FCC Test Report

Report No.:	2505R50542EB
Applicant:	FondCircle Inc.
Address:	4695 MacArthur Court 11th Floor Newport Beach California, CA 92660 United States
Product Name:	Electronic Stethoscope
Product Model:	FSC-D1
Multiple Models:	N/A
Trade Mark:	N/A
FCC ID:	2BMIHFSC-D1
Standards:	FCC CFR Title 47 Part 15C (§15.247)
Test Date:	2025-04-07 to 2025-04-29
Test Result:	Complied
Report Date:	2025-05-08

Reviewed by: Ryan Zhang

Ryan Zhang
Project Engineer

Approved by: Jacob Gong

Jacob Kong
Manager

Prepared by:

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

NVLAP TESTING NVLAP LAB CODE 600335-0

This report may contain data that are not covered by the NVLAP accreditation and shall be marked with an asterisk "★"

Announcement

1. This test report shall not be reproduced except in full, without the written approval of World Alliance Testing & Certification (Shenzhen) Co., Ltd

2. The results in this report apply only to the sample tested.

3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

4. The information marked "#" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

Revision History

Version No.	Issued Date	Description
00	*2025-05-08*	*Original*

Contents

1 General Information 4
1.1 Client Information 4
1.2 Product Description of EUT 4
1.3 Antenna information 4
1.4 Related Submittal(s)/Grant(s) 5
1.5 Measurement Uncertainty 5
1.6 Laboratory Location 5
1.7 Test Methodology 5
2 Description of Measurement 6
2.1 Test Configuration 6
2.2 Test Auxiliary Equipment 7
2.3 Interconnecting Cables 7
2.4 Block Diagram of Connection between EUT and AE 7
2.5 Test Setup 8
2.6 Test Procedure 10
2.7 Measurement Method 11
2.8 Measurement Equipment 12
3 Test Results 13
3.1 Test Summary 13
3.2 Limit 14
3.3 AC Line Conducted Emissions Test Data 15
3.4 Radiated emission Test Data 17
3.5 RF Conducted Test Data 49
3.5.1 20 dB Emission Bandwidth 49
3.5.2 99% Occupied Bandwidth 49
3.5.3 Maximum Conducted Peak Output Power 50
3.5.4 Channel separation 50
3.5.5 Number of hopping Frequency 50
3.5.6 Time of occupancy (dwell time) 51
3.5.7 100 kHz Bandwidth of Frequency Band Edge 51
4 Test Setup Photo 64
5 E.U.T Photo 65

1 General Information

1.1 Client Information

Applicant:	FondCircle Inc.
Address:	4695 MacArthur Court 11th Floor Newport Beach California, CA 92660 United States
Manufacturer:	FondCircle Inc.
Address:	4695 MacArthur Court 11th Floor Newport Beach California, CA 92660 United States

1.2 Product Description of EUT

The EUT is Electronic Stethoscope that contains Classic Bluetooth and BLE radios, this report covers the full testing of the Classic Bluetooth radio.

Sample Serial Number	30JE-1 for CE test, 30JE-5 for RE test, 30JE-6 for RF conducted test (assigned by WATC)
Sample Received Date	2025-03-27
Sample Status	Good Condition
Frequency Range	2402MHz - 2480MHz
Maximum Conducted Peak Output Power	5.40dBm
Modulation Technology	GFSK, π/4 DQPSK, 8DPSK
Spatial Streams	SISO (1TX, 1RX)
Antenna Gain#	-0.58dBi
Power Supply	DC 5V from Type C or DC 3.7V from battery
Adapter Information	N/A
Modification	Sample No Modification by the test lab

1.3 Antenna information

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.

Device Antenna information:	

The BT antenna is an internal antenna which cannot replace by end-user, please see product internal photos for details.

1.4 Related Submittal(s)/Grant(s)

FCC Part 15, Subpart C, Equipment Class: DTS, FCC ID: 2BMIHFSC-D1

1.5 Measurement Uncertainty

Parameter		Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
AC Power Lines Conducted Emissions		±3.14dB
Emissions, Radiated	Below 30MHz	±2.78dB
	Below 1GHz	±4.84dB
	Above 1GHz	±5.44dB
Emissions, Conducted		1.75dB
Conducted Power		0.74dB
Frequency Error		150Hz
Bandwidth		0.34%
Power Spectral Density		0.74dB
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.*		

1.6 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

1.7 Test Methodology

FCC CFR 47 Part 2

FCC CFR 47 Part 15

KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

Unless otherwise stated there are no any additions to, deviations, or exclusions from the method

2 Description of Measurement

2.1 Test Configuration

Operating channels:					
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	39	2441	76	2478
1	2403	40	2442	77	2479
…	…	…	…	78	2480
38	2440	…	…	/	/

According to ANSI C63.10-2013 chapter 5.6.1 Table 11 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	39	2441	78	2480

Test Mode:	
Transmitting mode:	Keep the EUT in continuous transmitting with modulation
Exercise software#:	FCC_assist1.0.4

Mode	Data rate	Power Level Setting#		
		Low Channel	Middle Channel	High Channel
GFSK	1Mbps	9	9	9
π/4 DQPSK	2Mbps	9	9	9
8DPSK	3Mbps	9	9	9

The exercise software and the maximum power setting that provided by manufacturer.

Worst-Case Configuration:

For radiated emissions, EUT was investigated in three orthogonal orientation, the worst-case orientation was recorded in report

For AC power line conducted emission and radiated emission 9kHz-1GHz and above 18GHz were performed with the EUT transmits at the channel with highest output power as worst-case scenario.

For radiated emissions below 30MHz, three antenna orientations (parallel, perpendicular, gound-parallel) were tested, only record the worse case test data in report.

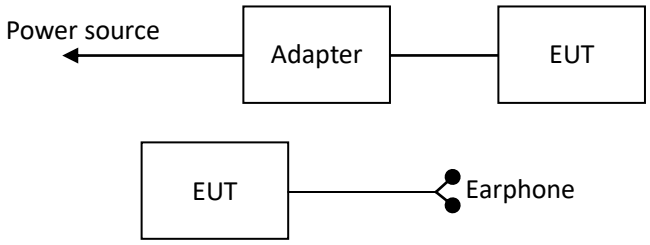
2.2 Test Auxiliary Equipment

Manufacturer	Description	Model	Serial Number
Meizu	Adapter	unknown	unknown

2.3 Interconnecting Cables

Manufacturer	Description	Length(m)	From	To
unknown	USB cable	1.0	Power source	EUT

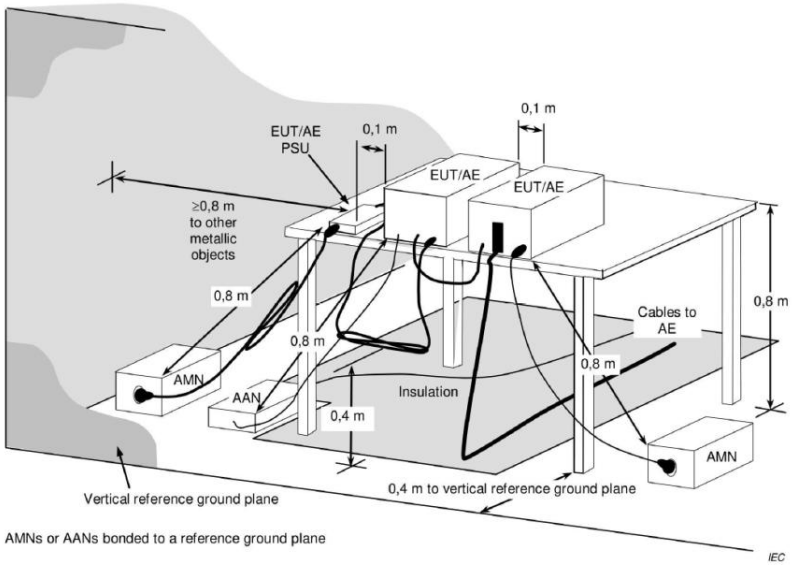
2.4 Block Diagram of Connection between EUT and AE



Note: for reference only, the actual connection setup used for testing please refer to the test photos.

2.5 Test Setup

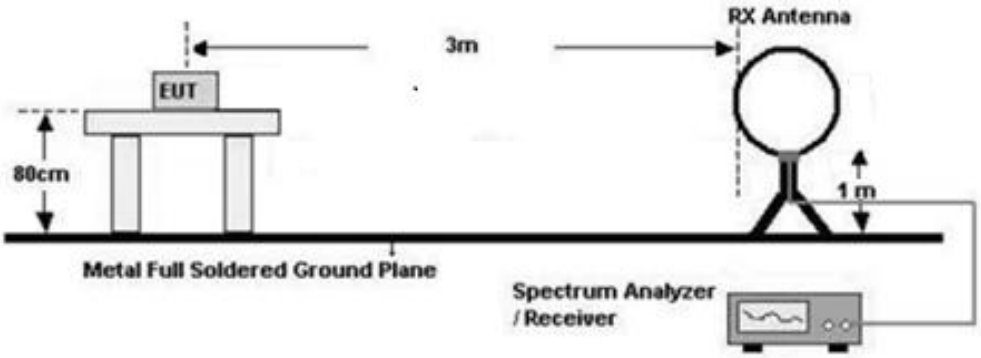
1) Conducted emission measurement:



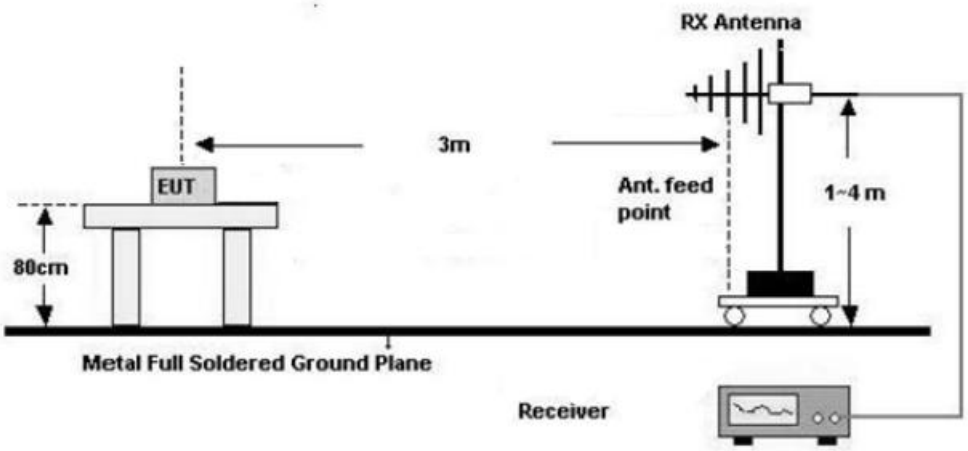
Note: The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be >0.8 m.

2) Radiated emission measurement:

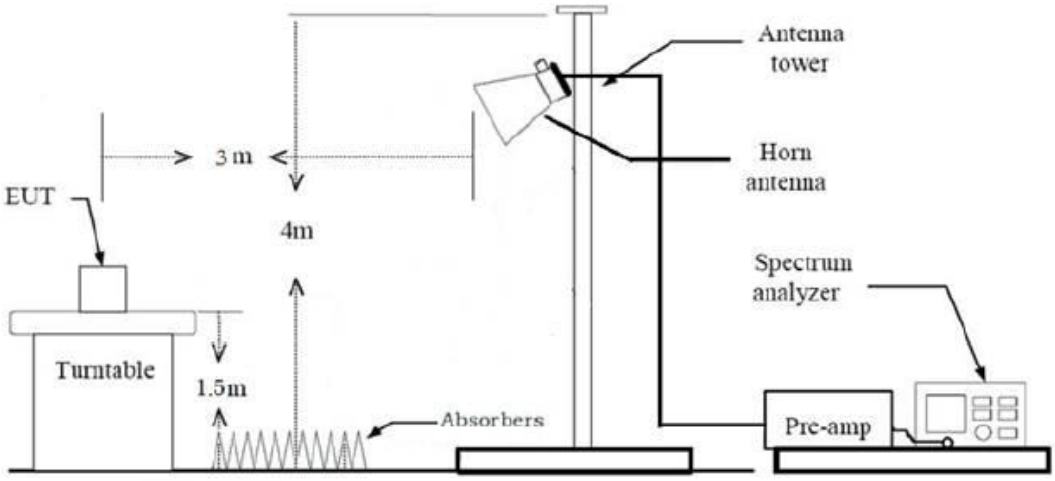
Below 30MHz (3m SAC)



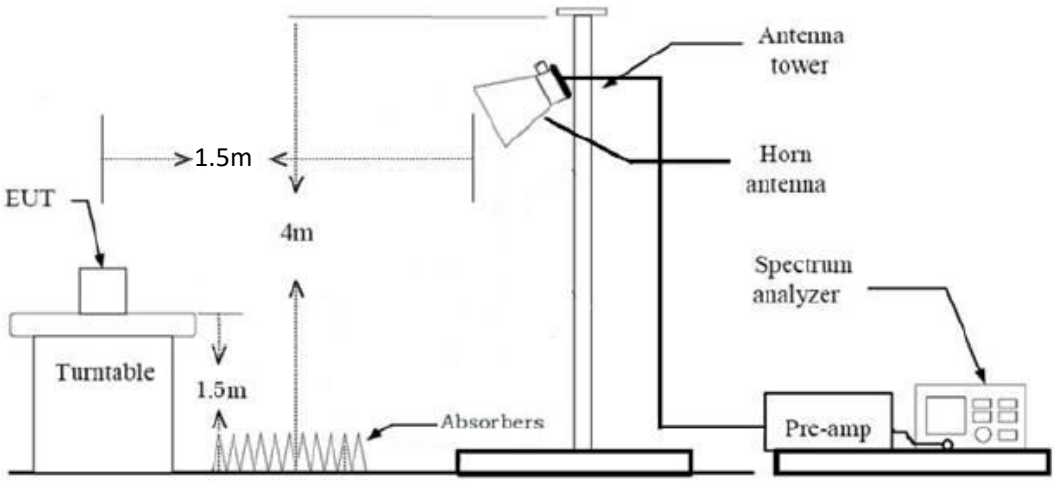
30MHz-1GHz (3m SAC)



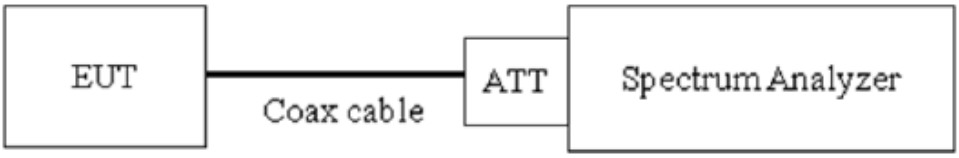
1GHz-18GHz



Above 18GHz



3) RF Conducted Test



2.6 Test Procedure

Conducted emission:

1. The E.U.T is placed on a non-conducting table 40cm from the vertical ground plane and 80cm above the horizontal ground plane (Please refer to the block diagram of the test setup and photographs).
2. 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 on conducted measurement.
3. Line conducted data is recorded for both Line and Neutral

Radiated Emission Procedure:

a) For below 30MHz

1. All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz- 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40*Log (test distance / specification distance).
2. Loop antenna use, investigation was done on the three antenna orientations (parallel, perpendicular, gound-parallel)
3. The RBW/VBW of receiver is set to 200Hz/1kHz for 9kHz to 150kHz range, to 9kHz/30kHz for 150kHz to 30MHz range for scan Peak emission, 200Hz/9kHz IF BW was used for final measurement in the Quasi-peak or average detection mode for frequency range 9~150kHz/150kHz~30MHz respectively.
4. If the Peak emission complies with the QP limit, then perform final measurement is optional.

b) For 30MHz-1GHz:

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. The RBW/VBW of receiver is set to 100kHz/300kHz for scan Peak emission, 120kHz IF BW was used for final measurement in the Quasi-peak detection mode.
4. If the Peak emission complies with the QP limit, then perform final measurement is optional.

c) For above 1GHz:

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m chamber. The measurement distance from the EUT to the receiving antenna is 3 m (1-18GHz) and 1.5 m (above 18GHz).
2. EUT works in each mode of operation that needs to be tested， and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

3. The RBW/VBW of spectrum analyzer is set to 1MHz/3MHz for scan Peak emission, for measured average emission, reduce the VBW to 10Hz (Note: a high VBW (for example 1kHz, not less than 1/T) may used to scan average emissions to avoid long sweep time.)
4. If the Peak emission complies with the Average limit, then perform average measurement is optional.
5. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
6. Base on FCC 15.31 (f): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

RF Conducted Test:

1. The antenna port of EUT was connected to the RF port of the test equipment (Power Meter or Spectrum analyzer) through Attenuator and RF cable.
2. The cable assembly insertion loss of 7.0dB (including 6.0 dB Attenuator and 1.0 dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 1.0dB was assumed as worst case. This was later verified to be true by laboratory. (if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode and tested in all modulation modes.

2.7 Measurement Method

Description of Test	Measurement Method
AC Line Conducted Emissions	ANSI C63.10-2013 Section 6.2
Maximum Conducted Output Power	ANSI C63.10-2013 Section 7.8.5
20 dB Emission Bandwidth	ANSI C63.10-2013 Section 6.9.2
99% Occupied Bandwidth	ANSI C63.10-2013 Section 6.9.3
Channel separation	ANSI C63.10-2013 Section 7.8.2
Number of hopping Frequency	ANSI C63.10-2013 Section 7.8.3
Time of occupancy (dwell time)	ANSI C63.10-2013 Section 7.8.4
100kHz Bandwidth of Frequency Band Edge	ANSI C63.10-2013 Section 7.8.7.2&6.10
Radiated emission	ANSI C63.10-2013 Section 7.8&6.3&6.4&6.5&6.6

2.8 Measurement Equipment

Manufacturer	Description	Model	Management No.	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
ROHDE& SCHWARZ	EMI TEST RECEIVER	ESR	101817	2024/6/4	2025/6/3
R&S	LISN	ENV216	101748	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.12	N/A	2024/6/4	2025/6/3
Farad	Test Software	EZ-EMC	Ver. EMEC-3A1	/	/
Radiated Emission Test					
R&S	EMI test receiver	ESR3	102758	2024/6/4	2025/6/3
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40-N	101608	2024/6/4	2025/6/3
SONOMA INSTRUMENT	Low frequency amplifier	310	186014	2024/6/4	2025/6/3
A.H. Systems	PREAMPLIFIER	PAM-0118P	531	2024/6/4	2025/6/3
COM-POWER	Amplifier	PAM-840A	461306	2024/8/7	2025/8/6
BACL	Loop Antenna	1313-1A	4010611	2024/2/7	2027/2/6
SCHWARZBECK	Log - periodic wideband antenna	VULB 9163	9163-872	2023/7/7	2026/7/6
Astro Antenna Ltd	Horn antenna	AHA-118S	3015	2023/7/6	2026/7/5
Ducommun technologies	Horn Antenna	ARH-4223-02	1007726-03	2023/7/10	2026/7/9
Oulitong	Band Reject Filter	OBSF-2400-248 3.5-50N	OE02103119	2024/6/4	2025/6/3
Unknown	6.7G High Pass Filter	Unknown	6.7G	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.9	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.13	N/A	2024/8/7	2025/8/6
N/A	Coaxial Cable	NO.15	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.16	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.17	N/A	2024/6/4	2025/6/3
Audix	Test Software	E3	191218 V9	/	/
RF Conducted Test					
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40	101419	2024/6/4	2025/6/3
MEEA	6dB attenuator	603-06-1	N/A	2024/6/4	2025/6/3

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

3 Test Results

3.1 Test Summary

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247 (a)(1)	20dB Emission Bandwidth	Report only
-	99% Occupied Bandwidth	Report only
§15.247 (a)(1)	Channel separation	Compliance
§15.247 (a)(1)(iii)	Number of hopping Frequency	Compliance
§15.247 (a)(1)(iii)	Time of occupancy (dwell time)	Compliance
§15.247(b)(1)	Maximum Conducted Output Power	Compliance
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliance
§15.205, §15.209, §15.247(d)	Radiated emission	Compliance

3.2 Limit

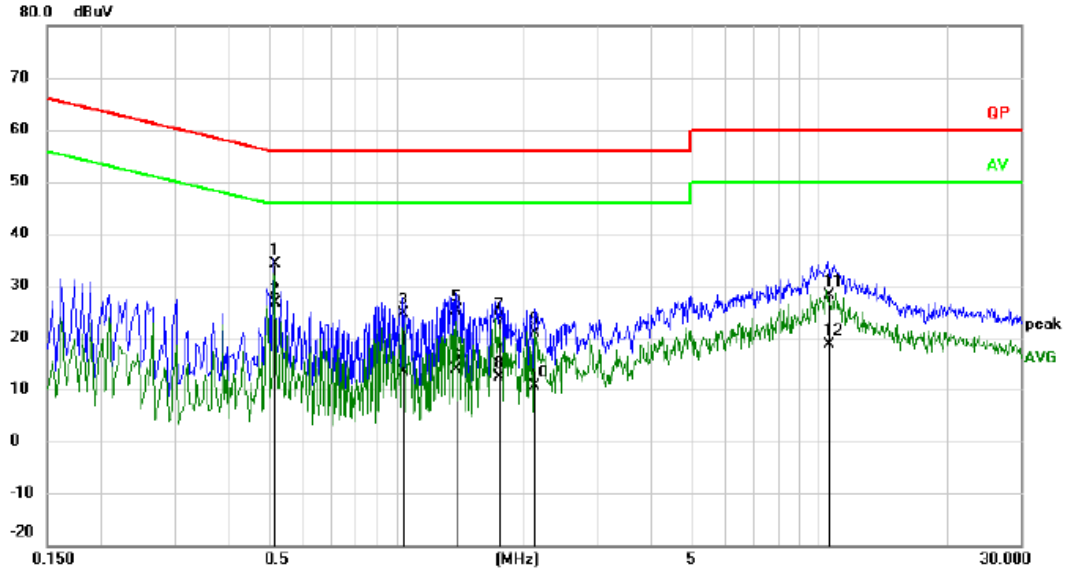
Test items	Limit
AC Line Conducted Emissions	See details §15.207 (a)
Conducted Output Power	For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.
Channel separation	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
Number of hopping Frequency	Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.
Time of occupancy (dwell time)	The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
Spurious Emissions, 100kHz Bandwidth of Frequency Band Edge	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

3.3 AC Line Conducted Emissions Test Data

Test Date:	2025-04-07	Test By:	Ryan Zhang
Environment condition:	Temperature: 25.1°C; Relative Humidity: 65%; ATM Pressure: 101.0kPa		

Conducted Emission Measurement

File :2505R50542E-RF Data :#9 Date: 2025/4/7 Time: 9:57:31



Limit: QP Phase: L1 Temperature: 25.1 ℃
Mode: Transmiting Power: AC 120V/60Hz Humidity: 65 %
Note: 3DH1 2441 Air Pressure: 1010 hpa

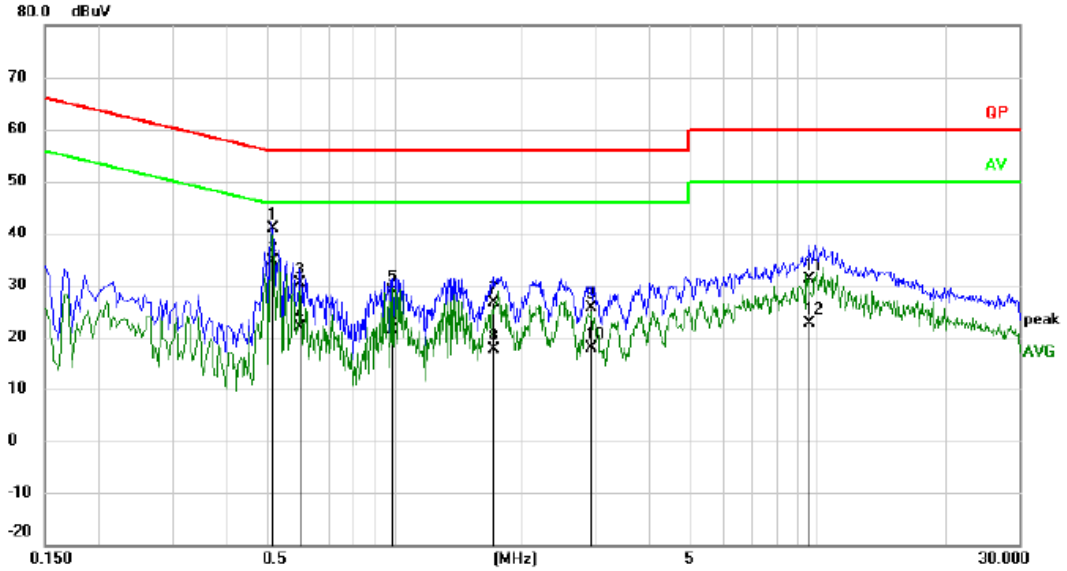
Receiver Setting:
9~150kHz(if apply): Pre-scan: RBW: 200Hz, DET: PK/AV; Final measure: RBW: 200Hz, DET: QP/AV
0.15~30MHz: Pre-scan: RBW: 9kHz, DET: PK/AV; Final measure: RBW: 9kHz, DET: QP/AV

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over Limit		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5180	23.40	10.67	34.07	56.00	-21.93	QP	
2	*	0.5180	15.99	10.67	26.66	46.00	-19.34	AVG	
3		1.0380	13.33	11.22	24.55	56.00	-31.45	QP	
4		1.0380	2.17	11.22	13.39	46.00	-32.61	AVG	
5		1.3860	14.23	10.85	25.08	56.00	-30.92	QP	
6		1.3860	3.06	10.85	13.91	46.00	-32.09	AVG	
7		1.7540	13.08	10.44	23.52	56.00	-32.48	QP	
8		1.7540	1.94	10.44	12.38	46.00	-33.62	AVG	
9		2.1260	10.64	10.21	20.85	56.00	-35.15	QP	
10		2.1260	0.31	10.21	10.52	46.00	-35.48	AVG	
11		10.5180	17.58	10.58	28.16	60.00	-31.84	QP	
12		10.5180	7.98	10.58	18.56	50.00	-31.44	AVG	

*:Maximum data x:Over limit !:over margin Engineer Signature: Ryan

Conducted Emission Measurement

File :2505R50542E-RF Data :#10 Date: 2025/4/7 Time: 9:59:45



Limit: QP	Phase:	N	Temperature:	25.1 ℃
Mode: Transmiting	Power:	AC 120V/60Hz	Humidity:	65 %
Note: 3DH1 2441			Air Pressure:	1010 hpa

Receiver Setting:
9~150kHz(if apply): Pre-scan: RBW: 200Hz, DET: PK/AV; Final measure: RBW: 200Hz, DET: QP/AV
0.15~30MHz: Pre-scan: RBW: 9kHz, DET: PK/AV; Final measure: RBW: 9kHz, DET: QP/AV

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over Limit		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5180	30.13	10.77	40.90	56.00	-15.10	QP	
2	*	0.5180	23.93	10.77	34.70	46.00	-11.30	AVG	
3		0.5980	19.68	10.70	30.38	56.00	-25.62	QP	
4		0.5980	11.09	10.70	21.79	46.00	-24.21	AVG	
5		0.9900	18.67	10.27	28.94	56.00	-27.06	QP	
6		0.9900	11.16	10.27	21.43	46.00	-24.57	AVG	
7		1.7220	16.30	10.34	26.64	56.00	-29.36	QP	
8		1.7220	7.36	10.34	17.70	46.00	-28.30	AVG	
9		2.9219	15.15	10.44	25.59	56.00	-30.41	QP	
10		2.9219	7.48	10.44	17.92	46.00	-28.08	AVG	
11		9.5659	20.53	10.63	31.16	60.00	-28.84	QP	
12		9.5659	11.89	10.63	22.52	50.00	-27.48	AVG	

*:Maximum data x:Over limit !:over margin Engineer Signature: Ryan

Remark:

Measurement (dBuV)= Reading Level (dBuV) + Correct Factor(dB)

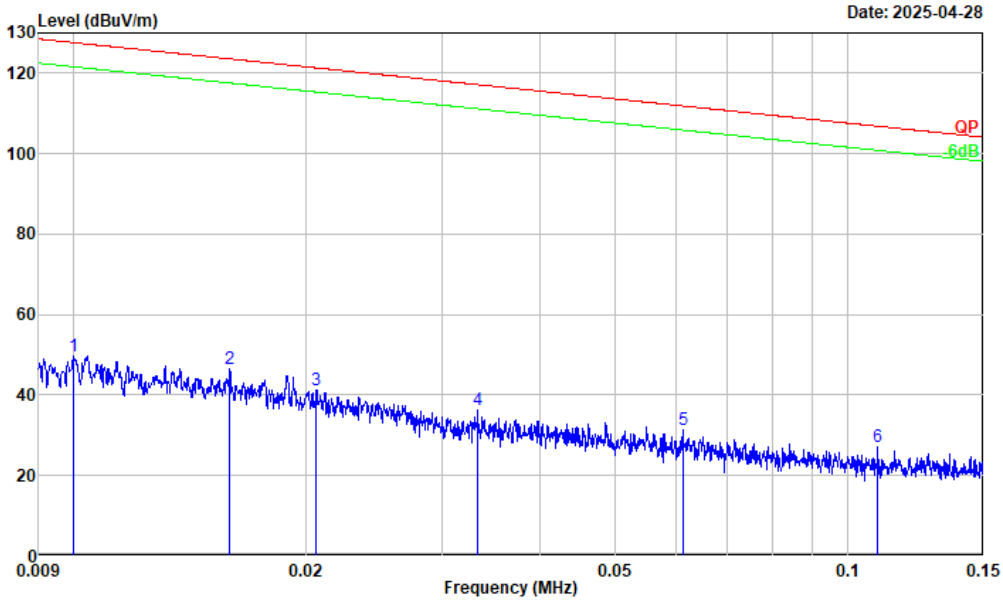
Correct Factor(dB)= LISN Voltage Division Factor (dB)+ Cable loss(dB)

Over Limit = Measurement – Limit

3.4 Radiated emission Test Data

9 kHz-30MHz:

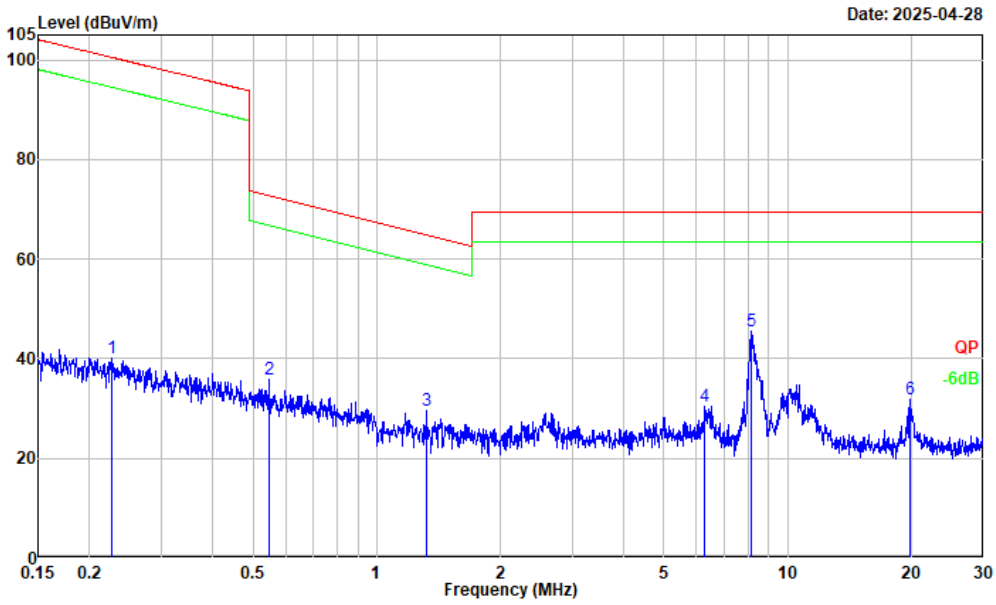
Test Date:	2025-04-28	**Test By:**	Bard Huang
Environment condition:	Temperature: 25.1°C; Relative Humidity:79%; ATM Pressure:100.5kPa		



Project No. : 2505R50542E
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : PARALLEL
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	0.010	12.54	37.29	49.83	127.60	-77.77	Peak
2	0.016	13.12	33.52	46.64	123.56	-76.92	Peak
3	0.021	10.80	30.56	41.36	121.32	-79.96	Peak
4	0.033	12.34	23.92	36.26	117.16	-80.90	Peak
5	0.061	12.23	18.96	31.19	111.87	-80.68	Peak
6	0.109	12.25	14.84	27.09	106.83	-79.74	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: RBW/VBW: 200Hz/1kHz, DET: PK



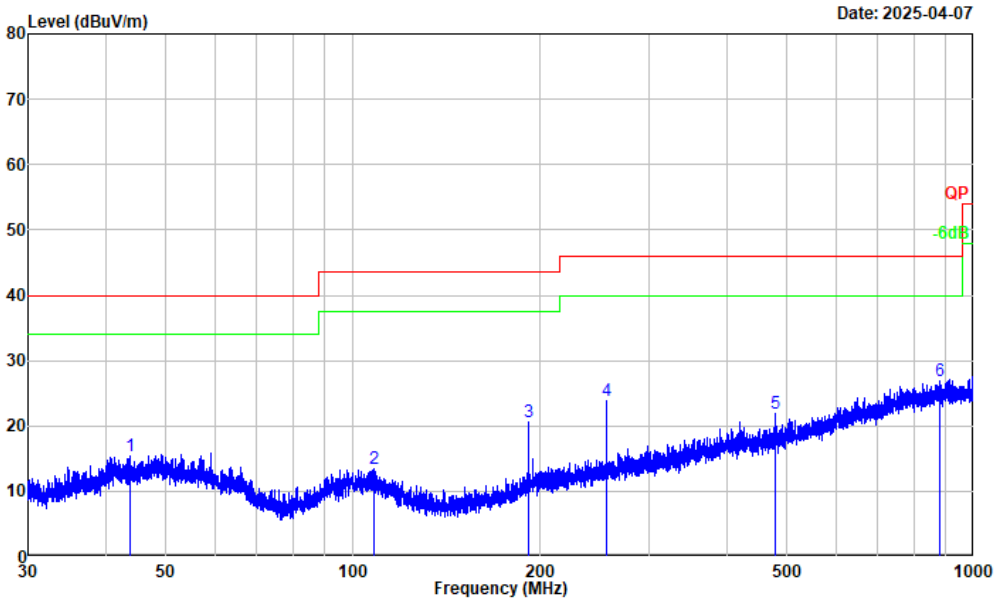
Project No. : 2505R50542E
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : PARALLEL
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	0.227	28.70	11.50	40.20	100.49	-60.29	Peak
2	0.546	30.58	5.18	35.76	72.83	-37.07	Peak
3	1.324	30.02	-0.44	29.58	64.98	-35.40	Peak
4	6.285	34.53	-4.03	30.50	69.54	-39.04	Peak
5	8.170	49.39	-3.81	45.58	69.54	-23.96	Peak
6	19.897	34.97	-3.08	31.89	69.54	-37.65	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: RBW/VBW: 9kHz/30kHz, DET: PK

30MHz-1GHz:

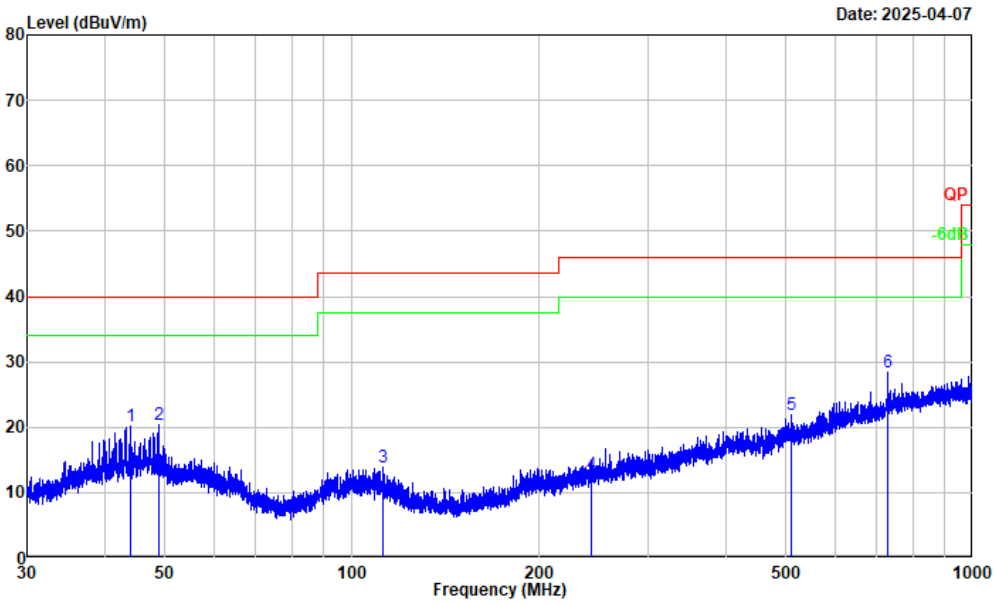
Test Date:	2025-04-07	Test By:	Bard Huang
Environment condition:	Temperature: 24.2°C; Relative Humidity: 57%; ATM Pressure:101.1kPa		



Project No. : 2505R50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.2℃/57%R.H./101.1kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	43.735	27.70	-12.23	15.47	40.00	-24.53	Peak
2	108.267	27.28	-13.93	13.35	43.50	-30.15	Peak
3	191.997	35.05	-14.35	20.70	43.50	-22.80	Peak
4	255.960	36.10	-12.24	23.86	46.00	-22.14	Peak
5	480.107	29.70	-7.79	21.91	46.00	-24.09	Peak
6	881.793	28.51	-1.65	26.86	46.00	-19.14	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Pre-scan: RBW/VBW: 100kHz/300kHz, DET: PK
Final measure: RBW: 120kHz, DET: QP



Project No. : 2505R50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.2℃/57%R.H./101.1kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	43.966	32.40	-12.20	20.20	40.00	-19.80	Peak
2	48.843	32.55	-12.08	20.47	40.00	-19.53	Peak
3	112.327	28.33	-14.45	13.88	43.50	-29.62	Peak
4	243.271	25.39	-12.52	12.87	46.00	-33.13	Peak
5	511.163	29.07	-7.09	21.98	46.00	-24.02	Peak
6	728.081	31.63	-3.29	28.34	46.00	-17.66	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Pre-scan: RBW/VBW: 100kHz/300kHz, DET: PK
Final measure: RBW: 120kHz, DET: QP

Above 1GHz:

Test Date:	2025-04-26-2025-4-28	**Test By:**	Bard Huang
Environment condition:	Temperature: 24.7-25.2°C; Relative Humidity:67-79%; ATM Pressure: 100.5-100.7kPa		

Frequency (MHz)	Reading level (dBμV)	Polar	Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
GFSK							
Low Channel							
2125.000	51.80	horizontal	-3.98	47.82	74.00	-26.18	Peak
4804.000	52.05	horizontal	-2.42	49.63	54.00	-4.37	Average
4804.000	57.12	horizontal	-2.42	54.70	74.00	-19.30	Peak
2132.000	55.97	vertical	-3.95	52.02	74.00	-21.98	Peak
4804.000	50.22	vertical	-2.42	47.80	74.00	-26.20	Peak
Middle Channel							
4882.000	51.53	horizontal	-1.86	49.67	54.00	-4.33	Average
4882.000	56.69	horizontal	-1.86	54.83	74.00	-19.17	Peak
1496.000	53.98	vertical	-4.89	49.09	74.00	-24.91	Peak
4882.000	49.79	vertical	-1.86	47.93	74.00	-26.07	Peak
High Channel							
4960.000	51.68	horizontal	-1.70	49.98	54.00	-4.02	Average
4960.000	56.71	horizontal	-1.70	55.01	74.00	-18.99	Peak
1666.000	51.33	vertical	-3.77	47.56	74.00	-26.44	Peak
4960.000	50.22	vertical	-1.70	48.52	74.00	-25.48	Peak
π/4-DQPSK							
Low Channel							
4804.000	56.22	horizontal	-2.42	53.80	74.00	-20.20	Peak
1595.000	53.22	vertical	-4.25	48.97	74.00	-25.03	Peak
4804.000	49.56	vertical	-2.42	47.14	74.00	-26.86	Peak
Middle Channel							
4882.000	53.19	horizontal	-1.86	51.33	54.00	-2.67	Average
4882.000	56.35	horizontal	-1.86	54.49	74.00	-19.51	Peak
1967.000	52.53	vertical	-5.16	47.37	74.00	-26.63	Peak
4882.000	49.83	vertical	-1.86	47.97	74.00	-26.03	Peak
High Channel							
1664.000	50.64	horizontal	-3.78	46.86	74.00	-27.14	Peak
4960.000	53.11	horizontal	-1.70	51.41	54.00	-2.59	Average
4960.000	56.58	horizontal	-1.70	54.88	74.00	-19.12	Peak

1598.000	54.15	vertical	-4.23	49.92	74.00	-24.08	Peak
4960.000	51.07	vertical	-1.70	49.37	74.00	-24.63	Peak
8DPSK							
Low Channel							
4804.000	56.29	horizontal	-2.42	53.87	74.00	-20.13	Peak
1662.000	53.63	vertical	-3.80	49.83	74.00	-24.17	Peak
4804.000	50.13	vertical	-2.42	47.71	74.00	-26.29	Peak
Middle Channel							
4882.000	53.25	horizontal	-1.86	51.39	54.00	-2.61	Average
4882.000	56.28	horizontal	-1.86	54.42	74.00	-19.58	Peak
2131.000	51.72	vertical	-3.96	47.76	74.00	-26.24	Peak
4882.000	52.13	vertical	-1.86	50.27	74.00	-23.73	Peak
High Channel							
4960.000	55.06	horizontal	-1.70	53.36	74.00	-20.64	Peak
1599.000	52.55	vertical	-4.22	48.33	74.00	-25.67	Peak
4960.000	48.16	vertical	-1.70	46.46	74.00	-27.54	Peak

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

Margin = Corrected Amplitude – Limit

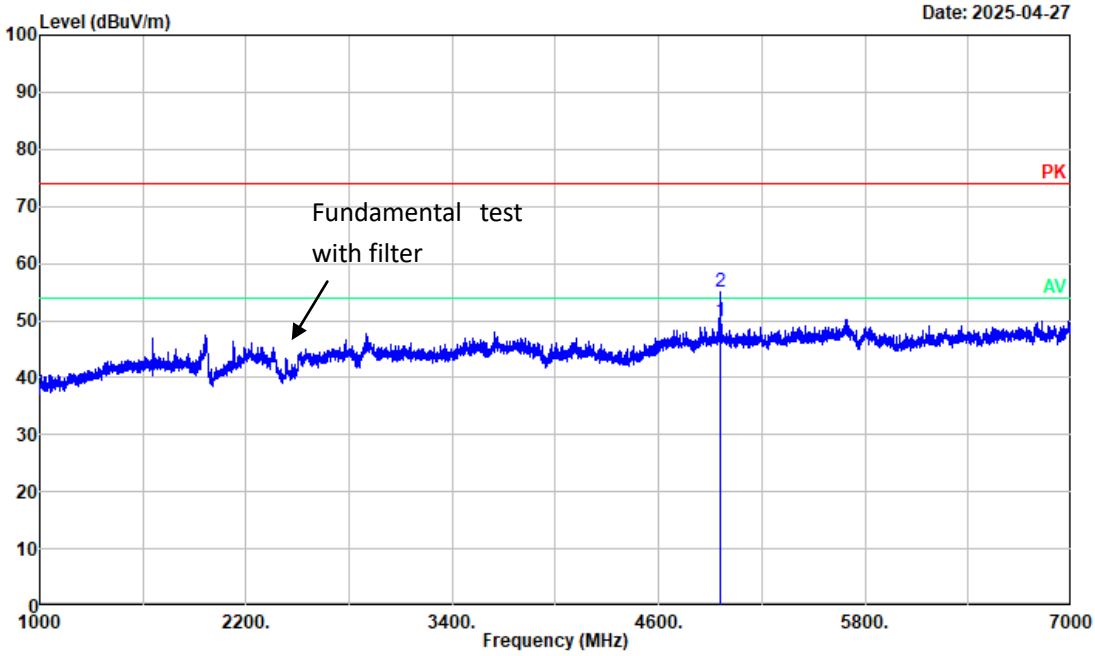
For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

The emission levels of other frequencies that were lower than the limit 20dB, not show in test report.

For emissions in 18GHz-25GHz range, all emissions were investigated and in the noise floor level.

Test plot for example as below:

Mode:	DH1	Channel:	2480MHz

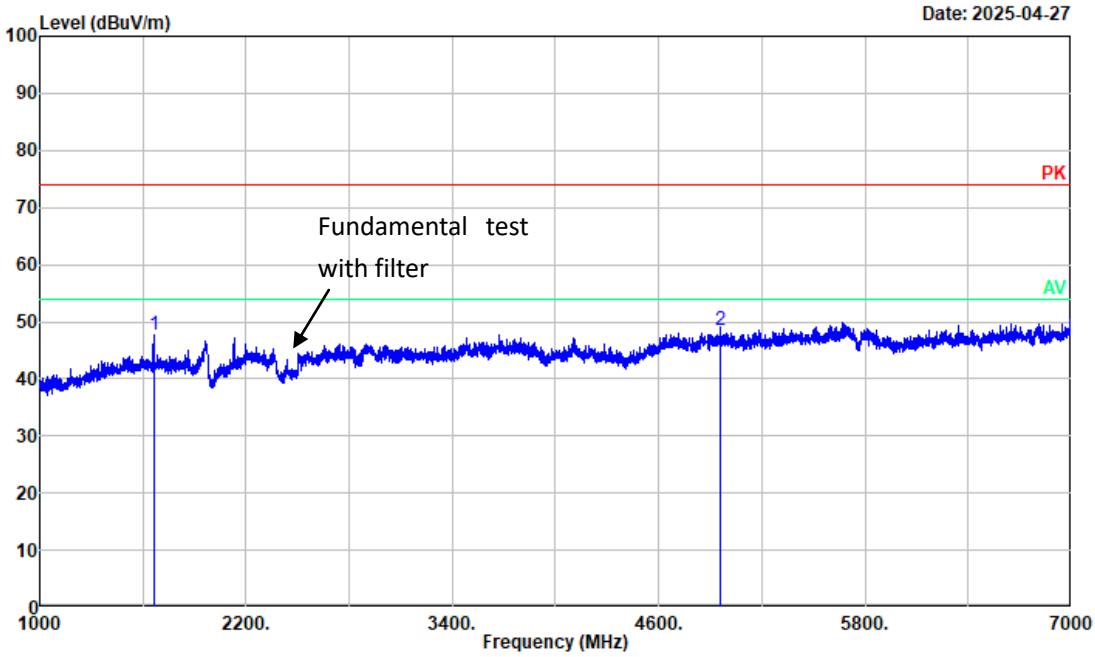


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.2℃/67%R.H./100.7kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	4960.000	51.68	-1.70	49.98	54.00	-4.02	Average
2	4960.000	56.71	-1.70	55.01	74.00	-18.99	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	DH1	Channel:	2480MHz

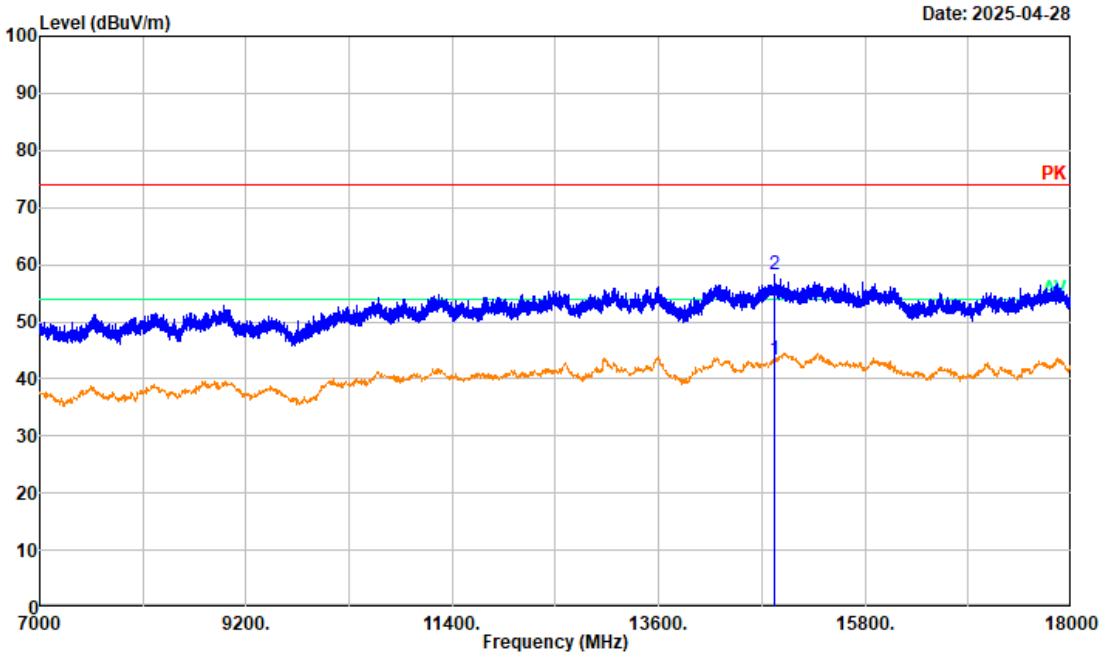


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.2℃/67%R.H./100.7kPa
Tested by : Bard Huang
Polarization : vertical
Remark : DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	1666.000	51.33	-3.77	47.56	74.00	-26.44	Peak
2	4960.000	50.22	-1.70	48.52	74.00	-25.48	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	DH1	Channel:	2480MHz

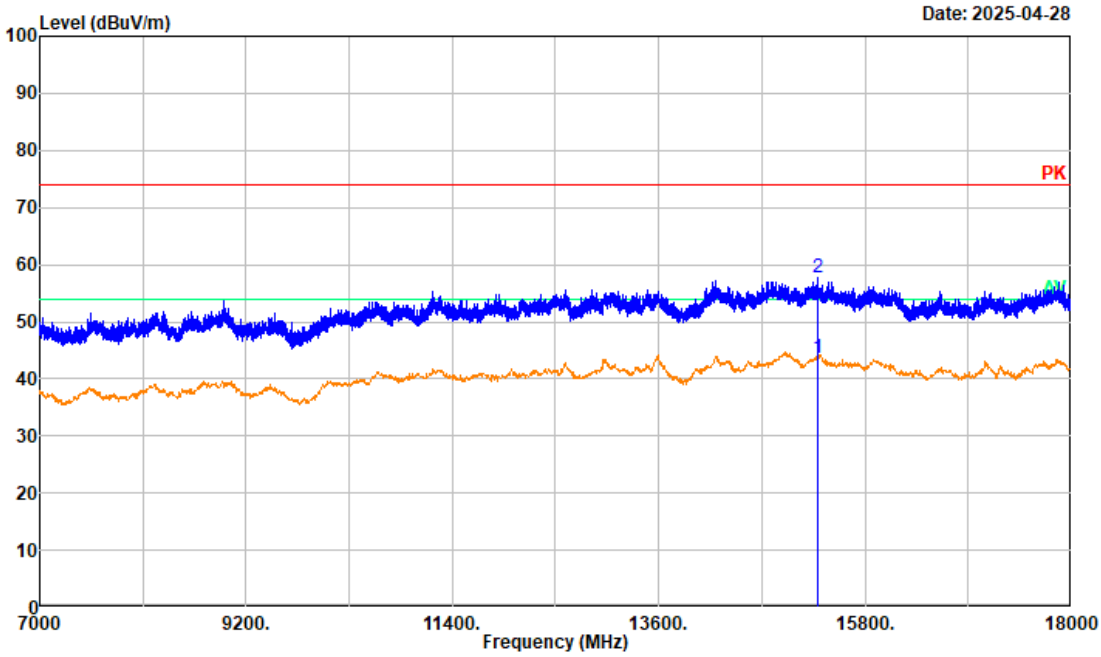


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	14829.000	36.88	6.58	43.46	54.00	-10.54	Average
2	14829.000	51.67	6.58	58.25	74.00	-15.75	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	DH1	Channel:	2480MHz

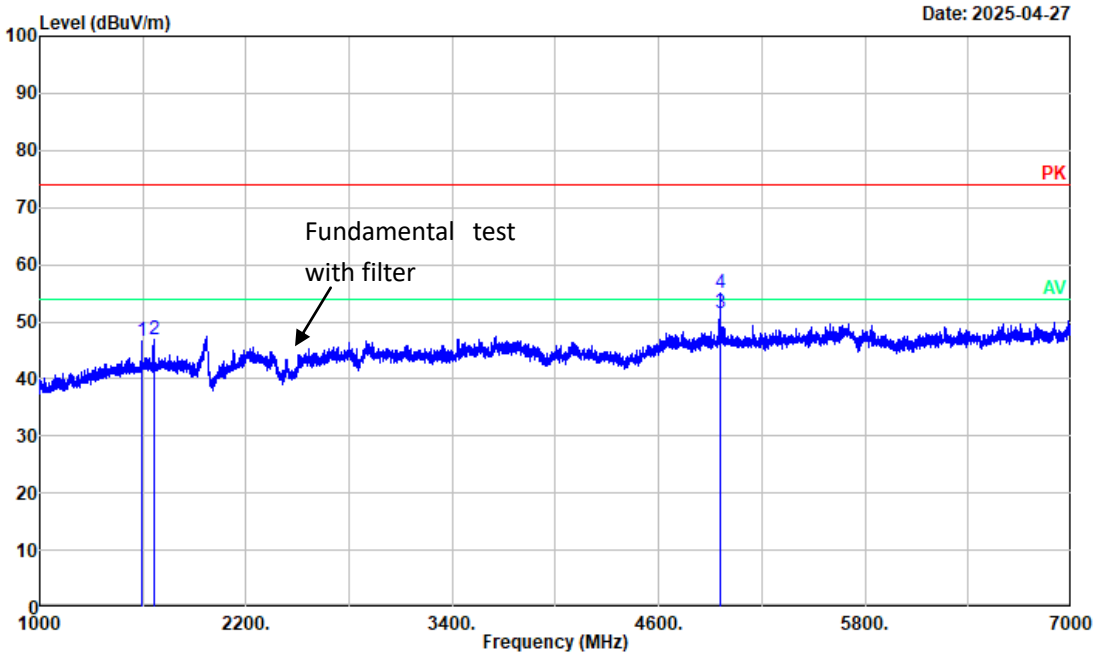


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	15294.000	37.48	6.16	43.64	54.00	-10.36	Average
2	15294.000	51.51	6.16	57.67	74.00	-16.33	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2480MHz

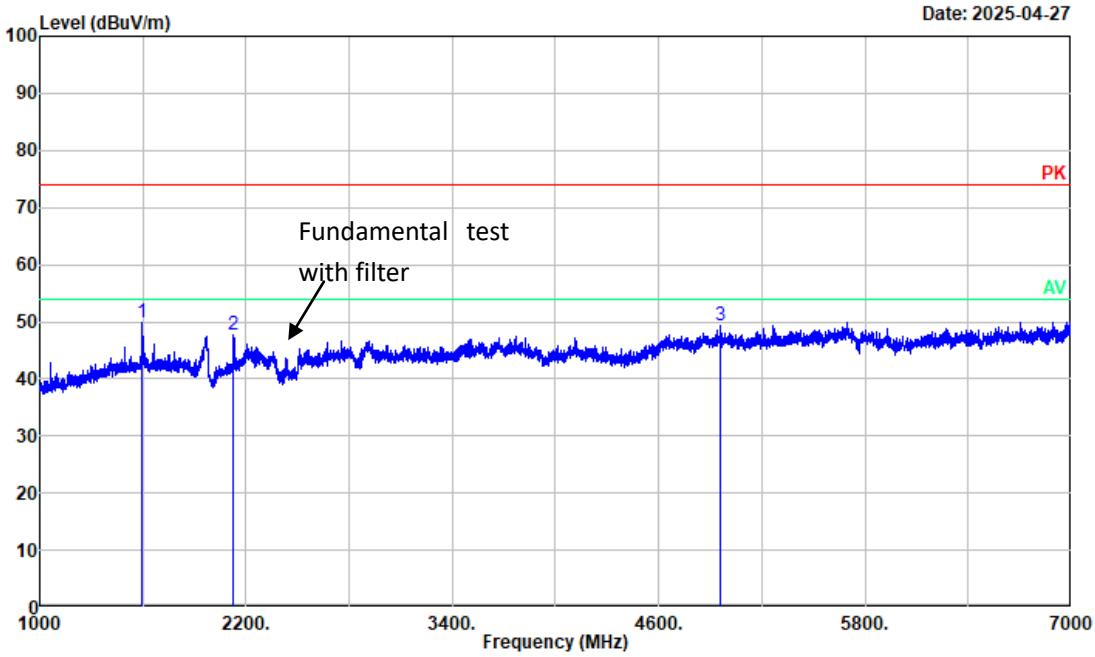


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.2℃/67%R.H./100.7kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 2DH1 2480

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	1593.000	50.94	-4.27	46.67	74.00	-27.33	Peak
2	1664.000	50.64	-3.78	46.86	74.00	-27.14	Peak
3	4960.000	53.11	-1.70	51.41	54.00	-2.59	Average
4	4960.000	56.58	-1.70	54.88	74.00	-19.12	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2480MHz

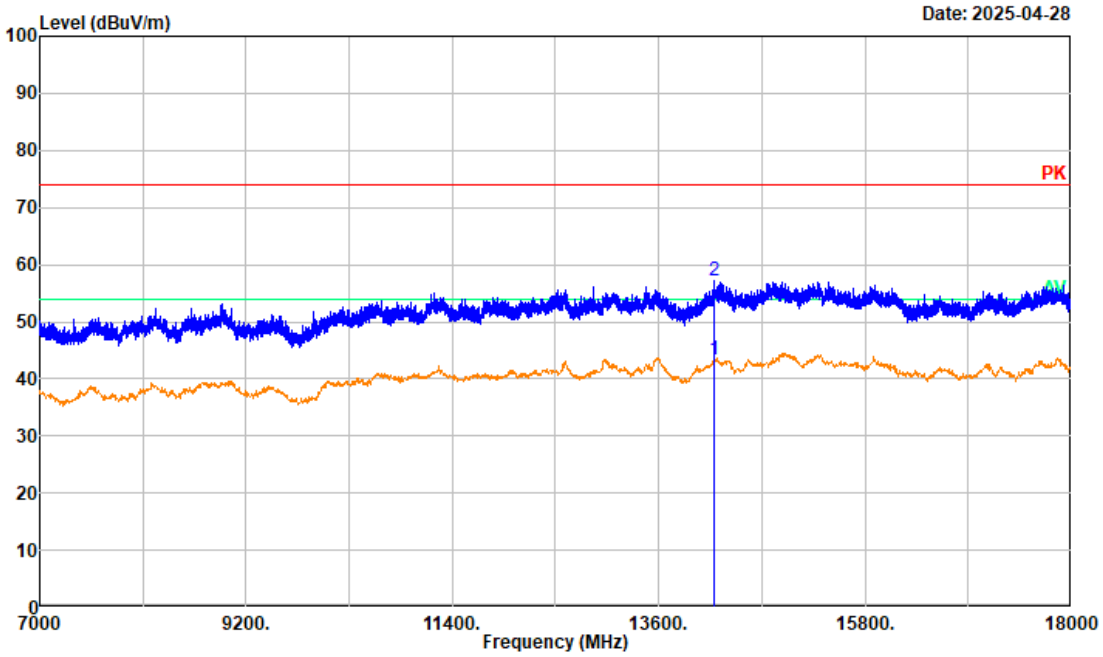


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.2℃/67%R.H./100.7kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 2DH1 2480

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	1598.000	54.15	-4.23	49.92	74.00	-24.08	Peak
2	2128.000	51.75	-3.97	47.78	74.00	-26.22	Peak
3	4960.000	51.07	-1.70	49.37	74.00	-24.63	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2480MHz

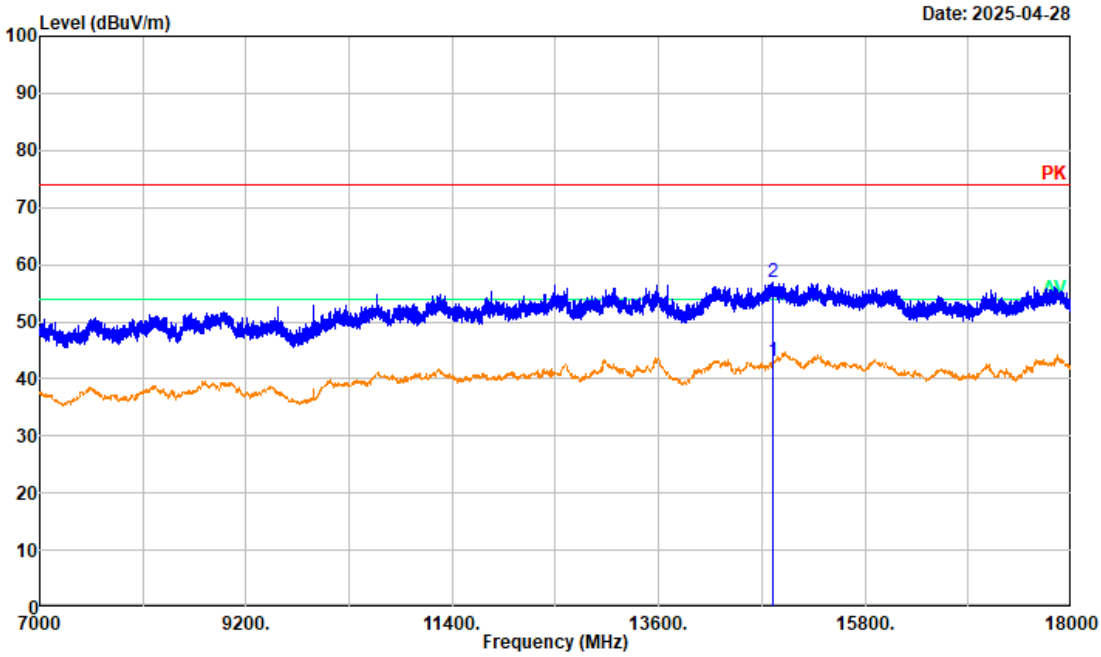


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 2DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	14197.000	36.90	6.49	43.39	54.00	-10.61	Average
2	14197.000	50.57	6.49	57.06	74.00	-16.94	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2480MHz

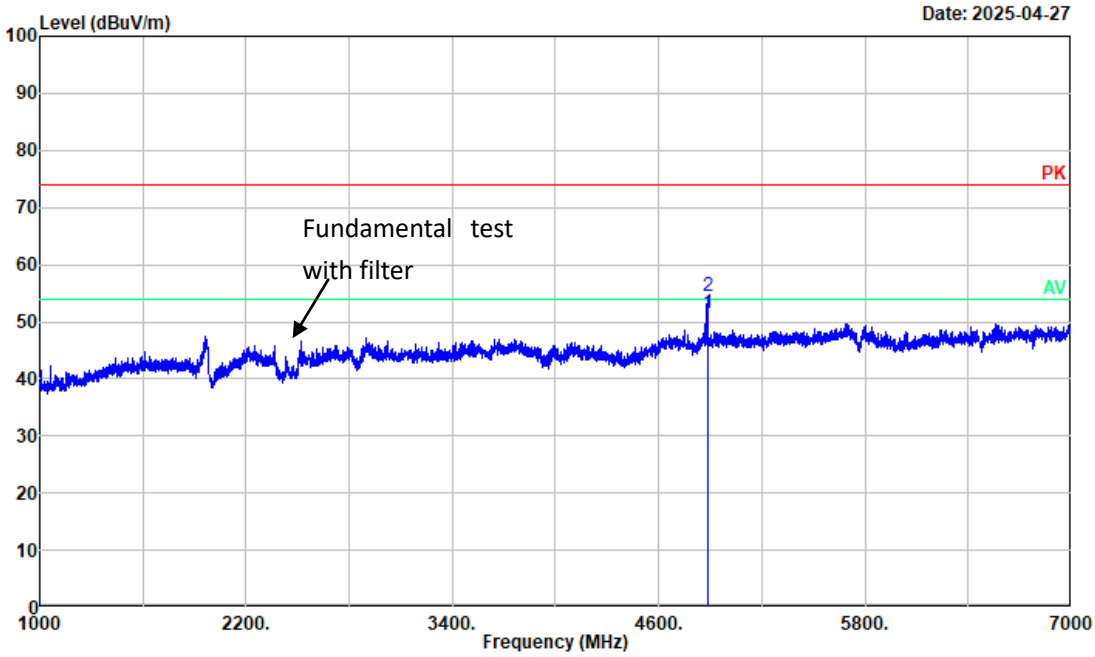


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 2DH1 2480

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	14822.000	36.64	6.58	43.22	54.00	-10.78	Average
2	14822.000	50.31	6.58	56.89	74.00	-17.11	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2441MHz

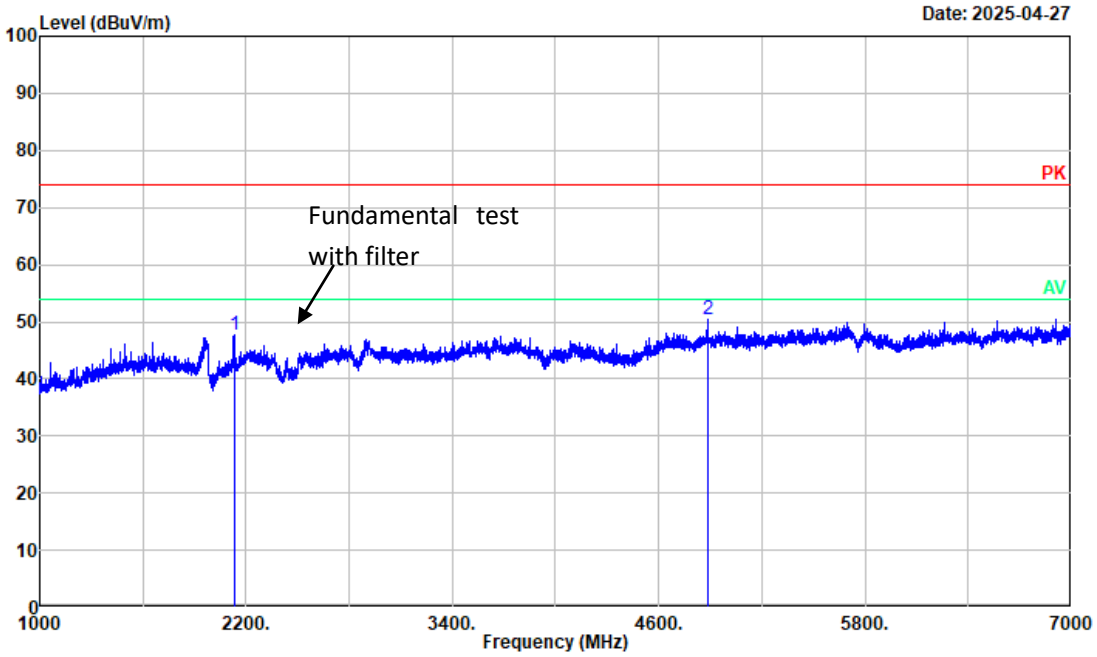


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.2℃/67%R.H./100.7kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	4882.000	53.25	-1.86	51.39	54.00	-2.61	Average
2	4882.000	56.28	-1.86	54.42	74.00	-19.58	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2441MHz

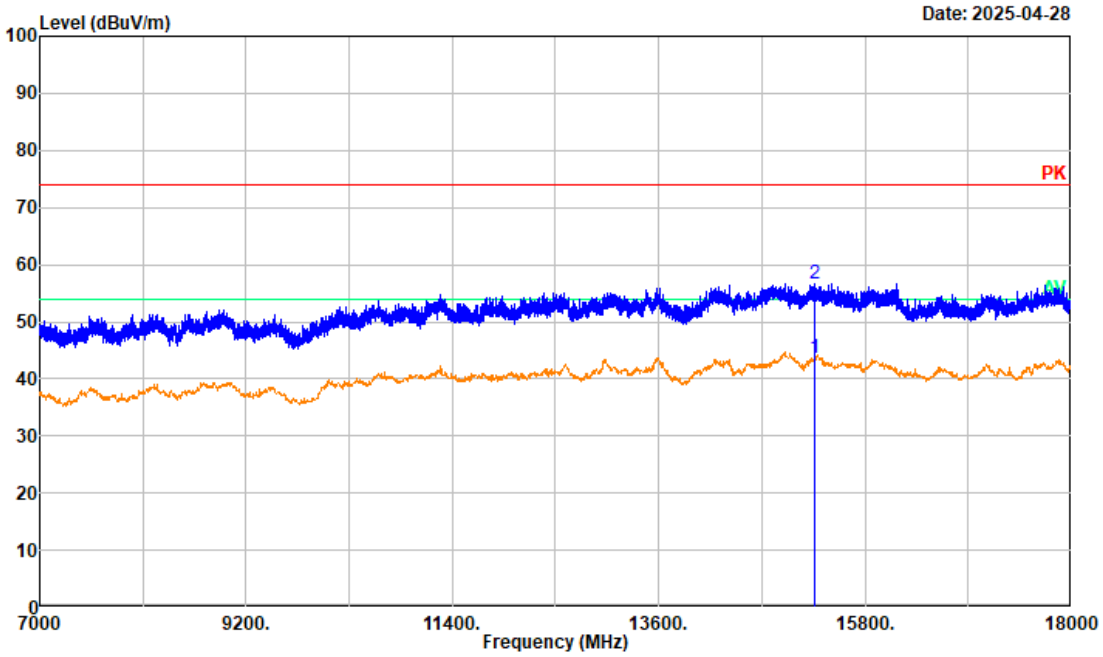


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.2℃/67%R.H./100.7kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2131.000	51.72	-3.96	47.76	74.00	-26.24	Peak
2	4882.000	52.13	-1.86	50.27	74.00	-23.73	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2441MHz

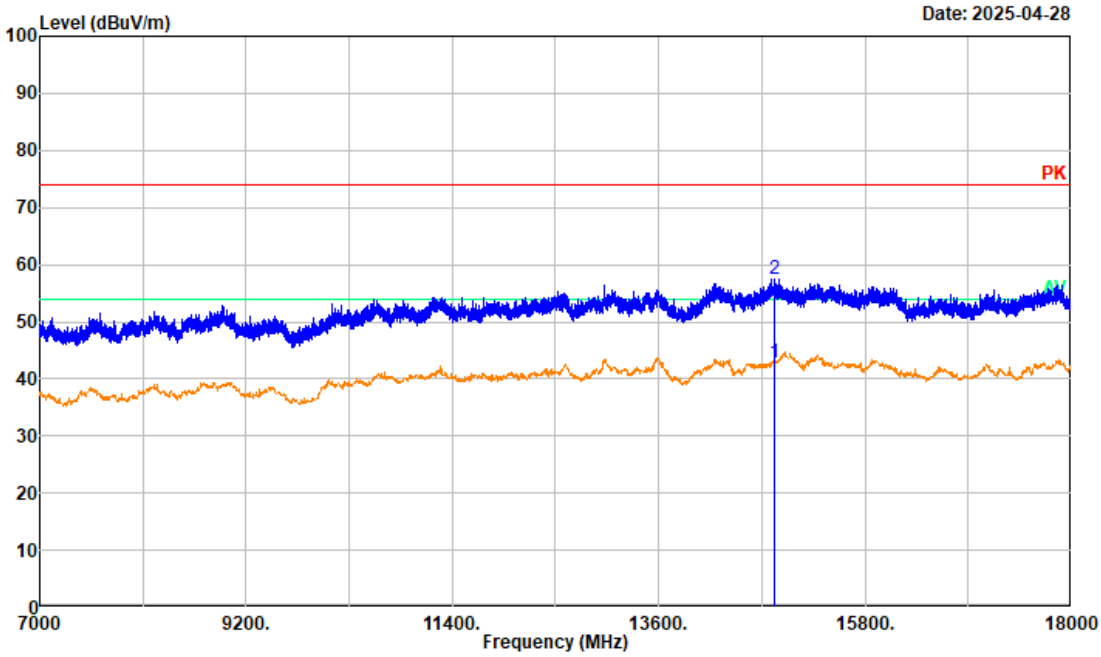


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	15269.000	37.36	6.19	43.55	54.00	-10.45	Average
2	15269.000	50.42	6.19	56.61	74.00	-17.39	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2441MHz

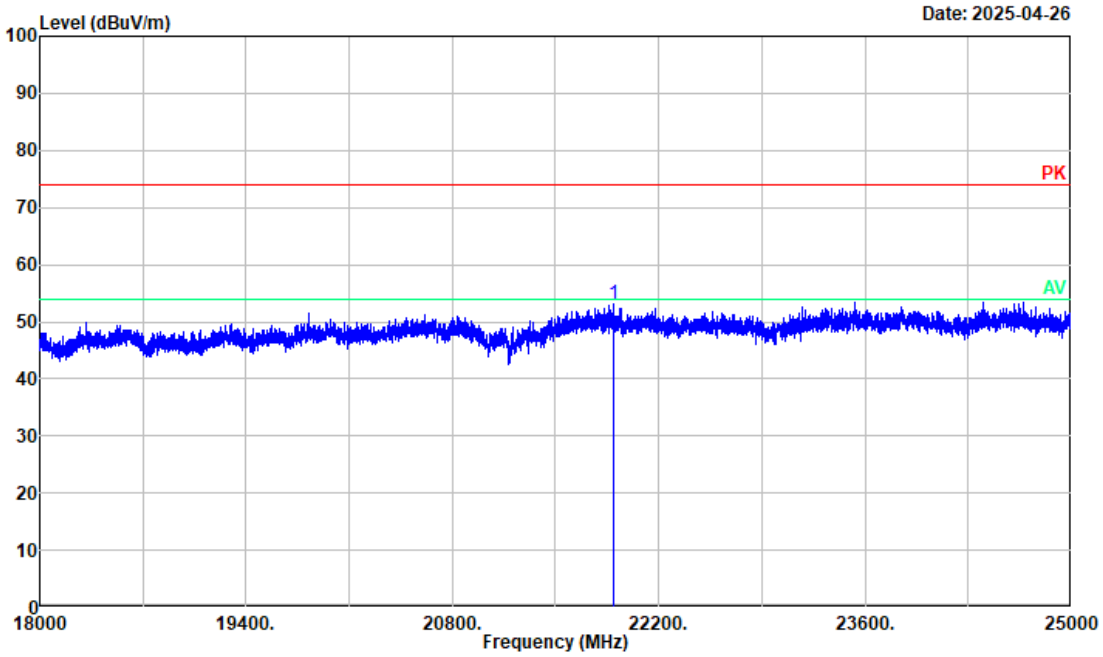


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 25.1℃/79%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	14838.000	36.25	6.57	42.82	54.00	-11.18	Average
2	14838.000	50.86	6.57	57.43	74.00	-16.57	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2441MHz

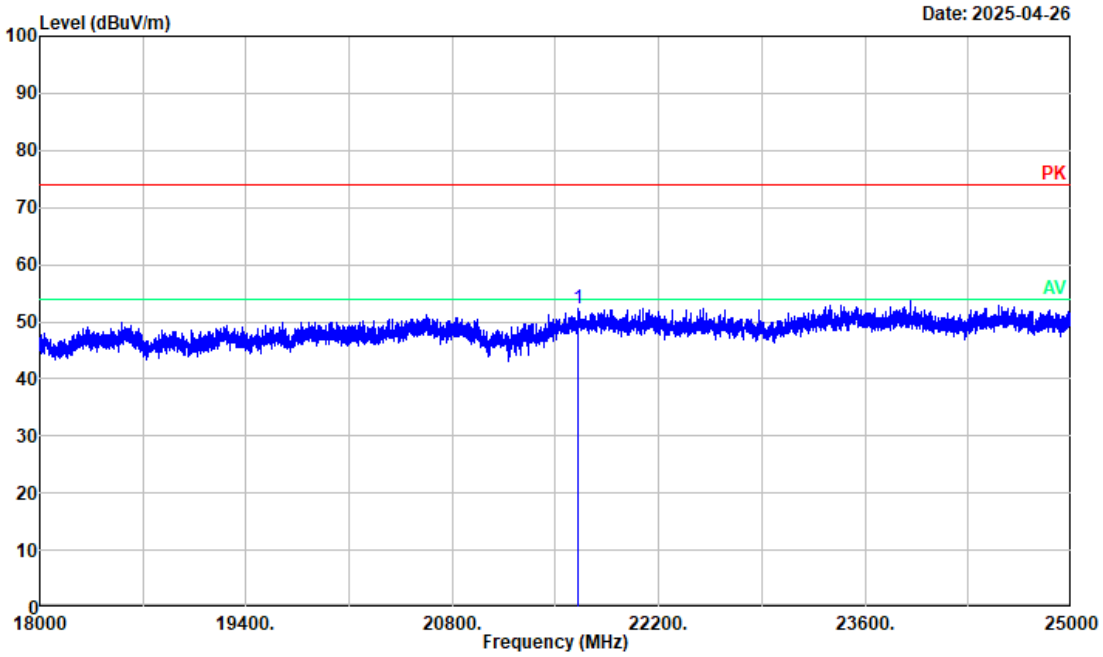


Project No. : 2505R50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.9℃/70%R.H./100.4kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	21889.000	56.10	-3.08	53.02	74.00	-20.98	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain - Distance extrapolate factor
Distance extrapolate factor = 20*log(specified distance/measured distance)
Specified distance = 3 meters, measured distance = 1.5 meters
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK

Mode:	3DH1	Channel:	2441MHz



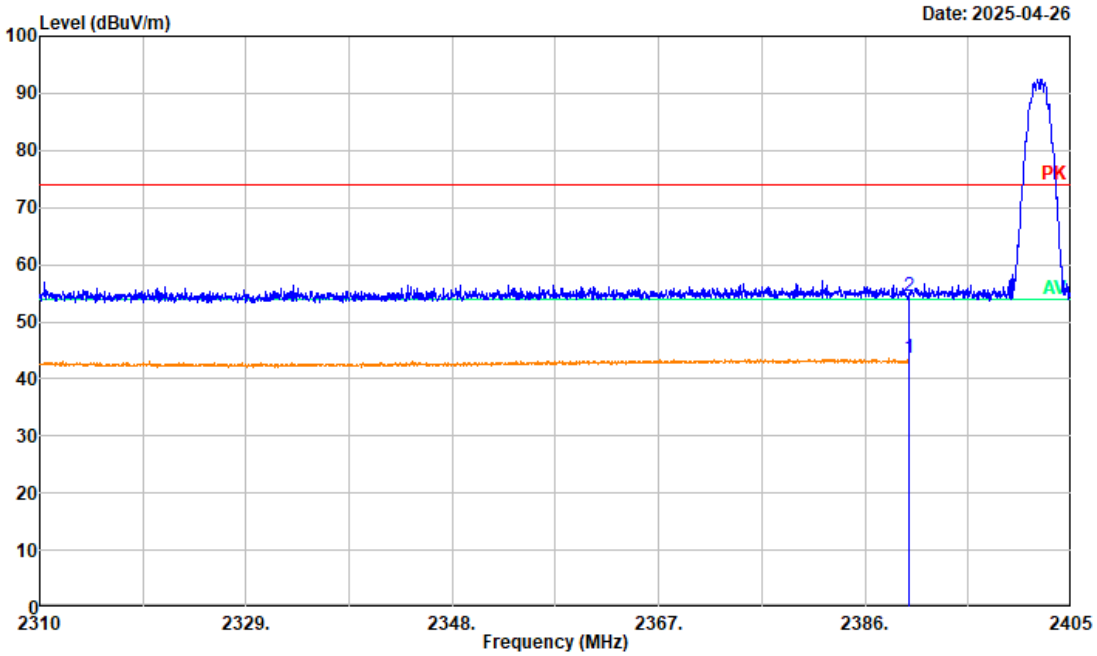
Project No. : 2505R50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.9℃/70%R.H./100.4kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 3DH1 2441

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	21649.000	55.60	-3.38	52.22	74.00	-21.78	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain - Distance extrapolate factor
Distance extrapolate factor = 20*log(specified distance/measured distance)
Specified distance = 3 meters, measured distance = 1.5 meters
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK

Radiated Band edge:

Mode:	DH1	Channel:	2402MHz

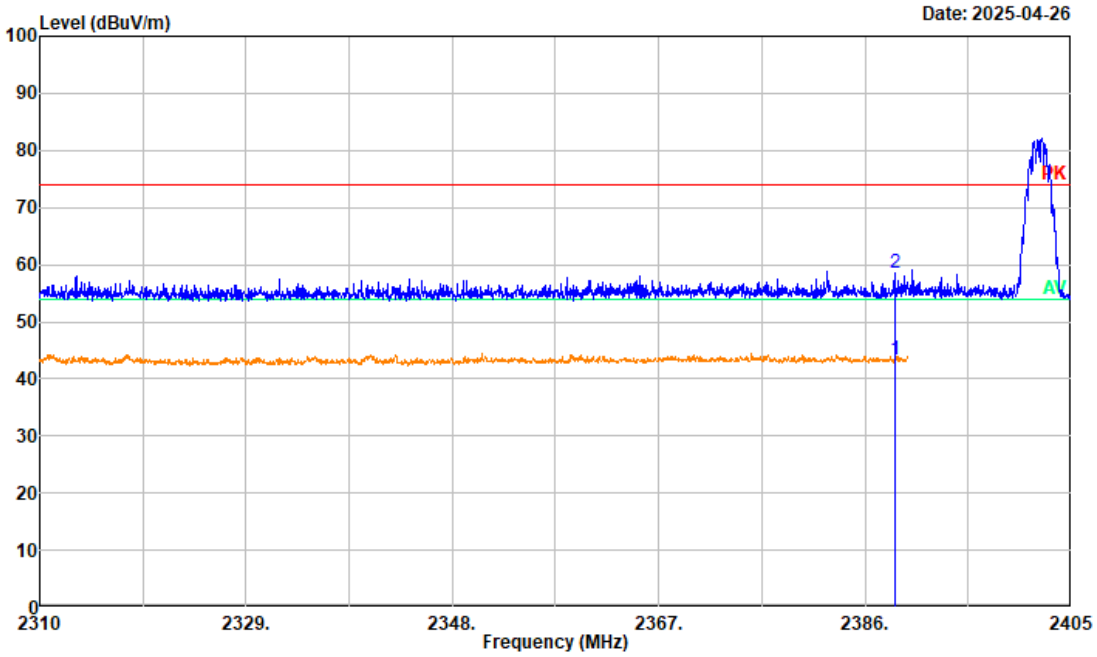


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : DH1 2402

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	2389.990	36.66	7.00	43.66	54.00	-10.34	Average
2	2389.990	47.36	7.00	54.36	74.00	-19.64	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	DH1	Channel:	2402MHz

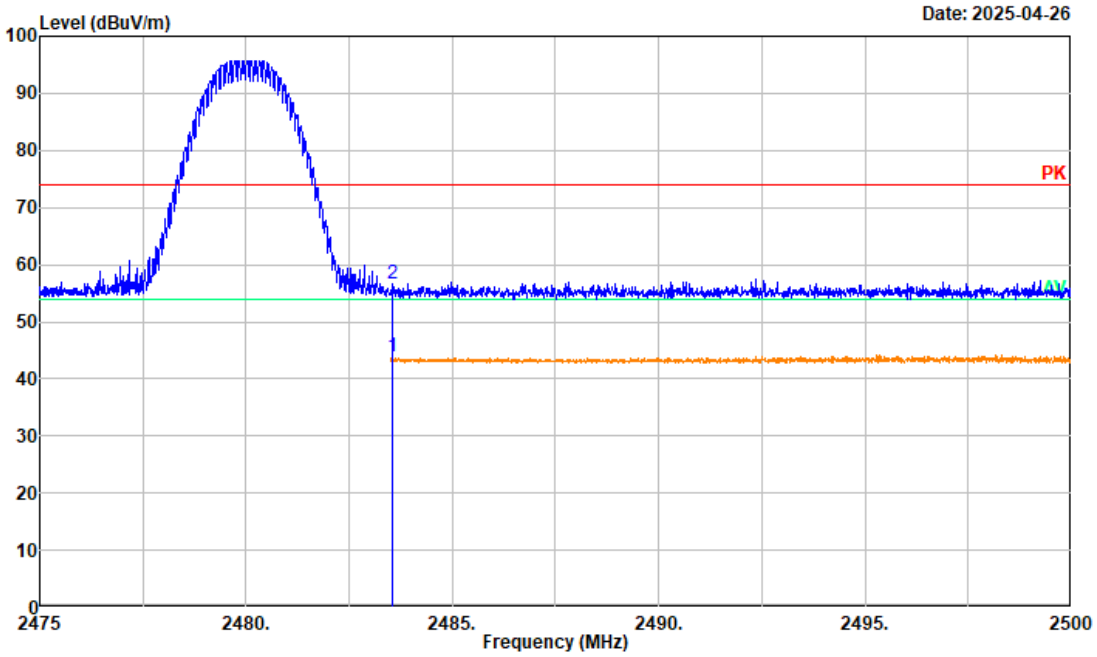


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : DH1 2402

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2388.708	36.25	7.00	43.25	54.00	-10.75	Average
2	2388.708	51.56	7.00	58.56	74.00	-15.44	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	DH1	Channel:	2480MHz

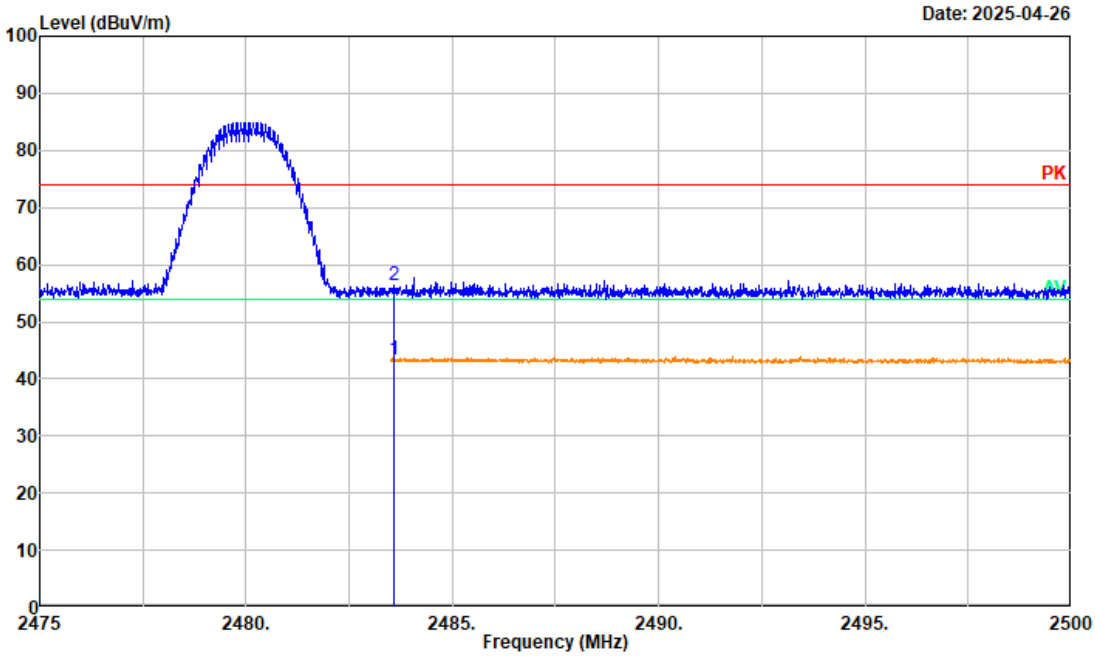


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.550	36.69	7.20	43.89	54.00	-10.11	Average
2	2483.550	49.56	7.20	56.76	74.00	-17.24	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	DH1	Channel:	2480MHz

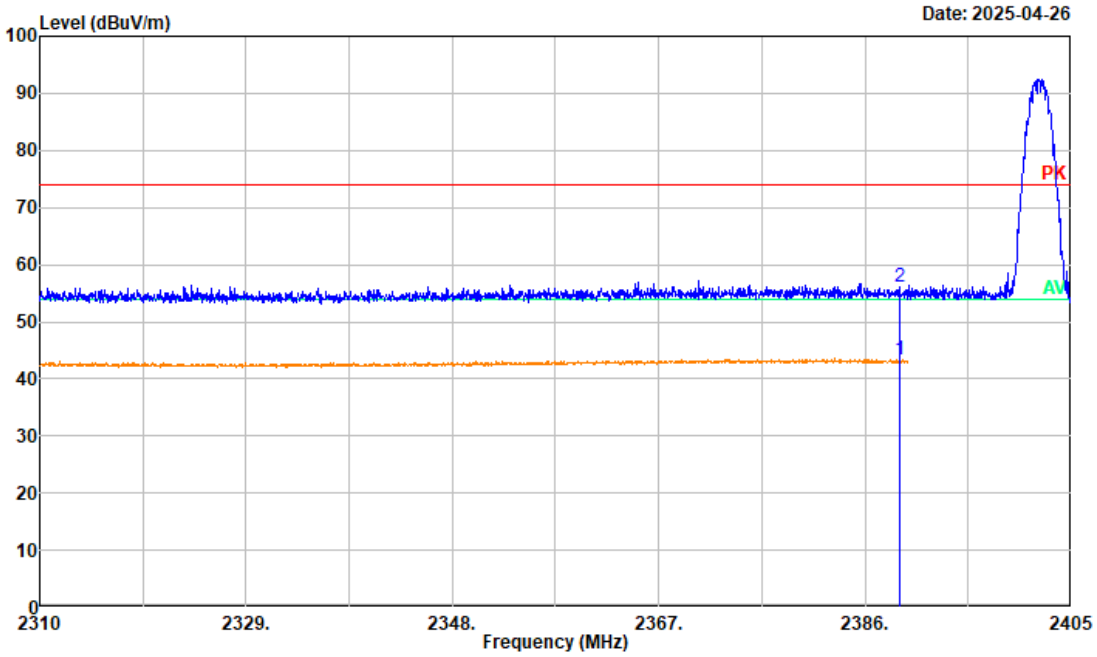


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.600	36.13	7.20	43.33	54.00	-10.67	Average
2	2483.600	49.12	7.20	56.32	74.00	-17.68	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2402MHz

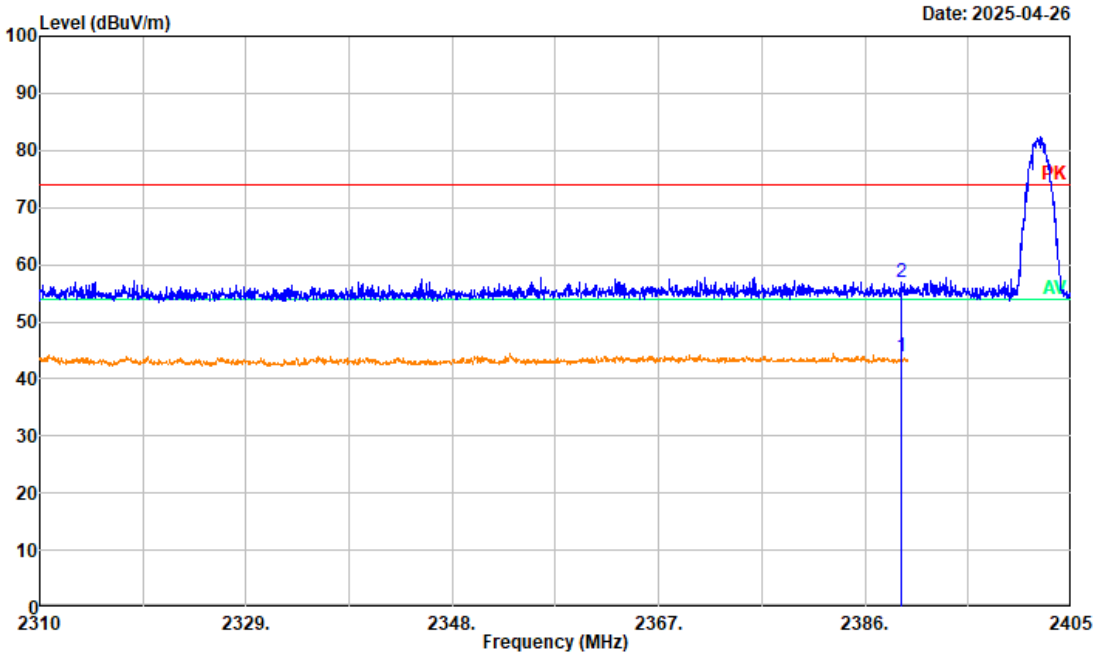


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 2DH1 2402

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2389.135	36.45	7.00	43.45	54.00	-10.55	Average
2	2389.135	49.21	7.00	56.21	74.00	-17.79	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2402MHz

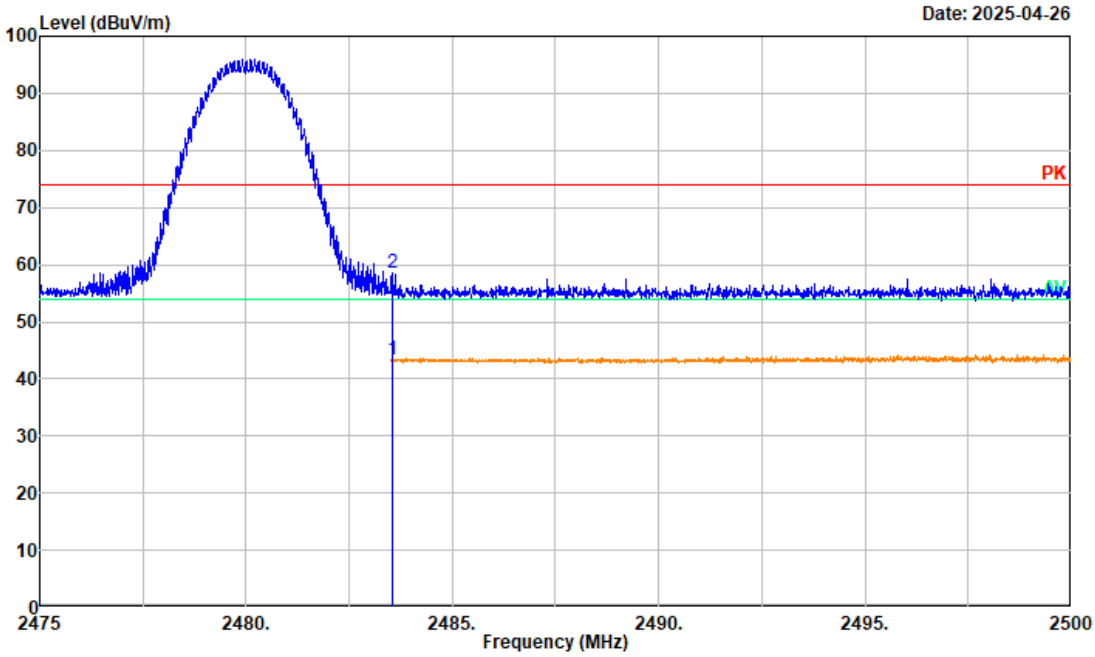


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 2DH1 2402

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2389.373	36.84	7.00	43.84	54.00	-10.16	Average
2	2389.373	49.86	7.00	56.86	74.00	-17.14	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2480MHz

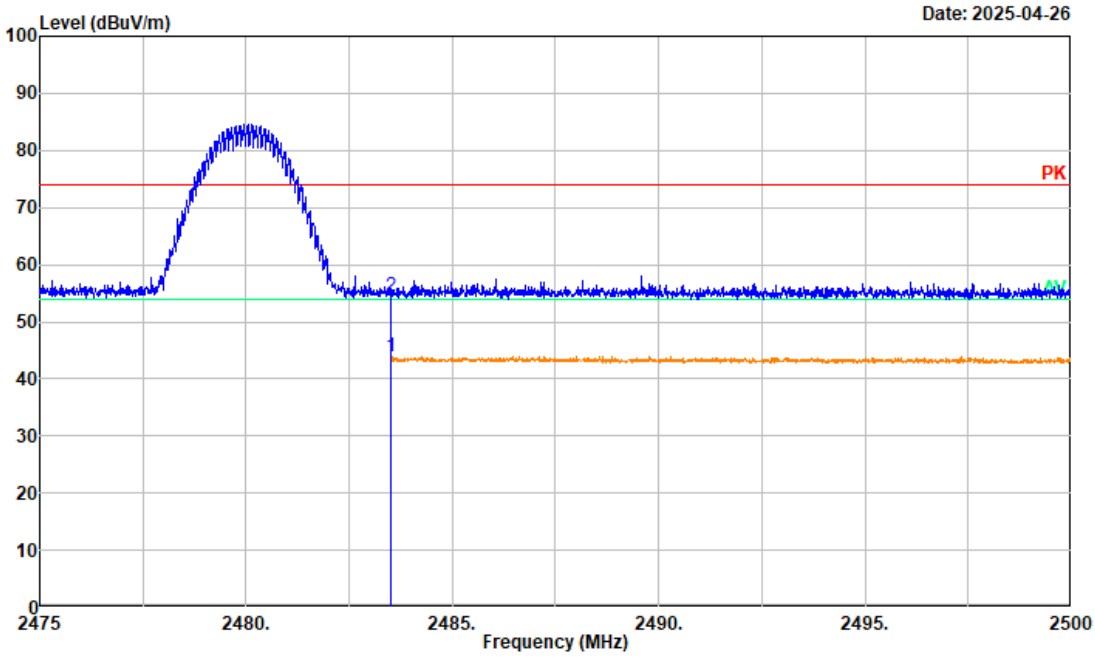


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 2DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.538	36.12	7.20	43.32	54.00	-10.68	Average
2	2483.538	51.21	7.20	58.41	74.00	-15.59	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	2DH1	Channel:	2480MHz

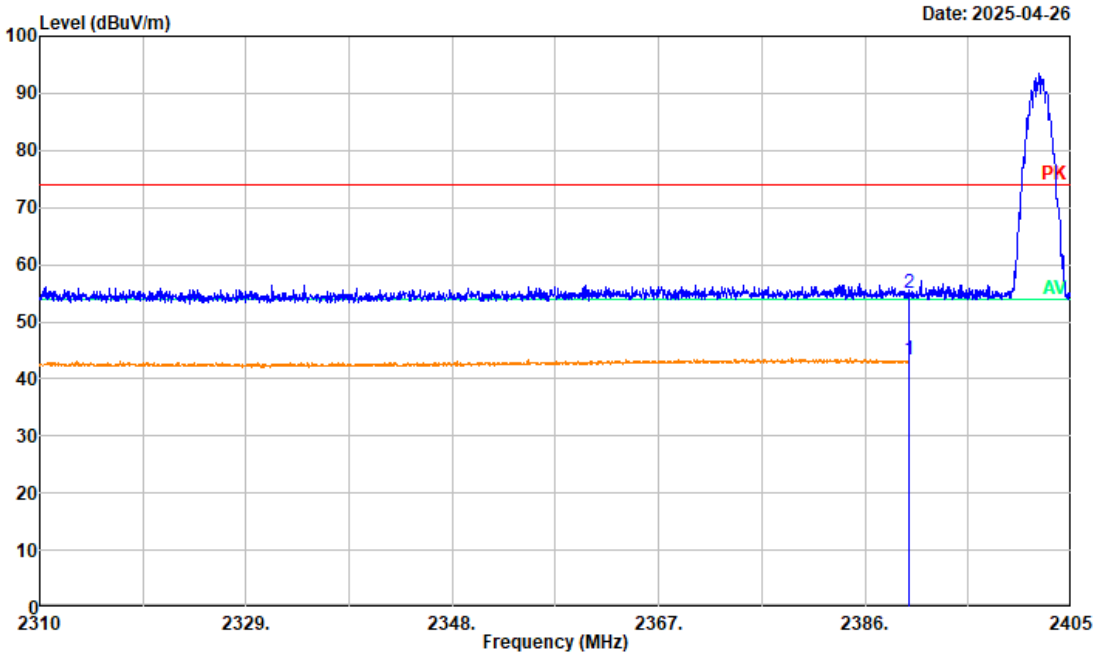


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 2DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	36.58	7.20	43.78	54.00	-10.22	Average
2	2483.500	47.40	7.20	54.60	74.00	-19.40	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2402MHz

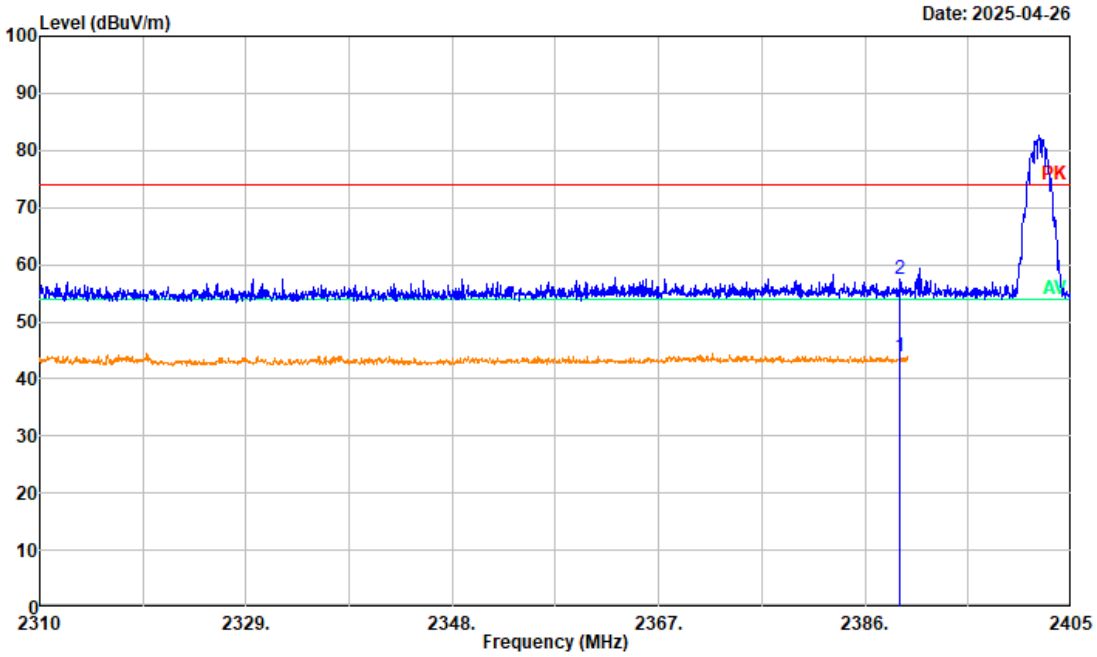


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 3DH1 2402

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2389.990	36.39	7.00	43.39	54.00	-10.61	Average
2	2389.990	47.98	7.00	54.98	74.00	-19.02	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2402MHz

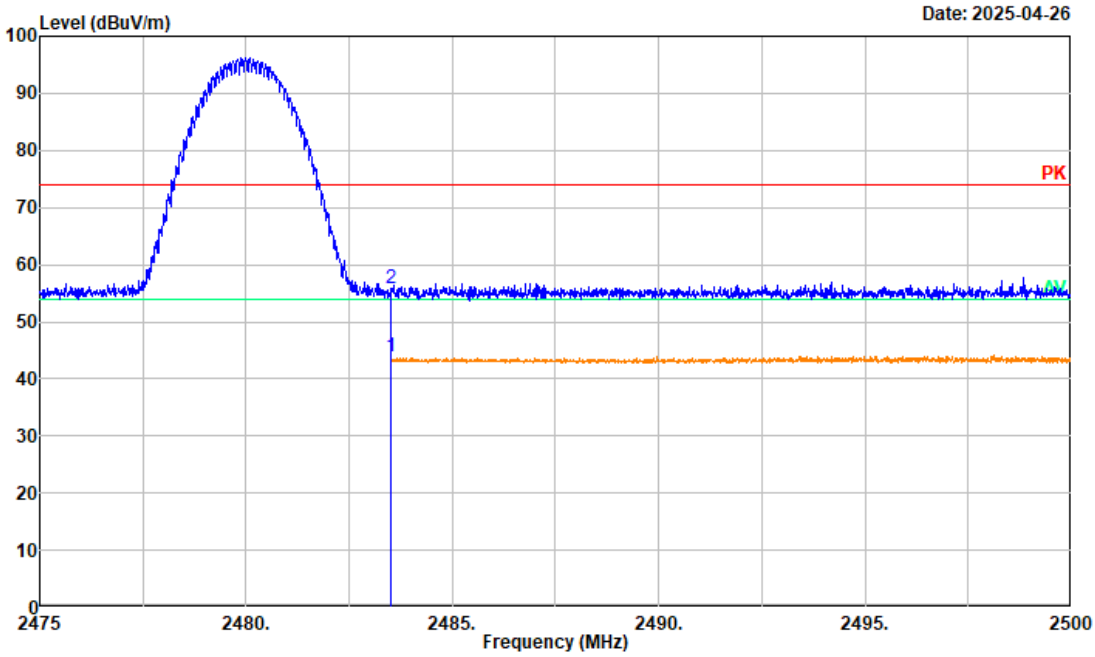


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 3DH1 2402

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2389.230	36.88	7.00	43.88	54.00	-10.12	Average
2	2389.230	50.35	7.00	57.35	74.00	-16.65	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2480MHz

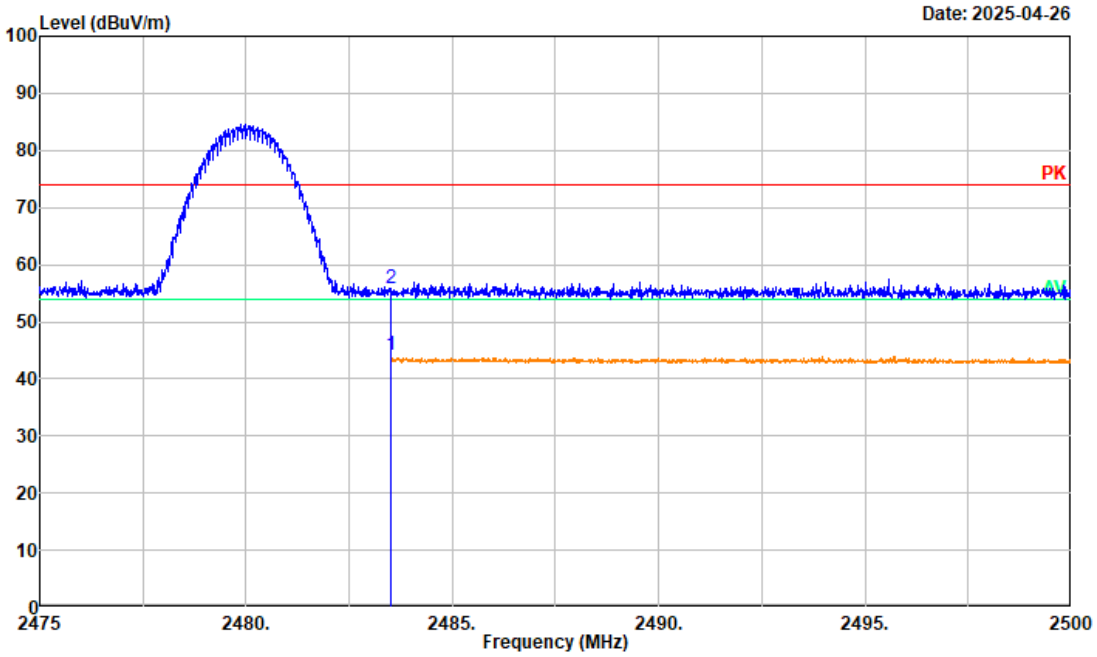


Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 3DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	36.78	7.20	43.98	54.00	-10.02	Average
2	2483.500	48.66	7.20	55.86	74.00	-18.14	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

Mode:	3DH1	Channel:	2480MHz



Project No. : 2505S50542E-RF
Test Mode : Transmitting
Test Voltage : Power by battery
Environment : 24.7℃/73%R.H./100.5kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 3DH1 2480

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	36.85	7.20	44.05	54.00	-9.95	Average
2	2483.500	48.50	7.20	55.70	74.00	-18.30	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VBW: 1MHz/3MHz, DET: PK
Average: RBW/VBW: 1MHz/2KHz , DET: PK

3.5 RF Conducted Test Data

Test Date:	2025-04-29	Test By:	Ryan Zhang
Environment condition:	Temperature: 25.1°C;RelativeHumidity:47%; ATM Pressure: 101.1kPa		

3.5.1 20 dB Emission Bandwidth

Mode	Channel	Result (MHz)
DH1	Low	1.030
	Middle	1.042
	High	1.318
2DH1	Low	1.297
	Middle	1.297
	High	1.417
3DH1	Low	1.258
	Middle	1.285
	High	1.399

3.5.2 99% Occupied Bandwidth

Mode	Channel	99% OBW (MHz)
DH1	Low	0.957
	Middle	0.966
	High	1.107
2DH1	Low	1.209
	Middle	1.221
	High	1.236
3DH1	Low	1.182
	Middle	1.191
	High	1.221

3.5.3 Maximum Conducted Peak Output Power

Mode	Test Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)	Verdict
DH1	2402	3.88	21.00	Pass
	2441	4.18	21.00	Pass
	2480	4.07	21.00	Pass
2DH1	2402	4.61	21.00	Pass
	2441	4.87	21.00	Pass
	2480	4.75	21.00	Pass
3DH1	2402	5.14	21.00	Pass
	2441	5.40	21.00	Pass
	2480	5.18	21.00	Pass

3.5.4 Channel separation

Mode	Channel	Result (MHz)	Limit (MHz)	Verdict
DH1	Low	1.003	0.945	Pass
	Middle	1.001	0.945	Pass
	High	1.003	0.945	Pass

Note: Only the BDR (GFSK) mode result is reported since EDR (π/4-DQPSK) and EDR (8DPSK) modes have the exact same channel plan, and the limit is the maximum 20dB bandwidth *2/3.

3.5.5 Number of hopping Frequency

Mode	Channel	Result	Limit	Verdict
DH1	Hopping	79	15	Pass
2DH1	Hopping	79	15	Pass
3DH1	Hopping	79	15	Pass

3.5.6 Time of occupancy (dwell time)

Mode	Channel	Pulse width (ms)	Dwell time (s)	Limit (s)	Verdict
DH1	Hopping	0.381	0.122	0.400	Pass
DH3	Hopping	1.649	0.264	0.400	Pass
DH5	Hopping	2.903	0.310	0.400	Pass
2DH1	Hopping	0.386	0.124	0.400	Pass
2DH3	Hopping	1.655	0.265	0.400	Pass
2DH5	Hopping	2.913	0.311	0.400	Pass
3DH1	Hopping	0.397	0.127	0.400	Pass
3DH3	Hopping	1.655	0.265	0.400	Pass
3DH5	Hopping	2.913	0.311	0.400	Pass

Note:

DH1/2DH1/3DH1:Dwell time=Pulse width (ms) × (1600/2/79) ×31.6 s

DH3/2DH3/3DH3:Dwell time=Pulse width (ms) × (1600/4/79) ×31.6 s

DH5/2DH5/3DH5:Dwell time=Pulse width (ms) × (1600/6/79) ×31.6 s

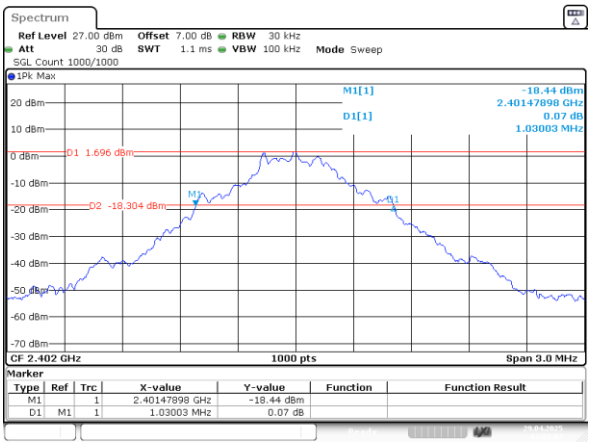
3.5.7 100 kHz Bandwidth of Frequency Band Edge

Mode	Channel	Result (dB)	Limit (dB)	Verdict
DH1	Low	48.74	20.00	Pass
	High	48.94	20.00	Pass
	Hopping_Lower	50.53	20.00	Pass
	Hopping_Upper	49.04	20.00	Pass
2DH1	Low	49.00	20.00	Pass
	High	50.26	20.00	Pass
	Hopping_Lower	49.12	20.00	Pass
	Hopping_Upper	49.38	20.00	Pass
3DH1	Low	48.96	20.00	Pass
	High	50.38	20.00	Pass
	Hopping_Lower	49.93	20.00	Pass
	Hopping_Upper	49.06	20.00	Pass

Test Plots:

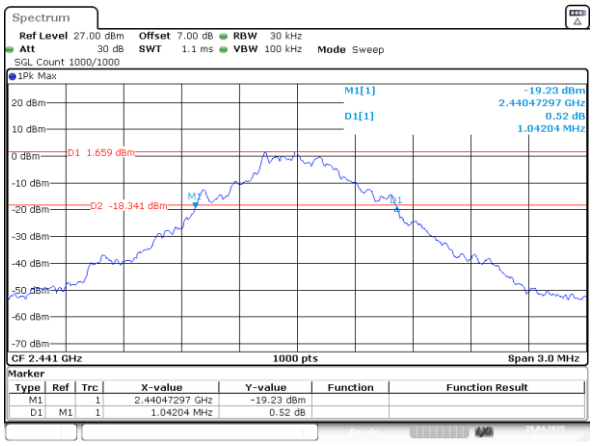
20 dB Emission Bandwidth:

DH1_Low



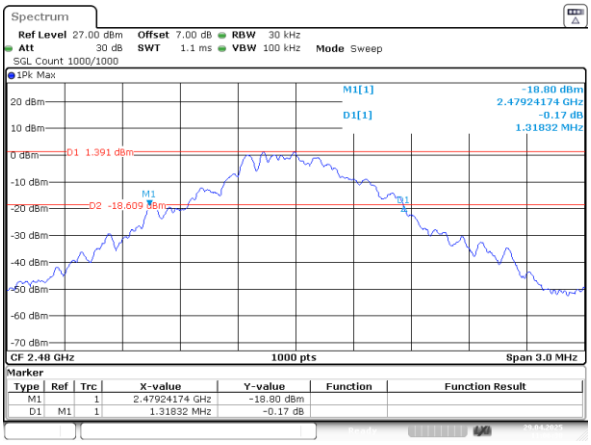
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:02:06

DH1_Middle



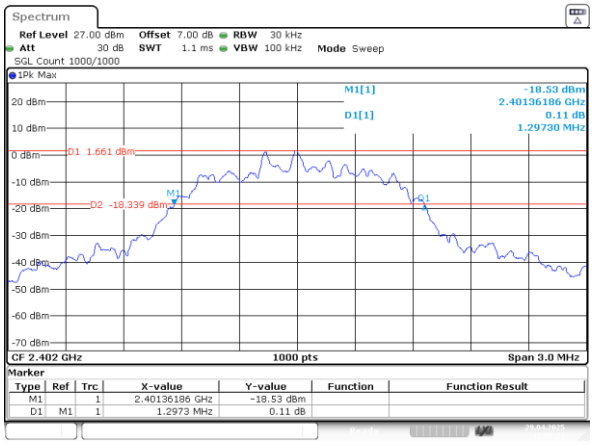
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:05:19

DH1_High



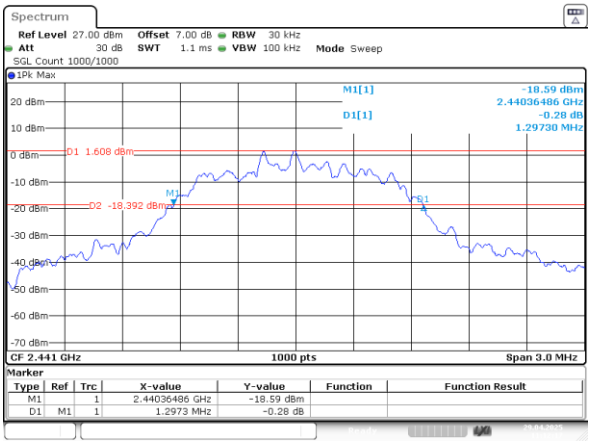
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:06:38

2DH1_Low



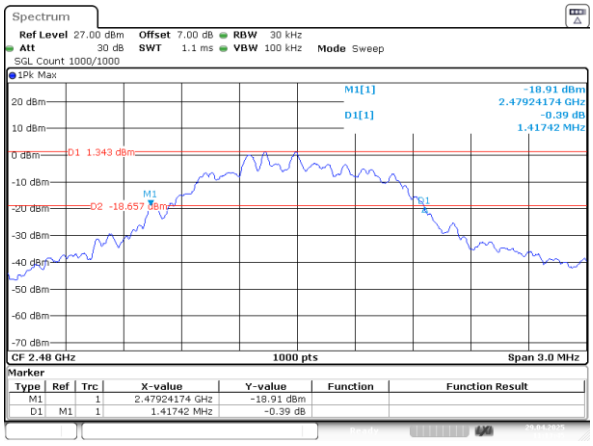
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:09:20

2DH1_Middle



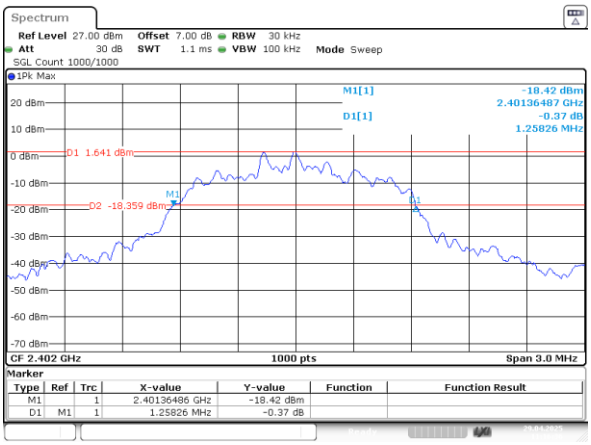
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:12:17

2DH1_High



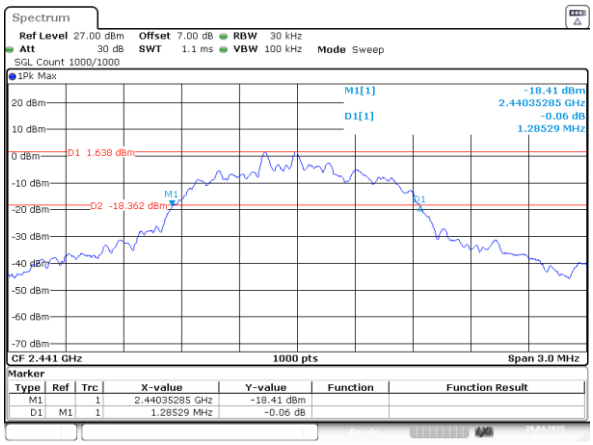
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:13:46

3DH1_Low



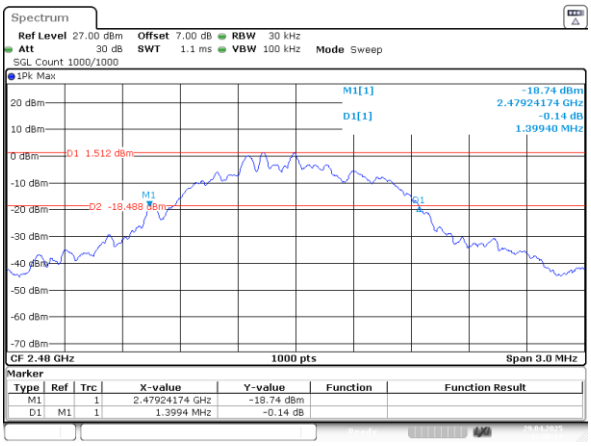
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:16:36

3DH1_Middle



ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:29:14

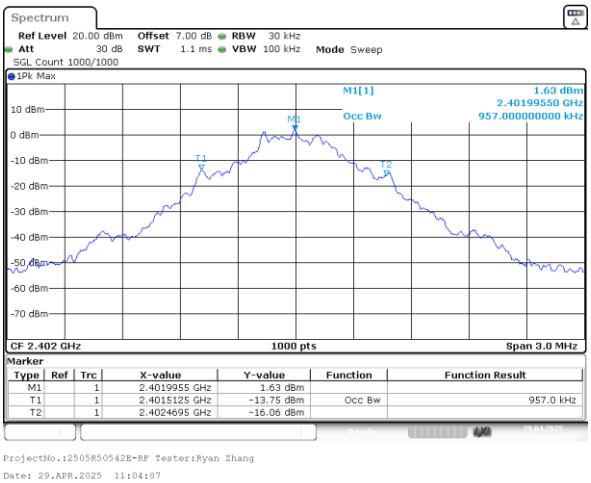
3DH1_High



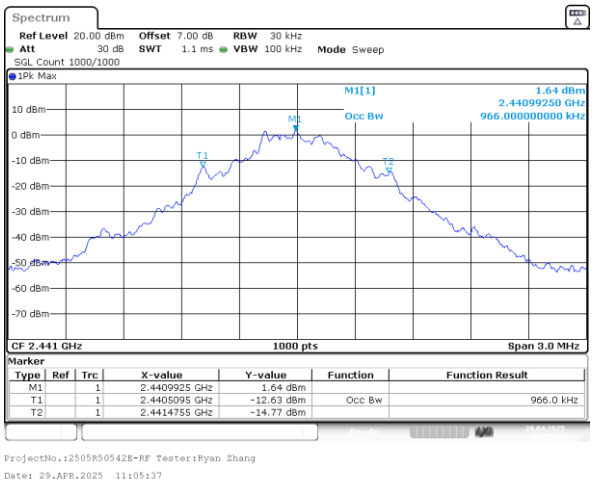
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:50:18

99% Occupied Bandwidth:

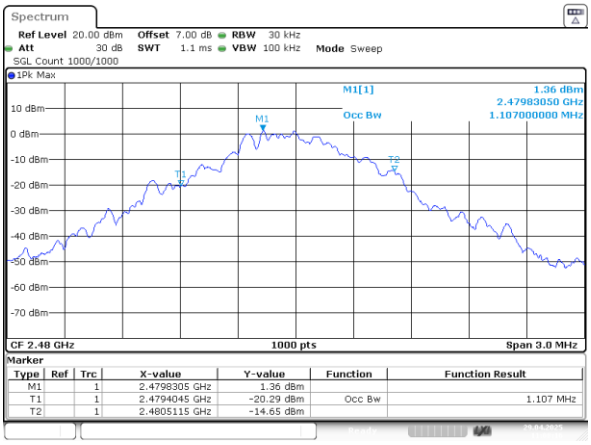
DH1_Low



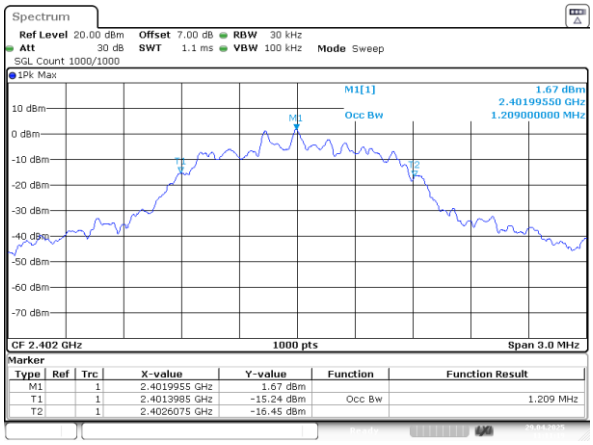
DH1_Middle



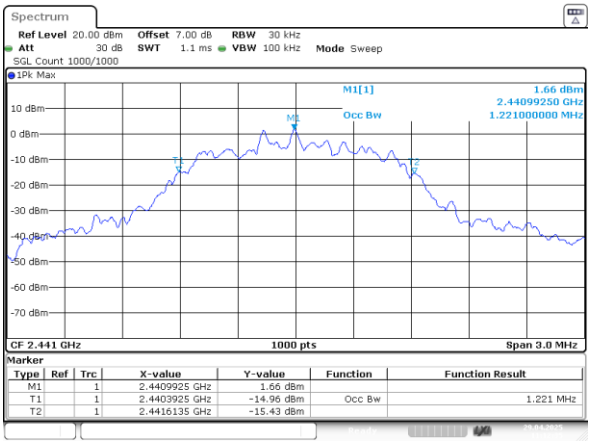
DH1_High



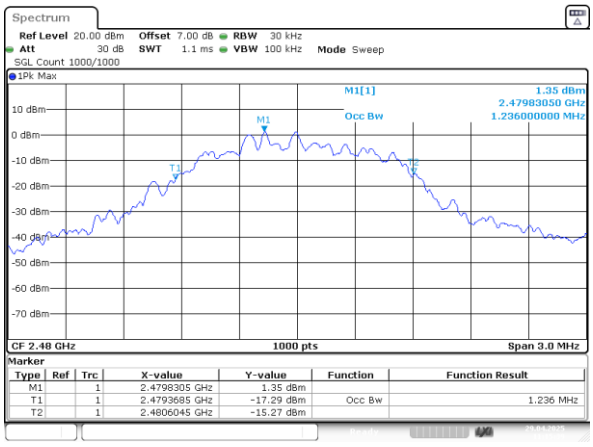
2DH1_Low



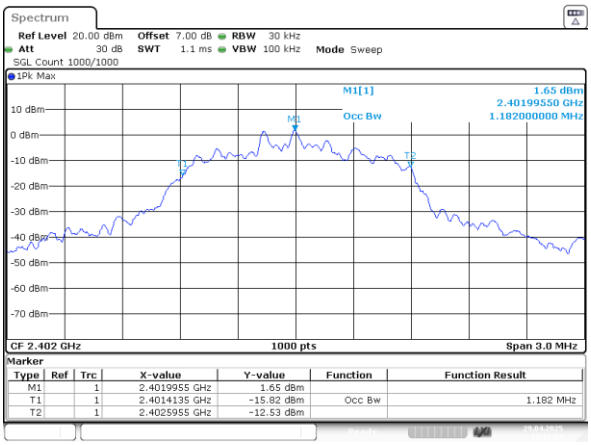
2DH1_Middle



2DH1_High

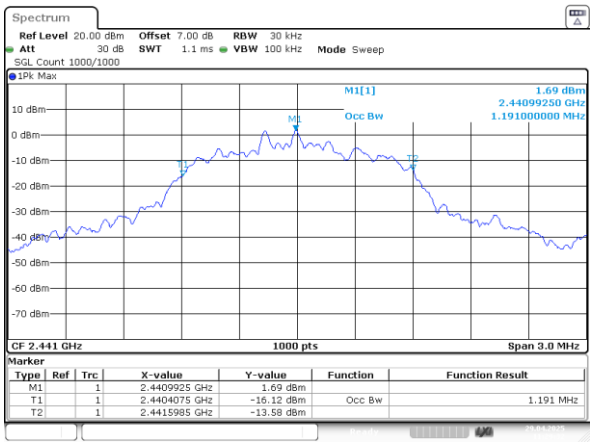


3DH1_Low



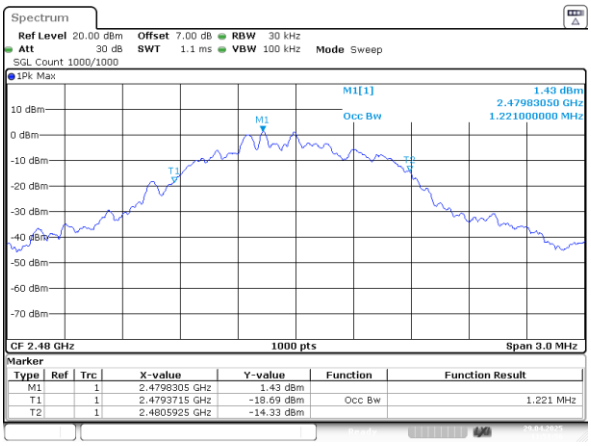
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:18:34

3DH1_Middle



ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:29:32

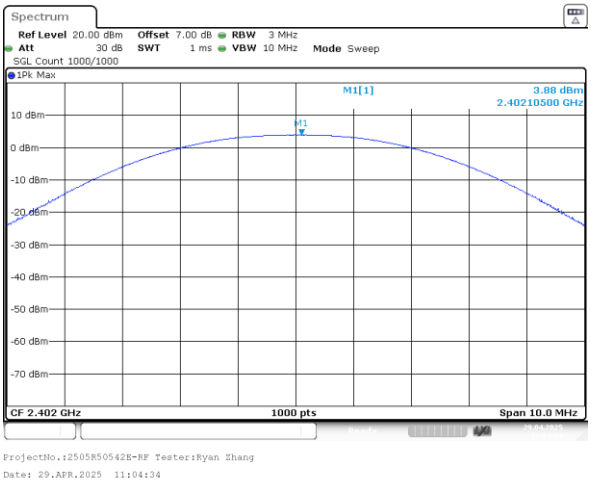
3DH1_High



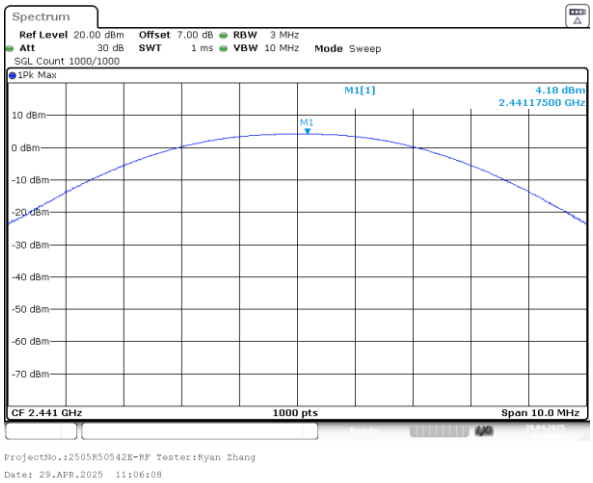
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:51:56

Maximum Conducted Peak Output Power:

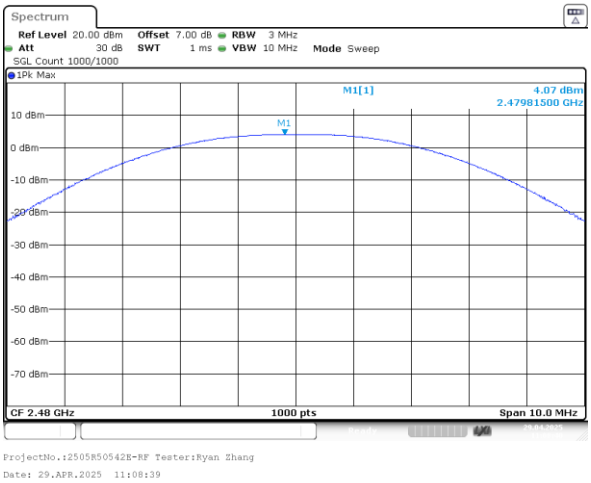
DH1_Low



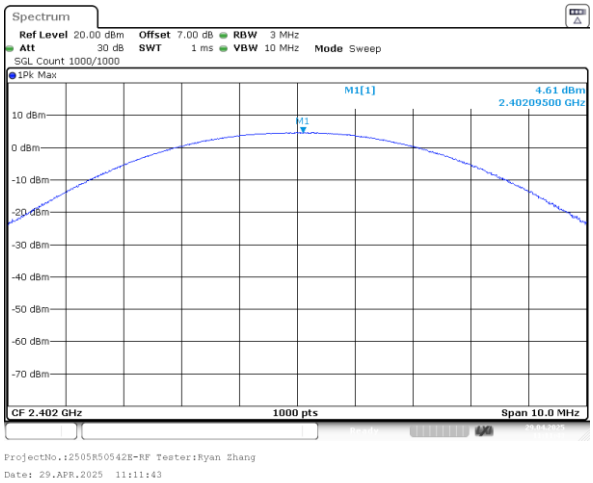
DH1_Middle



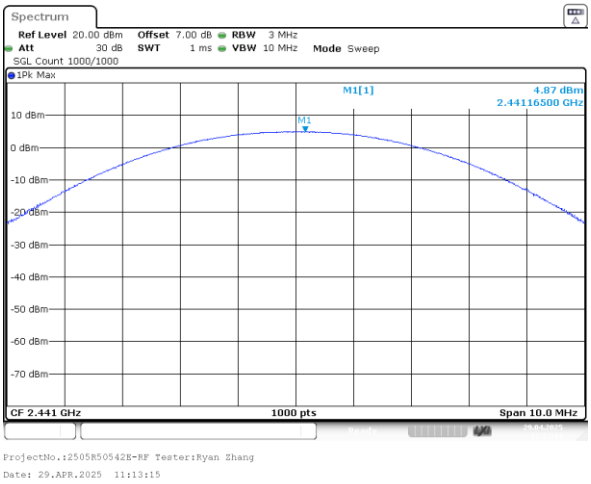
DH1_High



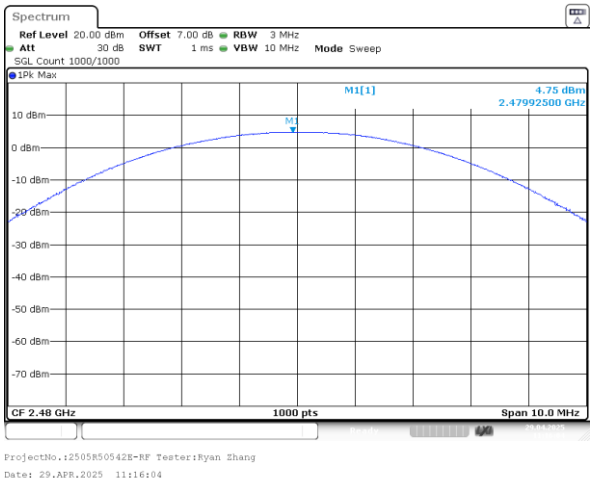
2DH1_Low



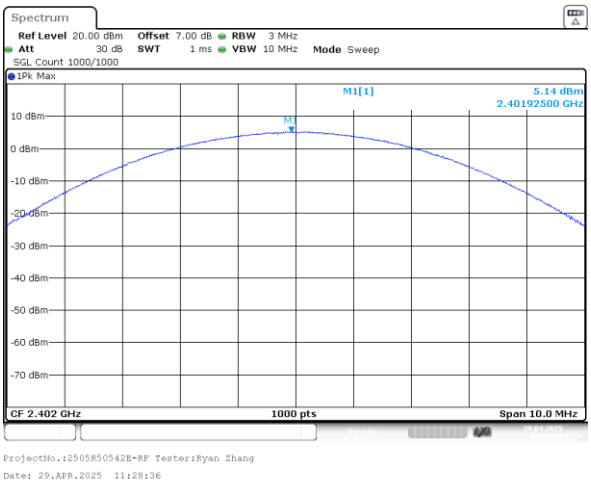
2DH1_Middle



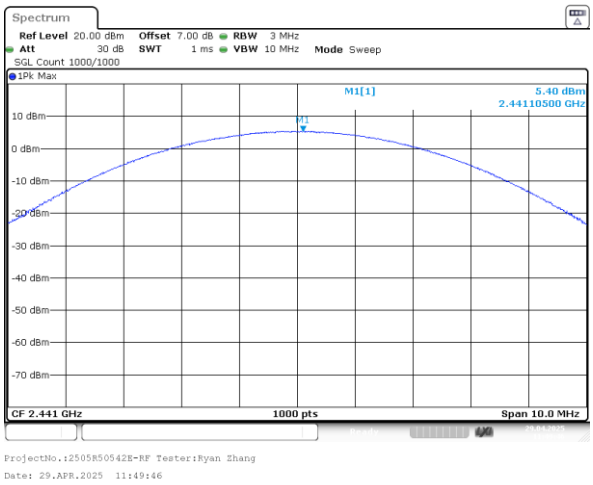
2DH1_High



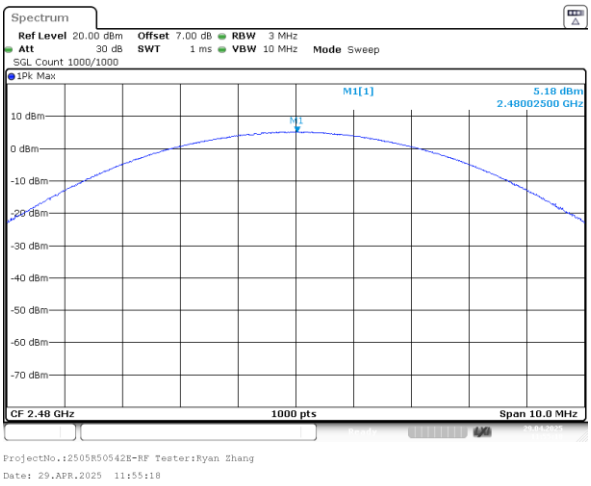
3DH1_Low



3DH1_Middle

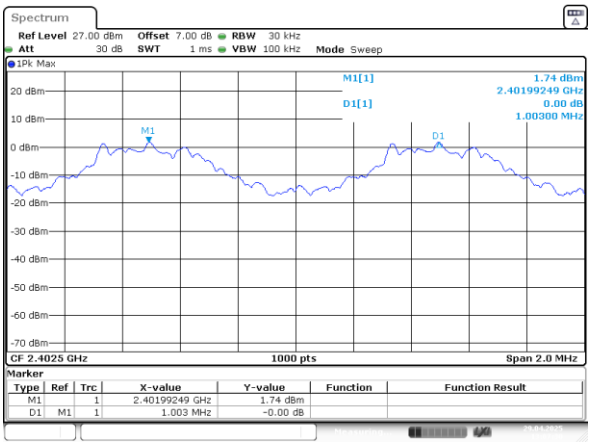


3DH1_High



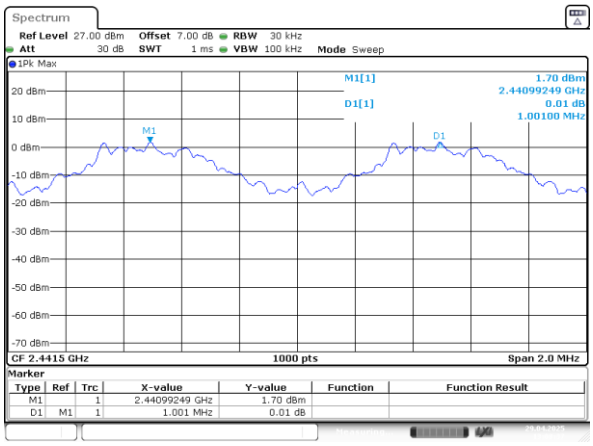
Channel separation:

DH1_Low



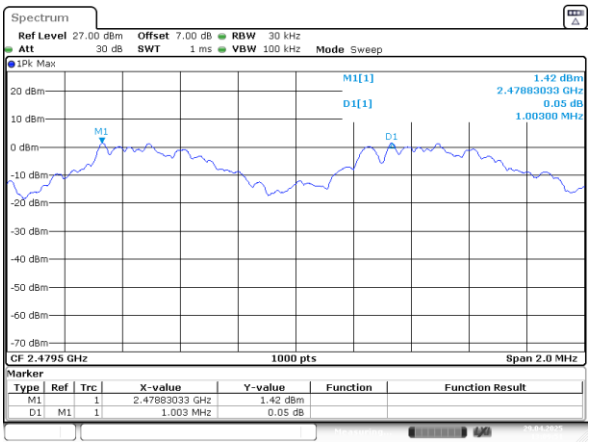
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:07:30

DH1_Middle



ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:08:37

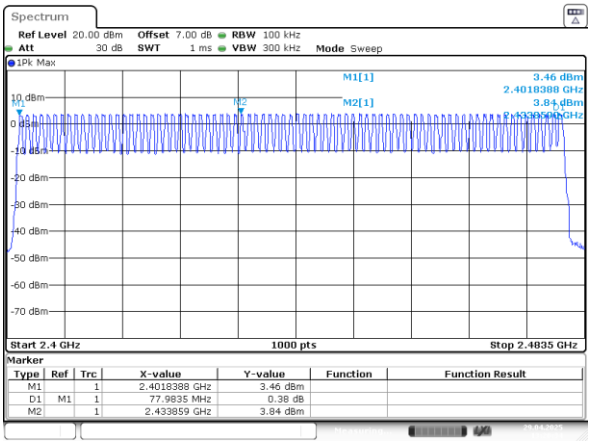
DH1_High



ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:09:51

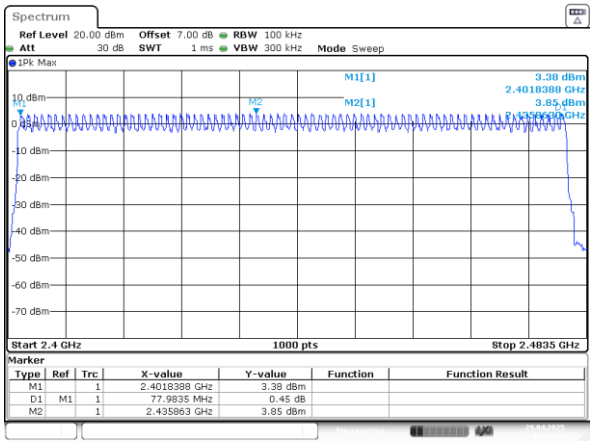
Number of hopping Frequency

DH1_Hopping



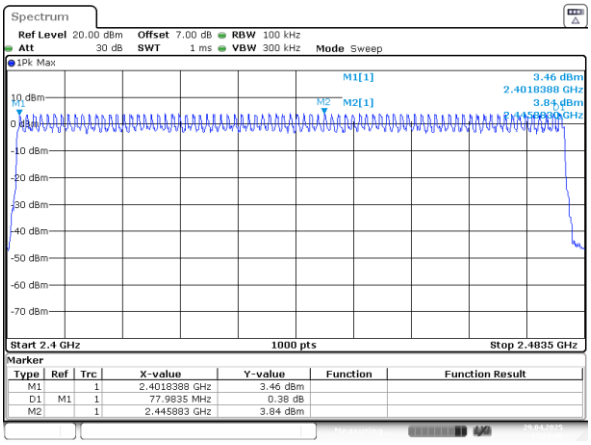
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:20:34

2DH1_Hopping



ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:22:28

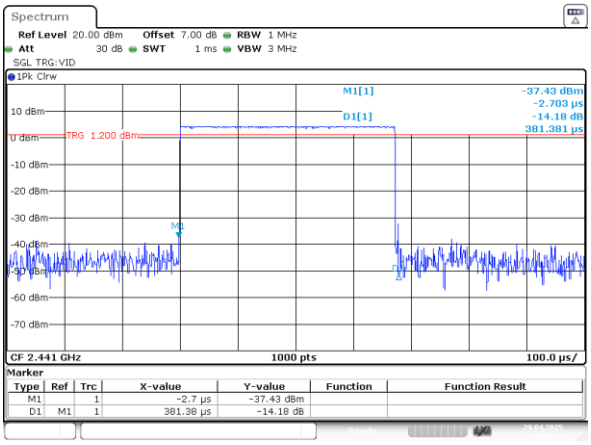
3DH1_Hopping



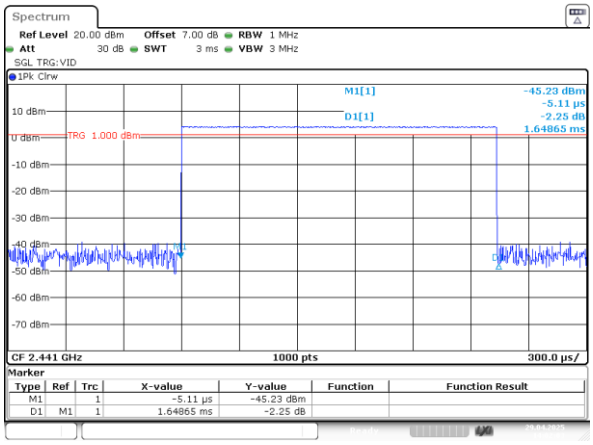
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:24:41

Time of occupancy (dwell time)

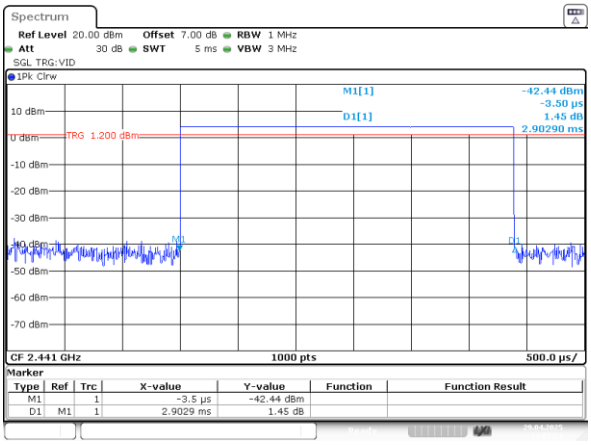
DH1_Hopping



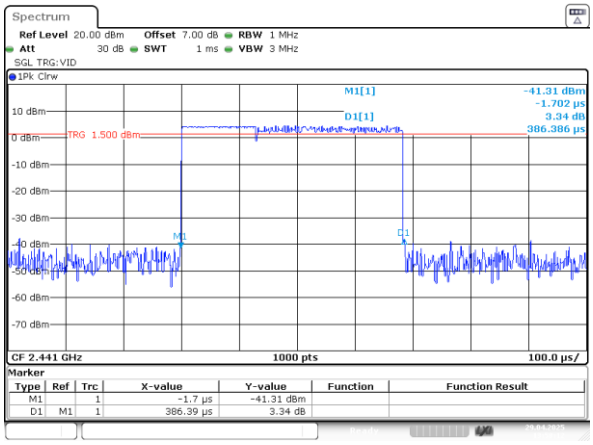
DH3_Hopping



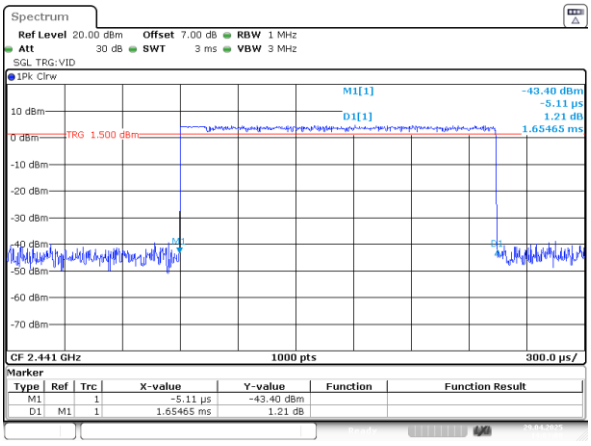
DH5_Hopping



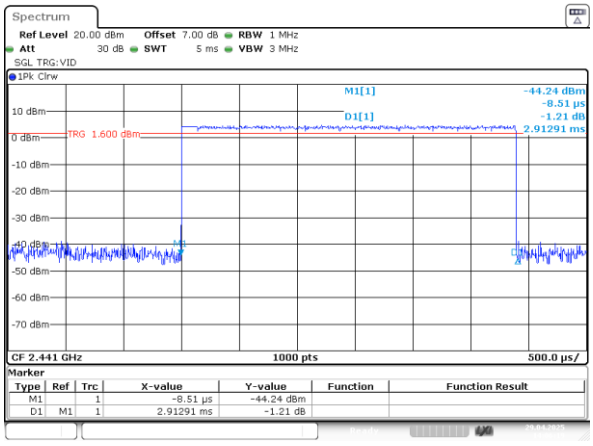
2DH1_Hopping



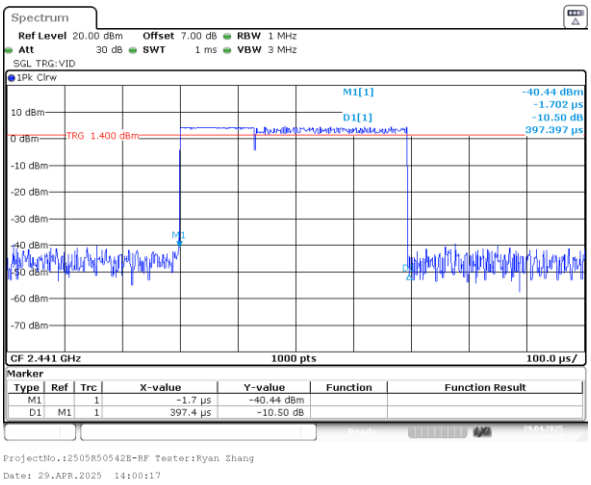
2DH3_Hopping



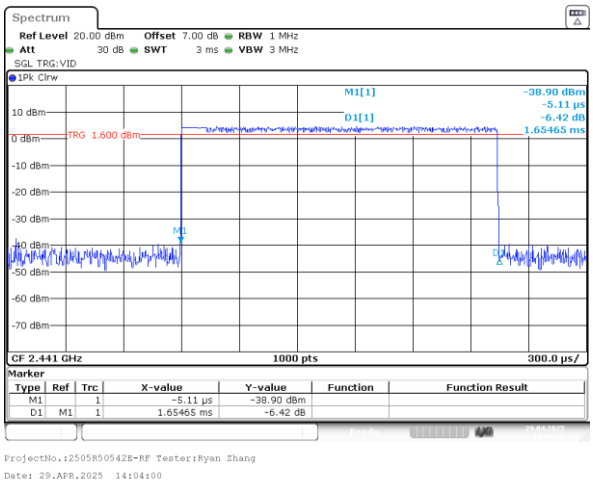
2DH5_Hopping



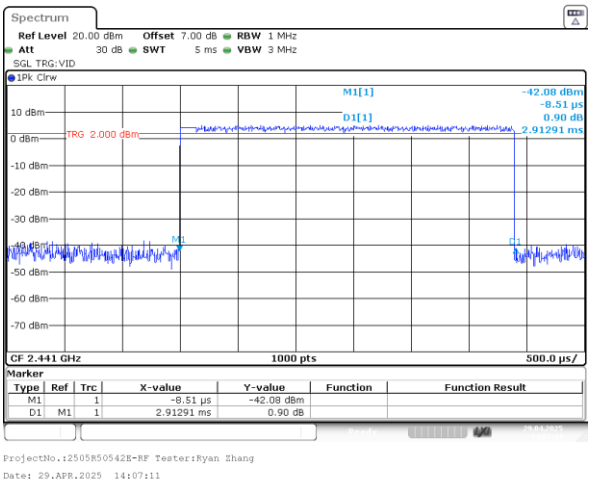
3DH1_Hopping



3DH3_Hopping

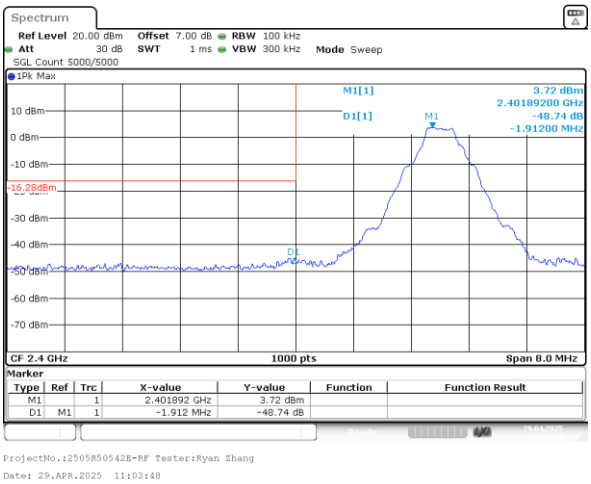


3DH5_Hopping



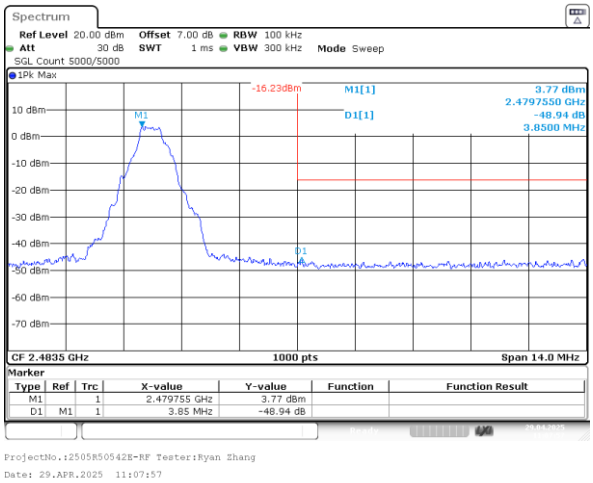
100kHz Bandwidth of Frequency Band Edge:

DH1_Low



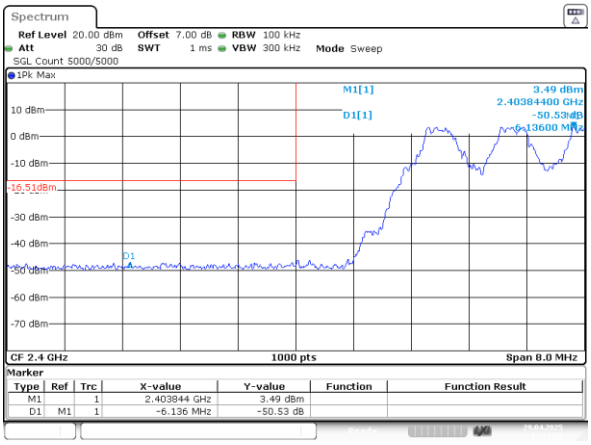
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:03:48

DH1_High



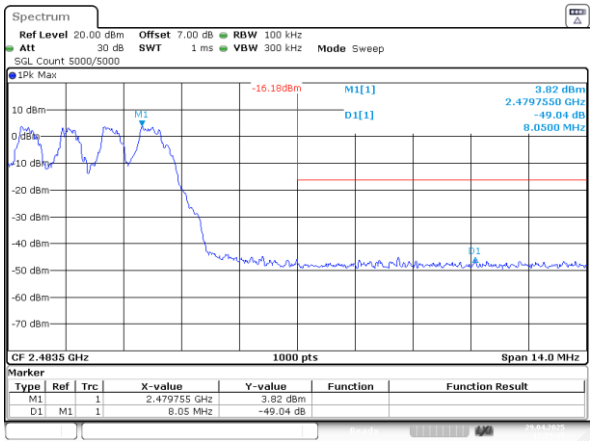
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:07:57

DH1_Hopping_Lower



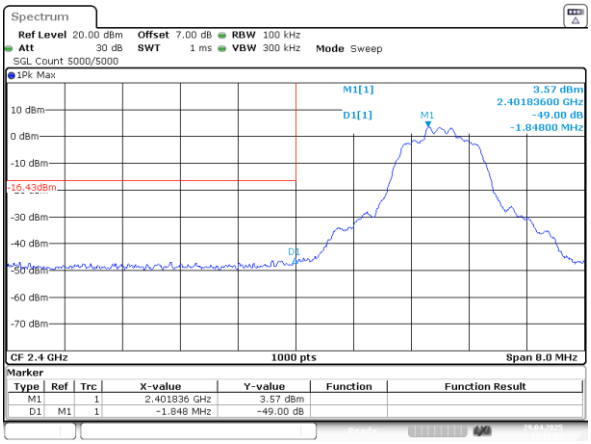
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:27:30

DH1_Hopping_Upper



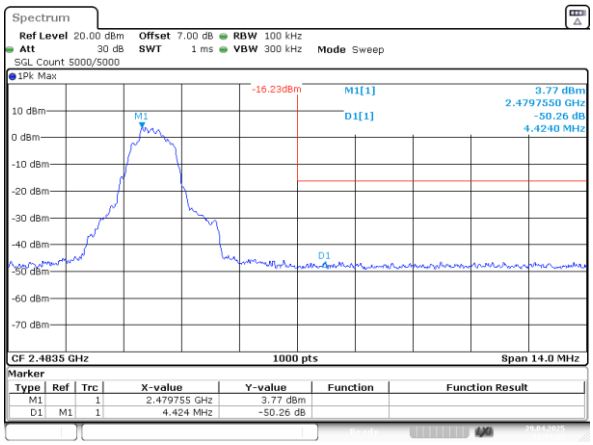
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 13:29:35

2DH1_Low



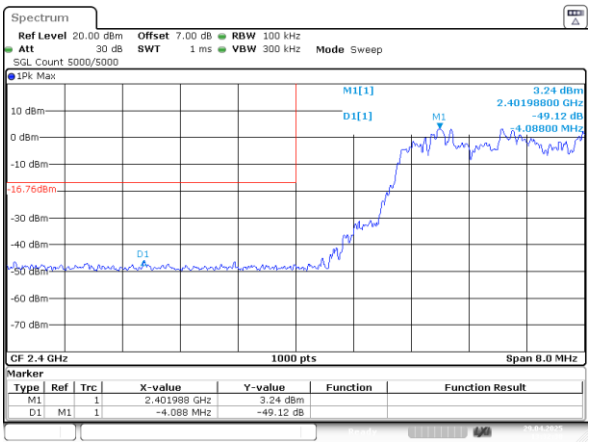
ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:11:01

2DH1_High

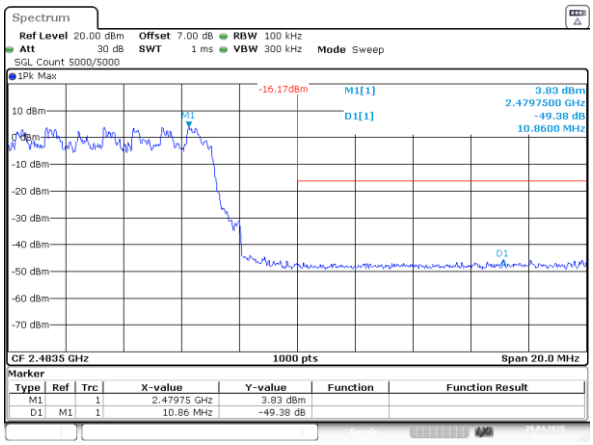


ProjectNo.:2505R50542E-RF Tester:Ryan Zhang
Date: 29.APR.2025 11:15:21

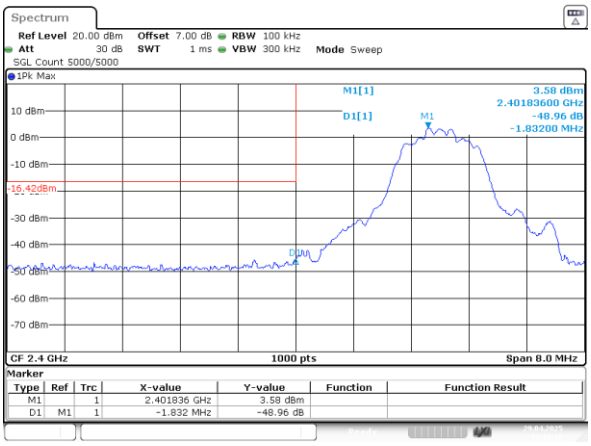
2DH1_Hopping_Lower



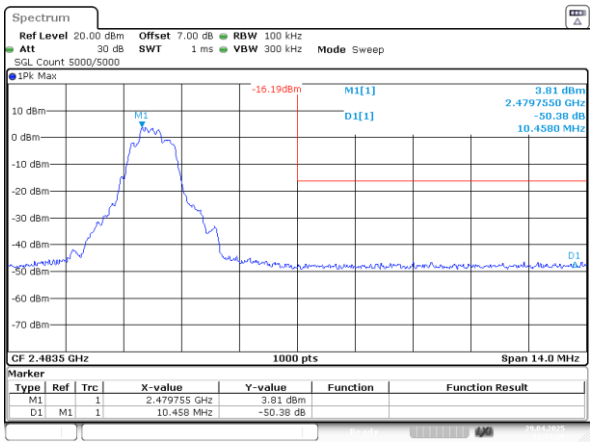
2DH1_Hopping_Upper



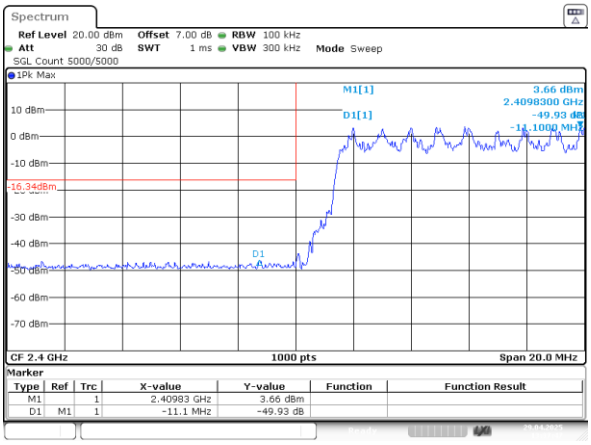
3DH1_Low



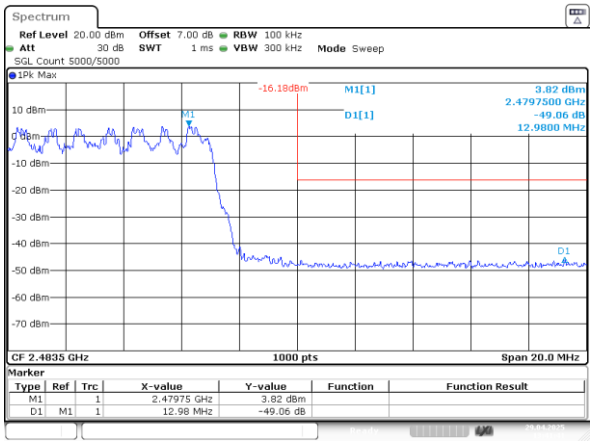
3DH1_High



3DH1_Hopping_Lower



3DH1_Hopping_Upper



4 Test Setup Photo

Please refer to the attachment 2505R50542E Test Setup photo.

5 E.U.T Photo

Please refer to the attachment 2505R50542E External photo and 2505R50542E Internal photo.

---End of Report---