

FCC/ISED - TEST REPORT

Report Number	: 68.950.23.0887.01	Date of Issue:	2023-11-16
Model/HVIN	: A1790		
Product Type	: Anker SOLIX F3800 Portable Power Station		
Applicant	: Anker Innovations Limited		
Address	: Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, HONG KONG		
Manufacturer	: Anker Innovations Limited		
Address	: Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, HONG KONG		
Test Result	: ☒ Positive ☐ Negative		
Total pages including Appendices	: 70		

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu,
Nantou, Nanshan District,
Shenzhen, Guangdong, China

Telephone: 86 755 8828 6998

Fax: 86 755 8828 5299

FCC Registration No.: 514049

FCC Designation Number: CN5009

IC Registration No.: 10320A

ISED CAB identifier CN0077

3 Description of the Equipment Under Test

Product:	Anker SOLIX F3800 Portable Power Station
Model no.:	A1790
Hardware Version Identification No. (HVIN)	A1790
Product Marketing Name (PMN)	A1790
Brand name:	Anker
FCC ID:	2AOKB-A1790
IC:	23451-A1790
Options and accessories:	AC Charging Cable, MC4 Solar Charging Cable
Rating:	AC Input: 120V~ 15A (3hours Max), 12A 51.2Vdc 75Ah/3840Wh
Rating information:	AC Input: 120V~ 15A (3hours Max), 12A (continue), 60Hz AC Input Power (Charging): 1800W Max AC Input Power (Bypass Mode): 1440W Max; Solar Panel Input: 11-32V=10A; 32V-60V=25A (1200W Max Each) USB-C Output: 5V=3A / 9V=3A / 15V=3A / 20V=3A / 20V=5A (100W Max Per Port) USB-A Output: 5V=2.4A (12W Max Per Port); AC Output Power (Total): 6000W Max; AC Output 1: 120V~ 20A Max, 60Hz, 2400W Max AC Output 2: 120V~ 20A Max, 60Hz, 2400W Max Car Charger Output: 12V=10A AC Output (NEMA 14-50/ L14-30): 120V/240V~ 25A Max, 60Hz, 6000W Max Home Panel Power Port: 3800W Max (AC Input), 6000W Max (AC Output), 120V/240V
RF Transmission Frequency:	2412MHz-2462MHz for 802.11b/g/n20/n40 (Wi-Fi)
No. of Operated Channel:	11 for 802.11b/g/n20/n40 (Wi-Fi)
Modulation:	DSSS, OFDM
Antenna Type:	FPC
Antenna Gain:	3.1dBi
Description of the EUT:	The Equipment Under Test (EUT) is a Portable Power Station which support Low Energy Bluetooth(1M&2M) and Wi-Fi operated at 2.4GHz. Only 2.4GWiFi included in this report.

NOTE 1: The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2021 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-Gen Issue 5 April 2018 + Amendment 1 March 2019 + Amendment 2 February 2021	General Requirements for Compliance of Radio Apparatus
RSS-247 Issue 3 August 2023	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSS) and License-Exempt Local Area Network (LE-LAN) Devices

All the test methods were according to KDB 558074 D01 15.247 Meas Guidance v05r02 Measurement Guidance and ANSI C63.10-2020.

5 Summary of Test Results

Technical Requirements						
FCC Part 15 Subpart C/ RSS-247 Issue 3/RSS-Gen Issue 5						
Test Condition		Test Site	Test Result			Test Environment
			Pass	Fail	N/A	
§15.207 & RSS-GEN 8.8	Conducted emission AC power port	Site 1	☒	☐	☐	T: 23.1°C H: 51.2%
§15.247 (b) (3) & RSS-247 5.4(d)	Conducted peak output power	Site 1	☒	☐	☐	T: 23.9°C H: 52.7%
RSS-247 5.4(d)	Equivalent Isotropic Radiated Power	Site 1	☒	☐	☐	T: 23.9°C H: 52.7%
§15.247(a)(2) & RSS-247 5.2(a) & RSS-GEN 6.7	6dB bandwidth and 99% Occupied Bandwidth	Site 1	☒	☐	☐	T: 23.9°C H: 52.7%
§15.247(e) & RSS-247 5.2(b)	Power spectral density	Site 1	☒	☐	☐	T: 23.5°C H: 52.7%
§15.247(d) & RSS-247 5.5	Spurious RF conducted emissions	Site 1	☒	☐	☐	T: 23.4°C H: 52.7%
§15.247(d) & RSS-247 5.5	Band edge	Site 1	☒	☐	☐	T: 23.1°C H: 58.0%
§15.247(d) & §15.209 & §15.205 & RSS-247 5.5 & RSS-Gen 6.13	Spurious radiated emissions for transmitter	Site 1	☒	☐	☐	T: 23.6°C H: 51.2%
§15.203 & RSS-Gen 6.8	Antenna requirement	See note 2	☒	☐	☐	--

Note 1: N/A=Not Applicable.

Note 2: The EUT uses a FPC Antenna, which gain are 3.1dBi. In accordance to §15.203 & RSS-Gen 6.8, it is considered sufficiently to comply with the provisions of this section.

Note 3: T :Temperature, H: Humidity

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2AOKB-A1790, IC: 23451-A1790, complies with Section 15.207, 15.205, 15.209, 15.247 of the FCC Part 15, Subpart C rules and RSS-247, RSS-GEN.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

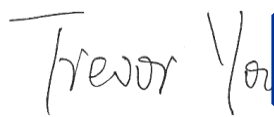
Sample Received Date: 2023-10-11

Testing Start Date: 2023-10-11

Testing End Date: 2023-11-15

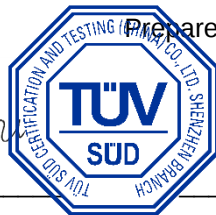
TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch

Reviewed by:



Trevor You
EMC Project Manager

Prepared by:



Nick Huang
Project Engineer

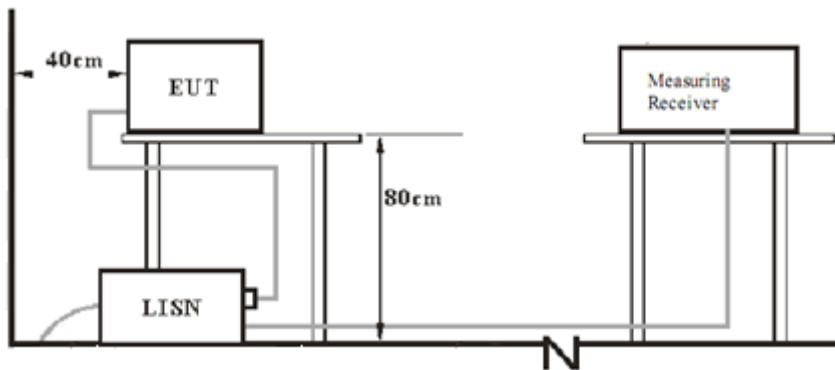
Tested by:



Carry Cai
Test Engineer

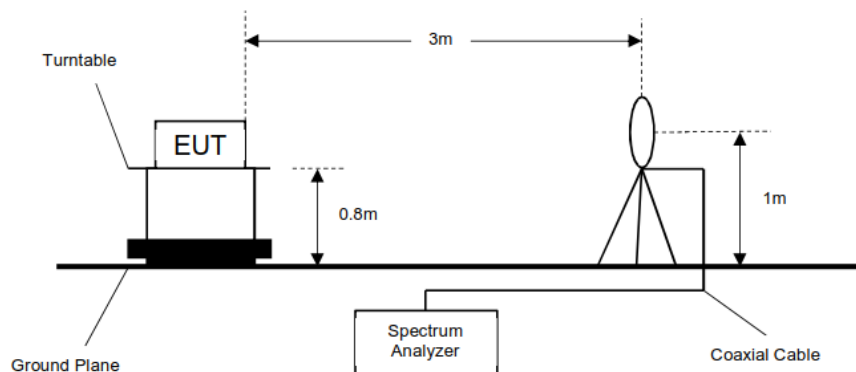
7 Test Setups

7.1 AC Power Line Conducted Emission test setups

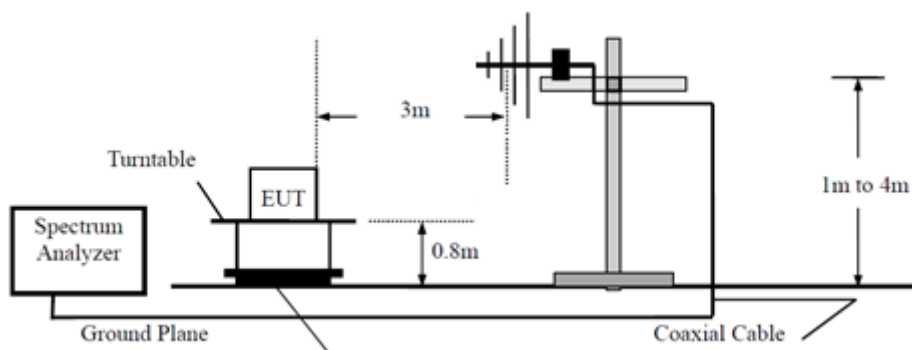


7.2 Radiated test setups

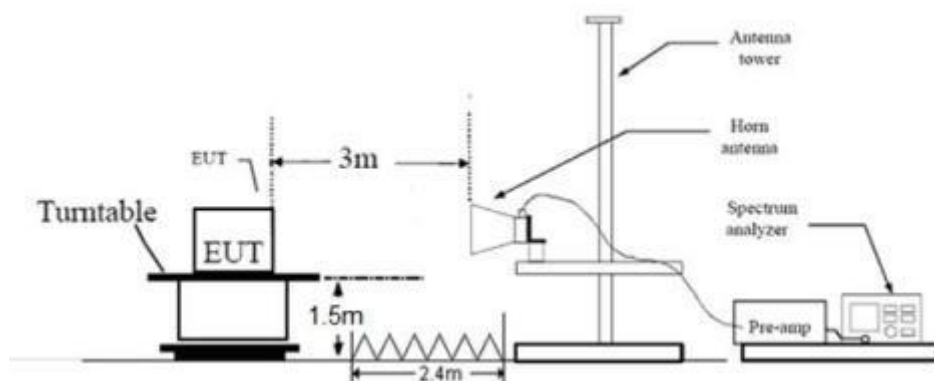
9KHz - 30MHz



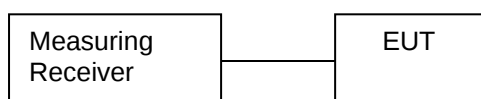
30MHz - 1GHz



Above 1GHz



7.3 Conducted RF test setups



8 Systems Test Configuration

Auxiliary Equipment Used during Test:

Description	Manufacturer	Model NO.	S/N
Notebook	LENOVO	X220	---
Serial port board	---	---	---

Cables Used During Test:

Cable	Length	Shielded/unshielded	With / without ferrite
---	---	---	---

Test software information:

Test Software Version	EspRFTTestTool_v2.8_Manual		
Mode	Setting TX Power	Packet Type	Data Rate
802.11b	20	DSSS	1 Mbps
802.11g	20	OFDM	6 Mbps
802.11n20	20	OFDM	MCS0(6.5 Mbps)
802.11n40	20	OFDM	MCS0(13.5 Mbps)

9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

Limit

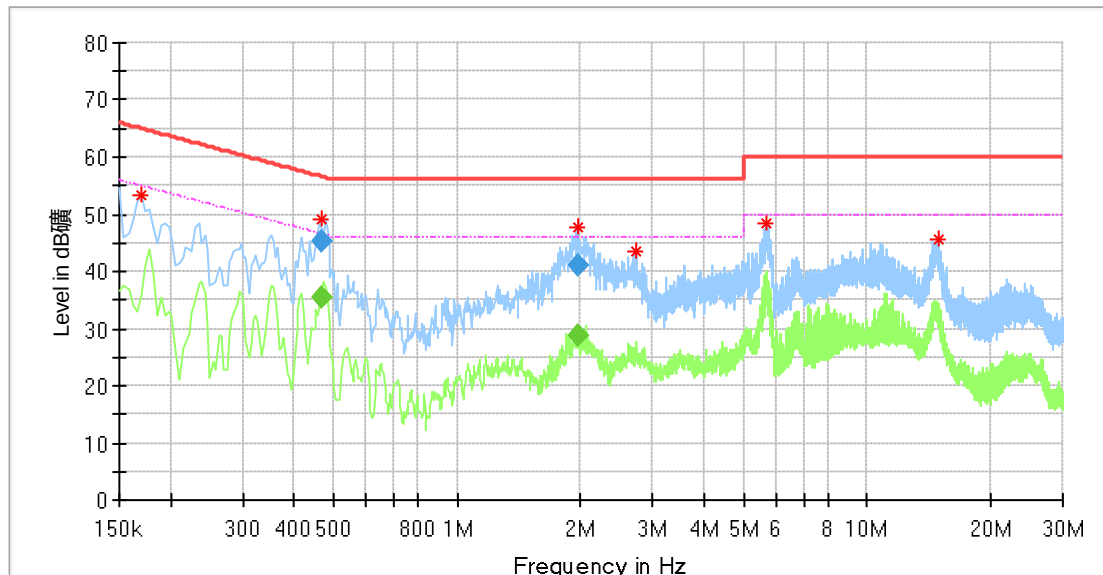
According to §15.207 & RSS-GEN 8.8, Conducted emissions limit as below:

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

Conducted Emission

Product Type : Anker SOLIX F3800 Portable Power Station
 M/N : A1790
 Operating Condition : Transmitting
 Test Specification : Line
 Comment : AC 120V/60Hz



Critical Freqs

Frequency (MHz)	MaxPeak * (dBμV)	Average * (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr.** (dB)
0.170000	53.36	---	64.96	11.60	L1	10.29
0.465000	49.13	---	56.37	7.25	L1	10.32
1.969000	47.60	---	56.00	8.40	L1	10.38
2.734000	43.50	---	56.00	12.50	L1	10.41
5.702000	48.43	---	60.00	11.57	L1	10.58
14.938000	45.70	---	60.00	14.30	L1	11.00

Final Result

Frequency (MHz)	QuasiPeak * (dBμV)	Average * (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr.** (dB)
0.465000	---	35.47	46.60	11.13	L1	10.32
0.465000	45.40	---	56.60	11.20	L1	10.32
1.969000	---	28.92	46.00	17.08	L1	10.38
1.969000	40.97	---	56.00	15.03	L1	10.38

Remark:

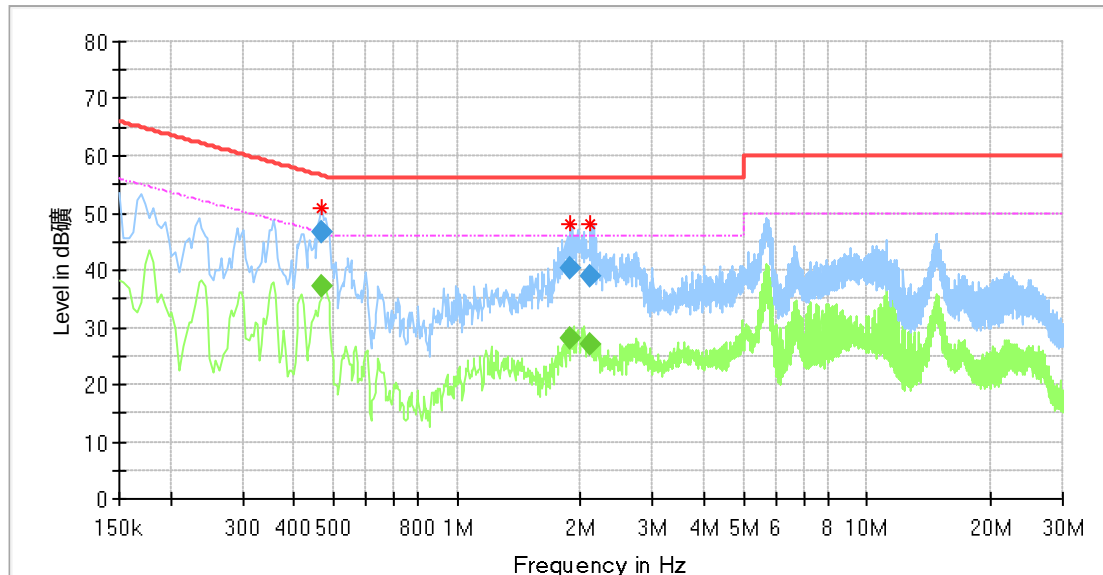
*Level=Reading Level + Correction Factor

**Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

Conducted Emission

Product Type : Anker SOLIX F3800 Portable Power Station
 M/N : A1790
 Operating Condition : Transmitting
 Test Specification : Neutral
 Comment : AC 120V/60Hz



Critical Freqs

Frequency (MHz)	MaxPeak * (dBμV)	Average * (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr.** (dB)
0.469000	50.79	---	56.58	5.79	N	10.32
1.889000	48.15	---	56.00	7.85	N	10.38
2.121000	47.98	---	56.00	8.02	N	10.40

Final Result

Frequency (MHz)	QuasiPeak * (dBμV)	Average * (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr.** (dB)
0.469000	---	37.15	46.53	9.38	N	10.32
0.469000	46.73	---	56.53	9.80	N	10.32
1.889000	---	27.99	46.00	18.01	N	10.38
1.889000	40.48	---	56.00	15.52	N	10.38
2.121000	---	27.10	46.00	18.90	N	10.39
2.121000	38.84	---	56.00	17.16	N	10.39

Remark:

*Level=Reading Level + Correction Factor

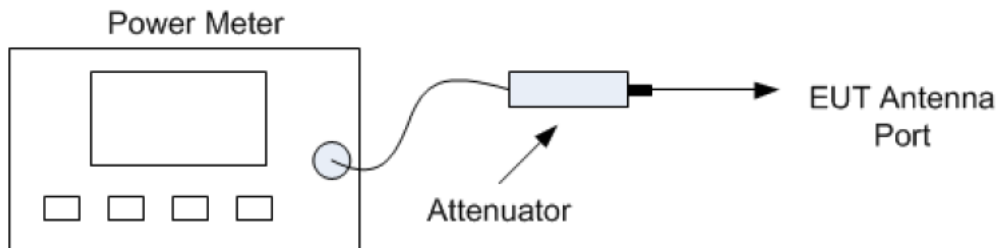
**Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

9.2 Conducted Peak Output Power & EIRP

Test Method

- 1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
- 2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
- 3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- 4) Measure the peak power of the transmitter. This measurement is a peak over both the ON and OFF periods of the transmitter.



Power meter conducted test setup

Limits

According to §15.247 (b) (3) & RSS-247 5.4(d), conducted peak output power limit as below:

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

According to & RSS-247 5.4(d), EIRP limit as below:

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤4	≤36

Test result as below table

802.11b modulation Test Result

Frequency (MHz)	Conducted Peak Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Result
Low channel 2412MHz	16.00	3.1	19.10	Pass
Middle channel 2437MHz	15.82	3.1	18.92	Pass
High channel 2462MHz	15.41	3.1	18.51	Pass

802.11g modulation Test Result

Frequency (MHz)	Conducted Peak Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Result
Low channel 2412MHz	20.11	3.1	23.21	Pass
Middle channel 2437MHz	19.96	3.1	23.06	Pass
High channel 2462MHz	19.48	3.1	22.58	Pass

802.11n20 modulation Test Result

Frequency (MHz)	Conducted Peak Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Result
Low channel 2412MHz	18.92	3.1	22.02	Pass
Middle channel 2437MHz	18.85	3.1	21.95	Pass
High channel 2462MHz	18.50	3.1	21.60	Pass

802.11n40 modulation Test Result

Frequency (MHz)	Conducted Peak Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Result
Low channel 2422MHz	18.19	3.1	21.29	Pass
Middle channel 2437MHz	18.32	3.1	21.43	Pass
High channel 2452MHz	17.91	3.1	21.01	Pass

9.3 6dB Bandwidth and 99% Occupied Bandwidth

Test Method for 6 dB Bandwidth

1. The RF output of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
RBW=100KHz, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Use the automatic bandwidth measurement capability of an instrument, use the X dB bandwidth mode with X set to 6 dB.
5. Allow the trace to stabilize, record the 6 dB Bandwidth value.

Test Method for 99 % Bandwidth

1. Connect EUT test port to spectrum analyzer.
Use the following spectrum analyzer settings:
RBW=1% to 5% of the actual occupied, VBW $\geq$ 3RBW, Sweep = auto,
Detector function = peak, Trace = max hold
2. Use the occupied bandwidth measurement capability of test receiver.
3. Allow the trace to stabilize, record the occupied bandwidth value.

Limit

6dB bandwidth Limit [kHz]	99% bandwidth Limit [kHz]
≥ 500	--

802.11b modulation Test Result

Frequency (MHz)	Antenna	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (MHz)	Result
Low channel 2412MHz	Ant1	9.160	13.267	0.5	Pass
Middle channel 2437MHz	Ant1	9.640	13.347	0.5	Pass
High channel 2462MHz	Ant1	9.640	13.467	0.5	Pass

802.11g modulation Test Result

Frequency (MHz)	Antenna	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (MHz)	Result
Low channel 2412MHz	Ant1	16.400	17.902	0.5	Pass
Middle channel 2437MHz	Ant1	16.400	17.942	0.5	Pass
High channel 2462MHz	Ant1	16.440	18.022	0.5	Pass

802.11n-HT20 modulation Test Result

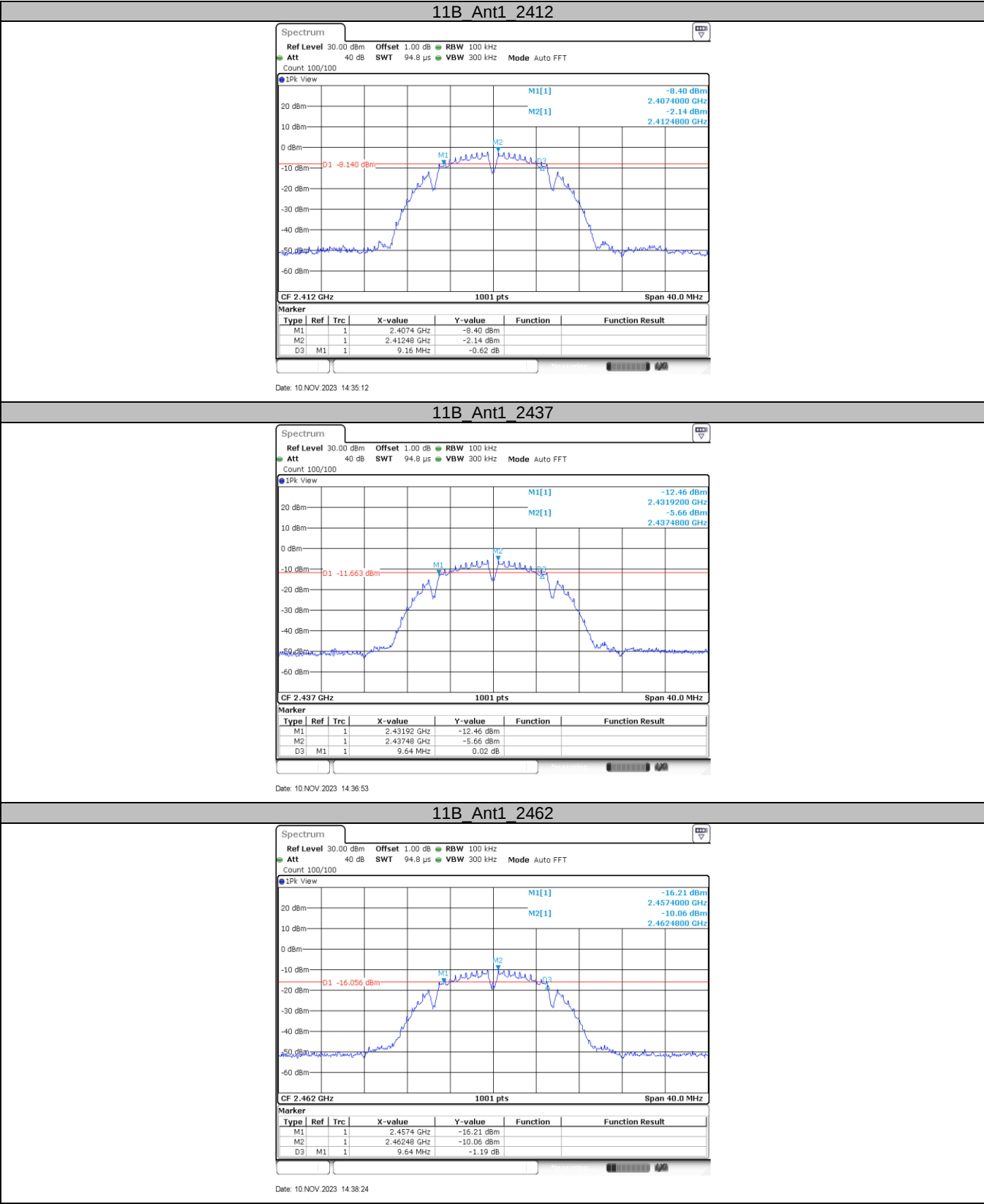
Frequency (MHz)	Antenna	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (MHz)	Result
Low channel 2412MHz	Ant1	17.640	18.741	0.5	Pass
Middle channel 2437MHz	Ant1	17.640	18.781	0.5	Pass
High channel 2462MHz	Ant1	17.640	18.821	0.5	Pass

802.11n-HT40 modulation Test Result

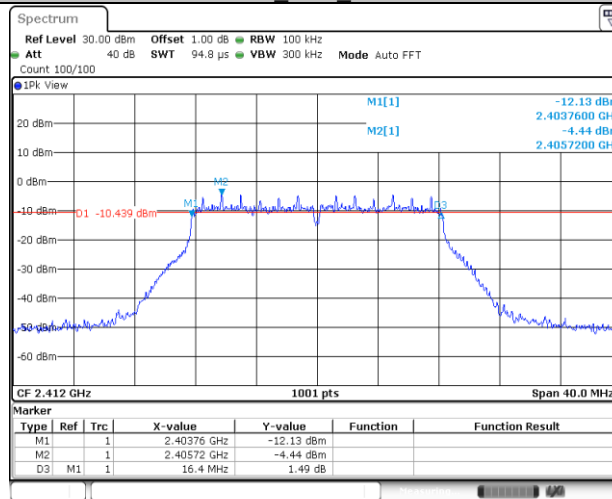
Frequency (MHz)	Antenna	6dB bandwidth (MHz)	99% bandwidth (MHz)	Limit (MHz)	Result
Low channel 2422MHz	Ant1	17.760	19.421	0.5	Pass
Middle channel 2437MHz	Ant1	17.760	19.421	0.5	Pass
High channel 2452MHz	Ant1	17.760	19.500	0.5	Pass



6 dB Bandwidth

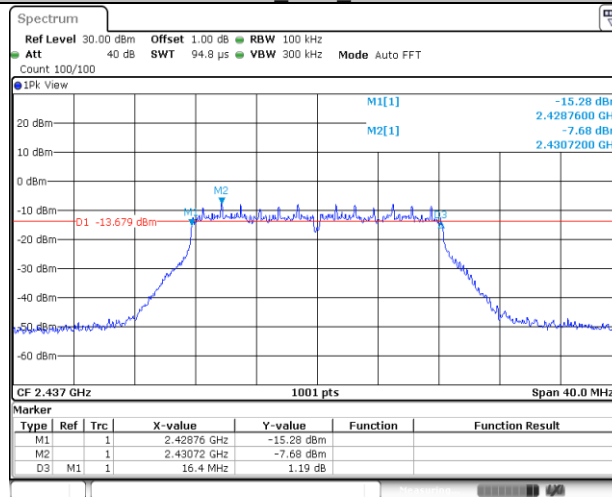


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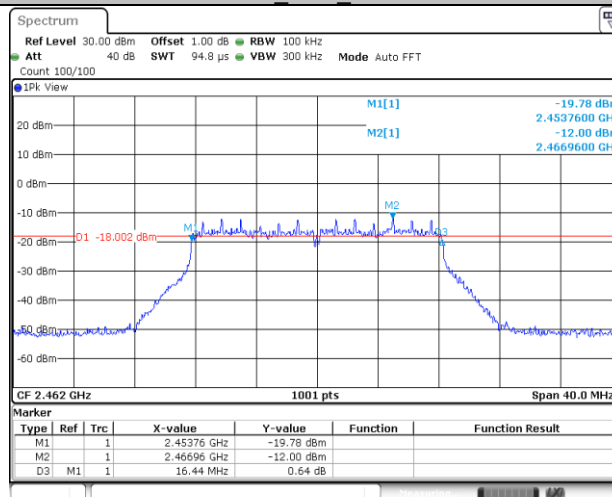
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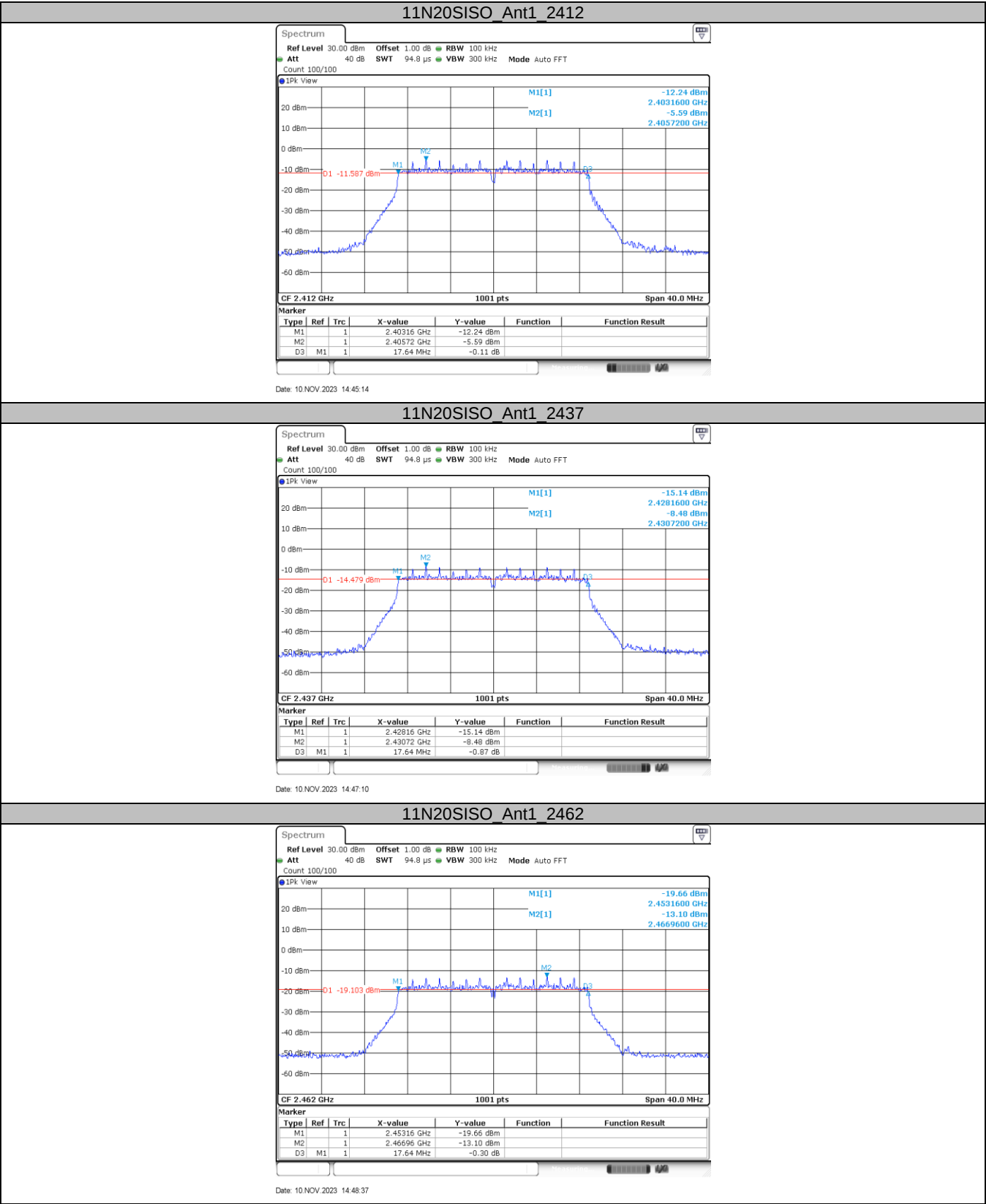


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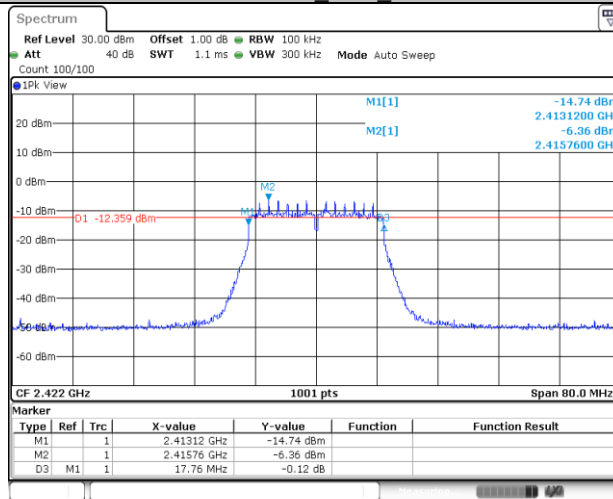
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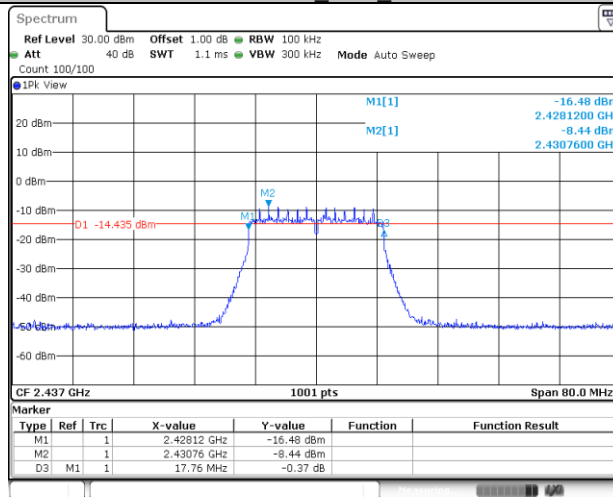


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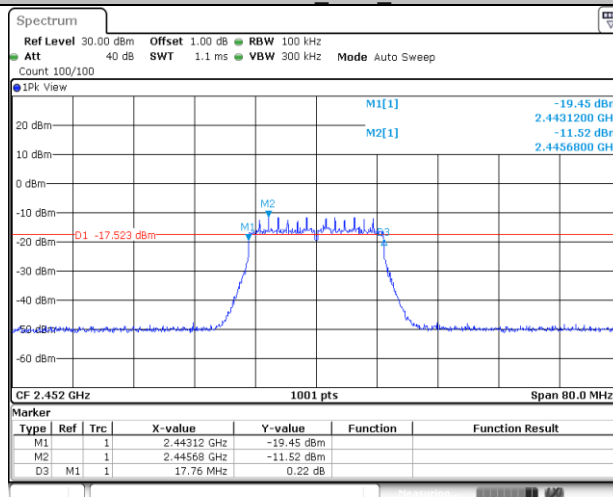
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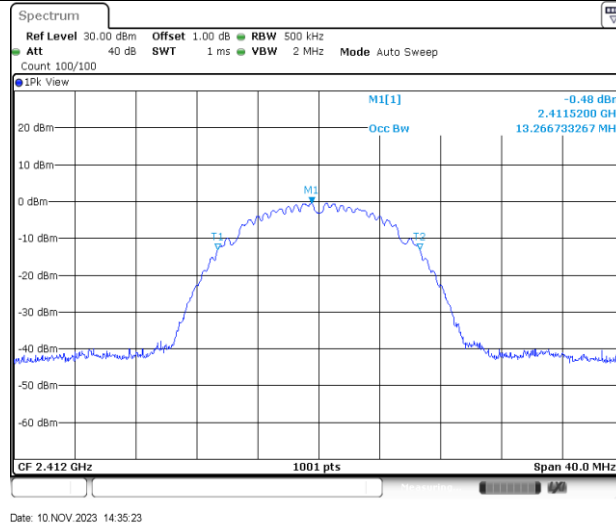
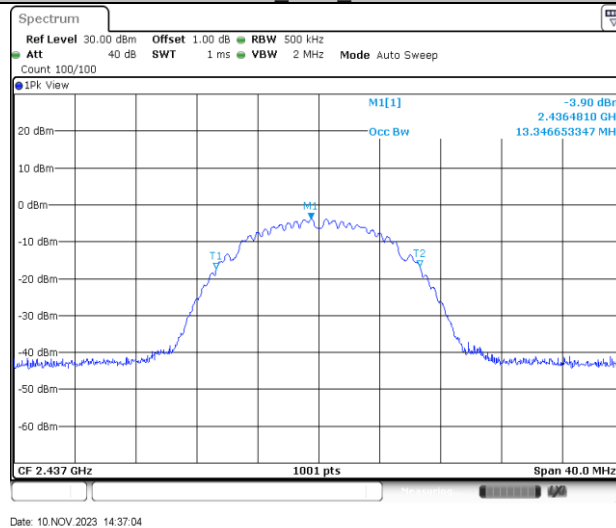
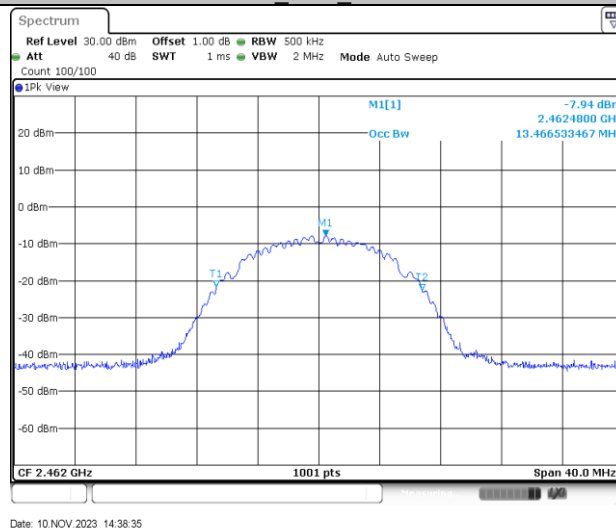


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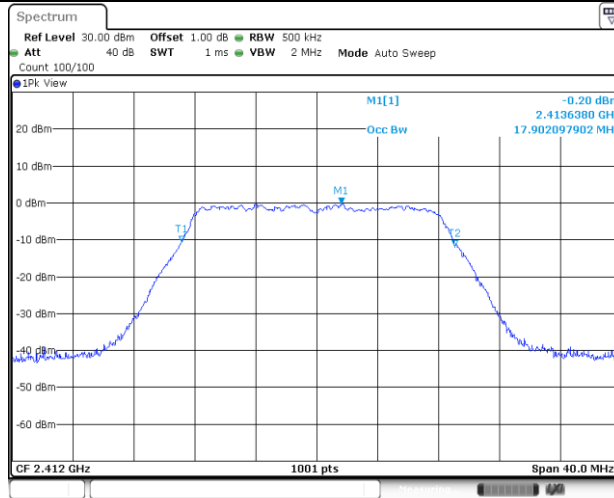
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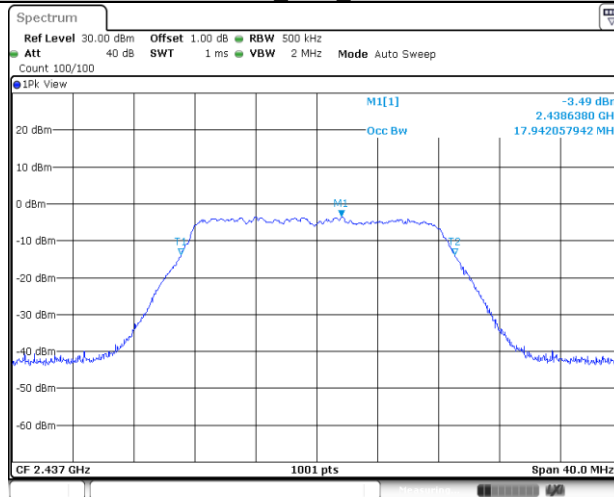
99% Bandwidth**11B_Ant1_2412****11B_Ant1_2437****11B_Ant1_2462**

11G Ant1 2412



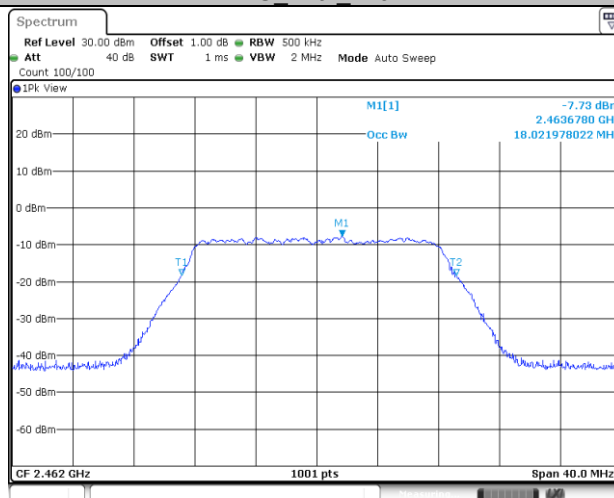
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11G Ant1 2437



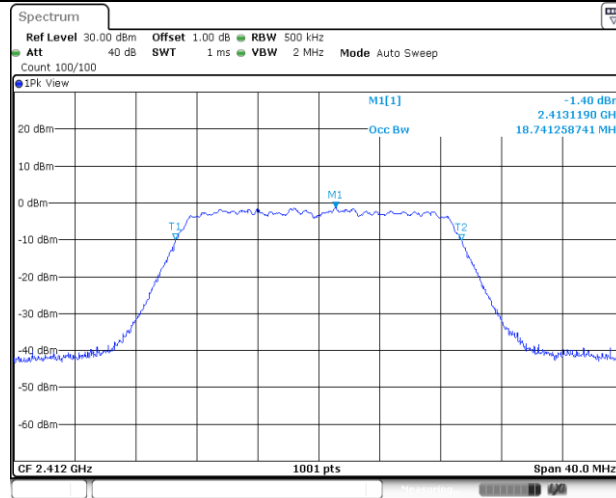
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11G Ant1 2462



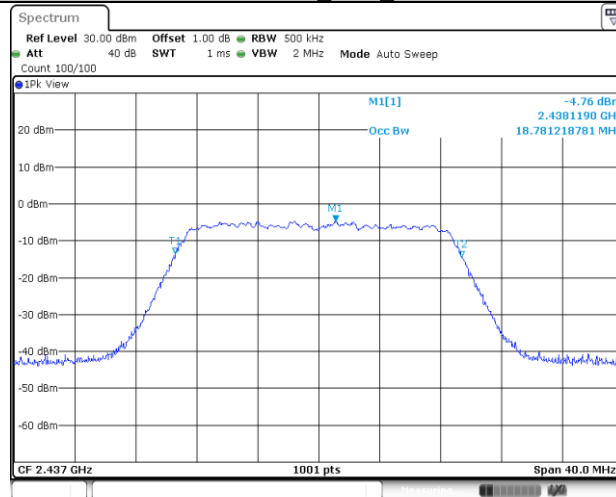
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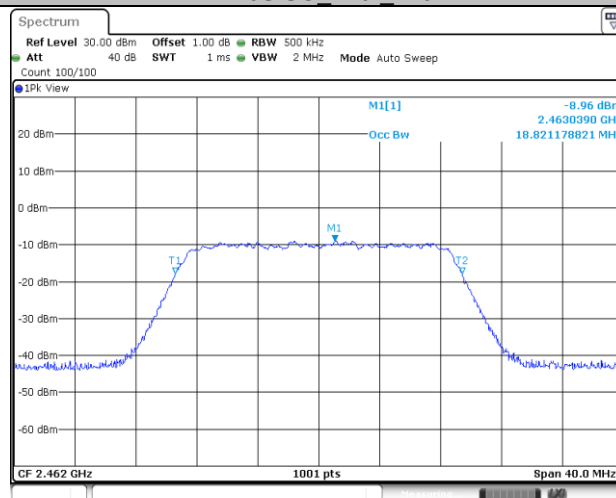
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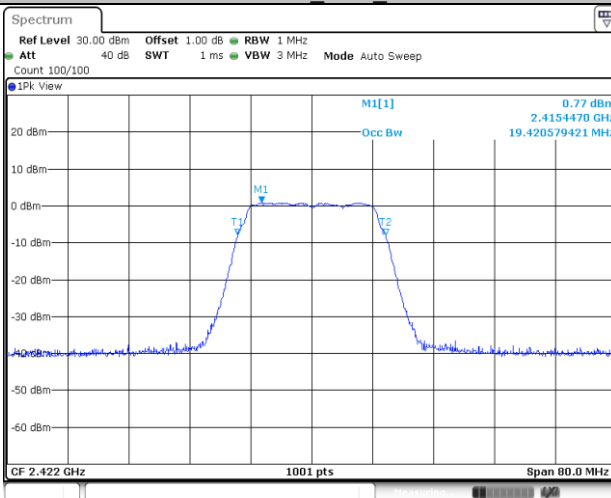
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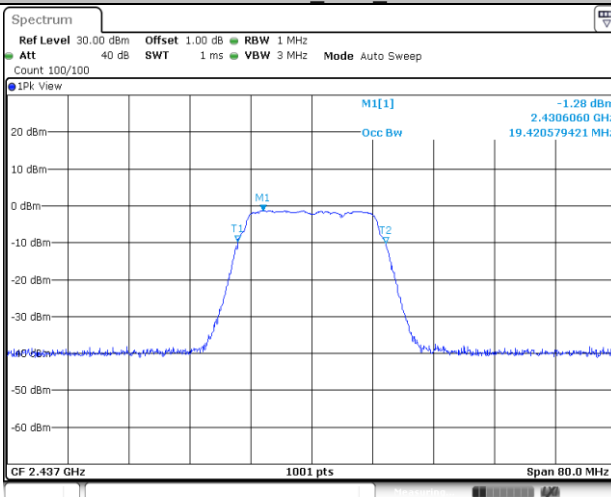
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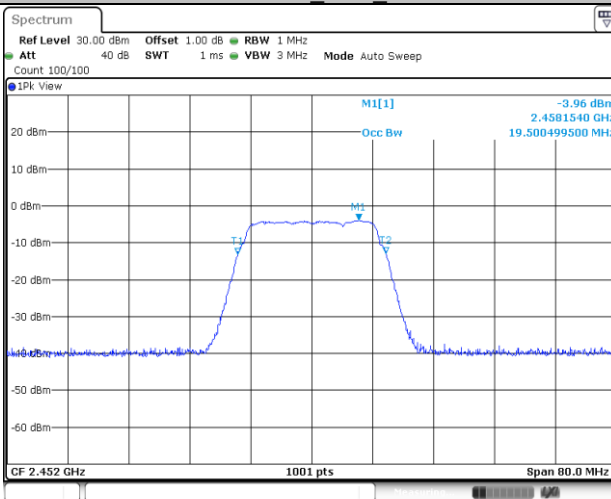
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11N40SISO_Ant1_2437



Date: 10 NOV 2023 14:53:41

11N40SISO_Ant1_2452



Date: 10 NOV 2023 14:56:02

9.4 Power Spectral Density

Test Method

1. The RF output of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
4. Set analyzer center frequency to DTS channel center frequency. RBW=3kHz, VBW≥3RBW, Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold.
5. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
6. Repeat above procedures until other frequencies measured were completed.

Limit

$$\text{Limit [dBm/3KHz]} \leq 8$$

802.11b modulation Test Result

Frequency (MHz)	Power spectral density (dBm/3KHz)	Limit (dBm)	Result
Low channel 2412MHz	-15.33	8	Pass
Middle channel 2437MHz	-19.06	8	Pass
High channel 2462MHz	-21.4	8	Pass

802.11g modulation Test Result

Frequency (MHz)	Power spectral density (dBm/3KHz)	Limit (dBm)	Result
Low channel 2412MHz	-19.45	8	Pass
Middle channel 2437MHz	-22.88	8	Pass
High channel 2462MHz	-25.43	8	Pass

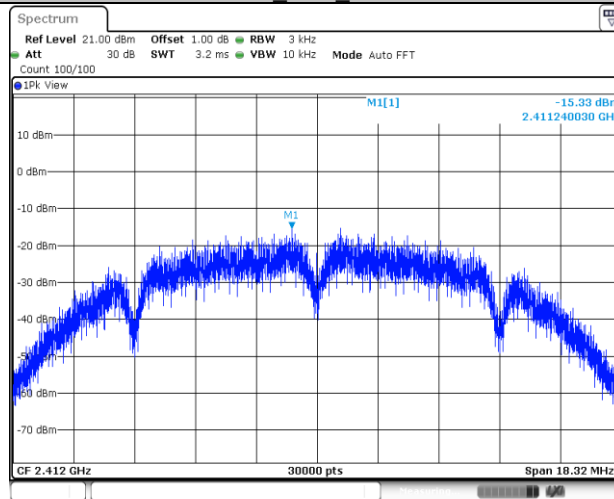
802.11n-HT20 modulation Test Result

Frequency (MHz)	Power spectral density (dBm/3KHz)	Limit (dBm)	Result
Low channel 2412MHz	-20.08	8	Pass
Middle channel 2437MHz	-23.7	8	Pass
High channel 2462MHz	-22.37	8	Pass

802.11n-HT40 modulation Test Result

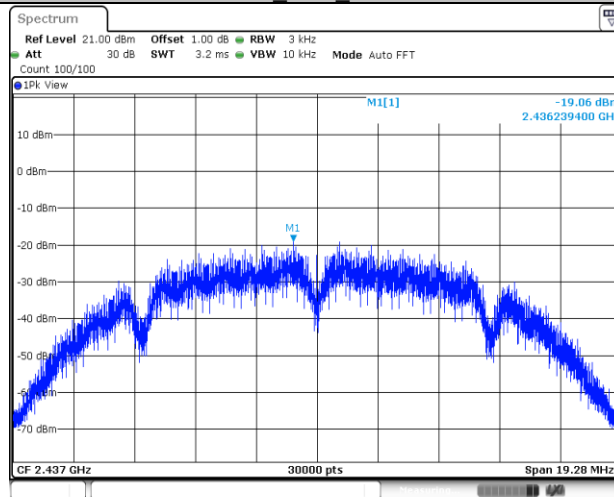
Frequency (MHz)	Power spectral density (dBm/3KHz)	Limit (dBm)	Result
Low channel 2422MHz	-21.48	8	Pass
Middle channel 2437MHz	-23.73	8	Pass
High channel 2452MHz	-25.86	8	Pass

11B_Ant1_2412



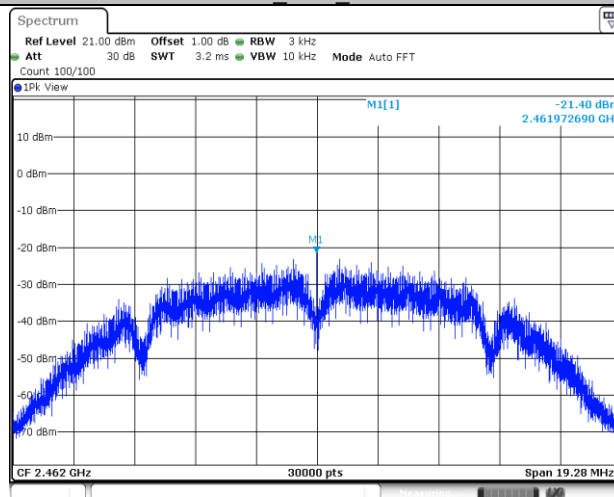
Date: 10.NOV.2023 14:35:28

11B_Ant1_2437



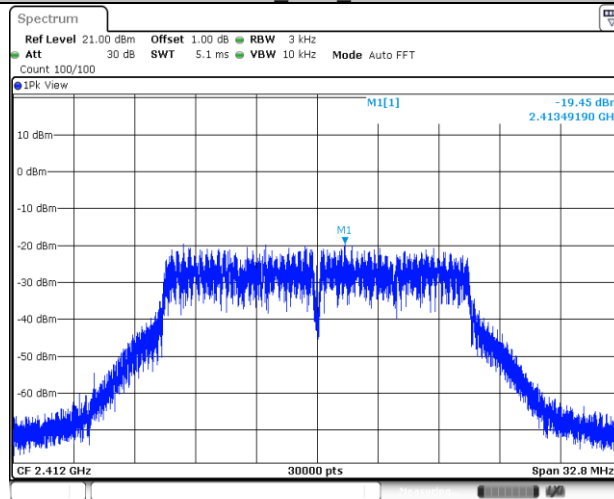
Date: 10.NOV.2023 14:37:09

11B_Ant1_2462



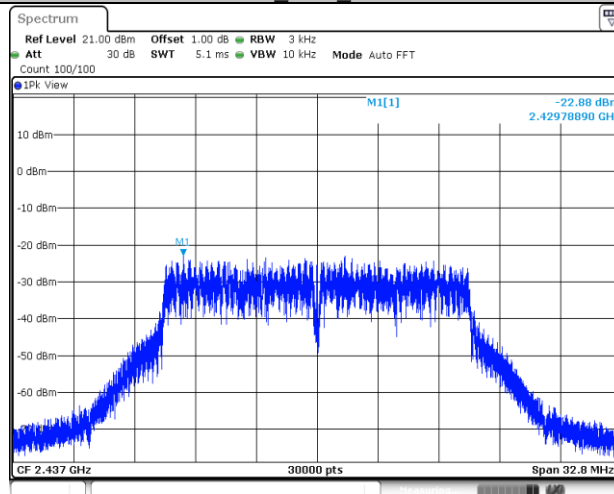
Date: 10.NOV.2023 14:38:41

11G_Ant1_2412



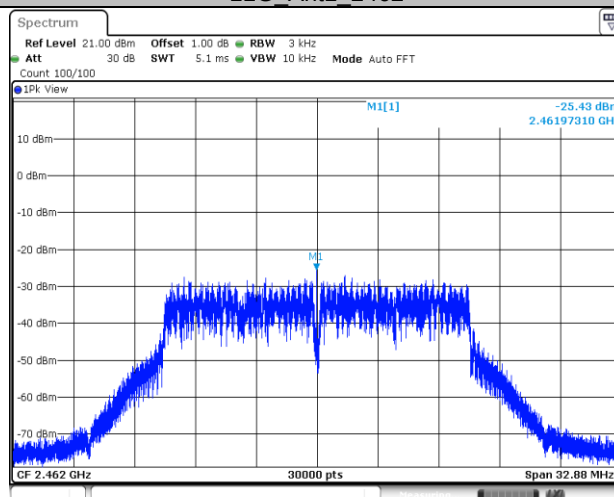
Date: 10.NOV.2023 14:40:24

11G_Ant1_2437



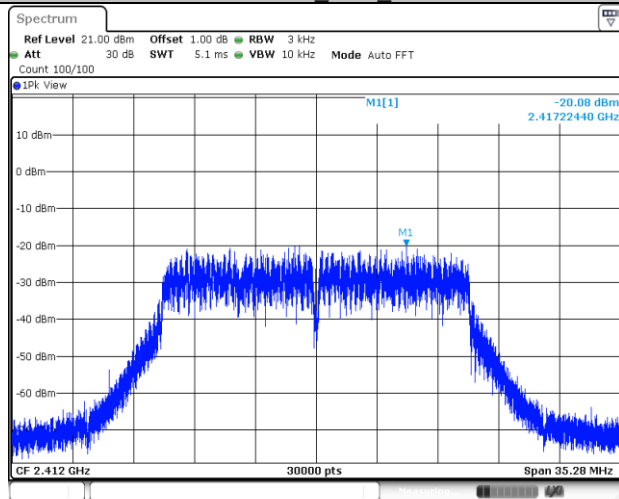
Date: 10.NOV.2023 14:42:02

11G_Ant1_2462



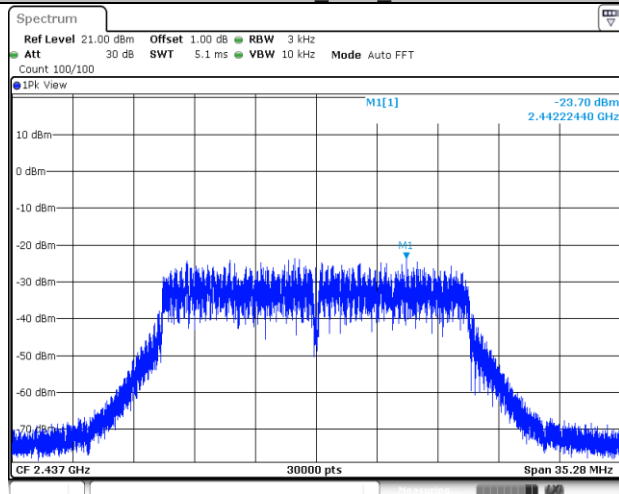
Date: 10.NOV.2023 14:43:42

11N20SISO_Ant1_2412



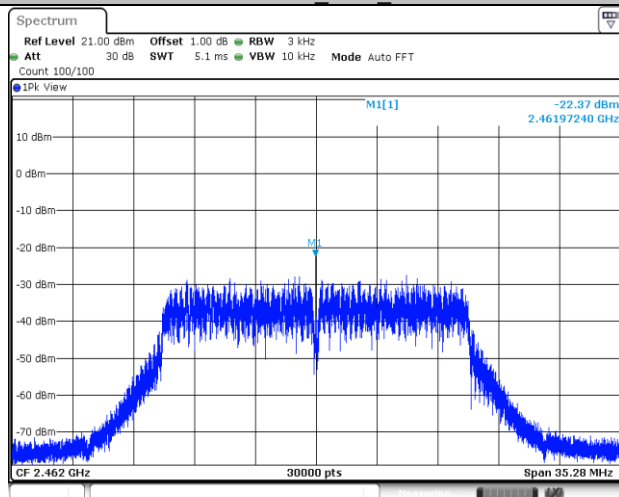
Date: 10.NOV.2023 14:45:30

11N20SISO_Ant1_2437



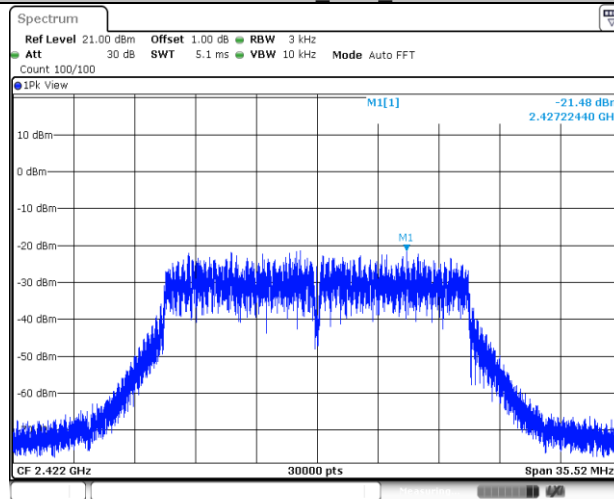
Date: 10.NOV.2023 14:47:27

11N20SISO_Ant1_2462



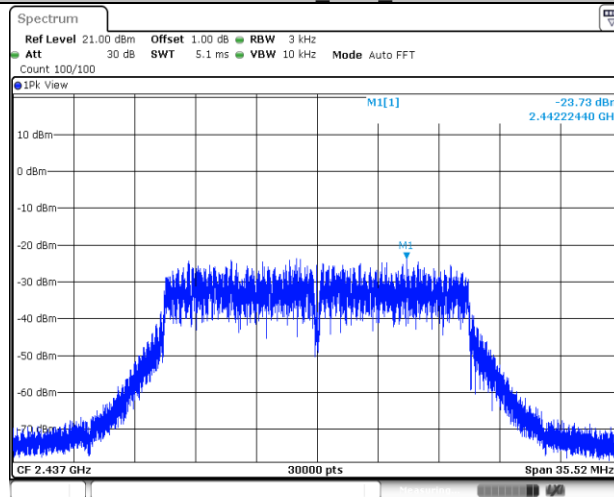
Date: 10.NOV.2023 14:48:54

11N40SISO_Ant1_2422



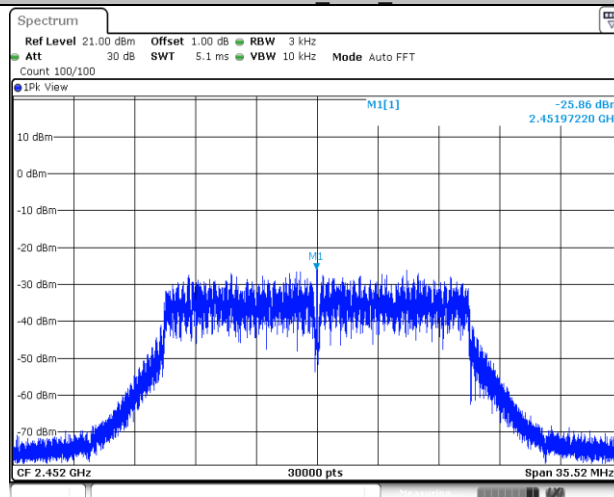
Date: 10.NOV.2023 14:50:31

11N40SISO_Ant1_2437



Date: 10.NOV.2023 14:53:47

11N40SISO_Ant1_2452



Date: 10.NOV.2023 14:56:07

9.5 Spurious RF Conducted Emissions

Test Method

1. The RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
5. The level displayed must comply with the limit specified in this Section. Submit these plots.
6. Repeat above procedures until all frequencies measured were complete.

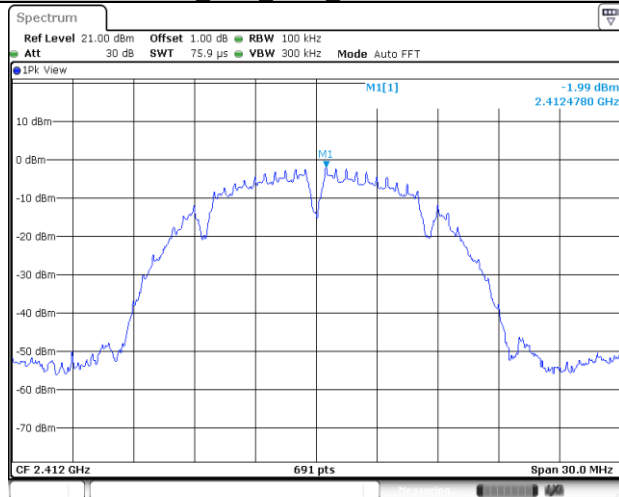
Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

Spurious RF conducted emissions

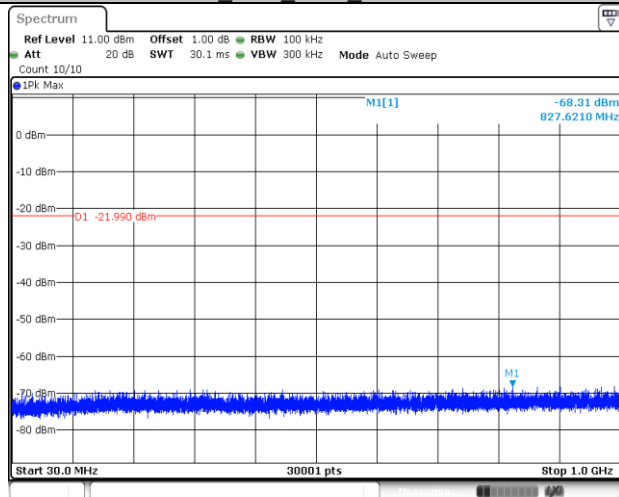
Test Mode	Channel (MHz)	Frequency Range (MHz)	Result (dBm)	Limit (dBm)	Verdict
11B	2412	Reference	-1.99	---	PASS
		30~1000	-68.31	<=-21.99	PASS
		1000~26500	-50.41	<=-21.99	PASS
	2437	Reference	-5.93	---	PASS
		30~1000	-68.17	<=-25.93	PASS
		1000~26500	-52.46	<=-25.93	PASS
	2462	Reference	-9.76	---	PASS
		30~1000	-67.94	<=-29.76	PASS
		1000~26500	-52.23	<=-29.76	PASS
11G	2412	Reference	-4.70	---	PASS
		30~1000	-68.12	<=-24.7	PASS
		1000~26500	-45.2	<=-24.7	PASS
	2437	Reference	-8.15	---	PASS
		30~1000	-68	<=-28.15	PASS
		1000~26500	-52.34	<=-28.15	PASS
	2462	Reference	-12.13	---	PASS
		30~1000	-67.37	<=-32.13	PASS
		1000~26500	-51.23	<=-32.13	PASS
11N20	2412	Reference	-5.44	---	PASS
		30~1000	-67.95	<=-25.44	PASS
		1000~26500	-47.84	<=-25.44	PASS
	2437	Reference	-9.15	---	PASS
		30~1000	-68.38	<=-29.15	PASS
		1000~26500	-52.74	<=-29.15	PASS
	2462	Reference	-13.40	---	PASS
		30~1000	-67.98	<=-33.4	PASS
		1000~26500	-52.91	<=-33.4	PASS
11N40	2422	Reference	-6.91	---	PASS
		30~1000	-68.43	<=-26.91	PASS
		1000~26500	-52.12	<=-26.91	PASS
	2437	Reference	-10.30	---	PASS
		30~1000	-68.4	<=-30.3	PASS
		1000~26500	-52.12	<=-30.3	PASS
	2452	Reference	-11.66	---	PASS
		30~1000	-68.17	<=-31.66	PASS
		1000~26500	-52.29	<=-31.66	PASS

11B_Ant1_2412_0~Reference



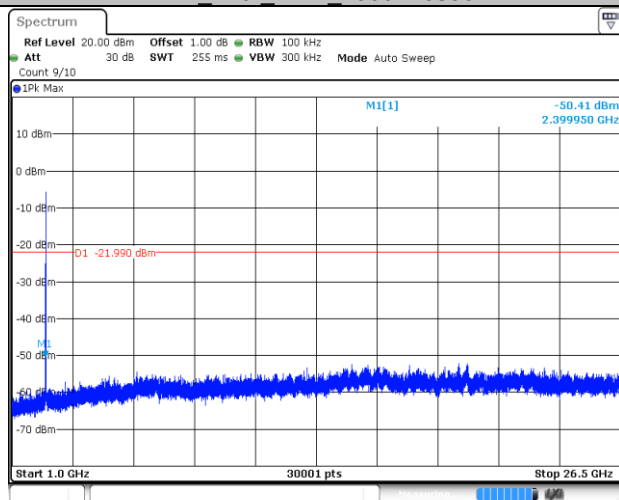
Date: 10.NOV.2023 14:35:43

11B_Ant1_2412_30~1000



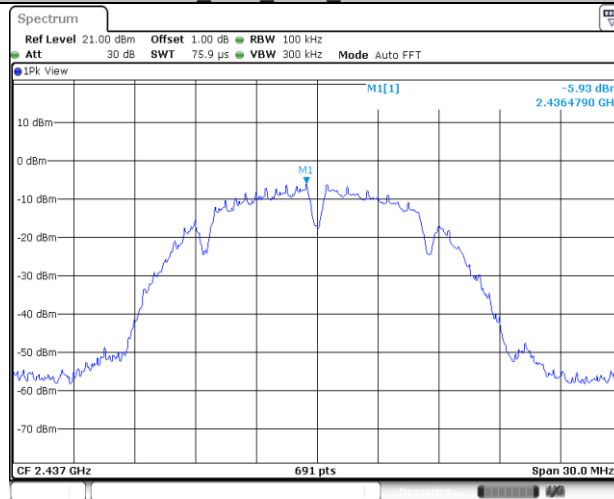
Date: 10.NOV.2023 14:35:50

11B_Ant1_2412_1000~26500



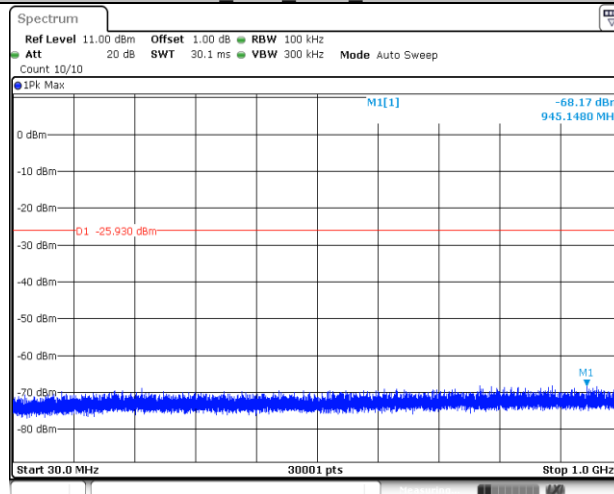
Date: 10.NOV.2023 14:35:57

11B_Ant1_2437_0~Reference



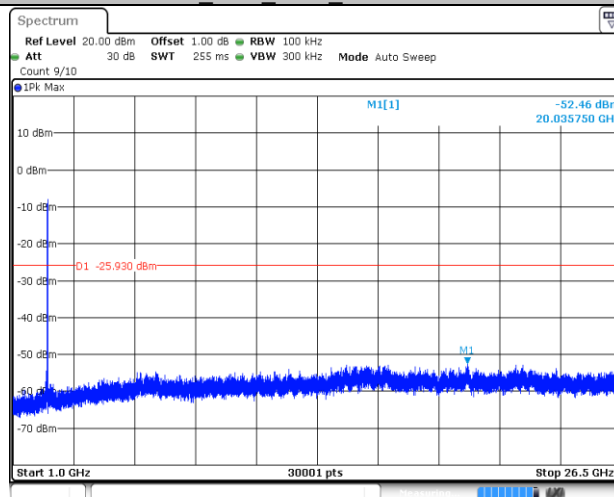
Date: 10.NOV.2023 14:37:15

11B_Ant1_2437_30~1000



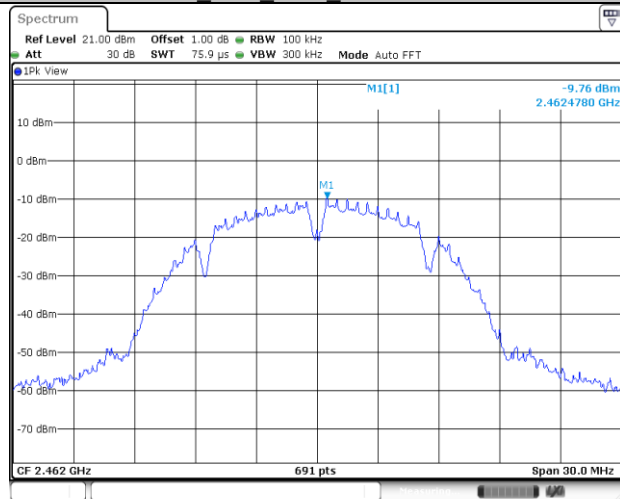
Date: 10.NOV.2023 14:37:21

11B_Ant1_2437_1000~26500



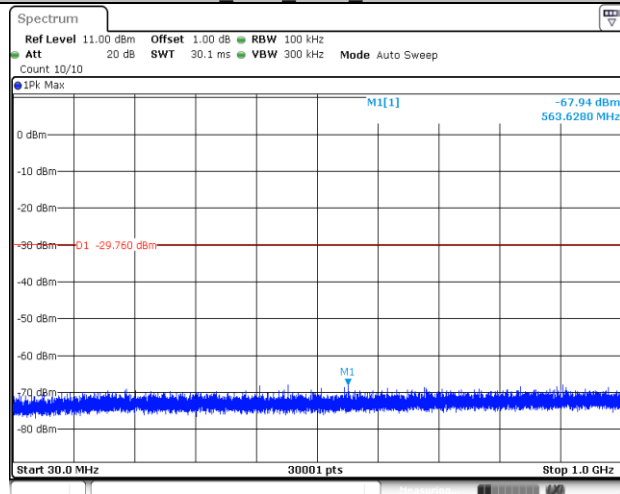
Date: 10.NOV.2023 14:37:29

11B_Ant1_2462_0~Reference



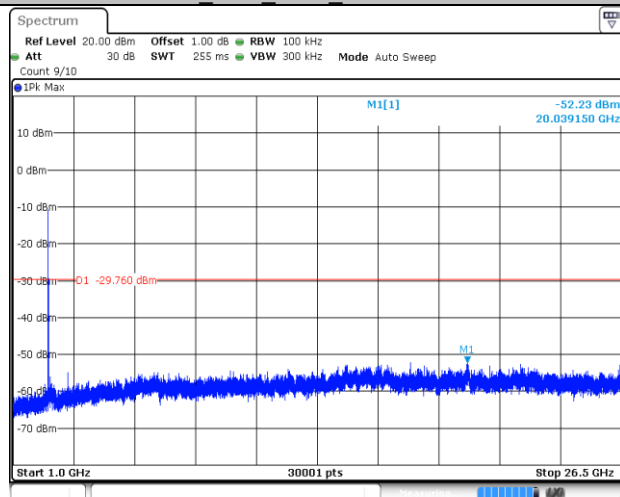
Date: 10.NOV.2023 14:38:56

11B_Ant1_2462_30~1000



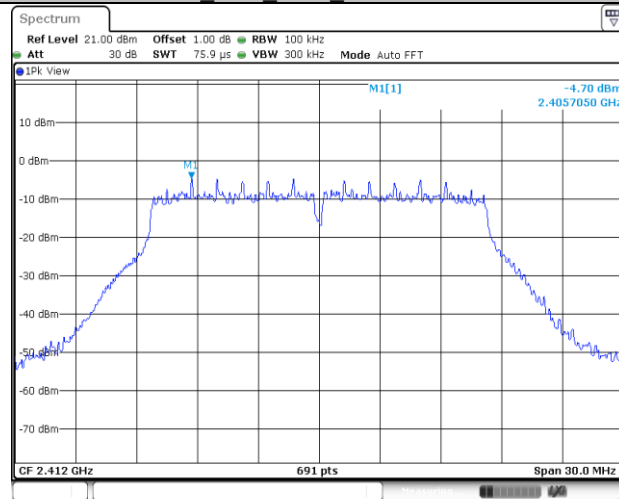
Date: 10.NOV.2023 14:39:02

11B_Ant1_2462_1000~26500



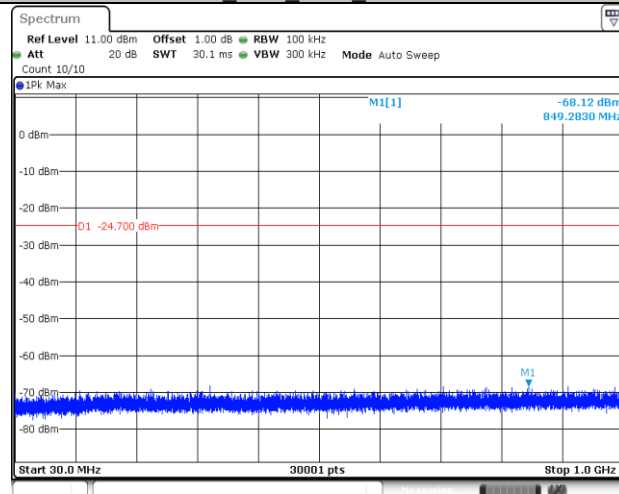
Date: 10.NOV.2023 14:39:10

11G_Ant1_2412_0~Reference



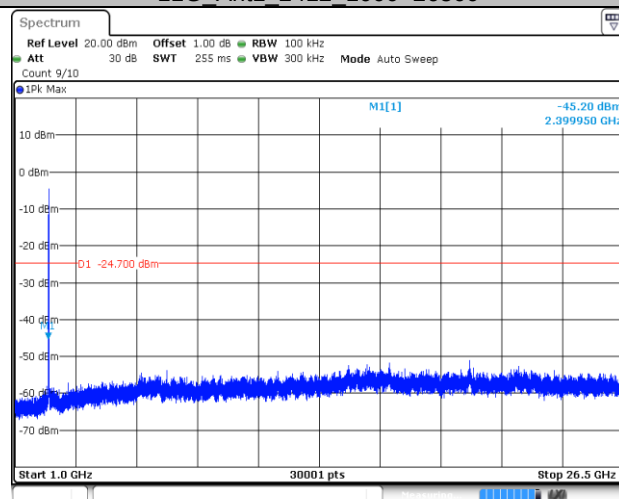
Date: 10.NOV.2023 14:40:39

11G_Ant1_2412_30~1000



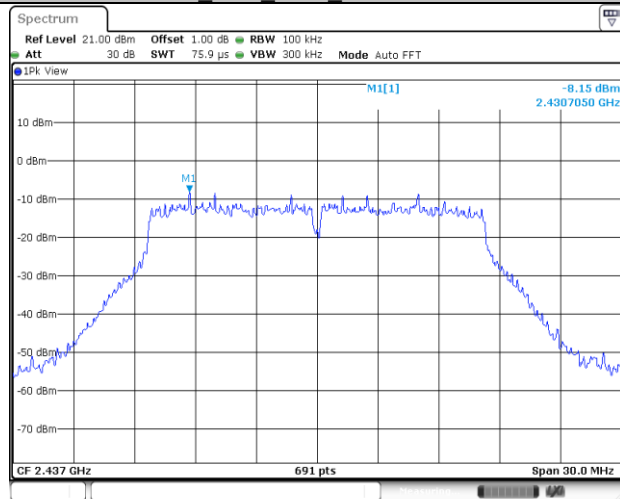
Date: 10.NOV.2023 14:40:45

11G_Ant1_2412_1000~26500



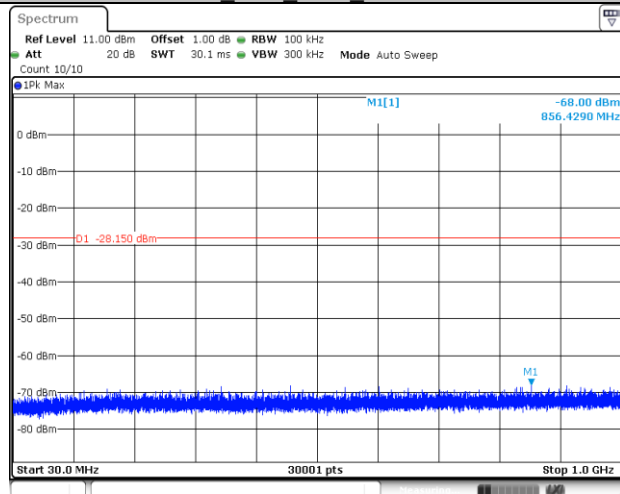
Date: 10.NOV.2023 14:40:53

11G_Ant1_2437_0~Reference



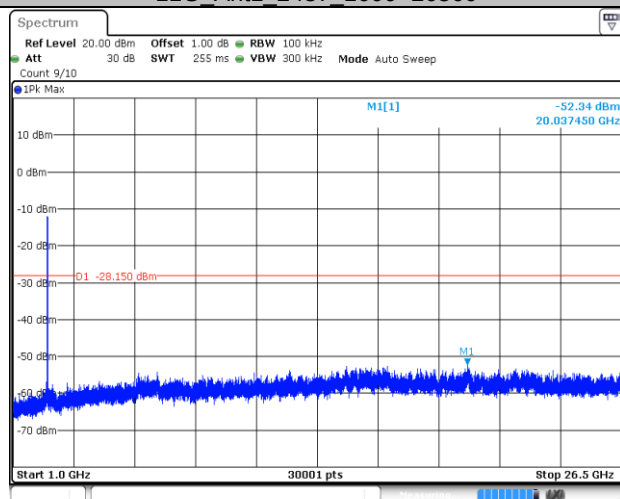
Date: 10.NOV.2023 14:42:07

11G_Ant1_2437_30~1000



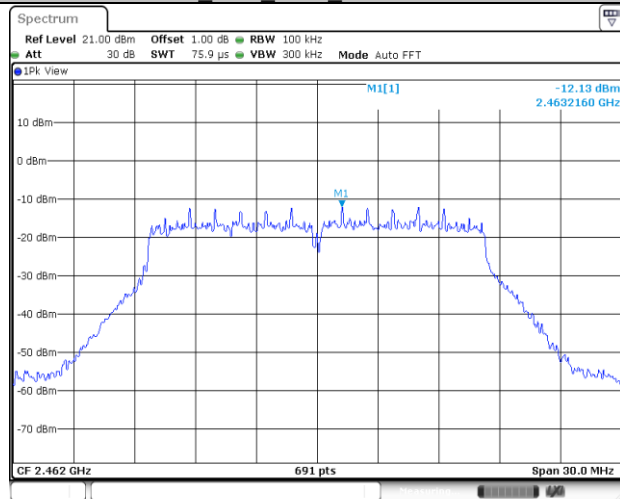
Date: 10.NOV.2023 14:42:13

11G_Ant1_2437_1000~26500



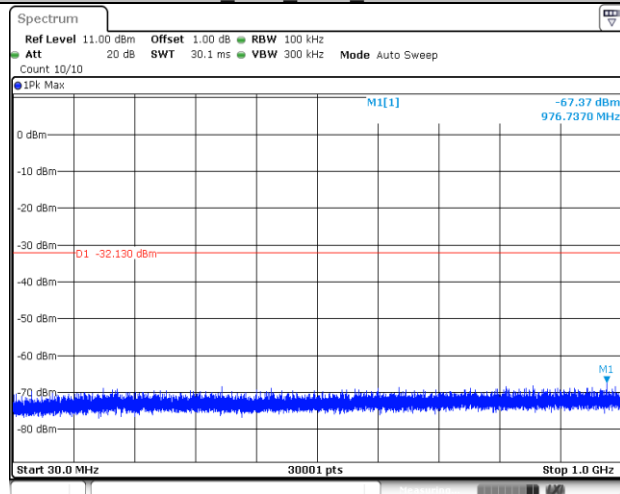
Date: 10.NOV.2023 14:42:21

11G_Ant1_2462_0~Reference



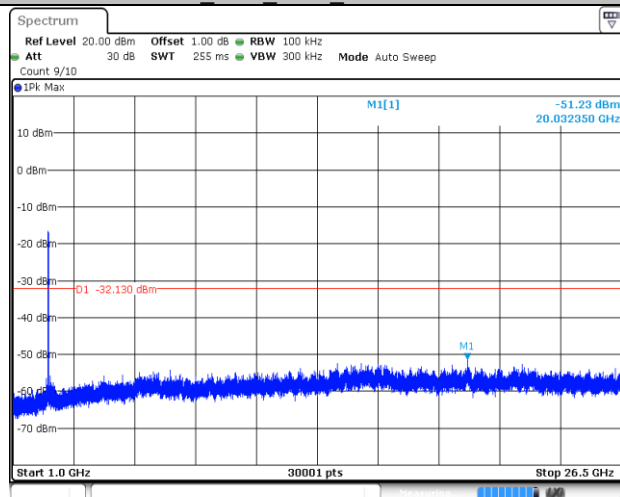
Date: 10.NOV.2023 14:43:57

11G_Ant1_2462_30~1000



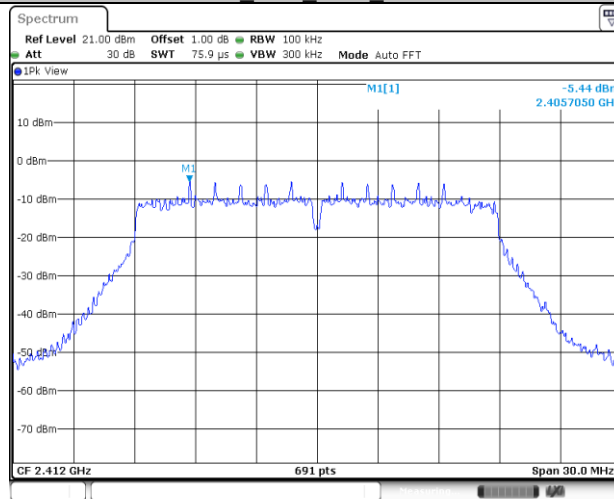
Date: 10.NOV.2023 14:44:03

11G_Ant1_2462_1000~26500



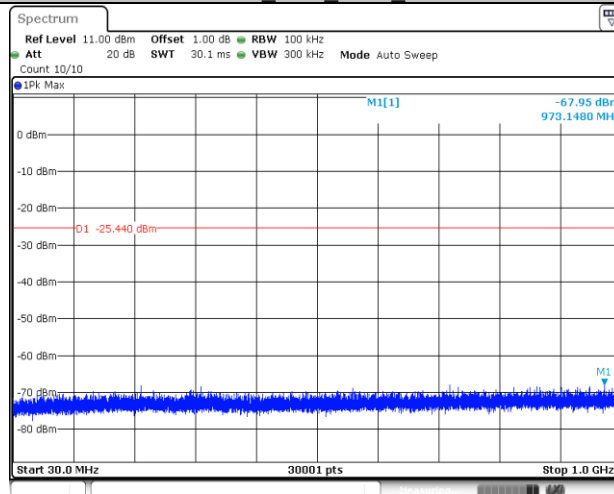
Date: 10.NOV.2023 14:44:11

11N20SISO_Ant1_2412_0-Reference



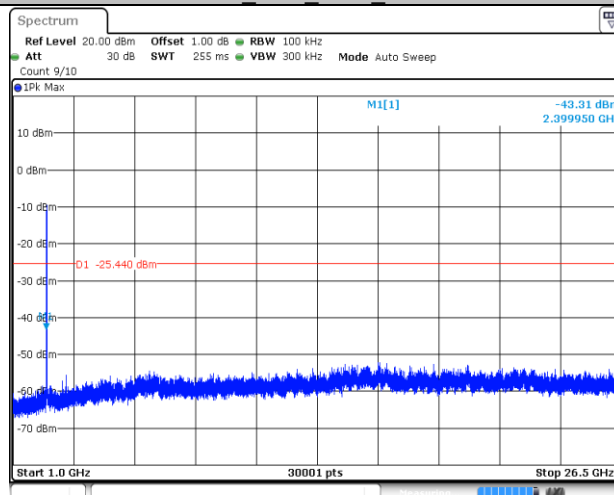
Date: 10.NOV.2023 14:45:45

11N20SISO_Ant1_2412_30-1000



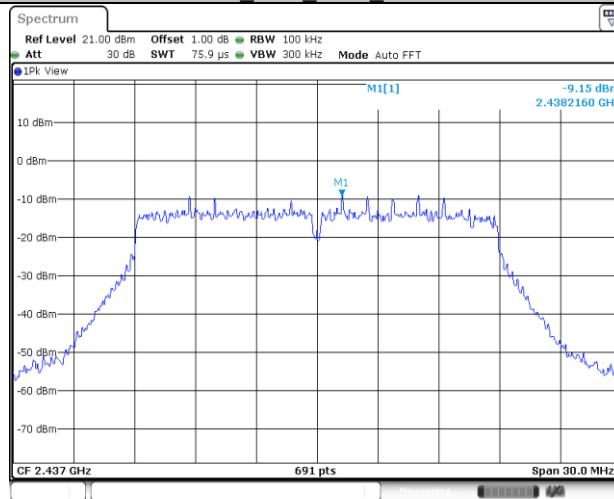
Date: 10.NOV.2023 14:45:51

11N20SISO_Ant1_2412_1000-26500



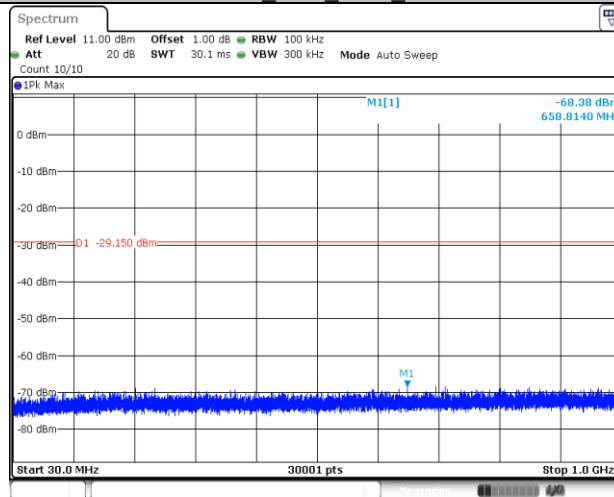
Date: 10.NOV.2023 14:45:59

11N20SISO_Ant1_2437_0-Reference



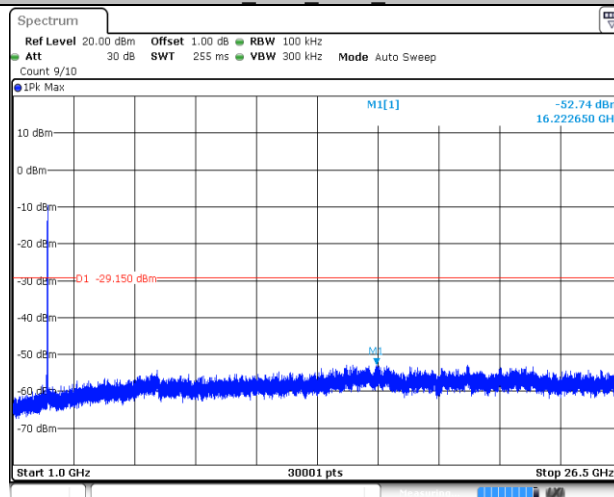
Date: 10.NOV.2023 14:47:32

11N20SISO_Ant1_2437_30~1000



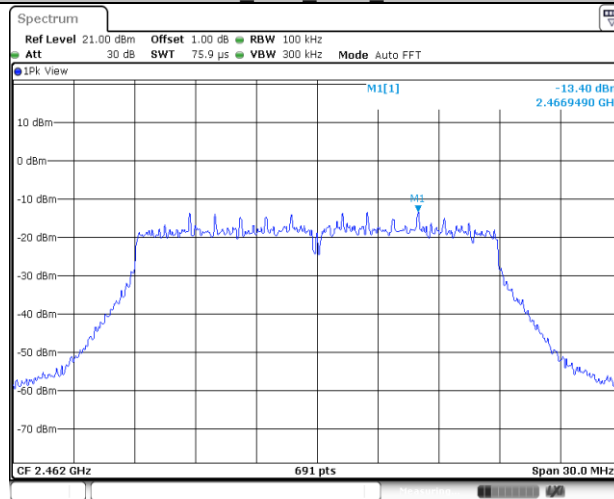
Date: 10.NOV.2023 14:47:38

11N20SISO_Ant1_2437_1000~26500



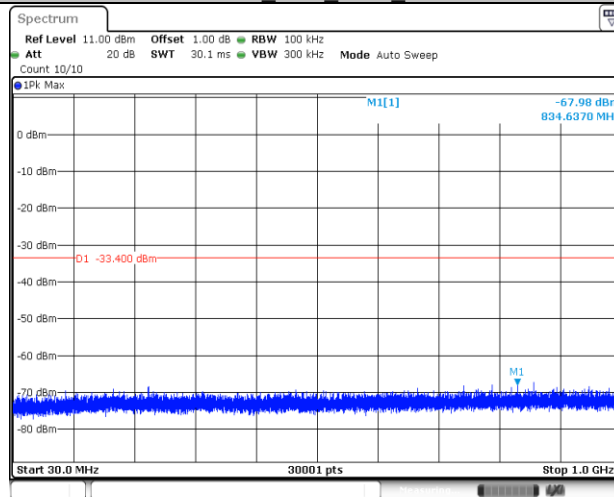
Date: 10.NOV.2023 14:47:46

11N20SISO_Ant1_2462_0-Reference



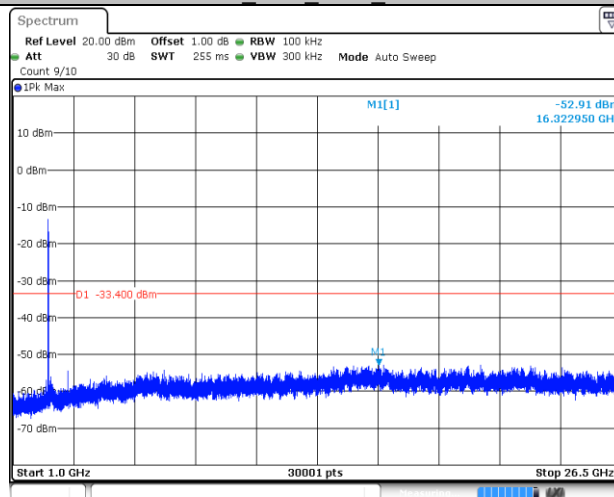
Date: 10.NOV.2023 14:49:09

11N20SISO_Ant1_2462_30~1000



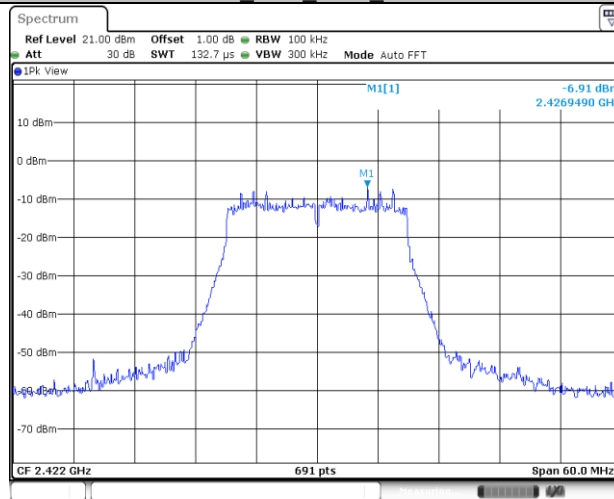
Date: 10.NOV.2023 14:49:15

11N20SISO_Ant1_2462_1000~26500



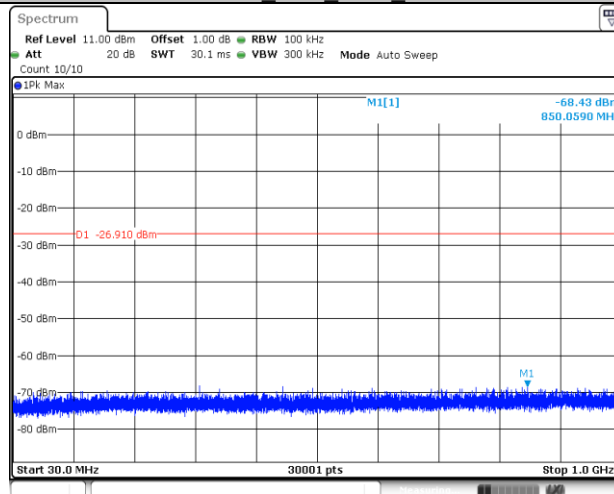
Date: 10.NOV.2023 14:49:23

11N40SISO_Ant1_2422_0-Reference



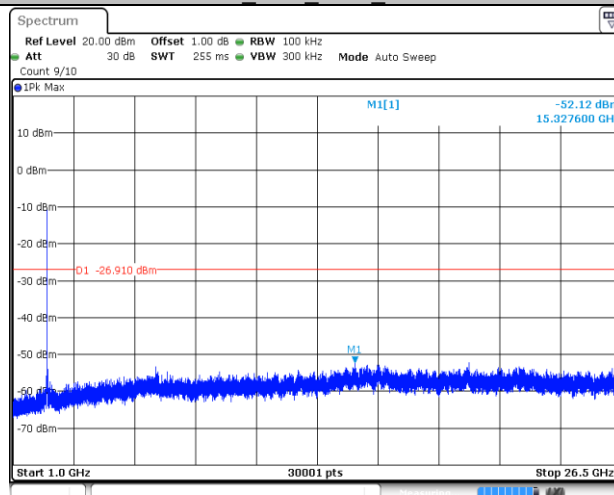
Date: 10.NOV.2023 14:50:46

11N40SISO_Ant1_2422_30-1000



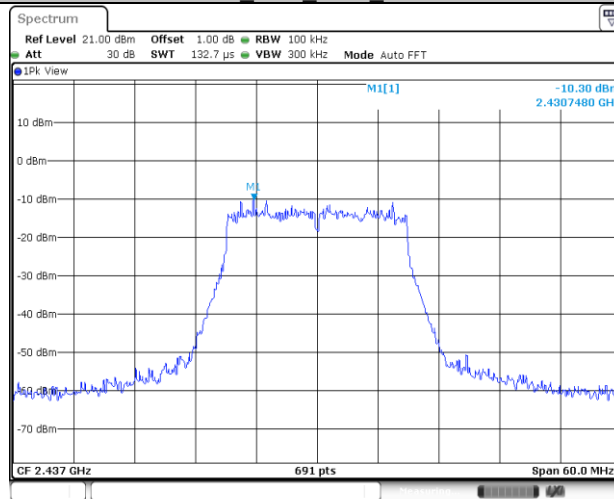
Date: 10.NOV.2023 14:50:52

11N40SISO_Ant1_2422_1000-26500



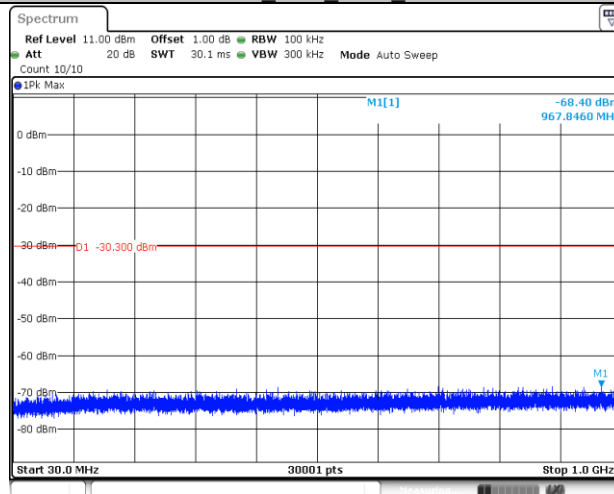
Date: 10.NOV.2023 14:51:00

11N40SISO Ant1 2437 0~Reference



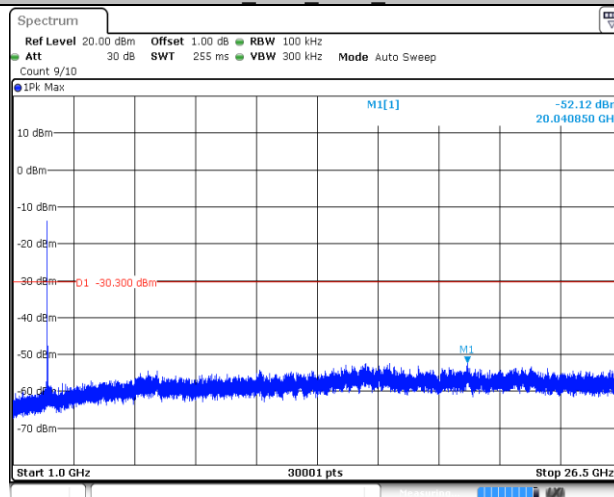
Date: 10.NOV.2023 14:53:53

11N40SISO Ant1 2437 30~1000



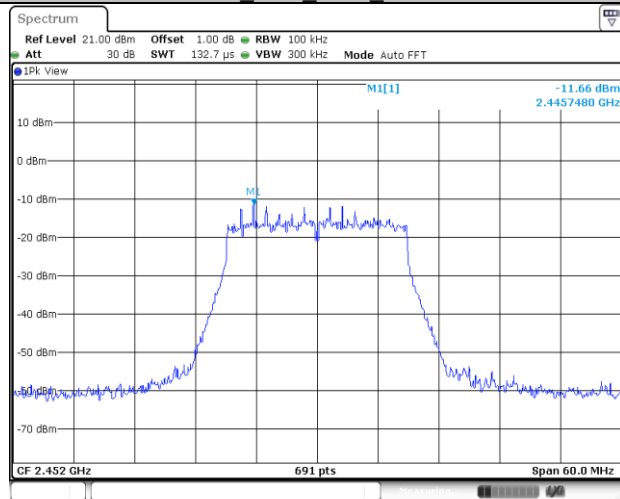
Date: 10.NOV.2023 14:53:59

11N40SISO Ant1 2437 1000~26500



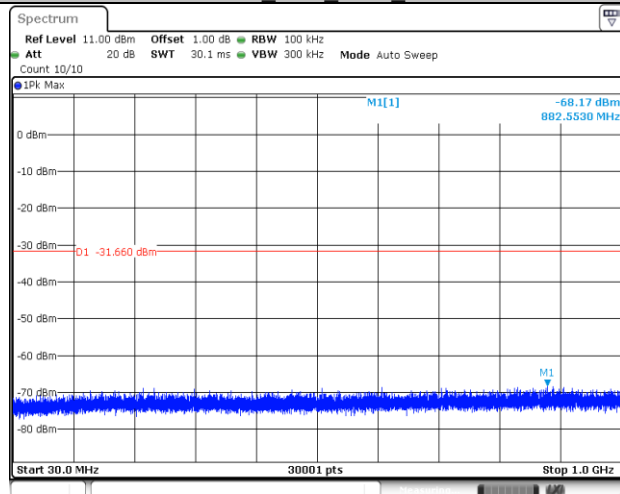
Date: 10.NOV.2023 14:54:07

11N40SISO_Ant1_2452_0~Reference



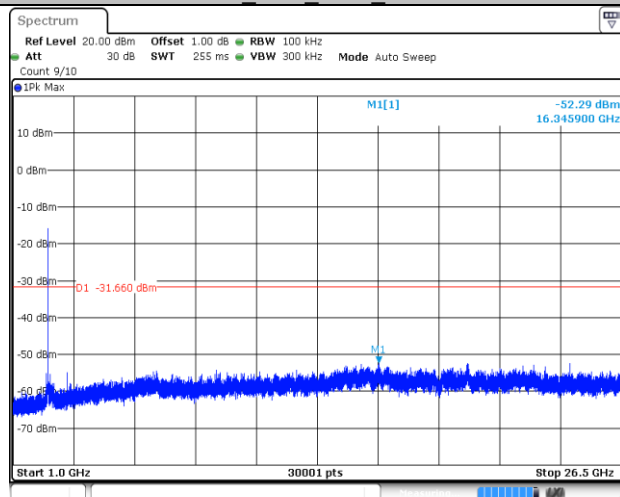
Date: 10.NOV.2023 14:56:22

11N40SISO_Ant1_2452_30~1000



Date: 10.NOV.2023 14:56:28

11N40SISO_Ant1_2452_1000~26500



Date: 10.NOV.2023 14:56:36

9.6 Band Edge

Test Method

1. The RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize, use the peak and delta measurement to record the result.
5. The level displayed must comply with the limit specified in this Section.
6. Repeat above procedures until all frequencies measured were complete and submit all the plots.

Limit:

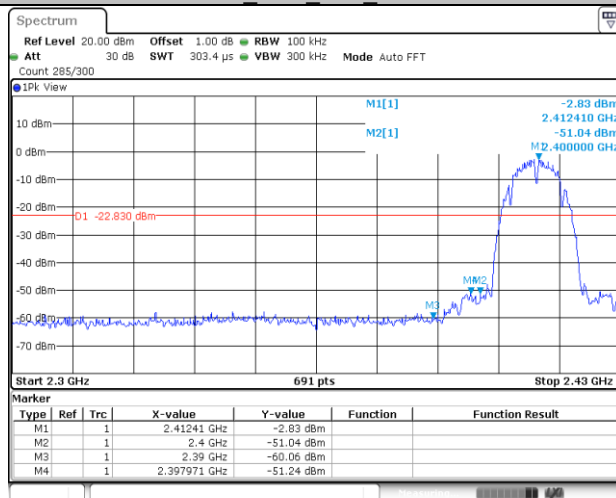
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that 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 § 15.247(b)(3) and RSS-247 section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB.

Frequency Range MHz	Limit (dBc)
30-25000	-20

Band edge testing

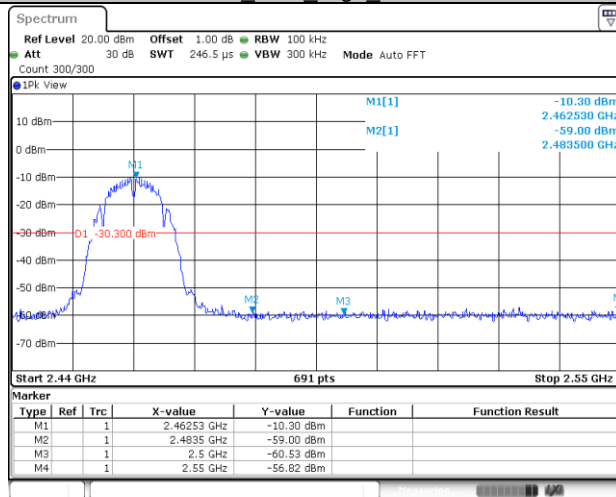
Test Mode	Channel Name	Channel (MHz)	Reference Level (dBm)	Result (dBm)	Limit (dBm)	Verdict
11B	Low	2412	-2.83	-51.24	≤ -22.83	PASS
	High	2462	-10.30	-56.82	≤ -30.3	PASS
11G	Low	2412	-5.59	-45.74	≤ -25.59	PASS
	High	2462	-14.45	-56.94	≤ -34.45	PASS
11N20	Low	2412	-5.71	-45.82	≤ -25.71	PASS
	High	2462	-13.14	-57.15	≤ -33.14	PASS
11N40	Low	2422	-6.75	-55.76	≤ -26.75	PASS
	High	2452	-11.95	-56.84	≤ -31.95	PASS

11B_Ant1_Low_2412



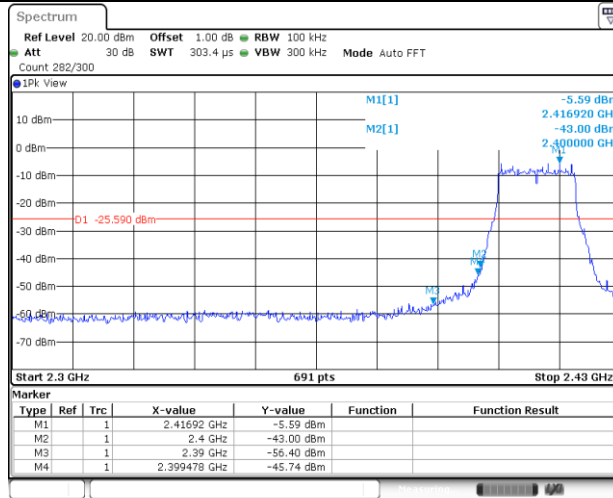
Date: 10.NOV.2023 14:35:38

11B_Ant1_High_2462



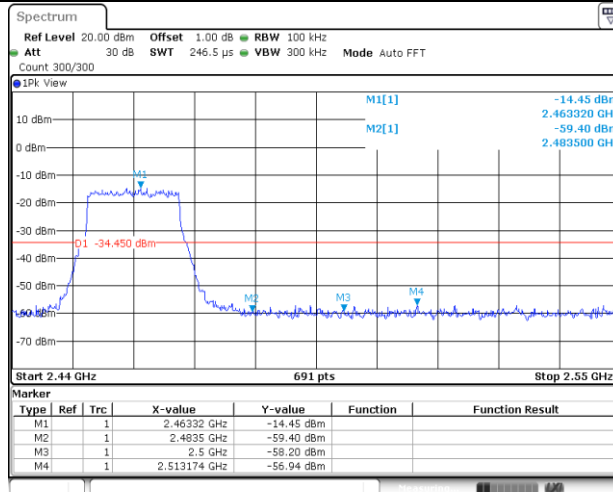
Date: 10.NOV.2023 14:38:50

11G_Ant1_Low_2412



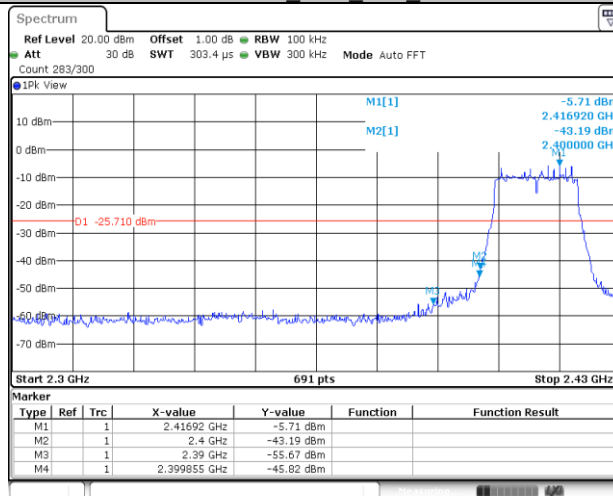
Date: 10.NOV.2023 14:40:33

11G_Ant1_High_2462



Date: 10.NOV.2023 14:43:51

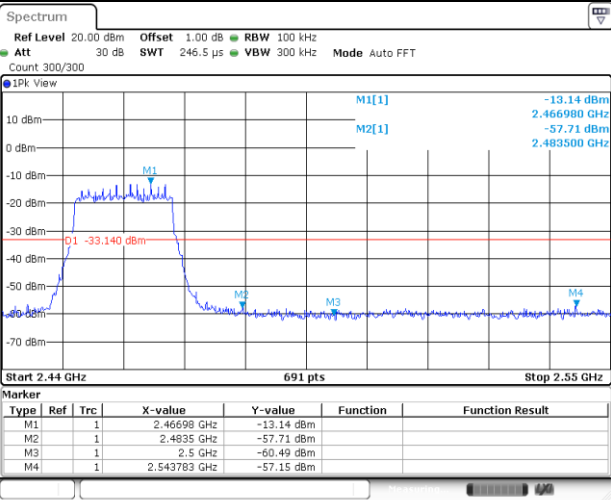
11N20SISO_Ant1_Low_2412



Date: 10.NOV.2023 14:45:39

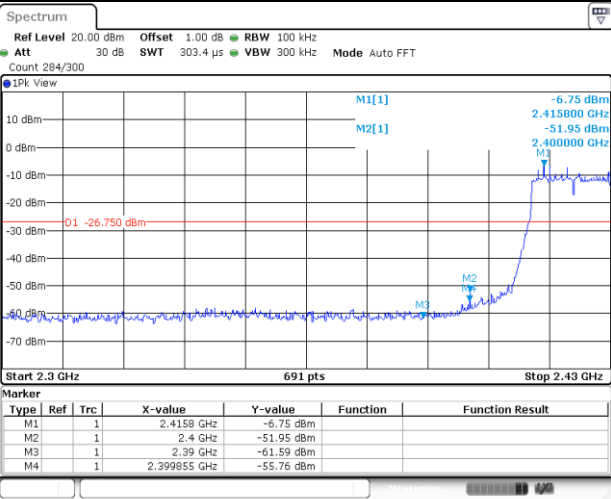


11N20SISO_Ant1_High_2462



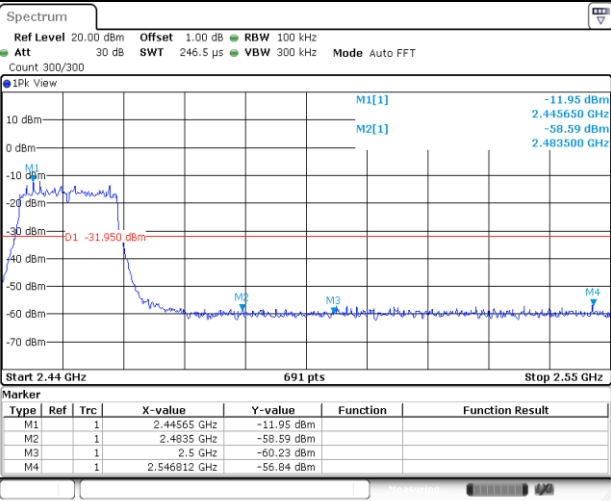
Date: 10.NOV.2023 14:49:03

11N40SISO_Ant1_Low_2422



Date: 10.NOV.2023 14:50:40

11N40SISO_Ant1_High_2452



Date: 10.NOV.2023 14:56:17

9.7 Spurious Radiated Emissions for Transmitter

Test Method

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. Use the following spectrum analyzer settings According to C63.10
 - 1) Procedure for Unwanted Emissions Measurements Below 1000 MHz
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz to 120kHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.
 - 2) For Peak unwanted emissions Above 1GHz:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 1MHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.
Procedures for average unwanted emissions measurements above 1GHz
 - a) RBW = 1MHz.
 - b) $VBW \setminus [3 \times RBW]$.
 - c) Detector = RMS (power averaging), if $[\text{span} / (\# \text{ of points in sweep})] \setminus RBW / 2$.
Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.
 - d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
 - e) Sweep time = auto.
 - f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of $1 / D$, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)
 - g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.
 - 2) If linear voltage averaging mode was used in the preceding step e), then the correction

factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.

3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission (AV) at frequency above 1GHz.

Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that 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 § 15.247(b)(3) and RSS 247 section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in § 15.209(a) and RSS-Gen is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a) and RSS-Gen section 8.9, must also comply with the radiated emission limits specified in § 15.209(a) and RSS-Gen section 8.10.

Frequency MHz	Field Strength $\mu\text{V/m}$	Field Strength $\text{dB}\mu\text{V/m}$	Detector	Measurement distance meters
0.009-0.490	2400/F(kHz)	48.5-13.8	AV	300
0.490-1.705	24000/F(kHz)	33.8-23.0	QP	30
1.705-30	30	29.5	QP	30
30-88	100	40	QP	3
88-216	150	43.5	QP	3
216-960	200	46	QP	3
960-1000	500	54	QP	3
Above 1000	500	54	AV	3
Above 1000	5000	74	PK	3

Note 1: Limit $3\text{m}(\text{dB}\mu\text{V/m}) = \text{Limit } 300\text{m}(\text{dB}\mu\text{V/m}) + 40\text{Log}(300\text{m}/3\text{m})$ (Below 30MHz)

Note 2: Limit $3\text{m}(\text{dB}\mu\text{V/m}) = \text{Limit } 30\text{m}(\text{dB}\mu\text{V/m}) + 40\text{Log}(30\text{m}/3\text{m})$ (Below 30MHz)

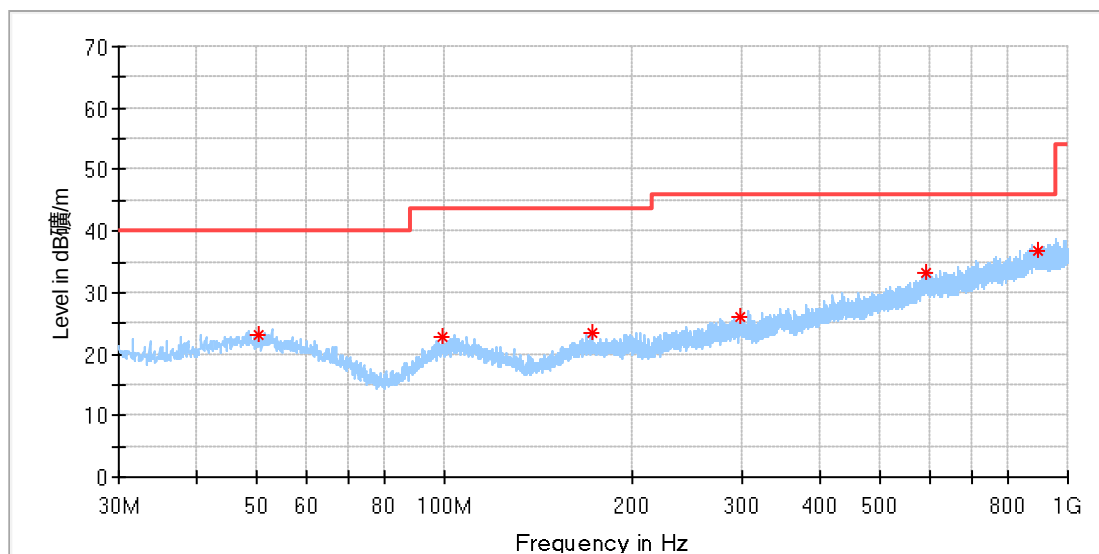
Spurious Radiated Emissions for Transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

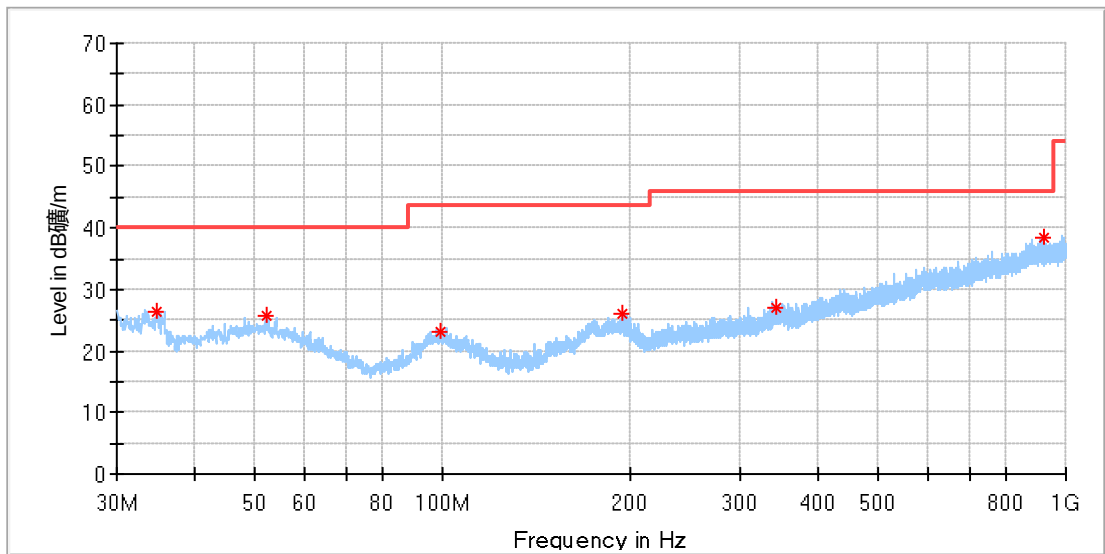
Data of measurement within frequency range 9kHz-30MHz is the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report.

Transmitting spurious emission test result as below:

Test data_30MHz to 1000MHz



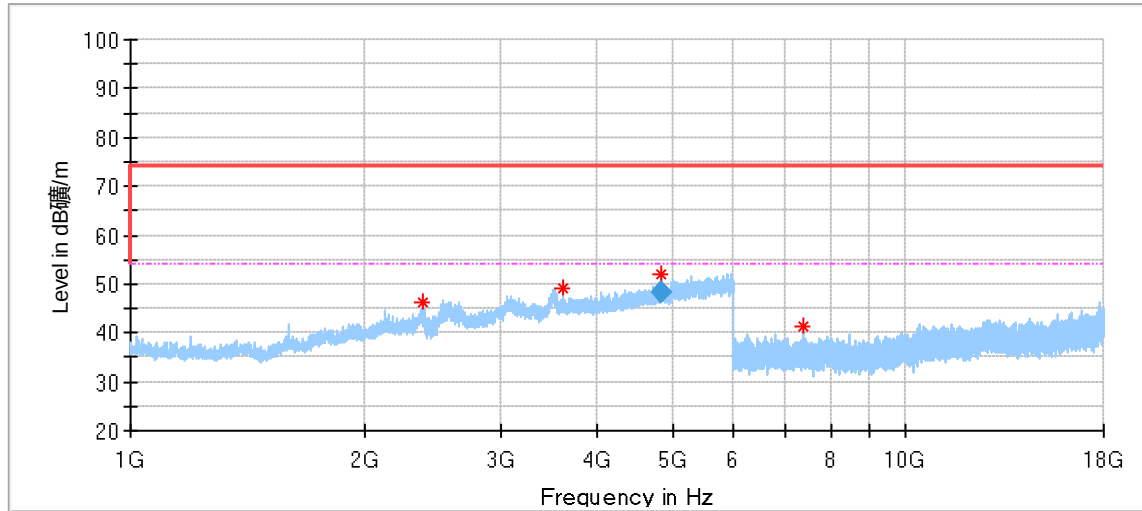
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
50.188125	23.27	40.00	16.73	200.0	H	0.0	20.74
99.355000	22.79	43.50	20.71	200.0	H	351.0	18.78
173.014375*	23.50	43.50	20.00	200.0	H	40.0	16.46
298.750625	26.14	46.00	19.86	200.0	H	124.0	21.34
591.690625	33.07	46.00	12.93	200.0	H	54.0	27.97
896.028125	36.94	46.00	9.06	200.0	H	153.0	31.95



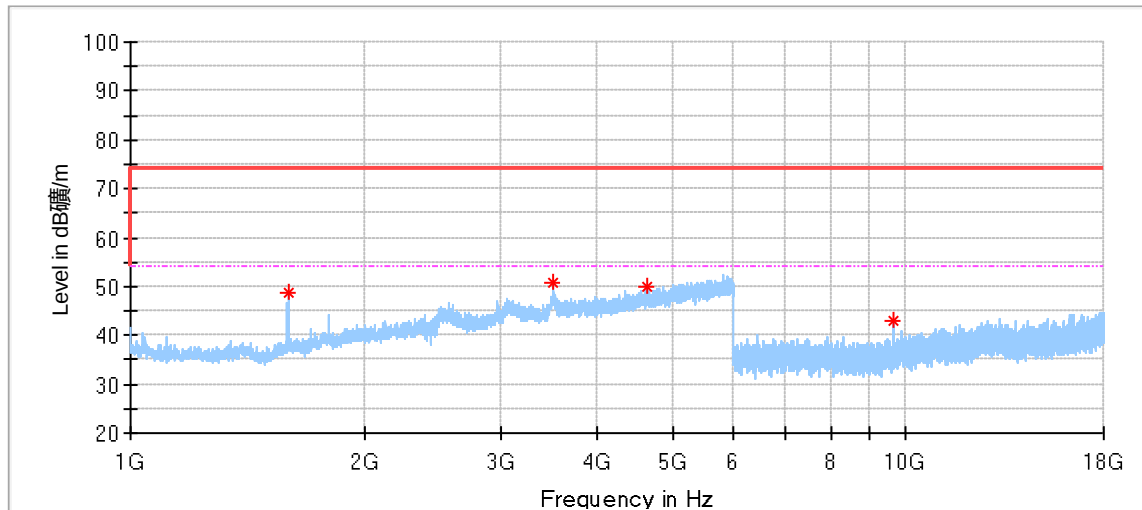
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
34.850000	26.37	40.00	13.63	100.0	V	131.0	17.82
52.006875	25.65	40.00	14.35	100.0	V	0.0	20.67
99.233750	23.09	43.50	20.41	100.0	V	356.0	18.78
194.657500	25.91	43.50	17.59	100.0	V	300.0	18.81
341.794375	27.08	46.00	18.92	200.0	V	0.0	22.83
924.885625	38.40	46.00	7.60	100.0	V	300.0	32.10

1GHz -18GHz:

11b_2412MHz:

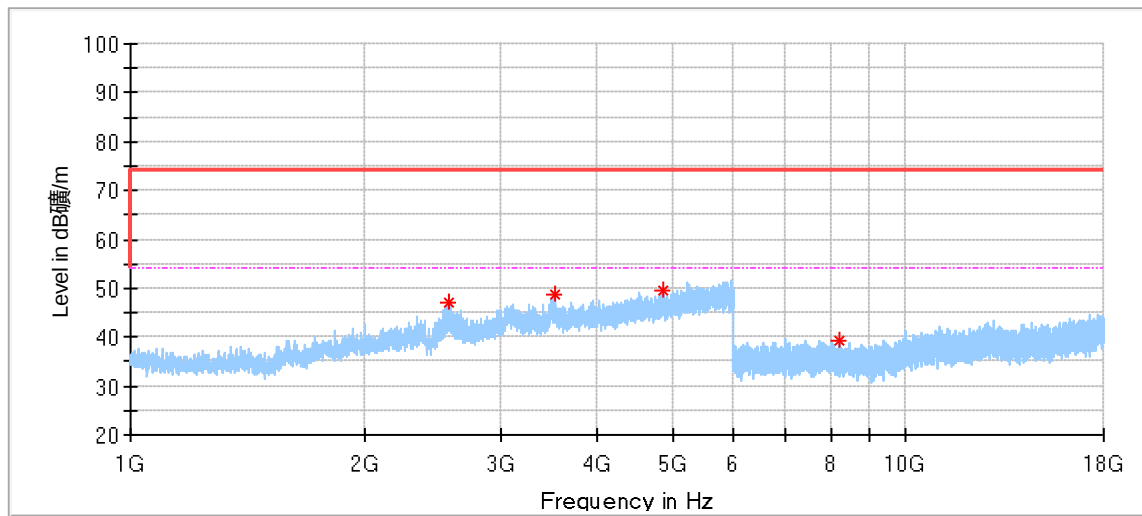


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2386.000000*	46.40	74.00	27.60	150.0	H	255.0	-2.48
3609.000000*	49.10	74.00	24.90	150.0	H	183.0	1.90
4824.000000*	51.88	74.00	22.12	150.0	H	285.0	5.03
7393.000000*	41.34	74.00	32.66	150.0	H	94.0	6.51
Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4824.000000*	48.38	54.00	5.62	150.0	H	285.0	5.03

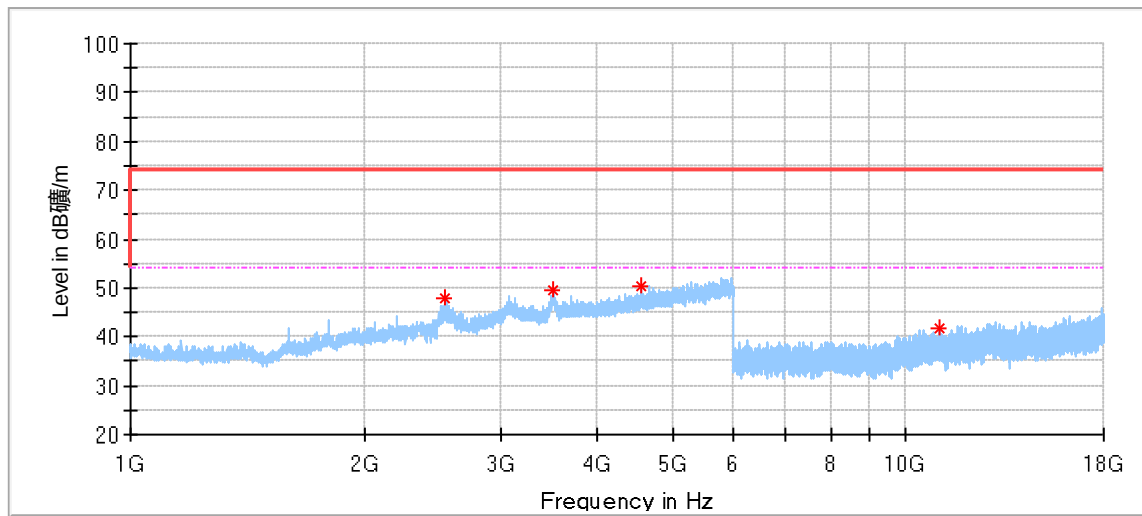


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1599.500000	48.82	74.00	25.18	150.0	V	347.0	-6.84
3506.000000	50.70	74.00	23.30	150.0	V	224.0	4.19
4650.500000*	49.96	74.00	24.04	150.0	V	356.0	4.44
9648.000000	42.96	74.00	31.04	150.0	V	359.0	8.89

11b_2437MHz:

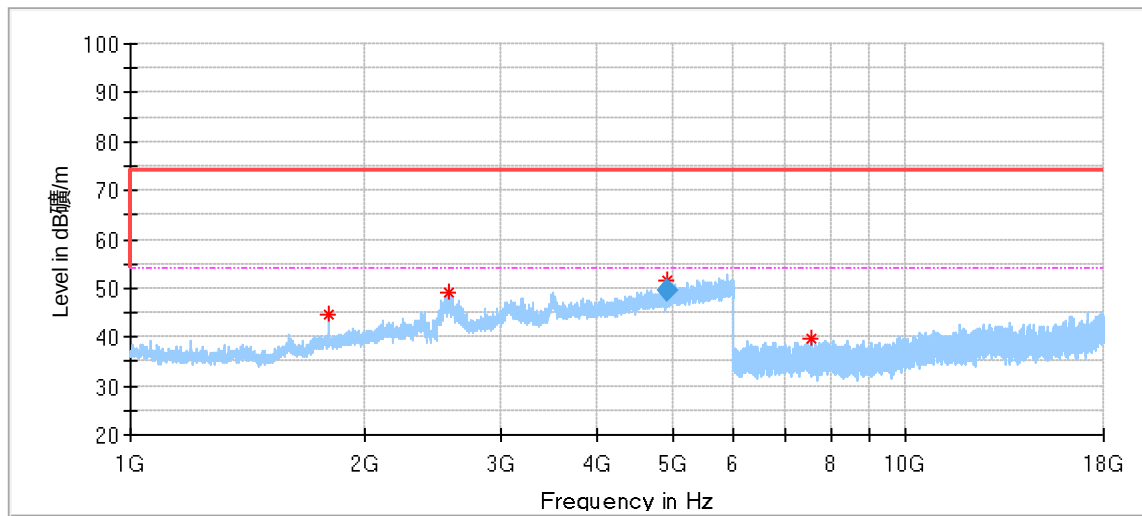


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2572.500000	47.22	74.00	26.78	150.0	H	238.0	-1.20
3519.500000	48.58	74.00	25.42	150.0	H	42.0	3.50
4874.500000*	49.37	74.00	24.63	150.0	H	305.0	5.09
8222.000000*	39.39	74.00	34.61	150.0	H	344.0	7.41

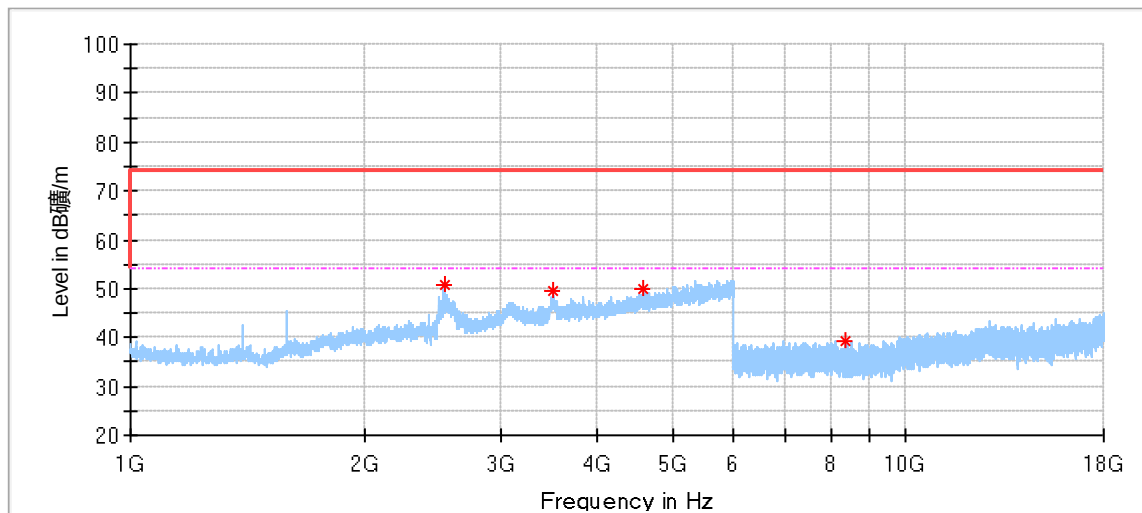


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2550.000000	47.70	74.00	26.30	150.0	V	121.0	-1.35
3509.500000	49.46	74.00	24.54	150.0	V	203.0	4.01
4564.500000*	50.53	74.00	23.47	150.0	V	50.0	4.33
11042.000000*	41.74	74.00	32.26	150.0	V	94.0	10.87

11b_2462MHz:

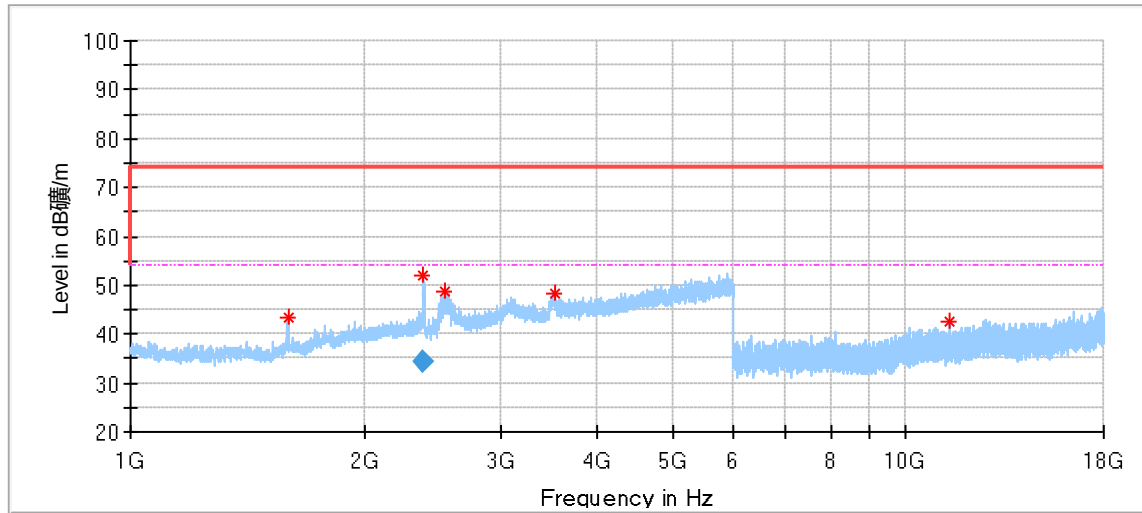


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1798.500000	44.80	74.00	29.20	150.0	H	37.0	-5.00
2567.000000	49.30	74.00	24.70	150.0	H	234.0	-1.24
4924.000000*	51.72	74.00	22.28	150.0	H	316.0	5.12
7536.500000*	39.76	74.00	34.24	150.0	H	51.0	6.88
Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4924.000000*	49.52	54.00	4.48	150.0	H	316.0	5.12

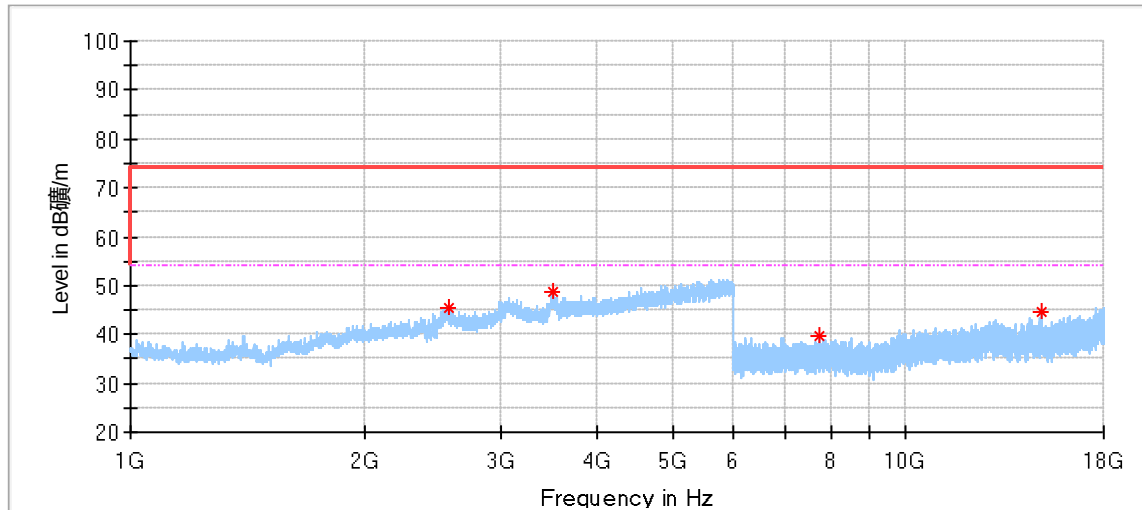


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2542.000000	50.83	74.00	23.17	150.0	V	91.0	-1.45
3505.000000	49.60	74.00	24.40	150.0	V	347.0	4.24
4574.500000*	49.98	74.00	24.02	150.0	V	173.0	4.35
8348.500000*	39.09	74.00	34.91	150.0	V	180.0	7.42

11g_2412MHz:

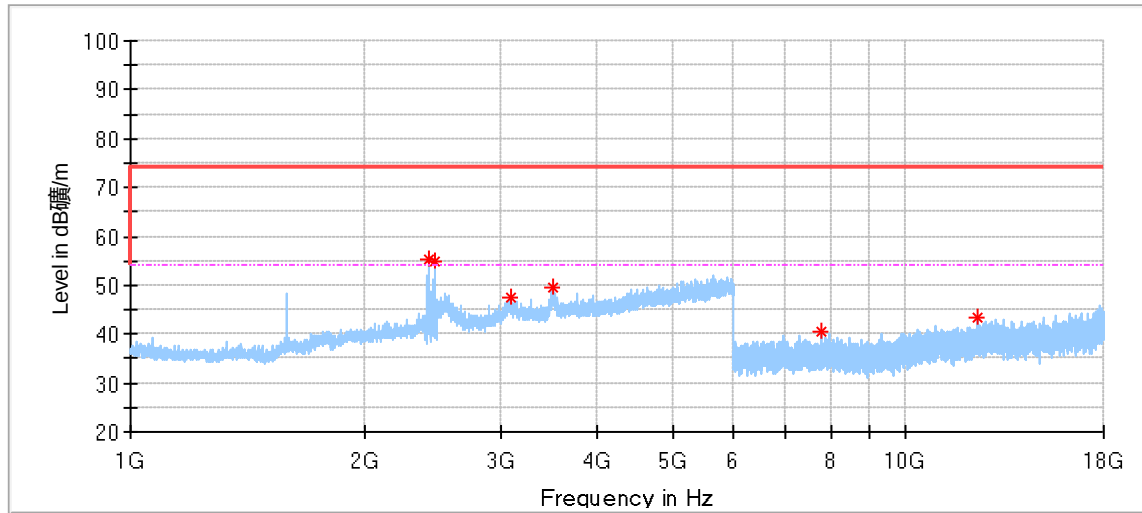


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1596.000000*	43.33	74.00	30.67	150.0	H	326.0	-6.90
2389.000000*	51.93	74.00	22.07	150.0	H	121.0	-2.46
2540.000000	48.67	74.00	25.33	150.0	H	111.0	-1.47
3518.500000	48.28	74.00	25.72	150.0	H	214.0	3.55
11404.000000*	42.38	74.00	31.62	150.0	H	261.0	11.20
Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2389.000000*	34.21	54.00	19.79	150.0	H	121.0	-2.46

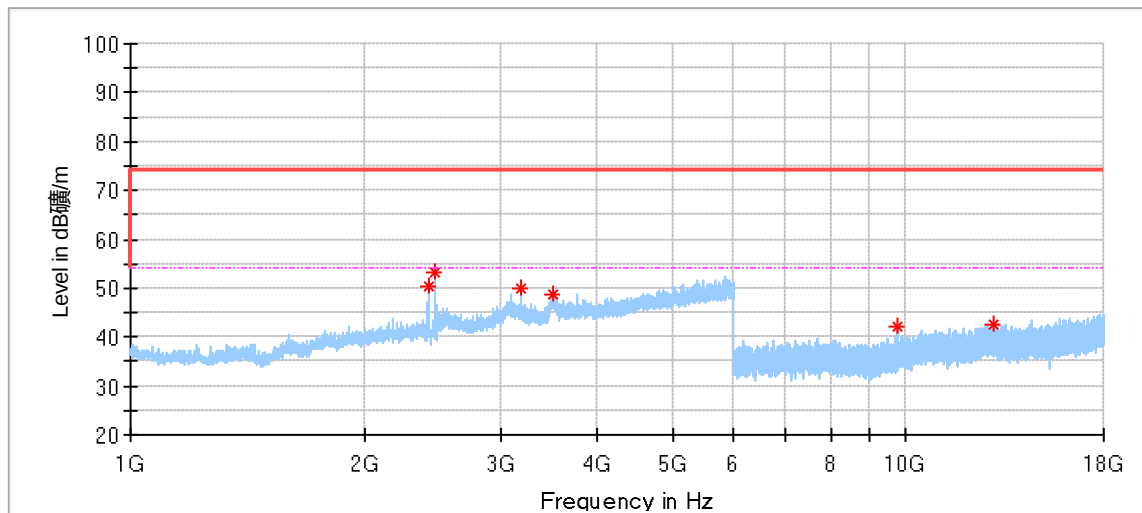


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2569.000000	45.33	74.00	28.67	150.0	V	97.0	-1.23
3508.500000	48.77	74.00	25.23	150.0	V	346.0	4.06
7745.500000*	39.74	74.00	34.26	150.0	V	177.0	7.09
14960.000000	44.73	74.00	29.27	150.0	V	351.0	14.01

11g_2437MHz:

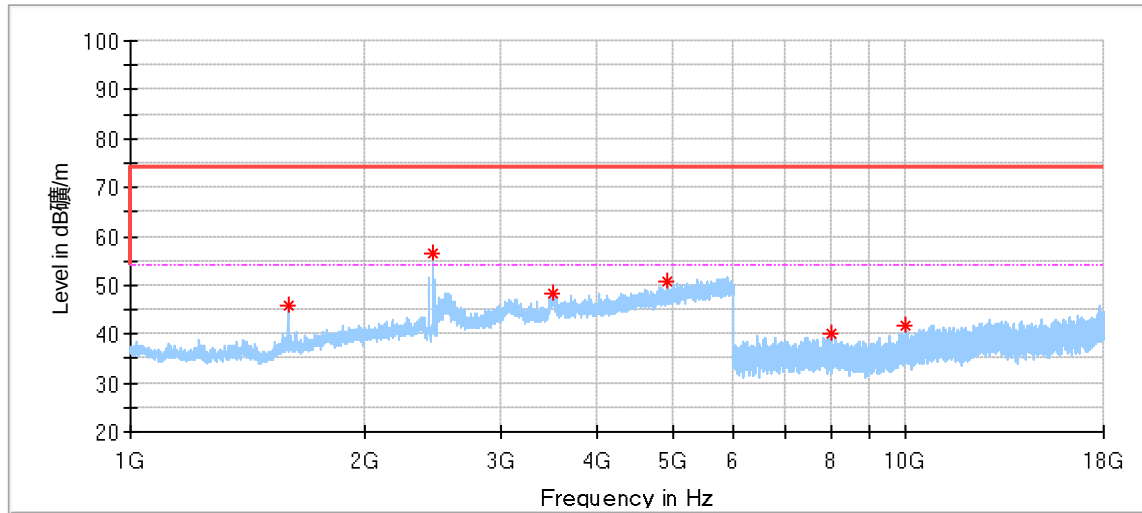


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2426.000000	55.40	74.00	18.60	150.0	H	306.0	-2.05
2468.000000	54.76	74.00	19.24	150.0	H	275.0	-1.80
3096.000000	47.51	74.00	26.49	150.0	H	275.0	1.62
3500.500000	49.40	74.00	24.60	150.0	H	234.0	4.46
7766.000000	40.44	74.00	33.56	150.0	H	264.0	7.10
12378.000000*	43.55	74.00	30.45	150.0	H	136.0	12.17

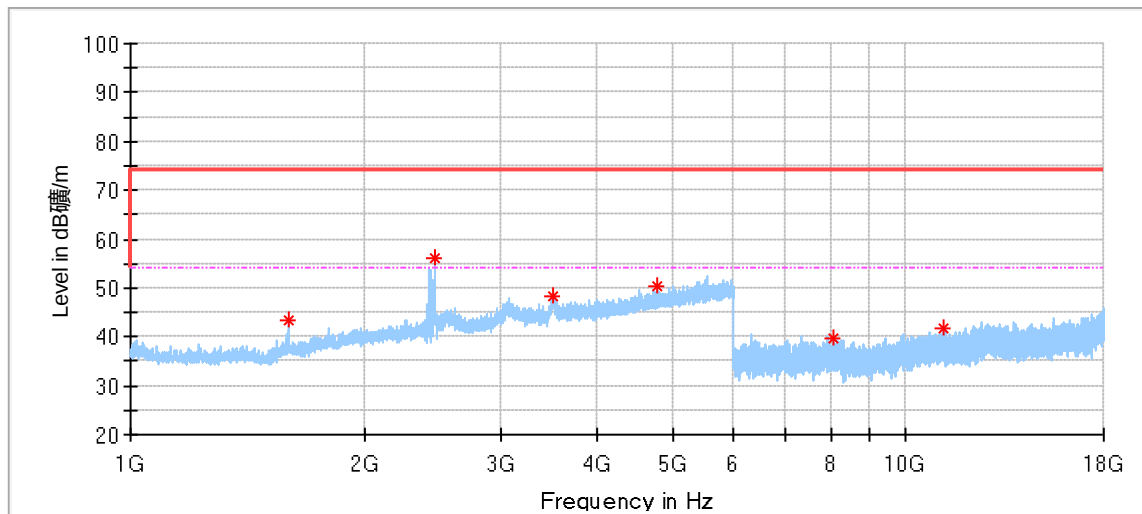


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2423.500000	50.31	74.00	23.69	150.0	V	347.0	-2.07
2471.000000	53.28	74.00	20.72	150.0	V	334.0	-1.79
3194.000000	49.86	74.00	24.14	150.0	V	68.0	0.61
3502.000000	48.69	74.00	25.31	150.0	V	150.0	4.39
9748.000000	42.05	74.00	31.95	150.0	V	302.0	9.18
13003.500000	42.65	74.00	31.35	150.0	V	302.0	13.08

11g_2462MHz:

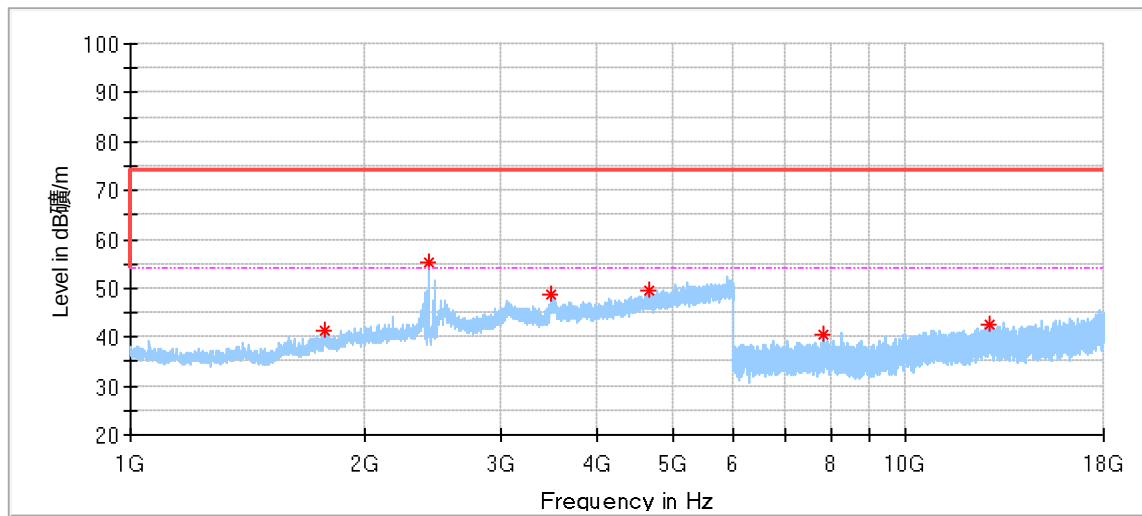


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1595.000000*	45.80	74.00	28.20	150.0	H	317.0	-6.92
2456.000000	56.33	74.00	17.67	150.0	H	0.0	-1.83
3501.500000	48.50	74.00	25.50	150.0	H	45.0	4.41
4930.000000*	50.69	74.00	23.31	150.0	H	307.0	5.15
8012.000000	40.10	74.00	33.90	150.0	H	74.0	7.47
9978.500000	41.56	74.00	32.44	150.0	H	158.0	9.48

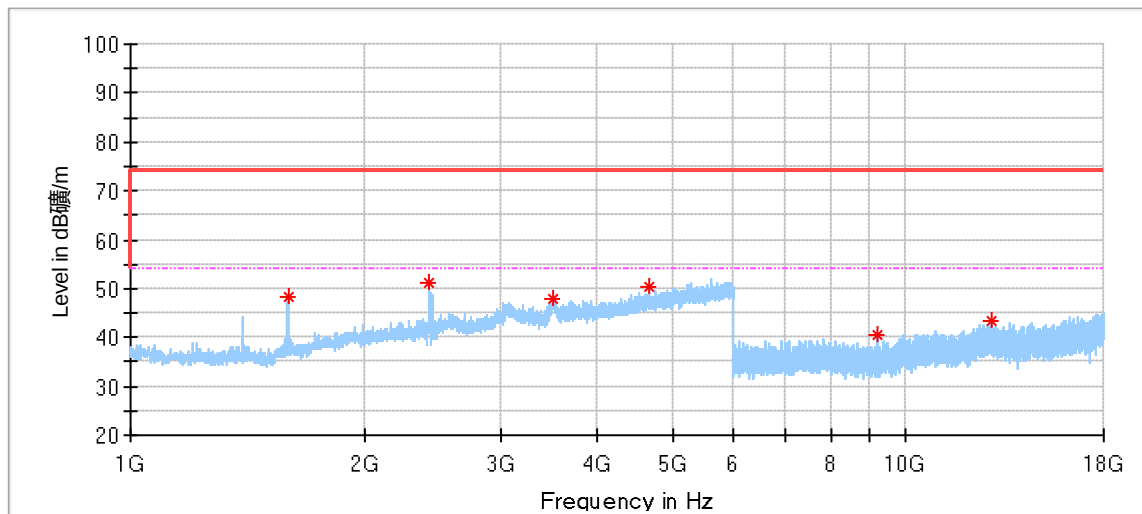


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1597.500000*	43.32	74.00	30.68	150.0	V	0.0	-6.88
2470.000000	55.95	74.00	18.05	150.0	V	203.0	-1.79
3508.500000	48.17	74.00	25.83	150.0	V	101.0	4.06
4775.000000*	50.39	74.00	23.61	150.0	V	142.0	4.77
8070.500000*	39.59	74.00	34.41	150.0	V	180.0	7.50
11200.000000*	41.56	74.00	32.44	150.0	V	53.0	11.05

11n20_2412MHz:

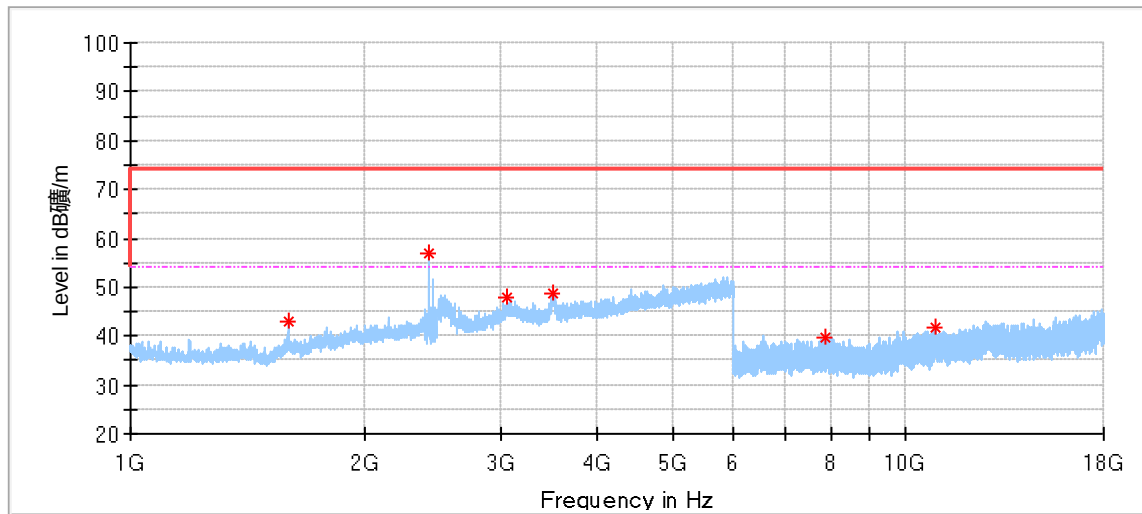


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1785.500000	41.24	74.00	32.76	150.0	H	265.0	-5.23
2426.500000	55.16	74.00	18.84	150.0	H	203.0	-2.04
3494.000000	48.70	74.00	25.30	150.0	H	47.0	4.03
4668.000000*	49.45	74.00	24.55	150.0	H	27.0	4.44
7846.000000	40.38	74.00	33.62	150.0	H	28.0	7.26
12825.000000	42.49	74.00	31.51	150.0	H	261.0	12.96

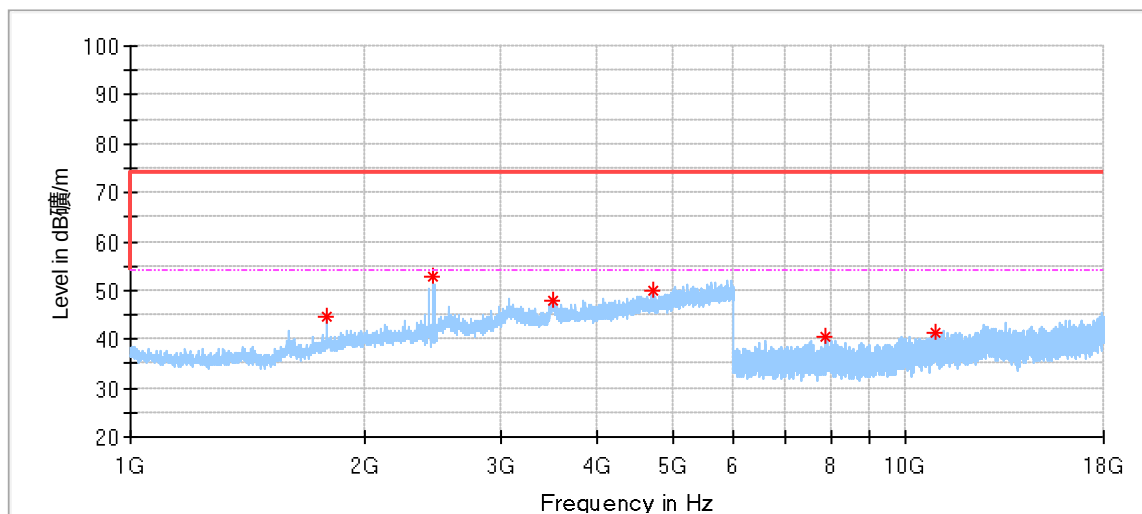


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1595.000000*	48.47	74.00	25.53	150.0	V	356.0	-6.92
2432.000000	51.27	74.00	22.73	150.0	V	99.0	-2.00
3503.000000	47.92	74.00	26.08	150.0	V	2.0	4.34
4660.000000*	50.35	74.00	23.65	150.0	V	78.0	4.44
9187.000000*	40.63	74.00	33.37	150.0	V	136.0	8.08
12880.500000	43.33	74.00	30.67	150.0	V	51.0	12.93

11n20_2437MHz:

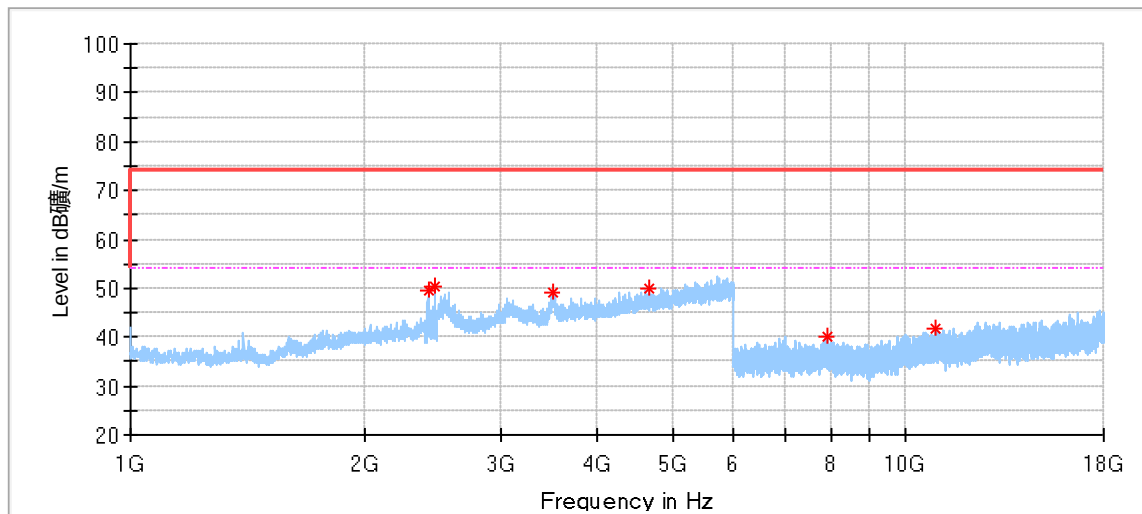


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1596.500000*	42.91	74.00	31.09	150.0	H	68.0	-6.89
2428.000000	57.04	74.00	16.96	150.0	H	111.0	-2.03
3057.500000	47.80	74.00	26.20	150.0	H	285.0	1.62
3498.500000	48.92	74.00	25.08	150.0	H	16.0	4.37
7884.000000	39.65	74.00	34.35	150.0	H	303.0	7.24
10929.500000*	41.60	74.00	32.40	150.0	H	156.0	10.84

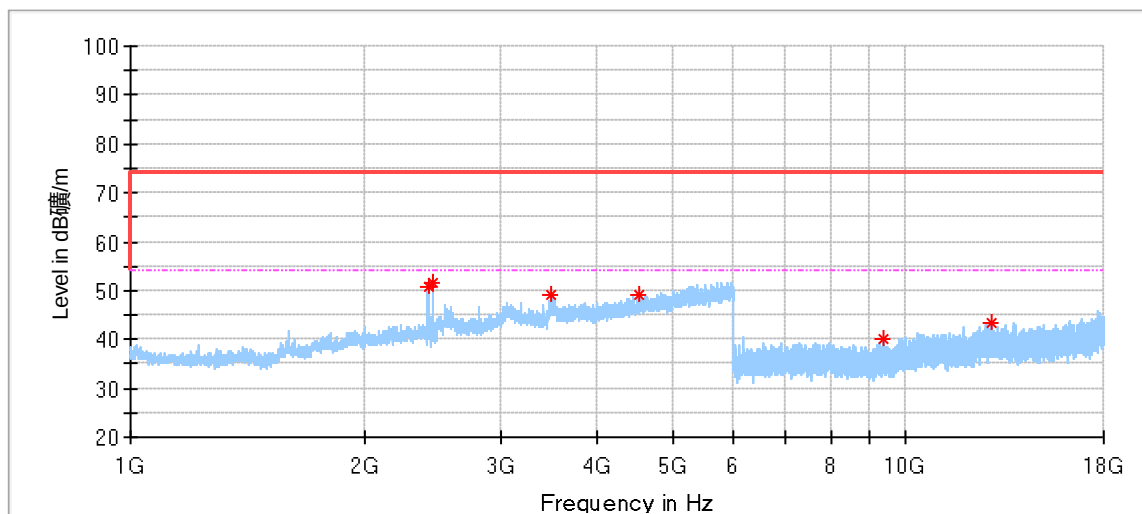


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1792.000000	44.51	74.00	29.49	150.0	V	265.0	-5.11
2455.500000	53.02	74.00	20.98	150.0	V	0.0	-1.84
3515.000000	48.01	74.00	25.99	150.0	V	255.0	3.73
4711.000000*	49.75	74.00	24.25	150.0	V	80.0	4.53
7875.000000	40.44	74.00	33.56	150.0	V	345.0	7.24
10923.000000*	41.52	74.00	32.48	150.0	V	28.0	10.85

11n20_2462MHz:

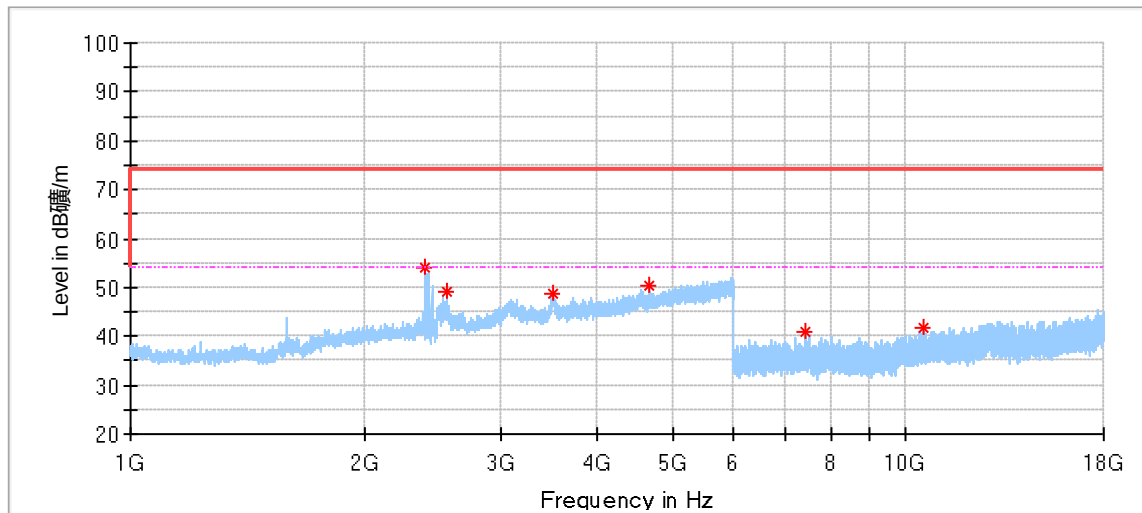


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2430.000000	49.67	74.00	24.33	150.0	H	316.0	-2.02
2474.000000	50.22	74.00	23.78	150.0	H	244.0	-1.79
3498.000000	49.13	74.00	24.87	150.0	H	37.0	4.33
4658.000000*	50.00	74.00	24.00	150.0	H	68.0	4.44
7924.000000	39.96	74.00	34.04	150.0	H	51.0	7.23
10908.500000*	41.94	74.00	32.06	150.0	H	73.0	10.86

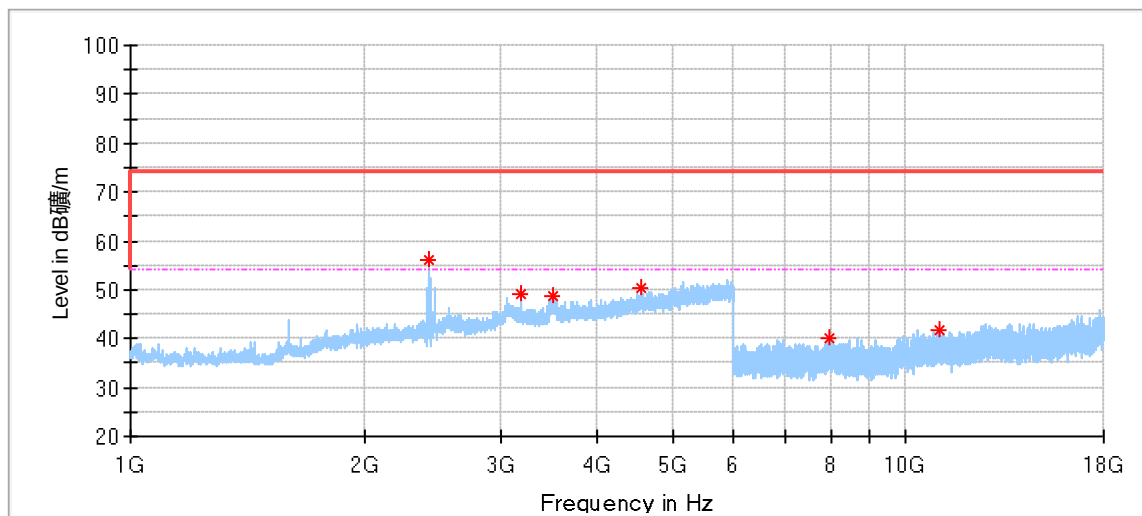


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2419.000000	50.73	74.00	23.27	150.0	V	16.0	-2.13
2449.500000	51.53	74.00	22.47	150.0	V	16.0	-1.86
3493.000000	49.08	74.00	24.92	150.0	V	304.0	3.95
4537.500000*	49.11	74.00	24.89	150.0	V	293.0	4.19
9360.000000*	40.21	74.00	33.79	150.0	V	28.0	8.40
12892.500000	43.46	74.00	30.54	150.0	V	305.0	12.93

11n40_2422MHz:

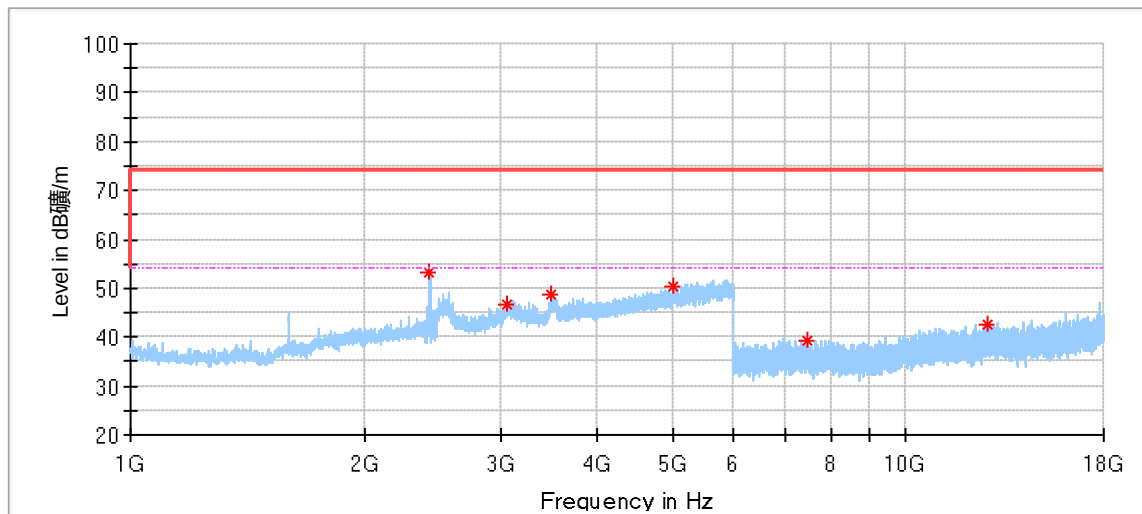


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2402.000000	54.12	74.00	19.88	150.0	H	224.0	-2.34
2559.500000	49.15	74.00	24.85	150.0	H	326.0	-1.29
3498.500000	48.64	74.00	25.36	150.0	H	356.0	4.37
4670.000000*	50.53	74.00	23.47	150.0	H	132.0	4.44
7399.000000*	40.81	74.00	33.19	150.0	H	222.0	6.51
10522.500000	41.67	74.00	32.33	150.0	H	96.0	10.09

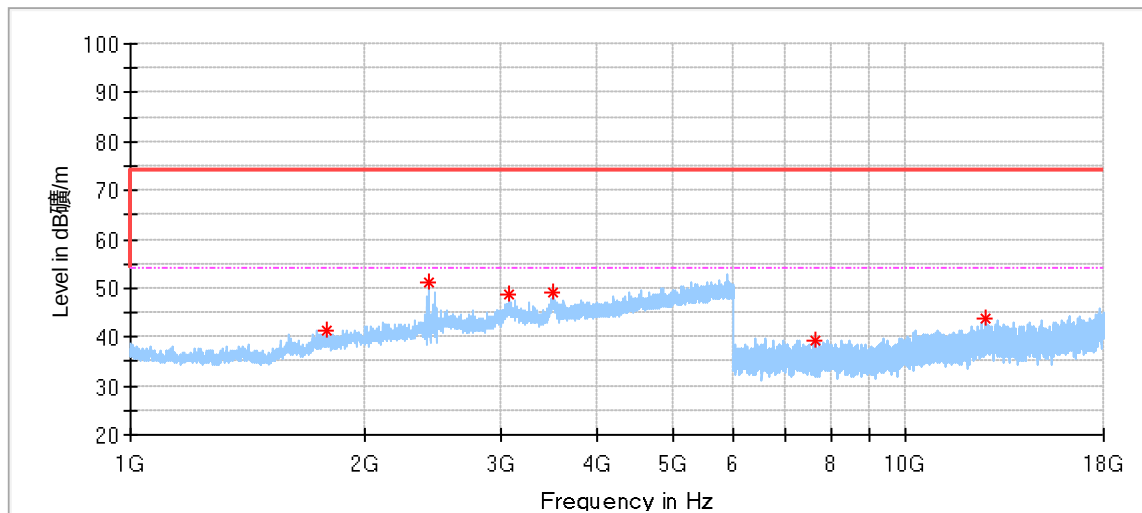


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2424.000000	56.01	74.00	17.99	150.0	V	50.0	-2.07
3197.000000	48.97	74.00	25.03	150.0	V	80.0	0.59
3509.500000	48.67	74.00	25.33	150.0	V	50.0	4.01
4560.000000*	50.46	74.00	23.54	150.0	V	306.0	4.32
7958.500000	39.99	74.00	34.01	150.0	V	51.0	7.33
11022.500000	41.90	74.00	32.10	150.0	V	324.0	10.84

11n40_2437MHz:

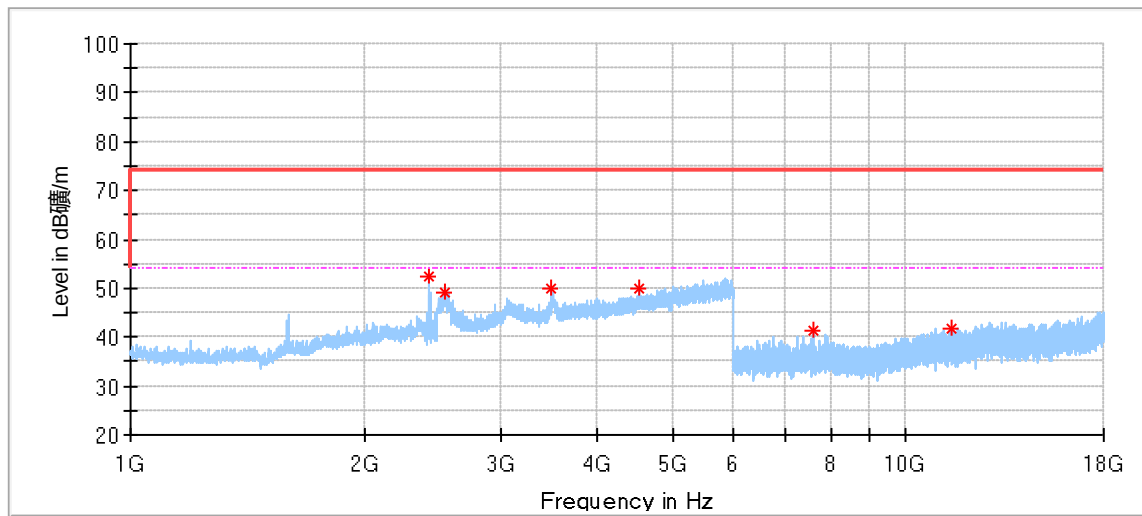


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2426.500000	53.21	74.00	20.79	150.0	H	0.0	-2.04
3060.000000	46.61	74.00	27.39	150.0	H	119.0	1.61
3496.500000	48.85	74.00	25.15	150.0	H	119.0	4.22
5016.000000*	50.43	74.00	23.57	150.0	H	314.0	5.58
7475.500000*	39.46	74.00	34.54	150.0	H	243.0	6.68
12717.500000	42.74	74.00	31.26	150.0	H	51.0	12.84

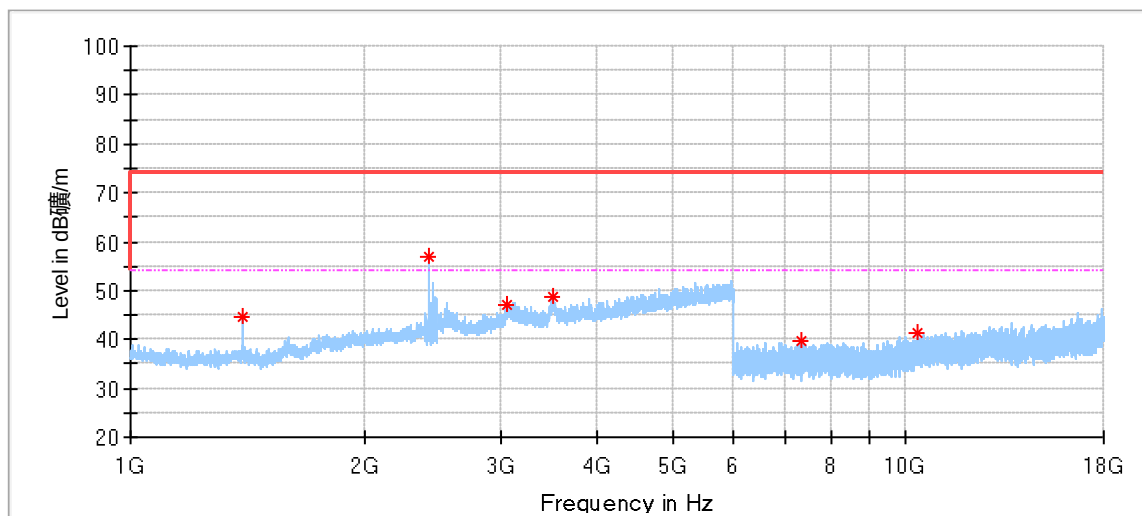


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1790.500000	41.25	74.00	32.75	150.0	V	285.0	-5.14
2421.500000	51.05	74.00	22.95	150.0	V	296.0	-2.10
3076.500000	48.73	74.00	25.27	150.0	V	337.0	1.53
3500.000000	49.04	74.00	24.96	150.0	V	201.0	4.48
7655.500000*	39.36	74.00	34.64	150.0	V	177.0	7.01
12687.000000*	43.65	74.00	30.35	150.0	V	4.0	12.79

11n40_2452MHz:



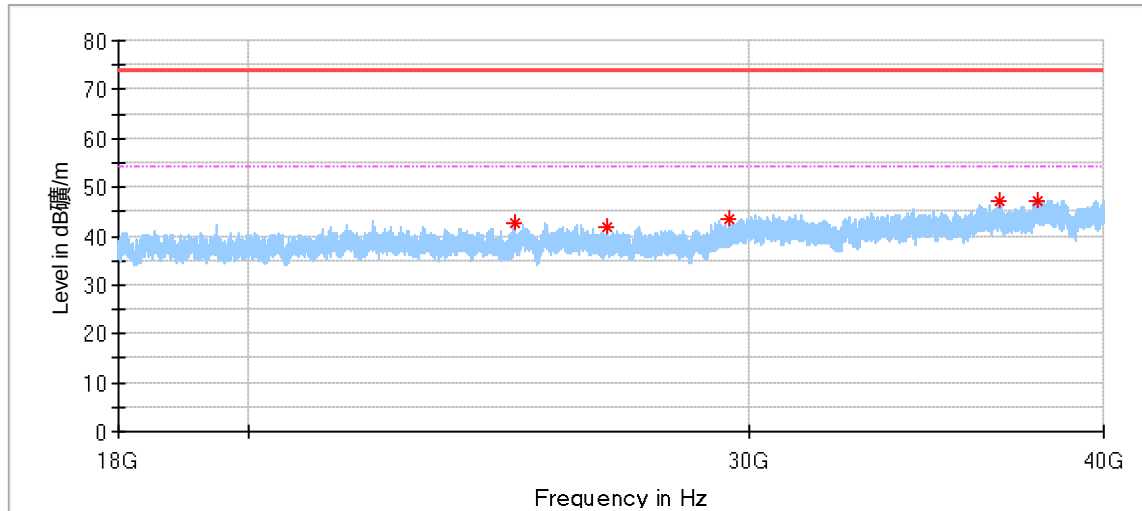
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2429.000000	52.28	74.00	21.72	150.0	H	326.0	-2.02
2548.500000	49.27	74.00	24.73	150.0	H	101.0	-1.37
3494.000000	49.84	74.00	24.16	150.0	H	265.0	4.03
4520.500000*	49.86	74.00	24.14	150.0	H	193.0	4.07
7603.500000*	41.36	74.00	32.64	150.0	H	31.0	6.85
11436.500000*	41.93	74.00	32.07	150.0	H	222.0	11.22



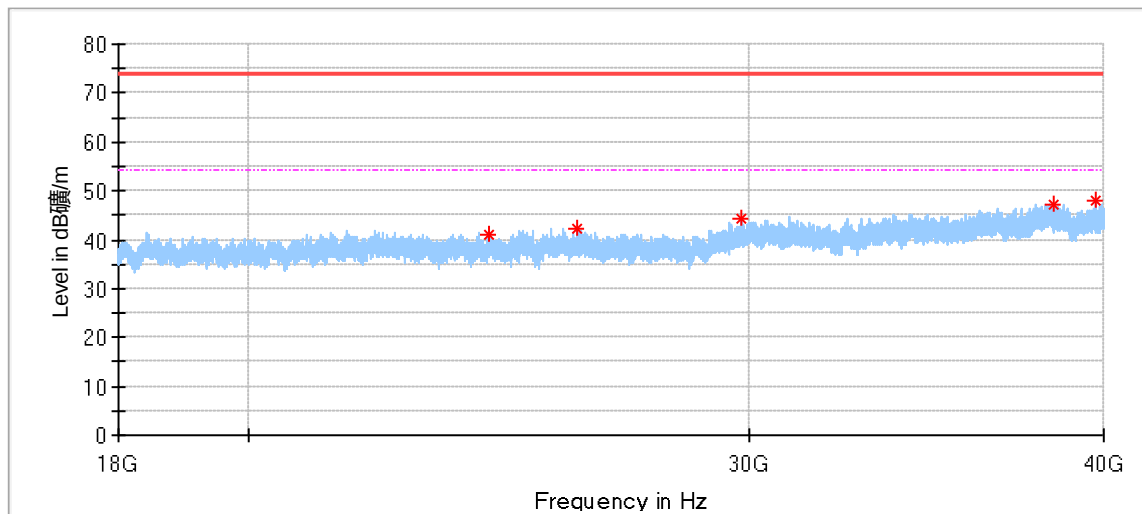
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1397.500000*	44.52	74.00	29.48	150.0	V	3.0	-7.99
2428.500000	57.08	74.00	16.92	150.0	V	224.0	-2.03
3054.000000	47.18	74.00	26.82	150.0	V	132.0	1.64
3503.000000	48.64	74.00	25.36	150.0	V	326.0	4.34
7338.000000*	39.83	74.00	34.17	150.0	V	219.0	6.67
10383.500000	41.28	74.00	32.72	150.0	V	136.0	10.12

18GHz -40GHz:

11b_2412MHz:

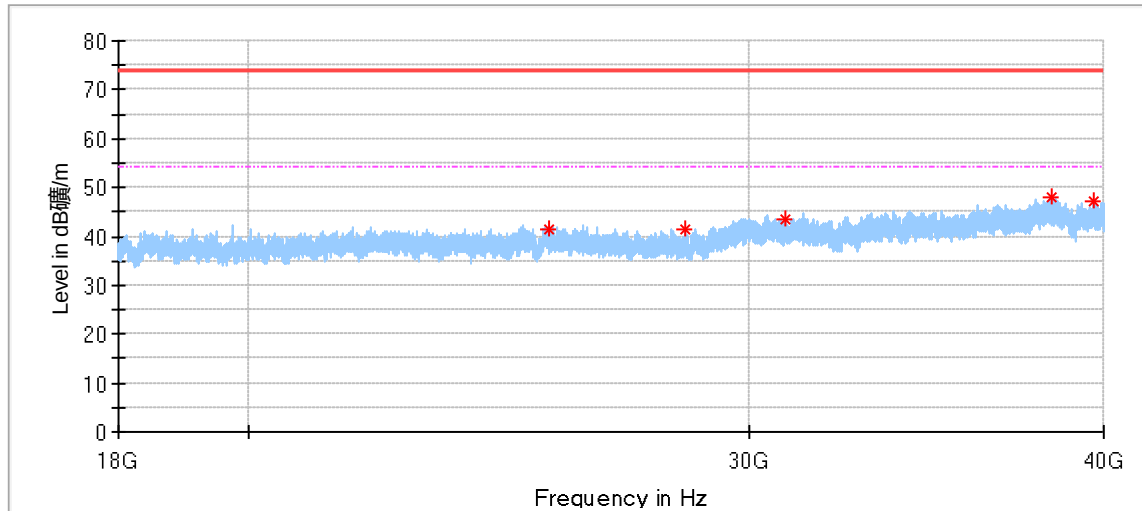


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
24811.062500	42.47	74.00	31.53	150.0	H	4.0	0.82
26760.125000	41.96	74.00	32.04	150.0	H	4.0	1.64
29521.812500	43.61	74.00	30.39	150.0	H	202.0	1.65
36786.625000	47.35	74.00	26.65	150.0	H	358.0	4.32
37930.625000	47.37	74.00	26.63	150.0	H	294.0	5.07

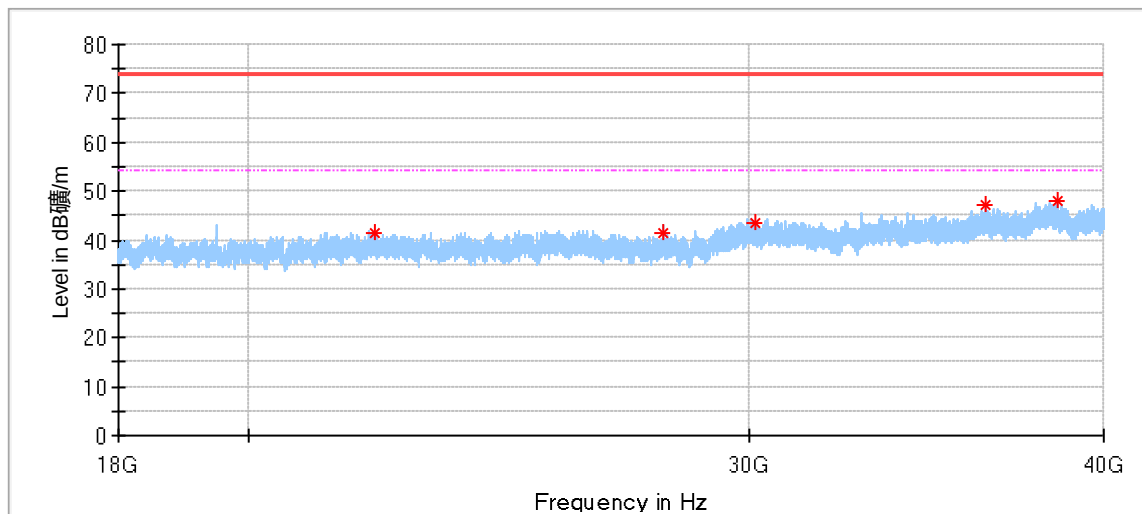


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
24309.875000	41.08	74.00	32.93	150.0	V	219.0	0.53
26097.375000	42.44	74.00	31.56	150.0	V	203.0	1.55
29811.937500	44.41	74.00	29.59	150.0	V	173.0	2.00
38386.437500	47.34	74.00	26.66	150.0	V	0.0	6.56
39740.125000	47.82	74.00	26.18	150.0	V	112.0	7.71

11b_2437MHz

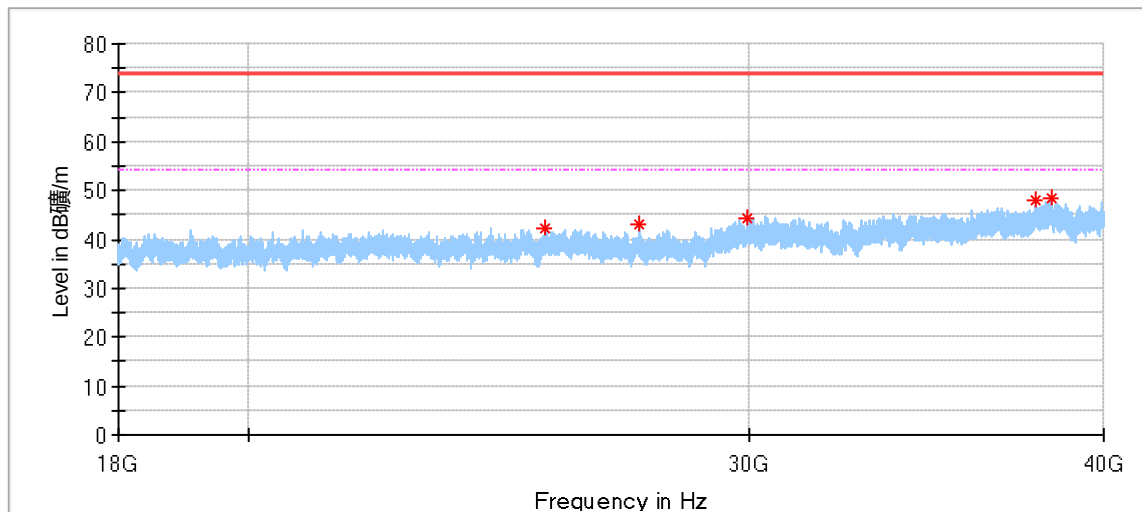


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
25532.937500	41.26	74.00	32.74	150.0	H	31.0	1.53
28482.312500	41.56	74.00	32.44	150.0	H	97.0	0.98
30905.062500	43.48	74.00	30.52	150.0	H	158.0	1.69
38322.500000	48.18	74.00	25.82	150.0	H	299.0	6.48
39680.312500	47.23	74.00	26.77	150.0	H	0.0	7.53

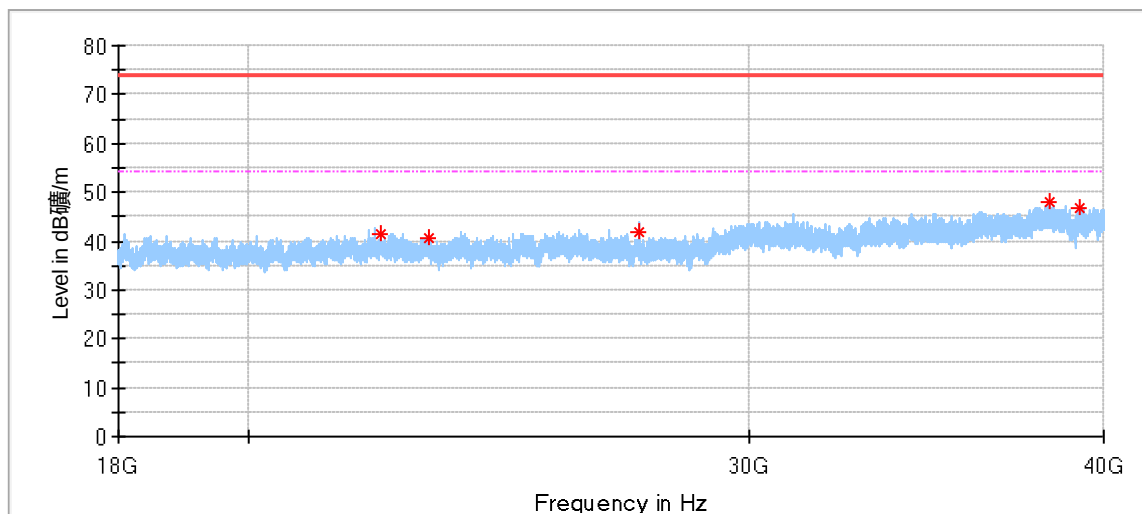


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22139.437500*	41.62	74.00	32.38	150.0	V	278.0	0.17
27986.625000	41.62	74.00	32.38	150.0	V	278.0	1.24
30167.375000	43.39	74.00	30.61	150.0	V	345.0	2.08
36374.125000	47.10	74.00	26.90	150.0	V	248.0	4.22
38511.562500	47.87	74.00	26.13	150.0	V	49.0	6.52

11b_2462MHz



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
25451.125000	42.43	74.00	31.57	150.0	H	0.0	1.42
27453.125000	42.97	74.00	31.03	150.0	H	359.0	1.65
29975.562500	44.41	74.00	29.59	150.0	H	51.0	2.01
37857.062500	48.12	74.00	25.88	150.0	H	359.0	4.80
38322.500000	48.39	74.00	25.61	150.0	H	0.0	6.48



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22272.812500	41.34	74.00	32.66	150.0	V	0.0	0.30
23159.000000	40.50	74.00	33.50	150.0	V	203.0	0.41
27431.812500	41.74	74.00	32.26	150.0	V	173.0	1.69
38275.750000	48.05	74.00	25.95	150.0	V	295.0	6.33
39214.875000	46.74	74.00	27.26	150.0	V	264.0	5.75

Remark:

- (1) Data of measurement within frequency range 9kHz-30MHz are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report.
- (2) Corrected Amplitude = Read level + Corrector factor
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss

10 Test Equipment List

List of Test Instruments

Radiated Emission Test 1# (9kHz – 1GHz)

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	68-4-74-14-002	101269	1	2024-5-20
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9162	68-4-80-19-003	284	1	2024-3-5
Loop Antenna	Rohde & Schwarz	HFH2-Z2	68-4-80-14-006	100398	1	2024-8-7
Pre-amplifier	Rohde & Schwarz	SCU 18F	68-4-29-19-001	100745	1	2024-5-19
Sideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	68-4-80-14-008	12827	1	2024-7-11
Pre-amplifier	Rohde & Schwarz	SCU 40A	68-4-29-14-002	100432	1	2024-8-1
Attenuator	Mini-circuits	UNAT-6+	68-4-81-21-002	15542	1	2024-5-19
3m Semi-anechoic chamber	TDK	SAC-3 #2	68-4-90-19-006	----	2	2024-5-28
Test software	Rohde & Schwarz	EMC32	68-4-90-19-006-A01	Version10.35.02	N/A	N/A

Radiated Emission 2# Test (1GHz – 40GHz)

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	68-4-74-14-002	101269	1	2024-5-20
Wave Guide Antenna	ETS	3117	68-4-80-19-001	00218954	1	2024-4-26
Pre-amplifier	Rohde & Schwarz	SCU 18F	68-4-29-19-002	100746	1	2024-5-19
Sideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	68-4-80-14-008	12827	1	2024-7-11
Pre-amplifier	Rohde & Schwarz	SCU 40A	68-4-29-14-002	100432	1	2024-8-1
Attenuator	Mini-circuits	UNAT-6+	68-4-81-21-002	15542	1	2024-5-19
3m Semi-anechoic chamber	TDK	SAC-3 #2	68-4-90-19-006	----	2	2024-5-28
Test software	Rohde & Schwarz	EMC32	68-4-90-19-006-A01	Version10.35.02	N/A	N/A

Conducted Emission 1# Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	68-4-74-19-002	102590	1	2024-5-20
LISN	Rohde & Schwarz	ENV432	68-4-87-16-001	101318	1	2024-5-20
Attenuator	Shanghai Huaxiang	TS2-26-3	68-4-81-16-003	080928189	1	2024-5-19
Test software	Rohde & Schwarz	EMC32	68-4-90-19-005-A01	Version10.35.02	N/A	N/A
Shielding Room	TDK	CSR #2	68-4-90-19-005	----	3	2025-10-15

Conducted RF Test System

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	68-4-74-14-004	101030	1	2024-5-19
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157W	68-4-93-14-003	101226/100929	1	2024-5-20
Power Splitter	Weinschel	1580	68-4-85-14-001	SC319	1	2024-5-20
10dB Attenuator	Weinschel	4M-10	68-4-81-14-003	43152	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-004	DNF-001	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-005	DNF-002	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-006	DNF-003	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-007	DNF-004	1	2024-5-19
Test software	Tonscend	System for BT/WIFI	68-4-74-14-006-A13	Version 2.6.77.0518	N/A	N/A
Shielding Room	TDK	TS8997	68-4-90-19-003	----	3	2025-10-15

11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Conducted Emission in shielding room (68-4-90-19-004) 150kHz-30MHz (for test using AMN ENV432 or ENV4200)	3.15dB
Uncertainty for Radiated Emission in 3m chamber (68-4-90-14-001) 9kHz-30MHz	4.70dB
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 30MHz-1000MHz	Horizontal: 4.63dB; Vertical: 4.78dB;
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 1000MHz-18000MHz	Horizontal: 5.38dB; Vertical: 5.38dB;
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 18GHz-40GHz	5.29dB
Uncertainty for Conducted RF test	RF Power Conducted: 1.31dB Frequency test involved: 0.6×10^{-8} or 1%

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2021, clause 4.4.3 and 4.5.1.

---THE END OF REPORT---