GARMIN
Garmin International, Inc.
1200 East 151st Street
Olathe, Kansas 66062
P: 913-397-8200 F: 913-397-8282

19-Feb-26

Manufacturer: Garmin International, Inc.
Address: 1200 E. 151st St.
Olathe, KS 66062-3426
U.S.A.
Chile Representative: Matías Rodríguez Correa
Rosario Norte 660 piso 24, Las Condes Santiago
Province CP 7550083, Chile
Contact Email: matias.rodriguez@garmin.com

Subject: SUBTEL, Chile (Resolution 737) Certification Compliance 2026

Commercial Name: fenix 8 Pro – 47mm

	Información (Information)
Tipo de equipo (Equipment type)	Portable Digital Transceiver
Marca (Brand)	Garmin GARMIN.
Modelo (Model)	A04807
Tecnología o modulación (Technology or modulation)	WLAN: DSSS, OFDM, BT BR: GFSK BT EDR: π/4-DPSK, 8-DPSK BLE/ANT: GFSK
Frecuencias (Frequencies)	WLAN, BT, BLE, ANT: 2402-2480 MHz NFC: 13.56 MHz
Ganancia de antena (dBi) (Antenna gain (dBi)	2.4GHz: -6.41 dBi
P.i.r.e. (E.I R P.)	WLAN: 16.37 dBm, 43mW BT BR: 6.94 dBm, 5mW BT EDR: 8.36 dBm, 7mW BLE/ANT: -1.19 dBm, 1mW NFC: -25.3 dBm, 0.003mW
Módulos (Modules)	WLAN; BT BR, BT EDR, BLE, ANT

As all measurements for NFC are made in radiated mode to comply with the field strength limits, gain information is not required to be noted in the reports or any additional documentation.

Declaration of Conformity Statement: the equipment previously identified complies with the provisions established in the Technical Standard for Small Range Equipment, approved by Exempt Resolution No.1,985 of 2017, of the Undersecretary of Telecommunications.

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Declaración de conformidad: El equipo anteriormente identificado cumple con las disposiciones establecidas en la Norma Técnica para Equipos de Corto Alcance, aprobada mediante la Resolución Exenta N° 1.985 de 2017, de la Subsecretaría de Telecomunicaciones.

TEST REPORT

Report Number: R15626970-E3

Applicant	:	Garmin International Inc. 1200 East 151st Street Olathe, KS 66062-3426, USA
Model	:	A04807
FCC ID	:	IPH-04807
IC	:	1792A-04807
EUT Description	:	Extremity Worn Digital Transceiver
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:
2025-07-23

Prepared by:
UL LLC
12 Laboratory Dr.
Durham, NC 27713, USA
TEL: (919) 549-1400

CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2025-07-23	Initial Issue	Manish Baral

UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

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UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Garmin International Inc.
1200 East 151St Street
Olathe, KS 66062-3426, USA

EUT DESCRIPTION: Extremity Worn Digital Transceiver

MODEL: A04807

SERIAL NUMBER: 511423961, 511423988

SAMPLE RECEIPT DATE: 2025-04-14 and 2025-04-23

DATE TESTED: 2025-04-15 to 2025-05-19

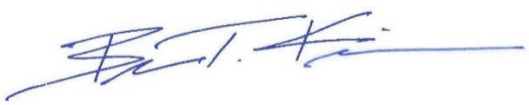
APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C ISED RSS-247 Issue 3 ISED RSS-GEN Issue 5 + A1 + A2	Refer to Section 2

UL LLC 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released
For UL LLC By:



Brian Kiewra
Project Engineer
Consumer, Medical and IT Segment
UL LLC

Prepared By:

Manish Baral
Engineer
Consumer, Medical and IT Segment
UL LLC

2. TEST RESULTS SUMMARY

This report contains info provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.
Below is a list of the data/info provided by the customer:

1) Antenna gain and type (see section 6.3)
2) Worst-case data rates (see section 6.5)

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	Compliant	None
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power		
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	Compliant	None
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions		
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions		
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions		

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2020, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, RSS-GEN Issue 5 + A1 + A2, and RSS-247 Issue 3.

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, 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: 12 Laboratory Dr Durham, NC 27713, USA	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

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	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%
Time	3.39%

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

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

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is an extremity worn digital transceiver with BT, BLE, ANT/ANT+, 802.11b/g/n 2.4GHz WLAN, NFC, and Global Navigation Satellite System (GNSS) receiver. This report covers full testing on the ANT/ANT+, BLE, and 2.4GHz WLAN radios.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11b	20.89	122.74
2412 - 2472	802.11g	22.78	189.67
2412 - 2472	802.11n HT20	22.48	177.01
2402 - 2480	ANT/ANT+	5.35	3.43
2402 - 2480	BLE 1Mbps	5.22	3.33
2402 - 2480	BLE 2Mbps	5.25	3.21

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:
The radio utilizes an antenna with the following type and maximum gain:

Type	Frequency Range (MHz)	Maximum Gain (dBi)
Slot	2402-2480	-6.41

6.4. SOFTWARE AND FIRMWARE

FW Version: 16.29

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 PSD as worst-case scenario.

For 2.4 WLAN, PSD was taken at the mid channel power setting (highest) for all channels.

For 2.4 WLAN all radiated spurious emissions between 1GHz and 18 GHz were tested at mid channel power. Band edge scans were freformed on all inner/outer channels up to mid channel power.

For BLE and ANT/ANT+ ppower is not distributed equally among all channels and therefore radiated spurious emissions between 1GHz and 18GHz were performed on mid channel and the highest power low and high channels. Band edge scans were performed on all inner/outer channels up to mid channel power.

As declared by the manafacturer, the EUT does not support channels 2402 MHz and 2480 MHz for BLE 2 Mbps.

The fundamental of the EUT was investigated in three orthogonal axes, X, Y, and Z. The worst-case orientation was determined to be the Z orientation. Therefore, all testing was performed with the EUT in the Z orientation.

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6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Tag Reader	Advanced Card Systems	ACR1252U	RR554-214365	V5MACR1252
Laptop	Lenovo	21AJS0KL00	PF4FKVZE	-

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Proprietary	1	USB-C	Shielded	<3m	Program/Charge EUT

SETUP DIAGRAMS

Please refer to R15626970-EP2 for setup diagrams

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7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10-2020 Section 11.6

6 dB BW: ANSI C63.10-2020 Subclause -11.8.2

Occupied BW (99%): ANSI C63.10-2020 Section 6.9.3

Output Power: ANSI C63.10-2020 Subclause -11.9.1.2 Method PKPM1 Peak-reading power meter
ANSI C63.10-2020 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated RF average-reading power meter)

PSD: ANSI C63.10-2020 Subclause -11.10.2 Method PKPSD (peak PSD)

Conducted emissions non-restricted frequency bands: ANSI C63.10-2020 Subclause -11.11 and 6.10.4

Radiated emissions restricted frequency bands: ANSI C63.10-2020 Subclause -11.12.1 and 6.10.5

General radiated emissions: ANSI C63.10 Subclause - 6.3-6.6

AC Power-line conducted emissions: ANSI C63.10-2020, Section 6.2.

8. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
30-1000 MHz					
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-30	2026-01-30
1-18 GHz					
135143	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-02-07	2026-02-07
18-40 GHz					
91186	Horn Antenna, 18-26.5GHz	Antenna Research Associates	MWH-1826/B	2024-05-16	2025-05-16
Gain-Loss Chains					
91974	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-08	2025-05-08
91976	Gain-loss string: 25-1000MHz	Various	Various	2024-05-08	2025-05-08
91979	Gain-loss string: 1-18GHz	Various	Various	2024-05-08	2025-05-08
135999	Gain-loss string: 18-40GHz	Various	Various	2024-05-08	2025-05-08
Receiver & Software					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-08-29	2025-08-29
81018	Spectrum Analyzer	Agilent	E4446A	2024-07-31	2025-07-31
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
Conducted Room 1					
90411	Spectrum Analyzer	Keysight Technologies	N9030A	2024-08-01	2025-08-01
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
SOFTEMI	Antenna Port Software	UL	Version 2024.2.23	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA
Additional Equipment used					
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
Attenuators					
IV	SMA Coaxial 20dB Attenuator	CentricRF	C18S2-20	2025-04-11	2026-04-11
CBL091	Micro-Coax UTiFLEX Cable Assembly, Low Loss	Carlisle Interconnect Technologies	UFA147A-2-0360-200200	2025-03-07	2026-03-07

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
70374	EMI Test Receiver	ROHDE & SCHWARZ	ESCI7	2024-07-30	2025-07-30
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2024-04-04	2025-04-30
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2024-08-01	2025-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2024-04-04	2025-04-30
236852	CW-AC Power Source	Ametek	CW2501	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

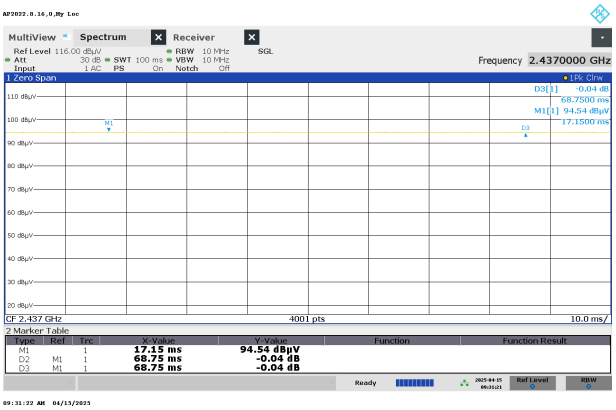
KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b	100.000	100.00	1.000	100.00	0.00	0.010
802.11g	100.000	100.00	1.000	100.00	0.00	0.010
802.11n HT20	100.000	100.00	1.000	100.00	0.00	0.010
ANT/ANT+	100.000	100.00	1.000	100.00	0.00	0.010
BLE 1Mbps	100.000	100.00	1.000	100.00	0.00	0.010
BLE 2Mbps	100.000	100.00	1.000	100.00	0.00	0.010

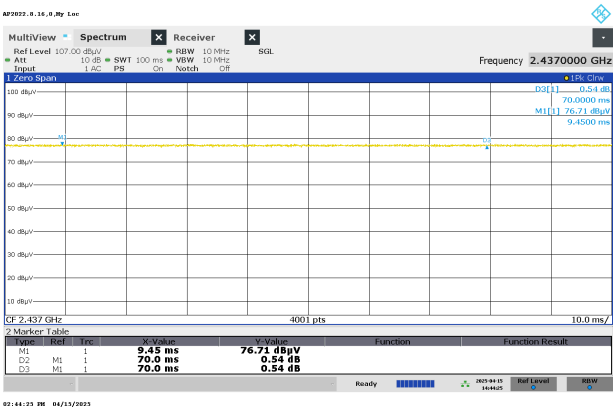
Tester ID: 84740/11993
Date: 2025-04-15 to 2025-04-16

DUTY CYCLE PLOTS



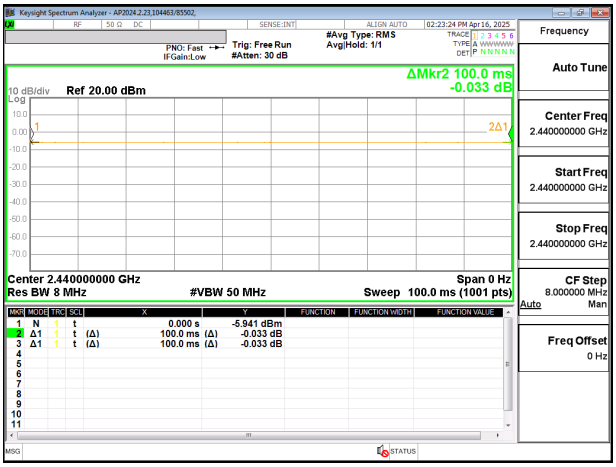
DUTY CYCLE 802.11b MODE

DUTY CYCLE 802.11g MODE

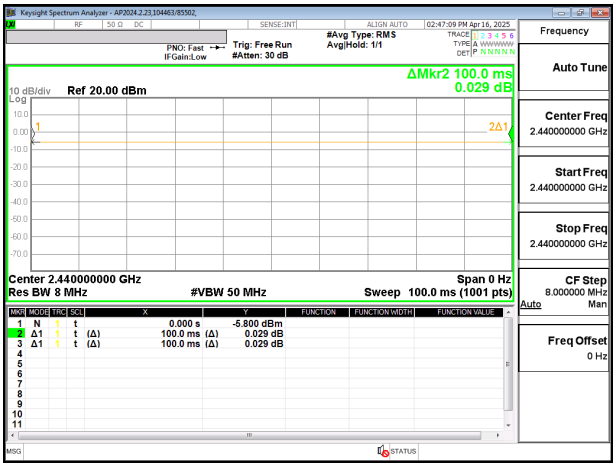


DUTY CYCLE 802.11n HT20 MODE

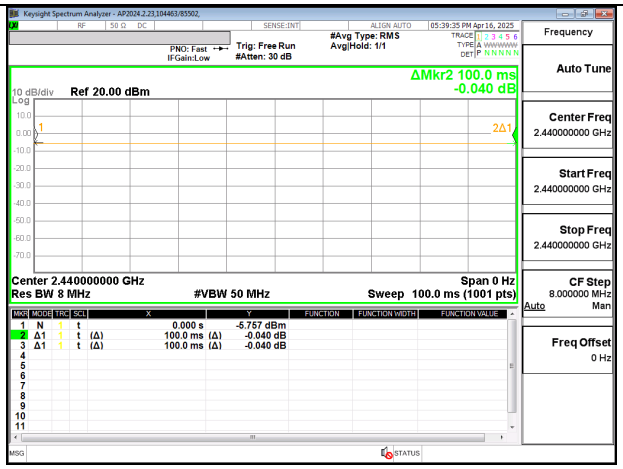
DUTY CYCLE ANT/ANT+ MODE



DUTY CYCLE BLE 1Mbps



DUTY CYCLE BLE 2Mbps



ANT/ANT+ - 60 Kbps

9.2. 99% BANDWIDTH

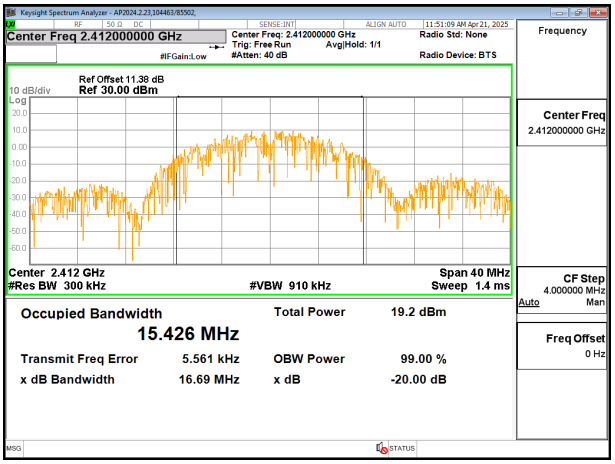
LIMITS

None; for reporting purposes only.

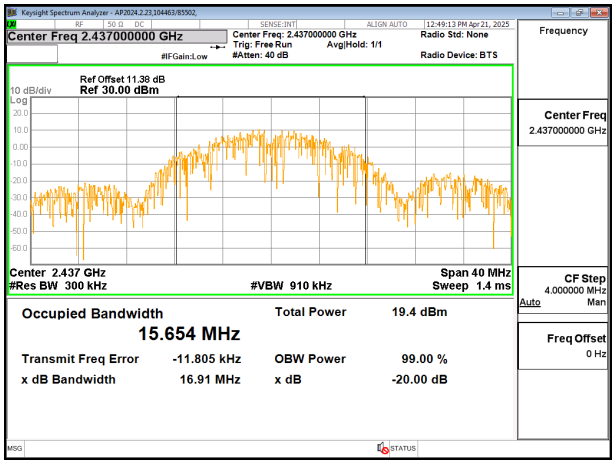
RESULTS

9.2.1. 802.11b MODE

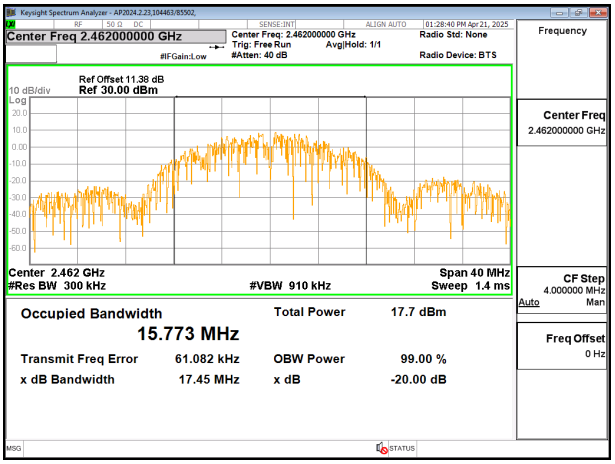
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.426
Mid	2437	15.654
High 11	2462	15.773
High 12	2467	15.219
High 13	2472	15.111



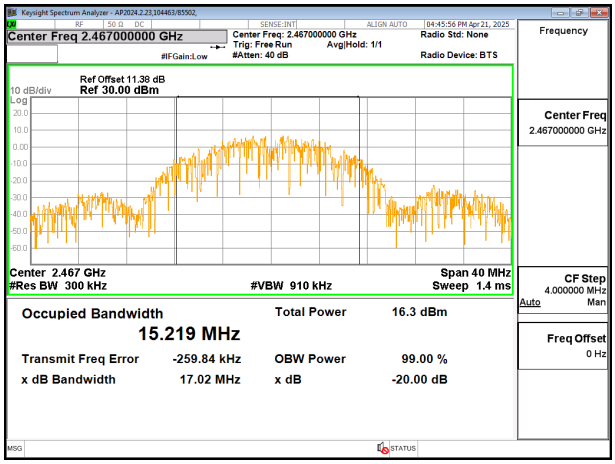
LOW CHANNEL 1



MID CHANNEL 6



HIGH CHANNEL 11



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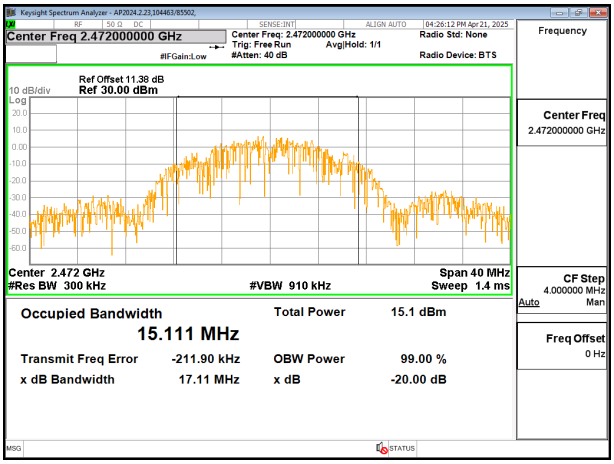
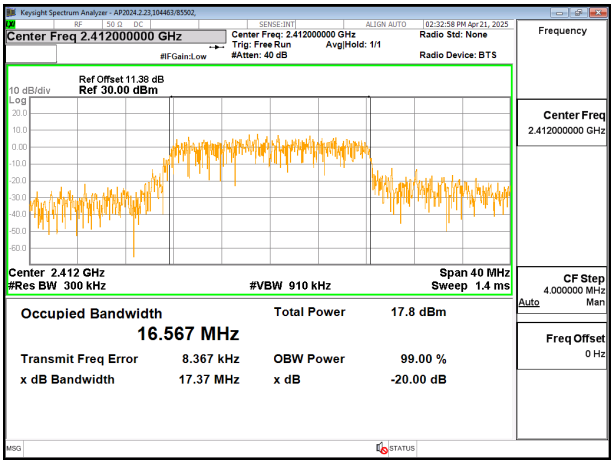


HIGH CHANNEL 13

9.2.2. 802.11g MODE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.567
Mid	2437	16.576
High 11	2462	16.540
High 12	2467	16.505
High 13	2472	16.599



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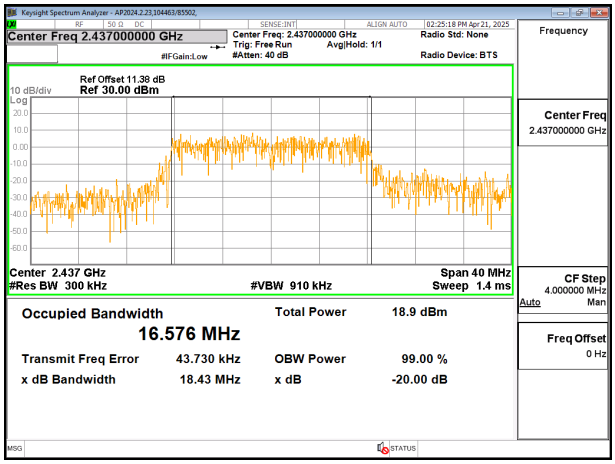

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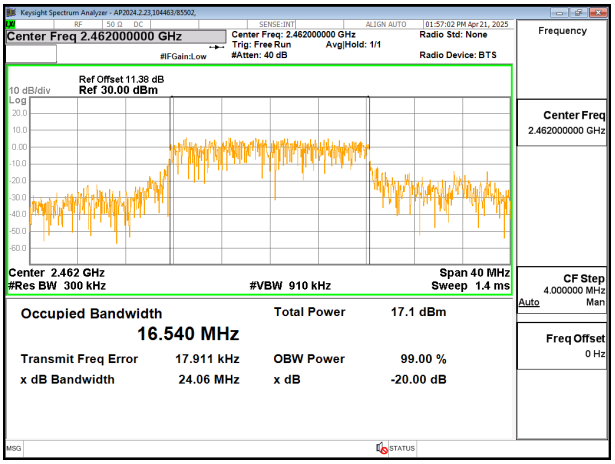

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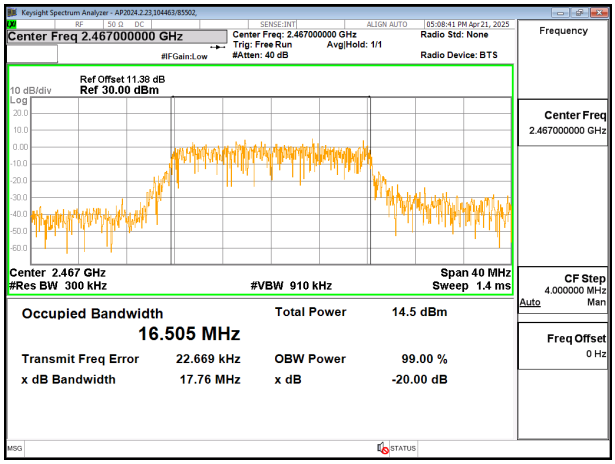
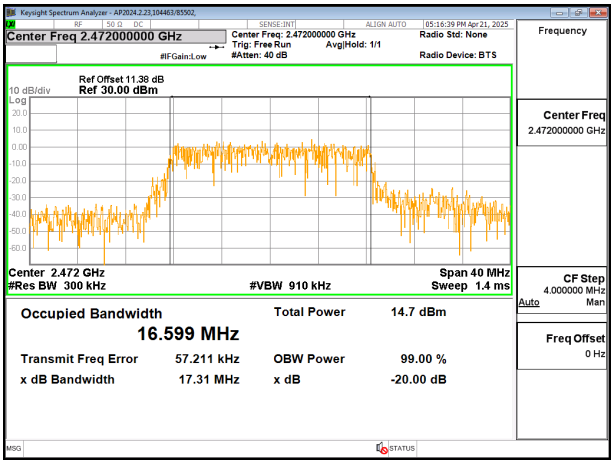


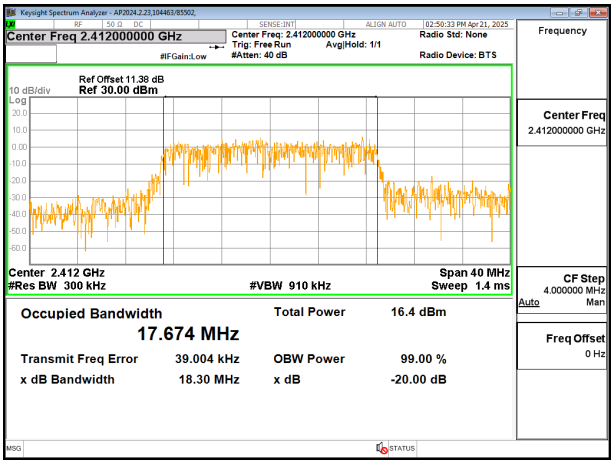
HIGH CHANNEL 12



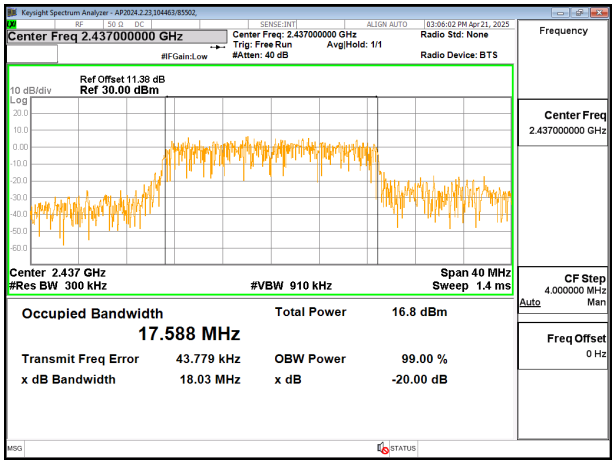
HIGH CHANNEL 13

9.2.3. 802.11n HT20 MODE

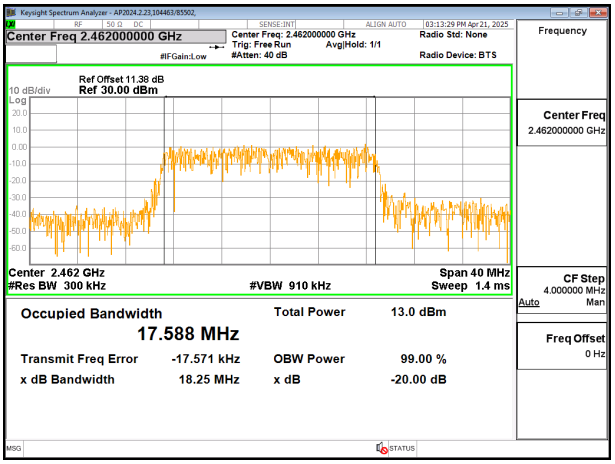
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.674
Mid	2437	17.588
High 11	2462	17.588
High 12	2467	17.649
High 13	2472	17.515



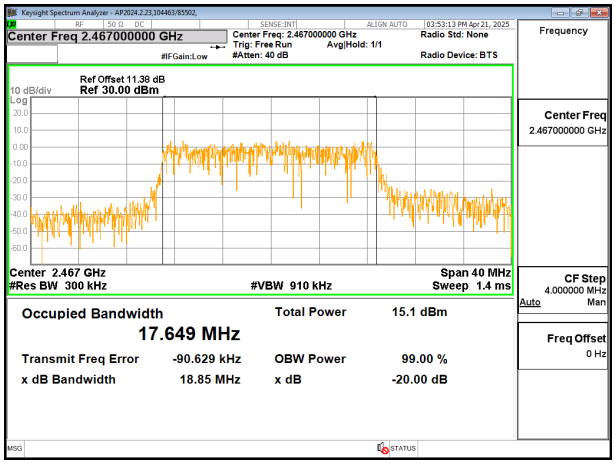
LOW CHANNEL 1



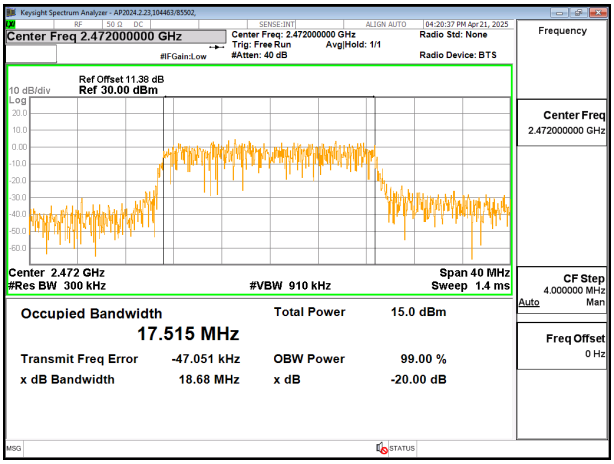
MID CHANNEL 6



HIGH CHANNEL 11



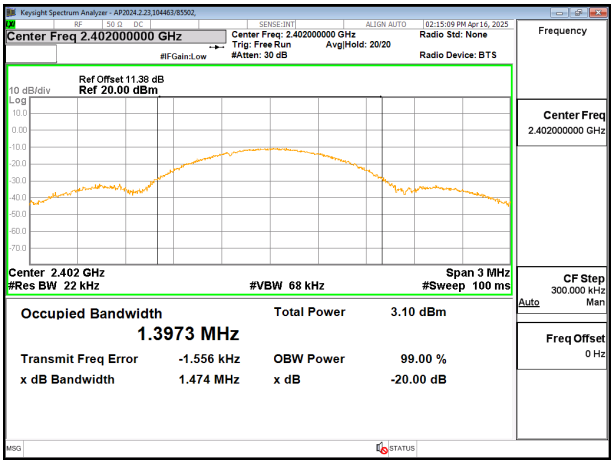
HIGH CHANNEL 12



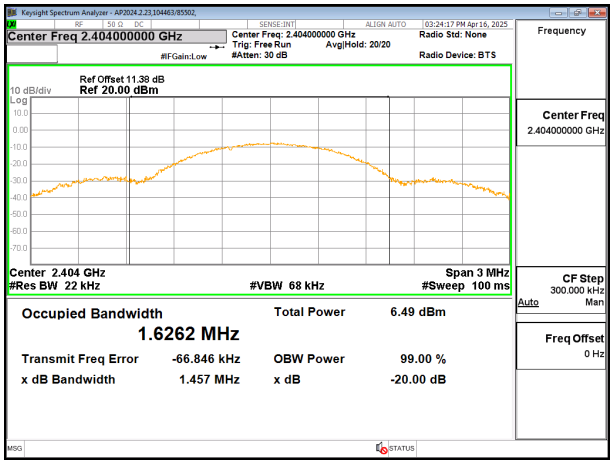
HIGH CHANNEL 13

9.2.4. BLE (1Mbps)

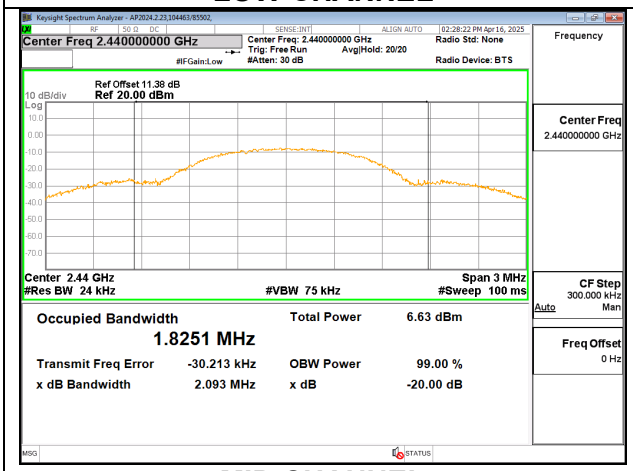
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.3973
Low	2404	1.6262
Middle	2440	1.8251
High	2476	1.8548
High	2478	1.4442
High	2480	1.6098



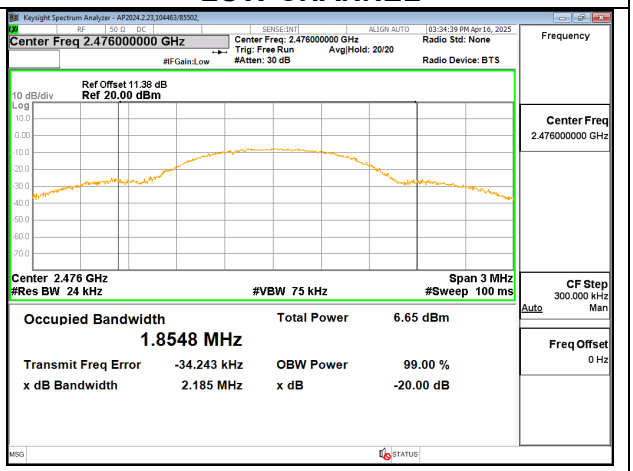
LOW CHANNEL



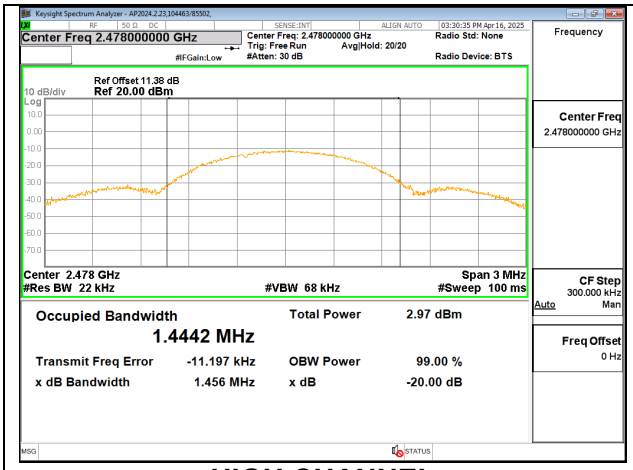
LOW CHANNEL



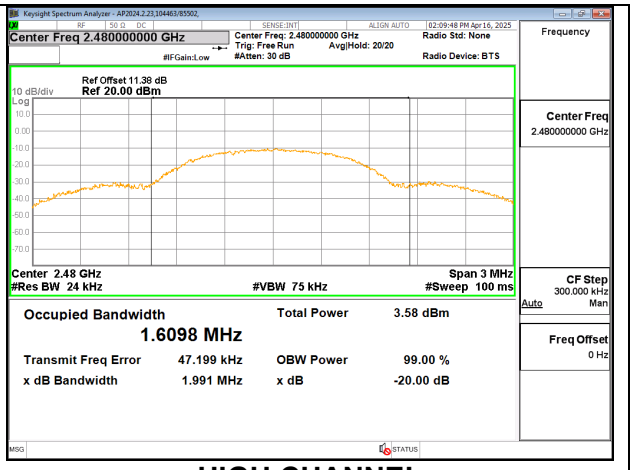
MID CHANNEL



HIGH CHANNEL



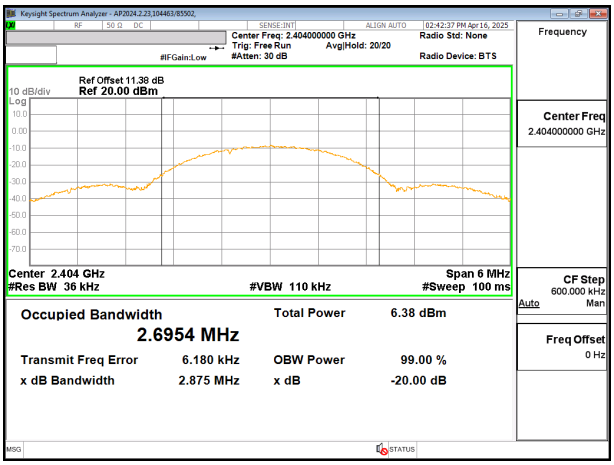
HIGH CHANNEL



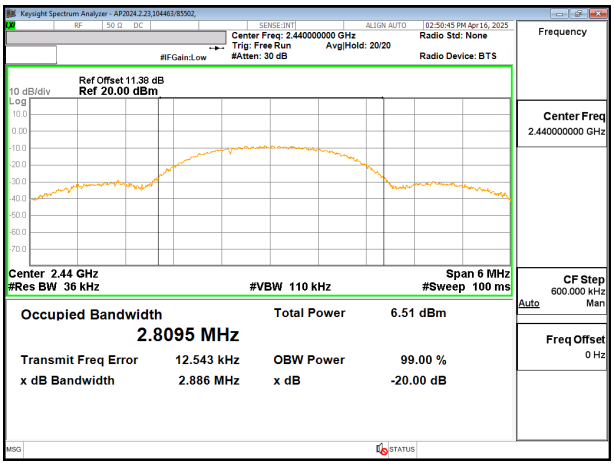
HIGH CHANNEL

9.2.5. BLE (2Mbps)

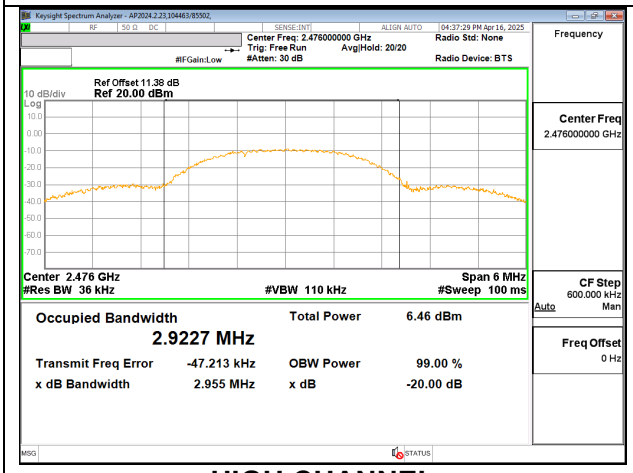
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.6954
Middle	2440	2.8095
High	2476	2.9227
High	2478	2.6363



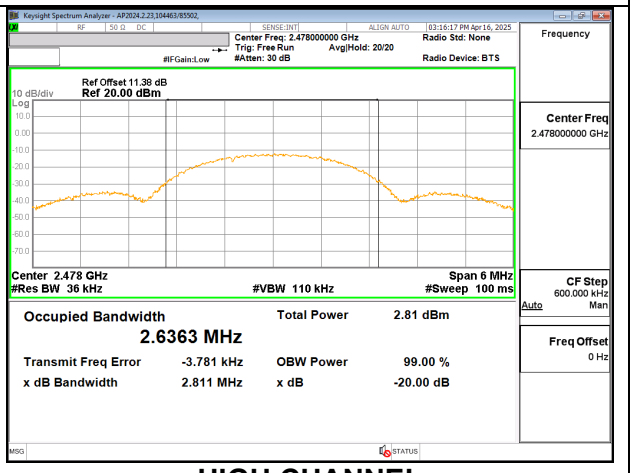
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



HIGH CHANNEL

9.2.6. ANT/ANT+ (60 Kbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.3340
Low	2404	1.3857
Middle	2440	1.3435
High	2478	1.8189
High	2480	1.7575

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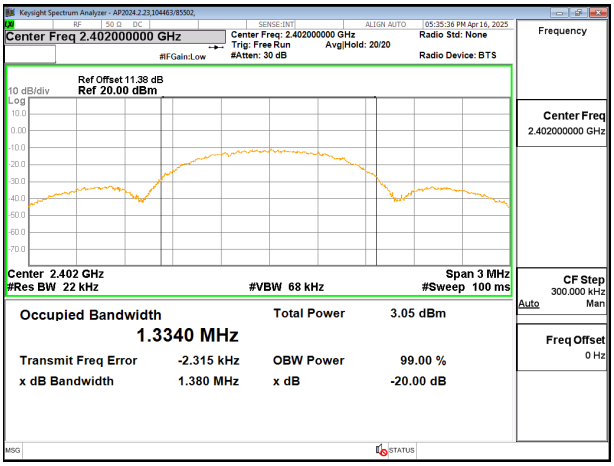
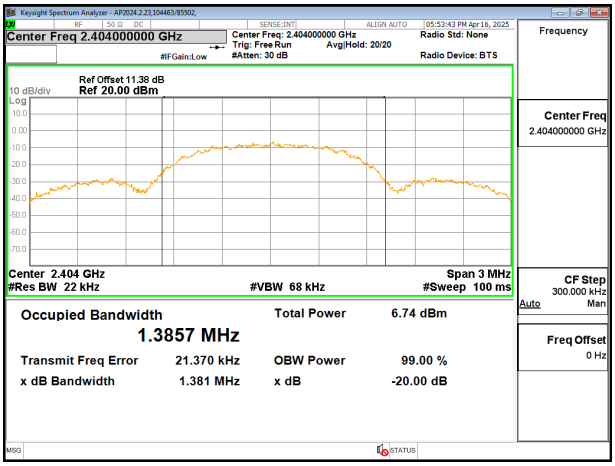
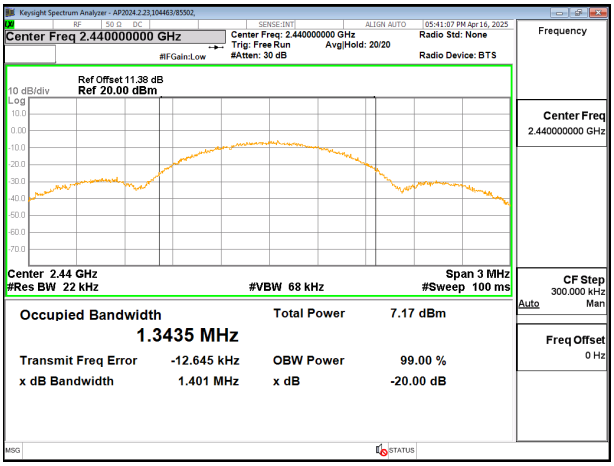


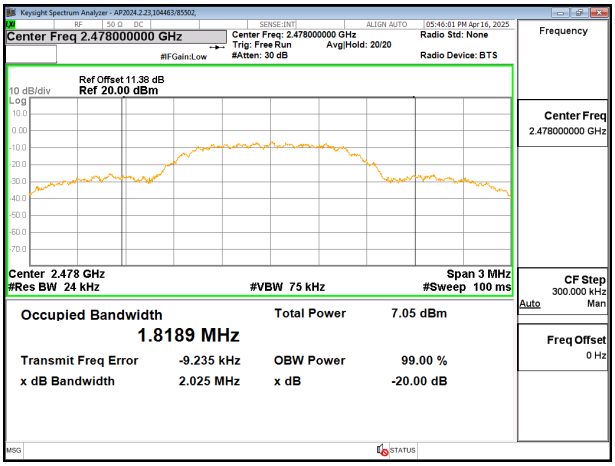
LOW CHANNEL



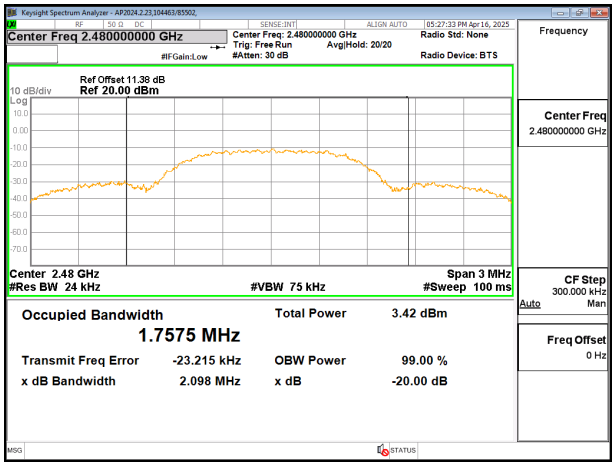
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



HIGH CHANNEL

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

9.3.1. 802.11b MODE

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	10.00	0.5
Mid	2437	9.56	0.5
High 11	2462	9.36	0.5
High 12	2467	8.68	0.5
High 13	2472	9.12	0.5

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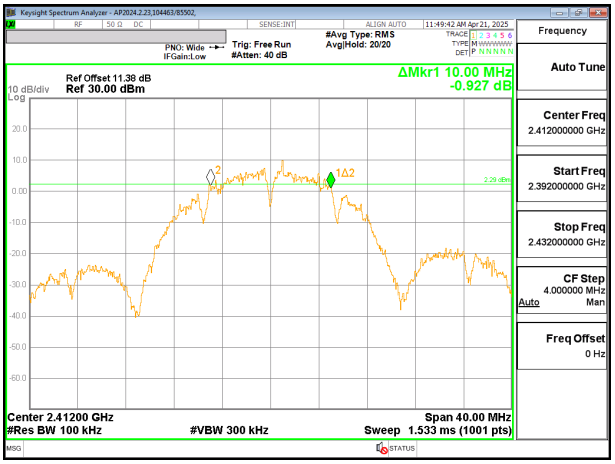
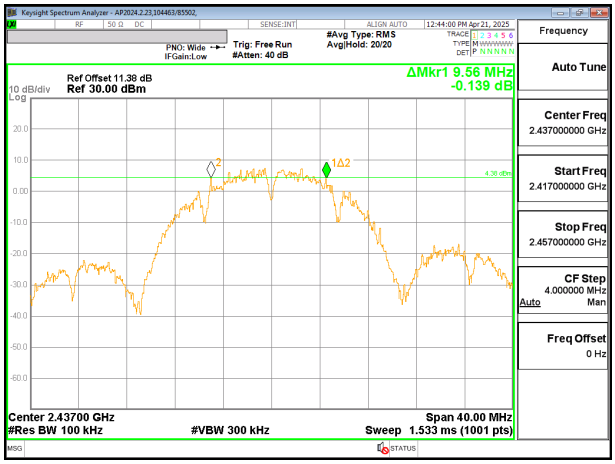
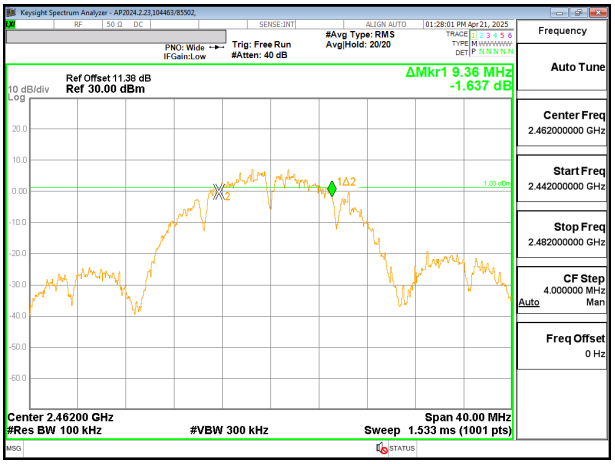


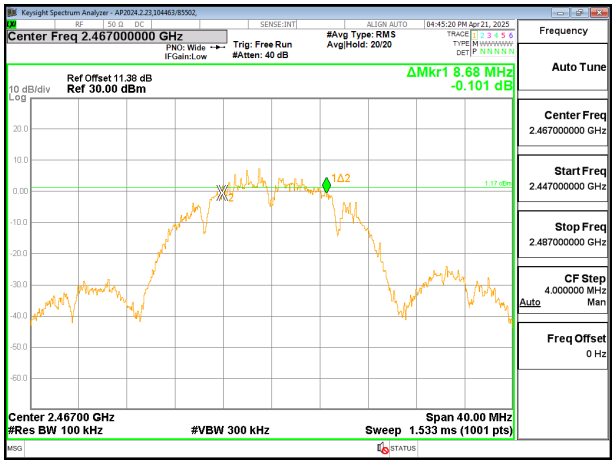
LOW CHANNEL 1



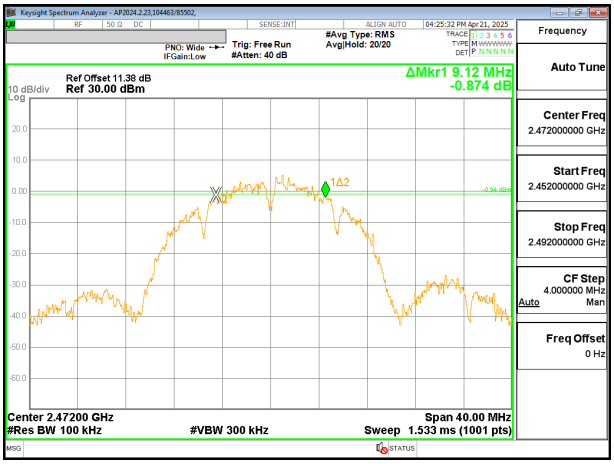
MID CHANNEL 6



HIGH CHANNEL 11



HIGH CHANNEL 12



HIGH CHANNEL 13

9.3.2. 802.11g MODE

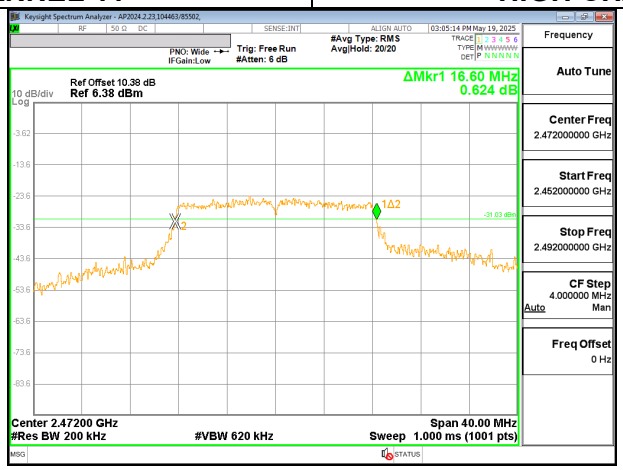
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.48	0.5
Mid	2437	16.44	0.5
High 11	2462	16.48	0.5
High 12	2467	16.40	0.5
High 13	2472	16.60	0.5

LOW CHANNEL 1

MID CHANNEL 6

HIGH CHANNEL 11

HIGH CHANNEL 12

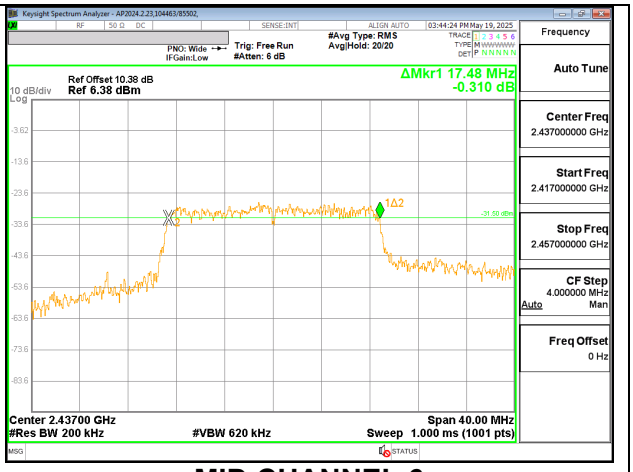


HIGH CHANNEL 13

9.3.3. 802.11n HT20 MODE

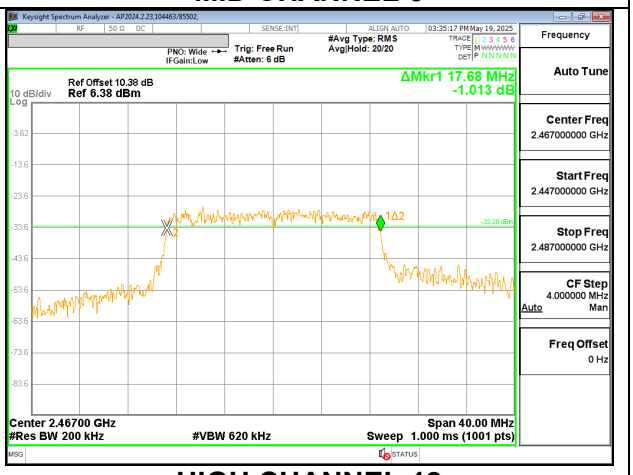
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.64	0.5
Mid	2437	17.48	0.5
High 11	2462	17.64	0.5
High 12	2467	17.68	0.5
High 13	2472	17.44	0.5

LOW CHANNEL 1

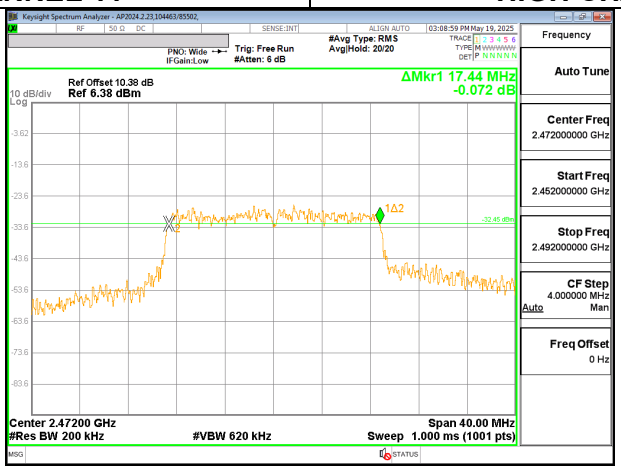


MID CHANNEL 6

HIGH CHANNEL 11



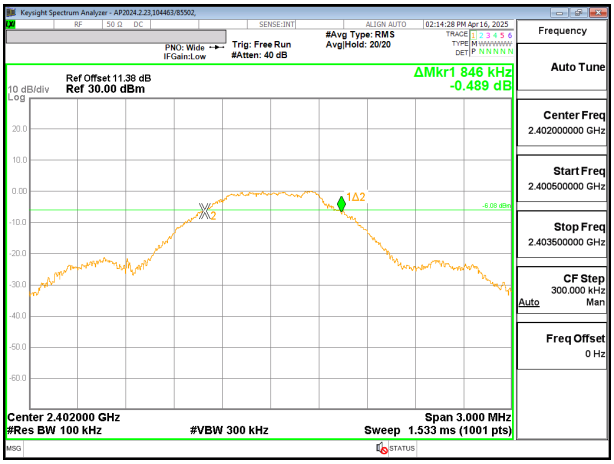
HIGH CHANNEL 12



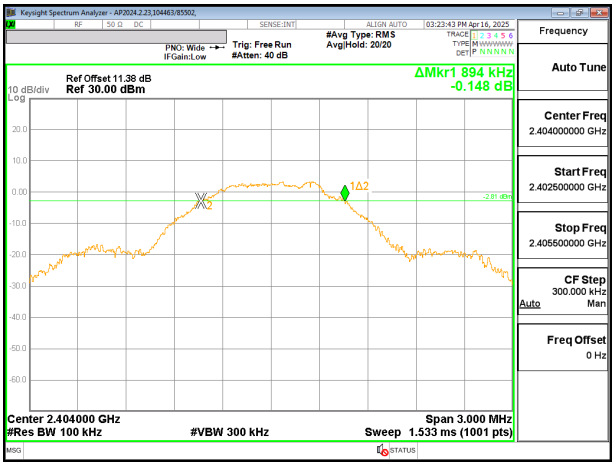
HIGH CHANNEL 13

9.3.4. BLE (1Mbps)

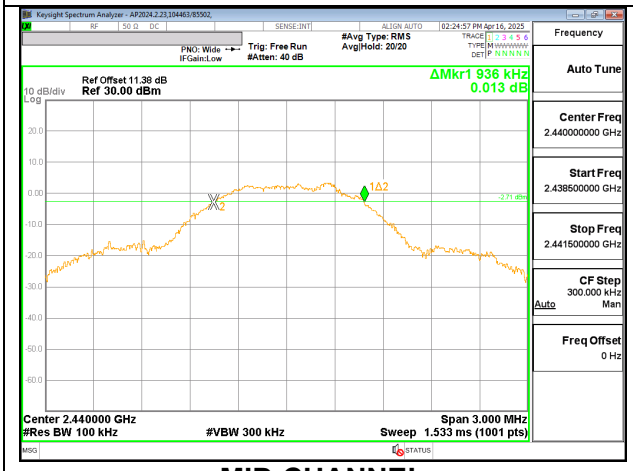
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.8460	0.5
Low	2404	0.8940	0.5
Middle	2440	0.9360	0.5
High	2476	0.8970	0.5
High	2478	0.8730	0.5
High	2480	0.9150	0.5



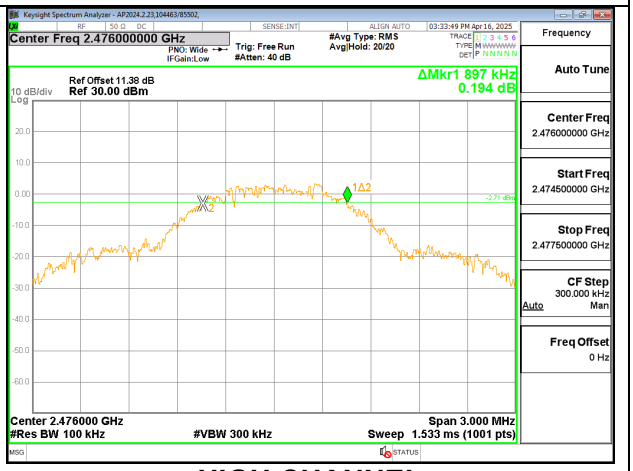
LOW CHANNEL



LOW CHANNEL

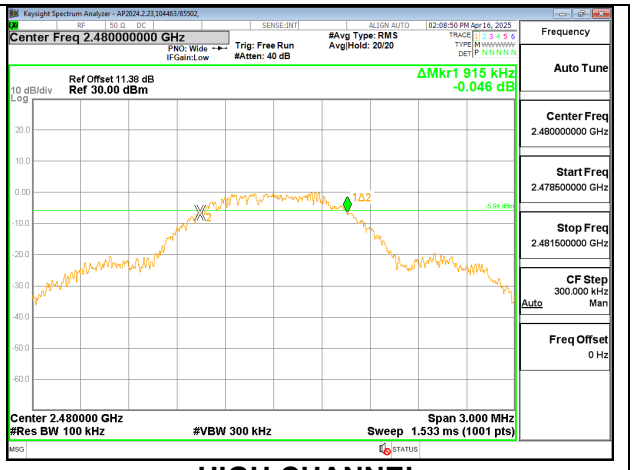


MID CHANNEL



HIGH CHANNEL

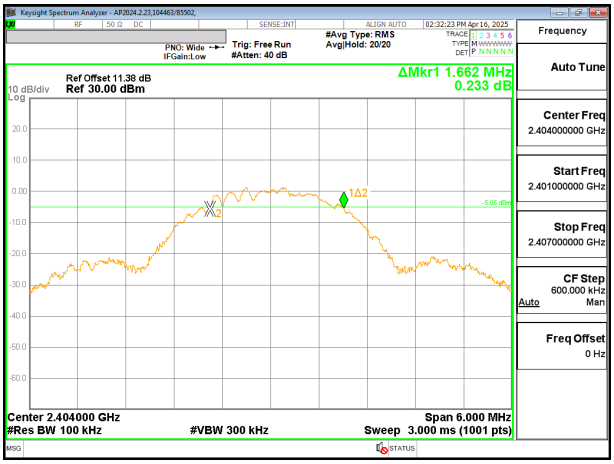
HIGH CHANNEL



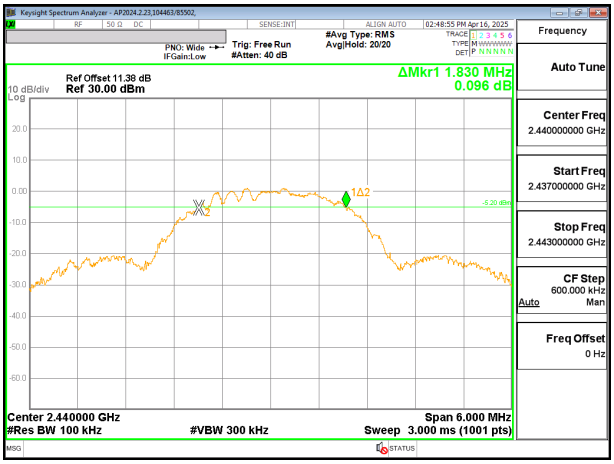
HIGH CHANNEL

9.3.5. BLE (2Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2404	1.6620	0.5
Middle	2440	1.8300	0.5
High	2476	1.8540	0.5
High	2478	1.6620	0.5



LOW CHANNEL



MID CHANNEL

HIGH CHANNEL

HIGH CHANNEL

9.3.6. ANT (60 Kbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.9030	0.5
Low	2404	0.9000	0.5
Middle	2440	0.7890	0.5
High	2478	0.9840	0.5
High	2480	0.9480	0.5

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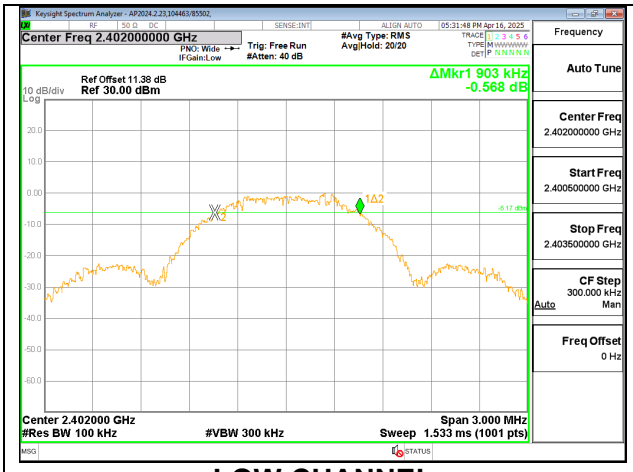
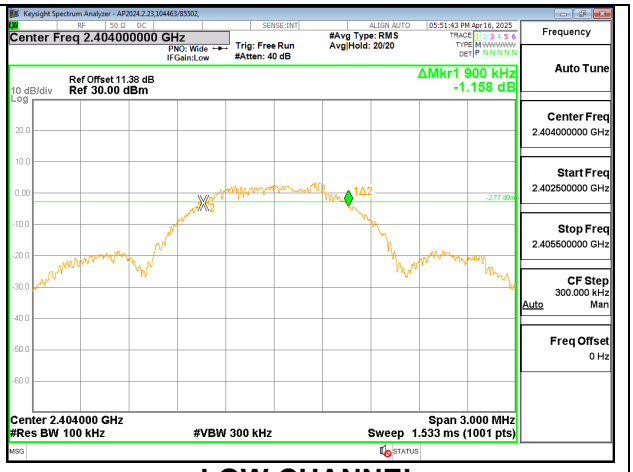
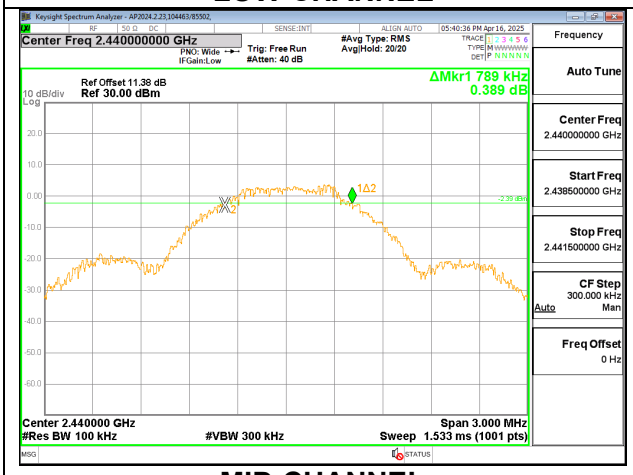


LOW CHANNEL

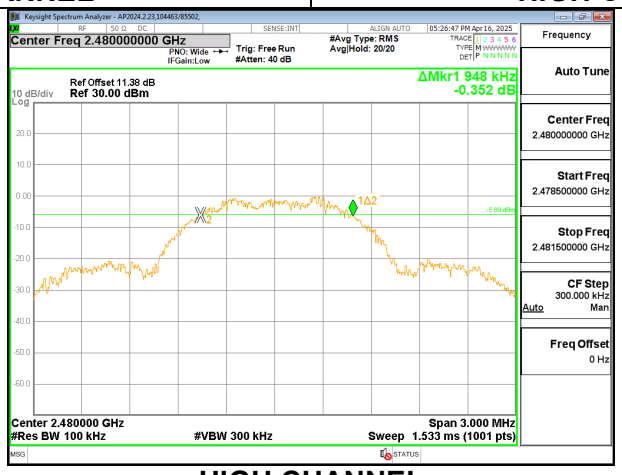


LOW CHANNEL



MID CHANNEL

HIGH CHANNEL



HIGH CHANNEL

9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.69 dB (0.69 dB EUT cable loss and 10.00 dB attenuation pad) was entered as an offset in the power meter.

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

RESULTS

9.4.1. 802.11b MODE

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Results

Channel	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	20.89	30.00	-9.11
Mid 6	2437	18.78	30.00	-11.22
High 11	2462	20.01	30.00	-9.99
High 12	2467	18.53	30.00	-11.47
High 13	2472	17.68	30.00	-12.32

9.4.2. 802.11g MODE

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Results

Channel	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.68	30.00	-7.32
Mid 6	2437	22.78	30.00	-7.22
High 11	2462	22.77	30.00	-7.23
High 12	2467	20.70	30.00	-9.30
High 13	2472	20.90	30.00	-9.10

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9.4.3. 802.11n HT20 MODE

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Results

Channel	Frequency (MHz)	Measured Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	22.36	30.00	-7.64
Mid 6	2437	21.88	30.00	-8.12
High 11	2462	22.11	30.00	-7.89
High 12	2467	21.53	30.00	-8.47
High 13	2472	21.32	30.00	-8.68

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9.4.4. BLE (1Mbps)

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.270	30	-28.730
Low	2404	4.850	30	-25.150
Middle	2440	5.220	30	-24.780
High	2476	5.180	30	-24.820
High	2478	1.990	30	-28.010
High	2480	1.950	30	-28.050

9.4.5. BLE (2Mbps)

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	5.010	30	-24.990
Middle	2440	5.060	30	-24.940
High	2476	5.250	30	-24.750
High	2478	1.590	30	-28.410

9.4.6. ANT/ANT+ (60 Kbps)

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.780	30	-28.220
Low	2404	5.100	30	-24.900
Middle	2440	5.350	30	-24.650
High	2478	5.340	30	-24.660
High	2480	2.100	30	-27.900

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.69 dB (0.69 dB EUT cable loss and 10.00 dB attenuation pad) was entered as an offset in the power meter.

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

RESULTS

9.5.1. 802.11b MODE

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	Power (dBm)
Low	2412	18.84
Mid	2437	16.66
High	2467	16.44
High	2472	15.49

9.5.2. 802.11g MODE

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	Power (dBm)
Low	2412	17.47
Mid	2437	17.79
High	2462	17.55
High	2467	14.26
High	2472	14.22

9.5.3. 802.11n HT20 MODE

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	Power (dBm)
Low	2412	15.94
Mid	2437	16.01
High	2462	15.63
High	2467	14.61
High	2472	14.27

9.5.4. BLE (1Mbps)

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	0.957
Low	2404	4.597
Middle	2440	4.949
High	2476	4.859
High	2478	1.684
High	2480	1.66

9.5.5. BLE (2Mbps)

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	4.715
Middle	2440	4.781
High	2476	4.994
High	2478	1.252

9.5.6. ANT/ANT+ (60 Kbps)

Test Engineer:	105900/84740
Test Date:	2025-04-16 to 2025-04-17

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	1.485
Low	2404	4.839
Middle	2440	5.068
High	2478	5.09
High	2480	1.784

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9.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

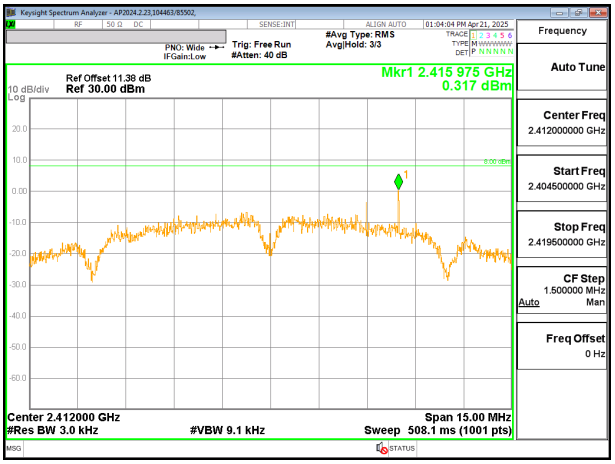
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

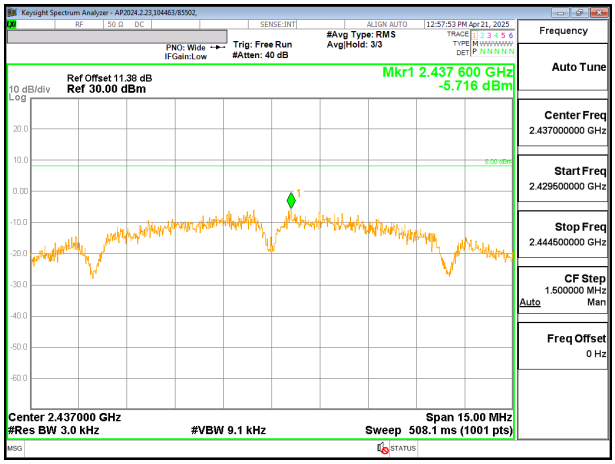
9.6.1. 802.11b MODE

PSD Results

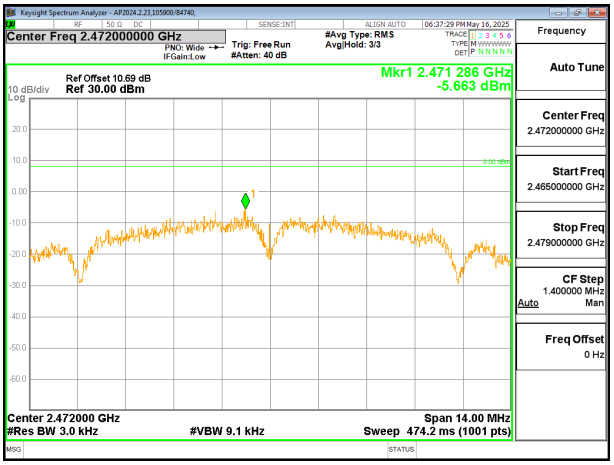
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	0.32	8.0	-7.7
Mid 6	2437	-5.72	8.0	-13.7
High 13	2472	-5.66	8.0	-13.7



LOW CHANNEL 1



MID CHANNEL 6

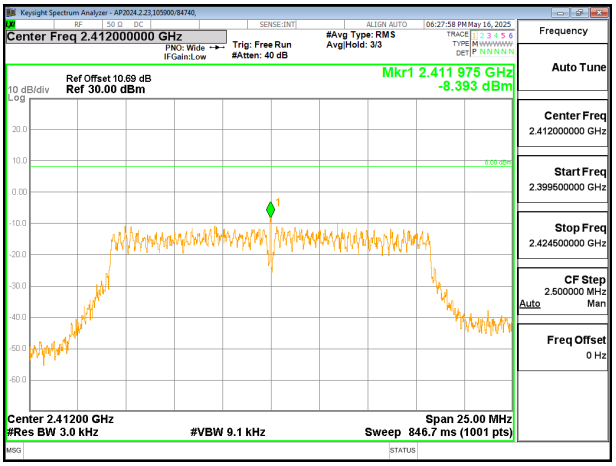


HIGH CHANNEL 13

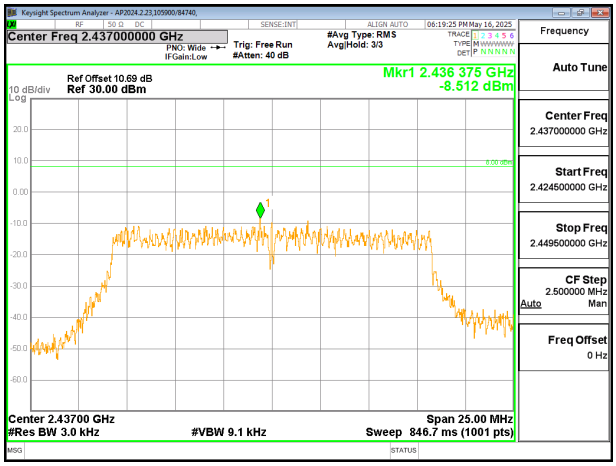
9.6.2. 802.11g MODE

PSD Results

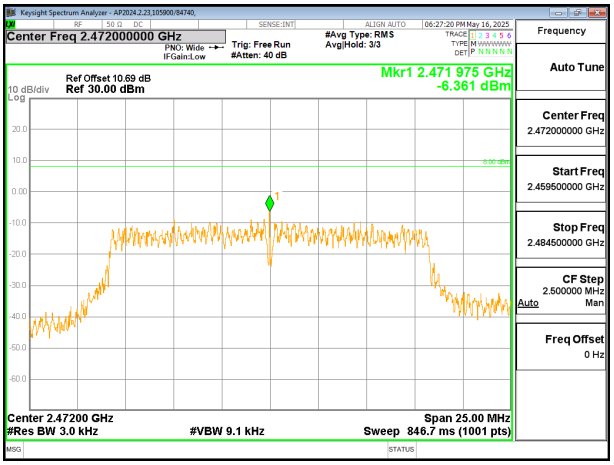
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-8.39	8.0	-16.4
Mid 6	2437	-8.51	8.0	-16.5
High 13	2472	-6.36	8.0	-14.4



LOW CHANNEL 1



MID CHANNEL 6

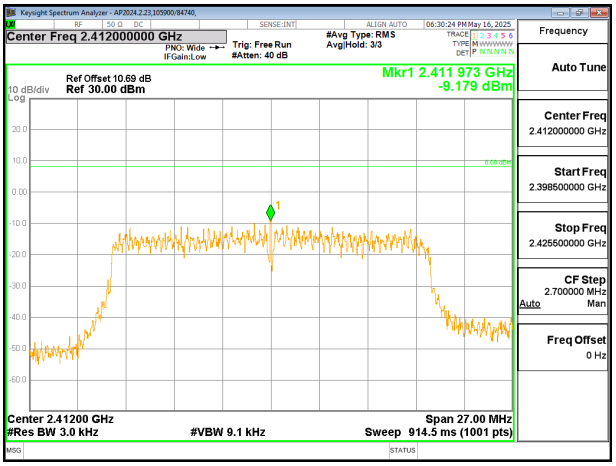


HIGH CHANNEL 13

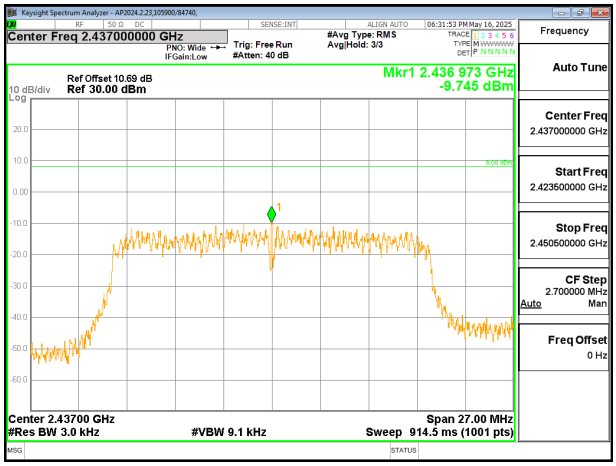
9.6.3. 802.11n HT20 MODE

PSD Results

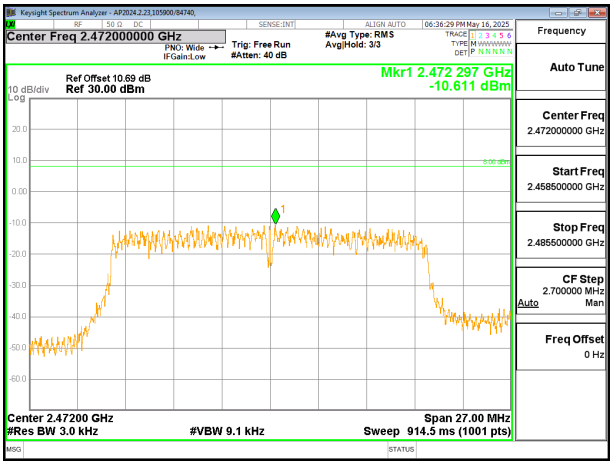
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-9.18	8.0	-17.2
Mid 6	2437	-9.75	8.0	-17.7
High 13	2472	-10.61	8.0	-18.6



LOW CHANNEL 1



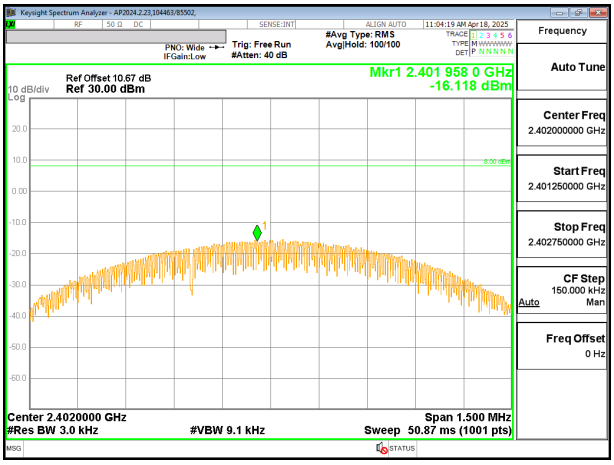
MID CHANNEL 6



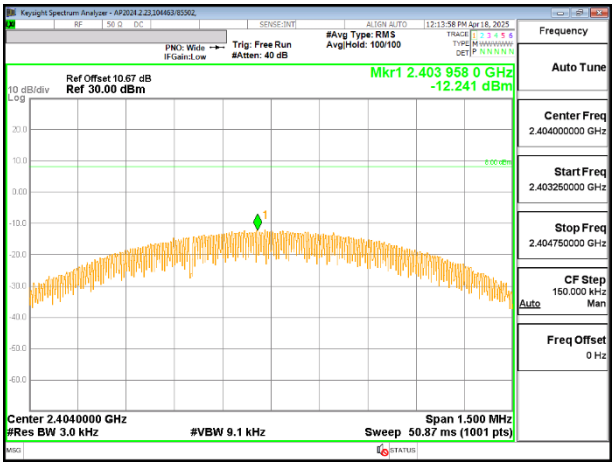
HIGH CHANNEL 13

9.6.4. BLE (1Mbps)

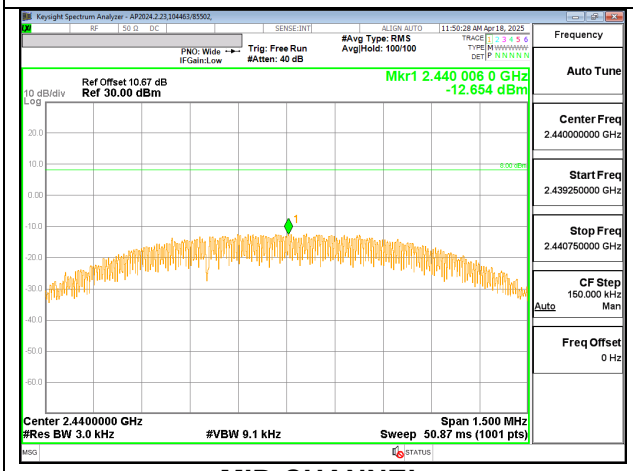
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-16.12	8	-24.12
Low	2404	-12.24	8	-20.24
Middle	2440	-12.65	8	-20.65
High	2476	-12.64	8	-20.64
High	2478	-15.04	8	-23.04
High	2480	-15.85	8	-23.85



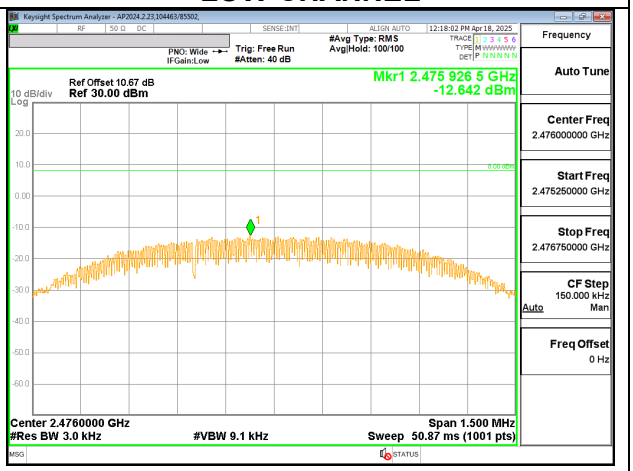
LOW CHANNEL



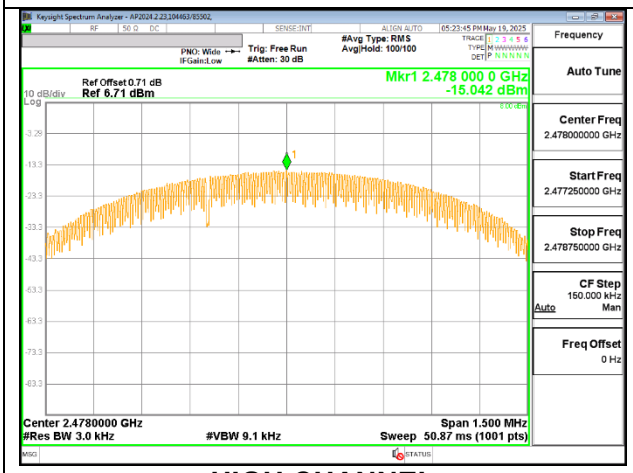
LOW CHANNEL



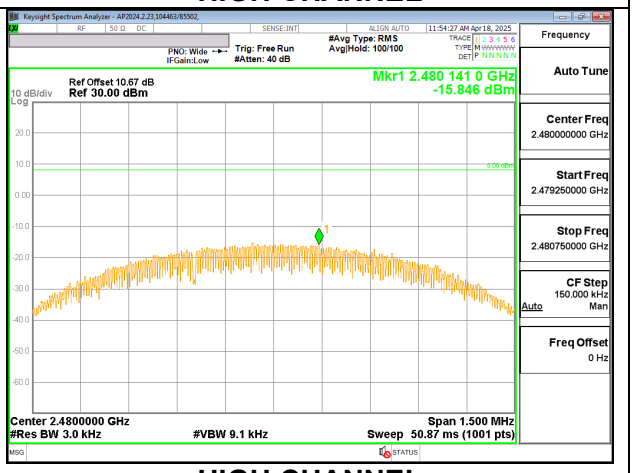
MID CHANNEL



HIGH CHANNEL



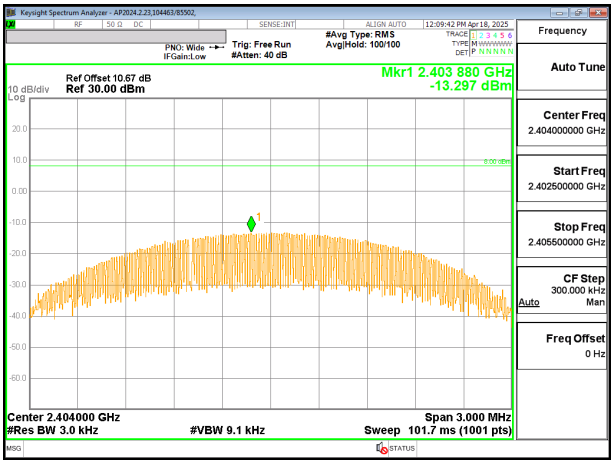
HIGH CHANNEL



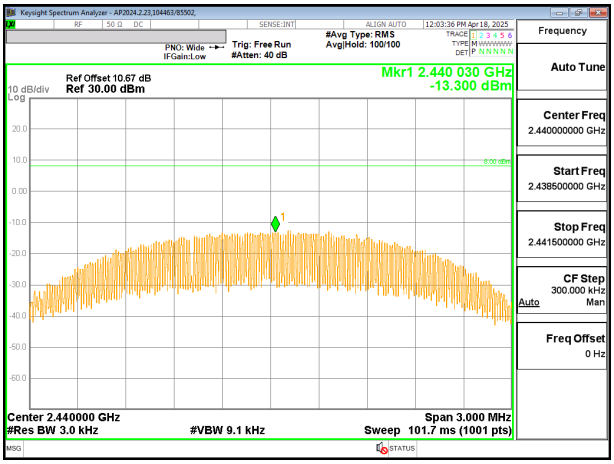
HIGH CHANNEL

9.6.5. BLE (2Mbps)

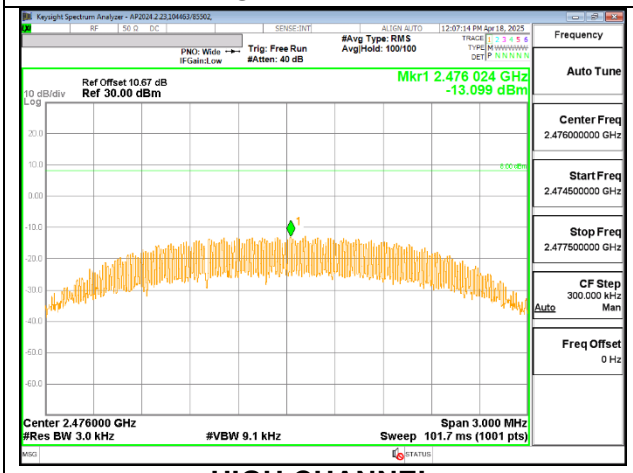
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-13.30	8	-21.30
Middle	2440	-13.30	8	-21.30
High	2476	-13.10	8	-21.10
High	2478	-16.85	8	-24.85



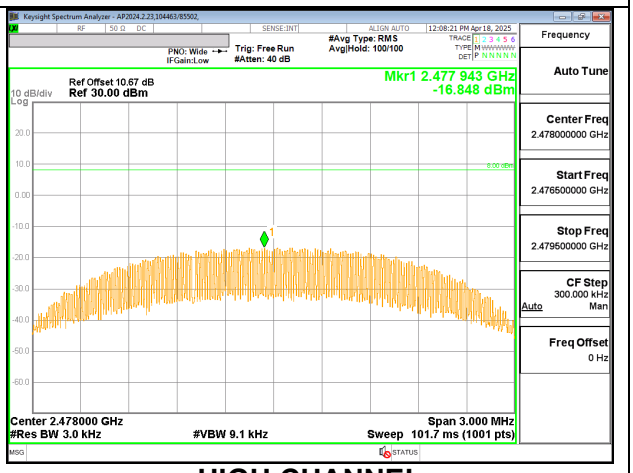
LOW CHANNEL



MID CHANNEL



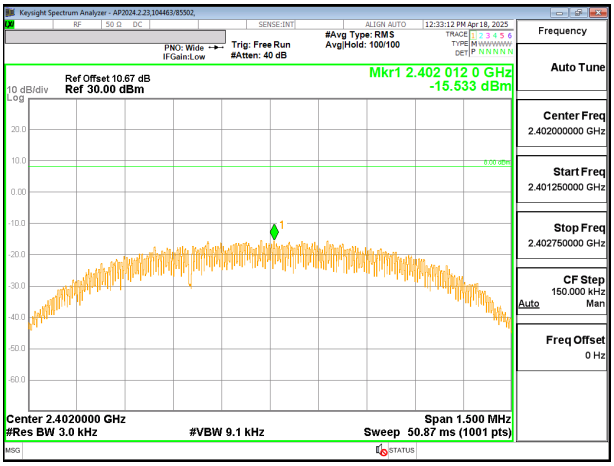
HIGH CHANNEL



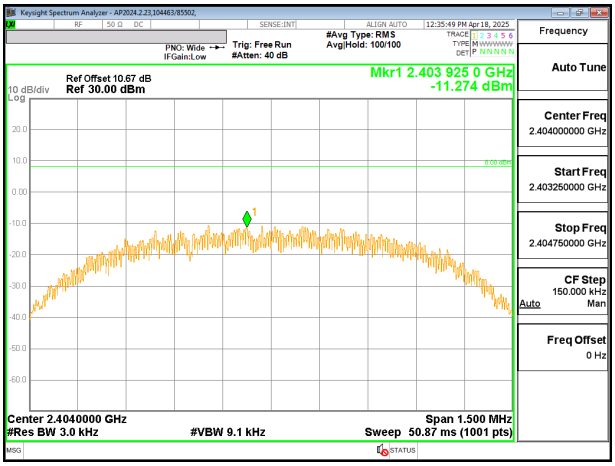
HIGH CHANNEL

9.6.6. ANT/ANT+ (60 Kbps)

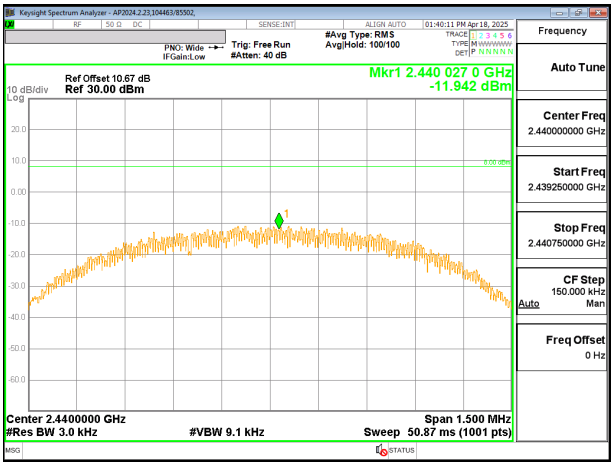
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-15.53	8	-23.53
Low	2404	-11.27	8	-19.27
Middle	2440	-11.94	8	-19.94
High	2478	-10.67	8	-18.67
High	2480	-15.11	8	-23.11



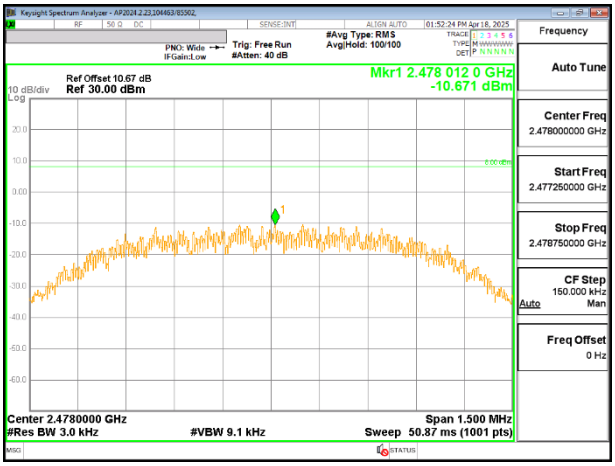
LOW CHANNEL



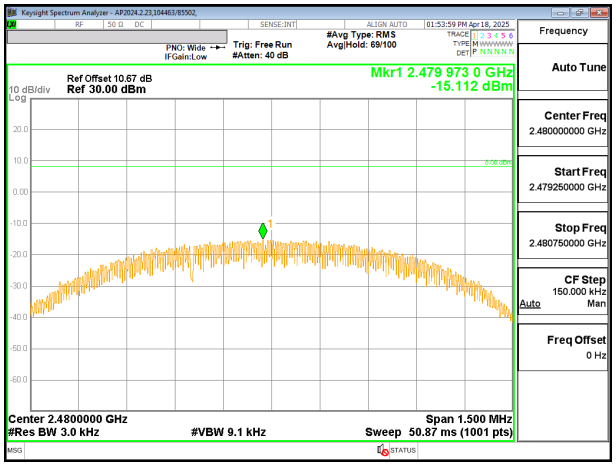
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



HIGH CHANNEL

9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

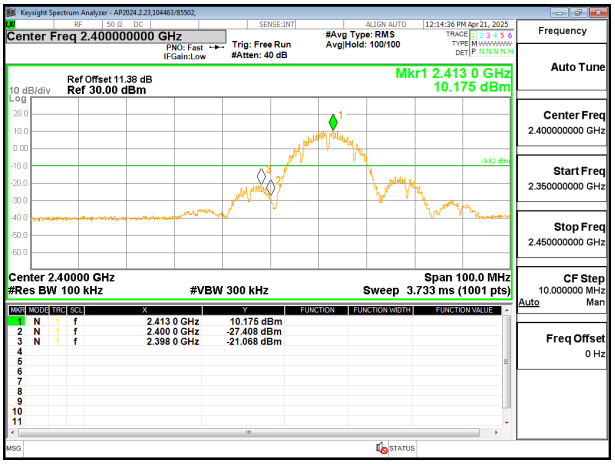
FCC §15.247 (d)

RSS-247 5.5

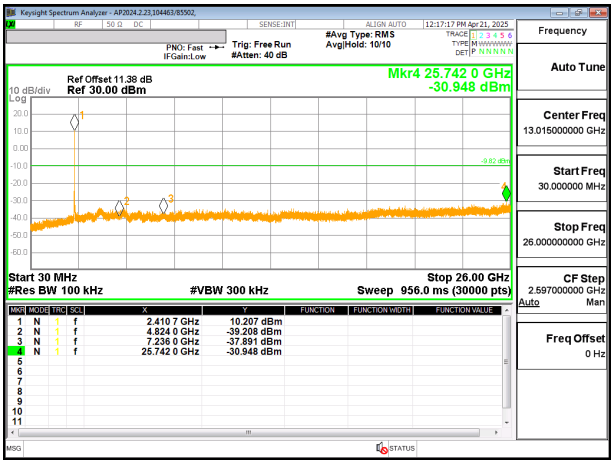
Output power was measured based on the use of peak measurement, therefore the required attenuation is -20 dBc.

RESULTS

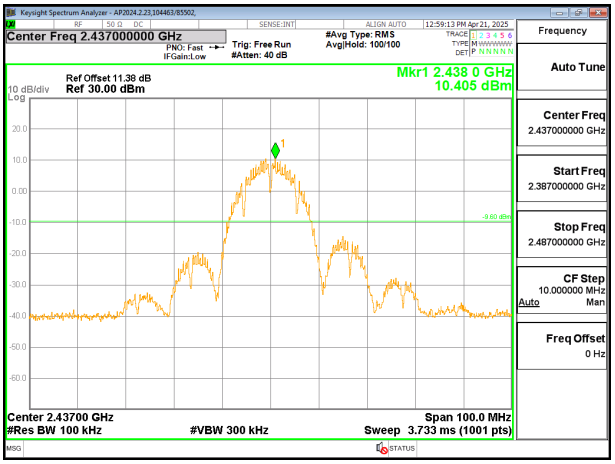
9.7.1. 802.11b MODE



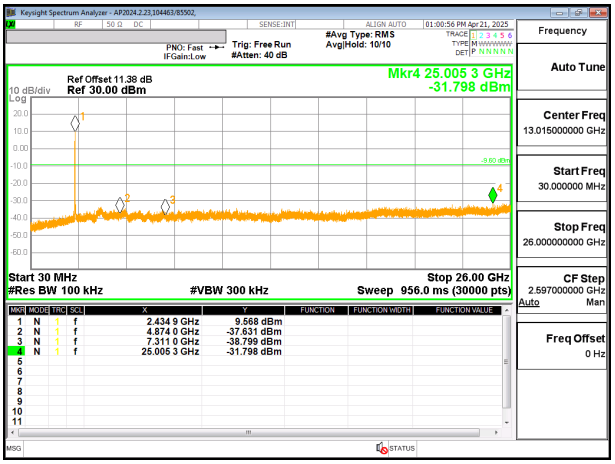
LOW CHANNEL 1 BANDEDGE



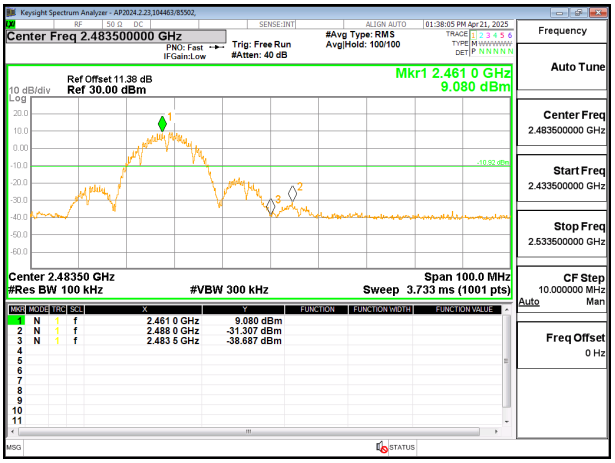
OUT-OF-BAND LOW CHANNEL 1



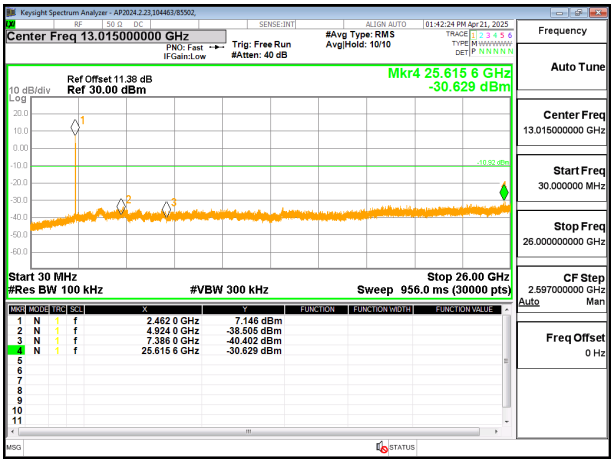
IN-BAND REFERNCE LEVEL



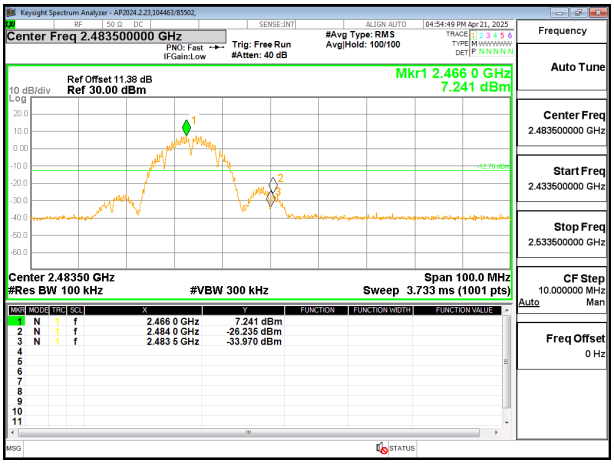
OUT-OF-BAND MID CHANNEL



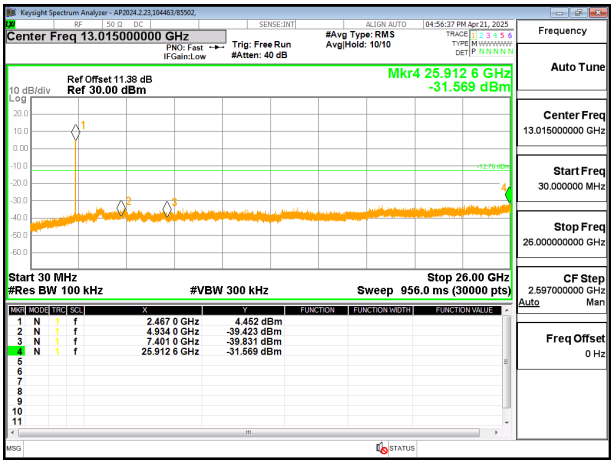
HIGH CHANNEL 11 BANDEDGE



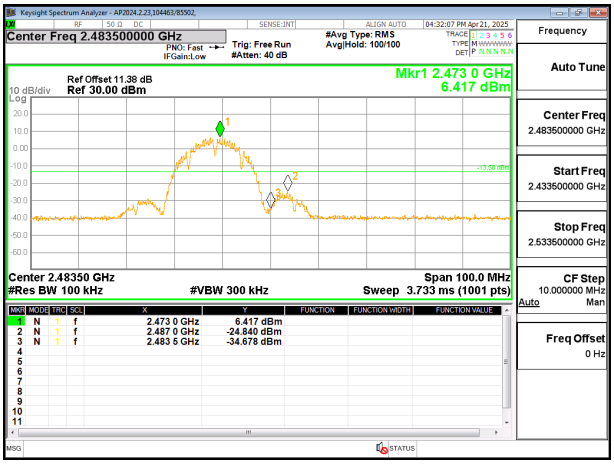
OUT-OF-BAND HIGH CHANNEL 11



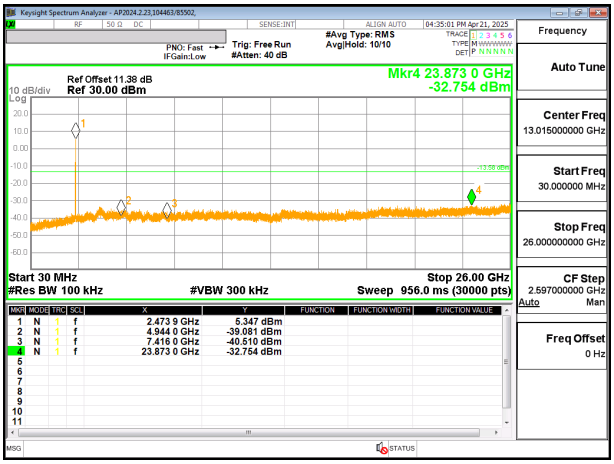
HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12

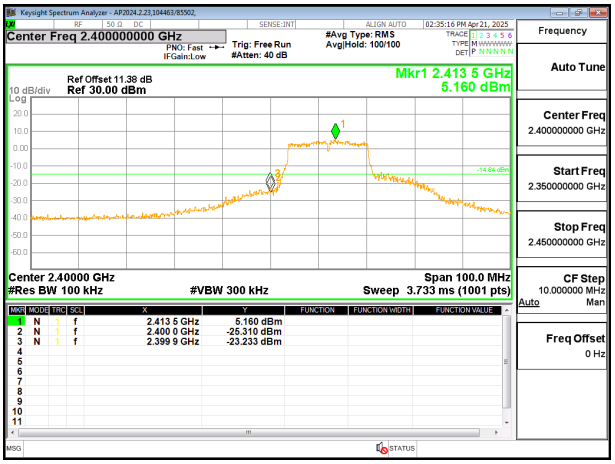


HIGH CHANNEL 13 BANDEDGE

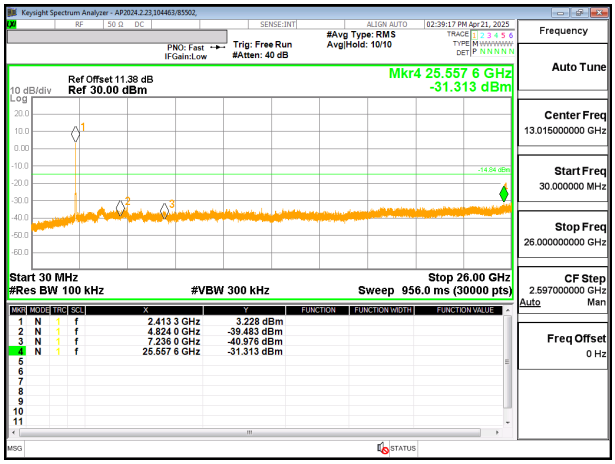


OUT-OF-BAND HIGH CHANNEL 13

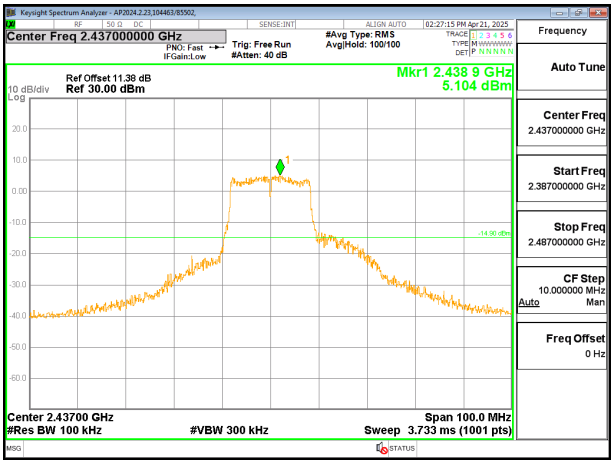
9.7.2. 802.11g MODE



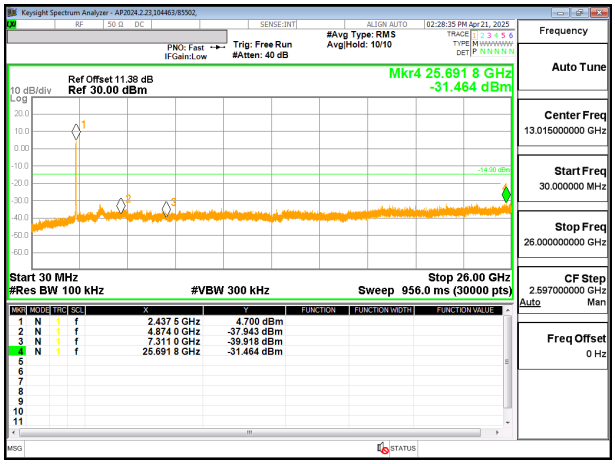
LOW CHANNEL 1 BANDEDGE



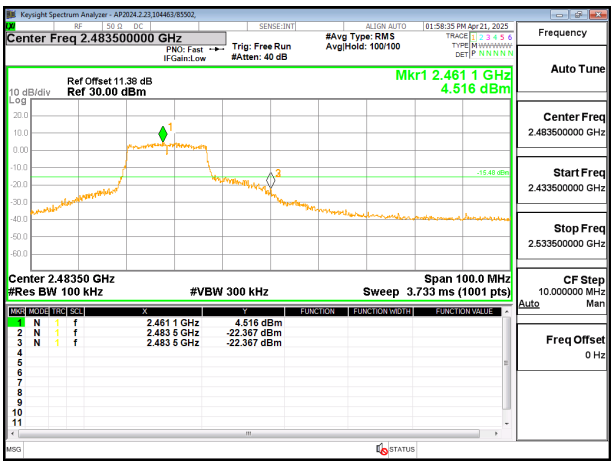
OUT-OF-BAND LOW CHANNEL 1



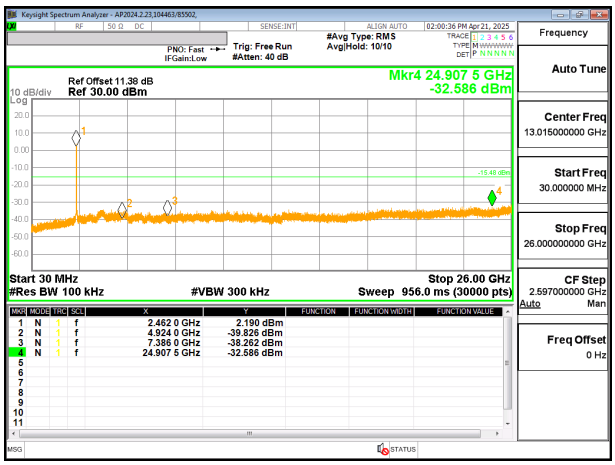
IN-BAND REFERNCE LEVEL



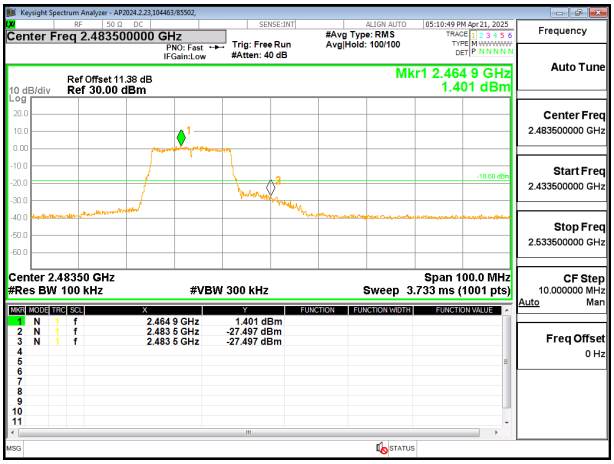
OUT-OF-BAND MID CHANNEL



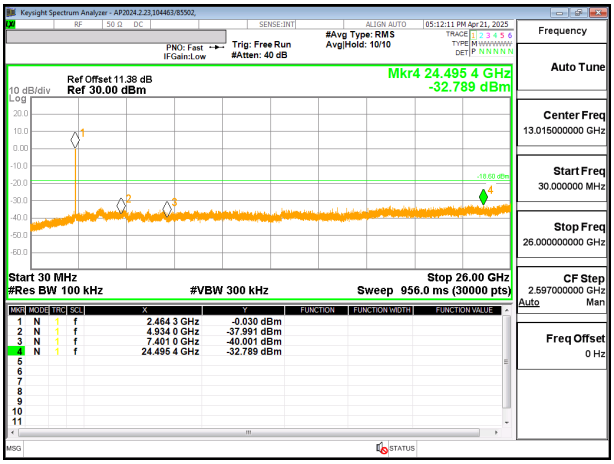
HIGH CHANNEL 11 BANDEDGE



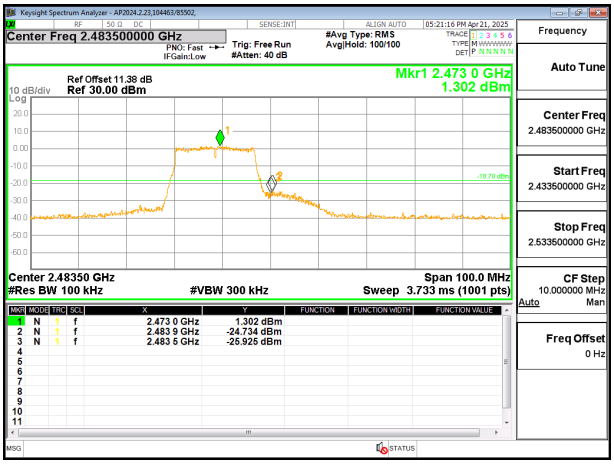
OUT-OF-BAND HIGH CHANNEL 11



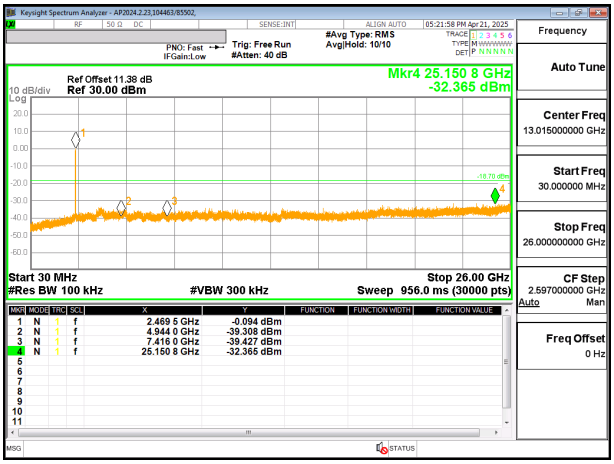
HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12

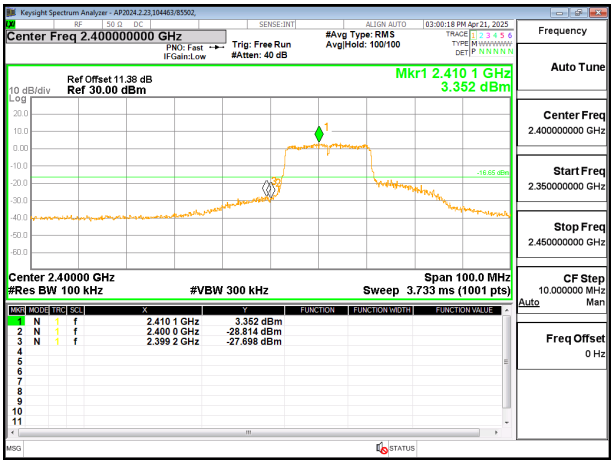


HIGH CHANNEL 13 BANDEDGE

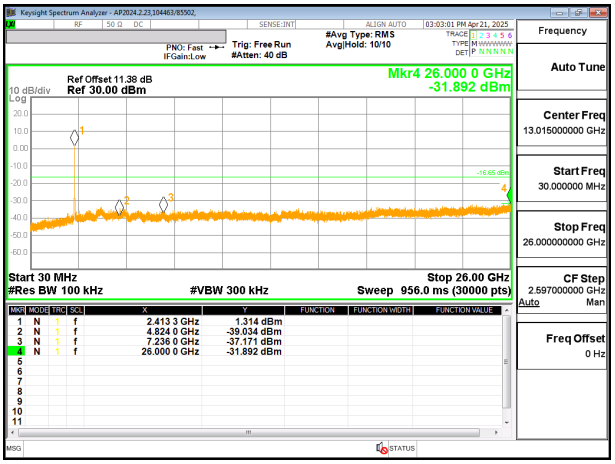


OUT-OF-BAND HIGH CHANNEL 13

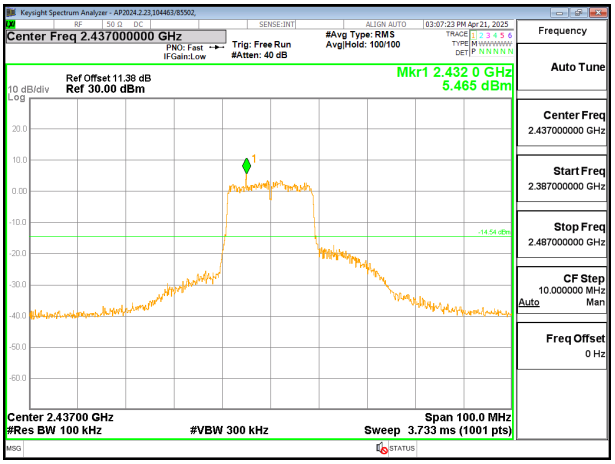
9.7.3. 802.11n HT20 MODE



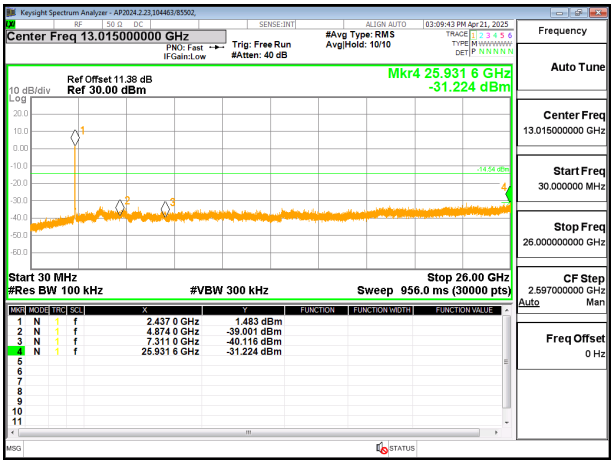
LOW CHANNEL 1 BANDEDGE



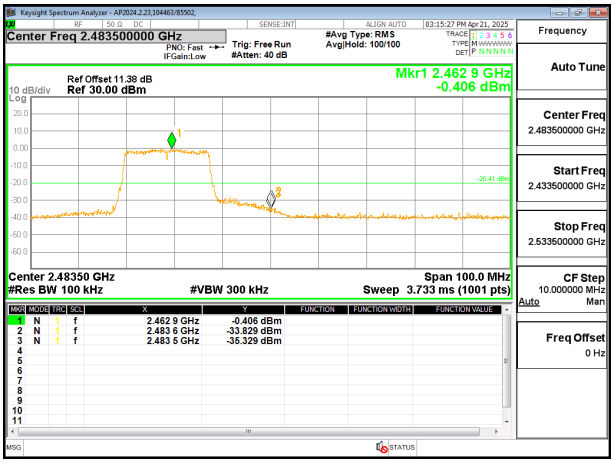
OUT-OF-BAND LOW CHANNEL 1



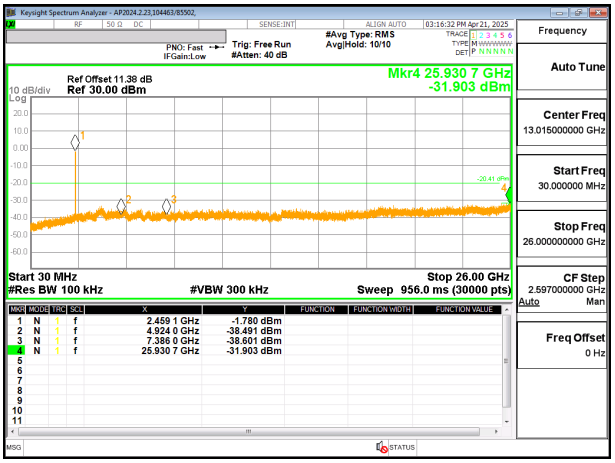
IN-BAND REFERNCE LEVEL



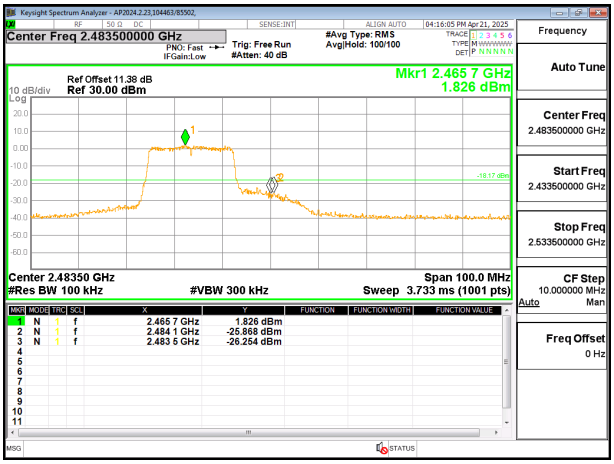
OUT-OF-BAND MID CHANNEL



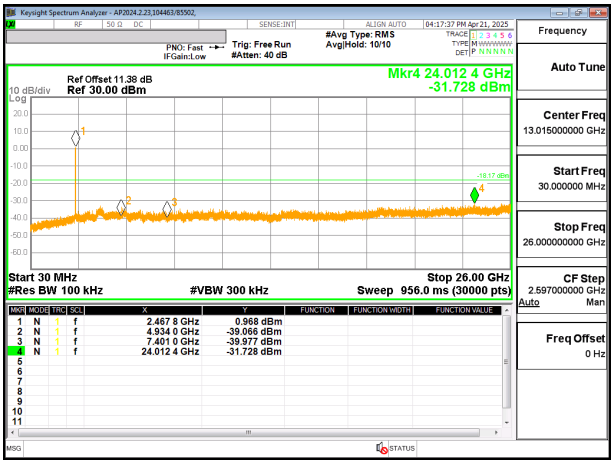
HIGH CHANNEL 11 BANDEDGE



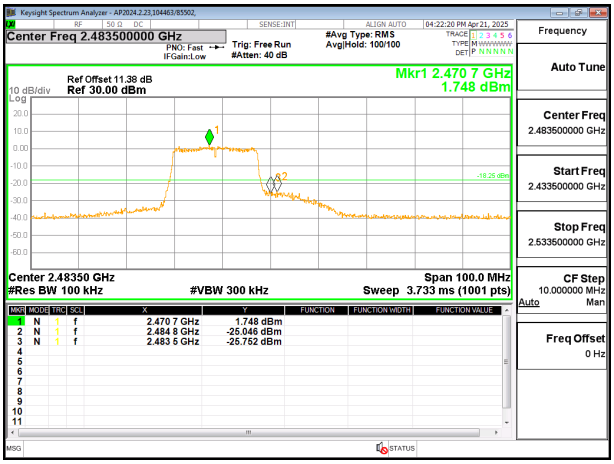
OUT-OF-BAND HIGH CHANNEL 11



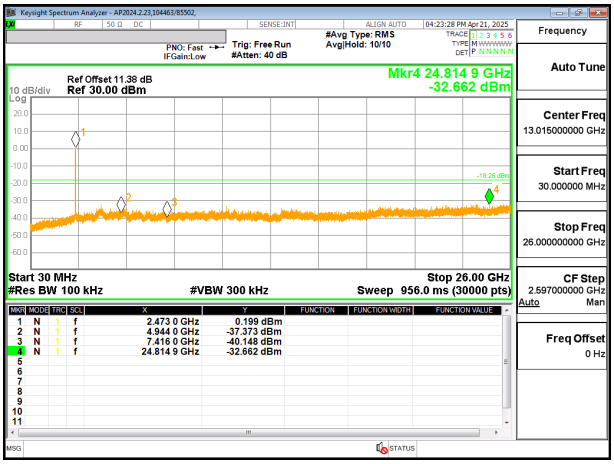
HIGH CHANNEL 12 BANDEDGE



OUT-OF-BAND HIGH CHANNEL 12

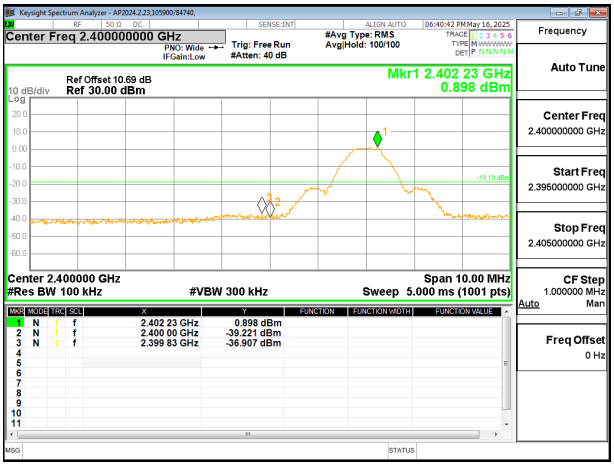


HIGH CHANNEL 13 BANDEDGE

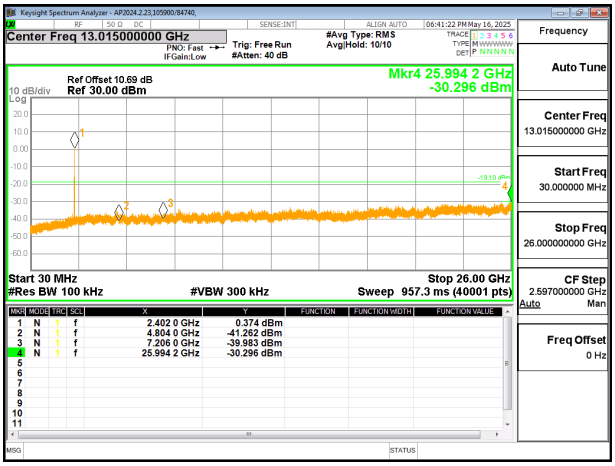


OUT-OF-BAND HIGH CHANNEL 13

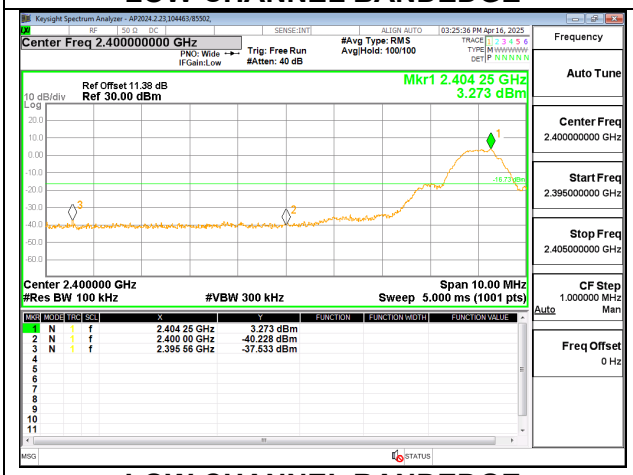
9.7.4. BLE (1Mbps)



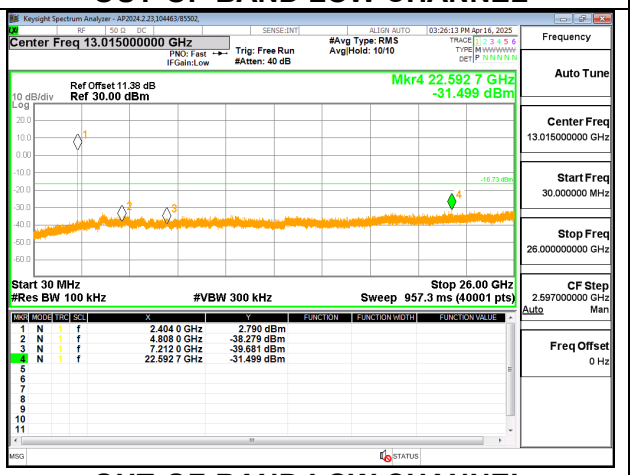
LOW CHANNEL BANDEDGE



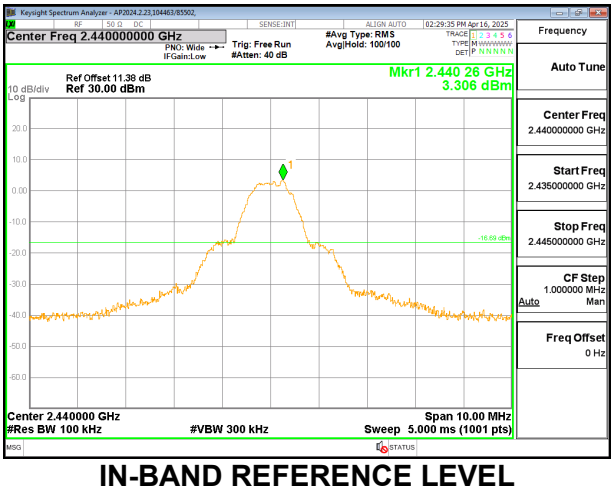
OUT-OF-BAND LOW CHANNEL



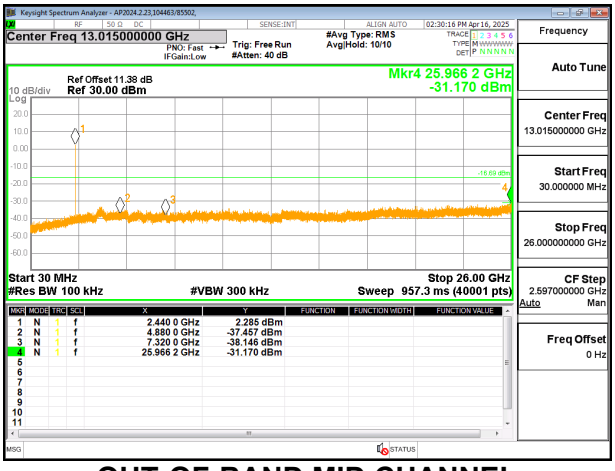
LOW CHANNEL BANDEDGE



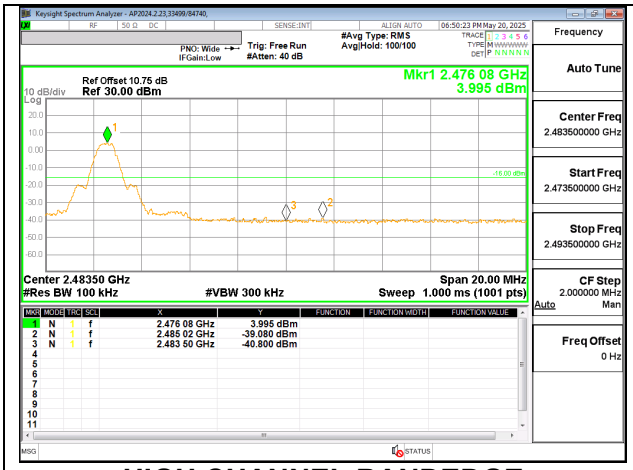
OUT-OF-BAND LOW CHANNEL



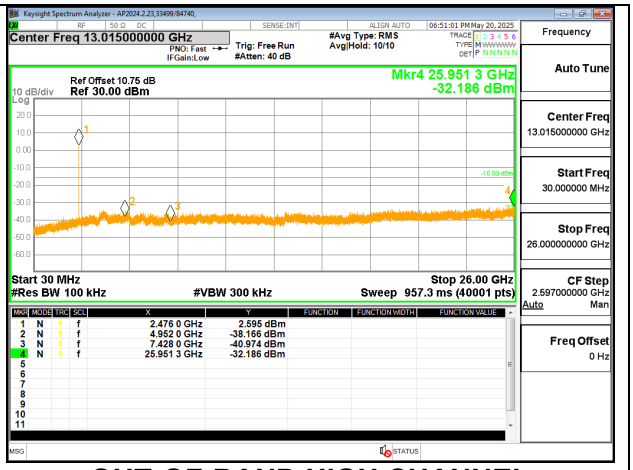
IN-BAND REFERENCE LEVEL



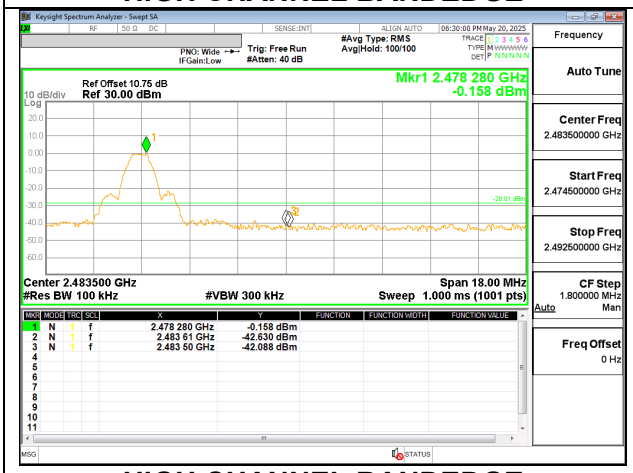
OUT-OF-BAND MID CHANNEL



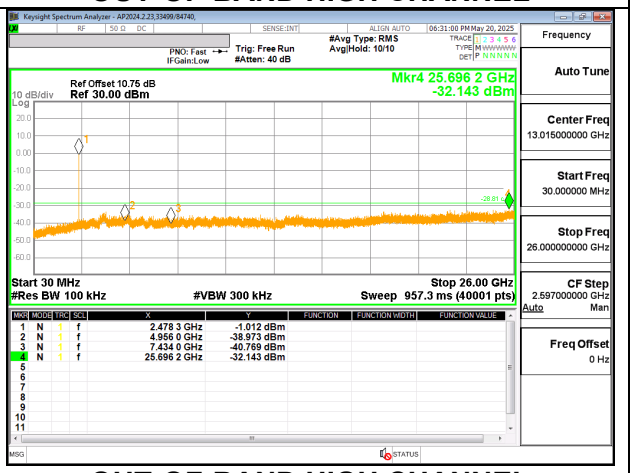
HIGH CHANNEL BANDEDGE



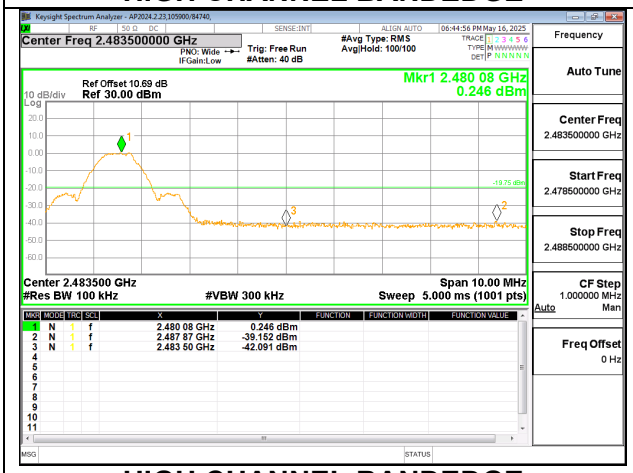
OUT-OF-BAND HIGH CHANNEL



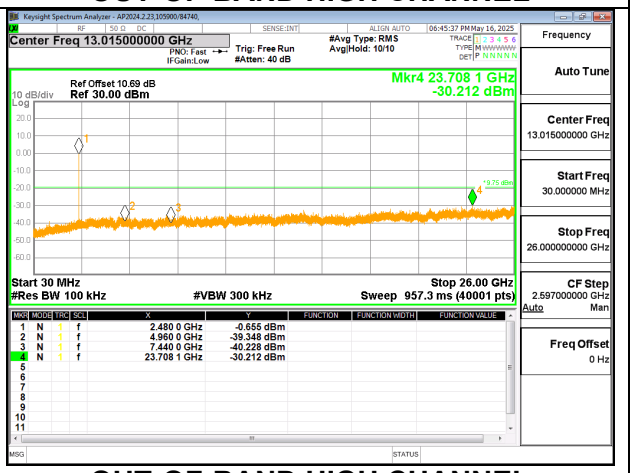
HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

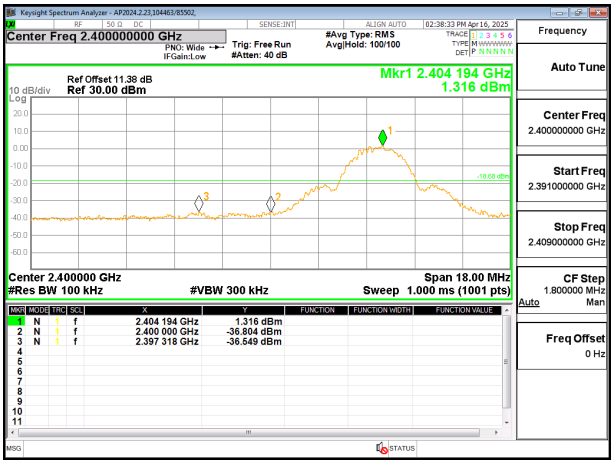


HIGH CHANNEL BANDEDGE

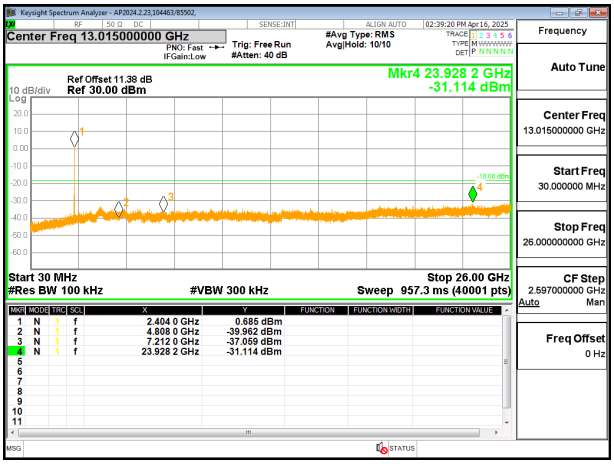


OUT-OF-BAND HIGH CHANNEL

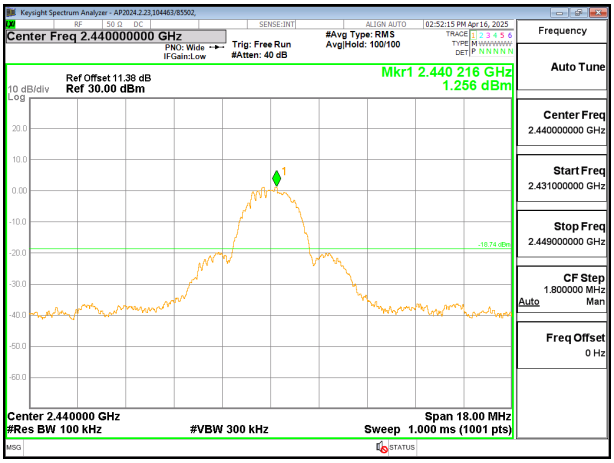
9.7.5. BLE (2Mbps)



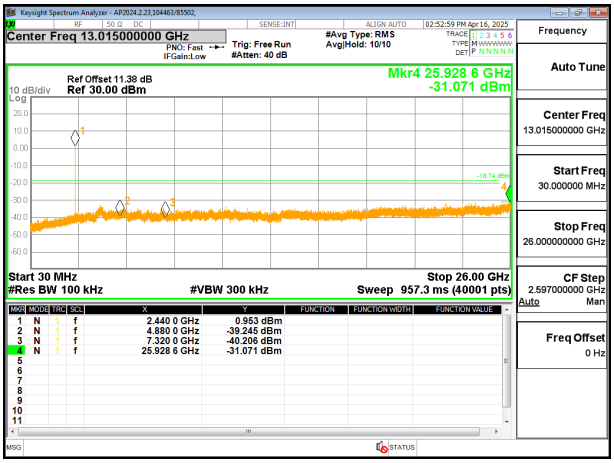
LOW CHANNEL BANDEDGE



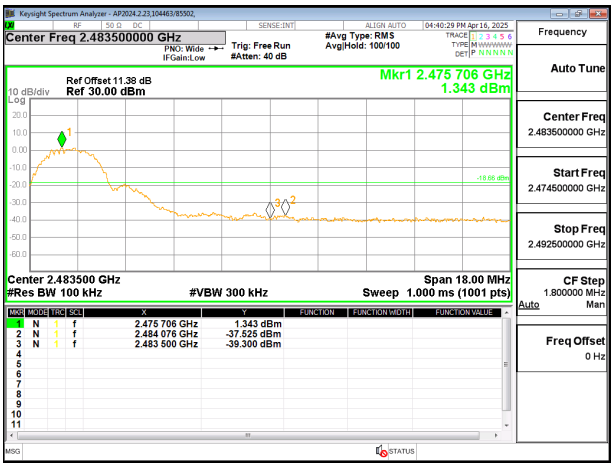
OUT-OF-BAND LOW CHANNEL



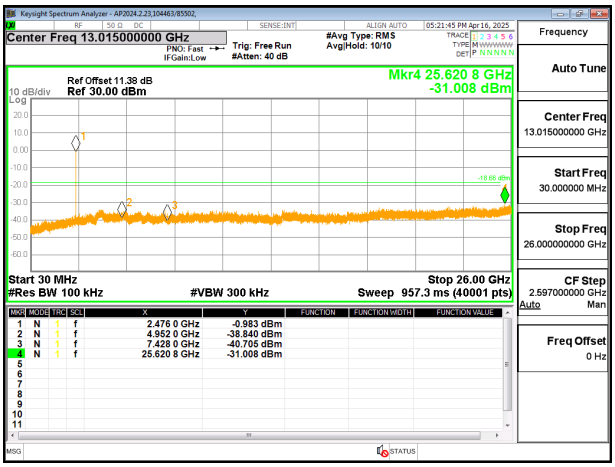
IN-BAND REFERENCE LEVEL



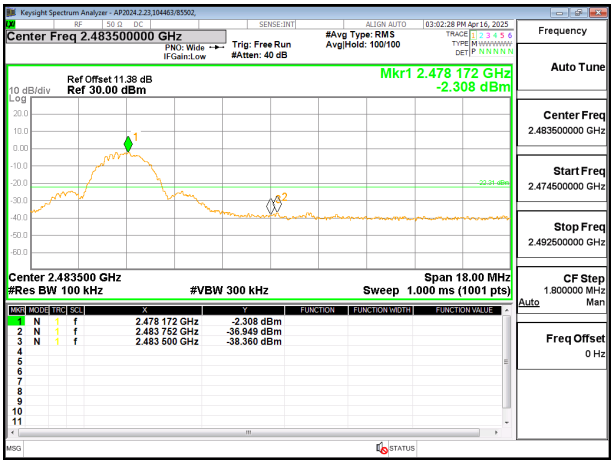
OUT-OF-BAND MID CHANNEL



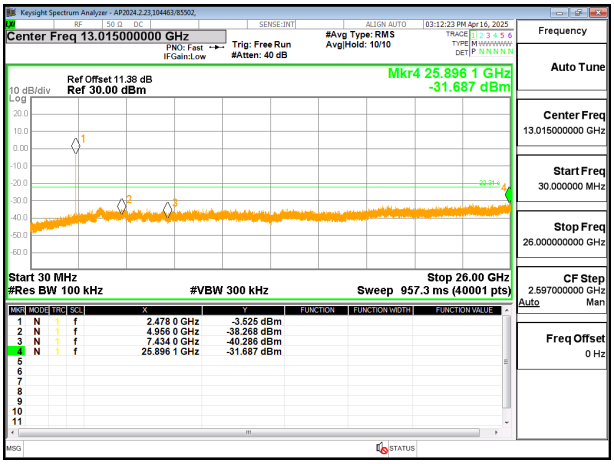
HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

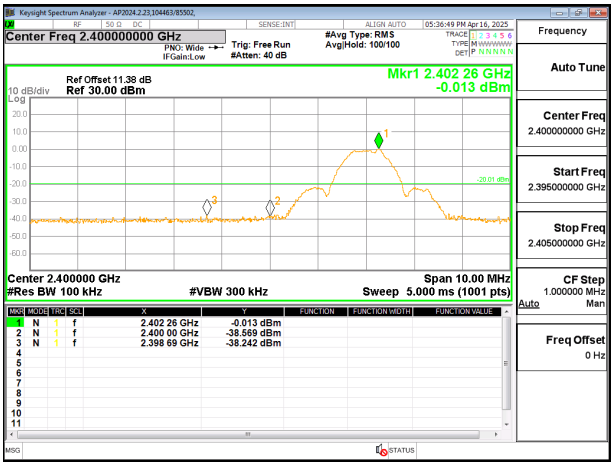


HIGH CHANNEL BANDEDGE

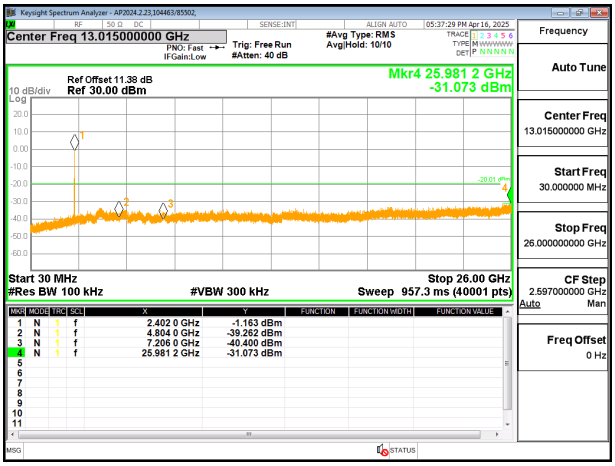


OUT-OF-BAND HIGH CHANNEL

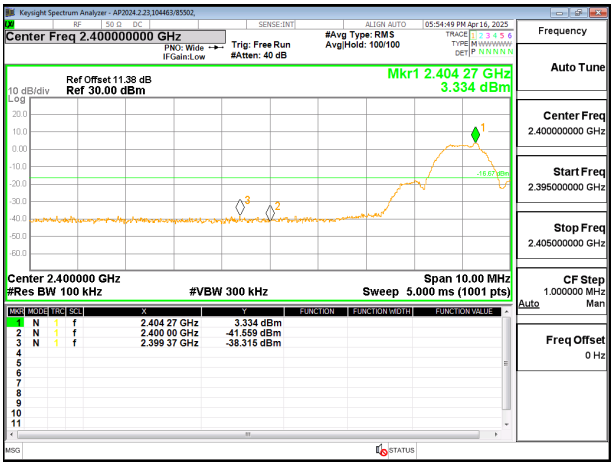
9.7.6 ANT/ANT+ (60 kbps)



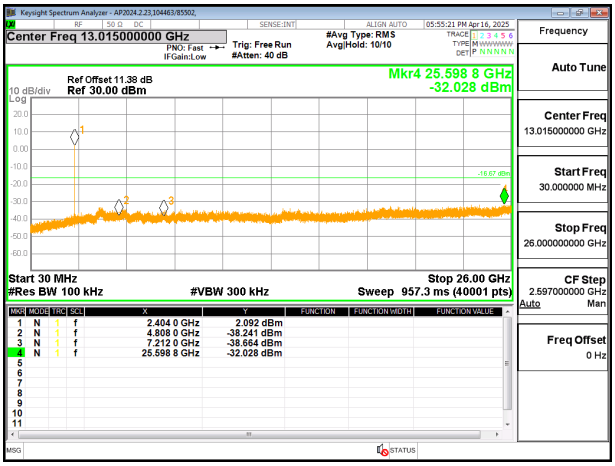
LOW CHANNEL BANDEDGE



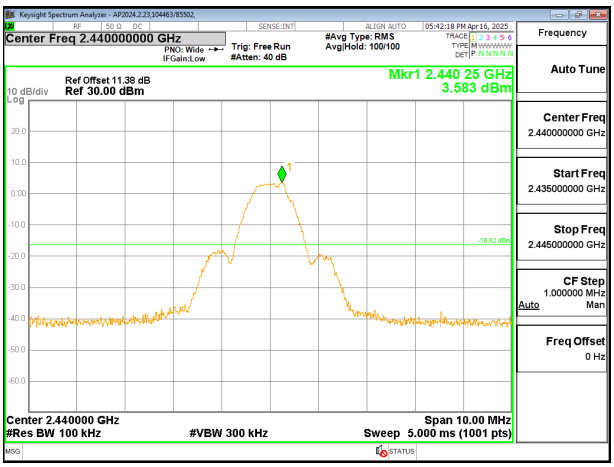
OUT-OF-BAND LOW CHANNEL



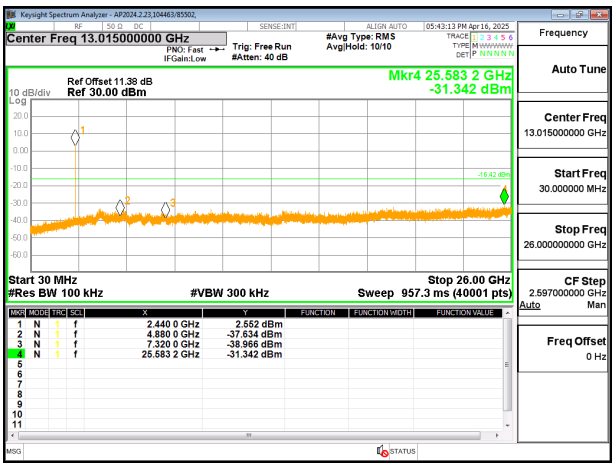
LOW CHANNEL BANDEDGE



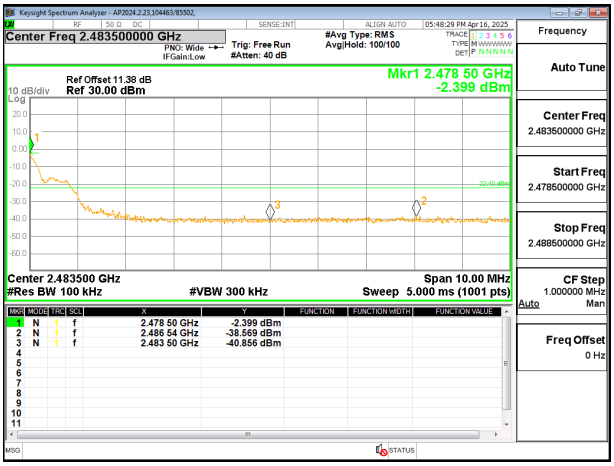
OUT-OF-BAND LOW CHANNEL



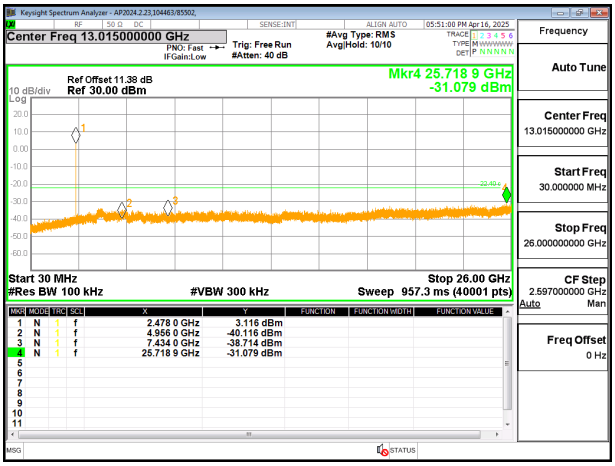
IN-BAND REFERENCE LEVEL



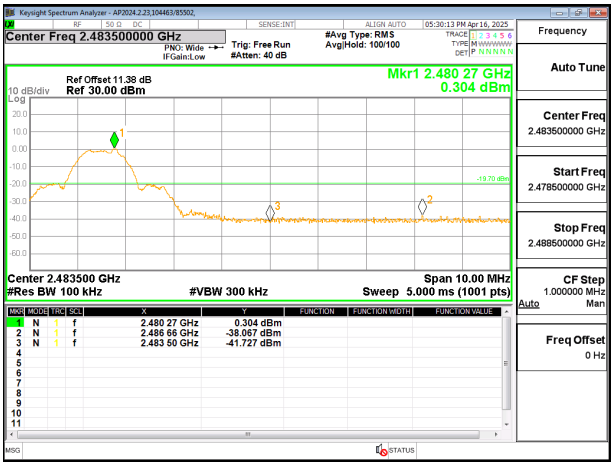
OUT-OF-BAND MID CHANNEL



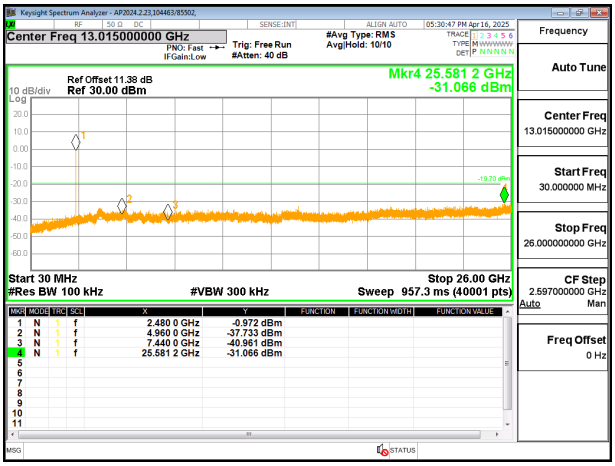
HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL



HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

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

IC RSS-GEN Clause 8.9 and 8.10

Frequency Range (kHz)	Field Strength Limit (uA/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	6.37/F(kHz) @ 300 m	-
0.490-1.705	63.7/F(kHz) @ 30 m	-
1.705 - 30	0.08 @ 30m	-
Frequency Range (MHz)	**Field Strength Limit (uV/m) at 3 m**	**Field Strength Limit (dBuV/m) at 3 m**
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 3MHz 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 linear voltage average measurements.

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

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.

3D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).

Base 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

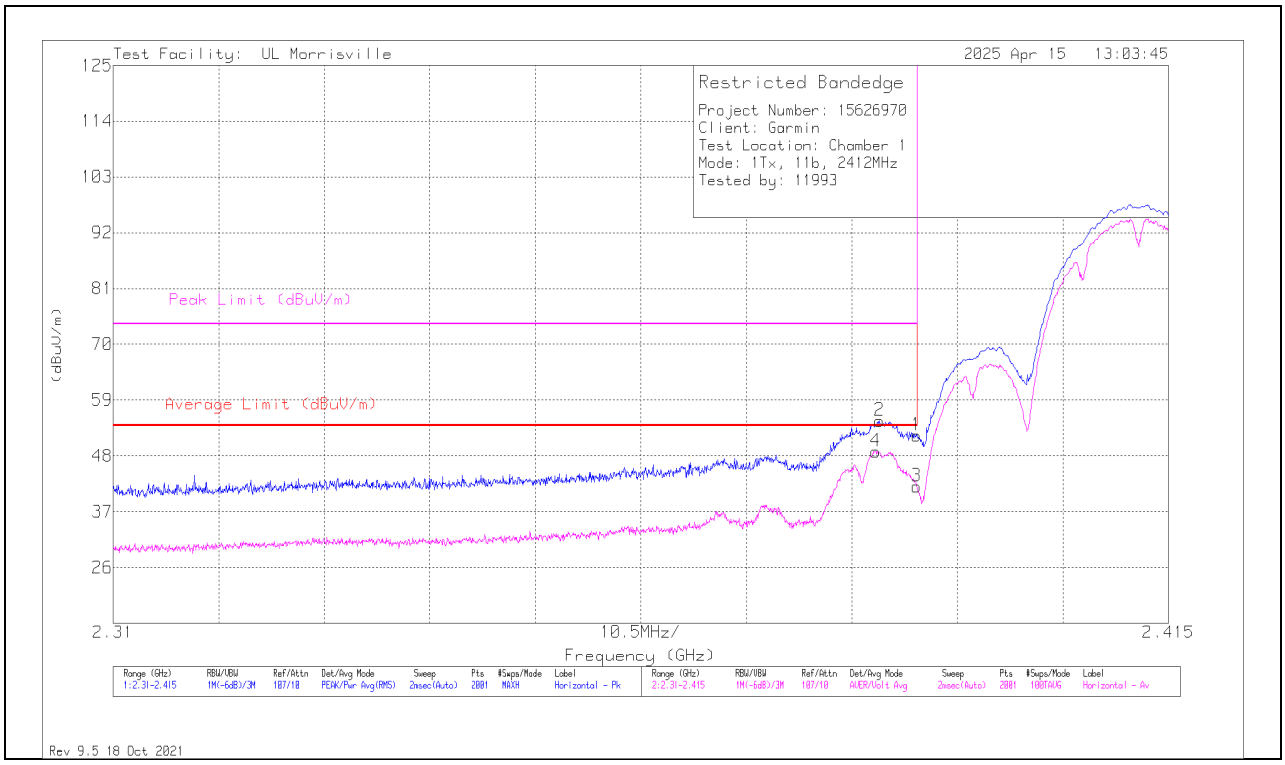
OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, 2412 MHz)

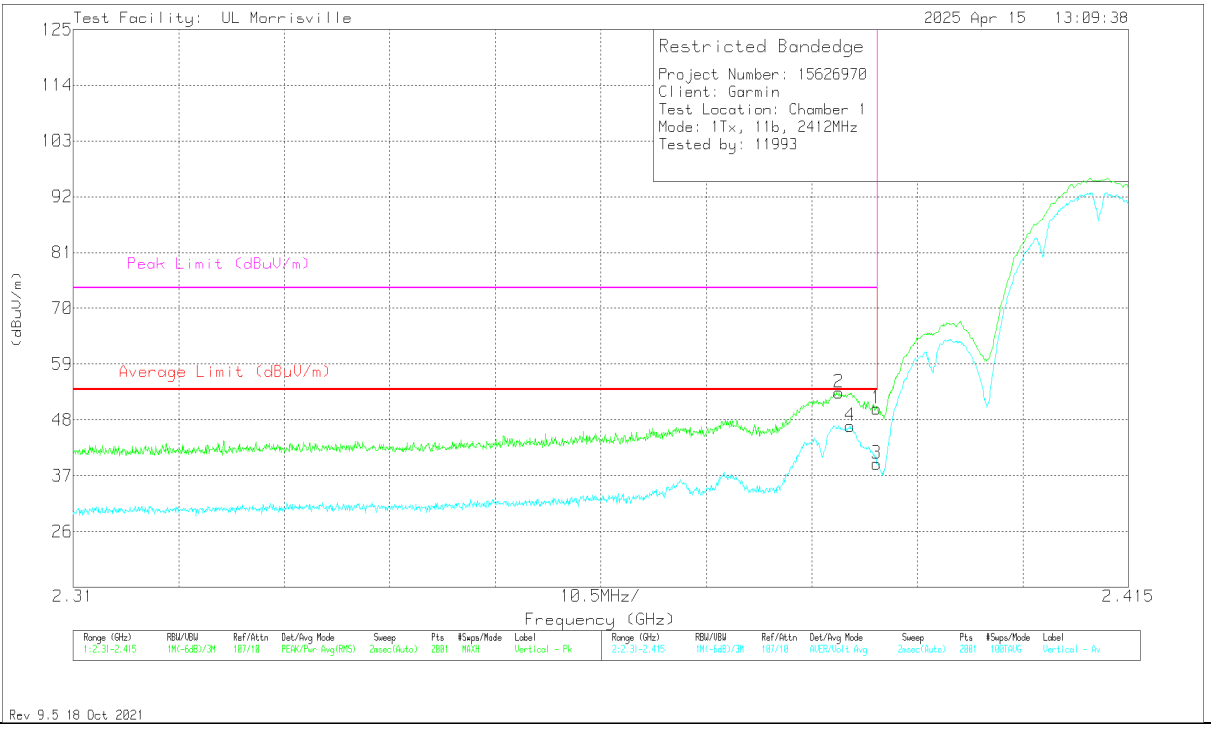
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	44.18	Pk	31.9	-24	52.08	-	-	74	-21.92	88	239	H
2	* ** 2.38623	46.87	Pk	31.9	-23.9	54.87	-	-	74	-19.13	88	239	H
3	* ** 2.38996	34.07	ADV	31.9	-24	41.97	54	-12.03	-	-	88	239	H
4	* ** 2.38586	40.92	ADV	31.9	-23.9	48.92	54	-5.08	-	-	88	239	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

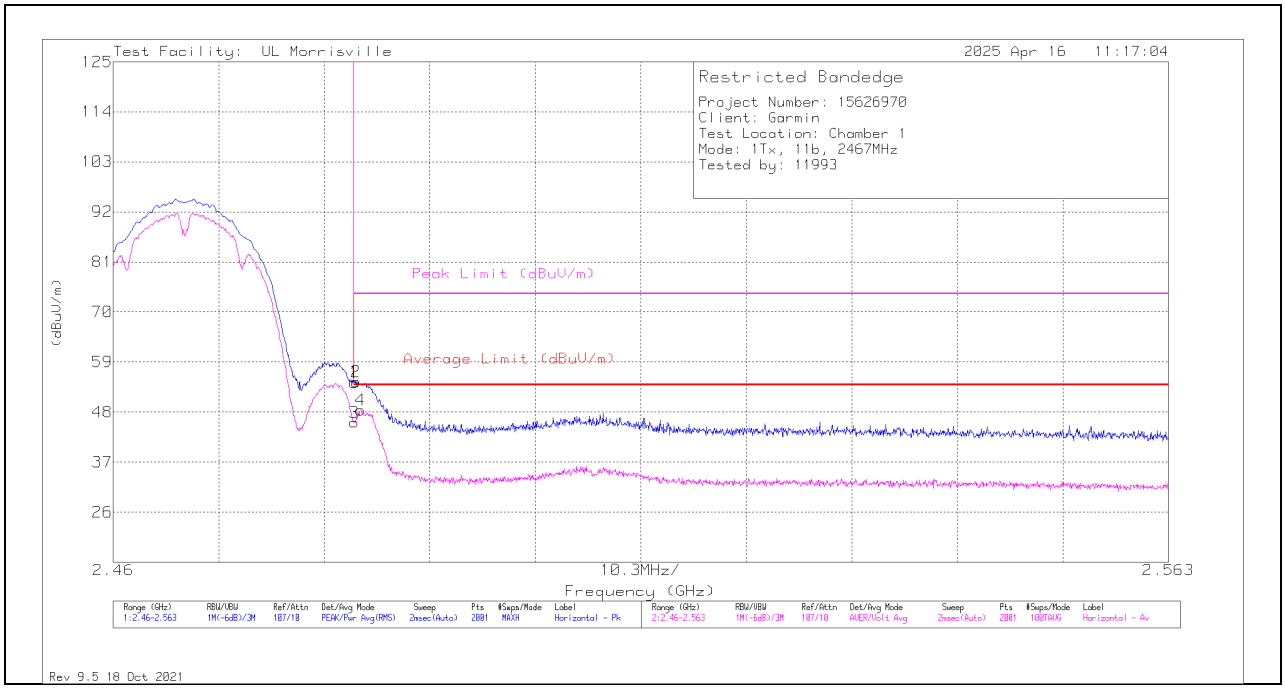


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	42.33	Pk	31.9	-24	50.23	-	-	74	-23.77	165	248	V
2	* ** 2.38618	45.42	Pk	31.9	-23.9	53.42	-	-	74	-20.58	165	248	V
3	* ** 2.38996	31.5	ADV	31.9	-24	39.4	54	-14.6	-	-	165	248	V
4	* ** 2.38733	38.8	ADV	31.9	-23.9	46.8	54	-7.2	-	-	165	248	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2467 MHz)

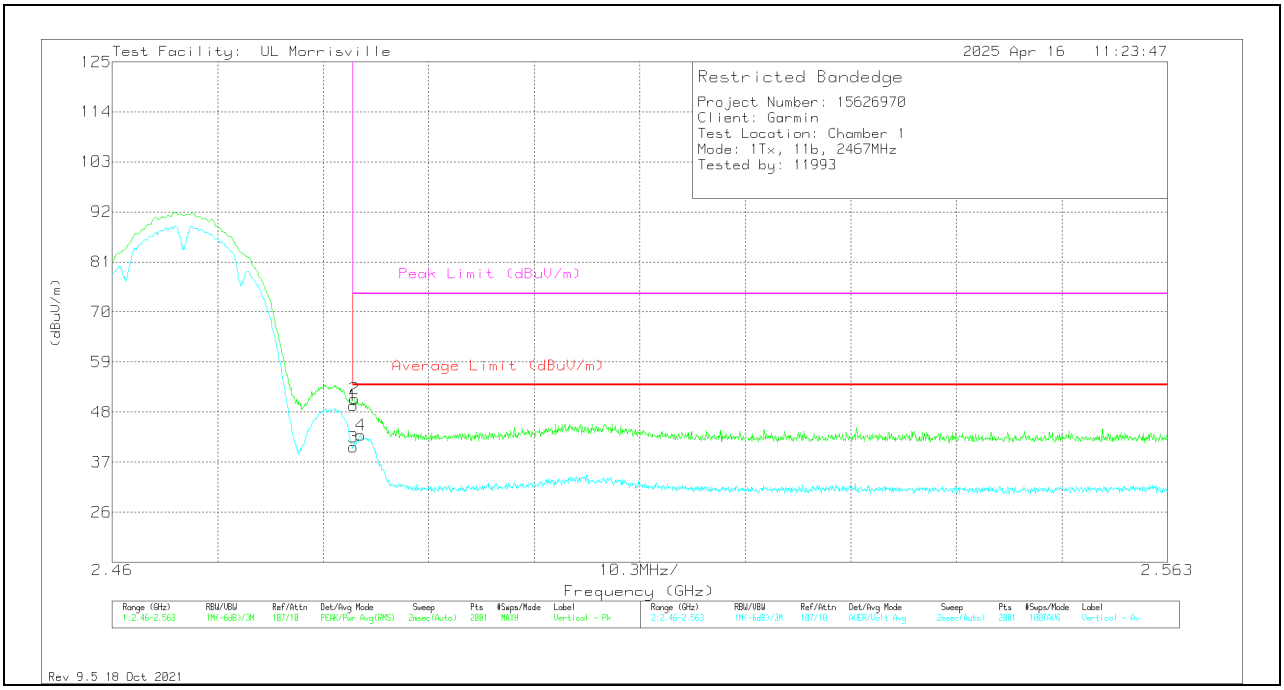
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	46	Pk	32.2	-23.7	54.5	-	-	74	-19.5	63	236	H
2	* ** 2.48369	46.18	Pk	32.2	-23.7	54.68	-	-	74	-19.32	63	236	H
3	* ** 2.48354	37.26	ADV	32.2	-23.7	45.76	54	-8.24	-	-	63	236	H
4	* ** 2.48415	40.1	ADV	32.2	-23.8	48.5	54	-5.5	-	-	63	236	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

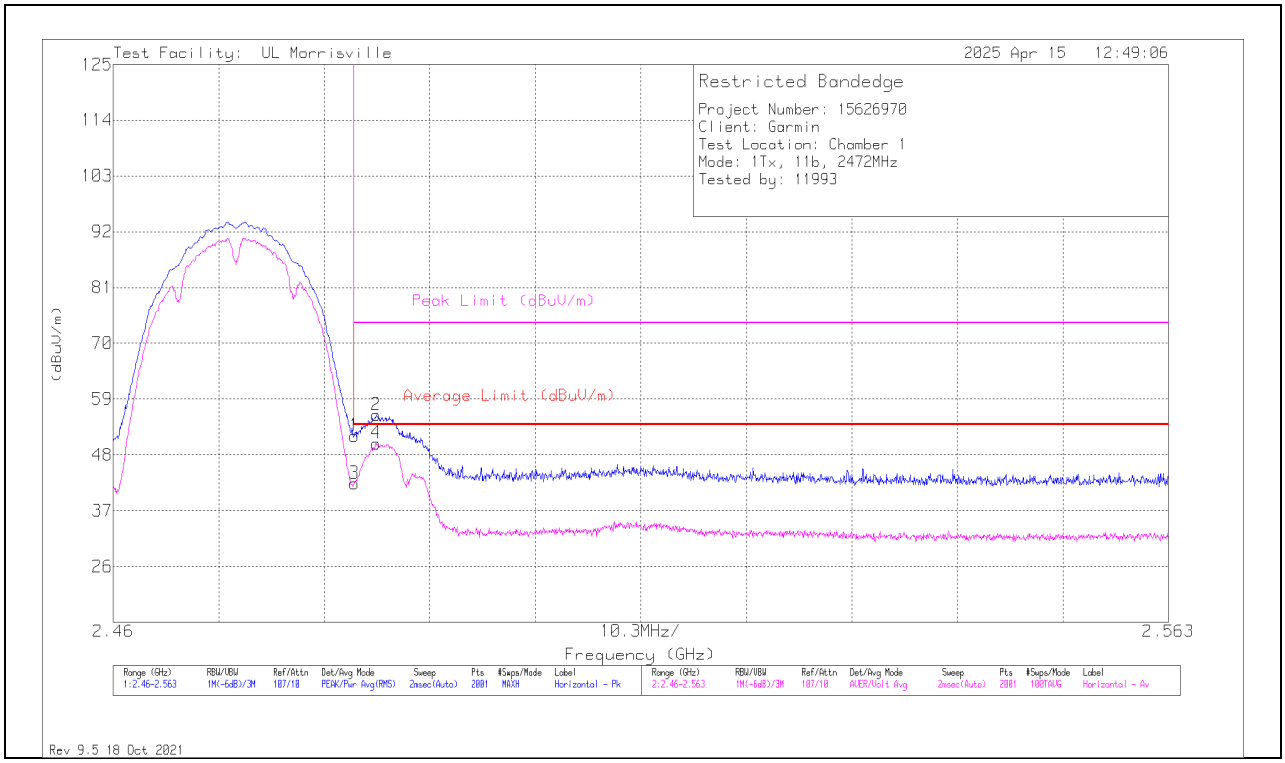


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	40.94	Pk	32.2	-23.7	49.44	-	-	74	-24.56	165	166	V
2	* ** 2.48364	42.46	Pk	32.2	-23.7	50.96	-	-	74	-23.04	165	166	V
3	* ** 2.48354	31.77	ADV	32.2	-23.7	40.27	54	-13.73	-	-	165	166	V
4	* ** 2.48426	34.6	ADV	32.2	-23.8	43	54	-11	-	-	165	166	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2472 MHz)

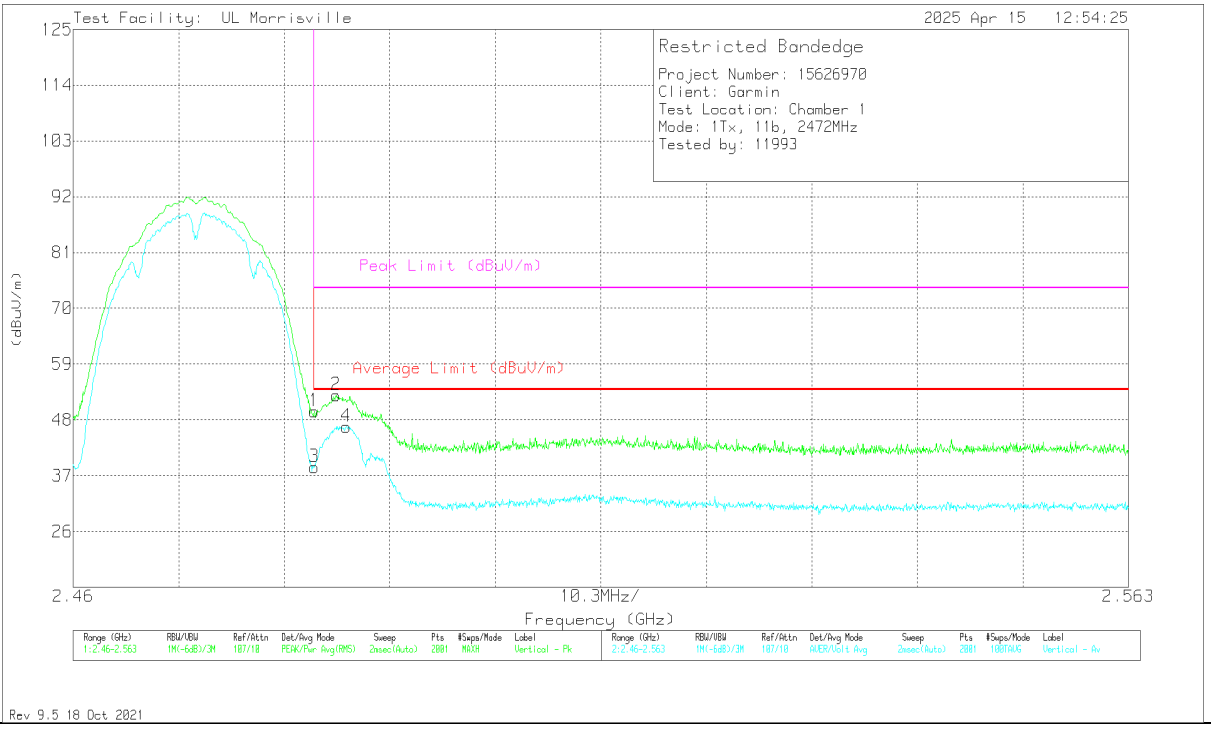
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	43.2	Pk	32.2	-23.7	51.7	-	-	74	-22.3	89	192	H
2	* ** 2.48565	47.52	Pk	32.2	-23.9	55.82	-	-	74	-18.18	89	192	H
3	* ** 2.48354	33.82	ADV	32.2	-23.7	42.32	54	-11.68	-	-	89	192	H
4	* ** 2.48565	41.92	ADV	32.2	-23.9	50.22	54	-3.78	-	-	89	192	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

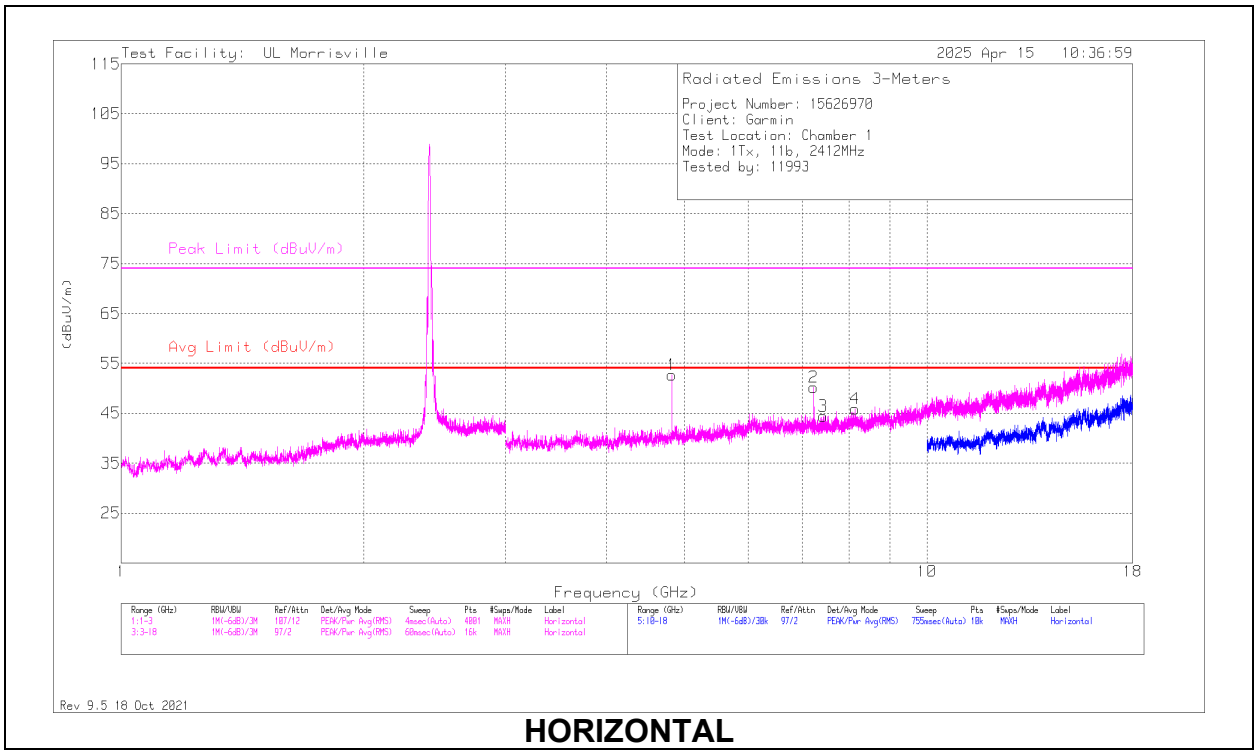


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	41.21	Pk	32.2	-23.7	49.71	-	-	74	-24.29	159	206	V
2	* ** 2.48565	44.51	Pk	32.2	-23.9	52.81	-	-	74	-21.19	159	206	V
3	* ** 2.48354	30.15	ADV	32.2	-23.7	38.65	54	-15.35	-	-	159	206	V
4	* ** 2.48668	38.4	ADV	32.2	-23.9	46.7	54	-7.3	-	-	159	206	V

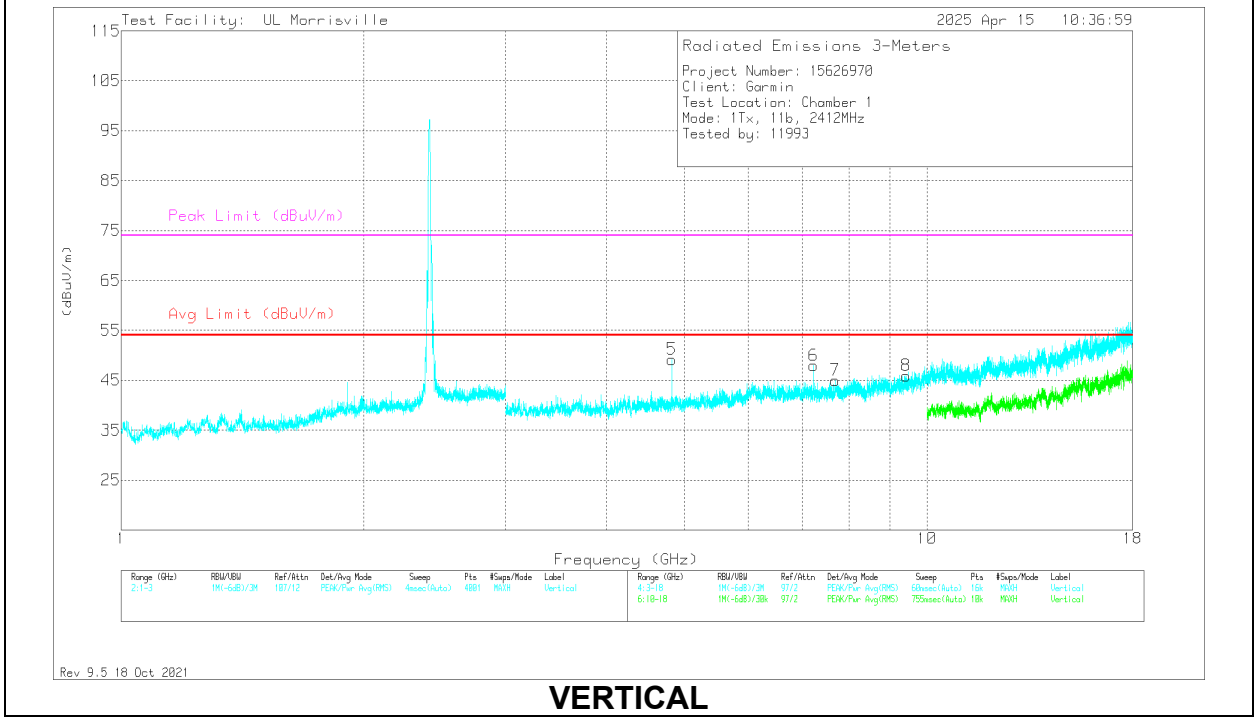
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, 2412 MHz RESULTS



HORIZONTAL



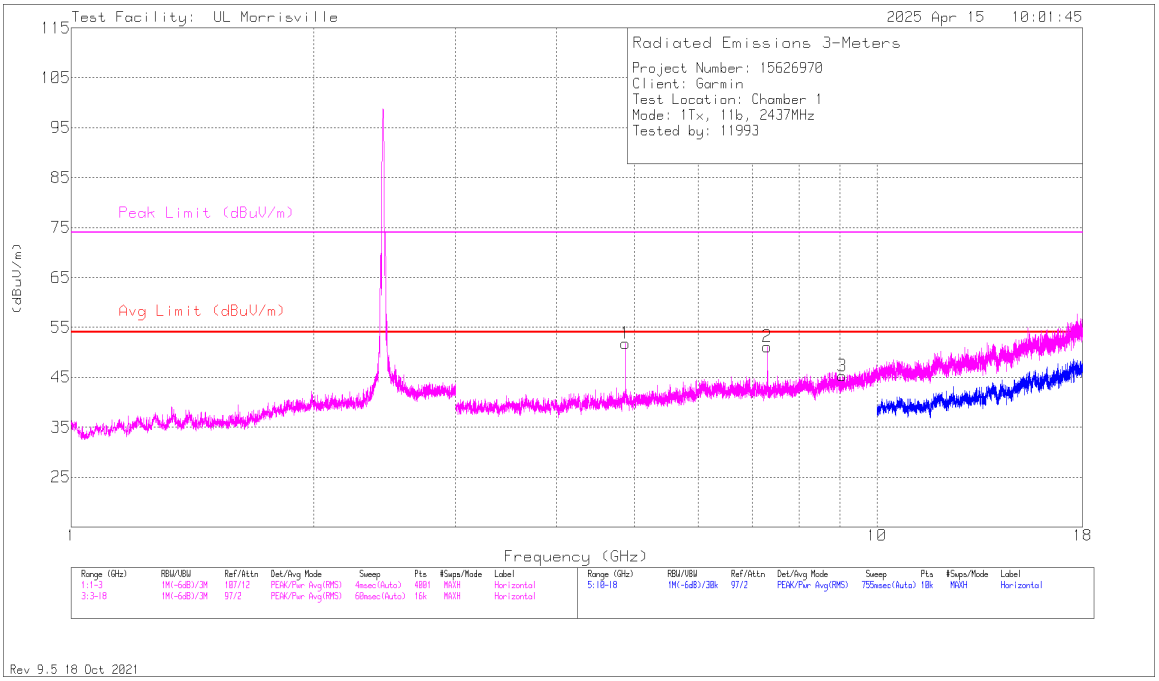
VERTICAL

RADIATED EMISSIONS

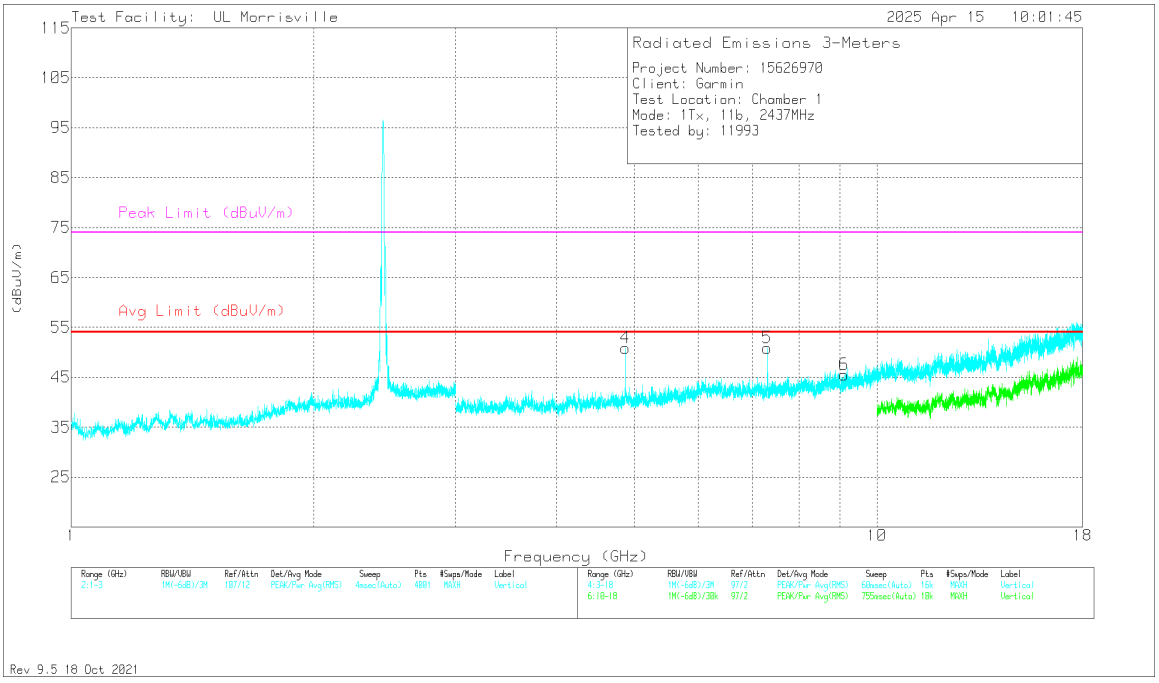
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.82395	64.4	PK2	33.9	-45.3	53	-	-	74	-21	282	111	H
	* ** 4.82396	55.25	ADV	33.9	-45.3	43.85	54	-10.15	-	-	282	111	H
3	* ** 7.43719	49.98	Pk	35.4	-41	44.38	54	-9.62	74	-29.62	0-360	199	H
4	* ** 8.14031	50.83	Pk	35.9	-40.9	45.83	54	-8.17	74	-28.17	0-360	199	H
5	* ** 4.82402	63.7	PK2	33.9	-45.3	52.3	-	-	74	-21.7	183	146	V
	* ** 4.82395	54.24	ADV	33.9	-45.3	42.84	54	-11.16	-	-	183	146	V
7	* ** 7.69313	50.47	Pk	35.6	-41.1	44.97	54	-9.03	74	-29.03	0-360	101	V
8	* ** 9.41531	49.33	Pk	36.3	-39.7	45.93	54	-8.07	74	-28.07	0-360	101	V
6	7.23563	55.02	Pk	35.4	-42.5	47.92	-	-	-	-	0-360	101	V
2	7.2375	57.15	Pk	35.4	-42.4	50.15	-	-	-	-	0-360	199	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - Maximum Peak
ADV - Linear Voltage Average

MID CHANNEL, 2437 MHz RESULTS



HORIZONTAL



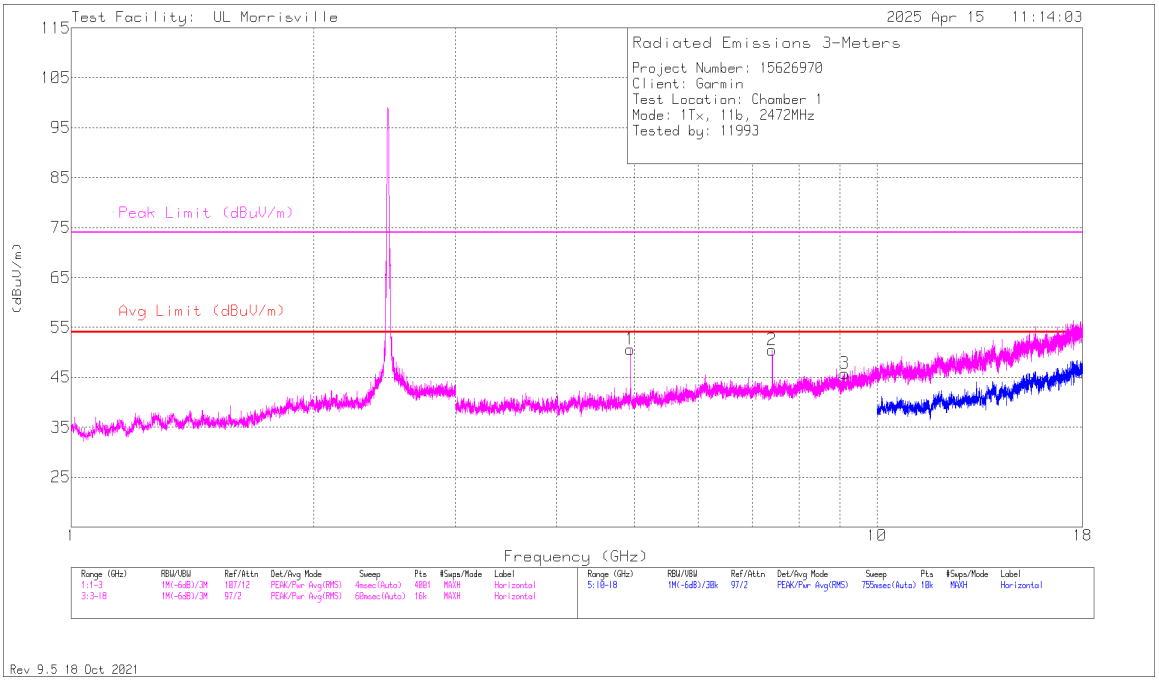
VERTICAL

RADIATED EMISSIONS

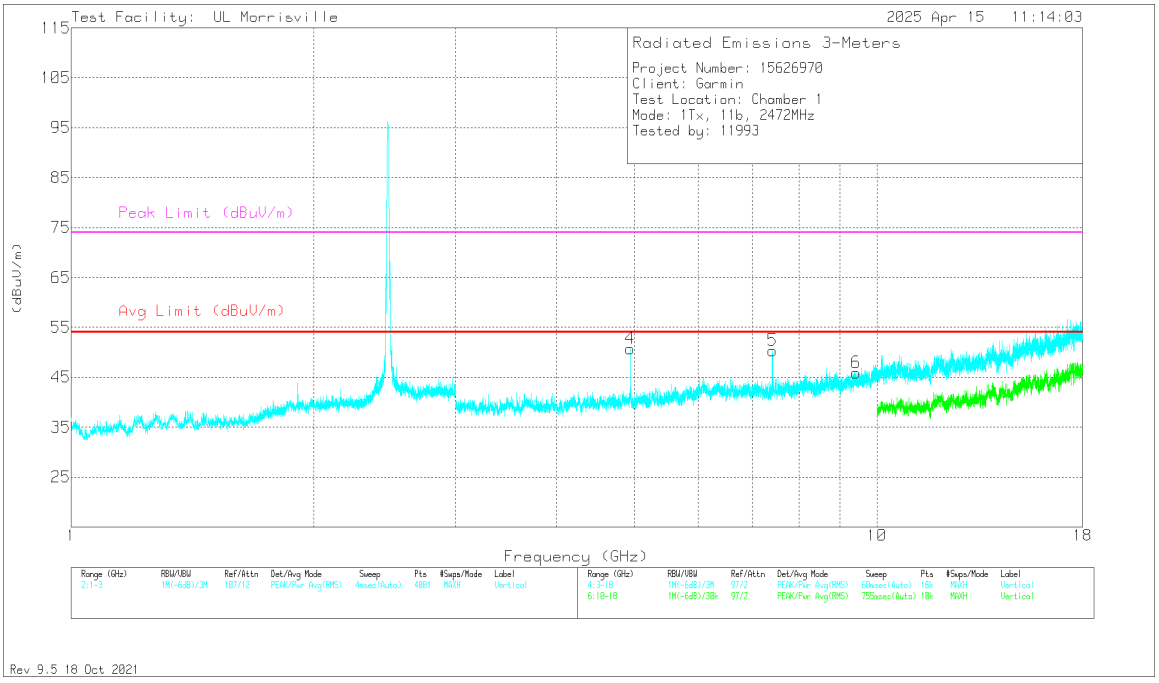
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.87409	65.07	PK2	34	-44.8	54.27	-	-	74	-19.73	277	113	H
	* ** 4.87397	56.18	ADV	34	-44.8	45.38	54	-8.62	-	-	277	113	H
2	* ** 7.31027	60.47	PK2	35.4	-41.7	54.17	-	-	74	-19.83	45	103	H
	* ** 7.31021	53.1	ADV	35.4	-41.7	46.8	54	-7.2	-	-	45	103	H
3	* ** 9.05813	49.69	Pk	35.8	-40.2	45.29	54	-8.71	74	-28.71	0-360	200	H
4	* ** 4.87399	64.84	PK2	34	-44.8	54.04	-	-	74	-19.96	178	109	V
	* ** 4.87397	55.44	ADV	34	-44.8	44.64	54	-9.36	-	-	178	109	V
5	* ** 7.31147	59.15	PK2	35.4	-41.7	52.85	-	-	74	-21.15	309	194	V
	* ** 7.31187	51.24	ADV	35.4	-41.7	44.94	54	-9.06	-	-	309	194	V
6	* ** 9.09844	49.83	Pk	35.9	-40.2	45.53	54	-8.47	74	-28.47	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

HIGH CHANNEL, 2472 MHz RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.94417	63.5	PK2	34.1	-44.4	53.2	-	-	74	-20.8	98	197	H
	* ** 4.94399	54.03	ADV	34.1	-44.4	43.73	54	-10.27	-	-	98	197	H
2	* ** 7.41593	58.17	PK2	35.4	-41.2	52.37	-	-	74	-21.63	45	118	H
	* ** 7.41511	50.83	ADV	35.4	-41.2	45.03	54	-8.97	-	-	45	118	H
3	* ** 9.12188	50.19	Pk	35.9	-40.3	45.79	54	-8.21	74	-28.21	0-360	199	H
4	* ** 4.94388	63.63	PK2	34.1	-44.4	53.33	-	-	74	-20.67	127	216	V
	* ** 4.94399	54.37	ADV	34.1	-44.4	44.07	54	-9.93	-	-	127	216	V
5	* ** 7.41496	57.51	PK2	35.4	-41.2	51.71	-	-	74	-22.29	168	121	V
	* ** 7.41482	50.36	ADV	35.4	-41.2	44.56	54	-9.44	-	-	168	121	V
6	* ** 9.41531	49.24	Pk	36.3	-39.7	45.84	54	-8.16	74	-28.16	0-360	200	V

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** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

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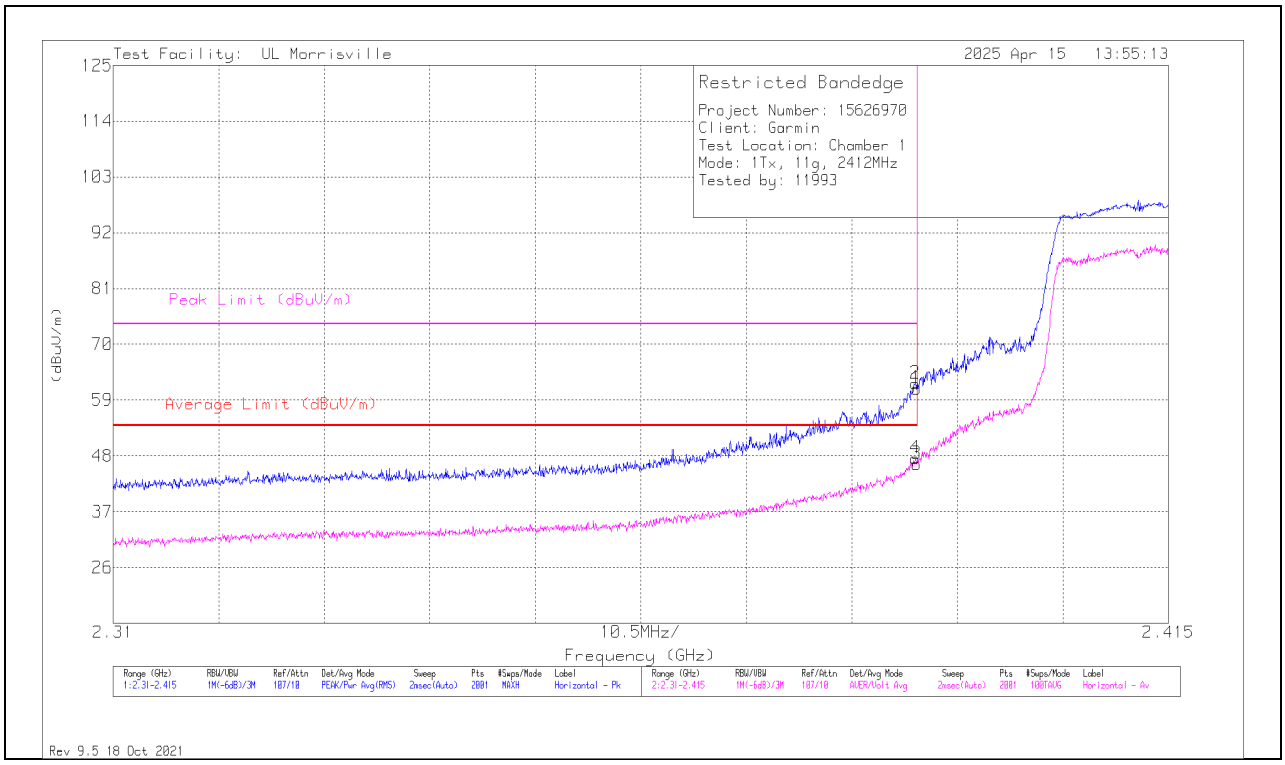
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, 2412 MHz)

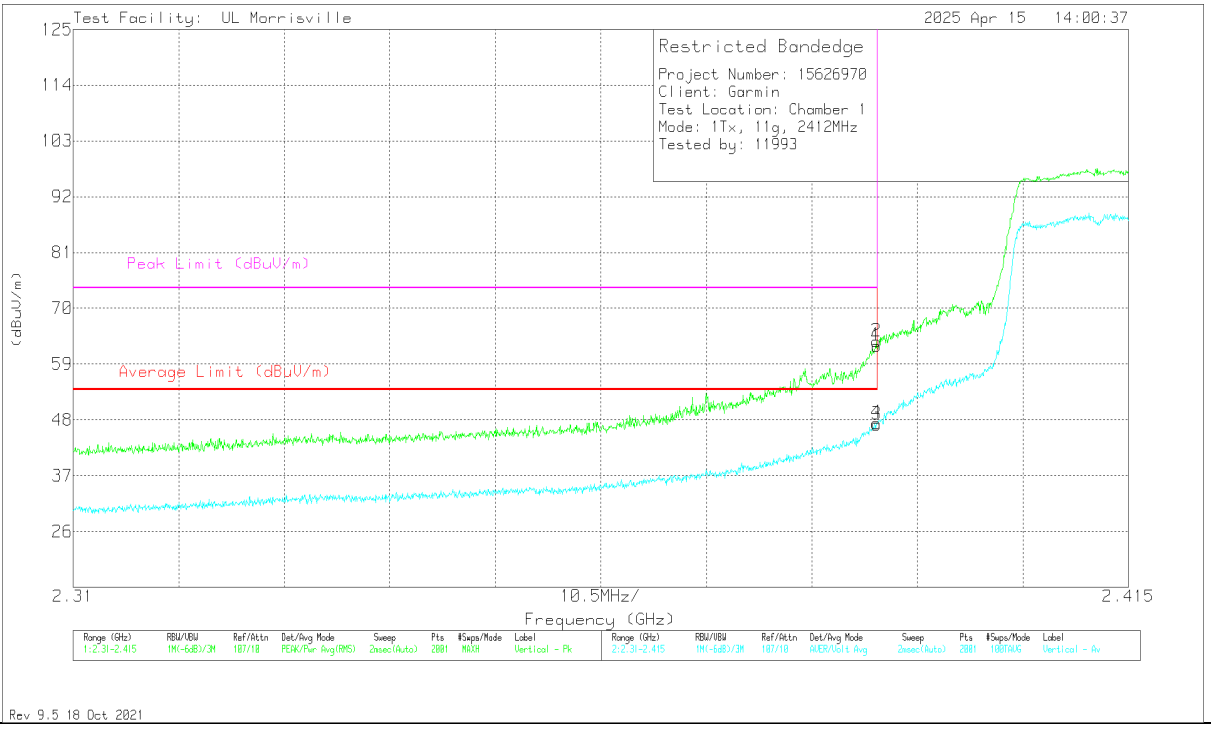
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	53.32	Pk	31.9	-24	61.22	-	-	74	-12.78	266	109	H
2	* ** 2.3898	54.38	Pk	31.9	-24	62.28	-	-	74	-11.72	266	109	H
3	* ** 2.38996	38.51	ADV	31.9	-24	46.41	54	-7.59	-	-	266	109	H
4	* ** 2.3898	39.65	ADV	31.9	-24	47.55	54	-6.45	-	-	266	109	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

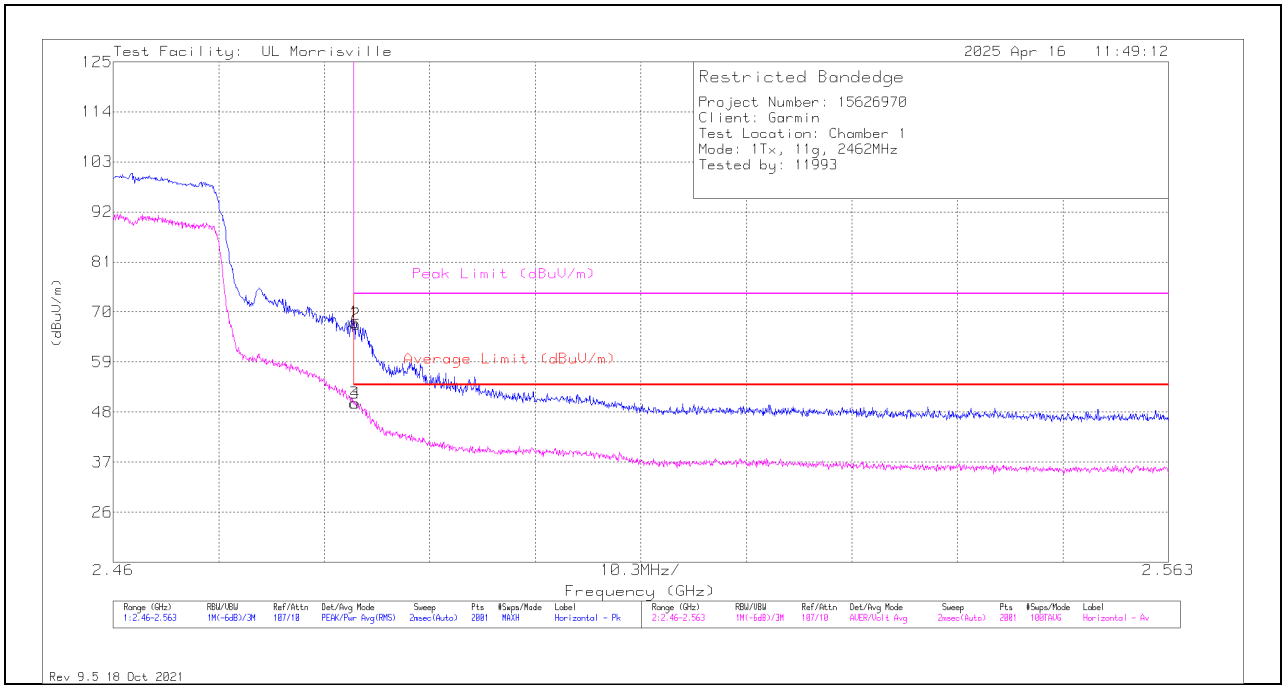


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	54.68	Pk	31.9	-24	62.58	-	-	74	-11.42	147	247	V
2	* ** 2.38991	55.62	Pk	31.9	-24	63.52	-	-	74	-10.48	147	247	V
3	* ** 2.38996	39.13	ADV	31.9	-24	47.03	54	-6.97	-	-	147	247	V
4	* ** 2.38991	39.43	ADV	31.9	-24	47.33	54	-6.67	-	-	147	247	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2462 MHz)

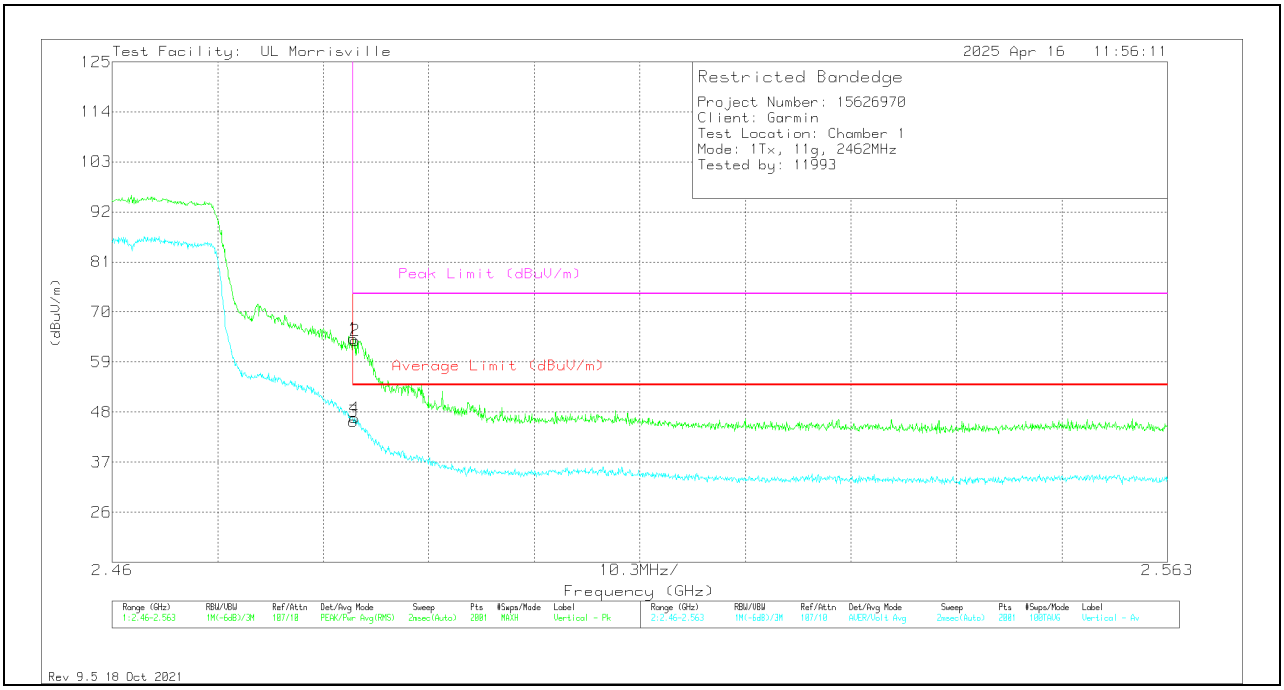
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	59.27	Pk	32.2	-23.7	67.77	-	-	74	-6.23	67	216	H
2	* ** 2.48369	58.77	Pk	32.2	-23.7	67.27	-	-	74	-6.73	67	216	H
3	* ** 2.48354	41.5	ADV	32.2	-23.7	50	54	-4	-	-	67	216	H
4	* ** 2.48364	41.41	ADV	32.2	-23.7	49.91	54	-4.09	-	-	67	216	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

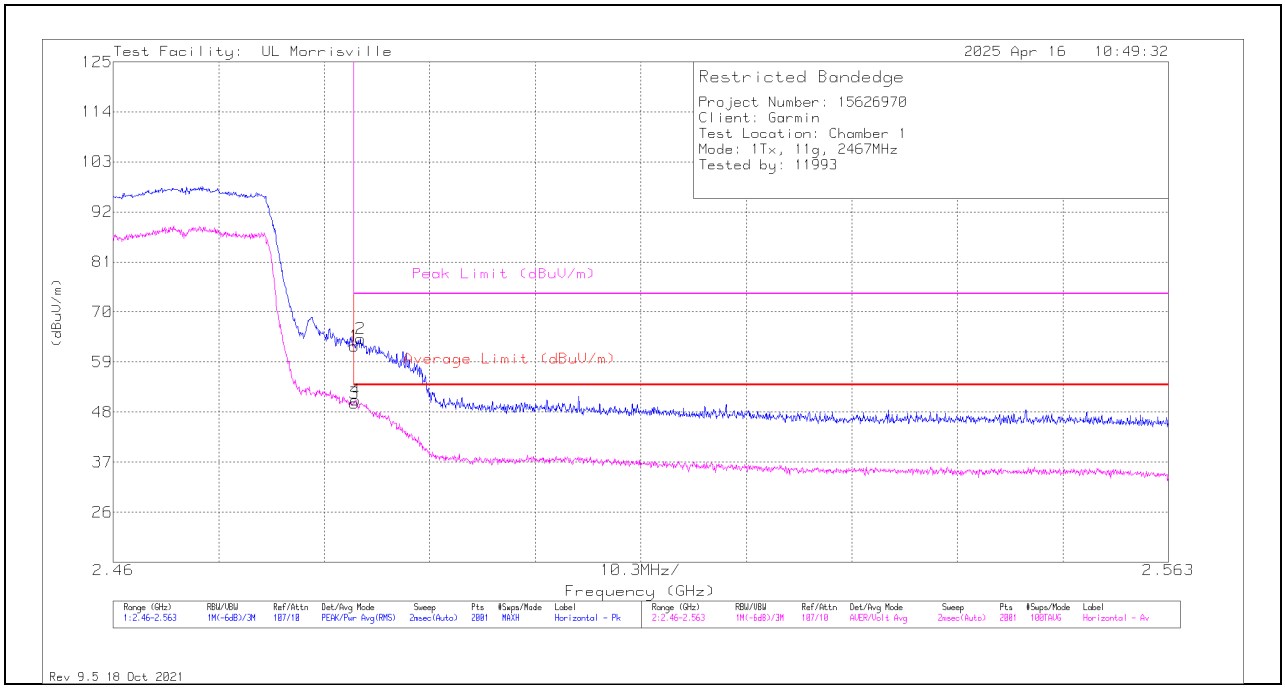


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	55.66	Pk	32.2	-23.7	64.16	-	-	74	-9.84	168	118	V
2	* ** 2.48374	55.26	Pk	32.2	-23.7	63.76	-	-	74	-10.24	168	118	V
3	* ** 2.48354	37.47	ADV	32.2	-23.7	45.97	54	-8.03	-	-	168	118	V
4	* ** 2.48364	38.22	ADV	32.2	-23.7	46.72	54	-7.28	-	-	168	118	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2467 MHz)

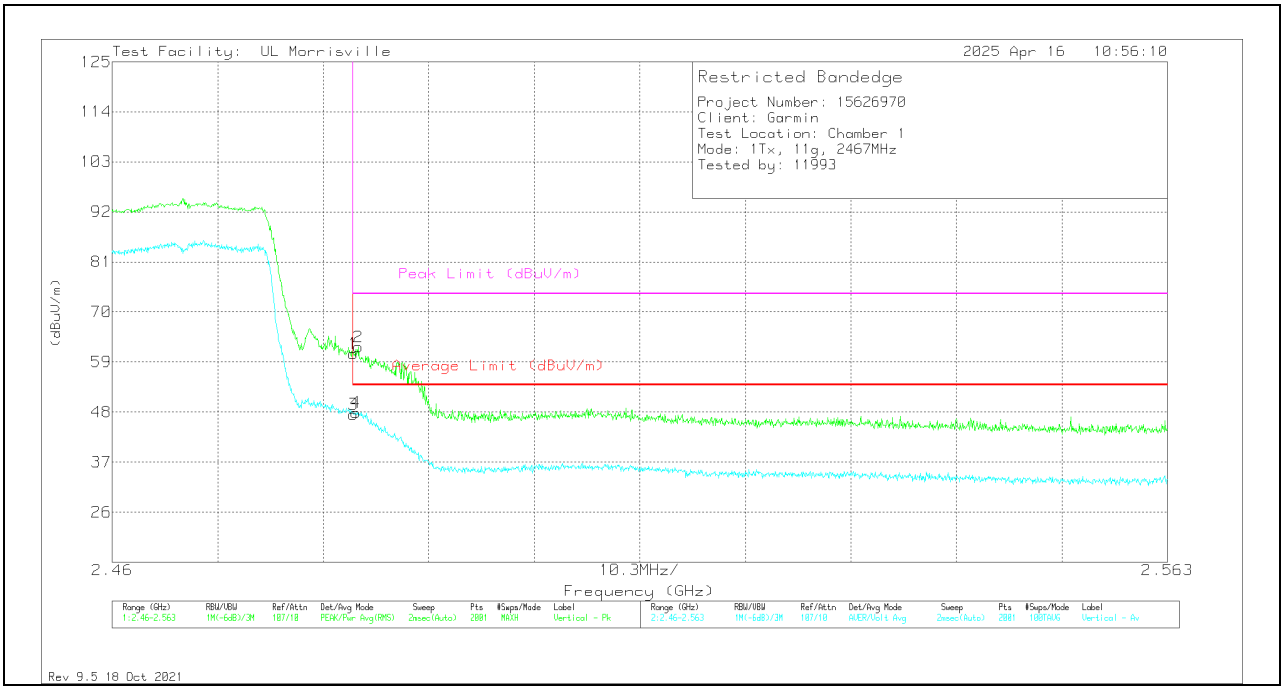
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	54.04	Pk	32.2	-23.7	62.54	-	-	74	-11.46	76	245	H
2	* ** 2.48415	55.78	Pk	32.2	-23.8	64.18	-	-	74	-9.82	76	245	H
3	* ** 2.48354	41.48	ADV	32.2	-23.7	49.98	54	-4.02	-	-	76	245	H
4	* ** 2.48364	42.18	ADV	32.2	-23.7	50.68	54	-3.32	-	-	76	245	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	52.39	Pk	32.2	-23.7	60.89	-	-	74	-13.11	170	159	V
2	* ** 2.48405	53.9	Pk	32.2	-23.8	62.3	-	-	74	-11.7	170	159	V
3	* ** 2.48354	39.01	ADV	32.2	-23.7	47.51	54	-6.49	-	-	170	159	V
4	* ** 2.48379	39.39	ADV	32.2	-23.7	47.89	54	-6.11	-	-	170	159	V

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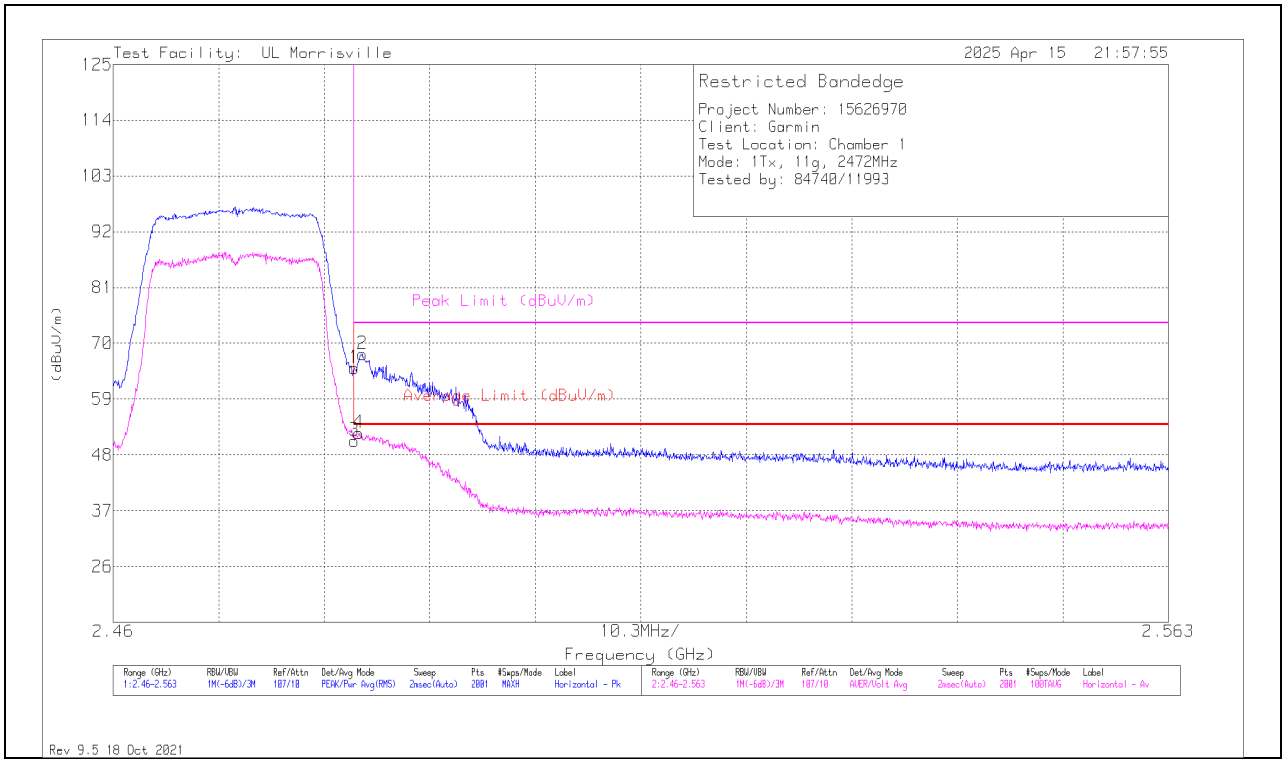
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2472 MHz)

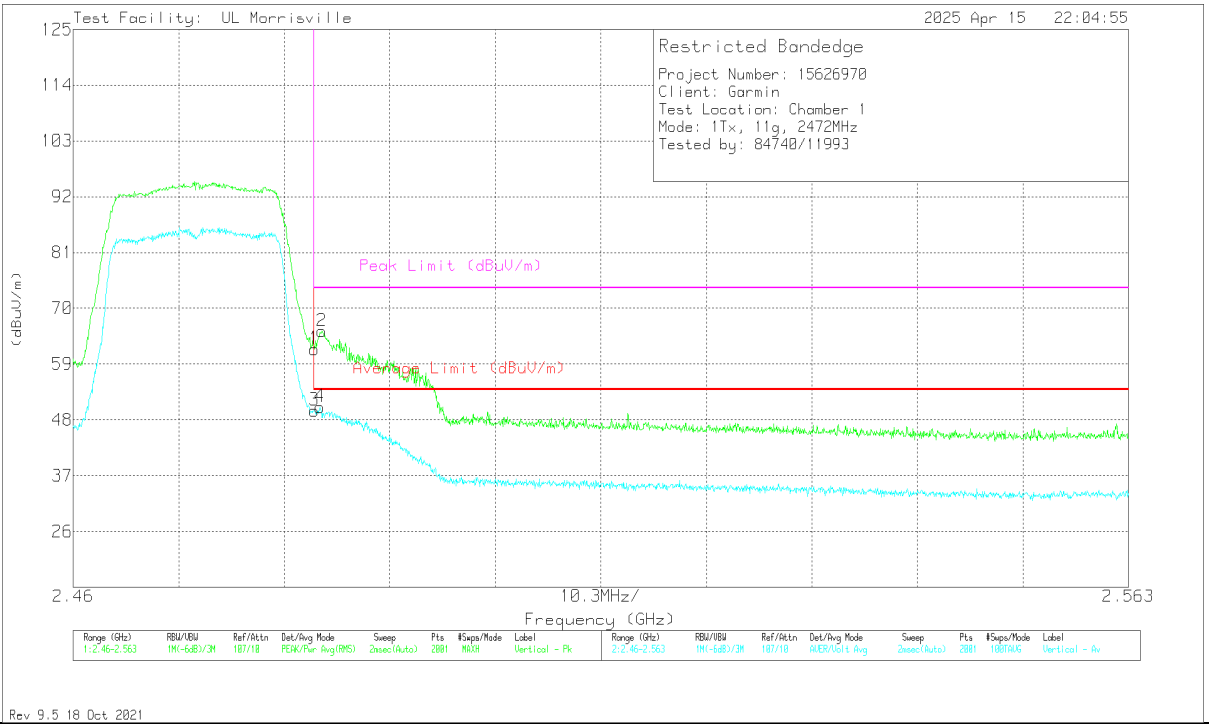
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	56.6	Pk	32.2	-23.7	65.1	-	-	74	-8.9	233	222	H
2	* ** 2.48431	59.48	Pk	32.2	-23.8	67.88	-	-	74	-6.12	233	222	H
3	* ** 2.48354	42.32	ADV	32.2	-23.7	50.82	54	-3.18	-	-	233	222	H
4	* ** 2.48395	43.86	ADV	32.2	-23.7	52.36	54	-1.64	-	-	233	222	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

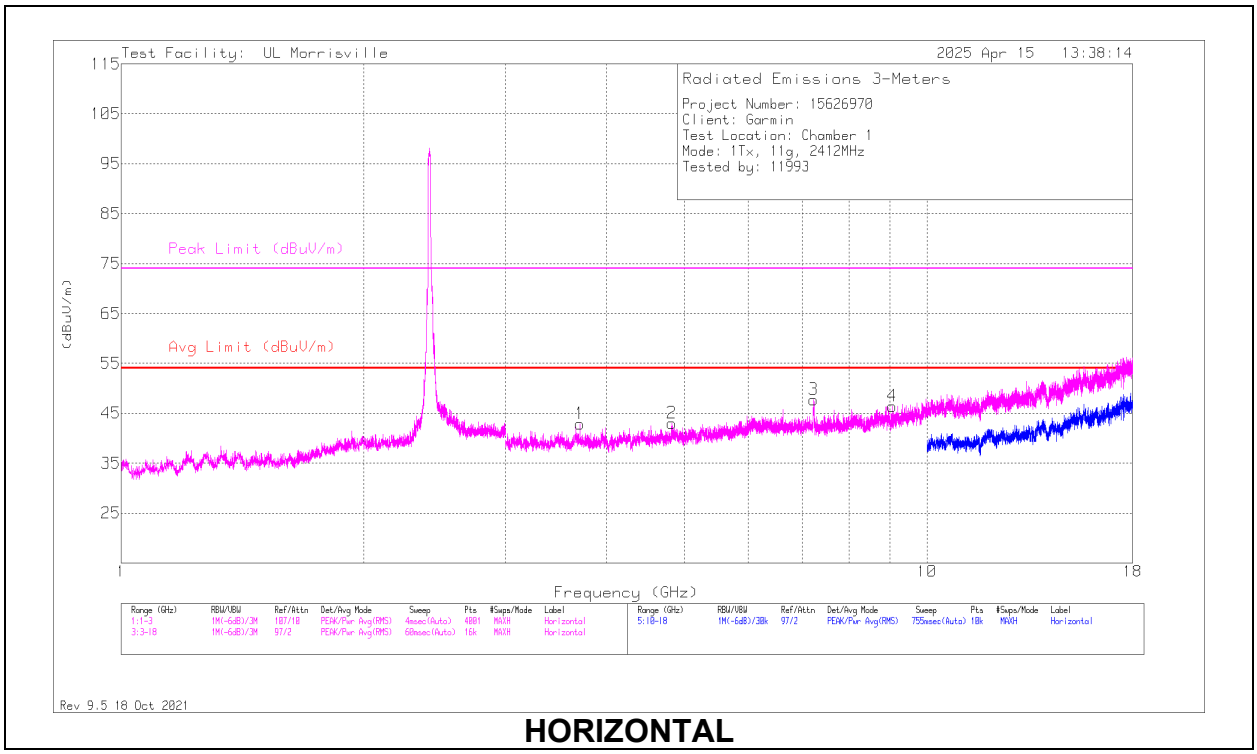


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	53.39	Pk	32.2	-23.7	61.89	-	-	74	-12.11	321	241	V
2	* ** 2.48426	57.06	Pk	32.2	-23.8	65.46	-	-	74	-8.54	321	241	V
3	* ** 2.48354	41.29	ADV	32.2	-23.7	49.79	54	-4.21	-	-	321	241	V
4	* ** 2.4841	42.17	ADV	32.2	-23.8	50.57	54	-3.43	-	-	321	241	V

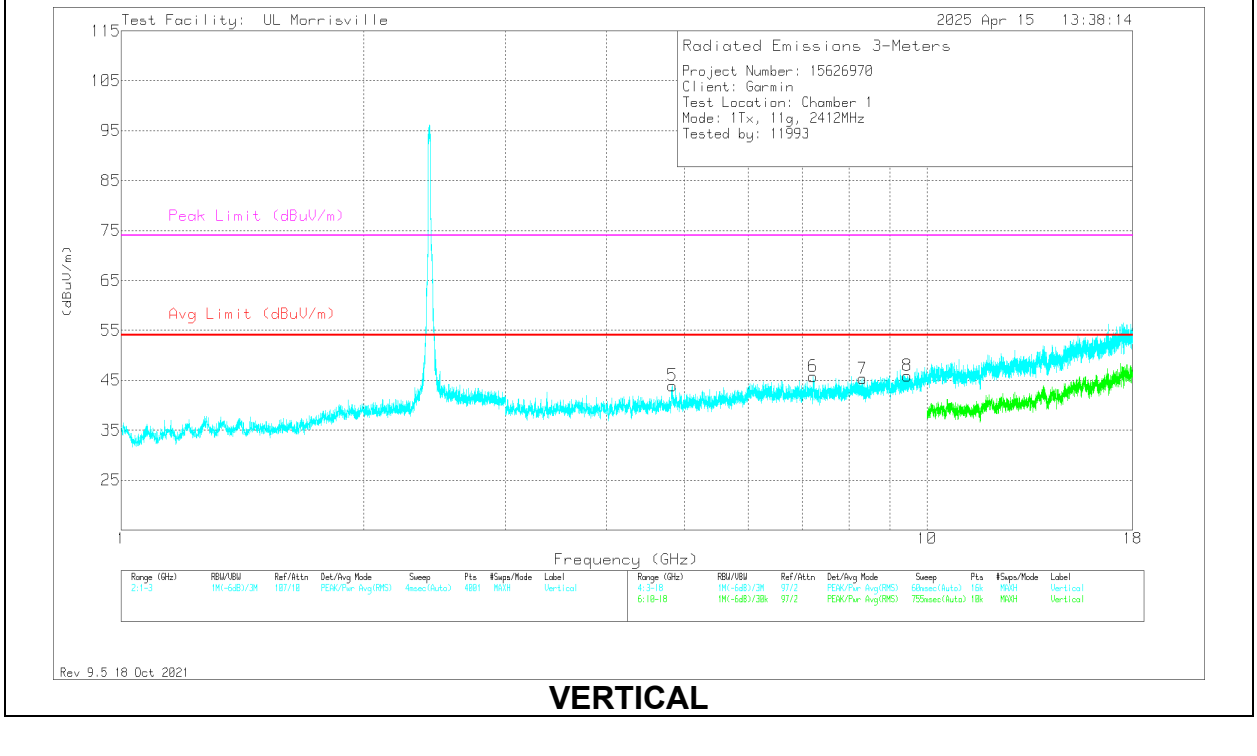
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, 2412 MHz RESULTS



HORIZONTAL



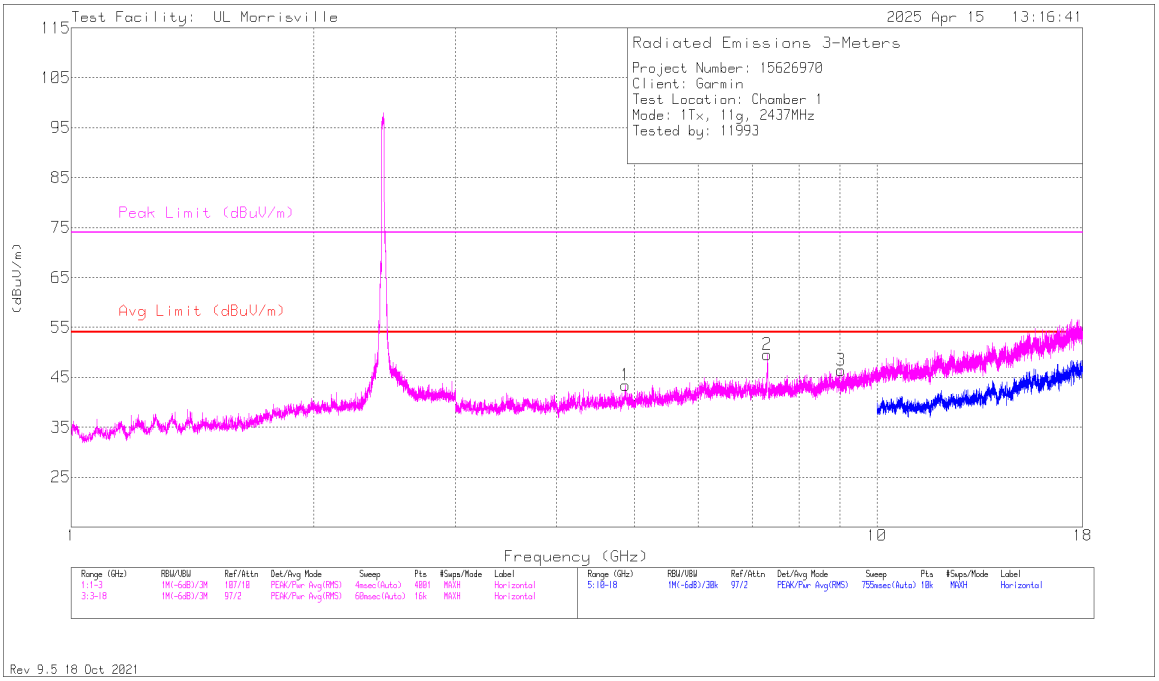
VERTICAL

RADIATED EMISSIONS

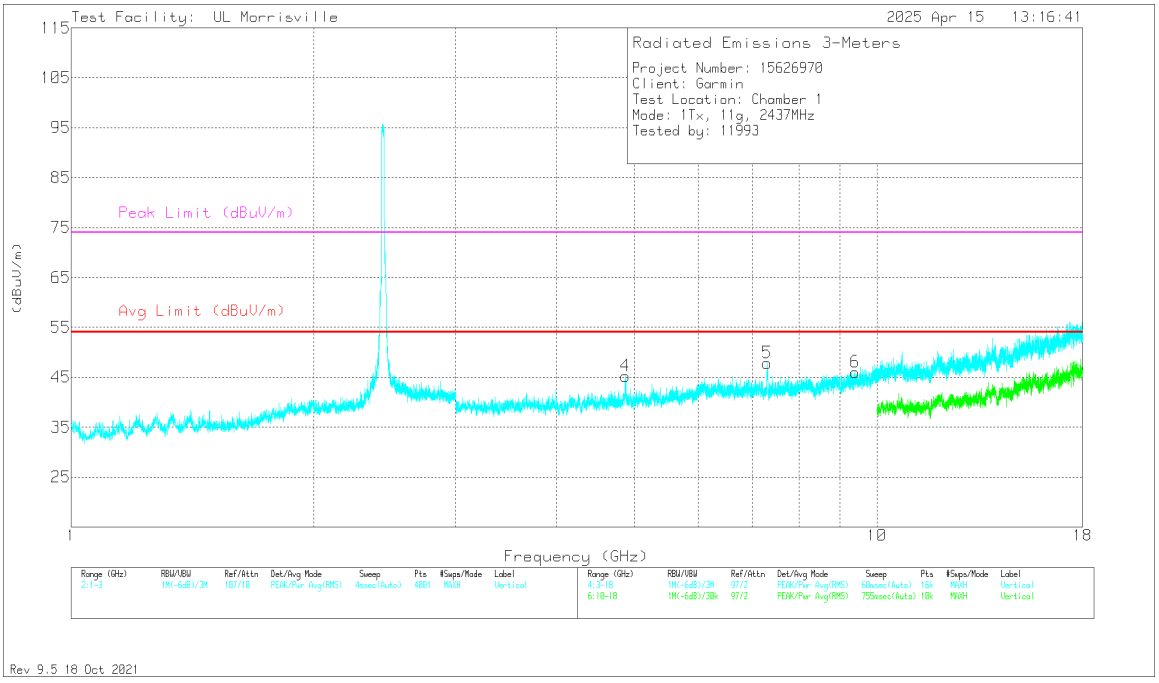
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.70969	53.93	Pk	33.2	-44.3	42.83	54	-11.17	74	-31.17	0-360	101	H
2	* ** 4.82531	54.45	Pk	33.9	-45.3	43.05	54	-10.95	74	-30.95	0-360	101	H
4	* ** 9.05813	50.81	Pk	35.8	-40.2	46.41	54	-7.59	74	-27.59	0-360	200	H
5	* ** 4.83375	55.21	Pk	33.9	-45.2	43.91	54	-10.09	74	-30.09	0-360	101	V
7	* ** 8.32031	50.4	Pk	35.8	-40.9	45.3	54	-8.7	74	-28.7	0-360	101	V
8	* ** 9.45844	50.33	Pk	36.4	-40.8	45.93	54	-8.07	74	-28.07	0-360	101	V
6	7.22625	52.36	Pk	35.4	-42	45.76	-	-	-	-	0-360	200	V
3	7.2375	54.7	Pk	35.4	-42.4	47.7	-	-	-	-	0-360	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL, 2437 MHz RESULTS



HORIZONTAL



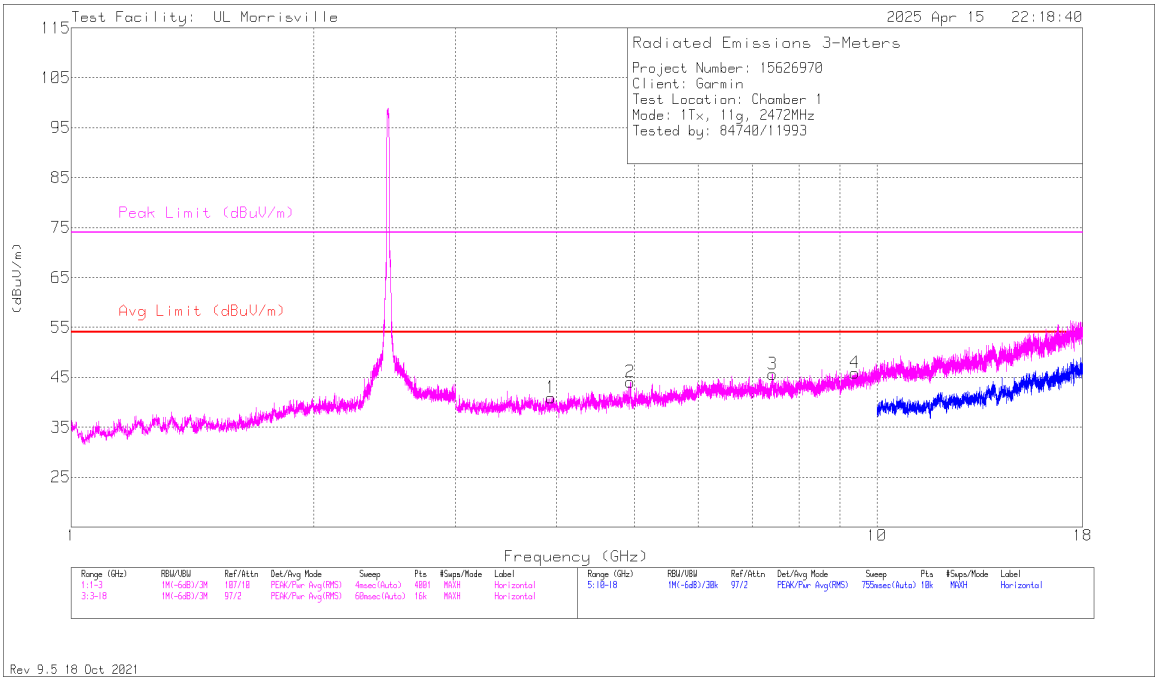
VERTICAL

RADIATED EMISSIONS

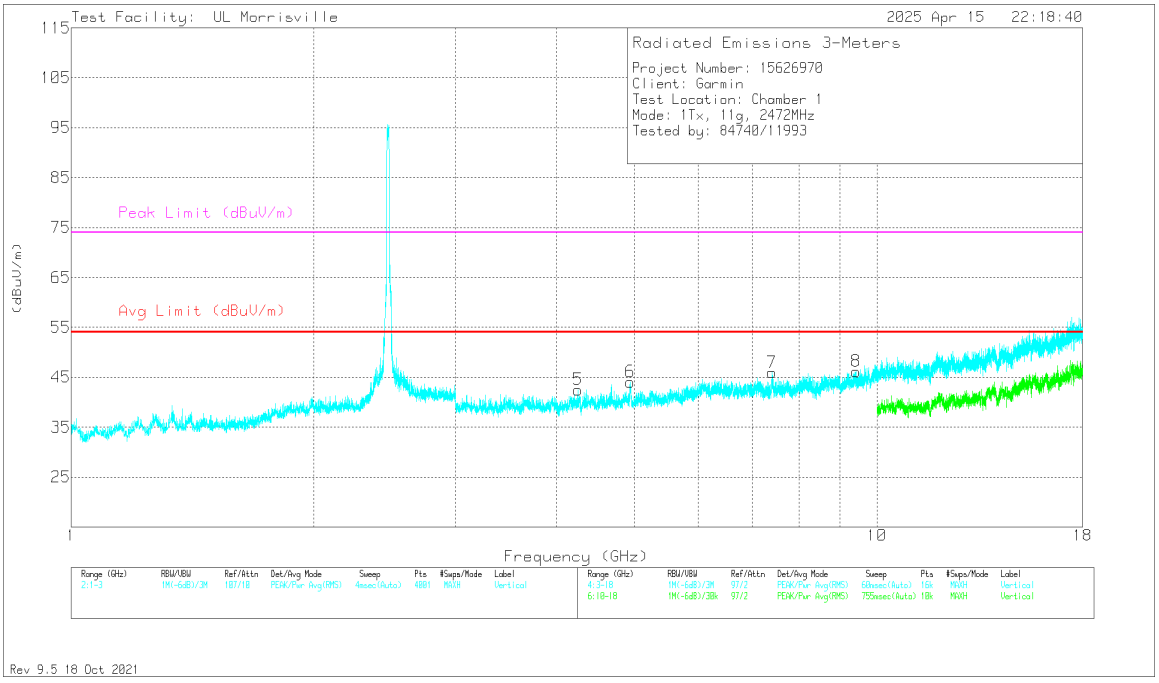
TY	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.87031	54.25	Pk	34	-44.9	43.35	54	-10.65	74	-30.65	0-360	101	H
2	* ** 7.31429	60.01	PK2	35.4	-41.6	53.81	-	-	74	-20.19	45	104	H
	* ** 7.31332	45.39	ADV	35.4	-41.6	39.19	54	-14.81	-	-	45	104	H
3	* ** 9.03188	50.01	Pk	35.8	-39.4	46.41	54	-7.59	74	-27.59	0-360	199	H
4	* ** 4.87594	55.99	Pk	34	-44.8	45.19	54	-8.81	74	-28.81	0-360	101	V
5	* ** 7.31156	54.2	Pk	35.4	-41.7	47.9	54	-6.1	74	-26.1	0-360	200	V
6	* ** 9.39844	50.01	Pk	36.3	-40.3	46.01	54	-7.99	74	-27.99	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

HIGH CHANNEL, 2472 MHz RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.93844	52.68	Pk	32.9	-44.7	40.88	54	-13.12	74	-33.12	0-360	101	H
2	* ** 4.94156	54.26	Pk	34.1	-44.3	44.06	54	-9.94	74	-29.94	0-360	101	H
3	* ** 7.42031	51.41	Pk	35.4	-41.2	45.61	54	-8.39	74	-28.39	0-360	101	H
4	* ** 9.39375	49.62	Pk	36.3	-40	45.92	54	-8.08	74	-28.08	0-360	101	H
5	* ** 4.25625	53.57	Pk	33.7	-44.8	42.47	54	-11.53	74	-31.53	0-360	200	V
6	* ** 4.9425	54.27	Pk	34.1	-44.3	44.07	54	-9.93	74	-29.93	0-360	200	V
7	* ** 7.41281	51.75	Pk	35.4	-41.2	45.95	54	-8.05	74	-28.05	0-360	200	V
8	* ** 9.42563	50.21	Pk	36.3	-40.4	46.11	54	-7.89	74	-27.89	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

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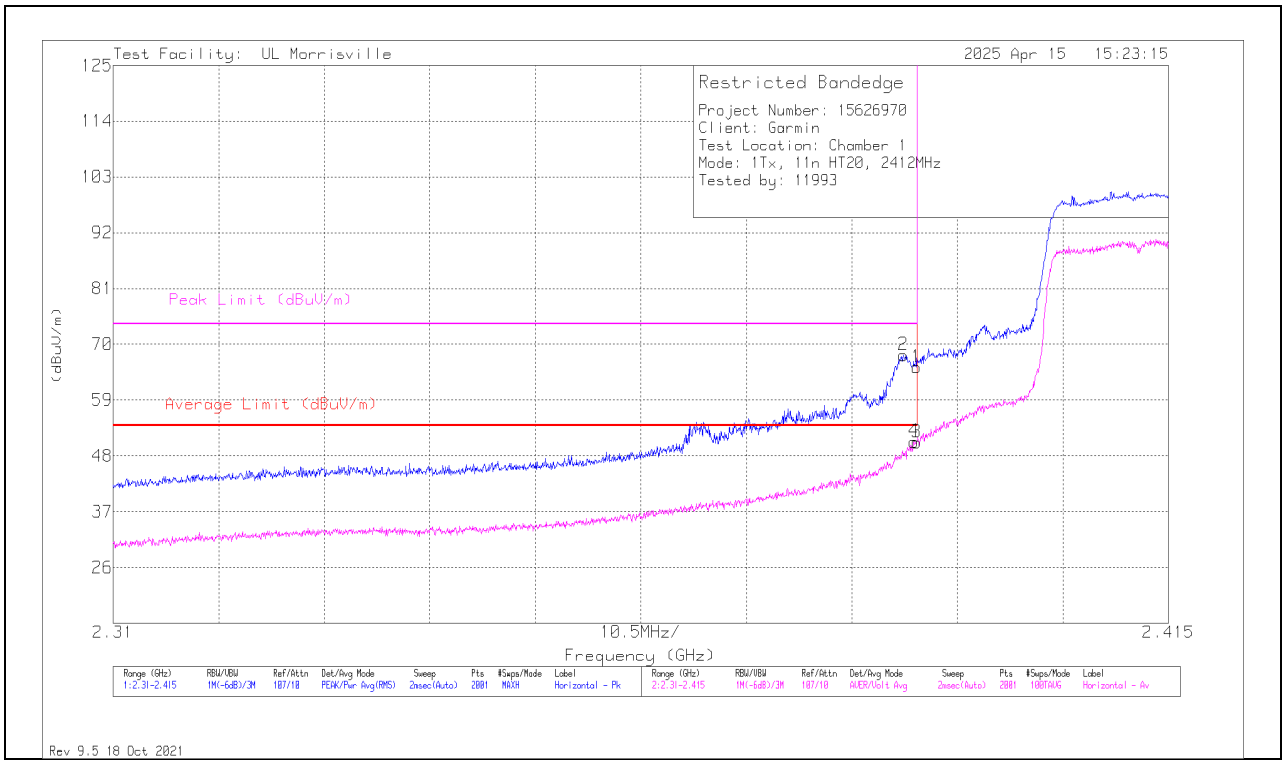
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, 2412 MHz)

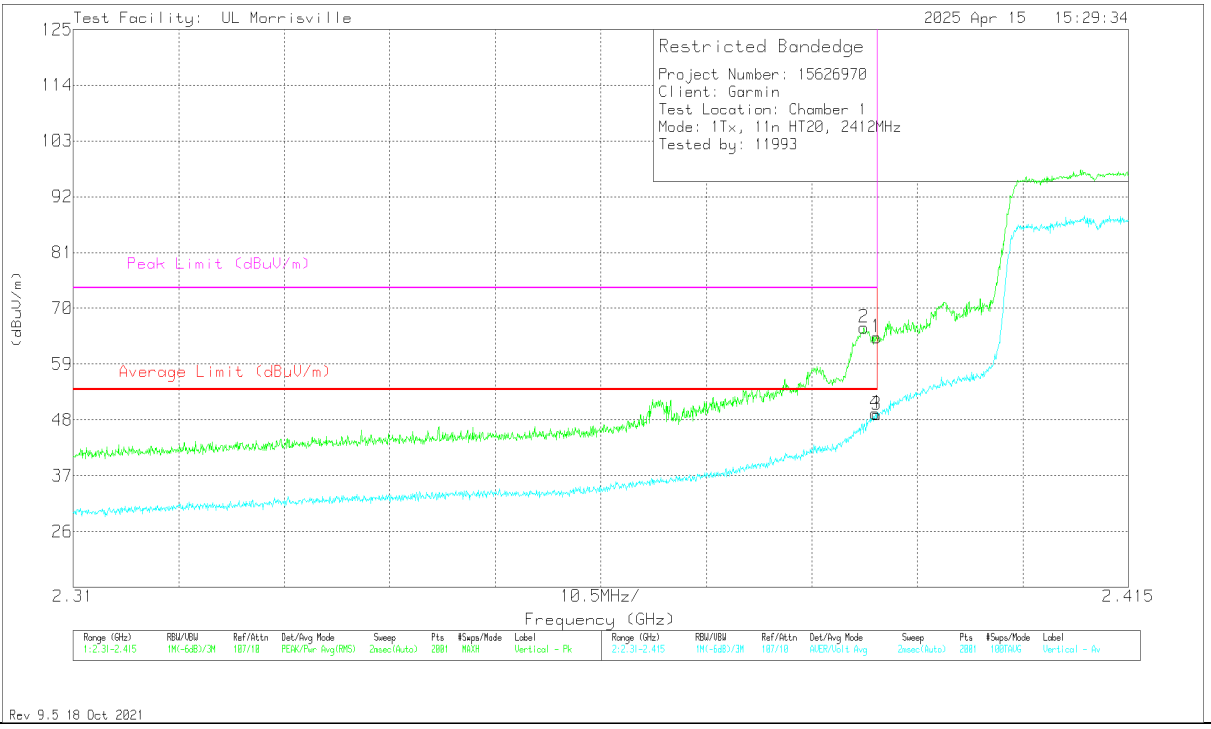
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	57.56	Pk	31.9	-24	65.46	-	-	74	-8.54	332	113	H
2	* ** 2.38859	59.98	Pk	31.9	-24	67.88	-	-	74	-6.12	332	113	H
3	* ** 2.38996	42.76	ADV	31.9	-24	50.66	54	-3.34	-	-	332	113	H
4	* ** 2.3897	42.91	ADV	31.9	-24	50.81	54	-3.19	-	-	332	113	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

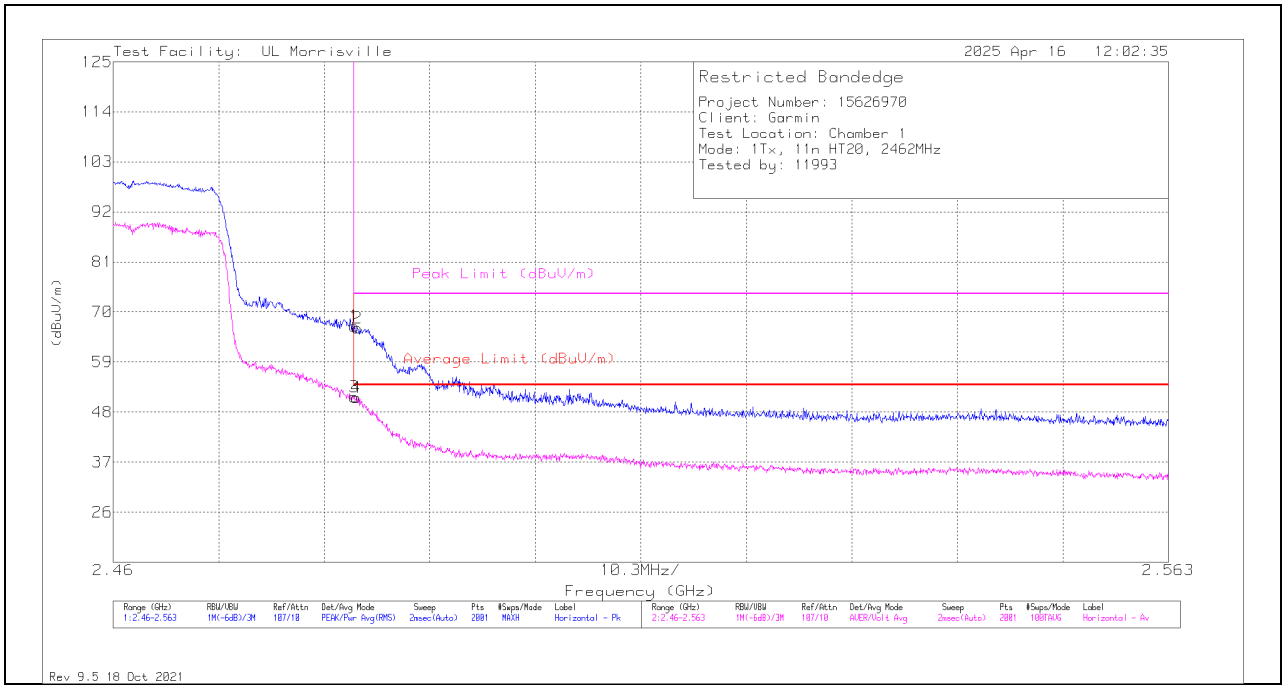


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	56.36	Pk	31.9	-24	64.26	-	-	74	-9.74	343	106	V
2	* ** 2.3887	58.27	Pk	31.9	-24	66.17	-	-	74	-7.83	343	106	V
3	* ** 2.38996	41.16	ADV	31.9	-24	49.06	54	-4.94	-	-	343	106	V
4	* ** 2.3898	41.38	ADV	31.9	-24	49.28	54	-4.72	-	-	343	106	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2462 MHz)

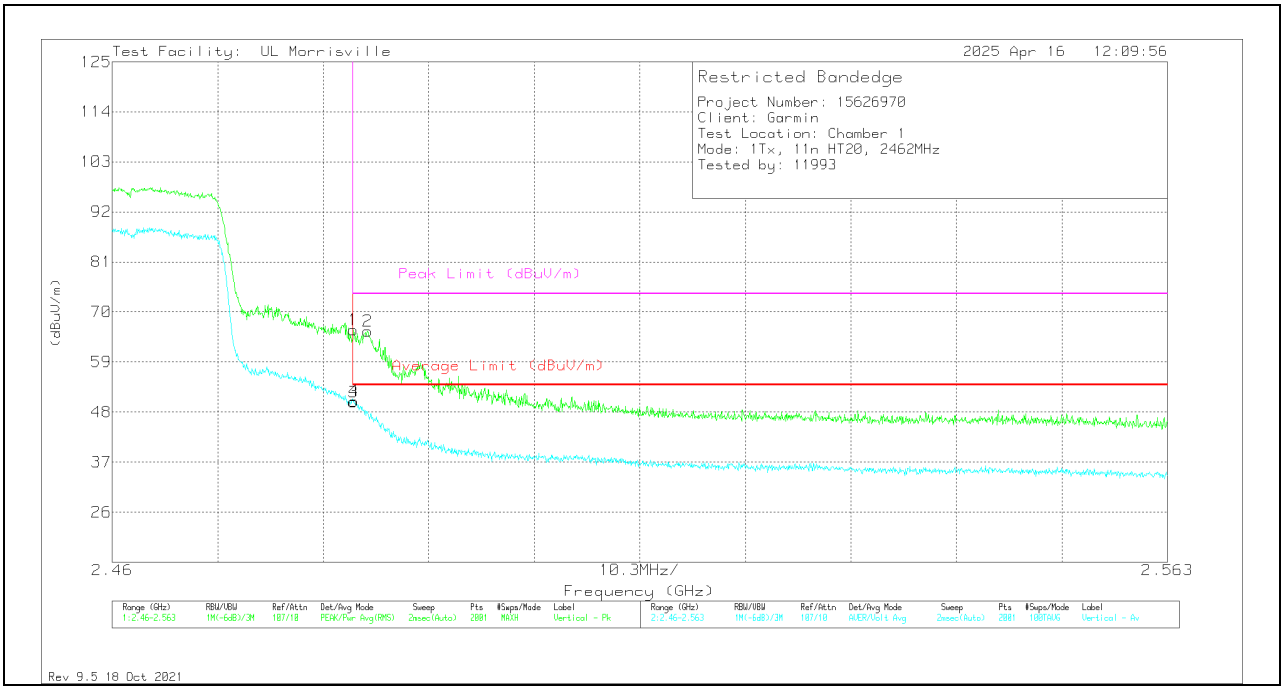
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	58.45	Pk	32.2	-23.7	66.95	-	-	74	-7.05	285	110	H
2	* ** 2.48384	57.95	Pk	32.2	-23.7	66.45	-	-	74	-7.55	285	110	H
3	* ** 2.48354	42.82	ADV	32.2	-23.7	51.32	54	-2.68	-	-	285	110	H
4	* ** 2.48374	42.68	ADV	32.2	-23.7	51.18	54	-2.82	-	-	285	110	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

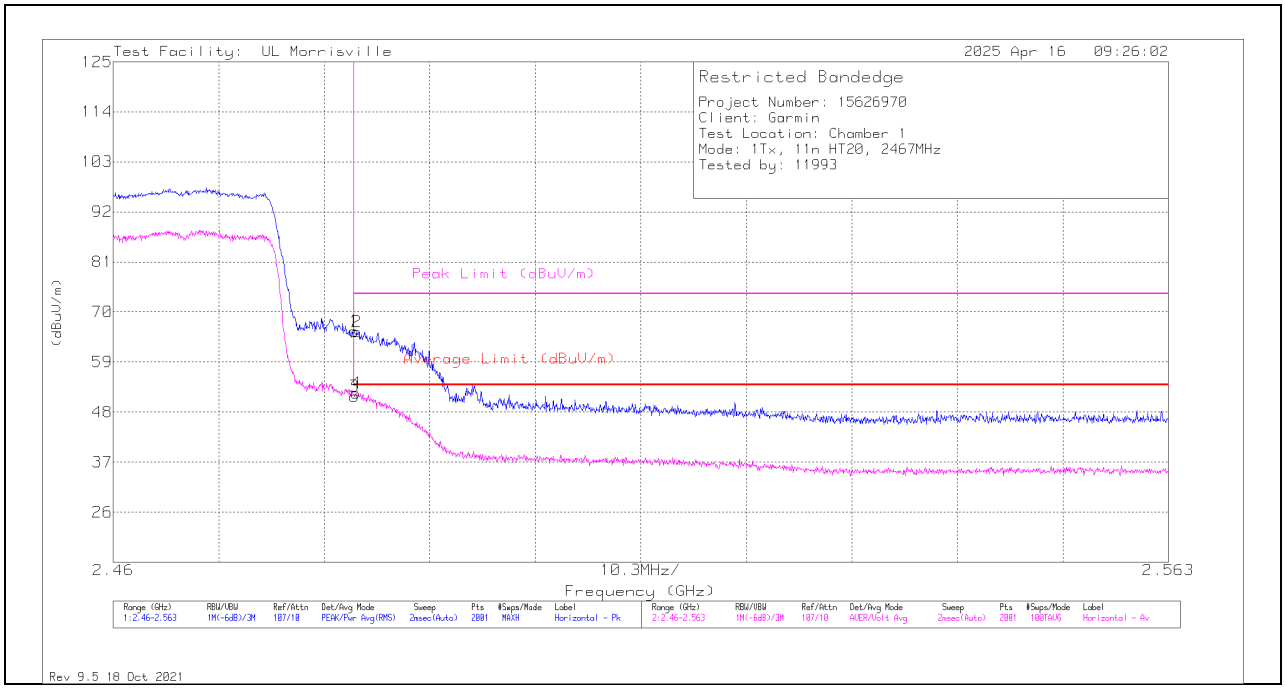


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	57.63	Pk	32.2	-23.7	66.13	-	-	74	-7.87	5	104	V
2	* ** 2.48493	57.41	Pk	32.2	-23.8	65.81	-	-	74	-8.19	5	104	V
3	* ** 2.48354	41.68	ADV	32.2	-23.7	50.18	54	-3.82	-	-	5	104	V
4	* ** 2.48359	41.92	ADV	32.2	-23.7	50.42	54	-3.58	-	-	5	104	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2467 MHz)

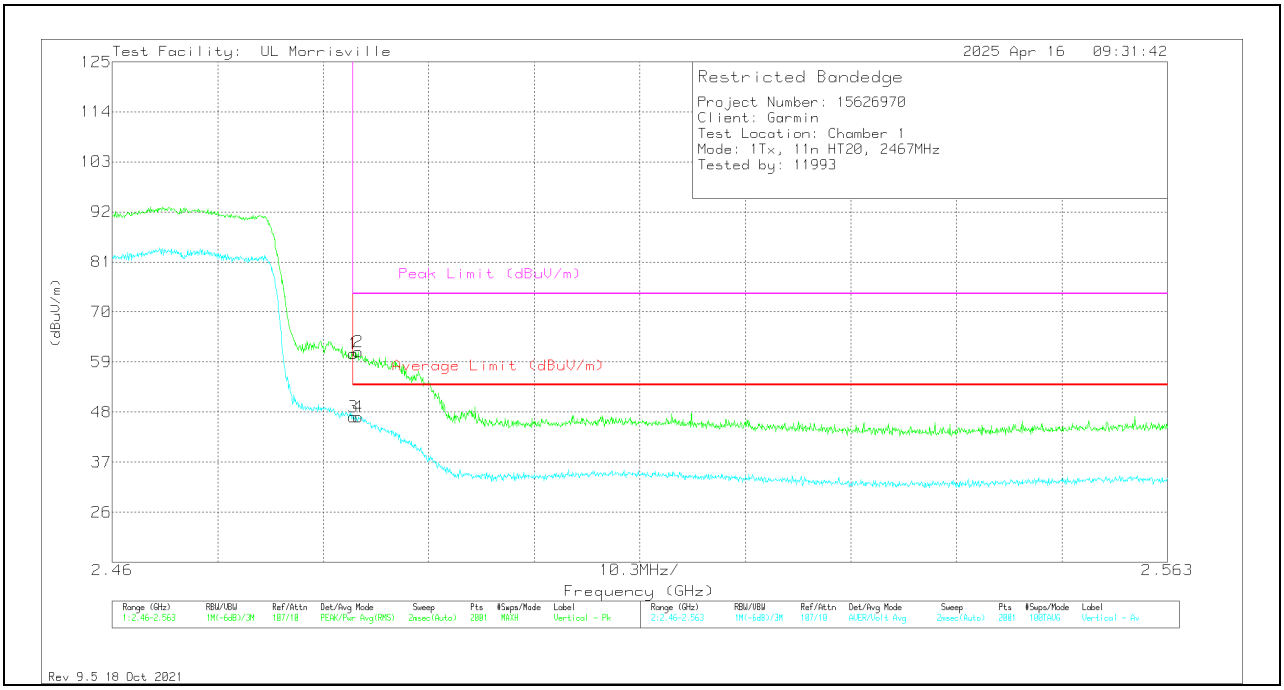
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	57.31	Pk	32.2	-23.7	65.81	-	-	74	-8.19	72	192	H
2	* ** 2.48379	57.21	Pk	32.2	-23.7	65.71	-	-	74	-8.29	72	192	H
3	* ** 2.48354	43.02	ADV	32.2	-23.7	51.52	54	-2.48	-	-	72	192	H
4	* ** 2.48369	43.68	ADV	32.2	-23.7	52.18	54	-1.82	-	-	72	192	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

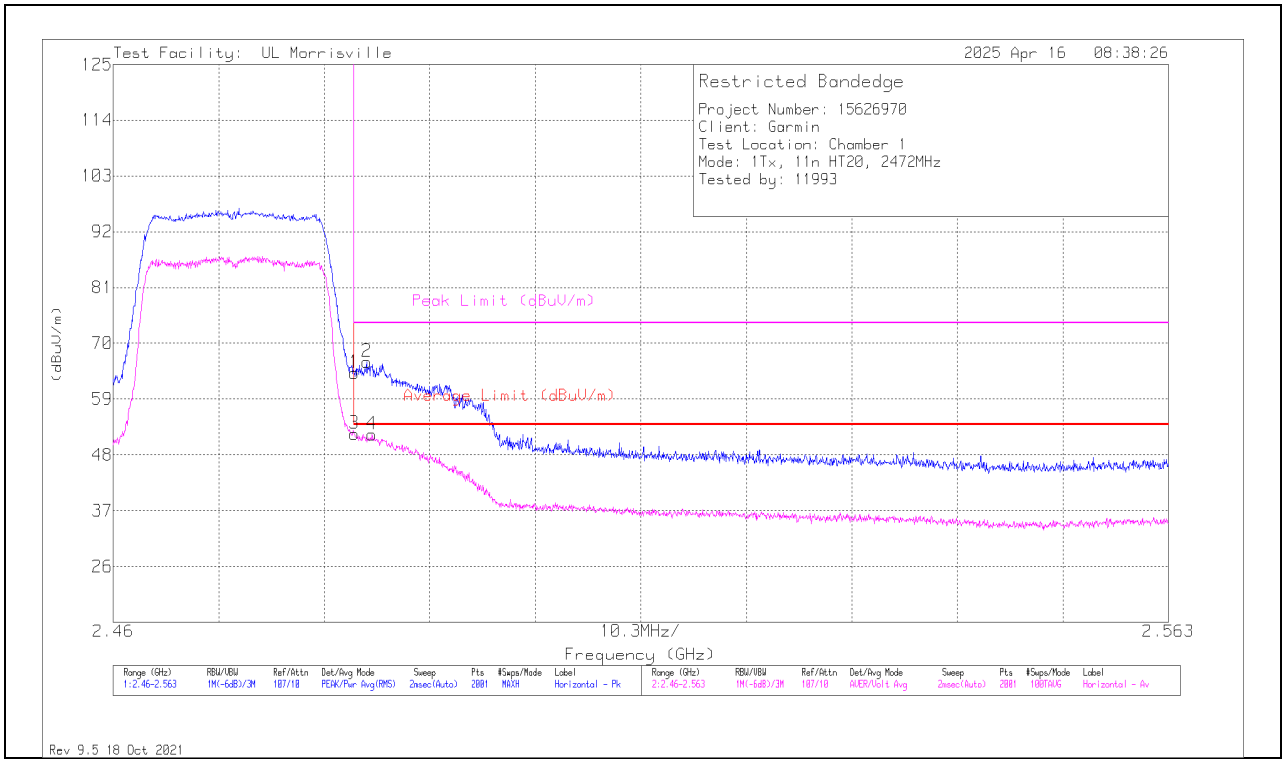


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	52.4	Pk	32.2	-23.7	60.9	-	-	74	-13.1	238	162	V
2	* ** 2.484	52.89	Pk	32.2	-23.8	61.29	-	-	74	-12.71	238	162	V
3	* ** 2.48354	38.49	ADV	32.2	-23.7	46.99	54	-7.01	-	-	238	162	V
4	* ** 2.48405	38.59	ADV	32.2	-23.8	46.99	54	-7.01	-	-	238	162	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2472 MHz)

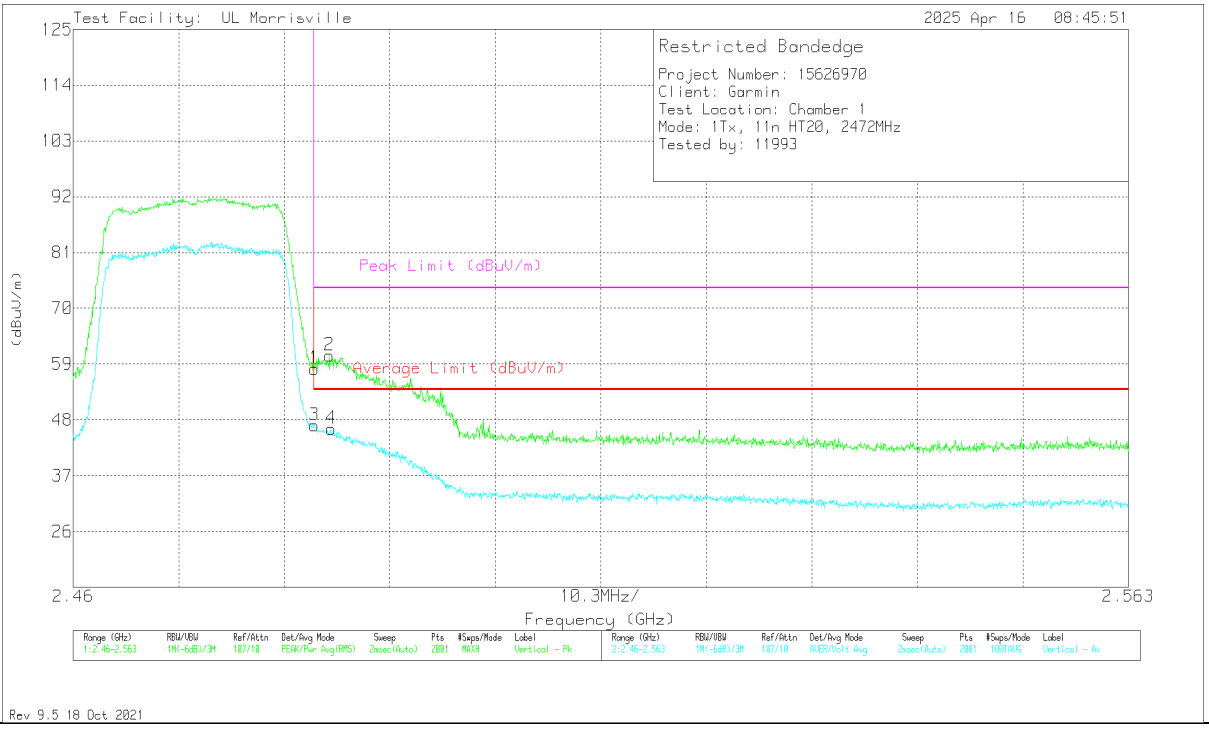
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	55.62	Pk	32.2	-23.7	64.12	-	-	74	-9.88	71	279	H
2	* ** 2.48477	57.97	Pk	32.2	-23.8	66.37	-	-	74	-7.63	71	279	H
3	* ** 2.48354	43.68	ADV	32.2	-23.7	52.18	54	-1.82	-	-	71	279	H
4	* ** 2.48524	43.66	ADV	32.2	-23.8	52.06	54	-1.94	-	-	71	279	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

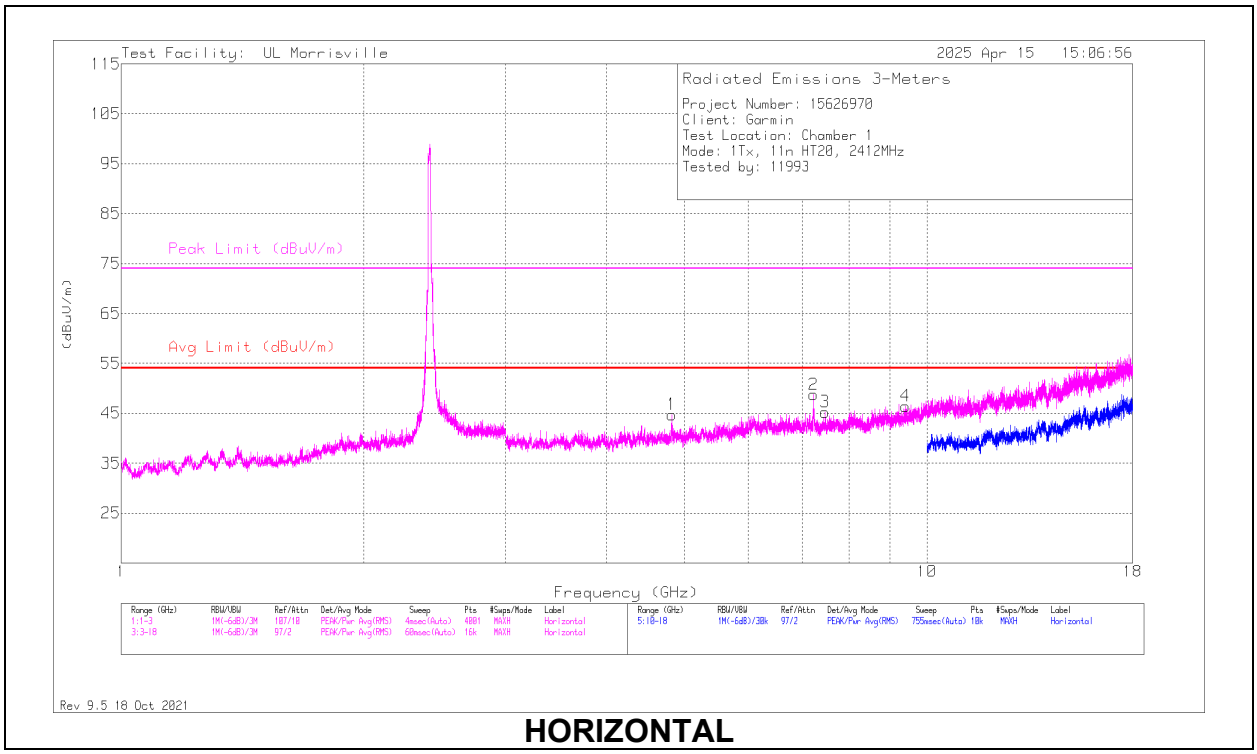


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	49.63	Pk	32.2	-23.7	58.13	-	-	74	-15.87	275	172	V
2	* ** 2.48503	52.31	Pk	32.2	-23.8	60.71	-	-	74	-13.29	275	172	V
3	* ** 2.48354	38.38	ADV	32.2	-23.7	46.88	54	-7.12	-	-	275	172	V
4	* ** 2.48518	37.86	ADV	32.2	-23.8	46.26	54	-7.74	-	-	275	172	V

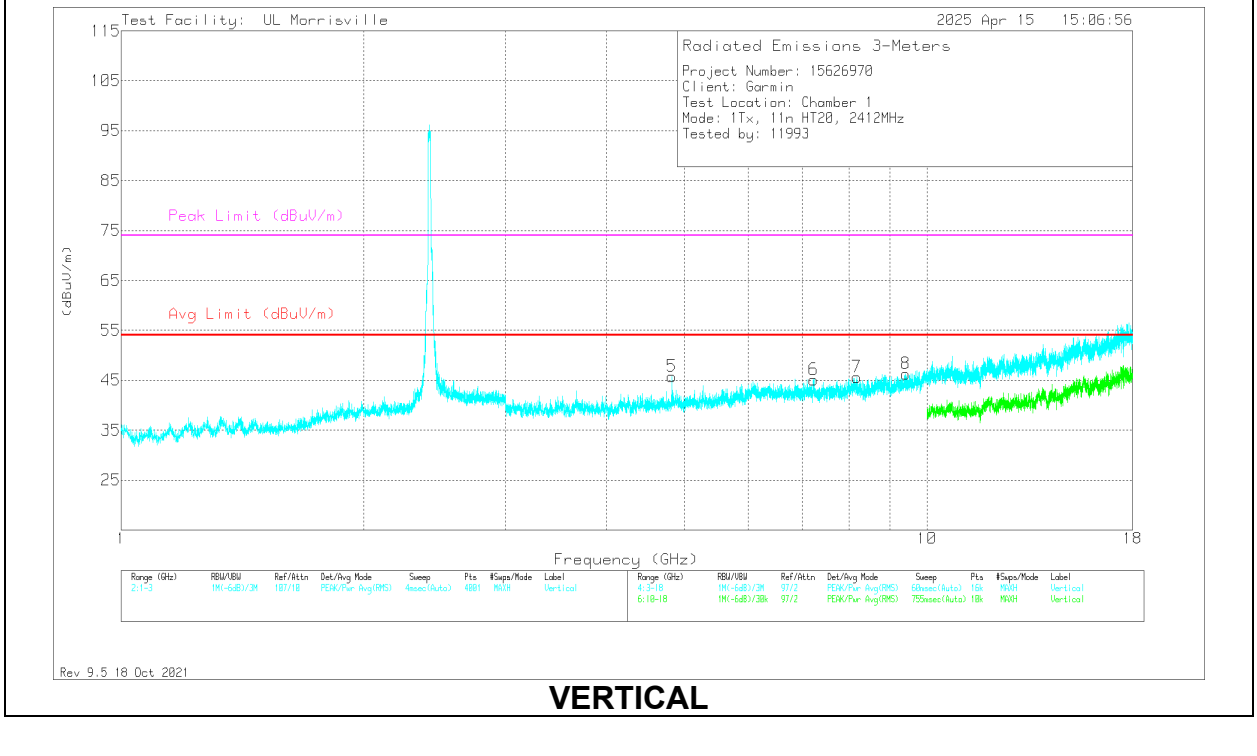
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, 2412 MHz RESULTS



HORIZONTAL



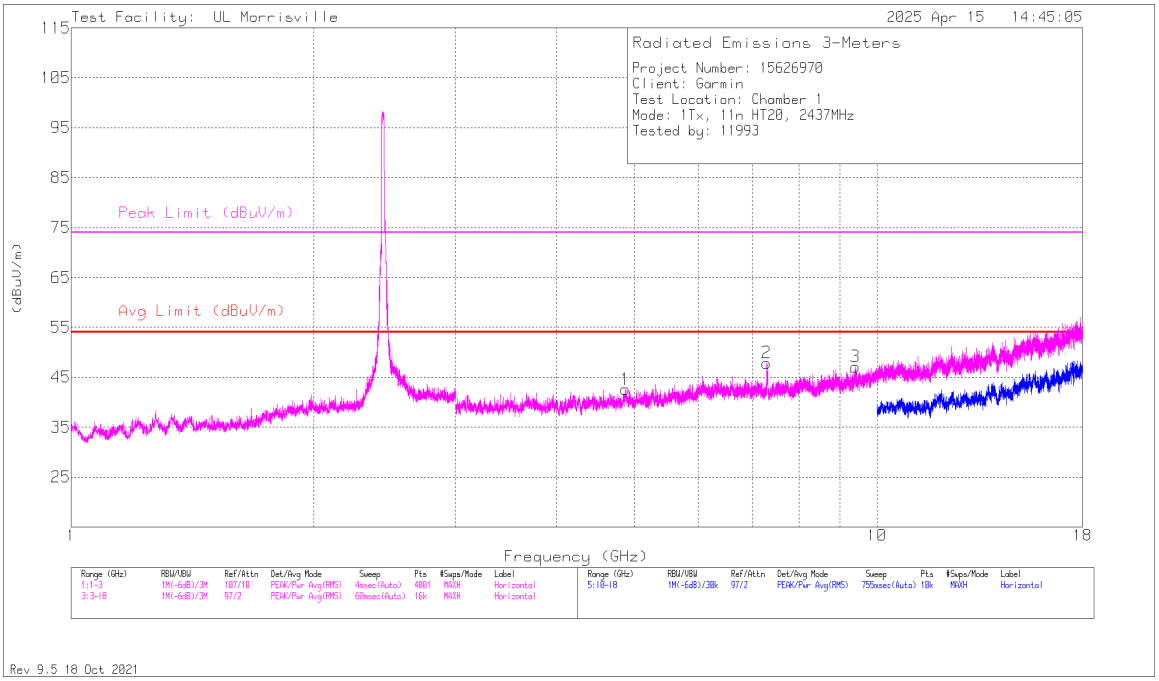
VERTICAL

RADIATED EMISSIONS

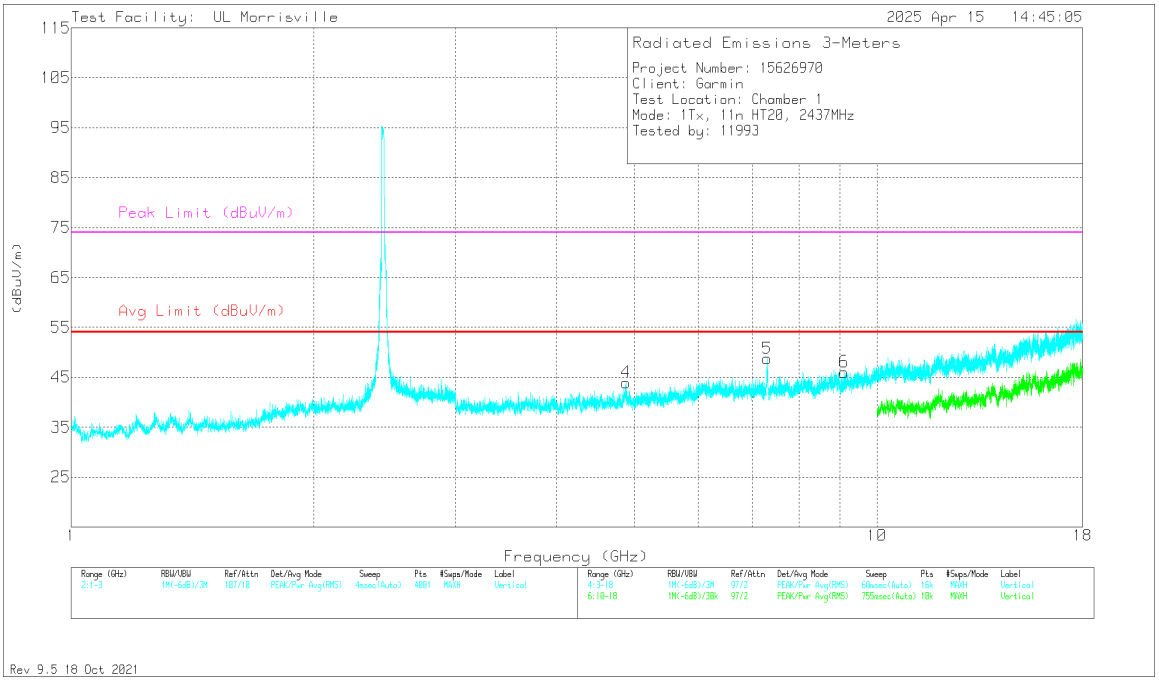
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.82625	55.99	Pk	33.9	-45.2	44.69	54	-9.31	74	-29.31	0-360	101	H
3	* ** 7.4775	50.96	Pk	35.5	-41.2	45.26	54	-8.74	74	-28.74	0-360	101	H
4	* ** 9.40594	50.96	Pk	36.3	-40.9	46.36	54	-7.64	74	-27.64	0-360	200	H
5	* ** 4.82344	57.26	Pk	33.9	-45.4	45.76	54	-8.24	74	-28.24	0-360	101	V
7	* ** 8.19188	50.39	Pk	35.9	-40.7	45.59	54	-8.41	74	-28.41	0-360	101	V
8	* ** 9.41438	49.78	Pk	36.3	-39.8	46.28	54	-7.72	74	-27.72	0-360	101	V
2	7.23094	55.81	Pk	35.4	-42.5	48.71	-	-	-	-	0-360	101	H
6	7.2375	52.09	Pk	35.4	-42.4	45.09	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL, 2437 MHz RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.87031	53.45	Pk	34	-44.9	42.55	54	-11.45	74	-31.45	0-360	101	H
2	* ** 7.30031	54.3	Pk	35.4	-41.9	47.8	54	-6.2	74	-26.2	0-360	101	H
3	* ** 9.41344	50.74	Pk	36.3	-40	47.04	54	-6.96	74	-26.96	0-360	101	H
4	* ** 4.88438	54.75	Pk	34	-44.8	43.95	54	-10.05	74	-30.05	0-360	101	V
5	* ** 7.30894	57.96	PK2	35.4	-41.7	51.66	-	-	74	-22.34	178	182	V
	* ** 7.30949	43.9	ADV	35.4	-41.7	37.6	54	-16.4	-	-	178	182	V
6	* ** 9.10969	50.3	Pk	35.9	-40.2	46	54	-8	74	-28	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

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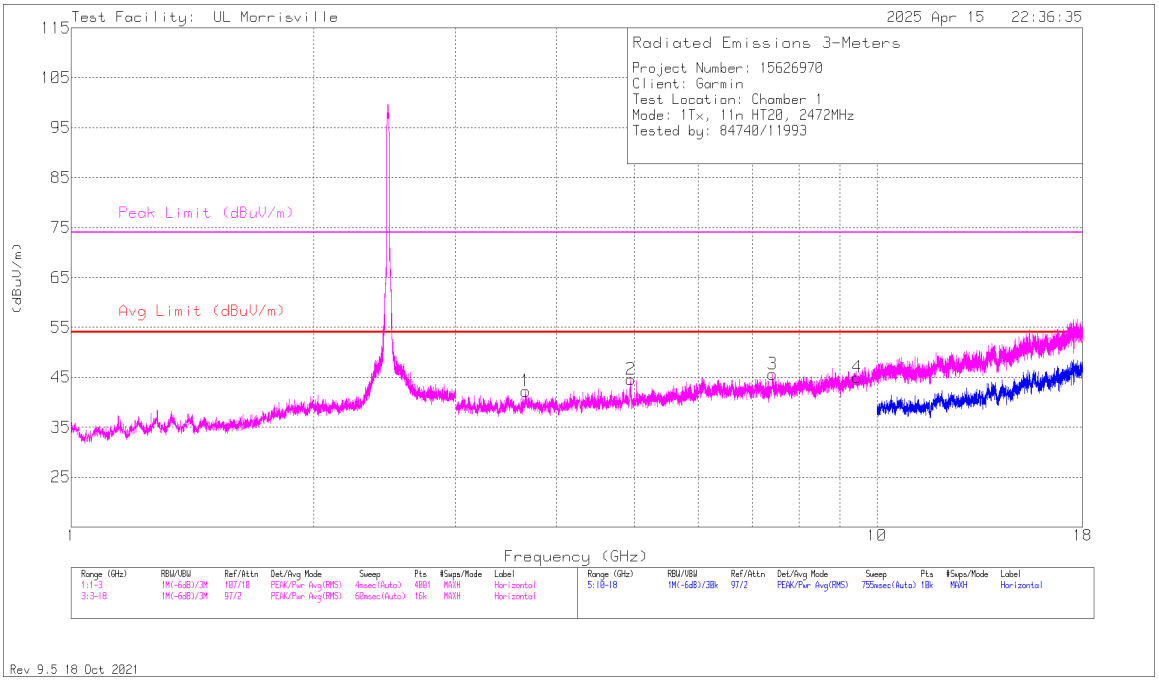
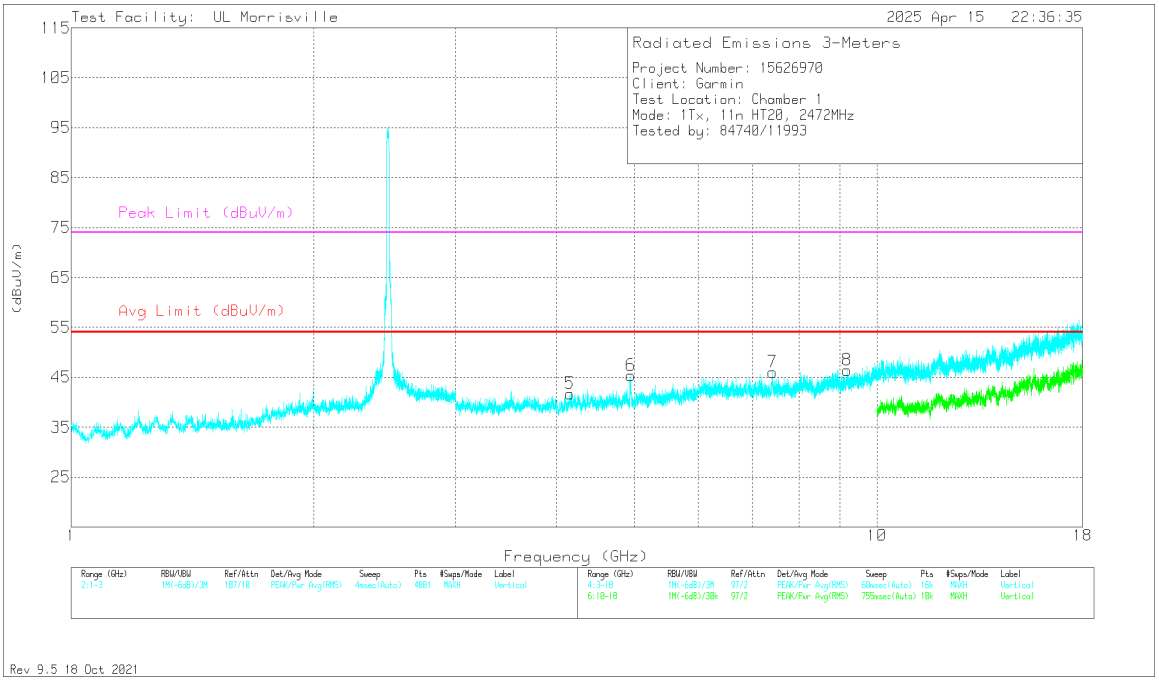
HIGH CHANNEL, 2472 MHz RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

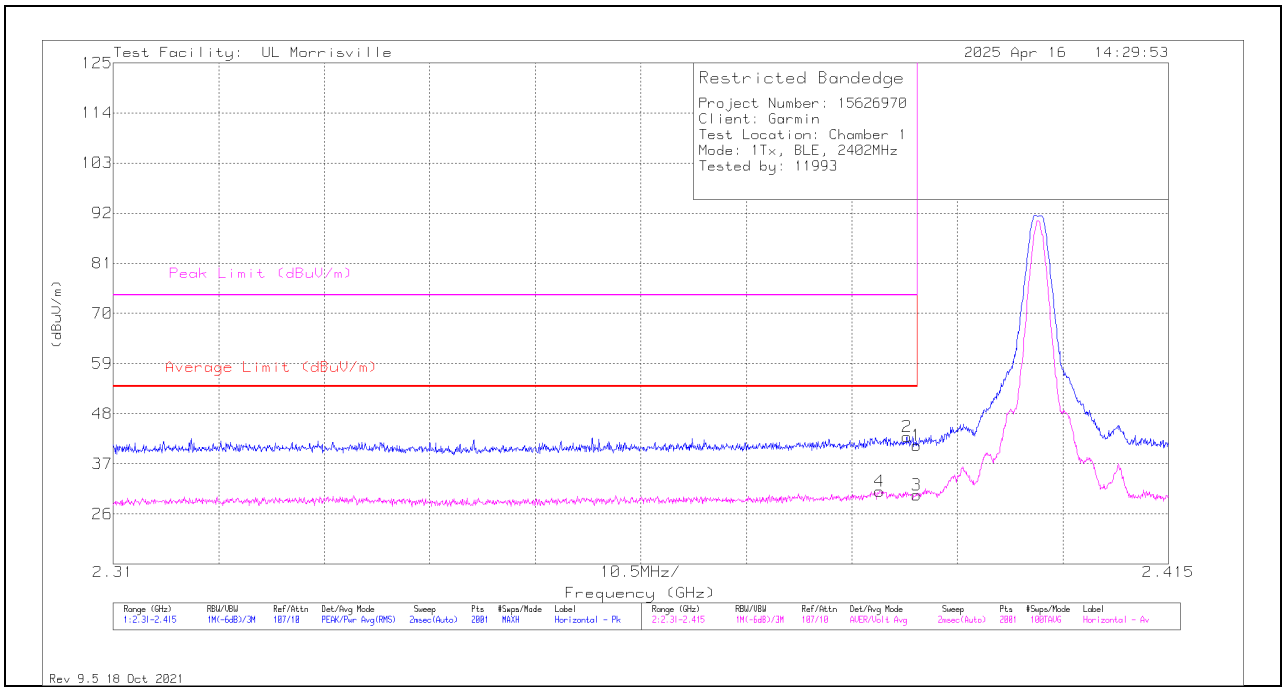
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.66563	52.85	Pk	33.1	-43.7	42.25	54	-11.75	74	-31.75	0-360	200	H
2	* ** 4.94625	54.75	Pk	34.2	-44.4	44.55	54	-9.45	74	-29.45	0-360	101	H
3	* ** 7.42125	51.42	Pk	35.4	-41.2	45.62	54	-8.38	74	-28.38	0-360	101	H
4	* ** 9.45844	49.38	Pk	36.4	-40.8	44.98	54	-9.02	74	-29.02	0-360	101	H
5	* ** 4.15875	53.7	Pk	33.4	-45.4	41.7	54	-12.3	74	-32.3	0-360	200	V
6	* ** 4.94813	55.64	Pk	34.2	-44.5	45.34	54	-8.66	74	-28.66	0-360	200	V
7	* ** 7.42031	51.87	Pk	35.4	-41.2	46.07	54	-7.93	74	-27.93	0-360	101	V
8	* ** 9.18375	50.17	Pk	36	-39.8	46.37	54	-7.63	74	-27.63	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.1.1. BLE (1Mbps)

BANDEDGE (LOW CHANNEL, 2402 MHz)

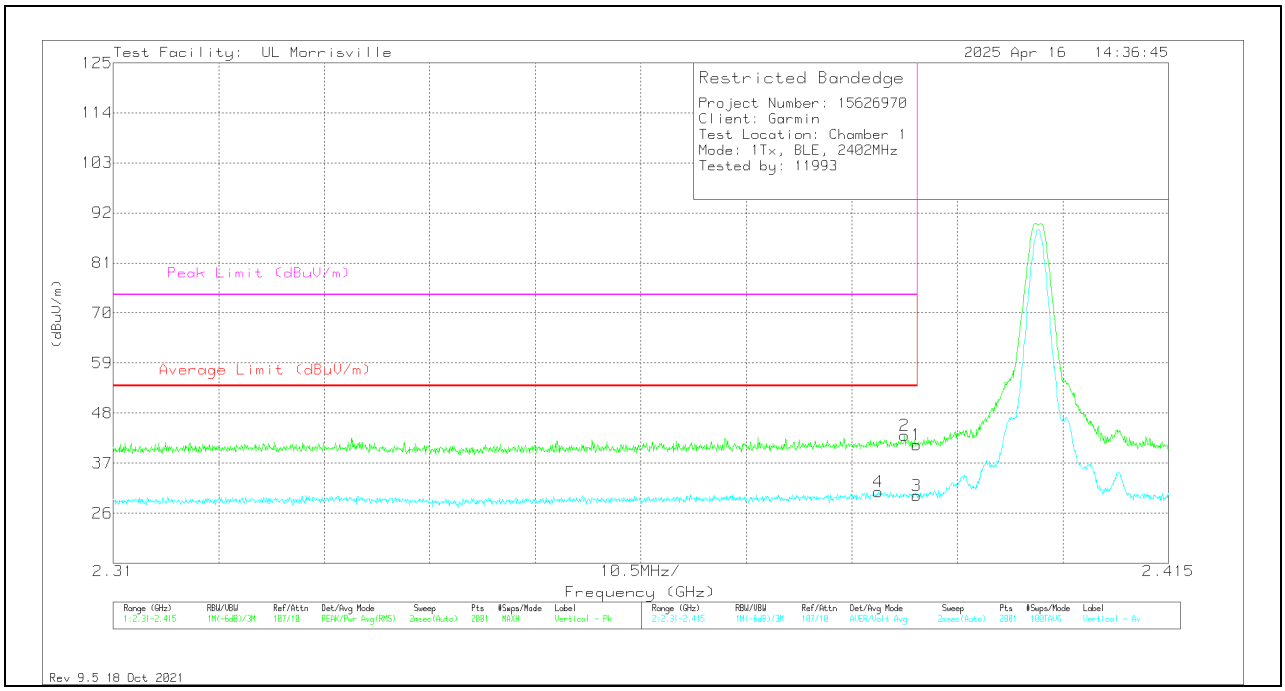
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	33.17	Pk	31.9	-24	41.07	-	-	74	-32.93	282	117	H
2	* ** 2.38901	35.01	Pk	31.9	-24	42.91	-	-	74	-31.09	282	117	H
3	* ** 2.38996	22.28	ADV	31.9	-24	30.18	54	-23.82	-	-	282	117	H
4	* ** 2.38623	22.98	ADV	31.9	-23.9	30.98	54	-23.02	-	-	282	117	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

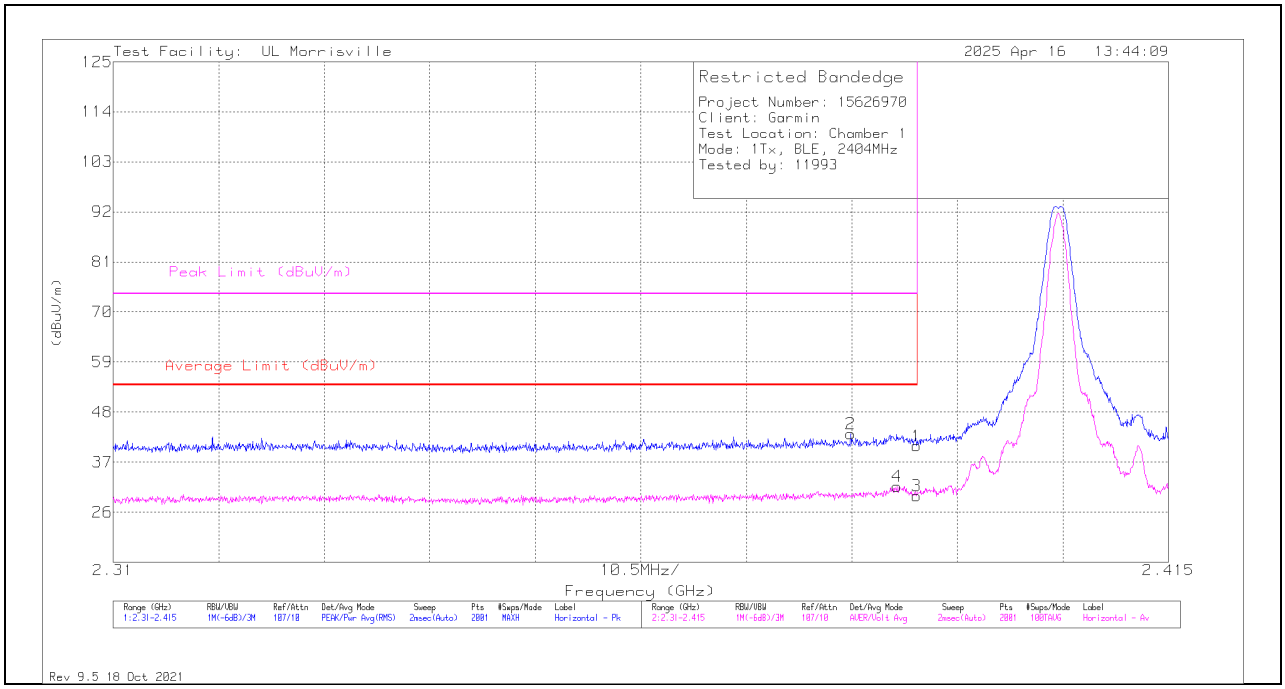


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	33.08	Pk	31.9	-24	40.98	-	-	74	-33.02	159	163	V
2	* ** 2.38875	35.16	Pk	31.9	-24	43.06	-	-	74	-30.94	159	163	V
3	* ** 2.38996	21.95	ADV	31.9	-24	29.85	54	-24.15	-	-	159	163	V
4	* ** 2.38613	22.7	ADV	31.9	-23.9	30.7	54	-23.3	-	-	159	163	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (LOW CHANNEL, 2404 MHz)

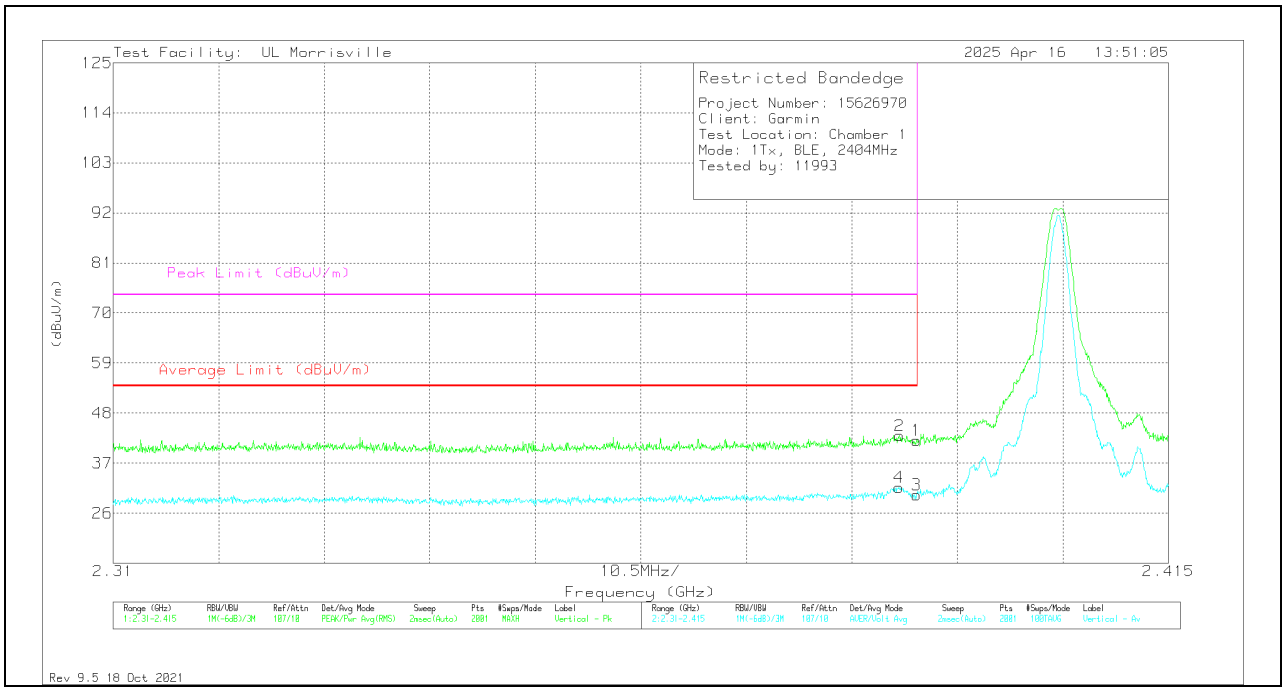
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	32.64	Pk	31.9	-24	40.54	-	-	74	-33.46	34	264	H
2	* ** 2.3834	35.28	Pk	31.9	-24	43.18	-	-	74	-30.82	34	264	H
3	* ** 2.38996	21.73	ADV	31.9	-24	29.63	54	-24.37	-	-	34	264	H
4	* ** 2.38802	23.66	ADV	31.9	-23.9	31.66	54	-22.34	-	-	34	264	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

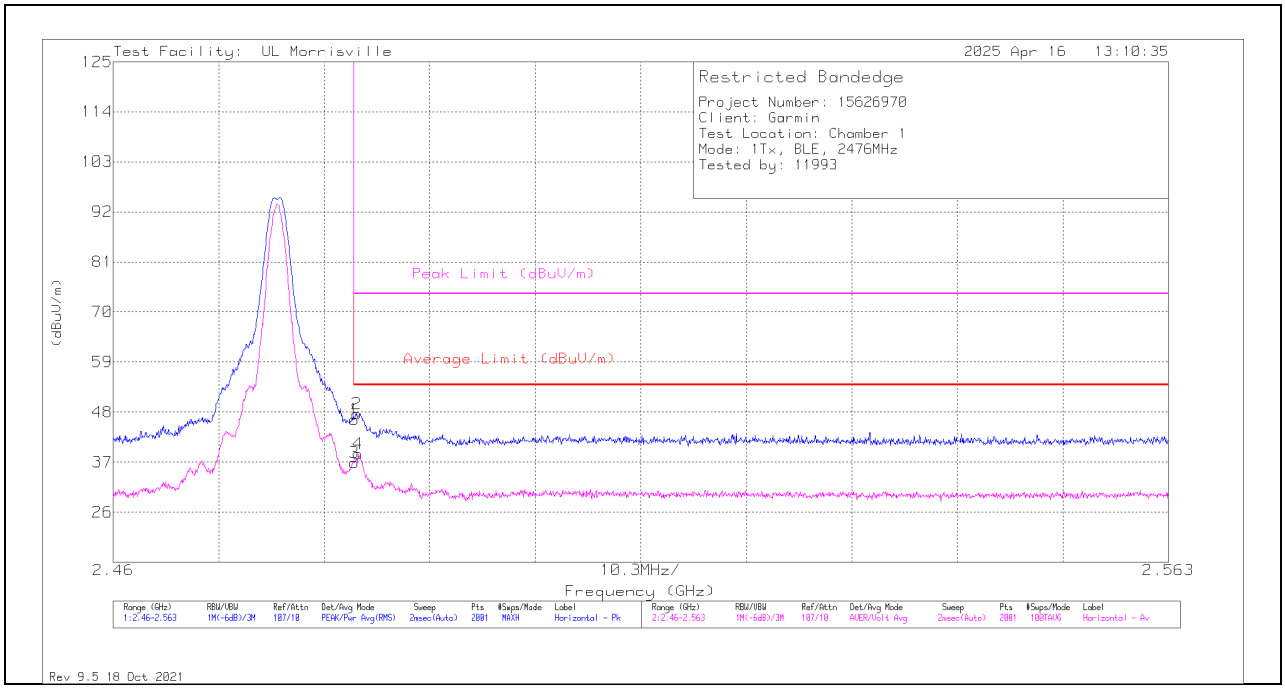


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.1	Pk	31.9	-24	42	-	-	74	-32	167	221	V
2	* ** 2.38823	35.12	Pk	31.9	-24	43.02	-	-	74	-30.98	167	221	V
3	* ** 2.38996	22.11	ADV	31.9	-24	30.01	54	-23.99	-	-	167	221	V
4	* ** 2.38817	23.61	ADV	31.9	-23.9	31.61	54	-22.39	-	-	167	221	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL 2476 MHz)

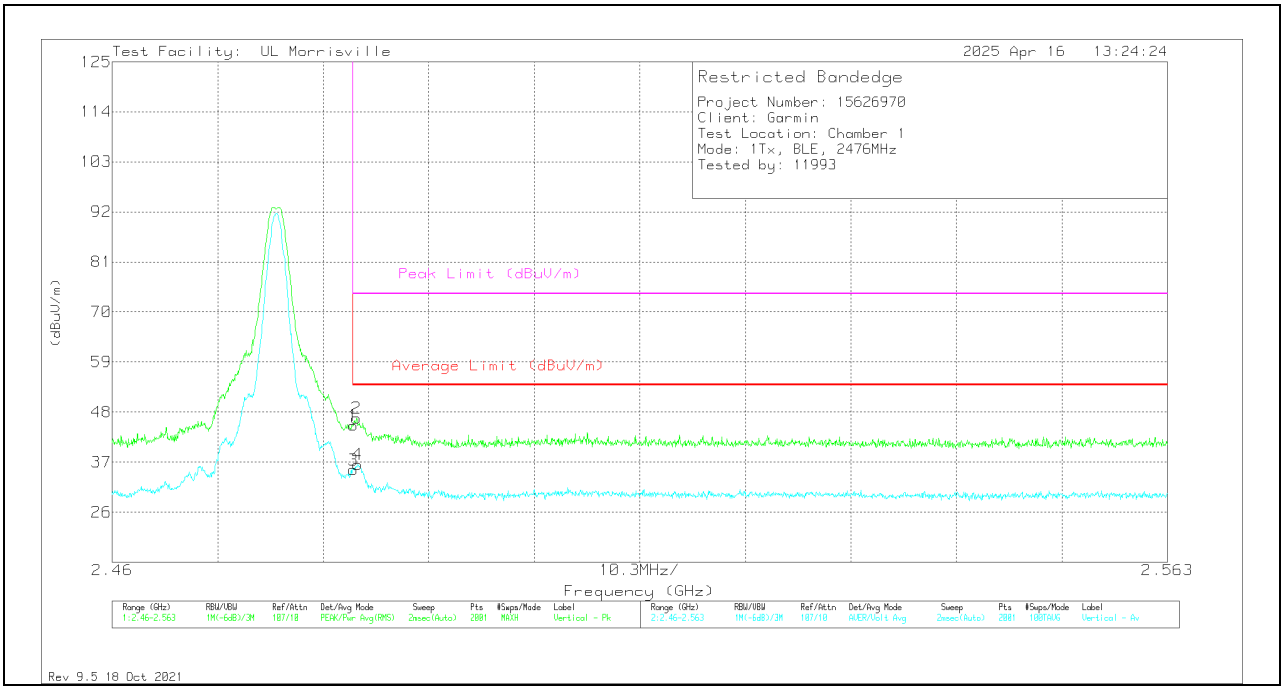
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	37.93	Pk	32.2	-23.7	46.43	-	-	74	-27.57	60	244	H
2	* ** 2.48379	39.18	Pk	32.2	-23.7	47.68	-	-	74	-26.32	60	244	H
3	* ** 2.48354	28.42	ADV	32.2	-23.7	36.92	54	-17.08	-	-	60	244	H
4	* ** 2.4839	30.32	ADV	32.2	-23.7	38.82	54	-15.18	-	-	60	244	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

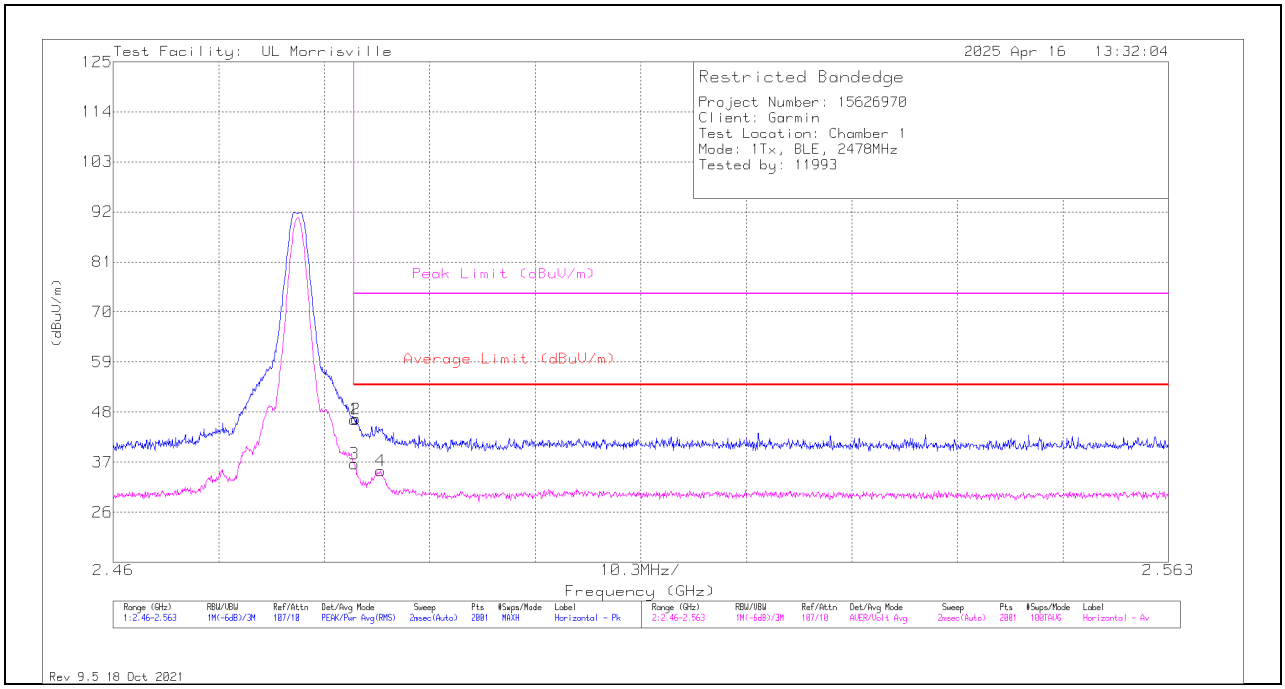


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	36.57	Pk	32.2	-23.7	45.07	-	-	74	-28.93	205	189	V
2	* ** 2.48384	38.21	Pk	32.2	-23.7	46.71	-	-	74	-27.29	205	189	V
3	* ** 2.48354	26.8	ADV	32.2	-23.7	35.3	54	-18.7	-	-	205	189	V
4	* ** 2.48395	28.02	ADV	32.2	-23.7	36.52	54	-17.48	-	-	205	189	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL 2478 MHz)

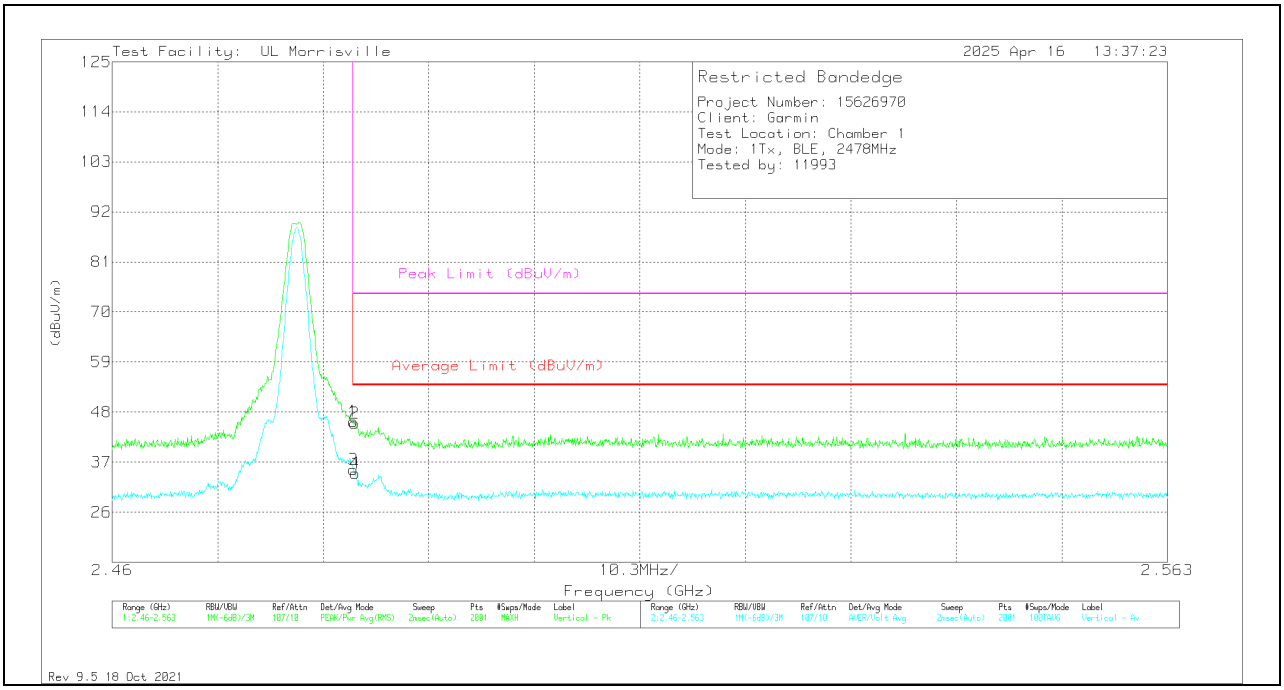
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	37.9	Pk	32.2	-23.7	46.4	-	-	74	-27.6	86	246	H
2	* ** 2.48369	37.96	Pk	32.2	-23.7	46.46	-	-	74	-27.54	86	246	H
3	* ** 2.48354	28.07	ADV	32.2	-23.7	36.57	54	-17.43	-	-	86	246	H
4	* ** 2.48611	26.85	ADV	32.2	-23.9	35.15	54	-18.85	-	-	86	246	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

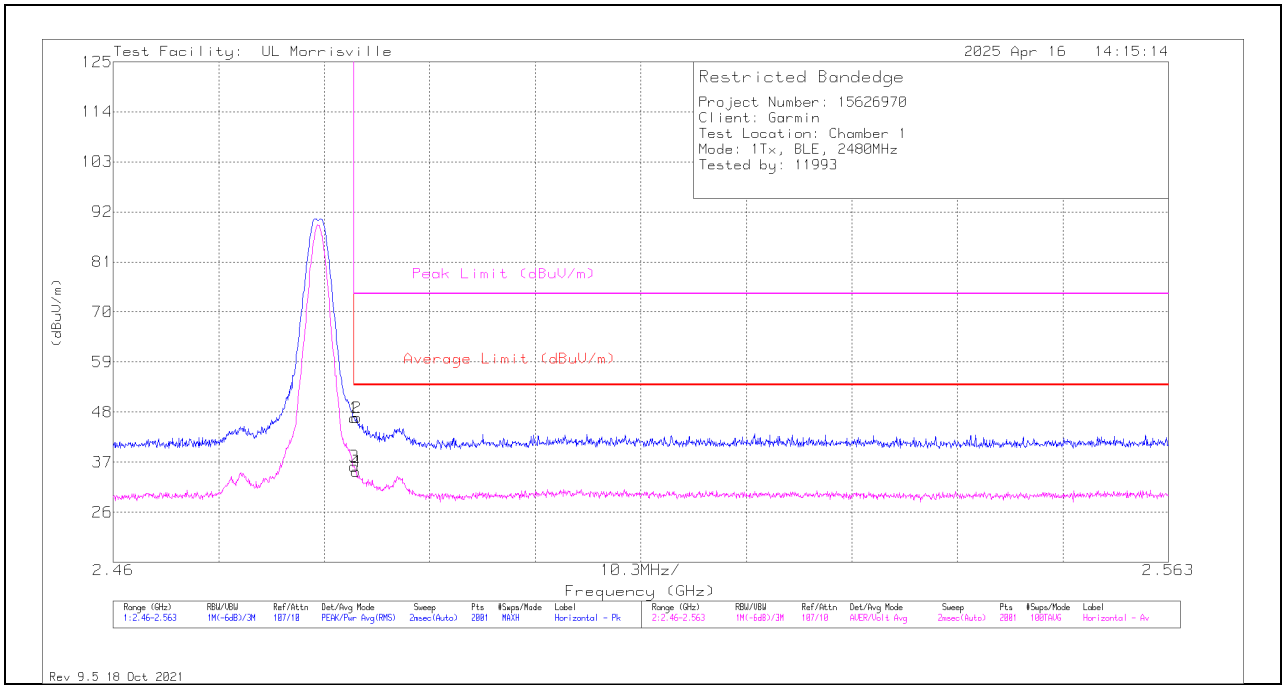


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	37.52	Pk	32.2	-23.7	46.02	-	-	74	-27.98	226	248	V
2	* ** 2.48364	37.1	Pk	32.2	-23.7	45.6	-	-	74	-28.4	226	248	V
3	* ** 2.48354	26.85	ADV	32.2	-23.7	35.35	54	-18.65	-	-	226	248	V
4	* ** 2.48374	26	ADV	32.2	-23.7	34.5	54	-19.5	-	-	226	248	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL 2480 MHz)

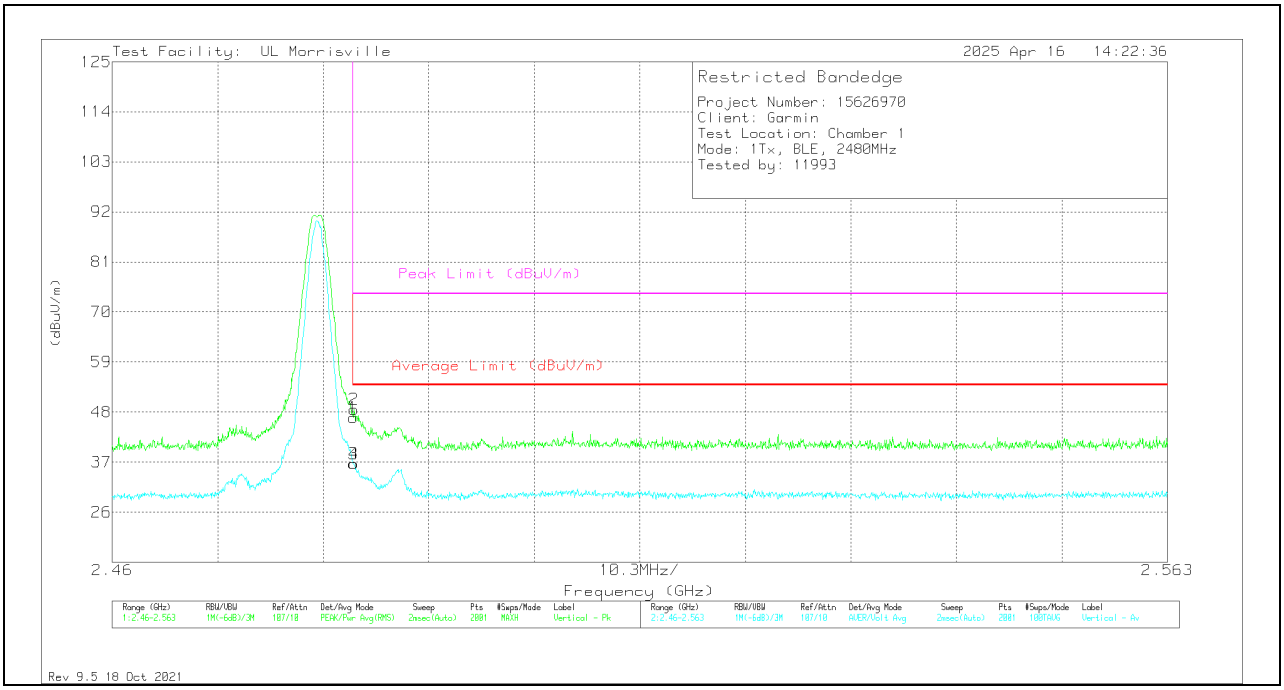
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.22	Pk	32.2	-23.7	46.72	-	-	74	-27.28	210	104	H
2	* ** 2.48379	38.24	Pk	32.2	-23.7	46.74	-	-	74	-27.26	210	104	H
3	* ** 2.48354	27.61	ADV	32.2	-23.7	36.11	54	-17.89	-	-	210	104	H
4	* ** 2.48369	26.41	ADV	32.2	-23.7	34.91	54	-19.09	-	-	210	104	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

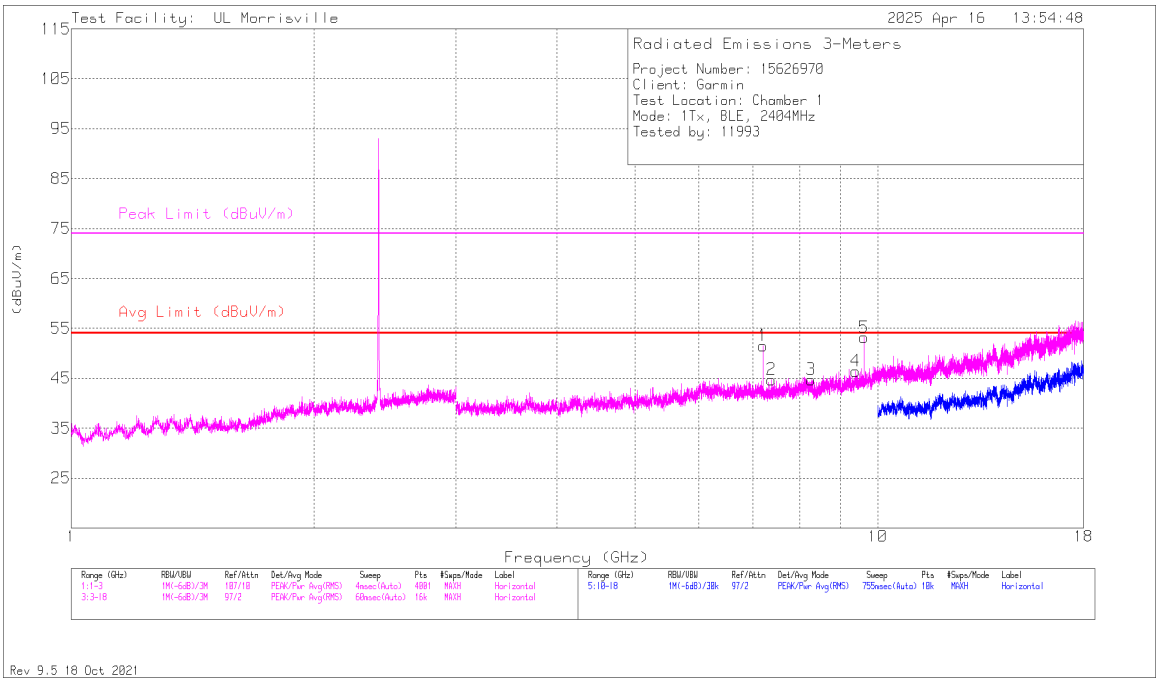


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.3	Pk	32.2	-23.7	46.8	-	-	74	-27.2	8	117	V
2	* ** 2.48359	40.07	Pk	32.2	-23.7	48.57	-	-	74	-25.43	8	117	V
3	* ** 2.48354	28.17	ADV	32.2	-23.7	36.67	54	-17.33	-	-	8	117	V
4	* ** 2.48359	28.17	ADV	32.2	-23.7	36.67	54	-17.33	-	-	8	117	V

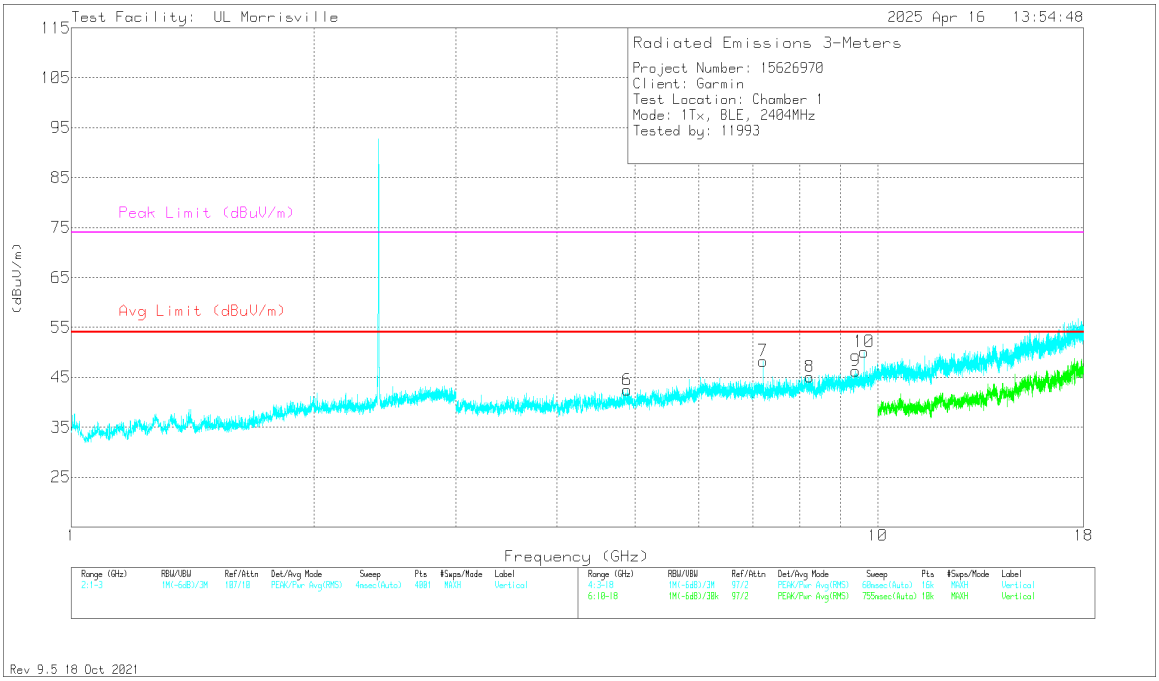
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL 2404 MHz RESULTS



HORIZONTAL



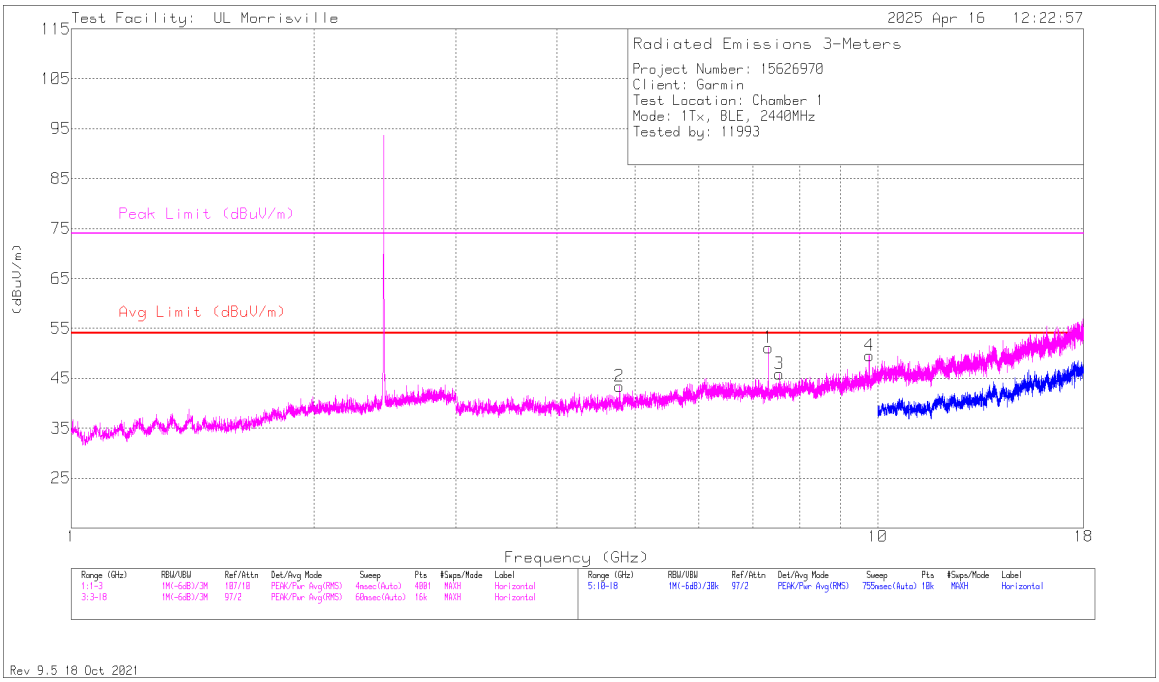
VERTICAL

RADIATED EMISSIONS

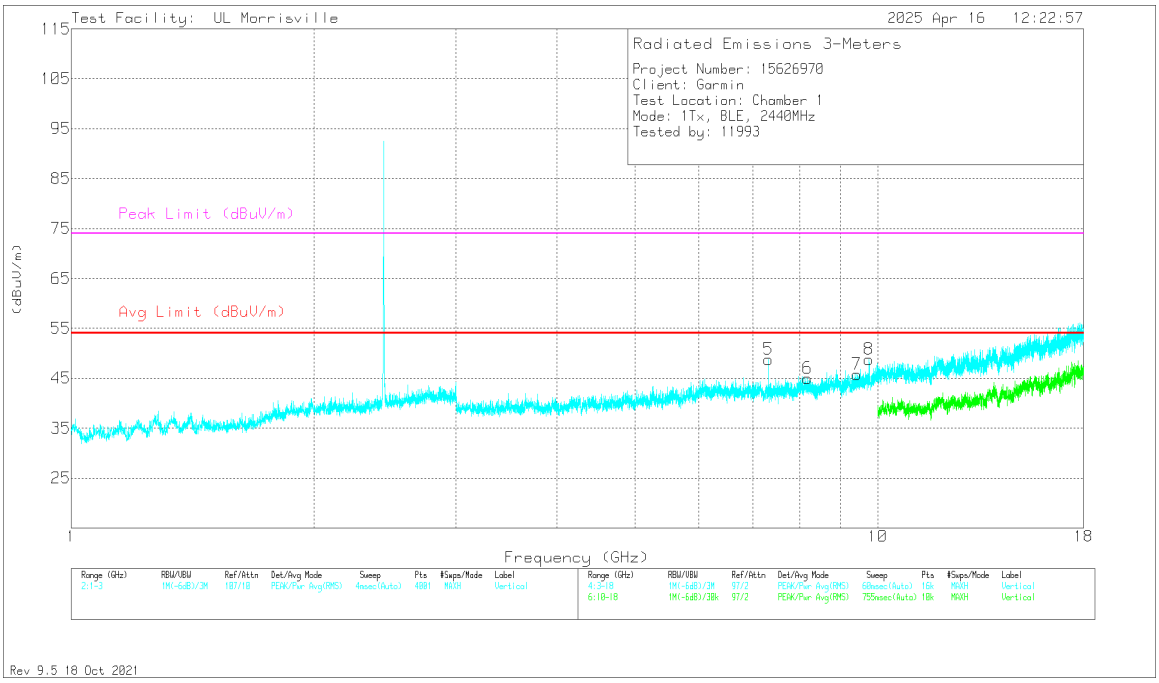
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* ** 7.38656	51.11	Pk	35.4	-41.8	44.71	54	-9.29	74	-29.29	0-360	101	H
3	* ** 8.27344	49.56	Pk	35.9	-40.7	44.76	54	-9.24	74	-29.24	0-360	101	H
4	* ** 9.39188	50.17	Pk	36.3	-40.1	46.37	54	-7.63	74	-27.63	0-360	101	H
6	* ** 4.89188	53.22	Pk	34	-44.8	42.42	54	-11.58	74	-31.58	0-360	101	V
8	* ** 8.235	50.05	Pk	35.9	-40.9	45.05	54	-8.95	74	-28.95	0-360	200	V
9	* ** 9.39375	50.01	Pk	36.3	-40	46.31	54	-7.69	74	-27.69	0-360	200	V
7	7.21125	55.37	Pk	35.4	-42.5	48.27	-	-	-	-	0-360	101	V
1	7.21313	58.52	Pk	35.4	-42.4	51.52	-	-	-	-	0-360	199	H
10	9.615	54.2	Pk	36.7	-40.8	50.1	-	-	-	-	0-360	101	V
5	9.61688	57.25	Pk	36.7	-40.8	53.15	-	-	-	-	0-360	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL 2440 MHz RESULTS



HORIZONTAL



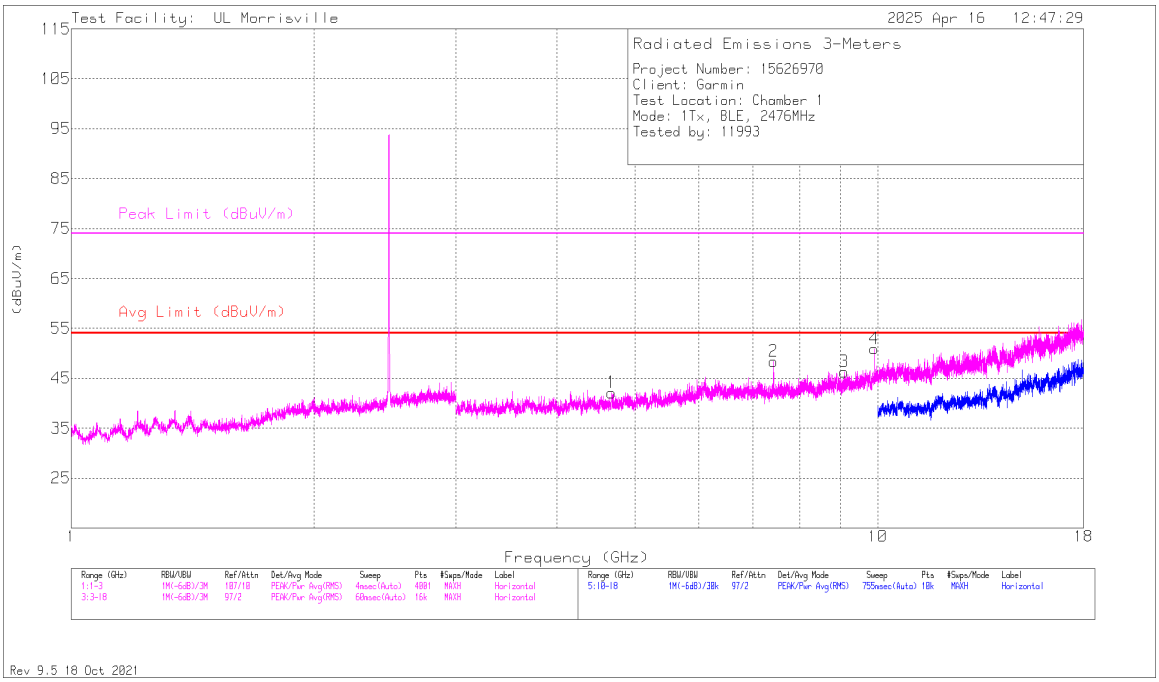
VERTICAL

RADIATED EMISSIONS

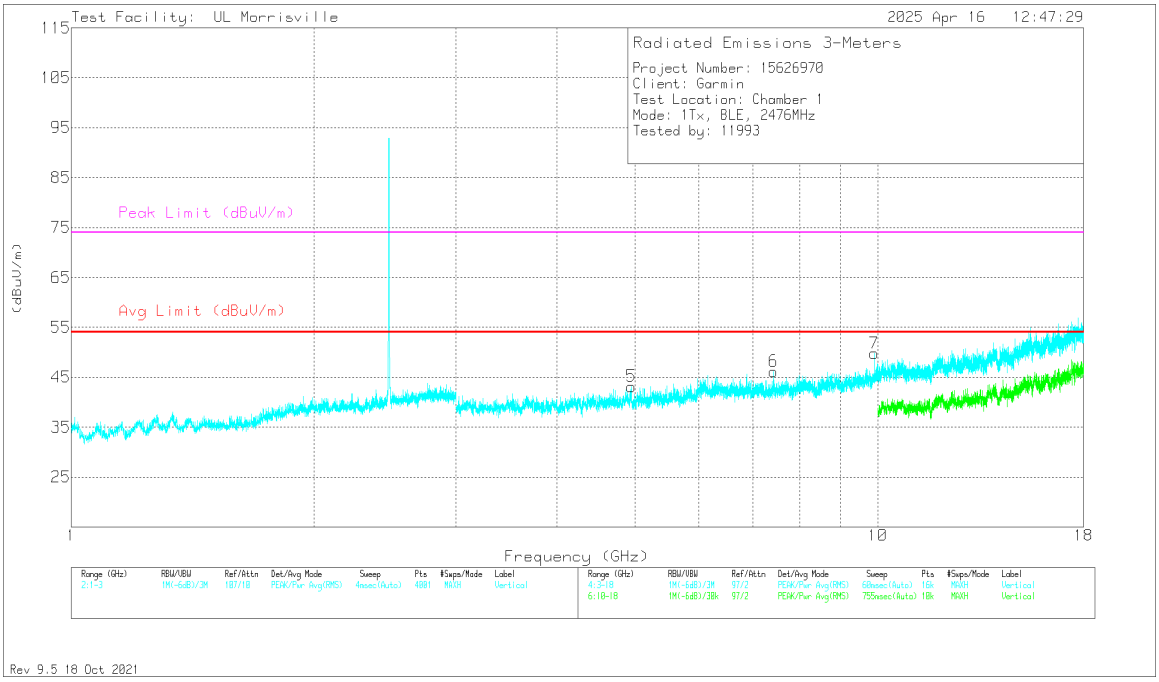
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 7.3208	59.65	PK2	35.4	-41.8	53.25	-	-	74	-20.75	46	203	H
	* ** 7.3208	52.22	ADV	35.4	-41.8	45.82	54	-8.18	-	-	46	203	H
2	* ** 4.78688	54.62	Pk	33.8	-45	43.42	54	-10.58	74	-30.58	0-360	199	H
3	* ** 7.55344	51.83	Pk	35.5	-41.4	45.93	54	-8.07	74	-28.07	0-360	199	H
5	* ** 7.32082	58.93	PK2	35.4	-41.8	52.53	-	-	74	-21.47	172	203	V
	* ** 7.32081	51.64	ADV	35.4	-41.8	45.24	54	-8.76	-	-	172	203	V
6	* ** 8.17969	50.09	Pk	35.9	-41	44.99	54	-9.01	74	-29.01	0-360	200	V
7	* ** 9.41625	49.05	Pk	36.3	-39.6	45.75	54	-8.25	74	-28.25	0-360	200	V
8	9.75938	51.49	Pk	37.1	-39.8	48.79	-	-	-	-	0-360	200	V
4	9.76125	52.18	Pk	37.1	-39.7	49.58	-	-	-	-	0-360	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

HIGH CHANNEL 2476 MHz RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

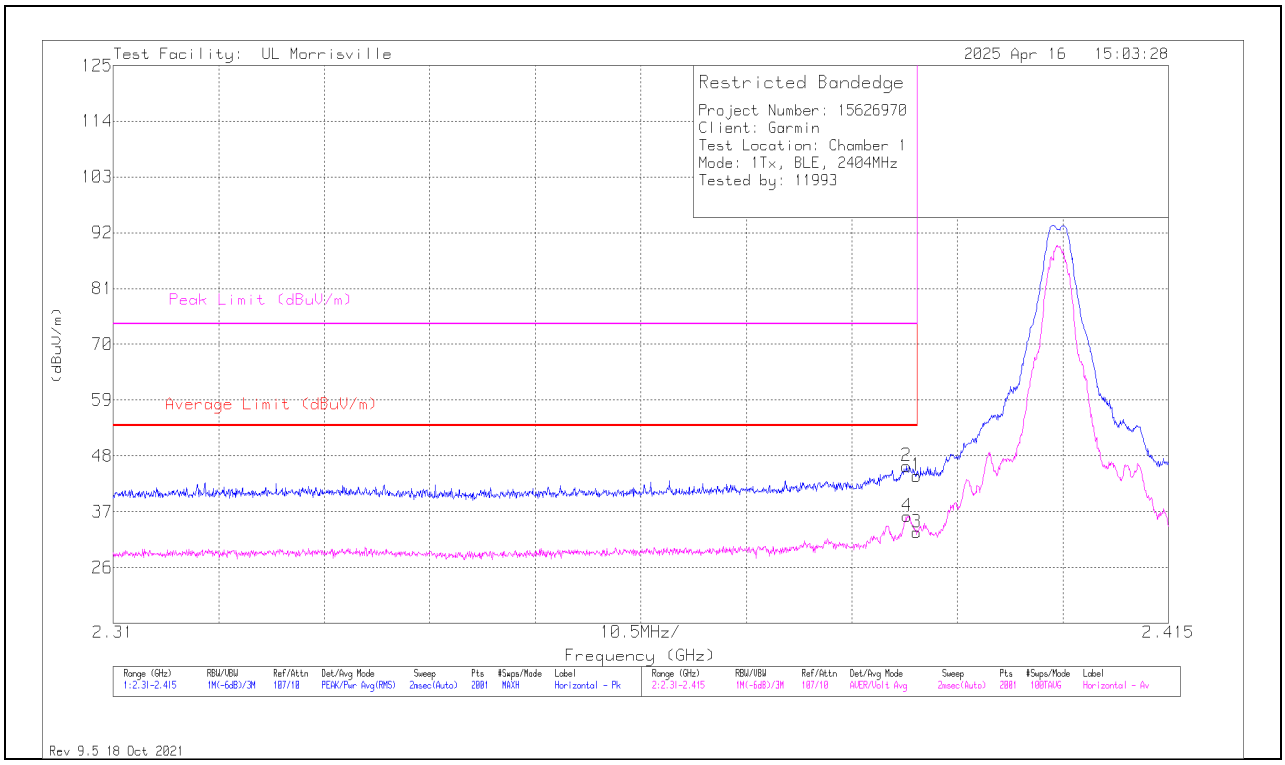
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.67813	53.4	Pk	33.8	-45.1	42.1	54	-11.9	74	-31.9	0-360	200	H
2	* ** 7.42879	56.09	PK2	35.4	-41.1	50.39	-	-	74	-23.61	43	208	H
	* ** 7.42729	46.78	ADV	35.4	-41.2	40.98	54	-13.02	-	-	43	208	H
3	* ** 9.09375	50.65	Pk	35.9	-40.3	46.25	54	-7.75	74	-27.75	0-360	200	H
5	* ** 4.95188	53.67	Pk	34.2	-44.7	43.17	54	-10.83	74	-30.83	0-360	101	V
6	* ** 7.42875	51.87	Pk	35.4	-41.1	46.17	54	-7.83	74	-27.83	0-360	200	V
4	9.90281	53.72	Pk	37.4	-40.2	50.92	-	-	-	-	0-360	101	H
7	9.90281	52.56	Pk	37.4	-40.2	49.76	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

10.1.2. BLE (2Mbps)

BANDEDGE (2404 MHz LOW CHANNEL)

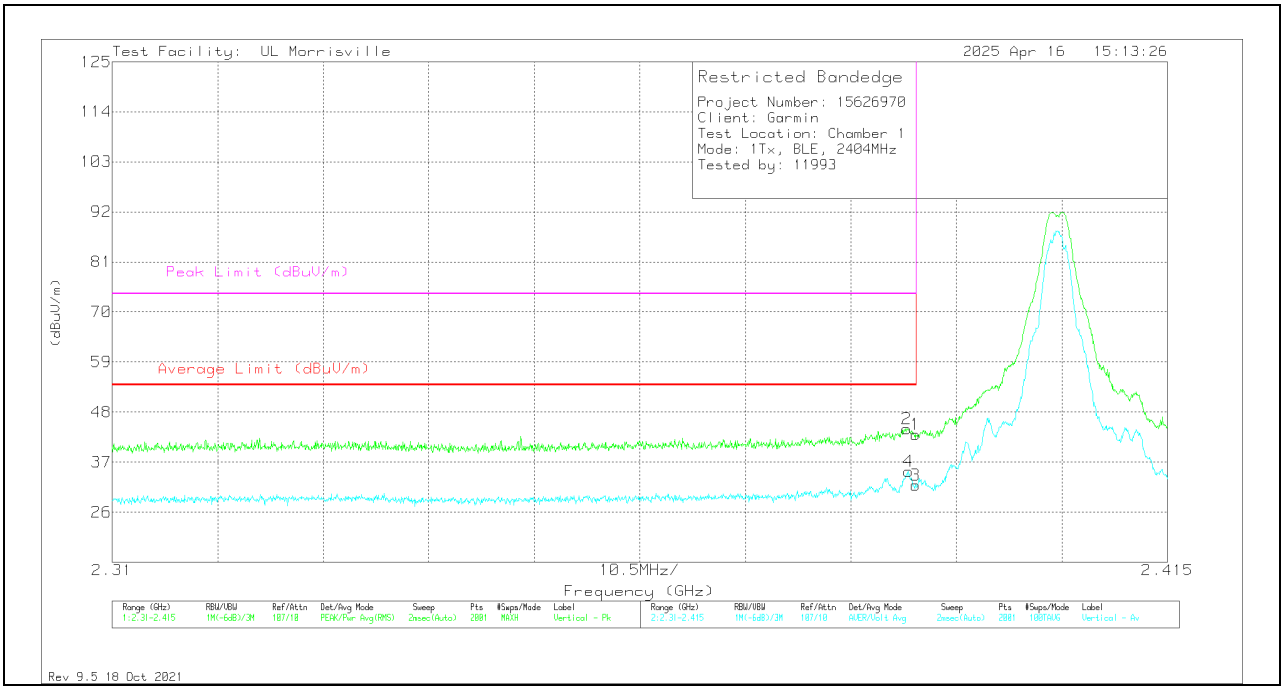
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	36.19	Pk	31.9	-24	44.09	-	-	74	-29.91	282	117	H
2	* ** 2.38891	38.04	Pk	31.9	-24	45.94	-	-	74	-28.06	282	117	H
3	* ** 2.38996	25.05	ADV	31.9	-24	32.95	54	-21.05	-	-	282	117	H
4	* ** 2.38901	28.22	ADV	31.9	-24	36.12	54	-17.88	-	-	282	117	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

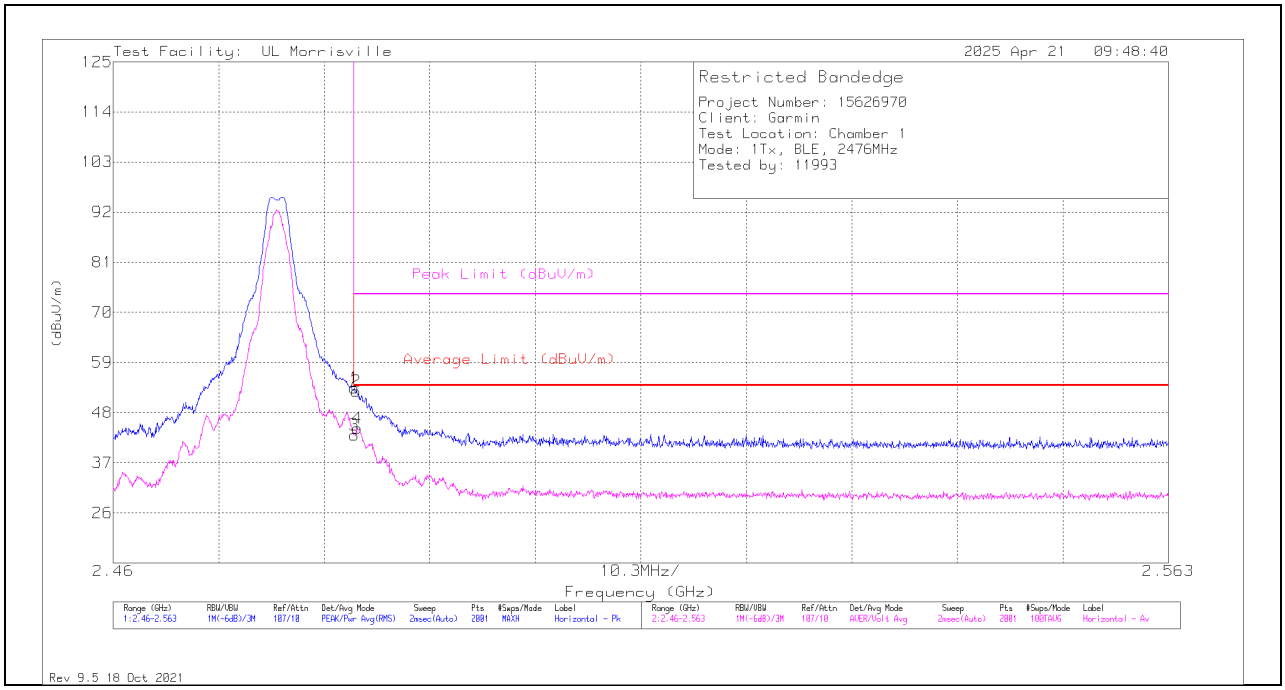


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	35.16	Pk	31.9	-24	43.06	-	-	74	-30.94	159	164	V
2	* ** 2.38907	36.45	Pk	31.9	-24	44.35	-	-	74	-29.65	159	164	V
3	* ** 2.38996	24.07	ADV	31.9	-24	31.97	54	-22.03	-	-	159	164	V
4	* ** 2.38922	27.1	ADV	31.9	-24	35	54	-19	-	-	159	164	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (2476 MHz HIGH CHANNEL)

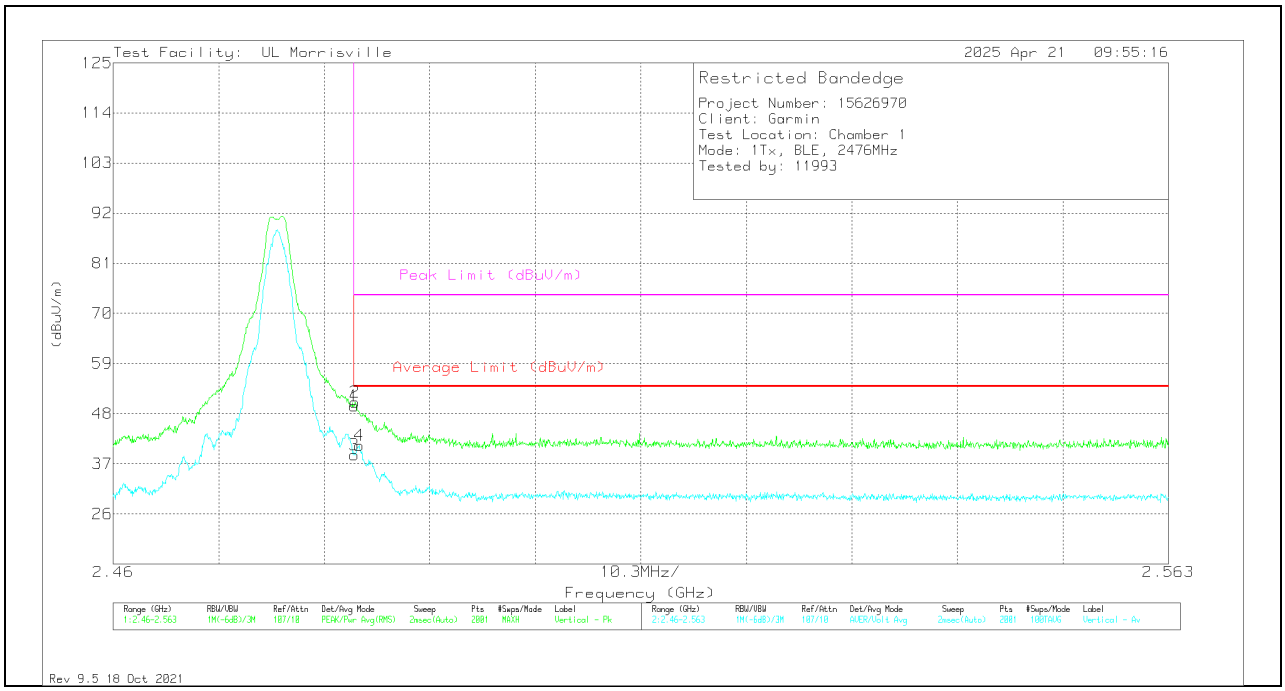
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	44.87	Pk	32.2	-23.7	53.37	-	-	74	-20.63	80	128	H
2	* ** 2.48374	44.19	Pk	32.2	-23.7	52.69	-	-	74	-21.31	80	128	H
3	* ** 2.48354	34.63	ADV	32.2	-23.7	43.13	54	-10.87	-	-	80	128	H
4	* ** 2.48384	36.11	ADV	32.2	-23.7	44.61	54	-9.39	-	-	80	128	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

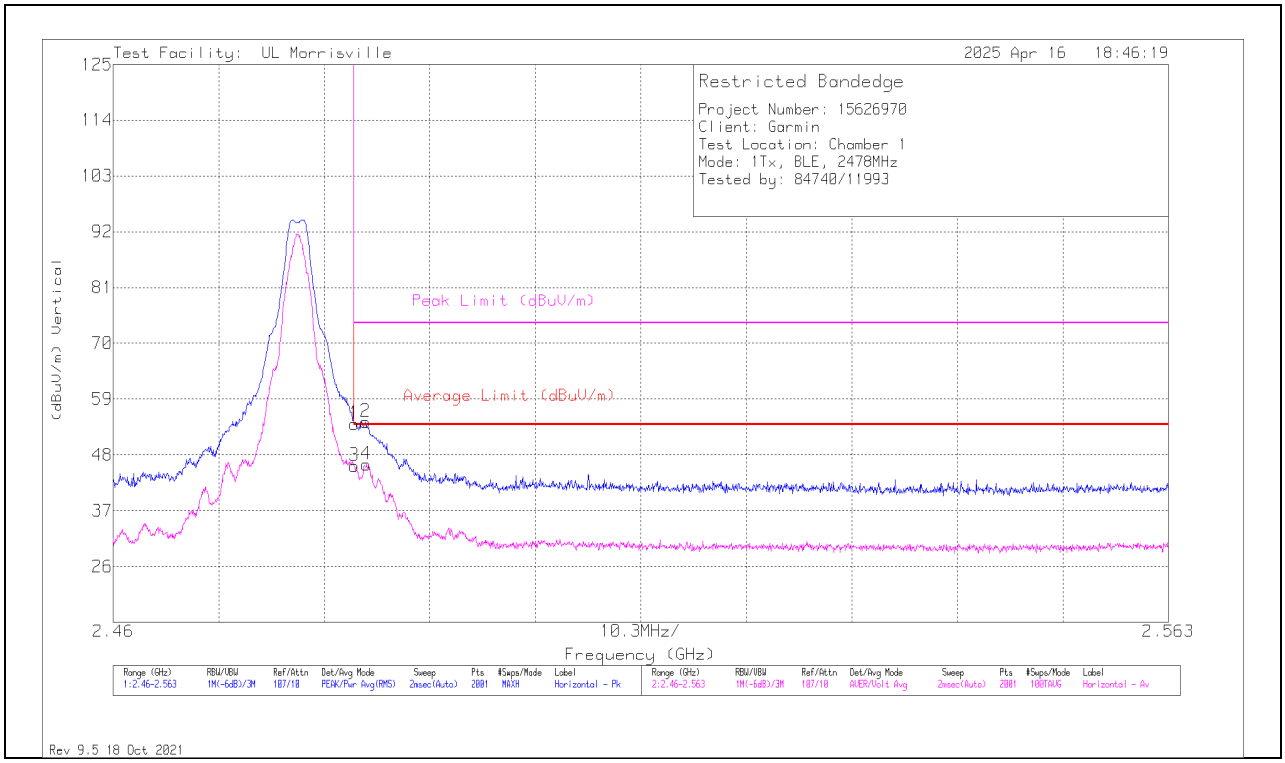


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	41.17	Pk	32.2	-23.7	49.67	-	-	74	-24.33	44	128	V
2	* ** 2.48359	41.99	Pk	32.2	-23.7	50.49	-	-	74	-23.51	44	128	V
3	* ** 2.48354	30.48	ADV	32.2	-23.7	38.98	54	-15.02	-	-	44	128	V
4	* ** 2.484	32.59	ADV	32.2	-23.8	40.99	54	-13.01	-	-	44	128	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (2478 MHz HIGH CHANNEL)

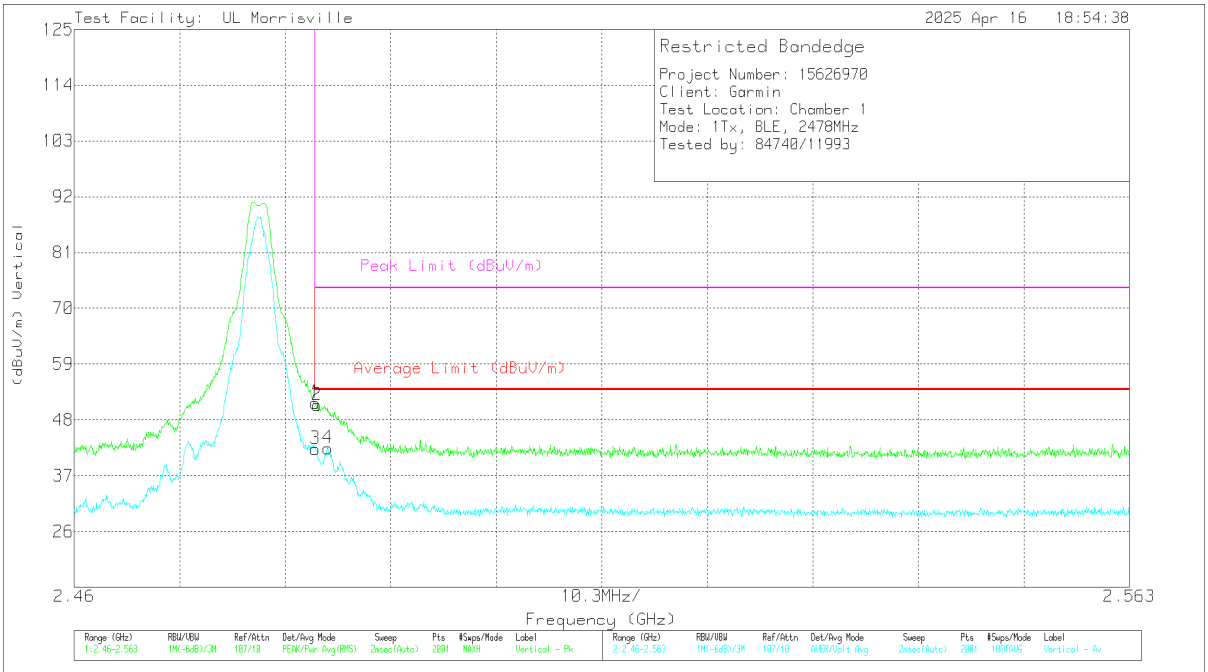
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	45.64	Pk	32.2	-23.7	54.14	-	-	74	-19.86	258	111	H
2	* ** 2.48462	46.16	Pk	32.2	-23.8	54.56	-	-	74	-19.44	258	111	H
3	* ** 2.48354	37.36	ADV	32.2	-23.7	45.86	54	-8.14	-	-	258	111	H
4	* ** 2.48472	37.73	ADV	32.2	-23.8	46.13	54	-7.87	-	-	258	111	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

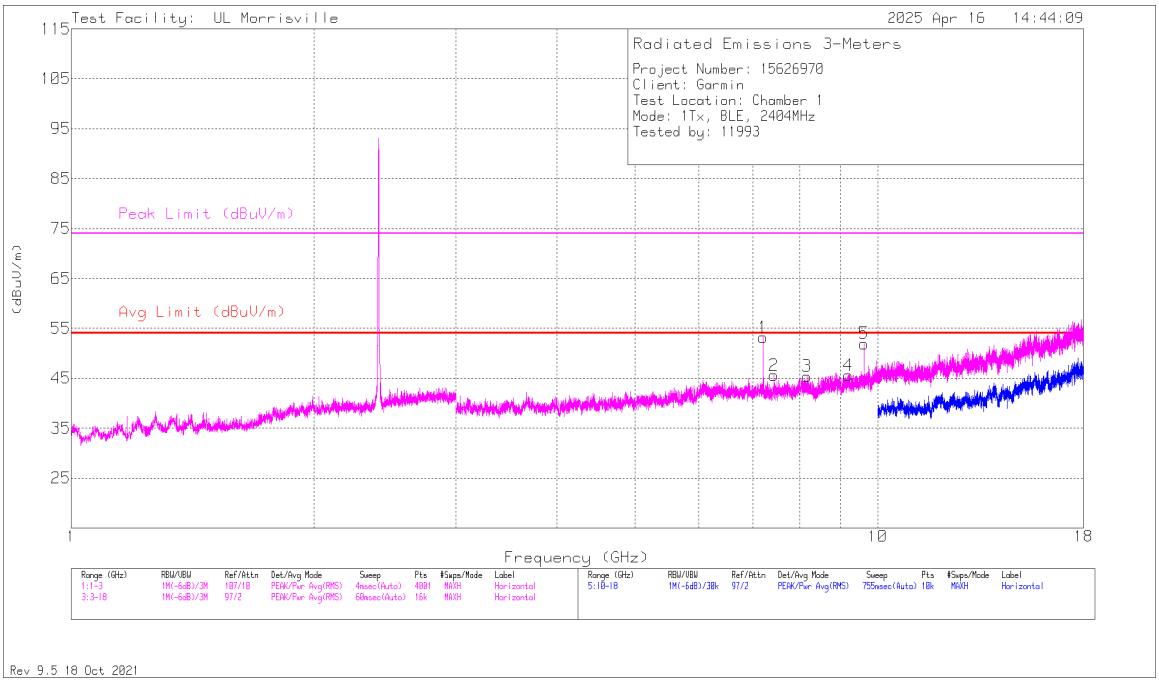


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	42.85	Pk	32.2	-23.7	51.35	-	-	74	-22.65	306	329	V
2	* ** 2.48369	42.37	Pk	32.2	-23.7	50.87	-	-	74	-23.13	306	329	V
3	* ** 2.48354	33.74	ADV	32.2	-23.7	42.24	54	-11.76	-	-	306	329	V
4	* ** 2.48477	34.05	ADV	32.2	-23.8	42.45	54	-11.55	-	-	306	329	V

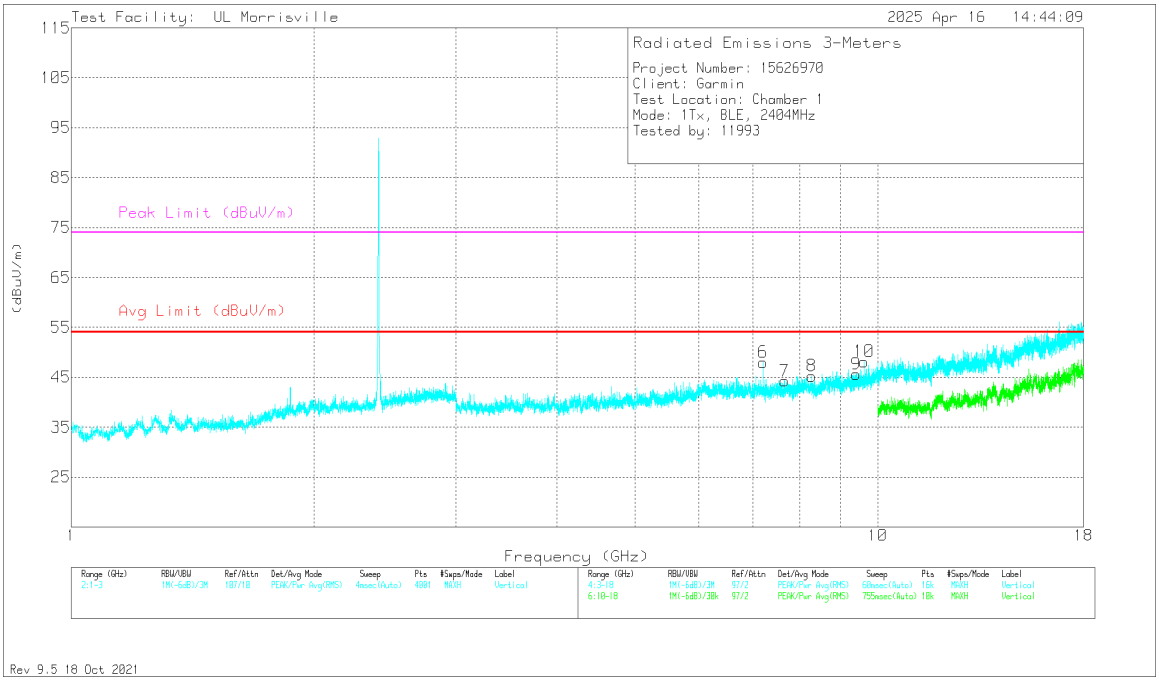
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL 2404 MHz RESULTS



HORIZONTAL



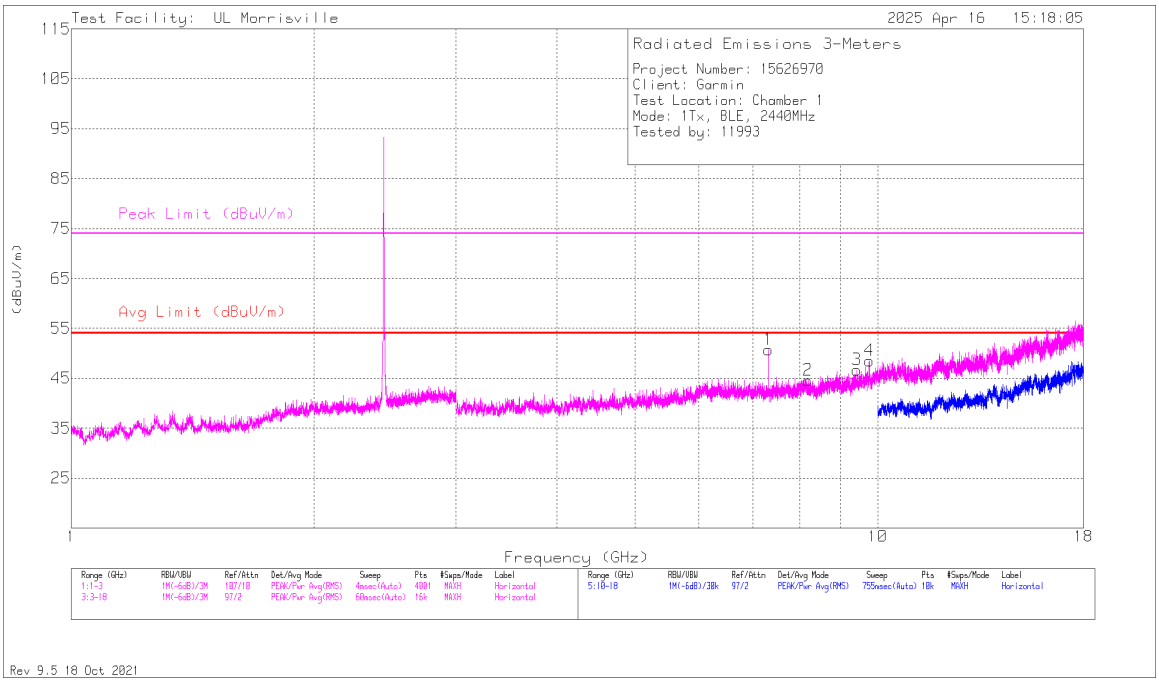
VERTICAL

RADIATED EMISSIONS

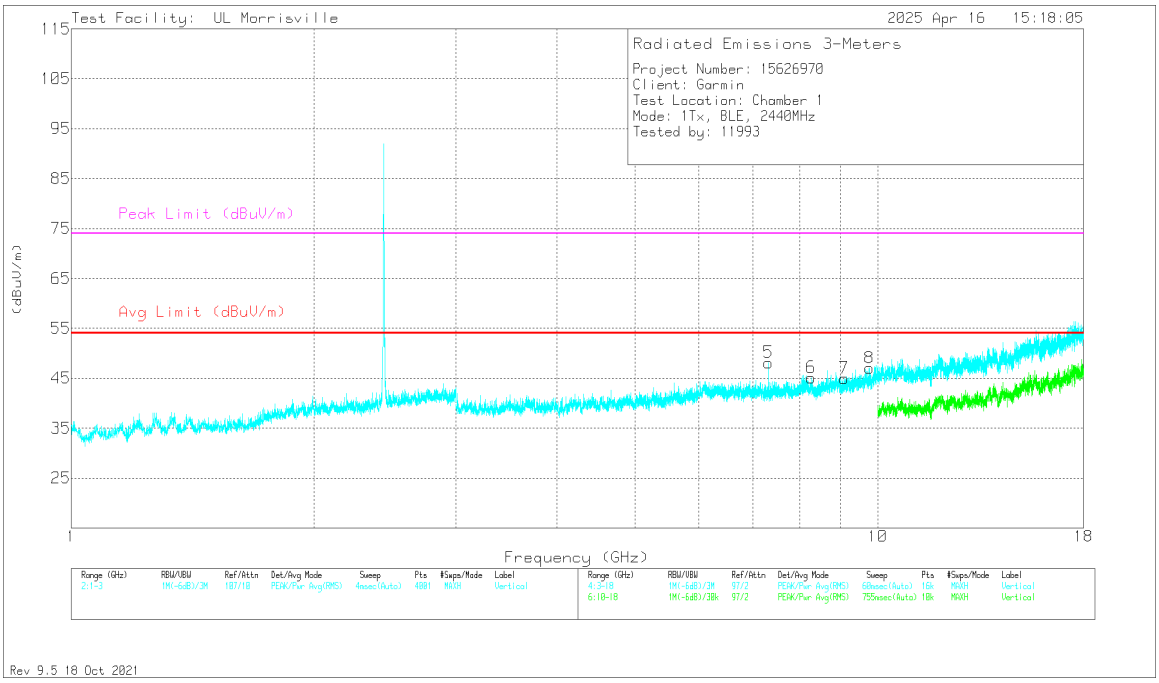
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* ** 7.44094	51.26	Pk	35.4	-41.1	45.56	54	-8.44	74	-28.44	0-360	101	H
3	* ** 8.17781	50.47	Pk	35.9	-41	45.37	54	-8.63	74	-28.63	0-360	101	H
4	* ** 9.19406	49.16	Pk	36	-39.6	45.56	54	-8.44	74	-28.44	0-360	199	H
7	* ** 7.67063	50.05	Pk	35.6	-41.4	44.25	54	-9.75	74	-29.75	0-360	101	V
8	* ** 8.27906	50.24	Pk	35.9	-40.9	45.24	54	-8.76	74	-28.76	0-360	101	V
9	* ** 9.40313	50.07	Pk	36.3	-40.8	45.57	54	-8.43	74	-28.43	0-360	200	V
1	7.21031	60.25	Pk	35.4	-42.5	53.15	-	-	-	-	0-360	199	H
6	7.21313	55.03	Pk	35.4	-42.4	48.03	-	-	-	-	0-360	101	V
5	9.61406	55.99	Pk	36.7	-40.8	51.89	-	-	-	-	0-360	101	H
10	9.61406	52.23	Pk	36.7	-40.8	48.13	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL 2440 MHz RESULTS



HORIZONTAL



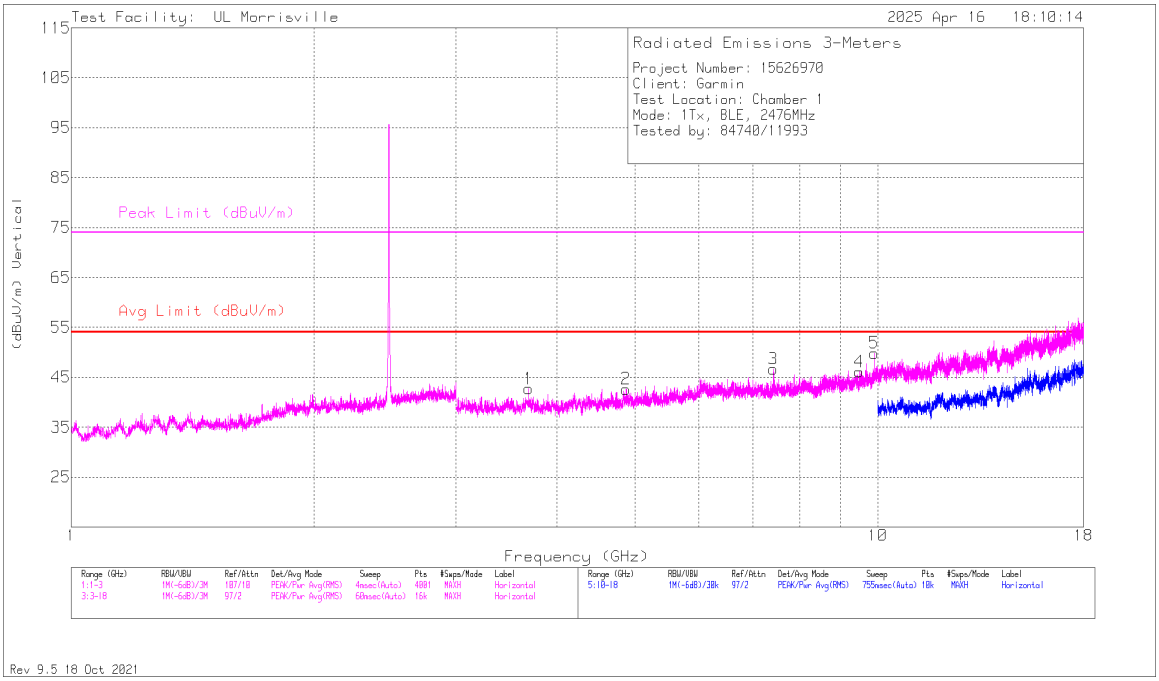
VERTICAL

RADIATED EMISSIONS

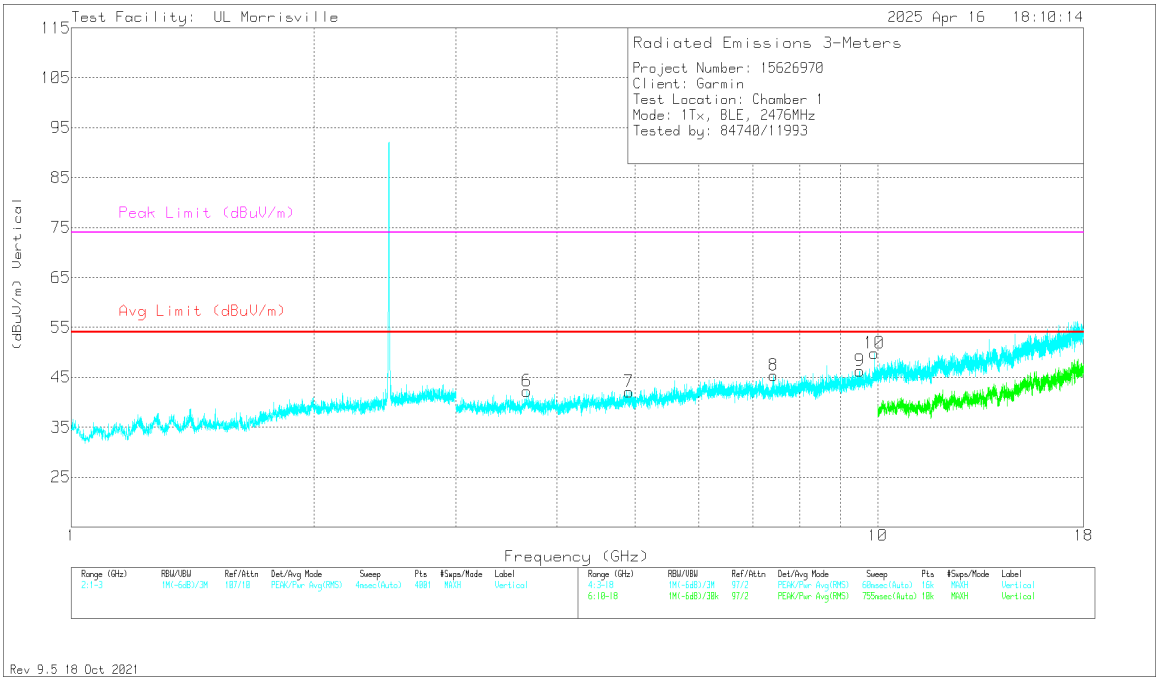
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 7.31844	59.23	PK2	35.4	-41.6	53.03	-	-	74	-20.97	40	201	H
	* ** 7.3182	50.61	ADV	35.4	-41.6	44.41	54	-9.59	-	-	40	201	H
2	* ** 8.19281	49.36	Pk	35.9	-40.7	44.56	54	-9.44	74	-29.44	0-360	101	H
3	* ** 9.41813	50.13	Pk	36.3	-39.8	46.63	54	-7.37	74	-27.37	0-360	199	H
5	* ** 7.32144	57.2	PK2	35.4	-41.8	50.8	-	-	74	-23.2	160	203	V
	* ** 7.32173	47.8	ADV	35.4	-41.8	41.4	54	-12.6	-	-	160	203	V
6	* ** 8.26594	49.69	Pk	35.9	-40.5	45.09	54	-8.91	74	-28.91	0-360	200	V
7	* ** 9.09563	49.23	Pk	35.9	-40.2	44.93	54	-9.07	74	-29.07	0-360	200	V
4	9.76219	51.13	Pk	37.1	-39.7	48.53	-	-	-	-	0-360	101	H
8	9.76313	49.51	Pk	37.1	-39.6	47.01	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

HIGH CHANNEL 2476 MHz RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.69188	54.08	Pk	33.2	-44.6	42.68	54	-11.32	74	-31.32	0-360	200	H
2	* ** 4.87125	53.56	Pk	34	-44.9	42.66	54	-11.34	74	-31.34	0-360	101	H
3	* ** 7.42688	52.41	Pk	35.4	-41.2	46.61	54	-7.39	74	-27.39	0-360	101	H
4	* ** 9.48188	50.18	Pk	36.4	-40.5	46.08	54	-7.92	74	-27.92	0-360	101	H
6	* ** 3.67406	53.2	Pk	33.2	-44.2	42.2	54	-11.8	74	-31.8	0-360	200	V
7	* ** 4.91719	53.15	Pk	34.1	-45.2	42.05	54	-11.95	74	-31.95	0-360	101	V
8	* ** 7.42875	51.03	Pk	35.4	-41.1	45.33	54	-8.67	74	-28.67	0-360	200	V
9	* ** 9.49969	50.23	Pk	36.4	-40.4	46.23	54	-7.77	74	-27.77	0-360	101	V
10	9.90188	52.75	Pk	37.4	-40.3	49.85	-	-	-	-	0-360	200	V
5	9.90563	52.43	Pk	37.4	-40	49.83	-	-	-	-	0-360	200	H

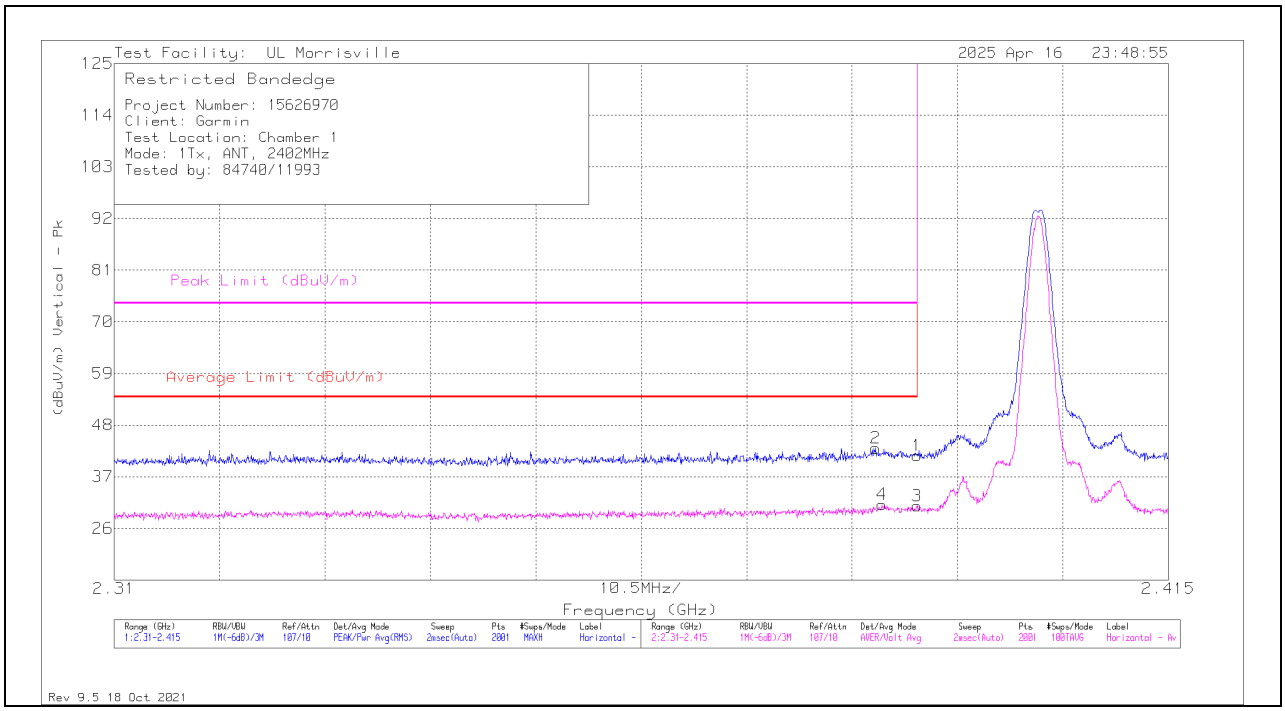
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

10.1.1. ANT/ANT+ (60 kbps)

BANDEDGE (LOW CHANNEL, 2402 MHz)

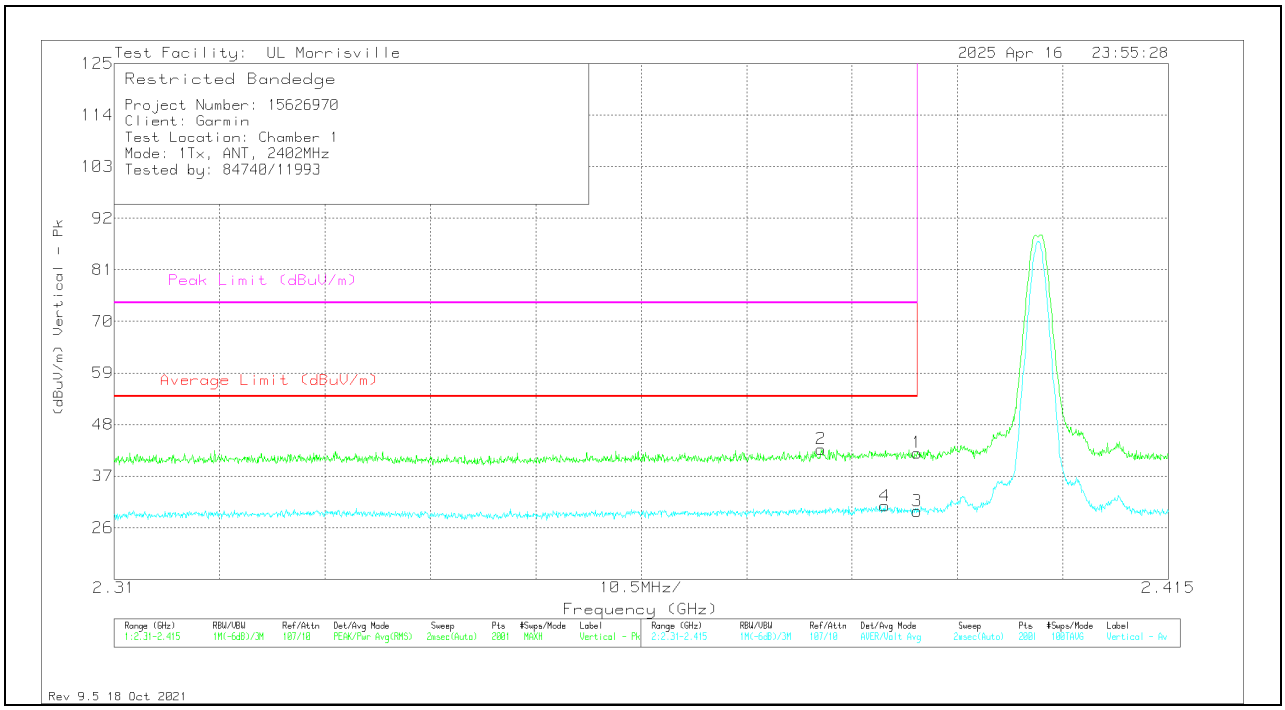
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	33.59	Pk	31.9	-24	41.49	-	-	74	-32.51	247	110	H
2	* ** 2.38586	35.07	Pk	31.9	-23.9	43.07	-	-	74	-30.93	247	110	H
3	* ** 2.38996	22.87	ADV	31.9	-24	30.77	54	-23.23	-	-	247	110	H
4	* ** 2.38649	23.09	ADV	31.9	-23.9	31.09	54	-22.91	-	-	247	110	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

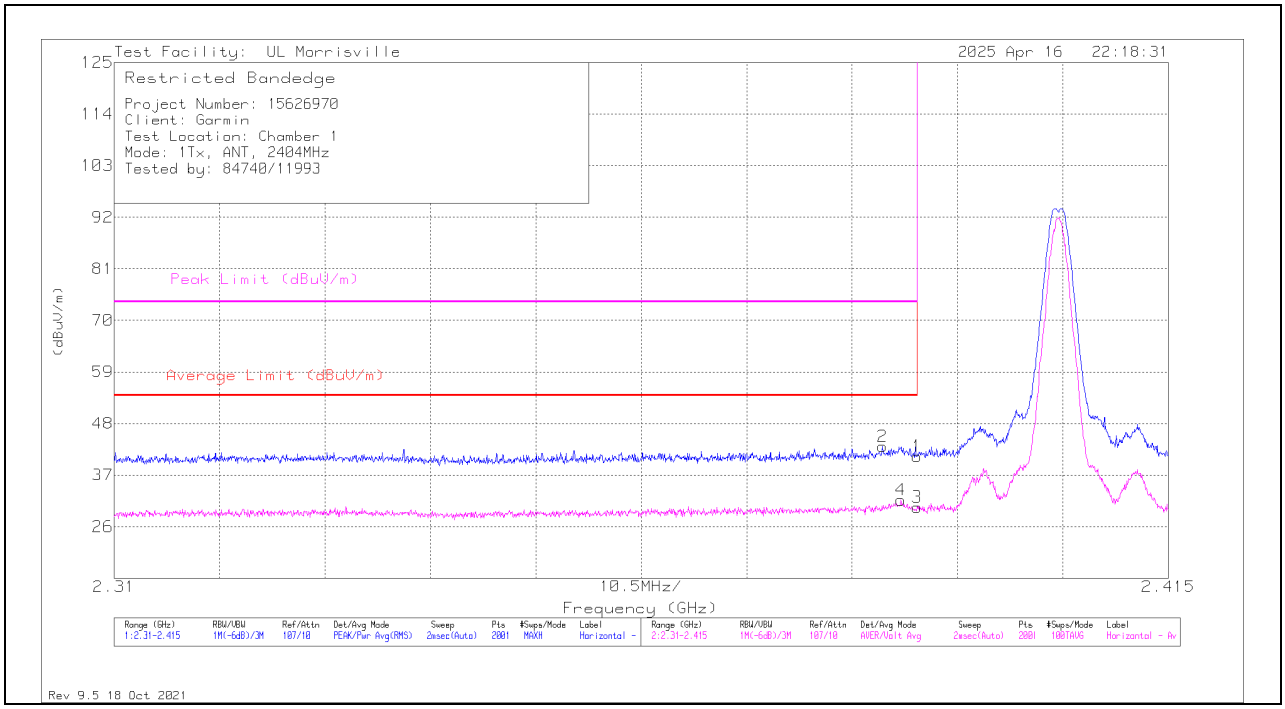


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.07	Pk	31.9	-24	41.97	-	-	74	-32.03	274	111	V
2	* ** 2.3804	34.98	Pk	31.9	-24.1	42.78	-	-	74	-31.22	274	111	V
3	* ** 2.38996	21.65	ADV	31.9	-24	29.55	54	-24.45	-	-	274	111	V
4	* ** 2.38676	22.65	ADV	31.9	-23.9	30.65	54	-23.35	-	-	274	111	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (LOW CHANNEL, 2404 MHz)

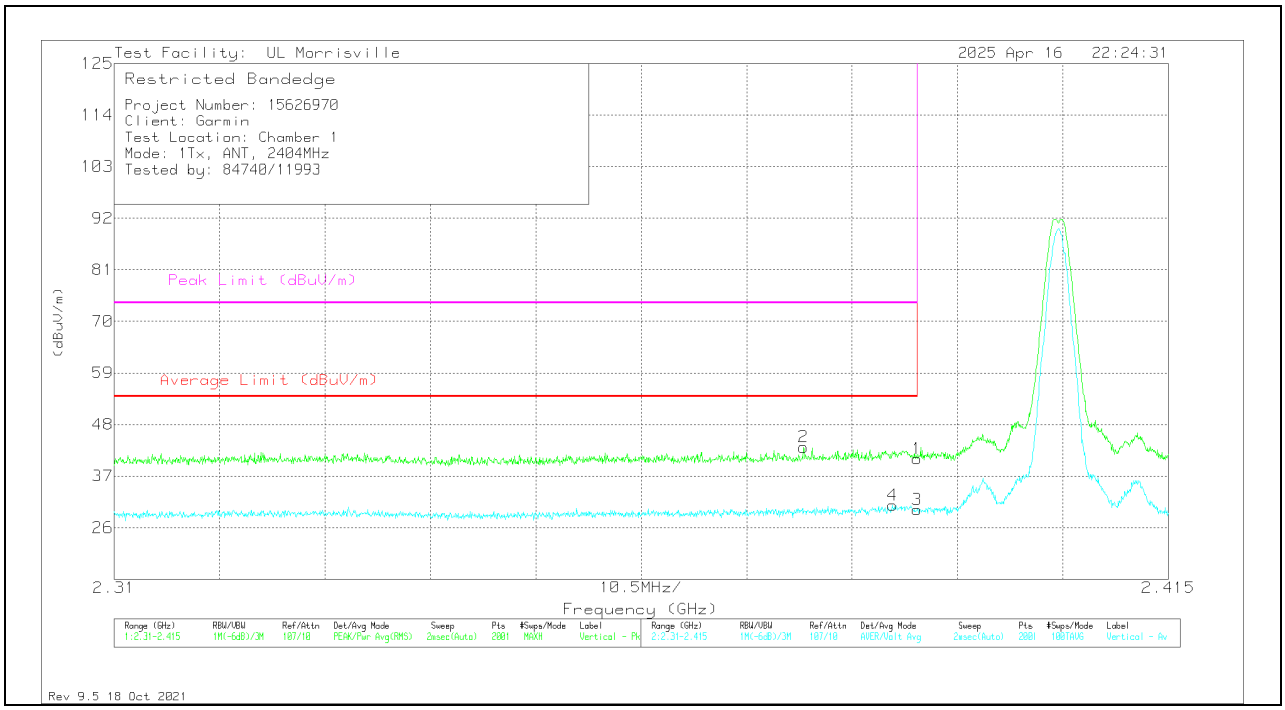
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	33.09	Pk	31.9	-24	40.99	-	-	74	-33.01	234	158	H
2	* ** 2.38655	35.12	Pk	31.9	-23.9	43.12	-	-	74	-30.88	234	158	H
3	* ** 2.38996	22.23	ADV	31.9	-24	30.13	54	-23.87	-	-	234	158	H
4	* ** 2.38833	23.78	ADV	31.9	-24	31.68	54	-22.32	-	-	234	158	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT

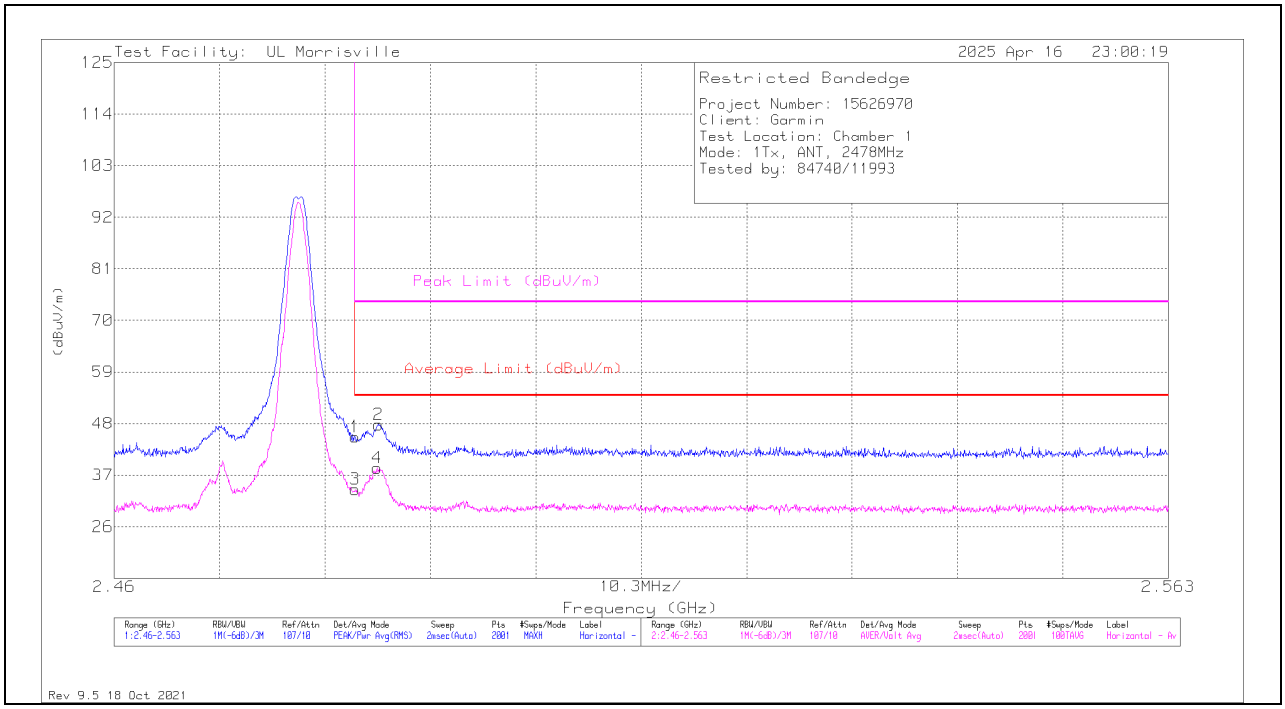


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	32.79	Pk	31.9	-24	40.69	-	-	74	-33.31	259	245	V
2	* ** 2.37867	35.49	Pk	31.9	-24.2	43.19	-	-	74	-30.81	259	245	V
3	* ** 2.38996	21.95	ADV	31.9	-24	29.85	54	-24.15	-	-	259	245	V
4	* ** 2.38754	22.77	ADV	31.9	-23.9	30.77	54	-23.23	-	-	259	245	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2478 MHz)

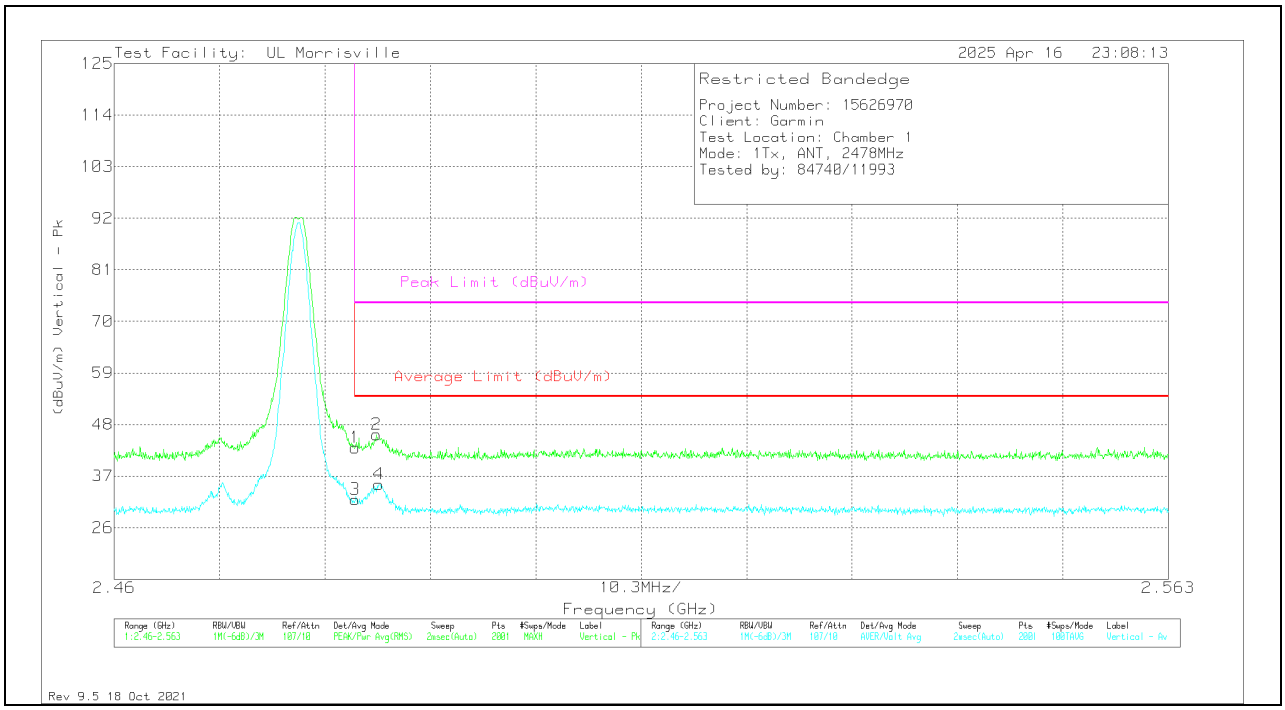
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	36.64	Pk	32.2	-23.7	45.14	-	-	74	-28.86	245	132	H
2	* ** 2.4858	39.46	Pk	32.2	-23.9	47.76	-	-	74	-26.24	245	132	H
3	* ** 2.48354	25.45	ADV	32.2	-23.7	33.95	54	-20.05	-	-	245	132	H
4	* ** 2.4857	30.21	ADV	32.2	-23.9	38.51	54	-15.49	-	-	245	132	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	34.57	Pk	32.2	-23.7	43.07	-	-	74	-30.93	260	116	V
2	* ** 2.48565	37.57	Pk	32.2	-23.9	45.87	-	-	74	-28.13	260	116	V
3	* ** 2.48354	23.51	ADV	32.2	-23.7	32.01	54	-21.99	-	-	260	116	V
4	* ** 2.48585	26.97	ADV	32.2	-23.9	35.27	54	-18.73	-	-	260	116	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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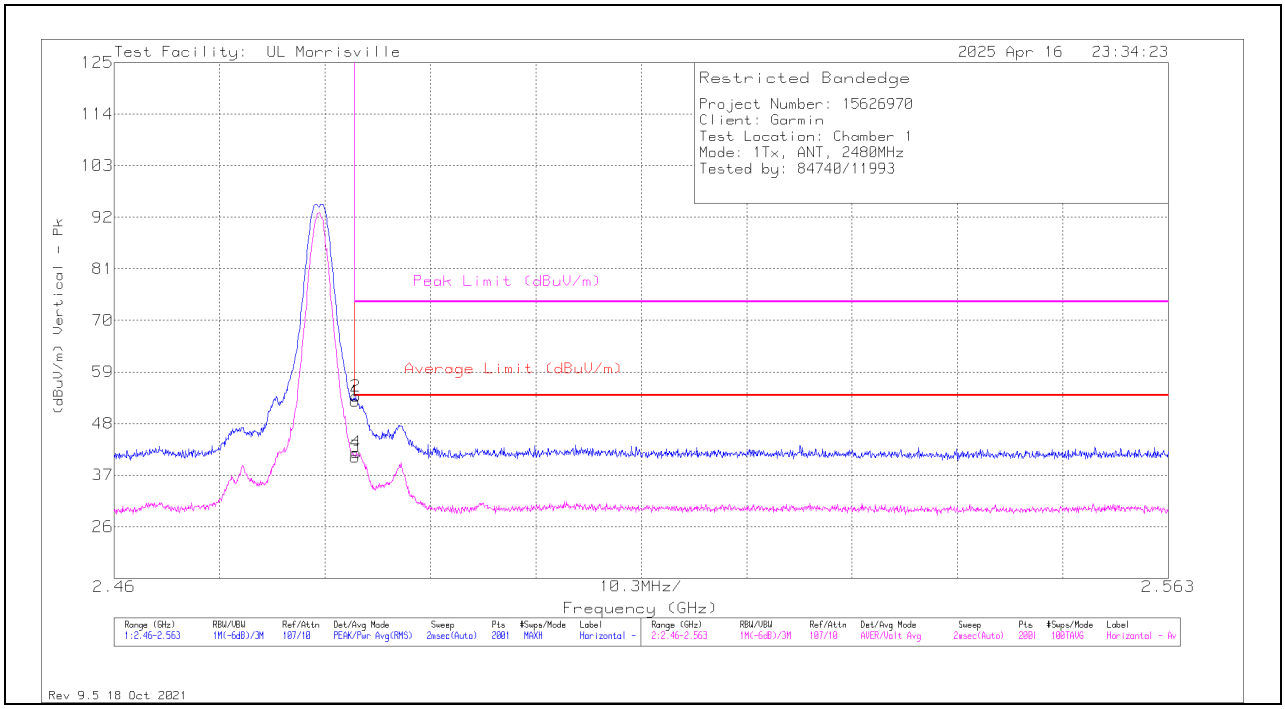
BANDEDGE (HIGH CHANNEL, 2480 MHz)

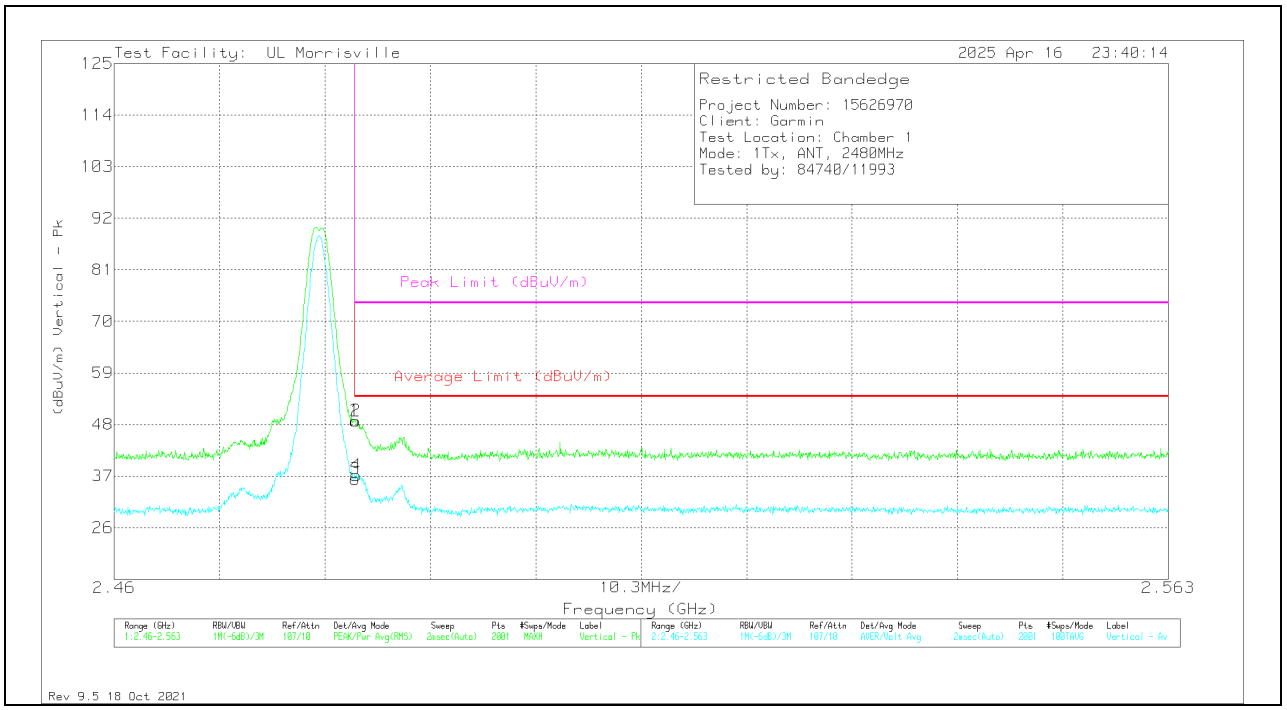
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	44.27	Pk	32.2	-23.7	52.77	-	-	74	-21.23	243	112	H
2	* ** 2.48359	45.34	Pk	32.2	-23.7	53.84	-	-	74	-20.16	243	112	H
3	* ** 2.48354	32.38	ADV	32.2	-23.7	40.88	54	-13.12	-	-	243	112	H
4	* ** 2.48364	33.3	ADV	32.2	-23.7	41.8	54	-12.2	-	-	243	112	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	40.29	Pk	32.2	-23.7	48.79	-	-	74	-25.21	265	110	V
2	* ** 2.48359	40.29	Pk	32.2	-23.7	48.79	-	-	74	-25.21	265	110	V
3	* ** 2.48354	27.88	ADV	32.2	-23.7	36.38	54	-17.62	-	-	265	110	V
4	* ** 2.48364	28.68	ADV	32.2	-23.7	37.18	54	-16.82	-	-	265	110	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

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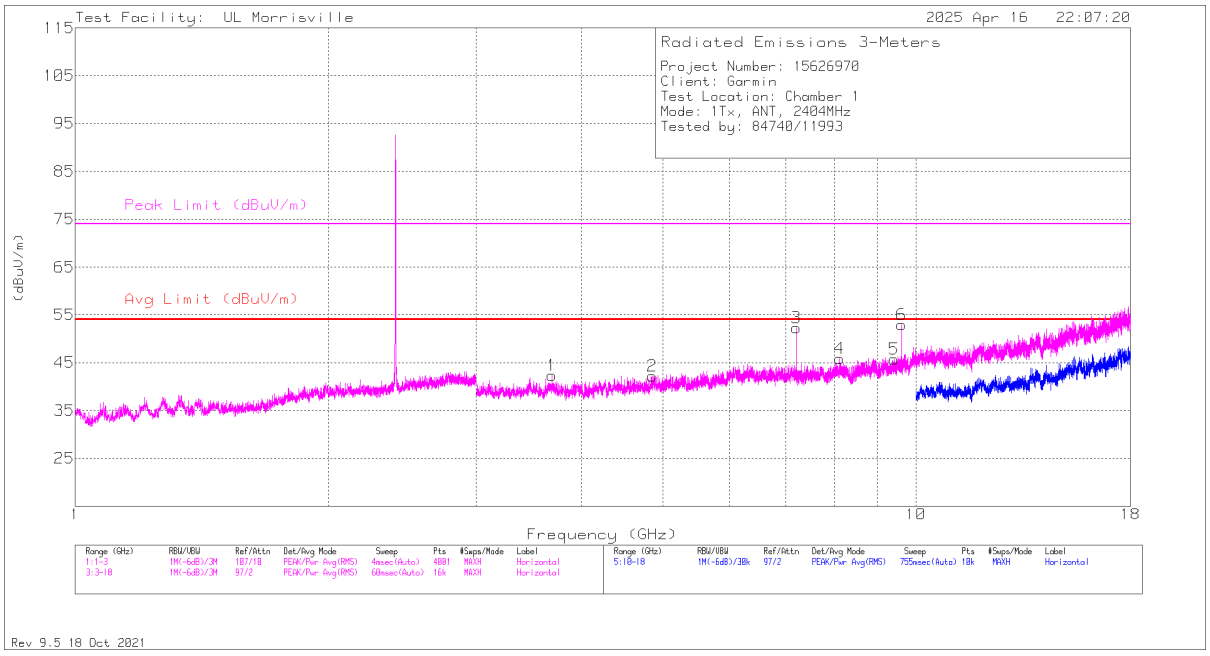
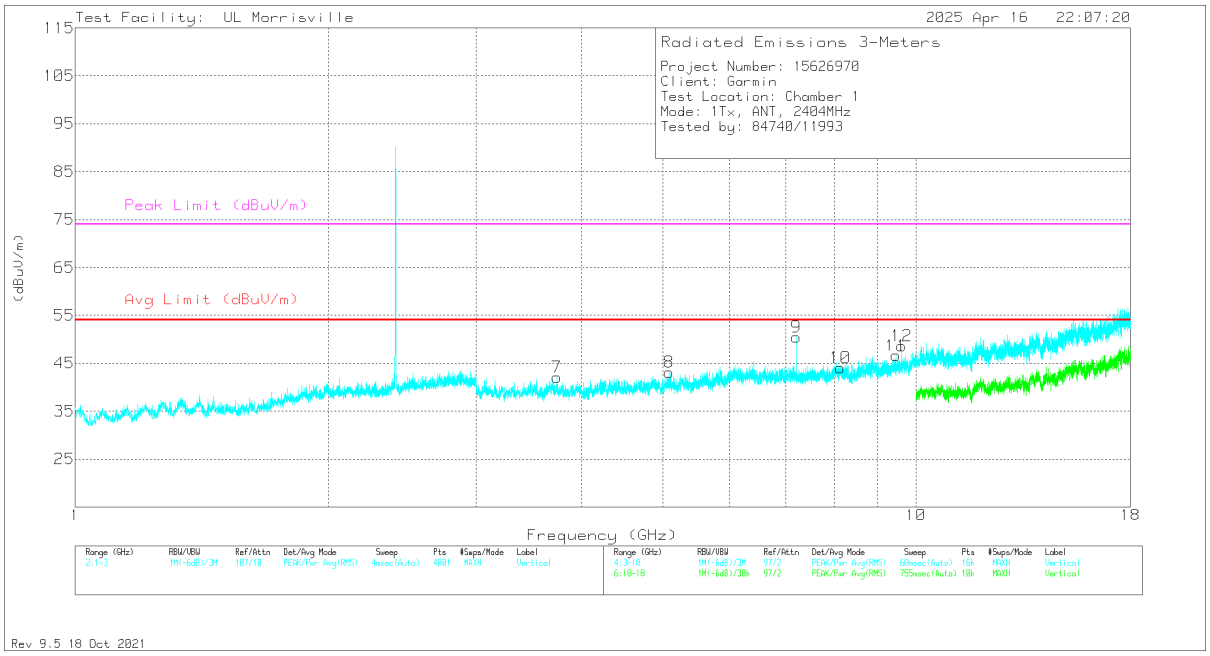
HARMONICS AND SPURIOUS EMISSIONST

LOW CHANNEL, 2404 MHz RESULTS



HORIZONTAL



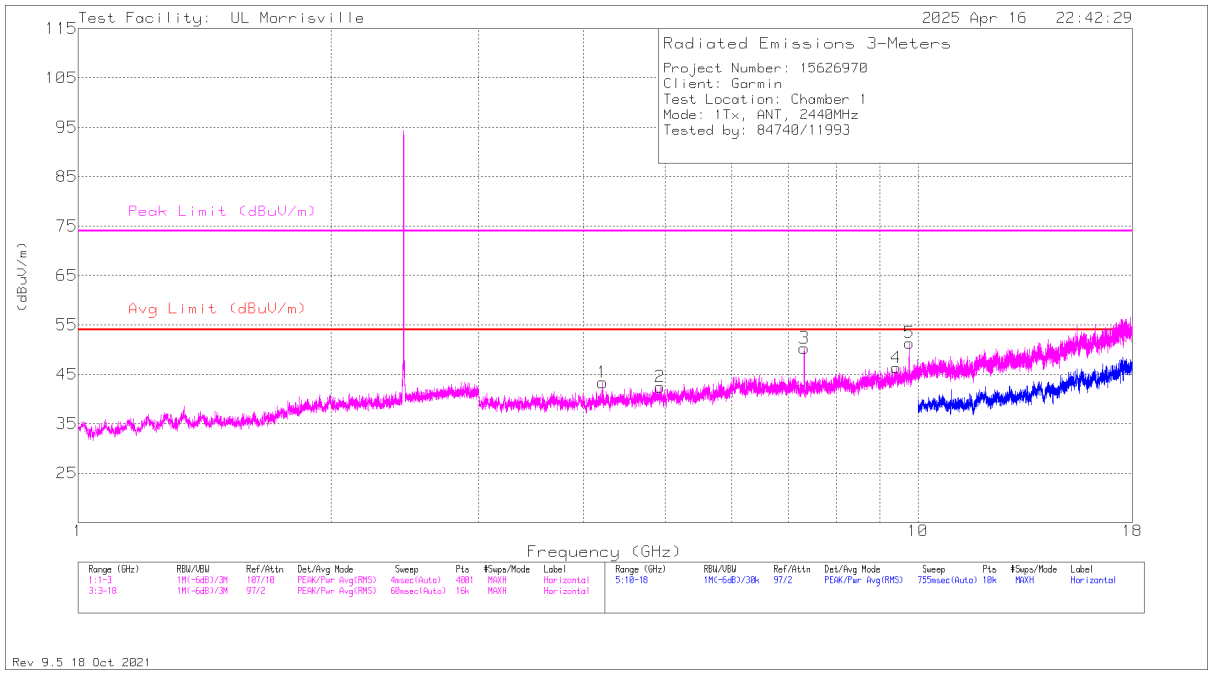
VERTICAL

RADIATED EMISSIONS

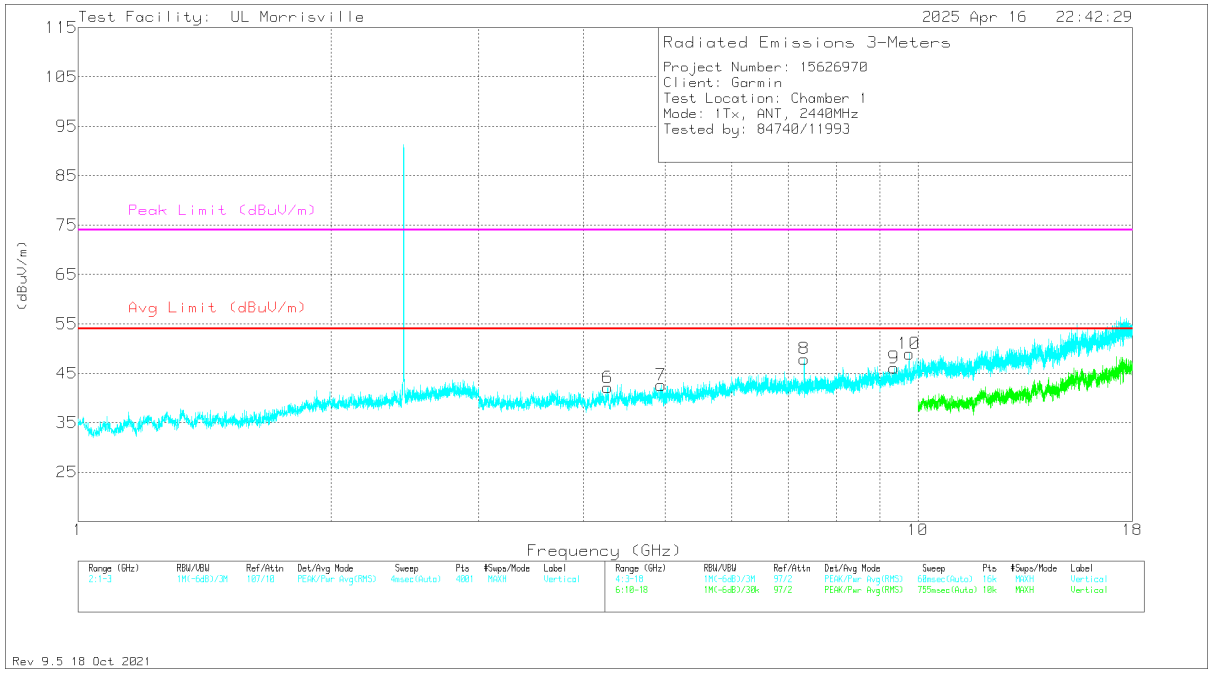
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.69375	53.62	Pk	33.2	-44.5	42.32	54	-11.68	74	-31.68	0-360	200	H
2	* ** 4.86094	53.66	Pk	33.9	-45.3	42.26	54	-11.74	74	-31.74	0-360	200	H
4	* ** 8.11594	51.32	Pk	35.9	-41.3	45.92	54	-8.08	74	-28.08	0-360	200	H
5	* ** 9.41625	49.06	Pk	36.3	-39.6	45.76	54	-8.24	74	-28.24	0-360	101	H
7	* ** 3.7425	53.15	Pk	33.2	-44.3	42.05	54	-11.95	74	-31.95	0-360	200	V
8	* ** 5.08781	53.3	Pk	34.3	-44.5	43.1	54	-10.9	74	-30.9	0-360	200	V
10	* ** 8.13281	49.23	Pk	35.9	-41.1	44.03	54	-9.97	74	-29.97	0-360	200	V
11	* ** 9.47813	50.81	Pk	36.4	-40.6	46.61	54	-7.39	74	-27.39	0-360	101	V
3	7.21313	59.35	Pk	35.4	-42.4	52.35	-	-	-	-	0-360	101	H
9	7.21313	57.43	Pk	35.4	-42.4	50.43	-	-	-	-	0-360	200	V
6	9.61688	57.06	Pk	36.7	-40.8	52.96	-	-	-	-	0-360	200	H
12	9.61688	52.77	Pk	36.7	-40.8	48.67	-	-	-	-	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL, 2440 MHz RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.21219	55.16	Pk	33.6	-45.4	43.36	54	-10.64	74	-30.64	0-360	101	H
2	* ** 4.93219	52.56	Pk	34.1	-44.2	42.46	54	-11.54	74	-31.54	0-360	199	H
3	* ** 7.321	59.91	PK2	35.4	-41.8	53.51	-	-	74	-20.49	275	114	H
	* ** 7.32088	52.62	ADV	35.4	-41.8	46.22	54	-7.78	-	-	275	114	H
4	* ** 9.41719	49.73	Pk	36.3	-39.7	46.33	54	-7.67	74	-27.67	0-360	101	H
6	* ** 4.27125	52.72	Pk	33.7	-44.3	42.12	54	-11.88	74	-31.88	0-360	101	V
7	* ** 4.94438	52.89	Pk	34.1	-44.4	42.59	54	-11.41	74	-31.41	0-360	200	V
8	* ** 7.32094	54.32	Pk	35.4	-41.8	47.92	54	-6.08	74	-26.08	0-360	200	V
9	* ** 9.36469	50.5	Pk	36.2	-40.6	46.1	54	-7.9	74	-27.9	0-360	101	V
5	9.76125	53.95	Pk	37.1	-39.7	51.35	-	-	-	-	0-360	199	H
10	9.76125	51.55	Pk	37.1	-39.7	48.95	-	-	-	-	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

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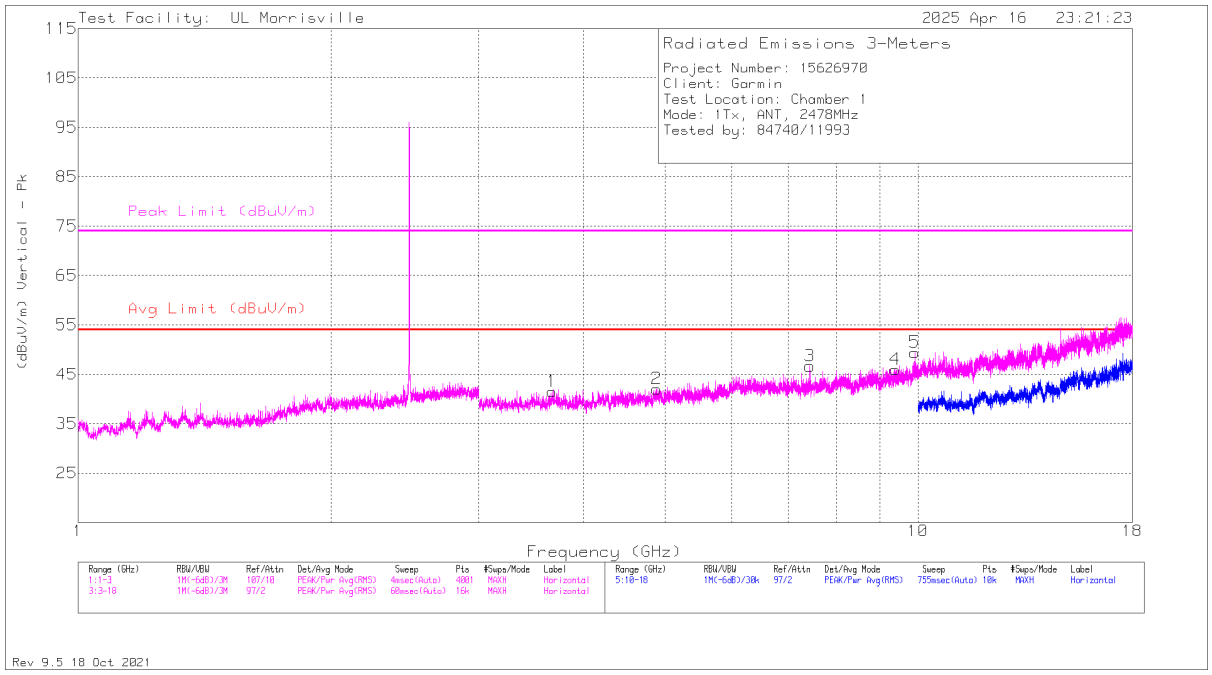
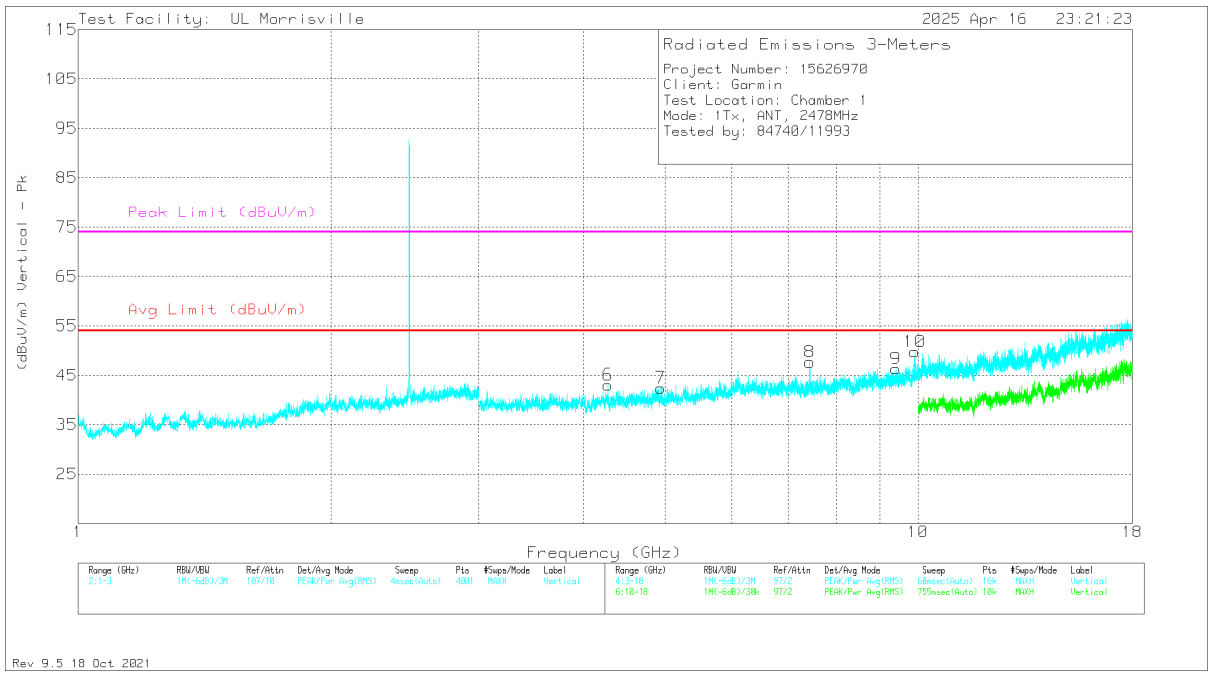
HIGH CHANNEL, 2478 MHz RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

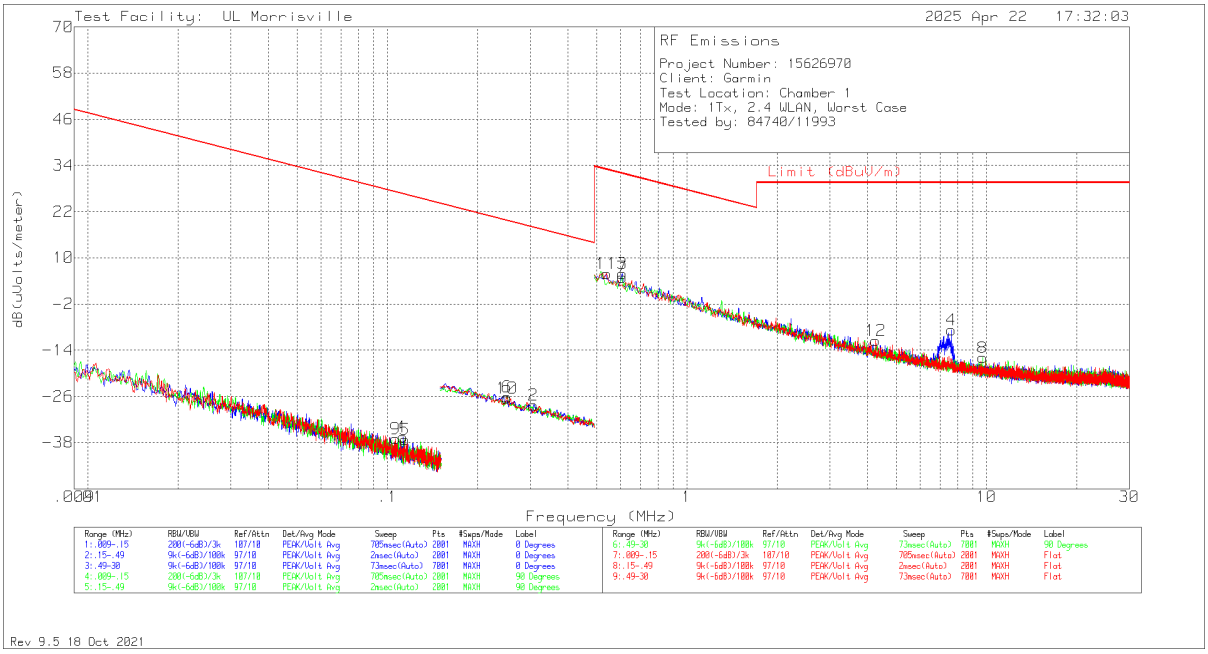
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.66656	52.24	Pk	33.1	-43.8	41.54	54	-12.46	74	-32.46	0-360	200	H
2	* ** 4.88438	52.86	Pk	34	-44.8	42.06	54	-11.94	74	-31.94	0-360	101	H
3	* ** 7.43438	52.27	Pk	35.4	-41	46.67	54	-7.33	74	-27.33	0-360	200	H
4	* ** 9.39563	49.79	Pk	36.3	-40.1	45.99	54	-8.01	74	-28.01	0-360	101	H
6	* ** 4.27313	53.73	Pk	33.7	-44.4	43.03	54	-10.97	74	-30.97	0-360	101	V
7	* ** 4.93688	52.53	Pk	34.1	-44.2	42.43	54	-11.57	74	-31.57	0-360	200	V
8	* ** 7.43438	53.28	Pk	35.4	-41	47.68	54	-6.32	74	-26.32	0-360	200	V
9	* ** 9.41438	49.8	Pk	36.3	-39.8	46.3	54	-7.7	74	-27.7	0-360	200	V
10	9.91125	52.56	Pk	37.4	-40.2	49.76	-	-	-	-	0-360	101	V
5	9.91313	52.33	Pk	37.4	-40.3	49.43	-	-	-	-	0-360	200	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - KDB558074 Method: Maximum Peak
ADV - Linear Voltage Average

10.2. WORST CASE BELOW 30MHZ

Note: All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40*Log (test distance / specification distance).

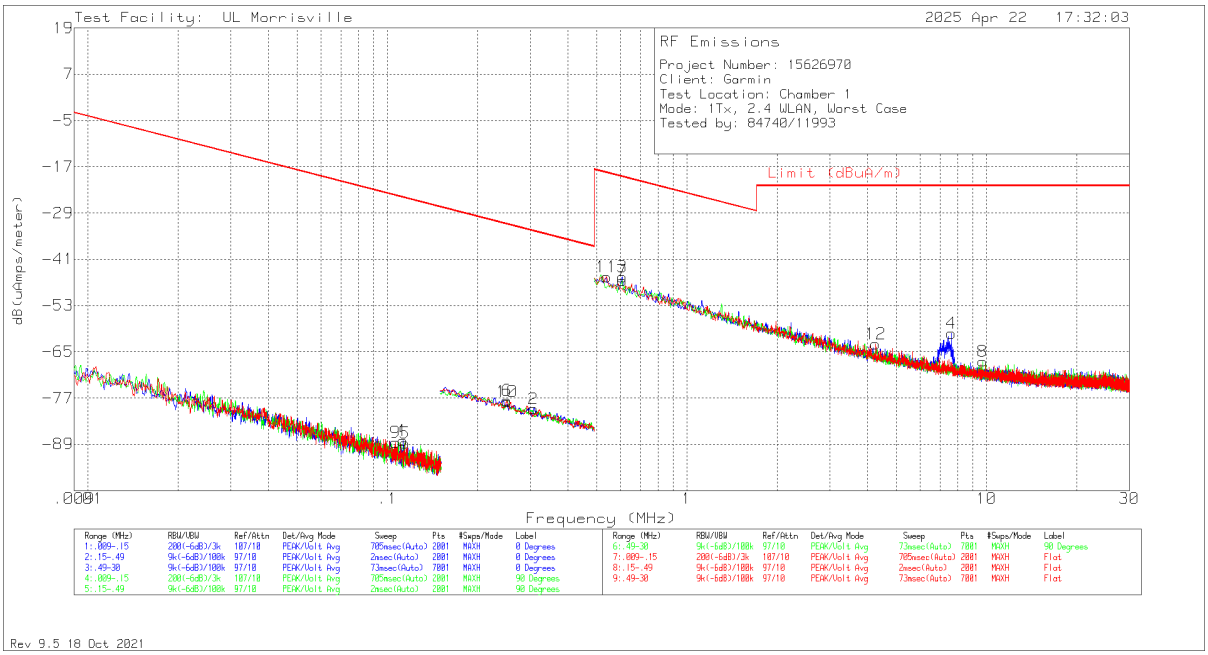
10.2.1. 2.4 WLAN



ANTENNA- THREE ORIENTATIONS (E-FIELD)

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
9	.10655	31.84	Pk	11.1	.1	-80	-36.96	27.05	-	-64.01	0-360	Flat
1	.11294	32.26	Pk	11.1	.1	-80	-36.54	26.55	46.55	-63.09	0-360	0 degs
5	.11415	31.65	Pk	11.1	.1	-80	-37.15	26.45	46.45	-63.6	0-360	90 degs
6	.25047	42.85	Pk	10.9	.1	-80	-26.15	19.63	39.63	-45.78	0-360	90 degs
10	.25115	42.49	Pk	10.9	.1	-80	-26.51	19.61	39.61	-46.12	0-360	Flat
2	.30776	40.69	Pk	10.9	.1	-80	-28.31	17.84	37.84	-46.15	0-360	0 degs
11	.54059	34.87	Pk	11	.1	-40	5.97	32.95	-	-26.98	0-360	Flat
3	.60805	34.85	Pk	11	.1	-40	5.95	31.93	-	-25.98	0-360	0 degs
7	.60805	33.83	Pk	11	.1	-40	4.93	31.93	-	-27	0-360	90 degs
12	4.27175	17.28	Pk	10.9	.3	-40	-11.52	29.54	-	-41.06	0-360	Flat
4	7.62769	20.22	Pk	10.7	.4	-40	-8.68	29.54	-	-38.22	0-360	0 degs
8	9.71461	12.94	Pk	10.6	.5	-40	-15.96	29.54	-	-45.5	0-360	90 degs

Pk - Peak detector



ANTENNA- THREE ORIENTATIONS (H-FIELD)

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
9	.10655	31.84	Pk	-40.4	.1	-80	-88.46	-24.45	-	-64.01	0-360	Flat
1	.11294	32.26	Pk	-40.4	.1	-80	-88.04	-24.95	-4.95	-63.09	0-360	0 degs
5	.11415	31.65	Pk	-40.4	.1	-80	-88.65	-25.05	-5.05	-63.6	0-360	90 degs
6	.25047	42.85	Pk	-40.6	.1	-80	-77.65	-31.87	-11.87	-45.78	0-360	90 degs
10	.25115	42.49	Pk	-40.6	.1	-80	-78.01	-31.89	-11.89	-46.12	0-360	Flat
2	.30776	40.69	Pk	-40.6	.1	-80	-79.81	-33.66	-13.66	-46.15	0-360	0 degs
11	.54059	34.87	Pk	-40.5	.1	-40	-45.53	-18.55	-	-26.98	0-360	Flat
3	.60805	34.85	Pk	-40.5	.1	-40	-45.55	-19.57	-	-25.98	0-360	0 degs
7	.60805	33.83	Pk	-40.5	.1	-40	-46.57	-19.57	-	-27	0-360	90 degs
12	4.27175	17.28	Pk	-40.6	.3	-40	-63.02	-21.96	-	-41.06	0-360	Flat
4	7.62769	20.22	Pk	-40.8	.4	-40	-60.18	-21.96	-	-38.22	0-360	0 degs
8	9.71461	12.94	Pk	-40.9	.5	-40	-67.46	-21.96	-	-45.5	0-360	90 degs

Pk - Peak detector

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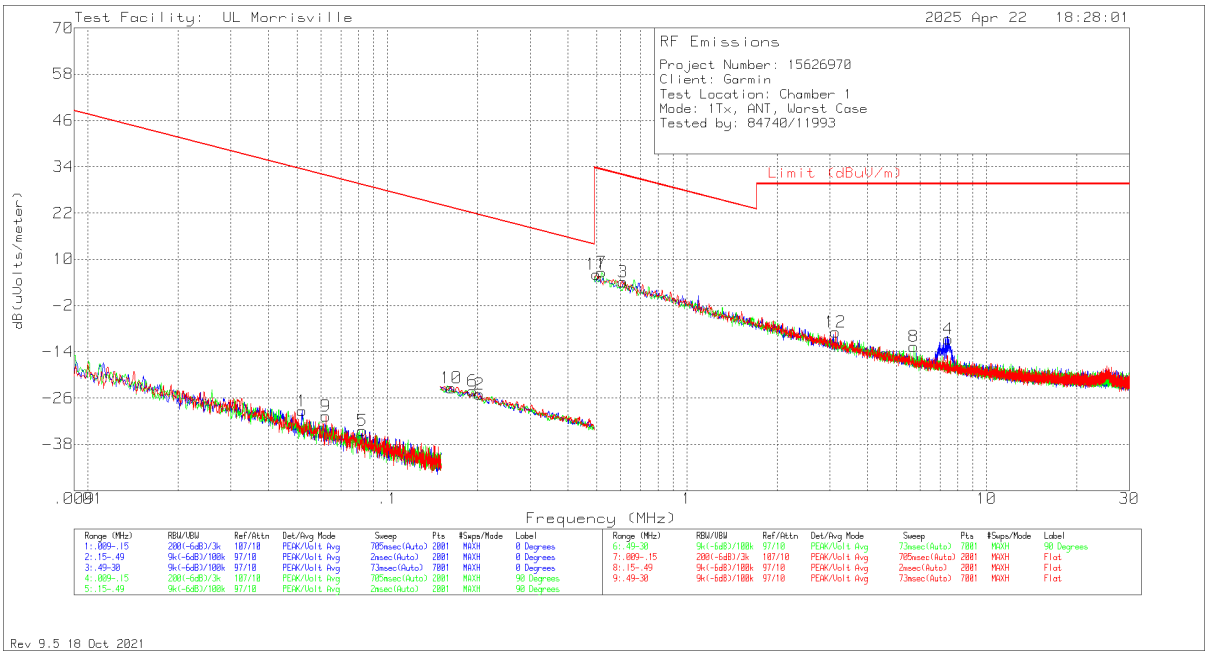
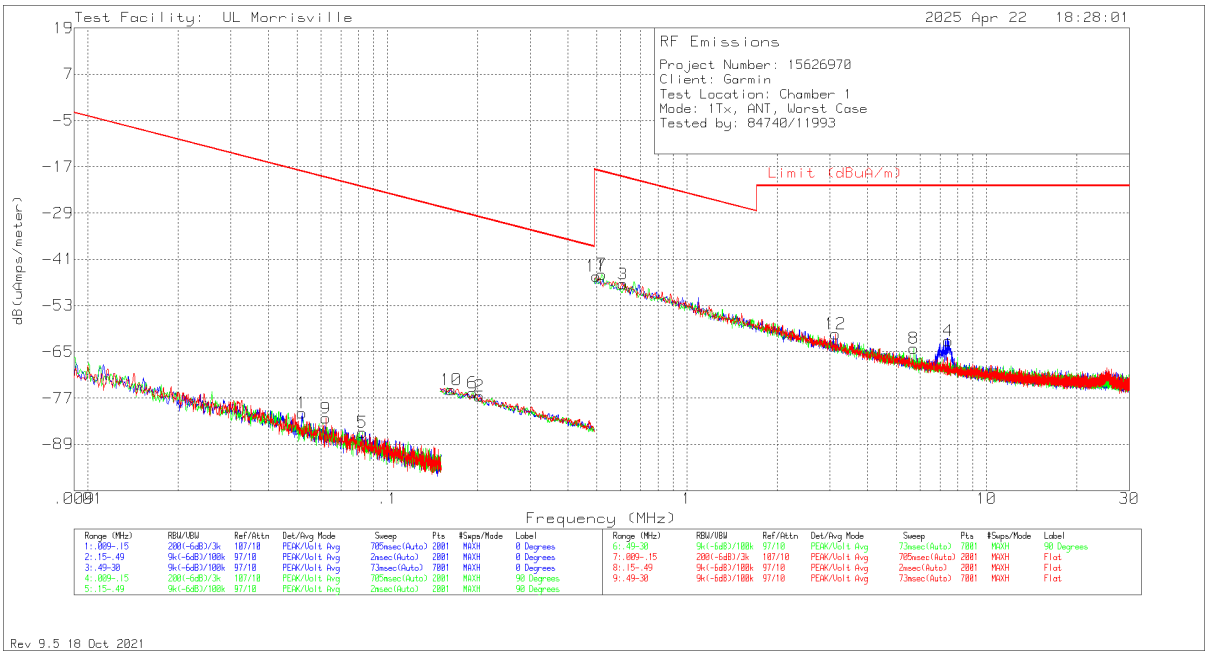
10.2.2. ANT/ANT+



ANTENNA- THREE ORIENTATIONS (E-FIELD)

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.05181	39.09	Pk	11.5	.1	-80	-29.31	33.32	53.32	-62.63	0-360	0 degs
9	.06236	37.75	Pk	11.4	.1	-80	-30.75	31.71	51.71	-62.46	0-360	Flat
5	.08256	34.31	Pk	11.2	.1	-80	-34.39	29.27	49.27	-63.66	0-360	90 degs
10	.16343	45.49	Pk	11	.1	-80	-23.41	23.34	43.34	-46.75	0-360	Flat
6	.19225	44.77	Pk	11	.1	-80	-24.13	21.93	41.93	-46.06	0-360	90 degs
2	.20287	44.06	Pk	10.9	.1	-80	-24.94	21.46	41.46	-46.4	0-360	0 degs
11	.49843	35.01	Pk	11	.1	-40	6.11	33.65	-	-27.54	0-360	Flat
7	.51951	35.54	Pk	11	.1	-40	6.64	33.29	-	-26.65	0-360	90 degs
3	.61226	32.96	Pk	11	.1	-40	4.06	31.87	-	-27.81	0-360	0 degs
12	3.13765	19.71	Pk	11.1	.3	-40	-8.89	29.54	-	-38.43	0-360	Flat
8	5.72627	16.15	Pk	10.8	.4	-40	-12.65	29.54	-	-42.19	0-360	90 degs
4	7.46748	18.21	Pk	10.7	.4	-40	-10.69	29.54	-	-40.23	0-360	0 degs

Pk - Peak detector

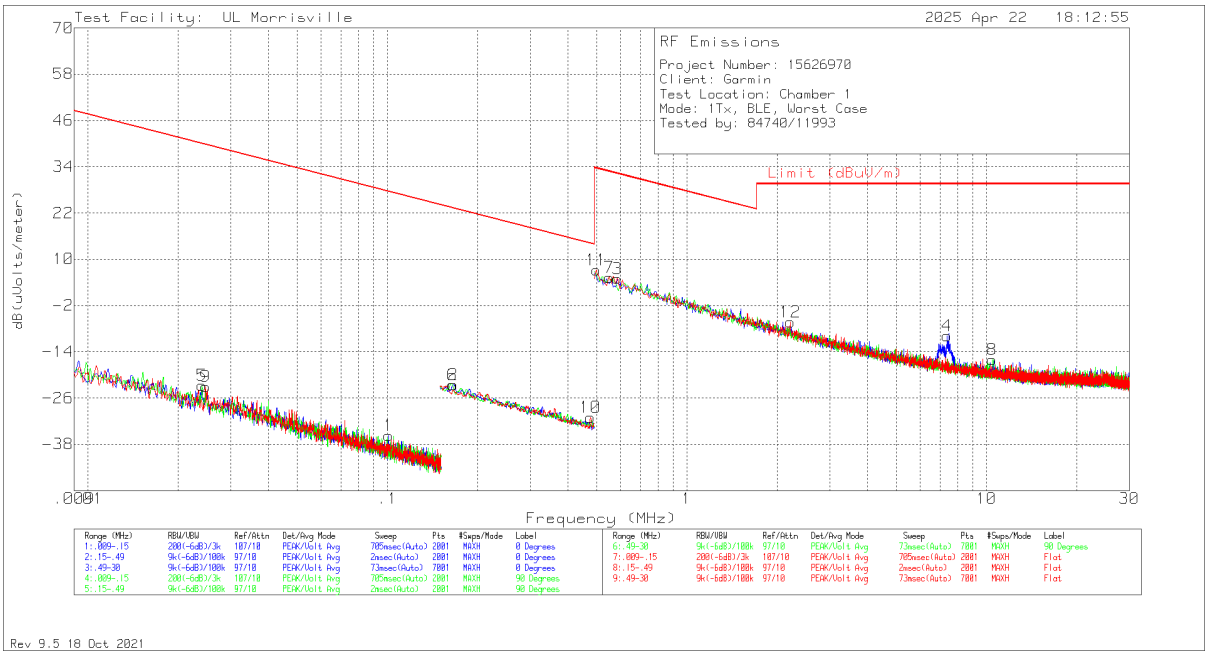


ANTENNA- THREE ORIENTATIONS (H-FIELD)

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.05181	39.09	Pk	-40	.1	-80	-80.81	-18.18	1.82	-62.63	0-360	0 degs
9	.06236	37.75	Pk	-40.1	.1	-80	-82.25	-19.79	0.21	-62.46	0-360	Flat
5	.08256	34.31	Pk	-40.3	.1	-80	-85.89	-22.23	-2.23	-63.66	0-360	90 degs
10	.16343	45.49	Pk	-40.5	.1	-80	-74.91	-28.16	-8.16	-46.75	0-360	Flat
6	.19225	44.77	Pk	-40.5	.1	-80	-75.63	-29.57	-9.57	-46.06	0-360	90 degs
2	.20287	44.06	Pk	-40.6	.1	-80	-76.44	-30.04	-10.04	-46.4	0-360	0 degs
11	.49843	35.01	Pk	-40.5	.1	-40	-45.39	-17.85	-	-27.54	0-360	Flat
7	.51951	35.54	Pk	-40.5	.1	-40	-44.86	-18.21	-	-26.65	0-360	90 degs
3	.61226	32.96	Pk	-40.5	.1	-40	-47.44	-19.63	-	-27.81	0-360	0 degs
12	3.13765	19.71	Pk	-40.4	.3	-40	-60.39	-21.96	-	-38.43	0-360	Flat
8	5.72627	16.15	Pk	-40.7	.4	-40	-64.15	-21.96	-	-42.19	0-360	90 degs
4	7.46748	18.21	Pk	-40.8	.4	-40	-62.19	-21.96	-	-40.23	0-360	0 degs

Pk - Peak detector

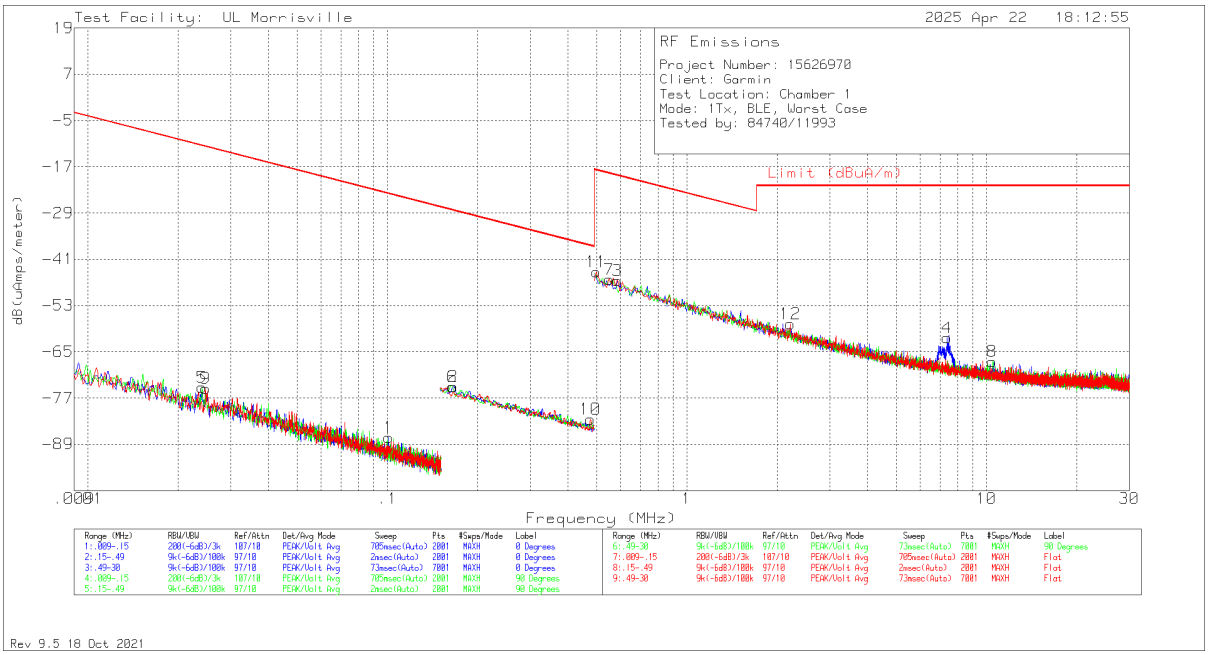
10.2.3. BLE



ANTENNA- THREE ORIENTATIONS (E-FIELD)

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
5	.02405	43.53	Pk	13.6	.1	-80	-22.77	39.98	59.98	-62.75	0-360	90 degs
9	.02469	43.31	Pk	13.6	.1	-80	-22.99	39.75	59.75	-62.74	0-360	Flat
1	.10087	33.02	Pk	11.1	.1	-80	-35.78	27.53	-	-63.31	0-360	0 degs
6	.16462	46.4	Pk	11	.1	-80	-22.5	23.27	43.27	-45.77	0-360	90 degs
2	.1659	46.33	Pk	11	.1	-80	-22.57	23.21	43.21	-45.78	0-360	0 degs
10	.47632	37.88	Pk	11	.1	-80	-31.02	14.05	34.05	-45.07	0-360	Flat
11	.49843	36.15	Pk	11	.1	-40	7.25	33.65	-	-26.4	0-360	Flat
7	.54902	34.1	Pk	11	.1	-40	5.2	32.81	-	-27.61	0-360	90 degs
3	.58697	33.91	Pk	11	.1	-40	5.01	32.23	-	-27.22	0-360	0 degs
12	2.21434	22.42	Pk	11.1	.2	-40	-6.28	29.54	-	-35.82	0-360	Flat
4	7.38316	18.98	Pk	10.7	.4	-40	-9.92	29.54	-	-39.46	0-360	0 degs
8	10.45241	12.81	Pk	10.6	.5	-40	-16.09	29.54	-	-45.63	0-360	90 degs

Pk - Peak detector



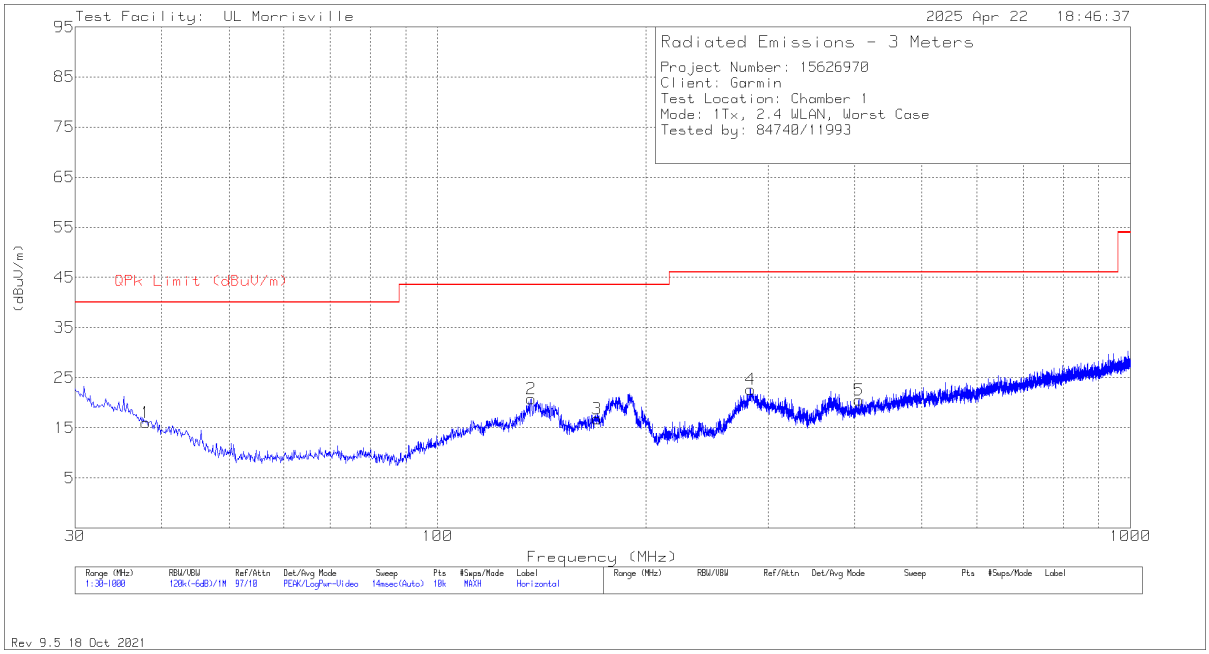
ANTENNA- THREE ORIENTATIONS (H-FIELD)

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
5	.02405	43.53	Pk	-37.9	.1	-80	-74.27	-11.52	8.48	-62.75	0-360	90 degs
9	.02469	43.31	Pk	-37.9	.1	-80	-74.49	-11.75	8.25	-62.74	0-360	Flat
1	.10087	33.02	Pk	-40.4	.1	-80	-87.28	-23.97	-	-63.31	0-360	0 degs
6	.16462	46.4	Pk	-40.5	.1	-80	-74	-28.23	-8.23	-45.77	0-360	90 degs
2	.1659	46.33	Pk	-40.5	.1	-80	-74.07	-28.29	-8.29	-45.78	0-360	0 degs
10	.47632	37.88	Pk	-40.5	.1	-80	-82.52	-37.45	-17.45	-45.07	0-360	Flat
11	.49843	36.15	Pk	-40.5	.1	-40	-44.25	-17.85	-	-26.4	0-360	Flat
7	.54902	34.1	Pk	-40.5	.1	-40	-46.3	-18.69	-	-27.61	0-360	90 degs
3	.58697	33.91	Pk	-40.5	.1	-40	-46.49	-19.27	-	-27.22	0-360	0 degs
12	2.21434	22.42	Pk	-40.4	.2	-40	-57.78	-21.96	-	-35.82	0-360	Flat
4	7.38316	18.98	Pk	-40.8	.4	-40	-61.42	-21.96	-	-39.46	0-360	0 degs
8	10.45241	12.81	Pk	-40.9	.5	-40	-67.59	-21.96	-	-45.63	0-360	90 degs

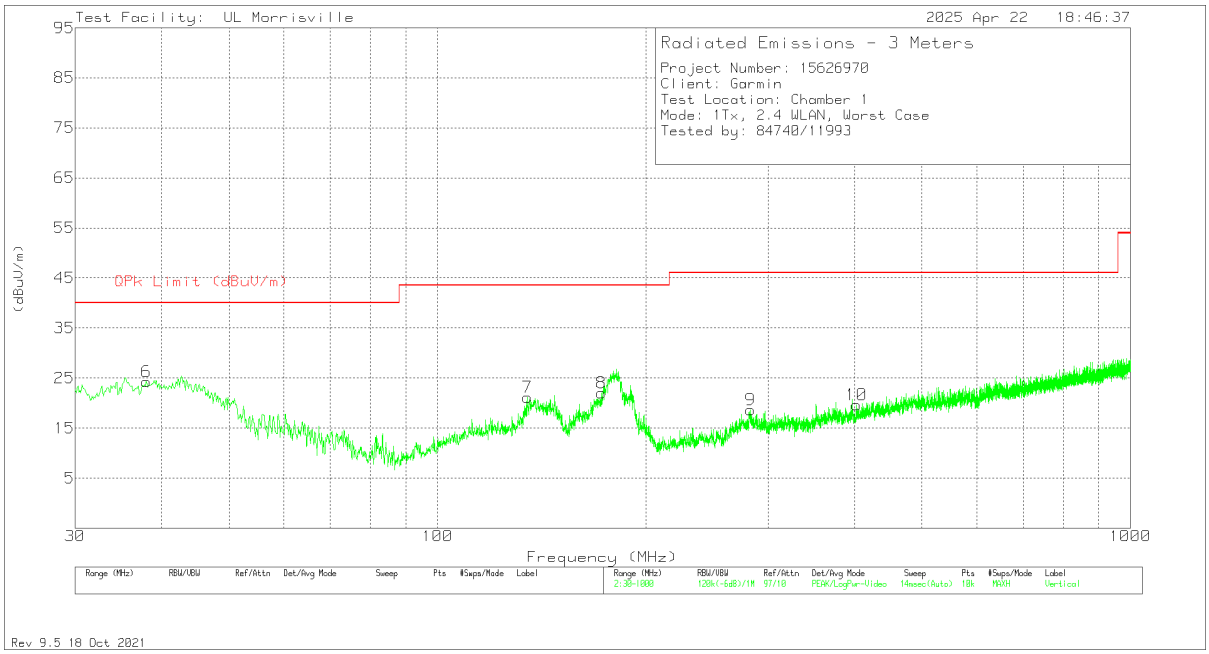
Pk - Peak detector

10.3. WORST CASE SPURIOUS BELOW 1 GHZ

10.3.1. 2.4 WLAN



HORIZONTAL

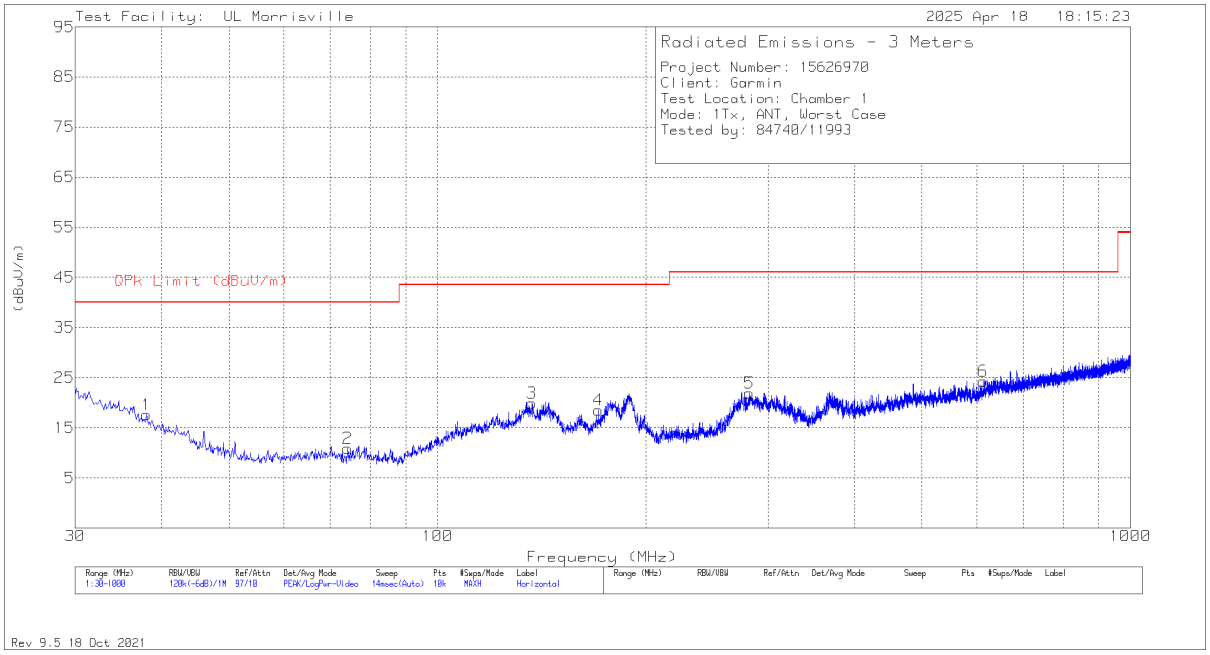


VERTICAL

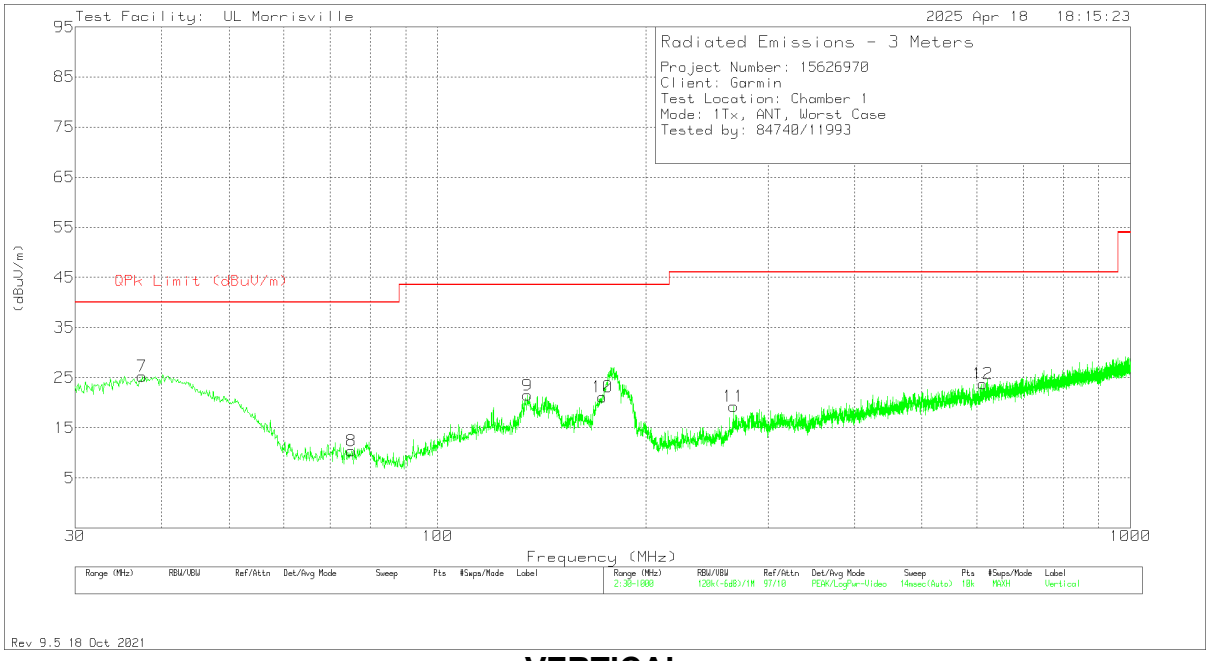
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 37.954	26.59	Pk	21.2	-31.8	15.99	40	-24.01	0-360	200	H
2	* ** 136.506	32.03	Pk	19.7	-30.9	20.83	43.52	-22.69	0-360	200	H
3	* ** 169.971	29.01	Pk	18.1	-30.3	16.81	43.52	-26.71	0-360	300	H
4	* ** 283.17	32.17	Pk	19.5	-29	22.67	46.02	-23.35	0-360	99	H
5	* ** 405.681	27.99	Pk	21.6	-29.1	20.49	46.02	-25.53	0-360	200	H
6	* ** 38.051	34.9	Pk	21.2	-31.8	24.3	40	-15.7	0-360	100	V
7	* ** 134.857	31.75	Pk	19.8	-30.4	21.15	43.52	-22.37	0-360	100	V
8	* ** 172.59	34.77	Pk	17.9	-30.6	22.07	43.52	-21.45	0-360	100	V
9	* ** 283.267	28.18	Pk	19.5	-29	18.68	46.02	-27.34	0-360	100	V
10	* ** 402.189	27.01	Pk	21.5	-28.9	19.61	46.02	-26.41	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.3.2. ANT/ANT+



HORIZONTAL

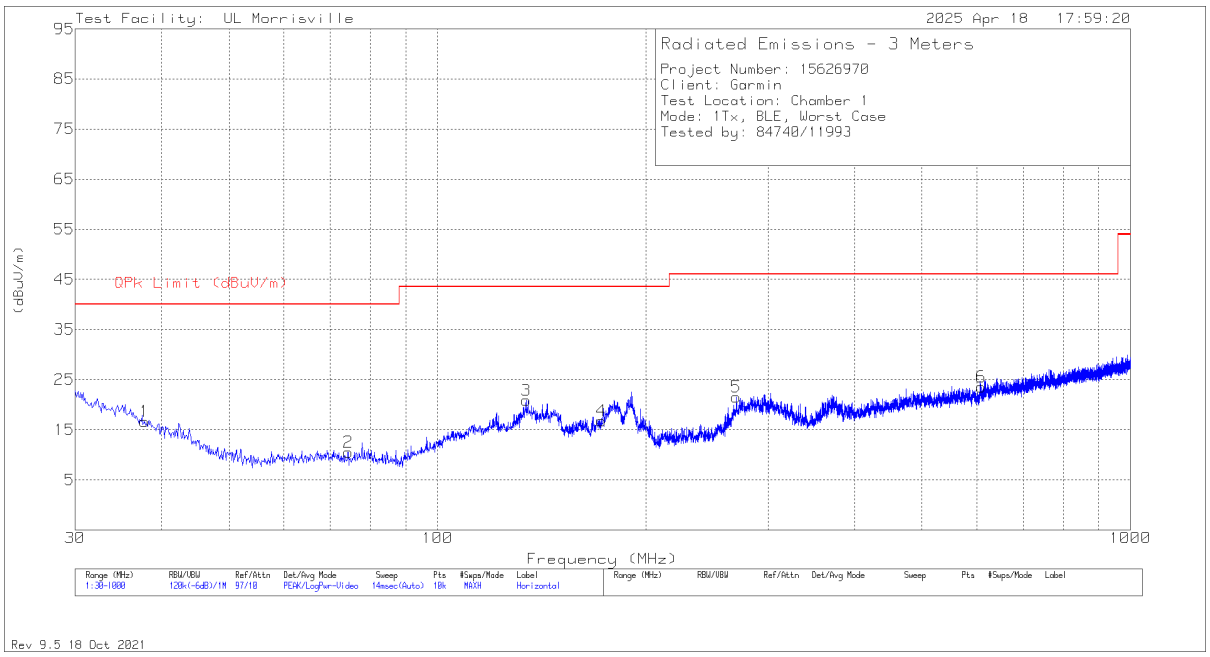


VERTICAL

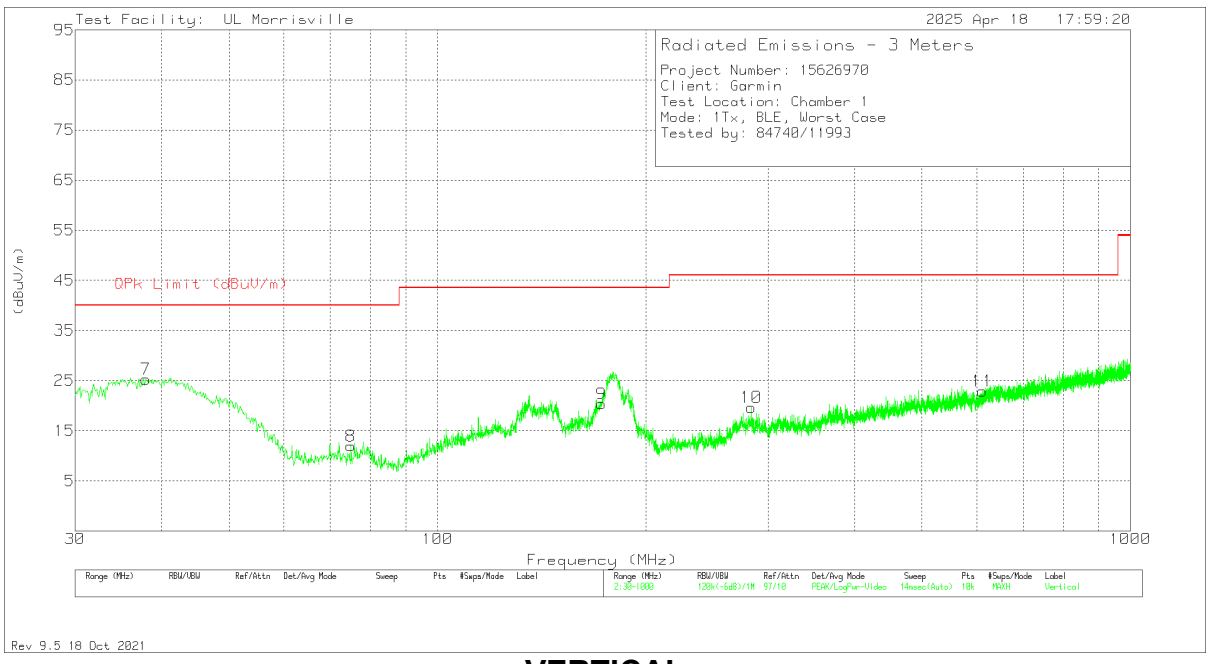
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 38.051	28.19	Pk	21.2	-31.8	17.59	40	-22.41	0-360	299	H
2	* ** 74.232	28.12	Pk	14.4	-31.6	10.92	40	-29.08	0-360	199	H
3	* ** 136.894	31.16	Pk	19.6	-30.9	19.86	43.52	-23.66	0-360	199	H
4	* ** 170.65	30.84	Pk	18	-30.3	18.54	43.52	-24.98	0-360	199	H
5	* ** 281.618	31.76	Pk	19.5	-29.4	21.86	46.02	-24.16	0-360	99	H
6	* ** 613.455	27.3	Pk	25.2	-28.2	24.3	46.02	-21.72	0-360	399	H
8	* ** 75.105	27.57	Pk	14.4	-31.6	10.37	40	-29.63	0-360	100	V
9	* ** 134.857	32.07	Pk	19.8	-30.4	21.47	43.52	-22.05	0-360	100	V
10	* ** 172.978	33.61	Pk	17.9	-30.4	21.11	43.52	-22.41	0-360	100	V
11	* ** 267.456	29.69	Pk	19.1	-29.5	19.29	46.02	-26.73	0-360	100	V
12	* ** 612.291	27.04	Pk	25.1	-28.4	23.74	46.02	-22.28	0-360	100	V
7	37.469	35.58	Pk	21.6	-31.9	25.28	40	-14.72	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.3.3. BLE



HORIZONTAL



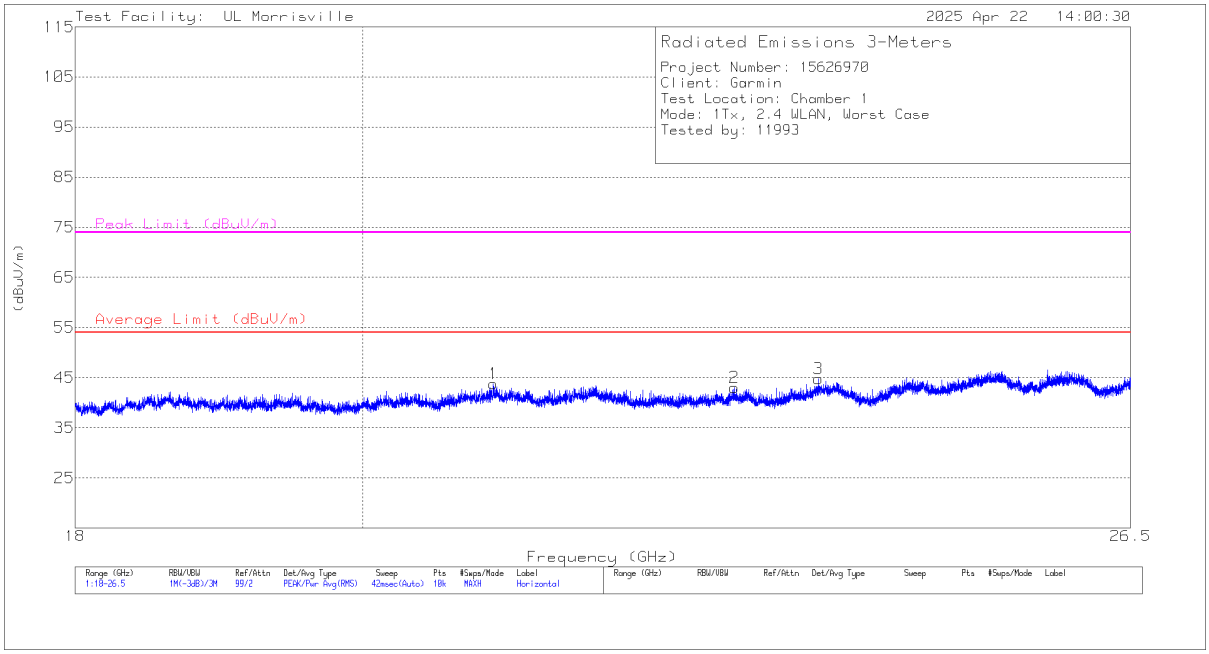
VERTICAL

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 37.76	27	Pk	21.4	-31.8	16.6	40	-23.4	0-360	99	H
2	* ** 74.329	27.77	Pk	14.4	-31.7	10.47	40	-29.53	0-360	99	H
3	* ** 134.275	31.35	Pk	19.8	-30.3	20.85	43.52	-22.67	0-360	200	H
4	* ** 172.396	29.62	Pk	17.9	-30.7	16.82	43.52	-26.7	0-360	200	H
5	* ** 269.784	31.64	Pk	19.3	-29.4	21.54	46.02	-24.48	0-360	99	H
6	* ** 608.702	26.72	Pk	24.9	-28.1	23.52	46.02	-22.5	0-360	399	H
7	* ** 37.954	35.9	Pk	21.2	-31.8	25.3	40	-14.7	0-360	100	V
8	* ** 75.008	29.05	Pk	14.4	-31.5	11.95	40	-28.05	0-360	100	V
9	* ** 172.59	33.05	Pk	17.9	-30.6	20.35	43.52	-23.17	0-360	100	V
10	* ** 283.461	29.11	Pk	19.5	-29	19.61	46.02	-26.41	0-360	100	V
11	* ** 611.515	26.29	Pk	25	-28.4	22.89	46.02	-23.13	0-360	100	V

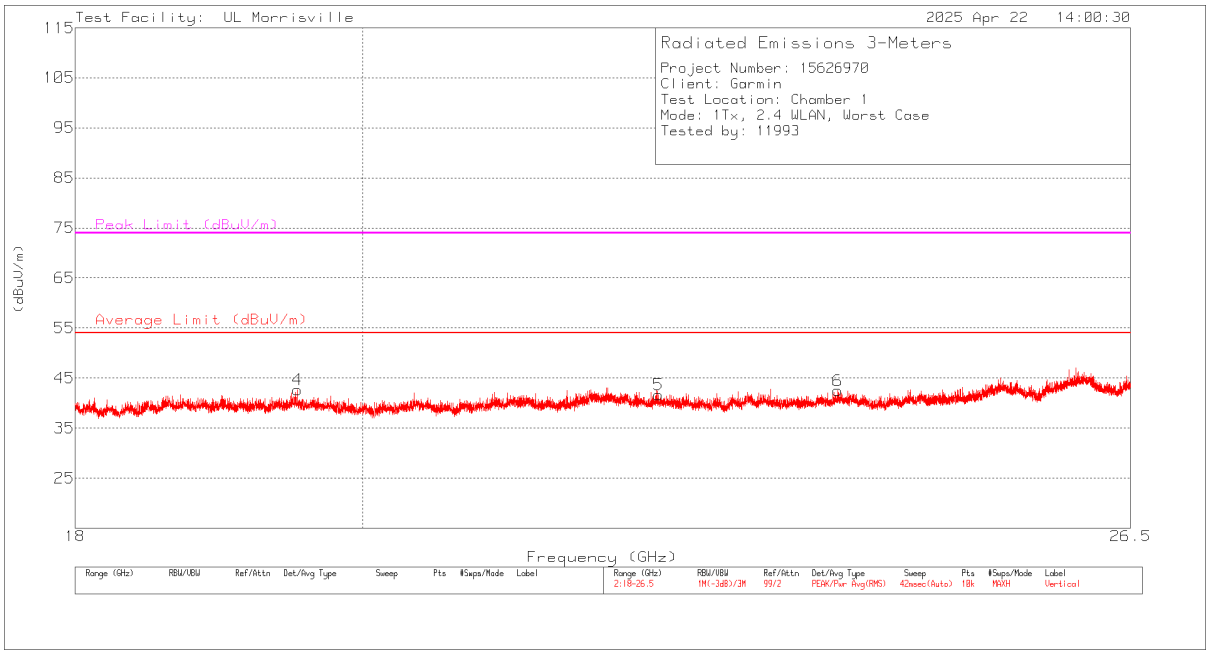
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.4. WORST CASE SPURIOUS 18-26 GHZ

10.4.1. 2.4 WLAN



HORIZONTAL



VERTICAL

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 20.9815	50.97	Pk	32.8	-40	43.77	54	-10.23	74	-30.23	0-360	149	H
2	* ** 22.91846	49.69	Pk	33.5	-40.2	42.99	54	-11.01	74	-31.01	0-360	100	H
3	* ** 23.63409	50.87	Pk	33.8	-39.9	44.77	54	-9.23	74	-29.23	0-360	100	H
4	* ** 19.52815	50.17	Pk	32.6	-40.1	42.67	54	-11.33	74	-31.33	0-360	150	V
5	* ** 22.28867	48.41	Pk	33.4	-40.2	41.61	54	-12.39	74	-32.39	0-360	101	V
6	* ** 23.80407	48.37	Pk	34	-39.9	42.47	54	-11.53	74	-31.53	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

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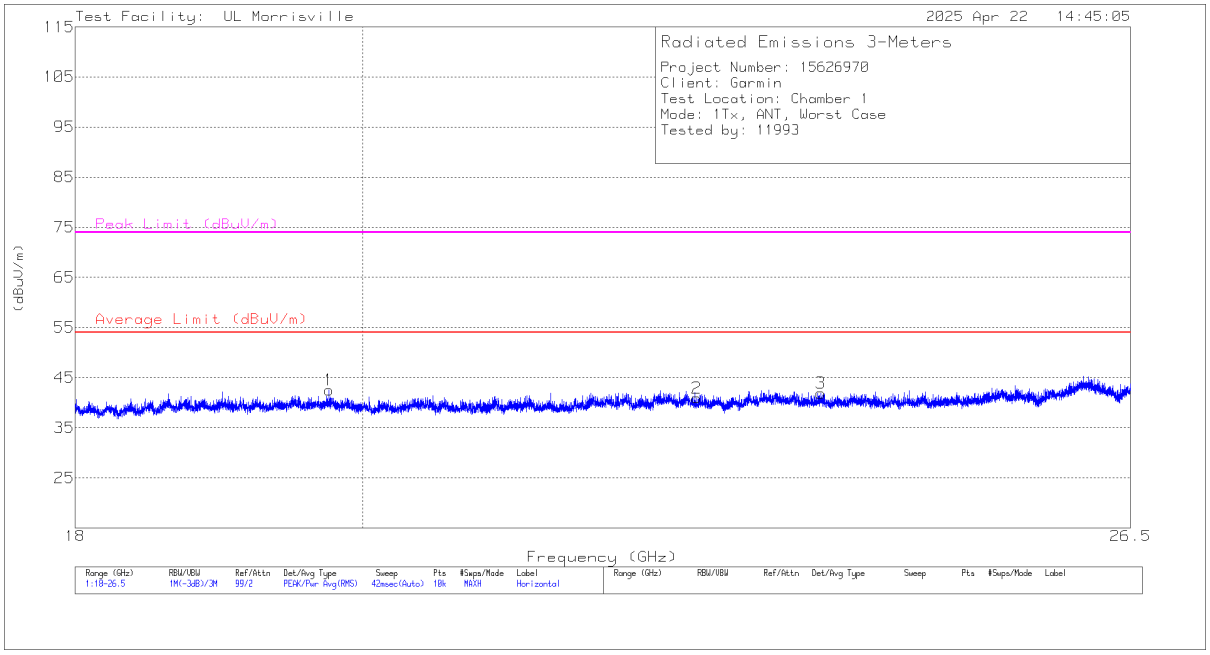
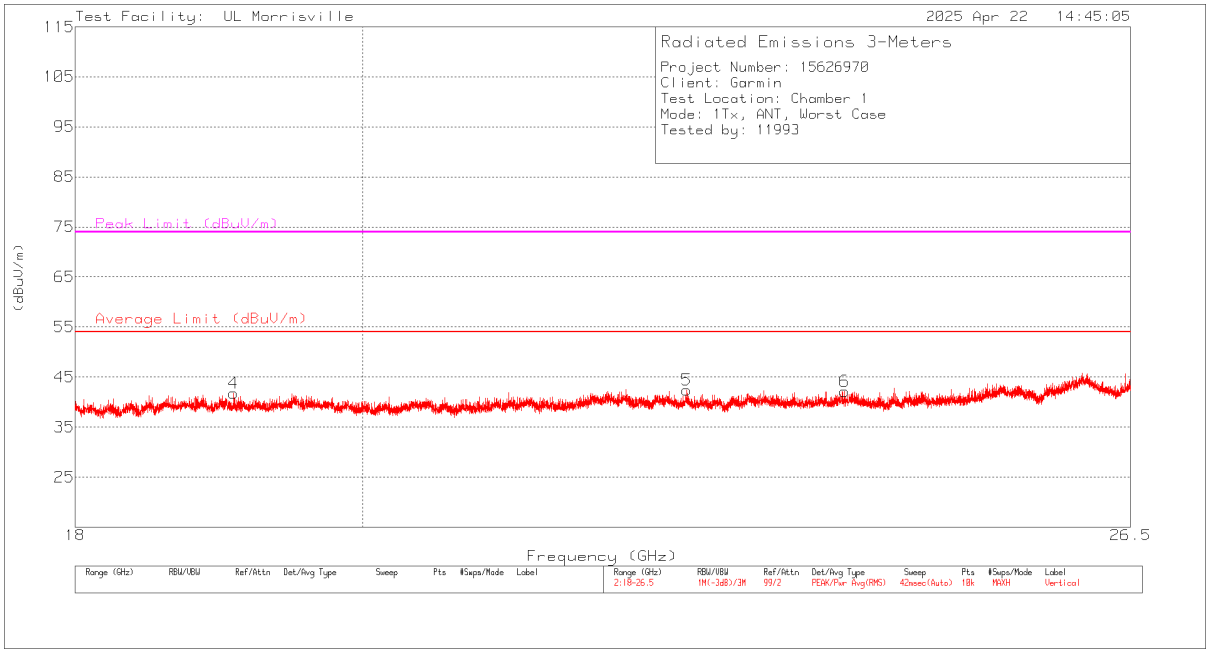
10.4.2. ANT/ANT+



HORIZONTAL



VERTICAL

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 19.75592	50.27	Pk	32.5	-40.2	42.57	54	-11.43	74	-31.43	0-360	149	H
2	* ** 22.60314	47.76	Pk	33.4	-40.2	40.96	54	-13.04	74	-33.04	0-360	300	H
3	* ** 23.65873	48.05	Pk	33.8	-39.9	41.95	54	-12.05	74	-32.05	0-360	200	H
4	* ** 19.07514	49.33	Pk	32.5	-40.1	41.73	54	-12.27	74	-32.27	0-360	200	V
5	* ** 22.5241	49.25	Pk	33.4	-40.2	42.45	54	-11.55	74	-31.55	0-360	251	V
6	* ** 23.86271	48.23	Pk	33.8	-39.9	42.13	54	-11.87	74	-31.87	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

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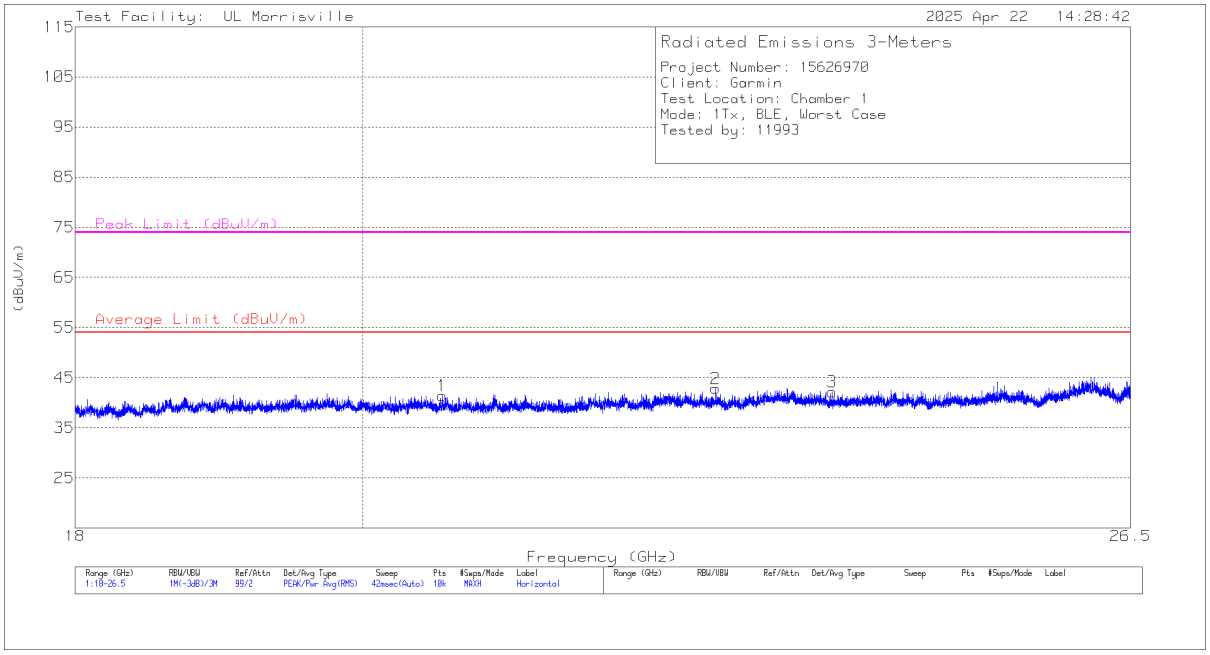
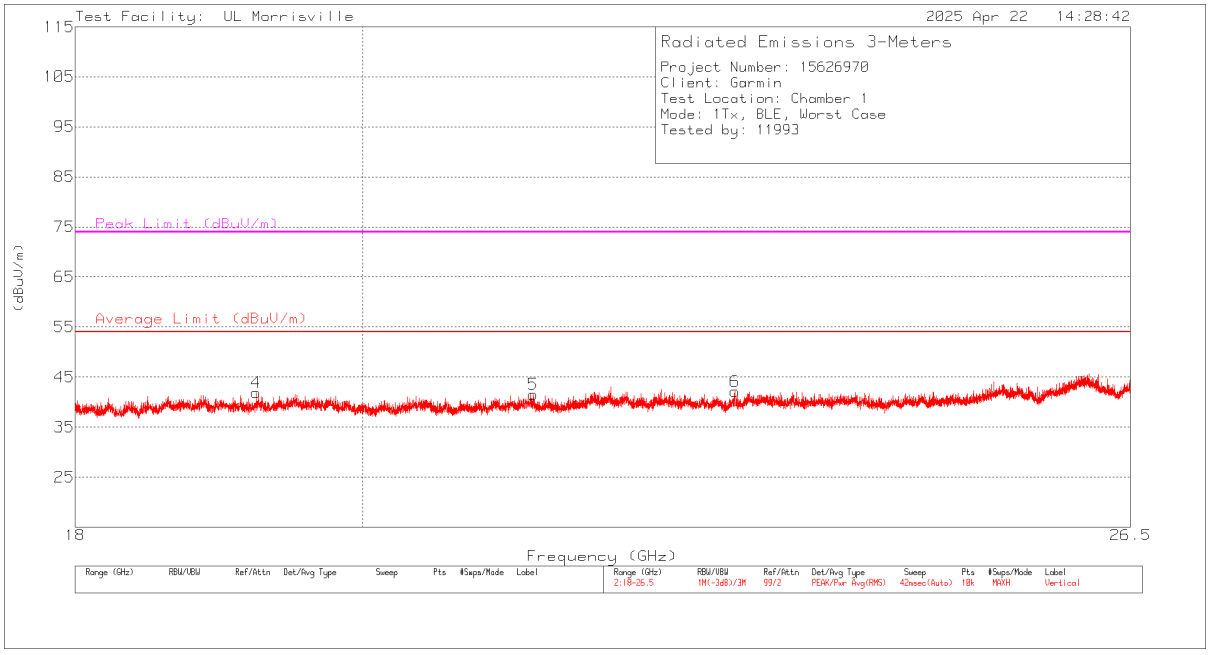
10.4.3. BLE



HORIZONTAL



VERTICAL

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 20.59224	48.94	Pk	32.6	-40.1	41.44	54	-12.56	74	-32.56	0-360	300	H
2	* ** 22.76377	49.64	Pk	33.4	-40.2	42.84	54	-11.16	74	-31.16	0-360	101	H
3	* ** 23.75477	48.09	Pk	34	-39.9	42.19	54	-11.81	74	-31.81	0-360	300	H
4	* ** 19.23323	49.39	Pk	32.6	-40.1	41.89	54	-12.11	74	-32.11	0-360	300	V
5	* ** 21.28832	48.83	Pk	32.7	-40	41.53	54	-12.47	74	-32.47	0-360	300	V
6	* ** 22.92526	48.8	Pk	33.5	-40.2	42.1	54	-11.9	74	-31.9	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

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11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both lines.

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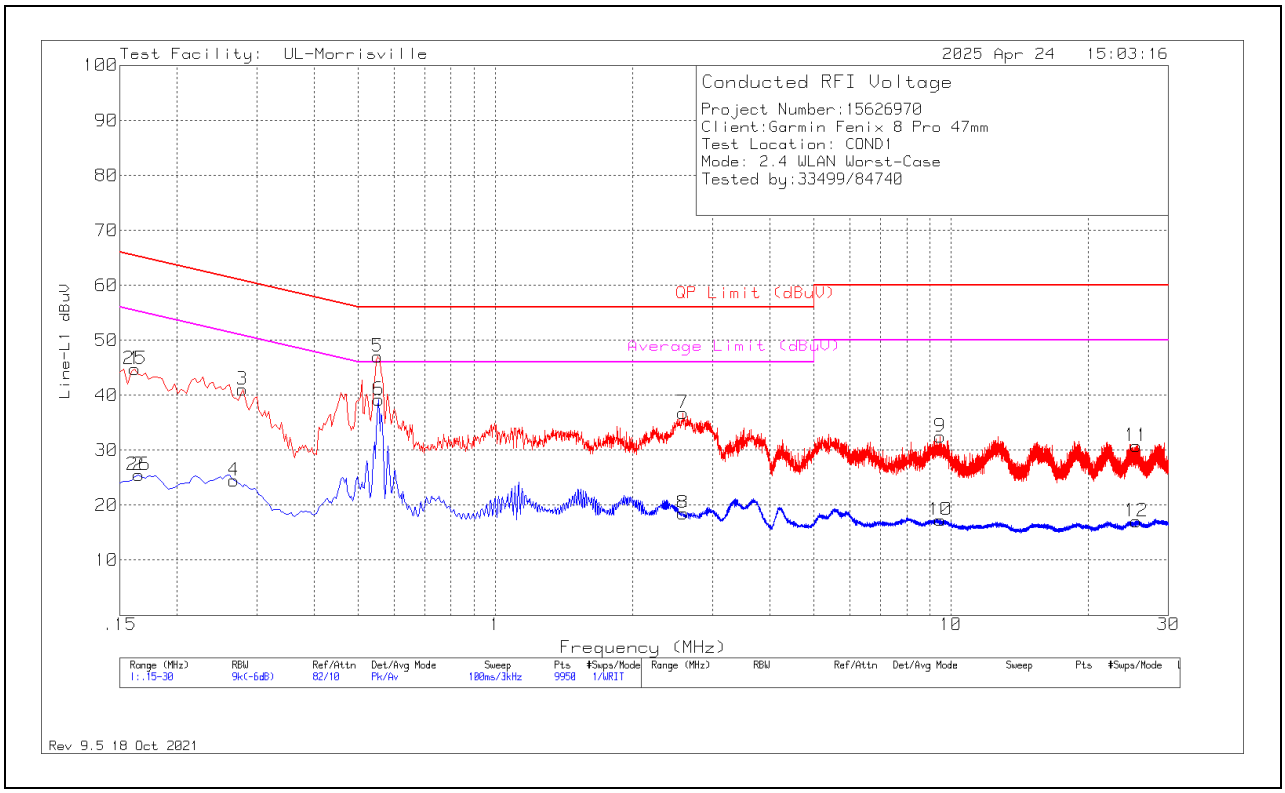
11.1. AC POWER LINE

11.1.1. 2.4 WLAN

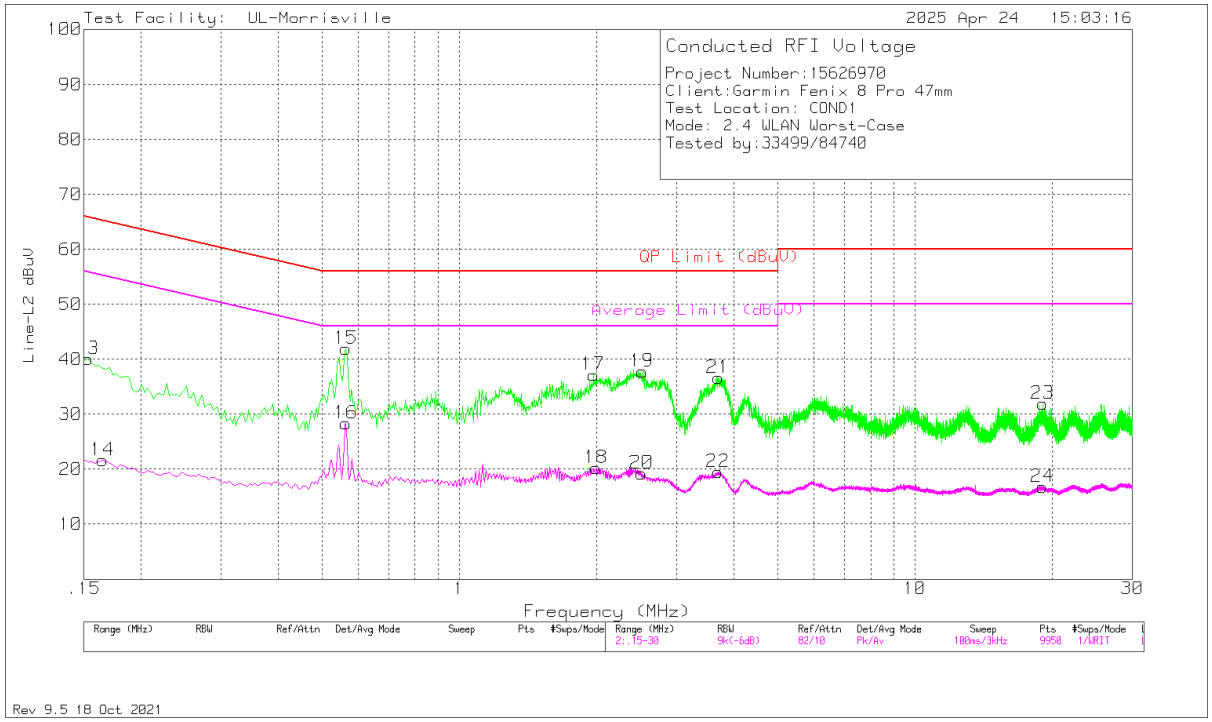
LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.162	24.55	Pk	.2	0	20	44.75	65.36	-20.61	-	-
25	.162	24.55	Pk	.2	0	20	44.75	65.36	-20.61	-	-
2	.165	5.29	Av	.2	0	20	25.49	-	-	55.21	-29.72
26	.165	5.29	Av	.2	0	20	25.49	-	-	55.21	-29.72
4	.267	4.39	Av	.1	0	20	24.49	-	-	51.21	-26.72
3	.279	20.94	Pk	.1	0	20	41.04	60.85	-19.81	-	-
5	.552	26.91	Pk	0	.1	20	47.01	56	-8.99	-	-
6	.555	19.12	Av	0	.1	20	39.22	-	-	46	-6.78
7	2.583	16.72	Pk	0	.1	20	36.82	56	-19.18	-	-
8	2.583	-1.54	Av	0	.1	20	18.56	-	-	46	-27.44
9	9.483	12.18	Pk	.1	.2	20	32.48	60	-27.52	-	-
10	9.483	-3.01	Av	.1	.2	20	17.29	-	-	50	-32.71
12	25.518	-3.75	Av	.4	.4	20	17.05	-	-	50	-32.95
11	25.521	9.93	Pk	.4	.4	20	30.73	60	-29.27	-	-

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS

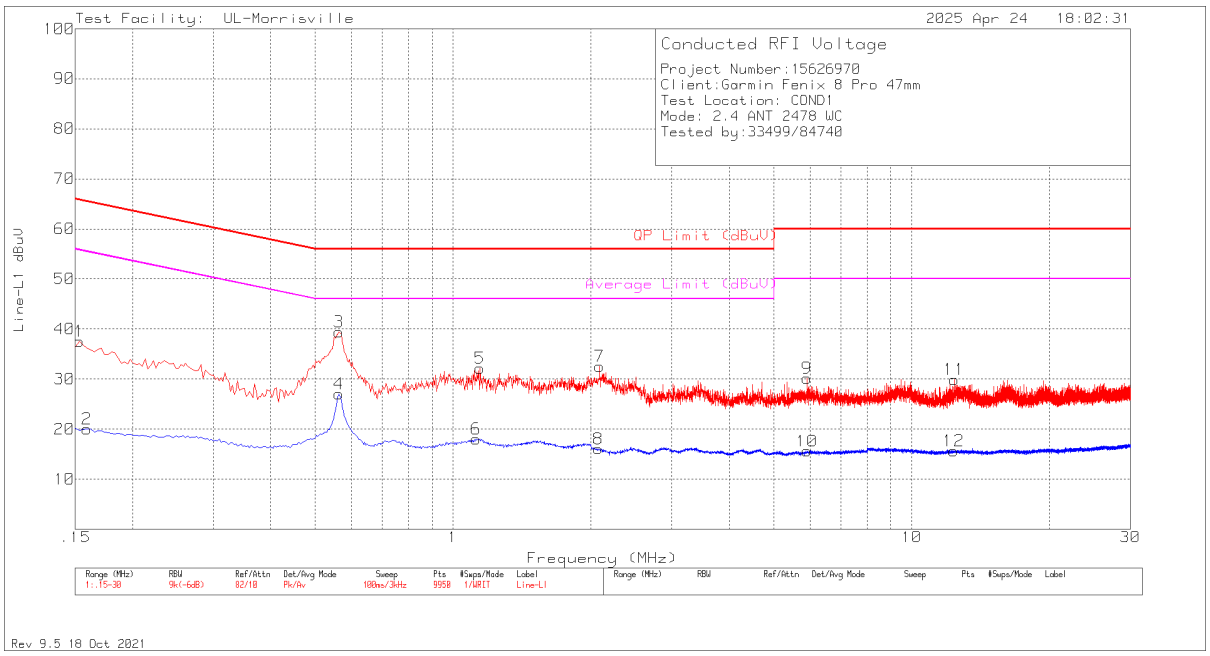


Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.153	19.82	Pk	.2	0	20	40.02	65.84	-25.82	-	-
14	.165	1.42	Av	.2	0	20	21.62	-	-	55.21	-33.59
15	.564	21.83	Pk	0	.1	20	41.93	56	-14.07	-	-
16	.564	8.2	Av	0	.1	20	28.3	-	-	46	-17.7
17	1.971	17.04	Pk	0	.1	20	37.14	56	-18.86	-	-
18	1.998	.11	Av	0	.1	20	20.21	-	-	46	-25.79
20	2.511	-.84	Av	0	.1	20	19.26	-	-	46	-26.74
19	2.52	17.62	Pk	0	.1	20	37.72	56	-18.28	-	-
22	3.699	-.61	Av	0	.1	20	19.49	-	-	46	-26.51
21	3.702	16.49	Pk	0	.1	20	36.59	56	-19.41	-	-
24	19.062	-3.77	Av	.2	.4	20	16.83	-	-	50	-33.17
23	19.077	11.28	Pk	.2	.4	20	31.88	60	-28.12	-	-

Pk - Peak detector
Av - Average detection

11.1.2. ANT/ANT+

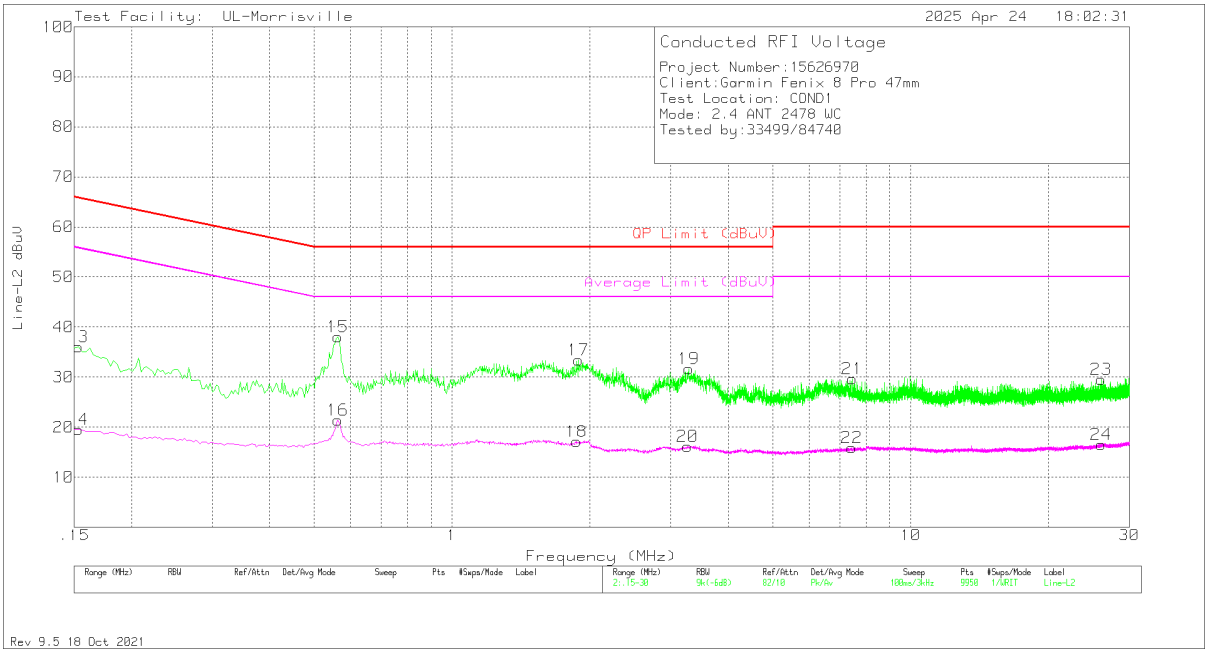
LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.153	17.34	Pk	.2	0	20	37.54	65.84	-28.3	-	-
2	.159	-.16	Av	.2	0	20	20.04	-	-	55.52	-35.48
3	.564	19.29	Pk	0	.1	20	39.39	56	-16.61	-	-
4	.564	6.89	Av	0	.1	20	26.99	-	-	46	-19.01
6	1.122	-2.08	Av	0	.1	20	18.02	-	-	46	-27.98
5	1.146	12.11	Pk	0	.1	20	32.21	56	-23.79	-	-
8	2.073	-4.03	Av	0	.1	20	16.07	-	-	46	-29.93
7	2.088	12.39	Pk	0	.1	20	32.49	56	-23.51	-	-
9	5.913	9.81	Pk	.1	.2	20	30.11	60	-29.89	-	-
10	5.922	-4.72	Av	.1	.2	20	15.58	-	-	50	-34.42
12	12.366	-4.73	Av	.1	.3	20	15.67	-	-	50	-34.33
11	12.387	9.48	Pk	.1	.3	20	29.88	60	-30.12	-	-

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS

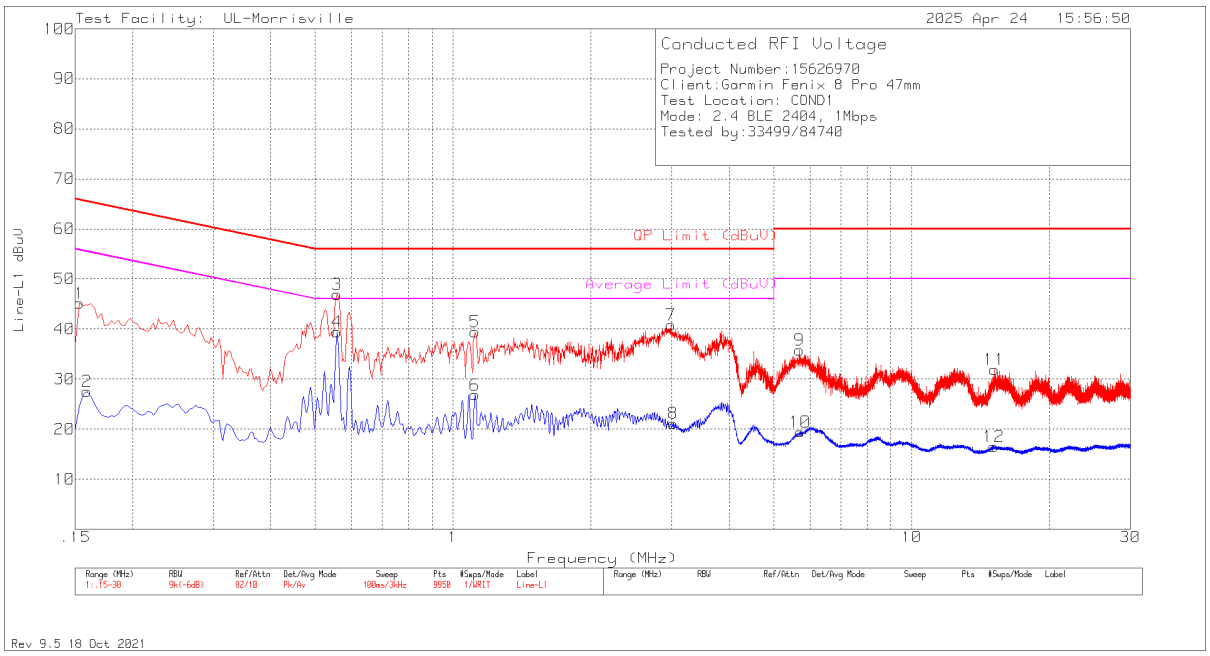


Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.153	15.89	Pk	.2	0	20	36.09	65.84	-29.75	-	-
14	.153	-.64	Av	.2	0	20	19.56	-	-	55.84	-36.28
15	.564	17.92	Pk	0	.1	20	38.02	56	-17.98	-	-
16	.564	1.28	Av	0	.1	20	21.38	-	-	46	-24.62
18	1.872	-3.01	Av	0	.1	20	17.09	-	-	46	-28.91
17	1.887	13.33	Pk	0	.1	20	33.43	56	-22.57	-	-
20	3.267	-3.92	Av	0	.1	20	16.18	-	-	46	-29.82
19	3.285	11.54	Pk	0	.1	20	31.64	56	-24.36	-	-
22	7.443	-4.44	Av	.1	.2	20	15.86	-	-	50	-34.14
21	7.464	9.36	Pk	.1	.2	20	29.66	60	-30.34	-	-
23	26.052	8.73	Pk	.4	.4	20	29.53	60	-30.47	-	-
24	26.052	-4.28	Av	.4	.4	20	16.52	-	-	50	-33.48

Pk - Peak detector
Av - Average detection

11.1.3. BLE

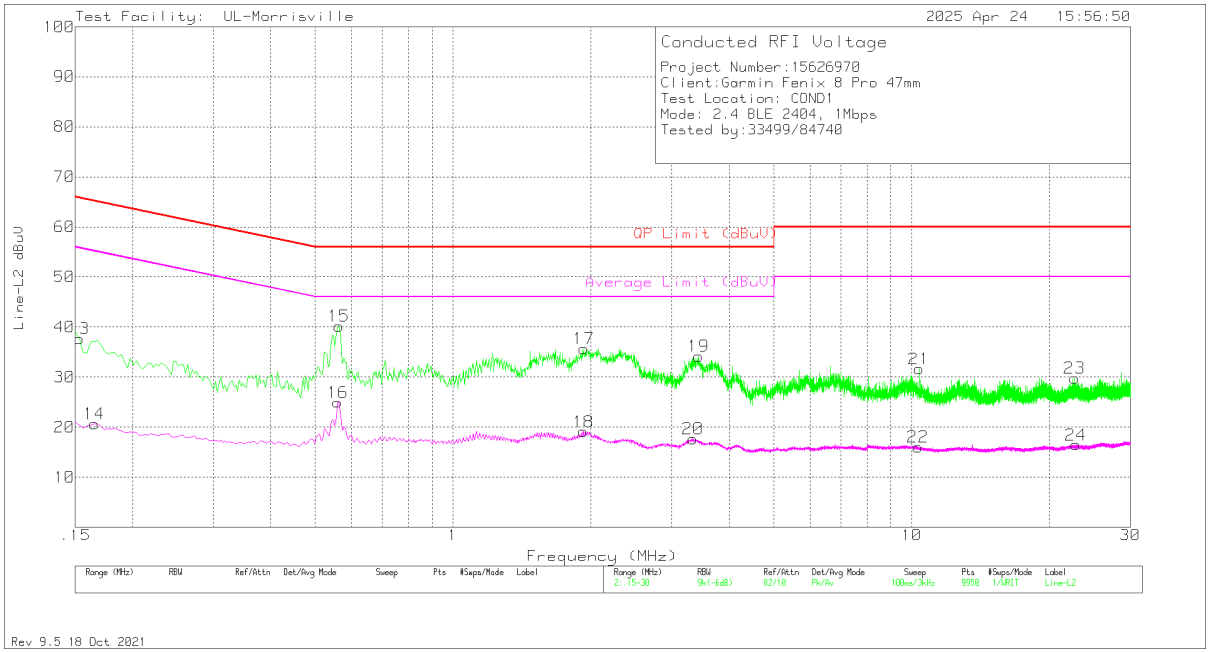
LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.153	24.93	Pk	.2	0	20	45.13	65.84	-20.71	-	-
2	.159	7.34	Av	.2	0	20	27.54	-	-	55.52	-27.98
3	.558	26.82	Pk	0	.1	20	46.92	56	-9.08	-	-
4	.558	19.37	Av	0	.1	20	39.47	-	-	46	-6.53
5	1.116	19.32	Pk	0	.1	20	39.42	56	-16.58	-	-
6	1.116	6.74	Av	0	.1	20	26.84	-	-	46	-19.16
7	2.988	20.7	Pk	0	.1	20	40.8	56	-15.2	-	-
8	3.021	1.09	Av	0	.1	20	21.19	-	-	46	-24.81
9	5.697	15.49	Pk	.1	.2	20	35.79	60	-24.21	-	-
10	5.706	-.85	Av	.1	.2	20	19.45	-	-	50	-30.55
12	15.123	-4.01	Av	.2	.3	20	16.49	-	-	50	-33.51
11	15.138	11.43	Pk	.2	.3	20	31.93	60	-28.07	-	-

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.153	17.48	Pk	.2	0	20	37.68	65.84	-28.16	-	-
14	.165	.45	Av	.2	0	20	20.65	-	-	55.21	-34.56
16	.561	4.86	Av	0	.1	20	24.96	-	-	46	-21.04
15	.564	20.05	Pk	0	.1	20	40.15	56	-15.85	-	-
18	1.926	-1.02	Av	0	.1	20	19.08	-	-	46	-26.92
17	1.929	15.57	Pk	0	.1	20	35.67	56	-20.33	-	-
20	3.333	-2.47	Av	0	.1	20	17.63	-	-	46	-28.37
19	3.429	14.02	Pk	0	.1	20	34.12	56	-21.88	-	-
22	10.326	-4.38	Av	.1	.3	20	16.02	-	-	50	-33.98
21	10.38	11.21	Pk	.1	.3	20	31.61	60	-28.39	-	-
23	22.674	9.13	Pk	.3	.4	20	29.83	60	-30.17	-	-
24	22.833	-4.25	Av	.3	.4	20	16.45	-	-	50	-33.55

Pk - Peak detector
Av - Average detection

12. SETUP PHOTOS

Please refer 15626970-EP2 for setup photos

END OF TEST REPORT

TEST REPORT

Report Number: R15626970-E2

Applicant	:	Garmin International Inc. 1200 East 151st Street Olathe, KS 66062-3426, USA
Model	:	A04807
FCC ID	:	IPH-04807
IC	:	1792A-04807
EUT Description	:	Extremity Worn Digital Transceiver
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:
2025-07-23

Prepared by:
UL LLC
12 Laboratory Dr.
Durham, NC 27713, USA
TEL: (919) 549-1400

CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2025-07-23	Initial Issue	Manish Baral

UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

TABLE OF CONTENTS

UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Garmin International Inc.
1200 East 151St Street
Olathe, KS 66062-3426, USA

EUT DESCRIPTION: Extremity Worn Digital Transceiver

MODEL: A04807

SERIAL NUMBER: 511423961, 511423988

SAMPLE RECEIPT DATE: 2025-03-04

DATE TESTED: 2025-03-21 TO 2025-04-30

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C ISED RSS-247 Issue 3 ISED RSS-GEN Issue 5 + A1 + A2	Refer to Section 2

UL LLC 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released
For UL LLC By:

Mike Antola
Sr. Staff Engineer
Consumer, Medical and IT Segment
UL LLC

Prepared By:

Manish Baral
Engineer
Consumer, Medical and IT Segment
UL LLC

2. TEST RESULTS SUMMARY

This report contains info provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.
Below is a list of the data/info provided by the customer:

1) Antenna gain and type (see section 6.3)
2) Worst-case data rates (see section 6.5)

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 11.6.
See Comment	RSS-GEN 6.7	20dB BW/99% OBW	Reporting purposes only	ANSI C63.10 Sections 6.9.2 and 6.9.3
15.247 (a)(1)	RSS-247 (5.1) (b)	Hopping Frequency Separation	Compliant	None
15.247 (a)(1)(iii)	RSS-247 (5.1) (d)	Number of Hopping Channels		
15.247 (a)(1)(iii)	RSS-247 (5.1) (d)	Average Time of Occupancy		
15.247 (b)(1)	RSS-247 (5.4) (b)	Output Power		
See Comment		Average Power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (d)	RSS-247 (5.5)	Conducted Spurious Emissions	Compliant	None
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions		
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions		

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2020, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, RSS-GEN Issue 5 + A1 + A2, and RSS-247 Issue 3.

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, 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: 12 Laboratory Dr Durham, NC 27713, USA	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

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	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%
Time	3.39%

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

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 an extremity worn digital transceiver with BT, BLE, ANT/ANT+, 802.11b/g/n 2.4GHz WLAN, NFC, and Global Navigation Satellite System (GNSS) receiver. This report covers full testing on the BT radio.

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	Basic GFSK	13.35	21.63
2402 - 2480	Enhanced DQPSK	14.77	29.99
2402 - 2480	Enhanced 8PSK	14.70	29.51

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:
The radio utilizes an antenna with the following type and maximum gain:

Type	Frequency Range (MHz)	Maximum Gain (dBi)
Slot	2402-2480	-6.41

6.4. SOFTWARE AND FIRMWARE

FW Version: 16.29.

6.5. WORST-CASE CONFIGURATION AND MODE

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

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, and Z. The worst-case orientation was determined to be the Z-orientation; therefore, all testing was performed with the EUT in the Z-orientation.

Note: Only worst case plots are included to reduce report size.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Lenovo	21AJS0KL00	PF4FKVZE	-

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Proprietary	1	USB-C	Shielded	<3m	Program/Charge EUT

SETUP DIAGRAMS

Please refer to R15626970-EP2 for setup diagrams

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
30-1000 MHz					
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-30	2026-01-30
1-18 GHz					
135143	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-02-07	2026-02-07
18-40 GHz					
91186	Horn Antenna, 18-26.5GHz	Antenna Research Associates	MWH-1826/B	2024-05-16	2025-05-16
Gain-Loss Chains					
91974	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-08	2025-05-08
91976	Gain-loss string: 25-1000MHz	Various	Various	2024-05-08	2025-05-08
91979	Gain-loss string: 1-18GHz	Various	Various	2024-05-08	2025-05-08
135999	Gain-loss string: 18-40GHz	Various	Various	2024-05-08	2025-05-08
Receiver & Software					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-08-29	2025-08-29
81018	Spectrum Analyzer	Agilent	E4446A	2024-07-31	2025-07-31
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
Conducted Room 1					
90411	Spectrum Analyzer	Keysight Technologies	N9030A	2024-08-01	2025-08-01
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
SOFTEMI	Antenna Port Software	UL	Version 2024.4.23	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA
Additional Equipment used					
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
70374	EMI Test Receiver	ROHDE & SCHWARZ	ESCI7	2024-07-30	2025-07-30
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2024-04-04	2025-04-30
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2024-08-01	2025-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2024-04-04	2025-04-30
236852	CW-AC Power Source	Ametek	CW2501	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

s

8. MEASUREMENT METHODS

On Time and Duty Cycle: ANSI C63.10-2020 Section 11.6

Occupied BW (20dB): ANSI C63.10-2020 Section 6.9.2

Occupied BW (99%): ANSI C63.10-2020 Section 6.9.3

Carrier Frequency Separation: ANSI C63.10-2020 Section 7.8.2

Number of Hopping Frequencies: ANSI C63.10-2020 Section 7.8.3

Time of Occupancy (Dwell Time): ANSI C63.10-2020 Section 7.8.4

Output Power: ANSI C63.10-2020 Section 7.8.5

Conducted Spurious Emissions: ANSI C63.10-2020 Section 7.8.7

Conducted Band-Edge: ANSI C63.10-2020 Section 7.8.7.2 and 6.10.4

Radiated Band-edge: ANSI C63.10-2020 Section 6.10.5

Radiated Spurious Emissions: ANSI C63.10-2020 Sections 6.3 to 6.6 and 7.8.8

AC Power Line Conducted Emissions: ANSI C63.10-2020, Section 6.2.

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

ANSI C63.10, Section 11.6: Zero-Span Spectrum Analyzer Method.

Mode	ON Time B (ms)	Period (ms)	Duty Cycle x (lineari)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
GFSK	100.00	100.00	1.000	100.00	0.00	0.010
QPSK	100.00	100.00	1.000	100.00	0.00	0.010
8PSK	100.00	100.00	1.000	100.00	0.00	0.010

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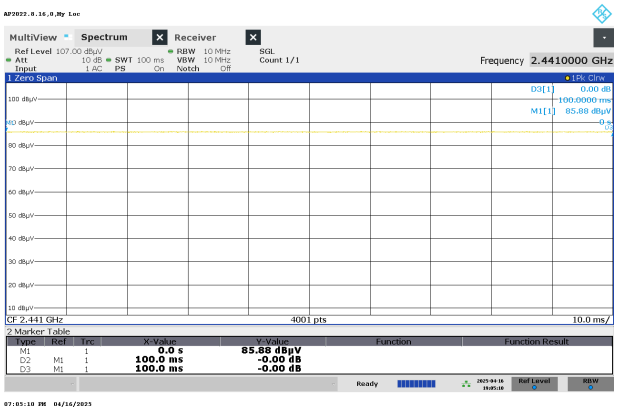
GFSK

QPSK



8PSK

Tested By: 84740/11993
Date: 2025-04-15, 2025-04-16

9.2. 20 dB AND 99% BANDWIDTH

LIMITS

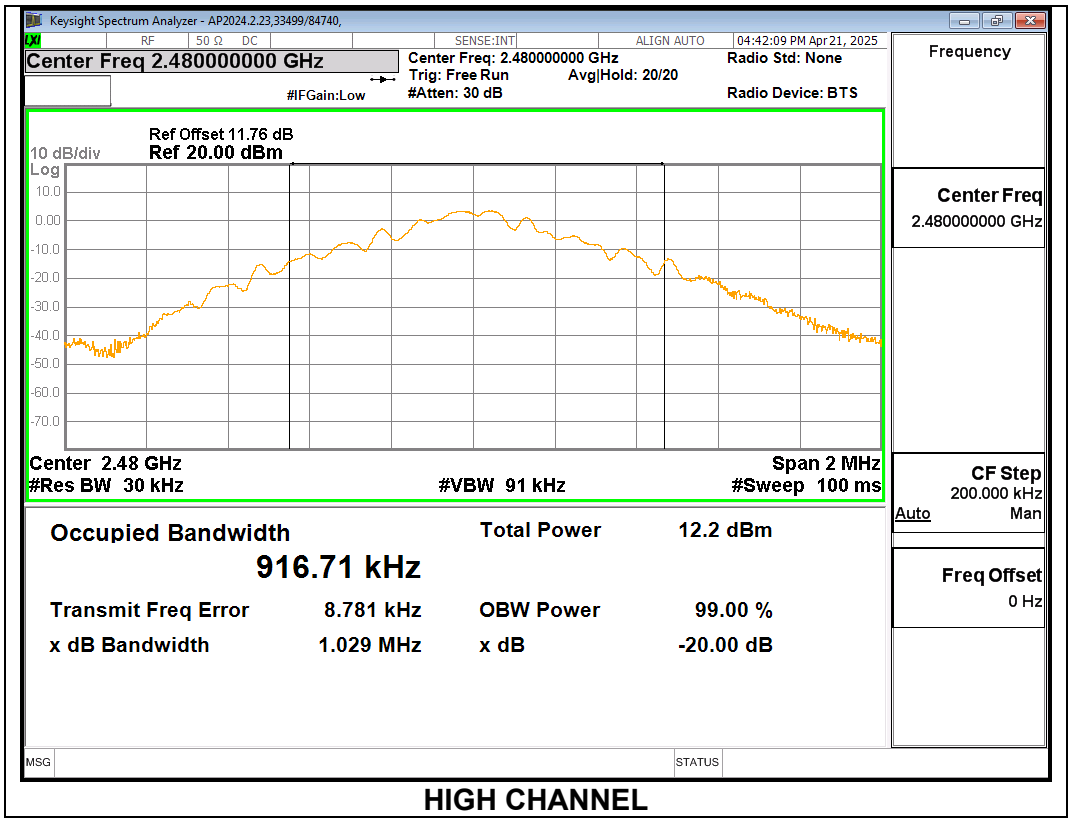
None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1-5% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled.

9.2.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

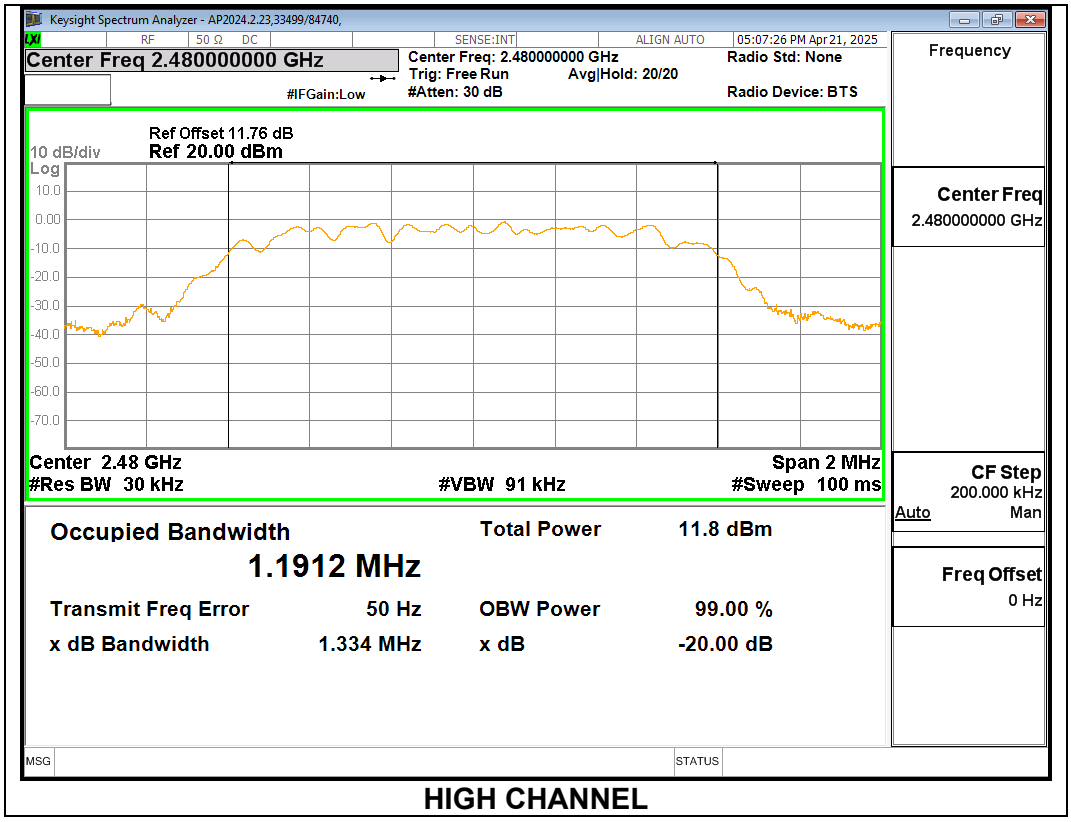
Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.031	0.927
Mid	2441	1.029	0.908
High	2480	1.029	0.917



HIGH CHANNEL

9.2.2. BLUETOOTH BASIC DATA RATE QPSK MODULATION

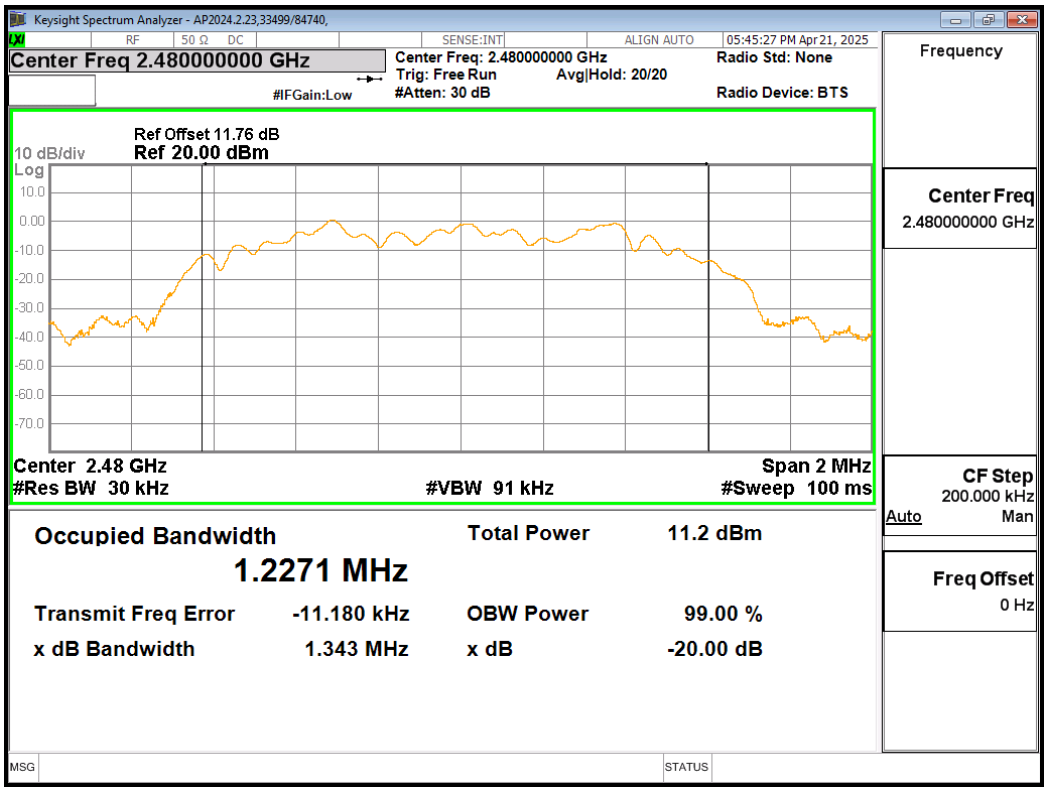
Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.342	1.164
Mid	2441	1.334	1.190
High	2480	1.334	1.191



HIGH CHANNEL

9.2.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.353	1.2302
Mid	2441	1.343	1.2256
High	2480	1.343	1.2271



HIGH CHANNEL

9.3. HOPPING FREQUENCY SEPARATION

LIMITS

FCC §15.247 (a) (1)
RSS-247 (5.1) (b)

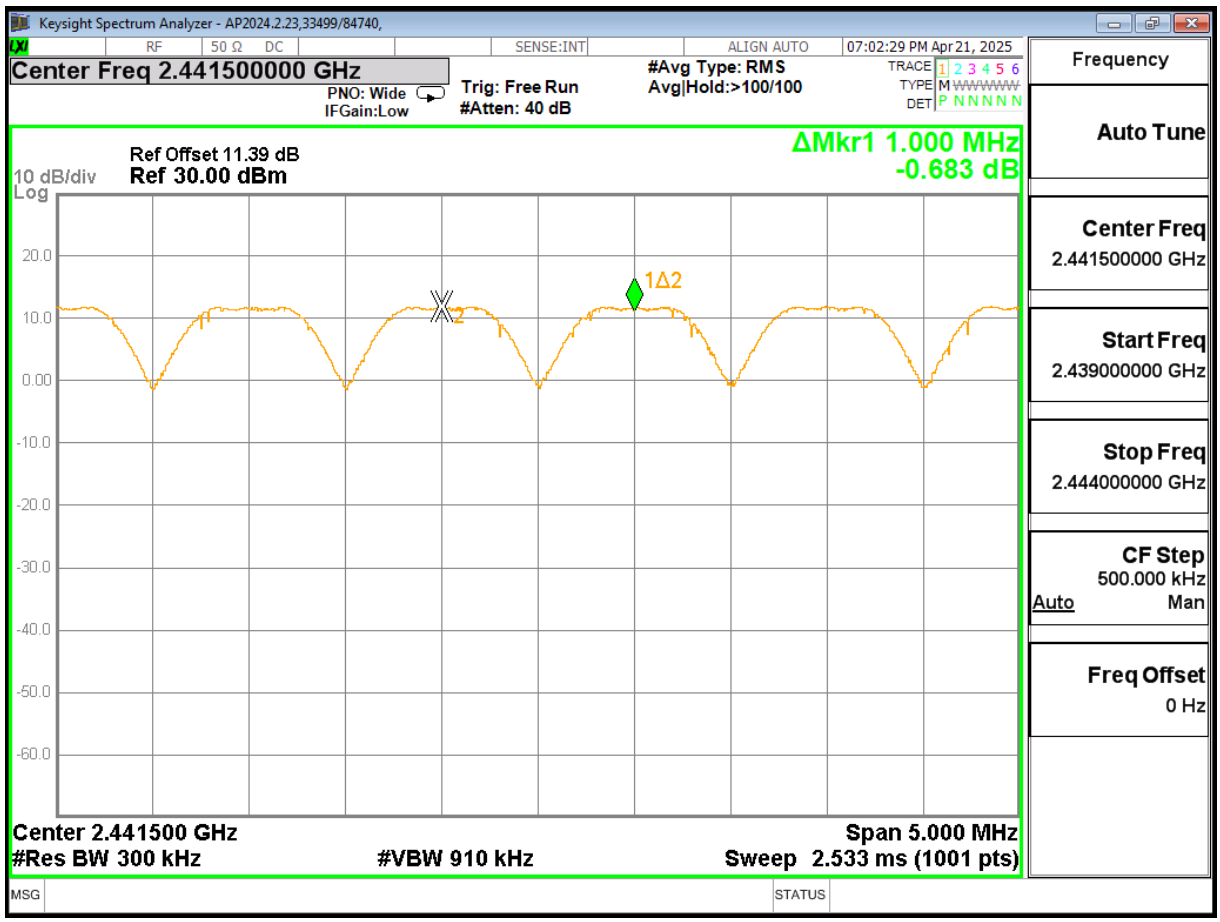
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to VBW >= RBW. The sweep time is coupled.

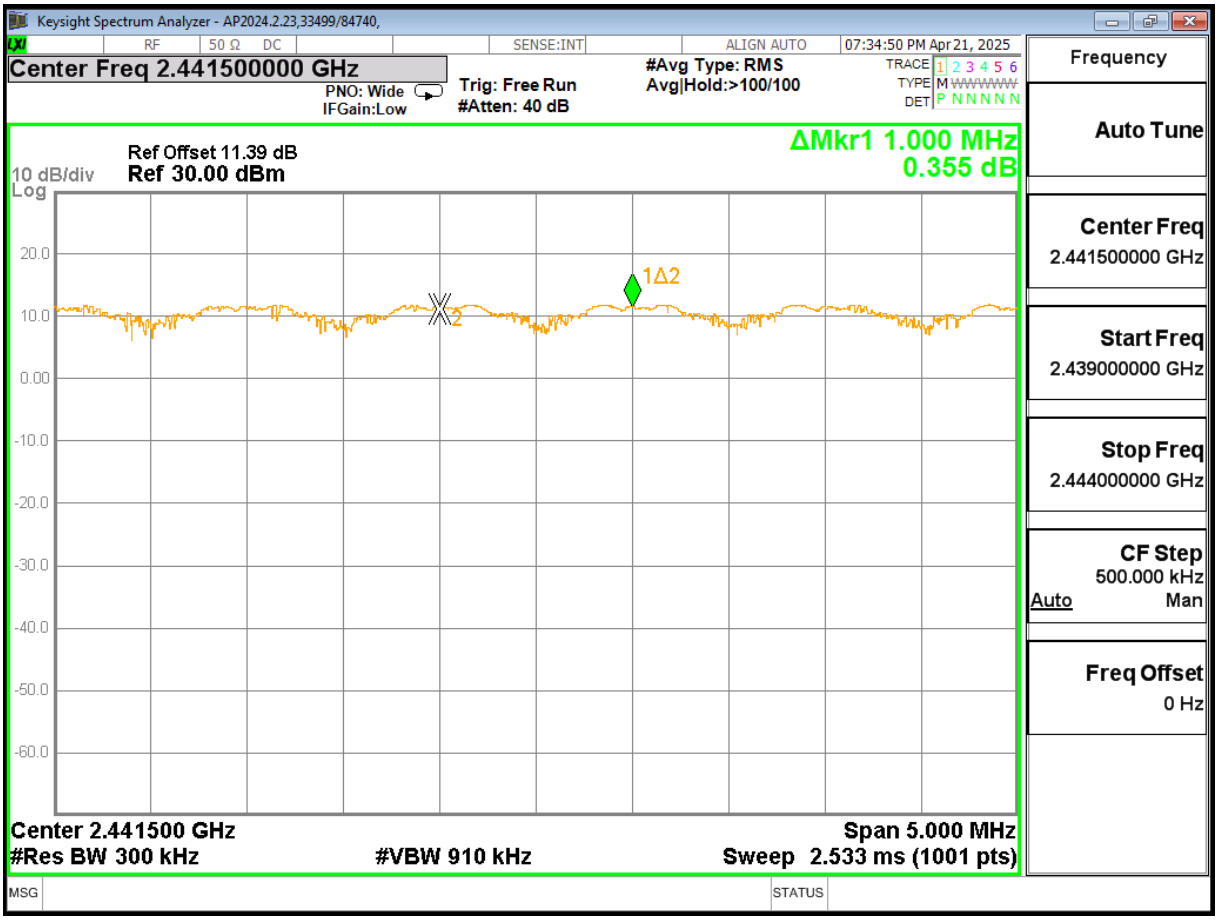
9.3.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION



HOPPING FREQUENCY SEPARATION PLOT

(20dB BW) x (2/3) = (1.031 MHz) x (2/3) = 0.687333 MHz
0.687333 MHz < 1 MHz

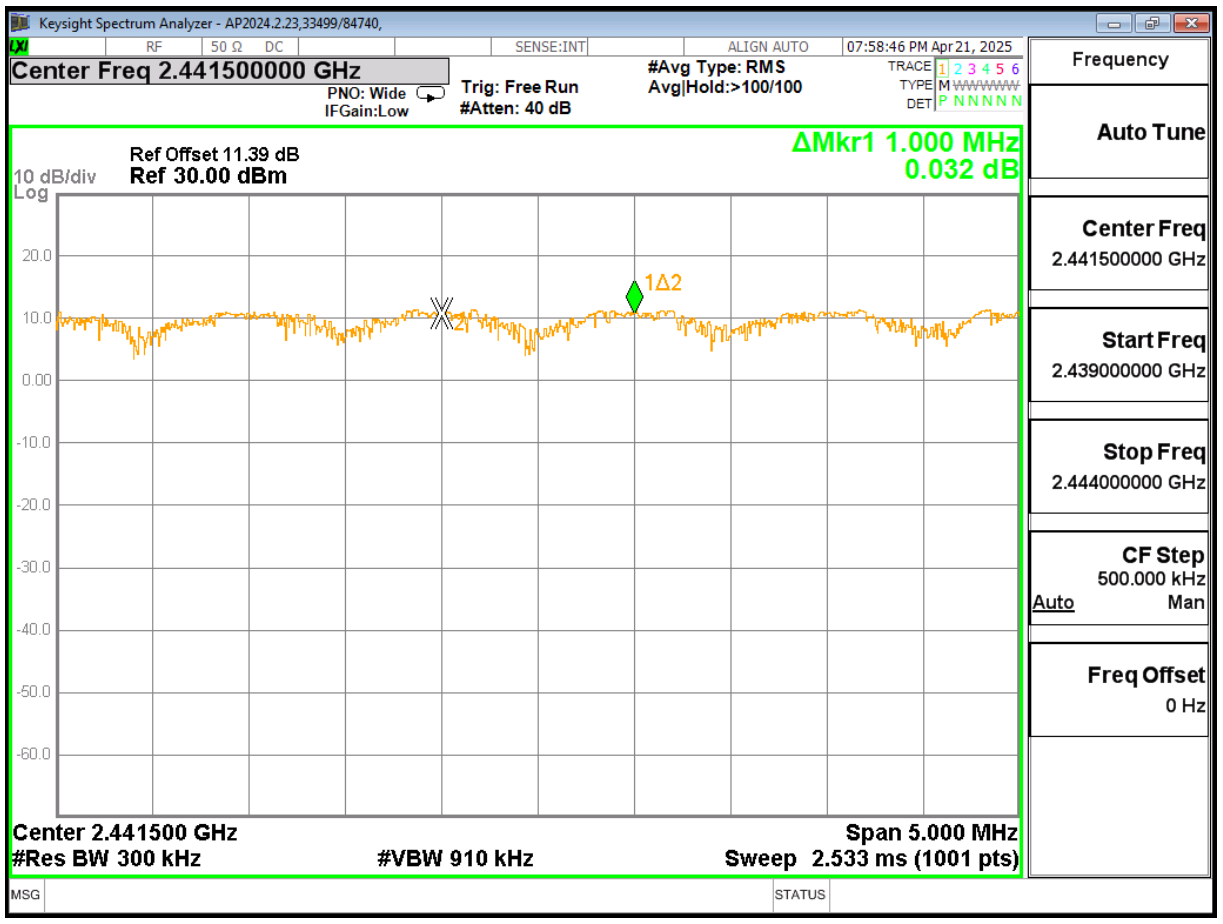
9.3.2. BLUETOOTH BASIC DATA RATE QPSK MODULATION



HOPPING FREQUENCY SEPARATION PLOT

(20dB BW) x (2/3) = (1.342 MHz) x (2/3) = 0.89466 MHz
0.89466 MHz < 1 MHz

9.3.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION



HOPPING FREQUENCY SEPARATION PLOT

(20dB BW) x (2/3) = (1.353 MHz) x (2/3) = 0.902 MHz
0.902 MHz < 1 MHz

9.4. NUMBER OF HOPPING CHANNELS

LIMITS

FCC §15.247 (a) (1) (iii)
RSS-247 (5.1) (d)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

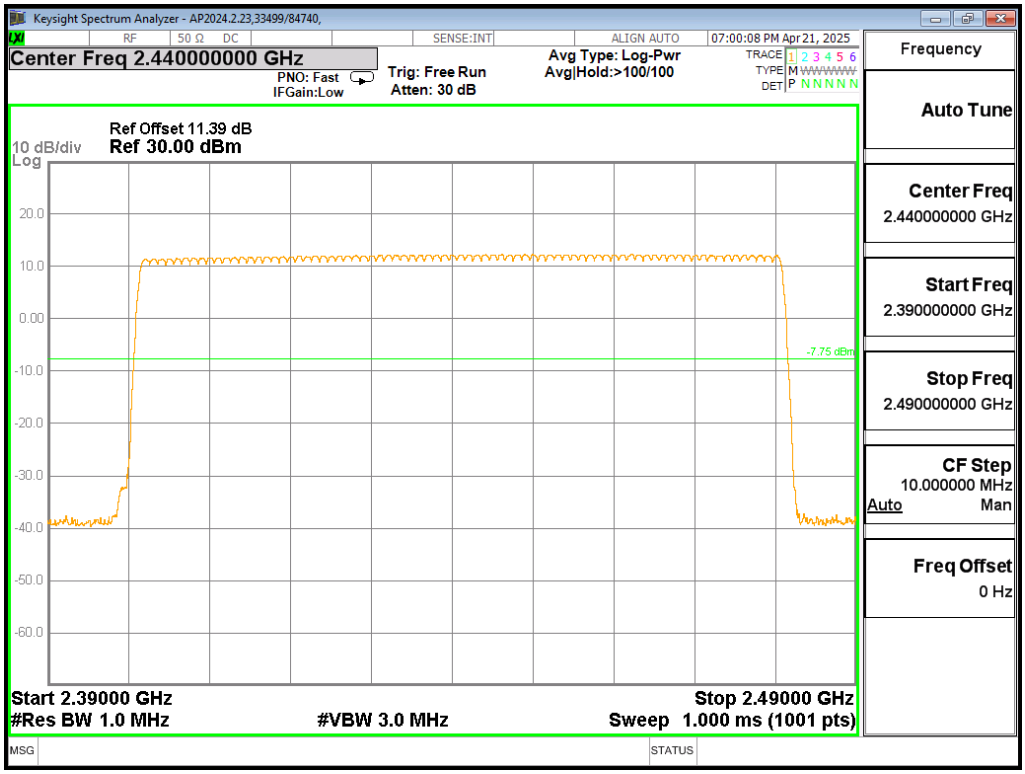
TEST PROCEDURE

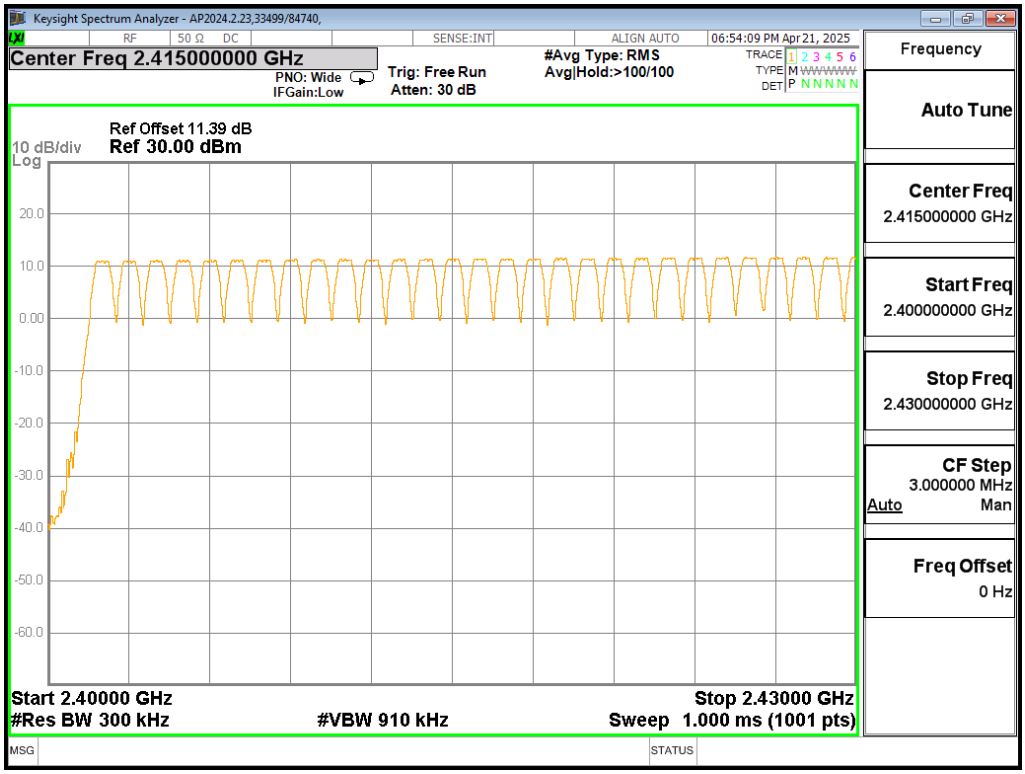
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

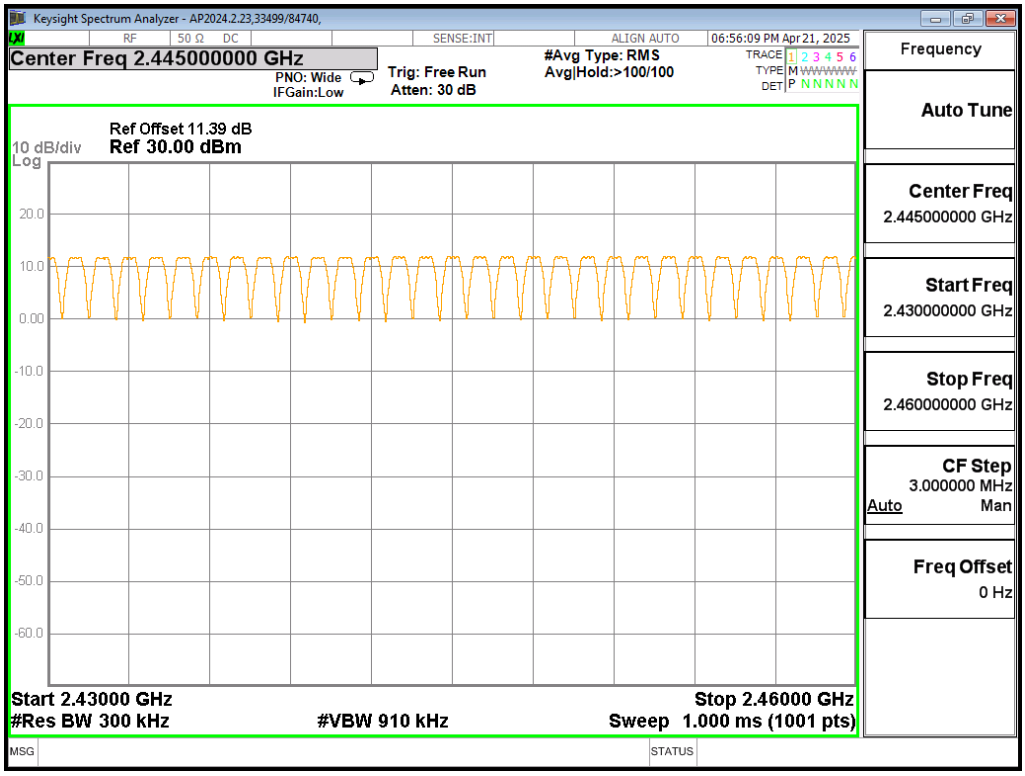
Normal Mode: 79 Channels Observed

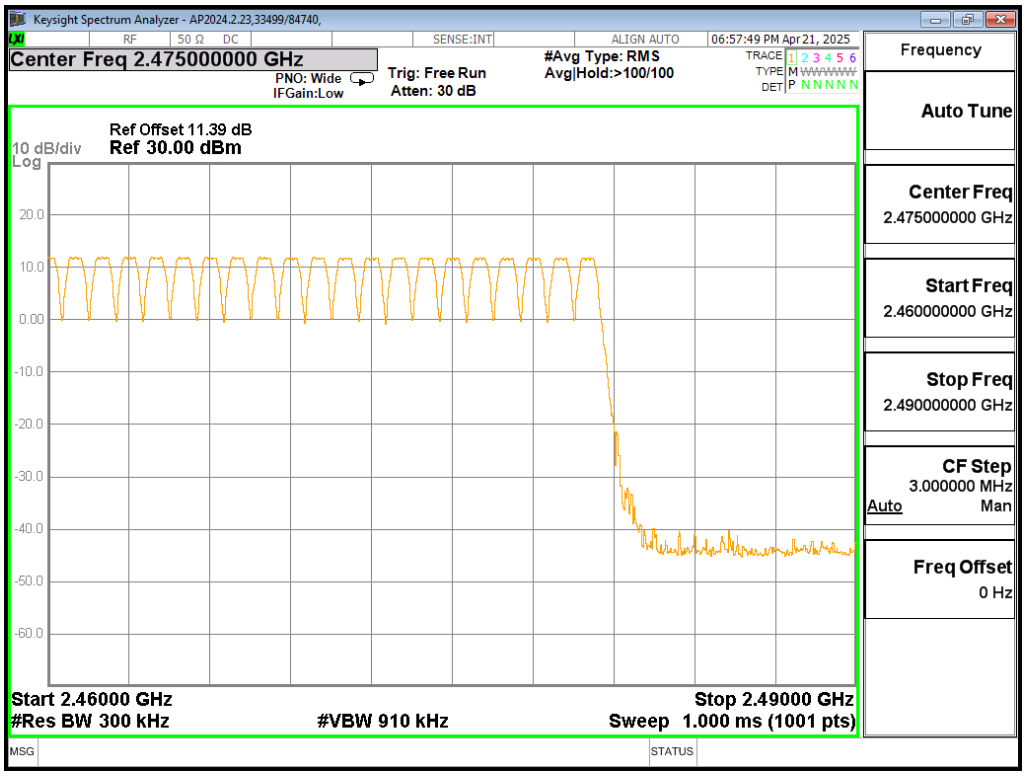
UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

9.4.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

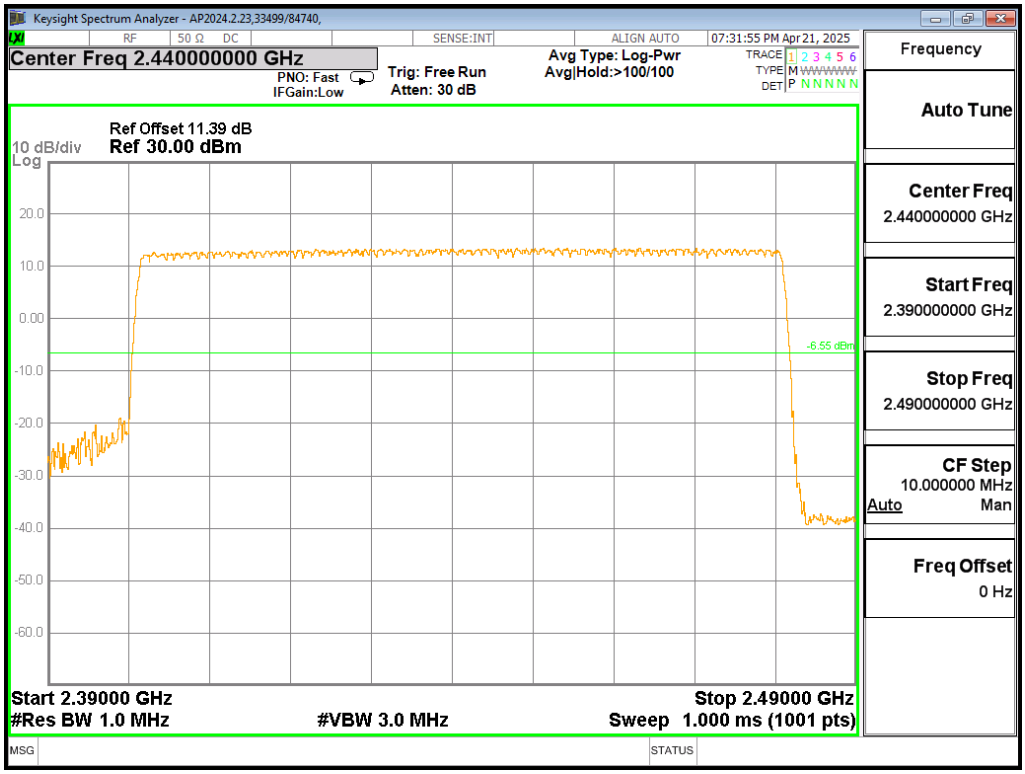


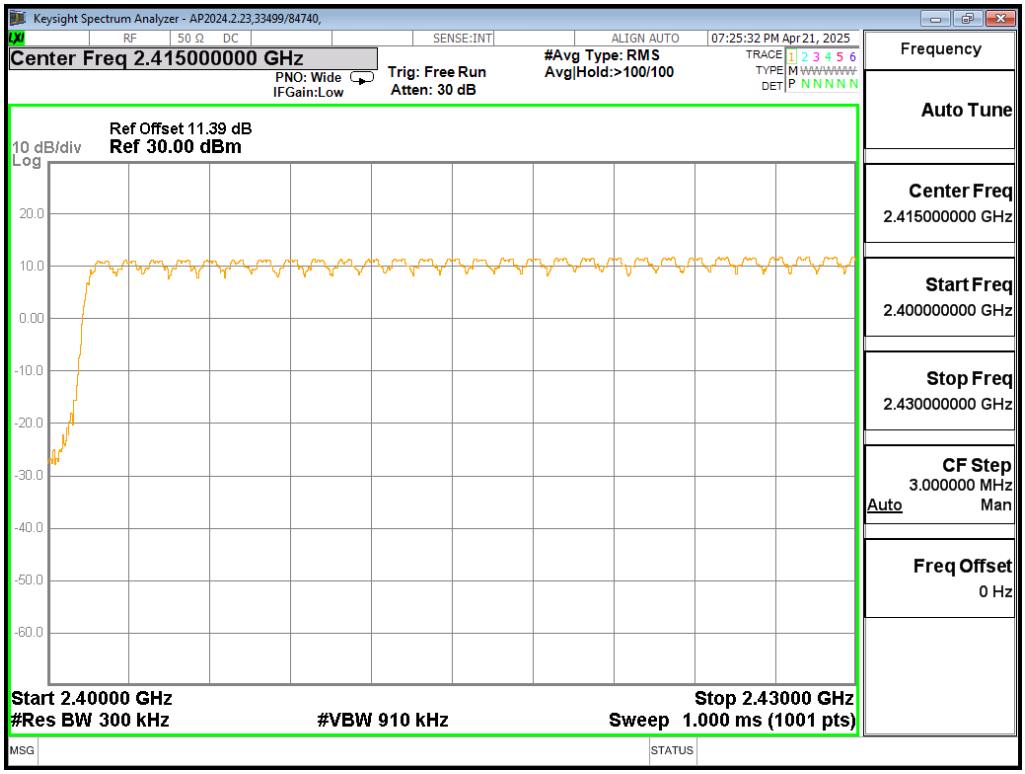


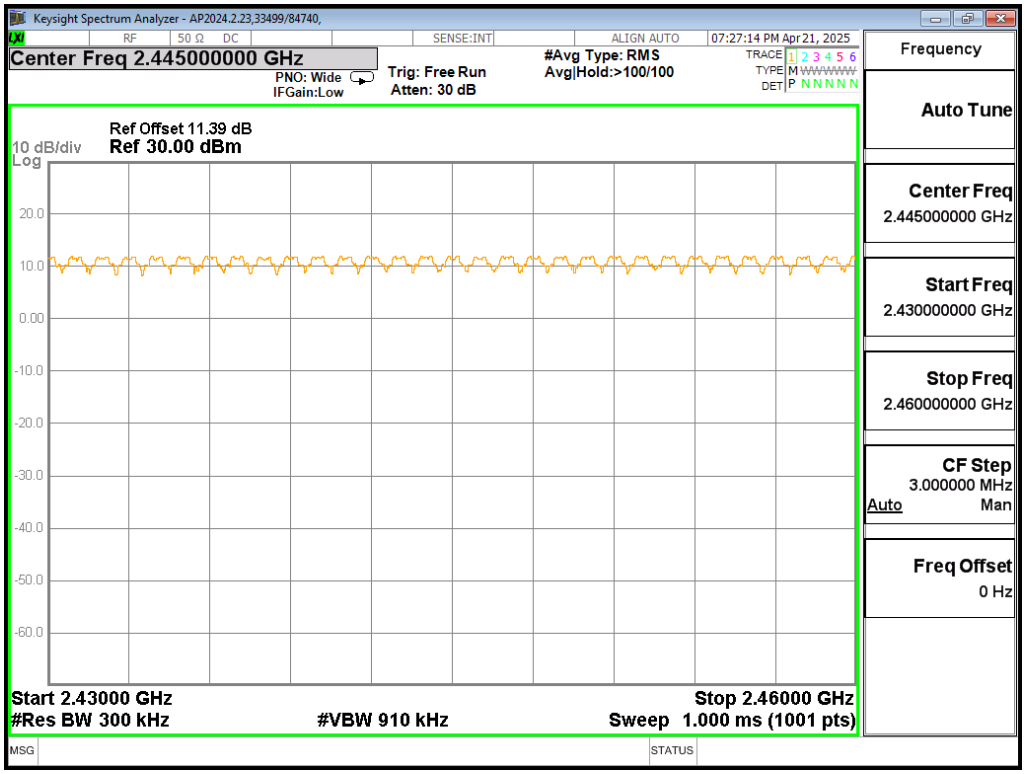


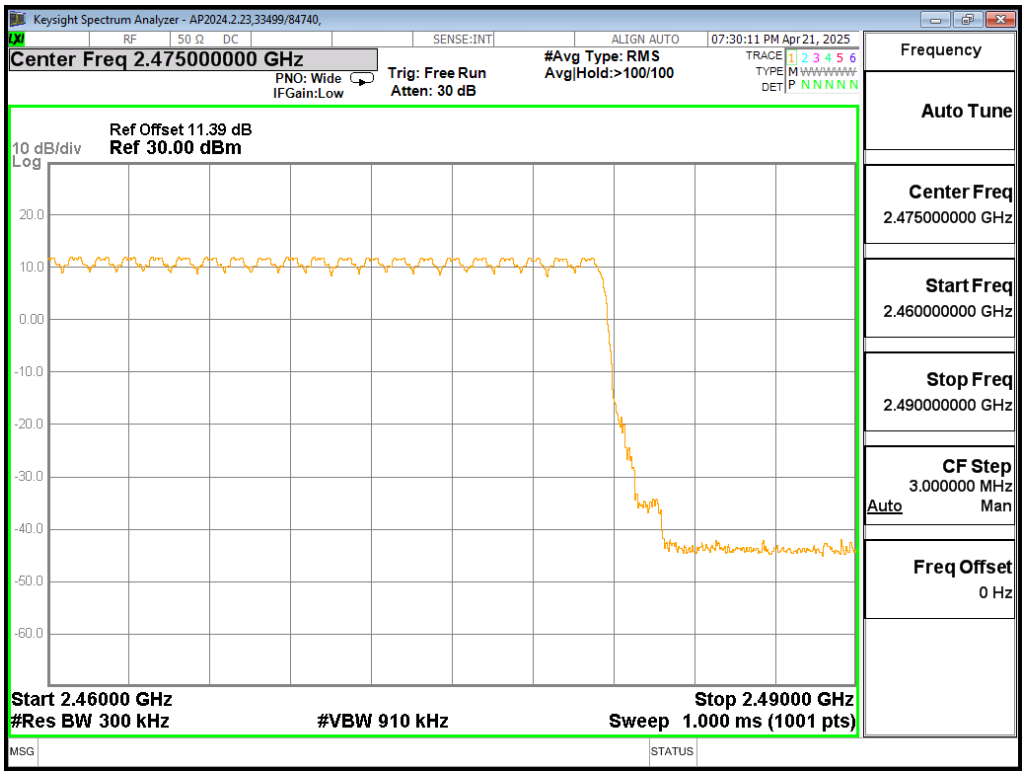


9.4.2. BLUETOOTH BASIC DATA RATE QPSK MODULATION

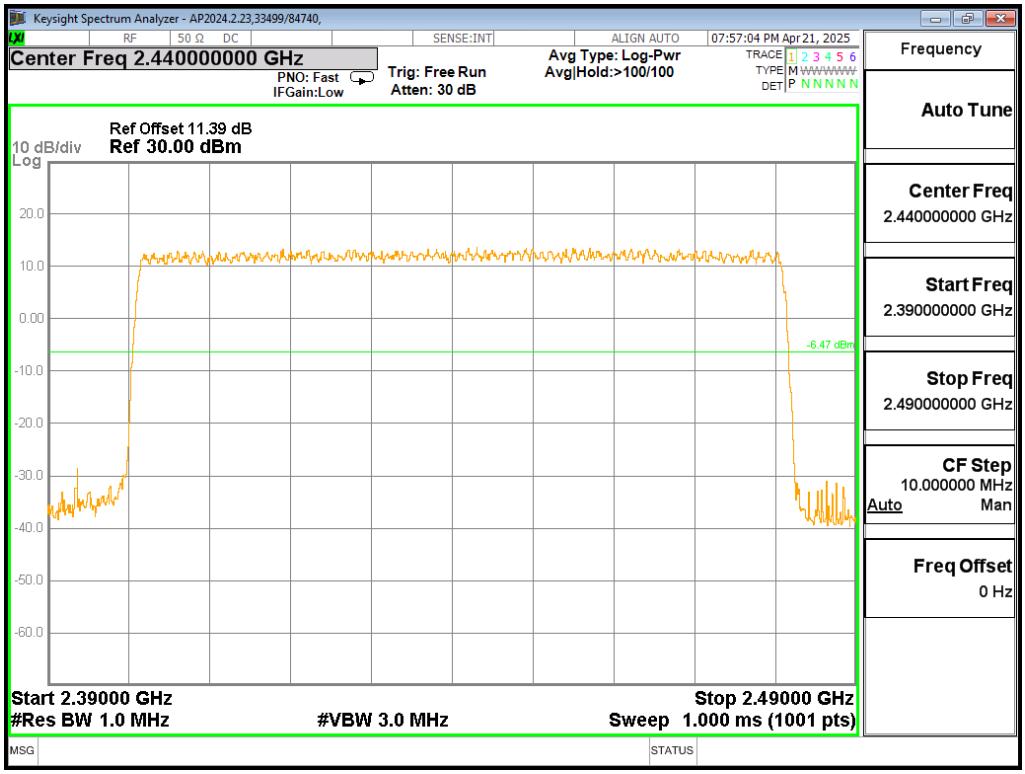


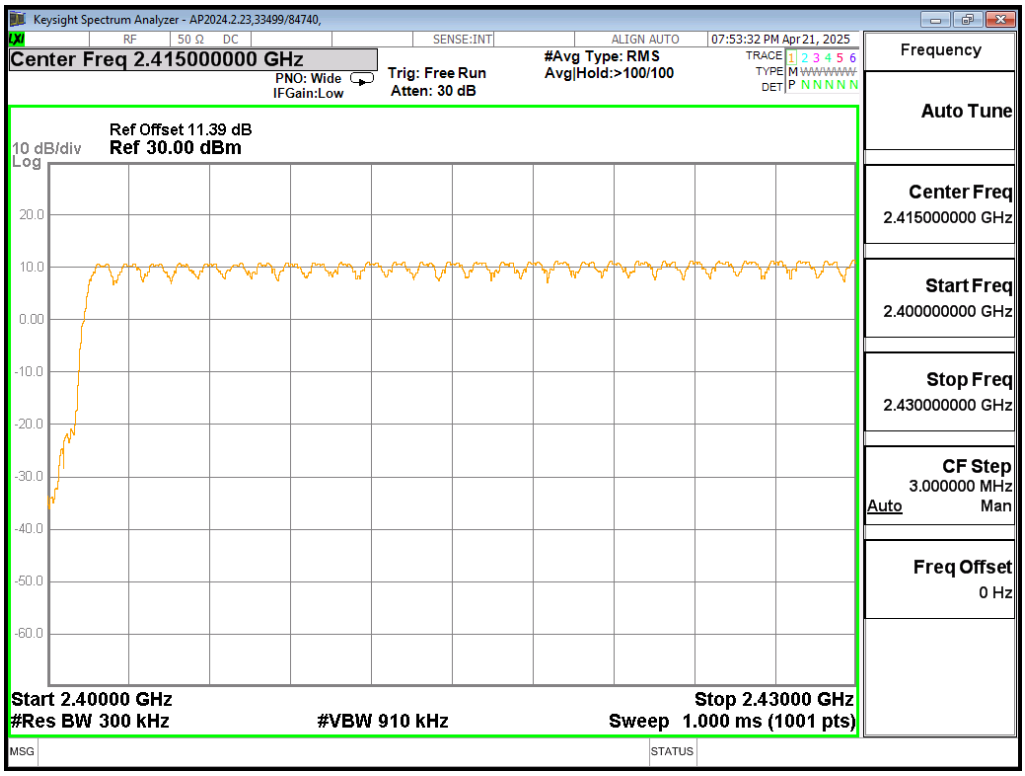


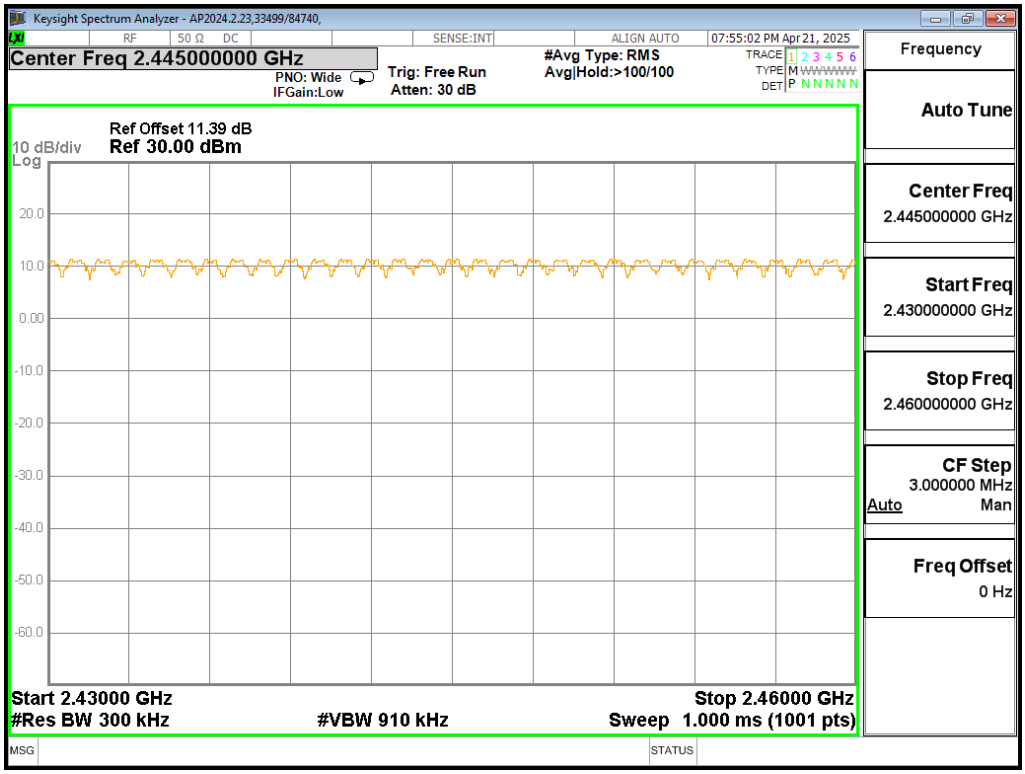


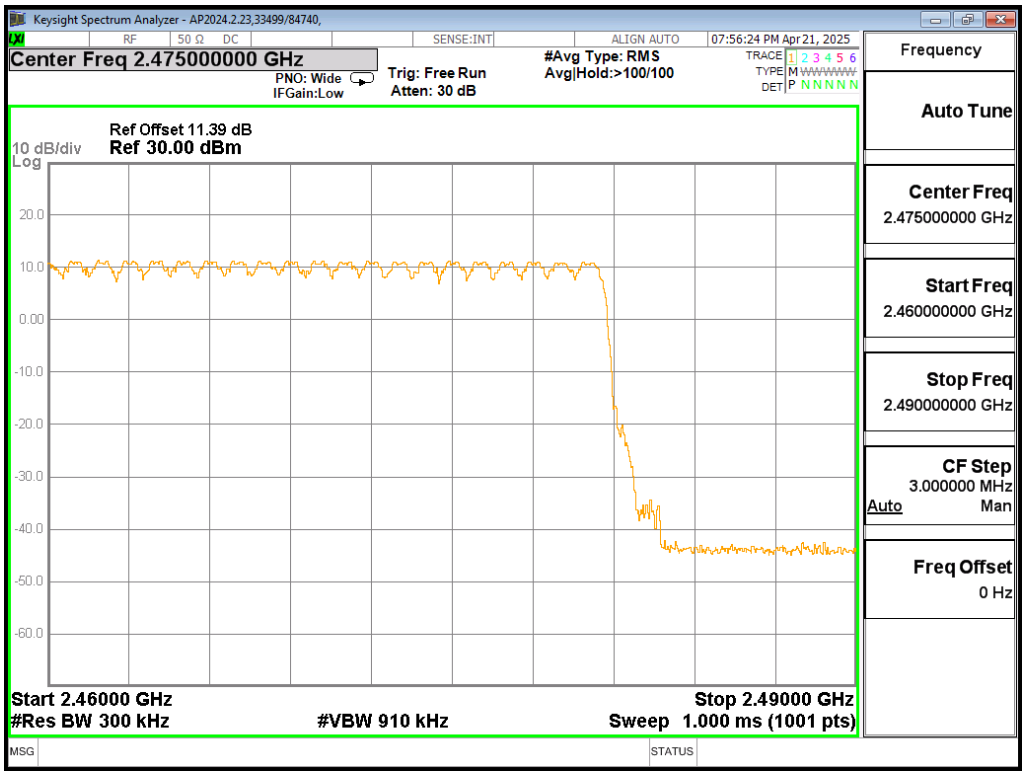


9.4.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION









9.5. AVERAGE TIME OF OCCUPANCY

LIMITS

FCC §15.247 (a) (1) (iii)
RSS-247 (5.1) (d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

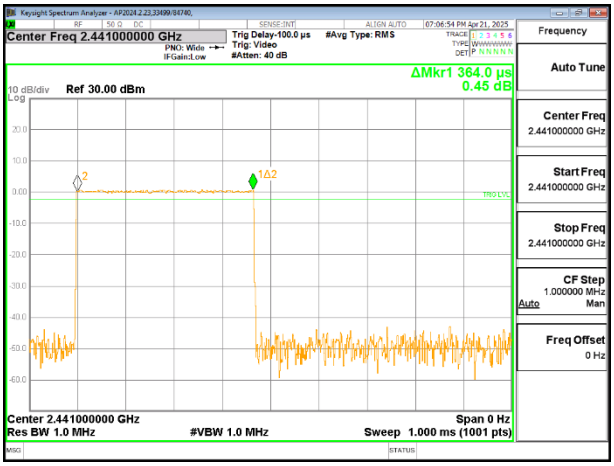
The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

The average time of occupancy in the specified 3.16 second period (79 channels * 0.4 s) is equal to 10 * (# of pulses in 3.16 s) * pulse width.

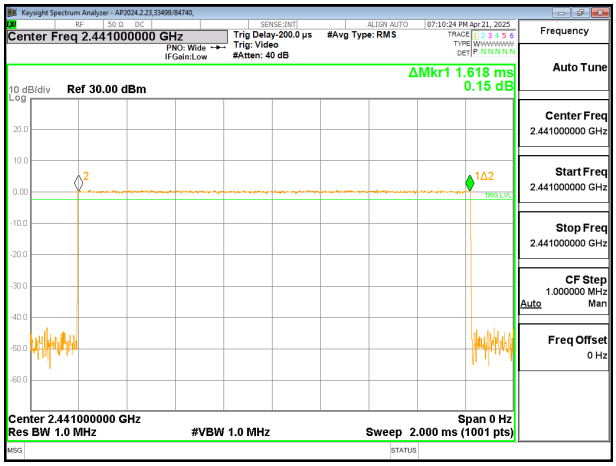
For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to 10 * (# of pulses in 0.8 s) * pulse width.

9.5.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

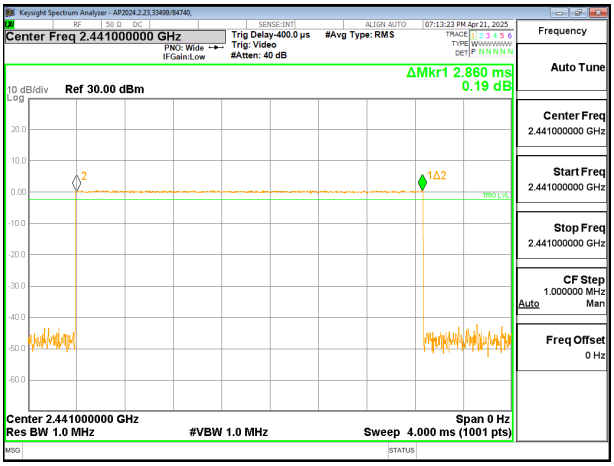
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.364	32	0.1165	0.4	-0.2835
DH3	1.618	18	0.2912	0.4	-0.1088
DH5	2.86	9	0.2574	0.4	-0.1426
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.364	8	0.02912	0.4	-0.3709
DH3	1.618	4.5	0.07281	0.4	-0.3272
DH5	2.86	2.25	0.06435	0.4	-0.3357



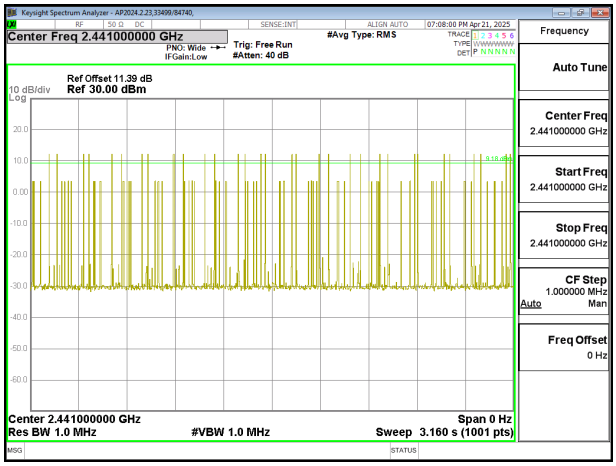
PULSE WIDTH – DH1



PULSE WIDTH – DH3

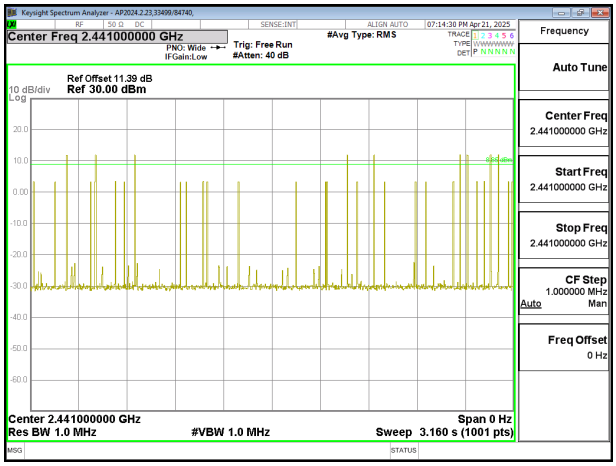


PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1

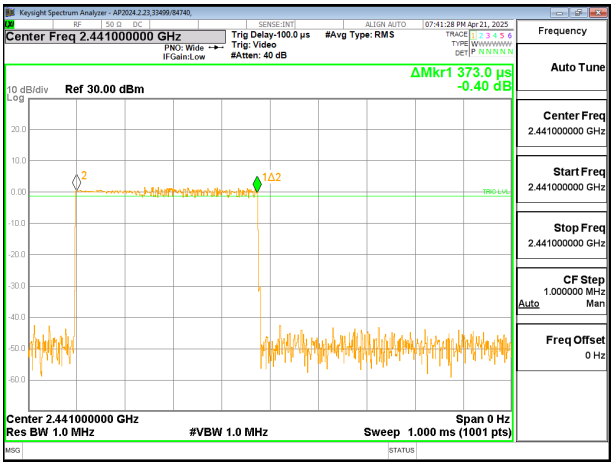
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



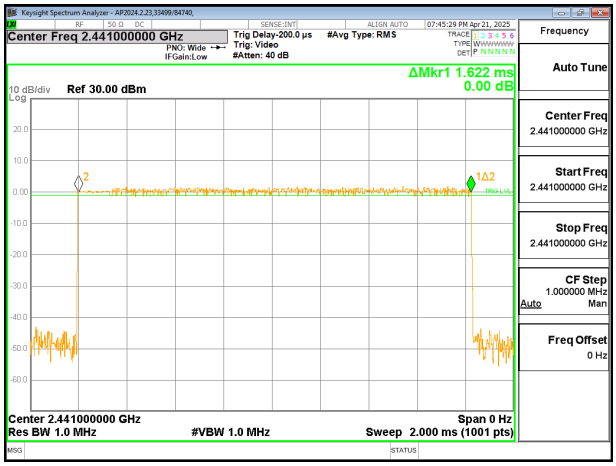
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5

9.5.2. BLUETOOTH BASIC DATA RATE QPSK MODULATION

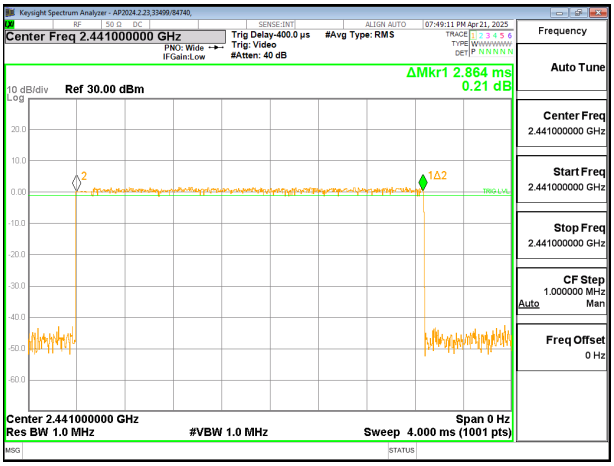
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
QPSK Normal Mode					
DH1	0.373	32	0.1194	0.4	-0.2806
DH3	1.622	19	0.3082	0.4	-0.0918
DH5	2.864	6	0.1718	0.4	-0.2282
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
QPSK AFH Mode					
DH1	0.373	8	0.02984	0.4	-0.3702
DH3	1.622	4.75	0.07705	0.4	-0.3230
DH5	2.864	1.5	0.04296	0.4	-0.3570



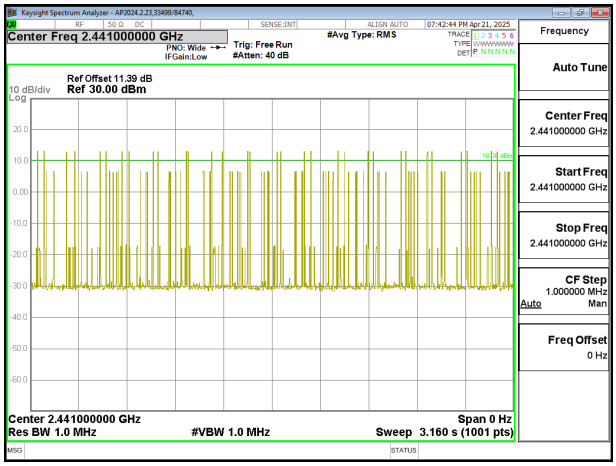
PULSE WIDTH – DH1



PULSE WIDTH – DH3

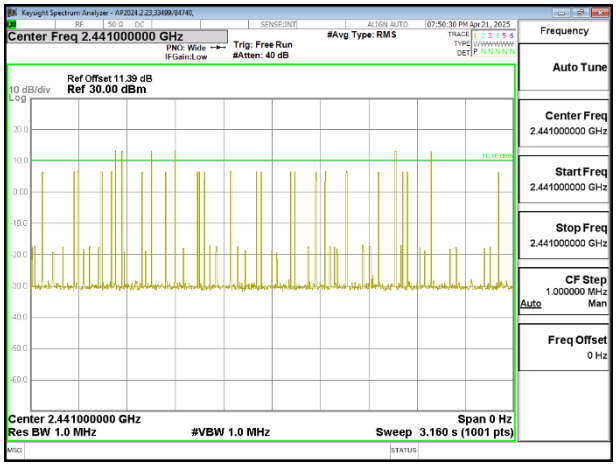


PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1

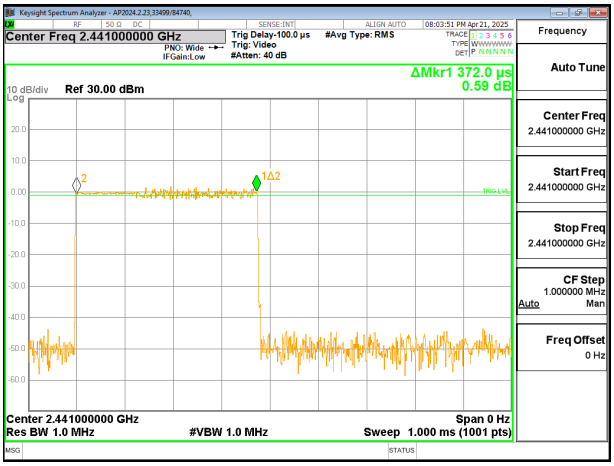
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



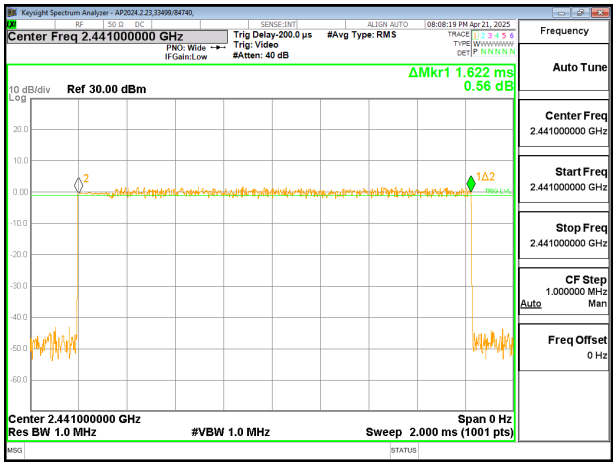
NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5

9.5.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

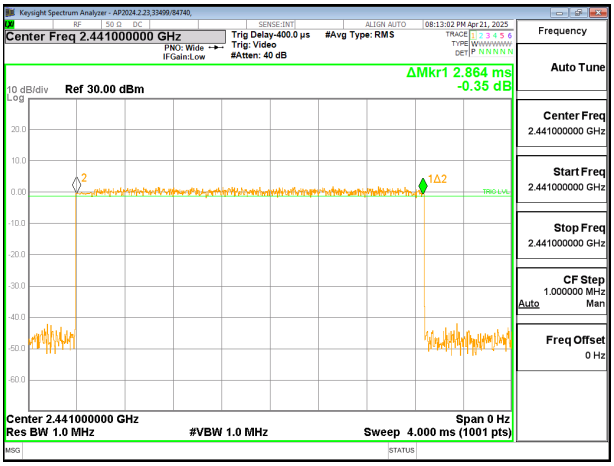
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK Normal Mode					
DH1	0.372	32	0.1190	0.4	-0.2810
DH3	1.622	18	0.2920	0.4	-0.1080
DH5	2.864	11	0.3150	0.4	-0.0850
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK AFH Mode					
DH1	0.372	8	0.02976	0.4	-0.3702
DH3	1.622	4.5	0.07299	0.4	-0.3270
DH5	2.864	2.75	0.07876	0.4	-0.3212



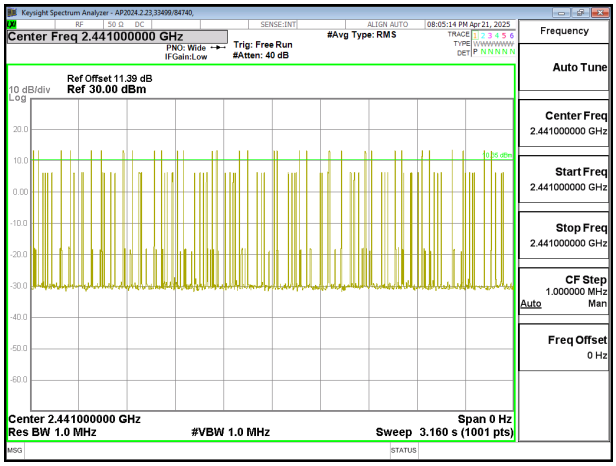
PULSE WIDTH – DH1



PULSE WIDTH – DH3

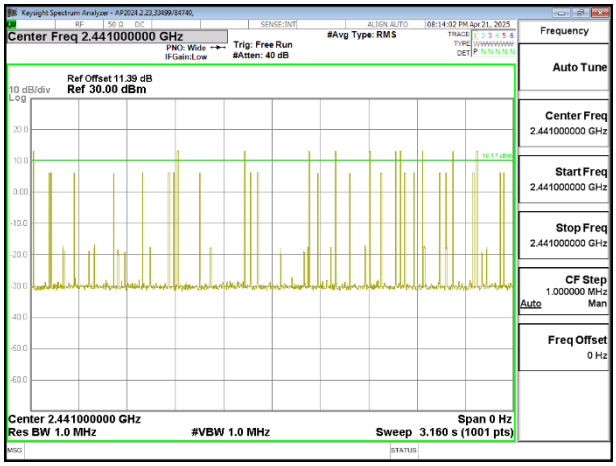


PULSE WIDTH – DH5



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH1

NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3



NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5

9.6. OUTPUT POWER

LIMITS

§15.247 (b) (1)
RSS-247 (5.4) (b)

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts

TEST PROCEDURE

Measurements performed using a wideband gated RF power meter.

The cable assembly insertion loss of 9.98 dB (including 0.68 dB cable and a 9.98dB pad) was entered as an offset in the power meter.

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

9.6.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Tested By:	104463/85502
Date:	2025-04-16

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.76	21	-8.24
Middle	2441	13.35	21	-7.65
High	2480	13.02	21	-7.98

9.6.2. BLUETOOTH ENHANCED DATA RATE DQPSK MODULATION

Tested By:	104463/85502
Date:	2025-04-16

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	11.69	21	-9.31
Middle	2441	14.77	21	-6.23
High	2480	14.65	21	-6.35

9.6.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Tested By:	104463/85502
Date:	2025-04-16

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	11.12	21	-9.88
Middle	2441	14.7	21	-6.3
High	2480	14.66	21	-6.34

9.7. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

Measurements performed using a wideband gated RF power meter.

The cable assembly insertion loss of 9.98 dB (including 0.68 dB cable and a 9.98dB pad) was entered as an offset in the power meter.

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

9.7.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Tested By:	104463/85502
Date	2025-04-16

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	12.126
Middle	2441	12.703
High	2480	12.43

9.7.2. BLUETOOTH ENHANCED DATA RATE DQPSK MODULATION

Tested By:	104463/85502
Date	2025-04-16

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	11.027
Middle	2441	12.066
High	2480	11.877

9.7.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Tested By:	104463/85502
Date	2025-04-16

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	10.443
Middle	2441	11.594
High	2480	11.589

9.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)
RSS-247 5.5

Limit = -20 dBc

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

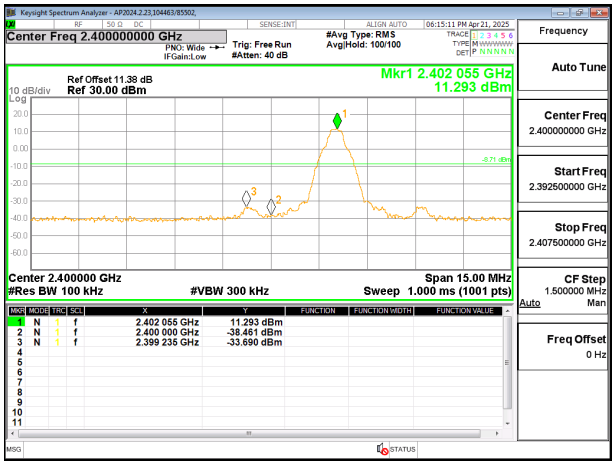
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping and hopping modes.

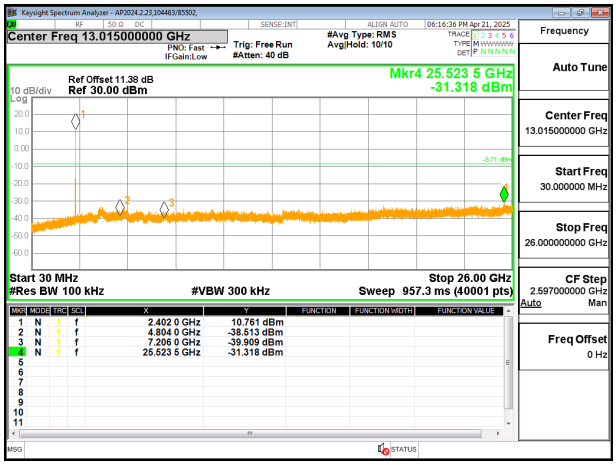
UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

9.8.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

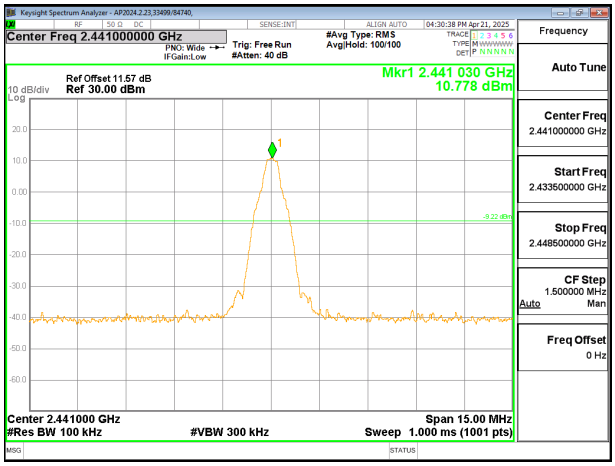
SPURIOUS EMISSIONS, NON-HOPPING



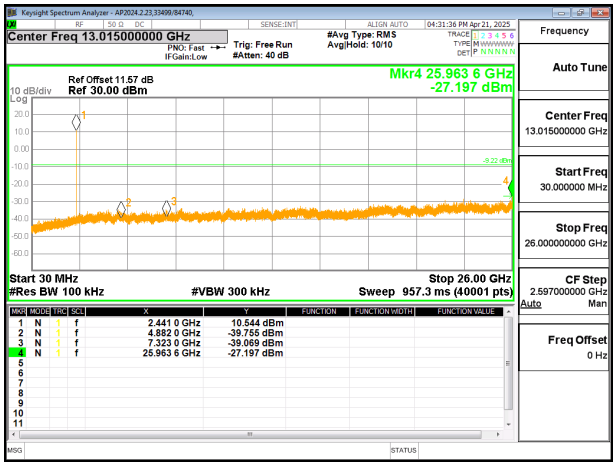
LOW CHANNEL BANDEDGE



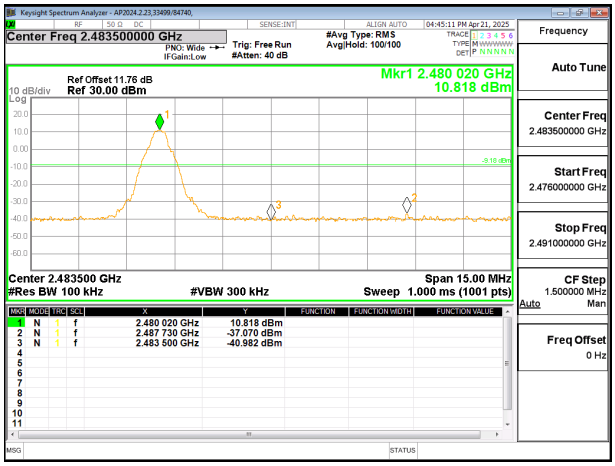
OUT-OF-BAND LOW CHANNEL



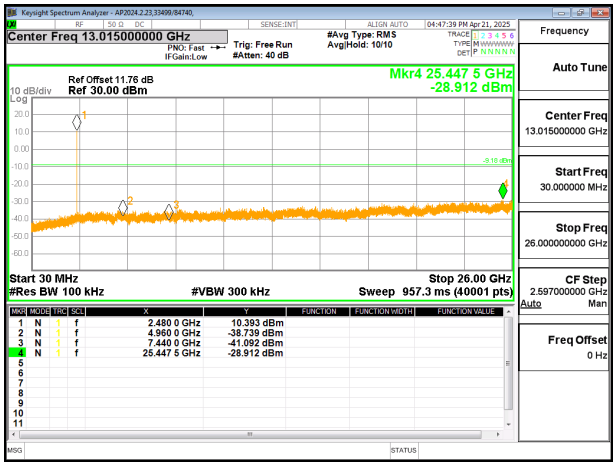
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

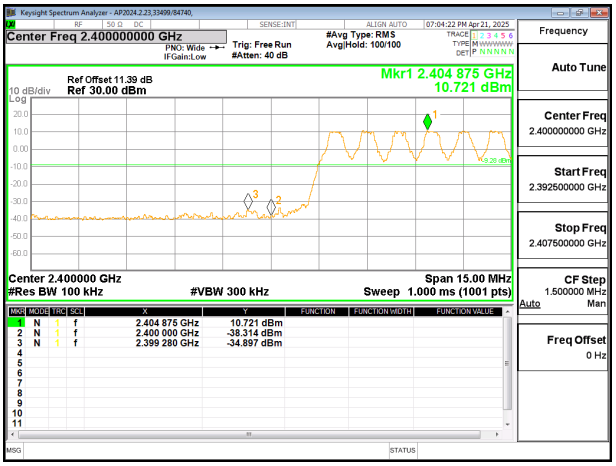


HIGH CHANNEL BANDEDGE

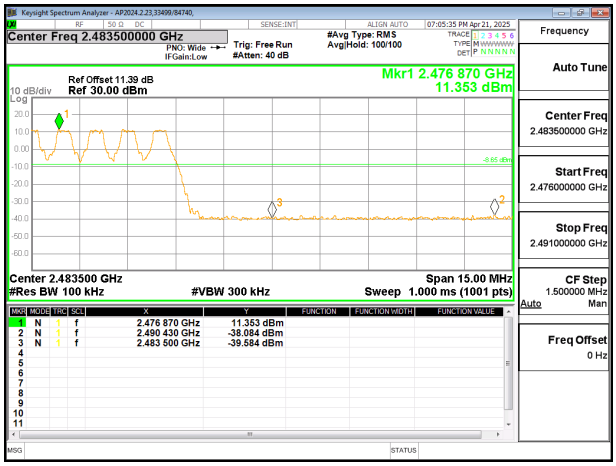


OUT-OF-BAND HIGH CHANNEL

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



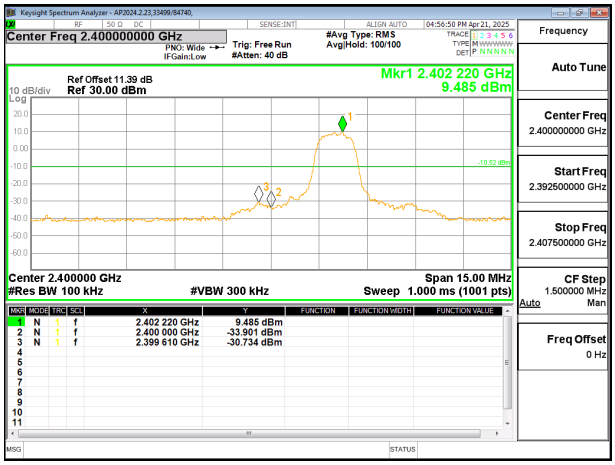
LOW BANDEDGE



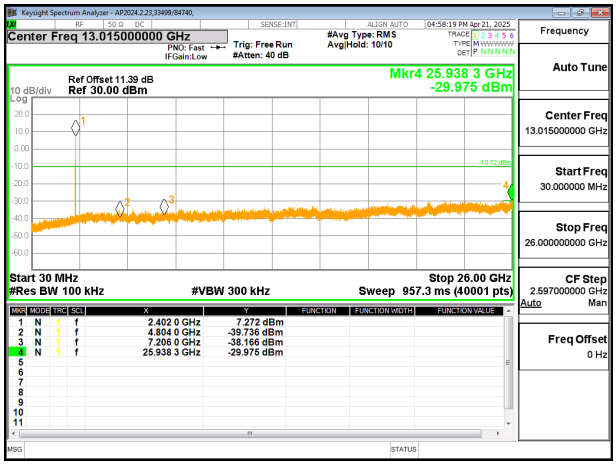
HIGH BANDEDGE

9.8.2. BLUETOOTH BASIC DATA RATE QPSK MODULATION

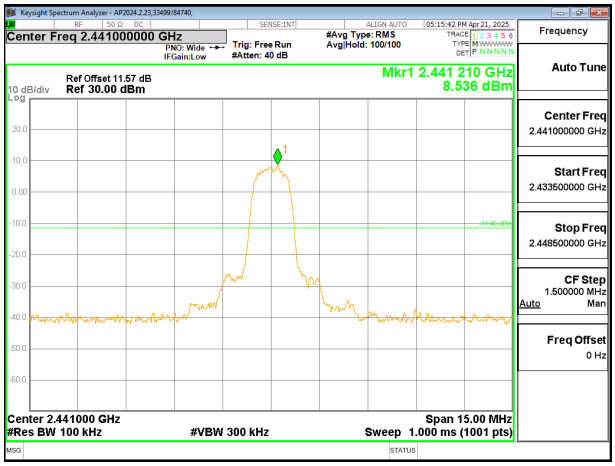
SPURIOUS EMISSIONS, NON-HOPPING



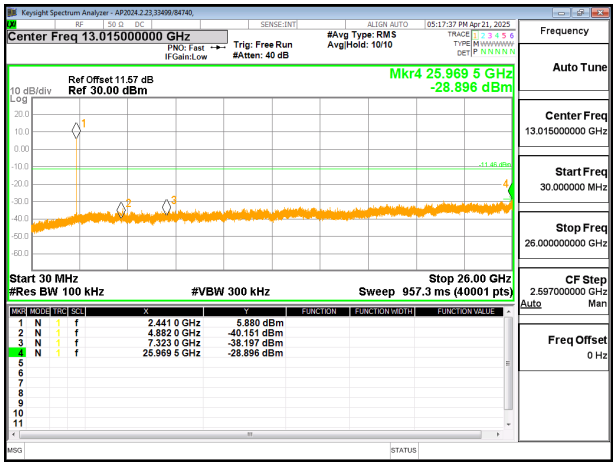
LOW CHANNEL BANDEDGE



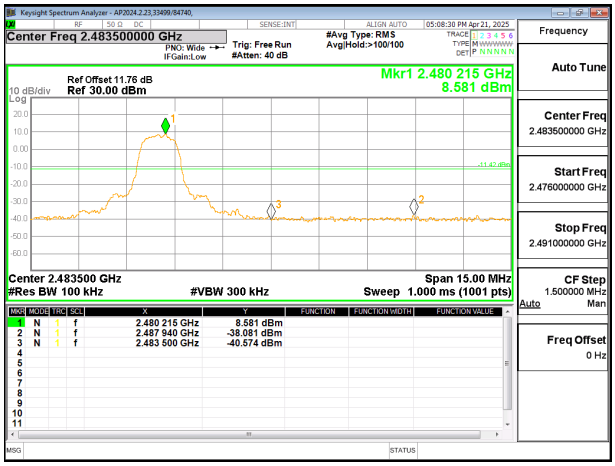
OUT-OF-BAND LOW CHANNEL



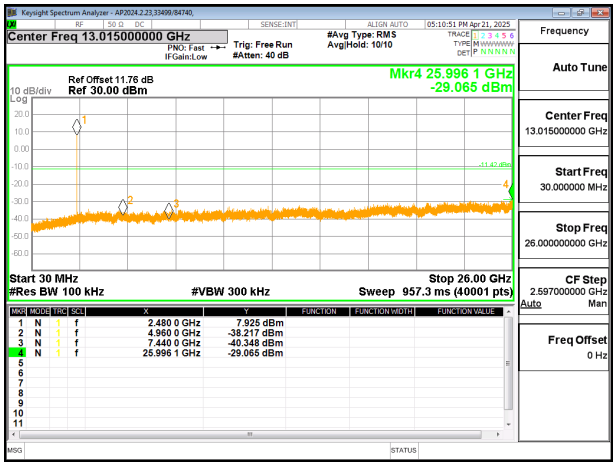
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

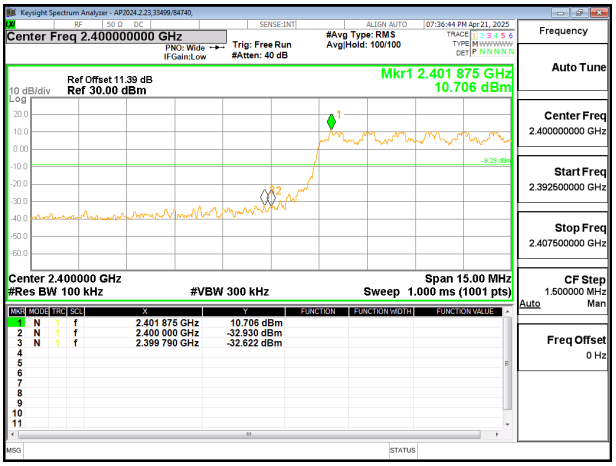


HIGH CHANNEL BANDEDGE

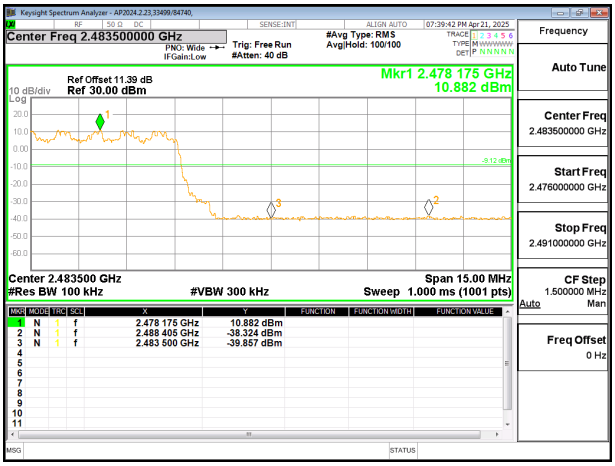


OUT-OF-BAND HIGH CHANNEL

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



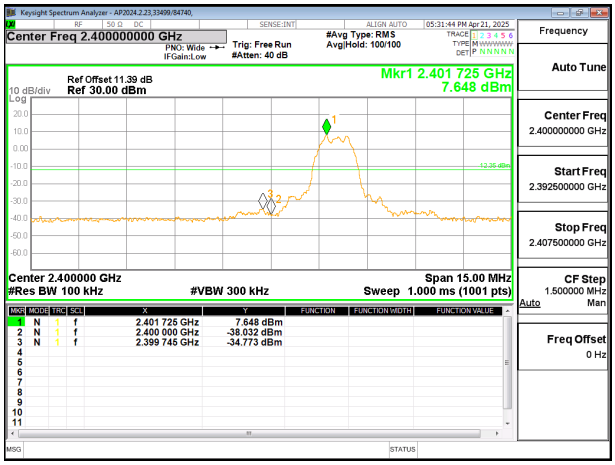
LOW BANDEDGE



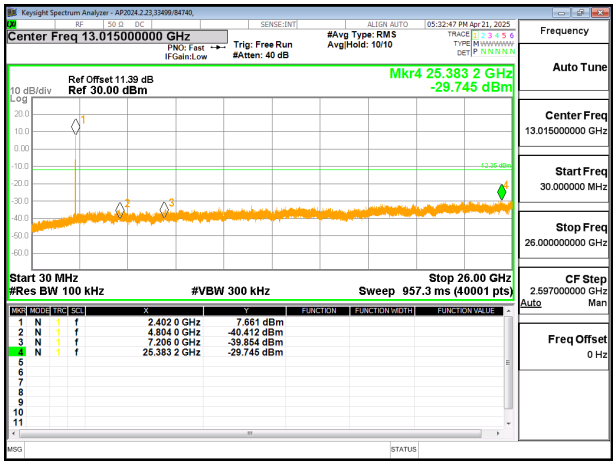
HIGH BANDEDGE

9.8.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

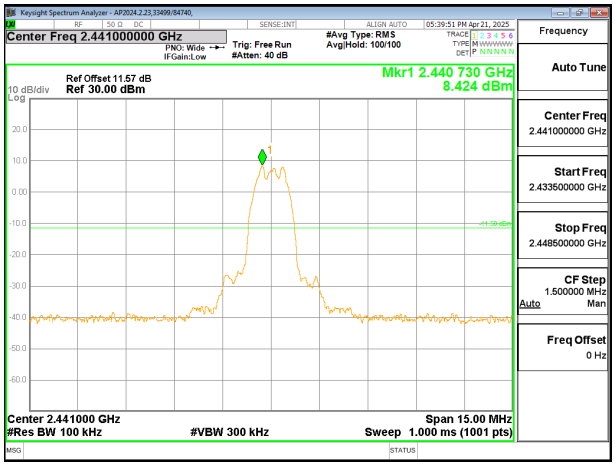
SPURIOUS EMISSIONS, NON-HOPPING



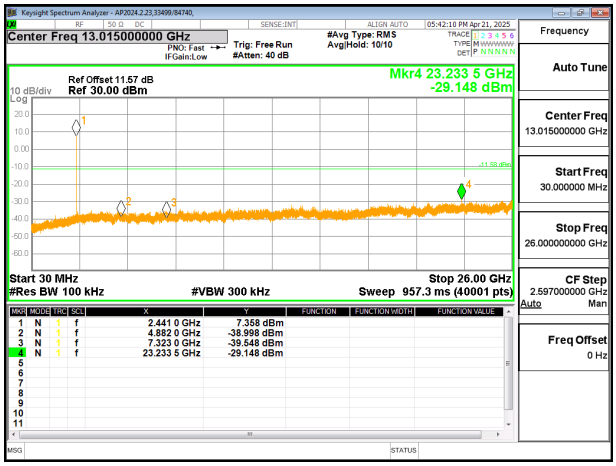
LOW CHANNEL BANDEDGE



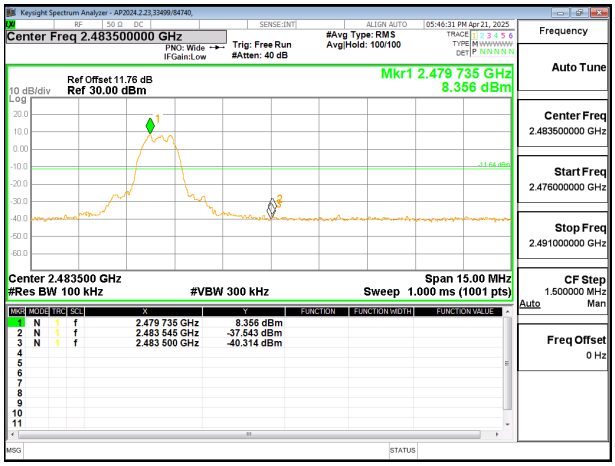
OUT-OF-BAND LOW CHANNEL



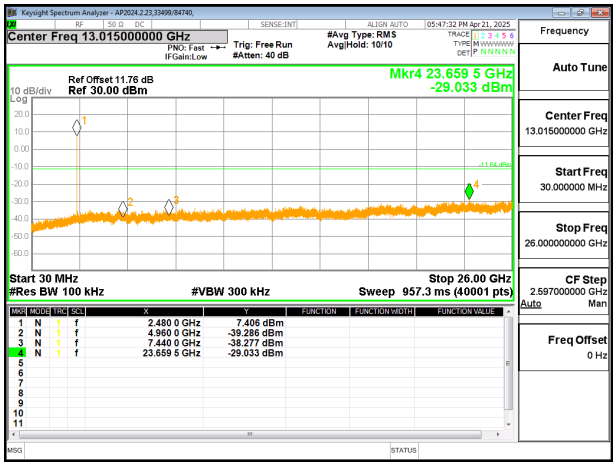
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

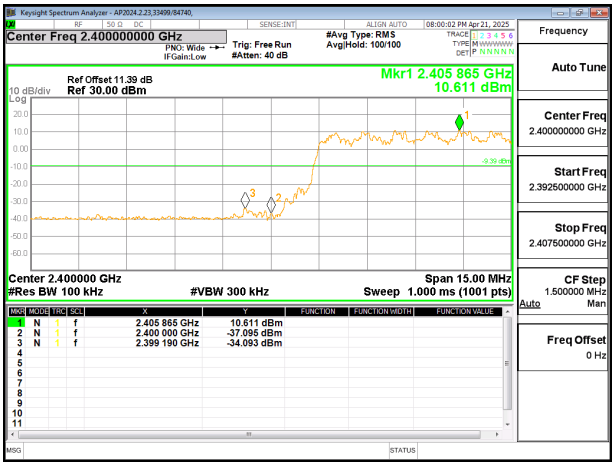


HIGH CHANNEL BANDEDGE

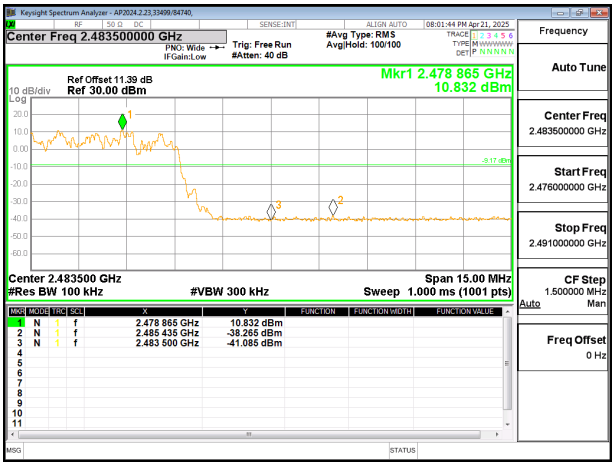


OUT-OF-BAND HIGH CHANNEL

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



LOW BANDEDGE



HIGH BANDEDGE

10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

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

IC RSS-GEN Clause 8.9 and 8.10

Frequency Range (kHz)	Field Strength Limit (uA/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	6.37/F(kHz) @ 300 m	-
0.490-1.705	63.7/F(kHz) @ 30 m	-
1.705 - 30	0.08 @ 30m	-
Frequency Range (MHz)	**Field Strength Limit (uV/m) at 3 m**	**Field Strength Limit (dBuV/m) at 3 m**
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 3MHz 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. Reduced VBW method of averaging was used of 1/Ton where Ton = on time of the signal. For this testing, the on time was approximately 100 ms which yields a minimum VBW of 10 Hz.

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.

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.

3D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).

Base 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

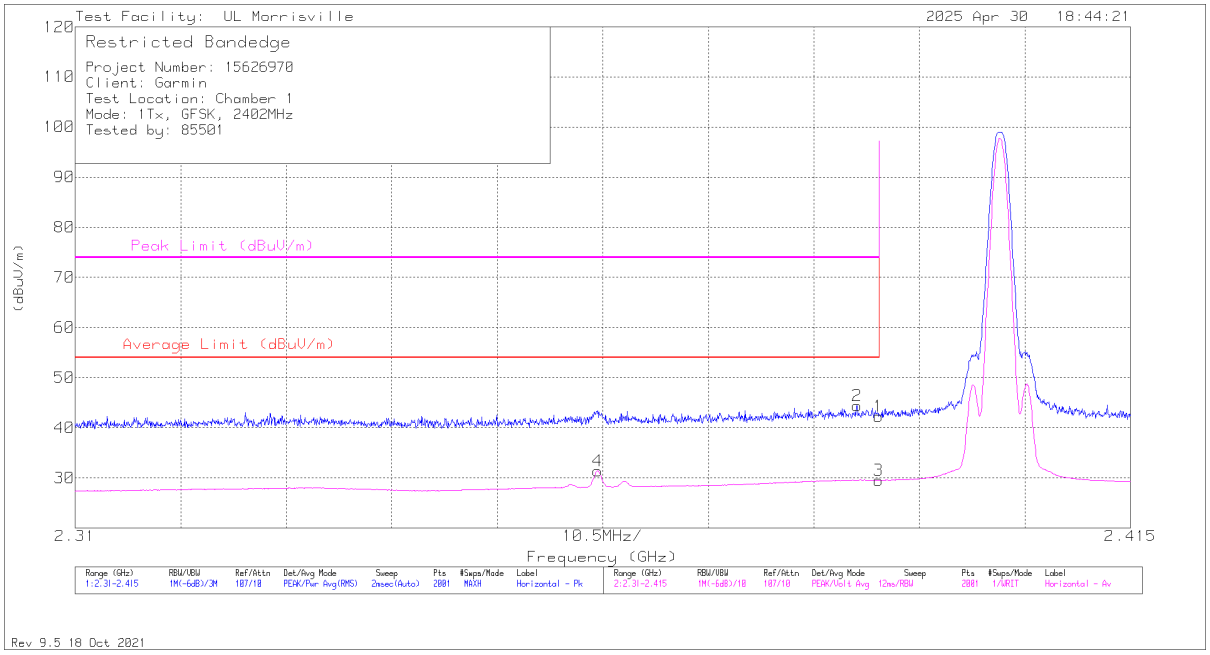
OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

BANDEDGE (LOW CHANNEL)

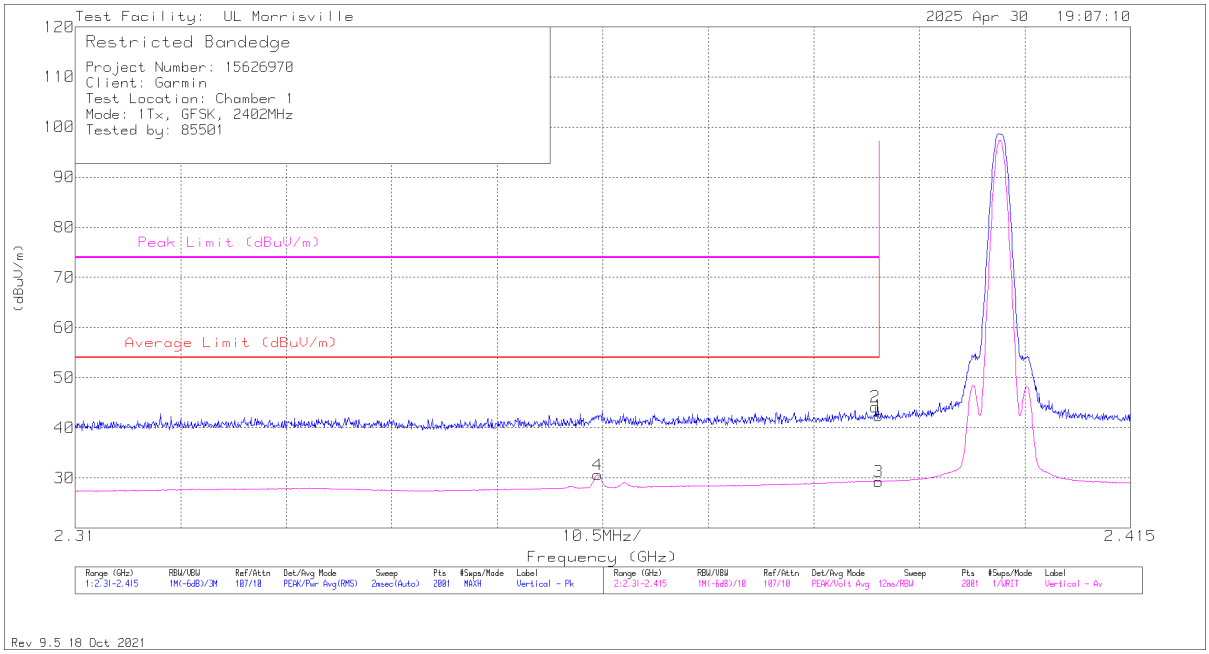
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.37	Pk	31.9	-24	42.27	-	-	74	-31.73	201	129	H
2	* ** 2.38781	36.43	Pk	31.9	-23.9	44.43	-	-	74	-29.57	201	129	H
3	* ** 2.38996	21.64	VA1T	31.9	-24	29.54	54	-24.46	-	-	201	129	H
4	* ** 2.36198	23.92	VA1T	31.9	-24.4	31.42	54	-22.58	-	-	201	129	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

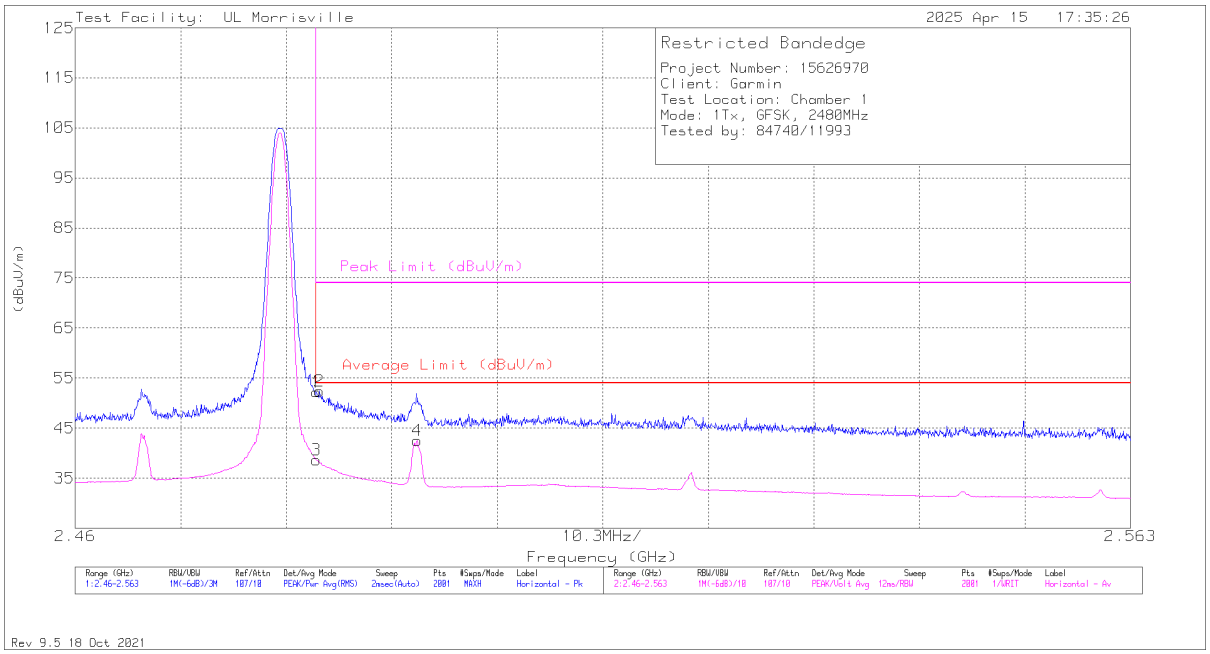


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.54	Pk	31.9	-24	42.44	-	-	74	-31.56	232	214	V
2	* ** 2.38964	36.28	Pk	31.9	-24	44.18	-	-	74	-29.82	232	214	V
3	* ** 2.38996	21.39	VA1T	31.9	-24	29.29	54	-24.71	-	-	232	214	V
4	* ** 2.36198	23.08	VA1T	31.9	-24.4	30.58	54	-23.42	-	-	232	214	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

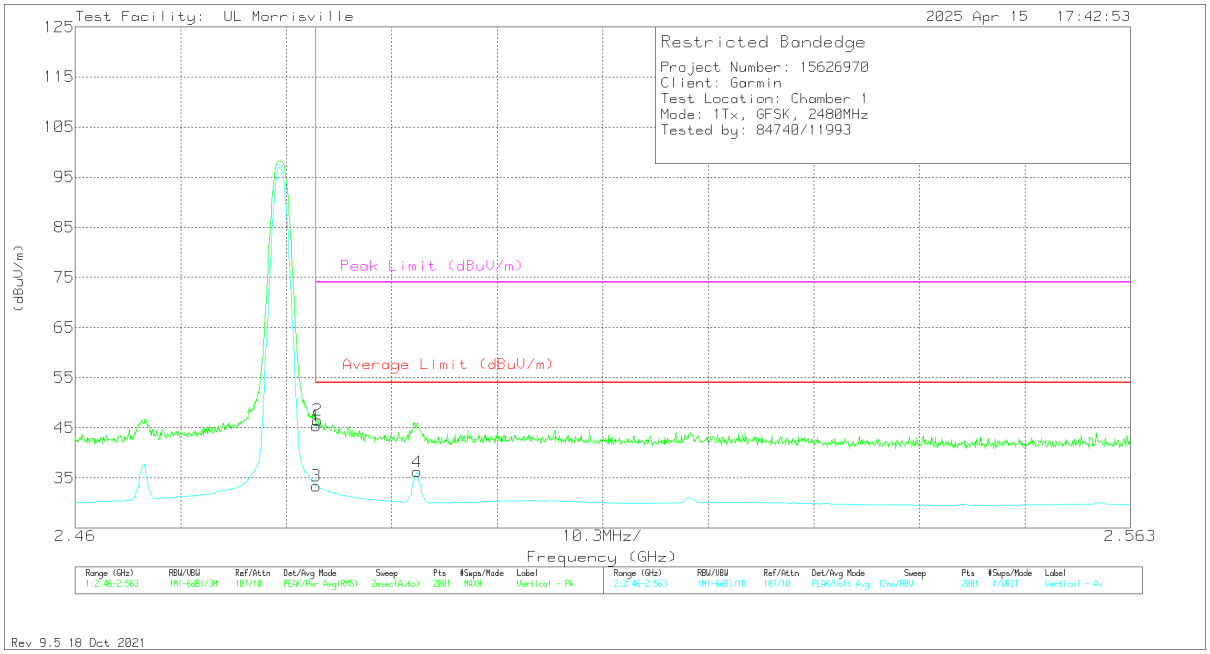
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	43.71	Pk	32.2	-23.7	52.21	-	-	74	-21.79	209	132	H
2	* ** 2.48384	43.86	Pk	32.2	-23.7	52.36	-	-	74	-21.64	209	132	H
3	* ** 2.48354	30.11	VA1T	32.2	-23.7	38.61	54	-15.39	-	-	209	132	H
4	* ** 2.49337	34.59	VA1T	32.3	-24.4	42.49	54	-11.51	-	-	209	132	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

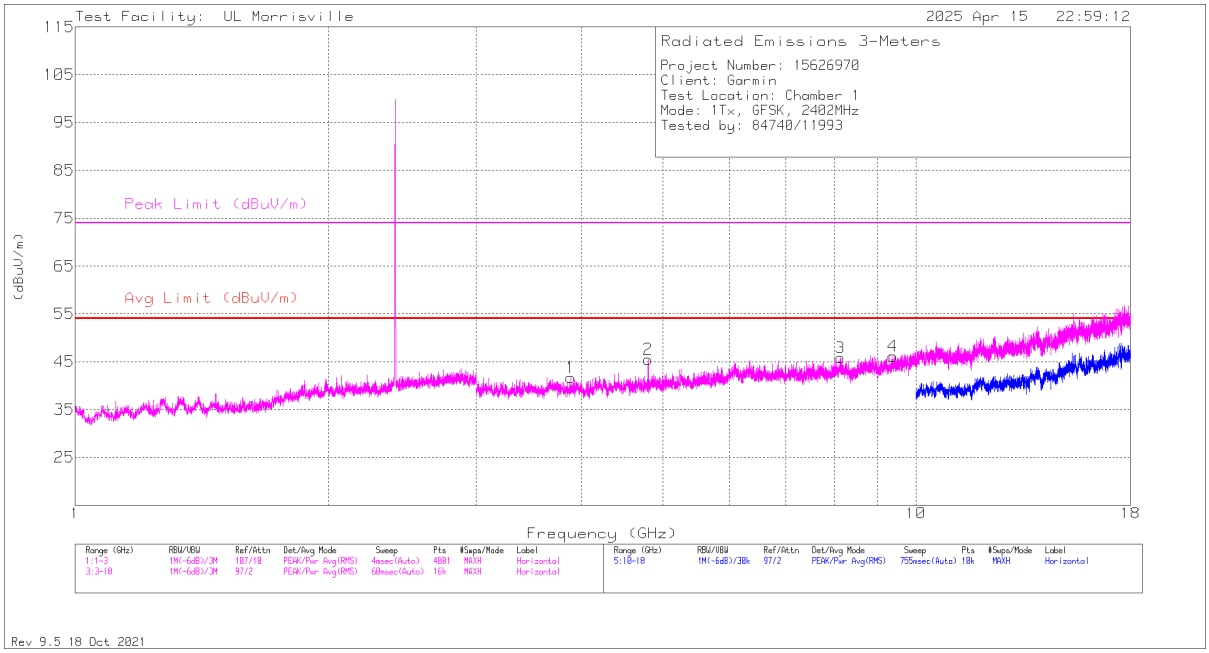


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	36.92	Pk	32.2	-23.7	45.42	-	-	74	-28.58	311	141	V
2	* ** 2.48364	38.06	Pk	32.2	-23.7	46.56	-	-	74	-27.44	311	141	V
3	* ** 2.48354	24.91	VA1T	32.2	-23.7	33.41	54	-20.59	-	-	311	141	V
4	* ** 2.49337	28.3	VA1T	32.3	-24.4	36.2	54	-17.8	-	-	311	141	V

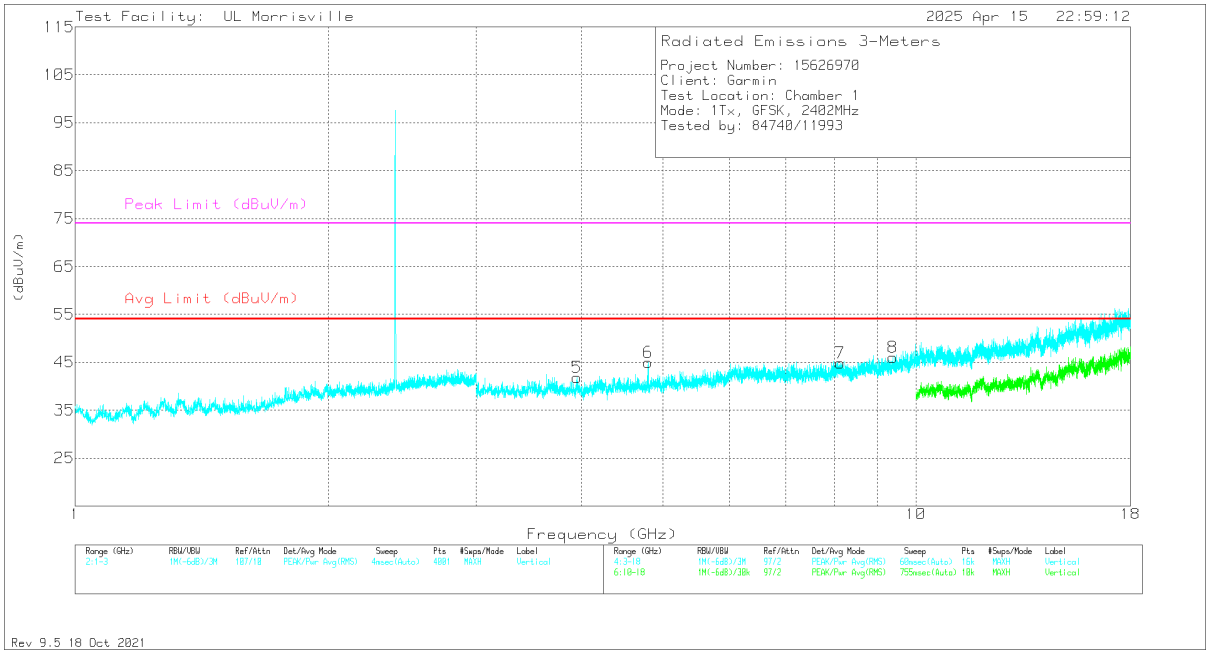
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL

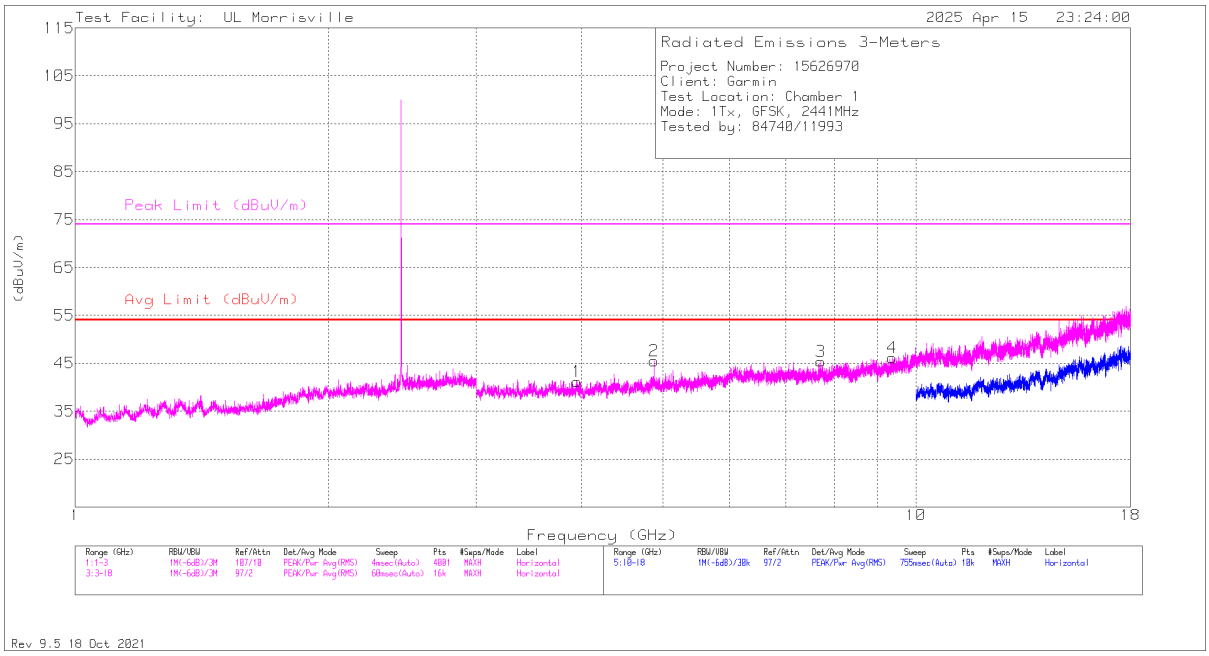


VERTICAL

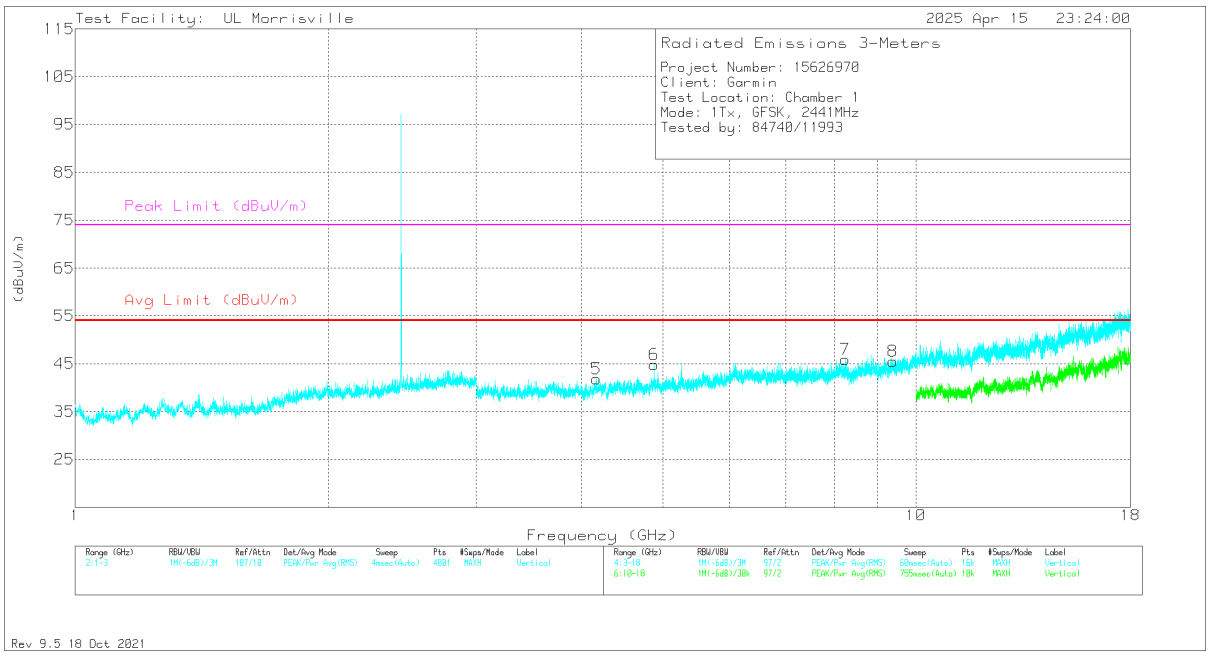
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.885	53.02	Pk	32.9	-44.2	41.72	54	-12.28	74	-32.28	0-360	101	H
2	* ** 4.80375	57.2	Pk	33.9	-45.6	45.5	54	-8.5	74	-28.5	0-360	101	H
3	* ** 8.13656	50.83	Pk	35.9	-40.9	45.83	54	-8.17	74	-28.17	0-360	101	H
4	* ** 9.39563	49.9	Pk	36.3	-40.1	46.1	54	-7.9	74	-27.9	0-360	199	H
5	* ** 3.95531	53.34	Pk	32.9	-44.4	41.84	54	-12.16	74	-32.16	0-360	200	V
6	* ** 4.80375	56.64	Pk	33.9	-45.6	44.94	54	-9.06	74	-29.06	0-360	200	V
7	* ** 8.13281	50.08	Pk	35.9	-41.1	44.88	54	-9.12	74	-29.12	0-360	101	V
8	* ** 9.38719	50.15	Pk	36.2	-40.3	46.05	54	-7.95	74	-27.95	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL RESULTS



HORIZONTAL

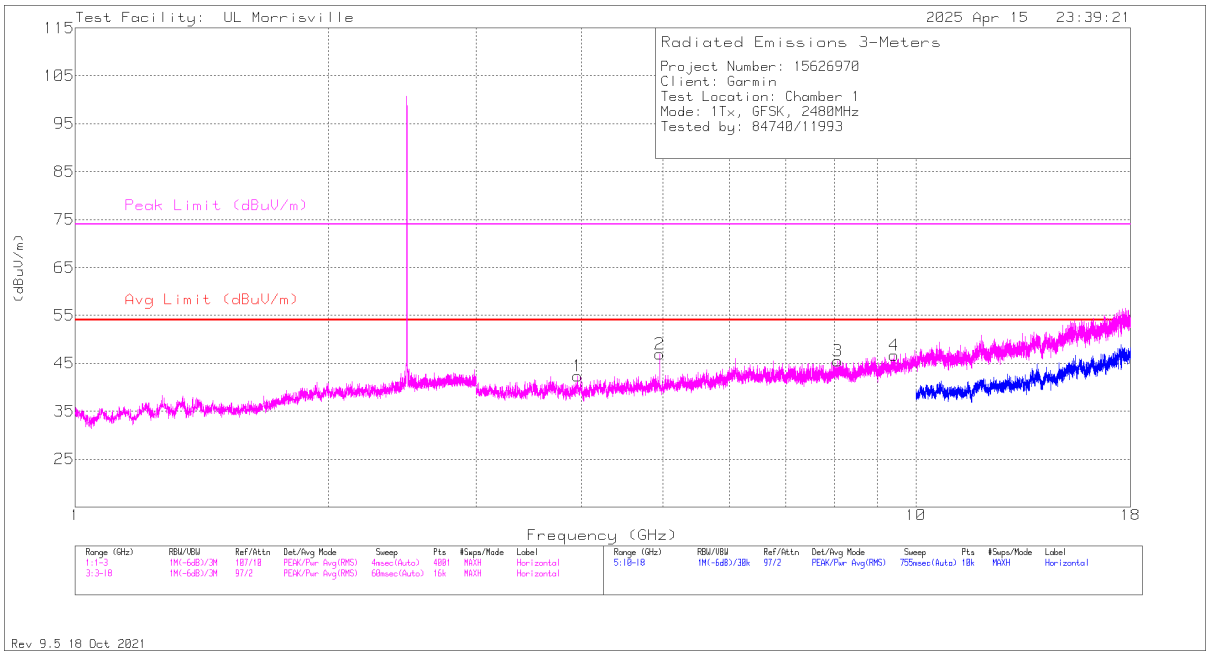


VERTICAL

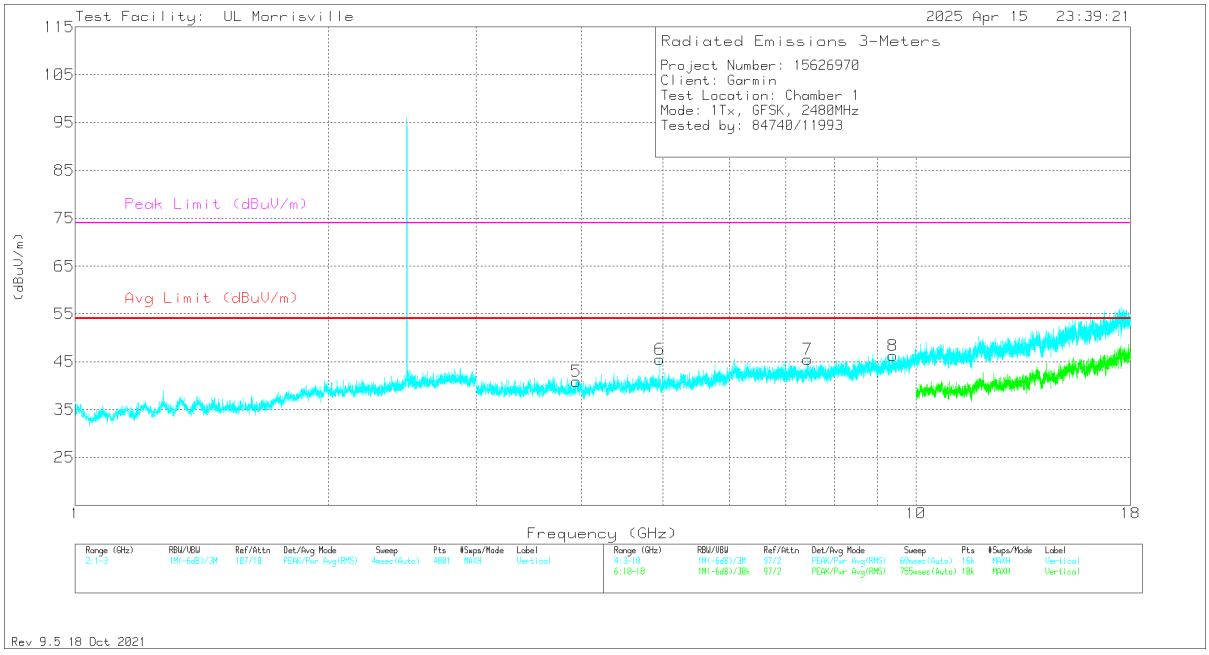
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.95344	52.8	Pk	32.9	-44.5	41.2	54	-12.8	74	-32.8	0-360	200	H
2	* ** 4.88156	56.17	Pk	34	-44.7	45.47	54	-8.53	74	-28.53	0-360	101	H
3	* ** 7.71188	50.72	Pk	35.7	-41	45.42	54	-8.58	74	-28.58	0-360	101	H
4	* ** 9.37875	50.23	Pk	36.2	-40.3	46.13	54	-7.87	74	-27.87	0-360	200	H
5	* ** 4.16813	53.88	Pk	33.4	-45.5	41.78	54	-12.22	74	-32.22	0-360	200	V
6	* ** 4.88156	55.55	Pk	34	-44.7	44.85	54	-9.15	74	-29.15	0-360	101	V
7	* ** 8.24531	50.68	Pk	35.9	-40.7	45.88	54	-8.12	74	-28.12	0-360	101	V
8	* ** 9.38719	49.64	Pk	36.2	-40.3	45.54	54	-8.46	74	-28.46	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

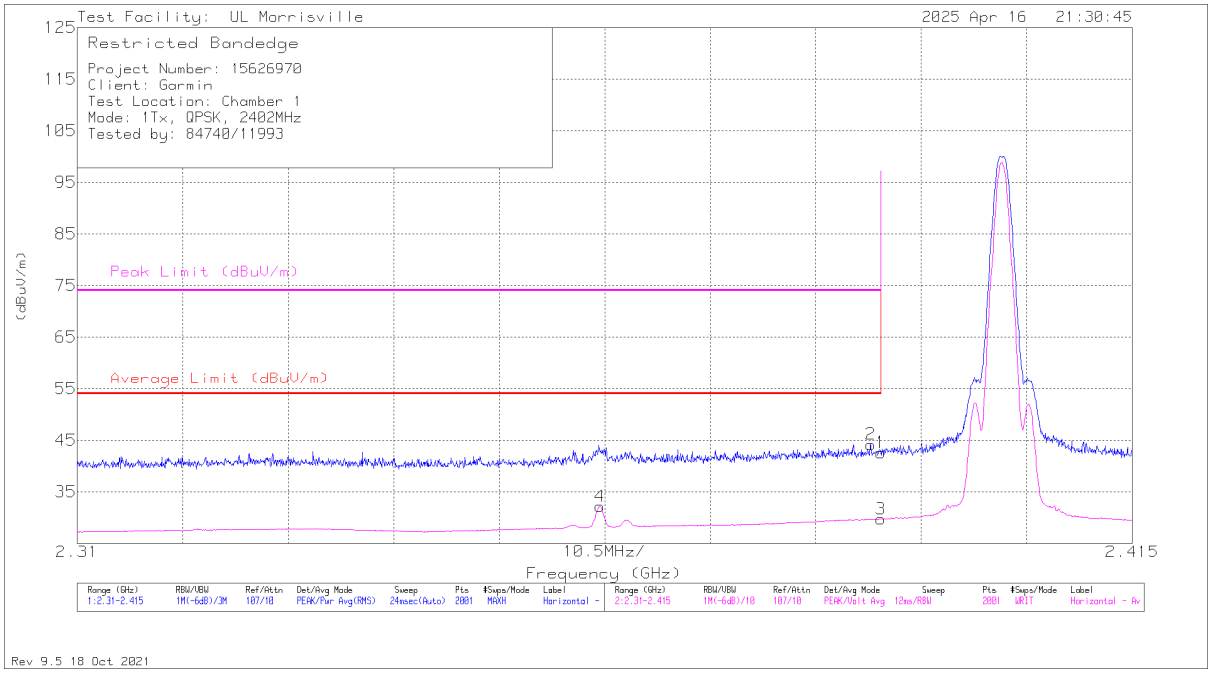
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.95813	53.77	Pk	32.9	-44.3	42.37	54	-11.63	74	-31.63	0-360	101	H
2	* ** 4.95938	57.55	Pk	34.2	-44.8	46.95	54	-7.05	74	-27.05	0-360	101	H
3	* ** 8.07563	51.01	Pk	35.9	-41.4	45.51	54	-8.49	74	-28.49	0-360	101	H
4	* ** 9.41719	50.08	Pk	36.3	-39.7	46.68	54	-7.32	74	-27.32	0-360	199	H
5	* ** 3.94688	52.49	Pk	32.9	-44.5	40.89	54	-13.11	74	-33.11	0-360	200	V
6	* ** 4.95938	56.09	Pk	34.2	-44.8	45.49	54	-8.51	74	-28.51	0-360	101	V
7	* ** 7.43813	51.07	Pk	35.4	-41	45.47	54	-8.53	74	-28.53	0-360	101	V
8	* ** 9.39469	49.94	Pk	36.3	-40	46.24	54	-7.76	74	-27.76	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.1.2. BLUETOOTH BASIC DATA RATE QPSK MODULATION

BANDEDGE (LOW CHANNEL)

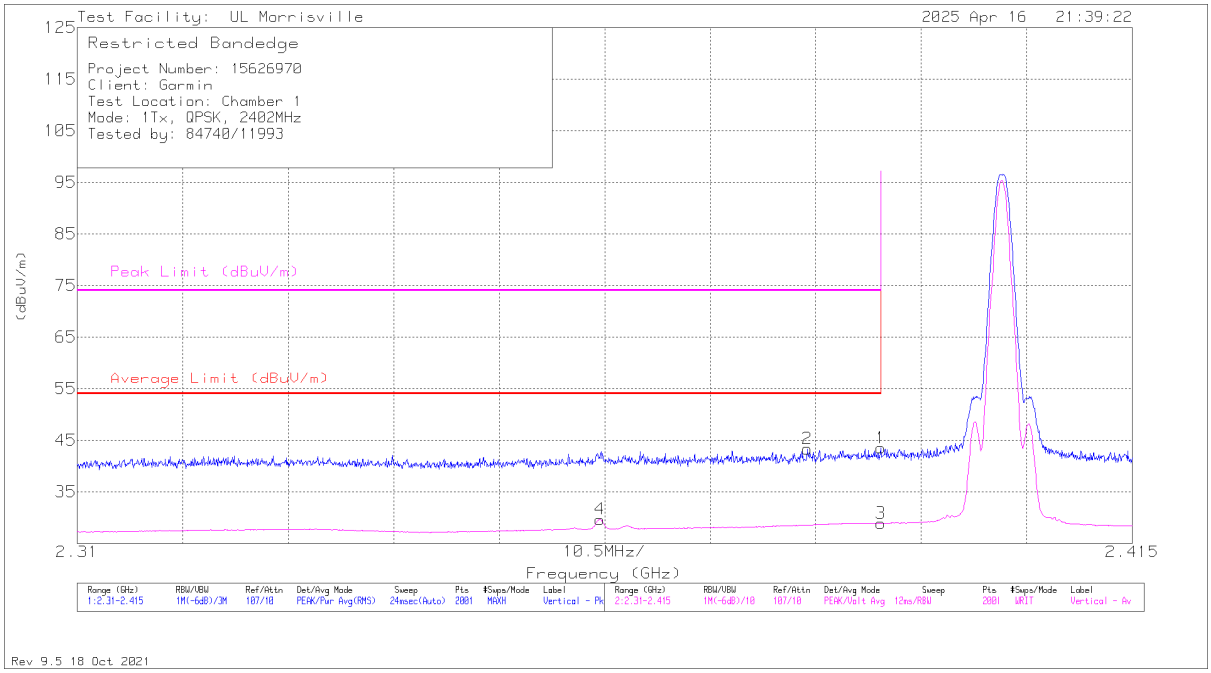
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.67	Pk	31.9	-24	42.57	-	-	74	-31.43	256	115	H
2	* ** 2.38896	36.27	Pk	31.9	-24	44.17	-	-	74	-29.83	256	115	H
3	* ** 2.38996	21.8	VA1T	31.9	-24	29.7	54	-24.3	-	-	256	115	H
4	* ** 2.36203	24.64	VA1T	31.9	-24.4	32.14	54	-21.86	-	-	256	115	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

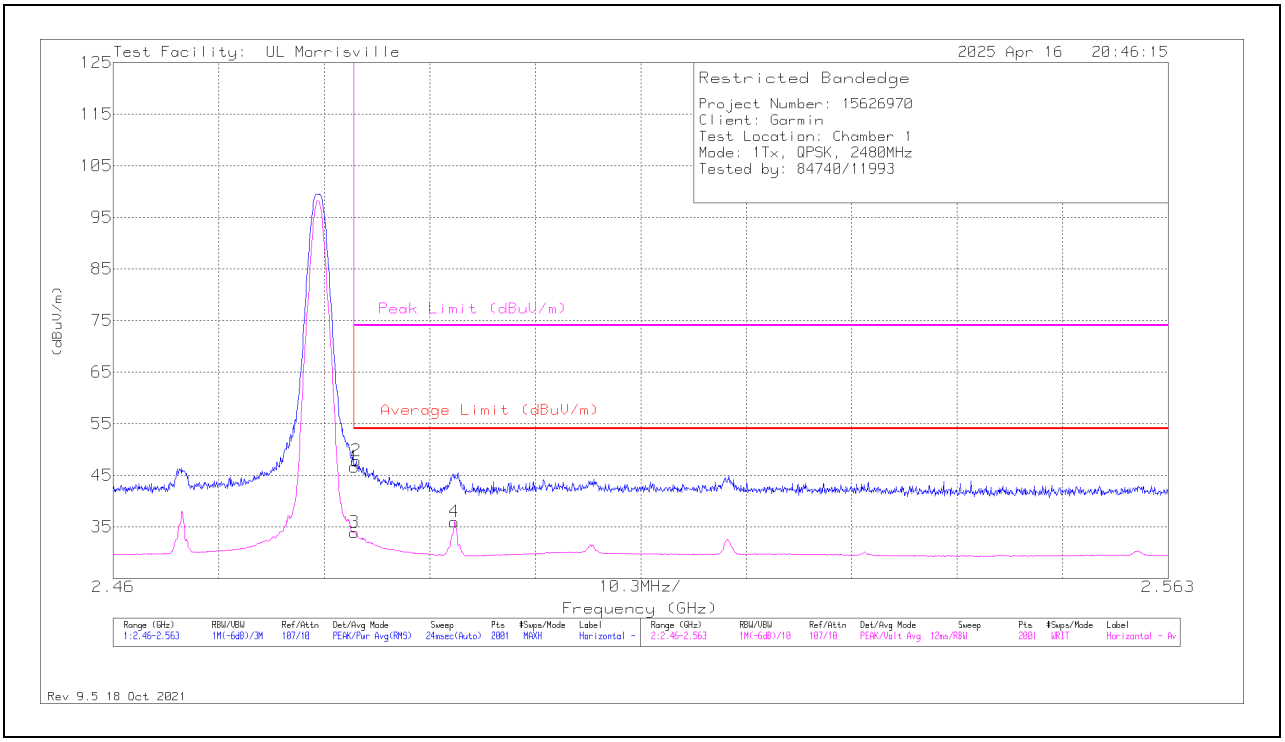


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	35.61	Pk	31.9	-24	43.51	-	-	74	-30.49	196	168	V
2	* ** 2.38266	35.43	Pk	31.9	-24	43.33	-	-	74	-30.67	196	168	V
3	* ** 2.38996	20.99	VA1T	31.9	-24	28.89	54	-25.11	-	-	196	168	V
4	* ** 2.36203	22.16	VA1T	31.9	-24.4	29.66	54	-24.34	-	-	196	168	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

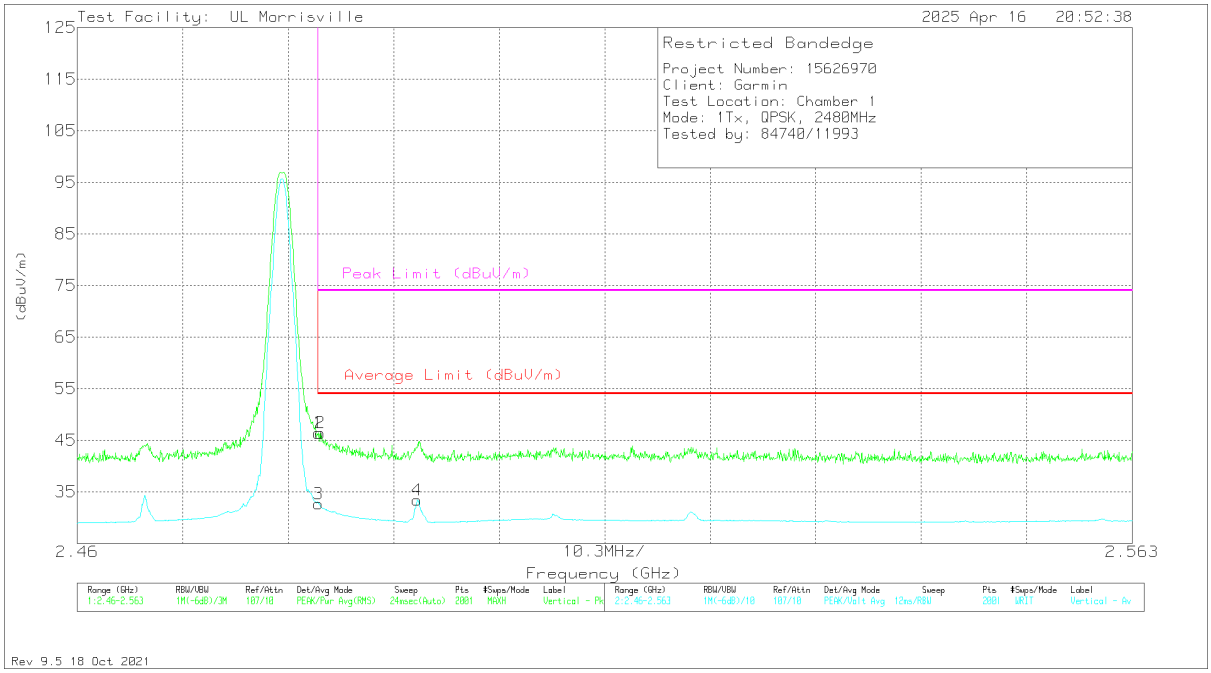
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.14	Pk	32.2	-23.7	46.64	-	-	74	-27.36	268	176	H
2	* ** 2.48374	39.31	Pk	32.2	-23.7	47.81	-	-	74	-26.19	268	176	H
3	* ** 2.48354	25.41	VA1T	32.2	-23.7	33.91	54	-20.09	-	-	268	176	H
4	* ** 2.49332	28.09	VA1T	32.3	-24.4	35.99	54	-18.01	-	-	268	176	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

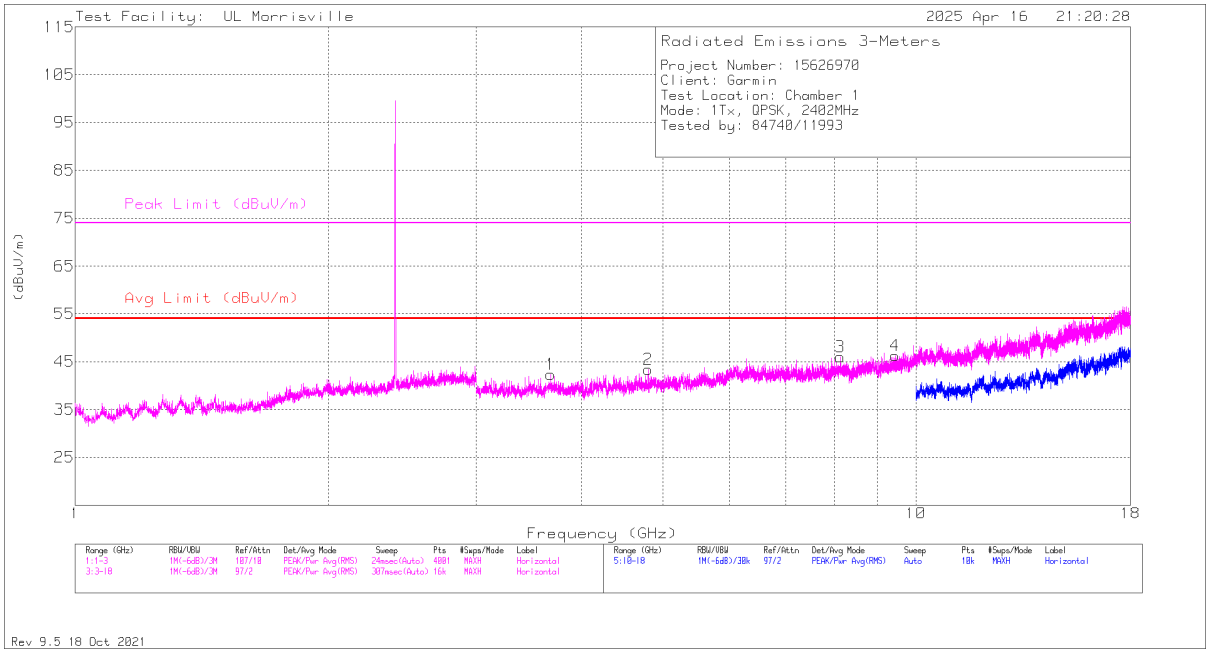


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	37.89	Pk	32.2	-23.7	46.39	-	-	74	-27.61	188	187	V
2	* ** 2.48374	37.88	Pk	32.2	-23.7	46.38	-	-	74	-27.62	188	187	V
3	* ** 2.48354	24.14	VA1T	32.2	-23.7	32.64	54	-21.36	-	-	188	187	V
4	* ** 2.49317	25.48	VA1T	32.3	-24.4	33.38	54	-20.62	-	-	188	187	V

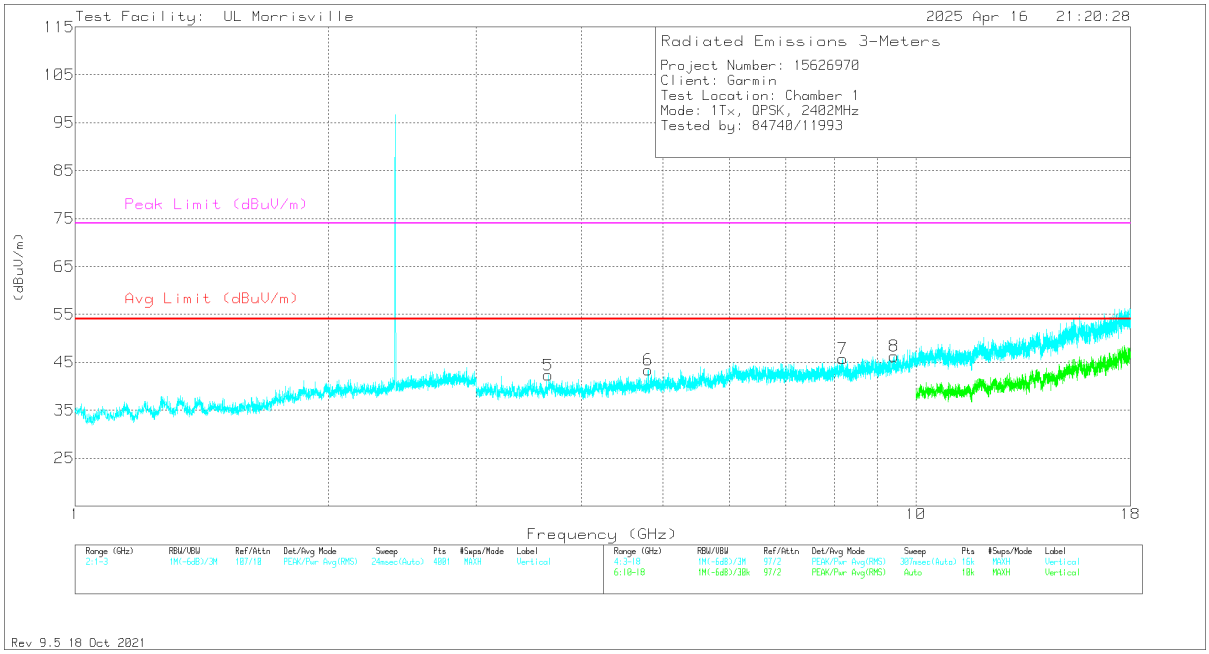
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL

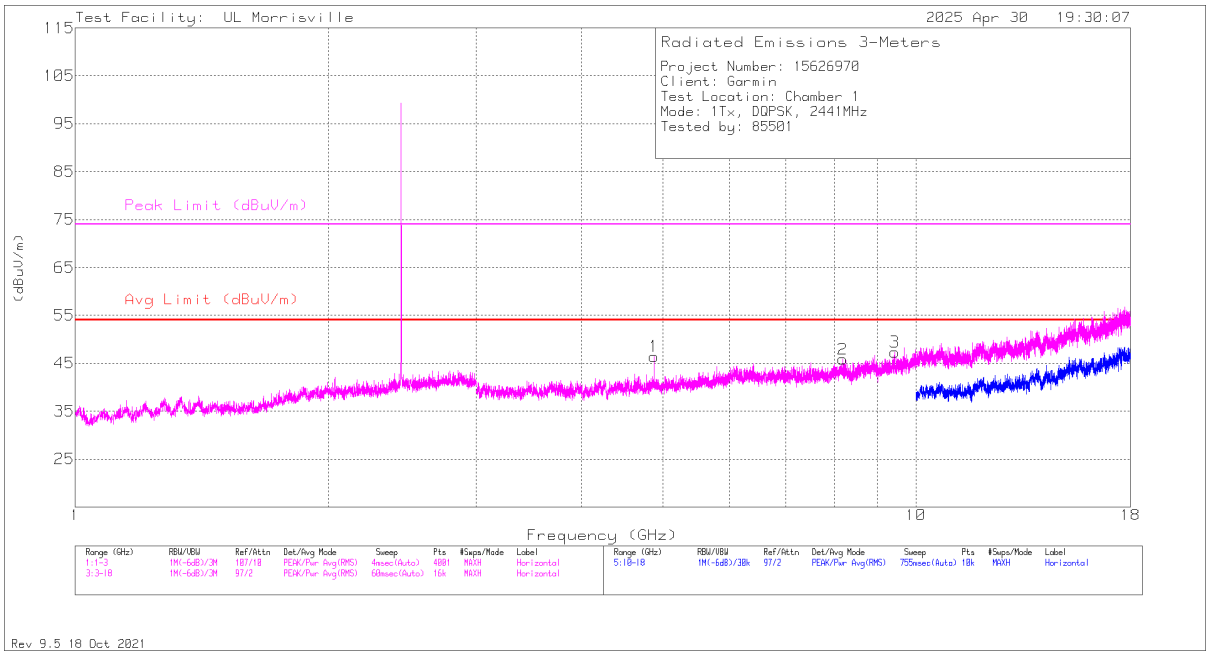


VERTICAL

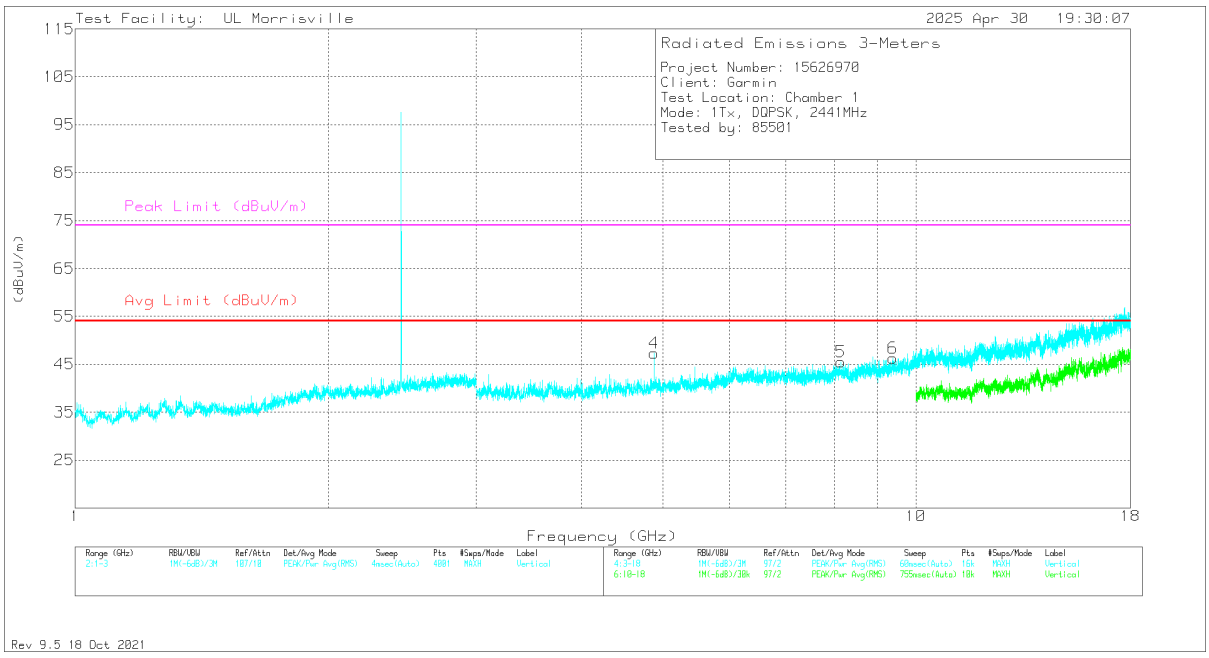
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.68063	53.64	Pk	33.2	-44.5	42.34	54	-11.66	74	-31.66	0-360	199	H
2	* ** 4.80375	55.1	Pk	33.9	-45.6	43.4	54	-10.6	74	-30.6	0-360	101	H
3	* ** 8.13469	51.08	Pk	35.9	-41	45.98	54	-8.02	74	-28.02	0-360	101	H
4	* ** 9.44719	50.85	Pk	36.3	-40.9	46.25	54	-7.75	74	-27.75	0-360	101	H
5	* ** 3.65344	53.2	Pk	33.1	-44	42.3	54	-11.7	74	-31.7	0-360	200	V
6	* ** 4.80375	55.09	Pk	33.9	-45.6	43.39	54	-10.61	74	-30.61	0-360	200	V
7	* ** 8.19	50.62	Pk	35.9	-40.8	45.72	54	-8.28	74	-28.28	0-360	200	V
8	* ** 9.41531	49.72	Pk	36.3	-39.7	46.32	54	-7.68	74	-27.68	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL RESULTS



HORIZONTAL

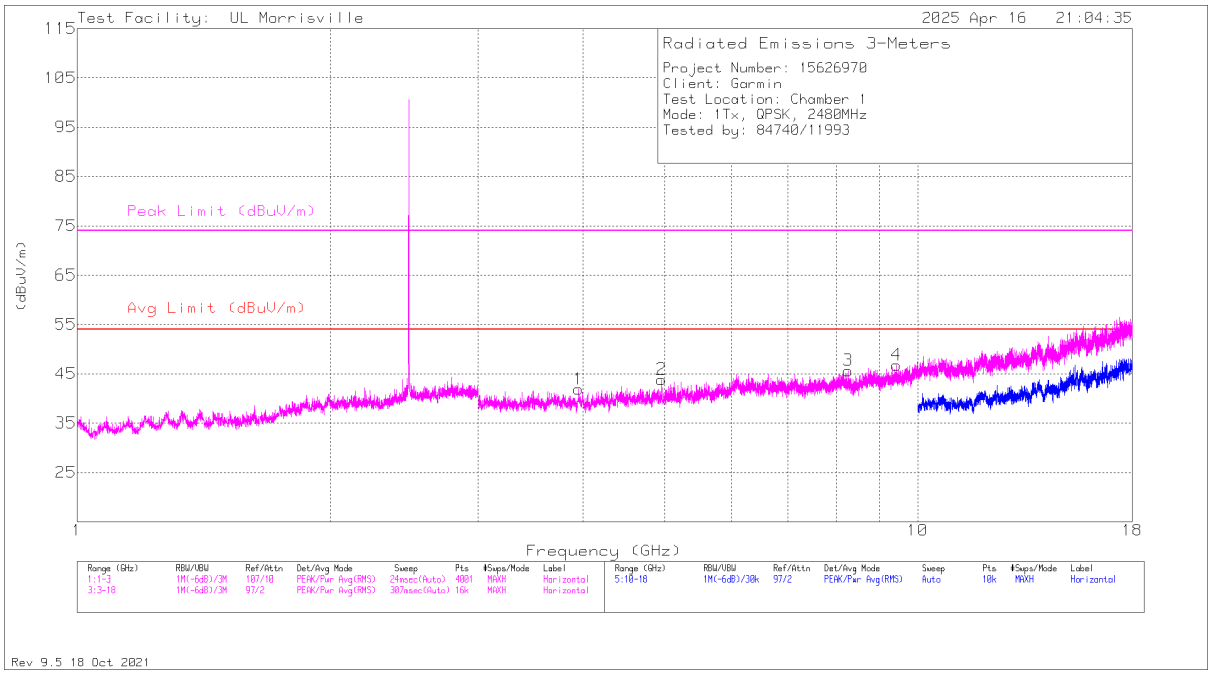


VERTICAL

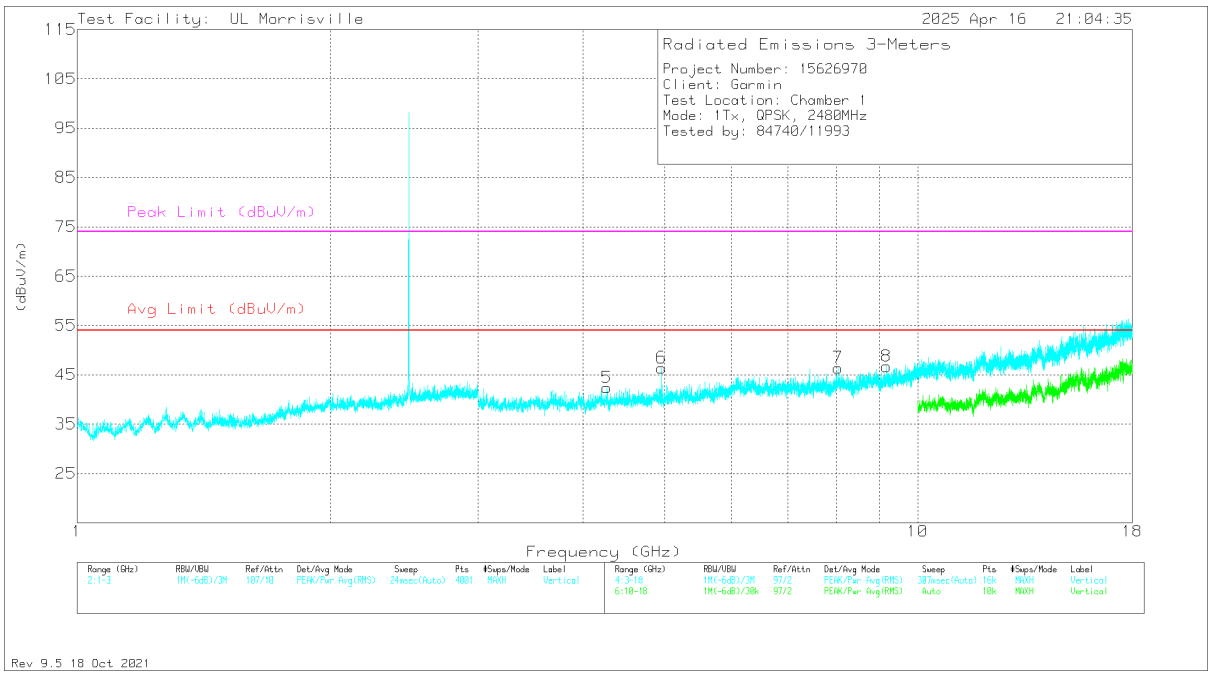
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.88156	57.15	Pk	34	-44.7	46.45	54	-7.55	74	-27.55	0-360	100	H
2	* ** 8.18531	50.83	Pk	35.9	-40.9	45.83	54	-8.17	74	-28.17	0-360	199	H
3	* ** 9.43406	51.32	Pk	36.3	-40.3	47.32	54	-6.68	74	-26.68	0-360	100	H
4	* ** 4.88156	58.01	Pk	34	-44.7	47.31	54	-6.69	74	-26.69	0-360	199	V
5	* ** 8.14219	50.55	Pk	35.9	-40.9	45.55	54	-8.45	74	-28.45	0-360	100	V
6	* ** 9.39	50.23	Pk	36.2	-40.2	46.23	54	-7.77	74	-27.77	0-360	199	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

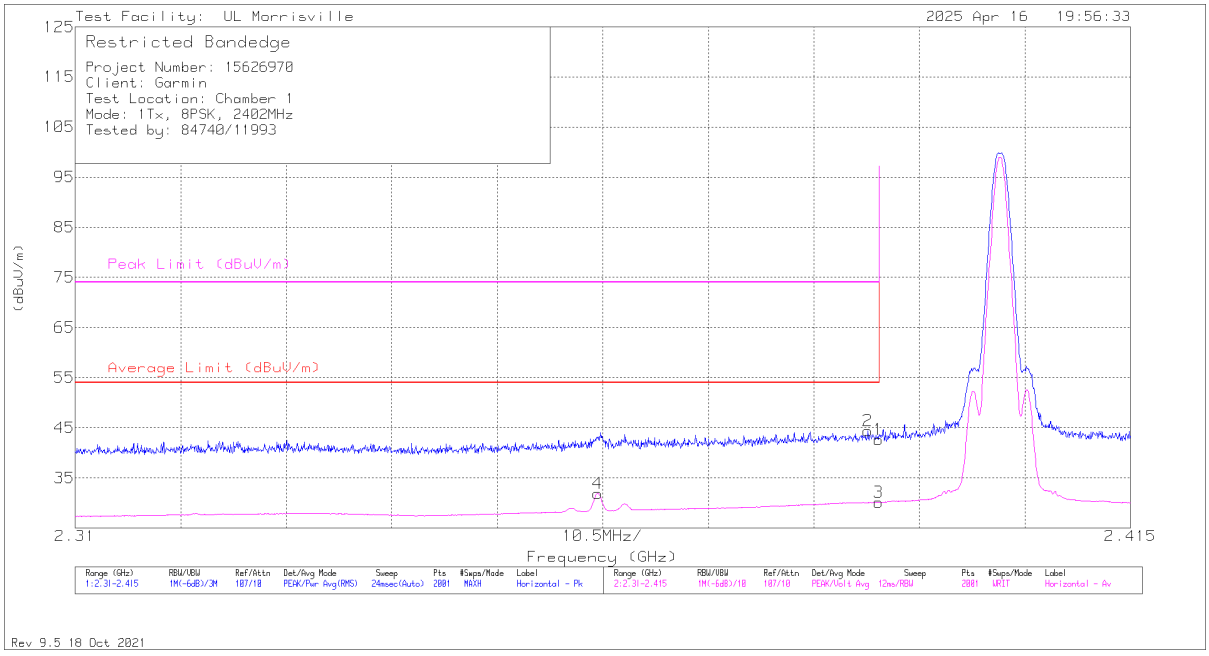
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.95156	53.49	Pk	32.9	-44.5	41.89	54	-12.11	74	-32.11	0-360	101	H
2	* ** 4.95938	54.44	Pk	34.2	-44.8	43.84	54	-10.16	74	-30.16	0-360	101	H
3	* ** 8.26688	50.25	Pk	35.9	-40.5	45.65	54	-8.35	74	-28.35	0-360	101	H
4	* ** 9.43313	50.78	Pk	36.3	-40.3	46.78	54	-7.22	74	-27.22	0-360	200	H
5	* ** 4.26938	53.2	Pk	33.7	-44.5	42.4	54	-11.6	74	-31.6	0-360	200	V
6	* ** 4.95938	57.01	Pk	34.2	-44.8	46.41	54	-7.59	74	-27.59	0-360	200	V
7	* ** 8.04469	51.52	Pk	35.9	-41	46.42	54	-7.58	74	-27.58	0-360	200	V
8	* ** 9.18563	50.4	Pk	36	-39.7	46.7	54	-7.3	74	-27.3	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.1.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

BANDEDGE (LOW CHANNEL)

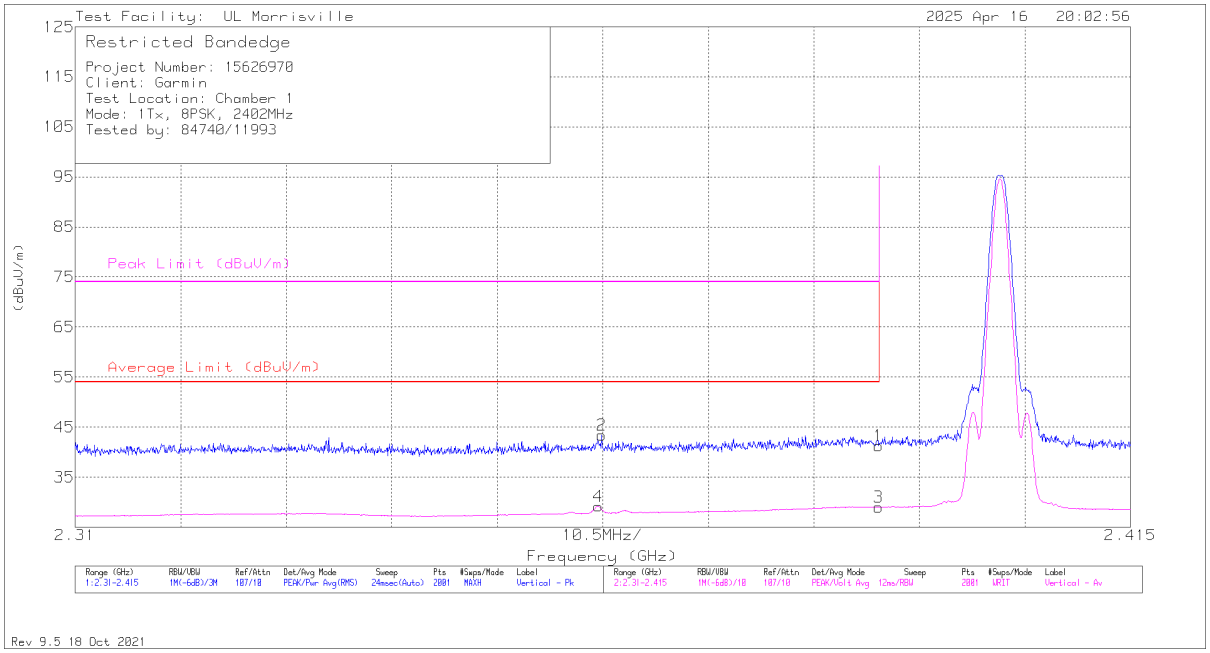
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	34.75	Pk	31.9	-24	42.65	-	-	74	-31.35	261	116	H
2	* ** 2.38886	36.49	Pk	31.9	-24	44.39	-	-	74	-29.61	261	116	H
3	* ** 2.38996	22.26	VA1T	31.9	-24	30.16	54	-23.84	-	-	261	116	H
4	* ** 2.36198	24.42	VA1T	31.9	-24.4	31.92	54	-22.08	-	-	261	116	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

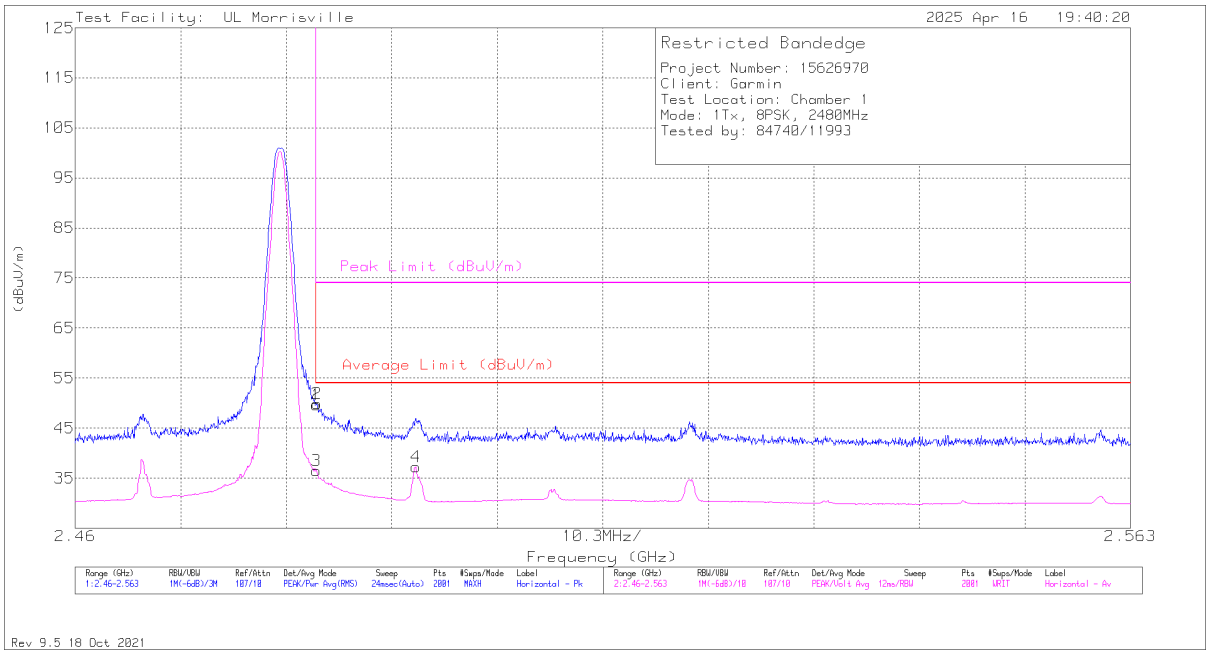


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	33.38	Pk	31.9	-24	41.28	-	-	74	-32.72	191	166	V
2	* ** 2.3624	35.87	Pk	31.9	-24.4	43.37	-	-	74	-30.63	191	166	V
3	* ** 2.38996	21.14	VA1T	31.9	-24	29.04	54	-24.96	-	-	191	166	V
4	* ** 2.36203	21.68	VA1T	31.9	-24.4	29.18	54	-24.82	-	-	191	166	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

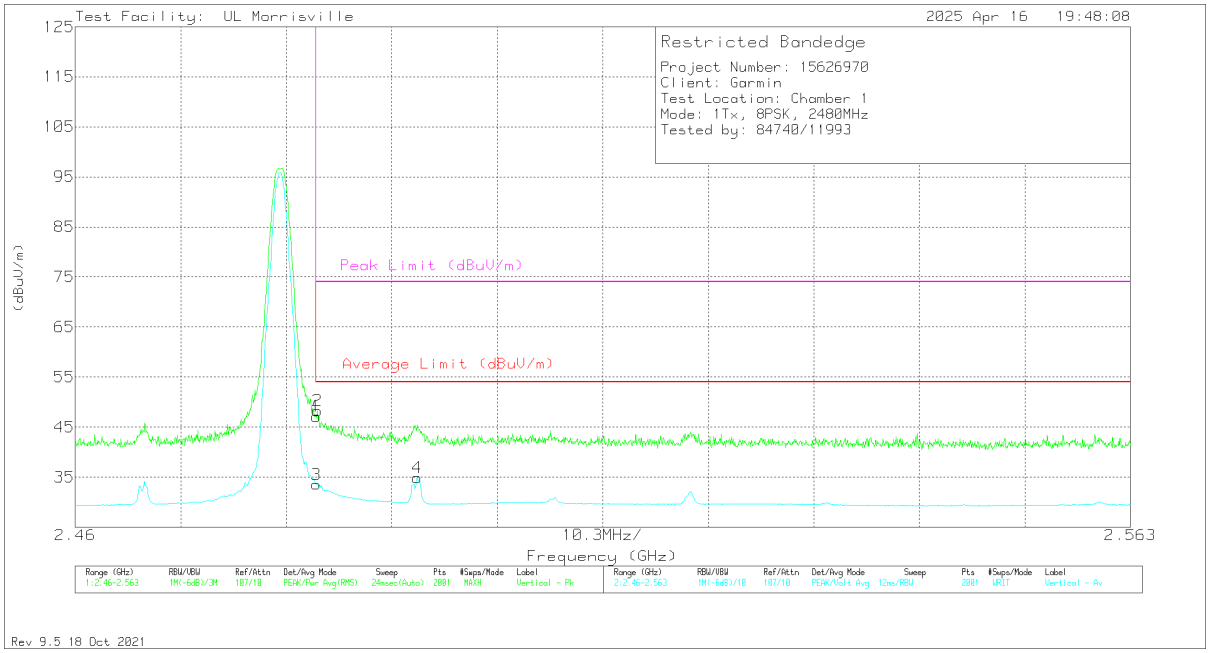
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	41.17	Pk	32.2	-23.7	49.67	-	-	74	-24.33	252	107	H
2	* ** 2.48359	41.39	Pk	32.2	-23.7	49.89	-	-	74	-24.11	252	107	H
3	* ** 2.48354	27.96	VA1T	32.2	-23.7	36.46	54	-17.54	-	-	252	107	H
4	* ** 2.49327	29.33	VA1T	32.3	-24.4	37.23	54	-16.77	-	-	252	107	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.61	Pk	32.2	-23.7	47.11	-	-	74	-26.89	307	118	V
2	* ** 2.48364	39.74	Pk	32.2	-23.7	48.24	-	-	74	-25.76	307	118	V
3	* ** 2.48354	25.06	VA1T	32.2	-23.7	33.56	54	-20.44	-	-	307	118	V
4	* ** 2.49337	27.01	VA1T	32.3	-24.4	34.91	54	-19.09	-	-	307	118	V

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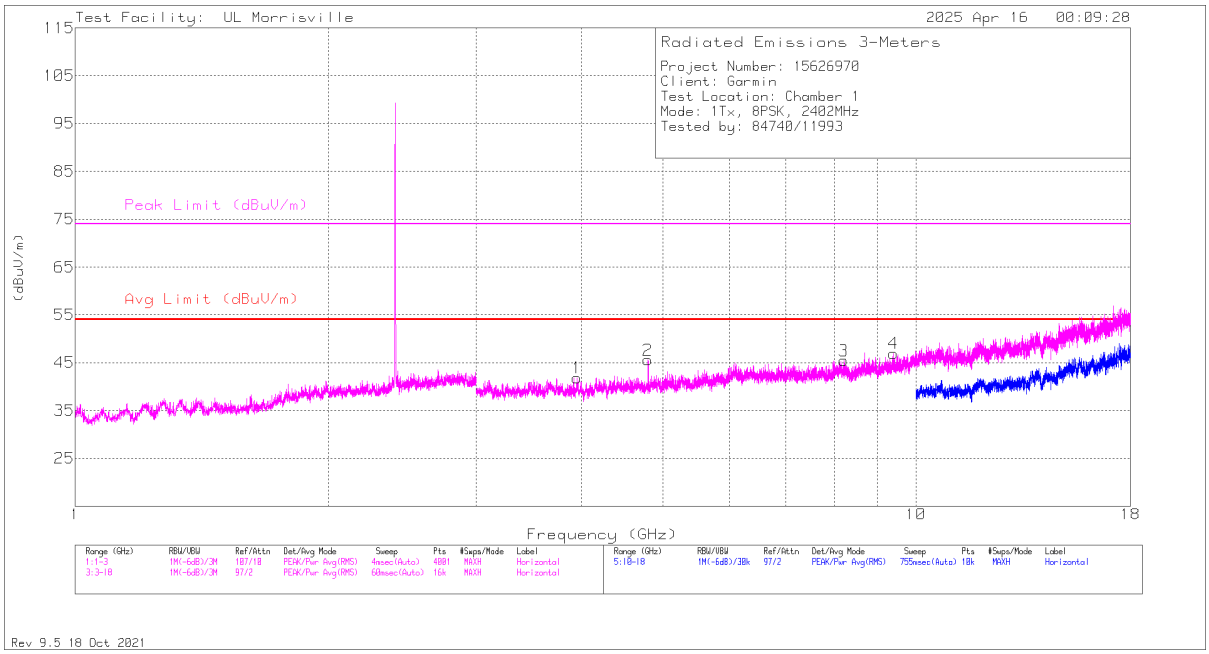
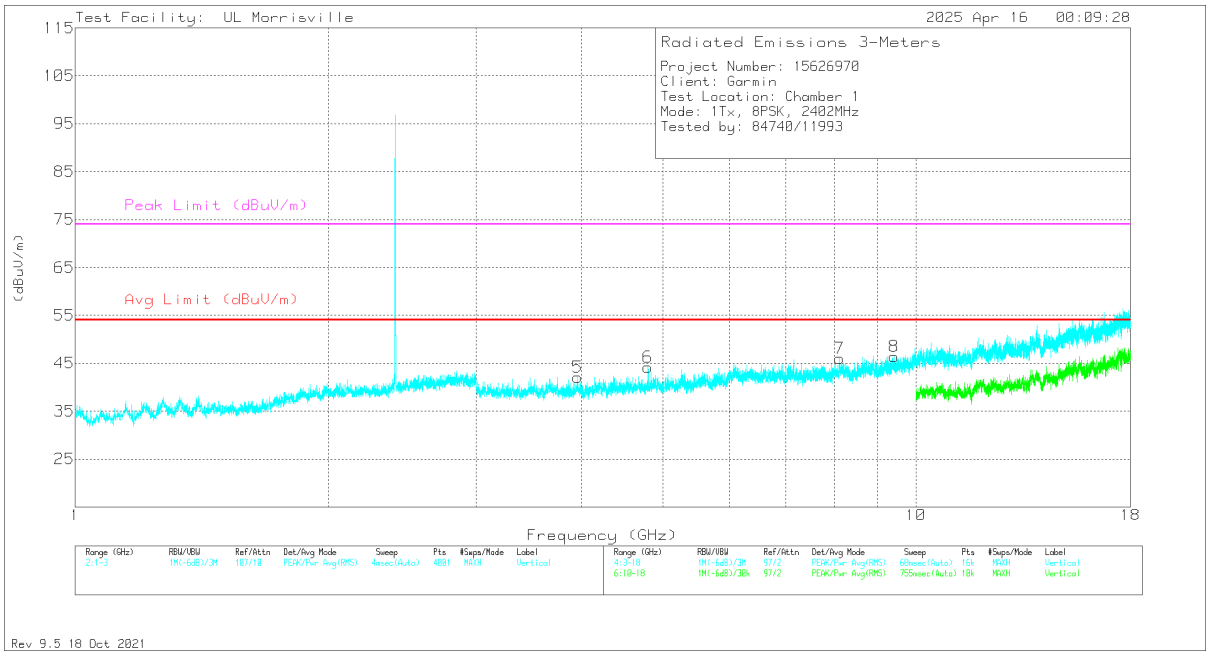
Pk - Peak detector
VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL

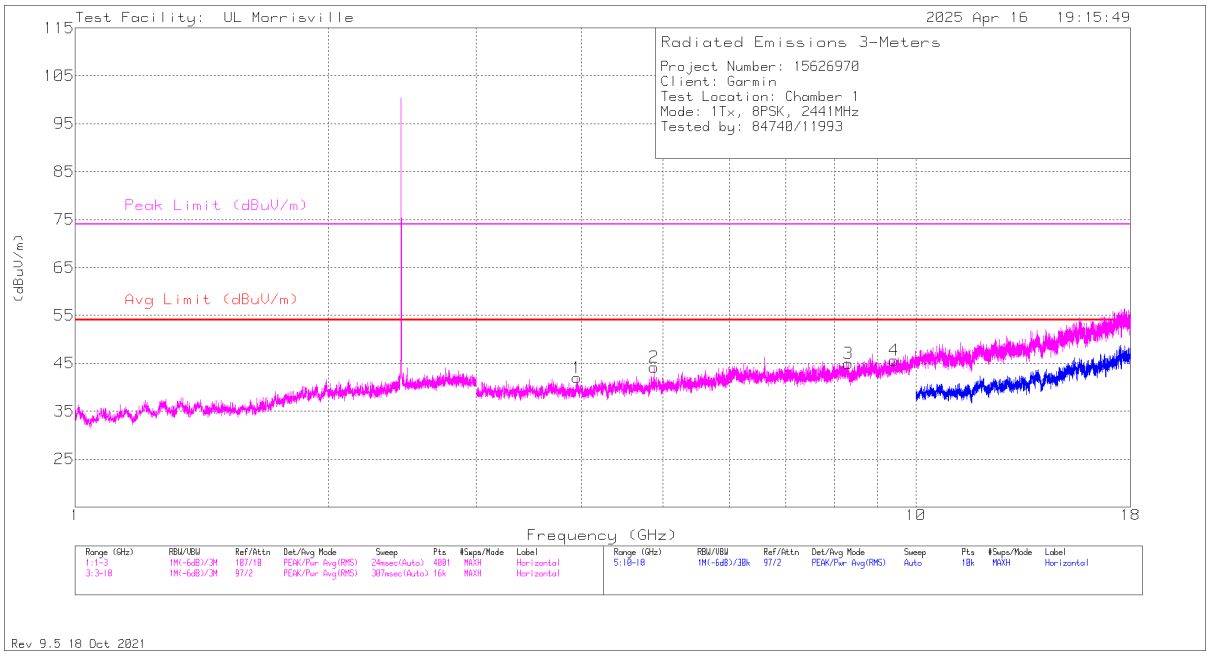


VERTICAL

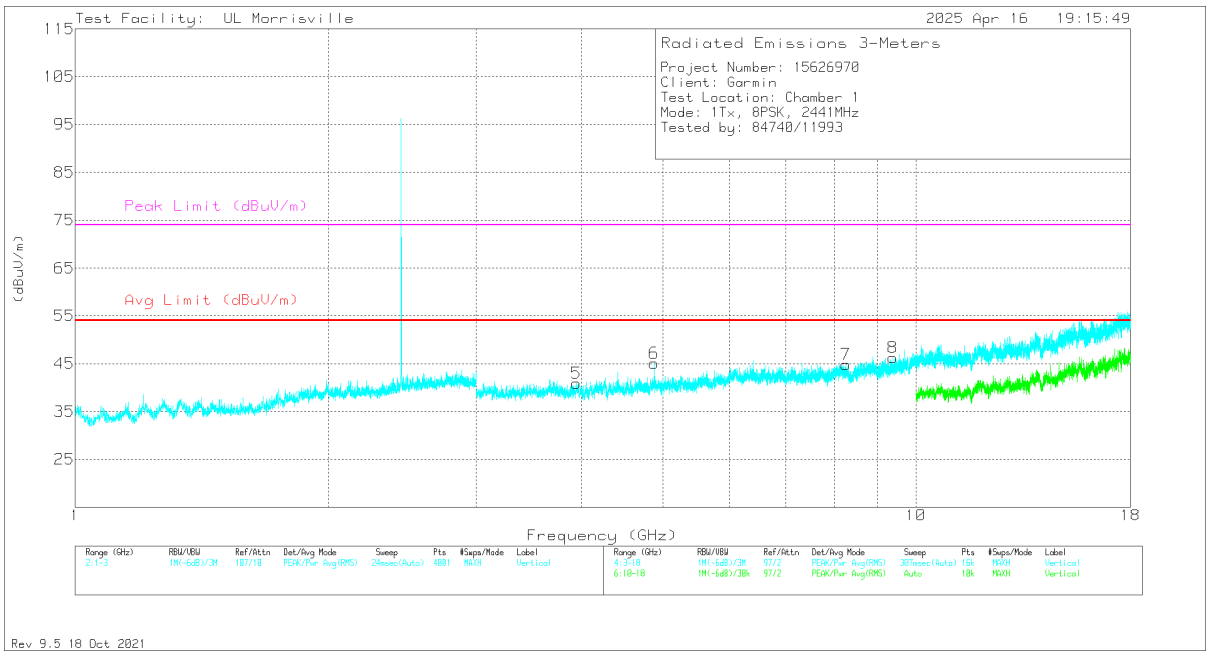
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.95156	53.42	Pk	32.9	-44.5	41.82	54	-12.18	74	-32.18	0-360	101	H
2	* ** 4.80281	57.26	Pk	33.9	-45.6	45.56	54	-8.44	74	-28.44	0-360	101	H
3	* ** 8.20688	50.53	Pk	35.9	-41	45.43	54	-8.57	74	-28.57	0-360	101	H
4	* ** 9.4125	50.69	Pk	36.3	-40.1	46.89	54	-7.11	74	-27.11	0-360	101	H
5	* ** 3.96	53.45	Pk	32.9	-44.3	42.05	54	-11.95	74	-31.95	0-360	101	V
6	* ** 4.80281	55.89	Pk	33.9	-45.6	44.19	54	-9.81	74	-29.81	0-360	200	V
7	* ** 8.10938	51.15	Pk	35.9	-41	46.05	54	-7.95	74	-27.95	0-360	101	V
8	* ** 9.41625	49.75	Pk	36.3	-39.6	46.45	54	-7.55	74	-27.55	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

MID CHANNEL RESULTS



HORIZONTAL

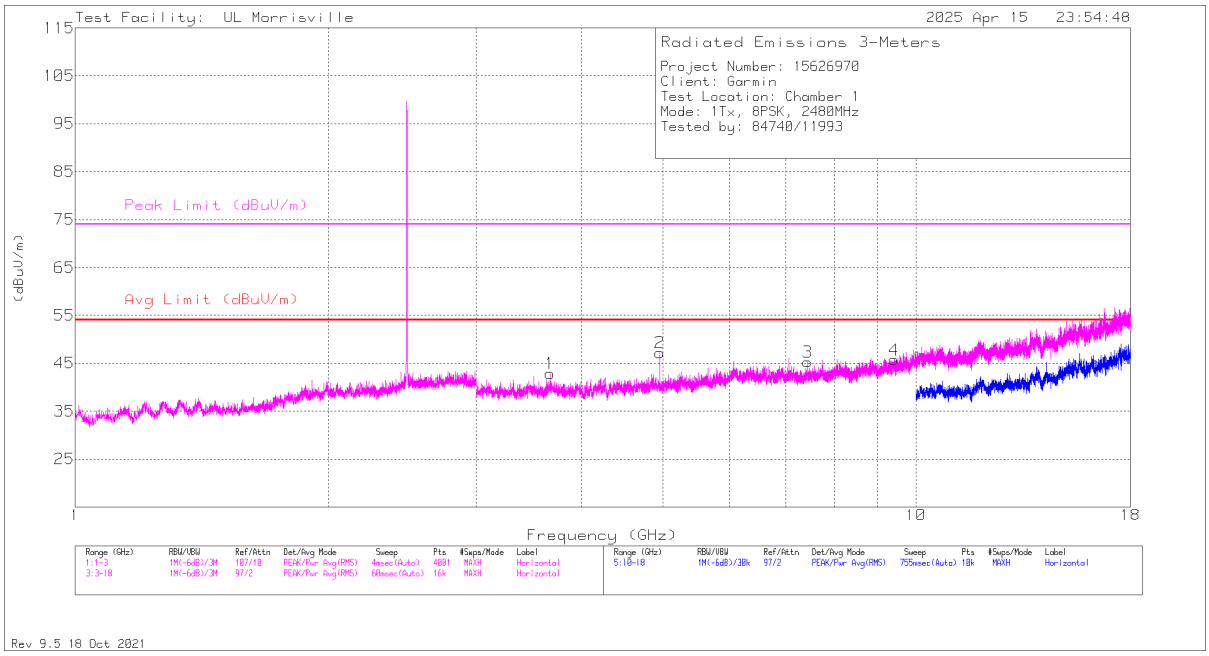


VERTICAL

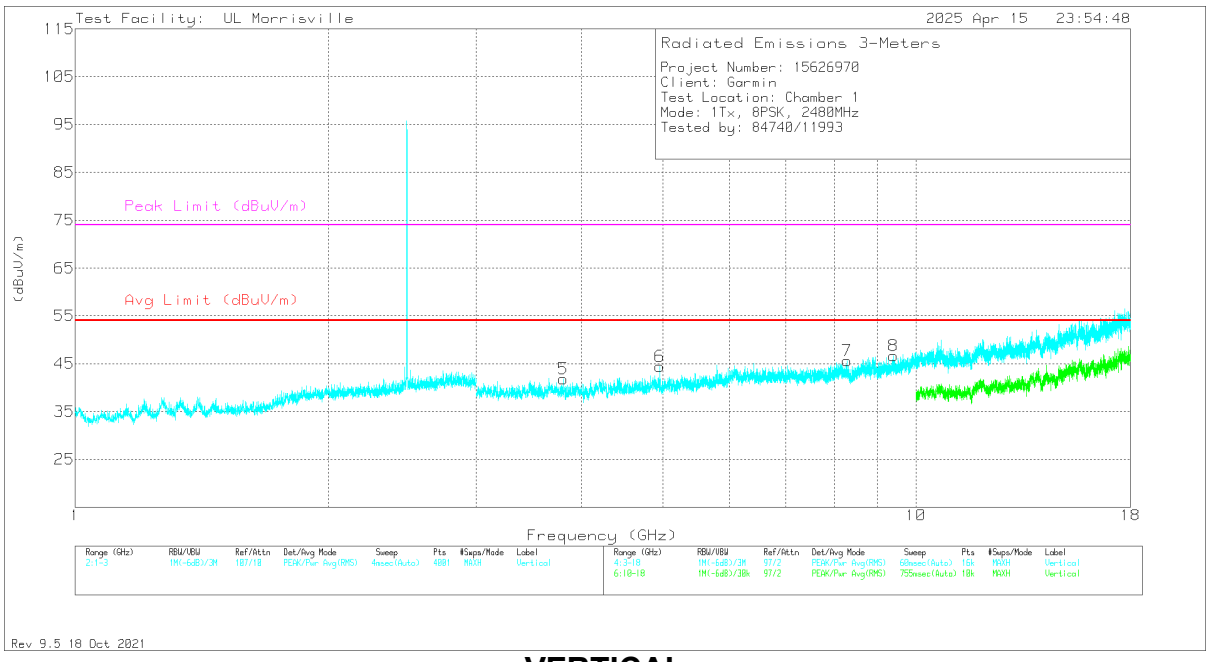
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.95531	53.52	Pk	32.9	-44.4	42.02	54	-11.98	74	-31.98	0-360	101	H
2	* ** 4.88156	54.87	Pk	34	-44.7	44.17	54	-9.83	74	-29.83	0-360	101	H
3	* ** 8.31844	49.94	Pk	35.8	-40.8	44.94	54	-9.06	74	-29.06	0-360	200	H
4	* ** 9.41719	48.99	Pk	36.3	-39.7	45.59	54	-8.41	74	-28.41	0-360	200	H
5	* ** 3.94781	52.49	Pk	32.9	-44.5	40.89	54	-13.11	74	-33.11	0-360	101	V
6	* ** 4.8825	55.88	Pk	34	-44.8	45.08	54	-8.92	74	-28.92	0-360	101	V
7	* ** 8.26219	49.53	Pk	35.9	-40.6	44.83	54	-9.17	74	-29.17	0-360	101	V
8	* ** 9.38625	50.51	Pk	36.2	-40.4	46.31	54	-7.69	74	-27.69	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

HIGH CHANNEL RESULTS



HORIZONTAL



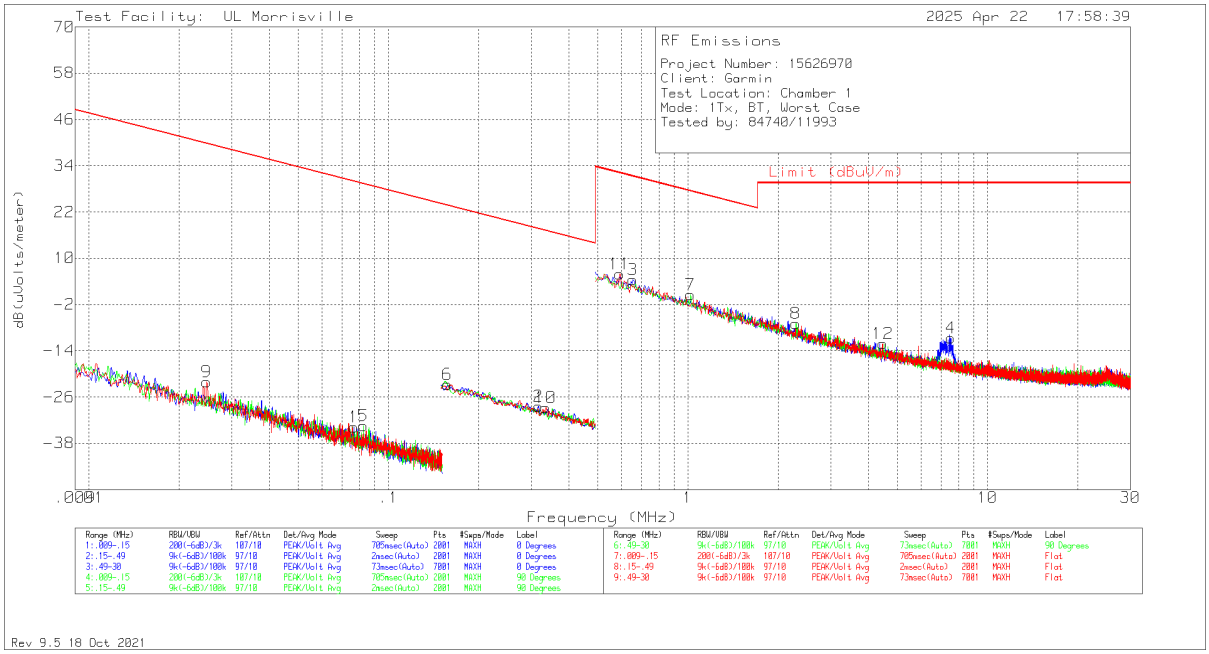
VERTICAL

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 3.67406	53.93	Pk	33.2	-44.2	42.93	54	-11.07	74	-31.07	0-360	199	H
2	* ** 4.95938	57.83	Pk	34.2	-44.8	47.23	54	-6.77	74	-26.77	0-360	101	H
3	* ** 7.44	50.99	Pk	35.4	-41.1	45.29	54	-8.71	74	-28.71	0-360	101	H
4	* ** 9.41531	49.09	Pk	36.3	-39.7	45.69	54	-8.31	74	-28.31	0-360	101	H
5	* ** 3.80719	52.58	Pk	33.1	-43.8	41.88	54	-12.12	74	-32.12	0-360	200	V
6	* ** 4.96031	55.09	Pk	34.2	-44.8	44.49	54	-9.51	74	-29.51	0-360	200	V
7	* ** 8.27813	50.62	Pk	35.9	-40.9	45.62	54	-8.38	74	-28.38	0-360	101	V
8	* ** 9.40031	50.9	Pk	36.3	-40.5	46.7	54	-7.3	74	-27.3	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.2. WORST CASE SPURIOUS BELOW 30MHZ

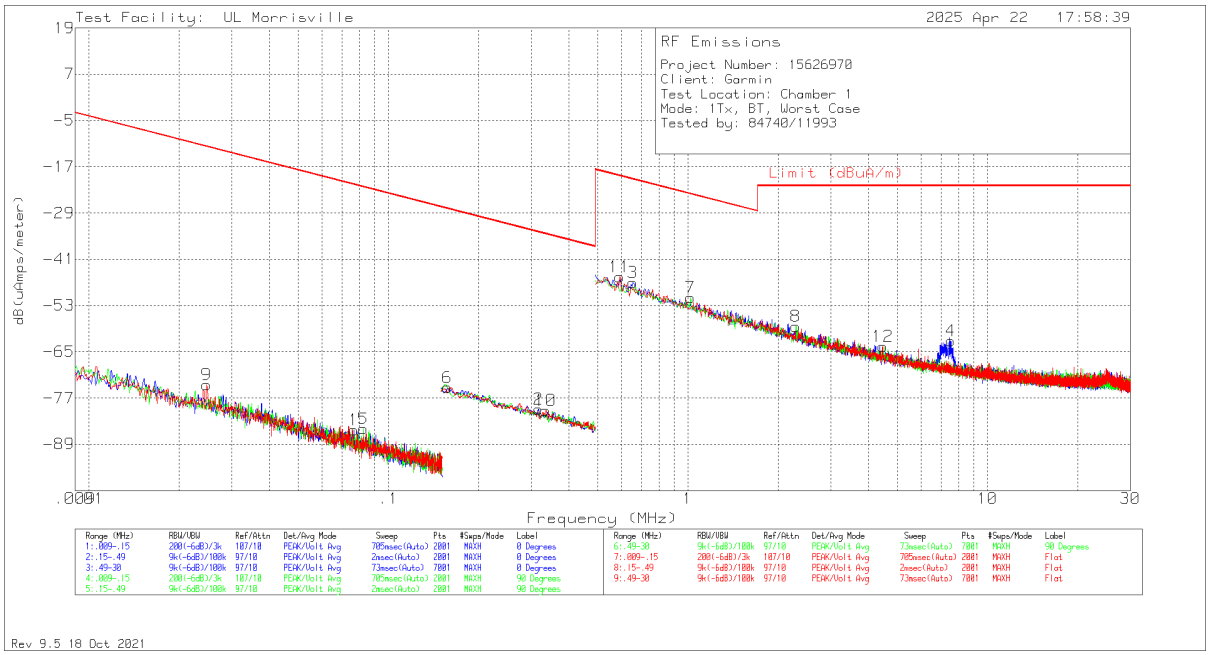
Note: All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40*Log (test distance / specification distance).



ANTENNA- THREE ORIENTATIONS (E-FIELD)

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
9	.02476	44.23	Pk	13.6	.1	-80	-22.07	39.73	59.73	-61.8	0-360	Flat
1	.07666	34.95	Pk	11.2	.1	-80	-33.75	29.91	49.91	-63.66	0-360	0 degs
5	.08249	35.19	Pk	11.2	.1	-80	-33.51	29.28	49.28	-62.79	0-360	90 degs
6	.15731	46.12	Pk	11	.1	-80	-22.78	23.67	43.67	-46.45	0-360	90 degs
2	.31686	40.6	Pk	10.9	.1	-80	-28.4	17.59	37.59	-45.99	0-360	0 degs
10	.33564	40.27	Pk	10.9	.1	-80	-28.73	17.09	37.09	-45.82	0-360	Flat
11	.59118	34.88	Pk	11	.1	-40	5.98	32.17	-	-26.19	0-360	Flat
3	.65442	33.35	Pk	11	.1	-40	4.45	31.29	-	-26.84	0-360	0 degs
7	1.02122	29.45	Pk	11	.1	-40	.55	27.42	-	-26.87	0-360	90 degs
8	2.29445	21.81	Pk	11.1	.2	-40	-6.89	29.54	-	-36.43	0-360	90 degs
12	4.46569	16.64	Pk	10.9	.3	-40	-12.16	29.54	-	-41.7	0-360	Flat
4	7.54337	18.26	Pk	10.7	.4	-40	-10.64	29.54	-	-40.18	0-360	0 degs

Pk - Peak detector

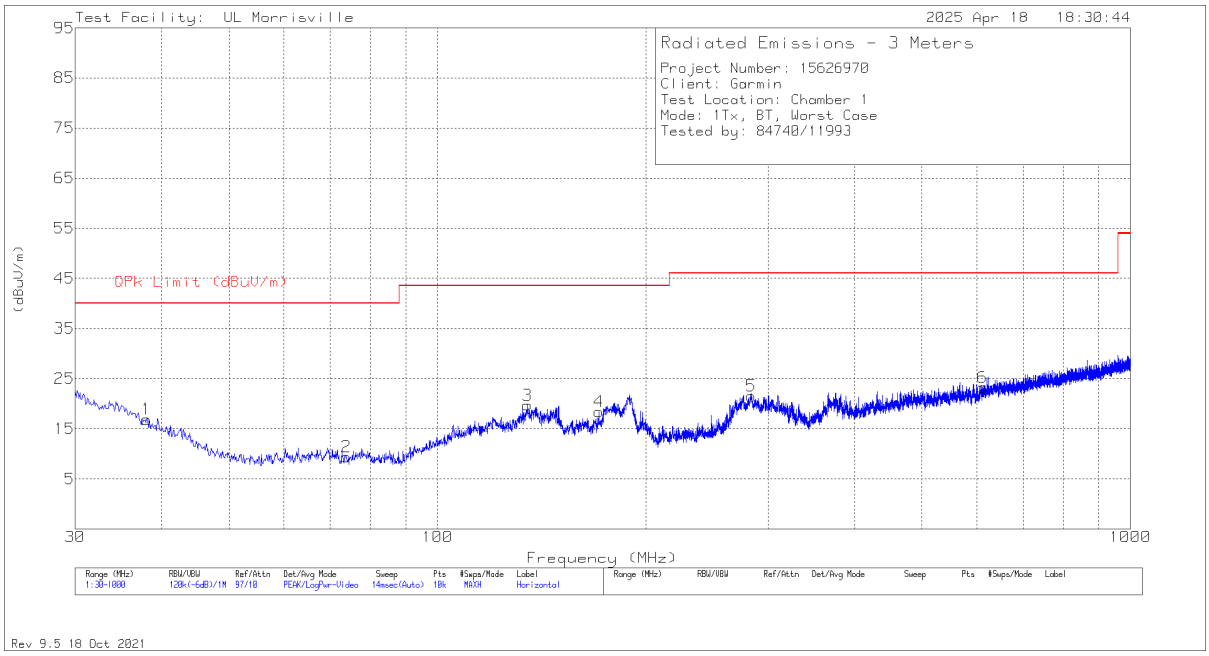


ANTENNA- THREE ORIENTATIONS (H-FIELD)

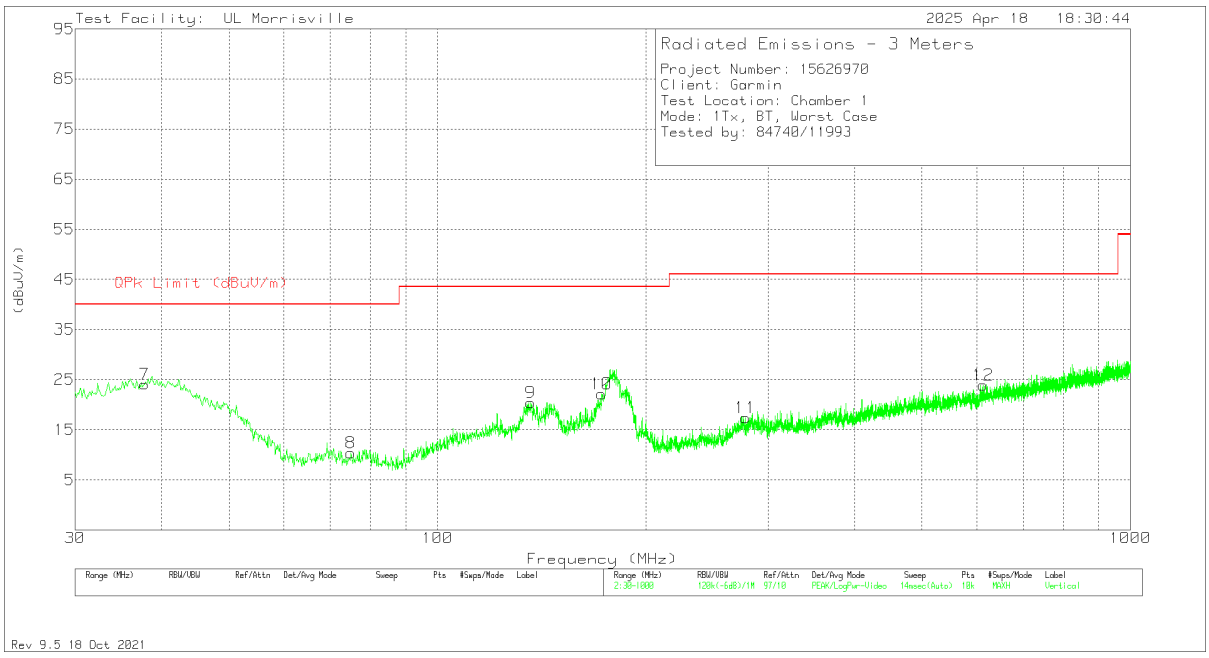
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
9	.02476	44.23	Pk	-37.9	.1	-80	-73.57	-11.77	8.23	-61.8	0-360	Flat
1	.07666	34.95	Pk	-40.3	.1	-80	-85.25	-21.59	-1.59	-63.66	0-360	0 degs
5	.08249	35.19	Pk	-40.3	.1	-80	-85.01	-22.22	-2.22	-62.79	0-360	90 degs
6	.15731	46.12	Pk	-40.5	.1	-80	-74.28	-27.83	-7.83	-46.45	0-360	90 degs
2	.31686	40.6	Pk	-40.6	.1	-80	-79.9	-33.91	-13.91	-45.99	0-360	0 degs
10	.33564	40.27	Pk	-40.6	.1	-80	-80.23	-34.41	-14.41	-45.82	0-360	Flat
11	.59118	34.88	Pk	-40.5	.1	-40	-45.52	-19.33	-	-26.19	0-360	Flat
3	.65442	33.35	Pk	-40.5	.1	-40	-47.05	-20.21	-	-26.84	0-360	0 degs
7	1.02122	29.45	Pk	-40.5	.1	-40	-50.95	-24.08	-	-26.87	0-360	90 degs
8	2.29445	21.81	Pk	-40.4	.2	-40	-58.39	-21.96	-	-36.43	0-360	90 degs
12	4.46569	16.64	Pk	-40.6	.3	-40	-63.66	-21.96	-	-41.7	0-360	Flat
4	7.54337	18.26	Pk	-40.8	.4	-40	-62.14	-21.96	-	-40.18	0-360	0 degs

Pk - Peak detector

10.3. WORST CASE SPURIOUS 30-1000MHZ



HORIZONTAL

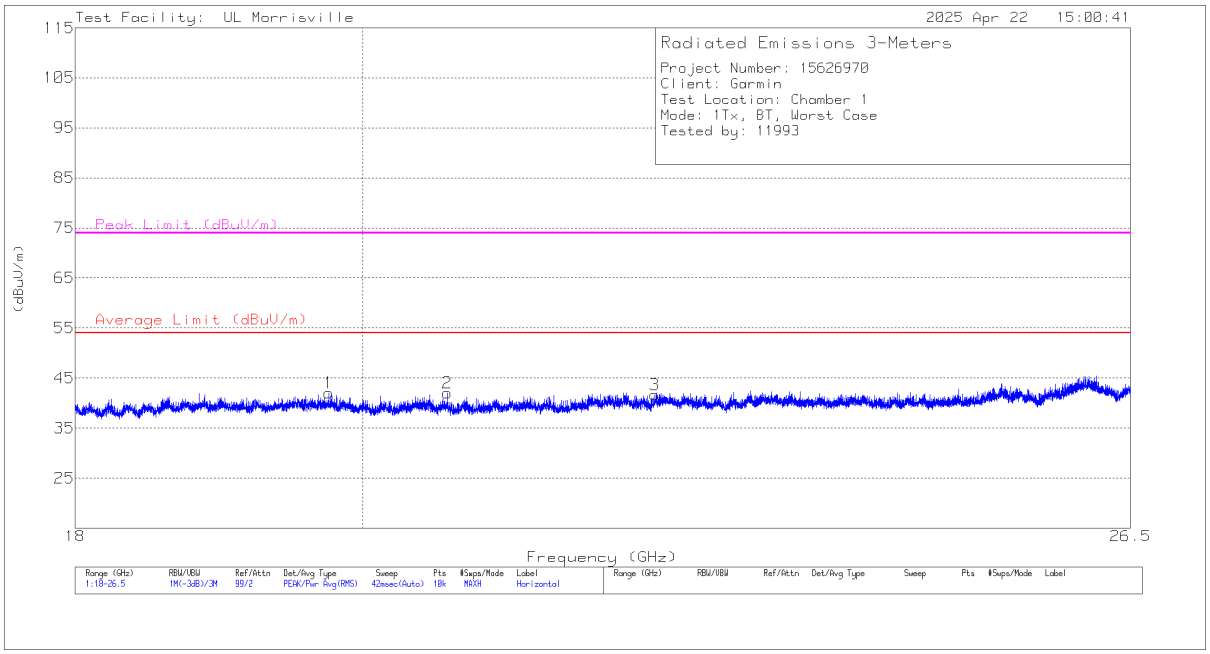


VERTICAL

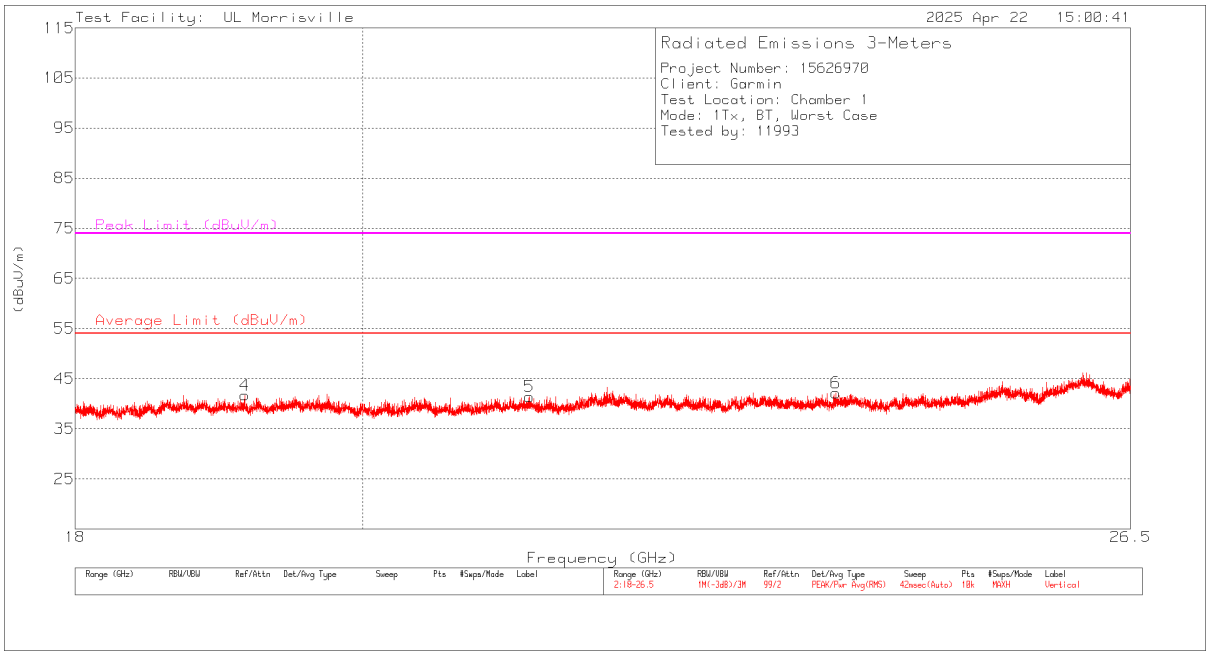
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 38.051	27.45	Pk	21.2	-31.8	16.85	40	-23.15	0-360	99	H
2	* ** 73.941	26.44	Pk	14.5	-31.5	9.44	40	-30.56	0-360	300	H
3	* ** 134.857	30.31	Pk	19.8	-30.4	19.71	43.52	-23.81	0-360	199	H
4	* ** 170.844	30.74	Pk	18	-30.3	18.44	43.52	-25.08	0-360	99	H
5	* ** 283.655	31.09	Pk	19.5	-29.1	21.49	46.02	-24.53	0-360	99	H
6	* ** 611.127	26.63	Pk	25	-28.4	23.23	46.02	-22.79	0-360	99	H
7	* ** 37.76	34.49	Pk	21.4	-31.8	24.09	40	-15.91	0-360	100	V
8	* ** 75.008	27.5	Pk	14.4	-31.5	10.4	40	-29.6	0-360	100	V
9	* ** 136.312	31.54	Pk	19.7	-30.8	20.44	43.52	-23.08	0-360	100	V
10	* ** 172.59	34.84	Pk	17.9	-30.6	22.14	43.52	-21.38	0-360	100	V
11	* ** 278.514	27.92	Pk	19.5	-30	17.42	46.02	-28.6	0-360	100	V
12	* ** 612.97	26.96	Pk	25.1	-28.2	23.86	46.02	-22.16	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10.4. WORST CASE SPURIOUS 18-26GHz



HORIZONTAL



VERTICAL

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 19.75422	49.66	Pk	32.6	-40.2	42.06	54	-11.94	74	-31.94	0-360	101	H
2	* ** 20.63134	49.51	Pk	32.6	-40.1	42.01	54	-11.99	74	-31.99	0-360	200	H
3	* ** 22.26147	48.42	Pk	33.4	-40.2	41.62	54	-12.38	74	-32.38	0-360	150	H
4	* ** 19.15418	49.21	Pk	32.6	-40.1	41.71	54	-12.29	74	-32.29	0-360	150	V
5	* ** 21.25942	48.69	Pk	32.7	-40	41.39	54	-12.61	74	-32.61	0-360	200	V
6	* ** 23.78877	48.1	Pk	34	-39.9	42.2	54	-11.8	74	-31.8	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

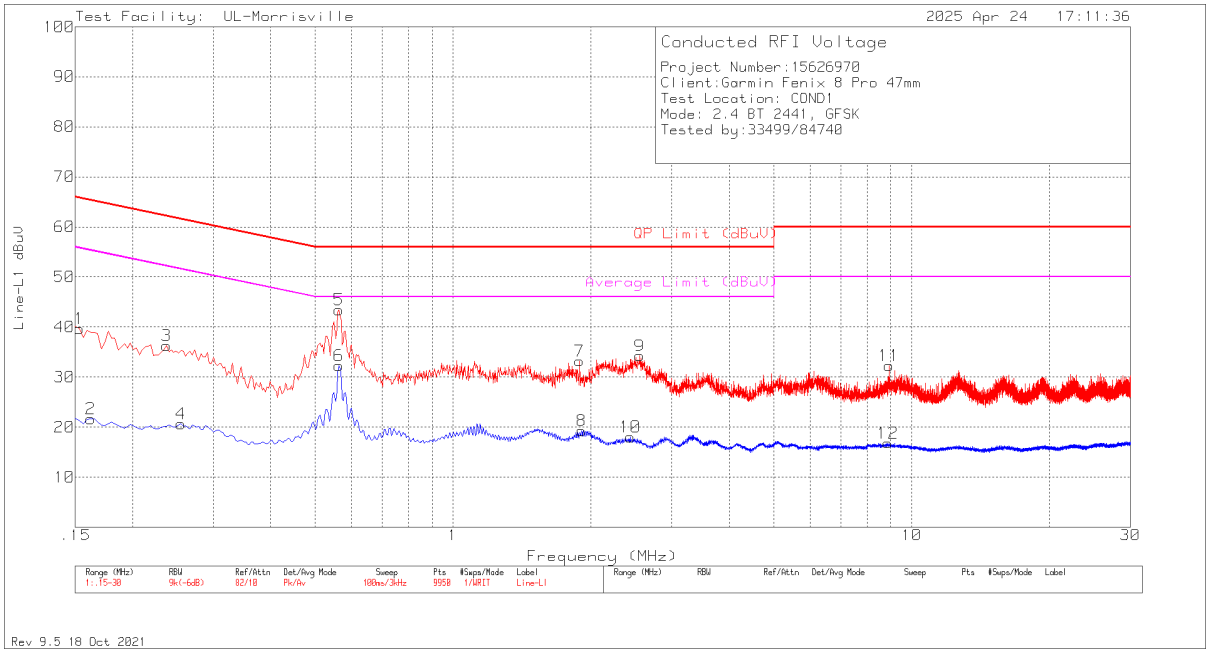
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both lines.

UL LLC
12 Laboratory Drive, Durham, NC 27713, USA TEL:(919)549-1400

11.1. AC POWER LINE

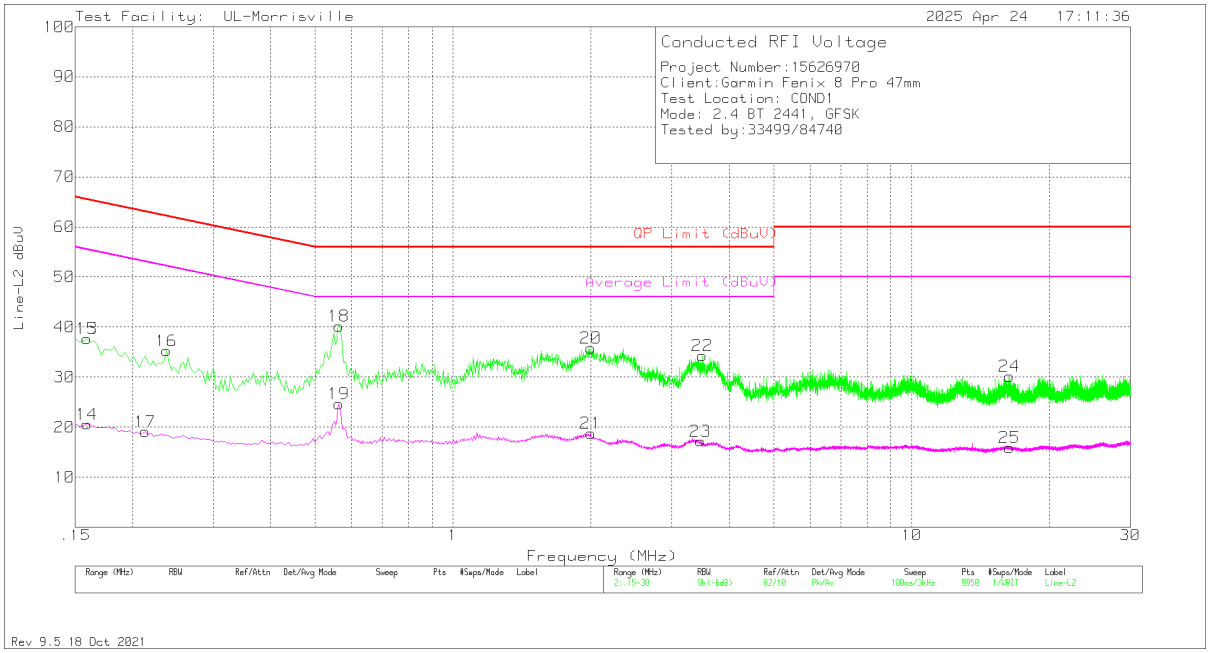
LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.153	19.46	Pk	.2	0	20	39.66	65.84	-26.18	-	-
2	.162	1.48	Av	.2	0	20	21.68	-	-	55.36	-33.68
3	.237	16.2	Pk	.1	0	20	36.3	62.2	-25.9	-	-
4	.255	.54	Av	.1	0	20	20.64	-	-	51.59	-30.95
5	.564	23.33	Pk	0	.1	20	43.43	56	-12.57	-	-
6	.564	12.15	Av	0	.1	20	32.25	-	-	46	-13.75
7	1.89	13.12	Pk	0	.1	20	33.22	56	-22.78	-	-
8	1.908	-.85	Av	0	.1	20	19.25	-	-	46	-26.75
10	2.433	-2.09	Av	0	.1	20	18.01	-	-	46	-27.99
9	2.553	14.13	Pk	0	.1	20	34.23	56	-21.77	-	-
12	8.871	-3.48	Av	.1	.2	20	16.82	-	-	50	-33.18
11	8.931	11.95	Pk	.1	.2	20	32.25	60	-27.75	-	-

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	171083 (dB)	Atten (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.159	17.46	Pk	.2	0	20	37.66	65.52	-27.86	-	-
14	.159	.38	Av	.2	0	20	20.58	-	-	55.52	-34.94
15	.159	17.46	Pk	.2	0	20	37.66	65.52	-27.86	-	-
17	.213	-1.01	Av	.1	0	20	19.09	-	-	53.09	-34
16	.237	15.13	Pk	.1	0	20	35.23	62.2	-26.97	-	-
18	.564	20.1	Pk	0	.1	20	40.2	56	-15.8	-	-
19	.564	4.57	Av	0	.1	20	24.67	-	-	46	-21.33
21	1.995	-1.35	Av	0	.1	20	18.75	-	-	46	-27.25
20	1.998	15.66	Pk	0	.1	20	35.76	56	-20.24	-	-
23	3.468	-2.9	Av	0	.1	20	17.2	-	-	46	-28.8
22	3.501	14.16	Pk	0	.1	20	34.26	56	-21.74	-	-
25	16.344	-4.58	Av	.2	.3	20	15.92	-	-	50	-34.08
24	16.359	9.62	Pk	.2	.3	20	30.12	60	-29.88	-	-

Pk - Peak detector
Av - Average detection

12. SETUP PHOTOS

Please refer to R15626970-EP2 for setup photos.

END OF TEST REPORT

TEST REPORT

Report Number: R15626970-E1

Applicant	:	Garmin International Inc. 1200 East 151St Street Olathe, KS 66062-3426, USA
Model	:	A04807
FCC ID	:	IPH-04807
IC	:	1792A-04807
EUT Description	:	Extremity Worn Digital Transceiver
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C: 2025 RSS-210 ISSUE 11: 2024 RSS-GEN ISSUE 5 + A1 + A2: 2021

Date Of Issue:
2025-07-23

Prepared by:
UL LLC
12 Laboratory Dr.
Durham, NC 27713, USA
TEL: (919) 549-1400

CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
v1	2025-07-23	Initial Issue	Manish Baral

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Garmin International Inc.
1200 East 151St Street
Olathe, KS 66062-3426, USA

EUT DESCRIPTION: Extremity Worn Digital Transceiver

MODEL: A04807

SERIAL NUMBER: 511423961, 511423988

SAMPLE RECEIPT DATE: 2025-03-04

DATE TESTED: 2025-04-21 to 2025-04-23

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C: 2025	
ISED RSS-210 Issue 11: 2024	Refer to Section 3
ISED RSS-GEN Issue 5 + A1 + A2: 2021	

UL LLC 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released
For UL LLC By:

Brian Kiewra
Project Engineer
Consumer, Medical and IT Segment
UL LLC

Prepared By:

Manish Baral
Engineer
Consumer, Medical and IT Segment
UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- ANSI C63.10-2020
- FCC 47 CFR Part 2
- FCC 47 CFR Part 15C
- RSS-GEN Issue 5 + A1 + A2: 2021
- RSS-210 Issue 11: 2024

3. SUMMARY OF TEST RESULTS

Requirement Description	Requirement Clause Number	Result	Remarks
Occupied Bandwidth	FCC §15.215 (c) RSS-Gen 6.7	Compliant	None
Fundamental Measurements.	FCC §15.225 (a-d) FCC §15.209 (d) IC RSS-210, Annex B.6 IC RSS-GEN, Section 8.9 (Transmitter)		
Tx Spurious Emissions			
Frequency Stability	FCC §15.225 (e) RSS-210, Annex B.6		
AC Mains Line Conducted Emissions	FCC §15.207 IC RSS-GEN, Section 8.8	Not Performed	NFC mode not supported during charging

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, Certificate Number #0751.06, 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: 12 Laboratory Dr Durham, NC 27713, USA	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

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 Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%

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

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

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a Extremity Worn Digital Transceiver with BT, BLE, ANT+, 802.11b/g/n 2.4GHz WLAN, NFC, and Global Navigation Satellite System (GNSS) receiver. This report covers full testing of the NFC radio.

6.2. MAXIMUM ELECTRIC FIELD STRENGTH

The transmitter has a maximum peak radiated electric field strength at 30m as follows:

Fundamental Frequency (MHz)	E-Field (dBuV/m)
13.56	29.88

6.3. SOFTWARE AND FIRMWARE

FW Version: 16.29.

6.4. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated under three orthogonal orientations X, Y, and Z. The Z orientation was determined to be the worst-case orientation. Therefore, all final radiated testing was performed with the EUT in the Z orientation.

In addition, Type A, B, AB, F, and AF with and without a tag were investigated to determine the worst case based on the highest power and spurious emissions. The client had declared that using a card reader would produce the worst-case results, so type B with a tag was determined to be the worst case and therefore selected for all final tests.

The distance between the EUT and NFC reader was also investigated, and the worst-case condition occurs when the NFC reader and EUT are separated by 3cm; therefore, all final radiated testing was performed with the EUT and NFC reader separated by 3cm.

Note – Charging is not a mode of operation for NFC.

6.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Tag Reader	Advanced Card Systems	ACR1252U	RR554-214365	V5MACR1252
Laptop	Lenovo	21AJS0KL00	PF4FKVZE	-

I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	Proprietary	1	USB-C	Shielded	<3m	Program/Charge EUT

SETUP DIAGRAM

Please refer to R15626970-EP1 for setup diagrams

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
30-1000 MHz					
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-30	2026-01-30
Gain-Loss Chains					
91974	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-08	2025-05-08
91976	Gain-loss string: 25-1000MHz	Various	Various	2024-05-08	2025-05-08
Receiver & Software					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-08-29	2025-08-29
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05
236853	AC Power Source	California Instruments	AST3001	NA	NA

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
Conducted Room 1					
90411	Spectrum Analyzer	Keysight Technologies	N9030A	2024-08-01	2025-08-01
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2025-01-15	2026-01-15
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA
Additional Equipment used					
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
Attenuators					
IV	SMA Coaxial 20dB Attenuator 25MHz-18GHz	CentricRF	C18S2-20	2025-04-11	2026-04-11
CBL091	Micro-Coax UTiFLEX Cable Assembly, Low Loss,40Ghz	Carlisle Interconnect Technologies	UFA147A-2-0360-200200	2025-03-07	2026-03-07

8. 20dB and 99% BANDWIDTH

LIMITS

§15.215 (c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

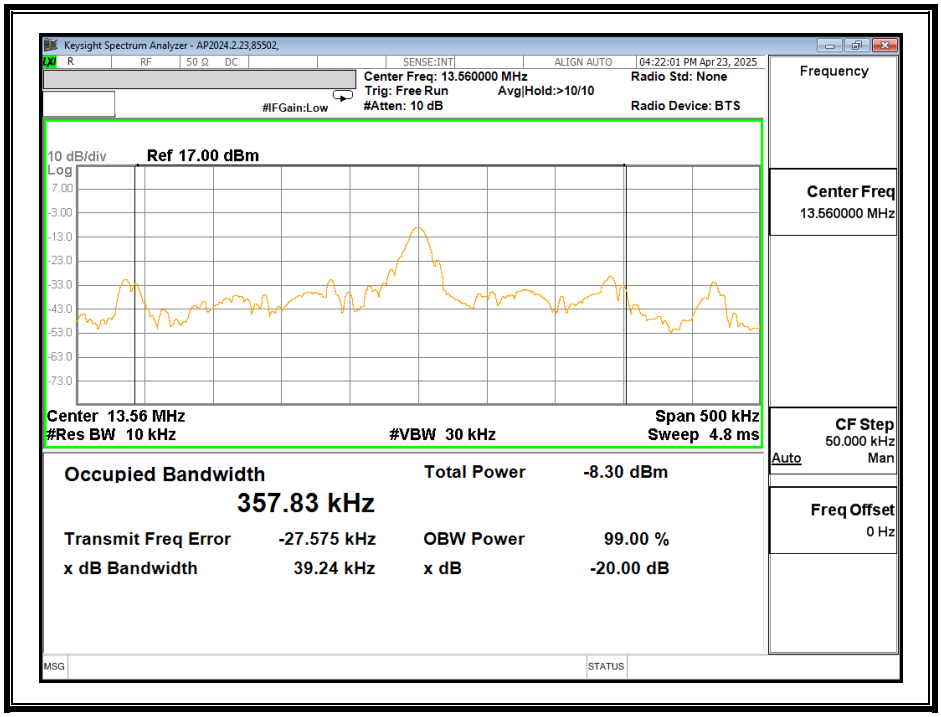
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1-5% of the 20dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

8.1. RESULTS – TAG ON

Mode	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
Type B	13.56	39.24	357.83

8.1.1. Type B (CE Mode)



Note: Because the measured signal is CW or CW-like, adjusting the RBW per C63.10 would not be practical since the measured bandwidth will always follow the RBW.

9. RADIATED EMISSION TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMIT

FCC §15.225
IC RSS-210, Annex B.6
IC RSS-GEN, Section 8.9 (Transmitter)

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110– 14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:
§15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	**Field Strength Limit (uA/m) at 3 m**	**Field Strength Limit (dBuA/m) at 3 m**
0.009-0.490	6.37/F(kHz) @ 300 m	-
0.490-1.705	63.7/F(kHz) @ 30 m	-
1.705 - 30	0.08 @ 30m	-
Frequency Range (MHz)	**Field Strength Limit (uV/m) at 3 m**	**Field Strength Limit (dBuV/m) at 3 m**
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

In addition:
§15.209 (d) The emission limits shown the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

ANSI C63.10 - 2020

The EUT is an intentional radiator that incorporates a digital device, the highest fundamental frequency generated or used in the device is 13.56 MHz; therefore, the frequency range was investigated from 9kHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

Note: For all Below 30MHz test data, all measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40*Log (test distance / specification distance)

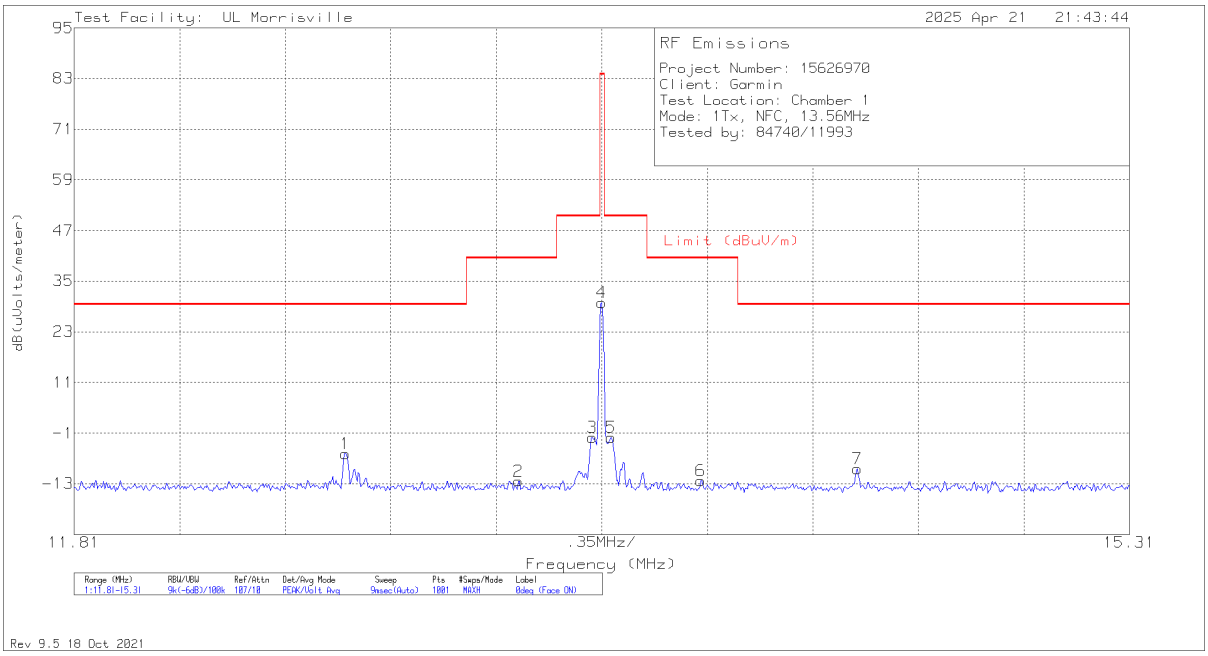
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

RESULTS

9.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (<30MHz)

9.2.1. TYPE B, TAG ON

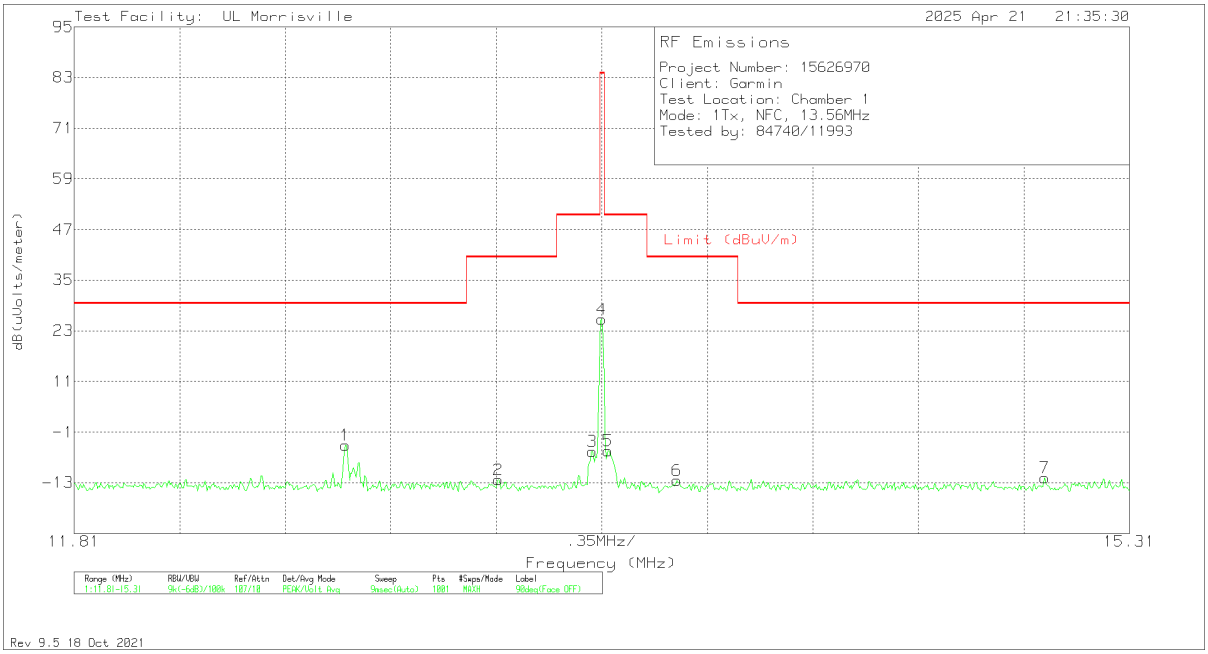
FUNDAMENTAL



ANTENNA FACE ON

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.7095	22.98	Pk	10.6	.6	-40	-5.82	29.5	-35.32	173	100	0 degs
2	13.2835	16.45	Pk	10.6	.6	-40	-12.35	40.5	-52.85	173	100	0 degs
3	13.5285	26.81	Pk	10.6	.6	-40	-1.99	50.5	-52.49	173	100	0 degs
4	13.56	58.68	Pk	10.6	.6	-40	29.88	84	-54.12	173	100	0 degs
5	13.5915	26.81	Pk	10.6	.6	-40	-1.99	50.5	-52.49	173	100	0 degs
6	13.889	16.52	Pk	10.6	.6	-40	-12.28	40.5	-52.78	173	100	0 degs
7	14.407	19.41	Pk	10.6	.6	-40	-9.39	29.5	-38.89	173	100	0 degs

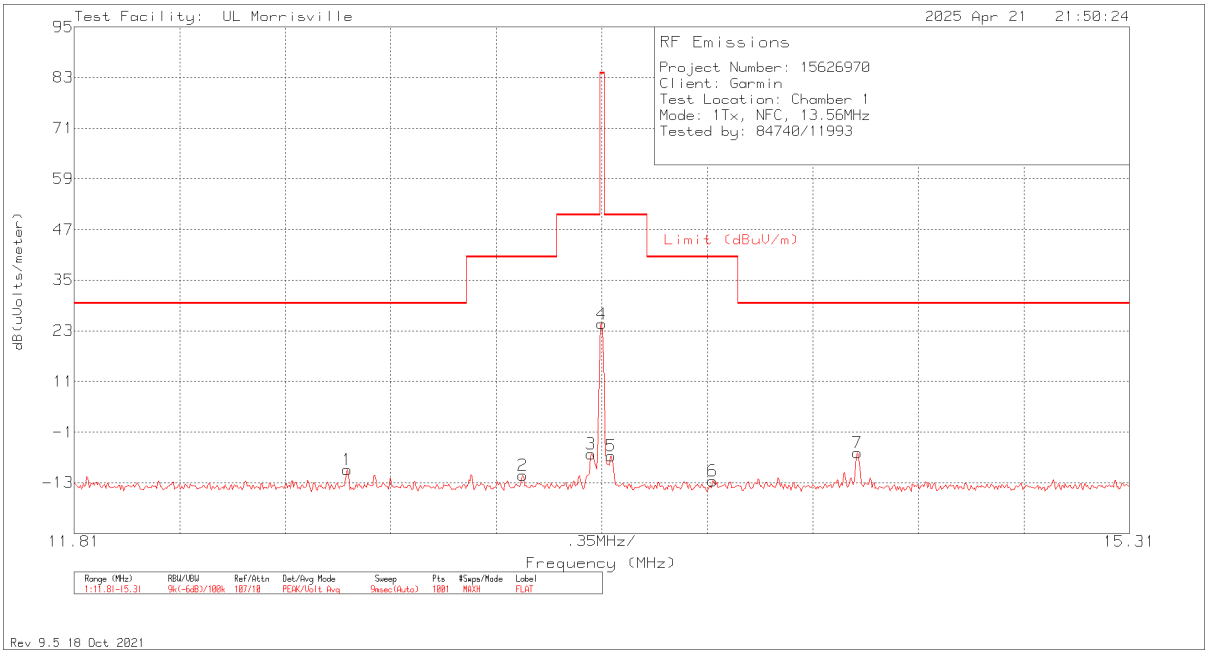
Pk - Peak detector



ANTENNA FACE OFF

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.7095	24.7	Pk	10.6	.6	-40	-4.1	29.5	-33.6	90	100	90 degs
2	13.217	16.47	Pk	10.6	.6	-40	-12.33	40.5	-52.83	90	100	90 degs
3	13.5285	23.21	Pk	10.6	.6	-40	-5.59	50.5	-56.09	90	100	90 degs
4	13.56	54.5	Pk	10.6	.6	-40	25.7	84	-58.3	90	100	90 degs
5	13.581	23.4	Pk	10.6	.6	-40	-5.4	50.5	-55.9	90	100	90 degs
6	13.8085	16.32	Pk	10.6	.6	-40	-12.48	40.5	-52.98	90	100	90 degs
7	15.03	17.08	Pk	10.5	.6	-40	-11.82	29.5	-41.32	90	100	90 degs

Pk - Peak detector

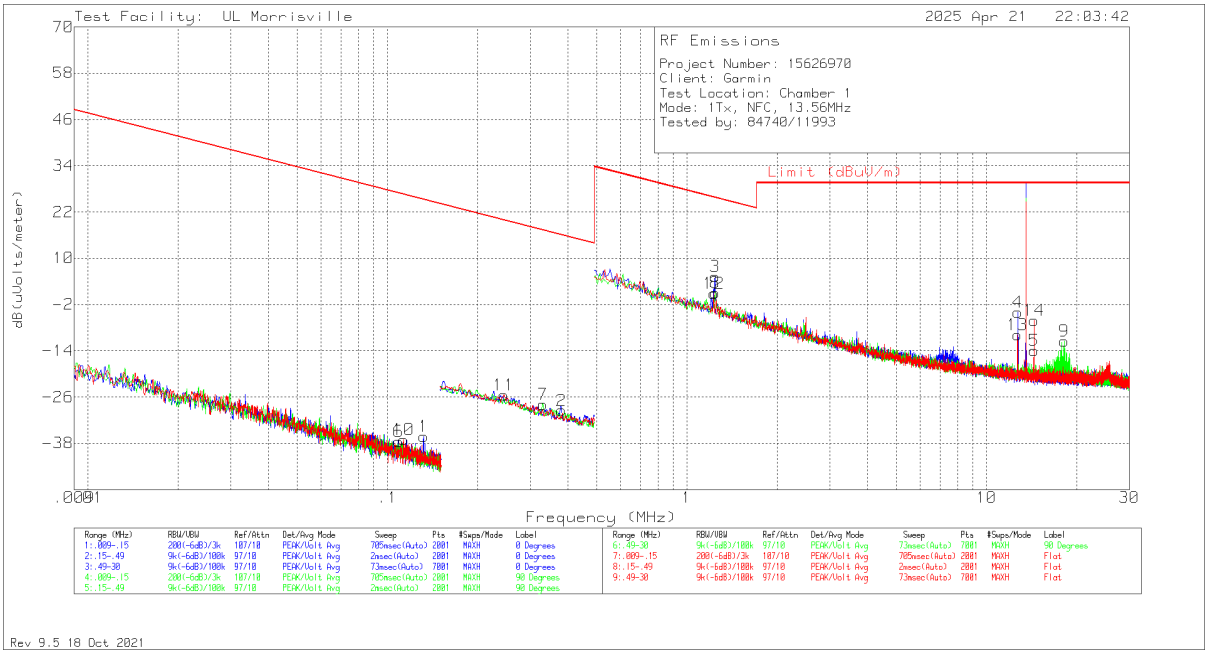


ANTENNA FACE FLAT

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Loop Angle
1	12.7165	18.96	Pk	10.6	.6	-40	-9.84	29.5	-39.34	141	100	Flat
2	13.2975	17.53	Pk	10.6	.6	-40	-11.27	40.5	-51.77	141	100	Flat
3	13.525	22.62	Pk	10.6	.6	-40	-6.18	50.5	-56.68	141	100	Flat
4	13.56	53.45	Pk	10.6	.6	-40	24.65	84	-59.35	141	100	Flat
5	13.5915	22.16	Pk	10.6	.6	-40	-6.64	50.5	-57.14	141	100	Flat
6	13.9275	16.27	Pk	10.6	.6	-40	-12.53	40.5	-53.03	141	100	Flat
7	14.407	22.97	Pk	10.6	.6	-40	-5.83	29.5	-35.33	141	100	Flat

Pk - Peak detector

SPURIOUS EMISSION – E FIELD

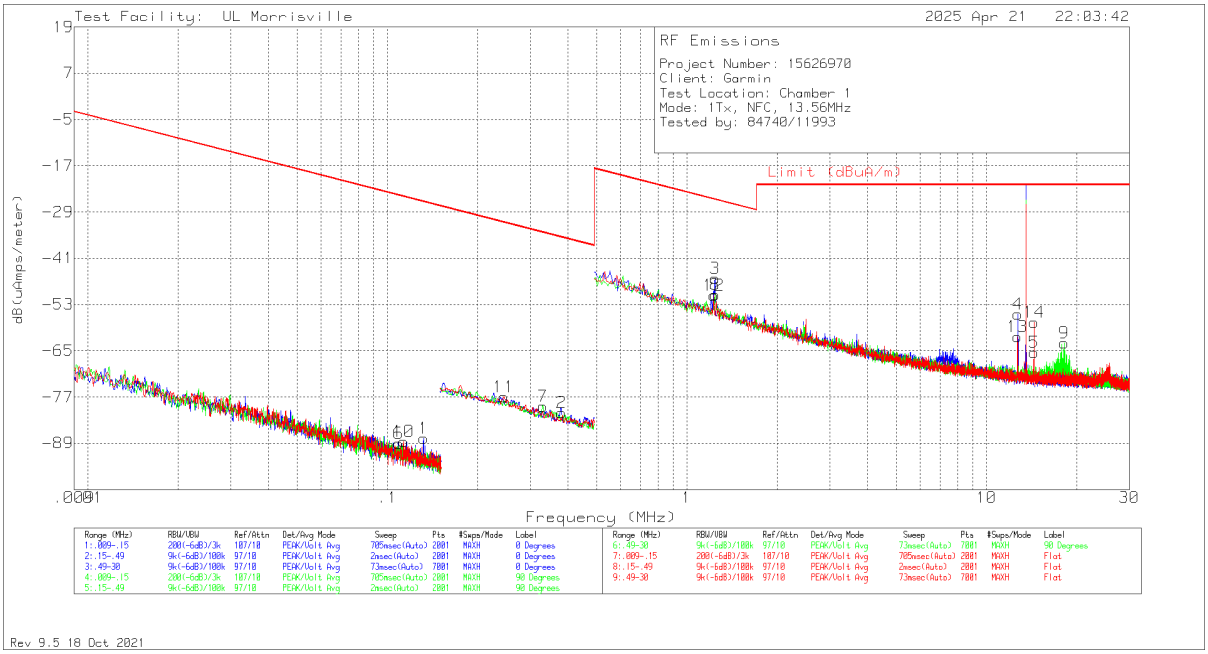


<30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
6	.10893	31.27	Pk	11.1	.1	-80	-37.53	26.86	-	-64.39	0-360	90 degs
10	.11309	31.76	Pk	11.1	.1	-80	-37.04	26.54	46.54	-63.58	0-360	Flat
1	.1319	32.7	Pk	11	.1	-80	-36.2	25.2	45.2	-61.4	0-360	0 degs
11	.24478	43.57	Pk	10.9	.1	-80	-25.43	19.83	39.83	-45.26	0-360	Flat
7	.33088	41.07	Pk	10.9	.1	-80	-27.93	17.21	37.21	-45.14	0-360	90 degs
2	.38188	39.43	Pk	11	.1	-80	-29.47	15.97	35.97	-45.44	0-360	0 degs
12	1.2278	29.67	Pk	11	.2	-40	.87	25.82	-	-24.95	0-360	Flat
3	1.24045	34.07	Pk	11	.2	-40	5.27	25.73	-	-20.46	0-360	0 degs
8	1.24045	29.86	Pk	11	.2	-40	1.06	25.73	-	-24.67	0-360	90 degs
13	12.6911	18.89	Pk	10.6	.6	-40	-9.91	29.54	-	-39.45	0-360	Flat
4	12.70797	24.78	Pk	10.6	.6	-40	-4.02	29.54	-	-33.56	0-360	0 degs
5	14.40702	14.85	Pk	10.6	.6	-40	-13.95	29.54	-	-43.49	0-360	0 degs
14	14.40702	22.71	Pk	10.6	.6	-40	-6.09	29.54	-	-35.63	0-360	Flat
9	18.13396	17.54	Pk	10.3	.7	-40	-11.46	29.54	-	-41	0-360	90 degs

Pk - Peak detector

SPURIOUS EMISSION – H FIELD



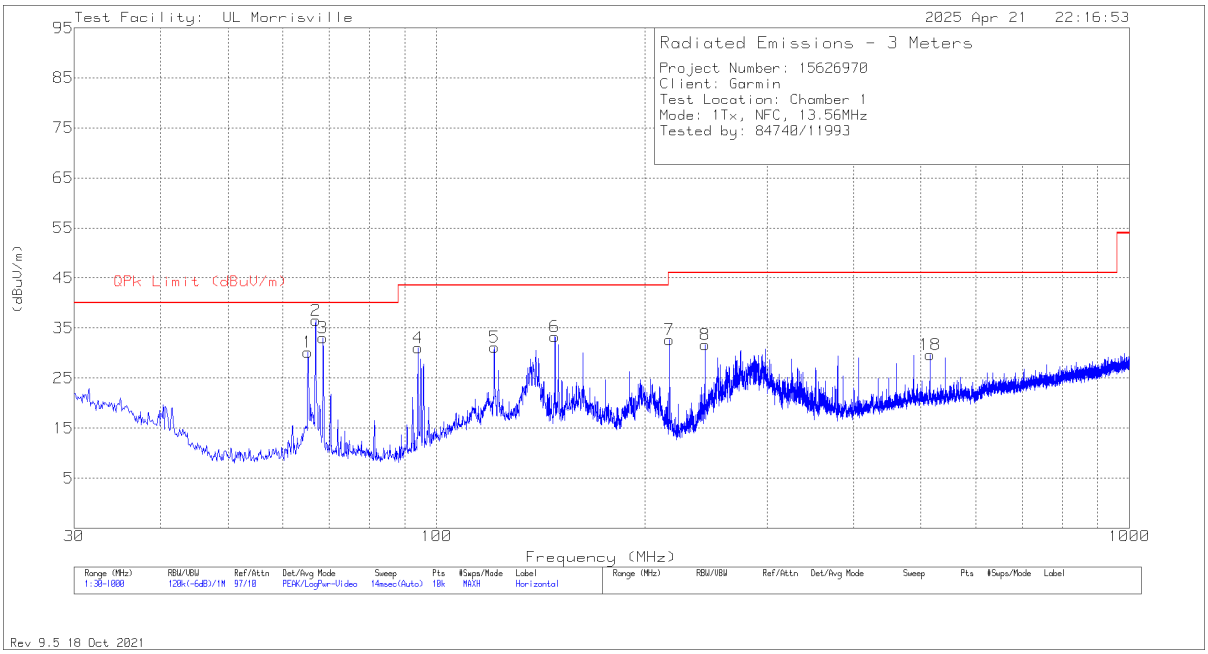
<30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
6	.10893	31.27	Pk	-40.4	.1	-80	-89.03	-24.64	-	-64.39	0-360	90 degs
10	.11309	31.76	Pk	-40.4	.1	-80	-88.54	-24.96	-4.96	-63.58	0-360	Flat
1	.1319	32.7	Pk	-40.5	.1	-80	-87.7	-26.3	-6.3	-61.4	0-360	0 degs
11	.24478	43.57	Pk	-40.6	.1	-80	-76.93	-31.67	-11.67	-45.26	0-360	Flat
7	.33088	41.07	Pk	-40.6	.1	-80	-79.43	-34.29	-14.29	-45.14	0-360	90 degs
2	.38188	39.43	Pk	-40.5	.1	-80	-80.97	-35.53	-15.53	-45.44	0-360	0 degs
12	1.2278	29.67	Pk	-40.5	.2	-40	-50.63	-25.68	-	-24.95	0-360	Flat
3	1.24045	34.07	Pk	-40.5	.2	-40	-46.23	-25.77	-	-20.46	0-360	0 degs
8	1.24045	29.86	Pk	-40.5	.2	-40	-50.44	-25.77	-	-24.67	0-360	90 degs
13	12.6911	18.89	Pk	-40.9	.6	-40	-61.41	-21.96	-	-39.45	0-360	Flat
4	12.70797	24.78	Pk	-40.9	.6	-40	-55.52	-21.96	-	-33.56	0-360	0 degs
5	14.40702	14.85	Pk	-40.9	.6	-40	-65.45	-21.96	-	-43.49	0-360	0 degs
14	14.40702	22.71	Pk	-40.9	.6	-40	-57.59	-21.96	-	-35.63	0-360	Flat
9	18.13396	17.54	Pk	-41.2	.7	-40	-62.96	-21.96	-	-41	0-360	90 degs

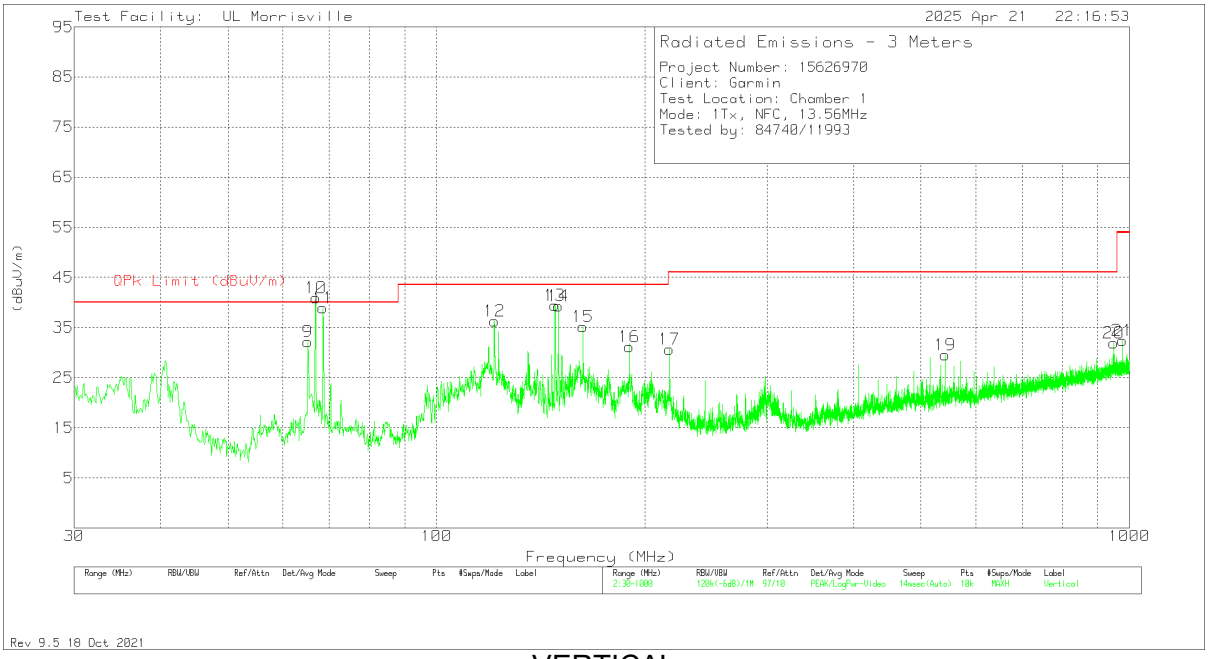
Pk - Peak detector

9.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

9.3.1. TYPE B, WITH TAG



HORIZONTAL



VERTICAL

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	65.211	47.11	Pk	14.3	-31.2	30.21	40	-9.79	0-360	399	H
9	65.211	49.09	Pk	14.3	-31.2	32.19	40	-7.81	0-360	100	V
2	66.946	49.53	Qp	14.4	-31.3	32.63	40	-7.37	289	267	H
10	66.9455	55.33	Qp	14.4	-31.3	38.43	40	-1.57	52	100	V
3	68.606	50.03	Pk	14.4	-31.4	33.03	40	-6.97	0-360	299	H
11	68.6482	52.12	Qp	14.4	-31.4	35.12	40	-4.88	26	140	V
4	94.02	46.96	Pk	15	-30.9	31.06	43.52	-12.46	0-360	200	H
5	121.18	41.55	Pk	20	-30.4	31.15	43.52	-12.37	0-360	299	H
12	121.18	46.75	Pk	20	-30.4	36.35	43.52	-7.17	0-360	100	V
6	148.243	44.71	Pk	18.8	-30.2	33.31	43.52	-10.21	0-360	399	H
13	148.3058	48.66	Qp	18.8	-30.2	37.26	43.52	-6.26	38	112	V
14	150.0096	48.35	Qp	18.8	-30.5	36.65	43.52	-6.87	60	103	V
15	162.696	46.78	Pk	18.5	-30.1	35.18	43.52	-8.34	0-360	100	V
16	189.759	43.45	Pk	17.8	-30.1	31.15	43.52	-12.37	0-360	100	V
7	216.919	45.87	Pk	16.8	-30	32.67	46.02	-13.35	0-360	99	H
17	216.919	43.84	Pk	16.8	-30	30.64	46.02	-15.38	0-360	100	V
8	244.079	43.77	Pk	17.7	-29.8	31.67	46.02	-14.35	0-360	299	H
18	515.291	34.02	Pk	23.8	-28.2	29.62	46.02	-16.4	0-360	200	H
19	542.354	33.55	Pk	24.3	-28.3	29.55	46.02	-16.47	0-360	100	V
20	949.269	29.31	Pk	28.9	-26.3	31.91	46.02	-14.11	0-360	100	V
21	976.332	29.1	Pk	29	-25.7	32.4	53.97	-21.57	0-360	100	V

Pk - Peak detector
Qp - Quasi-Peak detector

10. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency, over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

IC RSS-210, Annex B.6
Carrier frequency stability shall be maintained to ±0.01% (±100 ppm).

TEST PROCEDURE

ANSI C63.10-2020 Clause 6.8

RESULTS

No non-compliance noted.

Nominal/High Voltage: 5.5Vdc.

10.1. TYPE B, 3cm Separation WITH TAG

Reference Frequency: EUT Channel 13.56 MHz @ 20ºC Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measureed with Time Elapse								
(Vdc)	(ºC)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
5.50	50	13.5595044	0.721	13.5595034	0.799	13.5595019	0.907	13.5595018	0.914	± 100
5.50	40	13.5595095	0.351	13.5595076	0.487	13.5595060	0.608	13.5595049	0.686	± 100
5.50	30	13.5594912	1.697	13.5595395	-1.863	13.5594345	5.882	13.5595247	-0.771	± 100
5.50	***20***	***13.5595142***	***0.000***	***13.5595138***	***0.031***	***13.5595134***	***0.063***	***13.5595278***	***-1.004***	***± 100***
5.50	10	13.5595130	0.094	13.5595347	-1.507	13.5594940	***1.490***	13.5595319	-1.303	± 100
5.50	0	13.5595127	0.115	13.5595130	0.093	13.5595123	0.138	13.5595108	0.253	± 100
5.50	-10	13.5595115	0.203	13.5595133	0.065	13.5595104	0.284	13.5595168	-0.188	± 100
5.50	-20	13.5595198	-0.408	13.5595137	0.042	13.5595138	0.031	13.5595143	-0.008	± 100
4.50	20	13.5595188	-0.337	13.5595190	-0.355	13.5595187	-0.330	13.5595194	-0.382	± 100

Tested by: 33499/84740
Test date: 2025-04-22

11. SETUP PHOTOS

Please refer to R15626970-EP1 for setup photos

END OF TEST REPORT

SAR EVALUATION REPORT

IEEE Std 1528-2013

For
47mm Extremity Worn Digital Transceiver

FCC ID: IPH-04807
Model Name: A04807

Report Number: 15626970-S1
Issue Date: 2025-08-07

Prepared for
Garmin International Inc.
1200 East 151st Street
Olathe, KS 66062-3426, USA

Prepared by
UL LLC
12 LABORATORY DR
DURHAM, NC 27713, U.S.A.
TEL: (919) 549-1400

CERT #0751.05

Revision History

Rev.	Date	Revisions	Revised By
V1	2025-08-07	Initial Issue	--

Table of Contents

1. Attestation of Test Results

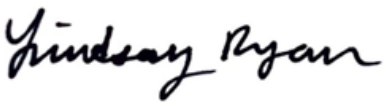
Applicant Name		Garmin International Inc.			
FCC ID		IPH-04807			
Model Name		A04807			
Applicable Standards		Published RF exposure KDB procedures. IEEE Std 1528-2013			
Exposure Category		SAR Limits (W/Kg)			
		Peak spatial-average (1g of tissue)		Extremities (hands, wrists, ankles, etc.) (10g of tissue)	
General population / Uncontrolled exposure		1.6		4	
RF Exposure Conditions		Equipment Class - Highest Reported SAR (W/kg)			
		PCT	DTS	DSS	DXX
Head		0.101	0.150	0.042	0.001
Extremity		0.323	0.127	0.027	0.001
Simultaneous TX	Head	0.143	N/A	0.143	0.143
	Extremity	0.350	N/A	0.350	0.350
Date Tested		2025-04-29 to 2025-07-31			
Test Results		Complies			

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested can demonstrate compliance with the requirements as documented in this report.

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

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 ensure 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 considered unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the U.S. Government, or any agency of the U.S. government.

Approved & Released By:	Prepared By:
	
Lindsay Ryan Project Engineer UL LLC	Fernanda Gonzalez Test Engineer UL LLC

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE Std 1528-2013, the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 447498 D03 Supplement C Cross-Reference v01
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02

In addition to the above, the following information was used:

- **TCB workshop** October 2014; RF Exposure Procedures (Other LTE Considerations)
- **TCB workshop** April 2015; RF Exposure Procedures (Overlapping LTE Bands)
- **TCB workshop** October 2015; RF Exposure Procedures (KDB 941225 D05A)
- **TCB workshop** October 2016; RF Exposure Procedures (Bluetooth Duty Factor)
- **TCB workshop** October 2016; RF Exposure Procedures (DUT Holder Perturbations)

3. Facilities and Accreditation

UL LLC is accredited by A2LA, cert. # 0751.06 for all testing performed within the scope of this report. Testing was performed at the locations noted below.

The test sites and measurement facilities used to collect data are located at 2800 Perimeter Park Dr, Morrisville, NC, USA.

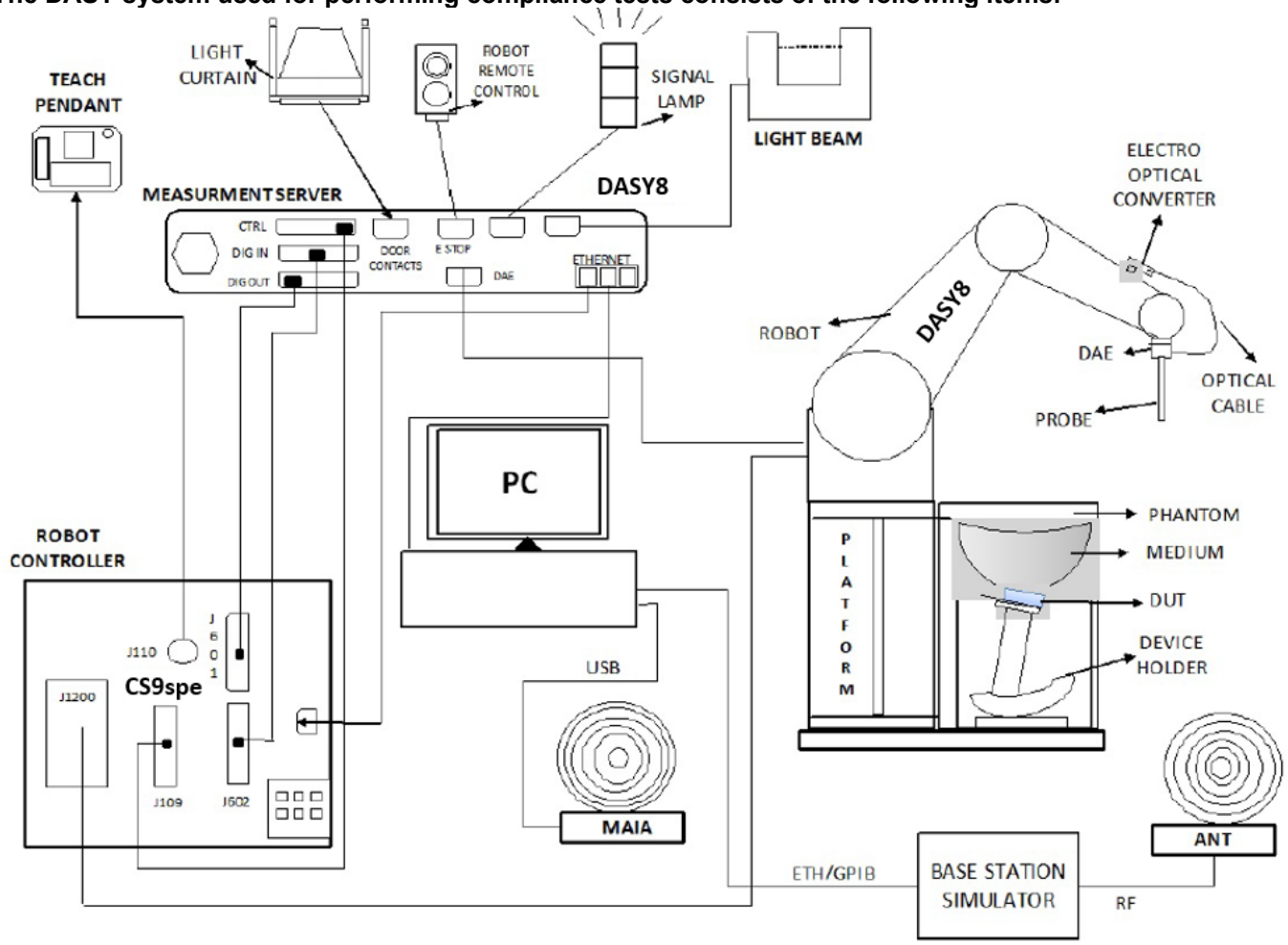
- SAR Lab 1A
- SAR Lab 2A

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building: 12 Laboratory Dr Durham, NC 27713, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374

4. Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win10 and the DASY8[1] software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

[1] DASY8 software used: DASY16.4.0.5005 and older generations.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEC/IEEE 62209-1528, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Date	Cal. Due Date
Network Analyzer	Keysight	E5063A	MY54100681	2024-07-31	2025-07-31
Dielectric Probe	SPEAG	DAKS-3.5	1051	2024-10-14	2025-10-14
Shorting Block	SPEAG	DAK-3.5 Short	SM DAK 200 DA	2024-10-14	2025-10-14
Dielectric Probe	SPEAG	DAKS-12	1037	2025-03-05	2026-03-05
Shorting Block	SPEAG	DAK-12 Short	2044	2025-03-05	2026-03-05
Thermometer	Fisher Scientific	15-078-181	192539139	2025-03-14	2026-03-14

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Date	Cal. Due Date
Signal Generator	Keysight	N5181A	MY50140788	2024-08-01	2025-08-01
Signal Generator[1]	Keysight	N5182B	MY51350128	2024-07-09	2025-07-09
3-Path Diode Power Sensor[1]	Rohde & Schwarz	NRP8S	112236	2024-07-12	2025-07-12
3-Path Diode Power Sensor[1]	Rohde & Schwarz	NRP8S	112237	2024-07-12	2025-07-12
RF Power Meter	Keysight	N1912A	MY55136012	2024-08-02	2025-08-02
RF Power Sensor	Keysight	N1921A	MY55090025	2024-08-16	2025-08-16
RF Power Sensor	Keysight	N1921A	MY55090030	2024-07-09	2025-07-30
Amplifier	Mini-Circuits	ZVA-183WA-S+	S C484802241	N/A	N/A
Directional Coupler	Mini-Circuits	ZUDC10-183+	2214	N/A	N/A
Dual Directional Coupler	Werlatone	C5100-10	92249	N/A	N/A
DC Power Supply	Miteq	PS 15V1	1990186	N/A	N/A
RF Power Source[1]	Speag	PowerSource1	4278	2024-06-17	2025-06-17
RF Power Source[2]	Speag	PowerSource1	4278	2025-06-12	2026-06-12

Lab Equipment

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Date	Cal. Due Date
E-Field Probe	SPEAG	EX3DV4	7709	2024-11-11	2025-11-11
E-Field Probe	SPEAG	EX3DV4	7710	2025-01-14	2026-01-14
E-Field Probe	SPEAG	EX3DV4	7711	2025-03-10	2026-03-10
Data Acquisition Electronics	SPEAG	DAE4	1714	2024-11-06	2025-11-06
Data Acquisition Electronics	SPEAG	DAE4	1715	2025-01-13	2026-01-13
System Validation Dipole	SPEAG	CLA13	1017	2025-03-10	2026-03-10
System Validation Dipole	SPEAG	D750V3	1139	2024-10-11	2025-10-11
System Validation Dipole	SPEAG	D1640V2	359	2025-04-30	2026-04-30
System Validation Dipole	SPEAG	D1750V2	1136	2024-10-10	2025-10-10
System Validation Dipole	SPEAG	D1900V2	5d202	2024-10-11	2025-10-11
System Validation Dipole	SPEAG	D2100V2	1043	2024-10-11	2025-10-11
System Validation Dipole	SPEAG	D2450V2	963	2024-10-11	2025-10-11
Environmental Indicator	Fisher Scientific	Traceable	240072452	2024-01-24	2026-01-24

Other

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Keysight	N9030A	MY54490314	2024-08-01	2025-08-01

Note(s):

1. Equipment not used past calibration due date.
2. Equipment calibrated during course of testing.

5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. Therefore, the measurement uncertainty is not required.

6. Device Under Test (DUT) Information

6.1. DUT Description

Back Cover	The Back Cover is not removable
Battery Options	The rechargeable battery is not user accessible.
Accessory	Strap 1, 2, 3. Refer to Appendix A.
Test sample information	**S/N** — **Notes** 3511423961 — Radiated Sample #1 3511424034 — Radiated Sample #2 3510213784 — Radiated Sample #3 351142087 — Conducted Sample #1 3511424012 — Conducted Sample #2
Hardware Version	A04807
Software Version	16.29

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode	Duty Cycle used for SAR testing
LTE	FDD Band 2 FDD Band 4 FDD Band 12 NTN Band 23 NTN Band 255	QPSK 16QAM BPSK[1] Does not support Carrier Aggregation (CA)	Cat eMTC M1 11.1% (QPSK) 34.4% (BPSK)
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20)	100% $_{(802.11b)}$ [2]
Bluetooth	2.4 GHz	BR, EDR, and LE	100% $_{(GFSK)}$ [2]
NFC	13.56 MHz	Type A, B, A & B, F, A & F	100% $_{(Type B)}$ [2]

Notes:

1. NTN bands only.
2. Duty cycle is referenced from §9.

6.3. General LTE SAR Test and Reporting Considerations

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Frequency range, Channel Bandwidth, Numbers and Frequencies</td><td>
<table>
<tr><td rowspan="3">Band 2</td><td colspan="6">Frequency range: 1850 - 1910 MHz (BW = 60 MHz)</td></tr>
<tr><td colspan="6">Channel Bandwidth</td></tr>
<tr><td>20 MHz</td><td>15 MHz</td><td>10 MHz</td><td>5 MHz</td><td>3 MHz</td><td>1.4 MHz</td></tr>
<tr><td>Low</td><td>18700 /1860</td><td>18675/ 1857.5</td><td>18650/ 1855</td><td>18625/ 1852.5</td><td>18615/ 1851.5</td><td>18607/ 1850.7</td></tr>
<tr><td>Mid</td><td>18900/ 1880</td><td>18900/ 1880</td><td>18900/ 1880</td><td>18900/ 1880</td><td>18900/ 1880</td><td>18900/ 1880</td></tr>
<tr><td>High</td><td>19100/ 1900</td><td>19125/ 1902.5</td><td>19150/ 1905</td><td>19175/ 1907.5</td><td>19185/ 1908.5</td><td>19193/ 1909.3</td></tr>
<tr><td rowspan="3">Band 4</td><td colspan="6">Frequency range: 1710 - 1755 MHz (BW = 45 MHz)</td></tr>
<tr><td colspan="6">Channel Bandwidth</td></tr>
<tr><td>20 MHz [1]</td><td>15 MHz</td><td>10 MHz</td><td>5 MHz</td><td>3 MHz</td><td>1.4 MHz</td></tr>
<tr><td>Low</td><td>20050/ 1720</td><td>20025/ 1717.5</td><td>20000/ 1715</td><td>19975/ 1712.5</td><td>19965/ 1711.5</td><td>19957/ 1710.7</td></tr>
<tr><td>Mid</td><td>20175/ 1732.5</td><td>20175/ 1732.5</td><td>20175/ 1732.5</td><td>20175/ 1732.5</td><td>20175/ 1732.5</td><td>20175/ 1732.5</td></tr>
<tr><td>High</td><td>20300/ 1745</td><td>20325/ 1747.5</td><td>20350/ 1750</td><td>20375/ 1752.5</td><td>20385/ 1753.5</td><td>20393/ 1754.3</td></tr>
<tr><td rowspan="3">Band 12</td><td colspan="6">Frequency range: 699 – 716 MHz (BW = 17 MHz)</td></tr>
<tr><td colspan="6">Channel Bandwidth</td></tr>
<tr><td>20 MHz</td><td>15 MHz</td><td>10 MHz [1]</td><td>5 MHz</td><td>3 MHz</td><td>1.4 MHz</td></tr>
<tr><td>Low</td><td></td><td></td><td>23060/ 704</td><td>23035/ 701.5</td><td>23025/ 700.5</td><td>23017/ 699.7</td></tr>
<tr><td>Mid</td><td></td><td></td><td>23095/ 707.5</td><td>23095/ 707.5</td><td>23095/ 707.5</td><td>23095/ 707.5</td></tr>
<tr><td>High</td><td></td><td></td><td>23130/ 711</td><td>23155/ 713.5</td><td>23165/ 714.5</td><td>23173/ 715.3</td></tr>
</table>
</td></tr>
<tr><td>LTE transmitter and antenna implementation</td><td>Refer to Appendix A.</td></tr>
<tr><td>Maximum power reduction (MPR)</td><td>
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr>
<tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr>
<tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr>
</table>
MPR Built-in by design
The manufacturer MPR values are always within the 3GPP maximum MPR allowance but may not follow the default MPR values.
A-MPR (additional MPR) was disabled during SAR testing
</td></tr>
<tr><td>Power reduction</td><td>No</td></tr>
<tr><td>Spectrum plots for RB configurations</td><td>A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.</td></tr>
</table>

7. RF Exposure Conditions (Test Configurations)

Wireless technologies	RF Exposure Conditions	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN	Head	10	Front	N/A	Yes	
	Extremity	0	Back	N/A	Yes	
WLAN	Head	10	Front	N/A	Yes	
	Extremity	0	Back	N/A	Yes	

8. Dielectric Property Measurements & System Check

8.1. SAR Dielectric Property Measurements and System Checks

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

The dielectric constant (εr) and conductivity (σ) of typical tissue-equivalent media recipes are expected to be within ± 5% of the required target values; but for SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for εr and σ may be relaxed to ± 10%. This is limited to frequencies ≤ 3 GHz.

Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

Dielectric Property Measurements Results:

Liquid Check											
SAR Lab	Date	Tissue Type	Band (MHz)	Freq. (MHz)	Relative Permittivity (εr)			Conductivity (σ)			
					Measured	Target	Delta	Measured	Target	Delta	
SAR 1A	2025-04-29	Head	13	13	54.1	55.0	-1.60%	0.73	0.75	-2.91%	
				12	54.1	55.0	-1.62%	0.73	0.75	-2.91%	
				14	54.1	55.0	-1.64%	0.73	0.75	-2.89%	
SAR 1A	2025-05-01	Head	2450	2450	41.0	39.2	4.57%	1.73	1.80	-4.06%	
				2400	41.1	39.3	4.46%	1.69	1.75	-3.80%	
				2500	40.9	39.1	4.53%	1.76	1.85	-4.91%	
SAR 1A	2025-05-21	Head	2450	2450	40.4	39.2	2.93%	1.73	1.80	-3.94%	
				2400	40.4	39.3	2.83%	1.69	1.75	-3.80%	
				2500	40.3	39.1	2.92%	1.76	1.85	-4.86%	
SAR 1A	2025-07-15	Head	1900	1900	41.7	40.0	4.15%	1.29	1.40	-7.57%	
				1850	41.8	40.0	4.38%	1.26	1.40	-9.71%	
				2000	41.6	40.0	3.87%	1.36	1.40	-3.14%	
SAR 1A	2025-07-21	Head	1750	1750	42.1	40.1	5.10%	1.25	1.37	-8.69%	
				1710	42.2	40.1	5.09%	1.23	1.35	-8.94%	
				1780	42.1	40.0	5.10%	1.27	1.39	-8.43%	
SAR 1A	2025-07-28	Head	750	750	42.3	42.0	0.81%	0.83	0.89	-7.31%	
				660	42.6	42.4	0.30%	0.80	0.89	-9.53%	
				800	42.2	41.7	1.21%	0.84	0.90	-6.12%	
SAR 1A	2025-07-28	Head	1640	1640	40.8	40.3	1.38%	1.19	1.31	-9.25%	
				1625	40.8	40.3	1.35%	1.18	1.30	-9.35%	
				1665	40.8	40.2	1.45%	1.19	1.32	-9.62%	
SAR 2A	2025-06-26	Head	2100	2100	41.7	39.8	4.58%	1.54	1.49	3.77%	
				2000	42.0	40.0	4.98%	1.44	1.40	2.57%	
				2200	41.3	39.6	4.06%	1.65	1.58	4.52%	
SAR 2A	2025-06-30	Head	2100	2100	41.3	39.8	3.58%	1.52	1.49	2.09%	
				2000	41.6	40.0	4.00%	1.42	1.40	1.07%	
				2200	40.9	39.6	3.13%	1.62	1.58	2.99%	
SAR 2A	2025-07-07	Head	2450	2450	39.7	39.2	1.28%	1.89	1.80	4.83%	
				2400	39.9	39.3	1.54%	1.83	1.75	4.53%	
				2500	39.5	39.1	0.98%	1.94	1.85	4.74%	

8.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was recorded and the results are normalized to 1 W input power.

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within ±10% of the manufacturer calibrated dipole SAR target. Refer to Appendix B for the SAR System Check Plots.

System Check													
SAR Lab	Date	Dipole Type & Serial Number	Dipole Cal. Due Date	Input Power (dBm)	Measured results for 1-g SAR				Measured results for 10-g SAR				Plot No.
					Meas. Zoom Scan	Normalize to 1 W	Target (Ref. Value)	Delta ±10%	Meas. Zoom Scan	Normalize to 1 W	Target (Ref. Value)	Delta ±10%	
SAR 1A	2025-04-29	CLA13 SN: 1017	2026-03-10	17.0	0.026	0.519	0.538	-3.57%	0.016	0.319	0.336	-4.99%	1
SAR 1A	2025-05-01	D2450V2 SN: 963	2025-10-11	17.0	2.400	47.886	52.600	-8.96%	1.140	22.746	24.400	-6.78%	
SAR 1A	2025-05-21	D2450V2 SN: 963	2025-10-11	17.0	2.390	47.687	52.600	-9.34%	1.140	22.746	24.400	-6.78%	2
SAR 1A	2025-07-15	D1900V2 SN: 5d202	2025-10-11	17.0	2.020	40.304	40.200	0.26%	1.060	21.150	21.200	-0.24%	3
SAR 1A	2025-07-21	D1750V2 SN: 1136	2025-10-10	17.0	1.710	34.119	37.100	-8.04%	0.937	18.696	19.700	-5.10%	4
SAR 1A	2025-07-28	D750V3 SN: 1139	2025-10-11	17.0	0.417	8.320	8.320	0.00%	0.278	5.547	5.410	2.53%	5
SAR 1A	2025-07-28	D1640V2 SN: 359	2026-04-30	17.0	1.740	34.718	34.200	1.51%	0.949	18.935	18.600	1.80%	6
SAR 2A	2025-06-26	D2100V2 SN: 1043	2025-10-11	17.0	2.030	40.504	44.200	-8.36%	1.030	20.551	22.400	-8.25%	
SAR 2A	2025-06-30	D2100V2 SN: 1043	2025-10-11	17.0	2.020	40.304	44.200	-8.81%	1.020	20.352	22.400	-9.14%	7
SAR 2A	2025-07-07	D2450V2 SN: 963	2025-10-11	17.0	2.470	49.283	52.600	-6.31%	1.140	22.746	24.400	-6.78%	8

9. Conducted Output Power Measurements

Tune-Up Power Limits provided by the manufacturer are used to scale measured SAR values.

9.1. LTE

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A

Maximum Output Power (Tune-up Limit) for LTE

For some LTE Bands, certain channel bandwidths do not support at least three non-overlapping channels. When a device supports overlapping channel assignments in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices. Please refer to section 6.3. for a detailed list of LTE test channels

- LTE Band 4 (1710-1755 MHz)
- LTE Band 12 (699-716 MHz)

LTE QPSK configuration has the highest maximum average output power per 3GPP standard.

SAR measurement is not required for 16QAM when the highest maximum output power for 16QAM is ≤ ½ dB higher than the QPSK or when the reported SAR for the QPSK configuration is ≤ 1.45 W/kg.

RF Air interface	Mode	Tune-up PowerLimit
		Main Antenna
		Maximum
LTE Band 2	QPSK	24.00
LTE Band 4	QPSK	24.50
LTE Band 12	QPSK	25.00
NTN n23	QPSK	24.00
NTN n255	QPSK	24.00

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18700	18900	19100	MPR	Tune-up Limit
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	23.0	23.1	23.0	0	24.0
		1	49	22.5	22.9	23.0	0	24.0
		1	99	23.3	22.9	22.9	0	24.0
		50	0	22.9	22.9	22.8	0	24.0
		50	24	23.1	22.8	22.8	0	24.0
		50	50	22.8	23.0	22.7	0	24.0
		100	0	23.2	23.3	23.0	0	24.0
	16QAM	1	0	23.1	23.4	22.4	0	24.0
		1	49	22.6	22.7	22.9	0	24.0
		1	99	23.3	23.0	22.5	0	24.0
		50	0	22.9	23.4	23.5	0	24.0
		50	24	23.4	23.0	23.3	0	24.0
		50	50	23.6	22.8	23.3	0	24.0
		100	0	23.1	22.2	23.0	0	24.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18675	18900	19125	MPR	Tune-up Limit
				1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	23.0	23.0	22.8	0	24.0
		1	37	22.9	23.1	22.8	0	24.0
		1	74	22.9	23.0	22.7	0	24.0
		36	0	22.8	22.8	22.8	0	24.0
		36	20	24.0	22.8	22.8	0	24.0
		36	39	22.9	22.8	22.8	0	24.0
		75	0	23.4	23.2	23.3	0	24.0
	16QAM	1	0	23.9	23.2	24.0	0	24.0
		1	37	23.7	23.1	23.8	0	24.0
		1	74	22.7	23.0	23.8	0	24.0
		36	0	23.5	23.6	23.5	0	24.0
		36	20	22.9	23.5	23.6	0	24.0
		36	39	23.5	23.5	23.5	0	24.0
		75	0	23.0	22.8	22.9	0	24.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18650	18900	19150	MPR	Tune-up Limit
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	23.3	22.9	23.1	0	24.0
		1	25	23.2	22.9	22.6	0	24.0
		1	49	23.1	22.9	23.1	0	24.0
		25	0	23.0	22.8	22.4	0	24.0
		25	12	23.0	22.6	22.7	0	24.0
		25	25	22.9	22.9	22.6	0	24.0
		50	0	22.4	22.1	22.4	1	23.0
	16QAM	1	0	23.7	23.0	23.9	0	24.0
		1	25	23.4	23.2	23.9	0	24.0
		1	49	23.6	23.1	23.6	0	24.0
		25	0	22.9	22.8	23.4	0	24.0
		25	12	23.0	23.0	22.5	0	24.0
		25	25	22.8	22.9	23.3	0	24.0
		50	0	21.0	21.1	21.2	2	22.0

LTE Band 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18625	18900	19175		
				1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	23.0	22.9	22.6	0	24.0
		1	12	22.9	22.8	22.2	0	24.0
		1	24	22.6	23.2	22.5	0	24.0
		12	0	22.0	22.0	21.5	1	23.0
		12	7	22.0	21.9	21.3	1	23.0
		12	13	21.9	21.7	21.7	1	23.0
		25	0	22.1	22.3	22.4	1	23.0
	16QAM	1	0	23.1	23.4	23.8	0	24.0
		1	12	23.2	22.9	23.8	0	24.0
		1	24	23.1	23.4	23.6	0	24.0
		12	0	21.9	22.2	22.4	1	23.0
		12	7	22.0	22.1	21.6	1	23.0
		12	13	22.0	22.2	22.3	1	23.0
		25	0	21.1	21.1	21.2	2	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18615	18900	19185		
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	23.0	22.9	22.7	0	24.0
		1	8	23.1	23.1	22.7	0	24.0
		1	14	22.9	22.9	22.8	0	24.0
		8	0	22.1	22.0	21.7	1	23.0
		8	4	22.1	21.8	21.9	1	23.0
		8	7	22.0	21.8	21.9	1	23.0
		15	0	21.4	21.2	21.0	2	22.0
	16QAM	1	0	22.4	22.5	22.4	1	23.0
		1	8	22.6	22.6	22.5	1	23.0
		1	14	22.3	22.2	21.6	1	23.0
		8	0	21.0	21.0	20.9	2	22.0
		8	4	21.0	21.0	20.9	2	22.0
		8	7	20.9	20.9	20.8	2	22.0
		15	0	20.7	20.7	20.6	2	22.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				18607	18900	19193		
				1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	23.0	22.9	22.8	0	24.0
		1	3	23.2	22.9	22.7	0	24.0
		1	5	22.7	22.6	22.7	0	24.0
		3	0	21.6	22.0	21.9	1	23.0
		3	1	21.8	21.8	22.0	1	23.0
		3	3	22.1	21.9	21.9	1	23.0
		6	0	21.3	20.9	21.1	2	22.0
	16QAM	1	0	22.6	22.5	21.4	1	23.0
		1	3	22.2	22.7	21.4	1	23.0
		1	5	22.3	22.3	21.3	1	23.0
		3	0	20.9	20.8	20.6	2	22.0
		3	1	20.8	20.8	20.3	2	22.0
		3	3	21.0	20.9	21.0	2	22.0
		6	0	20.7	20.7	20.5	2	22.0

LTE Band 4 Measured Results

BW (MHz)	Mode	RB Allocation	RB Offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20050	17325	20300		
				1720 MHz	1732.5 MHz	1745 MHz		
20 MHz	QPSK	1	0	22.7	22.9	22.8	0	24.5
		1	3	22.8	22.9	22.8	0	24.5
		1	5	22.8	22.9	23.1	0	24.5
		3	0	22.8	22.7	22.7	0	24.5
		3	1	24.0	22.6	22.7	0	24.5
		3	3	22.7	22.7	22.8	0	24.5
		6	0	22.9	23.0	22.9	0	24.5
	16QAM	1	0	23.3	23.0	23.0	0	24.5
		1	3	23.0	23.6	23.2	0	24.5
		1	5	23.1	23.8	23.2	0	24.5
		3	0	23.4	23.9	23.1	0	24.5
		3	1	22.9	23.0	22.7	0	24.5
		3	3	23.8	23.2	23.0	0	24.5
		6	0	22.9	23.2	23.2	0	24.5

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20025	20175	20325		
				1717.5 MHz	1732.5 MHz	1747.5 MHz		
15 MHz	QPSK	1	0	22.8	22.9	23.1	0	24.5
		1	37	22.8	22.6	22.9	0	24.5
		1	74	23.1	23.0	23.0	0	24.5
		36	0	22.7	22.6	23.1	0	24.5
		36	20	22.8	22.7	22.7	0	24.5
		36	39	23.0	22.8	23.0	0	24.5
		75	0	23.2	23.0	23.1	0	24.5
	16QAM	1	0	23.3	23.3	23.3	0	24.5
		1	37	23.2	23.4	23.1	0	24.5
		1	74	23.3	23.1	23.4	0	24.5
		36	0	23.2	22.8	23.4	0	24.5
		36	20	22.8	23.0	23.8	0	24.5
		36	39	23.4	22.8	23.6	0	24.5
		75	0	22.7	22.8	22.9	0	24.5

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				20000	20175	20350		
				1715 MHz	1732.5 MHz	1750 MHz		
10 MHz	QPSK	1	0	22.9	23.2	23.1	0	24.5
		1	25	22.7	23.0	23.6	0	24.5
		1	49	22.9	23.2	23.0	0	24.5
		25	0	22.7	23.2	22.7	0	24.5
		25	12	22.6	22.8	23.6	0	24.5
		25	25	22.8	23.0	22.6	0	24.5
		50	0	22.0	22.3	22.1	1	23.5
	16QAM	1	0	22.6	23.4	23.3	0	24.5
		1	25	23.2	23.4	23.5	0	24.5
		1	49	22.7	23.6	23.2	0	24.5
		25	0	22.8	23.5	23.6	0	24.5
		25	12	23.6	22.9	23.5	0	24.5
		25	25	22.8	23.2	23.8	0	24.5
		50	0	21.0	20.9	20.8	2	22.5

LTE Band 4 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				19975	20175	20375		
				1712.5 MHz	1732.5 MHz	1752.5 MHz		
5 MHz	QPSK	1	0	22.9	23.0	23.2	0	24.5
		1	12	22.8	22.8	23.0	0	24.5
		1	24	22.9	23.1	23.3	0	24.5
		12	0	21.7	21.8	22.1	1	23.5
		12	7	21.9	21.7	21.9	1	23.5
		12	13	22.0	21.9	22.0	1	23.5
		25	0	22.0	22.1	22.2	1	23.5
	16QAM	1	0	22.7	23.0	22.8	0	24.5
		1	12	22.9	23.1	23.2	0	24.5
		1	24	22.8	22.8	22.9	0	24.5
		12	0	22.1	21.9	22.6	1	23.5
		12	7	22.2	21.9	22.7	1	23.5
		12	13	22.4	21.6	22.7	1	23.5
		25	0	20.9	20.8	20.8	2	22.5
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				19965	20175	20385		
				1711.5 MHz	1732.5 MHz	1753.5 MHz		
3 MHz	QPSK	1	0	23.0	22.8	22.8	0	24.5
		1	8	23.2	22.8	23.0	0	24.5
		1	14	23.1	22.9	23.1	0	24.5
		8	0	21.7	21.9	21.8	1	23.5
		8	4	21.6	22.3	21.8	1	23.5
		8	7	21.6	22.2	21.7	1	23.5
		15	0	21.2	21.2	21.2	2	22.5
	16QAM	1	0	23.4	22.5	22.3	1	23.5
		1	8	23.0	22.7	23.3	1	23.5
		1	14	23.2	23.0	22.9	1	23.5
		8	0	22.0	22.2	22.1	2	22.5
		8	4	20.6	21.0	21.2	2	22.5
		8	7	21.9	22.1	21.7	2	22.5
		15	0	20.9	20.6	20.6	2	22.5
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				19957	20175	20393		
				1710.7 MHz	1732.5 MHz	1754.3 MHz		
1.4 MHz	QPSK	1	0	22.8	22.9	23.0	0	24.5
		1	3	23.3	22.8	22.5	0	24.5
		1	5	22.8	23.0	23.0	0	24.5
		3	0	22.2	22.1	22.2	1	23.5
		3	1	22.4	21.7	21.9	1	23.5
		3	3	21.9	21.8	21.7	1	23.5
		6	0	20.9	21.1	21.0	2	22.5
	16QAM	1	0	21.6	22.7	21.7	1	23.5
		1	3	21.9	22.4	23.2	1	23.5
		1	5	21.6	22.4	23.3	1	23.5
		3	0	20.6	21.2	21.5	2	22.5
		3	1	20.8	21.3	20.6	2	22.5
		3	3	20.6	21.3	21.7	2	22.5
		6	0	20.5	20.6	20.8	2	22.5

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				23060	7075	23130	MPR	Tune-up Limit
				704 MHz	707.5 MHz	711 MHz		
10 MHz	QPSK	1	0	23.5	23.3	23.3	0	25.0
		1	3	23.7	23.4	23.5	0	25.0
		1	5	23.6	23.5	23.4	0	25.0
		3	0	23.2	23.6	23.2	0	25.0
		3	1	23.1	23.1	24.6	0	25.0
		3	3	23.3	23.6	23.4	0	25.0
		6	0	22.7	22.7	22.7	1	24.0
	16QAM	1	0	23.9	24.1	23.8	0	25.0
		1	3	24.1	23.8	24.4	0	25.0
		1	5	23.5	24.1	23.4	0	25.0
		3	0	23.3	23.9	23.4	0	25.0
		3	1	23.4	23.6	23.2	0	25.0
		3	3	23.9	23.9	23.4	0	25.0
		6	0	21.3	21.1	21.4	2	23.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				23035	23095	23155	MPR	Tune-up Limit
				701.5 MHz	707.5 MHz	713.5 MHz		
5 MHz	QPSK	1	0	23.7	23.8	23.6	0	25.0
		1	3	23.5	23.5	23.5	0	25.0
		1	5	23.5	23.8	23.7	0	25.0
		3	0	22.5	22.8	22.4	1	24.0
		3	1	22.3	22.1	22.2	1	24.0
		3	3	22.4	22.5	22.1	1	24.0
		6	0	23.0	22.6	22.7	1	24.0
	16QAM	1	0	23.7	23.6	24.1	0	25.0
		1	3	23.5	23.8	23.7	0	25.0
		1	5	23.6	23.8	24.1	0	25.0
		3	0	22.6	23.0	22.6	1	24.0
		3	1	22.4	22.5	23.6	1	24.0
		3	3	22.5	23.3	22.3	1	24.0
		6	0	22.6	22.6	21.4	2	23.0

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				23025	23095	23165	MPR	Tune-up Limit
				700.5 MHz	707.5 MHz	714.5 MHz		
3 MHz	QPSK	1	0	23.9	23.5	23.6	0	25.0
		1	3	23.6	23.1	23.6	0	25.0
		1	5	23.8	23.5	23.4	0	25.0
		3	0	22.1	22.4	22.0	1	24.0
		3	1	22.3	22.3	22.3	1	24.0
		3	3	22.3	22.2	22.2	1	24.0
		6	0	21.6	21.7	21.4	2	23.0
	16QAM	1	0	22.8	22.3	22.6	1	24.0
		1	3	23.1	22.8	23.2	1	24.0
		1	5	22.8	22.6	22.8	1	24.0
		3	0	21.6	21.5	21.6	2	23.0
		3	1	21.1	21.3	21.6	2	23.0
		3	3	21.1	21.6	21.3	2	23.0
		6	0	21.1	21.2	21.1	2	23.0

LTE Band 12 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	23017	23095	23173	MPR	Tune-up Limit
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	23.2	24.1	23.4	0	25.0
		1	3	23.1	24.2	23.8	0	25.0
		1	5	23.6	24.3	23.5	0	25.0
		3	0	22.8	22.5	22.2	1	24.0
		3	1	22.3	22.3	22.1	1	24.0
		3	3	22.5	22.3	22.4	1	24.0
		6	0	21.6	21.3	21.7	2	23.0
	16QAM	1	0	22.2	23.0	23.0	1	24.0
		1	3	22.5	23.2	23.3	1	24.0
		1	5	22.2	22.7	22.8	1	24.0
		3	0	21.3	21.4	21.3	2	23.0
		3	1	21.2	21.1	21.0	2	23.0
		3	3	21.4	21.2	21.2	2	23.0
		6	0	21.6	21.3	20.8	2	23.0

NTN n23

Sub-Carrier Spacing (kHz)	Mode	SC Size	SC Offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				25501	25600	25699		
				2000.1MHz	2010MHz	2019.9MHz		
3.75	BPSK	1	0	22.4	22.3	22.2	0	24.0
		1	23	22.2	22.1	22.2	0	24.0
		1	46	22.2	22.1	22.3	0	24.0
	QPSK	1	0	22.3	22.2	22.2	0	24.0
		1	23	22.3	22.2	22.2	0	24.0
		1	46	22.0	21.9	22.2	0	24.0
Sub-Carrier Spacing (kHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				25501	25600	25699		
				2000.1MHz	2010MHz	2019.9MHz		
15	BPSK	1	0	22.6	22.5	22.4	0	24.0
		1	7	22.6	22.5	22.4	0	24.0
		1	11	22.5	22.4	22.4	0	24.0
	QPSK	1	0	22.4	22.5	22.4	0	24.0
		1	7	22.4	22.5	22.3	0	24.0
		1	11	22.5	22.5	22.4	0	24.0
		3	0	21.9	21.6	22.0	0	24.0
		3	9	22.0	21.5	21.9	0	24.0
		6	0	20.2	20.1	20.1	0	24.0
		12	0	20.1	20.1	20.0	1	23.0

NTN n255

Sub-Carrier Spacing (kHz)	Mode	SC Size	SC Offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				261505	261674	261843		
				1626.6MHz	1643.5MHz	1660.4MHz		
3.75	BPSK	1	0	22.8	23.0	23.1	0	24.0
		1	23	22.8	23.0	23.1	0	24.0
		1	46	22.7	23.0	23.1	0	24.0
	QPSK	1	0	23.0	23.1	23.1	0	24.0
		1	23	23.0	23.1	23.1	0	24.0
		1	46	22.9	23.1	23.2	0	24.0
Sub-Carrier Spacing (kHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				261505	261674	261843		
				1626.6MHz	1643.5MHz	1660.4MHz		
15	BPSK	1	0	23.2	23.2	23.1	0	24.0
		1	7	23.4	23.2	23.2	0	24.0
		1	11	23.4	23.2	23.2	0	24.0
	QPSK	1	0	23.3	23.2	23.2	0	24.0
		1	7	23.1	23.1	23.0	0	24.0
		1	11	23.1	23.0	23.0	0	24.0
		3	0	22.5	22.5	22.4	0	24.0
		3	9	22.4	22.5	22.4	0	24.0
		6	0	22.0	22.0	21.9	0	24.0
		12	0	20.7	20.7	20.6	1	23.0

9.2. Wi-Fi 2.4GHz (DTS Band)

Maximum Output Power (Tune-up Limit) for Wi-Fi 2.4 GHz

The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures.

For “Not required”, SAR Test reduction was applied from KDB 248227 guidance, Sec. 2.1, b), 1) when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11b/g/n mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.

SAR testing is not required for OFDM mode(s) when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Mode	Bandwidth	Channel	Frequency (MHz)	Tune-up PowerLimit
				Main Antenna
				Maximum
802.11b DSSS (SISO)	20 MHz	1	2412	20.0
		6	2437	20.0
		11	2462	20.0
		12	2467	18.0
		13	2472	17.0
802.11g OFDM (SISO)	20 MHz	1	2412	19.0
		6	2437	19.0
		11	2462	19.0
		12	2467	16.0
		13	2472	16.0
802.11n OFDM (SISO)	20 MHz	1	2412	17.5
		6	2437	17.5
		11	2462	17.5
		12	2467	16.5
		13	2472	16.0

Wi-Fi 2.4GHz Measured Results

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	18.80	20.00	Yes
		6	2437	19.20	20.00	
		11	2462	18.00	20.00	
		12	2467	16.40	18.00	
		13	2472	15.50	17.00	
OFDM 2.4 GHz	802.11g	1	2412	17.50	19.00	No
		6	2437	17.80	19.00	
		11	2462	17.60	19.00	
		12	2467	14.30	16.00	
		13	2472	14.20	16.00	
	802.11n (HT20)	1	2412	15.90	17.50	No
		6	2437	16.40	17.50	
		11	2462	15.60	17.50	
		12	2467	14.60	16.50	
		13	2472	14.30	16.00	

Duty Factor Measured Results

Mode	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
802.11b	100	100	100.00%	1.00

Note(s):

Duty Cycle = (T on / period) * 100%

Duty Cycle Plots

802.11b

9.3. Bluetooth

Maximum Output Power (Tune-up Limit) for Bluetooth

SAR measurement is not required for the EDR and LE. When the secondary mode is ≤ ¼ dB higher than the primary mode.

Band	Mode	Channel	Frequency (MHz)	Tune-up PowerLimit
				Main Antenna
				Maximum
Bluetooth 2.4 GHz	BR	0	2402	14.0
		1	2403	14.5
		39	2441	14.5
		77	2479	14.5
		78	2480	14.0
	EDR, π/4 DQPSK	0	2402	13.0
		1	2403	14.0
		39	2441	14.0
		77	2479	14.0
		78	2480	13.5
	EDR, 8-DPSK	0	2402	12.0
		1	2403	13.5
		39	2441	13.5
		78	2480	13.5
	LE	37	2402	2.5
		0	2404	6.5
		17	2440	6.5
		35	2476	6.5
		36	2478	3.0

Bluetooth Measured Results

Band	Mode	Ch #	Freq. (MHz)	Chain 0 Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)
2.4 GHz	BR GFSK	0	2402	12.1	14.0	Yes
		1	2403	12.9	14.5	
		39	2441	12.7	14.5	
		77	2479	12.5	14.5	
		78	2480	12.4	14.0	
	EDR, π/4 DQPSK	0	2402	11.0	13.0	No
		1	2403	12.9	14.0	
		39	2441	12.1	14.0	
		77	2479	12.1	14.0	
		78	2480	11.9	13.5	
	EDR, 8-DPSK	0	2402	10.4	12.0	No
		1	2403	11.9	13.5	
		39	2441	11.6	13.5	
		78	2480	11.6	13.5	
	LE, GFSK	37	2402	1.0	2.5	No
		0	2404	4.6	6.5	
		17	2440	4.9	6.5	
		35	2476	4.9	6.5	
		36	2478	1.7	3.0	

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
GFSK	DH5	100	100	100.00%	1.00

Note(s):

Duty Cycle = (T on / period) * 100%

Duty Cycle Plots

GFSK

9.4. NFC

Conducted output power cannot be measured for NFC, therefore a 2 dB scaling factor shall be used to account for potential variations between samples.

Duty Factor Measured Results

Mode	Type	T on (ms)	Period (ms)	Duty Cycle	Crest Factor (1/duty cycle)
NFC	Type A	100	100	100.00%	1.00

Note(s):

Duty Cycle = (T on / period) * 100%

Duty Cycle Plots

Type B

10. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

- Reported SAR(W/kg) for WWAN and Bluetooth = Measured SAR *Tune-up Scaling Factor
- Reported SAR(W/kg) for Wi-Fi and Bluetooth = Measured SAR * Tune-up scaling factor * Duty Cycle scaling factor
- Duty Cycle scaling factor = 1 / Duty cycle (%)

KDB 447498 D01 General RF Exposure Guidance:

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

KDB 248227 D01 SAR meas for 802.11:

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the *initial test position(s)* by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The *initial test position(s)* is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s). When the *reported* SAR for the *initial test position* is:

- ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.
- > 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the *initial test position* to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the *reported* SAR is ≤ 0.8 W/kg or all required test positions are tested.
    - For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
    - When it is unclear, all equivalent conditions must be tested.

- For all positions/configurations tested using the *initial test position* and subsequent test positions, when the *reported* SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the *reported* SAR is ≤ 1.2 W/kg or all required test channels are considered.
  - The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.
- When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.
- When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

To determine the *initial test position*, Area Scans were performed to determine the position with the *Maximum Value of SAR (measured)*. The position that produced the highest *Maximum Value of SAR* is considered the worst case position; thus used as the *initial test position*.

10.1. LTE Band 2 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	NB Position	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	10	Front	Strap 1	18900	1880.0	1	0	Low	24.0	23.1	0.074	0.091	
							3	3	High	24.0	23.0	0.072	0.091	
				Strap 2	18900	1880.0	1	0	Low	24.0	23.1	0.046	0.057	
				Strap 3	18900	1880.0	1	0	Low	24.0	23.1	0.080	0.098	1
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	QPSK	0	Back	Strap 1	18900	1880.0	1	0	Low	24.0	23.1	0.081	0.100	
							3	3	High	24.0	23.0	0.081	0.102	
				Strap 2	18900	1880.0	3	3	High	24.0	23.0	0.085	0.107	
				Strap 3	18900	1880.0	3	3	High	24.0	23.0	0.093	0.117	2

10.2. LTE Band 4 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	NB Position	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	10	Front	Strap 1	20175	1732.5	1	0	Low	24.5	22.9	0.052	0.075	
							3	0	Low	24.5	22.7	0.052	0.079	
				Strap 2	20175	1732.5	3	0	Low	24.5	22.7	0.036	0.054	
				Strap 3	20175	1732.5	3	0	Low	24.5	22.7	0.059	0.089	3
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	QPSK	0	Back	Strap 1	20175	1732.5	1	0	Low	24.5	22.9	0.053	0.077	
							3	0	Low	24.5	22.7	0.049	0.074	
				Strap 2	20175	1732.5	1	0	Low	24.5	22.9	0.057	0.082	4
				Strap 3	20175	1732.5	1	0	Low	24.5	22.9	0.053	0.077	

10.3. LTE Band 12 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	NB Position	Power (dBm)		1-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	10	Front	Strap 1	23095	707.5	1	5	High	25.0	23.5	0.003	0.004	
							3	0	Low	25.0	23.6	0.001	0.001	
				Strap 2	23095	707.5	1	5	High	25.0	23.5	0.004	0.006	5
				Strap 3	23095	707.5	1	5	High	25.0	23.5	0.003	0.004	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	QPSK	0	Back	Strap 1	23095	707.5	1	5	High	25.0	23.5	0.028	0.040	
							3	0	Low	25.0	23.6	0.025	0.035	
				Strap 2	23095	707.5	1	5	High	25.0	23.5	0.033	0.047	6
				Strap 3	23095	707.5	1	5	High	25.0	23.5	0.029	0.041	

10.4. NTN Band 23

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	10	Front	Strap 1	25501	2000.1	1	0	24.0	22.6	0.070	0.097	
					25600	2010.0	1	0	24.0	22.5	0.067	0.095	
					25699	2019.9	1	0	24.0	22.4	0.059	0.085	
				Strap 2	25501	2000.1	1	0	24.0	22.6	0.053	0.073	
				Strap 3	25501	2000.1	1	0	24.0	22.6	0.073	**0.101**	7
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	QPSK	0	Back	Strap 1	25501	2000.1	1	0	24.0	22.6	0.224	0.309	
					25600	2010.0	1	0	24.0	22.5	0.229	**0.323**	8
					25699	2019.9	1	0	24.0	22.4	0.088	0.127	
				Strap 2	25501	2000.1	1	0	24.0	22.6	0.086	0.121	
				Strap 3	25501	2000.1	1	0	24.0	22.6	0.083	0.117	

10.5. NTN Band 255

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	QPSK	10	Front	Strap 1	261505	1626.6	1	7	24.0	23.4	0.027	0.031	
					261674	1643.5	1	0	24.0	23.2	0.037	0.044	9
					261843	1660.4	1	7	24.0	23.2	0.030	0.036	
				Strap 2	261674	1643.5	1	0	24.0	23.2	0.036	0.043	
				Strap 3	261674	1643.5	1	0	24.0	23.2	0.024	0.029	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offest	Power (dBm)		10-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	QPSK	0	Back	Strap 1	261505	1626.6	1	7	24.0	23.4	0.044	0.051	
					261674	1643.5	1	0	24.0	23.2	0.216	0.260	10
					261843	1660.4	1	7	24.0	23.2	0.041	0.049	
				Strap 2	261674	1643.5	1	0	24.0	23.2	0.047	0.057	
				Strap 3	261674	1643.5	1	0	24.0	23.2	0.052	0.063	

10.6. Wi-Fi (DTS Band)

When the 802.11b reported SAR of the highest measured maximum output power channel is ≤ 0.8 W/kg, no further SAR testing is required. If SAR is > 0.8 W/kg and ≤ 1.2 W/kg, SAR is required for the next highest measured output power channel. Finally, if SAR is > 1.2 W/kg, SAR is required for the third channel.

SAR testing is not required for OFDM mode(s) when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	802.11b	10	Front	Strap 1	6	2437	0.122	100.0%	20.0	19.2	0.125	**0.150**	11
				Strap 2	6	2437	0.088	100.0%	20.0	19.2	0.012	0.014	
				Strap 3	6	2437	0.015	100.0%	20.0	19.2	0.015	0.018	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	Area Scan Max. SAR (W/kg)	Duty Cycle	Power (dBm)		10-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	802.11b	0	Back	Strap 1	6	2437	0.110	100.0%	20.0	19.2	0.106	0.127	
				Strap 2	6	2437	0.087	100.0%	20.0	19.2	0.081	0.097	
				Strap 3	6	2437	0.122	100.0%	20.0	19.2	0.106	**0.127**	12

10.7. Bluetooth

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up Limit	Meas.	Meas.	Scaled	
Head	GFSK	10	Front	Strap 1	39	2441	100.0%	14.5	12.7	0.028	**0.042**	13
				Strap 2	39	2441	100.0%	14.5	12.7	0.028	0.042	
				Strap 3	39	2441	100.0%	14.5	12.7	0.026	0.039	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	Duty Cycle	Power (dBm)		10-g SAR (W/kg)		Plot No.
								Tune-up Limit	Meas.	Meas.	Scaled	
Extremity	GFSK	0	Back	Strap 1	39	2441	100.0%	14.5	12.7	0.018	0.027	
				Strap 2	39	2441	100.0%	14.5	12.7	0.006	0.009	
				Strap 3	39	2441	100.0%	14.5	12.7	0.018	**0.027**	14

10.8. NFC

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Freq. (MHz)	Duty Cycle	Tolerance Scaling[1]	1-g SAR (W/kg)		Plot No.
								Meas.	Scaled	
Head	Type B	10	Front	Strap 1	13.56	100%	2	<0.001	**<0.001**	-
				Strap 2	13.56	100%	2	<0.001	<0.001	
				Strap 3	13.56	100%	2	<0.001	<0.001	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Freq. (MHz)	Duty Cycle	Tolerance Scaling[1]	10-g SAR (W/kg)		Plot No.
								Meas.	Scaled	
Extremity	Type B	0	Back	Strap 1	13.56	100%	2	<0.001	**<0.001**	15
				Strap 2	13.56	100%	2	<0.001	<0.001	
				Strap 3	13.56	100%	2	<0.001	<0.001	

Note(s):

Conducted output power cannot be measured for NFC, therefore a 2 dB scaling factor shall be used to account for potential variations between samples.

11. SAR Measurement Variability

In accordance with published RF Exposure KDB 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.8 or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.8 or 2 W/kg (1-g or 10-g respectively), repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 or 3.6 W/kg (~ 10% from the 1-g or 10-g respective SAR limit).
4) Perform a third repeated measurement only if the original, first, or second repeated measurement is ≥ 1.5 or 3.75 W/kg (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Note(s):

Repeated measurement is not required since the original highest measured SAR is <0.8 W/kg (1-g) or 2 W/kg (10-g) .

12. Simultaneous Transmission Conditions

The simultaneous transmission possibilities for this device are listed as below.

RF Exposure Condition	Item	Capable Transmit Configurations				
Standalone	1	WWAN	+	BT	+	NFC

RF Exposure conditions	Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)
		1	2	3	1+2+3
		WWAN	BT	NFC	
Head	Front	0.101	0.042	0.001	**0.143**

RF Exposure conditions	Test Position	Standalone SAR (W/kg)			∑ 10-g SAR (W/kg)
		1	2	3	1+2+3
		WWAN	BT	NFC	
Extremity	Back	0.323	0.027	0.001	**0.350**

Refer to separated files for the following appendixes.

Appendix A: SAR Setup Photos

Appendix B: SAR System Check Plots

Appendix C: SAR Highest Test Plots

Appendix D: Tissue Ingredients

Appendix E: Probe Certificates

Appendix F: Dipole Certificates

END OF REPORT