TEST REPORT

Report No.:	8435EU010313W3
Applicant:	Woan Technology (Shenzhen) Co., Ltd.
Address:	Room 1101, Qiancheng Commercial Center, No. 5 Haicheng Road, Mabu Community, Xixiang Sub-district, Bao'an District, Shenzhen, Guangdong, P.R.China, 518100
Product Name:	SwitchBot Hub 4
Model No.:	W108021000 (refer to clause 2.4)
Trademark:	SwitchBot
FCC ID:	2AKXB-W108021000
Test Standard(s):	47 CFR Part 15.247
Test Result:	Pass
Date of Receipt:	Sep. 03, 2026
Test Date:	Sep. 04, 2026 - Sep. 21, 2026
Date of Issue:	Sep. 21, 2026

ISSUED BY:

SHENZHEN EU TESTING LABORATORY LIMITED

SHENZHEN EU TESTING LABORATORY LIMITED APPROVED

Prepared by: **Reviewed and Approved by:**

Landon Qiu/ Engineer

Sally Zhang/ Manager

Revision Record

Report Version	Issued Date	Description	Status
V0	Sep. 21, 2026	Original	Valid

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com

Table of Contents

1 COVER PAGE 1
2 GENERAL INFORMATION 5
2.1 APPLICANT INFORMATION 5
2.2 MANUFACTURER INFORMATION 5
2.3 FACTORY INFORMATION 5
2.4 GENERAL DESCRIPTION OF E.U.T. 5
2.5 TECHNICAL INFORMATION OF E.U.T. 6
3 TEST SUMMARY 7
3.1 TEST STANDARD 7
3.2 TEST VERDICT 7
3.3 TEST LABORATORY 8
4 TEST CONFIGURATION 9
4.1 TEST ENVIRONMENT 9
4.2 TEST EQUIPMENT 9
4.3 DESCRIPTION OF SUPPORT UNIT 12
4.4 TEST MODE 12
4.5 DESCRIPTION OF CALCULATION 12
4.5.1 Field Strength Calculation 12
4.5.2 Disturbance Calculation 12
4.6 MEASUREMENT UNCERTAINTY 13
4.7 DEVIATION FROM STANDARDS 13
4.8 ABNORMALITIES FROM STANDARD CONDITION 13
5 EVALUATION RESULTS (EVALUATION) 14
5.1 ANTENNA REQUIREMENT 14
5.1.1 Test Specification 14
5.1.2 Test Data 14
6 RADIO SPECTRUM MATTER TEST RESULTS (RF) 15
6.1 CONDUCTED EMISSION AT AC POWER LINE 15
6.1.1 Test Specification 15
6.1.2 E.U.T. Operation 15
6.1.3 Test Setup Diagram 15
6.1.4 Test Data 15
6.2 6DB BANDWIDTH 18
6.2.1 Test Specification 18
6.2.2 E.U.T. Operation 18
6.2.3 Test Setup Diagram 19
6.2.4 Test Data 19
6.3 MAXIMUM CONDUCTED OUTPUT POWER 20
6.3.1 Test Specification 20
6.3.2 E.U.T. Operation 20
6.3.3 Test Setup Diagram 20
6.3.4 Test Data 20
6.4 POWER SPECTRAL DENSITY 21
6.4.1 Test Specification 21
6.4.2 E.U.T. Operation 21
6.4.3 Test Setup Diagram 21

6.4.4 Test Data 21
6.5 EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS 22
6.5.1 Test Specification 22
6.5.2 E.U.T. Operation 22
6.5.3 Test Setup Diagram 22
6.5.4 Test Data 22
6.6 BAND EDGE EMISSIONS (RADIATED) 23
6.6.1 Test Specification 23
6.6.2 E.U.T. Operation 23
6.6.3 Test Setup Diagram 23
6.6.4 Test Data 24
6.7 EMISSIONS IN FREQUENCY BANDS (BELOW 1GHZ) 27
6.7.1 Test Specification 27
6.7.2 E.U.T. Operation 27
6.7.3 Test Setup Diagram 27
6.7.4 Test Data 28
6.8 EMISSIONS IN FREQUENCY BANDS (ABOVE 1GHZ) 31
6.8.1 Test Specification 31
6.8.2 E.U.T. Operation 31
6.8.3 Test Setup Diagram 32
6.8.4 Test Data 32
ANNEX A TEST SETUP PHOTOS 36
ANNEX B EXTERNAL PHOTOS 36
ANNEX C INTERNAL PHOTOS 36
ANNEX D TEST DATA 37

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com

2 General Information

2.1 Applicant Information

Applicant	Woan Technology (Shenzhen) Co., Ltd.
Address	Room 1101, Qiancheng Commercial Center, No. 5 Haicheng Road, Mabu Community, Xixiang Sub-district, Bao'an District, Shenzhen, Guangdong, P.R.China, 518100

2.2 Manufacturer Information

Manufacturer	Woan Technology (Shenzhen) Co., Ltd.
Address	Room 1101, Qiancheng Commercial Center, No. 5 Haicheng Road, Mabu Community, Xixiang Sub-district, Bao'an District, Shenzhen, Guangdong, P.R.China, 518100

2.3 Factory Information

Factory	Wo'an Technology (Shenzhen) Co., Ltd. Huizhou Branch
Address	Building 2, 2nd Floor, Baidi Zhigu Science and Technology Innovation Park, No.263 Chang'an Avenue, Shatian Town, Huiyang District, Huizhou City, Guangdong, China

2.4 General Description of E.U.T.

Product Name	SwitchBot Hub 4
Model No. Under Test	W108021000
List Model No.	W108021001, W108021002, W108021003, W108021004, W108021005
Description of Model differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in appearance color and model name. (this information provided by the customer)
Rating(s)	Input: 5.0V⎓2.0A, 10.0W (Adapter Input: 100-240V~, 50/60Hz, 0.35A Max; Output: 5.0V⎓2.0A, 10.0W)
Adapter	Model No.: KA12C-0502000US Input: 100-240V~, 50/60Hz, 0.35A Max Output: 5.0V⎓2.0A, 10.0W Manufacturer: SHENZHEN KEYU POWER SUPPLY TECHNOLOGY CO., LTD.
Product Type	☒ Mobile ☐ Portable ☐ Fix Location
Test Sample No.	8435EU010313W-1/2(Normal), 8435EU010313W-2/2(Engineering)
Hardware Version	V01
Software Version	V1.1.1
Remark	For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.5 Technical Information of E.U.T.

Network and Wireless Connectivity	Bluetooth (BDR+EDR+BLE) WiFi 2.4G: 802.11b, 802.11g, 802.11n(HT20/40)

The requirement for the following technical information of the EUT was tested in this report:

Technology	Bluetooth
Operation Mode	BLE
Operating Frequency	2402MHz to 2480MHz
Modulation Type	GFSK
Number of Channels	40
Antenna Type	FPC Antenna
Antenna Gain(Peak)	4.45 dBi
Remark	The above information are declared by the applicant, EU-LAB is not responsible for the information accuracy provided by the applicant.

All channels were listed on the following table:

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

3 Test Summary

3.1 Test Standard

The tests were performed according to following standards:

47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

Remark:

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

3.2 Test Verdict

Test Items	Standard	Method	Requirement	Results
Antenna requirement	47 CFR Part 15.247	---	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.2	47 CFR 15.207(a)	Pass
6dB Bandwidth	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 11.11 KDB 558074 D01 15.247 Meas	47 CFR 15.247(d)	Pass

		Guidance v05r02		
Band edge emissions (Radiated)	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.247	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Note: (1) “N/A” denotes test is not applicable in this Test Report.				

3.3 Test Laboratory

Test Laboratory	Shenzhen EU Testing Laboratory Limited
Address	101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Designation Number	CN1368
Test Firm Registration Number	952583

4 Test Configuration

4.1 Test Environment

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	30% to 60%	
Atmospheric Pressure	86 kPa to 106 kPa	
Temperature	NT (Normal Temperature)	+15℃ to +35℃
Working Voltage of the EUT	NV (Normal Voltage)	120VAC, 60Hz for adapter

4.2 Test Equipment

Conducted Emission at AC power line					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
Test Software	Farad	EZ-EMC	EE-014	/	/
EMI Test Receiver	Rohde & Schwarz	ESCI	EE-005	2026-04-07	2027-04-06
L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	EE-004	2026-05-10	2027-05-09
8-Wire ISN CAT6	Schwarzbeck	NTFM 8158	EE-219	2026-05-18	2027-05-17

6dB Bandwidth **Maximum Conducted Output Power** **Power Spectral Density** **Emissions in non-restricted frequency bands**					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer	Agilent	N9020A	EE-011	2026-04-07	2027-04-06
MXG RF Vector Signal Generator	Agilent	N5182A	EE-012	2026-04-07	2027-04-06
MIMO Power Measurement Module	TSTPASS	TSPS 2023R	EE-016	2026-04-11	2027-04-10
MXG RF Analog Signal Generator	Agilent	N5181A	EE-406	2026-02-13	2027-02-12
Power Meter	Anritsu	ML2495A	EE-416	2026-02-13	2027-02-12
Constant Temperature Humidity Chamber	Guangxin	GXP-401	ES-002	2026-07-14	2027-07-13
RF Test Software	TSTPASS	TS32893 V2.0	EE-017	/	/
Band-Stop Filter	COM-MW	ZBSF8-L2400-2483.5-1016	EE-025	2026-04-07	2027-04-06
Band-Stop Filter	COM-MW	K6-5150-5850-250S5020-001	EE-026	2026-04-07	2027-04-06
Filter	COM-MW	ZHPF6-M3000-18000-	EE-027	2026-04-07	2027-04-06

		174			
Filter	COM-MW	ZHPF6-M1300-18000-5356	EE-028	2026-04-07	2027-04-06
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CMW500	EE-030	2026-04-07	2027-04-06

Band edge emissions (Radiated) **Emissions in frequency bands (above 1GHz)**					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2026-04-08	2027-04-07
Double Ridged Horn Antenna	A-INFOMW	LB-10180-NF	EE-008	2026-04-12	2027-04-11
Pre-amplifier	Agilent	8449B	EE-010	2026-04-07	2027-04-06
MXG RF Vector Signal Generator	Agilent	N5182A	EE-012	2026-04-07	2027-04-06
Test Software	Farad	EZ-EMC	EE-015	/	/
Band-Stop Filter	COM-MW	ZBSF8-L2400-2483.5-1016	EE-025	2026-04-07	2027-04-06
Band-Stop Filter	COM-MW	K6-5150-5850-250S5020-001	EE-026	2026-04-07	2027-04-06
Filter	COM-MW	ZHPF6-M3000-18000-174	EE-027	2026-04-07	2027-04-06
Filter	COM-MW	ZHPF6-M1300-18000-5356	EE-028	2026-04-07	2027-04-06
Spectrum Analyzer	ROHDE & SCHWARZ	FSV40-N	EE-029	2026-04-07	2027-04-06
DRG Horn Antenna	SCHWARZBECK	BBHA 9170	EE-410	2026-02-13	2027-02-12

Emissions in frequency bands (below 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2026-04-08	2027-04-07
Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	EE-007	2026-04-12	2027-04-11
Pre-amplifier	Agilent	8447D	EE-009	2026-04-08	2027-04-07
MXA Signal Analyzer	Agilent	N9020A	EE-011	2026-04-07	2027-04-06
Test Software	Farad	EZ-EMC	EE-015	/	/

Loop Antenna	SCHWARZBECK	FMZB 1519-60	EE-022	2026-04-12	2027-04-11
Band-Stop Filter	COM-MW	ZBSF6-C902-928-2389	EE-023	2026-04-07	2027-04-06
Band-Stop Filter	COM-MW	ZBSF6-C855-880-5938	EE-024	2026-04-07	2027-04-06

4.3 Description of Support Unit

No.	Title	Manufacturer	Model No.	Serial No.
1	Adapter	refer to clause 2.4	refer to clause 2.4	--
2	Pink Notebook	ADOL	ADOL13F	EMC-PJ-030

4.4 Test Mode

No.	Test Modes	Description
TM1	BLE Mode-1M	Keep the EUT works in continuously transmitting mode with GFSK modulation with 1 Mbps rate at lowest, middle and highest channel.
TM2	BLE Mode-2M	Keep the EUT works in continuously transmitting mode with GFSK modulation with 2 Mbps rate at lowest, middle and highest channel.

4.5 Description of Calculation

4.5.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS (dBuV/m) = RA (dBuV) + AF (dB/m) + CL (dB) – AG (dB)

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

4.5.2 Disturbance Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

CD (dBuV) = RA (dBuV) + PL (dB) + CL (dB)

Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor

4.6 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

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

Test Item	Measurement Uncertainty
Conducted Emission	2.65 dB
Occupied Channel Bandwidth	69 kHz
RF output power, conducted	1.07 dB
Power Spectral Density, conducted	0.94 dB
Unwanted Emissions, conducted	2.73 dB
Radiated Emission (1GHz- 18GHz)	Ur = 3.58 dB (Horizontal) Ur = 3.58 dB (Vertical)
Radiated Emission (9kHz- 30MHz)	Ur = 3.06 dB
Radiated Emission (30MHz- 1GHz)	Ur = 2.76 dB (Horizontal) Ur = 2.76 dB (Vertical)
Radiated Emission (18GHz-40GHz)	Ur = 5.29 dB (Horizontal) Ur = 5.21 dB (Vertical)

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Condition

None

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com

5 Evaluation Results (Evaluation)

5.1 Antenna requirement

5.1.1 Test Specification

Test Requirement:	Refer to 47 CFR Part 15.203, 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.
Test Method:	---

5.1.2 Test Data

PASS.

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna-design is used.

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com

6 Radio Spectrum Matter Test Results (RF)

6.1 Conducted Emission at AC power line

6.1.1 Test Specification

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).
Test Limit:	

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

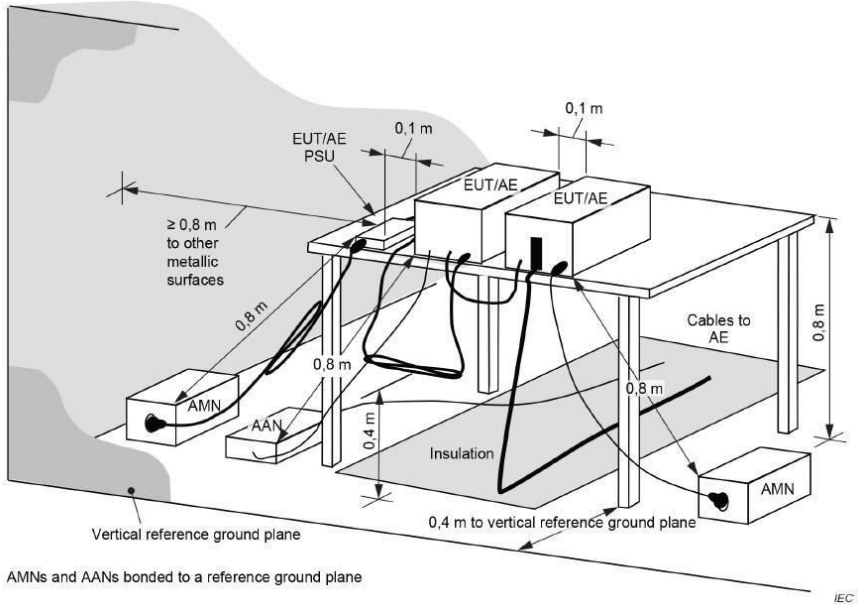
*Decreases with the logarithm of the frequency.

Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.2
Procedure:	Refer to ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices

6.1.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1

6.1.3 Test Setup Diagram



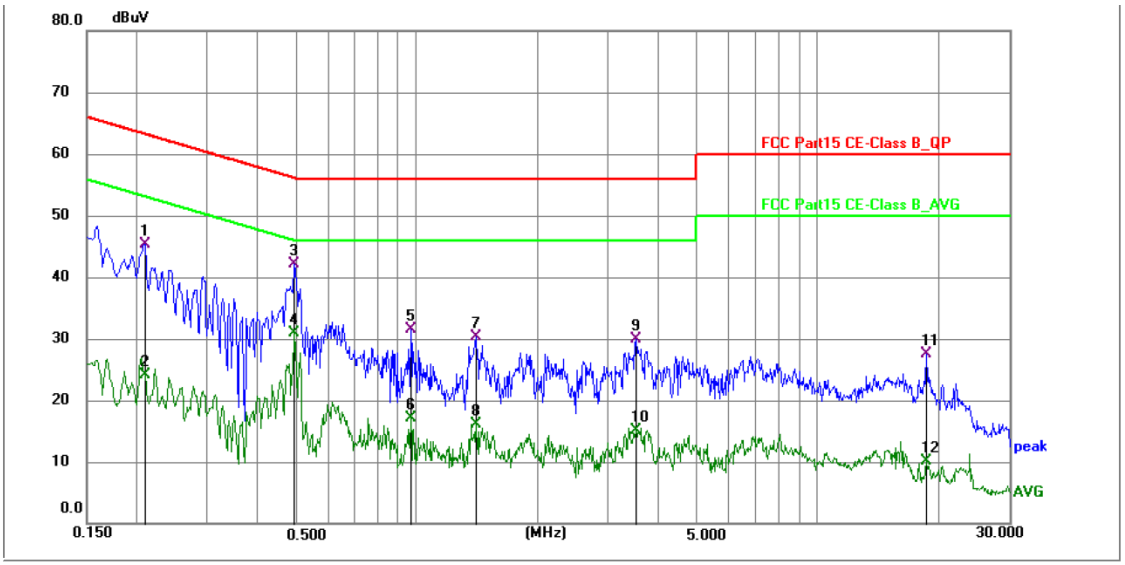
6.1.4 Test Data

PASS.

Only the worst case data was showed in the report, please to see the following pages.

Conducted Emission at AC power line Test Data

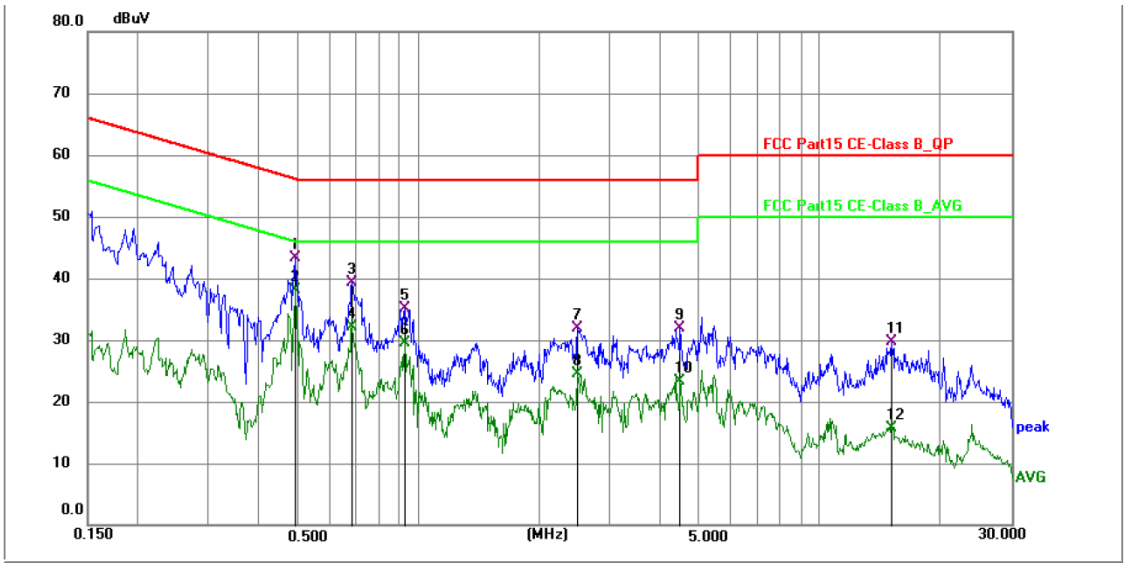
TM1 / Line: Line / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2084	35.31	9.97	45.28	63.27	-17.99	QP	P	
2	0.2084	14.20	9.97	24.17	53.27	-29.10	AVG	P	
3 *	0.4920	32.04	10.04	42.08	56.13	-14.05	QP	P	
4	0.4920	20.94	10.04	30.98	46.13	-15.15	AVG	P	
5	0.9645	21.39	10.04	31.43	56.00	-24.57	QP	P	
6	0.9645	7.16	10.04	17.20	46.00	-28.80	AVG	P	
7	1.4054	20.31	10.03	30.34	56.00	-25.66	QP	P	
8	1.4054	6.02	10.03	16.05	46.00	-29.95	AVG	P	
9	3.5114	19.91	10.05	29.96	56.00	-26.04	QP	P	
10	3.5114	5.02	10.05	15.07	46.00	-30.93	AVG	P	
11	18.6720	17.37	10.04	27.41	60.00	-32.59	QP	P	
12	18.6720	0.06	10.04	10.10	50.00	-39.90	AVG	P	

Conducted Emission at AC power line Test Data

TM1 / Line: Neutral / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.4920	33.16	10.07	43.23	56.13	-12.90	QP	P	
2 *	0.4920	27.99	10.07	38.06	46.13	-8.07	AVG	P	
3	0.6824	29.18	10.06	39.24	56.00	-16.76	QP	P	
4	0.6824	21.96	10.06	32.02	46.00	-13.98	AVG	P	
5	0.9240	25.00	10.06	35.06	56.00	-20.94	QP	P	
6	0.9240	19.54	10.06	29.60	46.00	-16.40	AVG	P	
7	2.4944	21.85	10.06	31.91	56.00	-24.09	QP	P	
8	2.4944	14.45	10.06	24.51	46.00	-21.49	AVG	P	
9	4.4970	21.86	10.05	31.91	56.00	-24.09	QP	P	
10	4.4970	13.31	10.05	23.36	46.00	-22.64	AVG	P	
11	15.0720	19.62	9.99	29.61	60.00	-30.39	QP	P	
12	15.0720	5.81	9.99	15.80	50.00	-34.20	AVG	P	

6.2 6dB Bandwidth

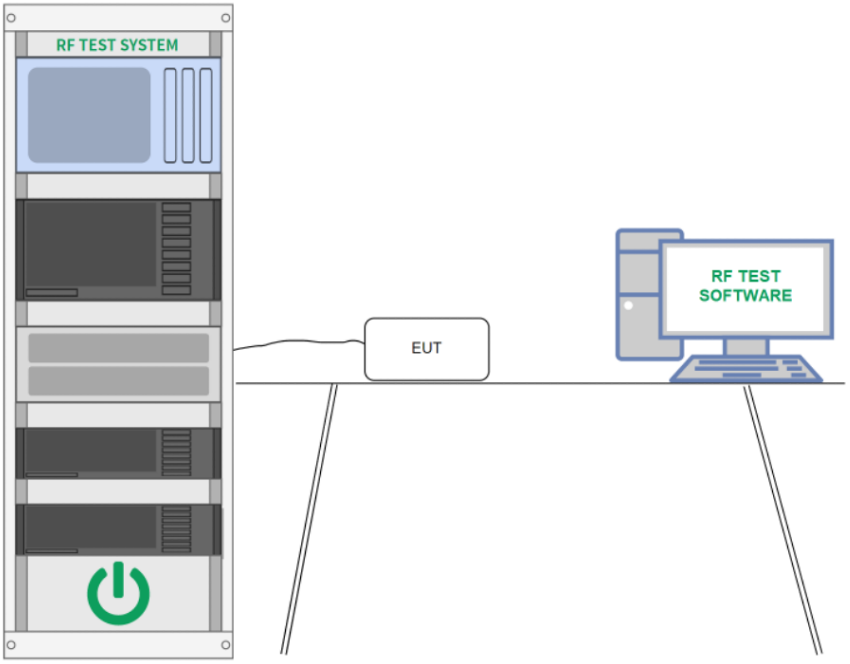
6.2.1 Test Specification

Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	11.8.1 Option 1 The steps for the first option are as follows: a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz. b) Set the VBW ≥ [3 × RBW]. c) Detector = peak. d) Trace mode = max-hold. e) Sweep = No faster than coupled (auto) time. f) Allow the trace to stabilize. g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “−6 dB down amplitude”. If a marker is below this “−6 dB down amplitude” value, then it shall be as close as possible to this value. 11.8.2 Option 2 The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW ≥ 3 × RBW, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

6.2.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1, TM2

6.2.3 Test Setup Diagram



6.2.4 Test Data

PASS.

Please refer to Annex D for details.

6.3 Maximum Conducted Output Power

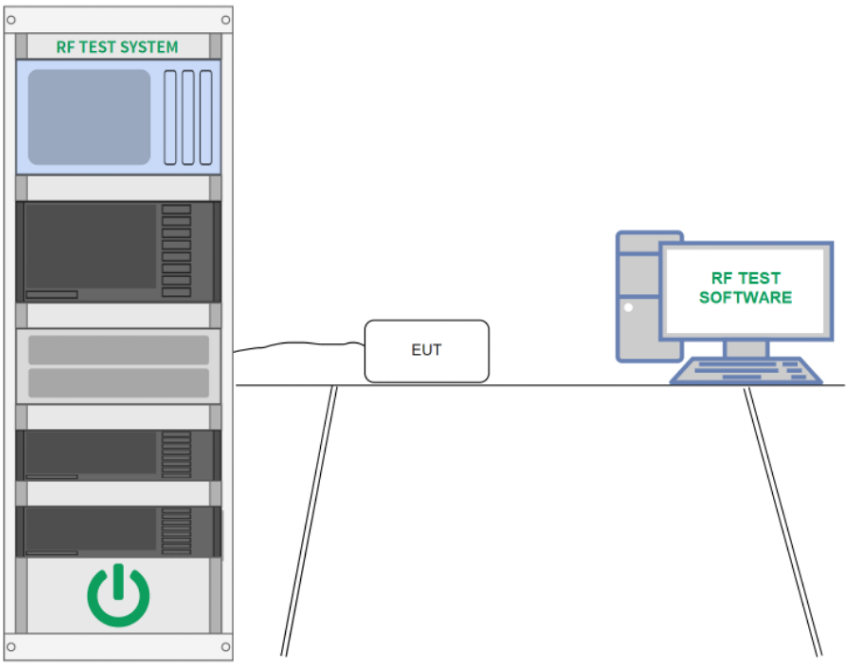
6.3.1 Test Specification

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 11.9.1 Maximum peak conducted output power

6.3.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1, TM2

6.3.3 Test Setup Diagram



6.3.4 Test Data

PASS.

Please refer to Annex D for details.

6.4 Power Spectral Density

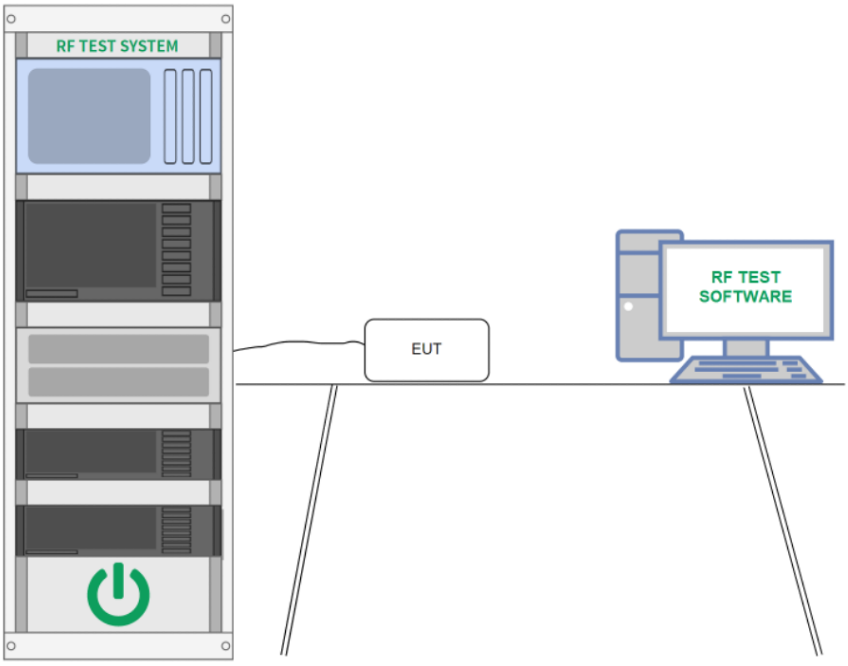
6.4.1 Test Specification

Test Requirement:	47 CFR 15.247(e)
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 11.10, Maximum power spectral density level in the fundamental emission

6.4.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1, TM2

6.4.3 Test Setup Diagram



6.4.4 Test Data

PASS.

Please refer to Annex D for details.

6.5 Emissions in non-restricted frequency bands

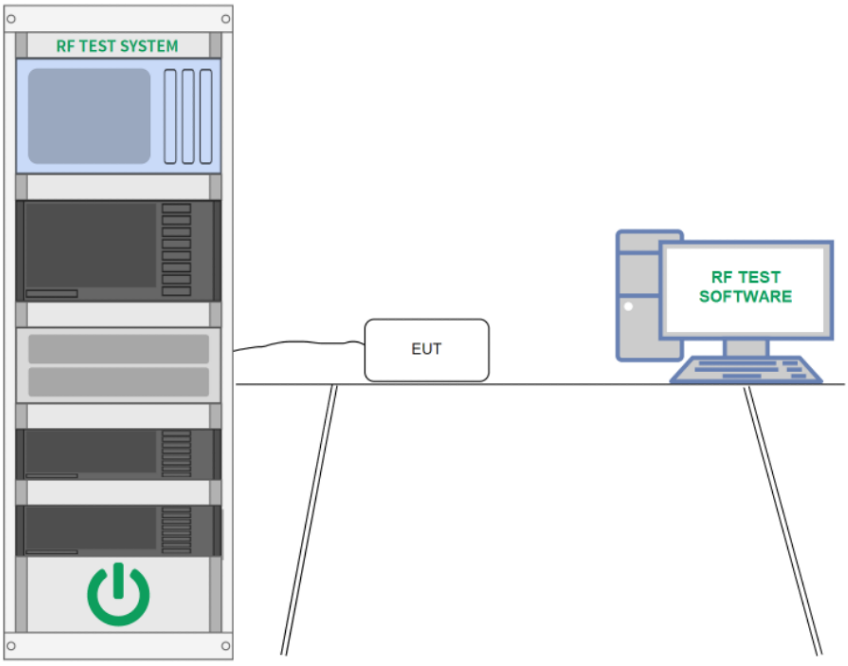
6.5.1 Test Specification

Test Requirement:	47 CFR 15.247(d)
Test Limit:	Refer to 47 CFR 15.247(d), 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.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 Section 11.11.1, Section 11.11.2, Section 11.11.3

6.5.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1, TM2

6.5.3 Test Setup Diagram



6.5.4 Test Data

PASS.

Please refer to Annex D for details.

6.6 Band edge emissions (Radiated)

6.6.1 Test Specification

Test Requirement:	Refer to 47 CFR 15.247(d), 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)).
Test Limit:	

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

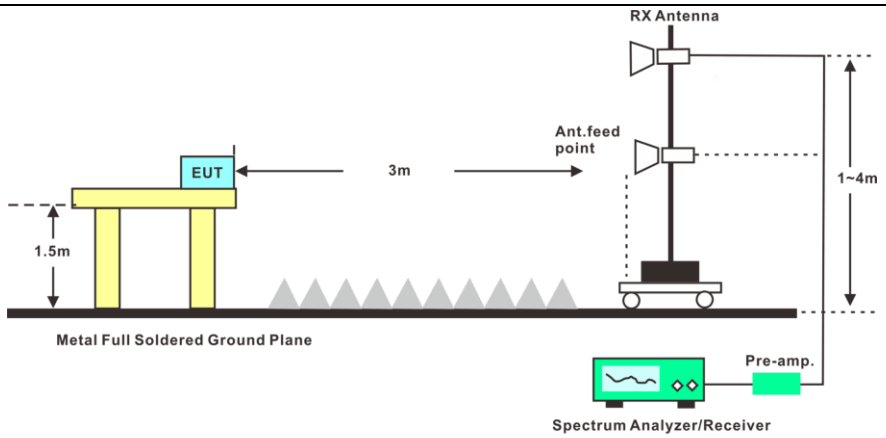
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.10.5.2

6.6.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1, TM2

6.6.3 Test Setup Diagram



6.6.4 Test Data

PASS.

Please refer to the following pages.

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com

Band Edge Emissions (Restricted frequency bands):

Test Mode: GFSK-1M					CH Low: 2402 MHz			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
H	2310.00	42.10	-2.81	39.29	74.00	-34.71	PK	PASS
H	2390.00	48.20	-2.69	45.51	74.00	-28.49	PK	PASS
H	**2400.00	61.94	-2.68	59.26	74.00	-14.74	PK	PASS
V	2310.00	44.23	-2.81	41.42	74.00	-32.58	PK	PASS
V	2390.00	45.16	-2.69	42.47	74.00	-31.53	PK	PASS
V	**2400.00	61.53	-2.68	58.85	74.00	-15.15	PK	PASS
H	2310.00	31.69	-2.81	28.88	54.00	-25.12	AV	PASS
H	2390.00	37.50	-2.69	34.81	54.00	-19.19	AV	PASS
H	**2400.00	46.04	-2.68	43.36	54.00	-10.64	AV	PASS
V	2310.00	31.34	-2.81	28.53	54.00	-25.47	AV	PASS
V	2390.00	36.42	-2.69	33.73	54.00	-20.27	AV	PASS
V	**2400.00	49.16	-2.68	46.48	54.00	-7.52	AV	PASS

Test Mode: GFSK-1M					CH High: 2480 MHz			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
H	**2483.50	47.81	-2.56	45.25	74.00	-28.75	PK	PASS
H	2500.00	49.07	-2.54	46.53	74.00	-27.47	PK	PASS
V	**2483.50	47.18	-2.56	44.62	74.00	-29.38	PK	PASS
V	2500.00	47.87	-2.54	45.33	74.00	-28.67	PK	PASS
H	**2483.50	38.38	-2.56	35.82	54.00	-18.18	AV	PASS
H	2500.00	41.01	-2.54	38.47	54.00	-15.53	AV	PASS
V	**2483.50	38.30	-2.56	35.74	54.00	-18.26	AV	PASS
V	2500.00	37.94	-2.54	35.40	54.00	-18.60	AV	PASS

Remark:

1. Emission Level = Reading + Factor, Margin= Emission Level – Limit.

Band Edge Emissions (Restricted frequency bands):

Test Mode: GFSK-2M					CH Low: 2402 MHz			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
H	2310.00	43.49	-2.81	40.68	74.00	-33.32	PK	PASS
H	2390.00	47.06	-2.69	44.37	74.00	-29.63	PK	PASS
H	**2400.00	61.52	-2.68	58.84	74.00	-15.16	PK	PASS
V	2310.00	42.96	-2.81	40.15	74.00	-33.85	PK	PASS
V	2390.00	48.71	-2.69	46.02	74.00	-27.98	PK	PASS
V	**2400.00	63.43	-2.68	60.75	74.00	-13.25	PK	PASS
H	2310.00	31.86	-2.81	29.05	54.00	-24.95	AV	PASS
H	2390.00	34.26	-2.69	31.57	54.00	-22.43	AV	PASS
H	**2400.00	45.56	-2.68	42.88	54.00	-11.12	AV	PASS
V	2310.00	32.34	-2.81	29.53	54.00	-24.47	AV	PASS
V	2390.00	34.70	-2.69	32.01	54.00	-21.99	AV	PASS
V	**2400.00	45.72	-2.68	43.04	54.00	-10.96	AV	PASS

Test Mode: GFSK-2M					CH High: 2480 MHz			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
H	**2483.50	45.82	-2.56	43.26	74.00	-30.74	PK	PASS
H	2500.00	51.78	-2.54	49.24	74.00	-24.76	PK	PASS
V	**2483.50	47.36	-2.56	44.80	74.00	-29.20	PK	PASS
V	2500.00	49.48	-2.54	46.94	74.00	-27.06	PK	PASS
H	**2483.50	36.73	-2.56	34.17	54.00	-19.83	AV	PASS
H	2500.00	41.28	-2.54	38.74	54.00	-15.26	AV	PASS
V	**2483.50	36.24	-2.56	33.68	54.00	-20.32	AV	PASS
V	2500.00	39.61	-2.54	37.07	54.00	-16.93	AV	PASS

Remark:

2. Emission Level = Reading + Factor, Margin= Emission Level – Limit.

6.7 Emissions in frequency bands (below 1GHz)

6.7.1 Test Specification

Test Requirement:	Refer to 47 CFR 15.247(d), 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)).
Test Limit:	Frequency (MHz) / Field strength (microvolts/meter) / Measurement distance (meters) 0.009-0.490 / 2400/F(kHz) / 300 0.490-1.705 / 24000/F(kHz) / 30 1.705-30.0 / 30 / 30 30-88 / 100 ** / 3 88-216 / 150 ** / 3 216-960 / 200 ** / 3 Above 960 / 500 / 3 ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4

6.7.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1

6.7.3 Test Setup Diagram

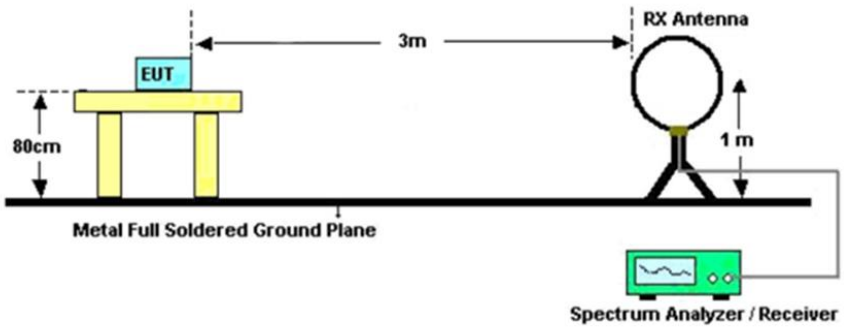


Figure 1. Below 30MHz

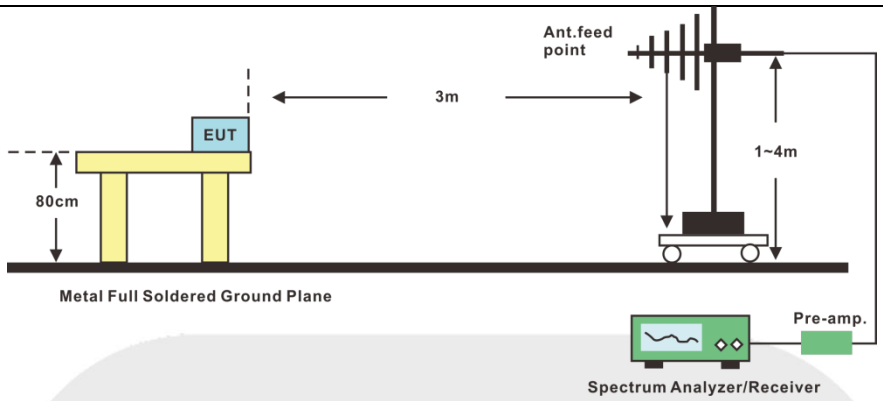


Figure 2. 30MHz to 1GHz

6.7.4 Test Data

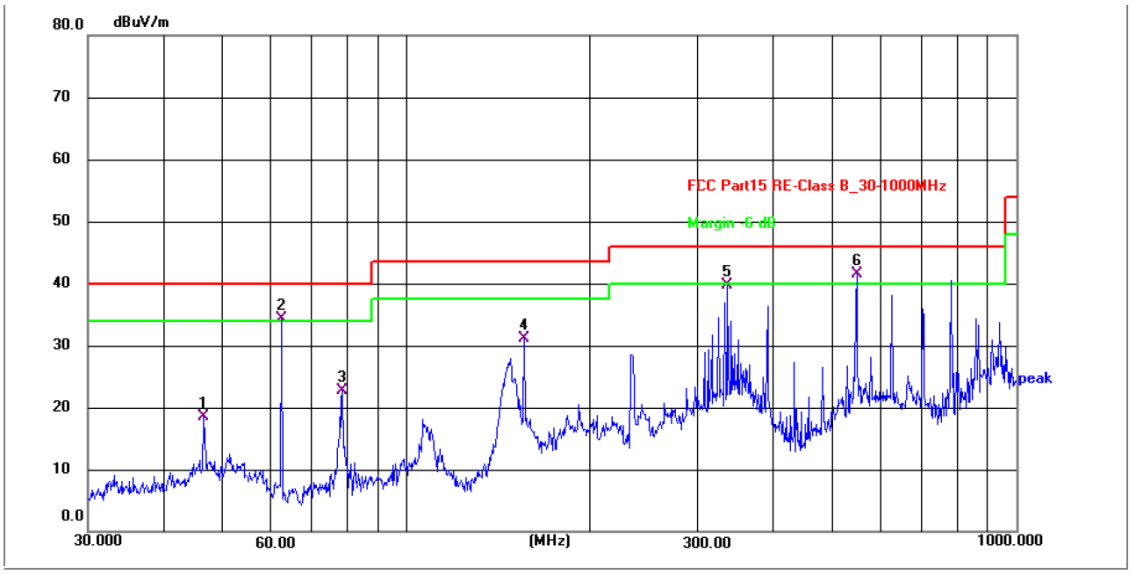
PASS.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

During the test, for 30MHz to 1000MHz, pre-scan all modulations, and found the BLE 1M modulation Low channel which is the worst case, only the worst case is recorded in the report.

Emissions in frequency bands (below 1GHz) Test Data

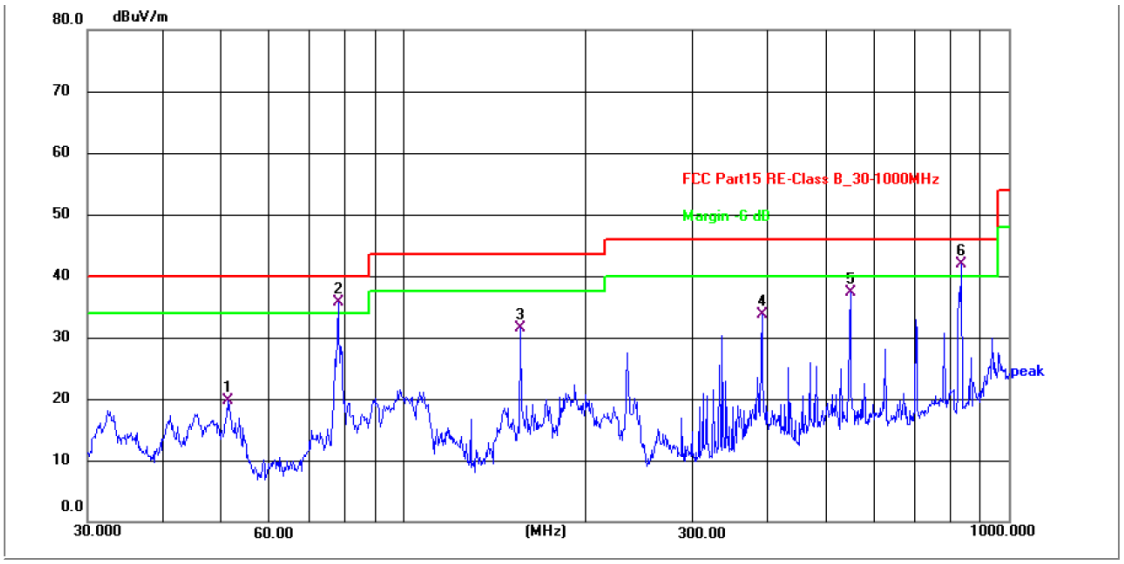
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	46.3402	37.66	-19.11	18.55	40.00	-21.45	QP	P	
2 !	62.2128	54.10	-19.74	34.36	40.00	-5.64	QP	P	
3	78.4133	44.30	-21.64	22.66	40.00	-17.34	QP	P	
4	155.9100	52.70	-21.68	31.02	43.50	-12.48	QP	P	
5	336.0350	55.55	-15.91	39.64	46.00	-6.36	QP	P	
6 *	547.0976	52.11	-10.55	41.56	46.00	-4.44	QP	P	

Emissions in frequency bands (below 1GHz) Test Data

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	51.1210	38.49	-18.73	19.76	40.00	-20.24	QP	P	
2 !	77.8653	57.29	-21.60	35.69	40.00	-4.31	QP	P	
3	155.9100	53.19	-21.68	31.51	43.50	-11.99	QP	P	
4	390.7225	48.90	-15.15	33.75	46.00	-12.25	QP	P	
5	547.0976	47.84	-10.55	37.29	46.00	-8.71	QP	P	
6 *	836.2441	48.90	-7.05	41.85	46.00	-4.15	QP	P	

6.8 Emissions in frequency bands (above 1GHz)

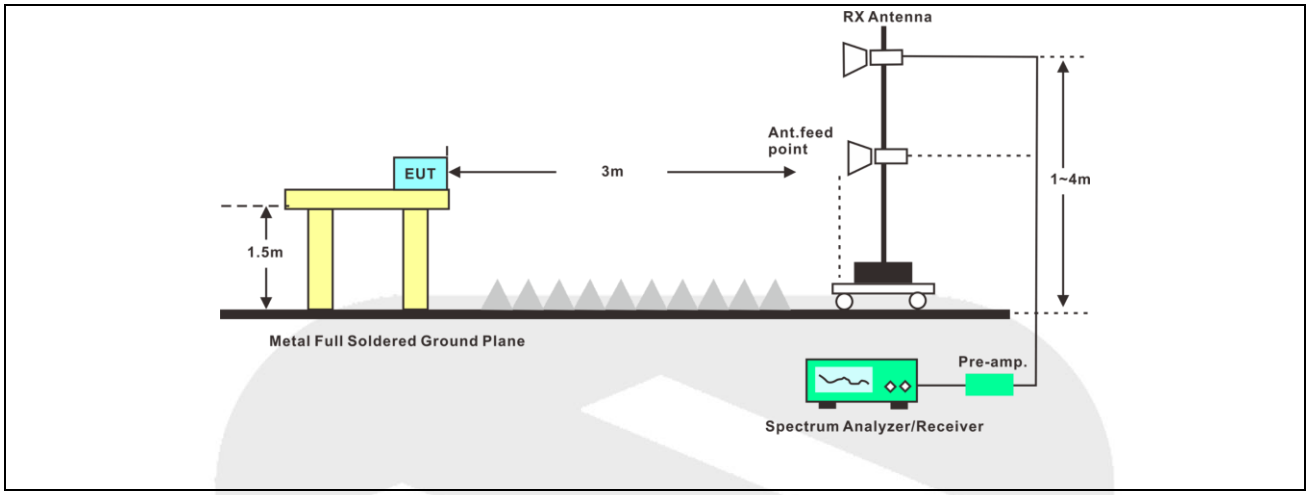
6.8.1 Test Specification

<table>
<tr><td>Test Requirement:</td><td>Refer to 47 CFR 15.247(d), 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)).</td></tr>
<tr><td>Test Limit:</td><td>
<table>
<tr><td>Frequency (MHz)</td><td>Field strength (microvolts/meter)</td><td>Measurement distance (meters)</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100 **</td><td>3</td></tr>
<tr><td>88-216</td><td>150 **</td><td>3</td></tr>
<tr><td>216-960</td><td>200 **</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4
KDB 558074 D01 15.247 Meas Guidance v05r02</td></tr>
<tr><td>Procedure:</td><td>ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4</td></tr>
</table>

6.8.2 E.U.T. Operation

Pre test mode:	TM1, TM2
Final test mode:	TM1

6.8.3 Test Setup Diagram



6.8.4 Test Data

PASS.

During the test, for 1GHz- 25GHz, pre-scan all modulations, and found the BLE 1M modulation which is the worst case, only the worst case is recorded in the report.

Radiated Spurious Emission (1GHz-25GHz)

Test Mode: GFSK					CH Low: 2402 MHz			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
V	4804.14	41.43	4.68	46.11	74.00	-27.90	PK	PASS
V	7206.87	34.38	9.84	44.22	74.00	-29.79	PK	PASS
V	9608.13	28.79	13.17	41.96	74.00	-32.04	PK	PASS
V	12010.53	*	*	*	74.00	*	PK	PASS
V	14412.22	*	*	*	74.00	*	PK	PASS
V	16814.76	*	*	*	74.00	*	PK	PASS
H	4804.35	40.22	4.68	44.90	74.00	-29.11	PK	PASS
H	7206.92	34.79	9.84	44.63	74.00	-29.38	PK	PASS
H	9608.97	30.03	13.17	43.20	74.00	-30.80	PK	PASS
H	12010.68	*	*	*	74.00	*	PK	PASS
H	14412.30	*	*	*	74.00	*	PK	PASS
H	16814.90	*	*	*	74.00	*	PK	PASS
V	4804.51	32.22	4.68	36.90	54.00	-17.11	AV	PASS
V	7206.98	22.95	9.84	32.79	54.00	-21.21	AV	PASS
V	9608.66	18.14	13.17	31.31	54.00	-22.70	AV	PASS
V	12010.59	*	*	*	54.00	*	AV	PASS
V	14412.98	*	*	*	54.00	*	AV	PASS
V	16814.82	*	*	*	54.00	*	AV	PASS
H	4804.39	30.18	4.68	34.86	54.00	-19.15	AV	PASS
H	7206.92	22.06	9.84	31.90	54.00	-22.11	AV	PASS
H	9608.97	19.10	13.17	32.27	54.00	-21.74	AV	PASS
H	12010.68	*	*	*	54.00	*	AV	PASS
H	14412.30	*	*	*	54.00	*	AV	PASS
H	16814.90	*	*	*	54.00	*	AV	PASS

Remark:

1. Emission Level = Reading + Factor, Margin= Emission Level – Limit.
2. “*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Radiated Spurious Emission (1GHz-25GHz)

Test Mode: GFSK					CH Middle: 2440 MHz			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
V	4880.17	40.75	4.92	45.67	74.00	-28.33	PK	PASS
V	7320.76	33.89	9.83	43.72	74.00	-30.28	PK	PASS
V	9760.95	28.89	13.22	42.11	74.00	-31.89	PK	PASS
V	12200.43	*	*	*	74.00	*	PK	PASS
V	14640.06	*	*	*	74.00	*	PK	PASS
V	17080.49	*	*	*	74.00	*	PK	PASS
H	4880.42	42.89	4.92	47.81	74.00	-26.19	PK	PASS
H	7320.24	33.38	9.83	43.21	74.00	-30.80	PK	PASS
H	9760.50	28.40	13.22	41.62	74.00	-32.38	PK	PASS
H	12200.49	*	*	*	74.00	*	PK	PASS
H	14640.70	*	*	*	74.00	*	PK	PASS
H	17080.75	*	*	*	74.00	*	PK	PASS
V	4880.28	30.55	4.92	35.47	54.00	-18.54	AV	PASS
V	7320.42	23.11	9.83	32.94	54.00	-21.06	AV	PASS
V	9760.72	17.84	13.22	31.06	54.00	-22.95	AV	PASS
V	12200.09	*	*	*	54.00	*	AV	PASS
V	14640.65	*	*	*	54.00	*	AV	PASS
V	17080.30	*	*	*	54.00	*	AV	PASS
H	4880.42	30.56	4.92	35.48	54.00	-18.52	AV	PASS
H	7320.24	22.72	9.83	32.55	54.00	-21.45	AV	PASS
H	9760.50	19.00	13.22	32.22	54.00	-21.79	AV	PASS
H	12200.49	*	*	*	54.00	*	AV	PASS
H	14640.70	*	*	*	54.00	*	AV	PASS
H	17080.75	*	*	*	54.00	*	AV	PASS

Remark:

1. Emission Level = Reading + Factor, Margin= Emission Level – Limit.
2. “*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

Radiated Spurious Emission (1GHz-25GHz)

Test Mode: GFSK					CH High: 2480 MHz			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
V	4960.23	41.11	4.92	46.03	74.00	-27.97	PK	PASS
V	7440.07	34.38	9.83	44.21	74.00	-29.79	PK	PASS
V	9920.72	28.10	13.22	41.32	74.00	-32.69	PK	PASS
V	12400.33	*	*	*	74.00	*	PK	PASS
V	14880.46	*	*	*	74.00	*	PK	PASS
V	17360.23	*	*	*	74.00	*	PK	PASS
H	4960.23	42.54	4.92	47.46	74.00	-26.55	PK	PASS
H	7440.98	34.63	9.83	44.46	74.00	-29.55	PK	PASS
H	9920.24	30.19	13.22	43.41	74.00	-30.59	PK	PASS
H	12400.73	*	*	*	74.00	*	PK	PASS
H	14880.64	*	*	*	74.00	*	PK	PASS
H	17360.16	*	*	*	74.00	*	PK	PASS
V	4958.41	30.88	4.92	35.80	54.00	-18.20	AV	PASS
V	7437.39	24.30	9.83	34.13	54.00	-19.88	AV	PASS
V	9916.38	17.44	13.22	30.66	54.00	-23.34	AV	PASS
V	12395.87	*	*	*	54.00	*	AV	PASS
V	14874.07	*	*	*	54.00	*	AV	PASS
V	17353.81	*	*	*	54.00	*	AV	PASS
H	4960.23	30.14	4.92	35.06	54.00	-18.94	AV	PASS
H	7440.98	22.66	9.83	32.49	54.00	-21.51	AV	PASS
H	9920.24	17.00	13.22	30.22	54.00	-23.78	AV	PASS
H	12400.73	*	*	*	54.00	*	AV	PASS
H	14880.64	*	*	*	54.00	*	AV	PASS
H	17360.16	*	*	*	54.00	*	AV	PASS

Remark:

1. Emission Level = Reading + Factor, Margin= Emission Level – Limit.
2. “*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

ANNEX A TEST SETUP PHOTOS

Please refer to the document "8435EU010313W-ANNEX A.PDF"

ANNEX B EXTERNAL PHOTOS

Please refer to the document "8435EU010313W-ANNEX B.PDF"

ANNEX C INTERNAL PHOTOS

Please refer to the document "8435EU010313W-ANNEX C.PDF"

ANNEX D TEST DATA

1. Duty Cycle

1.1 Test Result

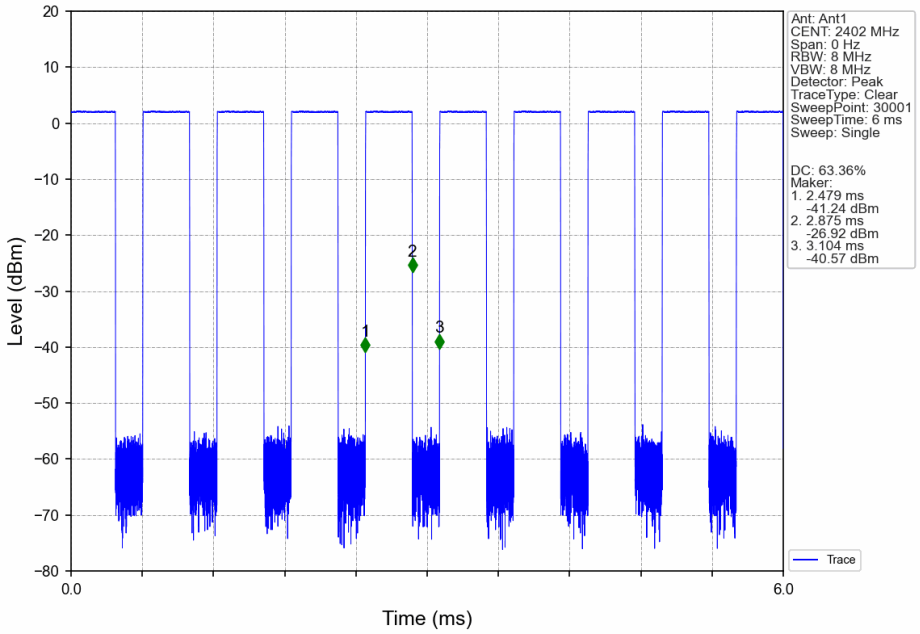
1.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1M	SISO	2402	0.396	0.625	63.36	1.98	0.03
		2440	0.395	0.625	63.20	1.99	0.03
		2480	0.395	0.625	63.20	1.99	0.03
2M	SISO	2402	0.209	0.625	33.44	4.76	0.03
		2440	0.209	0.625	33.44	4.76	0.03
		2480	0.209	0.625	33.44	4.76	0.02

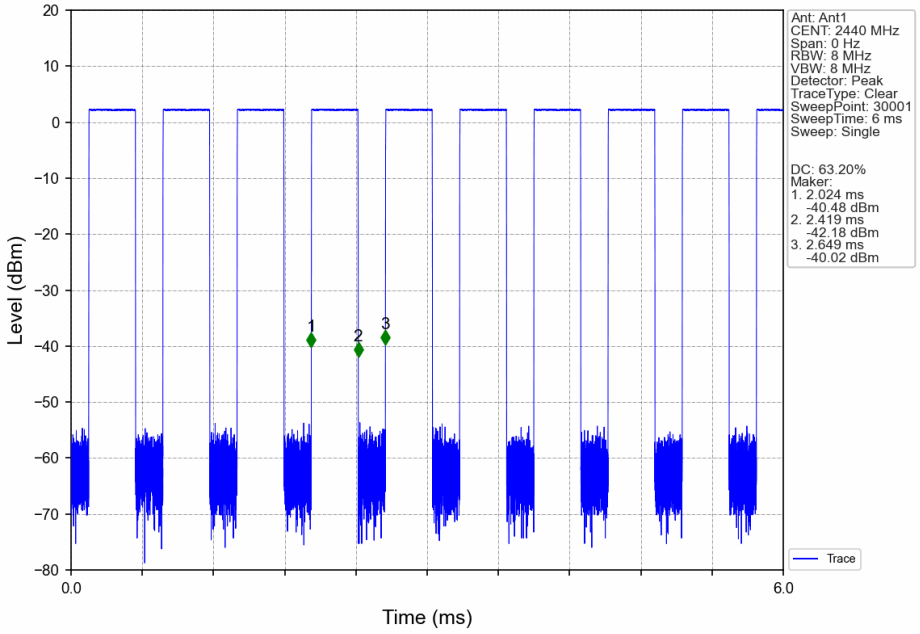
1.2 Test Graph

1.2.1 Ant1

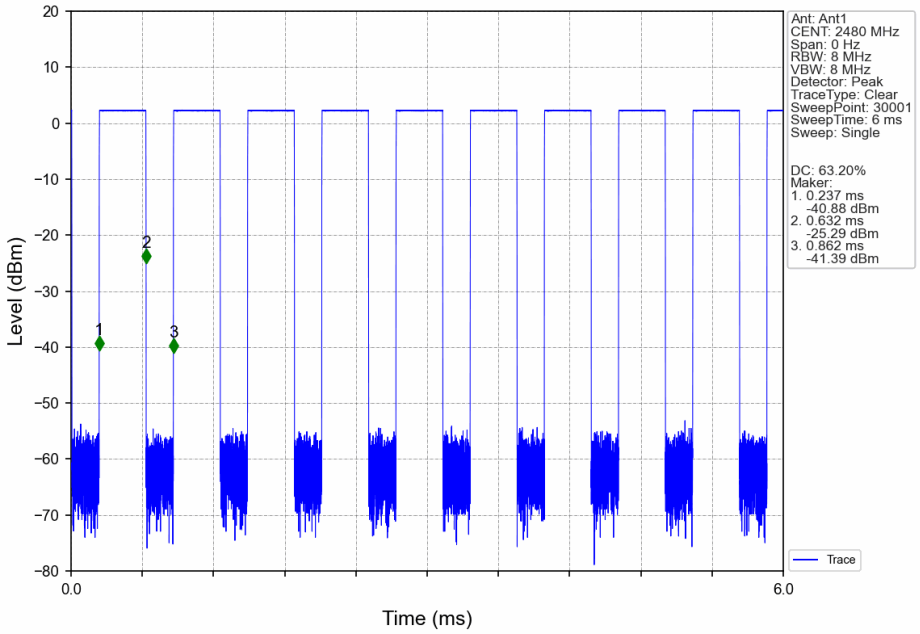
1M_LCH_2402MHz_Ant1_NTNV



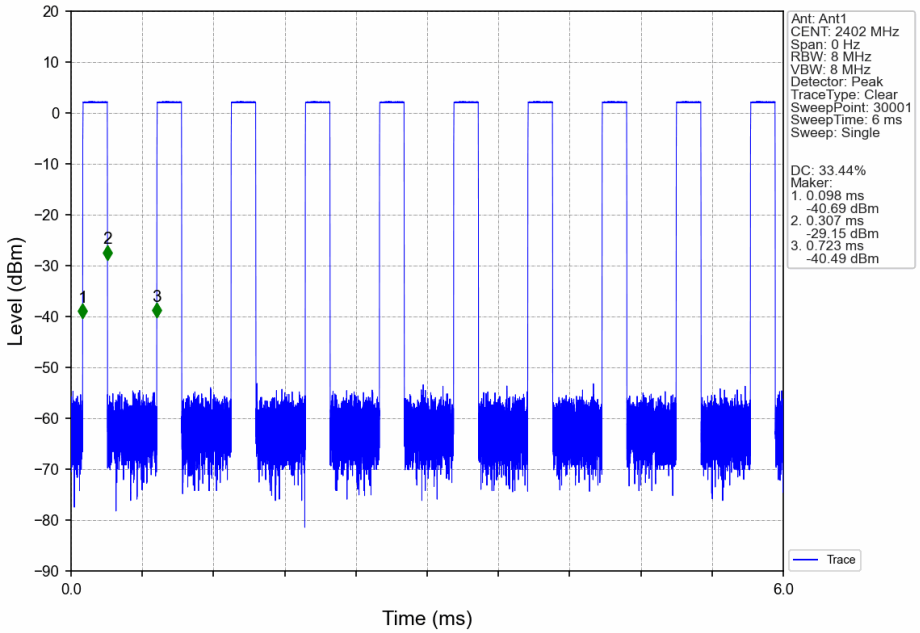
1M_MCH_2440MHz_Ant1_NTNV



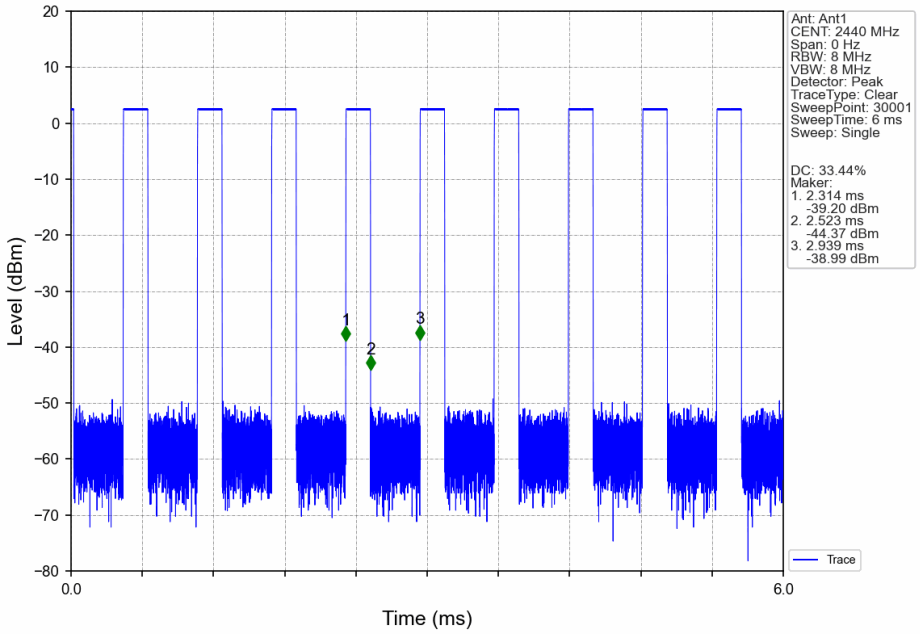
1M_HCH_2480MHz_Ant1_NTNV



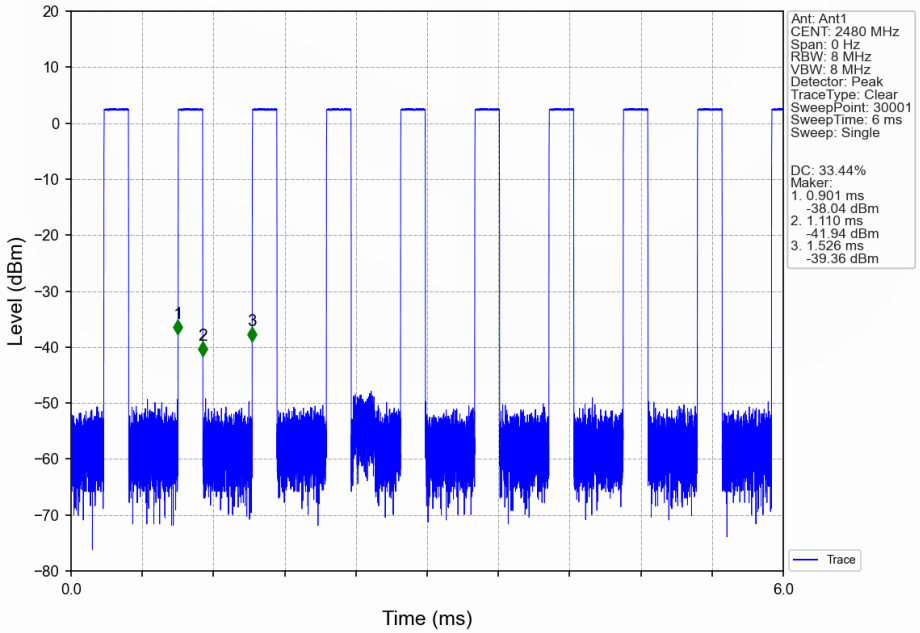
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	1.048	/	Pass
		2440	1	1.050	/	Pass
		2480	1	1.048	/	Pass
2M	SISO	2402	1	2.042	/	Pass
		2440	1	2.043	/	Pass
		2480	1	2.046	/	Pass

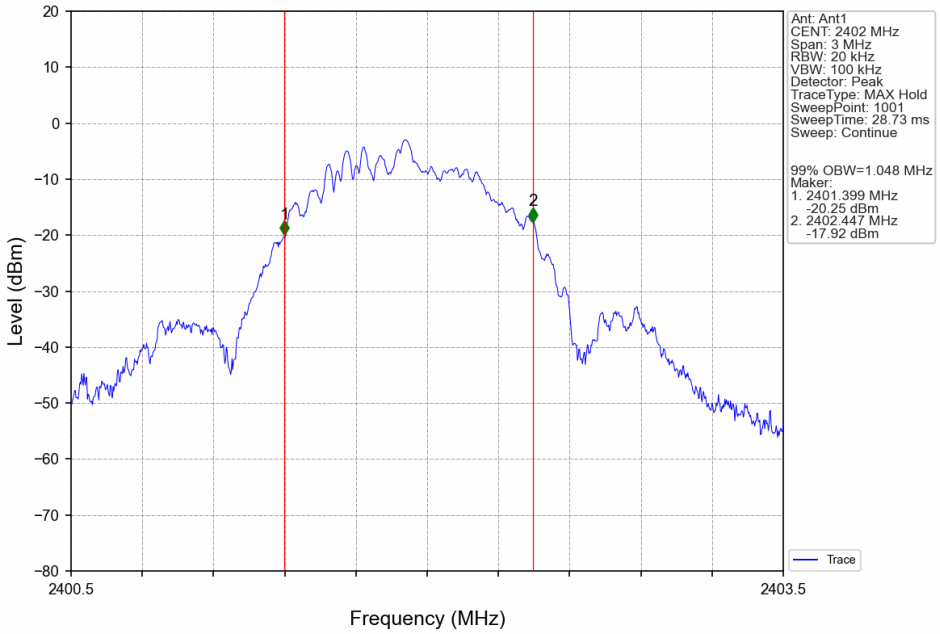
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1M	SISO	2402	1	0.683	>=0.5	Pass
		2440	1	0.690	>=0.5	Pass
		2480	1	0.686	>=0.5	Pass
2M	SISO	2402	1	1.144	>=0.5	Pass
		2440	1	1.149	>=0.5	Pass
		2480	1	1.143	>=0.5	Pass

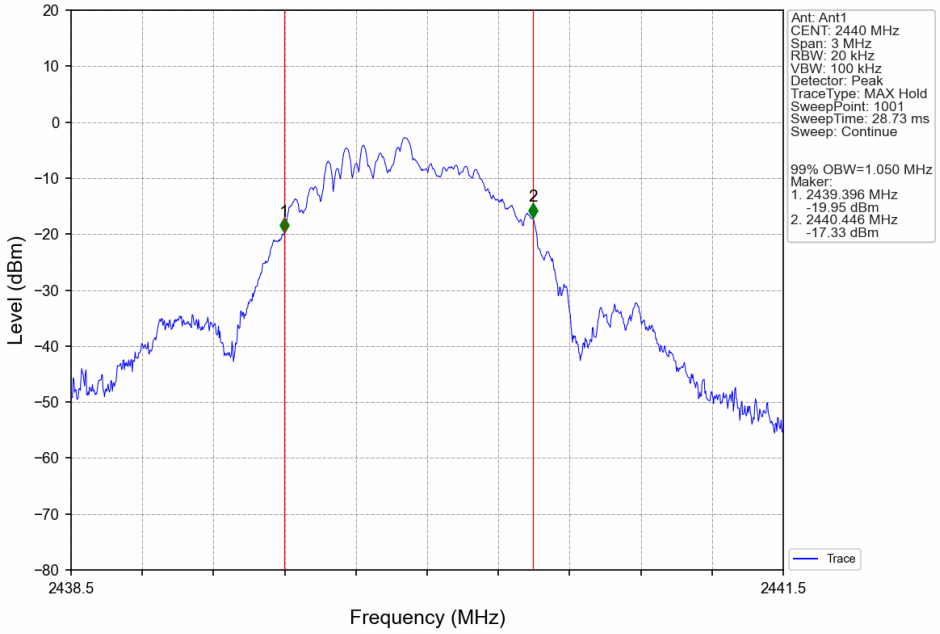
2.2 Test Graph

2.2.1 OBW

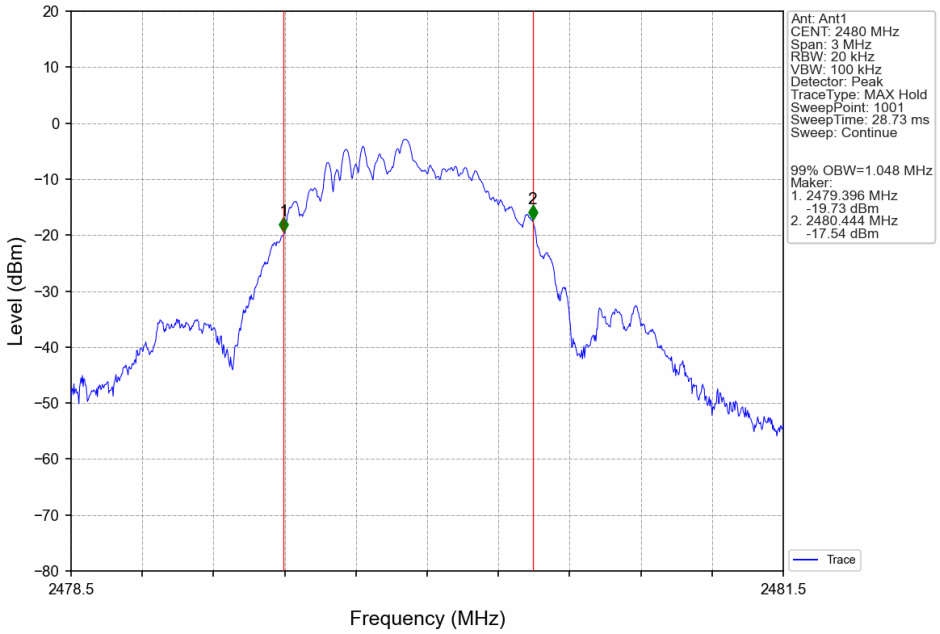
1M_LCH_2402MHz_Ant1_NTNV



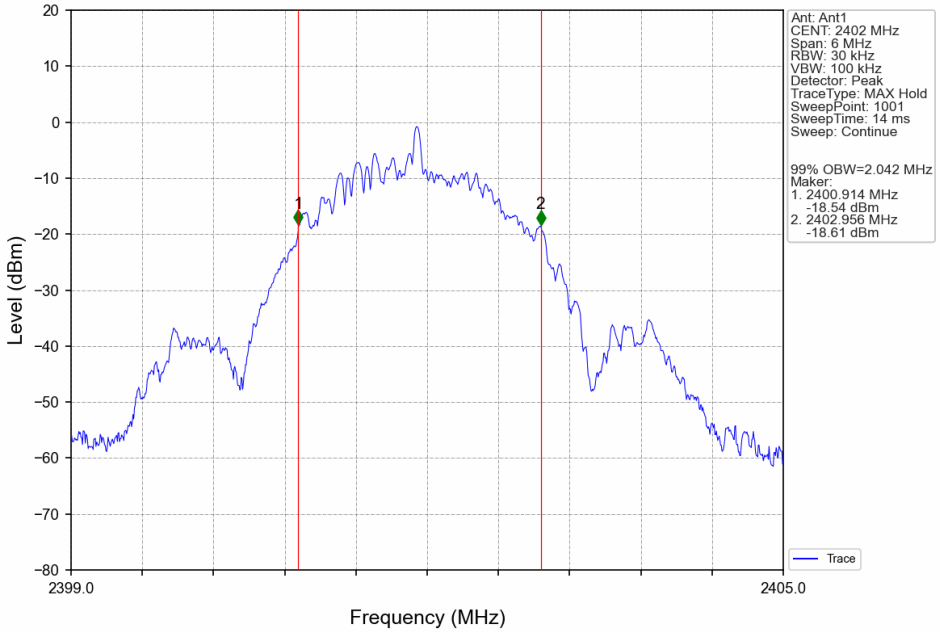
1M_MCH_2440MHz_Ant1_NTNV



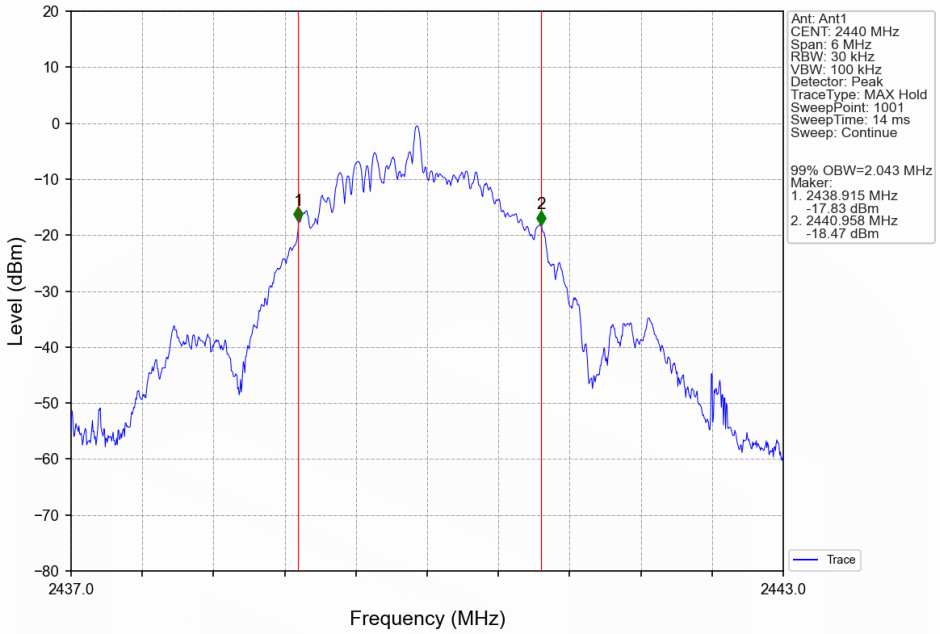
1M_HCH_2480MHz_Ant1_NTNV



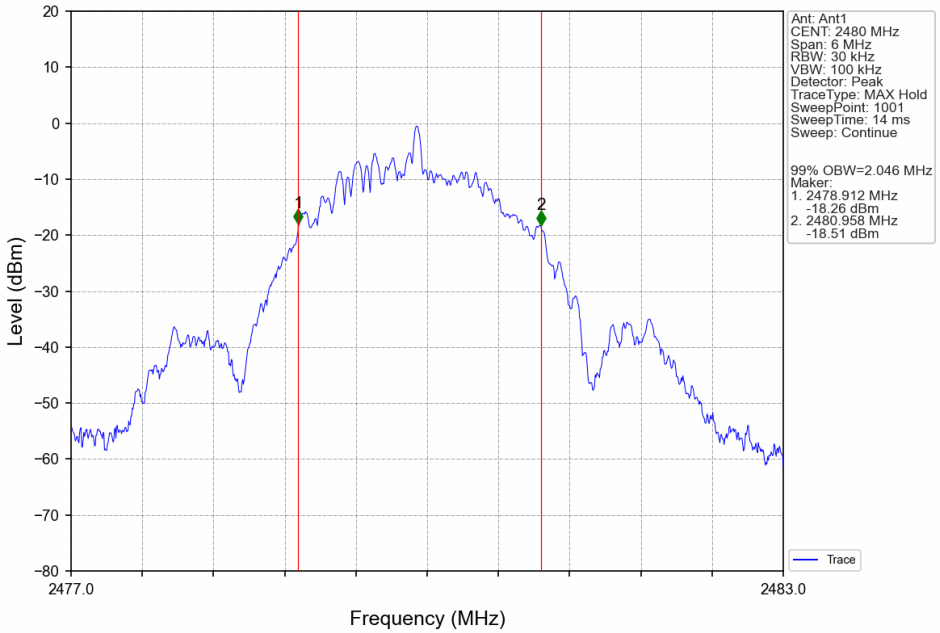
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV

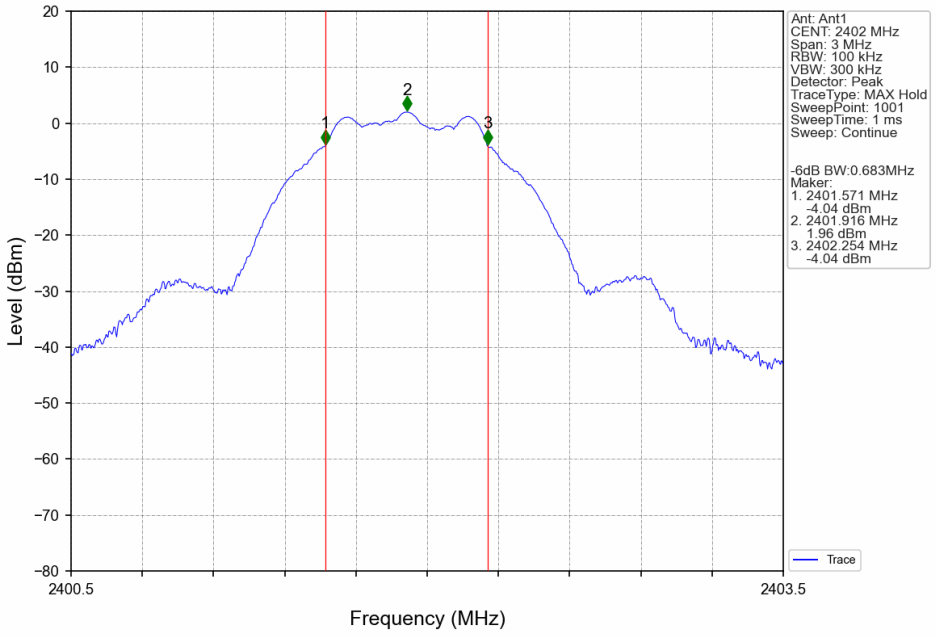


2M_HCH_2480MHz_Ant1_NTNV

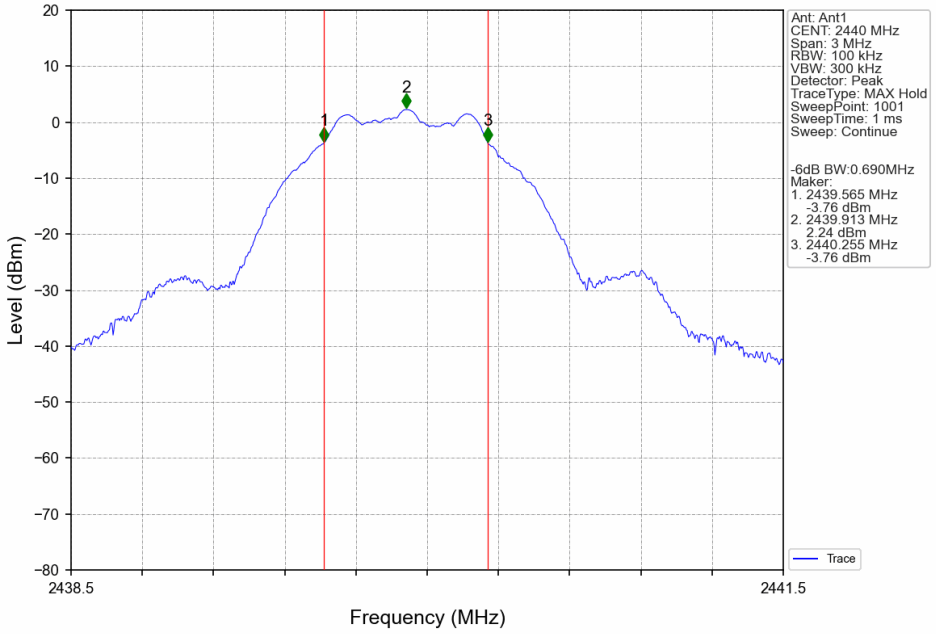


2.2.2 6dB BW

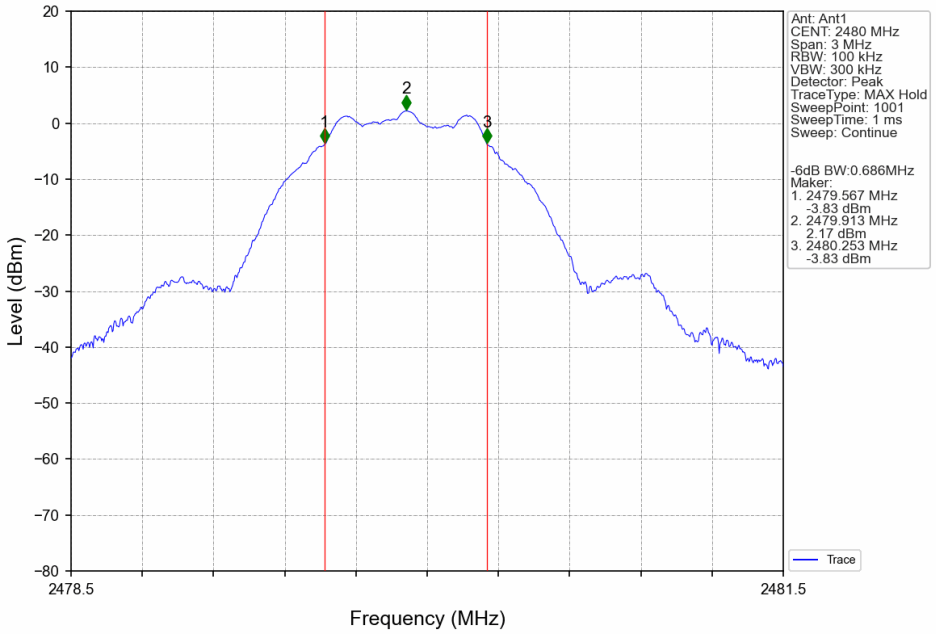
1M_LCH_2402MHz_Ant1_NTNV



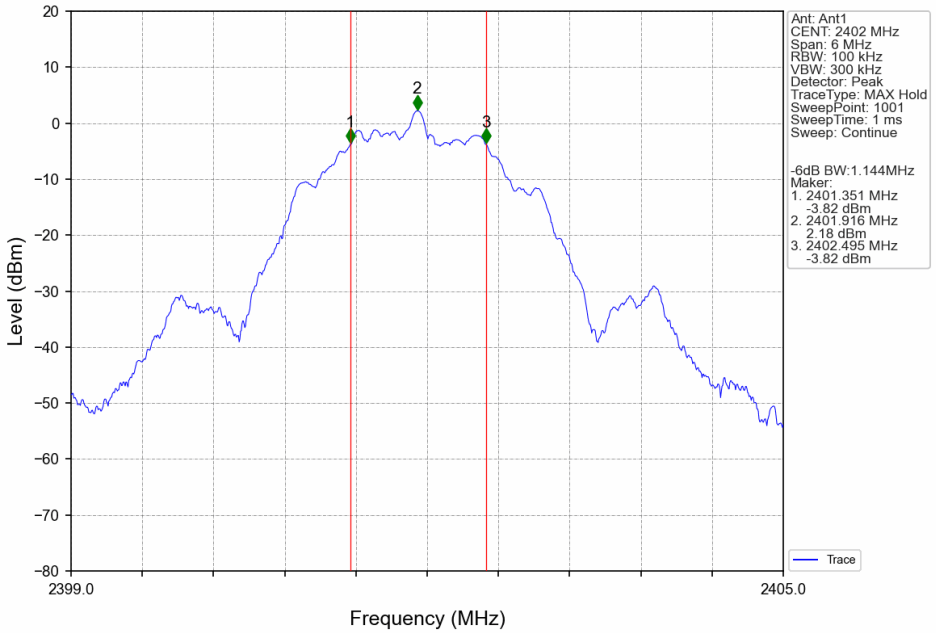
1M_MCH_2440MHz_Ant1_NTNV



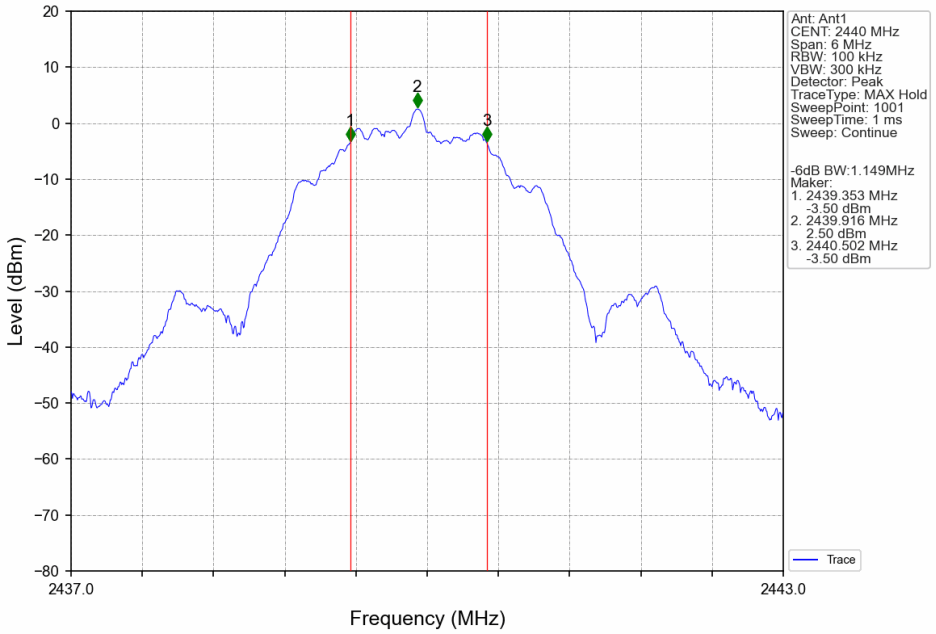
1M_HCH_2480MHz_Ant1_NTNV



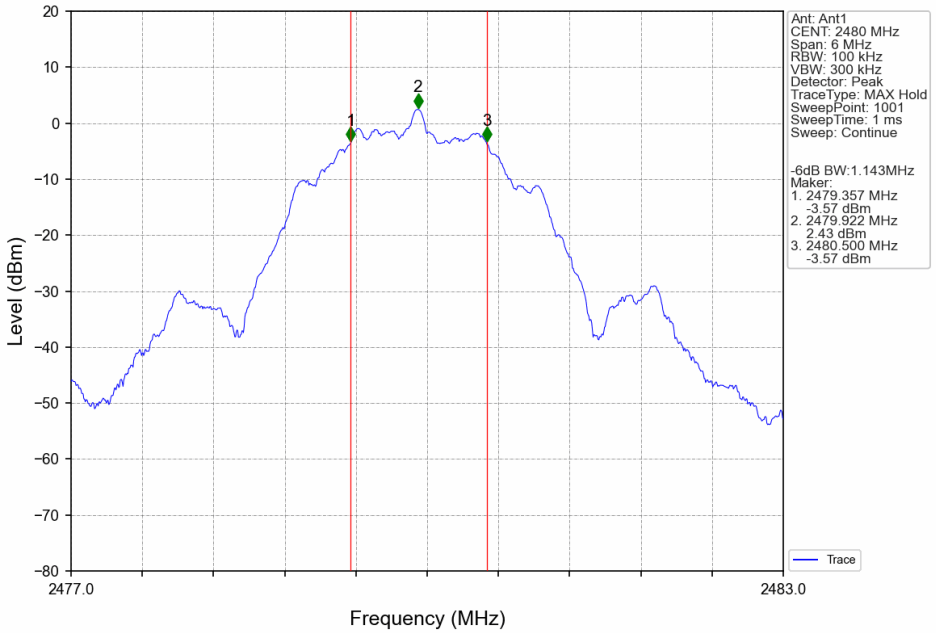
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1M	SISO	2402	2.07	<=30	Pass
		2440	2.41	<=30	Pass
		2480	2.27	<=30	Pass
2M	SISO	2402	2.22	<=30	Pass
		2440	2.58	<=30	Pass
		2480	2.50	<=30	Pass

4. Maximum Power Spectral Density

4.1 Test Result

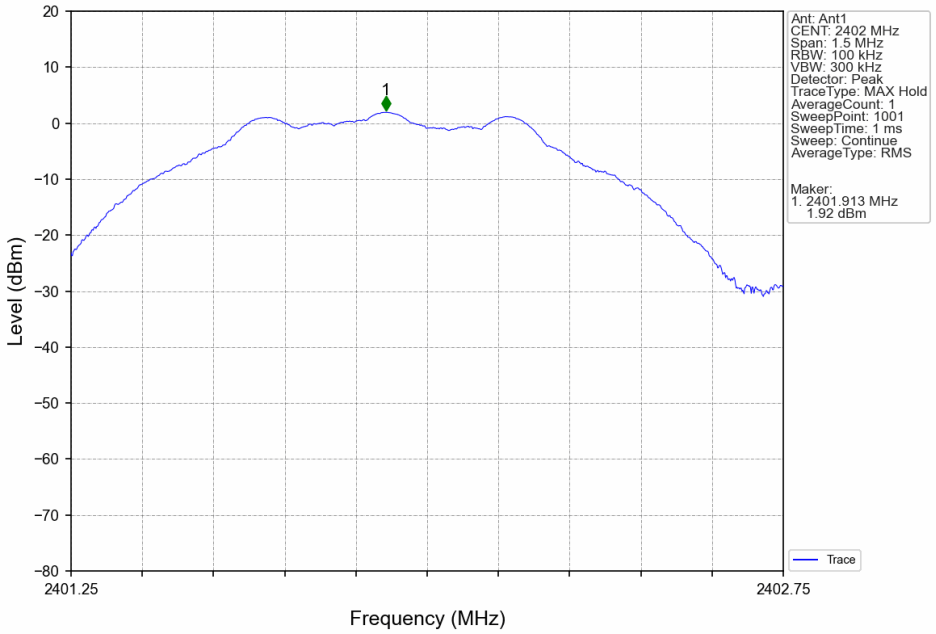
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit(dBm/3kHz)	
1M	SISO	2402	1.92dBm/100kHz	<=8	Pass
		2440	2.20dBm/100kHz	<=8	Pass
		2480	2.15dBm/100kHz	<=8	Pass
2M	SISO	2402	2.07dBm/100kHz	<=8	Pass
		2440	2.44dBm/100kHz	<=8	Pass
		2480	2.36dBm/100kHz	<=8	Pass

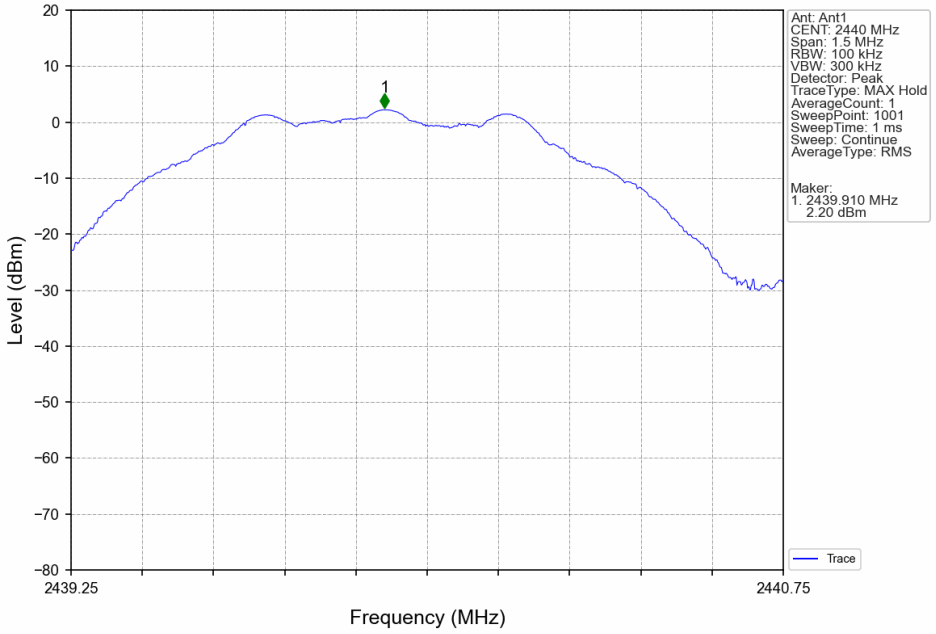
4.2 Test Graph

4.2.1 PSD

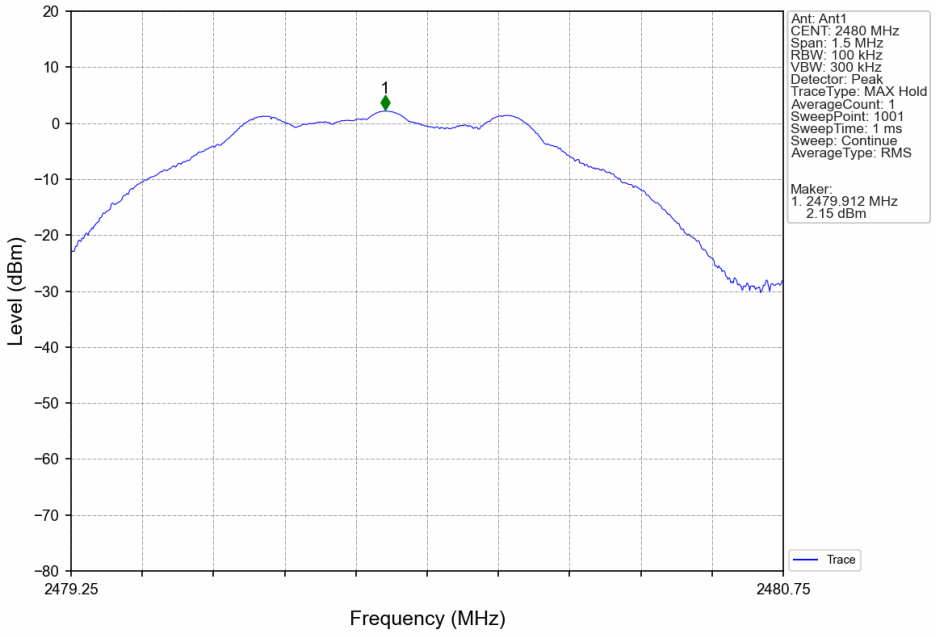
1M_LCH_2402MHz_Ant1_NTNV



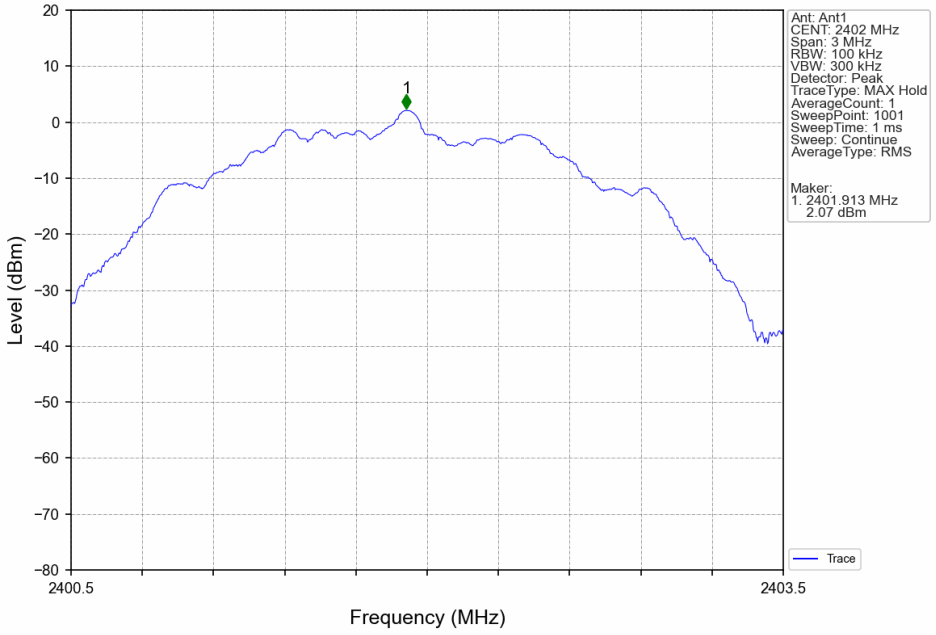
1M_MCH_2440MHz_Ant1_NTNV



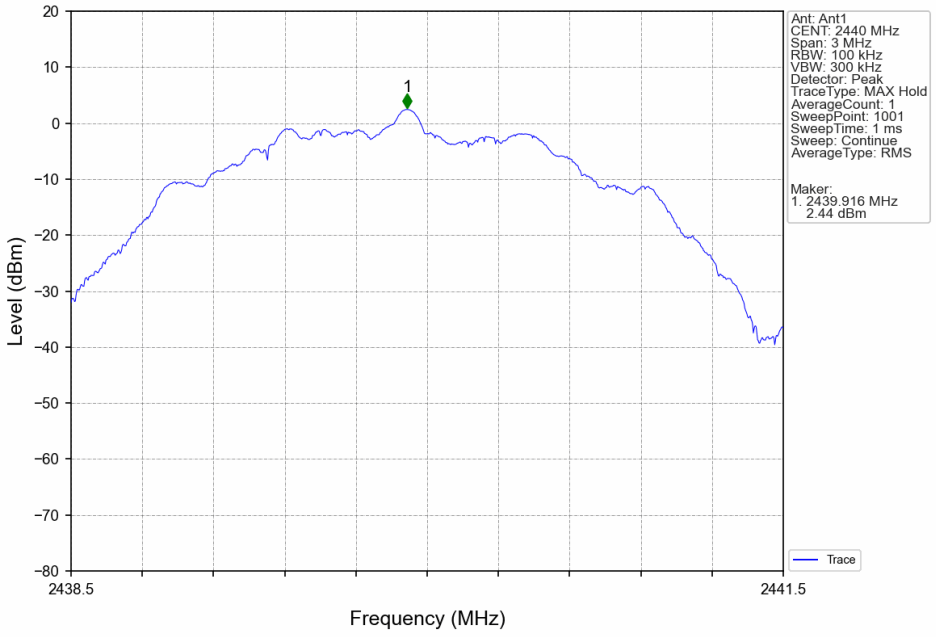
1M_HCH_2480MHz_Ant1_NTNV



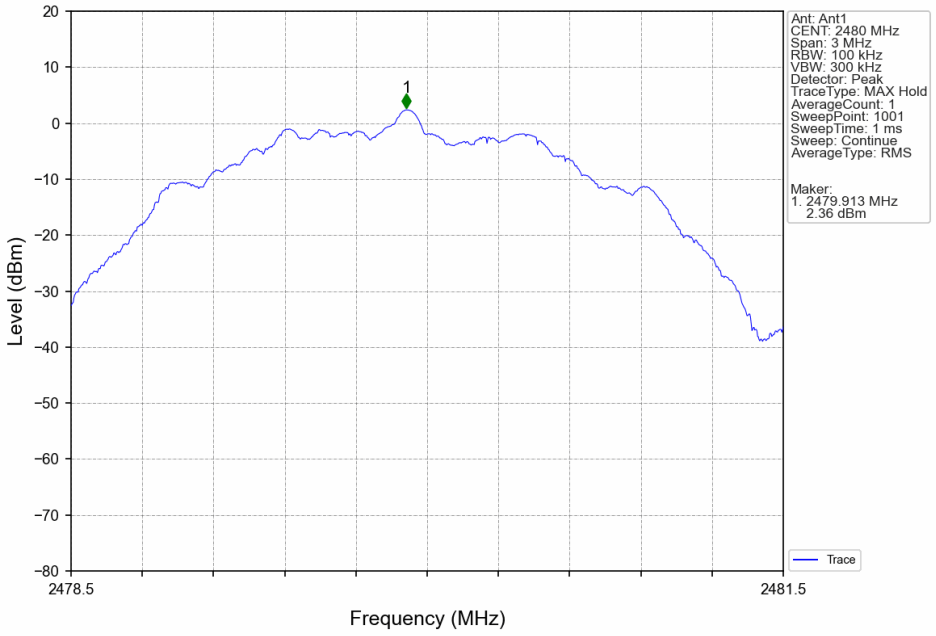
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1M	SISO	2402	1	1.91
		2440	1	2.21
		2480	1	2.16
2M	SISO	2402	1	2.12
		2440	1	2.44
		2480	1	2.39

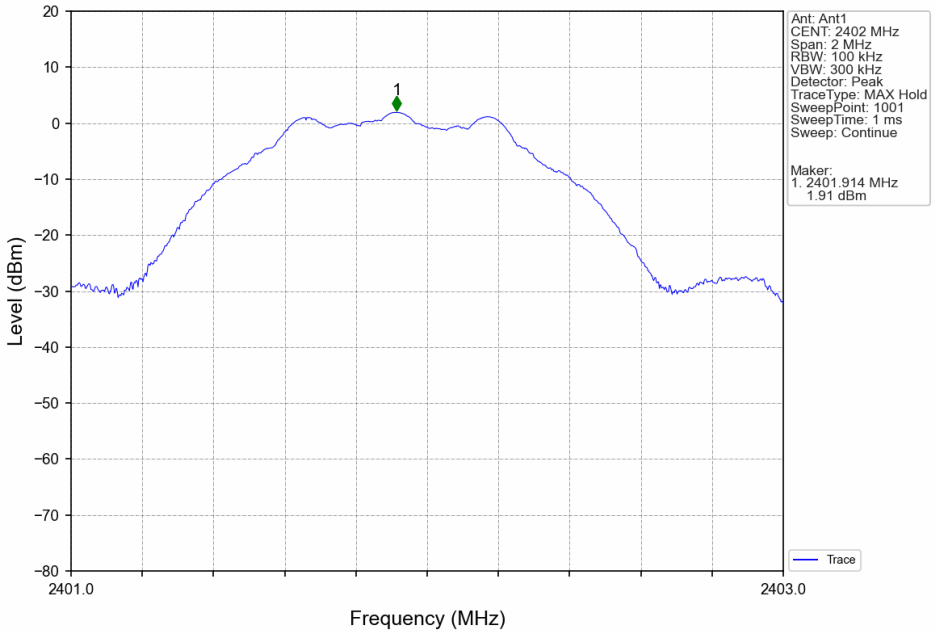
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1M	SISO	2402	1	1.91	-18.09	Pass
		2440	1	2.21	-17.79	Pass
		2480	1	2.16	-17.84	Pass
2M	SISO	2402	1	2.12	-17.88	Pass
		2440	1	2.44	-17.56	Pass
		2480	1	2.39	-17.61	Pass

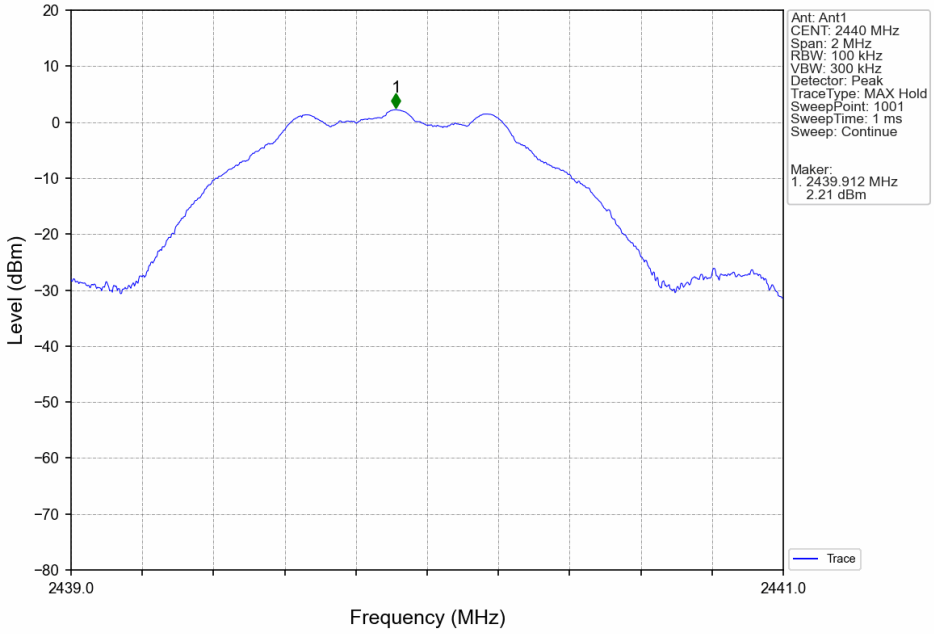
5.2 Test Graph

5.2.1 Ref

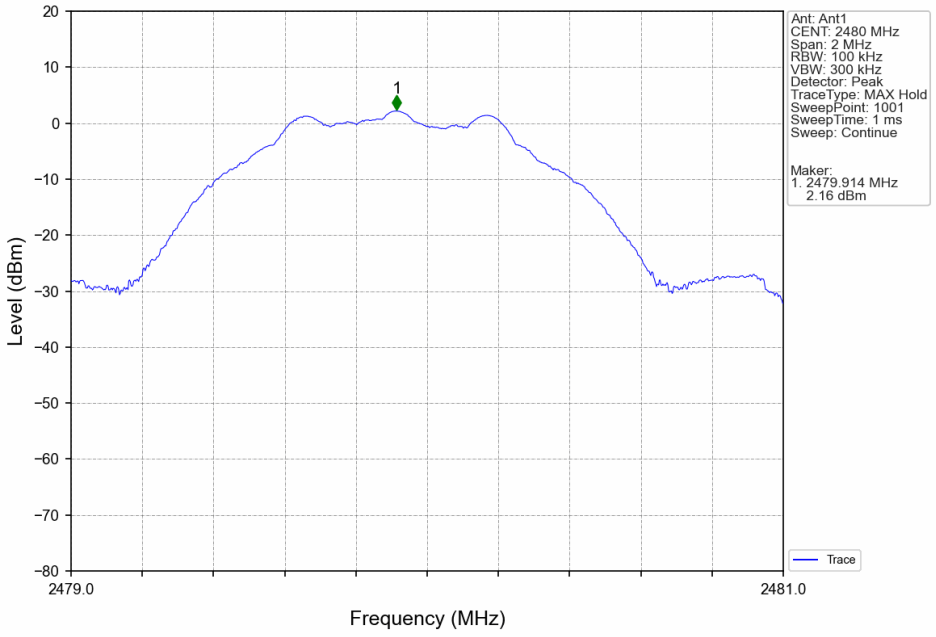
1M_LCH_2402MHz_Ant1_NTNV



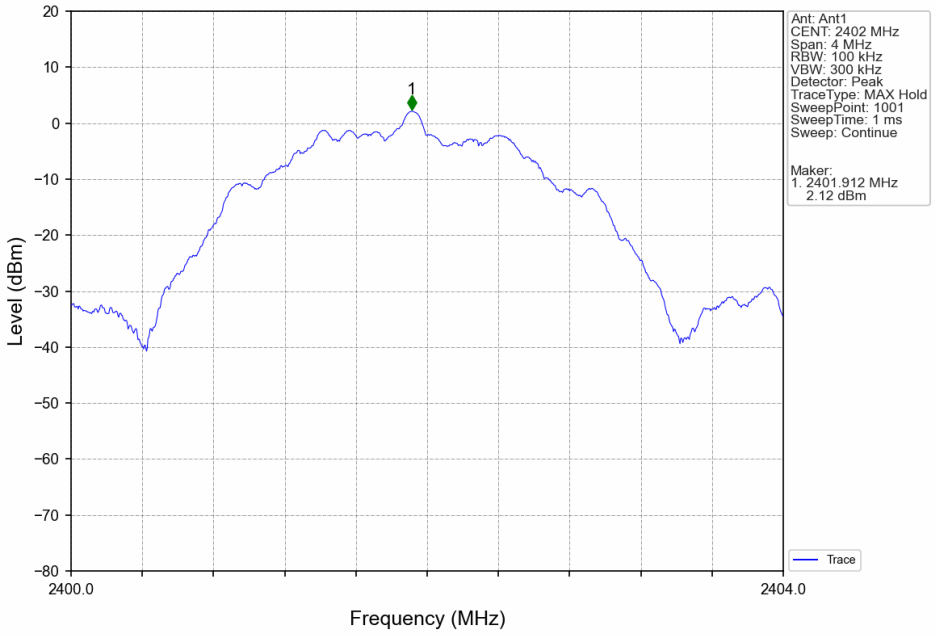
1M_MCH_2440MHz_Ant1_NTNV



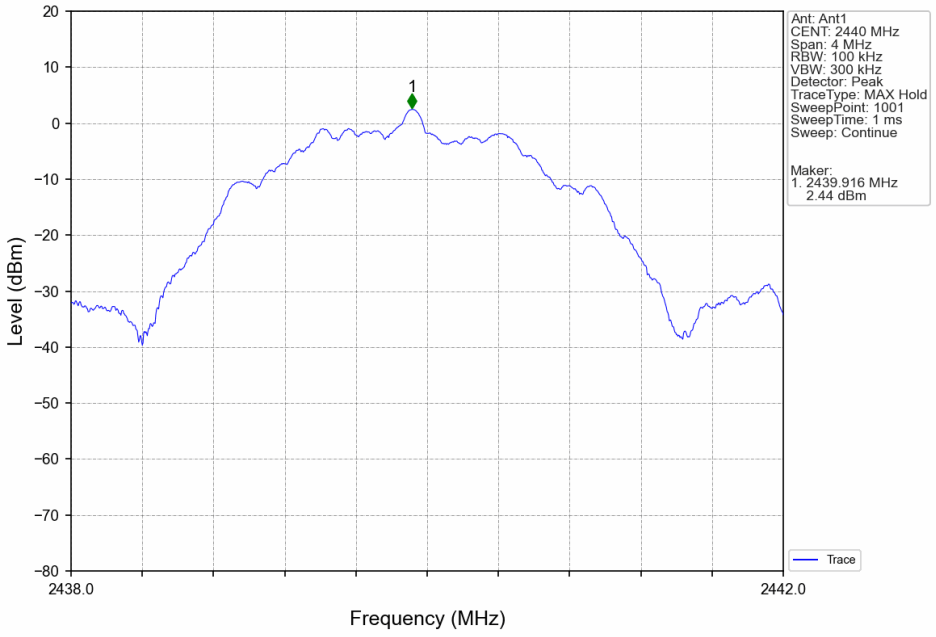
1M_HCH_2480MHz_Ant1_NTNV



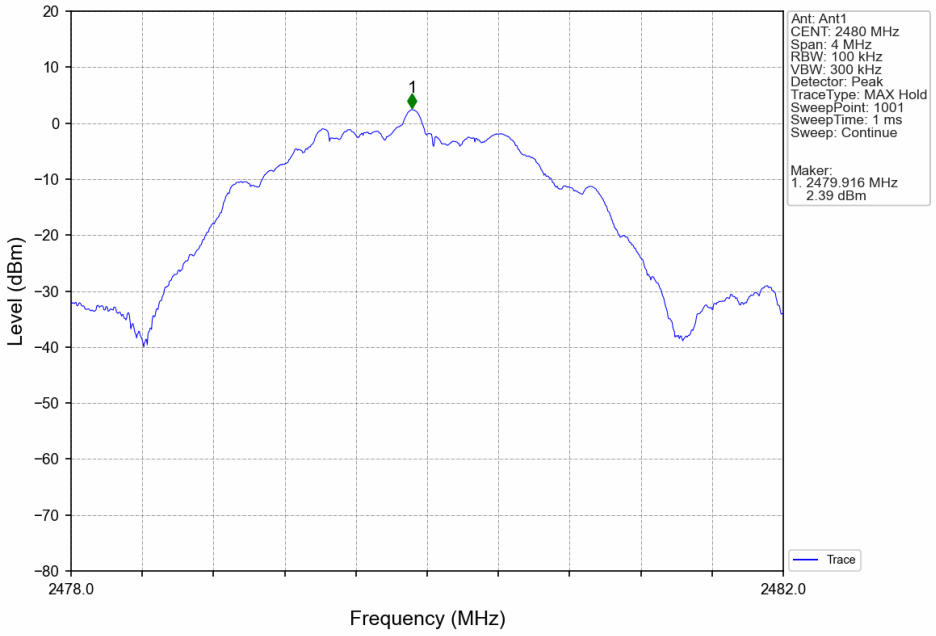
2M_LCH_2402MHz_Ant1_NTNV



2M_MCH_2440MHz_Ant1_NTNV

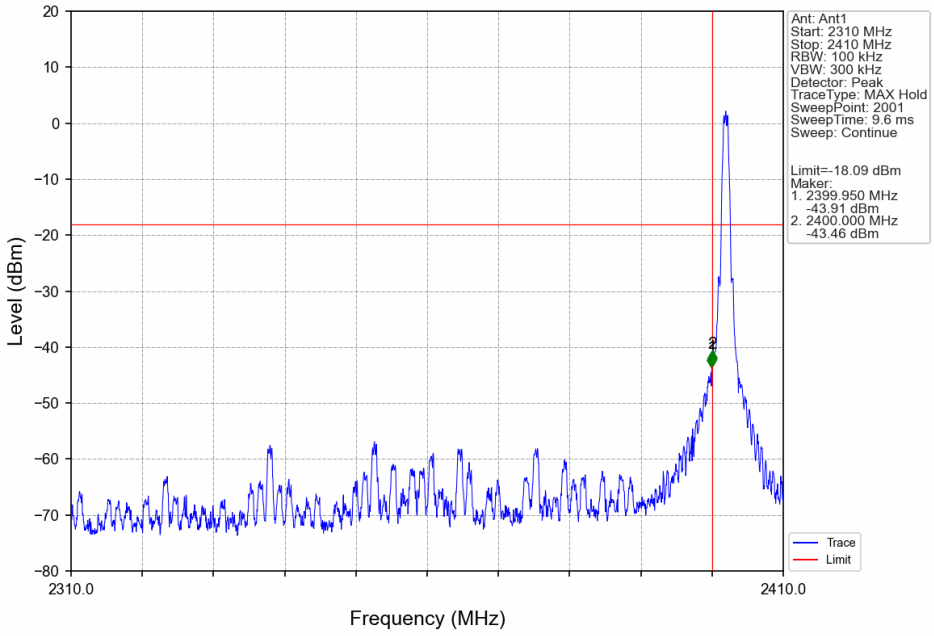


2M_HCH_2480MHz_Ant1_NTNV

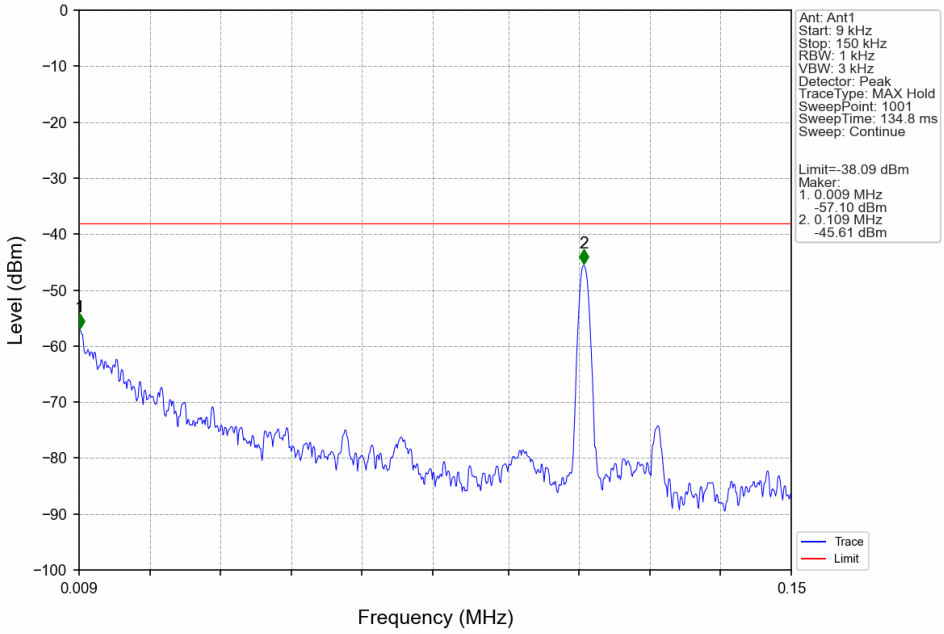


5.2.2 CSE

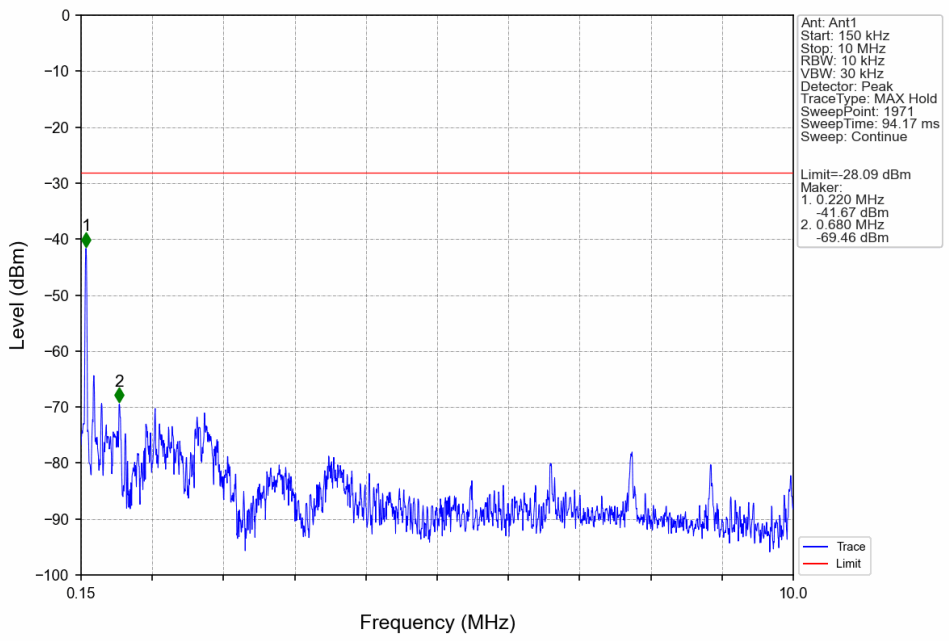
1M_LCH_2402MHz_Ant1_NTNV



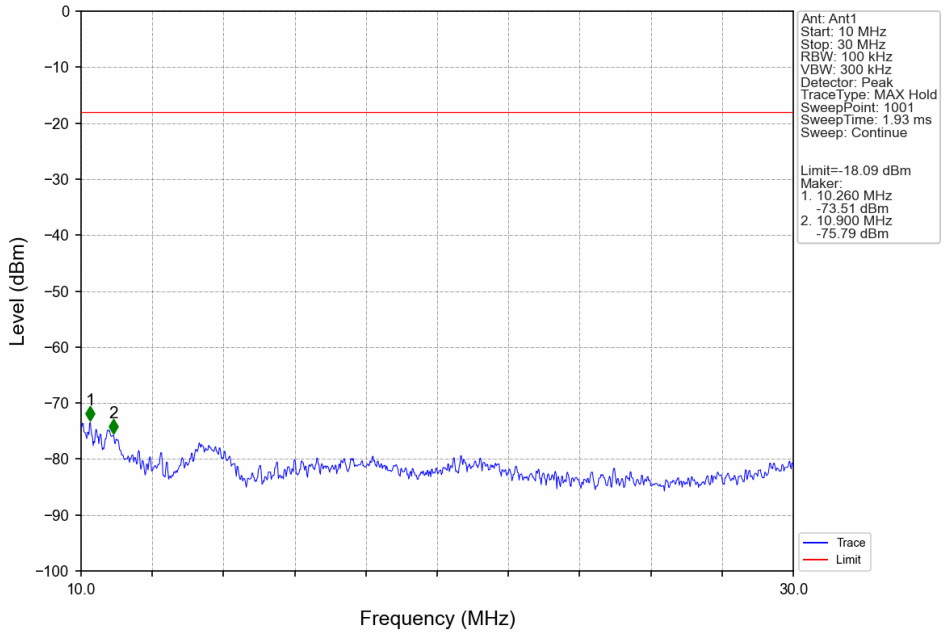
1M_LCH_2402MHz_Ant1_NTNV



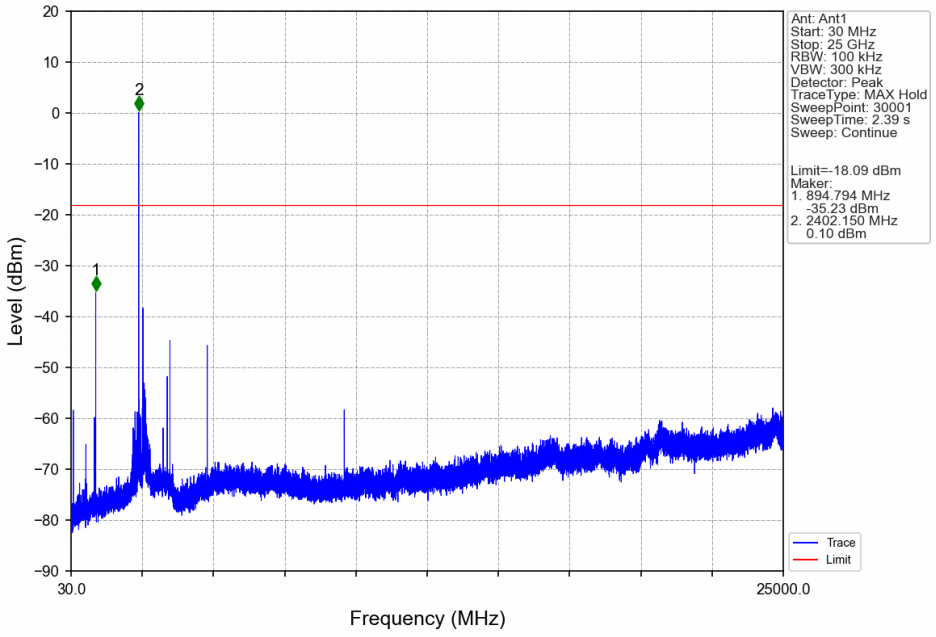
1M_LCH_2402MHz_Ant1_NTNV



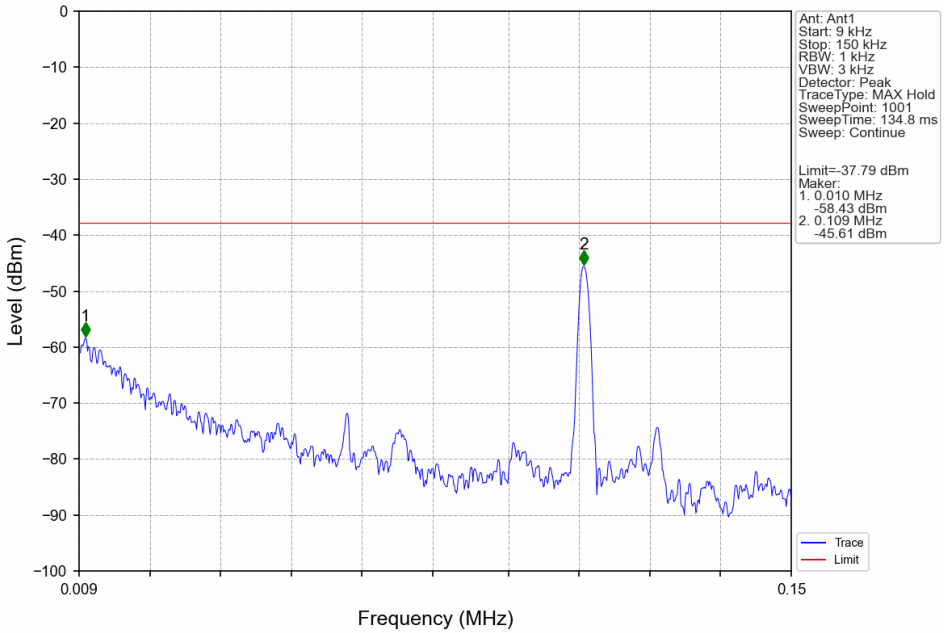
1M_LCH_2402MHz_Ant1_NTNV



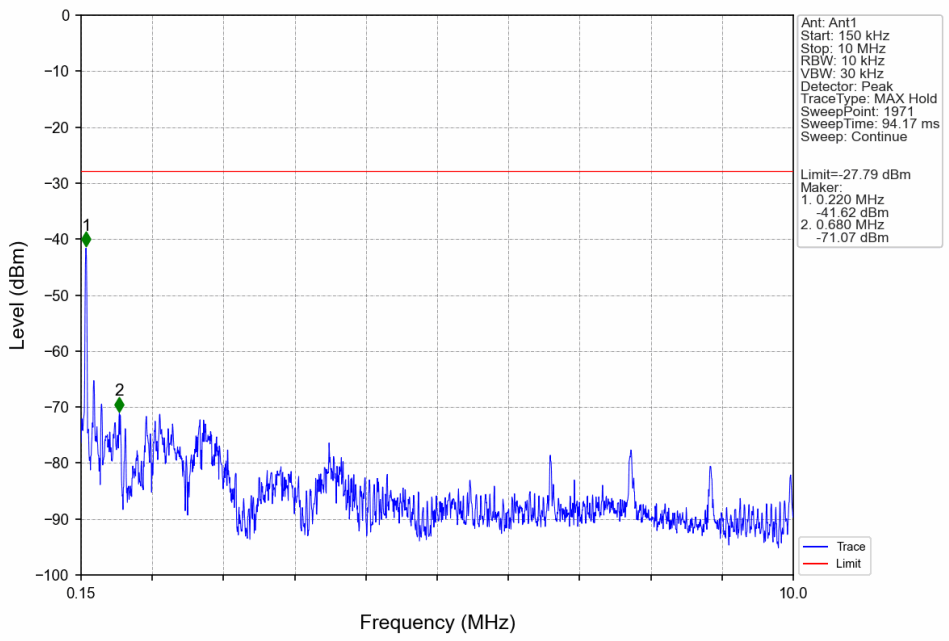
1M_LCH_2402MHz_Ant1_NTNV



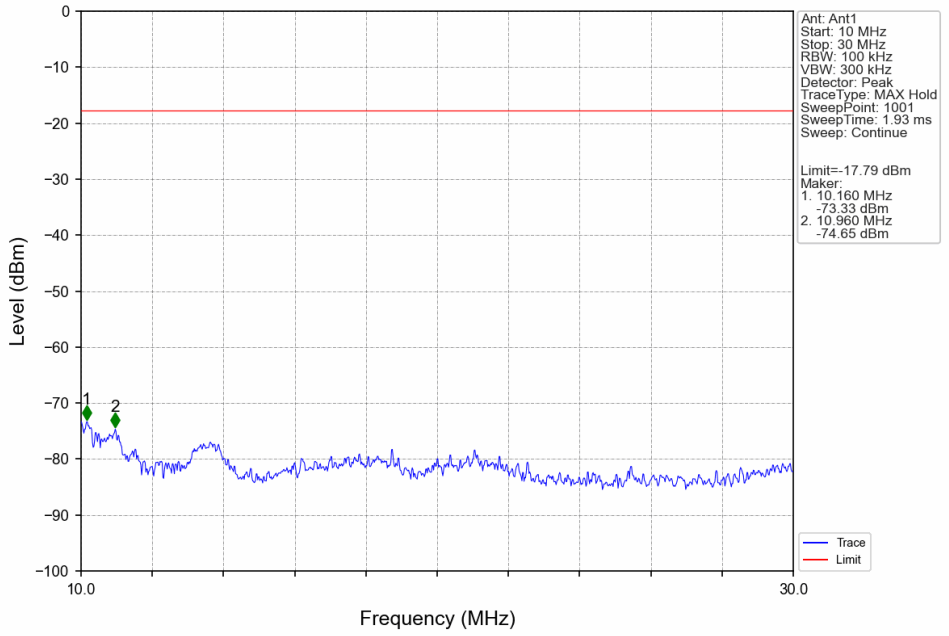
1M_MCH_2440MHz_Ant1_NTNV



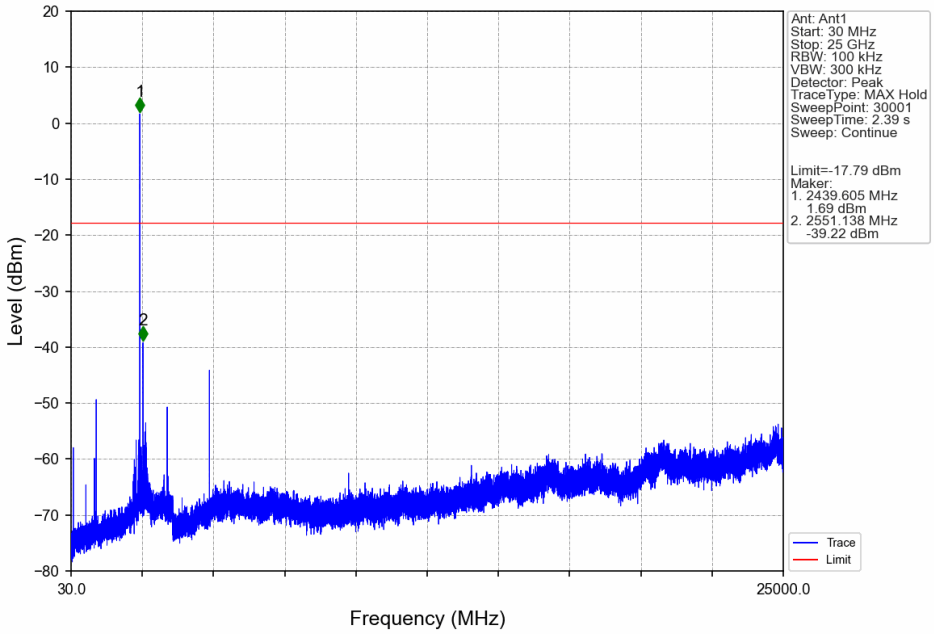
1M_MCH_2440MHz_Ant1_NTNV



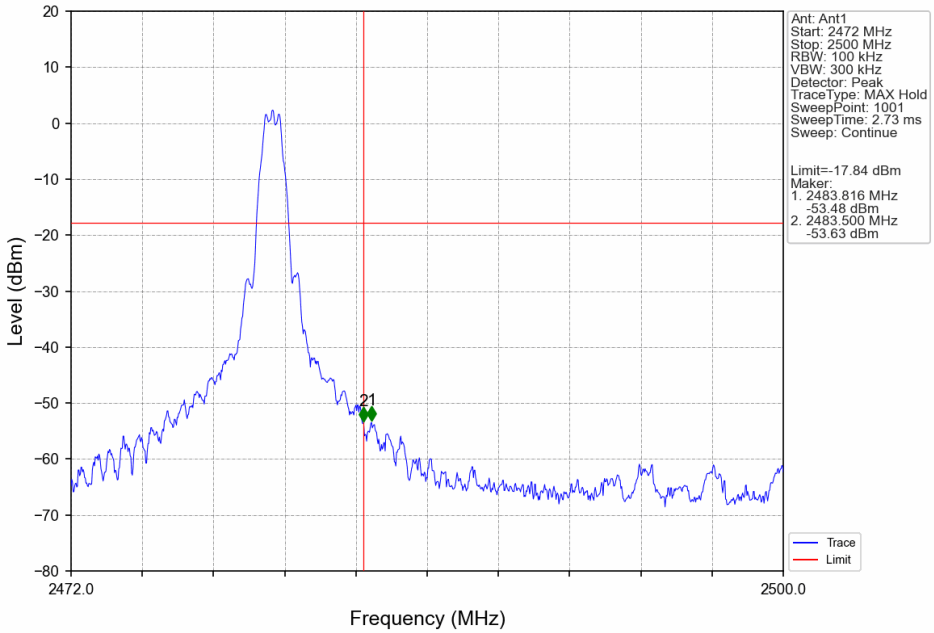
1M_MCH_2440MHz_Ant1_NTNV



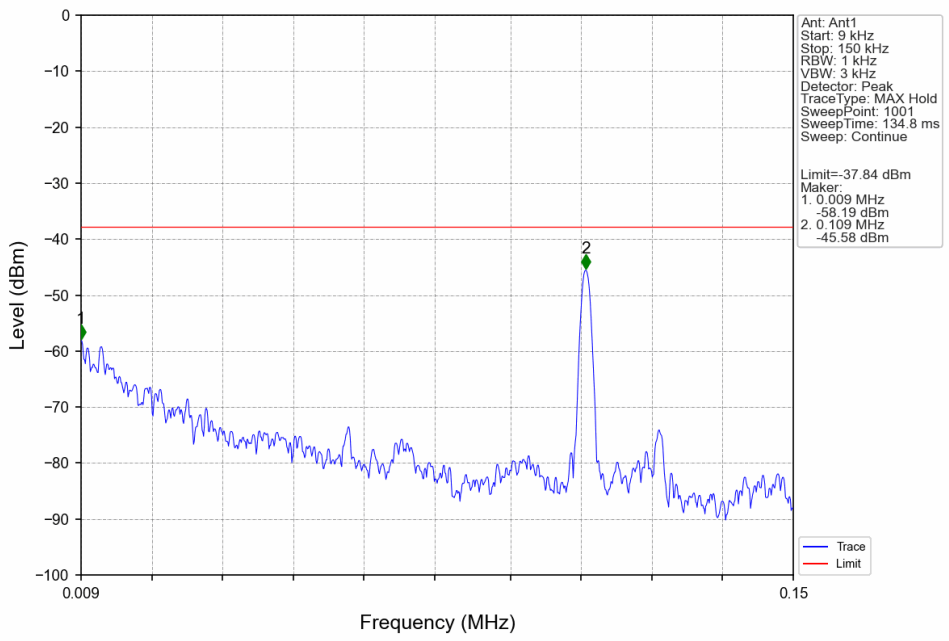
1M_MCH_2440MHz_Ant1_NTNV



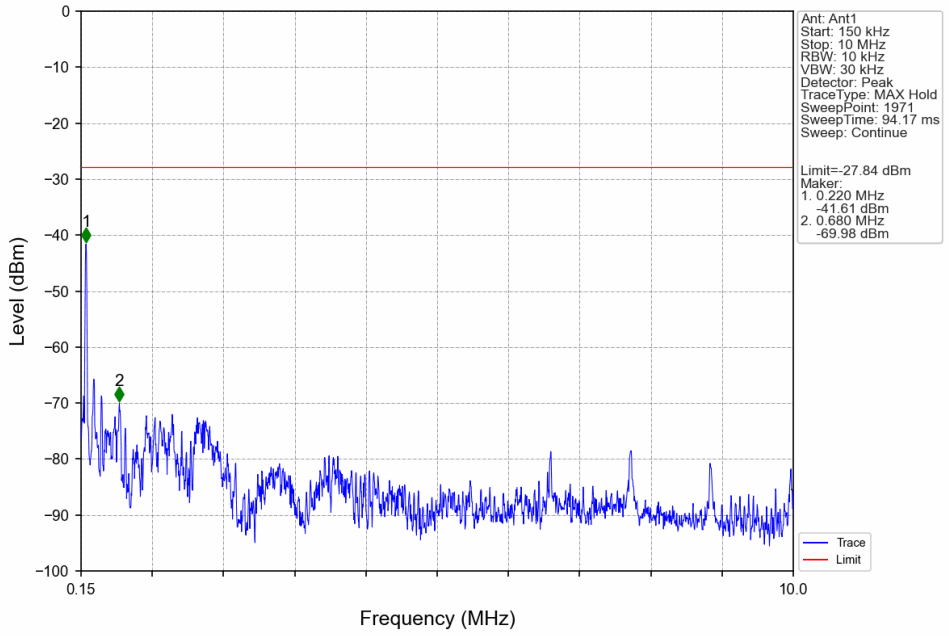
1M_HCH_2480MHz_Ant1_NTNV



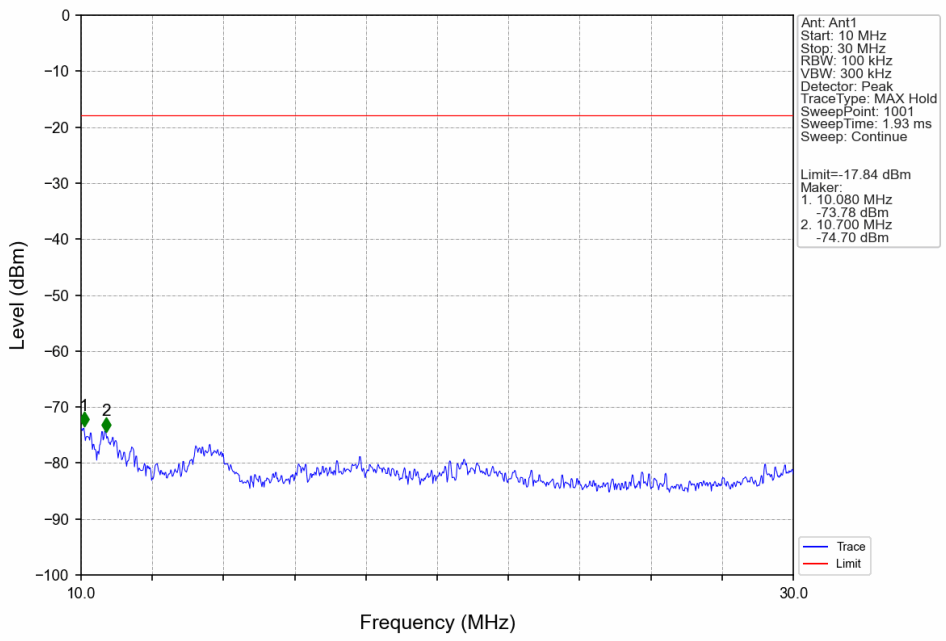
1M_HCH_2480MHz_Ant1_NTNV



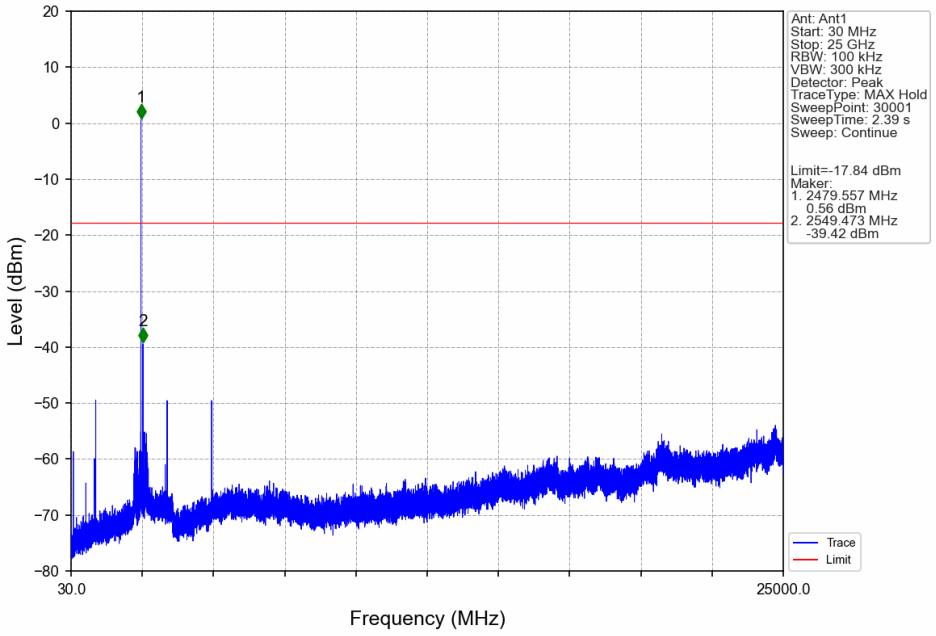
1M_HCH_2480MHz_Ant1_NTNV



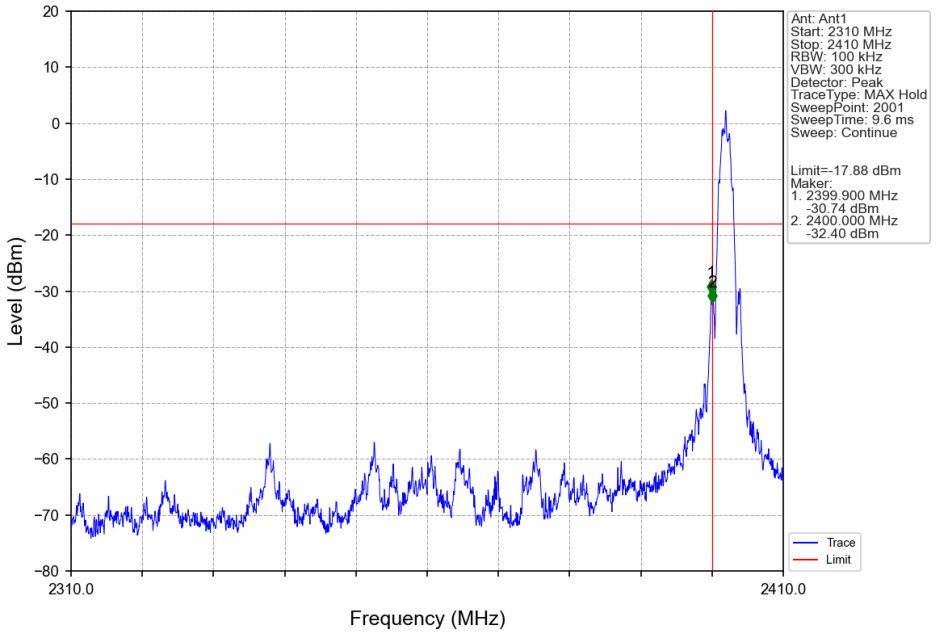
1M_HCH_2480MHz_Ant1_NTNV



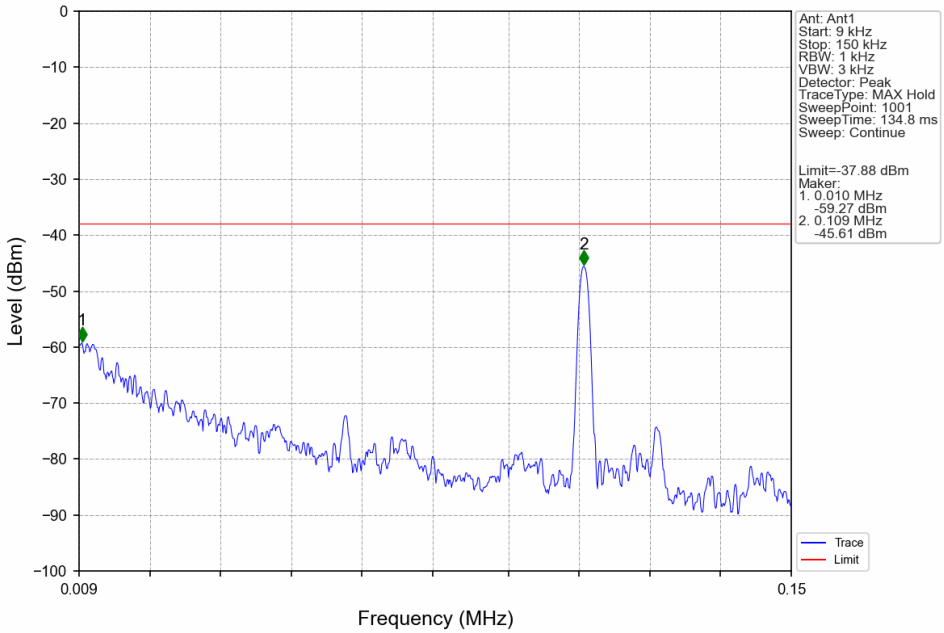
1M_HCH_2480MHz_Ant1_NTNV



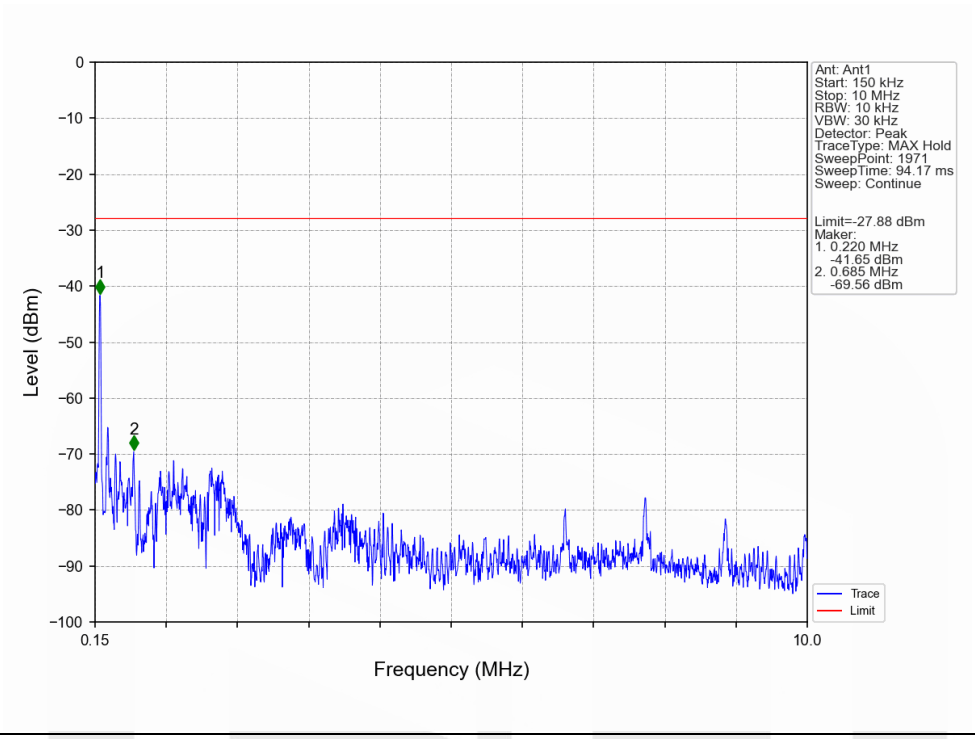
2M_LCH_2402MHz_Ant1_NTNV



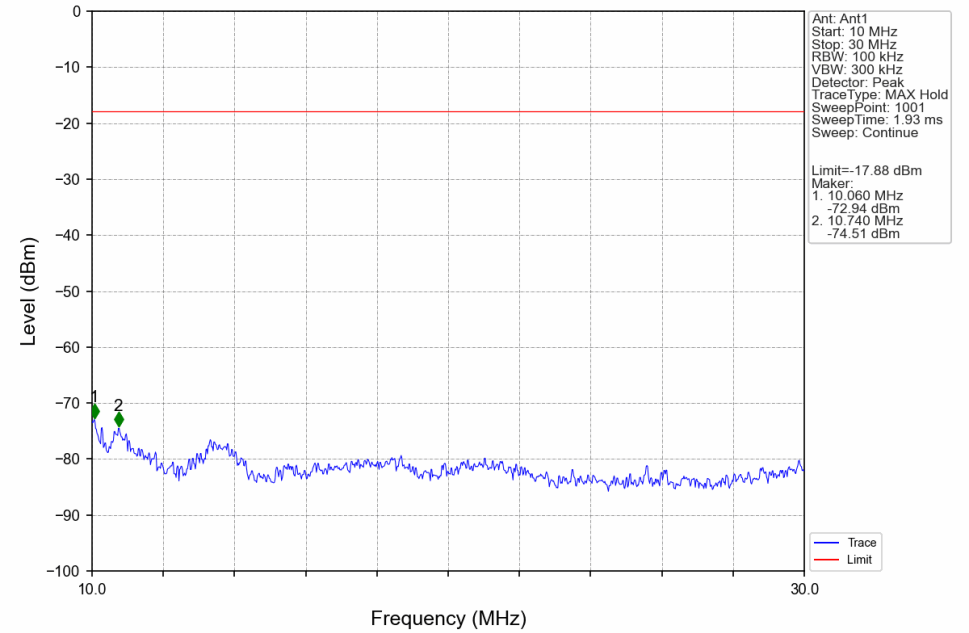
2M_LCH_2402MHz_Ant1_NTNV



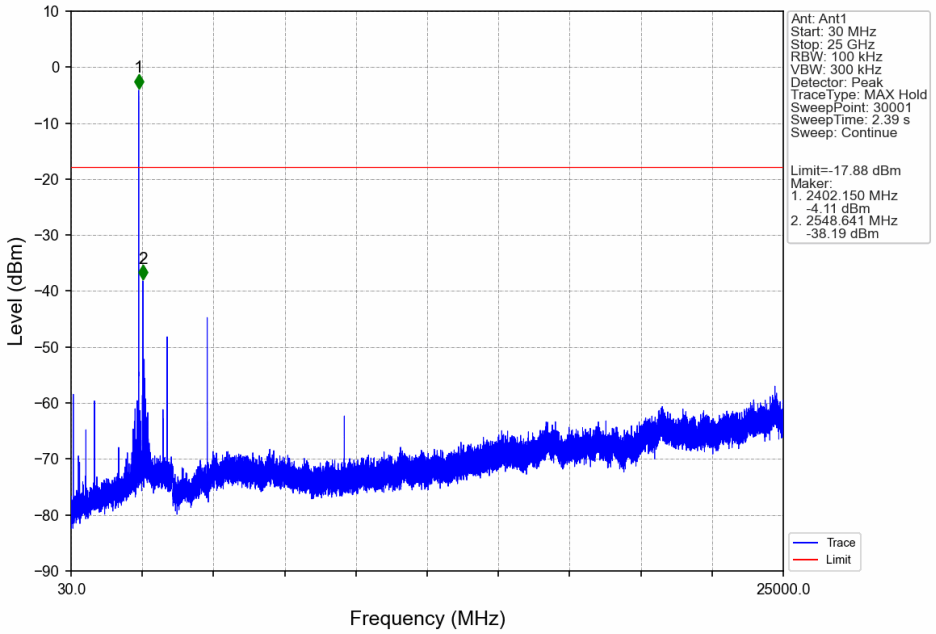
2M_LCH_2402MHz_Ant1_NTNV



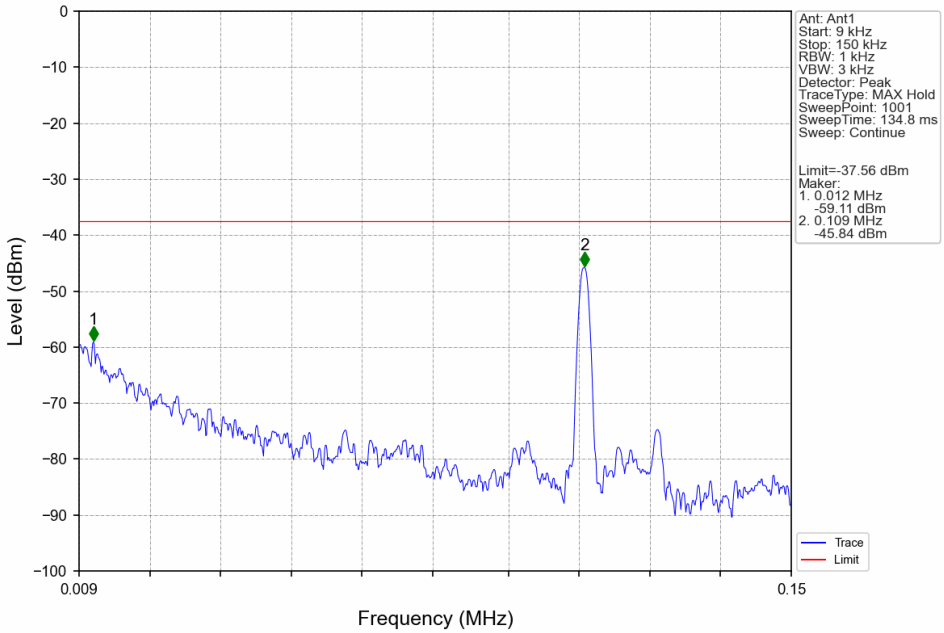
2M_LCH_2402MHz_Ant1_NTNV



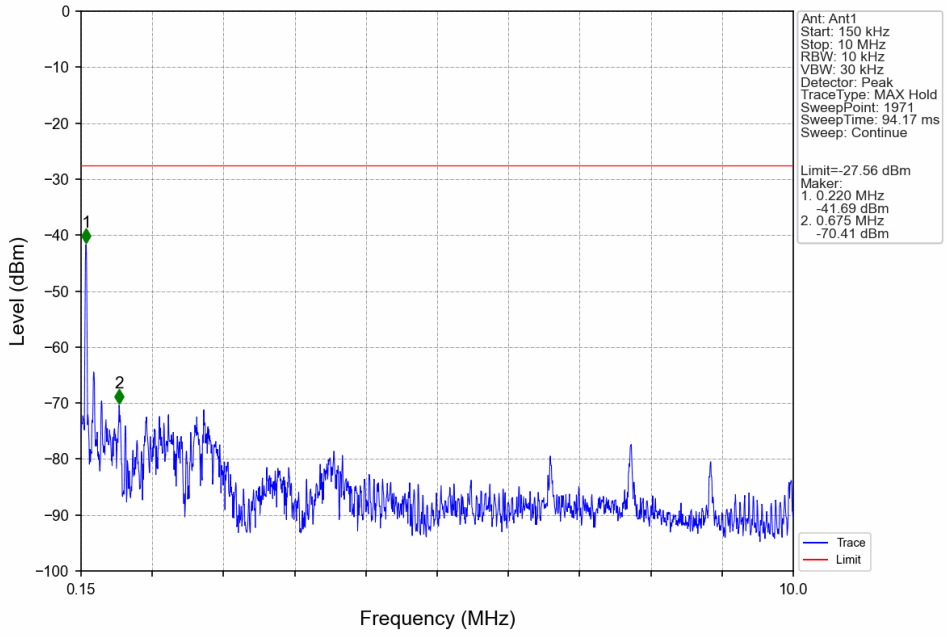
2M_LCH_2402MHz_Ant1_NTNV



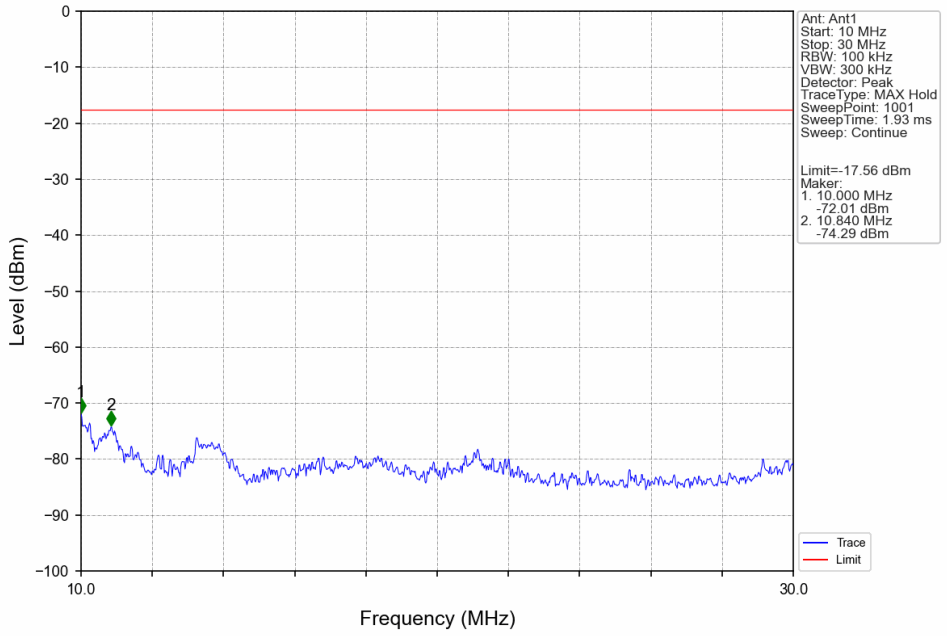
2M_MCH_2440MHz_Ant1_NTNV



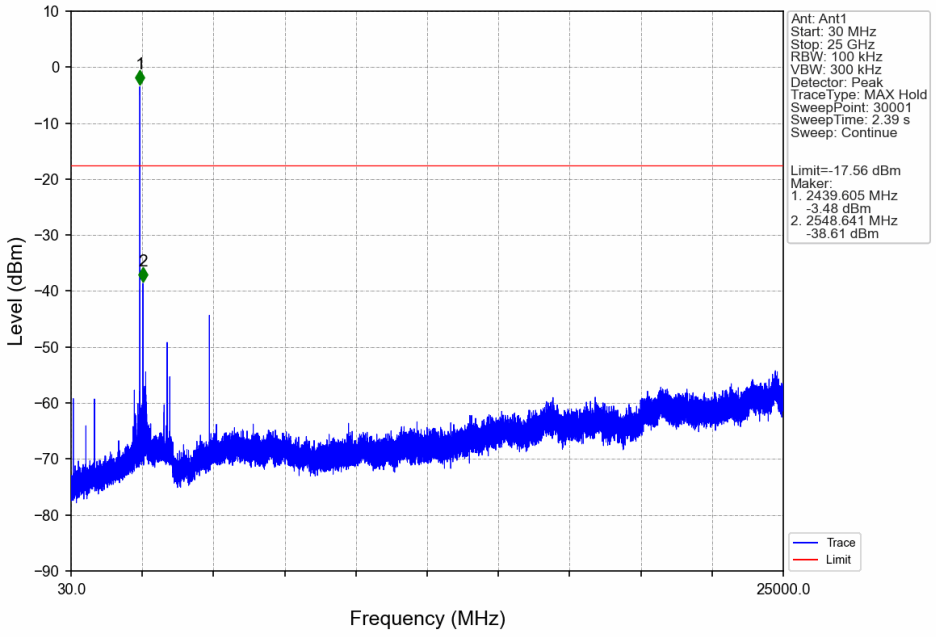
2M_MCH_2440MHz_Ant1_NTNV



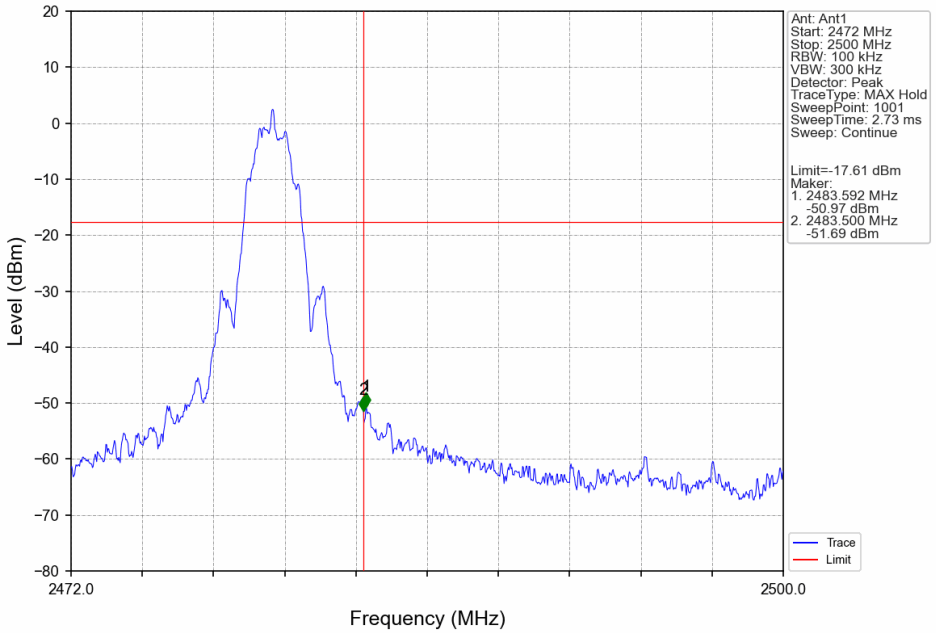
2M_MCH_2440MHz_Ant1_NTNV



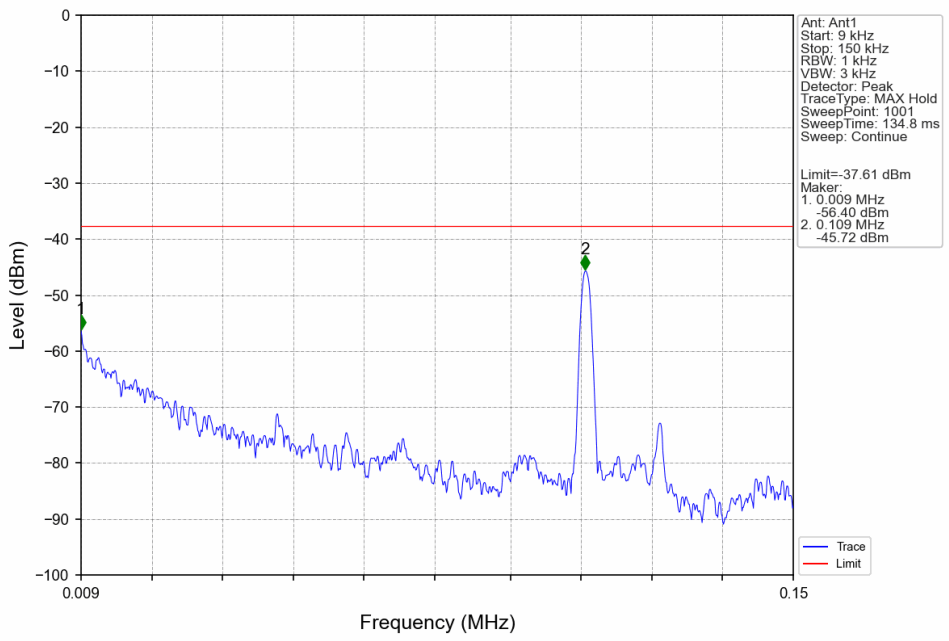
2M_MCH_2440MHz_Ant1_NTNV



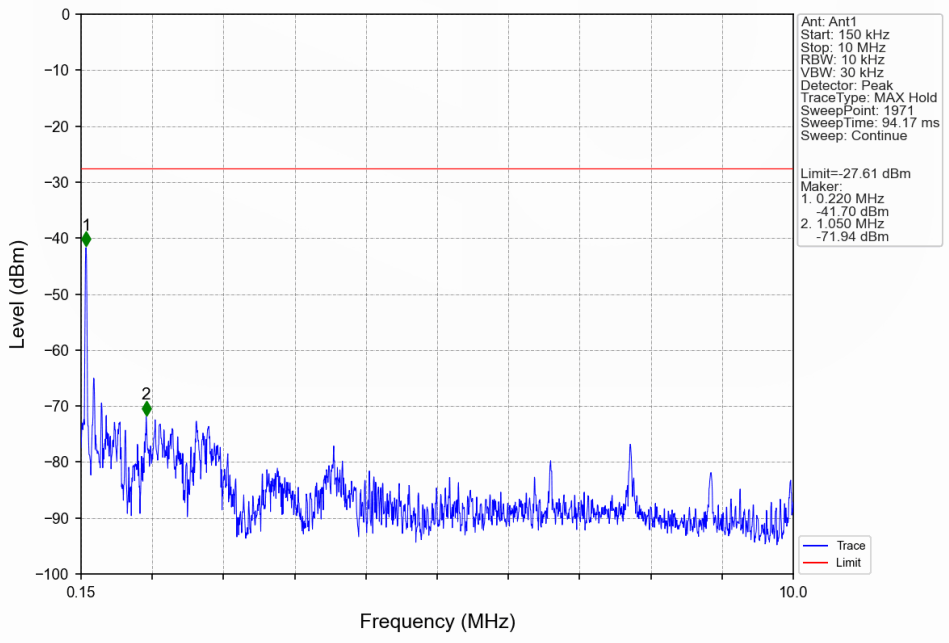
2M_HCH_2480MHz_Ant1_NTNV



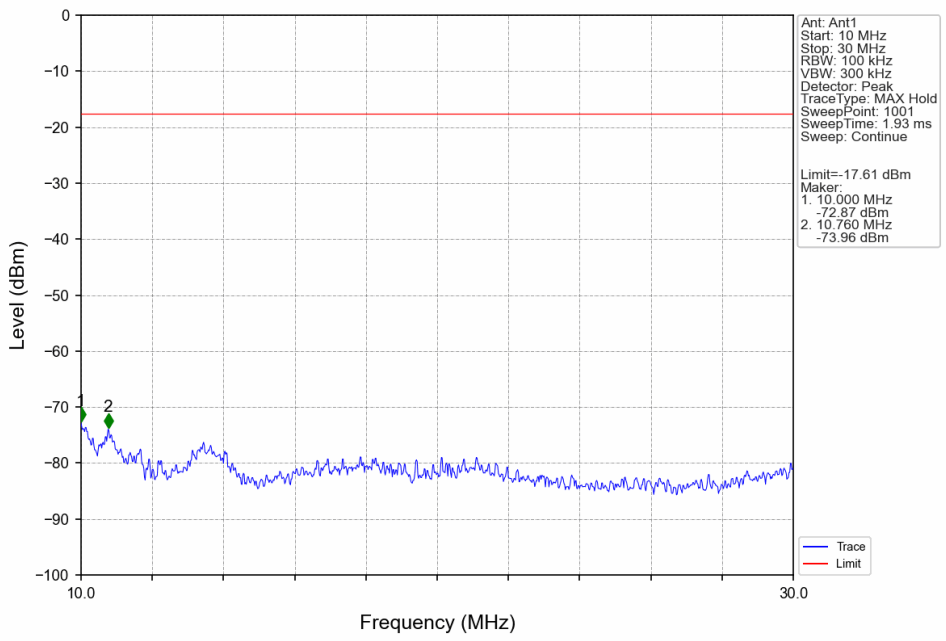
2M_HCH_2480MHz_Ant1_NTNV



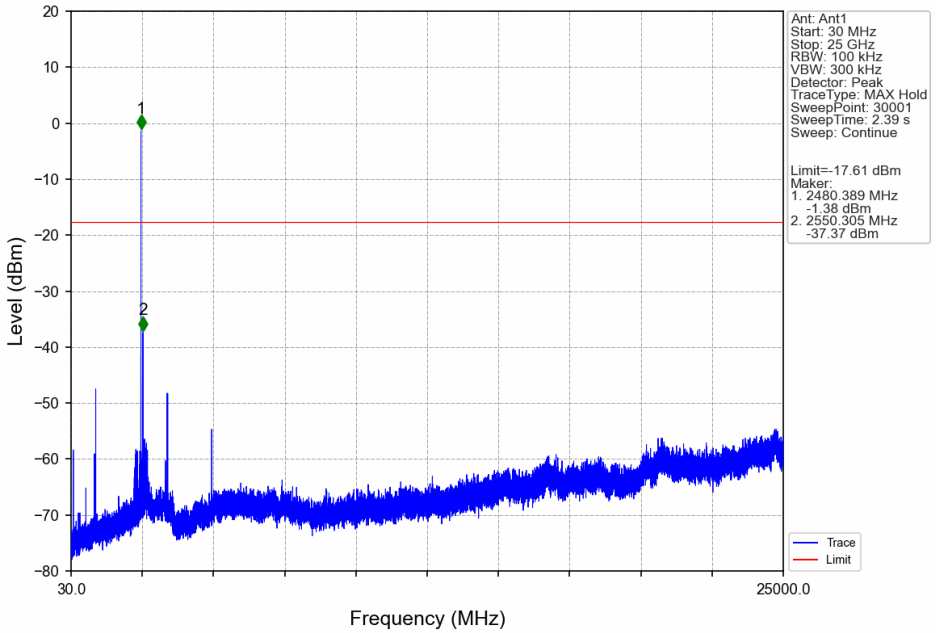
2M_HCH_2480MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



2M_HCH_2480MHz_Ant1_NTNV



STATEMENT

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the “inspection and testing dedicated stamp” or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
6. This report shall not be partially reproduced without the written permission of the laboratory.
7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--- End of Report ---

Address: 101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Website: www.eu-test.com
Tel: (86)-755-2357-9714 Email: Service@eu-test.com