

Test Report

Product: Streaming Music Receiver

Trade Mark: ARSY

Model Number: Ne-2

FCC ID: 2BLQH-MT0001

Prepared for

SHENZHEN JASYA ELECTRONIC TECH.CO.,LTD.

2nd floor, building 1, Wanfeng Huafeng Pioneer Park, Heyi community,
Shajing Town, Bao'an District, Shenzhen City, Guangdong Province

Prepared by

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TEST RESULT CERTIFICATION

Applicant's Name..... : SHENZHEN JASYA ELECTRONIC TECH.CO.,LTD.
2nd floor, building 1, Wanfeng Huafeng Pioneer Park, Heyi
Address : community, Shajing Town, Bao'an District, Shenzhen City,
Guangdong Province

Manufacturer's Name : SHENZHEN JASYA ELECTRONIC TECH.CO.,LTD.
2nd floor, building 1, Wanfeng Huafeng Pioneer Park, Heyi
Address : community, Shajing Town, Bao'an District, Shenzhen City,
Guangdong Province

Product description

Product name : Streaming Music Receiver

Model Number : Ne-2

Standards : FCC Part 15.407

Test procedure..... : IEEE/ANSI C63.10-2020
KDB 789033 D02 v02r01

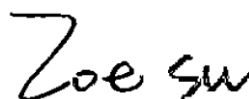
This device described above has been tested by Shenzhen HongBiao Certification& Testing Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

Date of Test

Date (s) of performance of tests : Oct. 11, 2024~ Oct. 22, 2024

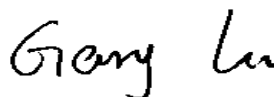
Test Result..... : **Pass**

Testing Engineer :



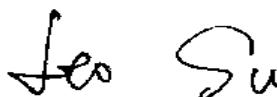
(Z o e S u)

Technical Manager :



(G a r y L u)

Authorized Signatory :



(L e o S u)

[illegible]

1 General Description

1.1 Description of EUT

Product name:	Streaming Music Receiver
Model name:	Ne-2
Series Model:	Ne-3, Ne-4, Ne-5, Ne-6
Different of series model:	All models are the same circuit and module, except for model color.
Frequency range:	U-NII-1: 5180 MHz to 5240 MHz
Modulation type:	IEEE 802.11a/n: OFDM(64QAM, 16QAM, QPSK, BPSK)
Transfer rate:	IEEE 802.11a: Up to 54 Mbps IEEE 802.11n-HT20/40: Up to MCS7
Channel bandwidth:	802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz
Antenna type:	FPCB Antenna
Antenna gain:	5dBi
Max. output power:	12.22dBm
Hardware version:	V1.3
Software version:	V1.0
Battery:	N/A
Power supply:	Input: DC 5V/3A
Adapter information:	N/A

1.2 Operation Channel List

For U-NII-1:

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

1.3 Test Mode

For 802.11a/n(HT20)

U-NII-1 (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
36	Low	5180
40	Mid	5200
48	High	5240

For 802.11n (HT40)

U-NII-1 (5150 - 5250 MHz)		
Channel Number	Channel	Frequency (MHz)
38	Low	5190
46	High	5230

1.4 Test Setup

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

1.5 Power setting configuration parameters

During testing channel & 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 power parameters.

Test software Version		CMD	
Mode	802.11b/g	802.11n20	802.11n40
Parameters	Default	Default	Default
RF cable			
Description	Connector	Length	Supplied by
Antenna Cable	SMA	10cm	Applicant

Note: Disclaimer: the loss of RF cable is too small and can be ignored.

1.6 Ancillary Equipment

Equipment	Model	S/N	Manufacturer
Laptop	NbDE-WFH9	/	HUAWEI

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	N/A	
8	15.407(b)	Out Of Band Emission	Pass	
9	15.407(b)	Spurious RF Conducted Emissions	Pass	
10	15.407(g)	Frequency Stability	Pass	

Note:

1. "N/A" means the test item not applicable.

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

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

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	/	/

Note1: the calibration interval of the above test instruments is 12&24 months and the calibrations are traceable to international system unit (SI).

Note2: 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 antenna is FPCB Antenna, which was permanently affixed to the device and un-replaced, complies with 15.203. In addition, the maximum antenna gain is 5dBi.

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.

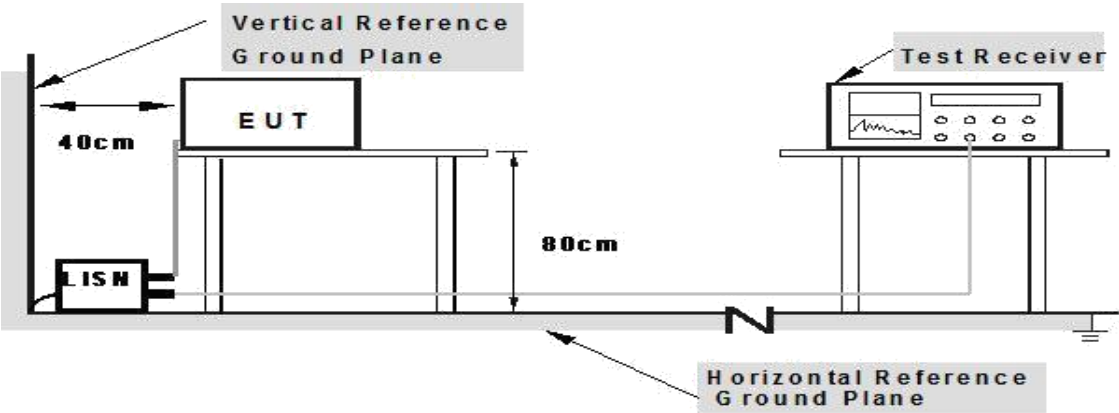
b) The following table is the setting of the receiver

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

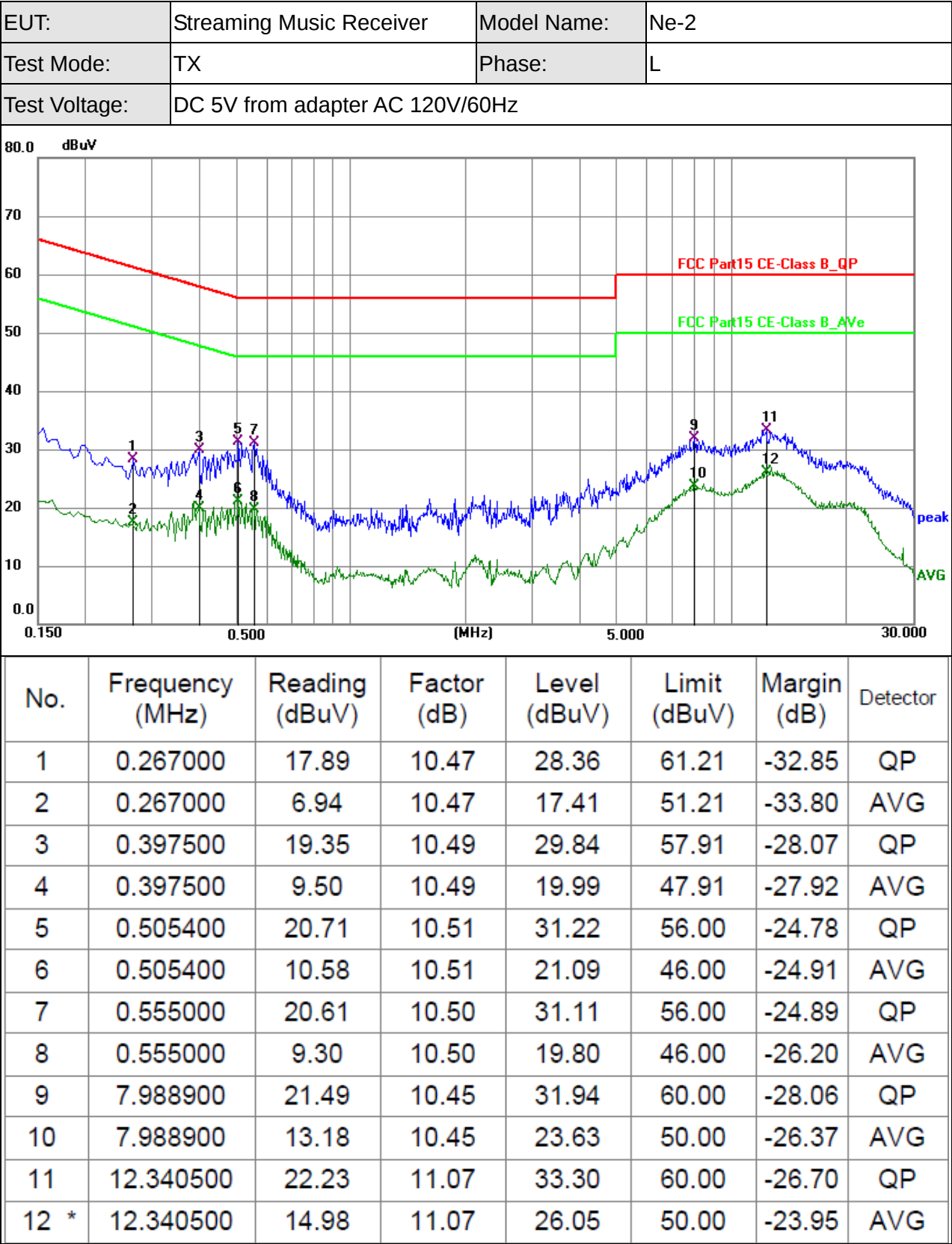
- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.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

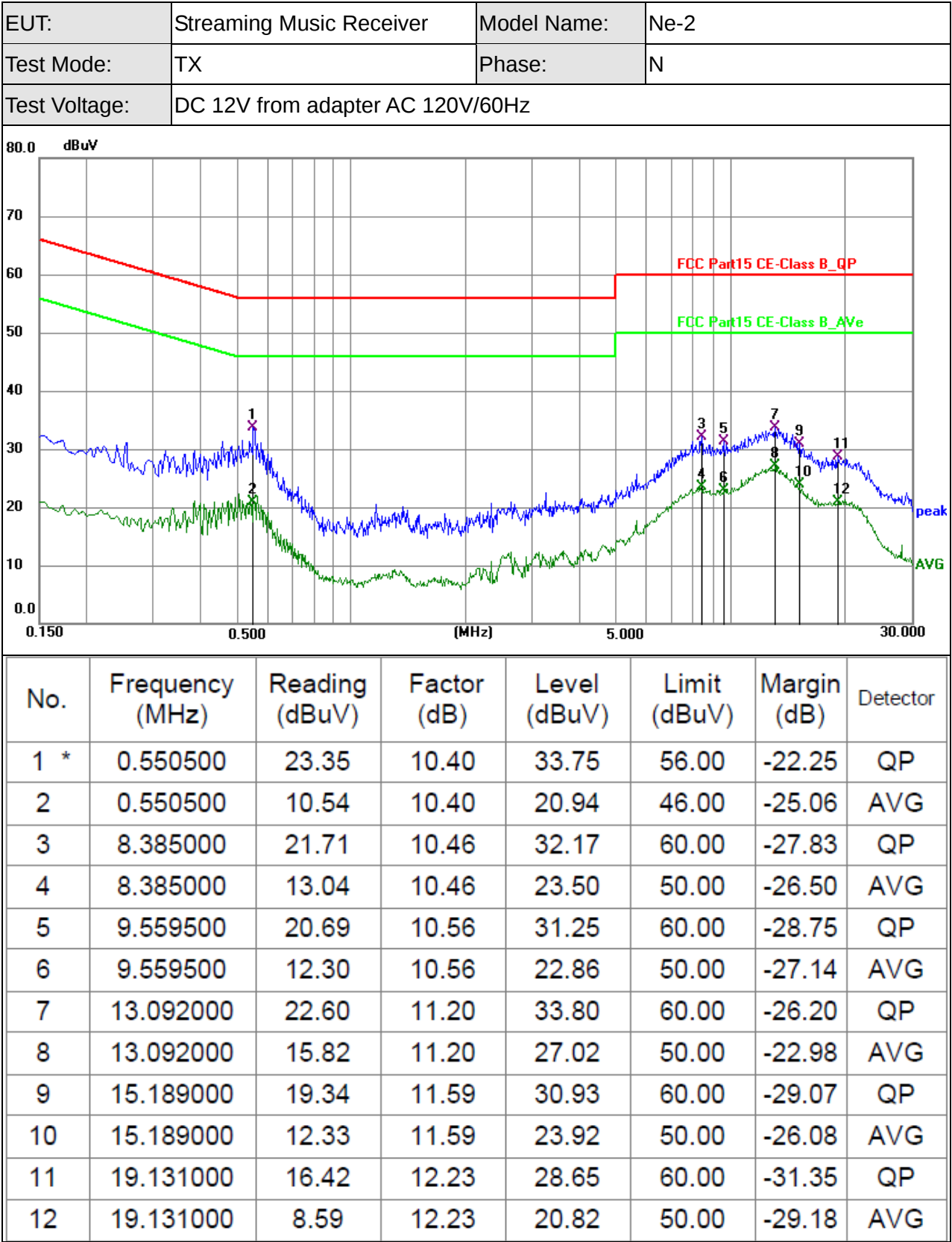
setup.

5.2.3 Test Setup



5.2.4 Test Result





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.

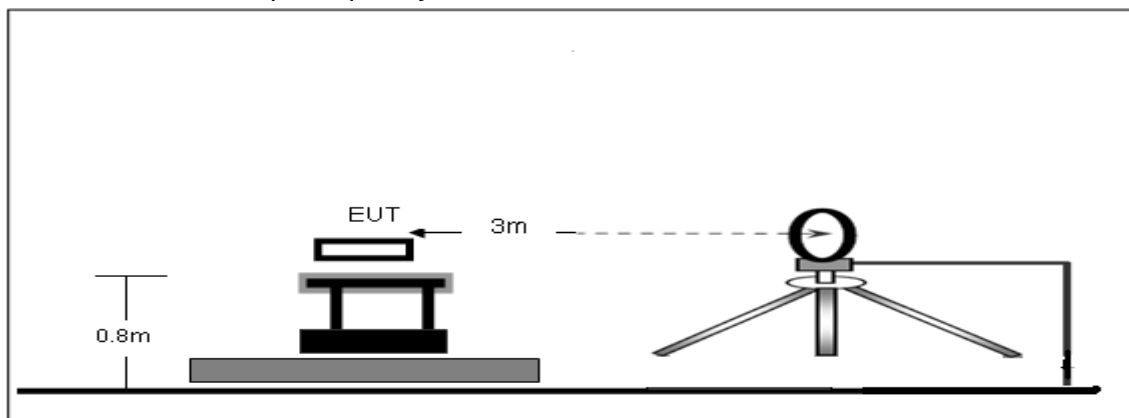
The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

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.

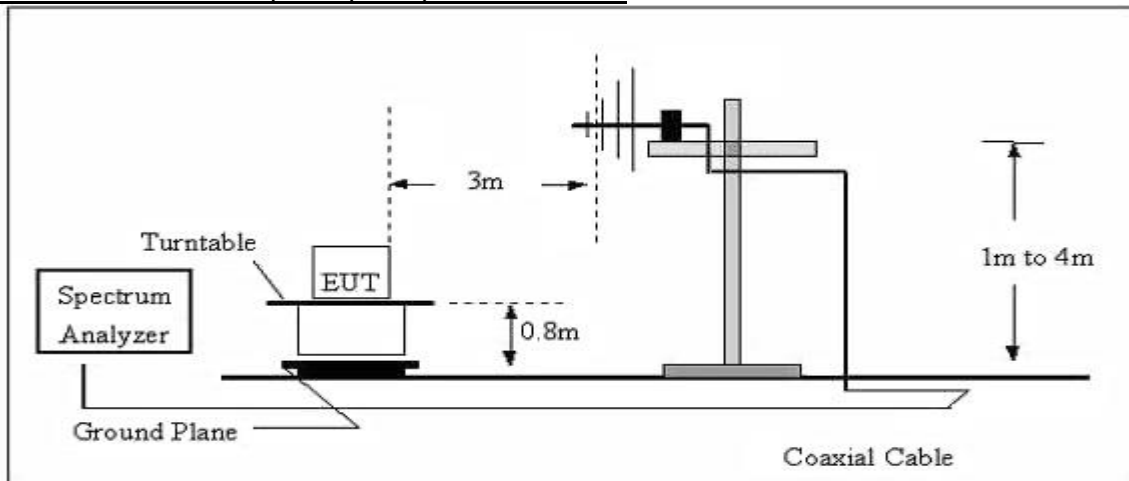
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3.3 Test Setup

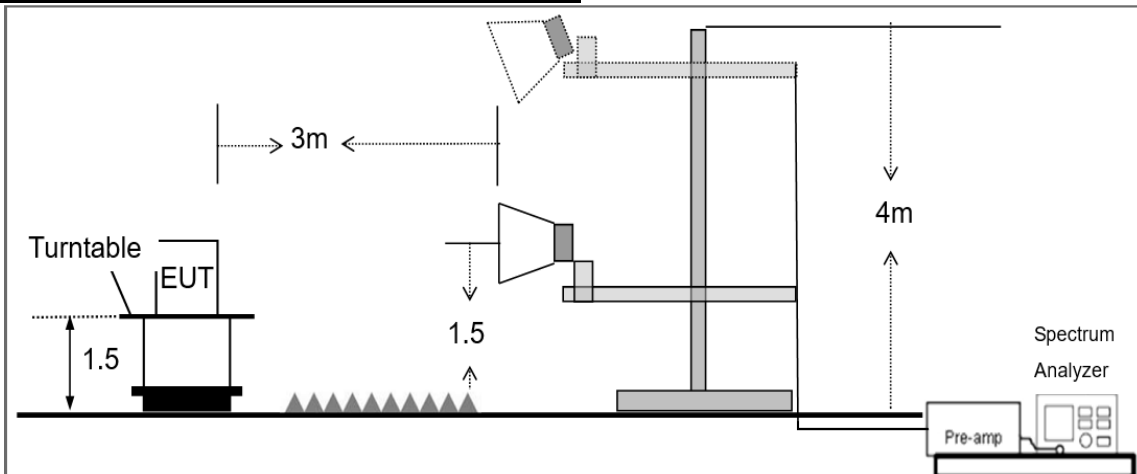
Radiated Emission Test-Up Frequency Below 30MHz



Radiated Emission Test-Up Frequency 30MHz~1GHz



Radiated emission test-up frequency above 1GHz



5.3.4 Test Result

Below 30MHz

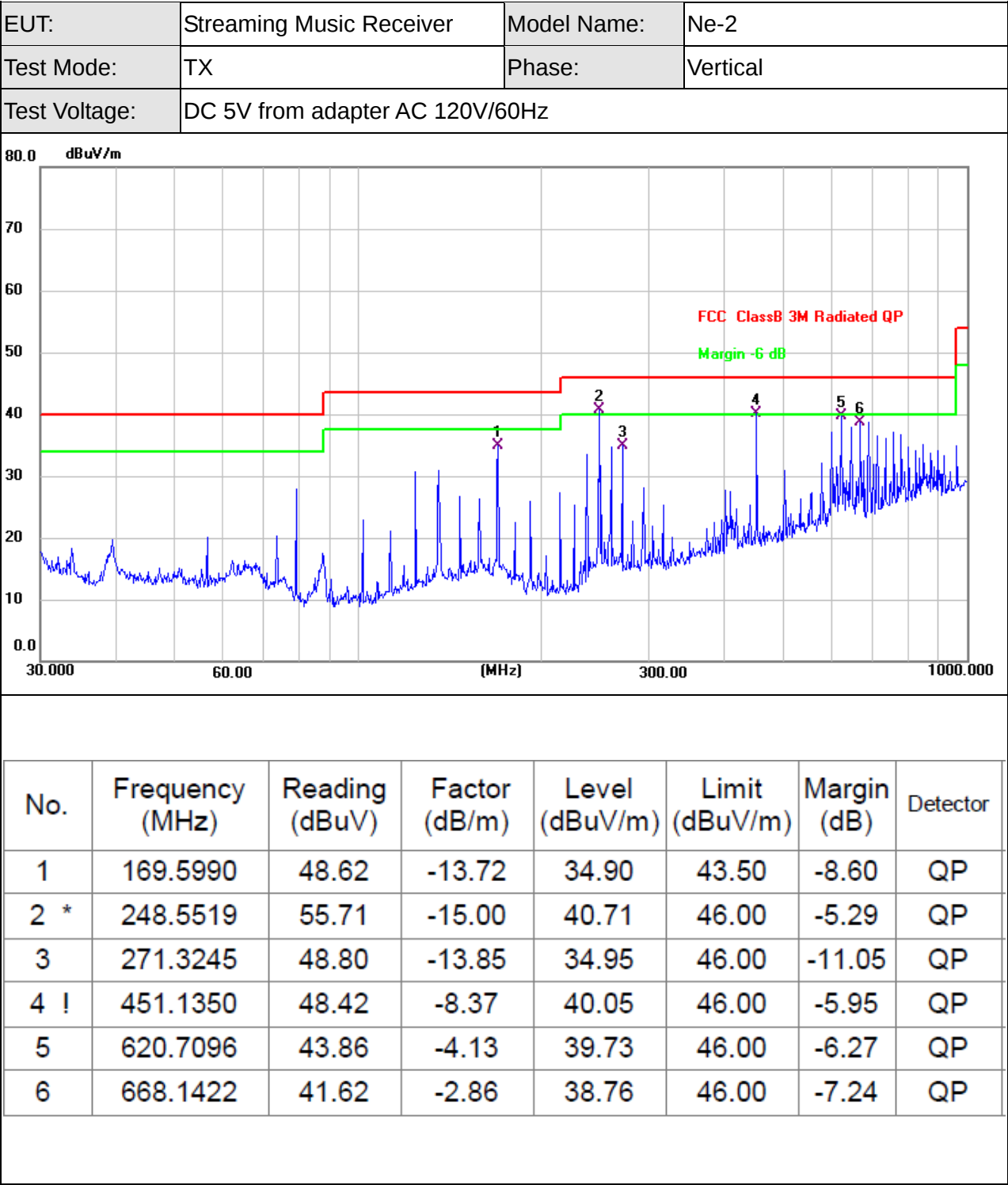
EUT:	Streaming Music Receiver	Model Name:	Ne-2
Pressure:	1010 hPa	Test Voltage:	DC 5V from adapter AC 120V/60Hz
Test Mode:	TX	Polarization:	--

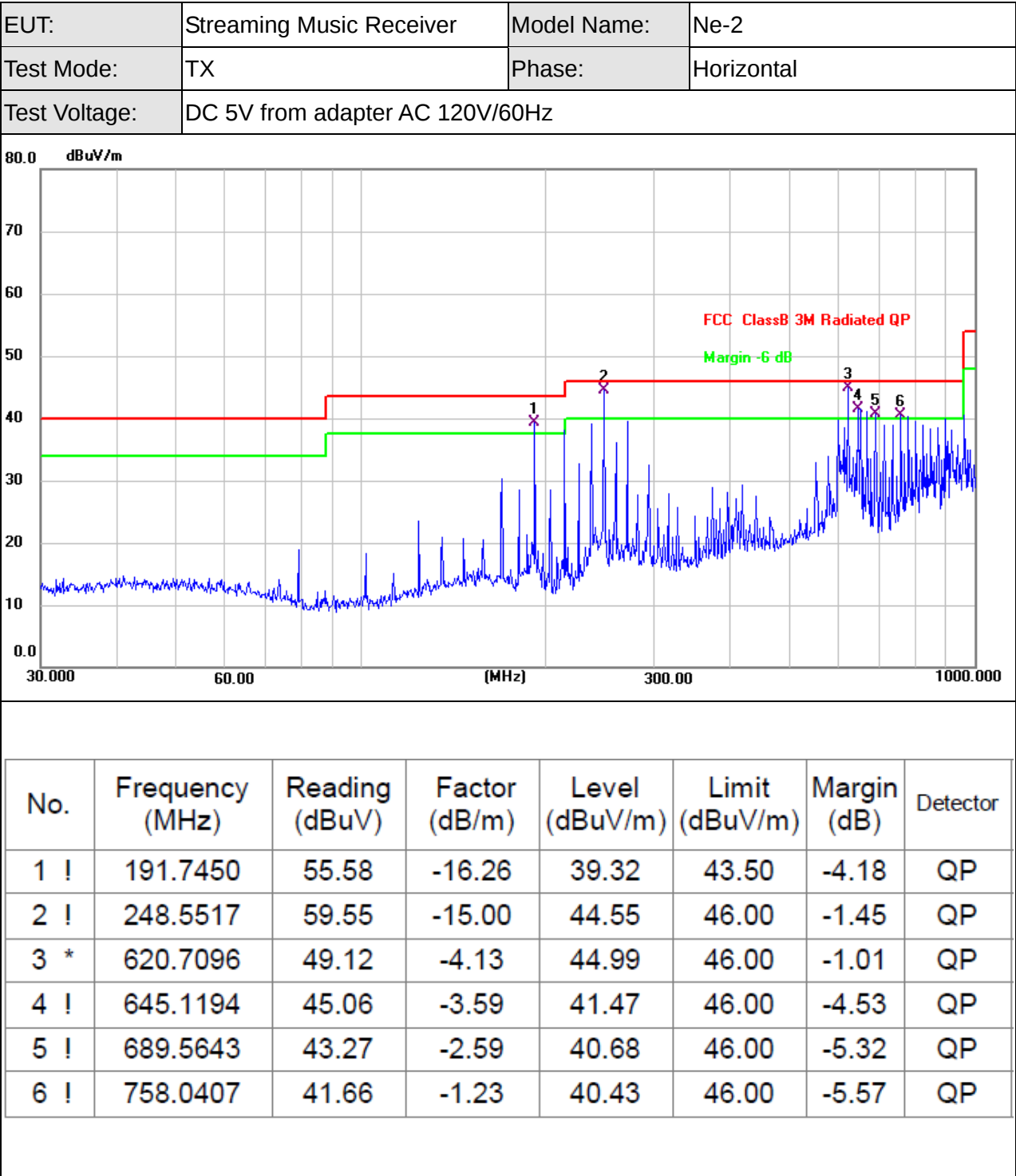
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

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 (specific distance/test distance)(dB);
3. Limit line = specific limits (dBuV) + distance extrapolation factor.

Frequency range (30MHz – 1GHz)





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

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamplifier 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	4436.358	56.46	5.94	35.40	44.00	53.80	74.00	-20.20	Pk
Vertical	4434.796	45.13	5.94	35.40	44.00	42.47	54.00	-11.53	AV
Vertical	10371.491	62.45	8.46	39.75	44.50	66.16	74.00	-7.84	Pk
Vertical	10372.098	43.98	8.46	39.75	44.50	47.69	54.00	-6.31	AV
Vertical	15540.872	56.75	10.12	38.80	44.10	61.57	74.00	-12.43	Pk
Horizontal	4434.649	58.61	5.94	35.18	44.00	55.73	74.00	-18.27	Pk
Horizontal	4434.408	42.79	5.94	35.18	44.00	39.91	54.00	-14.09	AV
Horizontal	10370.726	61.87	8.46	38.71	44.50	64.54	74.00	-9.46	Pk
Horizontal	10731.805	46.35	8.46	38.71	44.50	49.02	54.00	-4.98	AV
Horizontal	15541.631	57.40	10.12	38.38	44.10	61.80	74.00	-12.20	Pk
Horizontal	15541.190	42.01	10.12	38.38	44.10	46.41	54.00	-7.59	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	4592.675	56.44	6.48	36.35	44.05	55.22	74.00	-18.78	Pk
Vertical	4593.578	42.79	6.48	36.35	44.05	41.57	54.00	-12.43	AV
Vertical	10402.835	61.31	8.47	37.88	44.51	63.15	74.00	-10.85	Pk
Vertical	10401.617	46.37	8.47	37.88	44.51	48.21	54.00	-5.79	AV
Vertical	15600.657	56.69	10.12	38.8	44.10	61.51	74.00	-12.49	Pk
Horizontal	4593.740	58.92	6.48	36.37	44.05	57.72	74.00	-16.28	Pk
Horizontal	4592.570	42.09	6.48	36.37	44.05	40.89	54.00	-13.11	AV
Horizontal	10402.079	61.31	8.47	38.64	44.50	63.92	74.00	-10.08	Pk
Horizontal	10400.822	47.96	8.47	38.64	44.50	50.57	54.00	-3.43	AV
Horizontal	15601.733	58.65	10.12	38.38	44.10	63.05	74.00	-10.95	Pk
Horizontal	15600.977	43.79	10.12	38.38	44.10	48.19	54.00	-5.81	AV
High Channel (5240 MHz)-Above 1G									
Vertical	4741.243	59.01	7.10	37.24	43.50	59.85	74.00	-14.15	Pk
Vertical	4741.107	45.47	7.10	37.24	43.50	46.31	54.00	-7.69	AV
Vertical	10480.628	61.66	8.46	37.68	44.50	63.30	74.00	-10.70	Pk
Vertical	10480.383	46.02	8.46	37.68	44.50	47.66	54.00	-6.34	AV
Vertical	15721.880	57.34	10.12	38.8	44.10	62.16	74.00	-11.84	Pk
Horizontal	4739.690	59.83	7.10	37.24	43.50	60.67	74.00	-13.33	Pk
Horizontal	4740.238	43.59	7.10	37.24	43.50	44.43	54.00	-9.57	AV
Horizontal	10482.186	58.28	8.46	38.57	44.50	60.81	74.00	-13.19	Pk
Horizontal	10482.043	44.10	8.46	38.57	44.50	46.63	54.00	-7.37	AV
Horizontal	15721.988	57.69	10.12	38.38	44.10	62.09	74.00	-11.91	Pk
Horizontal	15721.078	42.29	10.12	38.38	44.10	46.69	54.00	-7.31	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

For 802.11a mode: (CH36 5180MHz)

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	66.15	8.69	29.4	42.59	61.65	74	-12.35	Pk
Horizontal	5350	62.49	9.37	30.41	43.25	59.02	74	-14.98	Pk
Vertical	5150	67.68	9.21	29.4	42.59	63.70	74	-10.30	Pk
Vertical	5350	60.21	9.12	30.41	43.25	56.49	74	-17.51	Pk
Horizontal	5150	45.67	8.69	29.4	42.59	41.17	54	-12.83	AV
Horizontal	5350	50.45	8.46	30.41	43.25	46.07	54	-7.93	AV
Vertical	5150	48.61	9.21	29.4	42.59	44.63	54	-9.37	AV
Vertical	5350	50.76	9.12	30.41	43.25	47.04	54	-6.96	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.

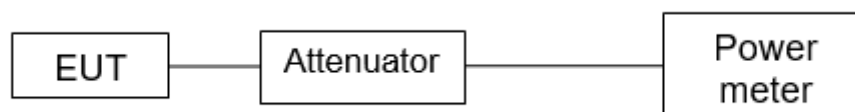
For the band 5.725-5.85 GHz

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:	Streaming Music Receiver	Model Name:	Ne-2
Test Mode:	TX	Test Voltage:	DC 5V from adapter AC 120V/60Hz

For U-NII-1

Modulation mode	Test Channel	Frequency(MHz)	Conducted Power	Limit(dBM)
			(dBm)	
11a	CH36	5180	12.22	23.98
11a	CH40	5200	9.7	23.98
11a	CH48	5240	9.94	23.98
11n (HT20)	CH36	5180	11.16	23.98
11n (HT20)	CH40	5200	11	23.98
11n (HT20)	CH48	5240	11.04	23.98
11n (HT40)	CH38	5190	11.5	23.98
11n (HT40)	CH46	5230	11.16	23.98

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

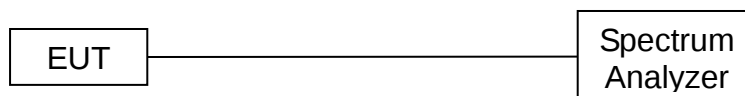
The maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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.

5.5.3 Test Setup



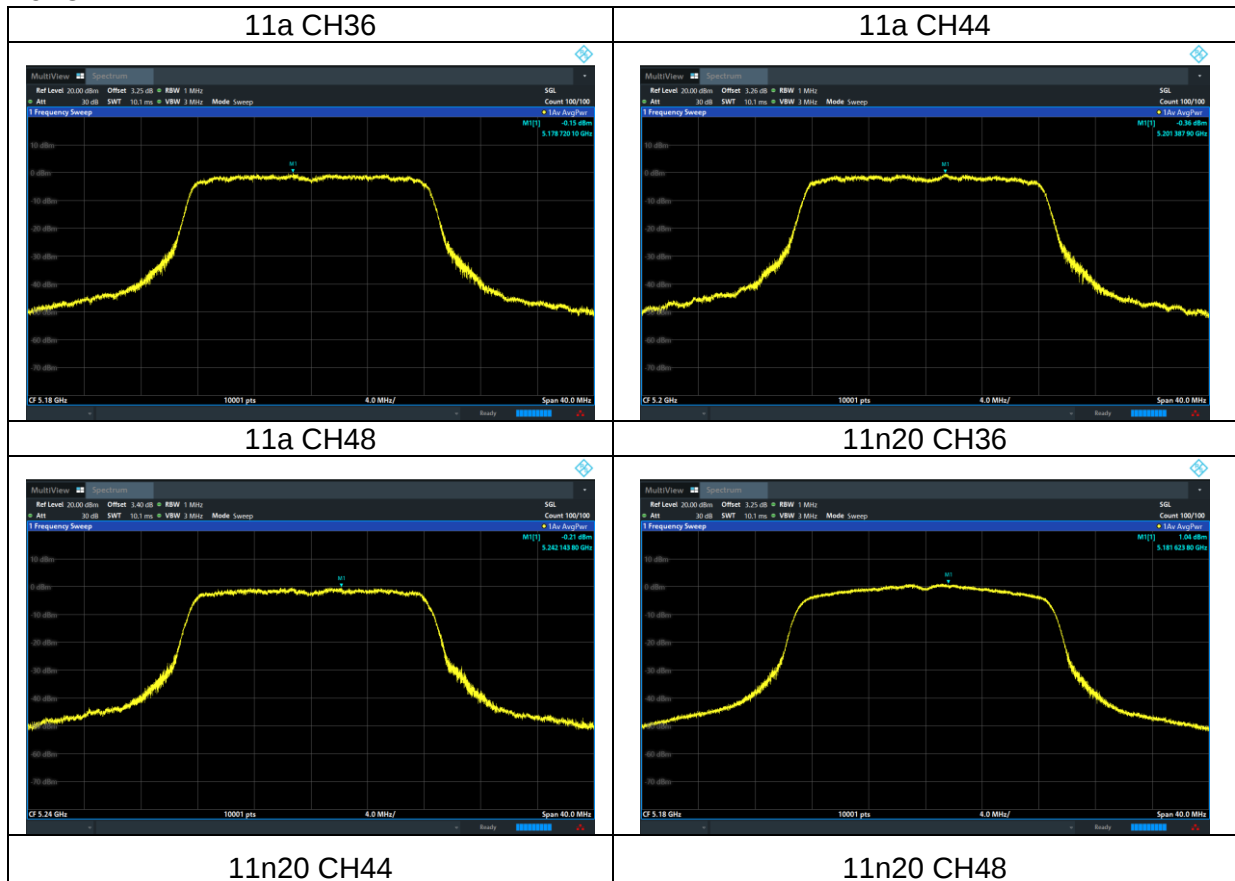
5.5.4 Test Results

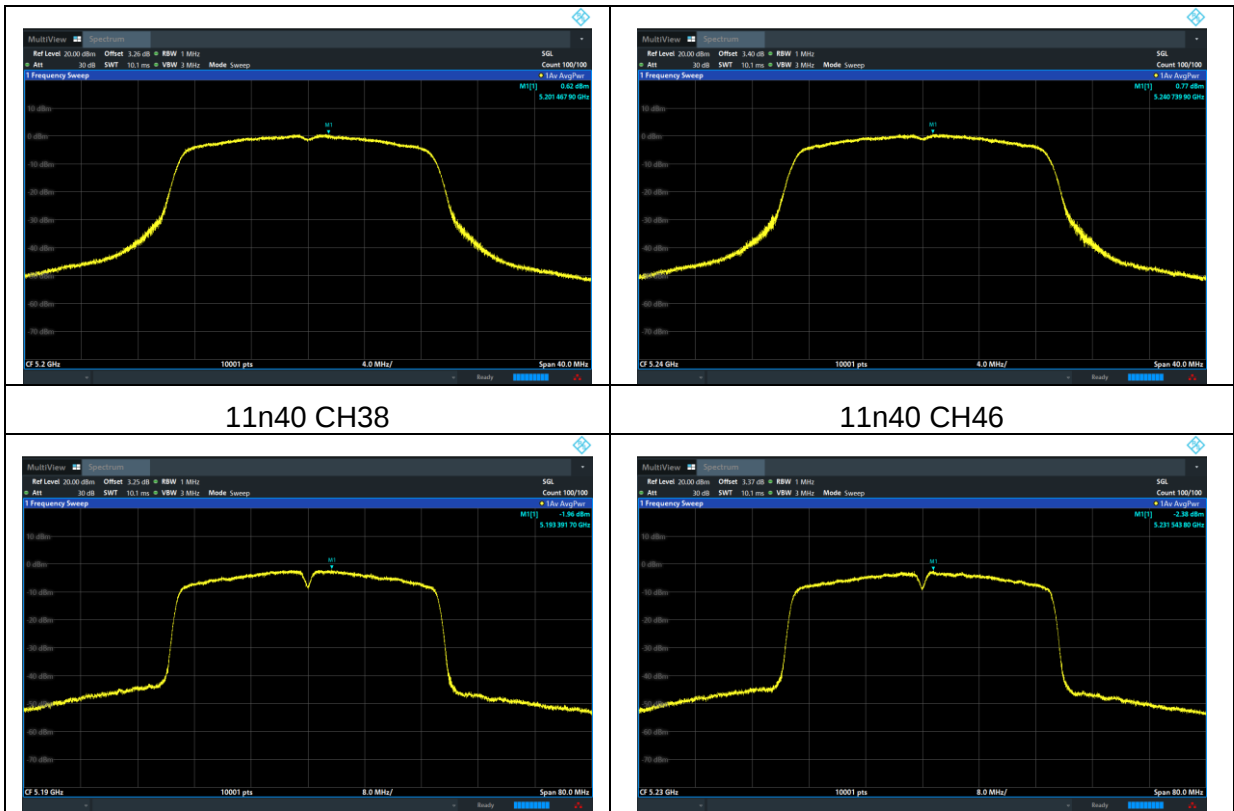
For U-NII-1

Mode	Channel	Frequency(MHz)	Conducted PSD (dBm)	Limit (dBm/MHz)	Result
11a	CH36	5180	-0.15	11	Pass
11a	CH40	5200	-0.36	11	Pass
11a	CH48	5240	-0.21	11	Pass
11n(HT20)	CH36	5180	1.04	11	Pass
11n(HT20)	CH40	5200	0.62	11	Pass
11n(HT20)	CH48	5240	0.77	11	Pass
11n(HT40)	CH38	5190	-1.96	11	Pass
11n(HT40)	CH46	5230	-2.38	11	Pass

Test plots

For U-NII-1





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

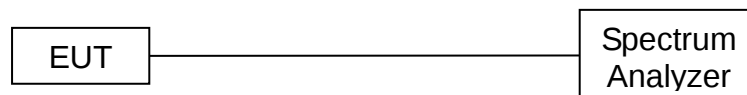
Set RBW = 1% to 5% of the OBW.

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

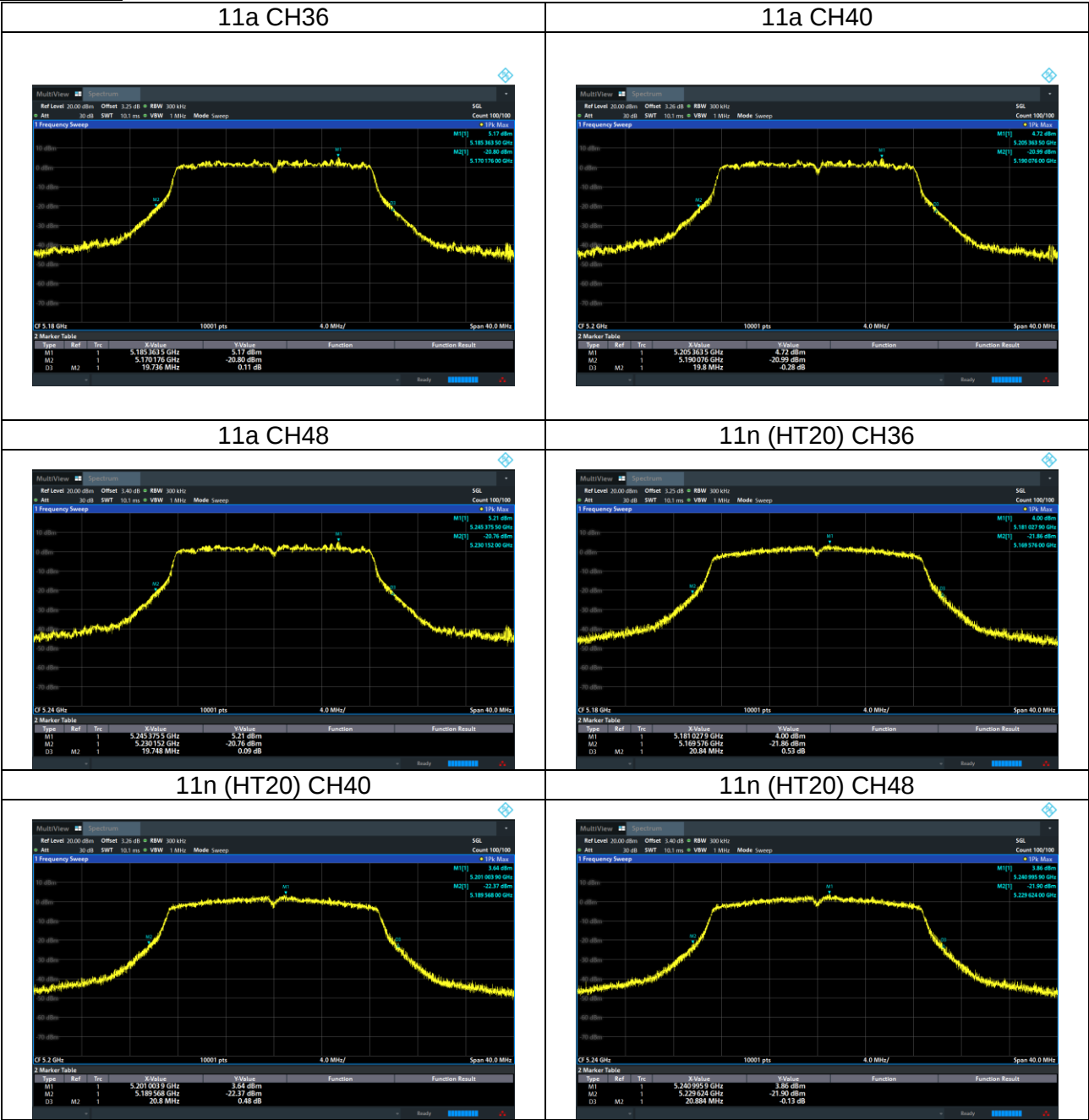


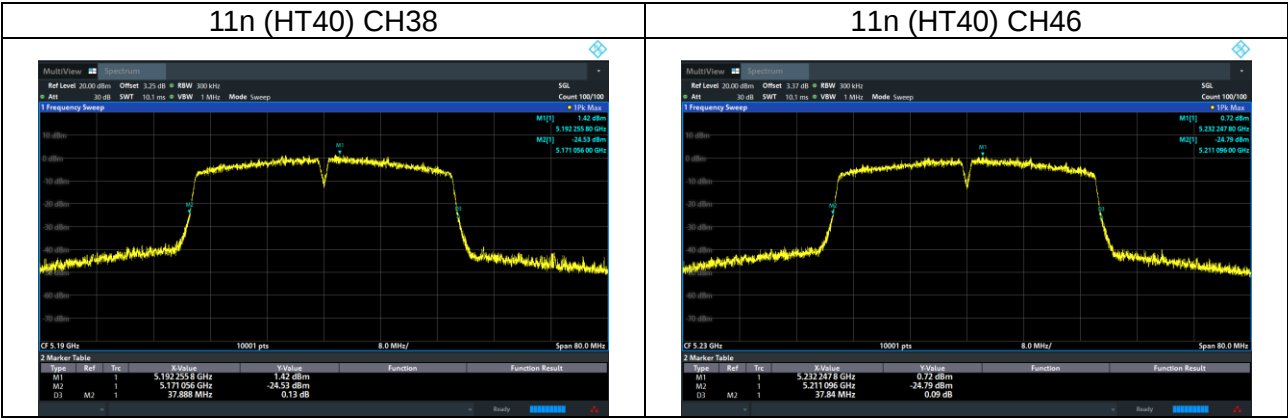
5.6.4 Test Results

For U-NII-1

Channel	Test Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% bandwidth	Limit (kHz)	Result
11a	CH36	5180	19.736	16.430	/	Pass
11a	CH40	5200	19.800	16.418	/	Pass
11a	CH48	5240	19.748	16.423	/	Pass
11n (HT20)	CH36	5180	20.840	17.417	/	Pass
11n (HT20)	CH40	5200	20.800	17.408	/	Pass
11n (HT20)	CH48	5240	20.884	17.413	/	Pass
11n (HT40)	CH38	5190	37.888	35.406	/	Pass
11n (HT40)	CH46	5230	37.840	35.481	/	Pass

Test plots:
For U-NII-1





5.7 6 dB Bandwidth

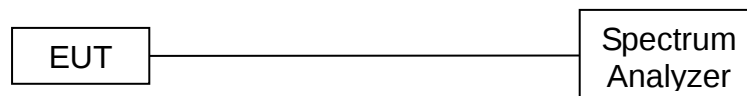
5.7.1 Limit

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.7.2 Test Procedure

1. Set RBW= 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

5.7.3 Test Setup



5.7.4 Test Results

Note: This device is not suitable for this project.

5.8 Out Of Band Emission

5.8.1 Limit

According to FCC §15.407(b).

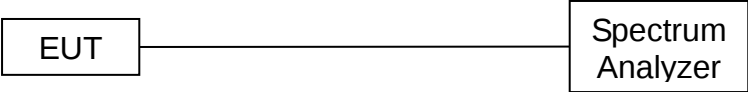
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (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 solely in the 5.725–5.850 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.

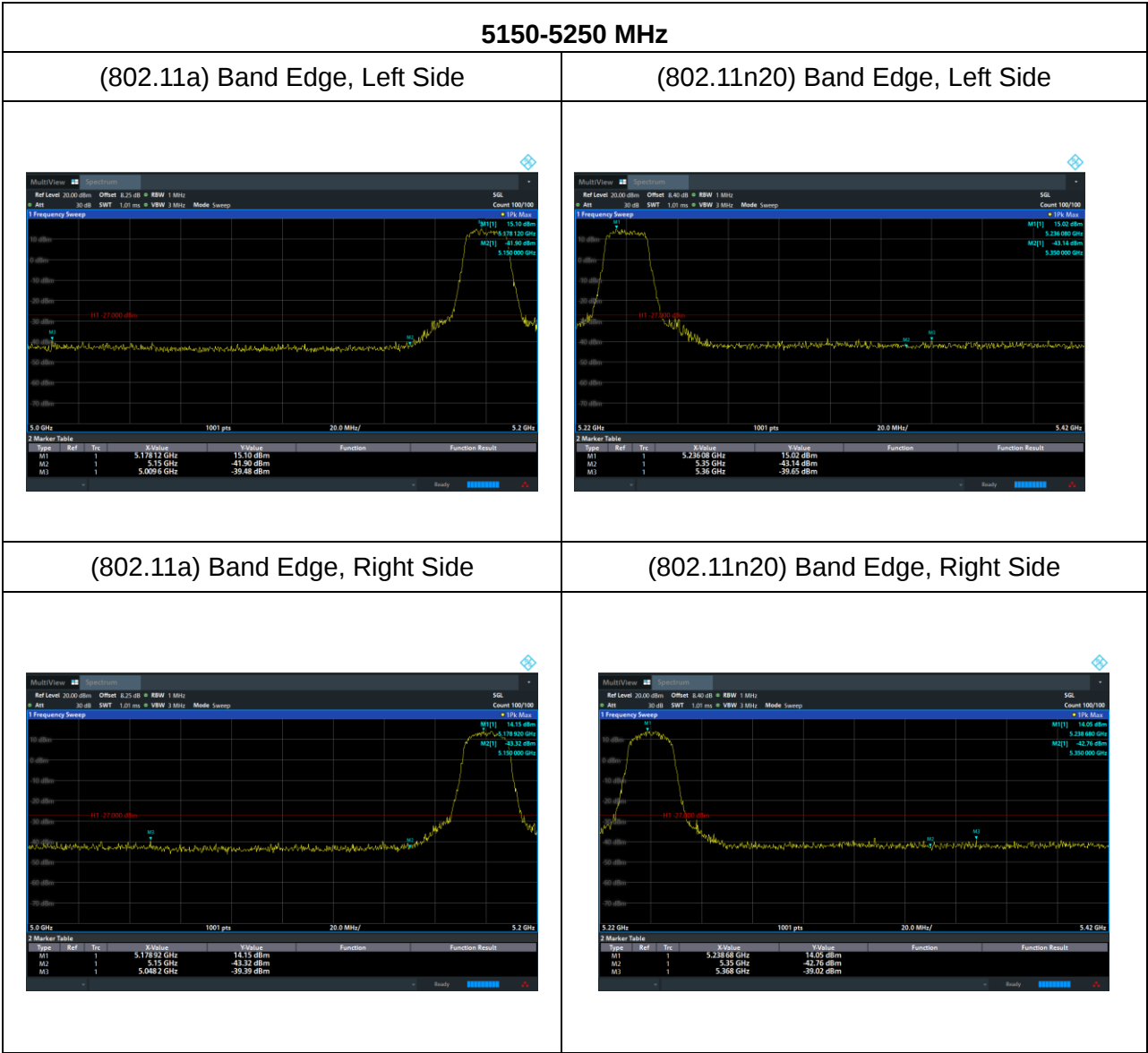
5.8.2 Test Procedure

- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.

5.8.3 Test Setup



5.8.4 Test Results



5150-5250 MHz	
(802.11n40) Band Edge, Left Side	(802.11n40) Band Edge, Right Side
	/

5.9 Spurious RF Conducted Emissions

5.9.1 Limit

According to FCC §15.407(b).

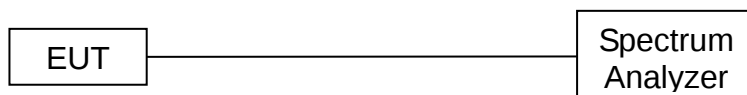
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (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 solely in the 5.725–5.850 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.

5.9.2 Test Procedure

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2020 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBW=300kHz to measure the peak field strength, and measure frequency range from 9kHz to 26.5GHz.

5.9.3 Test Setup



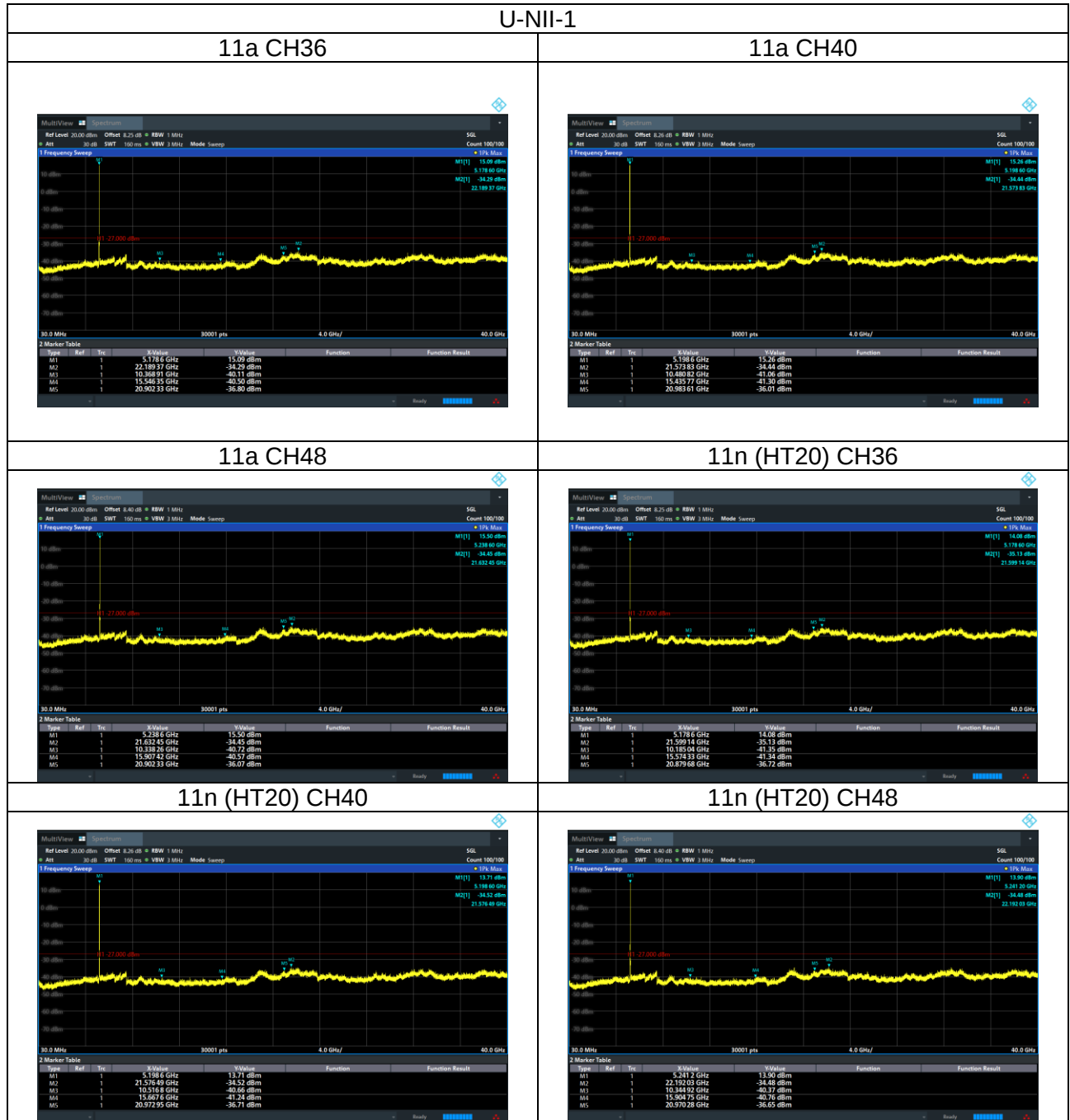
5.9.4 Test Results

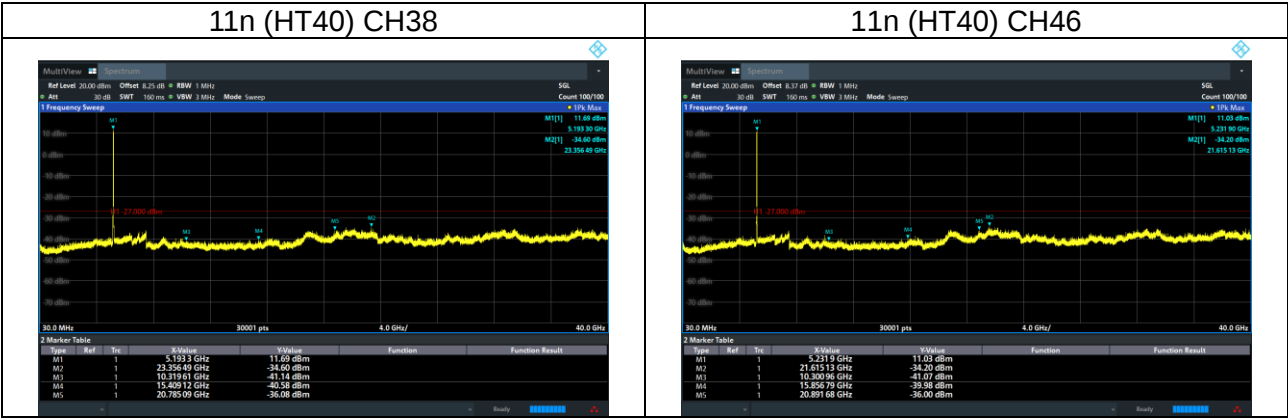
Note:

- 1: The measurement frequency range is from 9kHz to the 10th harmonic of the fundamental

frequency; The lowest, middle and highest channels are tested to verify the spurious emissions and band edge measurement data.

2: The three modulated high, medium and low channels have been tested. The report only shows the worst mode. The worst mode is 802.11a CH01/06/11.





6 Photographs of the Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



7 Photographs of the EUT

Please refer to report HB20241011005E-01 for product photos.

******* END OF REPORT *******