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Test Report

Report No.: CQASZ20240300438E-02

Applicant: Zhuhai Qiannuo Technology Co.,Ltd

Address of Applicant: floor9, building 2, No.88, Xiangshan Road, Tangjiawan Town, high tech Zone, Zhuhai, China

Equipment Under Test (EUT):

EUT Name: Wireless mechanical keyboard

Model No.: NJ98, NJ98, NJ98CP, NJ98AP

Test Model No.: NJ98

Brand Name: Keydous

FCC ID: 2A4G3-NJ98

Standards: 47 CFR Part 15, Subpart C

Date of Receipt: 2024-03-11

Date of Test: 2024-03-11 to 2024-03-23

Date of Issue: 2024-04-11

Test Result: PASS*

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

Tested By: lewis zhou

(Lewis Zhou)

Reviewed By: Timo Lei

(Timo Lei)

Approved By: Alex

(Alex Wang)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20240300438E-02	Rev.01	Initial report	2024-04-11

2 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2013)	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 (2013)	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.249 (a)	ANSI C63.10 (2013)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.249 (a)/15.209	ANSI C63.10 (2013)	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.249(a)/15.205	ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215 (c)	ANSI C63.10 (2013)	PASS

3 Contents

	Page
1 VERSION	2
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION	5
4.1 CLIENT INFORMATION	5
4.2 GENERAL DESCRIPTION OF EUT	5
4.3 TEST ENVIRONMENT AND MODE	8
4.4 DESCRIPTION OF SUPPORT UNITS	8
4.5 STATEMENT OF THE MEASUREMENT UNCERTAINTY	9
4.6 TEST LOCATION	10
4.7 TEST FACILITY	10
4.8 DEVIATION FROM STANDARDS	10
4.9 ABNORMALITIES FROM STANDARD CONDITIONS	10
4.10 OTHER INFORMATION REQUESTED BY THE CUSTOMER.....	10
4.11 EQUIPMENT LIST	11
5 TEST RESULTS AND MEASUREMENT DATA	12
5.1 ANTENNA REQUIREMENT	12
5.2 CONDUCTED EMISSIONS	13
5.3 RADIATED EMISSION	16
5.4 20DB BANDWIDTH	24
6 PHOTOGRAPHS	27
6.1 RADIATED EMISSION TEST SETUP	27
6.2 CONDUCTED EMISSION TEST SETUP	28
6.3 EUT CONSTRUCTIONAL DETAILS	29

4 General Information

4.1 Client Information

Applicant:	Zhuhai Qiannuo Technology Co.,Ltd
Address of Applicant:	floor9, building 2, No.88, Xiangshan Road, Tangjiawan Town, high tech Zone, Zhuhai, China
Manufacturer:	Zhuhai Qiannuo Technology Co.,Ltd
Address of Manufacturer:	floor9, building 2, No.88, Xiangshan Road, Tangjiawan Town, high tech Zone, Zhuhai, China
Factory:	Zhuhai Qiannuo Technology Co.,Ltd
Address of Factory:	floor9, building 2, No.88, Xiangshan Road, Tangjiawan Town, high tech Zone, Zhuhai, China

4.2 General Description of EUT

EUT Name:	Wireless mechanical keyboard
Model No.:	NJ98, NJ98, NJ98CP, NJ98AP
Test Model No.:	NJ98
Trade Mark:	Keydous
Software Version:	V1.1
Hardware Version:	V1.1
Frequency Range:	2402MHz~2479MHz
Modulation Type:	GFSK
Number of Channels:	78
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable
Test Software of EUT:	fcc_test_tool
Antenna Type:	PCB antenna
Antenna Gain:	1.58dBi
Power Supply:	Li-ion battery DC 3.7V 4000mAh, Charge by DC 5V for adapter

Operation Frequency each of channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2402	2	2403	3	2404
4	2405	5	2406	6	2407
7	2408	8	2409	9	2410
10	2411	11	2412	12	2413
13	2414	14	2415	15	2416
16	2417	17	2418	18	2419
19	2420	20	2421	21	2422
22	2423	23	2424	24	2425
25	2426	26	2427	27	2428
28	2429	29	2430	30	2431
31	2432	32	2433	33	2434
34	2435	35	2436	36	2437
37	2438	38	2439	39	2440
40	2441	41	2442	42	2443
43	2444	44	2445	45	2446
46	2447	47	2448	48	2449
49	2450	50	2451	51	2452
52	2453	53	2454	54	2455
55	2456	56	2457	57	2458
58	2459	59	2460	60	2461
61	2462	62	2463	63	2464
64	2465	65	2466	66	2467
67	2468	68	2469	69	2470
70	2471	71	2472	72	2473
73	2474	74	2475	75	2476
76	2477	77	2478	78	2479

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(CH1)	2402MHz
The Middle channel(CH39)	2440MHz
The Highest channel(CH78)	2479MHz

4.3 Test Environment and Mode

Operating Environment:	
Radiated Emissions:	
Temperature:	27 °C
Humidity:	59 % RH
Atmospheric Pressure:	1009mbar
Temperature:	26 °C
Humidity:	59 % RH
Atmospheric Pressure:	1009mbar
Radio conducted item test (RF Conducted test room):	
Temperature:	25.3 °C
Humidity:	55 % RH
Atmospheric Pressure:	1009mbar
Test mode:	
Transmitting mode:	Use test software (RF test) to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.

4.4 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Adapter	/	/	/	CQA

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for **CQA** laboratory is reported:

Test	Range	Uncertainty	Notes
Radiated Emission	Below 1GHz	5.12dB	(1)
Radiated Emission	Above 1GHz	4.60dB	(1)
Conducted Disturbance	0.15~30MHz	3.34dB	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.6 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

4.7 Test Facility

- **A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- **FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology 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 our files. Registration No.:522263

4.8 Deviation from Standards

None.

4.9 Abnormalities from Standard Conditions

None.

4.10 Other Information Requested by the Customer

None.

4.11 Equipment List

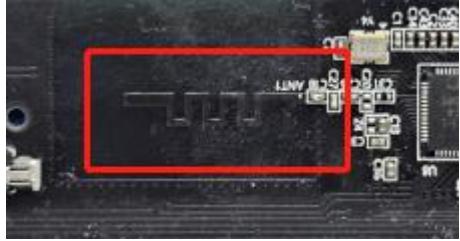
Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2023/09/08	2024/09/07
Spectrum analyzer	R&S	FSU26	CQA-038	2023/09/08	2024/09/07
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2023/09/08	2024/09/07
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2023/09/08	2024/09/07
Loop antenna	Schwarzbeck	FMZB1516	CQA-087	2021/09/16	2024/09/15
Bilog Antenna	R&S	HL562	CQA-011	2021/09/16	2024/09/15
Horn Antenna	R&S	HF906	CQA-012	2021/09/16	2024/09/15
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2021/09/16	2024/09/15
Coaxial Cable (Above 1GHz)	CQA	N/A	C019	2023/09/08	2024/09/07
Coaxial Cable (Below 1GHz)	CQA	N/A	C020	2023/09/08	2024/09/07
Antenna Connector	CQA	RFC-01	CQA-080	2023/09/08	2024/09/07
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2023/09/08	2024/09/07
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2023/09/08	2024/09/07
EMI Test Receiver	R&S	ESPI3	CQA-013	2023/09/08	2024/09/07
LISN	R&S	ENV216	CQA-003	2023/09/08	2024/09/07
Coaxial cable	CQA	N/A	CQA-C009	2023/09/08	2024/09/07

Note:

The temporary antenna connector is soldered on the pcb board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

5 Test results and Measurement Data

5.1 Antenna Requirement

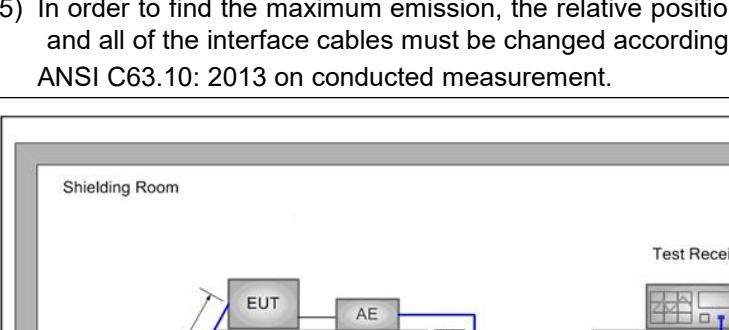
Standard requirement:	47 CFR Part 15C Section 15.203
15.203 requirement:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique 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:	 A photograph of a printed circuit board (PCB) showing a rectangular antenna element. The antenna is highlighted with a red rectangular box.

The antenna is PCB antenna.

The connection/connection type between the antenna to the EUT's antenna port is: permanently attachment.

This is either permanently attachment or a unique coupling that satisfies the requirement.

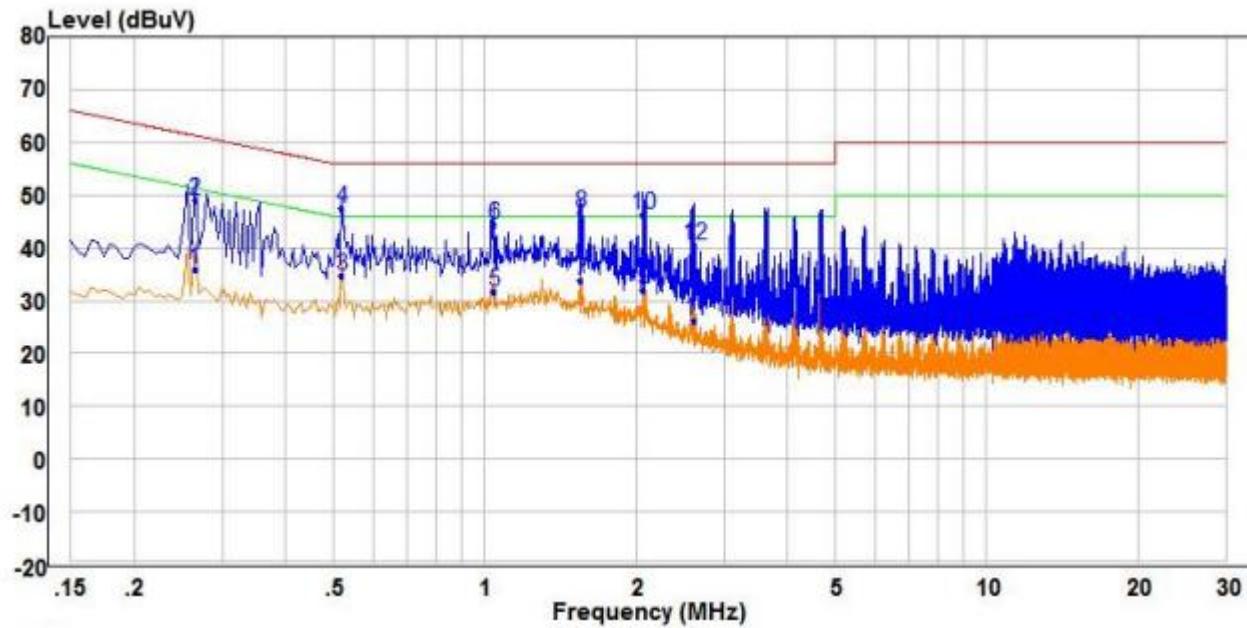
5.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207														
Test Method:	ANSI C63.10: 2013														
Test Frequency Range:	150kHz to 30MHz														
Limit:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <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> </tbody> </table>	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
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 Procedure:	<ol style="list-style-type: none"> 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 $50\Omega/50\mu\text{H} + 5\Omega$ 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: 2013 on conducted measurement. 														
Test Setup:	 <p>The diagram illustrates the test setup within a 'Shielding Room'. A 'Test Receiver' is connected to a LISN2, which is connected to the 'AE' (Associated Equipment) and the 'Ground Reference Plane'. A LISN1 is connected to the 'AC Mains' and the 'EUT' (Equipment Under Test), which is placed on a table. The LISNs are connected to a vertical ground reference plane. The distance between LISN1 and the EUT is 0.8m. The distance between LISN2 and the AE is 0.8m. The distance between LISN1 and LISN2 is 0.8m.</p>														

Test Mode:	Charge +Transmitting mode.
Final Test Mode:	Charge +Transmitting mode.
Test Results:	Pass

Measurement Data:

Live line:

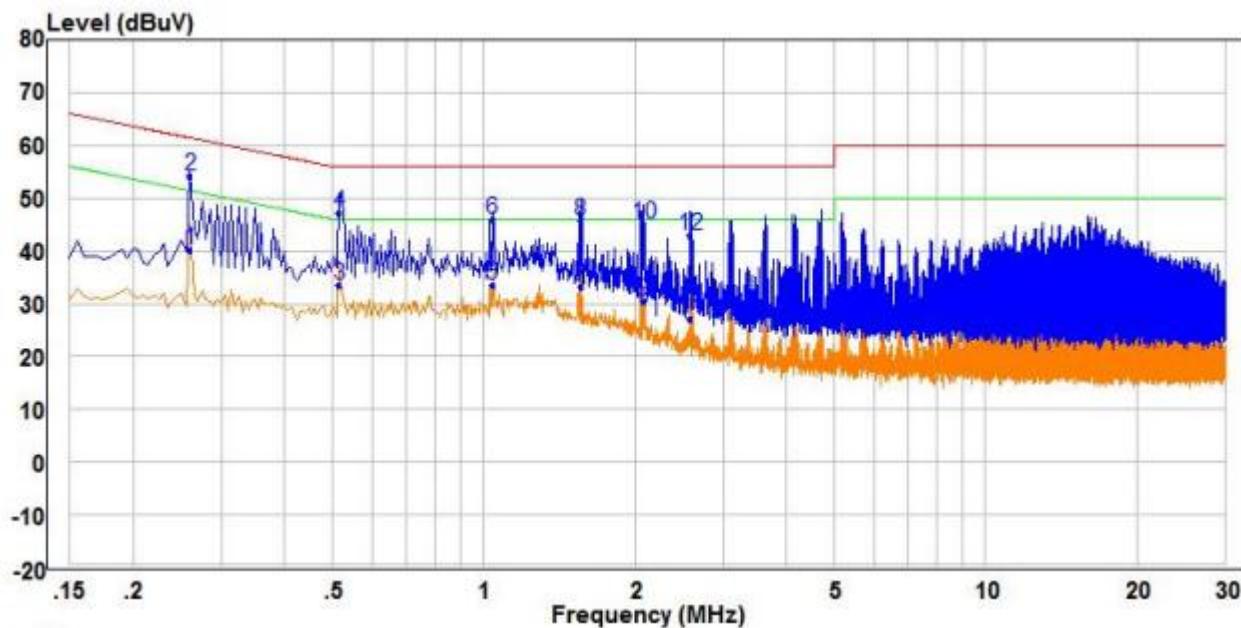


Freq	Read		Level	Limit	Over	Remark	Pol/Phase	
	Freq	Level						
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.265	26.52	9.53	36.05	51.27	-15.22	Average	Line
2	0.265	39.38	9.53	48.91	61.27	-12.36	QP	Line
3 AV	0.520	25.12	9.72	34.84	46.00	-11.16	Average	Line
4 PP	0.520	37.70	9.72	47.42	56.00	-8.58	QP	Line
5	1.045	21.95	9.82	31.77	46.00	-14.23	Average	Line
6	1.045	34.53	9.82	44.35	56.00	-11.65	QP	Line
7	1.555	22.82	10.94	33.76	46.00	-12.24	Average	Line
8	1.555	35.56	10.94	46.50	56.00	-9.50	QP	Line
9	2.070	20.34	11.57	31.91	46.00	-14.09	Average	Line
10	2.070	34.64	11.57	46.21	56.00	-9.79	QP	Line
11	2.620	15.06	11.07	26.13	46.00	-19.87	Average	Line
12	2.620	29.47	11.07	40.54	56.00	-15.46	QP	Line

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:



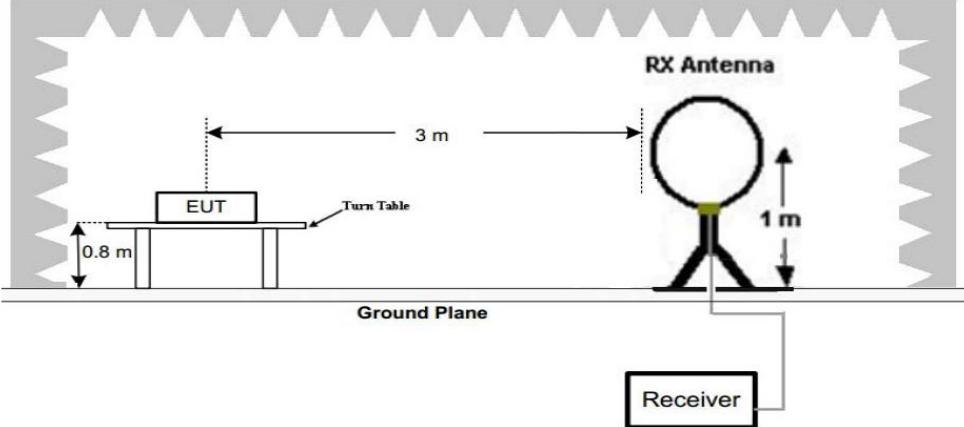
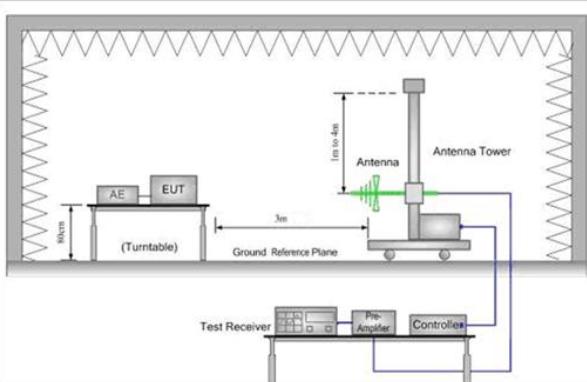
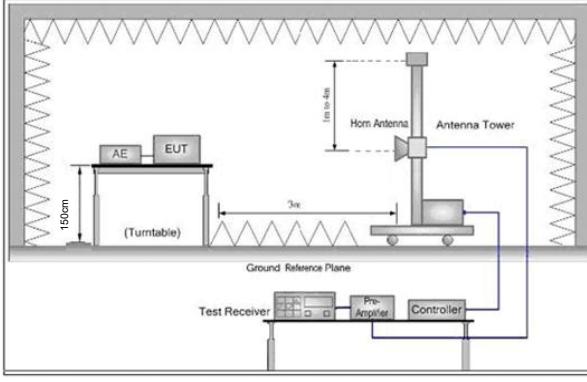
Freq	Read		Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	
1 AV	0.260	30.75	9.53	40.28	51.43	-11.15	Average
2 PP	0.260	44.54	9.53	54.07	61.43	-7.36	QP
3	0.515	23.74	9.72	33.46	46.00	-12.54	Average
4	0.515	37.51	9.72	47.23	56.00	-8.77	QP
5	1.040	23.72	9.70	33.42	46.00	-12.58	Average
6	1.040	36.14	9.70	45.84	56.00	-10.16	QP
7	1.560	23.57	9.73	33.30	46.00	-12.70	Average
8	1.560	36.03	9.73	45.76	56.00	-10.24	QP
9	2.075	20.75	9.75	30.50	46.00	-15.50	Average
10	2.075	35.19	9.75	44.94	56.00	-11.06	QP
11	2.585	17.28	9.76	27.04	46.00	-18.96	Average
12	2.585	33.29	9.76	43.05	56.00	-12.95	QP

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

5.3 Radiated Emission

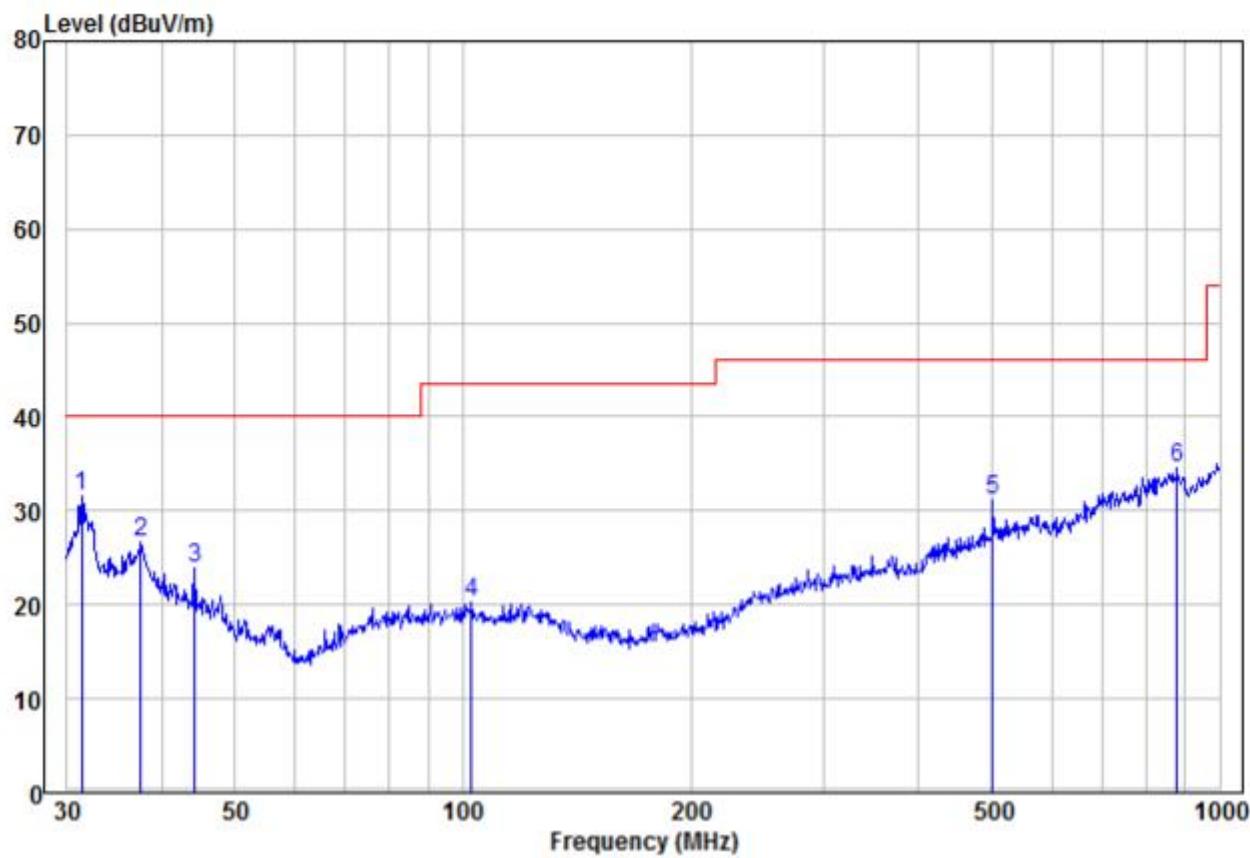
Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209 and 15.205				
Test Method:	ANSI C63.10: 2013				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30KHz	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	100 kHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Note: For fundamental frequency, RBW=5MHz, VBW=5MHz, Peak detector is for PK value, RMS detector is for Average value.					
Limit: (Spurious Emissions and band edge)	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
Note: 1) 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.					
2) 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.					
Limit: (Field strength of the fundamental signal)	Frequency	Limit (dBuV/m @3m)		Remark	
	2400MHz-2483.5MHz	94.0		Average Value	
		114.0		Peak Value	

Test Setup:	
	<p>Figure 1. Below 30MHz</p>  
Test Procedure:	<p>a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. Note: For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.</p> <p>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.</p> <p>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.</p> <p>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table</p>

	<p>was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <ul style="list-style-type: none">e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.g. Test the EUT in the lowest channel, the middle channel, the Highest channelh. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting mode, Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case. For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case is recorded in the report.
Test Results:	Pass

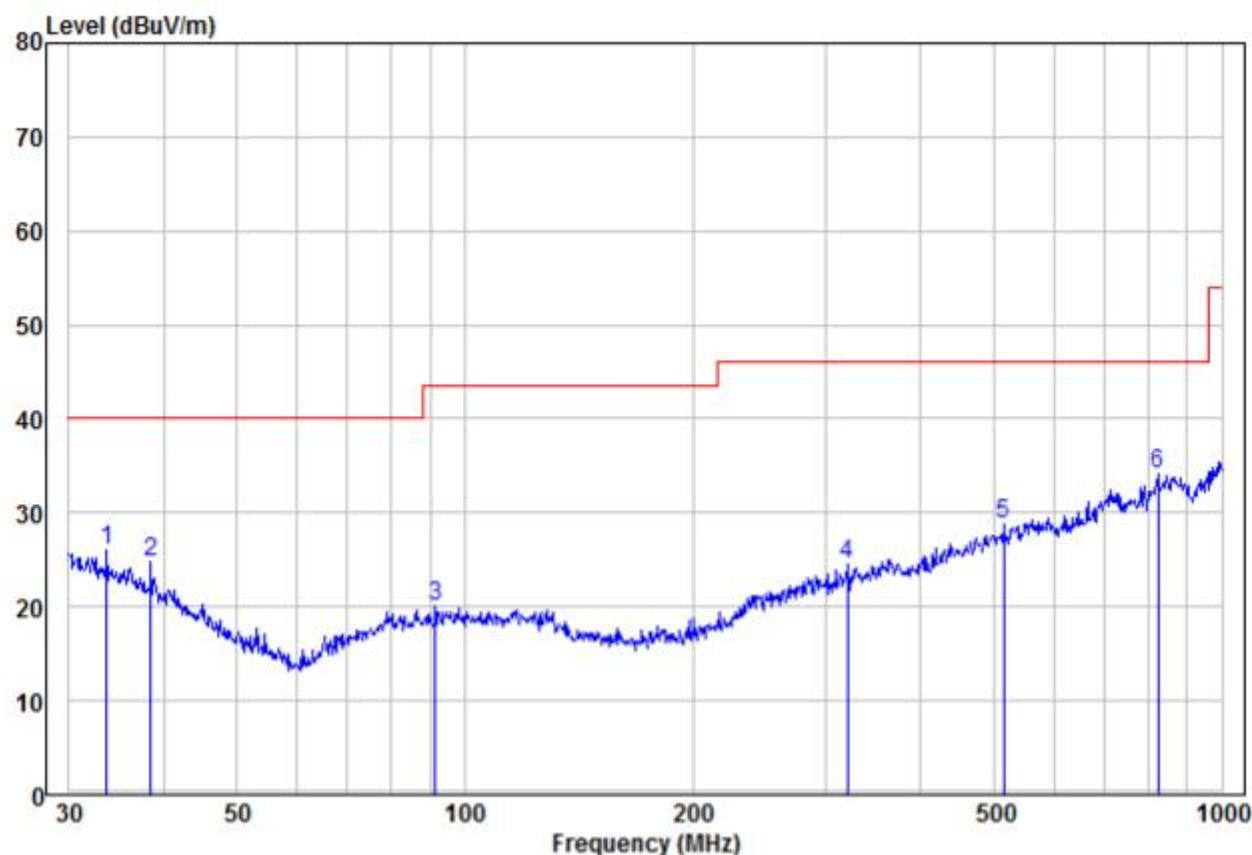
Measurement Data
30MHz~1GHz

Test mode:	Transmitting	Vertical
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Freq	Read			Limit		Over		Pol/Phase
	Level	Factor	Level	Line	Limit	Remark		
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1 pp	31.40	15.92	15.55	31.47	40.00	-8.53	Peak	VERTICAL
2	37.55	13.06	13.68	26.74	40.00	-13.26	Peak	VERTICAL
3	44.28	13.06	10.79	23.85	40.00	-16.15	Peak	VERTICAL
4	102.72	9.82	10.52	20.34	43.50	-23.16	Peak	VERTICAL
5	501.18	12.79	18.29	31.08	46.00	-14.92	Peak	VERTICAL
6	878.32	10.63	23.93	34.56	46.00	-11.44	Peak	VERTICAL

Test mode:	Transmitting	Horizontal
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Freq	Read		Limit		Over Line	Over Limit	Remark	Pol/Phase
	Freq	Level	Factor	Level				
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	33.68	11.11	14.96	26.07	40.00	-13.93	Peak	HORIZONTAL
2	38.48	11.31	13.35	24.66	40.00	-15.34	Peak	HORIZONTAL
3	91.49	9.92	10.11	20.03	43.50	-23.47	Peak	HORIZONTAL
4	319.94	10.29	14.22	24.51	46.00	-21.49	Peak	HORIZONTAL
5	515.44	10.28	18.44	28.72	46.00	-17.28	Peak	HORIZONTAL
6 pp	824.60	10.43	23.64	34.07	46.00	-11.93	Peak	HORIZONTAL

Above 1GHz							
Test mode:		Transmitting		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)		H/V
2390	61.79	-9.2	52.59	74	-21.41	Peak	H
2390	45.54	-9.2	36.34	54	-17.66	AVG	H
2400	46.44	-9.39	37.05	74	-36.95	Peak	H
2400	44.61	-9.39	35.22	54	-18.78	AVG	H
2402	100.32	-9.33	90.99	114	-23.01	peak	H
2402	95.63	-9.33	86.30	94	-7.70	AVG	H
4804	56.54	-4.28	52.26	74	-21.74	peak	H
4804	43.43	-4.28	39.15	54	-14.85	AVG	H
7206	52.00	1.13	53.13	74	-20.87	peak	H
7206	37.01	1.13	38.14	54	-15.86	AVG	H
2390	59.98	-9.2	50.78	74	-23.22	peak	V
2390	44.85	-9.2	35.65	54	-18.35	AVG	V
2400	61.59	-9.39	52.20	74	-21.80	peak	V
2400	45.63	-9.39	36.24	54	-17.76	AVG	V
2402	96.31	-9.33	86.98	114	-27.02	peak	V
2402	92.89	-9.33	83.56	94	-10.44	AVG	V
4804	56.05	-4.28	51.77	74	-22.23	peak	V
4804	41.48	-4.28	37.20	54	-16.80	AVG	V
7206	51.74	1.13	52.87	74	-21.13	peak	V
7206	38.41	1.13	39.54	54	-14.46	AVG	V

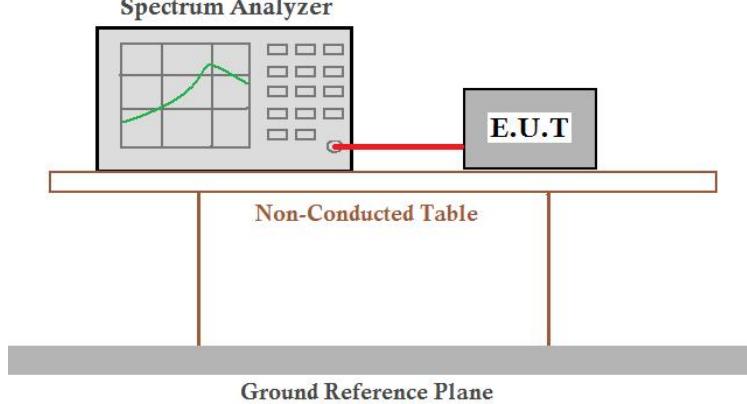
Test mode:		Transmitting		Test channel:		Middle	
Frequency (MHz)	Meter Reading (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2440	97.80	-9.37	88.43	114	-25.57	peak	H
2440	97.18	-9.37	87.81	94	-6.19	AVG	H
4880	54.99	-4.14	50.85	74	-23.15	peak	H
4880	42.03	-4.14	37.89	54	-16.11	AVG	H
7320	51.21	0.56	51.77	74	-22.23	peak	H
7320	38.16	0.56	38.72	54	-15.28	AVG	H
2440	94.36	-9.36	85.00	114	-29.00	peak	V
2440	92.88	-9.36	83.52	94	-10.48	AVG	V
4880	57.39	-4.14	53.25	74	-20.75	peak	V
4880	43.07	-4.14	38.93	54	-15.07	AVG	V
7320	53.17	0.56	53.73	74	-20.27	peak	V
7320	38.53	0.56	39.09	54	-14.91	AVG	V

Test mode:		Transmitting		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)		H/V
2479	99.00	-9.23	89.77	114	-24.23	peak	H
2479	98.10	-9.23	88.87	94	-5.13	AVG	H
2483.5	62.56	-9.29	53.27	74	-20.73	Peak	H
2483.5	45.32	-9.29	36.03	54	-17.97	AVG	H
4958	55.05	-4.03	51.02	74	-22.98	peak	H
4958	43.32	-4.03	39.29	54	-14.71	AVG	H
7437	51.93	1.68	53.61	74	-20.39	peak	H
7437	38.36	1.68	40.04	54	-13.96	AVG	H
2479	96.51	-9.23	87.28	114	-26.72	peak	V
2479	93.79	-9.23	84.56	94	-9.44	AVG	V
2483.5	61.22	-9.29	51.93	74	-22.07	peak	V
2483.5	45.38	-9.29	36.09	54	-17.91	AVG	V
4958	56.80	-4.03	52.77	74	-21.23	peak	V
4958	41.55	-4.03	37.52	54	-16.48	AVG	V
7437	52.98	1.68	54.66	74	-19.34	peak	V
7437	37.11	1.68	38.79	54	-15.21	AVG	V

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 2) Scan from 9kHz to 25GHz, The disturbance above 10GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported .

5.4 20dB Bandwidth

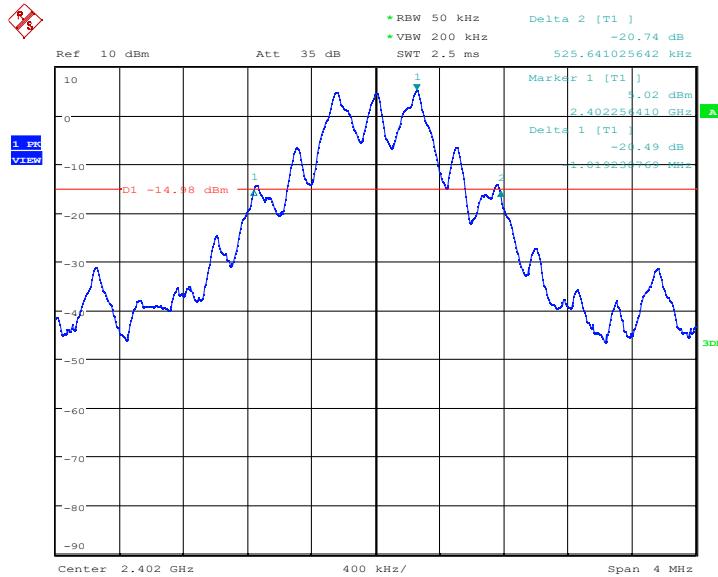
Test Requirement:	47 CFR Part 15C Section 15.215
Test Method:	ANSI C63.10:2013
Test Setup:	<p style="text-align: center;">Spectrum Analyzer</p>  <p style="text-align: center;">Non-Conducted Table</p> <p style="text-align: center;">Ground Reference Plane</p>
Test Mode:	Transmitting with GFSK modulation.
Limit:	N/A
Test Results:	Pass

Measurement Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	1.545	Pass
Middle	1.538	Pass
Highest	1.326	Pass

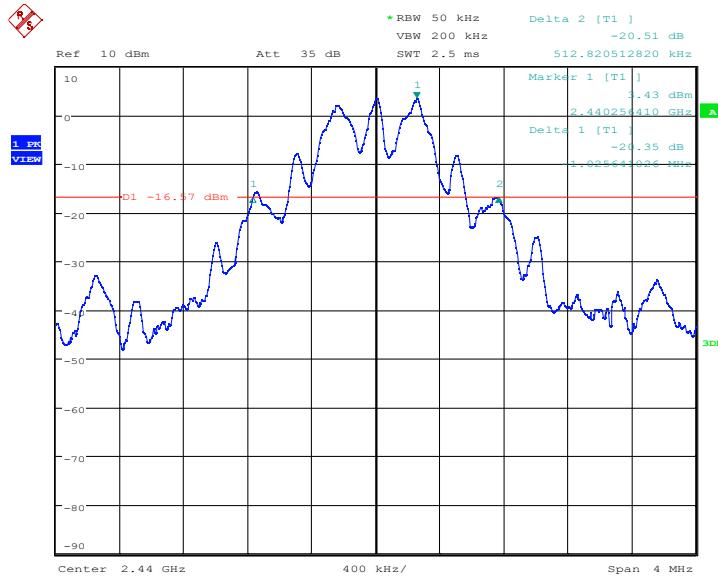
Test plot as follows:

Test channel:	Lowest
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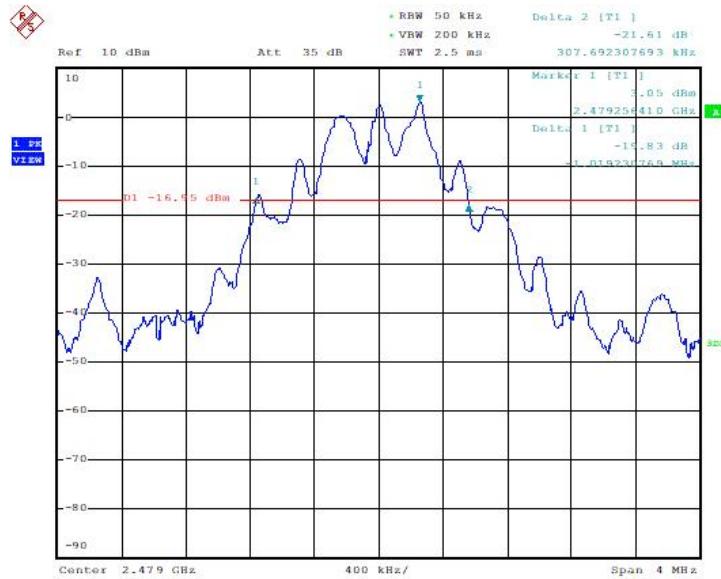


Date: 20.MAR.2024 14:01:10

Test channel:	Middle
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Date: 23.MAR.2024 13:39:57

Test channel: **Highest**

6 Photographs

6.1 Radiated Emission Test Setup

9kHz~30MHz



30MHz~1GHz:



Above 1GHz:



6.2 Conducted Emission Test Setup



6.3 EUT Constructional Details

Refer to Photographs - EUT Constructional Details OF EUT for CQASZ20240300438E-01.

*** END OF REPORT ***