RF Test Report

Applicant	:	Plume Design, Inc.
Product Name	:	SuperPod with WiFi 7
Trade Name	:	Plume Design, Inc.
Model Number	:	PB1A
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART E ANSI C63.10:2013
Received Date	:	Sep. 27, 2024
Test Period	:	Oct. 14, 2024 ~ Dec. 26, 2024
Issued Date	:	Feb. 27, 2025

Issued by

Eurofins E&E Wireless Taiwan Co., Ltd.
No. 140-1, Changan Street, Bade District,
Taoyuan City, Taiwan (R.O.C.)
Tel：+886-3-2710188 / Fax：+886-3-2710190

Testing Laboratory
1330

Taiwan Accreditation Foundation accreditation number: 1330
Frequency Range: 9 kHz to 325 GHz
Bade test site：
Test Firm Registration Number: 226252
Test Firm Designation Number: TW0010
Wugu test site：
Test Firm Registration Number: 191812
Test Firm Designation Number: TW0034

Note:
1.The test results are valid only for samples provided by customers and under the test conditions described in this report.
2.This report shall not be reproduced except in full, without the written approval of Eurofins E&E Wireless Taiwan Co., Ltd.
3.The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Revision History

Rev.	Issued Date	Description	Revised By
00	Feb. 27, 2025	Initial Issue	Snow Wang

Verification of Compliance

Applicant	:	Plume Design, Inc.
Product Name	:	SuperPod with WiFi 7
Trade Name	:	Plume Design, Inc.
Model Number	:	PB1A
FCC ID	:	2AG7G- PB1A
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART E ANSI C63.10:2013
Test Result	:	Complied
Performing Lab.	:	Eurofins E&E Wireless Taiwan Co., Ltd. No. 140-1, Changan Street, Bade District, Taoyuan City, Taiwan (R.O.C.) Tel：+886-3-2710188 / Fax：+886-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330

Testing Laboratory 1330

Eurofins E&E Wireless Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Eurofins E&E Wireless Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By : Kai Yu Yang

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1 General Information

1.1. Summary of Test Result

Standard	Item	Result	Remark
15.407(b)(9) 15.207	AC Power Conducted Emission	PASS	---
15.407(b) 15.205 / 15.209	Transmitter Radiated Emissions	PASS	---
15.407(a)	Maximum Conducted Output Power	PASS	---
15.407(a)	26 dB RF Bandwidth	Reference	---
15.407(e)	6 dB RF Bandwidth	PASS	---
15.407(a)	Maximum Power Spectral Density	PASS	---
15.407(c)	Automatically discontinue transmission	PASS	---
15.407(a) 15.203	Antenna Requirement	PASS	---

Decision Rule

■ Uncertainty is not included.

□ Uncertainty is included.

Standard	Description
CFR47, Part 15, Subpart C	Intentional Radiators
CFR47, Part 15, Subpart E	Unlicensed National Information Infrastructure Devices
ANSI C63. 10: 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
KDB789033: D02	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
KDB 662911 D01 v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)

1.2. Testing Location

Lab Name: Eurofins E&E Wireless Taiwan Co., Ltd.

Site Address: ■ No. 140-1, Changan Street, Bade District, Taoyuan City, Taiwan (R.O.C.)

Site Address: □ No. 2, Wuquan 5th Rd. Wugu Dist., New Taipei City, Taiwan (R.O.C.)

1.3. Measurement Uncertainty

Test Item	Frequency	Uncertainty	
		BD	WG
Conducted Emission	150 kHz ~ 30 MHz	2.7 dB	2.6 dB
Conducted Output Power		1.1 dB	1.1 dB
RF Bandwidth		4.4 %	4.4 %
Power Spectral Density		1.1 dB	1.1 dB
Duty Cycle		0.3 %	0.3 %
Time Occupancy		0.2 %	0.1 %

Test Item	Frequency	Uncertainty				
		96601-BD	96603-BD	96602-WG	96603-WG	96604-WG
Radiated Emission	9 kHz ~ 30 MHz	1.8 dB	1.8 dB	1.9 dB	1.9 dB	1.9 dB
	30 MHz ~ 1000 MHz	4.7 dB	4.7 dB	4.7 dB	4.7 dB	4.5 dB
	1000 MHz ~ 18000 MHz	4.7 dB	4.8 dB	4.6 dB	4.7 dB	5.1 dB
	18000 MHz ~ 26500 MHz	4.0 dB	4.1 dB	3.9 dB	4.1 dB	4.3 dB
	26500 MHz ~ 40000 MHz	4.2 dB	4.2 dB	4.2 dB	4.2 dB	4.6 dB

1.4. Test Site Environment

Items	Required (IEC 60068-1)	Interval(*)
Temperature (°C)	15-35	20-30
Humidity (%RH)	25-75	45-75

(*)The measurement ambient temperature is within this range.

2 EUT Description

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity(except Max. RF Output Power).

Applicant	Plume Design, Inc. 325 Lytton Ave., Palo Alto, CA 94301		
Product Name	SuperPod with WiFi 7		
Trade Name	Plume Design, Inc.		
Model Number	PB1A		
FCC ID	2AG7G- PB1A		
Operate Frequency	Frequency Band		Frequency Range (MHz)
	802.11a	U-NII Band 1	5180 – 5240
		U-NII Band 2-A	5260 – 5320
		U-NII Band 2-C	5500 – 5700
		Straddle band	5720
		U-NII Band 3	5745 – 5825
	802.11n HT20 / 802.11ac VHT20 / 802.11ax HE20 / 802.11be EHT20	U-NII Band 1	5180 – 5240
		U-NII Band 2-A	5260 – 5320
		U-NII Band 2-C	5500 – 5700
		Straddle band	5720
		U-NII Band 3	5745 – 5825
	802.11n HT40 / 802.11ac VHT40 / 802.11ax HE40 / 802.11be EHT40	U-NII Band 1	5190 – 5230
		U-NII Band 2-A	5270 – 5310
		U-NII Band 2-C	5510 – 5670
		Straddle band	5710
		U-NII Band 3	5755 – 5795
	802.11ac VHT80 / 802.11ax HE80 / 802.11be EHT80	U-NII Band 1	5210
		U-NII Band 2-A	5290
		U-NII Band 2-C	5530 – 5610
		Straddle band	5690
		U-NII Band 3	5775

Operate Frequency	Frequency Band		Frequency Range (MHz)
	802.11ac VHT160 / 802.11ax HE160 / 802.11be EHT160	U-NII Band 1	5250
		U-NII Band 2-A	
		U-NII Band 2-C	5570
Modulation Type	OFDM/OFDMA		
Antenna Delivery	Reference section 3.1		
Operate Temp. Range	0 ~ +40 ℃		
EUT Power Rating	100-240 V, 50-60 Hz, 0.8 A		

Antenna information				
Type	Antenna		Frequency	Max. Gain (dBi)
PIFA Antenna	5G1	ANT-0 (Ant. 5)	U-NII Band 1	2.3
			U-NII Band 2-A	3.8
			U-NII Band 2-C	3.8
			U-NII Band 3	3.5
	5G2	ANT-1 (Ant. 6)	U-NII Band 1	4.2
			U-NII Band 2-A	4.2
			U-NII Band 2-C	3.7
			U-NII Band 3	3.7
	5G3	ANT-2 (Ant. 7)	U-NII Band 1	3.5
			U-NII Band 2-A	3.5
			U-NII Band 2-C	3.3
			U-NII Band 3	3.9

1X1

Frequency Band		Max. RF Output Power (W)
802.11a	U-NII Band 1	0.108
	U-NII Band 2-A	0.120
	U-NII Band 2-C	0.110
	U-NII Band 3	0.096
802.11n HT20	U-NII Band 1	0.096
	U-NII Band 2-A	0.107
	U-NII Band 2-C	0.099
	U-NII Band 3	0.087
802.11n HT40	U-NII Band 1	0.094
	U-NII Band 2-A	0.117
	U-NII Band 2-C	0.107
	U-NII Band 3	0.081
802.11ac VHT20	U-NII Band 1	0.099
	U-NII Band 2-A	0.110
	U-NII Band 2-C	0.102
	U-NII Band 3	0.090
802.11ac VHT40	U-NII Band 1	0.098
	U-NII Band 2-A	0.121
	U-NII Band 2-C	0.110
	U-NII Band 3	0.086
802.11ac VHT80	U-NII Band 1	0.094
	U-NII Band 2-A	0.121
	U-NII Band 2-C	0.105
	U-NII Band 3	0.078
802.11ac VHT160	U-NII Band 1 & U-NII Band 2-A	0.089
	U-NII Band 2-C	0.065

Frequency Band		Max. RF Output Power (W)
802.11ax HE20	U-NII Band 1	0.111
	U-NII Band 2-A	0.125
	U-NII Band 2-C	0.117
	U-NII Band 3	0.099
802.11ax HE40	U-NII Band 1	0.100
	U-NII Band 2-A	0.121
	U-NII Band 2-C	0.111
	U-NII Band 3	0.088
802.11ax HE80	U-NII Band 1	0.094
	U-NII Band 2-A	0.118
	U-NII Band 2-C	0.105
	U-NII Band 3	0.078
802.11ax HE160	U-NII Band 1 & U-NII Band 2-A	0.090
	U-NII Band 2-C	0.066
802.11be EHT20	U-NII Band 1	0.115
	U-NII Band 2-A	0.129
	U-NII Band 2-C	0.121
	U-NII Band 3	0.100
802.11be EHT40	U-NII Band 1	0.103
	U-NII Band 2-A	0.123
	U-NII Band 2-C	0.112
	U-NII Band 3	0.089
802.11be EHT80	U-NII Band 1	0.099
	U-NII Band 2-A	0.126
	U-NII Band 2-C	0.119
	U-NII Band 3	0.082
802.11be EHT160	U-NII Band 1 & U-NII Band 2-A	0.093
	U-NII Band 2-C	0.070

3X3

Frequency Band		Max. RF Output Power (W)
802.11a	U-NII Band 1	0.327
	U-NII Band 2-A	0.173
	U-NII Band 2-C	0.177
	U-NII Band 3	0.253
802.11n HT20	U-NII Band 1	0.339
	U-NII Band 2-A	0.185
	U-NII Band 2-C	0.196
	U-NII Band 3	0.273
802.11n HT40	U-NII Band 1	0.334
	U-NII Band 2-A	0.229
	U-NII Band 2-C	0.233
	U-NII Band 3	0.270
802.11ac VHT20	U-NII Band 1	0.344
	U-NII Band 2-A	0.188
	U-NII Band 2-C	0.197
	U-NII Band 3	0.278
802.11ac VHT40	U-NII Band 1	0.340
	U-NII Band 2-A	0.234
	U-NII Band 2-C	0.235
	U-NII Band 3	0.273
802.11ac VHT80	U-NII Band 1	0.294
	U-NII Band 2-A	0.233
	U-NII Band 2-C	0.236
	U-NII Band 3	0.253
802.11ac VHT160	U-NII Band 1 & U-NII Band 2-A	0.215
	U-NII Band 2-C	0.178

Frequency Band		Max. RF Output Power (W)
802.11ax HE20	U-NII Band 1	0.340
	U-NII Band 2-A	0.188
	U-NII Band 2-C	0.193
	U-NII Band 3	0.294
802.11ax HE40	U-NII Band 1	0.326
	U-NII Band 2-A	0.227
	U-NII Band 2-C	0.240
	U-NII Band 3	0.273
802.11ax HE80	U-NII Band 1	0.297
	U-NII Band 2-A	0.232
	U-NII Band 2-C	0.239
	U-NII Band 3	0.253
802.11ax HE160	U-NII Band 1 & U-NII Band 2-A	0.213
	U-NII Band 2-C	0.180
802.11be EHT20	U-NII Band 1	0.375
	U-NII Band 2-A	0.192
	U-NII Band 2-C	0.219
	U-NII Band 3	0.308
802.11be EHT40	U-NII Band 1	0.356
	U-NII Band 2-A	0.240
	U-NII Band 2-C	0.245
	U-NII Band 3	0.295
802.11be EHT80	U-NII Band 1	0.299
	U-NII Band 2-A	0.242
	U-NII Band 2-C	0.242
	U-NII Band 3	0.261
802.11be EHT160	U-NII Band 1 & U-NII Band 2-A	0.217
	U-NII Band 2-C	0.183

Beamforming on

Frequency Band		Max. RF Output Power (W)
802.11ac VHT20	U-NII Band 1	0.113
	U-NII Band 2-A	0.112
	U-NII Band 2-C	0.094
	U-NII Band 3	0.094
802.11ac VHT40	U-NII Band 1	0.107
	U-NII Band 2-A	0.113
	U-NII Band 2-C	0.093
	U-NII Band 3	0.094
802.11ac VHT80	U-NII Band 1	0.104
	U-NII Band 2-A	0.114
	U-NII Band 2-C	0.101
	U-NII Band 3	0.089
802.11ac VHT160	U-NII Band 1 & U-NII Band 2-A	0.091
	U-NII Band 2-C	0.076
802.11ax HE20	U-NII Band 1	0.091
	U-NII Band 2-A	0.095
	U-NII Band 2-C	0.076
	U-NII Band 3	0.074
802.11ax HE40	U-NII Band 1	0.107
	U-NII Band 2-A	0.112
	U-NII Band 2-C	0.093
	U-NII Band 3	0.093
802.11ax HE80	U-NII Band 1	0.106
	U-NII Band 2-A	0.117
	U-NII Band 2-C	0.104
	U-NII Band 3	0.088
802.11ax HE160	U-NII Band 1 & U-NII Band 2-A	0.094
	U-NII Band 2-C	0.077

Frequency Band		Max. RF Output Power (W)
802.11be EHT20	U-NII Band 1	0.116
	U-NII Band 2-A	0.115
	U-NII Band 2-C	0.096
	U-NII Band 3	0.097
802.11be EHT40	U-NII Band 1	0.116
	U-NII Band 2-A	0.122
	U-NII Band 2-C	0.104
	U-NII Band 3	0.095
802.11be EHT80	U-NII Band 1	0.107
	U-NII Band 2-A	0.119
	U-NII Band 2-C	0.106
	U-NII Band 3	0.090
802.11be EHT160	U-NII Band 1 & U-NII Band 2-A	0.095
	U-NII Band 2-C	0.078

Equipment Type		
Outdoor access point	point-to-point	---
	point-to-multipoint	---
Indoor access point		V
Fixed point-to-point access points		---
Client devices		---

5150 MHz ~5250 MHz(UNII-1):

BW 20M	CH	36	40	44	48
	Freq. (MHz)	5180	5200	5220	5240
BW 40M	CH	38		46	
	Freq. (MHz)	5190		5230	
BW 80M	CH	42			
	Freq. (MHz)	5210			

5250 MHz ~5350 MHz(UNII-2A):

BW 20M	CH	52	56	60	64
	Freq. (MHz)	5260	5280	5300	5320
BW 40M	CH	54		62	
	Freq. (MHz)	5270		5310	
BW 80M	CH	58			
	Freq. (MHz)	5290			
BW 160M	CH	50			
	Freq. (MHz)	5250			

5470 MHz ~5725 MHz(UNII-2C):

BW 20M	CH	100	104	108	112	116	120	124	128	132	136	140	144
	Freq. (MHz)	5500	5520	5540	5560	5580	5600	5620	5640	5660	5680	5700	5720
BW 40M	CH	102		110		118		126		134		142	
	Freq. (MHz)	5510		5550		5590		5630		5670		5710	
BW 80M	CH	106				122				138			
	Freq. (MHz)	5530				5610				5690			
BW 160M	CH	114								NA			
	Freq. (MHz)	5570											

5725 MHz ~5850 MHz(UNII-3):

BW 20M	CH	149	153	157	161	165
	Freq. (MHz)	5745	5765	5785	5805	5825
BW 40M	CH	151		159		NA
	Freq. (MHz)	5755		5795		
BW 80M	CH	155				
	Freq. (MHz)	5775				

3 Test Methodology

3.1. Mode of Operation

Decision of Test Eurofins has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	Final-Test Mode
Transmit Mode	V
802.11a	V
802.11n HT20	
802.11n HT40	
802.11ac VHT20	V
802.11ac VHT40	V
802.11ac VHT80	V
802.11ac VHT160	V
802.11ax HE20	
802.11ax HE40	
802.11ax HE80	
802.11ax HE160	
802.11be EHT20	V
802.11be EHT40	V
802.11be EHT80	V
802.11be EHT160	V

Software used to control the EUT for staying in continuous transmitting mode was programmed.
After verification, all tests were carried out with the worst case test modes.

1X1 / 3X3
By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “X axis” position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

Beamforming on
By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that “Y axis” position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

Note 1: Investigation has been done on all the possible configurations for searching the worst cases (VHT20/VHT40 covers HT20/HT40, EHT20/EHT40/EHT80/EHT160 cover HE20/HE40/HE80/HE160). The table is a list of the test modes show in this test report.

Note 2: 802.11 ax & 802.11 be only support full RU.

Note 3: This product supports normal mode and Beamforming on mode. According to power table, the normal mode is worst power. So, normal mode has to test and record results for Conducted.

1X1

Test Mode	ANT-0
802.11a	V
802.11n HT20	V
802.11n HT40	V
802.11ac VHT20	V
802.11ac VHT40	V
802.11ac VHT80	V
802.11ac VHT160	V
802.11ax HE20	V
802.11ax HE40	V
802.11ax HE80	V
802.11ax HE160	V
802.11be EHT20	V
802.11be EHT40	V
802.11be EHT80	V
802.11be EHT160	V

3X3

Test Mode	ANT-0	ANT-1	ANT-2	ANT-0+1+2
802.11a	V	V	V	V
802.11n HT20	V	V	V	V
802.11n HT40	V	V	V	V
802.11ac VHT20	V	V	V	V
802.11ac VHT40	V	V	V	V
802.11ac VHT80	V	V	V	V
802.11ac VHT160	V	V	V	V
802.11ax HE20	V	V	V	V
802.11ax HE40	V	V	V	V
802.11ax HE80	V	V	V	V
802.11ax HE160	V	V	V	V
802.11be EHT20	V	V	V	V
802.11be EHT40	V	V	V	V
802.11be EHT80	V	V	V	V
802.11be EHT160	V	V	V	V

Beamforming on

Test Mode	ANT-0	ANT-1	ANT-2	ANT-0+1+2
802.11ac VHT20	V	V	V	V
802.11ac VHT40	V	V	V	V
802.11ac VHT80	V	V	V	V
802.11ac VHT160	V	V	V	V
802.11ax HE20	V	V	V	V
802.11ax HE40	V	V	V	V
802.11ax HE80	V	V	V	V
802.11ax HE160	V	V	V	V
802.11be EHT20	V	V	V	V
802.11be EHT40	V	V	V	V
802.11be EHT80	V	V	V	V
802.11be EHT160	V	V	V	V

Test Mode	Antenna Delivery	Data Rate (Mbps)	Band	Test Channel
802.11a	1TX	6	U-NII Band 1	36, 40, 48
			U-NII Band 2-A	52, 56, 64
	3TX (CDD)	6	U-NII Band 2-C	100, 112, 140, 144
			U-NII Band 3	144, 149, 157, 165
802.11n HT20	1TX	6.5	U-NII Band 1	36, 40, 48
			U-NII Band 2-A	52, 56, 64
	3TX (CDD)	19.5	U-NII Band 2-C	100, 112, 140, 144
			U-NII Band 3	144, 149, 157, 165
802.11n HT40	1TX	13.5	U-NII Band 1	38, 46
			U-NII Band 2-A	54, 62
	3TX (CDD)	40.5	U-NII Band 2-C	102, 110, 134, 142
			U-NII Band 3	142, 151,159
802.11ac VHT20	1TX	MCS 0	U-NII Band 1	36, 40, 48
			U-NII Band 2-A	52, 56, 64
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	100, 112, 140, 144
			U-NII Band 3	144, 149, 157, 165
802.11ac VHT40	1TX	MCS 0	U-NII Band 1	38, 46
			U-NII Band 2-A	54, 62
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	102, 110, 134, 142
			U-NII Band 3	142, 151,159
802.11ac VHT80	1TX	MCS 0	U-NII Band 1	42
			U-NII Band 2-A	58
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	106, 122, 138
			U-NII Band 3	138, 155
802.11ac VHT160	1TX	MCS 0	U-NII Band 1 & U-NII Band 2-A	50
	3TX (CDD/Beamforming on	MCS 0	U-NII Band 2-C	114

Test Mode	Antenna Delivery	Data Rate (Mbps)	Band	Test Channel
802.11ax HE20	1TX	MCS 0	U-NII Band 1	36, 40, 48
			U-NII Band 2-A	52, 56, 64
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	100, 112, 140, 144
			U-NII Band 3	144, 149, 157, 165
802.11ax HE40	1TX	MCS 0	U-NII Band 1	38, 46
			U-NII Band 2-A	54, 62
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	102, 110, 134, 142
			U-NII Band 3	142, 151,159
802.11ax HE80	1TX	MCS 0	U-NII Band 1	42
			U-NII Band 2-A	58
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	106, 122, 138
			U-NII Band 3	138, 155
802.11ax HE160	1TX	MCS 0	U-NII Band 1 & U-NII Band 2-A	50
	3TX (CDD/Beamforming on	MCS 0	U-NII Band 2-C	114
802.11be EHT20	1TX	MCS 0	U-NII Band 1	36, 40, 48
			U-NII Band 2-A	52, 56, 64
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	100, 112, 140, 144
			U-NII Band 3	144, 149, 157, 165
802.11be EHT40	1TX	MCS 0	U-NII Band 1	38, 46
			U-NII Band 2-A	54, 62
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	102, 110, 134, 142
			U-NII Band 3	142, 151,159
802.11be EHT80	1TX	MCS 0	U-NII Band 1	42
			U-NII Band 2-A	58
	3TX (CDD/Beamforming on)	MCS 0	U-NII Band 2-C	106, 122, 138
			U-NII Band 3	138, 155
802.11be EHT160	1TX	MCS 0	U-NII Band 1 & U-NII Band 2-A	50
	3TX (CDD/Beamforming on	MCS 0	U-NII Band 2-C	114

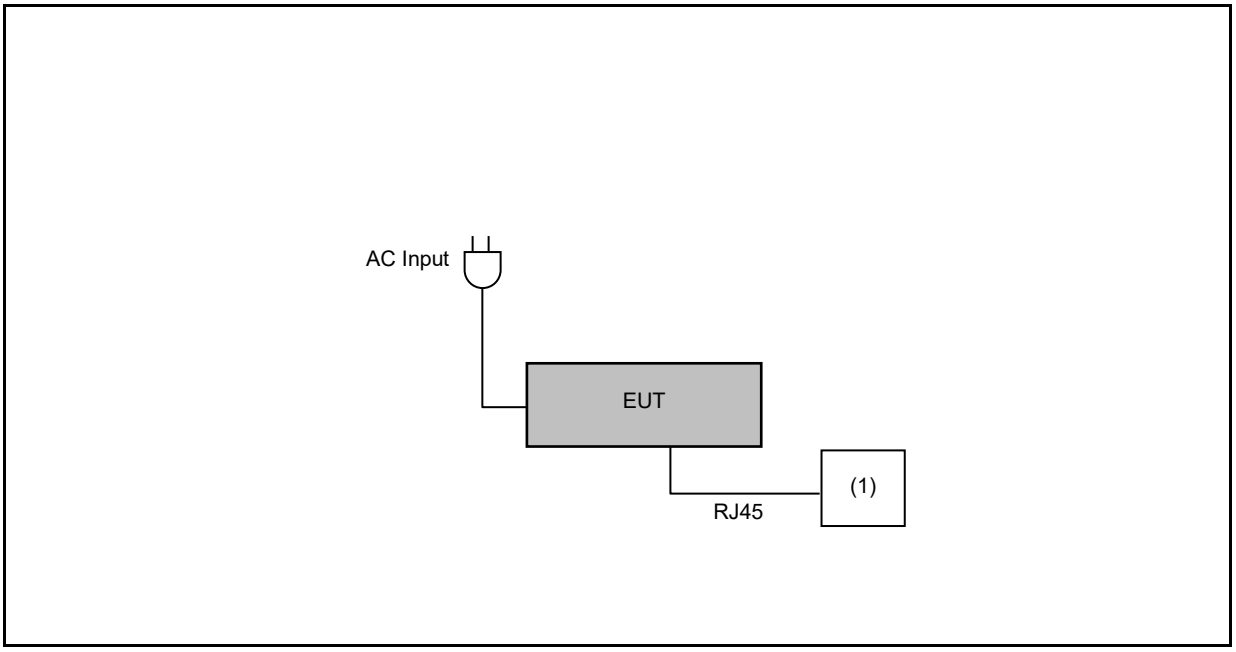
3.2. EUT Test Step

The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement.
According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

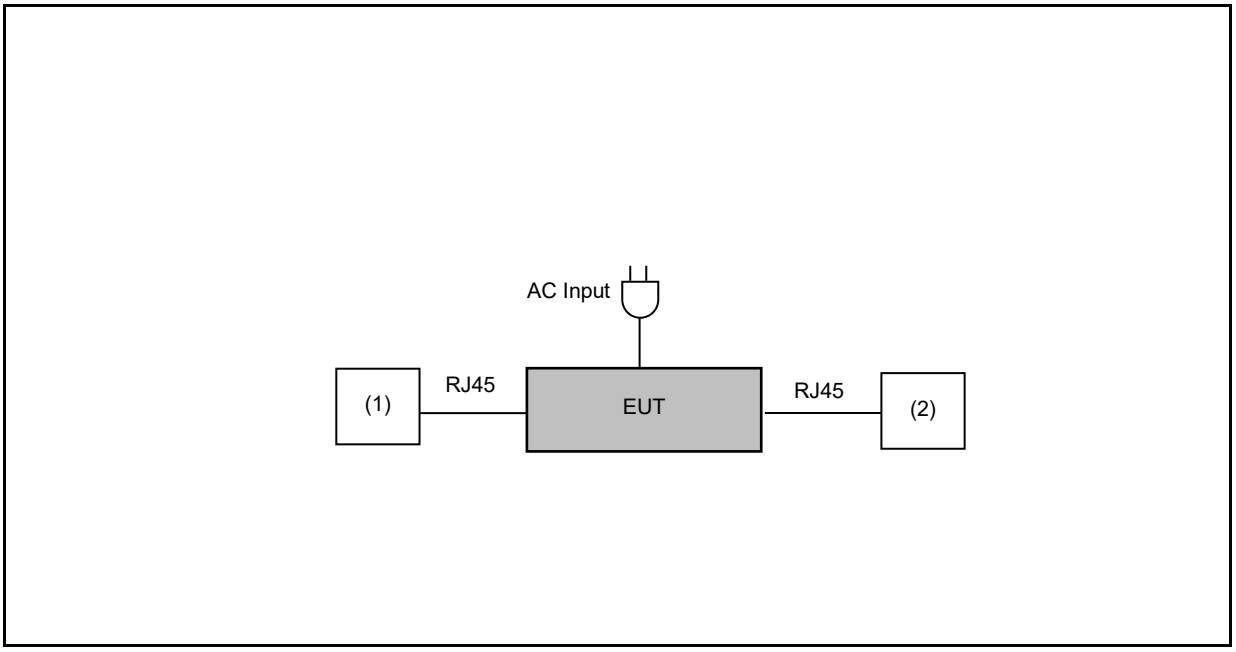
1.	Setup the EUT shown on “Configuration of Test System Details”.
2.	Turn on the power of all equipment.
3.	Turn on TX function.
4.	EUT run test program.

3.3. Configuration of Test System Details

Radiated Emission



Conduction Emission



Product		Manufacturer	Model Number	Serial Number	Power Cord
(1)	Notebook	ASUS	P1448U	---	---
(2)	Notebook	acer	N19C1	---	---

3.4. Test Instruments

For Conducted Emission
Test Period: Dec. 26, 2024 ~ Dec. 26, 2024
Testing Engineer: Jayson Hsieh

Test Site		Conduction01-BD				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Test Receiver	R&S	ESCI	100367	May 21, 2024	1 year
☐	Test Receiver	R&S	ESCI	100722	Oct. 24, 2024	1 year
☐	Test Receiver	R&S	ESCI	101000	Nov. 21, 2024	1 year
☒	LISN	R&S	ENV216	101040	Mar. 21, 2024	1 year
☐	LISN	R&S	ENV216	101140	Jan. 15, 2024	1 year
☒	RF Cable	Woken	00100D1380194M	TE-02-03	Jun. 05, 2024	1 year
☒	Software	EZ EMC	1.1.4.3	N/A	N.C.R.	---

☒ means with testing used ;
☐ means without testing used
Note: N.C.R. = No Calibration Request.

For Conducted
Test Period: Oct. 22, 2024 ~ Dec. 14, 2024
Testing Engineer: Brian Lin, Andy Lu

Test Site		RF01-BD				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Power Sensor	Anritsu	MA2411B	1126022	Aug. 29, 2024	1 year
☒	Power Meter	Anritsu	ML2495A	1135009	Aug. 29, 2024	1 year
☐	Power Sensor	Agilent	N1921A	MY45241957	Nov. 29, 2023 Nov. 30, 2024	1 year
☐	Power Meter	Agilent	N1911A	MY45101619	Nov. 29, 2023 Dec. 02, 2024	1 year
☒	Spectrum Analyzer (10 Hz~26.5 GHz)	Keysight	N9010B	MY59071418	Mar. 15, 2024	1 year
☐	Spectrum Analyzer (9 kHz~26.5 GHz)	Agilent	N9010A	MY48030518	Jul. 18, 2024	1 year
☐	Spectrum Analyzer (20 Hz~26.5 GHz)	Agilent	N9020A	US47520902	Aug. 28, 2024	1 year
☐	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	Dec. 27, 2023	1 year
☐	Signal Analyzer	Keysight	N9010B	MY63460166	Mar. 06, 2024	1 year
☐	Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	Mar. 28, 2024	1 year
☐	Signal Generator	Keysight	N5182B	MY53052569	Apr. 18, 2024	1 year
☐	Signal Generator	Keysight	N5182BX07	MY59360221	Apr. 18, 2024	1 year
☐	MXF-G-B RF Vector Signal Generator	Agilent	N5182B	MY53050382	May 22, 2024	1 year
☐	Bluetooth Tester	R&S	CBT	100350	Mar. 20, 2023	2 years
☐	Wireless Connectivity Tester	R&S	CMW270	102208	Jun. 07, 2024	1 year
☐	Power Supply	KEITHLEY	2303	4045290	Jan. 04, 2024	1 year
☒	RF Switch Cable System	e-channel	ETF-1820	EC2300021	Jul. 19, 2024	1 year

☒ means with testing used ;
☐ means without testing used
Note: N.C.R. = No Calibration Request.

For Radiated Emissions
Test Period: Oct. 14, 2024 ~ Dec. 19, 2024
Testing Engineer: Hung Chou, Eason Lee, Marc Yeh

Test Site		96603-BD				
Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9010A	MY52221312	Jan. 04, 2024	1 year
☐	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	Dec. 27, 2023	1 year
☒	Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9020B	MY60112363	Jan. 10, 2024	1 year
☒	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	Jan. 10, 2024	1 year
☐	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A10961	Jul. 09, 2024	1 year
☐	Broadband Amplifier (100 kHz~1 GHz)	Titan	T0910E00014330 A1F	001	Jul. 31, 2024	1 year
☐	Amplifier (1 GHz~26.5 GHz)	Agilent	8449B	3008A02237	Oct. 31, 2023 Oct. 30, 2024	1 year
☐	Pre Amplifier (1~26.5 GHz)	Agilent	8449B	3008A02455	Jul. 10, 2024	1 year
☒	Broadband Amplifier (1 GHz~26.5 GHz)	Titan	T0912E01263025 A1F	002	Jul. 31, 2024	1 year
☒	Preamplifier (26.5 GHz~40 GHz)	EMCI	EMC2654045	980028	Sep. 02, 2024	1 year
☒	Loop Antenna (9 kHz~30 MHz)	COM-POWER CORPORATION	AL-130	121014	Mar. 27, 2024	1 year
☐	Active Loop Antenna (9 kHz~30 MHz)	Schwarzbeck Mess-Elektronik	FMZB 1513-60	1513-60-031	Feb. 23, 2024	1 year
☒	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	01146	Jun. 28, 2024	1 year
☐	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	416	Jun. 14, 2024	1 year
☒	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	02207	Aug. 30, 2024	1 year

☒ means with testing used ;
☐ means without testing used
Note: N.C.R. = No Calibration Request.

For Radiated Emissions
Test Period: Oct. 14, 2024 ~ Dec. 19, 2024
Testing Engineer: Hung Chou, Eason Lee, Marc Yeh

Test Site		96603-BD				
Radiation test sites		Semi Anechoic Room				
Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	9120D-550	Jul. 22, 2024	1 year
☒	Broadband Horn Antenna (18 GHz~40 GHz)	Schwarzbeck Mess-Elektronik	9170	9170-320	Jul. 22, 2024	1 year
☐	Horn Antenna (18 GHz~40 GHz)	ETS	3116	00086467	Dec. 08, 2023 Dec. 05, 2024	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 100	J11006	Aug. 08, 2024	1 year
☒	Coaxial Cable	Titan	T0710AT327A10A 900	J11004	Aug. 08, 2024	1 year
☒	Coaxial Cable	Titan	EMCCFD400-NM-NM-13000	210302	Aug. 08, 2024	1 year
☐	Bluetooth Tester	R&S	CBT	100350	Mar. 20, 2023	2 years
☐	Wireless Connectivity Tester	R&S	CMW270	102208	Jun. 07, 2024	1 year
☐	Power Supply	KEITHLEY	2303	4045290	Jan. 04, 2024	1 year
☒	Software	EZ EMC	1.1.4.4	N/A	N.C.R.	---

☒ means with testing used ;
☐ means without testing used
Note: N.C.R. = No Calibration Request.

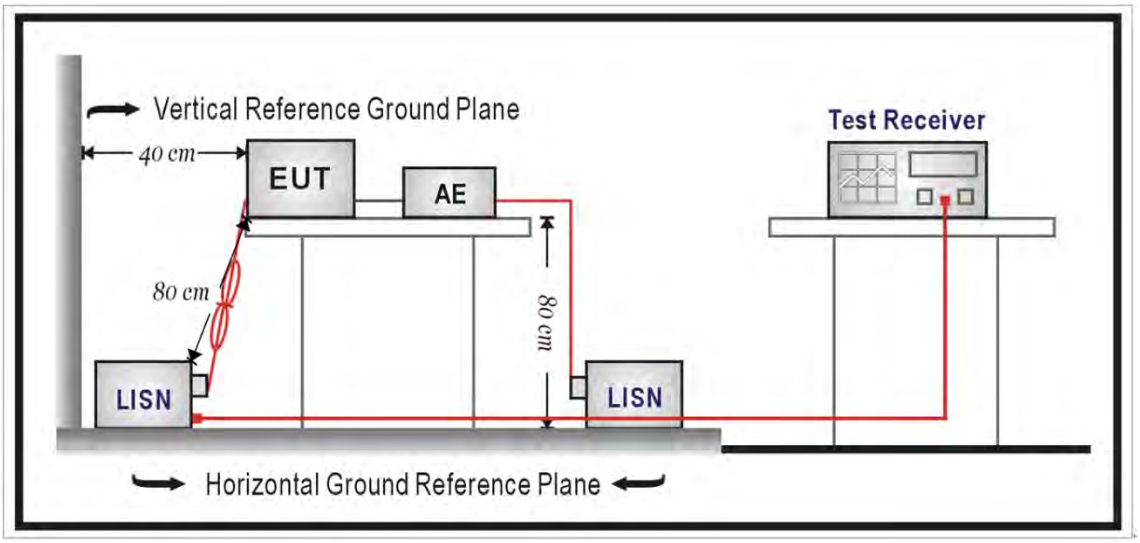
4 Measurement Procedure

4.1. AC Power Conducted Emission Measurement

■ **Limit**

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

■ **Test Setup**



■ **Test Procedure**

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 Ω// 50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 Ω// 50 uH coupling impedance with 50 ohm termination.

Tabletop device shall be placed on a non-conducting platform, of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The wall of screened room shall be located 40 cm to the rear of the EUT. Other surfaces of tabletop or floor standing EUT shall be at least 80 cm from any other ground conducting surface including one or more LISNs. For floor-standing device shall be placed under the EUT with a 12 mm insulating material.

Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a resolution bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1, as applicable, including the average limit and the quasi-peak limit when using respectively, an average detector and quasi-peak detector measured in accordance with the methods described of related standard. When all of peak value were complied with quasi-peak and average limit from 150 kHz to 30 MHz then quasi-peak and average measurement was unnecessary.

The AMN shall be placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for AMNs mounted on top of the ground reference plane. This distance is between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8 m from the AMN. If the mains power cable is longer than 1 m then the cable shall be folded back and forth at the centre of the lead to form a bundle no longer than 0.4 m. All of 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 cm to 40 cm long. All of EUT and AE shall be separate place more than 0.1 m. All 50 Ω ports of the LISN shall be resistively terminated into 50 Ω loads when not connected to the measuring instrument.

If the reading of the measuring receiver shows fluctuations close to the limit, the reading shall be observed for at least 15 s at each measurement frequency; the higher reading shall be recorded with the exception of any brief isolated high reading which shall be ignored

4.2. Transmitter Radiated Emissions Measurement

■ **Limit**

(1)Undesirable emission limits. Except as shown in paragraph (b)(9) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(a)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.

(b)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.

(c)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.

(d)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.

EIRP (dBm)	Field Strength at 3 m(dBuV/m)
-27	68.3

(2)Limits of Radiated Emission Measurement

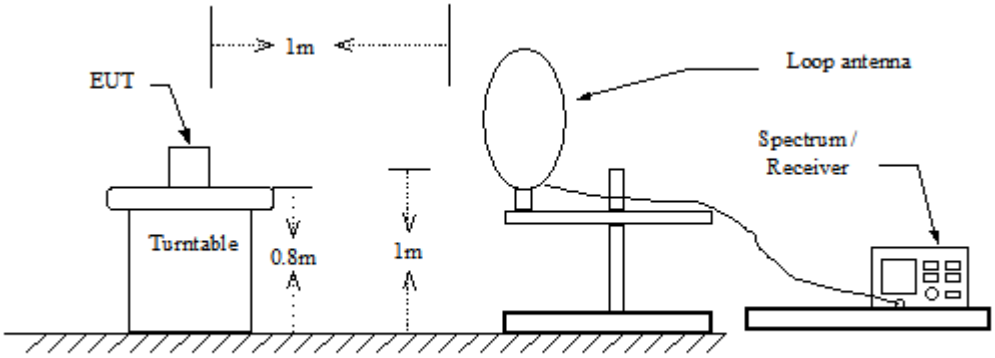
Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequency Range (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	10	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

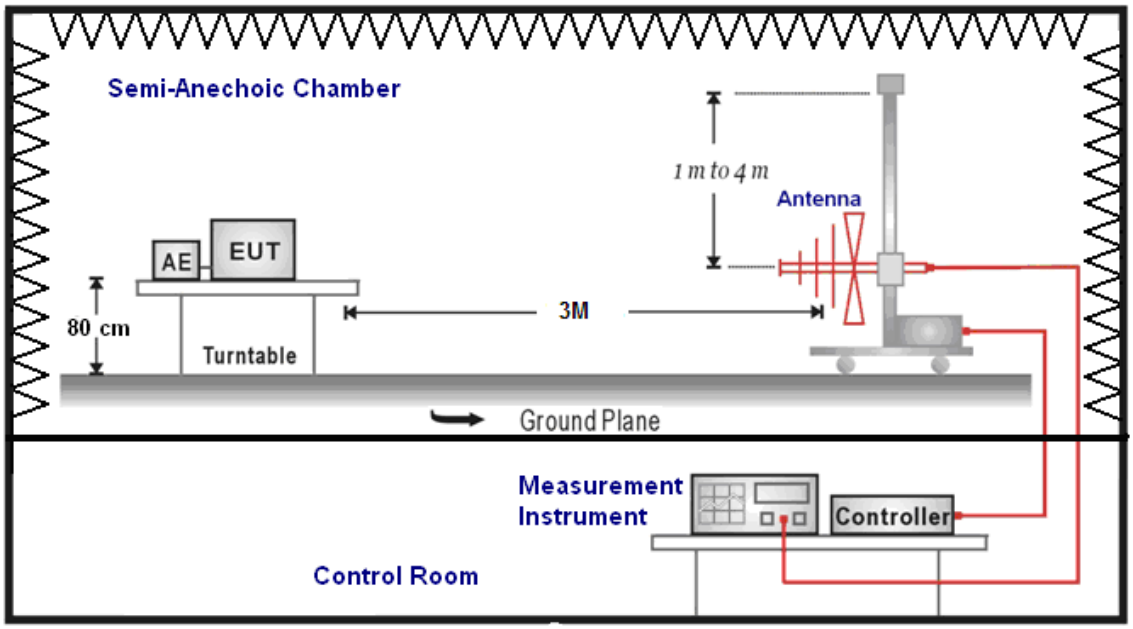
Note: 1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

■ **Setup**

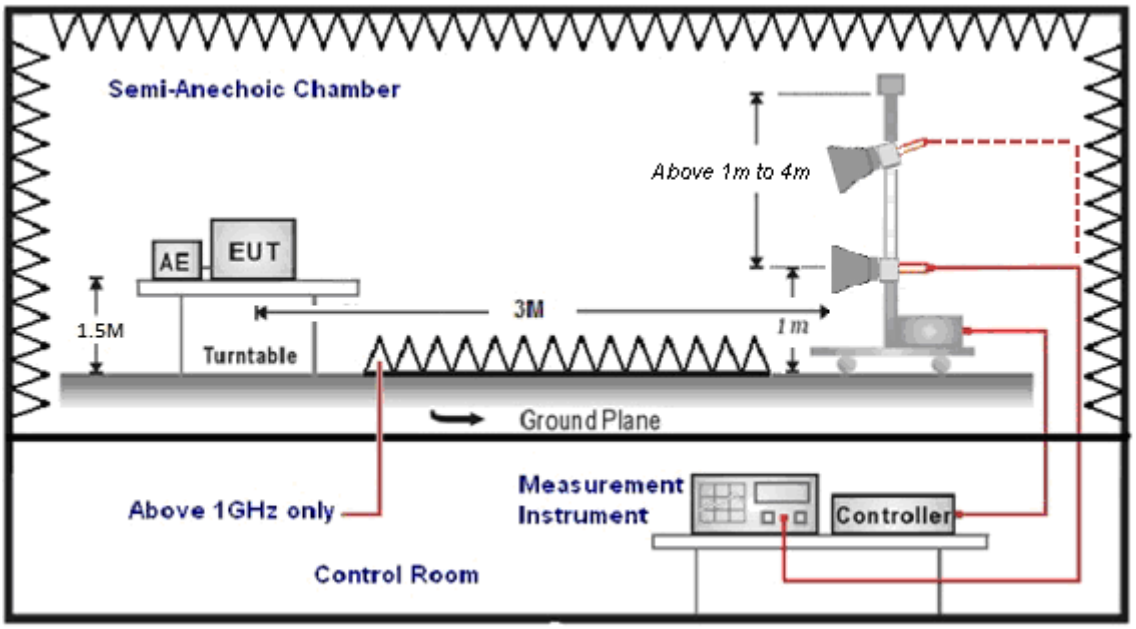
9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz


Semi-Anechoic Chamber
Above 1m to 4m
AE
EUT
1.5M
Turntable
3M
1m
Ground Plane
Above 1GHz only
Measurement Instrument
Controller
Control Room

■ **Test Procedure**

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 or 1.5 meters height(below 1 GHz use 0.8 m turntable / above 1 GHz use 1.5 m turntable), top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 40 GHz is investigated.

For measurements below 30 MHz the resolution bandwidth is set to 10 kHz for peak detection measurements or 9 kHz for quasi-peak detection measurements. The video bandwidth is 3 times of the resolution bandwidth.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For restricted measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements and 10 Hz for average measurements when Duty cycle > 0.98 / 1/T for average measurements when Duty cycle < 0.98.

For out of band measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 3 MHz for peak measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Trilog-Broadband Antenna at 3 Meter and the ETS-Lindgren Double-Ridged Waveguide Horn antnna Schwarzbeck Mess-Elektronik Broadband Horn Antenna was used in frequencies 1 – 40 GHz at a distance of 3 meter. The antenna at an angle toward the source of the emission.All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20 dB/decade).

For testing above 1 GHz, the emission level of the EUT in peak mode was 20 dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.
The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).
The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dBuV/m).

Data of measurement within this frequency range without mark in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.

The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)
FI= Reading of the field intensity.
AF= Antenna factor.
CL= Cable loss.
P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)
The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:
(a) For fundamental frequency : Transmitter Output < +30 dBm
(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

Measuring Instruments and setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RBW/VBW(Emission in restricted band)	1 MHz / 3 MHz for Peak 1 MHz / (1/T) for Average
RBW/VBW(Emission in non-restricted band)	1 MHz / 3 MHz for Peak

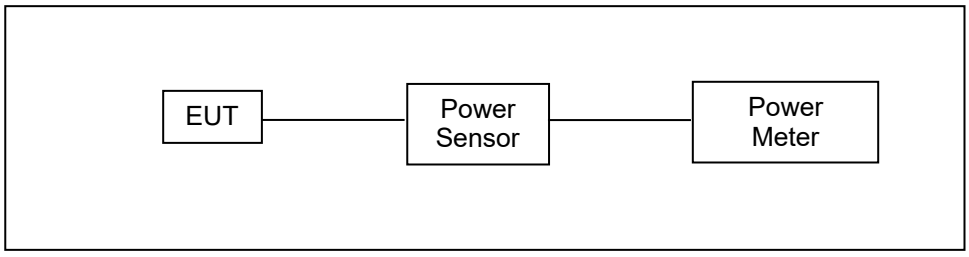
4.3. Maximum Conducted Output Power Measurement

■ **Limit**

Frequency Range (MHz)	FCC Maximum Conducted Output Power Limit
	Master
5.150 ~ 5.250 GHz	The lesser of 1 W (30 dBm)
5.250 ~ 5.350 GHz	The lesser of 250 mW (24 dBm) or 11 dBm + 10 log (B)
5.470 ~ 5.725 GHz	The lesser of 250 mW (24 dBm) or 11 dBm + 10 log (B)
5.725 ~ 5.850 GHz	The lesser of 1 W (30 dBm)

According FCC KDB 662911 D01 v02r01 – for power measurements on IEEE802.11 devices,

■ **Test Setup**



■ **Test Procedure**

The test is performed in accordance with ANSI C63.10:2013 section 12.3.3.2, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices
Section (E) Maximum Conducted Output Power
3. Measurement using a Power Meter (PM)
b) Method PM-G (Measurement using a gated RF average power meter)

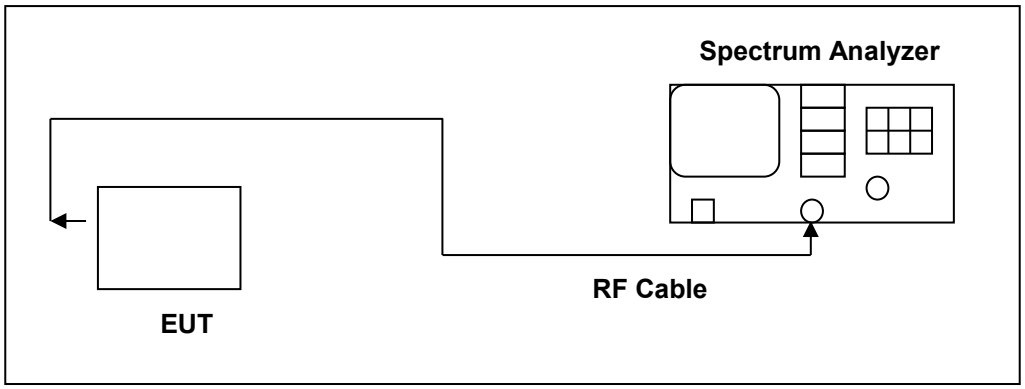
For Straddle channel, according to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, if the Power of the devices are uniform and comply with the lower limits specified for the Bands, a single measurement over the entire emission bandwidth can be preformed to show compliance.

4.4. 26 dB RF Bandwidth Measurement

■ Limit

N/A

■ Test Setup



■ Test Procedure

The test is performed in accordance with ANSI C63.10:2013 section 12.4.1, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	>26 dB Bandwidth
RBW	Approximately 1 % of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

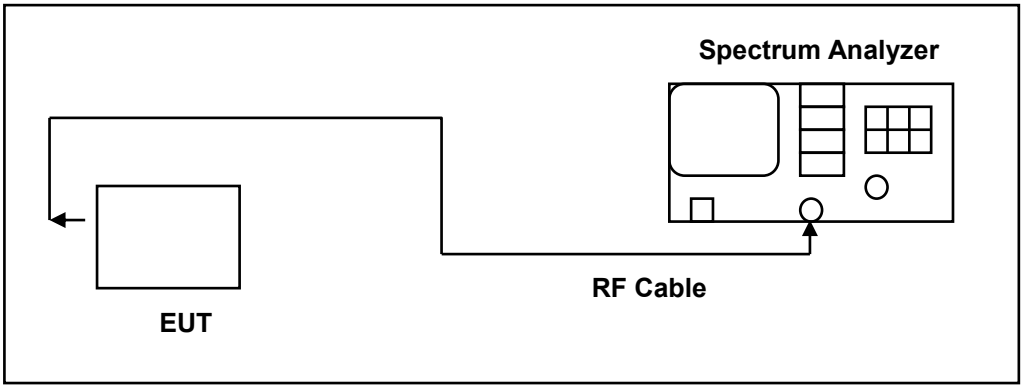
4.5. 6 dB RF Bandwidth Measurement

■ **Limit**

6 dB RF Bandwidth

Systems using digital modulation techniques may operate in the 5725~5825 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

■ **Test Setup**



■ **Test Procedure**

6 dB RF Bandwidth

The EUT tested to UNII test procedure of ANSI C63.10:2013 section 6.9.2 for compliance to FCC 47CFR 15.407 requirements.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.

The test was performed at 3 channels.

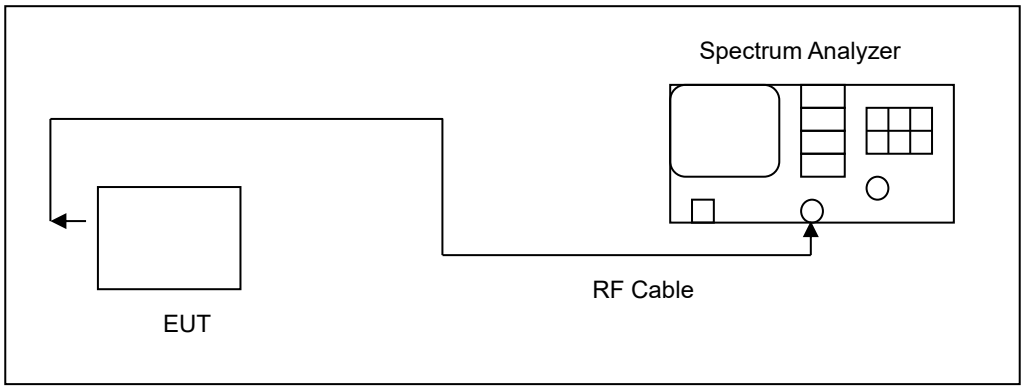
4.6. Maximum Power Spectral Density Measurement

■ **Limit**

Frequency Range (MHz)	FCC Limit
	Master
5.150 ~ 5.250 GHz	17 dBm/MHz
5.250 ~ 5.350 GHz	11 dBm/MHz
5.470 ~ 5.725 GHz	11 dBm/MHz
5.725 ~ 5.850 GHz	30 dBm/500 kHz

According FCC KDB 662911 D01 v02r01 – for power spectral density measurements on IEEE802.11 devices,

■ **Test Setup**



■ **Test Procedure**

The test is performed in accordance with ANSI C63.10:2013 section 12.5, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1 MHz (5725 ~ 5850 MHz use 100 kHz)
VBW	3 MHz (5725 ~ 5850 MHz use 300 kHz)
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log(500 kHz/100 kHz) to the measured result.	

4.7. Automatically discontinue transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

■ **Declare**

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 ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

4.8. Antenna Requirement

■ **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.

And According to 15.407 (a), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

■ **Antenna Connector Construction**

See section 2 – antenna information.

■ **Directional Gain Calculated**

Test mode	Band	Transmission Type	Antenna				Directional Gain for Power	Directional Gain for PSD	Power Limit Reduction	PSD Limit Reduction
			Ant-0 (dBi)	Ant-1 (dBi)	Ant-2 (dBi)	Ant-3 (dBi)	(dBi)	(dBi)	(dB)	(dB)
802.11a	Band 1	Ant-0	2.30	-	-	-	2.30	2.30	0.00	0.00
	Band 2-A		3.80	-	-	-	3.80	3.80	0.00	0.00
	Band 2-C		3.80	-	-	-	3.80	3.80	0.00	0.00
	Band 3		3.50	-	-	-	3.50	3.50	0.00	0.00
802.11n HT20 802.11n HT40 802.11ac VHT20 802.11ac VHT40 802.11ac VHT80 802.11ac VHT160 802.11ax HE20 802.11ax HE40 802.11ax HE80 802.11ax HE160 802.11be EHT20 802.11be EHT40 802.11be EHT80 802.11be EHT160	Band 1	Ant-0	2.30	-	-	-	2.30	2.30	0.00	0.00
	Band 2-A		3.80	-	-	-	3.80	3.80	0.00	0.00
	Band 2-C		3.80	-	-	-	3.80	3.80	0.00	0.00
	Band 3		3.50	-	-	-	3.50	3.50	0.00	0.00

Test mode	Band	Transmission Type	Antenna				Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
			Ant-0 (dBi)	Ant-1 (dBi)	Ant-2 (dBi)	Ant-3 (dBi)				
802.11a	Band 1	CDD	2.30	4.20	3.50	-	4.20	2.61	0.00	0.00
	Band 2-A		3.80	4.20	3.50	-	4.20	2.91	0.00	0.00
	Band 2-C		3.80	3.70	3.30	-	3.80	3.93	0.00	0.00
	Band 3		3.50	3.70	3.90	-	3.90	3.30	0.00	0.00
802.11n HT20 802.11n HT40 802.11ac VHT20 802.11ac VHT40 802.11ac VHT80 802.11ac VHT160 802.11ax HE20 802.11ax HE40 802.11ax HE80 802.11ax HE160 802.11be EHT20 802.11be EHT40 802.11be EHT80 802.11be EHT160	Band 1	CDD	2.30	4.20	3.50	-	4.20	2.61	0.00	0.00
	Band 2-A		3.80	4.20	3.50	-	4.20	2.91	0.00	0.00
	Band 2-C		3.80	3.70	3.30	-	3.80	3.93	0.00	0.00
	Band 3		3.50	3.70	3.90	-	3.90	3.30	0.00	0.00

Directional gain (Power) = GANT

Directional gain (PSD) = Array Gain

Test mode	Band	Transmission Type	Antenna				Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
			Ant-0 (dBi)	Ant-1 (dBi)	Ant-2 (dBi)	Ant-3 (dBi)				
802.11ac VHT20 802.11ac VHT40 802.11ac VHT80 802.11ac VHT160 802.11ax HE20 802.11ax HE40 802.11ax HE80 802.11ax HE160 802.11be EHT20 802.11be EHT40 802.11be EHT80 802.11be EHT160	Band 1	Beamforming	2.30	4.20	3.50	-	6.81	6.81	0.81	0.81
	Band 2-A		3.80	4.20	3.50	-	7.11	7.11	1.11	1.11
	Band 2-C		3.80	3.70	3.30	-	7.73	7.73	1.73	1.73
	Band 3		3.50	3.70	3.90	-	7.20	7.20	1.20	1.20

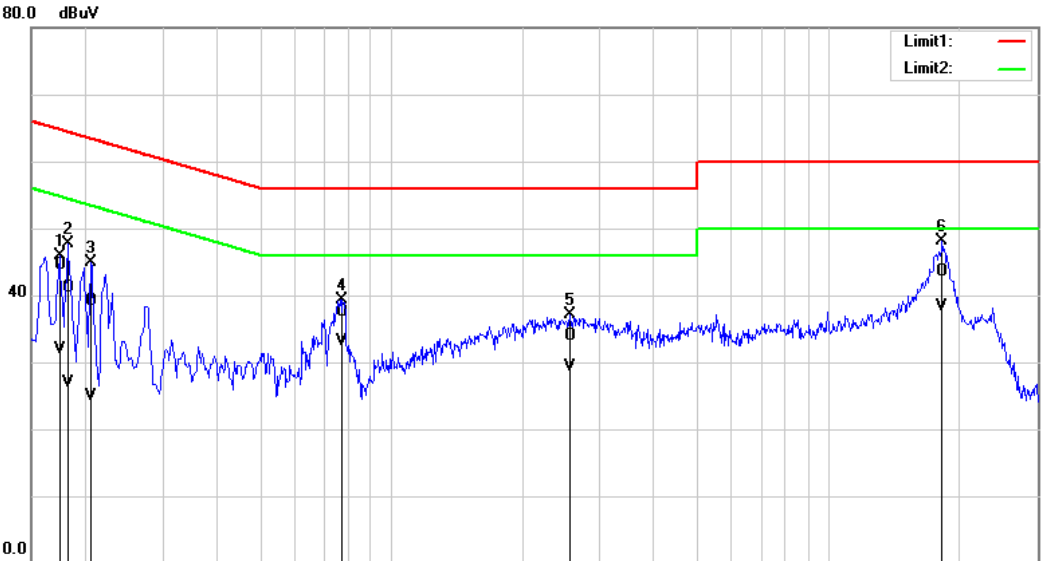
Directional gain (Power) = GANT + Array Gain

Directional gain (PSD) = GANT + Array Gain

5 Test Results

5.1. Conducted Emission

Standard:	FCC Part 15.407	Line:	L1
Test item:	Conducted Emission	Power:	AC 120 V/60 Hz
Test Mode:	Transmit mode		
Description:			

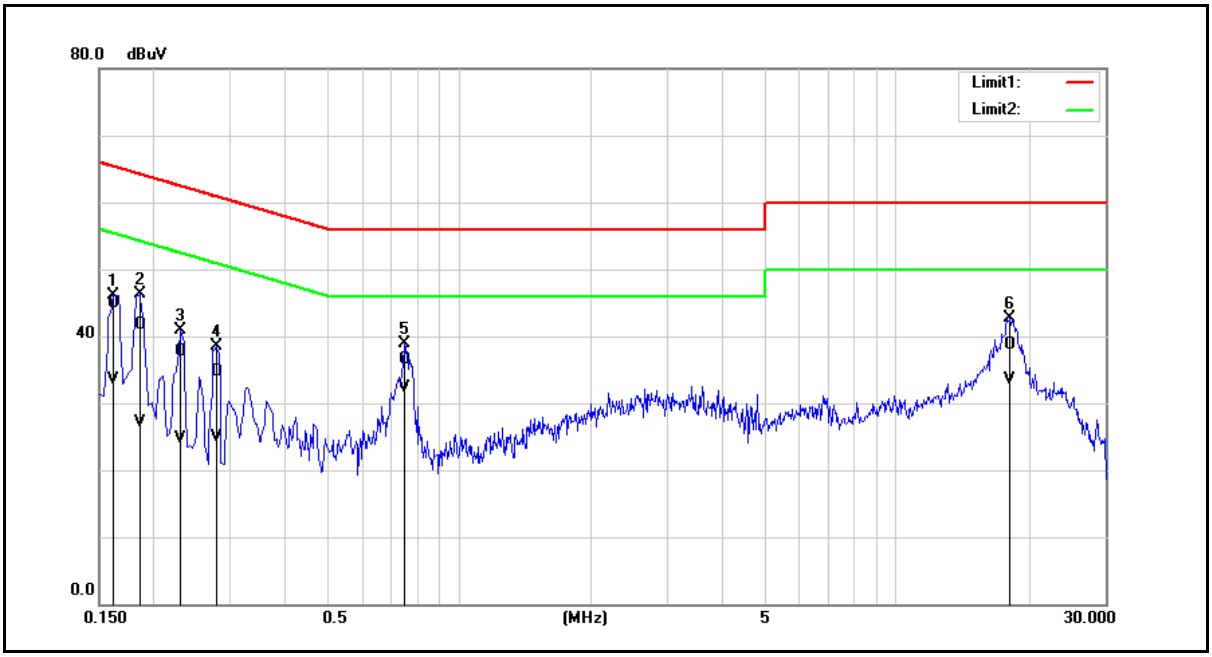


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1740	34.85	22.19	9.63	44.48	31.82	64.77	54.77	-20.29	-22.95	Pass
2	0.1820	31.58	17.25	9.62	41.20	26.87	64.39	54.39	-23.19	-27.52	Pass
3	0.2060	29.45	15.32	9.62	39.07	24.94	63.37	53.37	-24.30	-28.43	Pass
4	0.7740	27.93	23.40	9.66	37.59	33.06	56.00	46.00	-18.41	-12.94	Pass
5	2.5540	24.15	19.65	9.73	33.88	29.38	56.00	46.00	-22.12	-16.62	Pass
6	18.1900	33.46	28.35	10.00	43.46	38.35	60.00	50.00	-16.54	-11.65	Pass

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

Standard:	FCC Part 15.407	Line:	N
Test item:	Conducted Emission	Power:	AC 120 V/60 Hz
Test Mode:	Transmit mode		
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1620	35.36	23.86	9.62	44.98	33.48	65.36	55.36	-20.38	-21.88	Pass
2	0.1860	31.99	17.58	9.62	41.61	27.20	64.21	54.21	-22.60	-27.01	Pass
3	0.2300	28.09	15.10	9.62	37.71	24.72	62.45	52.45	-24.74	-27.73	Pass
4	0.2780	25.07	15.18	9.63	34.70	24.81	60.88	50.88	-26.18	-26.07	Pass
5	0.7500	26.86	22.74	9.66	36.52	32.40	56.00	46.00	-19.48	-13.60	Pass
6	18.2300	28.56	23.49	10.09	38.65	33.58	60.00	50.00	-21.35	-16.42	Pass

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

5.2. Radiated Emission Measurement

Reference Appendix C

5.3. Conducted Test Results

Duty cycle

Reference Appendix A / Appendix B

Maximum Conducted Output Power Measurement

Reference Appendix A

26 dB RF Bandwidth Measurement & 99 % Occupied Bandwidth Measurement

Reference Appendix A / Appendix B

6 dB RF Bandwidth Measurement

Reference Appendix A / Appendix B

Maximum Power Spectral Density Measurement

Reference Appendix A / Appendix B

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