

Radio Test Report

47 CFR Part 15.247

Applicant's name : Hongbaoda Science and Education Culture Co., Ltd., Chenghai Dist., Shantou City
Address : No.9, West Yiheng, Longtian Road, Guangyi Street, Chenghai District, Shantou City, Guangdong Province
Manufacture's Name : Hongbaoda Science and Education Culture Co., Ltd., Chenghai Dist., Shantou City
Address : No.9, West Yiheng, Longtian Road, Guangyi Street, Chenghai District, Shantou City, Guangdong Province

Product description

Trader mark : N/A
Product Name: : Remote control toy car
Model and/or type reference : KT912A
KT912B, HBD88-P83A, HBD88-P83B, HBD88-P83C, HBD88-P83D, HBD88-P83E, HBD88-P83F, HBD88-P83G, HBD88-P86A, HBD88-P86B, HBD88-P86C, HBD88-P86D, HBD88-P86E, HBD88-P86F, HBD88-P86G
Serial Model :
Rating(s) : DC 3V
Standards : 47 CFR Part 15.247
FCC ID : 2BQZP-HBD88-P83A

The EUT described above has been tested by us with the listed standards and found in compliance with the FCC requirements. It is possible to use FCC marking to demonstrate the compliance with this FCC requirements.
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Date of Test

Date (s) of performance of tests : 2026-07-10 ~ 2026-08-24
Date of Issue : 2026-08-24
Test Result : **Pass**

Prepared by:

Jide Huang

Project Engineer

Reviewed by:

Eason Zhou

Project Supervisor

Approved by:

Technical Director





REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2026-08-24	Valid	Initial Release



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1. TEST SUMMARY

No.	Test Item	Basic Standard	Requirement	Result
1	Antenna requirement	47 CFR Part 15.247	47 CFR 15.203	PASS
2	6dB Bandwidth	47 CFR Part 15.247	47 CFR 15.247(a)(2)	PASS
3	Maximum Conducted Output Power	47 CFR Part 15.247	47 CFR 15.247(b)(3)	PASS
4	Power Spectral Density	47 CFR Part 15.247	47 CFR 15.247(e)	PASS
5	Emissions in non-restricted frequency bands	47 CFR Part 15.247	47 CFR 15.247(d)	PASS
6	Band edge emissions (Radiated)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	PASS
7	Emissions in frequency bands (below 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	PASS
8	Emissions in frequency bands (above 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d), 15.209, 15.205	PASS

2. MEASUREMENT UNCERTAINTY

The report uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty Multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

No.	Item	Uncertainty
1	Occupied Channel Bandwidth	$\pm 3.5\%$
2	RF output power, conducted	$\pm 1.19\text{dB}$
3	Power Spectral Density, Conducted	$\pm 0.72\text{dB}$
4	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
5	All emissions, radiated (1GHz - 18GHz)	$\pm 4.66\text{dB}$
6	All emissions, radiated (30MHz - 1GHz)	$\pm 3.94\text{dB}$
7	All emissions, radiated (18GHz - 40GHz)	$\pm 4.31\text{dB}$

3. TEST FACILITY

Shenzhen VOP Testing Technology Co., Ltd.

Add:103, Building 5, Wanyan Industrial Park Qiaotou Community, Fuhai Street, Baoan District Shenzhen, Guangdong
People's Republic of China

FCC :Designation Number:CN1438

Certificate Number: 7579.01

3.1. Deviation from Standard

None

3.2. Abnormalities from Standard Conditions

None



4. GENERAL INFORMATION

4.1. General Description of EUT

Manufacturer:	Hongbaoda Science and Education Culture Co., Ltd.,Chenghai Dist.,Shantou City
Manufacturer Address:	No.9, West Yiheng, Longtian Road, Guangyi Street,ChenghaiDistrict, Shantou City, Guangdong Province
EUT Name:	Remote control toy car
Model No:	KT912A
Serial Model:	KT912B,HBD88-P83A,HBD88-P83B,HBD88-P83C,HBD88-P83D,HBD88-P83E, HBD88- P83F,HBD88- P83G, HBD88-P86A, HBD88-P86B, HBD88-P86C, HBD88-P86D, HBD88-P86E, HBD88-P86F, HBD88-P86G
Brand Name:	N/A
Difference Description:	Except for model number, the to be certified remote control unit has identical electrical, RF, mechanical hardware and appearance. Model variations only refer to the paired toy car, which is not covered under this certification
Operation Frequency:	2422MHz-2472MHz
Number of channels:	51
Modulation Type:	GFSK
Antenna type:	PCB antenna
Antenna Gain:	-2.51dBi
Bluetooth Version:	N/A
Hardware Version:	N/A
Software Version:	N/A
Power Supply:	Input:120V~ 60Hz from adapter, Output: DC11V, 2.25A from adapter DC 3V
Maximum Output Power:	-16.95dBm

Note:

- 1.For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 2.The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.

3.Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2422	27	2448
02	2423	28	2449
03	2424	29	2450

04	2425	30	2451
05	2426	31	2452
06	2427	32	2453
07	2428	33	2454
08	2429	34	2455
09	2430	35	2456
10	2431	36	2457
11	2432	37	2458
12	2433	38	2459
13	2434	39	2460
14	2435	40	2461
15	2436	41	2462
16	2437	42	2463
17	2438	43	2464
18	2439	44	2465
19	2440	45	2466
20	2441	46	2467
21	2442	47	2468
22	2443	48	2469
23	2444	49	2470
24	2445	50	2471
25	2446	51	2472
26	2447		

4.2. EUT Test Mode

TM1	TX mode
Test software Version	Test program: N/A
Frequency	2422MHz,2447MHz,2472MHz
Power Setting of Software	0
Note:All above mode have been measurement, only worst data was reported.	

4.3. Auxiliary Equipment Used During Test

No.	Equipment	Manufacturer	Model No.	Serial No.	Remark
1	HP laptop	HP	DESKTOP-G3N DKR3	N/A	N/A

5. EQUIPMENTS LIST FOR ALL TEST ITEMS

Power Spectral Density Emissions in non-restricted frequency bands 6dB Bandwidth Maximum Conducted Output Power						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	spectrum analyzer	Agilent	N9020A	MY51287427	2026-07-07	2027-07-06
2	RF automatic control unit	TST	CBOX-Full	2752539	2026-06-25	2027-06-24

Band edge emissions (Radiated) Emissions in frequency bands (above 1GHz)						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	preamplifier	QUANJUDA	LNA18	2503130032	2026-07-07	2027-07-06
2	High frequency antenna	Schwarzbeck	9120D-1141	03260	2025-10-19	2026-10-18
3	High-frequency horn antenna	Schwarzbeck	HA-018040L	25098408	2025-10-31	2026-10-30
4	preamplifier	HCT	HC180400-50 G25	25098401	2025-09-19	2026-09-18
5	spectrum analyzer	R&S	FSV40	101373	2025-12-24	2026-12-23

Emissions in frequency bands (below 1GHz)						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI test receiver ESCI	R&S	ESPI-7	100754	2026-03-17	2028-03-16
2	Log periodic antenna	SCHWARZBECK	VULB9163	01790	2025-10-24	2026-10-23
3	preamplifier	SCHWARZBECK	8447D	2944A08081	2026-03-17	2028-03-16

6. TEST RESULTS

6.1. Antenna requirement

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.
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6.1.1. Conclusion:

The EUT antenna is PCB antenna. It conforms to the standard requirements.



6.2. 6dB Bandwidth

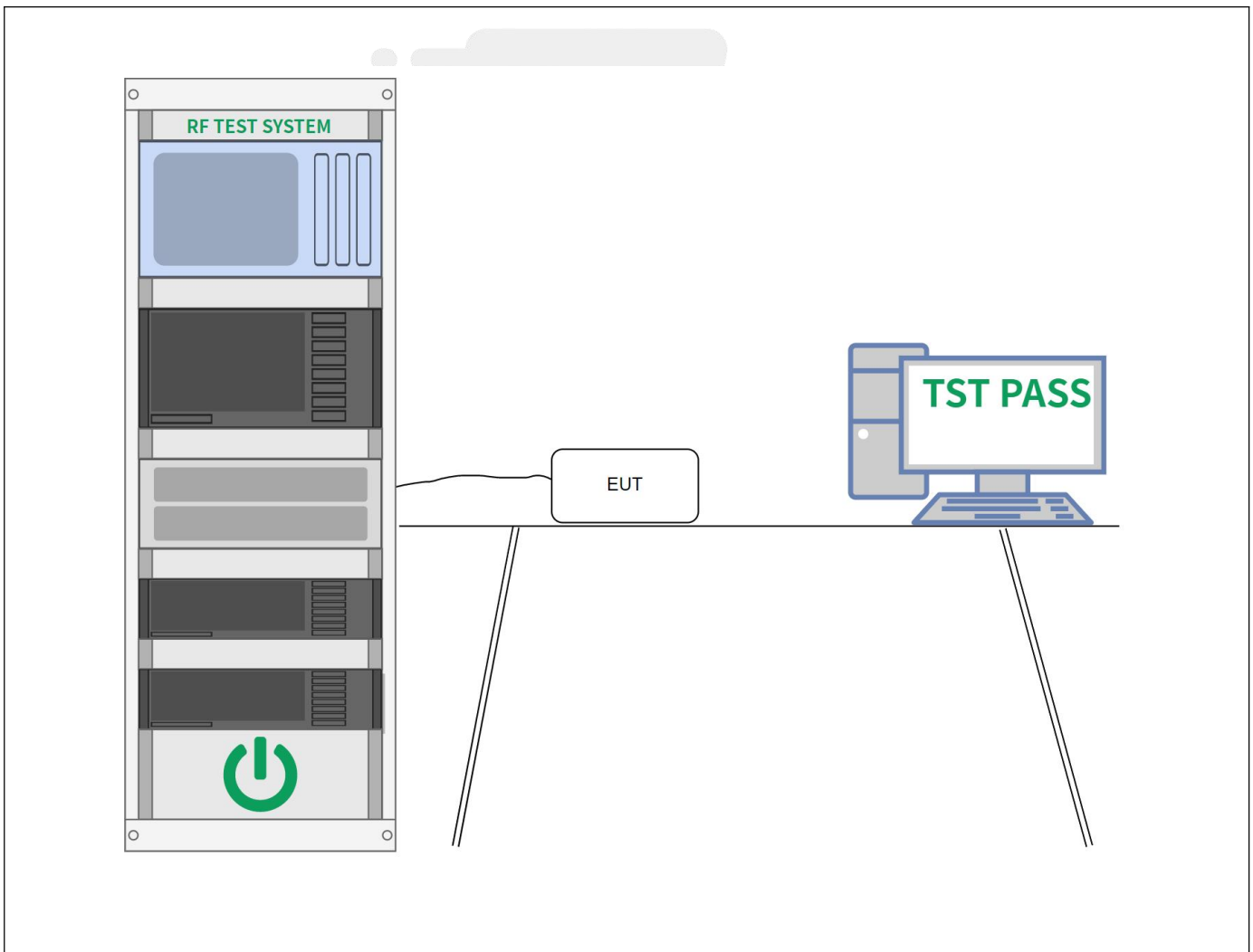
Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 11.8
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 $\geq [3 \times \text{RBW}]$. 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 $\geq 3 \times \text{RBW}$, 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. 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 $\geq [3 \times \text{RBW}]$. 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 $\geq 3 \times$ 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.
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6.2.1. EUT Operation

Operating Environment:					
Temperature:	26 °C	Humidity:	54 %	Atmospheric Pressure:	101.1 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.2.2. Test Setup Diagram:



6.2.3. Test Data

Please Refer to Appendix for Details.

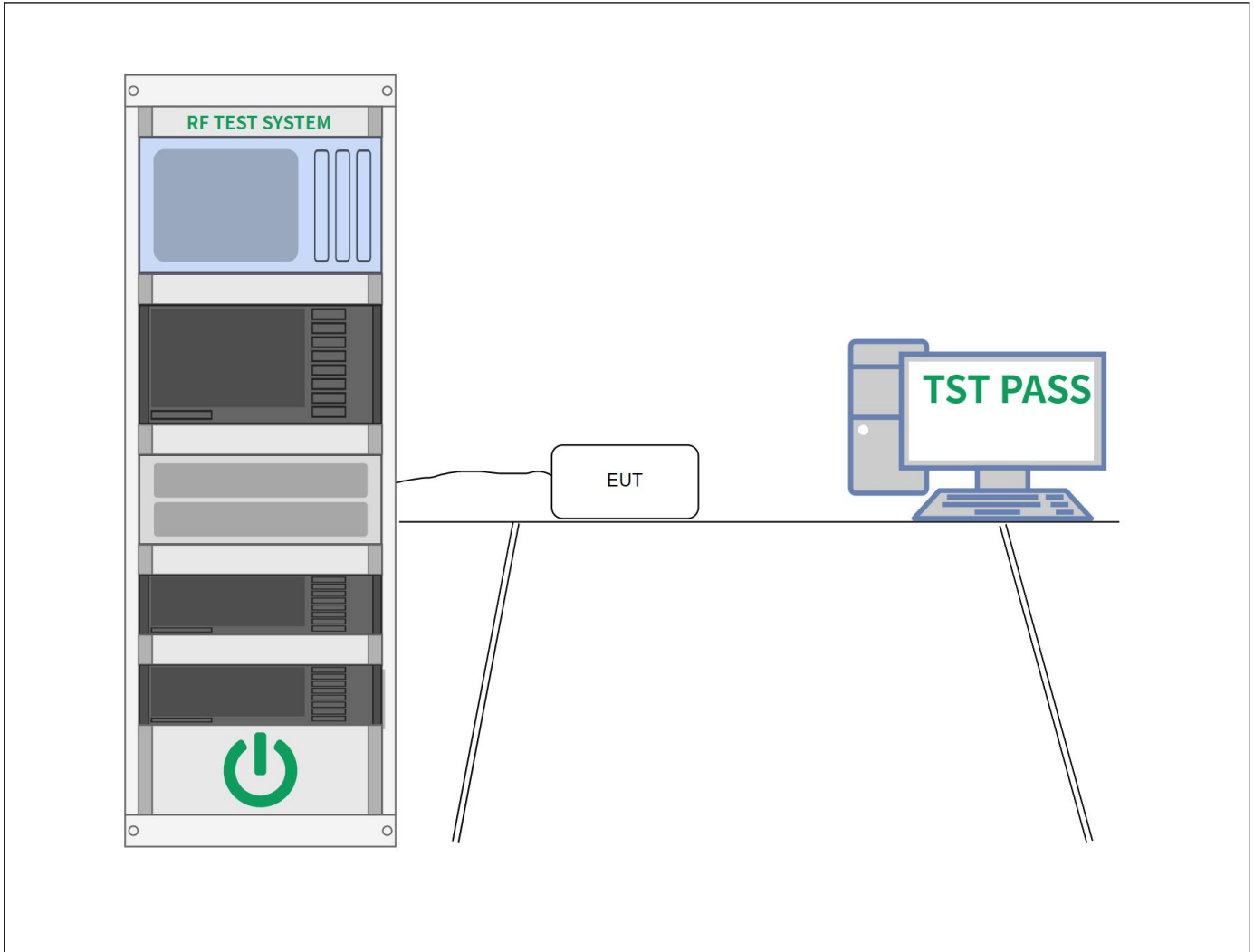
6.3. Maximum Conducted Output Power

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
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

6.3.1. EUT Operation

Operating Environment:					
Temperature:	26 °C	Humidity:	54 %	Atmospheric Pressure:	101.1 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.3.2. Test Setup Diagram:



6.3.3. Test Data

Please Refer to Appendix for Details.

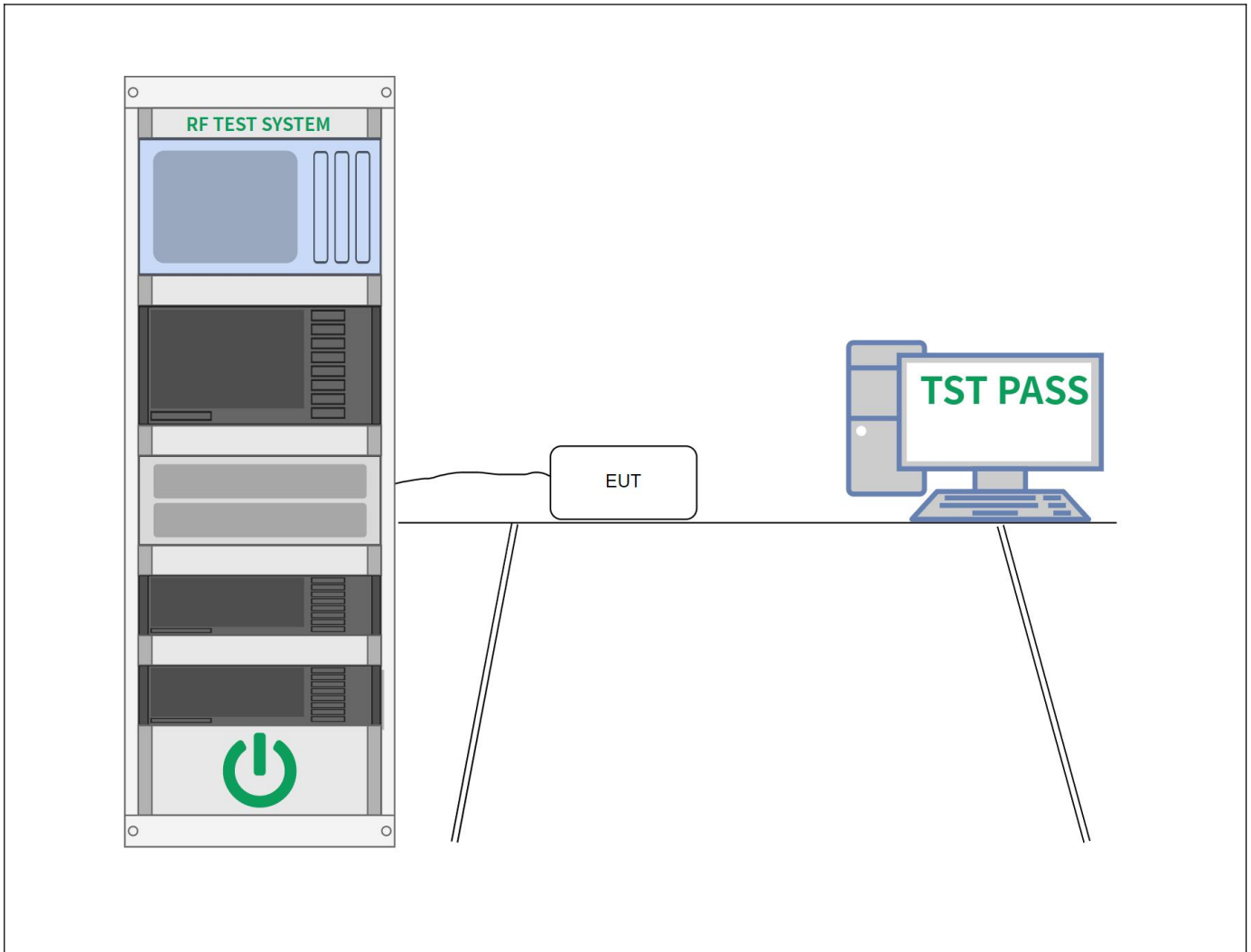
6.4. Power Spectral Density

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
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

6.4.1. EUT Operation

Operating Environment:					
Temperature:	26 °C	Humidity:	54 %	Atmospheric Pressure:	101.1 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.4.2. Test Setup Diagram:



6.4.3. Test Data

Please Refer to Appendix for Details.

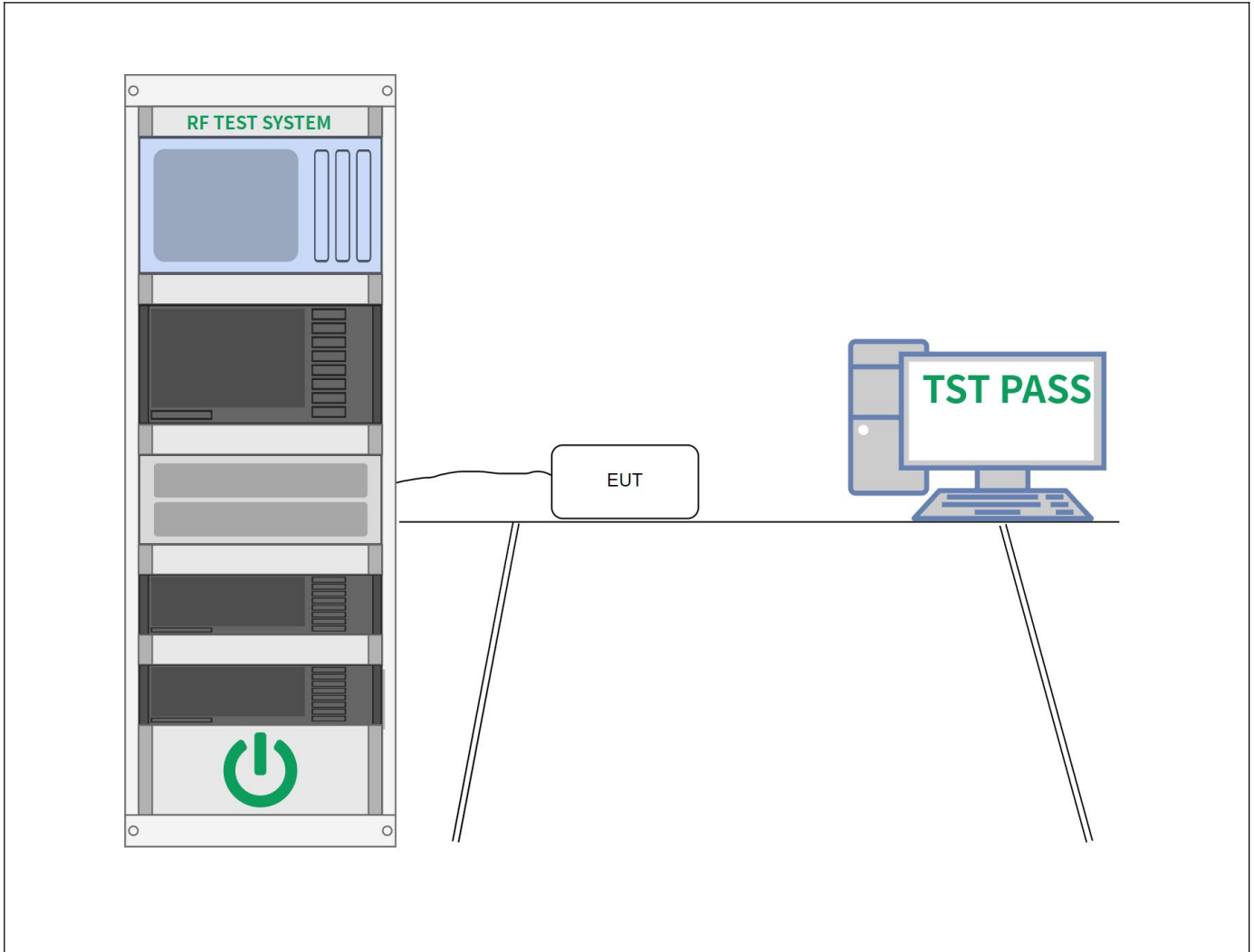
6.5. Emissions in non-restricted frequency bands

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
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

6.5.1. EUT Operation

Operating Environment:					
Temperature:	26 °C	Humidity:	54 %	Atmospheric Pressure:	101.1 kPa
Pre test mode:	TM1				
Final test mode:	TM1				

6.5.2. Test Setup Diagram:



6.5.3. Test Data

Please Refer to Appendix for Details.

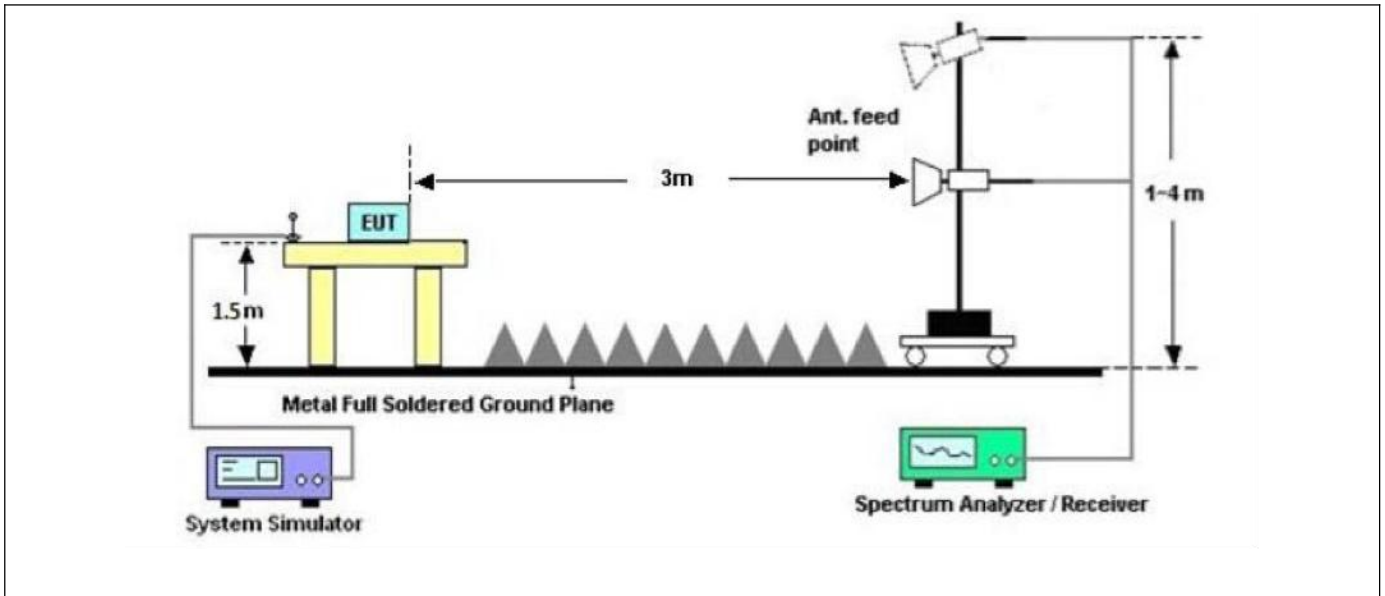
6.6. Band edge emissions (Radiated)

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		
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.10.5.2		

6.6.1. EUT Operation

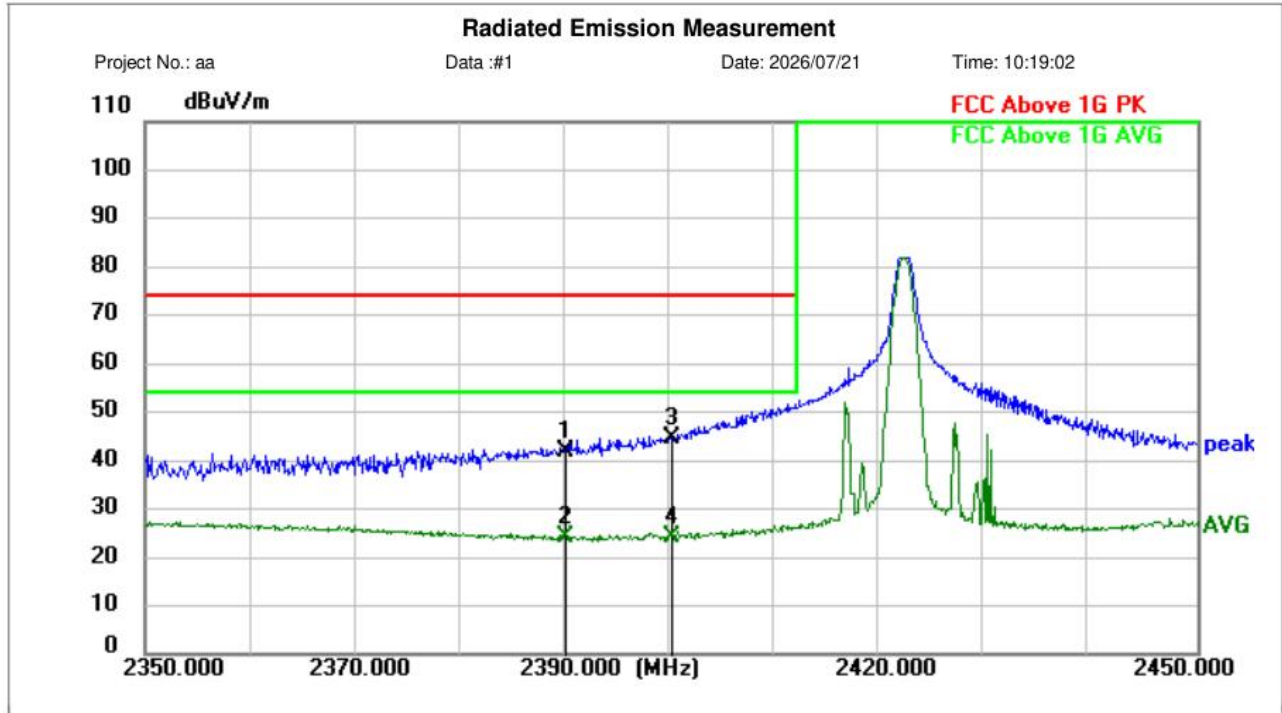
Operating Environment:			
Temperature:	26 °C	Humidity:	54 %
		Atmospheric Pressure:	101.1 kPa
Pre test mode:	TM1		
Final test mode:	TM1		

6.6.2. Test Setup Diagram:



6.6.3. Test Data

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



Site LAB

Limit: FCC Above 1G PK

EUT:

M/N: 2422

Mode:

Note:

Polarization: **Horizontal**

Power:

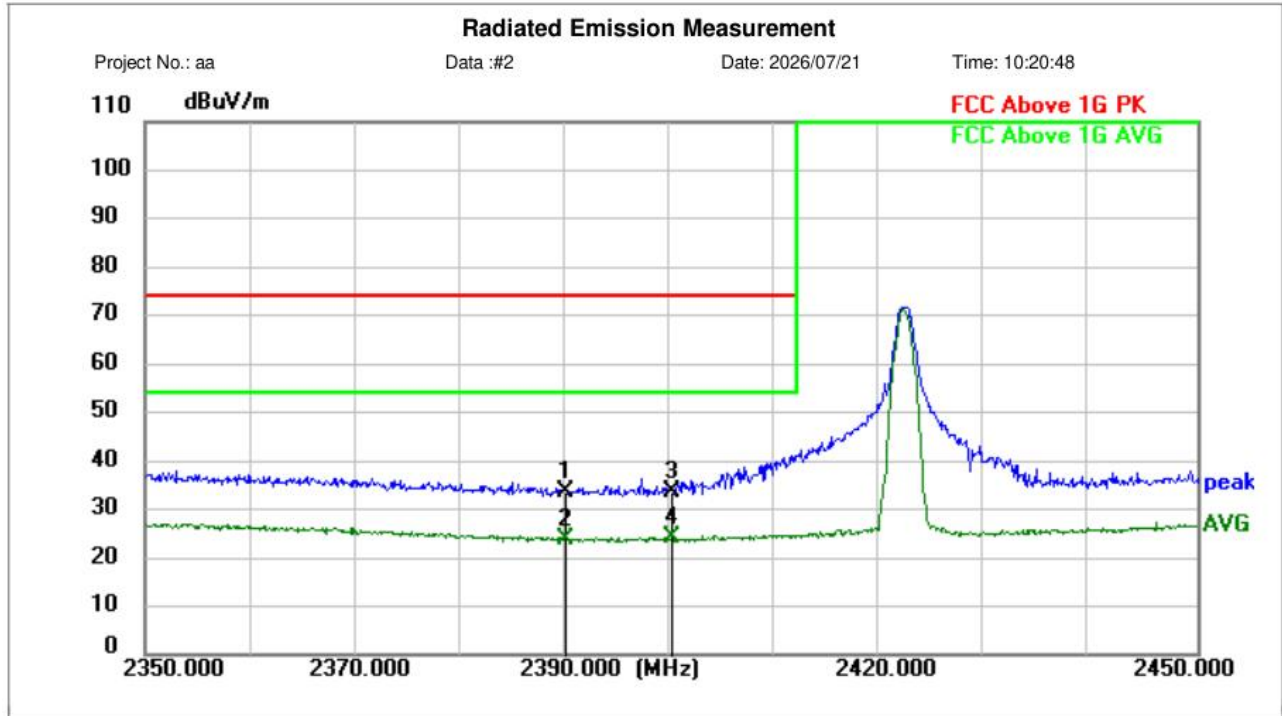
Distance: 3m

Temperature: 26 °C

Humidity: 54 %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2390.0000	67.20	-25.27	41.93	74.00	-32.07	peak			P	
2	2390.0000	49.43	-25.27	24.16	54.00	-29.84	AVG			P	
3 *	2400.0000	70.34	-25.87	44.47	74.00	-29.53	peak			P	
4	2400.0000	50.22	-25.87	24.35	54.00	-29.65	AVG			P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



Site LAB

Polarization: **Vertical**

Temperature: 26 °C

Limit: FCC Above 1G PK

Power:

Humidity: 54 %RH

EUT:

Distance: 3m

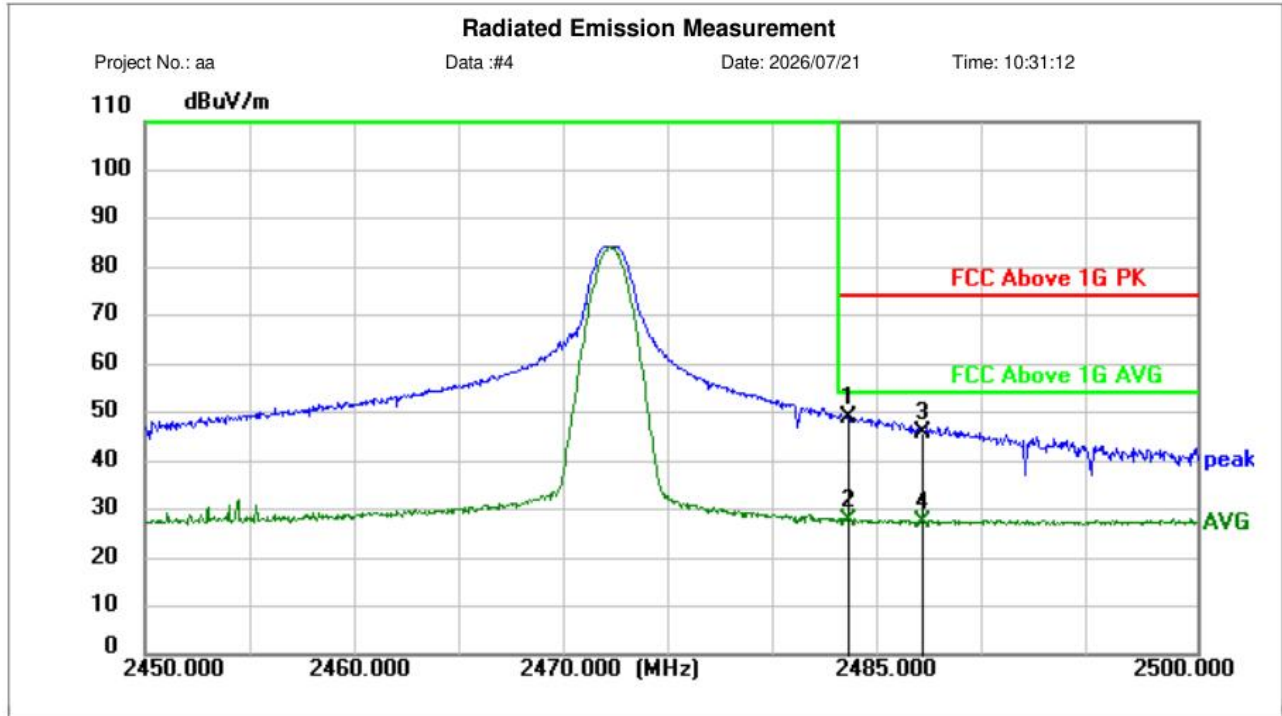
M/N: 2422

Mode:

Note:

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2390.0000	56.41	-22.71	33.70	74.00	-40.30	peak	150	0	P	
2	2390.0000	46.31	-22.71	23.60	54.00	-30.40	AVG	150	0	P	
3	2400.0000	56.37	-22.67	33.70	74.00	-40.30	peak	150	0	P	
4 *	2400.0000	46.67	-22.67	24.00	54.00	-30.00	AVG	150	0	P	

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H



Site LAB

Limit: FCC Above 1G PK

EUT:

M/N: 2472

Mode:

Note:

Polarization: **Horizontal**

Power:

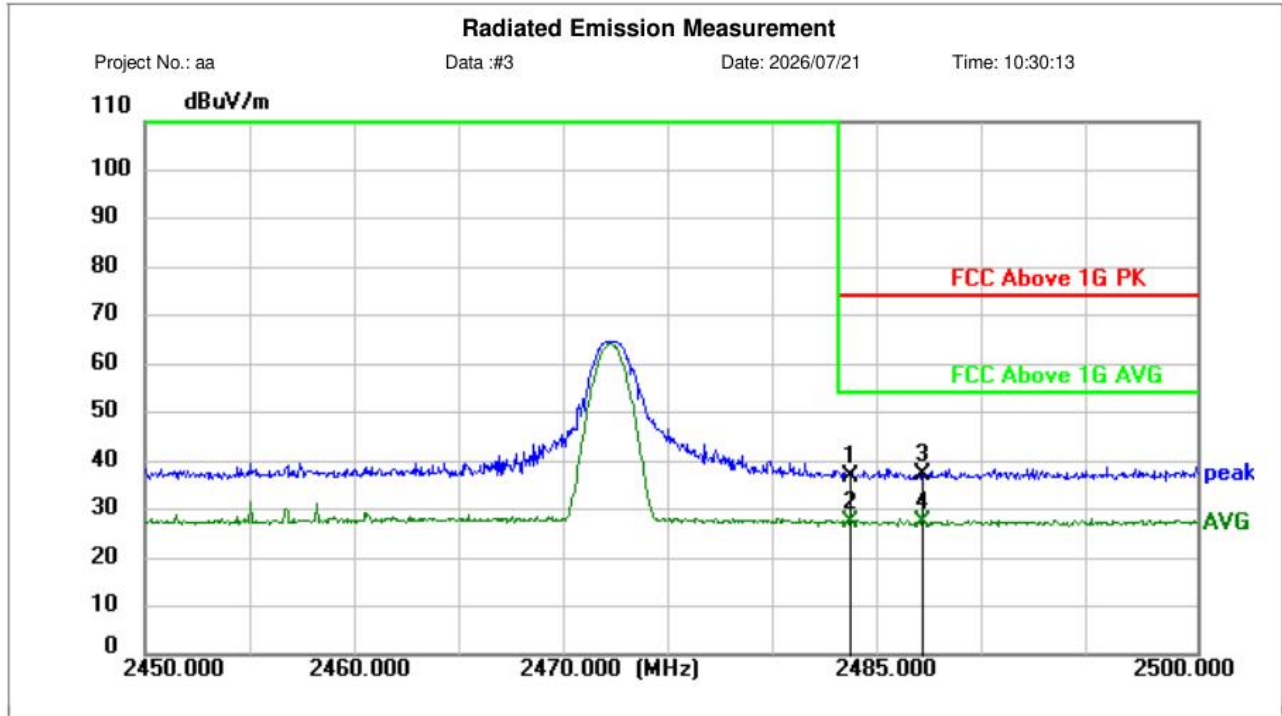
Distance: 3m

Temperature: 26 °C

Humidity: 54 %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	2483.5000	71.79	-22.81	48.98	74.00	-25.02	peak	150	0	P	
2	2483.5000	50.56	-22.81	27.75	54.00	-26.25	AVG	150	0	P	
3	2487.0000	68.40	-22.78	45.62	74.00	-28.38	peak	150	0	P	
4	2487.0000	50.08	-22.78	27.30	54.00	-26.70	AVG	150	0	P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H



Site LAB

Polarization: **Vertical**

Temperature: 26 °C

Limit: FCC Above 1G PK

Power:

Humidity: 54 %RH

EUT:

Distance: 3m

M/N: 2472

Mode:

Note:

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.5000	59.02	-22.27	36.75	74.00	-37.25	peak	150	0	P	
2 *	2483.5000	49.71	-22.27	27.44	54.00	-26.56	AVG	150	0	P	
3	2487.0000	59.24	-22.26	36.98	74.00	-37.02	peak	150	0	P	
4	2487.0000	49.70	-22.26	27.44	54.00	-26.56	AVG	150	0	P	

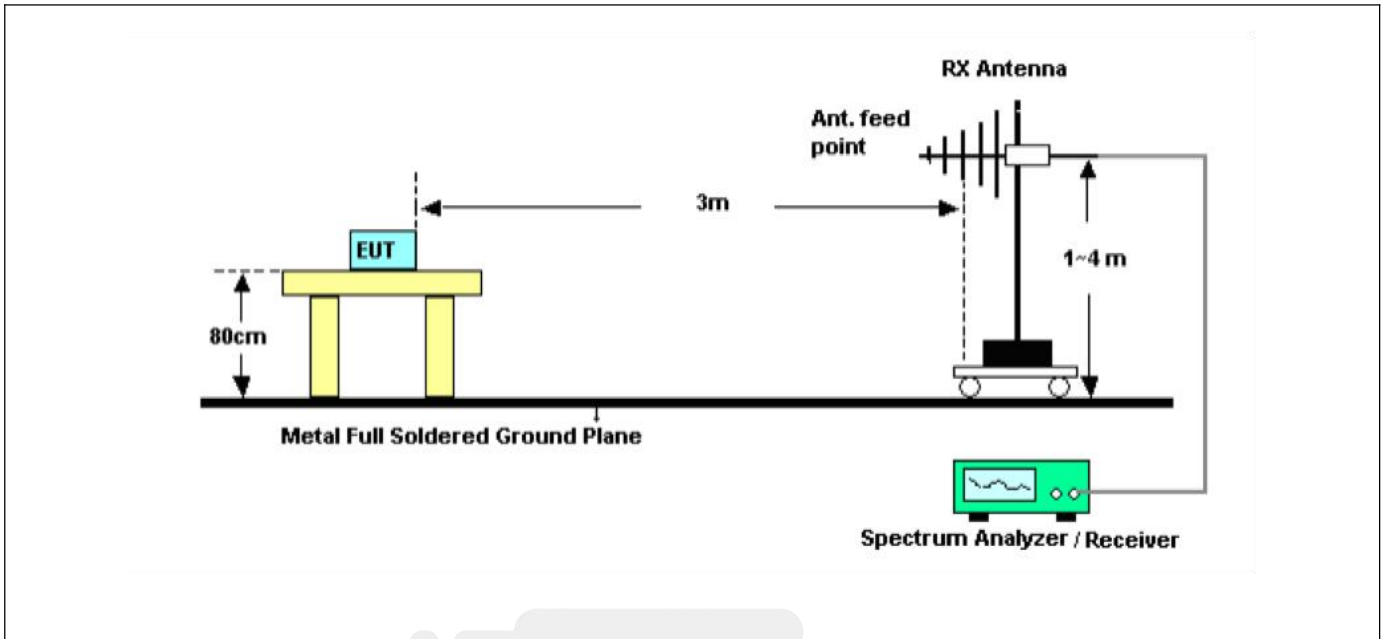
6.7. Emissions in frequency bands (below 1GHz)

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		
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4		

6.7.1. EUT Operation

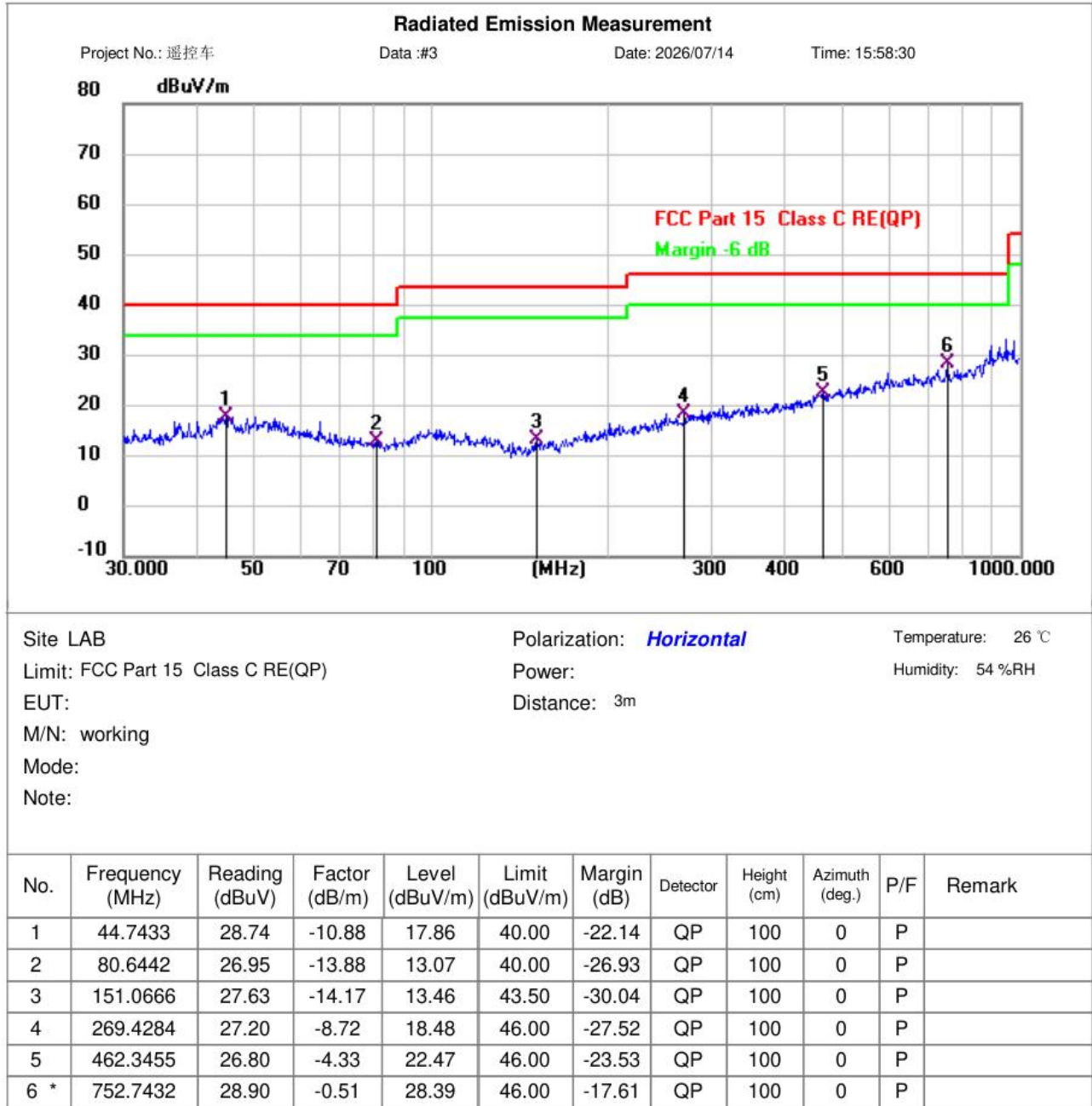
Operating Environment:					
Temperature:	26 °C	Humidity:	54 %	Atmospheric Pressure:	101.1 kPa
Pre test mode:		TM1			
Final test mode:		TM1			

6.7.2. Test Setup Diagram:

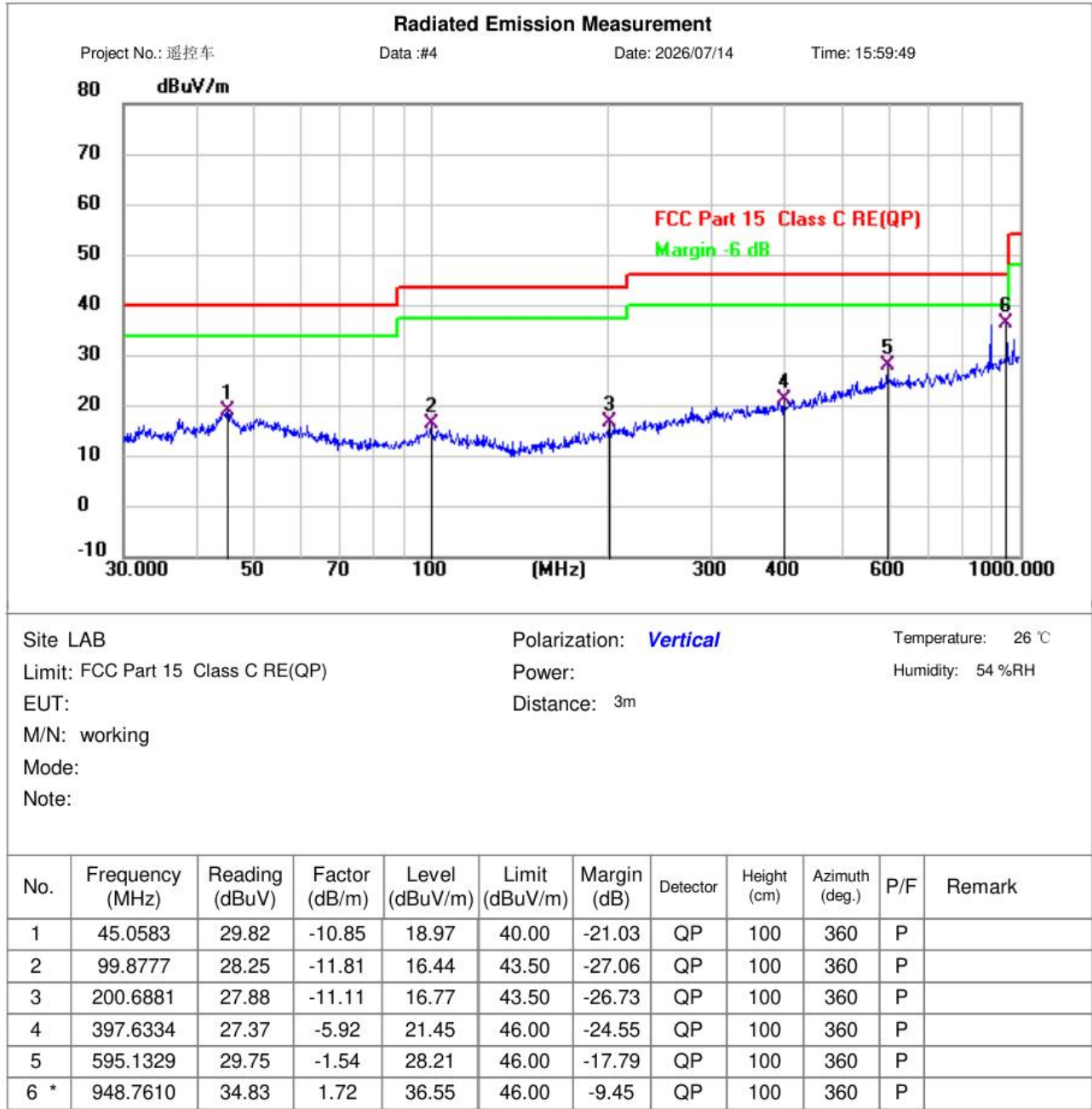


6.7.3. Test Data

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



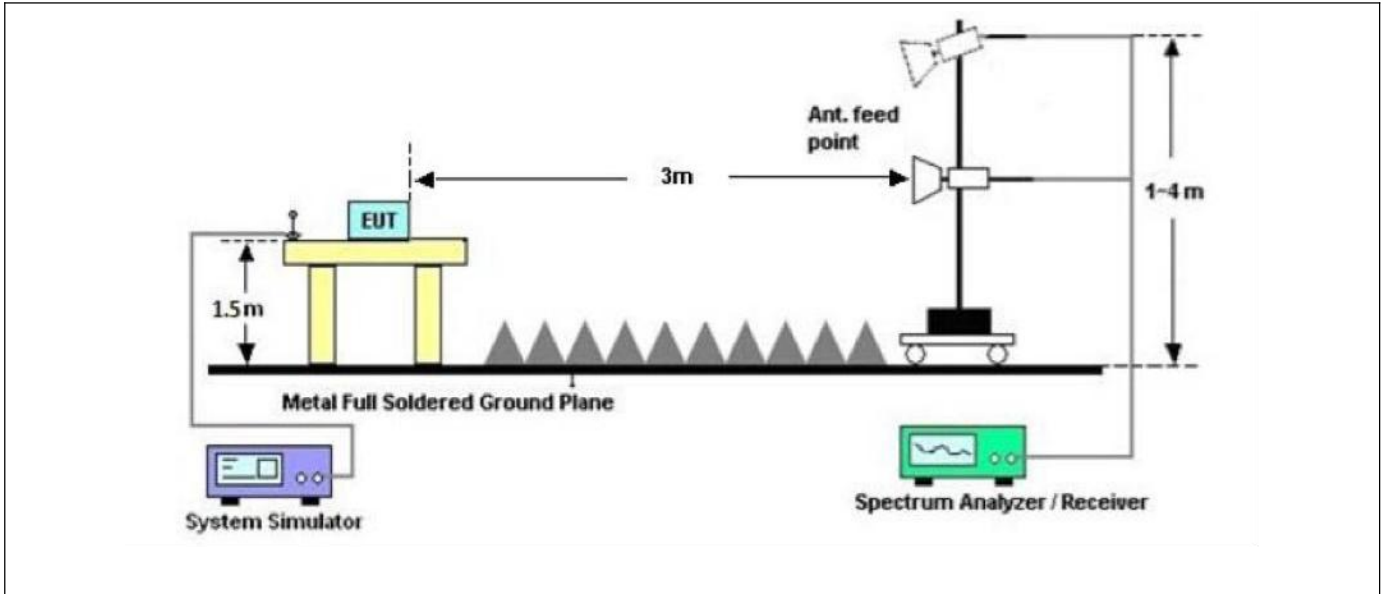
6.8. Emissions in frequency bands (above 1GHz)

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		
Procedure:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4		

6.8.1. EUT Operation

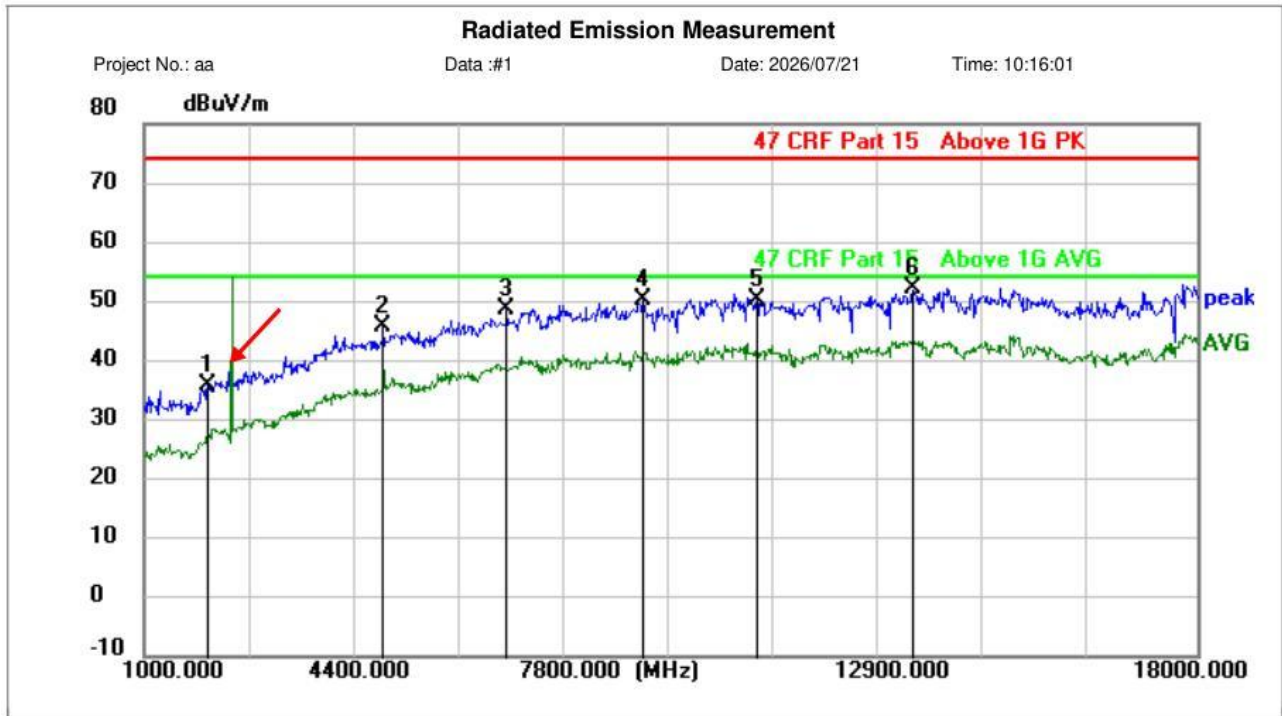
Operating Environment:			
Temperature:	26 °C	Humidity:	54 %
		Atmospheric Pressure:	101.1 kPa
Pre test mode:	TM1		
Final test mode:	TM1		

6.8.2. Test Setup Diagram:



6.8.3. Test Data

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



Site LAB

Limit: 47 CRF Part 15 Above 1G PK

EUT:

M/N: 2422

Mode:

Note:

Polarization: **Horizontal**

Power:

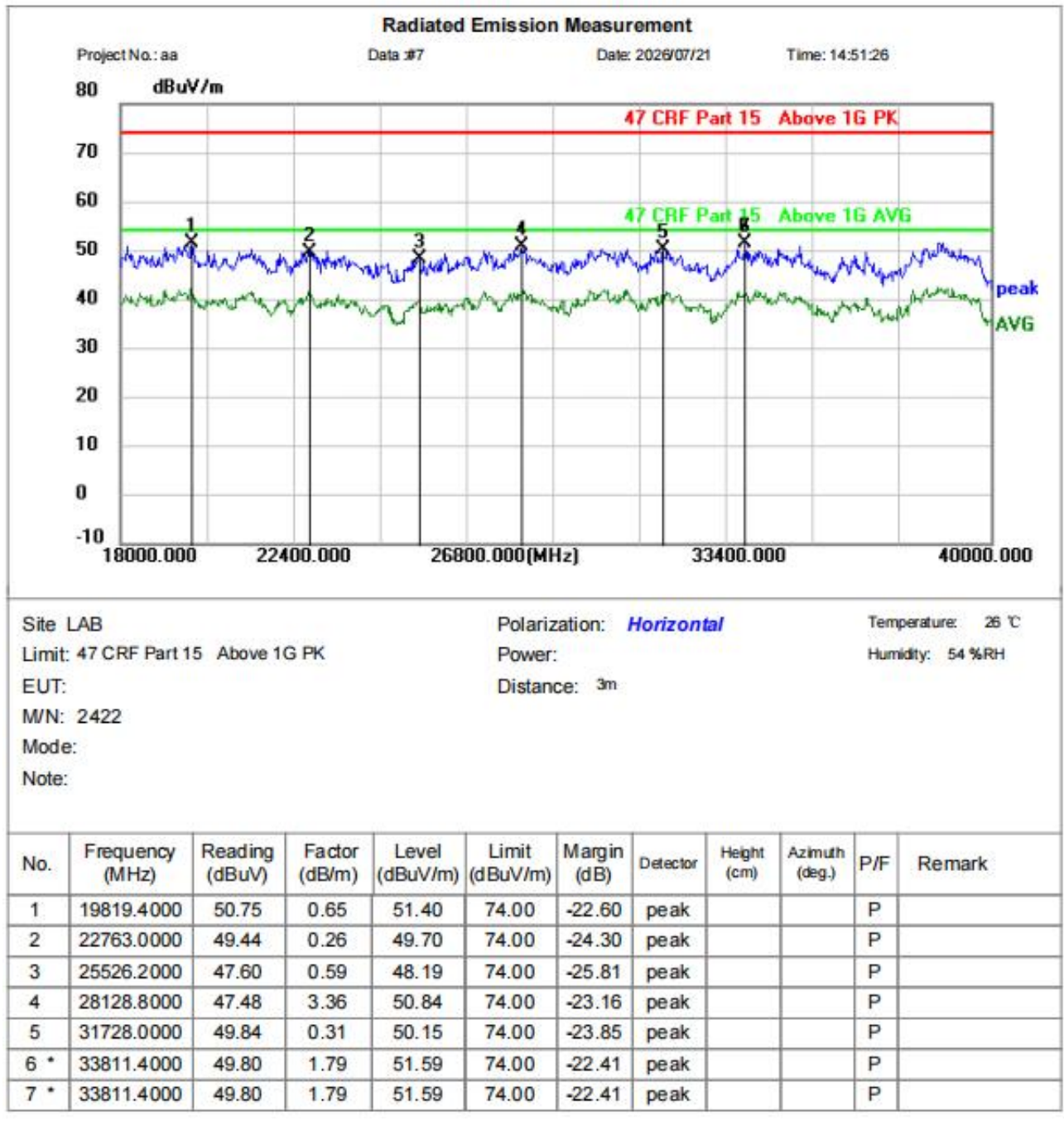
Distance: 3m

Temperature: 26 °C

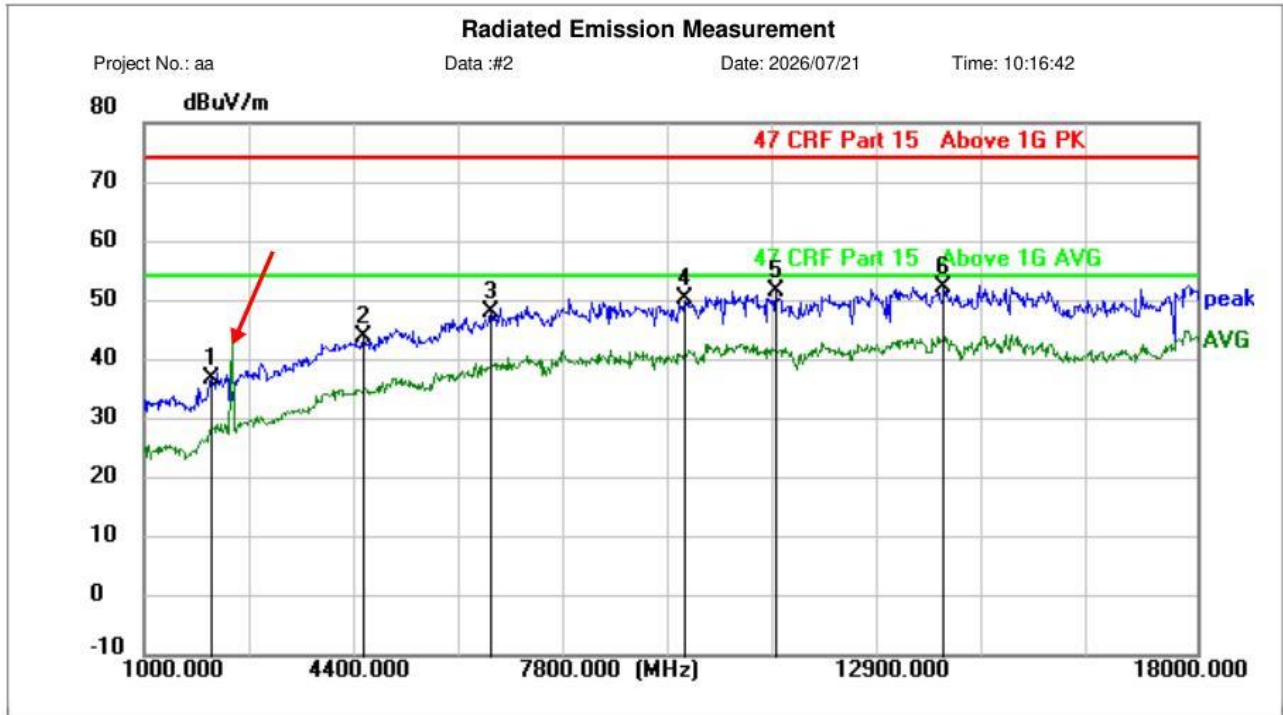
Humidity: 54 %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2054.0000	59.62	-23.67	35.95	74.00	-38.05	peak	150	360	P	
2	4843.7000	63.48	-17.57	45.91	74.00	-28.09	peak	150	360	P	
3	6859.9000	62.69	-13.89	48.80	74.00	-25.20	peak	150	360	P	
4	9068.2000	59.70	-9.34	50.36	74.00	-23.64	peak	150	360	P	
5	10895.7000	57.03	-6.89	50.14	74.00	-23.86	peak	150	360	P	
6 *	13427.0000	61.04	-8.93	52.11	74.00	-21.89	peak	150	360	P	

Node: The high-level peak indicated by the arrow in the plot is the fundamental operating frequency, which is not a spurious emission. Spurious emission limits are not applicable to the fundamental frequency. All other marked peaks are spurious components.



TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



Site LAB

Polarization: **Vertical**

Temperature: 26 °C

Limit: 47 CRF Part 15 Above 1G PK

Power:

Humidity: 54 %RH

EUT:

Distance: 3m

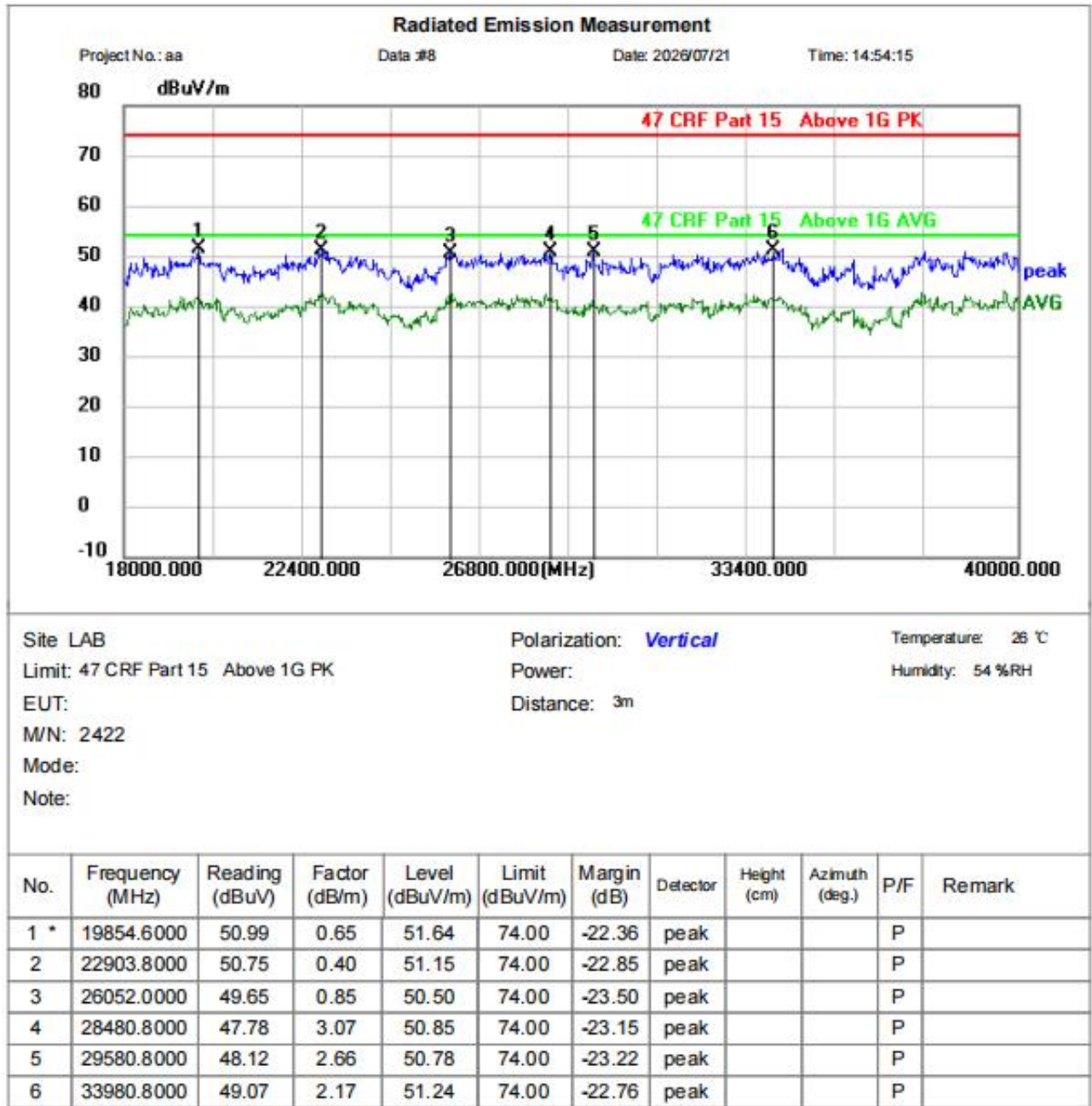
M/N: 2422

Mode:

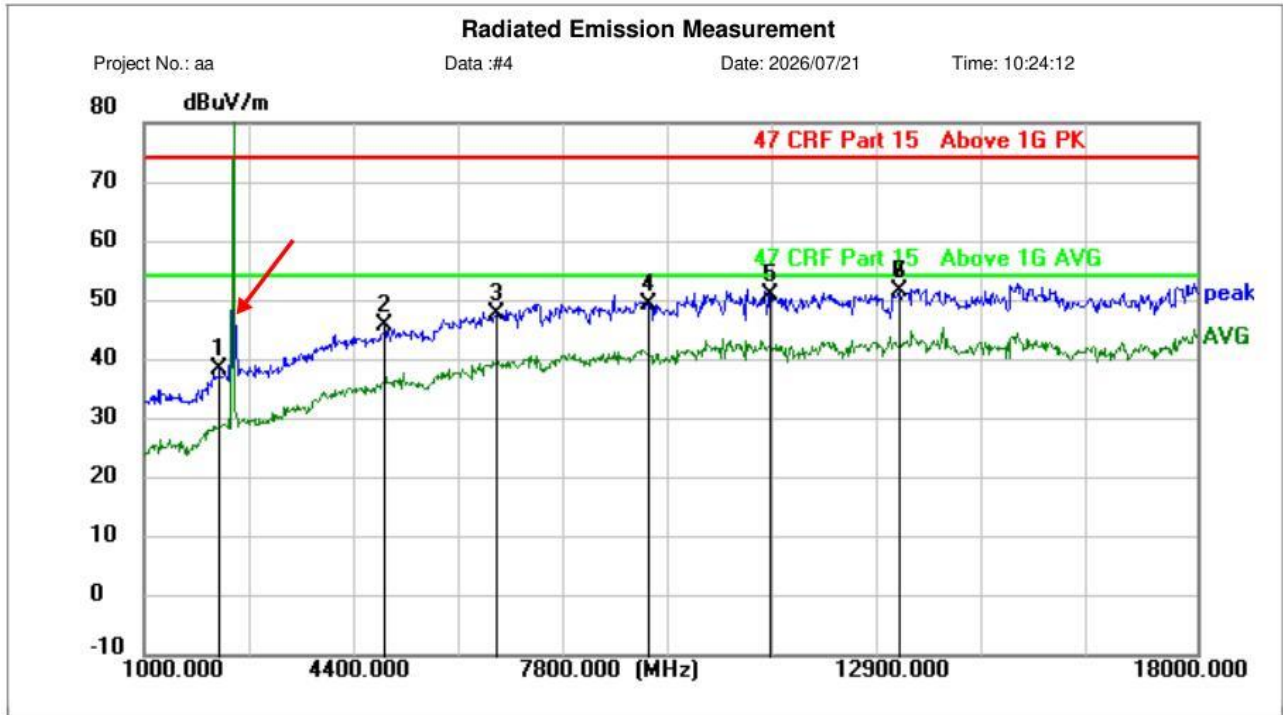
Note:

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2101.6000	60.17	-23.29	36.88	74.00	-37.12	peak	150	360	P	
2	4539.4000	61.91	-18.19	43.72	74.00	-30.28	peak	150	360	P	
3	6582.8000	62.22	-14.27	47.95	74.00	-26.05	peak	150	360	P	
4	9746.5000	59.18	-8.95	50.23	74.00	-23.77	peak	150	360	P	
5	11203.4000	57.92	-6.34	51.58	74.00	-22.42	peak	150	360	P	
6 *	13914.9000	61.97	-9.70	52.27	74.00	-21.73	peak	150	360	P	

Node: The high-level peak indicated by the arrow in the plot is the fundamental operating frequency, which is not a spurious emission. Spurious emission limits are not applicable to the fundamental frequency. All other marked peaks are spurious components.



TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: M



Site LAB

Limit: 47 CRF Part 15 Above 1G PK

EUT:

M/N: 2447

Mode:

Note:

Polarization: **Horizontal**

Power:

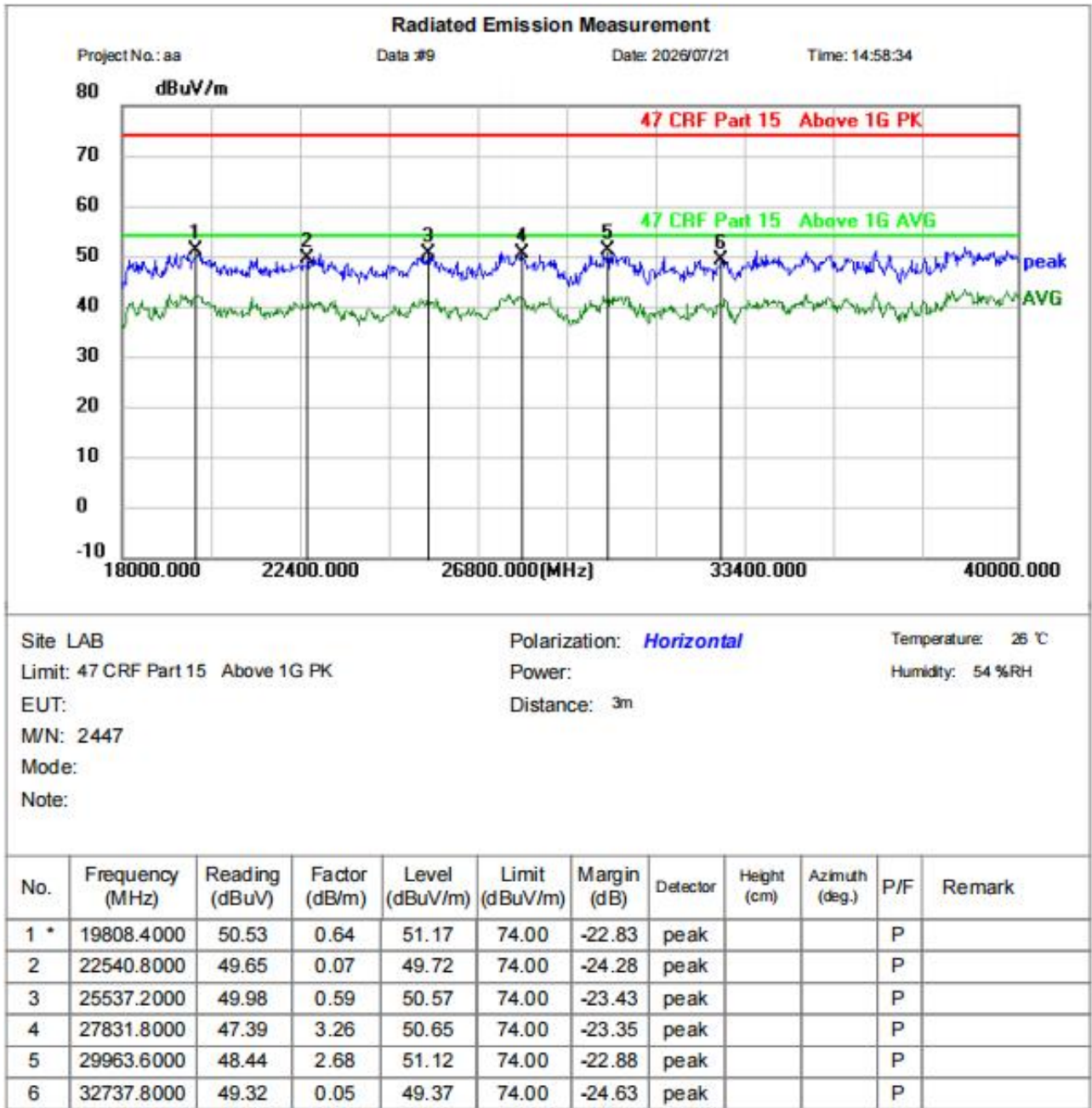
Distance: 3m

Temperature: 26 °C

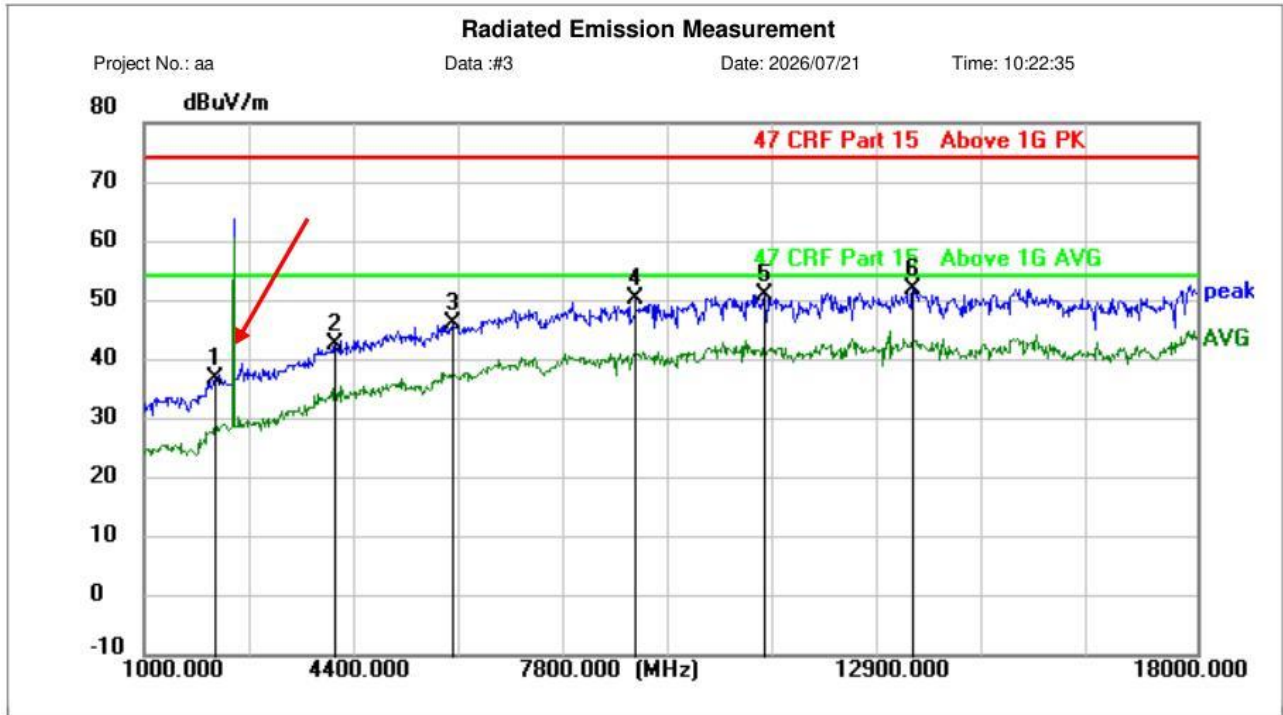
Humidity: 54 %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2210.4000	61.47	-23.17	38.30	74.00	-35.70	peak	150	0	P	
2	4894.7000	63.02	-17.37	45.65	74.00	-28.35	peak	150	0	P	
3	6683.1000	61.67	-13.88	47.79	74.00	-26.21	peak	150	0	P	
4	9171.9000	58.64	-9.18	49.46	74.00	-24.54	peak	150	0	P	
5	11106.5000	57.64	-6.83	50.81	74.00	-23.19	peak	150	0	P	
6 *	13180.5000	60.77	-9.10	51.67	74.00	-22.33	peak	150	0	P	

Node: The high-level peak indicated by the arrow in the plot is the fundamental operating frequency, which is not a spurious emission. Spurious emission limits are not applicable to the fundamental frequency. All other marked peaks are spurious components.



TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: M



Site LAB

Limit: 47 CRF Part 15 Above 1G PK

EUT:

M/N: 2447

Mode:

Note:

Polarization: **Vertical**

Power:

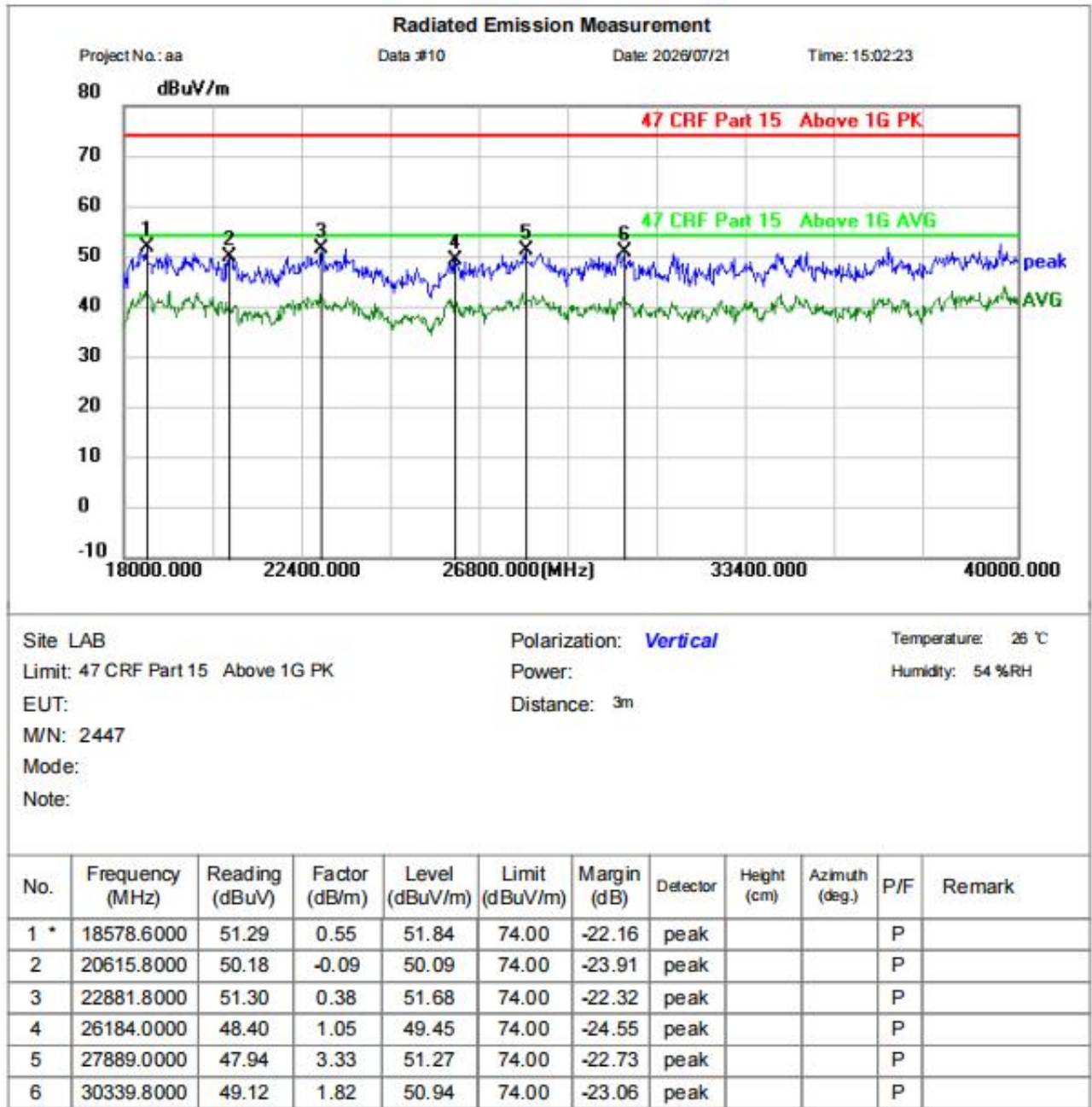
Distance: 3m

Temperature: 26 °C

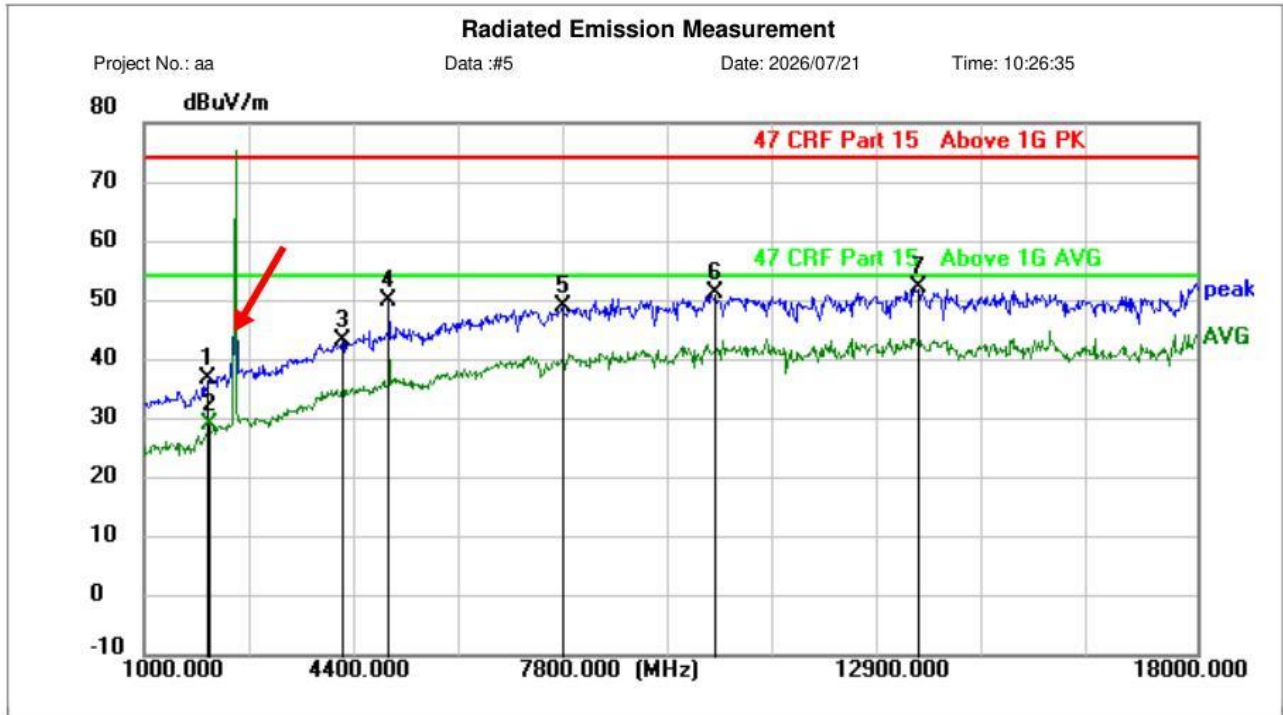
Humidity: 54 %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2150.9000	59.84	-23.18	36.66	74.00	-37.34	peak	150	0	P	
2	4088.9000	61.56	-19.03	42.53	74.00	-31.47	peak	150	0	P	
3	5991.2000	61.94	-15.95	45.99	74.00	-28.01	peak	150	0	P	
4	8933.9000	59.38	-9.22	50.16	74.00	-23.84	peak	150	0	P	
5	11023.2000	57.10	-6.33	50.77	74.00	-23.23	peak	150	0	P	
6 *	13416.8000	60.94	-9.10	51.84	74.00	-22.16	peak	150	0	P	

Node: The high-level peak indicated by the arrow in the plot is the fundamental operating frequency, which is not a spurious emission. Spurious emission limits are not applicable to the fundamental frequency. All other marked peaks are spurious components.



TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H



Site LAB

Limit: 47 CRF Part 15 Above 1G PK

EUT:

M/N: 2472

Mode:

Note:

Polarization: **Horizontal**

Power:

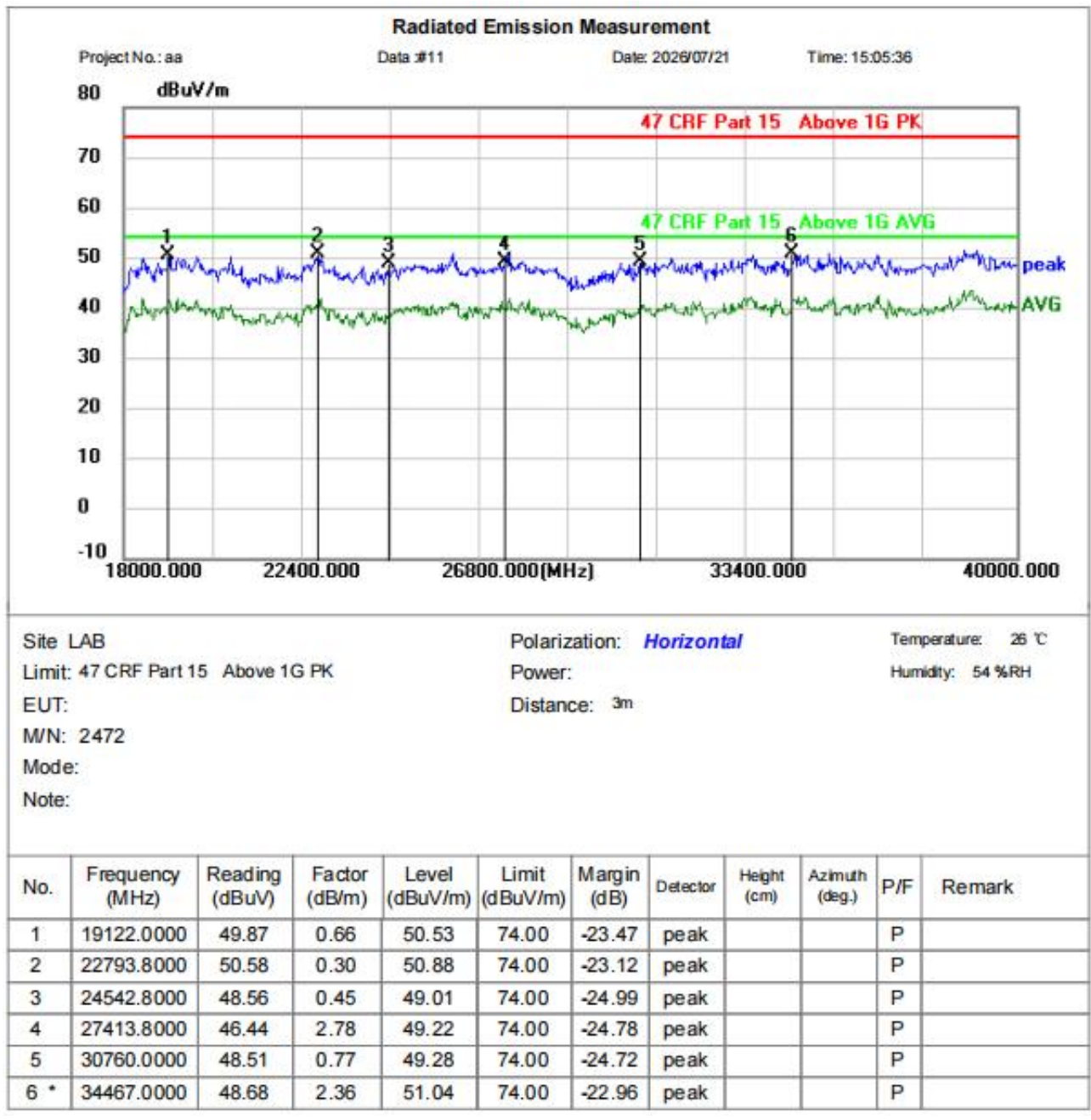
Distance: 3m

Temperature: 26 °C

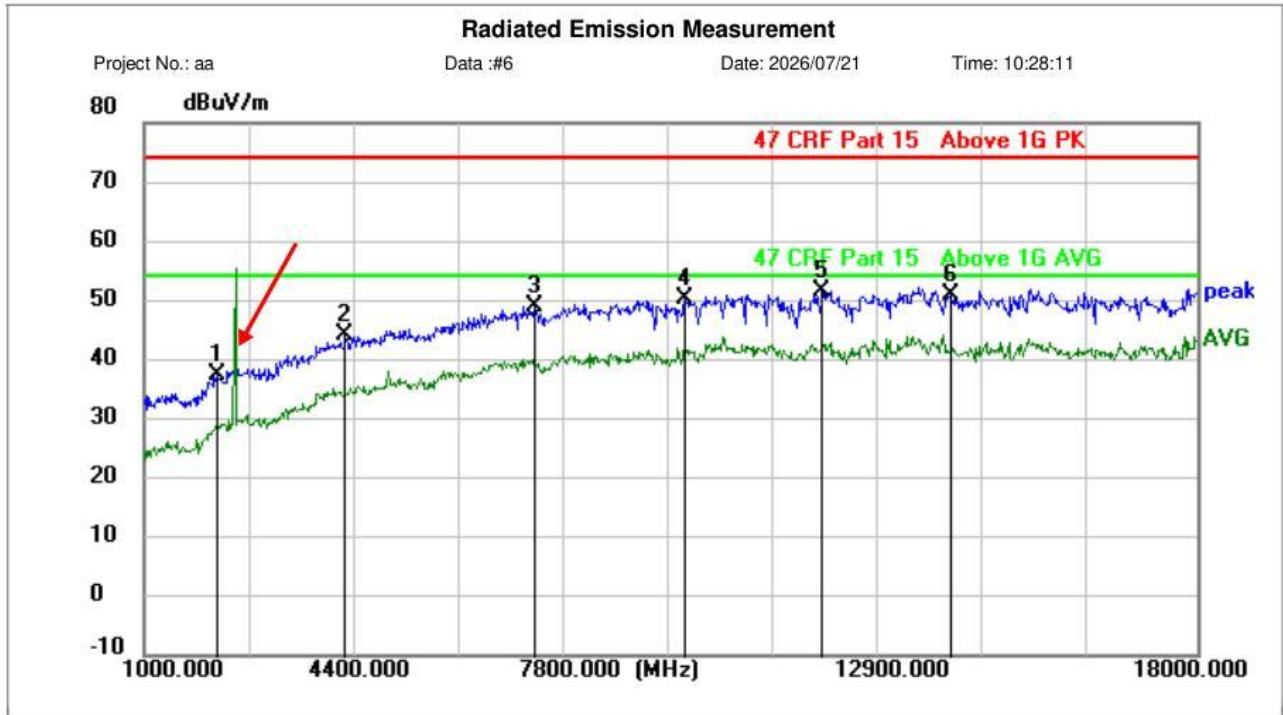
Humidity: 54 %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2033.6000	60.51	-23.89	36.62	74.00	-37.38	peak	150	0	P	
2	2071.0000	52.42	-23.46	28.96	54.00	-25.04	AVG	150	0	P	
3	4209.6000	62.03	-18.72	43.31	74.00	-30.69	peak	150	0	P	
4	4944.0000	67.06	-17.09	49.97	74.00	-24.03	peak	150	0	P	
5	7757.5000	61.55	-12.55	49.00	74.00	-25.00	peak	150	0	P	
6	10222.5000	59.76	-8.42	51.34	74.00	-22.66	peak	150	0	P	

Node: The high-level peak indicated by the arrow in the plot is the fundamental operating frequency, which is not a spurious emission. Spurious emission limits are not applicable to the fundamental frequency. All other marked peaks are spurious components.



TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H



Site LAB

Limit: 47 CRF Part 15 Above 1G PK

EUT:

M/N: 2472

Mode:

Note:

Polarization: **Vertical**

Power:

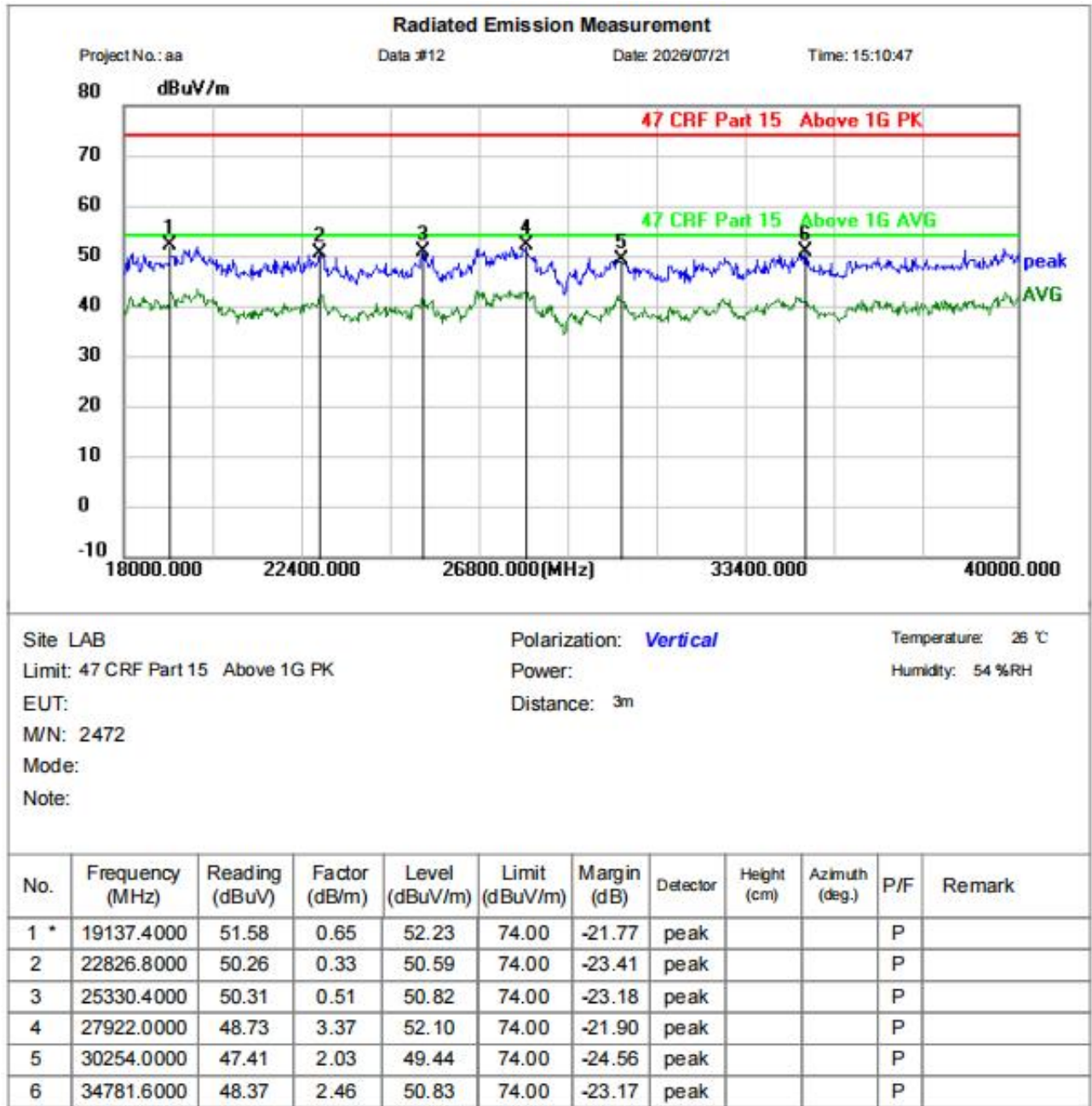
Distance: 3m

Temperature: 26 °C

Humidity: 54 %RH

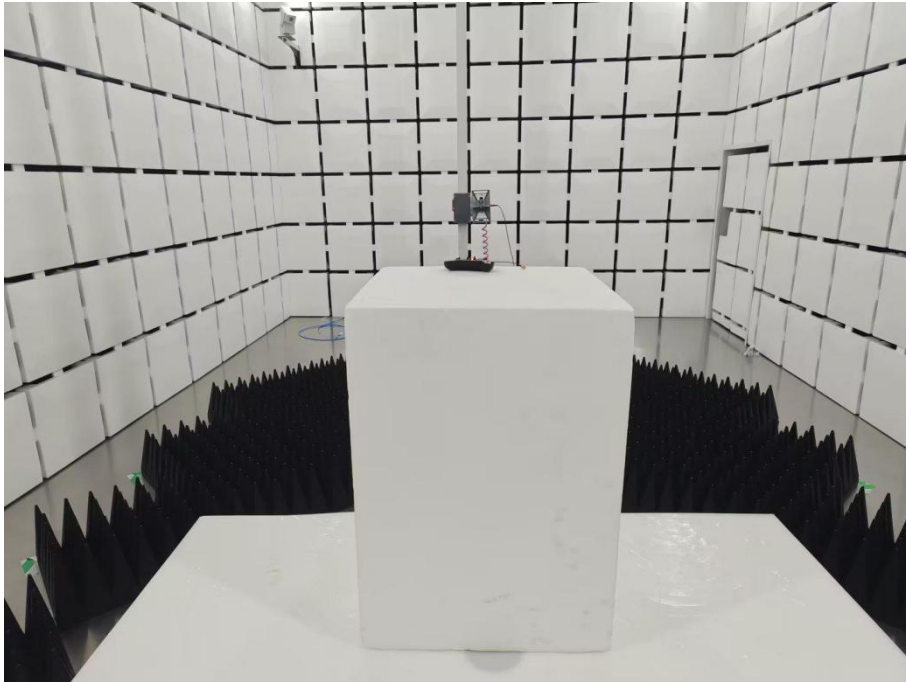
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2201.9000	60.42	-23.05	37.37	74.00	-36.63	peak			P	
2	4262.3000	62.92	-18.80	44.12	74.00	-29.88	peak			P	
3	7322.3000	61.80	-12.94	48.86	74.00	-25.14	peak			P	
4	9722.7000	59.35	-8.94	50.41	74.00	-23.59	peak			P	
5 *	11958.2000	59.03	-7.43	51.60	74.00	-22.40	peak			P	
6	14006.7000	60.53	-9.69	50.84	74.00	-23.16	peak			P	

Node: The high-level peak indicated by the arrow in the plot is the fundamental operating frequency, which is not a spurious emission. Spurious emission limits are not applicable to the fundamental frequency. All other marked peaks are spurious components.

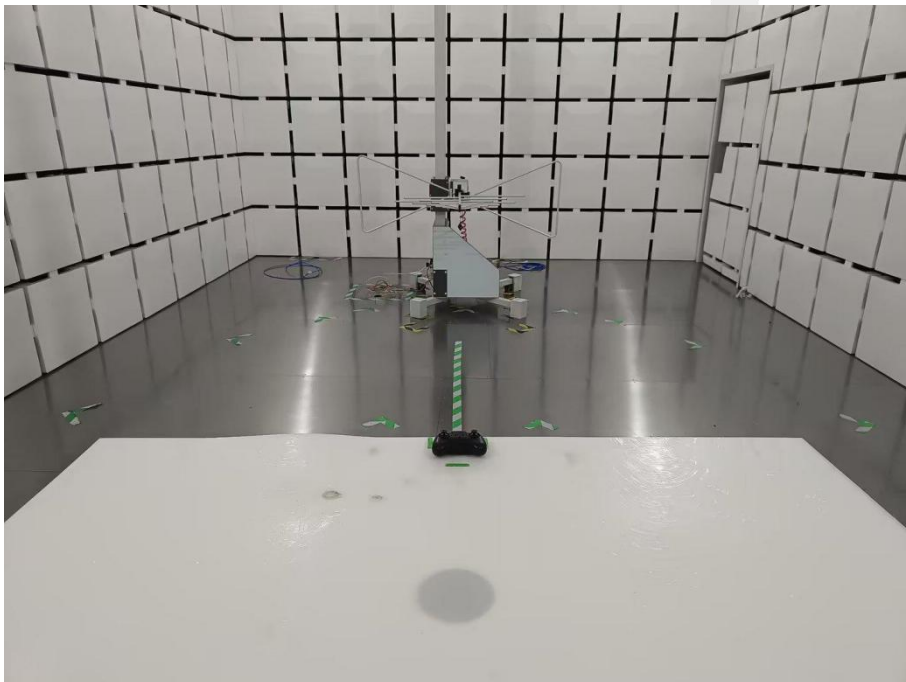


7. TEST SETUP PHOTOS

Emissions in frequency bands (above 1GHz)



Emissions in frequency bands (below 1GHz)



Conducted RF test



8. Appendix Report

1. Duty Cycle

1.1 Test Result

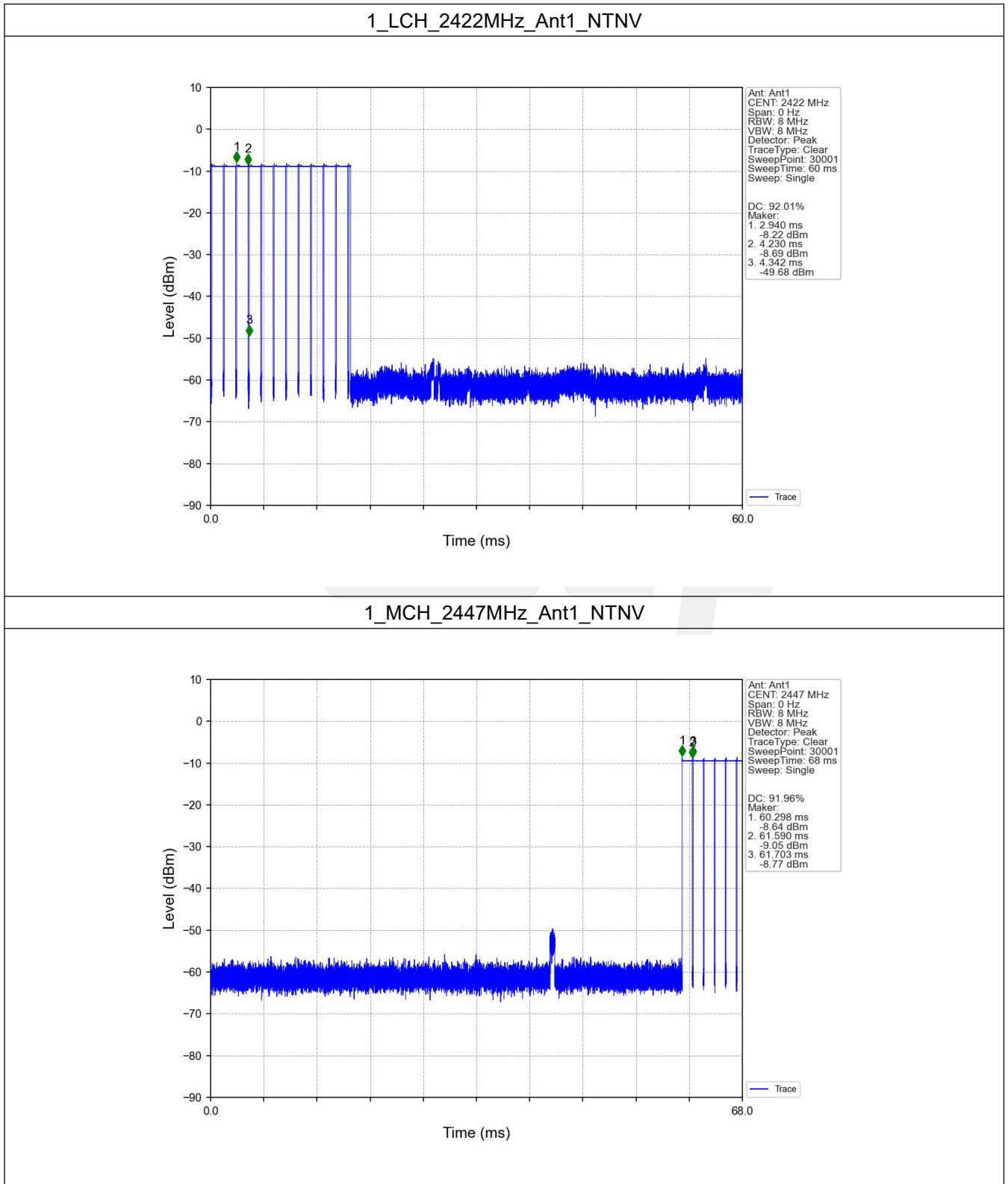
1.1.1 Ant1

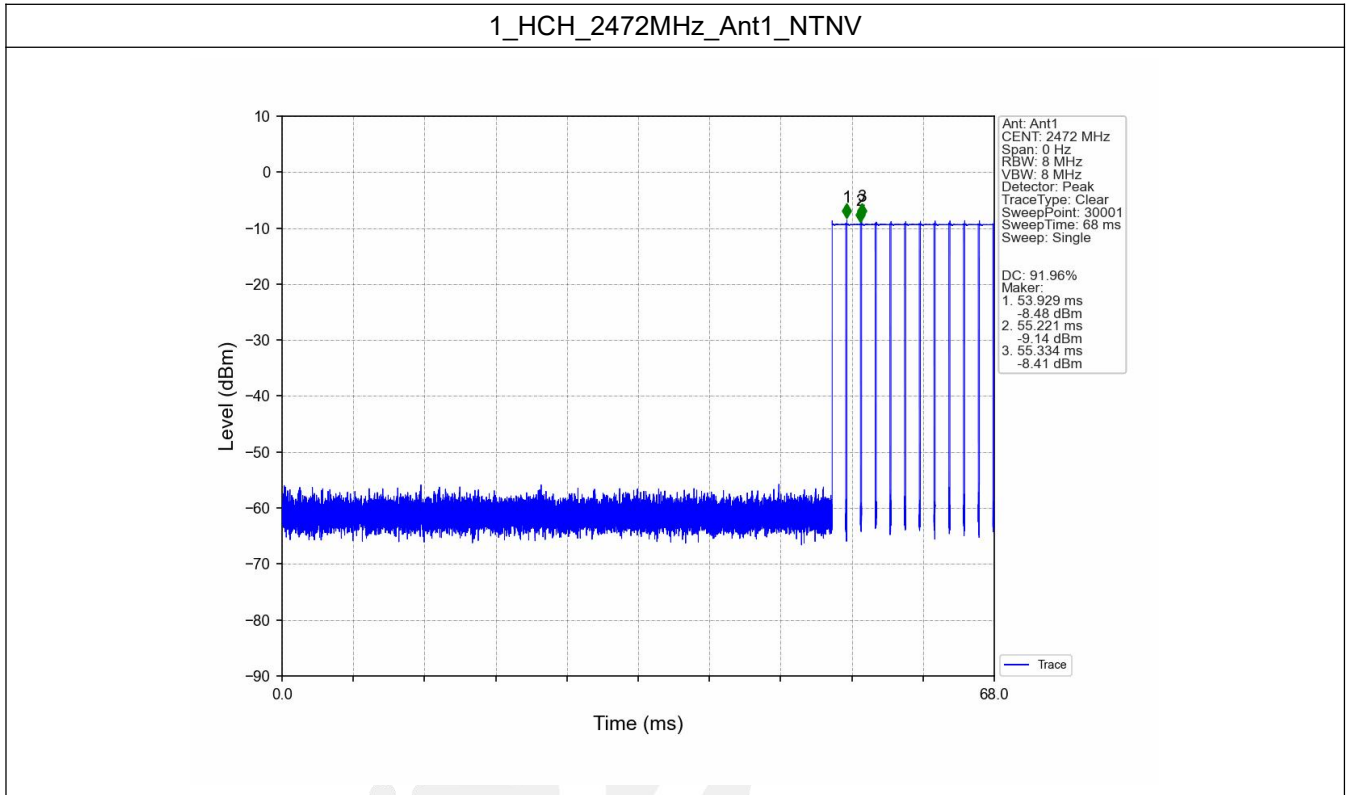
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
1	SISO	2422	1.290	1.402	92.01	0.36	0.10
		2447	1.292	1.405	91.96	0.36	0.15
		2472	1.292	1.405	91.96	0.36	0.15



1.2 Test Graph

1.2.1 Ant1





2. Bandwidth

2.1 Test Result

2.1.1 OBW

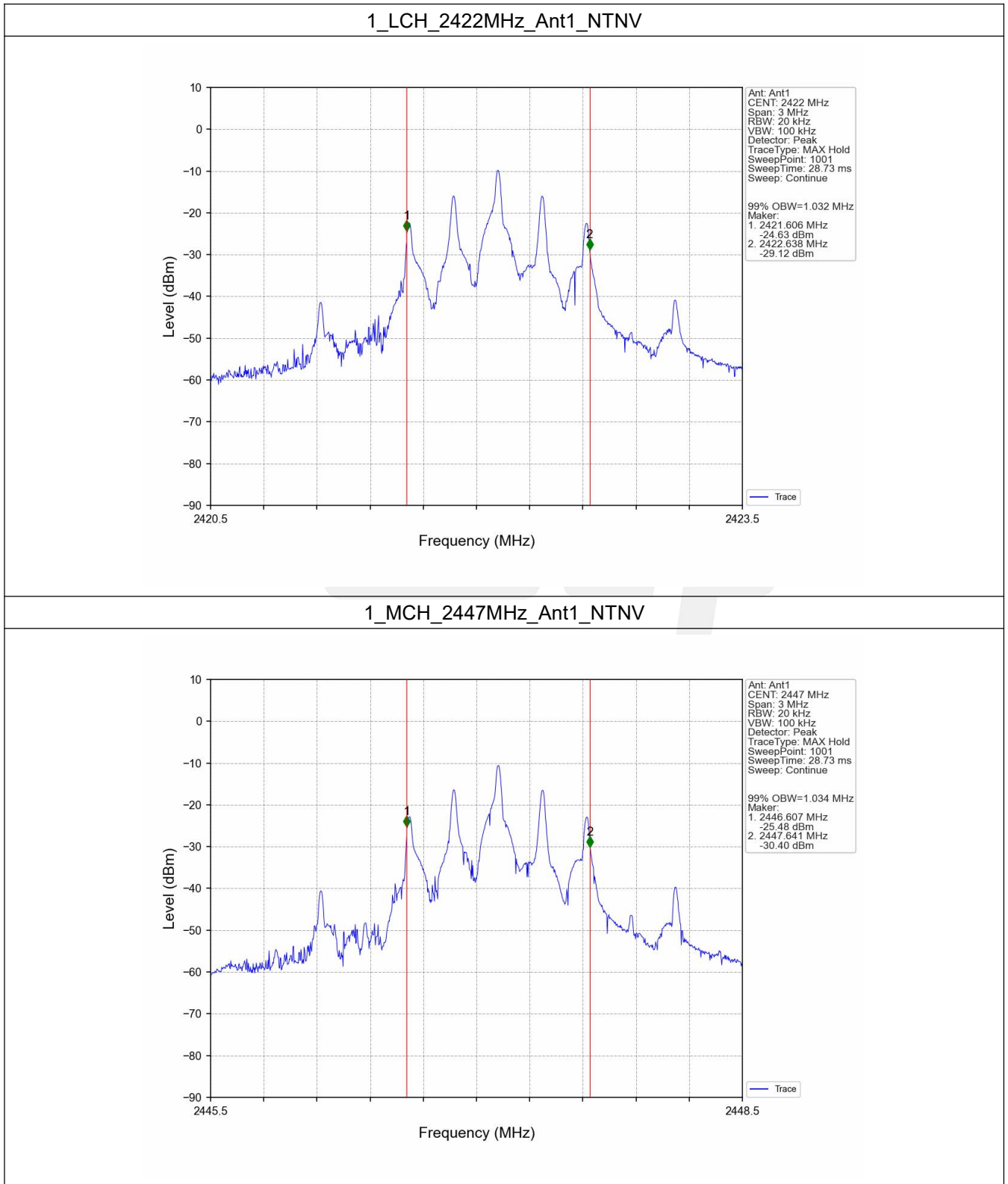
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
1	SISO	2422	1	1.032	/	Pass
		2447	1	1.034	/	Pass
		2472	1	1.034	/	Pass

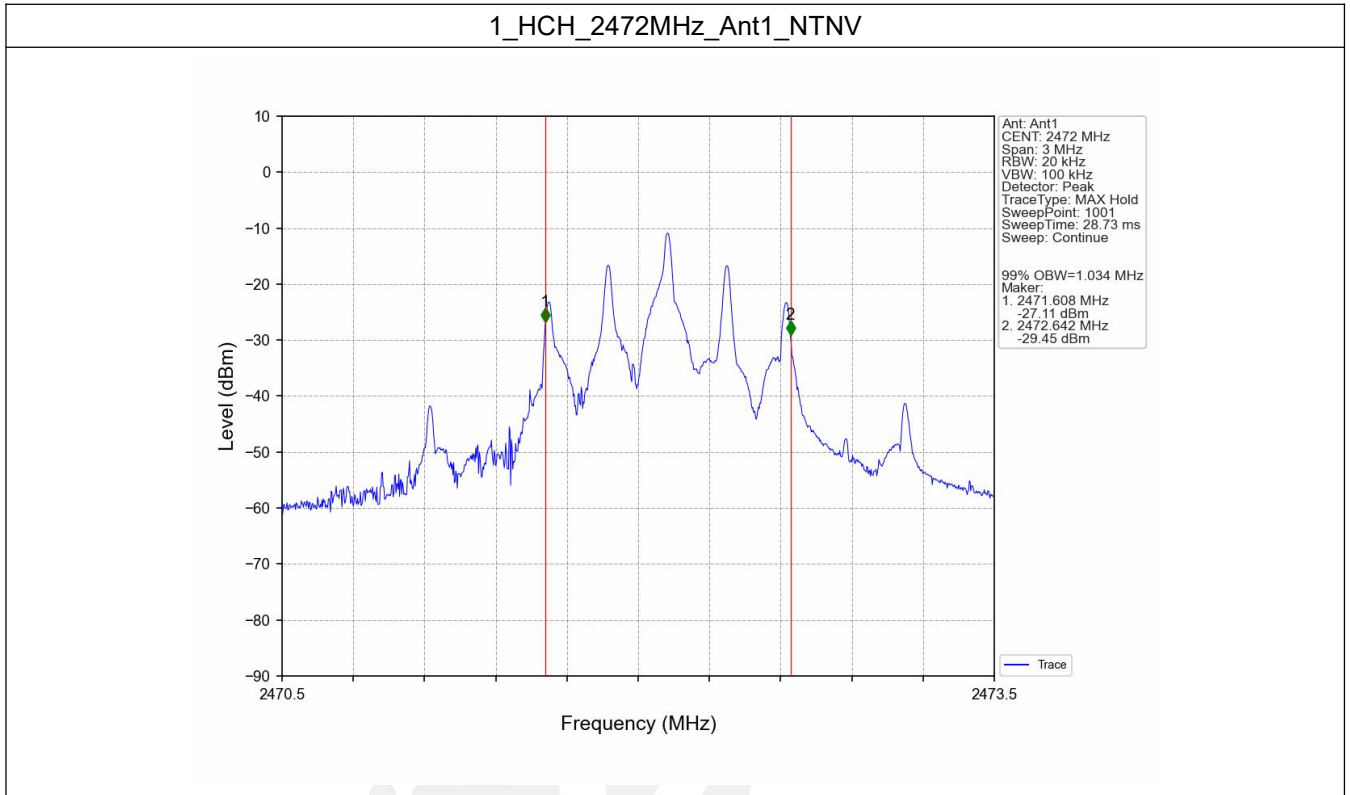
2.1.2 6dB BW

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
1	SISO	2422	1	0.516	≥ 0.5	Pass
		2447	1	0.529	≥ 0.5	Pass
		2472	1	0.539	≥ 0.5	Pass

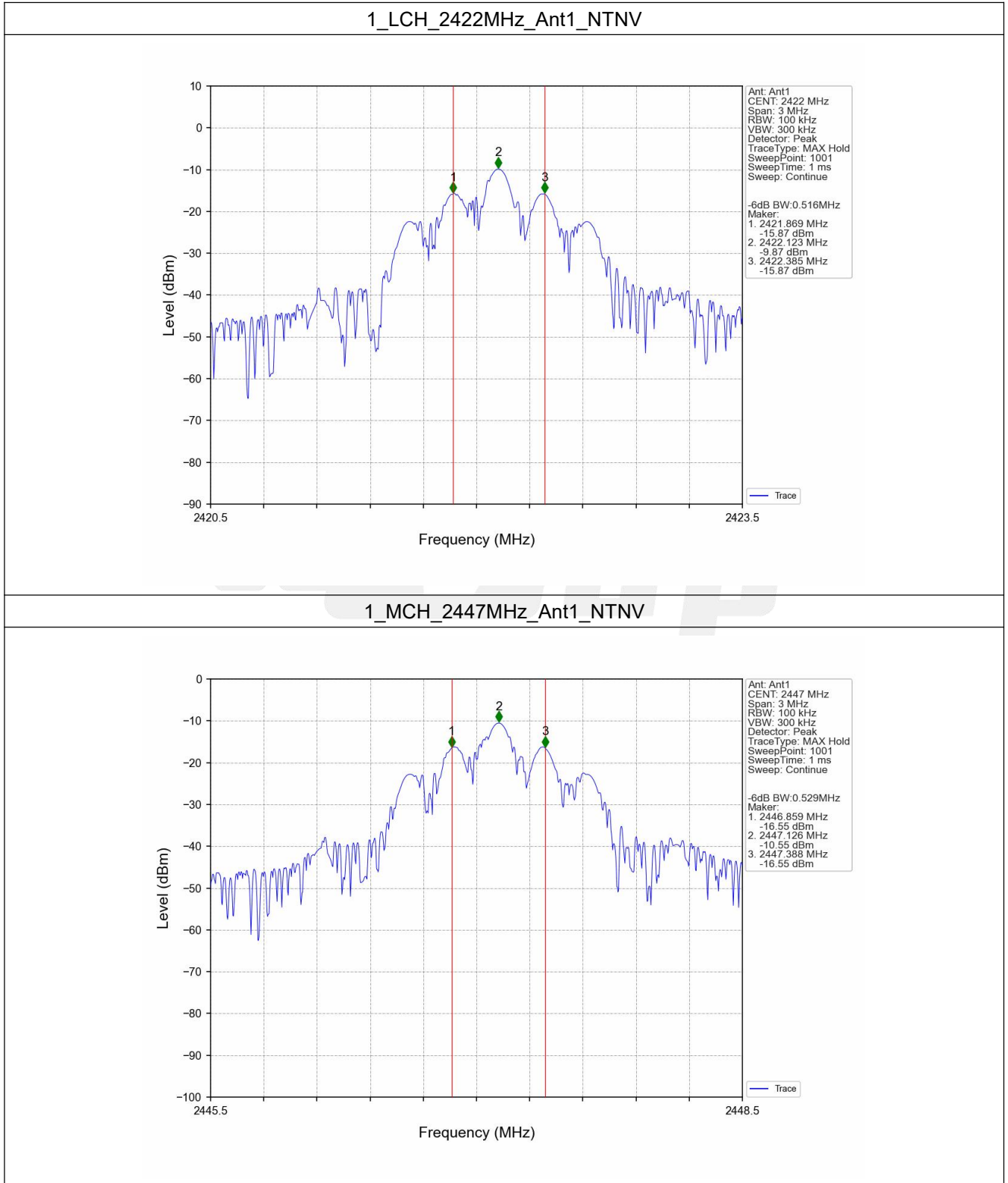
2.2 Test Graph

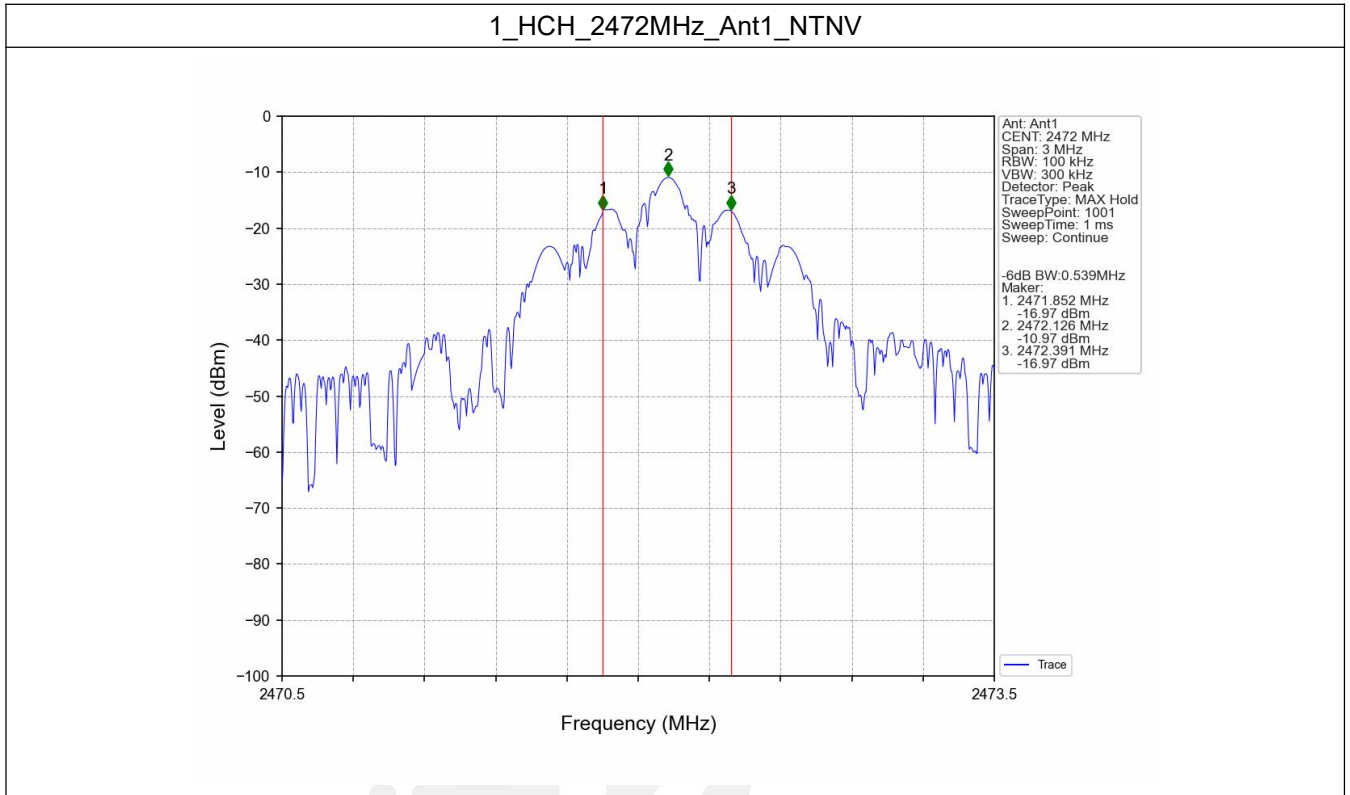
2.2.1 OBW





2.2.2 6dB BW





3. Maximum Conducted Output Power

3.1 Test Result

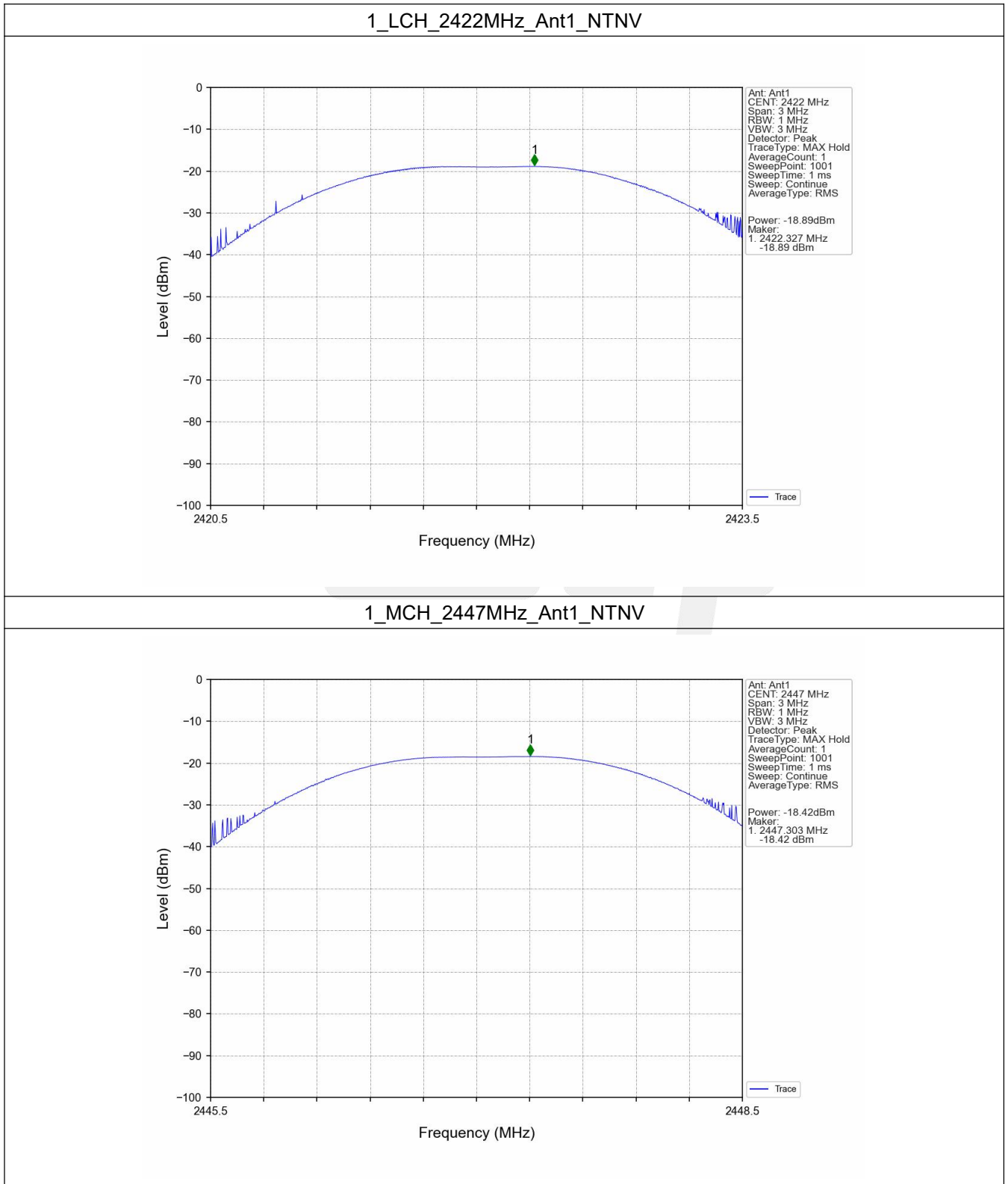
3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
1	SISO	2422	-18.89	<=30	Pass
		2447	-18.42	<=30	Pass
		2472	-16.95	<=30	Pass
Note1: Antenna Gain: Ant1: -2.51dBi;					

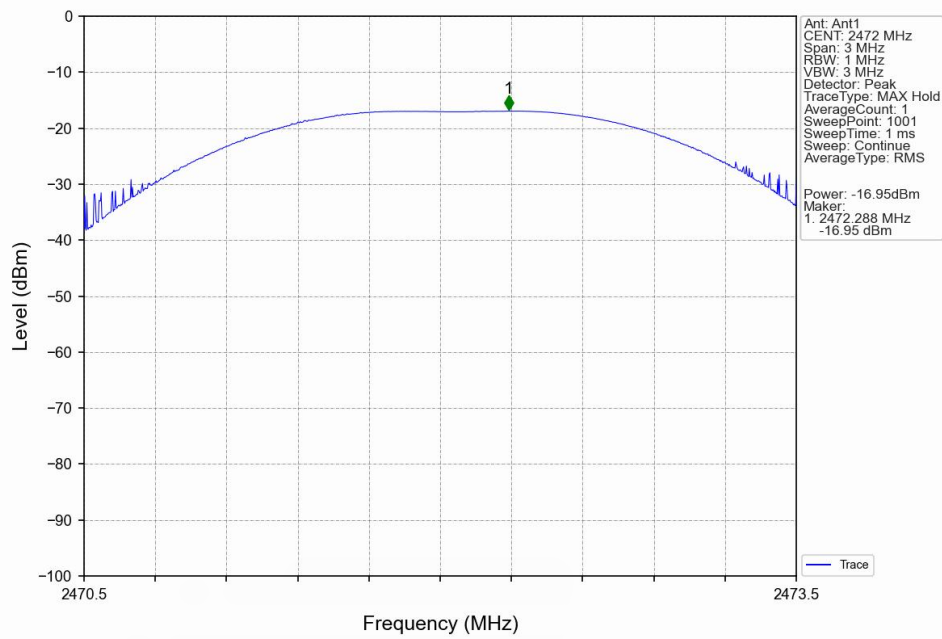


3.2 Test Graph

3.2.1 Power



1_HCH_2472MHz_Ant1_NTNV



4. Maximum Power Spectral Density

4.1 Test Result

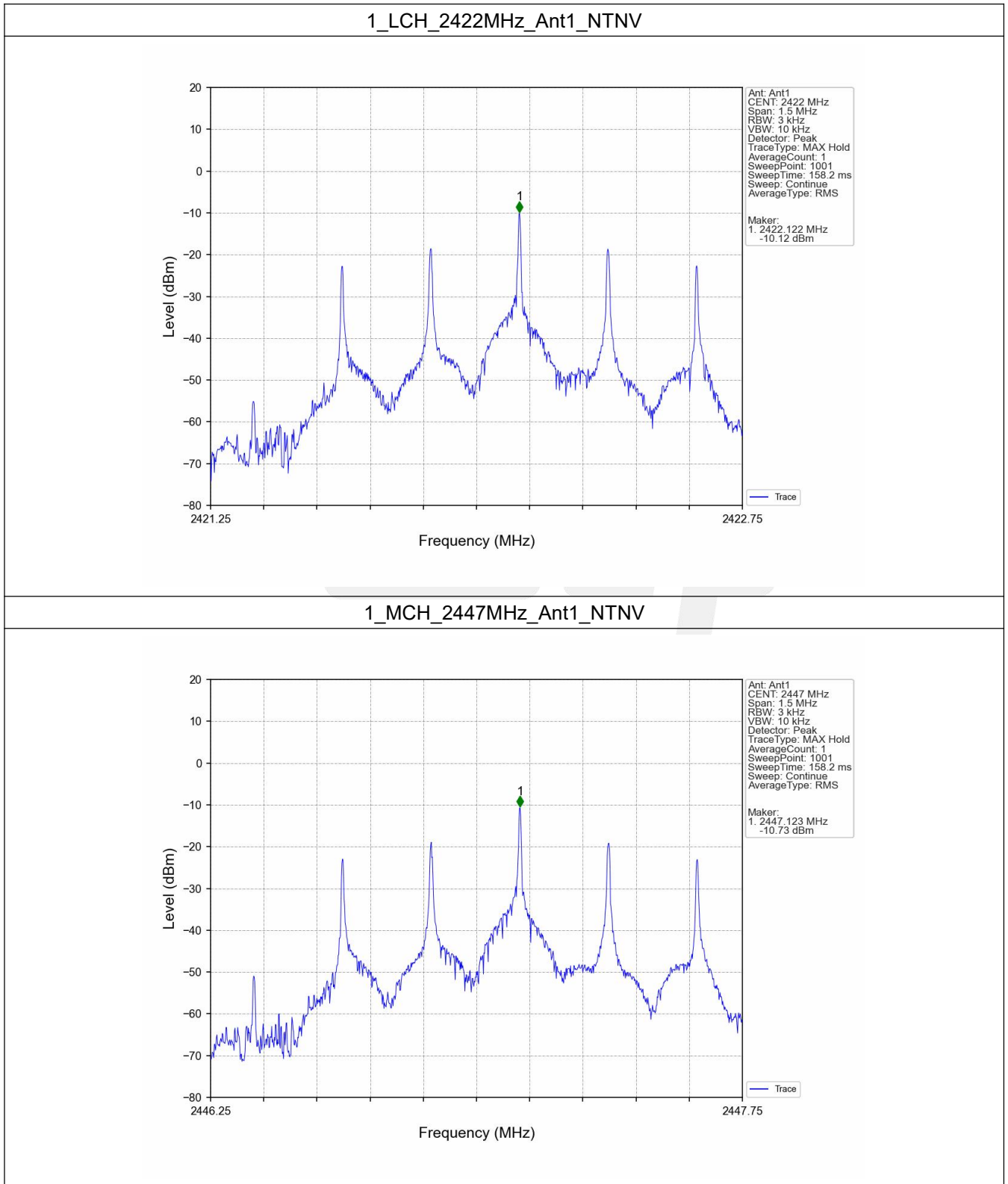
4.1.1 PSD

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit(dBm/3kHz)	
1	SISO	2422	-10.12dBm/3kHz	<=8	Pass
		2447	-10.73dBm/3kHz	<=8	Pass
		2472	-10.84dBm/3kHz	<=8	Pass
Note1: Antenna Gain: Ant1: -2.51dBi;					

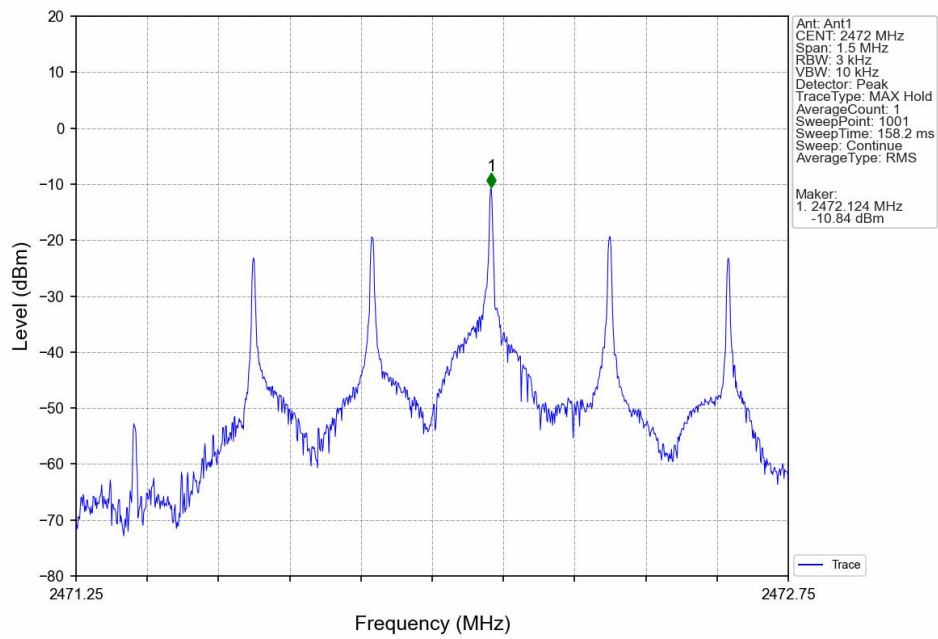


4.2 Test Graph

4.2.1 PSD



1_HCH_2472MHz_Ant1_NTNV



5. Unwanted Emissions In Non-restricted Frequency Bands

5.1 Test Result

5.1.1 Ref

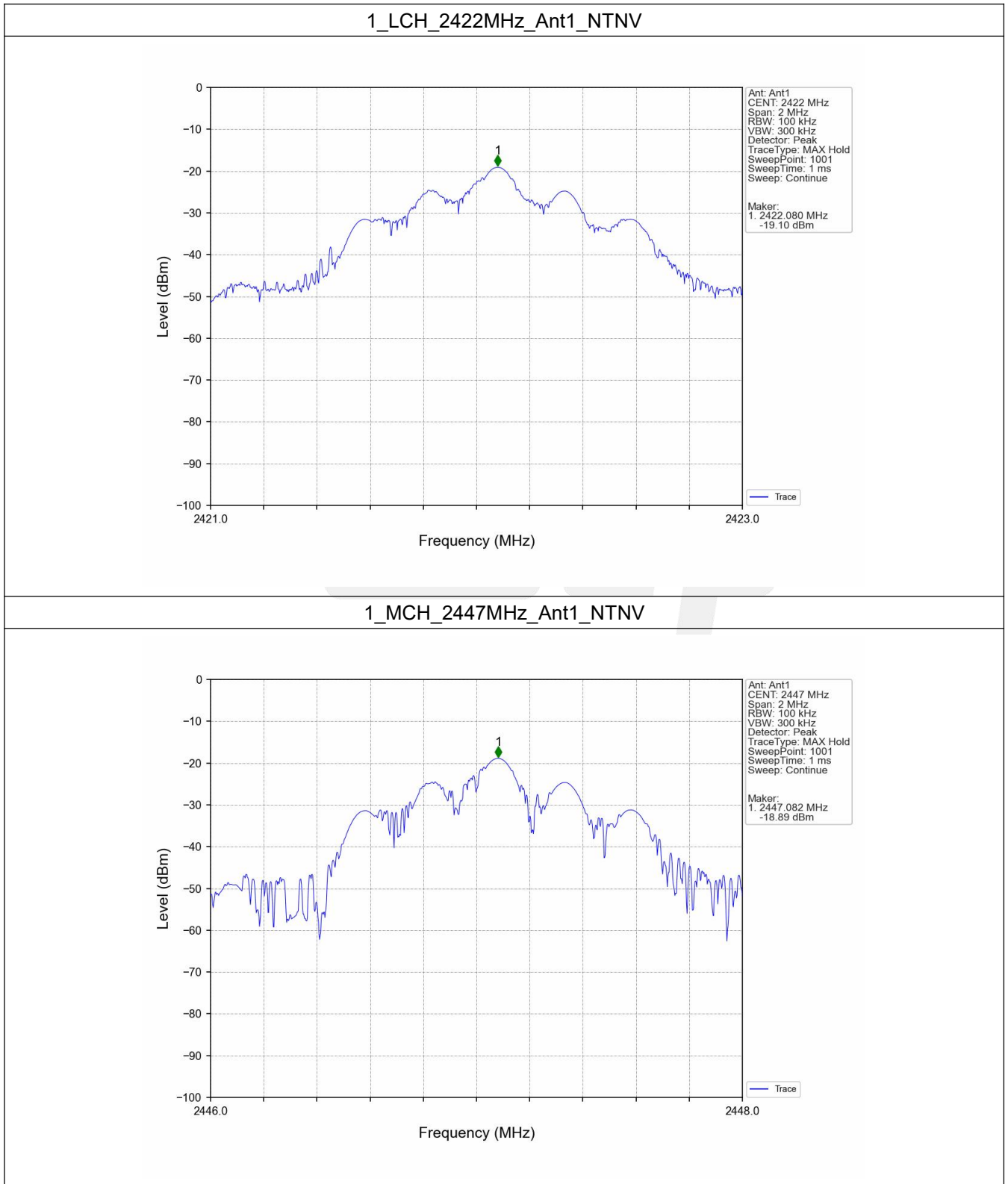
Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)
1	SISO	2422	1	-19.10
		2447	1	-18.89
		2472	1	-17.43

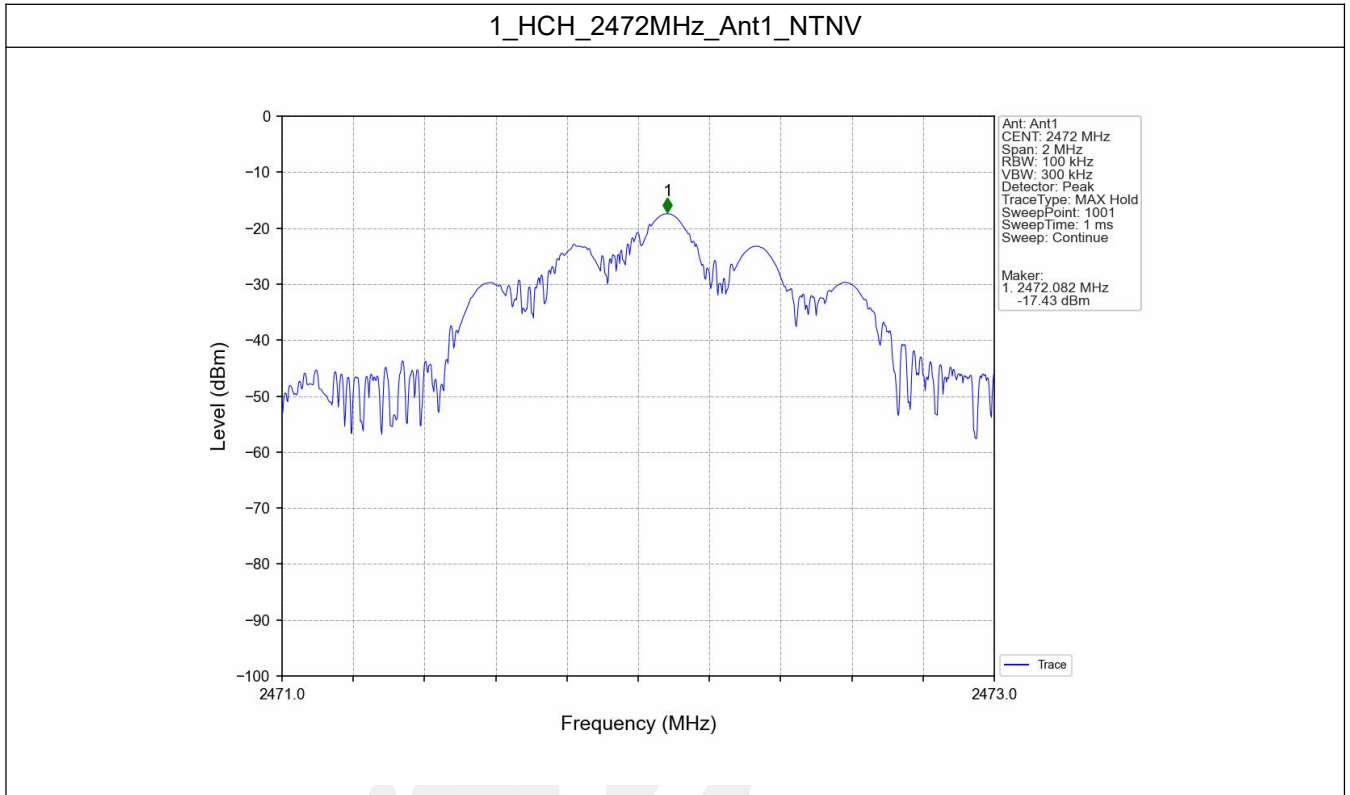
5.1.2 CSE

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
1	SISO	2422	1	-19.10	-39.10	Pass
		2447	1	-18.89	-38.89	Pass
		2472	1	-17.43	-37.43	Pass

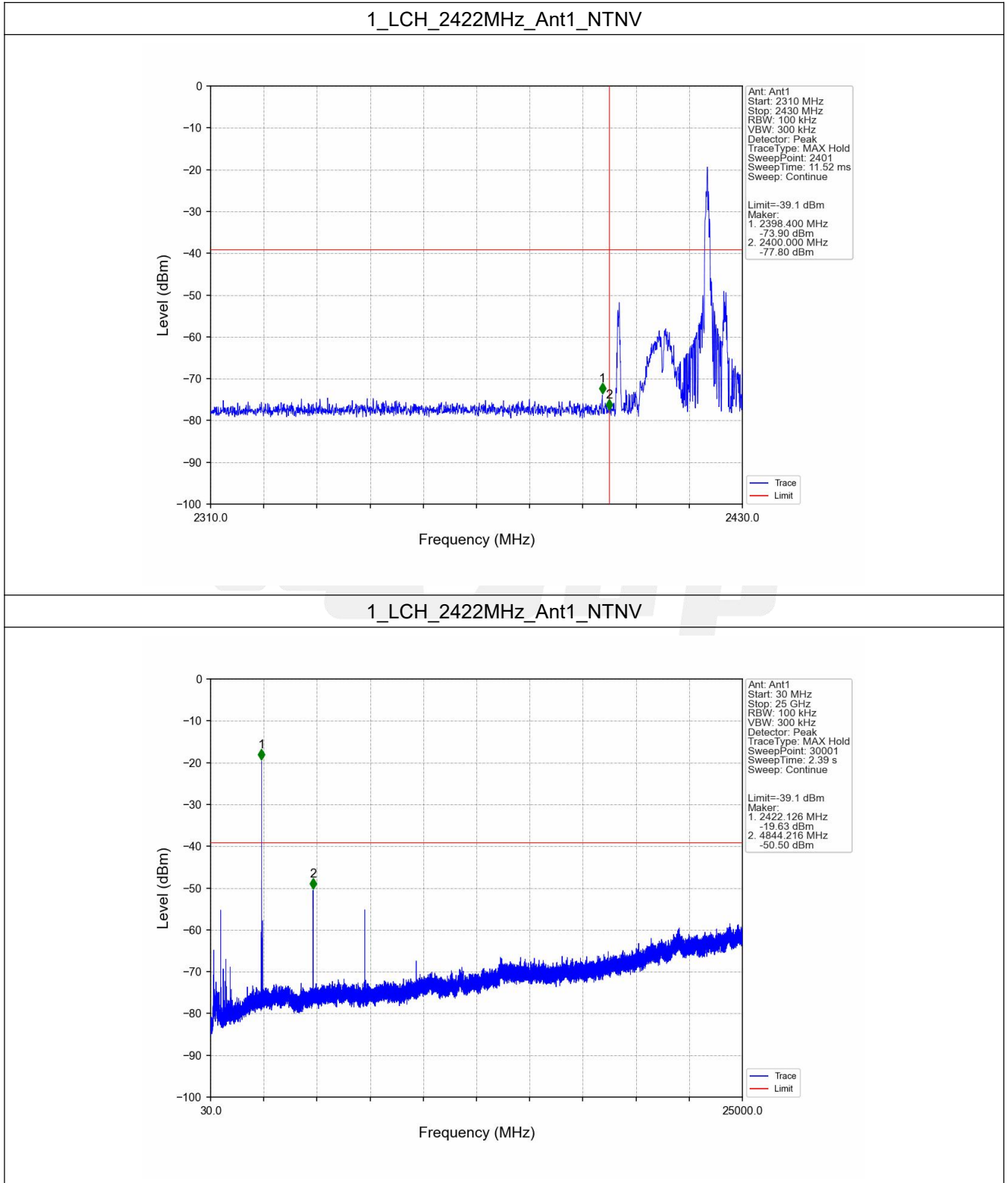
5.2 Test Graph

5.2.1 Ref

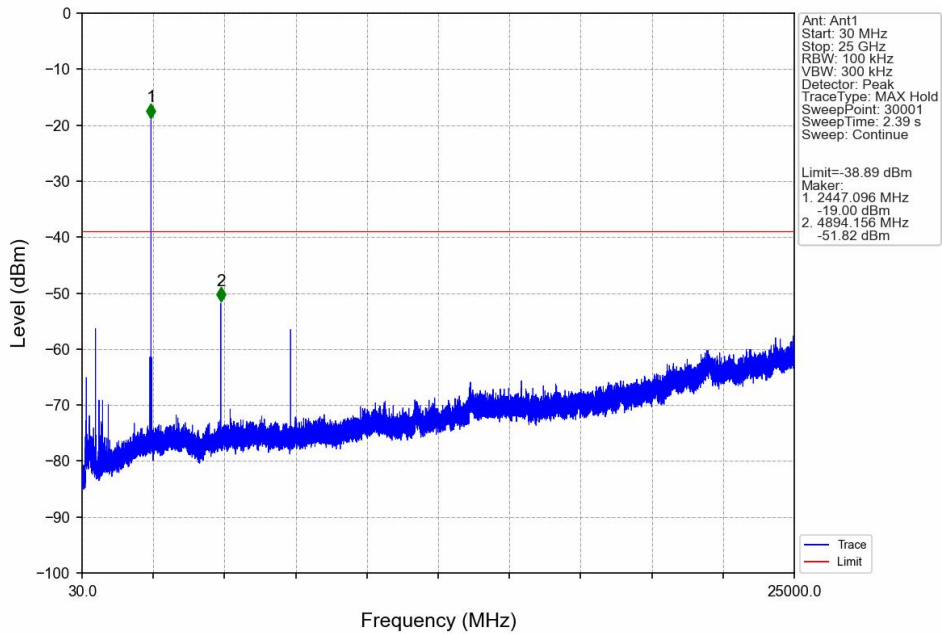




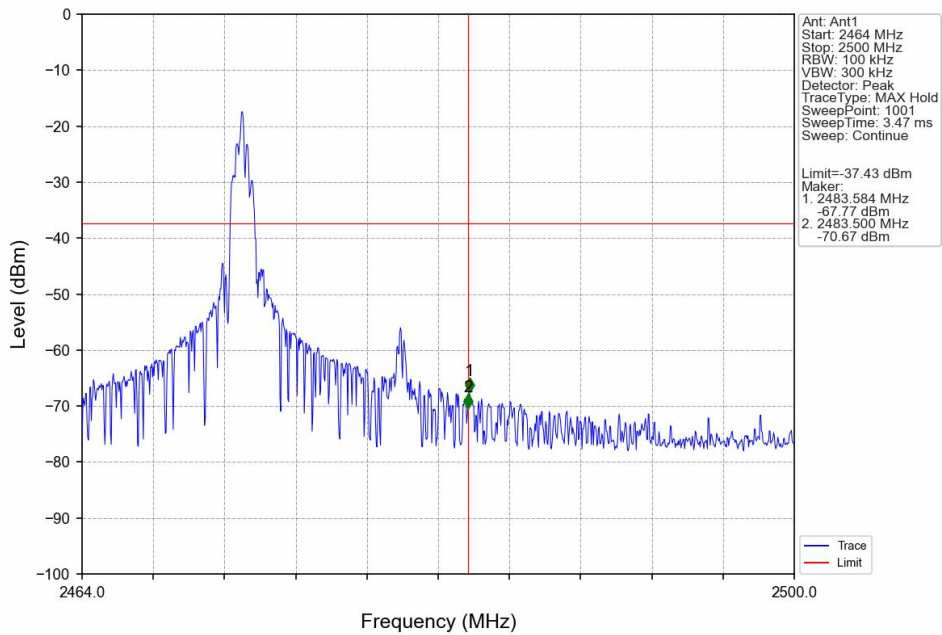
5.2.2 CSE



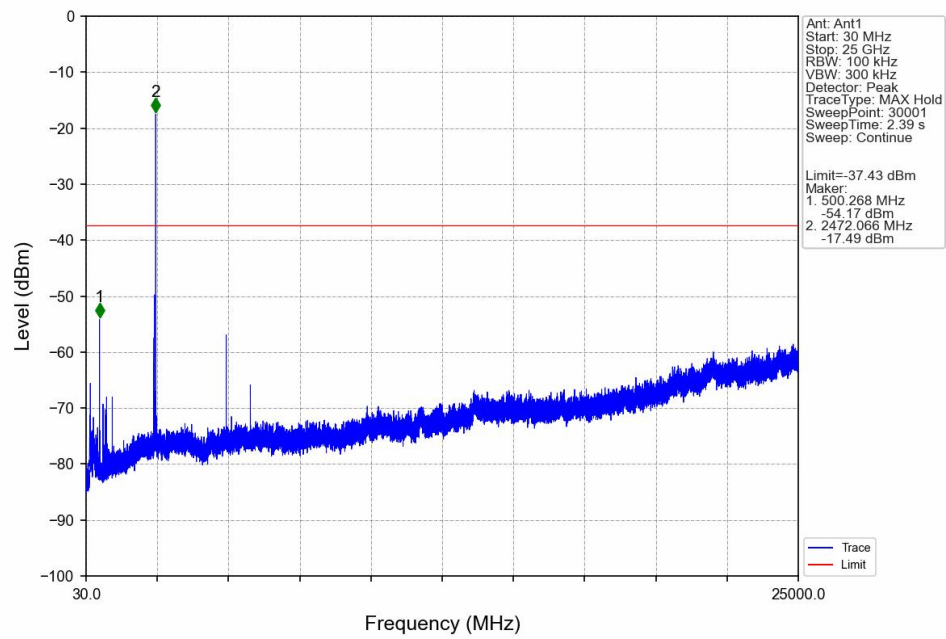
1_MCH_2447MHz_Ant1_NTNV



1_HCH_2472MHz_Ant1_NTNV



1_HCH_2472MHz_Ant1_NTNV



6. Form731

6.1 Test Result

6.1.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
2422	2472	0.00002	-16.95

****End of the report****

