

Test Report

Product: Wireless carplay adapter

Trade Mark: N/A

Model Number: TY-001

FCC ID: 2BN85-TY001

Prepared for

Dongguan phonemate Electronics co., LTD
Room 601, No.13, Administrative Inner Ring Road, Humen Town, Dongguan
City, Guangdong Province

Prepared by

Shenzhen HongBiao Certification& Testing Co., Ltd
Room 102, 201, Building 2, Yuanwanggu RFID Industrial Park, Tongguan
Road, Tianliao Community, Yutang Street, Guangming District, Shenzhen,
China
Tel.: +86-755-2998 9321 Fax.: +86-755-2998 5110
Website: <http://www.sz-hongbiao.com>

Table of Contents

1	GENERAL DESCRIPTION	6
1.1	DESCRIPTION OF EUT	6
1.2	OPERATION CHANNEL LIST	7
1.3	TEST MODE.....	8
1.4	POWER SETTING CONFIGURATION PARAMETERS	9
1.5	TEST SETUP	10
1.6	ANCILLARY EQUIPMENT	10
2	SUMMARY OF TEST RESULT	11
3	TEST FACILITIES AND ACCREDITATIONS	12
3.1	TEST LABORATORY	12
3.2	ENVIRONMENTAL CONDITIONS	12
3.3	MEASUREMENT UNCERTAINTY	12
3.4	TEST SOFTWARE	13
4	LIST OF TEST EQUIPMENT	14
5	TEST ITEM AND RESULTS.....	16
5.1	ANTENNA REQUIREMENT	16
5.1.1	<i>Standard Requirement</i>	16
5.1.2	<i>Test Result</i>	16
5.2	POWER LINE CONDUCTED EMISSION	17
5.2.1	<i>Limits</i>	17
5.2.2	<i>Test Procedures</i>	17
5.2.3	<i>Test Setup</i>	18
5.2.4	<i>Test Result</i>	18
5.3	RADIATED EMISSION	21
5.3.1	<i>Limits</i>	21
5.3.2	<i>Test Procedures</i>	22
5.3.3	<i>Test Setup</i>	22
5.3.4	<i>Test Result</i>	23
5.3.5	<i>Radiated Band Edge</i>	31
5.4	PEAK OUTPUT POWER	33
5.4.1	<i>Limit</i>	33
5.4.2	<i>Test Procedure</i>	33
5.4.3	<i>Test Setup</i>	33
5.4.4	<i>Test Results</i>	33
5.5	POWER SPECTRAL DENSITY.....	37
5.5.1	<i>Limit</i>	37
5.5.2	<i>Test Procedure</i>	37
5.5.3	<i>Test Setup</i>	37
5.5.4	<i>Test Results</i>	38
5.6	26dB EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH	54
5.6.1	<i>Limit</i>	54
5.6.2	<i>Test Procedure</i>	54
5.6.3	<i>Test Setup</i>	54
5.6.4	<i>Test Results</i>	54
5.7	6 dB BANDWIDTH	77
5.7.1	<i>Limit</i>	77
5.7.2	<i>Test Procedure</i>	77

5.7.3	Test Setup.....	77
5.7.4	Test Results	77
5.8	OUT OF BAND EMISSION	82
5.8.1	Limit	82
5.8.2	Test Procedure	82
5.8.3	Test Setup.....	82
5.8.4	Test Results	83
5.9	SPURIOUS RF CONDUCTED EMISSIONS	100
5.9.1	Limit	100
5.9.2	Test Procedure	100
5.9.3	Test Setup.....	100
5.9.4	Test Results	100
6	PHOTOGRAPHS OF THE TEST SETUP.....	114
7	PHOTOGRAPHS OF THE EUT.....	116

TEST RESULT CERTIFICATION

Applicant's Name..... Dongguan phonemate Electronics co., LTD
Address Room 601, No.13, Administrative Inner Ring Road, Humen Town,
Dongguan City, Guangdong Province

Manufacturer's Name Dongguan phonemate Electronics co., LTD
Address Room 601, No.13, Administrative Inner Ring Road, Humen Town,
Dongguan City, Guangdong Province

Product description

Product name Wireless carplay adapter

Model Number TY-001

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..... : Mar. 13, 2025~ Mar. 24, 2025

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

Testing Engineer :

Zoe Su

(Z o e S u)

Technical Manager :

Gary Lu

(G a r y l 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:	TY-001
Series Model:	TY-002, TY-003, TY-004, TY-005, TY-006, TY-007, TY-008, KY-4139, KY-4141, KY-4143, KY-4145, KY-4151, KY-4161, KY-4163
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) IEEE 802.11ax: OFDM(1024QAM, 256QAM, 64QAM, 16QAM QPSK, BPSK)
Channel Spacing:	IEEE 802.11a/n-HT20/ac-VHT20/ax-HE20: 20 MHz IEEE 802.11n-HT40/ac-VHT40/ax-HE40: 40 MHz
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 IEEE 802.11ax-HE20/HE40: Up to MCS11
Channel bandwidth:	IEEE 802.11a/n-HT20/ac-VHT20/ax-HE20: 20 MHz IEEE 802.11n-HT40/ac-VHT40/ax-HE40: 40 MHz
Antenna type:	PCB antenna
Antenna gain:	U-NII-1: -3.98dBi U-NII-2A: -3.13dBi U-NII-2C: -0.25dBi U-NII-3: -1.51dBi
Max. output power:	13.41dBm
Hardware version:	V0.3
Software version:	202407041001C
Battery:	N/A
Power supply:	DC 5V from adapter AC 120V/60Hz

Adapter information:	N/A
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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 TY-001 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)/ax (HE20)

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)/ax (HE40)

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)/ax (HE20)

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)/ax (HE40)

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	--	--	--

Note: 802. 11ax mode only support full resource unit size.

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
	802.11ax(HE20/40)	MCS0	TX
Duty Cycle	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
	802.11ax(HE20/40)	MCS0	TX
Band Edge	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
	802.11ax(HE20/40)	MCS0	TX
6dB Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
	802.11ax(HE20/40)	MCS0	TX
26dB Bandwidth and 99% Occupied Bandwidth	802.11a (HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
	802.11ax(HE20/40)	MCS0	TX
Conducted Output Power	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
	802.11ax(HE20/40)	MCS0	TX
Power Spectral Density	802.11a(HT20)	6 Mbps	TX
	802.11n/ac(HT20/40)	MCS0	TX
	802.11ax(HE20/40)	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	$\pm 5 \%$	

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	2024-05-17	2025-05-16
5	HB-E006	Preamplifier	Noyetec	LAN-1840	NYCM1420103	2024-05-17	2025-05-16
6	HB-E007	EMI TEST RECEIVER	R&S	ESR7	102520	2024-05-17	2025-05-16
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	2024-05-21	2025-05-20
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	2024-05-17	2025-05-16
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	2024-05-17	2025-05-16
2	HB-E015	Pulse Limiter	Schwarzbeck	VTSD 9561-F	00949	2024-05-17	2025-05-16
3	HB-E016	ZN23201	Noyetec	ZN23201	N/A	2024-05-21	2025-05-20
4	HB-E059	Attenuator	Xianghua	TS2-6-1	220215166	2024-05-17	2025-05-16
5	HB-E069	EMI TEST RECEIVER	R&S	ESCI	N/A	2024-05-17	2025-05-16
RF							
Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E041	MXG Anaio Signal	Agilent	N5181A	MY47070421	2024-05-17	2025-05-16

		Generator					
2	HB-E042	WIDEBAND RADIO COMMUNICA TION TESTER	R&S	CMW500	132108	2024-05-17	2025-05-16
3	HB-E043	MXG Anaio g Signal Generator	Agilent	N5182A	US46240335	2024-05-17	2025-05-16
4	HB-E044	Signal& spectrum Analyzer	R&S	FSV3044	101264	2024-05-17	2025-05-16
5	HB-E045	RF Control Box	Noyetec	NY100-R FCB	N/A	2024-08-19	2025-08-18
6	HB-E058	Thermometer Clock Humidity Monitor	N/A	HTC-1	N/A	2024-08-19	2025-08-18

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:

- the tighter limit applies at the band edges.
- 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.

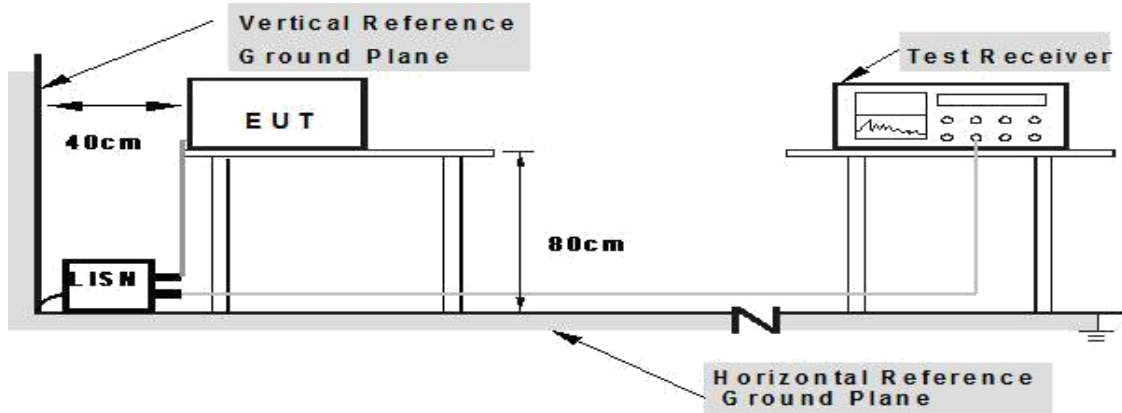
b) The following table is the setting of the receiver

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

- 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.
- 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.
- 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.
- LISN is at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item – photographs of the test

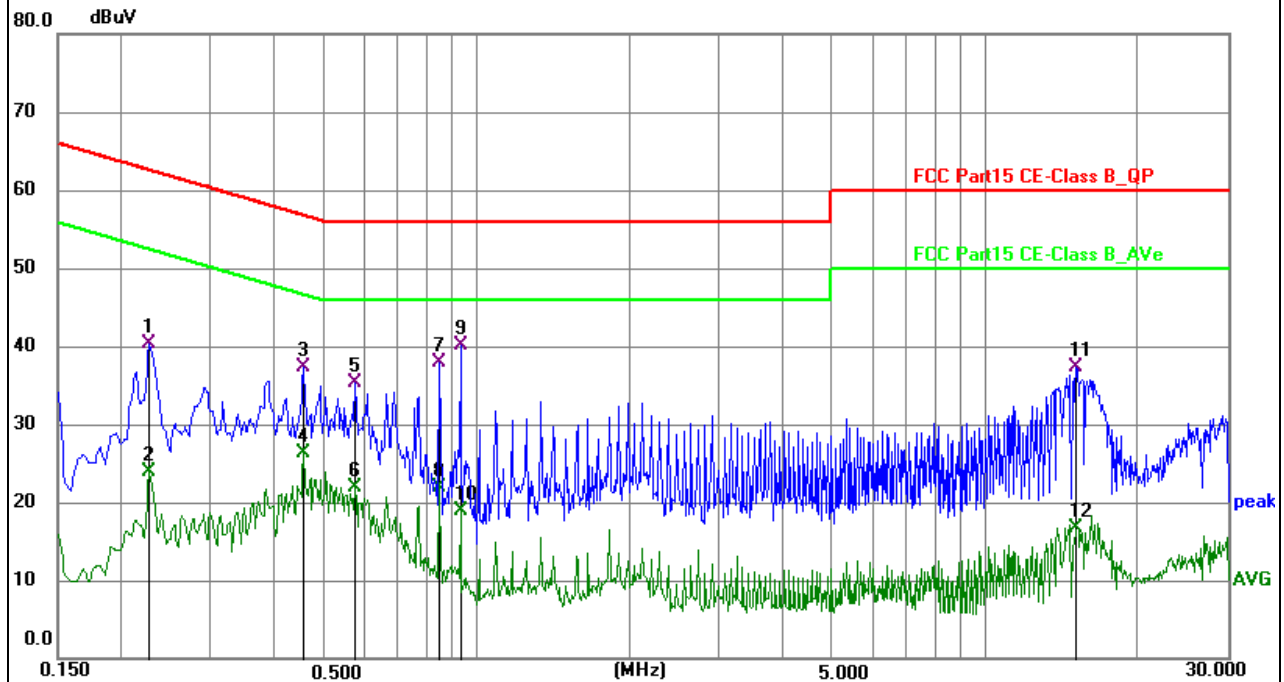
setup.

5.2.3 Test Setup

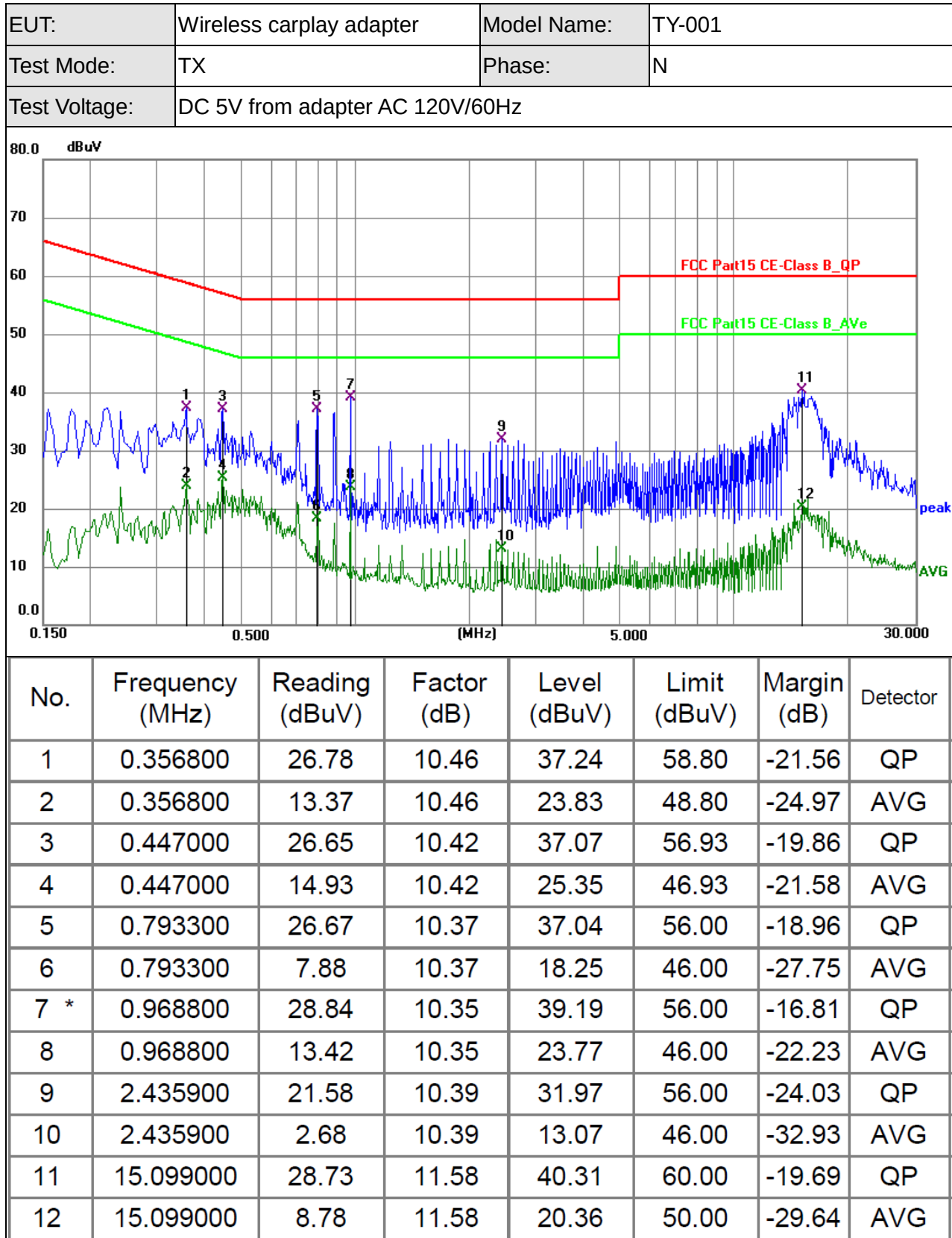


5.2.4 Test Result

EUT:	Wireless carplay adapter	Model Name:	TY-001
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	0.226500	29.75	10.47	40.22	62.58	-22.36	QP
2	0.226500	13.42	10.47	23.89	52.58	-28.69	AVG
3	0.456000	26.89	10.49	37.38	56.77	-19.39	QP
4	0.456000	15.83	10.49	26.32	46.77	-20.45	AVG
5	0.577500	24.88	10.50	35.38	56.00	-20.62	QP
6	0.577500	11.50	10.50	22.00	46.00	-24.00	AVG
7	0.847500	27.46	10.47	37.93	56.00	-18.07	QP
8	0.847500	11.37	10.47	21.84	46.00	-24.16	AVG
9 *	0.928400	29.66	10.44	40.10	56.00	-15.90	QP
10	0.928400	8.50	10.44	18.94	46.00	-27.06	AVG
11	15.103500	25.78	11.56	37.34	60.00	-22.66	QP
12	15.103500	5.14	11.56	16.70	50.00	-33.30	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.

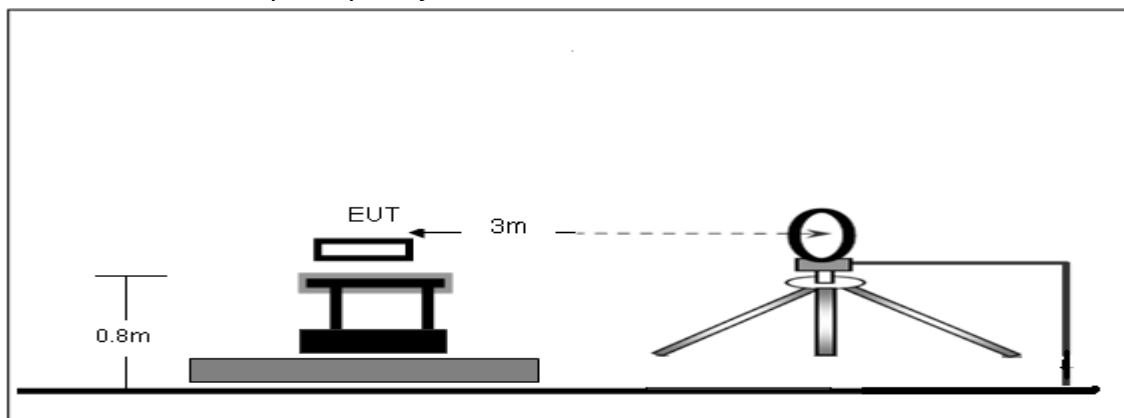
The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

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.

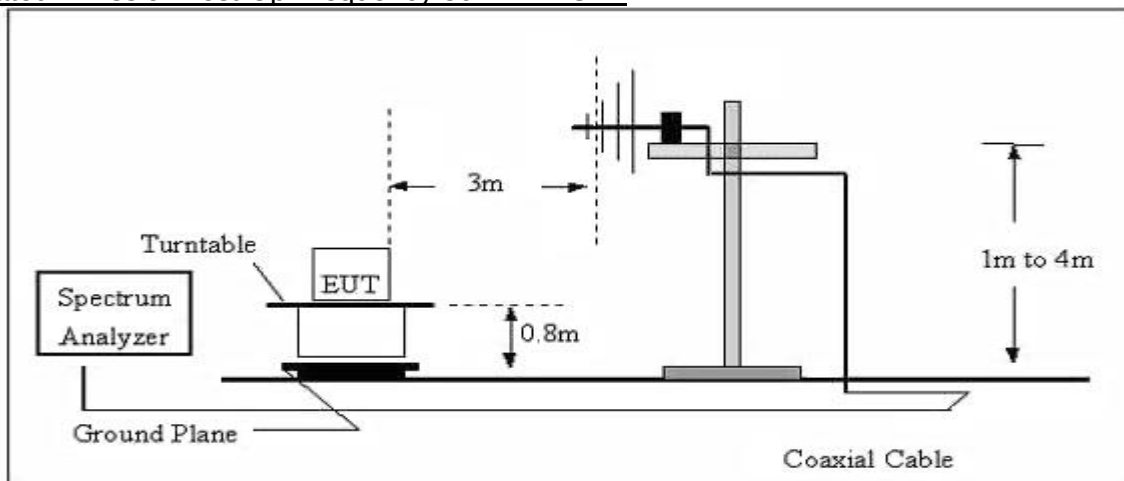
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3.3 Test Setup

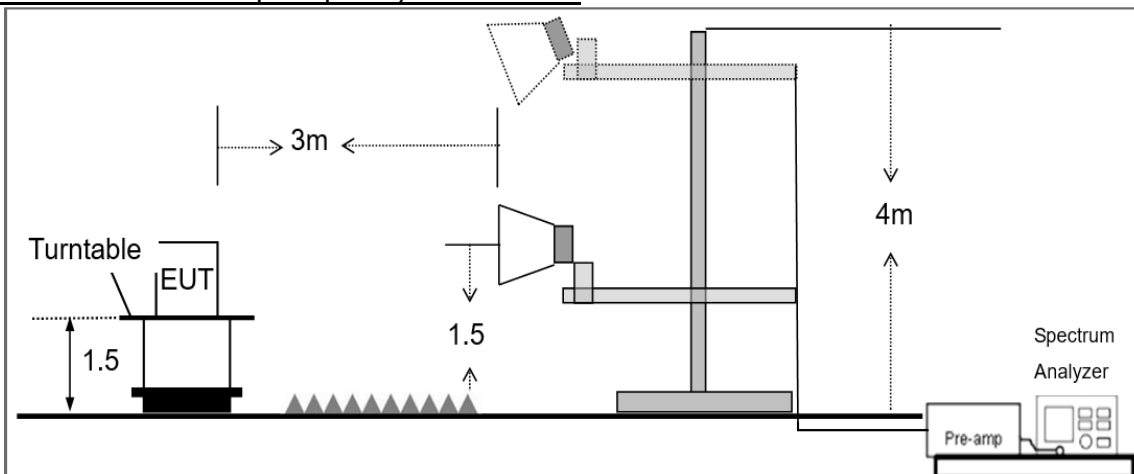
Radiated Emission Test-Up Frequency Below 30MHz



Radiated Emission Test-Up Frequency 30MHz~1GHz



Radiated emission test-up frequency above 1GHz



5.3.4 Test Result

Below 30MHz

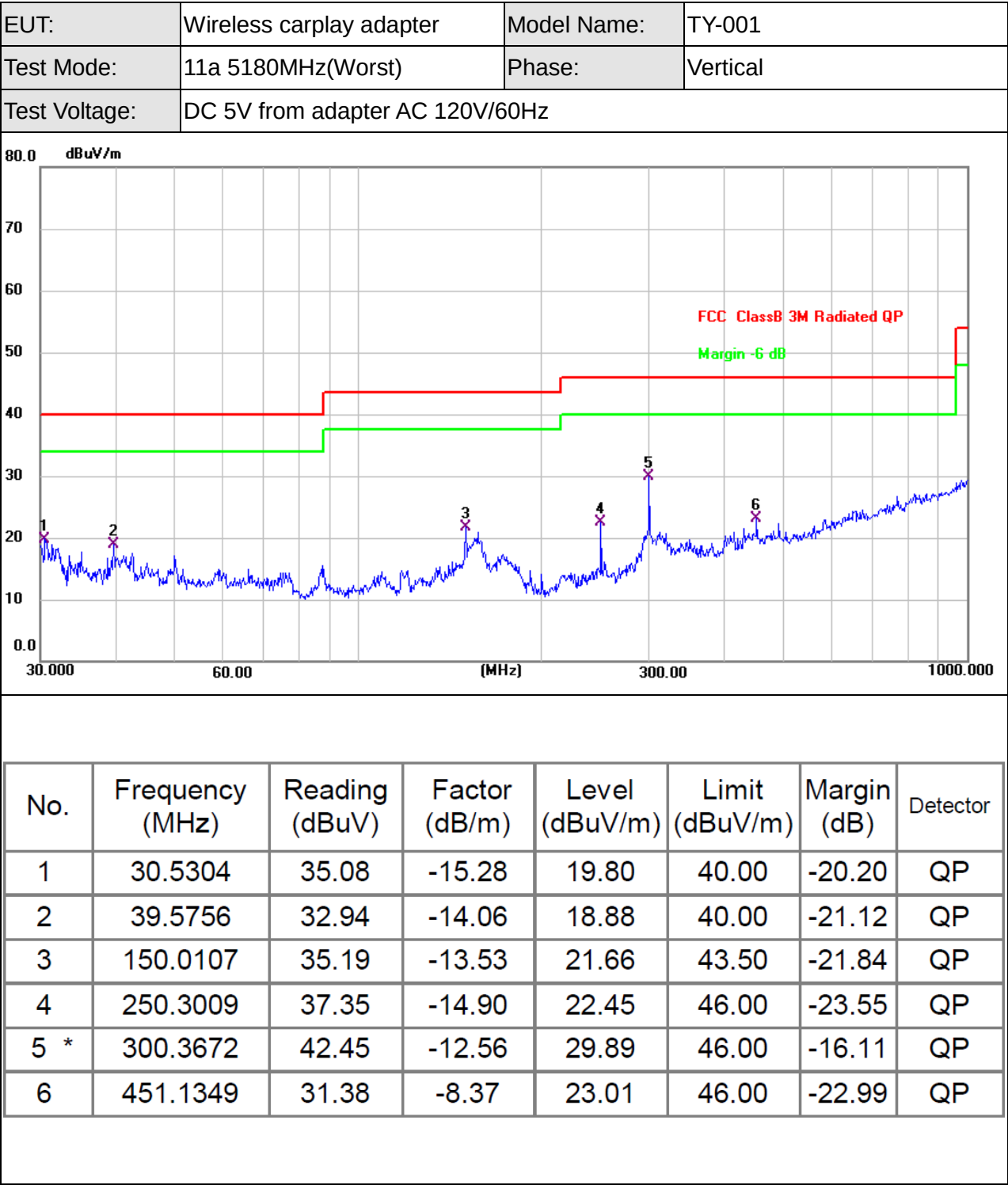
EUT:	Wireless carplay adapter	Model Name:	TY-001
Pressure:	1010 hPa	Test Voltage:	DC 5V from adapter AC 120V/60Hz
Test Mode:	TX	Polarization:	--

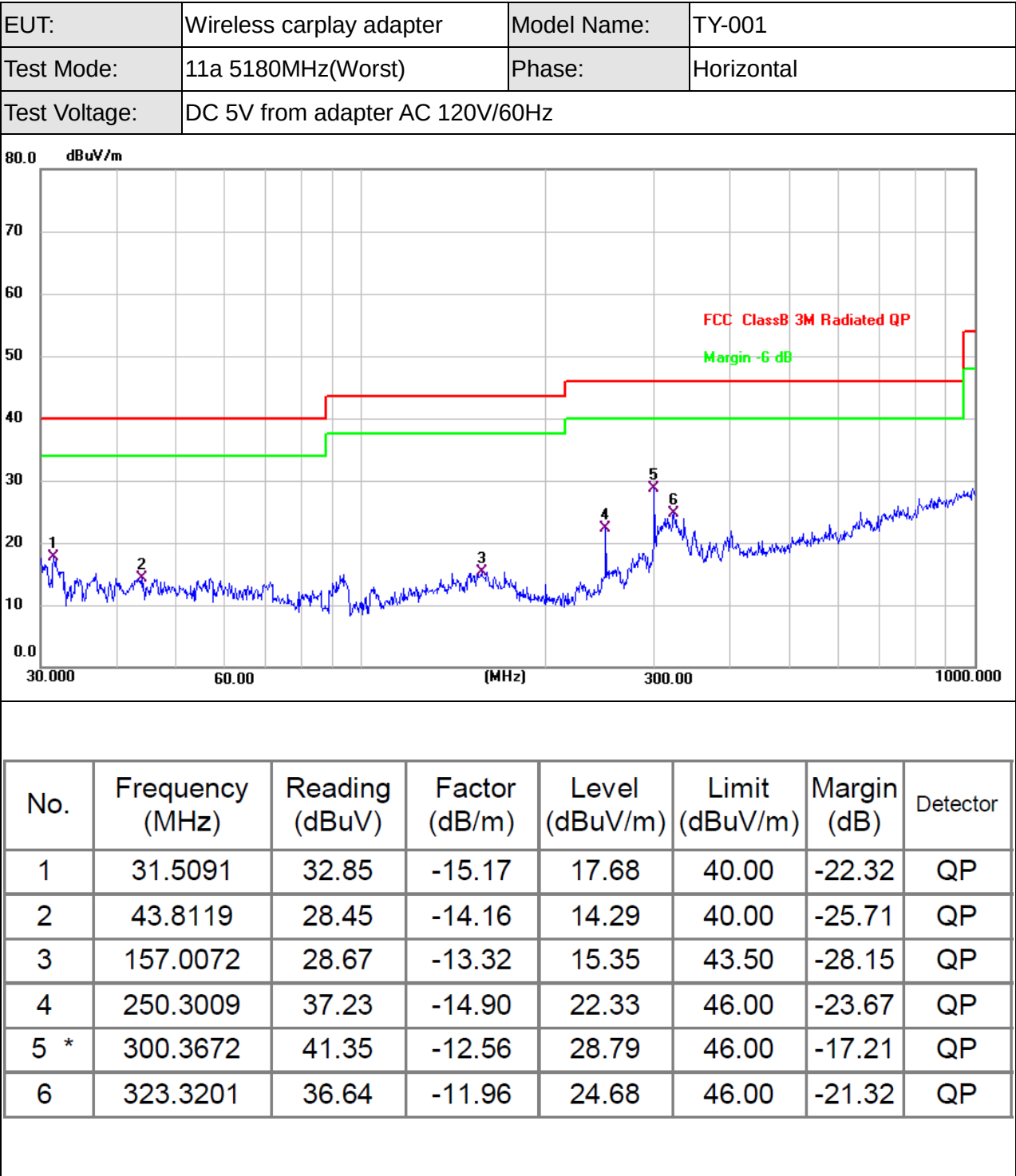
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

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)





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/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	4434.705	56.18	5.94	35.40	44.00	53.52	74.00	-20.48	Pk
Vertical	4435.449	44.52	5.94	35.40	44.00	41.86	54.00	-12.14	AV
Vertical	10372.280	63.23	8.46	39.75	44.50	66.94	74.00	-7.06	Pk
Vertical	10371.577	42.77	8.46	39.75	44.50	46.48	54.00	-7.52	AV
Vertical	15541.789	56.82	10.12	38.80	44.10	61.64	74.00	-12.36	Pk
Vertical	15542.142	42.81	10.12	38.80	42.70	49.03	54.00	-4.97	AV
Horizontal	4435.094	57.98	5.94	35.18	44.00	55.10	74.00	-18.90	Pk
Horizontal	4436.187	42.67	5.94	35.18	44.00	39.79	54.00	-14.21	AV
Horizontal	10371.197	60.68	8.46	38.71	44.50	63.35	74.00	-10.65	Pk
Horizontal	10730.969	44.40	8.46	38.71	44.50	47.07	54.00	-6.93	AV
Horizontal	15540.125	56.55	10.12	38.38	44.10	60.95	74.00	-13.05	Pk
Horizontal	15541.153	43.40	10.12	38.38	44.10	47.80	54.00	-6.20	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	4593.394	56.87	6.48	36.35	44.05	55.65	74.00	-18.35	Pk
Vertical	4592.550	43.54	6.48	36.35	44.05	42.32	54.00	-11.68	AV
Vertical	10401.358	60.37	8.47	37.88	44.51	62.21	74.00	-11.79	Pk
Vertical	10402.707	46.26	8.47	37.88	44.51	48.10	54.00	-5.90	AV
Vertical	15601.318	56.22	10.12	38.8	44.10	61.04	74.00	-12.96	Pk
Vertical	15601.930	42.83	10.12	38.8	42.70	49.05	54.00	-4.95	AV
Horizontal	4592.410	58.75	6.48	36.37	44.05	57.55	74.00	-16.45	Pk
Horizontal	4592.772	42.62	6.48	36.37	44.05	41.42	54.00	-12.58	AV
Horizontal	10400.818	60.69	8.47	38.64	44.50	63.30	74.00	-10.70	Pk
Horizontal	10402.275	47.35	8.47	38.64	44.50	49.96	54.00	-4.04	AV
Horizontal	15601.597	58.94	10.12	38.38	44.10	63.34	74.00	-10.66	Pk
Horizontal	15601.424	42.15	10.12	38.38	44.10	46.55	54.00	-7.45	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4739.361	59.08	7.10	37.24	43.50	59.92	74.00	-14.08	Pk
Vertical	4740.069	47.01	7.10	37.24	43.50	47.85	54.00	-6.15	AV
Vertical	10480.806	61.14	8.46	37.68	44.50	62.78	74.00	-11.22	Pk
Vertical	10481.267	46.14	8.46	37.68	44.50	47.78	54.00	-6.22	AV
Vertical	15720.449	58.38	10.12	38.8	44.10	63.20	74.00	-10.80	Pk
Vertical	15720.767	42.80	10.12	38.8	42.70	49.02	54.00	-4.98	AV
Horizontal	4740.113	59.49	7.10	37.24	43.50	60.33	74.00	-13.67	Pk
Horizontal	4740.329	44.47	7.10	37.24	43.50	45.31	54.00	-8.69	AV
Horizontal	10481.716	59.67	8.46	38.57	44.50	62.20	74.00	-11.80	Pk
Horizontal	10481.718	42.74	8.46	38.57	44.50	45.27	54.00	-8.73	AV
Horizontal	15721.538	56.51	10.12	38.38	44.10	60.91	74.00	-13.09	Pk
Horizontal	15720.487	41.64	10.12	38.38	44.10	46.04	54.00	-7.96	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	4435.265	56.34	5.94	35.40	44.00	53.68	74.00	-20.32	Pk
Vertical	4435.987	44.11	5.94	35.40	44.00	41.45	54.00	-12.55	AV
Vertical	10370.318	63.54	8.46	39.75	44.50	67.25	74.00	-6.75	Pk
Vertical	10372.134	44.39	8.46	39.75	44.50	48.10	54.00	-5.90	AV
Vertical	15541.997	55.57	10.12	38.80	44.10	60.39	74.00	-13.61	Pk
Vertical	15542.139	42.69	10.12	38.80	42.70	48.91	54.00	-5.09	AV
Horizontal	4434.993	57.91	5.94	35.18	44.00	55.03	74.00	-18.97	Pk
Horizontal	4435.999	43.13	5.94	35.18	44.00	40.25	54.00	-13.75	AV
Horizontal	10370.592	60.70	8.46	38.71	44.50	63.37	74.00	-10.63	Pk
Horizontal	10730.348	45.30	8.46	38.71	44.50	47.97	54.00	-6.03	AV
Horizontal	15541.270	57.89	10.12	38.38	44.10	62.29	74.00	-11.71	Pk
Horizontal	15541.345	43.33	10.12	38.38	44.10	47.73	54.00	-6.27	AV
middle Channel (5280 MHz)-Above 1G									
Vertical	4594.159	57.62	6.48	36.35	44.05	56.40	74.00	-17.60	Pk
Vertical	4592.198	42.54	6.48	36.35	44.05	41.32	54.00	-12.68	AV
Vertical	10402.107	60.54	8.47	37.88	44.51	62.38	74.00	-11.62	Pk
Vertical	10401.404	46.38	8.47	37.88	44.51	48.22	54.00	-5.78	AV
Vertical	15601.275	56.53	10.12	38.8	44.10	61.35	74.00	-12.65	Pk
Vertical	15600.941	41.34	10.12	38.8	42.70	47.56	54.00	-6.44	AV
Horizontal	4594.324	59.82	6.48	36.37	44.05	58.62	74.00	-15.38	Pk
Horizontal	4593.739	42.37	6.48	36.37	44.05	41.17	54.00	-12.83	AV
Horizontal	10400.483	61.88	8.47	38.64	44.50	64.49	74.00	-9.51	Pk
Horizontal	10401.468	47.40	8.47	38.64	44.50	50.01	54.00	-3.99	AV
Horizontal	15601.612	57.52	10.12	38.38	44.10	61.92	74.00	-12.08	Pk
Horizontal	15601.991	43.35	10.12	38.38	44.10	47.75	54.00	-6.25	AV
High Channel (5320 MHz)-Above 1G									
Vertical	4739.590	60.10	7.10	37.24	43.50	60.94	74.00	-13.06	Pk
Vertical	4739.752	45.91	7.10	37.24	43.50	46.75	54.00	-7.25	AV
Vertical	10482.261	61.78	8.46	37.68	44.50	63.42	74.00	-10.58	Pk
Vertical	10482.337	46.44	8.46	37.68	44.50	48.08	54.00	-5.92	AV
Vertical	15722.016	58.73	10.12	38.8	44.10	63.55	74.00	-10.45	Pk
Vertical	15721.409	42.41	10.12	38.8	42.70	48.63	54.00	-5.37	AV
Horizontal	4741.088	58.63	7.10	37.24	43.50	59.47	74.00	-14.53	Pk
Horizontal	4739.390	43.95	7.10	37.24	43.50	44.79	54.00	-9.21	AV
Horizontal	10481.858	58.31	8.46	38.57	44.50	60.84	74.00	-13.16	Pk
Horizontal	10483.015	43.57	8.46	38.57	44.50	46.10	54.00	-7.90	AV
Horizontal	15721.384	57.01	10.12	38.38	44.10	61.41	74.00	-12.59	Pk
Horizontal	15720.792	42.76	10.12	38.38	44.10	47.16	54.00	-6.84	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	4434.444	54.98	5.94	35.40	44.00	52.32	74.00	-21.68	Pk
Vertical	4435.878	44.68	5.94	35.40	44.00	42.02	54.00	-11.98	AV
Vertical	10370.637	63.54	8.46	39.75	44.50	67.25	74.00	-6.75	Pk
Vertical	10370.200	44.24	8.46	39.75	44.50	47.95	54.00	-6.05	AV
Vertical	15540.446	55.29	10.12	38.80	44.10	60.11	74.00	-13.89	Pk
Vertical	15541.849	43.23	10.12	38.80	42.70	49.45	54.00	-4.55	AV
Horizontal	4435.103	58.62	5.94	35.18	44.00	55.74	74.00	-18.26	Pk
Horizontal	4435.563	43.48	5.94	35.18	44.00	40.60	54.00	-13.40	AV
Horizontal	10371.362	62.02	8.46	38.71	44.50	64.69	74.00	-9.31	Pk
Horizontal	10732.067	46.37	8.46	38.71	44.50	49.04	54.00	-4.96	AV
Horizontal	15541.219	58.23	10.12	38.38	44.10	62.63	74.00	-11.37	Pk
Horizontal	15540.255	43.29	10.12	38.38	44.10	47.69	54.00	-6.31	AV
middle Channel (5600 MHz)-Above 1G									
Vertical	4594.027	56.60	6.48	36.35	44.05	55.38	74.00	-18.62	Pk
Vertical	4593.515	41.71	6.48	36.35	44.05	40.49	54.00	-13.51	AV
Vertical	10401.996	62.14	8.47	37.88	44.51	63.98	74.00	-10.02	Pk
Vertical	10401.449	45.98	8.47	37.88	44.51	47.82	54.00	-6.18	AV
Vertical	15602.101	56.86	10.12	38.8	44.10	61.68	74.00	-12.32	Pk
Vertical	15600.466	40.94	10.12	38.8	42.70	47.16	54.00	-6.84	AV
Horizontal	4593.493	59.85	6.48	36.37	44.05	58.65	74.00	-15.35	Pk
Horizontal	4592.404	43.34	6.48	36.37	44.05	42.14	54.00	-11.86	AV
Horizontal	10400.432	61.86	8.47	38.64	44.50	64.47	74.00	-9.53	Pk
Horizontal	10400.747	46.25	8.47	38.64	44.50	48.86	54.00	-5.14	AV
Horizontal	15600.811	59.27	10.12	38.38	44.10	63.67	74.00	-10.33	Pk
Horizontal	15601.551	43.19	10.12	38.38	44.10	47.59	54.00	-6.41	AV
High Channel (5700 MHz)-Above 1G									
Vertical	4741.192	60.48	7.10	37.24	43.50	61.32	74.00	-12.68	Pk
Vertical	4740.901	46.95	7.10	37.24	43.50	47.79	54.00	-6.21	AV
Vertical	10482.412	61.36	8.46	37.68	44.50	63.00	74.00	-11.00	Pk
Vertical	10481.572	46.54	8.46	37.68	44.50	48.18	54.00	-5.82	AV
Vertical	15721.761	58.87	10.12	38.8	44.10	63.69	74.00	-10.31	Pk
Vertical	15720.271	43.76	10.12	38.8	42.70	49.98	54.00	-4.02	AV
Horizontal	4739.364	59.18	7.10	37.24	43.50	60.02	74.00	-13.98	Pk
Horizontal	4740.016	43.81	7.10	37.24	43.50	44.65	54.00	-9.35	AV
Horizontal	10483.373	58.03	8.46	38.57	44.50	60.56	74.00	-13.44	Pk
Horizontal	10483.104	42.60	8.46	38.57	44.50	45.13	54.00	-8.87	AV
Horizontal	15720.750	56.87	10.12	38.38	44.10	61.27	74.00	-12.73	Pk
Horizontal	15720.599	43.07	10.12	38.38	44.10	47.47	54.00	-6.53	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	4680.439	58.02	5.94	35.40	44.00	55.36	74.00	-18.64	Pk
Vertical	4680.617	46.30	5.94	35.40	44.00	43.64	54.00	-10.36	AV
Vertical	11491.928	60.66	8.46	39.75	44.50	64.37	74.00	-9.63	Pk
Vertical	11491.013	46.04	8.46	39.75	44.50	49.75	54.00	-4.25	AV
Vertical	17237.149	58.33	10.12	38.80	44.10	63.15	74.00	-10.85	Pk
Vertical	17236.545	41.91	10.12	38.80	42.70	48.13	54.00	-5.87	AV
Horizontal	4681.109	59.38	5.94	35.18	44.00	56.50	74.00	-17.50	Pk
Horizontal	4679.543	46.13	5.94	35.18	44.00	43.25	54.00	-10.75	AV
Horizontal	11492.277	60.31	8.46	38.71	44.50	62.98	74.00	-11.02	Pk
Horizontal	11491.319	45.27	8.46	38.71	44.50	47.94	54.00	-6.06	AV
Horizontal	17237.041	60.76	10.12	38.38	44.10	65.16	74.00	-8.84	Pk
Horizontal	17236.317	42.74	10.12	38.38	44.10	47.14	54.00	-6.86	AV
middle Channel (5785 MHz)-Above 1G									
Vertical	4593.510	58.89	6.48	36.35	44.05	57.67	74.00	-16.33	Pk
Vertical	4593.656	44.63	6.48	36.35	44.05	43.41	54.00	-10.59	AV
Vertical	11572.062	60.59	8.47	37.88	44.51	62.43	74.00	-11.57	Pk
Vertical	11571.101	43.70	8.47	37.88	44.51	45.54	54.00	-8.46	AV
Vertical	17356.968	57.72	10.12	38.8	44.10	62.54	74.00	-11.46	Pk
Vertical	17357.134	41.54	10.12	38.8	42.70	47.76	54.00	-6.24	AV
Horizontal	4593.713	60.55	6.48	36.37	44.05	59.35	74.00	-14.65	Pk
Horizontal	4592.440	44.73	6.48	36.37	44.05	43.53	54.00	-10.47	AV
Horizontal	11571.373	60.44	8.47	38.64	44.50	63.05	74.00	-10.95	Pk
Horizontal	11572.036	46.90	8.47	38.64	44.50	49.51	54.00	-4.49	AV
Horizontal	17356.276	60.77	10.12	38.38	44.10	65.17	74.00	-8.83	Pk
Horizontal	17356.850	44.59	10.12	38.38	44.10	48.99	54.00	-5.01	AV
High Channel (5825 MHz)-Above 1G									
Vertical	5039.432	60.97	7.10	37.24	43.50	61.81	74.00	-12.19	Pk
Vertical	5040.621	47.86	7.10	37.24	43.50	48.70	54.00	-5.30	AV
Vertical	11650.795	55.40	8.46	37.68	44.50	57.04	74.00	-16.96	Pk
Vertical	11651.171	43.94	8.46	37.68	44.50	45.58	54.00	-8.42	AV
Vertical	17477.056	61.36	10.12	38.8	44.10	66.18	74.00	-7.82	Pk
Vertical	17476.125	39.65	10.12	38.8	42.70	45.87	54.00	-8.13	AV
Horizontal	5040.840	67.65	7.10	37.24	43.50	68.49	74.00	-5.51	Pk
Horizontal	5041.419	42.99	7.10	37.24	43.50	43.83	54.00	-10.17	AV
Horizontal	11650.310	56.48	8.46	38.57	44.50	59.01	74.00	-14.99	Pk
Horizontal	11651.271	44.84	8.46	38.57	44.50	47.37	54.00	-6.63	AV
Horizontal	17476.590	60.31	10.12	38.38	44.10	64.71	74.00	-9.29	Pk
Horizontal	17475.315	45.21	10.12	38.38	44.10	49.61	54.00	-4.39	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	65.64	8.69	29.4	42.59	61.14	74	-12.86	Pk
Horizontal	5350	63.21	9.37	30.41	43.25	59.74	74	-14.26	Pk
Vertical	5150	67.79	9.21	29.4	42.59	63.81	74	-10.19	Pk
Vertical	5350	60.49	9.12	30.41	43.25	56.77	74	-17.23	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	47.09	8.69	29.4	42.59	42.59	54	-11.41	AV
Horizontal	5350	51.06	8.46	30.41	43.25	46.68	54	-7.32	AV
Vertical	5150	48.56	9.21	29.4	42.59	44.58	54	-9.42	AV
Vertical	5350	51.21	9.12	30.41	43.25	47.49	54	-6.51	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	66.28	8.69	29.4	42.59	61.78	74	-12.22	Pk
Horizontal	5725	67.13	9.37	30.41	43.25	63.66	74	-10.34	Pk
Vertical	5460	65.92	9.21	29.4	42.59	61.94	74	-12.06	Pk
Vertical	5725	66.89	9.12	30.41	43.25	63.17	74	-10.83	Pk
Horizontal	5460	46.88	8.69	29.4	42.59	42.38	54	-11.62	AV
Horizontal	5725	46.03	8.46	30.41	43.25	41.65	54	-12.35	AV
Vertical	5460	49.78	9.21	29.4	42.59	45.80	54	-8.20	AV
Vertical	5725	50.32	9.12	30.41	43.25	46.60	54	-7.40	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	68.57	8.69	29.4	42.59	64.07	74	-9.93	Pk
Horizontal	5850	64.47	9.37	30.41	43.25	61.00	74	-13.00	Pk
Vertical	5725	67.69	9.21	29.4	42.59	63.71	74	-10.29	Pk
Vertical	5850	62.10	9.12	30.41	43.25	58.38	74	-15.62	Pk
Horizontal	5725	46.52	8.69	29.4	42.59	42.02	54	-11.98	AV
Horizontal	5850	50.40	8.46	30.41	43.25	46.02	54	-7.98	AV
Vertical	5725	49.21	9.21	29.4	42.59	45.23	54	-8.77	AV
Vertical	5850	50.82	9.12	30.41	43.25	47.10	54	-6.90	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.

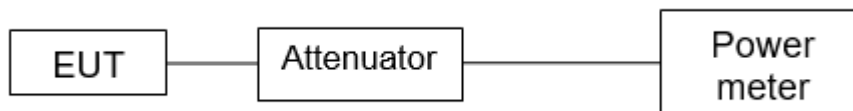
For the band 5.725-5.85 GHz

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:	TY-001
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	12.07	24
11a	CH40	5200	12.16	24
11a	CH48	5240	11.02	24
11n (HT20)	CH36	5180	8.68	24
11n (HT20)	CH40	5200	8.76	24
11n (HT20)	CH48	5240	7.81	24
11n (HT40)	CH38	5190	8.32	24
11n (HT40)	CH46	5230	7.62	24
11ac (HT20)	CH36	5180	7.50	24
11ac (HT20)	CH40	5200	7.54	24
11ac (HT20)	CH48	5240	6.73	24
11ac (HT40)	CH38	5190	10.71	24
11ac (HT40)	CH46	5230	9.93	24
11ax (HE20)	CH36	5180	8.60	24
11ax (HE20)	CH40	5200	8.77	24
11ax (HE20)	CH48	5240	7.87	24
11ax (HE40)	CH38	5190	11.82	24
11ax (HE40)	CH46	5230	11.23	24

U-NII-2A

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power (dBm)	Limit(dBm)
11a	CH52	5260	10.19	24
11a	CH56	5280	9.33	24
11a	CH64	5320	8.88	24
11n (HT20)	CH52	5260	10.21	24
11n (HT20)	CH56	5280	9.35	24
11n (HT20)	CH64	5320	8.79	24
11n (HT40)	CH54	5270	9.47	24
11n (HT40)	CH62	5310	8.79	24
11ac (HT20)	CH52	5260	9.10	24
11ac (HT20)	CH56	5280	8.33	24
11ac (HT20)	CH64	5320	7.76	24
11ac (HT40)	CH54	5270	8.40	24
11ac (HT40)	CH62	5310	7.57	24

11ax (HE20)	CH52	5260	10.17	24
11ax (HE20)	CH56	5280	9.37	24
11ax (HE20)	CH64	5320	8.85	24
11ax (HE40)	CH54	5270	9.43	24
11ax (HE40)	CH62	5310	8.62	24

U-NII-2C

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power	Limit(dBm)
			(dBm)	
11a	CH100	5500	9.79	24
11a	CH120	5600	8.64	24
11a	CH140	5700	7.82	24
11n (HT20)	CH100	5500	9.83	24
11n (HT20)	CH120	5600	8.66	24
11n (HT20)	CH140	5700	7.86	24
11n (HT40)	CH102	5510	9.73	24
11n (HT40)	CH110	5550	9.88	24
11n (HT40)	CH134	5670	8.25	24
11ac (HT20)	CH100	5500	8.51	24
11ac (HT20)	CH120	5600	7.56	24
11ac (HT20)	CH140	5700	6.78	24
11ac (HT40)	CH102	5510	8.42	24
11ac (HT40)	CH110	5550	8.76	24
11ac (HT40)	CH134	5670	7.37	24
11ax (HE20)	CH100	5500	9.70	24
11ax (HE20)	CH120	5600	8.66	24
11ax (HE20)	CH140	5700	7.83	24
11ax (HE40)	CH102	5510	9.60	24
11ax (HE40)	CH110	5550	9.77	24
11ax (HE40)	CH134	5670	8.29	24

For U-NII-3

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power	Limit(dBm)
			(dBm)	
11a	CH149	5745	11.67	30
11a	CH157	5785	12.43	30
11a	CH165	5825	13.41	30
11n (HT20)	CH149	5745	11.73	30
11n (HT20)	CH157	5785	12.47	30
11n (HT20)	CH165	5825	13.33	30
11n (HT40)	CH151	5755	11.8	30
11n (HT40)	CH159	5795	12.53	30

11ac (HT20)	CH149	5745	11.02	30
11ac (HT20)	CH157	5785	11.94	30
11ac (HT20)	CH165	5825	12.81	30
11ac (HT40)	CH151	5755	11.27	30
11ac (HT40)	CH159	5795	11.96	30
11ax (HE20)	CH149	5745	11.64	30
11ax (HE20)	CH157	5785	12.49	30
11ax (HE20)	CH165	5825	13.38	30
11ax (HE40)	CH151	5755	11.82	30
11ax (HE40)	CH159	5795	12.57	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

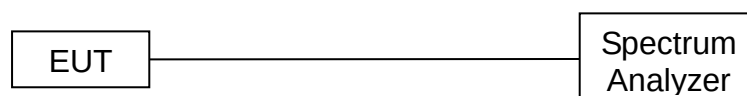
For U-NII-1

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	1.19	0.15	1.34	11	Pass
11a	CH40	5200	1.22	0.15	1.37	11	Pass
11a	CH48	5240	0.19	0	0.19	11	Pass
11n(HT20)	CH36	5180	-2.32	0	-2.32	11	Pass
11n(HT20)	CH40	5200	-2.2	0.2	-2	11	Pass
11n(HT20)	CH48	5240	-3.19	0.09	-3.1	11	Pass
11n(HT40)	CH38	5190	-5.79	0.12	-5.67	11	Pass
11n(HT40)	CH46	5230	-6.27	0.12	-6.15	11	Pass
11ac(HT20)	CH36	5180	-3.44	0.1	-3.34	11	Pass
11ac(HT20)	CH40	5200	-3.39	0	-3.39	11	Pass
11ac(HT20)	CH48	5240	-4.16	0	-4.16	11	Pass
11ac(HT40)	CH38	5190	-3.61	0.2	-3.41	11	Pass
11ac(HT40)	CH46	5230	-4.27	0.22	-4.05	11	Pass
11ax(HE20)	CH36	5180	-2.58	0	-2.58	11	Pass
11ax(HE20)	CH40	5200	-2.34	0.16	-2.18	11	Pass
11ax(HE20)	CH48	5240	-3.39	0.2	-3.19	11	Pass
11ax(HE40)	CH38	5190	-2.35	0.21	-2.14	11	Pass
11ax(HE40)	CH46	5230	-2.97	0.38	-2.59	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	-0.43	0.11	-0.32	11	Pass
11a	CH56	5280	-1.66	0.11	-1.55	11	Pass
11a	CH64	5320	-1.96	0.13	-1.83	11	Pass
11n(HT20)	CH52	5260	-0.34	0.13	-0.21	11	Pass
11n(HT20)	CH56	5280	-1.62	0.11	-1.51	11	Pass
11n(HT20)	CH64	5320	-2.12	0.14	-1.98	11	Pass
11n(HT40)	CH54	5270	-4.32	0.35	-3.97	11	Pass
11n(HT40)	CH62	5310	-5.37	0.26	-5.11	11	Pass
11ac(HT20)	CH52	5260	-1.59	0	-1.59	11	Pass
11ac(HT20)	CH56	5280	-2.59	0.11	-2.48	11	Pass
11ac(HT20)	CH64	5320	-2.99	0	-2.99	11	Pass
11ac(HT40)	CH54	5270	-5.39	0.3	-5.09	11	Pass
11ac(HT40)	CH62	5310	-6.63	0.09	-6.54	11	Pass
11ax(HE20)	CH52	5260	-0.91	0	-0.91	11	Pass

11ax(HE20)	CH56	5280	-1.87	0.26	-1.61	11	Pass
11ax(HE20)	CH64	5320	-2.3	0.25	-2.05	11	Pass
11ax(HE40)	CH54	5270	-4.21	0.36	-3.85	11	Pass
11ax(HE40)	CH62	5310	-5.57	0.24	-5.33	11	Pass

U-NII-2C

Mode	Channel	Frequency(M Hz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH100	5500	-1.1	0.09	-1.01	11	Pass
11a	CH120	5600	-2.2	0	-2.2	11	Pass
11a	CH140	5700	-3.03	0.11	-2.92	11	Pass
11n(HT20)	CH100	5500	-0.84	0	-0.84	11	Pass
11n(HT20)	CH120	5600	-2.14	0	-2.14	11	Pass
11n(HT20)	CH140	5700	-3.13	0	-3.13	11	Pass
11n(HT40)	CH102	5510	-4.59	0.15	-4.44	11	Pass
11n(HT40)	CH110	5550	-4.38	0.2	-4.18	11	Pass
11n(HT40)	CH134	5670	-5.74	0	-5.74	11	Pass
11ac(HT20)	CH100	5500	-2.33	0.13	-2.2	11	Pass
11ac (HT20)	CH120	5600	-3.23	0.17	-3.06	11	Pass
11ac (HT20)	CH140	5700	-4.14	0.13	-4.01	11	Pass
11ac (HT40)	CH102	5510	-5.68	0.3	-5.38	11	Pass
11ac (HT40)	CH110	5550	-5.36	0.16	-5.2	11	Pass
11ac (HT40)	CH134	5670	-6.66	0.24	-6.42	11	Pass
11ax(HE20)	CH100	5500	-1.23	0.13	-1.1	11	Pass
11ax(HE20)	CH120	5600	-2.29	0.16	-2.13	11	Pass
11ax(HE20)	CH140	5700	-3.38	0	-3.38	11	Pass
11ax(HE40)	CH102	5510	-4.75	0.09	-4.66	11	Pass
11ax(HE40)	CH110	5550	-4.29	0.37	-3.92	11	Pass
11ax(HE40)	CH134	5670	-5.85	0.13	-5.72	11	Pass

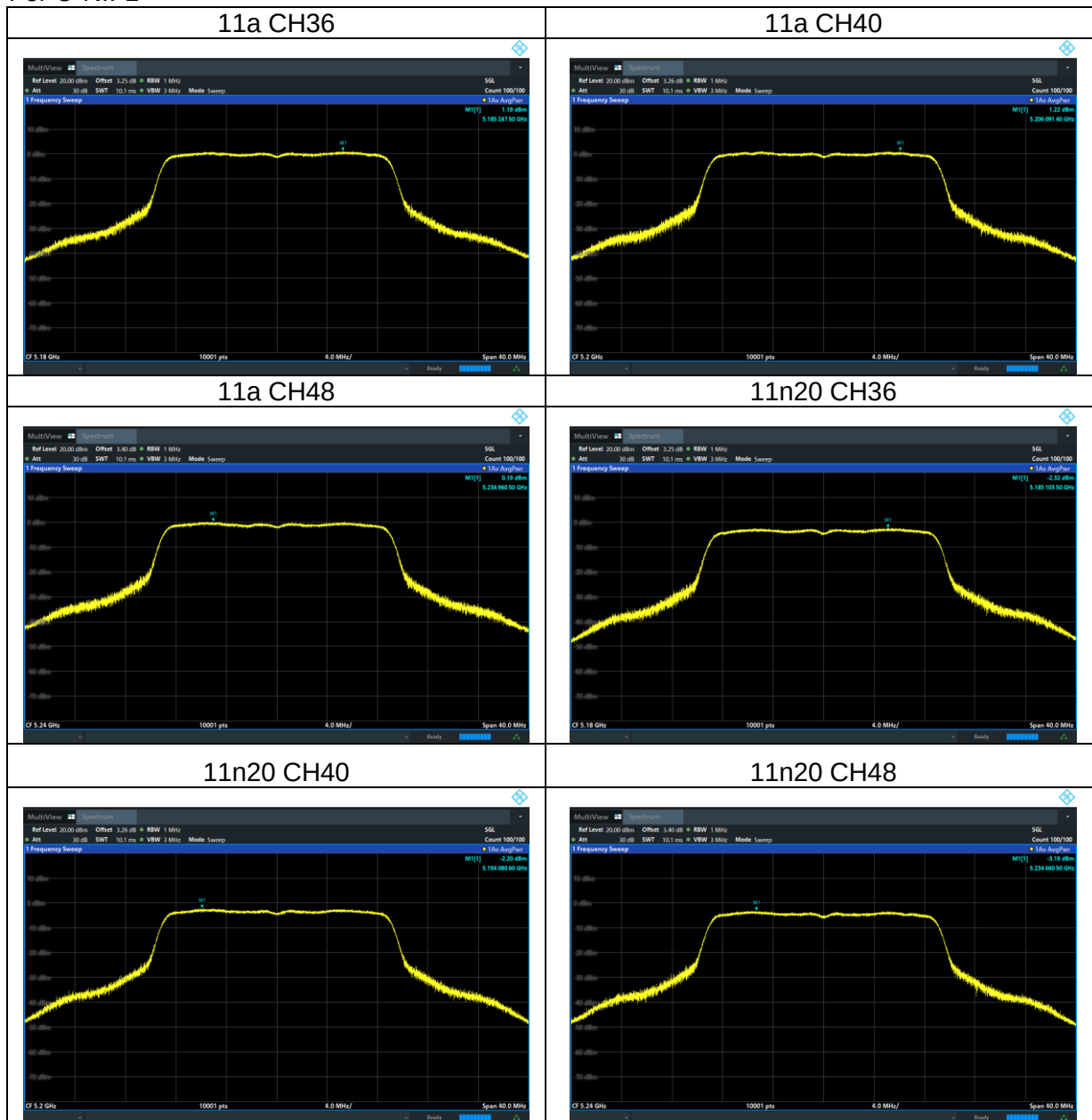
For U-NII-3

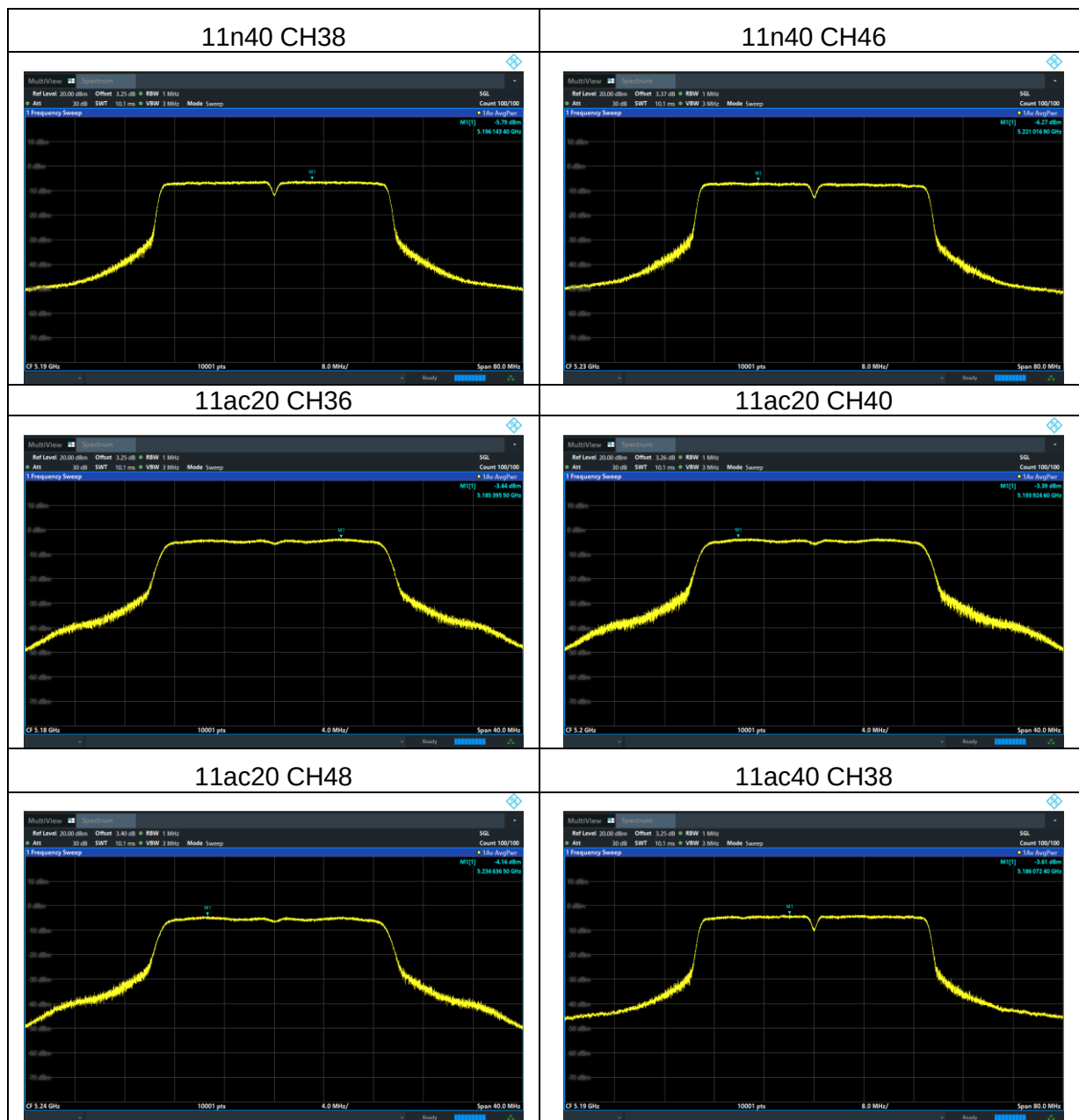
Mode	Channel	Frequency (MHz)	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm/500k Hz)	Result
11a	CH149	5745	-1.73	0.13	-1.6	30	Pass
11a	CH157	5785	-1.11	0	-1.11	30	Pass
11a	CH165	5825	-0.25	0	-0.25	30	Pass
11n(HT20)	CH149	5745	-1.91	0	-1.91	30	Pass
11n(HT20)	CH157	5785	-0.99	0.1	-0.89	30	Pass
11n(HT20)	CH165	5825	-0.28	0.13	-0.15	30	Pass
11n(HT40)	CH151	5755	-4.55	0.3	-4.25	30	Pass

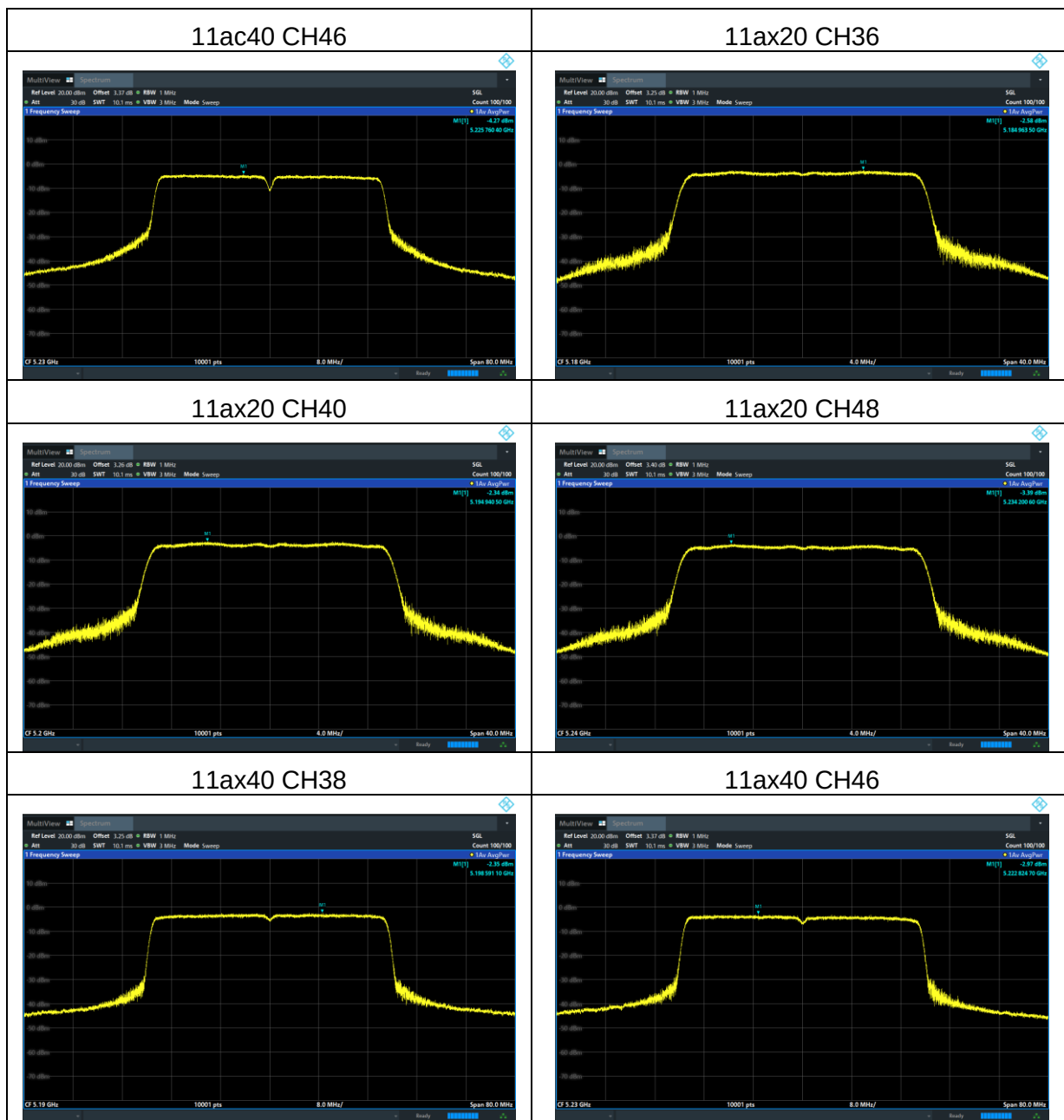
11n(HT40)	CH159	5795	-4.1	0.25	-3.85	30	Pass
11ac(HT20)	CH149	5745	-2.51	0	-2.51	30	Pass
11ac(HT20)	CH157	5785	-1.61	0	-1.61	30	Pass
11ac(HT20)	CH165	5825	-0.73	0	-0.73	30	Pass
11ac(HT40)	CH151	5755	-5.26	0	-5.26	30	Pass
11ac(HT40)	CH159	5795	-4.71	0.27	-4.44	30	Pass
11ax(HE20)	CH149	5745	-2.02	0.12	-1.9	30	Pass
11ax(HE20)	CH157	5785	-1	0.19	-0.81	30	Pass
11ax(HE20)	CH165	5825	-0.39	0.14	-0.25	30	Pass
11ax(HE40)	CH151	5755	-4.51	0.21	-4.3	30	Pass
11ax(HE40)	CH159	5795	-4.25	0.3	-3.95	30	Pass

Test plots

For U-NII-1

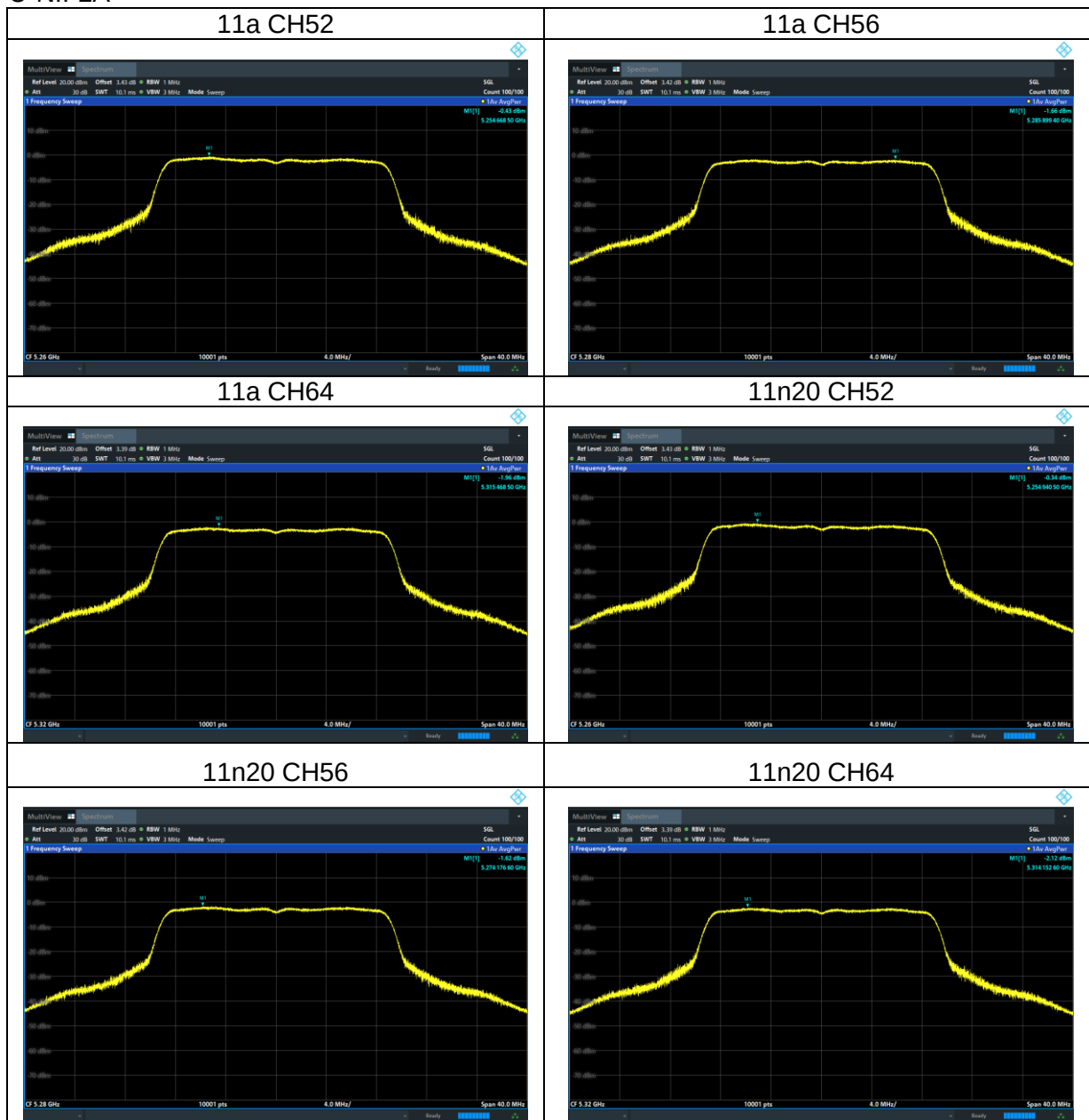


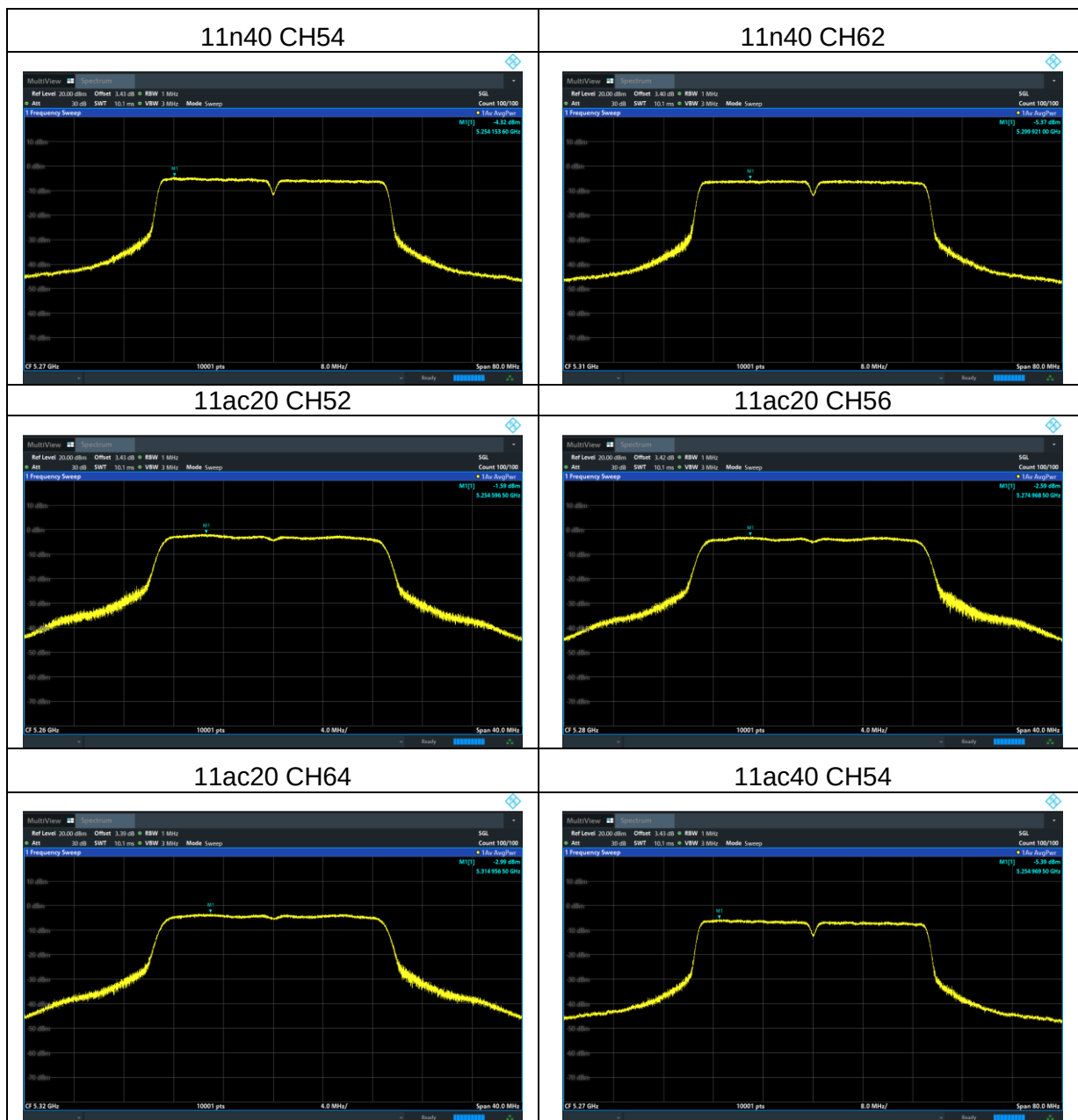


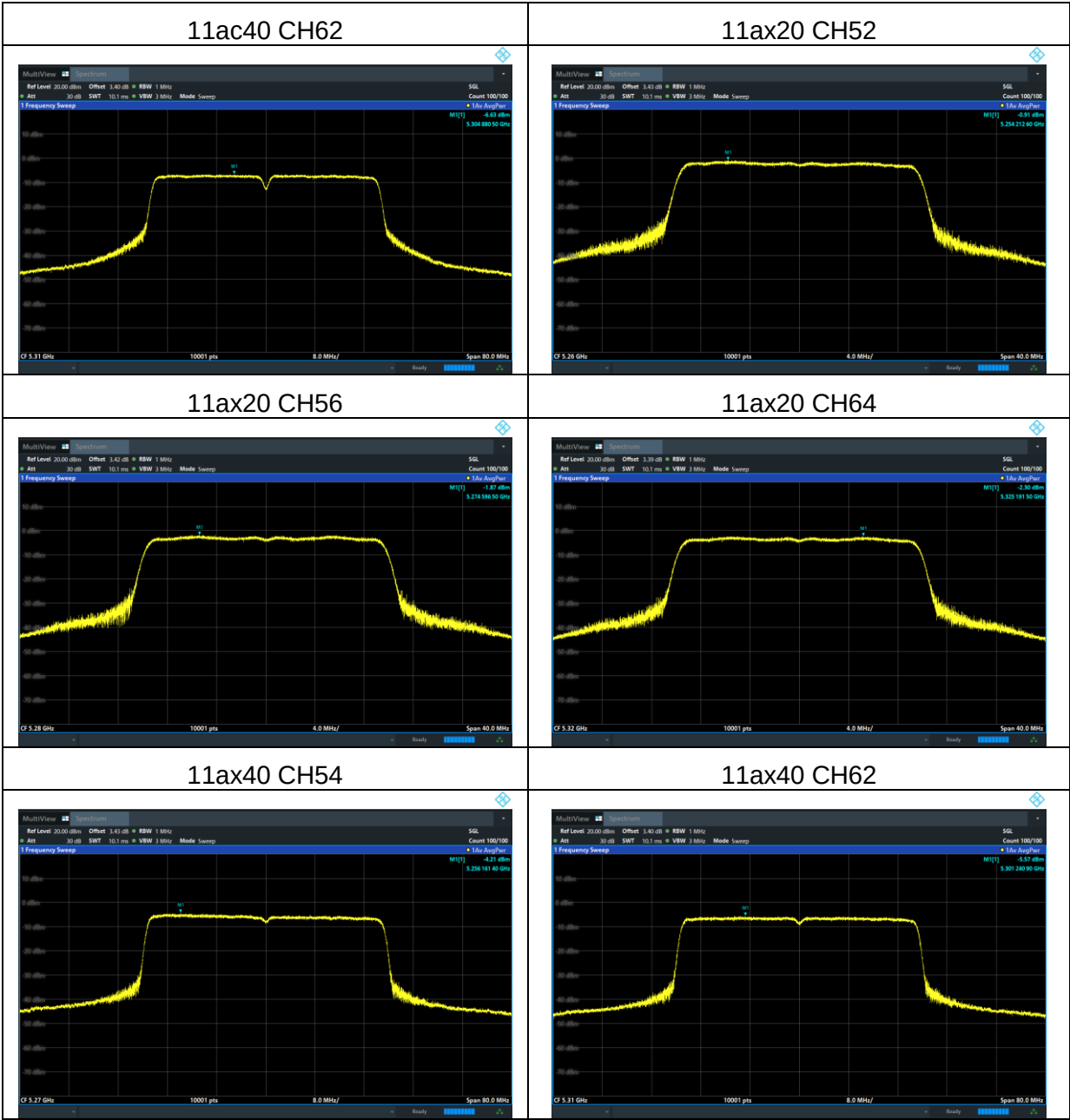


Test plots

U-NII-2A







Test plots

U-NII-2C

