

FCC REPORT

Applicant: Shenzhen Rapoo Technology Co., Ltd

Address of Applicant: 22, Jinxiu Road East, Pingshan District, Shenzhen, China

Manufacturer/Factory: Shenzhen Rapoo Technology Co., Ltd

Address of Manufacturer/Factory: 22, Jinxiu Road East, Pingshan District, Shenzhen, China

Equipment Under Test (EUT)

Product Name: 2.4G Nano Receiver

Model No.: 03056

Trade Mark: TRUST RAPOO

FCC ID: PP203056

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249

Date of sample receipt: April 19, 2018

Date of Test: April 20-May 18, 2018

Date of report issued: May 18, 2018

Test Result : PASS *

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

Authorized Signature:



Robinson Lo

Laboratory Manager

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

2 Version

Version No.	Date	Description
00	May 18, 2018	Original

Prepared By:

Tiger Chen

Date:

May 18, 2018

Project Engineer

Check By:

Andy Wu

Date:

May 18, 2018

Reviewer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

Pass: The EUT complies with the essential requirements in the standard.

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

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	$\pm 4.34\text{dB}$	(1)
Radiated Emission	30MHz ~ 1000MHz	$\pm 4.24\text{dB}$	(1)
Radiated Emission	1GHz ~ 26.5GHz	$\pm 4.68\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.45\text{dB}$	(1)

Note (1): The measurement uncertainty is for coverage factor of $k=2$ and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

Product Name:	2.4G Nano Receiver
Model No.:	03056
Serial No.:	18030300037
Test sample(s) ID:	GTS201804000177-1
Sample(s) Status	Engineer sample
Hardware Version:	1.0
Software Version:	1.0
Operation Frequency:	2408MHz~2474MHz
Channel numbers:	34
Channel separation:	2MHz
Modulation type:	FSK
Antenna Type:	Integral antenna
Antenna gain:	0 dBi (declare by Applicant)
Power supply:	USB DC5V

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2408MHz	10	2426MHz	19	2444MHz	28	2462MHz
2	2410MHz	11	2428MHz	20	2446MHz	29	2464MHz
3	2412MHz	12	2430MHz	21	2448MHz	30	2466MHz
4	2414MHz	13	2432MHz	22	2450MHz	31	2468MHz
5	2416MHz	14	2434MHz	23	2452MHz	32	2470MHz
6	2418MHz	15	2436MHz	24	2454MHz	33	2472MHz
7	2420MHz	16	2438MHz	25	2456MHz	34	2474MHz
8	2422MHz	17	2440MHz	26	2458MHz		
9	2424MHz	18	2442MHz	27	2460MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2408MHz
The middle channel	2440MHz
The Highest channel	2474MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
<i>Remark: During the test, 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.</i>	

Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	85.44	86.20	84.78

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
Lenovo	Notebook PC	E40	N/A	DoC
Apple	PC	A1278	C1MN99ERDTY3	Doc

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383, January 08, 2018.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.6 Other Information Requested by the Customer

None.

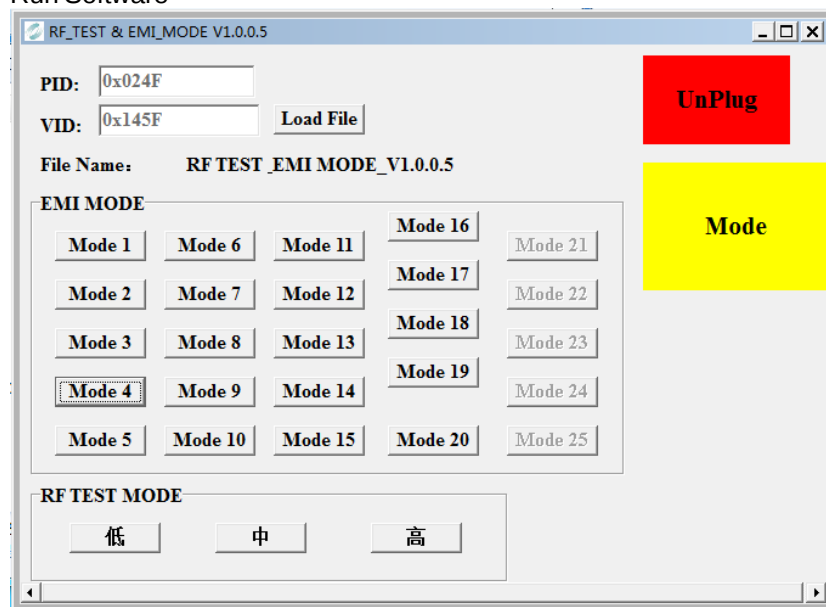
5.7 Additional instructions

Software (Used for test) from client

Mode	Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.
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Power level setup in software			
Test Software Name	RF TEST & EMI MODE		
Test Software Version	V1.0.0.5		
Support Units (Software installation media)	Description	Manufacturer	Model
	Laptop	Apple	A1278
Mode	Channel	Frequency (MHz)	Soft Set
FSK	CH01	2404	TX LEVEL: Default
	CH17	2440	
	CH34	2474	

Run Software



6 Test Instruments list

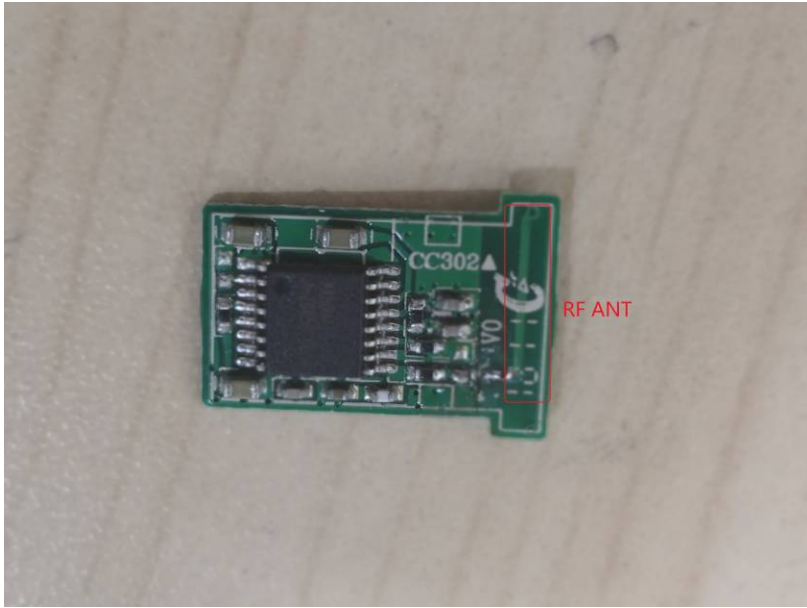
Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July 03 2015	July 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 28 2017	June. 27 2018
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 28 2017	June. 27 2018
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 28 2017	June. 27 2018
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June. 28 2017	June. 27 2018
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 28 2017	June. 27 2018
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	June. 28 2017	June. 27 2018
10	Coaxial Cable	GTS	N/A	GTS211	June. 28 2017	June. 27 2018
11	Coaxial cable	GTS	N/A	GTS210	June. 28 2017	June. 27 2018
12	Coaxial Cable	GTS	N/A	GTS212	June. 28 2017	June. 27 2018
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 28 2017	June. 27 2018
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June. 28 2017	June. 27 2018
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 28 2017	June. 27 2018
16	Band filter	Amindeon	82346	GTS219	June. 28 2017	June. 27 2018
17	Power Meter	Anritsu	ML2495A	GTS540	June. 28 2017	June. 27 2018
18	Power Sensor	Anritsu	MA2411B	GTS541	June. 28 2017	June. 27 2018
19	Loop Antenna	ZHINAN	ZN30900A	GTS534	June 28 2017	June 27 2018

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June 28 2017	June 27 2018
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 28 2017	June 27 2018
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June 28 2017	June 27 2018
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June 28 2017	June 27 2018

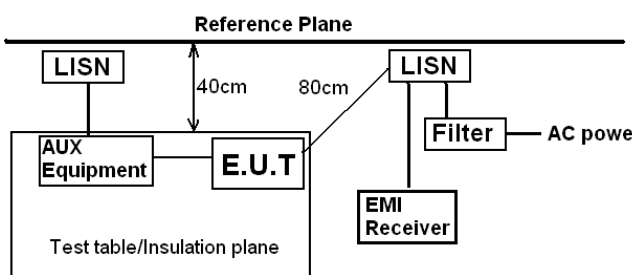
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	June 28 2017	June 27 2018

7 Test results and Measurement Data

7.1 Antenna requirement

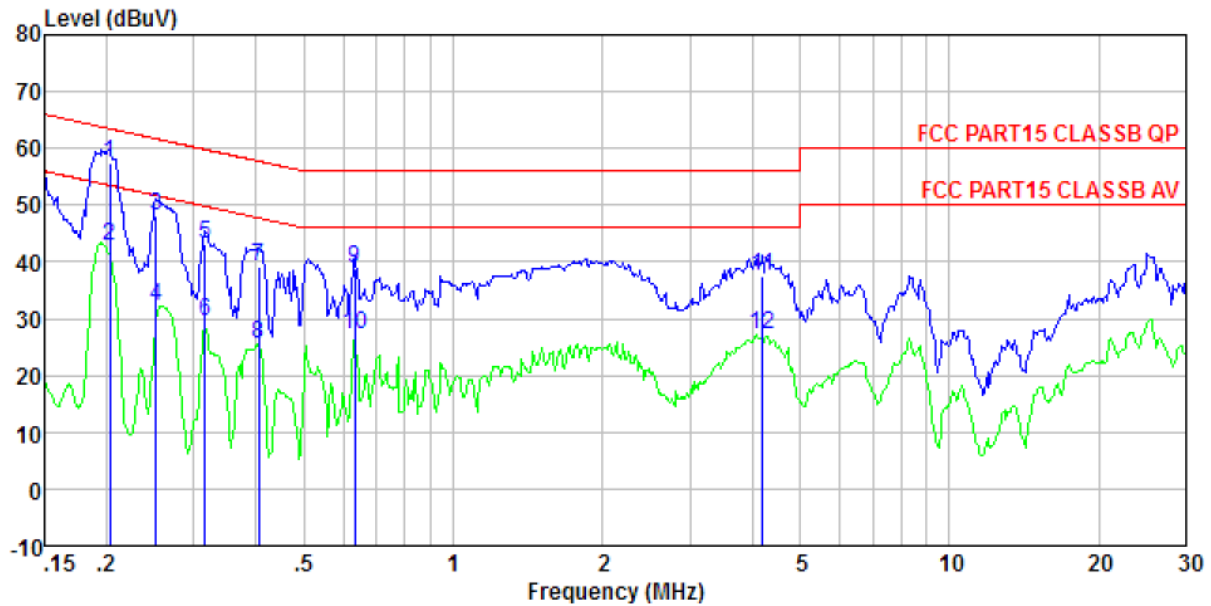
Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling 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.	
EUT Antenna:	
<i>The antenna is ntegral antenna, the best case gain of the antenna is 0dBi</i> 	

7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.10:2013		
Test Frequency Range:	150KHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test setup:	Reference Plane  Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m		
Test procedure:	1. The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. 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: 2013 on conducted measurement.		
Test Instruments:	Refer to section 6.0 for details		
Test mode:	Refer to section 5.2 for details		
Test results:	Pass		

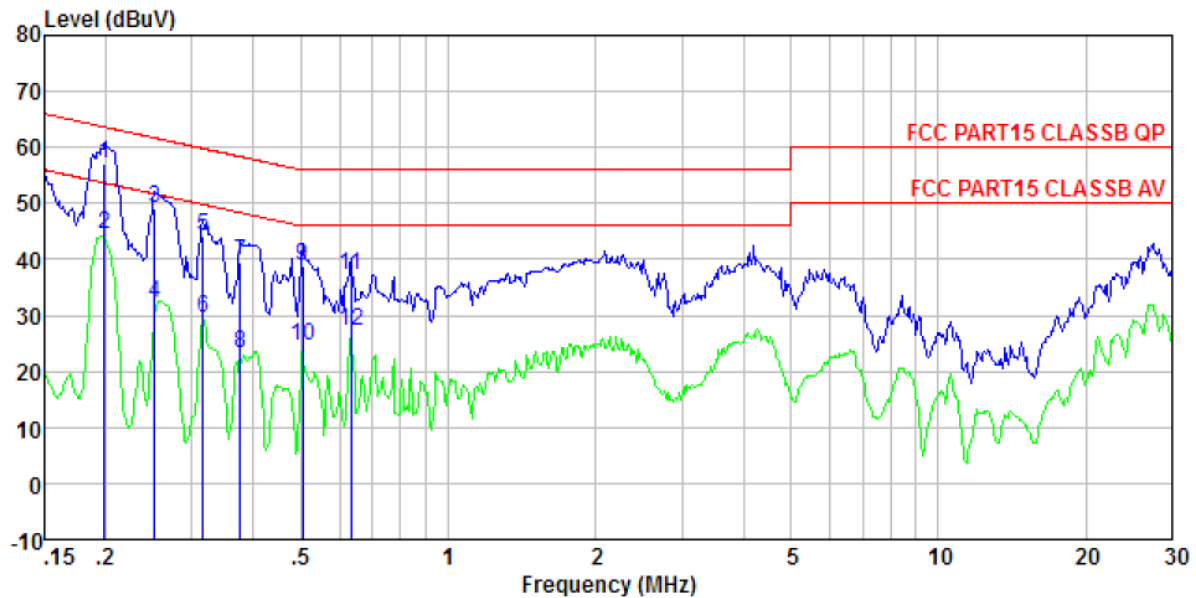
Measurement data

Line:



Freq MHz	Reading level dBuV	IISN/ISN factor dB	Cable loss dB	level dBuV	Limit level dBuV	Over limit dB	Remark
0.203	56.87	0.43	0.13	57.43	63.49	-6.06	QP
0.203	42.26	0.43	0.13	42.82	53.49	-10.67	Average
0.252	47.65	0.44	0.11	48.20	61.69	-13.49	QP
0.252	31.60	0.44	0.11	32.15	51.69	-19.54	Average
0.317	42.55	0.44	0.10	43.09	59.80	-16.71	QP
0.317	29.06	0.44	0.10	29.60	49.80	-20.20	Average
0.406	38.75	0.41	0.11	39.27	57.73	-18.46	QP
0.406	24.98	0.41	0.11	25.50	47.73	-22.23	Average
0.634	38.46	0.30	0.13	38.89	56.00	-17.11	QP
0.634	26.83	0.30	0.13	27.26	46.00	-18.74	Average
4.202	36.97	0.21	0.15	37.33	56.00	-18.67	QP
4.202	26.81	0.21	0.15	27.17	46.00	-18.83	Average

Neutral:

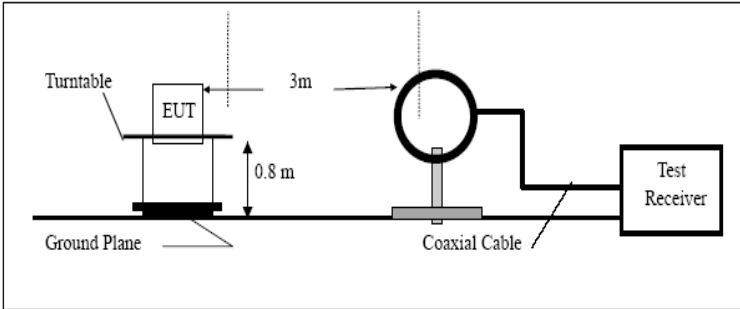


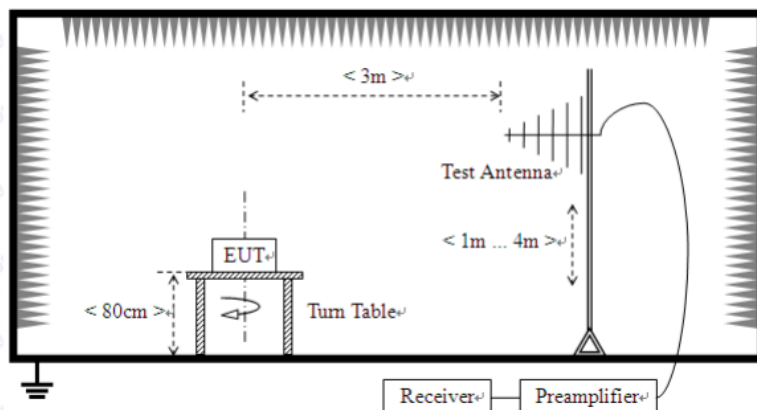
Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	level dBuV	Limit level dBuV	Over limit dB	Remark
0.199	56.55	0.41	0.13	57.09	63.67	-6.58	QP
0.199	43.93	0.41	0.13	44.47	53.67	-9.20	Average
0.252	48.65	0.42	0.11	49.18	61.69	-12.51	QP
0.252	31.60	0.42	0.11	32.13	51.69	-19.56	Average
0.317	43.51	0.42	0.10	44.03	59.80	-15.77	QP
0.317	29.11	0.42	0.10	29.63	49.80	-20.17	Average
0.377	38.97	0.40	0.10	39.47	58.34	-18.87	QP
0.377	22.61	0.40	0.10	23.11	48.34	-25.23	Average
0.505	38.47	0.35	0.11	38.93	56.00	-17.07	QP
0.505	24.01	0.35	0.11	24.47	46.00	-21.53	Average
0.634	36.87	0.26	0.13	37.26	56.00	-18.74	QP
0.634	26.78	0.26	0.13	27.17	46.00	-18.83	Average

Notes:

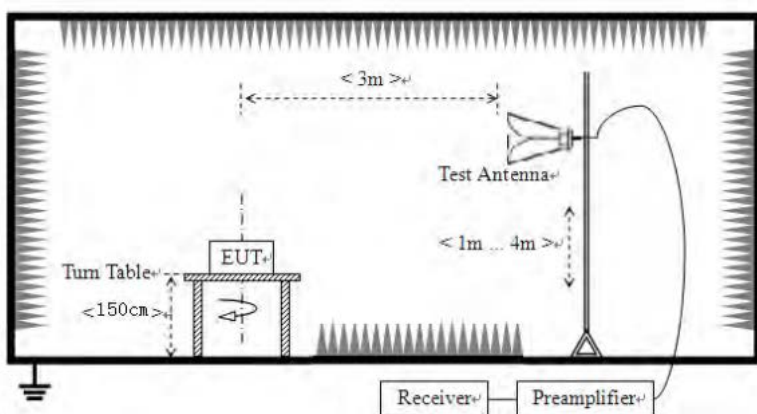
1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.3 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Limit: (Field strength of the fundamental signal)	Frequency		Limit (dBuV/m @3m)		Remark
	2400MHz-2483.5MHz		94.00		Average Value
			114.00		Peak Value
Limit: (Spurious Emissions)	Frequency		Limit (uV/m)	Value	Measurement Distance
	0.009MHz-0.490MHz		2400/F(KHz)	QP	300m
	0.490MHz-1.705MHz		24000/F(KHz)	QP	300m
	1.705MHz-30MHz		30	QP	30m
	30MHz-88MHz		100	QP	3m
	88MHz-216MHz		150	QP	
	216MHz-960MHz		200	QP	
	960MHz-1GHz		500	QP	
	Above 1GHz		500	Average	
			5000	Peak	
Limit: (band edge)	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.				
Test setup:	Below 30MHz				
					
	Below 1GHz				



Above 1GHz



Measurement data:

7.3.1 Field Strength of The Fundamental Signal

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2408.00	88.69	27.43	5.40	36.87	84.65	114.00	-29.35	Vertical
2408.00	86.78	27.43	5.40	36.87	82.74	114.00	-31.26	Horizontal
2440.00	89.13	27.53	5.43	36.89	85.20	114.00	-28.80	Vertical
2440.00	87.47	27.53	5.43	36.89	83.54	114.00	-30.46	Horizontal
2474.00	89.86	27.62	5.46	36.92	86.02	114.00	-27.98	Vertical
2474.00	87.94	27.62	5.46	36.92	84.10	114.00	-29.90	Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2408.00	68.07	27.43	5.40	36.87	64.03	94.00	-29.97	Vertical
2408.00	67.42	27.43	5.40	36.87	63.38	94.00	-30.62	Horizontal
2440.00	68.89	27.53	5.43	36.89	64.96	94.00	-29.04	Vertical
2440.00	67.24	27.53	5.43	36.89	63.31	94.00	-30.69	Horizontal
2474.00	68.71	27.62	5.46	36.92	64.87	94.00	-29.13	Vertical
2474.00	66.38	27.62	5.46	36.92	62.54	94.00	-31.46	Horizontal

Remark: RBW 3MHz VBW 3MHz peak detector is for PK Value, RMS detector is for AV value

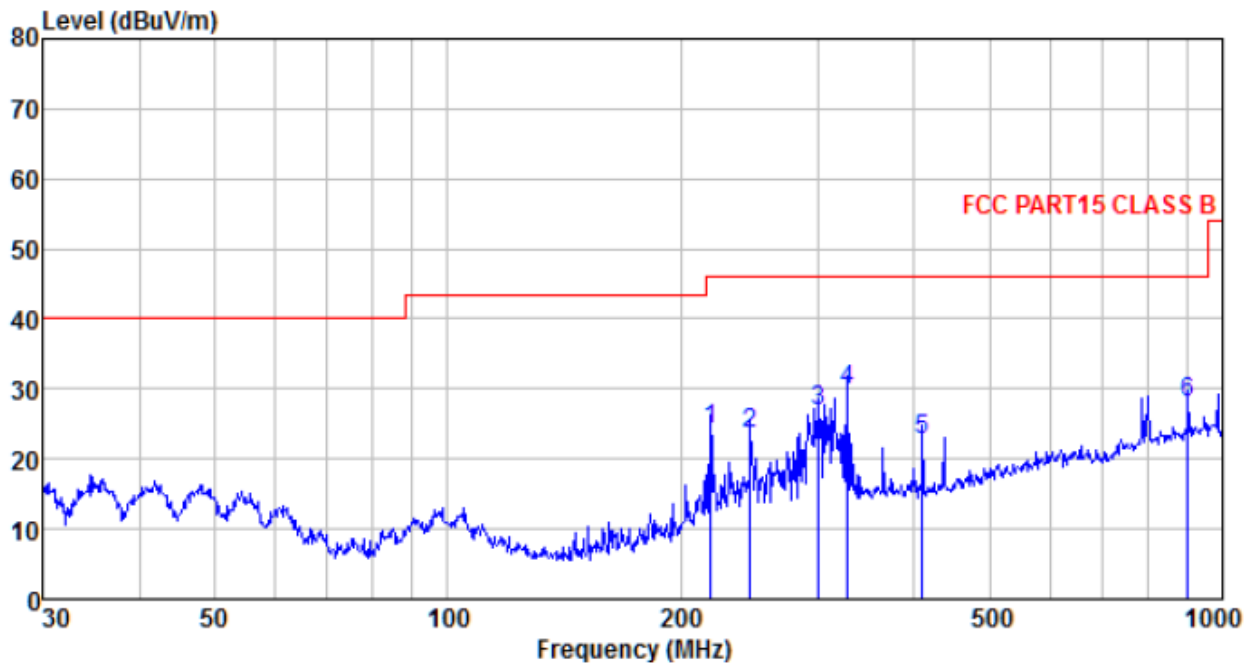
7.3.2 Spurious emissions

■ 9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

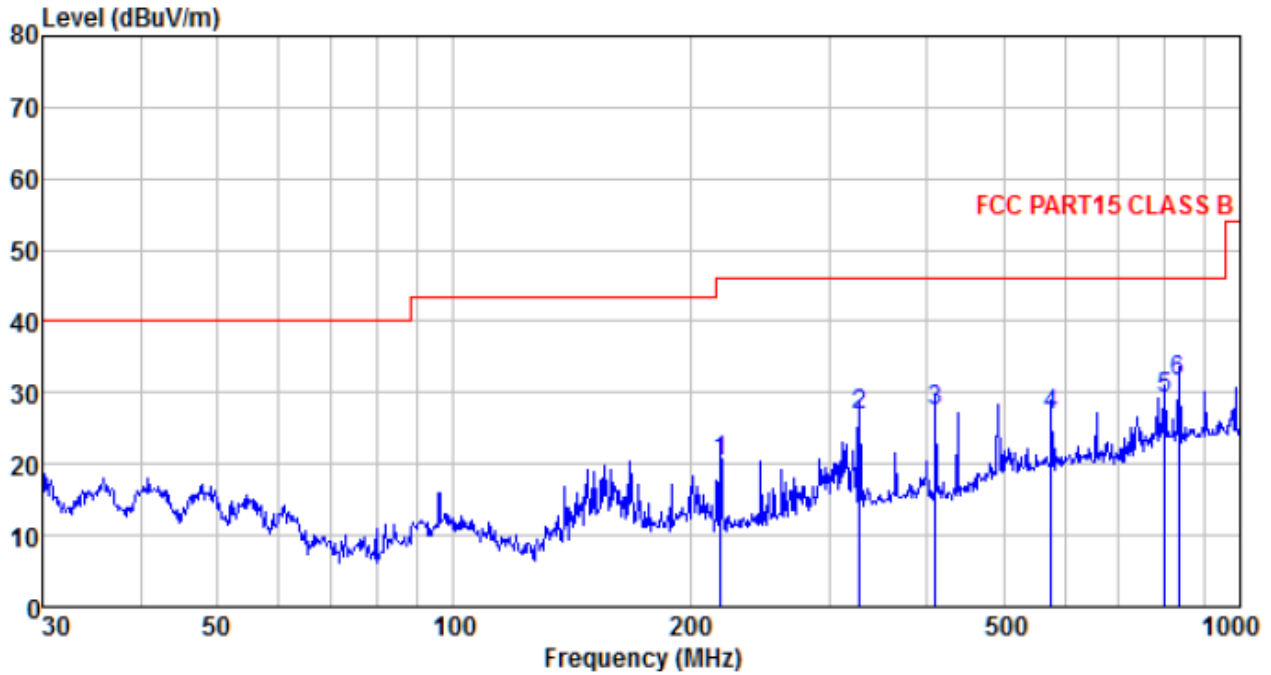
■ Below 1GHz

Horizontal:



Freq MHz	Reading level dBUV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBUV	Limit level dBUV/m	Over limit dB	Remark
218.309	48.64	11.09	1.95	37.35	24.33	46.00	-21.67	QP
245.951	46.83	12.04	2.10	37.38	23.59	46.00	-22.41	QP
301.422	48.17	13.63	2.37	37.42	26.75	46.00	-19.25	QP
327.887	50.76	14.12	2.51	37.45	29.94	46.00	-16.06	QP
410.383	41.86	15.54	2.91	37.52	22.79	46.00	-23.21	QP
903.309	38.33	22.30	4.87	37.60	27.90	46.00	-18.10	QP

Vertical:

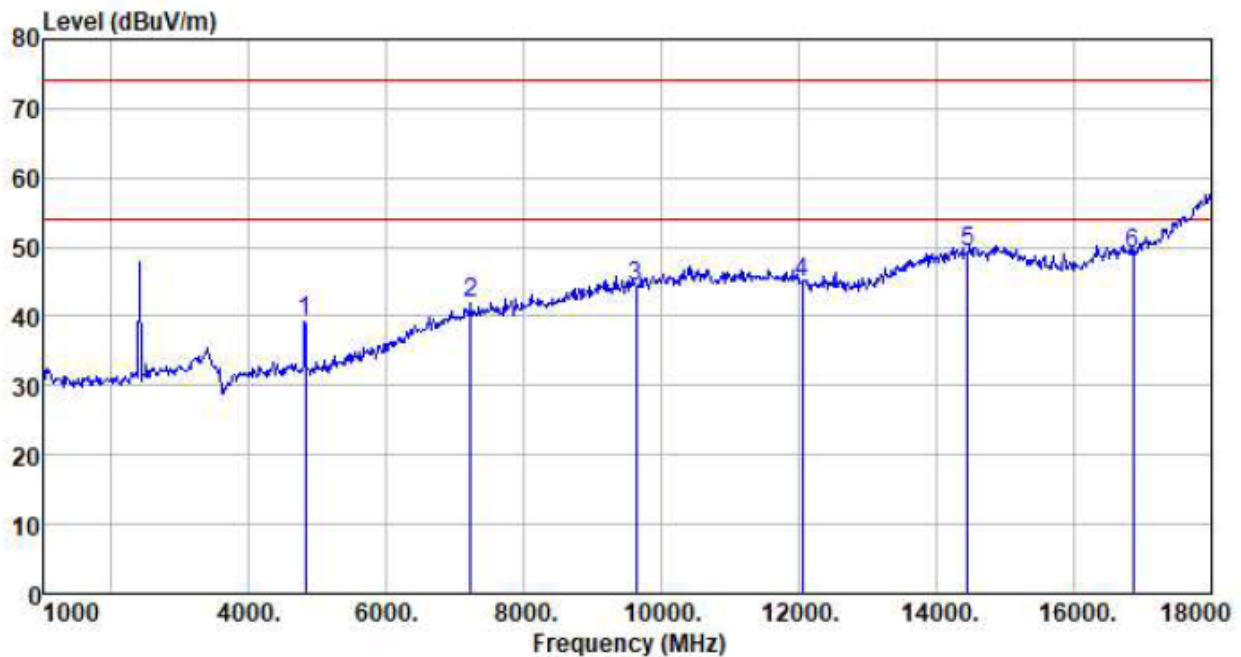


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
218.309	44.66	11.09	1.95	37.35	20.35	46.00	-25.65	QP
327.887	47.82	14.12	2.51	37.45	27.00	46.00	-19.00	QP
410.383	46.64	15.54	2.91	37.52	27.57	46.00	-18.43	QP
574.626	41.84	18.95	3.63	37.53	26.89	46.00	-19.11	QP
801.786	40.87	21.40	4.46	37.62	29.11	46.00	-16.89	QP
836.244	42.79	21.75	4.60	37.61	31.53	46.00	-14.47	QP

■ Above 1GHz

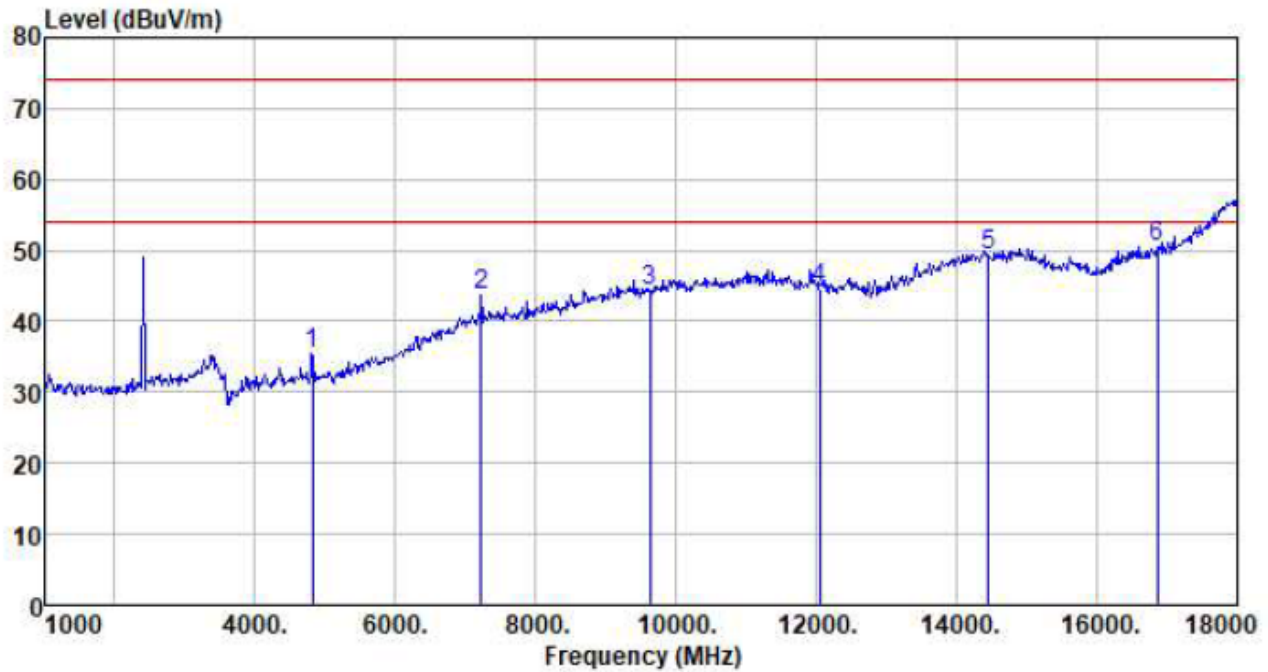
Test channel:	Lowest channel
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Horizontal:



Freq MHz	Reading level dBUV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBUV	Limit level dBUV/m	Over limit dB	Remark
4816.000	37.16	31.22	8.61	37.73	39.26	74.00	-34.74	Peak
7224.000	29.80	36.20	11.66	35.63	42.03	74.00	-31.97	Peak
9632.000	27.04	37.97	14.16	34.95	44.22	74.00	-29.78	Peak
12040.000	27.49	38.51	15.05	36.22	44.83	74.00	-29.17	Peak
14448.000	26.67	41.49	17.17	36.06	49.27	74.00	-24.73	Peak
16856.000	26.70	39.58	18.82	36.17	48.93	74.00	-25.07	Peak

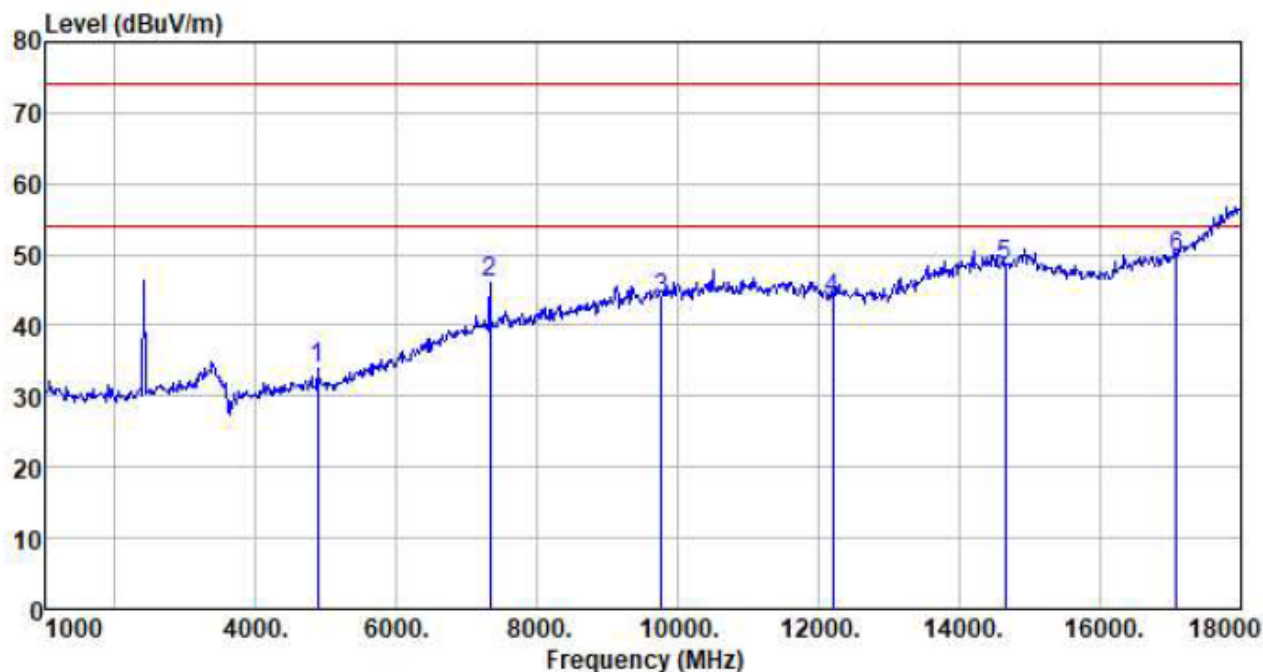
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4816.000	33.38	31.22	8.61	37.73	35.48	74.00	-38.52	Peak
7224.000	31.41	36.20	11.66	35.63	43.64	74.00	-30.36	Peak
9632.000	27.17	37.97	14.16	34.95	44.35	74.00	-29.65	Peak
12040.000	27.31	38.51	15.05	36.22	44.65	74.00	-29.35	Peak
14448.000	26.81	41.49	17.17	36.06	49.41	74.00	-24.59	Peak
16856.000	28.20	39.58	18.82	36.17	50.43	74.00	-23.57	Peak

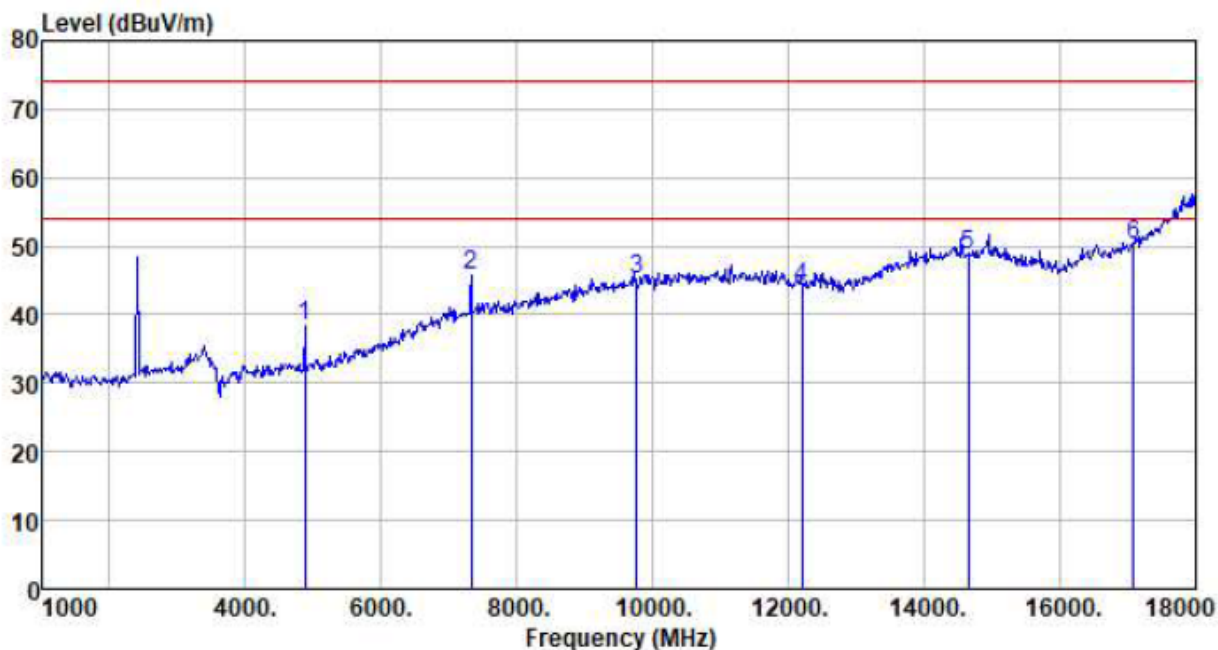
Test channel:	Middle channel
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Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4880.000	31.62	31.31	8.66	37.75	33.84	74.00	-40.16	Peak
7320.000	33.63	36.43	11.72	35.60	46.18	74.00	-27.82	Peak
9760.000	26.43	38.10	14.25	35.03	43.75	74.00	-30.25	Peak
12200.000	26.41	38.57	15.14	36.31	43.81	74.00	-30.19	Peak
14640.000	25.70	41.10	17.28	35.77	48.31	74.00	-25.69	Peak
17080.000	26.77	40.22	18.99	36.29	49.69	74.00	-24.31	Peak

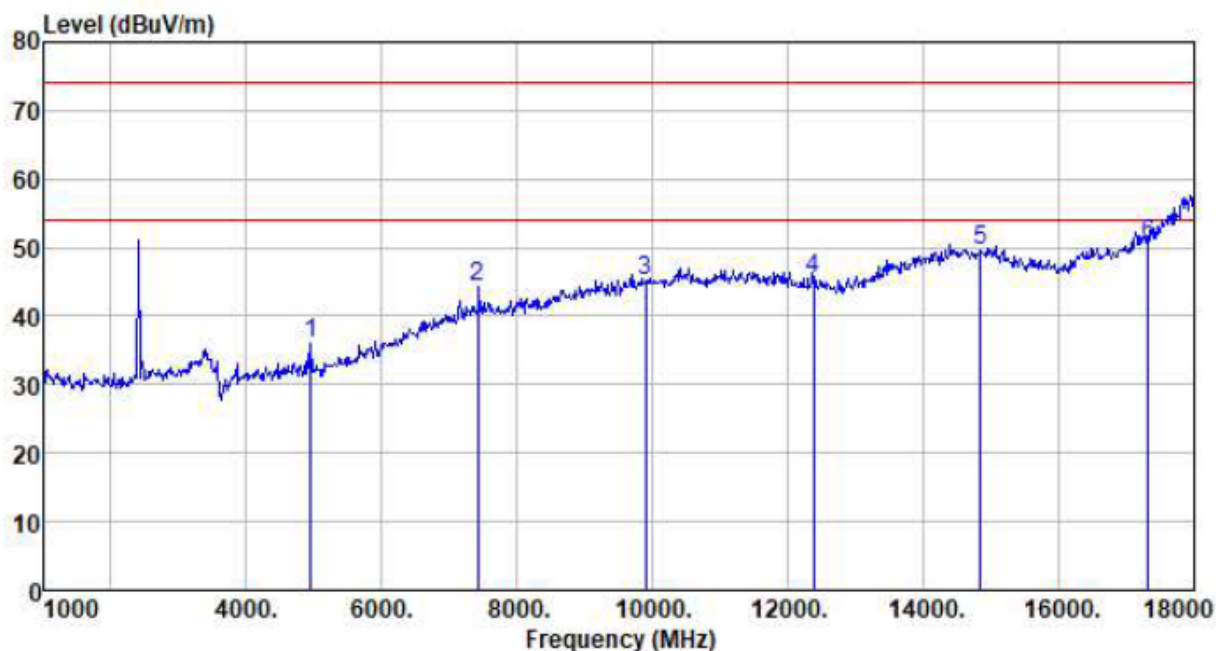
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4880.000	36.07	31.31	8.66	37.75	38.29	74.00	-35.71	Peak
7320.000	33.12	36.43	11.72	35.60	45.67	74.00	-28.33	Peak
9760.000	27.74	38.10	14.25	35.03	45.06	74.00	-28.94	Peak
12200.000	26.72	38.57	15.14	36.31	44.12	74.00	-29.88	Peak
14640.000	26.23	41.10	17.28	35.77	48.84	74.00	-25.16	Peak
17080.000	27.41	40.22	18.99	36.29	50.33	74.00	-23.67	Peak

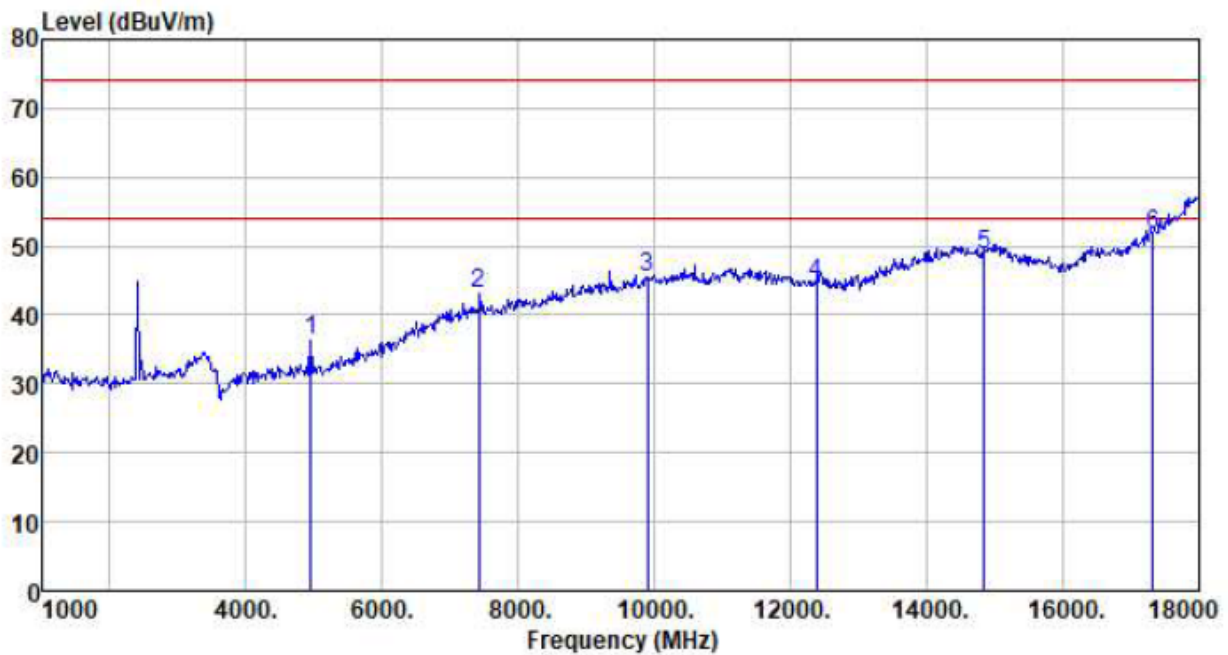
Test channel:	Highest channel
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Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4948.000	33.63	31.41	8.71	37.78	35.97	74.00	-38.03	Peak
7422.000	31.46	36.62	11.77	35.57	44.28	74.00	-29.72	Peak
9896.000	27.63	38.27	14.35	35.12	45.13	74.00	-28.87	Peak
12370.000	27.99	38.64	15.25	36.42	45.46	74.00	-28.54	Peak
14844.000	27.06	40.70	17.37	35.53	49.60	74.00	-24.40	Peak
17318.000	26.34	41.52	18.98	36.26	50.58	74.00	-23.42	Peak

Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
4948.000	33.84	31.41	8.71	37.78	36.18	74.00	-37.82	Peak
7422.000	30.33	36.62	11.77	35.57	43.15	74.00	-30.85	Peak
9896.000	28.05	38.27	14.35	35.12	45.55	74.00	-28.45	Peak
12370.000	27.00	38.64	15.25	36.42	44.47	74.00	-29.53	Peak
14844.000	26.07	40.70	17.37	35.53	48.61	74.00	-25.39	Peak
17318.000	27.51	41.52	18.98	36.26	51.75	74.00	-22.25	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

7.3.3 Bandedge emissions

All of the restriction bands were tested, and only the data of worst case was exhibited.

Test channel:	Lowest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	34.13	27.14	5.30	36.79	29.78	74.00	-44.22	Horizontal
2400.00	34.81	27.37	5.38	36.85	30.71	74.00	-43.29	Horizontal
2390.00	34.76	27.14	5.30	36.79	30.41	74.00	-43.59	Vertical
2400.00	35.34	27.37	5.38	36.85	31.24	74.00	-42.76	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	21.86	27.14	5.30	36.79	17.51	54.00	-36.49	Horizontal
2400.00	22.63	27.37	5.38	36.85	18.53	54.00	-35.47	Horizontal
2390.00	21.33	27.14	5.30	36.79	16.98	54.00	-37.02	Vertical
2400.00	22.67	27.37	5.38	36.85	18.57	54.00	-35.43	Vertical

Test channel:	Highest channel
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	35.44	27.66	5.47	36.93	31.64	74.00	-42.36	Horizontal
2500.00	33.60	27.70	5.49	36.94	29.85	74.00	-44.15	Horizontal
2483.50	34.68	27.66	5.47	36.93	30.88	74.00	-43.12	Vertical
2500.00	34.34	27.70	5.49	36.94	30.59	74.00	-43.41	Vertical

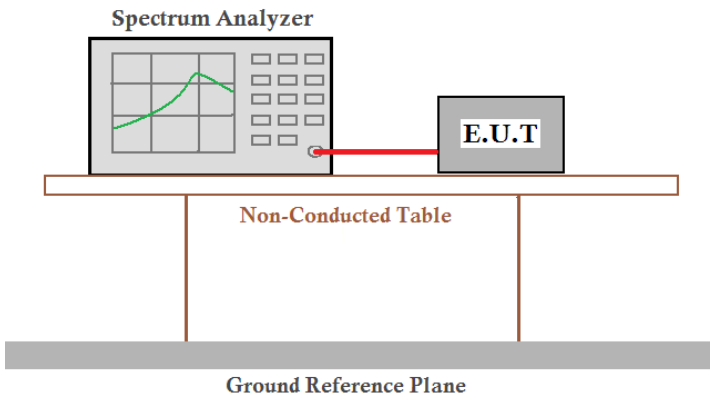
Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	22.09	27.66	5.47	36.93	18.29	54.00	-35.71	Horizontal
2500.00	21.78	27.70	5.49	36.94	18.03	54.00	-35.97	Horizontal
2483.50	21.79	27.66	5.47	36.93	17.99	54.00	-36.01	Vertical
2500.00	21.64	27.70	5.49	36.94	17.89	54.00	-36.11	Vertical

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

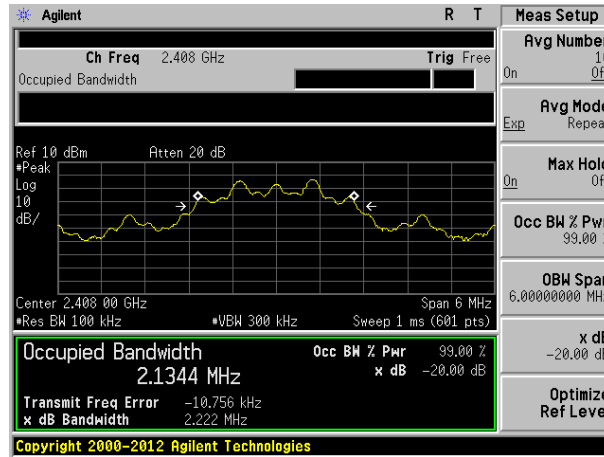
7.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.10:2013
Limit:	Operation Frequency range 2400MHz~2483.5MHz
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

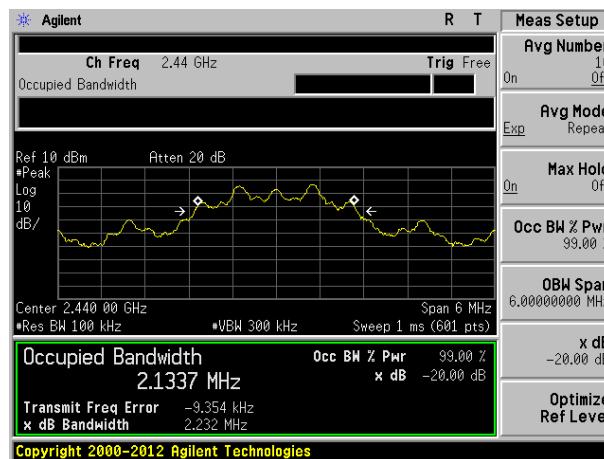
Measurement Data

Test channel	20dB bandwidth(MHz)	Result
Lowest	2.222	Pass
Middle	2.232	Pass
Highest	2.212	Pass

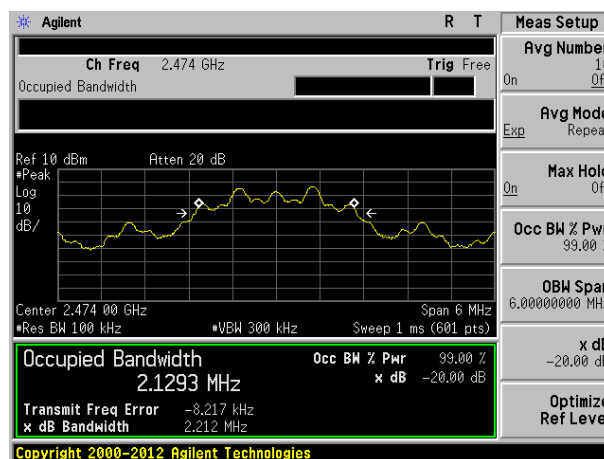
Test plot as follows:



Lowest channel



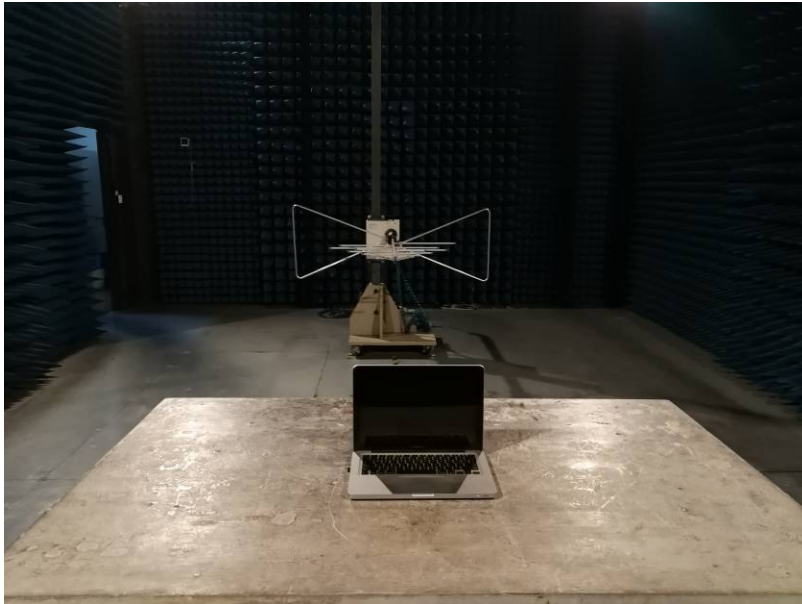
Middle channel



Highest channel

8 Test Setup Photo

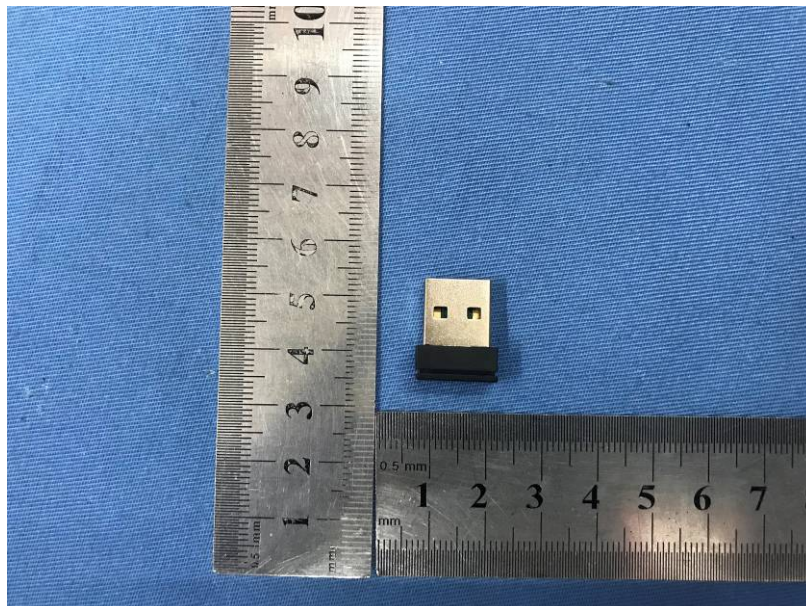
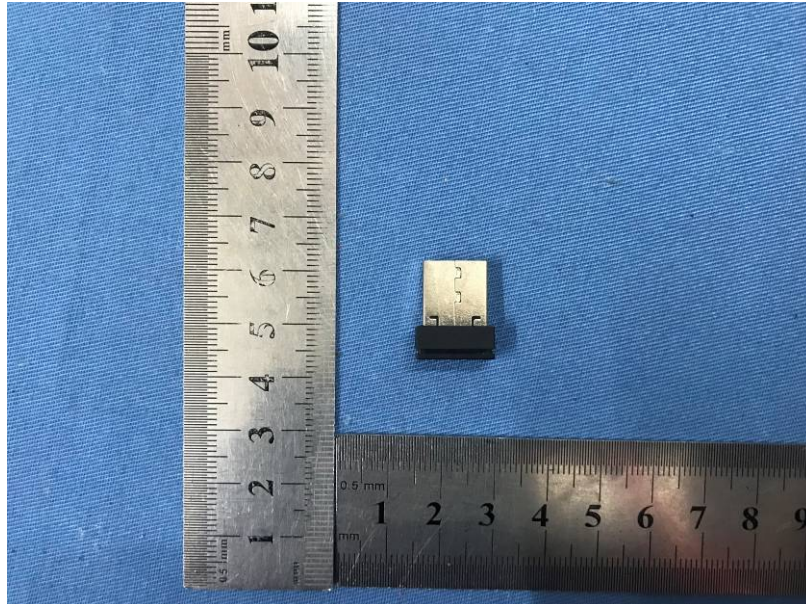
Radiated Emission

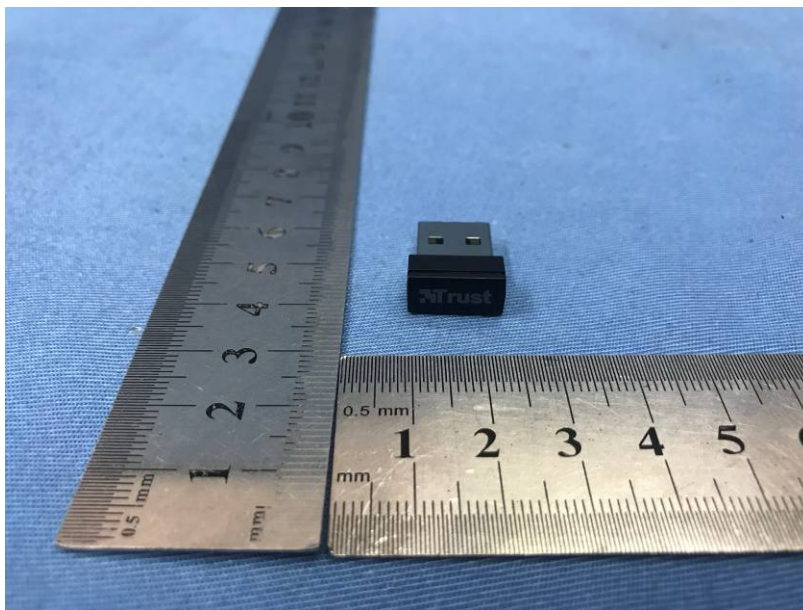


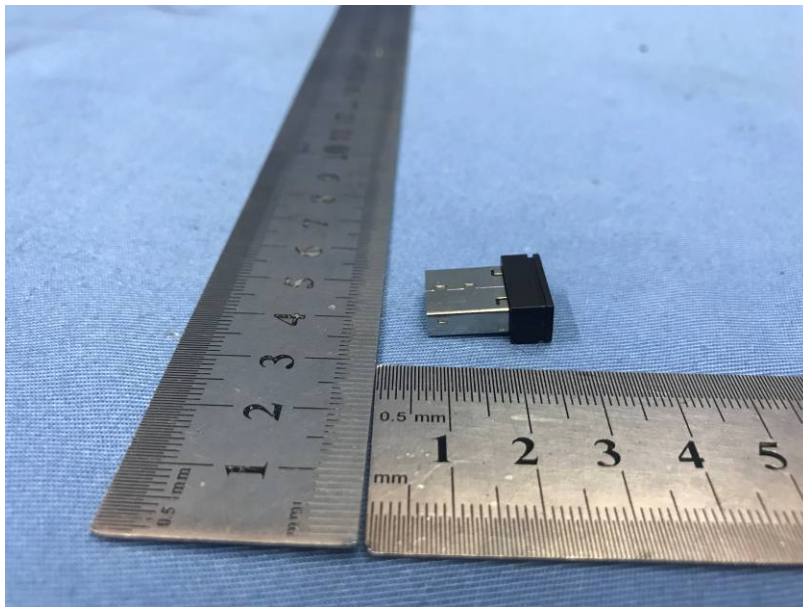
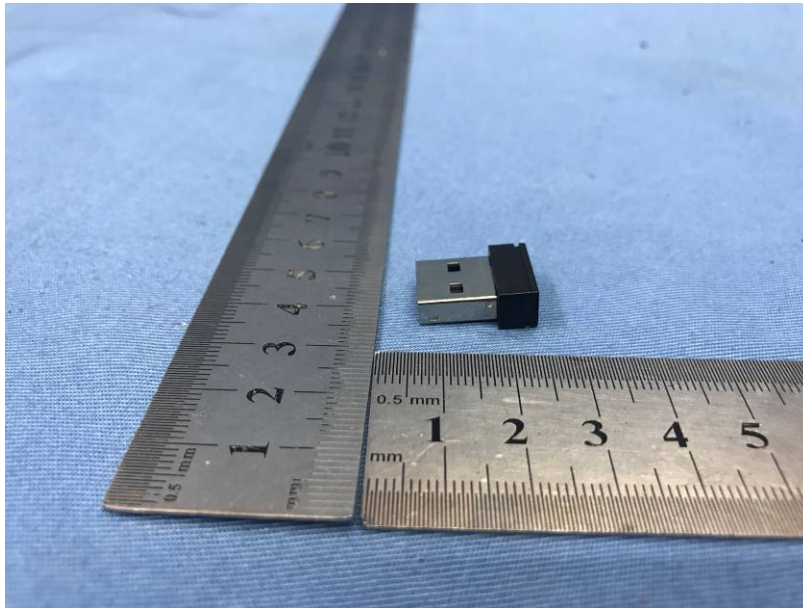
Conducted Emission

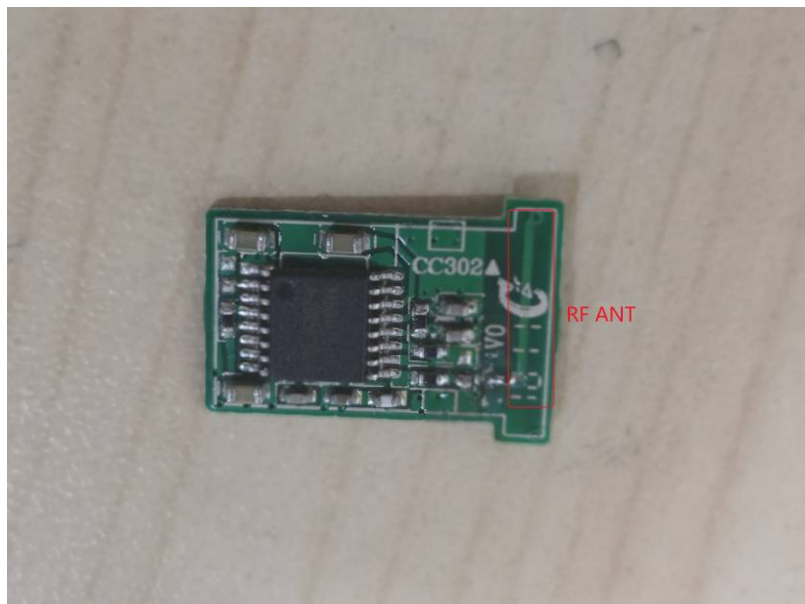


9 EUT Constructional Details









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