

RF TEST REPORT

FCC ID: 2BXGA-EC14

Product Name: Wireless Carplay adapter

Brand Name: JuneHome, Eoibeik

Model Name: EC14

Report No.: N26050608033E

Prepared for

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1 Revision History

Revision History			
Report No.	Version	Description	Issued Date
N26050608033E	Rev.01	Initial issue of report	Jul. 29, 2026

2 Test Summary

FCC Rule	Test Item	Method	Tested By	Result
47 CFR Part 15.203/15.247 (b)(4)	Antenna requirement	---	Abel Chen	Pass
47 CFR 15.207	Conducted Emission at AC power line	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 6.2	---	N/A
47 CFR 15.247(a)(2)	6dB Bandwidth	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02	Yuqiang Xiao	Pass
47 CFR 15.247(b)(3)	Maximum Conducted Output Power	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 11.9.2.3.1 KDB 558074 D01 15.247 Meas Guidance v05r02	Yuqiang Xiao	Pass
47 CFR 15.247(e)	Power Spectral Density	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 11.10.5 KDB 558074 D01 15.247 Meas Guidance v05r02	Yuqiang Xiao	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 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02	Yuqiang Xiao	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 6.10.4 KDB 558074 D01 15.247 Meas Guidance v05r02	Harry Huang	Pass
47 CFR 15.247(d), 15.209, 15.205	Emissions in frequency bands (below 30MHz)	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.4 KDB 558074 D01 15.247 Meas Guidance v05r02	Pass Qiu	Pass
47 CFR 15.247(d), 15.209, 15.205	Emissions in frequency bands (30M - 1GHz)	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.5.4 KDB 558074 D01 15.247 Meas Guidance v05r02	Pass Qiu	Pass
47 CFR 15.247(d), 15.209, 15.205	Emissions in frequency bands (1G - 18GHz)	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.6 KDB 558074 D01 15.247 Meas Guidance v05r02	Harry Huang	Pass
47 CFR 15.247(d), 15.209, 15.205	Emissions in frequency bands (above 18GHz)	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.6 KDB 558074 D01 15.247 Meas Guidance v05r02	Harry Huang	Pass

Remark:

1. "N/A" denotes test is not applicable in this Test Report.

2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. The antenna gain provided by customer. NTEK is not responsible for the accuracy of antenna gain parameter.

3 Test Result Certification

CLIENT INFORMATION

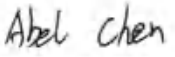
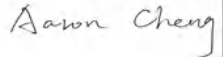
Applicant:	Yixinwang(Shenzhen)Trading Co., Ltd
Address of Applicant:	A-10D, Shennan Garden, No. 11, Kexing Road, Technology Park Community, Yuehai Street, Nanshan District, Shenzhen
Manufacturer:	JuneHome (ShenZhen) Technology Co.,Ltd
Address of Manufacturer:	204, BLDG 5, Ganglian Village Liantang Aavenue, Luohu District Shenzhen, Guangdong China

EUT INFORMATION

Product Name:	Wireless Carplay adapter
Brand Name:	JuneHome, Eoibeik
Model Name:	EC14
Sample Received Date:	May. 12, 2026
Sample Number:	S2605090344-1#
Applicable Standards	47 CFR Part 15.247
Measurement Procedures	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 KDB 558074 D01 15.247 Meas Guidance v05r02

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd. The test results demonstrate that the Equipment Under Test (EUT) complies with the requirements of the applicable standards listed in this report. This validity applies solely to the tested sample identified in the report. No part of this report may be reproduced except in full without the written approval of Shenzhen NTEK Testing Technology Co., Ltd. This document may only be revised by personnel of Shenzhen NTEK Testing Technology Co., Ltd., and any revisions shall be recorded within the document revision records.

Date of Test:	May. 12, 2026 to Jul. 25, 2026
Issue Date:	Jul. 29, 2026
Test Result:	Pass

Prepared By:		Reviewed by:		Approved By:	
	Abel Chen (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 Xinfa 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
Power Spectral Density, conducted	0.91dB
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
RF power, conducted	1.34dB
Spurious emissions, conducted	2.71dB
Occupied Bandwidth	1.00%
Radio Frequency	0.2ppm
Time	5%
Temperature	1°C
Humidity	5%

5 General Description of EUT

5.1 Details of E.U.T.

Product Name	Wireless Carplay adapter
Brand Name	JuneHome, Eoibeik
Model Name	EC14
Family Model	EC12, EC13, EC15, EC16, EC17, EC18, EC19, EC20, EC21, EC22, EC23, EC24, EC25, EC26, B1, B3, B6, B8, B9, C1, C3, C6, C8, C9, U3, U6, U8, U9, U10, U11, U12, U13, U14
Model Difference	All Model have the same circuitry and RF module, different in appearance and Model name.
Note 1: The above information was declared by manufacturer.	

5.2 EUT Feature And Specification

Operation Frequency	802.11b/g/n(HT20)/ ax(HE20): 2412MHz to 2462MHz; 802.11n(HT40)/ ax(HE40): 2422MHz to 2452MHz
Modulation	802.11b: DSSS(CCK, DQPSK, DBPSK); 802.11g: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n(HT20 and HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ax(HE20 and HE40): OFDMA (BPSK, QPSK, 16QAM, 64QAM)
Number of Channels	802.11b/g/n(HT20)/ax(HE20): 11 Channels; 802.11n(HT40)/ax(HE40): 7 Channels
Power Supply	☒ DC supply: DC 5V ☐ Adapter supply:
Hardware Version	V1.0
Firmware Version	N/A
Software Version	V1.0
Frequency and Channel list:	
Channel	Frequency(MHz)
1	2412
2	2417
...	...
5	2432
6	2437
...	...
10	2457
11	2462

Note 1: The above information was declared by manufacturer.

Note 2: $F=2412\text{MHz}+(k-1) \times 5\text{MHz}$ ($k=1,2,\dots,11$)

Note 3: 802.11ax only support full RU

5.3 Antenna Specifications

Antenna system	SISO
Antenna 1:	
Antenna Manufacturer	ShenZhen Huaxinwei communication technology Co.,Ltd.
Antenna Model	N/A
Antenna Connector	N/A
Antenna Type	PCB antenna
Antenna Gain	-0.12 dBi
Note: The above information was declared by manufacturer.	

5.4 Deviation from Standards

None

5.5 Abnormalities from Standard Condition

None

6 Description of Test Modes and Operation Configuration of EUT

6.1 Description of Test Modes

- a. 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 were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.
- c. The measurements are performed at the highest, middle, lowest available channels.
- d. 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	802.11b mode	Keep the EUT in 802.11b transmitting mode at lowest, middle and highest channel.
TM2	802.11g mode	Keep the EUT in 802.11g transmitting mode at lowest, middle and highest channel.
TM3	802.11n(HT20) mode	Keep the EUT in 802.11n(HT20) transmitting mode at lowest, middle and highest channel.
TM4	802.11n(HT40) mode	Keep the EUT in 802.11n(HT40) transmitting mode at lowest, middle and highest channel.
TM5	802.11ax(HE20) mode	Keep the EUT in 802.11ax(HE20) transmitting mode at lowest, middle and highest channel.
TM6	802.11ax(HE40) mode	Keep the EUT in 802.11ax(HE40) transmitting mode at lowest, middle and highest channel.

Note: Model EC14 selected as representative model for the test and its data was recorded in this report.

6.2 Operation Configuration of EUT

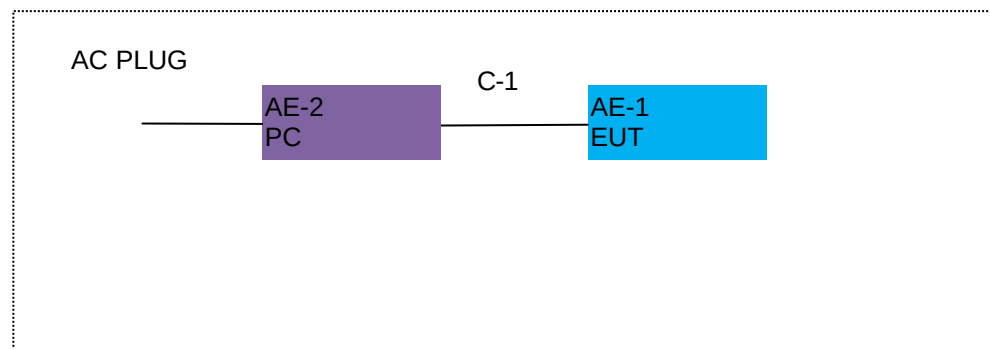
Test Software		ADB command				
RF Power Setting as following:						
Antenna Configuration	Mode	CH01 (2412MHz)	CH03 (2422MHz)	CH06 (2437MHz)	CH09 (2452MHz)	CH11 (2462MHz)
SISO Chain 1	802.11b	17	-	17	-	19
SISO Chain 1	802.11g	14	-	14	-	14
SISO Chain 1	802.11n(HT20)	14	-	14	-	14
SISO Chain 1	802.11n(HT40)	-	14	14	14	-
SISO Chain 1	802.11ax(HE20)	14	-	14	-	14
SISO Chain 1	802.11ax(HE40)	-	14	14	14	-

Note: The above information was declared by manufacturer.

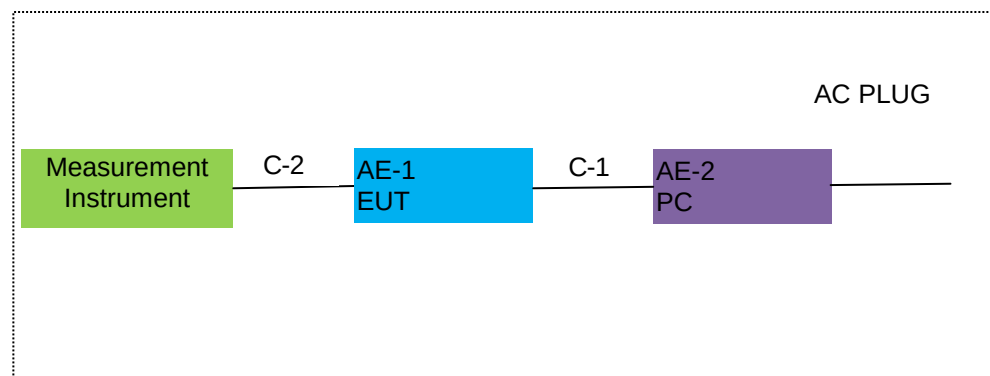
7 Setup Of Equipment Under Test

7.1 Block Diagram Configuration Of Test System

For Radiated Test Cases



For Conducted Test Cases



Note: 1. The temporary antenna connector is soldered on the PCB board in order to perform conducted tests.

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	Wireless Carplay adapter	EC14	N/A	EUT
AE-2	ASUS	S5506MA155-0ECBXHRJ20	SBN0KD007514467	AE
Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	USB cable	NO	NO	100cm
C-2	RF cable	YES	NO	10cm

8 Equipment List

Conducted measurements at antenna port					
Equipment	Manufacturer	Model No	Serial No.	Cal Date	Cal Due Date
Power meter	MWRFTtest	MW100-PSB	N/A	2025-09-16	2026-09-15
Power meter	MWRFTtest	MW100-PSB	N/A	2025-09-16	2026-09-15
Power meter	MWRFTtest	MW100-PSB	N/A	2025-09-16	2026-09-15
Power meter	MWRFTtest	MW100-PSB	N/A	2025-09-16	2026-09-15
Spread spectrum device	MWRFTtest	MW100-7UD	N/A	2025-09-16	2026-09-15
Spectrum Analyzer	R&S	FSV40	101417	2026-04-08	2027-04-07
MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2026-04-08	2027-04-07
Shielding Room	Taihe Mao Rui Electronic	743	N/A	2025-01-03	2028-01-02
USB RF Power Sensor	DARE	RPR3006 W	15I00041SNO84	2026-04-08	2027-04-07

Radiated spurious emissions

Equipment	Manufacturer	Model No	Serial No.	Cal Date	Cal Due Date
Low Noise Amplifier	EMC Solutions	TRLA-180400G50	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	SCHWARZBEC K	BBHA 9120 D	2816	2024-05-18	2027-05-17
AMPLIFIER	Sonoma	310N	186604	2026-04-08	2027-04-07
Broadband Horn Antenna	SCHWARZBEC K	BBHA 9170	803	2024-05-12	2027-05-11
Active Loop Antenna	SCHWARZBEC K	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	EMC05183 5SE	980246	2026-04-08	2027-04-07
Broadband Horn Antenna	EM	EM-AH-10180	2011071402	2024-05-12	2027-05-11

Measurement Software

Manufacturer	Software Name	Software Version	Description
MWRFTtest	MTS 8310 2.4GHz/5GHz	2.0	RF Conducted Test
Farad	EZ-EMC_RE	AIT-03A	Radiated 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.
Test Method:	---

9.1.1 Conclusion:

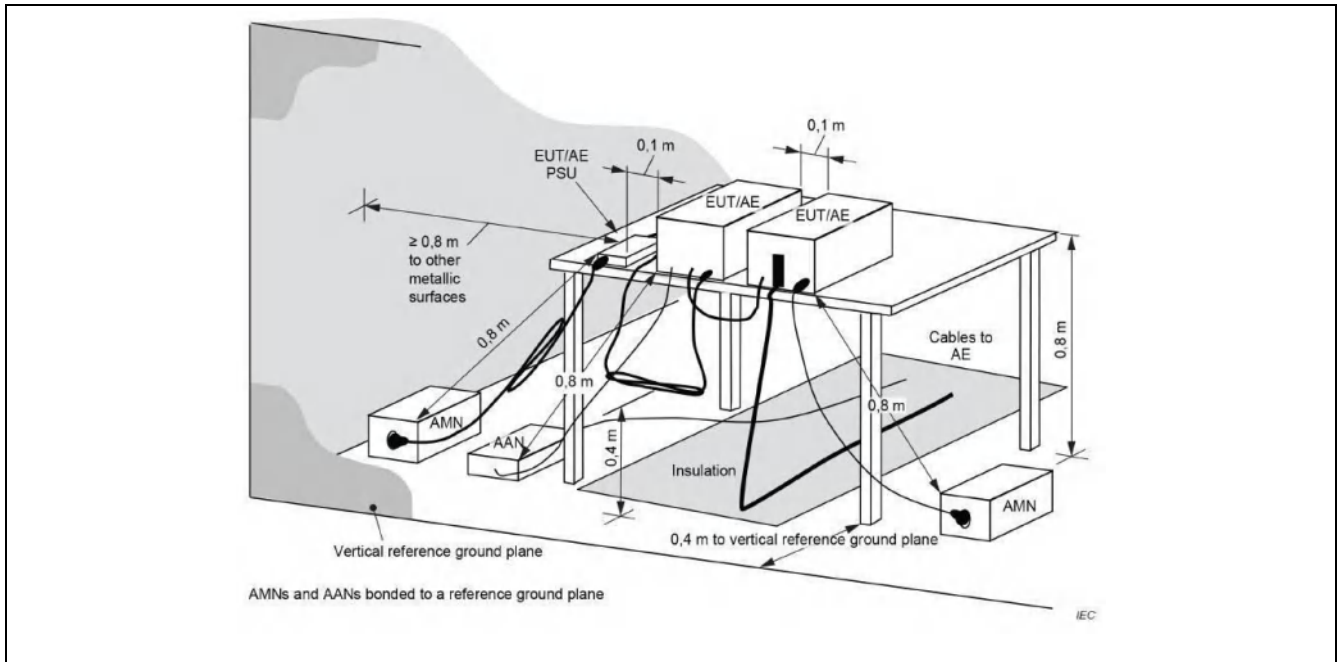
The EUT uses a PCB antenna, the max antenna gain is -0.12 dBi, which is deemed to comply with the antenna requirement.

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 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		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 KDB 558074 D01 15.247 Meas Guidance v05r02		
Procedure:	a) The mains terminal disturbance voltage test was conducted in a shielded room. b) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. c) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, d) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. e) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement. f) The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band. g) For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.		

10.1.1 Test Setup Diagram:



10.1.2 E.U.T. Operation:

Operating Environment:					
Temperature:	25.3 °C	Humidity:	57.3 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	N/A				
Final test mode:	N/A				

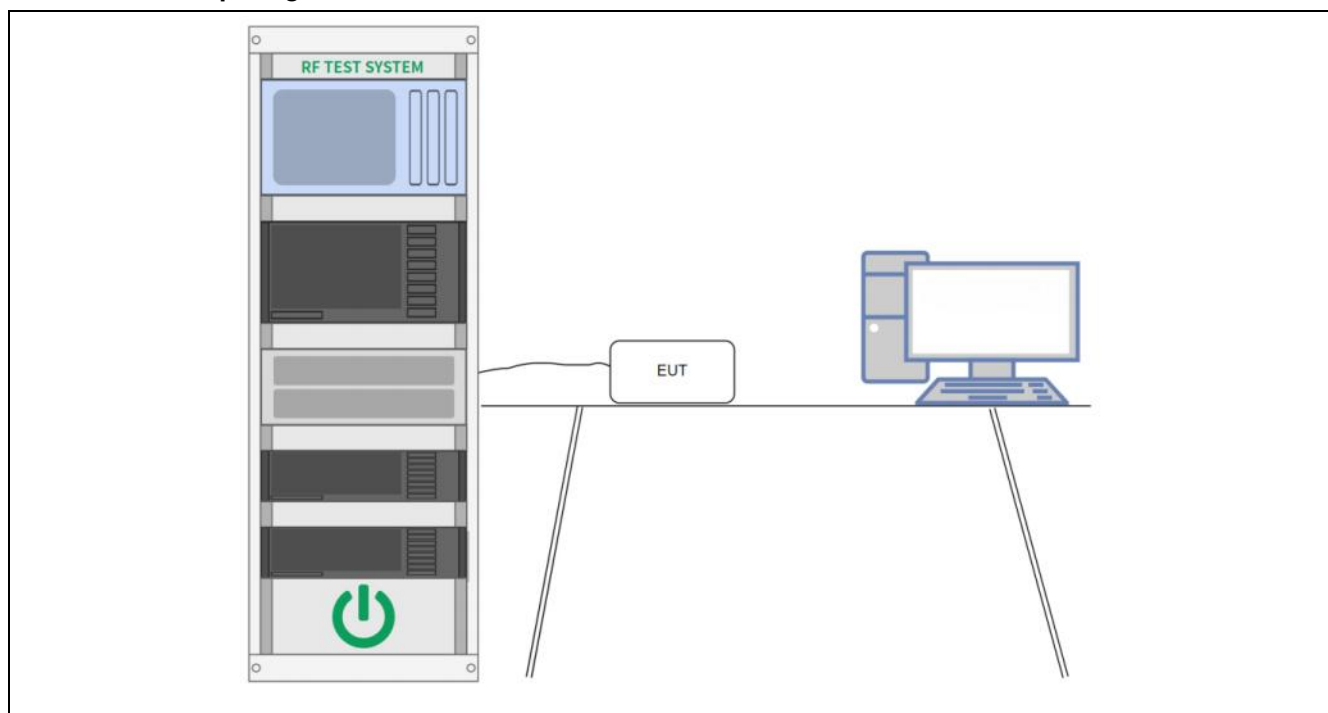
10.1.3 Test Data:

Not Applicable
This device do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

10.2 Duty cycle

Test Requirement:	Reporting purposes only
Test Limit:	---
Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 11.6 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer. Use the following spectrum analyzer settings: a) Set the center frequency of the instrument to the center frequency of the transmission. b) Set RBW $\geq$ OBW if possible; otherwise, set RBW to the largest available value. c) Set VBW $\geq$ RBW. Set detector = peak or average.

10.2.1 Test Setup Diagram:



10.2.2 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	54 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

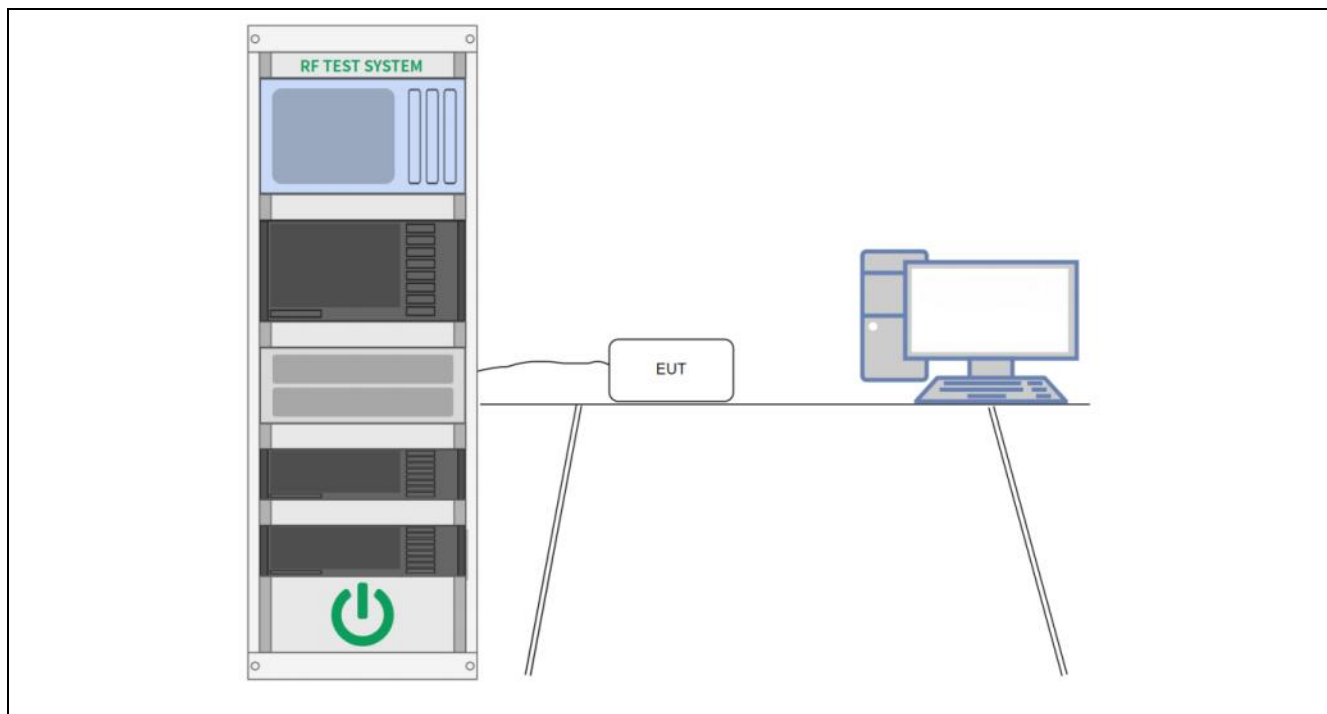
10.2.3 Test Data:

Please Refer to Appendix for Details.

10.3 99% Bandwidth

Test Requirement:	Reporting purposes only
Test Limit:	---
Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 6.9.3.
Procedure:	Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer. Use the following spectrum analyzer settings: a) Span = The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW. b) RBW = 1% to 5% of the OBW. c) VBW $\geq 3 \times$ RBW d) Sweep = auto; e) Detector function = peak f) Trace = max hold g) Use the 99% power bandwidth function of the instrument and report the measured bandwidth. Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

10.3.1 Test Setup Diagram:



10.3.2 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	54 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

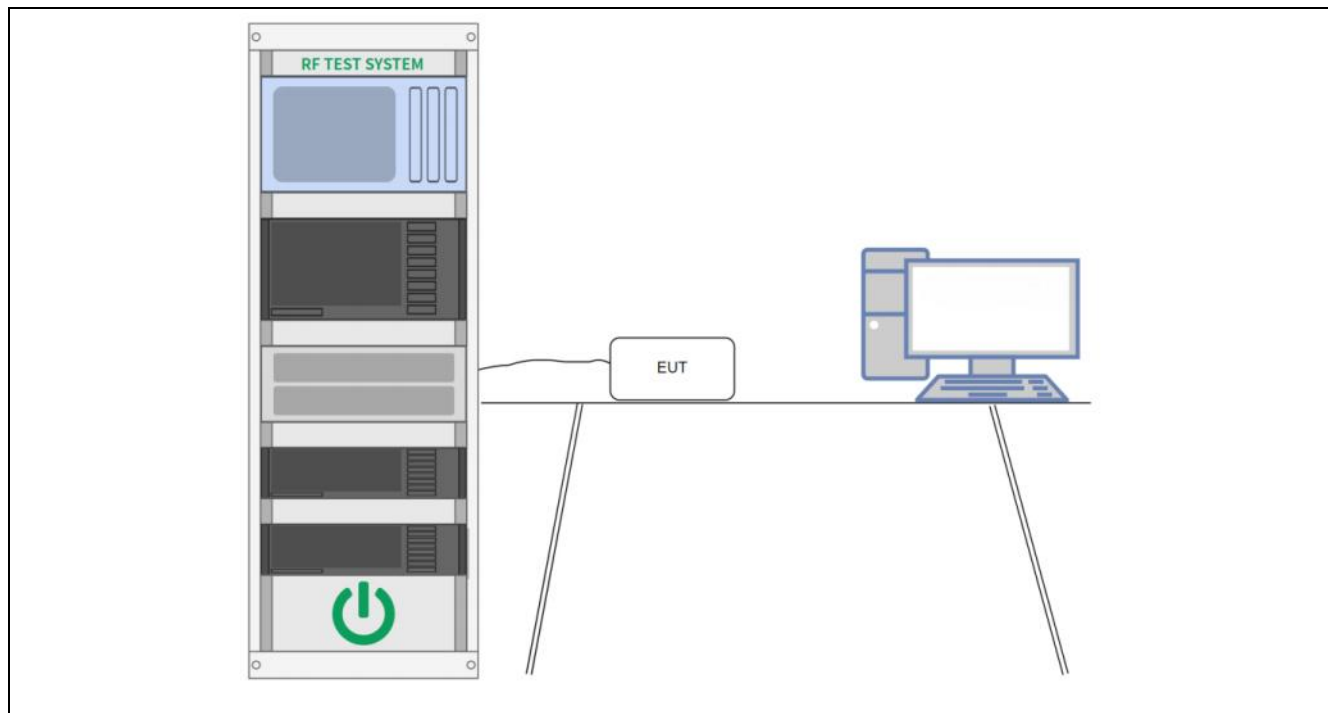
10.3.3 Test Data:

Please Refer to Appendix for Details.

10.4 6dB Bandwidth

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

10.4.1 Test Setup Diagram:



10.4.2 E.U.T. Operation:

Operating Environment:				
Temperature:	25 °C	Humidity:	54 %	Atmospheric Pressure: 1010 mbar

Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6

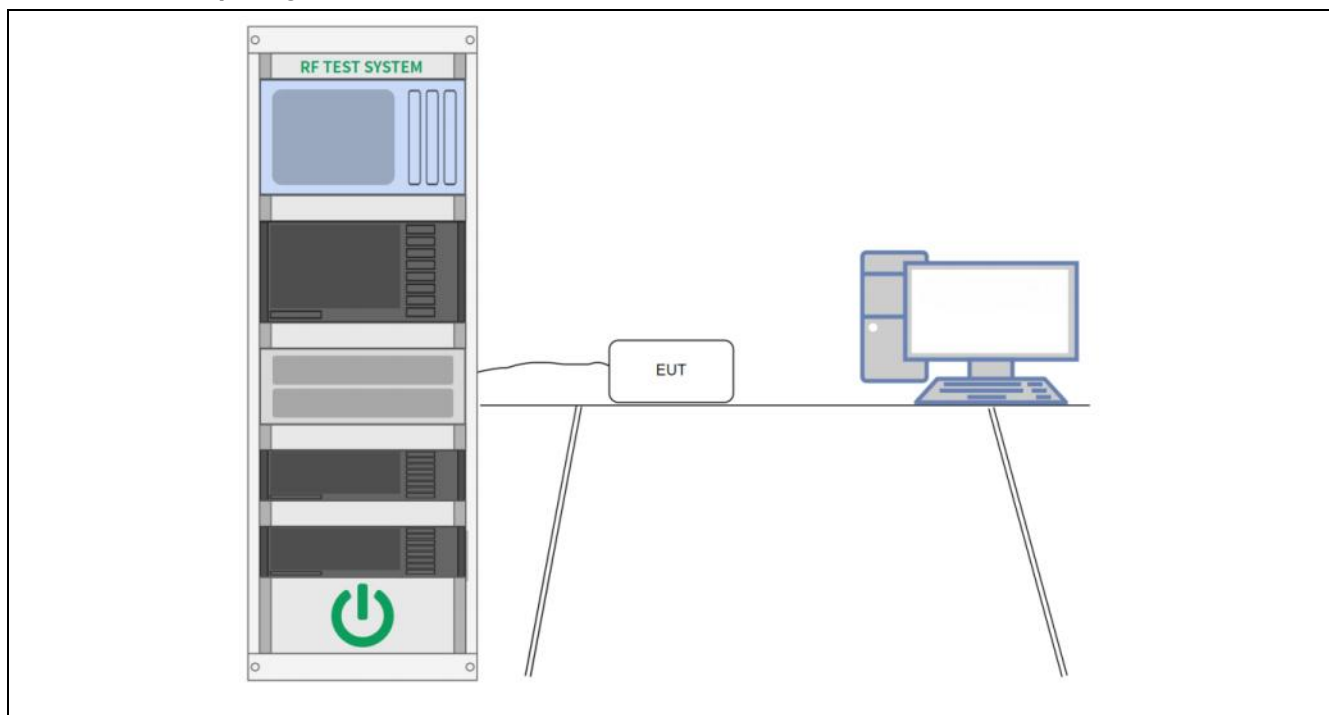
10.4.3 Test Data:

Please Refer to Appendix for Details.

10.5 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 11.9.2.3.1 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

10.5.1 Test Setup Diagram:



10.5.2 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	54 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

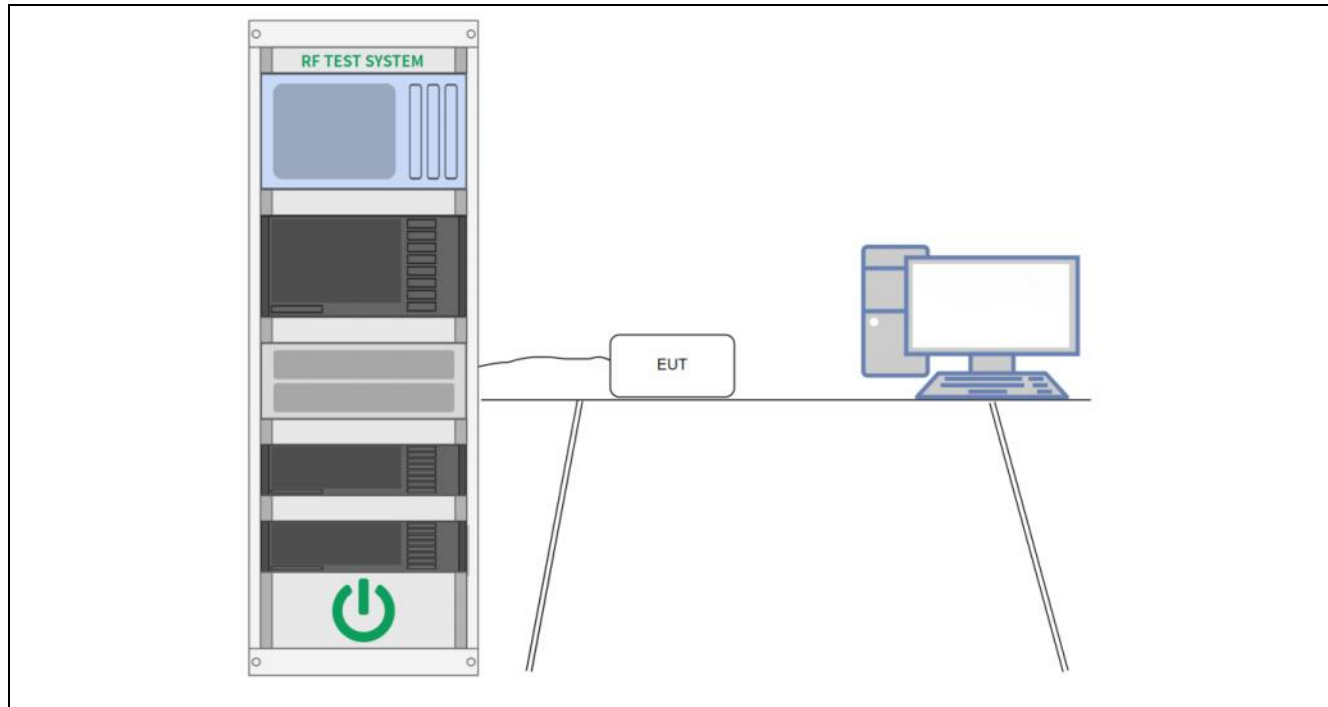
10.5.3 Test Data:

Please Refer to Appendix for Details.

10.6 Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024, section 11.10.5 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer. Use the following spectrum analyzer settings: a) Set instrument center frequency to DTS channel center frequency. b) Set span to > 1.5 times the OBW. c) Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$. d) Set VBW $\geq [3 \times \text{RBW}]$. e) Detector = power averaging (rms) or sample detector (when rms not available). f) Ensure that the number of measurement points in the sweep $\geq [2 \times \text{span} / \text{RBW}]$. g) Sweep time = auto couple. h) Do not use sweep triggering; allow sweep to “free run.” i) Employ trace averaging (rms) mode over a minimum of 100 traces. j) Use the peak marker function to determine the maximum amplitude level. k) Add $[10 \log (1 / D)]$, where D is the duty cycle measured in step a), to the measured PSD to compute the average PSD during the actual transmission time. Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

10.6.1 Test Setup Diagram:



10.6.2 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	54 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM2, TM3, TM4, TM5, TM6				

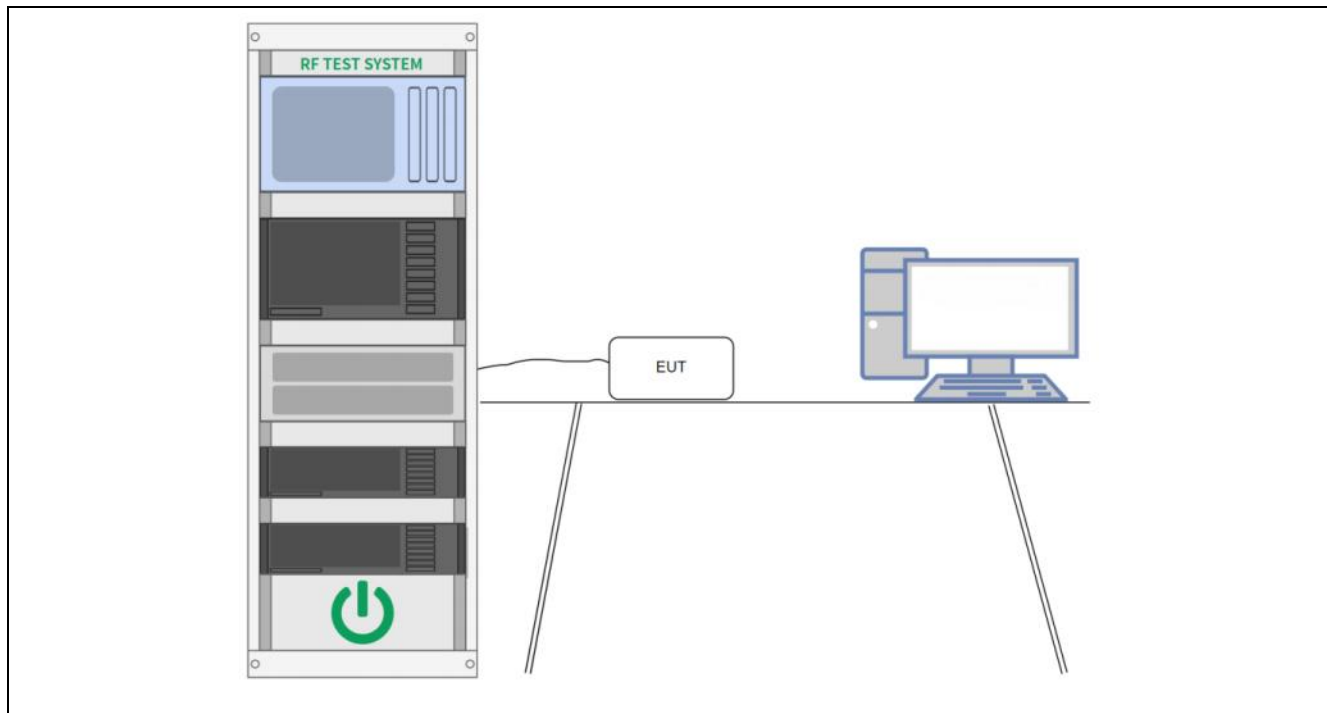
10.6.3 Test Data:

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 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer. Use the following spectrum analyzer settings: Step 1: Reference level measurement Establish a reference level by using the following procedure: - Set instrument center frequency to DTS channel center frequency. - Set the span to ≥ 1.5 times the DTS bandwidth. - Set the RBW = 100 kHz. - Set the VBW $\geq [3 \times \text{RBW}]$. - Detector = peak. - Sweep time = No faster than coupled (auto) time. - Trace mode = max-hold. - Allow trace to fully stabilize. - Use the peak marker function to determine the maximum PSD level. Note that the channel found to contain the maximum PSD level can be used to establish the reference level. Step 2: Emission level measurement Establish an emission level by using the following procedure: - Set the center frequency and span to encompass frequency range to be measured. Note that the frequency range might need to be divided into multiple frequency ranges to retain frequency resolution. NOTE—the number of points can also be increased for large spans to retain frequency resolution - Set the RBW = 100 kHz. - Set the VBW $\geq [3 \times \text{RBW}]$. - Detector = peak. - Sweep time = No faster than coupled (auto) time. - Trace mode = max-hold. - Allow trace to fully stabilize. - Use the peak marker function to determine the maximum amplitude level. Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

10.7.1 Test Setup Diagram:



10.7.2 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	54 %	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:

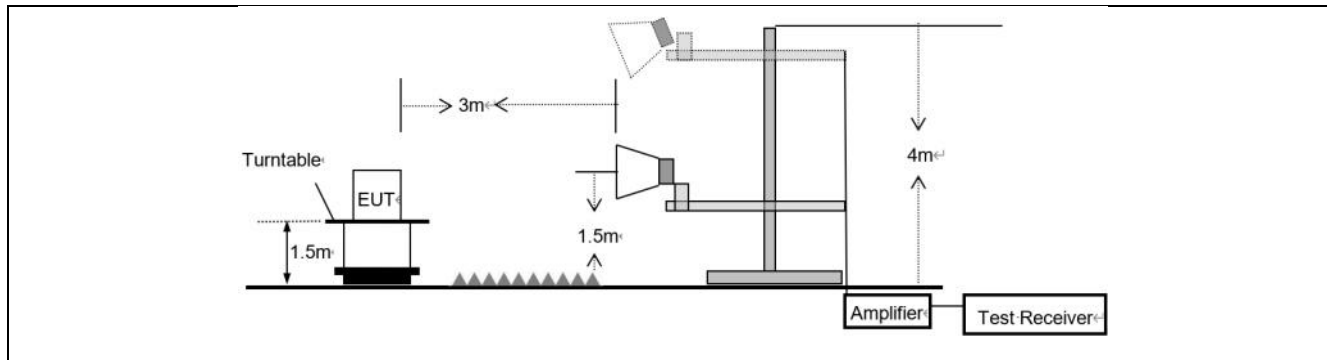
Please Refer to Appendix for Details.

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:	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.																																																																									
	Table 1 – Restricted frequency bands <table> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td>0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>Above 38.6</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </table>			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	108-121.94	1718.8-1722.2	13.25-13.4	6.31175-6.31225	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	Above 38.6	13.36-13.41		
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Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02																																																																									
Procedure:	Radiated band edge measurements at 2390 MHz and 2483.5 MHz were made with the unit transmitting in the low end of the channel range and the high end closest to the restricted bands respectively. The emissions were made on the 966 Semi-Chamber. Use (resolution bandwidth (RBW) = 1 MHz, video bandwidth (VBW) = 3 MHz for peak levels and RBW = 1 MHz and VBW = 10 Hz or 1/T for average levels). a) Use radiated spurious emission test procedure described in clause 10.12. The transmitter output (antenna port) was connected to the antenna. b) Set the PK and AV limit line. c) Record the fundamental emission and emissions out of the band-edge. d) Determine band-edge compliance as required. Where, a) Factor = Antenna Factor + Cable Loss, the value was added to Original																																																																									

Receiver Reading by the software automatically.
b) Level = Reading + Factor.
c) Margin = Level – Limit

10.8.1 Test Setup Diagram:

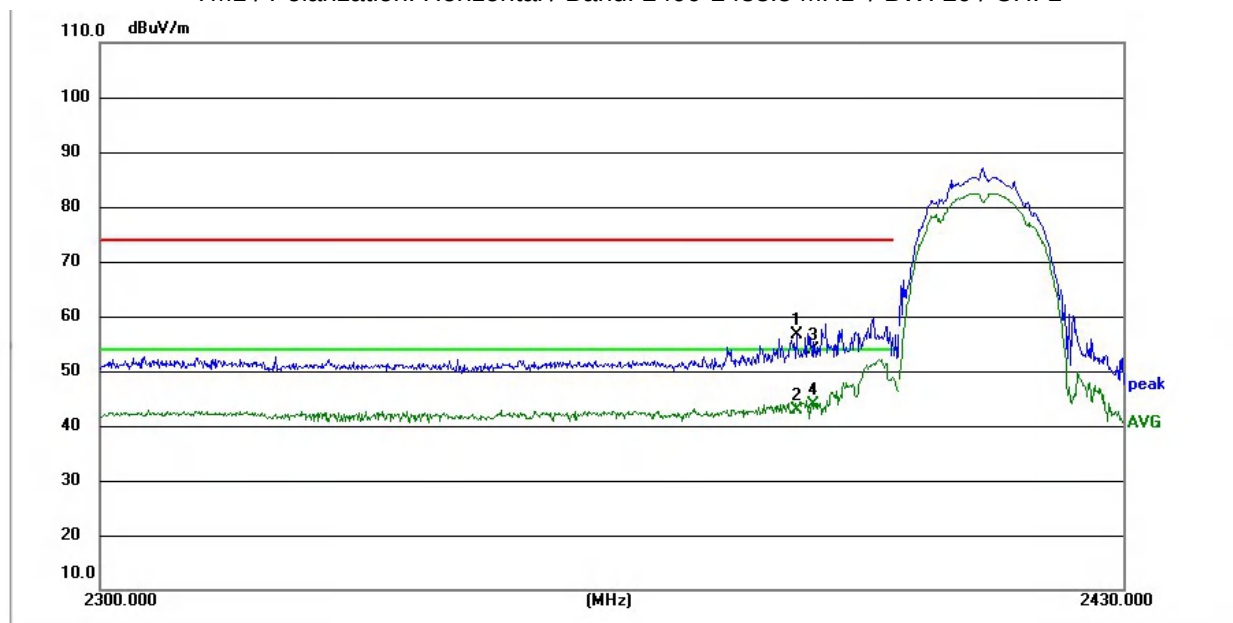


10.8.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23 °C	Humidity:	52 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1, TM6				

10.8.3 Test Data:

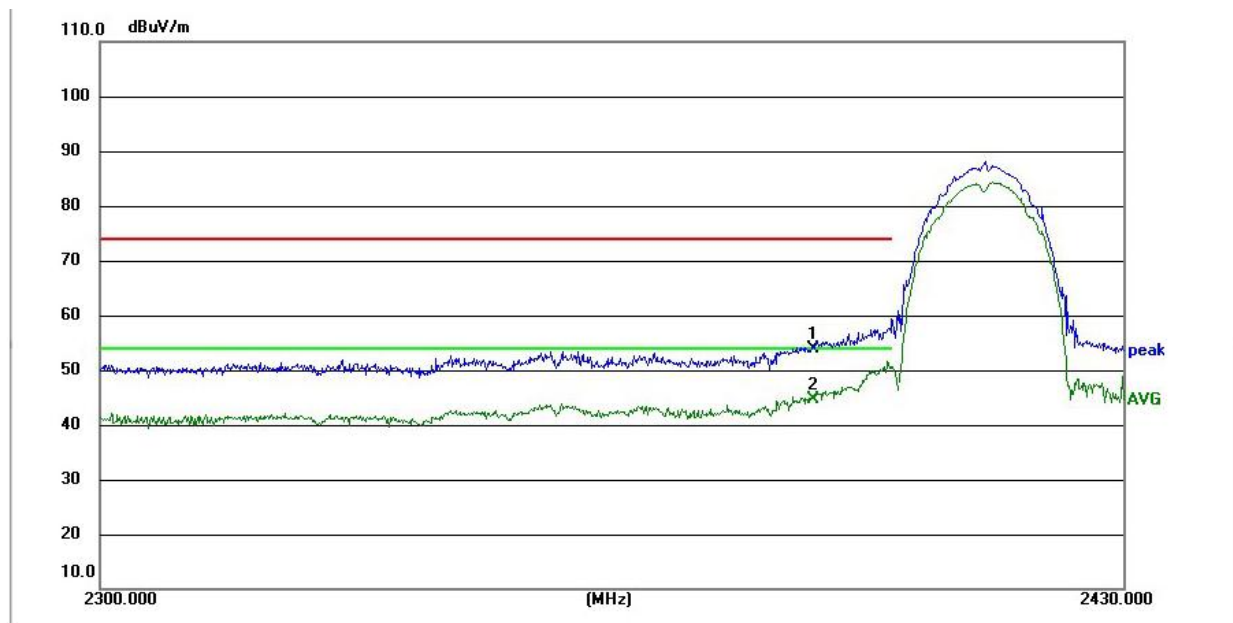
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2387.750	26.66	29.86	56.52	74.00	-17.48	peak	P	
2	2387.750	12.98	29.86	42.84	54.00	-11.16	AVG	P	
3	2390.000	23.99	29.88	53.87	74.00	-20.13	peak	P	
4 *	2390.000	13.92	29.88	43.80	54.00	-10.20	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

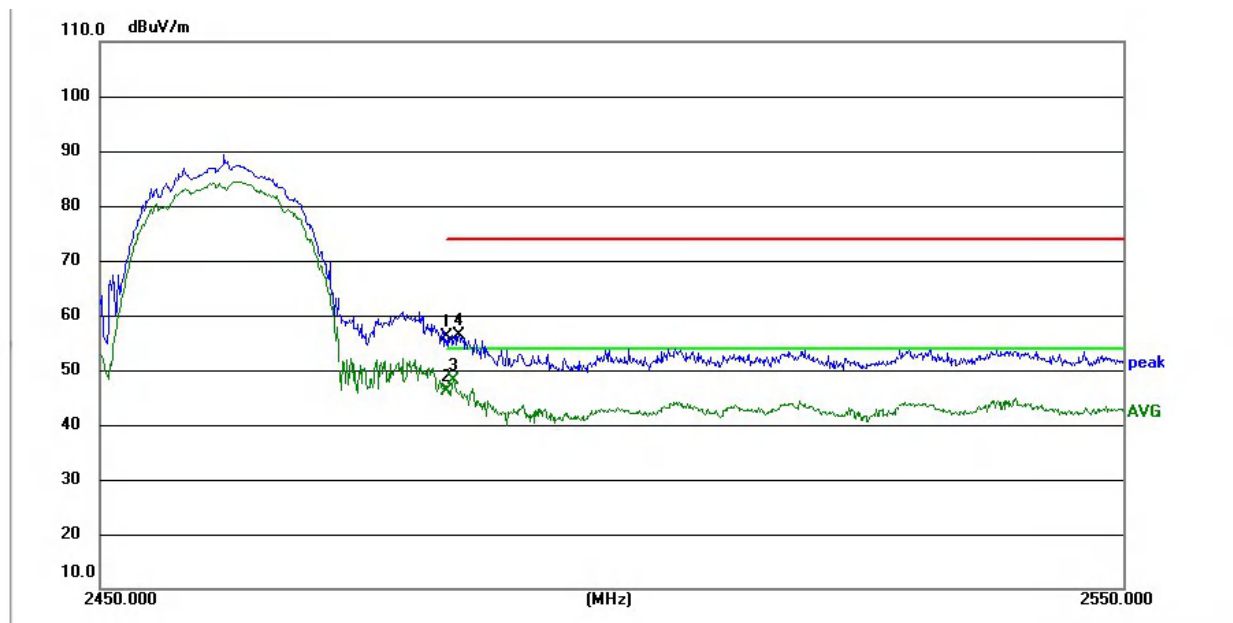
TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	24.05	29.88	53.93	74.00	-20.07	peak	P	
2 *	2390.000	14.74	29.88	44.62	54.00	-9.38	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

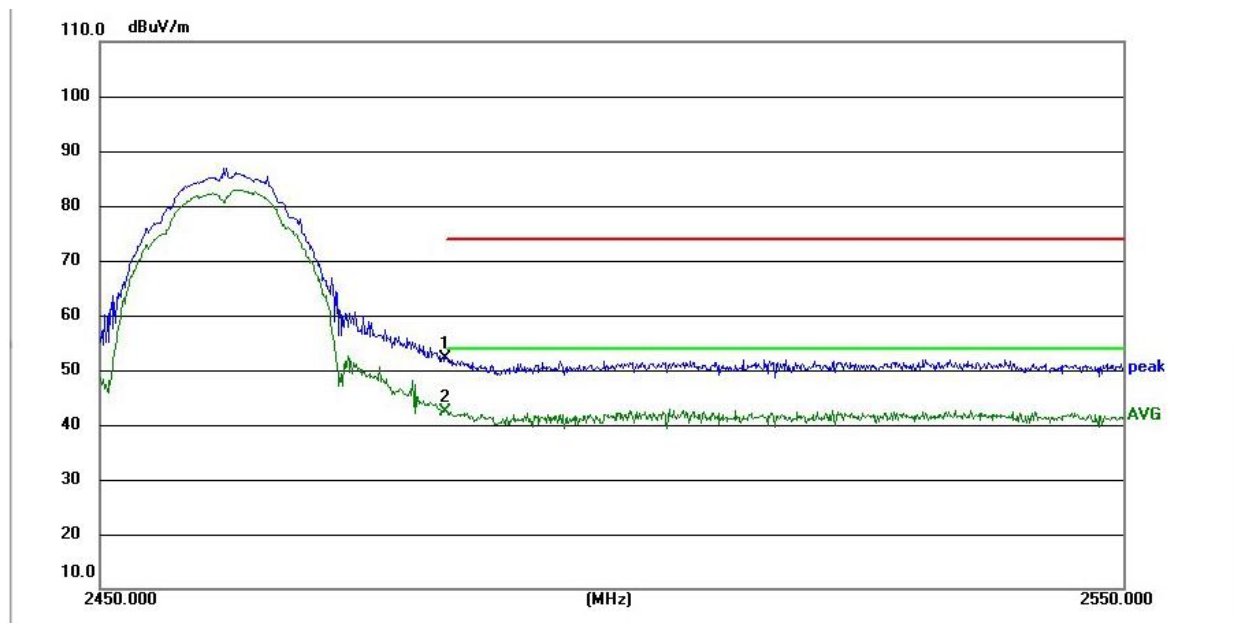
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	25.39	30.69	56.08	74.00	-17.92	peak	P	
2	2483.500	15.34	30.69	46.03	54.00	-7.97	AVG	P	
3 *	2484.230	17.32	30.70	48.02	54.00	-5.98	AVG	P	
4	2484.690	25.62	30.70	56.32	74.00	-17.68	peak	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

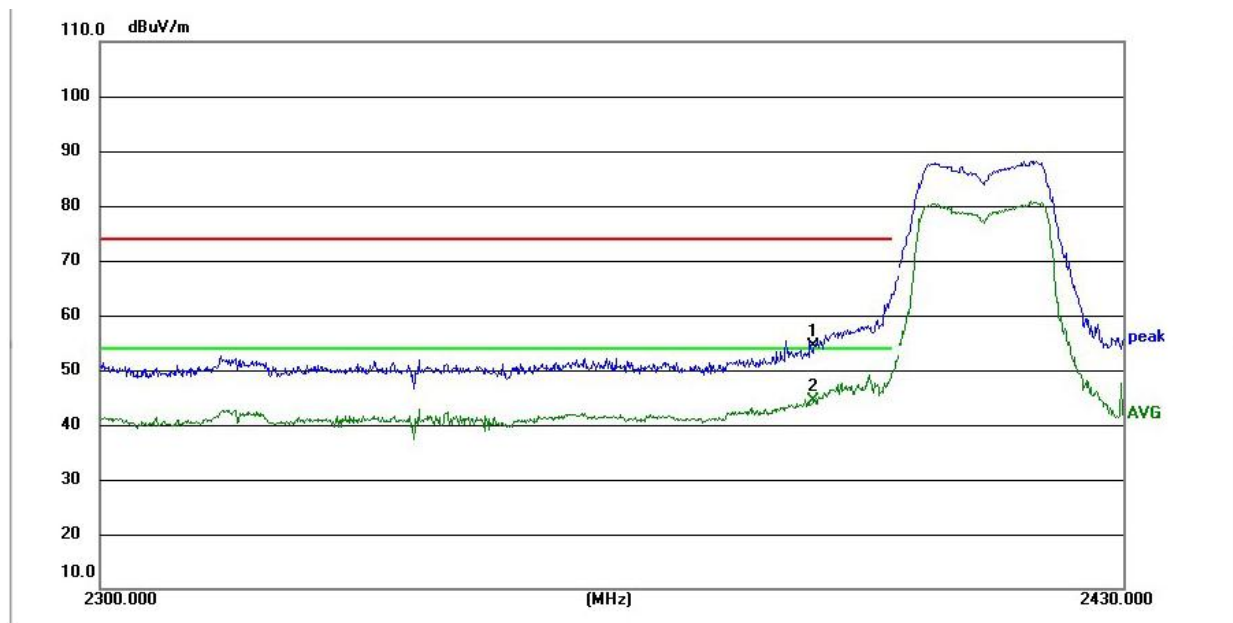
TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	21.52	30.69	52.21	74.00	-21.79	peak	P	
2 *	2483.500	11.79	30.69	42.48	54.00	-11.52	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

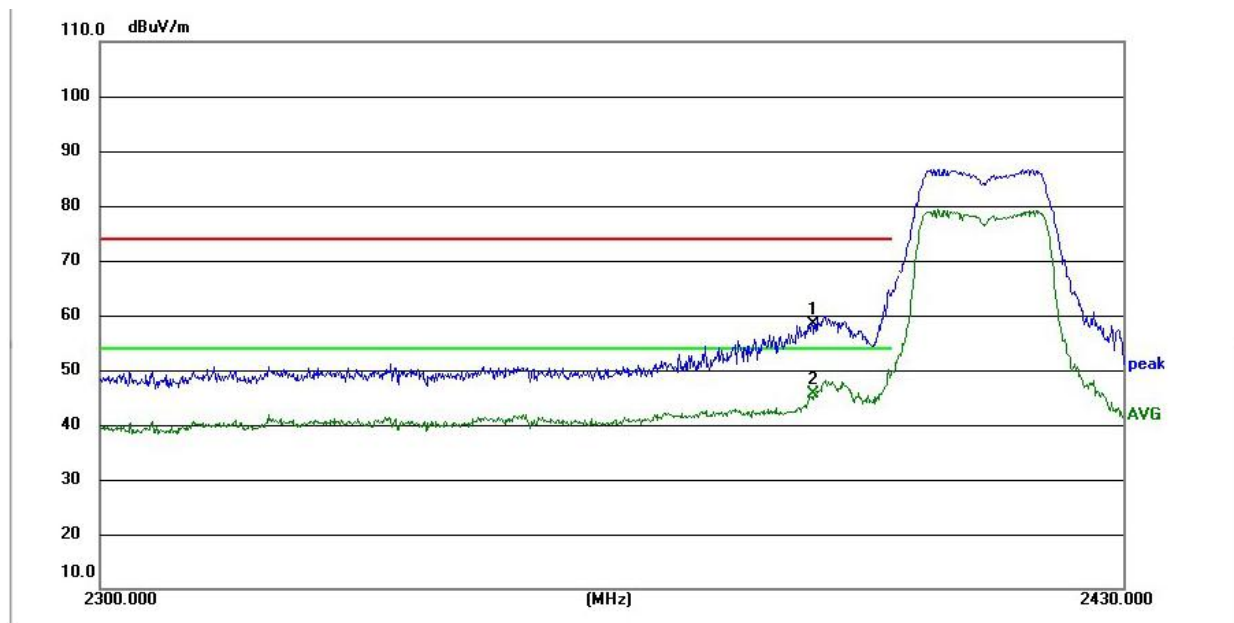
TM6 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 40 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	24.57	29.88	54.45	74.00	-19.55	peak	P	
2 *	2390.000	14.53	29.88	44.41	54.00	-9.59	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

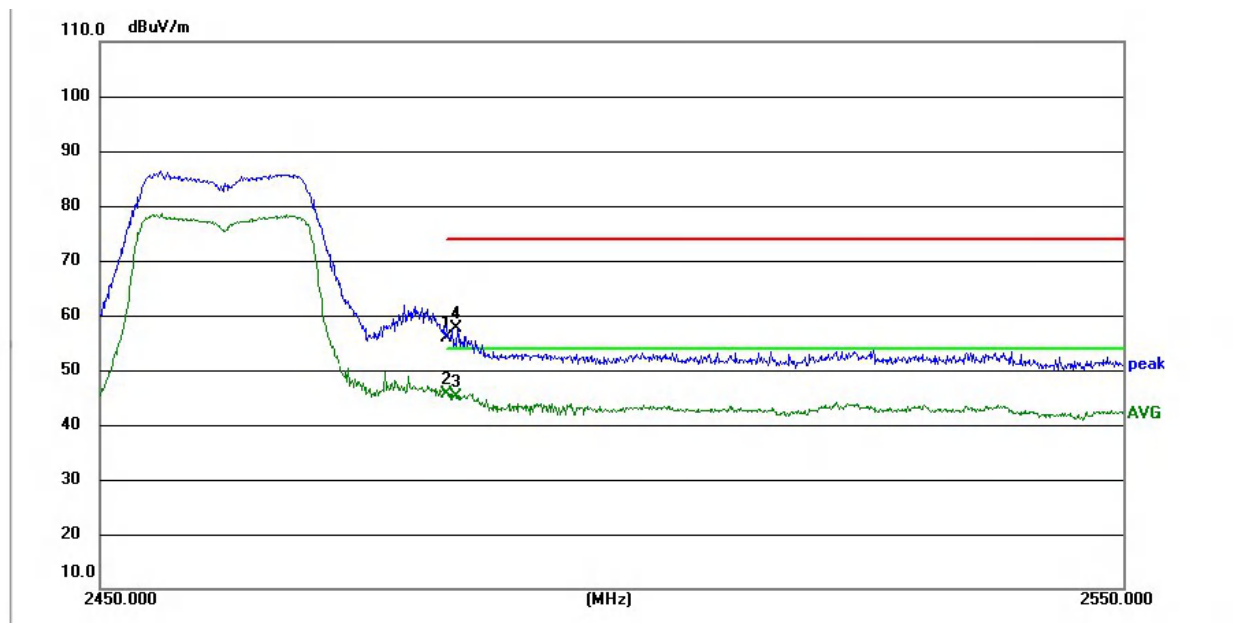
TM6 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 40 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	28.39	29.88	58.27	74.00	-15.73	peak	P	
2 *	2390.000	15.71	29.88	45.59	54.00	-8.41	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

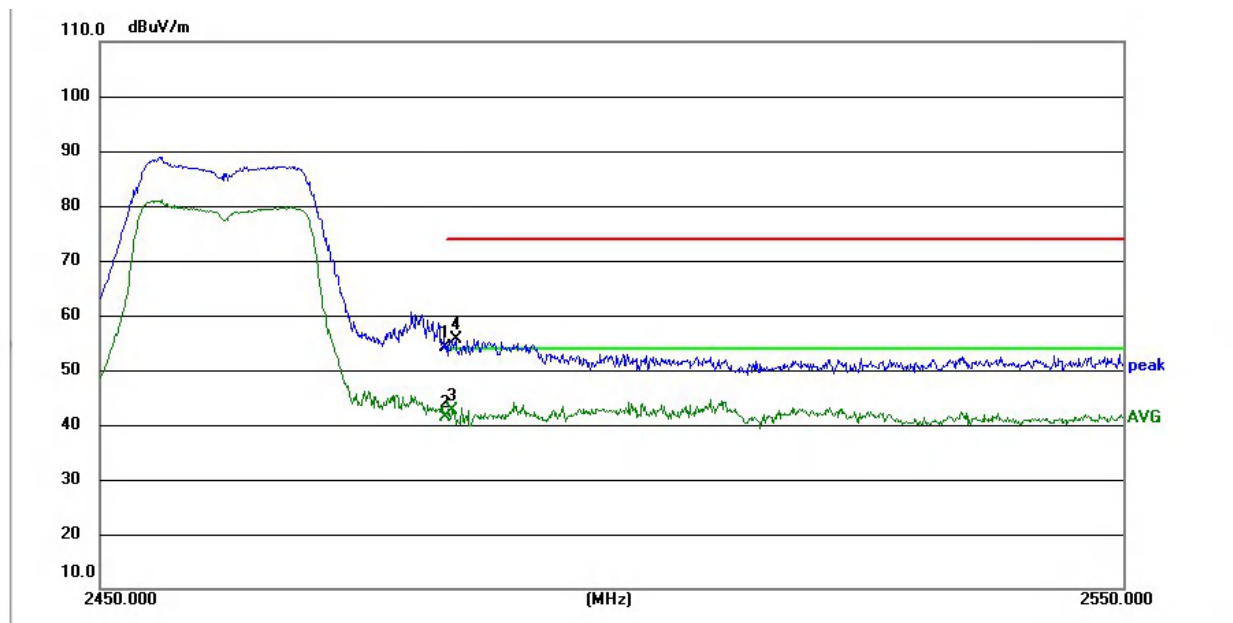
TM6 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 40 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	25.24	30.69	55.93	74.00	-18.07	peak	P	
2 *	2483.500	15.03	30.69	45.72	54.00	-8.28	AVG	P	
3	2484.490	14.39	30.70	45.09	54.00	-8.91	AVG	P	
4	2484.630	26.93	30.70	57.63	74.00	-16.37	peak	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

TM6 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 40 / 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	23.36	30.69	54.05	74.00	-19.95	peak	P	
2	2483.500	10.70	30.69	41.39	54.00	-12.61	AVG	P	
3 *	2484.090	12.05	30.70	42.75	54.00	-11.25	AVG	P	
4	2484.370	24.95	30.70	55.65	74.00	-18.35	peak	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

10.9 Emissions in frequency bands (below 30MHz)

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.																																																																									
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Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.4 KDB 558074 D01 15.247 Meas Guidance v05r02																																																																									
Procedure:	a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b) The EUT was set 3 meters away from the interference-receiving antenna. c) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights 1 meter and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. d) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. e) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.																																																																									

f) The radiation measurements are performed in X, Y, Z axis positioning. only the test worst case mode is recorded in the report.(for portable and mobile devices)

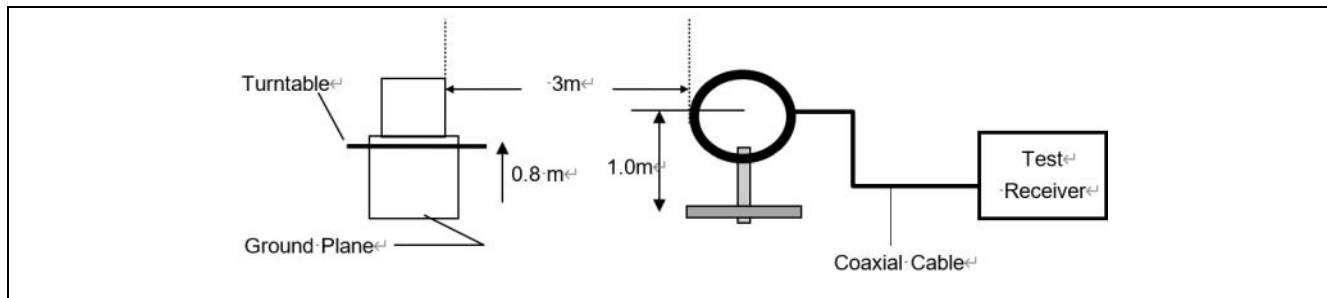
Where,

a) Factor = Antenna Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.

b) Level = Reading + Factor.

c) Margin = Level – Limit

10.9.1 Test Setup Diagram:



10.9.2 E.U.T. Operation:

Operating Environment:					
Temperature:	25 °C	Humidity:	59 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1				

10.9.3 Test Data:

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

10.10 Emissions in frequency bands (30M - 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)).																																																																									
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	** 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.																																																																									
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Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.5.4 KDB 558074 D01 15.247 Meas Guidance v05r02																																																																									
Procedure:	a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c) The antenna height 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. d) 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 rota table table was turned from 0 degrees to 360 degrees to find the maximum reading. e) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f) If the emission level of the EUT in peak mode was 10dB lower than the limit																																																																									

specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

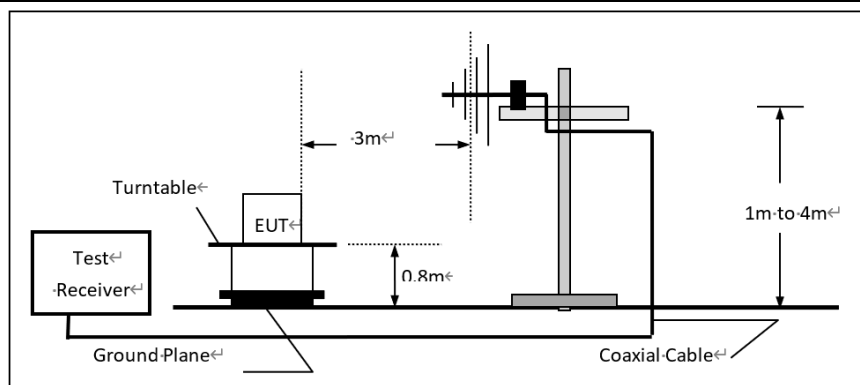
Where,

a) Factor = Antenna Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.

b) Level = Reading + Factor.

c) Margin = Level – Limit

10.10.1 Test Setup Diagram:

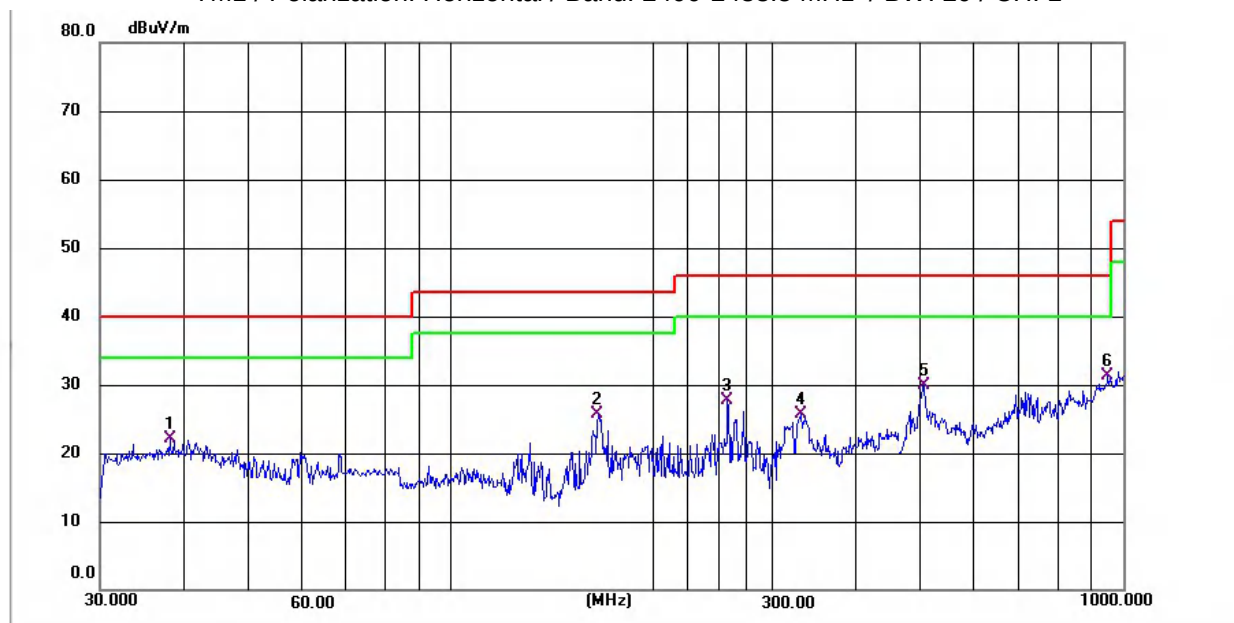


10.10.2 E.U.T. Operation:

Operating Environment:					
Temperature:	23 °C	Humidity:	52 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1				

10.10.3 Test Data:

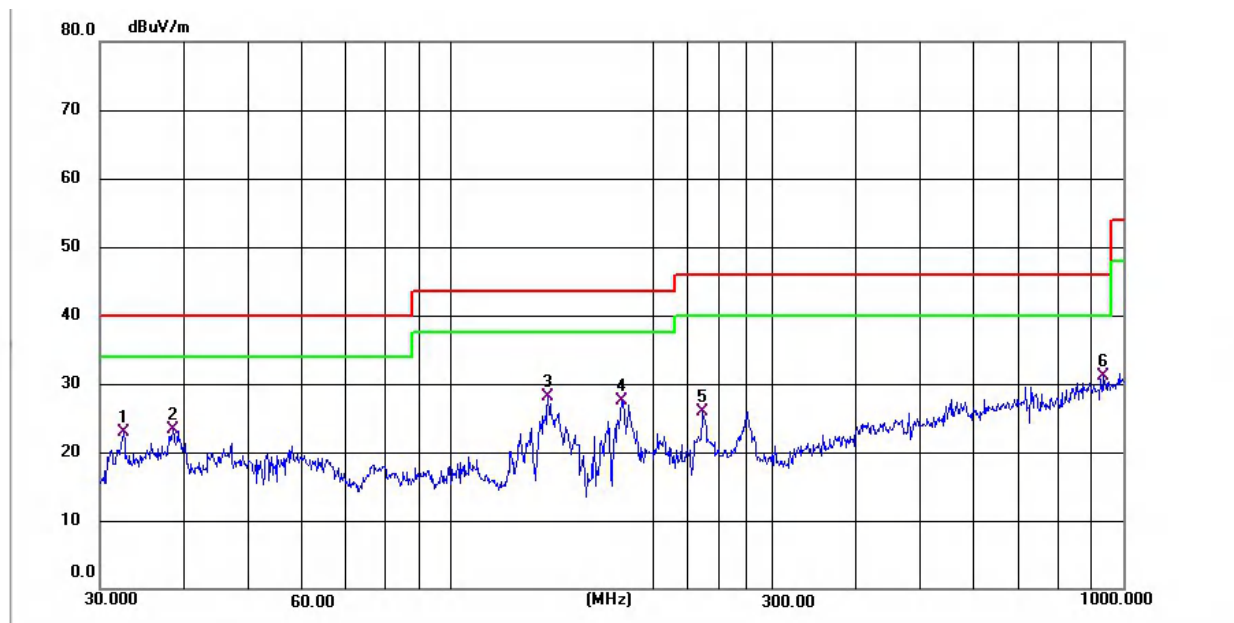
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	38.0782	3.71	18.37	22.08	40.00	-17.92	QP	P	
2	165.4866	10.61	15.05	25.66	43.50	-17.84	QP	P	
3	257.4221	8.54	19.19	27.73	46.00	-18.27	QP	P	
4	331.3546	4.80	20.96	25.76	46.00	-20.24	QP	P	
5	506.4790	5.86	23.98	29.84	46.00	-16.16	QP	P	
6 *	948.7610	1.01	30.21	31.22	46.00	-14.78	QP	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	32.5197	5.98	16.86	22.84	40.00	-17.16	QP	P	
2	38.4810	4.79	18.49	23.28	40.00	-16.72	QP	P	
3	139.3610	13.60	14.49	28.09	43.50	-15.41	QP	P	
4	179.3863	11.61	15.92	27.53	43.50	-15.97	QP	P	
5	236.6447	7.32	18.66	25.98	46.00	-20.02	QP	P	
6 *	935.5461	1.28	29.90	31.18	46.00	-14.82	QP	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

10.11 Emissions in frequency bands (1G - 18GHz)

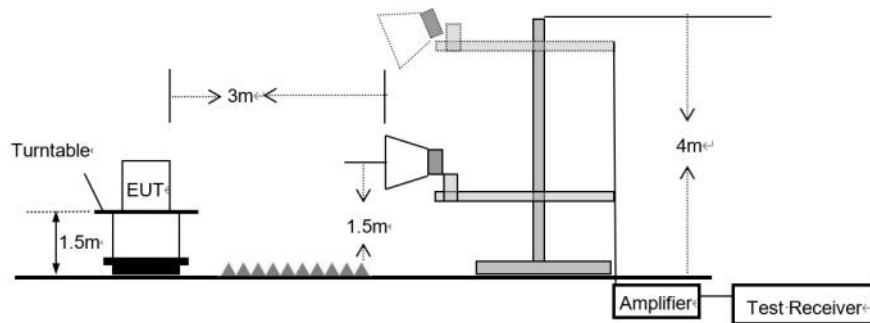
Test Requirement:	Refer to 47 CFR 15.247(d), in addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).																																																																									
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																																																																							
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	** 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.																																																																									
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Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.6 KDB 558074 D01 15.247 Meas Guidance v05r02																																																																									
Procedure:	a) The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c) The antenna height 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. d) 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 rota table table was turned from 0 degrees to 360 degrees to find the maximum reading. e) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.																																																																									

- f) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g) Test the EUT in the lowest channel ,middle channel, the Highest channel
- h) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, only the test worst case is recorded in the report.
- i) Repeat above procedures until all frequencies measured was complete.

Where,

- a) Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
- b) Level = Reading + Factor.
- c) Margin = Level – Limit

10.11.1 Test Setup Diagram:



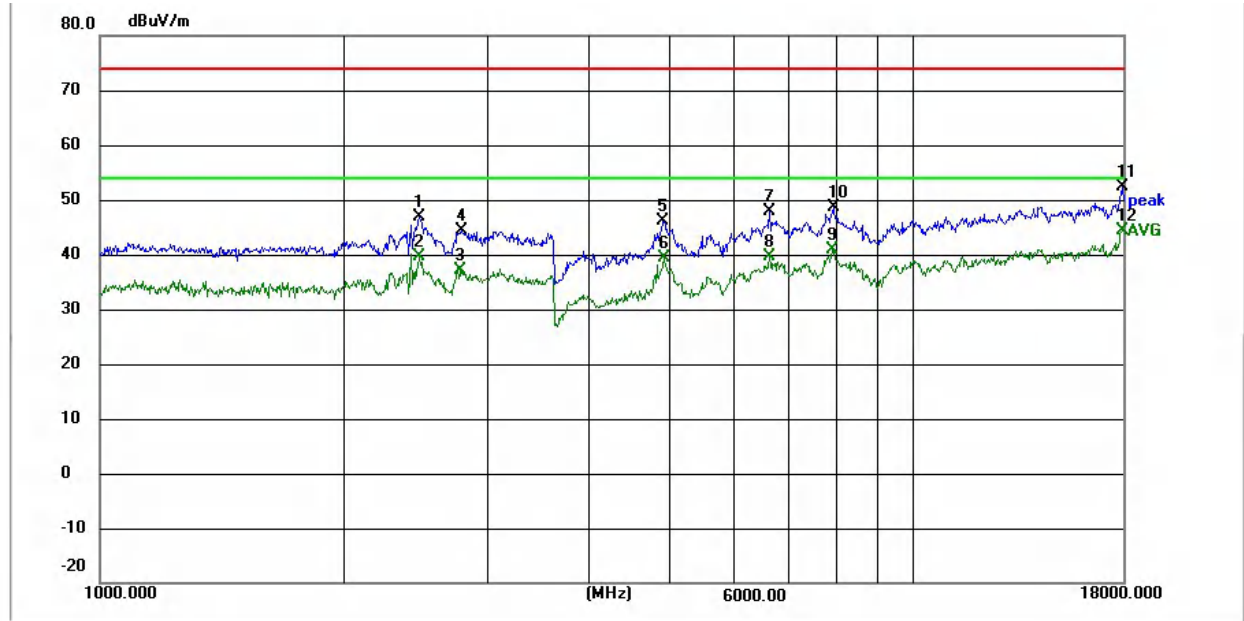
10.11.2 E.U.T. Operation:

Operating Environment:

Temperature:	23 °C	Humidity:	52 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1				

10.11.3 Test Data:

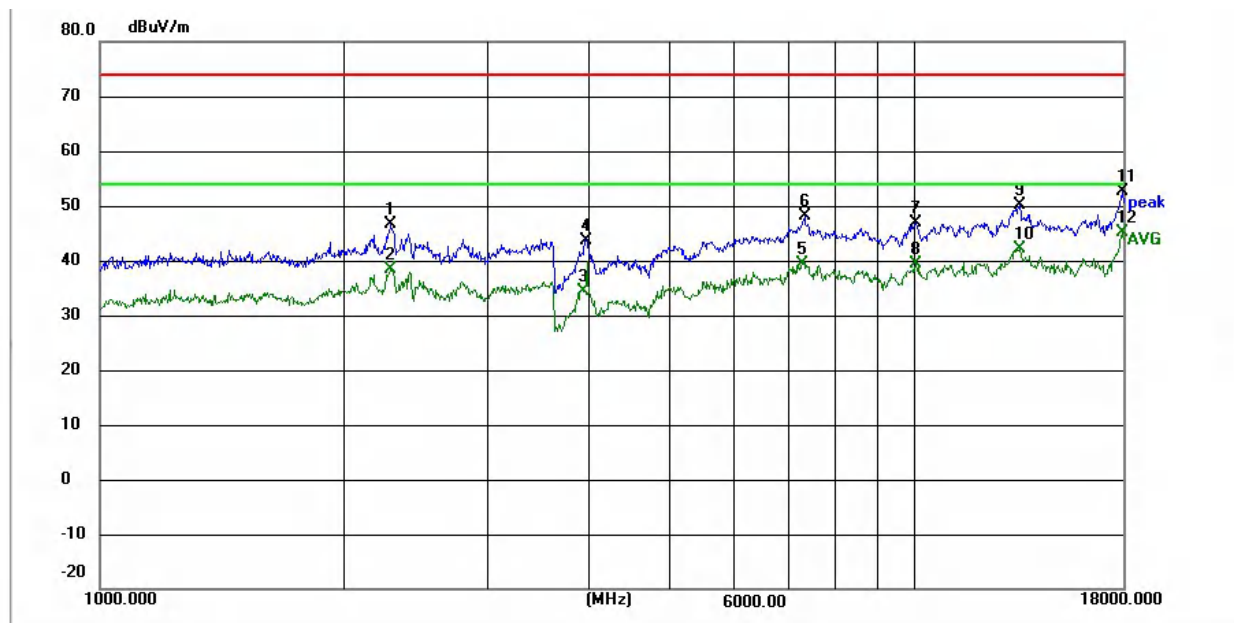
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2470.925	59.62	-12.62	47.00	74.00	-27.00	peak	P	
2	2471.350	52.14	-12.61	39.53	54.00	-14.47	AVG	P	
3	2781.175	47.80	-10.56	37.24	54.00	-16.76	AVG	P	
4	2782.875	54.90	-10.55	44.35	74.00	-29.65	peak	P	
5	4915.100	53.14	-7.03	46.11	74.00	-27.89	peak	P	
6	4922.325	46.13	-6.81	39.32	54.00	-14.68	AVG	P	
7	6628.700	51.42	-3.47	47.95	74.00	-26.05	peak	P	
8	6628.700	43.18	-3.47	39.71	54.00	-14.29	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

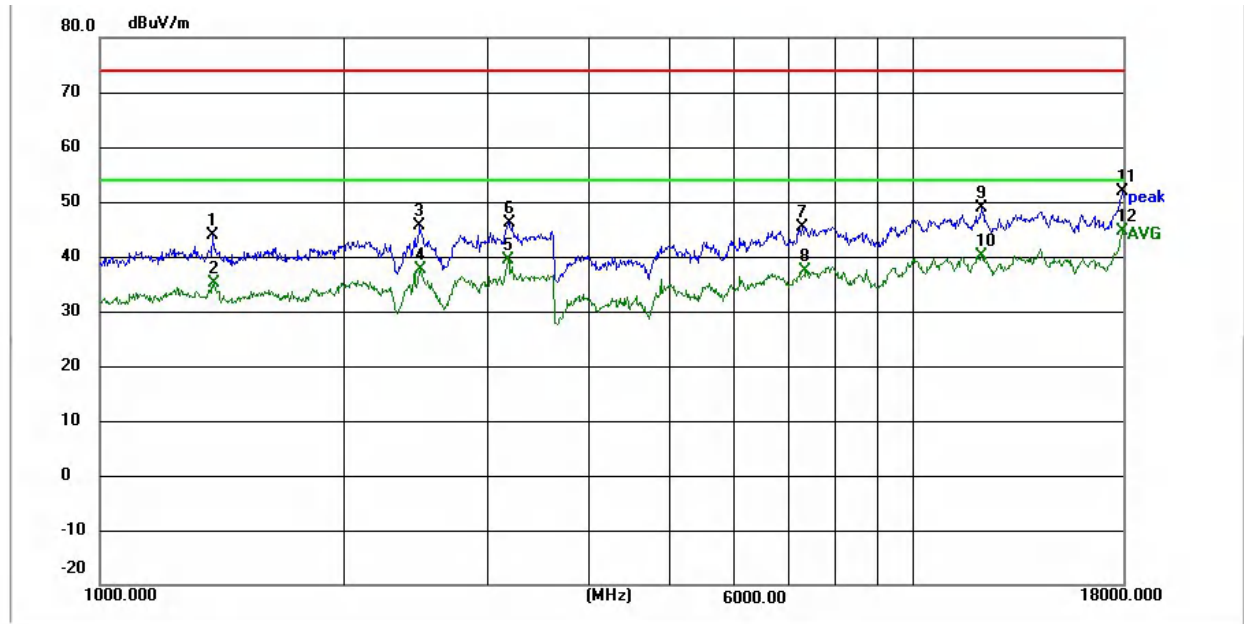
TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2283.925	59.86	-13.17	46.69	74.00	-27.31	peak	P	
2	2283.925	51.63	-13.17	38.46	54.00	-15.54	AVG	P	
3	3920.600	42.62	-8.23	34.39	54.00	-19.61	AVG	P	
4	3952.475	51.70	-8.02	43.68	74.00	-30.32	peak	P	
5	7270.025	41.95	-2.63	39.32	54.00	-14.68	AVG	P	
6	7307.850	50.48	-2.23	48.25	74.00	-25.75	peak	P	
7	10068.225	45.17	1.83	47.00	74.00	-27.00	peak	P	
8	10068.225	37.62	1.83	39.45	54.00	-14.55	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

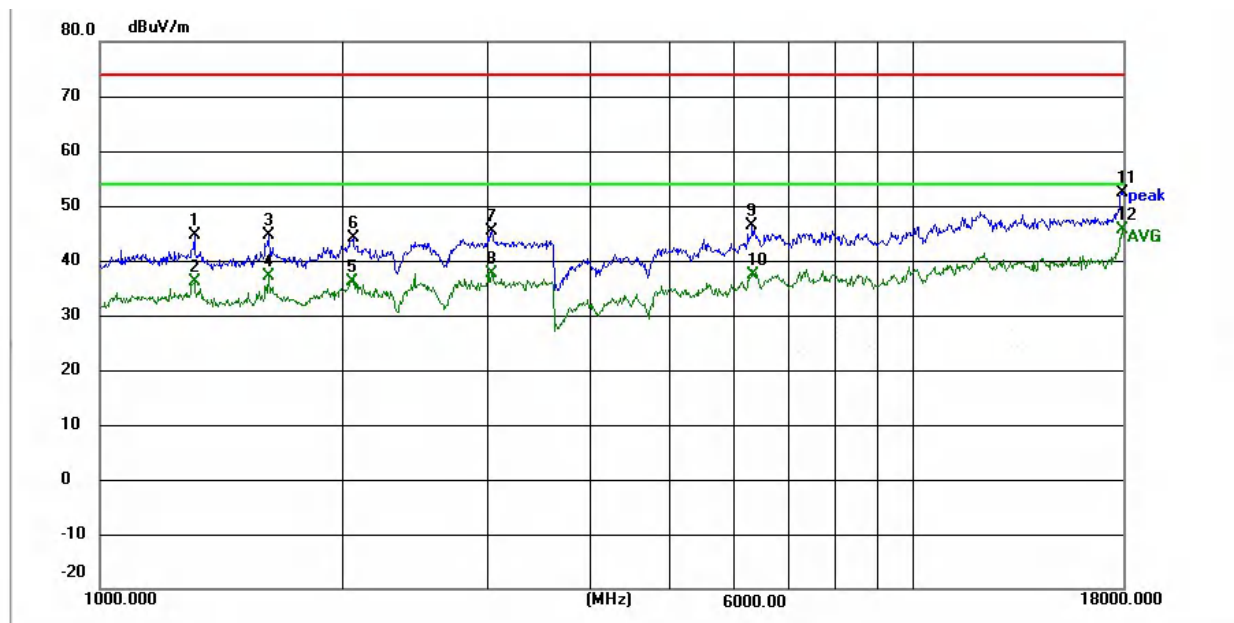
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1376.975	61.83	-17.97	43.86	74.00	-30.14	peak	P	
2	1381.650	52.99	-17.98	35.01	54.00	-18.99	AVG	P	
3	2477.725	58.20	-12.50	45.70	74.00	-28.30	peak	P	
4	2484.100	50.11	-12.37	37.74	54.00	-16.26	AVG	P	
5	3174.300	48.80	-9.36	39.44	54.00	-14.56	AVG	P	
6	3177.700	55.46	-9.35	46.11	74.00	-27.89	peak	P	
7	7281.075	47.93	-2.51	45.42	74.00	-28.58	peak	P	
8	7346.525	39.08	-1.82	37.26	54.00	-16.74	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

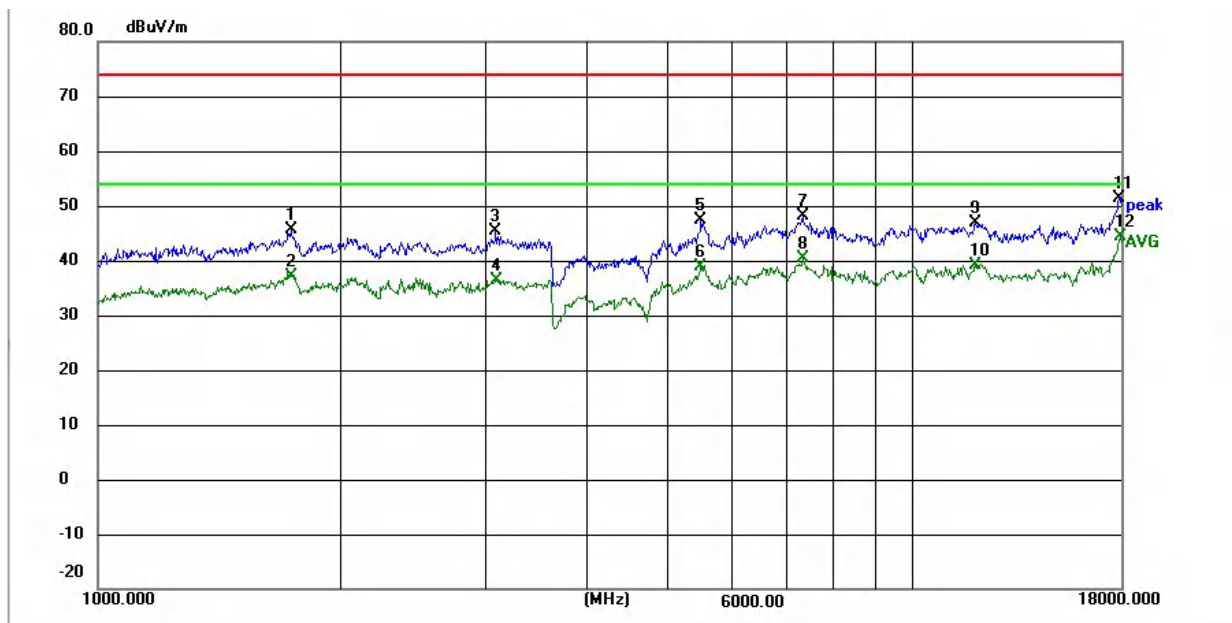
TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1304.725	62.43	-17.86	44.57	74.00	-29.43	peak	P	
2	1304.725	54.03	-17.86	36.17	54.00	-17.83	AVG	P	
3	1610.300	61.00	-16.48	44.52	74.00	-29.48	peak	P	
4	1610.300	53.51	-16.48	37.03	54.00	-16.97	AVG	P	
5	2043.375	49.01	-12.98	36.03	54.00	-17.97	AVG	P	
6	2048.900	57.09	-12.90	44.19	74.00	-29.81	peak	P	
7	3028.100	54.95	-9.55	45.40	74.00	-28.60	peak	P	
8	3028.100	47.13	-9.55	37.58	54.00	-16.42	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

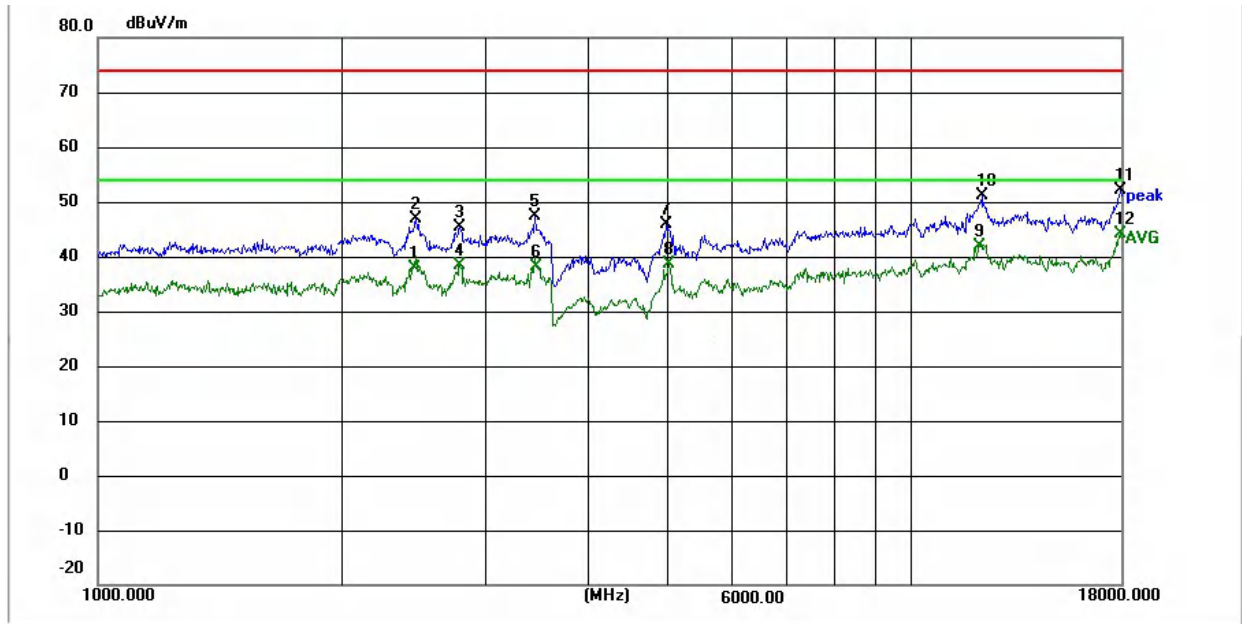
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	1722.500	62.25	-16.57	45.68	74.00	-28.32	peak	P	
2	1722.500	53.73	-16.57	37.16	54.00	-16.84	AVG	P	
3	3079.525	55.08	-9.58	45.50	74.00	-28.50	peak	P	
4	3093.125	45.90	-9.55	36.35	54.00	-17.65	AVG	P	
5	5501.175	52.65	-5.30	47.35	74.00	-26.65	peak	P	
6	5501.175	44.21	-5.30	38.91	54.00	-15.09	AVG	P	
7	7312.100	50.20	-2.19	48.01	74.00	-25.99	peak	P	
8	7312.100	42.66	-2.19	40.47	54.00	-13.53	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2455.200	50.91	-12.91	38.00	54.00	-16.00	AVG	P	
2	2461.150	59.67	-12.79	46.88	74.00	-27.12	peak	P	
3	2785.425	56.01	-10.54	45.47	74.00	-28.53	peak	P	
4	2785.425	48.84	-10.54	38.30	54.00	-15.70	AVG	P	
5	3435.675	57.04	-9.58	47.46	74.00	-26.54	peak	P	
6	3453.100	47.66	-9.53	38.13	54.00	-15.87	AVG	P	
7	4980.975	52.18	-6.25	45.93	74.00	-28.07	peak	P	
8	5020.500	44.71	-6.16	38.55	54.00	-15.45	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

10.12 Emissions in frequency bands (above 18GHz)

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																																																																							
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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	Above 38.6																																																																							
13.36-13.41																																																																										
Test Method:	ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 section 6.6 KDB 558074 D01 15.247 Meas Guidance v05r02																																																																									
Procedure:	a) The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c) The antenna height 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. d) 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 rota table table was turned from 0 degrees to 360 degrees to find the maximum reading. e) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.																																																																									

f) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g) Test the EUT in the lowest channel ,middle channel, the Highest channel

h) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, only the test worst case is recorded in the report.

i) Repeat above procedures until all frequencies measured was complete.

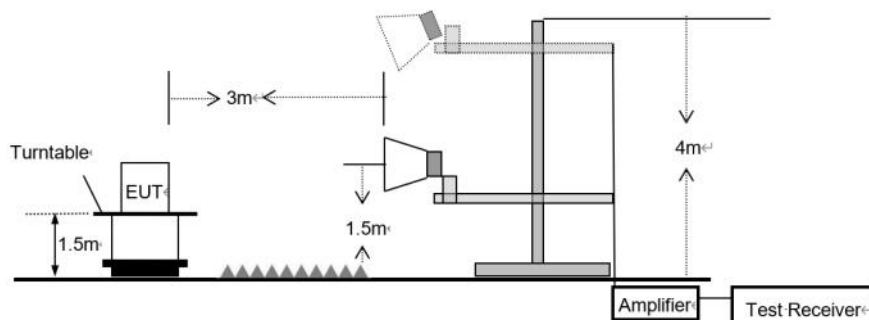
Where,

a) Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.

b) Level = Reading + Factor.

c) Margin = Level – Limit

10.12.1 Test Setup Diagram:



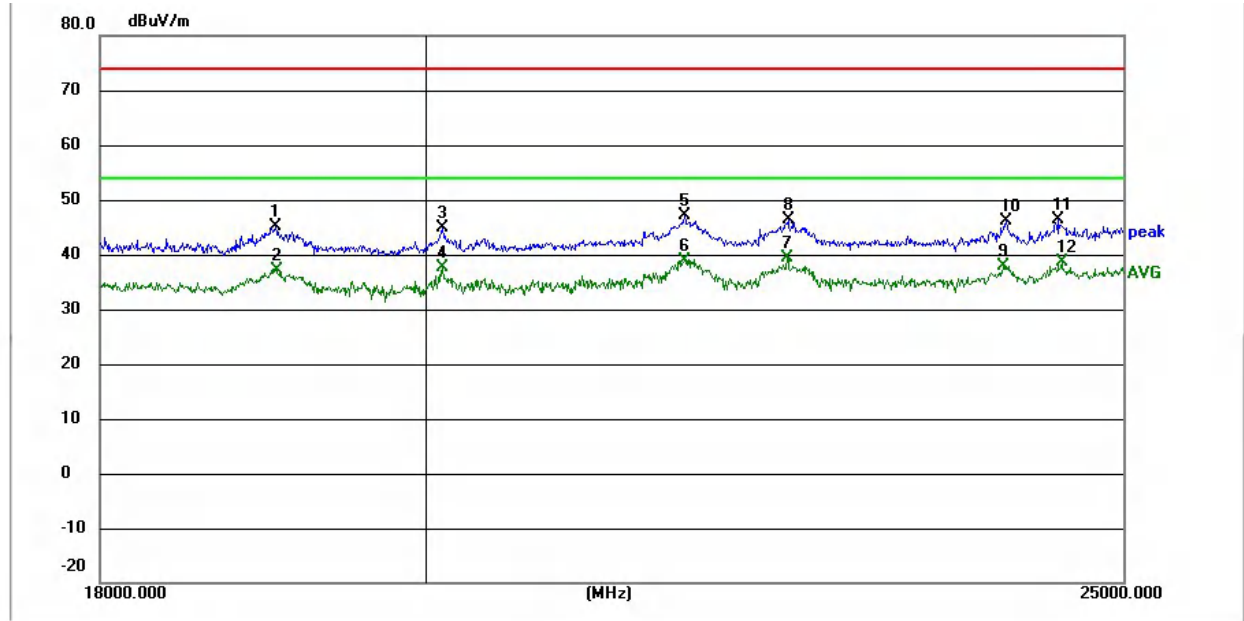
10.12.2 E.U.T. Operation:

Operating Environment:

Temperature:	23 °C	Humidity:	52 %	Atmospheric Pressure:	1010 mbar
Per-test mode:	TM1, TM2, TM3, TM4, TM5, TM6				
Final test mode:	TM1				

10.12.3 Test Data:

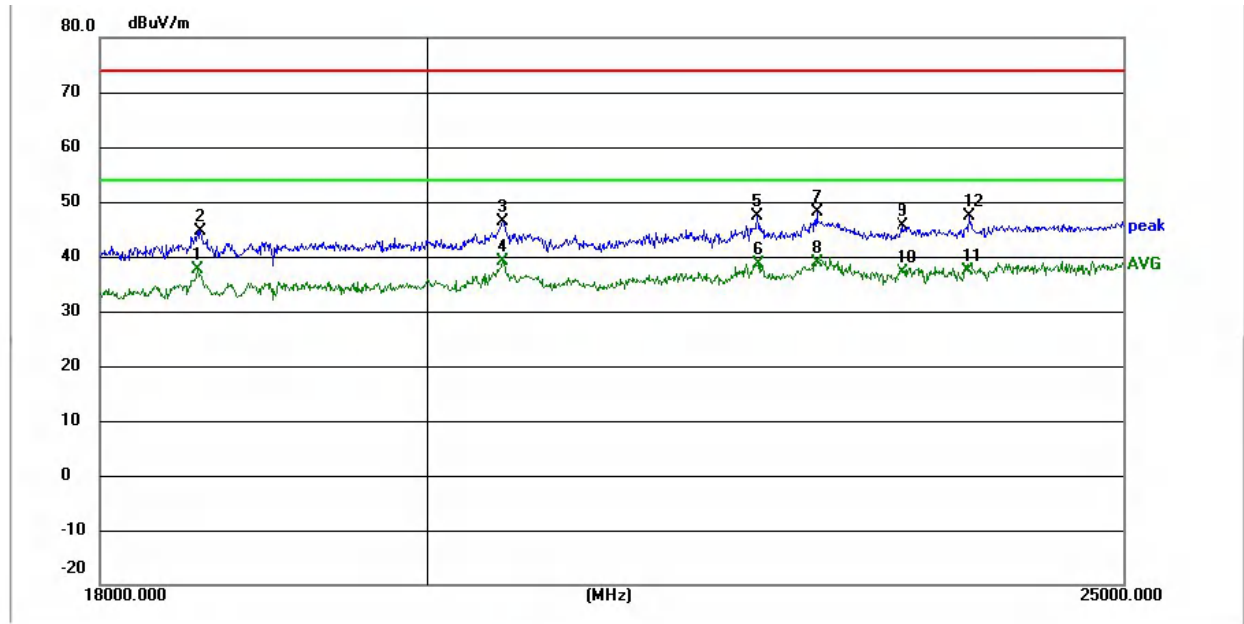
TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	19042.475	59.16	-14.03	45.13	74.00	-28.87	peak	P	
2	19047.550	51.26	-14.01	37.25	54.00	-16.75	AVG	P	
3	20097.550	57.43	-12.61	44.82	74.00	-29.18	peak	P	
4	20097.550	50.21	-12.61	37.60	54.00	-16.40	AVG	P	
5	21715.600	59.43	-12.27	47.16	74.00	-26.84	peak	P	
6	21715.600	51.16	-12.27	38.89	54.00	-15.11	AVG	P	
7 *	22441.675	50.84	-11.56	39.28	54.00	-14.72	AVG	P	
8	22451.650	57.85	-11.55	46.30	74.00	-27.70	peak	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

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



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	18576.275	52.27	-14.76	37.51	54.00	-16.49	AVG	P	
2	18593.250	59.50	-14.75	44.75	74.00	-29.25	peak	P	
3	20487.450	58.67	-12.18	46.49	74.00	-27.51	peak	P	
4 *	20487.450	51.25	-12.18	39.07	54.00	-14.93	AVG	P	
5	22228.700	59.31	-11.81	47.50	74.00	-26.50	peak	P	
6	22234.475	50.34	-11.80	38.54	54.00	-15.46	AVG	P	
7	22653.950	59.68	-11.67	48.01	74.00	-25.99	peak	P	
8	22666.900	50.61	-11.69	38.92	54.00	-15.08	AVG	P	

Note: All the modulation modes have been tested, and the worst case mode result was reported.

11 Test Setup Photos

Refer to Appendix - Test Setup Photos

12 EUT Constructional Details (EUT Photos)

Refer to Appendix - EUT Photos

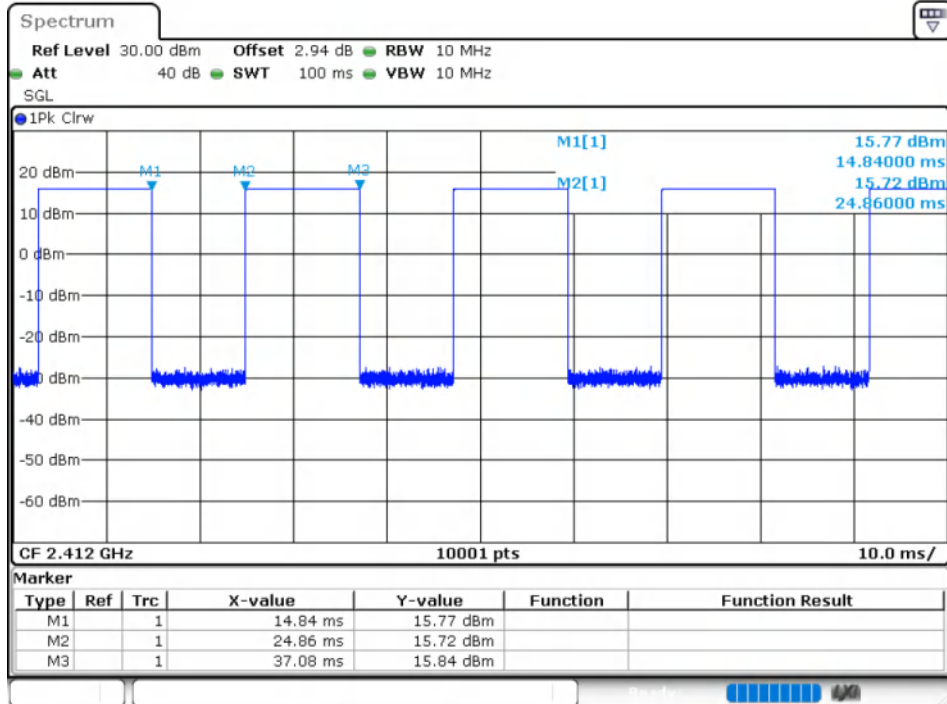
Appendix A

A1 Duty Cycle

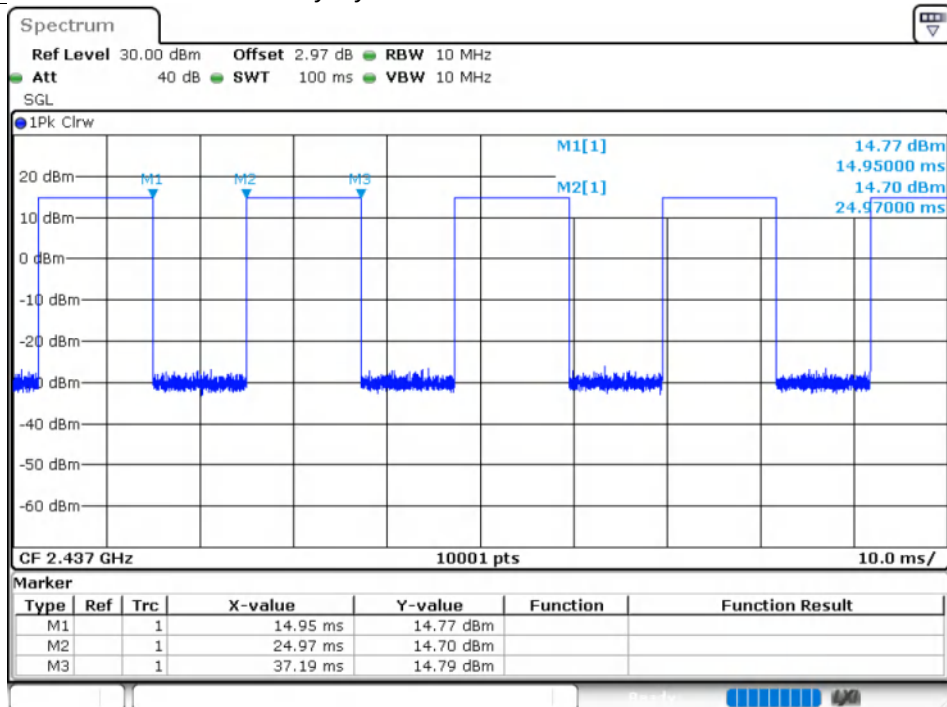
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	b	2412	Ant1	57.35	2.41	0.08
NVNT	b	2437	Ant1	57.23	2.42	0.08
NVNT	b	2462	Ant1	53.22	2.74	0.08
NVNT	g	2412	Ant1	32.27	4.91	0.19
NVNT	g	2437	Ant1	32.87	4.83	0.19
NVNT	g	2462	Ant1	34.8	4.58	0.19
NVNT	n20	2412	Ant1	34.86	4.58	0.2
NVNT	n20	2437	Ant1	34.86	4.58	0.2
NVNT	n20	2462	Ant1	32.78	4.84	0.2
NVNT	n40	2422	Ant1	33.57	4.74	0.21
NVNT	n40	2437	Ant1	33.57	4.74	0.21
NVNT	n40	2452	Ant1	32.32	4.91	0.21
NVNT	ax20	2412	Ant1	26.6	5.75	0.26
NVNT	ax20	2437	Ant1	28.22	5.49	0.26
NVNT	ax20	2462	Ant1	27.56	5.6	0.26
NVNT	ax40	2422	Ant1	26.57	5.76	0.26
NVNT	ax40	2437	Ant1	26.56	5.76	0.26
NVNT	ax40	2452	Ant1	26.58	5.75	0.26

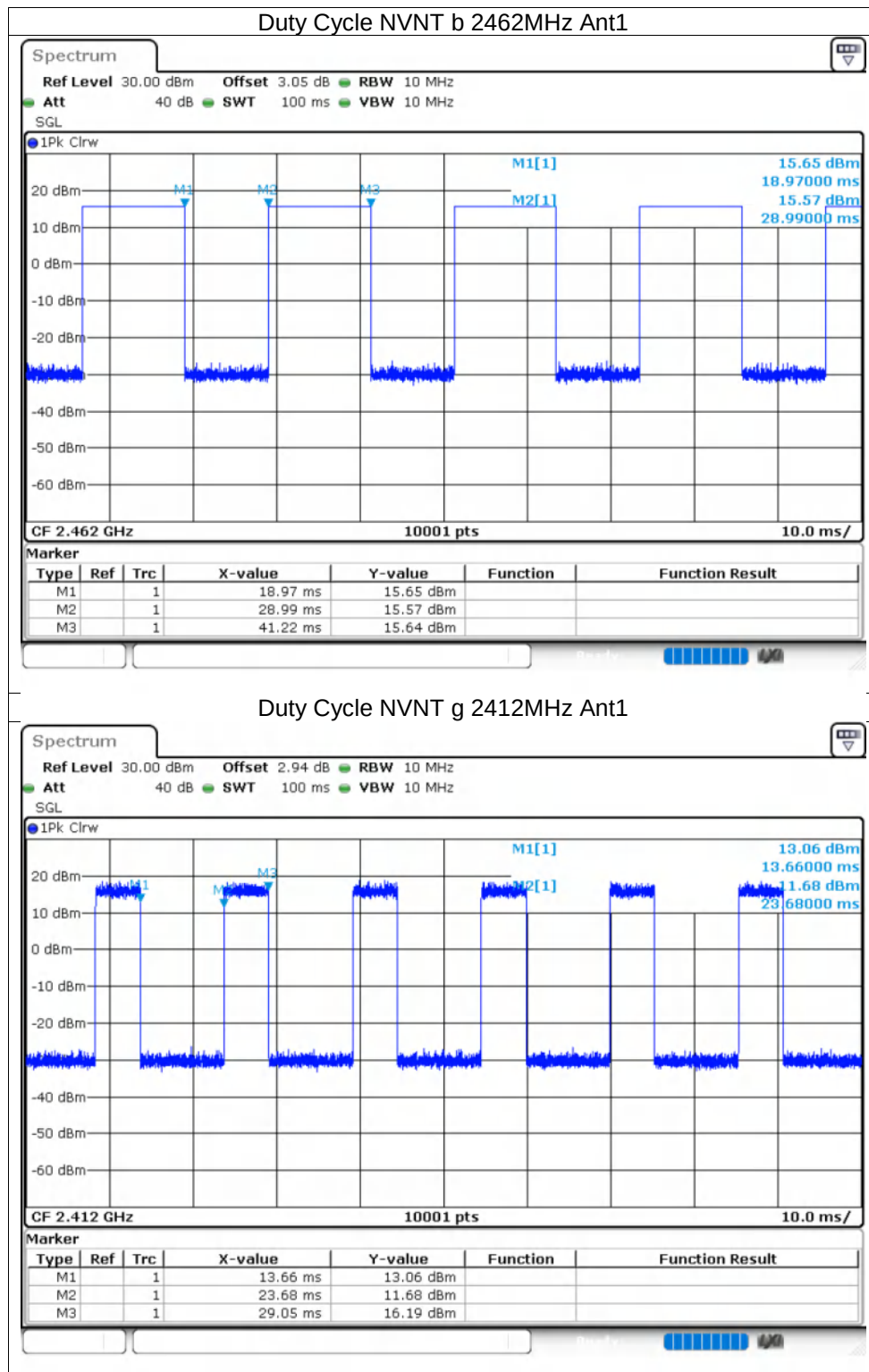
Test Graphs

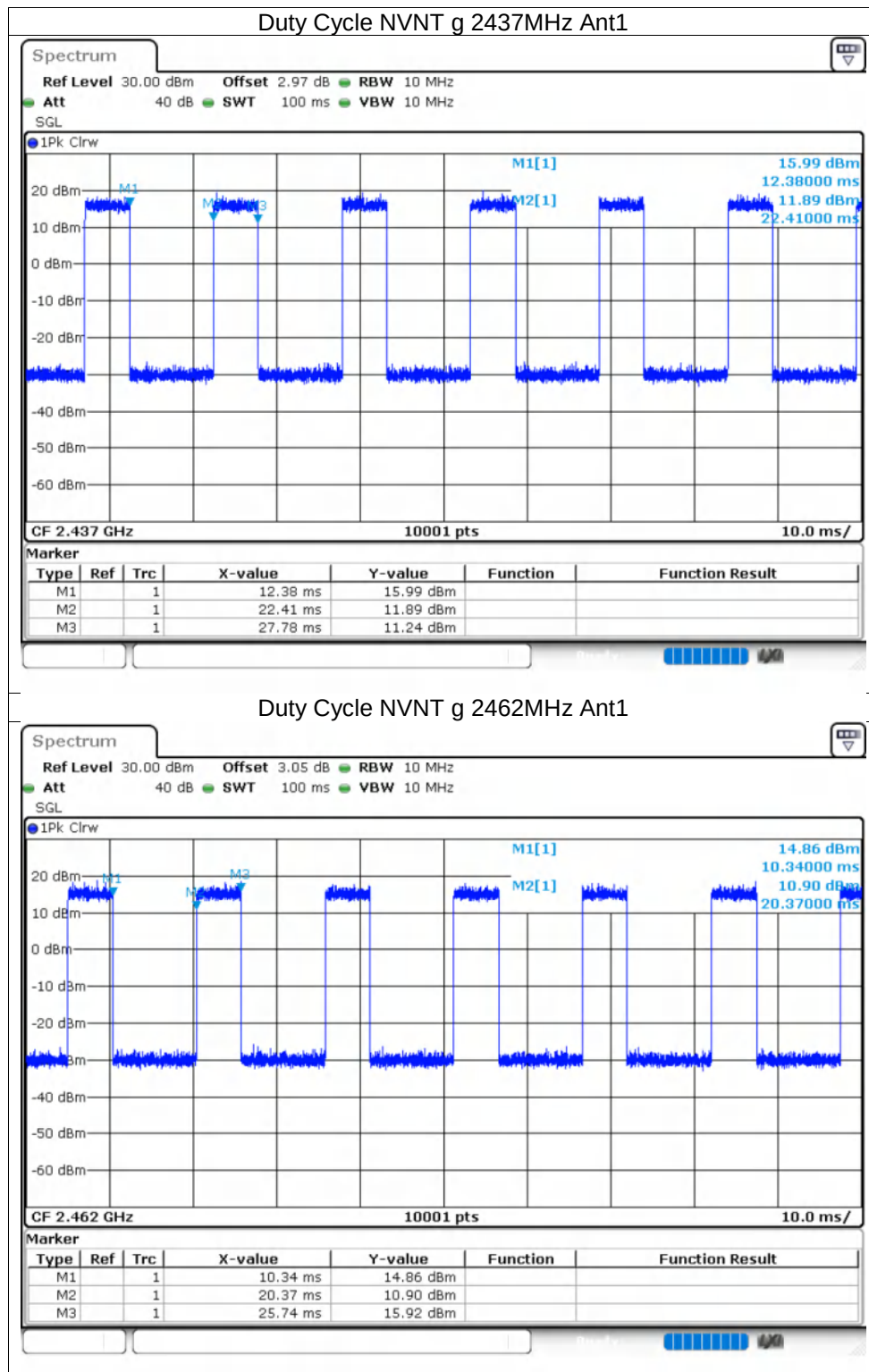
Duty Cycle NVNT b 2412MHz Ant1



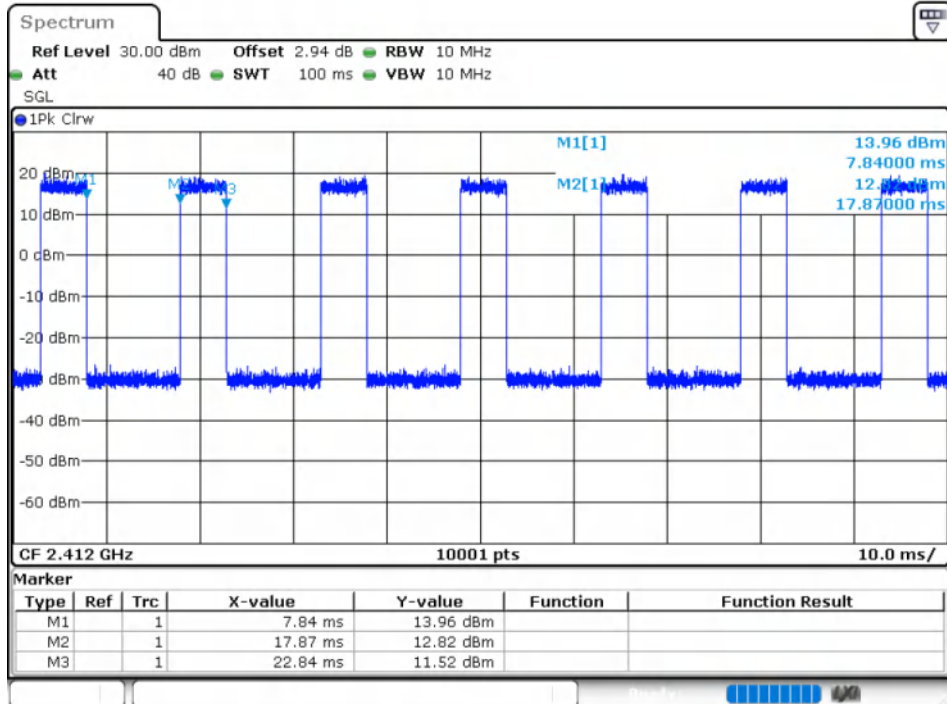
Duty Cycle NVNT b 2437MHz Ant1



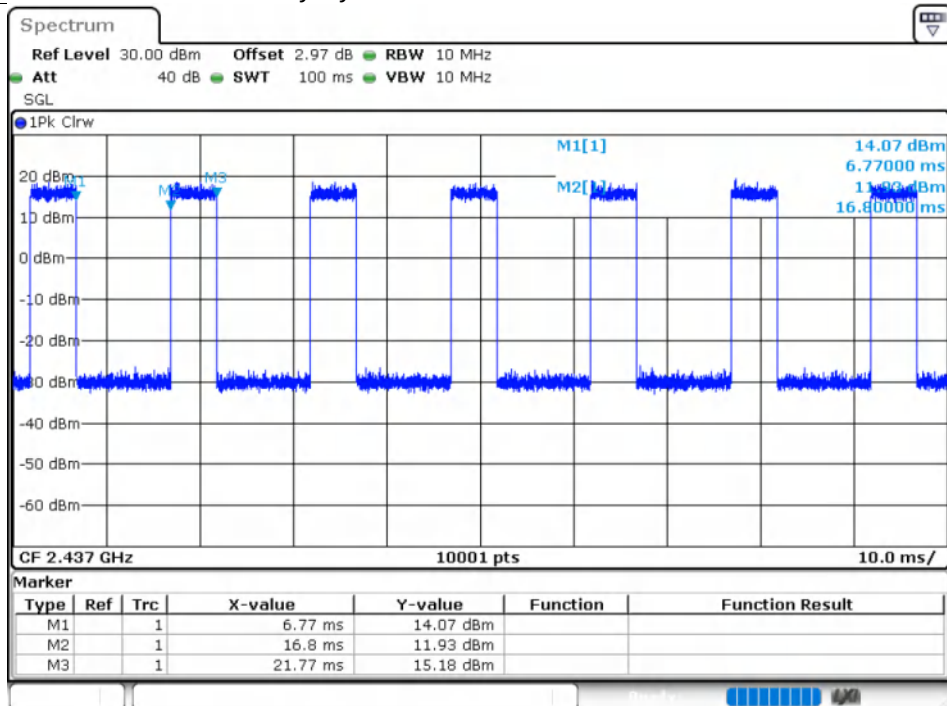


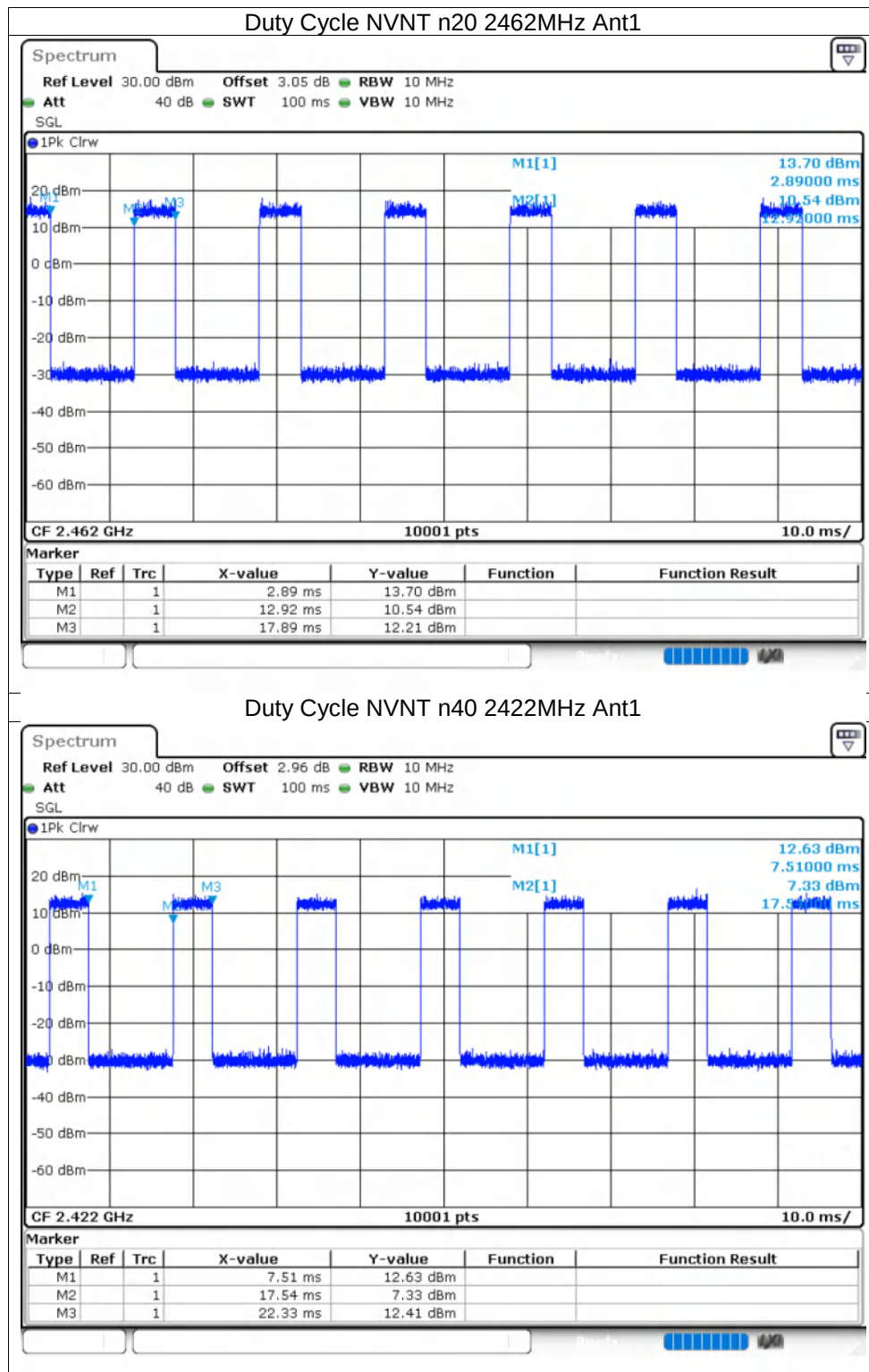


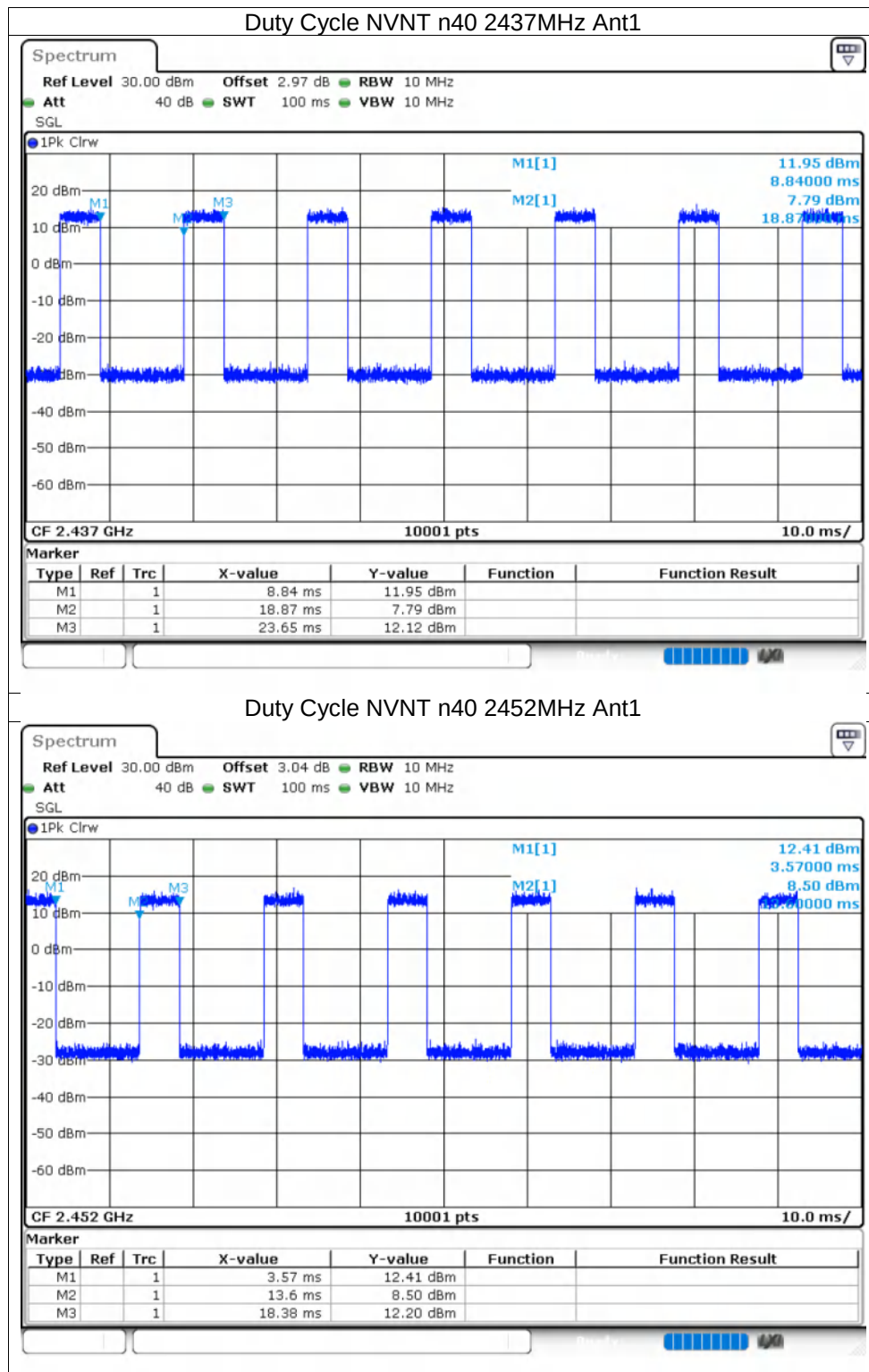
Duty Cycle NVNT n20 2412MHz Ant1

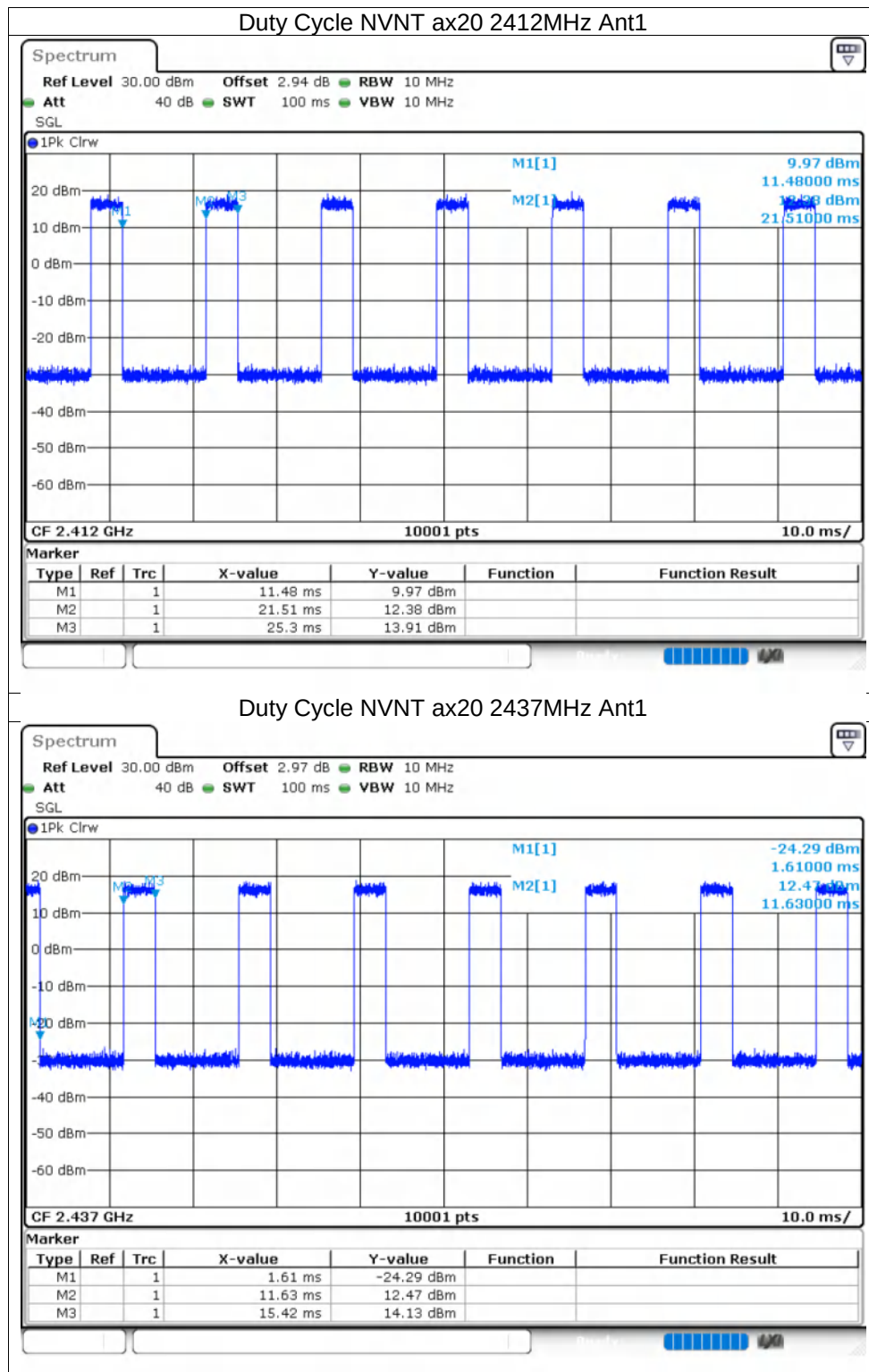


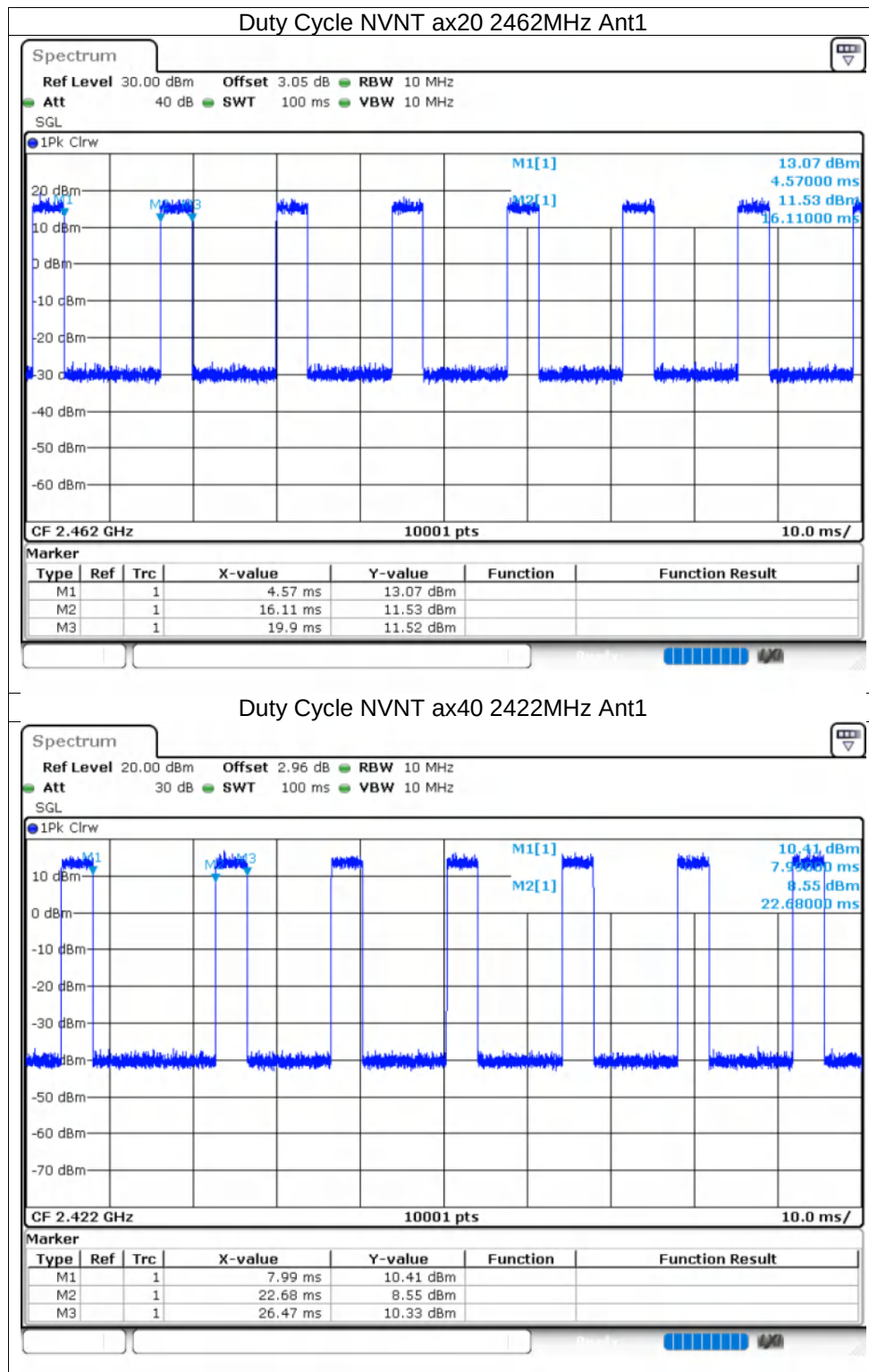
Duty Cycle NVNT n20 2437MHz Ant1

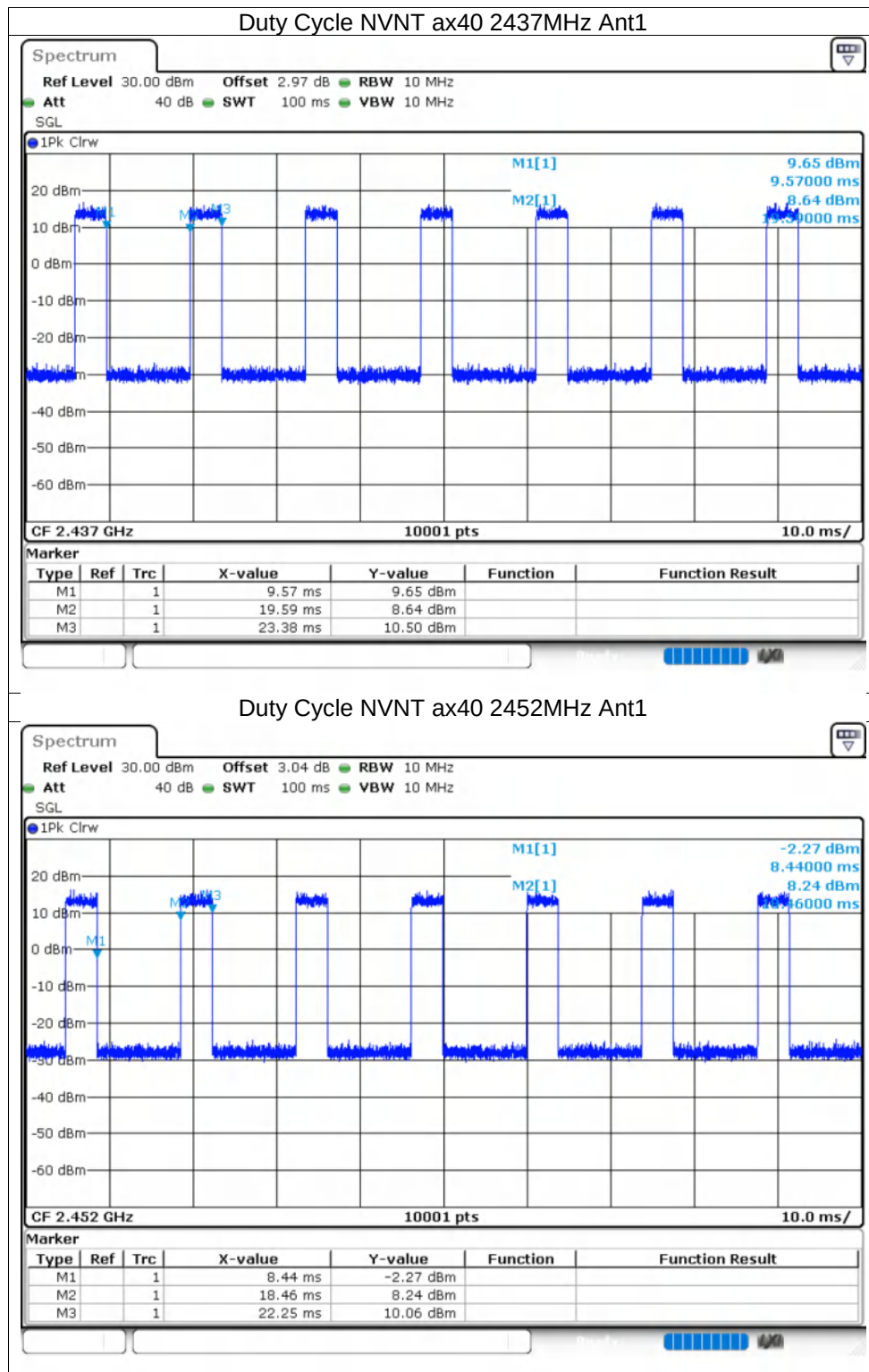












A2 Maximum Conducted Output Power

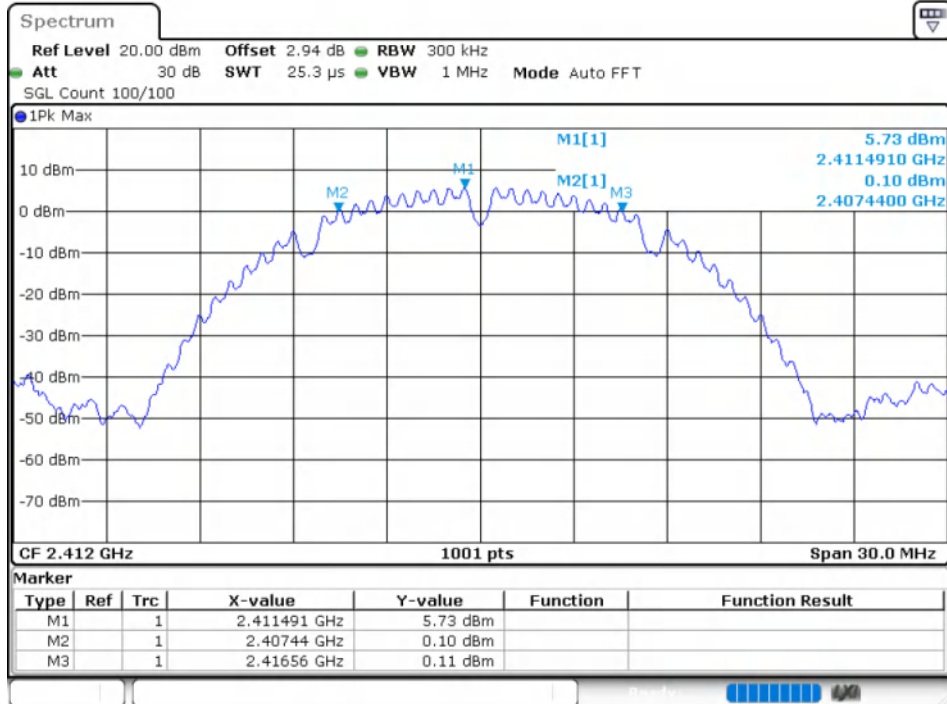
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	12.11	2.41	14.52	30	Pass
NVNT	b	2437	Ant1	10.67	2.42	13.09	30	Pass
NVNT	b	2462	Ant1	11.19	2.74	13.93	30	Pass
NVNT	g	2412	Ant1	6.19	4.91	11.1	30	Pass
NVNT	g	2437	Ant1	6.31	4.83	11.14	30	Pass
NVNT	g	2462	Ant1	5.79	4.58	10.37	30	Pass
NVNT	n20	2412	Ant1	7.66	4.58	12.24	30	Pass
NVNT	n20	2437	Ant1	6.89	4.58	11.47	30	Pass
NVNT	n20	2462	Ant1	5.54	4.84	10.38	30	Pass
NVNT	n40	2422	Ant1	5.95	4.74	10.69	30	Pass
NVNT	n40	2437	Ant1	6.71	4.74	11.45	30	Pass
NVNT	n40	2452	Ant1	5.74	4.91	10.65	30	Pass
NVNT	ax20	2412	Ant1	6.49	5.75	12.24	30	Pass
NVNT	ax20	2437	Ant1	6.78	5.49	12.27	30	Pass
NVNT	ax20	2462	Ant1	5.52	5.6	11.12	30	Pass
NVNT	ax40	2422	Ant1	5.99	5.76	11.75	30	Pass
NVNT	ax40	2437	Ant1	6.52	5.76	12.28	30	Pass
NVNT	ax40	2452	Ant1	5.95	5.75	11.7	30	Pass

A3 -6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	9.12	0.5	Pass
NVNT	b	2437	Ant1	9.15	0.5	Pass
NVNT	b	2462	Ant1	9.171	0.5	Pass
NVNT	g	2412	Ant1	16.41	0.5	Pass
NVNT	g	2437	Ant1	16.23	0.5	Pass
NVNT	g	2462	Ant1	16.308	0.5	Pass
NVNT	n20	2412	Ant1	17.628	0.5	Pass
NVNT	n20	2437	Ant1	17.649	0.5	Pass
NVNT	n20	2462	Ant1	17.403	0.5	Pass
NVNT	n40	2422	Ant1	35.88	0.5	Pass
NVNT	n40	2437	Ant1	36.372	0.5	Pass
NVNT	n40	2452	Ant1	35.802	0.5	Pass
NVNT	ax20	2412	Ant1	17.742	0.5	Pass
NVNT	ax20	2437	Ant1	18.927	0.5	Pass
NVNT	ax20	2462	Ant1	18.643	0.5	Pass
NVNT	ax40	2422	Ant1	37.524	0.5	Pass
NVNT	ax40	2437	Ant1	36.966	0.5	Pass
NVNT	ax40	2452	Ant1	37.44	0.5	Pass

Test Graphs

-6dB Bandwidth NVNT b 2412MHz Ant1



-6dB Bandwidth NVNT b 2437MHz Ant1

