

Test Report

Product: Wireless carplay adapter

Trade Mark: N/A

Model Number: KY-4165

FCC ID: 2BPTS-KY-4165

Prepared for

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Room 608, Building 5, No. 9 Yuhu Road, Fenggang Town, Dongguan City,
Guangdong Province

Prepared by

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TEST RESULT CERTIFICATION

Applicant's Name..... Dongguan Kinspeed Technology co., Ltd.

Address Room 608, Building 5, No. 9 Yuhu Road, Fenggang Town,
Dongguan City, Guangdong Province

Manufacturer's Name Dongguan Kinspeed Technology co., Ltd.

Address Room 608, Building 5, No. 9 Yuhu Road, Fenggang Town,
Dongguan City, Guangdong Province

Product description

Product name Wireless carplay adapter

Model Number KY-4165

Standards FCC Part 15.407

IEEE/ANSI C63.10-2020

Test procedure..... KDB 662911 D01 Multiple Transmitter Output v02r01

KDB 789033 D02 General U-NII Test Procedures New Rules v01r01

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..... : May 27, 2025~ June 11, 2025

Test Result..... : **Pass**

Testing Engineer :

Zoe Su

(Z o e S u)

Technical Manager :

Ming Liu

(M i n g L i u)

Authorized Signatory :

Leo Su

(L e o S u)

[illegible]

1 General Description

1.1 Description of EUT

Product name:	Wireless carplay adapter
Model name:	KY-4165
Series Model:	KY-4167, KY-4169, KY-4171, KY-4173, KY-4175, KY-4176, KY-4177, KY-4178, KY-4179, KY-4180, KY-4181, KY-4182, KY-4183, KY-4184, KY-4186, KY-4187, KY-4188, KY-4189, KY-4190, KY-4191
Different of series model:	Except for the model, appearance color, appearance shape, appearance materials, electronic accessories, all models have the same circuits and modules.
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/n: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	IEEE 802.11a/n-HT20/ac-VHT20 IEEE 802.11n-HT40/ac-VHT40
Bit Rate of transmitter:	IEEE 802.11a: Up to 54 Mbps IEEE 802.11n-HT20/40: Up to MCS7 IEEE 802.11ac-VHT20/40: Up to MCS9
Channel bandwidth:	IEEE 802.11a/n-HT20/ac-VHT20 IEEE 802.11n-HT40/ac-VHT40
Antenna type:	PCB antenna
Antenna gain:	2.67dBi
Max. output power:	14.7dBm
Hardware version:	V0.3
Software version:	202407041001C
Battery:	N/A
Power supply:	Input: DC 5V/1A
Adapter information:	N/A

Note: The circuit and electronic structure of all models listed in the report have not changed, and differences between all models have been tested. The final report only reflects the test data of the KY-4165 main model in the worst-case scenario.

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	--	--
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	--	--
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	--	--
104	5520	110	5550	--	--
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	--	--
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 802.11a/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	--	--	--

1.4 Power setting configuration parameters

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output 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 PUSH and CMD tool Use together.

Test Items	Mode	Data Rate	TX/RX
Radiated Emissions	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
Duty Cycle	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
Band Edge	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
6dB Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
26dB Bandwidth and 99% Occupied Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
Conducted Output Power	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
Power Spectral Density	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
Frequency Stability	Un-modulation	/	TX

1.5 Test Setup

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

1.6 Ancillary Equipment

Equipment	Model	S/N	Manufacturer
Adapter	CD289	35810	Ugreen Group Limited
Laptop	BDR-WDH	A3RQPM242 0004454	HONR

Note: The laptop is used to assist the RF test. In order to prevent the laptop from causing unnecessary impact on the test, the laptop will be removed from the test environment after the EUT successfully transmits at a fixed frequency using the laptop.

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:	15°C~35°C
Relative Humidity:	20%~75%
Air Pressure:	98kPa~101kPa

3.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, 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 %.

The data and results quoted in this document are true and accurate values, and uncertainties are not involved in the calculations.

In addition, components and mass production processes that are similar to testing equipment may introduce additional deviations, and the manufacturer is solely responsible for the continued compliance of the equipment.

Measurement Frequency Range	U, (dB)	Note
RF frequency	2×10^{-5}	
RF power, conducted	± 0.57 dB	
Conducted emission(150kHz~30MHz)	± 2.5 dB	
Radiated emission(9kHz-30MHz)	± 2.5 dB	
Radiated emission(30MHz~1GHz)	± 4.2 dB	
Radiated emission (above 1GHz)	± 4.7 dB	
Occupied Bandwidth	$\pm 3\%$	
Temperature	± 1 degree	
Humidity	± 5 %	

3.4 Test Software

Software name	Manufacturer	Model	Version
Conducted Emission test Software	Farad	EZ-EMC	EMC-CON 3A1.1+
Radiated Emission test Software	Farad	EZ-EMC	FA-03A2
RF Test System	MWRF	MTS 8310	2.0.0.0

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	2024-05-18	2026-05-17
2	HB-E002	Biconical log-periodic composite antenna	Schwarzbeck	VULB 9168	01340	2024-05-18	2026-05-17
3	HB-E003	SHF-EHF Horn	Schwarzbeck	BBHA 91270	01193	2024-05-18	2026-05-17
4	HB-E005	Preamplifier	Noyetec	LAN-0118	NYCM1420102	2025-05-07	2026-05-06
5	HB-E006	Preamplifier	Noyetec	LAN-1840	NYCM1420103	2025-05-07	2026-05-06
6	HB-E007	EMI TEST RECEIVER	R&S	ESR7	102520	2025-05-07	2026-05-06
7	HB-E009	POSITINAL COTROLLE R	Noyetec	N/A	N/A	/	/
8	HB-E013	RF switch	Noyetec	NY-RF4	NY0CM1420204	/	/
9	HB-E066	Illuminance Tester	TASI	TA8121	N/A	2025-05-13	2026-05-12
10	HB-E075	Active loop antenna	Schwarzbeck	FMZB 1519B	1519B-245	2024-05-18	2026-05-17
11	HB-E076	Preamplifier	Hewlett Packard	8447D	1937A02278	2025-05-07	2026-05-06
12	HB-E044	Signal& spectrum Analyzer	R&S	FSV3044	101264	2025-05-07	2026-05-06
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	2025-05-07	2026-05-06
2	HB-E015	Pulse Limiter	Schwarzbeck	VTSD 9561-F	00949	2025-05-07	2026-05-06
3	HB-E016	ZN23201	Noyetec	ZN23201	N/A	2025-05-10	2026-05-09
4	HB-E059	Attenuator	Xianghua	TS2-6-1	220215166	2025-05-10	2026-05-09
5	HB-E069	EMI TEST RECEIVER	R&S	ESCI	N/A	2025-05-07	2026-05-06
RF							
Item	Equipmen	Equipment	Manufact	Model	Serial No.	Calibration	Due date

	t No.	name	urer			date	
1	HB-E041	MXG Anaio Signal Generator	Agilent	N5181A	MY47070421	2025-05-07	2026-05-06
2	HB-E042	WIDEBAND RADIO COMMUNICA TION TESTER	R&S	CMW500	132108	2025-05-08	2026-05-07
3	HB-E043	MXG Anaio Signal Generator	Agilent	N5182A	US46240335	2025-05-08	2026-05-07
4	HB-E044	Signal& spectrum Analyzer	R&S	FSV3044	101264	2025-05-07	2026-05-06
5	HB-E045	RF Control Box	Noyetec	NY100-R FCB	N/A	2025-05-08	2026-05-07
6	HB-E058	Thermometer Clock Humidity Monitor	N/A	HTC-1S	N/A	2025-05-09	2026-05-08

Note:

1. The calibration interval of the above test instruments is 12&24 months and the calibrations are traceable to international system unit (SI).
2. The instrument RF Control Box, numbered HB-E045, contains power meter.

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 PCB 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.

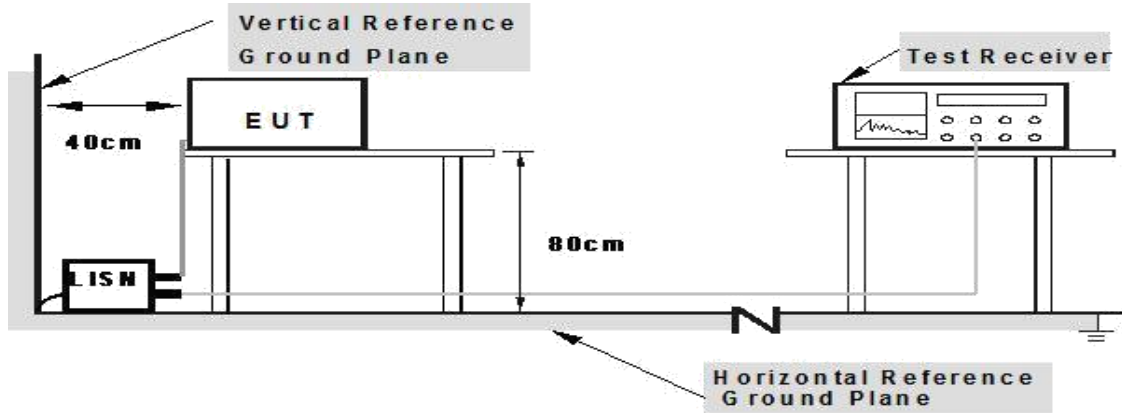
b) The following table is the setting of the receiver

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

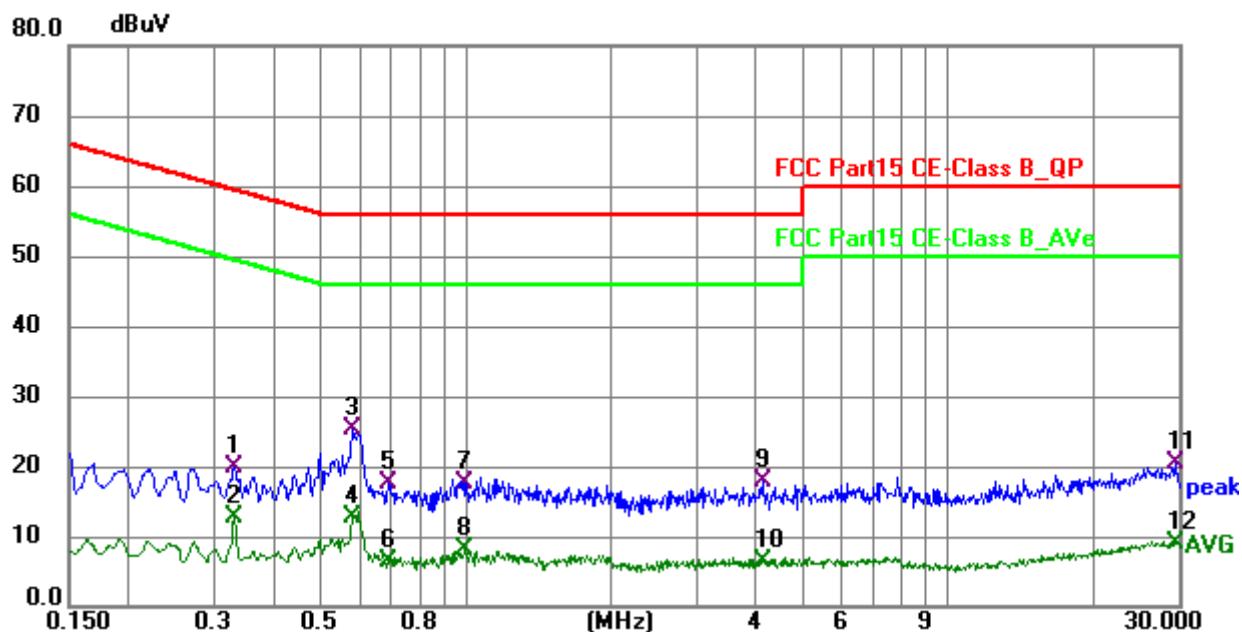
setup.

5.2.3 Test Setup



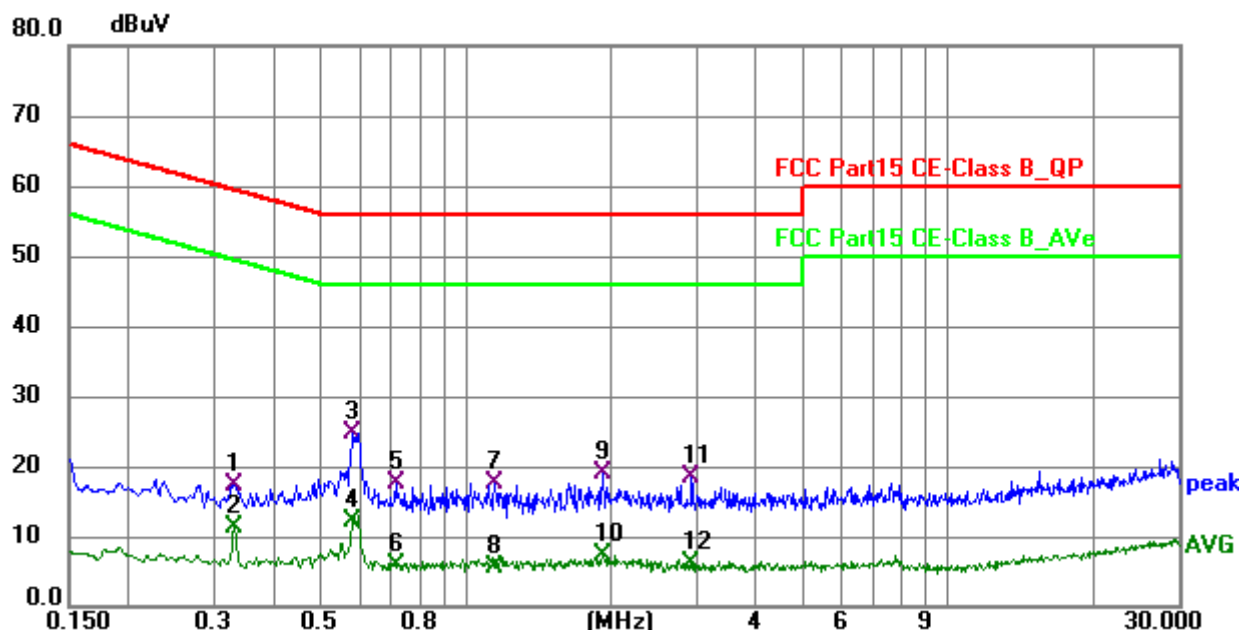
5.2.4 Test Result

EUT:	Wireless carplay adapter	Model Name:	KY-4165
Test Mode:	TX	Phase:	L
Test Voltage:	DC 5V from adapter AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.330	9.49	10.48	19.97	59.45	-39.48	QP
2	0.330	2.10	10.48	12.58	49.45	-36.87	AVG
3 *	0.582	14.81	10.50	25.31	56.00	-30.69	QP
4	0.582	2.29	10.50	12.79	46.00	-33.21	AVG
5	0.690	7.07	10.50	17.57	56.00	-38.43	QP
6	0.690	-4.08	10.50	6.42	46.00	-39.58	AVG
7	0.992	7.11	10.42	17.53	56.00	-38.47	QP
8	0.992	-2.19	10.42	8.23	46.00	-37.77	AVG
9	4.123	7.36	10.41	17.77	56.00	-38.23	QP
10	4.123	-4.00	10.41	6.41	46.00	-39.59	AVG
11	29.530	7.39	12.95	20.34	60.00	-39.66	QP
12	29.530	-3.97	12.95	8.98	50.00	-41.02	AVG

EUT:	Wireless carplay adapter	Model Name:	KY-4165
Test Mode:	TX	Phase:	N
Test Voltage:	DC 5V from adapter AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.330	6.90	10.47	17.37	59.45	-42.08	QP
2	0.330	0.91	10.47	11.38	49.45	-38.07	AVG
3 *	0.582	14.24	10.39	24.63	56.00	-31.37	QP
4	0.582	1.68	10.39	12.07	46.00	-33.93	AVG
5	0.717	7.14	10.38	17.52	56.00	-38.48	QP
6	0.717	-4.42	10.38	5.96	46.00	-40.04	AVG
7	1.149	7.28	10.35	17.63	56.00	-38.37	QP
8	1.149	-4.80	10.35	5.55	46.00	-40.45	AVG
9	1.919	8.60	10.35	18.95	56.00	-37.05	QP
10	1.919	-3.14	10.35	7.21	46.00	-38.79	AVG
11	2.945	7.97	10.44	18.41	56.00	-37.59	QP
12	2.945	-4.30	10.44	6.14	46.00	-39.86	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.

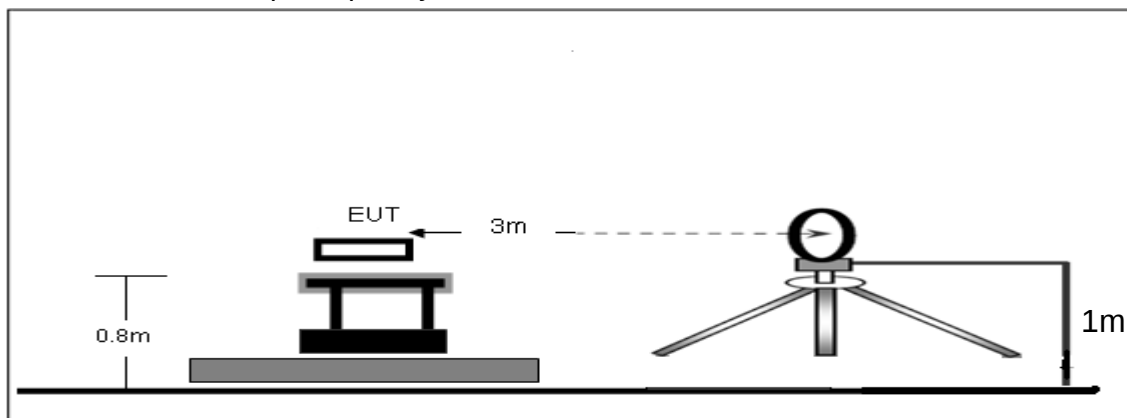
The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

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.

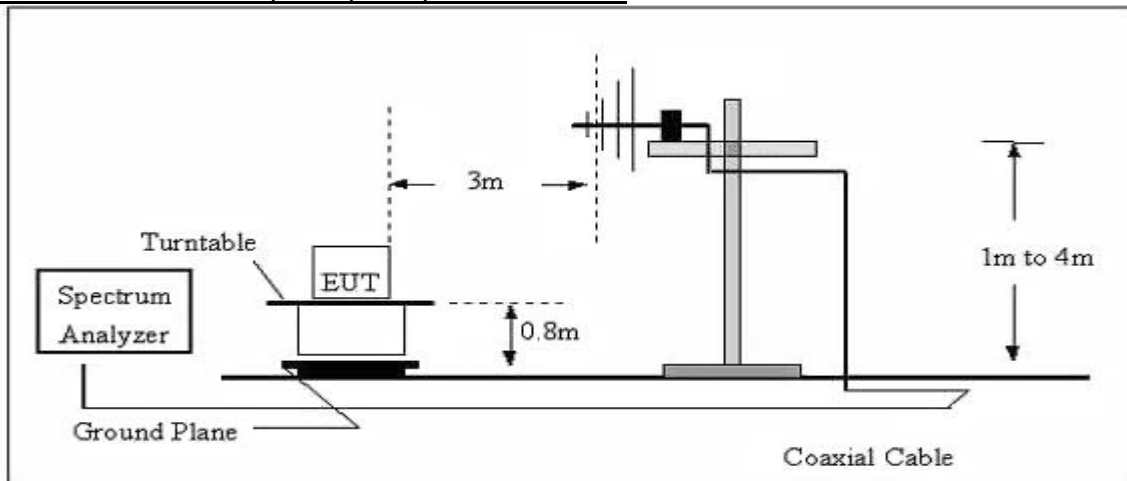
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3.3 Test Setup

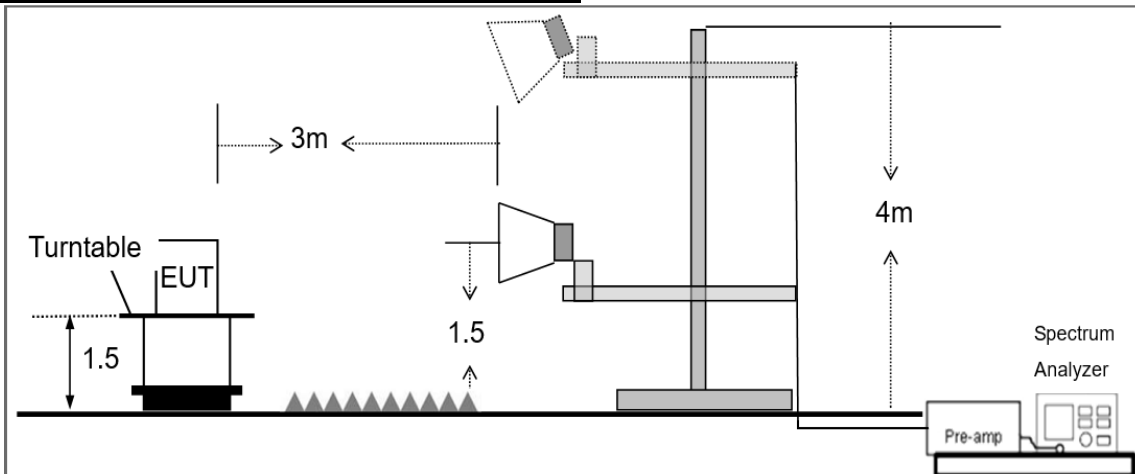
Radiated Emission Test-Up Frequency Below 30MHz



Radiated Emission Test-Up Frequency 30MHz~1GHz



Radiated emission test-up frequency above 1GHz



5.3.4 Test Result

Below 30MHz

EUT:	Wireless carplay adapter	Model Name:	KY-4165
Pressure:	1010 hPa	Test Voltage:	DC 5V from adapter AC 120V/60Hz
Test Mode:	TX	Polarization:	--

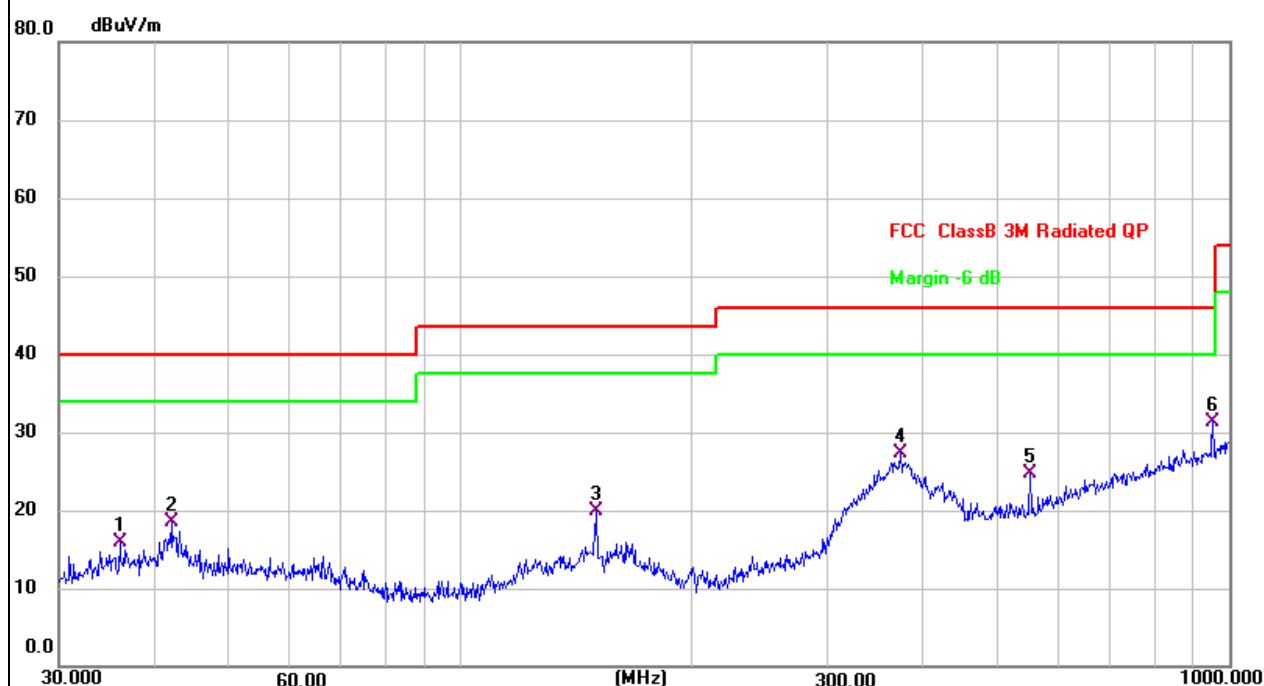
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

Note:

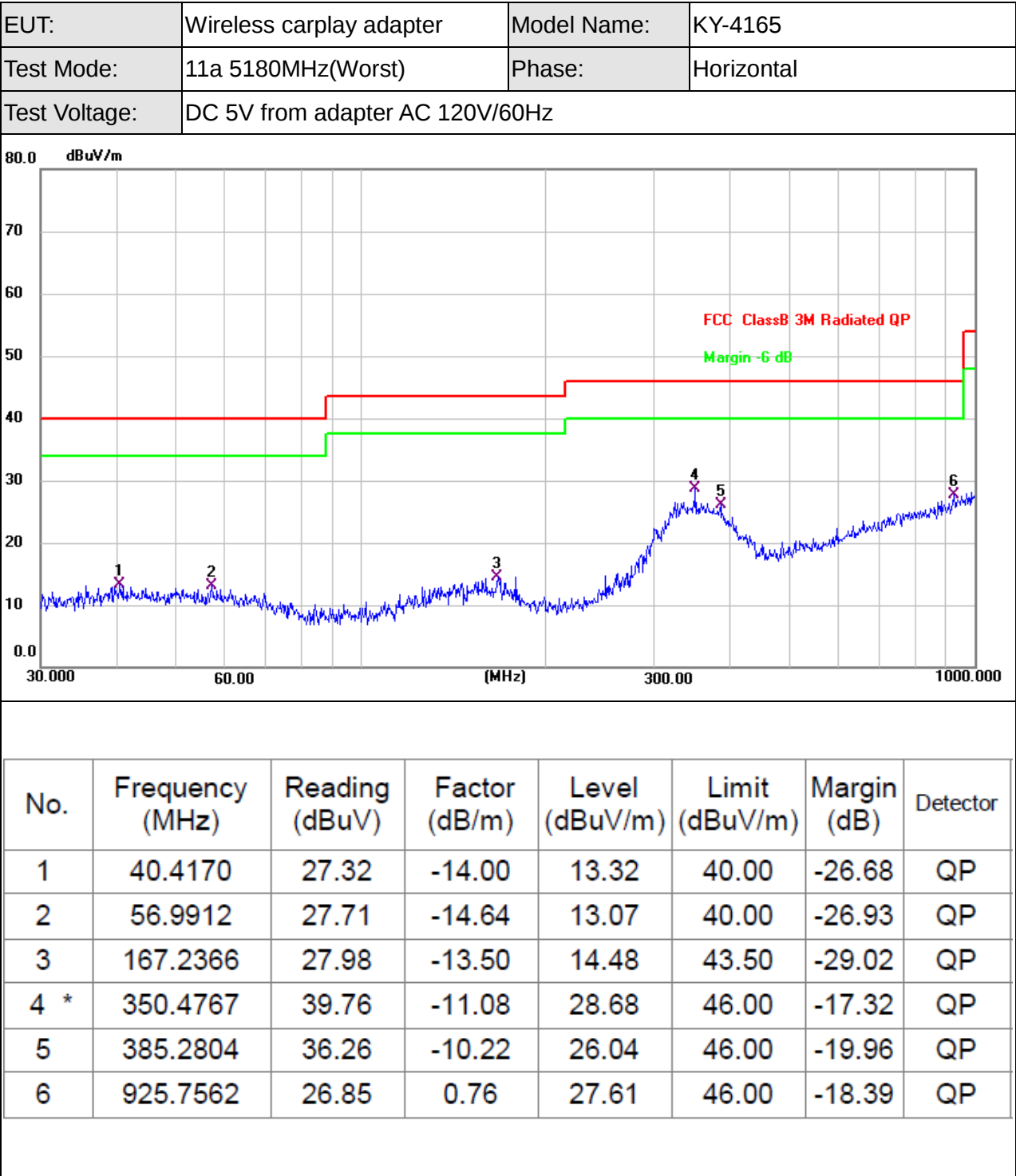
1. For 9kHz-30MHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);
3. Limit line = specific limits (dBuV) + distance extrapolation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

Frequency range (30MHz – 1GHz)

EUT:	Wireless carplay adapter	Model Name:	KY-4165
Test Mode:	11a 5180MHz(Worst)	Phase:	Vertical
Test Voltage:	DC 5V from adapter AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.0007	30.51	-14.61	15.90	40.00	-24.10	QP
2	42.0066	32.60	-14.08	18.52	40.00	-21.48	QP
3	150.0108	33.38	-13.53	19.85	43.50	-23.65	QP
4	373.3112	37.65	-10.44	27.21	46.00	-18.79	QP
5	550.9480	31.30	-6.53	24.77	46.00	-21.23	QP
6 *	952.0937	29.89	1.36	31.25	46.00	-14.75	QP



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

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/	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	4434.253	54.86	5.94	35.40	44.00	52.20	74.00	-21.80	Pk
Vertical	4434.700	43.75	5.94	35.40	44.00	41.09	54.00	-12.91	AV
Vertical	10370.347	62.50	8.46	39.75	44.50	66.21	74.00	-7.79	Pk
Vertical	10370.989	44.52	8.46	39.75	44.50	48.23	54.00	-5.77	AV
Vertical	15540.344	55.99	10.12	38.80	44.10	60.81	74.00	-13.19	Pk
Vertical	15540.738	42.27	10.12	38.80	42.70	48.49	54.00	-5.51	AV
Horizontal	4435.708	57.78	5.94	35.18	44.00	54.90	74.00	-19.10	Pk
Horizontal	4436.033	43.00	5.94	35.18	44.00	40.12	54.00	-13.88	AV
Horizontal	10370.365	61.84	8.46	38.71	44.50	64.51	74.00	-9.49	Pk
Horizontal	10731.985	44.73	8.46	38.71	44.50	47.40	54.00	-6.60	AV
Horizontal	15541.771	58.23	10.12	38.38	44.10	62.63	74.00	-11.37	Pk
Horizontal	15541.953	42.58	10.12	38.38	44.10	46.98	54.00	-7.02	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	4593.816	57.32	6.48	36.35	44.05	56.10	74.00	-17.90	Pk
Vertical	4593.015	42.37	6.48	36.35	44.05	41.15	54.00	-12.85	AV
Vertical	10401.625	61.83	8.47	37.88	44.51	63.67	74.00	-10.33	Pk
Vertical	10403.239	46.16	8.47	37.88	44.51	48.00	54.00	-6.00	AV
Vertical	15601.879	57.17	10.12	38.8	44.10	61.99	74.00	-12.01	Pk
Vertical	15601.144	41.29	10.12	38.8	42.70	47.51	54.00	-6.49	AV
Horizontal	4594.022	60.17	6.48	36.37	44.05	58.97	74.00	-15.03	Pk
Horizontal	4592.504	42.34	6.48	36.37	44.05	41.14	54.00	-12.86	AV
Horizontal	10401.641	61.80	8.47	38.64	44.50	64.41	74.00	-9.59	Pk
Horizontal	10401.523	46.27	8.47	38.64	44.50	48.88	54.00	-5.12	AV
Horizontal	15601.581	58.16	10.12	38.38	44.10	62.56	74.00	-11.44	Pk
Horizontal	15601.390	43.52	10.12	38.38	44.10	47.92	54.00	-6.08	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4740.387	59.22	7.10	37.24	43.50	60.06	74.00	-13.94	Pk
Vertical	4741.021	46.87	7.10	37.24	43.50	47.71	54.00	-6.29	AV
Vertical	10482.067	61.63	8.46	37.68	44.50	63.27	74.00	-10.73	Pk
Vertical	10482.328	45.76	8.46	37.68	44.50	47.40	54.00	-6.60	AV
Vertical	15721.949	58.33	10.12	38.8	44.10	63.15	74.00	-10.85	Pk
Vertical	15722.180	43.20	10.12	38.8	42.70	49.42	54.00	-4.58	AV
Horizontal	4740.994	58.85	7.10	37.24	43.50	59.69	74.00	-14.31	Pk
Horizontal	4740.884	45.28	7.10	37.24	43.50	46.12	54.00	-7.88	AV
Horizontal	10482.154	58.87	8.46	38.57	44.50	61.40	74.00	-12.60	Pk
Horizontal	10483.402	42.93	8.46	38.57	44.50	45.46	54.00	-8.54	AV
Horizontal	15721.546	58.38	10.12	38.38	44.10	62.78	74.00	-11.22	Pk
Horizontal	15720.627	42.62	10.12	38.38	44.10	47.02	54.00	-6.98	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-2A

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Pream p Factor	Emission Level	Limits	Margin	Detect or Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5260 MHz)-Above 1G									
Vertical	4436.078	55.66	5.94	35.40	44.00	53.00	74.00	-21.00	Pk
Vertical	4434.402	44.04	5.94	35.40	44.00	41.38	54.00	-12.62	AV
Vertical	10371.310	62.43	8.46	39.75	44.50	66.14	74.00	-7.86	Pk
Vertical	10372.253	44.32	8.46	39.75	44.50	48.03	54.00	-5.97	AV
Vertical	15540.805	56.80	10.12	38.80	44.10	61.62	74.00	-12.38	Pk
Vertical	15540.830	43.60	10.12	38.80	42.70	49.82	54.00	-4.18	AV
Horizontal	4435.983	59.45	5.94	35.18	44.00	56.57	74.00	-17.43	Pk
Horizontal	4436.244	43.60	5.94	35.18	44.00	40.72	54.00	-13.28	AV
Horizontal	10372.109	62.43	8.46	38.71	44.50	65.10	74.00	-8.90	Pk
Horizontal	10731.093	46.17	8.46	38.71	44.50	48.84	54.00	-5.16	AV
Horizontal	15541.889	56.64	10.12	38.38	44.10	61.04	74.00	-12.96	Pk
Horizontal	15540.266	42.13	10.12	38.38	44.10	46.53	54.00	-7.47	AV
middle Channel (5280 MHz)-Above 1G									
Vertical	4592.206	56.86	6.48	36.35	44.05	55.64	74.00	-18.36	Pk
Vertical	4594.256	42.82	6.48	36.35	44.05	41.60	54.00	-12.40	AV
Vertical	10403.234	60.58	8.47	37.88	44.51	62.42	74.00	-11.58	Pk
Vertical	10402.547	46.05	8.47	37.88	44.51	47.89	54.00	-6.11	AV
Vertical	15602.115	56.54	10.12	38.8	44.10	61.36	74.00	-12.64	Pk
Vertical	15601.194	42.47	10.12	38.8	42.70	48.69	54.00	-5.31	AV
Horizontal	4593.323	60.60	6.48	36.37	44.05	59.40	74.00	-14.60	Pk
Horizontal	4592.539	41.73	6.48	36.37	44.05	40.53	54.00	-13.47	AV
Horizontal	10402.127	61.05	8.47	38.64	44.50	63.66	74.00	-10.34	Pk
Horizontal	10400.618	46.52	8.47	38.64	44.50	49.13	54.00	-4.87	AV
Horizontal	15600.517	57.89	10.12	38.38	44.10	62.29	74.00	-11.71	Pk
Horizontal	15602.104	42.24	10.12	38.38	44.10	46.64	54.00	-7.36	AV
High Channel (5320 MHz)-Above 1G									
Vertical	4741.110	59.05	7.10	37.24	43.50	59.89	74.00	-14.11	Pk
Vertical	4741.340	46.15	7.10	37.24	43.50	46.99	54.00	-7.01	AV
Vertical	10480.969	61.97	8.46	37.68	44.50	63.61	74.00	-10.39	Pk
Vertical	10481.626	45.50	8.46	37.68	44.50	47.14	54.00	-6.86	AV
Vertical	15721.296	57.50	10.12	38.8	44.10	62.32	74.00	-11.68	Pk
Vertical	15720.400	44.08	10.12	38.8	42.70	50.30	54.00	-3.70	AV
Horizontal	4739.457	59.80	7.10	37.24	43.50	60.64	74.00	-13.36	Pk
Horizontal	4740.130	44.60	7.10	37.24	43.50	45.44	54.00	-8.56	AV
Horizontal	10482.591	58.46	8.46	38.57	44.50	60.99	74.00	-13.01	Pk
Horizontal	10483.173	42.96	8.46	38.57	44.50	45.49	54.00	-8.51	AV
Horizontal	15721.634	57.08	10.12	38.38	44.10	61.48	74.00	-12.52	Pk
Horizontal	15722.115	41.41	10.12	38.38	44.10	45.81	54.00	-8.19	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	Pream p Factor	Emission Level	Limits	Margin	Detect or Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5500 MHz)-Above 1G									
Vertical	4435.733	55.08	5.94	35.40	44.00	52.42	74.00	-21.58	Pk
Vertical	4436.358	44.46	5.94	35.40	44.00	41.80	54.00	-12.20	AV
Vertical	10371.903	63.18	8.46	39.75	44.50	66.89	74.00	-7.11	Pk
Vertical	10370.198	43.41	8.46	39.75	44.50	47.12	54.00	-6.88	AV
Vertical	15542.150	56.28	10.12	38.80	44.10	61.10	74.00	-12.90	Pk
Vertical	15542.049	41.81	10.12	38.80	42.70	48.03	54.00	-5.97	AV
Horizontal	4435.113	58.49	5.94	35.18	44.00	55.61	74.00	-18.39	Pk
Horizontal	4434.867	43.17	5.94	35.18	44.00	40.29	54.00	-13.71	AV
Horizontal	10370.760	60.75	8.46	38.71	44.50	63.42	74.00	-10.58	Pk
Horizontal	10730.472	45.54	8.46	38.71	44.50	48.21	54.00	-5.79	AV
Horizontal	15541.859	56.28	10.12	38.38	44.10	60.68	74.00	-13.32	Pk
Horizontal	15540.247	43.76	10.12	38.38	44.10	48.16	54.00	-5.84	AV
middle Channel (5600 MHz)-Above 1G									
Vertical	4594.289	58.31	6.48	36.35	44.05	57.09	74.00	-16.91	Pk
Vertical	4592.908	42.98	6.48	36.35	44.05	41.76	54.00	-12.24	AV
Vertical	10403.247	61.11	8.47	37.88	44.51	62.95	74.00	-11.05	Pk
Vertical	10401.900	45.52	8.47	37.88	44.51	47.36	54.00	-6.64	AV
Vertical	15601.322	58.32	10.12	38.8	44.10	63.14	74.00	-10.86	Pk
Vertical	15600.738	40.93	10.12	38.8	42.70	47.15	54.00	-6.85	AV
Horizontal	4593.049	60.63	6.48	36.37	44.05	59.43	74.00	-14.57	Pk
Horizontal	4592.644	42.94	6.48	36.37	44.05	41.74	54.00	-12.26	AV
Horizontal	10400.342	60.99	8.47	38.64	44.50	63.60	74.00	-10.40	Pk
Horizontal	10401.206	46.35	8.47	38.64	44.50	48.96	54.00	-5.04	AV
Horizontal	15601.567	57.42	10.12	38.38	44.10	61.82	74.00	-12.18	Pk
Horizontal	15600.885	43.85	10.12	38.38	44.10	48.25	54.00	-5.75	AV
High Channel (5700 MHz)-Above 1G									
Vertical	4740.597	59.42	7.10	37.24	43.50	60.26	74.00	-13.74	Pk
Vertical	4740.277	46.65	7.10	37.24	43.50	47.49	54.00	-6.51	AV
Vertical	10480.391	62.45	8.46	37.68	44.50	64.09	74.00	-9.91	Pk
Vertical	10480.939	45.39	8.46	37.68	44.50	47.03	54.00	-6.97	AV
Vertical	15721.269	58.11	10.12	38.8	44.10	62.93	74.00	-11.07	Pk
Vertical	15720.899	43.64	10.12	38.8	42.70	49.86	54.00	-4.14	AV
Horizontal	4740.807	60.66	7.10	37.24	43.50	61.50	74.00	-12.50	Pk
Horizontal	4740.591	44.12	7.10	37.24	43.50	44.96	54.00	-9.04	AV
Horizontal	10481.833	58.71	8.46	38.57	44.50	61.24	74.00	-12.76	Pk
Horizontal	10482.904	43.23	8.46	38.57	44.50	45.76	54.00	-8.24	AV
Horizontal	15721.864	57.52	10.12	38.38	44.10	61.92	74.00	-12.08	Pk
Horizontal	15720.938	42.54	10.12	38.38	44.10	46.94	54.00	-7.06	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	Pream p Factor	Emission Level	Limits	Margin	Detect or Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	4680.274	59.17	5.94	35.40	44.00	56.51	74.00	-17.49	Pk
Vertical	4681.254	46.46	5.94	35.40	44.00	43.80	54.00	-10.20	AV
Vertical	11491.254	59.13	8.46	39.75	44.50	62.84	74.00	-11.16	Pk
Vertical	11491.235	45.34	8.46	39.75	44.50	49.05	54.00	-4.95	AV
Vertical	17236.867	58.08	10.12	38.80	44.10	62.90	74.00	-11.10	Pk
Vertical	17236.696	41.18	10.12	38.80	42.70	47.40	54.00	-6.60	AV
Horizontal	4680.329	59.39	5.94	35.18	44.00	56.51	74.00	-17.49	Pk
Horizontal	4680.245	45.04	5.94	35.18	44.00	42.16	54.00	-11.84	AV
Horizontal	11491.405	60.90	8.46	38.71	44.50	63.57	74.00	-10.43	Pk
Horizontal	11492.272	45.64	8.46	38.71	44.50	48.31	54.00	-5.69	AV
Horizontal	17236.667	60.25	10.12	38.38	44.10	64.65	74.00	-9.35	Pk
Horizontal	17237.201	43.04	10.12	38.38	44.10	47.44	54.00	-6.56	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	4592.914	59.52	6.48	36.35	44.05	58.30	74.00	-15.70	Pk
Vertical	4594.016	45.34	6.48	36.35	44.05	44.12	54.00	-9.88	AV
Vertical	11571.501	61.01	8.47	37.88	44.51	62.85	74.00	-11.15	Pk
Vertical	11572.235	44.68	8.47	37.88	44.51	46.52	54.00	-7.48	AV
Vertical	17357.052	58.95	10.12	38.8	44.10	63.77	74.00	-10.23	Pk
Vertical	17355.770	40.80	10.12	38.8	42.70	47.02	54.00	-6.98	AV
Horizontal	4593.609	61.09	6.48	36.37	44.05	59.89	74.00	-14.11	Pk
Horizontal	4593.863	44.86	6.48	36.37	44.05	43.66	54.00	-10.34	AV
Horizontal	11572.006	61.67	8.47	38.64	44.50	64.28	74.00	-9.72	Pk
Horizontal	11572.032	47.19	8.47	38.64	44.50	49.80	54.00	-4.20	AV
Horizontal	17356.670	60.74	10.12	38.38	44.10	65.14	74.00	-8.86	Pk
Horizontal	17355.924	44.49	10.12	38.38	44.10	48.89	54.00	-5.11	AV
High Channel (5825 MHz)-Above 1G									
Vertical	5039.659	60.49	7.10	37.24	43.50	61.33	74.00	-12.67	Pk
Vertical	5039.162	47.16	7.10	37.24	43.50	48.00	54.00	-6.00	AV
Vertical	11651.395	56.08	8.46	37.68	44.50	57.72	74.00	-16.28	Pk
Vertical	11650.799	43.92	8.46	37.68	44.50	45.56	54.00	-8.44	AV
Vertical	17476.211	60.81	10.12	38.8	44.10	65.63	74.00	-8.37	Pk
Vertical	17476.822	40.63	10.12	38.8	42.70	46.85	54.00	-7.15	AV
Horizontal	5039.446	66.78	7.10	37.24	43.50	67.62	74.00	-6.38	Pk
Horizontal	5040.435	43.54	7.10	37.24	43.50	44.38	54.00	-9.62	AV
Horizontal	11652.227	58.38	8.46	38.57	44.50	60.91	74.00	-13.09	Pk
Horizontal	11651.670	45.50	8.46	38.57	44.50	48.03	54.00	-5.97	AV
Horizontal	17476.580	60.05	10.12	38.38	44.10	64.45	74.00	-9.55	Pk
Horizontal	17476.638	45.01	10.12	38.38	44.10	49.41	54.00	-4.59	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 Level	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	67.33	8.69	29.4	42.59	62.83	74	-11.17	Pk
Horizontal	5350	64.38	9.37	30.41	43.25	60.91	74	-13.09	Pk
Vertical	5150	68.41	9.21	29.4	42.59	64.43	74	-9.57	Pk
Vertical	5350	60.30	9.12	30.41	43.25	56.58	74	-17.42	Pk

Polarization	Frequency	Read Level	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5150	45.97	8.69	29.4	42.59	41.47	54	-12.53	AV
Horizontal	5350	50.50	8.46	30.41	43.25	46.12	54	-7.88	AV
Vertical	5150	49.77	9.21	29.4	42.59	45.79	54	-8.21	AV
Vertical	5350	50.83	9.12	30.41	43.25	47.11	54	-6.89	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 Level	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5460	67.69	8.69	29.4	42.59	63.19	74	-10.81	Pk
Horizontal	5725	65.93	9.37	30.41	43.25	62.46	74	-11.54	Pk
Vertical	5460	59.19	9.21	29.4	42.59	55.21	74	-18.79	Pk
Vertical	5725	60.59	9.12	30.41	43.25	56.87	74	-17.13	Pk
Horizontal	5460	46.86	8.69	29.4	42.59	42.36	54	-11.64	AV
Horizontal	5725	48.62	8.46	30.41	43.25	44.24	54	-9.76	AV
Vertical	5460	44.31	9.21	29.4	42.59	40.33	54	-13.67	AV
Vertical	5725	48.92	9.12	30.41	43.25	45.20	54	-8.80	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 Level	Cable loss	Antenna Factor	Preamplifier Factor	Emission Level	Limits	Over Limit	Detector Type
/	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	5725	68.16	8.69	29.4	42.59	63.66	74	-10.34	Pk
Horizontal	5850	63.34	9.37	30.41	43.25	59.87	74	-14.13	Pk
Vertical	5725	70.23	9.21	29.4	42.59	66.25	74	-7.75	Pk
Vertical	5850	59.29	9.12	30.41	43.25	55.57	74	-18.43	Pk
Horizontal	5725	46.77	8.69	29.4	42.59	42.27	54	-11.73	AV
Horizontal	5850	51.51	8.46	30.41	43.25	47.13	54	-6.87	AV
Vertical	5725	48.30	9.21	29.4	42.59	44.32	54	-9.68	AV
Vertical	5850	50.33	9.12	30.41	43.25	46.61	54	-7.39	AV

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 $11 \text{ dBm} + 10 \log B$, 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.

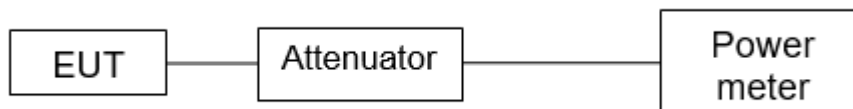
For the band 5.725-5.85 GHz

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:	Wireless carplay adapter	Model Name:	KY-4165
Test Mode:	TX	Test Voltage:	DC 5V from adapter AC 120V/60Hz

For U-NII-1

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power (dBm)	Limit(dBm)
11a	CH36	5180	13.59	24
11a	CH40	5200	13.57	24
11a	CH48	5240	14.27	24
11n (HT20)	CH36	5180	13.69	24
11n (HT20)	CH40	5200	13.56	24
11n (HT20)	CH48	5240	14.08	24
11n (HT40)	CH38	5190	13.17	24
11n (HT40)	CH46	5230	13.55	24
11ac (HT20)	CH36	5180	13.57	24
11ac (HT20)	CH40	5200	13.92	24
11ac (HT20)	CH48	5240	14.08	24
11ac (HT40)	CH38	5190	13.51	24
11ac (HT40)	CH46	5230	13.82	24

U-NII-2A

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power (dBm)	Limit(dBm)
11a	CH52	5260	13.15	24
11a	CH56	5280	13.36	24
11a	CH64	5320	13.22	24
11n (HT20)	CH52	5260	13.35	24
11n (HT20)	CH56	5280	13.7	24
11n (HT20)	CH64	5320	13.26	24
11n (HT40)	CH54	5270	13.28	24
11n (HT40)	CH62	5310	13.03	24
11ac (HT20)	CH52	5260	13.23	24
11ac (HT20)	CH56	5280	13.6	24
11ac (HT20)	CH64	5320	13.41	24
11ac (HT40)	CH54	5270	13.14	24
11ac (HT40)	CH62	5310	13.39	24

U-NII-2C

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power	Limit(dBm)
			(dBm)	
11a	CH100	5500	14.05	24
11a	CH120	5600	13.61	24
11a	CH140	5700	14.7	24
11n (HT20)	CH100	5500	13.71	24
11n (HT20)	CH120	5600	13.21	24
11n (HT20)	CH140	5700	14.52	24
11n (HT40)	CH102	5510	13.49	24
11n (HT40)	CH110	5550	13.73	24
11n (HT40)	CH134	5670	14.1	24
11ac (HT20)	CH100	5500	13.83	24
11ac (HT20)	CH120	5600	13.24	24
11ac (HT20)	CH140	5700	14.28	24
11ac (HT40)	CH102	5510	13.6	24
11ac (HT40)	CH110	5550	13.91	24
11ac (HT40)	CH134	5670	14.3	24

For U-NII-3

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power	Limit(dBm)
			(dBm)	
11a	CH149	5745	13.76	30
11a	CH157	5785	13.8	30
11a	CH165	5825	13.1	30
11n (HT20)	CH149	5745	13.72	30
11n (HT20)	CH157	5785	13.61	30
11n (HT20)	CH165	5825	13.25	30
11n (HT40)	CH151	5755	13.3	30
11n (HT40)	CH159	5795	13.14	30
11ac (HT20)	CH149	5745	13.73	30
11ac (HT20)	CH157	5785	13.39	30
11ac (HT20)	CH165	5825	13.67	30
11ac (HT40)	CH151	5755	13.5	30
11ac (HT40)	CH159	5795	13.12	30

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

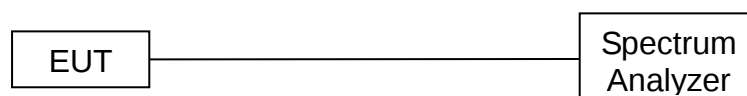
For U-NII-1

1. Set analyzer center frequency to NII channel center frequency.
2. Set the RBW $\geq$ 1MHz.
3. Set the VBW $\geq$ 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 $\geq$ 500kHz.
3. Set the VBW $\geq$ 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	4.16	0.32	4.48	11	Pass
11a	CH40	5200	4.14	0.2	4.34	11	Pass
11a	CH48	5240	4.87	0.44	5.31	11	Pass
11n(HT20)	CH36	5180	4.1	0.29	4.39	11	Pass
11n(HT20)	CH40	5200	4.11	0.36	4.47	11	Pass
11n(HT20)	CH48	5240	4.72	0.23	4.95	11	Pass
11n(HT40)	CH38	5190	0.96	0.6	1.56	11	Pass
11n(HT40)	CH46	5230	1.77	0.78	2.55	11	Pass
11ac(HT20)	CH36	5180	4.26	0.79	5.05	11	Pass
11ac(HT20)	CH40	5200	4.2	0.72	4.92	11	Pass
11ac(HT20)	CH48	5240	5.17	0.91	6.08	11	Pass
11ac(HT40)	CH38	5190	1.14	0.85	1.99	11	Pass
11ac(HT40)	CH46	5230	1.26	0.88	2.14	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	4.04	0.36	4.4	11	Pass
11a	CH56	5280	3.82	0.44	4.26	11	Pass
11a	CH64	5320	3.73	0.46	4.19	11	Pass
11n(HT20)	CH52	5260	3.53	0.35	3.88	11	Pass
11n(HT20)	CH56	5280	4.05	0.4	4.45	11	Pass
11n(HT20)	CH64	5320	3.92	0.47	4.39	11	Pass
11n(HT40)	CH54	5270	0.87	0.71	1.58	11	Pass
11n(HT40)	CH62	5310	1.2	0.67	1.87	11	Pass
11ac(HT20)	CH52	5260	3.78	0.77	4.55	11	Pass
11ac(HT20)	CH56	5280	3.87	0.83	4.7	11	Pass
11ac(HT20)	CH64	5320	3.72	0.86	4.58	11	Pass
11ac(HT40)	CH54	5270	1.22	0.83	2.05	11	Pass
11ac(HT40)	CH62	5310	1.04	0.72	1.76	11	Pass

U-NII-2C

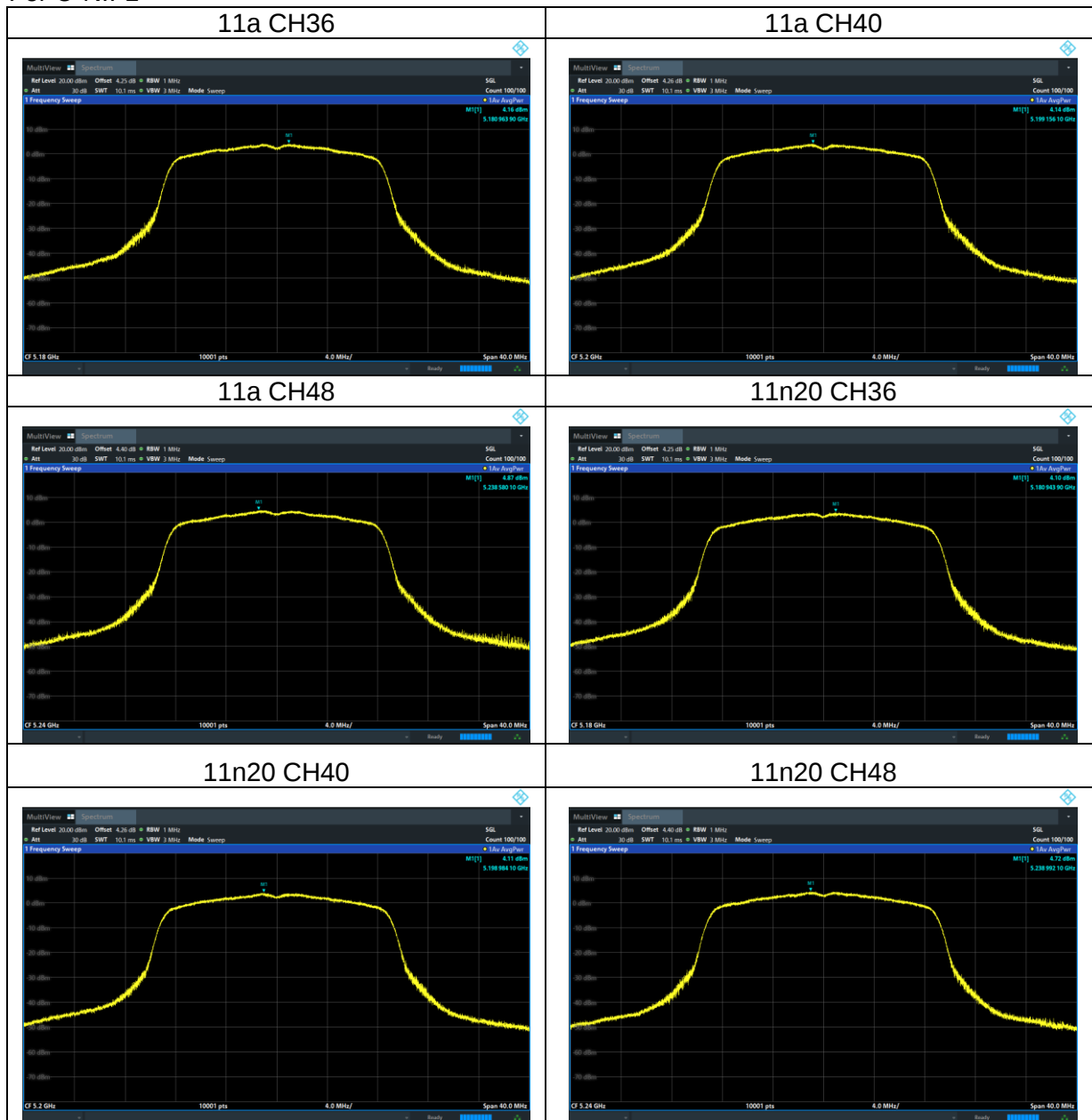
Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH100	5500	4.84	0.36	5.2	11	Pass
11a	CH120	5600	4.49	0.29	4.78	11	Pass
11a	CH140	5700	5.64	0.25	5.89	11	Pass
11n(HT20)	CH100	5500	4.68	0.29	4.97	11	Pass
11n(HT20)	CH120	5600	4.27	0.44	4.71	11	Pass
11n(HT20)	CH140	5700	5.39	0.29	5.68	11	Pass
11n(HT40)	CH102	5510	1.84	0.81	2.65	11	Pass
11n(HT40)	CH110	5550	2.05	0.95	3	11	Pass
11n(HT40)	CH134	5670	2.19	0.88	3.07	11	Pass
11ac(HT20)	CH100	5500	4.66	0.79	5.45	11	Pass
11ac (HT20)	CH120	5600	4.56	0.69	5.25	11	Pass
11ac (HT20)	CH140	5700	5.92	0.85	6.77	11	Pass
11ac (HT40)	CH102	5510	1.33	0.91	2.24	11	Pass
11ac (HT40)	CH110	5550	1.98	0.83	2.81	11	Pass
11ac (HT40)	CH134	5670	2.32	0.8	3.12	11	Pass

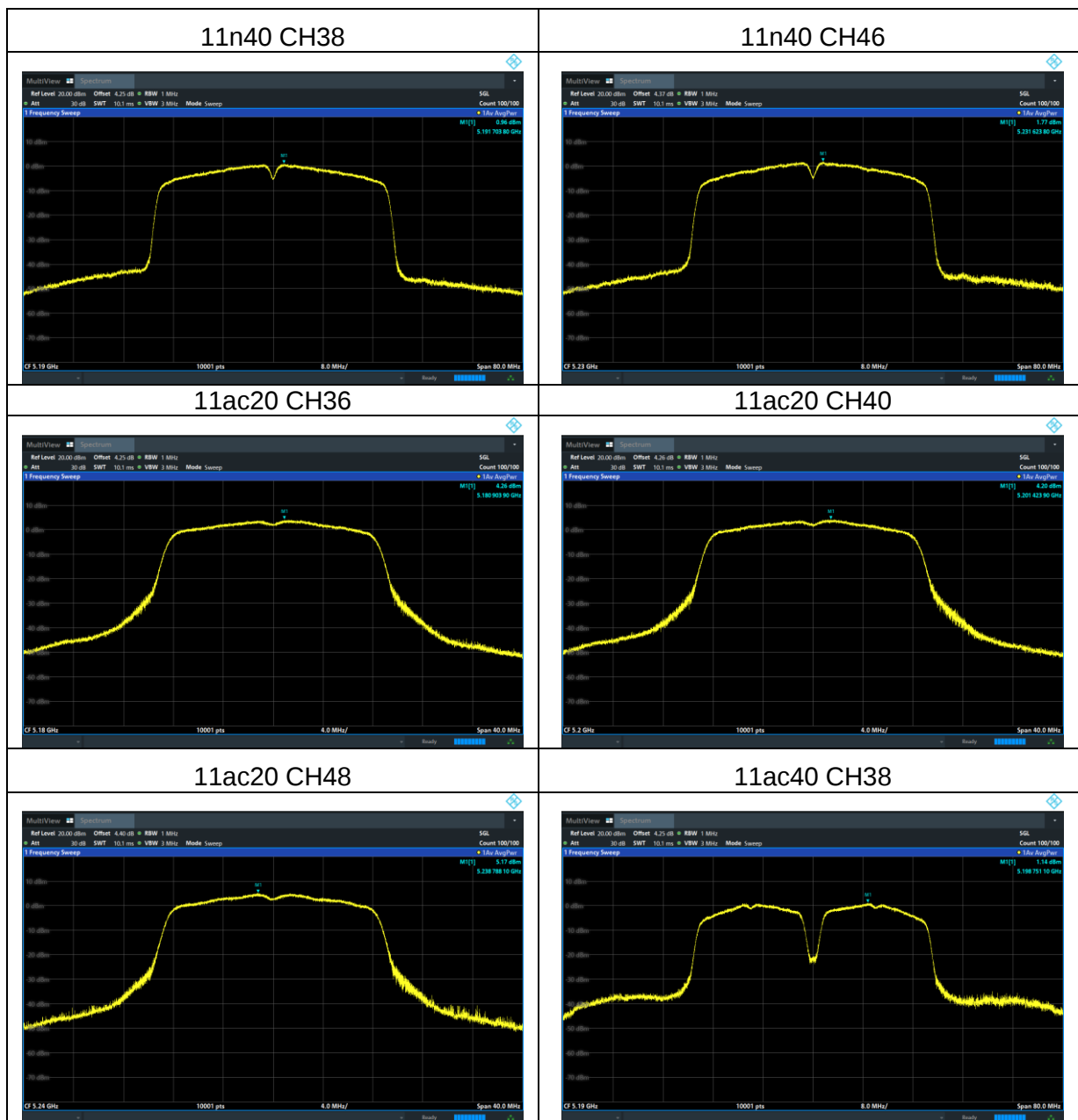
For U-NII-3

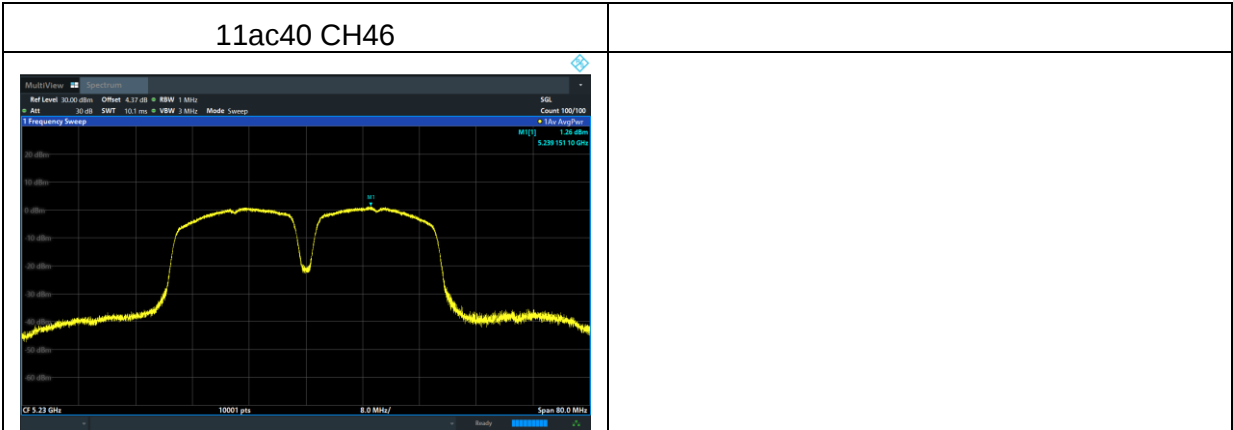
Mode	Channel	Frequency (MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/500kHz)	Result
11a	CH149	5745	2.44	0.28	2.72	30	Pass
11a	CH157	5785	2.09	0.2	2.29	30	Pass
11a	CH165	5825	1.45	0.28	1.73	30	Pass
11n(HT20)	CH149	5745	1.95	0.27	2.22	30	Pass
11n(HT20)	CH157	5785	1.86	0.34	2.2	30	Pass
11n(HT20)	CH165	5825	1.11	0.31	1.42	30	Pass
11n(HT40)	CH151	5755	-1.04	0.63	-0.41	30	Pass
11n(HT40)	CH159	5795	-1.31	0.6	-0.71	30	Pass
11ac(HT20)	CH149	5745	1.89	0.78	2.67	30	Pass
11ac(HT20)	CH157	5785	1.74	0.88	2.62	30	Pass
11ac(HT20)	CH165	5825	1.8	0.89	2.69	30	Pass
11ac(HT40)	CH151	5755	-0.81	0.78	-0.03	30	Pass
11ac(HT40)	CH159	5795	-1.33	0.76	-0.57	30	Pass

Test plots

For U-NII-1

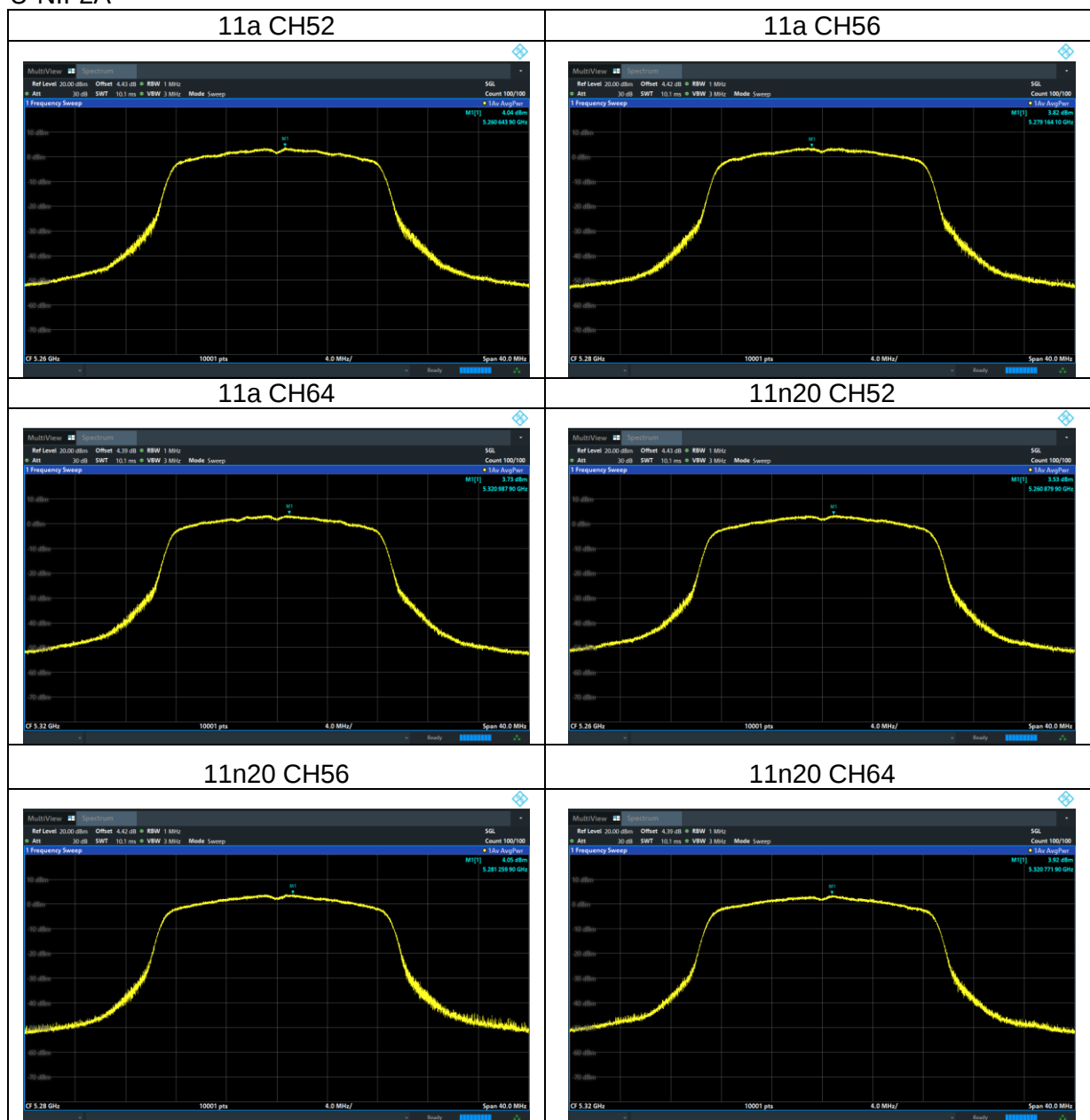


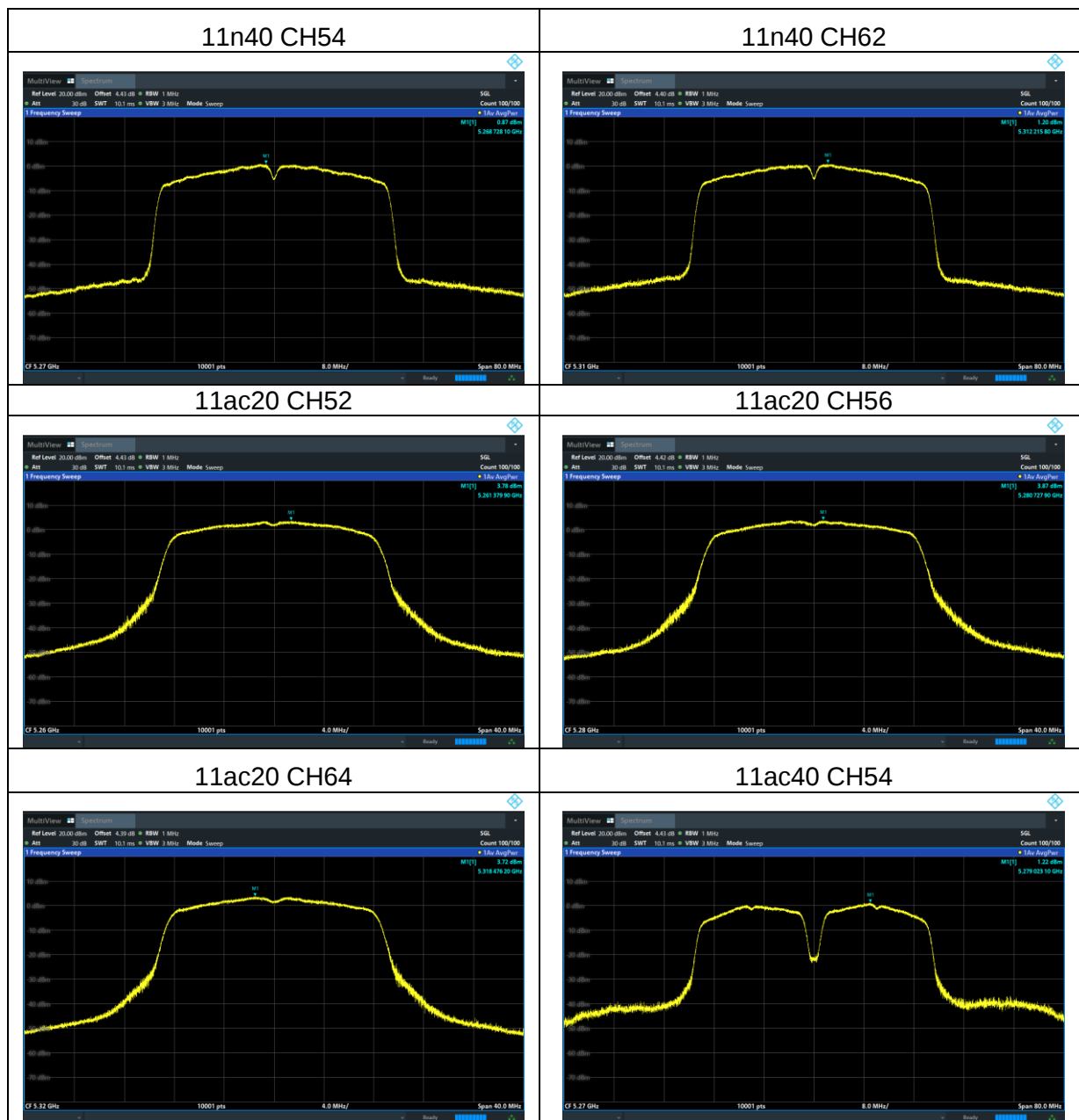


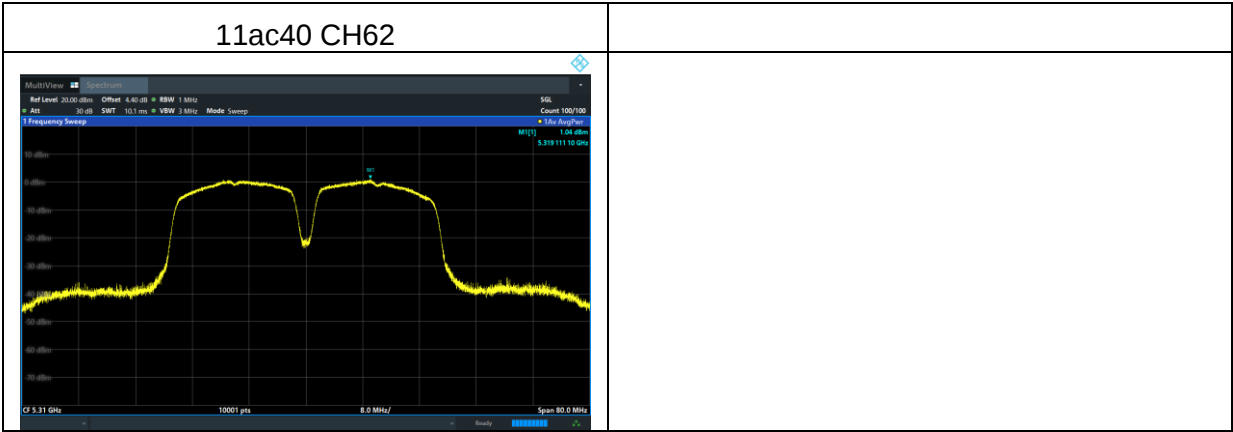


Test plots

U-NII-2A

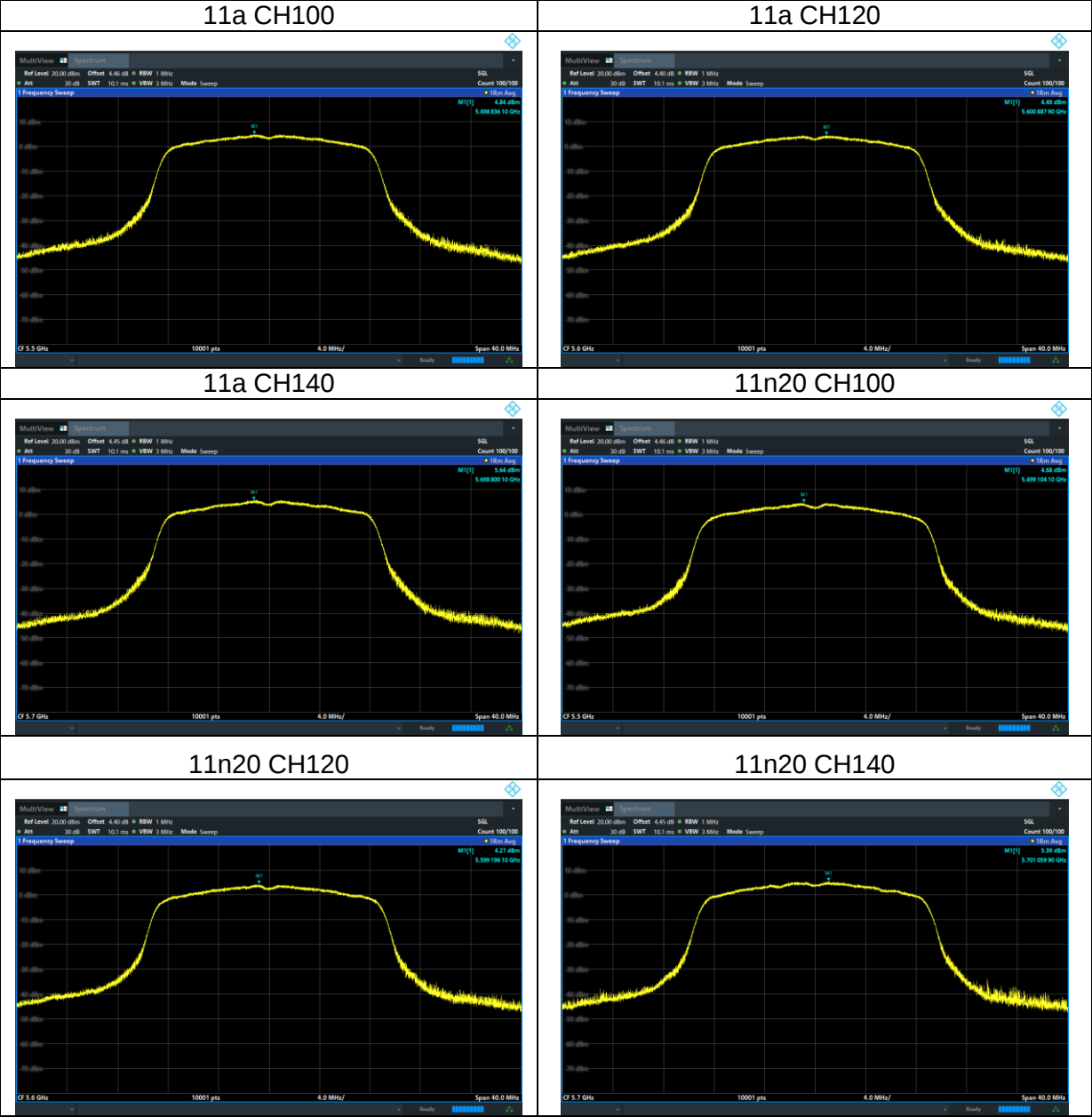


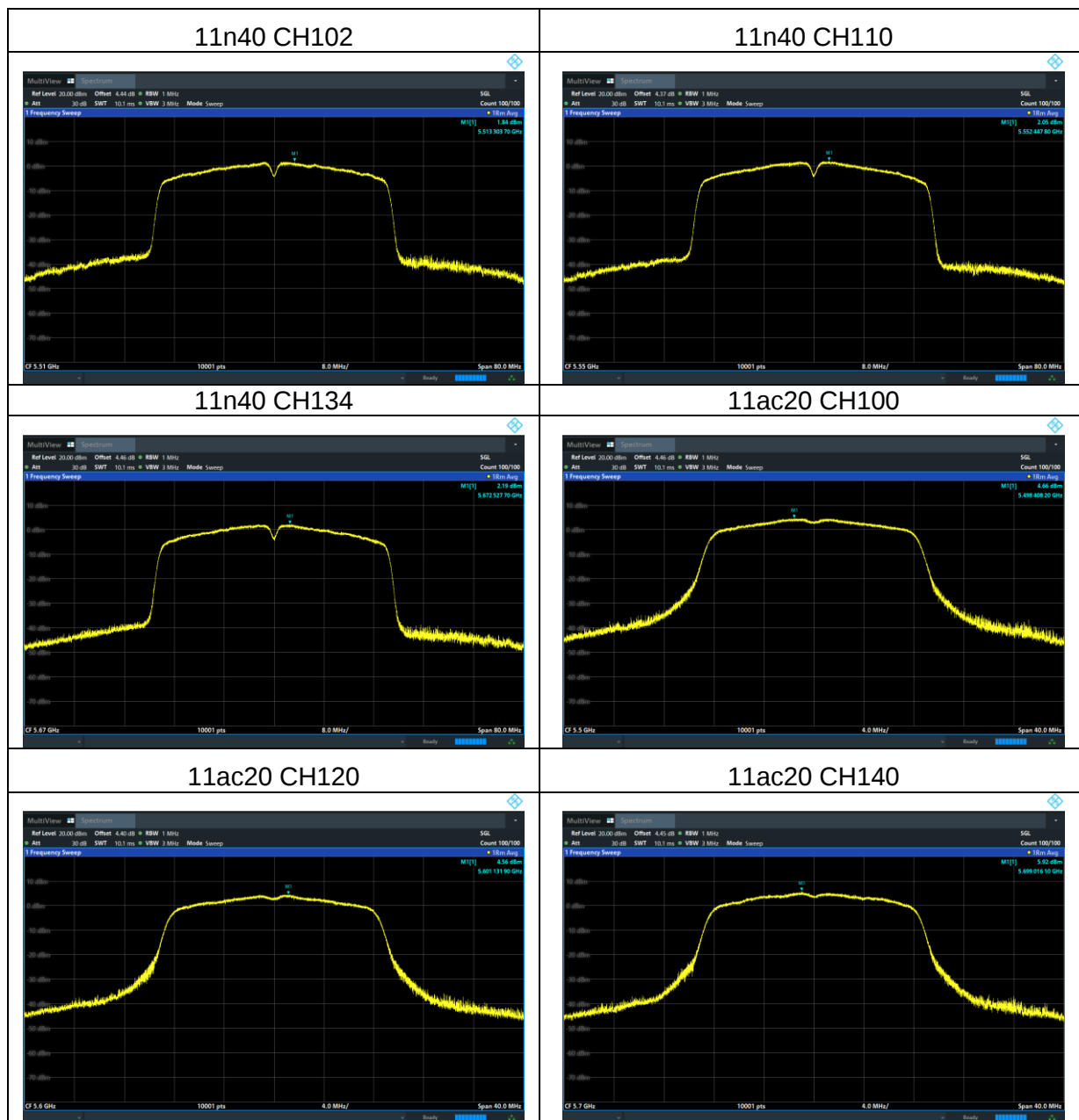


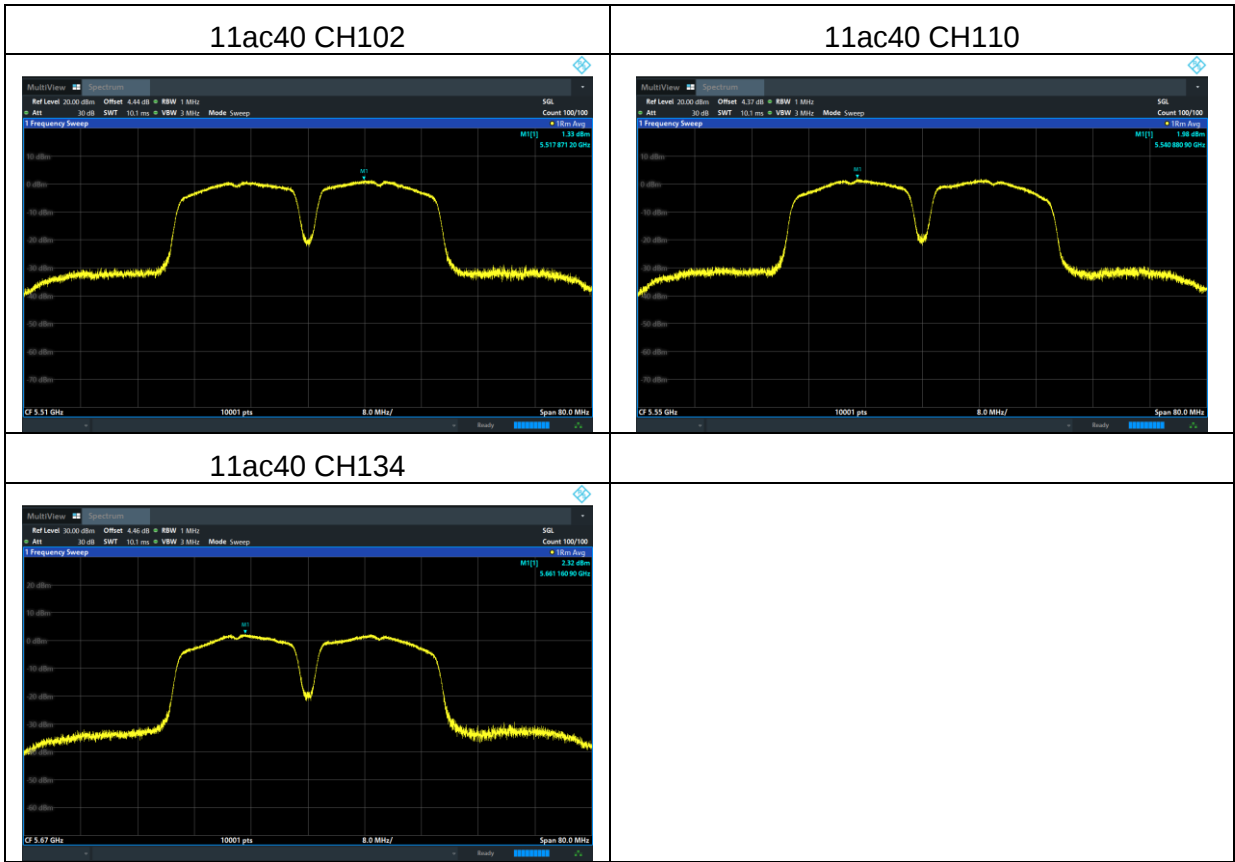


Test plots

U-NII-2C

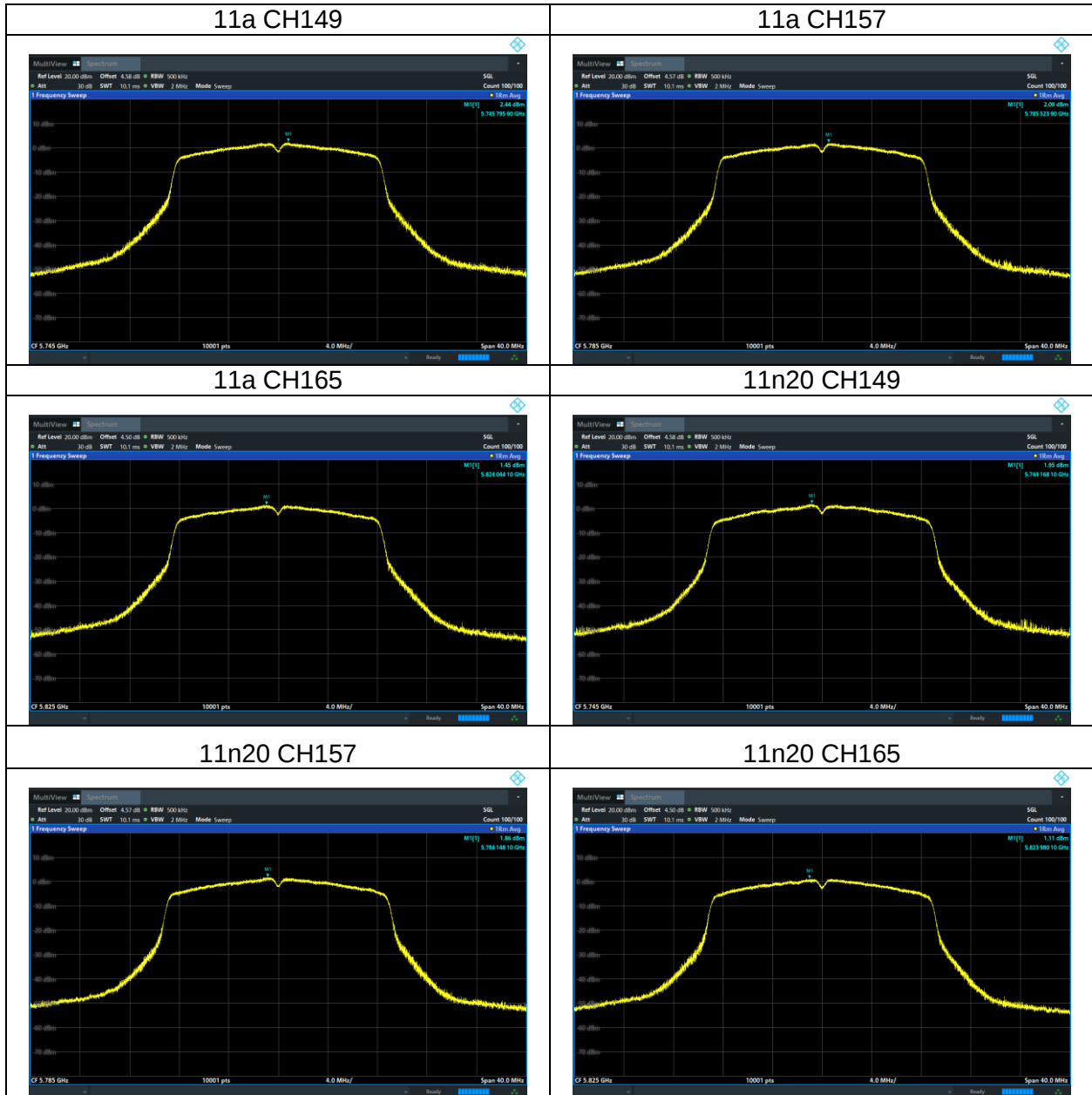


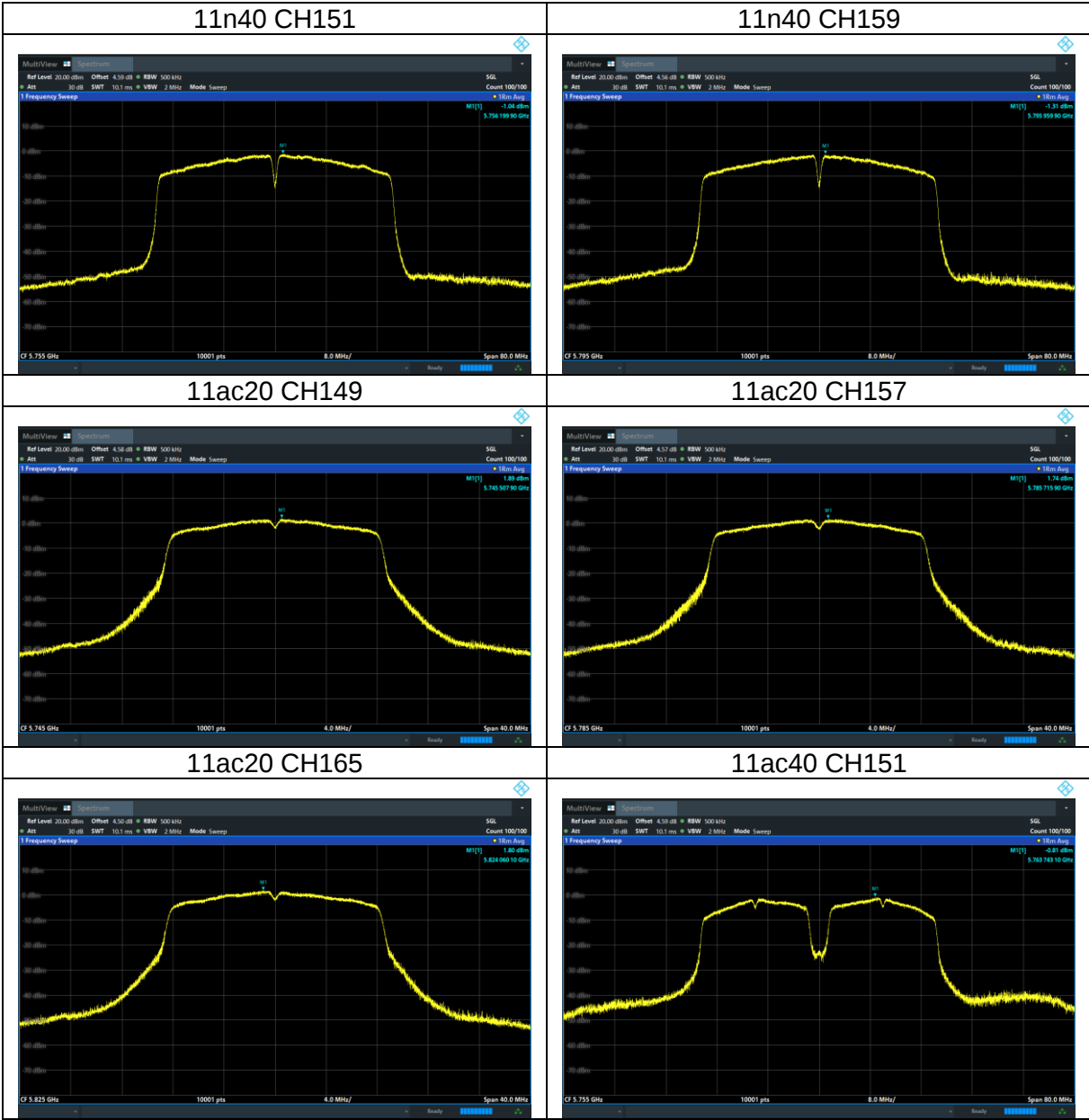


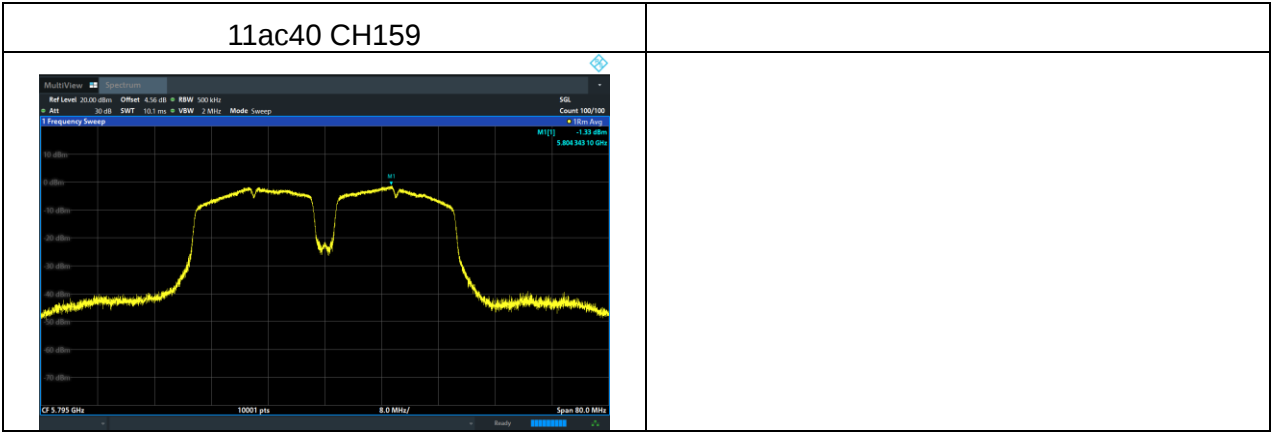


Test plots

For U-NII-3







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 $\geq 3 \times \text{RBW}$

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

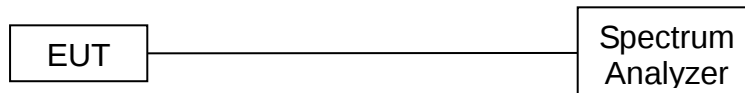
Set RBW = 1% to 5% of the OBW.

Set VBW $\geq 3 \times \text{RBW}$, 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	20.036	/	16.236	/	Pass
11a	CH40	5200	19.76	/	16.219	/	Pass
11a	CH48	5240	19.444	/	16.206	/	Pass
11n (HT20)	CH36	5180	20.408	/	17.314	/	Pass
11n (HT20)	CH40	5200	20.5	/	17.312	/	Pass
11n (HT20)	CH48	5240	20.476	/	17.287	/	Pass
11n (HT40)	CH38	5190	37.64	/	35.106	/	Pass
11n (HT40)	CH46	5230	37.544	/	35.026	/	Pass
11ac (HT20)	CH36	5180	19.828	/	16.225	/	Pass
11ac (HT20)	CH40	5200	19.72	/	16.195	/	Pass
11ac (HT20)	CH48	5240	19.708	/	16.19	/	Pass
11ac (HT40)	CH38	5190	39.592	/	35.754	/	Pass
11ac (HT40)	CH46	5230	39.376	/	35.651	/	Pass