TEST REPORT

Report Number: 15685137-E1V4

Applicant	:	Hunter Douglas Window Fashions 1 Duette Way Broomfield, CO 80020, US
Model	:	2021000193
FCC ID	:	UXURC4U6
IC	:	7316A-RC4U6
EUT Description	:	5CH BLE Remote
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C ISED RSS-247 ISSUE 3 ISED RSS-GEN ISSUE 5 + A1 + A2

Date Of Issue:
2025-07-10

Prepared by:
UL VERIFICATION SERVICES INC.
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Fremont, CA 94538 U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888

ACCREDITED
CERT #0751.05

REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2025-04-01	Initial Issue	---
V2	2025-05-21	Updated detector name for Section 10, updated Section 6.1 EUT description.	Tina Chu
V3	2025-06-11	Updated Section 6.1 and 6.5	Kiya Kedida
V4	2025-07-10	Updated testing period, Section 6.1, 6.5, 7, 10.1 to address TCB's questions	Tina Chu

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Hunter Douglas Window Fashions
1 Duette Way
Broomfield, CO 80020, US

EUT DESCRIPTION: 5CH BLE Remote

MODEL: 2021000193

SERIAL NUMBER: Radiated: AA9B81AB387AB09B
Conducted: 918B7C712974C6AE

SAMPLE RECEIPT DATE: 2025-03-12

DATE TESTED: 2025-03-24 to 2025-03-28, 2025-06-10

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 3	Complies
ISED RSS-GEN Issue 5 + A1 + A2	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

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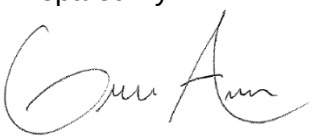
Approved & Released For
UL Verification Services Inc. By:

Kiya Kedida
Lead Project Engineer
Consumer Technology Division
UL Verification Services Inc.

Prepared By:



Gerardo Abrego
Senior Test Engineer
Consumer Technology Division
UL Verification Services Inc.

Reviewed By:

Henry Lau
Senior Project Engineer
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2. TEST RESULTS SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

Below is a list of the data provided by the customer:

1) Antenna gain and type (see section 6.3)
2) Cable Loss (see section 6.3)

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
-	RSS-GEN 6.7	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	RSS-247 5.2 (a)	6dB BW	Complies	None.
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power	Complies	None.
See Comment		Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	RSS-247 5.2 (b)	PSD	Complies	None.
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Complies	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Not Applicable	EUT is a battery operated device.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15
- ANSI C63.10-2020
- KDB 558074 D01 15.247 Meas Guidance
- KDB 414788 D01 Radiated Test Site
- RSS-247 Issue 3
- RSS-GEN Issue 5 + A1 + A2

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, Certificate Number 0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☐	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☐	Building 3: 843 Auburn Court, Fremont, CA 94538, USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☐	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			

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5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Power Spectral Density	2.47 dB
RF Power Measurement Direct Method Using Power Meter	1.3 dB (PK) / 0.45 dB (AV)
Unwanted Emissions, Conducted	1.94 dB
Worst Case Conducted Disturbance, 9kHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9kHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Time Domain Measurements	3.39%
Temperature	0.57˚C
Relative Humidity	3.39%
DC Supply Voltages	0.57%

Uncertainty figures are valid to a confidence level of 95%.

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5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

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6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a 5CH BLE Remote. This device was tested for limited modular approval in both stand-alone mode (using a plastic, non-conductive jig to support the batteries used to power the device) and inside a representative remote control host.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	BLE (1Mbps)	4.72	2.96
2402 - 2480	BLE (2Mbps)	4.70	2.95

6.3. DESCRIPTION OF AVAILABLE ANTENNAS AND CABLE LOSS

The antenna(s) gain, type and cable loss, as provided by the manufacturer' are as follows:

The radio utilizes a PCB trace antenna, with a maximum gain of 1.5 dBi.
Cable loss: 0.5dB.

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was FW: 1.0

The test utility software used during testing was Putty.

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6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emissions were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Band edge was performed with the EUT set to transmit at the highest power on low and high channels for all modes.

For radiated emissions between 1GHz and 18GHz, 1Mbps and 2Mbps were tested to cover worst case PSD and worst-case power.

For standalone module tested inside the test jig, the fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

For module tested inside the host, the fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation. Based on standalone module testing, the following worst-case modes were selected for module tested in the host.

- 1Mbps: mid channel 1G-18G radiated spurious emissions
- 2Mbps: bandedge and high channel 1G-18G radiated spurious emissions.

EUT supports the following data rates:

- 1Mbps
- 2Mbps

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6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID/ DoC**
Laptop	Lenovo	T410	R8H766B	N/A
Laptop AC/DC AC/DC Adapter	Lenovo	ADLX90NLC2A	11S45N0247Z1ZS9B54B8EJ	N/A

I/O CABLES (RF CONDUCTED TEST/RF RADIATED)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	2	AC	Un-shielded	1.25	AC Mains to AC/DC Adapter/Analyzer
2	DC	1	DC	Un-shielded	1	AC/DC Adapter to Laptop
3	USB-A to 3 pin	1	USB-A	Shielded	1.5	Laptop to EUT
4	Antenna port	1	SMA	Un-shielded	0.1	EUT to Analyzer/ Power Meter

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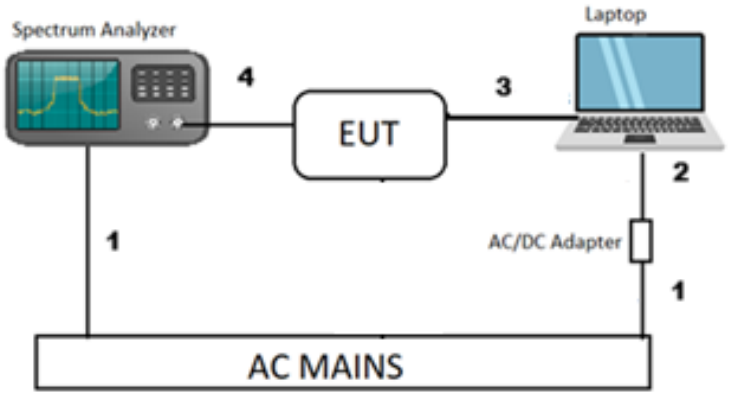
TEST SETUP

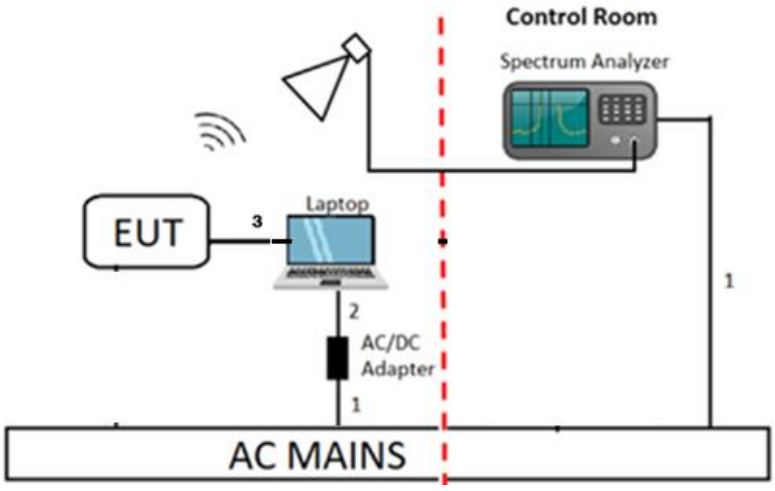
The EUT is a battery powered device and the radio is exercised by a support laptop with command prompt scripts.

SETUP DIAGRAM

Conducted Configuration



Radiated Configuration



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7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO METRICS	EM-6871	219908	*2025-05-31	2023-05-31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO METRICS	EM-6872	219910	*2025-05-31	2023-05-31
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB1	80293	*2025-04-30	2023-04-11
Amplifier,9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	170647	*2025-03-31	2024-03-25
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	80707	2025-06-30	2024-06-07
RF Filter Box, 1-18GHz	UL-FR1	SAC 8 port rf box 1	197920	*2025-03-31	2024-03-30
RF Filter Box, 1-18GHz	UL-FR1	SAC 8 port rf box 1	197920	2026-03-31	2025-03-21
EMI TEST RECEIVER, with B8 option	Rohde & Schwarz	ESW44	245268	2026-02-28	2025-02-10
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	199658	2026-02-28	2024-02-02
Amplifier 18-26.5GHz, +5Vdc, -54dBm P1dB	AMPLICAL	AMP18G26.5-60	234683	*2025-05-31	2024-05-13
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	85214	2026-01-31	2025-01-24
Power Meter, P-series single channel	Keysight Technologies Inc	N1921A	90718	2026-01-31	2025-01-24
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1911A	90419	2026-01-31	2025-01-24
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236188	Verified Before Use	
UL TEST SOFTWARE LIST					
Radiated Software	UL	UL EMC	Ver 2024-08-15, 2023-03		
Antenna Port Software	UL	UL RF	Ver 2022-08-16		

*Testing was completed before equipment calibration date

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8. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10 Section 11.6.

6 dB BW: ANSI C63.10 Subclause -11.8.1 RBW ≥ DTS BW

Occupied BW (99%): ANSI C63.10 Section 6.9.3

Output Power: ANSI C63.10 Subclause -11.9.1.2 Method PKPM1 Peak-reading power meter
Output Power: ANSI C63.10 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated RF average-reading power meter)

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1

Conducted emissions in restricted frequency bands: ANSI C63.10 Subclause -11.12.2

Band-edge: ANSI C63.10 Subclause -6.10.5.2 Peak detection

AC Power Line Conducted Emissions: ANSI C63.10 Section 6.2.

Radiated Spurious Emissions Below 30MHz: ANSI C63.10 Section 6.4

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

ON TIME AND DUTY CYCLE RESULTS

Manufacturering has declared the maximum operating duty cycle to be 25% (7.5ms within 30 ms or 25ms within 100ms).

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9.2. 99% BANDWIDTH

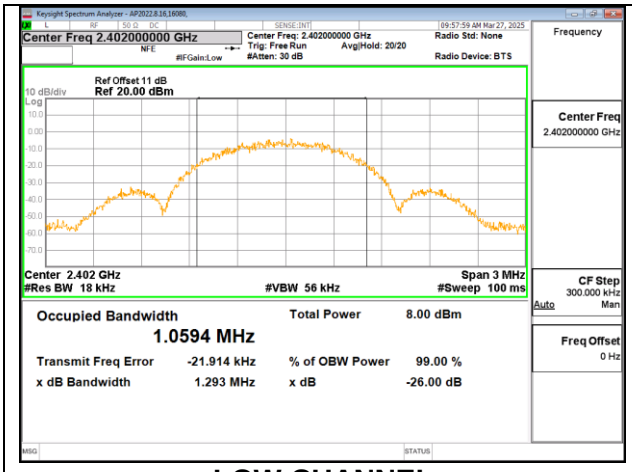
LIMITS

None; for reporting purposes only.

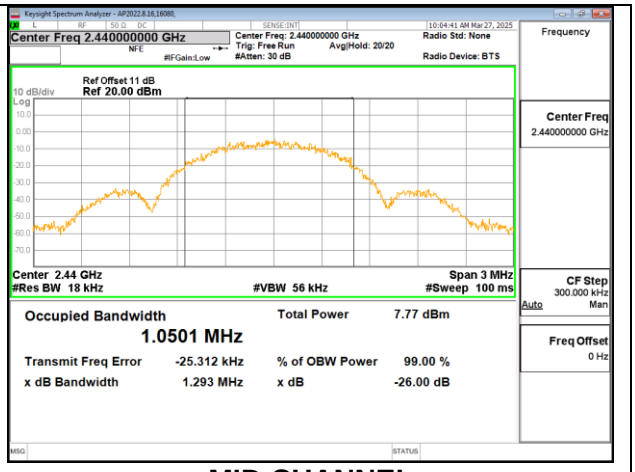
RESULTS

9.2.1. BLE (1Mbps)

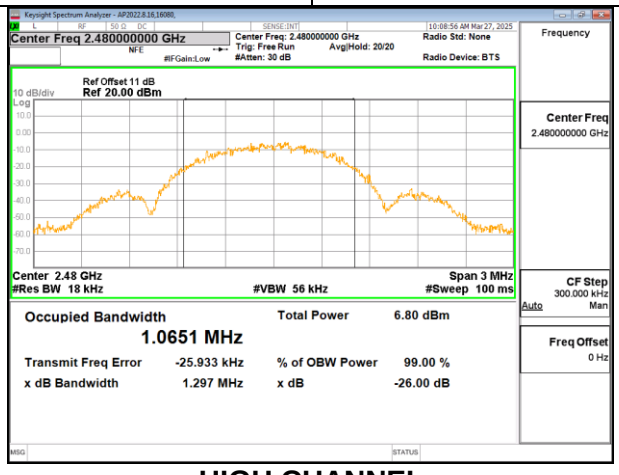
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0594
Middle	2440	1.0501
High	2480	1.0651



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

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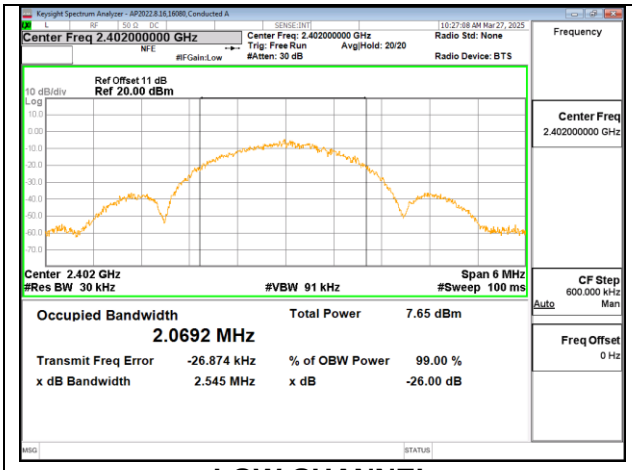
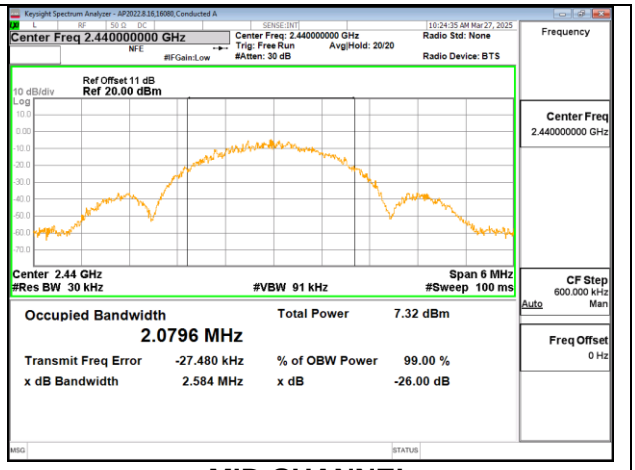
9.2.2. BLE (2Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.0692
Middle	2440	2.0796
High	2478	2.0657



LOW CHANNEL



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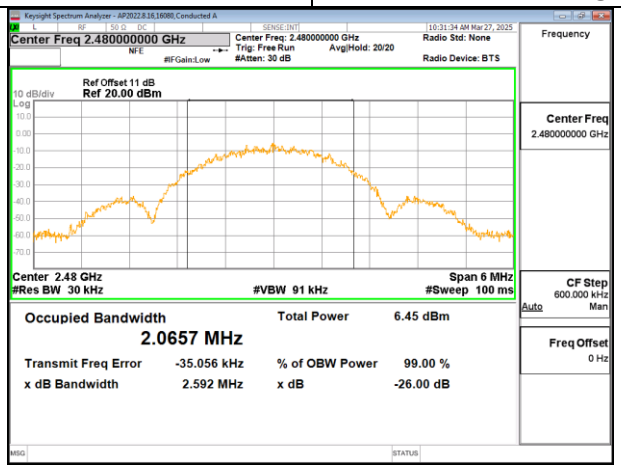

HIGH CHANNEL

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9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

RSS-247 5.2 (a)

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

RESULTS

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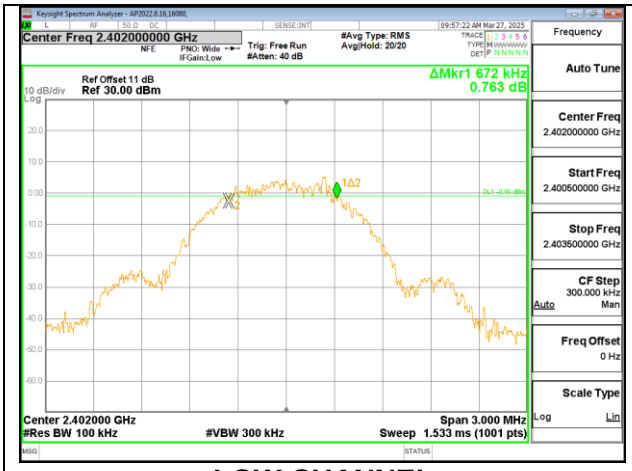
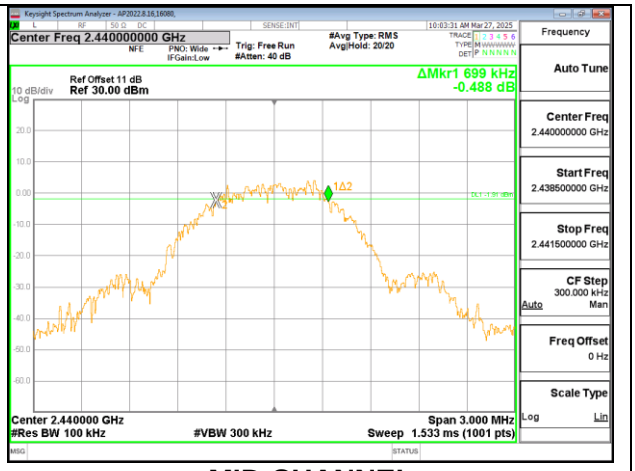
9.3.1. BLE (1Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.6720	0.5
Middle	2440	0.6990	0.5
High	2480	0.6900	0.5



LOW CHANNEL



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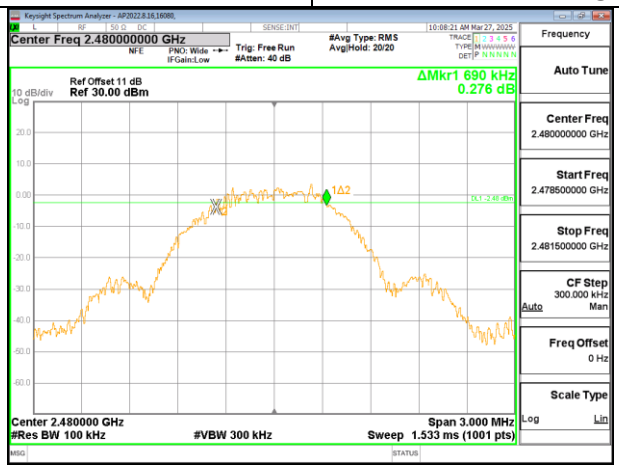

HIGH CHANNEL

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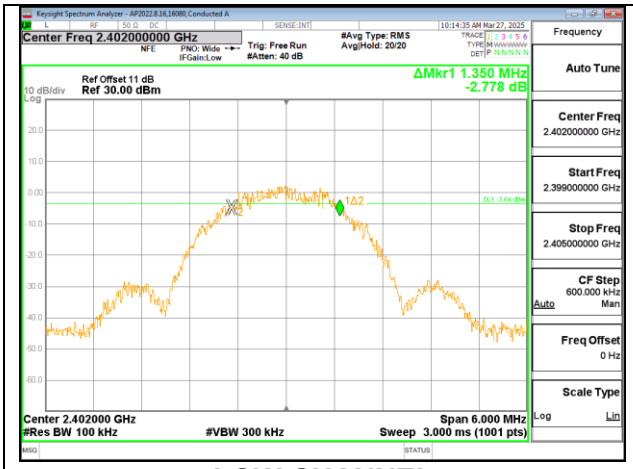
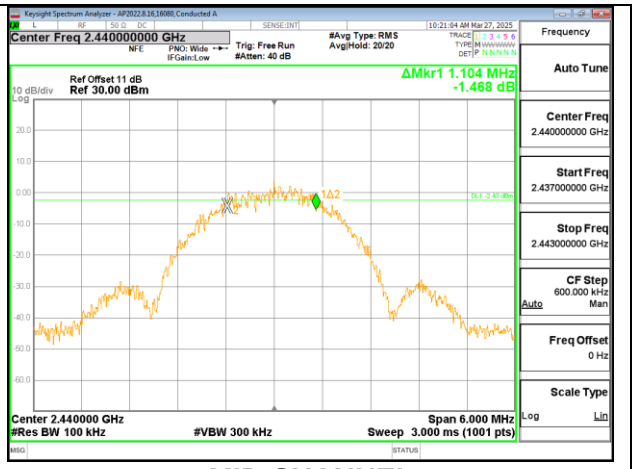
9.3.2. BLE (2Mbps)

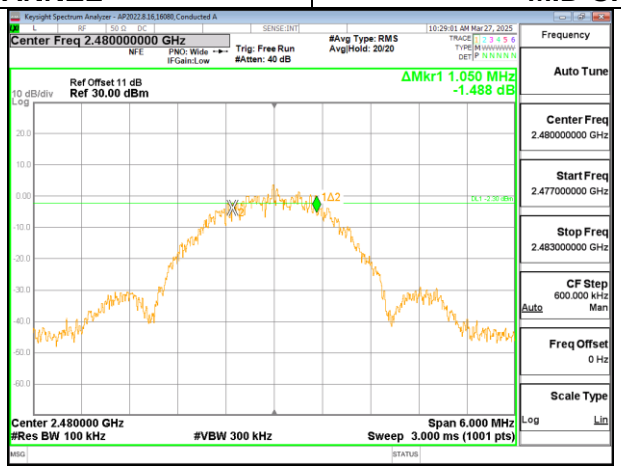
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2404	1.3500	0.5
Middle	2440	1.1040	0.5
High	2478	1.0500	0.5



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

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9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The power output was measured on the EUT antenna port using an SMA cable with a 10dB attenuator connected to a power meter via a wideband power sensor. Peak output power was read directly from a power meter.

RESULTS

9.4.1. BLE (1Mbps)

Tested By:	ZS 16080
Date:	2025-03-27

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	4.72	30	-25.280
Middle	2440	4.21	30	-25.790
High	2480	3.43	30	-26.570

9.4.2. BLE (2Mbps)

Tested By:	ZS 16080
Date:	2025-03-27

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	4.70	30	-25.300
Middle	2440	4.20	30	-25.800
High	2478	3.40	30	-26.600

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9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The power output was measured on the EUT antenna port using an SMA cable with a 10dB attenuator connected to a power meter via a wideband power sensor. Gated average output power was read directly from a power meter.

RESULTS

9.5.1. BLE (1Mbps)

Tested By:	ZS 16080
Date:	2025-03-27

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	4.6
Middle	2440	4.09
High	2480	3.28

9.5.2. BLE (2Mbps)

Tested By:	ZS 16080
Date:	2025-03-27

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	4.58
Middle	2440	4.08
High	2478	3.28

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9.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

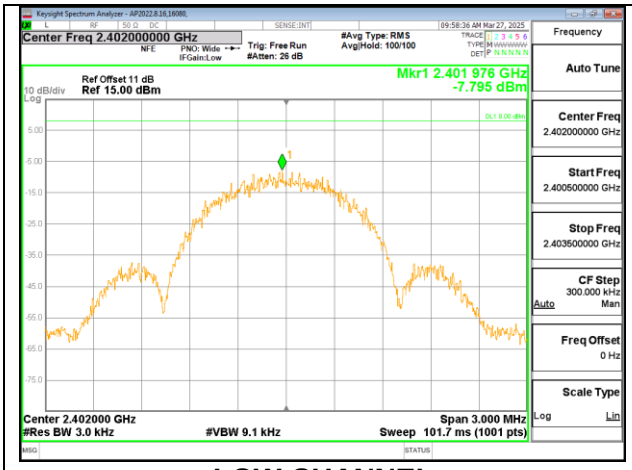
RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

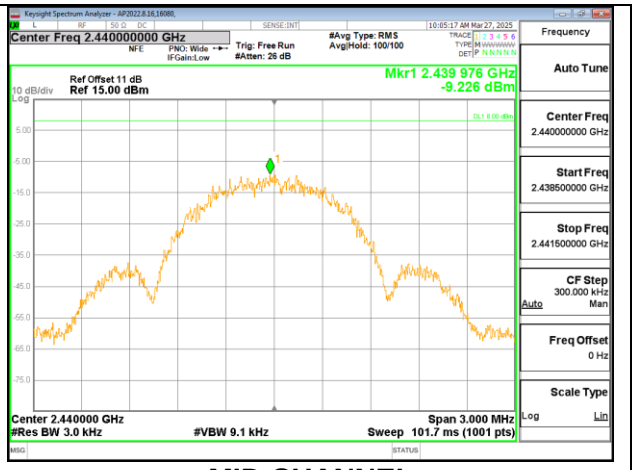
RESULTS

9.6.1. BLE (1Mbps)

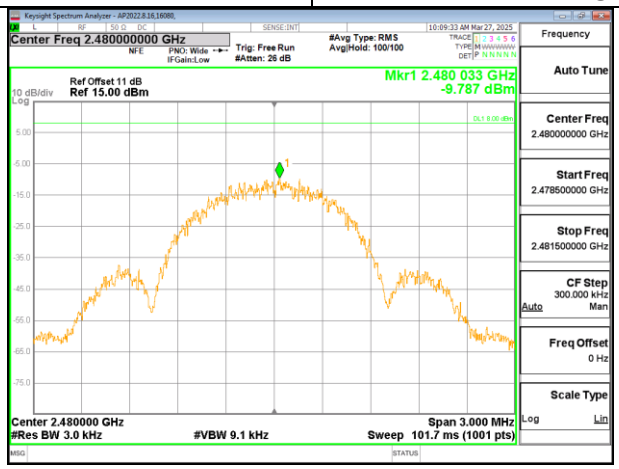
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-7.795	8	-15.80
Middle	2440	-9.226	8	-17.23
High	2480	-9.787	8	-17.79



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

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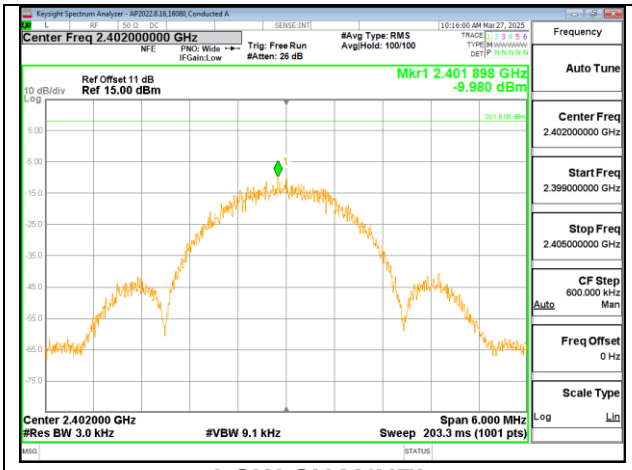
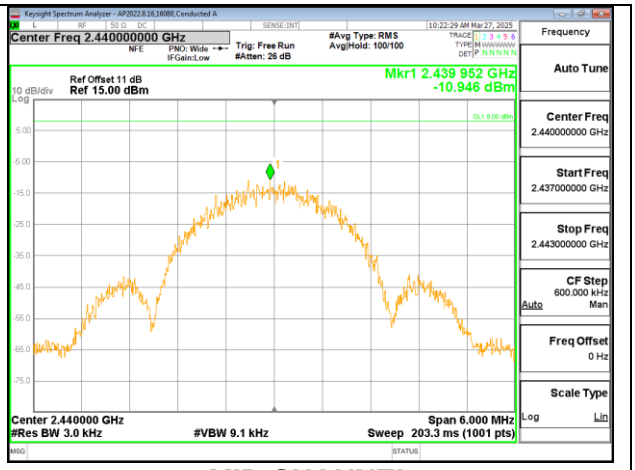
9.6.2. BLE (2Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-9.980	8	-17.98
Middle	2440	-10.946	8	-18.95
High	2478	-11.854	8	-19.85



LOW CHANNEL



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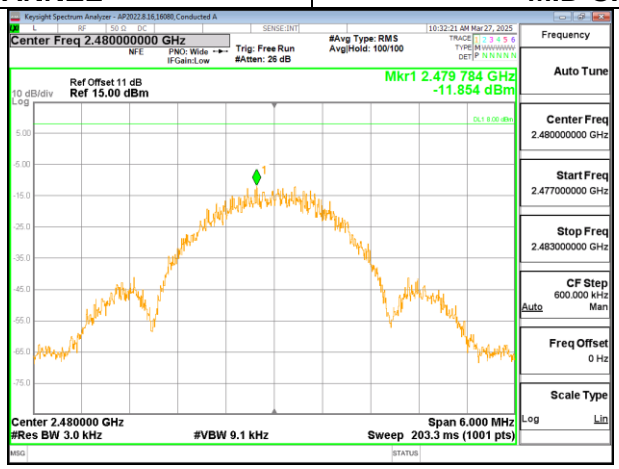

HIGH CHANNEL

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9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dBc.

RESULTS

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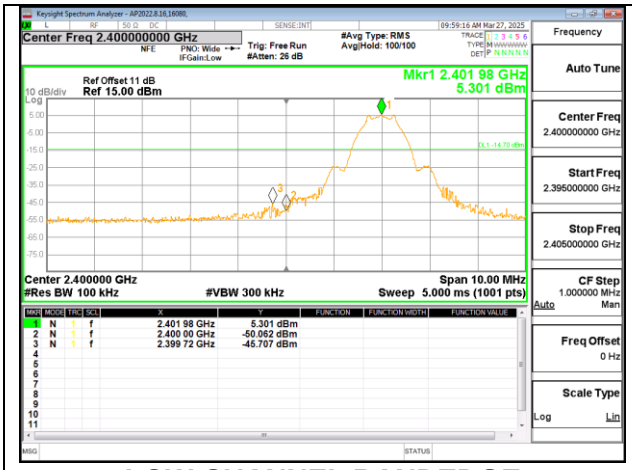
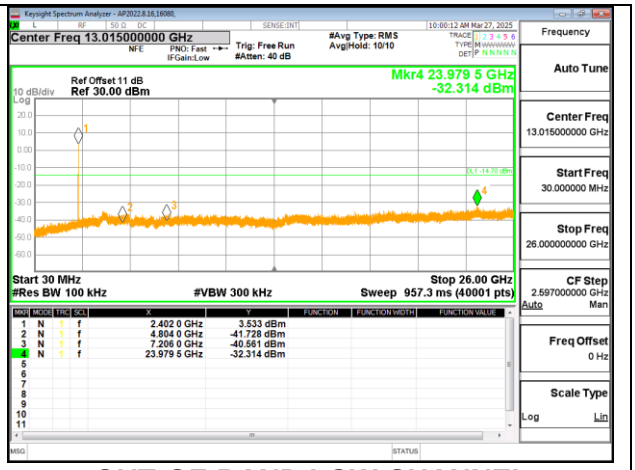
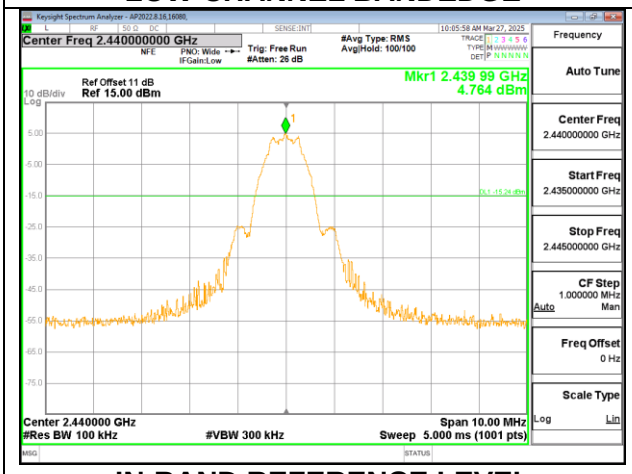
9.7.1. BLE (1Mbps)



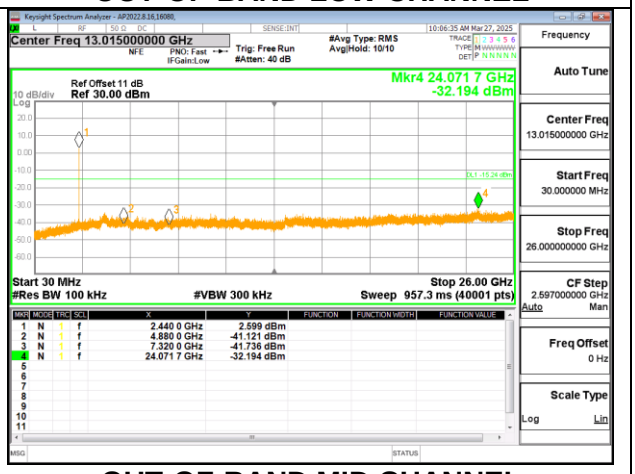
LOW CHANNEL BANDEDGE



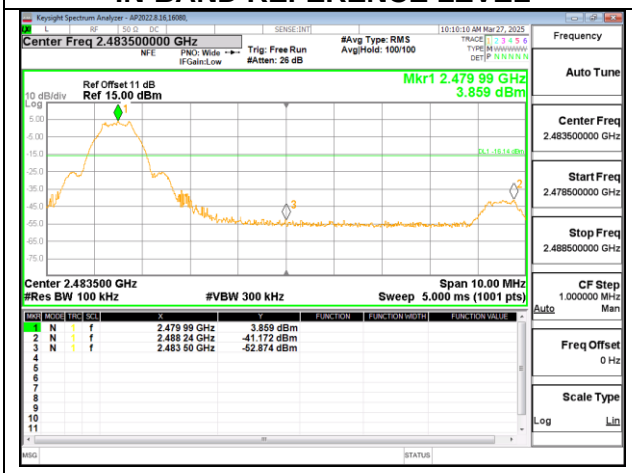
OUT-OF-BAND LOW CHANNEL



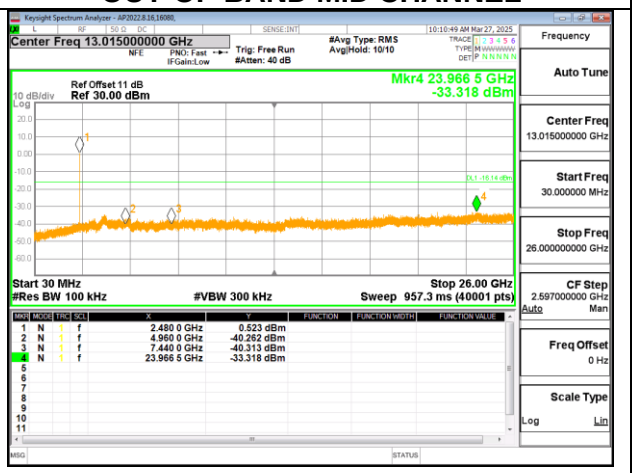
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

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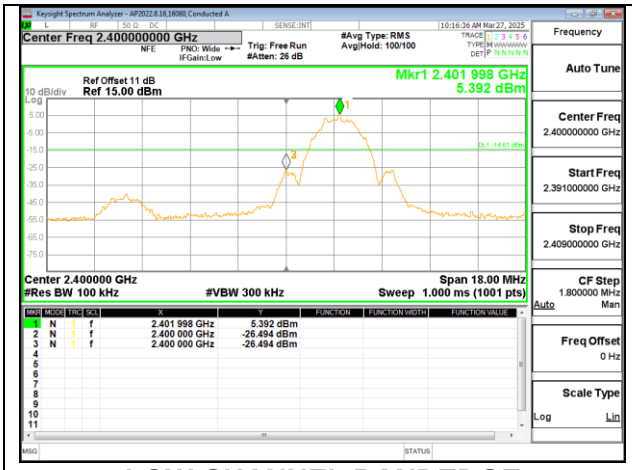
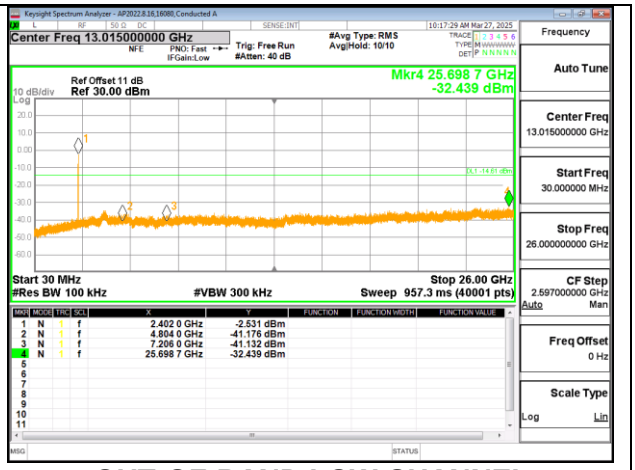
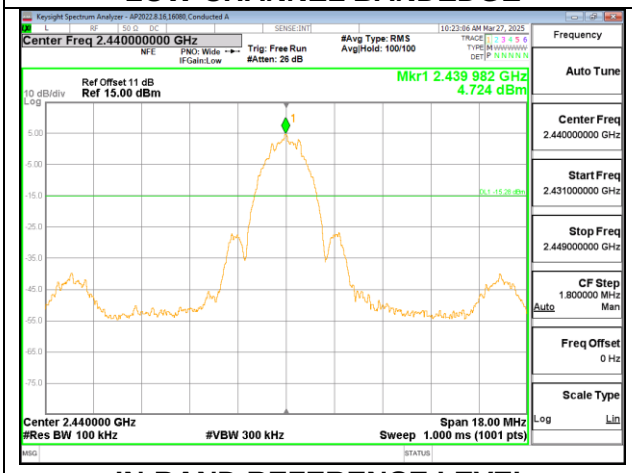
9.7.2. BLE (2Mbps)



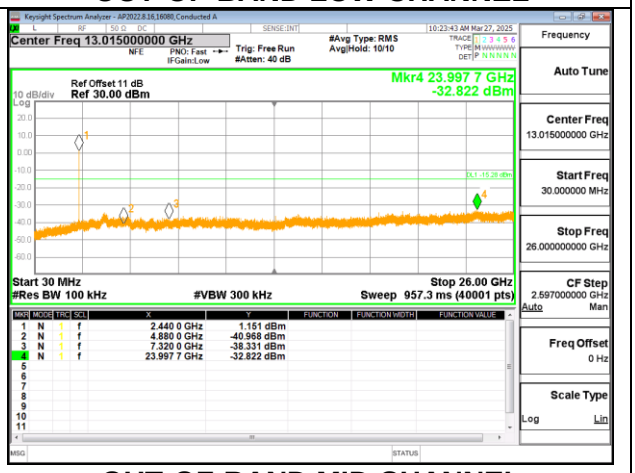
LOW CHANNEL BANDEDGE



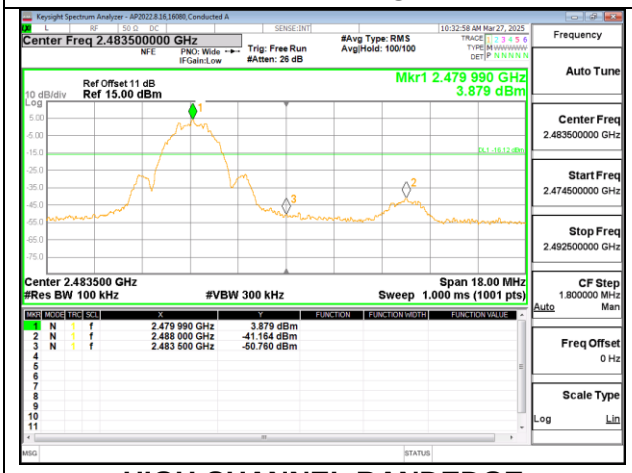
OUT-OF-BAND LOW CHANNEL



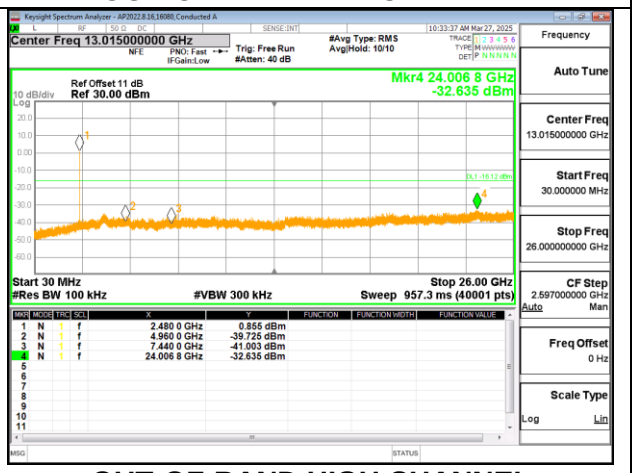
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

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10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

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The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

NOTE: The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table), using the free space impedance of 377 Ohms. For example the measurement at frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to Y – 51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

KDB 558074 D01 15.247 Meas Guidance v05r02

Use of a duty cycle correction factor (DCCF) is permitted for calculating average radiated field strength emission levels for an FHSS device in 15.247. This DCCF can be applied when the field strength limit (e.g., within a Government Restricted band) and the conditions specified in Section 15.35(c) can be satisfied. The average radiated field strength is calculated by subtracting the DCCF from the maximum radiated field strength level as determined through measurement. The maximum radiated field strength level represents the worst-case (maximum amplitude) RMS measurement of the emission(s) during continuous transmission (i.e., not including any time intervals during which the transmitter is off or is transmitting at a reduced power level). It is also acceptable to apply the DCCF to a measurement performed with a peak detector instead of the specified RMS power averaging detector. Note that Section 15.35(c) specifies that the DCCF shall represent the worst-case (greatest duty cycle) over any 100 msec transmission period.

Note - For this test program, Peak detection was used. The DCCF was then subtracted from the peak value. The DCCF was calculated based on the worst case on-time of 25ms within 100ms or 7.5ms within 30ms specified by manufacturer.
Therefore, DCCF= 20log (25 / 100) = -12.04dB.

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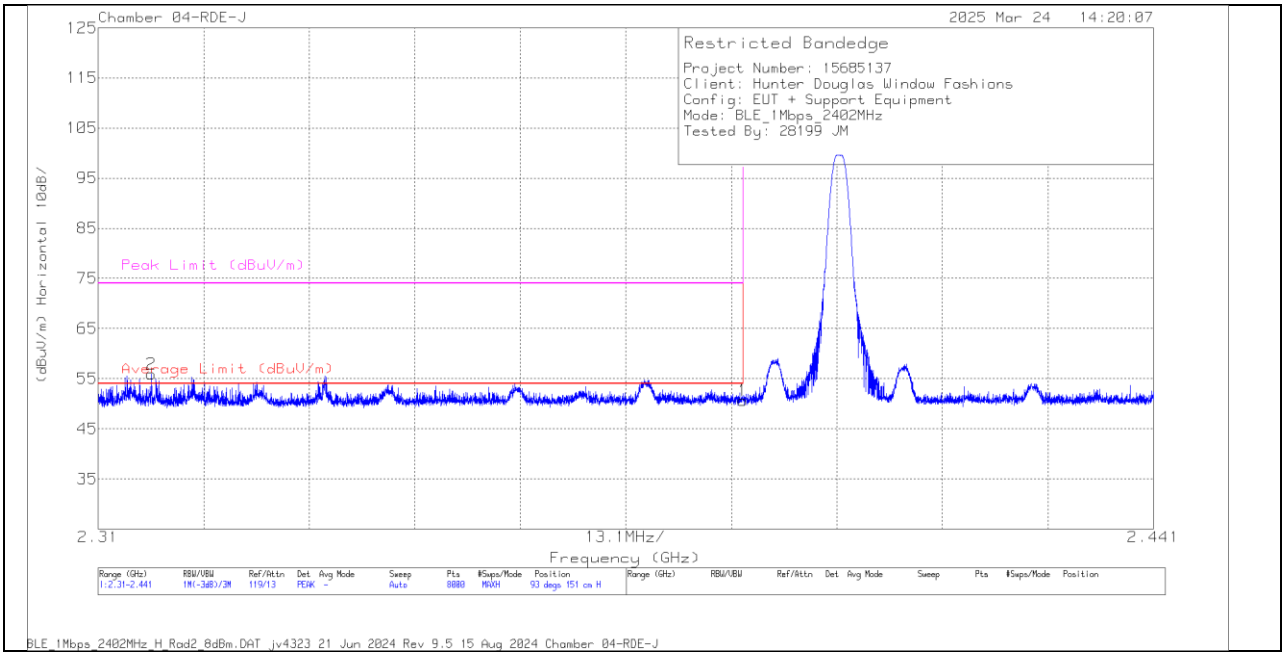
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. BLE (1Mbps), STANDALONE ON A TEST JIG

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	55.11	Pk	32.2	-36.7	0	50.61	-	-	74	-23.39	93	151	H
	* 2.39	55.11	Av	32.2	-36.7	-12.04	38.57	54	-15.43	-	-	93	151	H
2	* 2.316616	60.95	Pk	31.9	-36.9	0	55.95	-	-	74	-18.05	93	151	H
	* 2.316616	60.95	Av	31.9	-36.9	-12.04	43.91	54	-10.09	-	-	93	151	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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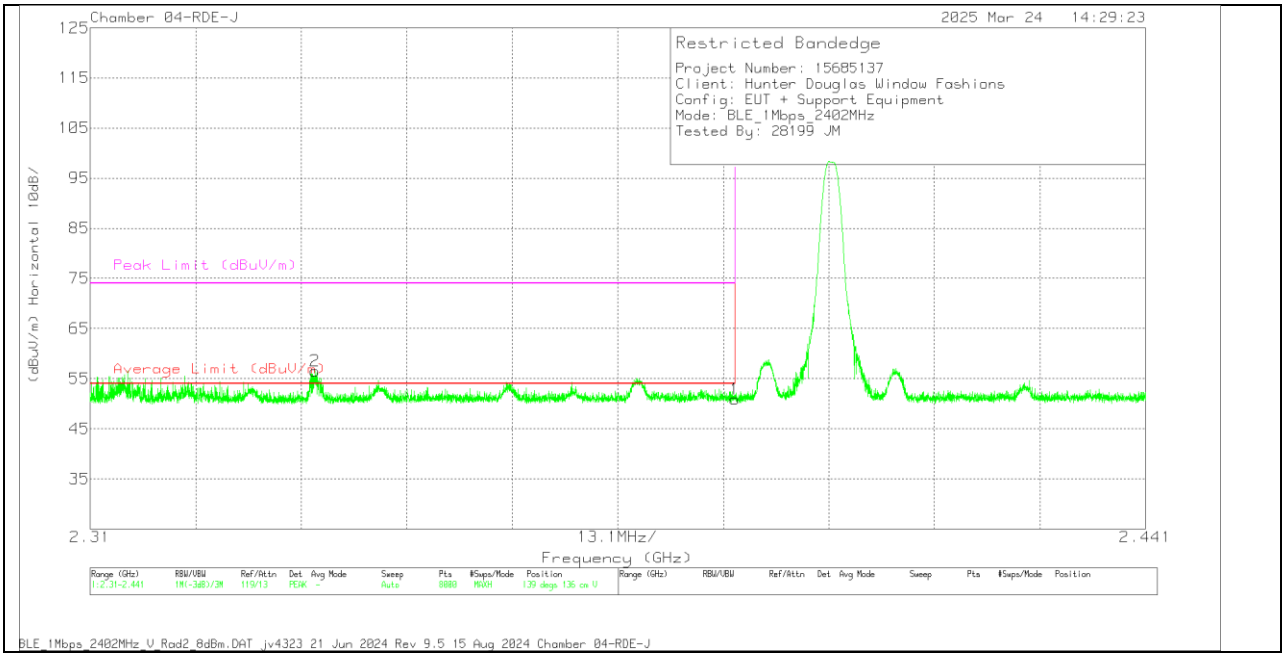
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	55.44	Pk	32.2	-36.7	0	50.94	-	-	74	-23.06	139	136	V
	* 2.39	55.44	Av	32.2	-36.7	-12.04	38.9	54	-15.1	-	-	139	136	V
2	* 2.337923	61.34	Pk	32	-36.8	0	56.54	-	-	74	-17.46	139	136	V
	* 2.337923	61.34	Av	32	-36.8	-12.04	44.5	54	-9.5	-	-	139	136	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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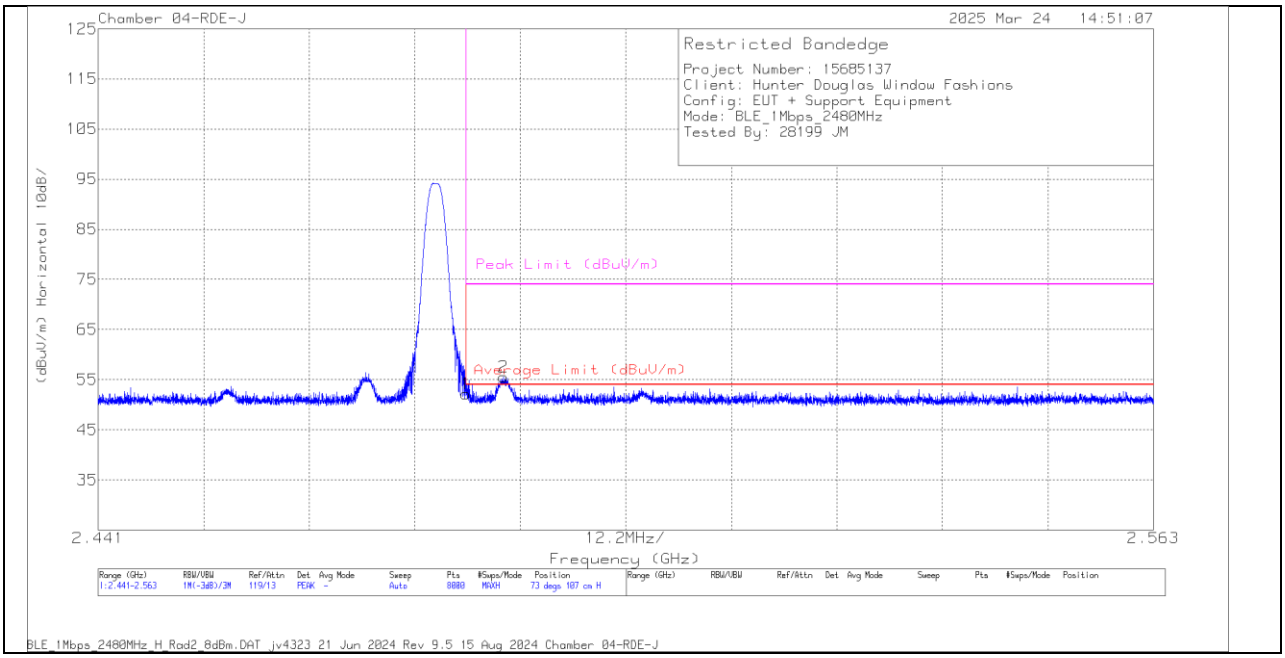
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	56.4	Pk	32.4	-36.6	0	52.2	-	-	74	-21.8	73	107	H
	* 2.4835	56.4	Av	32.4	-36.6	-12.04	40.16	54	-13.84	-	-	73	107	H
2	* 2.487869	59.62	Pk	32.5	-36.6	0	55.52	-	-	74	-18.48	73	107	H
	* 2.487869	59.62	Av	32.5	-36.6	-12.04	43.48	54	-10.52	-	-	73	107	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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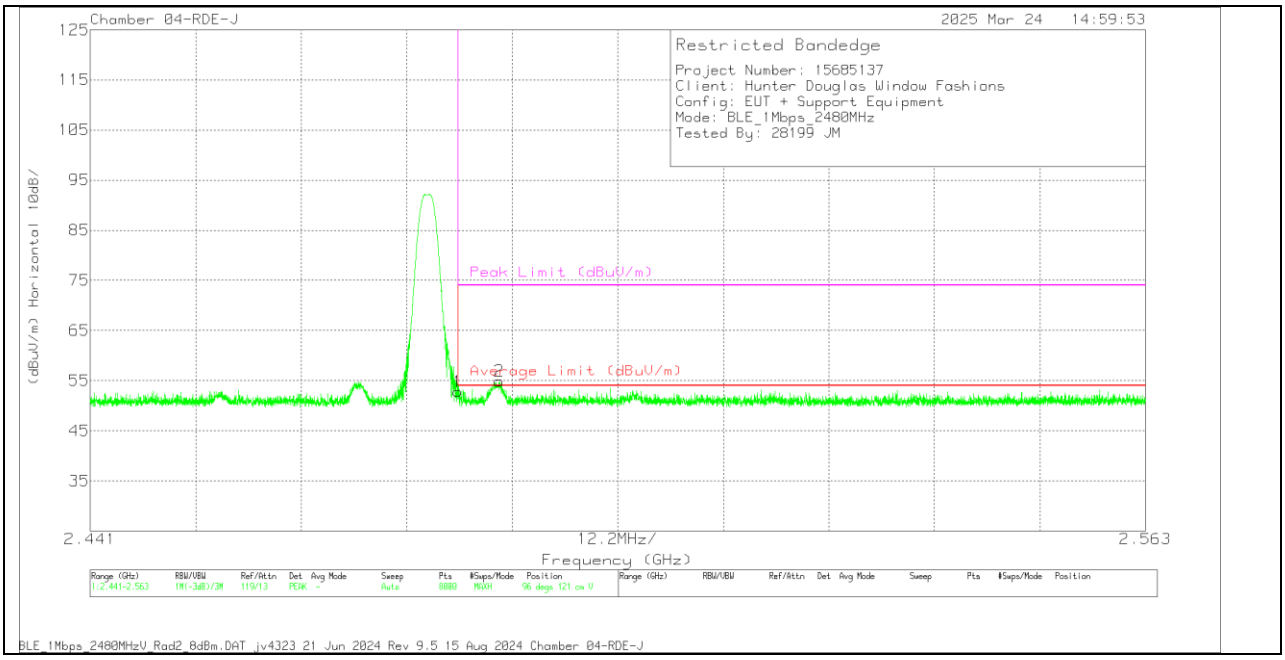
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	57.04	Pk	32.4	-36.6	0	52.84	-	-	74	-21.16	96	121	V
	* 2.4835	57.04	Av	32.4	-36.6	-12.04	40.8	54	-13.2	-	-	96	121	V
2	* 2.488327	58.97	Pk	32.5	-36.6	0	54.87	-	-	74	-19.13	96	121	V
	* 2.488327	58.97	Av	32.5	-36.6	-12.04	42.83	54	-11.17	-	-	96	121	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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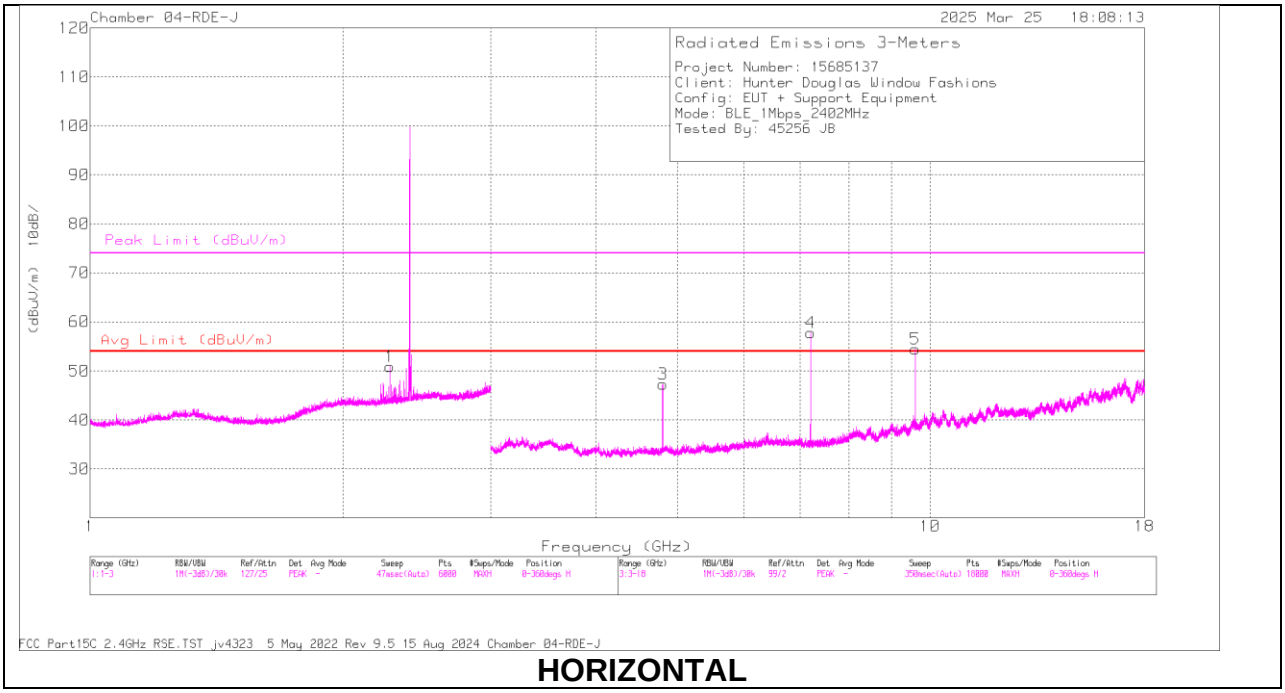
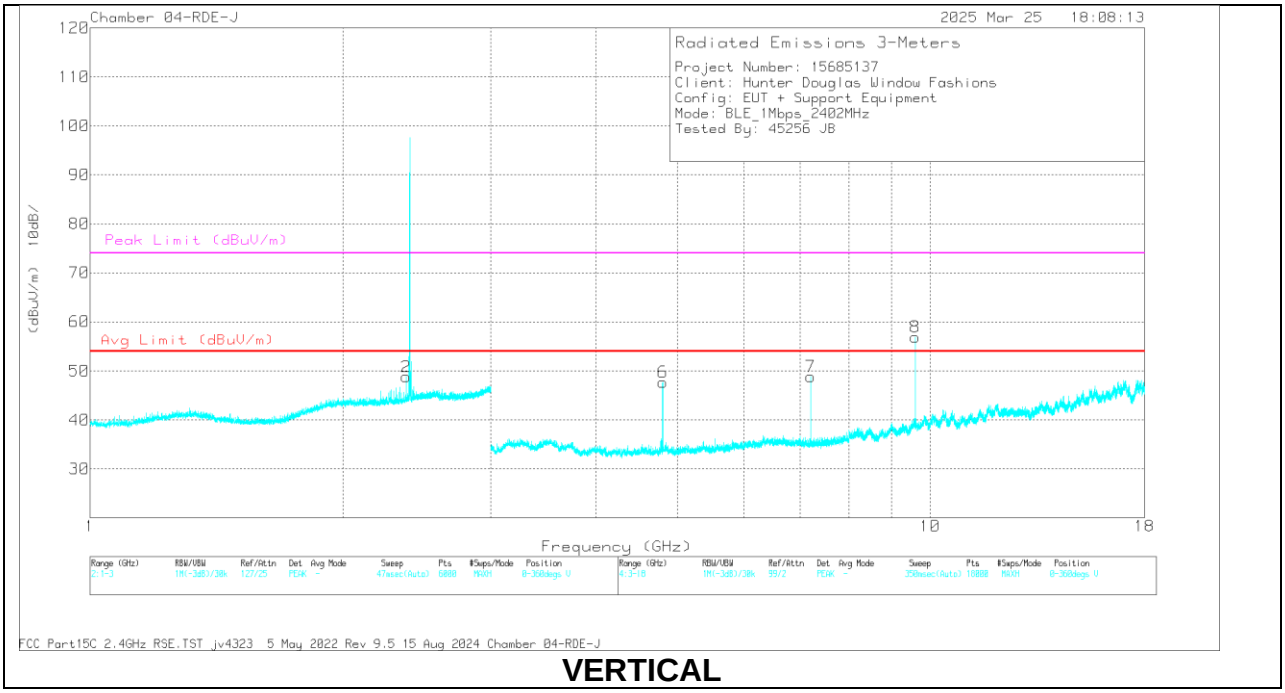
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.274314	63.66	PK2	31.8	-36.9	0	58.56	-	-	74	-15.44	54	267	H
	* 2.274314	63.66	Av	31.8	-36.9	-12.04	46.52	54	-7.48	-	-	54	267	H
2	2.394375	62.98	PK2	32.2	-36.7	0	58.48	-	-	74	-15.52	282	183	V
	2.394375	62.98	Av	32.2	-36.7	-12.04	46.44	54	-7.56	-	-	282	183	V
6	* 4.804129	63.71	PK2	34.3	-45.1	0	52.91	-	-	74	-21.09	291	208	V
	* 4.804129	63.71	Av	34.3	-45.1	-12.04	40.87	54	-13.13	-	-	291	208	V
3	* 4.804489	62.66	PK2	34.3	-45.1	0	51.86	-	-	74	-22.14	55	237	H
	* 4.804489	62.66	AV	34.3	-45.1	-12.04	39.82	54	-14.18	-	-	55	237	H
4	7.205187	68.1	PK2	35.5	-42.2	0	61.4	-	-	-	-	287	193	H
7	7.205232	62.56	PK2	35.5	-42.2	0	55.86	-	-	-	-	221	267	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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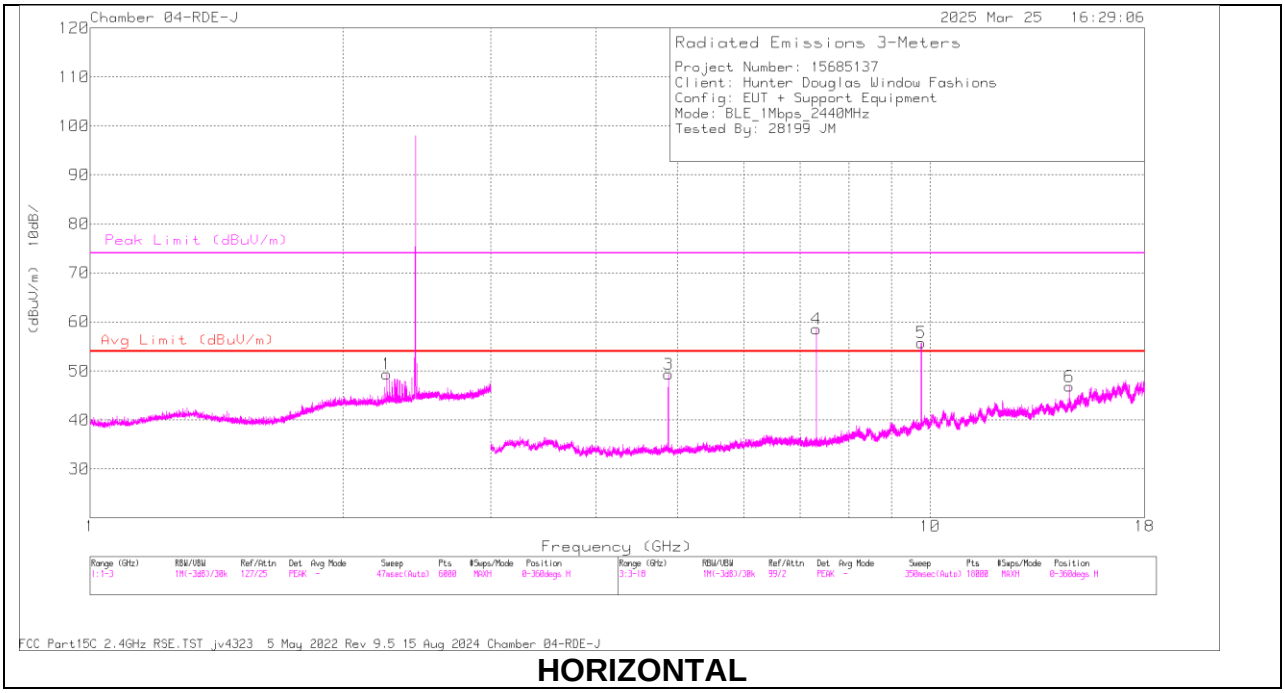
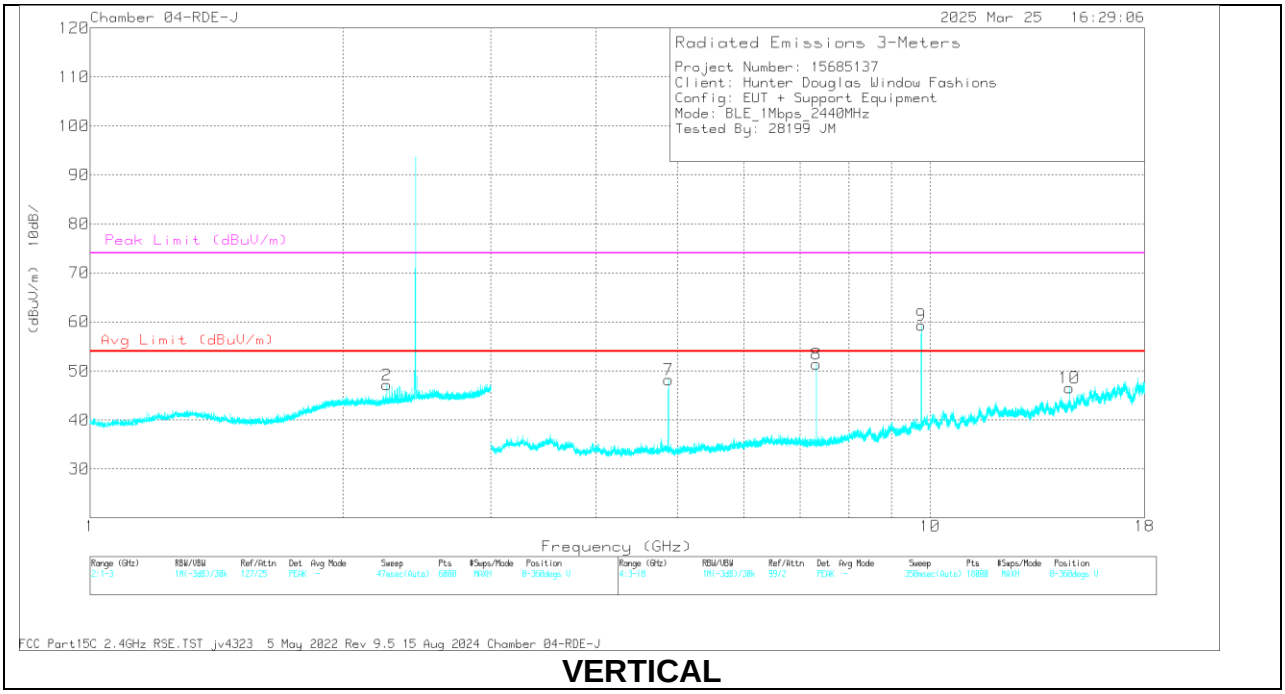
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

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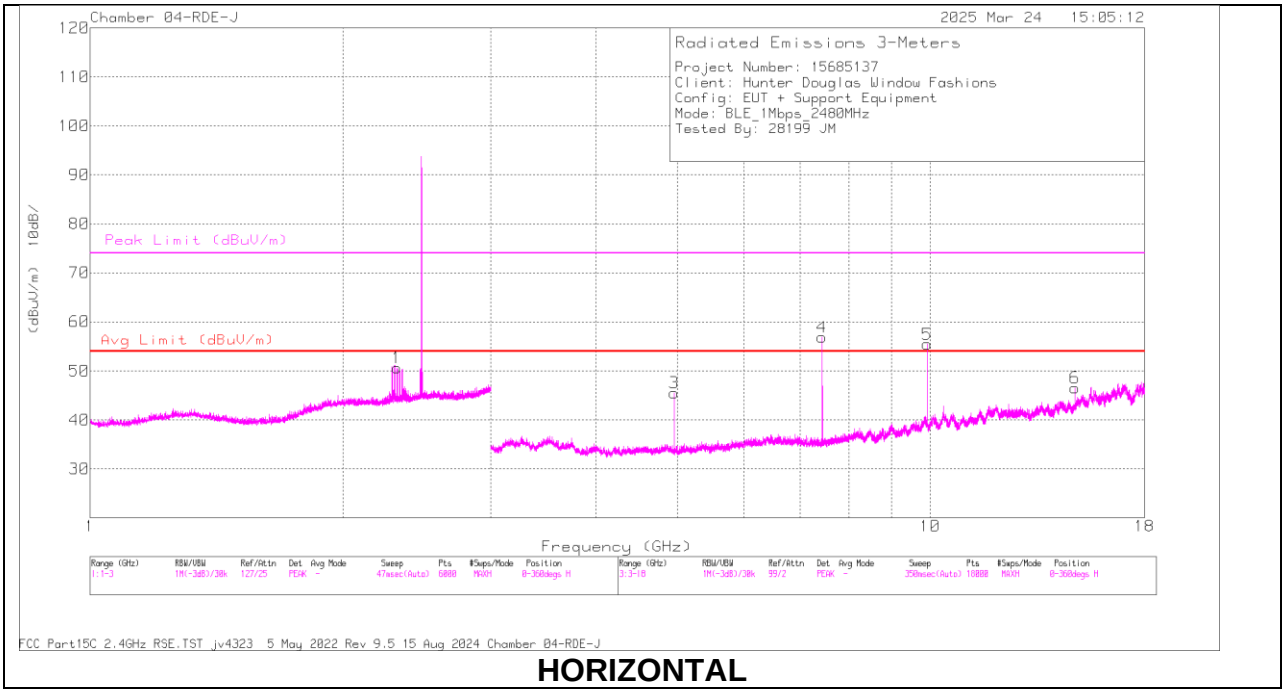
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.256129	61.59	PK2	31.8	-36.9	0	56.49	-	-	74	-17.51	290	204	H
	* 2.256129	61.59	Av	31.8	-36.9	-12.04	44.45	54	-9.55	-	-	290	204	H
2	* 2.256052	60.42	PK2	31.8	-36.9	0	55.32	-	-	74	-18.68	110	269	V
	* 2.256052	60.42	Av	31.8	-36.9	-12.04	43.28	54	-10.68	-	-	110	269	V
7	* 4.880285	63.74	PK2	34.3	-44.6	0	53.44	-	-	74	-20.56	288	213	V
	* 4.880285	63.74	Av	34.3	-44.6	-12.04	41.39	54	-12.61	-	-	288	213	V
3	* 4.880447	63.94	PK2	34.3	-44.6	0	53.64	-	-	74	-20.36	272	217	H
	* 4.880447	63.94	Av	34.3	-44.6	-12.04	41.59	54	-12.41	-	-	272	217	H
4	* 7.319218	69.19	PK2	35.5	-42.2	0	62.49	-	-	74	-11.51	280	201	H
	* 7.319218	69.19	Av	35.5	-42.2	-12.04	50.45	54	-3.55	-	-	280	201	H
8	* 7.320704	61.94	PK2	35.5	-42.2	0	55.24	-	-	74	-18.76	280	255	V
	* 7.320704	61.94	Av	35.5	-42.2	-12.04	43.20	54	-10.80	-	-	280	255	V

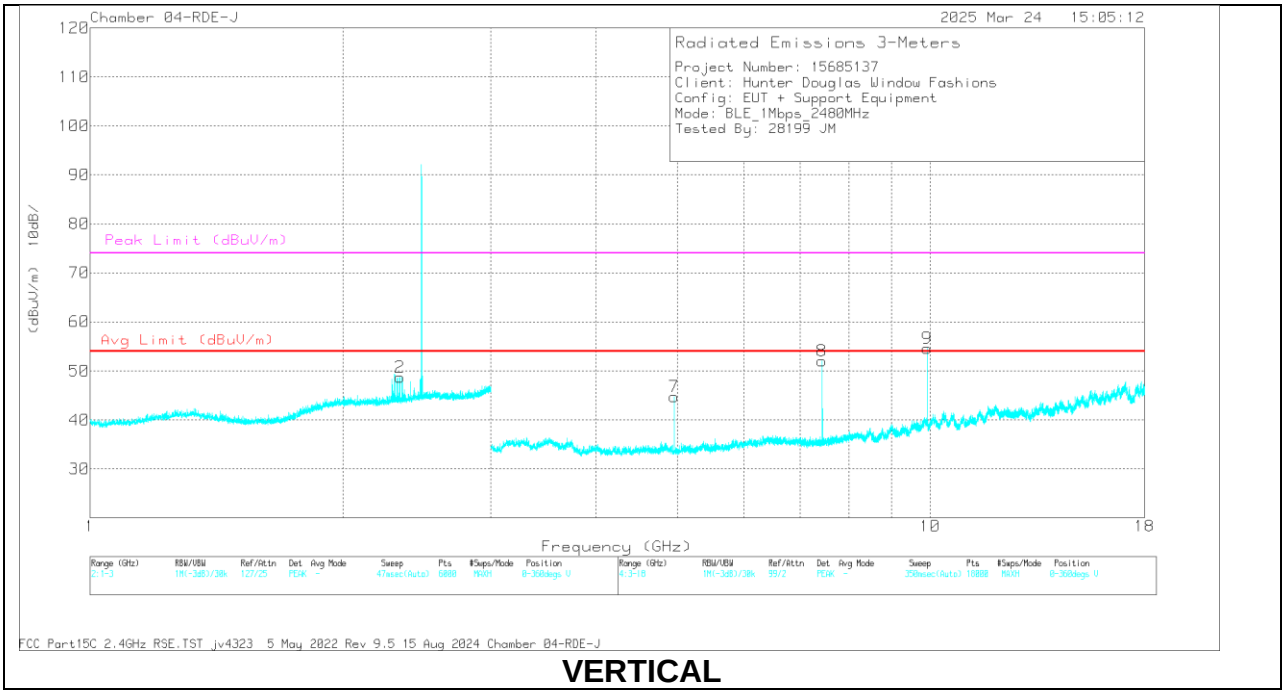
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538, USA TEL:(510) 319-4000 FAX:(510) 661-0888

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538, USA TEL:(510) 319-4000 FAX:(510) 661-0888

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.319842	63.98	PK2	31.9	-36.9	0	58.98	-	-	74	-15.02	97	141	H
	* 2.319842	63.98	Av	31.9	-36.9	-12.04	46.94	54	-7.06	-	-	97	141	H
2	* 2.352106	65.67	PK2	32.1	-36.8	0	60.97	-	-	74	-13.03	103	125	V
	* 2.352106	65.67	Av	32.1	-36.8	-12.04	48.93	54	-5.07	-	-	103	125	V
3	* 4.960428	62.32	PK2	34.2	-44.7	0	51.82	-	-	74	-22.18	240	234	H
	* 4.960428	62.32	Av	34.2	-44.7	-12.04	39.78	54	-14.22	-	-	240	234	H
4	* 7.439079	63.23	PK2	35.5	-42	0	56.73	-	-	74	-17.27	248	243	H
	* 7.439079	63.23	Av	35.5	-42	-12.04	44.69	54	-9.31	-	-	248	243	H
7	* 4.960493	61.36	PK2	34.2	-44.7	0	50.86	-	-	74	-23.14	215	200	V
	* 4.960493	61.36	Av	34.2	-44.7	-12.04	38.82	54	-15.18	-	-	215	200	V
8	* 7.439125	60.21	PK2	35.5	-42	0	53.71	-	-	74	-20.29	173	191	V
	* 7.439125	60.21	Av	35.5	-42	-12.04	41.67	54	-12.33	-	-	173	191	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
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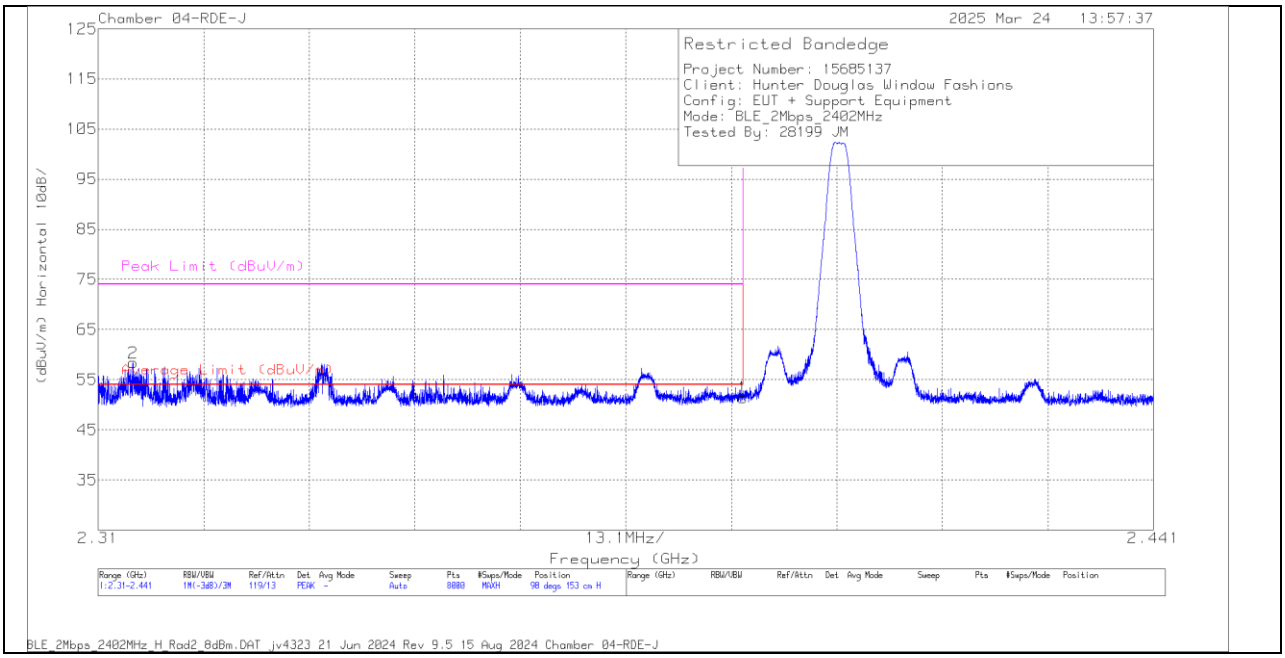
10.1.2. BLE (2Mbps), STANDALONE ON A TEST JIG

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	55.94	Pk	32.2	-36.7	0	51.44	-	-	74	-22.56	98	153	H
	* 2.39	55.94	Av	32.2	-36.7	-12.04	39.4	54	-14.6	-	-	98	153	H
2	* 2.314307	63.45	Pk	31.8	-36.9	0	58.35	-	-	74	-15.65	98	153	H
	* 2.314307	63.45	Av	31.8	-36.9	-12.04	46.31	54	-7.69	-	-	98	153	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
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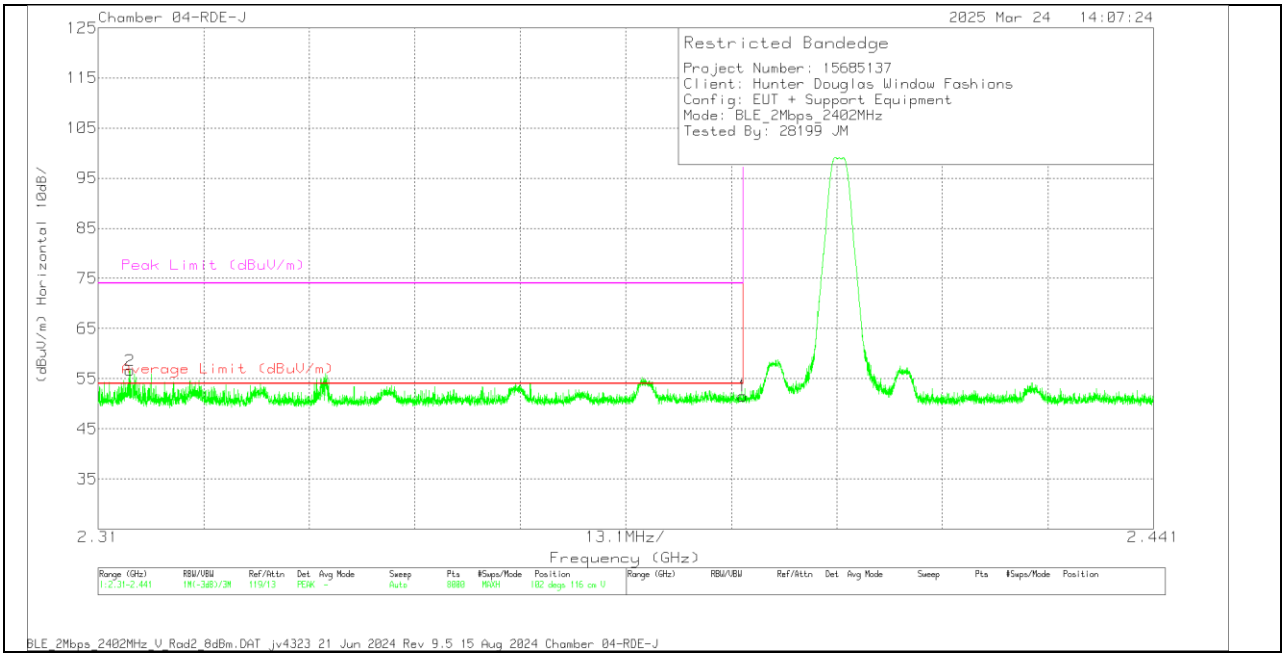
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	56.05	Pk	32.2	-36.7	0	51.55	-	-	74	-22.45	102	116	V
	* 2.39	56.05	Av	32.2	-36.7	-12.04	39.51	54	-14.49	-	-	102	116	V
2	* 2.313914	61.6	Pk	31.8	-36.8	0	56.6	-	-	74	-17.4	102	116	V
	* 2.313914	61.6	Av	31.8	-36.8	-12.04	44.56	54	-9.44	-	-	102	116	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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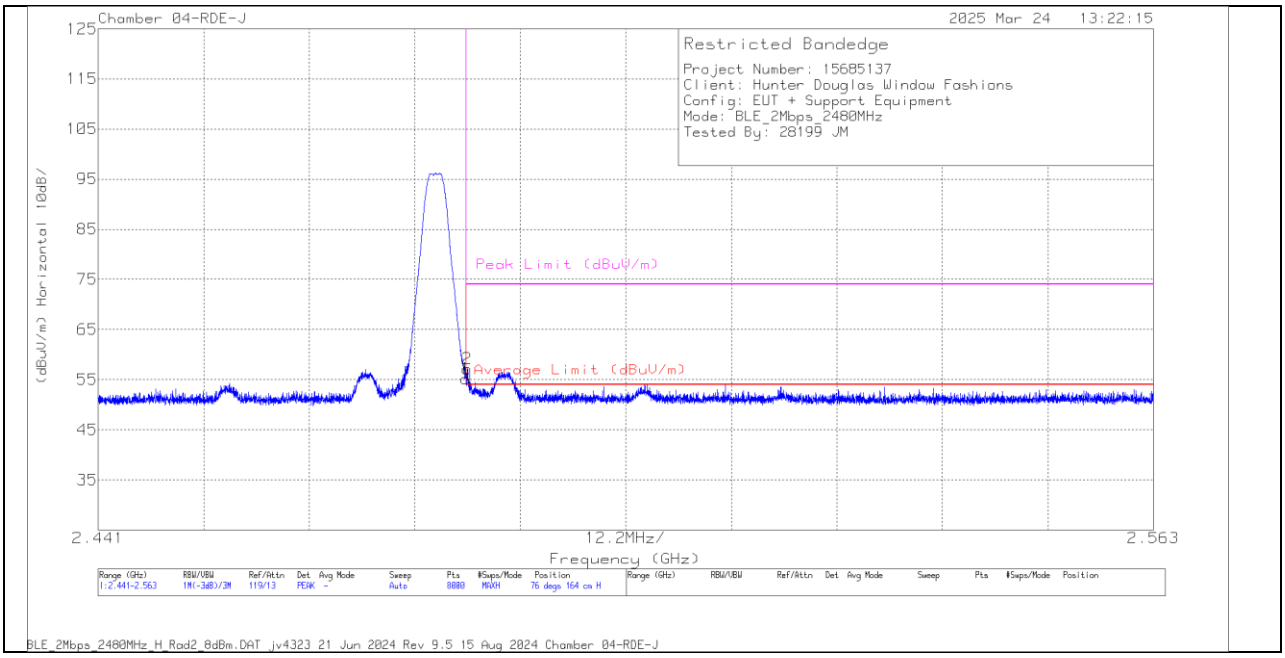
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	59.31	Pk	32.4	-36.6	0	55.11	-	-	74	-18.89	76	164	H
	* 2.4835	59.31	Av	32.4	-36.6	-12.04	43.07	54	-10.93	-	-	76	164	H
2	* 2.483675	61.33	Pk	32.4	-36.6	0	57.13	-	-	74	-16.87	76	164	H
	* 2.483675	61.33	Av	32.4	-36.6	-12.04	45.09	54	-8.91	-	-	76	164	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
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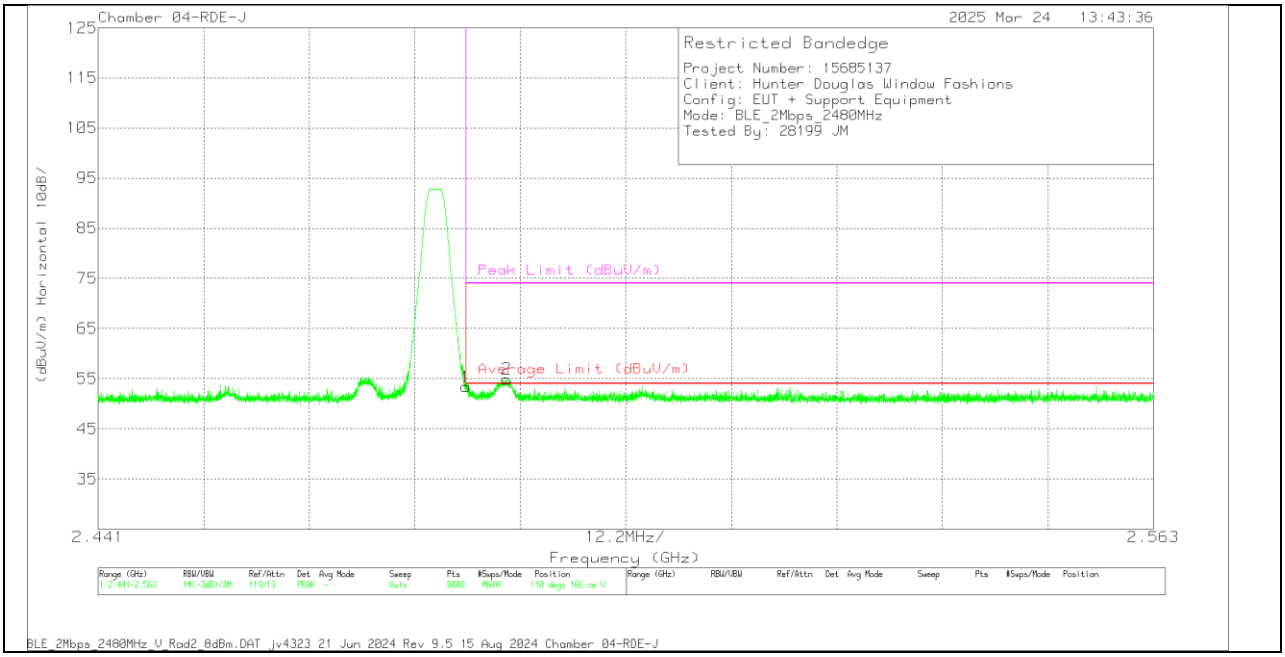
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	57.55	Pk	32.4	-36.6	0	53.35	-	-	74	-20.65	110	166	V
	* 2.4835	57.55	Av	32.4	-36.6	-12.04	41.31	54	-12.69	-	-	110	166	V
2	* 2.48819	59.05	Pk	32.5	-36.6	0	54.95	-	-	74	-19.05	110	166	V
	* 2.48819	59.05	Av	32.5	-36.6	-12.04	42.91	54	-11.09	-	-	110	166	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
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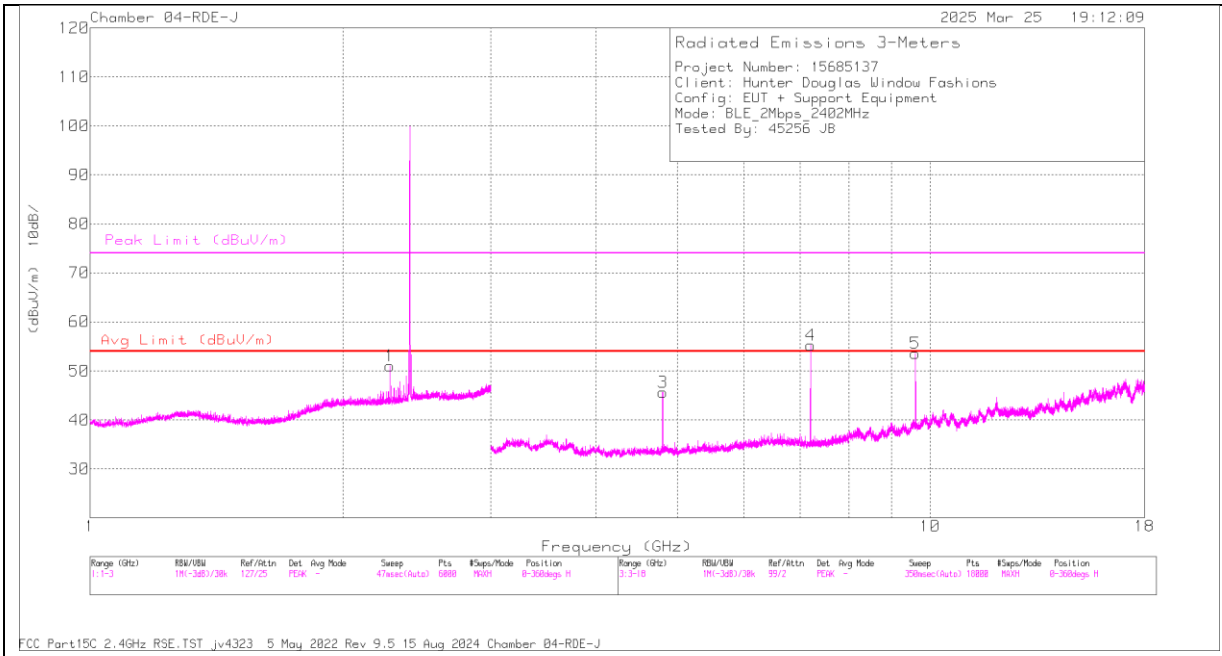
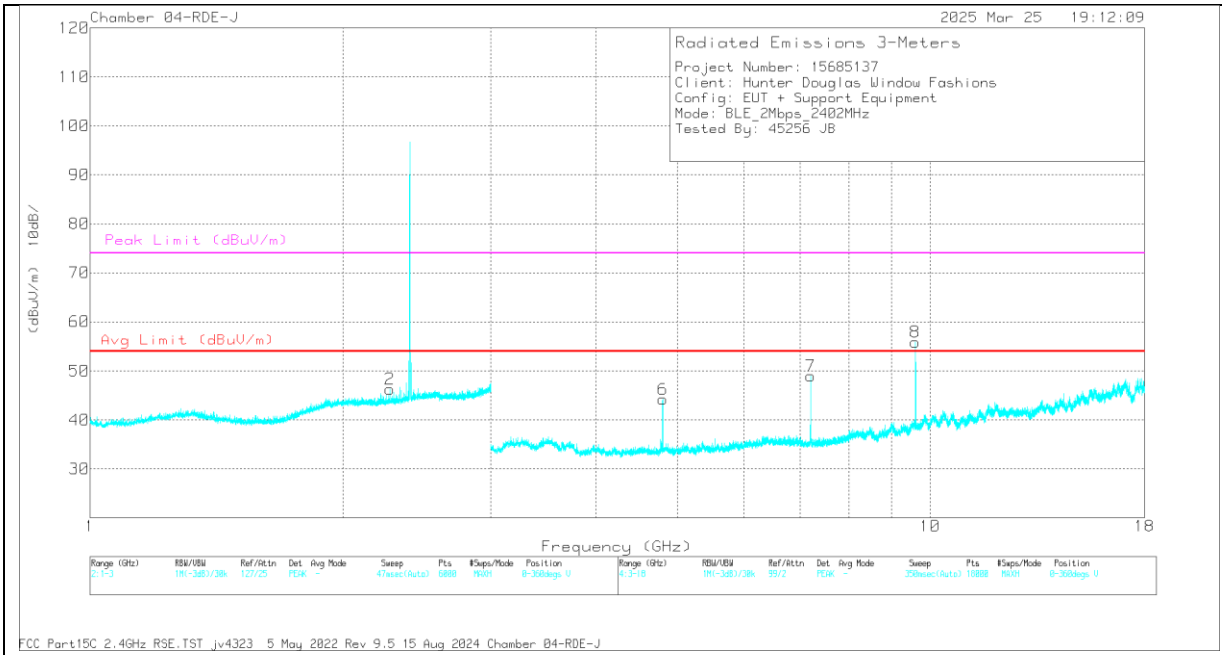
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538, USA TEL:(510) 319-4000 FAX:(510) 661-0888

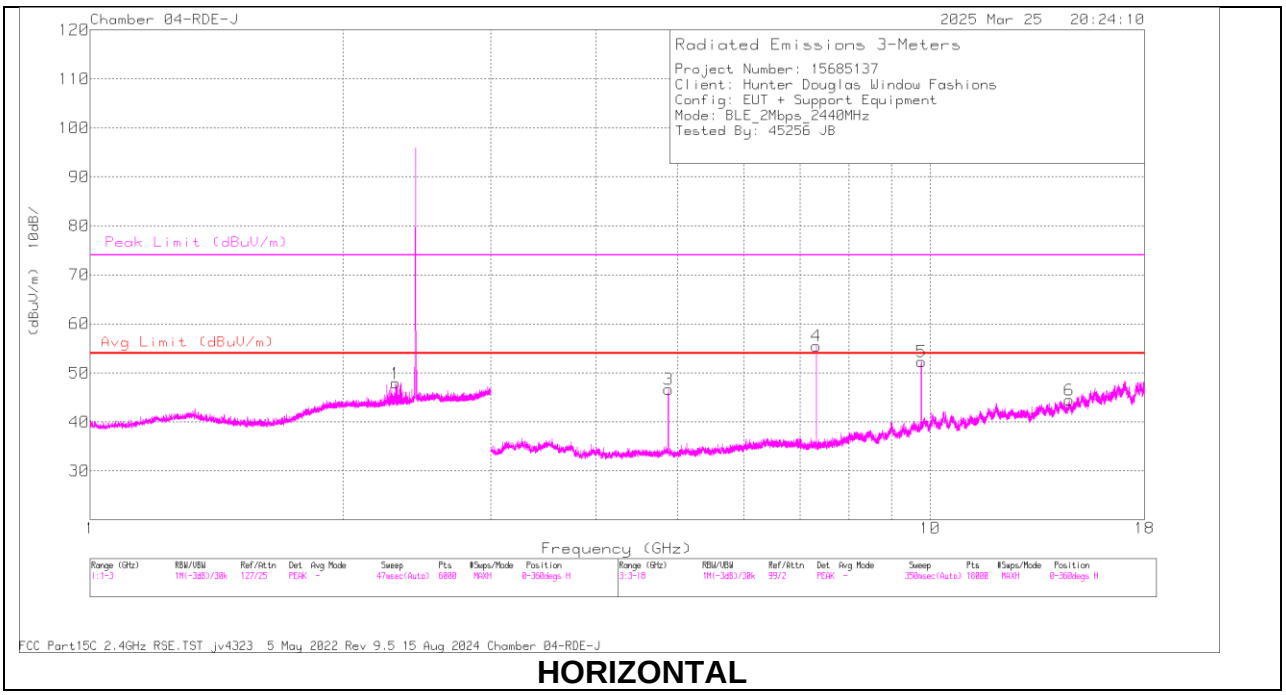
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.274659	63.8	PK2	31.8	-36.9	0	58.7	-	-	74	-15.3	74	242	H
	* 2.274659	63.8	Av	31.8	-36.9	-12.04	46.66	54	-7.34	-	-	74	242	H
2	* 2.273491	62	PK2	31.8	-36.9	0	56.9	-	-	74	-17.1	285	294	V
	* 2.273491	62	Av	31.8	-36.9	-12.04	44.86	54	-9.14	-	-	285	294	V
3	* 4.804928	62.76	PK2	34.3	-45.1	0	51.96	-	-	74	-22.04	63	334	H
	* 4.804928	62.76	Av	34.3	-45.1	-12.04	39.92	54	-14.08	-	-	63	334	H
6	* 4.804987	63.04	PK2	34.3	-45.1	0	52.24	-	-	74	-21.76	278	208	V
	* 4.804987	63.04	Av	34.3	-45.1	-12.04	40.2	54	-13.8	-	-	278	208	V
4	7.205237	70.56	PK2	35.5	-42.2	0	63.86	-	-	-	-	283	136	H
7	7.206547	63.14	PK2	35.5	-42.2	0	56.44	-	-	-	-	221	278	V

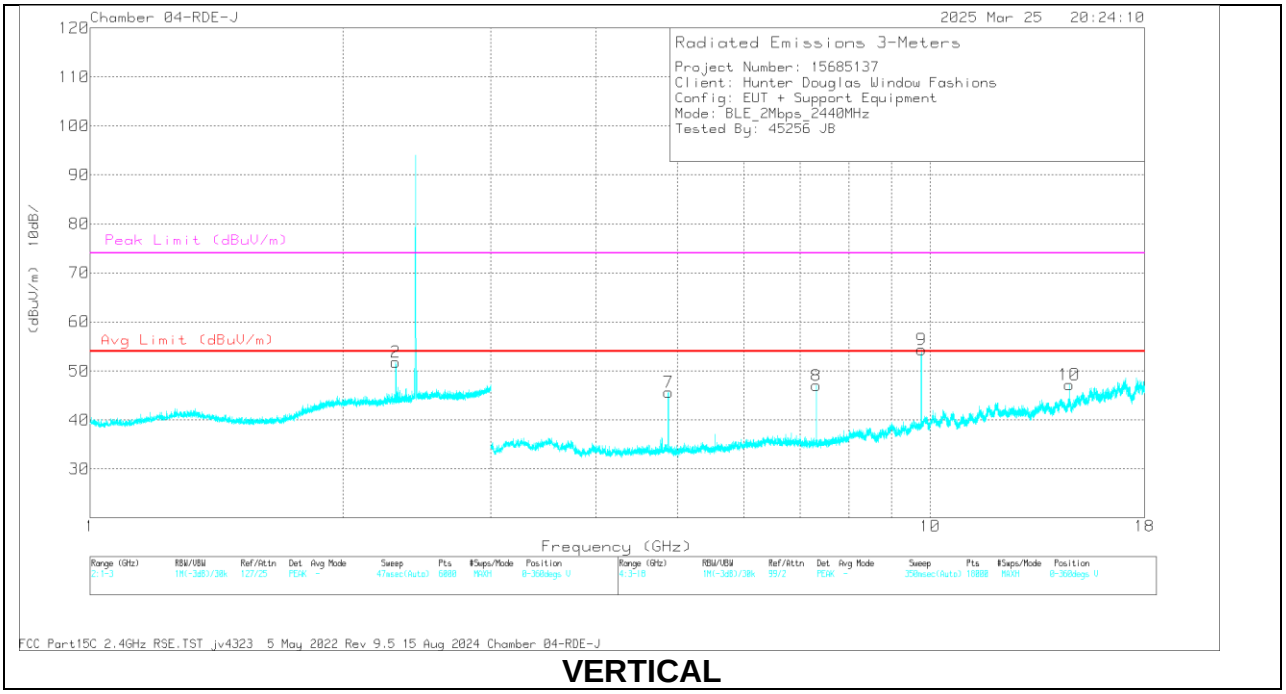
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538, USA TEL:(510) 319-4000 FAX:(510) 661-0888

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538, USA TEL:(510) 319-4000 FAX:(510) 661-0888

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.311658	65.71	PK2	31.8	-36.9	0	60.61	-	-	74	-13.39	63	291	H
	* 2.311658	65.71	Av	31.8	-36.9	-12.04	48.57	54	-5.43	-	-	63	291	H
2	* 2.31254	64.3	PK2	31.8	-36.8	0	59.3	-	-	74	-14.7	288	146	V
	* 2.31254	64.3	Av	31.8	-36.8	-12.04	47.26	54	-6.74	-	-	288	146	V
7	* 4.879308	63.01	PK2	34.3	-44.6	0	52.71	-	-	74	-21.29	287	225	V
	* 4.879308	63.01	Av	34.3	-44.6	-12.04	40.67	54	-13.33	-	-	287	225	V
3	* 4.880971	64.01	PK2	34.3	-44.6	0	53.71	-	-	74	-20.29	280	200	H
	* 4.880971	64.01	Av	34.3	-44.6	-12.04	41.67	54	-12.33	-	-	280	200	H
8	* 7.318507	61.66	PK2	35.5	-42.2	0	54.96	-	-	74	-19.04	301	203	V
	* 7.318507	61.66	Av	35.5	-42.2	-12.04	42.92	54	-11.08	-	-	301	206	V
4	* 7.321412	66.93	PK2	35.5	-42.2	0	60.23	-	-	74	-13.77	269	116	H
	* 7.321412	66.93	Av	35.5	-42.2	-12.04	48.19	54	-5.81	-	-	269	116	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
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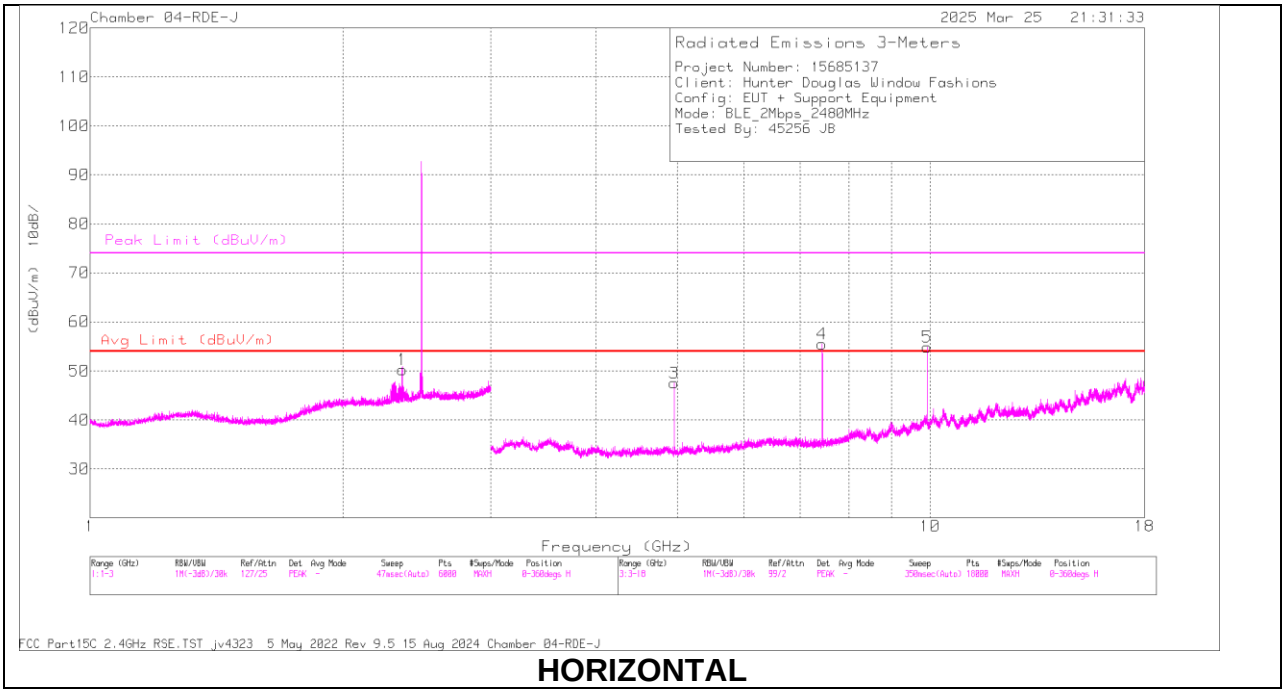
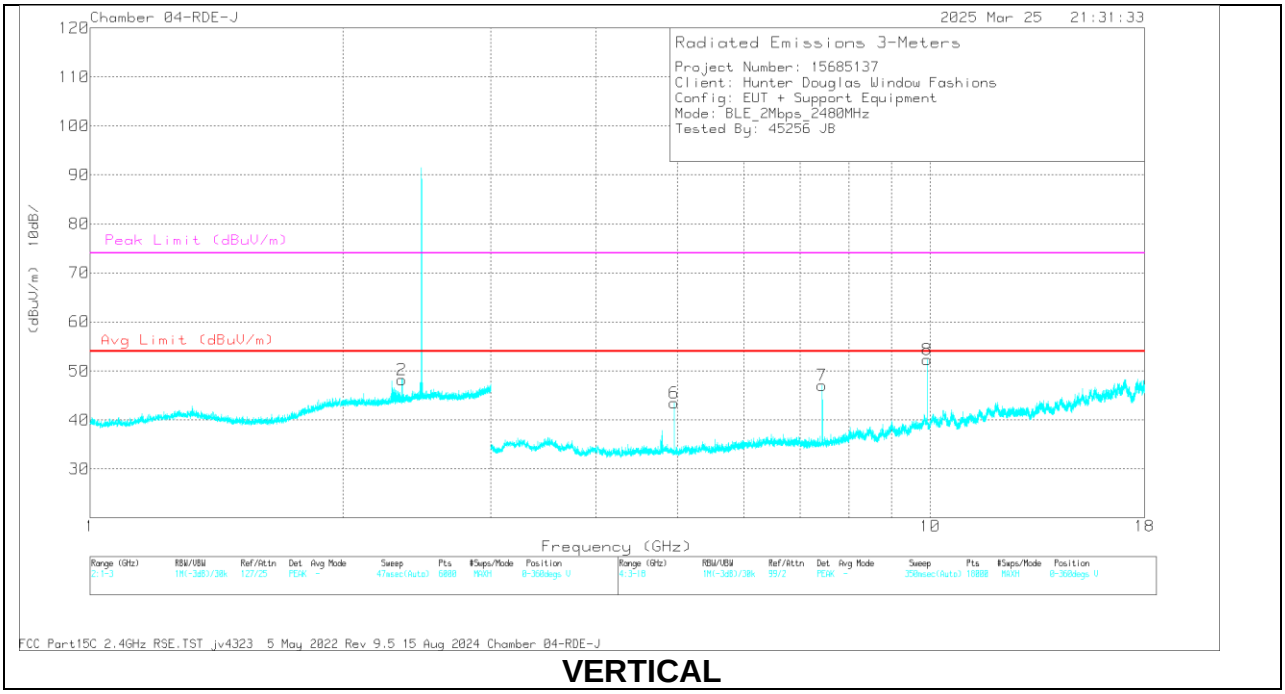
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538, USA TEL:(510) 319-4000 FAX:(510) 661-0888

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.352235	66.42	PK2	32.1	-36.8	0	61.72	-	-	74	-12.28	69	354	H
	* 2.352235	66.42	Av	32.1	-36.8	-12.04	49.68	54	-4.32	-	-	69	354	H
2	* 2.351352	65.87	PK2	32.1	-36.8	0	61.17	-	-	74	-12.83	289	163	V
	* 2.351352	65.87	Av	32.1	-36.8	-12.04	49.13	54	-4.87	-	-	289	163	V
6	* 4.960949	61.98	PK2	34.2	-44.7	0	51.48	-	-	74	-22.52	219	208	V
	* 4.960949	61.98	Av	34.2	-44.7	-12.04	39.44	54	-14.56	-	-	219	208	V
3	* 4.961004	64.41	PK2	34.2	-44.7	0	53.91	-	-	74	-20.09	254	199	H
	* 4.961004	64.41	Av	34.2	-44.7	-12.04	41.87	54	-12.13	-	-	254	199	H
7	* 7.438353	61.7	PK2	35.5	-42.1	0	55.1	-	-	74	-18.9	284	233	V
	* 7.438353	61.7	Av	35.5	-42.1	-12.04	43.06	54	-10.94	-	-	284	233	V
4	* 7.438507	68.98	PK2	35.5	-42.1	0	62.38	-	-	74	-11.62	274	239	H
	* 7.438507	68.98	Av	35.5	-42.1	-12.04	50.34	54	-3.66	-	-	274	239	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

UL VERIFICATION SERVICES INC.
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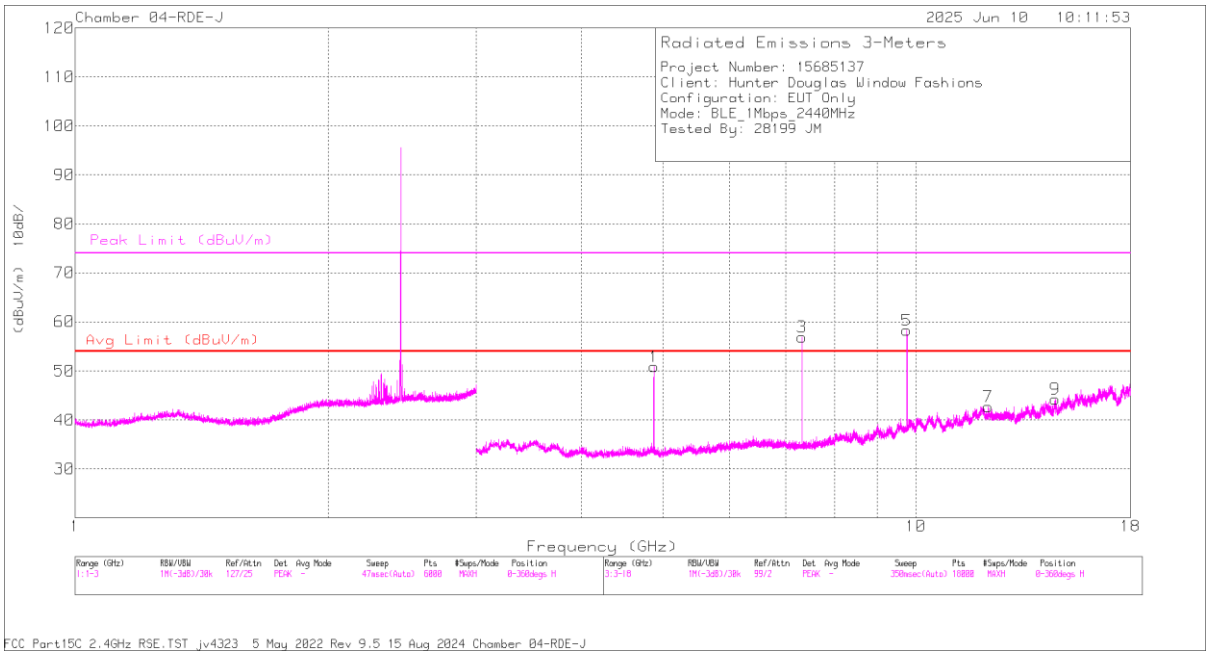
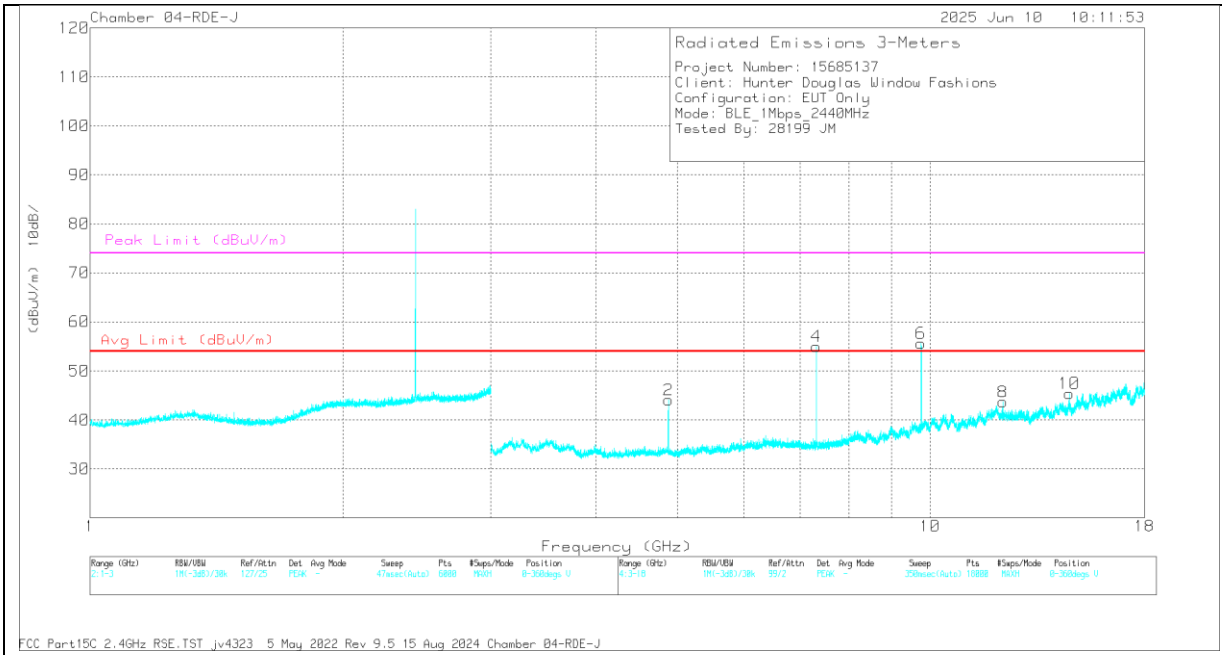
10.1.3. BLE (1Mbps), TESTED IN HOST

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Fltr (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.879332	64.49	PK2	34.3	-44.9	0	53.89	-	-	74	-20.11	17	101	H
	* 4.879332	64.49	Av	34.3	-44.9	-12.04	41.85	54	-12.15	-	-	17	101	H
2	* 4.880266	60.32	PK2	34.3	-44.9	0	49.72	-	-	74	-24.28	205	396	V
	* 4.880266	60.32	Av	34.3	-44.9	-12.04	37.68	54	-16.35	-	-	205	396	V
3	* 7.320578	65.68	PK2	35.5	-42.6	0	58.58	-	-	74	-15.42	325	109	H
	* 7.320578	65.68	Av	35.5	-42.6	-12.04	46.54	54	-7.46	-	-	325	109	H
4	* 7.319113	66.12	PK2	35.5	-42.6	0	59.02	-	-	74	-14.98	201	397	V
	* 7.319113	66.12	Av	35.5	-42.6	-12.04	46.98	54	-7.02	-	-	201	397	V
7	* 12.198383	52.95	PK2	39.6	-40.1	0	52.45	-	-	74	-21.55	45	127	H
	* 12.198383	52.95	Av	39.6	-40.1	-12.04	40.41	54	-13.59	-	-	45	127	H
8	* 12.20149	52.52	PK2	39.6	-40.1	0	52.02	-	-	74	-21.98	8	103	V
	* 12.20149	52.52	Av	39.6	-40.1	-12.04	39.98	54	-14.02	-	-	8	102	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)
Worst 6 markers were picked.

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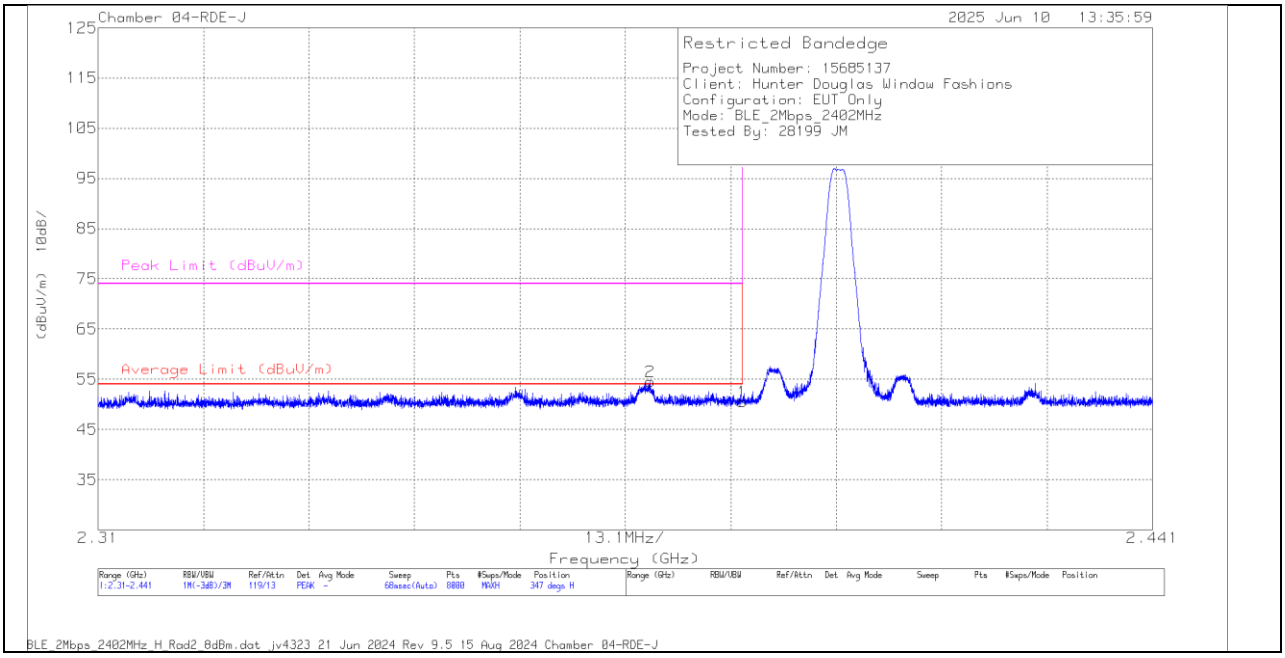
10.1.4. BLE (2Mbps), TESTED IN HOST

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	55.36	Pk	32.2	-37.1	0	50.46	-	-	74	-23.54	347	349	H
	* 2.39	55.36	Av	32.2	-37.1	-12.04	38.42	54	-15.58	-	-	347	349	H
2	* 2.378571	59.28	Pk	32.2	-37	0	54.48	-	-	74	-19.52	347	349	H
	* 2.378571	59.28	Av	32.2	-37	-12.04	42.44	54	-11.56	-	-	347	349	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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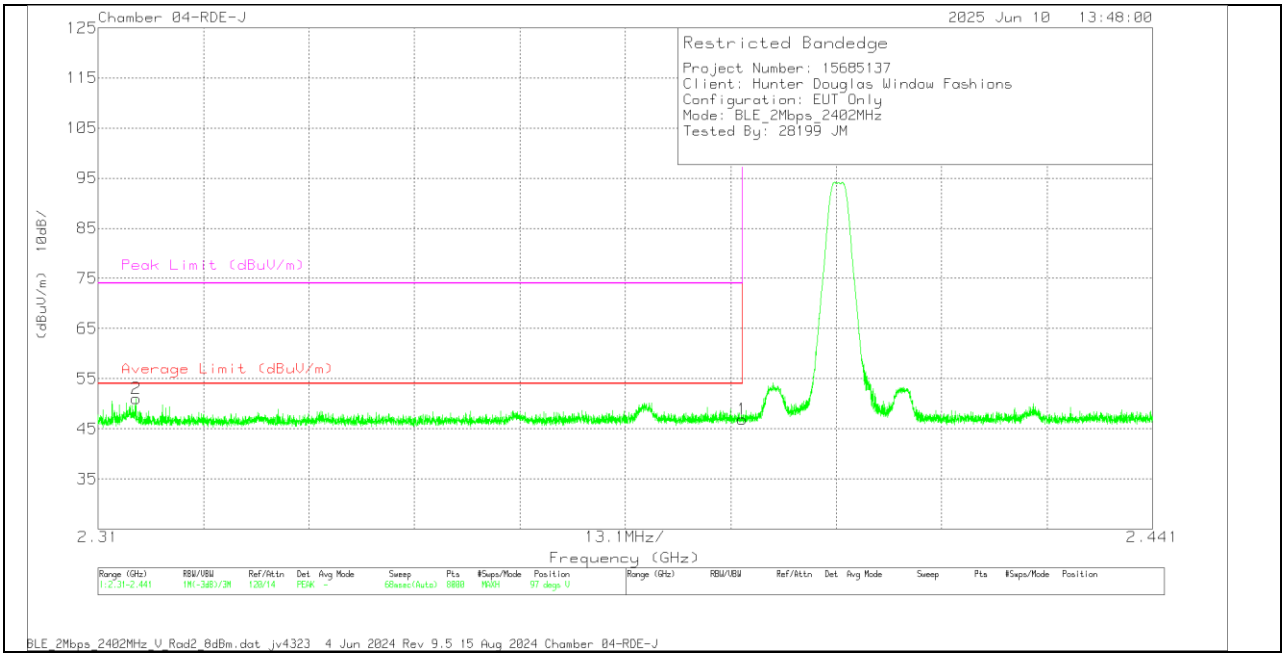
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.89	Pk	32.2	-28.2	0	46.89	-	-	74	-27.11	97	351	V
	* 2.39	42.89	Av	32.2	-28.2	-12.04	34.85	54	-19.15	-	-	97	351	V
2	* 2.314717	47.7	Pk	31.8	-28.5	0	51	-	-	74	-23	97	351	V
	* 2.314717	47.7	Av	31.8	-28.5	-12.04	38.96	54	-15.04	-	-	97	351	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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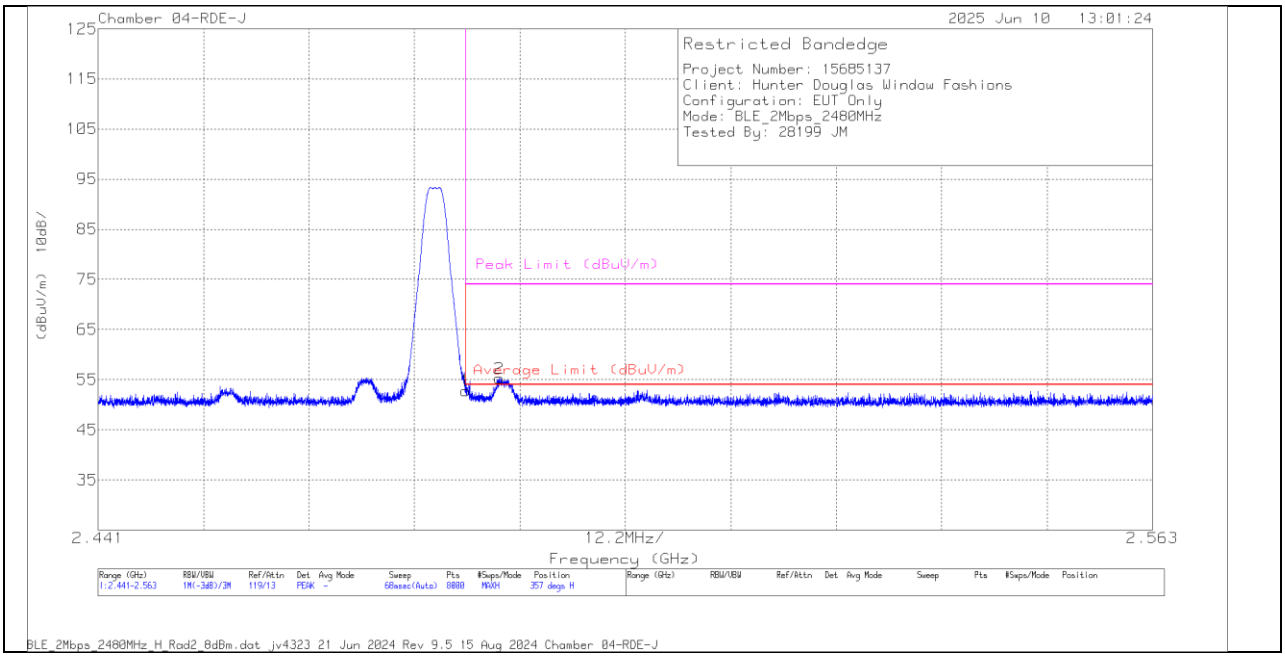
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	57.23	Pk	32.4	-36.9	0	52.73	-	-	74	-21.27	357	300	H
1	* 2.4835	57.23	Av	32.4	-36.9	-12.04	40.69	54	-13.31	-	-	357	300	H
2	* 2.487442	59.63	Pk	32.5	-36.9	0	55.23	-	-	74	-18.77	357	300	H
2	* 2.487442	59.63	Av	32.5	-36.9	-12.04	43.19	54	-10.81	-	-	357	300	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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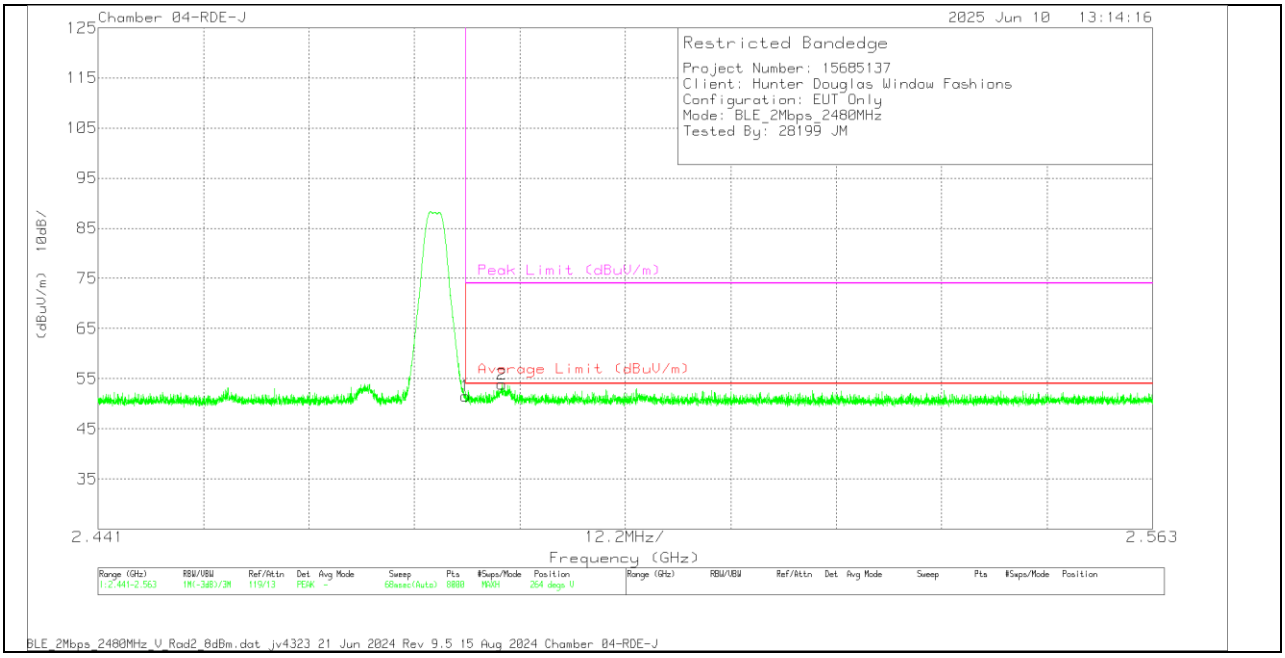
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	56.07	Pk	32.4	-36.9	0	51.57	-	-	74	-22.43	264	376	V
	* 2.4835	56.07	Av	32.4	-36.9	-12.04	39.53	54	-14.47	-	-	264	376	V
2	* 2.487686	58.25	Pk	32.5	-36.9	0	53.85	-	-	74	-20.15	264	376	V
	* 2.487686	58.25	Av	32.5	-36.9	-12.04	41.81	54	-12.19	-	-	264	376	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)

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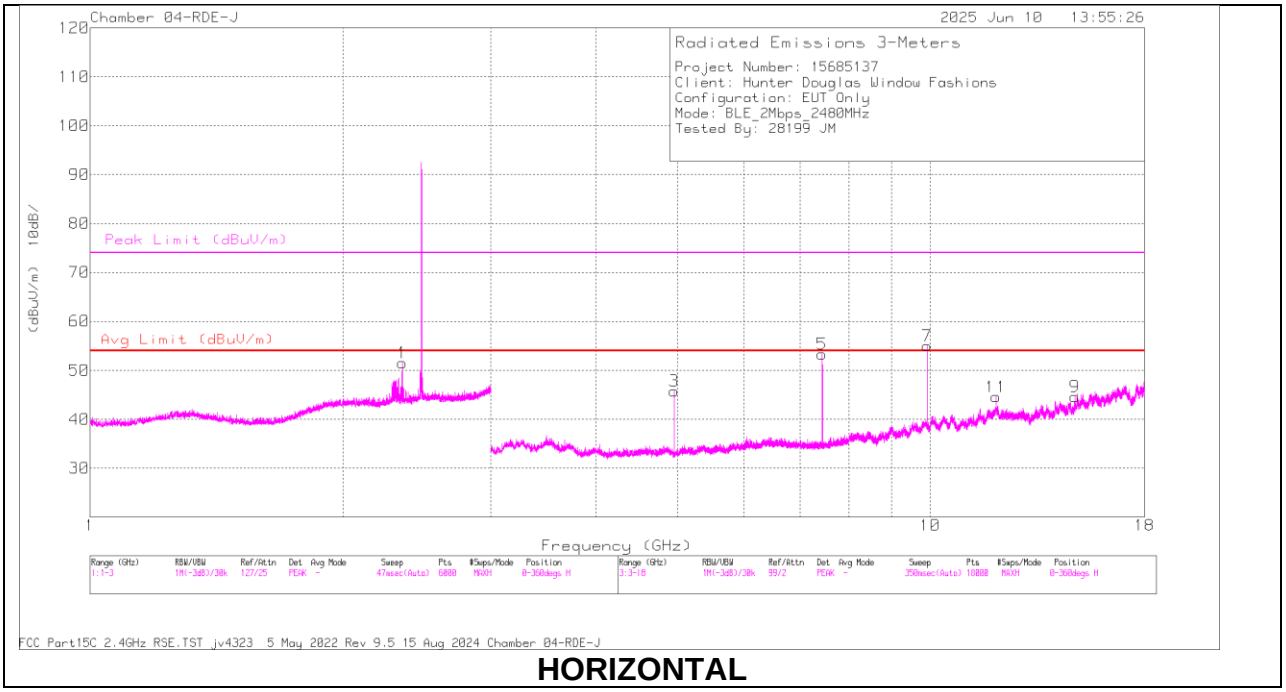
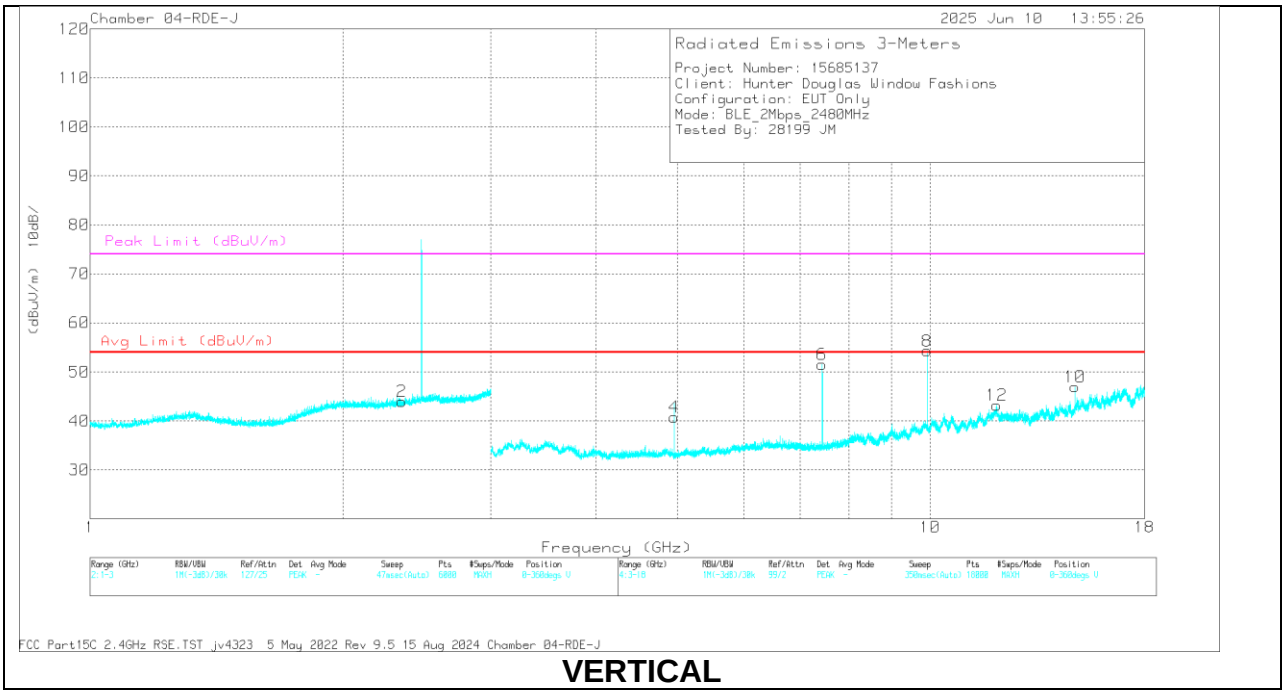
HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Fltr (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.3519	64.88	PK2	32.1	-37.1	0	59.88	-	-	74	-14.12	340	135	H
	* 2.3519	64.88	Av	32.1	-37.1	-12.04	47.84	54	-6.16	-	-	340	135	H
3	* 4.960991	62.08	PK2	34.2	-45	0	51.28	-	-	74	-22.72	322	248	H
	* 4.960991	62.08	Av	34.2	-45	-12.04	39.24	54	-14.76	-	-	322	248	H
4	* 4.958948	60.99	PK2	34.2	-45	0	50.19	-	-	74	-23.81	356	312	V
	* 4.958948	60.99	Av	34.2	-45	-12.04	38.15	54	-15.85	-	-	356	312	V
5	* 7.441265	64.26	PK2	35.6	-42.3	0	57.56	-	-	74	-16.44	142	101	H
	* 7.441265	64.26	Av	35.6	-42.3	-12.04	45.52	54	-8.48	-	-	142	101	H
6	* 7.438439	66.14	PK2	35.5	-42.3	0	59.34	-	-	74	-14.66	201	366	V
	* 7.438439	66.14	Av	35.5	-42.3	-12.04	47.3	54	-7.7	-	-	201	366	V
12	* 12.016958	52.68	PK2	39.8	-40.1	0	52.38	-	-	74	-21.62	38	353	V
	* 12.016958	52.68	Av	39.8	-40.1	-12.04	40.34	54	-14.66	-	-	38	353	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
Av = Peak reading + Duty Cycle Correction Factor (KDB558074 Section 11, Question 3 (a))
Duty Cycle Correction Factor = -12.04 dB. (25%)
Worst 6 markers were picked.

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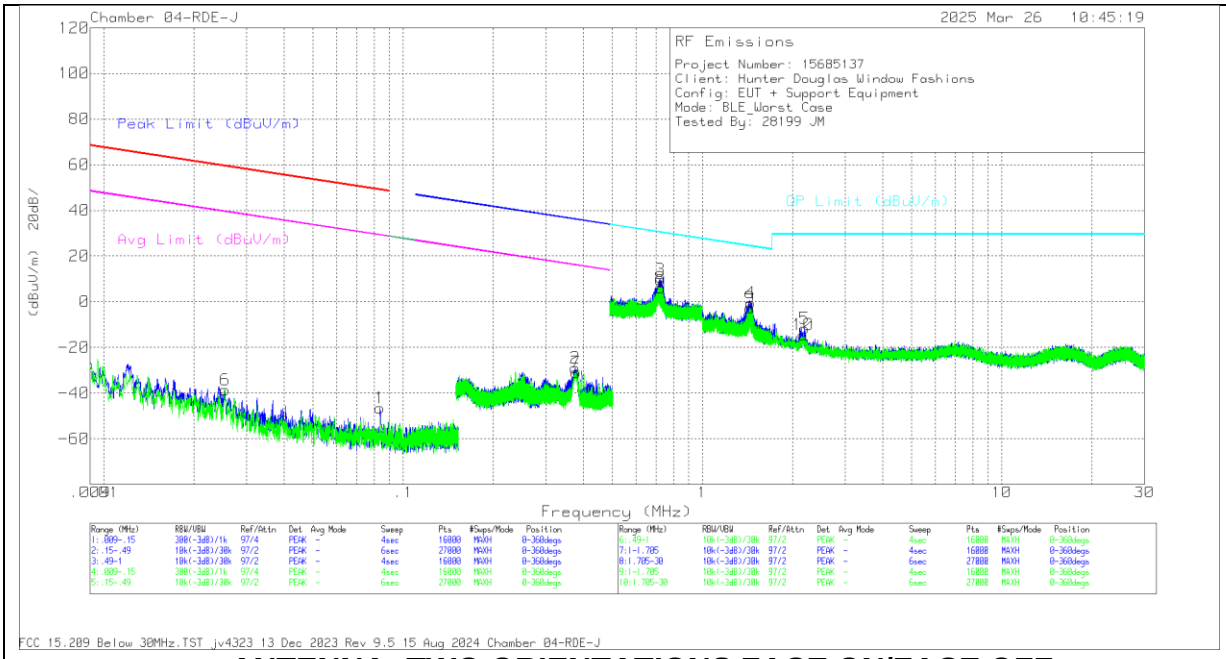
10.2. WORST CASE BELOW 30MHz, STANDALONE ON A TEST JIG

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



ANTENNA- TWO ORIENTATIONS FACE ON/FACE OFF

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna ACF (dB/m)	CBL/AMP (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.0838	10.26	Pk	55.7	-32.5	-80	-46.54	49.12	-95.66	29.12	-75.66	0-360	Face-On
2	.3758	27.09	Pk	56.2	-32.2	-80	-28.91	36.11	-65.02	16.11	-45.02	0-360	Face-On
6	.0254	14.59	Pk	58.5	-31.7	-80	-38.61	59.49	-98.1	39.49	-78.1	0-360	Face-Off
7	.3783	25.04	Pk	56.2	-32.2	-80	-30.96	36.05	-67.01	16.05	-47.01	0-360	Face-Off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna ACF (dB/m)	CBL/AMP (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
3	.7253	25.66	Pk	56.4	-32.3	-40	9.76	30.4	-20.64	0-360	Face-On
8	.7249	22.06	Pk	56.4	-32.4	-40	6.06	30.41	-24.35	0-360	Face-Off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna ACF (dB/m)	CBL/AMP (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
4	1.4496	27.09	Pk	44.4	-31.9	-40	-.41	24.41	-24.82	0-360	Face-On
5	2.1965	19.04	Pk	41	-31.7	-40	-11.66	29.5	-41.16	0-360	Face-On
9	1.4441	24.77	Pk	44.4	-31.9	-40	-2.73	24.44	-27.17	0-360	Face-Off
10	2.1693	16.4	Pk	41	-31.9	-40	-14.5	29.5	-44	0-360	Face-Off

Pk - Peak detector

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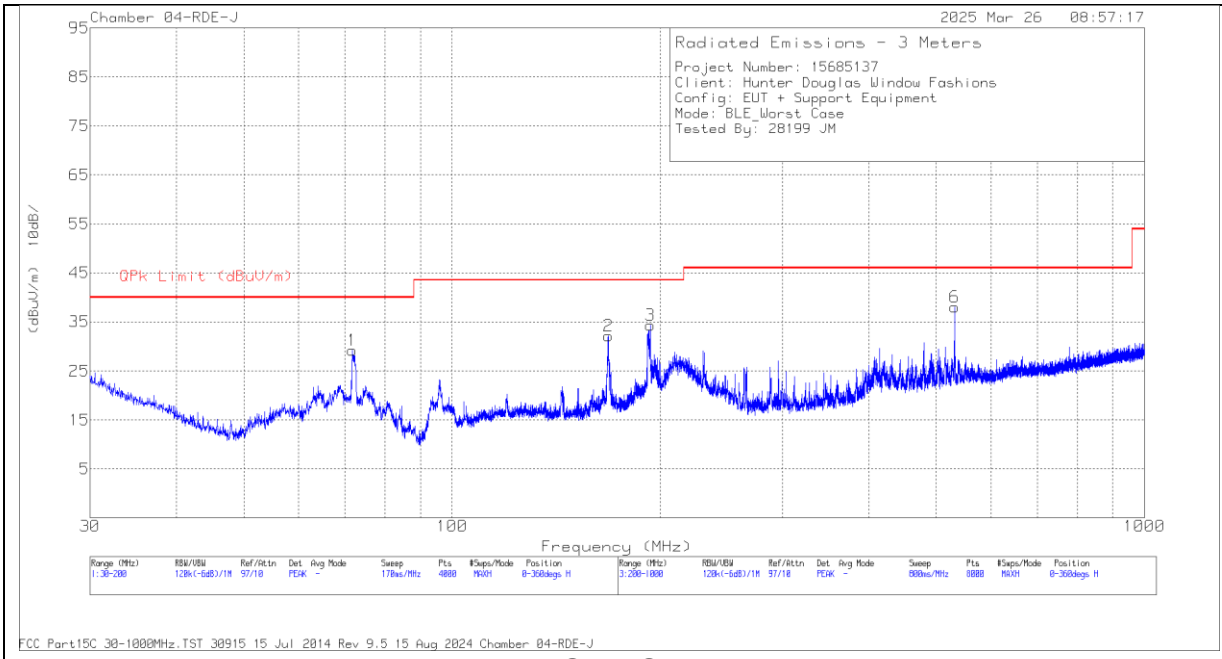
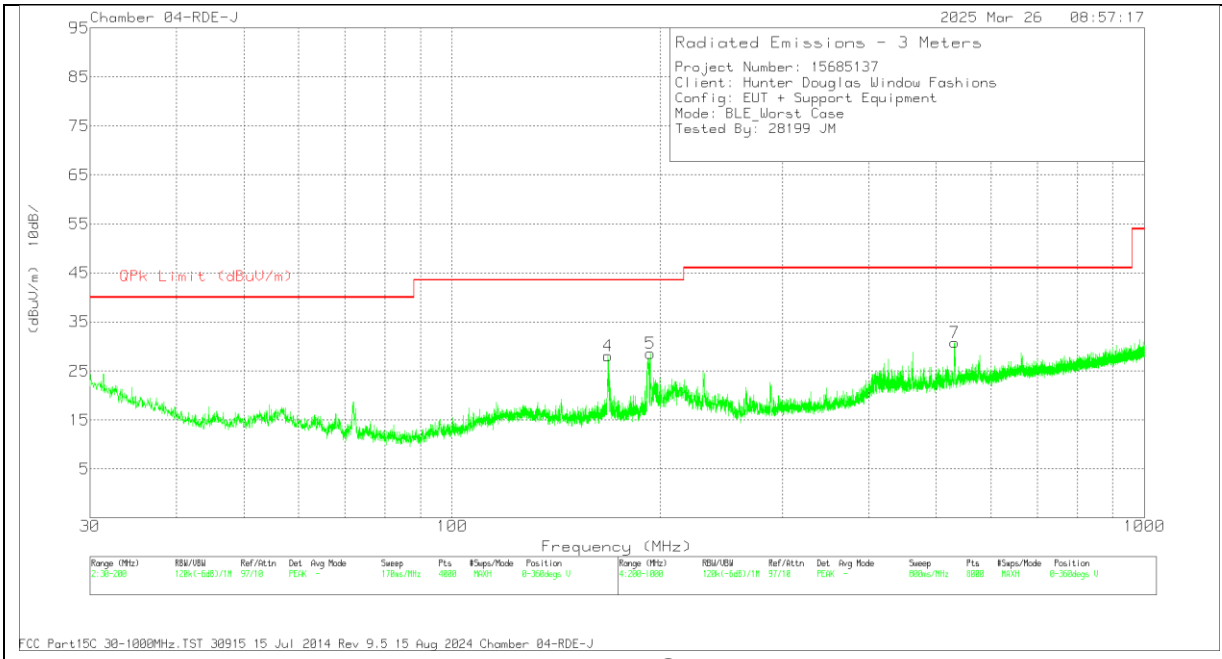
Below 30MHz Data

10.3. WORST CASE BELOW 1 GHz, , STANDALONE ON A TEST JIG

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



HORIZONTAL



VERTICAL

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Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80293 ACF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	71.7458	46.73	Pk	14	-31.5	29.23	40	-10.77	0-360	298	H
2	* 168.033	45.33	Pk	17.7	-30.9	32.13	43.52	-11.39	0-360	198	H
3	193.242	47.61	Pk	17.5	-30.8	34.31	43.52	-9.21	0-360	99	H
4	* 167.991	41.3	Pk	17.7	-30.9	28.1	43.52	-15.42	0-360	100	V
5	193.37	41.92	Pk	17.5	-30.8	28.62	43.52	-14.9	0-360	100	V
6	531.065	28.3	Qp	23.9	-29.8	22.4	46.02	-23.62	330	185	H
7	531.843	36.72	Pk	23.9	-29.8	30.82	46.02	-15.2	0-360	99	V

Pk - Peak detector
Qp - Quasi-Peak detector

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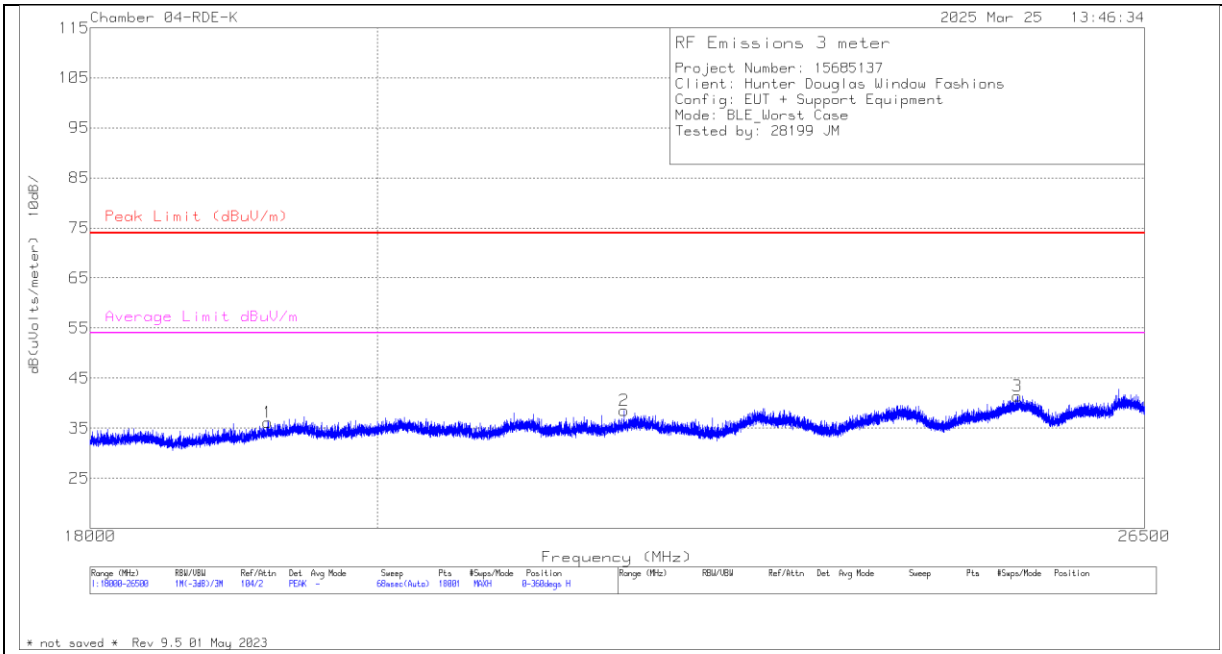
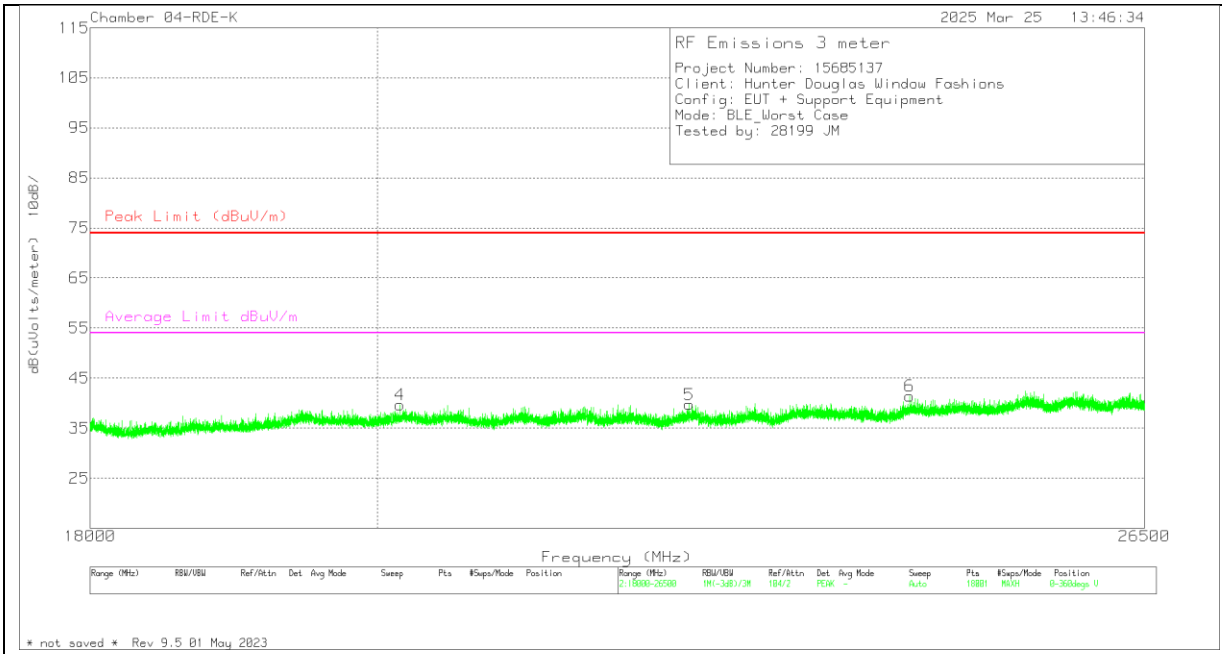
10.4. WORST CASE 18-26 GHz, , STANDALONE ON A TEST JIG

SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)



HORIZONTAL



VERTICAL

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18 – 26GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	172353 ACF (dB/m)	171583 Amp Assembly (dB)	Cable (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Average Limit (dBuV/m)	Average Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19213.611	48.23	Pk	33.1	-65.6	20.4	36.13	74	-37.87	54	-17.87	0-360	200	H
4	20167.027	49.8	Pk	33.1	-63.9	20.7	39.7	74	-34.3	54	-14.3	0-360	199	V
2	21893.943	48.53	Pk	33.7	-65.2	21.5	38.53	74	-35.47	54	-15.47	0-360	200	H
5	22426.137	49.81	Pk	33.8	-65.6	21.7	39.71	74	-34.29	54	-14.29	0-360	199	V
6	24311.247	49.42	Pk	34.2	-64.8	22.6	41.42	74	-32.58	54	-12.58	0-360	199	V
3	25294.885	47.92	Pk	34.6	-64.2	23.1	41.42	74	-32.58	54	-12.58	0-360	200	H

Pk - Peak detector

Note: No emissions were found with peak readings compared to average limit.

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11. SETUP PHOTOS

Please refer to 15685137-EP1 for setup photos

END OF TEST REPORT

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