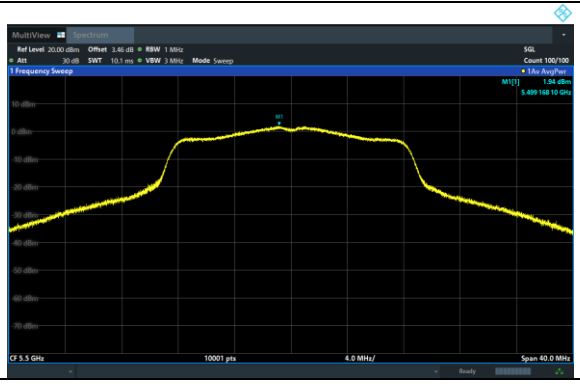
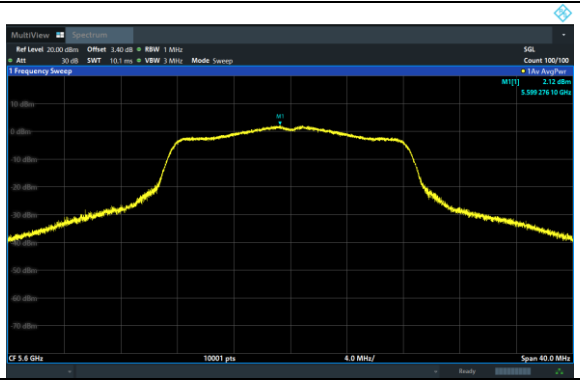
	

Test plots

U-NII-2C

11a CH100	11a CH120
	
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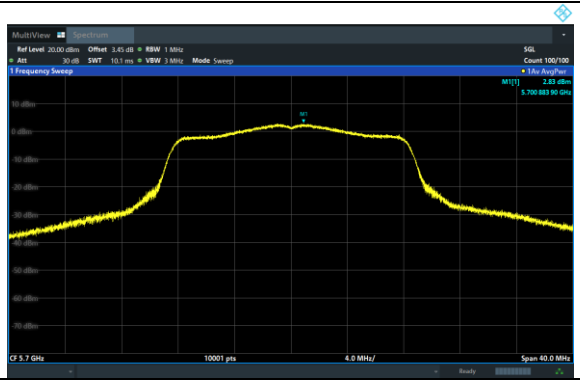	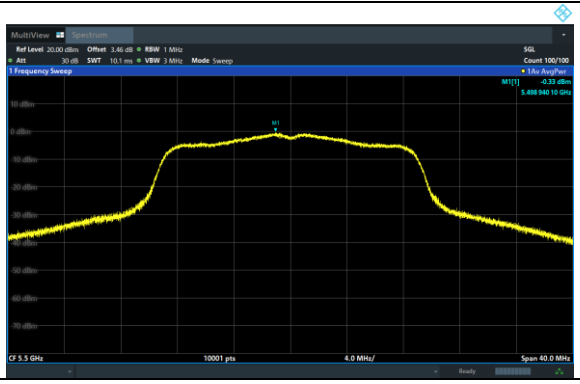
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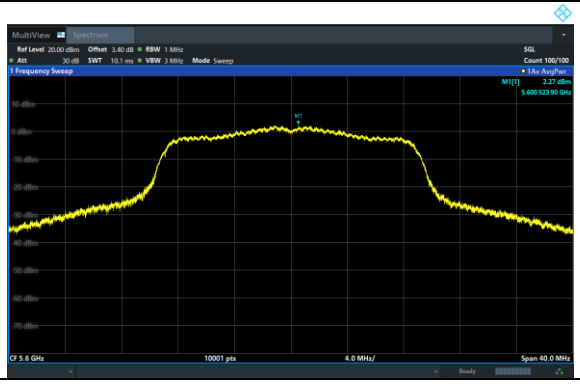	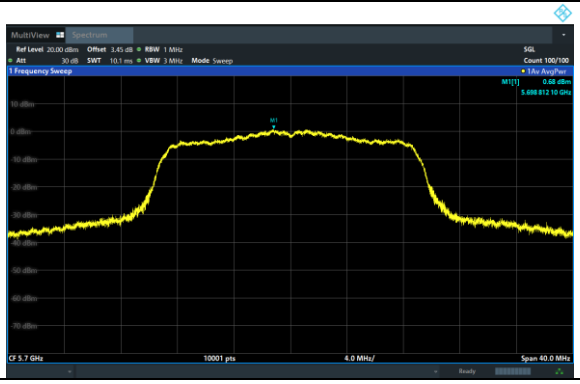

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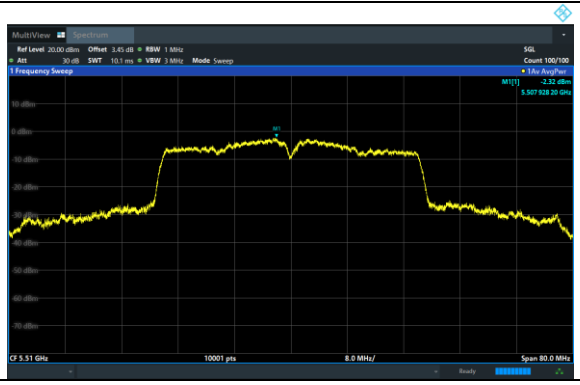	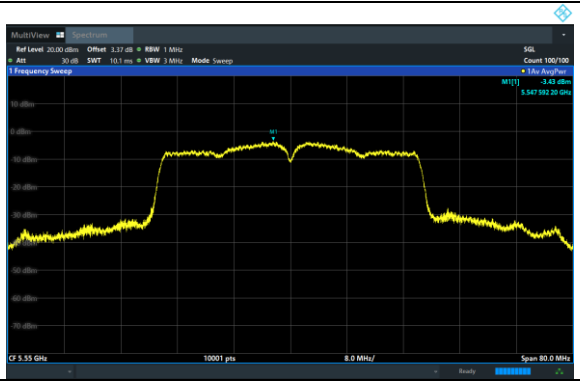
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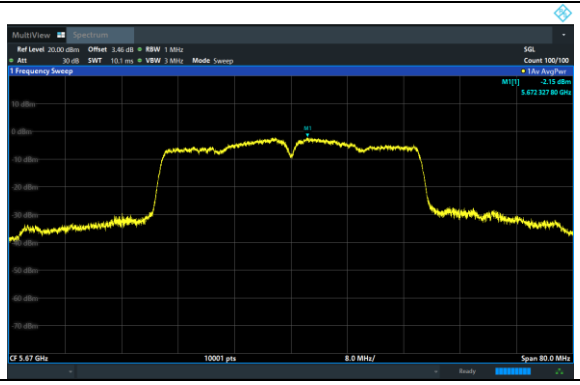	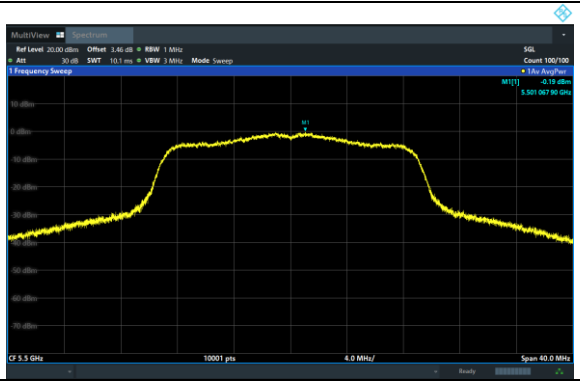
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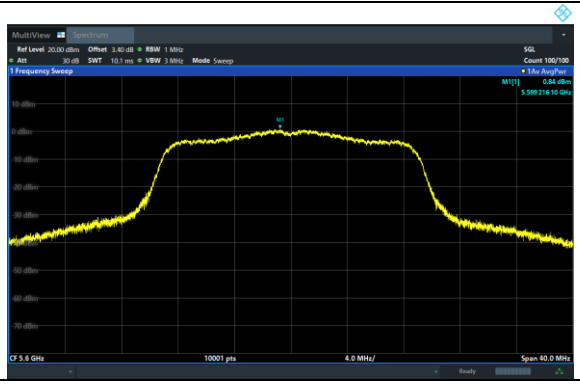
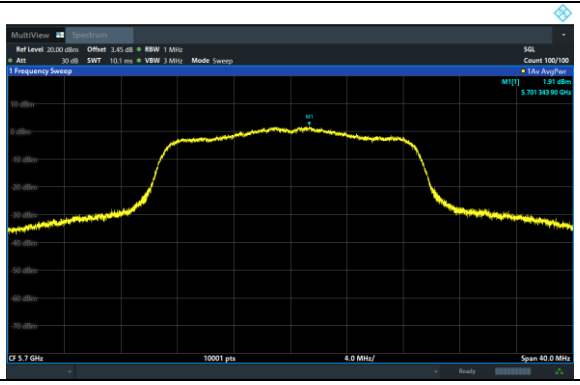
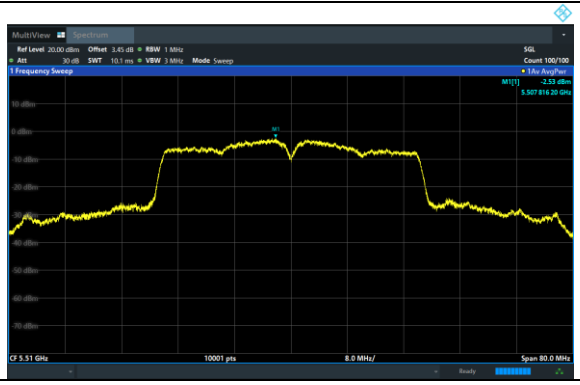
	

11ac40 CH102	11ac40 CH110
	
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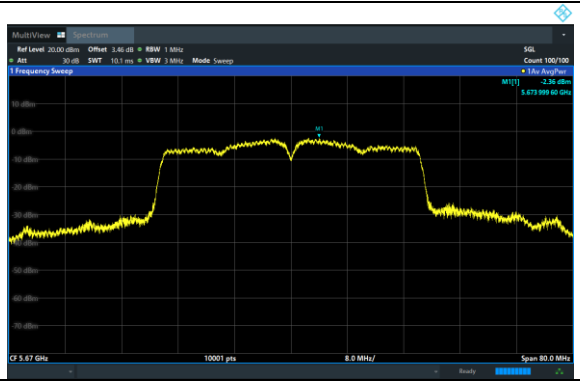	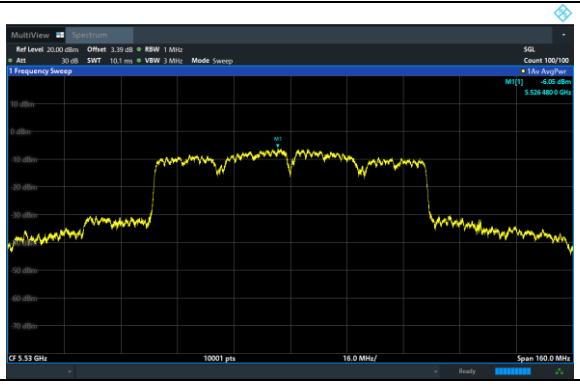
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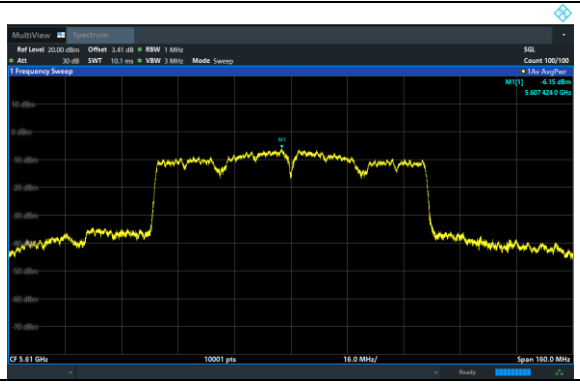
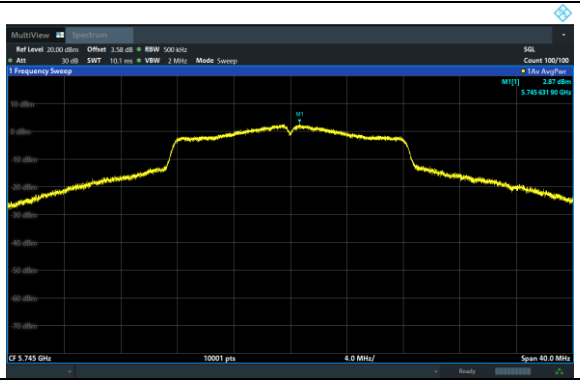
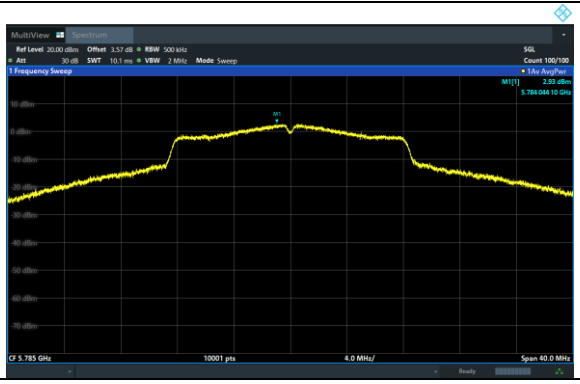
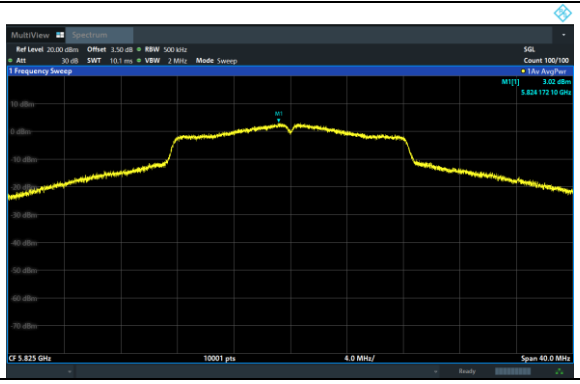
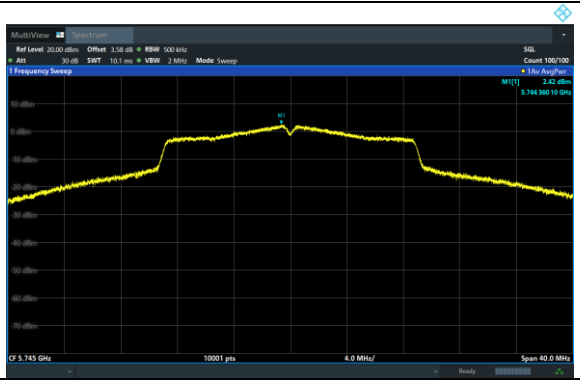
	/

Test plots

For U-NII-3

11a CH149	11a CH157
	
11a CH165	**11n20 CH149**
	
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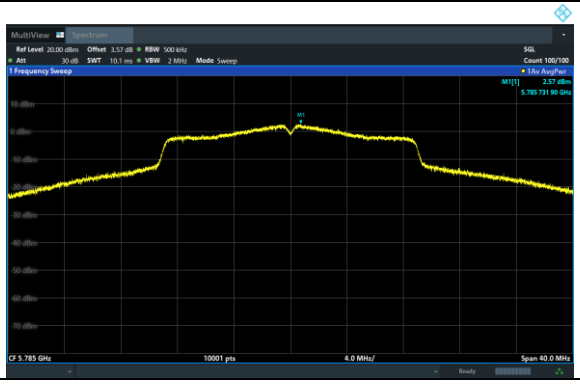	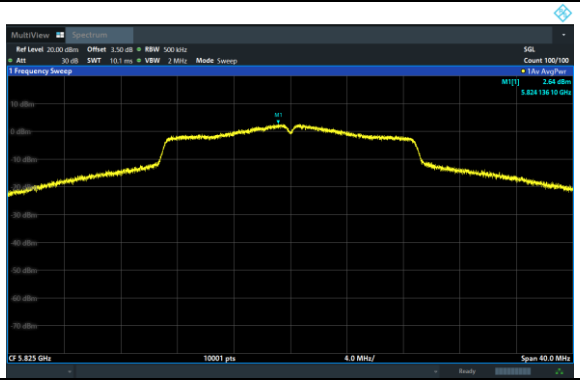

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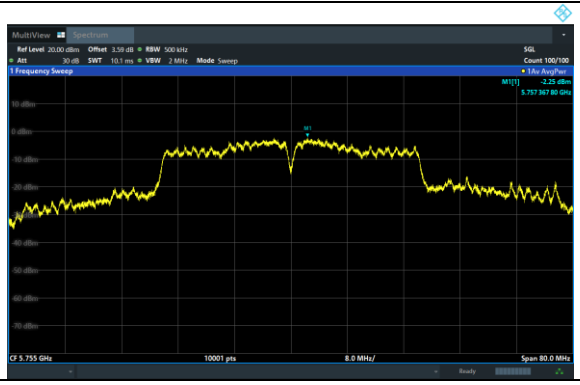	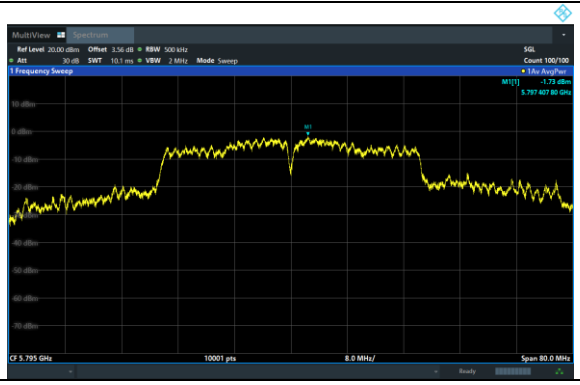
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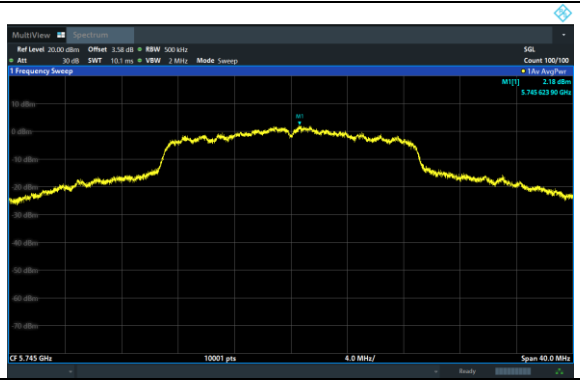	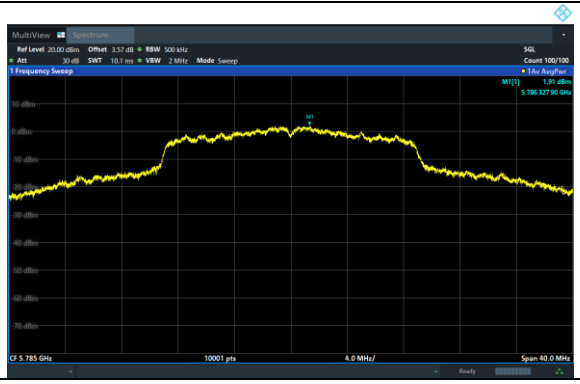
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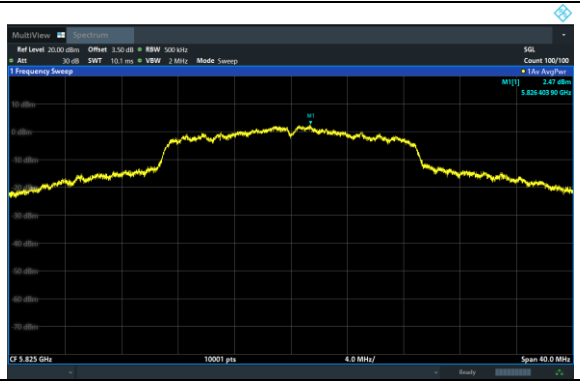	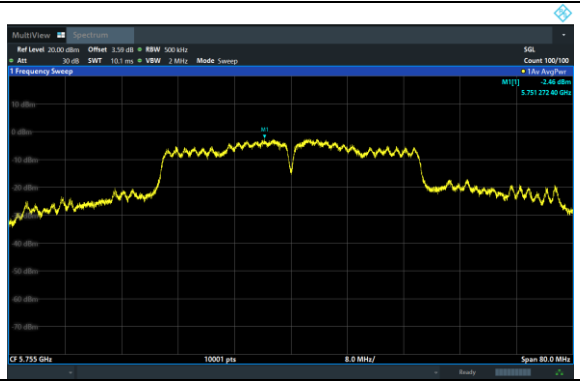

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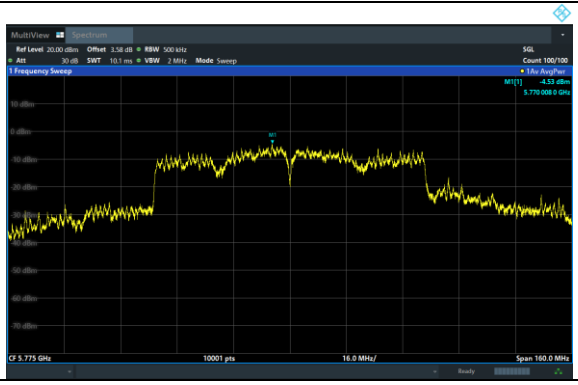
	

5.6 26dB Emission Bandwidth and Occupied bandwidth

5.6.1 Limit

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

5.6.2 Test Procedure

26dB Emission bandwidth

Set RBW = approximately 1% of the emission bandwidth.

Set VBW ≥ 3*RBW

Detector = Peak.

Trace mode = Max hold.

Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

Occupied Bandwidth

Set Span = 1.5 times to 5.0 times the OBW

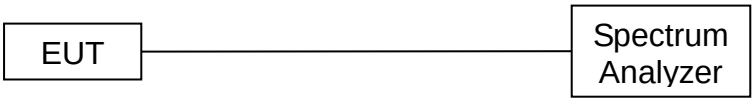
Set RBW = 1% to 5% of the OBW.

Set VBW ≥ 3*RBW, Detector = Peak.

Trace mode = Max hold.

Use the 99% power bandwidth function of the instrument.

5.6.3 Test Setup



5.6.4 Test Results

For U-NII-1

Channel	Test Channel	Frequency (MHz)	26dB bandwidth (MHz)	Limit (kHz)	99% bandwidth	Limit (kHz)	Result
11a	CH36	5180	33.536	500	18.047	/	Pass
11a	CH40	5200	21.216	500	16.516	/	Pass
11a	CH48	5240	21.132	500	16.49	/	Pass
11n (HT20)	CH36	5180	21.132	500	17.616	/	Pass
11n (HT20)	CH40	5200	21.056	500	17.603	/	Pass
11n (HT20)	CH48	5240	21.176	500	17.606	/	Pass
11n (HT40)	CH38	5190	38.92	500	36.062	/	Pass
11n (HT40)	CH46	5230	38.712	500	36.036	/	Pass

Channel	Test Channel	Frequency (MHz)	26dB bandwidth (MHz)	Limit (kHz)	99% bandwidth	Limit (kHz)	Result
11ac (HT20)	CH36	5180	21.04	500	17.665	/	Pass
11ac (HT20)	CH40	5200	21.396	500	17.659	/	Pass
11ac (HT20)	CH48	5240	21.212	500	17.64	/	Pass
11ac (HT40)	CH38	5190	39.44	500	36.392	/	Pass
11ac (HT40)	CH46	5230	39.488	500	36.487	/	Pass
11ac (HT80)	CH42	5210	79.296	500	75.301	/	Pass