TIMCO ENGINEERING, Inc.

An IIA Company

Test Report - FCC Part 15.247
Applicant: Iradimed Corporation

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature 09/29/2023

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1. Customer Information

Applicant: Iradimed Corporation
Address: 1025 Willa Springs Drive
Winter Springs, FL 32708
United States

1.1 Test Result Summary

The following test procedure and guidance were used for measuring Digital Transmission System (DTS); FCC KDB 558074 D01 DTS Measurement Guidance and ANSI C63.10-2013. Full test results are available in this report.

No additions to the test methods were needed. There were no deviations, or exclusions from the test methods. No test results are from external providers or from the customer. The test results relate only to the items tested. Timco does not offer opinions and interpretations, only a pass/fail statement.

Applicable Clauses from Part 2 or KDB		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
KDB 558074 D01	Duty Cycle	Pass
KDB 558074 D01	99 % Bandwidth	Pass
KDB 558074 D01	Band-edge measurements	Pass

Applicable Clauses from Part 15.247		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
15.247 (a) (1) – (1) (iii)	FHSS hopping requirements (1, i,ii,iii)	Pass
15.247 (a) (1)	FHSS 20dB Bandwidth	Pass
15.247 (a) (2)	DTS 6dB Bandwidth	n/a
15.247 (b) (1) – (4)	Conducted output power	Pass
15.247 (c) (1) – (2)	Operation with directional antenna gains > 6 dBi	n/a
15.247 (d), 15.215 (b)	Conducted Emissions in Non-restricted bands	Pass
15.247 (d), 15.215 (b)	Conducted Emissions at the Band-edge	Pass
15.247 (e)	Power Spectral Density (PSD)	n/a
15.247 (f)	Hybrid system hopping requirements	n/a
15.247 (f)	Hybrid system Power Spectral Density	n/a
15.247 (g)	FHSS System requirements	Pass
15.247 (h)	FHSS spectrum sensing	n/a

Applicable Clauses from Part 2 and Part 15 Subpart C		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
15.203	Antenna requirements	Pass
15.205	Restricted bands of operation	Pass
15.207	AC Power Conducted Emissions	Pass
15.209	Radiated Emissions in Restricted bands	Pass
15.211	Tunnel Radio Systems	n/a
15.212 (a)	Single Modular Transmitter	n/a
15.212 (b)	Limited Modular Transmitter	n/a
15.213	Cable Locating Equipment	n/a

2. Location of Testing

2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA").
Testing was performed at Timco's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669

FCC test firm # 578780
FCC Designation # US1070
FCC site registration is under A2LA certificate # 0955.01
ISED Canada test site registration # 2056A
EU Notified Body # 1177
For all designations see A2LA scope # 0955.01

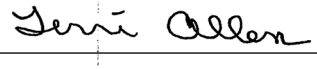
2.2 Testing was performed, reviewed by

Dates of Testing: 03/20/2023 – 03/22/2023

Signature:  Sr. EMC Engineer EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer

Date of Signature 09/29/2023

Signature: 

Name & Title: Terri Allen, Project Specialist

Date of Signature 09/29/2023

3. Test Sample(s) (EUT/DUT)

The test sample was received: 03/22/2023

3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification	
FCC ID:	2AKRU-FMD1R
Brief Description	FMD RALU-Display (Part # 3665)
Model(s) #	3665
Firmware version	N/A
Software version	v1.4.0
Serial Number	IR36650036

Technical Characteristics	
Frequency Range	2400 – 2483.5
RF O/P Power (Max.)	2.16 dBm
Modulation	GFSK
Bandwidth & Emission Class	1.06 MHz
Number of Channels	80
Duty Cycle	56.5%
Antenna Connector	N/A
Voltage Rating (AC or Batt.)	12 V DC

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	n/a	n/a	2 dBi

- Note: Information such as duty cycle, antenna gain, firmware/software numbers are provided by manufacturer and cannot be validated by the test lab.

3.2 Configuration of EUT

Test Modes						
Band (MHz)	Mode (#)	Mode (Type)	Test Frequencies (MHz)	BW (nominal)(kHz)	Modulation	Number of Antennas
2400 – 2483.5 MHz	1	GFSK	2402 MHz 2440 MHz 2480 MHz	kHz	GFSK (F1D)	1

Operating conditions during Testing:

No modifications of the device under test (including firmware, specific software settings, and input/output signal levels to the EUT).

Peripherals used during Testing:

A laptop provided by the manufacturer was used to program the EUT.

3.3 Test Setup of EUT

Equipment, antenna, and cable arrangement. The setup of the equipment and cable or wire placement on the test site that produces the highest radiated and the highest ac power line conducted emissions shall be shown clearly and described. Information on the orientation of portable equipment during testing shall be included. Drawings or photographs may be used for this purpose.

Test Setups are included in the test report.

4. Test methods & Applicable Regulatory Limits

4.1 Test methods/Standards/Guidance:

Test procedures and guidance for measuring Digital Transmission System (DTS) are provided in the FCC KDB 558074 D01 DTS Measurement Guidance and in Clause 11 of ANSI C63.10-2013.

1) ANSI C63.10-2013
2) FCC KDB 558074 D01

4.2 Applied Limits and Regulatory Limits:

3) FCC CFR 47 Part 15.247

5. Measurement Uncertainty

Parameter	Uncertainty (dB)
Conducted Emissions	± 3.14 dB
Radiated Emissions (9kHz – 30 MHz)	± 3.08 dB
Radiated Emissions (30 – 200 MHz)	± 2.16 dB
Radiated Emissions (200 – 1000 MHz)	± 2.15 dB
Radiated Emissions (1 GHz – 18 GHz)	± 2.14 dB
Radiated Emissions (18 GHz – 40 GHz)	± 2.31 dB
Note: The uncertainties provided in this table represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of K=2.	

6. Environmental Conditions

6.1 Temperature & Humidity

Measurements performed at the test site did not exceed the following:

Temperature	23 C +/- 5%
Humidity	55% +/- 5%
Barometric pressure	30.05 inHg
Note: Specific environmental conditions that are applicable to a specific test are available in the test result section.	

7. List of Test Equipment and Test Facility

The test equipment used identified by type, manufacturer, serial number, or other identification and the date on which the next calibration or service check is due.

Description of the firmware or software used to operate EUT for testing purposes.

A complete list of all test equipment used shall be included with the test report. The manufacturer's model and serial numbers, and date of last calibration, and calibration interval shall be included. Measurement cable loss, measuring instrument bandwidth and detector function, video bandwidth, if appropriate, and antenna factors shall also be included where applicable.

7.1 List of Test Equipment

Type	Device	Manufacturer	Model	SN#	Current Cal	Cal Due
Antenna	Biconical 1057	Eaton	94455-1	1057	10/16/2020	10/16/2023
Antenna, NSA	Log-Periodic 1243	Eaton	96005	1243	05/04/2021	05/03/2024
Antenna	Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	04/25/2020	04/25/2023
CHAMBER	CHAMBER	Panashield	3M	N/A	03/12/2019	12/21/2023
Pre-amp	Pre-amp	RF-LAMBDA	RLNA00M45GA	NA	02/27/2019	07/26/2025
Receiver	EMI Test Receiver R&S ESU 40	Rohde & Schwarz	ESU 40	100320	05/27/2021	05/26/2024

Software			
Software	Author	Version	Validation on
ESU Firmware	Rohde & Schwarz	4.43 SP3; BIOS v5.1-24-3	2018
RSCommander	Rohde & Schwarz	1.6.4	2014
ScopeExplorer	LeCroy	v2.25.0.0	2009
Field Strength	Timco	v4.10.7.0	2016

8. Test Results

The results of the test are usually indicated in the form of tables, spectrum analyzer plots, charts, sample calculations, as appropriate for each test procedure.

A description and/or a block diagram of the test setup is usually provided.

The measurement results, along with the appropriate limits for comparison, may be presented in tabular or graphical form. In addition, any variation in the measurement environment may be reported if applicable (e.g., a significant change of temperature that could affect the cable loss and amplifier response).

Unless noted otherwise in the referenced standard, the measurements of ac power-line conducted emissions and conducted power output will be reported in units of dBµV. Unless noted otherwise in the referenced standard, the measurements of radiated emissions will be reported in units of decibels, referenced to one microvolt per meter (dBµV/m) for electric fields, or to one ampere per meter (dBA/m) for magnetic fields, at the distance specified in the appropriate standards or requirements. The measurements of antenna-conducted power for receivers may be reported in units of dBµV if the impedance of the measuring instrument is also reported. Otherwise, antenna-conducted power will be reported in units of decibels referenced to one milliwatt (dBm). All formulas for data conversions and conversion factors, if used, will be included in this measurement report.

Example:

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBµV	+ 10.36 dB/m	+0.40 dB	=30.36 dBµV/m @ 3m

EIRP = Pcond (dBm) + dBi

8.1 Antenna Requirement

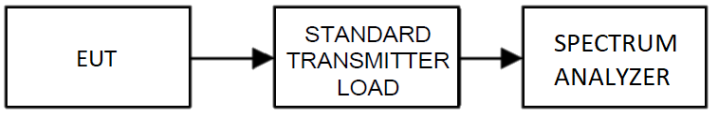
Limits from FCC Part 15.203.

8.1.1 Applicable Standard

According to 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 this device.

8.2 Conducted Output Power

Limits from FCC Part 15.247 (b) (1) – (4) as applicable, and test procedure from ANSI C63.10-2013 section 7.8 or 11.9 as applicable.

Test Setup


Output Power Test Results

Test Results, Mode 1	
Tuned Frequency (MHz)	Power Output (dBm)
2402	2.10
2440	2.15
2480	2.16

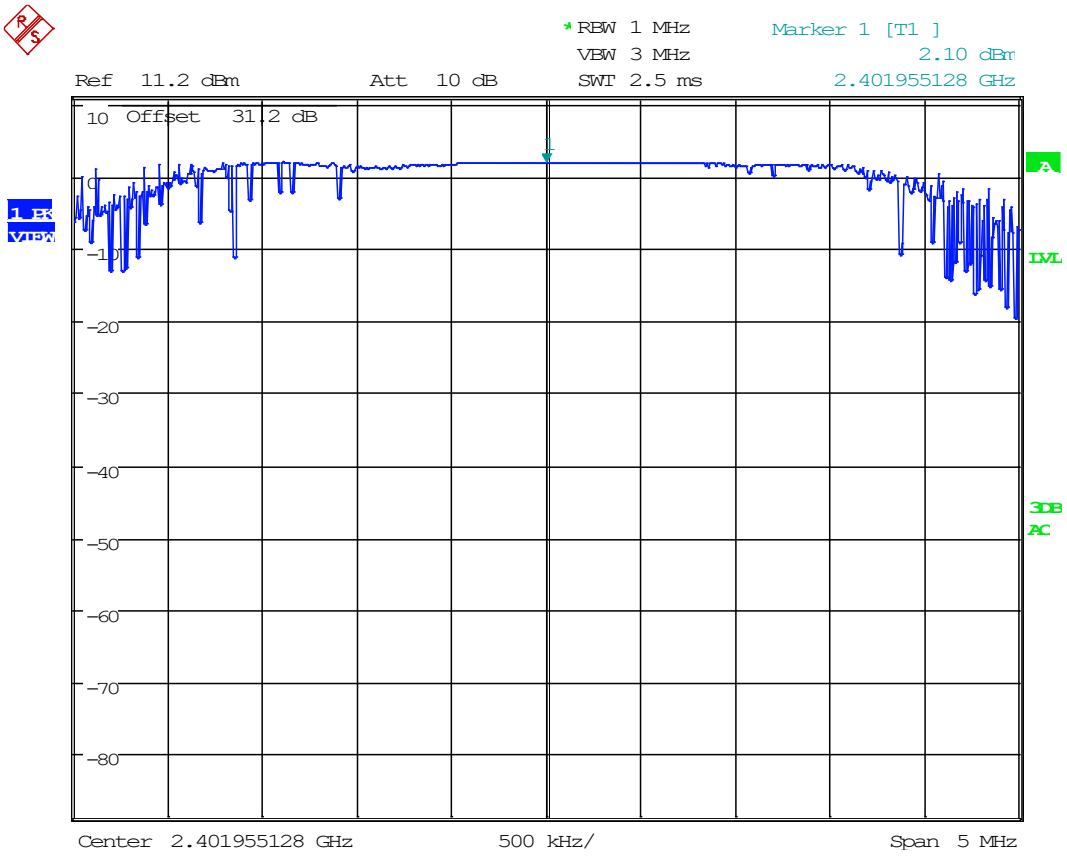
- MAXIMUM Conducted Output Power = 2.16 dBm

Point-to-Point - N/A. The EUT is not a PtP device.

MIMO - N/A. The EUT is not a MIMO device.

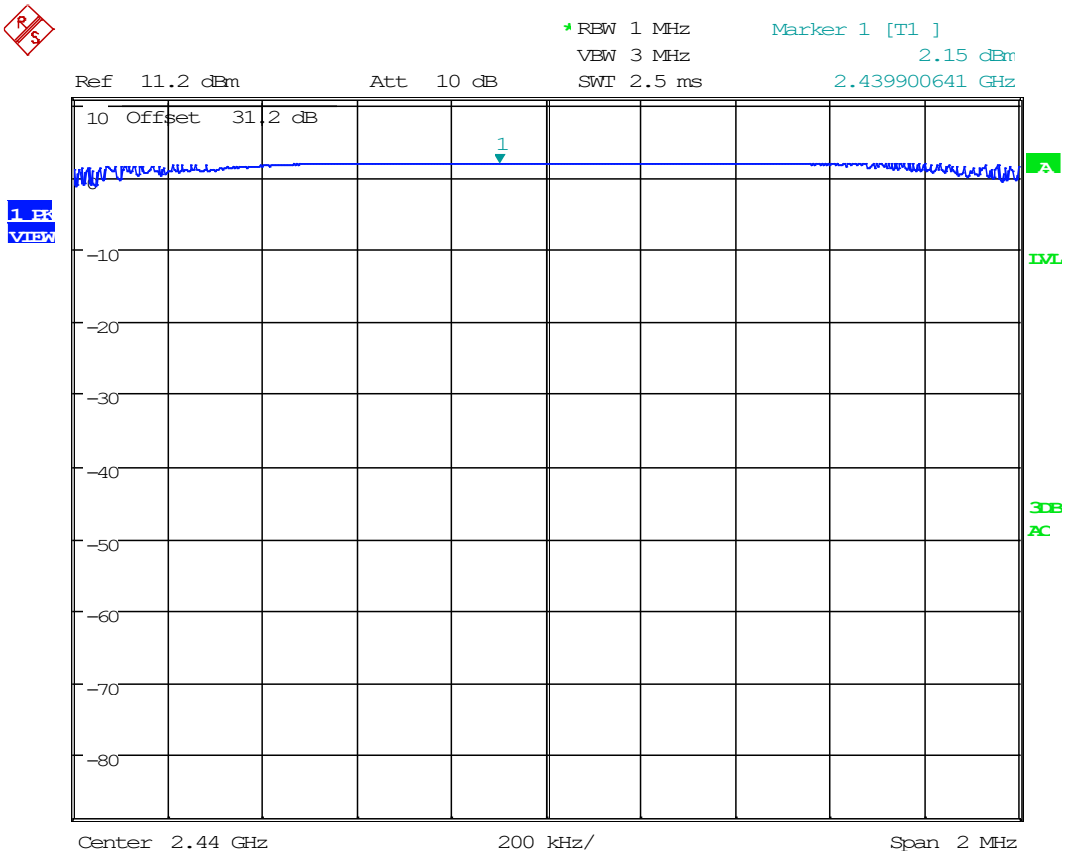
Conducted Output Power, Spectrum Plots

8.2.1 Conducted Output Power, 2402 MHz



Date: 22.MAR.2023 08:55:03

8.2.2 Conducted Output Power, 2440 MHz



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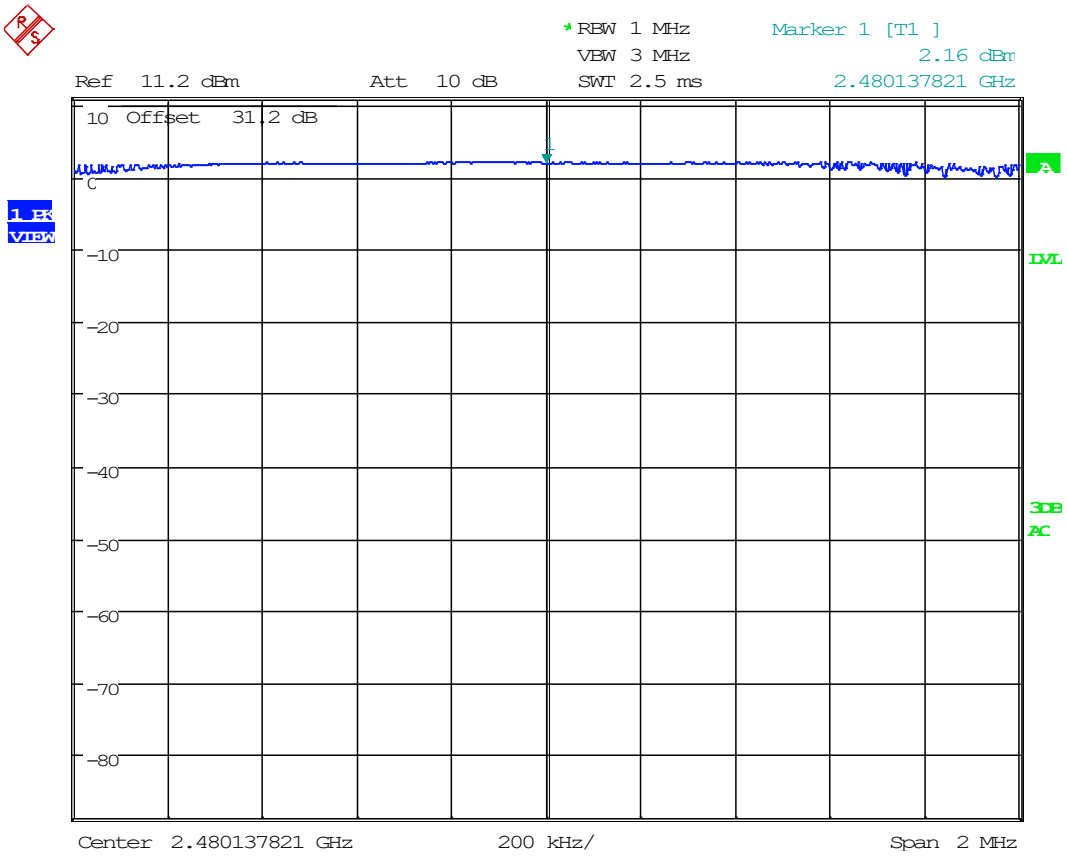
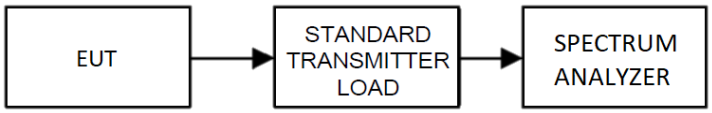
8.2.3 Conducted Output Power, 2480 MHz



Date: 22.MAR.2023 08:57:04

8.3 Occupied Bandwidth

Requirement from FCC KDB 558074 D01 and test procedure from ANSI C63.10-2013 section 6.9.3

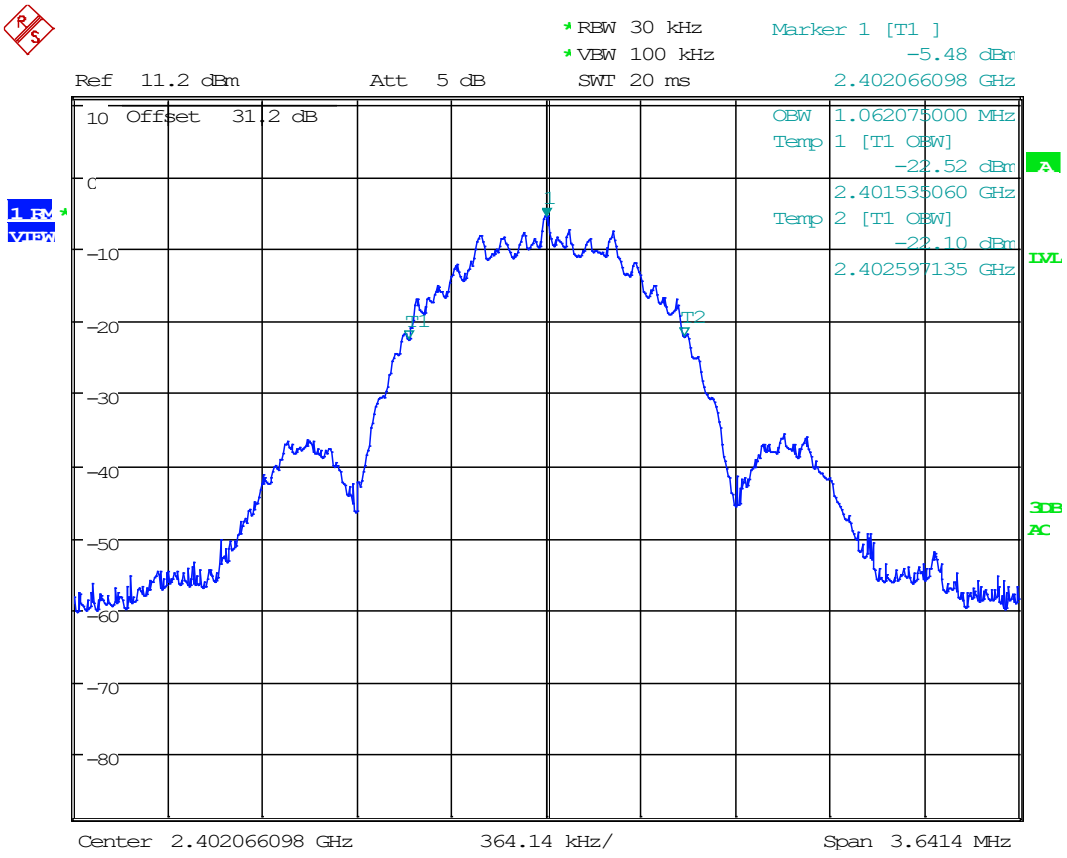
Test Setup


99% BW Test Results

Tuned Frequency (MHz)	99% BW (MHz)
2402	1.06
2440	1.06
2480	1.06

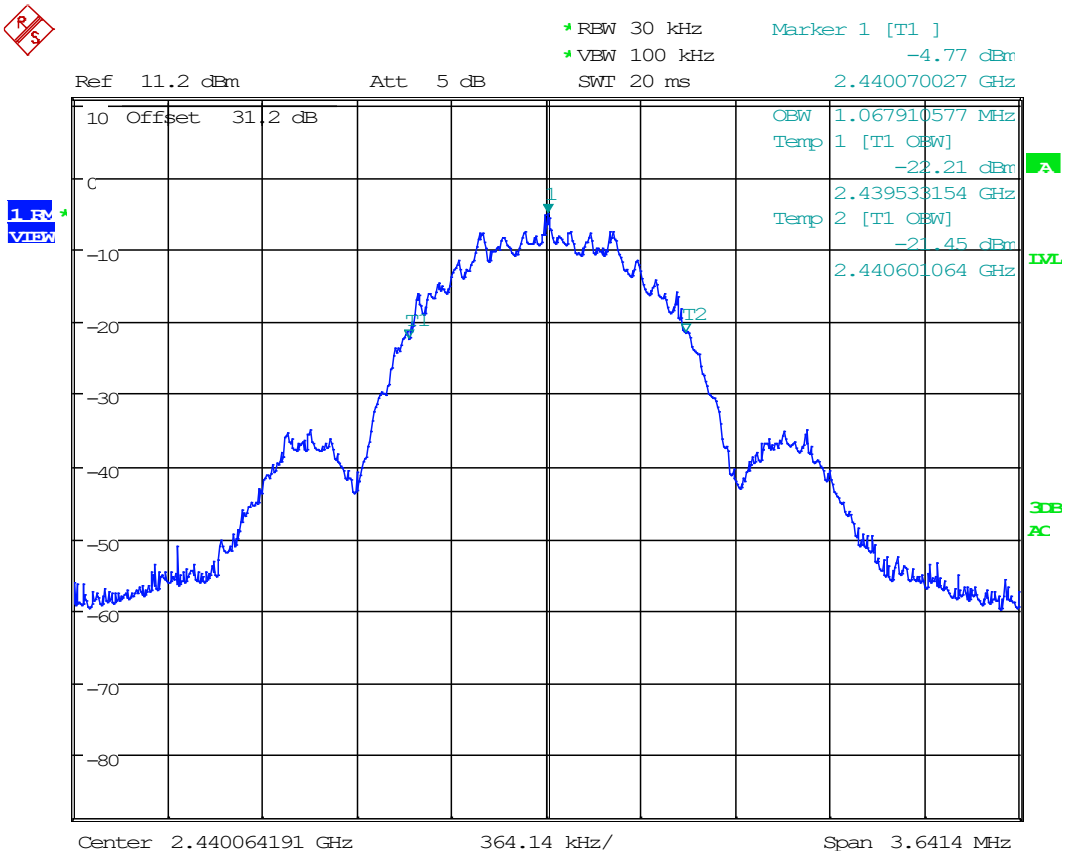
99% Occupied Bandwidth, Spectrum Plots

8.3.1 99% Occupied Bandwidth, 2402 MHz

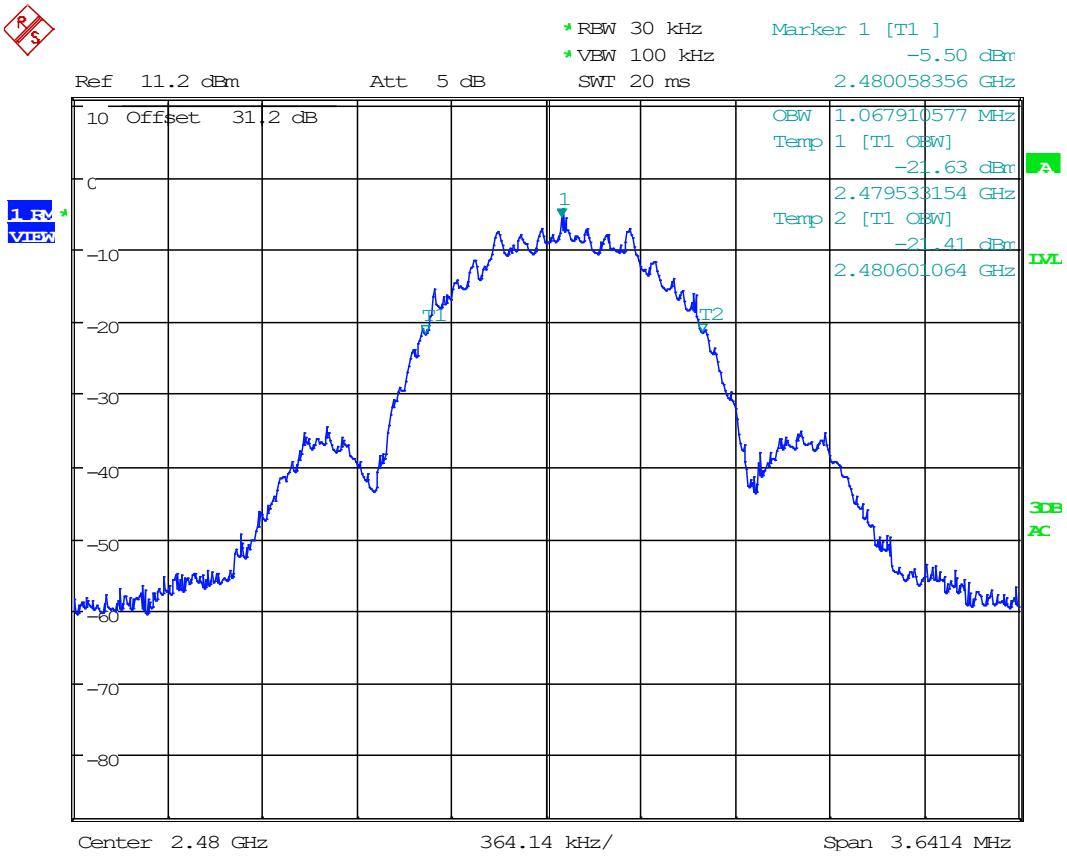


Date: 22.MAR.2023 09:37:17

8.3.2 99% Occupied Bandwidth, 2440 MHz



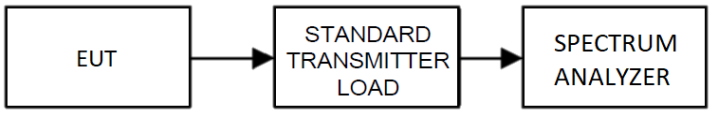
8.3.3 99% Occupied Bandwidth, 2480 MHz



Date: 22.MAR.2023 09:49:49

8.4 20dB Bandwidth

Limits from FCC Part 15.247 (a)(1) – (2) as applicable, and test procedure from ANSI C63.10-2013 section 7.8 or 11.8 as applicable.

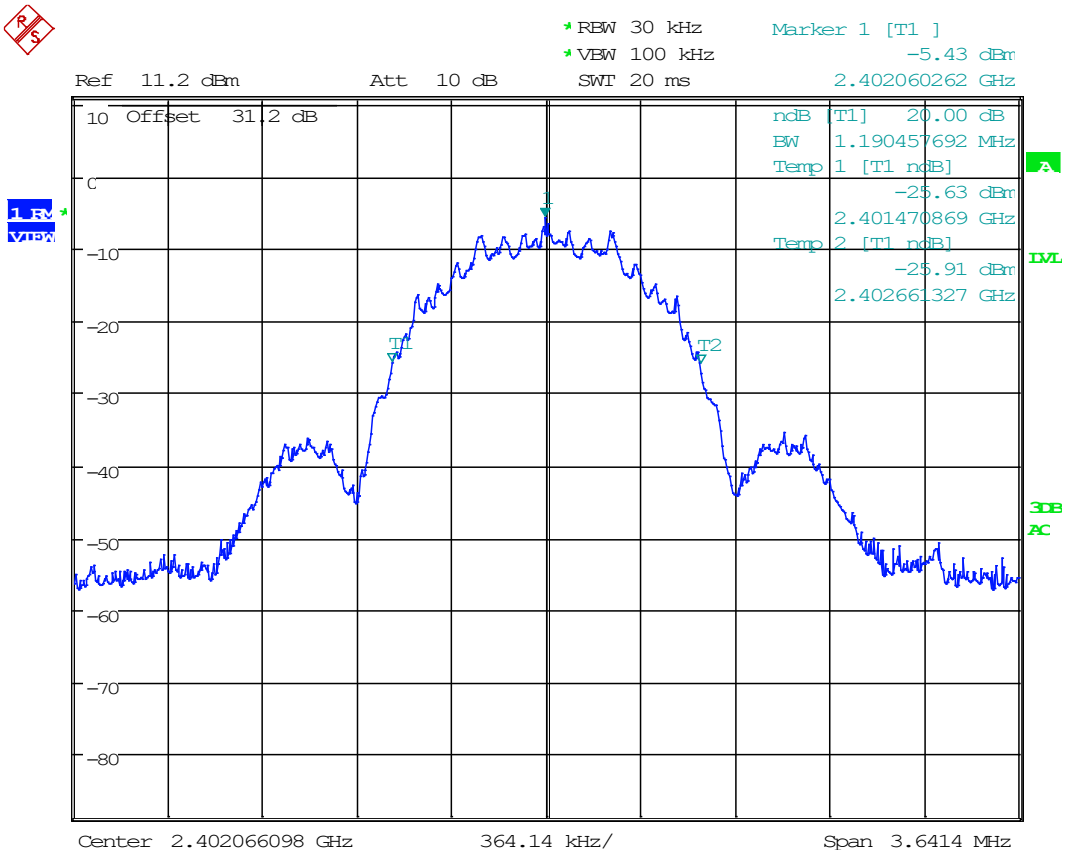
Test Setup


20dB Bandwidth Test Results

Test Results, Mode 1	
Tuned Frequency (MHz)	20dB Bandwidth (MHz)
2402	1.19
2440	1.18
2480	1.14

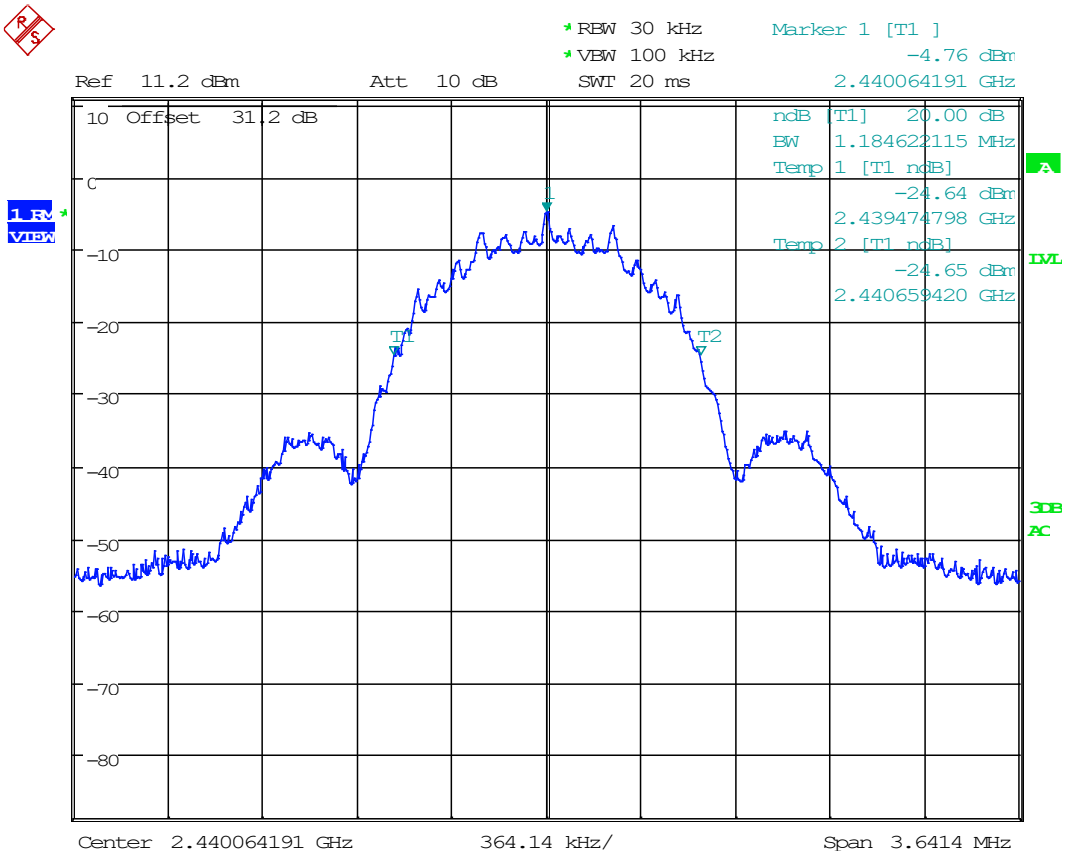
20dB Bandwidth, Spectrum Plots

8.4.1 20 dB Bandwidth, 2402 MHz



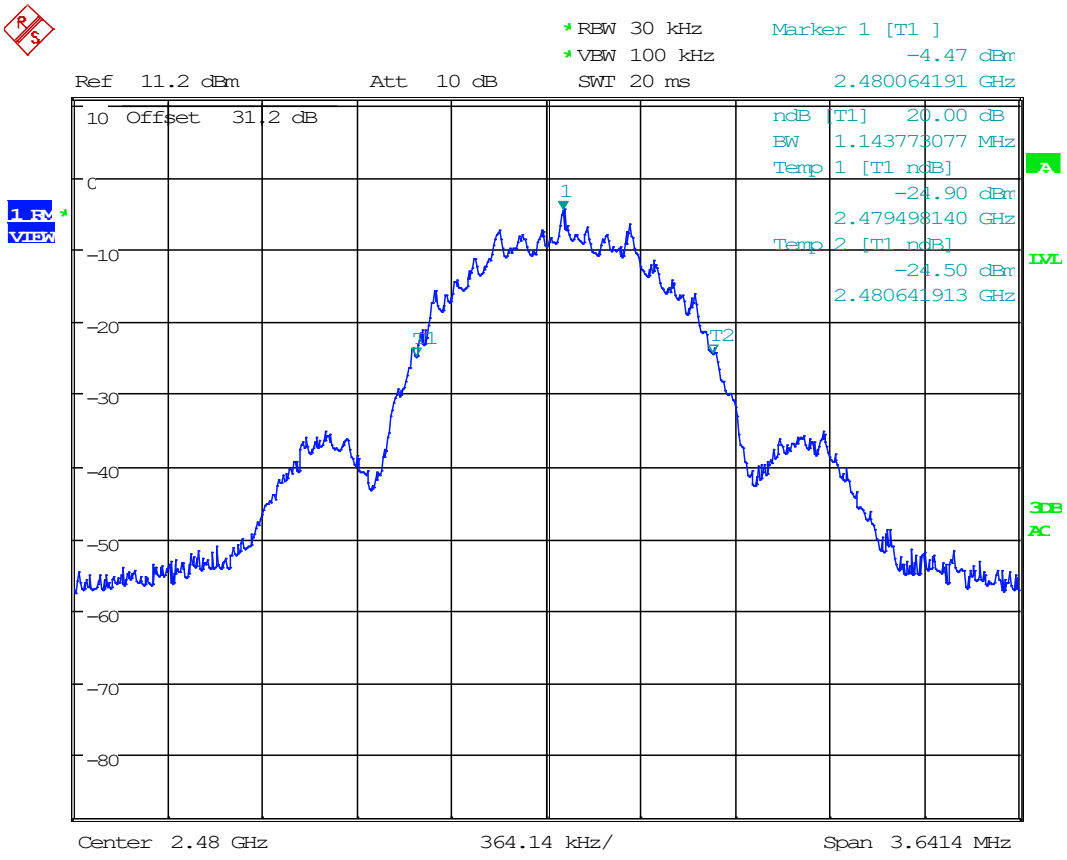
Date: 22.MAR.2023 09:41:34

8.4.2 20 dB Bandwidth, 2440 MHz



Date: 22.MAR.2023 09:44:18

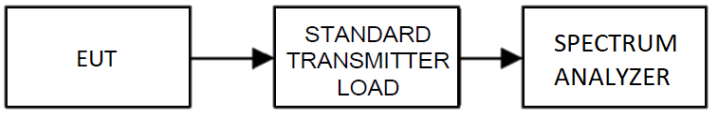
8.4.3 20 dB Bandwidth, 2480 MHz



Date: 22.MAR.2023 09:50:13

8.5 Hopping Characteristics

Limits from FCC 15.247(a)(1)(i) or 15.247 (f) as applicable, and test procedure from ANSI C63.10-2013 section 11.10

Test Setup


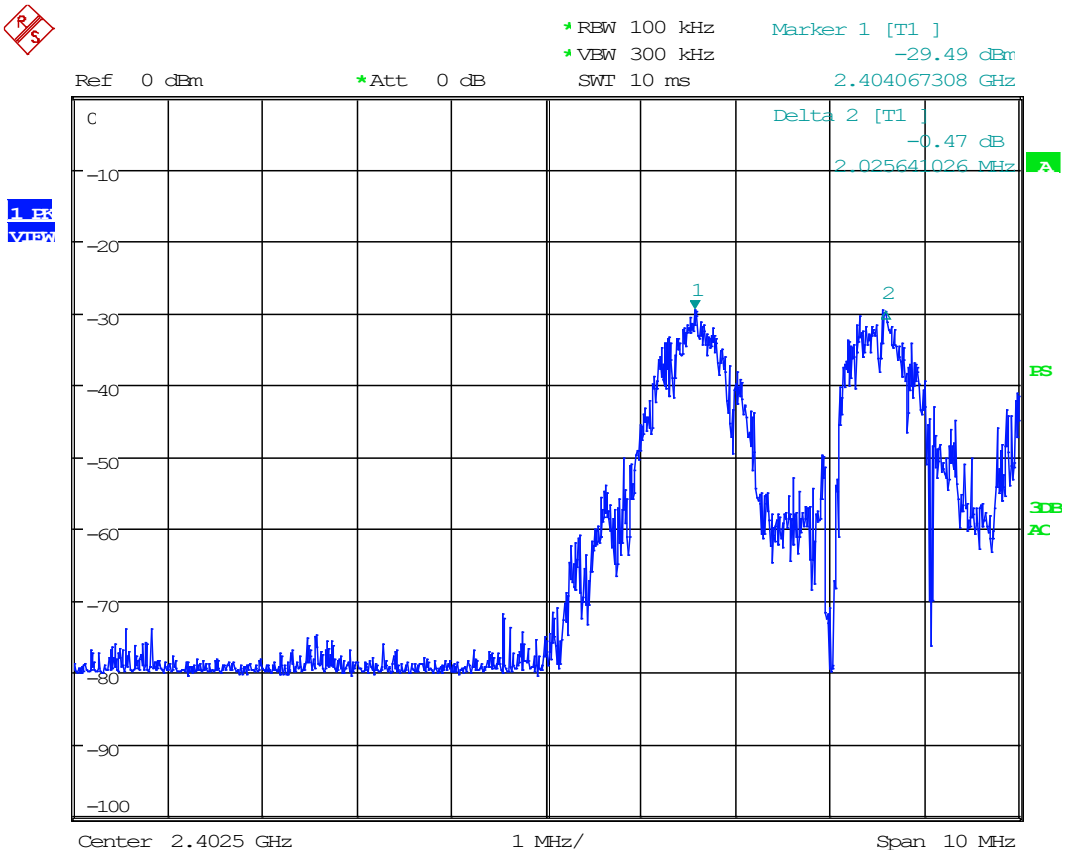
Test Results	
Carrier Frequency Separation	2.02 MHz
Number of Hopping Frequencies	37
Time of Occupancy	0.004 ms

8.5.1 Hopping Channel Occupancy Time

Number of hops	Dwell Time (ms)	Total Occupancy Time (ms)	Limit (sec)	Pass / Fail
37	0.114	0.004218	≤ 0.4	Pass

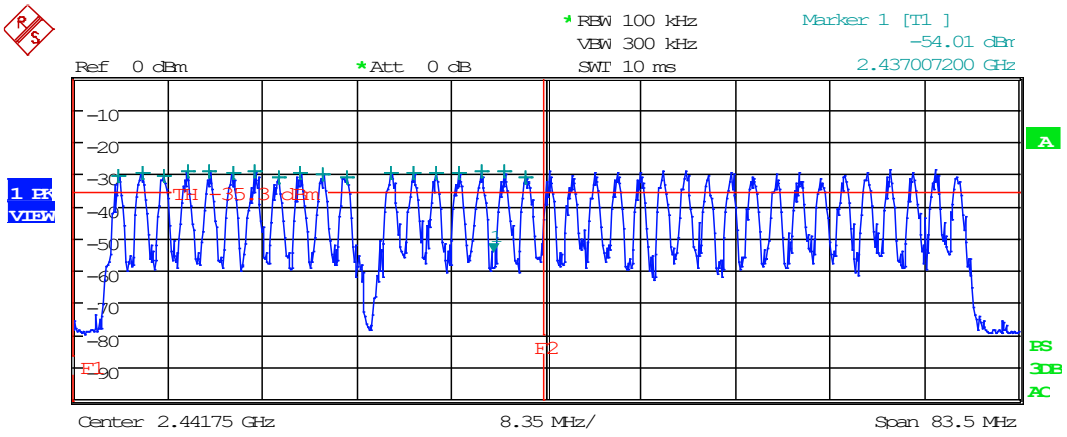
Hopping Characteristics, Spectrum Plots

8.5.2 Carrier Frequency Separation Plot



Date: 20.MAR.2023 11:23:31

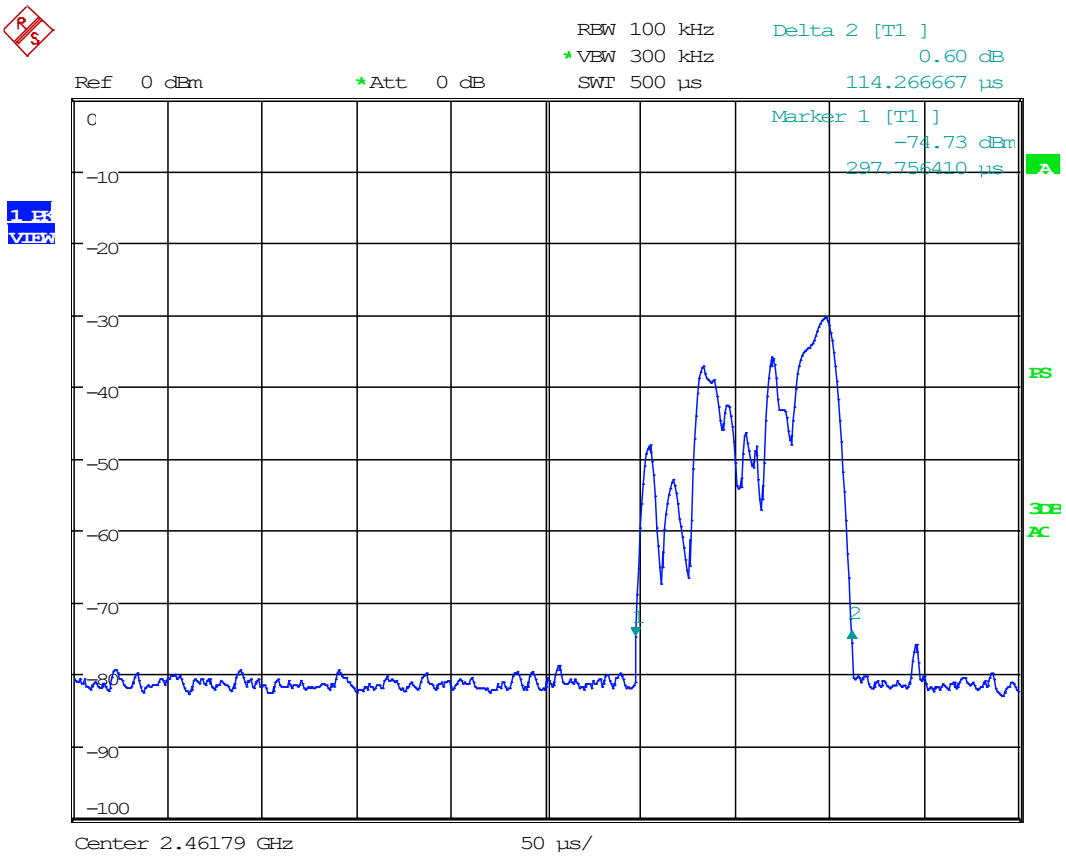
8.5.3 Number of Hopping Frequencies Plot



#	Frequency	Level	#	Frequency	Level
1	2.403941 GHz	-30.90 dBm	13	2.430060 GHz	-29.85 dBm
2	2.406079 GHz	-29.93 dBm	14	2.432064 GHz	-29.81 dBm
3	2.408016 GHz	-30.65 dBm	15	2.434068 GHz	-29.89 dBm
4	2.410087 GHz	-29.18 dBm	16	2.436072 GHz	-29.36 dBm
5	2.412024 GHz	-29.23 dBm	17	2.438076 GHz	-29.22 dBm
6	2.414095 GHz	-29.62 dBm	18	2.439880 GHz	-31.39 dBm
7	2.416032 GHz	-29.56 dBm			
8	2.418103 GHz	-31.16 dBm			
9	2.420040 GHz	-29.79 dBm			
10	2.422044 GHz	-30.25 dBm			
11	2.424115 GHz	-31.41 dBm			
12	2.428056 GHz	-29.64 dBm			

Date: 20.MAR.2023 10:40:15

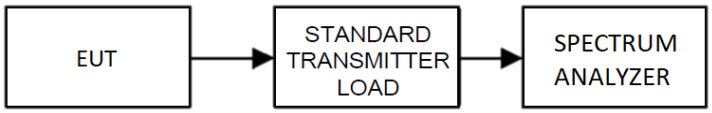
8.5.4 Time of Occupancy Plot



Date: 20.MAR.2023 11:32:40

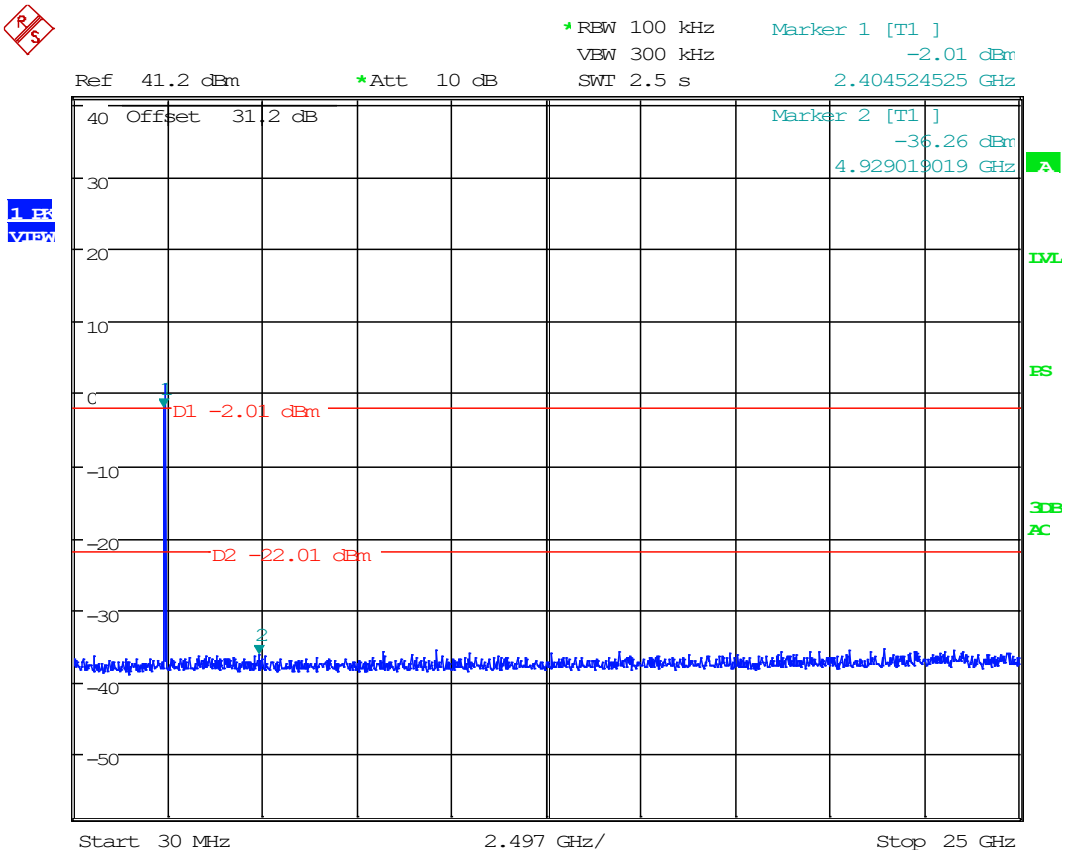
8.6 Emissions in Nonrestricted Frequency Bands (Out of Band)

Limits from FCC Part 15.247 (d) and 15.215 (b) and test procedure from ANSI C63.10-2013 section 7.8 or 11.11 as applicable.

Conducted Test Setup


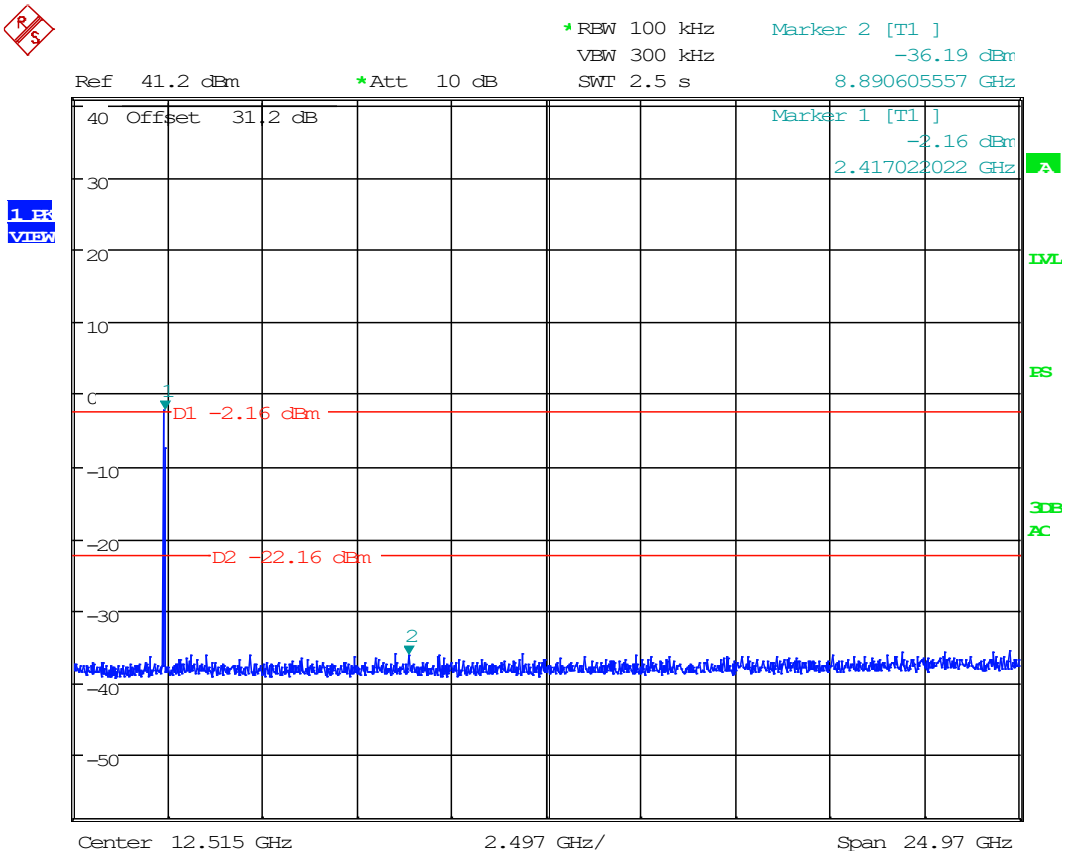
Conducted Emissions in Non-Restricted Bands, Spectrum Plots

8.6.1 Conducted Emissions Test Data, 2402 MHz



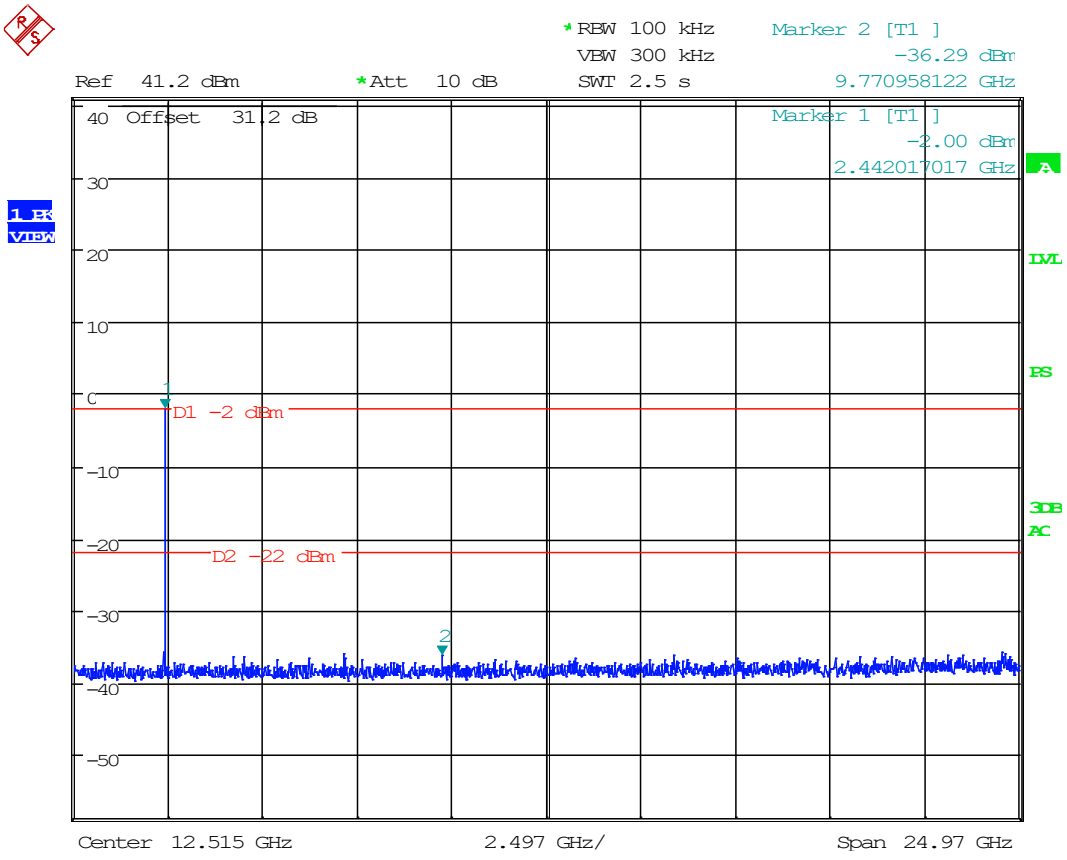
Date: 20.MAR.2023 12:22:23

8.6.2 Conducted Emissions Test Data, 2440 MHz



Date: 20.MAR.2023 12:27:50

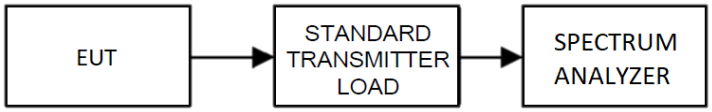
8.6.3 Conducted Emissions Test Data, 2480 MHz



Date: 20.MAR.2023 12:30:37

8.7 Power Spectral Density

Limits from 15.247 (e) as applicable, and test procedure from ANSI C63.10-2013 section 11.10.

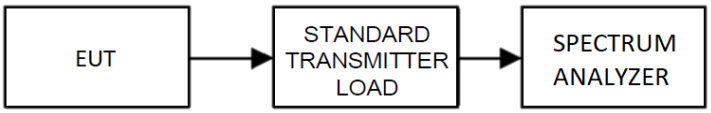
Test Setup


N/A. The EUT is not a DTS or Hybrid device.

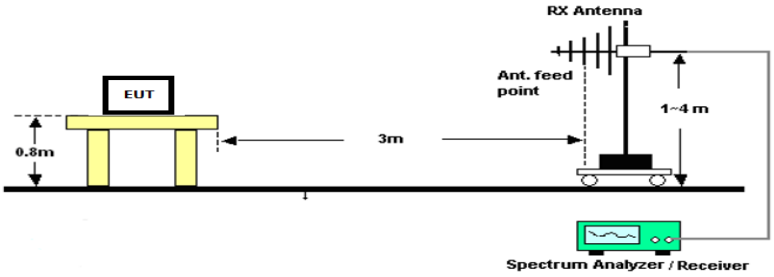
8.8 Band-edge measurements

Requirement from FCC KDB 558074 D01 and test procedure from ANSI C63.10-2013 section 7.8 or 11.13 as applicable.

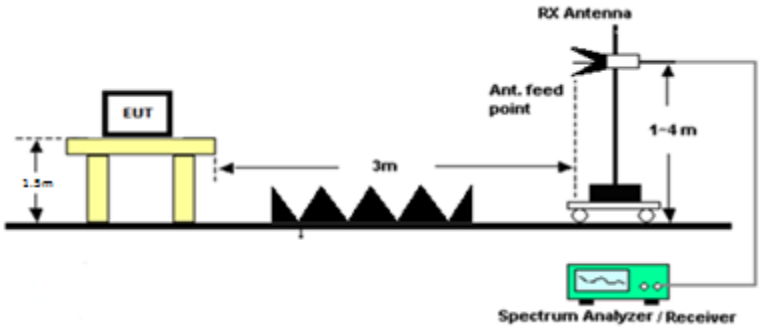
Conducted Test Setup



Radiated Test Setup, 30 – 1000 MHz

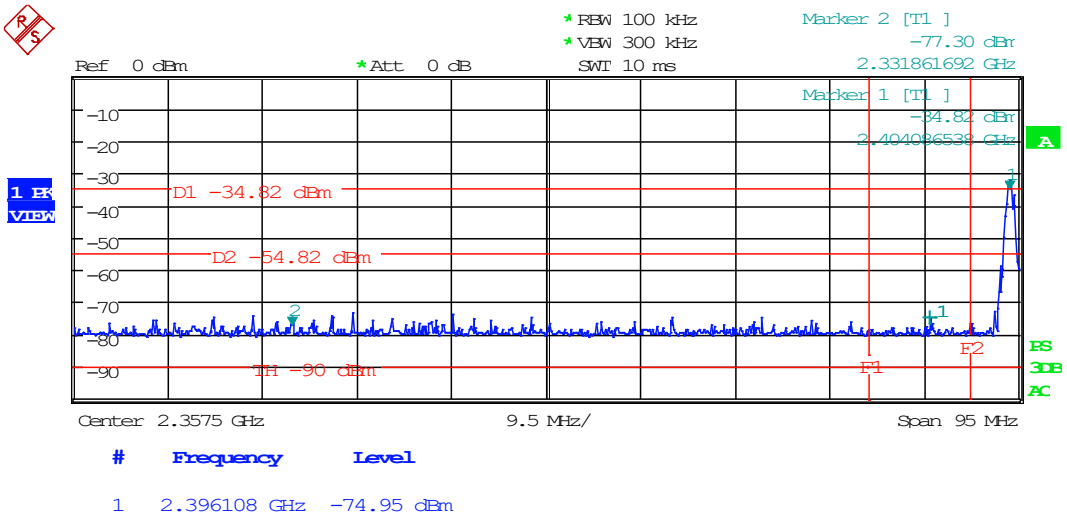


Radiated Test Setup, Above 1000 MHz



Band-edge Spectrum Plots

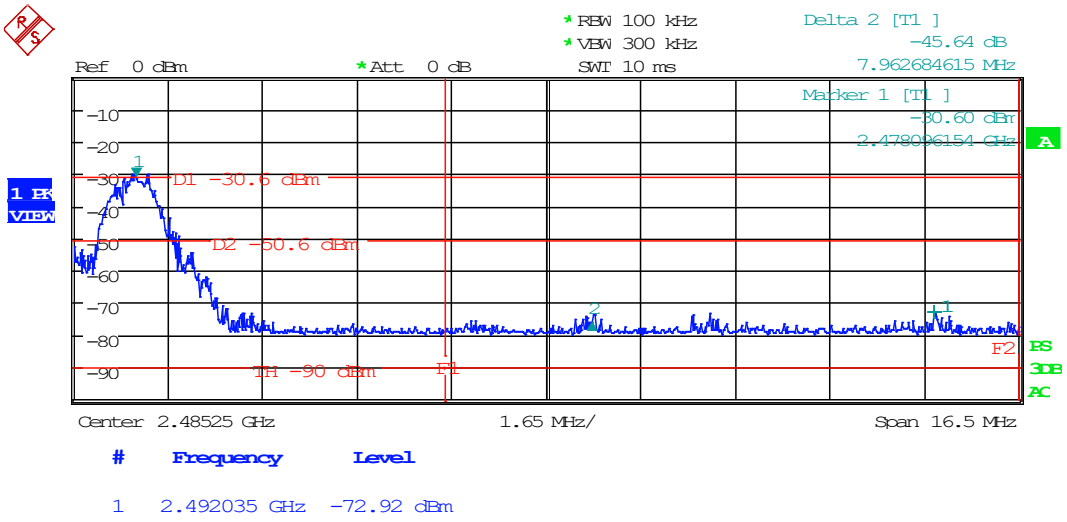
8.8.1 Lower Band Edge Plot, Stopped, 2402 MHz



#	Frequency	Level
1	2.396108 GHz	-74.95 dBm

Date: 20.MAR.2023 10:47:44

8.8.2 Upper Band Edge Plot, Stopped, 2480 MHz



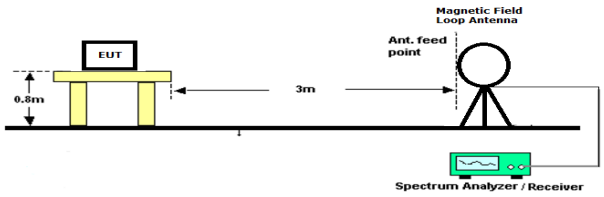
Date: 20.MAR.2023 11:07:44

Tuned Frequency (MHz)	Emission Frequency (MHz)	15.205 Restricted Band	15.205, 15.35, 15.247(d) Detector	Meter Reading (dBµV)	Antenna Polarity	Coax Loss (dB)	Duty Cycle Correction (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	Delta	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2480.00	2492.04	X	PK	18.30	H	5.62	0.00	32.21	3.00	56.13	45.64	10.49	73.98	63.49
2480.00	2492.04	X	PK	25.20	V	5.62	0.00	32.21	3.00	63.03	45.64	17.39	73.98	56.59
2480.00	2492.04	X	AVG	5.50	H	5.62	0.00	32.21	3.00	43.33	45.64	-2.31	53.98	56.29
2480.00	2492.04	X	AVG	16.00	V	5.62	0.00	32.21	3.00	53.83	45.64	8.19	53.98	45.79

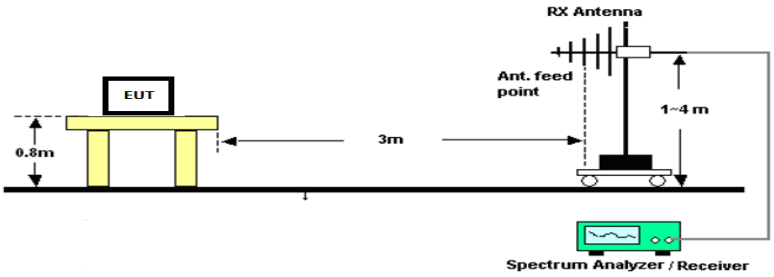
8.9 Radiated Emissions

Restricted Bands from FCC Part 15.205; Limits from FCC Part 15.209

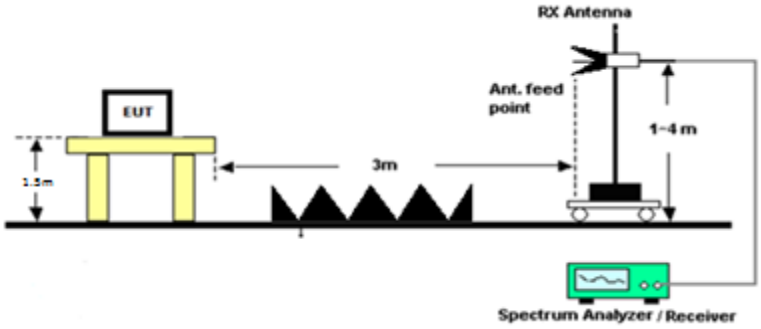
Radiated Test Setup, Below 30 MHz



Radiated Test Setup, 30 – 1000 MHz



Radiated Test Setup, Above 1000 MHz



Radiated Emissions in Restricted Bands, Tabular Data

8.9.1 Radiated Emissions, 2402 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	15.205 Restricted Band	15.205, 15.35, 15.247(d) Detector	Meter Reading (dBµV)	Antenna Polarity	Coax Loss (dB)	Duty Cycle Correction (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2402.00	4804.00	X	PK	11.60	H	7.10	-4.88	33.93	3.00	47.75	73.98	26.23
2402.00	4804.00	X	PK	2.70	V	7.10	-4.88	33.93	3.00	38.85	73.98	35.13
2402.00	4804.00	X	AVG	3.20	H	7.10	-4.88	33.93	3.00	39.35	53.98	14.63
2402.00	4804.00	X	AVG	-7.20	V	7.10	-4.88	33.93	3.00	28.95	53.98	25.03
2402.00	7206.00		PK	9.70	H	9.54	-4.88	36.39	3.00	50.75	53.98	3.23
2402.00	7206.00		PK		V	9.54	-4.88	36.39	3.00	41.05	53.98	12.93
2402.00	9608.00		PK	-2.00	H	10.70	-4.88	36.62	3.00	40.44	53.98	13.54
2402.00	9608.00		PK	1.10	V	10.70	-4.88	36.62	3.00	43.54	53.98	10.44
2402.00	12010.00	X	PK	-4.00	H	12.40	-4.88	39.08	3.00	42.59	73.98	31.39
2402.00	12010.00	X	PK	-1.90	V	12.40	-4.88	39.08	3.00	44.69	73.98	29.29
2402.00	12010.00	X	AVG	-17.20	H	12.40	-4.88	39.08	3.00	29.39	53.98	24.59
2402.00	12010.00	X	AVG	-14.70	V	12.40	-4.88	39.08	3.00	31.89	53.98	22.09
2402.00	14412.00		PK	-5.30	H	13.35	-4.88	39.75	3.00	42.92	53.98	11.06
2402.00	14412.00		PK	-4.80	V	13.35	-4.88	39.75	3.00	43.42	53.98	10.56
2402.00	16814.00		PK	-5.60	H	14.60	-4.88	42.34	3.00	46.46	53.98	7.52
2402.00	16814.00		PK	-6.10	V	14.60	-4.88	42.34	3.00	45.96	53.98	8.02

8.9.2 Radiated Emissions, 2440 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	15.205 Restricted Band	15.205, 15.35, 15.247(d) Detector	Meter Reading (dBµV)	Antenna Polarity	Coax Loss (dB)	Duty Cycle Correction (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2440.00	4880.00	X	PK	8.30	H	7.33	-4.88	33.93	3.00	44.67	73.98	29.31
2440.00	4880.00	X	PK	7.00	V	7.33	-4.88	33.93	3.00	43.37	73.98	30.61
2440.00	4880.00	X	AVG	2.40	H	7.33	-4.88	33.93	3.00	38.77	53.98	15.21
2440.00	4880.00	X	AVG	3.20	V	7.33	-4.88	33.93	3.00	39.57	53.98	14.41
2440.00	7320.00	X	PK	17.10	H	9.61	-4.88	36.24	3.00	58.06	73.98	15.91
2440.00	7320.00	X	PK	9.00	V	9.61	-4.88	36.24	3.00	49.96	73.98	24.01
2440.00	7320.00	X	AVG	12.40	H	9.61	-4.88	36.24	3.00	53.36	53.98	0.61
2440.00	7320.00	X	AVG	1.10	V	9.61	-4.88	36.24	3.00	42.06	53.98	11.91
2440.00	9760.00		PK	-1.20	H	10.98	-4.88	36.83	3.00	41.72	53.98	12.26
2440.00	9760.00		PK	-1.20	V	10.98	-4.88	36.83	3.00	41.72	53.98	12.26
2440.00	12200.00	X	PK	-4.10	H	12.52	-4.88	39.23	3.00	42.77	73.98	31.21
2440.00	12200.00	X	PK	-3.50	V	12.52	-4.88	39.23	3.00	43.37	73.98	30.61
2440.00	12200.00	X	AVG	-16.50	H	12.52	-4.88	39.23	3.00	30.37	53.98	23.61
2440.00	12200.00	X	AVG	-16.40	V	12.52	-4.88	39.23	3.00	30.47	53.98	23.51
2440.00	14640.00		PK	-5.30	H	13.68	-4.88	40.27	3.00	43.76	53.98	10.22
2440.00	14640.00		PK	-4.50	V	13.68	-4.88	40.27	3.00	44.56	53.98	9.42
2440.00	17080.00		PK	-4.10	H	14.72	-4.88	42.43	3.00	48.17	53.98	5.81
2440.00	17080.00		PK	-4.30	V	14.72	-4.88	42.43	3.00	47.97	53.98	6.01

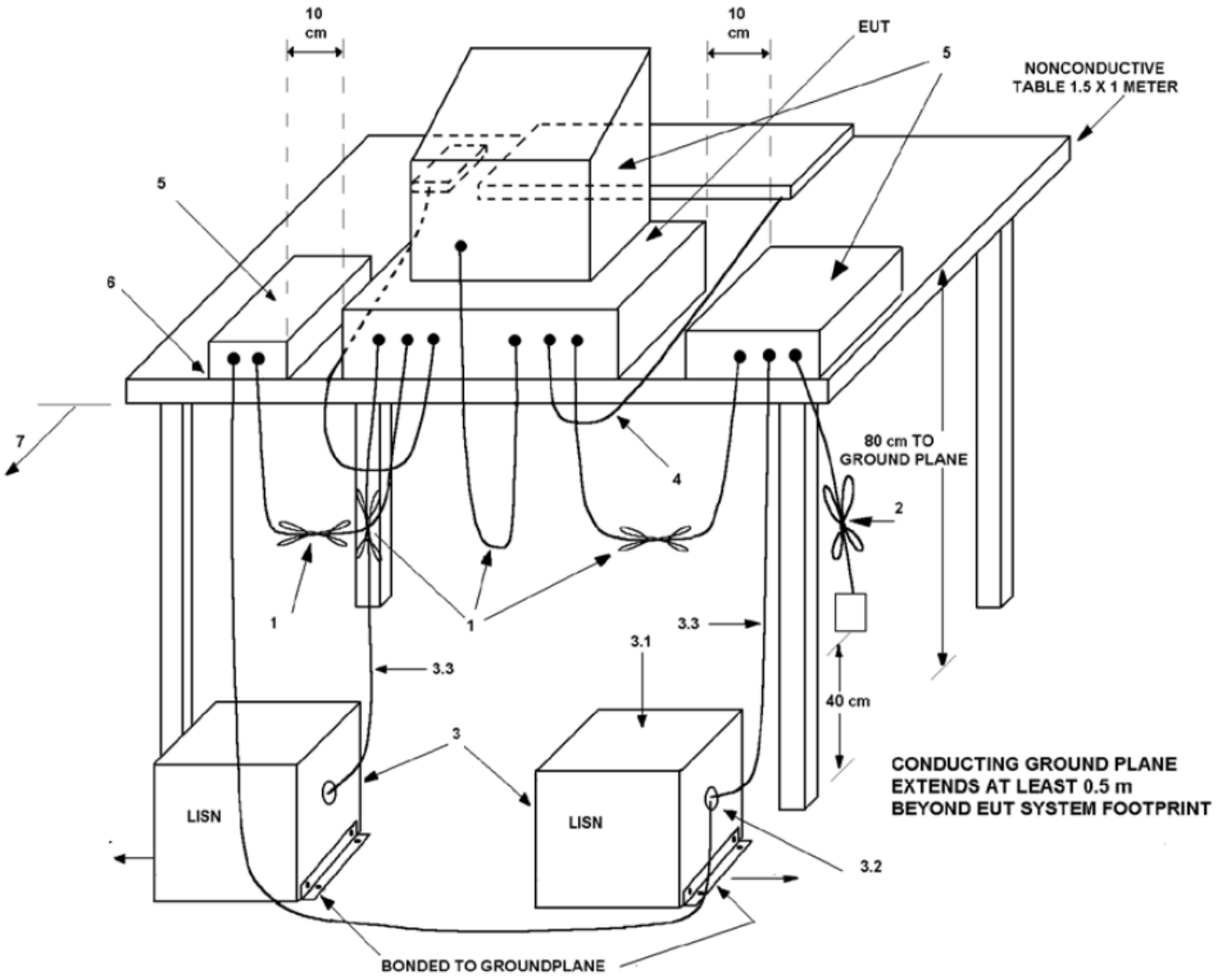
8.9.3 Radiated Emissions, 2480 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	15.205 Restricted Band	15.205, 15.35, 15.247(d) Detector	Meter Reading (dBµV)	Antenna Polarity	Coax Loss (dB)	Duty Cycle Correction (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2480.00	4960.00	X	PK	13.00	H	7.72	-4.88	33.96	3.00	49.80	73.98	24.18
2480.00	4960.00	X	PK	12.50	V	7.72	-4.88	33.96	3.00	49.30	73.98	24.68
2480.00	4960.00	X	AVG	8.10	H	7.72	-4.88	33.96	3.00	44.90	53.98	9.08
2480.00	4960.00	X	AVG	7.50	V	7.72	-4.88	33.96	3.00	44.30	53.98	9.68
2480.00	7440.00	X	PK	16.50	H	9.56	-4.88	36.01	3.00	57.19	73.98	16.79
2480.00	7440.00	X	PK	19.00	V	9.56	-4.88	36.01	3.00	59.69	73.98	14.29
2480.00	7440.00	X	AVG	8.10	H	9.56	-4.88	36.01	3.00	48.79	53.98	5.19
2480.00	7440.00	X	AVG	7.50	V	9.56	-4.88	36.01	3.00	48.19	53.98	5.79
2480.00	9920.00		PK	0.30	H	11.15	-4.88	37.08	3.00	43.65	53.98	10.33
2480.00	9920.00		PK	-12.80	V	11.15	-4.88	37.08	3.00	30.55	53.98	23.43
2480.00	12400.00	X	PK	-2.80	H	12.54	-4.88	39.23	3.00	44.09	73.98	29.89
2480.00	12400.00	X	PK	-2.40	V	12.54	-4.88	39.23	3.00	44.49	73.98	29.49
2480.00	12400.00	X	AVG	-15.50	H	12.54	-4.88	39.23	3.00	31.39	53.98	22.59
2480.00	12400.00	X	AVG	-15.70	V	12.54	-4.88	39.23	3.00	31.19	53.98	22.79
2480.00	14880.00		PK	-4.60	H	13.44	-4.88	40.29	3.00	44.25	53.98	9.73
2480.00	14880.00		PK	-4.60	V	13.44	-4.88	40.29	3.00	44.25	53.98	9.73
2480.00	17360.00		PK	-3.90	H	15.01	-4.88	42.52	3.00	48.74	53.98	5.24
2480.00	17360.00		PK	-17.10	V	15.01	-4.88	42.52	3.00	35.54	53.98	18.44

8.10 Conducted Emissions

Limits from FCC 15.207 and test procedure from ANSI C63.4-2014.

Conducted Test Setup



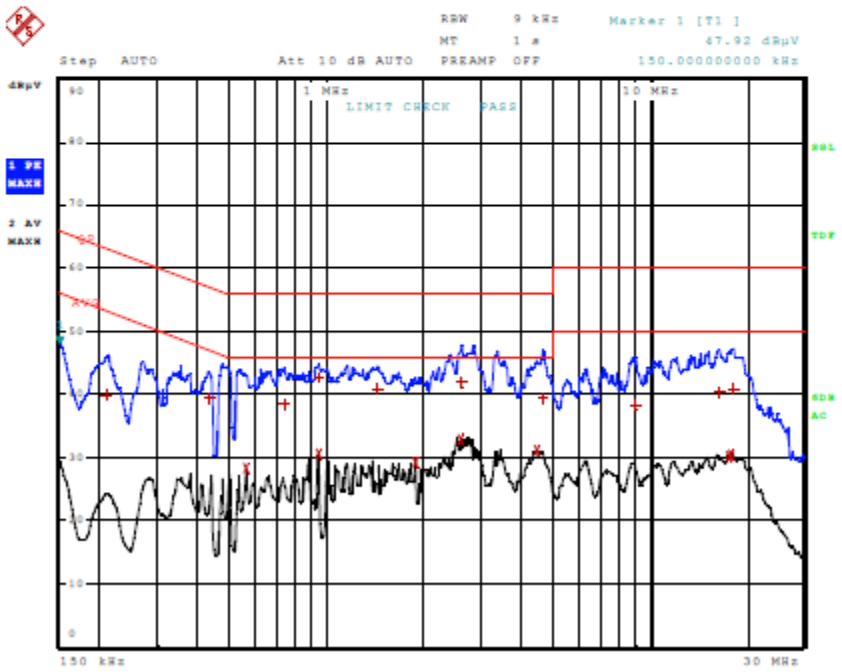
8.10.1 Line 1 Plot

06.Apr 23 11:46

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.10.2 Line 1 Table

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 17

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	210.000000000 kHz	39.78	Quasi Peak	-23.43
1	430.000000000 kHz	39.51	Quasi Peak	-17.74
2	562.000000000 kHz	28.24	Average	-17.76
1	734.000000000 kHz	38.55	Quasi Peak	-17.45
1	942.000000000 kHz	42.66	Quasi Peak	-13.34
2	942.000000000 kHz	30.45	Average	-15.55
1	1.426000000 MHz	40.72	Quasi Peak	-15.28
2	1.882000000 MHz	29.25	Average	-16.75
2	2.602000000 MHz	32.84	Average	-13.16
1	2.630000000 MHz	41.95	Quasi Peak	-14.05
2	4.482000000 MHz	31.07	Average	-14.93
1	4.658000000 MHz	39.37	Quasi Peak	-16.63
1	9.066000000 MHz	38.22	Quasi Peak	-21.78
1	16.426000000 MHz	40.31	Quasi Peak	-19.69
2	17.570000000 MHz	30.07	Average	-19.93
2	17.810000000 MHz	30.29	Average	-19.71
1	18.162000000 MHz	40.75	Quasi Peak	-19.25

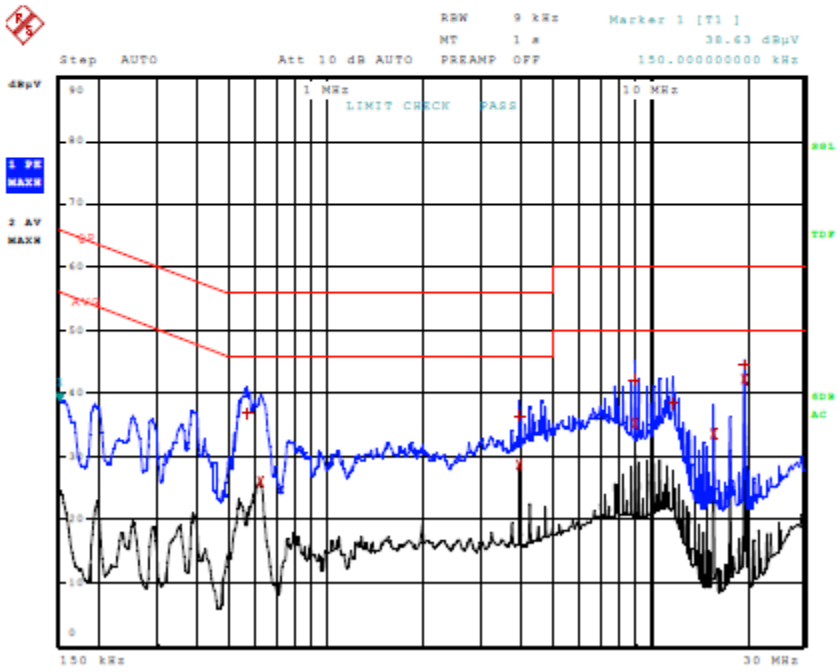
8.10.3 Line 2 Plot

06.Apr 23 14:51

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.10.4 Line 2 Table

06.Apr 23 14:51

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 10

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	566.000000000 kHz	36.83	Quasi Peak	-19.17
2	622.000000000 kHz	25.90	Average	-20.10
1	3.938000000 MHz	36.43	Quasi Peak	-19.57
2	3.938000000 MHz	28.71	Average	-17.29
1	9.002000000 MHz	42.04	Quasi Peak	-17.96
2	9.002000000 MHz	35.29	Average	-14.71
1	11.750000000 MHz	38.51	Quasi Peak	-21.49
2	15.754000000 MHz	33.48	Average	-16.52
1	19.694000000 MHz	44.53	Quasi Peak	-15.47
2	19.694000000 MHz	42.27	Average	-7.73

9. ANNEX-A - Photographs of the EUT

Photographs of the EUT and any manufacturer supplied accessories to be used with the EUT are in separate supplementary documents labelled EXTERNAL PHOTOS and INTERNAL PHOTOS.

10. ANNEX-B – Test Setup Photographs

Test setup photographs are located in a separate supplementary ANNEX-B document.

11. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_7102-23_FCC 15.247_	1	Initial release	6/16/2023
	2	Pg.7 added Antenna Characteristics table and note.	09/29/2023

END OF TEST REPORT