

RF TEST REPORT

FCC ID: 2AMKE-BE31

Product Name: Black Shark JoyBuds Studio

Brand Name: BLACK SHARK

Model Name: BE31

Report No.: N26070108616E

Prepared for

Shenzhen MYGT Co., Ltd

D3. Tongfuyu Industrial Area, Street Community of Shajing Town, BaoAn, Shenzhen, China

Prepared by

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Table of Contents

1	REVISION HISTORY	4
2	TEST SUMMARY	5
3	TEST RESULT CERTIFICATION	6
4	FACILITIES AND ACCREDITATIONS.....	7
4.1	FACILITIES.....	7
4.2	LABORATORY ACCREDITATIONS AND LISTINGS	7
4.3	MEASUREMENT UNCERTAINTY	7
5	GENERAL DESCRIPTION OF EUT	8
5.1	DETAILS OF E.U.T.....	8
5.2	EUT FEATURE AND SPECIFICATION	8
5.3	DEVIATION FROM STANDARDS	8
5.4	ABNORMALITIES FROM STANDARD CONDITION	8
6	DESCRIPTION OF TEST MODES AND OPERATION CONFIGURATION OF EUT	9
6.1	DESCRIPTION OF TEST MODES	9
6.2	OPERATION CONFIGURATION OF EUT	9
7	SETUP OF EQUIPMENT UNDER TEST	9
7.1	BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM	9
7.2	SUPPORT EQUIPMENT	11
8	EQUIPMENT LIST	12
MEASUREMENT SOFTWARE		13
9	EVALUATION RESULTS (EVALUATION)	14
9.1	ANTENNA REQUIREMENT	14
10	RADIO SPECTRUM MATTER TEST RESULTS (RF)	15
10.1	CONDUCTED EMISSION AT AC POWER LINE	15
10.1.1	Test Setup Diagram:	15
10.1.2	E.U.T. Operation:	15
10.1.3	Test Data:	16
10.2	20DB BANDWIDTH.....	18
10.2.1	Test Setup Diagram:	19
10.2.2	E.U.T. Operation:	19
10.2.3	Test Data:	19
10.3	MAXIMUM CONDUCTED OUTPUT POWER.....	20
10.3.1	Test Setup Diagram:	20
10.3.2	E.U.T. Operation:	20
10.3.3	Test Data:	20
10.4	CHANNEL SEPARATION.....	21
10.4.1	Test Setup Diagram:	21
10.4.2	E.U.T. Operation:	21
10.4.3	Test Data:	21
10.5	NUMBER OF HOPPING FREQUENCIES	22
10.5.1	Test Setup Diagram:	22
10.5.2	E.U.T. Operation:	22
10.5.3	Test Data:	23
10.6	DWELL TIME.....	24
10.6.1	Test Setup Diagram:	25
10.6.2	E.U.T. Operation:	25
10.6.3	Test Data:	25
10.7	EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	26
10.7.1	Test Setup Diagram:	26
10.7.2	E.U.T. Operation:	26
10.7.3	Test Data:	26
10.8	BAND EDGE EMISSIONS (RADIATED)	27

10.8.1	Test Setup Diagram:	28
10.8.2	E.U.T. Operation:	28
10.8.3	Test Data:	29
10.9	EMISSIONS IN FREQUENCY BANDS (BELOW 1GHZ)	33
10.9.1	Test Setup Diagram:	33
10.9.2	E.U.T. Operation:	34
10.9.3	Test Data:	35
10.10	EMISSIONS IN FREQUENCY BANDS (ABOVE 1GHZ)	37
10.10.1	E.U.T. Operation:	37
10.10.2	Test Data:	38
11	APPENDIX	50
13.1	DWELL TIME	50
13.2	MAXIMUM CONDUCTED OUTPUT POWER	60
13.3	-20DB BANDWIDTH	66
13.4	OCCUPIED CHANNEL BANDWIDTH	72
13.5	CARRIER FREQUENCIES SEPARATION	78
13.6	NUMBER OF HOPPING CHANNEL	84
13.7	BAND EDGE	87
13.8	BAND EDGE(HOPPING).....	94
13.9	CONDUCTED RF SPURIOUS EMISSION	101

1 Revision History

Revision History			
Report No.	Version	Description	Issued Date
N26070108616E	Rev.01	Initial issue of report	Aug. 17, 2026

2 Test Summary

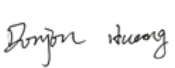
FCC Rule	Test Item	Method	Tested By	Result
47 CFR 15.203	Antenna requirement	---	Leo Wang	Pass
47 CFR 15.207(a)	Conducted Emission at AC power line	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.2	Leo Wang	Pass
47 CFR 15.247(a)(1)	20dB Bandwidth	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.6	Leo Wang	Pass
47 CFR 15.247(b)(1)	Maximum Conducted Output Power	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.5	Leo Wang	Pass
47 CFR 15.247(a)(1)	Channel Separation	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.2	Leo Wang	Pass
47 CFR 15.247(a)(1)(iii)	Number of Hopping Frequencies	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.3	Leo Wang	Pass
47 CFR 15.247(a)(1)(iii)	Dwell Time	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.4	Leo Wang	Pass
47 CFR 15.247(d)	Emissions in non-restricted frequency bands	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 7.8.7	Leo Wang	Pass
47 CFR 15.247(d), 15.209, 15.205	Band edge emissions (Radiated)	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.10	Harry Huang	Pass
47 CFR 15.247(d), 15.209, 15.205	Emissions in frequency bands (below 1GHz)	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4	Harry Huang	Pass
47 CFR 15.247(d), 15.209, 15.205	Emissions in frequency bands (above 1GHz)	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.5.4	Harry Huang	Pass

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.

3 Test Result Certification

CLIENT INFORMATION	
Applicant:	Shenzhen MYGT Co., Ltd
Address of Applicant:	D3. Tongfuyu Industrial Area, Street Community of Shajing Town, BaoAn, Shenzhen, China
Manufacturer:	Shenzhen MYGT Co., Ltd
Address of Manufacturer:	D3. Tongfuyu Industrial Area, Street Community of Shajing Town, BaoAn, Shenzhen, China
EUT INFORMATION	
Product Name:	Black Shark JoyBuds Studio
Brand Name:	BLACK SHARK
Model Name:	BE31
Sample Received Date:	Jul. 03, 2026
Sample Number:	S2607020211-1#
Applicable Standards	47 CFR Part 15.247
Measurement Procedures	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024
This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report. This report shall not be reproduced except in full without the written approval of NTEK. This document may be altered or revised only by NTEK personnel, and revisions shall be recorded in the revision history of the document.	
Date of Test:	Jul. 07, 2026 to Jul. 14, 2026
Issue Date:	Aug. 17, 2026

Prepared By:		Reviewed by:		Approved By:	
	Donjon Huang (Project Engineer)		Aaron Cheng (Supervisor)		Alex Li (Manager)

4 Facilities and Accreditations

4.1 Facilities

All measurement facilities used to collect the measurement data are located at

Building 1/2/11/12, No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 16-1-4.

4.2 Laboratory Accreditations And Listings

Site Description	
CNAS-Lab.	: Registration Code L5516
A2LA-Lab.	: Certificate Number 4298.01
FCC-Accredited	: Test Firms Registration Number: 463705 Designation Number: CN1184
ISED Wireless Device Testing Laboratories	: The ISED Company Number is 9270A CAB identifier:CN0074

4.3 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where the expanded uncertainty U is obtained by multiplying the standard uncertainty by a coverage factor $k=2$, corresponding to a confidence level of approximately 95%.

Item	Uncertainty
RF Power, conducted	1.34dB
Time	5%
Radiated Spurious Emissions(1GHz ~ 18GHz)	4.9dB
Radiated Spurious Emissions(9kHz ~ 30MHz)	5.26dB
Radiated Spurious Emissions(30MHz ~ 1GHz)	5.1dB
Radiated Spurious Emissions(18GHz ~ 40GHz)	5.76dB

5 General Description of EUT

5.1 Details of E.U.T.

Product Name	Black Shark JoyBuds Studio
Brand Name	BLACK SHARK
Model Name	BE31

Note 1: The above information was declared by manufacturer.

5.2 EUT Feature And Specification

Operation Frequency	2402MHz to 2480MHz
Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels	79
Antenna Type	Ceramic antenna
Antenna Gain	2.01dBi
Antenna system	☒ SISO; ☐ MIMO;
Power Supply	☒ DC supply: DC 3.7V ☐ Adapter supply:
Battery	DC 3.7V, 1000mAh
I/O Ports	Refer to user manual
Hardware Version	JD-BE31-BT8931-V1.3
Firmware version:	V0.2.3
Software Version	V0.2.3

Frequency and Channel list:

Channel	Frequency (MHz)
00	2402
01	2403
.....	
.....	
.....	...
.....	
77	2479
78	2480

Note 1: $f_c = 2402\text{MHz} + k \times 1\text{MHz}$ $k=0$ to 79

Note 2: The above information is declared by the manufacturer, NTEK is not responsible for the accuracy of the above parameters.

Note 3: The antenna gain provided by the customer is used to calculate the EIRP results.

5.3 Deviation from Standards

None

5.4 Abnormalities from Standard Condition

None

6 Description of Test Modes and Operation Configuration of EUT

6.1 Description of Test Modes

- The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- AC power line Conducted Emission was tested under maximum output power.
- The measurements are performed at the highest, middle, lowest available channels.
- The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

The following summary table is showing all test modes to demonstrate in compliance with the standard

No	Title	Description
TM1	TX-GFSK (Non-Hopping)	Keep the EUT in continuously transmitting mode (non-hopping) with GFSK modulation at lowest, middle and highest channel.
TM2	TX-Pi/4DQPSK (Non-Hopping)	Keep the EUT in continuously transmitting mode (non-hopping) with Pi/4DQPSK modulation at lowest, middle and highest channel.
TM3	TX-8DPSK (Non-Hopping)	Keep the EUT in continuously transmitting mode (non-hopping) with 8DPSK modulation at lowest, middle and highest channel.
TM4	TX-GFSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with GFSK modulation,.
TM5	TX-Pi/4DQPSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with Pi/4DQPSK modulation.
TM6	TX-8DPSK (Hopping)	Keep the EUT in continuously transmitting mode (hopping) with 8DPSK modulation.

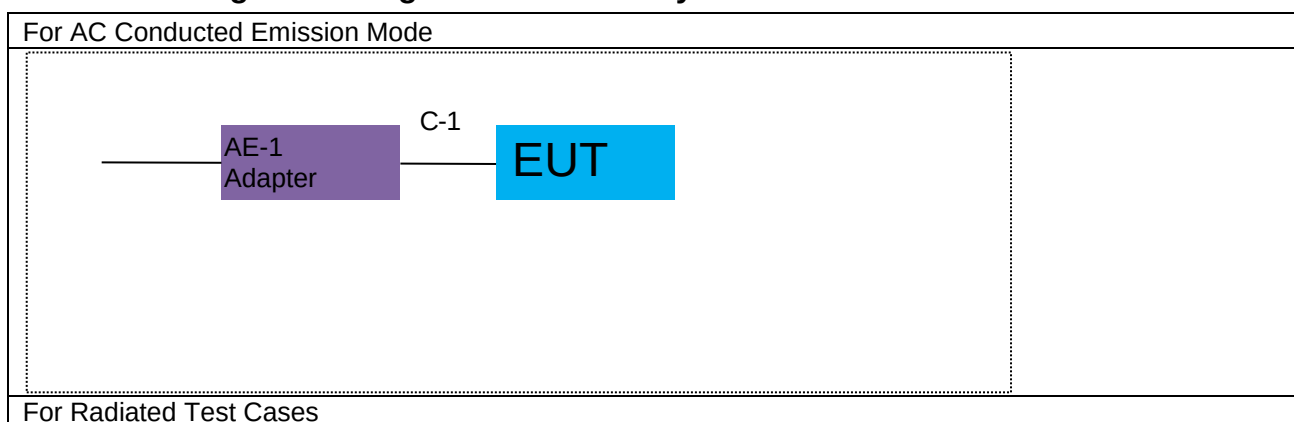
6.2 Operation Configuration of EUT

	Normal Test Conditions	Extreme Test Conditions
Temperature	25 °C	LTNV:0 °C HTNV:50 °C
Relative Humidity	20% - 75%	N/A
Supply Voltage	3.7 VDC	N/A

Note: The HT 50°C and LT 0°C was declared by manufacturer, The EUT couldn't be operate normally with higher or lower temperature.

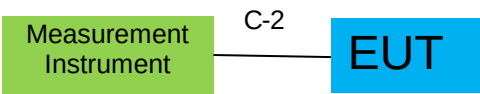
7 Setup Of Equipment Under Test

7.1 Block Diagram Configuration Of Test System



EUT

For Conducted Test Cases



Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

7.2 Support Equipment

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
AE-1	Adapter	N/A	N/A	Peripherals
Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	Power Cable	YES	NO	1.0m
C-2	RF Cable	YES	NO	0.1m

8 Equipment List

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Item	Name of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Low Frequency Cable	/	R-03	/	2027/4/24
2	50Ω Coaxial Switch	Anritsu	MP59B	6200983704	2027/4/25
3	Single Phase LISN	R&S	ENV216	101313	2027/4/7
4	Single Phase LISN	R&S	ENV216	101490	2027/4/7
5	Single Phase LISN	R&S	ENV216	102849	2027/4/7
6	Single Phase LISN	R&S	ENV216	102827	2027/4/7
7	Three-Phase LISN	SCHWARZBECK	NNLK 8129	8129245	2027/4/7
8	EMI Test Receiver	R&S	ESCI	101160	2027/4/7
9	EMI Test Receiver	R&S	ESR7	102679	2027/4/7
10	EMI Test Receiver	R&S	ESPI3	100145	2027/4/7
11	EMI Test Receiver	R&S	ESPI3	101417	2027/6/28
12	DC-AMN LISN	SCHWARZBECK	PVDC 8301	8301-00117	2027/4/7

Channel Separation Number of Hopping Frequencies Dwell Time Emissions in non-restricted frequency bands 20dB Bandwidth Maximum Conducted Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Power meter	WCS	SMU-3002-CH4	N/A	2025-09-16	2026-09-15
Power meter	WCS	SMU-3002-CH3	N/A	2025-09-16	2026-09-15
Power meter	WCS	SMU-3002-CH2	N/A	2025-09-16	2026-09-15
Power meter	WCS	SMU-3002-CH1	N/A	2025-09-16	2026-09-15
Spread spectrum device	WCS	WCS-X07/Z800 A	N/A	2025-09-16	2026-09-15
Spread spectrum device	WCS	WCS-X07/Z800 A	N/A	2025-09-16	2026-09-15
Spread spectrum device	WCS	WCS-X07/Z800 A	N/A	2025-09-16	2026-09-15
Spectrum Analyzer	Keysight	N9020B	MY60112710	2025-12-25	2026-12-24
Vector Signal Generator	Keysight	N5182B	MY57301482	2026-04-08	2027-04-07
Analog Signal Generator	Keysight	N5183B	MY57280984	2026-04-27	2027-04-26
USB RF Power Sensor	DARE	RPR3006 W	15I00041SNO8 4	2026-04-08	2027-04-07

Band edge emissions (Radiated) Emissions in frequency bands (below 1GHz) Emissions in frequency bands (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Low Noise Amplifier	EMC Solutions	TRLA-180400G 50	25102901	2026-04-08	2027-04-07
Wideband Radio Communication Tester	R&S	CMW500	153336	2026-04-08	2027-04-07
Spectrum Analyzer	Keysight	N9020B	MY60112710	2025-12-25	2026-12-24
Semi Anechoic Chamber	N/A	855	N/A	2024-05-20	2027-05-19
Spectrum Analyzer	Keysight	N9020A	MY53280244	2026-04-15	2027-04-14
Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024-05-18	2027-05-17
AMPLIFIER	Sonoma	310N	186604	2026-04-08	2027-04-07
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2024-05-12	2027-05-11
Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024-05-17	2027-05-16
Spectrum Analyzer	R&S	FSV40	101417	2026-04-08	2027-04-07
Low Noise Amplifier	B&Z	BZ-P540-550850-452727	16476-11729	2026-04-16	2027-04-15
Pre-Amplifier	EMC	EMC0518 35SE	980246	2026-04-08	2027-04-07
Universal Radio Communication Tester	R&S	CMU200	117858	2026-04-08	2027-04-07
Universal Radio Communication Tester	R&S	CMU200	105747	2026-04-08	2027-04-07
Broadband Horn Antenna	EM	EM-AH-10180	2011071402	2024-05-12	2027-05-11

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTtest	MTS 8310 2.4GHz/5GHz	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	raditeq	RadiMation	2023.1.3	RadiatedTest
4	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

9 Evaluation Results (Evaluation)

9.1 Antenna requirement

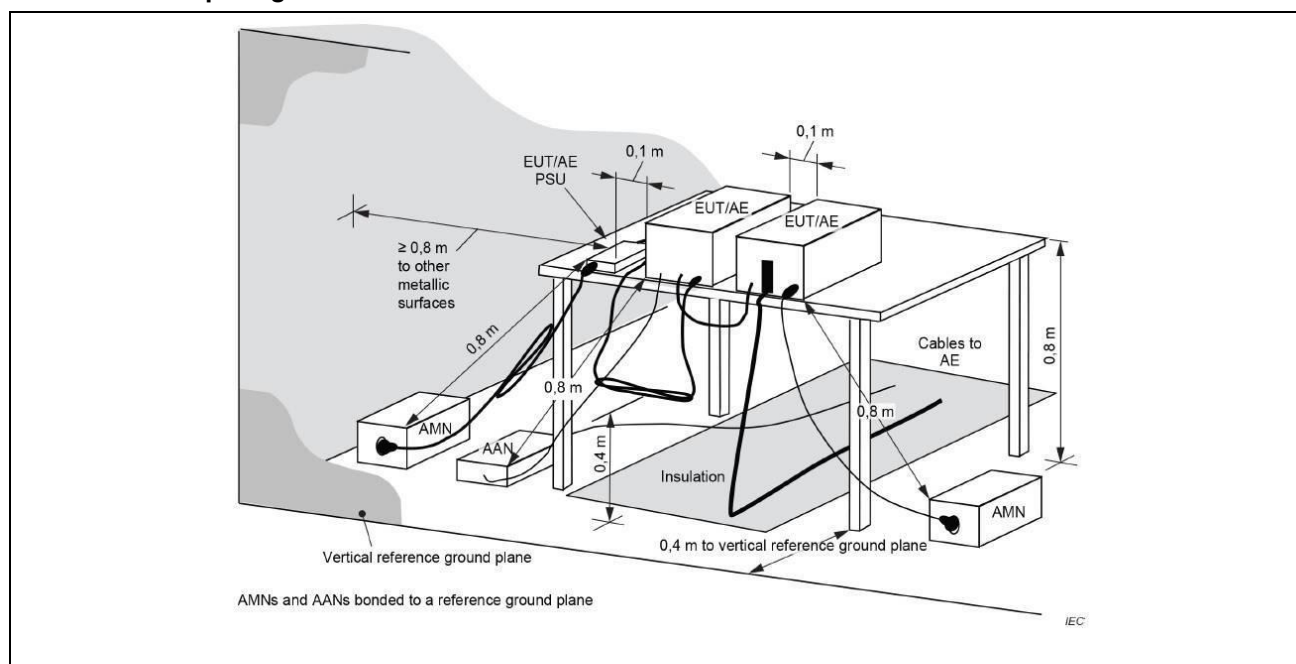
Test Requirement:	Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.
Conclusion	EUT Antenna: The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.01dBi. Antenna location: Refer to internal photos

10 Radio Spectrum Matter Test Results (RF)

10.1 Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBμV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the frequency.		
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.2		
Procedure:	Refer to ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices Remark: 1. Test the EUT on the lowest, middle, and highest channels. 2. Level= Reading+ Factor, Margin= Level- Limit. 3. All modes' lowest, middle, and highest channels were tested, but only the worst data was recorded in the report.		

10.1.1 Test Setup Diagram:

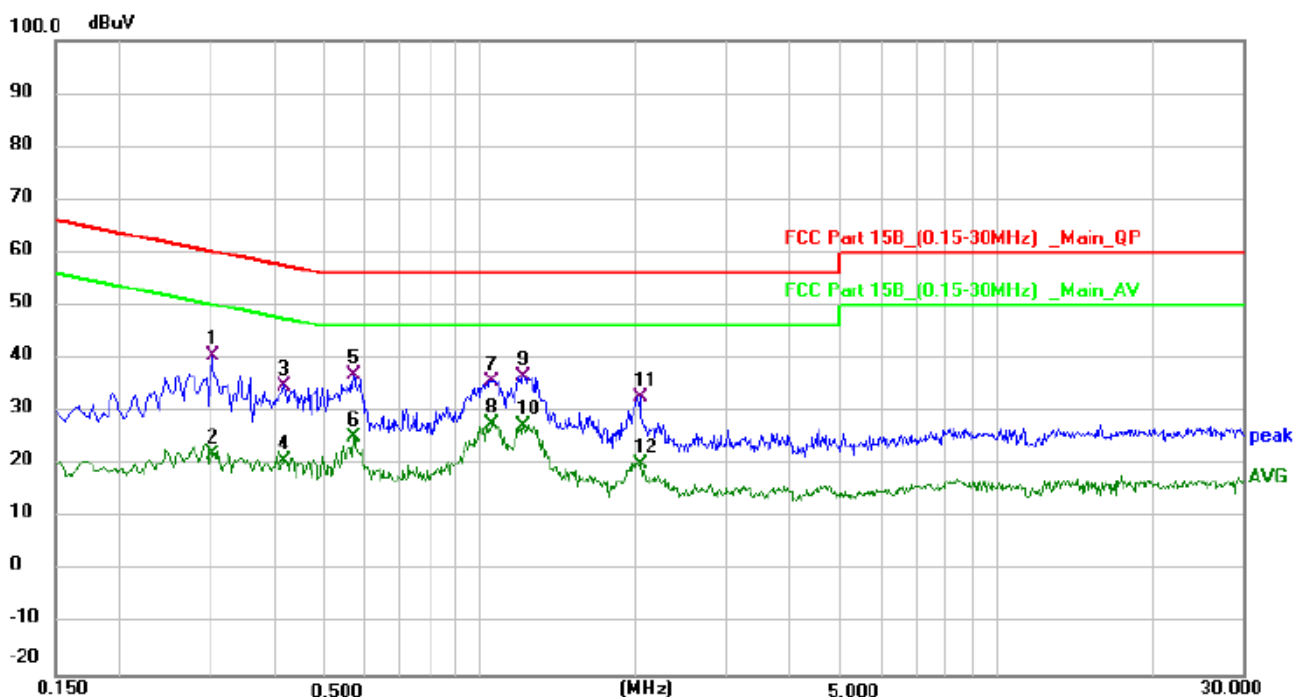


10.1.2E.U.T. Operation:

Operating Environment:					
Temperature:	23.7 °C	Humidity:	56.2 %	Atmospheric Pressure:	1010 mbar
Per-test mode:		TM1			
Final test mode:		TM1			
Test Voltage:		AC 120V/60Hz			

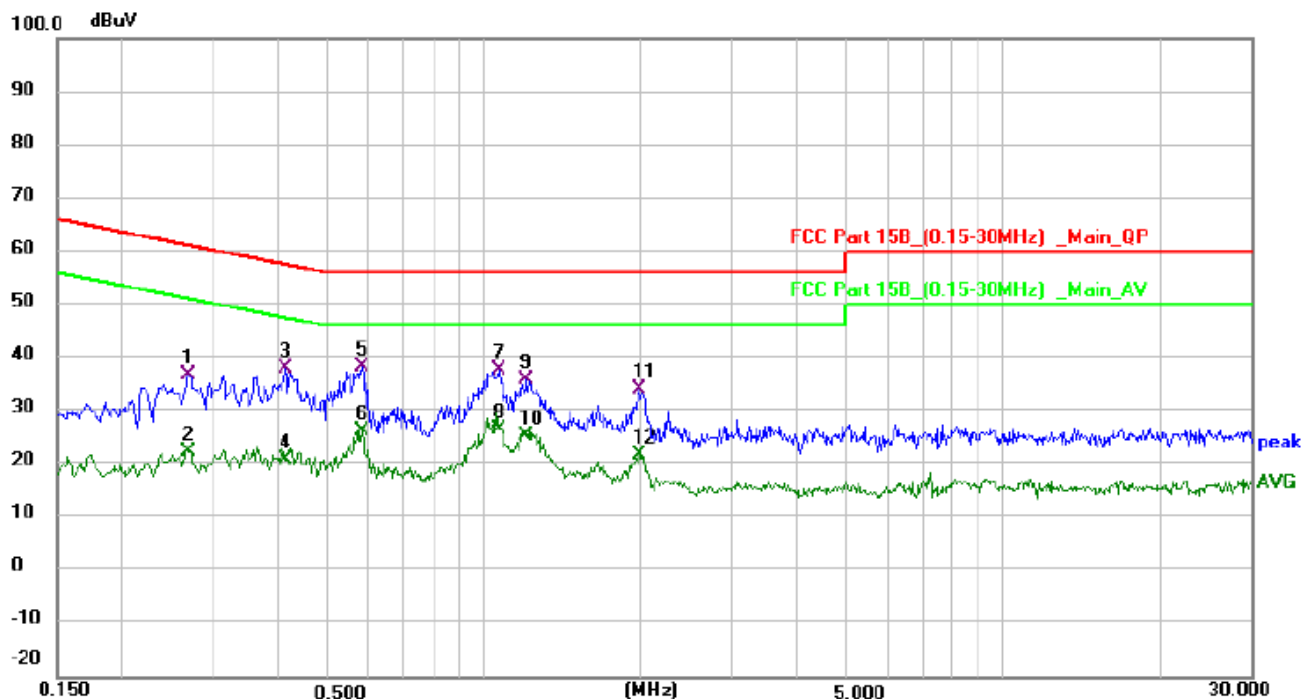
10.1.3 Test Data:

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



No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3020	21.01	19.49	40.50	60.19	-19.69	QP	P	
2	0.3020	2.37	19.49	21.86	50.19	-28.33	AVG	P	
3	0.4148	15.40	19.50	34.90	57.55	-22.65	QP	P	
4	0.4148	1.01	19.50	20.51	47.55	-27.04	AVG	P	
5	0.5700	17.35	19.50	36.85	56.00	-19.15	QP	P	
6	0.5700	5.55	19.50	25.05	46.00	-20.95	AVG	P	
7	1.0500	16.24	19.52	35.76	56.00	-20.24	QP	P	
8 *	1.0500	7.90	19.52	27.42	46.00	-18.58	AVG	P	
9	1.2140	16.97	19.52	36.49	56.00	-19.51	QP	P	
10	1.2140	7.63	19.52	27.15	46.00	-18.85	AVG	P	
11	2.0340	13.27	19.53	32.80	56.00	-23.20	QP	P	
12	2.0340	0.54	19.53	20.07	46.00	-25.93	AVG	P	

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



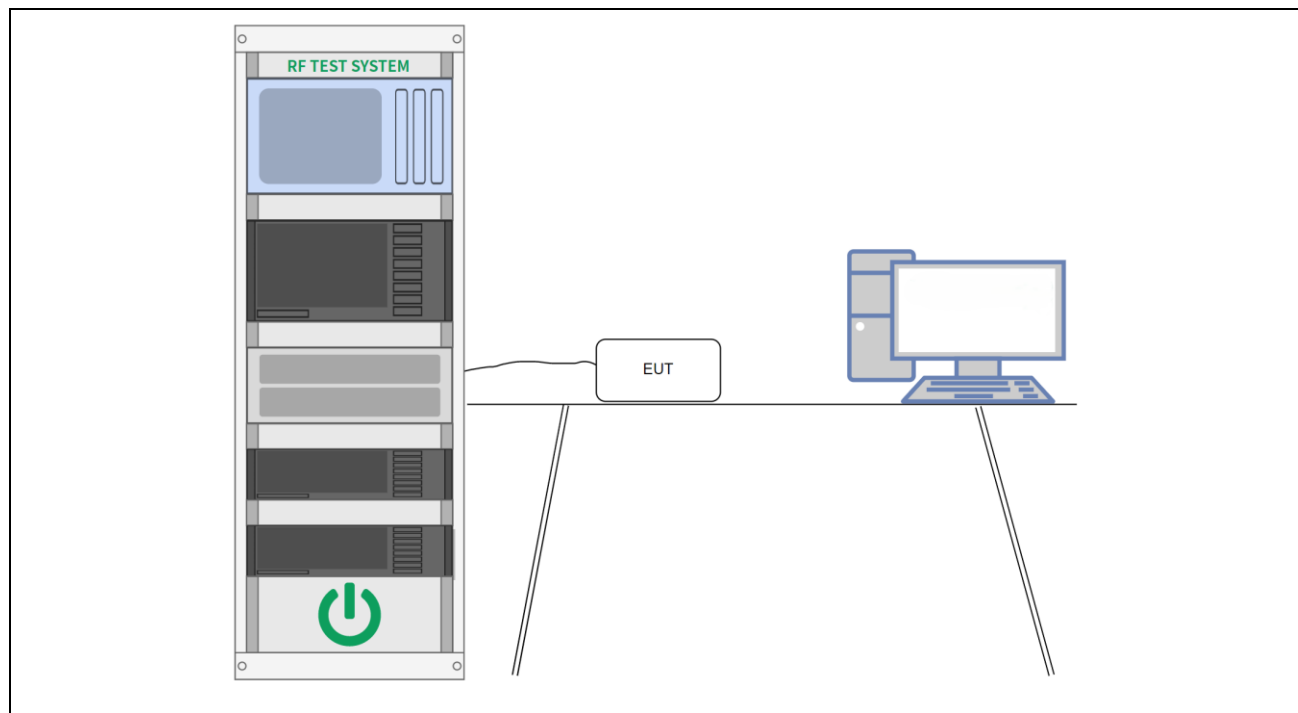
No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2700	17.45	19.43	36.88	61.12	-24.24	QP	P	
2	0.2700	2.94	19.43	22.37	51.12	-28.75	AVG	P	
3	0.4140	18.43	19.53	37.96	57.57	-19.61	QP	P	
4	0.4140	1.38	19.53	20.91	47.57	-26.66	AVG	P	
5 *	0.5820	18.70	19.53	38.23	56.00	-17.77	QP	P	
6	0.5820	6.72	19.53	26.25	46.00	-19.75	AVG	P	
7	1.0660	18.12	19.52	37.64	56.00	-18.36	QP	P	
8	1.0660	7.03	19.52	26.55	46.00	-19.45	AVG	P	
9	1.2059	16.48	19.51	35.99	56.00	-20.01	QP	P	
10	1.2059	5.99	19.51	25.50	46.00	-20.50	AVG	P	
11	1.9820	14.75	19.49	34.24	56.00	-21.76	QP	P	
12	1.9820	2.47	19.49	21.96	46.00	-24.04	AVG	P	

10.2 20dB Bandwidth

Test Requirement:	47 CFR 15.247(a)(1)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.6, For occupied bandwidth measurements, use the procedure in 6.9.2. Frequency hopping shall be disabled for this test.
Procedure:	A dBc bandwidth is measured as the width of the spectral envelope of the modulated signal, at an amplitude level reduced from a reference value by a specified ratio (or in decibels, a specified number of dB down from the reference value). Typical ratios, expressed in dB, are -6 dB, -20 dB, and -26 dB, corresponding to 6 dB BW, 20 dB BW, and 26 dB BW, respectively. In this subclause, the ratio is designated by “-xx dB.” The reference value is either the level of the unmodulated carrier or the highest level of the spectral envelope of the modulated signal, as stated by the applicable requirement. Some requirements might specify a specific maximum or minimum value for the “-xx dB” bandwidth; other requirements might specify that the “-xx dB” bandwidth be entirely contained within the authorized or designated frequency band.⁵¹ a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be at least three times RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.6.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value. f) Set detection mode to peak and trace mode to max-hold. g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - xx]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument. i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j). j) Place 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 “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The dBc bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

k) The dBc bandwidth shall be reported by providing spectral plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

10.2.1 Test Setup Diagram:



10.2.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	51.2 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

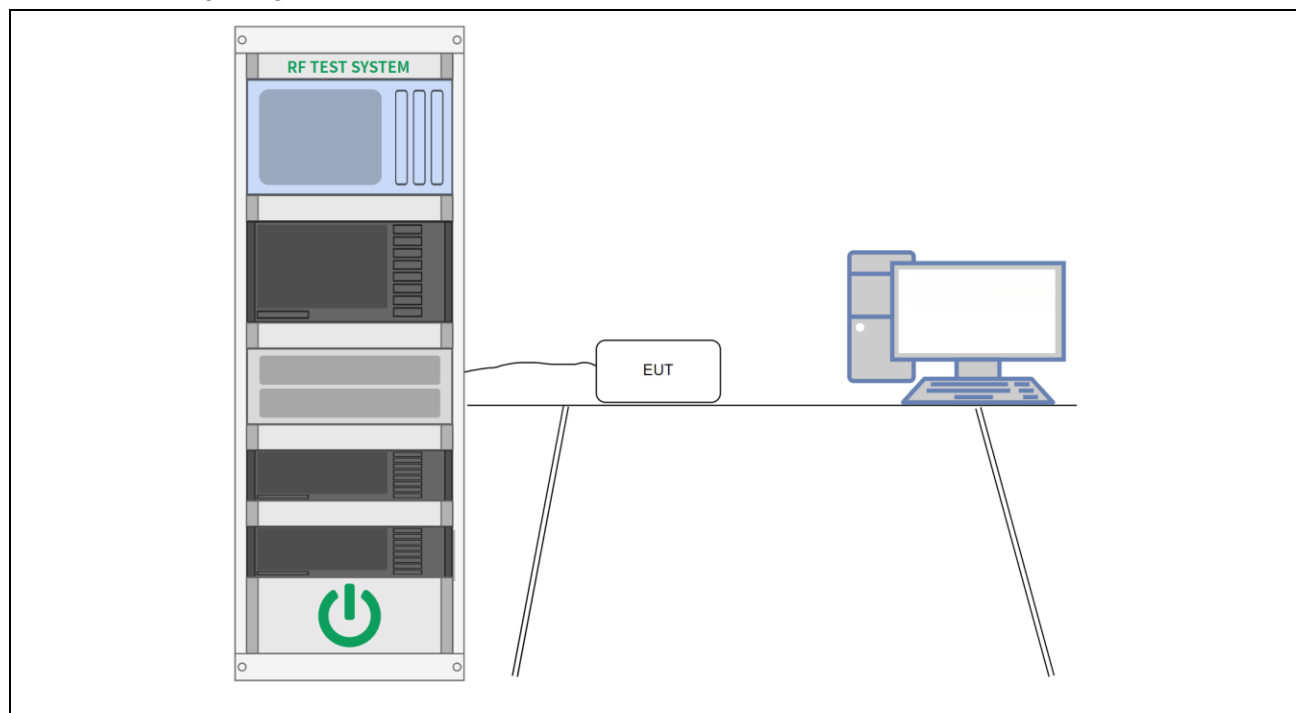
10.2.3 Test Data:

Please Refer to Appendix for Details.

10.3 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(1)
Test Limit:	Refer to 47 CFR 15.247(b)(1), For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.5

10.3.1 Test Setup Diagram:



10.3.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	51.2 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

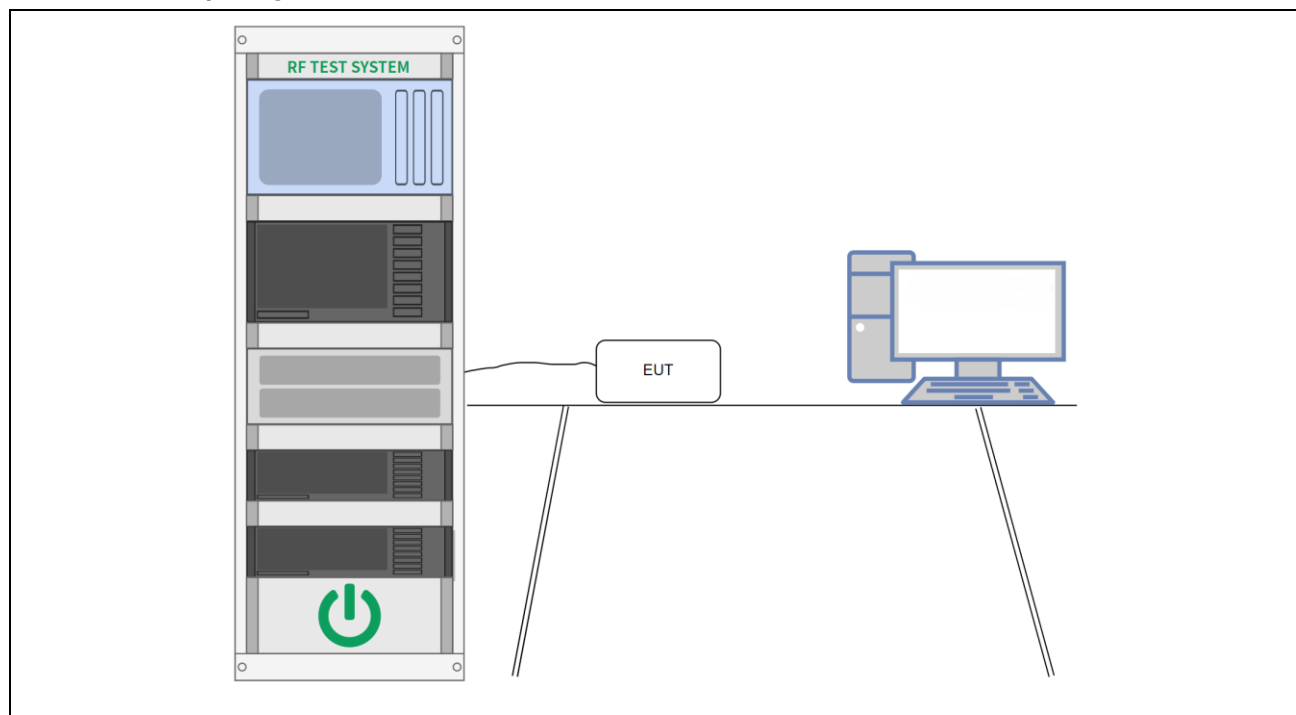
10.3.3 Test Data:

Please Refer to Appendix for Details.

10.4 Channel Separation

Test Requirement:	47 CFR 15.247(a)(1)
Test Limit:	Refer to 47 CFR 15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.2
Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: Wide enough to capture the peaks of two adjacent channels. b) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel. c) Video (or average) bandwidth (VBW) $\geq$ RBW. d) Sweep: No faster than coupled (auto) time. e) Detector function: Peak. f) Trace: Max-hold. g) Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined. A spectral plot of the data shall be included in the test report.

10.4.1 Test Setup Diagram:



10.4.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	51.2 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM4, TM5, TM6				
Final test mode:	TM4, TM5, TM6				

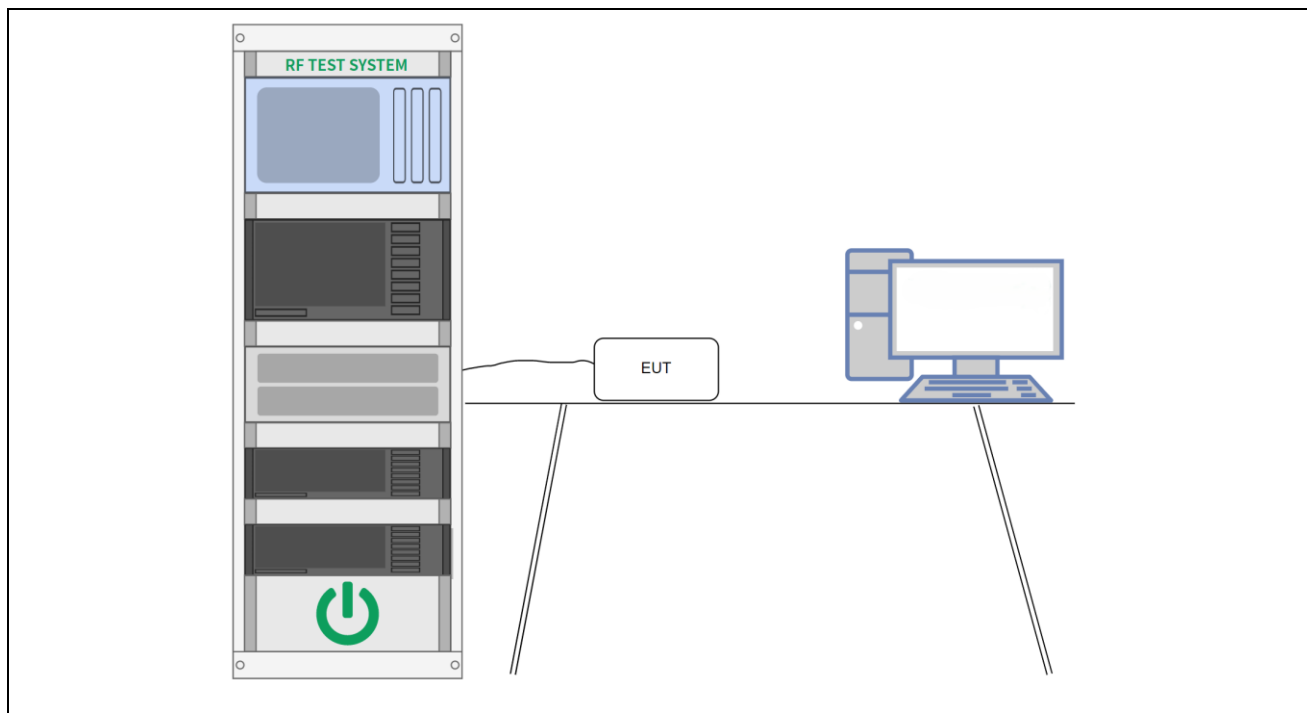
10.4.3 Test Data:

Please Refer to Appendix for Details.

10.5 Number of Hopping Frequencies

Test Requirement:	47 CFR 15.247(a)(1)(iii)
Test Limit:	Refer to 47 CFR 15.247(a)(1)(iii), Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.3
Procedure:	The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings: a) Span: The frequency band of operation. Depending on the number of channels the device supports, it could be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen. b) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller. c) VBW $\geq$ RBW. d) Sweep: No faster than coupled (auto) time. e) Detector function: Peak. f) Trace: Max-hold. g) Allow the trace to stabilize. It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels. A spectral plot of the data shall be included in the test report.

10.5.1 Test Setup Diagram:



10.5.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	51.2 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM4, TM5, TM6				
Final test mode:	TM4, TM5, TM6				

10.5.3 Test Data:

Please Refer to Appendix for Details.

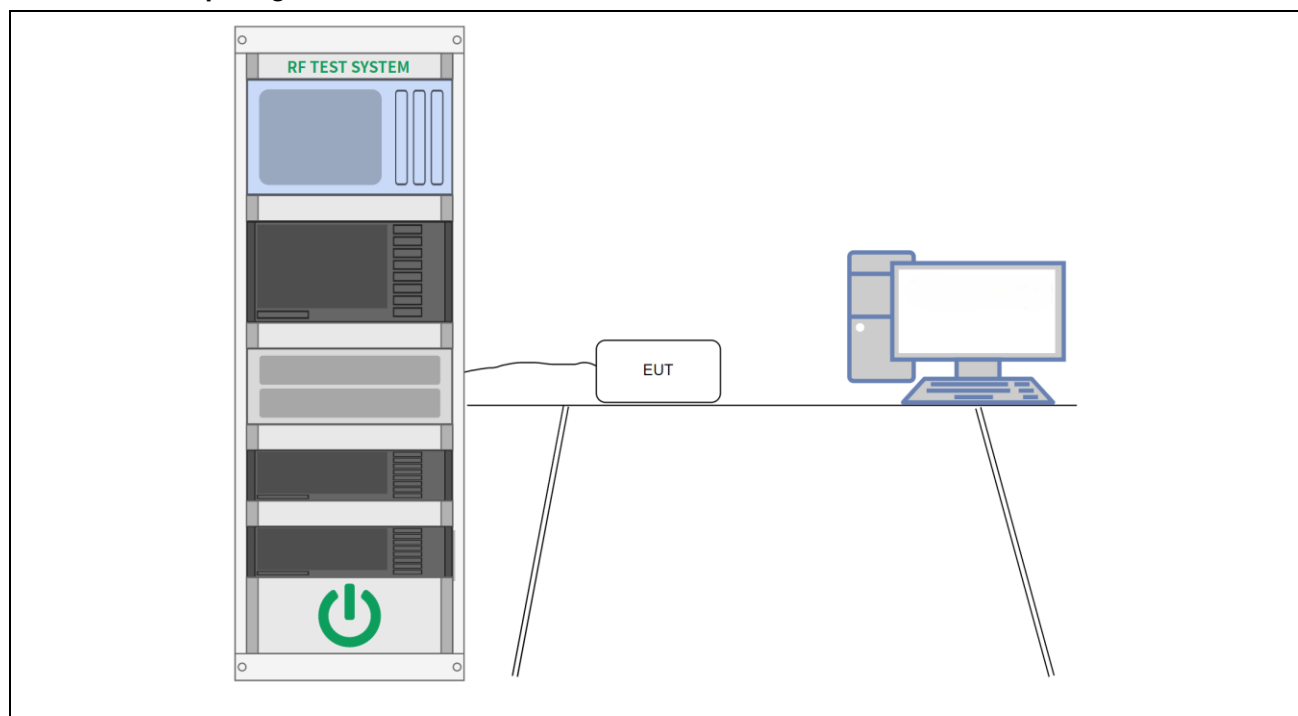
10.6 Dwell Time

Test Requirement:	47 CFR 15.247(a)(1)(iii)
Test Limit:	Refer to 47 CFR 15.247(a)(1)(iii), Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.
Test Method:	ANSI C63.10-2020 + Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, section 7.8.4
Procedure:	The dwell time per hop on a channel is the time from the start of the first transmission to the end of the last transmission for that hop. If the device has a single transmission per hop then the dwell time is the duration of that transmission. If the device has a multiple transmissions per hop then the dwell time is measured from the start of the first transmission to the end of the last transmission. The time of occupancy is the total time that the device dwells on a channel over an observation period specified in the regulatory requirement. To determine the time of occupancy the spectrum analyzer will be configured to measure both the dwell time per hop and the number of times the device transmits on a specific channel in a given period. The EUT shall have its hopping function enabled. Compliance with the requirements shall be made with the minimum and with the maximum number of channels enabled. If the dwell time per channel does not vary with the number of channels then compliance with the requirements may be based on the minimum number of channels. If the device supports different dwell times per channel (example Bluetooth devices can dwell on a channel for 1, 3 or 5 time slots) then measurements can be limited to the longest dwell time with the minimum number of channels. Use the following spectrum analyzer settings to determine the dwell time per hop: a) Span: Zero span, centered on a hopping channel. b) RBW shall be $\leq$ channel spacing and where possible RBW should be set $\gg 1/T$, where T is the expected transmission time per hop. c) Sweep time: Set so that the start of the first transmission and end of the last transmission for the hop are clearly captured. Setting the sweep time to be slightly longer than the hopping period per channel (hopping period = $1/\text{hopping rate}$) should achieve this. d) Use a video trigger, where possible with a trigger delay, so that the start of the transmission is clearly observed. The trigger level might need adjustment to reduce the chance of triggering when the system hops on an adjacent channel. e) Detector function: Peak. f) Trace: Clear-write, single sweep. g) Place markers at the start of the first transmission on the channel and at the end of the last transmission. The dwell time per hop is the time between these two markers. To determine the number of hops on a channel in the regulatory observation period repeat the measurement using a longer sweep time. When the device uses a single hopping sequence the period of measurement should be sufficient to capture at least 2 hops. When the device uses a dynamic hopping sequence, or the sequence varies, the period of measurement may need to capture multiple hops to better determine the average time of occupancy. Count the number of hops on the channel across the sweep time. The average number of hops on the same channel within the regulatory observation period is calculated from the number of hops on the channel divided by the spectrum analyzer sweep time multiplied by the regulatory observation period. For example, if three hops are counted with an analyzer sweep time of

500 ms and the regulatory observation period is 10 s, then the number of hops in that ten seconds is $3 / 0.5 \times 10$, or 60 hops.

The average time of occupancy is calculated by multiplying the dwell time per hop by the number of hops in the observation period.

10.6.1 Test Setup Diagram:



10.6.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	51.2 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM4, TM5, TM6				
Final test mode:	TM4, TM5, TM6				

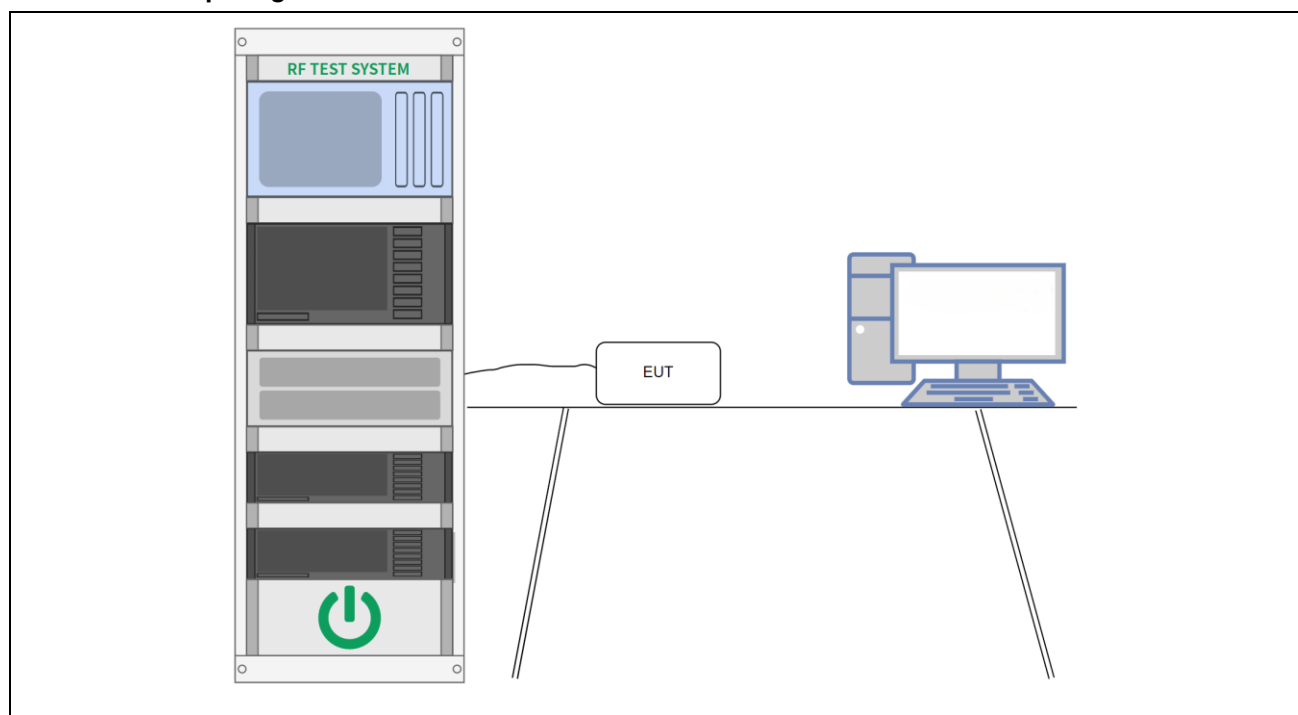
10.6.3 Test Data:

Please Refer to Appendix for Details.

10.7 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 7.8.7

10.7.1 Test Setup Diagram:



10.7.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23.8 °C	Humidity:	51.2 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

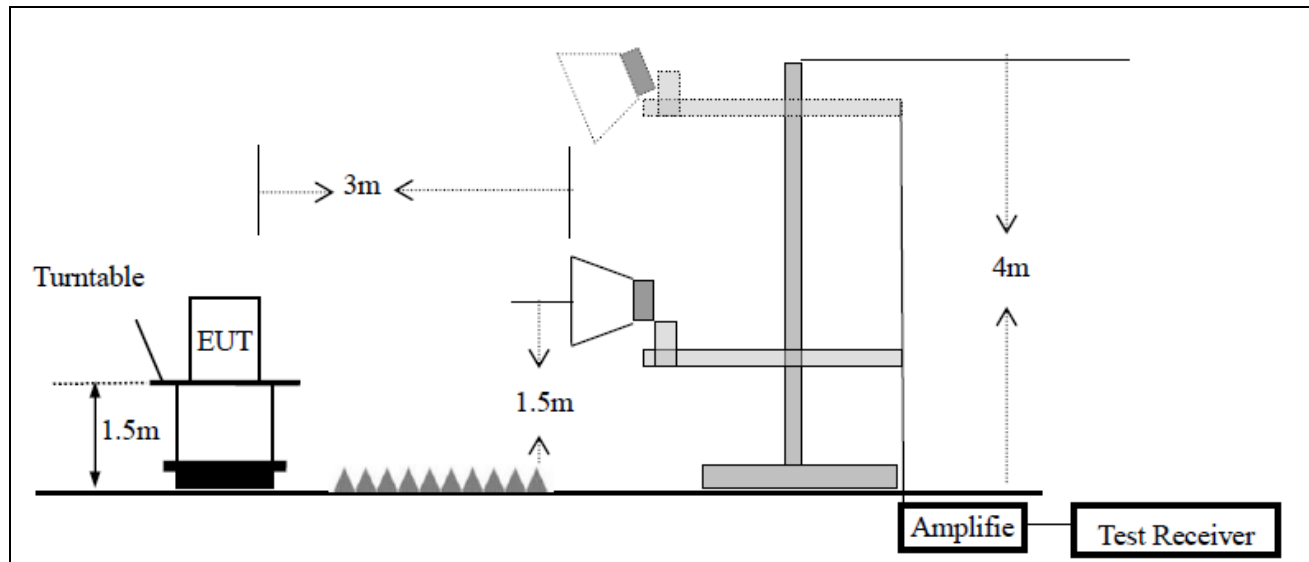
10.7.3 Test Data:

Please Refer to Appendix for Details.

10.8 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:	According to FCC Part 15.247(d): 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)).				
	According to FCC Part15.205, Restricted bands				
	MHz	MHz	MHz	GHz	
	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	
	0.495-0.505	16.69475-16.69525	608-614	5.35-5.46	
	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75	
	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5	
	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2	
	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5	
	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7	
	6.26775-6.26825	123-138	2200-2300	14.47-14.5	
	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2	
	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4	
	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12	
	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0	
	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8	
	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5	
	12.57675-12.57725	322-335.4	3600-4400	(2)	
	13.36-13.41				
	Limits of Radiated Emission Measurement(Above 1000MHz)				
	Frequency(MHz)	Class B (dBuV/m) (at 3M)			
		PEAK		AVERAGE	
		Above 1000		74	
			54		
	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 Remark: 1. Measurement at a distance of 3 meters. 2. Test the EUT on the lowest and highest channels. 3. Level= Reading+ Factor, Margin= Level- Limit. 4. All modes' lowest and highest channels were tested, but only the worst data was recorded in the report.			

10.8.1 Test Setup Diagram:

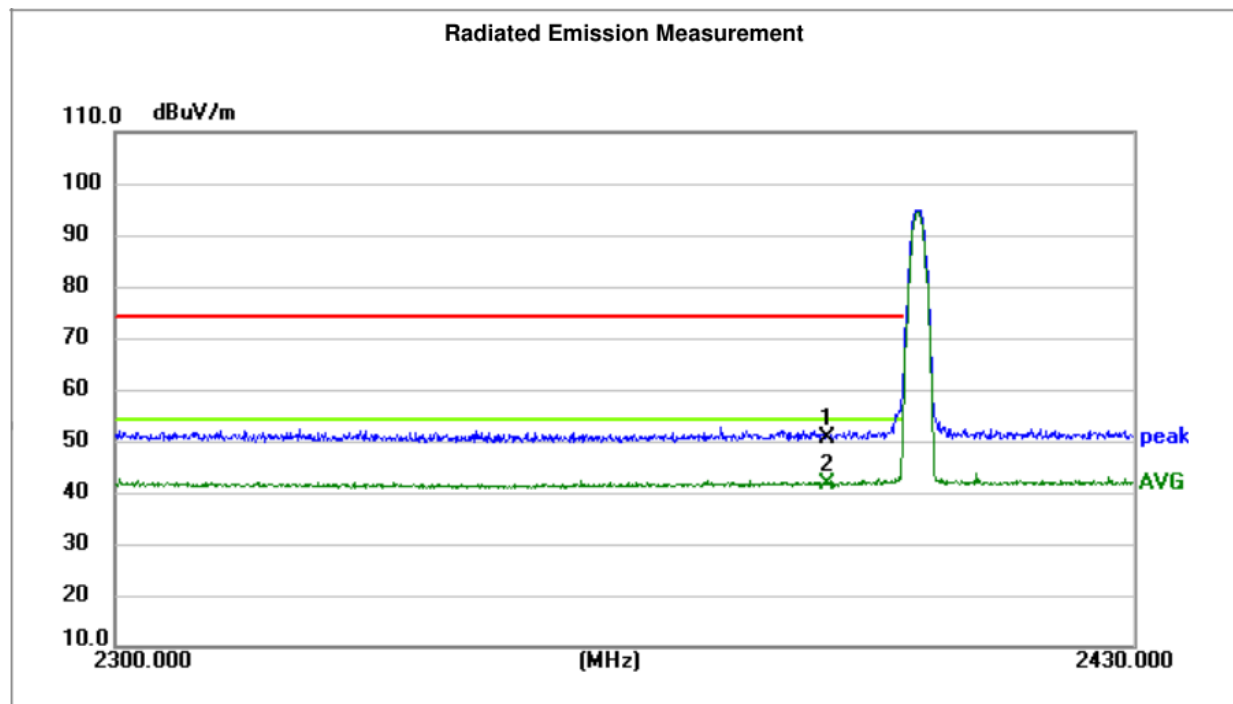


10.8.2 E.U.T. Operation:

Operating Environment:					
Temperature:	26.5 °C	Humidity:	54.4 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3				
Final test mode:	TM1				

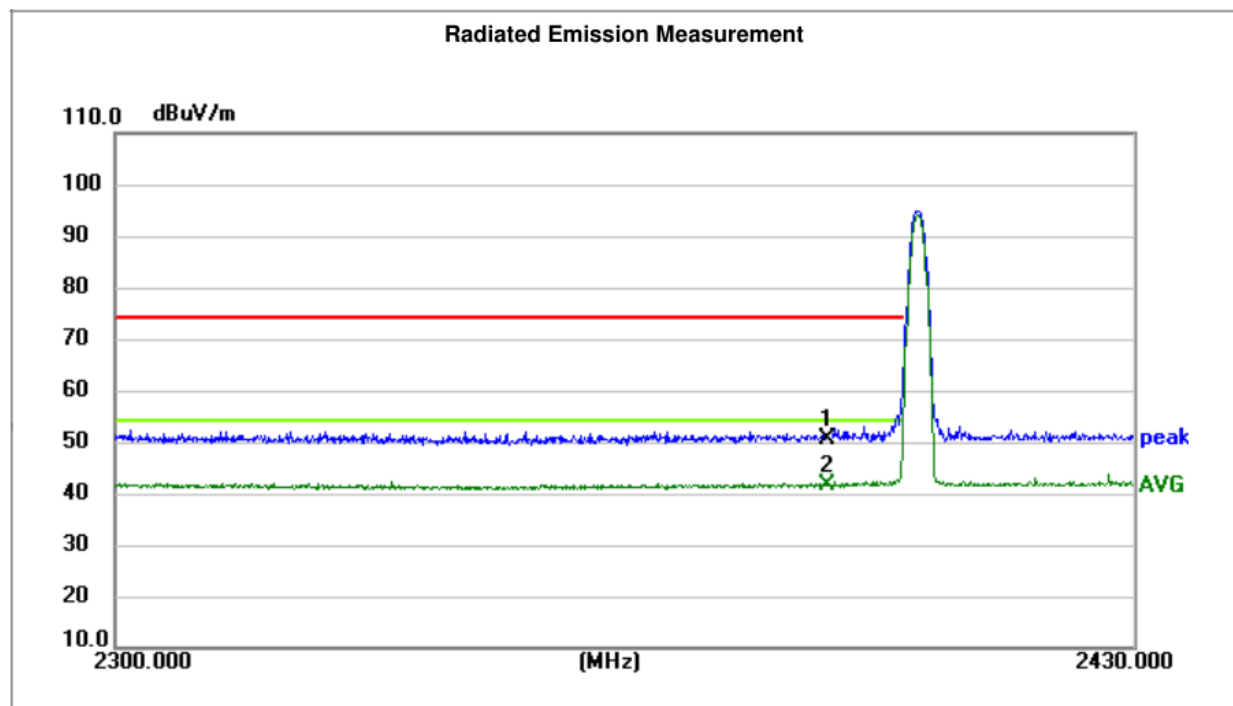
10.8.3 Test Data:

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



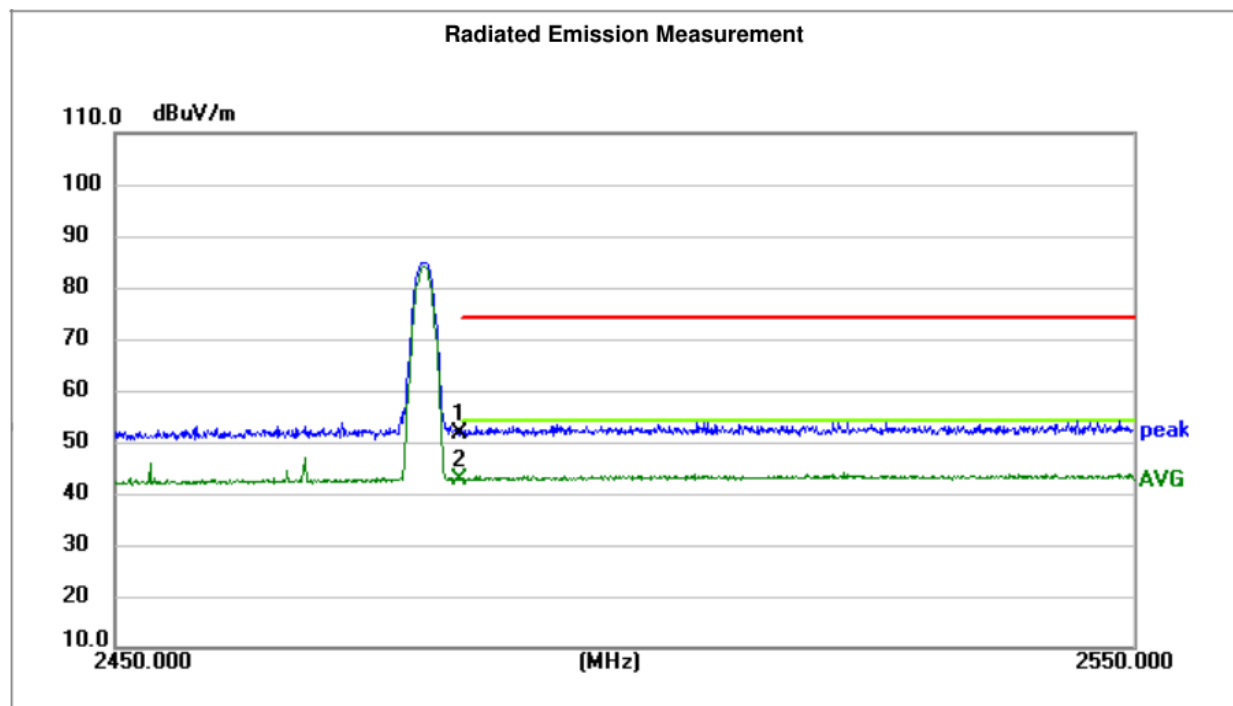
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	20.83	29.88	50.71	74.00	-23.29	peak	P	
2 *	2390.000	11.87	29.88	41.75	54.00	-12.25	AVG	P	

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



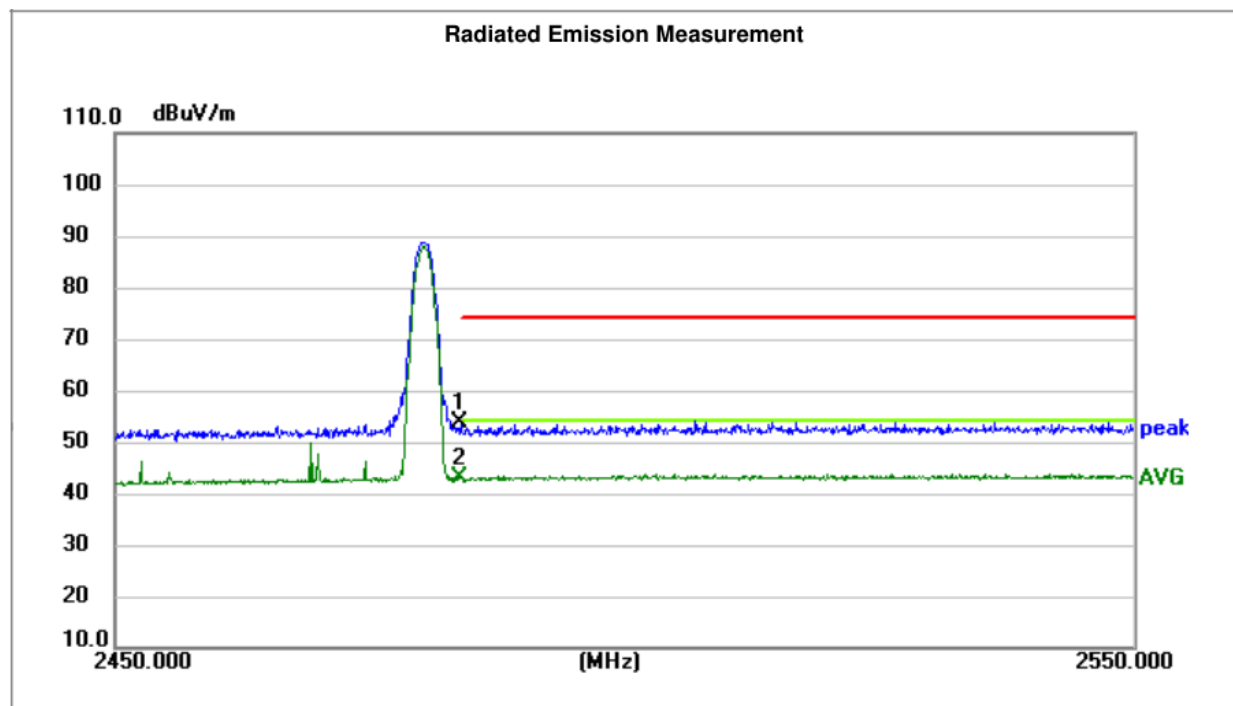
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	20.71	29.88	50.59	74.00	-23.41	peak	P	
2 *	2390.000	11.80	29.88	41.68	54.00	-12.32	AVG	P	

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	20.84	30.69	51.53	74.00	-22.47	peak	P	
2 *	2483.500	12.07	30.69	42.76	54.00	-11.24	AVG	P	

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



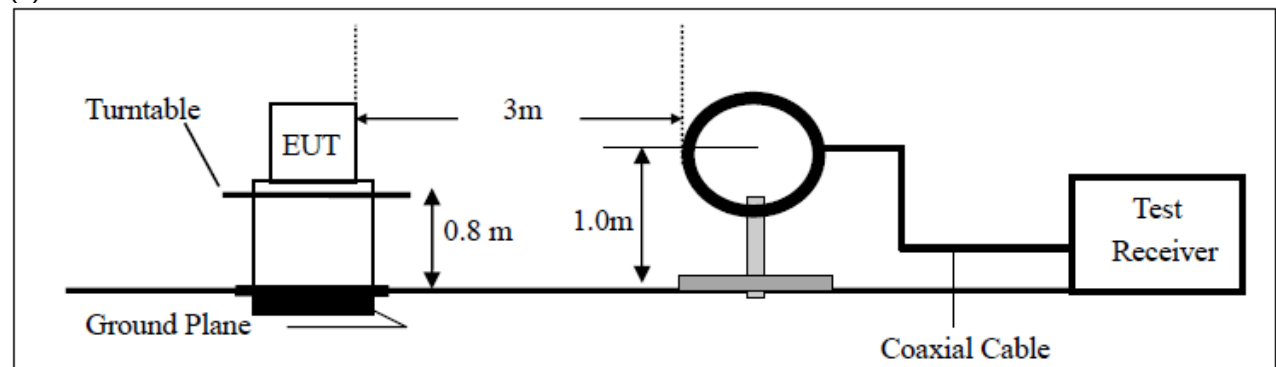
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	22.96	30.69	53.65	74.00	-20.35	peak	P	
2 *	2483.500	12.29	30.69	42.98	54.00	-11.02	AVG	P	

10.9 Emissions in frequency bands (below 1GHz)

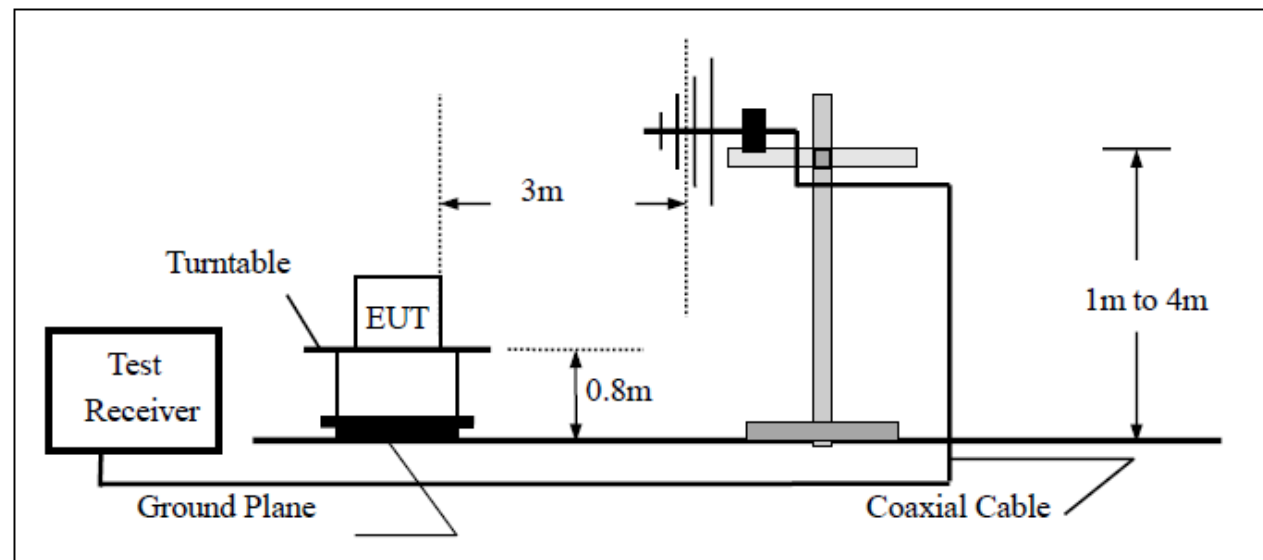
Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement 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 Remark: 1. Emission level, For Frequency above 30MHz: $\text{dBuV/m}=20 \log (\mu \text{V/m})$ and For Frequency 9kHz~30MHz: $\text{dBuA/m}=20 \log (\mu \text{A/m})$ 2. Measurement was performed at an antenna to the closed point of EUT distance of meters. 3. For Frequency 9kHz~30MHz: Distance extrapolation factor $=40 \log (\text{Specific distance/ test distance})(\text{dB})$; Limit line=Specific limits(dBuA) + distance extrapolation factor. 4. For Frequency above 30MHz: Distance extrapolation factor $=20 \log (\text{Specific distance/ test distance})(\text{dB})$; Limit line=Specific limits(dBuV) + distance extrapolation factor. 1. Measurement at a distance of 3 meters. 2. Test the EUT on the lowest, middle, and highest channels. 3. Level= Reading+ Factor, Margin= Level- Limit. 4. All modes' lowest, middle, and highest channels were tested, but only the worst data was recorded in the report.		

10.9.1 Test Setup Diagram:

(a) For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1000MHz



10.9.2E.U.T. Operation:

Operating Environment:					
Temperature:	25.9 °C	Humidity:	52.7 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1				
Final test mode:	TM1				
Test Voltage:	AC 120V/60Hz				

10.9.3 Test Data:

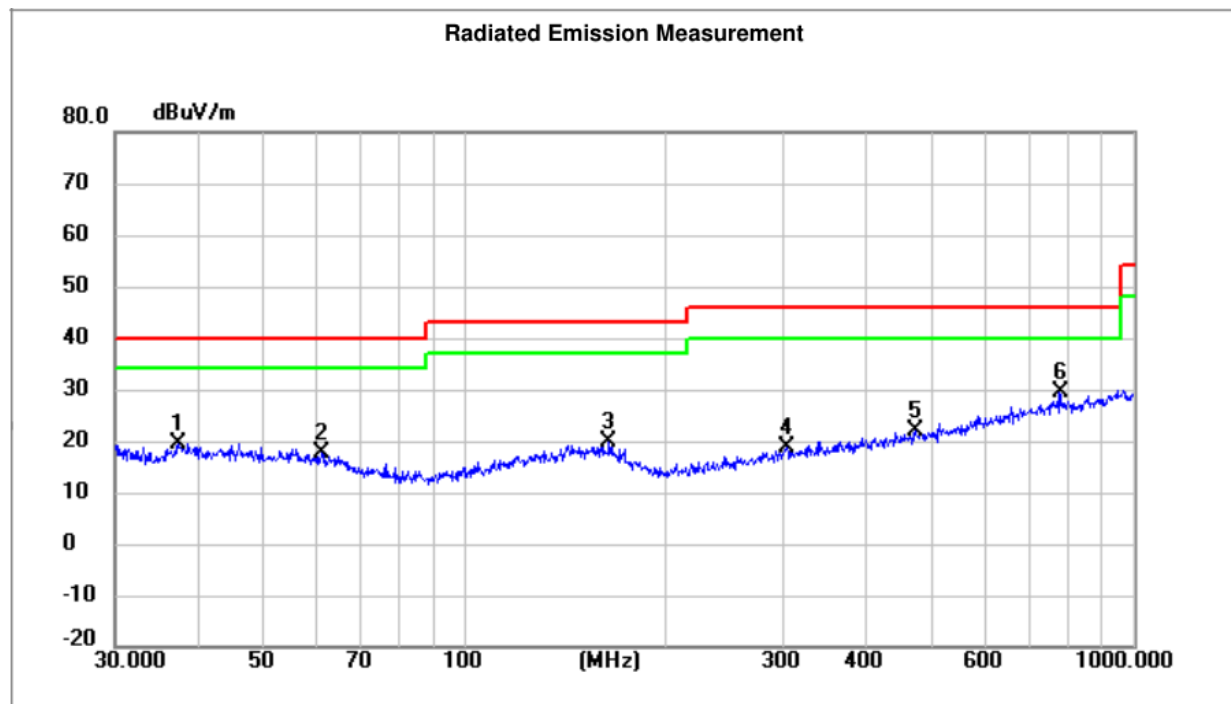
Spurious Emission below 30MHz (9KHz to 30MHz)

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

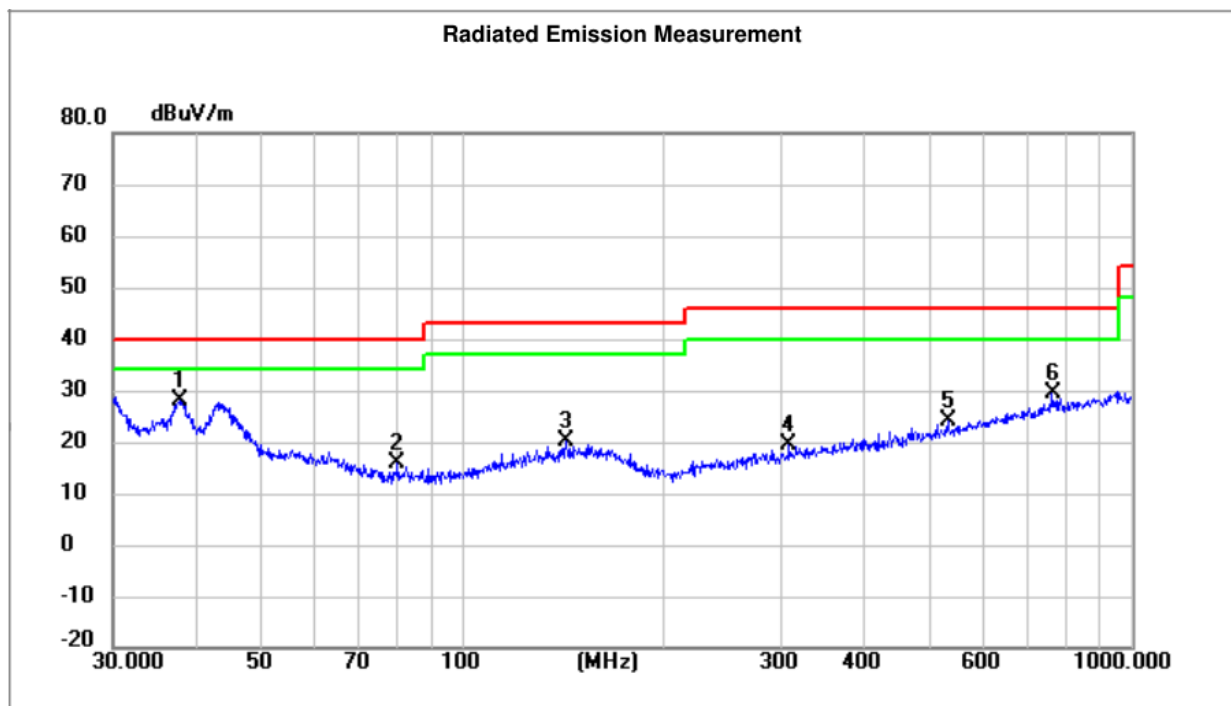
Spurious Emission below 1GHz (30MHz to 1GHz)

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	37.285	5.57	13.97	19.54	40.00	-20.46	peak	P	
2	61.346	4.89	12.86	17.75	40.00	-22.25	peak	P	
3	164.330	5.53	14.27	19.80	43.00	-23.20	peak	P	
4	303.544	4.93	13.66	18.59	46.00	-27.41	peak	P	
5	473.835	4.82	16.97	21.79	46.00	-24.21	peak	P	
6 *	776.878	7.25	22.14	29.39	46.00	-16.61	peak	P	

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1 *	37.878	14.06	14.05	28.11	40.00	-11.89	peak	P	
2	79.940	6.22	9.71	15.93	40.00	-24.07	peak	P	
3	143.326	6.02	14.25	20.27	43.00	-22.73	peak	P	
4	308.371	5.78	13.78	19.56	46.00	-26.44	peak	P	
5	532.897	6.23	17.79	24.02	46.00	-21.98	peak	P	
6	763.376	7.56	21.97	29.53	46.00	-16.47	peak	P	

10.10 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)	Class B (dBuV/m) (at 3M)	
		PEAK	AVERAGE
	Above 1000	74	54
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 Remark: 1. Measurement at a distance of 3 meters. 2. Test the EUT on the lowest, middle, and highest channels. 3. Level= Reading+ Factor, Margin= Level- Limit. 4. All modes' lowest, middle, and highest channels were tested, but only the worst data was recorded in the report.		

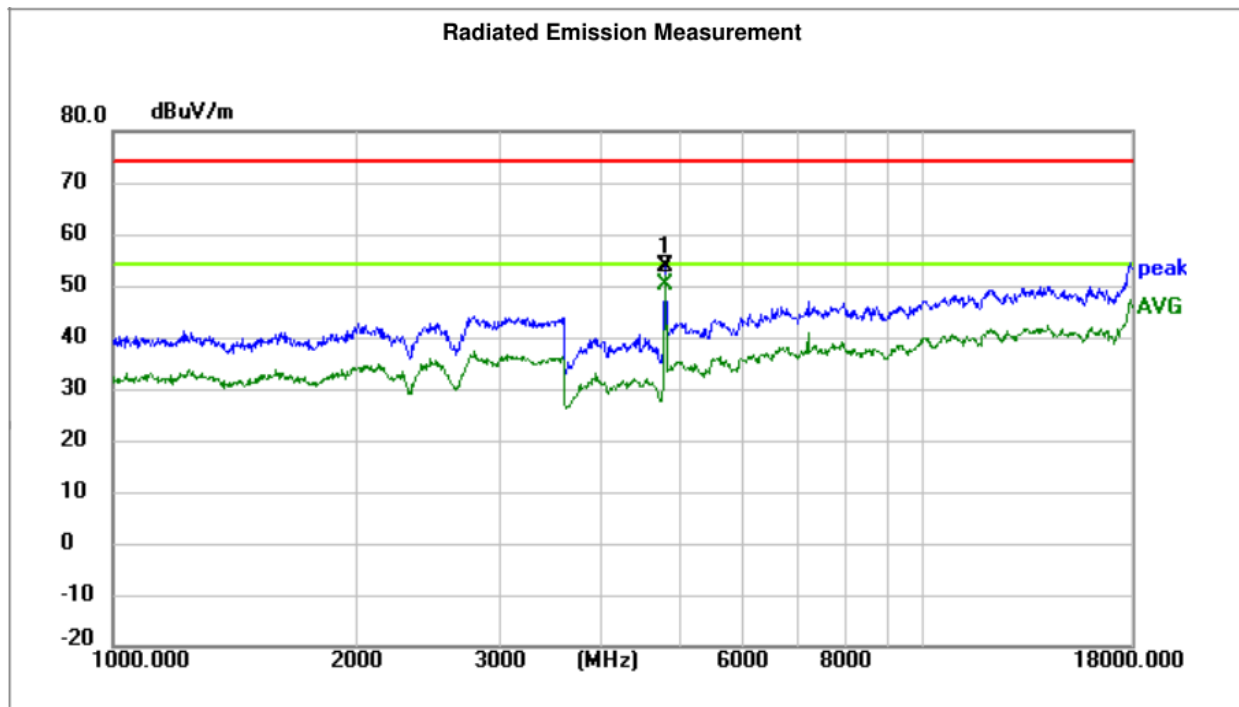
10.10.1 E.U.T. Operation:

Operating Environment:					
Temperature:	26.5 °C	Humidity:	54.4 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3				
Final test mode:	TM1				

10.10.2 Test Data:

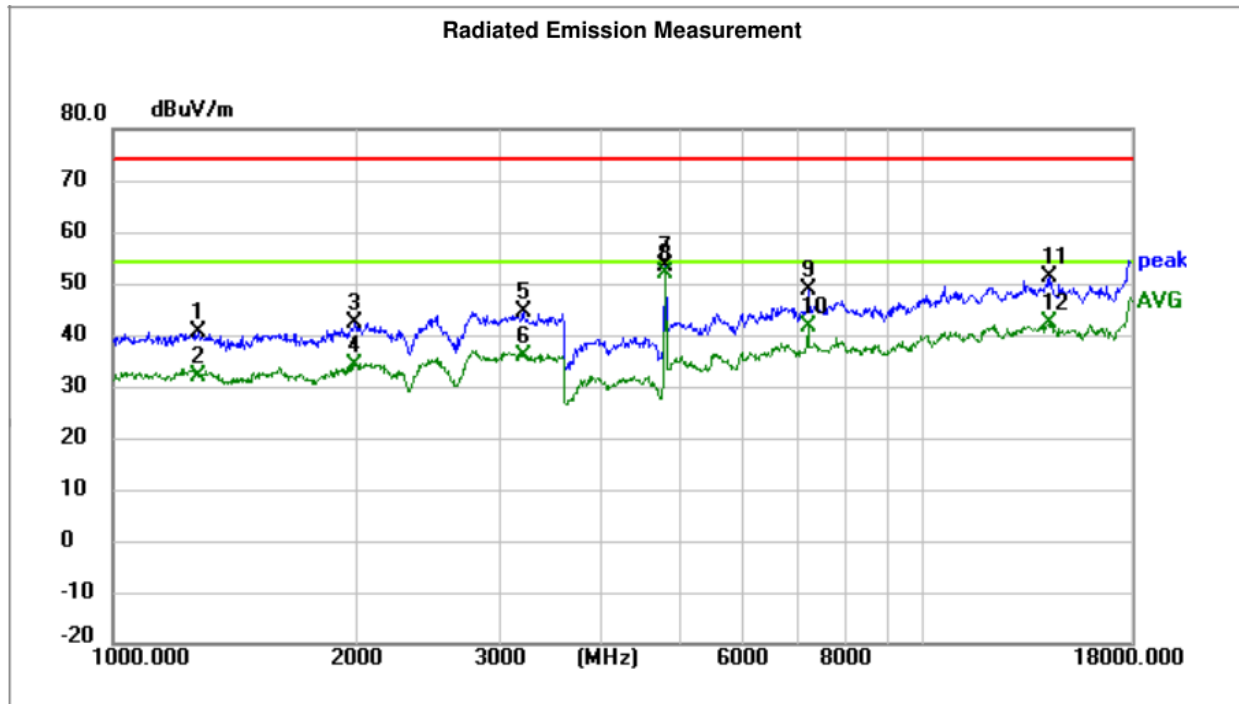
1-18G

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



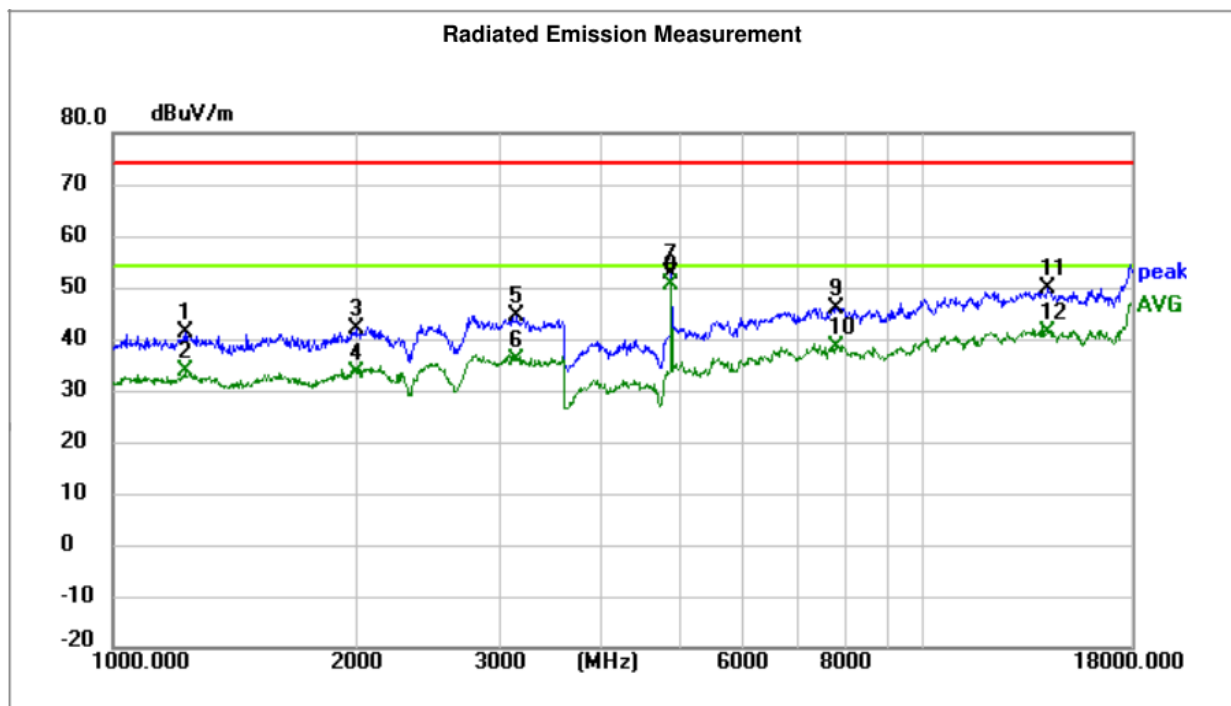
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	4803.750	60.93	-7.03	53.90	74.00	-20.10	peak	P	
2 *	4803.750	57.06	-7.03	50.03	54.00	-3.97	AVG	P	

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



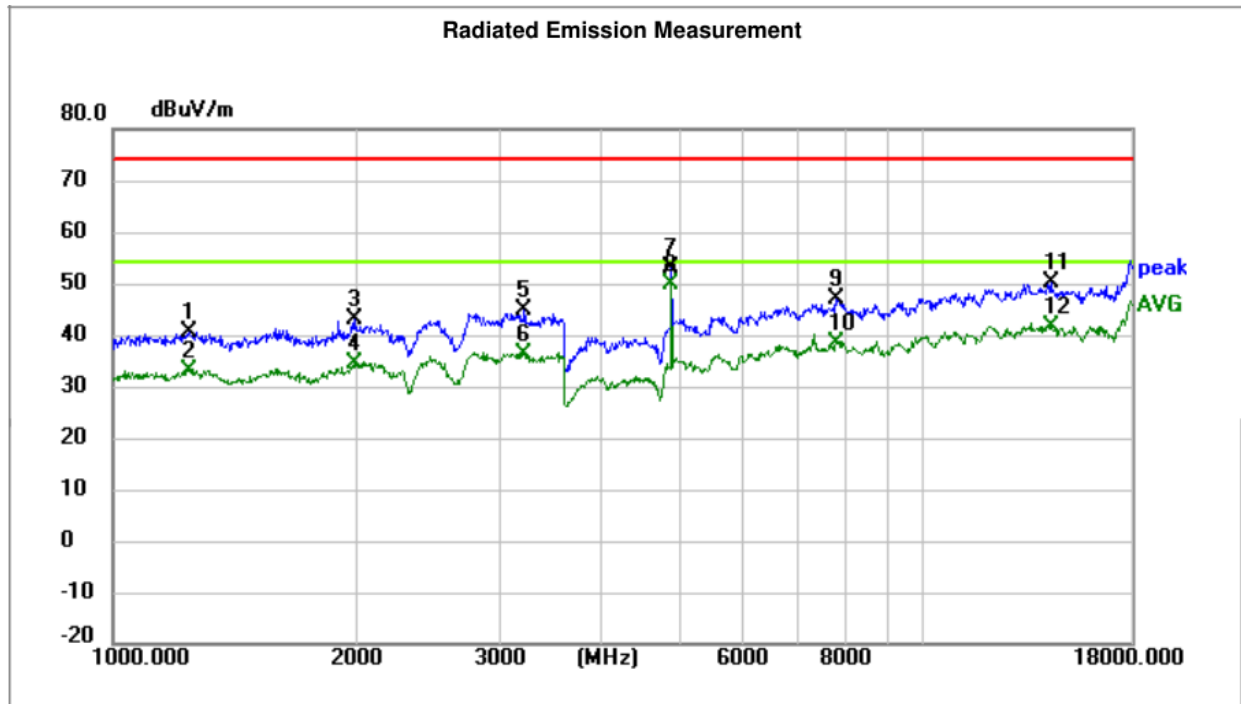
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1277.525	58.26	-17.87	40.39	74.00	-33.61	peak	P	
2	1277.525	49.91	-17.87	32.04	54.00	-21.96	AVG	P	
3	1993.650	56.19	-13.74	42.45	74.00	-31.55	peak	P	
4	1993.650	47.81	-13.74	34.07	54.00	-19.93	AVG	P	
5	3211.275	53.51	-9.16	44.35	74.00	-29.65	peak	P	
6	3211.275	44.92	-9.16	35.76	54.00	-18.24	AVG	P	
7	4804.175	60.47	-7.02	53.45	74.00	-20.55	peak	P	
8 *	4804.175	59.03	-7.02	52.01	54.00	-1.99	AVG	P	

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



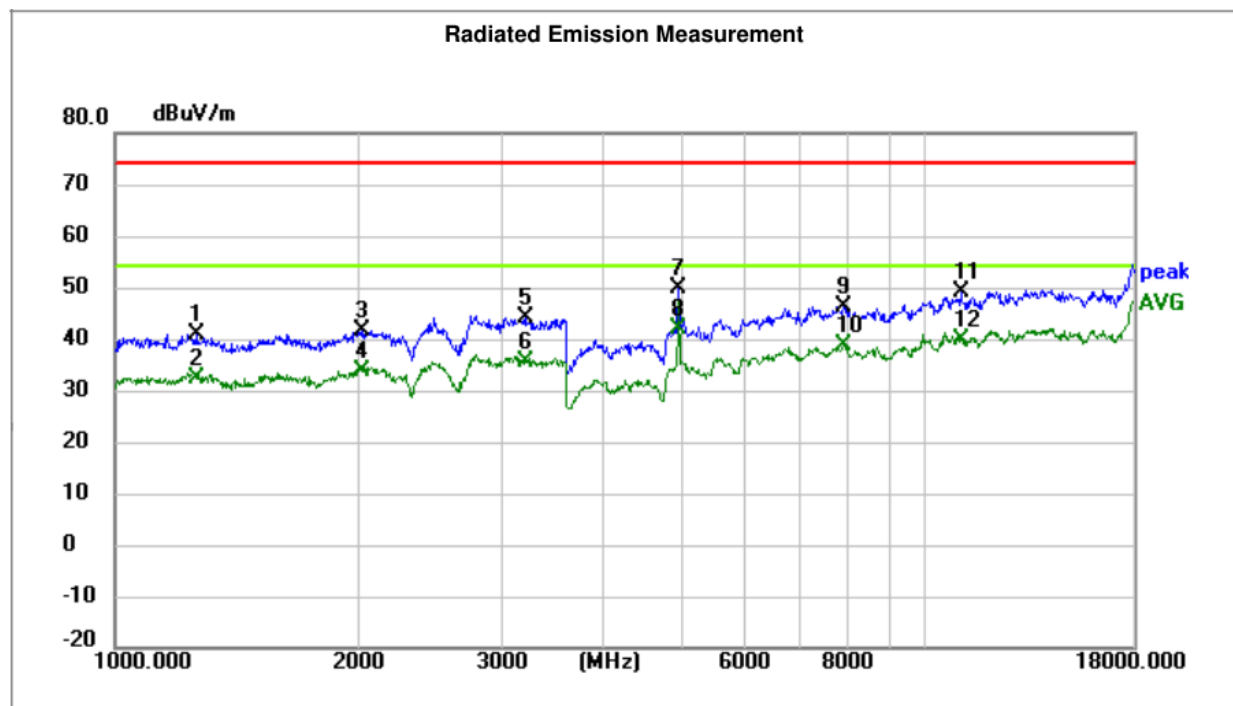
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1230.350	59.30	-18.09	41.21	74.00	-32.79	peak	P	
2	1230.350	51.82	-18.09	33.73	54.00	-20.27	AVG	P	
3	1998.325	55.51	-13.63	41.88	74.00	-32.12	peak	P	
4	1998.325	47.07	-13.63	33.44	54.00	-20.56	AVG	P	
5	3156.450	54.00	-9.45	44.55	74.00	-29.45	peak	P	
6	3156.450	45.47	-9.45	36.02	54.00	-17.98	AVG	P	
7	4882.375	59.98	-7.25	52.73	74.00	-21.27	peak	P	
8 *	4882.375	57.92	-7.25	50.67	54.00	-3.33	AVG	P	

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



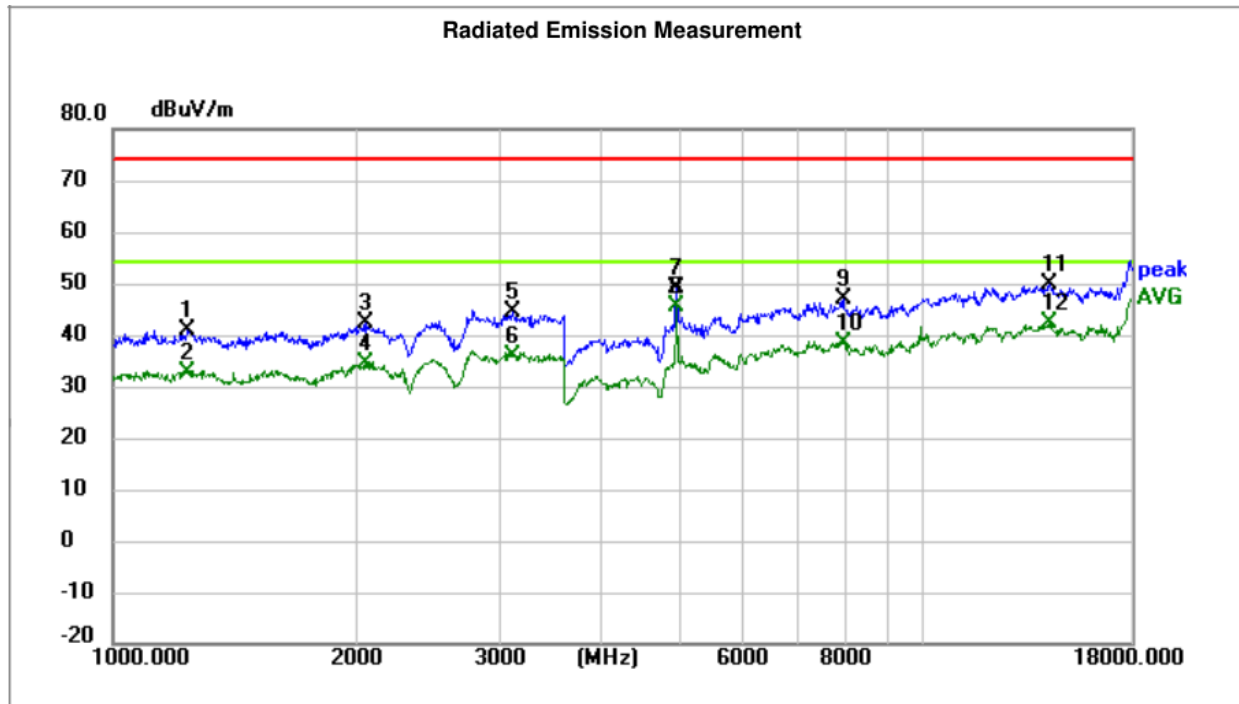
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1242.675	58.47	-17.95	40.52	74.00	-33.48	peak	P	
2	1242.675	50.99	-17.95	33.04	54.00	-20.96	AVG	P	
3	1992.800	56.96	-13.76	43.20	74.00	-30.80	peak	P	
4	1992.800	48.12	-13.76	34.36	54.00	-19.64	AVG	P	
5	3217.225	53.97	-9.14	44.83	74.00	-29.17	peak	P	
6	3217.225	45.25	-9.14	36.11	54.00	-17.89	AVG	P	
7	4882.375	60.11	-7.25	52.86	74.00	-21.14	peak	P	
8 *	4882.375	57.19	-7.25	49.94	54.00	-4.06	AVG	P	

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1261.800	58.92	-17.87	41.05	74.00	-32.95	peak	P	
2	1261.800	50.23	-17.87	32.36	54.00	-21.64	AVG	P	
3	2015.325	55.06	-13.39	41.67	74.00	-32.33	peak	P	
4	2015.325	47.02	-13.39	33.63	54.00	-20.37	AVG	P	
5	3210.425	53.36	-9.17	44.19	74.00	-29.81	peak	P	
6	3210.425	44.78	-9.17	35.61	54.00	-18.39	AVG	P	
7	4959.300	55.86	-6.06	49.80	74.00	-24.20	peak	P	
8 *	4959.300	48.02	-6.06	41.96	54.00	-12.04	AVG	P	

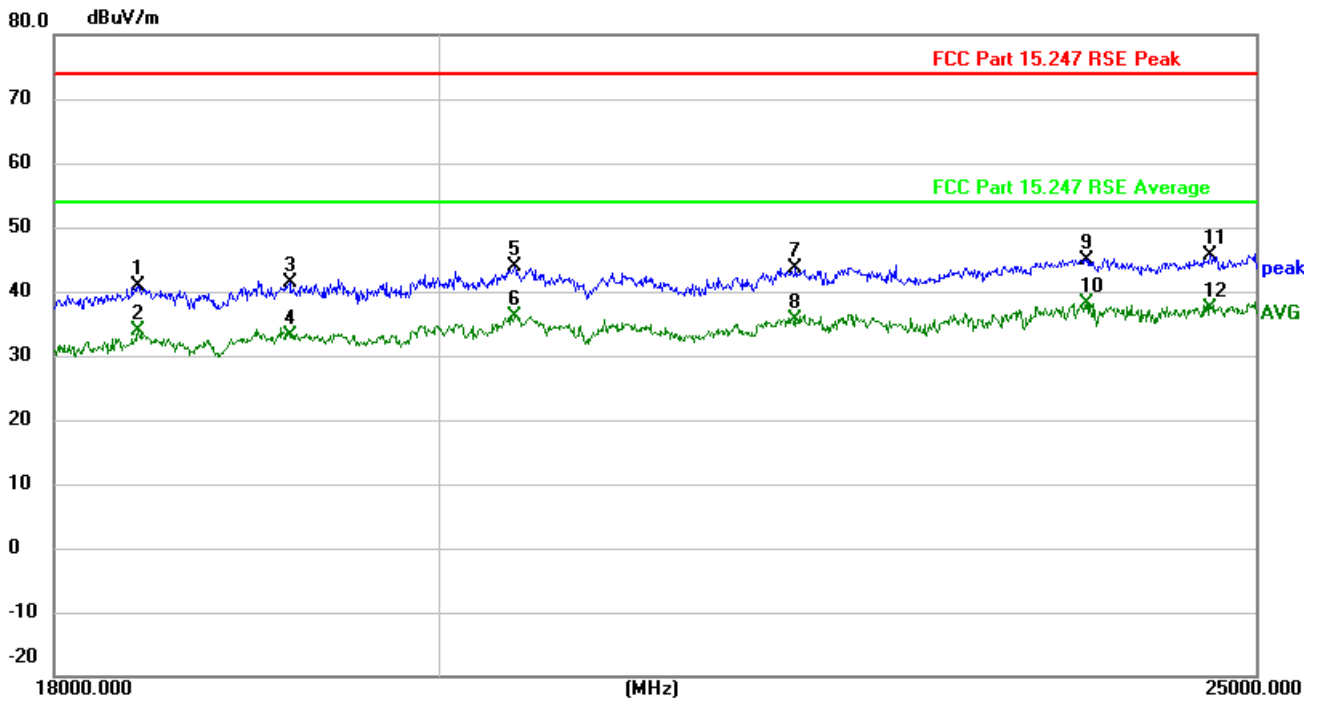
TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1235.450	59.05	-18.04	41.01	74.00	-32.99	peak	P	
2	1235.450	50.62	-18.04	32.58	54.00	-21.42	AVG	P	
3	2053.575	55.06	-12.86	42.20	74.00	-31.80	peak	P	
4	2053.575	47.26	-12.86	34.40	54.00	-19.60	AVG	P	
5	3109.700	53.88	-9.54	44.34	74.00	-29.66	peak	P	
6	3109.700	45.61	-9.54	36.07	54.00	-17.93	AVG	P	
7	4960.150	55.16	-6.07	49.09	74.00	-24.91	peak	P	
8 *	4960.150	51.75	-6.07	45.68	54.00	-8.32	AVG	P	

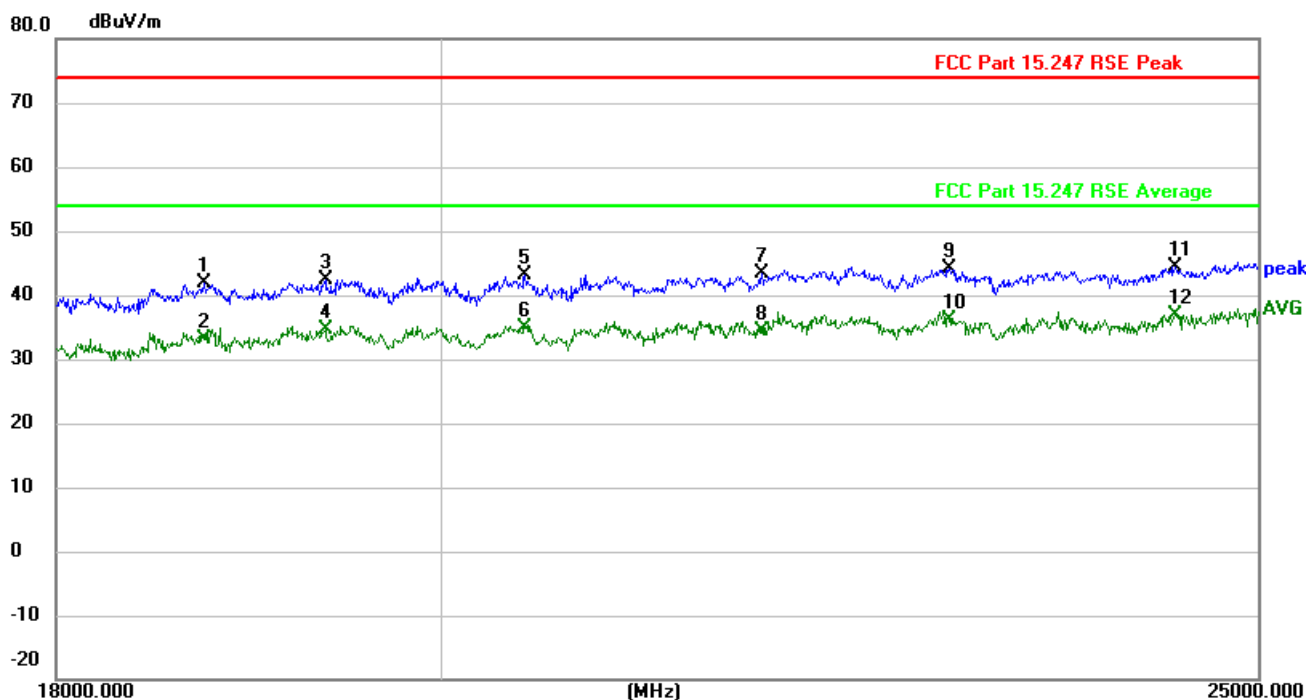
18-25G

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



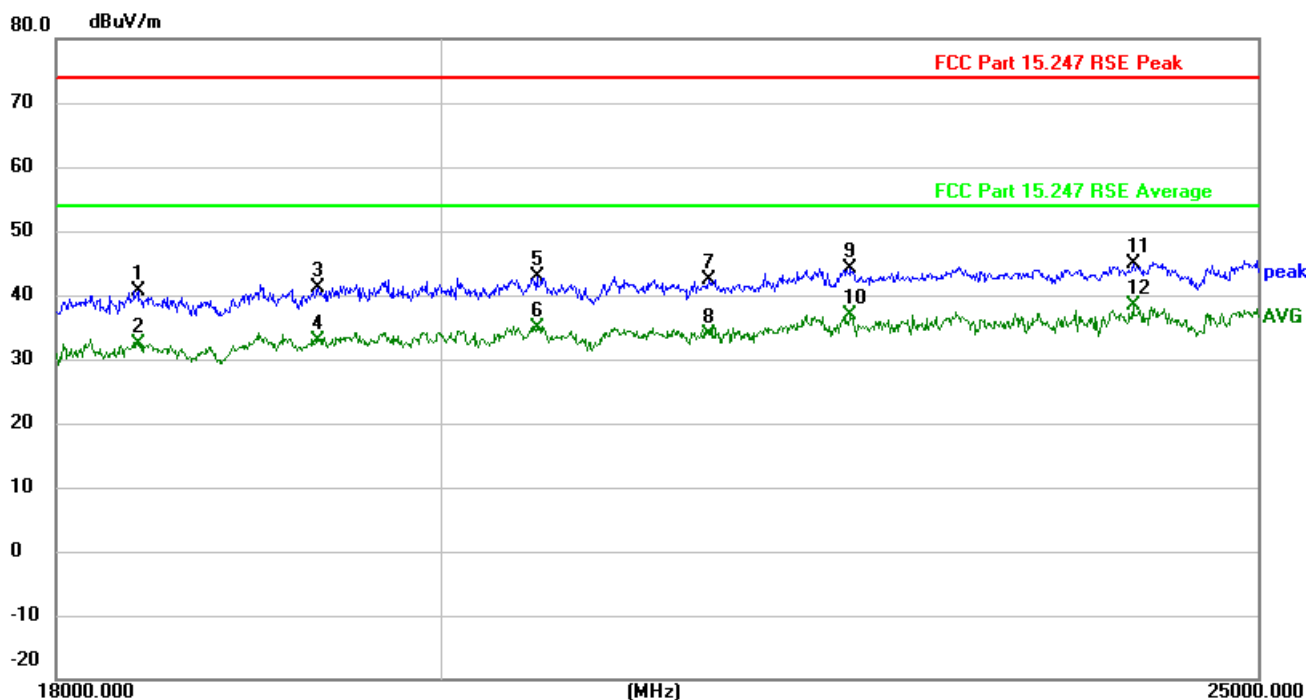
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18421.400	55.74	-14.79	40.95	74.00	-33.05	peak	P	
2	18421.400	48.57	-14.79	33.78	54.00	-20.22	AVG	P	
3	19199.975	55.19	-13.84	41.35	74.00	-32.65	peak	P	
4	19199.975	46.91	-13.84	33.07	54.00	-20.93	AVG	P	
5	20416.050	56.26	-12.36	43.90	74.00	-30.10	peak	P	
6	20416.050	48.55	-12.36	36.19	54.00	-17.81	AVG	P	
7	22046.700	55.54	-11.95	43.59	74.00	-30.41	peak	P	
8	22046.700	47.61	-11.95	35.66	54.00	-18.34	AVG	P	
9	23874.925	56.28	-11.30	44.98	74.00	-29.02	peak	P	
10 *	23874.925	49.42	-11.30	38.12	54.00	-15.88	AVG	P	
11	24693.050	56.57	-10.93	45.64	74.00	-28.36	peak	P	
12	24693.050	48.43	-10.93	37.50	54.00	-16.50	AVG	P	

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



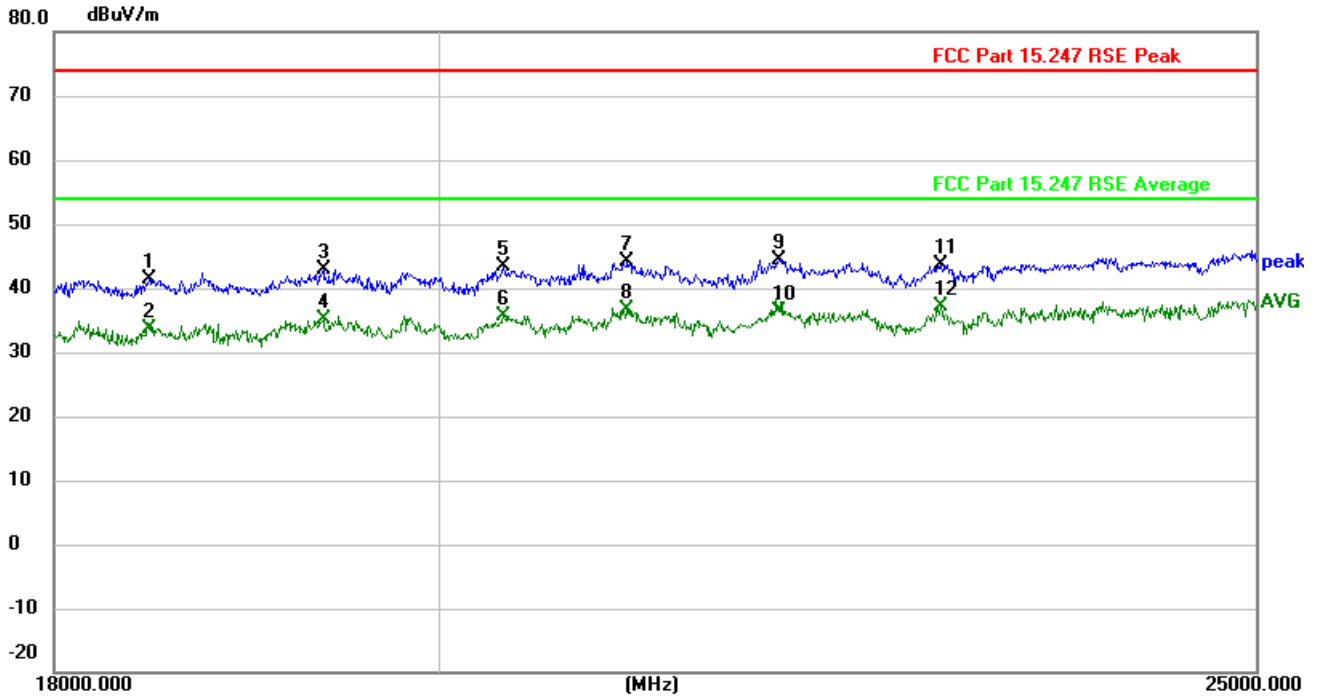
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18744.275	56.48	-14.56	41.92	74.00	-32.08	peak	P	
2	18744.275	47.71	-14.56	33.15	54.00	-20.85	AVG	P	
3	19379.525	55.99	-13.63	42.36	74.00	-31.64	peak	P	
4	19379.525	48.34	-13.63	34.71	54.00	-19.29	AVG	P	
5	20461.900	55.40	-12.24	43.16	74.00	-30.84	peak	P	
6	20461.900	47.17	-12.24	34.93	54.00	-19.07	AVG	P	
7	21832.500	55.44	-12.18	43.26	74.00	-30.74	peak	P	
8	21832.500	46.68	-12.18	34.50	54.00	-19.50	AVG	P	
9	22978.925	55.82	-11.79	44.03	74.00	-29.97	peak	P	
10	22978.925	47.99	-11.79	36.20	54.00	-17.80	AVG	P	
11	24441.225	55.65	-11.23	44.42	74.00	-29.58	peak	P	
12 *	24441.225	48.14	-11.23	36.91	54.00	-17.09	AVG	P	

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



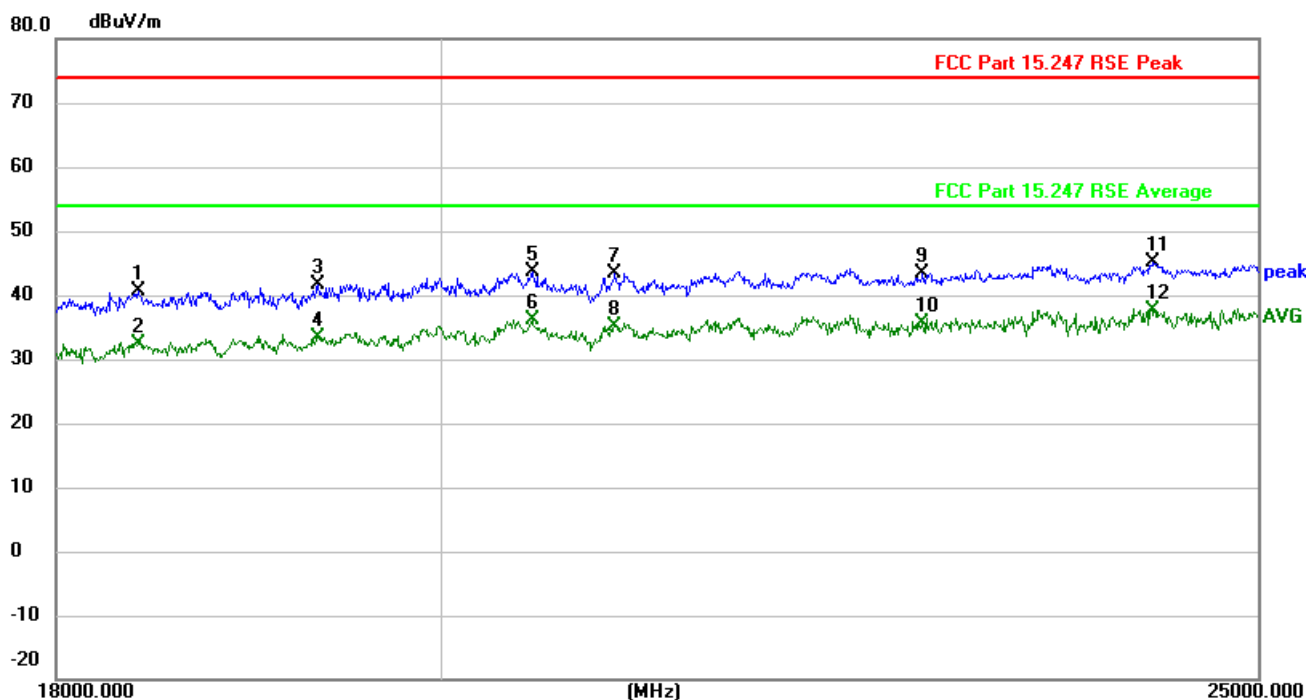
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18409.150	55.49	-14.77	40.72	74.00	-33.28	peak	P	
2	18409.150	47.12	-14.77	32.35	54.00	-21.65	AVG	P	
3	19337.000	54.90	-13.68	41.22	74.00	-32.78	peak	P	
4	19337.000	46.53	-13.68	32.85	54.00	-21.15	AVG	P	
5	20531.375	54.93	-12.15	42.78	74.00	-31.22	peak	P	
6	20531.375	47.11	-12.15	34.96	54.00	-19.04	AVG	P	
7	21521.000	54.66	-12.25	42.41	74.00	-31.59	peak	P	
8	21521.000	46.05	-12.25	33.80	54.00	-20.20	AVG	P	
9	22365.900	55.83	-11.65	44.18	74.00	-29.82	peak	P	
10	22365.900	48.42	-11.65	36.77	54.00	-17.23	AVG	P	
11	24160.700	56.39	-11.49	44.90	74.00	-29.10	peak	P	
12 *	24160.700	49.99	-11.49	38.50	54.00	-15.50	AVG	P	

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



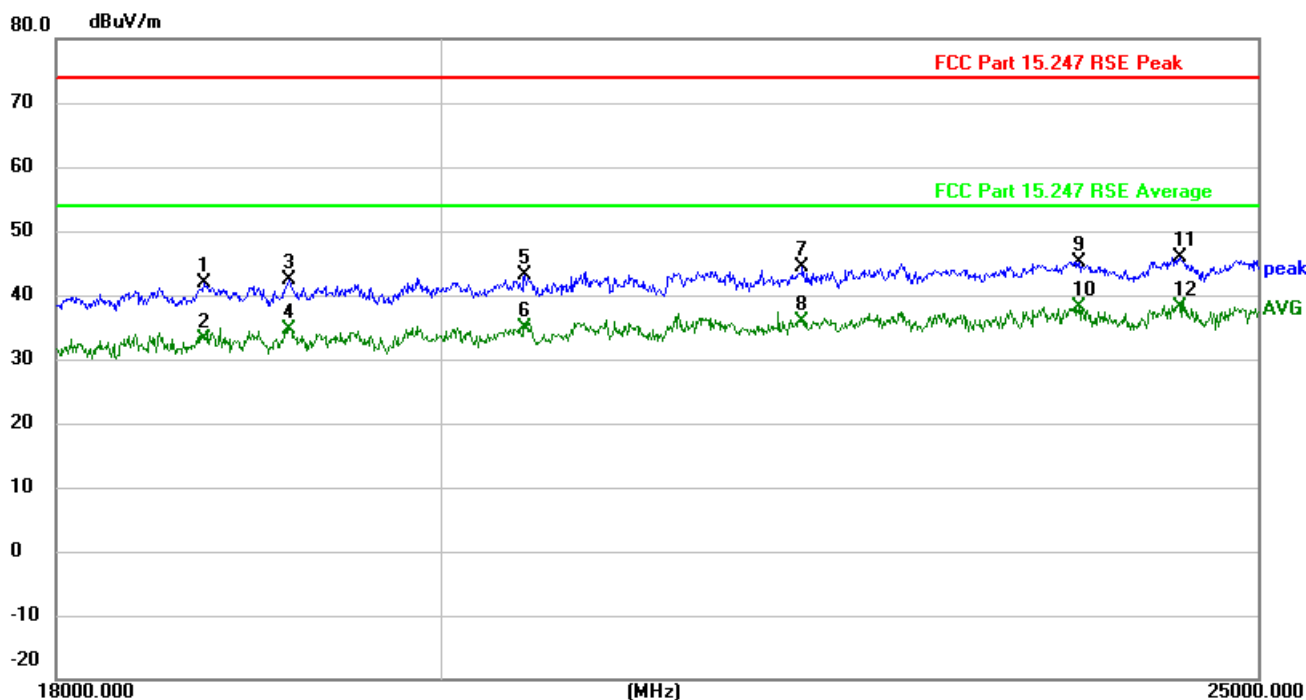
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18475.300	56.22	-14.83	41.39	74.00	-32.61	peak	P	
2	18475.300	48.42	-14.83	33.59	54.00	-20.41	AVG	P	
3	19379.525	56.49	-13.63	42.86	74.00	-31.14	peak	P	
4	19379.525	48.84	-13.63	35.21	54.00	-18.79	AVG	P	
5	20357.250	55.78	-12.50	43.28	74.00	-30.72	peak	P	
6	20357.250	48.05	-12.50	35.55	54.00	-18.45	AVG	P	
7	21057.075	56.32	-12.28	44.04	74.00	-29.96	peak	P	
8	21057.075	48.80	-12.28	36.52	54.00	-17.48	AVG	P	
9	21950.100	56.53	-12.05	44.48	74.00	-29.52	peak	P	
10	21950.100	48.53	-12.05	36.48	54.00	-17.52	AVG	P	
11	22939.550	55.39	-11.79	43.60	74.00	-30.40	peak	P	
12 *	22939.550	48.89	-11.79	37.10	54.00	-16.90	AVG	P	

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18409.150	55.49	-14.77	40.72	74.00	-33.28	peak	P	
2	18409.150	47.12	-14.77	32.35	54.00	-21.65	AVG	P	
3	19337.000	55.40	-13.68	41.72	74.00	-32.28	peak	P	
4	19337.000	47.03	-13.68	33.35	54.00	-20.65	AVG	P	
5	20504.250	55.82	-12.15	43.67	74.00	-30.33	peak	P	
6	20504.250	48.32	-12.15	36.17	54.00	-17.83	AVG	P	
7	20974.475	55.66	-12.28	43.38	74.00	-30.62	peak	P	
8	20974.475	47.44	-12.28	35.16	54.00	-18.84	AVG	P	
9	22813.725	55.19	-11.79	43.40	74.00	-30.60	peak	P	
10	22813.725	47.44	-11.79	35.65	54.00	-18.35	AVG	P	
11	24295.975	56.84	-11.62	45.22	74.00	-28.78	peak	P	
12 *	24295.975	49.29	-11.62	37.67	54.00	-16.33	AVG	P	

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

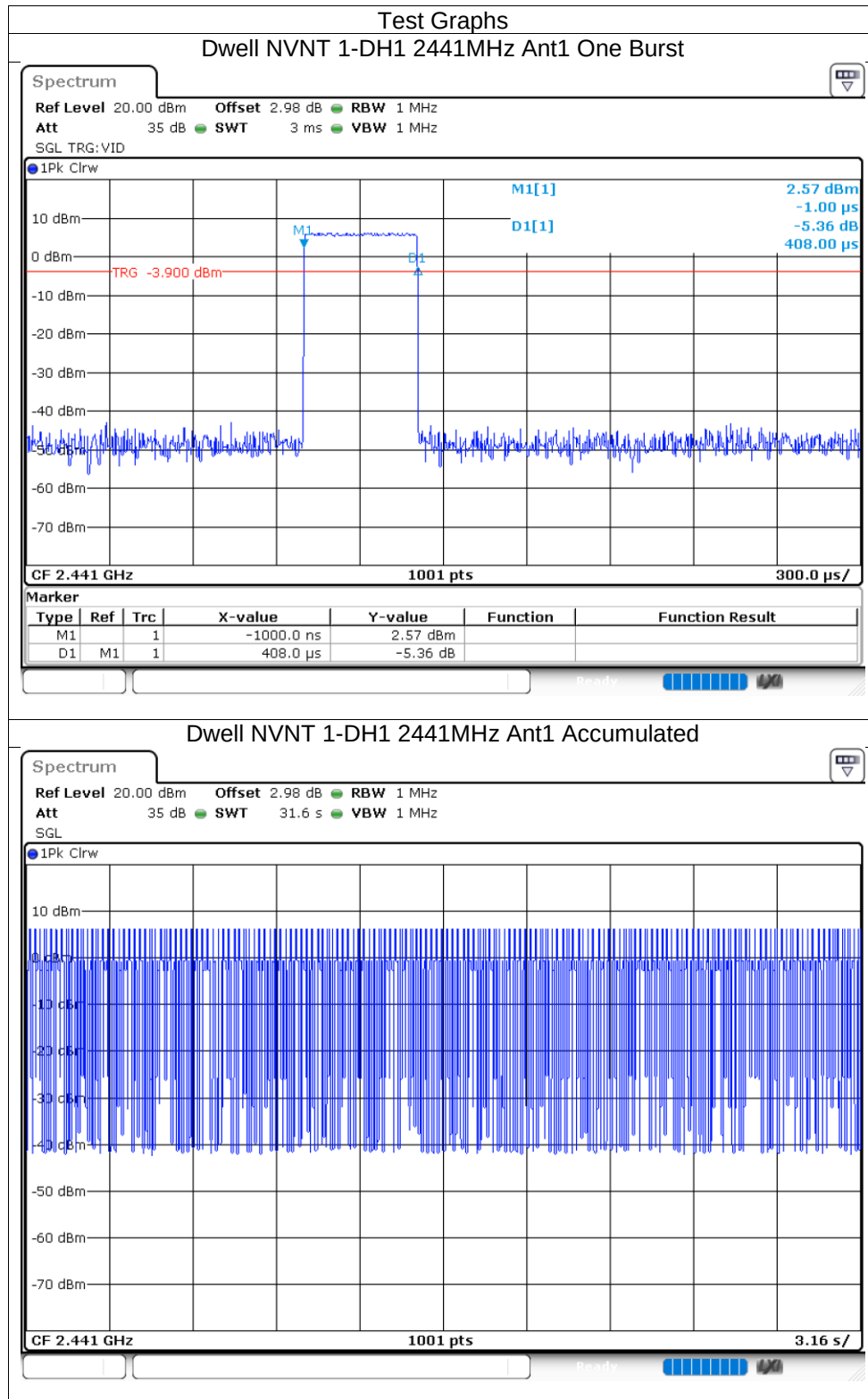


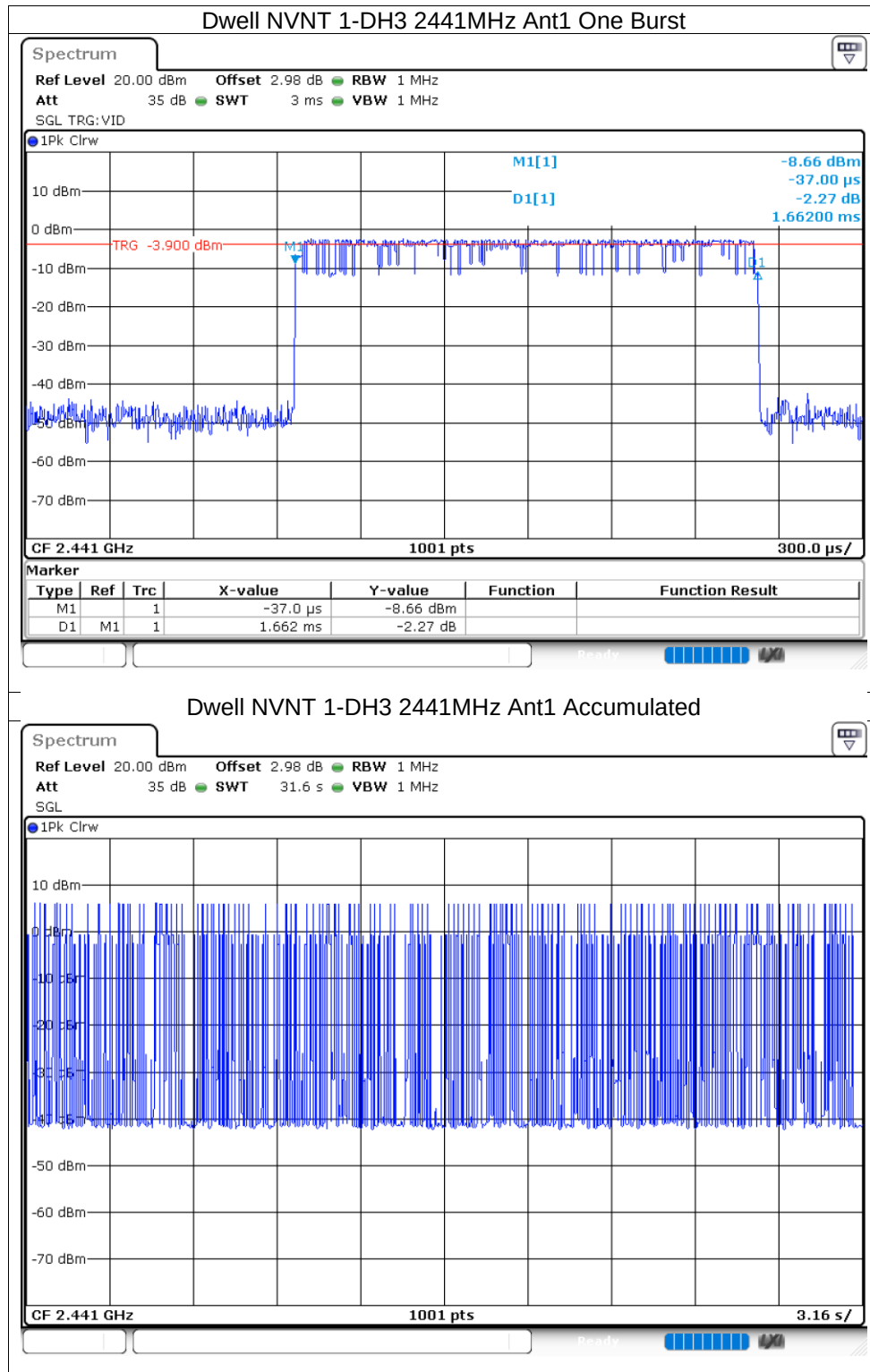
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18744.275	56.48	-14.56	41.92	74.00	-32.08	peak	P	
2	18744.275	47.71	-14.56	33.15	54.00	-20.85	AVG	P	
3	19188.950	56.14	-13.85	42.29	74.00	-31.71	peak	P	
4	19188.950	48.47	-13.85	34.62	54.00	-19.38	AVG	P	
5	20461.900	55.40	-12.24	43.16	74.00	-30.84	peak	P	
6	20461.900	47.17	-12.24	34.93	54.00	-19.07	AVG	P	
7	22080.300	56.28	-11.93	44.35	74.00	-29.65	peak	P	
8	22080.300	47.79	-11.93	35.86	54.00	-18.14	AVG	P	
9	23811.050	56.66	-11.44	45.22	74.00	-28.78	peak	P	
10	23811.050	49.46	-11.44	38.02	54.00	-15.98	AVG	P	
11	24476.575	57.06	-11.13	45.93	74.00	-28.07	peak	P	
12 *	24476.575	49.22	-11.13	38.09	54.00	-15.91	AVG	P	

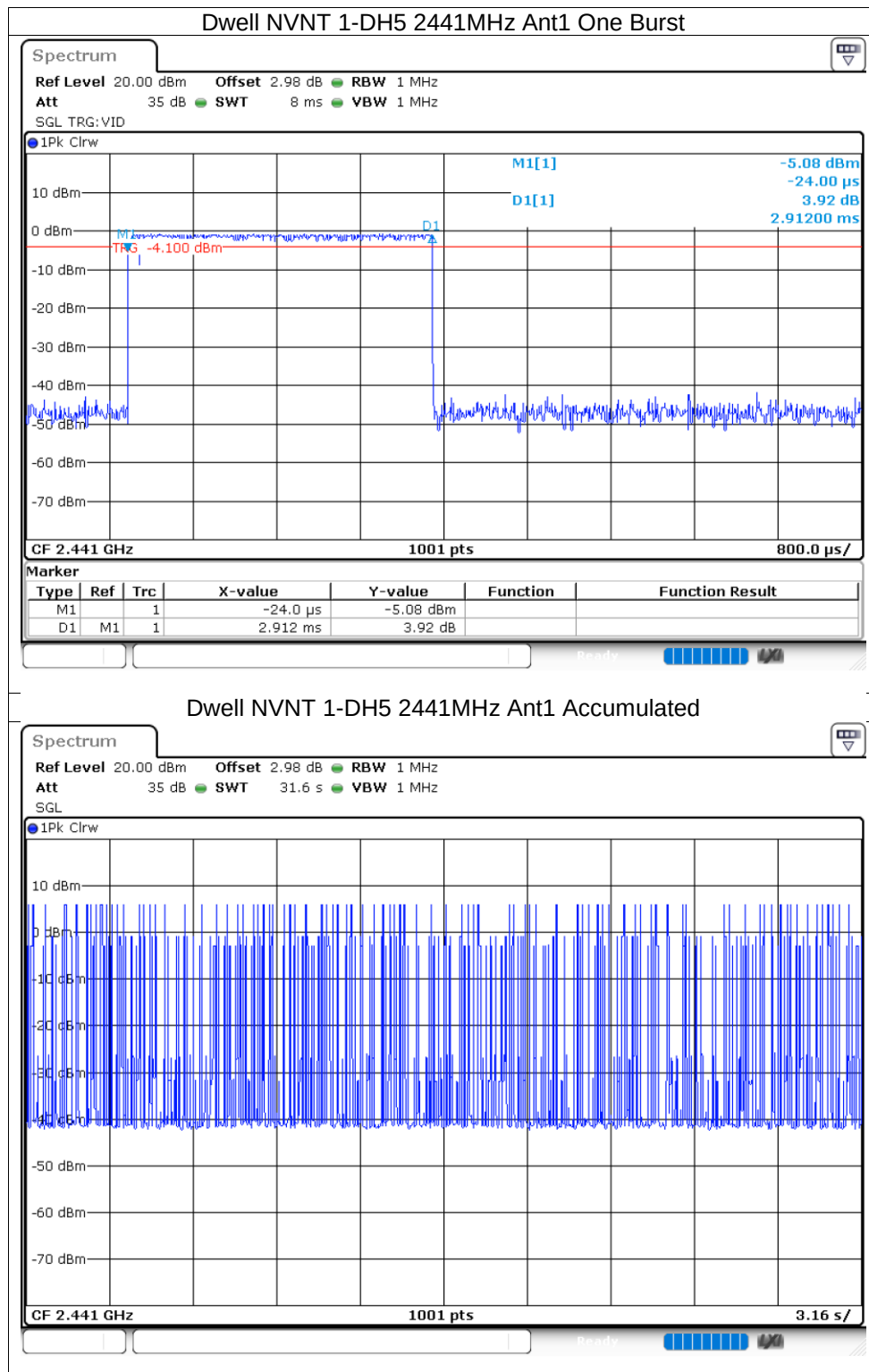
11 Appendix

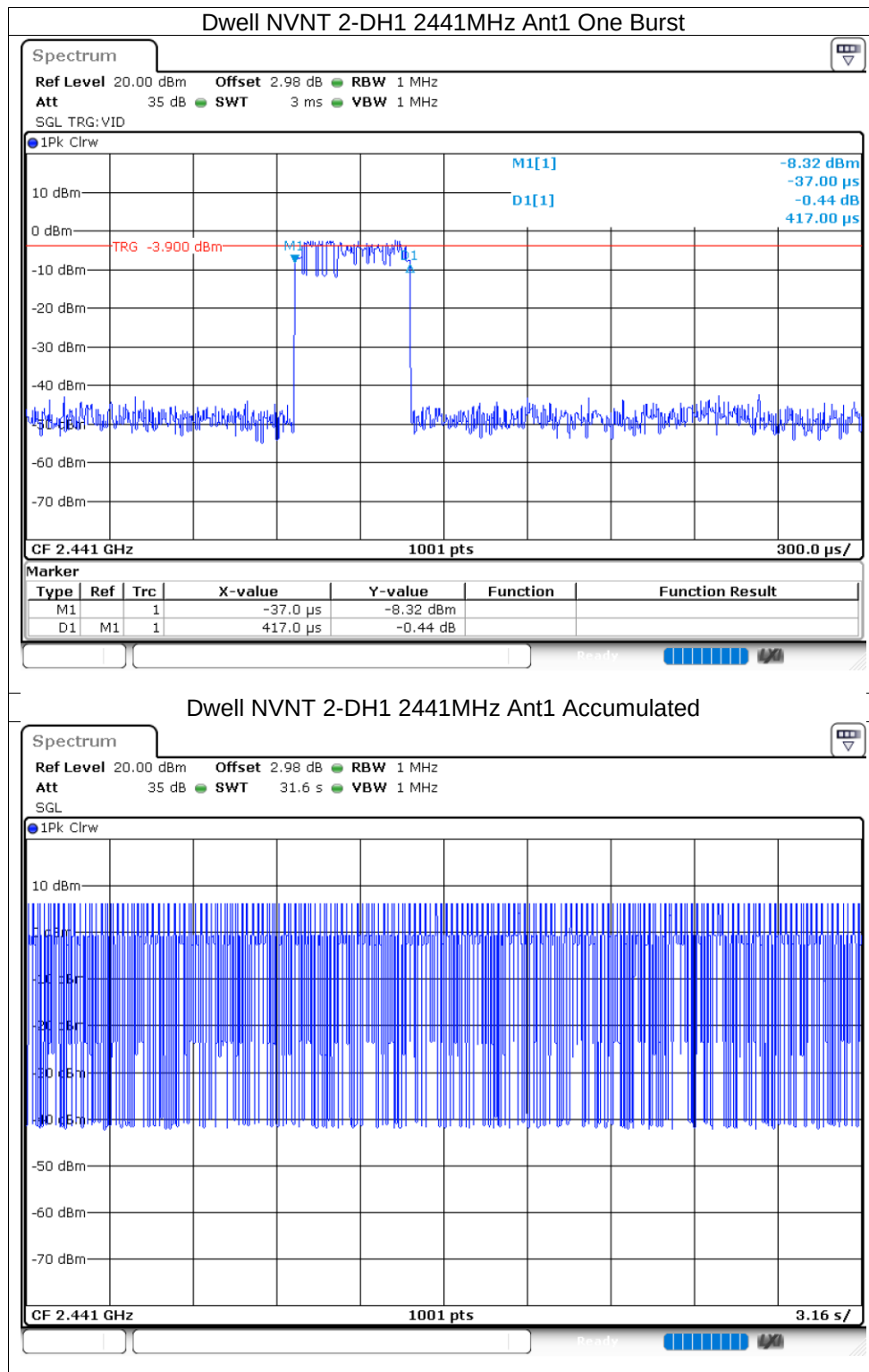
13.1 Dwell Time

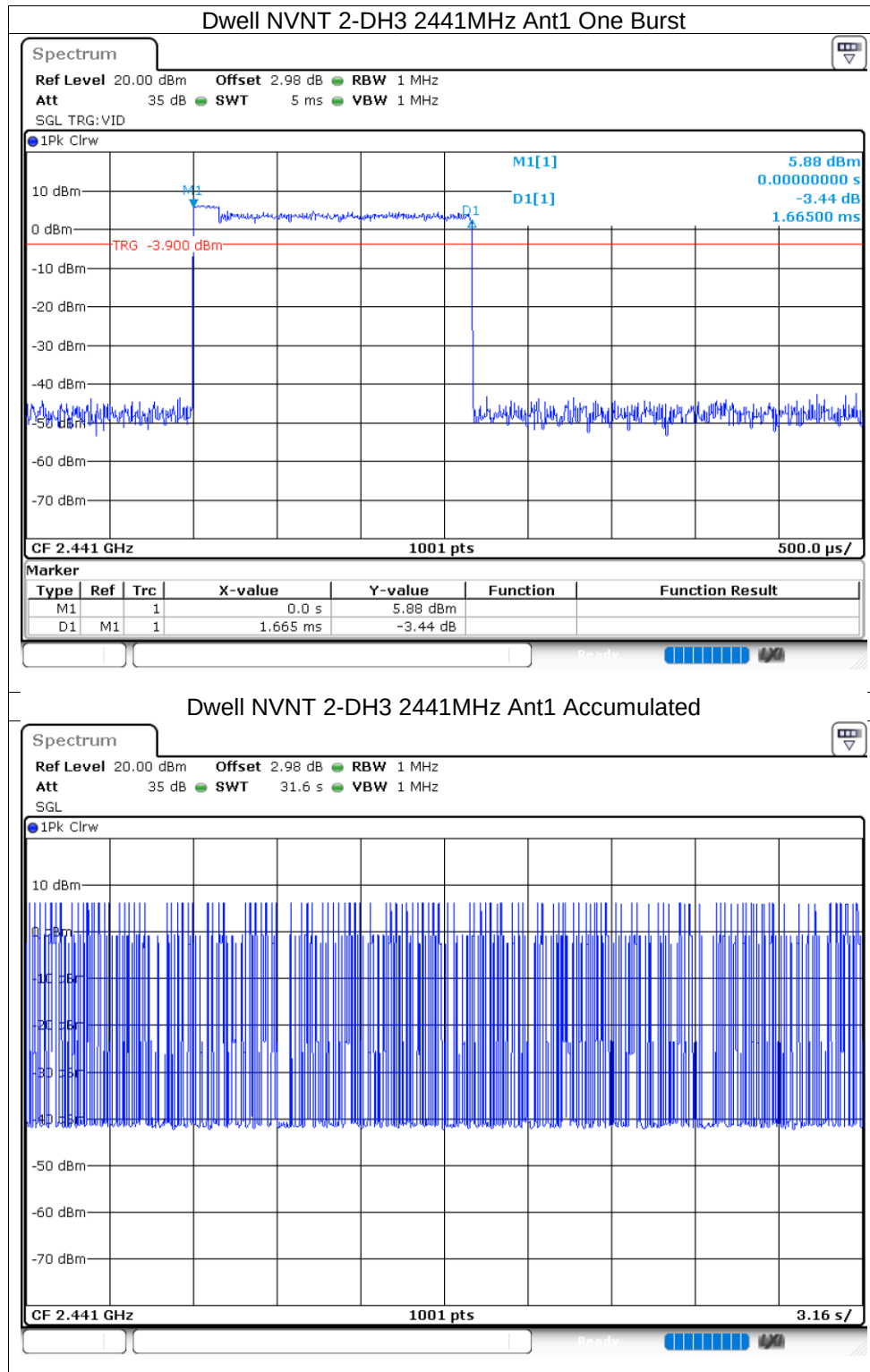
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.408	86.904	213	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.662	232.68	140	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.912	264.992	91	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.417	91.323	219	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.665	219.78	132	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.912	264.992	91	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.417	87.57	210	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.66	225.76	136	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.92	280.32	96	31600	400	Pass

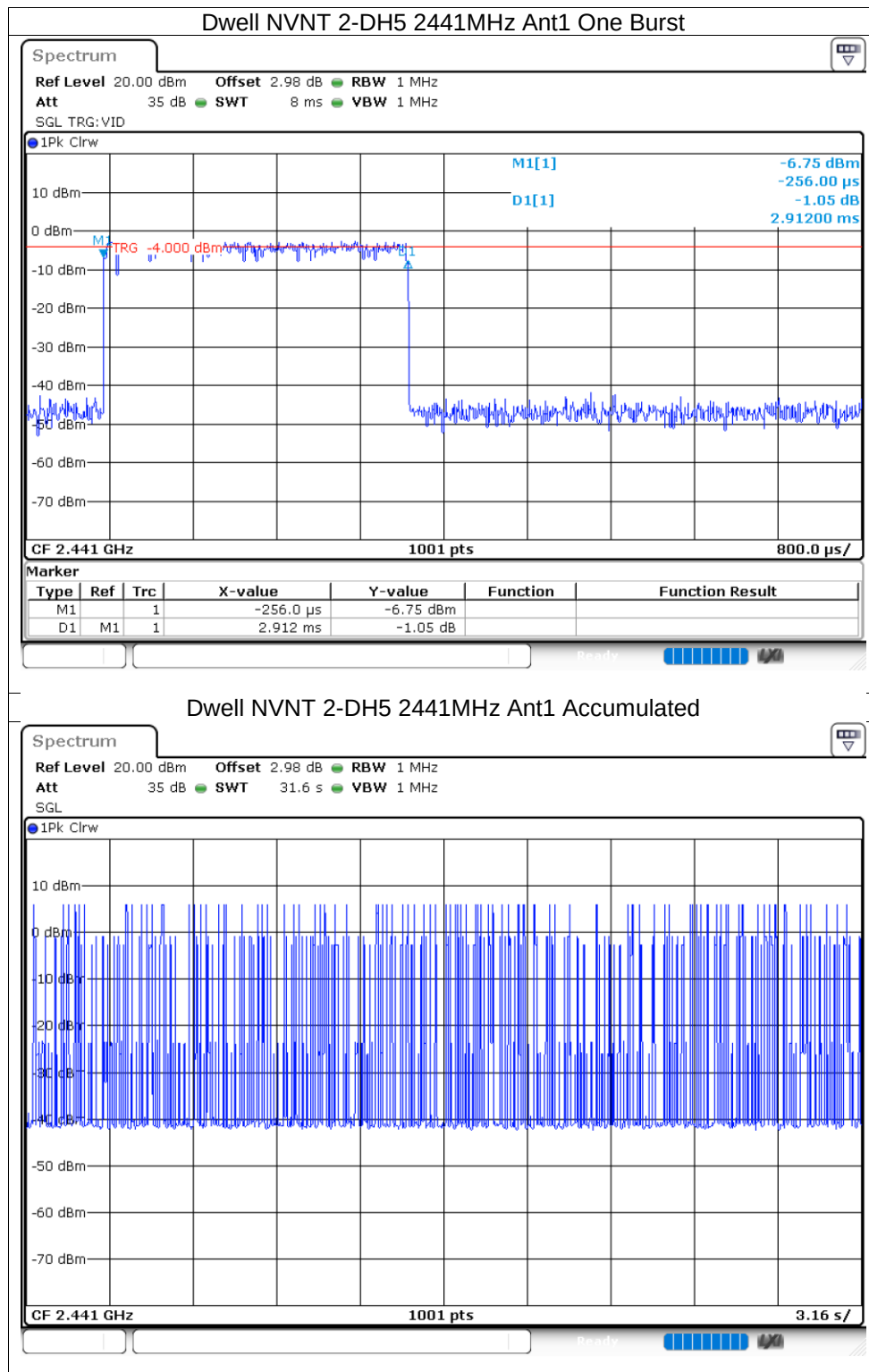


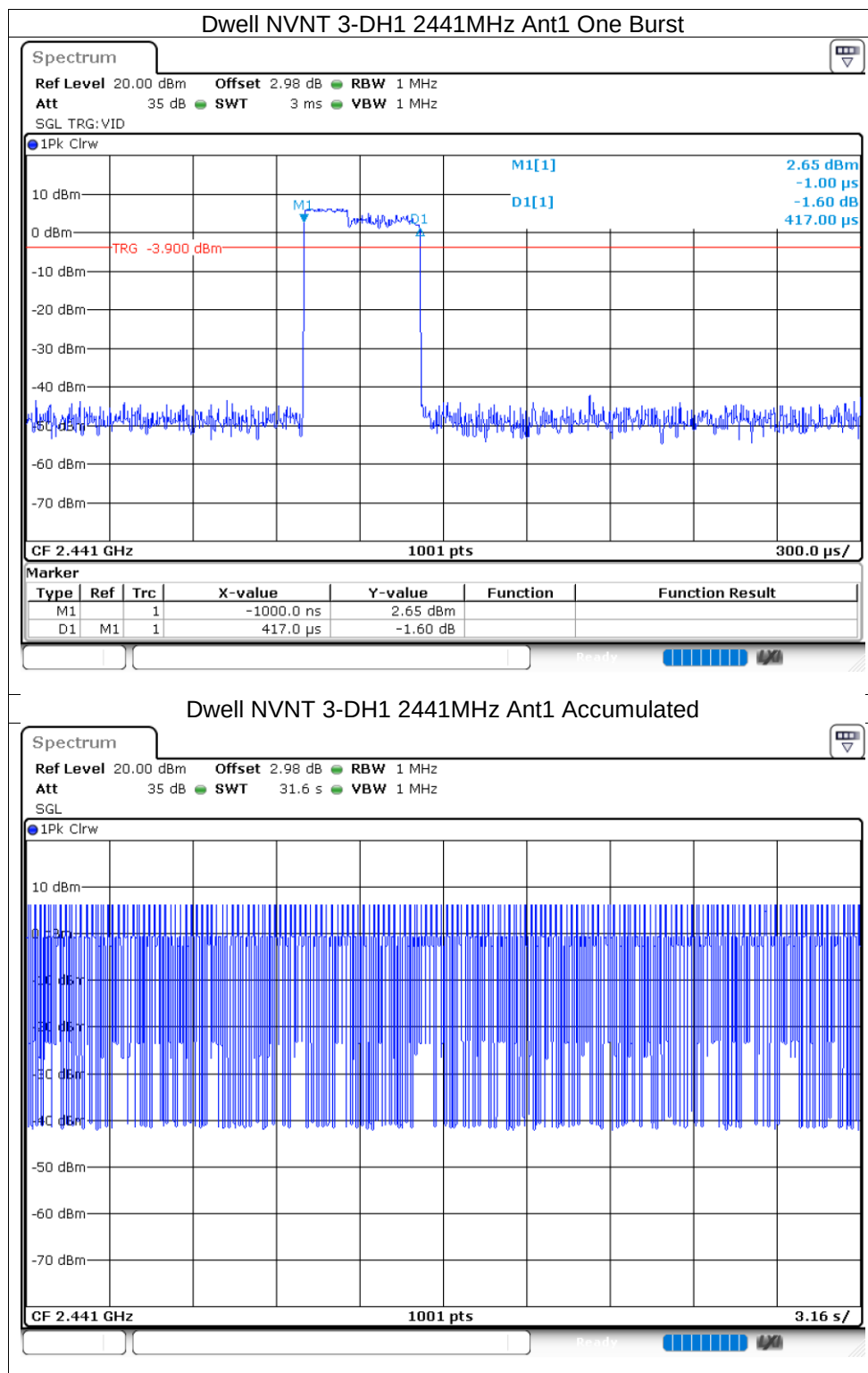


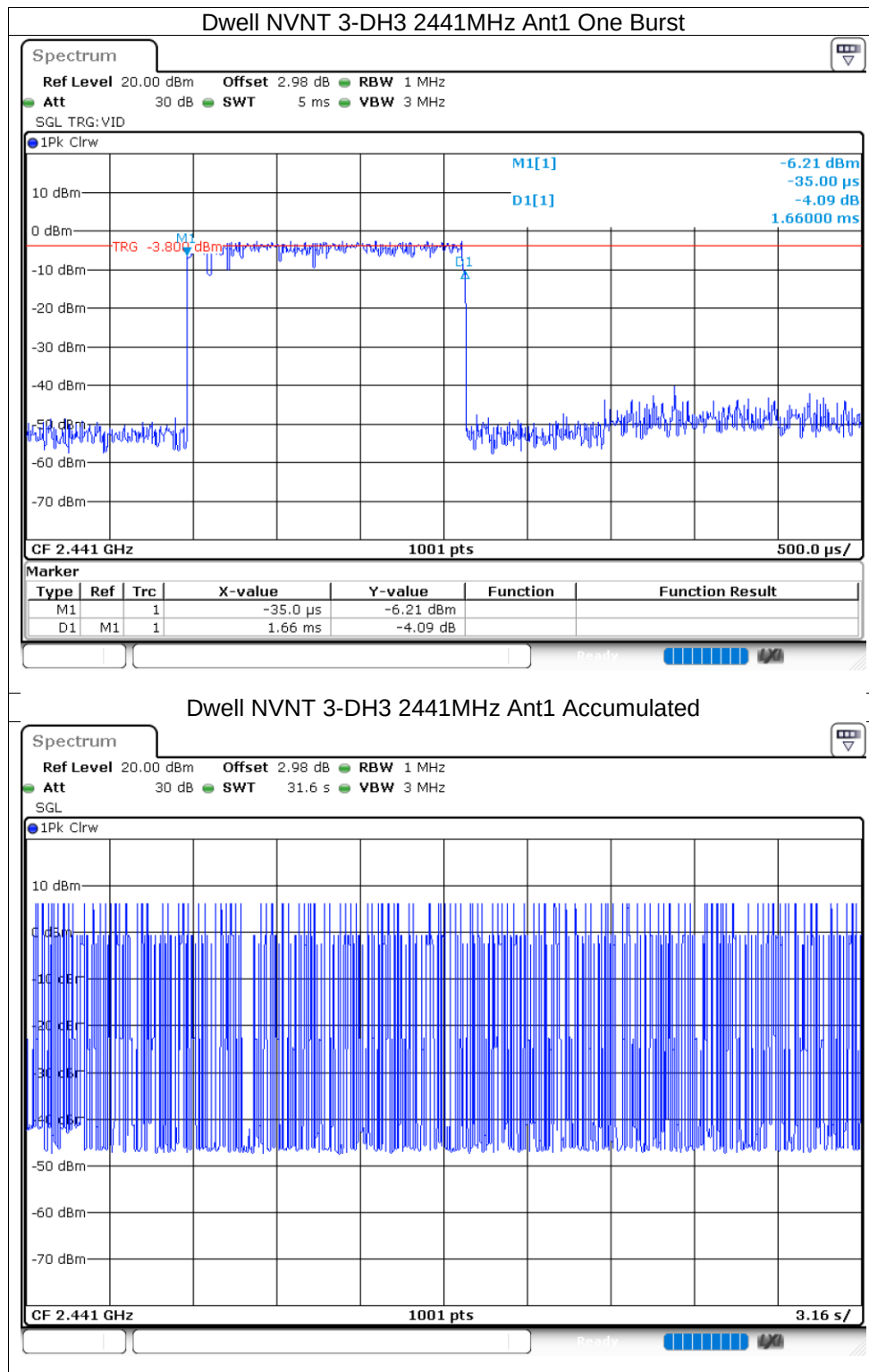


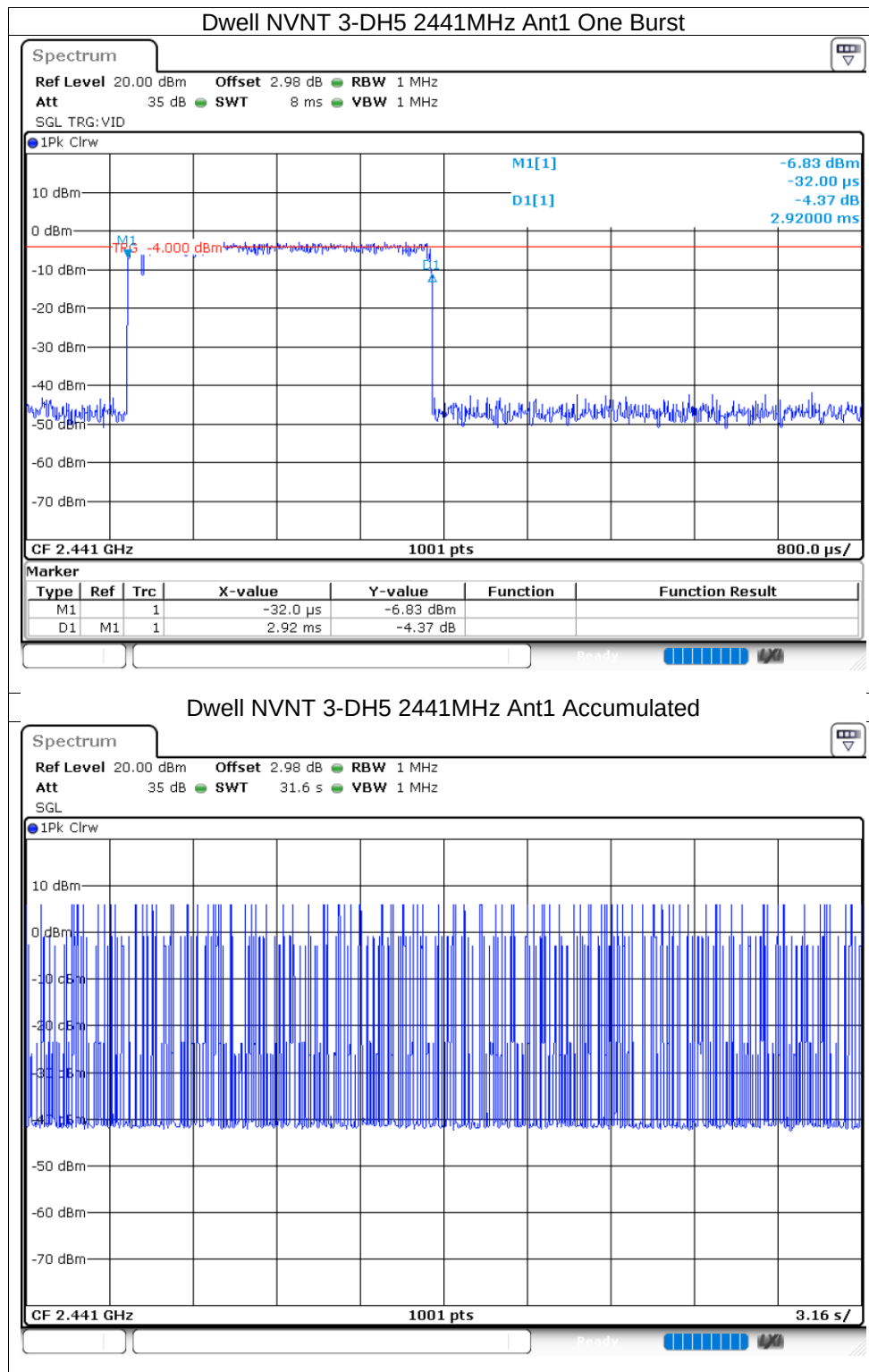






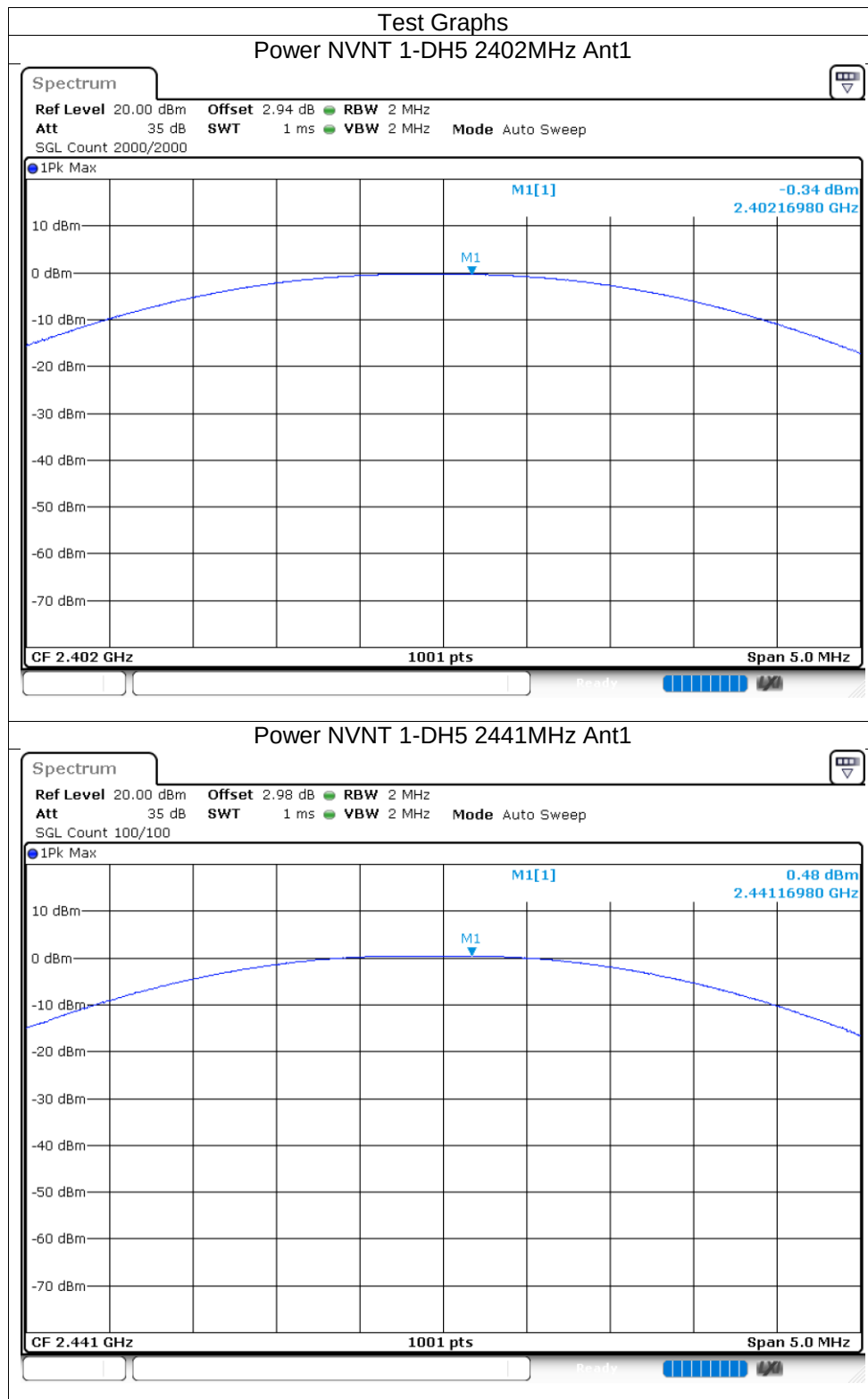






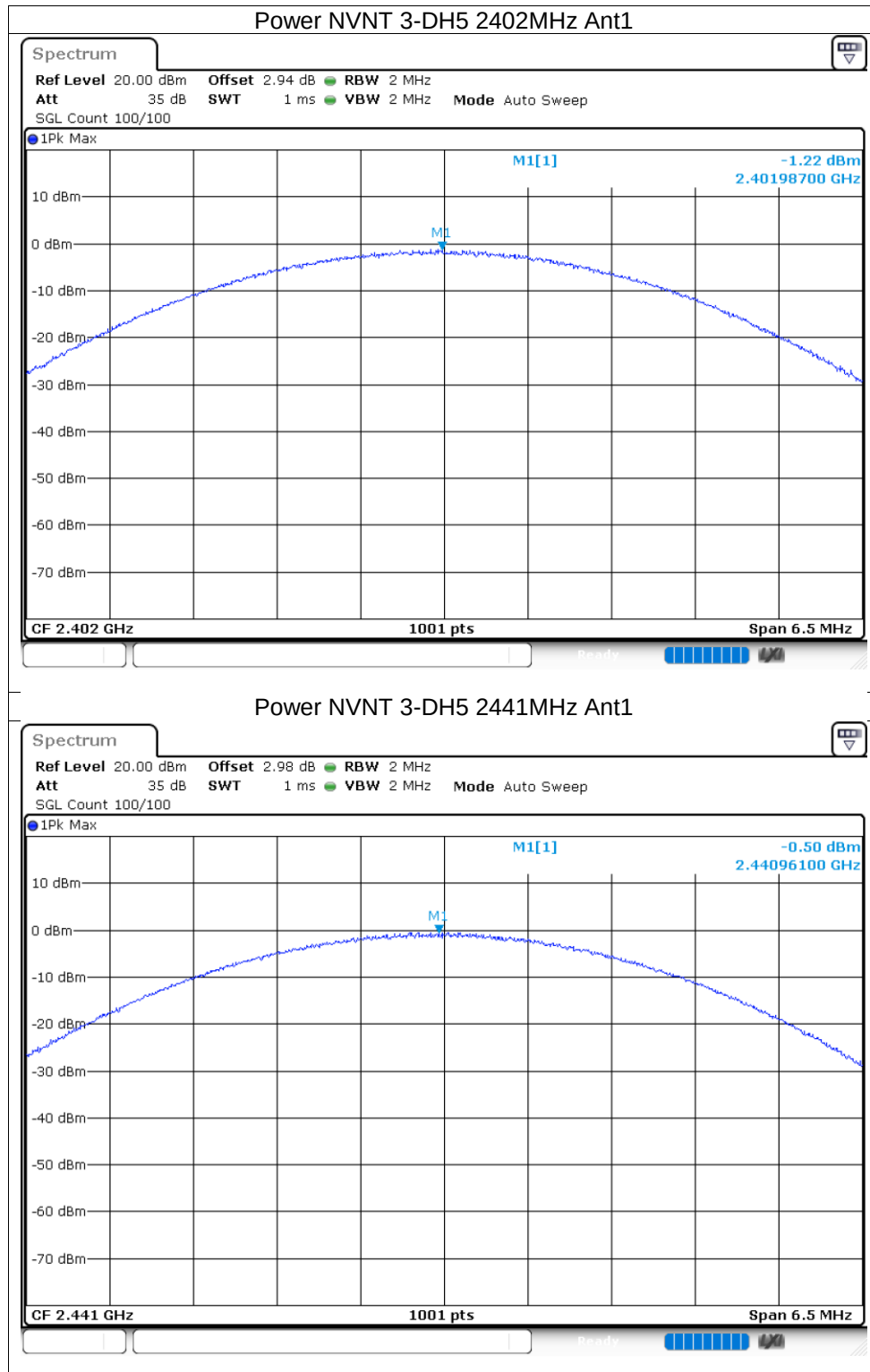
13.2 Maximum Conducted Output Power

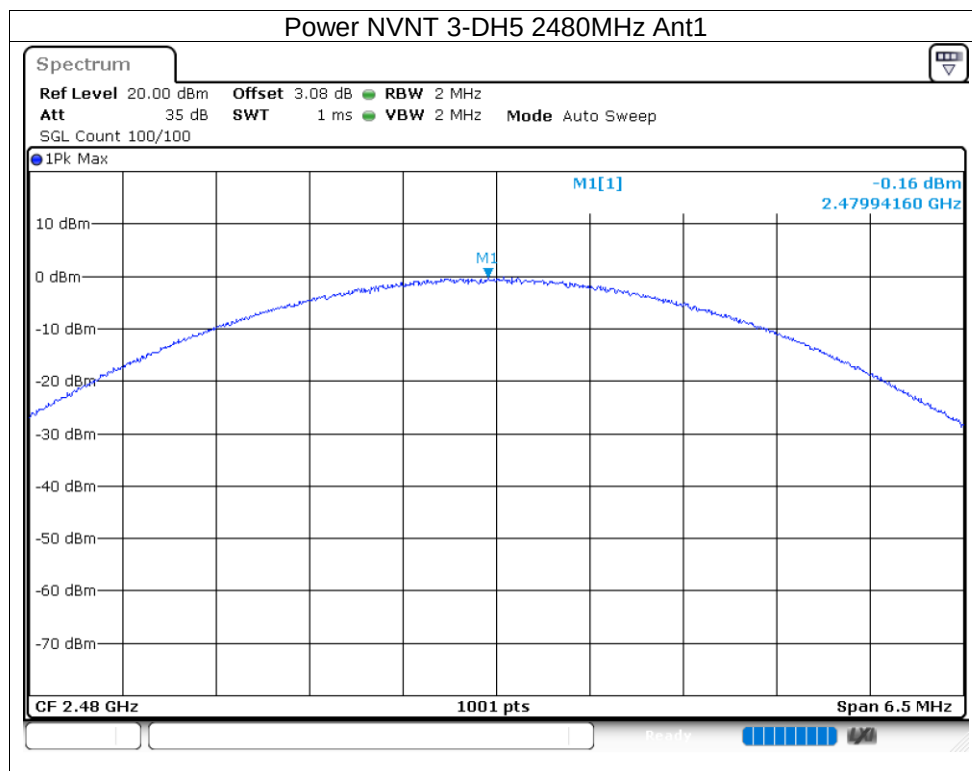
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-0.34	21	Pass
NVNT	1-DH5	2441	Ant1	0.48	21	Pass
NVNT	1-DH5	2480	Ant1	0.74	21	Pass
NVNT	2-DH5	2402	Ant1	-1.97	21	Pass
NVNT	2-DH5	2441	Ant1	-1.22	21	Pass
NVNT	2-DH5	2480	Ant1	-0.84	21	Pass
NVNT	3-DH5	2402	Ant1	-1.22	21	Pass
NVNT	3-DH5	2441	Ant1	-0.5	21	Pass
NVNT	3-DH5	2480	Ant1	-0.16	21	Pass





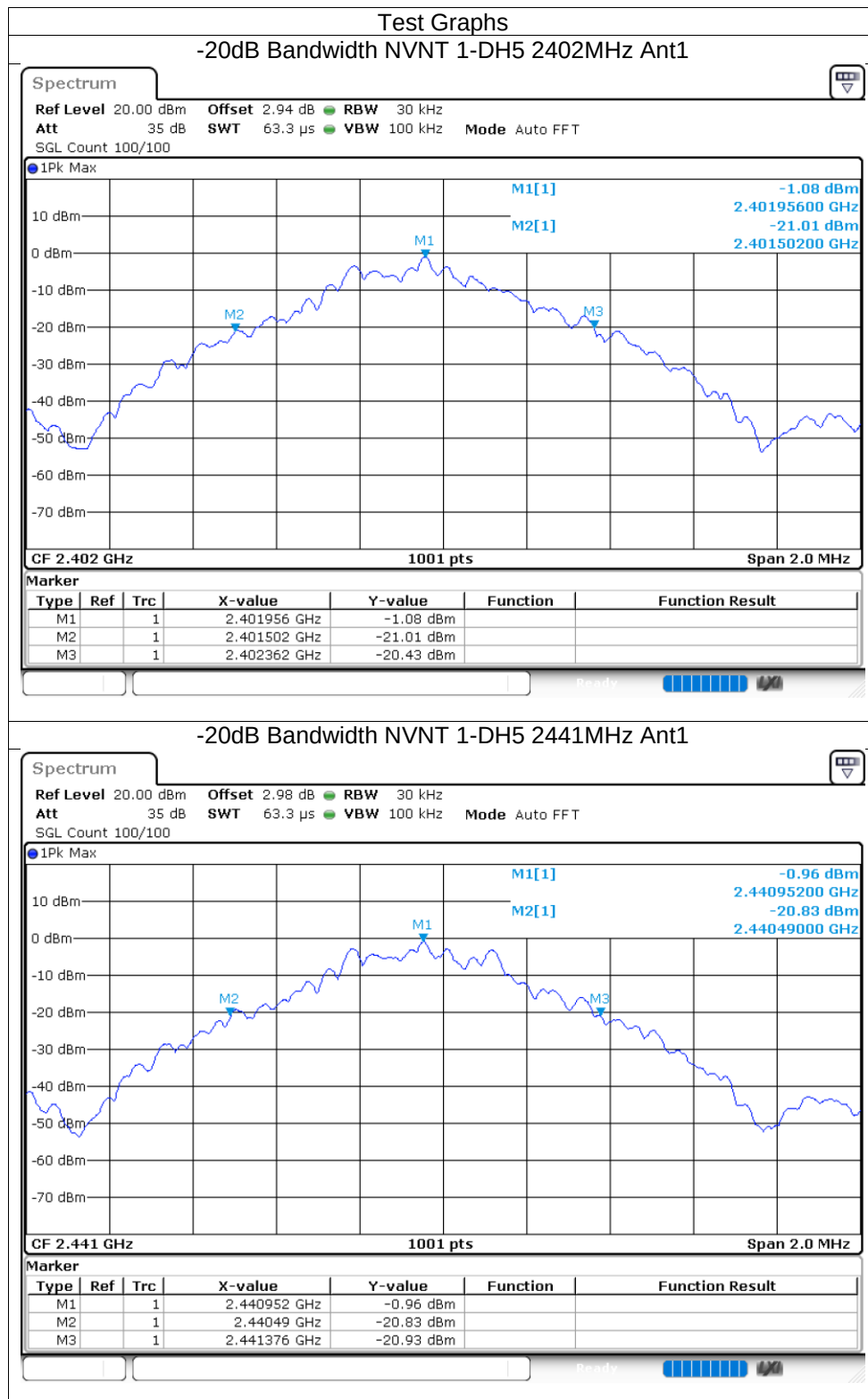


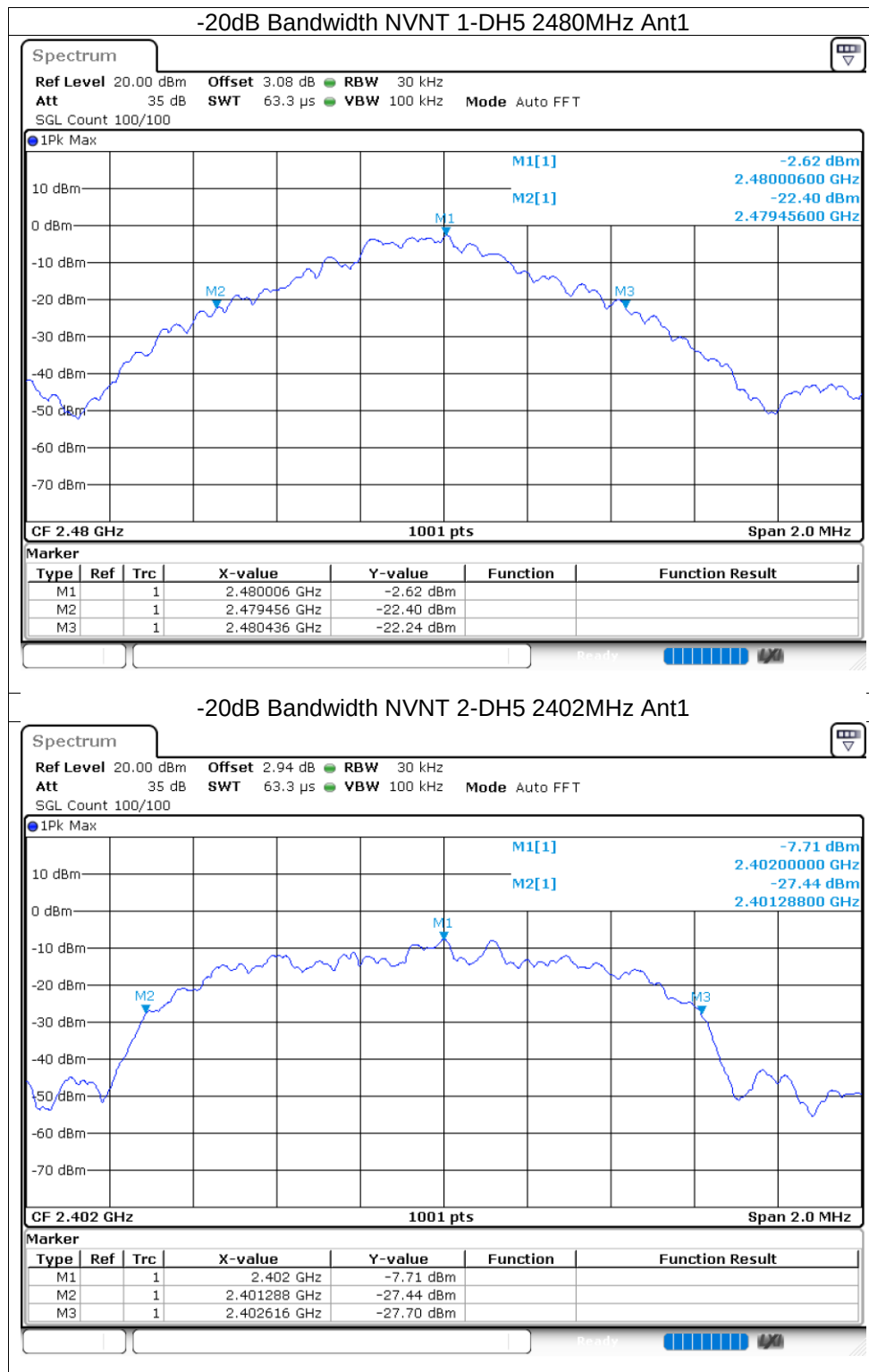


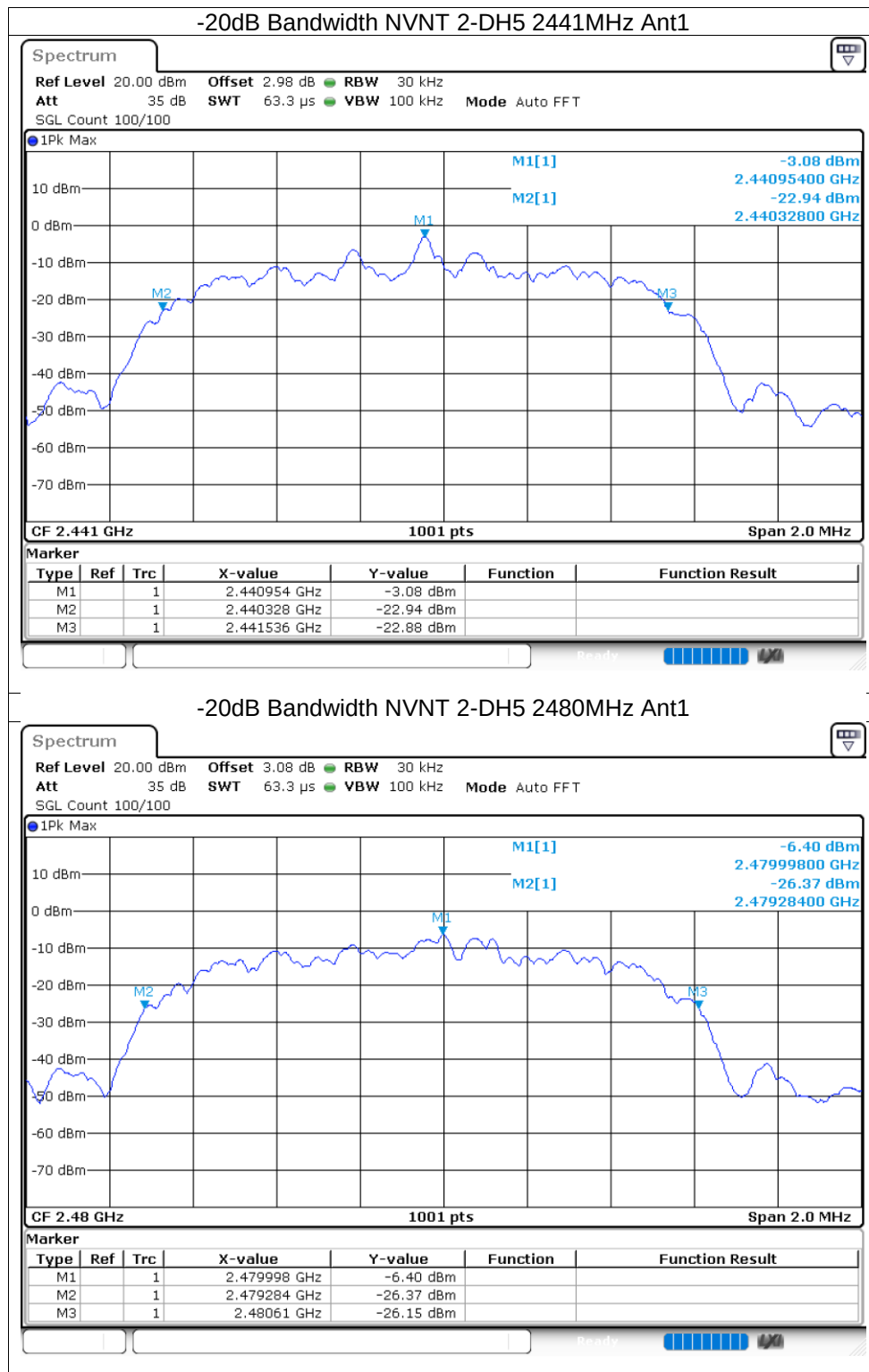


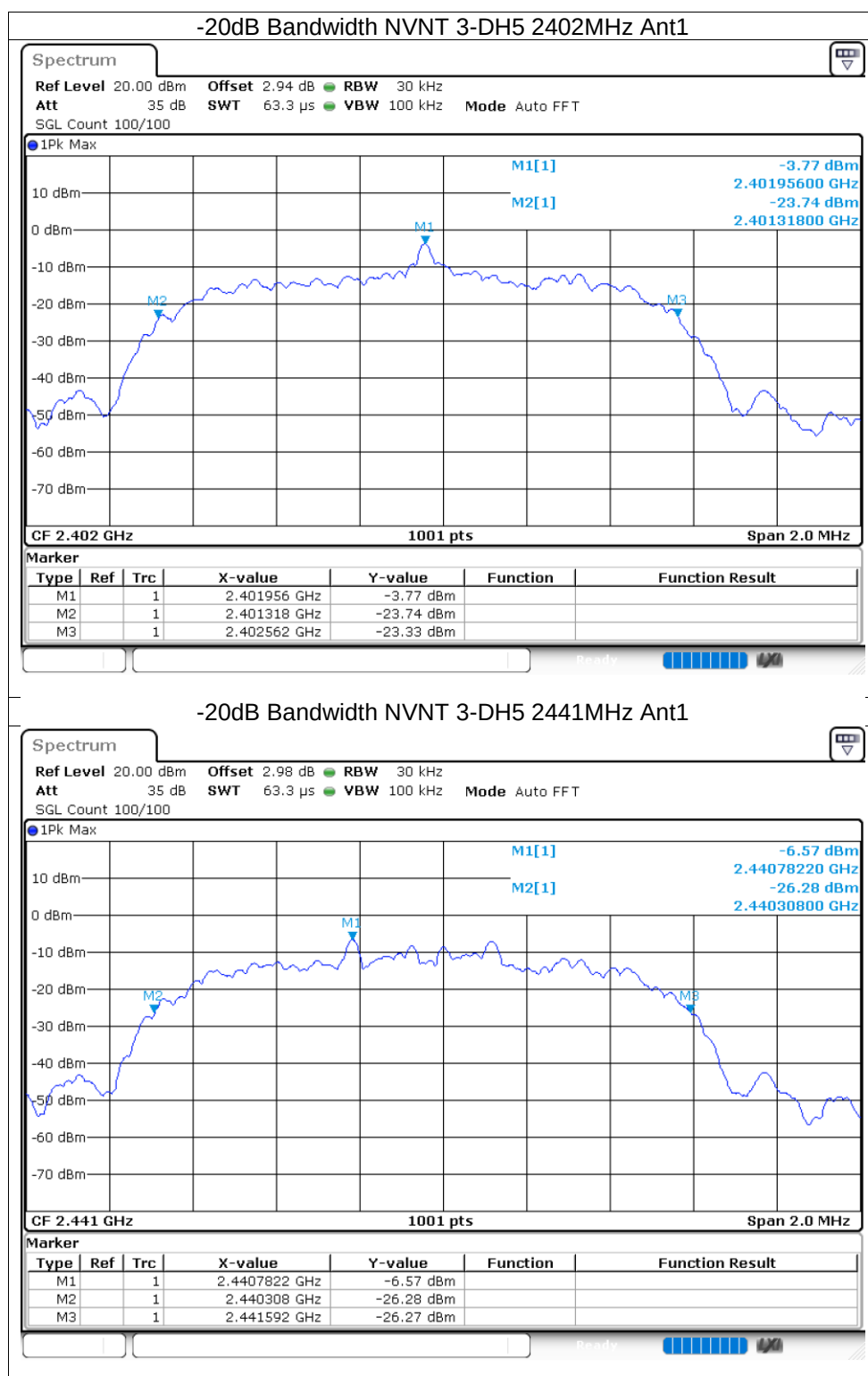
13.3 -20dB Bandwidth

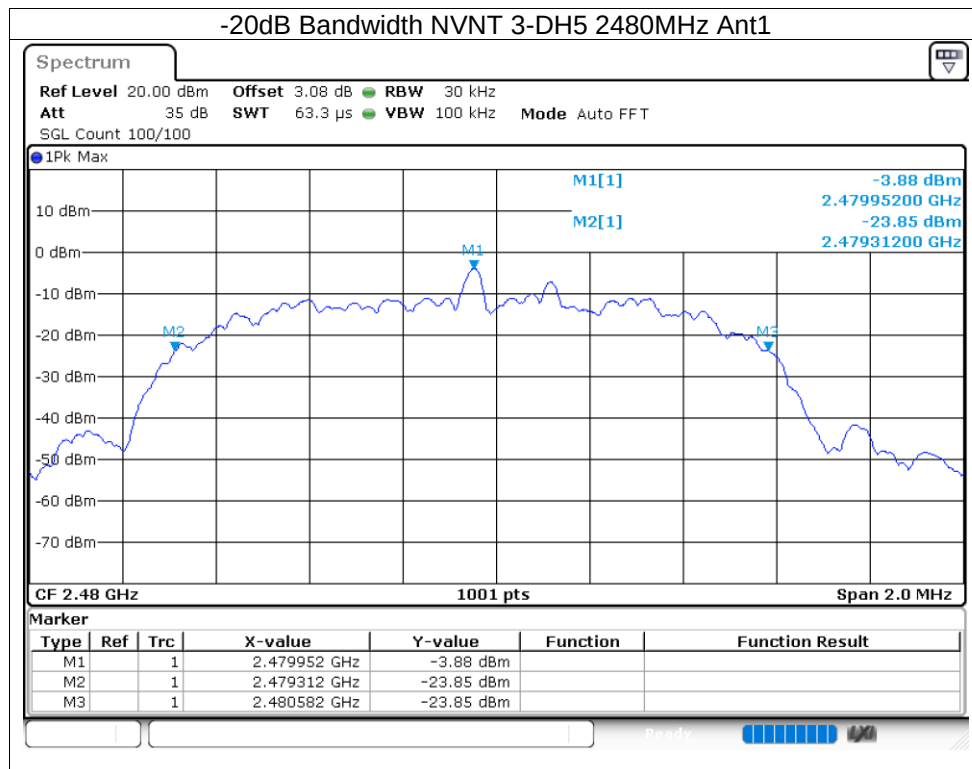
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.86	0	Pass
NVNT	1-DH5	2441	Ant1	0.886	0	Pass
NVNT	1-DH5	2480	Ant1	0.98	0	Pass
NVNT	2-DH5	2402	Ant1	1.328	0	Pass
NVNT	2-DH5	2441	Ant1	1.208	0	Pass
NVNT	2-DH5	2480	Ant1	1.326	0	Pass
NVNT	3-DH5	2402	Ant1	1.244	0	Pass
NVNT	3-DH5	2441	Ant1	1.284	0	Pass
NVNT	3-DH5	2480	Ant1	1.27	0	Pass





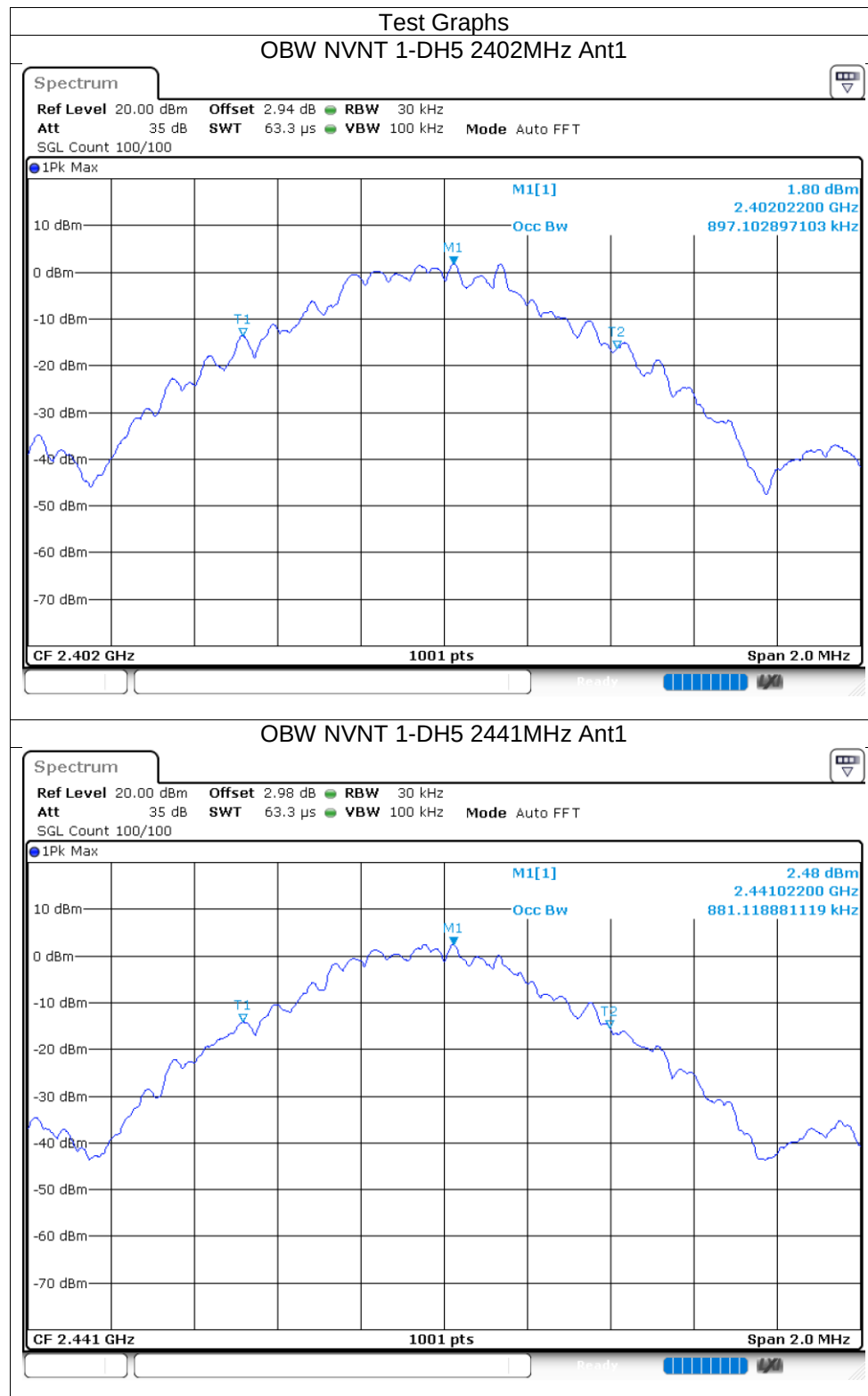


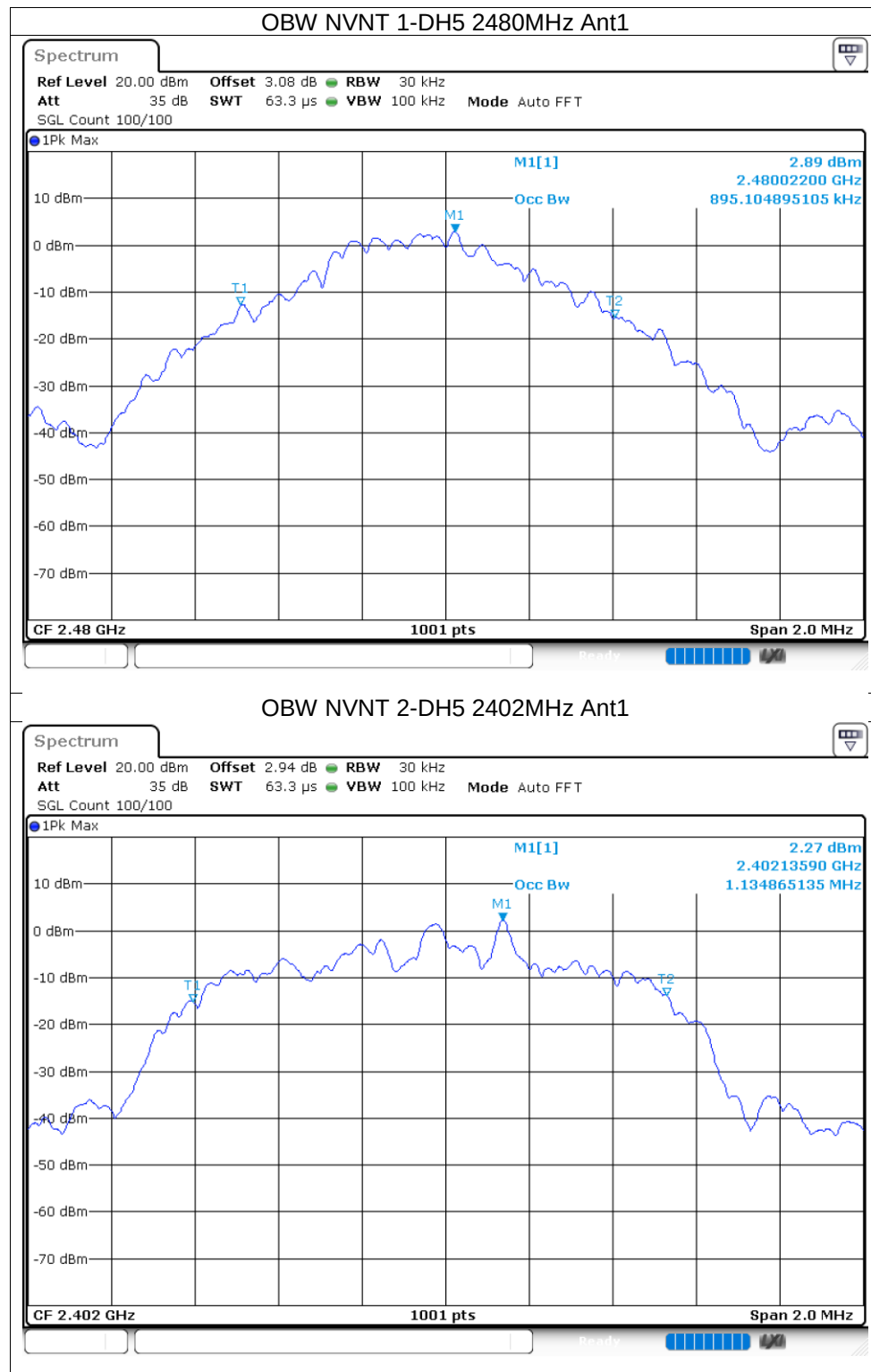


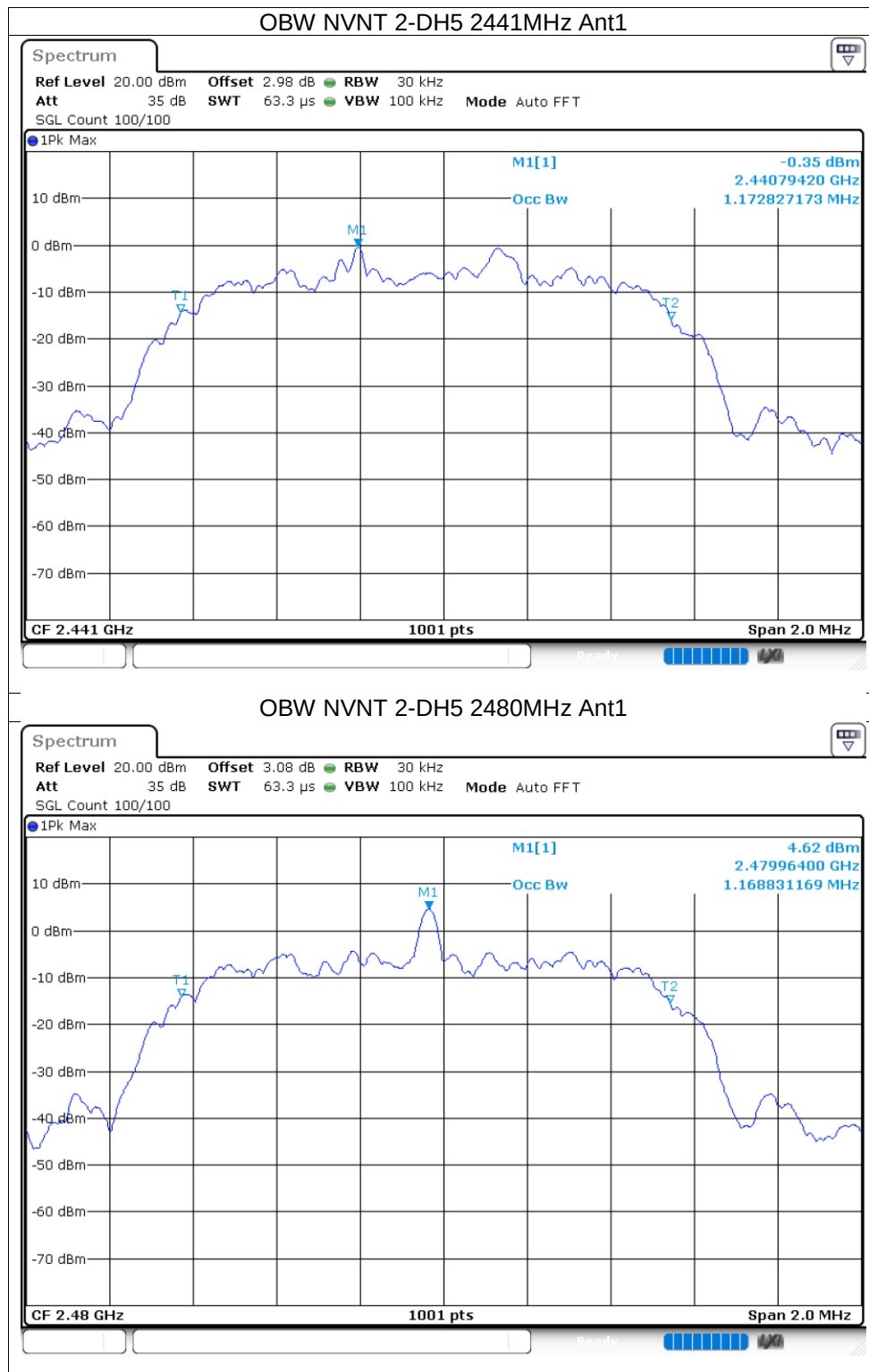


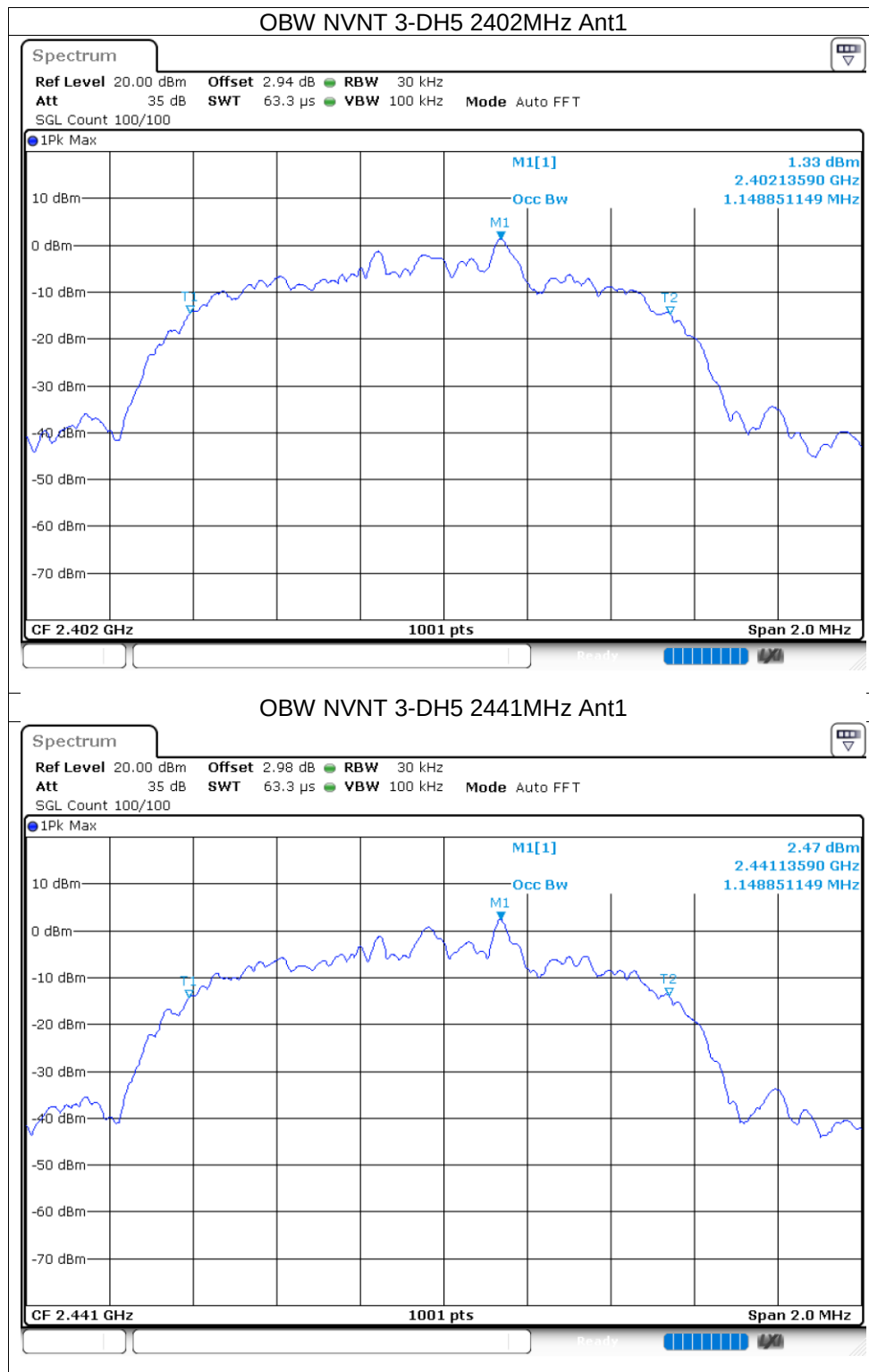
13.4 Occupied Channel Bandwidth

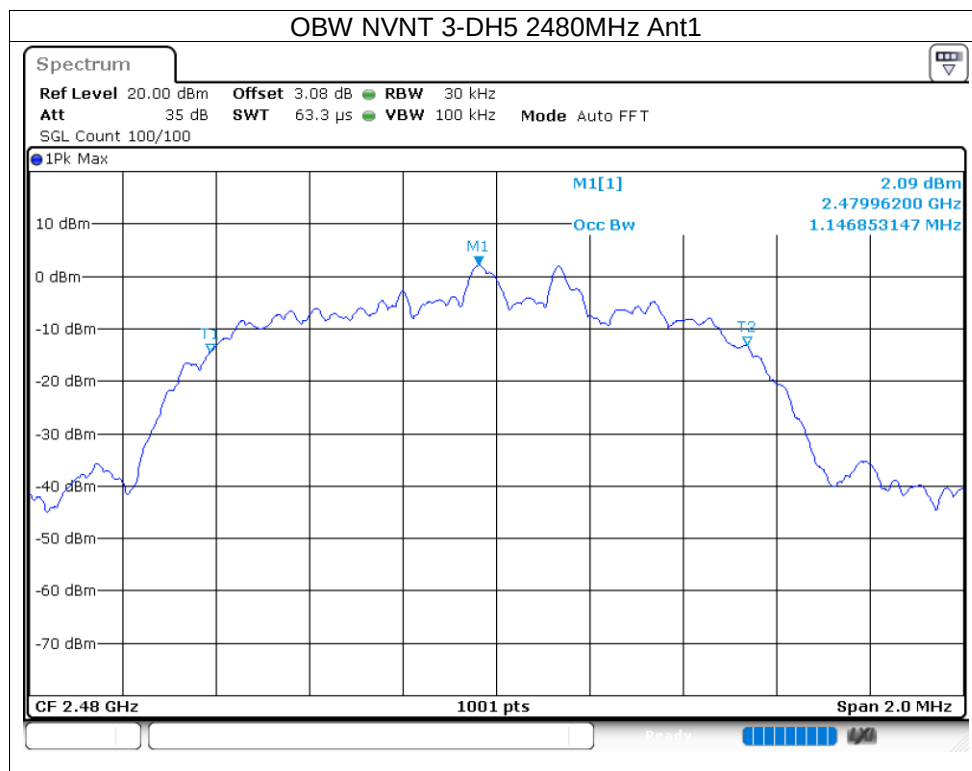
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH5	2402	Ant1	0.897
NVNT	1-DH5	2441	Ant1	0.881
NVNT	1-DH5	2480	Ant1	0.895
NVNT	2-DH5	2402	Ant1	1.135
NVNT	2-DH5	2441	Ant1	1.173
NVNT	2-DH5	2480	Ant1	1.169
NVNT	3-DH5	2402	Ant1	1.149
NVNT	3-DH5	2441	Ant1	1.149
NVNT	3-DH5	2480	Ant1	1.147











13.5 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.966	2403.024	1.058	0.639	Pass
NVNT	1-DH5	Ant1	2440.962	2442.022	1.06	0.58	Pass
NVNT	1-DH5	Ant1	2478.964	2480.022	1.058	0.679	Pass
NVNT	2-DH5	Ant1	2401.962	2402.978	1.016	0.781	Pass
NVNT	2-DH5	Ant1	2440.985	2442.002	1.017	0.783	Pass
NVNT	2-DH5	Ant1	2478.995	2479.985	0.99	0.877	Pass
NVNT	3-DH5	Ant1	2402.132	2403.136	1.004	0.803	Pass
NVNT	3-DH5	Ant1	2441.012	2441.998	0.986	0.787	Pass
NVNT	3-DH5	Ant1	2478.966	2479.944	0.978	0.855	Pass

