TEST REPORT

Applicant:	Shantou Globalwin Intelligent Technology Co., Ltd.
Address of Applicant:	Room 133, Block 7-14, Kaide Garden, East jinsha Rd, Longhu District, Shantou City, Guangdong province, China
Manufacturer:	Shantou Globalwin Intelligent Technology Co., Ltd.
Address of Manufacturer:	Room 133, Block 7-14, Kaide Garden, East jinsha Rd, Longhu District, Shantou City, Guangdong province, China

Equipment Under Test (EUT)

Product Name:	Remote Control Aircraft Series
Model No.:	See section 5.1
FCC ID:	2A9NS-GD95PROMAX
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of sample receipt:	May 07, 2024
Date of Test:	May 08-27, 2024
Date of report issued:	May 27, 2024
Test Result :	PASS *

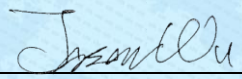
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

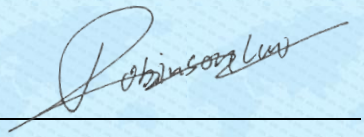
Robinson Luo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*May 27, 2024*	*Original*

Prepared By:  ***Date:*** *May 27, 2024*

Project Engineer

Check By:  ***Date:*** *May 27, 2024*

Reviewer

3 Contents

Page

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

Remarks:

1. Test according to ANSI C63.10:2013.

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

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz-30MHz	3.1dB	(1)
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(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:	Remote Control Aircraft Series
Model No.:	GD01, GD02, GD03, GD04, GD05, GD06, GD07, GD08, GD08 Plus, GD08 Pro, GD08 Max, GD09, GD09 Pro, GD09 Max, GD10, GD10 Plus, GD11, GD11 Pro, GD11 Max, GD12, GD12 Pro, GD13, GD13 Plus, GD13 Pro, GD14, GD14 Pro, GD14 Max, GD15, GD15 Pro, GD15 Max, GD16, GD17, GD17, GD17 Max, GD18, GD18 Plus, GD19, GD20, GD20 Max, GD21, GD21 Pro, GD22, GD22 Pro, GD23, GD23 Pro, GD24, GD24C, GD25, GD25 Plus, GD25 Pro, GD25 Max, GD26, GD27, GD28, GD29, GD30, GD31, GD32, GD33, GD34, GD34 Pro, GD35, GD36, GD37, GD38, GD39, GD39 Pro, GD40, GD41, GD42, GD43, GD44, GD45, GD45 Pro, GD45 Max, GD46, GD47, GD47 Pro, GD48, GD48 Pro, GD49, GD50, GD51, GD52, GD53, GD54, GD55, GD56, GD57, GD58, GD59, GD60, GD61, GD62, GD63, GD64, GD65, GD66, GD67, GD68, GD69, GD70, GD71, GD72, GD73, GD74, GD75, GD76, GD77, GD78, GD79, GD80, GD81, GD82, GD83, GD84, GD85, GD86, GD86 Pro, GD86 Pro Max, GD86 Max, GD87, GD88, GD88 Pro, GD89, GD89-1, GD89-1 Pro, GD89-2, GD89-2 Pro, GD89 Pro, GD89 Pro Plus, GD89 Pro Max, GD89 Max, GD90, GD90 Pro, GD90 Pro Max, GD90 Max, GD91, GD91 Pro, GD91 Pro Max, GD91 Max, GD92, GD92 Pro, GD92 Pro Max, GD92 Max, GD93, GD93 Pro, GD93 Pro Max, GD93 Max, GD94, GD94 Pro, GD94 Pro Max, GD94 Max, GD95, GD95 Pro, GD95 Pro Max, GD95 Max, GD96, GD96 Pro, GD96 Pro Max, GD96 Max, GD97, GD97 Pro, GD97 Pro Max, GD97 Max, GD98, GD98 Pro, GD98 Pro Max, GD98 Max, GD100, GD100 Pro, GD100 Max, 193 Max, 193 Max RTS, 193 Max 2, 193E, 011 Pro, 011 Max, 011 RTS, 017, 017 Max, 018, 018 Max, 019, 019 Max, H857HW, H866HW, H862, H861G, H860, H850H, H859HW, H851, H853H, H831H, H828HW, H827SW, H823HW, H823H, H816HW
Test Model No.:	GD95 Pro Max
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are appearance color and model name for commercial purpose.	
Serial No.:	6976231960021
Test sample(s) ID:	GTS2024050025-1
Sample(s) Status	Engineered sample
Operation Frequency:	2405MHz~2475MHz
Channel Numbers:	71
Modulation Type:	GFSK
Antenna Type:	Integral Antenna
Antenna gain:	2.99dBi(declare by applicant)
Power supply:	DC 3.7V, 500mAh for Li-ion battery The battery is charged via USB DC5V

Remark:
1. Antenna gain information provided by the customer
2. The relevant information of the sample is provided by the entrusting company, and the laboratory is not responsible for its authenticity.

Operation Frequency each of channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequenc y (MHz)
1	2405	19	2423	37	2441	55	2459
2	2406	20	2424	38	2442	56	2460
3	2407	21	2425	39	2443	57	2461
4	2408	22	2426	40	2444	58	2462
5	2409	23	2427	41	2445	59	2463
6	2410	24	2428	42	2446	60	2464
7	2411	25	2429	43	2447	61	2465
8	2412	26	2430	44	2448	62	2466
9	2413	27	2431	45	2449	63	2467
10	2414	28	2432	46	2450	64	2468
11	2415	29	2433	47	2451	65	2469
12	2416	30	2434	48	2452	66	2470
13	2417	31	2435	49	2453	67	2471
14	2418	32	2436	50	2454	68	2472
15	2419	33	2437	51	2455	69	2473
16	2420	34	2438	52	2456	70	2474
17	2421	35	2439	53	2457	71	2475
18	2422	36	2440	54	2458		

The test frequencies are below:

Channel	Frequency
The lowest channel	2405MHz
The middle channel	2440MHz
The Highest channel	2475MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.

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)	92.51	93.74	91.47

5.3 Description of Support Units

None.

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

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

● **FCC—Registration No.: 381383**

Designation Number: CN5029

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.

● **ISED—Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123- 128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

5.8 Additional Instructions

Test Software	Special test command provided by manufacturer
Power level setup	Default

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	June 23, 2021	June 22, 2024
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 11, 2024	April 10, 2025
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 19, 2023	March 18, 2025
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	April 17, 2023	April 16, 2025
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 11, 2024	April 10, 2025
8	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 13, 2023	Nov.12, 2024
9	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 11, 2024	April 10, 2025
10	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 11, 2024	April 10, 2025
11	Horn Antenna (18-26.5GHz)	/	UG-598A/U	GTS664	Oct. 29, 2023	Oct. 28, 2024
12	Horn Antenna (26.5-40GHz)	A.H Systems	SAS-573	GTS665	Oct. 29, 2023	Oct. 28, 2024
13	FSV·Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	March 12, 2024	March 11, 2025
14	Amplifier	/	LNA-1000-30S	GTS650	April 11, 2024	April 10, 2025
15	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS692	Nov. 08, 2023	Nov.07, 2024
16	Wideband Amplifier	/	WDA-01004000-15P35	GTS602	April 11, 2024	April 10, 2025
17	Thermo meter	JINCHUANG	GSP-8A	GTS643	April 18, 2024	April 17, 2025
18	RE cable 1	GTS	N/A	GTS675	July 31. 2023	July 30. 2024
19	RE cable 2	GTS	N/A	GTS676	July 31. 2023	July 30. 2024
20	RE cable 3	GTS	N/A	GTS677	July 31. 2023	July 30. 2024
21	RE cable 4	GTS	N/A	GTS678	July 31. 2023	July 30. 2024
22	RE cable 5	GTS	N/A	GTS679	July 31. 2023	July 30. 2024
23	RE cable 6	GTS	N/A	GTS680	July 31. 2023	July 30. 2024
24	RE cable 7	GTS	N/A	GTS681	July 31. 2023	July 30. 2024
25	RE cable 8	GTS	N/A	GTS682	July 31. 2023	July 30. 2024

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	July 12, 2022	July 11, 2027
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 11, 2024	April 10, 2025
3	LISN	ROHDE & SCHWARZ	ENV216	GTS226	April 11, 2024	April 10, 2025
4	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Thermo meter	JINCHUANG	GSP-8A	GTS642	April 18, 2024	April 17, 2025
7	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	April 11, 2024	April 10, 2025
8	ISN	SCHWARZBECK	NTFM 8158	GTS565	April 11, 2024	April 10, 2025
9	High voltage probe	SCHWARZBECK	TK9420	GTS537	April 11, 2024	April 10, 2025
10	Antenna end assembly	Weinschel	1870A	GTS560	April 11, 2024	April 10, 2025

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 11, 2024	April 10, 2025
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 11, 2024	April 10, 2025
3	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	April 11, 2024	April 10, 2025
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 11, 2024	April 10, 2025
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 11, 2024	April 10, 2025
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 11, 2024	April 10, 2025
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 11, 2024	April 10, 2025
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 11, 2024	April 10, 2025
9	Thermo meter	JINCHUANG	GSP-8A	GTS641	April 18, 2024	April 17, 2025

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Barometer	KUMAO	SF132	GTS647	April 18, 2024	April 17, 2025

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.

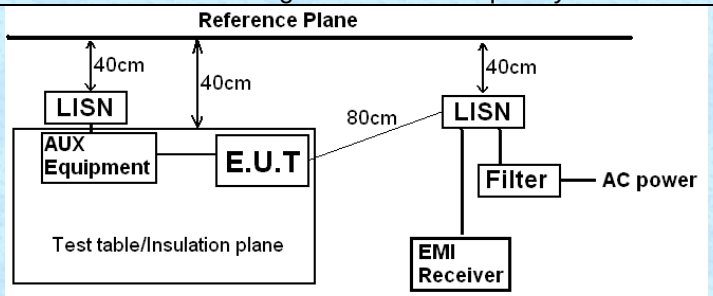
15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

EUT Antenna:

The antenna is integral antenna, reference to the appendix II for details.

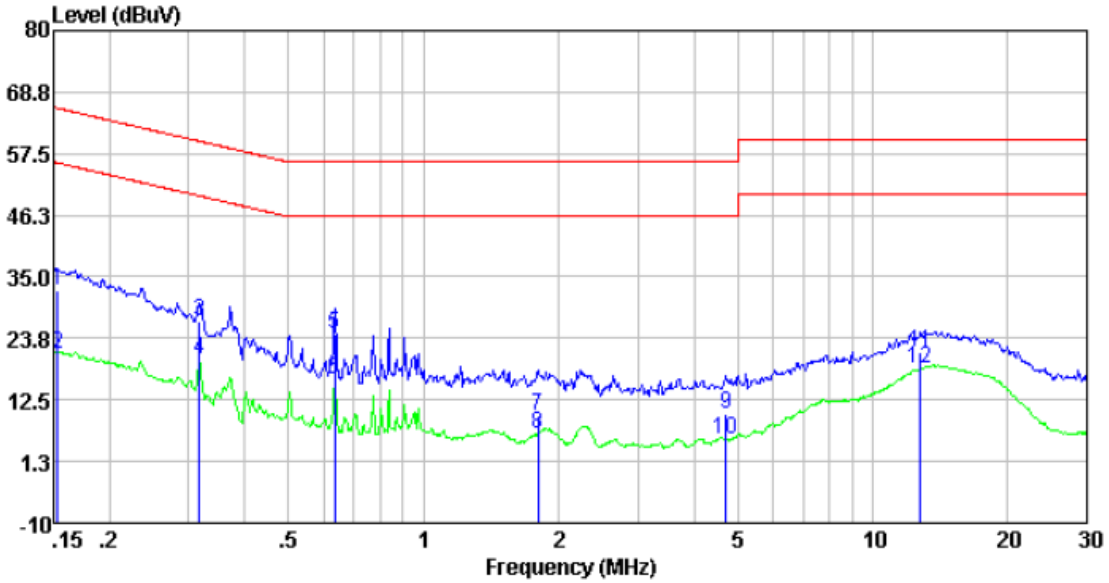
7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
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:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure:	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.
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

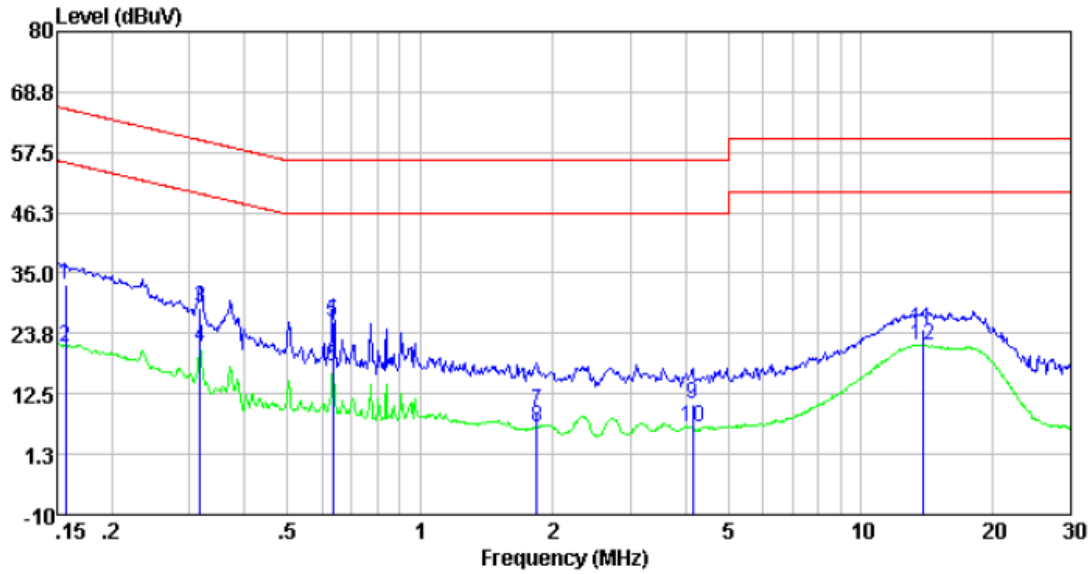
Pre-scan all test modes, found worst case at 2405MHz, and so only show the test result of it.

Line:



Freq	Reading level	LISN/ISN factor	Cable loss	Level	Limit level	Over limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.15	22.96	9.56	0.01	32.53	65.82	-33.29	QP
0.15	11.39	9.56	0.01	20.96	55.82	-34.86	Average
0.32	17.45	9.49	0.01	26.95	59.80	-32.85	QP
0.32	10.28	9.49	0.01	19.78	49.80	-30.02	Average
0.63	15.04	9.50	0.02	24.56	56.00	-31.44	QP
0.63	6.70	9.50	0.02	16.22	46.00	-29.78	Average
1.80	0.01	9.59	0.04	9.64	56.00	-46.36	QP
1.80	-3.20	9.59	0.04	6.43	46.00	-39.57	Average
4.72	0.30	9.49	0.06	9.85	56.00	-46.15	QP
4.72	-4.40	9.49	0.06	5.15	46.00	-40.85	Average
12.78	11.64	9.47	0.14	21.25	60.00	-38.75	QP
12.78	8.61	9.47	0.14	18.22	50.00	-31.78	Average

Neutral:



Freq	Reading level	LISN/ISN factor	Cable loss	Level	Limit level	Over limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.16	23.24	9.55	0.01	32.80	65.65	-32.85	QP
0.16	11.69	9.55	0.01	21.25	55.65	-34.40	Average
0.32	18.84	9.56	0.01	28.41	59.80	-31.39	QP
0.32	11.55	9.56	0.01	21.12	49.80	-28.68	Average
0.63	16.27	9.56	0.02	25.85	56.00	-30.15	QP
0.63	7.91	9.56	0.02	17.49	46.00	-28.51	Average
1.84	-0.21	9.55	0.04	9.38	56.00	-46.62	QP
1.84	-3.39	9.55	0.04	6.20	46.00	-39.80	Average
4.16	0.93	9.56	0.06	10.55	56.00	-45.45	QP
4.16	-3.50	9.56	0.06	6.12	46.00	-39.88	Average
13.84	14.88	9.64	0.15	24.67	60.00	-35.33	QP
13.84	11.81	9.64	0.15	21.60	50.00	-28.40	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	Remark
9kHz-150kHz	Quasi-peak	200Hz	300Hz	Quasi-peak Value
150kHz-30MHz	Quasi-peak	9kHz	10kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

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)

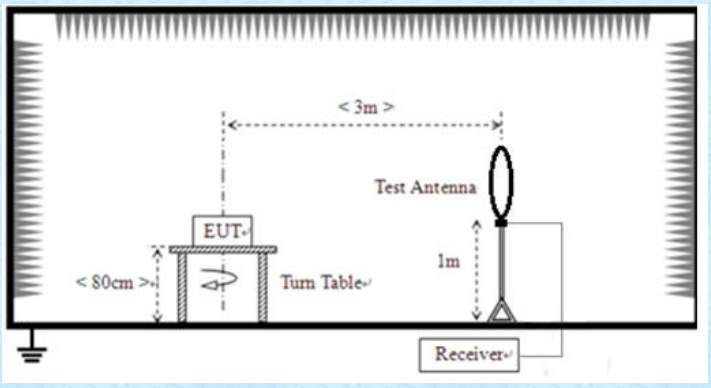
Frequency	Limit (uV/m)	Remark
0.009MHz-0.490MHz	2400/F(kHz) @300m	Quasi-peak Value
0.490MHz-1.705MHz	24000/F(kHz) @30m	Quasi-peak Value
1.705MHz-30.0MHz	30 @30m	Quasi-peak Value
30MHz-88MHz	100 @3m	Quasi-peak Value
88MHz-216MHz	150 @3m	Quasi-peak Value
216MHz-960MHz	200 @3m	Quasi-peak Value
960MHz-1GHz	500 @3m	Quasi-peak Value
Above 1GHz	500 @3m	Average Value
	5000 @3m	Peak Value

Limit:
(band edge)

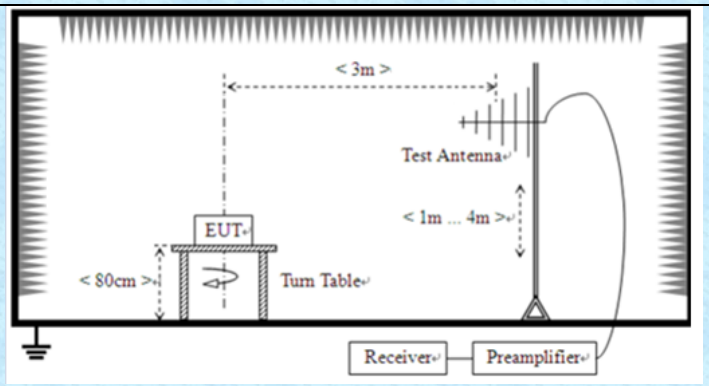
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

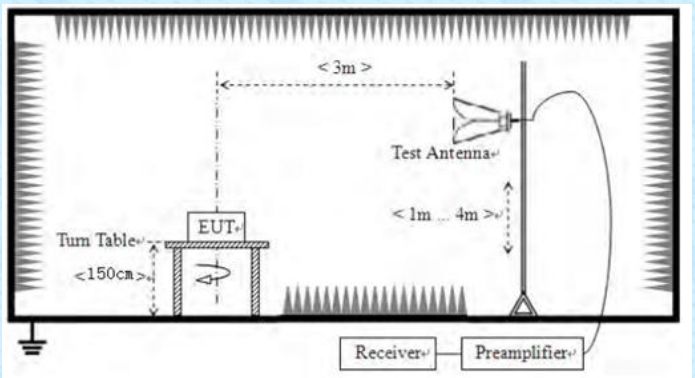
Test setup:

For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz

<table>
<tr><td></td><td> 

For radiated emissions above 1GHz

</td></tr>
<tr><td>Test Procedure:</td><td>1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) 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.</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 6.0 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 5.2 for details</td></tr>
<tr><td>Test environment:</td><td>Temp.: | 25 °C | Humid.: | 52% | Press.: | 1012mbar</td></tr>
<tr><td>Test voltage:</td><td>AC 120V, 60Hz</td></tr>
<tr><td>Test results:</td><td>Pass</td></tr>
</table>

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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2405.00	100.15	27.43	4.57	38.56	93.59	114.00	-20.41	Vertical
2405.00	96.86	27.43	4.57	38.56	90.30	114.00	-23.70	Horizontal
2440.00	100.20	27.55	4.56	38.57	93.74	114.00	-20.26	Vertical
2440.00	97.58	27.55	4.56	38.57	91.12	114.00	-22.88	Horizontal
2475.00	91.42	27.64	4.55	38.58	85.03	114.00	-28.97	Vertical
2475.00	93.43	27.64	4.55	38.58	87.04	114.00	-26.96	Horizontal

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2405.00	88.71	27.43	4.57	38.56	82.15	94.00	-11.85	Vertical
2405.00	84.56	27.43	4.57	38.56	78.00	94.00	-16.00	Horizontal
2440.00	89.15	27.55	4.56	38.57	82.69	94.00	-11.31	Vertical
2440.00	86.98	27.55	4.56	38.57	80.52	94.00	-13.48	Horizontal
2475.00	81.22	27.64	4.55	38.58	74.83	94.00	-19.17	Vertical
2475.00	83.13	27.64	4.55	38.58	76.74	94.00	-17.26	Horizontal

Note: For fundamental frequency , RBW>20dB BW, VBW>=RBW, PK detector for PK value, RMS detector for AV value

7.3.2 Spurious emissions

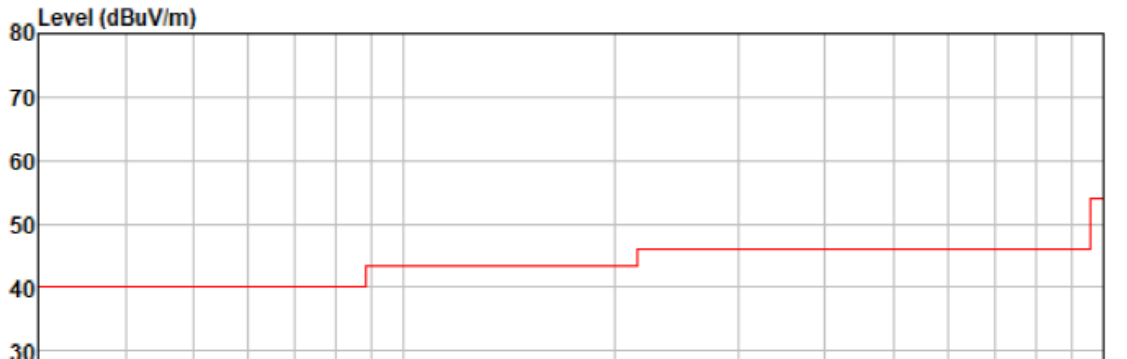
■ **Below 30MHz**

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

■ **Below 1GHz**

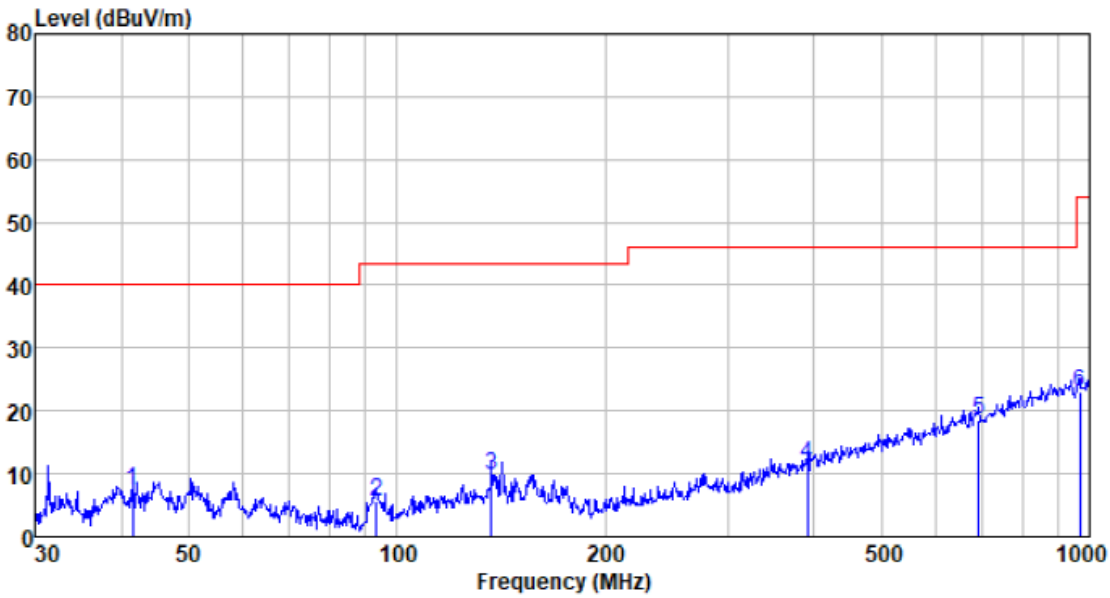
Pre-scan all test modes, found worst case at 2405MHz, and so only show the test result of it

Horizontal



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
39.994	26.22	13.50	0.66	33.73	6.65	40.00	-33.35	QP
93.768	30.38	9.03	1.14	33.60	6.95	43.50	-36.55	QP
156.458	29.06	12.57	1.61	33.08	10.16	43.50	-33.34	QP
255.623	26.58	11.36	2.15	32.74	7.35	46.00	-38.65	QP
386.634	24.69	15.31	2.79	32.35	10.44	46.00	-35.56	QP
714.173	24.79	21.09	4.14	31.55	18.47	46.00	-27.53	QP

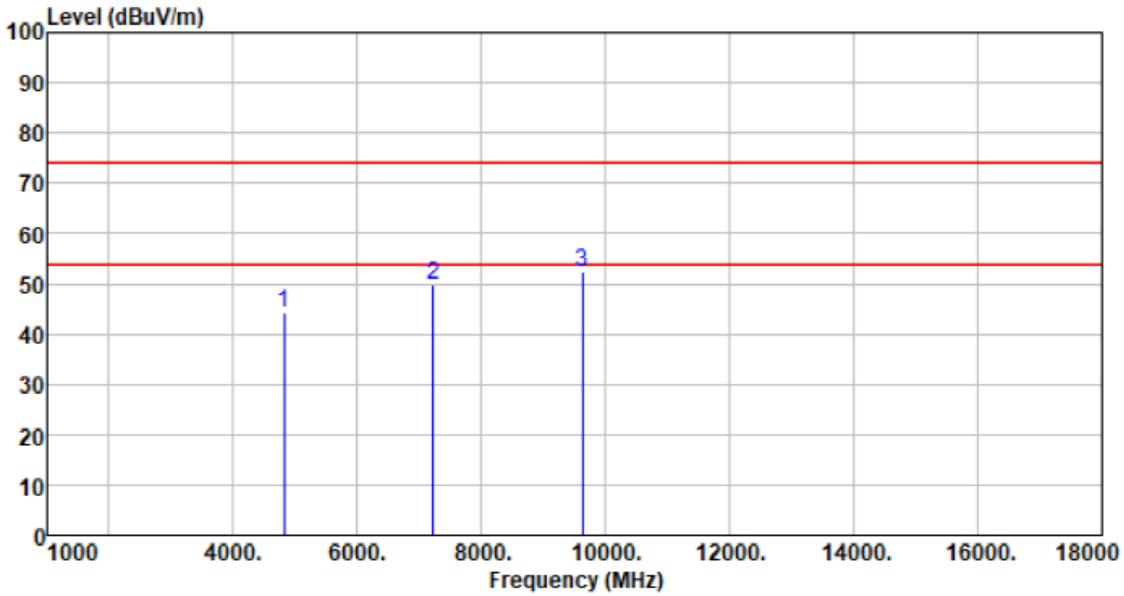
Vertical



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
41.567	26.92	13.45	0.68	33.72	7.33	40.00	-32.67	QP
93.440	29.06	8.99	1.14	33.60	5.59	43.50	-37.91	QP
136.939	29.41	12.23	1.48	33.24	9.88	43.50	-33.62	QP
390.723	25.58	15.43	2.81	32.34	11.48	46.00	-34.52	QP
691.987	25.52	20.69	4.06	31.61	18.66	46.00	-27.34	QP
968.934	24.29	24.46	5.11	30.78	23.08	54.00	-30.92	QP

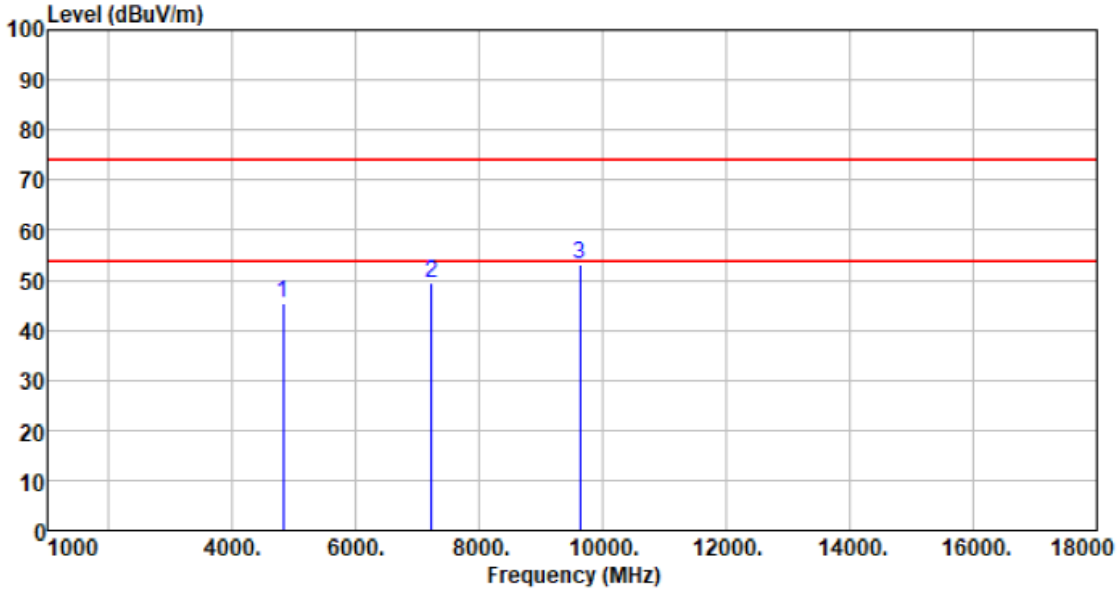
■ **Above 1GHz**

Test channel:	Lowest	Polarization:	Horizontal



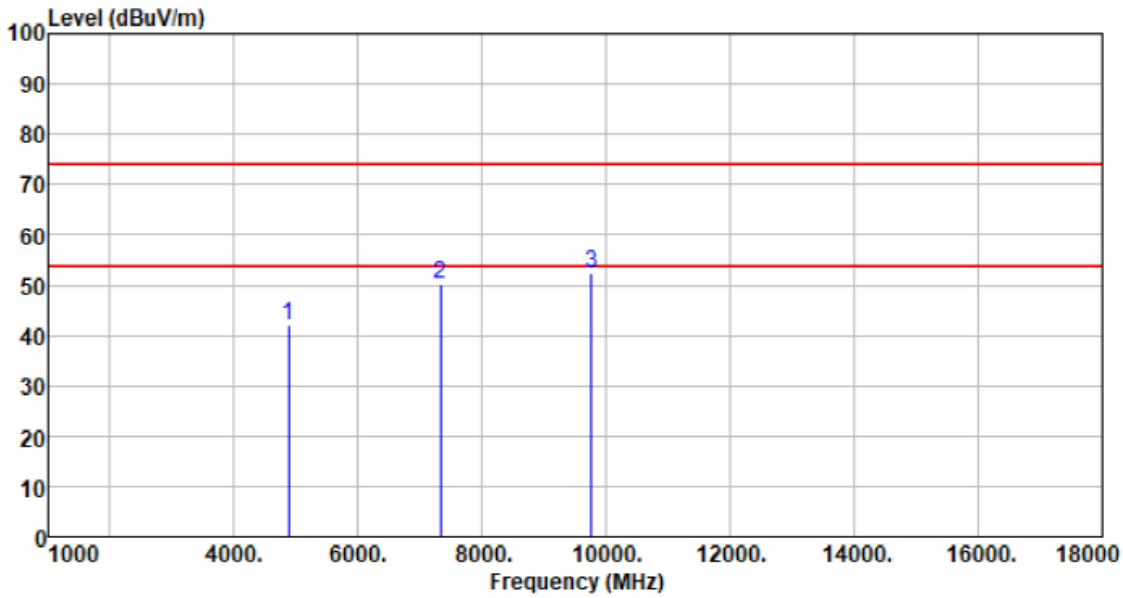
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4810.000	44.31	31.07	7.33	38.36	44.35	74.00	-29.65	Peak
7215.000	43.45	35.93	9.47	38.96	49.89	74.00	-24.11	Peak
9620.000	44.33	37.92	9.99	39.69	52.55	74.00	-21.45	Peak

Test channel:	Lowest	Polarization:	Vertical



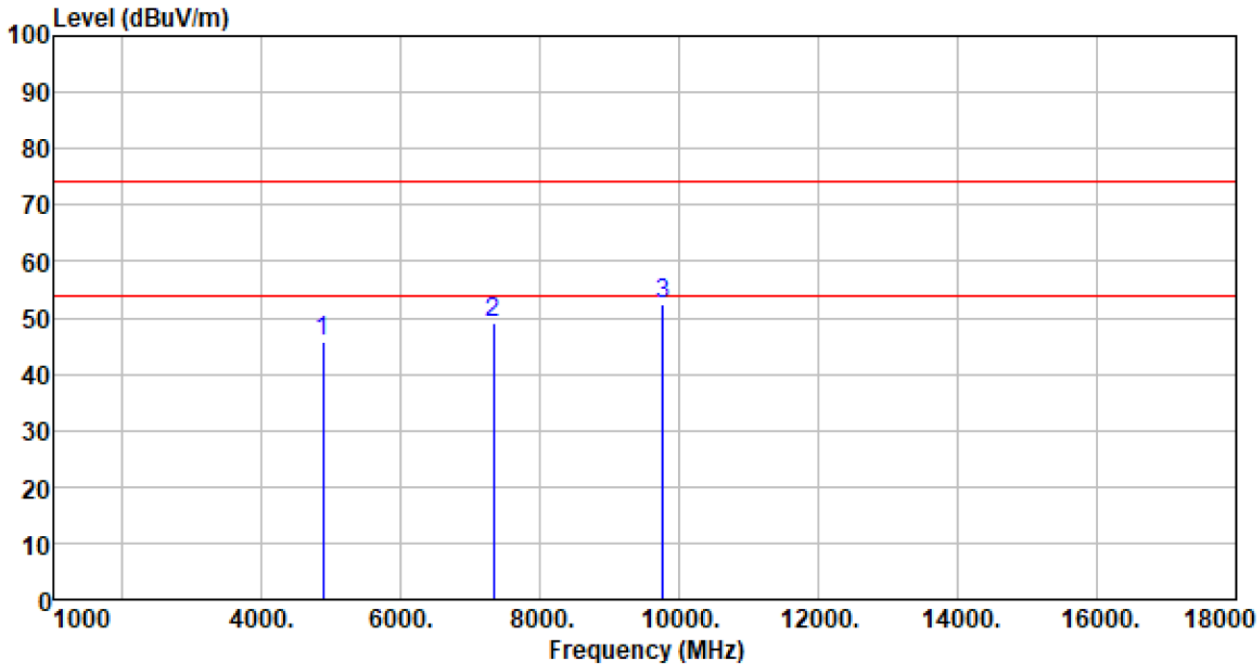
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4810.000	45.49	31.07	7.33	38.36	45.53	74.00	-28.47	Peak
7215.000	43.18	35.93	9.47	38.96	49.62	74.00	-24.38	Peak
9620.000	44.82	37.92	9.99	39.69	53.04	74.00	-20.96	Peak

Test channel:	Middle	Polarization:	Horizontal



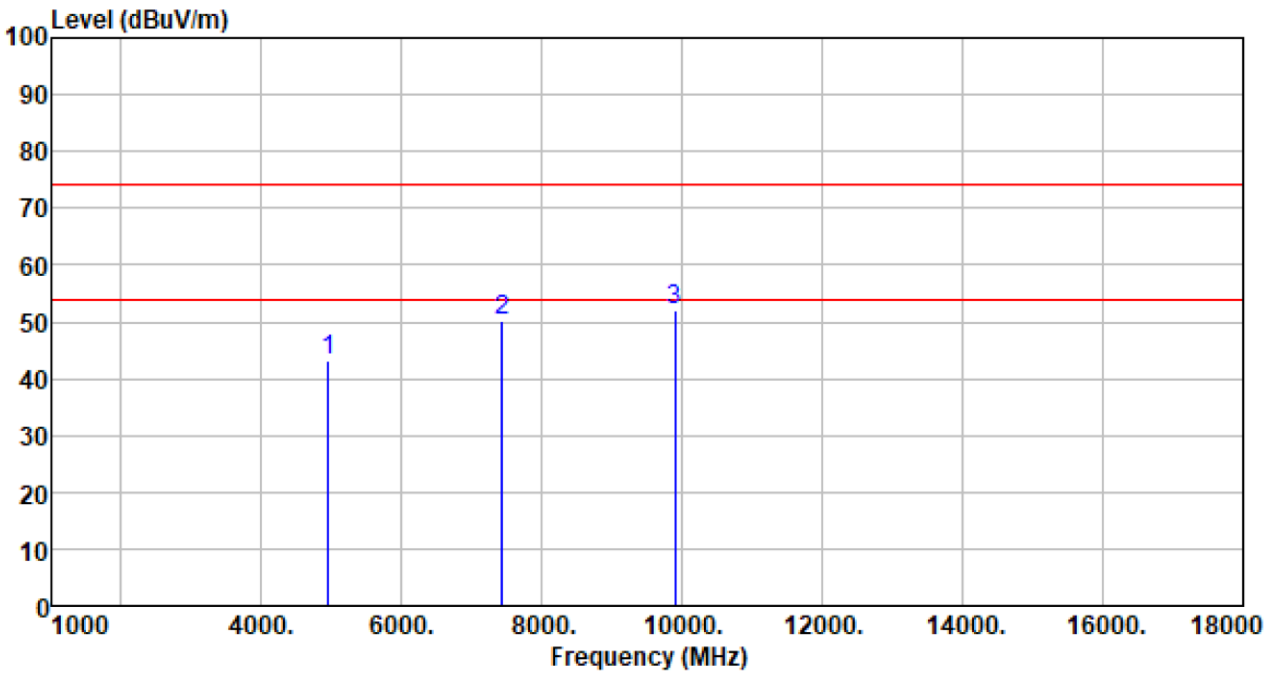
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4880.000	42.23	31.26	7.04	38.38	42.15	74.00	-31.85	Peak
7320.000	43.83	36.14	9.18	39.00	50.15	74.00	-23.85	Peak
9760.000	43.78	38.06	10.27	39.73	52.38	74.00	-21.62	Peak

Test channel:	Middle	Polarization:	Vertical



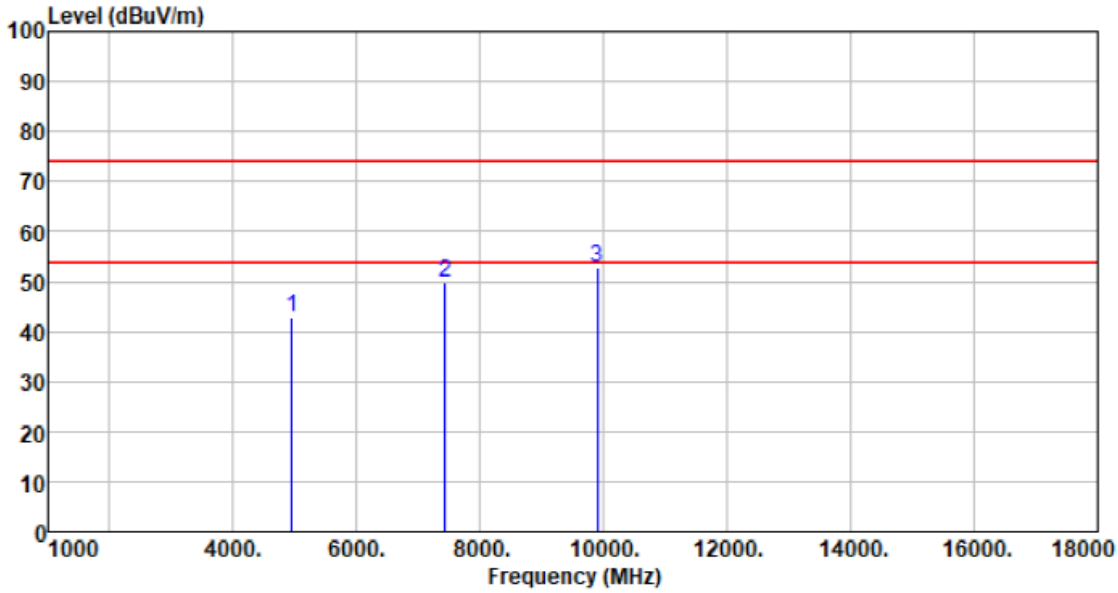
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4880.000	45.83	31.26	7.04	38.38	45.75	74.00	-28.25	Peak
7320.000	42.93	36.14	9.18	39.00	49.25	74.00	-24.75	Peak
9760.000	43.91	38.06	10.27	39.73	52.51	74.00	-21.49	Peak

Test channel:	Highest	Polarization:	Horizontal



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4950.000	43.53	31.46	6.75	38.39	43.35	74.00	-30.65	Peak
7425.000	43.76	36.35	9.00	39.03	50.08	74.00	-23.92	Peak
9900.000	43.52	38.20	10.12	39.77	52.07	74.00	-21.93	Peak

Test channel:	Highest	Polarization:	Vertical



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4950.000	42.89	31.46	6.75	38.39	42.71	74.00	-31.29	Peak
7425.000	43.35	36.35	9.00	39.03	49.67	74.00	-24.33	Peak
9900.000	44.20	38.20	10.12	39.77	52.75	74.00	-21.25	Peak

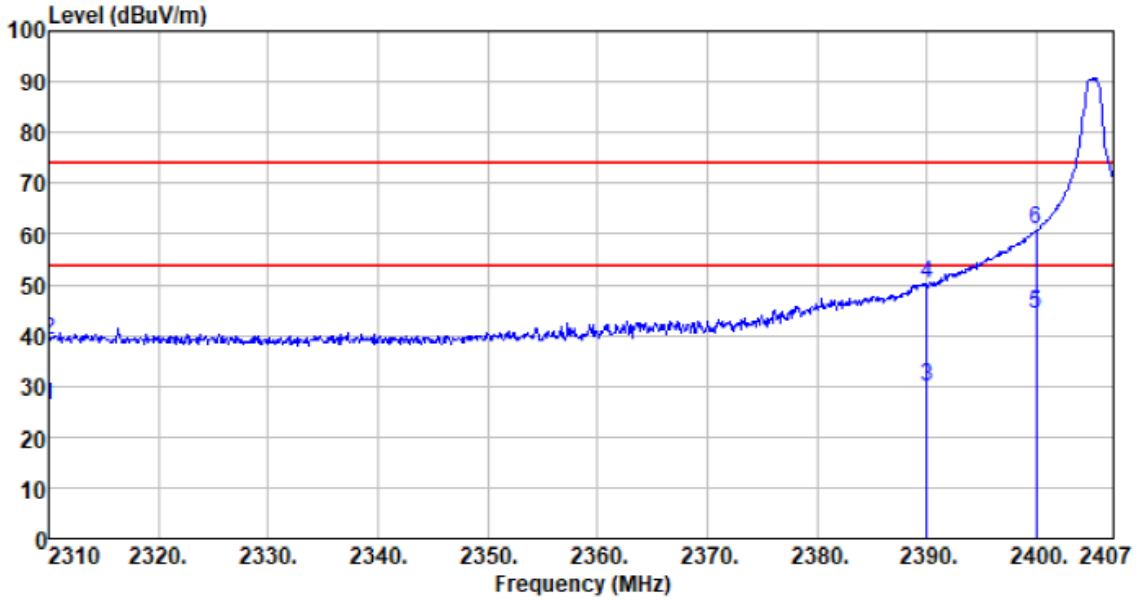
Remarks:

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.*
3. *For above 18GHz, no emission found.*
4. *If the average limit is met when using a Peak detector, the EUT shall be deemed to meet both peak and average limits. And measurement with the average detector is unnecessary.*

7.3.3 Bandedge emissions

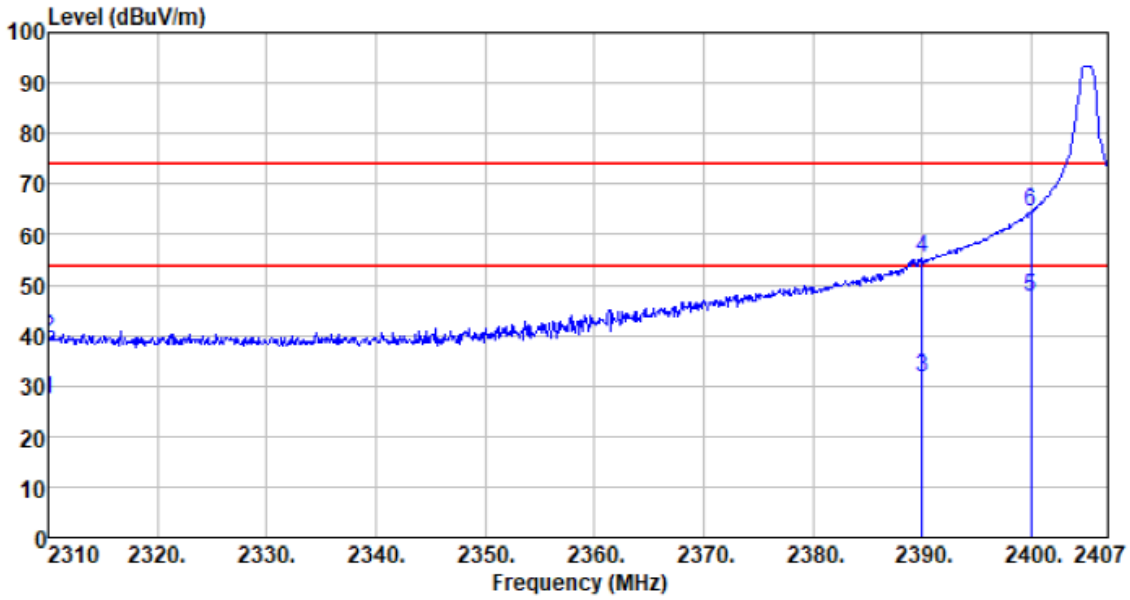
All of the restriction bands were tested, and only the data of worst case was exhibited.

Test channel:	Lowest	Polarization:	Horizontal



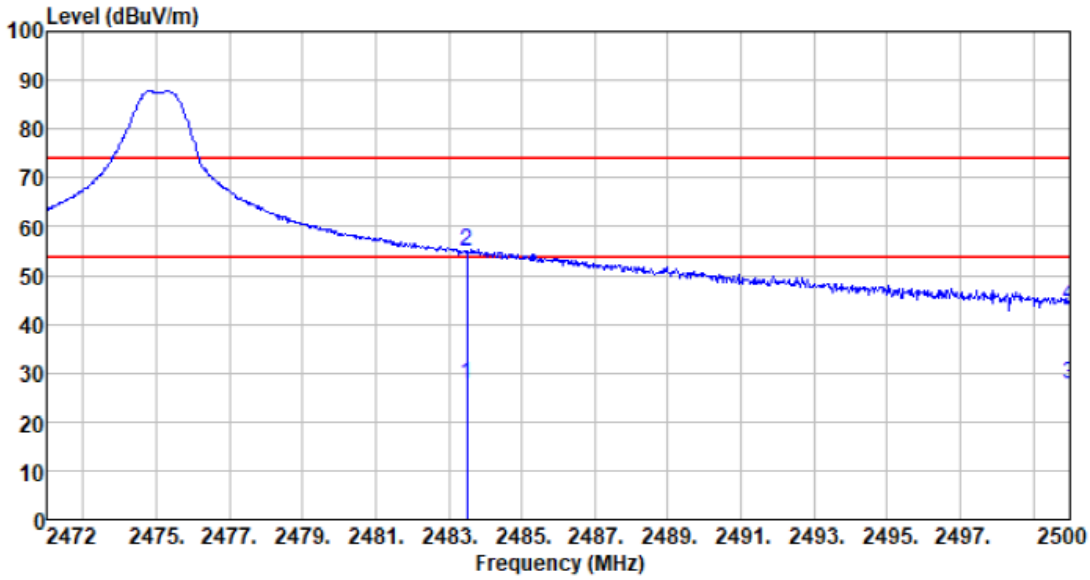
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	32.95	27.17	4.60	38.52	26.20	54.00	-27.80	Average
2310.000	45.95	27.17	4.60	38.52	39.20	74.00	-34.80	Peak
2390.000	36.69	27.27	4.65	38.56	30.05	54.00	-23.95	Average
2390.000	56.69	27.27	4.65	38.56	50.05	74.00	-23.95	Peak
2400.000	50.80	27.28	4.66	38.56	44.18	54.00	-9.82	Average
2400.000	67.53	27.28	4.66	38.56	60.91	74.00	-13.09	Peak

Test channel:	Lowest	Polarization:	Vertical



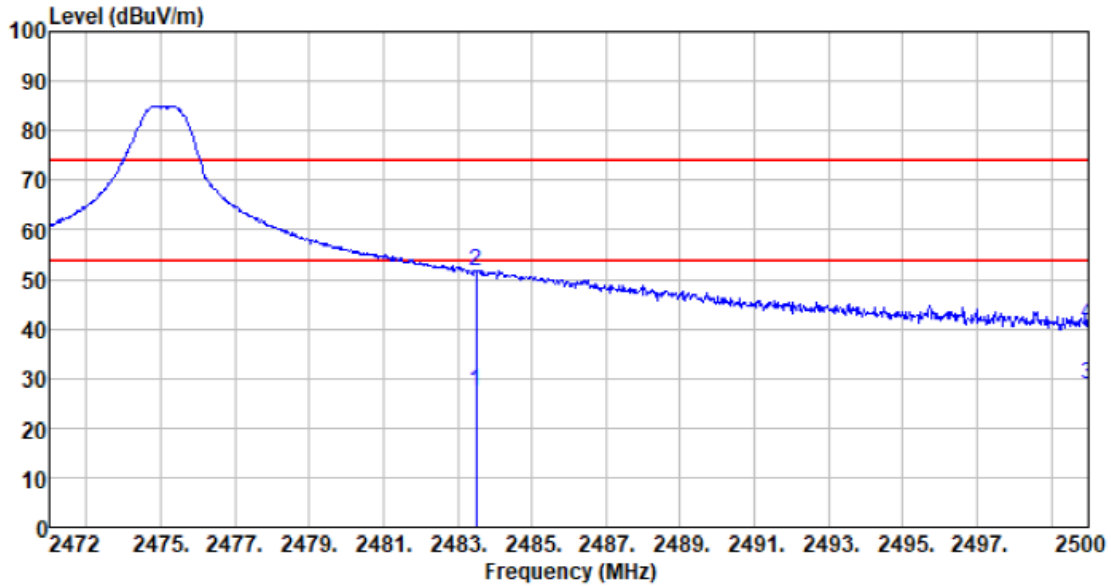
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	34.19	27.17	4.60	38.52	27.44	54.00	-26.56	Average
2310.000	46.23	27.17	4.60	38.52	39.48	74.00	-34.52	Peak
2390.000	38.45	27.27	4.65	38.56	31.81	54.00	-22.19	Average
2390.000	62.09	27.27	4.65	38.56	55.45	74.00	-18.55	Peak
2400.000	54.29	27.28	4.66	38.56	47.67	54.00	-6.33	Average
2400.000	71.16	27.28	4.66	38.56	64.54	74.00	-9.46	Peak

Test channel:	Highest	Polarization:	Horizontal



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	34.52	27.38	4.52	38.59	27.83	54.00	-26.17	Average
2483.500	61.85	27.38	4.52	38.59	55.16	74.00	-18.84	Peak
2500.000	34.51	27.40	4.49	38.60	27.80	54.00	-26.20	Average
2500.000	50.65	27.40	4.49	38.60	43.94	74.00	-30.06	Peak

Test channel:	Highest	Polarization:	Vertical

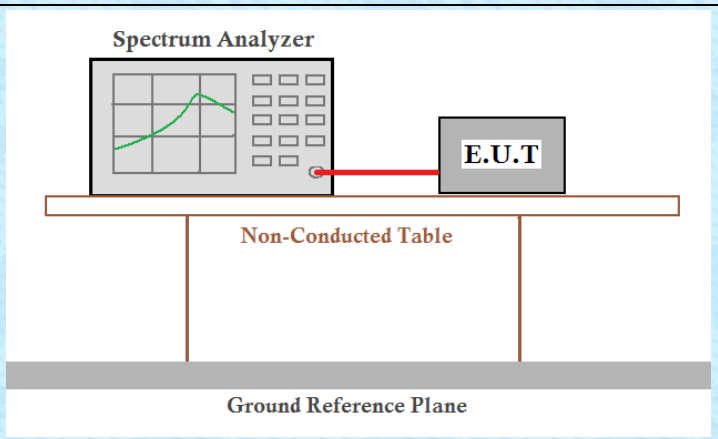


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2483.500	34.00	27.38	4.52	38.59	27.31	54.00	-26.69	Average
2483.500	58.19	27.38	4.52	38.59	51.50	74.00	-22.50	Peak
2500.000	35.41	27.40	4.49	38.60	28.70	54.00	-25.30	Average
2500.000	47.57	27.40	4.49	38.60	40.86	74.00	-33.14	Peak

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *For above 18GHz, no emission found*

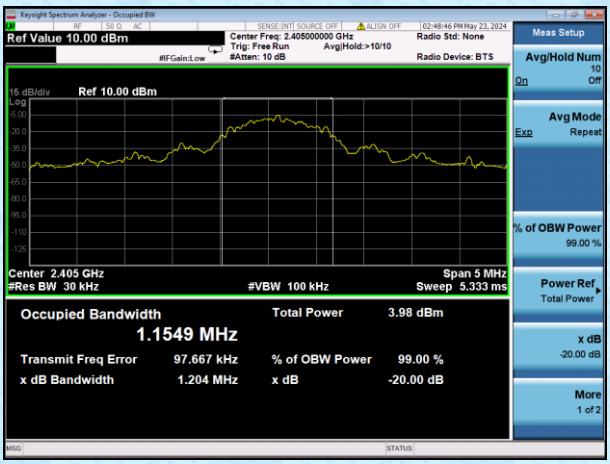
7.4 20dB Occupy Bandwidth

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:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

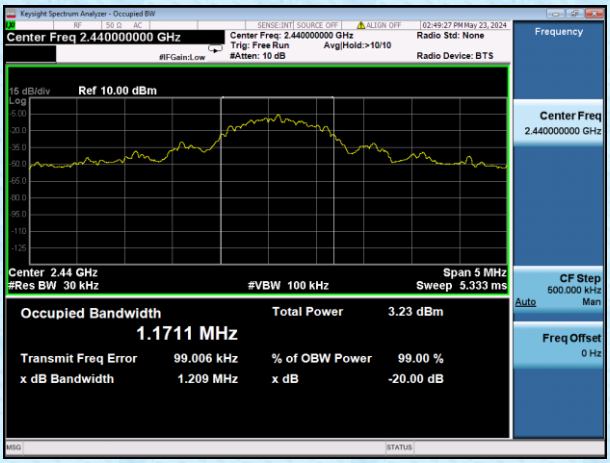
Measurement Data

Test channel	20dB bandwidth(MHz)	Result
Lowest	1.204	Pass
Middle	1.209	Pass
Highest	1.210	Pass

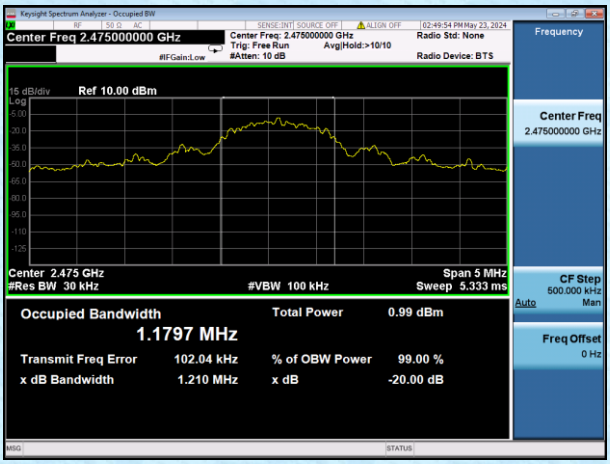
Test plot as follows:



Lowest channel



Middle channel



Highest channel

8 Test Setup Photo

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

9 EUT Constructional Details

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

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