TEST REPORT

Product Name:	Notebook(Tablet PC)
Trademark:	N/A
Model Number:	Refer to section 4.1
Prepared For:	Creature Information(Guangzhou)Technology Co., Limited
Address:	Room B4A05, Block B, 203 Changfu Road, Tianhe district, Guangzhou, China
Manufacturer:	Creature Information(Guangzhou)Technology Co., Limited
Address:	Room B4A05, Block B, 203 Changfu Road, Tianhe district, Guangzhou, China
Prepared By:	Shenzhen CTB Testing Technology Co., Ltd.
Address:	Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan District, Shenzhen China
Sample Received Date:	Aug. 17, 2020
Sample tested Date:	Aug. 17, 2020 to Sep. 19, 2020
Issue Date:	Sep. 19, 2020
Report No.:	CTB200909028RFX
Test Standards	47 CFR Part 15 Subpart E
Test Results	PASS
Remark:	This is WIFI-5GHz band radio test report.

Compiled by:	Reviewed by:	Approved by:
Arron Liu	Rita Xiao	Sherwin Qian/ Director

The test report is effective only with both signature and specialized stamp.This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

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(Note: N/A means not applicable)

1. VERSION

Report No.	Issue Date	Description	Approved
CTB200909028RFX	Sep. 19, 2020	Original	Valid

2. TEST SUMMARY

The Product has been tested according to the following specifications:

Test Item	Test Requirement	Test method	Result
AC Power Line Conducted Emission	47 CFR Part 15 Subpart E Section 15.407 (b)(6)	ANSI C63.10-2013	PASS
Radiated Spurious emissions	47 CFR Part 15 Subpart E Section 15.205/15.407(b)	KDB789033	PASS
Band edge	47 CFR Part 15 Subpart E Section 15.205/15.407(b)	KDB789033	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart E Section 15.407 (a)	KDB789033	PASS
Emission Bandwidth & Occupied Bandwidth	47 CFR Part 15 Subpart E Section 15.407 (a)(e)	KDB789033	PASS
Power Spectral Density	47 CFR Part 15 Subpart E Section 15.407 (a)	KDB789033	PASS
Frequency stability	47 CFR Part 15 Subpart E Section 15.407 (g)	KDB789033	PASS
Operation in the absence of information to the transmit	47 CFR Part 15 Subpart E Section 15.407 (c)	47 CFR Part 15 Subpart E	PASS
Antenna Requirement	47 CFR Part 15 Subpart E Section 15.203	ANSI C63.10-2013	PASS

Remark:
Test according to ANSI C63.4-2014 & ANSI C63.10-2013.

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	Occupancy bandwidth	U=±54.3Hz
2	Adjacent channel power	U=±1.3dB
3	Conducted Adjacent channel power	U=±1.38dB
4	Conducted output power Above 1G	U=±1.0dB
5	Conducted output power below 1G	U=±0.9dB
6	Power Spectral Density , Conduction	U=±1.0dB
7	Conduction spurious emissions	U=±2.8dB
8	Out of band emission	U=±54Hz
9	3m camber Radiated spurious emission(30MHz-1GHz)	U=±4.3dB
10	3m chamber Radiated spurious emission(1GHz-18GHz)	U=±4.5dB
11	humidity uncertainty	U=±5.3%
12	Temperature uncertainty	U=±0.59℃
13	Supply volyages	U=±3%
14	Time	U=±5%

4. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Model(s):	NB01, Y11, Y11 A, Y11 G, Y11 J, Y11 Plus, Y11 Power, Y11 Pro, Y11 TurboY11 S, Y12, Y12 Plus, Y12 Power, Y12 Pro, Y12 Turbo, Y13, Y13 A, Y13 G, Y13 J, Y13 Plus, Y13 Power, Y13 Pro, Y13 S, Y13 Turbo, Y14, Y14 A, Y14 G, Y14 J, Y14 Plus, Y14 Power, Y14 Pro, Y14 S, Y15, Y15 Plus, Y15 Power, Y15 Pro, Y14 Turbo, X11, X12, X13, X13 A, X13 G, X13 J, X13 Power, X13 Plus, X13 Pro, X13 S, X13 Turbo, X14, X14 A, X14 G, X14 J, X14 Plus, X14 Power, X14 Pro, X14 S, X14 Turbo, X15, X15 A, X15 G, X15 J, X15 Plus, X15 Power, X15 Pro, X15 S, X15 Turbo, X17, X17 Plus, X17 Power, X17 Pro, X17 Turbo, S11 A, S11 G, S11, S11 J, S11 S, S12, S12 A, S12 G, S12 J, S12 S, S13, S13 A, S13 G, S13 J, S13 Plus, S13 Pro, S13 S, S13 Turbo, S14, S14 A, S14 G, S14 J, S14 Plus, S14 S, S14 Turbo, S15, S15 A, S15 G, S15 J, S15 Plus, S15 Pro, S15 S, S15 Turbo, S17, S17 Plus, S17 Pro, S17 Turbo, T70, T70 S, T70 Plus, T70 Pro, T70 Power, T70 Turbo, T80, T80 S, T80 Plus, T80 Pro, T80 Power, T80 Turbo, T100, T100 S, T100 Plus, T100 Pro, T100 Power, T100 Turbo, T200, T200 S, 200 Plus, T200 Pro, T200 Power, T200 Turbo, I6, I7, I8, I9, I10, I13, M11, M12, M13, M14, M15, M17, B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, S1, S2, S3, S4, S5, S6, S7, S8, S9
Model Description:	All model's the function, software and electric circuit are the same, only the model named different. Test sample model: NB01
Wi-Fi Specification:	IEEE 802.11a/b/g/n/ac
Hardware Version:	V1.0
Software Version:	V1.0
Operation Frequency:	IEEE 802.11a/n/ac(20M): 5150MHz ~5250MHz/ 4 channel IEEE 802.11n/ac(40M): 5150MHz ~5250MHz/ 2 channel IEEE 802.11ac(80M): 5150MHz ~5250MHz/ 1 channel IEEE 802.11a/n/ac(20M): 5250MHz ~5350 MHz/ 4 channel IEEE802.11n/ac(40M): 5250MHz ~5350 MHz/ 2 channel IEEE802.11ac(80M): 5250MHz ~5350 MHz/ 1 channel IEEE 802.11a/n/ac(20M): 5470MHz ~5725 MHz/ 11 channel IEEE802.11n/ac(40M): 5470MHz ~5725 MHz/ 5 channel IEEE802.11ac(80M): 5470MHz ~5725 MHz/ 3 channel IEEE 802.11a/n/ac(20M): 5725MHz ~5850MHz/ 5 channel IEEE 802.11n/ac(40M): 5725MHz ~5850MHz/ 2 channel IEEE 802.11ac(80M): 5725MHz ~5850MHz/ 1 channel
Max. RF output power:	WiFi (5G): 21.65dBm
Antenna installation:	slot antenna

Antenna Gain:	WiFi (5 G) : 1dBi
Ratings:	MODEL:SAW30A-120-2000U INPUT:100-240V AC50/60Hz, 0.8A OUTPUT:12V⎓2A

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

For 802.11a/n/ac(20M) Operation in the 5150MHz ~5250 MHz band			
Channel	Frequency	Channel	Frequency
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz
For 802.11a/n/ac(20M) Operation in the 5250MHz ~5350 MHz band			
Channel	Frequency	Channel	Frequency
52	5260MHz	60	5300MHz
56	5280MHz	64	5320MHz
For 802.11a/n/ac(20M) Operation in the 5470MHz ~5725 MHz band			
Channel	Frequency	Channel	Frequency
100	5500MHz	124	5620 MHz
104	5520MHz	128	5640 MHz
108	5540MHz	132	5660 MHz
112	5560MHz	136	5680MHz
116	5580MHz	140	5700MHz
120	5600 MHz		
For 802.11a/n/ac(20M) Operation in the 5725MHz ~5850 MHz band			
Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz	NA	NA

For 802.11n/ac(40M) Operation in the 5150MHz ~5250 MHz band			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz
For 802.11n/ac(40M) Operation in the 5250MHz ~5350 MHz band			
Channel	Frequency	Channel	Frequency
54	5270MHz	62	5310MHz
For 802.11n/ac(40M) Operation in the 5470MHz ~5725 MHz band			
Channel	Frequency	Channel	Frequency
102	5510MHz	126	5630MHz
110	5550MHz	134	5670MHz
118	5590MHz		
For 802.11n/ac(40M) Operation in the 5725MHz ~5850 MHz band			
Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

For 802.11ac(80M) Operation in the 5150MHz ~5250 MHz band			
Channel	Frequency	Channel	Frequency
42	5210MHz	NA	NA
For 802.11ac(80M) Operation in the 5250MHz ~5350 MHz band			
Channel	Frequency	Channel	Frequency
58	5290MHz	NA	NA
For 802.11ac(80M) Operation in the 5470MHz ~5725 MHz band			
Channel	Frequency	Channel	Frequency
106	5530MHz	138	5690MHz
122	5610 MHz		
For 802.11ac(80M) Operation in the 5725MHz ~5850 MHz band			
Channel	Frequency	NA	NA
155	5775MHz	NA	NA

4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
802.11a/n/ac(20M)	5150MHz ~5250 MHz	Channel 36	Channel 40	Channel 48
		5180MHz	5200MHz	5240MHz
802.11n/ac(40M)	5150MHz ~5250 MHz	Channel 38	N/A	Channel 46
		5190MHz	N/A	5230MHz
802.11ac(80M)	5150MHz ~5250 MHz	N/A	Channel 42	N/A
		N/A	5210MHz	N/A
802.11a/n/ac(20M)	5250MHz ~5350 MHz	Channel 52	Channel 56	Channel 64
		5260MHz	5280MHz	5320MHz
802.11n/ac(40M)	5250MHz ~5350 MHz	Channel54	N/A	Channel62
		5270MHz	N/A	5310MHz
802.11ac(80M)	5250MHz ~5350 MHz	N/A	Channel 58	N/A
		N/A	5290MHz	N/A
802.11a/n/ac(20M)	5470MHz ~5725 MHz	Channel 100	Channel116	Channel140
		5500MHz	5580MHz	5700MHz
802.11n/ac(40M)	5470MHz ~5725 MHz	Channel 102	Channel118	Channel 134
		5510MHz	5590MHz	5670MHz
802.11ac(80M)	5470MHz ~5725 MHz	Channel 106	N/A	Channel 138
		5530MHz	N/A	5690MHz
802.11a/n/ac(20M)	5725MHz ~5850 MHz	Channel 149	Channel 157	Channel 165
		5745MHz	5785MHz	5825MHz
802.11n/ac(40M)	5725MHz ~5850 MHz	Channel 151	N/A	Channel 159
		5755MHz	N/A	5795MHz
802.11ac(80M)	5725MHz ~5850 MHz	N/A	Channel 155	N/A
		N/A	5775MHz	N/A

4.6 Test Environment

Humidity(%):	55
Atmospheric Pressure(kPa):	101.1
Normal Voltage(DC):NV	12
Normal Temperature(℃):NT	25
Low Temperature(℃):LT	0
High Temperature(℃):HT	40

5. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan District, Shenzhen China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

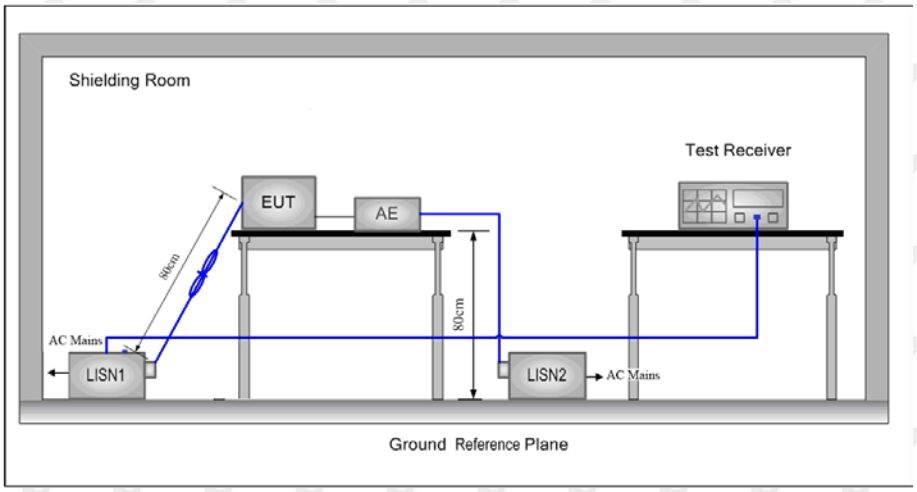
Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer	Agilent	N9020A	MY52090073	Oct. 17, 2019	Oct. 16, 2020
2	Power Sensor	Agilent	U2021XA	MY56120032	Nov. 02, 2019	Nov. 01, 2020
3	Power Sensor	Agilent	U2021XA	MY56120034	Nov. 02, 2019	Nov. 01, 2020
4	Communication test set	R&S	CMW500	118735	Nov. 02, 2019	Nov. 01, 2020
5	Spectrum Analyzer	R&S	FSP40	100550	Nov. 02, 2019	Nov. 01, 2020
6	Signal Generator	Agilent	N5181A	MY49060920	Nov. 03, 2019	Nov. 02, 2020
7	Signal Generator	Agilent	N5182A	MY47420195	Nov. 03, 2019	Nov. 02, 2020
8	Communication test set	R&S	CMU200	119978	Nov. 02, 2019	Nov. 01, 2020
9	band rejection filter	Shenxiang	MSF2400-2483.5MS-1154	20181015001	Nov. 02, 2019	Nov. 01, 2020
10	band rejection filter	Shenxiang	MSF5150-5850MS-1155	20181015001	Nov. 02, 2019	Nov. 01, 2020
11	band rejection filter	Xingbo	XBLBQ-DZA120	190821-1-1	Nov. 02, 2019	Nov. 01, 2020
12	BT&WI-FI Automatic test software	Micowave	MTS8310	Ver. 2.0.0.0	\	\
13	Rohde & Schwarz SFU Broadcast Test System	R&S	SFU	101017	Nov. 02, 2019	Nov. 01, 2020
14	Temperature humidity chamber	Hongjing	TH-80CH	DG-15174	Nov. 02, 2019	Nov. 01, 2020
15	234G Automatic test software	Micowave	MTS8200	Ver. 2.0.0.0	\	\
16	966 chamber	C.R.T.	966 Room	966	Nov. 10, 2019	Nov. 09, 2020
17	Receiver	R&S	ESPI	100362	Nov. 02, 2019	Nov. 01, 2020

18	Amplifier	HP	8447E	2945A02747	Nov. 03, 2019	Nov. 02, 2020
19	Amplifier	Agilent	8449B	3008A01838	Nov. 03, 2019	Nov. 02, 2020
20	TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	869	Nov. 02, 2019	Nov. 01, 2020
21	Horn Antenna	Schwarzbeck	BBHA9120D	1911	Nov. 02, 2019	Nov. 01, 2020
22	Software	Fala	EZ-EMC	FA-03A2 RE	\	\
23	3-Loop Antenna	Daze	ZN30401	17014	Nov. 02, 2019	Nov. 01, 2020
24	loop antenna	ZHINAN	ZN30900A	/	Nov. 02, 2019	Nov. 01, 2020
25	Horn antenna	A/H/System	SAS-574	588	Nov. 02, 2019	Nov. 01, 2020
26	Amplifier	AEROFLEX	/	S/N/ 097	Nov. 02, 2019	Nov. 01, 2020

Conducted emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
AMN	ROHDE&SCHWARZ	ESH3-Z5	831551852	Nov. 02, 2019	Nov. 01, 2020
Pulse limiter	ROHDE&SCHWARZ	ESH3Z2	357881052	Nov. 02, 2019	Nov. 01, 2020
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCS30	834115/006	Nov. 02, 2019	Nov. 01, 2020
Coaxial cable	ZDECL	Z302S	18091904	Nov. 02, 2019	Nov. 01, 2020
ISN	TESEQ	NTFM8158	NTFM8158 #183	Nov. 02, 2019	Nov. 01, 2020
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	10428	Nov. 02, 2019	Nov. 01, 2020
Software	Fala	EZ-EMC	EMC-CON 3A1.1	\	\

6. AC POWER LINE CONDUCTED EMISSION

6.1 Block Diagram Of Test Setup



6.2 Limit

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

6.3 Test procedure

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

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

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

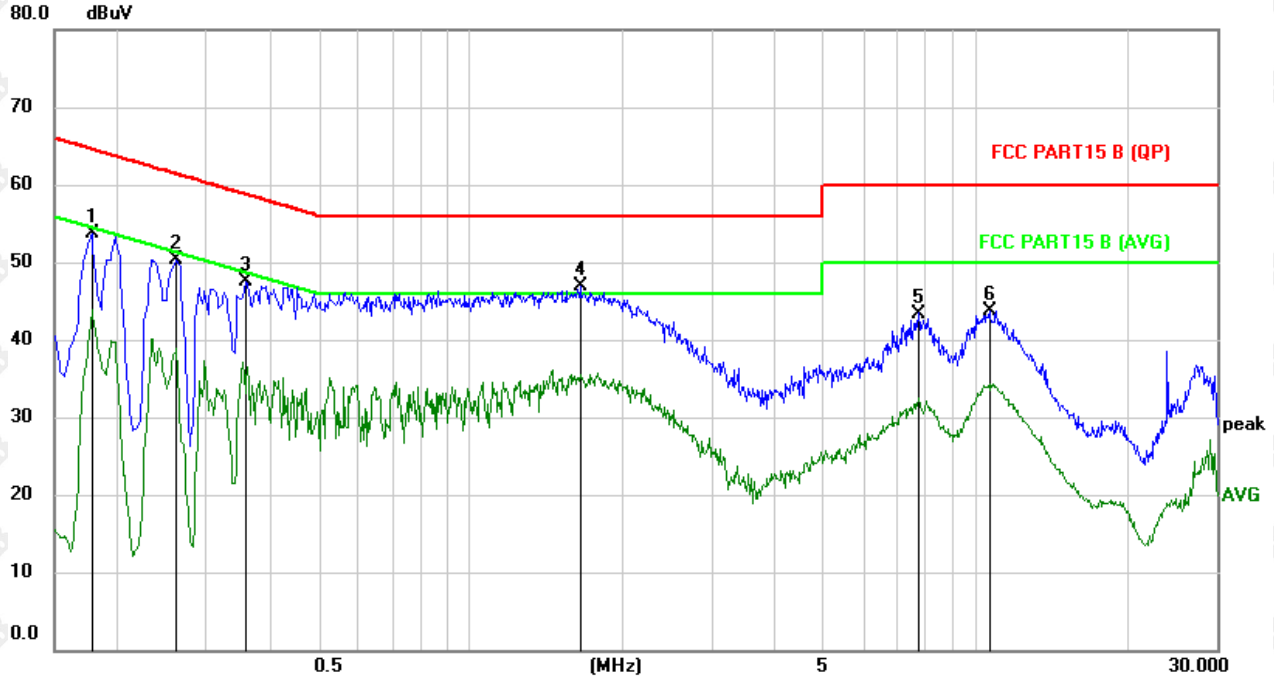
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was

between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

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

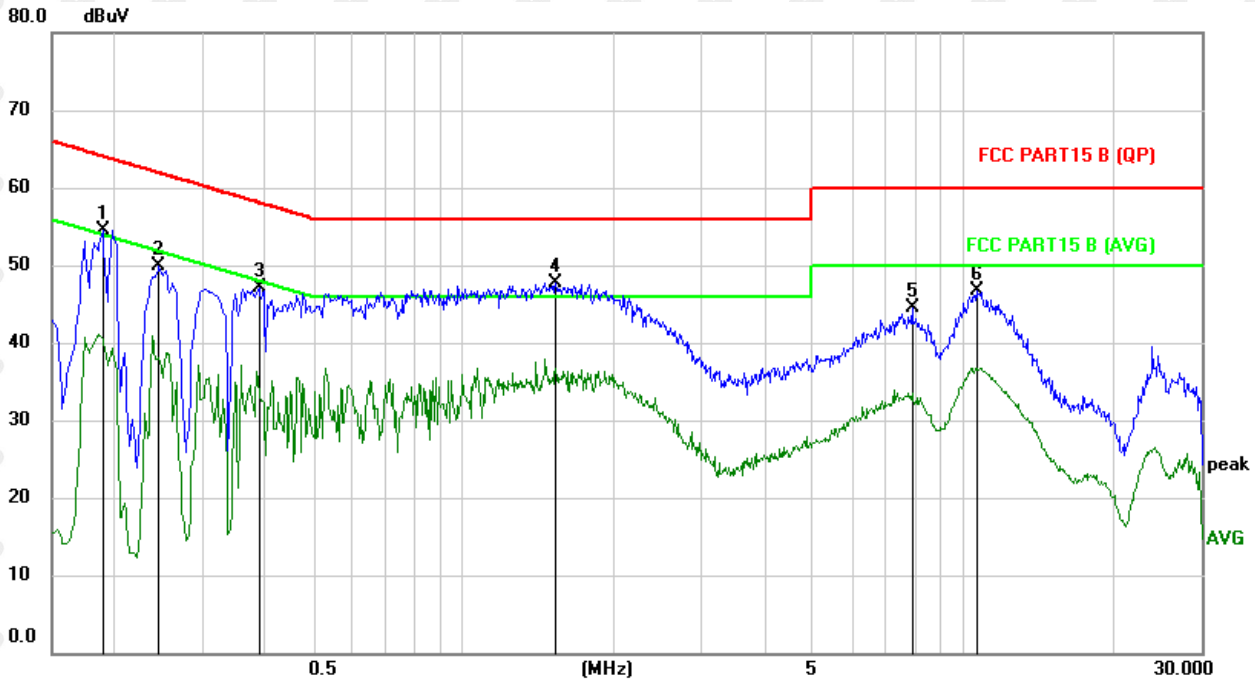
6.4 Test Result

Test Specification: Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1780	43.53	10.10	53.63	64.58	-10.95	peak
2		0.2620	40.17	10.14	50.31	61.37	-11.06	peak
3		0.3580	37.39	10.18	47.57	58.77	-11.20	peak
4	*	1.6500	36.74	10.13	46.87	56.00	-9.13	peak
5		7.7220	32.83	10.57	43.40	60.00	-16.60	peak
6		10.6260	33.14	10.64	43.78	60.00	-16.22	peak

Test Specification: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1900	44.35	10.22	54.57	64.04	-9.47	peak
2		0.2460	39.75	10.19	49.94	61.89	-11.95	peak
3		0.3899	36.92	10.11	47.03	58.07	-11.04	peak
4	*	1.5339	37.47	10.23	47.70	56.00	-8.30	peak
5		7.9340	34.01	10.48	44.49	60.00	-15.51	peak
6		10.6420	36.13	10.56	46.69	60.00	-13.31	peak

Remark:

1. Factor = Cable loss + LISN factor, Margin = Limit – Level
2. All modes were tested at AC 120V and 240V, only the worst result of AC 120V 60Hz was reported.
3. All the test modes completed for test. Only the worst result of was reported.

7. RADIATED SPURIOUS EMISSIONS

7.1 Block Diagram Of Test Setup

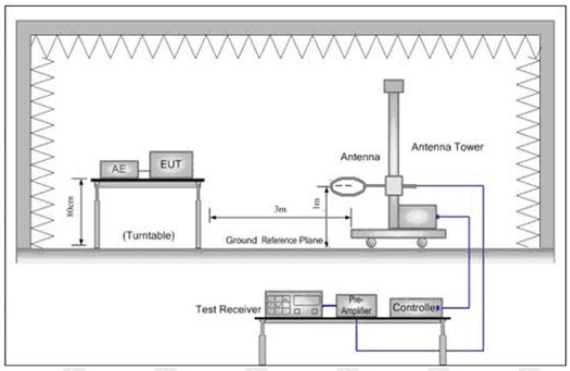


Figure 1. Below 30MHz

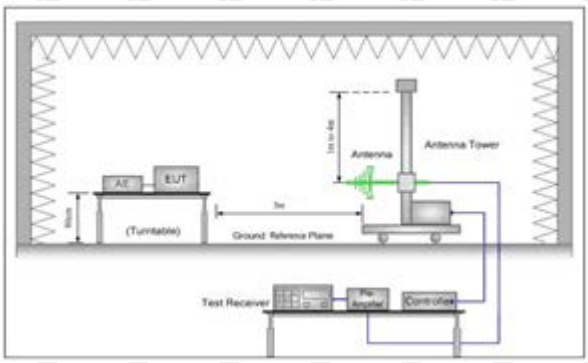


Figure 2. 30MHz to 1GHz

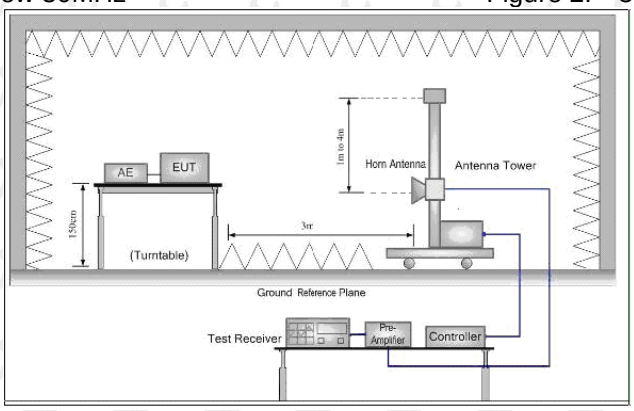


Figure 3. Above 1GHz

7.2 Limit

Spurious Emissions:

Frequency	Field strength (dBµV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	20log 2400/F (kHz) + 80	Quasi-peak	3
0.490MHz-1.705MHz	20log 24000/F (kHz) + 40	Quasi-peak	3
1.705MHz-30MHz	20log 30 + 40	Quasi-peak	3
30MHz-88MHz	40.0	Quasi-peak	3
88MHz-216MHz	43.5	Quasi-peak	3
216MHz-960MHz	46.0	Quasi-peak	3
960MHz-1GHz	54.0	Quasi-peak	3
Above 1GHz	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

If radiated measurements are performed, field strength is then converted to EIRP as follows:
(i) EIRP = ((E*d)^2) / 30
where:
• E is the field strength in V/m;
• d is the measurement distance in meters;
• EIRP is the equivalent isotropically radiated power in watts.
(ii) Working in dB units, the above equation is equivalent to:
EIRP[dBm] = E[dBμV/m] + 20 log(d[meters]) - 104.77
(iii) Or, if d is 3 meters:
EIRP[dBm] = E[dBμV/m] - 95.2

7.3 Test procedure

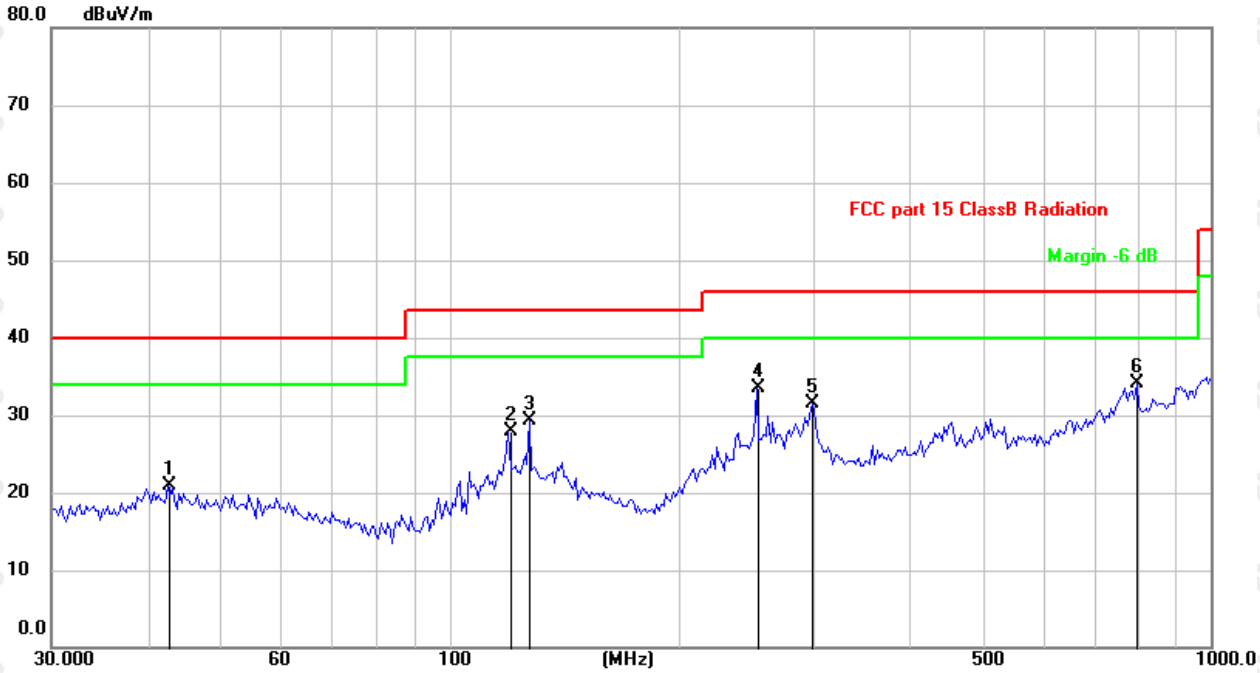
Below 1GHz test procedure as below:
a.The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b.The EUT was set 3 meters away from the interference-receiving 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 rota table 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 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h.Test the EUT in the lowest channel ,the middle channel ,the Highest channel
j.Repeat above procedures until all frequencies measured was complete.

Receiver set:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30KHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30KHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120 kHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

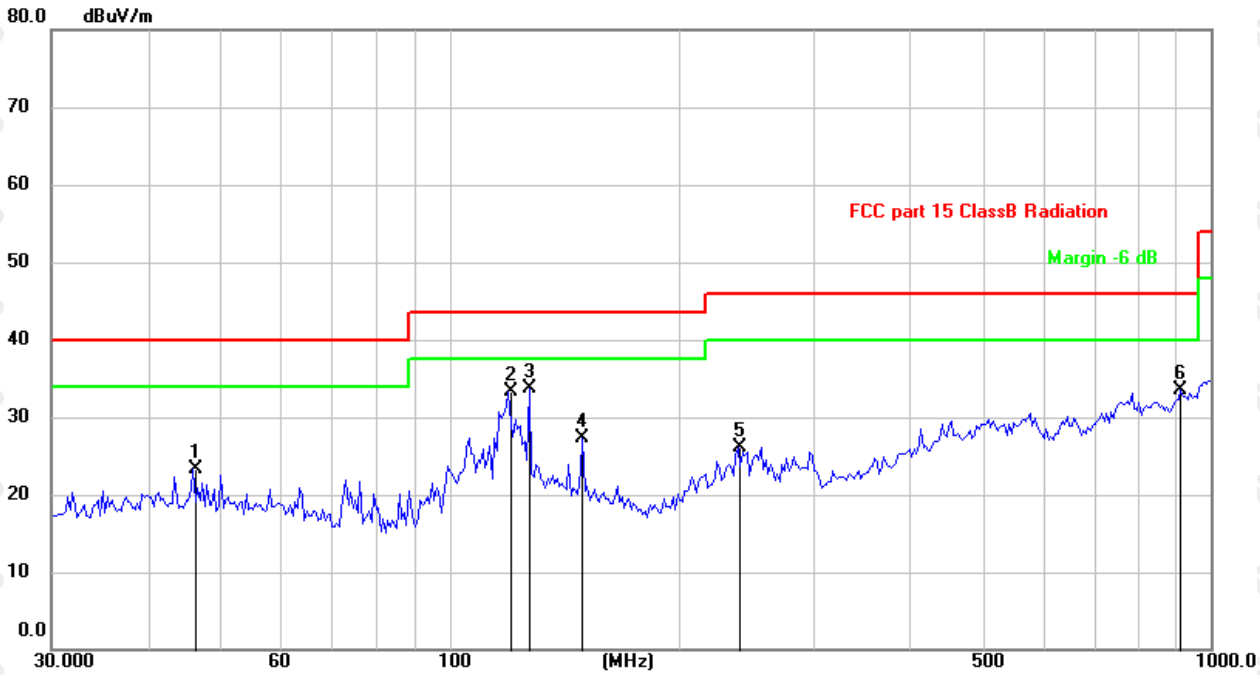
7.4 Test Result

30MHz-1GHzTest Results:
Antenna polarity: H



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		42.6000	26.66	-5.78	20.88	40.00	-19.12	peak
2		119.4361	35.74	-7.79	27.95	43.50	-15.55	peak
3		127.2176	36.63	-7.30	29.33	43.50	-14.17	peak
4		252.9482	40.49	-6.92	33.57	46.00	-12.43	peak
5		299.3158	37.35	-5.76	31.59	46.00	-14.41	peak
6	*	798.9797	28.30	5.76	34.06	46.00	-11.94	peak

Antenna polarity: V



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		46.0164	29.08	-5.85	23.23	40.00	-16.77	peak
2		119.4361	41.06	-7.79	33.27	43.50	-10.23	peak
3	*	127.2176	40.96	-7.30	33.66	43.50	-9.84	peak
4		149.4857	33.53	-6.32	27.21	43.50	-16.29	peak
5		239.1473	32.81	-6.74	26.07	46.00	-19.93	peak
6		912.8620	26.30	7.13	33.43	46.00	-12.57	peak

Radiated Spurious Emission (Above 1GHz):

Modulation : 802.11(a) (the worst data)

Freq (MHz)	Rd_level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over (dB)	detector	Height	Degree	Antenna polarization
Channel:5180MHz									
10360.0	-66.30	16.36	-49.94	-30	-19.94	PK	6	1.4	H
10360.0	-60.74	20.41	-40.33	-30	-10.33	AV	245	1.5	H
10360.0	-66.55	16.36	-50.19	-30	-20.19	PK	251	1.7	V
10360.0	-60.89	20.41	-40.48	-30	-10.48	AV	39	1.3	V
Channel:5240MHz									
10480.0	-65.62	16.36	-49.26	-30	-19.26	PK	308	1.4	H
10480.0	-58.90	20.41	-38.49	-30	-8.49	AV	121	1.7	H
10480.0	-66.54	16.36	-50.18	-30	-20.18	PK	205	1.5	V
10480.0	-60.96	20.41	-40.55	-30	-10.55	AV	235	1.4	V
Channel:5260MHz									
10520.0	-66.61	16.36	-50.25	-30	-20.25	PK	308	1.4	H
10520.0	-58.58	20.41	-38.17	-30	-8.17	AV	121	1.7	H
10520.0	-66.60	16.36	-50.24	-30	-20.24	PK	205	1.5	V
10520.0	-60.99	20.41	-40.58	-30	-10.58	AV	235	1.4	V
Channel:5320MHz									
10640.0	-65.87	16.36	-49.51	-30	-19.51	PK	308	1.4	H
10640.0	-59.29	20.41	-38.88	-30	-8.88	AV	121	1.7	H
10640.0	-64.91	16.36	-48.55	-30	-18.55	PK	205	1.5	V
10640.0	-58.29	20.41	-37.88	-30	-7.88	AV	235	1.4	V
Channel:5500MHz									
11000.0	-65.95	16.36	-49.59	-30	-19.59	PK	308	1.4	H
11000.0	-60.55	20.41	-40.14	-30	-10.14	AV	121	1.7	H

11000.0	-66.88	16.36	-50.52	-30	-20.52	PK	205	1.5	V
11000.0	-59.07	20.41	-38.66	-30	-8.66	AV	235	1.4	V
Channel:5700MHz									
11400.0	-65.02	16.36	-48.66	-30	-18.66	PK	308	1.4	H
11400.0	-58.84	20.41	-38.43	-30	-8.43	AV	121	1.7	H
11400.0	-66.60	16.36	-50.24	-30	-20.24	PK	205	1.5	V
11400.0	-58.00	20.41	-37.59	-30	-7.59	AV	235	1.4	V
Channel:5745MHz									
11490.0	-65.84	16.37	-49.47	-30	-19.47	PK	308	1.4	H
11490.0	-60.00	20.42	-39.58	-30	-9.58	AV	121	1.7	H
11490.0	-65.61	16.37	-49.24	-30	-19.24	PK	205	1.5	V
11490.0	-58.31	20.42	-37.89	-30	-7.89	AV	235	1.4	V
Channel:5825MHz									
11650.0	-64.08	16.37	-47.71	-30	-17.71	PK	308	1.4	H
11650.0	-60.59	20.42	-40.17	-30	-10.17	AV	121	1.7	H
11650.0	-64.54	16.37	-48.17	-30	-18.17	PK	205	1.5	V
11650.0	-58.94	20.42	-38.52	-30	-8.52	AV	235	1.4	V

Modulation : 802.11(n40) (the worst data)

Freq (MHz)	Rd_level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over (dB)	detector	Height	Degree	Antenna polarization
Channel:5190MHz									
10380.0	-64.65	16.37	-48.28	-30	-18.28	PK	6	1.4	H
10380.0	-58.39	20.41	-37.98	-30	-7.98	AV	245	1.5	H
10380.0	-65.27	16.37	-48.90	-30	-18.90	PK	251	1.7	V
10380.0	-59.35	20.41	-38.94	-30	-8.94	AV	39	1.3	V
Channel:5230MHz									
10460.0	-65.57	16.37	-49.20	-30	-19.20	PK	308	1.4	H
10460.0	-59.36	20.41	-38.95	-30	-8.95	AV	121	1.7	H
10460.0	-64.29	16.37	-47.92	-30	-17.92	PK	205	1.5	V
10460.0	-58.88	20.41	-38.47	-30	-8.47	AV	235	1.4	V
Channel:5270MHz									
10540.0	-65.27	16.37	-48.90	-30	-18.90	PK	308	1.4	H
10540.0	-60.64	20.41	-40.23	-30	-10.23	AV	121	1.7	H
10540.0	-64.09	16.37	-47.72	-30	-17.72	PK	205	1.5	V
10540.0	-58.27	20.41	-37.86	-30	-7.86	AV	235	1.4	V
Channel:5310MHz									
10620.0	-64.29	16.37	-47.92	-30	-17.92	PK	308	1.4	H
10620.0	-59.75	20.41	-39.34	-30	-9.34	AV	121	1.7	H
10620.0	-66.90	16.37	-50.53	-30	-20.53	PK	205	1.5	V
10620.0	-59.29	20.41	-38.88	-30	-8.88	AV	235	1.4	V
Channel:5510MHz									
11020.0	-64.49	16.37	-48.12	-30	-18.12	PK	308	1.4	H
11020.0	-58.39	20.41	-37.98	-30	-7.98	AV	121	1.7	H
11020.0	-65.95	16.37	-49.58	-30	-19.58	PK	205	1.5	V

11020.0	-58.64	20.41	-38.23	-30	-8.23	AV	235	1.4	V
Channel:5670MHz									
11340.0	-66.62	16.37	-50.25	-30	-20.25	PK	308	1.4	H
11340.0	-58.03	20.41	-37.62	-30	-7.62	AV	121	1.7	H
11340.0	-64.44	16.37	-48.07	-30	-18.07	PK	205	1.5	V
11340.0	-59.18	20.41	-38.77	-30	-8.77	AV	235	1.4	V
Channel:5755MHz									
11510.0	-65.52	16.37	-49.15	-30	-19.15	PK	308	1.4	H
11510.0	-59.07	20.41	-38.66	-30	-8.66	AV	121	1.7	H
11510.0	-66.21	16.37	-49.84	-30	-19.84	PK	205	1.5	V
11510.0	-60.72	20.41	-40.31	-30	-10.31	AV	235	1.4	V
Channel:5795MHz									
11590.0	-59.27	20.45	-38.82	-30	-8.82	PK	308	1.4	H
11590.0	-64.68	16.41	-48.27	-30	-18.27	AV	121	1.7	H
11590.0	-58.68	20.45	-38.23	-30	-8.23	PK	205	1.5	V
11590.0	-59.27	20.45	-38.82	-30	-8.82	AV	235	1.4	V

Modulation : 802.11(VH80) (the worst data)

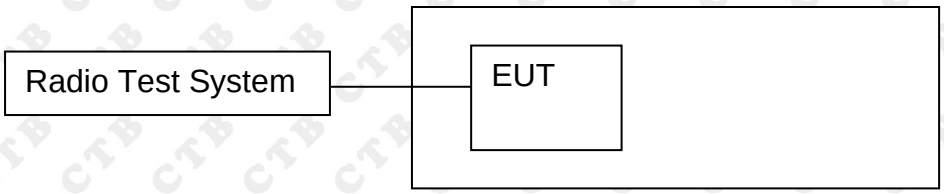
Freq (MHz)	Rd_level (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over (dB)	detector	Height	Degree	Antenna polarization
Channel:5210MHz									
10420.0	-65.92	16.39	-49.53	-30	-19.53	PK	6	1.4	H
10420.0	-59.59	20.43	-39.16	-30	-9.16	AV	245	1.5	H
10420.0	-66.43	16.39	-50.04	-30	-20.04	PK	251	1.7	V
10420.0	-59.65	20.43	-39.22	-30	-9.22	AV	39	1.3	V
Channel:5290MHz									
10580.0	-64.14	16.39	-47.75	-30	-17.75	PK	308	1.4	H
10580.0	-60.27	20.43	-39.84	-30	-9.84	AV	121	1.7	H
10580.0	-65.46	16.39	-49.07	-30	-19.07	PK	205	1.5	V
10580.0	-59.14	20.43	-38.71	-30	-8.71	AV	235	1.4	V
Channel:5530MHz									
11060.0	-64.64	16.39	-48.25	-30	-18.25	PK	308	1.4	H
11060.0	-58.23	20.43	-37.80	-30	-7.80	AV	121	1.7	H
11060.0	-64.25	16.39	-47.86	-30	-17.86	PK	205	1.5	V
11060.0	-58.11	20.43	-37.68	-30	-7.68	AV	235	1.4	V
Channel:5690MHz									
11380.0	-66.33	16.39	-49.94	-30	-19.94	PK	308	1.4	H
11380.0	-58.45	20.43	-38.02	-30	-8.02	AV	121	1.7	H
11380.0	-65.33	16.39	-48.94	-30	-18.94	PK	205	1.5	V
11380.0	-60.91	20.43	-40.48	-30	-10.48	AV	235	1.4	V
Channel:5775MHz									
11550.0	-64.55	16.39	-48.16	-30	-18.16	PK	308	1.4	H
11550.0	-60.09	20.43	-39.66	-30	-9.66	AV	121	1.7	H
11550.0	-64.98	16.39	-48.59	-30	-18.59	PK	205	1.5	V

11550.0	-59.49	20.43	-39.06	-30	-9.06	AV	235	1.4	V

Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits
2.The EUT was tested in the low, high channel and the worst case position data was reported.
3.Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

8. BAND EDGE

8.1 Block Diagram Of Test Setup



8.2 Limit

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

8.3 Test procedure

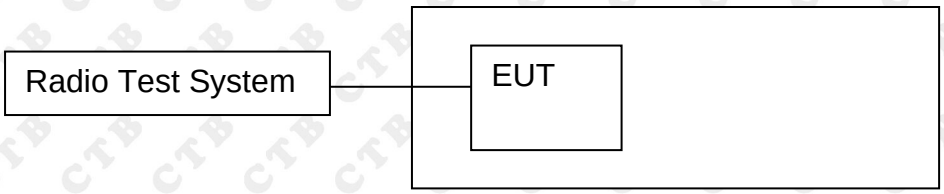
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then 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 of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

8.4 Test Result

Refer to FCC ID:PD99461D2

9. CONDUCTED PEAK OUTPUT POWER

9.1 Block Diagram Of Test Setup



9.2 Limit

(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p.
at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition,the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.
(5) The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less.

Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

(h) Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS).
(1) Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

9.3 Test procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 2 × span / RBW. (This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”

(viii) Trace average at least 100 traces in power averaging (rms) mode.

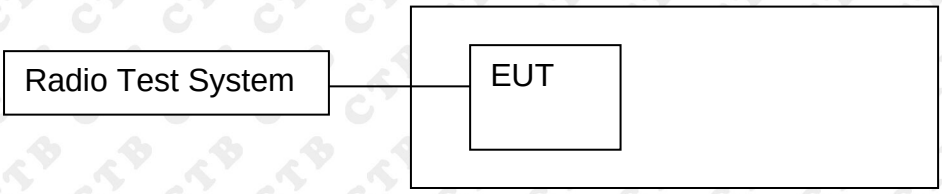
(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument’s band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

9.4 Test Result

Refer to FCC ID:PD99461D2

10. EMISSION BANDWIDTH& OCCUPIED BANDWIDTH

10.1 Block Diagram Of Test Setup



10.2 Limits

(1) For the band 5.15-5.25 GHz.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

10.3 Test Procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

1. Emission Bandwidth (EBW)
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
2. Minimum Emission Bandwidth for the band 5.725−5.85 GHz
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 kHz for the band 5.725−5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 * RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described in this section. For devices that use channel aggregation refer to III.A and III.C for determining emission bandwidth.

D. 99% Occupied Bandwidth

The 99% occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. Measurement of the 99% occupied bandwidth is *required* only as a condition for using the optional band-edge measurement techniques described in II.G.3.d). Measurements of 99% occupied bandwidth may also optionally be used in lieu of the EBW to define the minimum frequency range over which the 789033 D02 General UNII Test Procedures New Rules v02r01 Page 4 spectrum is integrated when measuring maximum conducted output power as described in II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with Section 15.407(a).
The following procedure shall be used for measuring (99%) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.

2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1% to 5% of the OBW

4. Set VBW ≥ 3 * RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

6. Use the 99% power bandwidth function of the instrument (if available).

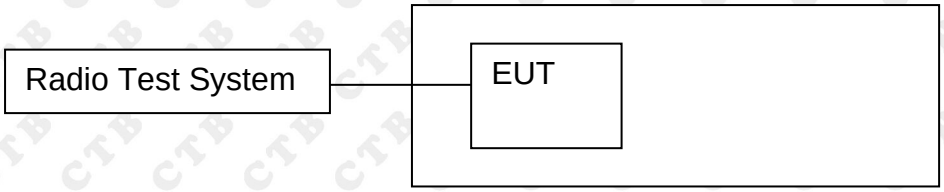
7. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

10.4 Test Results

Refer to FCC ID:PD99461D2

11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 Limit

(1) For the band 5.15-5.25 GHz.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

11.3 Test procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

For devices operating in the bands 5.15−5.25 GHz, 5.25−5.35 GHz, and 5.47−5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725−5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/*T*, where *T* is defined in II.B.l.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

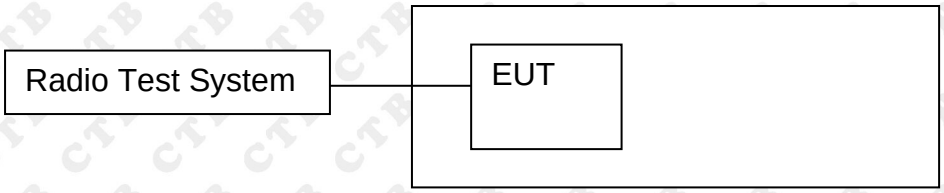
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.
Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since RBW=100 kHz is available on nearly all spectrum analyzers.

11.4 Test Result

Refer to FCC ID:PD99461D2

12. FREQUENCY STABILITY

12.1 Block Diagram Of Test Setup



12.2 Limit

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

12.3 Test procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.

2. Set EUT as normal operation.

3. Turn the EUT on and couple its output to spectrum.

4. Turn the EUT off and set the chamber to the highest temperature specified.

5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.

6. Repeat step with the temperature chamber set to the lowest temperature.

12.4 Test Result

Refer to FCC ID:PD99461D2

13. OPERATION IN THE ABSENCE OF INFORMATION TO THE TRANSMIT

13.1 Requirement

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

13.2 Test Results

Refer to FCC ID:PD99461D2

14. ANTENNA REQUIREMENT

15.203 requirement:

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

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is slot Antenna and no consideration of replacement. The best case gain of the antenna is 1dBi.

15. EUT PHOTOGRAPHS

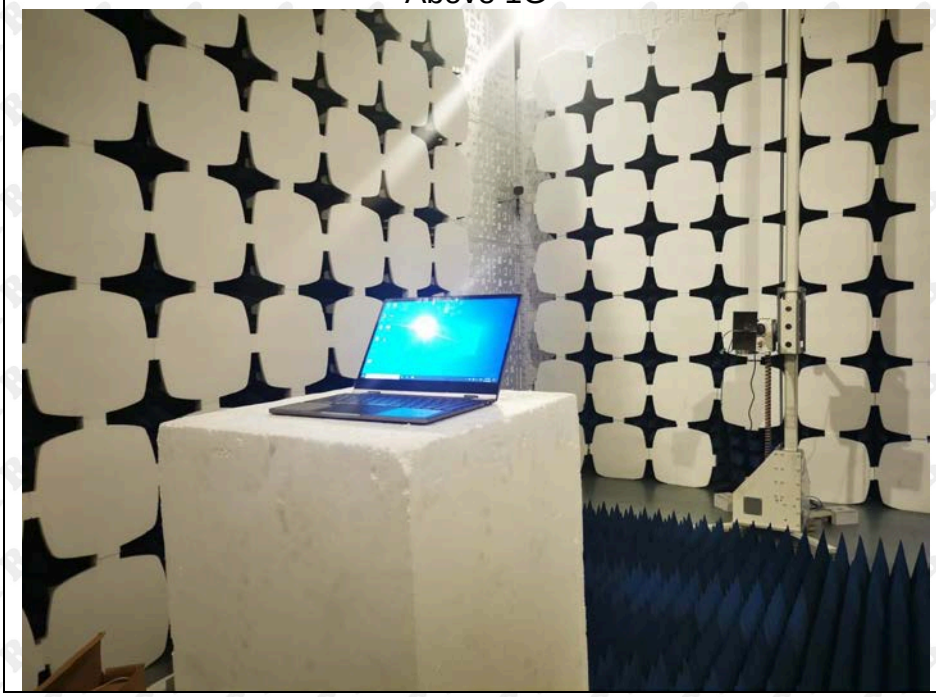
Please Refer to Report No. CTB200909025RFX for EUT external and internal photos.

16. EUT TEST SETUP PHOTOGRAPHS

Radiated Emission

Below 1G

Above 1G



Conducted Emission

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