

TEST REPORT

Applicant : Dongguan KWD Technology Co.,Ltd
Address : 9F, Building B, Caiqiao Industrial Park, Puxinhu, Tangxia Town,
Dongguan City, Guangdong Province, P.R.C
Manufacturer : Dongguan KWD Technology Co.,Ltd
Address : 9F, Building B, Caiqiao Industrial Park, Puxinhu, Tangxia Town,
Dongguan City, Guangdong Province, P.R.C
Product Name : Carplay
Model Number : M47, M33, M36, M37, M38, M39, M40, M41, M42, M43, M44, M45,
M47, M48, M49
Trademark : N/A

FCC ID : 2BFZP-M47

Test Date : Nov. 19, 2025 - Dec. 09, 2025

Date of Report : Dec. 09, 2025

Test Result : This device described above has been tested by BKC, and the test results show that the equipment under test (EUT) is in compliance with the Standard requirements. And it is applicable only to the tested sample identified in the report.

Test Procedure Used:

Standards : FCC CFR Title 47 Part 15 Subpart C Section 15.247
ANSI C63.10:2020

Prepared by(Test Engineer):
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Approved(Manager):
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Approved(Manager):
Jerry Liao



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Revision History of This Test Report

[illegible]

1. General Information

1.1. Description of Device (EUT)

EUT Name : Carplay

Model No. : M47, M33, M36, M37, M38, M39, M40, M41, M42, M43, M44, M45, M47, M48, M49

Model Difference : All the same except the model name.

Power supply : DC 5V from PC Port

Operation frequency : 2.412-2.462GHz

Max. RF output power: : 8.47dBm

Supported type: 802.11b/802.11g/802.11n(H20)/ 802.11n(H40)

Modulation : 802.11b: DSSS
802.11g/802.11n(H20)/ 802.11n(H40): OFDM

Operation frequency: 802.11b/802.11g/802.11n(H20): 2412MHz~2462MHz
802.11n(H40): 2422MHz~2452MHz

Channel number: 802.11b/802.11g/802.11n(H20): 11
802.11n(H40): 7

Antenna Type : PCB antenna, Maximum Gain is 0.8dBi

Intend use environment : Residential, commercial and light industrial environment

1.2. Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2412	2	2417	3	2422	4	2427
5	2432	6	2437	7	2442	8	2447
9	2452	10	2457	11	2462		

1.3. Summary of test result

RF PART		
Test Items	Test Requirement	Result
Antenna requirement	FCC part 15.203/15.247 (c)	PASS
AC Power Line Conducted Emission	FCC part 15.207	PASS
Conducted Peak Output Power	FCC part 15.247 (b)(3)	PASS
Channel Bandwidth& 99% OCB	FCC part 15.247 (a)(2)	PASS
Power Spectral Density	FCC part 15.247 (e)	PASS
Band Edge	FCC part 15.247(d)	PASS
Spurious Emission	FCC part 15.205/15.209	PASS
Remark: N/A is an abbreviation for Not Applicable. Measurement Uncertainty is not taken into account for conformity statement		

1.4.Special Accessories and Auxiliary Equipment

Description	Manufacturer	Model No.	Hardware Version	Software Version
NOTEBOOK PC	ASUSTEK	X1502Z	/	/

1.5.Test mode

The special RF test software was used to control EUT work in Continuous WIFI TX mode, and select test channel, wireless mode.

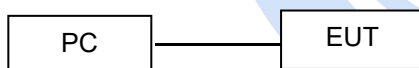
Test mode	Low channel	Middle channel	High channel
802.11b	2412MHz	2437MHz	2462MHz
802.11g	2412MHz	2437MHz	2462MHz
802.11n20	2412MHz	2437MHz	2462MHz
802.11n40	2422MHz	2437MHz	2452MHz

Note: Only the worst Data 1Mbps/6Mbps/6.5Mbps Record in the report

Test Software	bt_test_v4.0
Power level setup	0 dBm

1.6.Block Diagram

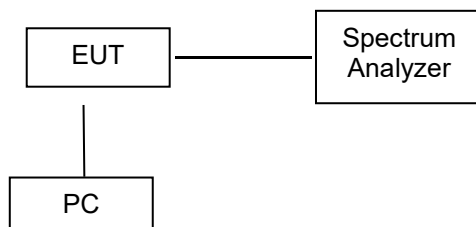
Radiated Emission



AC Power Line Conducted Emission



RF Conducted Test



1.7. Test Conditions

Category	Normal Conditions	Extreme Conditions
Temperature range	15-35°C	N/A
Humidity range	20-75%	N/A
Pressure range	86-106kPa	N/A
Power supply	DC 5V From PC Port	N/A
Note: N/A is an abbreviation for Not Applicable.		

1.8. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for radio frequency	$\pm 7 \times 10^{-8}$	
Conducted Emissions (150kHz~30MHz)	$\pm 2.54\text{dB}$	
Radiated Emission(9KHz~30MHz)	$\pm 1.6\text{ dB}$	
Radiated Emission(30MHz~1GHz)	Vertical: $\pm 4.14\text{dB}$ Horizontal: $\pm 4.25\text{dB}$	
Radiated Emission(1GHz~6GHz)	$\pm 3.9\text{dB}$	
Radiated Emission(6GHz~18GHz)	$\pm 4.3\text{dB}$	
Radiated Emission(18GHz~40GHz)	$\pm 3.38\text{dB}$	
Uncertainty for conducted RF Power	$\pm 0.20\text{dB}$	
Conducted spurious emissions	$\pm 0.24\text{dB}$	
Uncertainty for temperature	0.6°C	
Uncertainty for humidity	1%	
Bandwidth	$\pm 1.5 \times 10^{-6}$	
Time	$\pm 2\%$	
Duty Cycle	$\pm 2\%$	
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%		

1.9. Test Facility

Site Description	
Name of Firm	: Shenzhen BKC Testing Co., Ltd.
Site Location	: Room 103, 1/F, Huaya Building, Huaya Industrial Park, Longhua Community, Longhua District, Shenzhen, Guangdong, China.
ISED CAB identifier	: CN0188
ISED Company Number	: 34333
FCC Designation Number	: CN1416
FCC Test Firm Registration Number	: 701543

1.10. Test Equipment

Conducted Test Site

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	102762	Mar. 10. 2025	Mar. 09. 2026
2	EMI Test Receiver	R&S	ESCI	101424	Mar. 10. 2025	Mar. 09. 2026
3	Rf cables	HTEC	HCE 2M-CE	N/A	Mar. 10. 2025	Mar. 09. 2026
4	Coupling/ Decoupling Network	Diamond	CX210	N/A	Mar. 10. 2025	Mar. 09. 2026
5	CE Testing software	EZ	EZ-EMC	/	/	/

Radiated Test Site(Below 1G and Above 1G)

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Antenna	Schwarzbeck	VULB 9168	01321	Mar. 20. 2025	Mar. 19. 2028
2	EMI Test Receiver	R&S	ESRP	101478	Mar. 10. 2025	Mar. 09. 2026
3	Preamplifier	HP	8447D	2727A05345	Mar. 10. 2025	Mar. 09. 2026
4	Double Ridged Broadband	SCHWARZBEC K	BBHA 9120D	02621	Mar. 10. 2025	Mar. 19. 2028
5	Preamplifier	Schwarzbeck	BBV 9718D	00041	Mar. 10. 2025	Mar. 09. 2026
6	Rf cables	HUBER+SUHNE R	8M-RE	N/A	Mar. 10. 2025	Mar. 09. 2026
7	Rf cables	HUBER+SUHNE R	1.5M-RE	N/A	Mar. 10. 2025	Mar. 09. 2026
8	Rf cables	HUBER+SUHNE R	1.5M-AP-RE	N/A	Mar. 10. 2025	Mar. 09. 2026
9	Loop antenna	TESEQ	HLA6121	58357	Mar. 09. 2025	Mar. 10. 2026
10	Spectrum analyzer	R&S	FSP40	200061	Feb. 13. 2025	Feb. 12. 2026
11	Double Ridged Broadband Horn Antenna	COM-POWER	AH-1840	10100009	Mar. 10. 2025	Mar. 09. 2026
12	Spectrum	Agilent	N9020A	MY50510311	Mar. 09. 2025	Mar. 10. 2026
13	RE Testing software	EZ	EZ-EMC	/	/	/

RF Test Site

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum	Agilent	N9020A	MY50510311	Mar. 09. 2025	Mar. 10. 2026
2	Vector source	Agilent	N5182A	MY47420223	Mar. 09. 2025	Mar. 10. 2026
3	All instrument	Rohde & Schwarz	CMW 500	101131	Mar. 09. 2025	Mar. 10. 2026
4	control unit	MW	MW100-RFCB	MW200411BK -34	Mar. 09. 2025	Mar. 10. 2026
5	RF Testing software	MW	MTS 8310	/	Mar. 09. 2025	/
6	Spectrum analyzer	R&S	FSP40	200061	Feb. 13. 2025	Feb. 12. 2026

Test software

Software name	RF Testing software
Software version	2.0.0.0
Software name	RE Testing software
Software version	EMEC-03A2 RE+
Software name	CE Testing software
Software version	EMEC-3A1+



2. Conducted emission at the mains terminals test

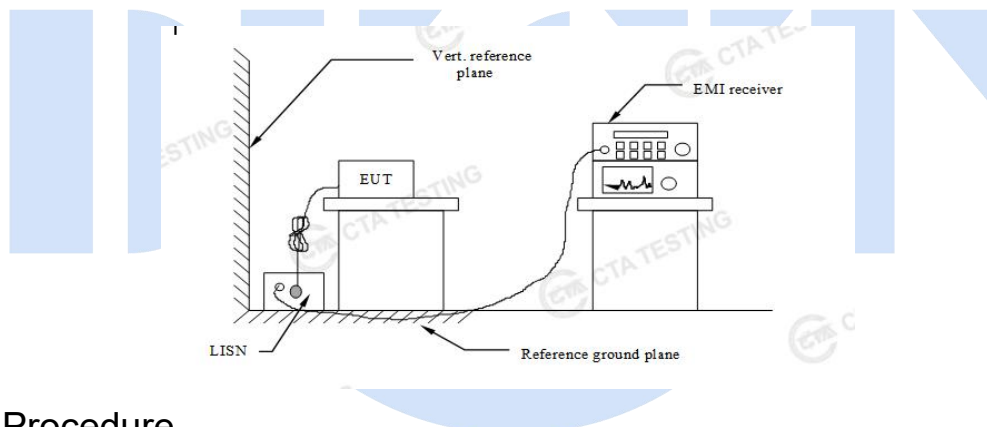
2.1.Limit

Test Requirement:	FCC Part15 C Section 15.207, RSS-Gen 8.8
Test Method:	ANSI C63.10:2020
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.2.Test Setup



2.3.Test Procedure

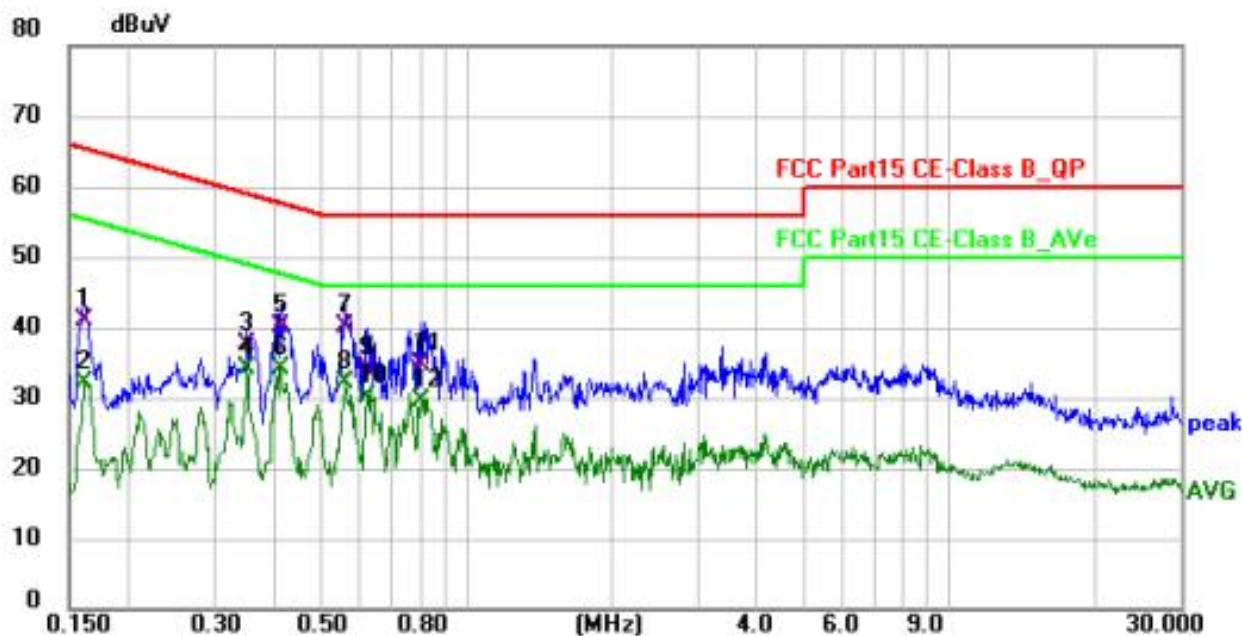
1. The EUT was placed 0.1 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
2. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
4. LISN at least 80 cm from nearest part of EUT chassis.
5. For the actual test configuration, please refer to the related Item - EUT Test Photos.

2.4.Test Result

Pass.

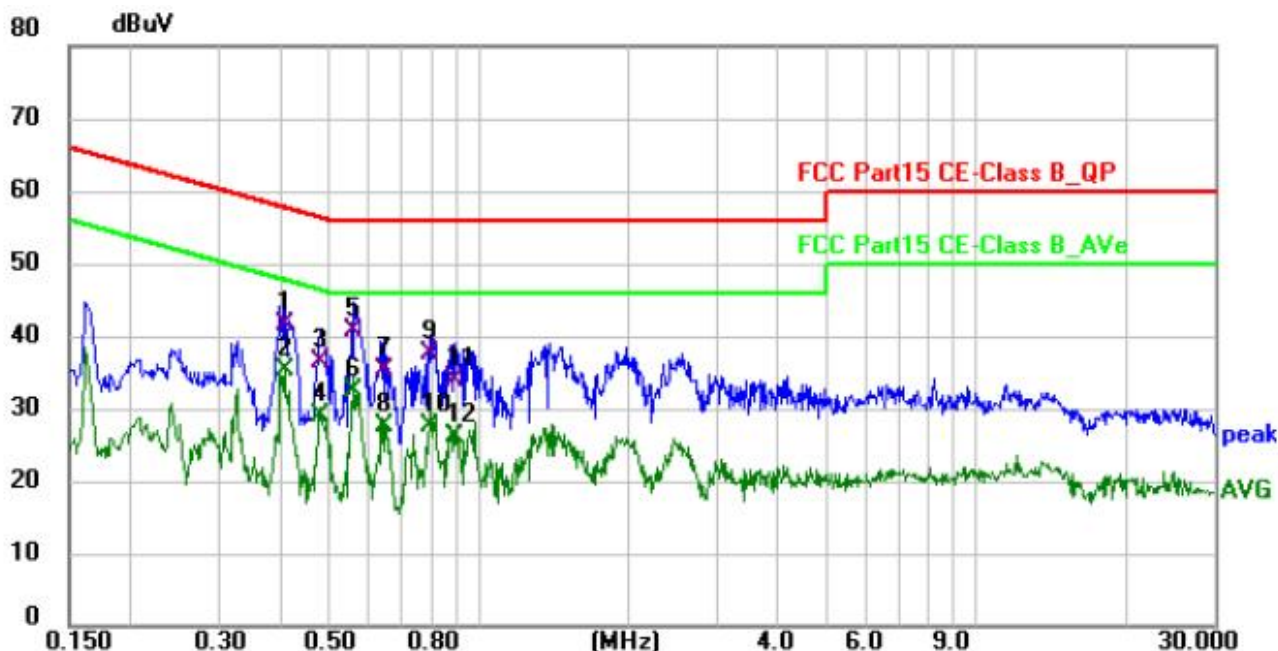
Please refer to the following pages.

Temperature:	25.1℃	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	L
Test Voltage :	AC 120V/60Hz		Charging



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1620	21.63	19.49	41.12	65.36	-24.24	QP
2	0.1620	12.76	19.49	32.25	55.36	-23.11	AVG
3	0.3500	17.98	19.49	37.47	58.96	-21.49	QP
4	0.3500	14.61	19.49	34.10	48.96	-14.86	AVG
5	0.4100	20.53	19.49	40.02	57.65	-17.63	QP
6 *	0.4100	14.66	19.49	34.15	47.65	-13.50	AVG
7	0.5620	20.76	19.49	40.25	56.00	-15.75	QP
8	0.5620	12.62	19.49	32.11	46.00	-13.89	AVG
9	0.6220	14.79	19.49	34.28	56.00	-21.72	QP
10	0.6220	10.61	19.49	30.10	46.00	-15.90	AVG
11	0.8020	15.21	19.49	34.70	56.00	-21.30	QP
12	0.8020	10.09	19.49	29.58	46.00	-16.42	AVG

Temperature:	25.1°C	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	N
Test Voltage :	AC 120V/60Hz		Charging



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4060	22.06	19.49	41.55	57.73	-16.18	QP
2 *	0.4060	15.74	19.49	35.23	47.73	-12.50	AVG
3	0.4820	17.07	19.49	36.56	56.30	-19.74	QP
4	0.4820	9.49	19.49	28.98	46.30	-17.32	AVG
5	0.5620	21.36	19.49	40.85	56.00	-15.15	QP
6	0.5620	12.87	19.49	32.36	46.00	-13.64	AVG
7	0.6500	15.72	19.50	35.22	56.00	-20.78	QP
8	0.6500	8.13	19.50	27.63	46.00	-18.37	AVG
9	0.7980	17.94	19.50	37.44	56.00	-18.56	QP
10	0.7980	7.96	19.50	27.46	46.00	-18.54	AVG
11	0.8940	14.35	19.51	33.86	56.00	-22.14	QP
12	0.8940	6.59	19.51	26.10	46.00	-19.90	AVG

Notes: 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor

3. Radiated Spurious Emissions

3.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247,RSS-247 5.5&RSS-Gen 8.9

Test Method: KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018;
ANSI C63.10:2020

Test Result: PASS

Measurement Distance: 3m

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

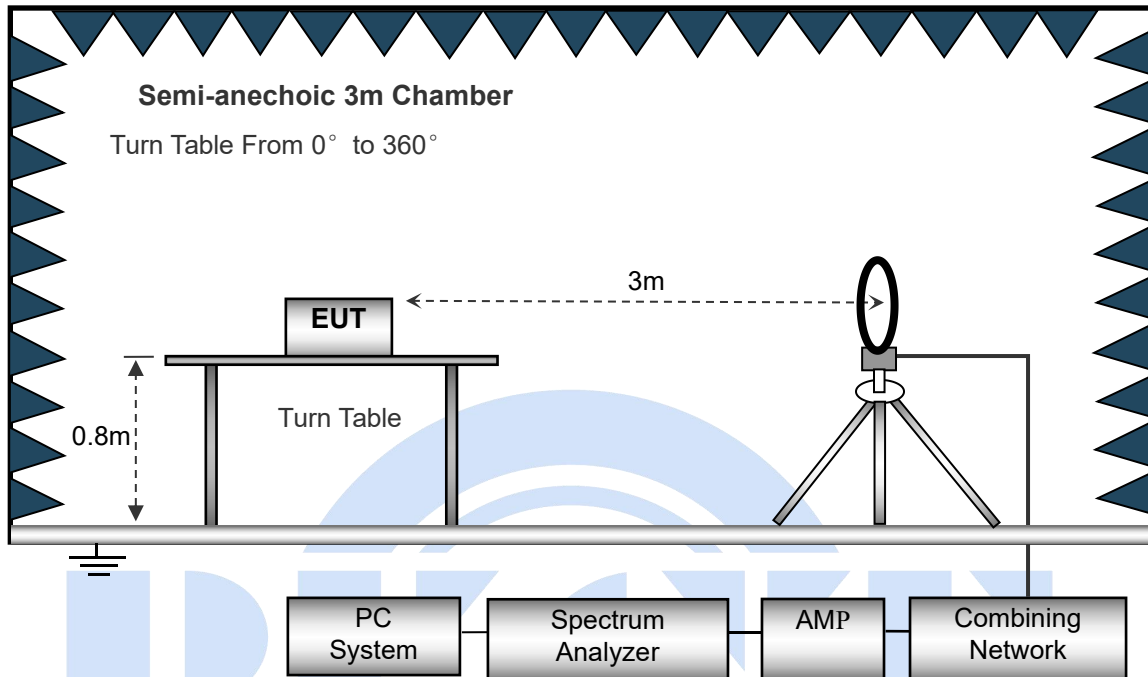
Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log(2400/F(\text{kHz})) + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log(24000/F(\text{kHz})) + 40$
1.705 ~ 30	30	30	$100 * 30$	$20\log(30) + 40$
30 ~ 88	100	3	100	$20\log(100)$
88 ~ 216	150	3	150	$20\log(150)$
216 ~ 960	200	3	200	$20\log(200)$
Above 960	500	3	500	$20\log(500)$

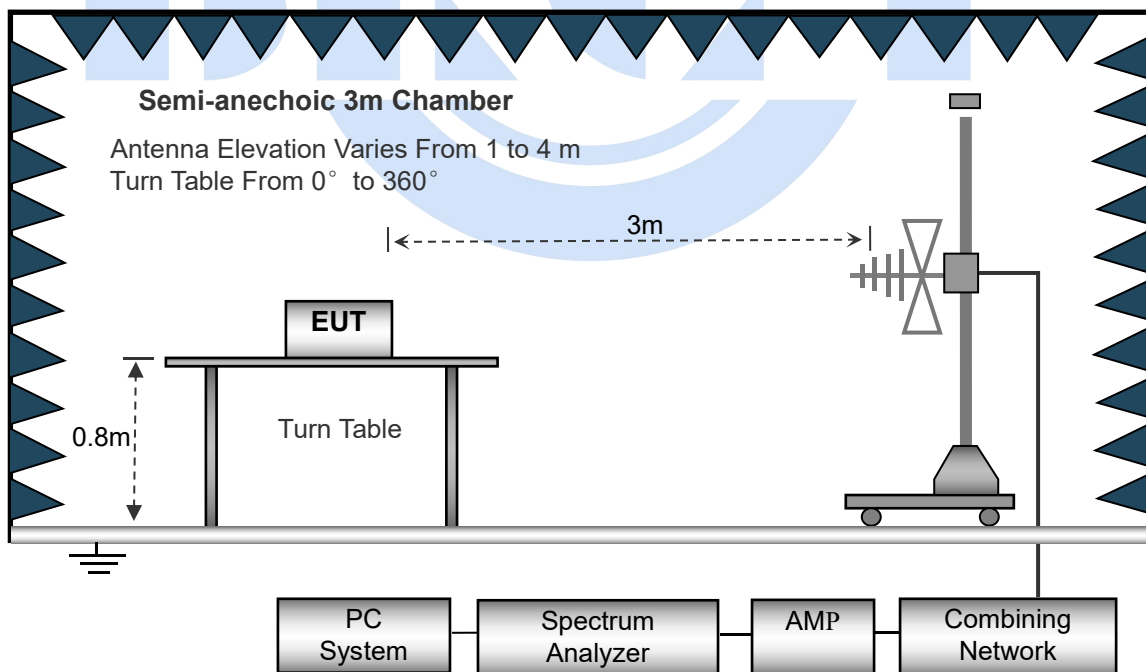
3.2. Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

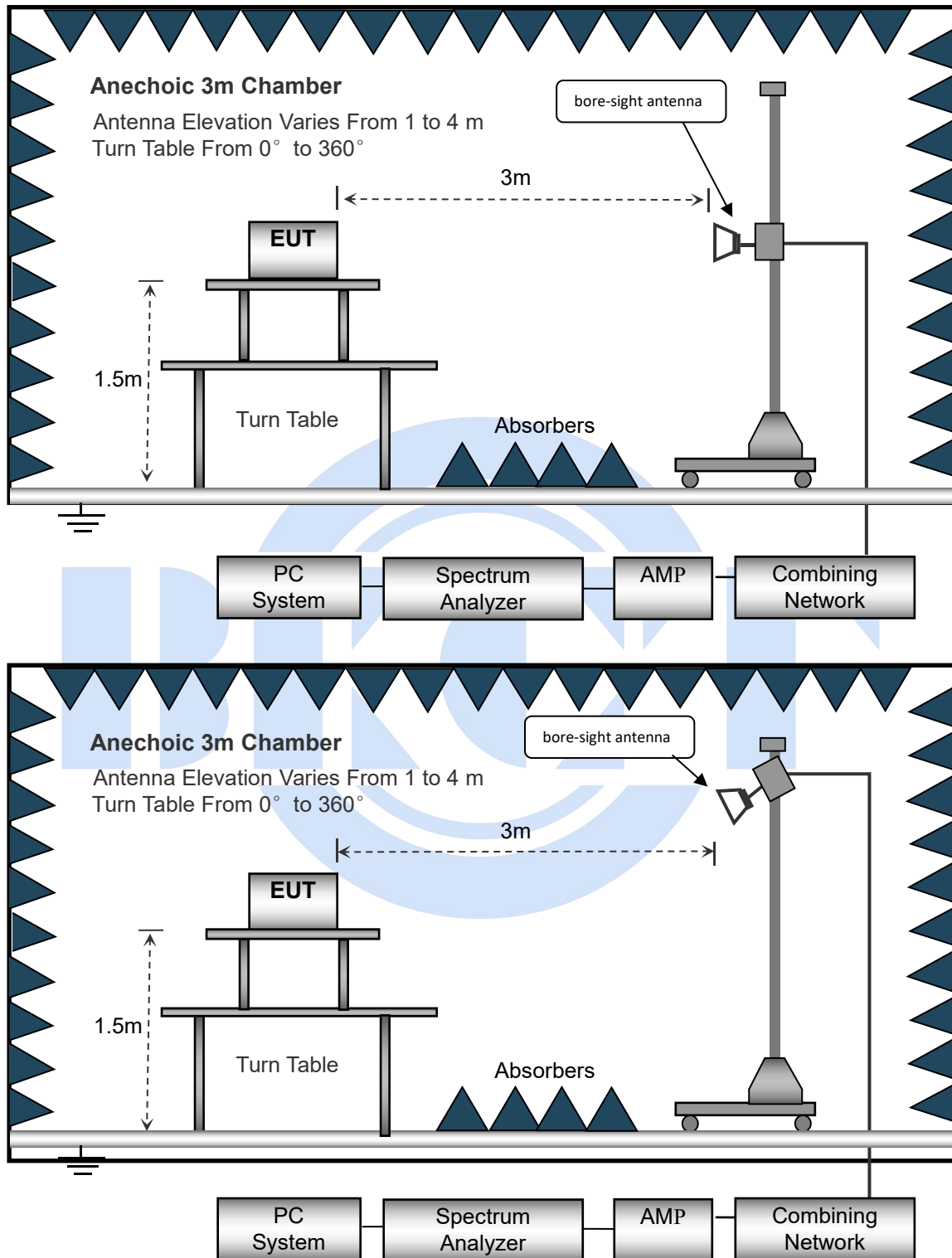
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



3.3. Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in Z axis,so the worst data were shown as follow.
8. A 2.4GHz high - pass filter is used during radiated emissions above 1GHz measurement.



3.4.Test Result

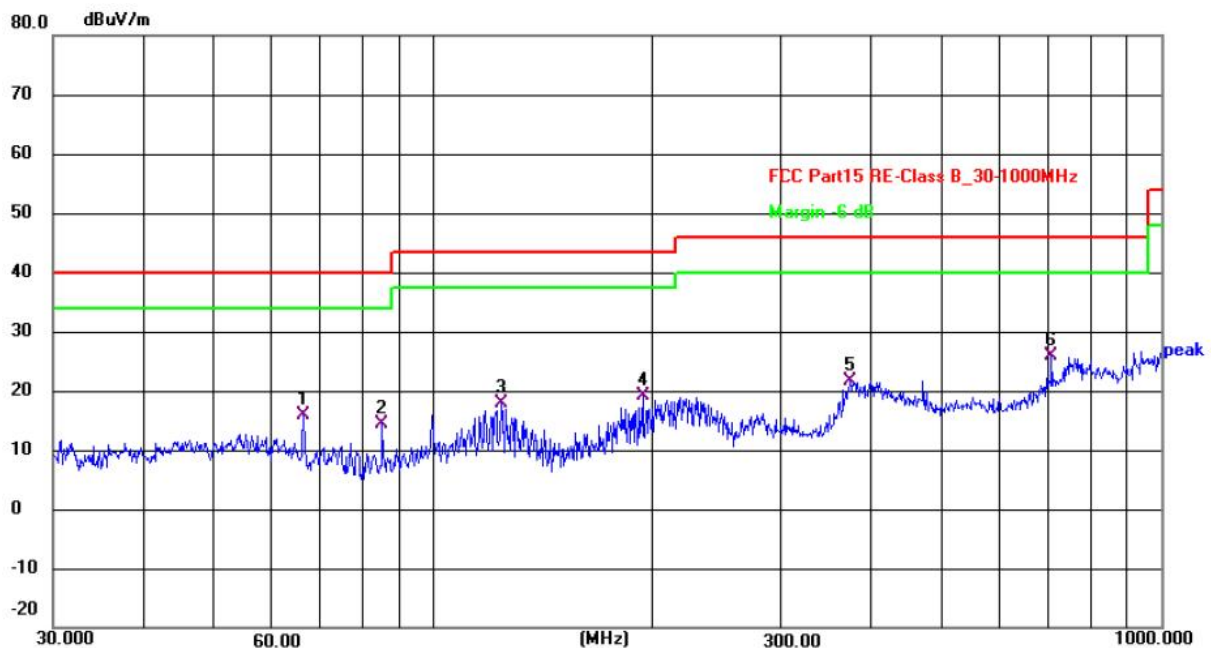
All the modulation modes were tested the data of the worst mode (TX 802.11b Low Channel) are recorded in the following pages and the others modulation methods do not exceed the limits.

Test Frequency: 9KHz~30MHz

The measurements were more than 20 dB below the limit and not reported.

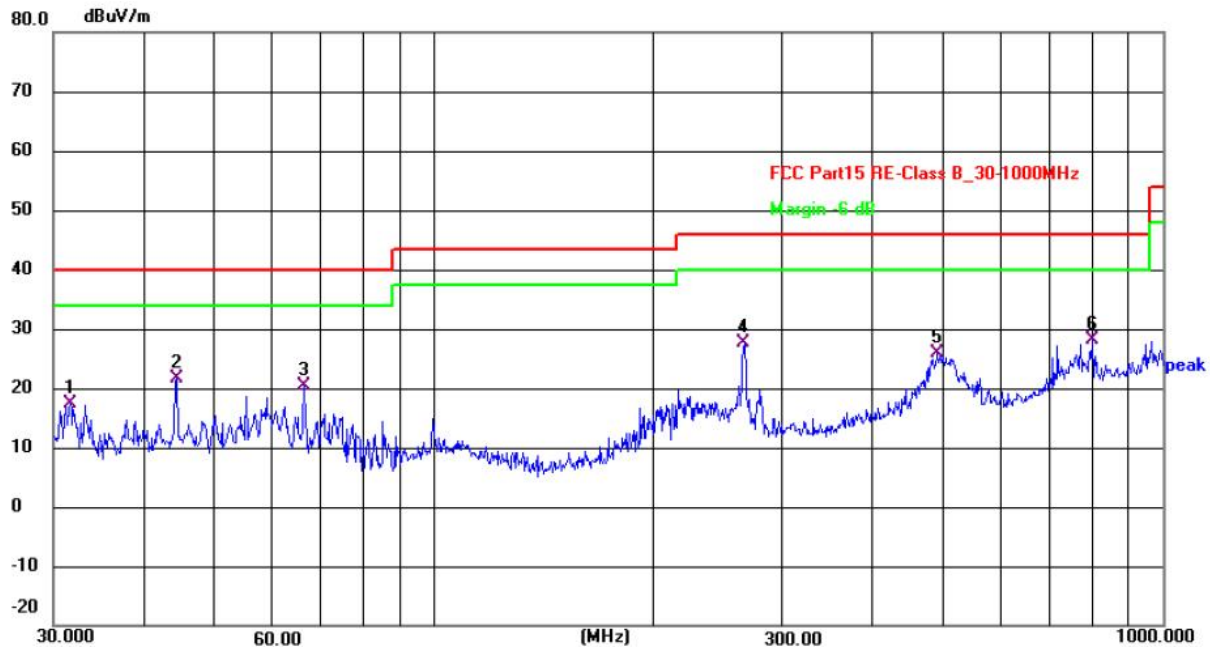
Test Frequency : 30MHz ~ 1GHz

Radiation Emission Test Data			
Temperature:	25.1℃	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	Horizontal
Test Voltage :	DC 5V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	66.2661	32.73	-16.95	15.78	40.00	-24.22	QP
2	84.9993	33.52	-19.17	14.35	40.00	-25.65	QP
3	123.6984	35.79	-17.95	17.84	43.50	-25.66	QP
4	193.7727	35.86	-16.70	19.16	43.50	-24.34	QP
5	373.3112	33.65	-12.03	21.62	46.00	-24.38	QP
6	706.6998	32.18	-6.20	25.98	46.00	-20.02	QP

Radiation Emission Test Data			
Temperature:	25.1°C	Relative Humidity:	56%
Pressure:	1008hPa	Phase :	Vertical
Test Voltage :	DC 5V		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	31.6202	33.71	-16.37	17.34	40.00	-22.66	QP
2	44.2752	35.97	-14.42	21.55	40.00	-18.45	QP
3	66.2662	37.29	-16.95	20.34	40.00	-19.66	QP
4	266.6089	42.07	-14.54	27.53	46.00	-18.47	QP
5	490.7447	35.70	-9.77	25.93	46.00	-20.07	QP
6	801.7863	32.47	-4.38	28.09	46.00	-17.91	QP

Note: 1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Emission Level = Reading + Factor

Margin=Emission Level-Limit

2. All the modes have tested and recorded the worst mode(802.11n20,High Channel) in the report

802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detect or Type
Low Channel:2412MHz									
V	4824.00	42.87	34.11	5.04	32.44	46.24	74.00	-27.76	Pk
V	4824.00	35.62	34.11	5.04	32.44	38.99	54.00	-15.01	AV
V	7236.00	43.22	32.57	6.30	35.89	52.84	74.00	-21.16	Pk
V	7236.00	28.76	32.57	6.30	35.89	38.38	54.00	-15.62	AV
V	9648.00	39.75	32.96	7.56	38.40	52.75	74.00	-21.25	Pk
V	9648.00	25.49	32.96	7.56	38.40	38.49	54.00	-15.51	AV
V	12060.00	35.76	32.06	8.92	39.01	51.63	74.00	-22.37	Pk
V	12060.00	21.1	32.06	8.92	39.01	36.97	54.00	-17.03	AV
H	4824.00	48.86	34.11	5.04	32.44	52.23	74.00	-21.77	Pk
H	4824.00	35.21	34.11	5.04	32.44	38.58	54.00	-15.42	AV
H	7236.00	40.41	32.57	6.30	35.89	50.03	74.00	-23.97	Pk
H	7236.00	28.94	32.57	6.30	35.89	38.56	54.00	-15.44	AV
H	9648.00	36.79	32.96	7.56	38.40	49.79	74.00	-24.21	Pk
H	9648.00	27.92	32.96	7.56	38.40	40.92	54.00	-13.08	AV
H	12060.00	34.35	32.06	8.92	39.01	50.22	74.00	-23.78	Pk
H	12060.00	23.88	32.06	8.92	39.01	39.75	54.00	-14.25	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detect or Type
Middle Channel:2437MHz									
V	4874.00	49.57	34.08	5.08	32.57	53.14	74.00	-20.86	Pk
V	4874.00	38.25	34.08	5.08	32.57	41.82	54.00	-12.18	AV
V	7311.00	43.76	32.62	6.34	35.95	53.43	74.00	-20.57	Pk
V	7311.00	30.69	32.62	6.34	35.95	40.36	54.00	-13.64	AV
V	9748.00	39.88	32.93	7.58	38.40	52.93	74.00	-21.07	Pk
V	9748.00	34.30	32.93	7.58	38.40	47.35	54.00	-6.65	AV
V	12185.00	40.37	31.97	8.89	39.04	56.33	74.00	-17.67	Pk
V	12185.00	26.34	31.97	8.89	39.04	42.30	54.00	-11.70	AV
H	4874.00	48.19	34.08	5.08	32.57	51.76	74.00	-22.24	Pk
H	4874.00	33.89	34.08	5.08	32.57	37.46	54.00	-16.54	AV



H	7311.00	40.33	32.62	6.34	35.95	50.00	74.00	-24.00	Pk
H	7311.00	31.24	32.62	6.34	35.95	40.91	54.00	-13.09	AV
H	9748.00	44.13	32.93	7.58	38.40	57.18	74.00	-16.82	Pk
H	9748.00	29.16	32.93	7.58	38.40	42.21	54.00	-11.79	AV
H	12185.00	37.78	31.97	8.89	39.04	53.74	74.00	-20.26	Pk
H	12185.00	23.61	31.97	8.89	39.04	39.57	54.00	-14.43	AV

Polar (H/V)	Frequency	Meter Reading	Pre-amp lifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2462MHz									
V	4924.00	34.05	5.14	32.79	49.59	74.00	-24.41	34.05	Pk
V	4924.00	34.05	5.14	32.79	37.81	54.00	-16.19	34.05	AV
V	7386.00	32.67	6.36	35.99	48.71	74.00	-25.29	32.67	Pk
V	7386.00	32.67	6.36	35.99	38.33	54.00	-15.67	32.67	AV
V	9848.00	32.89	7.59	38.37	52.83	74.00	-21.17	32.89	Pk
V	9848.00	32.89	7.59	38.37	40.00	54.00	-14.00	32.89	AV
V	12310.00	31.88	8.82	39.06	51.20	74.00	-22.80	31.88	Pk
V	12310.00	31.88	8.82	39.06	41.39	54.00	-12.61	31.88	AV
H	4924.00	34.05	5.14	32.79	51.25	74.00	-22.75	34.05	Pk
H	4924.00	34.05	5.14	32.79	40.11	54.00	-13.89	34.05	AV
H	7386.00	32.67	6.36	35.99	54.80	74.00	-19.20	32.67	Pk
H	7386.00	32.67	6.36	35.99	36.46	54.00	-17.54	32.67	AV
H	9848.00	32.89	7.59	38.37	52.47	74.00	-21.53	32.89	Pk
H	9848.00	32.89	7.59	38.37	36.94	54.00	-17.06	32.89	AV
H	12310.00	31.88	8.82	39.06	52.01	74.00	-21.99	31.88	Pk
H	12310.00	31.88	8.82	39.06	44.02	54.00	-9.98	31.88	AV

802.11g

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampl ifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Low Channel:2412MHz									
V	4824.00	46.6	34.11	5.04	32.44	49.97	74.00	-24.03	Pk
V	4824.00	36.04	34.11	5.04	32.44	39.41	54.00	-14.59	AV
V	7236.00	43.95	32.57	6.30	35.89	53.57	74.00	-20.43	Pk
V	7236.00	29.88	32.57	6.30	35.89	39.50	54.00	-14.50	AV
V	9648.00	37.93	32.96	7.56	38.40	50.93	74.00	-23.07	Pk
V	9648.00	22.47	32.96	7.56	38.40	35.47	54.00	-18.53	AV
V	12060.00	33.69	32.06	8.92	39.01	49.56	74.00	-24.44	Pk
V	12060.00	25.03	32.06	8.92	39.01	40.90	54.00	-13.10	AV
H	4824.00	48.38	34.11	5.04	32.44	51.75	74.00	-22.25	Pk
H	4824.00	34.09	34.11	5.04	32.44	37.46	54.00	-16.54	AV
H	7236.00	42	32.57	6.30	35.89	51.62	74.00	-22.38	Pk
H	7236.00	28.13	32.57	6.30	35.89	37.75	54.00	-16.25	AV
H	9648.00	35.41	32.96	7.56	38.40	48.41	74.00	-25.59	Pk
H	9648.00	24.96	32.96	7.56	38.40	37.96	54.00	-16.04	AV
H	12060.00	35.7	32.06	8.92	39.01	51.57	74.00	-22.43	Pk
H	12060.00	28.04	32.06	8.92	39.01	43.91	54.00	-10.09	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampl ifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Middle Channel:2437MHz									
V	4874.00	50.21	34.08	5.08	32.57	53.78	74.00	-20.22	Pk
V	4874.00	37.12	34.08	5.08	32.57	40.69	54.00	-13.31	AV
V	7311.00	42.04	32.62	6.34	35.95	51.71	74.00	-22.29	Pk
V	7311.00	32.64	32.62	6.34	35.95	42.31	54.00	-11.69	AV
V	9748.00	43.55	32.93	7.58	38.40	56.60	74.00	-17.40	Pk
V	9748.00	33.01	32.93	7.58	38.40	46.06	54.00	-7.94	AV
V	12185.00	41.81	31.97	8.89	39.04	57.77	74.00	-16.23	Pk
V	12185.00	28.53	31.97	8.89	39.04	44.49	54.00	-9.51	AV
H	4874.00	44.79	34.08	5.08	32.57	48.36	74.00	-25.64	Pk
H	4874.00	31.36	34.08	5.08	32.57	34.93	54.00	-19.07	AV



H	7311.00	40.60	32.62	6.34	35.95	50.27	74.00	-23.73	Pk
H	7311.00	32.20	32.62	6.34	35.95	41.87	54.00	-12.13	AV
H	9748.00	44.81	32.93	7.58	38.40	57.86	74.00	-16.14	Pk
H	9748.00	30.03	32.93	7.58	38.40	43.08	54.00	-10.92	AV
H	12185.00	39.16	31.97	8.89	39.04	55.12	74.00	-18.88	Pk
H	12185.00	25.64	31.97	8.89	39.04	41.60	54.00	-12.40	AV

Polar (H/V)	Frequency	Meter Reading	Pre-amp lifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2462MHz									
V	4924.00	45.04	34.05	5.14	32.79	48.92	74.00	-25.08	Pk
V	4924.00	31.33	34.05	5.14	32.79	35.21	54.00	-18.79	AV
V	7386.00	39.91	32.67	6.36	35.99	49.59	74.00	-24.41	Pk
V	7386.00	30.02	32.67	6.36	35.99	39.70	54.00	-14.30	AV
V	9848.00	42.13	32.89	7.59	38.37	55.20	74.00	-18.80	Pk
V	9848.00	26.72	32.89	7.59	38.37	39.79	54.00	-14.21	AV
V	12310.00	35.38	31.88	8.82	39.06	51.38	74.00	-22.62	Pk
V	12310.00	25.61	31.88	8.82	39.06	41.61	54.00	-12.39	AV
H	4924.00	47.84	34.05	5.14	32.79	51.72	74.00	-22.28	Pk
H	4924.00	36.19	34.05	5.14	32.79	40.07	54.00	-13.93	AV
H	7386.00	43.53	32.67	6.36	35.99	53.21	74.00	-20.79	Pk
H	7386.00	31.36	32.67	6.36	35.99	41.04	54.00	-12.96	AV
H	9848.00	39.49	32.89	7.59	38.37	52.56	74.00	-21.44	Pk
H	9848.00	28.58	32.89	7.59	38.37	41.65	54.00	-12.35	AV
H	12310.00	39.23	31.88	8.82	39.06	55.23	74.00	-18.77	Pk
H	12310.00	24.99	31.88	8.82	39.06	40.99	54.00	-13.01	AV

802.11n20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampl ifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Low Channel:2412MHz									
V	4824.00	42.97	34.11	5.04	32.44	46.34	74.00	-27.66	Pk
V	4824.00	35.29	34.11	5.04	32.44	38.66	54.00	-15.34	AV
V	7236.00	40.7	32.57	6.30	35.89	50.32	74.00	-23.68	Pk
V	7236.00	29.24	32.57	6.30	35.89	38.86	54.00	-15.14	AV
V	9648.00	37.13	32.96	7.56	38.40	50.13	74.00	-23.87	Pk
V	9648.00	25.62	32.96	7.56	38.40	38.62	54.00	-15.38	AV
V	12060.00	36.15	32.06	8.92	39.01	52.02	74.00	-21.98	Pk
V	12060.00	24.95	32.06	8.92	39.01	40.82	54.00	-13.18	AV
H	4824.00	48.47	34.11	5.04	32.44	51.84	74.00	-22.16	Pk
H	4824.00	36.06	34.11	5.04	32.44	39.43	54.00	-14.57	AV
H	7236.00	43.01	32.57	6.30	35.89	52.63	74.00	-21.37	Pk
H	7236.00	27.05	32.57	6.30	35.89	36.67	54.00	-17.33	AV
H	9648.00	39.47	32.96	7.56	38.40	52.47	74.00	-21.53	Pk
H	9648.00	25.98	32.96	7.56	38.40	38.98	54.00	-15.02	AV
H	12060.00	38.47	32.06	8.92	39.01	54.34	74.00	-19.66	Pk
H	12060.00	26.49	32.06	8.92	39.01	42.36	54.00	-11.64	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampl ifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Middle Channel:2437MHz									
V	4874.00	51.10	34.08	5.08	32.57	54.67	74.00	-19.33	Pk
V	4874.00	39.20	34.08	5.08	32.57	42.77	54.00	-11.23	AV
V	7311.00	43.40	32.62	6.34	35.95	53.07	74.00	-20.93	Pk
V	7311.00	34.46	32.62	6.34	35.95	44.13	54.00	-9.87	AV
V	9748.00	40.94	32.93	7.58	38.40	53.99	74.00	-20.01	Pk
V	9748.00	33.41	32.93	7.58	38.40	46.46	54.00	-7.54	AV
V	12185.00	43.77	31.97	8.89	39.04	59.73	74.00	-14.27	Pk
V	12185.00	25.51	31.97	8.89	39.04	41.47	54.00	-12.53	AV
H	4874.00	46.15	34.08	5.08	32.57	49.72	74.00	-24.28	Pk
H	4874.00	32.98	34.08	5.08	32.57	36.55	54.00	-17.45	AV



H	7311.00	43.22	32.62	6.34	35.95	52.89	74.00	-21.11	Pk
H	7311.00	29.67	32.62	6.34	35.95	39.34	54.00	-14.66	AV
H	9748.00	45.79	32.93	7.58	38.40	58.84	74.00	-15.16	Pk
H	9748.00	26.92	32.93	7.58	38.40	39.97	54.00	-14.03	AV
H	12185.00	38.41	31.97	8.89	39.04	54.37	74.00	-19.63	Pk
H	12185.00	26.55	31.97	8.89	39.04	42.51	54.00	-11.49	AV

Polar (H/V)	Frequency	Meter Reading	Pre-amp lifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2462MHz									
V	4924.00	46.51	34.05	5.14	32.79	50.39	74.00	-23.61	Pk
V	4924.00	34.81	34.05	5.14	32.79	38.69	54.00	-15.31	AV
V	7386.00	40.94	32.67	6.36	35.99	50.62	74.00	-23.38	Pk
V	7386.00	31.88	32.67	6.36	35.99	41.56	54.00	-12.44	AV
V	9848.00	39.44	32.89	7.59	38.37	52.51	74.00	-21.49	Pk
V	9848.00	27.35	32.89	7.59	38.37	40.42	54.00	-13.58	AV
V	12310.00	36.61	31.88	8.82	39.06	52.61	74.00	-21.39	Pk
V	12310.00	24.79	31.88	8.82	39.06	40.79	54.00	-13.21	AV
H	4924.00	45.39	34.05	5.14	32.79	49.27	74.00	-24.73	Pk
H	4924.00	36.75	34.05	5.14	32.79	40.63	54.00	-13.37	AV
H	7386.00	46.10	32.67	6.36	35.99	55.78	74.00	-18.22	Pk
H	7386.00	30.01	32.67	6.36	35.99	39.69	54.00	-14.31	AV
H	9848.00	36.72	32.89	7.59	38.37	49.79	74.00	-24.21	Pk
H	9848.00	24.14	32.89	7.59	38.37	37.21	54.00	-16.79	AV
H	12310.00	34.82	31.88	8.82	39.06	50.82	74.00	-23.18	Pk
H	12310.00	26.01	31.88	8.82	39.06	42.01	54.00	-11.99	AV

802.11n40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampl ifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Low Channel:2422MHz									
V	4844.00	46.78	34.11	5.04	32.44	50.15	74.00	-23.85	Pk
V	4844.00	37.44	34.11	5.04	32.44	40.81	54.00	-13.19	AV
V	7266.00	42.64	32.57	6.30	35.89	52.26	74.00	-21.74	Pk
V	7266.00	27.07	32.57	6.30	35.89	36.69	54.00	-17.31	AV
V	9688.00	39.67	32.96	7.56	38.40	52.67	74.00	-21.33	Pk
V	9688.00	26.78	32.96	7.56	38.40	39.78	54.00	-14.22	AV
V	12110.00	33.24	32.06	8.92	39.01	49.11	74.00	-24.89	Pk
V	12110.00	25.28	32.06	8.92	39.01	41.15	54.00	-12.85	AV
H	4844.00	48.05	34.11	5.04	32.44	51.42	74.00	-22.58	Pk
H	4844.00	33.14	34.11	5.04	32.44	36.51	54.00	-17.49	AV
H	7266.00	41.29	32.57	6.30	35.89	50.91	74.00	-23.09	Pk
H	7266.00	29.35	32.57	6.30	35.89	38.97	54.00	-15.03	AV
H	9688.00	39.43	32.96	7.56	38.40	52.43	74.00	-21.57	Pk
H	9688.00	24.82	32.96	7.56	38.40	37.82	54.00	-16.18	AV
H	12110.00	33.66	32.06	8.92	39.01	49.53	74.00	-24.47	Pk
H	12110.00	25.9	32.06	8.92	39.01	41.77	54.00	-12.23	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-ampl ifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/ m)	Margin (dB)	Detect or Type
Middle Channel:2437MHz									
V	4874.00	49.83	34.08	5.08	32.57	53.40	74.00	-20.60	Pk
V	4874.00	37.16	34.08	5.08	32.57	40.73	54.00	-13.27	AV
V	7311.00	41.49	32.62	6.34	35.95	51.16	74.00	-22.84	Pk
V	7311.00	30.84	32.62	6.34	35.95	40.51	54.00	-13.49	AV
V	9748.00	42.41	32.93	7.58	38.40	55.46	74.00	-18.54	Pk
V	9748.00	34.05	32.93	7.58	38.40	47.10	54.00	-6.90	AV
V	12185.00	41.39	31.97	8.89	39.04	57.35	74.00	-16.65	Pk
V	12185.00	29.59	31.97	8.89	39.04	45.55	54.00	-8.45	AV
H	4874.00	48.46	34.08	5.08	32.57	52.03	74.00	-21.97	Pk
H	4874.00	31.86	34.08	5.08	32.57	35.43	54.00	-18.57	AV

H	7311.00	42.74	32.62	6.34	35.95	52.41	74.00	-21.59	Pk
H	7311.00	33.12	32.62	6.34	35.95	42.79	54.00	-11.21	AV
H	9748.00	46.98	32.93	7.58	38.40	60.03	74.00	-13.97	Pk
H	9748.00	28.88	32.93	7.58	38.40	41.93	54.00	-12.07	AV
H	12185.00	36.49	31.97	8.89	39.04	52.45	74.00	-21.55	Pk
H	12185.00	25.71	31.97	8.89	39.04	41.67	54.00	-12.33	AV

Polar (H/V)	Frequency	Meter Reading	Pre-ampl ifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2452MHz									
V	4904.00	44.89	34.05	5.14	32.79	48.77	74.00	-25.23	Pk
V	4904.00	31.43	34.05	5.14	32.79	35.31	54.00	-18.69	AV
V	7356.00	39.91	32.67	6.36	35.99	49.59	74.00	-24.41	Pk
V	7356.00	27.68	32.67	6.36	35.99	37.36	54.00	-16.64	AV
V	9808.00	39.69	32.89	7.59	38.37	52.76	74.00	-21.24	Pk
V	9808.00	27.18	32.89	7.59	38.37	40.25	54.00	-13.75	AV
V	12260.00	36.70	31.88	8.82	39.06	52.70	74.00	-21.30	Pk
V	12260.00	23.16	31.88	8.82	39.06	39.16	54.00	-14.84	AV
H	4904.00	46.46	34.05	5.14	32.79	50.34	74.00	-23.66	Pk
H	4904.00	37.16	34.05	5.14	32.79	41.04	54.00	-12.96	AV
H	7356.00	43.97	32.67	6.36	35.99	53.65	74.00	-20.35	Pk
H	7356.00	30.46	32.67	6.36	35.99	40.14	54.00	-13.86	AV
H	9808.00	41.40	32.89	7.59	38.37	54.47	74.00	-19.53	Pk
H	9808.00	28.54	32.89	7.59	38.37	41.61	54.00	-12.39	AV
H	12260.00	36.31	31.88	8.82	39.06	52.31	74.00	-21.69	Pk
H	12260.00	23.90	31.88	8.82	39.06	39.90	54.00	-14.10	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss - Pre-amplifier,

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.

3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Radiated Band Emission Measurement:

	Polar (H/V)	Frequenc y (MHz)	Meter Reading (dBuV)	Pre- amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Detec tor Type	Result
802.11b	Low Channel 2412MHz									
	H	2390.00	57.86	35.17	3.48	27.49	53.66	74.00	Pk	PASS
	H	2390.00	49.74	35.17	3.48	27.49	45.54	54.00	AV	PASS
	H	2400.00	60.59	35.16	3.49	27.52	56.44	74.00	Pk	PASS
	H	2400.00	49.48	35.16	3.49	27.52	45.33	54.00	AV	PASS
	V	2390.00	57.65	35.17	3.48	27.49	53.45	74.00	Pk	PASS
	V	2390.00	50.18	35.17	3.48	27.49	45.98	54.00	AV	PASS
	V	2400.00	59.71	35.16	3.49	27.52	55.56	74.00	Pk	PASS
	V	2400.00	49.77	35.16	3.49	27.52	45.62	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	57.99	35.11	3.56	27.75	54.19	74.00	Pk	PASS
	H	2483.50	48.55	35.11	3.56	27.75	44.75	54.00	AV	PASS
	H	2500.00	59.52	35.10	3.57	27.80	55.79	74.00	Pk	PASS
	H	2500.00	49.69	35.10	3.57	27.80	45.96	54.00	AV	PASS
	V	2483.50	58.19	35.11	3.56	27.75	54.39	74.00	Pk	PASS
	V	2483.50	49.67	35.11	3.56	27.75	45.87	54.00	AV	PASS
	V	2500.00	58.71	35.10	3.57	27.80	54.98	74.00	Pk	PASS
	V	2500.00	50.22	35.10	3.57	27.80	46.49	54.00	AV	PASS
802.11g	Low Channel 2412MHz									
	H	2390.00	57.45	35.17	3.48	27.49	53.25	74.00	Pk	PASS
	H	2390.00	49.96	35.17	3.48	27.49	45.76	54.00	AV	PASS
	H	2400.00	60.26	35.16	3.49	27.52	56.11	74.00	Pk	PASS
	H	2400.00	49.39	35.16	3.49	27.52	45.24	54.00	AV	PASS
	V	2390.00	57.45	35.17	3.48	27.49	53.25	74.00	Pk	PASS
	V	2390.00	50.20	35.17	3.48	27.49	46.00	54.00	AV	PASS
	V	2400.00	59.28	35.16	3.49	27.52	55.13	74.00	Pk	PASS
	V	2400.00	49.99	35.16	3.49	27.52	45.84	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	57.70	35.11	3.56	27.75	53.90	74.00	Pk	PASS
	H	2483.50	48.47	35.11	3.56	27.75	44.67	54.00	AV	PASS
	H	2500.00	59.38	35.10	3.57	27.80	55.65	74.00	Pk	PASS
	H	2500.00	49.82	35.10	3.57	27.80	46.09	54.00	AV	PASS



	V	2483.50	58.32	35.11	3.56	27.75	54.52	74.00	Pk	PASS
	V	2483.50	49.70	35.11	3.56	27.75	45.90	54.00	AV	PASS
	V	2500.00	58.83	35.10	3.57	27.80	55.10	74.00	Pk	PASS
	V	2500.00	50.16	35.10	3.57	27.80	46.43	54.00	AV	PASS
802.11 n20	Low Channel 2412MHz									
	H	2390.00	58.01	35.17	3.48	27.49	53.81	74.00	Pk	PASS
	H	2390.00	49.88	35.17	3.48	27.49	45.68	54.00	AV	PASS
	H	2400.00	60.23	35.16	3.49	27.52	56.08	74.00	Pk	PASS
	H	2400.00	49.48	35.16	3.49	27.52	45.33	54.00	AV	PASS
	V	2390.00	57.64	35.17	3.48	27.49	53.44	74.00	Pk	PASS
	V	2390.00	50.42	35.17	3.48	27.49	46.22	54.00	AV	PASS
	V	2400.00	59.88	35.16	3.49	27.52	55.73	74.00	Pk	PASS
	V	2400.00	49.61	35.16	3.49	27.52	45.46	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	58.18	35.11	3.56	27.75	58.18	74.00	Pk	PASS
	H	2483.50	48.53	35.11	3.56	27.75	48.53	54.00	AV	PASS
	H	2500.00	59.21	35.10	3.57	27.80	59.21	74.00	Pk	PASS
	H	2500.00	49.83	35.10	3.57	27.80	49.83	54.00	AV	PASS
	V	2483.50	58.48	35.11	3.56	27.75	58.48	74.00	Pk	PASS
	V	2483.50	49.76	35.11	3.56	27.75	49.76	54.00	AV	PASS
	V	2500.00	58.83	35.10	3.57	27.80	58.83	74.00	Pk	PASS
	V	2500.00	50.47	35.10	3.57	27.80	50.47	54.00	AV	PASS
802.11 N40	Low Channel 2412MHz									
	H	2390.00	58.66	35.17	3.48	27.49	54.46	74.00	Pk	PASS
	H	2390.00	50.13	35.17	3.48	27.49	45.93	54.00	AV	PASS
	H	2400.00	61.17	35.16	3.49	27.52	57.02	74.00	Pk	PASS
	H	2400.00	50.48	35.16	3.49	27.52	46.33	54.00	AV	PASS
	V	2390.00	58.23	35.17	3.48	27.49	54.03	74.00	Pk	PASS
	V	2390.00	51.09	35.17	3.48	27.49	46.89	54.00	AV	PASS
	V	2400.00	60.47	35.16	3.49	27.52	56.32	74.00	Pk	PASS
	V	2400.00	49.83	35.16	3.49	27.52	45.68	54.00	AV	PASS
	High Channel 2462MHz									
	H	2483.50	59.11	35.11	3.56	27.75	55.31	74.00	Pk	PASS
	H	2483.50	49.26	35.11	3.56	27.75	45.46	54.00	AV	PASS
	H	2500.00	59.95	35.1	3.57	27.8	56.22	74.00	Pk	PASS
	H	2500.00	49.94	35.1	3.57	27.8	46.21	54.00	AV	PASS

V	2483.50	59.21	35.11	3.56	27.75	55.41	74.00	Pk	PASS
V	2483.50	50.65	35.11	3.56	27.75	46.85	54.00	AV	PASS
V	2500.00	59.06	35.1	3.57	27.8	55.33	74.00	Pk	PASS
V	2500.00	51.21	35.1	3.57	27.8	47.48	54.00	AV	PASS

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss - Pre-amplifier,

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.

3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



4. Conducted Spurious Emissions

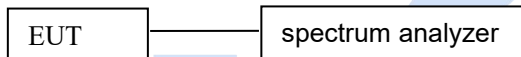
4.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247,RSS-247 5.5
Test Method: KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018;
ANSI C63.10:2020
Test Result: PASS

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

4.2.Test Setup



4.3.Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
Detector function = peak, Trace = max hold

4.4.Test Result

Please see the attachment for data.

5. Band Edge Measurement

5.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247,RSS-Gen 8.9&RSS-247 5.5

Test Method: KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018;

ANSI C63.10:2020

Test Limit: Regulation 15.247 (d),In any 100 kHz bandwidth outside the frequency band which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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) (see §15.205(c)).

Test Mode: Transmitting

5.2.Test setup



5.3.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 to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
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.

5.4.Test Result

Please see the attachment for data.

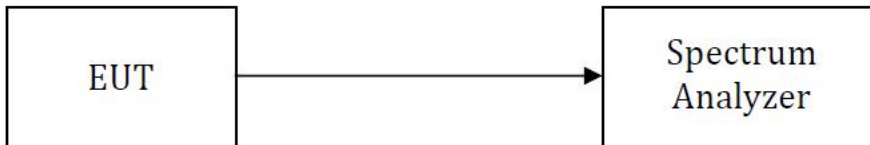
6. -6 dB Bandwidth and 99% Bandwidth Measurement

6.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247,RSS-247 5.2(a)

Test Method: KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018; ANSI C63.10:2020

6.2.Test Setup



6.3.Test Procedure

For 6dB Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz, $VBW \geq 3 \times RBW$.

For 99% Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1%-5% OBW, $VBW \geq 3RBW$

6.4.Test Result

Please see the attachment for data.

7. Maximum Output Power& E.I.R.P

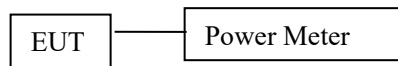
7.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247,RSS-247 5.4(d)

Test Method: KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018;
ANSI C63.10:2020

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5	PASS

7.2.Test Setup



7.3.Test Procedure

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

7.4.Test Result

Please see the attachment for data.

8. Power Spectral density

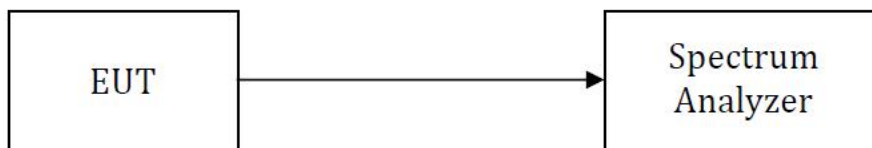
8.1.Limit

Test Requirement: FCC CFR47 Part 15 Section 15.247,RSS-247 5.2(b)

Test Method: KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018; ANSI C63.10:2020

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8dBm/3kHz	2400-2483.5	PASS

8.2.Test Setup



8.3.Test Procedure

KDB 558074 D01 DTS Meas Guidance v04 April 5, 2017 section 10.2

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

8.4.Test Result

Please see the attachment for data.

9. Duty cycle

9.1.Limit

N/A

9.2.Test Setup



9.3.Test Procedure

Measurements of duty cycle

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission. Set $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value.

Set $VBW \geq RBW$. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

9.4.Test Result

Please see the attachment for data.

10. Antenna Requirement

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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.



11. Test Photographs

Please see the attachment for Test Photographs

12. EUT Photographs

Please see the attachment for EUT Photographs

