FCC PART 15.249

TEST REPORT

For

Shantou City Chenghai District Yaxuan Toy Factory

West Shunfa Road, Longtian, Guangyi Street, Chenghai District, Shantou City, Guangdong Province, China

FCC ID: 2BPNH-Q8

Report Type:	**Product Name:**
Original Report	Spherical Aircraft

Report Number:	2507T14533E-RF-01
Report Date:	2025-06-17
Reviewed By:	Ash Lin
Approved By:	Miles Chen
Prepared By:	Bay Area Compliance Laboratories Corp. (Xiamen) Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen Tel: +86-592-3200111 www.baclcorp.com.cn

TABLE OF CONTENTS

REPORT REVISION HISTORY **3**

GENERAL INFORMATION **4**
- PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 4
- OBJECTIVE 4
- TEST METHODOLOGY 4
- MEASUREMENT UNCERTAINTY 5
- TEST FACILITY 5

SYSTEM TEST CONFIGURATION **6**
- TEST MODE AND VOLTAGE 6
- JUSTIFICATION 6
- EUT EXERCISE SOFTWARE 6
- EQUIPMENT MODIFICATIONS 6
- SUPPORT EQUIPMENT LIST AND DETAILS 6
- EXTERNAL I/O CABLE 6
- BLOCK DIAGRAM OF TEST SETUP 7

SUMMARY OF TEST RESULTS **9**

TEST EQUIPMENT LIST **10**

FCC§15.203 - ANTENNA REQUIREMENT **11**
- APPLICABLE STANDARD 11
- ANTENNA CONNECTED CONSTRUCTION 11

FCC §15.207 (A) – AC LINE CONDUCTED EMISSIONS **12**
- APPLICABLE STANDARD 12
- TEST SYSTEM SETUP 12
- EMI TEST RECEIVER SETUP 12
- TEST PROCEDURE 13
- RESULT & MARGIN CALCULATION 13
- TEST RESULTS SUMMARY 13
- TEST DATA 13

FCC §15.205, §15.209, §15.249 - RADIATED EMISSIONS & OUT OF BAND EMISSION **14**
- APPLICABLE STANDARD 14
- TEST SYSTEM SETUP 14
- EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP 16
- TEST PROCEDURE 16
- RESULT & MARGIN CALCULATION 17
- TEST RESULTS SUMMARY 17
- TEST DATA 17

FCC §15.215(C) - 20DB EMISSION BANDWIDTH TESTING **42**
- APPLICABLE STANDARD 42
- TEST PROCEDURE 42
- TEST SETUP 42
- TEST DATA 42

EUT PHOTOGRAPHS **45**

TEST SETUP PHOTOGRAPHS **46**

REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	2507T14533E-RF-01	R1V1	2025-06-17	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Shantou City Chenghai District Yaxuan Toy Factory
Product Name:	Spherical Aircraft
Tested Model:	Q8
Power Supply:	DC 3V from Battery
RF Function:	SRD
Operating Band/Frequency:	2410MHz, 2440MHz, 2470MHz
Channel Number:	3
Modulation Type:	GFSK
Antenna Type:	PCB Antenna
★Maximum Antenna Gain:	0 dBi
Note: *1. The maximum antenna gain is provided by the applicant.* 2. *All measurement and test data in this report was gathered from production sample serial number: 32G6-1 (Assigned by the BACL (Xiamen). The EUT supplied by the applicant was received on 2025-05-07*	

Objective

This test report is prepared for *Shantou City Chenghai District Yaxuan Toy Factory* in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commission rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209, 15.215 and 15.249 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

Measurement Uncertainty

Item		U_{lab}
Conducted Emissions	150kHz-30MHz(LISN)	2.45 dB
Radiated Disturbance	9kHz-150kHz	2.82 dB
	150kHz-30MHz	2.74 dB
	30MHz~200MHz	3.47 dB
	200MHz ~1GHz	4.86 dB
	1GHz~6GHz	4.88 dB
	6GHz~18GHz	4.95 dB
	18GHz~40GHz	4.45dB
Occupied Bandwidth		2%
Temperature		1℃
Humidity		5%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Xiamen) to collect test data is located on the Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen.

Bay Area Compliance Laboratories Corp. (Xiamen) Lab is accredited to ISO/IEC 17025 by A2LA (Certificate Number: 7134.01) and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, FCC Registration No.: 485720, the FCC Designation No.: CN1384.

SYSTEM TEST CONFIGURATION

Test Mode and Voltage

The system was configured for testing in a typical mode (as normally used by a typical user).	
Test mode:	Test Model 1: Transmitting
Test voltage:	DC 3V from Battery
Remark:	During all emission tests, the EUT was configured to measure its highest possible emission level and the worst case's test data was presented in this test report.

Justification

The system was configured in testing mode which was provided by manufacturer.

Channel List:

Channel	Frequency (MHz)
1	2410
2	2440
3	2470

EUT Exercise Software

Engineering Mode was provided by manufacturer.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

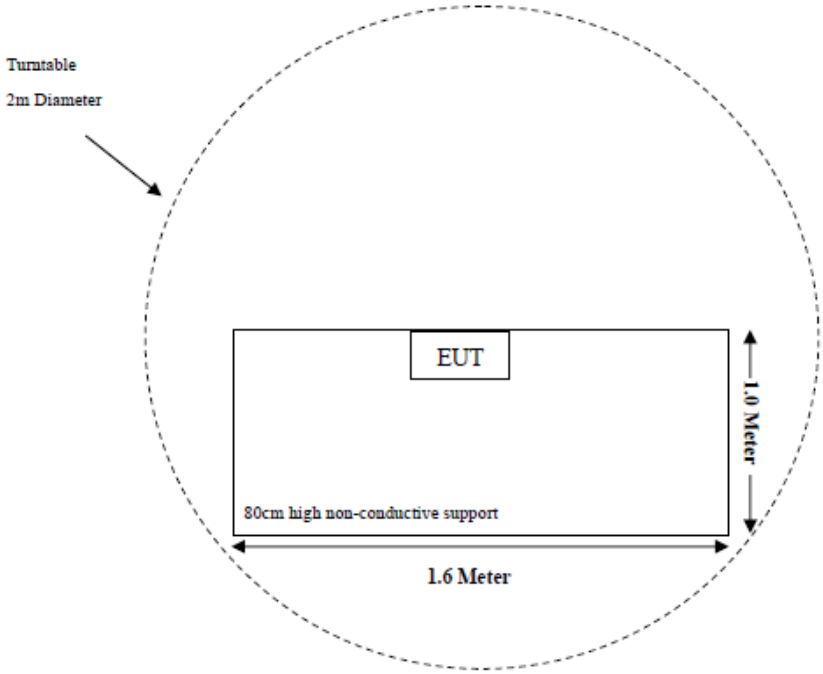
External I/O Cable

Cable Description	Length (m)	From Port	To Port
/	/	/	/

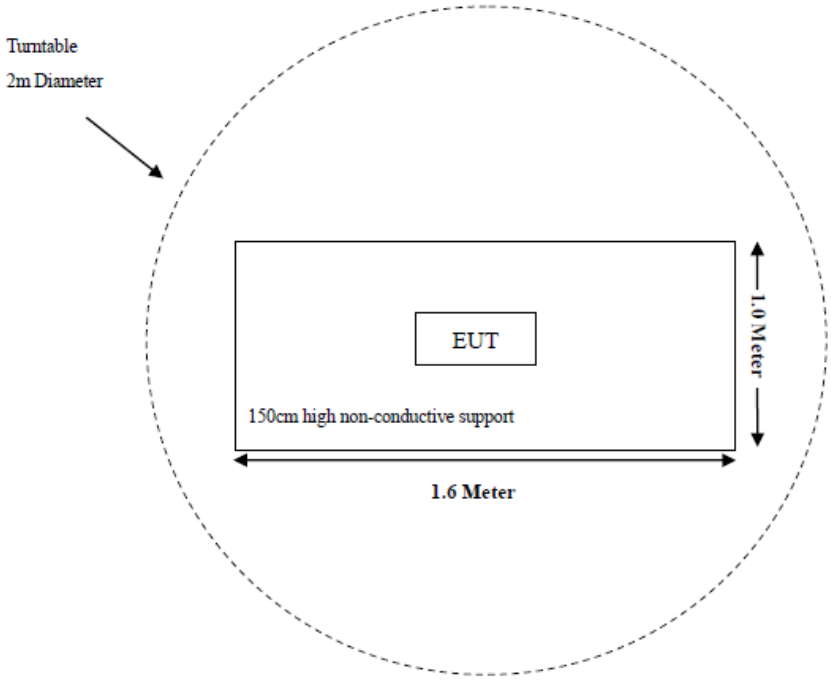
Block Diagram of Test Setup

For Radiated Emissions:

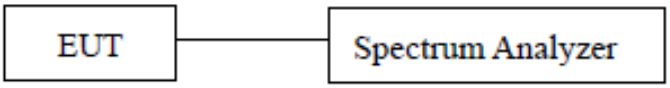
Below 1GHz:



Above 1GHz



RF Conduction:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conducted Emissions	Not applicable (See Note 1)
§15.205, §15.209, §15.249	Radiated Emissions & Fundamental Test & Out-of-band Emissions Test	Compliant
§15.215 (c)	20 dB Bandwidth	Compliant

Note:
1. The EUT is powered by battery.

TEST EQUIPMENT LIST

Test Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions Below 1 GHz					
EMI Test Receiver	Rohde & Schwarz	ESR	103103	2025/02/20	2026/02/19
Loop Antenna	Rohde & Schwarz	HFH2-Z2	830749/001	2023/07/27	2026/07/26
Antenna	Sunol Sciences	JB6	A122022-5	2023/07/27	2026/07/26
Amplifier	Sonoma	310B	120903	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH400T-N-4M	CC002	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH460B-N-2M	CC006	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH460B-N-12M	CC007	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	HFH2-CC	335.3609	2025/02/20	2026/02/19
Test Software	Audix	E3	18621a	N/A	N/A
Radiated Emissions Above 1 GHz					
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102051	2025/02/20	2026/02/19
Filter Switch Unit	Decentest	DT7220FSU	DS79904	2025/02/21	2026/02/20
Multiplex Switch Test Control Set	Decentest	DT7220SCU	DS79901	2025/02/21	2026/02/20
Horn Antenna	EMCO	3115	9002-3355	2024/11/19	2027/11/18
Preamplifier	GLOBAL	1313-A100M18G	4121301	2025/01/16	2026/01/15
Coaxial Cable	XINHANGWEIBO	XH800A-N-6M	CC003	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH800A-N-1M	CC005	2025/02/20	2026/02/19
Horn Antenna	EMCO	3116	9407-2232	2023/07/31	2026/07/30
Preamplifier	A.H.Systems	PAM-1840	200	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH360A-2.92-3M	CC008	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH360A-2.92-1M	CC009	2025/02/20	2026/02/19
Test Software	Audix	E3	18621a	N/A	N/A
RF Conducted Test (20 dB Bandwidth)					
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102051	2025/02/20	2026/02/19
Coaxial Cable	Lianxun	RF113	N/A	2025/02/20	2026/02/19

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Xiamen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

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 shall be considered sufficient to comply with the provisions of this section.

Antenna Connected Construction

The EUT has a PCB antenna which was permanently attached and the antenna gain is 0 dBi; fulfill the requirement of this section. Please refer to EUT photos.

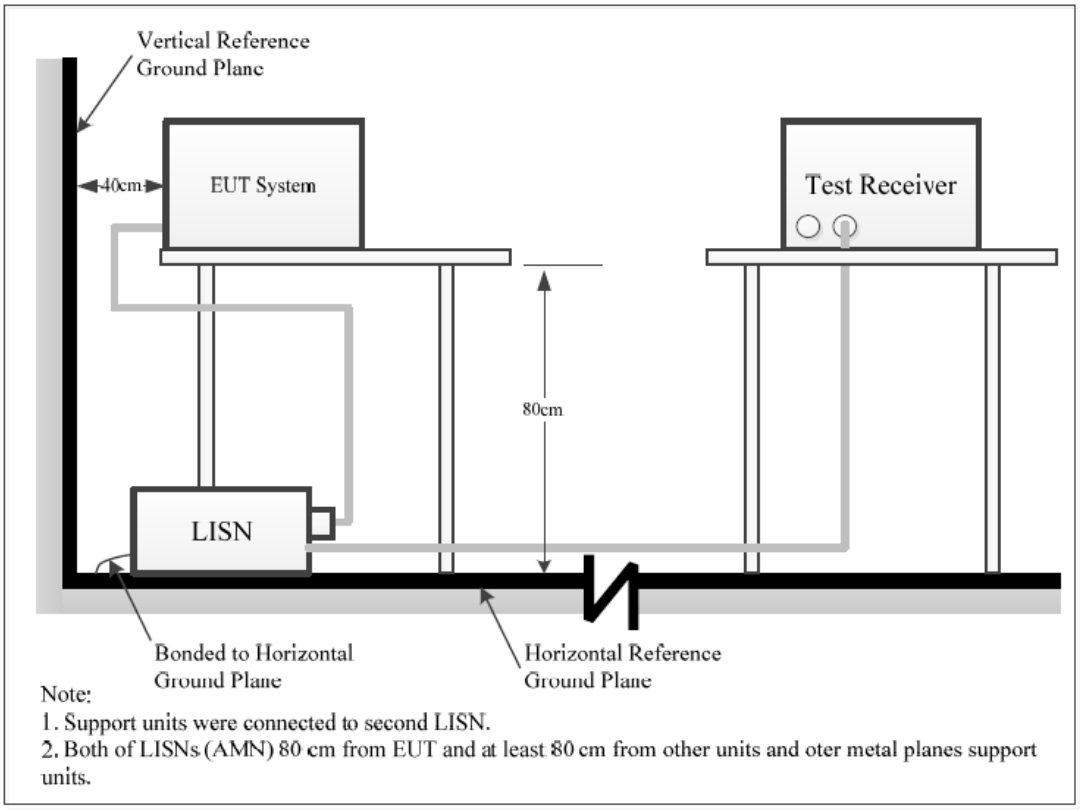
Result: Compliant.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

During the conducted emission test, the EUT was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

If the maximum peak value of the emissions is below the average limit, the QP value and average value measurement will not need to be performed and only record the maximum peak measured value to meet the requirements.

Result & Margin Calculation

The Result is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation from the Meter Reading. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
Result (dBμV) = Reading (dBμV) + Factor (dB)

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV) –Result (dBμV)

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, FCC Part 15.207.

Test Data

Test Result: N/A.

Note: The EUT is powered by battery.

FCC §15.205, §15.209, §15.249 - RADIATED EMISSIONS & OUT OF BAND EMISSION

Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

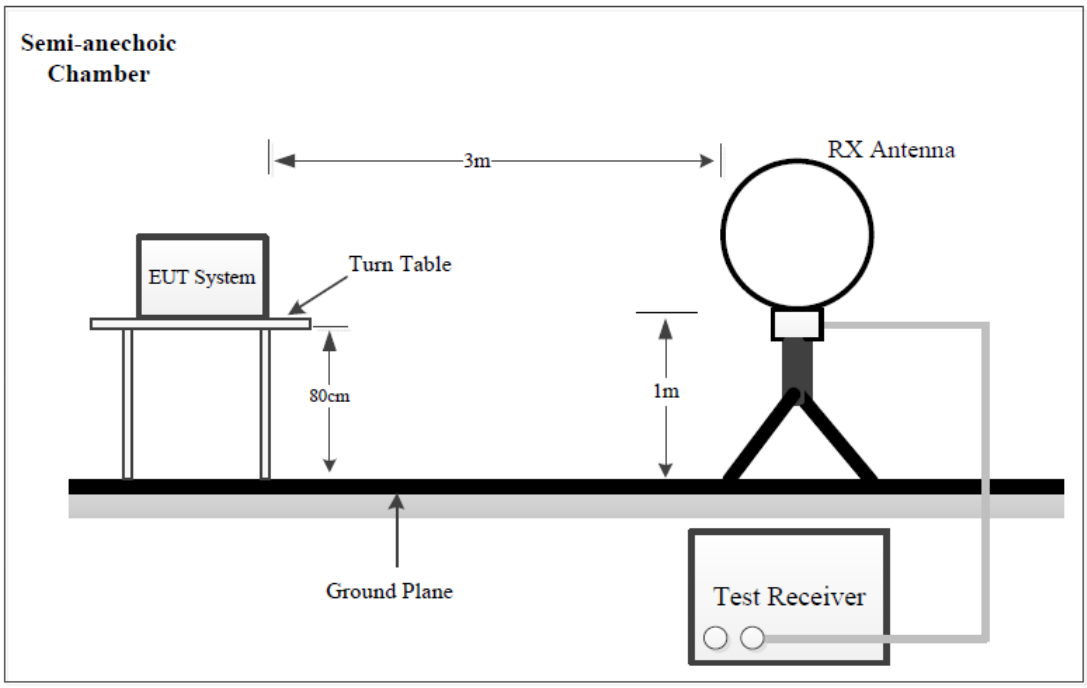
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

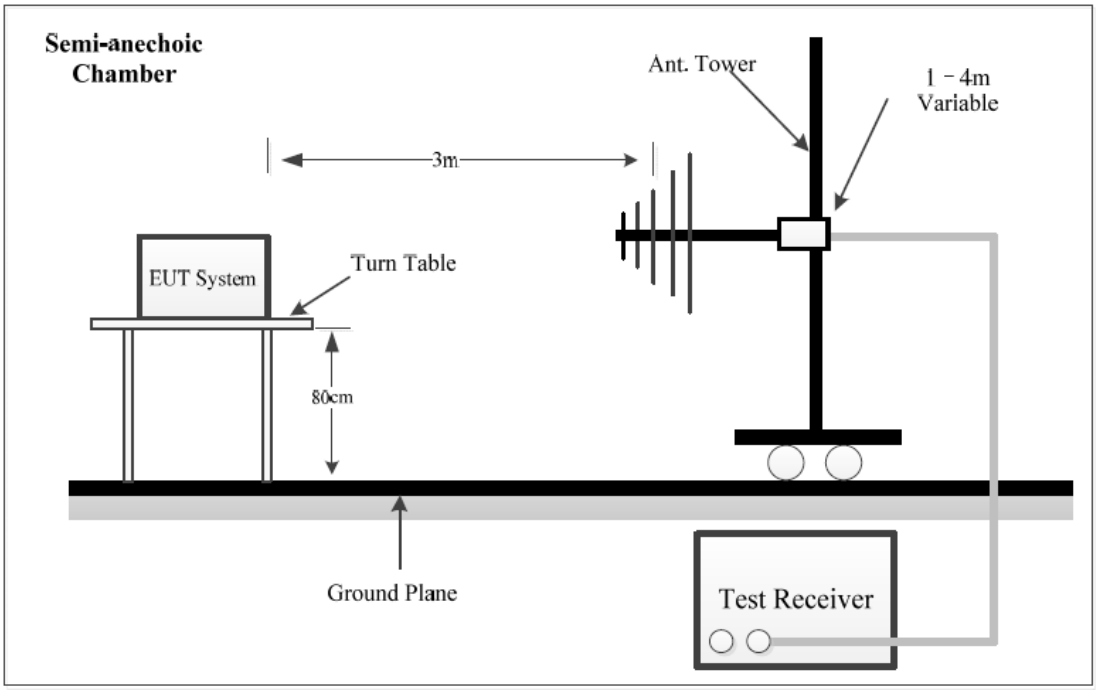
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Test System Setup

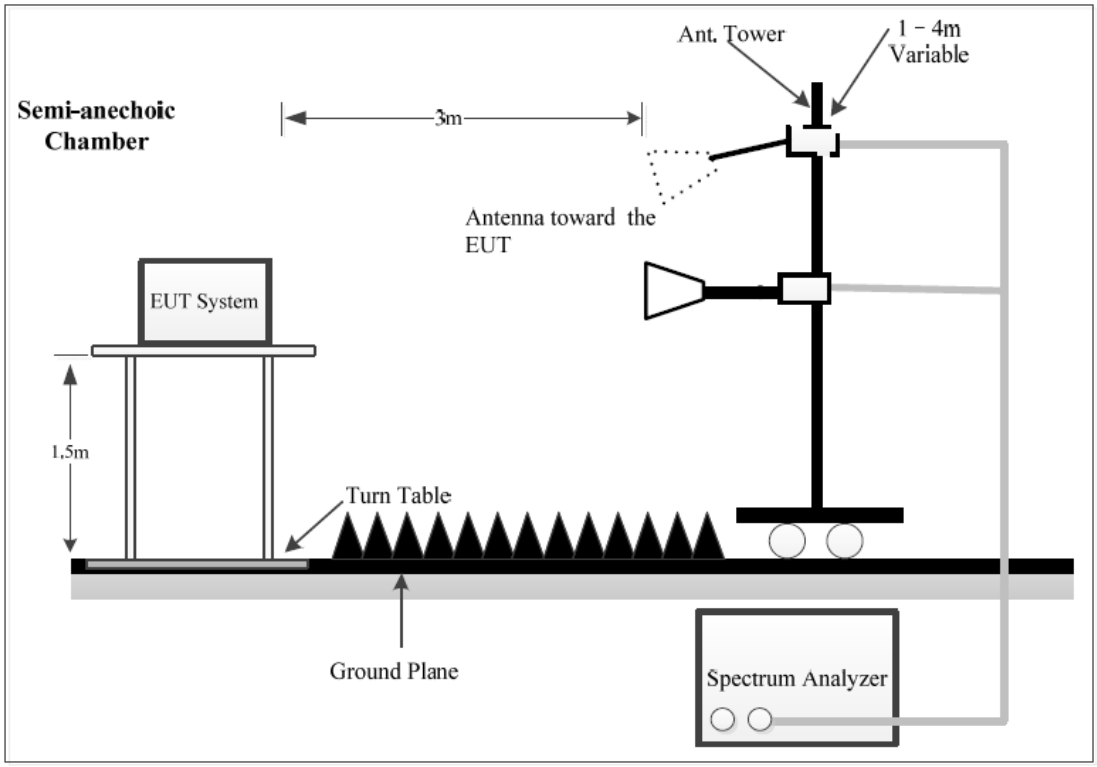
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



The radiated emission tests using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.249 limits.

NOTE: d is testing distance;
For Radiated Emission test (1GHz-18GHz) and Bandedge Emission test, which was performed at 3 m distance.

For Radiated Emission test (18GHz-25GHz), which was performed at 1.5 m distance, according to ANSI C63.10-2013, the test result shall be extrapolated to the specified distance using an extrapolation Factor of 20dB/decade from 3m to 1.5m.

Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB=6.0 dB

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25GHz.

During the radiated emission test, the EMI Test Receiver & Spectrum Analyzer Setup was set with the following configurations:

Frequency Range	RBW	VBW	Measurement
9 kHz – 150 kHz	300Hz	1 kHz	PK
	200Hz	/	QP
150 kHz – 30 MHz	10 kHz	30 kHz	PK
	9kHz	/	QP
30 MHz – 1000 MHz	100 kHz	300 kHz	PK
	120kHz	/	QP

1GHz~25GHz:
Pre-scan:

Measurement	RBW	Video B/W	Detector
PK	1MHz	3MHz	PK
Ave.	1MHz	5kHz	PK

Final measurement for emission identified during the pre-scan:

Measurement	RBW	Video B/W	Detector
PK	1MHz	3MHz	PK
Ave.	1MHz	10Hz	PK

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

For each measurement antenna alignment, the EUT shall be rotated through 0°to 360°on a turntable. The report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground parallel) unless the margin is greater than 20 dB, then the following statement shall be made: “all emissions were greater than 20 dB below the limit.”

Below 1GHz, if the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 6 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

Above 1GHz, if the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is below the AV emission limit, there's no need to record the measured AV level of the emissions in the report.

Result & Margin Calculation

The Result is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

For 9 kHz to 18GHz Radiated emission test
Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

For 18GHz to 25GHz Radiated emission test and Bandedge emissions test
Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB) - Extrapolation factor (dB)

Extrapolation factor=6dB (distance=1.5m)

Result (dBμV/m) = Reading (dBμV) + Factor (dB/m)

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV/m) –Result (dBμV/m)

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209 &15.205 & 15.249.

Test Data

Frequency Range:	Below 1 GHz	Above 1 GHz	Fundamental Test & Out-of-band Emissions Test:
Temperature:	22.4°C	22.4°C	22.4°C
Relative Humidity:	50%	50%	50%
ATM Pressure:	100.1kPa	100.1kPa	100.1kPa
Test Date:	2025-05-29	2025-05-29	2025-05-29
Test Engineer:	Wlif Wu	Wlif Wu	Wlif Wu

Note: Pre-scan in the X, Y and Z axes of orientation, the worst case Z-axis of orientation was recorded.

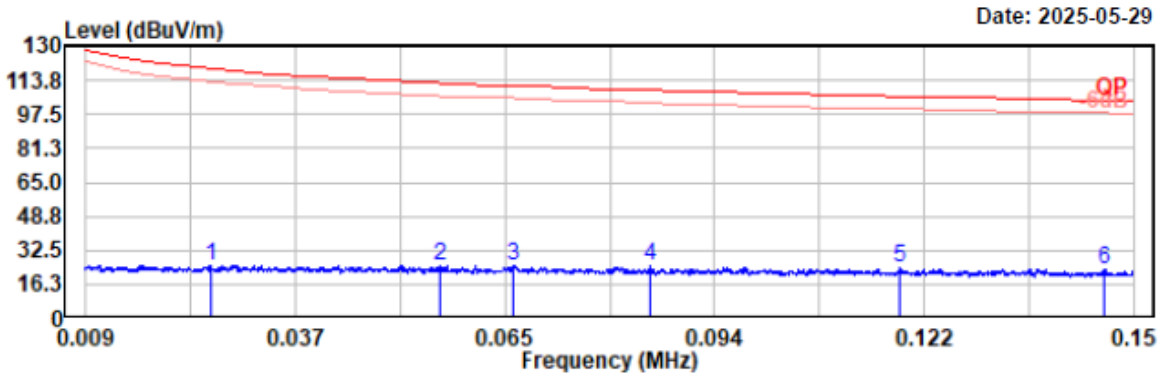
1) 9 kHz~30MHz

Pre-scan in parallel, ground-parallel and perpendicular of orientation of loop antenna, parallel is worst case

Note: The maximum output power mode: low channel transmitting was tested.

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

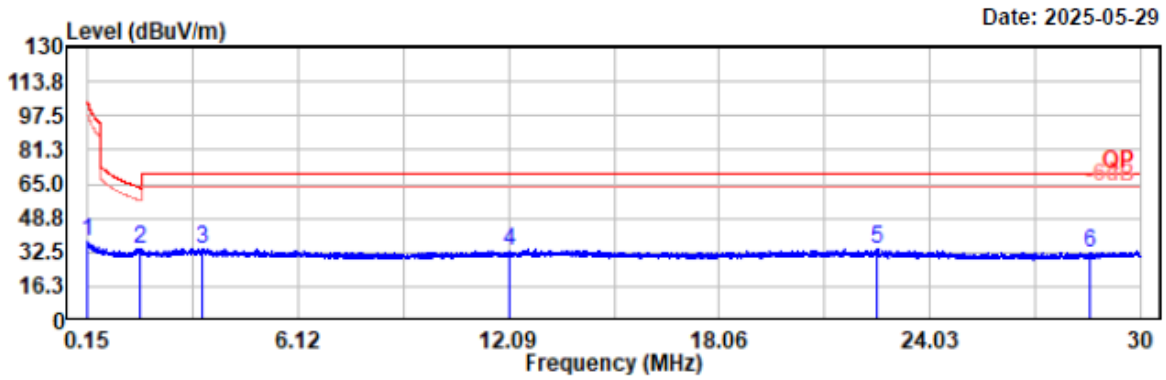


Condition: PK RBW:300Hz VBW:1kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
0.026	5.57	19.87	25.44	119.40	93.96	Peak
0.057	5.33	19.91	25.24	112.54	87.30	Peak
0.067	5.52	19.84	25.36	111.15	85.79	Peak
0.085	5.71	19.76	25.47	109.03	83.56	Peak
0.119	4.58	19.73	24.31	106.13	81.82	Peak
0.146	3.95	19.73	23.68	104.32	80.64	Peak

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V



Condition: PK RBW:10kHz VBW:30kHz SWT:auto

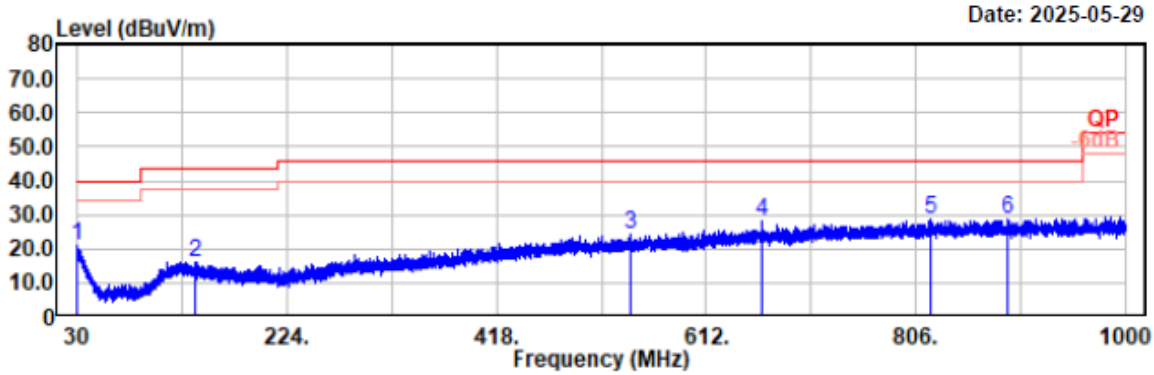
Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark
0.156	18.04	19.72	37.76	103.74	65.98	Peak
1.616	14.87	19.64	34.51	63.44	28.93	Peak
3.380	14.62	19.81	34.43	69.54	35.11	Peak
12.132	13.68	19.73	33.41	69.54	36.13	Peak
22.555	14.08	20.16	34.24	69.54	35.30	Peak
28.582	12.31	20.03	32.34	69.54	37.20	Peak

2) 30MHz~ 1GHz

Note: The maximum output power mode: low channel transmitting was tested.

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

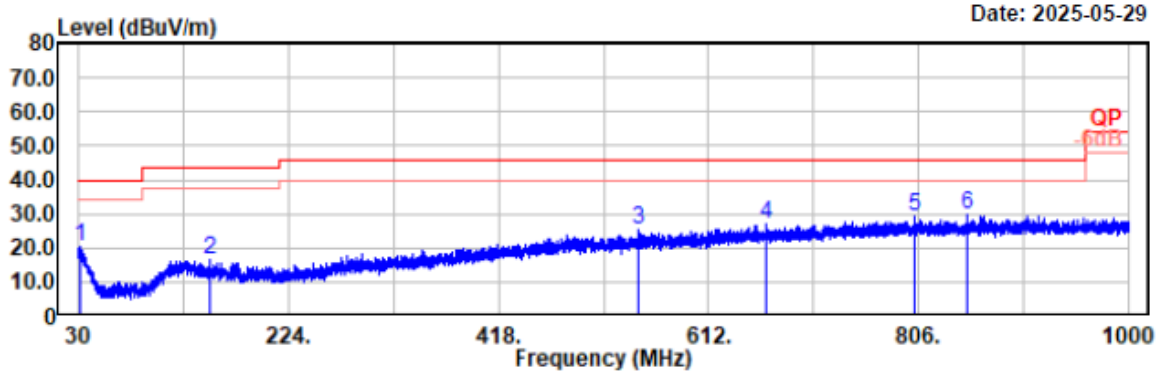


Condition: PK RBW:100kHz VBW:300kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
30.00	26.44	-5.60	20.84	40.00	19.16	Horizontal	Peak
138.74	26.63	-10.58	16.05	43.50	27.45	Horizontal	Peak
541.68	27.07	-2.99	24.08	46.00	21.92	Horizontal	Peak
663.60	28.79	-0.78	28.01	46.00	17.99	Horizontal	Peak
819.10	26.91	1.58	28.49	46.00	17.51	Horizontal	Peak
891.65	26.14	2.48	28.62	46.00	17.38	Horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V



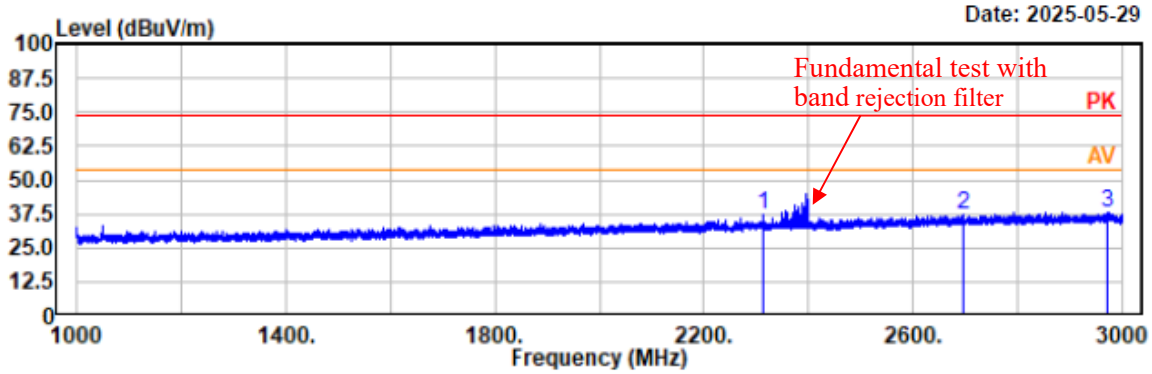
Condition: PK RBW:100kHz VBW:300kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
31.36	26.37	-6.04	20.33	40.00	19.67	Vertical	Peak
150.67	27.75	-11.16	16.59	43.50	26.91	Vertical	Peak
547.59	28.23	-2.86	25.37	46.00	20.63	Vertical	Peak
664.67	27.75	-0.75	27.00	46.00	19.00	Vertical	Peak
801.73	28.15	1.26	29.41	46.00	16.59	Vertical	Peak
851.11	27.86	1.94	29.80	46.00	16.20	Vertical	Peak

3) 1GHz~3 GHz

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

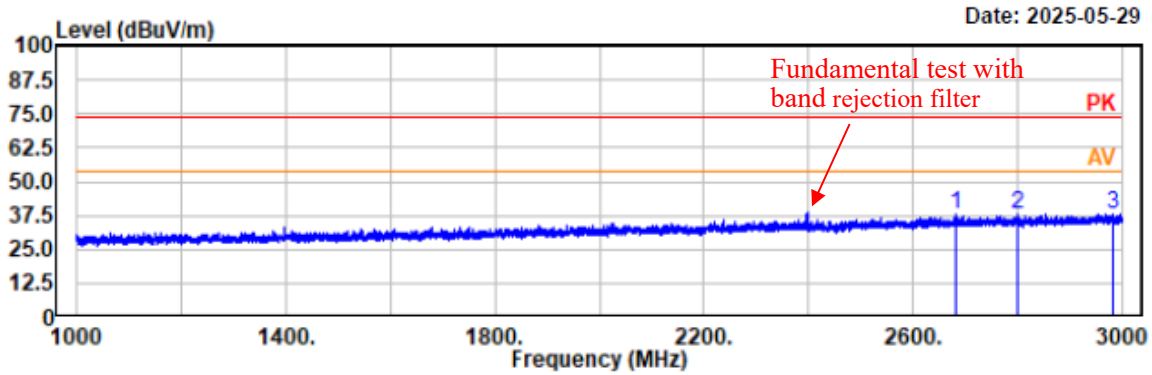


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2315.00	48.62	-11.39	37.23	74.00	36.77	horizontal	Peak
2696.20	47.29	-10.02	37.27	74.00	36.73	horizontal	Peak
2973.00	47.01	-9.08	37.93	74.00	36.07	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

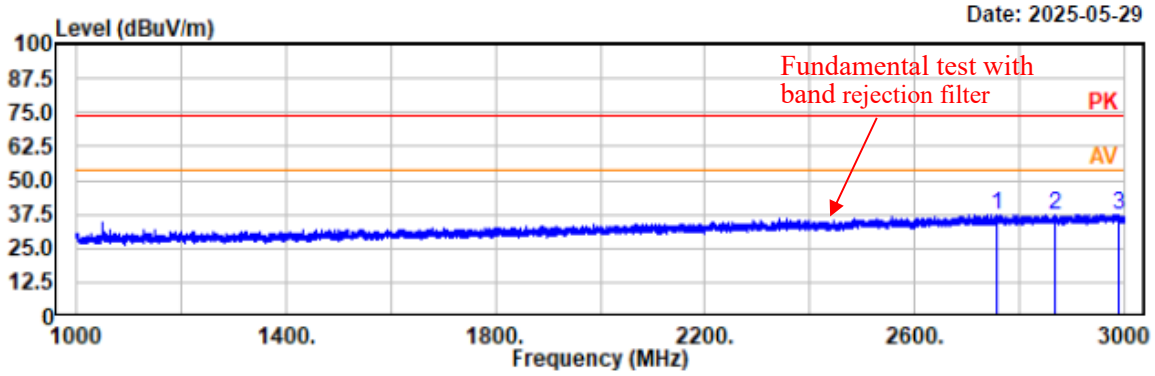


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2680.60	47.78	-10.08	37.70	74.00	36.30	vertical	Peak
2800.00	47.66	-9.79	37.87	74.00	36.13	vertical	Peak
2982.20	46.87	-9.04	37.83	74.00	36.17	vertical	Peak

Project No.: 2507T14533E-RF
Test Mode: mid channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

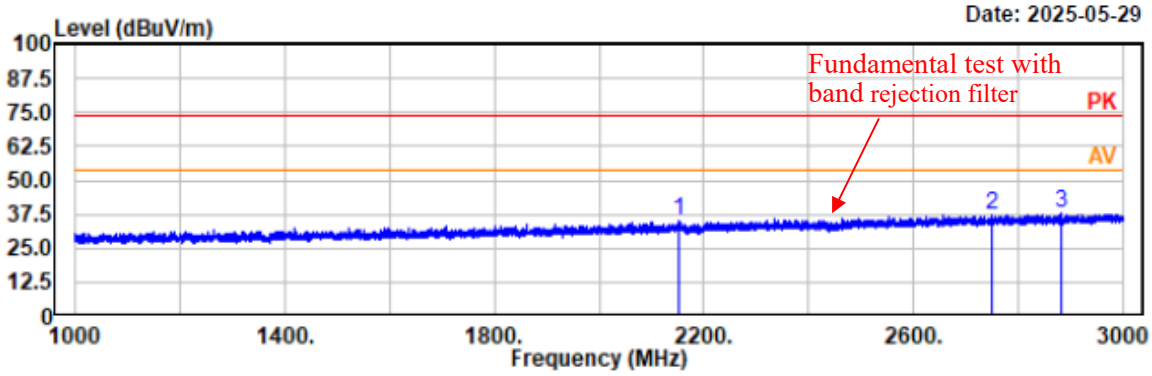


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2757.80	47.13	-9.92	37.21	74.00	36.79	horizontal	Peak
2867.60	47.16	-9.59	37.57	74.00	36.43	horizontal	Peak
2988.60	46.56	-9.01	37.55	74.00	36.45	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: mid channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

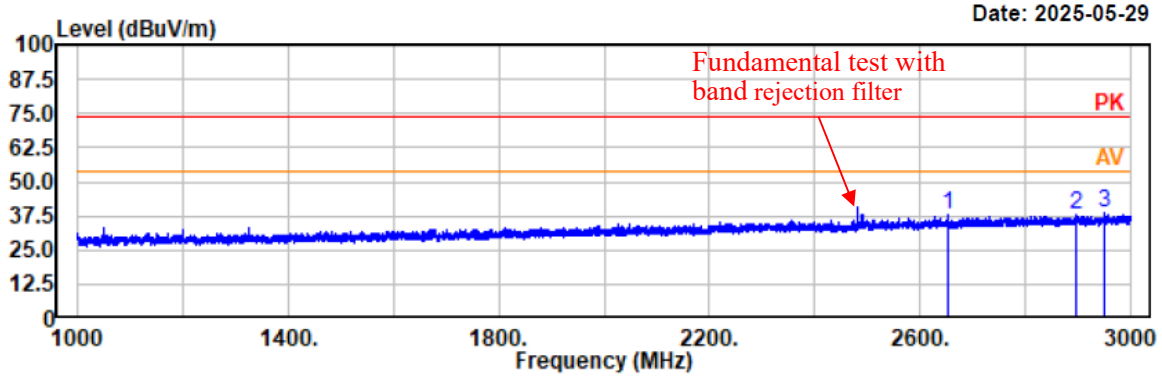


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2151.40	47.13	-12.13	35.00	74.00	39.00	vertical	Peak
2750.80	46.93	-9.94	36.99	74.00	37.01	vertical	Peak
2883.00	47.63	-9.58	38.05	74.00	35.95	vertical	Peak

Project No.: 2507T14533E-RF
Test Mode: high channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

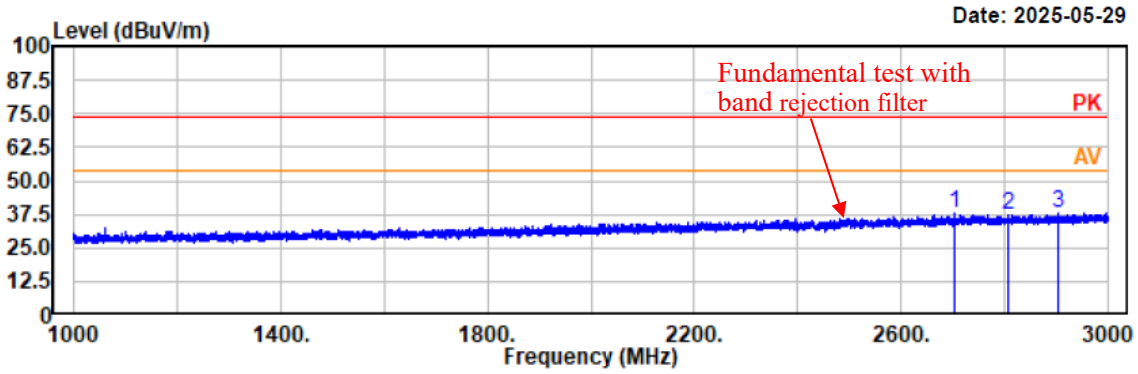


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2653.80	47.97	-10.18	37.79	74.00	36.21	horizontal	Peak
2896.60	47.54	-9.56	37.98	74.00	36.02	horizontal	Peak
2951.20	47.69	-9.20	38.49	74.00	35.51	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: high channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V



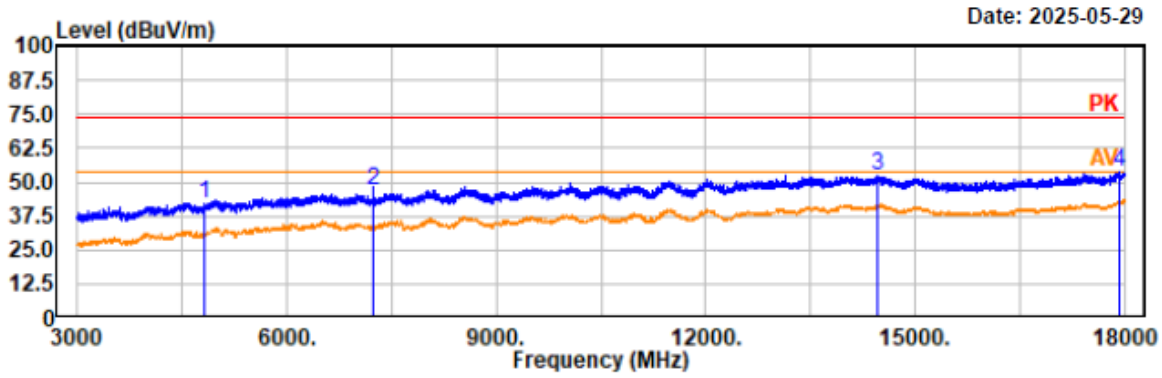
Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2703.80	47.77	-9.99	37.78	74.00	36.22	vertical	Peak
2806.00	47.13	-9.77	37.36	74.00	36.64	vertical	Peak
2904.20	47.23	-9.52	37.71	74.00	36.29	vertical	Peak

4) 3GHz~18 GHz

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

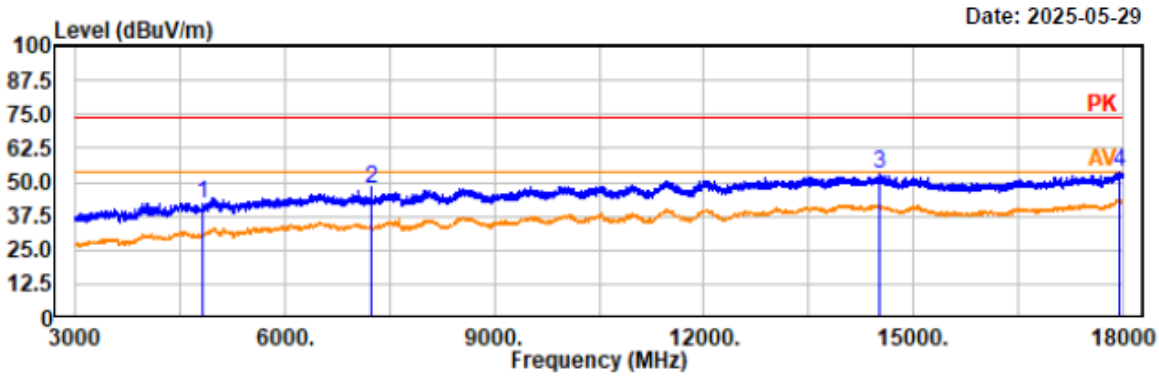


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4820.00	47.39	-5.26	42.13	74.00	31.87	horizontal	Peak
7230.00	49.14	-2.48	46.66	74.00	27.34	horizontal	Peak
14467.50	47.10	5.12	52.22	74.00	21.78	horizontal	Peak
17916.00	46.87	6.82	53.69	74.00	20.31	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

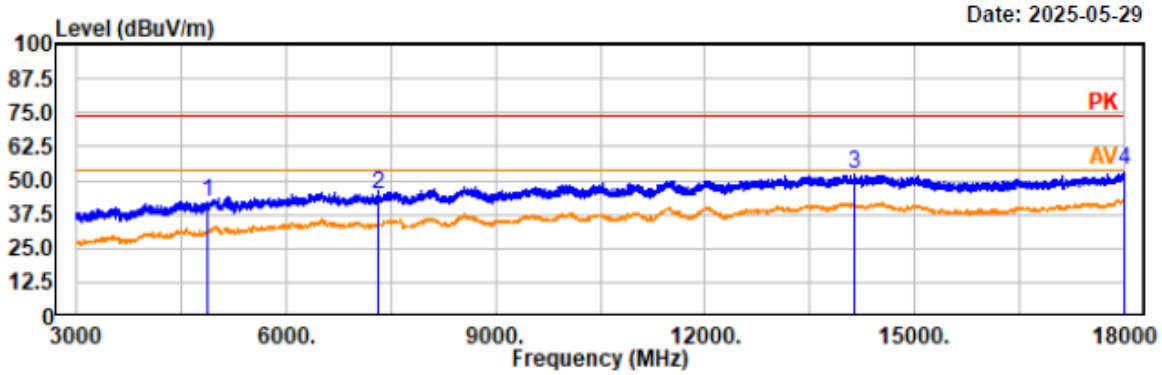


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4820.00	47.03	-5.26	41.77	74.00	32.23	vertical	Peak
7230.00	50.34	-2.48	47.86	74.00	26.14	vertical	Peak
14518.50	47.94	5.06	53.00	74.00	21.00	vertical	Peak
17944.50	46.74	6.85	53.59	74.00	20.41	vertical	Peak

Project No.: 2507T14533E-RF
Test Mode: mid channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

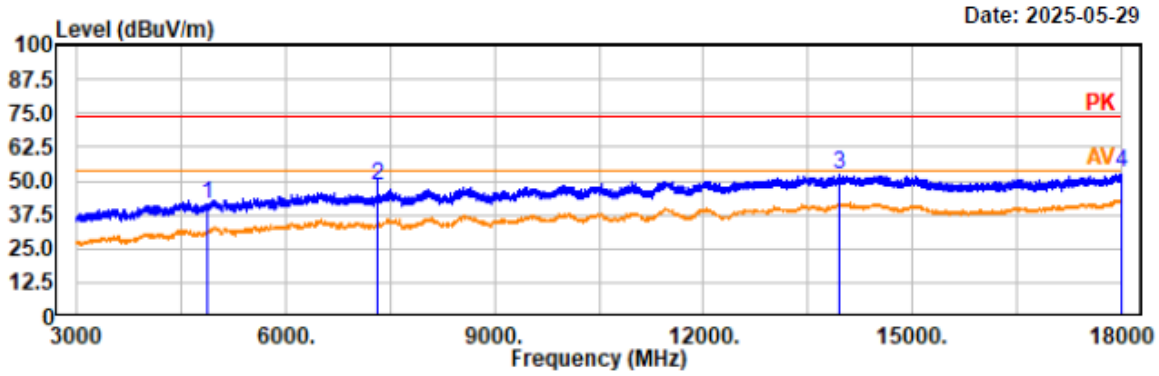


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4879.50	47.44	-5.30	42.14	74.00	31.86	horizontal	Peak
7320.00	47.31	-2.25	45.06	74.00	28.94	horizontal	Peak
14151.00	46.75	5.35	52.10	74.00	21.90	horizontal	Peak
17999.99	46.55	6.91	53.46	74.00	20.54	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: mid channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

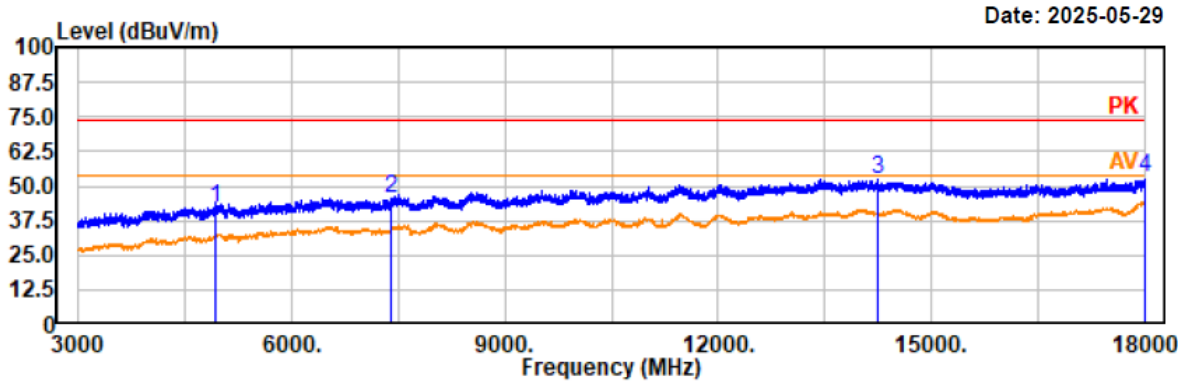


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4880.00	46.61	-5.30	41.31	74.00	32.69	vertical	Peak
7320.00	50.38	-2.25	48.13	74.00	25.87	vertical	Peak
13941.00	46.89	5.19	52.08	74.00	21.92	vertical	Peak
17999.99	46.08	6.91	52.99	74.00	21.01	vertical	Peak

Project No.: 2507T14533E-RF
Test Mode: high channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

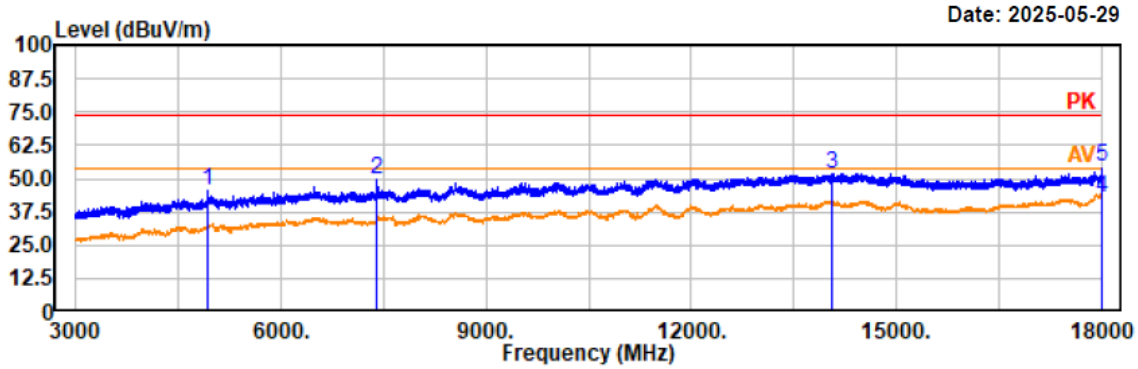


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4940.00	46.91	-5.18	41.73	74.00	32.27	horizontal	Peak
7410.00	47.81	-2.11	45.70	74.00	28.30	horizontal	Peak
14242.50	47.14	5.34	52.48	74.00	21.52	horizontal	Peak
17999.98	46.09	6.91	53.00	74.00	21.00	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: high channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V



Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

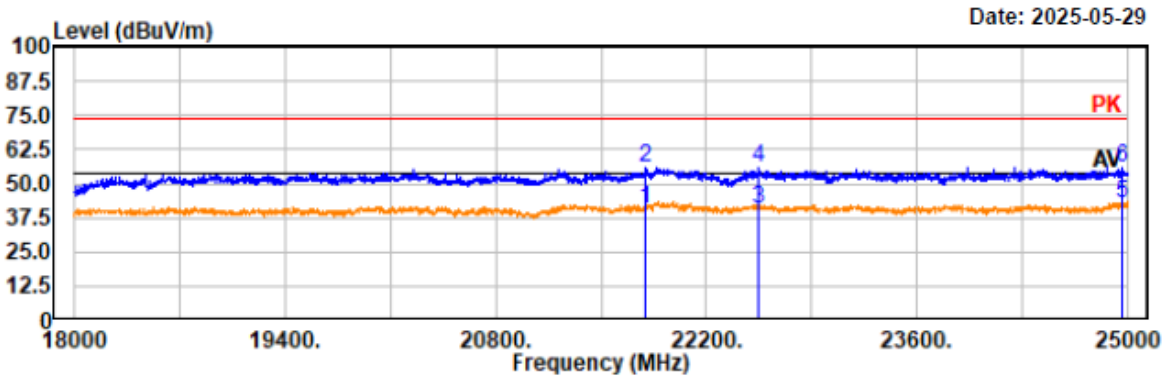
Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4940.00	50.88	-5.18	45.70	74.00	28.30	vertical	Peak
7410.00	51.61	-2.12	49.49	74.00	24.51	vertical	Peak
14050.50	46.53	5.27	51.80	74.00	22.20	vertical	Peak
17999.99	36.00	6.91	42.91	54.00	11.09	vertical	Average
17999.99	47.62	6.91	54.53	74.00	19.47	vertical	Peak

5）18 GHz~ 25 GHz

Note: The maximum output power mode: low channel transmitting was tested.

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 1.5m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

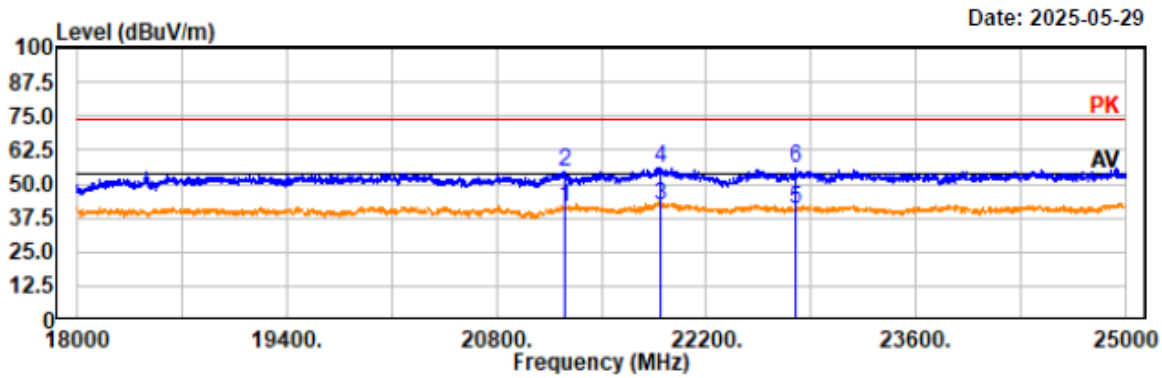


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
21795.00	35.90	4.97	40.87	54.00	13.13	horizontal	Average
21795.00	51.08	4.97	56.05	74.00	17.95	horizontal	Peak
22551.80	35.70	5.08	40.78	54.00	13.22	horizontal	Average
22551.80	50.56	5.08	55.64	74.00	18.36	horizontal	Peak
24963.00	36.11	6.32	42.43	54.00	11.57	horizontal	Average
24963.00	49.71	6.32	56.03	74.00	17.97	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 1.5m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V



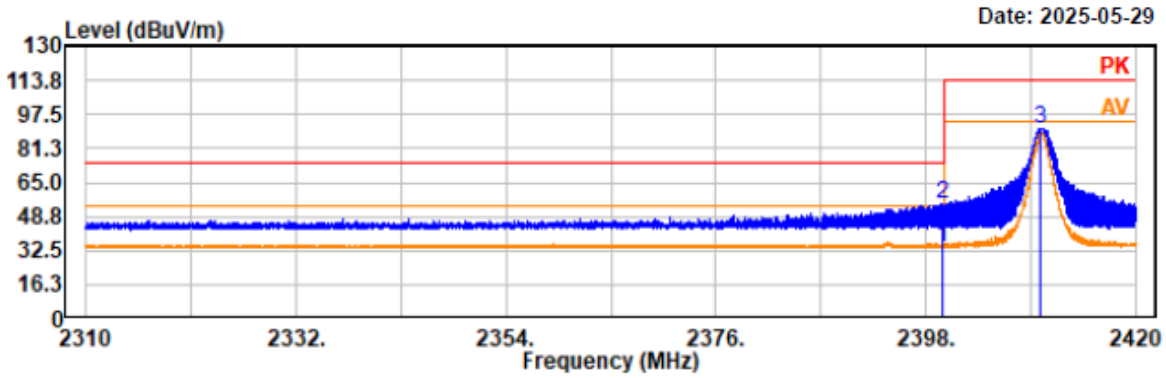
Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
21251.60	36.96	4.24	41.20	54.00	12.80	vertical	Average
21251.60	50.59	4.24	54.83	74.00	19.17	vertical	Peak
21894.00	37.21	5.19	42.40	54.00	11.60	vertical	Average
21894.00	50.95	5.19	56.14	74.00	17.86	vertical	Peak
22793.80	35.38	5.02	40.40	54.00	13.60	vertical	Average
22793.80	50.95	5.02	55.97	74.00	18.03	vertical	Peak

Fundamental Test & Out-of-band Emissions Test:

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

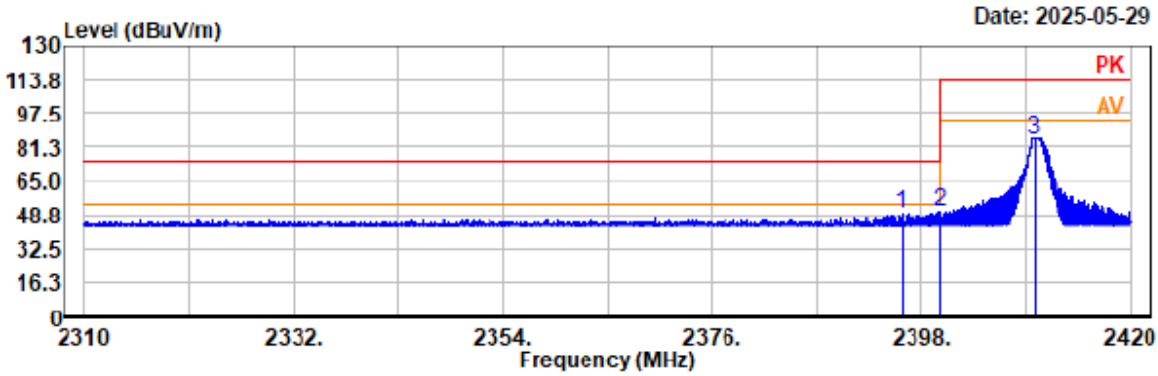


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2399.74	35.48	-1.12	34.36	54.00	19.64	horizontal	Average
2399.74	55.98	-1.12	54.86	74.00	19.14	horizontal	Peak
2409.94	91.83	-1.07	90.76	114.00	23.24	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: low channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

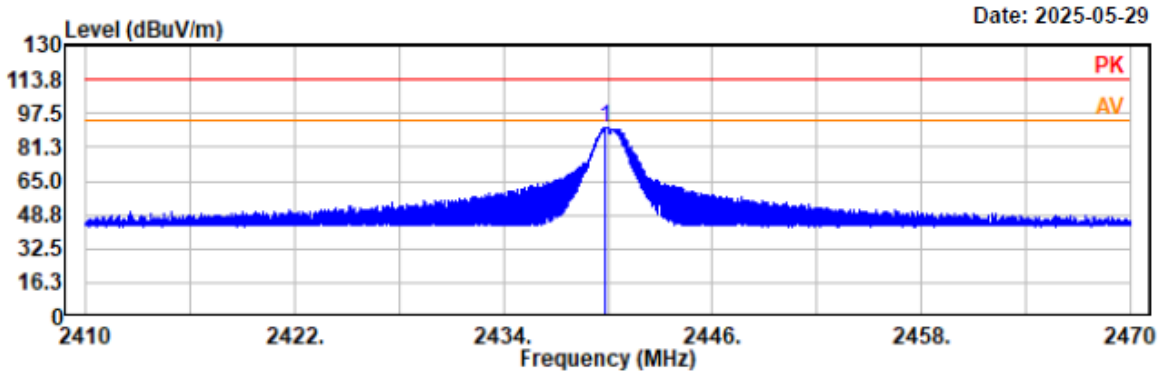


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2395.92	50.57	-1.14	49.43	74.00	24.57	vertical	Peak
2400.00	50.99	-1.12	49.87	114.00	64.13	vertical	Peak
2409.90	86.63	-1.07	85.56	114.00	28.44	vertical	Peak

Project No.: 2507T14533E-RF
Test Mode: mid channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

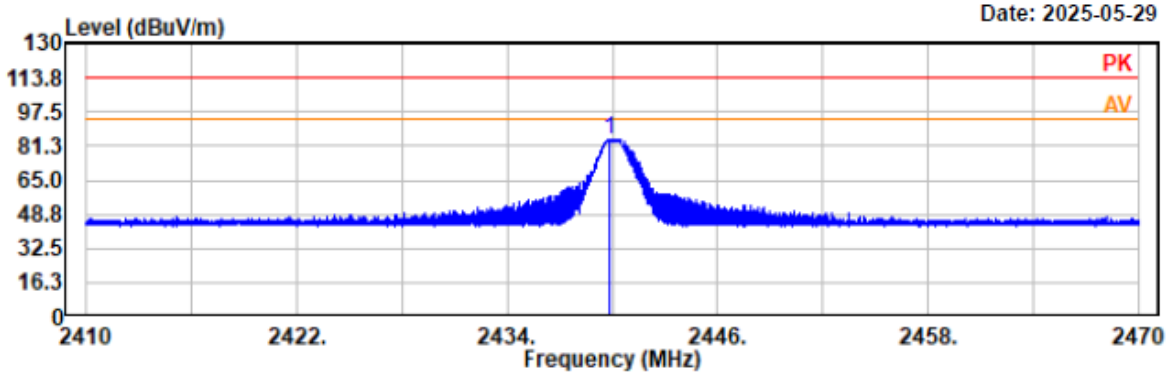


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2439.84	91.58	-0.95	90.63	114.00	23.37	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: mid channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

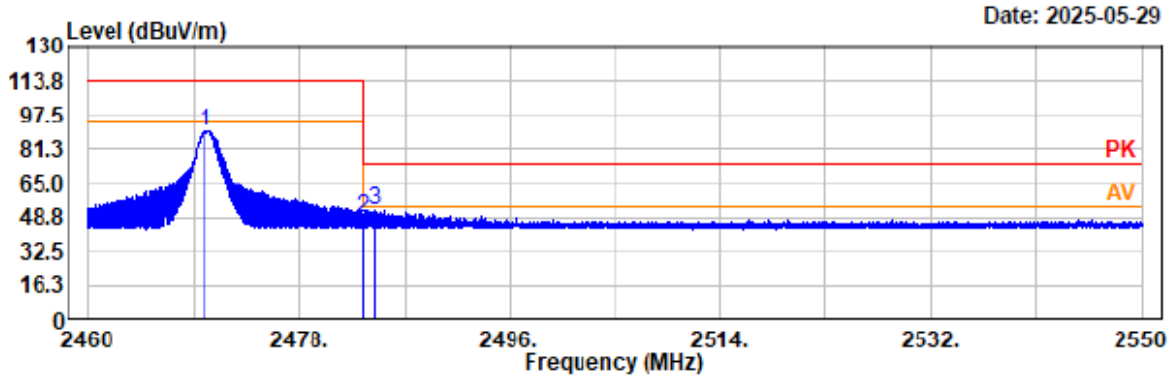


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2439.83	85.58	-0.95	84.63	114.00	29.37	vertical	Peak

Project No.: 2507T14533E-RF
Test Mode: high channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V

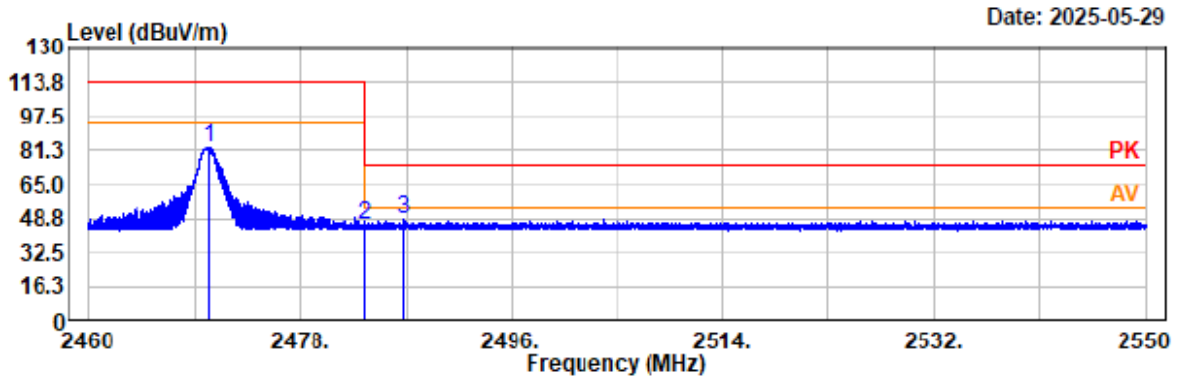


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2469.94	90.43	-0.83	89.60	114.00	24.40	horizontal	Peak
2483.50	49.11	-0.77	48.34	74.00	25.66	horizontal	Peak
2484.50	53.03	-0.76	52.27	74.00	21.73	horizontal	Peak

Project No.: 2507T14533E-RF
Test Mode: high channel Transmitting
EUT Model: Q8
Test distance: 3m

Temp/Humi/ATM: 22.4℃/50%/100.1kPa
Tested by: Wlif Wu
Power Source: DC 3V



Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2470.31	83.20	-0.83	82.37	114.00	31.63	vertical	Peak
2483.50	46.43	-0.77	45.66	74.00	28.34	vertical	Peak
2486.69	49.03	-0.75	48.28	74.00	25.72	vertical	Peak

FCC §15.215(c) - 20dB EMISSION BANDWIDTH TESTING

Applicable Standard

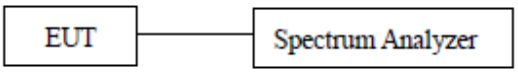
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

According to section 6.9 of standard ANSI C63.10-2013.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
3. Repeat above procedures until all frequencies measured were complete.

Test Setup



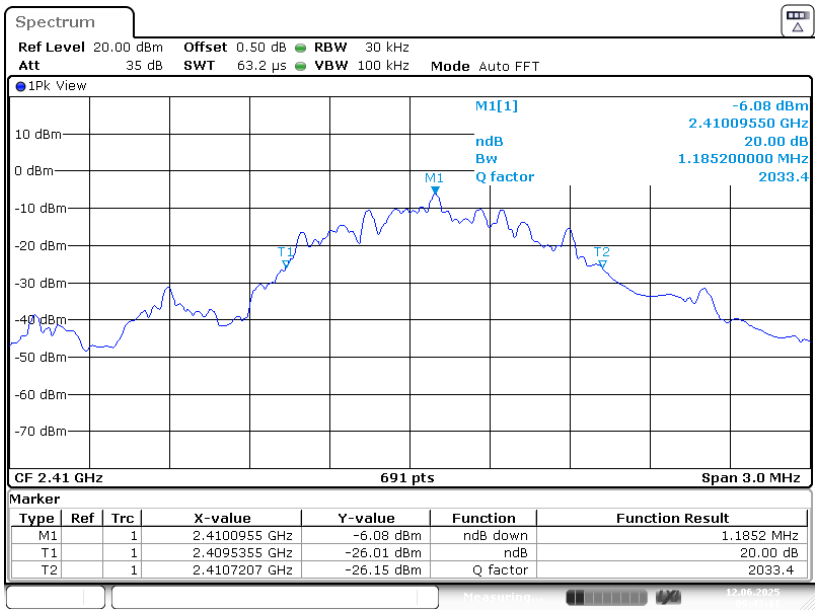
Test Data

Test Mode:	Transmitting	**Test Engineer:**	Braylon Ma
Test Date:	2025-06-12	**Test Voltage:**	DC 3V from battery
Test Frequency:	2410MHz, 2440MHz, 2470MHz	**Environment:**	Temp.: 24.2°C Humi.: 52% Atm:100.3kPa

Test Result: Compliant.

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
1	2410	1.185
2	2440	1.181
3	2470	1.155

2410 MHz



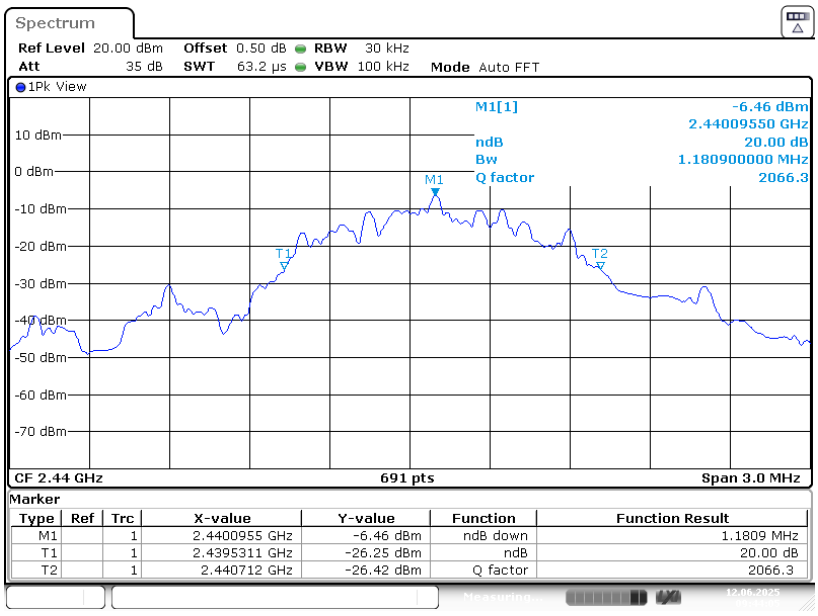
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4100955 GHz	-6.08 dBm	ndB down	1.1852 MHz
T1		1	2.4095355 GHz	-26.01 dBm	ndB	20.00 dB
T2		1	2.4107207 GHz	-26.15 dBm	Q factor	2033.4

ProjectNo.:2507T14533E-RF Tester:Braylon Ma

Date: 12.JUN.2025 09:43:11

2440 MHz



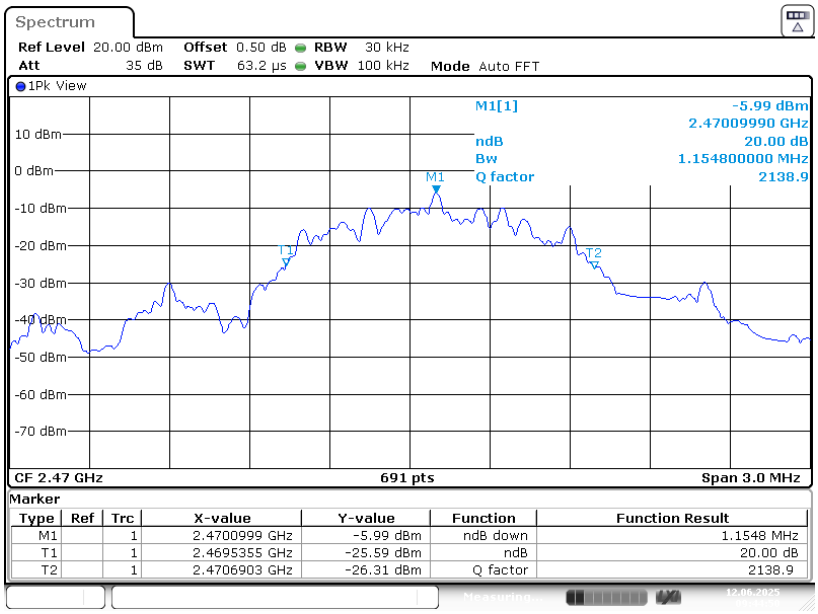
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4400955 GHz	-6.46 dBm	ndB down	1.1809 MHz
T1		1	2.4395311 GHz	-26.25 dBm	ndB	20.00 dB
T2		1	2.440712 GHz	-26.42 dBm	Q factor	2066.3

ProjectNo.:2507T14533E-RF Tester:Braylon Ma

Date: 12.JUN.2025 09:44:05

2470 MHz



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4700999 GHz	-5.99 dBm	ndB down	1.1548 MHz
T1		1	2.4695355 GHz	-25.59 dBm	ndB	20.00 dB
T2		1	2.4706903 GHz	-26.31 dBm	Q factor	2138.9

ProjectNo.:2507T14533E-RF Tester:Braylon Ma

Date: 12.JUN.2025 09:44:50

EUT PHOTOGRAPHS

Please refer to the attachment 2507T14533E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2507T14533E-RF-INP EUT INTERNAL PHOTOGRAPHS.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2507T14533E-RF-TSP TEST SETUP PHOTOGRAPHS.

Declarations

1. Bay Area Compliance Laboratories Corp. (Xiamen) is not responsible for authenticity of any information provided by the applicant. Information from the applicant that may affect test results are marked with an asterisk "★".

2. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.

3. Unless required by the rule provided by the applicant or product regulations, then decision rule in this report did not consider the uncertainty.

4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95% confidence interval.

5. This report cannot be reproduced except in full, without prior written approval of Bay Area Compliance Laboratories Corp. (Xiamen).

6. This report is valid only with a valid digital signature. The digital signature may be available only under the adobe software above version 7.0.

******* END OF REPORT *******