FCC Part 15C Test Report
FCC ID: 2BHHB-MACO

Applicant:	Shenzhen Tianbei Technology Co., Ltd
Address:	4th Floor, Building C2, Zhongjia Creative Park, No. 65 East Ring Second Road, Fukang Community, Longhua Street, Longhua District, Shenzhen
Manufacturer:	Shenzhen Tianbei Technology Co., Ltd
Address:	4th Floor, Building C2, Zhongjia Creative Park, No. 65 East Ring Second Road, Fukang Community, Longhua Street, Longhua District, Shenzhen
Product Name:	MINI PC
Trade Mark:	N/A
Model Number:	MACO, G-FLIP, WTR MAX, WTR PRO, NEX, GT37, GT68, GT, GOD Y, N1S, FLEX, N1PRO, N2PRO, GEM12+, GEM12+PRO, GEM12 MAX, AG01, AG02, EG01, EG02, XG76XT, N-BOX Z, GEM12, EG02S, AG03, MN37, MN58, MN58U, GEM10
Date of Receipt:	Oct. 28, 2025
Test Date:	Oct. 28, 2025 - Nov. 14, 2025
Date of Report:	Nov. 14, 2025
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China
Applicable Standards:	FCC PART 15 C 15.247 ANSI C63.10:2020
Test Result:	Pass
Report Number:	DLE-251028003R

Prepared (Test Engineer):	Ken Tan
Reviewer (Supervisor):	Jack Bu
Approved (Manager):	Jade Yang

This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.205, 15.209, 15.247(d)	Radiated Spurious Emission	PASS	
15.209, 15.205	Conducted Band Edge Emission&Conducted Spurious Emissions	PASS	
15.247(d)	Conducted Spurious Emissions	PASS	
15.247(b)	Average Output Power	PASS	
15.247(a)(2)	6dB Bandwidth	PASS	
15.247(e)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

Test lab: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

FCC Test Firm Registration Number: 854456
Designation Number: CN1307
IC Registered No.: 27485
CAB ID.: CN0118

1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±2.56dB
2	RF power,conducted	±0.42dB
3	Spurious emissions,conducted	±2.76dB
4	All emissions,radiated(<1G)	±3.65dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%
8	6dB Bandwidth	±0.2%
9	Power Spectral Density	±2.45dBm

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name:	MINI PC
Trade Mark:	N/A
Model Number:	MACO, G-FLIP, WTR MAX, WTR PRO, NEX, GT37, GT68, GT, GOD Y, N1S, FLEX, N1PRO, N2PRO, GEM12+, GEM12+PRO, GEM12 MAX, AG01, AG02, EG01, EG02, XG76XT, N-BOX Z, GEM12, EG02S, AG03, MN37, MN58, MN58U, GEM10
Model Difference	All models are same as the samples except model name, they have the same structure and circuit.
Operation Frequency:	2412~2462 MHz for 802.11b/g/nHT20 2422~2452 MHz for 802.11nHT40
Channel numbers:	11 Channels for 802.11b/g/n(HT20) 7 channels for 802.11nHT40
Channel separation:	5MHz
Modulation technology:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n(20/40): OFDM(QPSK, BPSK, 16-QAM, 64-QAM)
Rate of Transmitter	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 150Mbps
Antenna Type:	Internal Antenna
Antenna gain:	2.62dBi
Power Supply:	Input: 19V⎓6.32A
Adapter:	Model: DSA-120PFG-19 3 190632 Input: 100-240V~ 50/60Hz 2.0A Output: +19.0V 6.32A, 120.08W Manufacturer: DEE VAN ENTERPRISE CO., LTD.

Note:
1.For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.The EUT's all information provided by client.

2. Channel List(802.11b/g/nHT20)

Channel	Frequency (GHz)	Channel	Frequency (GHz)
01	2.412	07	2.442
02	2.417	08	2.447
03	2.422	09	2.452
04	2.427	10	2.457
05	2.432	11	2.462
06	2.437		

Channel List(802.11nHT40)

Channel	Frequency (GHz)	Channel	Frequency (GHz)
03	2.422	07	2.442
04	2.427	08	2.447
05	2.432	09	2.452
06	2.437		

2.2 DESCRIPTION OF TEST MODES

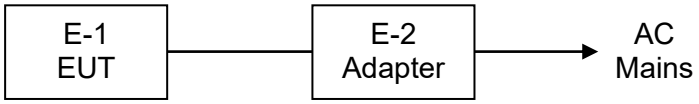
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Modulation	Channel
Mode 1	802.11b	CH01
Mode 2		CH06
Mode 3		CH11
Mode 4	802.11g	CH01
Mode 5		CH06
Mode 6		CH11
Mode 7	802.11nHT20	CH01
Mode 8		CH06
Mode 9		CH11
Mode 10	802.11nHT40	CH03
Mode 11		CH06
Mode 12		CH09

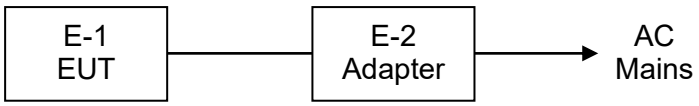
Note: (1) The measurements are performed at the highest, middle, lowest available channels.
(2) The test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.
(3) For the two items of conducted disturbance at the power supply end and space radiation below 1GHz, all modes have undergone pre-tests. The report only shows the worst test results of mode 3.

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Power line conducted emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
E-1	MINI PC	MACO	N/A	EUT
E-2	Adapter	DSA-120PFG-19 3 190632	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.5 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the end product.

Max output power Setting				
Test software Version	Test program: RF Test_V1.2			
Mode	802.11b	802.11g	802.11n HT20	802.11n HT40
Data Rate	1Mbps	6Mbps	MSC0	MSC0
Power Setting of Softwave	60	60	60	66

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation test, Band-edge test and 6db bandwidth test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4408B	MY50140780	Oct. 25, 2025	Oct. 24, 2026
2	Test Receiver (9kHz-7GHz)	R&S	ESRP7	101393	Oct. 25, 2025	Oct. 24, 2026
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB9162	00306	Oct. 25, 2025	Oct. 24, 2026
4	Horn Antenna (1GHz-18GHz)	Schwarzbeck	BBHA9120D	02139	Oct. 25, 2025	Oct. 24, 2026
5	Horn Antenna (18GHz-40GHz)	A.H. Systems	SAS-574	588	Oct. 25, 2025	Oct. 24, 2026
6	Amplifier (9KHz-6GHz)	Schwarzbeck	BBV9743B	00153	Oct. 25, 2025	Oct. 24, 2026
7	Amplifier (1GHz-18GHz)	EMEC	EM01G8GA	00270	Oct. 25, 2025	Oct. 24, 2026
8	Amplifier (18GHz-40GHz)	Quanjuda	DLE-161	97	Oct. 25, 2025	Oct. 24, 2026
9	Loop Antenna (9KHz-30MHz)	Schwarzbeck	FMZB1519B	00014	Oct. 25, 2025	Oct. 24, 2026
10	RF cables1 (9kHz-1GHz)	ChengYu	966	004	Oct. 25, 2025	Oct. 24, 2026
11	RF cables2 (1GHz-40GHz)	ChengYu	966	003	Oct. 25, 2025	Oct. 24, 2026
12	Antenna connector	Florida RF Labs	N/A	RF 01#	Oct. 25, 2025	Oct. 24, 2026
13	Power probe	KEYSIGHT	U2021XA	MY55210018	Oct. 25, 2025	Oct. 24, 2026
14	Signal Analyzer 9kHz-26.5GHz	Agilent	N9020A	MY55370280	Oct. 25, 2025	Oct. 24, 2026
15	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	Oct. 25, 2025	Oct. 24, 2026
16	D.C. Power Supply	LongWei	PS-305D	010964729	Oct. 25, 2025	Oct. 24, 2026
17	Power Meter	Ceyear	2438PA/PB	/	Oct. 25, 2025	Oct. 24, 2026
18	Peak/continuous wave power probe	Ceyear	81702F	/	Oct. 25, 2025	Oct. 24, 2026

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	843 Shielded Room	YIHENG	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
2	EMI Receiver	R&S	ESR	101421	Oct. 25, 2025	Oct. 24, 2026
3	LISN	R&S	ENV216	102417	Oct. 25, 2025	Oct. 24, 2026
4	843 Cable 1#	ChengYu	CE Cable	001	Oct. 25, 2025	Oct. 24, 2026

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMC	FA-03A2
3	RF test system	MAIWEI	MTS8310	2.0.0.0
4	RF communication test system	MAIWEI	MTS8200	2.0.0.0

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.50	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

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

b. 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.

c. 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.

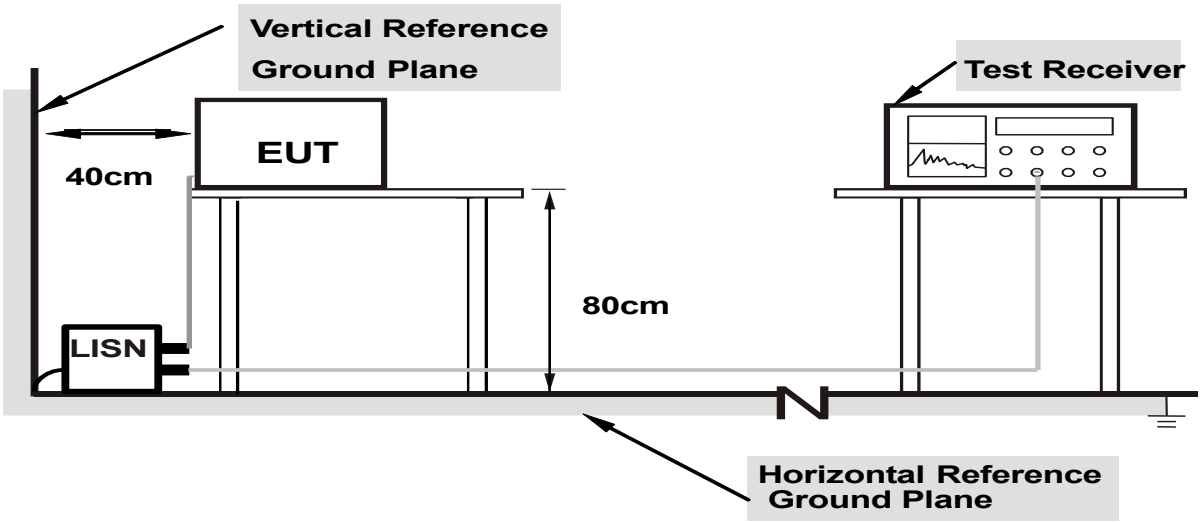
d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

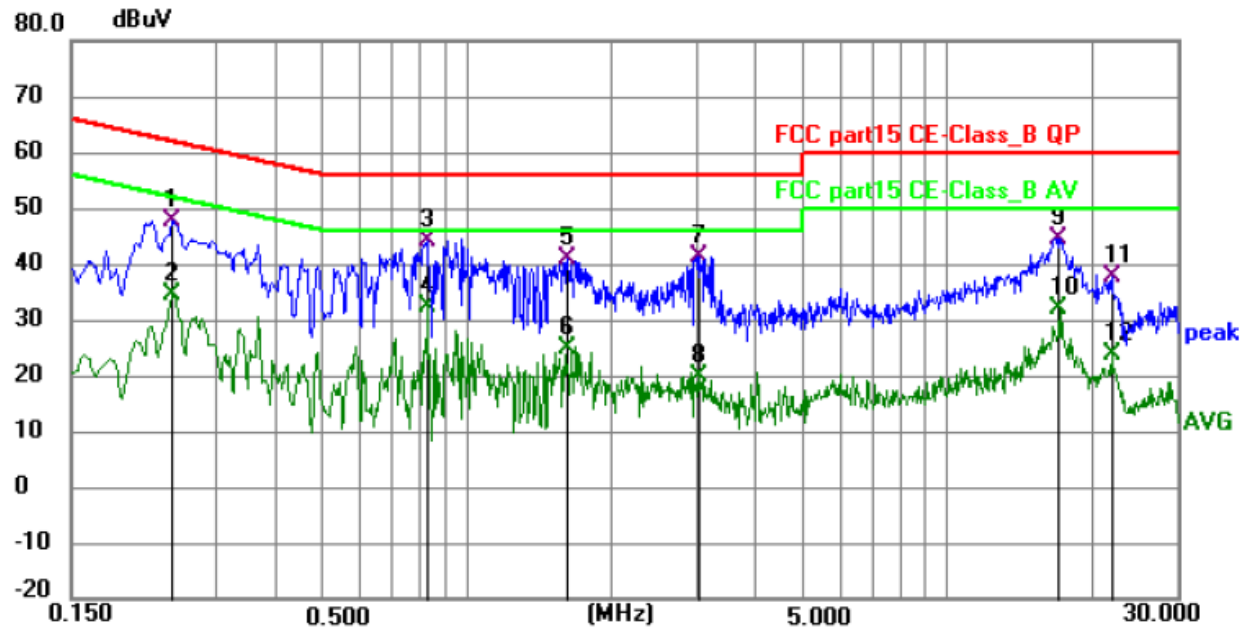
3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.
We pretest AC 120V and AC 230V, the worst voltage was AC 120V and the data recording in the report.

3.1.6 TEST RESULTS

PASS
Please refer to the following page.

Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 3

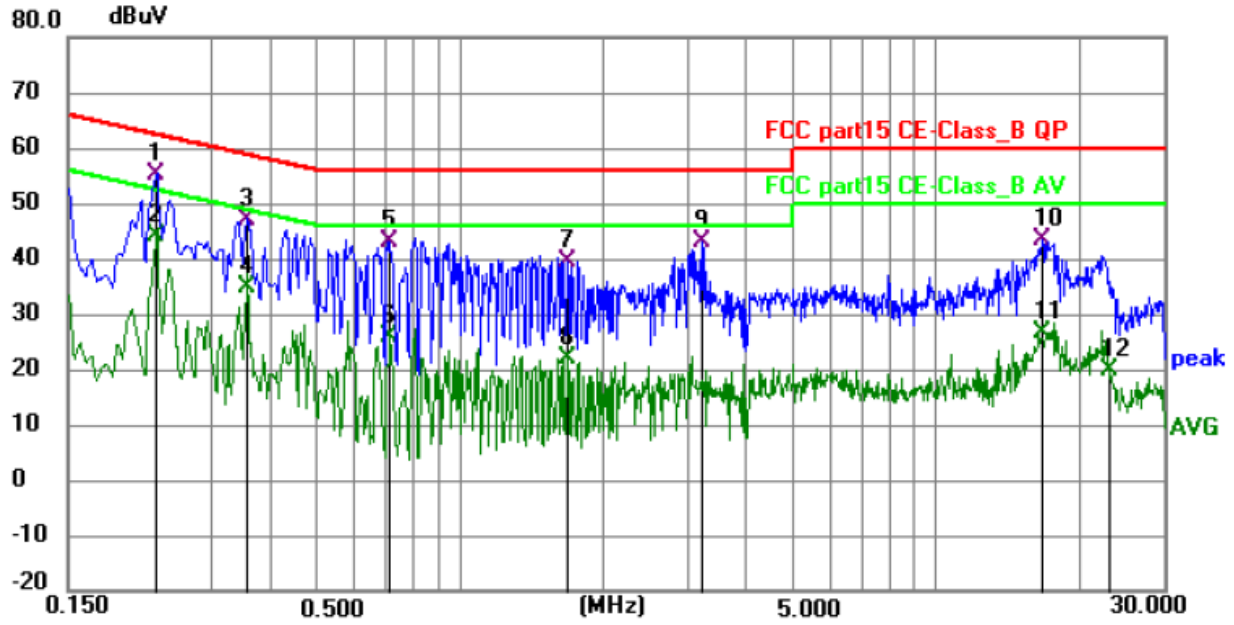


Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2445	37.38	10.14	47.52	61.94	-14.42	QP	P	
2	0.2445	24.44	10.14	34.58	51.94	-17.36	AVG	P	
3 *	0.8340	34.07	10.05	44.12	56.00	-11.88	QP	P	
4	0.8340	22.30	10.05	32.35	46.00	-13.65	AVG	P	
5	1.6170	30.97	10.06	41.03	56.00	-14.97	QP	P	
6	1.6170	14.74	10.06	24.80	46.00	-21.20	AVG	P	
7	3.0525	31.29	10.13	41.42	56.00	-14.58	QP	P	
8	3.0525	9.73	10.13	19.86	46.00	-26.14	AVG	P	
9	17.0745	32.65	11.85	44.50	60.00	-15.50	QP	P	
10	17.0745	19.98	11.85	31.83	50.00	-18.17	AVG	P	
11	21.9930	25.29	12.31	37.60	60.00	-22.40	QP	P	
12	21.9930	11.40	12.31	23.71	50.00	-26.29	AVG	P	

Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 3



Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1 *	0.2310	44.99	10.18	55.17	62.41	-7.24	QP	P	
2	0.2310	33.93	10.18	44.11	52.41	-8.30	AVG	P	
3	0.3570	36.54	10.26	46.80	58.80	-12.00	QP	P	
4	0.3570	24.74	10.26	35.00	48.80	-13.80	AVG	P	
5	0.7125	33.10	10.11	43.21	56.00	-12.79	QP	P	
6	0.7125	15.82	10.11	25.93	46.00	-20.07	AVG	P	
7	1.6800	29.42	10.07	39.49	56.00	-16.51	QP	P	
8	1.6800	11.89	10.07	21.96	46.00	-24.04	AVG	P	
9	3.2370	32.86	10.10	42.96	56.00	-13.04	QP	P	
10	16.7370	31.74	11.71	43.45	60.00	-16.55	QP	P	
11	16.7370	14.96	11.71	26.67	50.00	-23.33	AVG	P	
12	23.2370	7.62	12.31	19.93	50.00	-30.07	AVG	P	

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	25GHz
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. 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 (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.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to1.5 metre.
h. Test the EUT in the lowest channel, the middle channel, the Highest channel

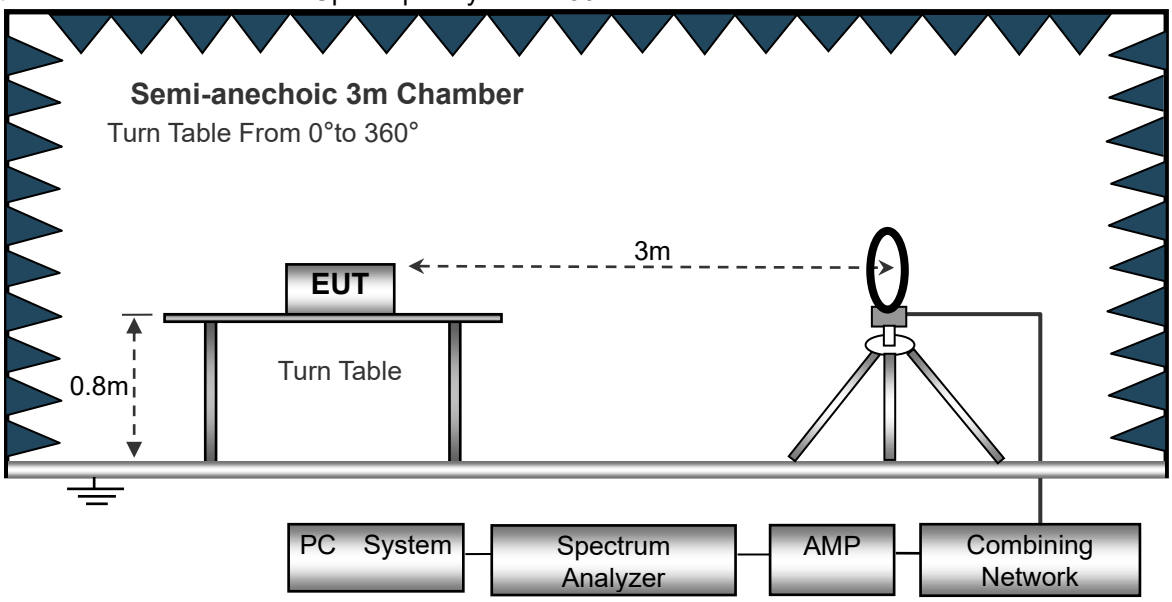
Note:
The horizontal and vertical polarities of the antenna were tested, and a pre-test was conducted on the EUT placement as three orthogonal axes X,Y,Z. The worst display of the test results was the Y-axis. The worst case emissions were reported.

3.2.3 DEVIATION FROM TEST STANDARD

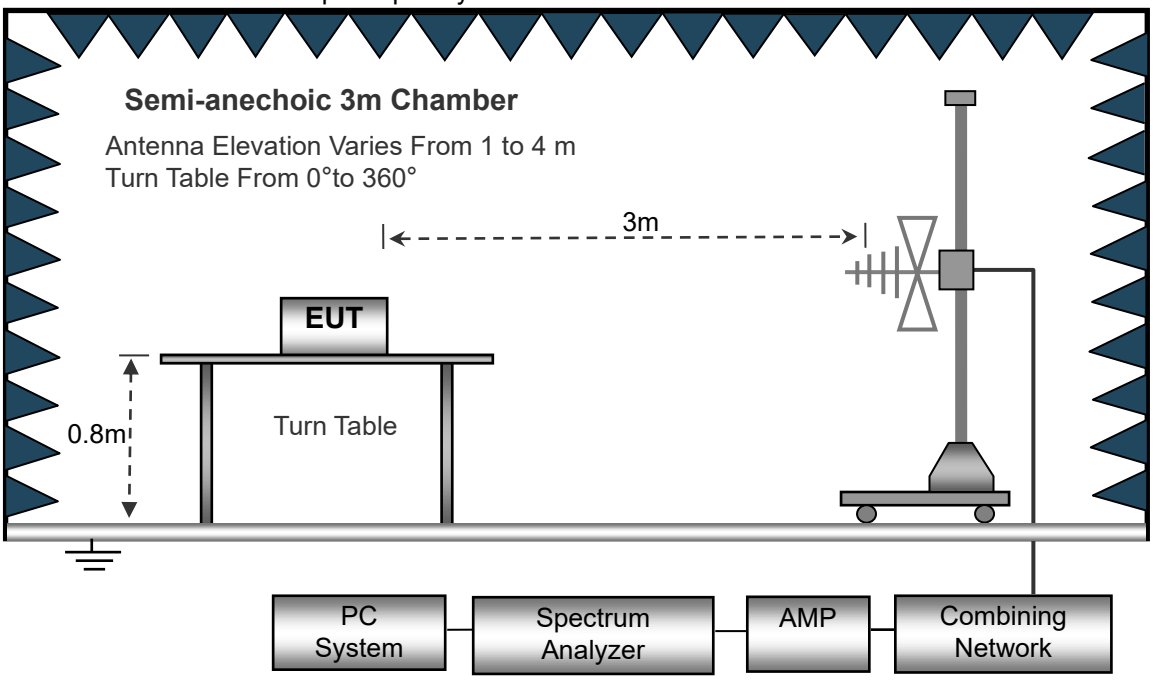
No deviation

3.2.4 TEST SETUP

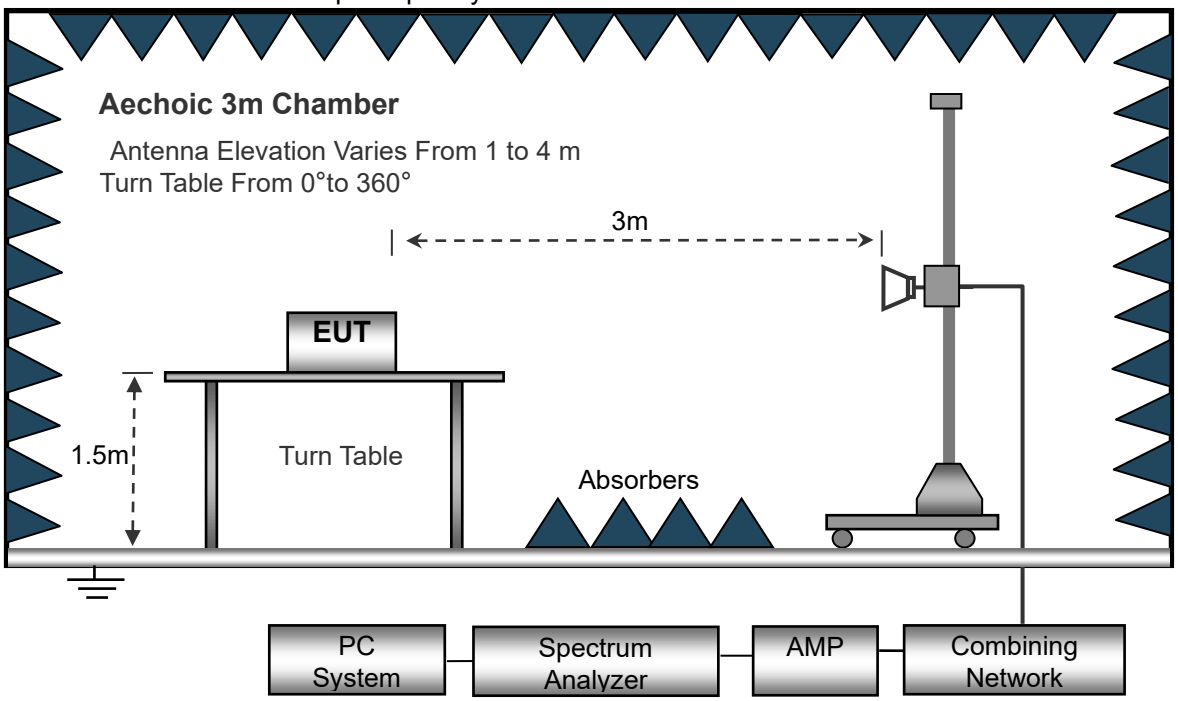
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

Temperature:	20℃	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Mode 3	Polarization :	--

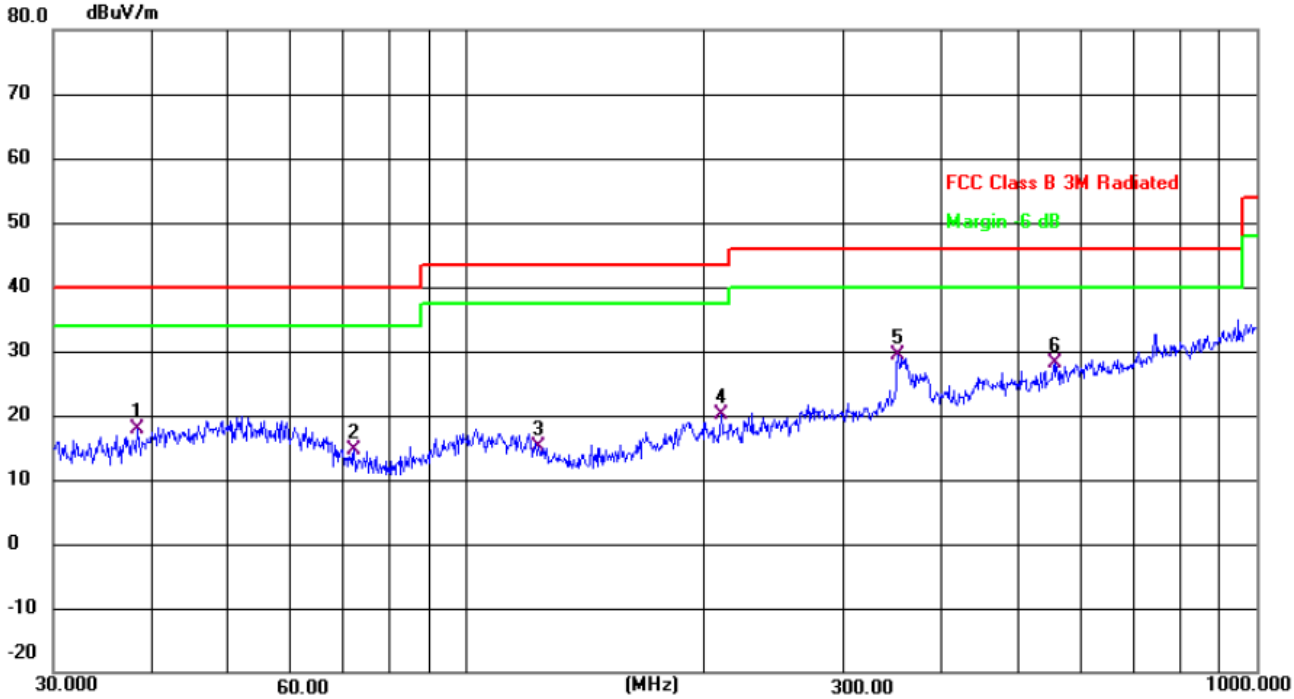
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

Temperature:	26℃	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Horizontal
Test Voltage :	AC 120V/60Hz		
Test Mode :	Mode 3		



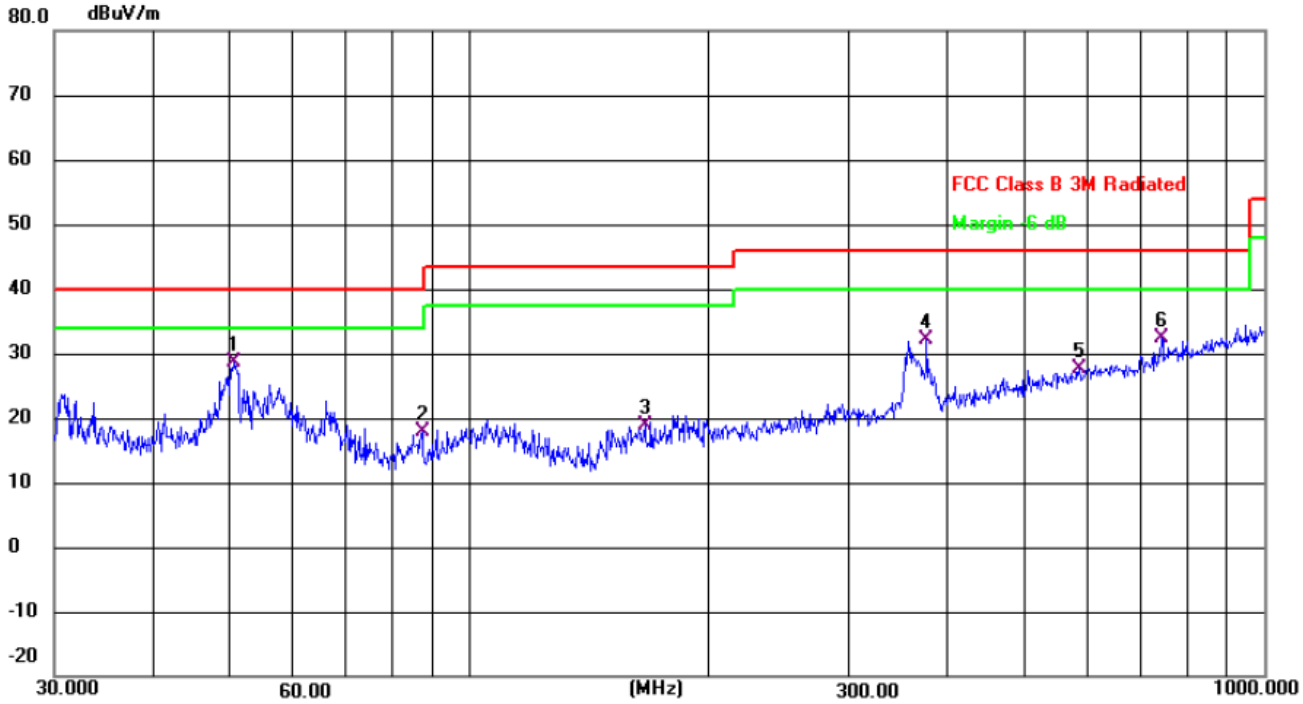
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		38.3462	26.46	-8.46	18.00	40.00	-22.00	QP
2		72.0843	26.14	-11.63	14.51	40.00	-25.49	QP
3		123.2655	26.42	-11.30	15.12	43.50	-28.38	QP
4		210.0482	28.68	-8.52	20.16	43.50	-23.34	QP
5	*	351.7079	34.42	-5.01	29.41	46.00	-16.59	QP
6		554.8254	28.14	-0.02	28.12	46.00	-17.88	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;

Temperature:	26℃	Relative Humidity:	54%
Pressure:	1010 hPa	Polarization :	Vertical
Test Voltage :	AC 120V/60Hz		
Test Mode :	Mode 3		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	50.4089	35.38	-6.79	28.59	40.00	-11.41	QP
2		87.1117	29.57	-11.67	17.90	40.00	-22.10	QP
3		166.0680	30.68	-11.74	18.94	43.50	-24.56	QP
4		375.9385	36.51	-4.28	32.23	46.00	-13.77	QP
5		584.7895	27.38	0.22	27.60	46.00	-18.40	QP
6		742.2587	29.43	2.94	32.37	46.00	-13.63	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Level - Limit;

3.2.8 TEST RESULTS (1GHZ~25GHZ)

802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412									
V	4824	67.12	50.65	6.88	31.29	54.64	74	-19.36	PK
V	4824	55.32	50.65	6.88	31.29	42.84	54	-11.16	AV
V	7236	66.85	49.98	7.16	36.63	60.66	74	-13.34	PK
V	7236	46.46	49.98	7.16	36.63	40.27	54	-13.73	AV
V	16087	48.61	51.53	11.34	41.52	49.94	74	-24.06	PK
H	4824	66.85	50.65	6.88	31.29	54.37	74	-19.63	PK
H	4824	55.25	50.65	6.88	31.29	42.77	54	-11.23	AV
H	7236	69.64	49.98	7.16	36.63	63.45	74	-10.55	PK
H	7236	45.58	49.98	7.16	36.63	39.39	54	-14.61	AV
H	16087	48.63	51.53	11.34	41.52	49.96	74	-24.04	PK
operation frequency:2437									
V	4874	67.52	50.67	6.89	31.38	55.12	74	-18.88	PK
V	4874	55.41	50.67	6.89	31.38	43.01	54	-10.99	AV
V	7311	69.96	50.02	7.24	36.63	63.81	74	-10.19	PK
V	7311	46.32	50.02	7.24	36.63	40.17	54	-13.83	AV
V	16087	48.41	51.53	11.34	41.52	49.74	74	-24.26	PK
H	4874	66.46	50.67	6.89	31.38	54.06	74	-19.94	PK
H	4874	55.87	50.67	6.89	31.38	43.47	54	-10.53	AV
H	7311	69.84	50.02	7.24	36.63	63.69	74	-10.31	PK
H	7311	47.69	50.02	7.24	36.63	41.54	54	-12.46	AV
H	16087	48.48	51.53	11.34	41.52	49.81	74	-24.19	PK
operation frequency:2462									
V	4924	67.52	50.67	6.89	31.38	55.12	74	-18.88	PK
V	4924	55.66	50.67	6.89	31.38	43.26	54	-10.74	AV
V	7386	69.44	50.02	7.24	36.63	63.29	74	-10.71	PK
V	7386	46.48	50.02	7.24	36.63	40.33	54	-13.67	AV
V	16087	48.32	51.53	11.34	41.52	49.65	74	-24.35	PK
H	4924	66.74	50.67	6.89	31.38	54.34	74	-19.66	PK
H	4924	55.68	50.67	6.89	31.38	43.28	54	-10.72	AV
H	7386	69.62	50.02	7.24	36.63	63.47	74	-10.53	PK
H	7386	47.77	50.02	7.24	36.63	41.62	54	-12.38	AV
H	16087	48.59	51.53	11.34	41.52	49.92	74	-24.08	PK

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.

802.11g

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412									
V	4824	67.52	50.65	6.88	31.29	55.04	74	-18.96	PK
V	4824	55.21	50.65	6.88	31.29	42.73	54	-11.27	AV
V	7236	66.86	49.98	7.16	36.63	60.67	74	-13.33	PK
V	7236	46.34	49.98	7.16	36.63	40.15	54	-13.85	AV
V	16087	49.88	51.53	11.34	41.52	51.21	74	-22.79	PK
H	4824	69.63	50.65	6.88	31.29	57.15	74	-16.85	PK
H	4824	52.24	50.65	6.88	31.29	39.76	54	-14.24	AV
H	7236	66.85	49.98	7.16	36.63	60.66	74	-13.34	PK
H	7236	47.56	49.98	7.16	36.63	41.37	54	-12.63	AV
H	16087	47.44	51.53	11.34	41.52	48.77	74	-25.23	PK
operation frequency:2437									
V	4874	67.21	50.67	6.89	31.38	54.81	74	-19.19	PK
V	4874	55.29	50.67	6.89	31.38	42.89	54	-11.11	AV
V	7311	66.41	50.02	7.24	36.63	60.26	74	-13.74	PK
V	7311	46.63	50.02	7.24	36.63	40.48	54	-13.52	AV
V	16087	48.51	51.53	11.34	41.52	49.84	74	-24.16	PK
H	4874	66.74	50.67	6.89	31.38	54.34	74	-19.66	PK
H	4874	55.33	50.67	6.89	31.38	42.93	54	-11.07	AV
H	7311	65.55	50.02	7.24	36.63	59.4	74	-14.6	PK
H	7311	47.17	50.02	7.24	36.63	41.02	54	-12.98	AV
H	16087	48.53	51.53	11.34	41.52	49.86	74	-24.14	PK
operation frequency:2462									
V	4924	67.21	50.79	6.83	31.36	54.61	74	-19.39	PK
V	4924	55.36	50.79	6.83	31.36	42.76	54	-11.24	AV
V	7386	66.17	50.11	7.25	36.58	59.89	74	-14.11	PK
V	7386	47.41	50.11	7.25	36.58	41.13	54	-12.87	AV
V	16087	46.96	51.53	11.34	41.52	48.29	74	-25.71	PK
H	4924	66.54	50.79	6.83	31.36	53.94	74	-20.06	PK
H	4924	54.87	50.79	6.83	31.36	42.27	54	-11.73	AV
H	7386	65.65	50.11	7.25	36.58	59.37	74	-14.63	PK
H	7386	45.46	50.11	7.25	36.58	39.18	54	-14.82	AV
H	16087	47.74	51.53	11.34	41.52	49.07	74	-24.93	PK

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.

802.11n HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412									
V	4824	66.58	50.65	6.88	31.29	54.1	74	-19.9	PK
V	4824	55.61	50.65	6.88	31.29	43.13	54	-10.87	AV
V	7236	66.63	49.98	7.16	36.63	60.44	74	-13.56	PK
V	7236	46.58	49.98	7.16	36.63	40.39	54	-13.61	AV
V	16087	46.41	51.53	11.34	41.52	47.74	74	-26.26	PK
H	4824	66.46	50.65	6.88	31.29	53.98	74	-20.02	PK
H	4824	55.52	50.65	6.88	31.29	43.04	54	-10.96	AV
H	7236	64.62	49.98	7.16	36.63	58.43	74	-15.57	PK
H	7236	47.58	49.98	7.16	36.63	41.39	54	-12.61	AV
H	16087	47.53	51.53	11.34	41.52	48.86	74	-25.14	PK
operation frequency:2437									
V	4874	66.52	50.67	6.89	31.38	54.12	74	-19.88	PK
V	4874	54.36	50.67	6.89	31.38	41.96	54	-12.04	AV
V	7311	65.74	50.02	7.24	36.63	59.59	74	-14.41	PK
V	7311	47.26	50.02	7.24	36.63	41.11	54	-12.89	AV
V	16087	47.52	51.53	11.34	41.52	48.85	74	-25.15	PK
H	4874	65.63	50.67	6.89	31.38	53.23	74	-20.77	PK
H	4874	53.41	50.67	6.89	31.38	41.01	54	-12.99	AV
H	7311	65.75	50.02	7.24	36.63	59.6	74	-14.4	PK
H	7311	46.74	50.02	7.24	36.63	40.59	54	-13.41	AV
H	16087	46.25	51.53	11.34	41.52	47.58	74	-26.42	PK
operation frequency:2462									
V	4924	67.21	50.79	6.83	31.36	54.61	74	-19.39	PK
V	4924	54.36	50.79	6.83	31.36	41.76	54	-12.24	AV
V	7386	64.57	50.11	7.25	36.58	58.29	74	-15.71	PK
V	7386	46.41	50.11	7.25	36.58	40.13	54	-13.87	AV
V	16087	48.56	51.53	11.34	41.52	49.89	74	-24.11	PK
H	4924	67.87	50.79	6.83	31.36	55.27	74	-18.73	PK
H	4924	54.63	50.79	6.83	31.36	42.03	54	-11.97	AV
H	7386	65.21	50.11	7.25	36.58	58.93	74	-15.07	PK
H	7386	47.41	50.11	7.25	36.58	41.13	54	-12.87	AV
H	16087	47.63	51.53	11.34	41.52	48.96	74	-25.04	PK

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.

802.11n HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2422									
V	4844	66.74	50.67	6.89	31.32	54.28	74	-19.72	PK
V	4844	55.21	50.67	6.89	31.32	42.75	54	-11.25	AV
V	7266	66.76	50.01	7.15	36.62	60.52	74	-13.48	PK
V	7266	46.57	50.01	7.15	36.62	40.33	54	-13.67	AV
V	16087	46.21	51.53	11.34	41.52	47.54	74	-26.46	PK
H	4844	66.66	50.67	6.89	31.32	54.2	74	-19.8	PK
H	4844	55.47	50.67	6.89	31.32	43.01	54	-10.99	AV
H	7266	64.24	50.01	7.15	36.62	58	74	-16	PK
H	7266	47.61	50.01	7.15	36.62	41.37	54	-12.63	AV
H	16087	47.52	51.53	11.34	41.52	48.85	74	-25.15	PK
operation frequency:2437									
V	4874	66.21	50.67	6.89	31.38	53.81	74	-20.19	PK
V	4874	54.63	50.67	6.89	31.38	42.23	54	-11.77	AV
V	7311	65.74	50.02	7.24	36.63	59.59	74	-14.41	PK
V	7311	46.21	50.02	7.24	36.63	40.06	54	-13.94	AV
V	16087	47.36	51.53	11.34	41.52	48.69	74	-25.31	PK
H	4874	65.85	50.67	6.89	31.38	53.45	74	-20.55	PK
H	4874	53.41	50.67	6.89	31.38	41.01	54	-12.99	AV
H	7311	65.83	50.02	7.24	36.63	59.68	74	-14.32	PK
H	7311	47.67	50.02	7.24	36.63	41.52	54	-12.48	AV
H	16087	46.52	51.53	11.34	41.52	47.85	74	-26.15	PK
operation frequency:2452									
V	4904	67.41	50.76	6.81	31.31	54.77	74	-19.23	PK
V	4904	54.63	50.76	6.81	31.31	41.99	54	-12.01	AV
V	7356	64.87	50.08	7.21	36.52	58.52	74	-15.48	PK
V	7356	47.55	50.08	7.21	36.52	41.2	54	-12.8	AV
V	16087	48.34	51.53	11.34	41.52	49.67	74	-24.33	PK
H	4904	67.51	50.76	6.81	31.31	54.87	74	-19.13	PK
H	4904	54.69	50.76	6.81	31.31	42.05	54	-11.95	AV
H	7356	65.41	50.08	7.21	36.52	59.06	74	-14.94	PK
H	7356	46.12	50.08	7.21	36.52	39.77	54	-14.23	AV
H	16087	47.67	51.53	11.34	41.52	49	74	-25	PK

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.

3.3 RADIATED BAND EMISSION MEASUREMENT

3.3.1 TEST REQUIREMENT:

FCC Part15 C Section 15.209 and 15.205

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	2300MHz
Stop Frequency	2520
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

3.3.2 TEST PROCEDURE

Above 1GHz test procedure as below:

a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. 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 rota 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 Highest channel

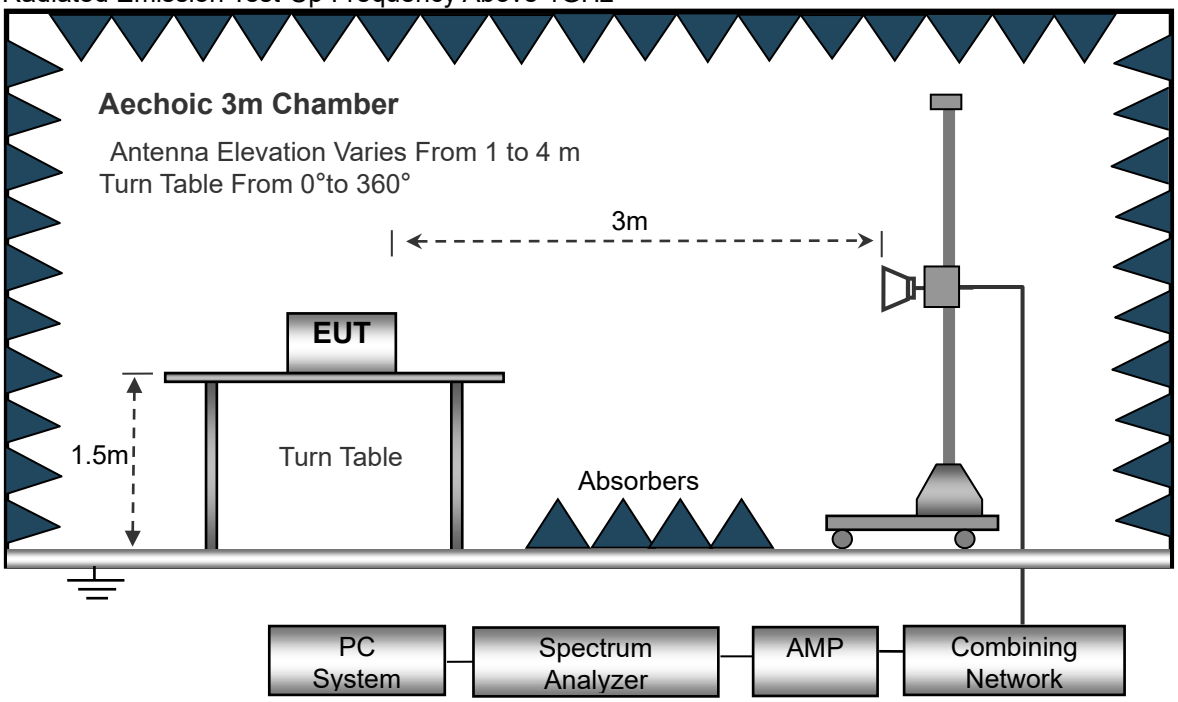
Note:
The horizontal and vertical polarities of the antenna were tested, and a pre-test was conducted on the EUT placement as three orthogonal axes X,Y,Z. The worst display of the test results was the Y-axis. The worst case emissions were reported.

3.3.3 DEVIATION FROM TEST STANDARD

No deviation

3.3.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



3.3.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.3.6 TEST RESULT

802.11b

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412									
V	2310	77.21	52.11	2.68	27.32	55.1	74	-18.9	PK
V	2310	65.46	52.11	2.68	27.32	43.35	54	-10.65	AV
V	2390	76.87	52.13	2.52	27.46	54.72	74	-19.28	PK
V	2390	64.26	52.13	2.52	27.46	42.11	54	-11.89	AV
H	2310	76.12	52.11	2.68	27.32	54.01	74	-19.99	PK
H	2310	65.85	52.11	2.68	27.32	43.74	54	-10.26	AV
H	2390	76.41	52.13	2.52	27.46	54.26	74	-19.74	PK
H	2390	65.46	52.13	2.52	27.46	43.31	54	-10.69	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2462									
V	2483.5	77.52	52.23	2.86	27.44	55.59	74	-18.41	PK
V	2483.5	65.54	52.23	2.86	27.44	43.61	54	-10.39	AV
V	2500	76.83	52.26	2.88	27.49	54.94	74	-19.06	PK
V	2500	65.67	52.26	2.88	27.49	43.78	54	-10.22	AV
H	2483.5	76.52	52.23	2.86	27.44	54.59	74	-19.41	PK
H	2483.5	66.23	52.23	2.86	27.44	44.3	54	-9.7	AV
H	2500	78.41	52.26	2.88	27.49	56.52	74	-17.48	PK
H	2500	67.39	52.26	2.88	27.49	45.5	54	-8.5	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.

802.11g

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412									
V	2310	76.21	52.11	2.68	27.32	54.1	74	-19.9	PK
V	2310	65.86	52.11	2.68	27.32	43.75	54	-10.25	AV
V	2390	76.41	52.13	2.52	27.46	54.26	74	-19.74	PK
V	2390	64.86	52.13	2.52	27.46	42.71	54	-11.29	AV
H	2310	76.48	52.11	2.68	27.32	54.37	74	-19.63	PK
H	2310	65.65	52.11	2.68	27.32	43.54	54	-10.46	AV
H	2390	76.63	52.13	2.52	27.46	54.48	74	-19.52	PK
H	2390	65.21	52.13	2.52	27.46	43.06	54	-10.94	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2462									
V	2483.5	76.69	52.23	2.86	27.44	54.76	74	-19.24	PK
V	2483.5	65.75	52.23	2.86	27.44	43.82	54	-10.18	AV
V	2500	76.38	52.26	2.88	27.49	54.49	74	-19.51	PK
V	2500	65.84	52.26	2.88	27.49	43.95	54	-10.05	AV
H	2483.5	76.46	52.23	2.86	27.44	54.53	74	-19.47	PK
H	2483.5	65.52	52.23	2.86	27.44	43.59	54	-10.41	AV
H	2500	76.64	52.26	2.88	27.49	54.75	74	-19.25	PK
H	2500	65.17	52.26	2.88	27.49	43.28	54	-10.72	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.

802.11n HT20

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2412									
V	2310	76.36	52.11	2.68	27.32	54.25	74	-19.75	PK
V	2310	65.18	52.11	2.68	27.32	43.07	54	-10.93	AV
V	2390	77.76	52.13	2.52	27.46	55.61	74	-18.39	PK
V	2390	65.36	52.13	2.52	27.46	43.21	54	-10.79	AV
H	2310	77.74	52.11	2.68	27.32	55.63	74	-18.37	PK
H	2310	65.63	52.11	2.68	27.32	43.52	54	-10.48	AV
H	2390	76.52	52.13	2.52	27.46	54.37	74	-19.63	PK
H	2390	65.14	52.13	2.52	27.46	42.99	54	-11.01	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2462									
V	2483.5	77.63	52.23	2.86	27.44	55.7	74	-18.3	PK
V	2483.5	65.24	52.23	2.86	27.44	43.31	54	-10.69	AV
V	2500	76.98	52.26	2.88	27.49	55.09	74	-18.91	PK
V	2500	65.36	52.26	2.88	27.49	43.47	54	-10.53	AV
H	2483.5	77.57	52.23	2.86	27.44	55.64	74	-18.36	PK
H	2483.5	65.74	52.23	2.86	27.44	43.81	54	-10.19	AV
H	2500	76.63	52.26	2.88	27.49	54.74	74	-19.26	PK
H	2500	66.21	52.26	2.88	27.49	44.32	54	-9.68	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.

802.11n HT40

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2422									
V	2310	76.83	52.11	2.68	27.32	54.72	74	-19.28	PK
V	2310	65.41	52.11	2.68	27.32	43.3	54	-10.7	AV
V	2390	77.49	52.13	2.52	27.46	55.34	74	-18.66	PK
V	2390	65.52	52.13	2.52	27.46	43.37	54	-10.63	AV
H	2310	77.41	52.11	2.68	27.32	55.3	74	-18.7	PK
H	2310	65.22	52.11	2.68	27.32	43.11	54	-10.89	AV
H	2390	76.48	52.13	2.52	27.46	54.33	74	-19.67	PK
H	2390	65.41	52.13	2.52	27.46	43.26	54	-10.74	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2452									
V	2483.5	77.36	52.23	2.86	27.44	55.43	74	-18.57	PK
V	2483.5	65.52	52.23	2.86	27.44	43.59	54	-10.41	AV
V	2500	76.13	52.26	2.88	27.49	54.24	74	-19.76	PK
V	2500	65.38	52.26	2.88	27.49	43.49	54	-10.51	AV
H	2483.5	77.25	52.23	2.86	27.44	55.32	74	-18.68	PK
H	2483.5	65.47	52.23	2.86	27.44	43.54	54	-10.46	AV
H	2500	76.21	52.26	2.88	27.49	54.32	74	-19.68	PK
H	2500	66.66	52.26	2.88	27.49	44.77	54	-9.23	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.

3.4 CONDUCTED BAND EDGE EMISSION&CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidance v05r02

3.4.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, 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 in15.209(a).
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.

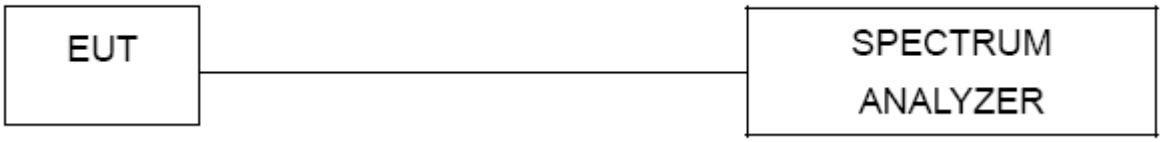
3.4.2 TEST PROCEDURE

Using the following spectrum analyzer setting:
Set the RBW = 100KHz.
Set the VBW = 300KHz.
Sweep time = auto couple.
Detector function = Peak.
Trace mode = max hold.
Allow trace to fully stabilize.
Establish a reference level by using the following procedure:
a) Set instrument center frequency to DTS channel center frequency.
b) Set the span to ⩾1.5 times the DTS bandwidth.
c) Set the RBW=100 kHz.
d) Set the VBW⩾[3xRBW].
e) Detector =peak.
f)Sweep time= auto couple.
g) Trace mode=max hold.
h)Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum PSD level.
Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

3.4.3 DEVIATION FROM STANDARD

No deviation.

3.4.4 TEST SETUP



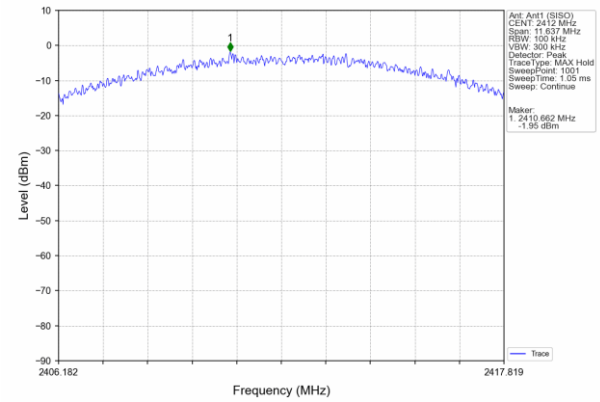
3.4.5 EUT OPERATION CONDITIONS

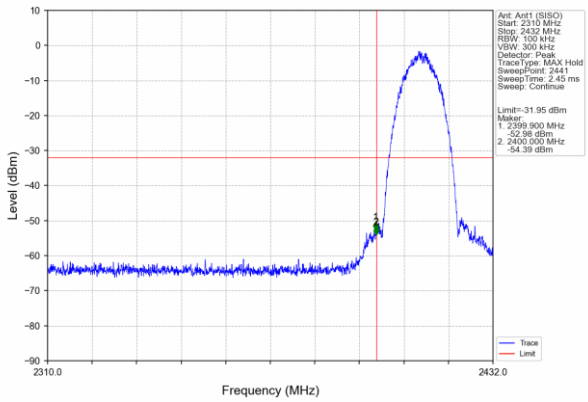
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.6 TEST RESULTS

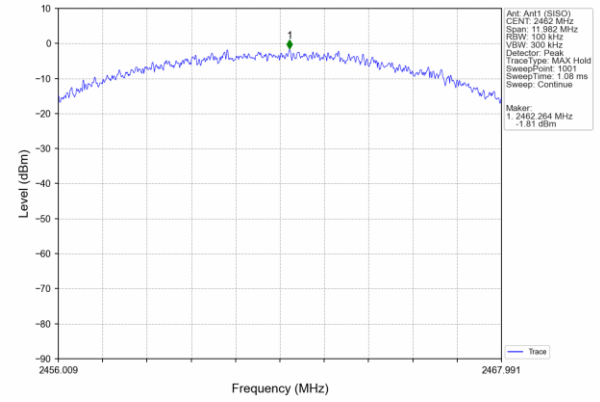
For Conducted

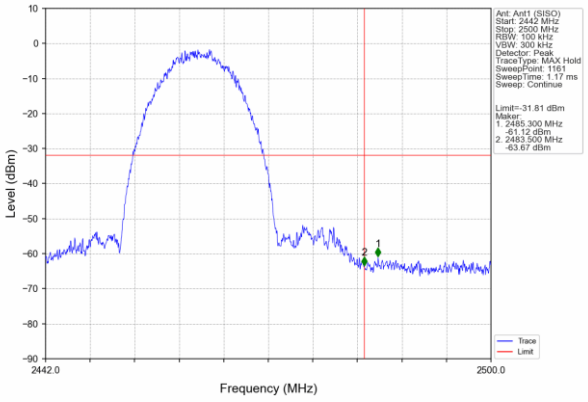
802.11b 2412MHz



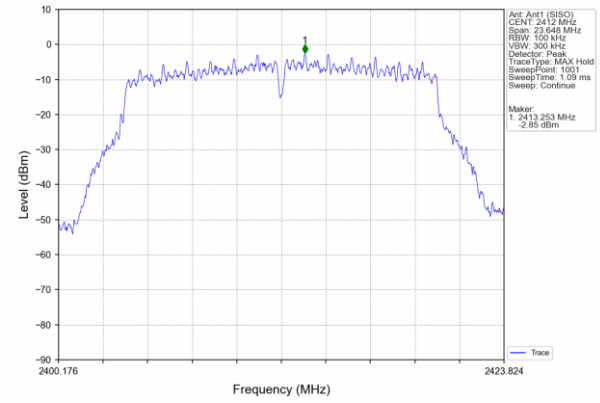


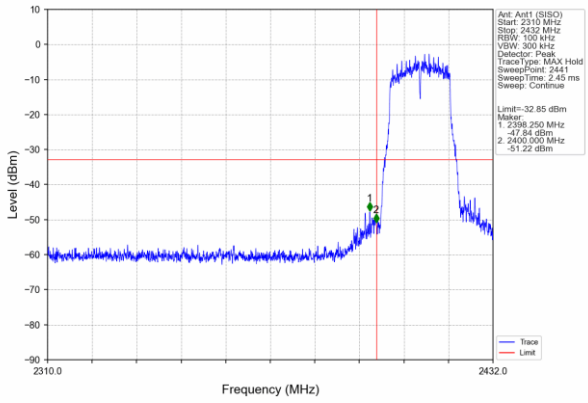
802.11b 2462MHz



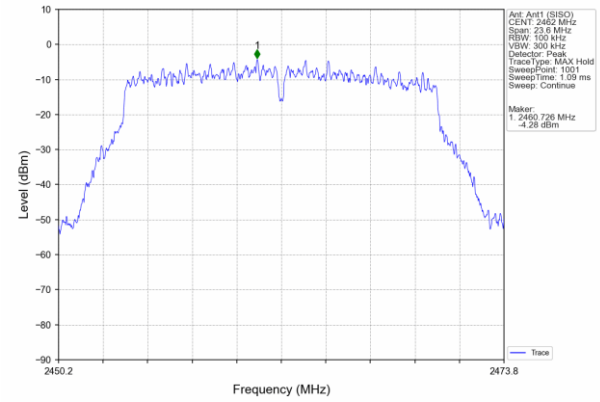


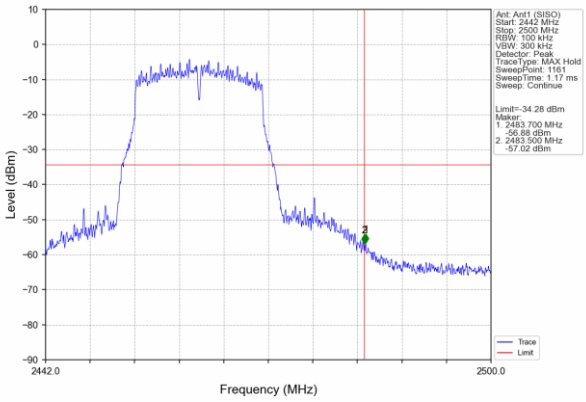
802.11g 2412MHz



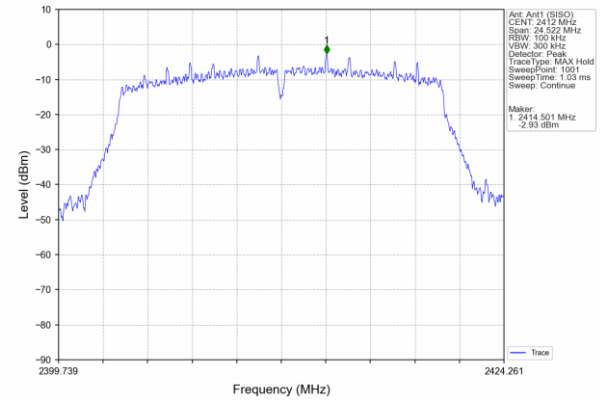


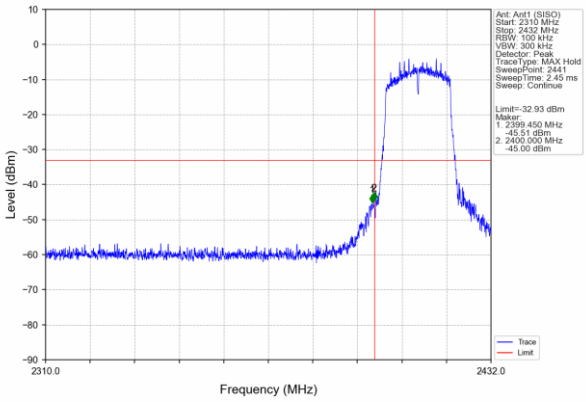
802.11g 2462MHz



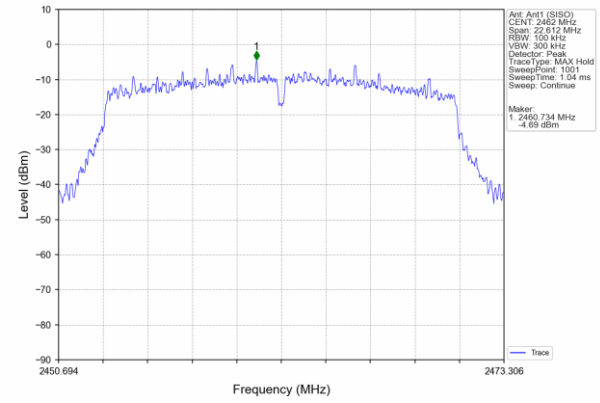


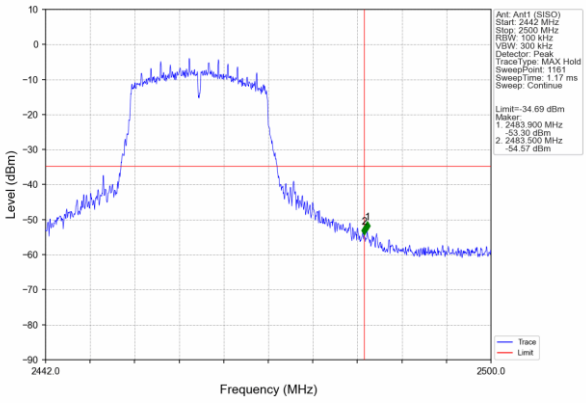
802.11n 20 2412MHz



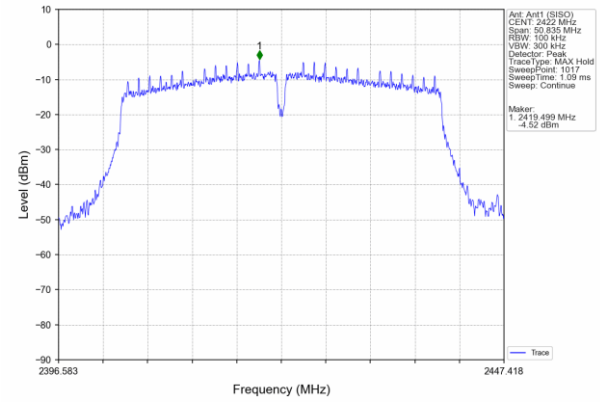


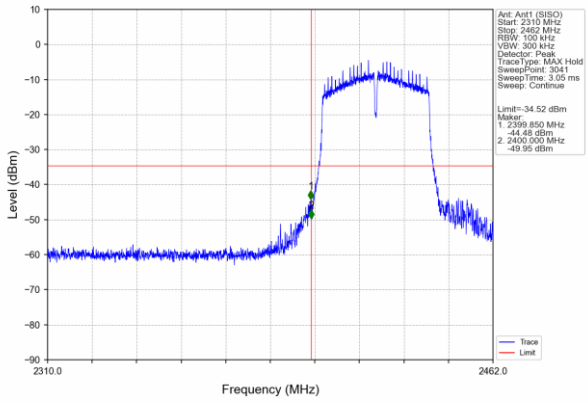
802.11n20 2462MHz



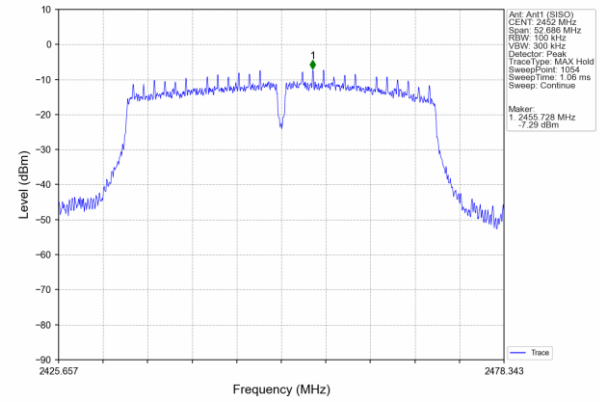


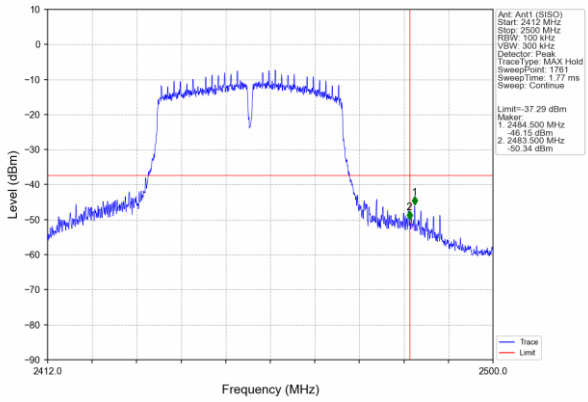
802.11n 40 2422MHz





802.11n40 2452MHz

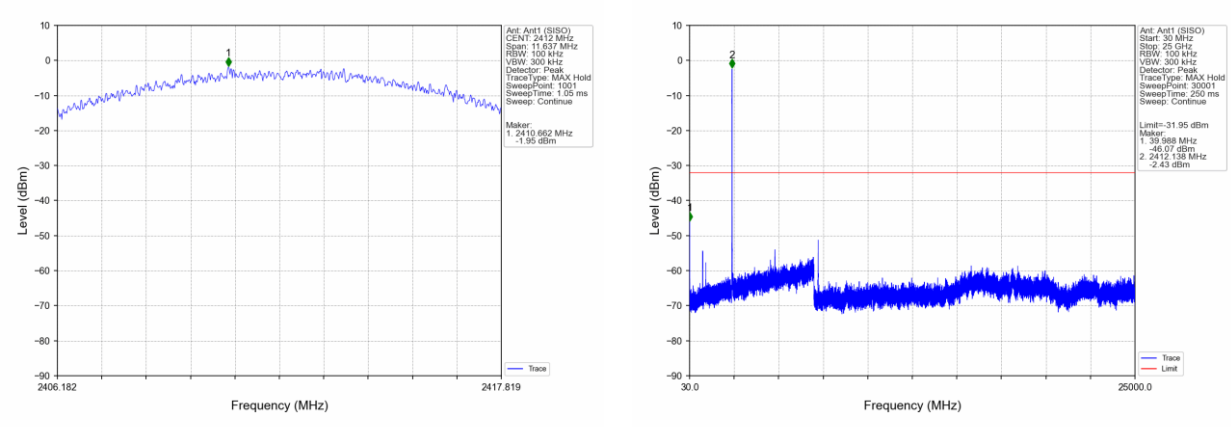




For Conducted

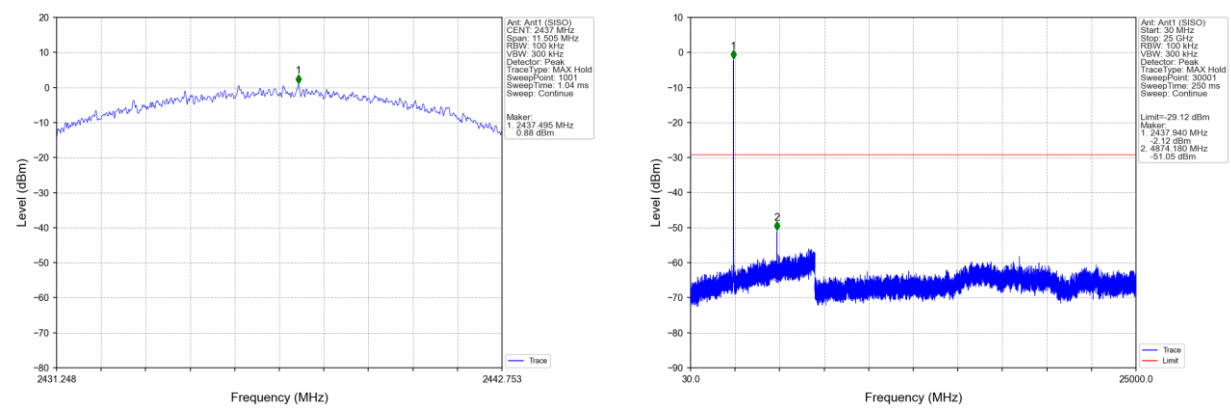
During the test, pre-scan the all modulation, and found the 802.11b mode which it is worse case.

Test channel:	Lowest channel



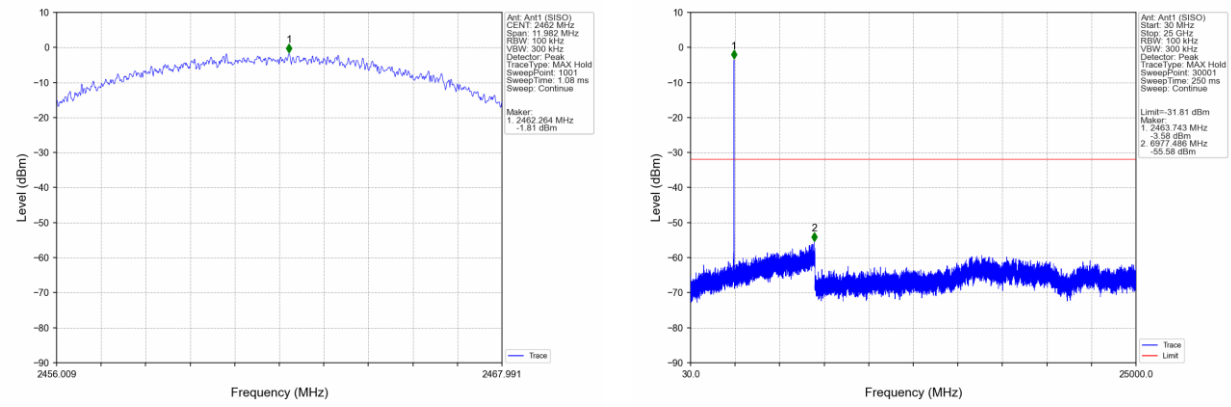
0.03GHz~26.5GHz

Test channel:	Middle channel



0.03GHz~26.5GHz

Test channel:	Highest channel



0.03GHz~26.5GHz

4. AVERAGE OUTPUT POWER

4.1 APPLIED PROCEDURES / LIMIT

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

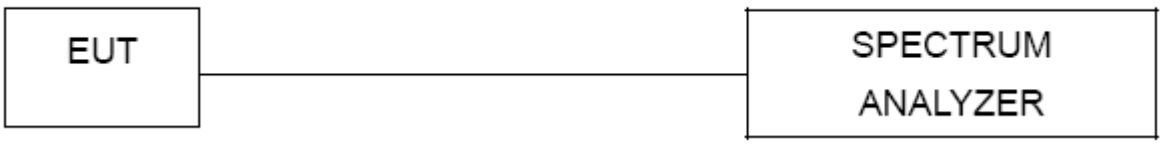
4.1.1 TEST PROCEDURE

a.The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b.Set span to at least 1.5 times the OBW.
c.Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.
d.Set VBW ⩾ [3 × RBW].
e.Number of points in sweep ⩾ [2 × span / RBW]. (This gives bin-to-bin spacing ⩽ RBW / 2, so that narrowband signals are not lost between frequency bins.)
f.Sweep time = auto.
g.Detector =Power averaging (rms), if available. Otherwise, use the sample detector mode.
h.Do not use sweep triggering. Allow the sweep to “free run.”
i. Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 until trace is stabilized so that the average accurately represents the true average over the ON and OFF periods of the transmitter.
j. Compute power by integrating the spectrum across the OBW of the signal using the instrument's band-power measurement function with band limits set equal to the OBW band-edges. If the instrument does not have a band-power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
K.Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is 25%.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



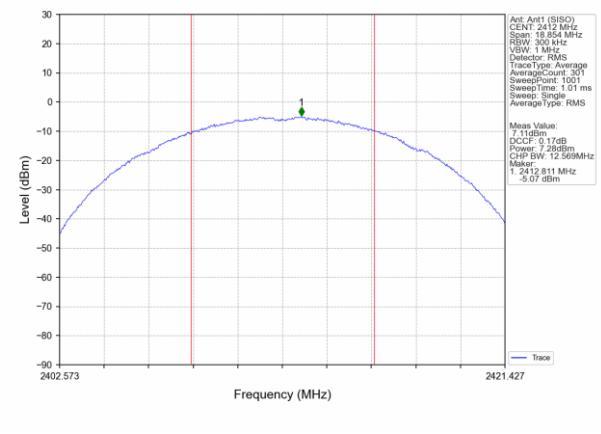
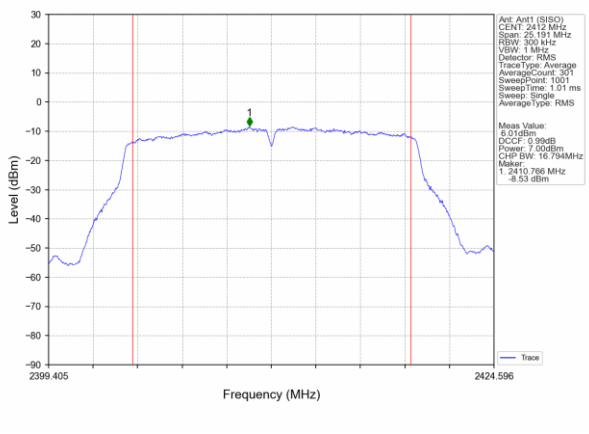
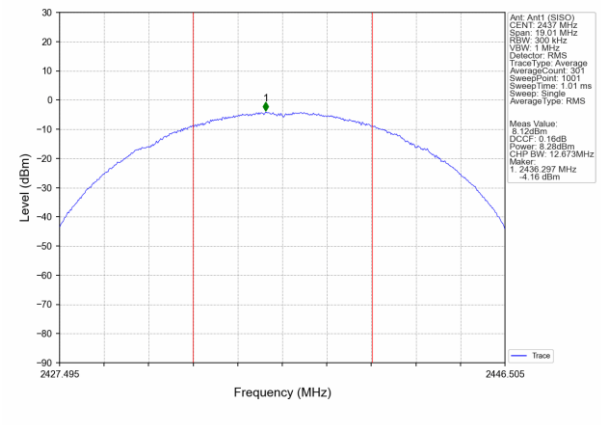
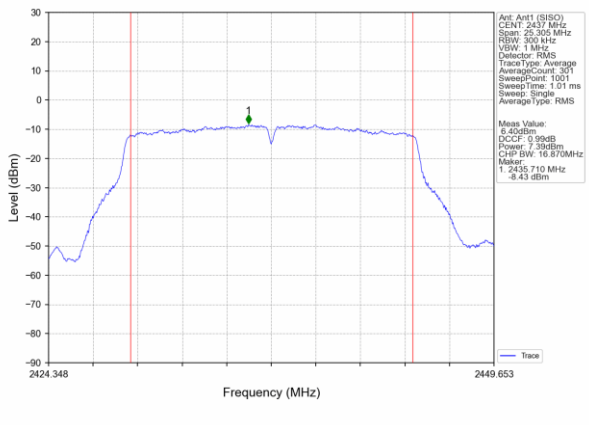
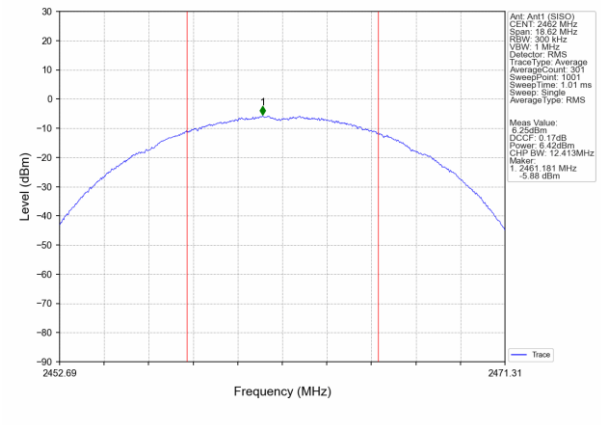
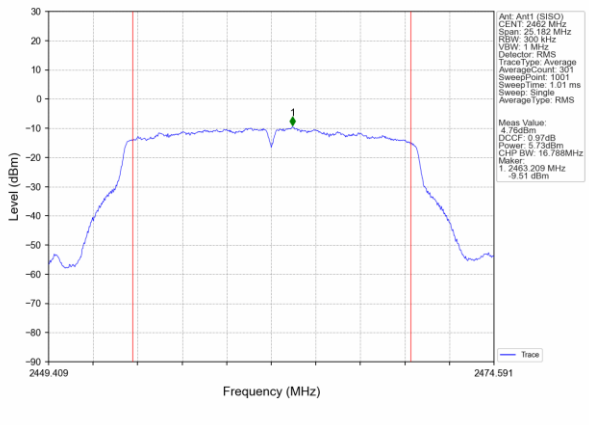
4.1.4 EUT OPERATION CONDITIONS

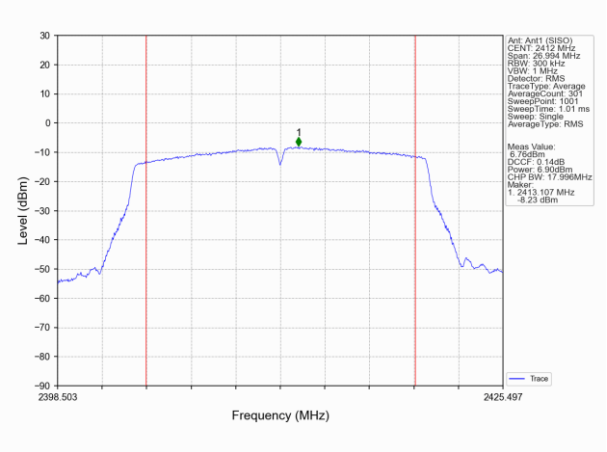
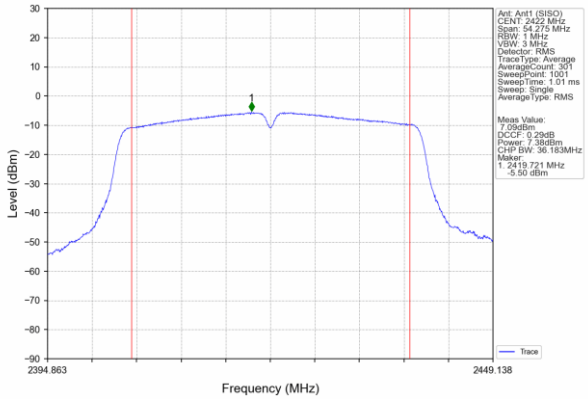
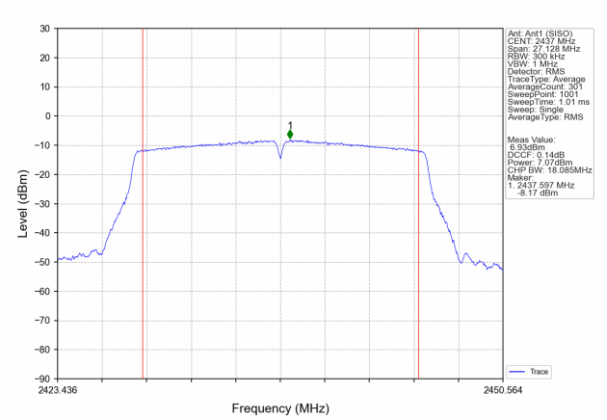
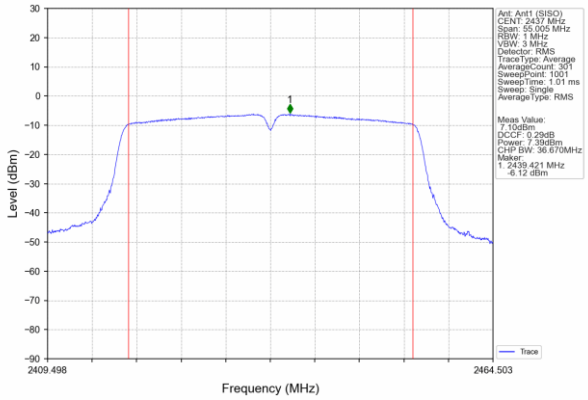
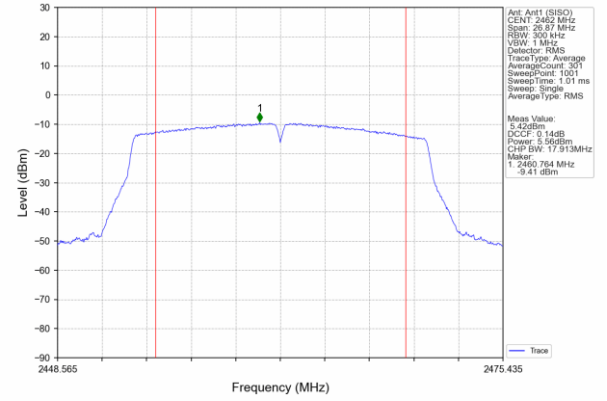
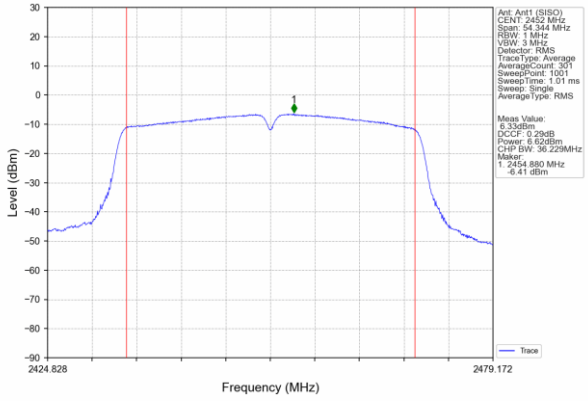
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

Temperature:	25 ℃	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz

Mode	Test Channel	Average Output Power (dBm)	LIMIT (dBm)
802.11b	Low	7.28	30.00
	Middle	8.28	30.00
	High	6.42	30.00
802.11g	Low	7.00	30.00
	Middle	7.39	30.00
	High	5.73	30.00
802.11n HT20	Low	6.90	30.00
	Middle	7.07	30.00
	High	5.56	30.00
802.11n HT40	Low	7.38	30.00
	Middle	7.39	30.00
	High	6.62	30.00

802.11b	802.11g
	
2412MHz	2412MHz
	
2437MHz	2437MHz
	
2462MHz	2462MHz

802.11n HT20	802.11n HT40
	
2412MHz	2422MHz
	
2437MHz	2437MHz
	
2462MHz	2452MHz

5. POWER SPECTRAL DENSITY TEST

5.1 APPLIED PROCEDURES / LIMIT

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

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	= the frequency band of operation
RB	RBW ≥ 3kHz
VB	VBW ≥ 3RBW
Detector	power averaging (rms) or sample detector (when rms not available).
Trace	rms/average
Sweep Time	Auto

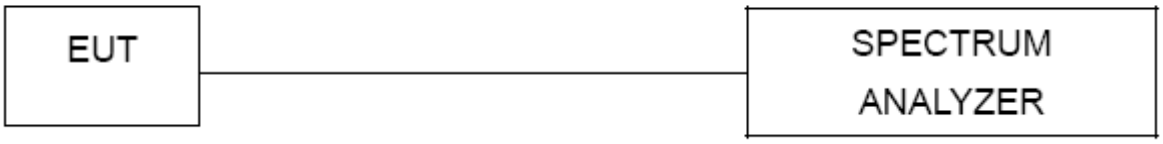
5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP

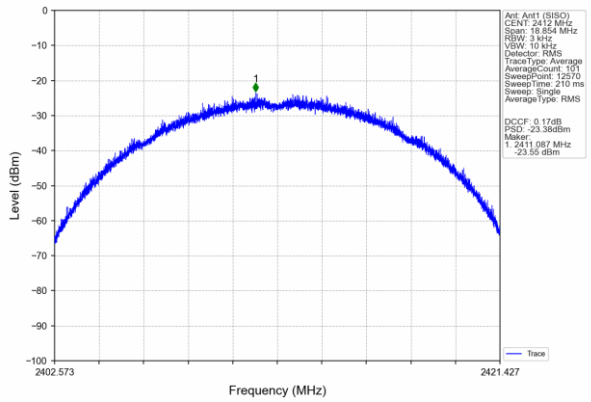
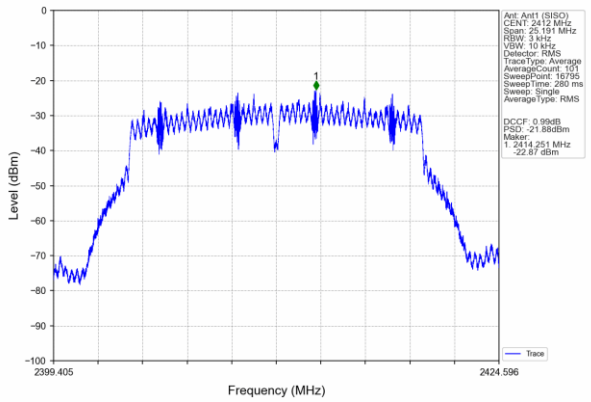
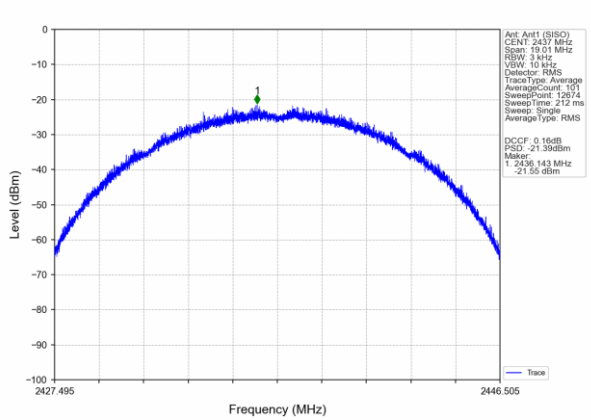
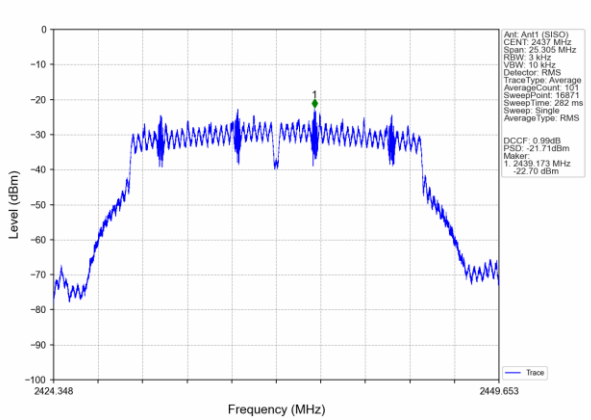
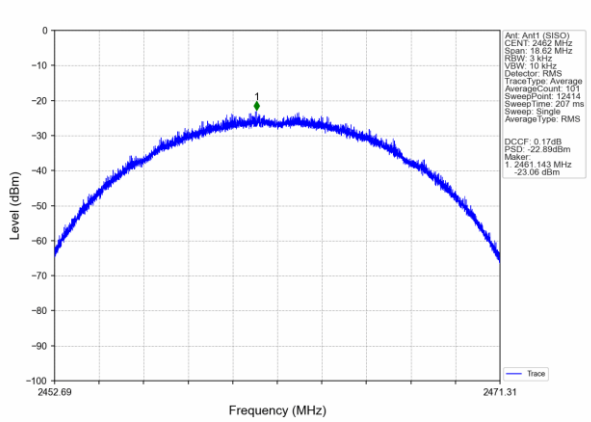
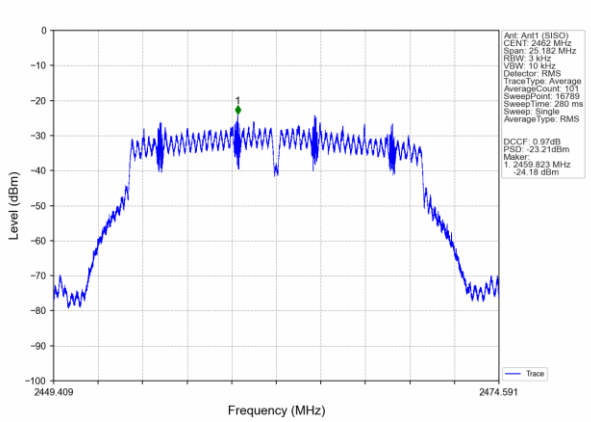


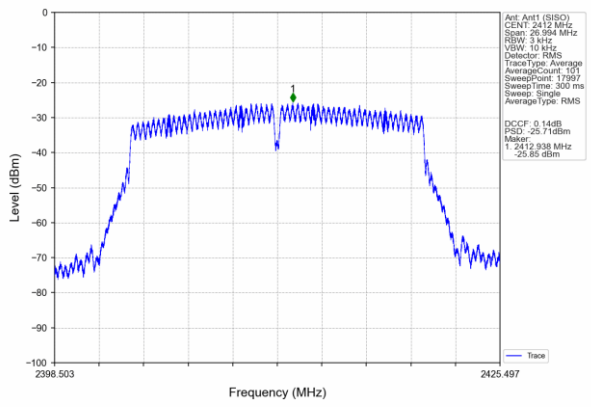
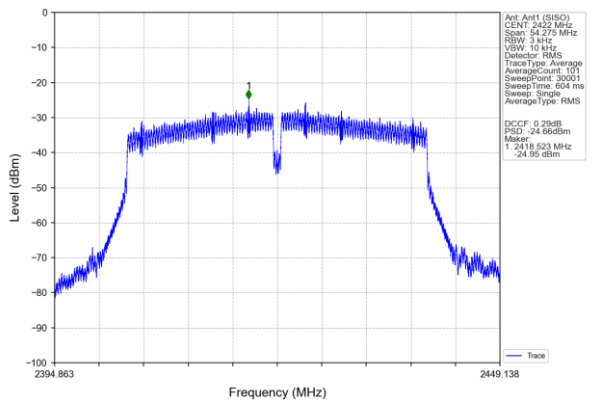
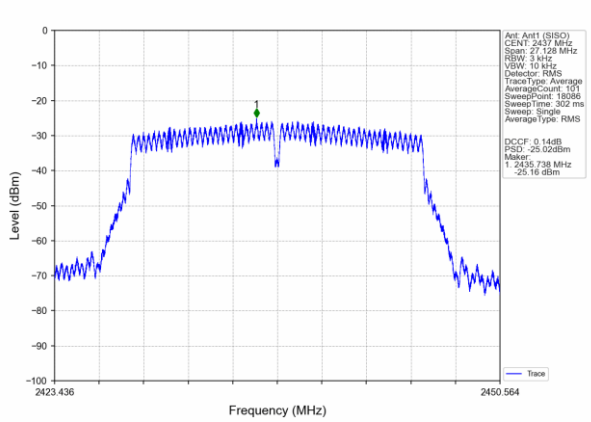
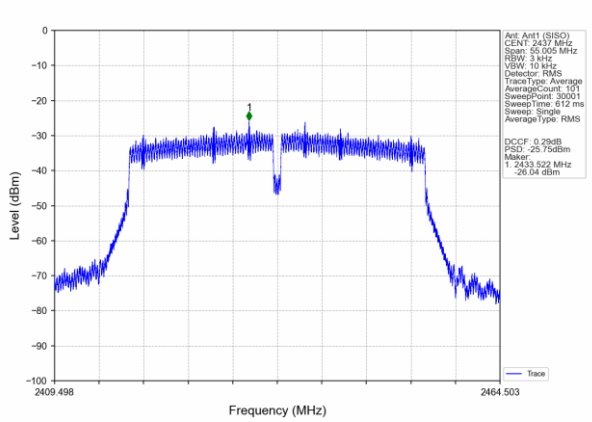
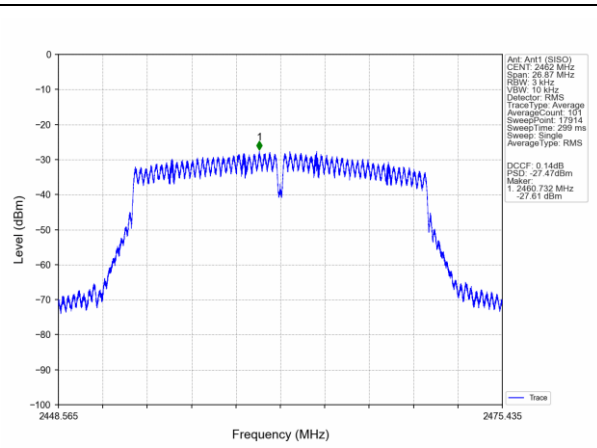
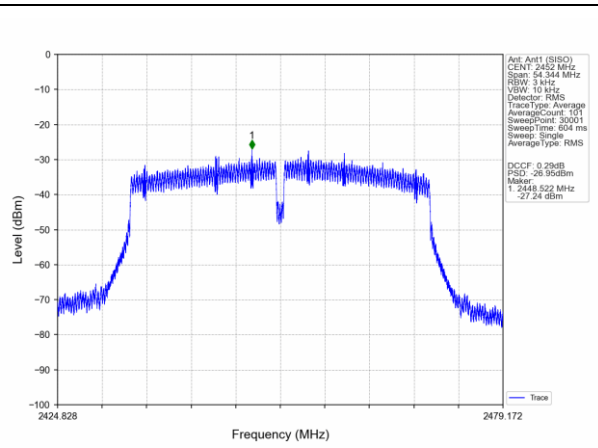
5.1.4 EUT OPERATION CONDITIONS

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

5.1.5 TEST RESULTS

Mode	Test Channel	Test Result (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b	Low	-23.38	8	PASS
	Middle	-21.39	8	PASS
	High	-22.89	8	PASS
802.11g	Low	-21.88	8	PASS
	Middle	-21.71	8	PASS
	High	-23.21	8	PASS
802.11n20	Low	-25.71	8	PASS
	Middle	-25.02	8	PASS
	High	-27.47	8	PASS
802.11n40	Low	-24.66	8	PASS
	Middle	-25.75	8	PASS
	High	-26.95	8	PASS

802.11b	802.11g
	
2412MHz	2412MHz
	
2437MHz	2437MHz
	
2462MHz	2462MHz

802.11n HT20	802.11n HT40
	
2412MHz	2422MHz
	
2437MHz	2437MHz
	
2462MHz	2452MHz

6. 6DB BANDWIDTH TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range(MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

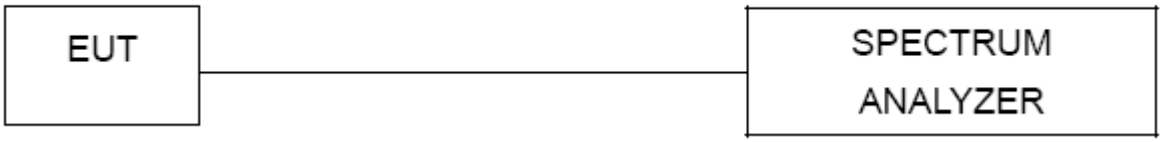
6.1.1 TEST PROCEDURE

1. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
2. Set the video bandwidth (VBW) ≥3*RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



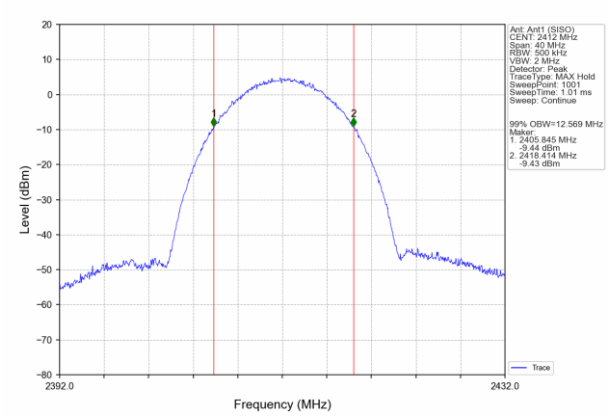
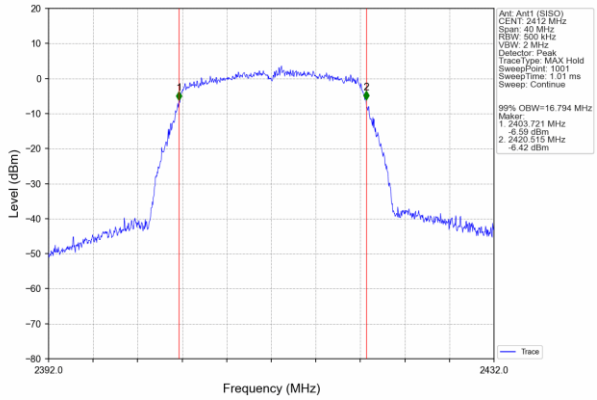
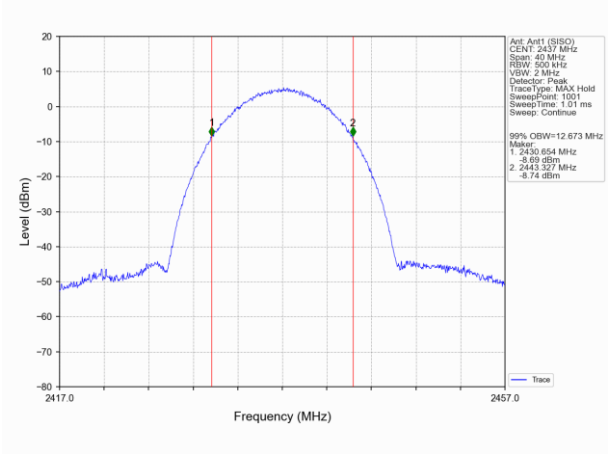
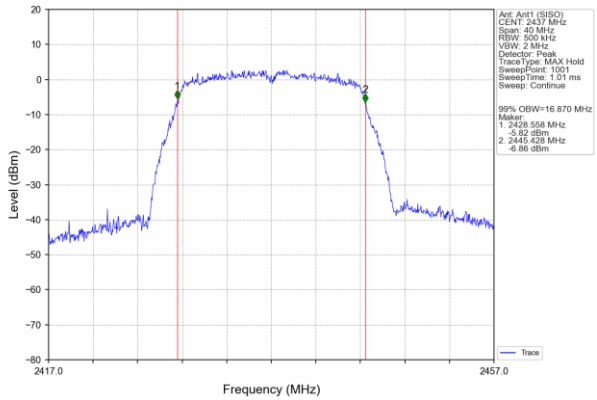
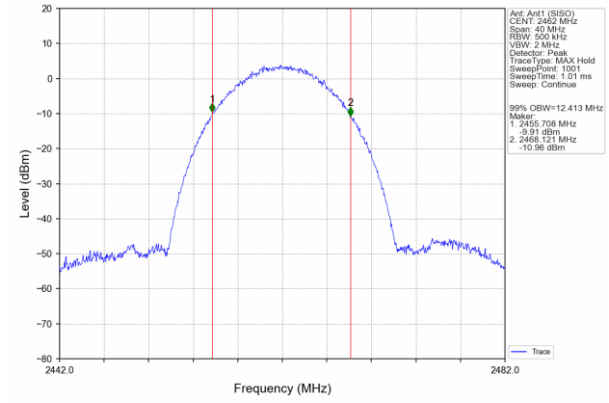
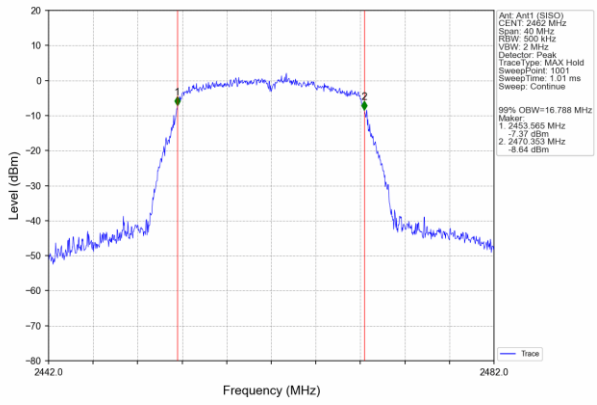
6.1.4 EUT OPERATION CONDITIONS

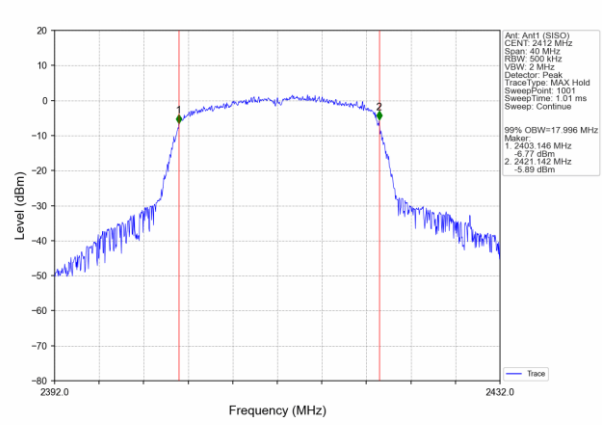
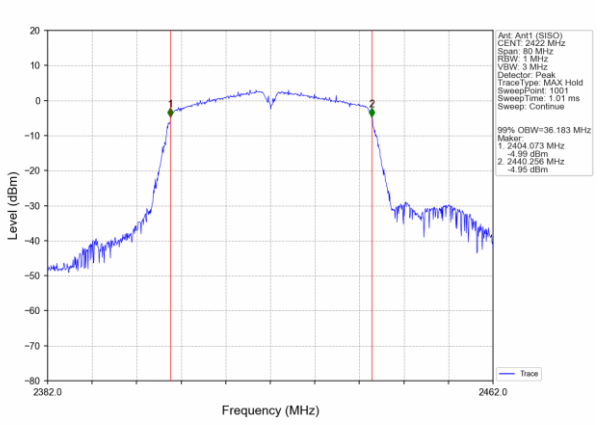
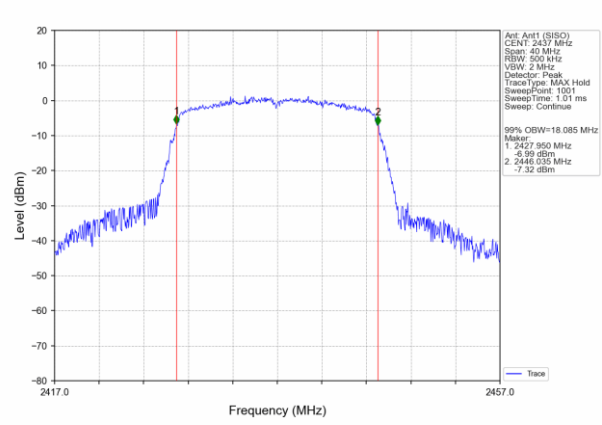
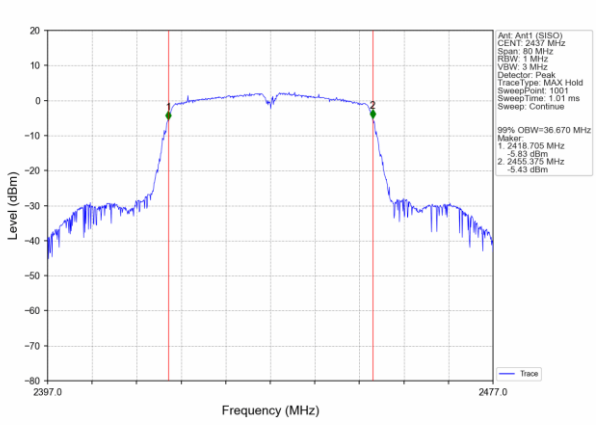
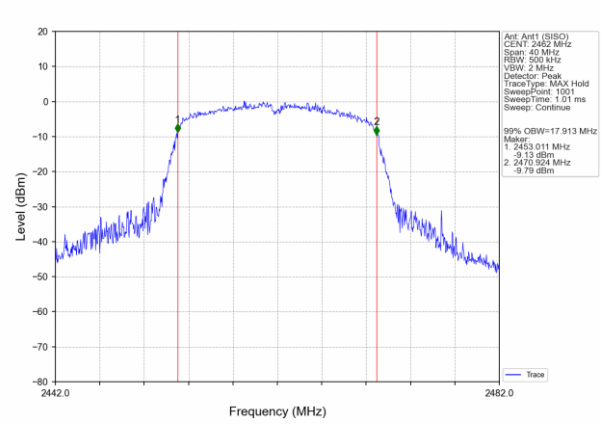
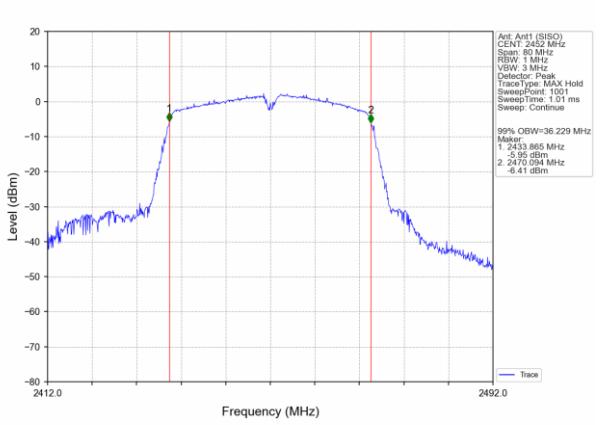
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

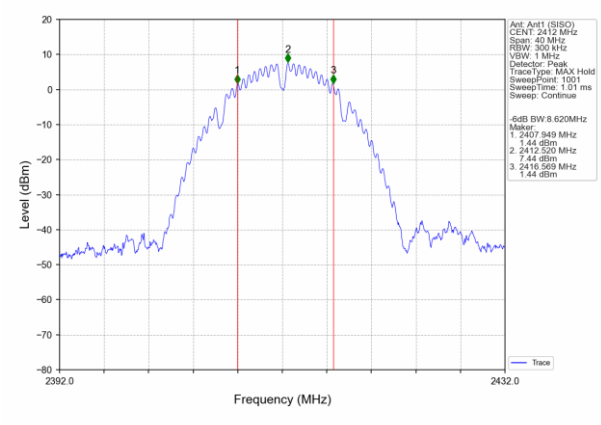
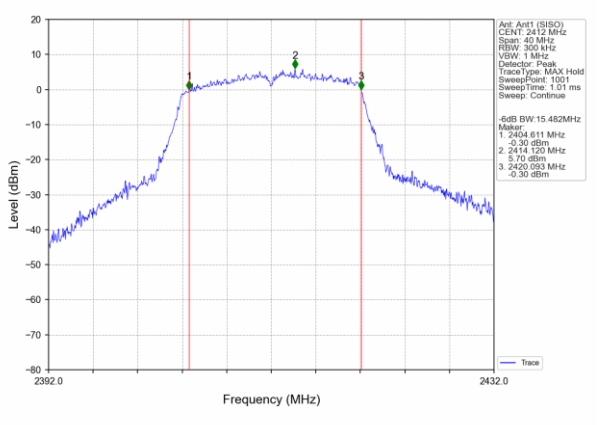
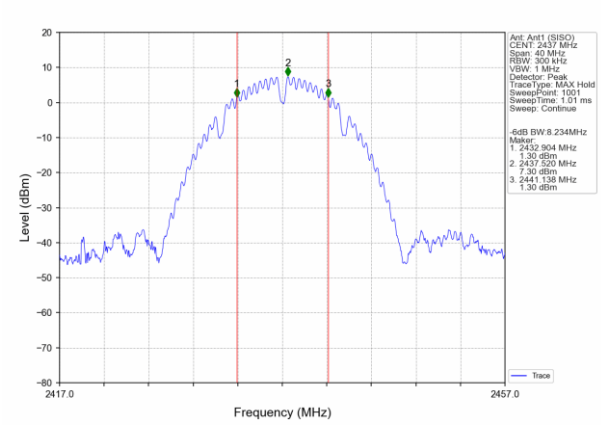
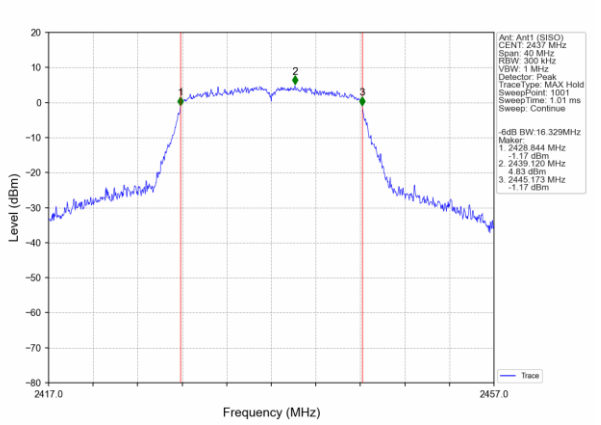
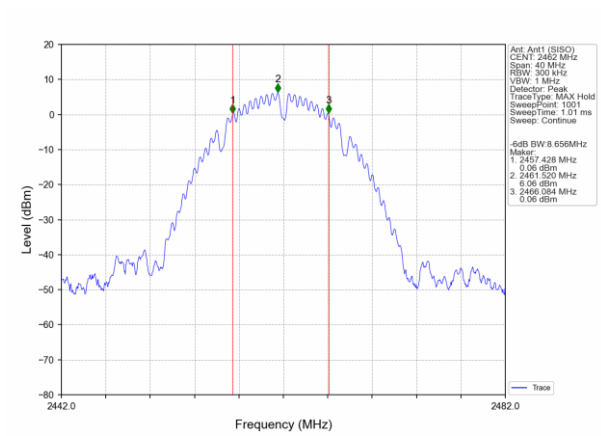
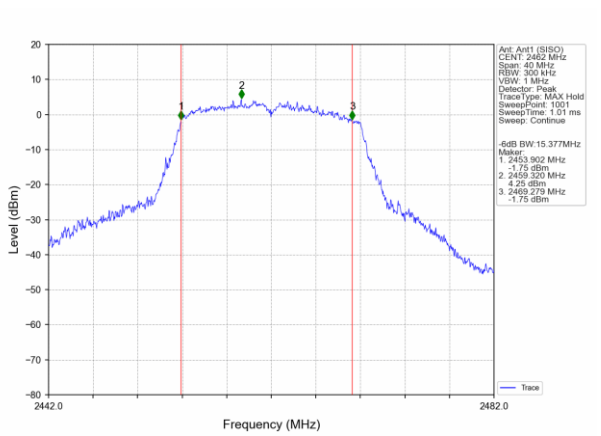
	Test Channel	6dB Bandwidth (MHz)	99%Bandwidth (MHz)	Limit (MHz)	Result
802.11b	Low	8.620	12.569	0.5	Pass
	Middle	8.234	12.673	0.5	Pass
	High	8.656	12.413	0.5	Pass
802.11g	Low	15.482	16.794	0.5	Pass
	Middle	16.329	16.870	0.5	Pass
	High	15.377	16.788	0.5	Pass
802.11n HT20	Low	16.662	17.996	0.5	Pass
	Middle	17.525	18.085	0.5	Pass
	High	17.138	17.913	0.5	Pass
802.11n HT40	Low	34.754	36.183	0.5	Pass
	Middle	36.221	36.670	0.5	Pass
	High	34.896	36.229	0.5	Pass

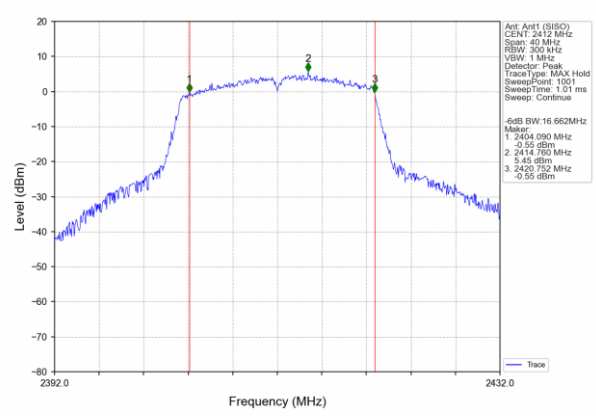
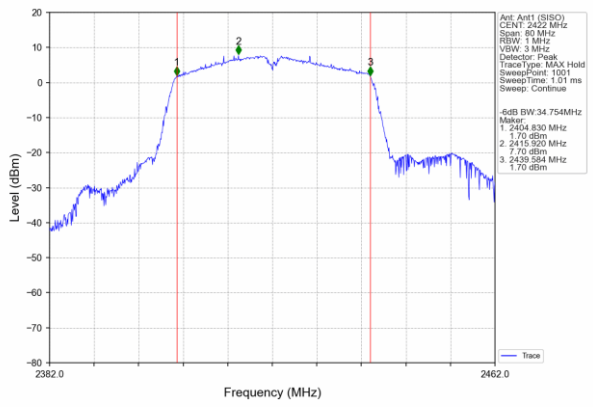
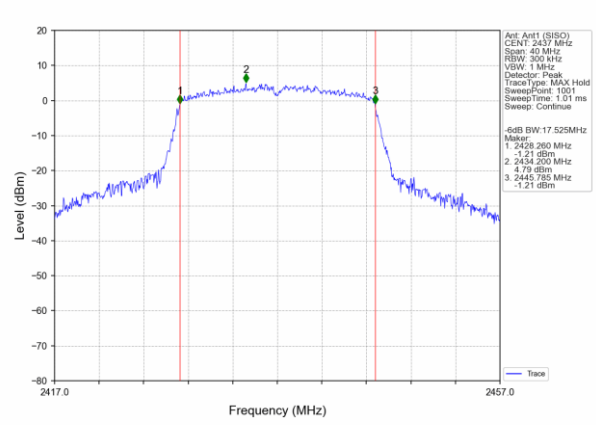
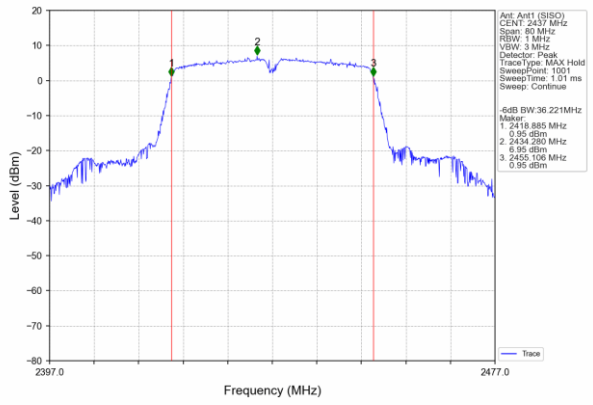
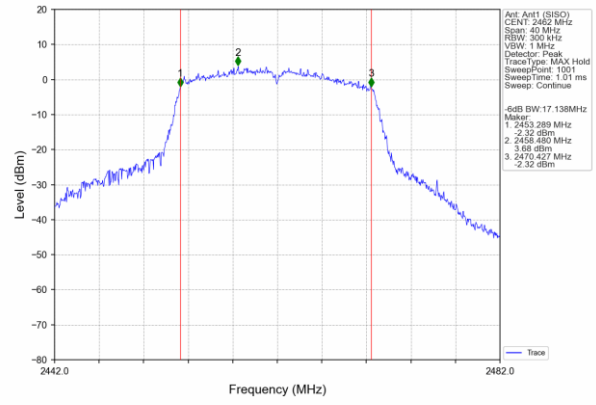
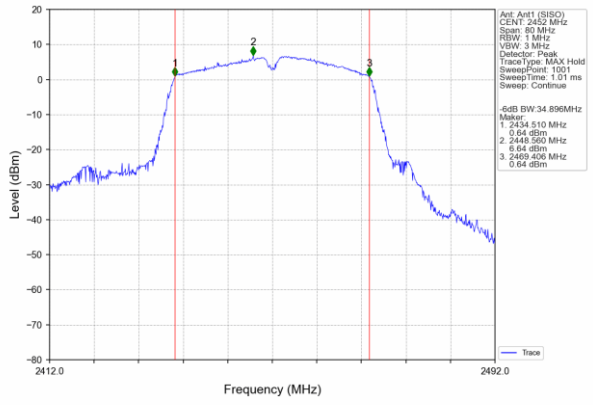
99% Bandwidth

802.11b	802.11g
	
2412MHz	2412MHz
	
2437MHz	2437MHz
	
2462MHz	2462MHz

802.11n HT20	802.11n HT40
	
2412MHz	2422MHz
	
2437MHz	2437MHz
	
2462MHz	2452MHz

6dB Bandwidth

802.11b	802.11g
	
2412MHz	2412MHz
	
2437MHz	2437MHz
	
2462MHz	2462MHz

802.11n HT20	802.11n HT40
	
2412MHz	2422MHz
	
2437MHz	2437MHz
	
2462MHz	2452MHz

7. DUTY CYCLE TEST SIGNAL

7.1 APPLIED PROCEDURES / LIMIT

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.
All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

7.1.1 TEST PROCEDURE

1. Set RBW = 10 MHz.
2. Set the video bandwidth (VBW) ≥RBW.
3. Detector = Peak.
4. Sweep = auto couple.
5. Allow the trace to stabilize.
6. Span=0

7.1.2 DEVIATION FROM STANDARD

No deviation.

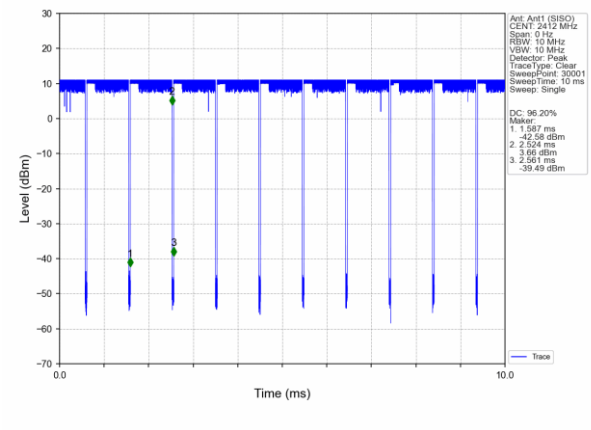
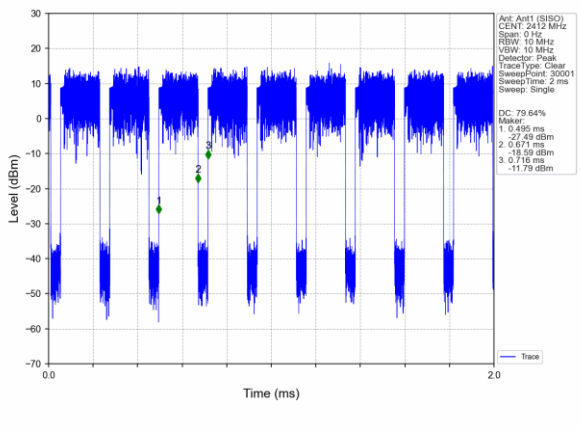
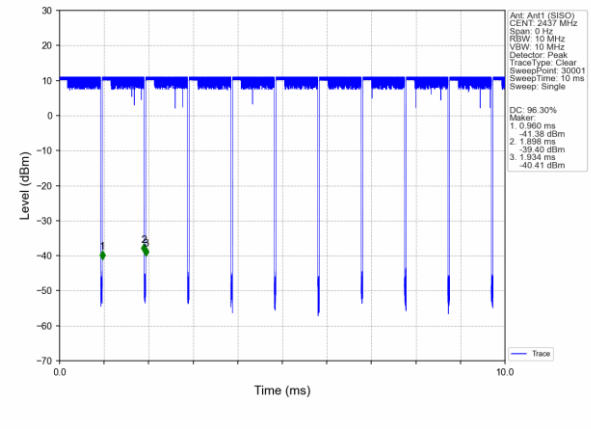
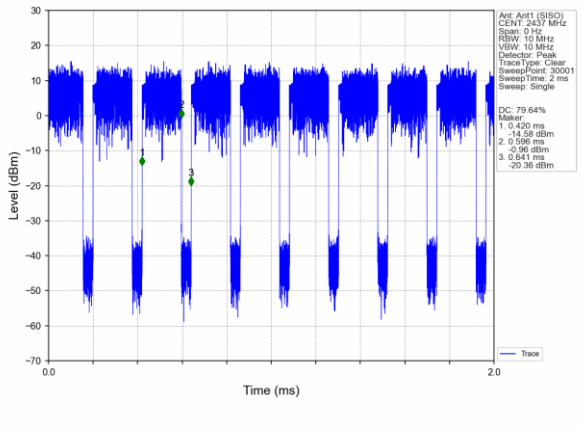
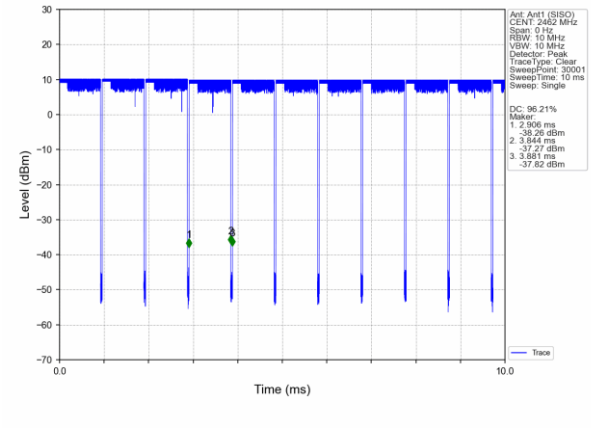
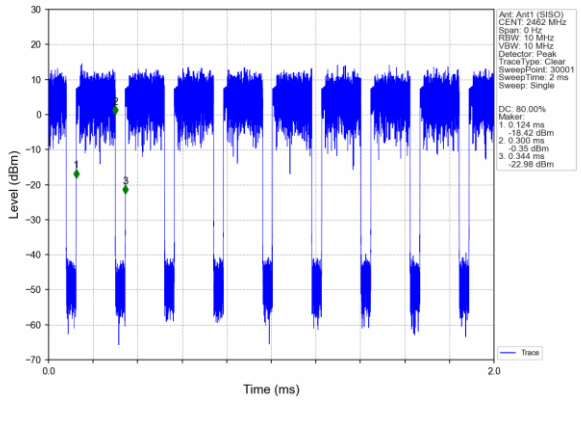
7.1.3 TEST SETUP

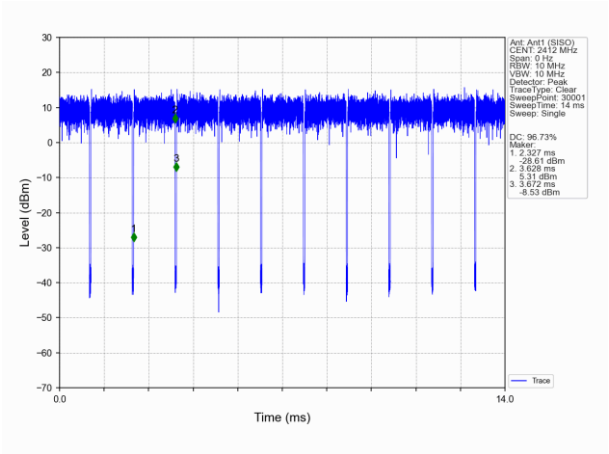
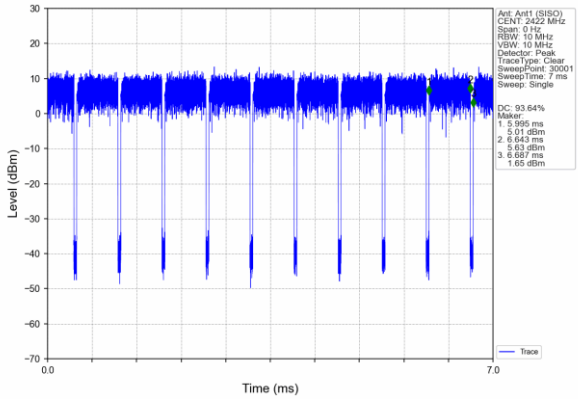
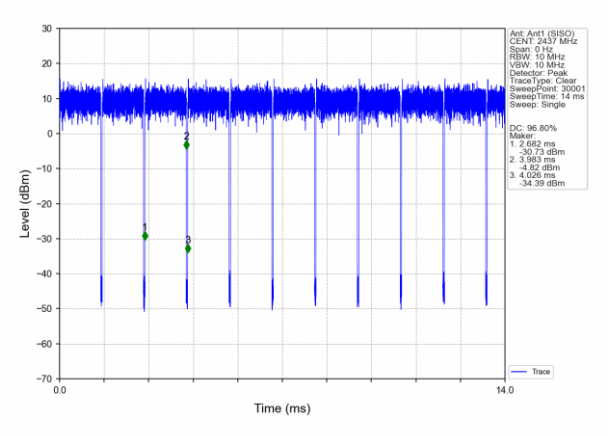
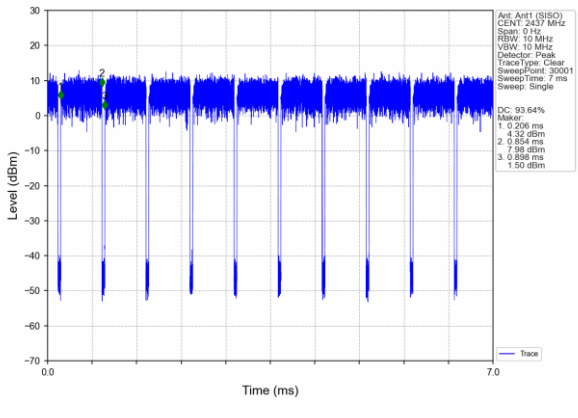
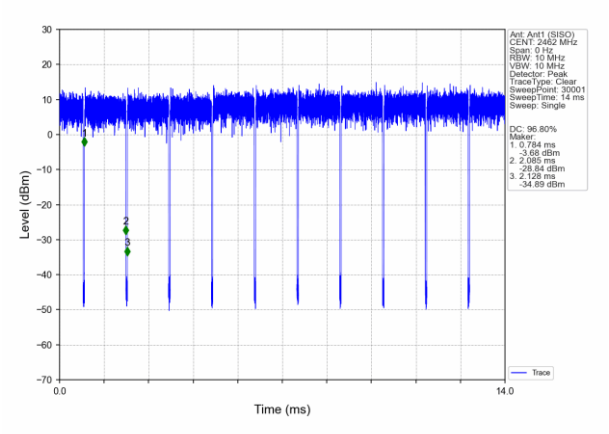
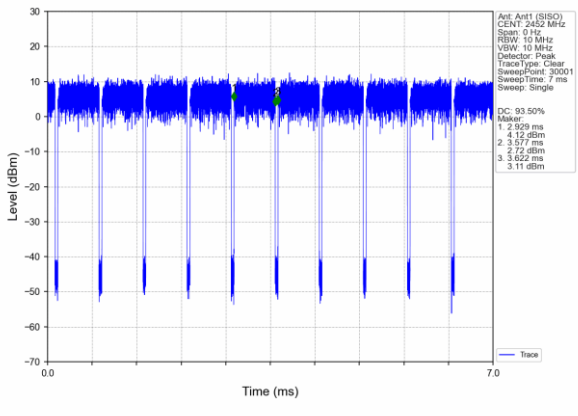
7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1.5 TEST RESULTS

Mode	Test Channel	Duty Cycle(%)	Duty Fator (dB) 10 * log (1/ Duty cycle)
802.11b	Low	96.20	0.17
	Middle	96.30	0.16
	High	96.21	0.17
802.11g	Low	79.64	0.99
	Middle	79.64	0.99
	High	80.00	0.97
802.11n HT20	Low	96.73	0.14
	Middle	96.80	0.14
	High	96.80	0.14
802.11n HT40	Low	93.64	0.29
	Middle	93.64	0.29
	High	93.50	0.29

802.11b	802.11g
	
2412MHz	2412MHz
	
2437MHz	2437MHz
	
2462MHz	2462MHz

802.11n HT20	802.11n HT40
	
2412MHz	2422MHz
	
2437MHz	2437MHz
	
2462MHz	2452MHz

8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is Internal Antenna, It comply with the standard requirement.

9. TEST SEUUP PHOTO

Reference to the appendix I for details.

10. EUT PHOTO

Reference to the appendix II for details.

※※※※※ **END OF REPORT** ※※※※※