TEST REPORT

Report Number: 105874658MPK-015
Project Number: G105874658
Original Issue Date: November 15, 2024
Revised Date: May 29, 2025

Testing performed on
Adante Orthopedic Surgical Platform
Model Number: 6895AX-00

FCC ID: 2BLVL-649846

to

FCC Part 15 Subpart C (15.247)
ISED RSS-247 Issue 3

For

Mizuho Orthopedic Systems Inc.

Test Performed by:	**Test Authorized by:**
Intertek	Mizuho Orthopedic Systems Inc.
1365 Adams Court	30031 Ahern Avenue
Menlo Park, CA 94025 USA	Union City, CA 94587

Prepared by: _____ **Date:** November 15, 2024
Erica Chan

Reviewed by: _____ **Date:** November 15, 2024
Anderson Soungpanya

Report No. 105874658MPK-015	
Equipment Under Test:	Adante Orthopedic Surgical Platform
Model Number:	6895AX-00
Applicant:	Mizuho Orthopedic Systems Inc.
Contact:	Tim Perlman
Address:	Mizuho Orthopedic Systems Inc. 30031 Ahern Avenue Union City, CA 94587
Country:	USA
Tel. Number:	(510) 429-1500 Ext. 184
Email:	tperlman@mizuhosi.com
Applicable Regulation:	FCC Part 15 Subpart C (15.247) ISED RSS-247 Issue 3
Date of Test:	July 26, 2024 to October 10, 2024

We attest to the accuracy of this report:

Erica Chan
Project Engineer

Anderson Soungpanya
EMC Team Leader

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1.0 Summary of Tests

Test	Reference FCC	Reference Industry Canada	Result
RF Output Power	15.247(b)(3)	RSS-247, 5.4.d)	Complies
6 dB Bandwidth	15.247(a)(2)	RSS-247, 5.2.a)	Complies
Power Density	15.247(e)	RSS-247, 5.2.b)	Complies
Out of Band Antenna Conducted Emission	15.247(d)	RSS-247, 5.5	Complies
Transmitter Radiated Emissions	15.247(d), 15.209, 15.205	RSS-247, 5.5	Complies
AC Line Conducted Emission	15.207	RSS-GEN	Complies
Antenna Requirement	15.203	RSS-GEN	Complies (Antenna connector is within the enclosure)

EUT receive date: July 25, 2024

EUT receive condition: The pre-production version of the EUT was received in good condition with no apparent damage. As declared by the Applicant, it is identical to the production units.

Test start date: July 26, 2024

Test completion date: October 10, 2024

The test results in this report pertain only to the item tested.

2.0 General Information

2.1 Product Description

Mizuho Orthopedic Systems Inc. supplied the following description of the EUT:

The Adante Orthopedic Surgical Platform is designed to safely hold in proper position a patient undergoing lower-body orthopedic surgical procedures. It is an AC-powered, or internal battery-operated platform designed to position a patient in supine and lateral positions during surgical procedures. The Adante Orthopedic Surgical Platform is equipped with two radiolucent FlexLation Leg Spars (left and right) that allow for flexion of the knee, traction, abduction, abduction, and raising or lowering of the leg.

For more information, refer to the following product specification, declared by the manufacturer.

Information about the 2.4 GHz radio is presented below:

Applicant	Mizuho Orthopedic Systems Inc.
Model No.	6895AX-00
FCC Identifier	2BLVL-649846
Type of transmission	Digital Spread Spectrum System (DSSS)
Rated RF Output	4.81 dBm
Antenna(s) & Gain	Stamped metal, externally mounted antenna, Gain: 3 dBi
Frequency Range	2405 – 2480 MHz
Type of modulation/data rate	O-QSPK
Data Rate	250 kbps
Number of Channel(s)	16
Applicant Name & Address	Mizuho Orthopedic Systems Inc. 30031 Ahern Avenue Union City, CA 94587

2.2 Related Submittal(s) Grants

None.

2.3 Test Facility

The test site used to collect the radiated data is site 1 (10-m semi-anechoic chamber). This test facility and site measurement data have been fully placed on file with the FCC, IC and A2LA accredited.

2.4 Test Methodology

Antenna conducted measurements were performed according to the FCC documents "Guidance for Performing Compliance Measurement on Digital Transmission Systems (DTS) Operating under §15.247" (KDB 558074 D01 DTS Meas Guidance v05r02), and RSS-247 Issue 3, RSS-GEN Issue 5.

Radiated emissions and AC mains conducted emissions measurements were performed according to the procedures in ANSI C63.10: 2013. Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Data Sheet" of this report.

2.5 Measurement Uncertainty

Compliance with the limits was based on the results of the measurements and doesn't take into account the measurement uncertainty.

Estimated Measurement Uncertainty

Measurement	Expanded Uncertainty (k=2)		
	0.15 MHz – 1 GHz	1 GHz – 2.5 GHz	> 2.5 GHz
RF Power and Power Density – antenna conducted	-	0.7 dB	-
Unwanted emissions – antenna conducted	1.1 dB	1.3 dB	1.9 dB
Bandwidth – antenna conducted	-	30 Hz	-

Measurement	Expanded Uncertainty (k=2)			
	0.15 MHz – 30MHz	30 – 200 MHz	200 MHz – 1 GHz	1 GHz – 18 GHz
Radiated emissions	-	4.7	4.6	5.1 dB
AC mains conducted emissions	2.1 dB	-	-	-

3.0 System Test Configuration

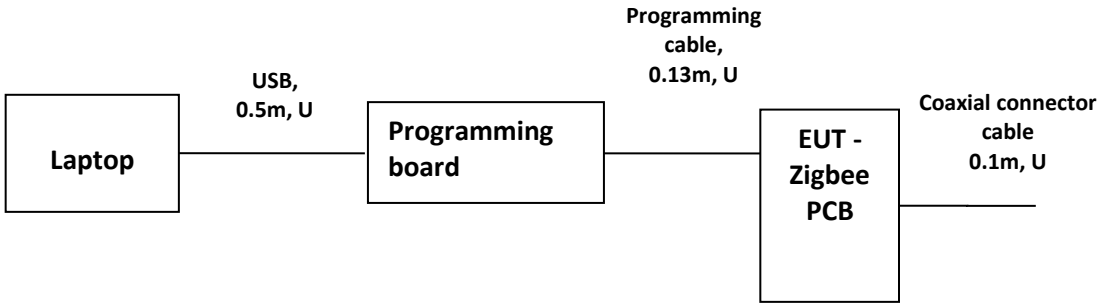
3.1 Support Equipment

Equipment Under Test			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Adante Orthopedic Surgical Platform	Mizuho Orthopedic Systems Inc.	6895AX-00	101
Zigbee Radio PCB	Mizuho Orthopedic Systems Inc.	6895-4890	23240022

Support Equipment		
Description	**Manufacturer**	**Model**
Laptop	Lenovo	T400
Programming Board	Texas Instruments	CC2650 Launchpad

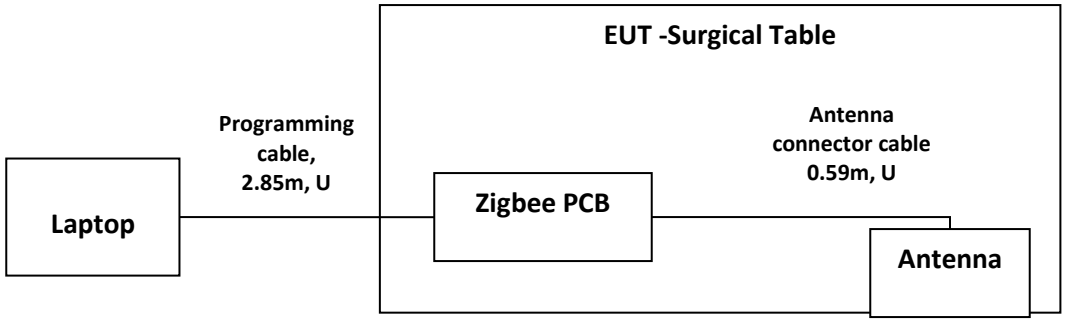
3.2 Block Diagram of Test Setup

Conducted Setup



S = Shielded **U** = Unshielded	**F** = With Ferrite **m** = Meter

Radiated Setup



S = Shielded **U** = Unshielded	**F** = With Ferrite **m** = Meter

3.3 Justification

For radiated emission measurements the EUT is placed on a non-conductive table. The EUT was configured to continuously transmit. The highest clock frequency used in the EUT is 2.48 GHz.

3.4 Software Exercise Program

The EUT exercise program used during radiated and conducted testing was provided by Mizuho Orthopedic Systems Inc.

3.5 Mode of Operation during Test

Mode of operation during the tests was setup using a laptop which allows controlling the radio by test software. During the transmitter tests, the transmitter was setup to transmit maximum communication and RF power levels.

EUT was placed into transmit mode at the lowest (2405MHz), middle (2440MHz), and highest (2480MHz) channels.

3.6 Modifications Required for Compliance

No modifications were made by the manufacturer or Intertek to the EUT in order to bring the EUT into compliance.

3.7 Additions, Deviations and Exclusions from Standards

No additions, deviations or exclusions from the standard were made.

4.0 Measurement Results

4.1 6-dB Bandwidth and 99% Occupied Bandwidth
FCC Rule: 15.247(a)(2); RSS-247, 5.2.a) and RSS-GEN;

4.1.1 Requirement

The minimum 6-dB bandwidth shall be at least 500 kHz

4.1.2 Procedure

A spectrum analyzer was connected to the antenna port of the transmitter.

For FCC 6dB Channel Bandwidth the Procedure described in the FCC Publication KDB 558074 D01 Meas Guidance v05r02 was used to determine the DTS occupied bandwidth. Section 11.8.1 Option 1 of ANSI 63.10 was used.

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

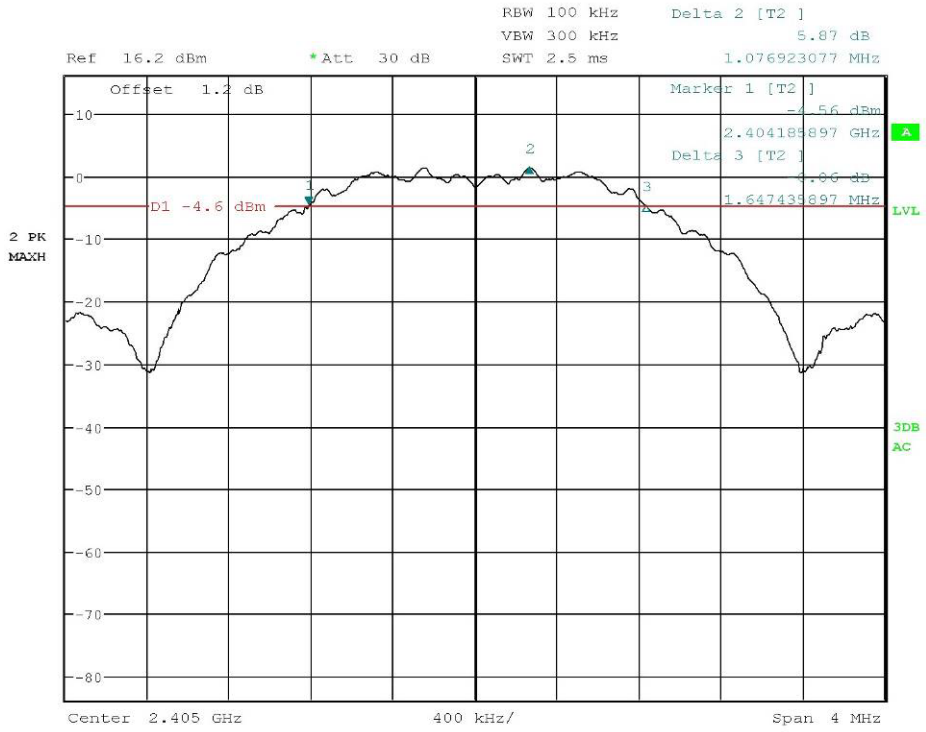
For 99% power bandwidth measurement, the bandwidth was determined by using the built-in 99% occupied bandwidth function of the spectrum analyzer. The resolution bandwidth is set to 1% of the selected span as is without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth.

4.1.3 Test Result

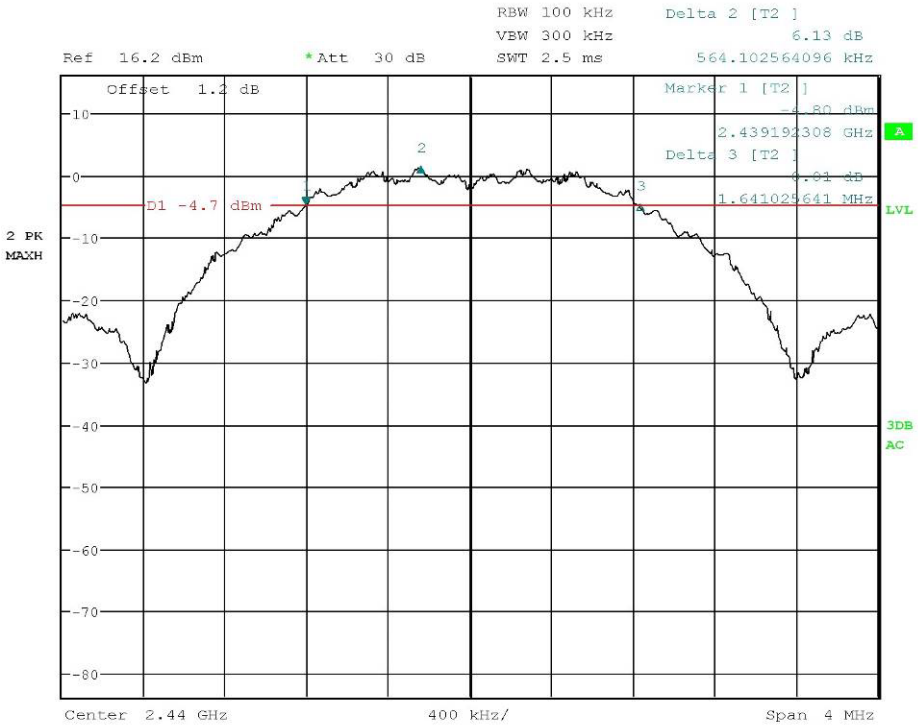
Frequency (MHz)	6-dB bandwidth FCC 15.247 & RSS-GEN, MHz	Occupied bandwidth, RSS-GEN, MHz	Plot
2405	1.647	--	1.1
	--	2.474	1.4
2440	1.641	--	1.2
	--	2.455	1.5
2480	1.628	--	1.3
	--	2.455	1.6

Tested By	Test Date	Results
Gabriel Carreon	July 25, 2024	Complies

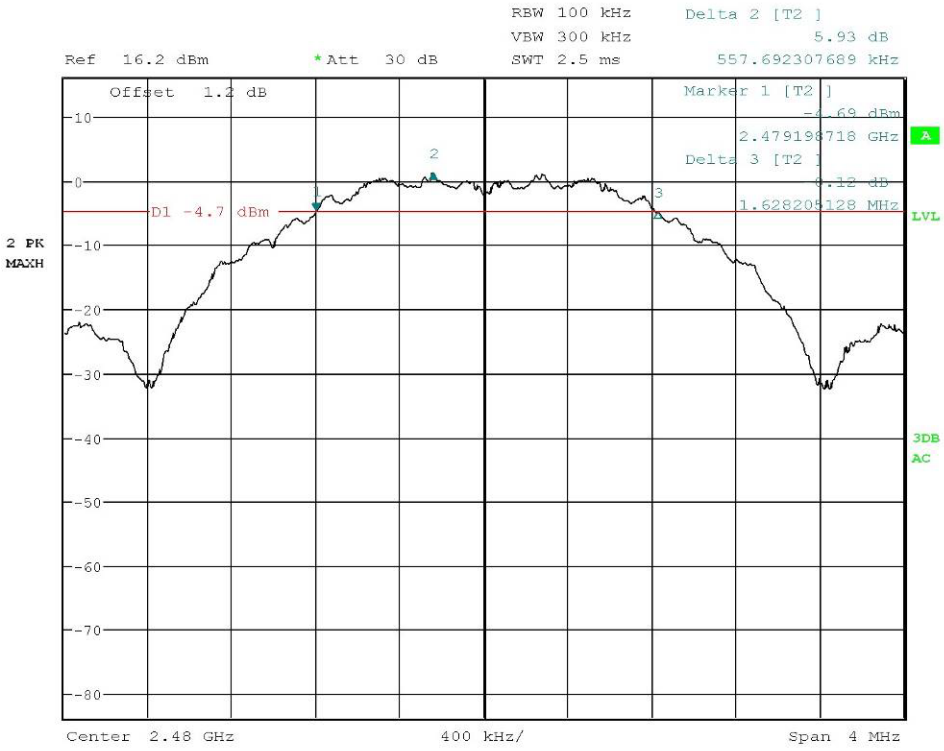
Plot 1. 1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
Delta 2 [T2]
5.87 dB
1.076923077 MHz
Ref 16.2 dBm
*Att 30 dB
Offset 1.2 dB
Marker 1 [T2]
-4.56 dBm
2.404185897 GHz
Delta 3 [T2]
6.06 dB
1.647435897 MHz
D1 -4.6 dBm
2 PK
MAXH
A
LVL
3DB
AC
Center 2.405 GHz
400 kHz/
Span 4 MHz

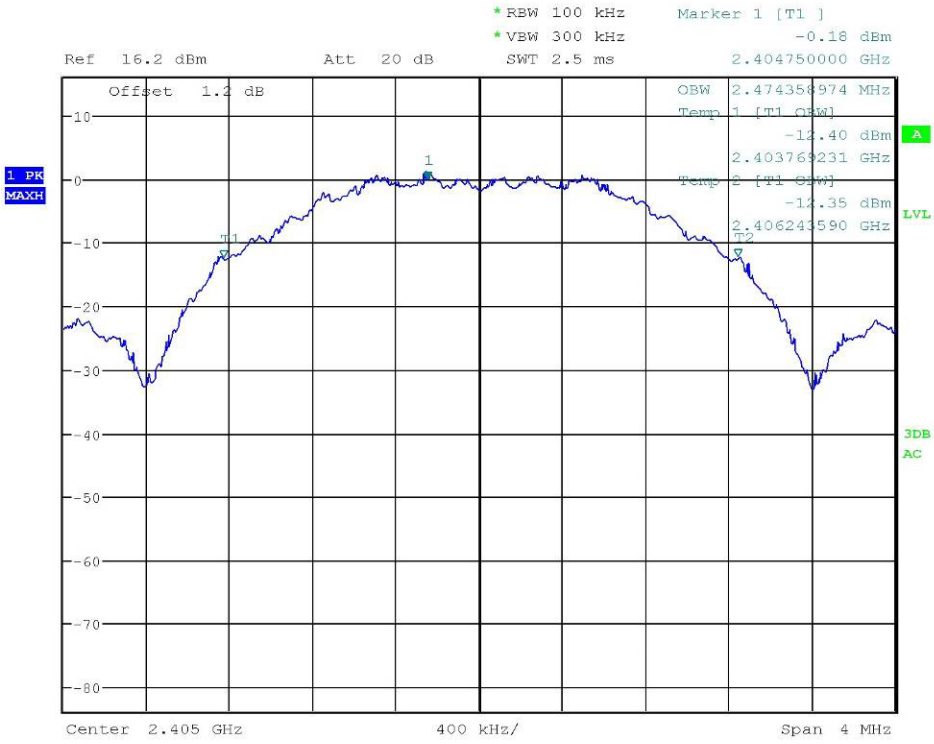
Plot 1. 2


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
Delta 2 [T2]
6.13 dB
564.102564096 kHz
Ref 16.2 dBm
*Att 30 dB
Offset 1.2 dB
Marker 1 [T2]
2.439192308 GHz
Delta 3 [T2]
1.641025641 MHz
D1 -4.7 dBm
2 PK
MAXH
LVL
3DB
AC
Center 2.44 GHz
400 kHz/
Span 4 MHz

Plot 1. 3


RBW 100 kHz
VBW 300 kHz
SWT 2.5 ms
Delta 2 [T2]
5.93 dB
557.692307689 kHz
Ref 16.2 dBm
*Att 30 dB
Offset 1.2 dB
Marker 1 [T2]
-6.69 dBm
2.479198718 GHz
Delta 3 [T2]
0.12 dB
1.628205128 MHz
D1 -4.7 dBm
2 PK
MAXH
LVL
3DB
AC
Center 2.48 GHz
400 kHz/
Span 4 MHz

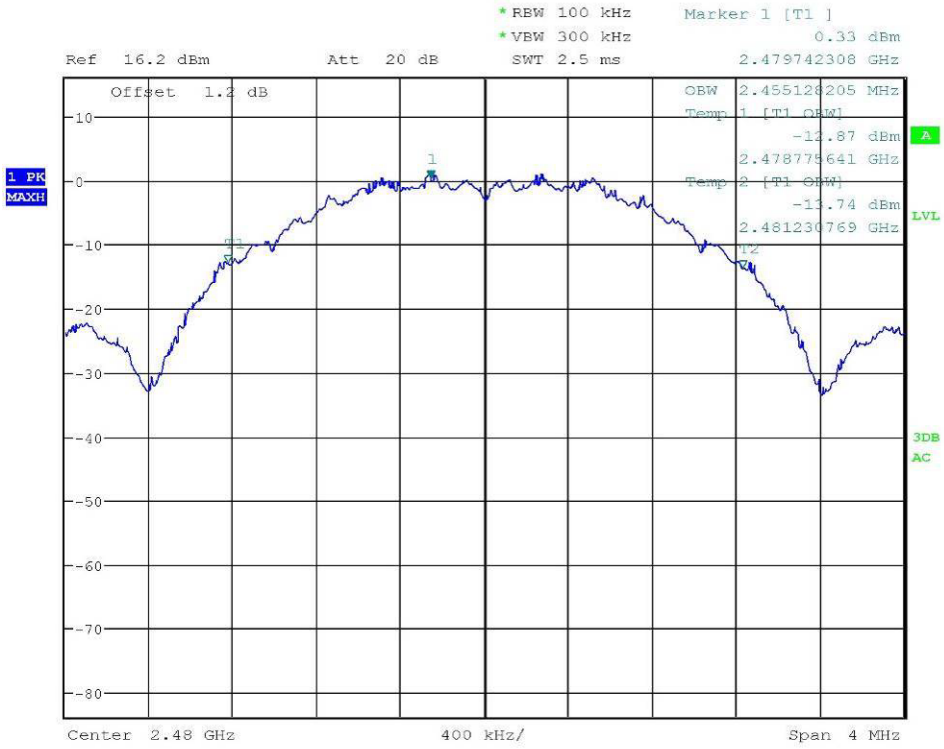
Plot 1. 4


*RBW 100 kHz
*VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
-0.18 dBm
2.404750000 GHz
Ref 16.2 dBm
Att 20 dB
Offset 1.2 dB
OBW 2.474358974 MHz
Temp 1 [T1 OBW]
-12.40 dBm
2.403769231 GHz
Temp 2 [T1 OBW]
-12.35 dBm
2.406243590 GHz
1 PK
MAXH
A
LVL
3DB
AC
T1
T2
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.405 GHz
400 kHz/
Span 4 MHz

Plot 1.5


*RBW 100 kHz
*VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
1.38 dBm
2.440262821 GHz
Ref 16.2 dBm
Att 20 dB
Offset 1.2 dB
OBW 2.455128205 MHz
Temp 1 [T1 OBW]
-12.75 dBm
2.438775641 GHz
Temp 2 [T1 OBW]
-12.70 dBm
2.441230769 GHz
1 PK
MAXH
A
LVL
3DB
AC
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44 GHz
400 kHz/
Span 4 MHz

Plot 1.6



Results	Complies

4.2 Maximum Peak Conducted Output Power at Antenna Terminals
FCC Rule: 15.247(b)(3); RSS-247, 5.4.d);

4.2.1 Requirement

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt or 30 dBm.
For antennas with gains greater than 6 dBi, transmitter output level must be decreased appropriately, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.2.2 Procedure

The procedure described in FCC Publication KDB 558074 D01 Meas Guidance v05r02 was used. Specifically, section 11.9.1.1 RBW ≥ DTS bandwidth in ANSI 63.10.

1. Set the RBW ≥ DTS Bandwidth
2. Set the VBW ≥ 3 x RBW
3. Set the span ≥ 3 x RBW
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max Hold
7. Allow trace to fully stabilize
8. Use peak marker function to determine the peak amplitude level.

A spectrum analyzer was connected to the antenna port of the transmitter.

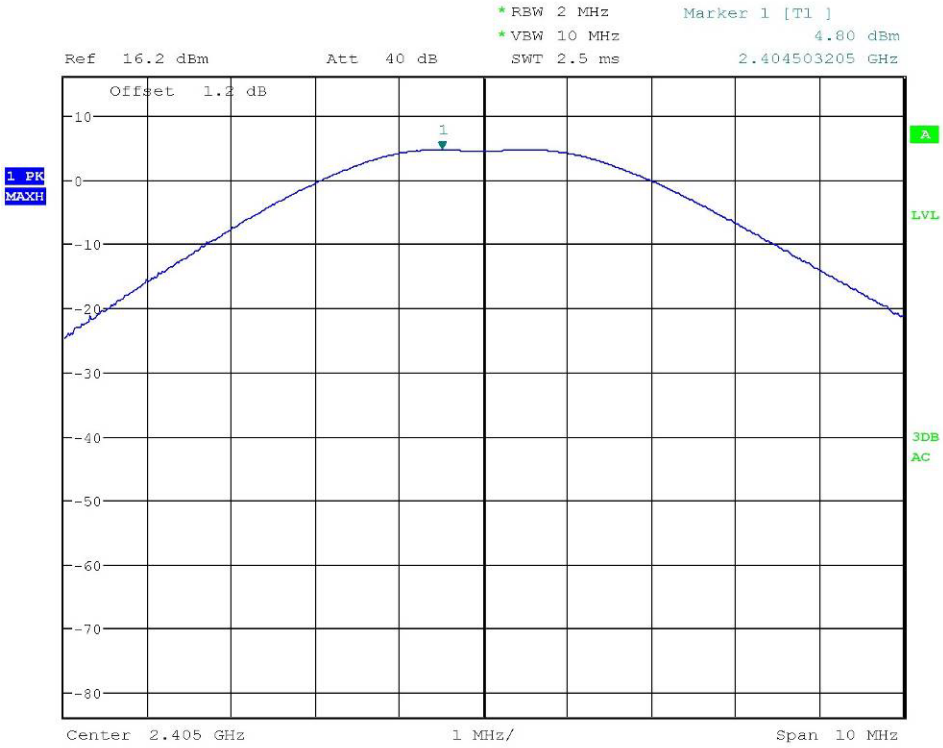
4.2.3 Test Result

Refer to the following plots 2.1 – 2.3 for the test details.

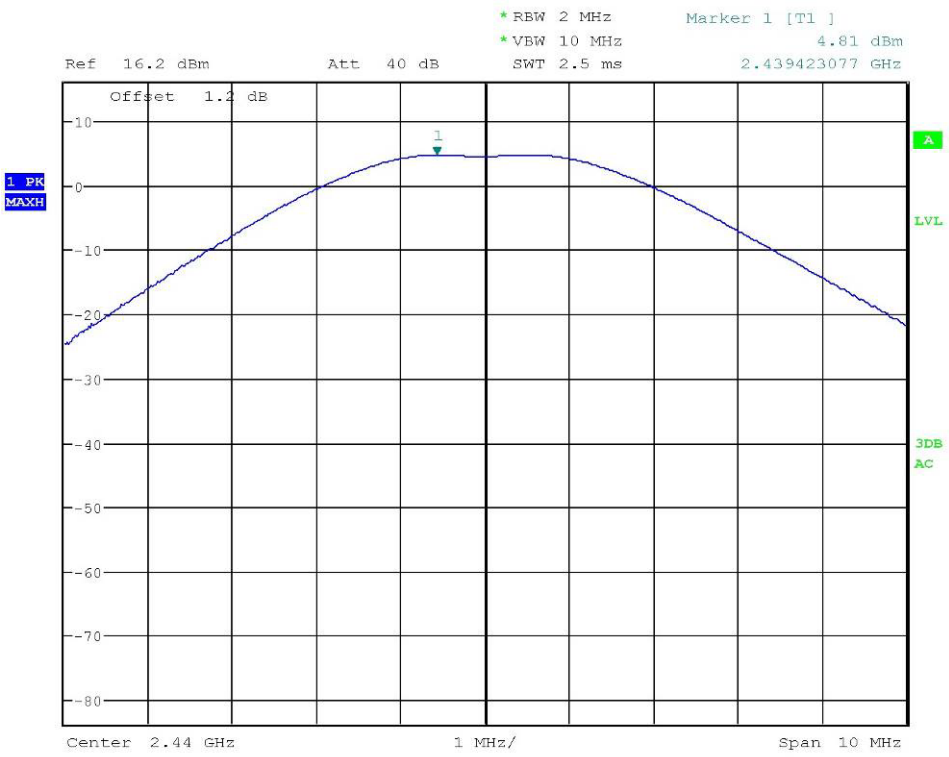
Frequency	Conducted Power (peak)		Plot
MHz	dBm	mW	
2405	4.80	3.020	2.1
2440	4.81	3.027	2.2
2480	4.68	2.938	2.3

Tested By	Test Date	Results
Gabriel Carreon	July 25, 2024	Complies

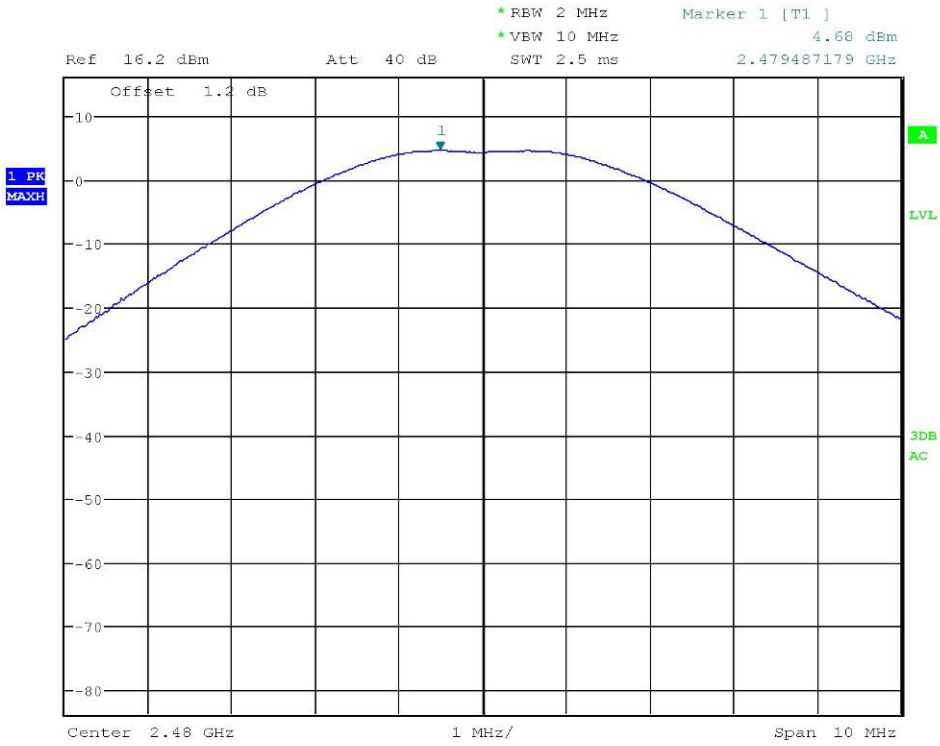
Plot 2. 1


*RBW 2 MHz
*VBW 10 MHz
SWT 2.5 ms
Marker 1 [T1]
4.80 dBm
2.404503205 GHz
Ref 16.2 dBm
Att 40 dB
Offset 1.2 dB
1 PK
MAXH
A
LVL
3DB
AC
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.405 GHz
1 MHz/
Span 10 MHz

Plot 2. 2


*RBW 2 MHz
*VBW 10 MHz
SWT 2.5 ms
Marker 1 [T1]
4.81 dBm
2.439423077 GHz
Ref 16.2 dBm
Att 40 dB
Offset 1.2 dB
1 PK
MAXH
A
LVL
3DB
AC
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44 GHz
1 MHz/
Span 10 MHz

Plot 2. 3



Results	Complies

4.3 Maximum Power Spectral Density
FCC: 15.247 (e); RSS-247, 5.2.b);

4.3.1 Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna should not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.2 Procedure

A spectrum analyzer was connected to the antenna port of the transmitter.

The procedure described in FCC Publication KDB 558074 D01 Meas Guidance v05r02, specifically section 11.10.2 Method PKPSD (peak PSD) of ANSI 63.10.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the *DTS bandwidth*.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

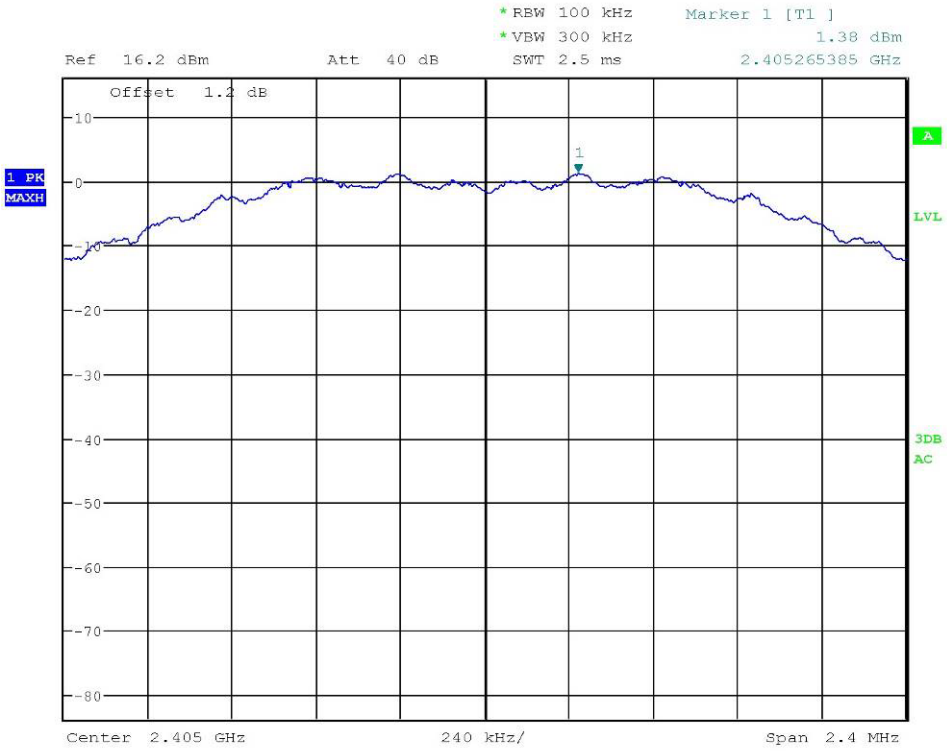
4.3.3 Test Result

Refer to the following plots for the test result

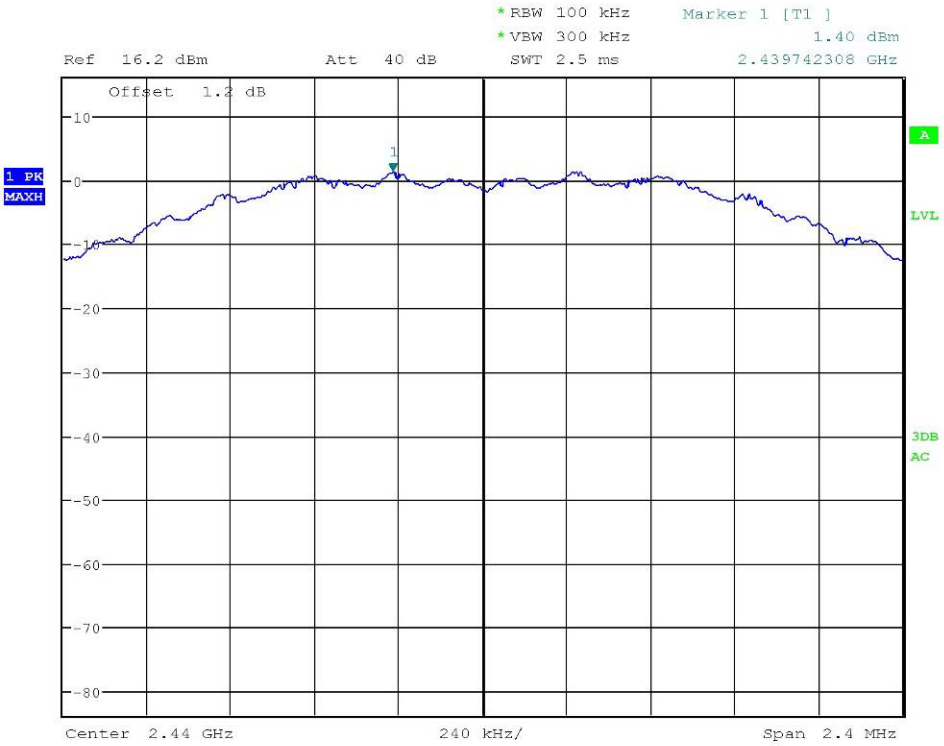
Frequency, MHz	Maximum Power Spectral Density, dBm	Maximum Power Spectral Density Limit, dBm	Margin, dB	Plot
2405	1.38	8.0	-6.62	3.1
2440	1.40	8.0	-6.6	3.2
2480	1.25	8.0	-6.75	3.3

Tested By	Test Date	Results
Gabriel Carreon	July 25, 2024	Complies

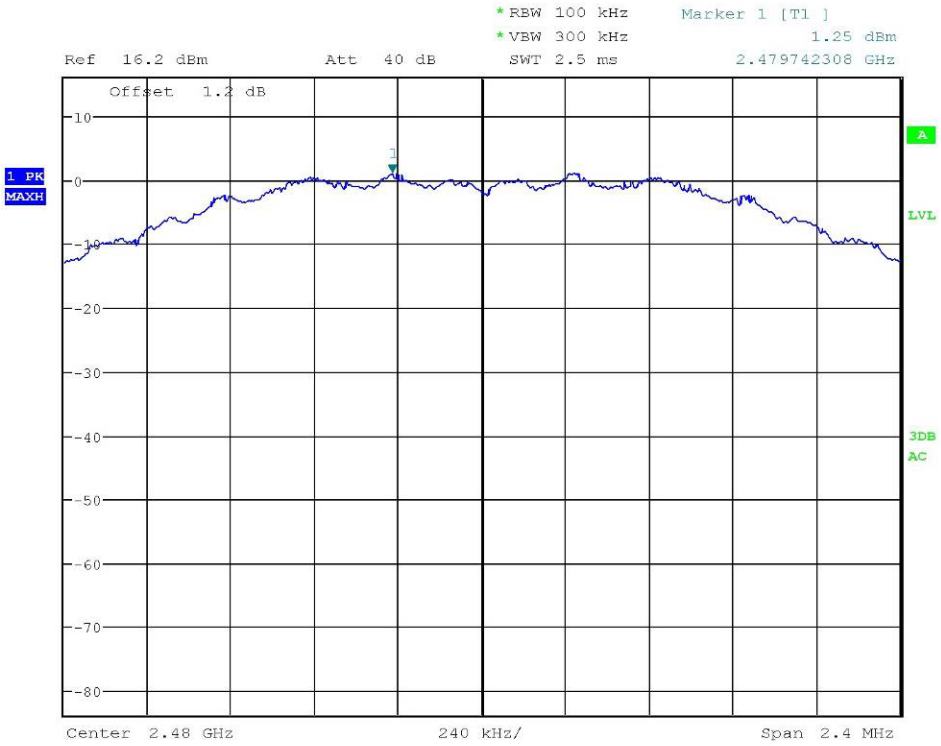
Plot 3. 1


*RBW 100 kHz
*VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
1.38 dBm
2.405265385 GHz
Ref 16.2 dBm
Att 40 dB
Offset 1.2 dB
1 PK
MAXH
A
LVL
3DB
AC
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.405 GHz
240 kHz/
Span 2.4 MHz

Plot 3. 2


*RBW 100 kHz
*VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
1.40 dBm
2.439742308 GHz
Ref 16.2 dBm
Att 40 dB
Offset 1.2 dB
1 PK
MAXH
A
LVL
3DB
AC
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.44 GHz
240 kHz/
Span 2.4 MHz

Plot 3. 3


*RBW 100 kHz
*VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1]
1.25 dBm
2.479742308 GHz
Ref 16.2 dBm
Att 40 dB
Offset 1.2 dB
1 PK
MAXH
A
LVL
3DB
AC
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.48 GHz
240 kHz/
Span 2.4 MHz

4.4 Out of Band Antenna Conducted Emission
FCC: 15.247(d); RSS-247, 5.5;

4.4.1 Requirement

In any 100 kHz bandwidth outside the EUT pass-band, the RF power shall be below the maximum in-band 100 kHz emissions by at least 20 dB (if peak power of in-band emission is measured) or 30 dB (if average power of in-band emission is measured).

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)

4.4.2 Procedure

The procedure described in FCC Publication KDB 558074 D01 Meas Guidance v05r02, specifically section 11.11 DTS Emissions in non-restricted frequency bands of ANSI 63.10.

A spectrum analyzer was connected to the antenna port of the transmitter.

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 3 x RBW.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

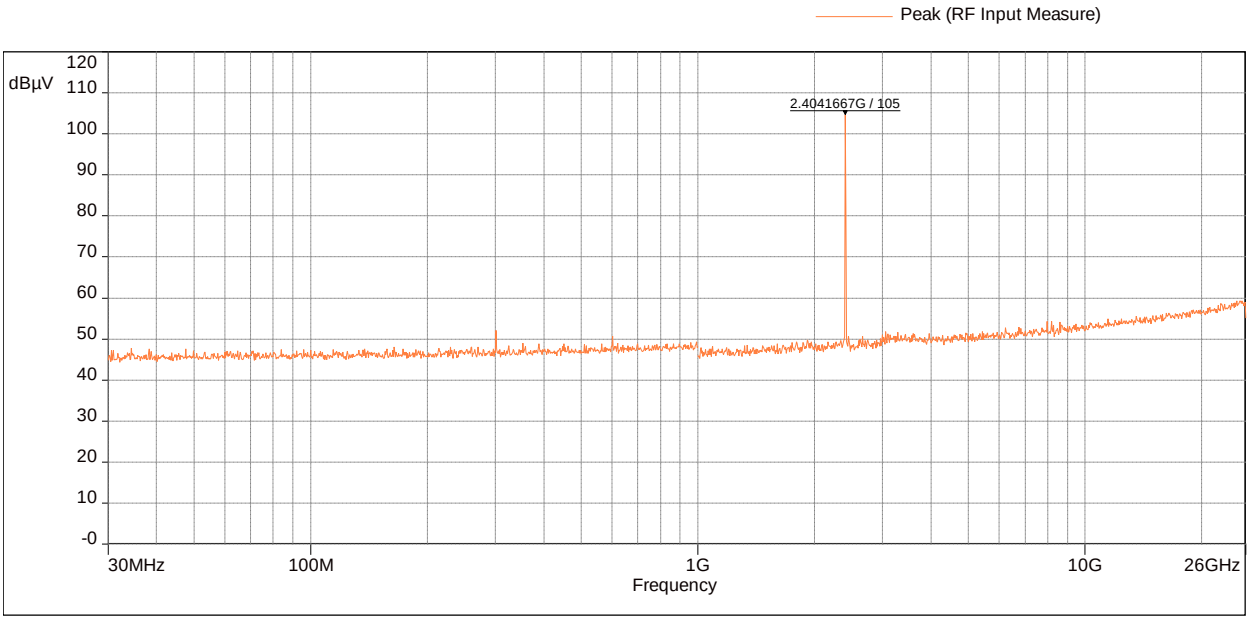
The unwanted emissions were measured from 30 MHz to 25 GHz. Plots below are corrected for cable loss and then compared to the limits.

4.4.3 Test Result

Refer to the following plots 4.1 – 4.3 for unwanted conducted emissions. The plot shows -20dB attenuation limit line.

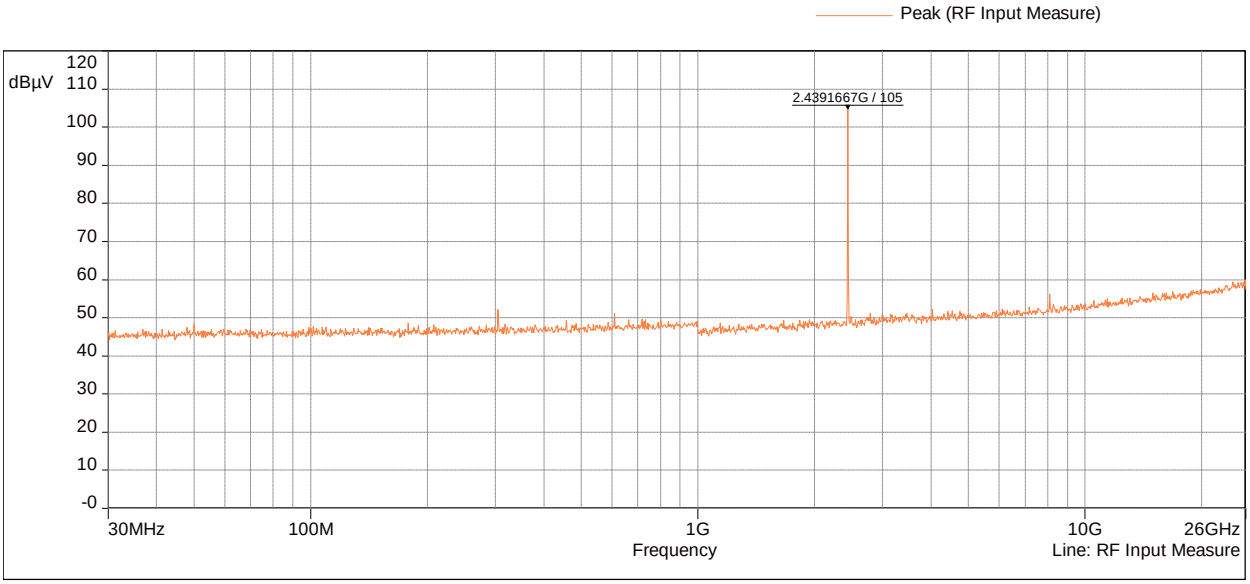
Tested By	Test Date	Results
Gabriel Carreon	July 26, 2024	Complies

Tx @ Low Channel, 2405 MHz
30MHz -26GHz Conducted Spurious
Plot 4.1



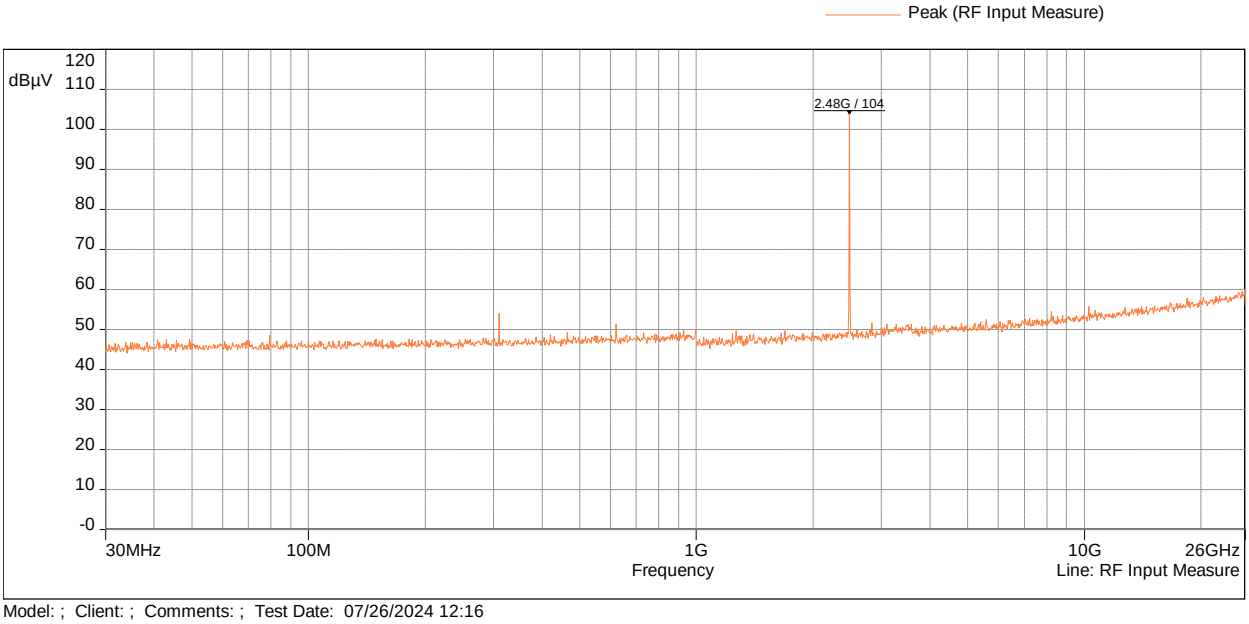
Model: ; Client: ; Comments: ; Test Date: 07/26/2024 11:07

Tx @ Mid Channel, 2440 MHz
9kHz -26GHz Conducted Spurious
Plot 4.2



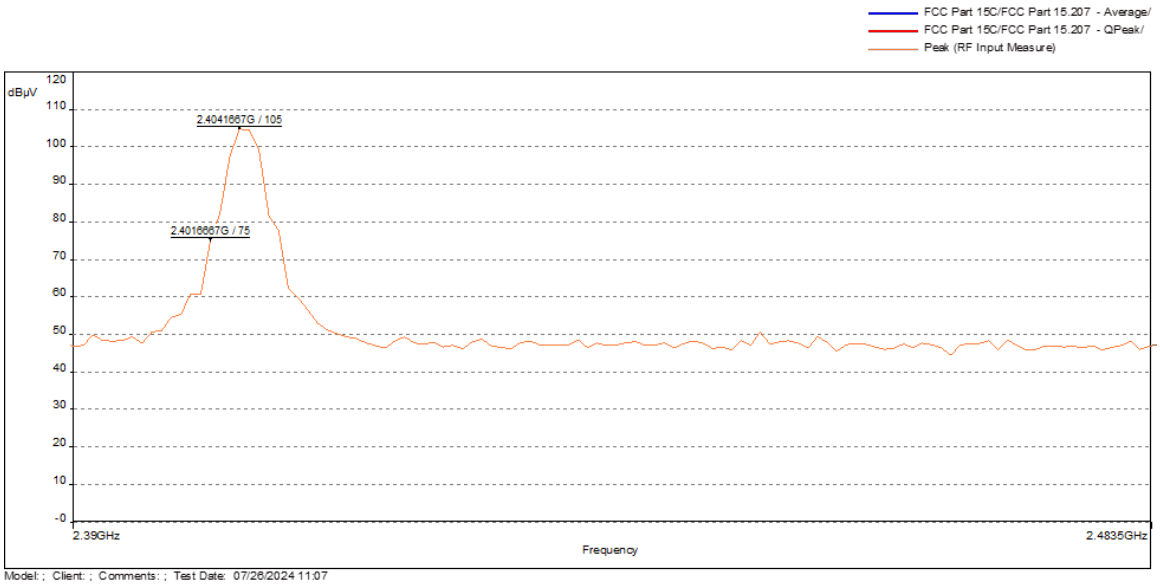
Model: ; Client: ; Comments: ; Test Date: 07/26/2024 12:00

Tx @ High Channel, 2480 MHz
9kHz -26GHz Conducted Spurious
Plot 4.3

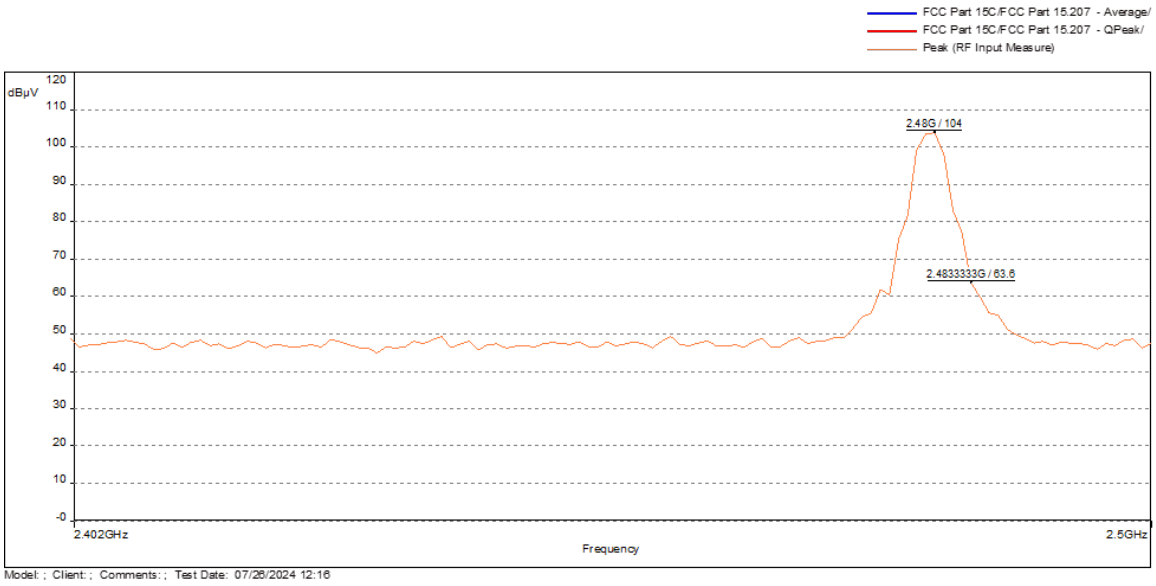


Model: ; Client: ; Comments: ; Test Date: 07/26/2024 12:16

Tx @ Low Channel, 2405 MHz
9kHz -26GHz Conducted Band Edge
Plot 4.4



Tx @ High Channel, 2480 MHz
9kHz -26GHz Conducted Band Edge
Plot 4.5



4.5 Transmitter Radiated Emissions

FCC Rules: 15.247(d), 15.209, 15.205; RSS-247, 5.5;

4.5.1 Requirement

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)).

For out of band radiated emissions (except for frequencies in restricted bands), in any 100 kHz bandwidths outside the EUT pass-band, the RF power shall be at least 20dB (peak) or 30 dB (average) below that of the maximum in-band 100 kHz emissions.

4.5.2 Procedure

Radiated emission measurements were performed from 9 kHz to 26.5 GHz according to the procedure described in ANSI C63.10: 2013. Spectrum Analyzer Resolution Bandwidth is 200Hz or greater for frequencies 9kHz to 30MHz, 100 kHz or greater for frequencies 30 MHz to 1000 MHz, 1 MHz for frequencies above 1000 MHz. Above 1000 MHz Peak and Average measurements were performed.

The EUT is placed on a plastic turntable that is 80 cm in height for below 1000MHz and 1.5m in height for above 1GHz. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). During testing, all cables were manipulated to produce worst-case emissions. The signal is maximized through rotation. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at 3 meters for frequencies above 1 GHz and at 10 meters for frequencies below 1 GHz.

Measurements made from 1 GHz to 18GHz had a 2.4-2.5GHz notch filter in place. A preamp was used from 9kHz to 26.5GHz.

All measurements were made with a Peak Detector and compared to QP limits for 30MHz – 1GHz and Average limits for 1GHz – 26.5GHz.

Correlation measurements were performed below 30MHz between 10m ALSE and Open Field site according to FCC KDB 414788 D01 Radiated Test Site v01r01 section 2. All readings were within the acceptable tolerance.

Radiated measurements were performed on the X, Y and Z orientation of the EUT. Data is presented with the worst-case configuration (the configuration which resulted in the highest emission levels).

4.5.3 Field Strength Calculation

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF – AG; if measurement is performed at a distance other than specified in the rule, a Distance Correction Factor (DCF) shall be added.

Where FS = Field Strength in dB(μV/m)
RA = Receiver Amplitude (including preamplifier) in dB(μV); AF = Antenna Factor in dB(1/m)
CF = Cable Attenuation Factor in dB; AG = Amplifier Gain in dB

Assume a receiver reading of 52.0 dB(μV) is obtained. The antennas factor of 7.4 dB(1/m) and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB(μV/m). This value in dB(μV/m) was converted to its corresponding level in μV/m.
RA = 52.0 dB(μV)
AF = 7.4 dB(1/m)
CF = 1.6 dB
AG = 29.0 dB
FS = 52.0+7.4+1.6-29.0 = 32 dB(μV/m).
Level in μV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m.

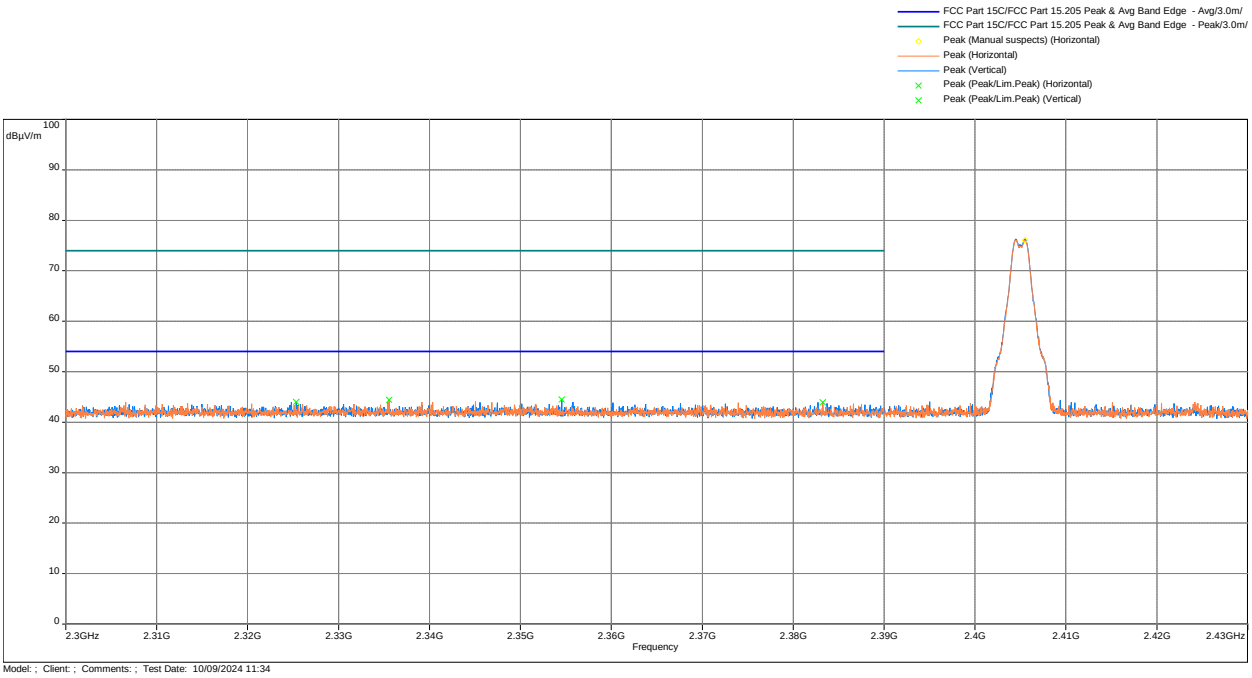
4.5.4 Test Results

All testing in this section were performed by radiated measurements.

Tested By	Test Date	Results
Erica Chan	October 8 – 10, 2024	Complies

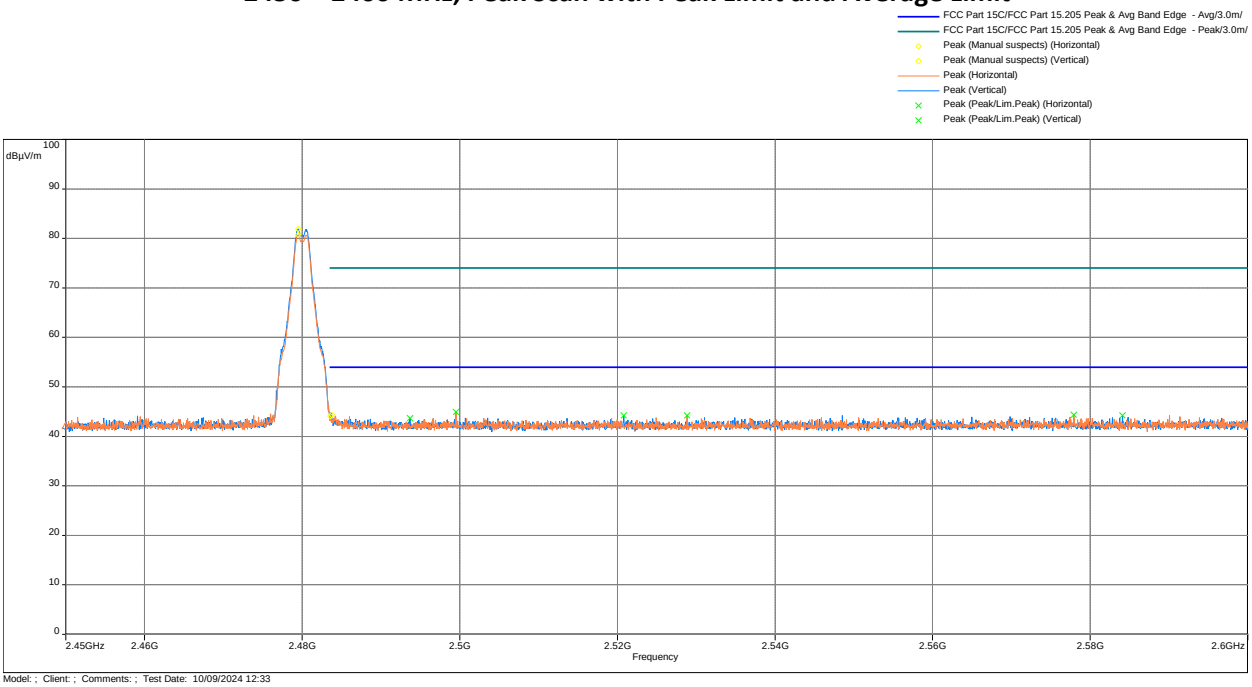
Test Results: 15.209/15.205 Radiated Restricted Band Emissions

Out-of-Band Radiated spurious emissions at the Band-edge @3m distance
2300 – 2430 MHz, Peak Scan with Peak Limit and Average Limit



Freq. MHz	Peak@3m dB(uV/m)	Avg Limit dB(µV/m)	Margin dB	Height m	Azimuth deg	Polarity	Correction dB
2354.56	44.47	54	-9.53	1	8.25	Vertical	30.07

Out-of-Band Radiated spurious emissions at the Band-edge @3m distance
2450 – 2460 MHz, Peak Scan with Peak Limit and Average Limit

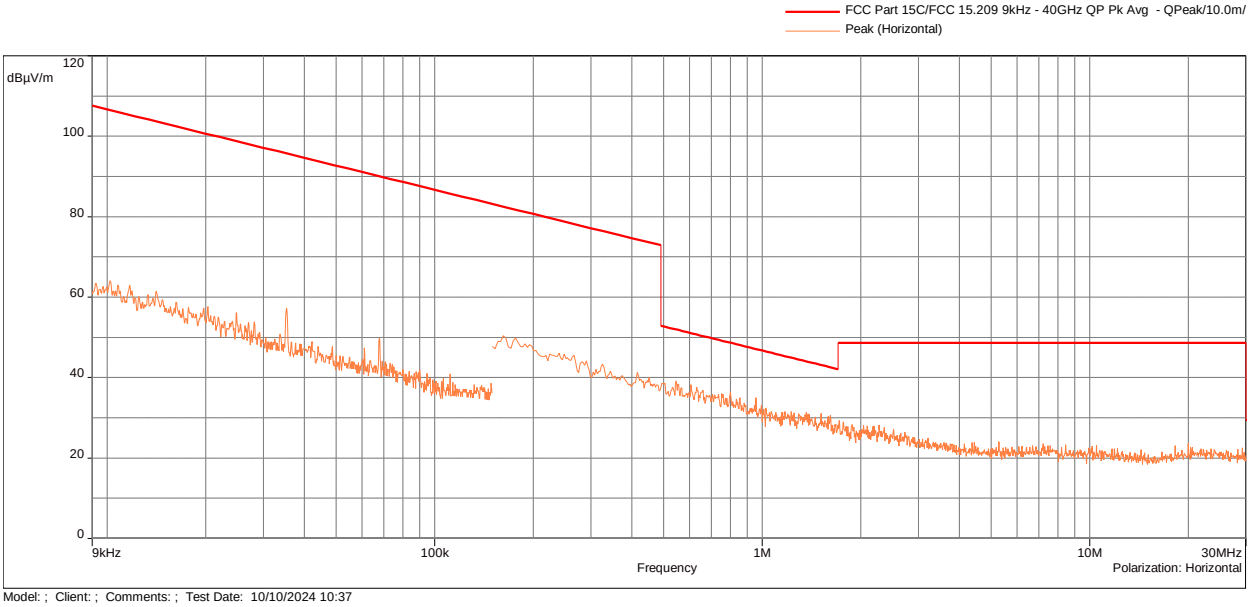


Freq. MHz	Peak@3m dB(uV/m)	Avg Limit dB(µV/m)	Margin dB	Height m	Azimuth deg	Polarity	Correction dB
2483.50	44.09	54	-9.91	2	27.5	Horizontal	30.09

Out-of-Band Radiated Spurious Emissions

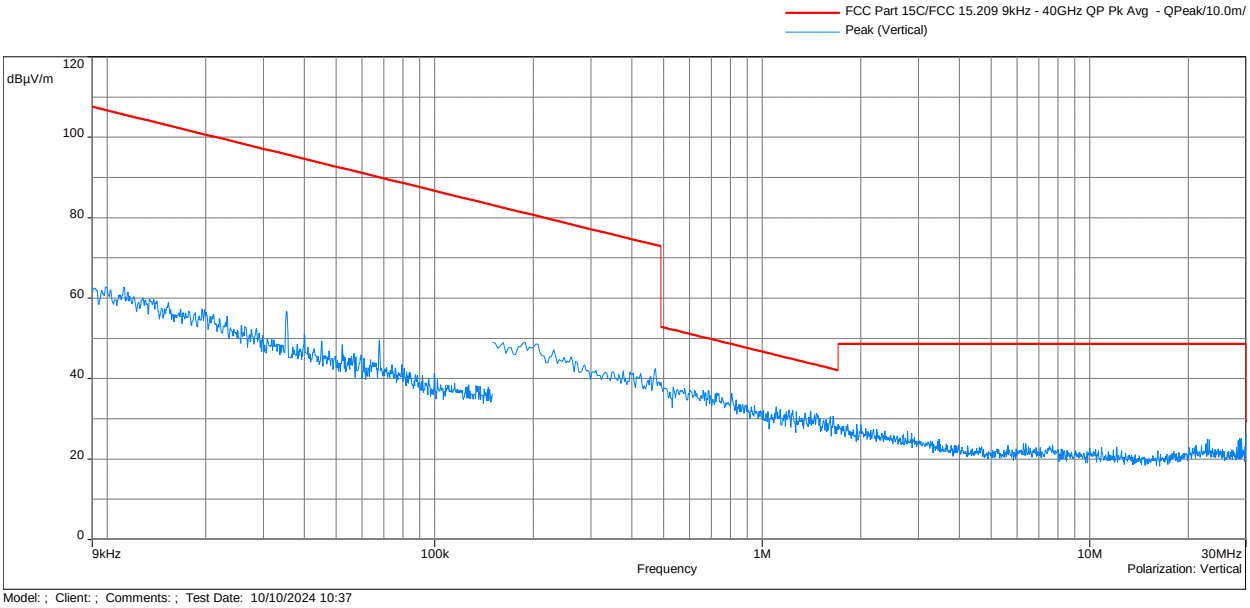
Test Results: 15.209 Radiated Spurious Emissions Low Channel, Tx at 2405MHz

Radiated Spurious Emissions 9kHz - 30 MHz Parallel Antenna Polarization



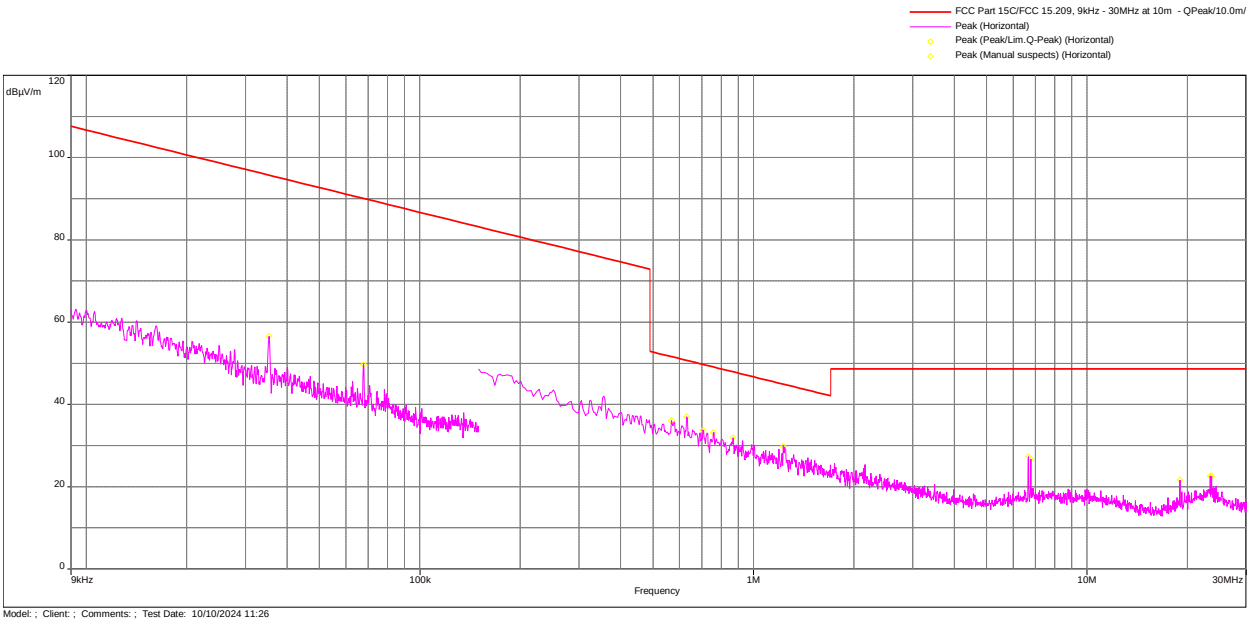
Model: ; Client: ; Comments: ; Test Date: 10/10/2024 10:37

Radiated Spurious Emissions 9kHz - 30 MHz Perpendicular Antenna Polarization



Model: ; Client: ; Comments: ; Test Date: 10/10/2024 10:37

Radiated Spurious Emissions 9kHz - 30 MHz Horizontal Antenna Polarization



Frequency (MHz)	QPeak@ 10m (dBµV/m)	Lim. QPeak @10m (dBµV/m)	Margin (dB)	Angle (°)	Polarization	Correction (dB)
1.64847	30.69	42.39	-11.70	1.5	Perpendicular	11.35
1.4037	31.95	43.78	-11.83	347	Perpendicular	12.6
1.514145	31.08	43.13	-12.05	222.25	Parallel	12.06
0.95595	34.98	47.11	-12.13	81.5	Parallel	15.02
0.80073	36.42	48.65	-12.23	38.5	Parallel	17.07
0.630585	36.99	50.72	-13.73	139	Horizontal	18.9
0.5679	36.09	51.62	-15.53	171	Horizontal	19.48

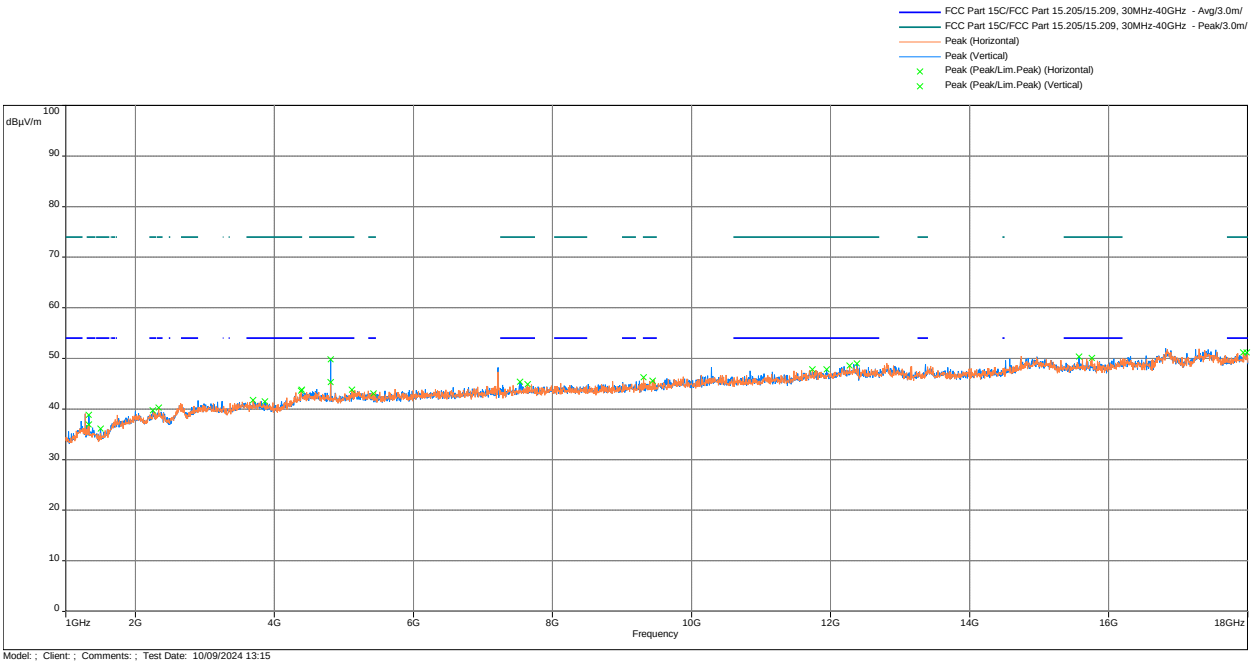
Note: Correction = AF + CF - Preamp

Radiated Spurious Emissions 30 MHz - 1000 MHz

Frequency (MHz)	QPeak@ 10m (dBµV/m)	Lim. QPeak @10m (dBµV/m)	Margin (dB)	Angle (°)	Height (m)	Polarization	Correction (dB)
156.7766	22.48	33	-10.52	14.25	1	Vertical	-13.83
167.1051	28.19	33	-4.81	304.75	1.35	Vertical	-14.2
170.1429	31.55	33	-1.45	283.5	1.35	Vertical	-14.33
244.6258	21.11	35.5	-14.39	125.5	1	Vertical	-13.98
73.19733	25.06	29.5	-4.44	2.25	4	Vertical	-18.64

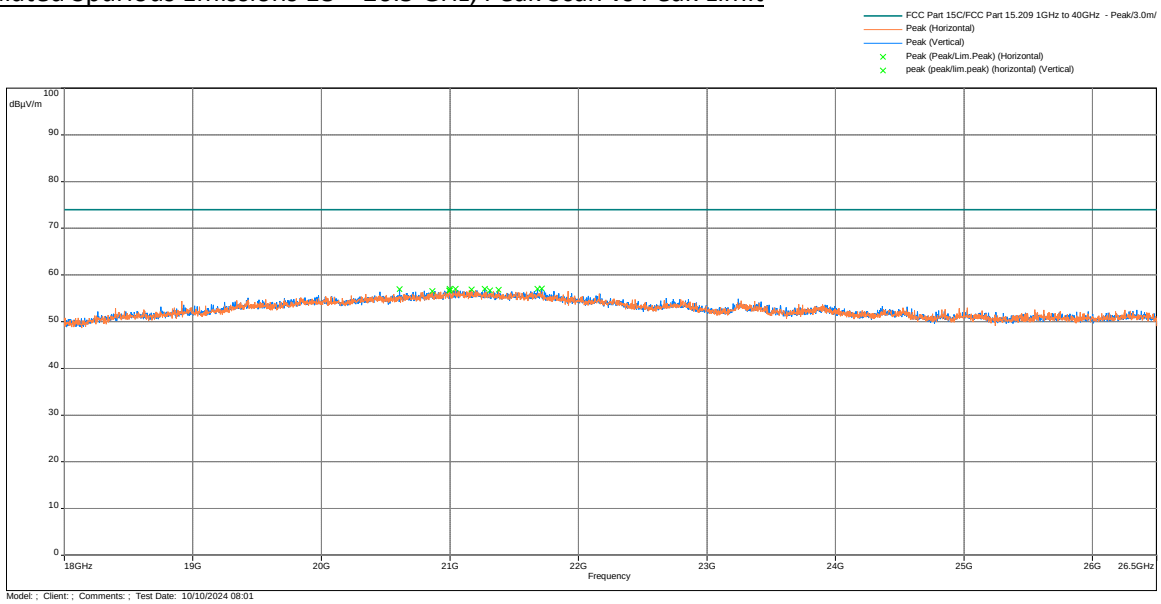
Note: Correction = AF + CF - Preamp

Radiated Spurious Emissions 1000 - 18000 MHz, Peak Scan vs Peak and Avg Limit



Frequency (MHz)	Peak @3m (dBµV/m)	Lim. Ave @3m (dBµV/m)	Margin (dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
16817.93	52.00	54	-2.00	1	8	Vertical	6.83
4809.133	49.77	54	-4.23	1	254	Vertical	-6.68
12377.53	49.01	54	-4.99	4	254	Vertical	1.63
7216.333	48.23	54	-5.77	1	14	Vertical	-4.54
9307.9	46.26	54	-7.74	4	143	Horizontal	-3.25

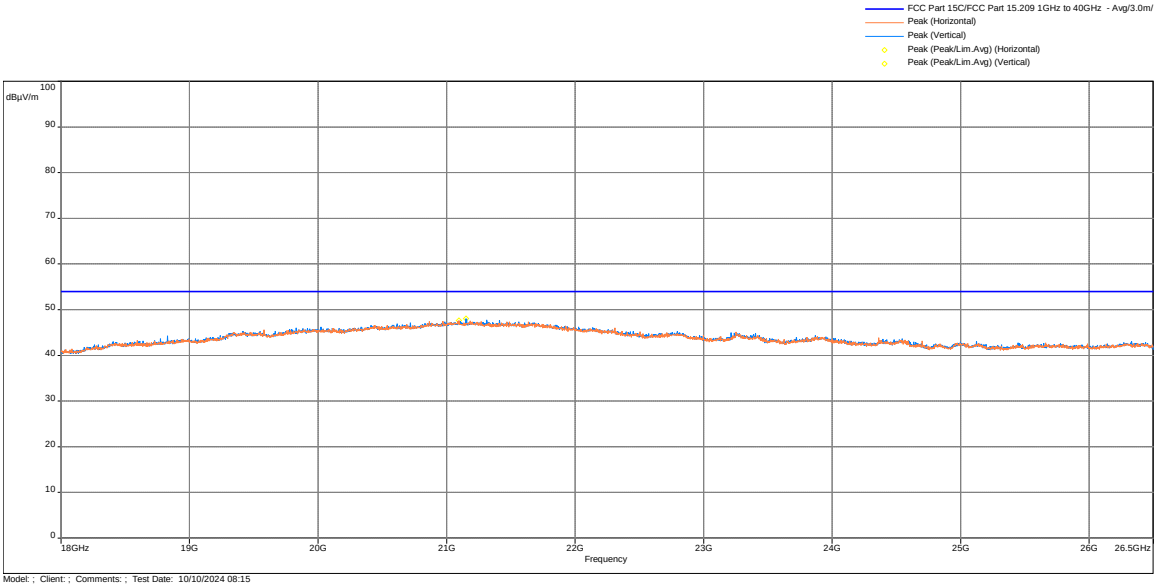
Radiated Spurious Emissions 18 – 26.5 GHz, Peak Scan vs Peak Limit



Frequency (MHz)	Peak @3m (dBµV/m)	Lim. Peak @3m (dBµV/m)	Margin dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
20862.52	56.57	74	-17.43	2	14.75	Horizontal	3.26

Note: Correction = AF + CF - Preamp

Radiated Spurious Emissions 18 – 26.5 GHz, Average Scan vs Average Limit

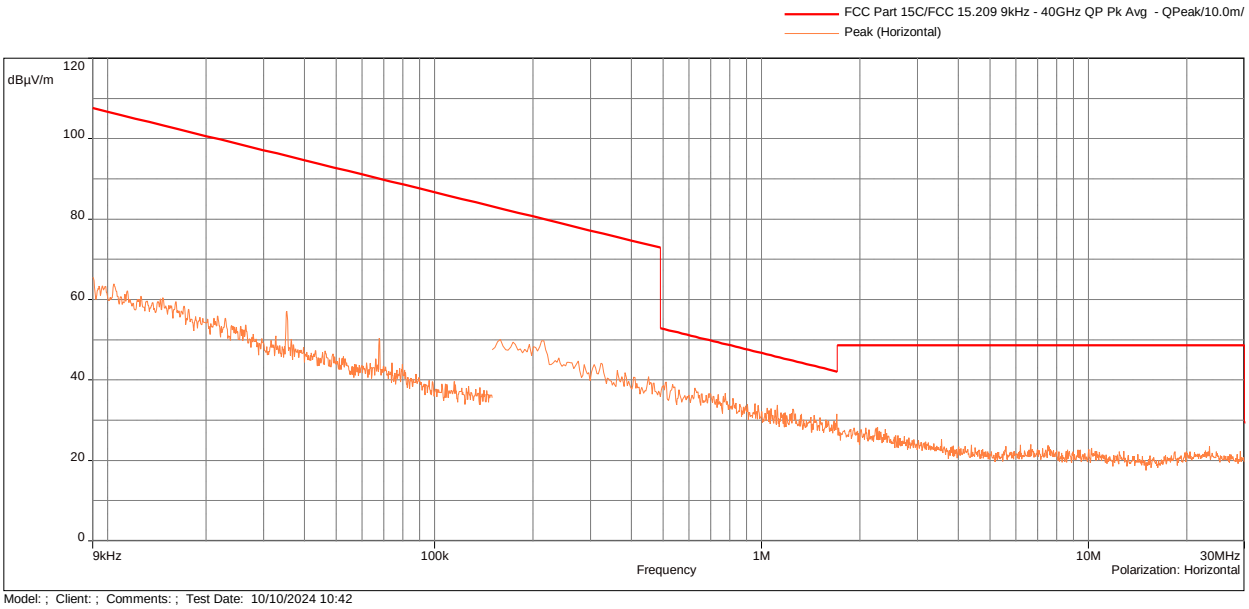


Frequency (MHz)	Ave @3m (dBµV/m)	Lim. Ave @3m (dBµV/m)	Margin dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
21150.67	48.08	54	-5.92	2	357.75	Vertical	3.76

Note: Correction = AF + CF - Preamp

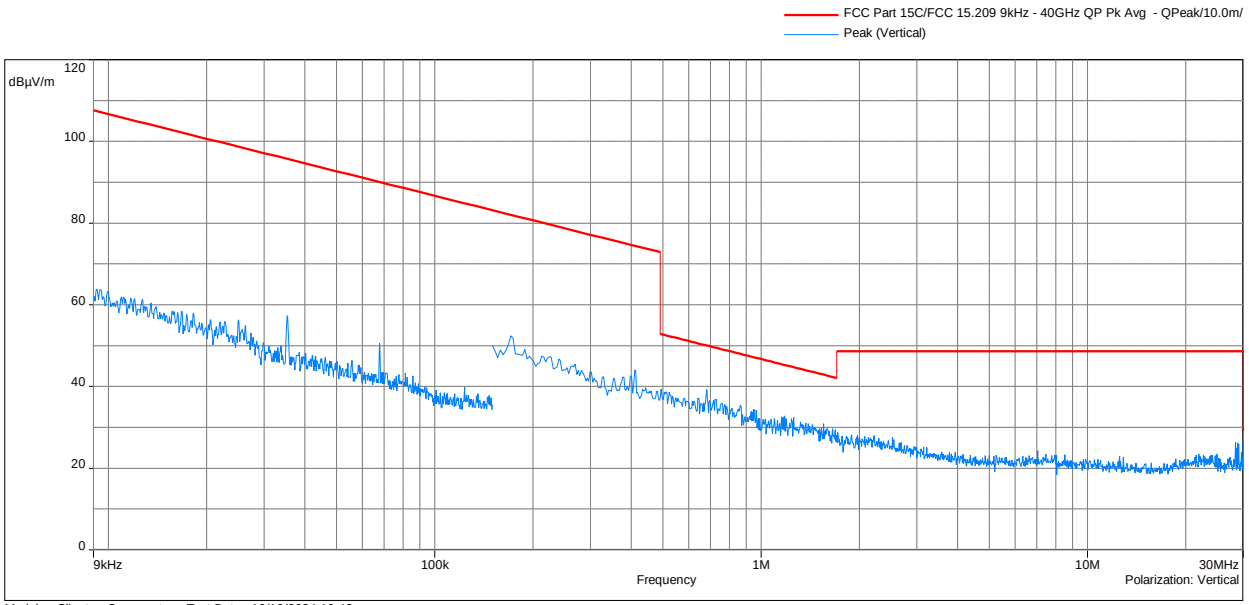
Test Results: 15.209 Radiated Spurious Emissions Mid Channel, Tx at 2440 MHz

Radiated Spurious Emissions 9kHz - 30 MHz Parallel Antenna Polarization



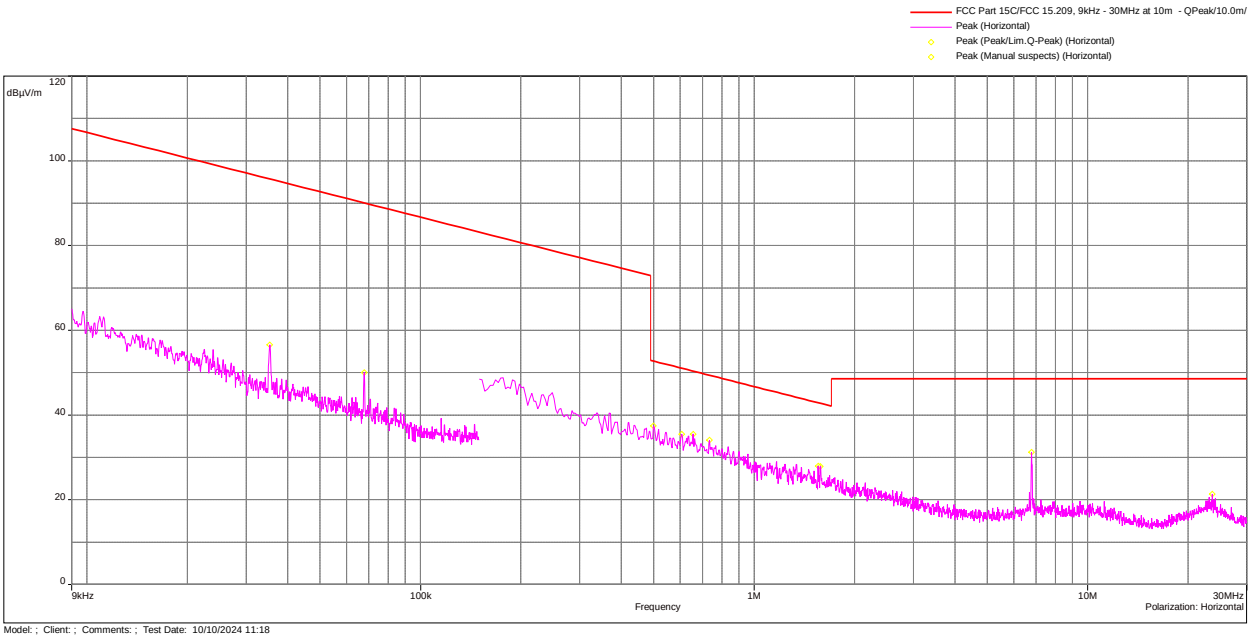
Model: ; Client: ; Comments: ; Test Date: 10/10/2024 10:42

Radiated Spurious Emissions 9kHz - 30 MHz Perpendicular Antenna Polarization



Model: ; Client: ; Comments: ; Test Date: 10/10/2024 10:42

Radiated Spurious Emissions 9kHz - 30 MHz Horizontal Antenna Polarization



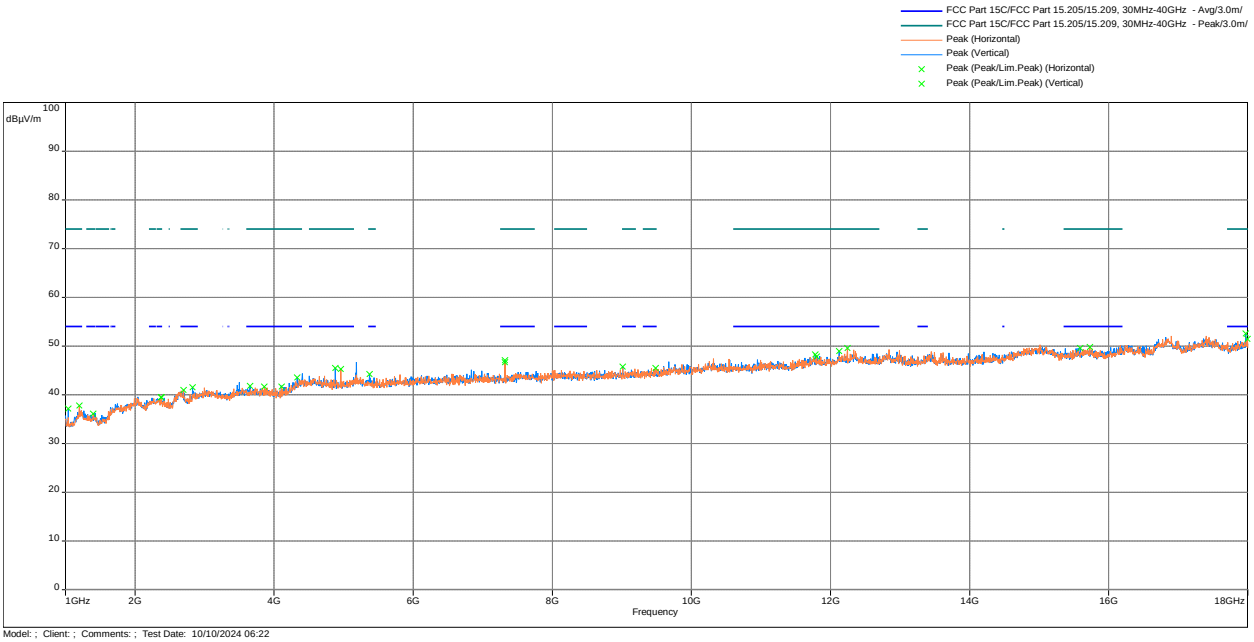
Frequency (MHz)	QPeak@ 10m (dBµV/m)	Lim. QPeak @10m (dBµV/m)	Margin (dB)	Angle (°)	Polarization	Correction (dB)
0.0353247	57.34	95.73	-38.39	358.75	Perpendicular	43.28
0.0676983	50.41	90.08	-39.67	139.5	Parallel	37.88
6.779685	31.22	48.6	-17.38	171.25	Horizontal	3.57

Radiated Spurious Emissions 30 MHz - 1000 MHz

Frequency (MHz)	QPeak@ 10m (dBµV/m)	Lim. QPeak @10m (dBµV/m)	Margin (dB)	Angle (°)	Height (m)	Polarization	Correction (dB)
169.633	31.22	33	-1.78	270	1.07	Vertical	-14.3
171.6741	31.56	33	-1.44	282.25	1.03	Vertical	-14.4
131.5235	29.85	33	-3.15	208.25	1.28	Vertical	-12.23
409.076	29.11	35.5	-6.39	202.5	2.00	Horizontal	-9.2

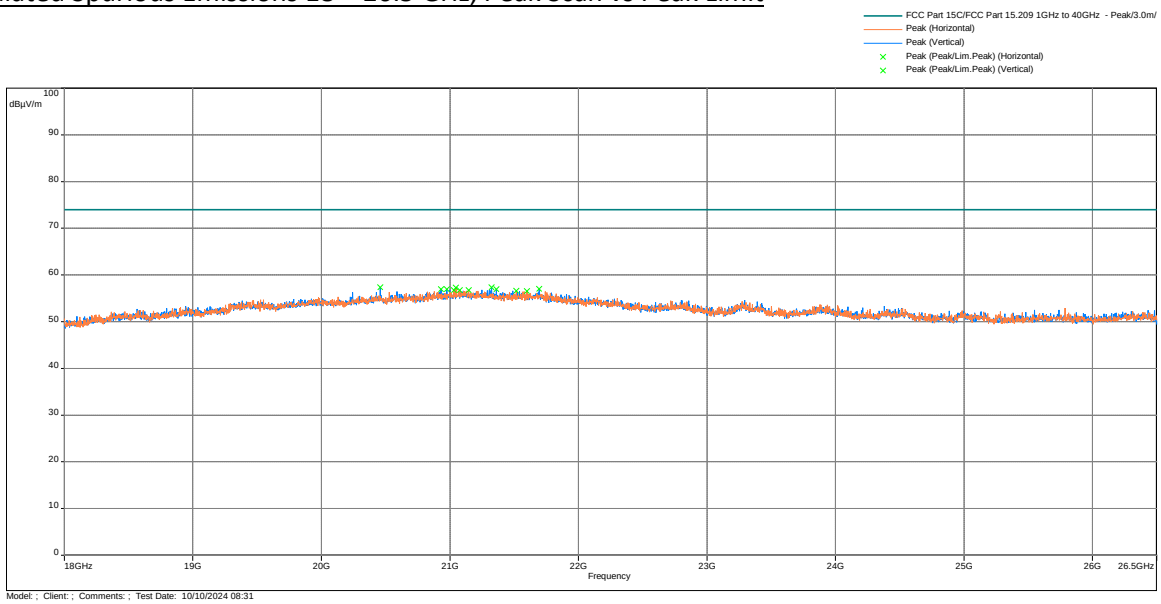
Note: Correction = AF + CF - Preamp

Radiated Spurious Emissions 1000 - 18000 MHz, Peak Scan vs Peak and Avg Limit



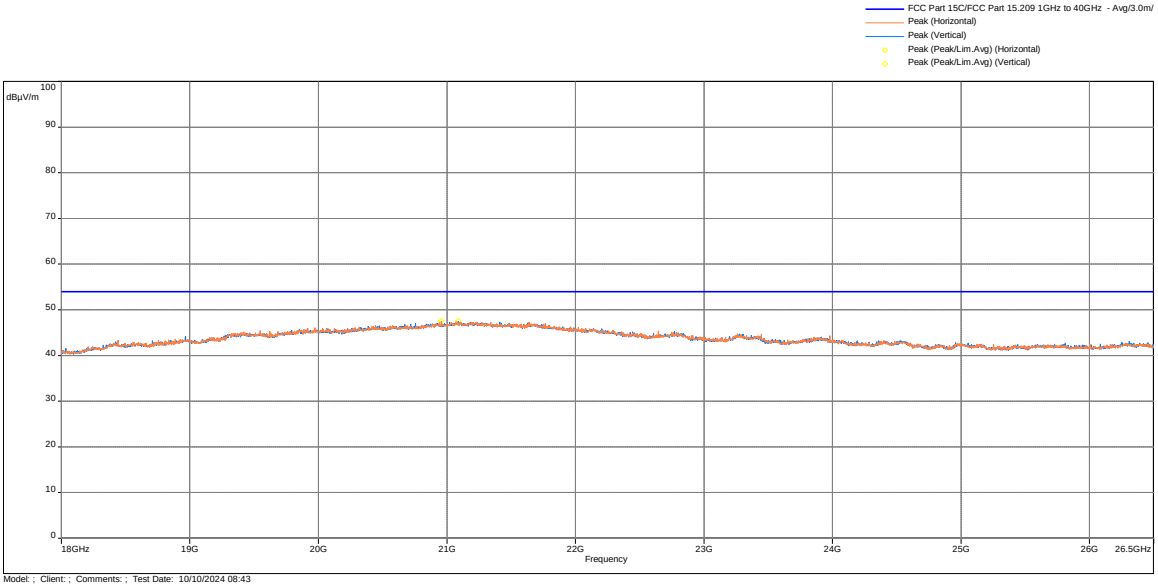
Frequency (MHz)	Peak @3m (dBµV/m)	Lim. Ave @3m (dBµV/m)	Margin (dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
5374.667	44.22	54	-9.78	2	347.5	Vertical	-6.04
7318.333	47.11	54	-6.89	1	62	Vertical	-4.3
12246.07	49.58	54	-4.42	4	47	Horizontal	1.69
17968.83	52.57	54	-1.43	1	41.5	Vertical	6.95

Radiated Spurious Emissions 18 – 26.5 GHz, Peak Scan vs Peak Limit



Frequency (MHz)	Peak @3m (dBµV/m)	Lim. Peak @3m (dBµV/m)	Margin dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
21324.63	57.38	74	-16.62	1	342	Vertical	3.87

Radiated Spurious Emissions 18 – 26.5 GHz, Average Scan vs Average Limit

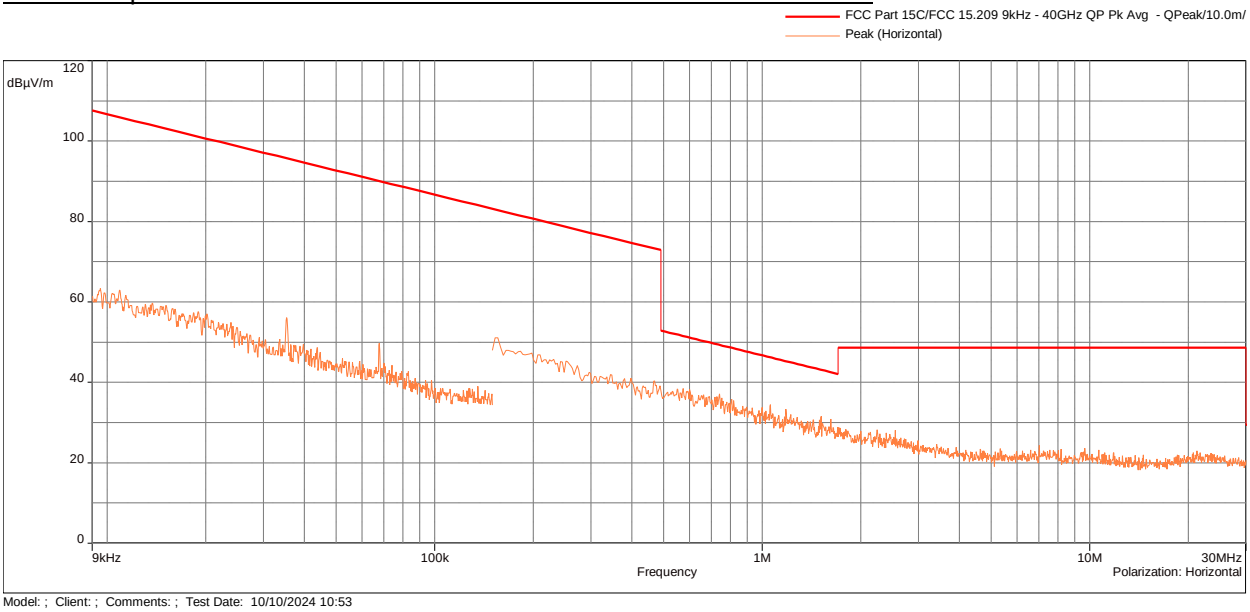


Frequency (MHz)	Ave @3m (dBµV/m)	Lim. Ave @3m (dBµV/m)	Margin dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
20956.58	47.55	54	-6.45	2.01	233	Horizontal	3.45

Note: Correction = AF + CF - Preamp

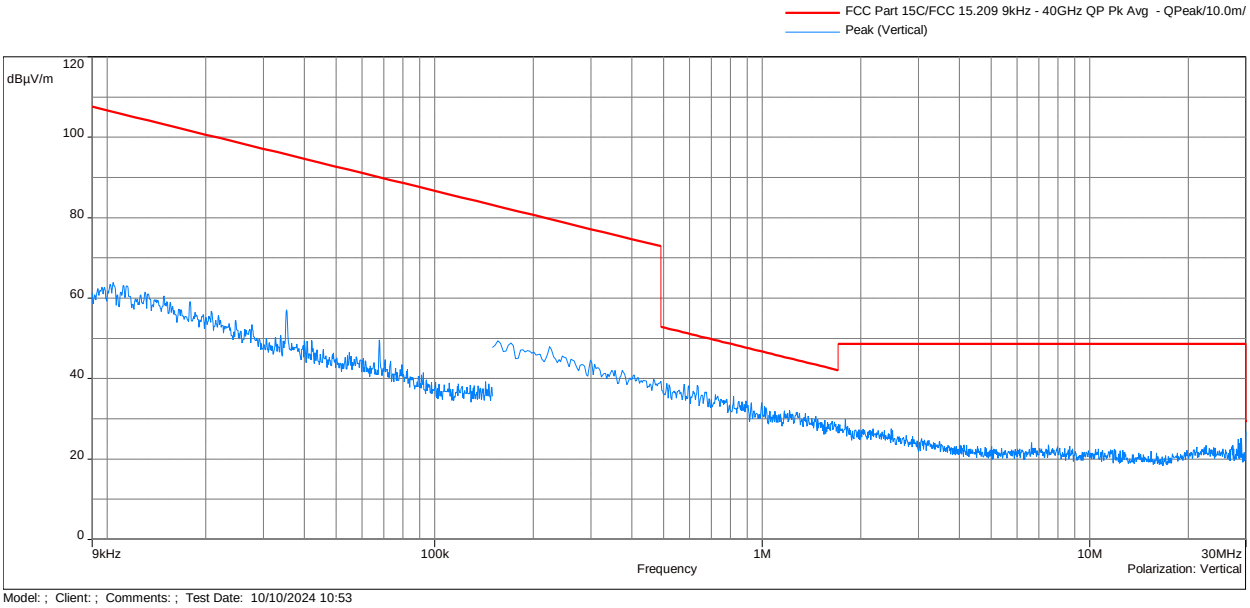
Test Results: 15.209 Radiated Spurious Emissions High Channel, Tx at 2480MHz

Radiated Spurious Emissions 9kHz - 30 MHz Parallel Antenna Polarization



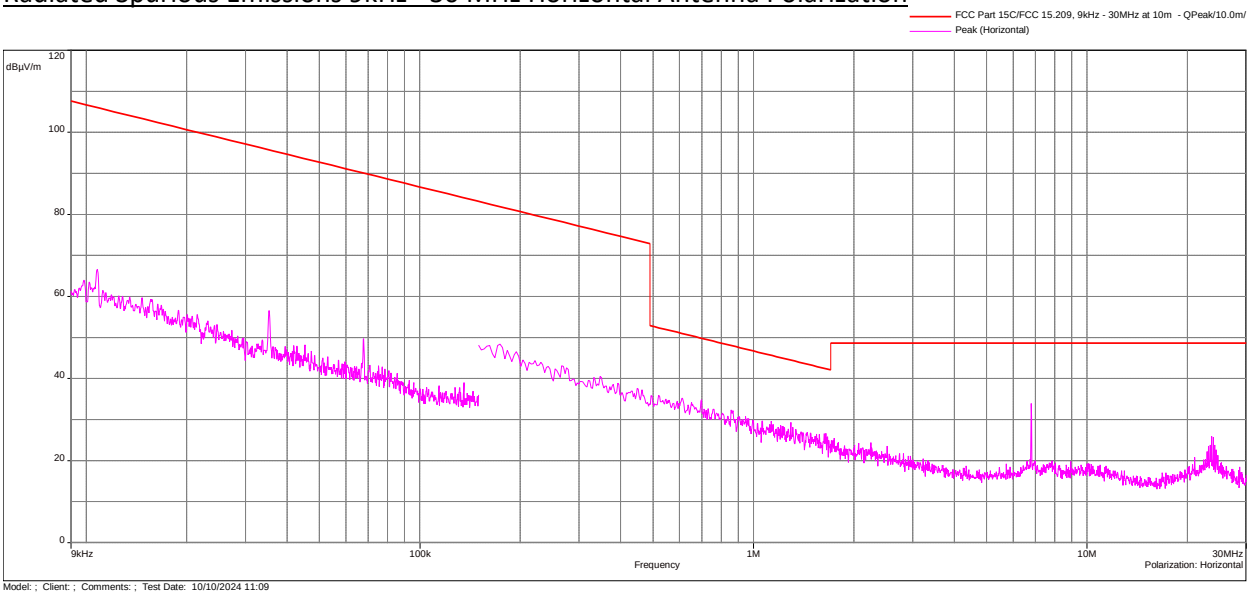
Model: ; Client: ; Comments: ; Test Date: 10/10/2024 10:53

Radiated Spurious Emissions 9kHz - 30 MHz Perpendicular Antenna Polarization



Model: ; Client: ; Comments: ; Test Date: 10/10/2024 10:53

Radiated Spurious Emissions 9kHz - 30 MHz Horizontal Antenna Polarization

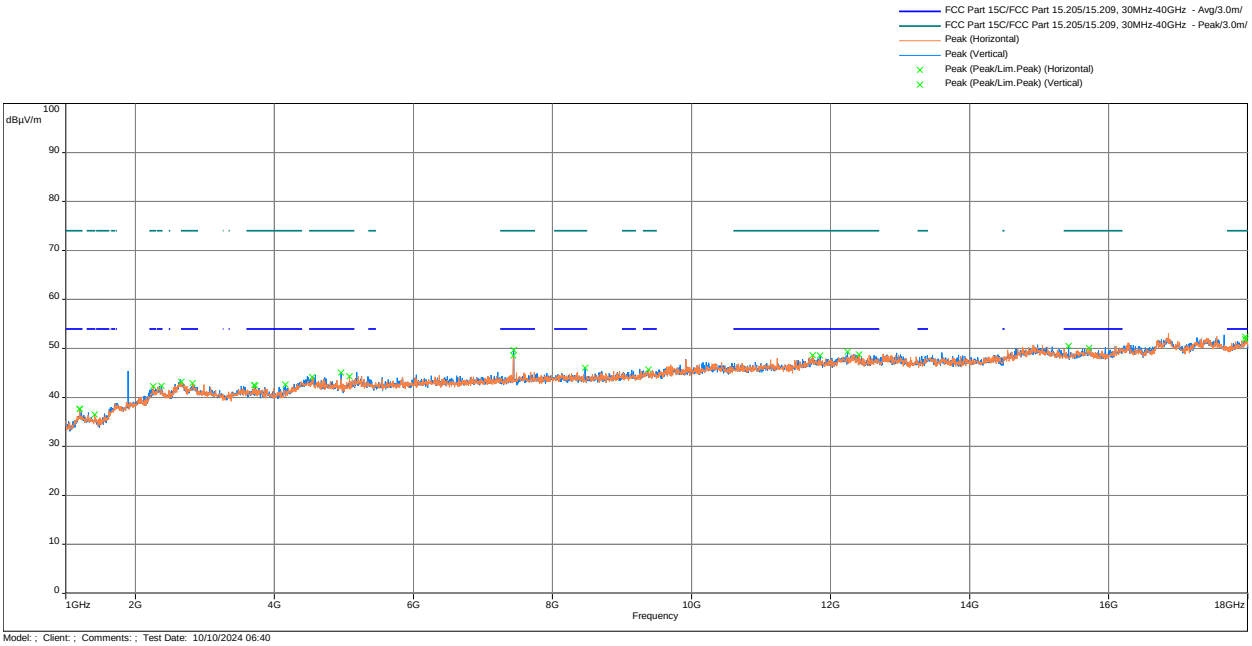


Frequency (MHz)	QPeak@ 10m (dBµV/m)	Lim. QPeak @10m (dBµV/m)	Margin (dB)	Angle (°)	Polarization	Correction (dB)
0.035297	57.11	95.74	-38.63	357.75	Perpendicular	43.29
0.067628	49.74	90.09	-40.35	3.25	Parallel	37.89
6.797595	33.97	48.6	-14.63	171	Horizontal	3.57

Radiated Spurious Emissions 30 MHz - 1000 MHz

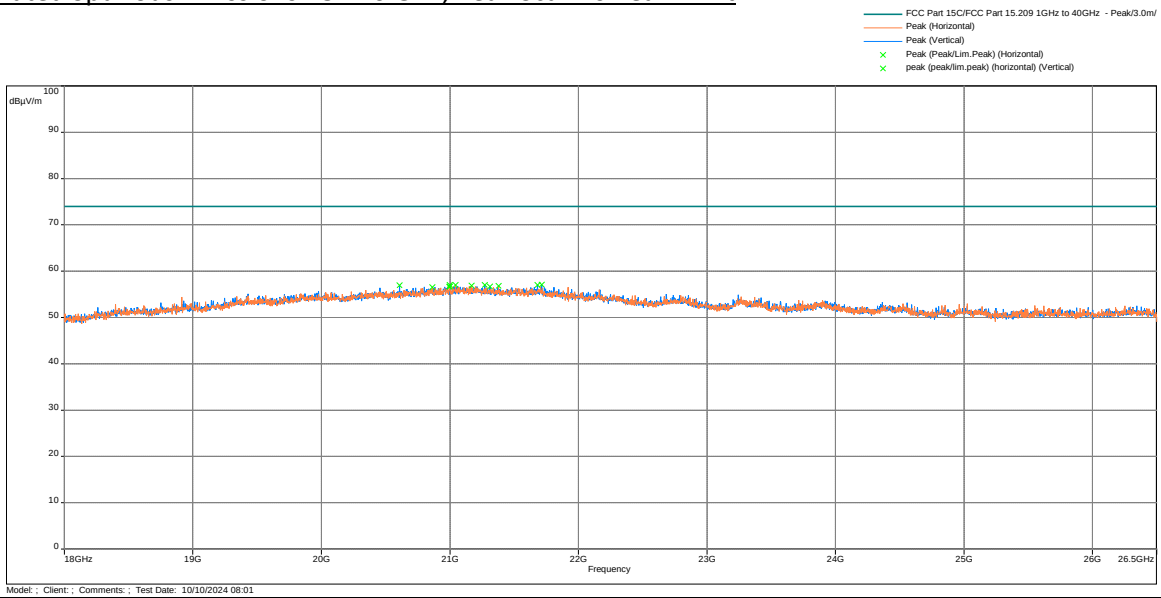
Frequency (MHz)	QPeak@ 10m (dBµV/m)	Lim. QPeak @10m (dBµV/m)	Margin (dB)	Angle (°)	Height (m)	Polarization	Correction (dB)
171.635	31.3	33	-1.7	282.75	1.33	Vertical	-14.4
170.6405	31.25	33	-1.75	280.5	1.12	Vertical	-14.35
131.5093	29.92	33	-3.08	206	1.43	Vertical	-12.23
73.42376	24.67	29.5	-4.83	13.75	1.96	Vertical	-18.65

Radiated Spurious Emissions 1000 - 18000 MHz, Peak Scan vs Peak and Avg Limit



Frequency (MHz)	Peak @3m (dBµV/m)	Lim. Ave @3m (dBµV/m)	Margin (dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
7437.9	48.52	54	-5.48	2	2.5	Horizontal	-3.66
11742.3	48.62	54	-5.38	4	64.5	Horizontal	1.75
17963.17	51.9	54	-2.1	1	181	Vertical	7.88

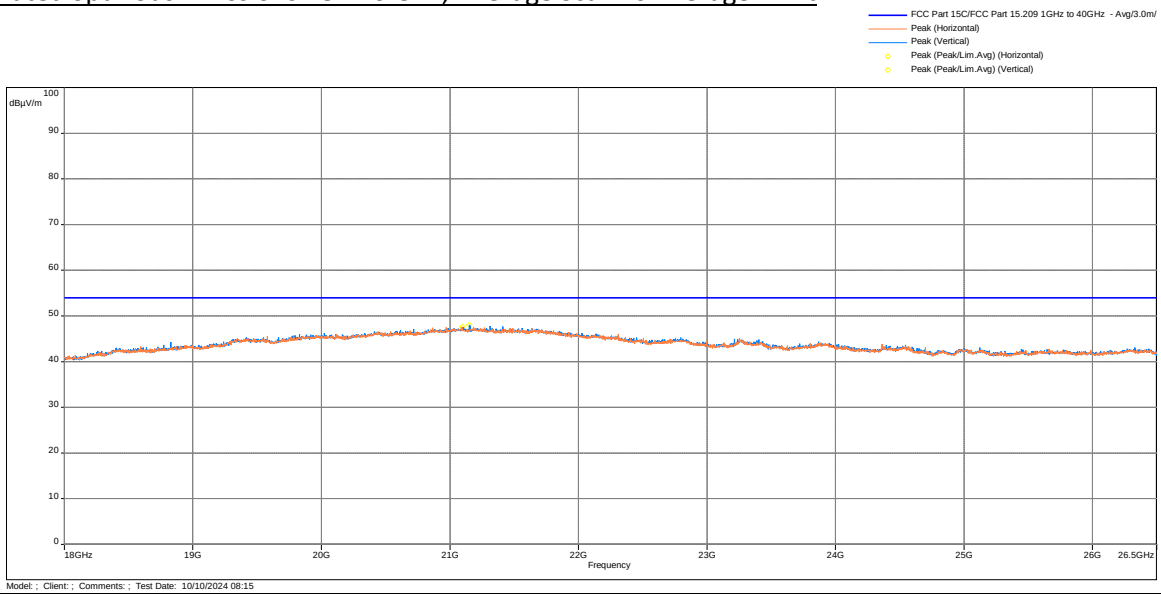
Radiated Spurious Emissions 18 - 26 GHz, Peak Scan vs Peak Limit



Frequency (MHz)	Peak @3m (dBµV/m)	Lim. Peak @3m (dBµV/m)	Margin dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
21715.35	57.06	74	-16.94	2	224	Vertical	4.07

Note: Correction = AF + CF - Preamp

Radiated Spurious Emissions 18 - 26 GHz, Average Scan vs Average Limit



Frequency (MHz)	Ave @3m (dBµV/m)	Lim. Ave @3m (dBµV/m)	Margin dB)	Height (m)	Angle (°)	Polarization	Correction (dB)
21150.67	48.08	54	-5.92	2	357.75	Vertical	3.76

Note: Correction = AF + CF - Preamp

4.6 AC Line Conducted Emission

FCC: 15.207; RSS-GEN;

4.6.1 Requirement

Frequency Band MHz	Class B Limit dB(μV)		Class A Limit dB(μV)	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15-0.50	66 to 56 *	56 to 46 *	79	66
0.50-5.00	56	46	73	60
5.00-30.00	60	50	73	60

*Note: *Decreases linearly with the logarithm of the frequency. At the transition frequency the lower limit applies.*

4.6.2 Procedure

Measurements are carried out using quasi-peak and average detector receivers in accordance with CISPR 16. An AMN is required to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN as defined in CISPR 16 shall be used.

The EUT is located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

Where a flexible mains cord is provided by the manufacturer, this shall be 1m long or if in excess of 1m, the excess cable is folded back and forth as far as possible so as to form a bundle not exceeding 0.4m in length.

The EUT is arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance is measured between the phase lead and the reference ground, and between the neutral lead and the reference ground. Both measured values are reported.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for larger EUT.

Floor standing EUT are placed on a horizontal metal ground plane and isolated from the ground plane by resting on an insulating material. The metal ground plane extends at least 0.5m beyond the boundaries of the EUT and has minimum dimensions of 2m by 2m.

Equipment setup for conducted disturbance tests followed the guidelines of ANSI C63.10-2013.

4.6.3 Test Result

Tested By	Test Date	Results
Erica Chan	October 10, 2024	Complies

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Frequency (MHz)	Q-Peak (dBµV)	Limit Q-Peak (dBµV)	Margin Q-Peak (dB)	Line	Correction (dB)
0.573	49.86	56	-6.14	Phase 1	10.86
0.483	48.71	56.29	-7.58	Phase 2	10.82
0.3435	51.05	59.12	-8.06	Phase 1	10.91
0.6045	45.79	56	-10.21	Phase 2	10.81
0.7935	45.75	56	-10.25	Phase 1	10.86
1.02075	43.2	56	-12.8	Phase 1	10.86

Frequency (MHz)	CISPR AVG (dBµV)	Limit Avg (dBµV)	Margin Avg (dB)	Line	Correction (dB)
0.6045	42.9	46	-3.1	Phase 2	10.81
0.3615	45.36	48.69	-3.34	Phase 1	10.9
0.798	41.96	46	-4.04	Phase 1	10.86
1.02075	37.66	46	-8.34	Phase 1	10.86
0.25575	37.56	51.57	-14.01	Phase 1	10.97
0.1905	37.81	54.01	-16.21	Phase 2	11.02

5.0 List of Test Equipment

Measurement equipment used for compliance testing utilized the equipment on the following list:

Asset	Description	Manufacturer	Model	Cal Date	Cal Due
01577	30MHz-2GHz Bi-Log Antenna	SunAR RF Motion	JB1	02/28/2024	02/28/2025
01607	EMI Test Receiver	Rohde & Schwarz	ESR7	10/18/2023	10/18/2024
00961	EMI Test Receiver 40GHz	Rohde & Schwarz	ESU40	04/26/2024	04/26/2025
01824	1-18GHz Horn Antenna (RED)	ETS Lindgren	3117-PA	08/19/2024	08/19/2025
02114	1-18GHz Horn Antenna	RF Spin	DRH18-E	10/02/2024	10/02/2025
00942	9kHz to 1GHz Amplifier	Sonoma Instrument	310	04/20/2024	04/20/2025
00984	Radio Frequency Shielded System	Panashield	10 Meter Chamber	09/22/2022	09/22/2025
01573	9kHz-30MHz Loop Antenna (Passive)	ETS Lindgren	6512	11/30/2023	11/30/2024
00913	Spectrum Analyzer 20hz-26.5ghz	Rohde & Schwarz	FSU	06/14/2024	06/14/2025
02026	Digital Multimeter	Fluke	114	01/18/2024	01/18/2025

No Calibration required

Software used for emission compliance testing utilized the following:

Name	Manufacturer	Version	Template/Profile
BAT-EMC	Nexio	3.20.0.23	ESU and ESR Intertek Emissions Template
RS Commander	Rohde Schwarz	1.6.4	Not Applicable (Screen grabber)

6.0 Document History

Revision/ Job Number	Writer Initials	Reviewers Initials	Date	Change
1.0 / G105874658	EC	AS	November 15, 2024	Original document
2.0 / G105874658	EC	AS	May 29, 2025	Updated Rated RF Output power & Removed Setup pictures due to confidentiality.

END OF REPORT