TEST REPORT

Application No.:	BTEK241108034A01-T03
Applicant:	Shenzhen Union Aurora Technology Co., Ltd.
Address of Applicant:	1403A, Building 1, COFCO Innovation Park, Zone 67, Xingdong Community, Xin'an Street, Bao'an District, Shenzhen
Manufacturer:	Shenzhen Union Aurora Technology Co., Ltd.
Address of Manufacturer:	1403A, Building 1, COFCO Innovation Park, Zone 67, Xingdong Community, Xin'an Street, Bao'an District, Shenzhen
Equipment Under Test (EUT):	
EUT Name:	Smart Projector
Test Model.:	N1 pro
Adding Model(s):	P601,P602,P603,P605,P606,P608,P609,N1,N1 Ultra ,N1Se,N1 Mini, N2,N2Pro,N2 Ultra,N2Se,N2 Mini,N3,N3Pro,N3 Ultra,N3Se,N3Mini, N5,N5Pro,N5 Ultra,N5Se,N5Mini,N6,N6Pro,N6 Ultra,N6Se,N6Mini, N8,N8Pro,N8 Ultra,N8Se,N8Mini N9,N9Pro,N9 Ultra,N9Se,N9Mini, M1,M1Pro,M1 Ultra,M1Se,M1 Mini,M2,M2Pro,M2 Ultra,M2Se,M2 Mini, M3,M3Pro,M3 Ultra,M3Se,M3 Mini,M5,M5Pro,M5 Ultra,M5Se,M5 Mini, M6,M6Pro,M6 Ultra,M6Se,M6 Mini,M8,M8Pro,M8 Ultra,M8Se,M8 Mini, M9,M9Pro,M9 Ultra,M9Se,M9 Mini,P1,P1Pro,P1 Ultra,P1Se,P1 Mini, P2,P2Pro,P2 Ultra,P2Se,P2 Mini,P3,P3Pro,P3 Ultra,P3Se,P3Mini, P5,P5Pro,P5 Ultra,P5Se,P5Mini,P6,P6Pro,P6 Ultra,P6Se,P6Mini, P8,P8Pro,P8 Ultra,P8Se,P8Mini,P9,P9Pro,P9 Ultra,P9Se,P9Mini, X1,X1Xro,X1 Ultra,X1Se,X1 Mini,X2,X2Xro,X2 Ultra,X2Se,X2 Mini, X3,X3Xro,X3 Ultra,X3Se,X3Mini,X5,X5Xro,X5 Ultra,X5Se,X5Mini, X6,X6Xro,X6 Ultra,X6Se,X6Mini,X8,X8Xro,X8 Ultra,X8Se,X8Mini, X9,X9Xro,X9 Ultra,X9Se,X9Mini,U1,U1Uro,U1 Ultra,U1Se,U1 Mini, U2,U2Uro,U2 Ultra,U2Se,U2 Mini,U3,U3Uro,U3 Ultra,U3Se,U3Mini, U5,U5Uro,U5 Ultra,U5Se,U5Mini,U6,U6Uro,U6 Ultra,U6Se,U6Mini, U8,U8Uro,U8 Ultra,U8Se,U8Mini,U9,U9Uro,U9 Ultra,U9Se,U9Mini, V1,V1Vro,V1 Vltra,V1Se,V1 Mini,V2,V2Vro,V2 Vltra,V2Se,V2 Mini, V3,V3Vro,V3 Vltra,V3Se,V3Mini,V5,V5Vro,V5 Vltra,V5Se,V5Mini, V6,V6Vro,V6 Vltra,V6Se,V6Mini,V8,V8Vro,V8 Vltra,V8Se,V8Mini, V9,V9Vro,V9 Vltra,V9Se,V9Mini,M6,M6S,M6 Pro,M6 Se,M6 Ultra, M6 Mini P200,K200, D200, E200, M200,V200,X200,MX1,MX1 Pro,M1S, N1S,M1S Pro,MX2, MX2 Pro,M2S, N2S,M2SPro,MX3, MX3 Pro, M3S,N3S,M3S Pro, MX4,MX4 Pro,M4S, N4S,M4S Pro, MX5,MX5 Pro,M5S,N5S,M5S Pro,MX6, MX6 Pro,M6S,N6S,M6S Pro, MX7,MX7 Pro,M7S, N7S,M7S Pro,MX8,MX8 Pro,M8S,N8S,M8S Pro, MX9,MX9 Pro,M9S,N9S,M9S Pro
Trade Mark:	/
FCC ID:	2BOJD-N1PRO

Standard(s) :	47 CFR Part 15, Subpart E 15.407 789033 D02 General UNII Test Procedures New Rules v02r01 ANSI C63.10:2013
Date of Receipt Sample(s):	2024-12-09
Date of Test:	2024-12-10 to 2025-03-11
Date of Issue:	2025-03-12
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Lion Cai/ Approved & Authorized
EMC Laboratory Manager

Revision Record			
Version	**Issue Date**	**Revisions**	**Remarks**
V0	*2025-03-12*	Initial	Valid

Authorized for issue by:				
		 **Karl Liu / File Editor**		
		 **June Li/Reviewer**		

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Test Summary

Standard	Item	Requirement	Result
47 CFR Part 15, Subpart E 15.407	Antenna Requirement	47 CFR Part 15, Subpart C 15.203	Pass
	Transmission in the Absence of Data	47 CFR Part 15, Subpart E 15.407 (c)	Pass

Standard	Item	Requirement	Result
47 CFR Part 15, Subpart E 15.407	Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)	Pass
	Duty Cycle	KDB 789033 D02 II B 1	Pass
	99% Bandwidth	N/A	Pass
	26dB Emission bandwidth	47 CFR Part 15, Subpart E 15.407 (a)	Pass
	Minimum 6 dB bandwidth (5.725-5.85 GHz band)	47 CFR Part 15, Subpart E 15.407 (e)	Pass
	Maximum Conducted output power	47 CFR Part 15, Subpart E 15.407 (a)	Pass
	Power spectrum density	47 CFR Part 15, Subpart E 15.407 (a)	Pass
	Radiated Emissions	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
	Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
	Frequency Stability	47 CFR Part 15, Subpart E 15.407 (g)	Pass
	Transmitter Power Control	47 CFR Part 15, Subpart E 15.407 (h)(1)	N/A

Note:

N/A Mean's not Application.

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	AC/DC ADAPTERMODEL:MC80-190530Y INPUT:100-240V~50/60Hz 2.0A OUTPUT:19V⎓6A			
Support Standards:	802.11a, 802.11n(HT20) ,802.11n-HT40, 802.11ac-VHT20, 802.11ac-VHT40,802.11ac-VHT80			
Operation Frequency	U-NII-1:5180-5240MHz U-NII-2A: 5260-5320MHz U-NII-2C: 5500-5700MHz U-NII-3: 5745-5825MHz			
Modulation Type:	OFDM			
Channel Spacing:	802.11a/n(HT20/HT40)/ac(VHT20/VHT40/VHT80): 20MHz/40MHz/80MHz			
DFS Function:	Slave			
TPC Function:	No Support TPC function			
Antenna Type:	FPC Antenna			
Antenna Gain:	U-NII-1 ANT1:2.37dBi ANT2:2.09dBi	V-NII-2A ANT1:2.74dBi ANT2:1.99dBi	U-NII-2C ANT1:3.51dBi ANT2:3.36dBi	V-NII-3 ANT1:3.62dBi ANT2:2.08dBi
Model(s) Difference Statement	☐Single Model.			
	☒Multi-Models:N1 pro,P601,P602,P603,P605,P606,P608,P609,N1, N1 Ultra ,N1Se,N1 Mini, N2,N2Pro,N2 Ultra,N2Se,N2 Mini,N3,N3Pro, N3 Ultra,N3Se,N3Mini, N5,N5Pro,N5 Ultra,N5Se,N5Mini,N6,N6Pro, N6 Ultra,N6Se,N6Mini, N8,N8Pro,N8 Ultra,N8Se,N8Mini N9,N9Pro, N9 Ultra,N9Se,N9Mini, M1,M1Pro,M1 Ultra,M1Se,M1 Mini,M2,M2Pro, M2 Ultra,M2Se,M2 Mini, M3,M3Pro,M3 Ultra,M3Se,M3 Mini,M5,M5Pro, M5 Ultra,M5Se,M5 Mini, M6,M6Pro,M6 Ultra,M6Se,M6 Mini,M8,M8Pro, M8 Ultra,M8Se,M8 Mini, M9,M9Pro,M9 Ultra,M9Se,M9 Mini,P1,P1Pro, P1 Ultra,P1Se,P1 Mini, P2,P2Pro,P2 Ultra,P2Se,P2 Mini,P3,P3Pro, P3 Ultra,P3Se,P3Mini, P5,P5Pro,P5 Ultra,P5Se,P5Mini,P6,P6Pro, P6 Ultra,P6Se,P6Mini, P8,P8Pro,P8 Ultra,P8Se,P8Mini,P9,P9Pro, P9 Ultra,P9Se,P9Mini, X1,X1Xro,X1 Ultra,X1Se,X1 Mini,X2,X2Xro, X2 Ultra,X2Se,X2 Mini, X3,X3Xro,X3 Ultra,X3Se,X3Mini,X5,X5Xro, X5 Ultra,X5Se,X5Mini, X6,X6Xro,X6 Ultra,X6Se,X6Mini,X8,X8Xro, X8 Ultra,X8Se,X8Mini, X9,X9Xro,X9 Ultra,X9Se,X9Mini,U1,U1Uro, U1 Ultra,U1Se,U1 Mini, U2,U2Uro,U2 Ultra,U2Se,U2 Mini,U3,U3Uro, U3 Ultra,U3Se,U3Mini, U5,U5Uro,U5 Ultra,U5Se,U5Mini,U6,U6Uro, U6 Ultra,U6Se,U6Mini, U8,U8Uro,U8 Ultra,U8Se,U8Mini,U9,U9Uro, U9 Ultra,U9Se,U9Mini, V1,V1Vro,V1 Vltra,V1Se,V1 Mini,V2,V2Vro, V2 Vltra,V2Se,V2 Mini, V3,V3Vro,V3 Vltra,V3Se,V3Mini,V5,V5Vro, V5 Vltra,V5Se,V5Mini, V6,V6Vro,V6 Vltra,V6Se,V6Mini,V8,V8Vro, V8 Vltra,V8Se,V8Mini, V9,V9Vro,V9 Vltra,V9Se,V9Mini,M6,M6S,M6 Pro, M6 Se,M6 Ultra,M6 Mini P200,K200, D200, E200, M200,V200,X200, MX1,MX1 Pro,M1S, N1S,M1S Pro,MX2, MX2 Pro,M2S, N2S,M2SPro,MX3, MX3 Pro,M3S,N3S,M3S Pro, MX4,MX4 Pro,M4S, N4S,M4S Pro, MX5,MX5 Pro,M5S,N5S,M5S Pro,MX6, MX6 Pro,M6S,N6S,M6S Pro, MX7,MX7 Pro,M7S, N7S,M7S Pro,MX8,MX8 Pro,M8S,N8S,M8S Pro, MX9,MX9 Pro,M9S,N9S,M9S Pro Only the model N1 pro was tested. According to the declaration from the			

	applicant, the electrical circuit design, layout, components used, internal wiring and functions of other models are identical for the above models, with only difference on Model No
Sample No.:	BTEK241108034A01E-1

4.2 EUT Test Mode and Test Condition

Test Conditions	
Temperature:	22.2 °C
Relative Humidity:	33 %
ATM Pressure:	1010 mbar

Test Mode

Test Channel and Frequency list						
Operating band	20MHz		40MHz		80MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
U-NII-1	36	5180	38	5190	42	5210
	40	5200	46	5230		
	44	5220				
	48	5240				
U-NII-2A	52	5260	54	5270	56	5290
	56	5280	62	5310		
	60	5300				
	64	5320				
U-NII-2C	100	5500	102	5510	106	5530
	104	5520	110	5550	122	5610
	108	5540	118	5590		
	112	5560	126	5630		
	116	5580	134	5670		
	120	5600				
	124	5620				
	128	5640				
	132	5660				
	136	5680				
	140	5700				
U-NII-3	149	5745	151	5755	155	5755
	153	5765	159	5795		
	157	5785				
	161	5805				
	165	5825				

Test Software	RFTestSoftware
Test Software version	0.0.0.0

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 3.1dB

Duty Cycle	± 0.37%
99% Bandwidth	± 3%
26dB Emission bandwidth	± 3%
Minimum 6 dB bandwidth (5.725-5.85 GHz band)	± 3%
Maximum Conducted output power	± 0.75dB
Peak Power spectrum density	± 2.84dB
Radiated Emissions (Below 1GHz)	± 6.0dB for 3m; ± 5.0dB for 10m
Radiated Emissions (Above 1GHz)	± 4.6dB (1-18GHz);± 4.8dB (18-40GHz)
Radiated Emissions which fall in the restricted bands	± 6.0dB (below 1GHz); ± 4.6dB (above 1GHz);
Frequency Stability	± 7.25 x 10-8
Transmitter Power Control	± 0.75dB

4.4 Test Location

All tests were performed at:

Shenzhen BANTEK Testing Co., Ltd.
A5&A6, Building B1&B2, No.45 Gangtou Road, Bogang Community, Shajing Street, Bao'an District, Shenzhen, Guangdong, China 518104
Tel: +86 0755-2334 4200 Fax: +86 0755-2334 4200
FCC Registration Number: 264293
Designation Number: CN1356
No tests were sub-contracted.

4.5 Deviation from Standards

None

4.6 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Test					
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Cal. Due**
Shielding Room	YIHENG ENECTRONIC	9*5*3.3	YH-BT-220304-04	2025-02-15	2028-02-14
EMI Test Receiver	Rohde&Schwarz	ESCI	101021	2024-06-11	2025-06-10
Measurement Software	Fara	EZ_EMC Ver. FA-03A2	N/A	N/A	N/A
LISN	Rohde&Schwarz	ENV216	101472	2024-06-11	2025-06-10
LISN	Schwarzbeck	NSLK 8128	05127	2024-06-11	2025-06-10

RF Conducted					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
Shielding Room	YIHENG ENECTRONIC	5.5*3.1*3	YH-BT-220304-03	2025-02-15	2028-02-14
EXA Signal Analyzer	KEYSIGHT	N9020A	MY54230486	2024-06-11	2025-06-10
DC Power Supply	E3632A	E3642A	KR75304416	2024-06-11	2025-06-10
Attenuator	RswTech	SMA-JK-6dB	N/A	2024-06-11	2025-06-10
Attenuator	RswTech	SMA-JK-3dB	N/A	2024-06-11	2025-06-10
RF Control Unit	Techy	TR1029-1	N/A	2024-06-11	2025-06-10
RF Sensor Unit	Techy	TR1029-2	N/A	2024-06-11	2025-06-10
WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW 500	141258	2024-06-11	2025-06-10
MXG Vector Signal Generator	Agilent	N5182A	US46240522	2024-06-11	2025-06-10
Programmable Temperature&Humidity Chamber	GRT	GR-HWX1000	GR22051001	2024-06-11	2025-06-10
Measurement Software	TACHOY	RF TestSoft	N/A	N/A	N/A

RSE					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	YIHENG ENECTRONIC	966	YH-BT-220304-01	2025-02-15	2028-02-14
EMI Test Receiver	Rohde&Schwarz	ESCI	100694	2024-06-11	2025-06-10
TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	01324	2024-06-16	2025-06-15
Pre-Amplifier	Schwarzbeck	BBV 9745	#180	2024-06-11	2025-06-10
Measurement Software	Fara	EZ_EMC Ver. FA-03A2	N/A	2024-06-11	2025-06-10
EXA Signal Analyzer	Keysight	N9020A	MY54440290	2024-06-11	2025-06-10
Horn Antenna	Schwarzbeck	BBHA 9120D	02695	2024-06-15	2025-06-14
Pre-Amplifier	Tonscend	TAP0118045	AP20K806109	2024-06-11	2025-06-10
Horn Antenna	SCHWARZBECK	BBHA9170	1157	2024-06-15	2025-06-14
Low Noise Pre-amplifier	SKET	LNPA-1840G-50	SK2022032902	2024-06-11	2025-06-10
Signal analyzer	ROHDE&SCHWARZ	FSQ40	100010	2024-06-11	2025-06-10

Loop Antenna	ETS	6502	00201177	2024-06-15	2025-06-14
Cable	BTEK	LMR400UF-NMNM-7.00M	/	2024-06-15	2025-06-14
Cable	BTEK	LMR400UF-NMNM-2.50M	/	2024-06-15	2025-06-14
Cable	BTEK	LMR400UF-NMNM-3.00M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-7.00M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-2.50M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-2.50M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-0.30M	/	2024-06-15	2025-06-14

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

According to FCC Part 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 shall be considered sufficient to comply with the provisions of this section.

6.1.2 Conclusion

This product has an integral antenna, fulfill the requirement of this section.

6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

According to FCC Part 15.407(c), 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 signaling 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 to describe how this requirement is met.

6.2.2 Conclusion

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.

7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

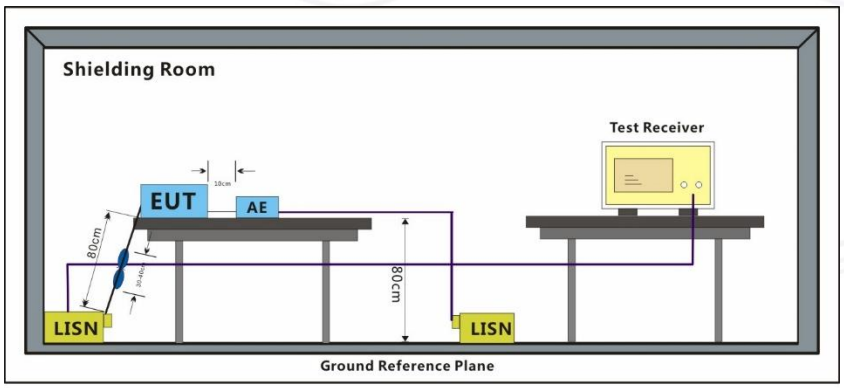
Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Aver
0.15-0.5	66 to 56*	56 to
0.5-5	56	4
5-30	60	5
*Decreases with the logarithm of the frequency.		
Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz		

7.1.1 Test Setup Diagram



7.1.2 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

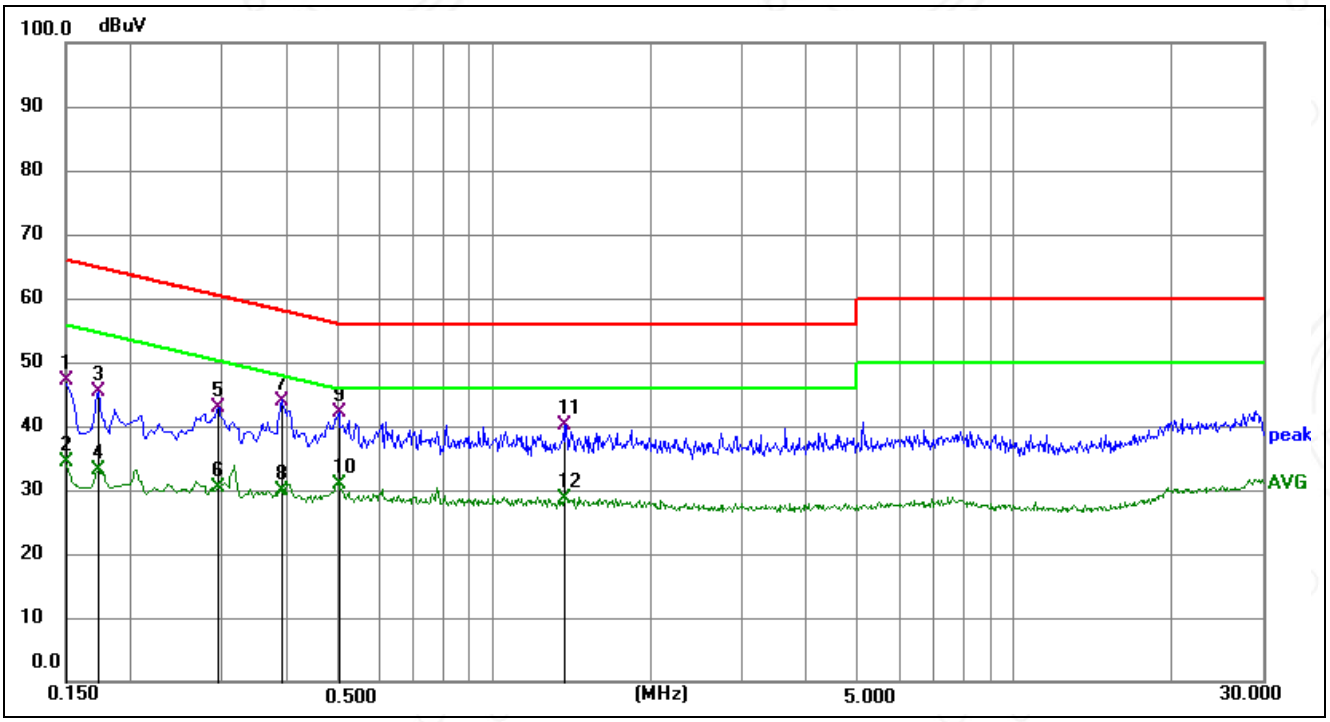
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

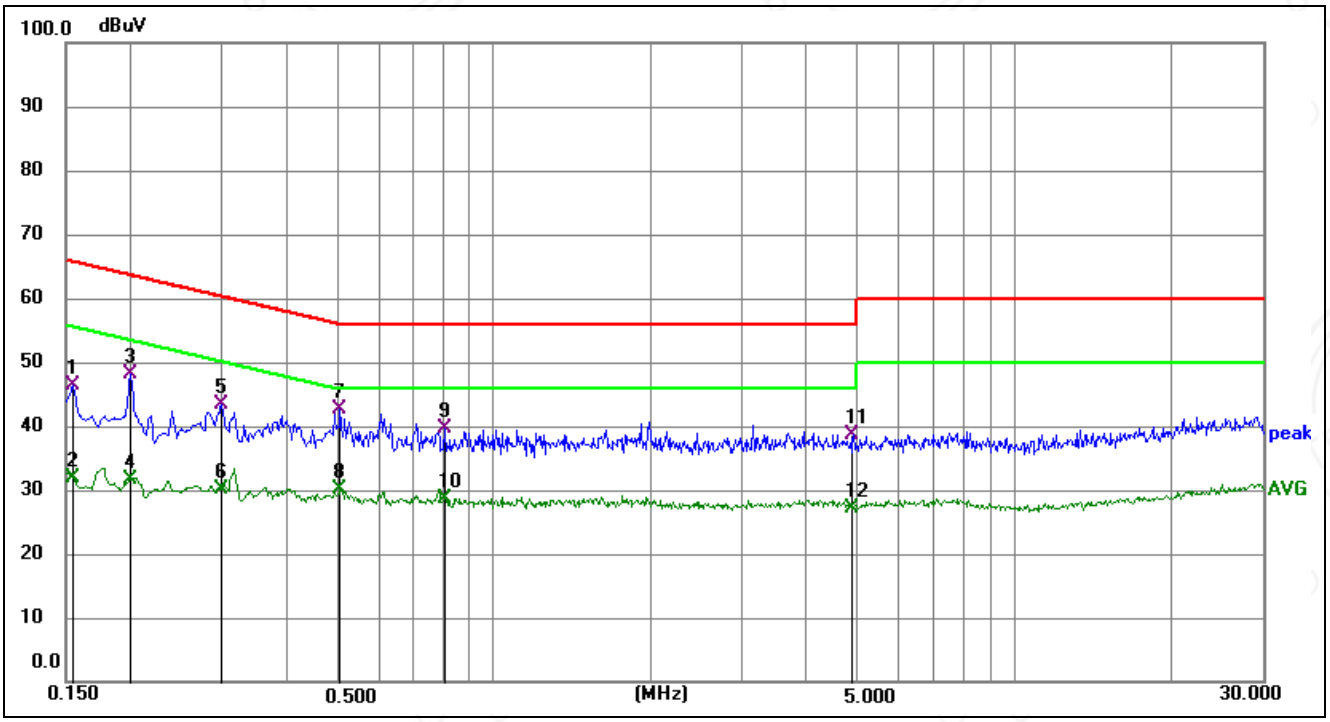
Remark: LISN=Read Level+ Cable Loss+ LISN Factor

Test Mode	Communication-TX	Polarity:	Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	27.10	19.91	47.01	66.00	-18.99	QP	P	
2	0.1500	14.47	19.91	34.38	56.00	-21.62	AVG	P	
3	0.1725	25.43	19.92	45.35	64.84	-19.49	QP	P	
4	0.1725	13.09	19.92	33.01	54.84	-21.83	AVG	P	
5	0.2940	23.04	19.94	42.98	60.41	-17.43	QP	P	
6	0.2940	10.47	19.94	30.41	50.41	-20.00	AVG	P	
7	0.3885	24.06	19.94	44.00	58.10	-14.10	QP	P	
8	0.3885	10.02	19.94	29.96	48.10	-18.14	AVG	P	
9 *	0.5010	22.24	19.96	42.20	56.00	-13.80	QP	P	
10	0.5010	10.80	19.96	30.76	46.00	-15.24	AVG	P	
11	1.3650	19.95	20.11	40.06	56.00	-15.94	QP	P	
12	1.3650	8.59	20.11	28.70	46.00	-17.30	AVG	P	

Test Mode	Communication-TX	Polarity:	Line

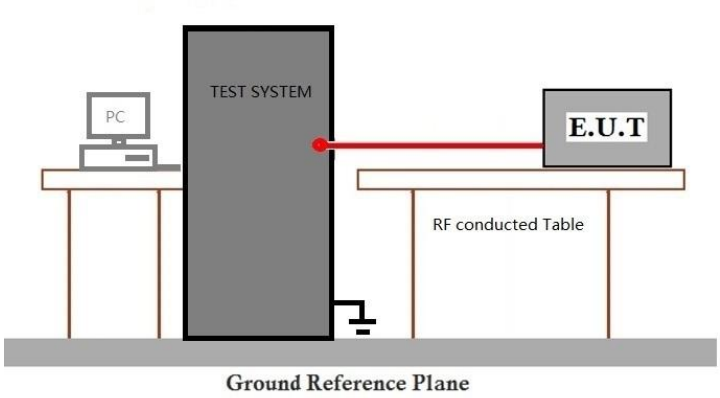


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1545	26.49	19.85	46.34	65.75	-19.41	QP	P	
2	0.1545	12.15	19.85	32.00	55.75	-23.75	AVG	P	
3	0.1995	28.38	19.86	48.24	63.63	-15.39	QP	P	
4	0.1995	11.79	19.86	31.65	53.63	-21.98	AVG	P	
5	0.2985	23.45	19.87	43.32	60.28	-16.96	QP	P	
6	0.2985	10.22	19.87	30.09	50.28	-20.19	AVG	P	
7 *	0.5055	22.63	19.89	42.52	56.00	-13.48	QP	P	
8	0.5055	10.30	19.89	30.19	46.00	-15.81	AVG	P	
9	0.8025	19.63	19.96	39.59	56.00	-16.41	QP	P	
10	0.8025	8.56	19.96	28.52	46.00	-17.48	AVG	P	
11	4.9064	18.29	20.31	38.60	56.00	-17.40	QP	P	
12	4.9064	6.90	20.31	27.21	46.00	-18.79	AVG	P	

7.2 Duty Cycle

Test Requirement KDB 789033 D02 II B 1
Test Method: KDB 789033 D02 B 1
Limit: /

7.2.1 Test Setup Diagram



7.2.2 Measurement Procedure and Data

Please Refer to Appendix for Details

7.3 Emission Bandwidth and Occupied Bandwidth

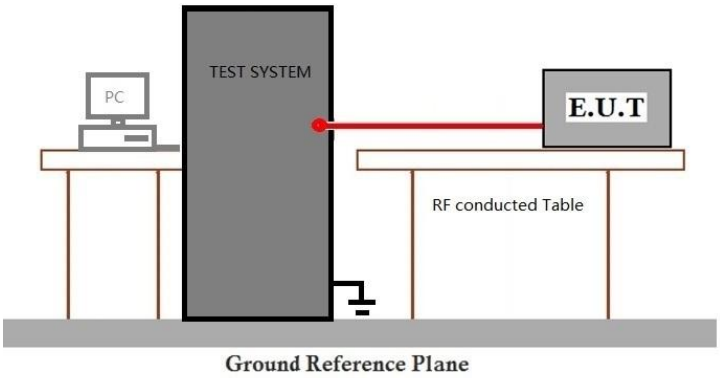
Test Requirement Subpart E 15.407 (a), (e)

Test Method: KDB 789033 D02 C

Limit:

99% Bandwidth	/
26dB Emission bandwidth	/
Minimum 6 dB bandwidth	≥500kHz(Only for 5725-5850MHz

7.3.1 Test Setup Diagram



7.3.2 Measurement Procedure and Data

Please Refer to Appendix for Details

7.4 Maximum Conducted output power

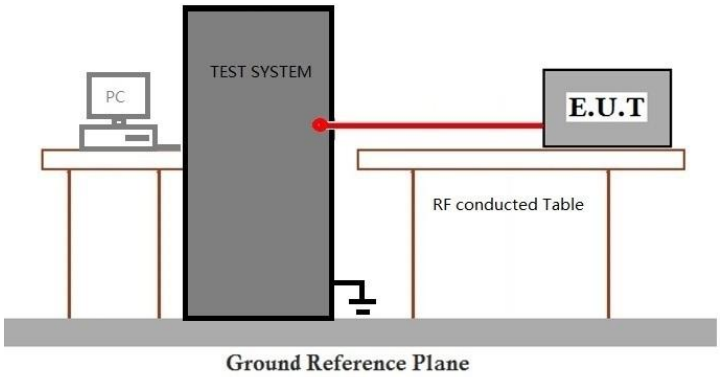
Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 II E

Limit:

Frequency Band (MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) or 11dBm+10logB*
5470-5725	≤250mW(24dBm) or 11dBm+10logB*
5725-5850	≤1W(30dBm)
Remark:* Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.	

7.4.1 Test Setup Diagram



7.4.2 Measurement Procedure and Data

Please Refer to Appendix for Details

7.5 Power Spectrum Density

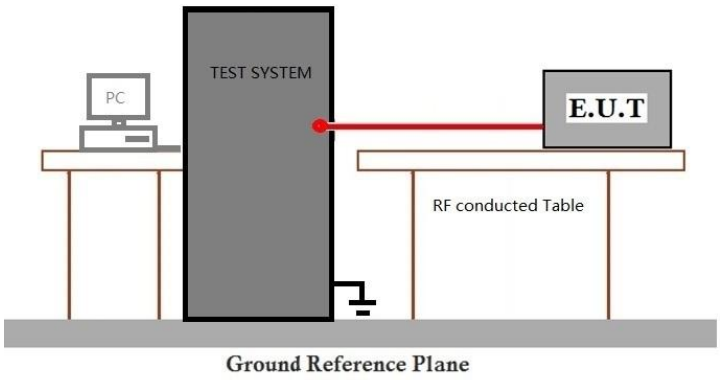
Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 F

Limit:

Frequency Band (MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz
Remark: The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.	

7.5.1 Test Setup Diagram



7.5.2 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6 Radiated Spurious Emissions

Test Requirement: 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: KDB 789033 D02 II G

Limit: *(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(5) Unwanted spurious emissions falls in restricted bands shall comply with the general field strength limits as below table,

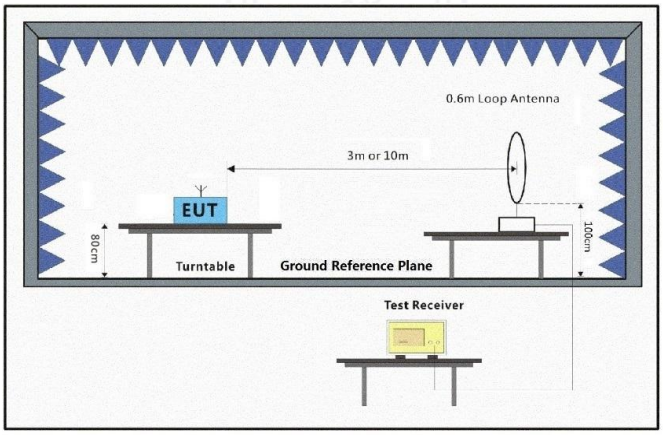
Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

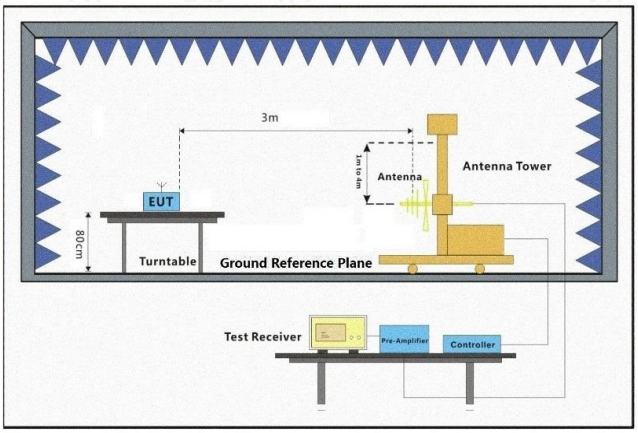
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

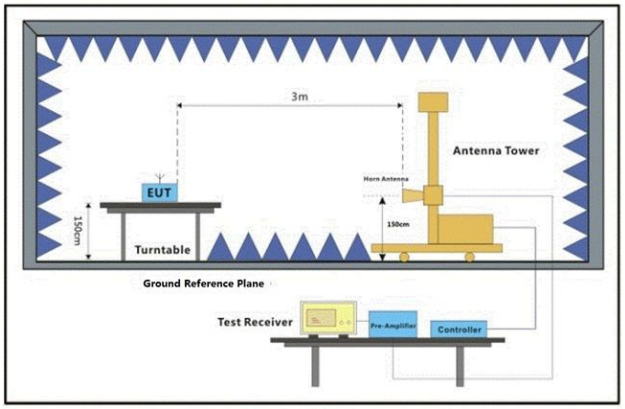
EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.3

Remark: $E=\frac{1000000\sqrt{30P}}{3}$ μV/m, where P is the eirp (Watts)

7.6.1 Test Setup Diagram







Above 1GHz

7.6.2 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

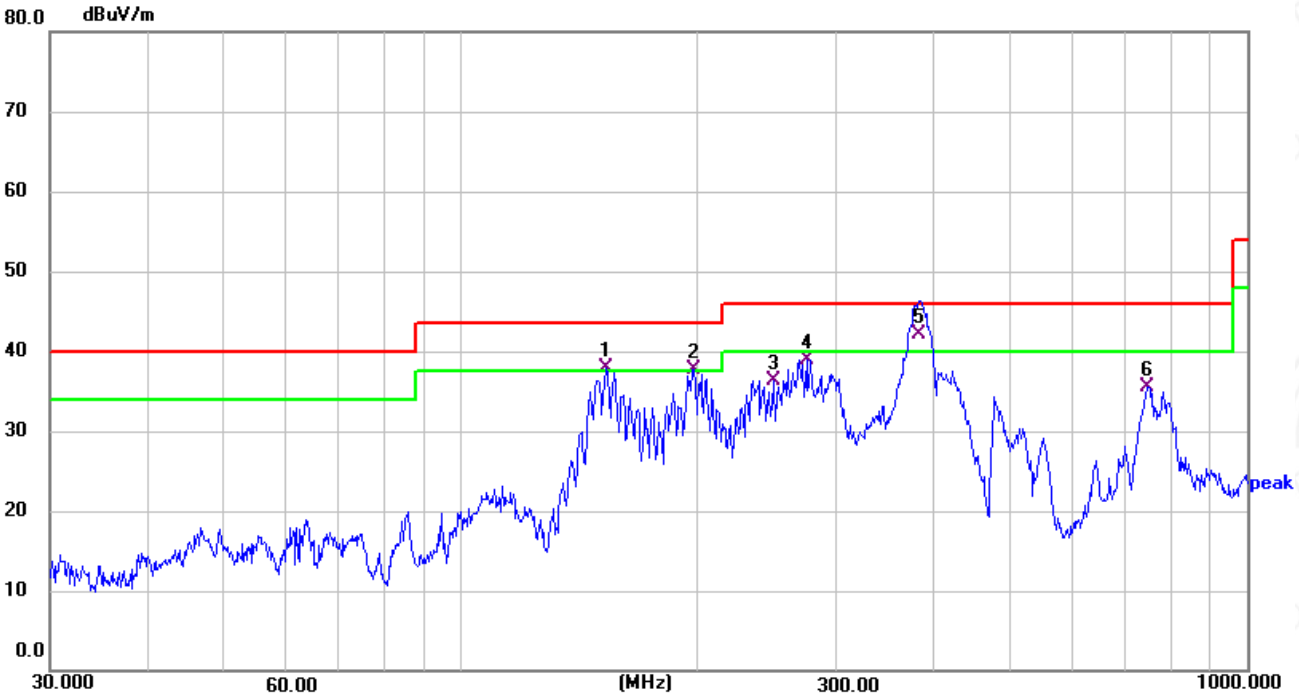
g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

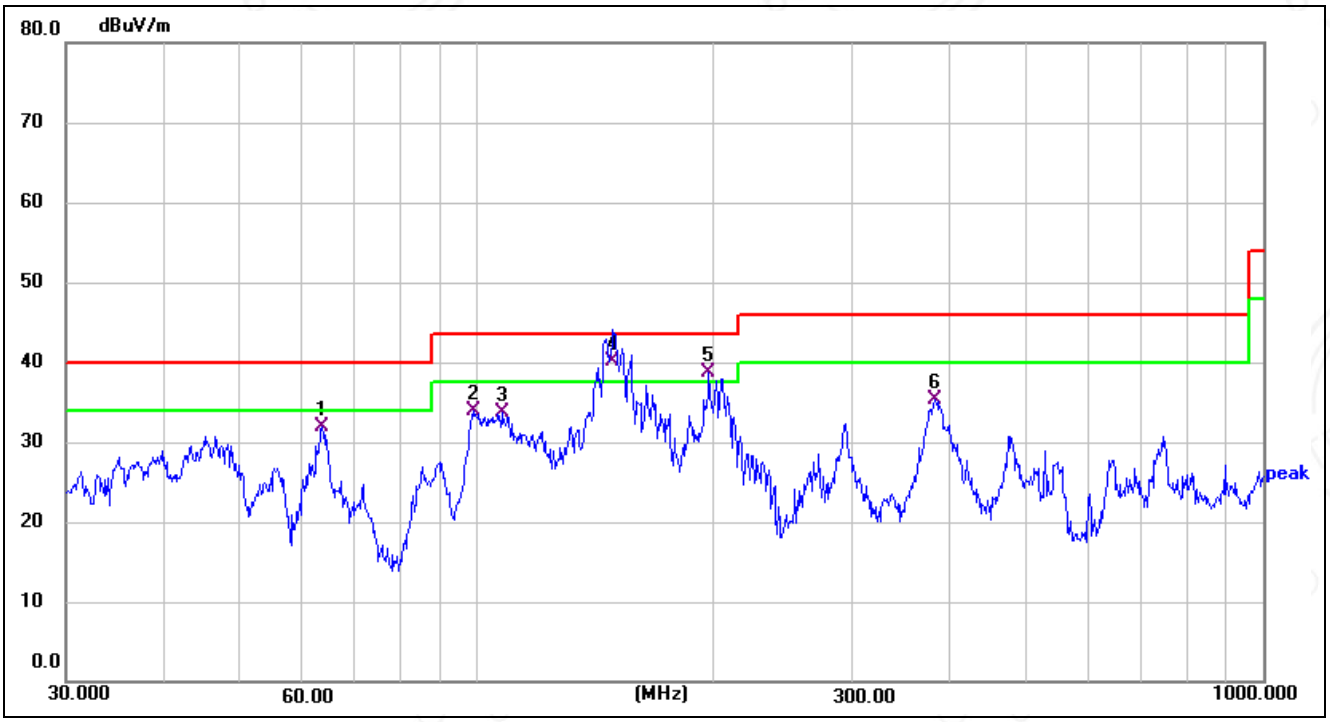
Spurious Emissions Below 1GHz

Test Channel	Low	Polarity:	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 !	153.2004	55.18	-17.31	37.87	43.50	-5.63	QP	100	150	P	
2 !	197.8928	57.27	-19.56	37.71	43.50	-5.79	QP	100	150	P	
3	249.4250	55.29	-18.94	36.35	46.00	-9.65	QP	100	150	P	
4	275.1570	57.27	-18.32	38.95	46.00	-7.05	QP	100	150	P	
5 *	382.5879	57.82	-15.62	42.20	46.00	-3.80	QP	100	150	P	
6	747.4825	44.78	-9.23	35.55	46.00	-10.45	QP	100	150	P	

Test Channel	Low	Polarity:	Vertical



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	63.5356	51.08	-19.22	31.86	40.00	-8.14	QP	100	0	P	
2	99.1797	55.77	-21.96	33.81	43.50	-9.69	QP	100	0	P	
3	107.5101	54.20	-20.50	33.70	43.50	-9.80	QP	100	0	P	
4 *	148.9625	57.33	-17.23	40.10	43.50	-3.40	QP	100	0	P	
5 !	197.2001	58.28	-19.50	38.78	43.50	-4.72	QP	100	0	P	
6	382.5879	51.02	-15.62	35.40	46.00	-10.60	QP	100	0	P	

Remark:

1) All mode had been tested, only the worst mode 802.11a is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Reading Level + Factor

3) Scan from 9kHz to 1 GHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

Above 1GHz

UNII-1_20M_5180MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2913.743	70.39	-29.1	41.29	68.2	-26.91	peak	P
2	4277.179	68.79	-28.32	40.47	68.2	-27.73	peak	P
3	6086.413	64.99	-26.08	38.91	68.2	-29.29	peak	P
4	8646.062	69.37	-24.53	44.84	68.2	-23.36	peak	P
5	11047.421	68.5	-23.29	45.21	68.2	-22.99	peak	P
6	14217.875	71.24	-20.77	50.47	68.2	-17.73	peak	P

UNII-1_20M_5180MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2972.925	65.83	-29.61	36.22	68.2	-31.98	peak	P
2	4313.629	69.48	-29.87	39.61	68.2	-28.59	peak	P
3	6353.289	67.04	-25.91	41.13	68.2	-27.07	peak	P
4	8576.310	69.2	-25.39	43.81	68.2	-24.39	peak	P
5	11285.237	66.63	-23.24	43.39	68.2	-24.81	peak	P
6	14956.165	70.8	-21.24	49.56	68.2	-18.64	peak	P

UNII-1_20M_5240MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2913.861	69.97	-30.33	39.64	68.2	-28.56	peak	P
2	4276.352	68.55	-28.33	40.22	68.2	-27.98	peak	P
3	6086.064	65.1	-25.62	39.48	68.2	-28.72	peak	P
4	8645.259	69.96	-24.17	45.79	68.2	-22.41	peak	P
5	11046.623	68.3	-23.53	44.77	68.2	-23.43	peak	P
6	14218.244	69.89	-21	48.89	68.2	-19.31	peak	P

UNII-1_20M_5240MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2973.507	67.02	-29.61	37.41	68.2	-30.79	peak	P
2	4312.209	69.47	-29.58	39.89	68.2	-28.31	peak	P
3	6353.567	68.19	-24.45	43.74	68.2	-24.46	peak	P
4	8575.770	69.9	-24.58	45.32	68.2	-22.88	peak	P
5	11285.724	68.21	-23.97	44.24	68.2	-23.96	peak	P
6	14955.950	70.93	-20.92	50.01	68.2	-18.19	peak	P

UNII-2A_20M_5320MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2915.558	68.63	-30.36	38.27	68.2	-29.93	peak	P
2	4277.719	67.55	-28.18	39.37	68.2	-28.83	peak	P
3	6084.764	64.74	-24.9	39.84	68.2	-28.36	peak	P
4	8646.448	68.48	-24.3	44.18	68.2	-24.02	peak	P
5	11046.897	68.06	-23.37	44.69	68.2	-23.51	peak	P
6	14219.038	70.67	-20.77	49.9	68.2	-18.3	peak	P

UNII-2A_20M_5320MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2973.010	68.1	-29.7	38.4	68.2	-29.8	peak	P
2	4312.347	69.32	-28.49	40.83	68.2	-27.37	peak	P
3	6353.038	67.53	-25.94	41.59	68.2	-26.61	peak	P
4	8576.707	69.52	-24.31	45.21	68.2	-22.99	peak	P
5	11286.165	68.62	-24.3	44.32	68.2	-23.88	peak	P
6	14956.594	71.28	-20.79	50.49	68.2	-17.71	peak	P

UNII-2C_20M_5500MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2914.324	70.08	-29.42	40.66	68.2	-27.54	peak	P
2	4278.011	68.58	-29.07	39.51	68.2	-28.69	peak	P
3	6086.428	66.05	-25.41	40.64	68.2	-27.56	peak	P
4	8645.144	69.54	-25.38	44.16	68.2	-24.04	peak	P
5	11048.225	66.71	-23.93	42.78	68.2	-25.42	peak	P
6	14217.638	71.78	-20.78	51	68.2	-17.2	peak	P

UNII-2C_20M_5500MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2972.669	67.61	-30.39	37.22	68.2	-30.98	peak	P
2	4312.764	68.1	-28.36	39.74	68.2	-28.46	peak	P
3	6353.661	68.02	-24.41	43.61	68.2	-24.59	peak	P
4	8577.008	70.42	-25.24	45.18	68.2	-23.02	peak	P
5	11286.351	66.8	-22.57	44.23	68.2	-23.97	peak	P
6	14956.791	71.1	-19.58	51.52	68.2	-16.68	peak	P

UNII-2C_20M_5600MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2914.017	69.58	-29.64	39.94	68.2	-28.26	peak	P
2	4277.557	68.6	-28.52	40.08	68.2	-28.12	peak	P
3	6086.216	65.21	-25.26	39.95	68.2	-28.25	peak	P
4	8646.354	69.77	-25.49	44.28	68.2	-23.92	peak	P
5	11047.265	67.92	-23	44.92	68.2	-23.28	peak	P
6	14217.524	70.46	-20.42	50.04	68.2	-18.16	peak	P

UNII-2C_20M_5600MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2974.200	67.49	-29.17	38.32	68.2	-29.88	peak	P
2	4313.770	68.52	-28.36	40.16	68.2	-28.04	peak	P
3	6354.207	66.22	-24.65	41.57	68.2	-26.63	peak	P
4	8576.543	69.8	-26.08	43.72	68.2	-24.48	peak	P
5	11286.205	66.92	-23.45	43.47	68.2	-24.73	peak	P
6	14956.147	71.1	-20.21	50.89	68.2	-17.31	peak	P

UNII-2C_20M_5700MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2913.593	69.42	-30.32	39.1	68.2	-29.1	peak	P
2	4277.843	67.47	-29.8	37.67	68.2	-30.53	peak	P
3	6084.518	64.46	-24.83	39.63	68.2	-28.57	peak	P
4	8645.123	69.06	-24.69	44.37	68.2	-23.83	peak	P
5	11046.505	68.36	-24.34	44.02	68.2	-24.18	peak	P
6	14218.966	70.54	-21.73	48.81	68.2	-19.39	peak	P

UNII-2C_20M_5700MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2973.585	67.16	-30.54	36.62	68.2	-31.58	peak	P
2	4312.325	69.33	-27.92	41.41	68.2	-26.79	peak	P
3	6354.089	66.89	-24.55	42.34	68.2	-25.86	peak	P
4	8576.732	69.25	-26.16	43.09	68.2	-25.11	peak	P
5	11286.708	68.32	-22.43	45.89	68.2	-22.31	peak	P
6	14956.319	70.03	-21.24	48.79	68.2	-19.41	peak	P

UNII-3_20M_5745MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2913.665	69.25	-30.17	39.08	68.2	-29.12	peak	P
2	4276.791	67.25	-28.54	38.71	68.2	-29.49	peak	P
3	6084.656	64.3	-25.83	38.47	68.2	-29.73	peak	P
4	8645.843	70.78	-24.46	46.32	68.2	-21.88	peak	P
5	11046.780	67.41	-24.25	43.16	68.2	-25.04	peak	P
6	14218.166	70.76	-20.76	50	68.2	-18.2	peak	P

UNII-3_20M_5745MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2972.417	66.19	-28.63	37.56	68.2	-30.64	peak	P
2	4312.151	68.38	-29.63	38.75	68.2	-29.45	peak	P
3	6353.583	66.32	-26.23	40.09	68.2	-28.11	peak	P
4	8575.507	69.79	-25.63	44.16	68.2	-24.04	peak	P
5	11286.619	67.37	-23.37	44	68.2	-24.2	peak	P
6	14955.332	71.43	-19.72	51.71	68.2	-16.49	peak	P

UNII-3_20M_5785MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2913.885	70.24	-29.53	40.71	68.2	-27.49	peak	P
2	4277.312	67.51	-29.52	37.99	68.2	-30.21	peak	P
3	6085.790	65.67	-24.79	40.88	68.2	-27.32	peak	P
4	8646.612	70.2	-25.1	45.1	68.2	-23.1	peak	P
5	11047.028	66.7	-23.12	43.58	68.2	-24.62	peak	P
6	14217.619	70.8	-21.78	49.02	68.2	-19.18	peak	P

UNII-3_20M_5785MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2973.107	66.58	-29.59	36.99	68.2	-31.21	peak	P
2	4313.055	69.18	-28.13	41.05	68.2	-27.15	peak	P
3	6352.614	68.33	-25.99	42.34	68.2	-25.86	peak	P
4	8576.685	70.7	-24.68	46.02	68.2	-22.18	peak	P
5	11287.051	67.75	-23.52	44.23	68.2	-23.97	peak	P
6	14955.545	70.68	-20.97	49.71	68.2	-18.49	peak	P

UNII-3_20M_5825MHz_Horizontal

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2914.698	70.24	-30.02	40.22	68.2	-27.98	peak	P
2	4277.176	67.53	-28.54	38.99	68.2	-29.21	peak	P
3	6084.676	64.63	-24.55	40.08	68.2	-28.12	peak	P
4	8644.950	69.09	-25.46	43.63	68.2	-24.57	peak	P
5	11046.391	68.79	-22.83	45.96	68.2	-22.24	peak	P
6	14218.184	71.36	-22.01	49.35	68.2	-18.85	peak	P

UNII-3_20M_5825MHz_Vertical

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	2973.462	68.24	-29.22	39.02	68.2	-29.18	peak	P
2	4313.830	69.1	-29.29	39.81	68.2	-28.39	peak	P
3	6354.158	67.41	-26	41.41	68.2	-26.79	peak	P
4	8577.199	70.06	-24.37	45.69	68.2	-22.51	peak	P
5	11286.113	67.34	-24.13	43.21	68.2	-24.99	peak	P
6	14954.921	71.99	-20.39	51.6	68.2	-16.6	peak	P

Worst Case 802.11a mode

Out of Band edge for 5150-5250MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-36.03	-27
Highest	Above 5350	-39	-27
Note: the data just list the worst cases			

Out of Band edge for 5250-5350MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-35.66	-27
Highest	Above 5350	-39.07	-27
Note: the data just list the worst cases			

Out of Band edge for 5470-5725MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5470	-35.54	-27
Highest	Above 5725	-39.58	-27
Note: the data just list the worst cases			

Out of Band edge for 5725-5850MHz

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-40.7	-27
	5715 to 5725	-38.27	-17
Highest	5850 to 5860	-41.87	-17
	Above 5860	-41.41	-27
Note: the data just list the worst cases			

Remark:

1) All mode had been tested, only the worst mode 802.11a is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Reading Level + Factor

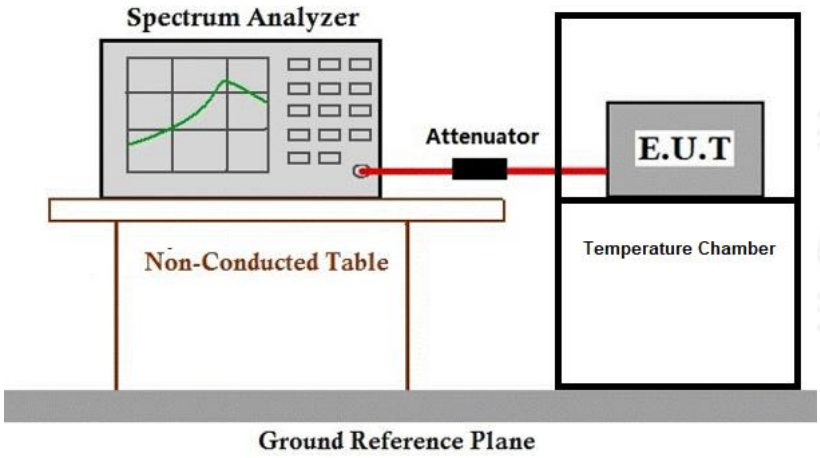
3) Testing is carried out with frequency rang 1GHz to 40GHz, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

4) If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

7.7 Frequency Stability

Test Requirement 47 CFR Part 15, Subpart E 15.407 (g)
Test Method: ANSI C63.10 (2013) Section 6.8
Limit: /

7.7.1 Test Setup Diagram



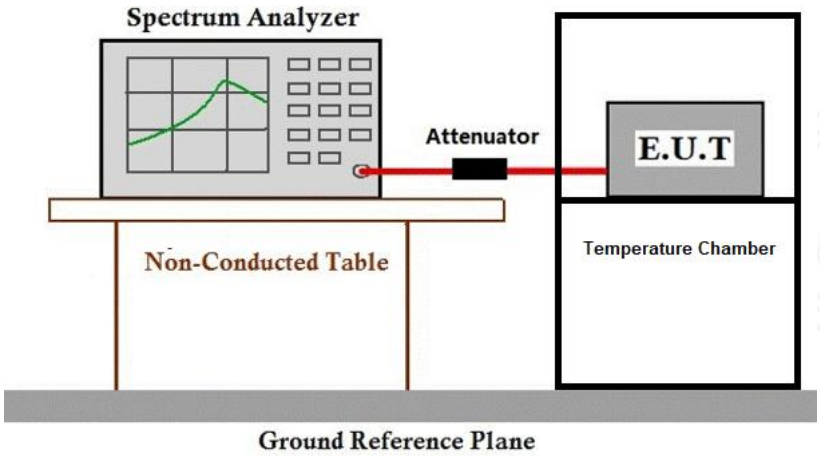
7.7.2 Measurement Procedure and Data

Please Refer to Appendix for Details

7.8 Transmitter Power Control

Test Requirement 47 CFR Part 15, Subpart E 15.407 (g)
Test Method: ANSI C63.10 (2013) Section 6.8
Limit: Able to lower EIRP below 24dBm when Max_EIRP ≥ 500 mW (27 dBm).

7.8.1 Test Setup Diagram



7.8.2 Measurement Procedure and Data

Not Application. The Max_EIRP＜500mW(27dBm)

8 Test Setup Photo

Please refer to the Appendix Test Setup Photos

9 EUT Constructional Details (EUT Photos)

Please refer to the Appendix EUT Photos

- End of the Report -