

FCC PART 15 SUBPART E TEST REPORT

FCC PART 15 SUBPART E 15.407

Report Reference No...... : **MAX26040048P01-R02**

FCC ID..... : **2BD8P-HD11**

Compiled by
(position+printed name+signature).. : Engineer/ Cindy Zheng

Supervised by
(position+printed name+signature).. : Manager/Haley Wen

Approved by
(position+printed name+signature).. : RF Manager/ Vivian Jiang

Date of issue..... : July 15, 2026

Testing Laboratory Name..... : **MAXLAB Testing Co.,Ltd.**

Address..... : 1/F, Building B, Xinshidai GR Park,Shiyan Street, Bao'an District, Shenzhen,Guangdong, 518052, People's Republic of China

Applicant's name..... : **Shenzhen Zhenpin Technology Co.,Ltd**

Address..... : South 3F Block 2, Tongfuyu Industrial Park, Zhenmei Community, Xihu Street, Guanming District,Shenzhen City, China

Test specification..... :

FCC CFR Title 47 Part 15 Subpart E Section 15.407

Standard..... : **ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024**

KDB 789033 D02 v02r01

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Test item description..... : **Wireless HDMI Transmitter and Receiver**

Trade Mark..... : N/A

Manufacturer..... : Shenzhen Zhenpin Technology Co.,Ltd

Model/Type reference..... : HD11

Listed Models : HD12, HD13, HD15, HD16, HD17, HD18, HD19, HD20, HD50, HD51, HD52, HD52S, HD53, HD55, HD56

Modulation Type..... : OFDM

Operation Frequency..... : From 5180MHz-5240MHz, 5745MHz-5825MHz

Ratings..... : DC 5V by USB port

Result..... : **PASS**

TEST REPORT

Equipment under Test : **Wireless HDMI Transmitter Receiver**

Model /Type : HD11

Series Model No. HD13, HD15, HD16, HD17, HD18, HD19, HD20, HD50, HD51, HD52, HD52S, HD53, HD55, HD56

Model Declaration : All the models are electrical identical including the same software parameter and hardware design, same mechanical structure and design, the only difference is the model named different.

Applicant : **Shenzhen Zhenpin Technology Co.,Ltd**

Address : South 3F Block 2, Tongfuyu Industrial Park, Zhenmei Community, Xihu Street, Guanming District, Shenzhen City, China

Manufacturer : **Shenzhen Zhenpin Technology Co.,Ltd**

Address : South 3F Block 2, Tongfuyu Industrial Park, Zhenmei Community, Xihu Street, Guanming District, Shenzhen City, China

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1 TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15 Subpart E](#)—Unlicensed National Information Infrastructure Devices

[ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB789033 D02](#): General UNII Test Procedures New Rules v02r01

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	June 25, 2026
Testing commenced on	:	June 25, 2026
Testing concluded on	:	July 7, 2026

2.2 Product Description

Product Name:	Wireless HDMI Transmitter Receiver			
Model/Type reference:	HD11			
Power supply:	DC 5V by USB port			
Adapter information (Auxiliary test supplied by testing Lab)	Model: GJS150-2880364 Input: AC 100-240V 50/60Hz Output: DC 28.8V 4.0A Manufacture: Shenzhen Gojusin Technology Co., Ltd			
testing sample ID:	MAX26040048P01-R02-1# (Engineer sample), MAX26040048P01-R02-2# (Normal sample)			
Hardware version:	RBT AM9421- V1.1			
Software version:	V1.1			
WIFI :				
Supported type:	20MHz system	40MHz system	80MHz system	160MHz system
	802.11a 802.11n 802.11ac	N/A	N/A	N/A
Modulation:	5180MHz-5240MHz 5745MHz-5825MHz	N/A	N/A	N/A
Operation frequency:	OFDM	N/A	N/A	N/A
Channel number:	9	N/A	N/A	N/A
Channel separation:	20MHz	N/A	N/A	N/A
Data Rate:	802.11a: 6,9,12,18,24,36,48, 54Mbps; 802.11n(HT20):MCS0-MCS7; 802.11ac(VHT20): Ncc1 MCS0-Ncc1 MCS8			
Antenna type:	PCB Antenna			
Antenna gain:	1.52dBi			

2.3 Equipment Under Test

Power supply system utilised

Power supply voltage	:	☐ 230V / 50 Hz	☐ 120V / 60Hz
		☐ 12 V DC	☐ 24 V DC
		☐ Other (specified in blank below)	

●DC 5V by USB port

2.4 Short description of the Equipment under Test (EUT)

This is Wireless HDMI Transmitter Receiver.

For more details, refer to the user's manual of the EUT.

2.5 EUT operation mode

The Applicant provides communication tools software (SP_META_Setup.exe) to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.

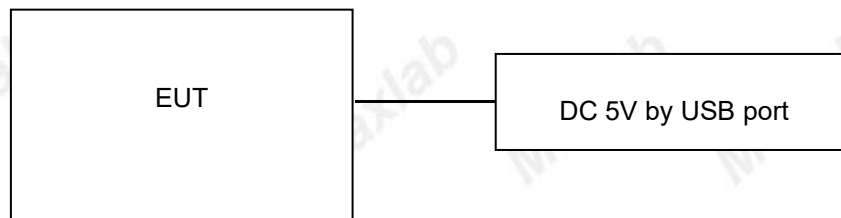
All test performed at the low, middle and high of operational frequency range of each mode.

Operation Frequency List WIFI on 5G Band:

Operating band	20MHz		40MHz		80MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
U-NII 1 (5150MHz-5250MHz)	36	5180	--	--	--	--
	40	5200				
	44	5220	--	--		
	48	5240				
U-NII 3 (5725MHz-5850MHz)	149	5745	--	--	--	--
	153	5765				
	157	5785	--	--		
	161	5805				
	165	5825	--	--	--	--

Note: The line display in grey is those Channels/Frequencies select to test in this report for each operation mode.

2.6 Block Diagram of Test Setup



2.7 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.

2.8 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

MAXLAB Testing Co.,Ltd.

1/F, Building B, Xinshidai GR Park, Shiyan Street, Bao'an District, Shenzhen, Guangdong, 518052, People's Republic of China

3.2 Test Facility

FCC-Registration No.: 562200 Designation Number: CN1338

MAXLAB Testing Co.,Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

Industry Canada Registration Number. Is: 11093A CAB identifier: CN0019

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

A2LA-Lab Cert. No.: 4707.01

MAXLAB Testing Co.,Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

3.3 Environmental conditions

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

Radiated Emission:

Temperature:	25 ° C
Humidity:	45 %
Atmospheric pressure:	950-1050mbar

Conducted testing:

Temperature:	25 ° C
Humidity:	44 %
Atmospheric pressure:	950-1050mbar

AC Power Conducted Emission

Temperature:	24 ° C
Humidity:	44 %
Atmospheric pressure:	950-1050mbar

3.4 Test Description

FCC Requirement		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.407(a)	Emission Bandwidth(26dBm Bandwidth)	PASS ^{Note1}
FCC Part 15.407(e)	Minimum Emission Bandwidth(6dBm Bandwidth)	PASS ^{Note2}
FCC Part 15.407(a)	Maximum Conducted Output Power	PASS
FCC Part 15.407(a)	Peak Power Spectral Density	PASS
FCC Part 15.407(g)	Frequency Stability	PASS
FCC Part 15.407(b)	Undesirable emission	PASS
FCC Part 15.407(b)/15.205/15.209	Radiated Emissions	PASS
15.407(b)(1)/ 15.407(b)(2) 15.407(b)(3)/ 15.407(b)(4)	Band Edge	PASS
15.407(b)	Spurious Emissions at Antenna Terminals	PASS
FCC Part 15.407(h)	Dynamic Frequency Selection	N/A ^{Note 3}
FCC Part 15.203/15.247(b)	Antenna Requirement	PASS
FCC Part 15.407(c)	Automatically discontinue transmission	PASS ^{Note4}

Note 1: Apply to U-NII 1, U-NII 2A, and U-NII 2C band.

Note 2: Apply to U-NII 3 band only.

Note 3: This device not work in DFS band.

Note 4: While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ASK message transmitting from remote device and verify whether it shall resend or discontinue transmission. (Manufacturer declare)

Data Rate Used:

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate
MMaximum Conducted Output Power	11a/OFDM	6 Mbps
Power Spectral Density	11n(20MHz),11ac(20MHz)/OFDM	7.2 Mbps
Emission Bandwidth(26dBm Bandwidth)	/	/
Minimum Emission Bandwidth(6dBm Bandwidth)	/	/
Undesirable emission	/	/
Frequency Stability	/	/

3.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the MAXLAB Testing Co.,Ltd.quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for MAXLAB Testing Co.,Ltd.

Test item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB(10 MHz $\leq$ f < 3.6 GHz);
	1.38 dB(3.6 GHz $\leq$ f < 8 GHz)
Peak Output Power (Conducted)(Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB(10 MHz $\leq$ f < 3.6 GHz);
	1.38 dB(3.6 GHz $\leq$ f < 8 GHz)
Frequencies Stability	6.7 x 10 ⁻⁸ (Antenna couple method)
	5.5x 10 ⁻⁸ (Conducted method)
Conducted spurious emissions	0.86 dB(10 MHz $\leq$ f < 3.6 GHz);
	1.40 dB(3.6 GHz $\leq$ f < 8 GHz)
	1.66 dB (8 GHz $\leq$ f < 26.5 GHz)
Uncertainty for radio frequency (RBW <20 kHz)	3x10 ⁻⁸
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (9 kHz-30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz-1GHz)	4.70 dB (Antenna Polarize:V)
	4.84 dB(Antenna Polarize:H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10 dB(1-6 GHz)
	4.40 dB(6 GHz- 18 GHz)
	3.54 dB(18 GHz- 26 GHz)
	4.30 dB(26 GHz-40 GHz)
Uncertainty for Power line conduction emission test	3.34dB(150KHz-30MHz)
	3.72dB(9KHz-150KHz)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6 Equipments Used during the Test

Conducted Emission					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	MAX252	2025-10-27	2026-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2025-10-27	2026-10-26
Coaxial Switch	ANRITSU CORP	MP59B	MAX225	2025-10-27	2026-10-26
ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	MAX226	2025-10-27	2026-10-26
Coaxial Cable	MAX	N/A	MAX227	N/A	N/A
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Thermo meter	KTJ	TA328	MAX233	2025-10-27	2026-10-26
Absorbing clamp	Elektronik-Feinmechanik	MDS21	MAX229	2025-10-27	2026-10-26
LISN	R&S	ENV216	308	2025-10-27	2026-10-26
LISN	R&S	ENV216	314	2025-10-27	2026-10-26

Radiation Test equipment					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	MAX250	2025-10-27	2026-10-26
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	MAX251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	MAX203	2025-10-27	2026-10-26
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	MAX214	2025-10-27	2026-10-26
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	MAX208	2025-10-27	2026-10-26
Horn Antenna	ETS-LINDGREN	3160	MAX217	2025-10-27	2026-10-26
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Coaxial Cable	MAX	N/A	MAX213	2025-10-27	2026-10-26
Coaxial Cable	MAX	N/A	MAX211	2025-10-27	2026-10-26
Coaxial cable	MAX	N/A	MAX210	2025-10-27	2026-10-26
Coaxial Cable	MAX	N/A	MAX212	2025-10-27	2026-10-26
Amplifier(100kHz-3GHz)	HP	8347A	MAX204	2025-10-27	2026-10-26
Amplifier(2GHz-20GHz)	HP	84722A	MAX206	2025-10-27	2026-10-26
Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	MAX218	2025-10-27	2026-10-26
Band filter	Amindeon	82346	MAX219	2025-10-27	2026-10-26
Power Meter	Anritsu	ML2495A	MAX540	2025-10-27	2026-10-26
Power Sensor	Anritsu	MA2411B	MAX541	2025-10-27	2026-10-26
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	MAX575	2025-10-27	2026-10-26

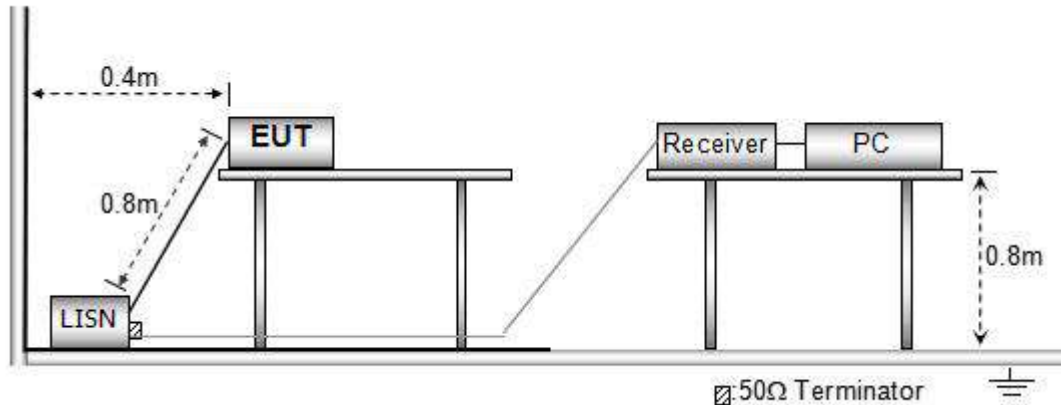
Splitter	Agilent	11636B	MAX237	2025-10-27	2026-10-26
Loop Antenna	ZHINAN	ZN30900A	MAX534	2025-10-27	2026-10-26
Breitband hornantenne	SCHWARZBECK	BBHA 9170	MAX579	2025-10-27	2026-10-26
Amplifier	TDK	PA-02-02	MAX574	2025-10-27	2026-10-26
Amplifier	TDK	PA-02-03	MAX576	2025-10-27	2026-10-26
PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	MAX578	2025-10-27	2026-10-26
Antenna tower	SKET	BK-4AT	MAX589	2025-10-27	2026-10-26

RF Conducted Test:					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
MXA Signal Analyzer	Agilent	N9020A	MAX566	2025-10-27	2026-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2025-10-27	2026-10-26
Spectrum Analyzer	Agilent	E4440A	MAX533	2025-10-27	2026-10-26
MXG vector Signal Generator	Agilent	N5182A	MAX567	2025-10-27	2026-10-26
ESG Analog Signal Generator	Agilent	E4428C	MAX568	2025-10-27	2026-10-26
USB RF Power Sensor	DARE	RPR3006W	MAX569	2025-10-27	2026-10-26
RF Switch Box	Shongyi	RFSW3003328	MAX571	2025-10-27	2026-10-26
Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	MAX572	2025-10-27	2026-10-26

4 TEST CONDITIONS AND RESULTS

4.1 AC Power Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024
- 4 The EUT received power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any.
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following:

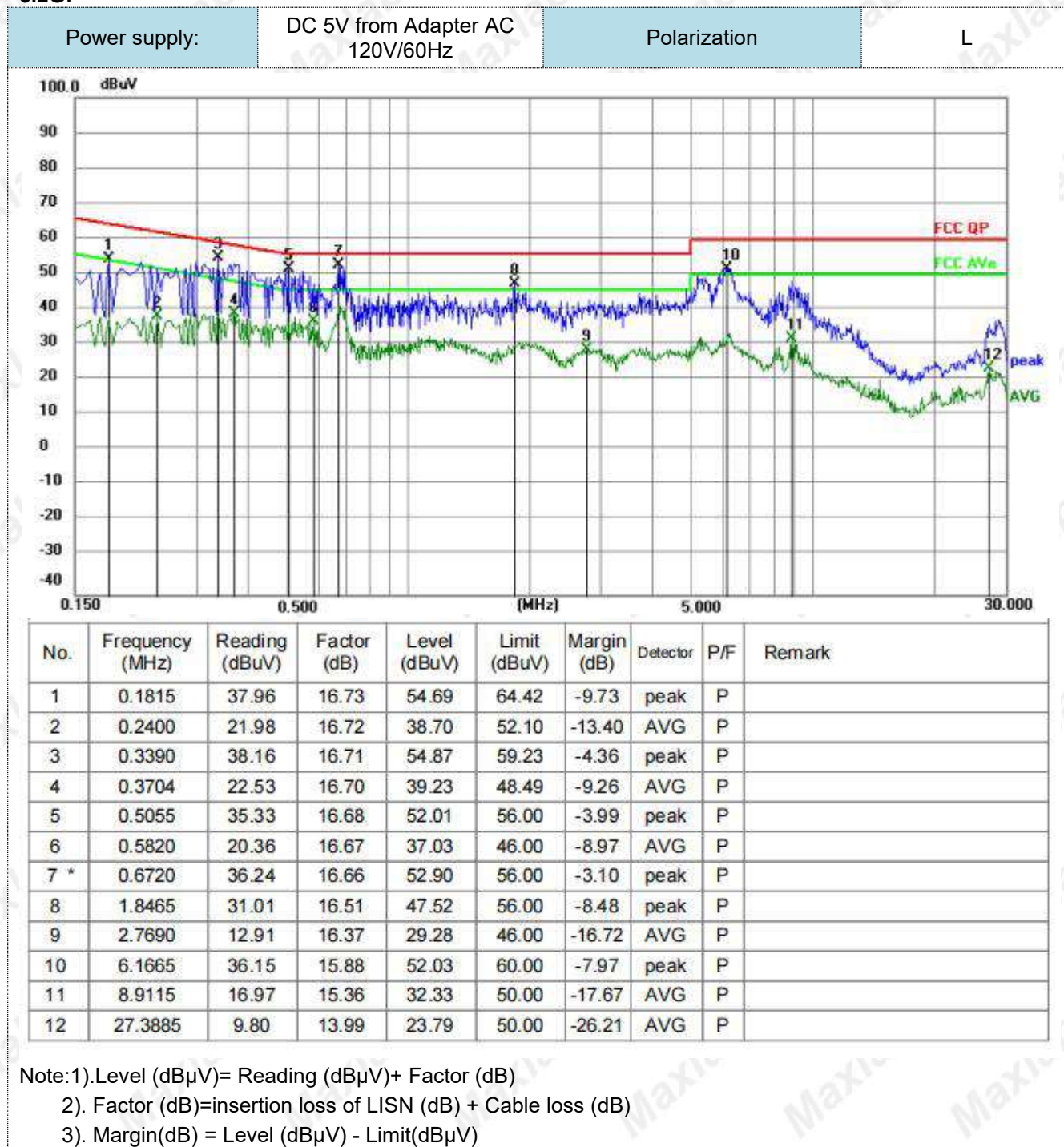
Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST RESULTS

Note : All 802.11a/n/ac (HT20) modes have been tested for above 1GHz test, only the worst case 802.11ac(VHT20) 5180Mhz was recorded. All 802.11a/n/ac (HT20) modes have been tested for above 1GHz test, only the worst case 802.11ac(VHT20) 5745Mhz was recorded.

5.2G:

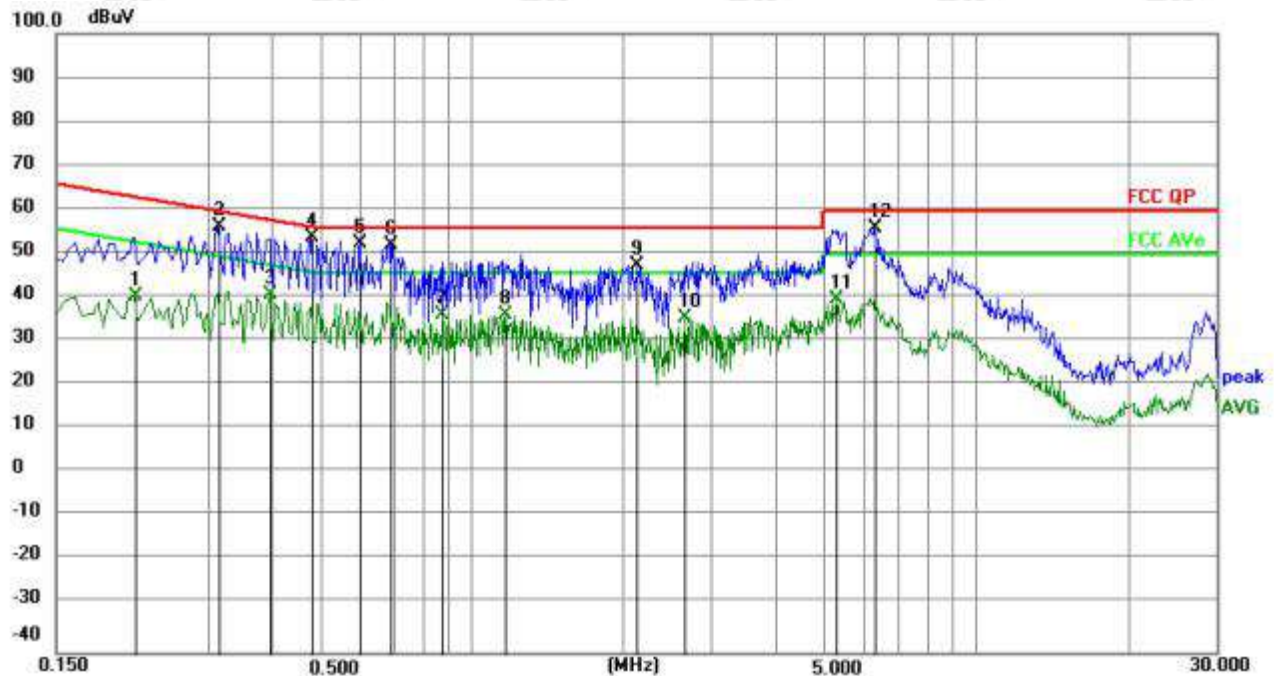


Power supply:

DC 5V from Adapter AC
120V/60Hz

Polarization

N



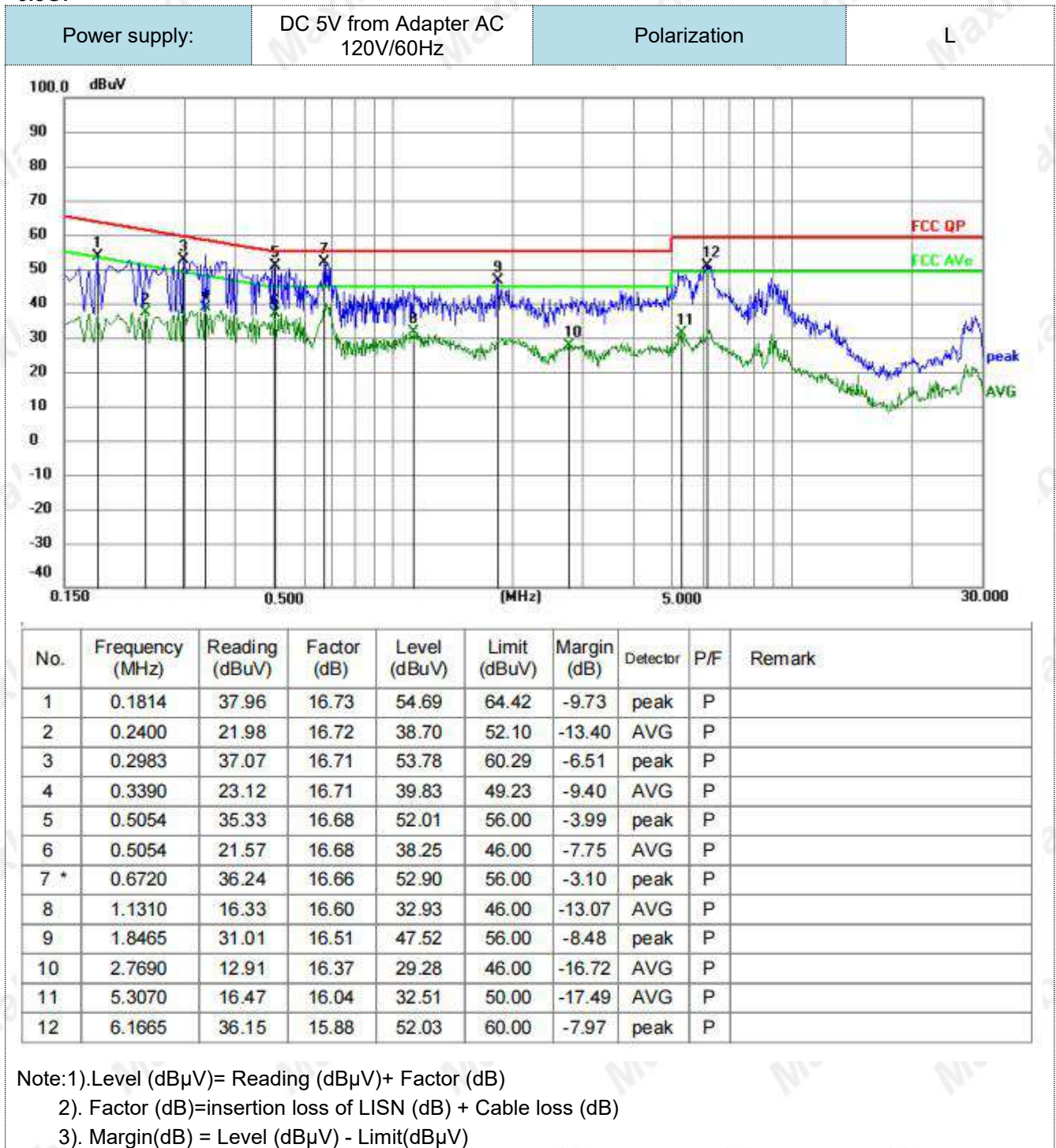
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Level (dBμV)	Limit (dBμV)	Margin (dB)	Detector	P/F	Remark
1	0.2130	23.12	17.53	40.65	53.09	-12.44	AVG	P	
2	0.3120	39.07	17.52	56.59	59.92	-3.33	peak	P	
3	0.3975	23.62	17.52	41.14	47.91	-6.77	AVG	P	
4 *	0.4785	36.43	17.52	53.95	56.37	-2.42	peak	P	
5	0.6000	34.90	17.51	52.41	56.00	-3.59	peak	P	
6	0.6945	34.75	17.51	52.26	56.00	-3.74	peak	P	
7	0.8790	19.02	17.51	36.53	46.00	-9.47	AVG	P	
8	1.1670	18.93	17.50	36.43	46.00	-9.57	AVG	P	
9	2.1345	30.35	17.47	47.82	56.00	-8.18	peak	P	
10	2.6610	18.49	17.45	35.94	46.00	-10.06	AVG	P	
11	5.2935	22.51	17.34	39.85	50.00	-10.15	AVG	P	
12	6.3015	39.02	17.16	56.18	60.00	-3.82	peak	P	

Note:1). Level (dBμV)= Reading (dBμV)+ Factor (dB)

2). Factor (dB)=insertion loss of LISN (dB) + Cable loss (dB)

3). Margin(dB) = Level (dBμV) - Limit(dBμV)

5.8G:

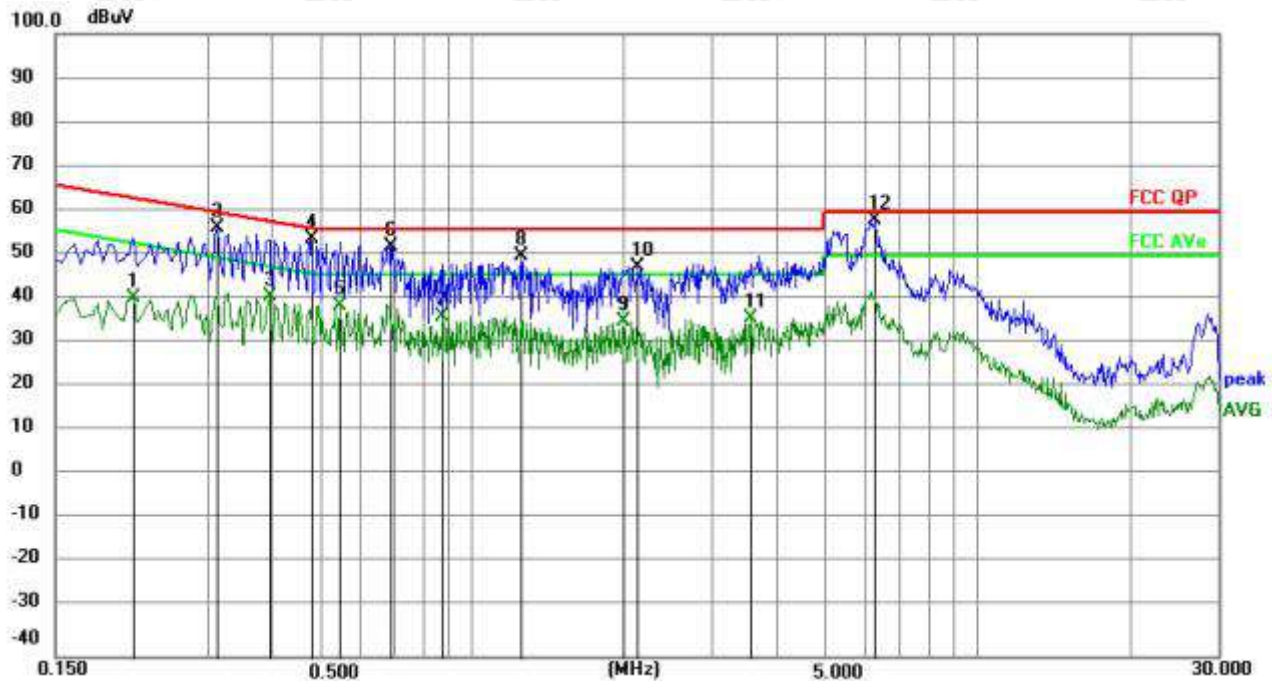


Power supply:

DC 5V from Adapter AC
120V/60Hz

Polarization

N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2129	23.12	17.53	40.65	53.09	-12.44	AVG	P	
2	0.3119	39.07	17.52	56.59	59.92	-3.33	peak	P	
3	0.3975	23.62	17.52	41.14	47.91	-6.77	AVG	P	
4	0.4784	36.43	17.52	53.95	56.37	-2.42	peak	P	
5	0.5460	21.52	17.51	39.03	46.00	-6.97	AVG	P	
6	0.6945	34.75	17.51	52.26	56.00	-3.74	peak	P	
7	0.8790	19.02	17.51	36.53	46.00	-9.47	AVG	P	
8	1.2615	32.62	17.49	50.11	56.00	-5.89	peak	P	
9	1.9995	18.02	17.47	35.49	46.00	-10.51	AVG	P	
10	2.1345	30.35	17.47	47.82	56.00	-8.18	peak	P	
11	3.5834	18.69	17.43	36.12	46.00	-9.88	AVG	P	
12 *	6.3014	41.02	17.16	58.18	60.00	-1.82	peak	P	

Note:1).Level (dBμV)= Reading (dBμV)+ Factor (dB)

2). Factor (dB)=insertion loss of LISN (dB) + Cable loss (dB)

3). Margin(dB) = Level (dBμV) - Limit(dBμV)

4.2 Radiated Emission

Limit

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 in the 5.725-5.85 GHz band: 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.

Undesirable emission limits

Requirement	Limit(EIRP)	Limit (Field strength at 3m) ^{Note1}
15.407(b)(1)	PK:-27(dBm/MHz)	PK:68.2(dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)		

Note1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

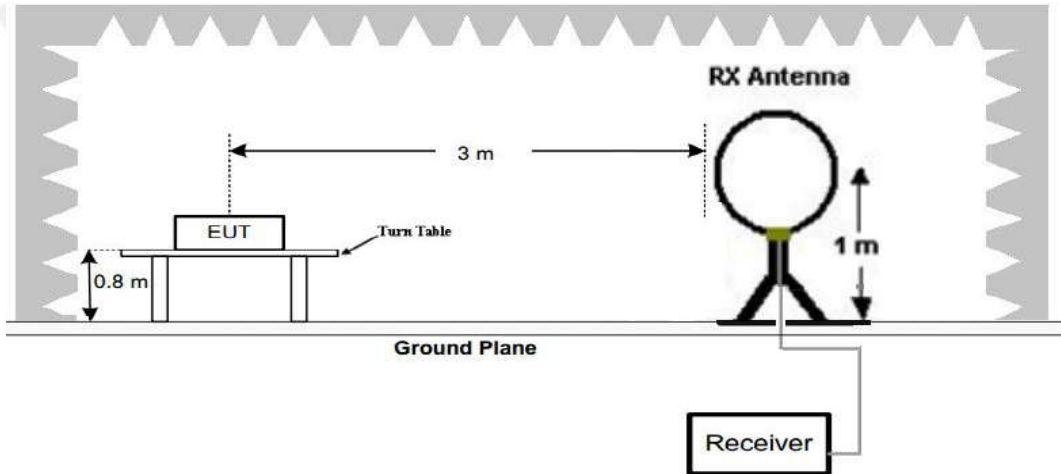
- (5) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209
- (6) In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

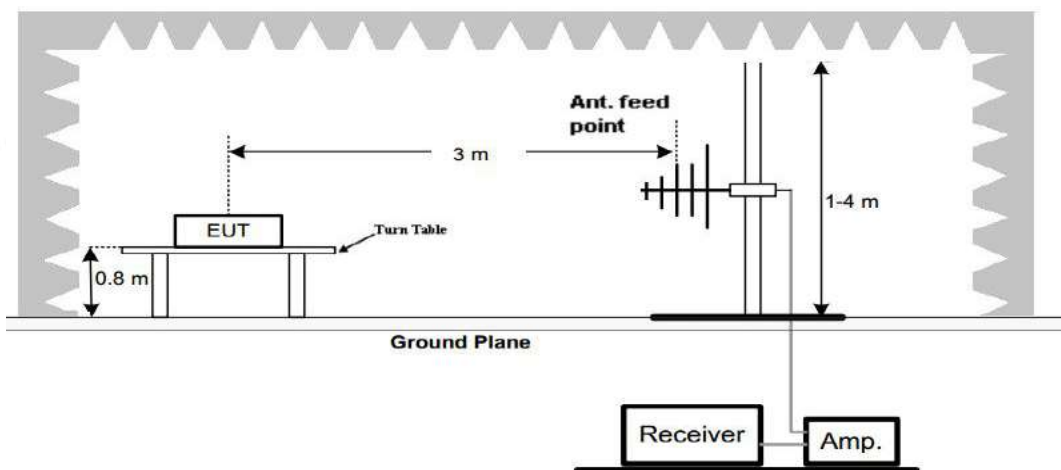
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

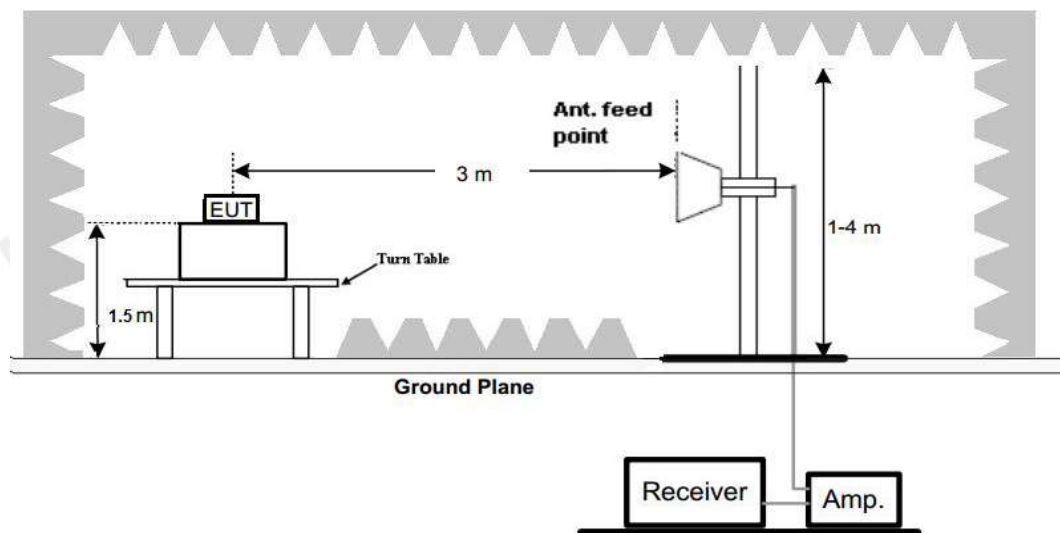
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

- Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measurements have been completed.
- Radiated emission test frequency band from 9KHz to 40GHz.
- The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3
1GHz-18GHz	Horn Antenna	3
18GHz-25GHz	Horn Antenna	1

- Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz, Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz, Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz, Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

TEST RESULTS

Between 9KHz – 30MHz

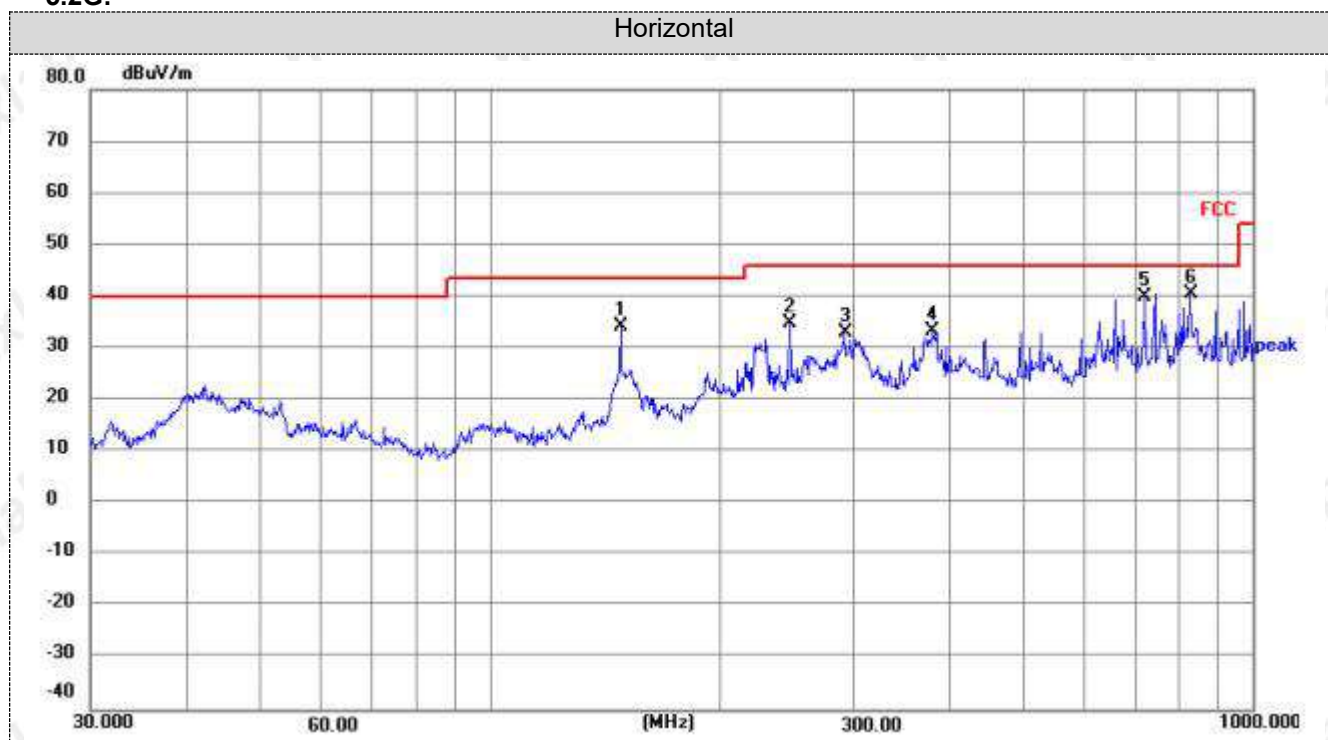
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Note : All 802.11a/n/ac (HT20) modes have been tested for above 1GHz test, only the worst case 802.11ac(VHT20) 5180Mhz was recorded. All 802.11a/n/ac (HT20) modes have been tested for above 1GHz test, only the worst case 802.11ac(VHT20) 5745Mhz was recorded.

For 30MHz-1GHz

Temperature:	25°C	Relative Humidity:	54%
Pressure:	101 kPa	Test Voltage:	DC5V

5.2G:

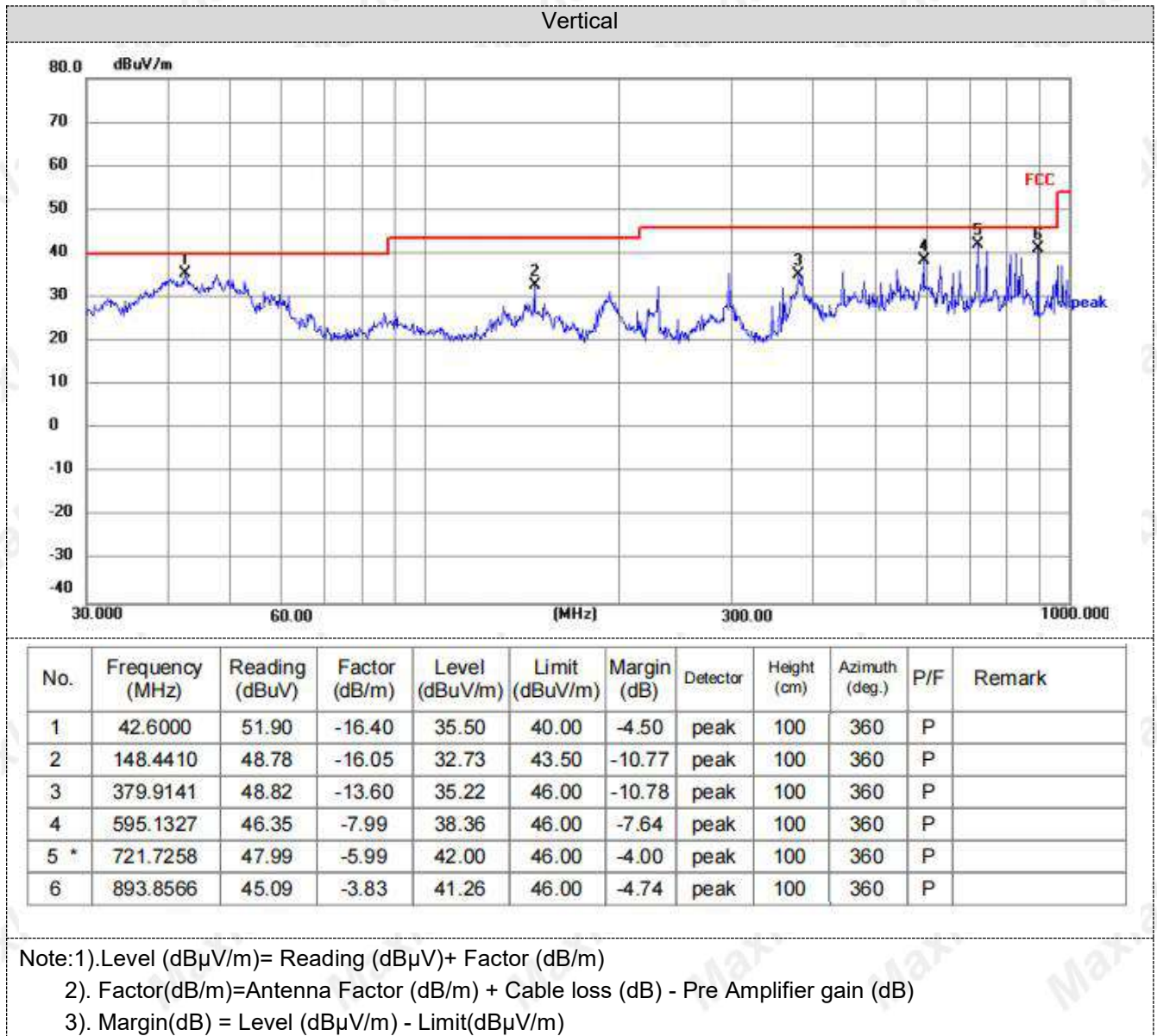


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	148.4410	50.36	-16.05	34.31	43.50	-9.19	peak	100	0	P	
2	247.6818	52.33	-17.46	34.87	46.00	-11.13	peak	100	0	P	
3	292.0583	48.74	-15.82	32.92	46.00	-13.08	peak	100	0	P	
4	381.2485	46.91	-13.56	33.35	46.00	-12.65	peak	100	0	P	
5	721.7258	46.00	-5.99	40.01	46.00	-5.99	peak	100	0	P	
6 *	827.4934	44.97	-4.38	40.59	46.00	-5.41	peak	100	0	P	

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

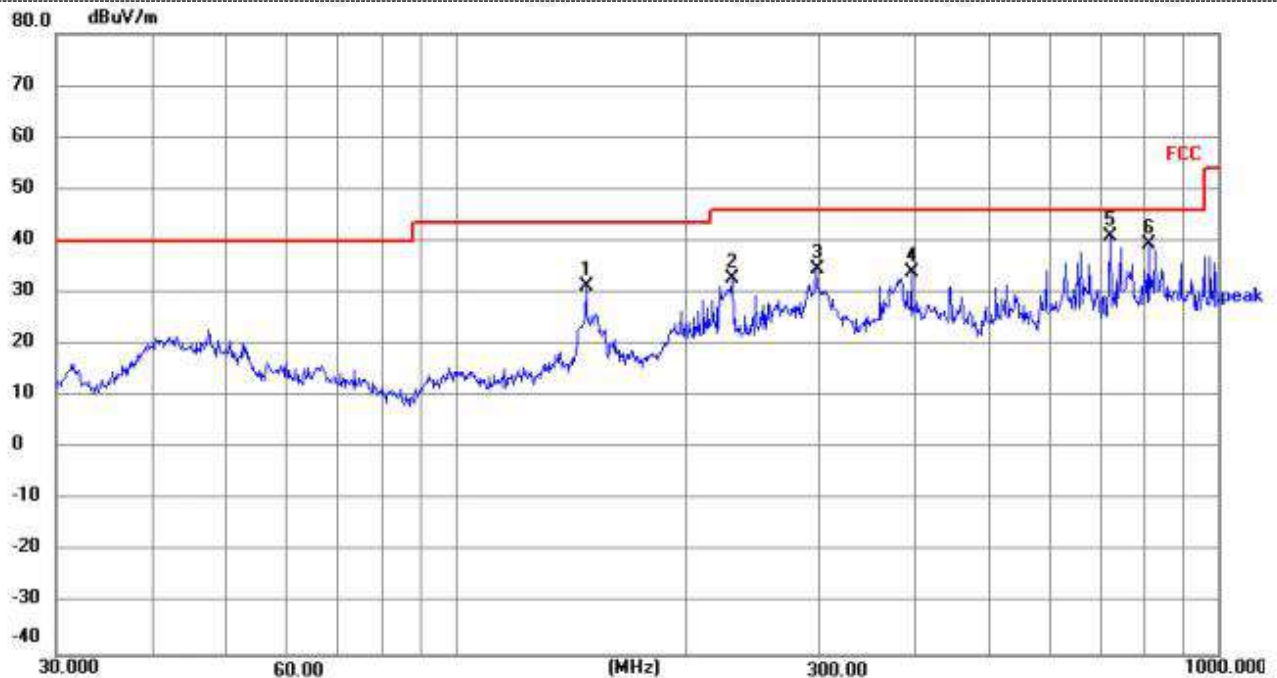
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Level (dBuV/m) - Limit(dBuV/m)



5.8G:

Horizontal

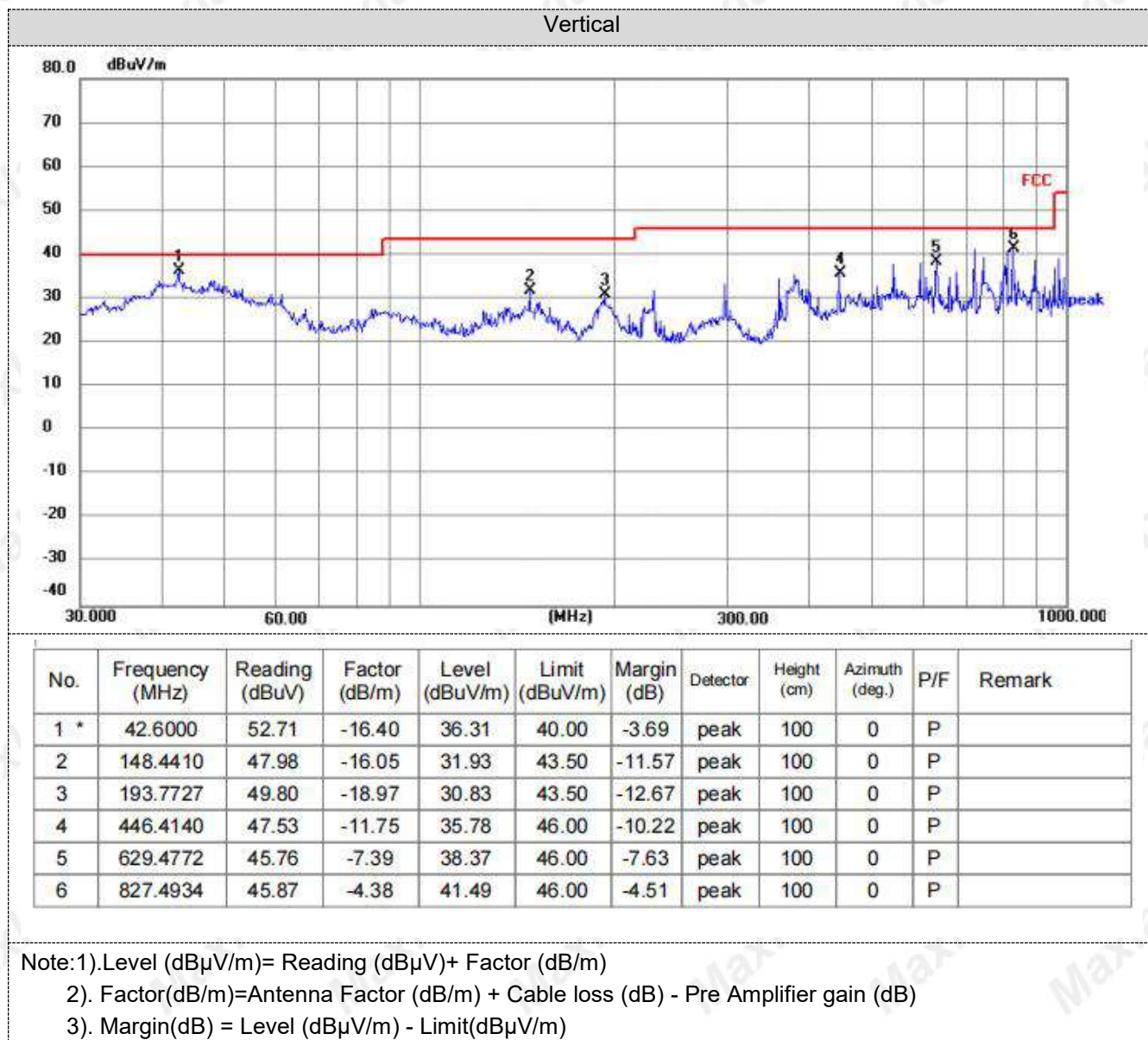


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	148.4410	47.42	-16.05	31.37	43.50	-12.13	peak	100	360	P	
2	230.9067	51.28	-18.47	32.81	46.00	-13.19	peak	100	360	P	
3	297.2240	50.26	-15.66	34.60	46.00	-11.40	peak	100	360	P	
4	396.2415	47.19	-13.19	34.00	46.00	-12.00	peak	100	360	P	
5 *	721.7258	46.73	-5.99	40.74	46.00	-5.26	peak	100	360	P	
6	810.2653	43.92	-4.52	39.40	46.00	-6.60	peak	100	360	P	

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Level (dBuV/m) - Limit(dBuV/m)



For 1GHz to 40GHz

Note: All 802.11a/n/ac (HT20) modes have been tested for above 1GHz test, only the worst case 802.11a20 was recorded. All 802.11a/n/ac (HT20) modes have been tested for above 1GHz test, only the worst case 802.11ac(VHT20) was recorded.

U-NII 1 & 802.11a Mode (above 1GHz)

Tested Channel	Frequency (MHz)	Emission Limit (dBuV/m)	Detector Mode	ANT Pol	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
36 5180MHz	5150.00	56.64	PK	H	68.20	11.56	53.65	32.40	5.11	34.52	2.99
	5150.00	48.41	AV	H	54.00	5.59	45.42	32.40	5.11	34.52	2.99
	10360.00	47.53	PK	H	68.20	20.67	40.37	36.51	5.86	35.21	7.16
	--	--	--	--	--	--	--	--	--	--	--
40 5200MHz	10400.00	45.84	PK	H	68.20	22.36	38.55	36.58	5.96	35.25	7.29
	--	--	--	--	--	--	--	--	--	--	--
48 5240MHz	5350.50	37.00	PK	H	68.20	31.20	33.96	32.45	5.22	34.63	3.04
	10480.00	36.80	PK	H	68.20	31.40	29.45	36.68	6.21	35.54	7.35
	--	--	--	--	--	--	--	--	--	--	--

Tested Channel	Frequency (MHz)	Emission Limit (dBuV/m)	Detector Mode	ANT Pol	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
36 5180MHz	5150.00	57.61	PK	V	68.20	10.59	54.62	32.40	5.11	34.52	2.99
	5150.00	49.64	AV	V	54.00	4.36	46.65	32.40	5.11	34.52	2.99
	10360.00	49.39	PK	V	68.20	18.81	42.23	36.51	5.86	35.21	7.16
	--	--	--	--	--	--	--	--	--	--	--
40 5200MHz	10400.00	43.03	PK	V	68.20	25.17	35.74	36.58	5.96	35.25	7.29
	--	--	--	--	--	--	--	--	--	--	--
48 5240MHz	5350.50	36.69	PK	V	68.20	31.51	33.65	32.45	5.22	34.63	3.04
	10480.00	34.87	PK	V	68.20	33.33	27.52	36.68	6.21	35.54	7.35
	--	--	--	--	--	--	--	--	--	--	--

U-NII 3 & 802.11ac20 Mode (above 1GHz)

Tested Channel	Frequency (MHz)	Emission Limit (dBuV/m)	Detector Mode	ANT Pol	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
149 5745MHz	5720.00	68.32	PK	H	68.20	-0.12	63.52	34.21	5.11	34.52	4.80
	5720.00	56.54	AV	H	54.00	-2.54	51.74	34.21	5.11	34.52	4.80
	11490.00	49.35	PK	H	68.20	18.85	40.35	38.35	5.86	35.21	9.00
	--	--	--	--	--	--	--	--	--	--	--
157 5785MHz	11570.00	45.00	PK	H	68.20	23.20	35.68	38.61	5.96	35.25	9.32
	--	--	--	--	--	--	--	--	--	--	--
165 5825MHz	5855.00	38.89	PK	H	68.20	29.31	33.74	34.56	5.22	34.63	5.15
	11650.00	38.07	PK	H	68.20	30.13	28.62	38.78	6.21	35.54	9.45
	--	--	--	--	--	--	--	--	--	--	--

Tested Channel	Frequency (MHz)	Emission Limit (dBuV/m)	Detector Mode	ANT Pol	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
149 5745MHz	5720.00	58.45	PK	V	68.20	9.75	53.65	34.21	5.11	34.52	4.80
	5720.00	45.25	AV	V	54.00	8.75	40.45	34.21	5.11	34.52	4.80
	11490.00	41.65	PK	V	68.20	26.55	32.65	38.35	5.86	35.21	9.00
	--	--	--	--	--	--	--	--	--	--	--
157 5785MHz	11570.00	39.84	PK	V	68.20	28.36	30.52	38.61	5.96	35.25	9.32
	--	--	--	--	--	--	--	--	--	--	--
165 5825MHz	5855.00	32.56	PK	V	68.20	35.64	27.41	34.56	5.22	34.63	5.15
	11650.00	32.30	PK	V	68.20	35.90	22.85	38.78	6.21	35.54	9.45

	--	--	--	--	--	--	--	--	--	--	--
--	----	----	----	----	----	----	----	----	----	----	----

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor
3. Margin value = Limit value - Emission level.
4. -- Mean the other emission levels were very low against the limit.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
6. Worst case data at 54Mbps at IEEE 802.11a; MCS7 at IEEE 802.11n(HT20);

4.3 Maximum Peak Conducted Output Power

Limit

For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

(iv) 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.

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.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Test Configuration



Test Results

U-NII 1

Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11a	36	5.12	23.98	Pass
	40	6.53		
	48	6.76		
802.11n(HT20)	36	4.16	23.98	Pass
	40	7.51		
	48	6.55		
802.11ac(VHT20)	36	5.77	23.98	Pass
	40	7.86		
	48	7.05		

U-NII 3

Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11a	149	6.07	30.00	Pass
	157	5.61		
	165	6.43		
802.11n(HT20)	149	7.09	30.00	Pass
	157	6.37		
	165	7.16		
802.11ac(VHT20)	149	7.08	30.00	Pass
	157	6.58		
	165	7.27		

Note:

- 1) Measured output power at difference data rate for each mode and recorded worst case for each mode.
- 2) Test results including cable loss.
- 3) Worst case data at 54Mbps at IEEE 802.11a; MCS7 at IEEE 802.11n(HT20); MCS7 at IEEE 802.11ac(VHT20)

4.4 Power Spectral Density

Limit

(1) For the band 5.15 - 5.25 GHz.

(i) For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. ^{note1}

(ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. ^{note1}

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 MHz band. ^{note1}

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. ^{note1}

(3) For the band 5.725 - 5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. ^{note1, note2}

Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

transmission.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 510KHz for U-NII 3 band.
3. Set the VBW $\geq 3 \times$ RBW.
4. Set the span to encompass the entire EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.

Test Configuration



Test Results

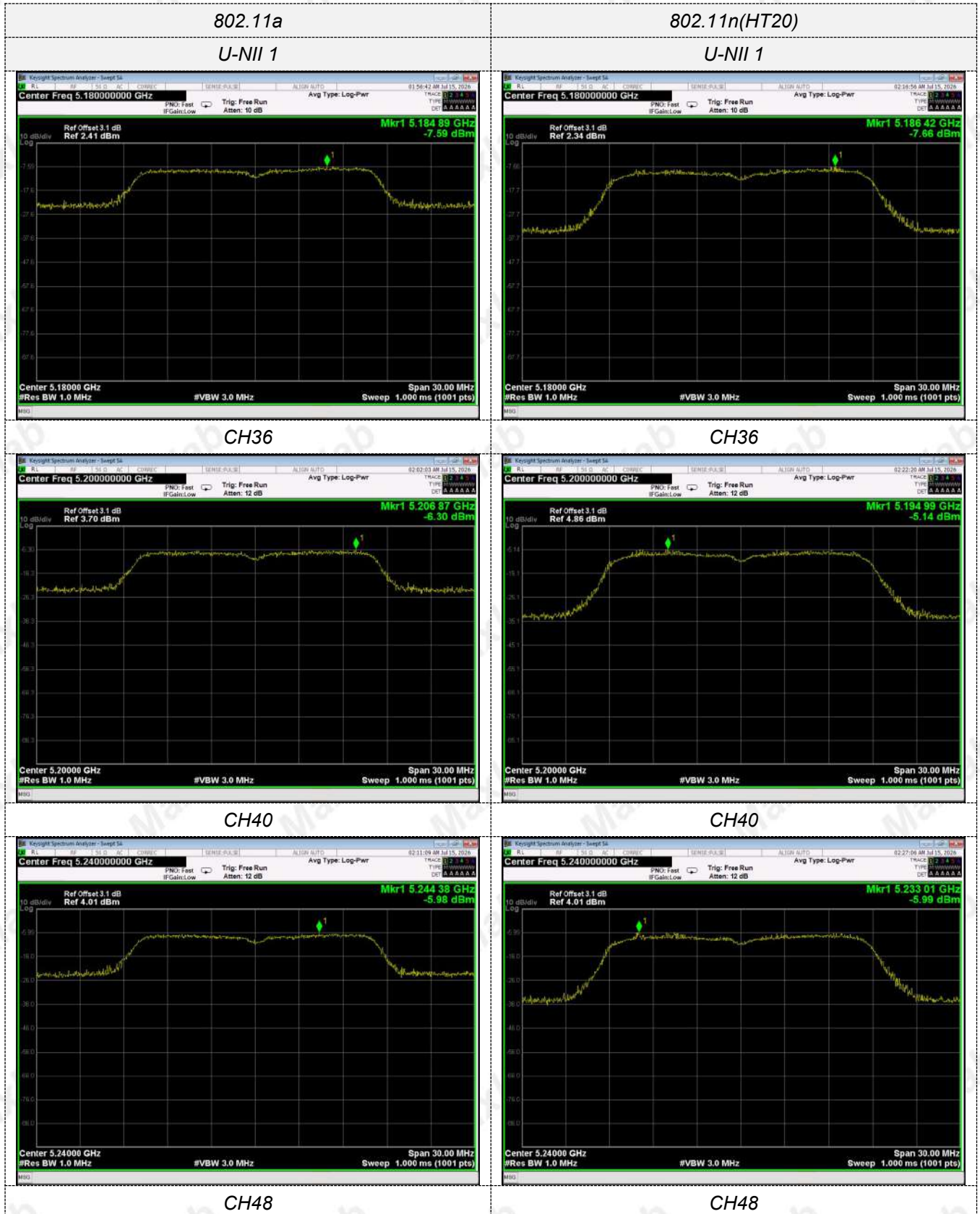
Type	Bands	Channel	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	U-NII 1	36	-7.59	11	Pass
		40	-6.30		
		48	-5.98		
802.11n (HT20)	U-NII 1	36	-7.66		
		40	-5.14		
		48	-5.99		
802.11ac (VHT20)	U-NII 1	36	-7.55		
		40	-5.72		
		48	-6.40		

Type	Bands	Channel	Power Spectral Density (dBm/510KHz)	Power Spectral Density (dBm/500KHz)	Limit (dBm/500 KHz)	Result
802.11a	U-NII 3	149	-4.99	-5.076	30	Pass
		157	-5.28	-5.366		
		165	-4.44	-4.526		
802.11n (HT20)	U-NII 3	149	-4.41	-4.496		
		157	-5.16	-5.246		
		165	-4.06	-4.146		
802.11ac (VHT20)	U-NII 3	149	-4.92	-5.006		
		157	-5.32	-5.406		
		165	-4.25	-4.336		

Note: Remark: P.S.D(dBm/500KHz)= P.S.D(dBm/510KHz)+10 log (500 kHz/510KHz).

Correction Factor = 10log(500KHz/RBW in measurement) =-0.086

Test plot as follows:



802.11ac(VHT20)

U-NII 1



CH36

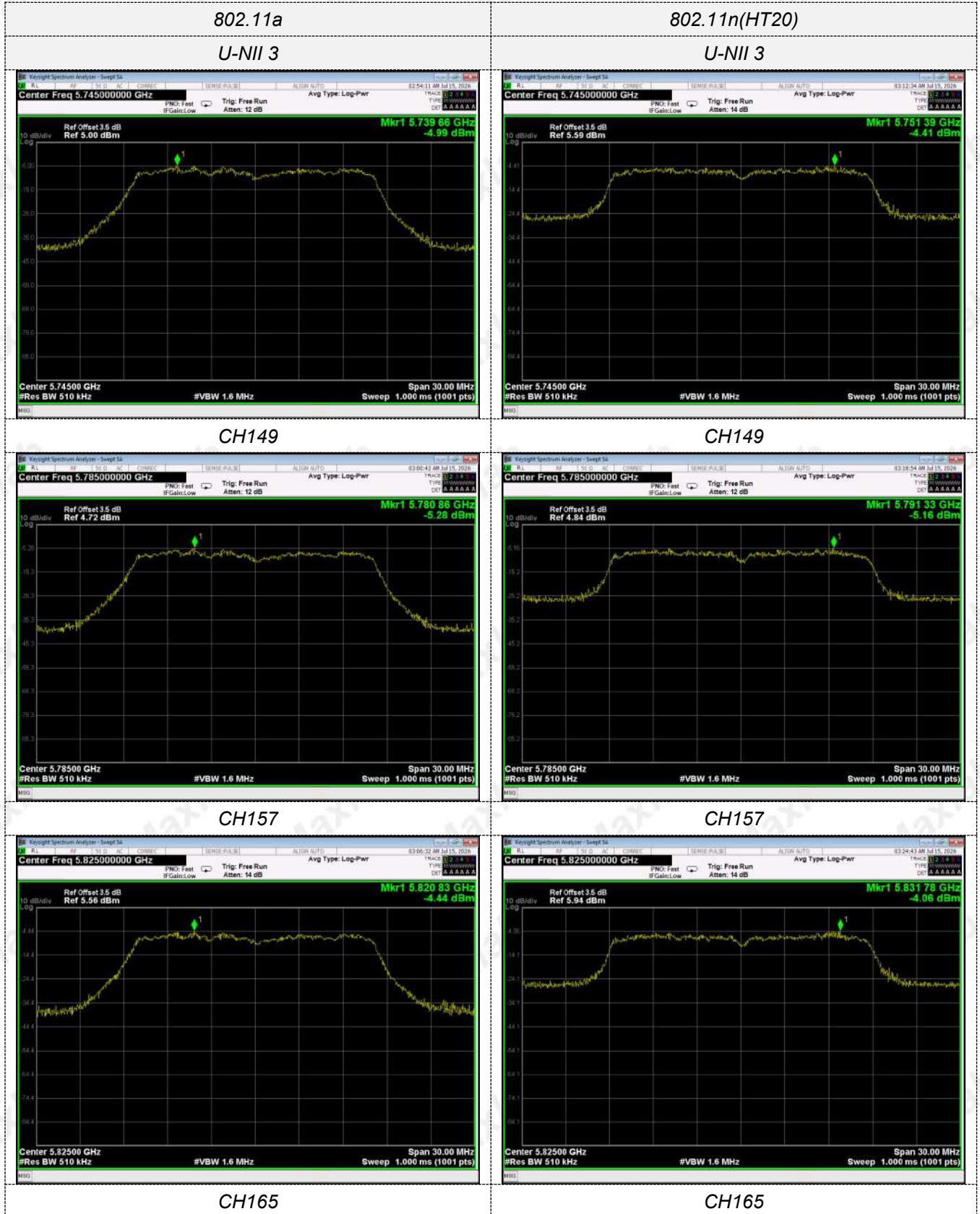


CH40



CH48

5.8G



802.11ac(VHT20)

U-NII 3



CH149



CH157



CH165

4.5 Emission Bandwidth (26dBm Bandwidth)

Limit

N/A

Test Procedure

1. Set resolution bandwidth (RBW) = approximately 1 % of the EBW.
2. Set the video bandwidth (VBW) > RBW.
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW / EBW ratio is approximately 1 %.

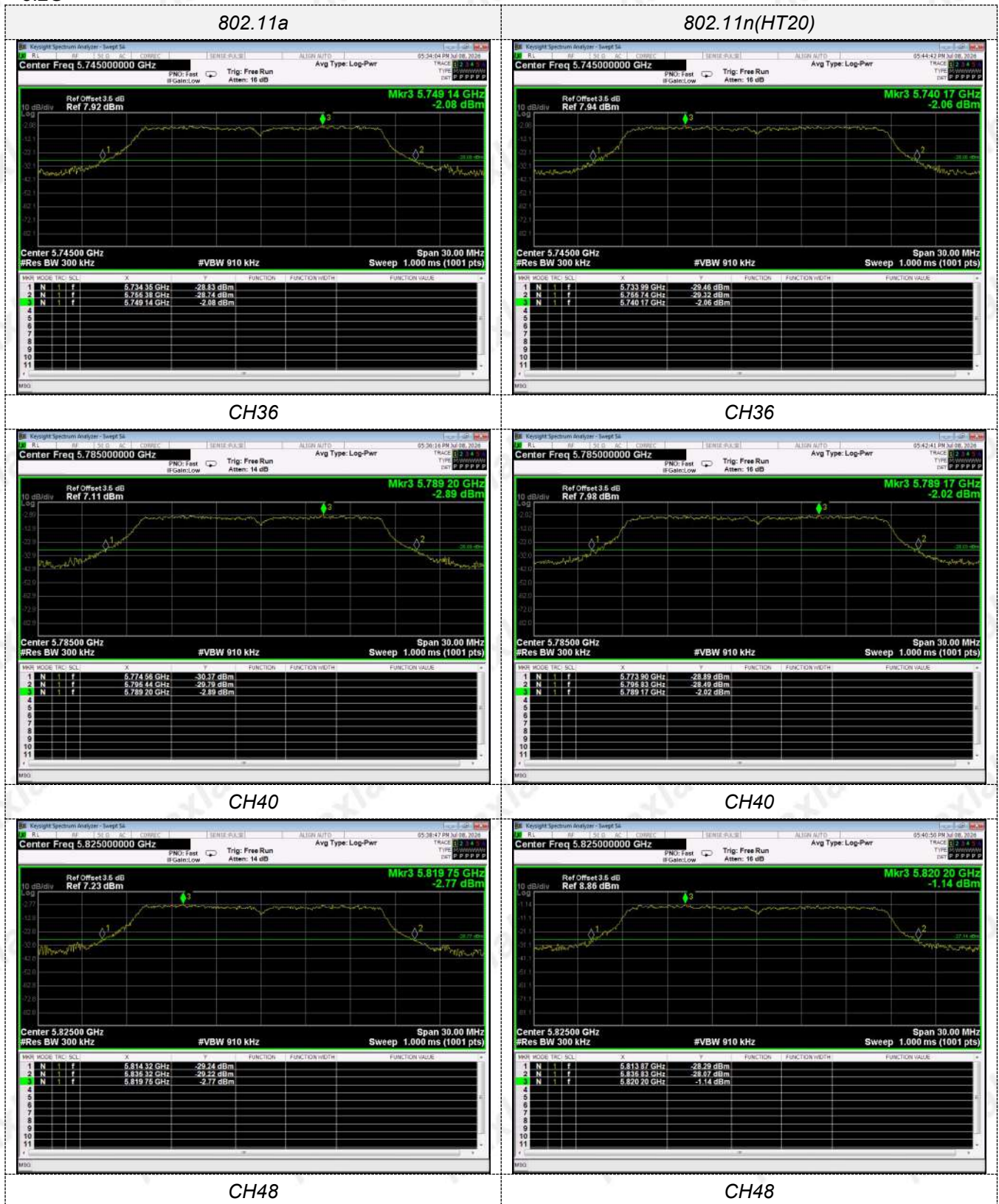
Test Configuration



Test Results

Type	Bands	Channel	26dB Bandwidth (MHz)	Result
802.11a	U-NII 1	36	21.03	Pass
		40	20.88	
		48	21.00	
802.11n(HT20)	U-NII 1	36	21.75	
		40	21.93	
		48	21.96	
802.11ac(VHT20)	U-NII 1	36	21.66	
		40	21.84	
		48	21.90	

Test plot as follows:
5.2G



802.11ac(VHT20)



CH36



CH40



CH48

4.6 Minimum Emission Bandwidth (6dBm Bandwidth)

Limit

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

Test Procedure

- a) Set RBW-100 kHz.
- b) Set the video bandwidth(VBW) $\geq 3 \times$ RBW.
- c) Detector-Peak.
- d) Trace mode =max-hold.
- e) Sweep= No faster than coupled (auto) time.
- f) Allow the trace to stabilize
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

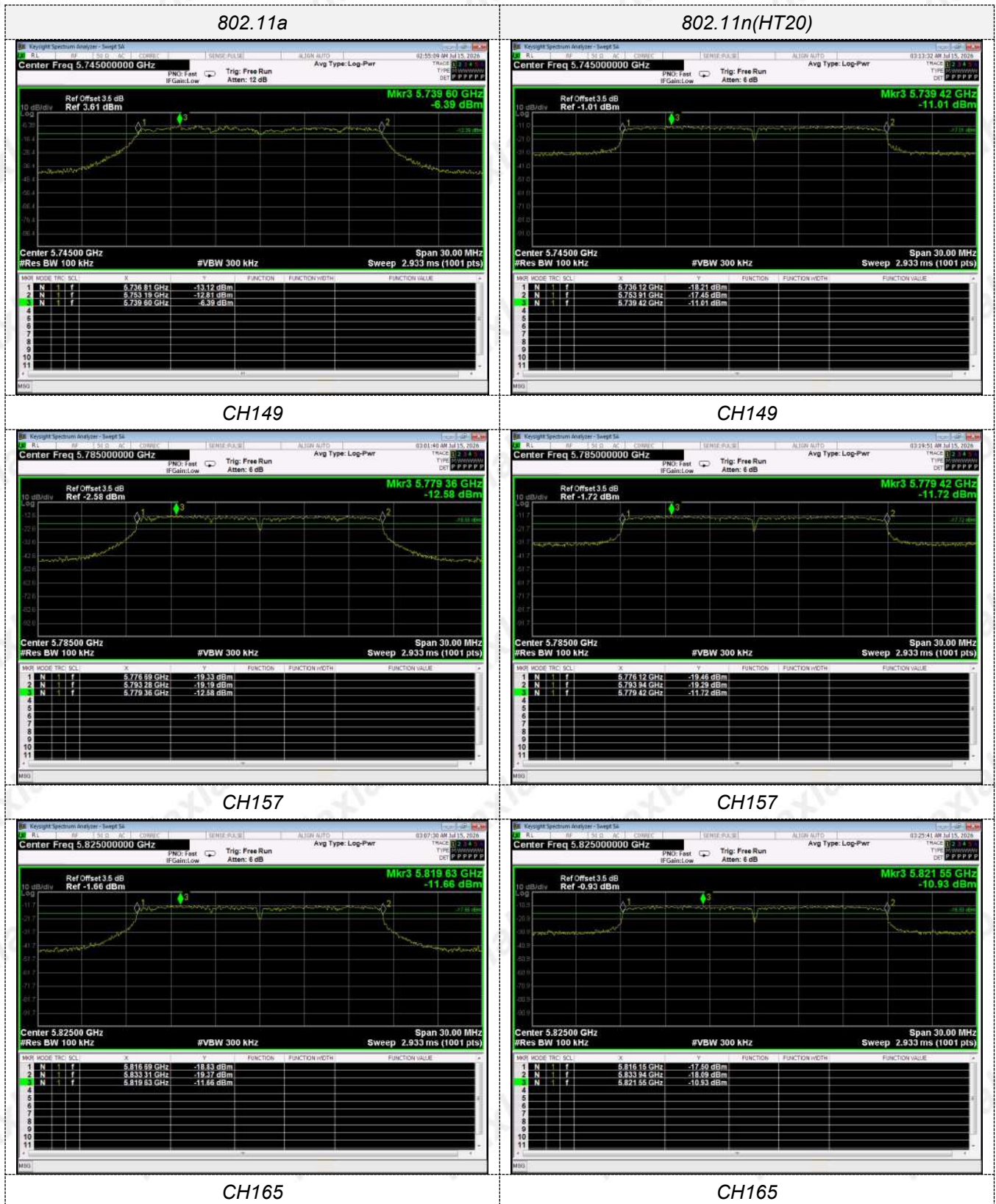
Test Configuration



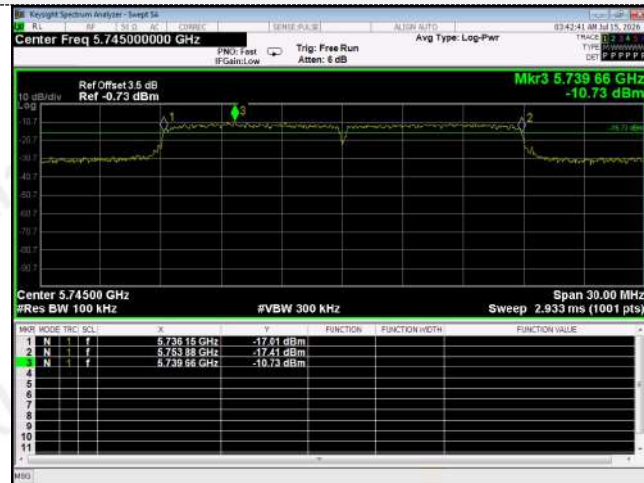
Test Results

Type	Bands	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11a	U-NII 3	149	16.38	$\geq 500\text{KHz}$	Pass
		157	16.59		
		165	16.62		
802.11n(HT20)	U-NII 3	149	17.79		
		157	17.82		
		165	17.79		
802.11ac(VHT20)	U-NII 3	149	17.73		
		157	17.76		
		165	17.76		

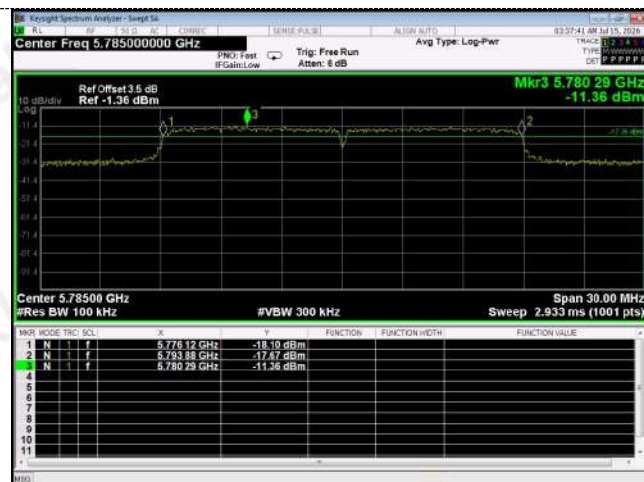
Test plot as follows:



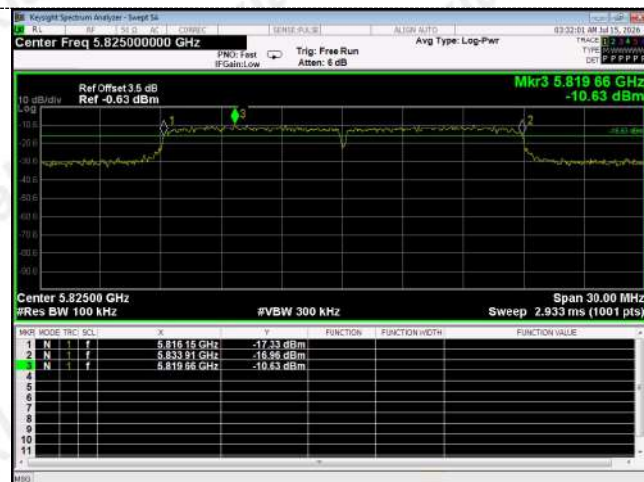
802.11ac(VHT20)



CH149



CH157



CH165

4.7 Conducted Out Of Band Emission

4.7.1 Applicable Standard

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 5.725-5.850 GHz band: 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.

4.7.2 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. 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.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. 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.
5. Repeat above procedures until all measured frequencies were complete.

4.7.3 DEVIATION FROM STANDARD

No deviation.

4.7.4 TEST SETUP



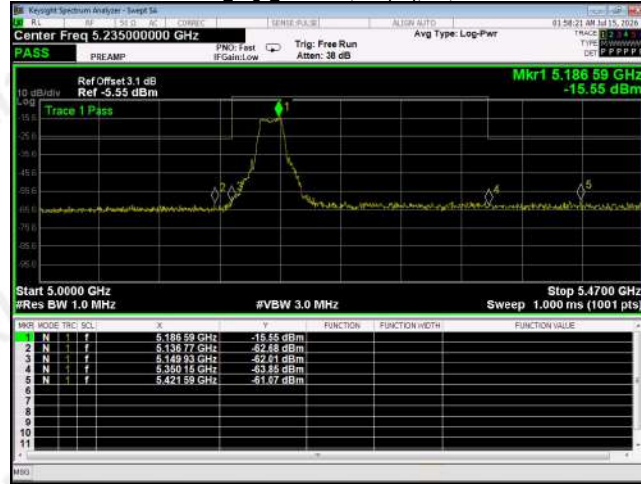
4.7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.7.6 TEST RESULTS

Band edge Emission

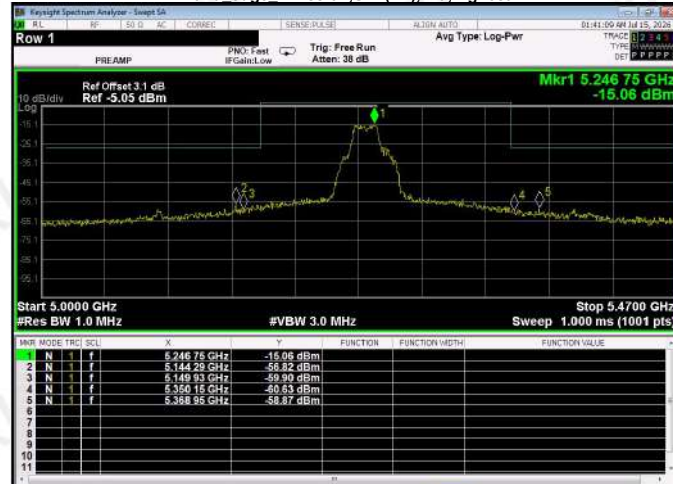
Band edge Emission,UNII(B1),11a,Lowest



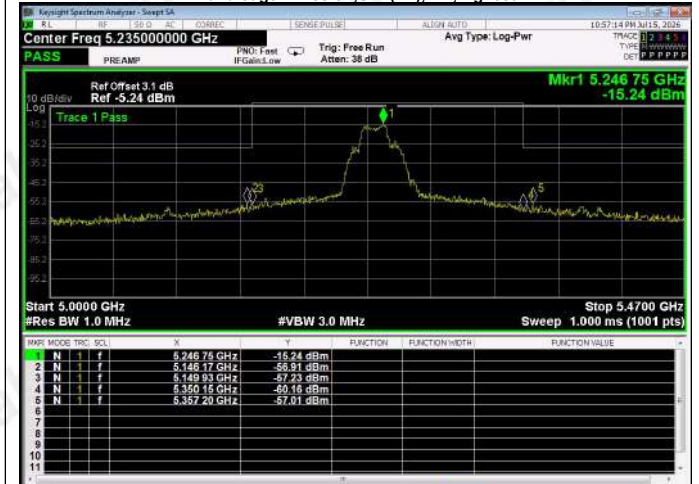
Band edge Emission,UNII(B1),11n,Lowest



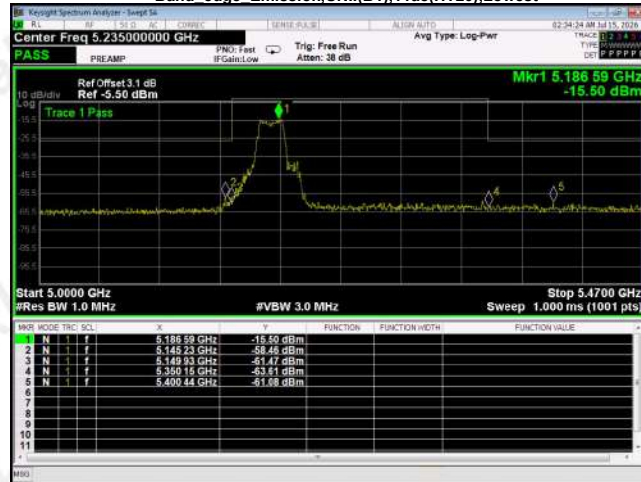
Band edge Emission,UNII(B1),11a,Highest



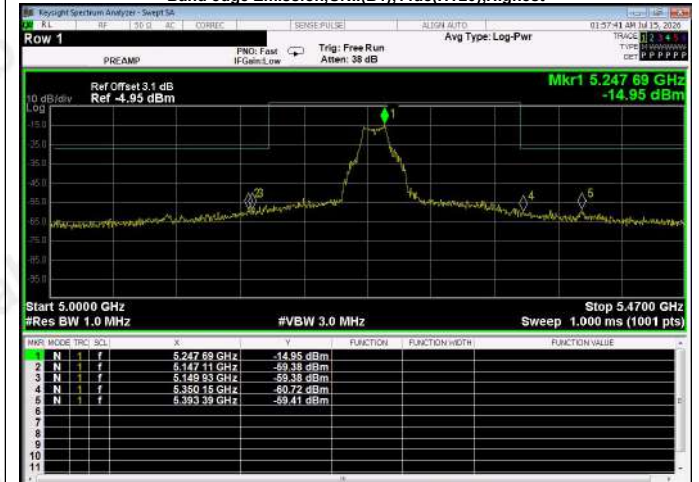
Band edge Emission,UNII(B1),11n,Highest

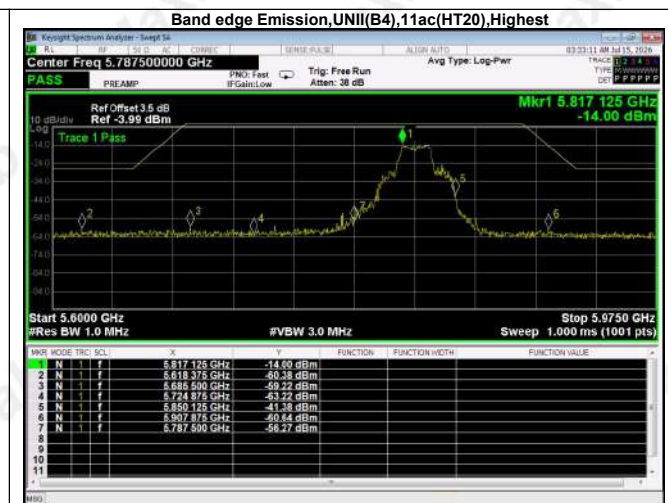
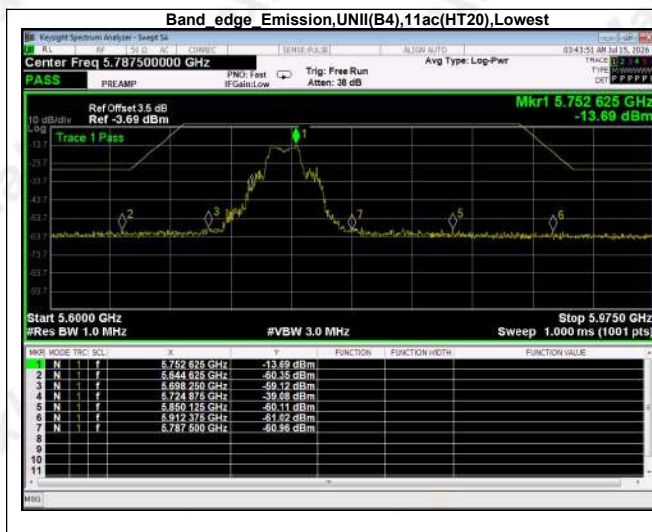
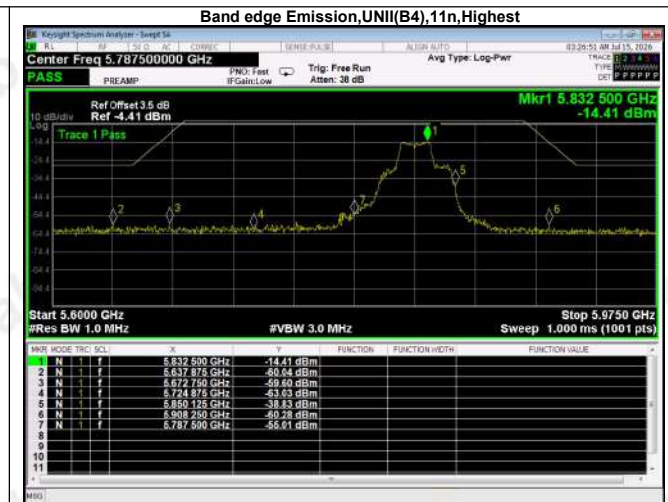
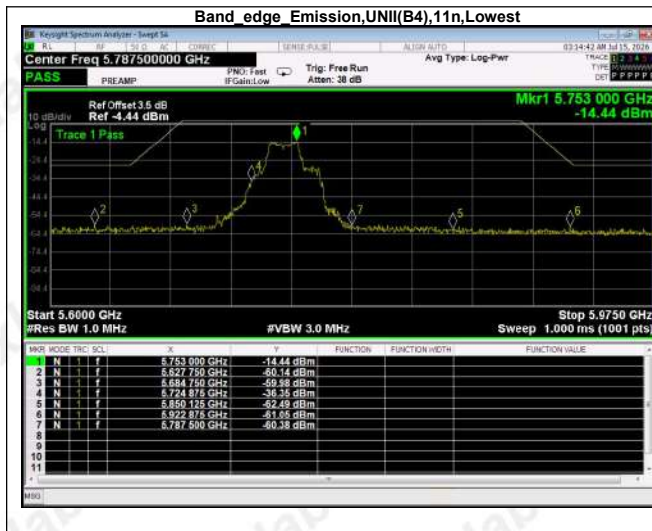
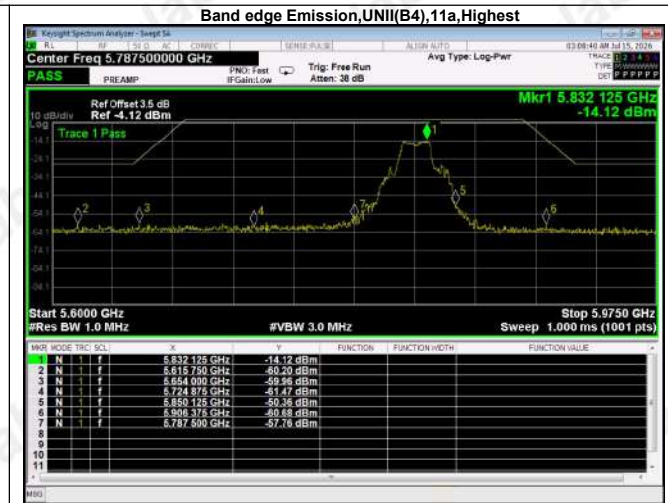
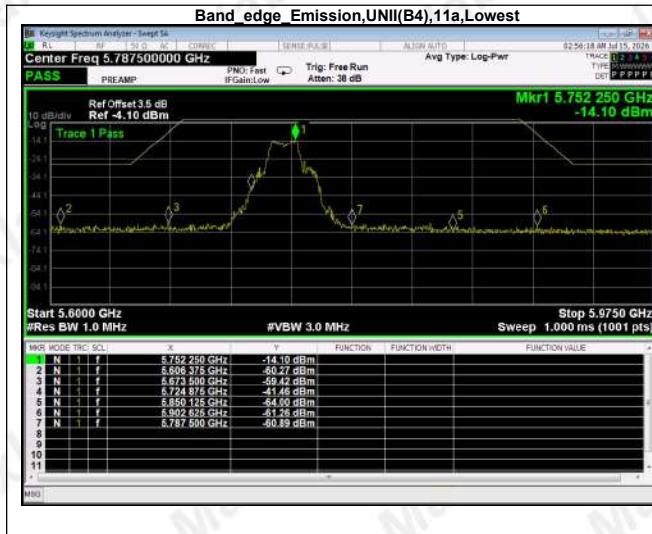


Band edge Emission,UNII(B1),11ac(HT20),Lowest



Band edge Emission,UNII(B1),11ac(HT20),Highest





4.8 SPURIOUS RF CONDUCTED EMISSIONS

4.8.1 Conformance Limit

Frequency Band (MHz)	Limit
5150 - 5250	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5250 - 5350	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5470 - 5725	Outside of the 5.47-5.725 GHz band: e.i.r.p. -27 dBm
5725 - 5850	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.

4.8.2 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

4.8.3 Test Setup



4.8.4 Test Procedure

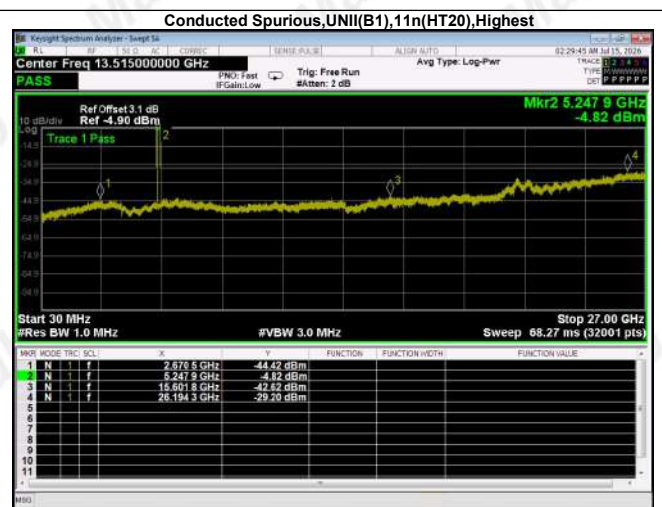
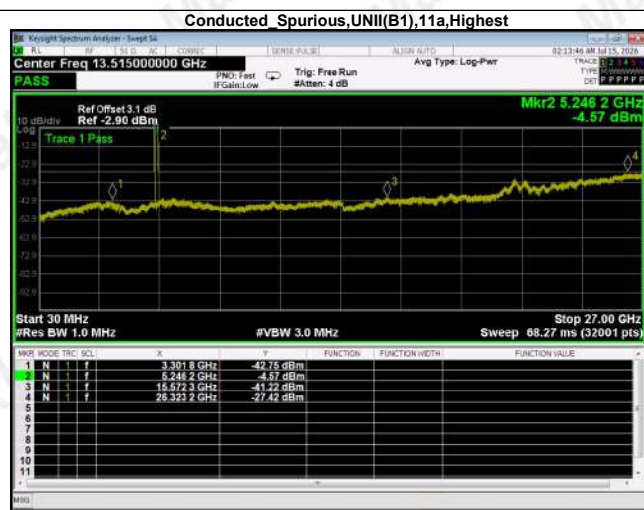
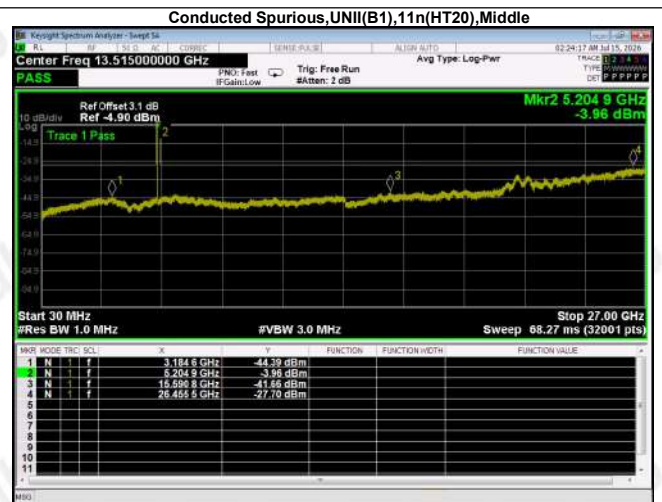
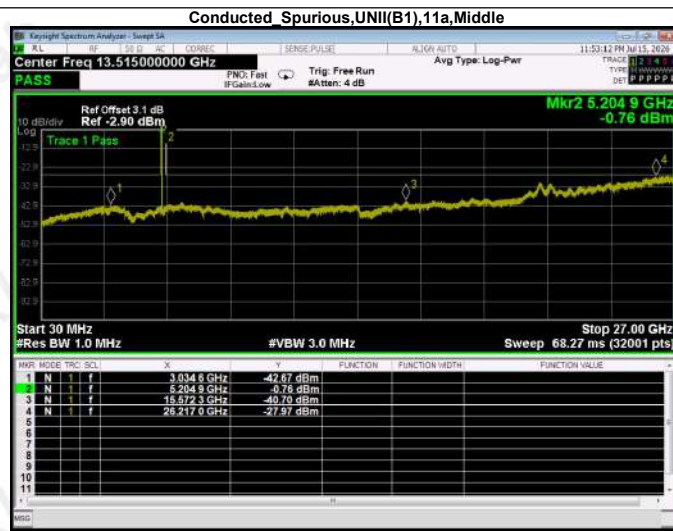
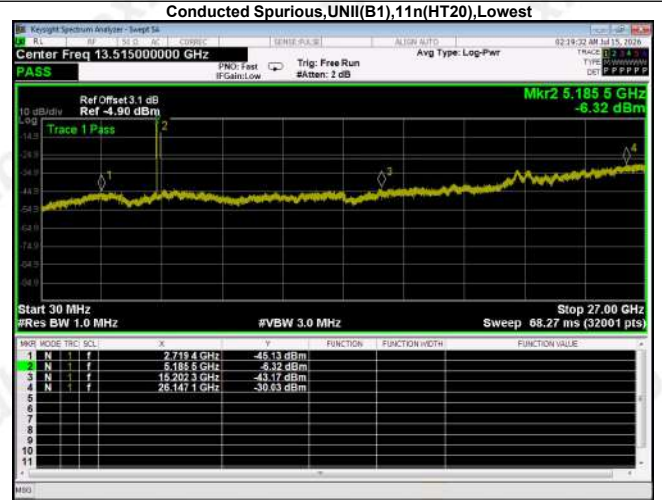
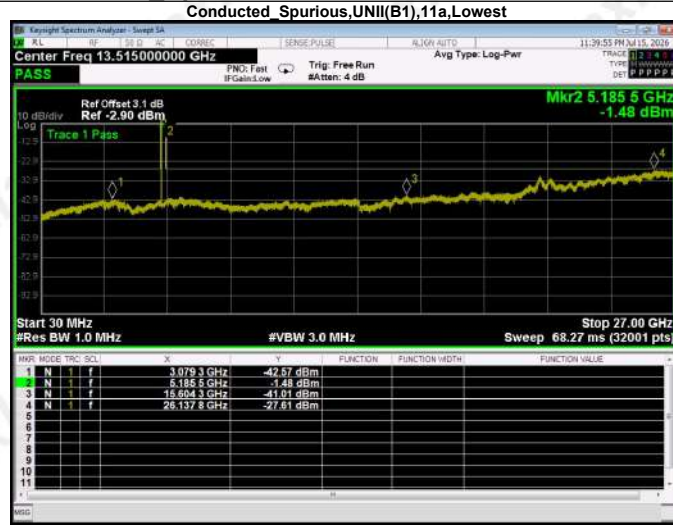
The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2020 + Cor.1-2023 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=1MHz and VBW= 3MHz to measure the peak field strength, and measure frequency range from 30MHz to 40GHz.

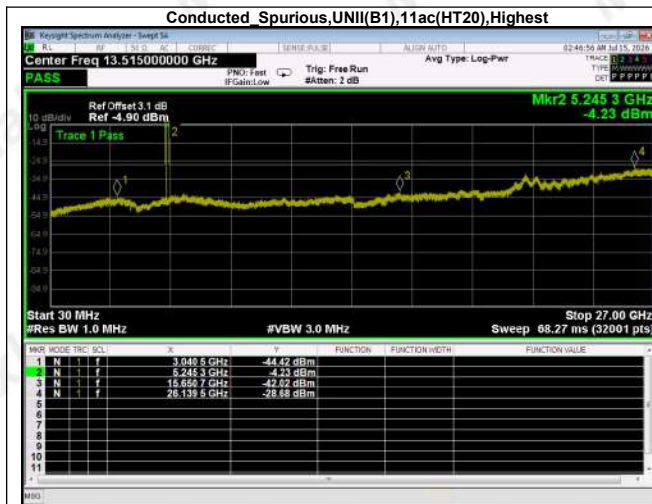
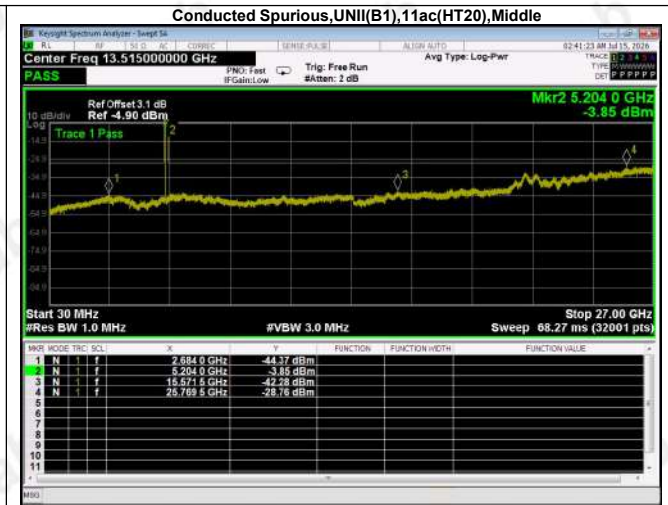
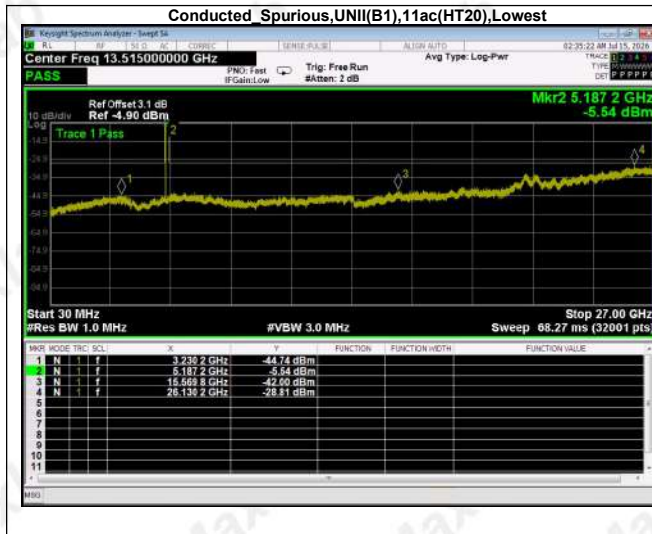
4.8.5 Test Results

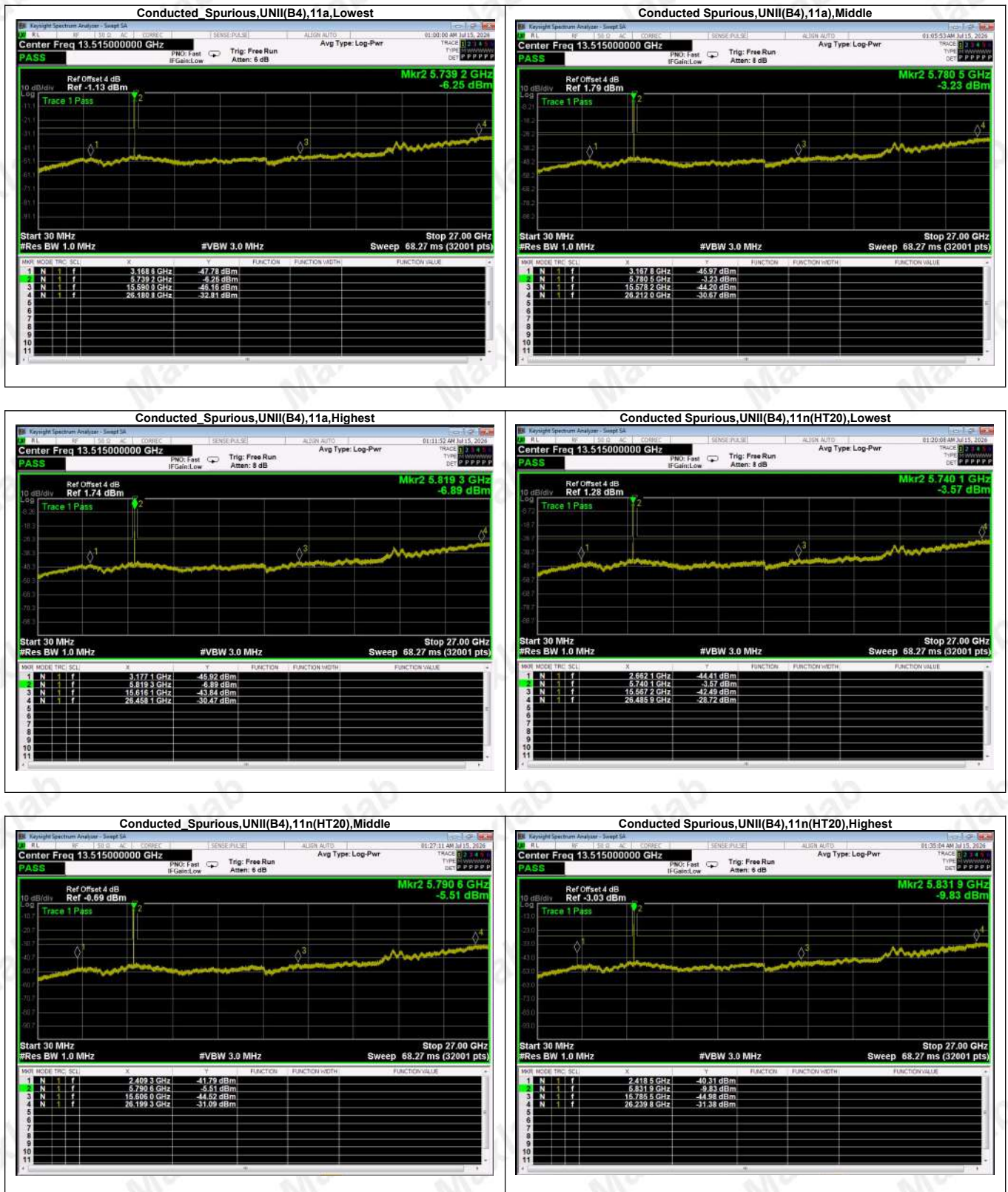
Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and band edge measurement data.

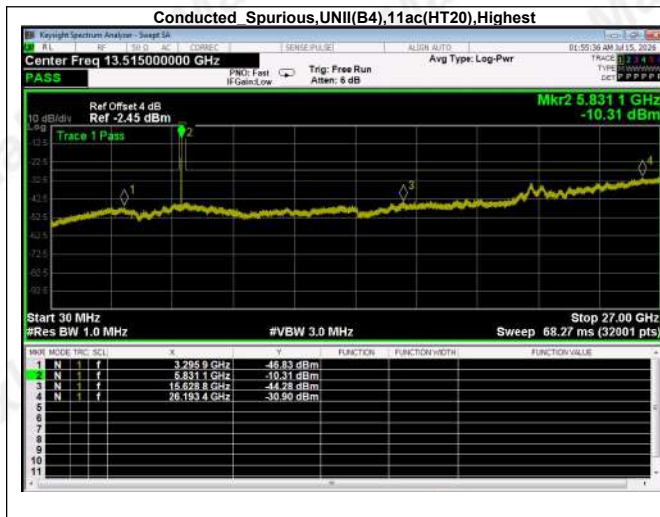
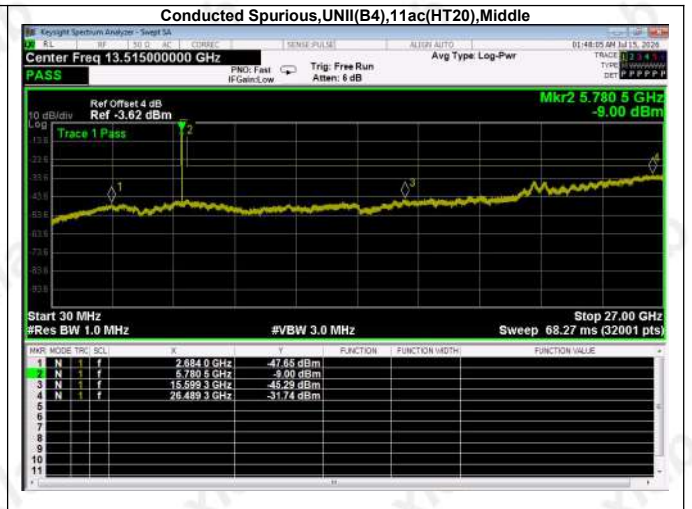
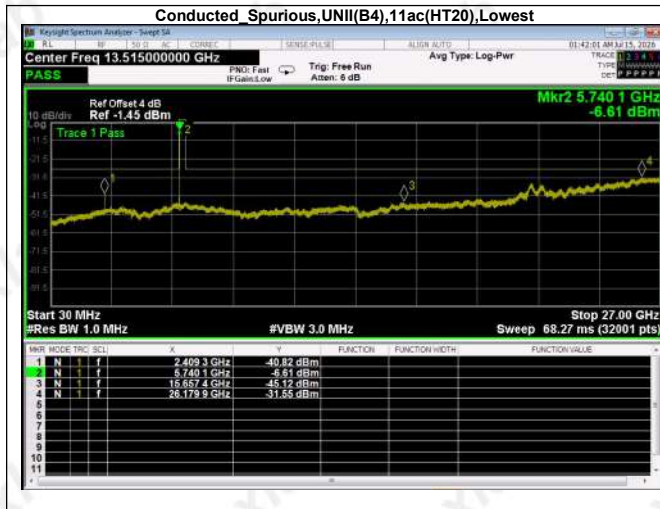
At 26.5GHz to 40GHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Conducted Spurious







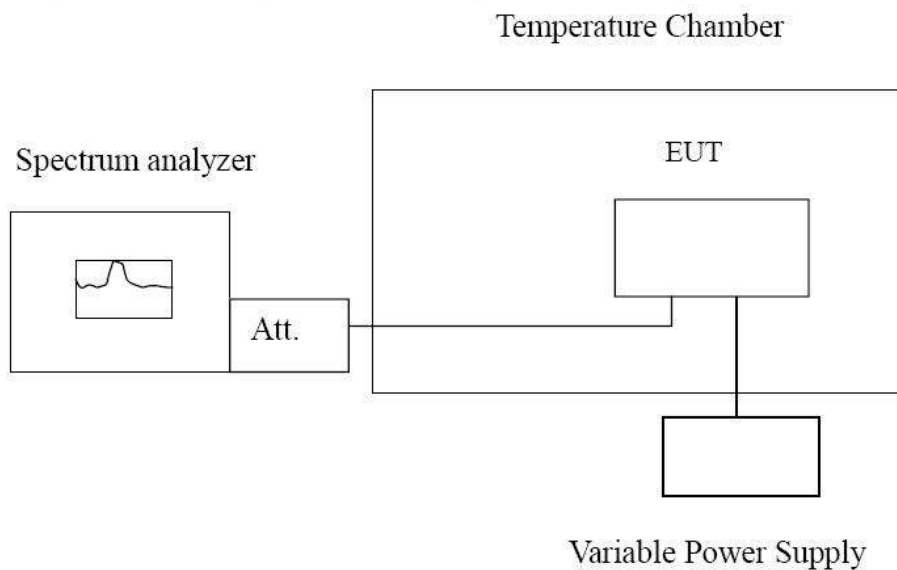


4.9 Frequency Stability

Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

TEST CONFIGURATION



TEST PROCEDURE

Frequency Stability under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

Reference Frequency: 802.11ac channel=36 frequency=5180MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
5.0	-30	67.71	0.013	Within the band of operation	Pass
	-20	81.35	0.016		
	-10	104.13	0.020		
	0	82.95	0.016		
	10	93.44	0.018		
	20	48.27	0.009		
	30	71.92	0.014		
	40	77.52	0.015		
	50	82.22	0.016		
5.5	25	97.84	0.019	Within the band of operation	Pass
4.5	25	54.38	0.010		

Reference Frequency: 802.11ac channel=149 frequency=5745MHz					
Voltage (V)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
5.0	-30	108.22	0.019	Within the band of operation	Pass
	-20	89.51	0.016		
	-10	49.27	0.009		
	0	62.58	0.011		
	10	56.98	0.010		
	20	51.16	0.009		
	30	52.57	0.009		
	40	84.92	0.015		
	50	109.91	0.019		
5.5	25	54.60	0.010	Within the band of operation	Pass
4.5	25	53.89	0.009		

4.10 Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203:

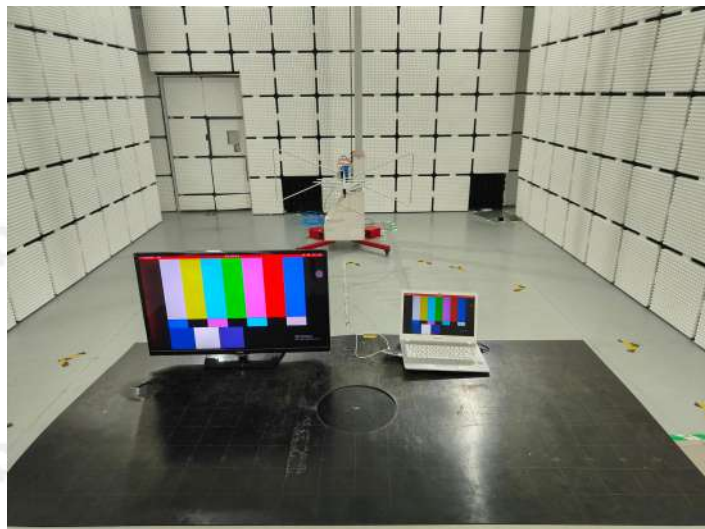
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

Test Result:

The maximum gain of antenna is 1.52dBi.

Remark: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, MAXLAB Testing Co.,Ltd. does not assume any responsibility.

5 Test Setup Photos of the EUT



6 Photos of the EUT

Reference to the report ANNEX A of external photos and ANNEX B of internal photos.

***** End of Report *****