Shenzhen HTT Technology Co., Ltd.

Report No.: HTT202206345F01

TEST Report

Applicant:	Shenzhen TwoTrees Technology Co., Ltd.
Address of Applicant:	Room 402,Building 11,No.9 Qilin Road,Nankeng Community Bantian Street,Longgang District,Shenzhen,China
Manufacturer :	Shenzhen TwoTrees Technology Co., Ltd.
Address of Manufacturer :	Room 402,Building 11,No.9 Qilin Road,Nankeng Community Bantian Street,Longgang District,Shenzhen,China

Equipment Under Test (EUT)

Product Name:	Desktop CNC Milling Machines
Model No.:	TTC3018S
Series model:	TTC450,TTC4040,TTC-Max,TTC-Pro
Trade Mark:	N/A
FCC ID:	2A7F8-TTC3018S
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of sample receipt:	Jun.17,2022
Date of Test:	Jun.17,2022~Jun.23,2022
Date of report issued:	Jun.23,2022
Test Result :	PASS *

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

1. Version

Version No.	Date	Description
00	*Jun.23,2022*	*Original*

Tested/ Prepared By Ervin Xu ***Date:*** ***Jun.23,2022***

Project Engineer

Check By: Bruce Zhu ***Date:*** ***Jun.23,2022***

Reviewer

Approved By : Kevin Yang ***Date:*** ***Jun.23,2022***

Authorized Signature

2. Contents

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3. Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Output Power	15.247 (b)(3)	Pass
Channel Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

Remarks:

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

2. Test according to ANSI C63.10:2013

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.45 dB	(1)
Radiated Emission	1~6GHz	3.54 dB	(1)
Radiated Emission	6~40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.66 dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

4. General Information

4.1. General Description of EUT

Product Name:	Desktop CNC Milling Machines
Model No.:	TTC3018S
Series model:	TTC450,TTC4040,TTC-Max,TTC-Pro
Model Difference:	Only the model name is different, the internal structure of the prototype is exactly the same.
Test sample(s) ID:	HTT202206345-1(Engineer sample) HTT202206345-2(Normal sample)
Operation frequency	2402~2480 MHz
Number of Channels	40
Modulation Type	GFSK
Channel separation	2MHz
Antenna Type:	FPC Antenna
Antenna Gain:	3.0dBi
Power Supply:	DC 24V, 4A
Adapter Information:	Mode: HXL-2022 Input: AC100-240V, 50/60Hz, 1.3A MAX Output: DC 12-15-16-17-19V, 4.5A MAX DC 20-24V, 5AMAX

Channel	Frequency(MHz)	Channel	Frequency(MHz)
0	**2402**	20	2442
1	2404	21	2444
2	2406	22	2446
3	2408	23	2448
4	2410	24	2450
5	2412	25	2452
6	2414	26	2454
7	2416	27	2456
8	2418	28	2458
9	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	**2440**	**39**	**2480**

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	2402MHz
The middle channel	2440MHz
The Highest channel	2480MHz

4.2. Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
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.	

4.3. Description of Support Units

None.

4.4. Deviation from Standards

None.

4.5. Abnormalities from Standard Conditions

None.

4.6. Test Facility

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

FCC-Registration No.: 779513 Designation Number: CN1319
Shenzhen HTT Technology Co.,Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6435.01
Shenzhen HTT Technology Co.,Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

4.7. Test Location

All tests were performed at:

Shenzhen HTT Technology Co.,Ltd.
1F, Building B, Huafeng International Robotics Industrial Park, Hangcheng Road,Nanchang Community, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23595200
Fax: 0755-23595201

4.8. Additional Instructions

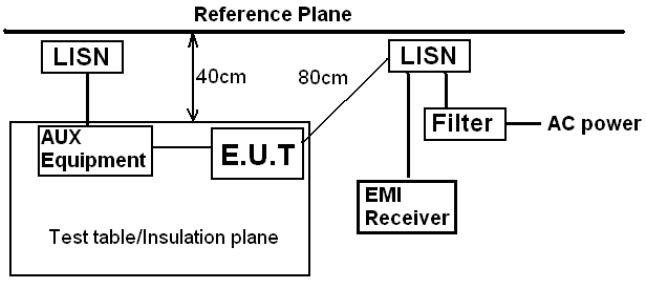
Test Software	Special AT test command provided by manufacturer to Keep the EUT in continuously transmitting mode and hopping mode
Power level setup	Default

5. Test Instruments list

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	Shenzhen C.R.T technology co., LTD	9*6*6	HTT-E028	Aug. 10 2020	Aug. 09 2024
2	Control Room	Shenzhen C.R.T technology co., LTD	4.8*3.5*3.0	HTT-E030	Aug. 10 2020	Aug. 09 2024
3	EMI Test Receiver	Rohde&Schwar	ESCI7	HTT-E022	May 23 2022	May 22 2023
4	Spectrum Analyzer	Rohde&Schwar	FSP	HTT-E037	May 23 2022	May 22 2023
5	Coaxial Cable	ZDecl	ZT26-NJ-NJ-0.6M	HTT-E018	May 23 2022	May 22 2023
6	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-2M	HTT-E019	May 23 2022	May 22 2023
7	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-0.6M	HTT-E020	May 23 2022	May 22 2023
8	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-8.5M	HTT-E021	May 23 2022	May 22 2023
9	Composite logarithmic antenna	Schwarzbeck	VULB 9168	HTT-E017	Aug. 22 2021	Aug. 21 2022
10	Horn Antenna	Schwarzbeck	BBHA9120D	HTT-E016	Aug. 22 2021	Aug. 21 2022
11	Loop Antenna	Zhinan	ZN30900C	HTT-E039	Aug. 22 2021	Aug. 21 2022
12	Horn Antenna	Beijing Hangwei Dayang	OBH100400	HTT-E040	Aug. 22 2021	Aug. 21 2022
13	low frequency Amplifier	Sonoma Instrument	310	HTT-E015	May 23 2022	May 22 2023
14	high-frequency Amplifier	HP	8449B	HTT-E014	May 23 2022	May 22 2023
15	Variable frequency power supply	Shenzhen Anbiao Instrument Co., Ltd	ANB-10VA	HTT-082	May 23 2022	May 22 2023
16	EMI Test Receiver	Rohde & Schwarz	ESCS30	HTT-E004	May 23 2022	May 22 2023
17	Artificial Mains	Rohde & Schwarz	ESH3-Z5	HTT-E006	May 23 2022	May 22 2023
18	Artificial Mains	Rohde & Schwarz	ENV-216	HTT-E038	May 23 2022	May 22 2023
19	Cable Line	Robinson	Z302S-NJ-BNCJ-1.5M	HTT-E001	May 23 2022	May 22 2023
20	Attenuator	Robinson	6810.17A	HTT-E007	May 23 2022	May 22 2023
21	Variable frequency power supply	Shenzhen Yanghong Electric Co., Ltd	YF-650（5KVA）	HTT-E032	May 23 2022	May 22 2023
22	Control Room	Shenzhen C.R.T technology co., LTD	8*4*3.5	HTT-E029	May 23 2022	May 22 2023
23	DC power supply	Agilent	E3632A	HTT-E023	May 23 2022	May 22 2023
24	EMI Test Receiver	Agilent	N9020A	HTT-E024	May 23 2022	May 22 2023
25	Analog signal generator	Agilent	N5181A	HTT-E025	May 23 2022	May 22 2023
26	Vector signal generator	Agilent	N5182A	HTT-E026	May 23 2022	May 22 2023
27	Power sensor	Keysight	U2021XA	HTT-E027	May 23 2022	May 22 2023
28	Temperature and humidity meter	Shenzhen Anbiao Instrument Co., Ltd	TH10R	HTT-074	May 23 2022	May 22 2023
29	Radiated Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A
30	Conducted Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A
31	RF Test Software	panshanrf	TST	N/A	N/A	N/A

6. Test results and Measurement Data

6.1. Conducted Emissions

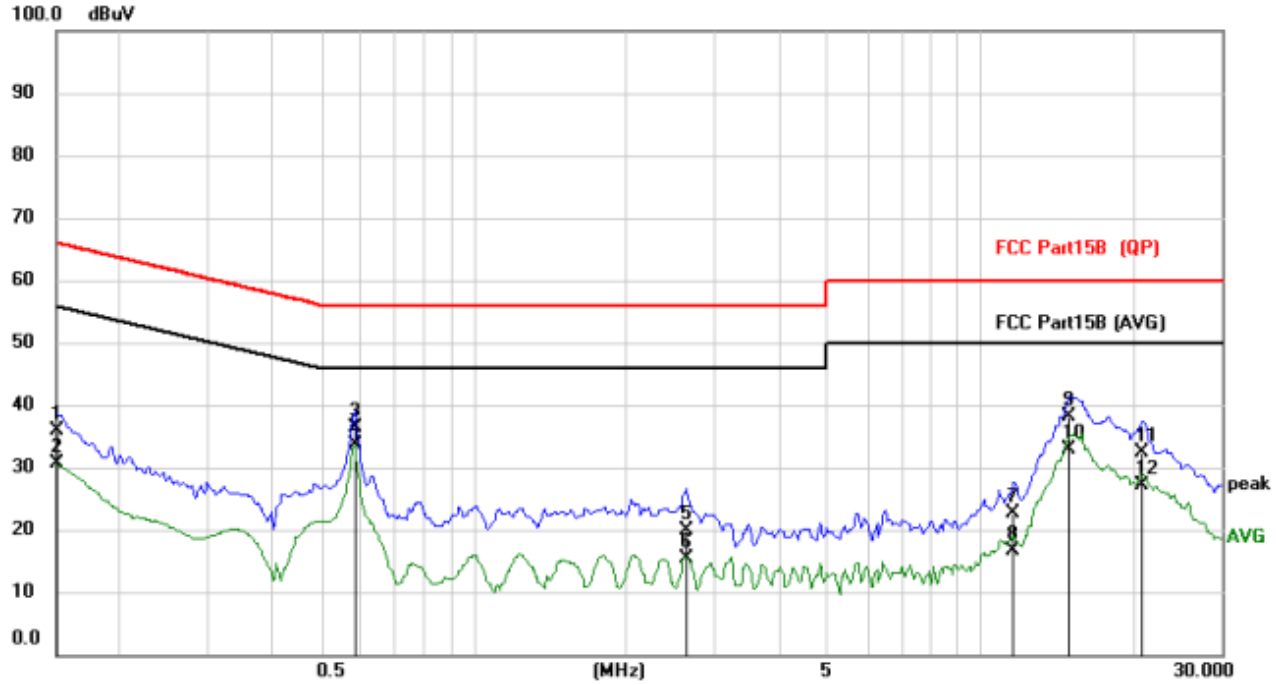
<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td colspan="5">ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">150KHz to 30MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="5">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="5">RBW=9KHz, VBW=30KHz, Sweep time=auto</td></tr>
<tr><td>Limit:</td><td colspan="5">
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* Decreases with the logarithm of the frequency.
</td></tr>
<tr><td>Test setup:</td><td colspan="5"> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test procedure:</td><td colspan="5">1. The E.U.T 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.</td></tr>
<tr><td>Test Instruments:</td><td colspan="5">Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td colspan="5">Refer to section 5.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.:</td><td>25 °C</td><td>Humid.:</td><td>52%</td><td>Press.:</td><td>1012mbar</td></tr>
<tr><td>Test voltage:</td><td colspan="5">AC 120V, 60Hz</td></tr>
<tr><td>Test results:</td><td colspan="5">Pass</td></tr>
</table>

Remark: Both high and low voltages have been tested to show only the worst low voltage test data.

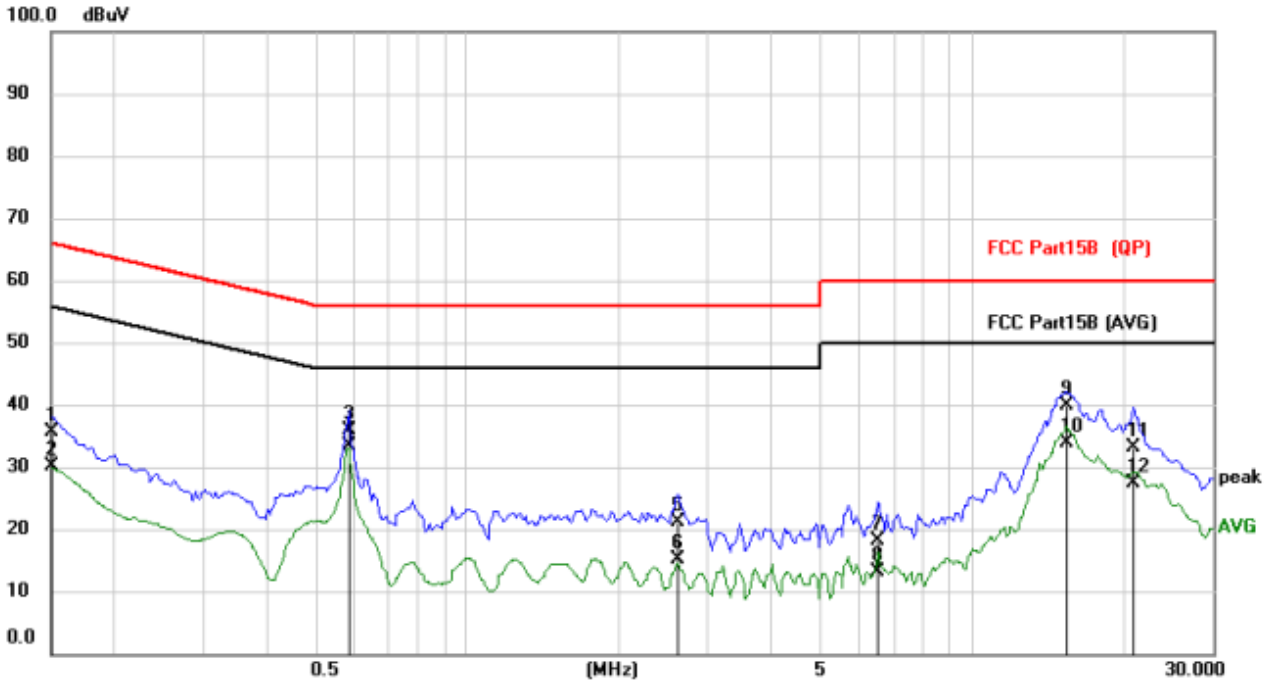
Measurement data:

Line:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1500	25.54	10.37	35.91	66.00	-30.09	QP
2		0.1500	20.25	10.37	30.62	56.00	-25.38	AVG
3		0.5829	25.74	10.57	36.31	56.00	-19.69	QP
4	*	0.5829	23.02	10.57	33.59	46.00	-12.41	AVG
5		2.6304	9.03	10.84	19.87	56.00	-36.13	QP
6		2.6304	4.57	10.84	15.41	46.00	-30.59	AVG
7		11.6697	10.81	11.70	22.51	60.00	-37.49	QP
8		11.6697	4.87	11.70	16.57	50.00	-33.43	AVG
9		14.9457	26.13	12.10	38.23	60.00	-21.77	QP
10		14.9457	20.70	12.10	32.80	50.00	-17.20	AVG
11		20.8308	20.07	12.43	32.50	60.00	-27.50	QP
12		20.8308	14.80	12.43	27.23	50.00	-22.77	AVG

Neutral:

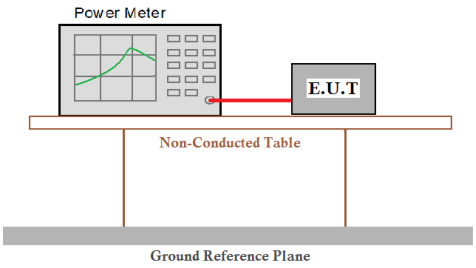


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1500	25.33	10.27	35.60	66.00	-30.40	QP
2		0.1500	19.95	10.27	30.22	56.00	-25.78	AVG
3		0.5829	25.42	10.47	35.89	56.00	-20.11	QP
4	*	0.5829	22.94	10.47	33.41	46.00	-12.59	AVG
5		2.6148	10.21	10.84	21.05	56.00	-34.95	QP
6		2.6148	4.22	10.84	15.06	46.00	-30.94	AVG
7		6.5139	7.29	10.92	18.21	60.00	-41.79	QP
8		6.5139	2.16	10.92	13.08	50.00	-36.92	AVG
9		15.4293	27.67	12.23	39.90	60.00	-20.10	QP
10		15.4293	21.77	12.23	34.00	50.00	-16.00	AVG
11		20.8464	20.52	12.51	33.03	60.00	-26.97	QP
12		20.8464	14.96	12.51	27.47	50.00	-22.53	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Los

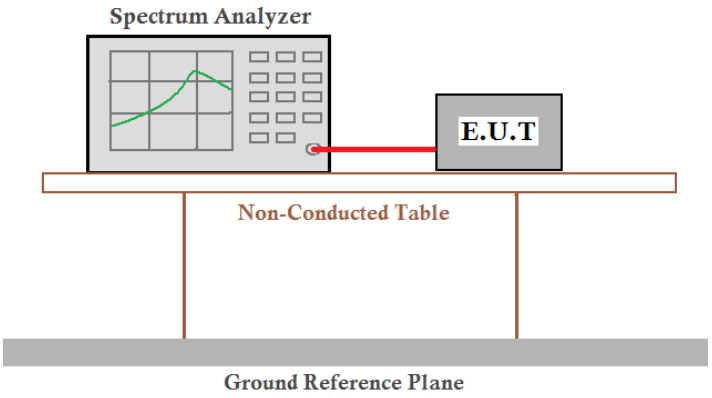
6.2. Conducted Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)					
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V05r02					
Limit:	30dBm					
Test setup:						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

Measurement Data

Test channel	Peak Output Power (dBm)	Limit(dBm)	Result
Lowest	0.63	30.00	Pass
Middle	0.01		
Highest	-0.63		

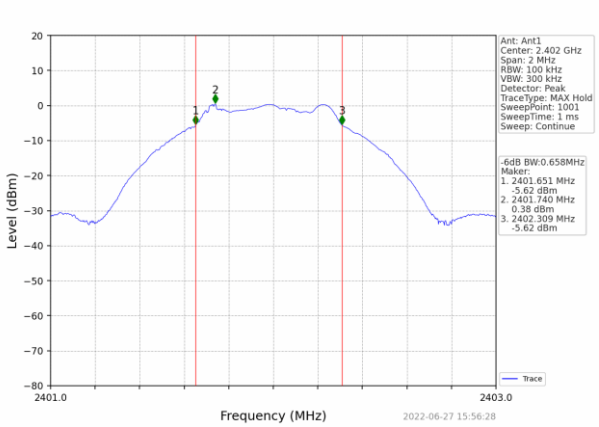
6.3. Channel Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)					
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V05r02					
Limit:	>500KHz					
Test setup:						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

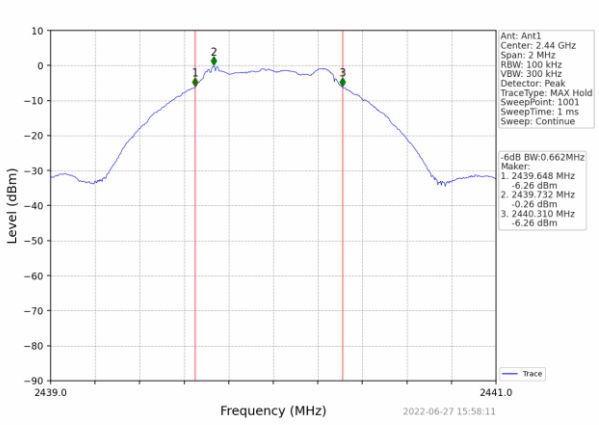
Measurement Data

Test channel	Channel Bandwidth (MHz)	Limit(KHz)	Result
Lowest	0.658	>500	Pass
Middle	0.662		
Highest	0.660		

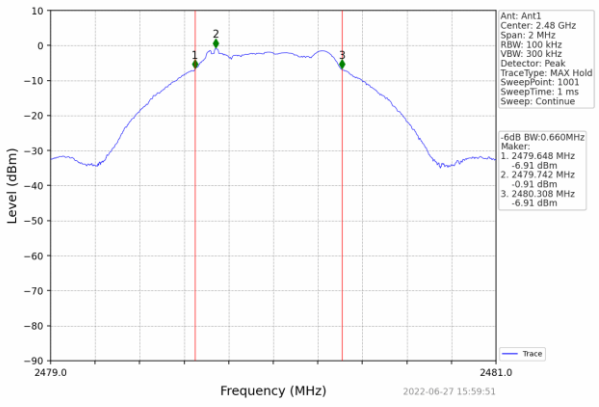
Test plot as follows:



Lowest channel

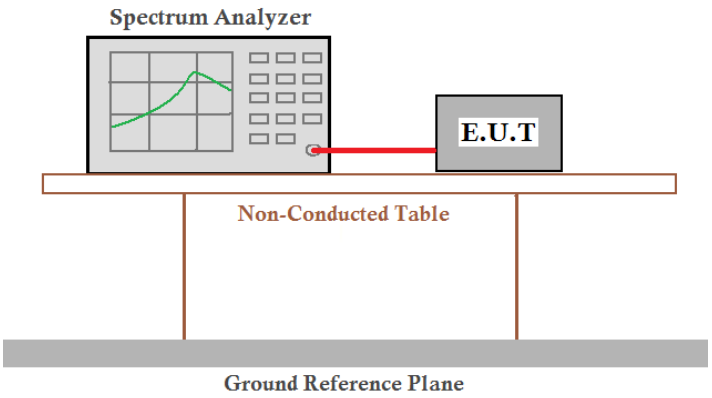


Middle channel



Highest channel

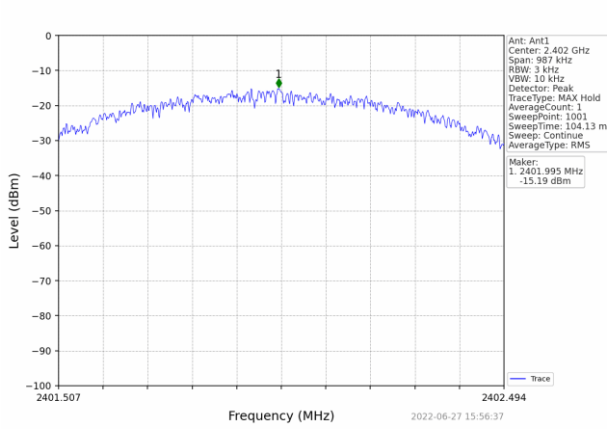
6.4. Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)					
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V05r02					
Limit:	8dBm/3kHz					
Test setup:						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

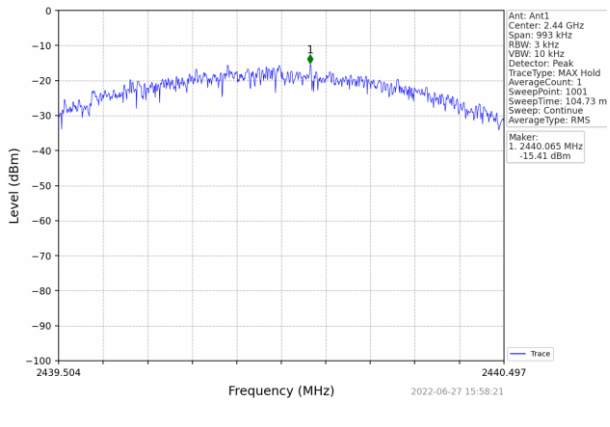
Measurement Data

Test channel	Power Spectral Density (dBm/3kHz)	Limit(dBm/3kHz)	Result
Lowest	-15.19	8.00	Pass
Middle	-15.41		
Highest	-15.56		

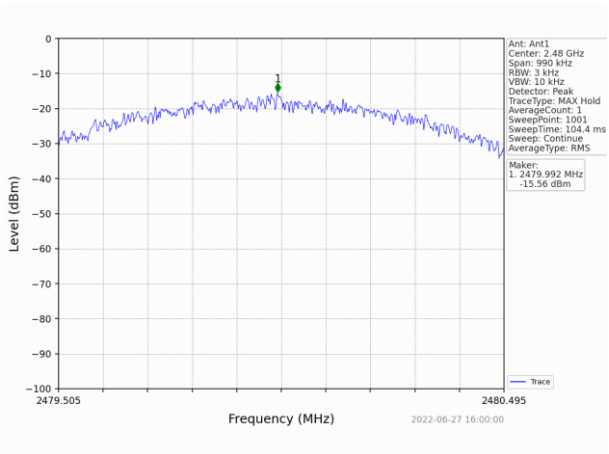
Test plot as follows:



Lowest channel



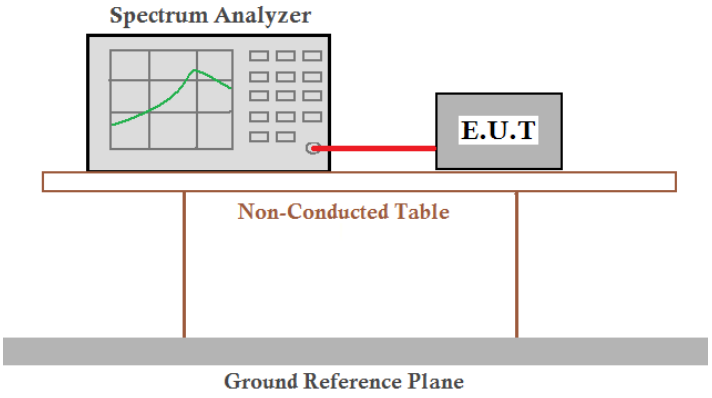
Middle channel



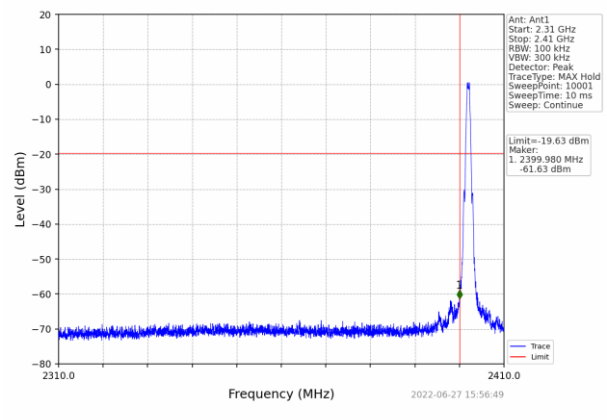
Highest channel

6.5. Band edges

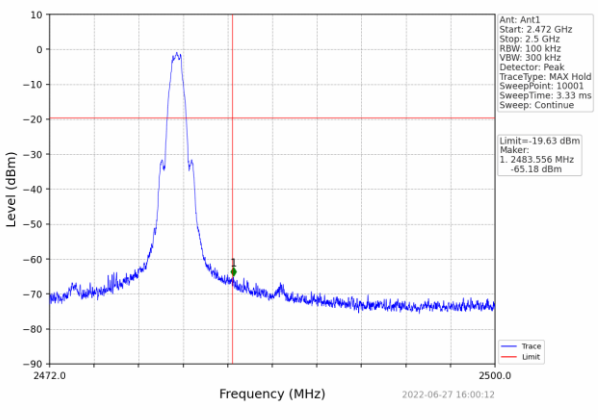
6.5.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)					
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V05r02					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.					
Test setup:						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

Test plot as follows:



Lowest channel



Highest channel

6.5.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205
Test Method:	ANSI C63.10:2013
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.
Test site:	Measurement Distance: 3m

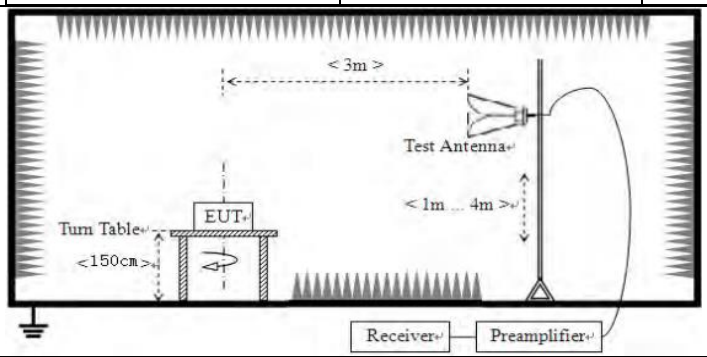
Receiver setup:

Frequency	Detector	RBW	VBW	Value
Above 1GHz	Peak	1MHz	3MHz	Peak
	RMS	1MHz	3MHz	Average

Limit:

Frequency	Limit (dBuV/m @3m)	Value
Above 1GHz	54.00	Average
	74.00	Peak

Test setup:



Test Procedure:

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.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
4. 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.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. 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.
7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

Measurement Data

Operation Mode: GFSK TX Low channel(2402MHz)

Horizontal (Worst case)

Frequency	Meter Reading	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
2390	59.14	26.20	5.72	33.30	57.76	74	-16.24	peak
2390	47.58	26.20	5.72	33.30	46.20	54	-7.80	AVG

Vertical:

Frequency	Meter Reading	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
2390	61.25	26.20	5.72	33.30	59.87	74	-14.13	peak
2390	46.31	26.20	5.72	33.30	44.93	54	-9.07	AVG

Operation Mode: GFSK TX High channel (2480MHz)

Horizontal (Worst case)

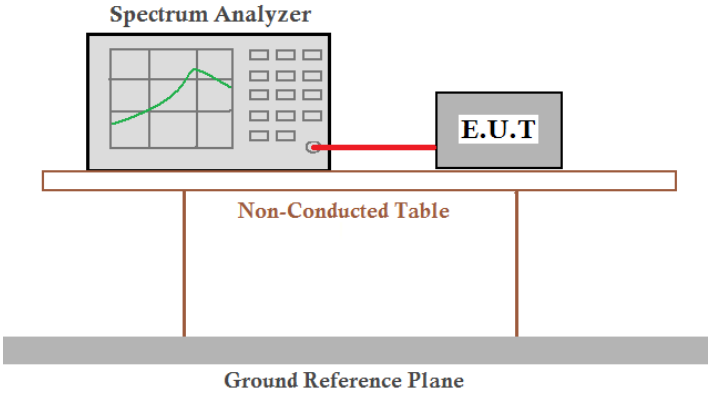
Frequency	Meter Reading	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
2483.5	56.25	28.60	6.97	32.70	59.12	74	-14.88	peak
2483.5	42.96	28.60	6.97	32.70	45.83	54	-8.17	AVG

Vertical:

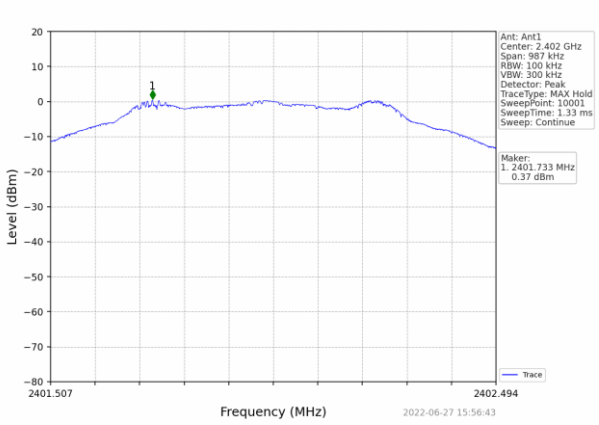
Frequency	Meter Reading	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	
2483.5	58.12	28.60	6.97	32.70	60.99	74	-13.01	peak
2483.5	41.36	28.60	6.97	32.70	44.23	54	-9.77	AVG

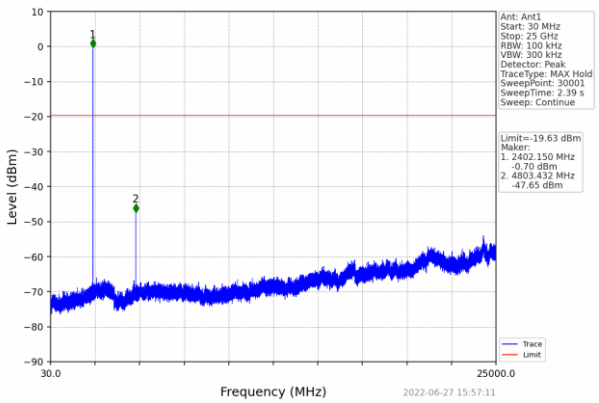
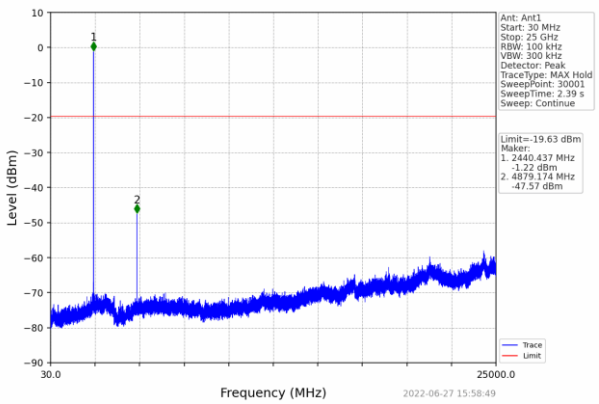
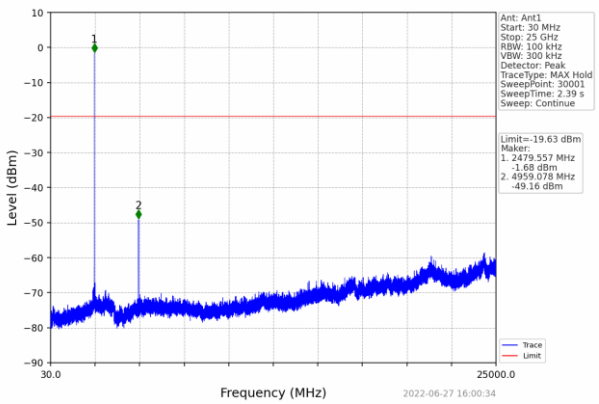
6.6. Spurious Emission

6.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)					
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance V05r02					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.					
Test setup:						
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test results:	Pass					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar

Test plot as follows:

GFSK

reference

GFSK

Low Channel

Mid Channel

High Channel

6.6.2 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:

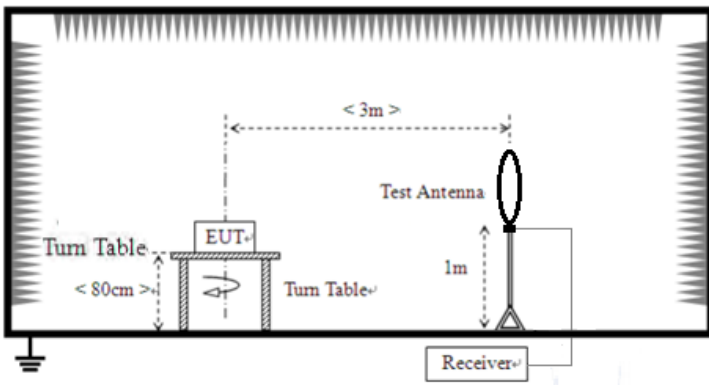
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

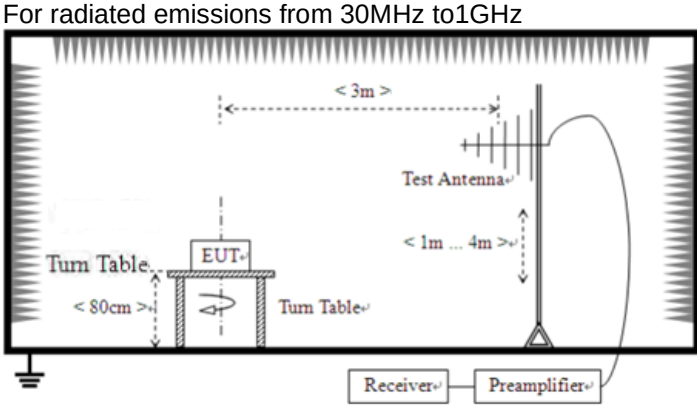
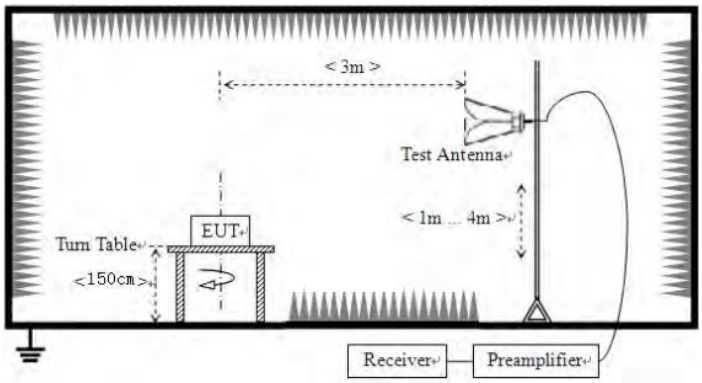
Limit:

Frequency	Limit (uV/m)	Value	Measurement Distance
0.009MHz-0.490MHz	2400/F(KHz)	QP	300m
0.490MHz-1.705MHz	24000/F(KHz)	QP	30m
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	

Test setup:

For radiated emissions from 9kHz to 30MHz



	For radiated emissions from 30MHz to1GHz  For radiated emissions above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. 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. 4. 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. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. 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.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details

Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	AC 120V, 60Hz					
Test results:	Pass					

Measurement data:

Remark:

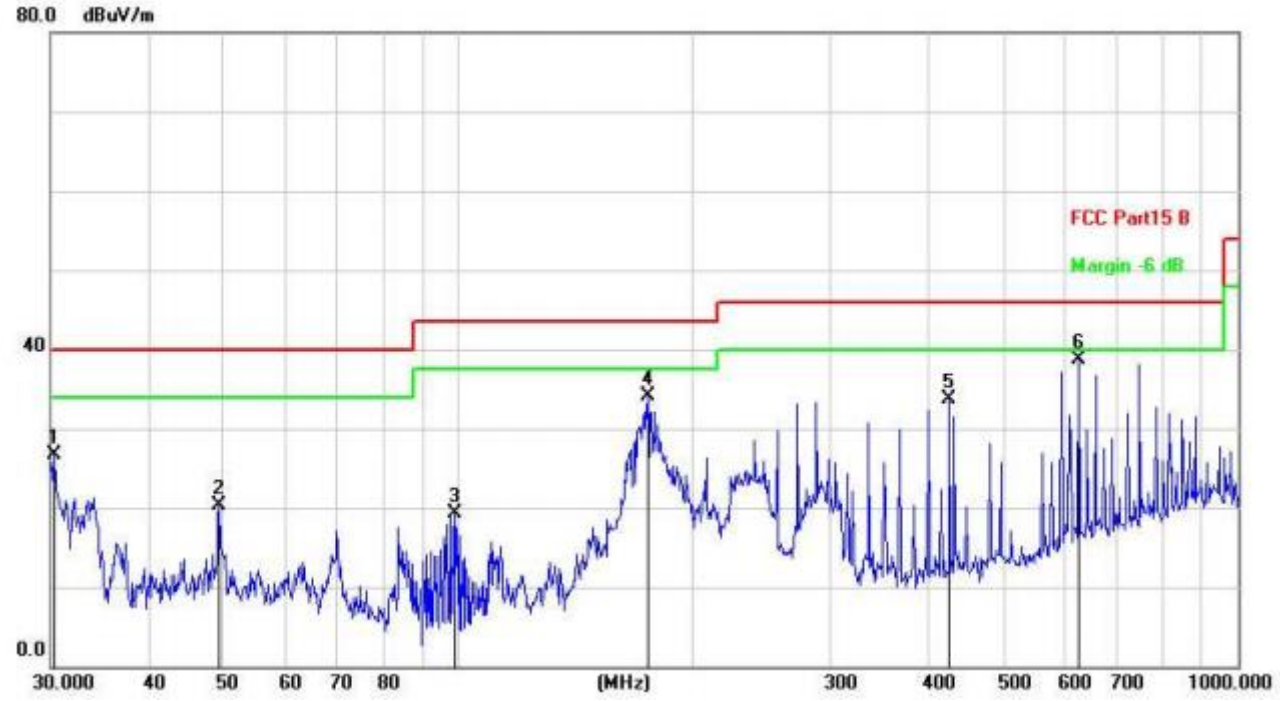
Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

■ **9kHz~30MHz**

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.

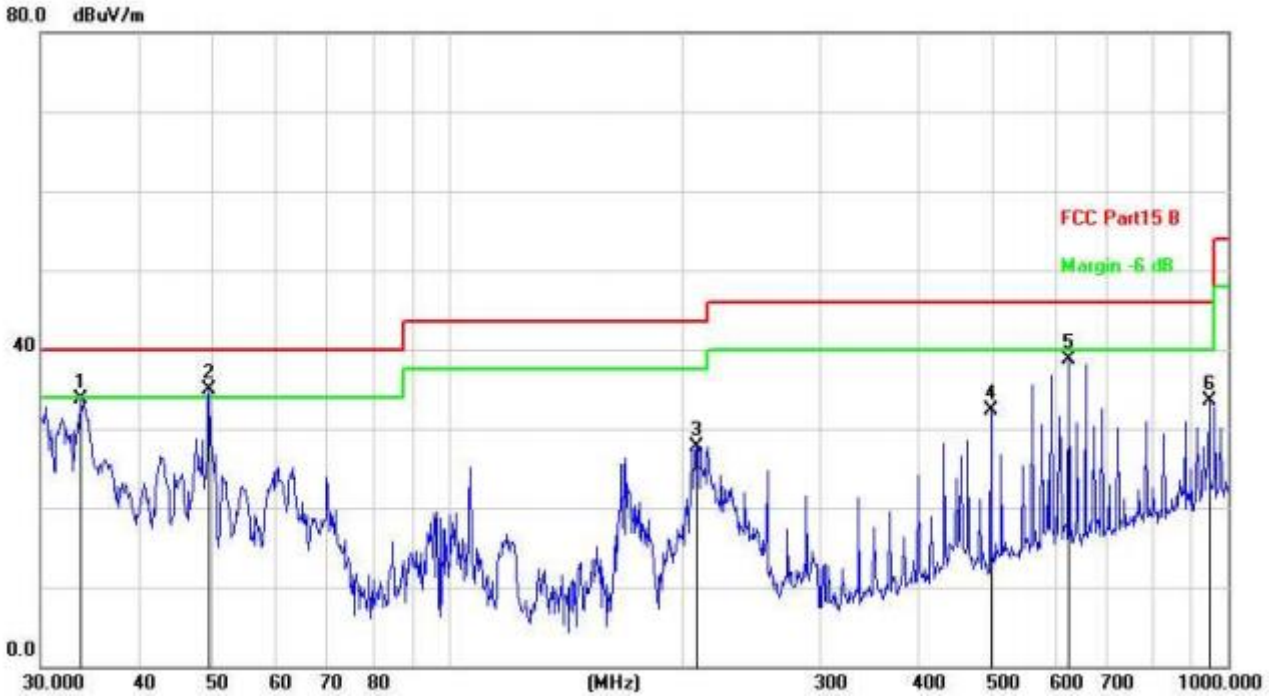
■ **Below 1GHz**

■ Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dB/m	dB	Detector
1		30.3173	45.22	-18.56	26.66	40.00	-13.34	QP
2		49.3594	37.44	-17.19	20.25	40.00	-19.75	QP
3		98.8326	40.41	-21.03	19.38	43.50	-24.12	QP
4		175.0368	53.38	-19.19	34.19	43.50	-9.31	QP
5		426.5210	47.66	-14.02	33.64	46.00	-12.36	QP
6	*	625.0780	48.76	-10.10	38.66	46.00	-7.34	QP

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dB/m	dB	Detector
1		33.7986	51.86	-18.19	33.67	40.00	-6.33	QP
2	*	49.3594	52.16	-17.22	34.94	40.00	-5.06	QP
3		207.8501	48.33	-20.53	27.80	43.50	-15.70	QP
4		495.9344	45.59	-13.37	32.22	46.00	-13.78	QP
5		625.0780	48.57	-9.91	38.66	46.00	-7.34	QP
6		945.4399	38.53	-5.05	33.48	46.00	-12.52	QP

Final Level =Receiver Read level + Correct Factor

■ **Above 1GHz**

CH Low (2402MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4804	52.14	31.40	8.18	32.10	59.62	74.00	-14.38	peak
4804	37.46	31.40	8.18	32.10	44.94	54.00	-9.06	AVG
7206	45.39	35.80	10.83	31.40	60.62	74.00	-13.38	peak
7206	28.77	35.80	10.83	31.40	44.00	54.00	-10.00	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4804	53.15	31.40	8.18	32.10	60.63	74.00	-13.37	peak
4804	37.45	31.40	8.18	32.10	44.93	54.00	-9.07	AVG
7206	44.36	35.80	10.83	31.40	59.59	74.00	-14.41	peak
7206	29.07	35.80	10.83	31.40	44.30	54.00	-9.70	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

CH Middle (2440MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4880	52.37	31.40	9.17	32.10	60.84	74.00	-13.16	peak
4880	37.16	31.40	9.17	32.10	45.63	54.00	-8.37	AVG
7320	45.90	35.80	10.83	31.40	61.13	74.00	-12.87	peak
7320	29.34	35.80	10.83	31.40	44.57	54.00	-9.43	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4880	51.22	31.40	9.17	32.10	59.69	74.00	-14.31	peak
4880	37.14	31.40	9.17	32.10	45.61	54.00	-8.39	AVG
7320	45.36	35.80	10.83	31.40	60.59	74.00	-13.41	peak
7320	28.88	35.80	10.83	31.40	44.11	54.00	-9.89	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

CH High (2480MHz)

Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4960	52.34	31.40	9.17	32.10	60.81	74.00	-13.19	peak
4960	38.19	31.40	9.17	32.10	46.66	54.00	-7.34	AVG
7440	45.39	35.80	10.83	31.40	60.62	74.00	-13.38	peak
7440	28.93	35.80	10.83	31.40	44.16	54.00	-9.84	AVG
---	---			---	---	---	---	---
---	---			---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.								

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4960	53.04	31.40	9.17	32.10	61.51	74.00	-12.49	peak
4960	35.96	31.40	9.17	32.10	44.43	54.00	-9.57	AVG
7440	44.17	35.80	10.83	31.40	59.40	74.00	-14.60	peak
7440	31.29	35.80	10.83	31.40	46.52	54.00	-7.48	AVG
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---	---			---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.								

Remark:
(1) Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
(2) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed.

7. Test Setup Photo

Reference to the **appendix I** for details.

8. EUT Constructional Details

Reference to the **appendix II** for details.

------End------