



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  
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**Subject:** SUBTEL, Chile (Resolution 737) Certification Compliance 2026  
**Commercial Name:** fenix 8 Pro – MicroLED

	Información (Information)
<b>Tipo de equipo (Equipment type)</b>	Portable Digital Transceiver
<b>Marca (Brand)</b>	Garmin 
<b>Modelo (Model)</b>	A05201
<b>Tecnología o modulación (Technology or modulation)</b>	WLAN: DSSS, OFDM, BT BR: GFSK BT EDR: $\pi/4$ -DPSK, 8-DPSK BLE/ANT: GFSK
<b>Frecuencias (Frequencies)</b>	WLAN, BT, BLE, ANT: 2402-2480 MHz NFC: 13.56 MHz
<b>Ganancia de antena (dBi) (Antenna gain (dBi))</b>	2.4GHz: -3.35 dBi
<b>P.i.r.e. (E.I R P.)</b>	WLAN: 18.85 dBm, 76.7mW BT BR: 8.18 dBm, 6.6 mW BT EDR: 7.49 dBm, 5.6 mW BLE/ANT: 1.21 dBm ,1.3 mW NFC: -26.82 dBm, .002 mW
<b>Módulos (Modules)</b>	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:** R15628768-E1

**Applicant :** Garmin International Inc.  
1200 East 151<sup>st</sup> Street  
Olathe, KS 66062-3426, USA

**Model :** A05201

**FCC ID :** IPH-05201

**IC :** 1792A-05201

**EUT Description :** Extremity Worn Digital Transceiver

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART C: 2025  
ISED RSS-247 ISSUE 3: 2023  
ISED RSS-GEN ISSUE 5 + A1 + A2: 2021

**Date Of Issue:**

2025-08-15

**Prepared by:**

UL LLC

12 Laboratory Dr.

Durham, NC 27713 U.S.A.

TEL: (919) 549-1400



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## REPORT REVISION HISTORY

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2025-08-15	Initial Issue	Charles Moody

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Garmin International Inc.  
1200 East 151<sup>st</sup> Street  
Olathe, KS 66062-3426, USA

**EUT DESCRIPTION:** Extremity Worn Digital Transceiver

**MODEL:** A05201

**SERIAL NUMBER:** 603037845, 604021419, 604021429, 604021450, 604021458

**SAMPLE RECEIPT DATE:** 2025-05-14 TO 2025-07-08

**DATE TESTED:** 2025-05-28 TO 2025-08-15

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Refer to Section 2
ISED RSS-247 Issue 3	Refer to Section 2
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:

Prepared By:



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Michael Antola  
Senior Staff Engineer  
Consumer, Medical and IT Segment  
UL LLC

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Charles Moody  
Lead Project 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
<input type="checkbox"/>	Building: 12 Laboratory Dr Durham, NC 27713, USA	US0067	2180C	825374
<input checked="" type="checkbox"/>	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:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

#### MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\text{Final Voltage (dBuV)} = \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \text{LISN Insertion Loss}$$

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

## 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	19.16	82.41
2412 - 2472	802.11g	21.94	156.31
2412 - 2472	802.11n HT20	22.20	165.96
2402 - 2480	ANT/ANT+	4.59	2.88
2402 - 2480	BLE 1Mbps	4.56	2.86
2402 - 2480	BLE 2Mbps	4.56	2.86

### 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	-3.35

### 6.4. SOFTWARE AND FIRMWARE

EUT FW Version: 16.29

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## **6.5. WORST-CASE CONFIGURATION AND MODE**

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

For 2.4 WLAN all radiated spurious emissions between 1GHz and 18 GHz were tested at mid channel power. Band edge scans were performed on all inner/outer channels up to mid channel power. For 11b and 11g conducted testing, all testing was performed on the lowest, middle, and highest channel with the EUT set to transmit at mid channel power. Power for all modes was taken at the corresponding tuned setting.

For BLE and ANT/ANT+ power 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 and all conducted emissions testing were performed on all inner/outer channels up to mid channel power. Power for all modes was taken at the corresponding tuned setting.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

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

For conducted data, one plot per radio data rate / modulation was included as a representative plot of all collected data for that mode. Full tabular data was included.

## 6.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Power Supply	Phihong	AQ27A-59CFA	n/a	n/a
Laptop	Lenovo	T14 Gen3	PF4FKVY8	n/a

### 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

### TEST SETUP

EUT was configured using its own built-in push buttons prior to testing and using the support laptop to manipulate power settings. For final emissions testing, the EUT was connected to AC mains.

### SETUP DIAGRAMS

Please refer to R15628768-EP1 for setup diagrams

## 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 - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
<b>Conducted Room 1</b>					
90416	Spectrum Analyzer	Keysight Technologies	N9030A	2024-09-23	2025-09-23
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
Pad II	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2025-05-25	2026-05-25
**Pad IV	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2024-06-06	2025-06-06
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA

\*\*NOTE: Testing with this equipment was performed while still in calibration.

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2025-04-17	2026-04-17
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
**75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2024-08-01	2025-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2025-04-17	2026-04-17
236852	AC Power Source	California instruments	NA	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

\*\*NOTE: Testing with this equipment was performed while still in calibration.

**Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)**

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	<b>1-18 GHz</b>				
**86408	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-06-19	2025-06-19
88761	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-10-05	2025-10-05
	<b>Gain-Loss Chains</b>				
91977	Gain-loss string: 1-18GHz	Various	Various	2025-05-31	2026-05-31
	<b>Receiver &amp; Software</b>				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-05-12	2026-05-12
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	<b>Additional Equipment used</b>				
**200540	Environmental Meter	Fisher Scientific	15-077-963	2023-07-19	2025-07-19

\*\*NOTE: At the time of testing, all equipment was in calibration.

**Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)**

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	<b>0.009-30MHz</b>				
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
	<b>30-1000 MHz</b>				
90628	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-02	2026-01-02
	<b>1-18 GHz</b>				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-04-09	2026-04-09
	<b>18-40 GHz</b>				
91186	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2024-05-16	2026-05-16
	<b>Gain-Loss Chains</b>				
*207638	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-22	2025-06-06
207638	Gain-loss string: 0.009-30MHz	Various	Various	2025-06-13	2026-06-13
*207639	Gain-loss string: 25-1000MHz	Various	Various	2024-05-22	2025-06-06
207639	Gain-loss string: 25-1000MHz	Various	Various	2025-06-13	2026-06-13
*207640	Gain-loss string: 1-18GHz	Various	Various	2024-05-22	2025-06-06
207640	Gain-loss string: 1-18GHz	Various	Various	2025-06-13	2026-06-13
225795	Gain-loss string: 18-40GHz	Various	Various	2025-06-13	2026-06-13
	<b>Receiver &amp; Software</b>				
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-04-21	2026-04-21
**81018	Spectrum Analyzer	Agilent	E4446A	2024-07-31	2025-07-31
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	<b>Additional Equipment used</b>				
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

\*NOTE: A continuous chain of unbroken calibrations was performed on this equipment during the duration of testing.

\*\*NOTE: At the time of testing, all equipment was in calibration.

## 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)
<b>2.4GHz Band</b>						
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:** 105900/84740, 104463/85501

**Date:** 2025-06-13, 2025-08-05

DUTY CYCLE PLOTS



**9.2. 99% BANDWIDTH**

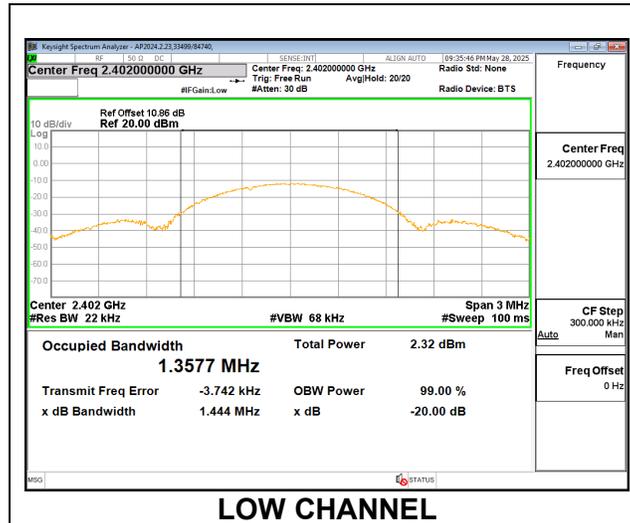
**LIMITS**

None; for reporting purposes only.

**RESULTS**

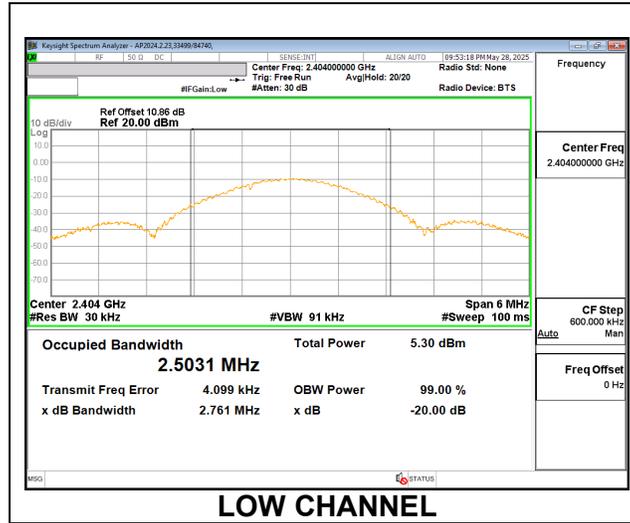
**9.2.1. BLE (1Mbps)**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.3577
Low	2404	1.2795
Middle	2440	1.3591
High	2476	1.4683
High	2480	1.3484



**9.2.2. BLE (2Mbps)**

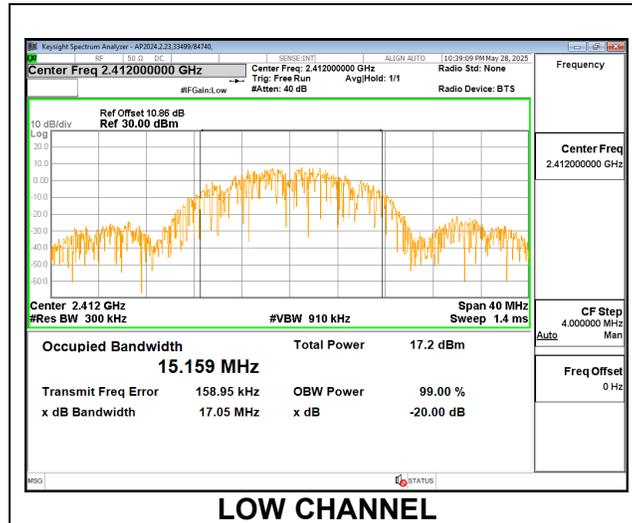
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.5031
Middle	2440	2.5958
High	2476	2.6072
High	2478	2.5718





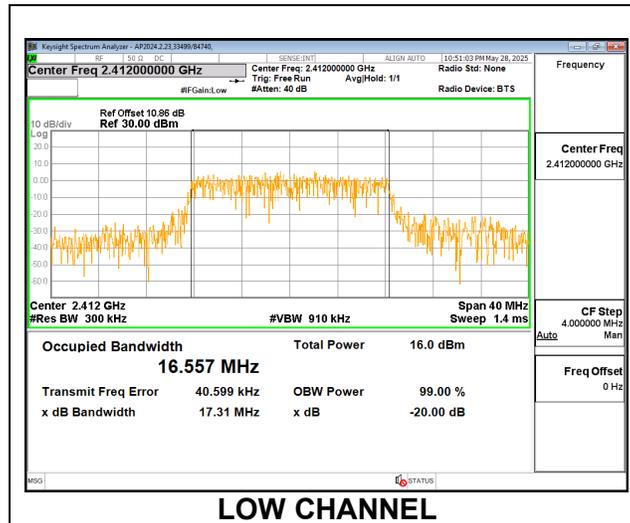
**9.2.4. 2.4 WLAN (11b)**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	15.1590
Middle	2437	15.2400
High	2472	15.3690



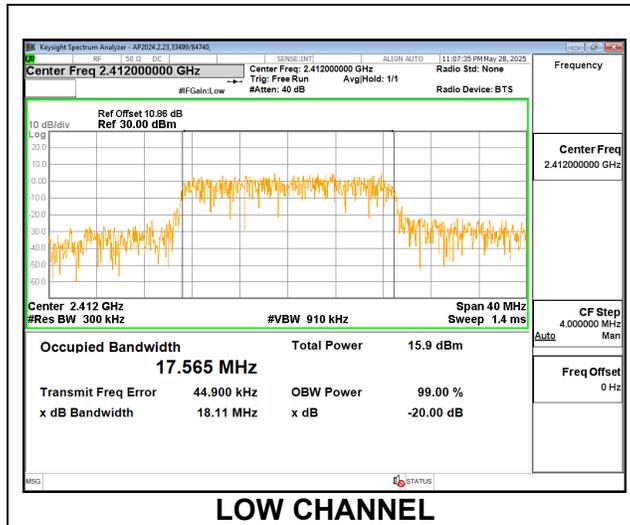
**9.2.5.2.4 WLAN (11g)**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.5570
Middle	2437	16.3490
High	2472	16.7420



**9.2.6. 2.4 WLAN (11n HT20)**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.5650
Middle	2437	17.5350
High	2457	17.4970
High	2462	17.3950
High	2472	17.5770



### 9.3. 6 dB BANDWIDTH

#### LIMITS

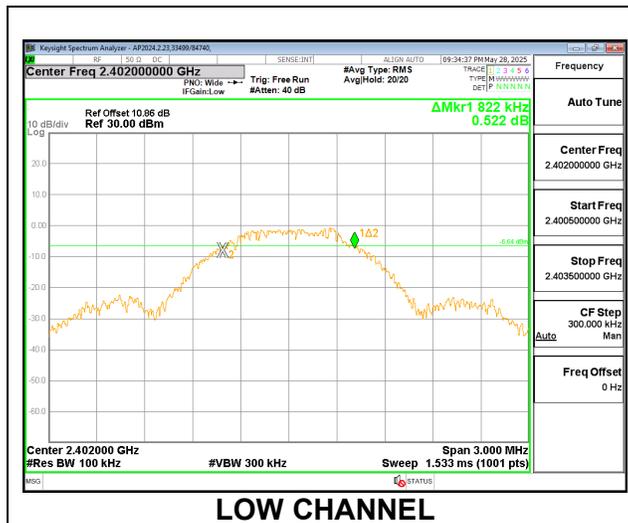
FCC §15.247 (a) (2)  
 RSS-247 5.2 (a)

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

#### RESULTS

##### 9.3.1. BLE (1Mbps)

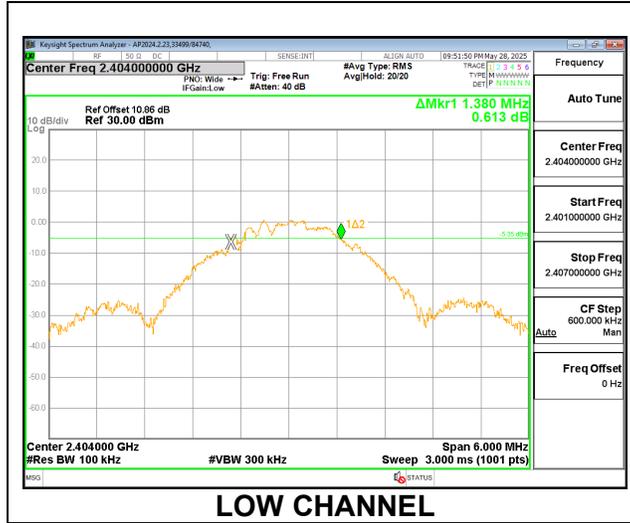
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.822	0.5
Low	2404	0.693	0.5
Middle	2440	0.801	0.5
High	2476	0.897	0.5
High	2480	0.885	0.5



**LOW CHANNEL**

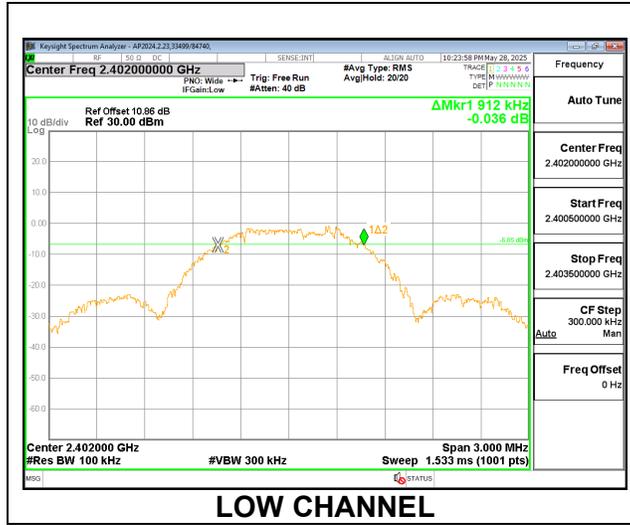
**9.3.2. BLE (2Mbps)**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2404	1.380	0.5
Middle	2440	1.620	0.5
High	2476	1.584	0.5
High	2478	1.452	0.5



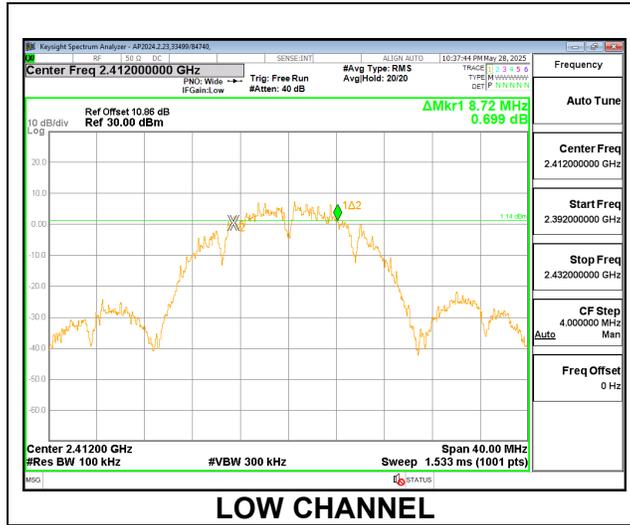
**9.3.3. ANT/ANT+**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.912	0.5
Low	2404	0.900	0.5
Middle	2440	0.804	0.5
High	2478	0.813	0.5
High	2480	0.909	0.5



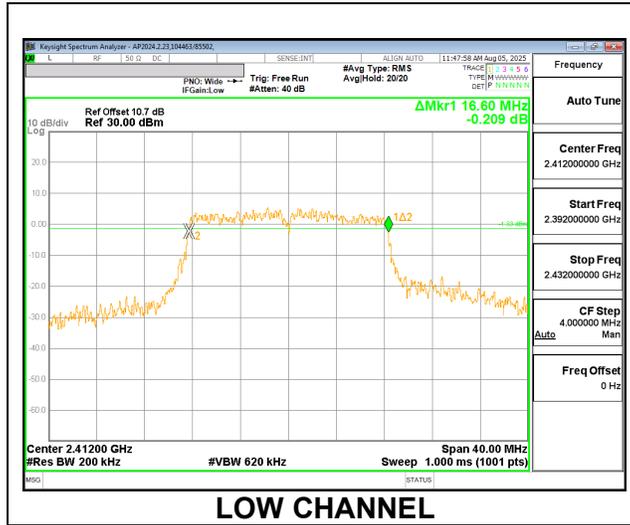
**9.3.4. 2.4 WLAN (11b)**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.72	0.5
Middle	2437	8.24	0.5
High	2472	9.16	0.5



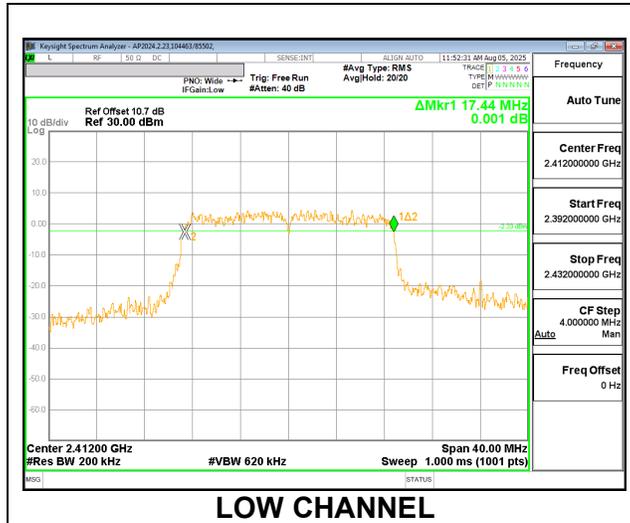
**9.3.5. 2.4 WLAN (11g)**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.60	0.5
Middle	2437	16.56	0.5
High	2472	16.52	0.5



**9.3.6. 2.4 WLAN (11n HT20)**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.44	0.5
Middle	2437	17.12	0.5
High	2457	17.68	0.5
High	2462	17.68	0.5
High	2472	17.16	0.5



**LOW CHANNEL**

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## **9.4. OUTPUT POWER**

### **LIMITS**

FCC §15.247 (b) (3)  
RSS-247 5.4 (d)

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

### **TEST PROCEDURE**

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 12.37 dB (0.7dB EUT cable, 1.67 dB test cable 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. BLE (1Mbps)

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.619	30	-28.381
Low	2404	4.317	30	-25.683
Middle	2440	4.556	30	-25.444
High	2476	4.069	30	-25.931
High	2480	0.841	30	-29.159

### 9.4.2. BLE (2Mbps)

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	4.343	30	-25.657
Middle	2440	4.561	30	-25.439
High	2476	3.900	30	-26.100
High	2478	0.539	30	-29.461

### 9.4.3. ANT/ANT+

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.650	30	-28.350
Low	2404	4.408	30	-25.592
Middle	2440	4.594	30	-25.406
High	2478	3.967	30	-26.033
High	2480	0.896	30	-29.104

**9.4.4. 2.4 WLAN (11b)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30, 2025-08-07

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	18.388	30	-11.612
Middle	2437	18.320	30	-11.680
High	2457	19.066	30	-10.934
High	2462	19.157	30	-10.843
High	2467	15.276	30	-14.724
High	2472	13.665	30	-16.335

**9.4.5. 2.4 WLAN (11g)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30, 2025-08-07

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	21.935	30	-8.065
Middle	2437	21.847	30	-8.153
High	2452	21.623	30	-8.377
High	2457	21.293	30	-8.707
High	2462	20.318	30	-9.682
High	2472	18.618	30	-11.382

**9.4.6. 2.4 WLAN (11n HT20)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30, 2025-08-07

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2412	22.196	30	-7.804
Middle	2437	21.566	30	-8.434
High	2457	21.315	30	-8.685
High	2462	19.828	30	-10.172
High	2472	19.294	30	-10.706

## **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 12.37 dB (0.7dB EUT cable, 1.67 dB test cable 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. BLE (1Mbps)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	1.231
Low	2404	4.107
Middle	2440	4.207
High	2476	3.862
High	2480	0.430

**9.5.2. BLE (2Mbps)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	4.102
Middle	2440	4.206
High	2476	3.675
High	2478	0.310

**9.5.3. ANT/ANT+**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	1.257
Low	2404	4.114
Middle	2440	4.234
High	2478	3.677
High	2480	0.461

**9.5.4. 2.4 WLAN (11b)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30, 2025-08-07

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>AV power (dBm)</b>
Low	2412	16.067
Middle	2437	16.049
High	2457	16.907
High	2462	16.935
High	2467	12.953
High	2472	11.224

**9.5.5. 2.4 WLAN (11g)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30, 2025-08-07

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>AV power (dBm)</b>
Low	2412	16.731
Middle	2437	16.851
High	2452	16.793
High	2457	15.968
High	2462	13.939
High	2472	12.050

**9.5.6. 2.4 WLAN (11n HT20)**

<b>Tested By:</b>	104463/85501, 105900/84740
<b>Date:</b>	2025-06-30, 2025-08-07

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>AV power (dBm)</b>
Low	2412	16.031
Middle	2437	15.921
High	2457	15.636
High	2462	12.762
High	2472	12.071

## 9.6. POWER SPECTRAL DENSITY

### LIMITS

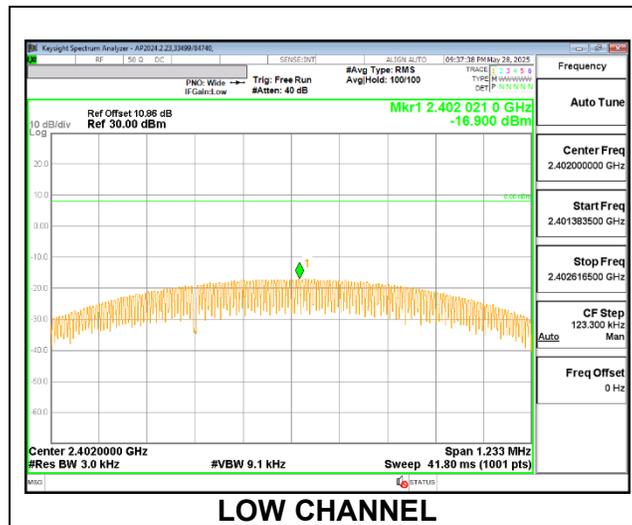
FCC §15.247 (e)  
 RSS-247 (5.2) (b)

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

### RESULTS

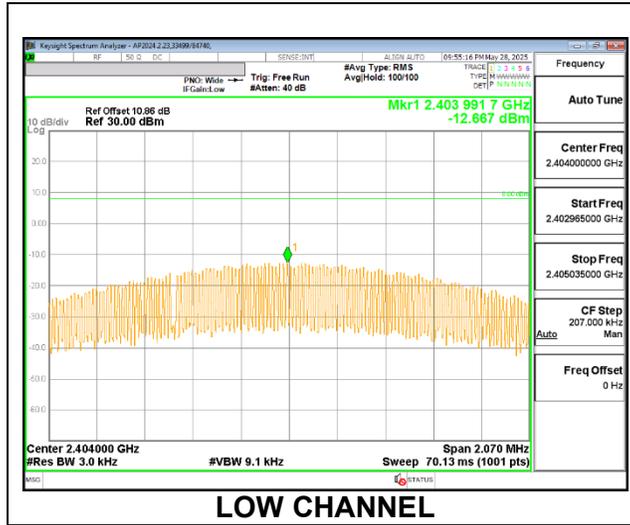
#### 9.6.1. BLE (1Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-16.900	8	-24.90
Low	2404	-12.634	8	-20.63
Middle	2440	-13.829	8	-21.83
High	2476	-14.273	8	-22.27
High	2480	-17.413	8	-25.41



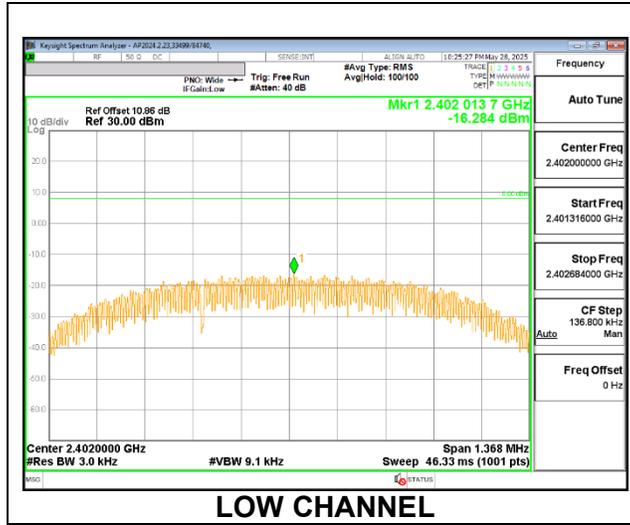
**9.6.2. BLE (2Mbps)**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-12.667	8	-20.67
Middle	2440	-14.024	8	-22.02
High	2476	-14.316	8	-22.32
High	2478	-18.173	8	-26.17



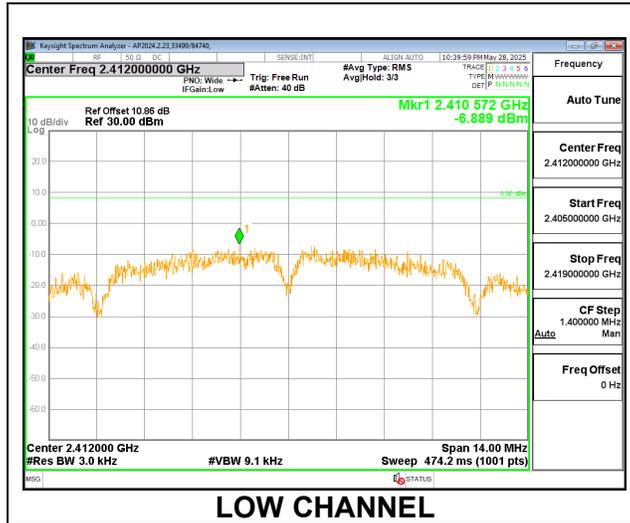
**9.6.3. ANT/ANT+**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-16.284	8	-24.28
Low	2404	-11.615	8	-19.62
Middle	2440	-12.434	8	-20.43
High	2478	-12.672	8	-20.67
High	2480	-16.847	8	-24.85



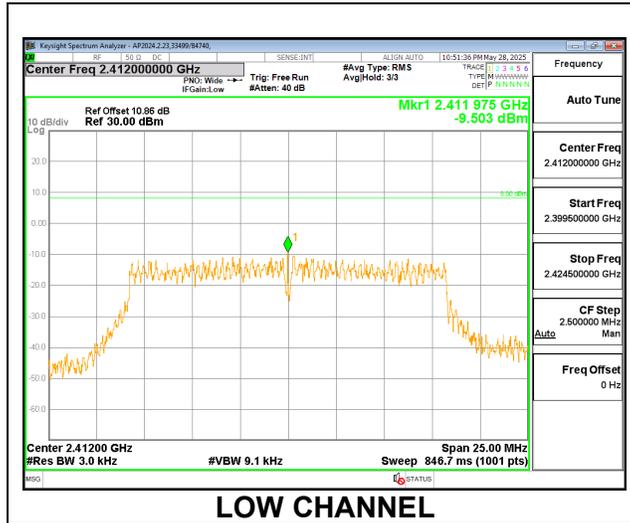
**9.6.4.2.4 WLAN (11b)**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2412	-6.889	8	-14.89
Middle	2437	-4.193	8	-12.19
High	2472	-3.042	8	-11.04



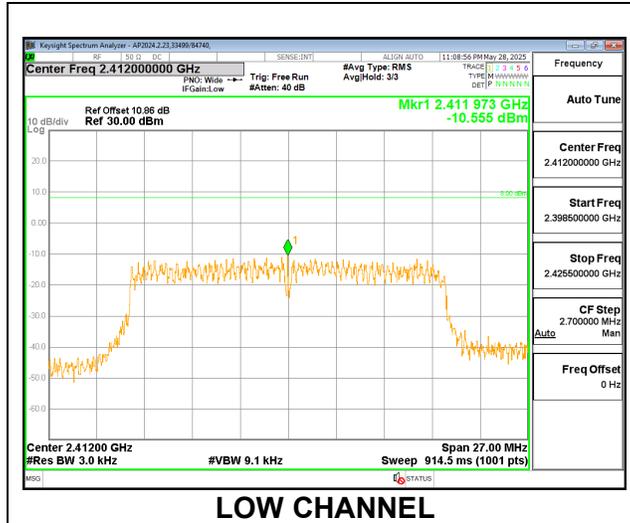
**9.6.5.2.4 WLAN (11g)**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2412	-9.503	8	-17.50
Middle	2437	-10.027	8	-18.03
High	2472	-8.767	8	-16.77



**9.6.6. 2.4 WLAN (11n HT20)**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2412	-10.555	8	-18.56
Middle	2437	-8.969	8	-16.97
High	2457	-8.509	8	-16.51
High	2462	-12.482	8	-20.48
High	2472	-12.411	8	-20.41



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## **9.7. CONDUCTED SPURIOUS EMISSIONS**

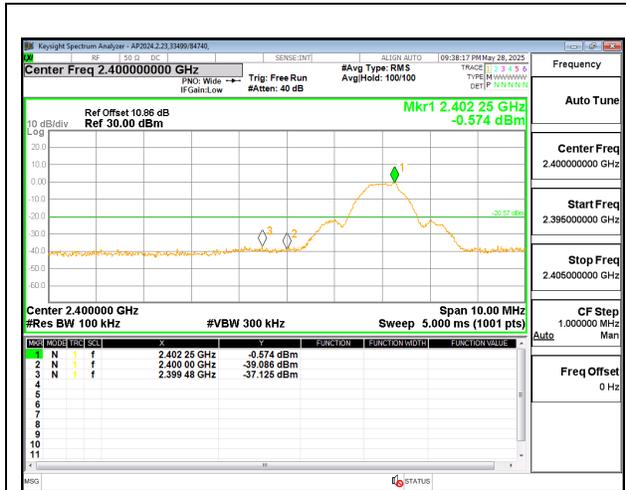
### **LIMITS**

FCC §15.247 (d)  
RSS-247 5.5

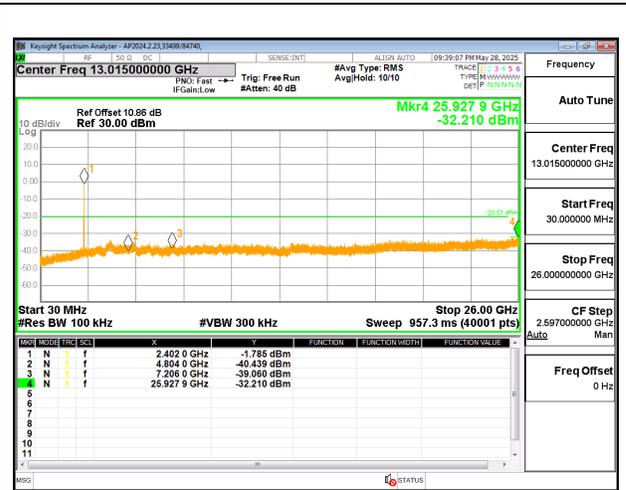
Output power was measured based on the use of a peak measurement; therefore the required attenuation is -20 dBc.

### **RESULTS**

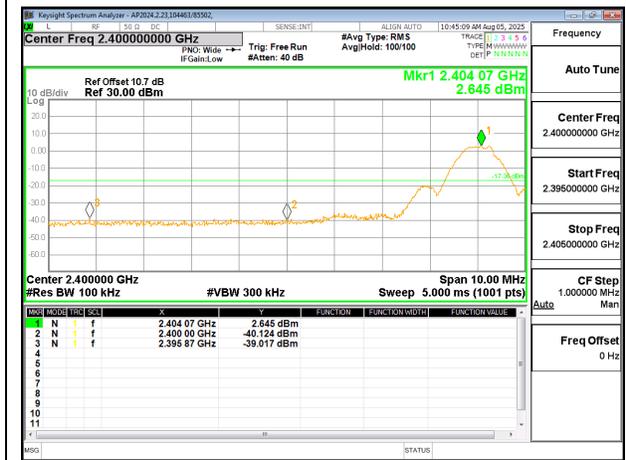
9.7.1. BLE (1Mbps)



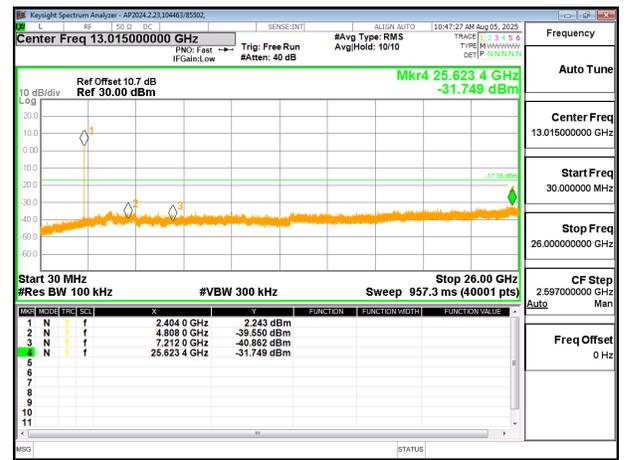
LOW CHANNEL (2402) BANDEDGE



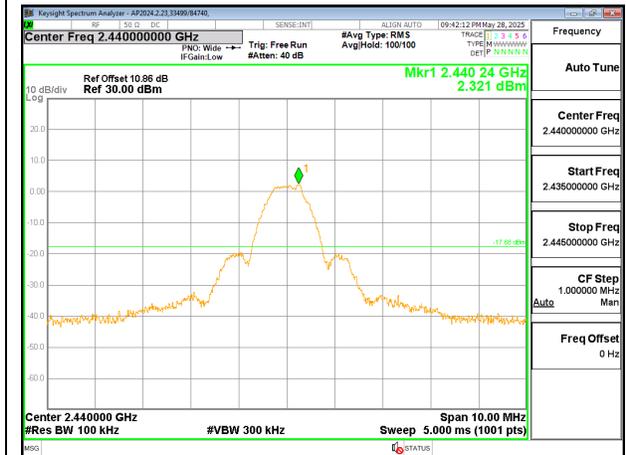
OUT-OF-BAND LOW CHANNEL (2402)



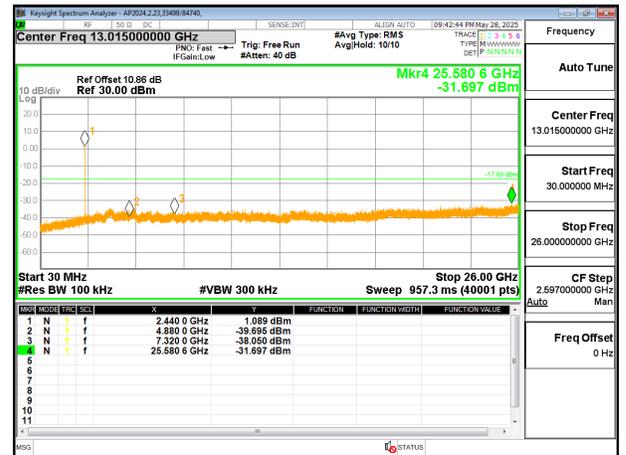
LOW CHANNEL (2404) BANDEDGE



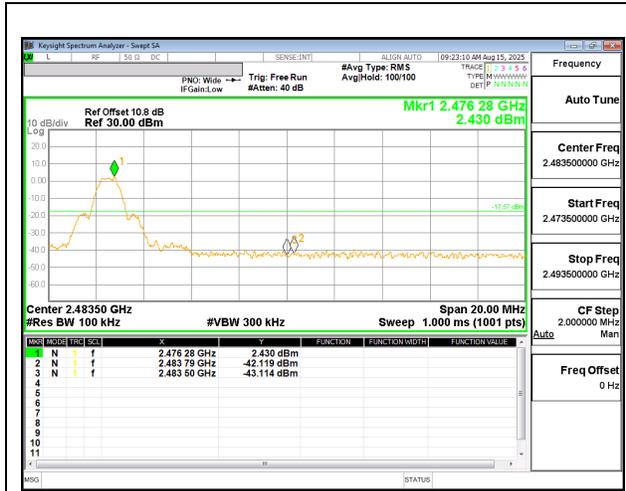
OUT-OF-BAND LOW CHANNEL (2404)



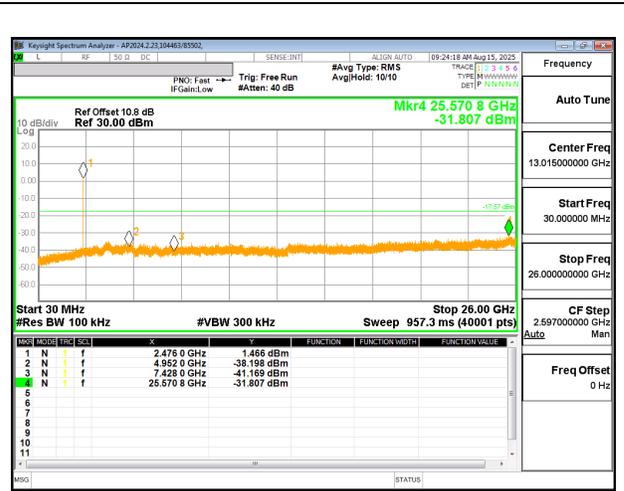
IN-BAND REFERENCE LEVEL



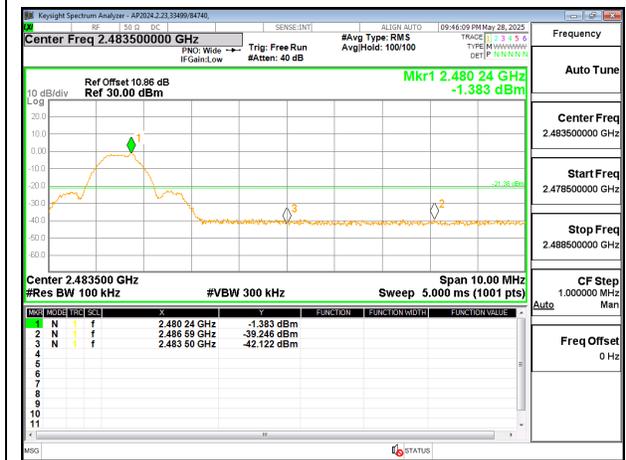
OUT-OF-BAND MID CHANNEL



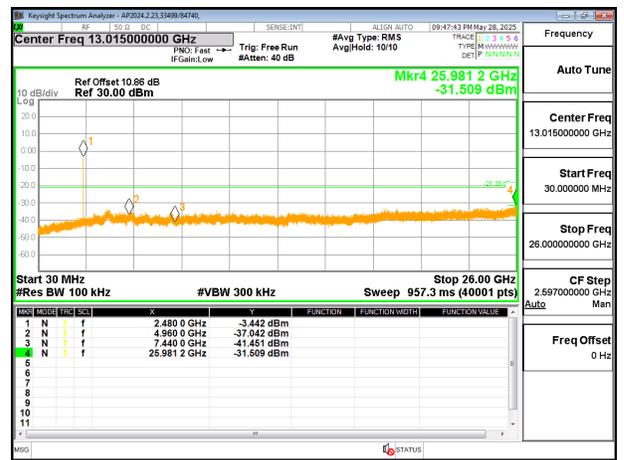
**HIGH CHANNEL (2476) BANDEDGE**



**OUT-OF-BAND HIGH CHANNEL (2476)**

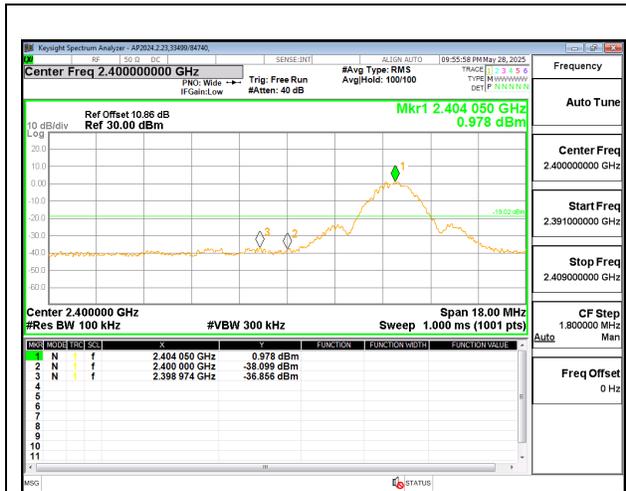


**HIGH CHANNEL (2480) BANDEDGE**

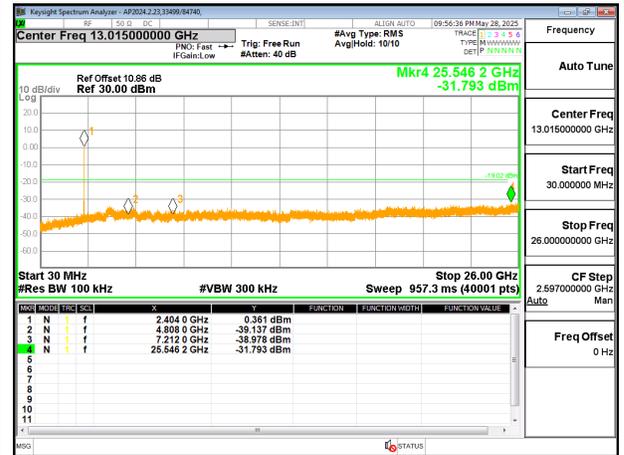


**OUT-OF-BAND HIGH CHANNEL (2480)**

### 9.7.2. BLE (2Mbps)



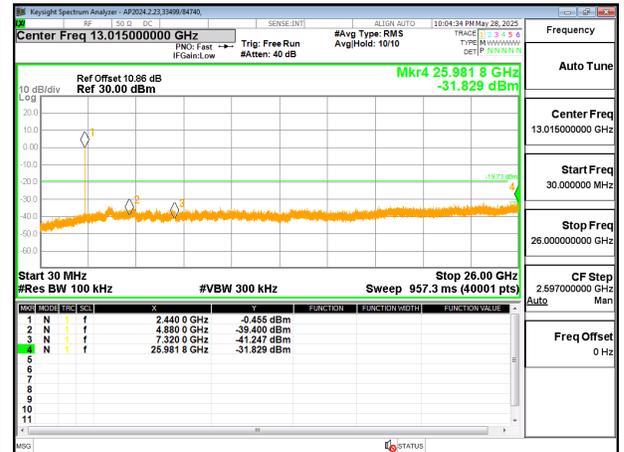
**LOW CHANNEL (2404) BANDEDGE**



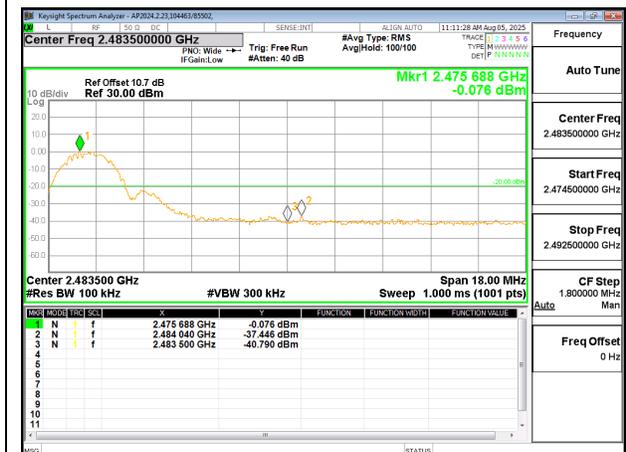
**OUT-OF-BAND LOW CHANNEL (2404)**



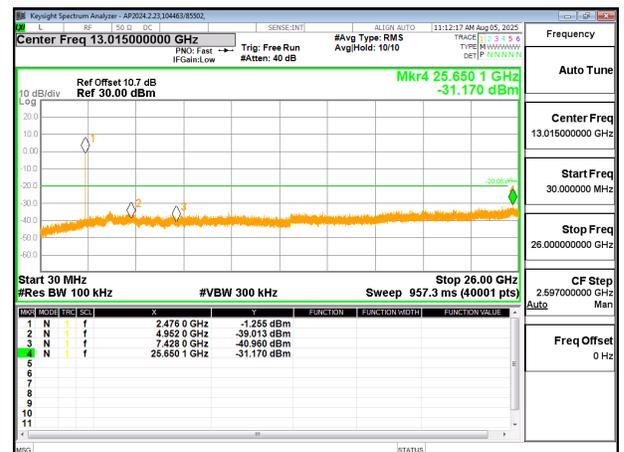
**IN-BAND REFERENCE LEVEL**



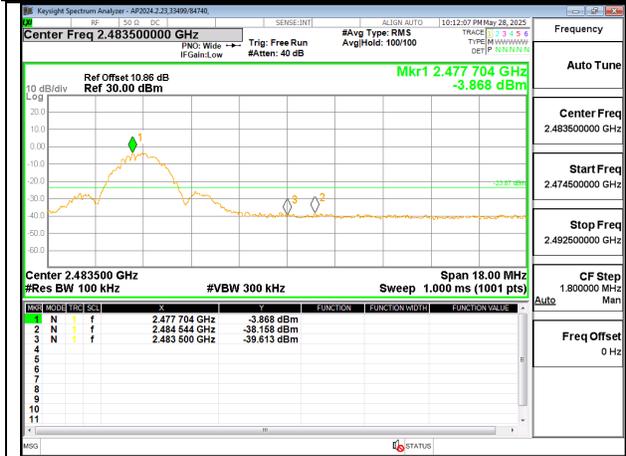
**OUT-OF-BAND MID CHANNEL**



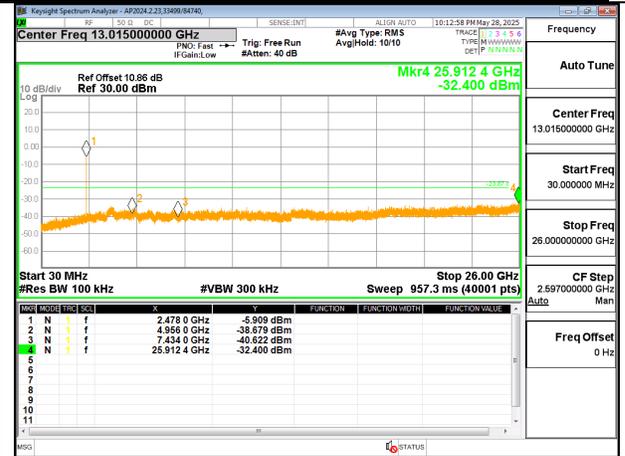
**HIGH CHANNEL (2476) BANDEDGE**



**OUT-OF-BAND HIGH CHANNEL (2476)**

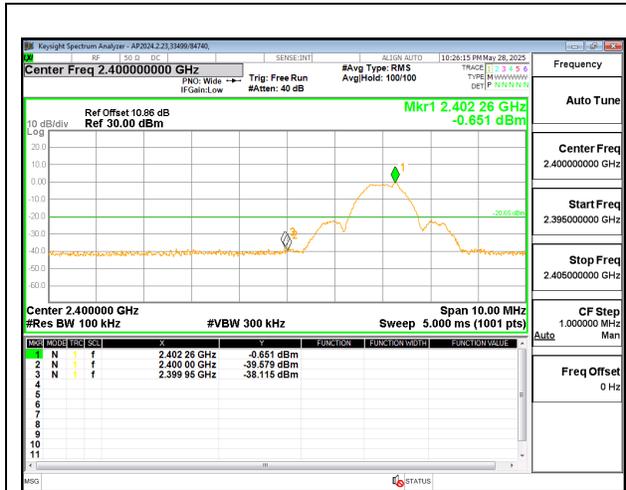


**HIGH CHANNEL (2478) BANDEDGE**

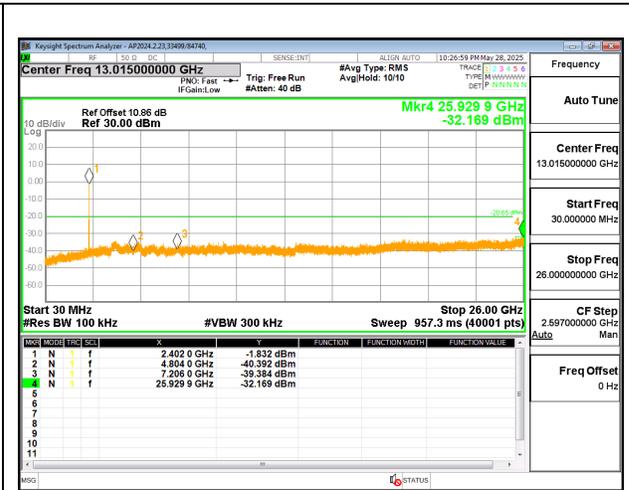


**OUT-OF-BAND HIGH CHANNEL (2478)**

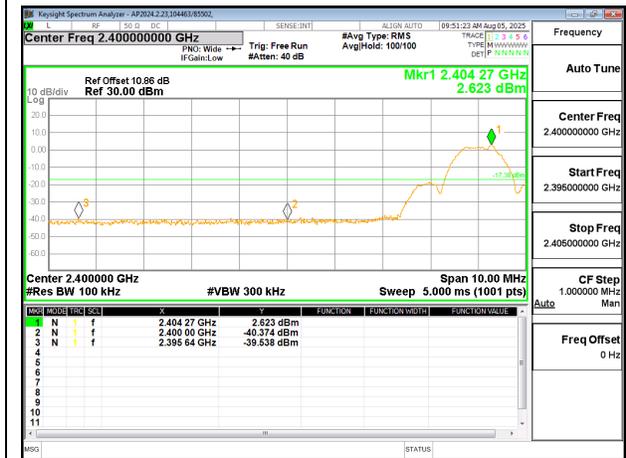
9.7.3. ANT/ANT+



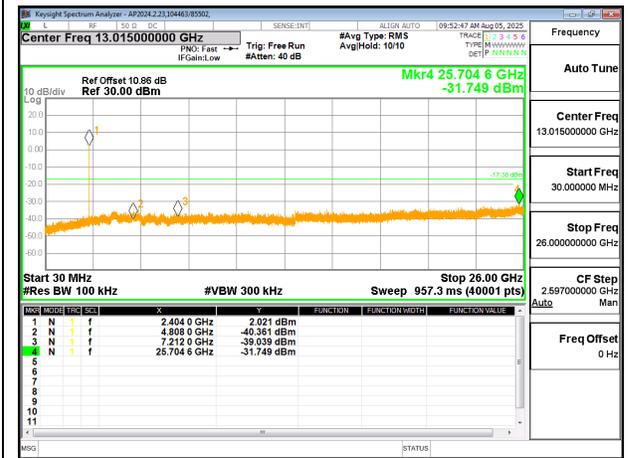
LOW CHANNEL (2402) BANDEDGE



OUT-OF-BAND LOW CHANNEL (2402)



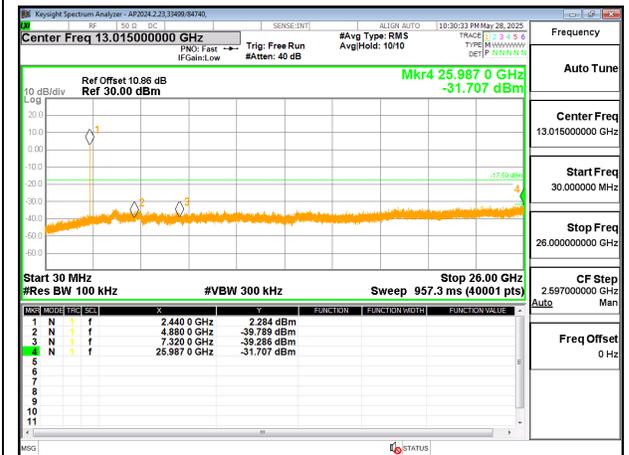
LOW CHANNEL (2404) BANDEDGE



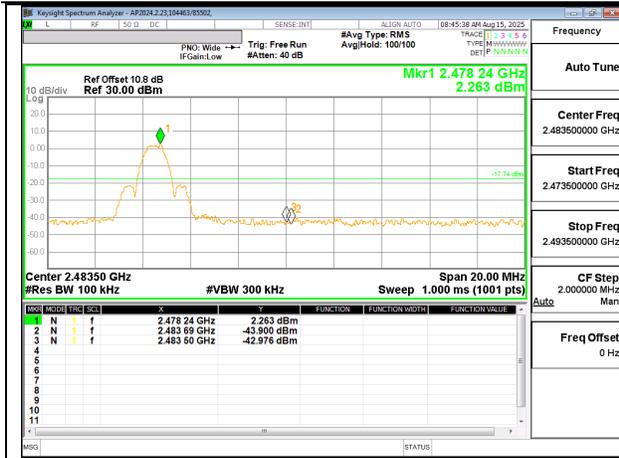
OUT-OF-BAND LOW CHANNEL (2404)



IN-BAND REFERENCE LEVEL



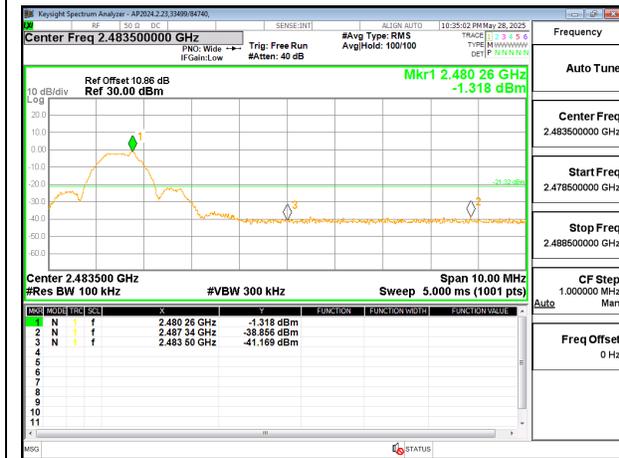
OUT-OF-BAND MID CHANNEL



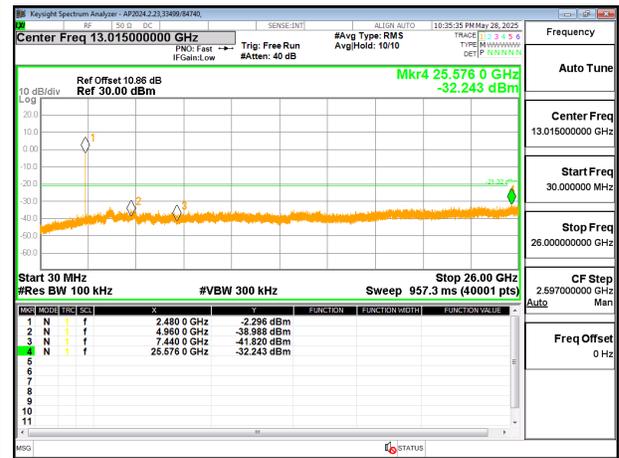
**HIGH CHANNEL (2478) BANDEDGE**



**OUT-OF-BAND HIGH CHANNEL (2478)**

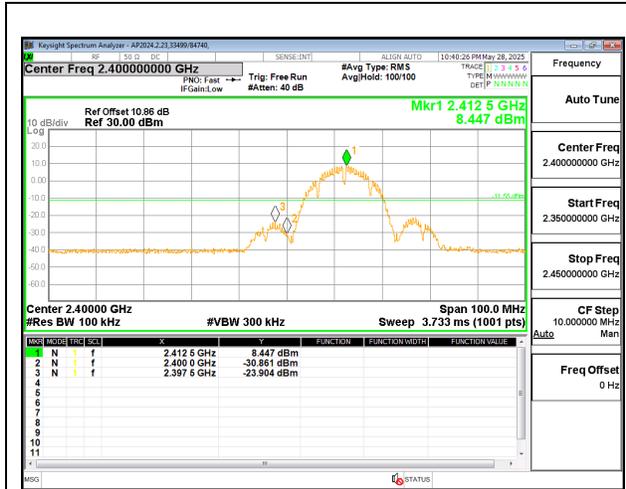


**HIGH CHANNEL (2480) BANDEDGE**

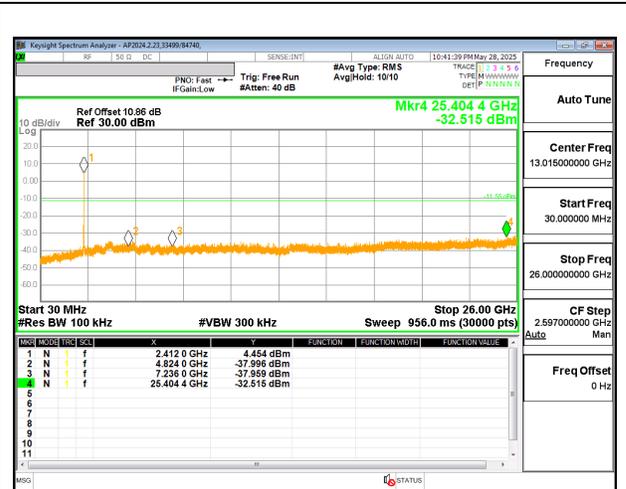


**OUT-OF-BAND HIGH CHANNEL (2480)**

9.7.4. 2.4 WLAN (11b)



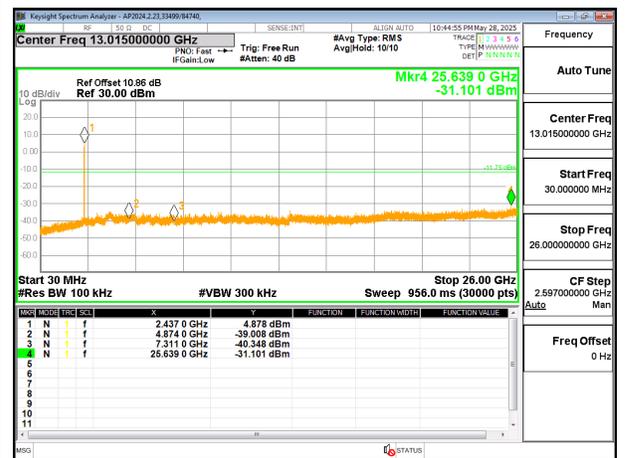
LOW CHANNEL BANDEDGE



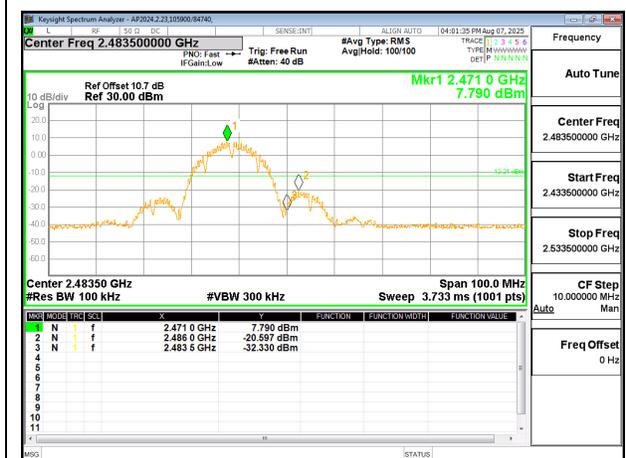
OUT-OF-BAND LOW CHANNEL



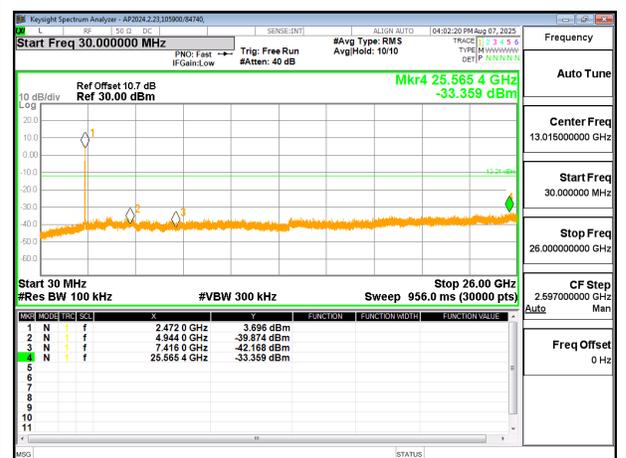
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE

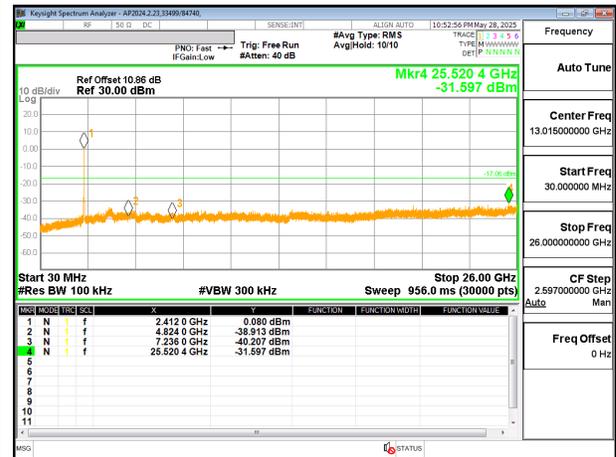


OUT-OF-BAND HIGH CHANNEL

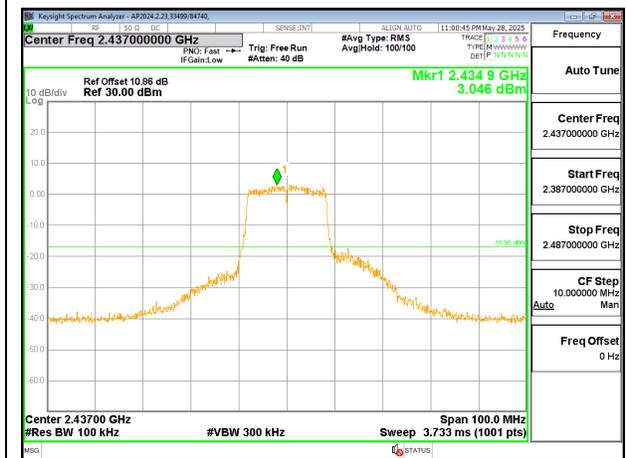
9.7.5. 2.4 WLAN (11g)



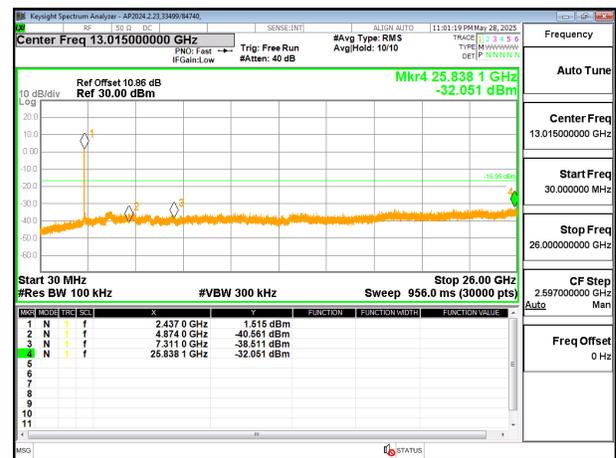
LOW CHANNEL BANDEDGE



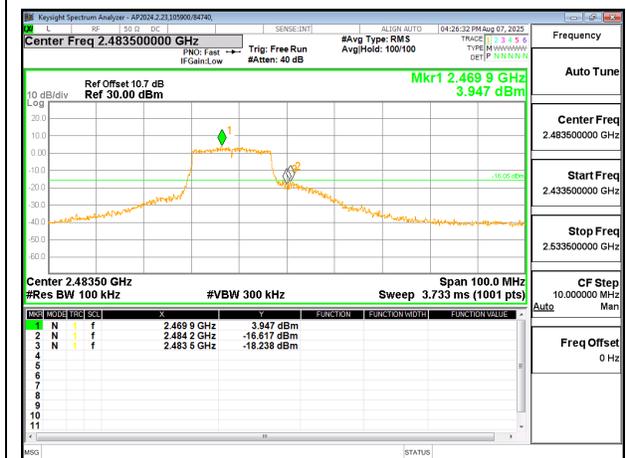
OUT-OF-BAND LOW CHANNEL



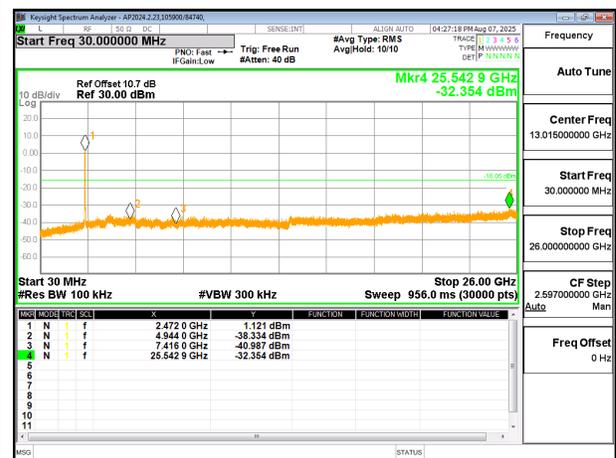
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

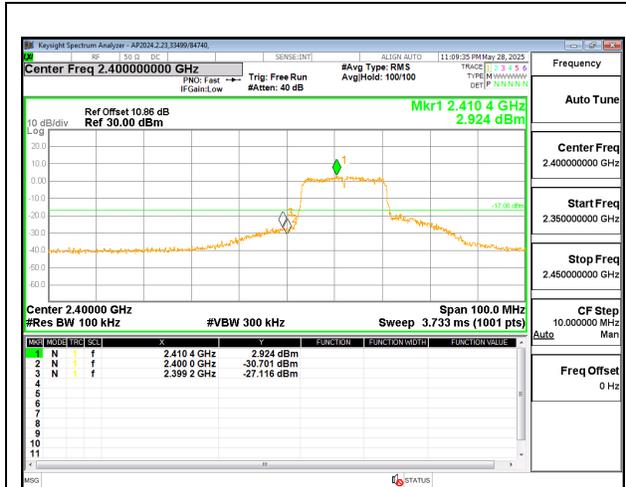


HIGH CHANNEL BANDEDGE

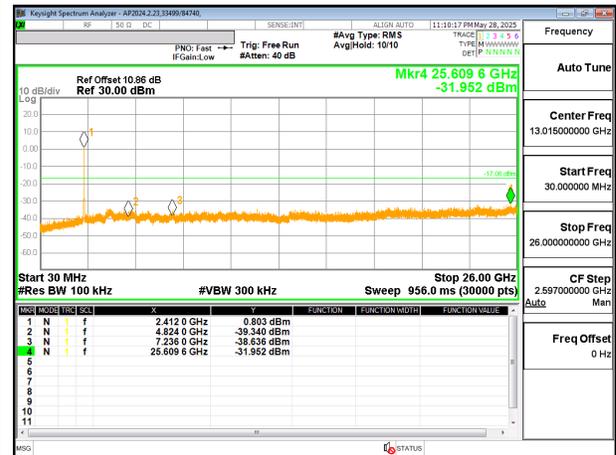


OUT-OF-BAND HIGH CHANNEL

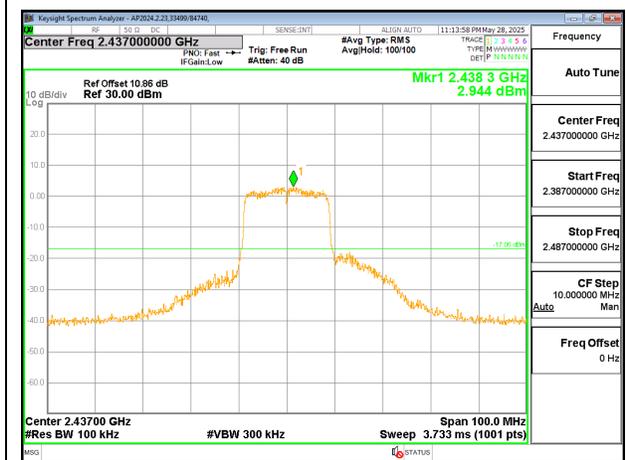
9.7.6. 2.4 WLAN (11n HT20)



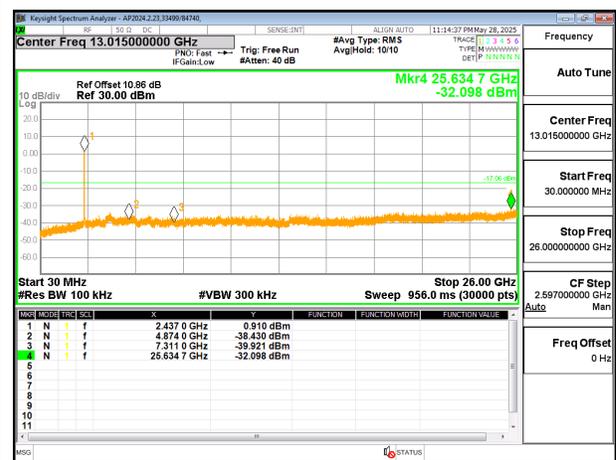
LOW CHANNEL BANDEDGE



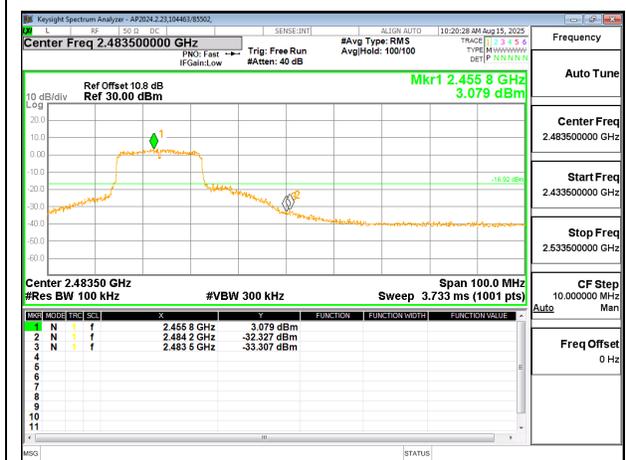
OUT-OF-BAND LOW CHANNEL



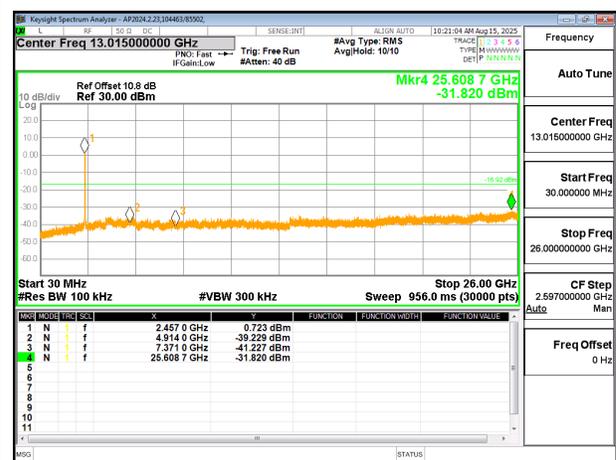
IN-BAND REFERENCE LEVEL



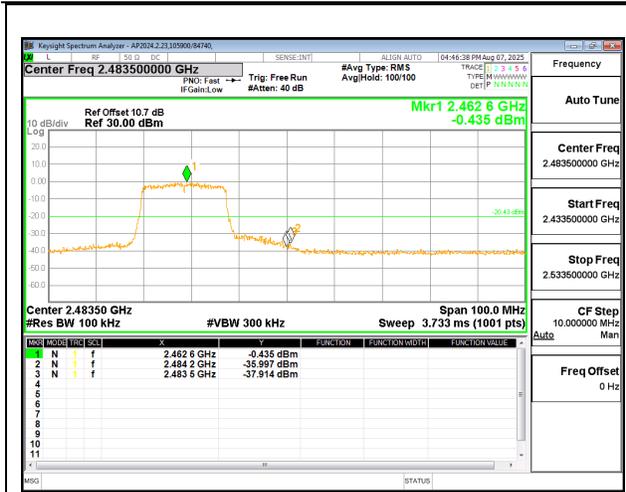
OUT-OF-BAND MID CHANNEL



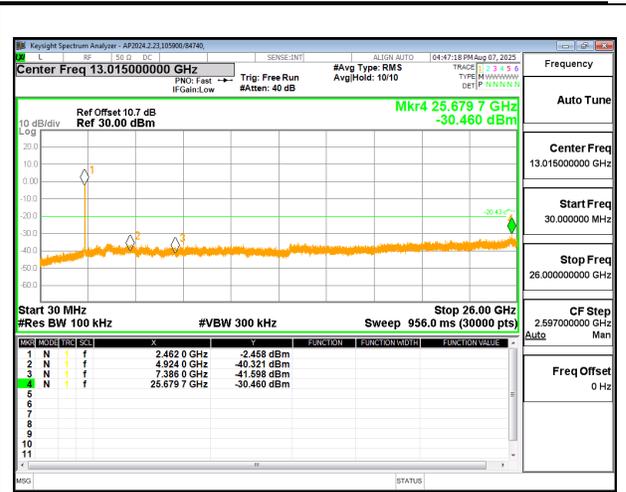
HIGH CHANNEL (10) BANDEDGE



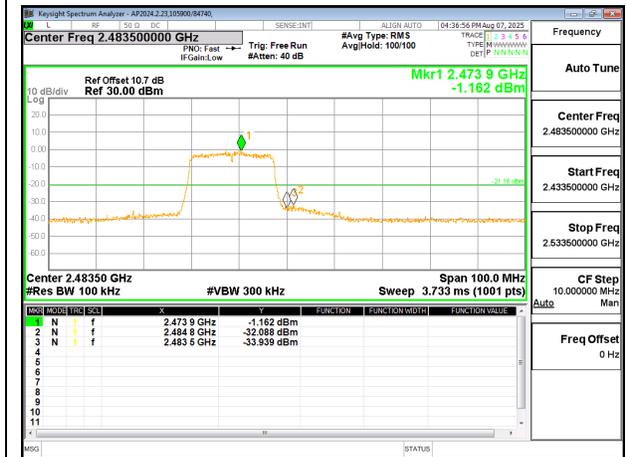
OUT-OF-BAND HIGH (10) CHANNEL



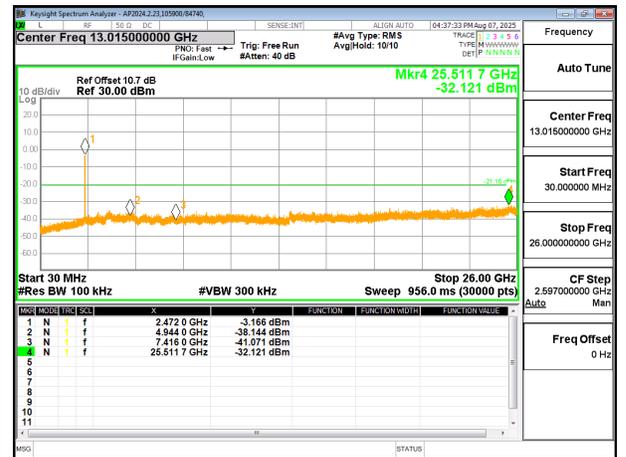
**HIGH CHANNEL (11) BANDEDGE**



**OUT-OF-BAND HIGH (11) CHANNEL**



**HIGH CHANNEL (13) BANDEDGE**



**OUT-OF-BAND HIGH (13) CHANNEL**

## 10. RADIATED TEST RESULTS

### 10.1. LIMITS AND PROCEDURE

#### 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 3 MHz 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 the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest power spectral density 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).

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

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

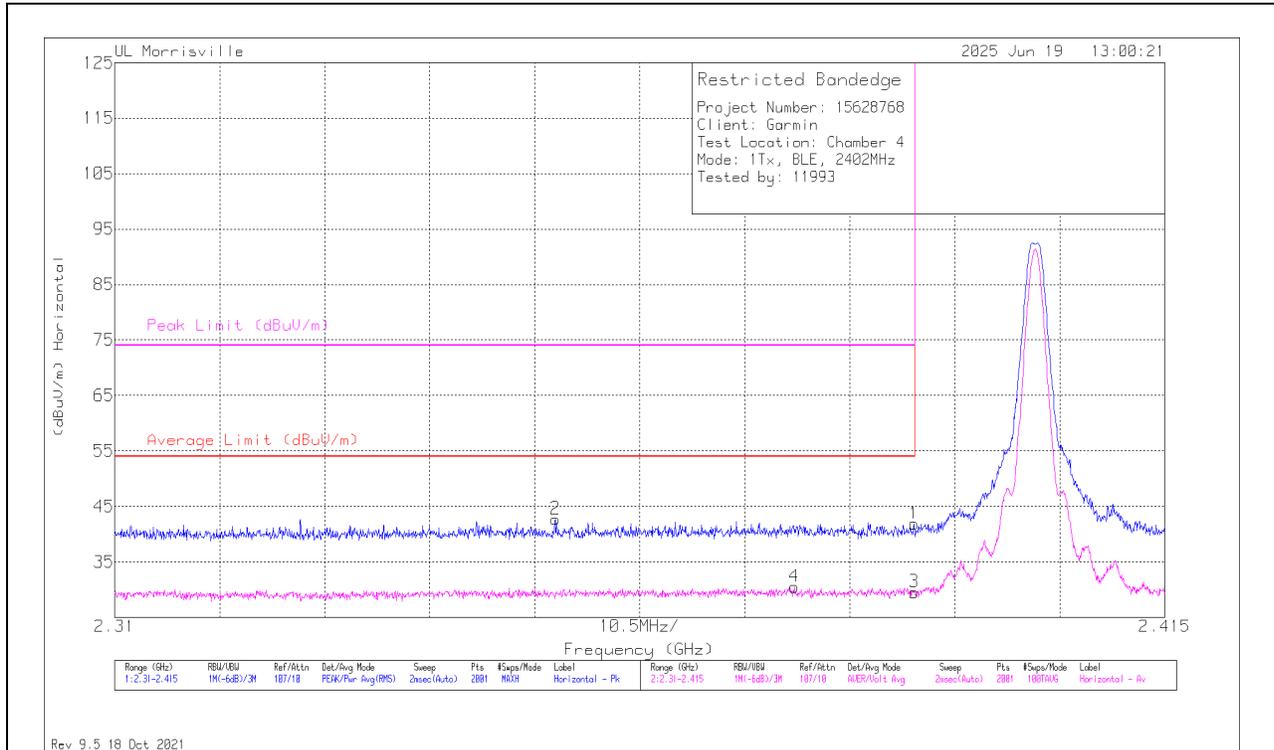
OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

## 10.2. TRANSMITTER ABOVE 1 GHz

### 10.2.1. BLE (1Mbps)

#### BANDEDGE (LOW CHANNEL, 2402 MHz)

#### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	33.03	Pk	32	-23.2	41.83	-	-	74	-32.17	256	102	H
2	* ** 2.35405	33.9	Pk	31.8	-23	42.7	-	-	74	-31.3	256	102	H
3	* ** 2.38996	20.65	ADV	32	-23.2	29.45	54	-24.55	-	-	256	102	H
4	* ** 2.37794	21.45	ADV	32	-23	30.45	54	-23.55	-	-	256	102	H

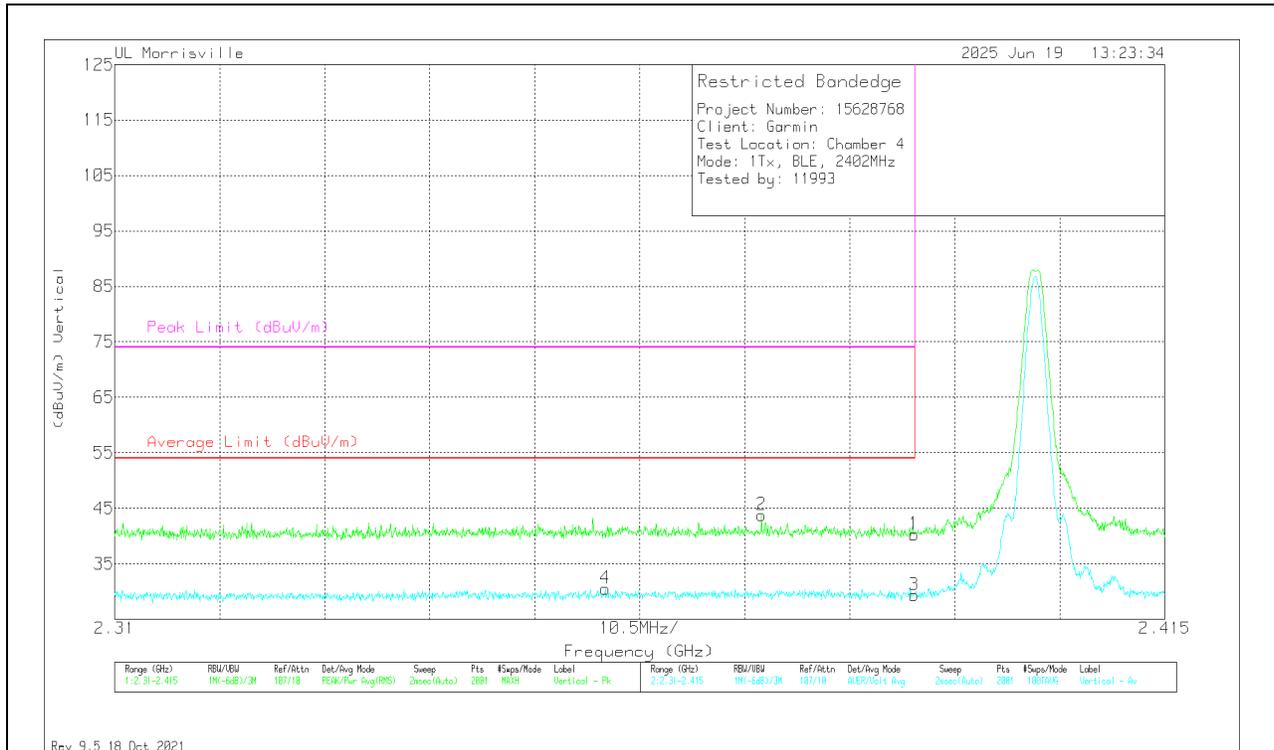
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

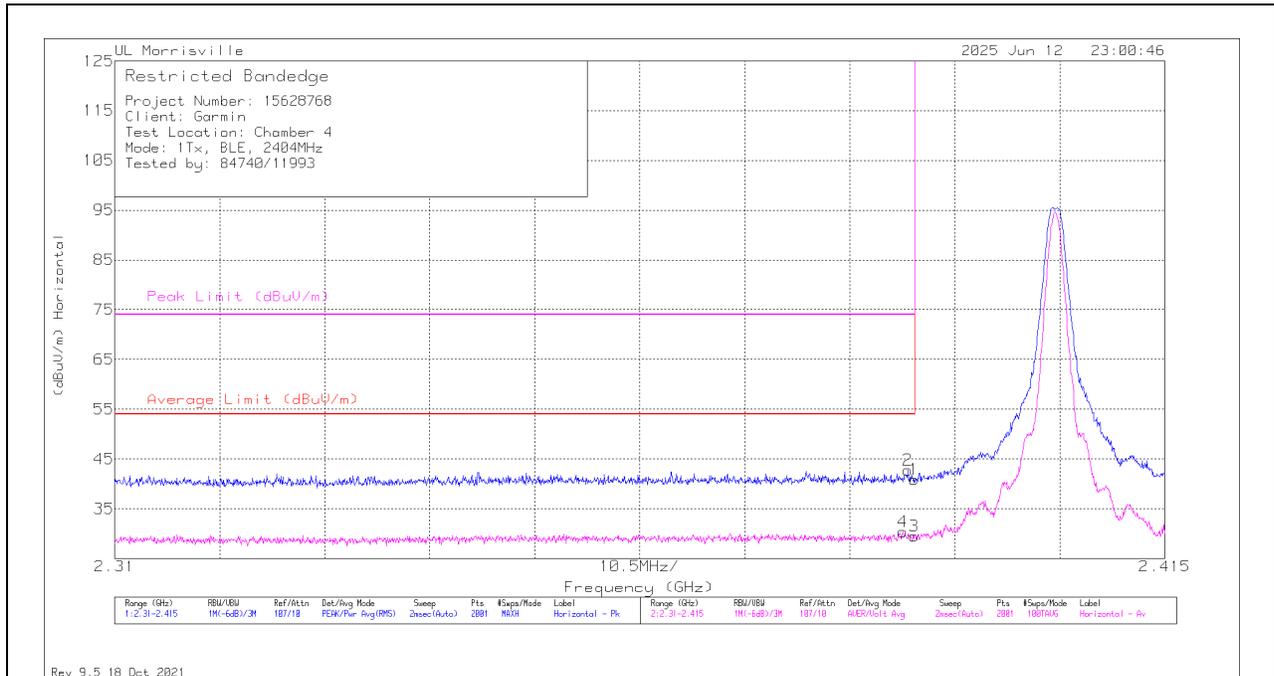


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	31.43	Pk	32	-23.2	40.23	-	-	74	-33.77	28	103	V
2	*** 2.37468	34.8	Pk	31.9	-22.9	43.8	-	-	74	-30.2	28	103	V
3	*** 2.38996	20.52	ADV	32	-23.2	29.32	54	-24.68	-	-	28	103	V
4	*** 2.35904	21.57	ADV	31.9	-23	30.47	54	-23.53	-	-	28	103	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	206211 (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	32.14	Pk	32	-23.2	40.94	-	-	74	-33.06	200	128	H
2	* ** 2.38933	33.98	Pk	32	-23.2	42.78	-	-	74	-31.22	200	128	H
3	* ** 2.38996	20.73	ADV	32	-23.2	29.53	54	-24.47	-	-	200	128	H
4	* ** 2.3888	21.58	ADV	32	-23.2	30.38	54	-23.62	-	-	200	128	H

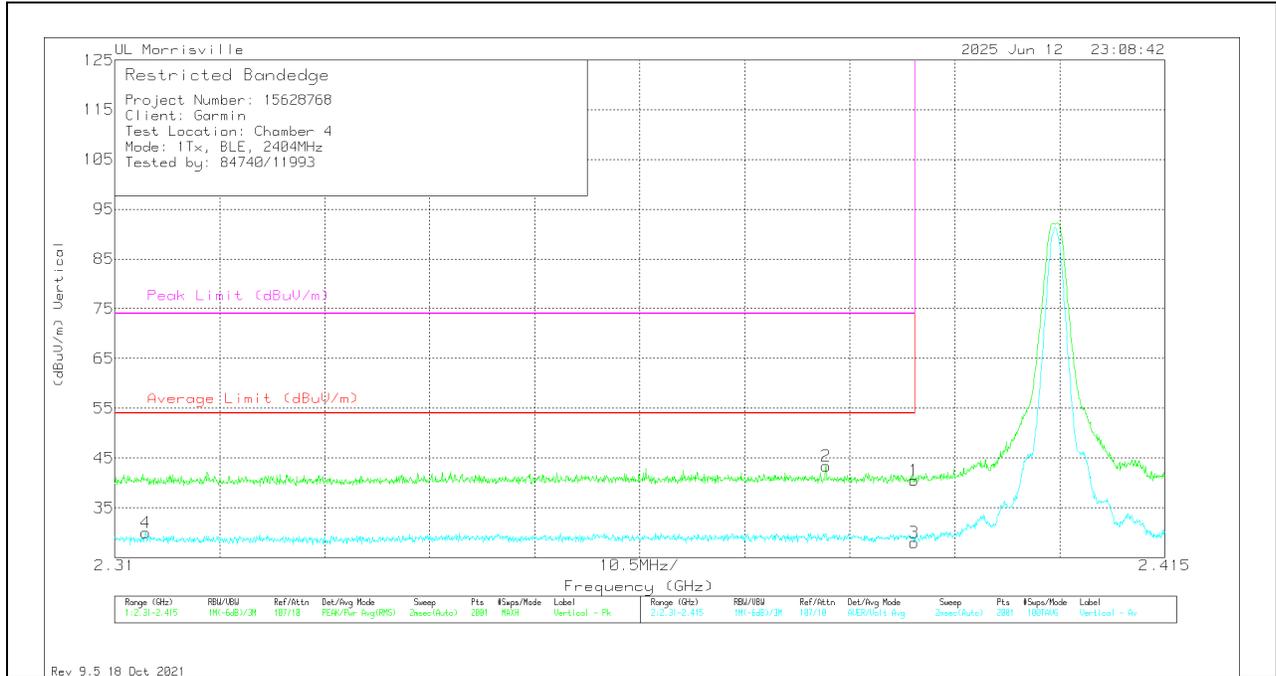
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

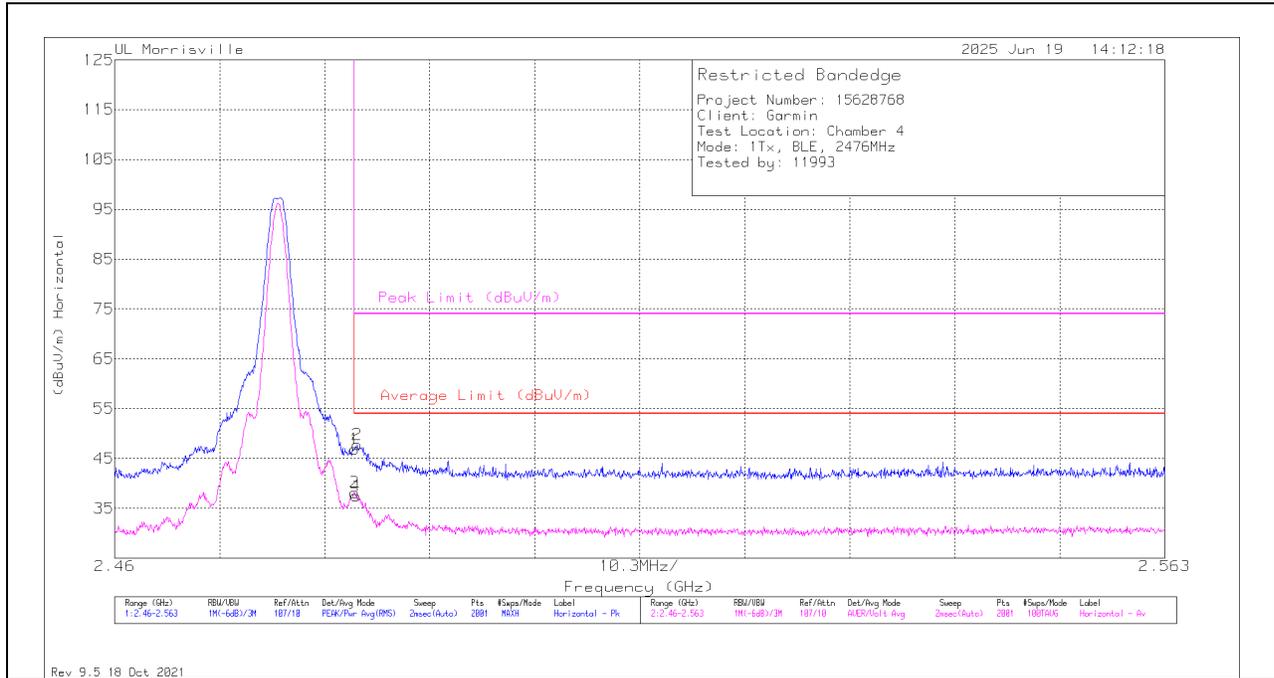


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	31.75	Pk	32	-23.2	40.55	-	-	74	-33.45	181	124	V
2	*** 2.38114	34.51	Pk	32	-23.1	43.41	-	-	74	-30.59	181	124	V
3	*** 2.38996	19.23	ADV	32	-23.2	28.03	54	-25.97	-	-	181	124	V
4	*** 2.3131	21.22	ADV	31.9	-23.1	30.02	54	-23.98	-	-	181	124	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)**

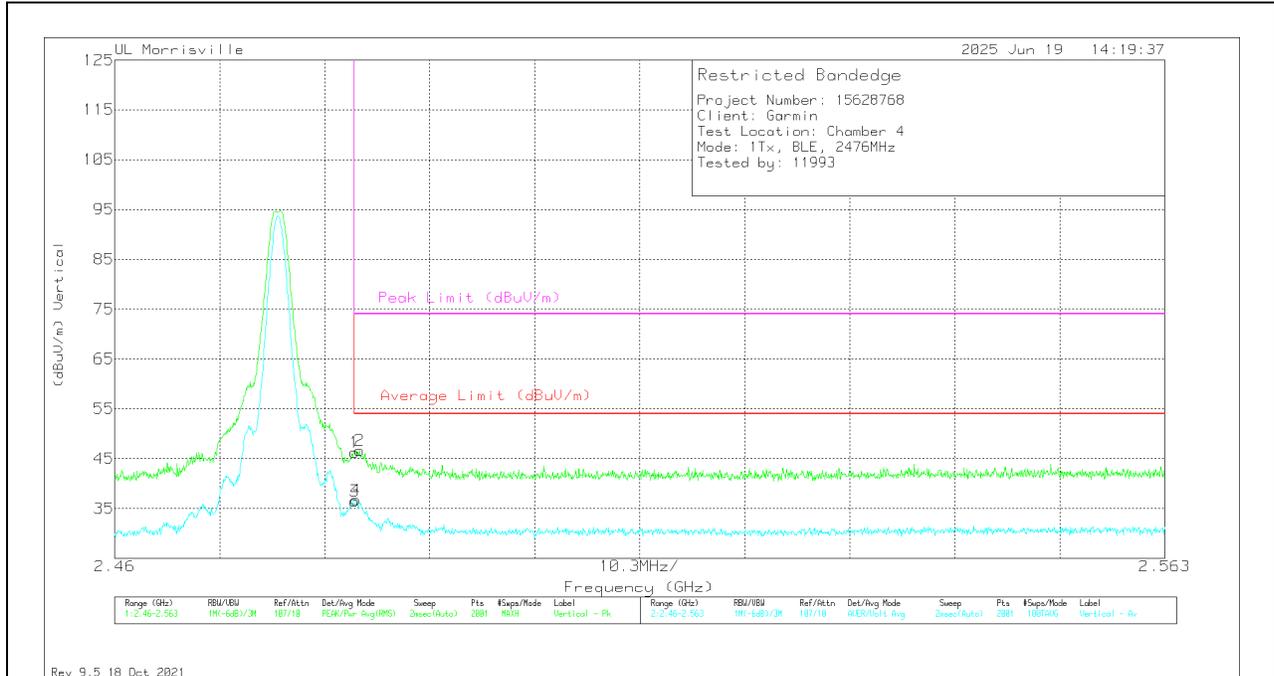
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	37.38	Pk	32.3	-22.8	46.88	-	-	74	-27.12	257	116	H
2	*** 2.48379	38.29	Pk	32.3	-22.8	47.79	-	-	74	-26.21	257	116	H
3	* ** 2.48354	28.63	ADV	32.3	-22.8	38.13	54	-15.87	-	-	257	116	H
4	* ** 2.48364	28.06	ADV	32.3	-22.8	37.56	54	-16.44	-	-	257	116	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	206211 (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	36.8	Pk	32.3	-22.8	46.3	-	-	74	-27.7	28	101	V
2	* ** 2.484	37.14	Pk	32.3	-22.8	46.64	-	-	74	-27.36	28	101	V
3	* ** 2.48354	26.99	ADV	32.3	-22.8	36.49	54	-17.51	-	-	28	100	V
4	* ** 2.48364	27.2	ADV	32.3	-22.8	36.7	54	-17.3	-	-	28	100	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

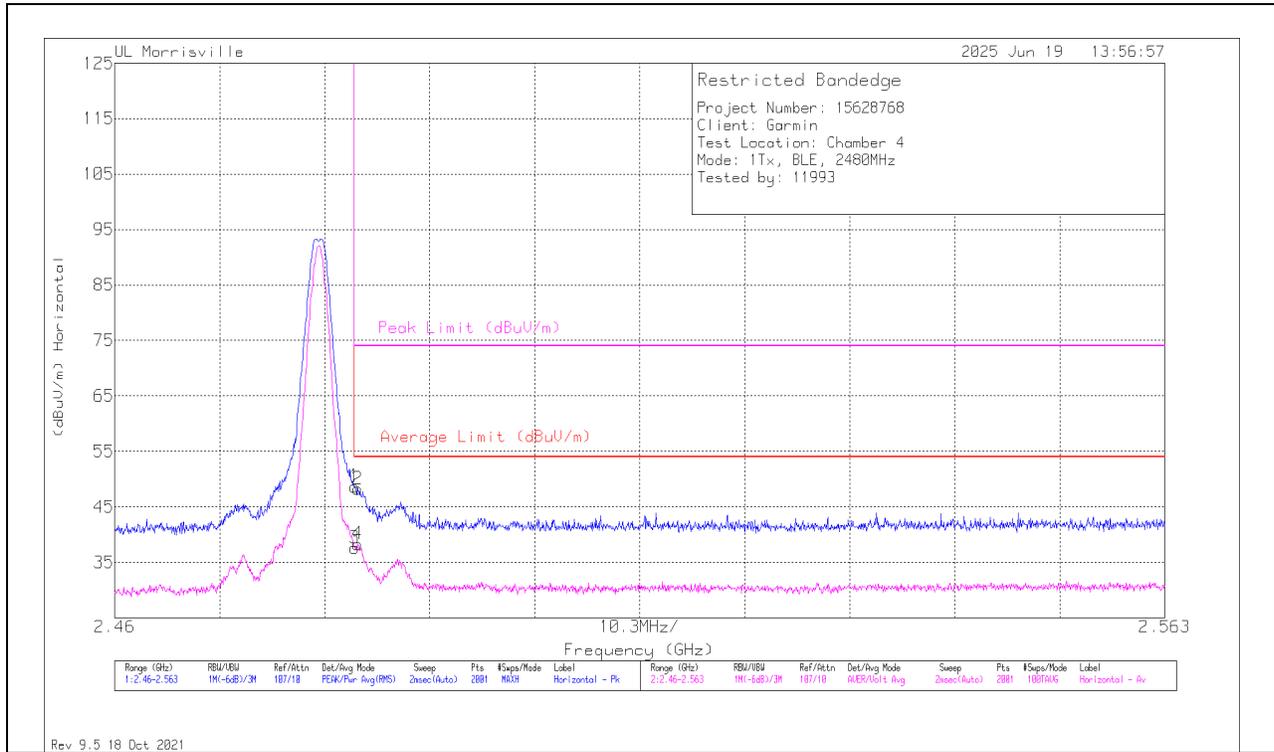
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, 2480 MHz)**

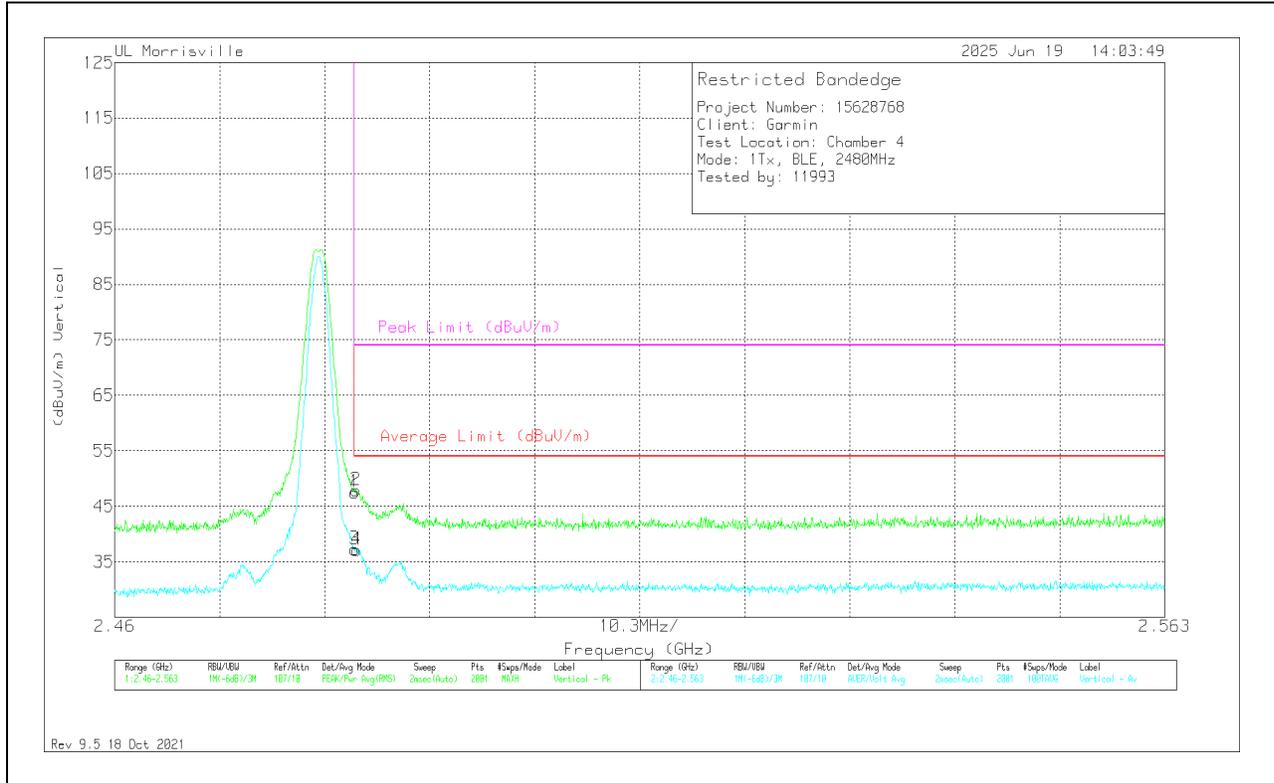
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	39.14	Pk	32.3	-22.8	48.64	-	-	74	-25.36	263	117	H
2	* ** 2.48384	38.71	Pk	32.3	-22.8	48.21	-	-	74	-25.79	263	117	H
3	* ** 2.48354	28.07	ADV	32.3	-22.8	37.57	54	-16.43	-	-	263	117	H
4	* ** 2.48384	28.75	ADV	32.3	-22.8	38.25	54	-15.75	-	-	263	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	206211 (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	Pk	32.3	-22.8	47.5	-	-	74	-26.5	28	101	V
2	* ** 2.48364	38.35	Pk	32.3	-22.8	47.85	-	-	74	-26.15	28	101	V
3	* ** 2.48354	27.81	ADV	32.3	-22.8	37.31	54	-16.69	-	-	28	100	V
4	* ** 2.48374	27.61	ADV	32.3	-22.8	37.11	54	-16.89	-	-	28	100	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

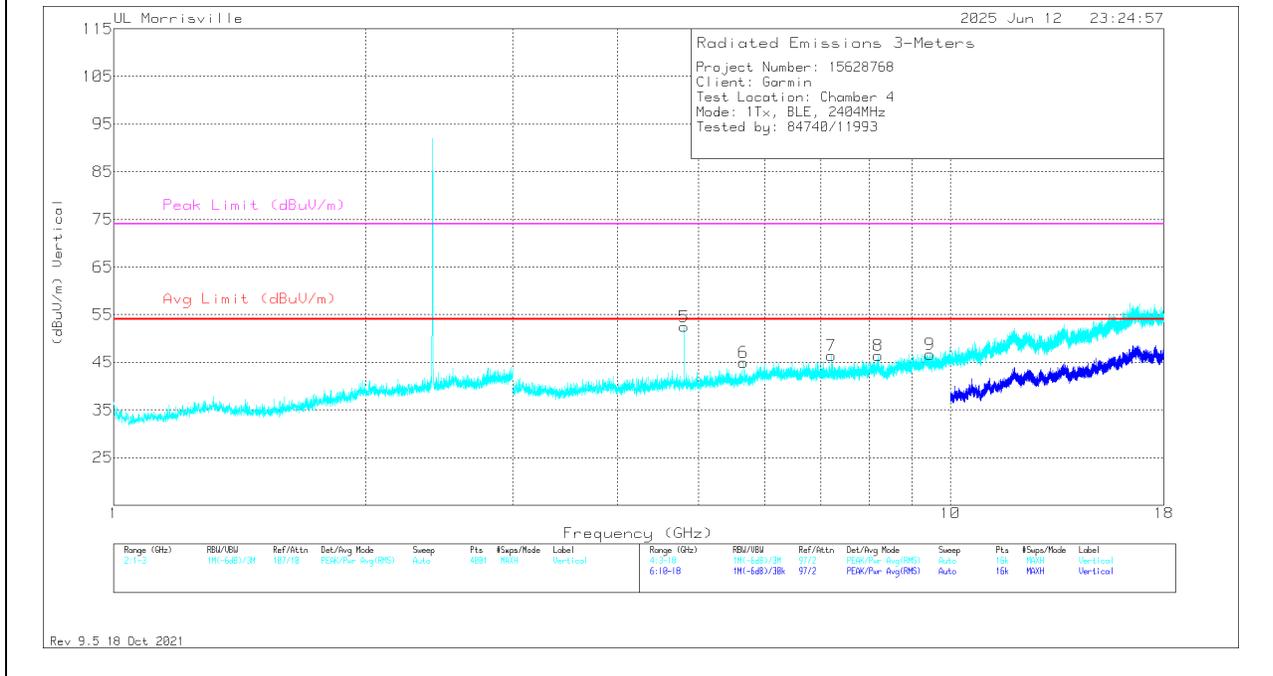
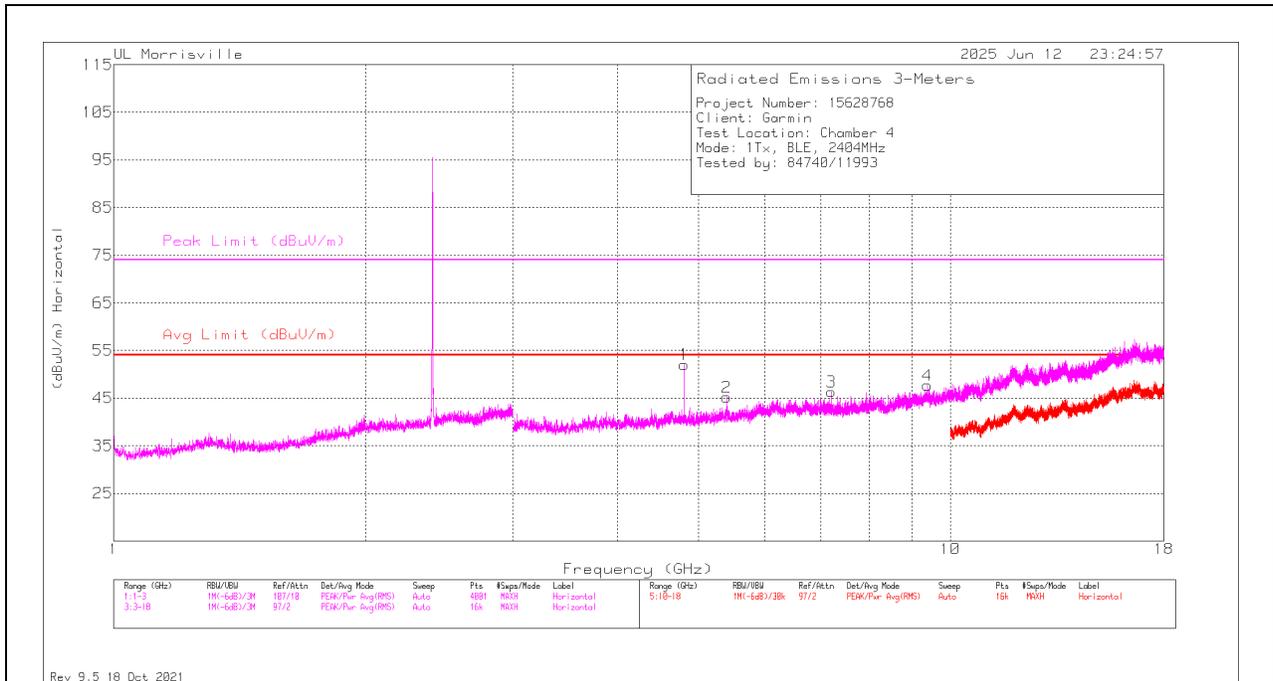
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL, 2404 MHz, RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	* ** 4.80858	52.29	PK2	33.9	-31.3	54.89	-	-	74	-19.11	114	106	H
	* ** 4.80844	39.84	ADV	33.9	-31.3	42.44	54	-11.56	-	-	114	106	H
2	* ** 5.40094	40.27	Pk	34.4	-29.5	45.17	54	-8.83	74	-28.83	0-360	100	H
4	* ** 9.39281	35.96	Pk	36.5	-24.8	47.66	54	-6.34	74	-26.34	0-360	100	H
5	* ** 4.80861	48.96	PK2	33.9	-31.3	51.56	-	-	74	-22.44	241	209	V
	* ** 4.8082	36.75	ADV	33.9	-31.3	39.35	54	-14.65	-	-	241	209	V
8	* ** 8.20594	37.1	Pk	35.7	-26.4	46.4	54	-7.6	74	-27.6	0-360	200	V
9	* ** 9.45375	35.45	Pk	36.5	-25.3	46.65	54	-7.35	74	-27.35	0-360	200	V
6	5.65781	39.52	Pk	34.4	-28.9	45.02	54	-8.98	74	-28.98	0-360	200	V
3	7.21219	38.74	Pk	35.5	-27.9	46.34	54	-7.66	74	-27.66	0-360	100	H
7	7.21219	38.76	Pk	35.5	-27.9	46.36	54	-7.64	74	-27.64	0-360	200	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

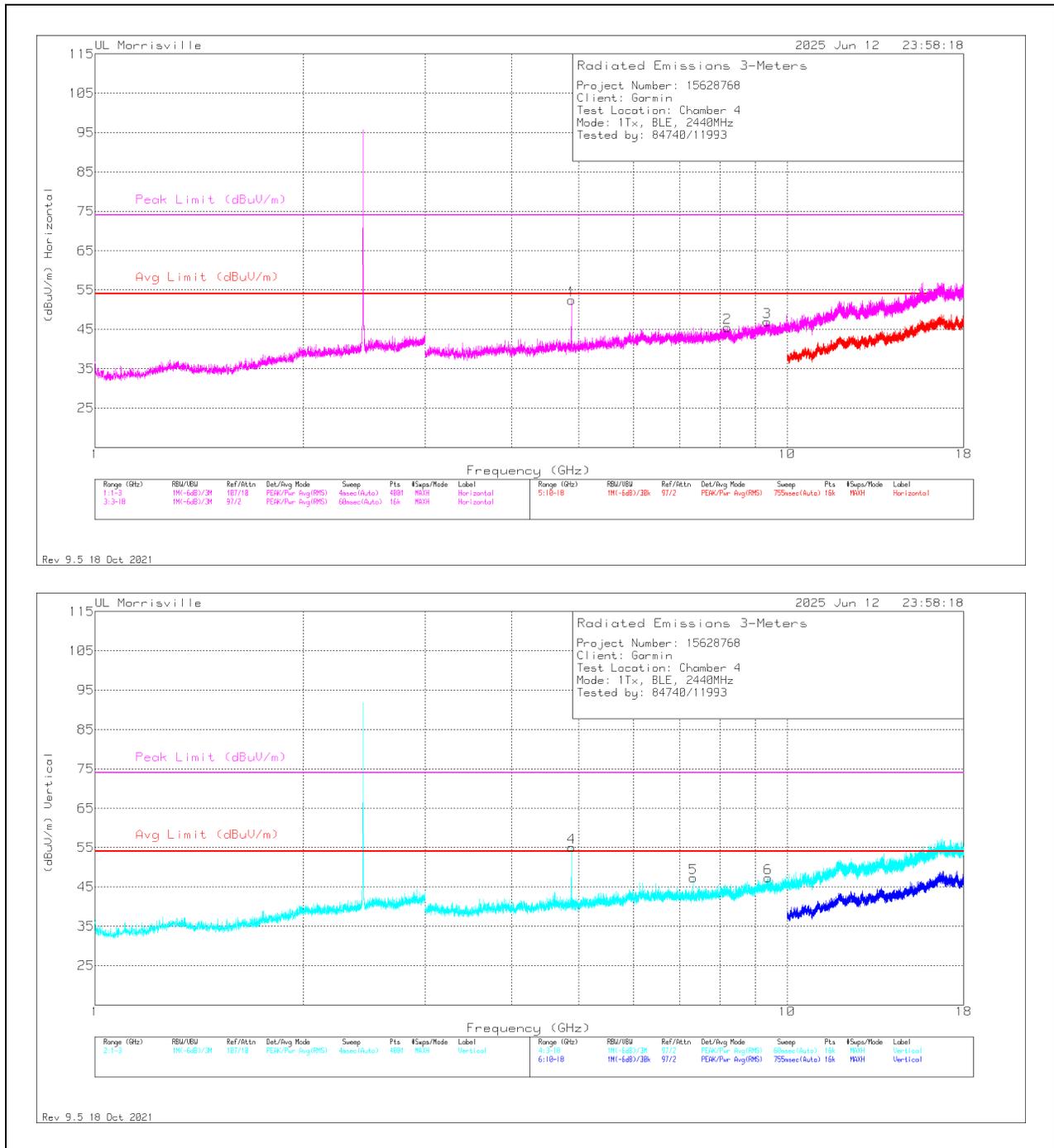
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

### MID CHANNEL, 2440 MHz, RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	* ** 4.88038	53.74	PK2	33.9	-31	56.64	-	-	74	-17.36	79	125	H
	* ** 4.88031	41.44	ADV	33.9	-31	44.34	54	-9.66	-	-	79	125	H
2	* ** 8.19375	36.06	Pk	35.7	-26.3	45.46	54	-8.54	74	-28.54	0-360	100	H
3	* ** 9.35906	35.03	Pk	36.4	-24.5	46.93	54	-7.07	74	-27.07	0-360	100	H
4	* ** 4.88057	49.47	PK2	33.9	-31	52.37	-	-	74	-21.63	221	191	V
	* ** 4.87981	36.64	ADV	33.9	-31	39.54	54	-14.46	-	-	221	191	V
5	* ** 7.32094	39.51	Pk	35.5	-27.7	47.31	54	-6.69	74	-26.69	0-360	200	V
6	* ** 9.39469	35.53	Pk	36.5	-24.7	47.33	54	-6.67	74	-26.67	0-360	200	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

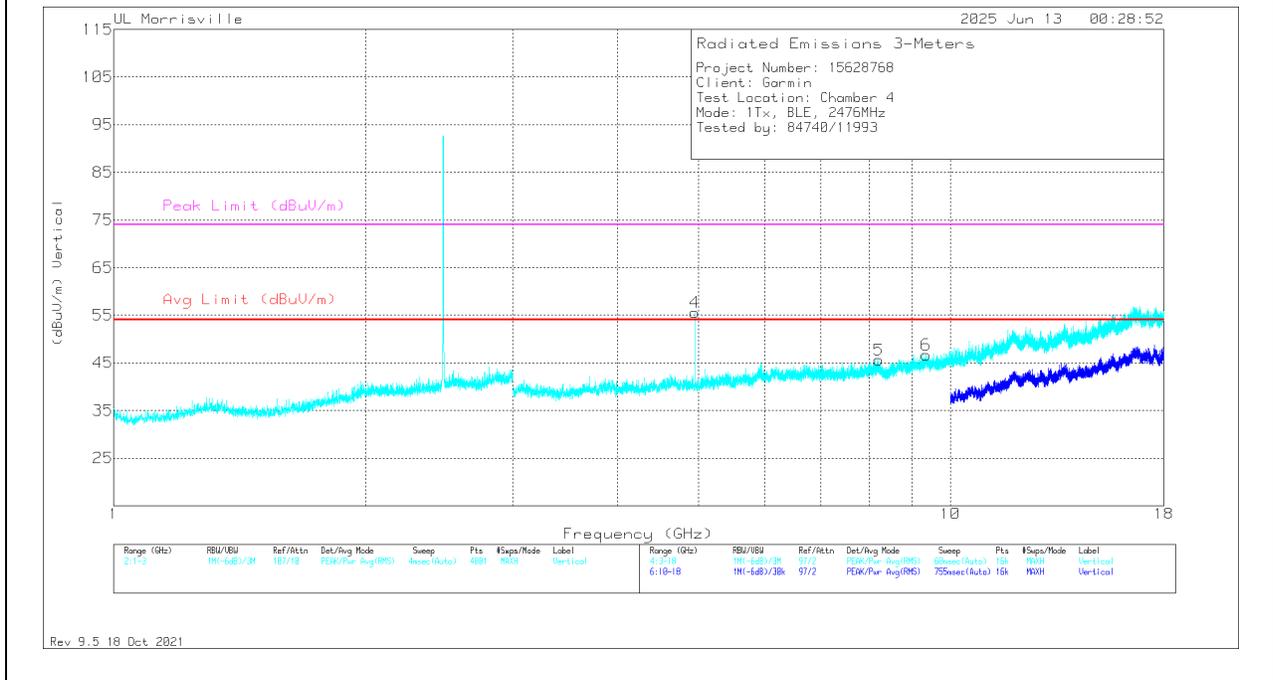
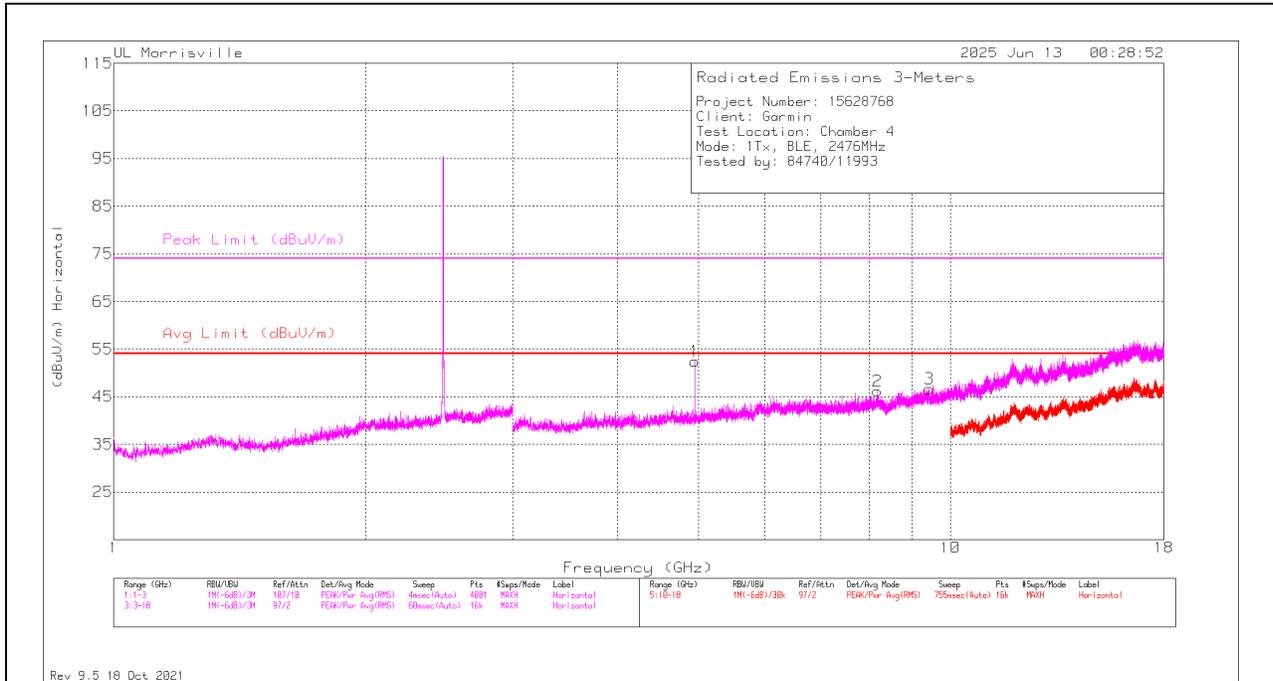
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

### HIGH CHANNEL, 2476 MHz, RESULTS



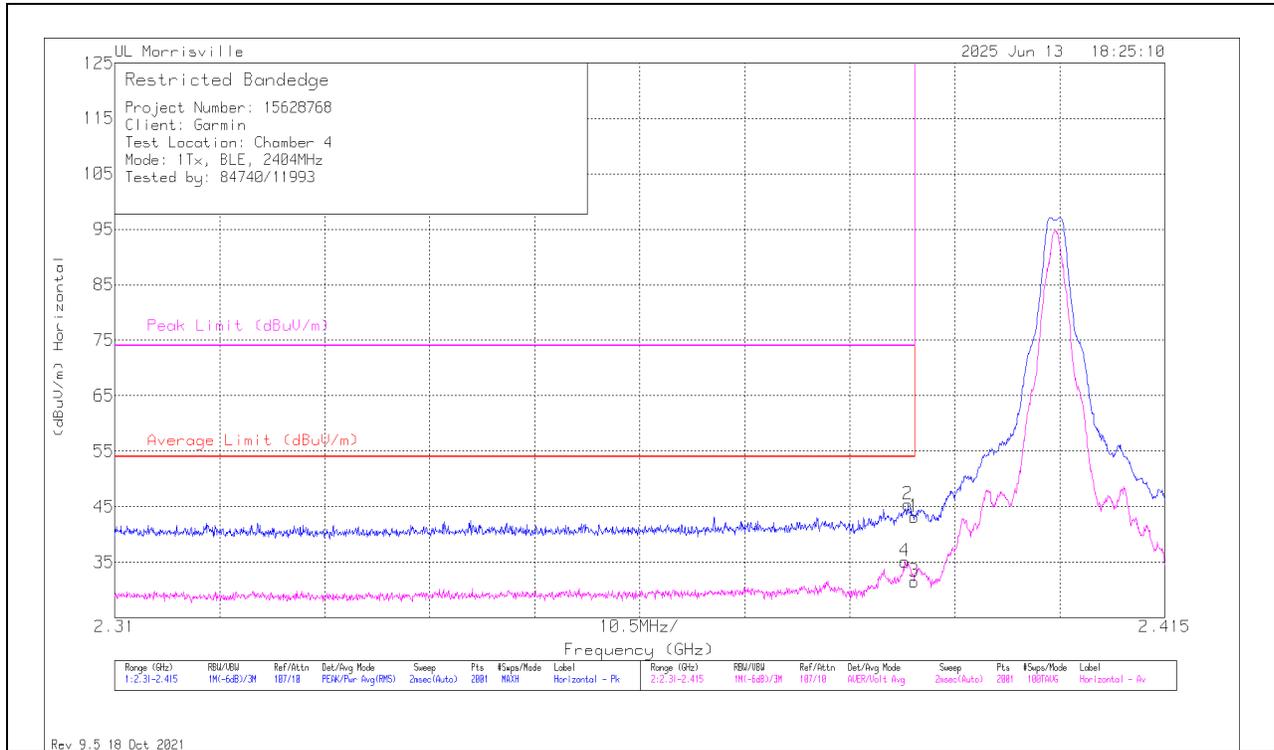
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.95148	52.39	PK2	33.8	-31	55.19	-	-	74	-18.81	114	121	H
	* ** 4.9522	40.93	ADV	33.8	-31	43.73	54	-10.27	-	-	114	121	H
2	* ** 8.18063	36.81	Pk	35.7	-26.3	46.21	54	-7.79	74	-27.79	0-360	100	H
3	* ** 9.44063	35.26	Pk	36.5	-25.1	46.66	54	-7.34	74	-27.34	0-360	100	H
4	* ** 4.95163	53.25	PK2	33.8	-31	56.05	-	-	74	-17.95	275	113	V
	* ** 4.9522	41.44	ADV	33.8	-31	44.24	54	-9.76	-	-	275	113	V
5	* ** 8.21813	36.17	Pk	35.7	-26.3	45.57	54	-8.43	74	-28.43	0-360	200	V
6	* ** 9.36469	34.85	Pk	36.4	-24.6	46.65	54	-7.35	74	-27.35	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 - Maximum Peak  
 ADV - Linear Voltage Average

### 10.2.2. BLE (2Mbps)

### BANDEDGE (LOW CHANNEL, 2404 MHz)

### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	34.33	Pk	32	-23.2	43.13	-	-	74	-30.87	173	119	H
2	*** 2.38933	36.59	Pk	32	-23.2	45.39	-	-	74	-28.61	173	119	H
3	*** 2.38996	22.71	ADV	32	-23.2	31.51	54	-22.49	-	-	173	119	H
4	*** 2.38901	26.34	ADV	32	-23.2	35.14	54	-18.86	-	-	173	119	H

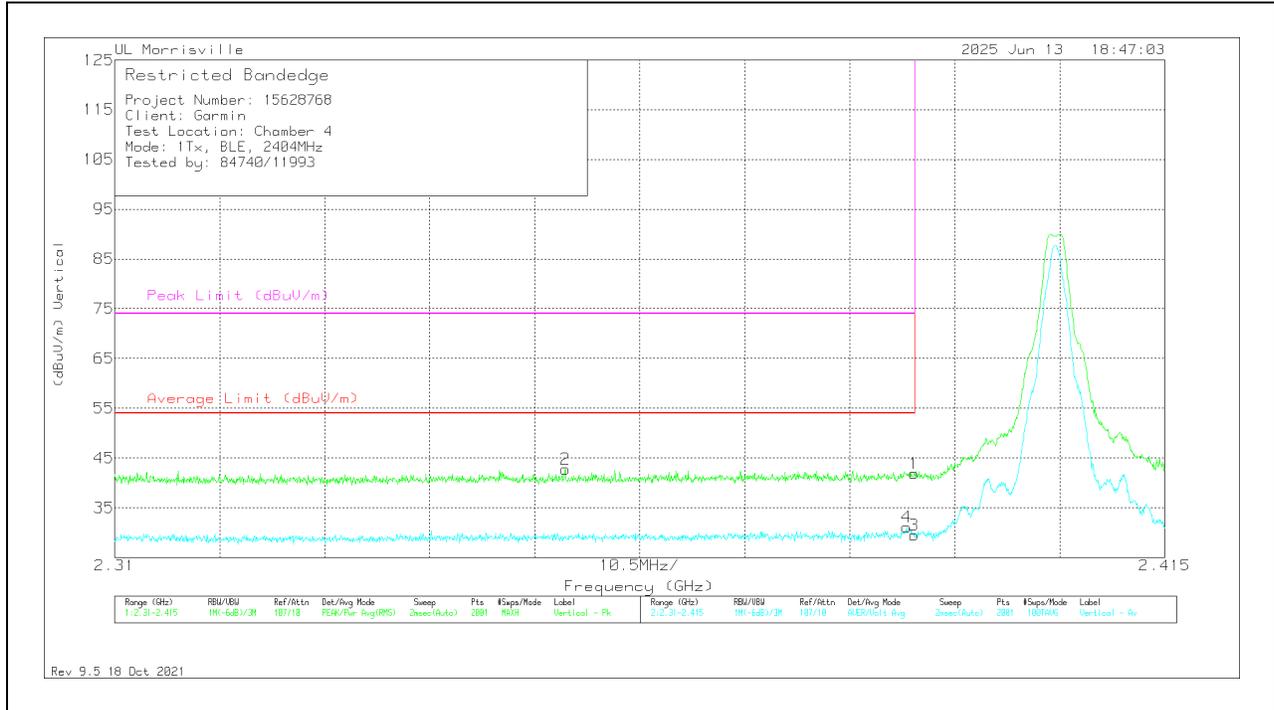
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

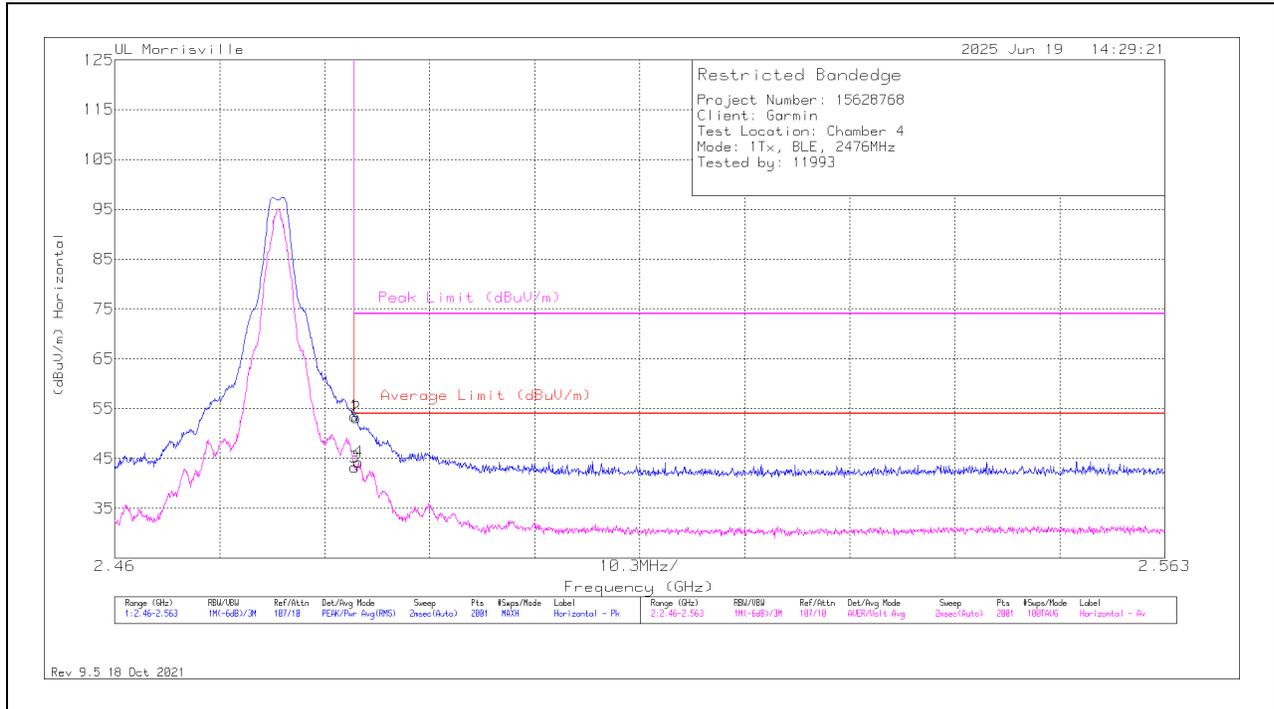


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	33.05	Pk	32	-23.2	41.85	-	-	74	-32.15	29	217	V
2	* ** 2.35505	33.85	Pk	31.9	-23	42.75	-	-	74	-31.25	29	217	V
3	* ** 2.38996	20.69	ADV	32	-23.2	29.49	54	-24.51	-	-	29	217	V
4	* ** 2.38917	22.36	ADV	32	-23.2	31.16	54	-22.84	-	-	29	217	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)**

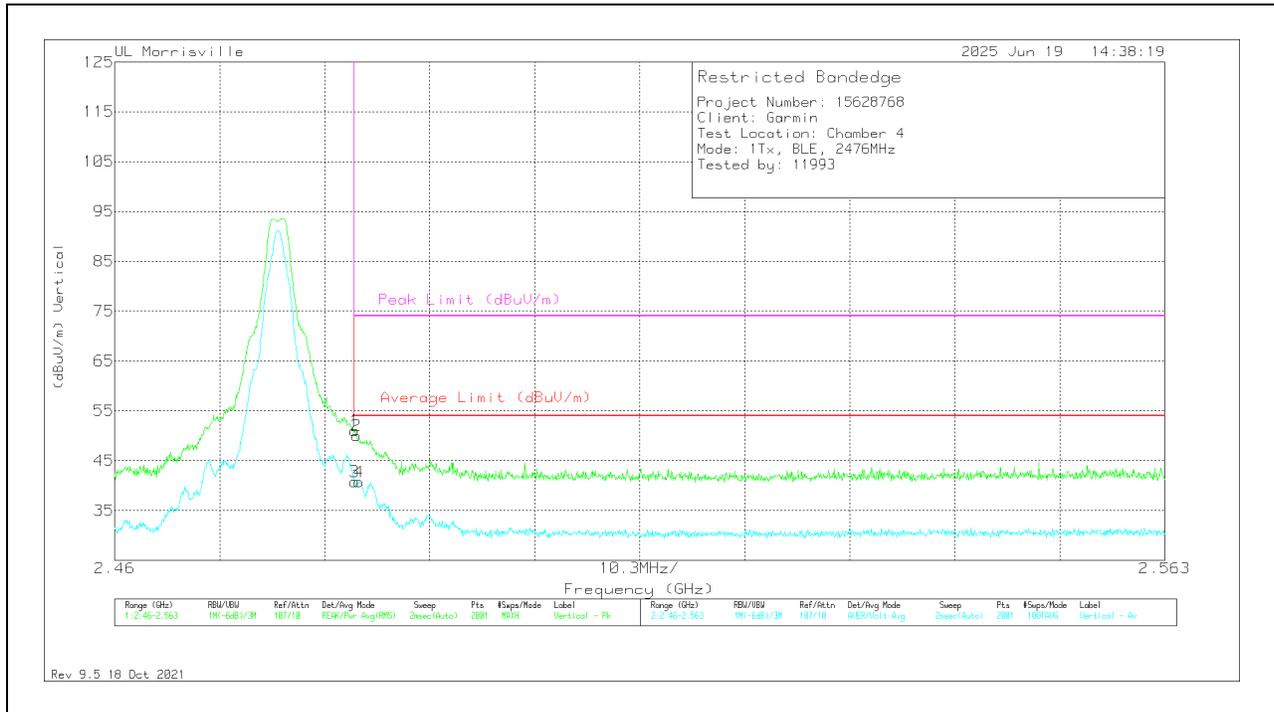
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	44.01	Pk	32.3	-22.8	53.51	-	-	74	-20.49	258	116	H
2	* ** 2.48369	43.61	Pk	32.3	-22.8	53.11	-	-	74	-20.89	258	116	H
3	* ** 2.48354	33.77	ADV	32.3	-22.8	43.27	54	-10.73	-	-	258	116	H
4	* ** 2.4839	34.73	ADV	32.3	-22.8	44.23	54	-9.77	-	-	258	116	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	206211 (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	41.54	Pk	32.3	-22.8	51.04	-	-	74	-22.96	28	101	V
2	* ** 2.48374	40.51	Pk	32.3	-22.8	50.01	-	-	74	-23.99	28	101	V
3	* ** 2.48354	31.29	ADV	32.3	-22.8	40.79	54	-13.21	-	-	28	100	V
4	* ** 2.48395	31.21	ADV	32.3	-22.8	40.71	54	-13.29	-	-	28	100	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

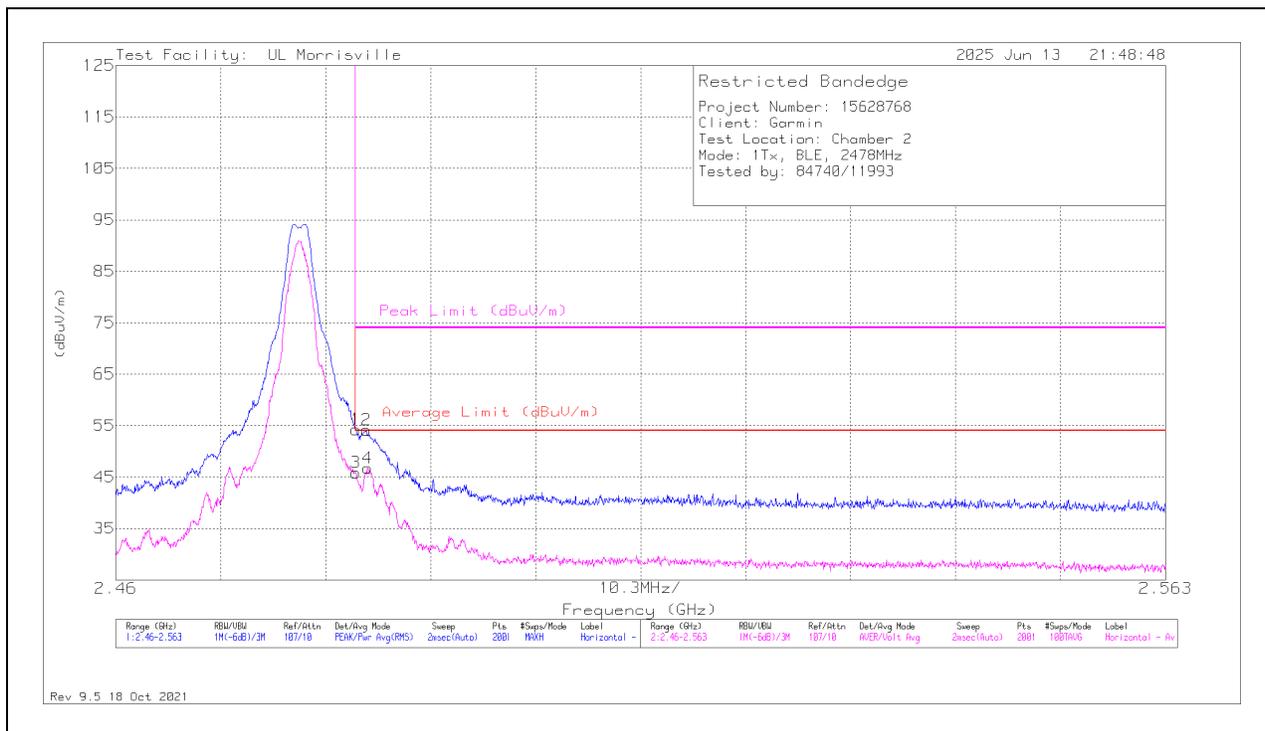
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, 2478 MHz)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	47.24	Pk	32.5	-25.5	54.24	-	-	74	-19.76	203	144	H
2	* ** 2.48457	47.23	Pk	32.5	-25.6	54.13	-	-	74	-19.87	203	144	H
3	* ** 2.48354	38.85	ADV	32.5	-25.5	45.85	54	-8.15	-	-	203	144	H
4	* ** 2.48472	39.84	ADV	32.5	-25.6	46.74	54	-7.26	-	-	203	144	H

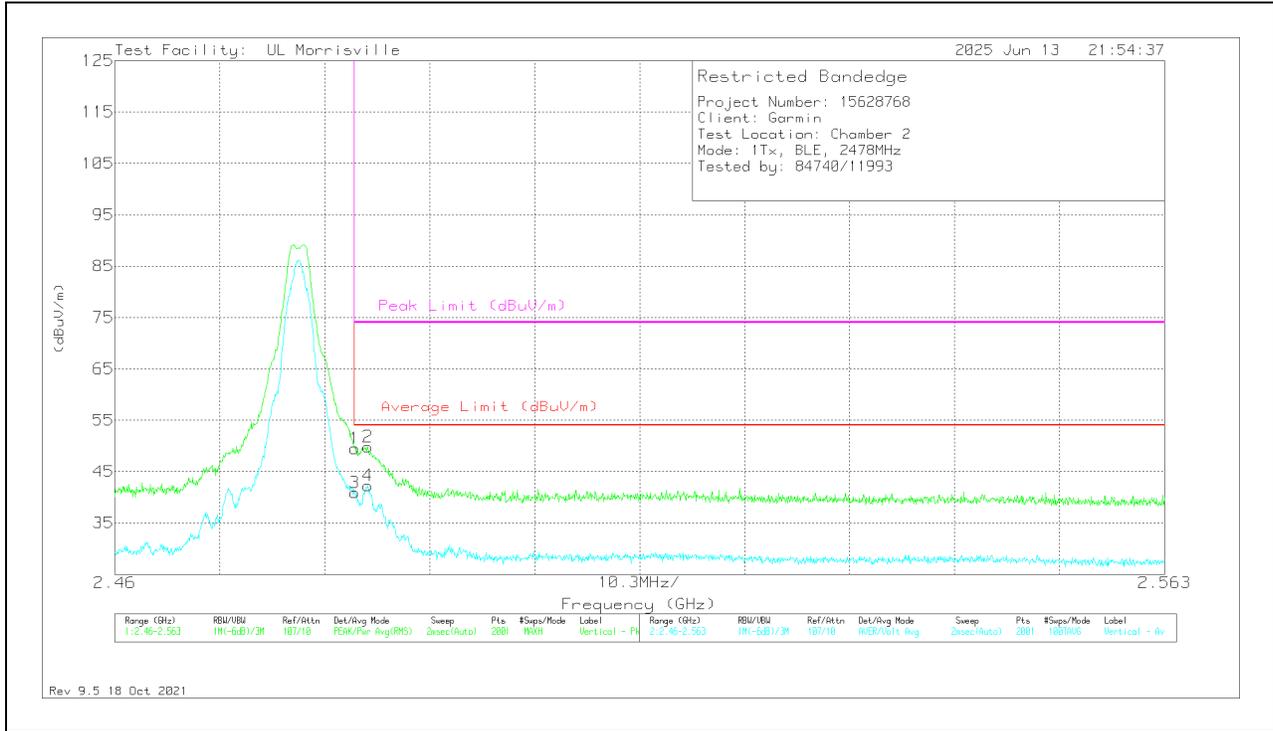
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

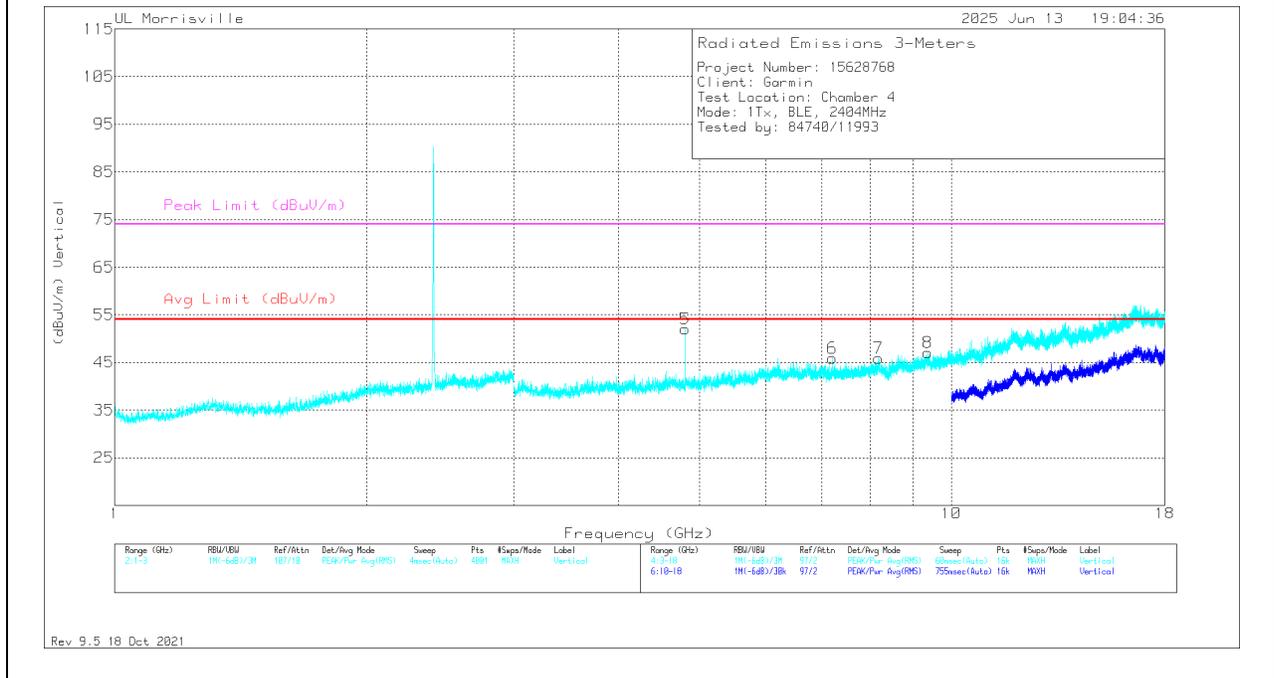
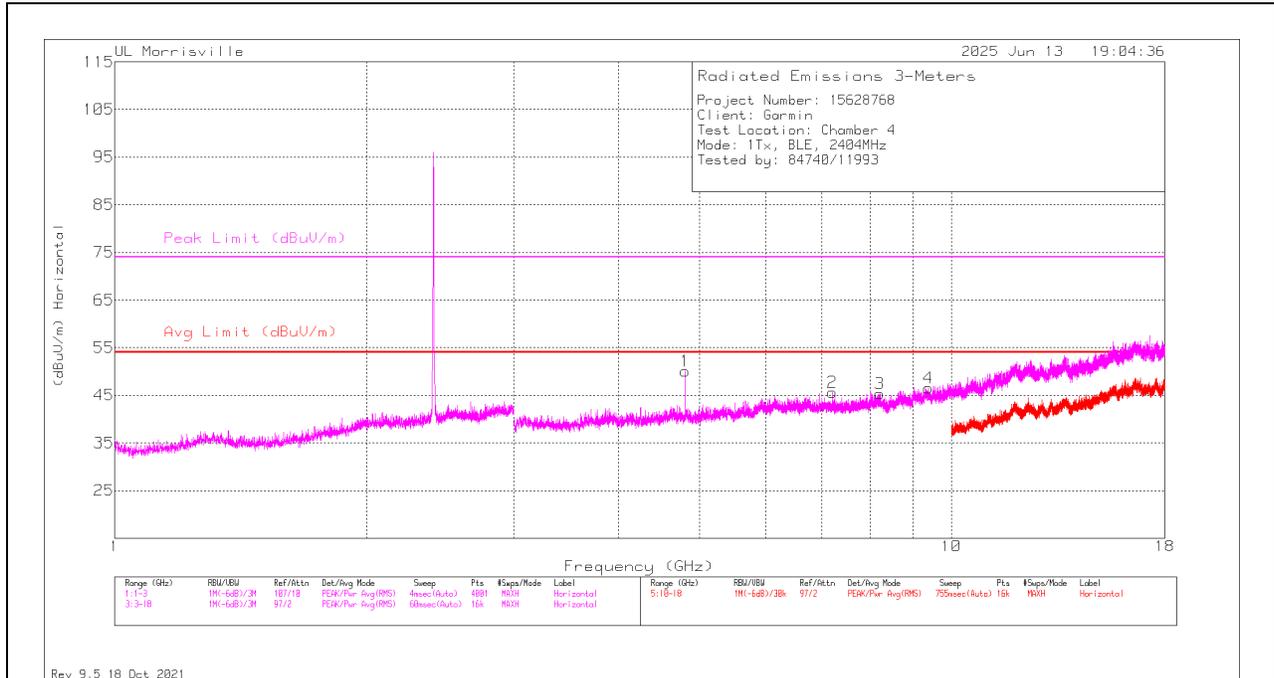


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	42.5	Pk	32.5	-25.5	49.5	-	-	74	-24.5	82	386	V
2	*** 2.48482	42.9	Pk	32.5	-25.6	49.8	-	-	74	-24.2	82	386	V
3	*** 2.48354	33.9	ADV	32.5	-25.5	40.9	54	-13.1	-	-	82	386	V
4	*** 2.48482	35.37	ADV	32.5	-25.6	42.27	54	-11.73	-	-	82	386	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



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	*** 4.80886	50.44	PK2	33.9	-31.3	53.04	-	-	74	-20.96	108	102	H
	*** 4.80903	36.65	ADV	33.9	-31.3	39.25	54	-14.75	-	-	108	102	H
3	*** 8.20781	36.11	Pk	35.7	-26.4	45.41	54	-8.59	74	-28.59	0-360	100	H
4	*** 9.38438	35.06	Pk	36.5	-25	46.56	54	-7.44	74	-27.44	0-360	100	H
5	*** 4.80883	48.84	PK2	33.9	-31.3	51.44	-	-	74	-22.56	217	254	V
	*** 4.80887	35.29	ADV	33.9	-31.3	37.89	54	-16.11	-	-	217	254	V
7	*** 8.18625	36.4	Pk	35.7	-26.2	45.9	54	-8.1	74	-28.1	0-360	200	V
8	*** 9.36938	35.4	Pk	36.4	-24.7	47.1	54	-6.9	74	-26.9	0-360	200	V
6	7.21031	38.33	Pk	35.5	-27.9	45.93	54	-8.07	74	-28.07	0-360	200	V
2	7.21125	38	Pk	35.5	-27.9	45.6	54	-8.4	74	-28.4	0-360	100	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

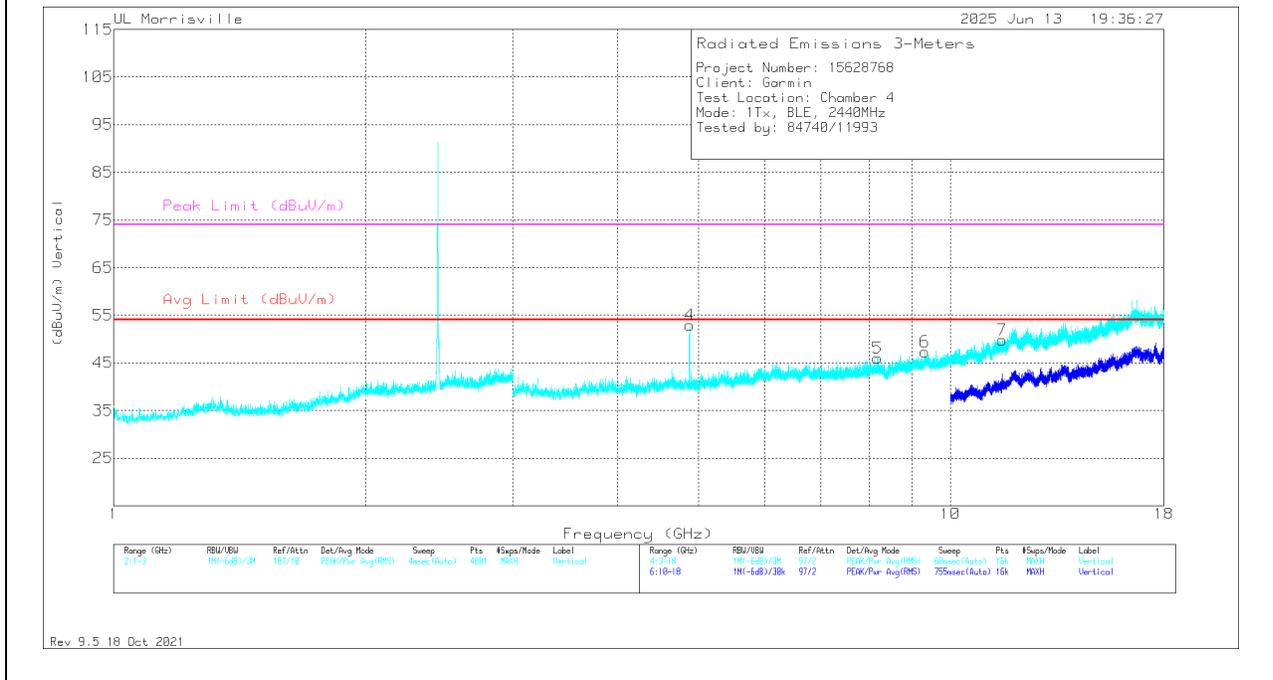
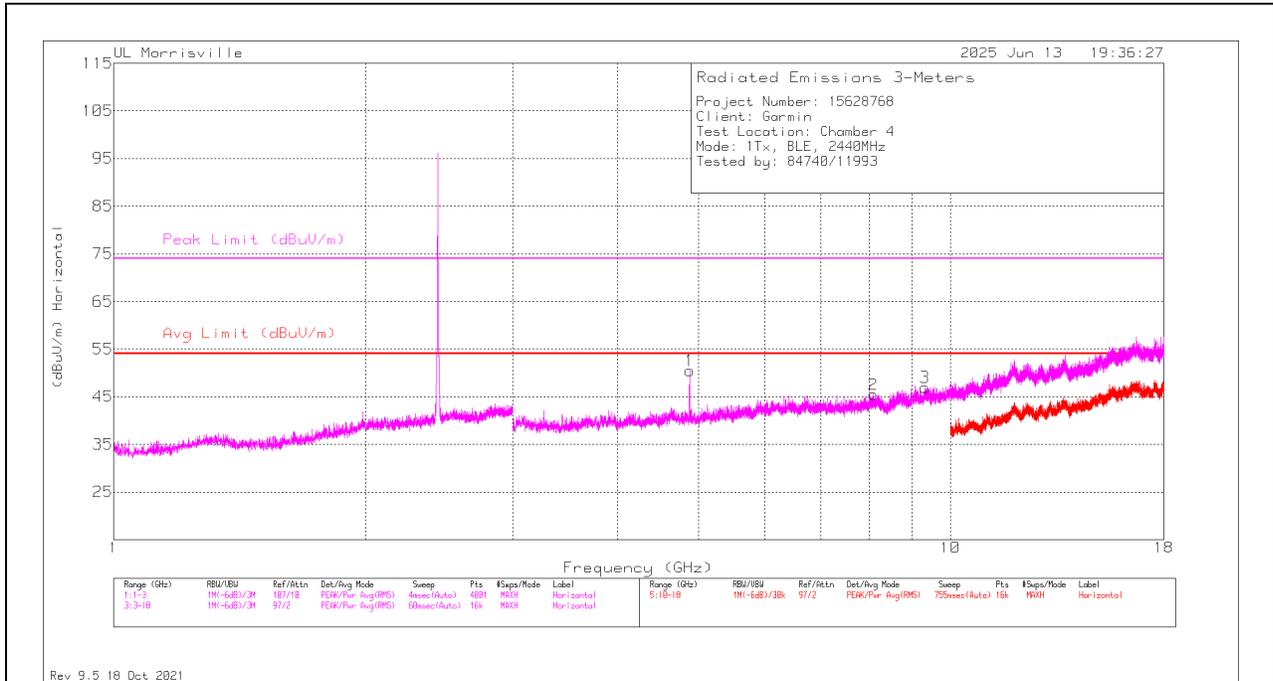
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

### MID CHANNEL, 2440 MHz, RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	*** 4.88093	51.63	PK2	33.9	-31	54.53	-	-	74	-19.47	116	115	H
	*** 4.87903	38.33	ADV	33.9	-31	41.23	54	-12.77	-	-	116	115	H
2	*** 8.09438	36.74	Pk	35.6	-26.9	45.44	54	-8.56	74	-28.56	0-360	100	H
3	*** 9.33281	34.59	Pk	36.4	-24.1	46.89	54	-7.11	74	-27.11	0-360	100	H
4	*** 4.87916	49.84	PK2	33.9	-31	52.74	-	-	74	-21.26	234	202	V
	*** 4.8791	36.36	ADV	33.9	-31	39.26	54	-14.74	-	-	234	202	V
5	*** 8.18625	36.53	Pk	35.7	-26.2	46.03	54	-7.97	74	-27.97	0-360	200	V
6	*** 9.32906	35.15	Pk	36.4	-24.2	47.35	54	-6.65	74	-26.65	0-360	200	V
7	*** 11.54465	34.16	PK2	38.1	-21.6	50.66	-	-	74	-23.34	149	187	V
	*** 11.545	21.91	ADV	38.1	-21.6	38.41	54	-15.59	-	-	149	187	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

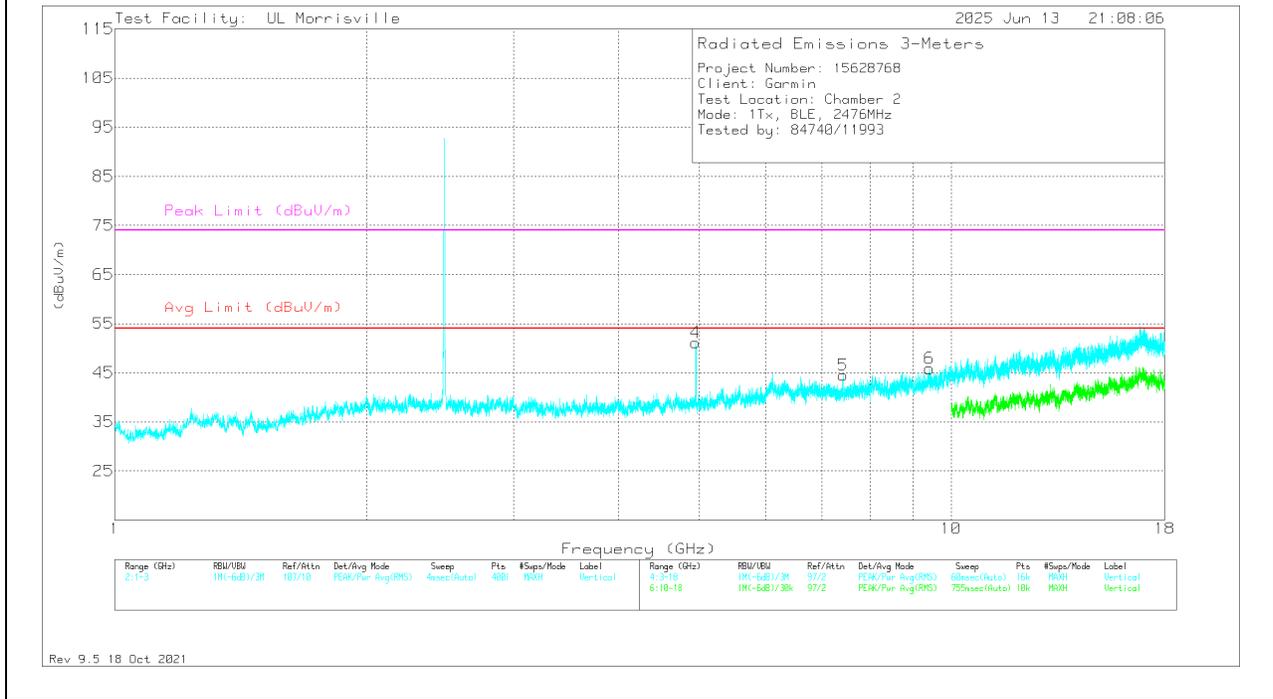
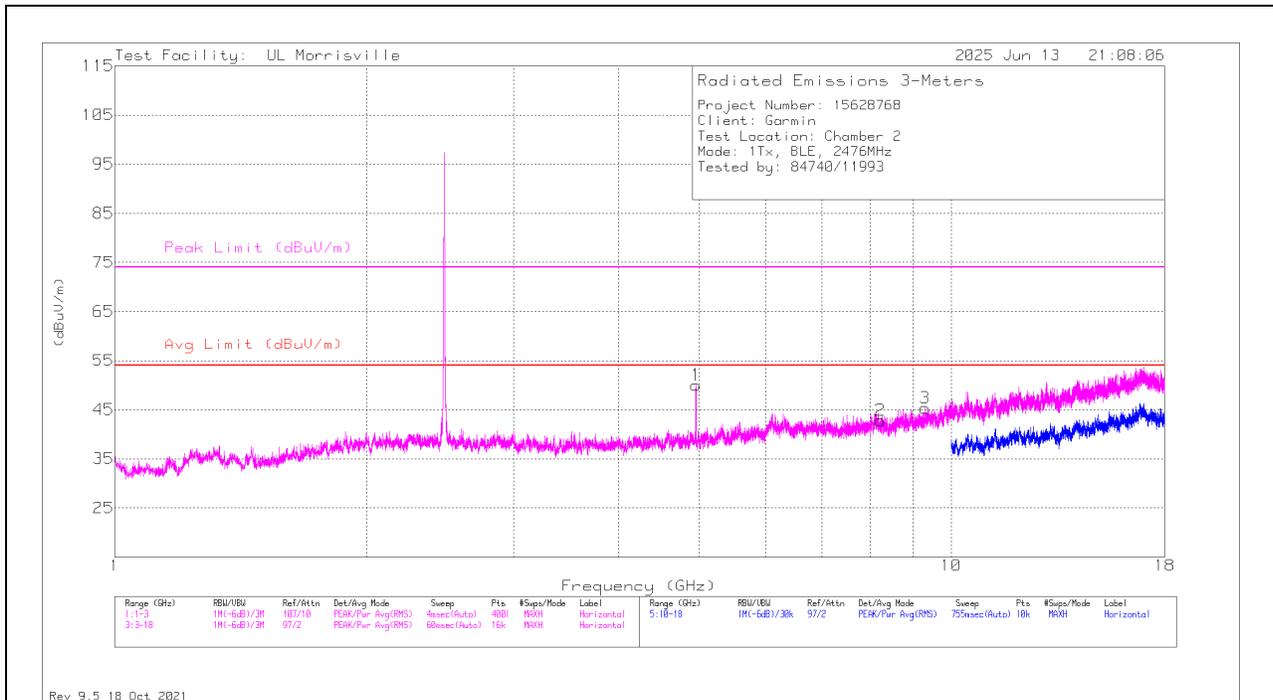
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

### HIGH CHANNEL, 2476 MHz, RESULTS



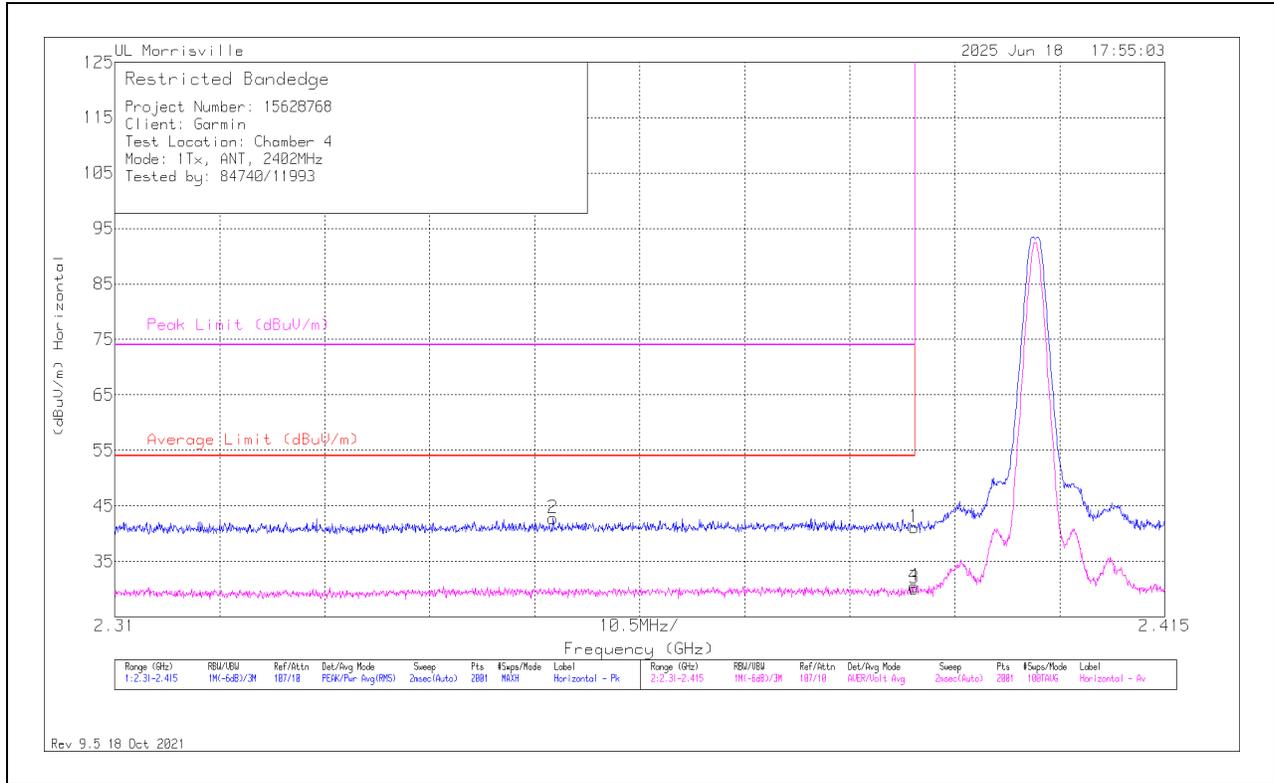
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.95117	65.69	PK2	34	-45.5	54.19	-	-	74	-19.81	98	136	H
	*** 4.951	53.95	ADV	34	-45.5	42.45	54	-11.55	-	-	98	136	H
2	*** 8.22938	49.1	Pk	35.8	-42.1	42.8	54	-11.2	74	-31.2	0-360	200	H
3	*** 9.3075	49.94	Pk	36.1	-40.7	45.34	54	-8.66	74	-28.66	0-360	101	H
4	*** 4.95105	66.75	PK2	34	-45.5	55.25	-	-	74	-18.75	285	109	V
	*** 4.9511	53.87	ADV	34	-45.5	42.37	54	-11.63	-	-	285	109	V
5	*** 7.42688	50.79	Pk	35.6	-41.9	44.49	54	-9.51	74	-29.51	0-360	200	V
6	*** 9.41906	51.15	Pk	36.2	-41.5	45.85	54	-8.15	74	-28.15	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 - Maximum Peak  
 ADV - Linear Voltage Average

**10.2.3. ANT/ANT+**

**BANDEDGE (LOW CHANNEL, 2402 MHz)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	32.31	Pk	32	-23.2	41.11	-	-	74	-32.89	191	146	H
2	*** 2.35384	33.98	Pk	31.8	-23	42.78	-	-	74	-31.22	191	146	H
3	** 2.38996	21.35	ADV	32	-23.2	30.15	54	-23.85	-	-	191	146	H
4	** 2.38991	21.74	ADV	32	-23.2	30.54	54	-23.46	-	-	191	146	H

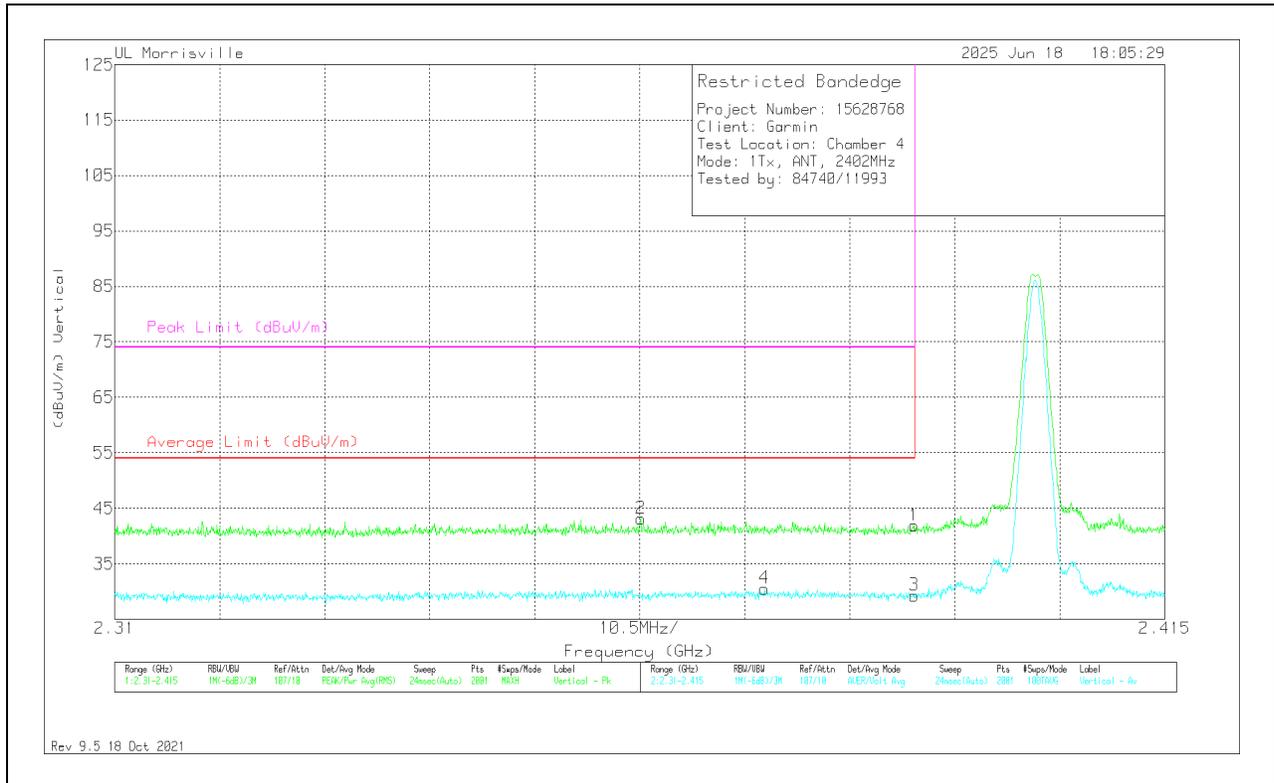
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	33.03	Pk	32	-23.2	41.83	-	-	74	-32.17	9	150	V
2	* ** 2.36261	34.19	Pk	31.9	-23	43.09	-	-	74	-30.91	9	150	V
3	* ** 2.38996	20.45	ADV	32	-23.2	29.25	54	-24.75	-	-	9	150	V
4	* ** 2.37494	21.52	ADV	31.9	-22.9	30.52	54	-23.48	-	-	9	150	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

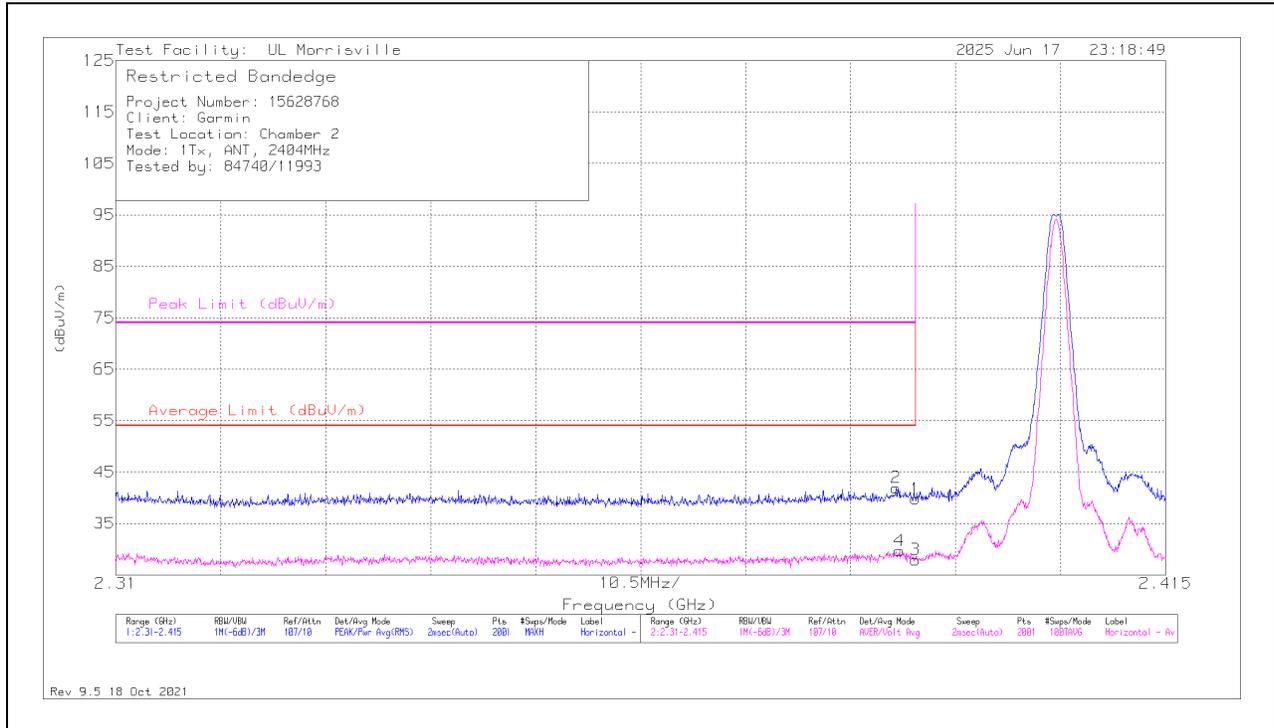
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (LOW CHANNEL, 2404 MHz)**

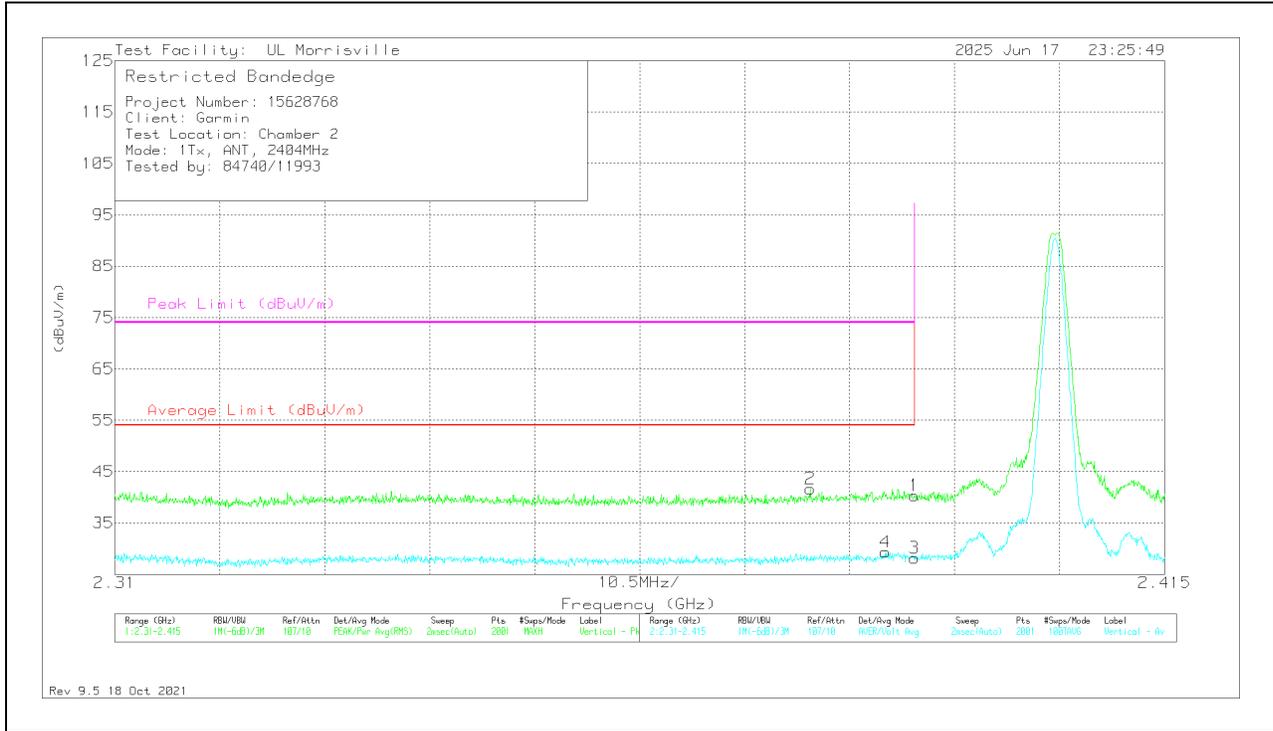
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	32.58	Pk	32.3	-25.1	39.78	-	-	74	-34.22	232	289	H
2	*** 2.38802	34.63	Pk	32.3	-25	41.93	-	-	74	-32.07	232	289	H
3	*** 2.38996	20.75	ADV	32.3	-25.1	27.95	54	-26.05	-	-	232	289	H
4	*** 2.38838	22.39	ADV	32.3	-25	29.69	54	-24.31	-	-	232	289	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

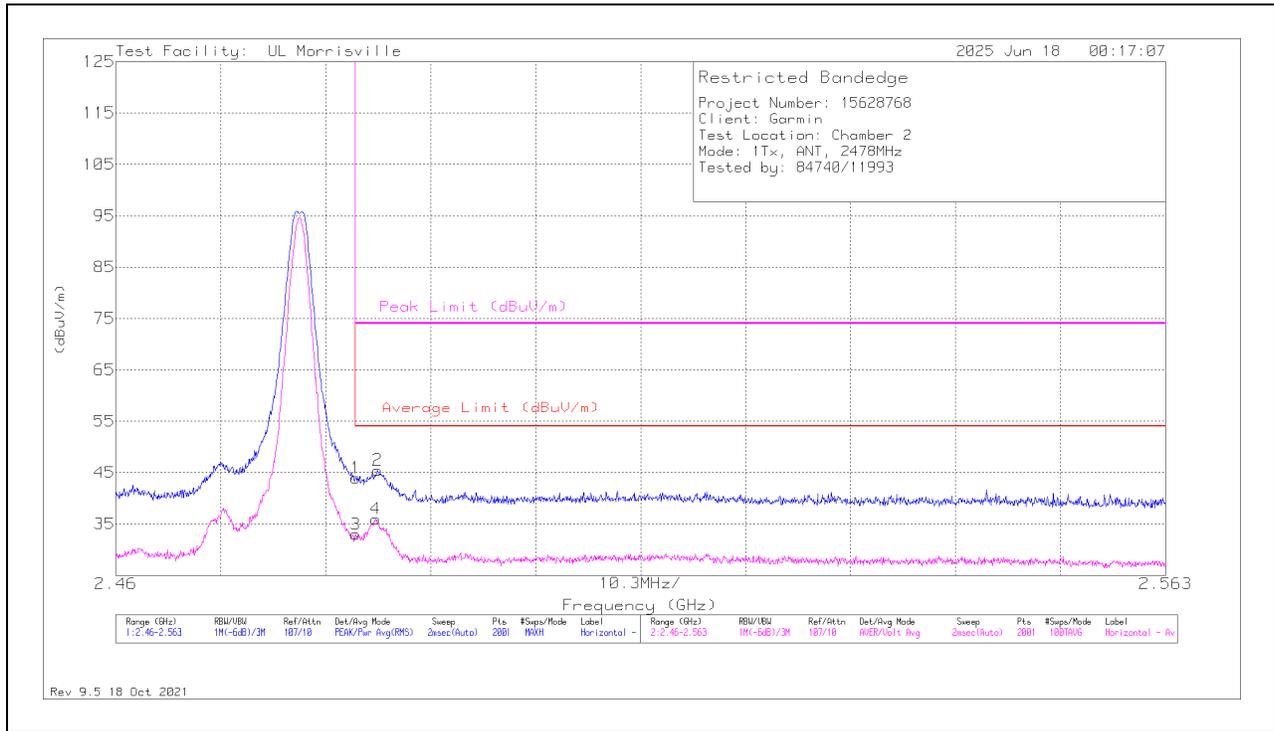


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	33.13	Pk	32.3	-25.1	40.33	-	-	74	-33.67	298	256	V
2	*** 2.37956	34.68	Pk	32.2	-25.2	41.68	-	-	74	-32.32	298	256	V
3	** 2.38996	20.96	ADV	32.3	-25.1	28.16	54	-25.84	-	-	298	256	V
4	*** 2.38707	22.04	ADV	32.2	-24.9	29.34	54	-24.66	-	-	298	256	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	86408 (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	36.95	Pk	32.5	-25.5	43.95	-	-	74	-30.05	271	108	H
2	*** 2.4857	38.55	Pk	32.5	-25.6	45.45	-	-	74	-28.55	271	108	H
3	*** 2.48354	25.98	ADV	32.5	-25.5	32.98	54	-21.02	-	-	271	108	H
4	*** 2.48549	29.07	ADV	32.5	-25.6	35.97	54	-18.03	-	-	271	108	H

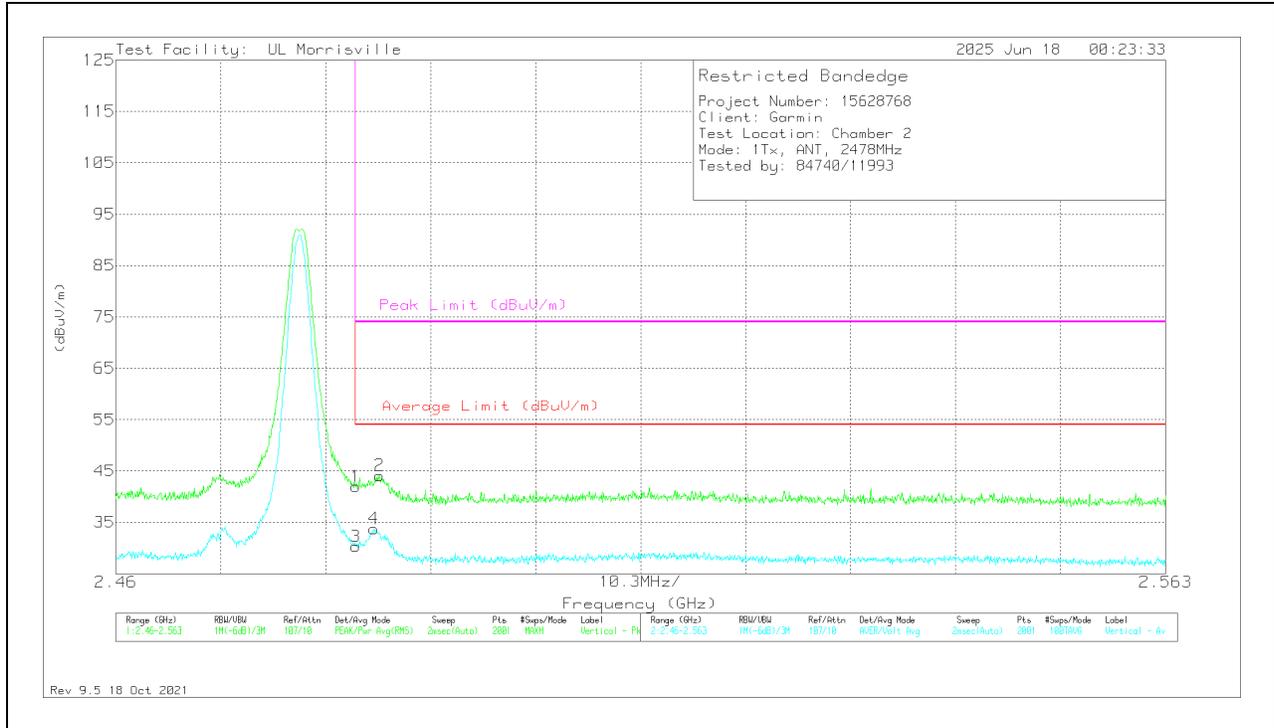
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV – Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	35	Pk	32.5	-25.5	42	-	-	74	-32	11	115	V
2	*** 2.48585	37.31	Pk	32.5	-25.7	44.11	-	-	74	-29.89	11	115	V
3	*** 2.48354	23.31	ADV	32.5	-25.5	30.31	54	-23.69	-	-	11	115	V
4	*** 2.48534	26.87	ADV	32.5	-25.6	33.77	54	-20.23	-	-	11	115	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

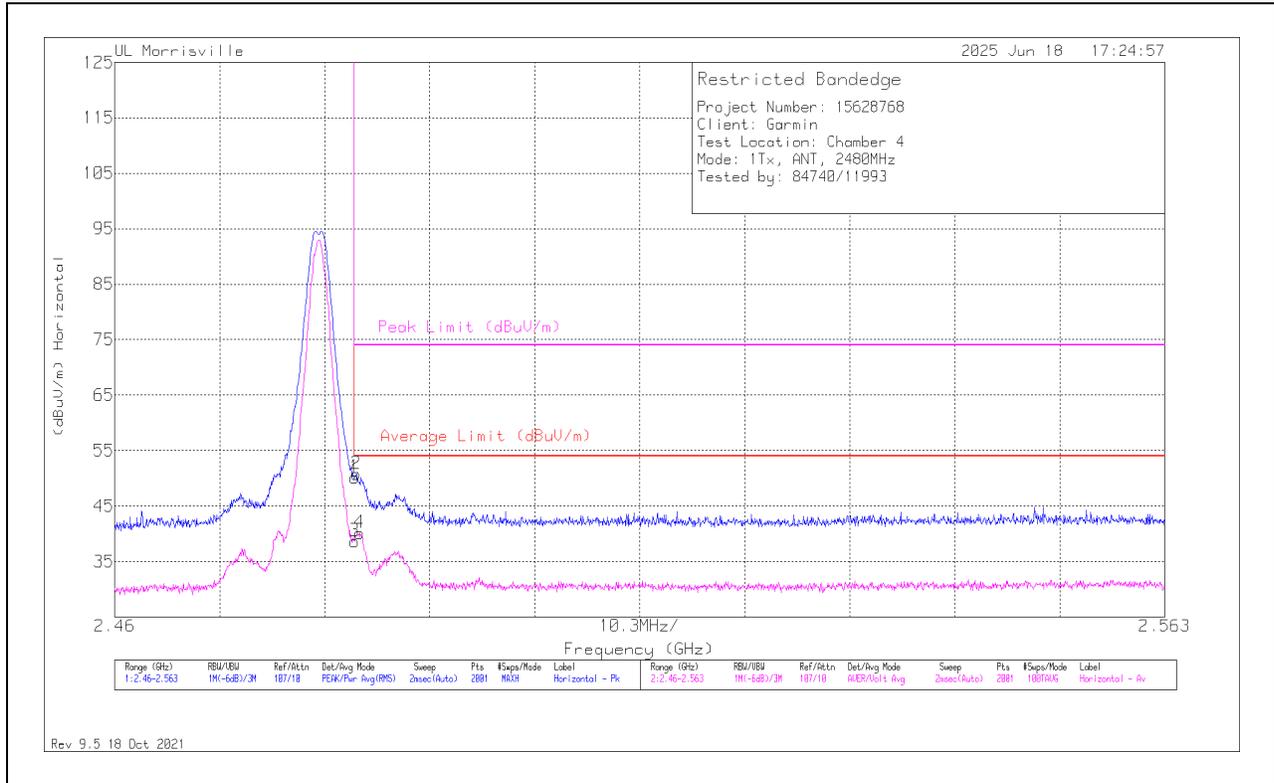
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### BANDEDGE (HIGH CHANNEL, 2480 MHz)

### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	40.65	Pk	32.3	-22.8	50.15	-	-	74	-23.85	199	209	H
2	*** 2.48369	41.28	Pk	32.3	-22.8	50.78	-	-	74	-23.22	199	209	H
3	*** 2.48354	29.09	ADV	32.3	-22.8	38.59	54	-15.41	-	-	199	209	H
4	*** 2.48405	30.6	ADV	32.3	-22.8	40.1	54	-13.9	-	-	199	209	H

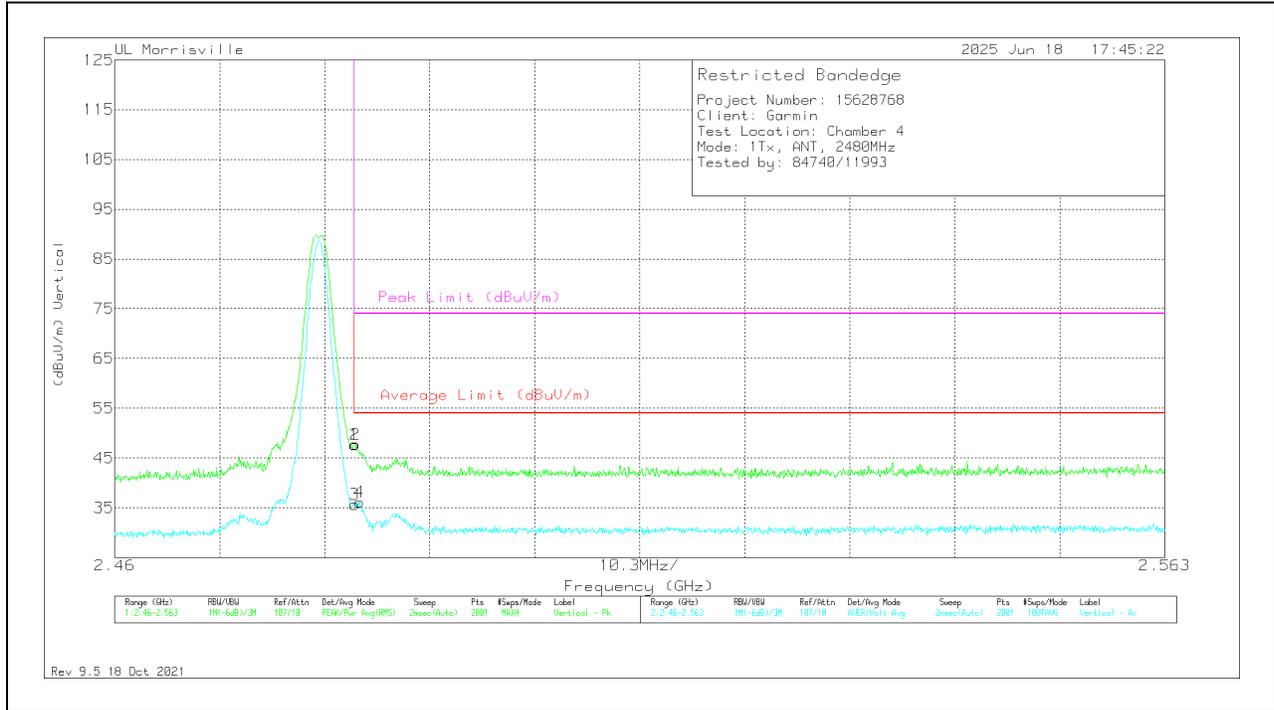
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

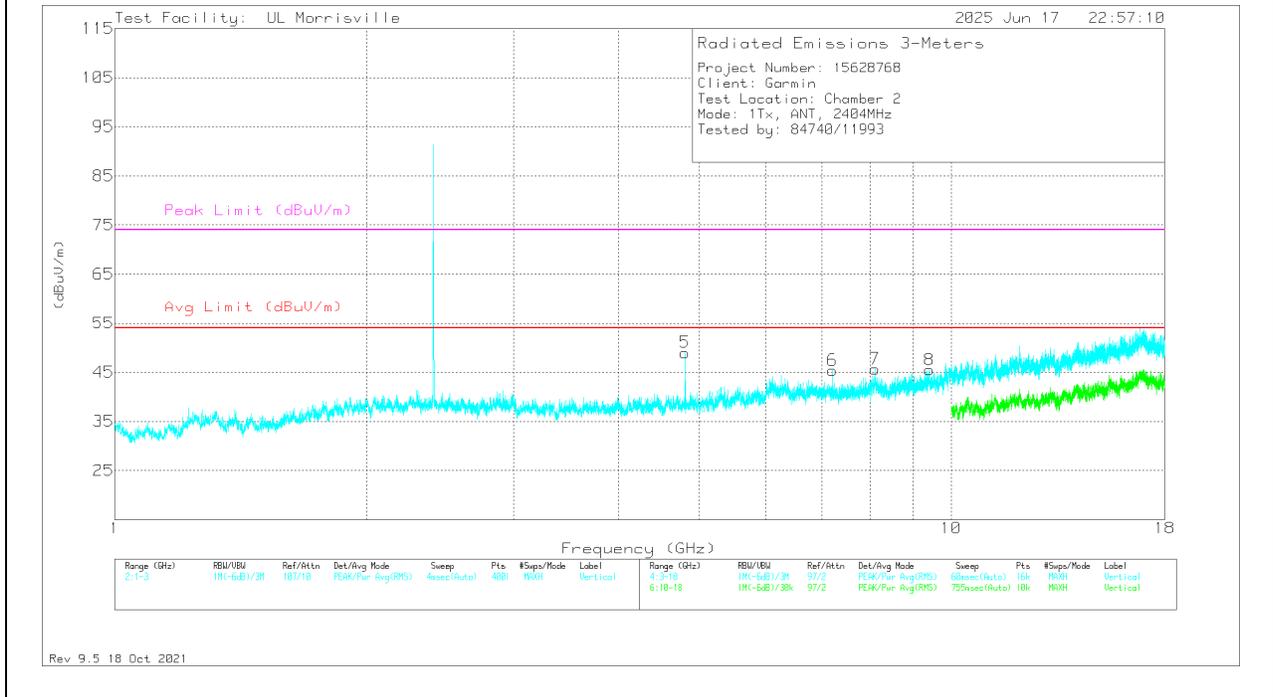
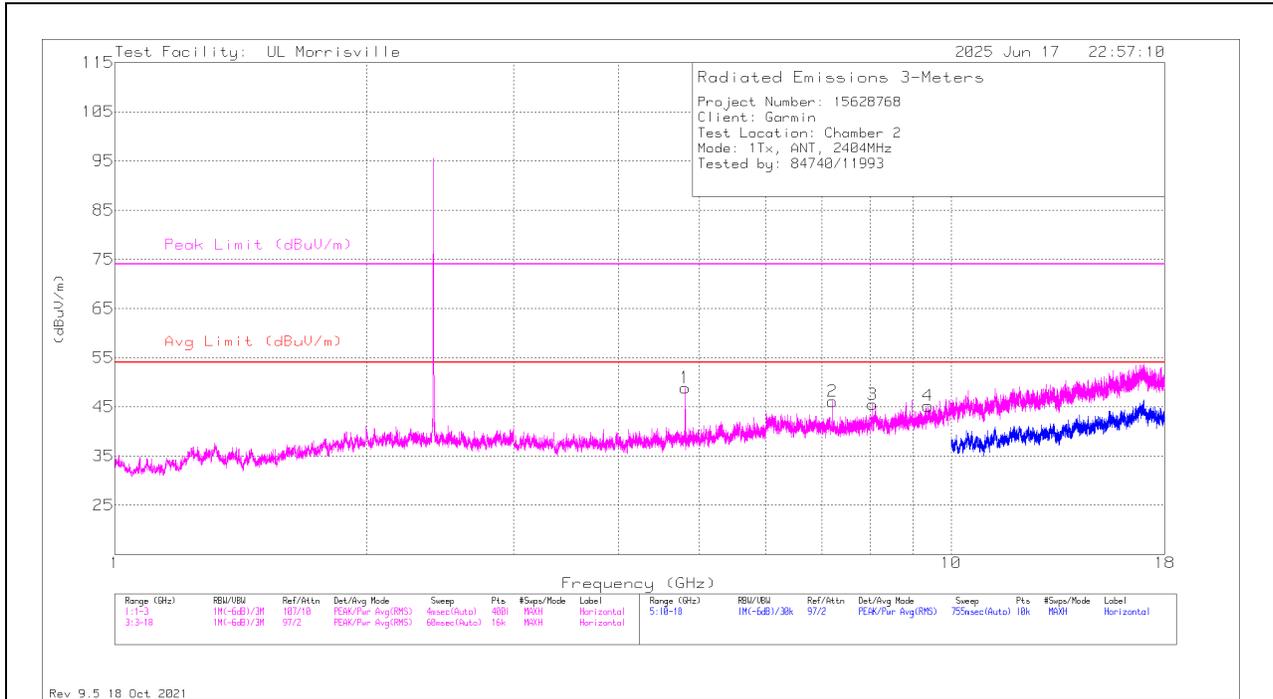


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.16	Pk	32.3	-22.8	47.66	-	-	74	-26.34	252	243	V
2	* ** 2.48359	38.22	Pk	32.3	-22.8	47.72	-	-	74	-26.28	252	243	V
3	* ** 2.48354	26.18	ADV	32.3	-22.8	35.68	54	-18.32	-	-	252	243	V
4	* ** 2.484	26.66	ADV	32.3	-22.8	36.16	54	-17.84	-	-	252	243	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



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.80842	46.51	PK2	34.2	-45.6	35.11	-	-	74	-38.89	337	110	H
	*** 4.8081	52.39	ADV	34.2	-45.6	40.99	54	-13.01	-	-	337	110	H
3	*** 8.05594	50.98	Pk	35.8	-41.3	45.48	54	-8.52	74	-28.52	0-360	101	H
4	*** 9.37875	49.92	Pk	36.2	-40.9	45.22	54	-8.78	74	-28.78	0-360	101	H
5	*** 4.80751	63.66	PK2	34.2	-45.5	52.36	-	-	74	-21.64	167	256	V
	*** 4.80834	51.18	ADV	34.2	-45.6	39.78	54	-14.22	-	-	167	256	V
7	*** 8.11219	50.98	Pk	35.8	-41.1	45.68	54	-8.32	74	-28.32	0-360	200	V
8	*** 9.41438	50.38	Pk	36.2	-41.1	45.48	54	-8.52	74	-28.52	0-360	200	V
6	7.21125	52.49	Pk	35.6	-42.7	45.39	-	-	-	-	0-360	101	V
2	7.21219	53.2	Pk	35.6	-42.7	46.1	-	-	-	-	0-360	200	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

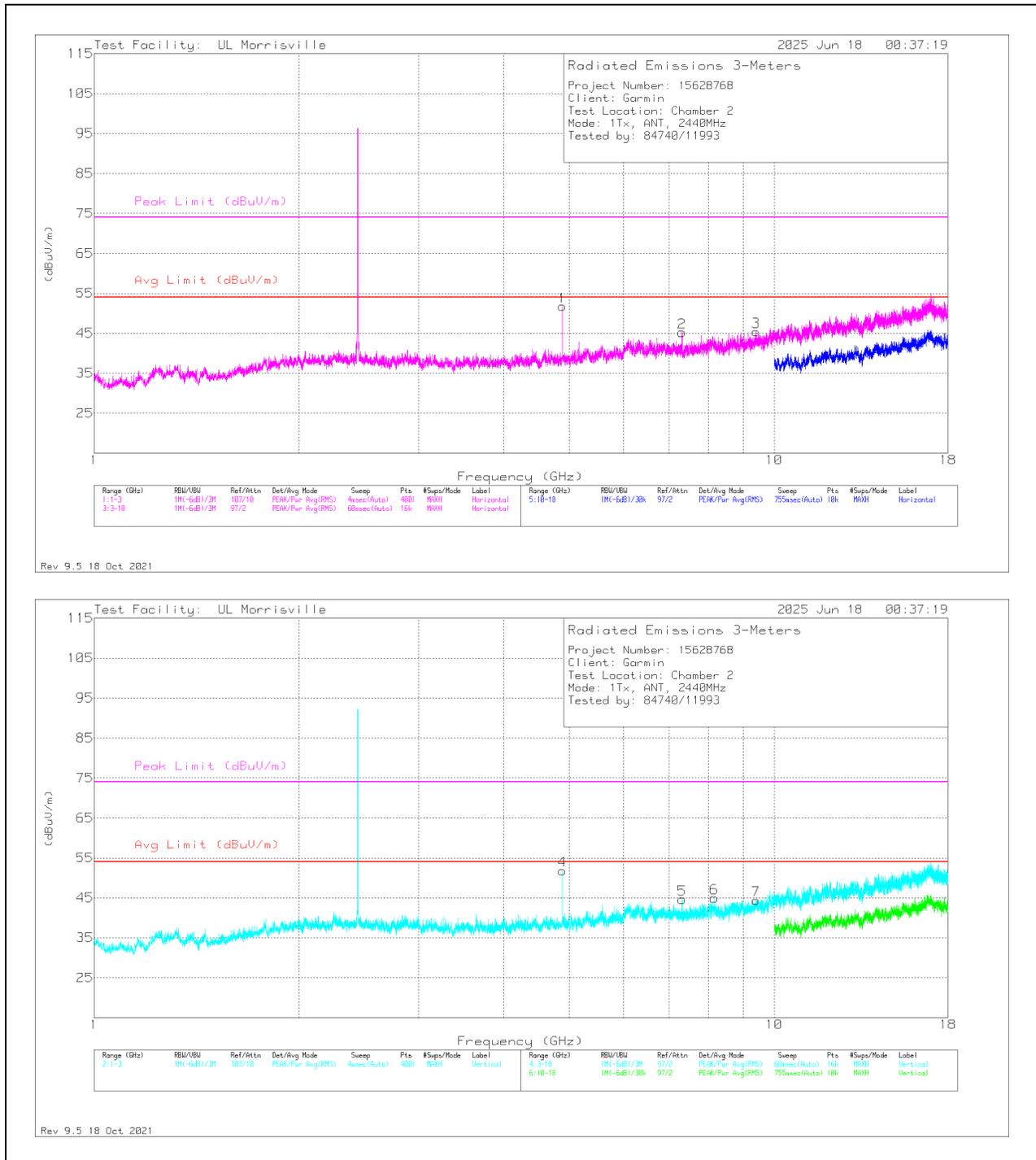
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

### MID CHANNEL, 2440 MHz, RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.87953	65.44	PK2	34.1	-44.4	55.14	-	-	74	-18.86	285	133	H
	*** 4.87967	52.72	ADV	34.1	-44.4	42.42	54	-11.58	-	-	285	133	H
2	*** 7.31906	52.82	Pk	35.6	-43.2	45.22	54	-8.78	74	-28.78	0-360	199	H
3	*** 9.40594	49.72	Pk	36.2	-40.5	45.42	54	-8.58	74	-28.58	0-360	199	H
4	*** 4.88047	65.49	PK2	34.1	-44.5	55.09	-	-	74	-18.91	151	232	V
	*** 4.87936	52.93	ADV	34.1	-44.4	42.63	54	-11.37	-	-	151	232	V
5	*** 7.32	52.33	Pk	35.6	-43.3	44.63	54	-9.37	74	-29.37	0-360	199	V
6	*** 8.15906	51.15	Pk	35.8	-42	44.95	54	-9.05	74	-29.05	0-360	199	V
7	*** 9.40875	48.72	Pk	36.2	-40.5	44.42	54	-9.58	74	-29.58	0-360	199	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

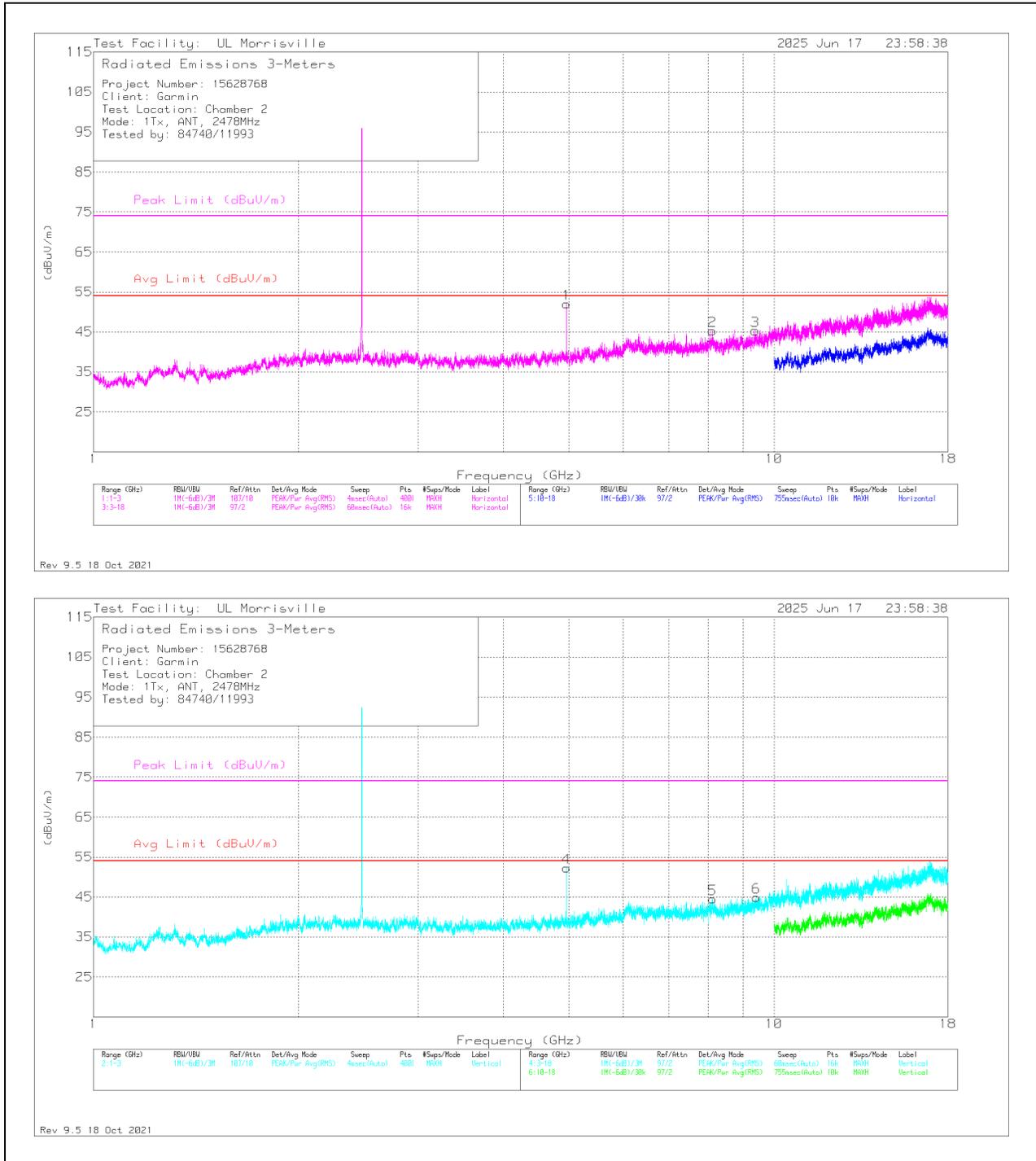
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

### HIGH CHANNEL, 2478 MHz, RESULTS



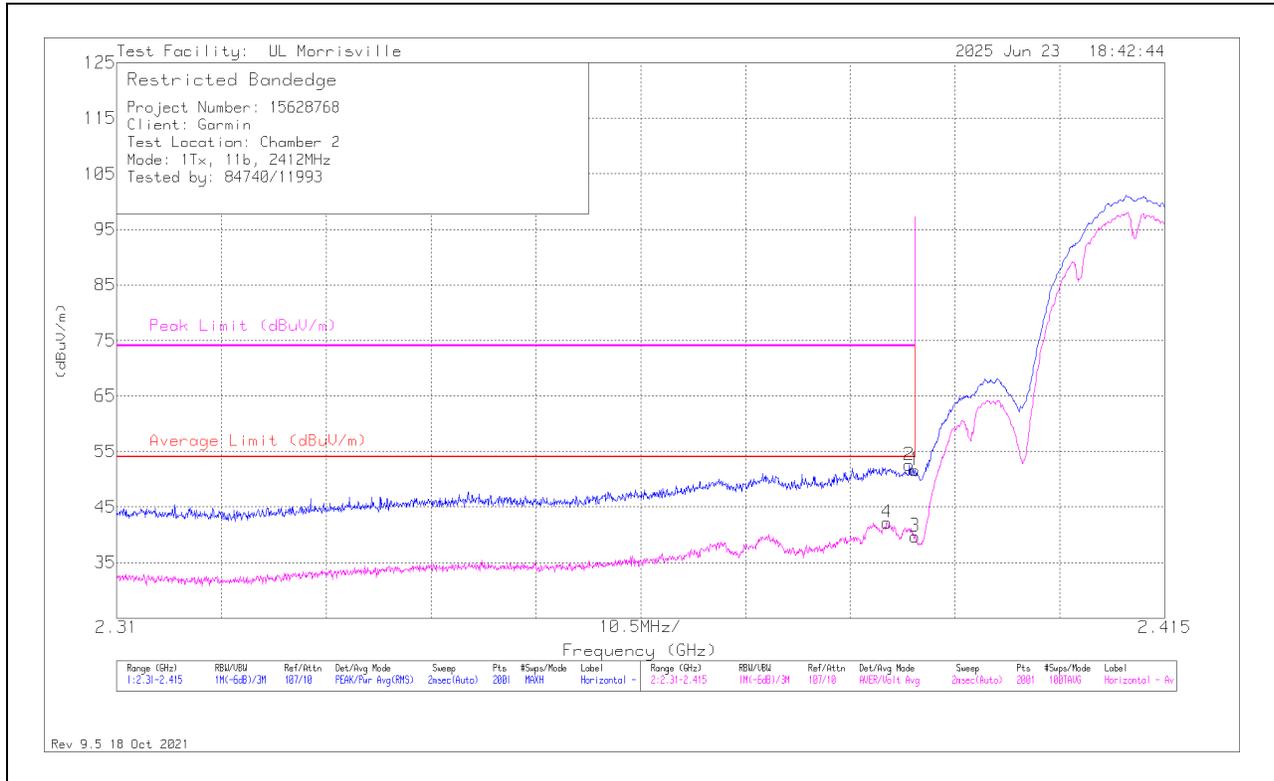
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.95652	65.61	PK2	34	-45.4	54.21	-	-	74	-19.79	304	115	H
	* ** 4.9564	54.6	ADV	34	-45.4	43.2	54	-10.8	-	-	304	115	H
2	* ** 8.115	50.61	Pk	35.8	-41.1	45.31	54	-8.69	74	-28.69	0-360	200	H
3	* ** 9.37875	50.04	Pk	36.2	-40.9	45.34	54	-8.66	74	-28.66	0-360	101	H
4	* ** 4.95653	66.21	PK2	34	-45.4	54.81	-	-	74	-19.19	152	211	V
	* ** 4.95572	54.27	ADV	34	-45.4	42.87	54	-11.13	-	-	152	211	V
5	* ** 8.12063	50	Pk	35.8	-41.3	44.5	54	-9.5	74	-29.5	0-360	199	V
6	* ** 9.41813	50.23	Pk	36.2	-41.5	44.93	54	-9.07	74	-29.07	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 - Maximum Peak  
 ADV - Linear Voltage Average

**10.2.4. 2.4 WLAN 802.11b MODE**

**BANDEDGE (LOW CHANNEL, CH 1)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	44.43	Pk	32.3	-25.1	51.63	-	-	74	-22.37	195	178	H
2	*** 2.38938	45.28	Pk	32.3	-25	52.58	-	-	74	-21.42	195	178	H
3	*** 2.38996	32.49	ADV	32.3	-25.1	39.69	54	-14.31	-	-	195	178	H
4	*** 2.38718	34.9	ADV	32.2	-24.9	42.2	54	-11.8	-	-	195	178	H

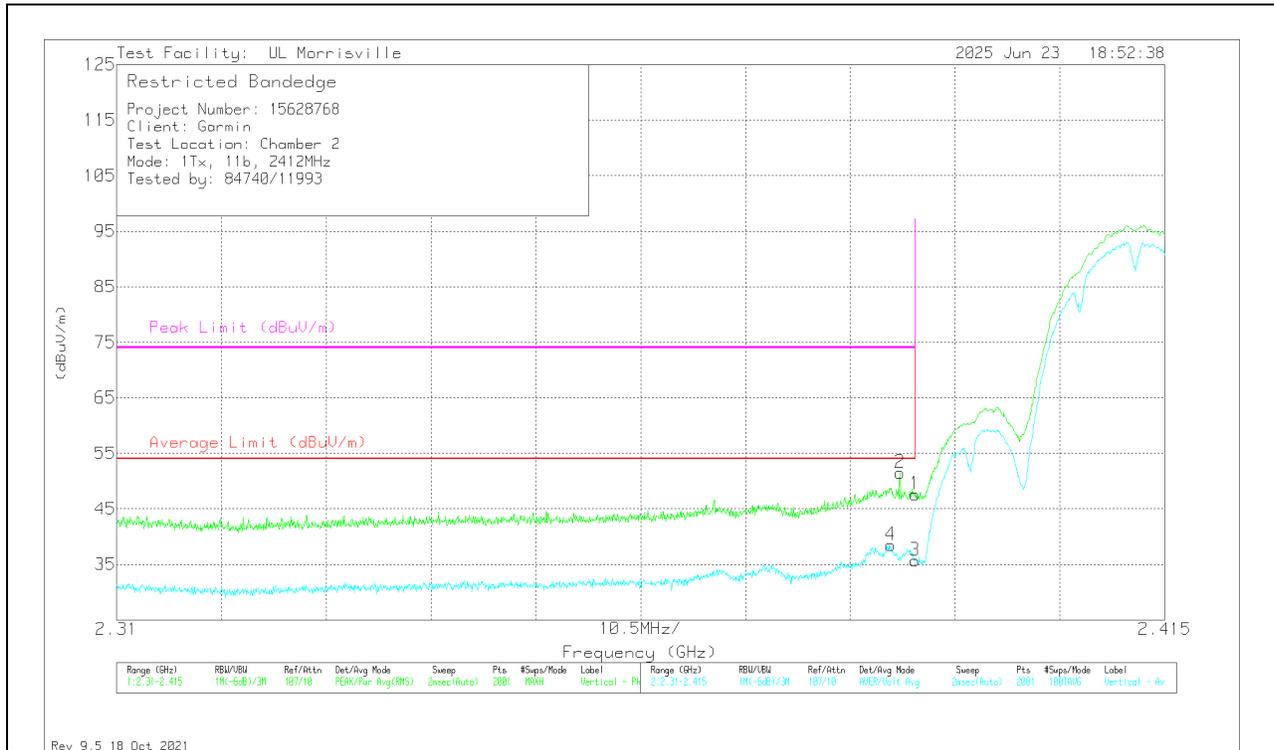
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	40.44	Pk	32.3	-25.1	47.64	-	-	74	-26.36	320	178	V
2	*** 2.38849	44.22	Pk	32.3	-25	51.52	-	-	74	-22.48	320	178	V
3	*** 2.38996	28.49	ADV	32.3	-25.1	35.69	54	-18.31	-	-	320	178	V
4	*** 2.38754	31.19	ADV	32.3	-25	38.49	54	-15.51	-	-	320	178	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

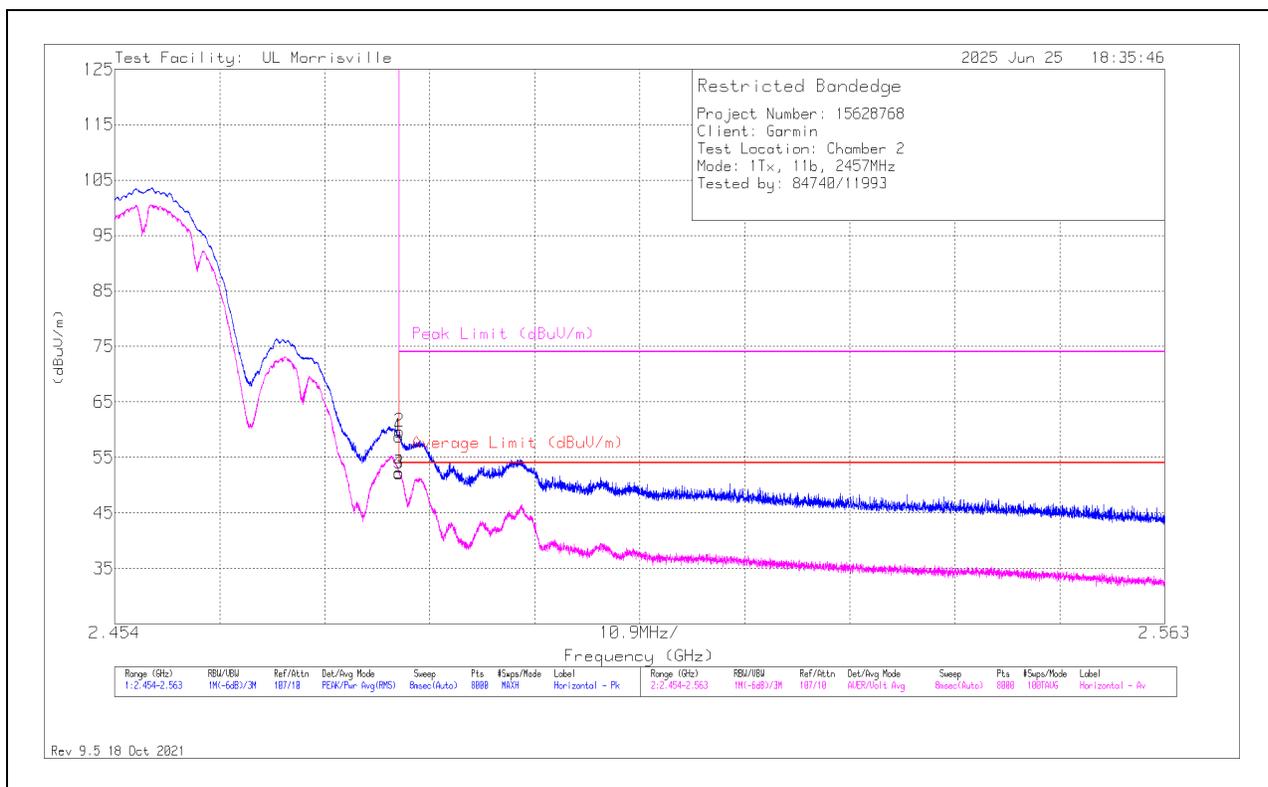
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### BANDEDGE (HIGH CHANNEL, CH 10)

### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 2.4835	51.79	Pk	32.5	-25.5	58.79	-	-	74	-15.21	202	244	H
2	* ** 2.48358	52.68	Pk	32.5	-25.5	59.68	-	-	74	-14.32	202	244	H
3	* ** 2.4835	45.19	ADV	32.5	-25.5	52.19	54	-1.81	-	-	202	244	H
4	* ** 2.48352	45.29	ADV	32.5	-25.5	52.29	54	-1.71	-	-	202	244	H

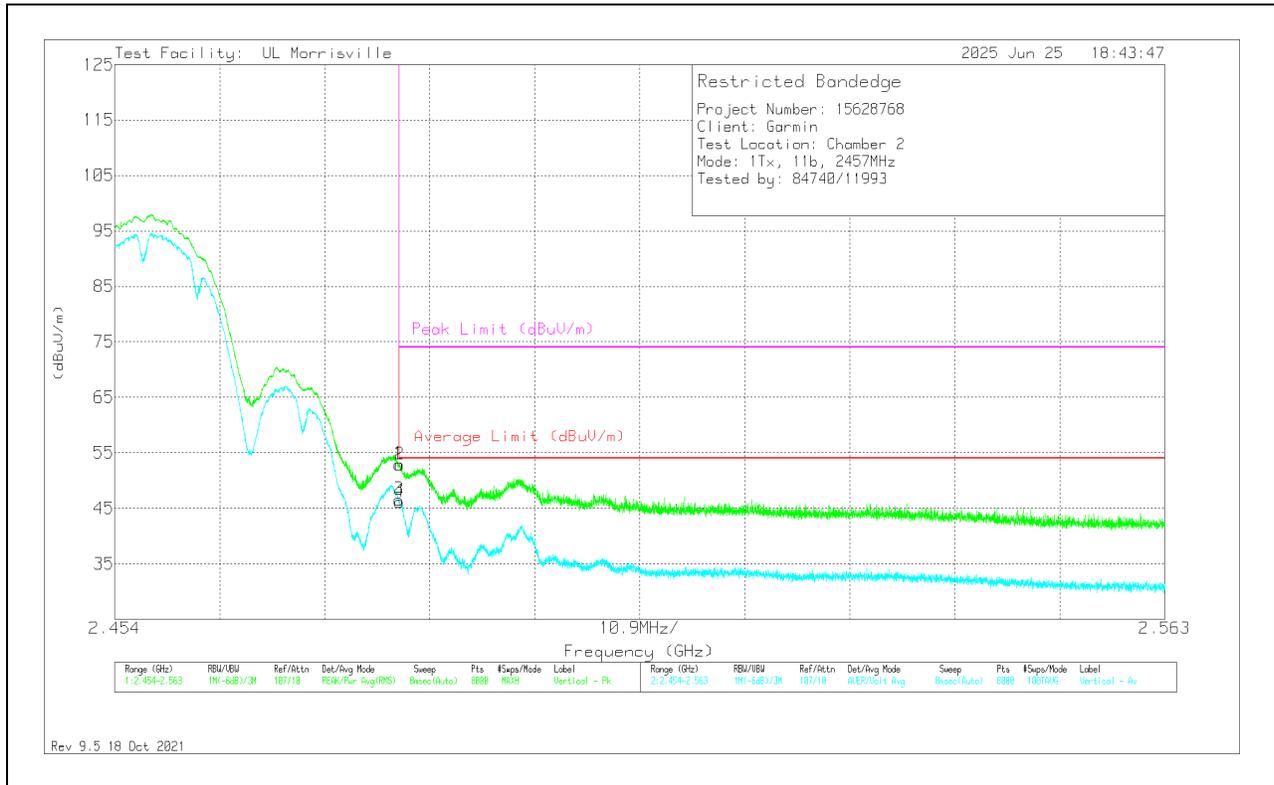
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 2.4835	45.87	Pk	32.5	-25.5	52.87	-	-	74	-21.13	268	204	V
2	*** 2.4836	45.85	Pk	32.5	-25.5	52.85	-	-	74	-21.15	268	204	V
3	*** 2.4835	39.48	ADV	32.5	-25.5	46.48	54	-7.52	-	-	268	204	V
4	*** 2.48356	39.13	ADV	32.5	-25.5	46.13	54	-7.87	-	-	268	204	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

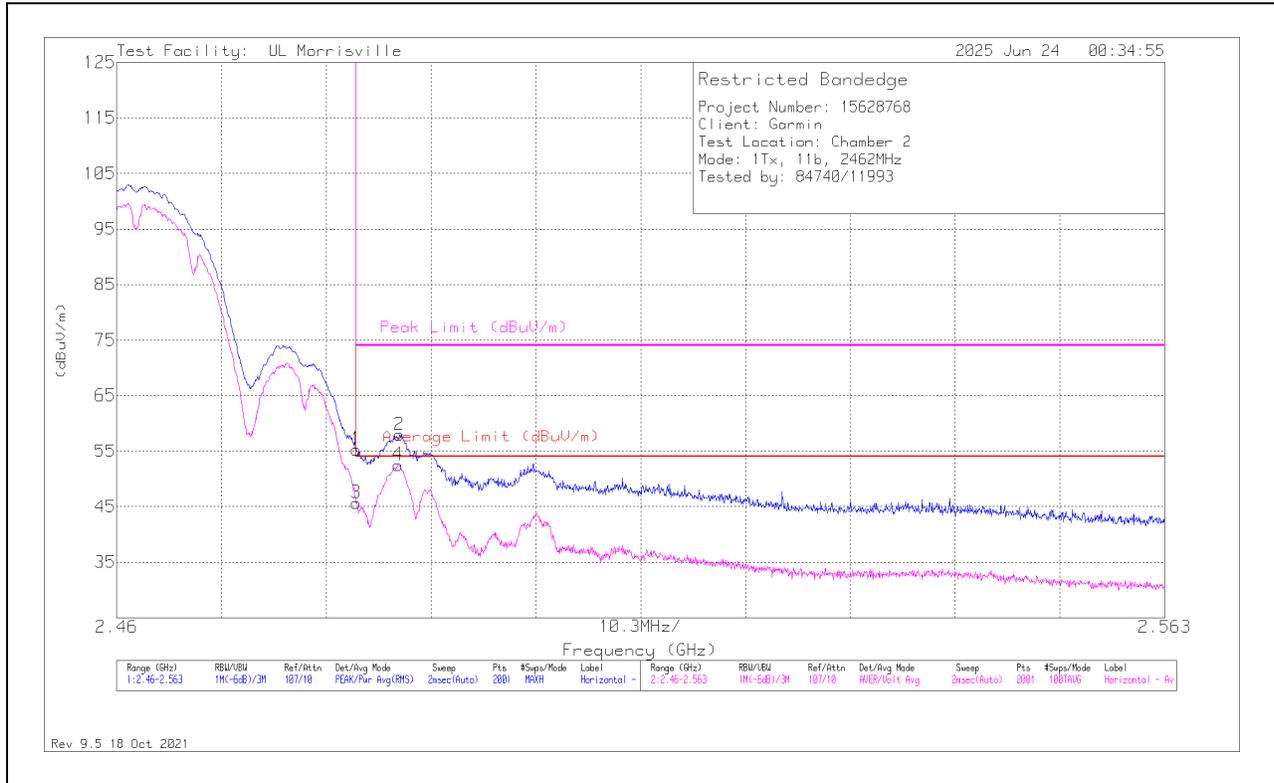
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, CH 11)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	48.28	Pk	32.5	-25.5	55.28	-	-	74	-18.72	192	153	H
2	*** 2.48776	51.23	Pk	32.5	-25.8	57.93	-	-	74	-16.07	192	153	H
3	*** 2.48354	38.67	ADV	32.5	-25.5	45.67	54	-8.33	-	-	192	152	H
4	*** 2.48766	45.8	ADV	32.5	-25.8	52.5	54	-1.5	-	-	192	152	H

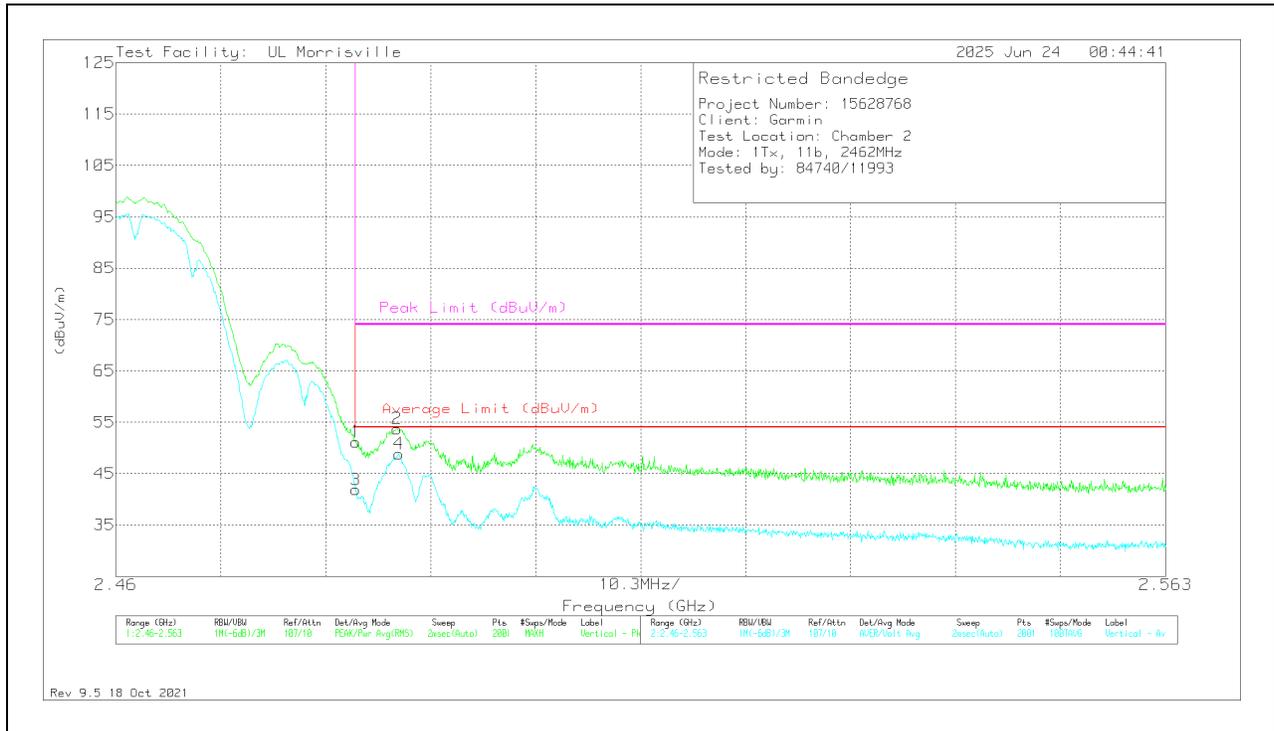
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	44.14	Pk	32.5	-25.5	51.14	-	-	74	-22.86	305	156	V
2	*** 2.4876	47.04	Pk	32.5	-25.8	53.74	-	-	74	-20.26	305	156	V
3	*** 2.48354	34.86	ADV	32.5	-25.5	41.86	54	-12.14	-	-	305	156	V
4	*** 2.48776	42.16	ADV	32.5	-25.8	48.86	54	-5.14	-	-	305	156	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

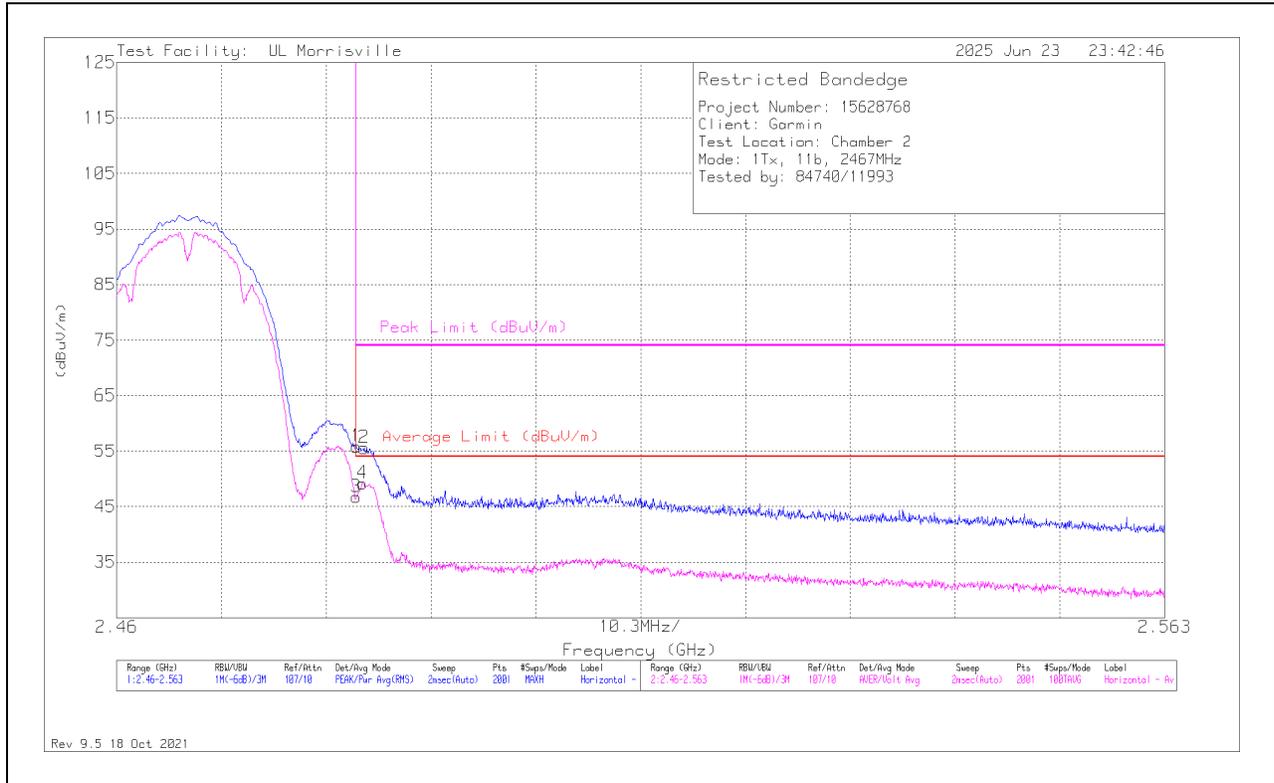
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, CH 12)**

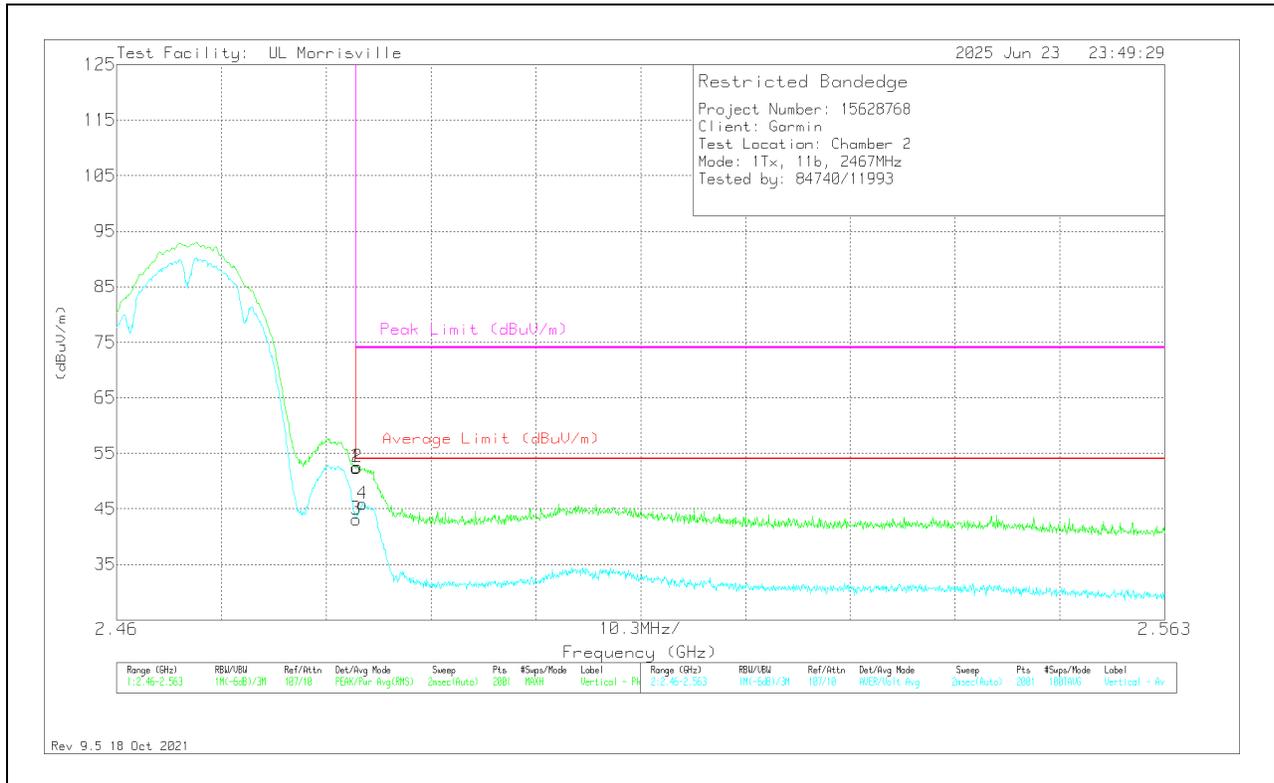
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	48.83	Pk	32.5	-25.5	55.83	-	-	74	-18.17	194	176	H
2	*** 2.48431	48.69	Pk	32.5	-25.6	55.59	-	-	74	-18.41	194	176	H
3	*** 2.48354	39.73	ADV	32.5	-25.5	46.73	54	-7.27	-	-	194	176	H
4	*** 2.48415	42.3	ADV	32.5	-25.6	49.2	54	-4.8	-	-	194	176	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	86408 (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	45.43	Pk	32.5	-25.5	52.43	-	-	74	-21.57	306	200	V
2	* ** 2.48364	45.55	Pk	32.5	-25.5	52.55	-	-	74	-21.45	306	200	V
3	* ** 2.48354	36.13	ADV	32.5	-25.5	43.13	54	-10.87	-	-	306	199	V
4	* ** 2.48415	38.98	ADV	32.5	-25.6	45.88	54	-8.12	-	-	306	199	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

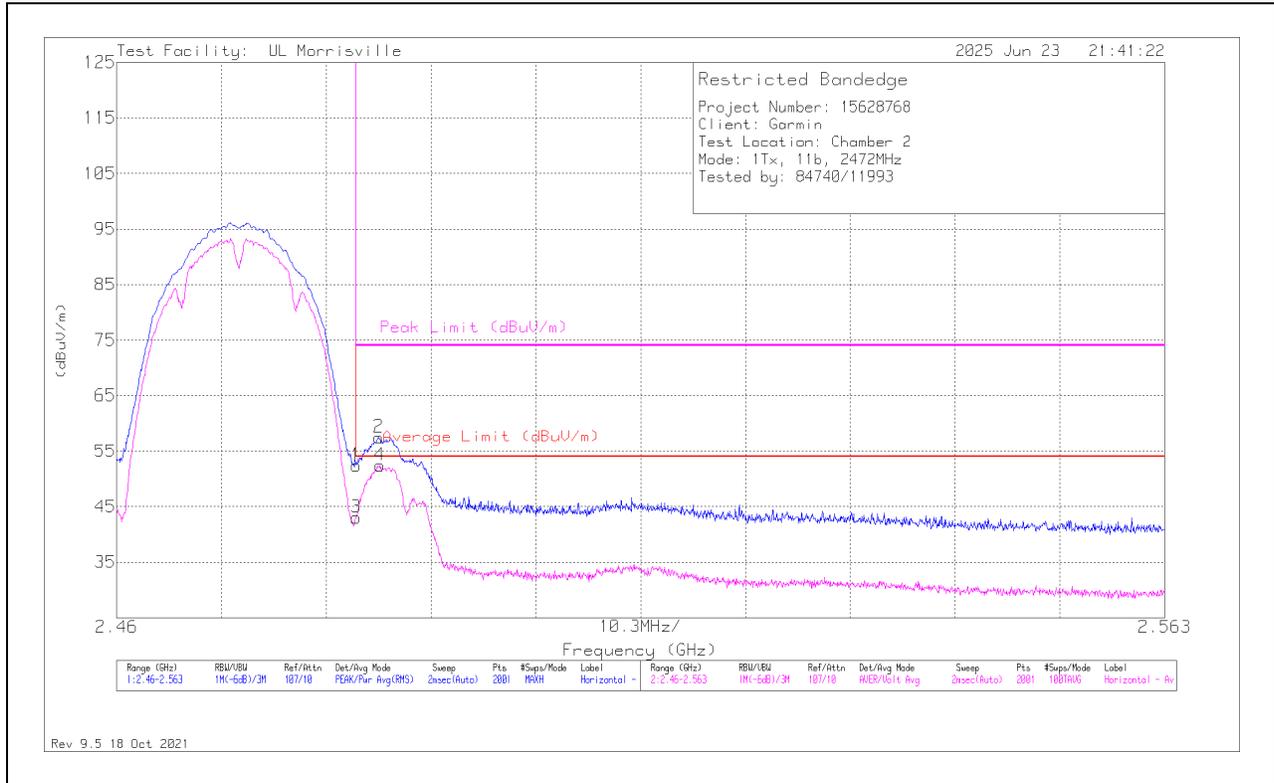
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, CH 13)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	45.42	Pk	32.5	-25.5	52.42	-	-	74	-21.58	196	214	H
2	*** 2.48575	50.7	Pk	32.5	-25.7	57.5	-	-	74	-16.5	196	214	H
3	*** 2.48354	36.06	ADV	32.5	-25.5	43.06	54	-10.94	-	-	196	214	H
4	*** 2.48585	45.63	ADV	32.5	-25.7	52.43	54	-1.57	-	-	196	214	H

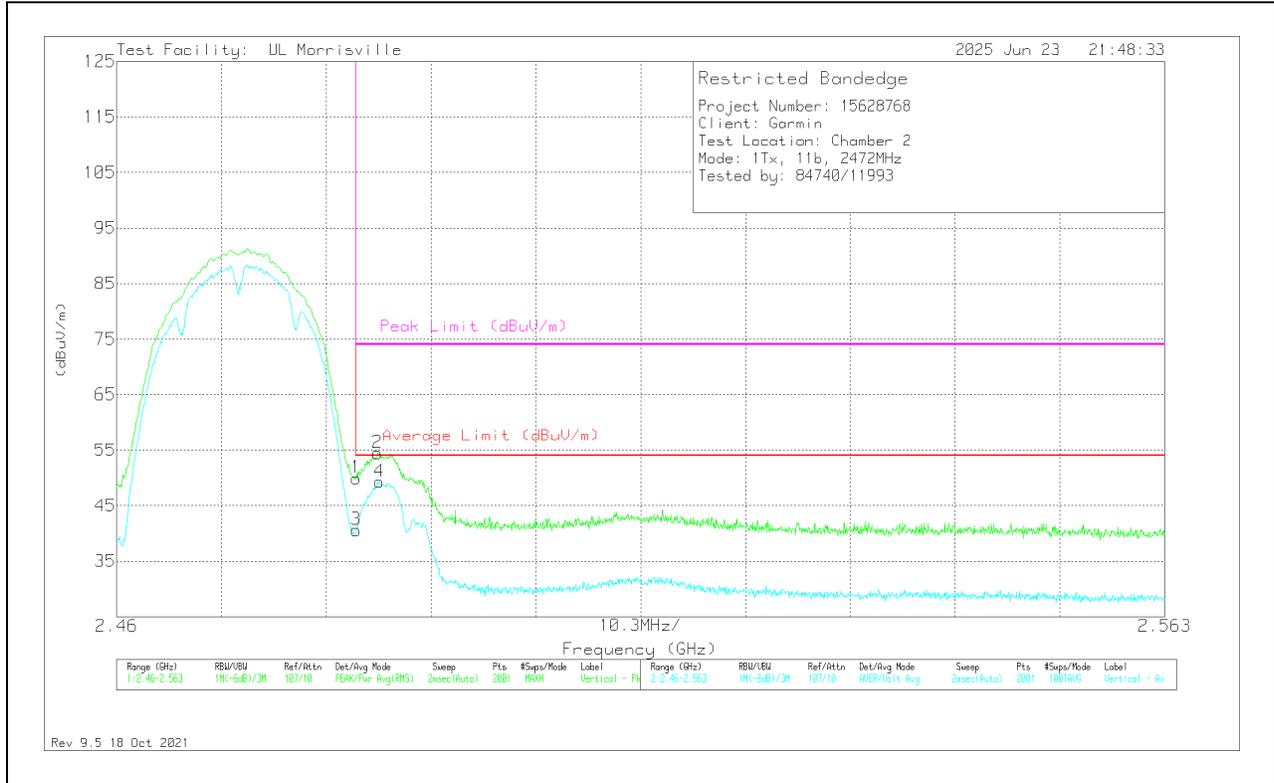
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	42.96	Pk	32.5	-25.5	49.96	-	-	74	-24.04	315	204	V
2	* ** 2.48565	47.58	Pk	32.5	-25.6	54.48	-	-	74	-19.52	315	204	V
3	* ** 2.48354	33.61	ADV	32.5	-25.5	40.61	54	-13.39	-	-	315	204	V
4	* ** 2.4858	42.49	ADV	32.5	-25.7	49.29	54	-4.71	-	-	315	204	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

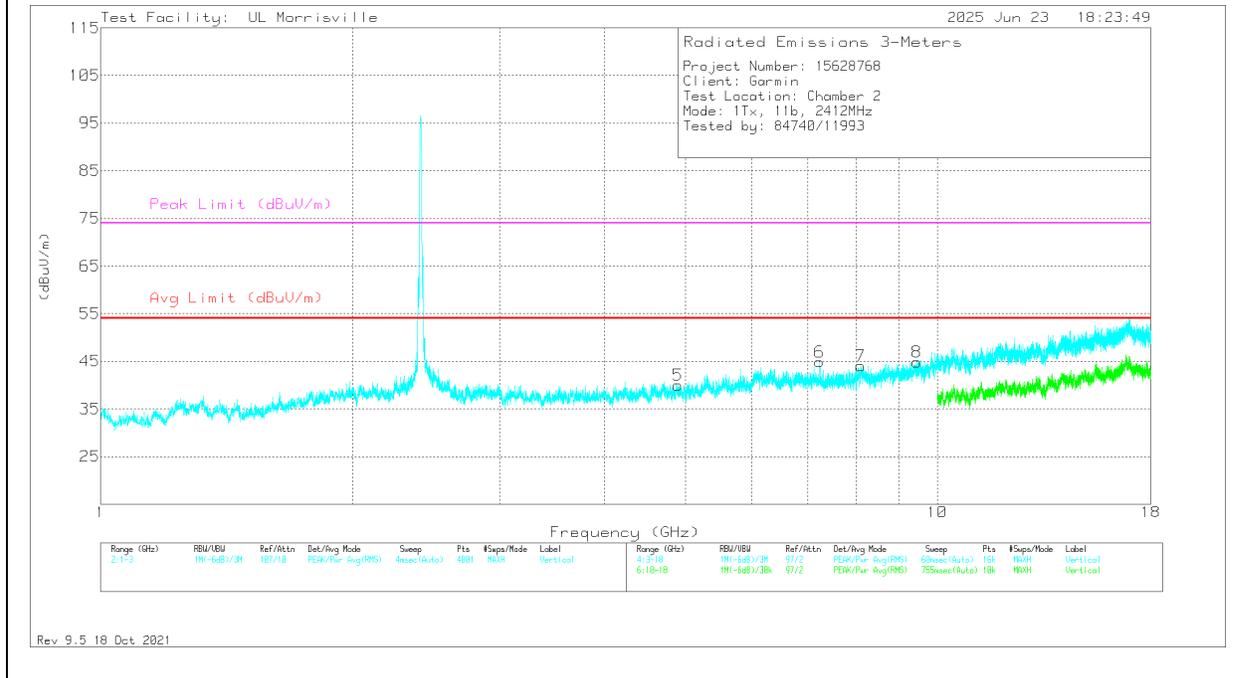
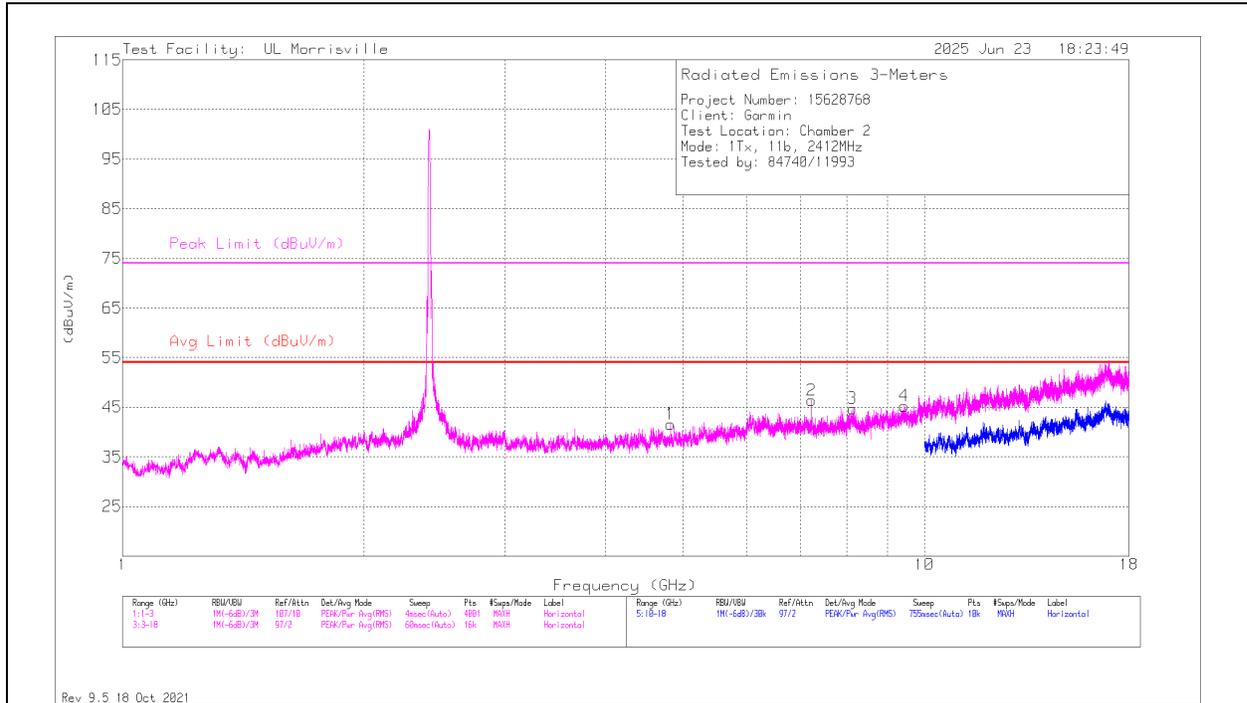
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL, CH 1 RESULTS



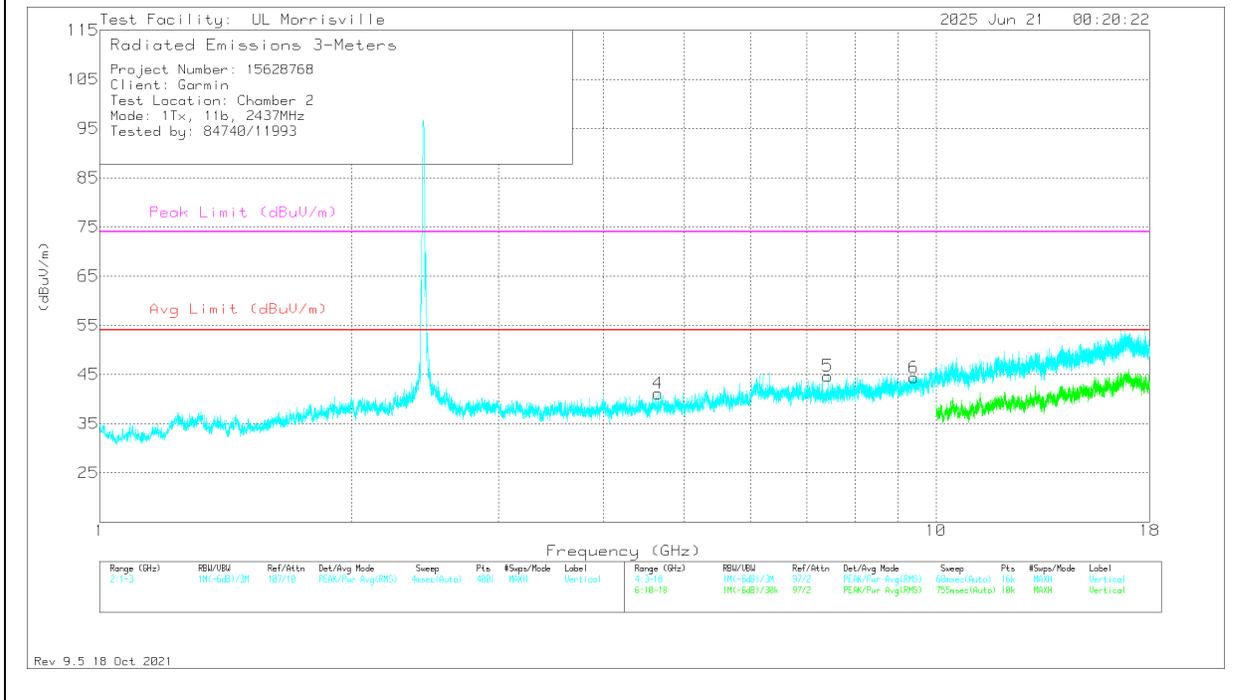
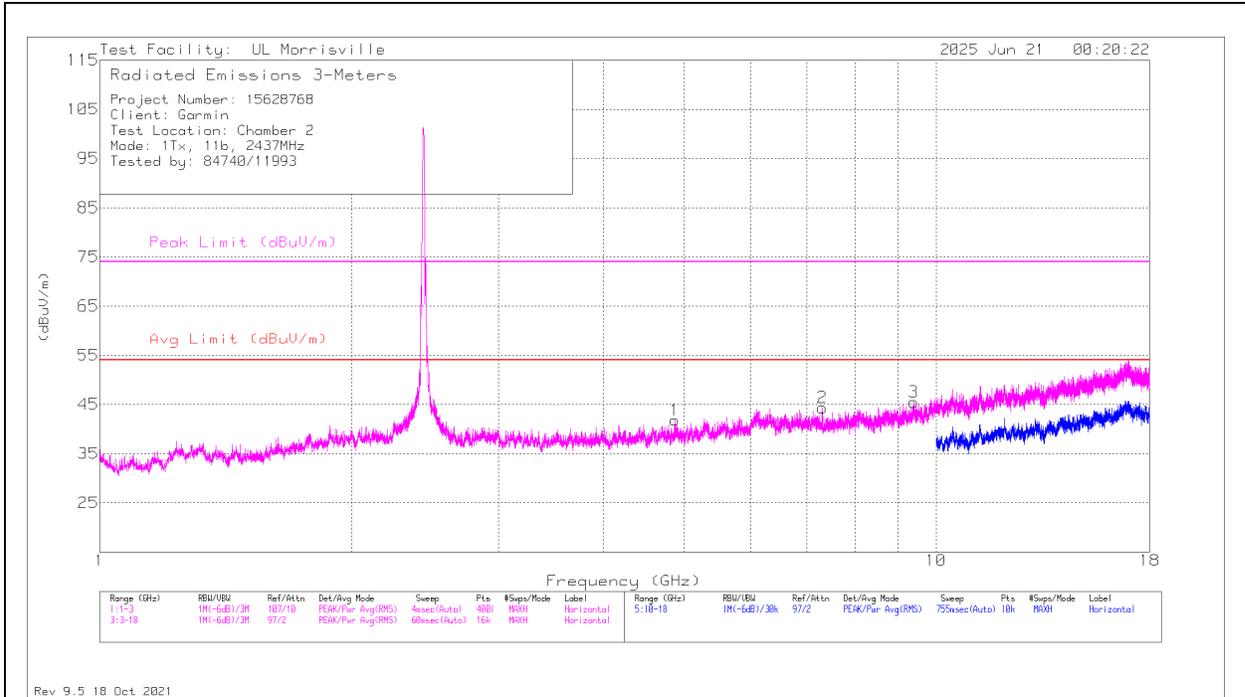
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.82344	52.82	Pk	34.2	-45.5	41.52	54	-12.48	74	-32.48	0-360	101	H
3	* ** 8.13656	51.15	Pk	35.8	-42.2	44.75	54	-9.25	74	-29.25	0-360	199	H
4	* ** 9.44063	50.78	Pk	36.3	-41.8	45.28	54	-8.72	74	-28.72	0-360	101	H
5	* ** 4.89656	50.78	Pk	34.1	-44.9	39.98	54	-14.02	74	-34.02	0-360	199	V
7	* ** 8.10656	49.61	Pk	35.8	-41.3	44.11	54	-9.89	74	-29.89	0-360	199	V
8	* ** 9.44906	50.16	Pk	36.3	-41.6	44.86	54	-9.14	74	-29.14	0-360	199	V
2	7.23656	53.35	Pk	35.6	-42.6	46.35	54	-	-	-	0-360	101	H
6	7.23844	51.8	Pk	35.6	-42.5	44.9	54	-	-	-	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, CH 6 RESULTS



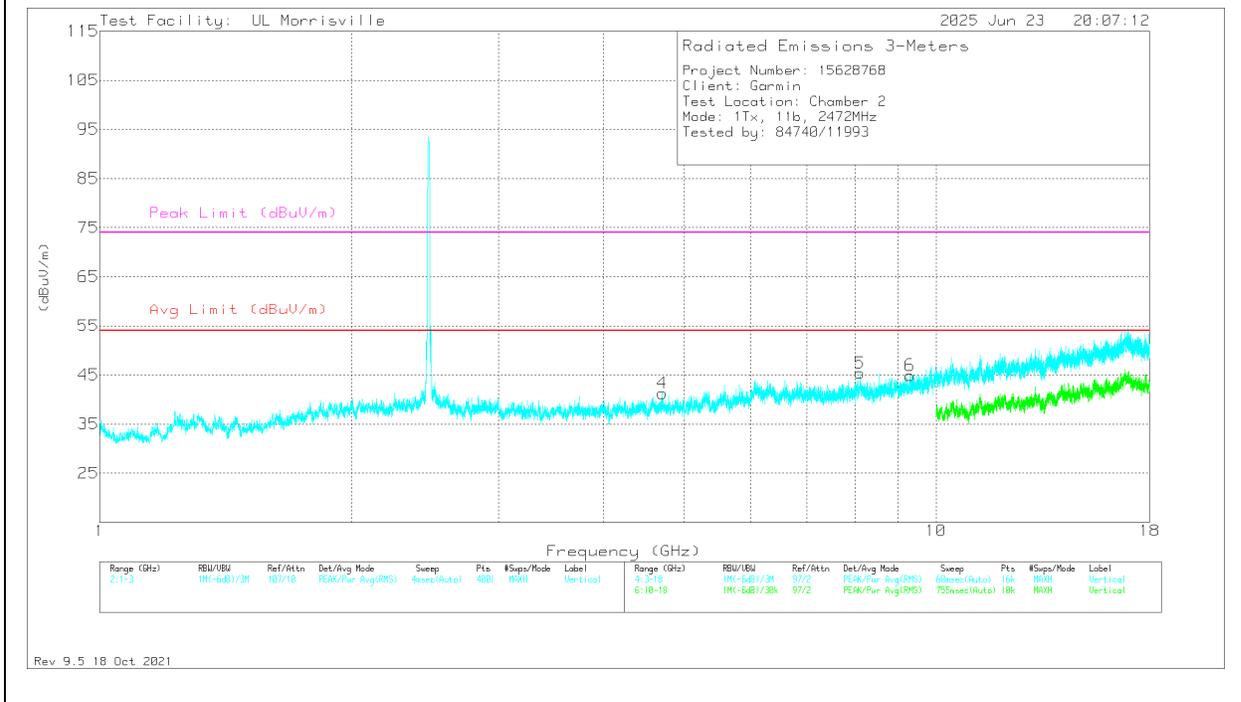
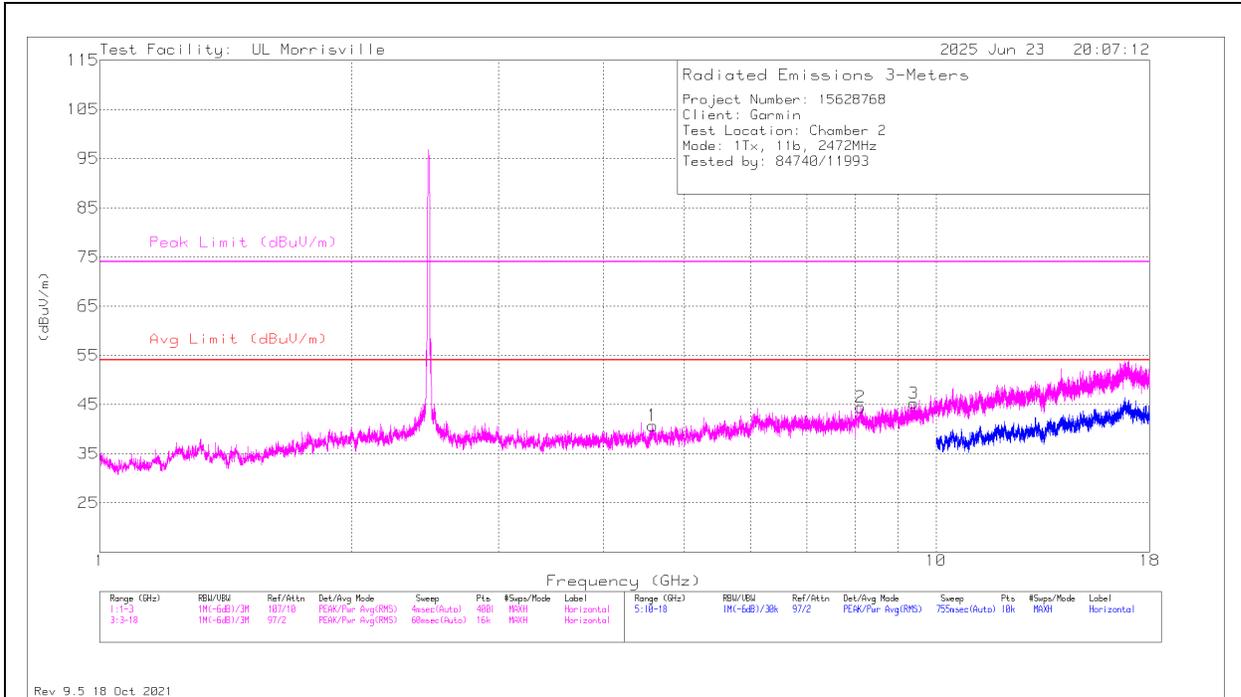
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.87406	52.21	Pk	34.1	-44.5	41.81	54	-12.19	74	-32.19	0-360	101	H
2	* ** 7.31156	51.42	Pk	35.6	-42.7	44.32	54	-9.68	74	-29.68	0-360	200	H
3	* ** 9.40688	49.67	Pk	36.2	-40.4	45.47	54	-8.53	74	-28.53	0-360	200	H
4	* ** 4.65094	52.54	Pk	34.1	-45.5	41.14	54	-12.86	74	-32.86	0-360	101	V
5	* ** 7.42219	51.35	Pk	35.6	-42.3	44.65	54	-9.35	74	-29.35	0-360	200	V
6	* ** 9.40219	48.95	Pk	36.2	-40.8	44.35	54	-9.65	74	-29.65	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, CH 13 RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 4.5825	51.61	Pk	34	-44.9	40.71	54	-13.29	74	-33.29	0-360	101	H
2	* ** 8.12063	49.96	Pk	35.8	-41.3	44.46	54	-9.54	74	-29.54	0-360	101	H
3	* ** 9.40969	49.65	Pk	36.2	-40.6	45.25	54	-8.75	74	-28.75	0-360	200	H
4	* ** 4.70813	51.98	Pk	34.1	-44.8	41.28	54	-12.72	74	-32.72	0-360	199	V
5	* ** 8.10844	50.77	Pk	35.8	-41.2	45.37	54	-8.63	74	-28.63	0-360	199	V
6	* ** 9.3075	49.49	Pk	36.1	-40.7	44.89	54	-9.11	74	-29.11	0-360	199	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

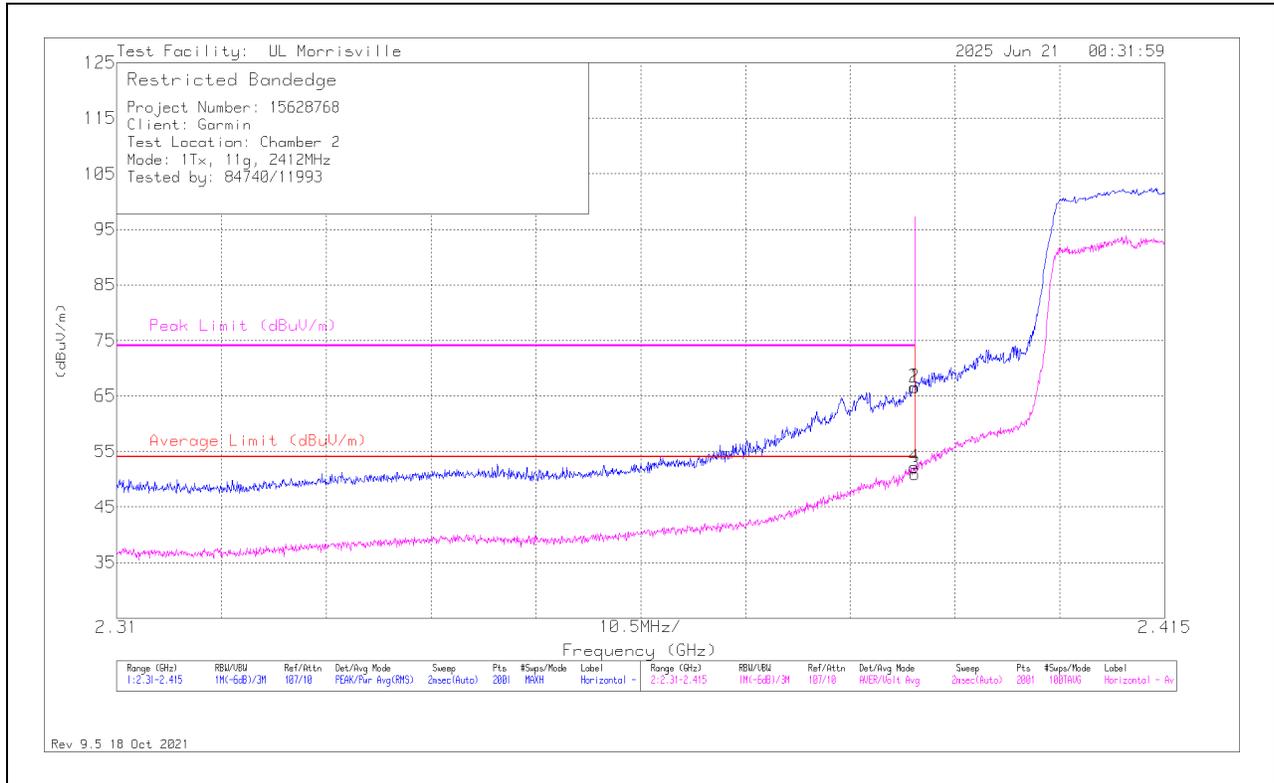
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**10.2.5. 2.4 WLAN 802.11g MODE**

**BANDEDGE (LOW CHANNEL, CH 1)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	59.41	Pk	32.3	-25.1	66.61	-	-	74	-7.39	215	125	H
2	* ** 2.38991	59.3	Pk	32.3	-25	66.6	-	-	74	-7.4	215	125	H
3	* ** 2.38996	43.76	ADV	32.3	-25.1	50.96	54	-3.04	-	-	215	125	H
4	* ** 2.38991	44.89	ADV	32.3	-25	52.19	54	-1.81	-	-	215	125	H

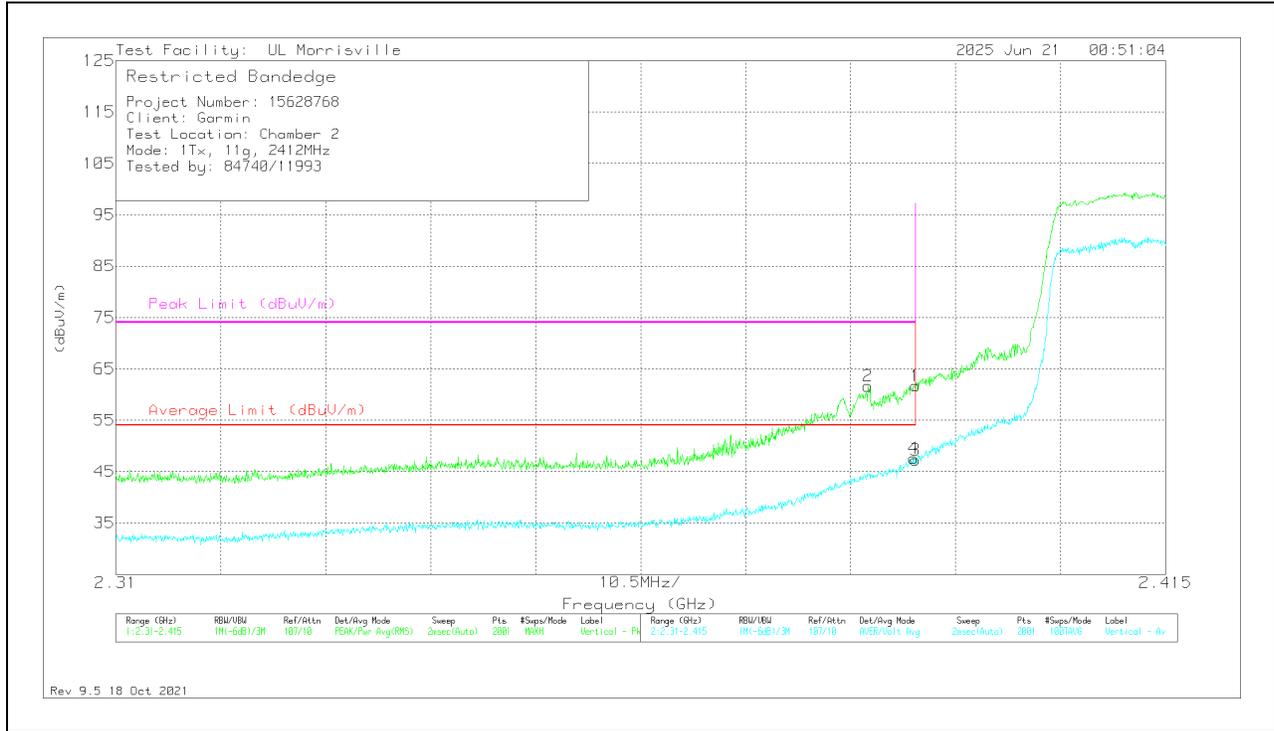
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

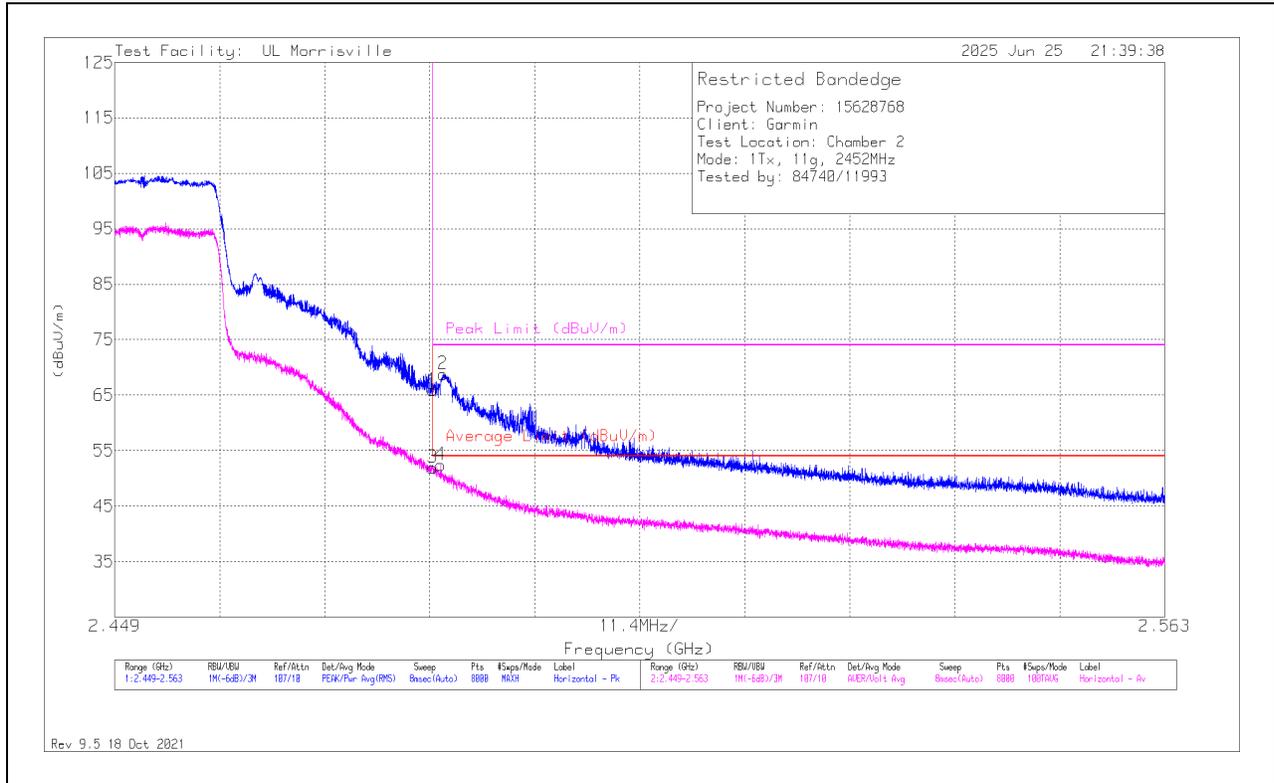


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	54.49	Pk	32.3	-25.1	61.69	-	-	74	-12.31	27	225	V
2	*** 2.38523	54.38	Pk	32.2	-24.9	61.68	-	-	74	-12.32	27	225	V
3	*** 2.38996	40.05	ADV	32.3	-25.1	47.25	54	-6.75	-	-	27	225	V
4	*** 2.3898	40.29	ADV	32.3	-25	47.59	54	-6.41	-	-	27	225	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, CH 9)**

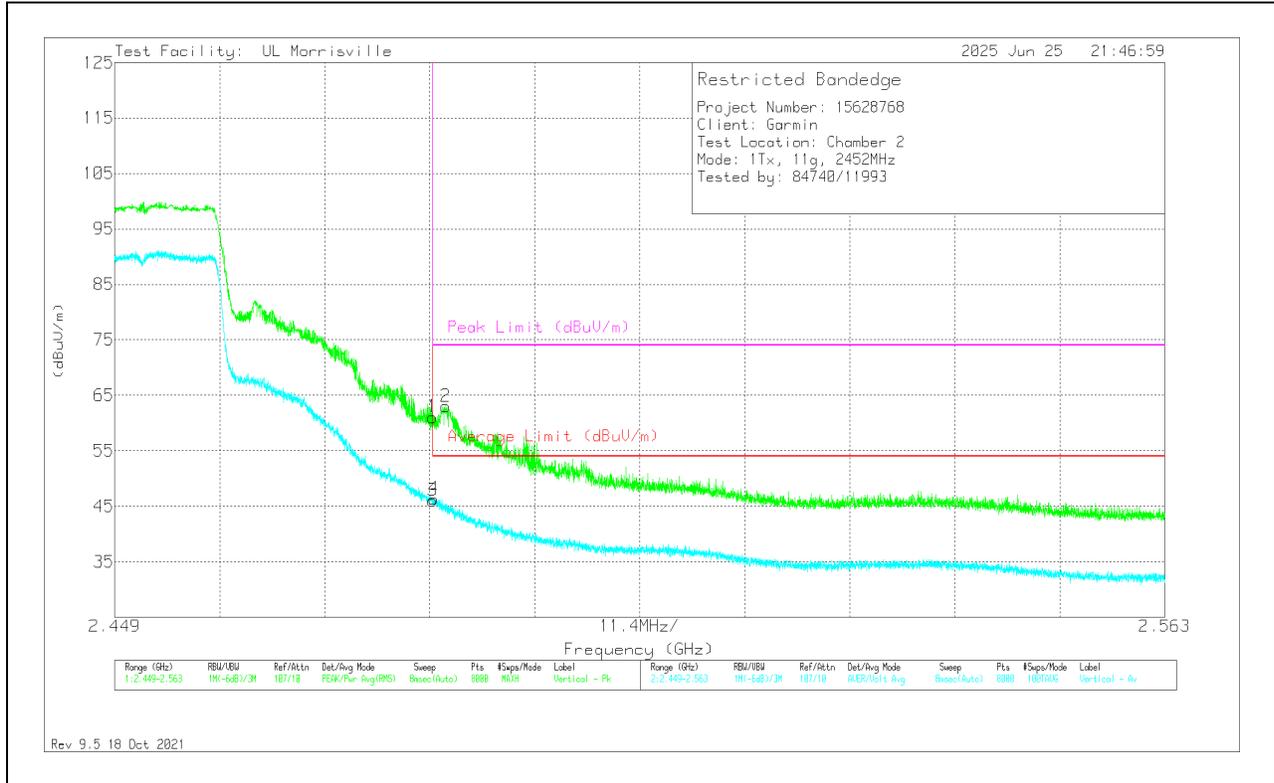
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 2.4835	58.87	Pk	32.5	-25.5	65.87	-	-	74	-8.13	201	142	H
2	* ** 2.48463	61.95	Pk	32.5	-25.6	68.85	-	-	74	-5.15	201	142	H
3	* ** 2.4835	44.95	ADV	32.5	-25.5	51.95	54	-2.05	-	-	201	142	H
4	* ** 2.4844	45.49	ADV	32.5	-25.6	52.39	54	-1.61	-	-	201	142	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

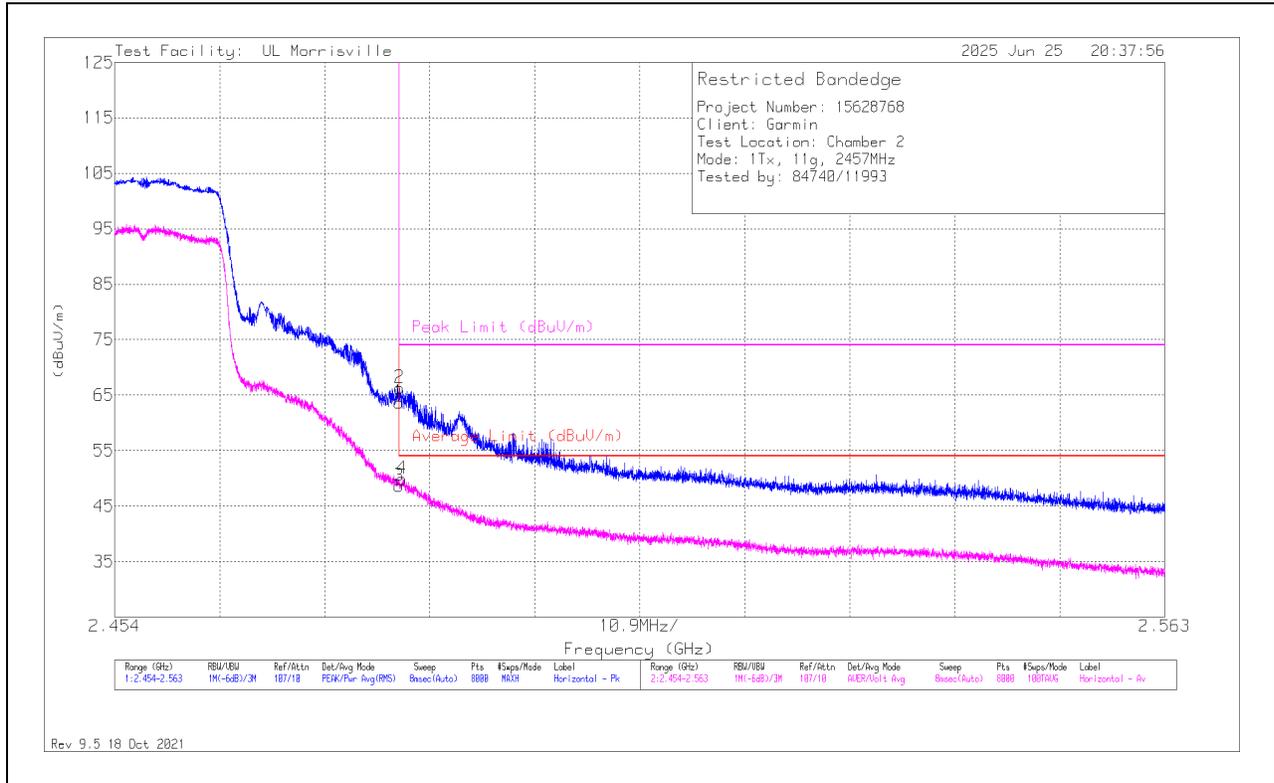


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.4835	54.04	Pk	32.5	-25.5	61.04	-	-	74	-12.96	349	148	V
2	*** 2.48492	56.08	Pk	32.5	-25.6	62.98	-	-	74	-11.02	349	148	V
3	*** 2.4835	38.96	ADV	32.5	-25.5	45.96	54	-8.04	-	-	349	148	V
4	*** 2.48362	39.33	ADV	32.5	-25.5	46.33	54	-7.67	-	-	349	148	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, CH 10)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 2.4835	56.7	Pk	32.5	-25.5	63.7	-	-	74	-10.3	204	150	H
2	* ** 2.48356	59.29	Pk	32.5	-25.5	66.29	-	-	74	-7.71	204	150	H
3	* ** 2.4835	41.59	ADV	32.5	-25.5	48.59	54	-5.41	-	-	204	150	H
4	* ** 2.48383	42.88	ADV	32.5	-25.5	49.88	54	-4.12	-	-	204	150	H

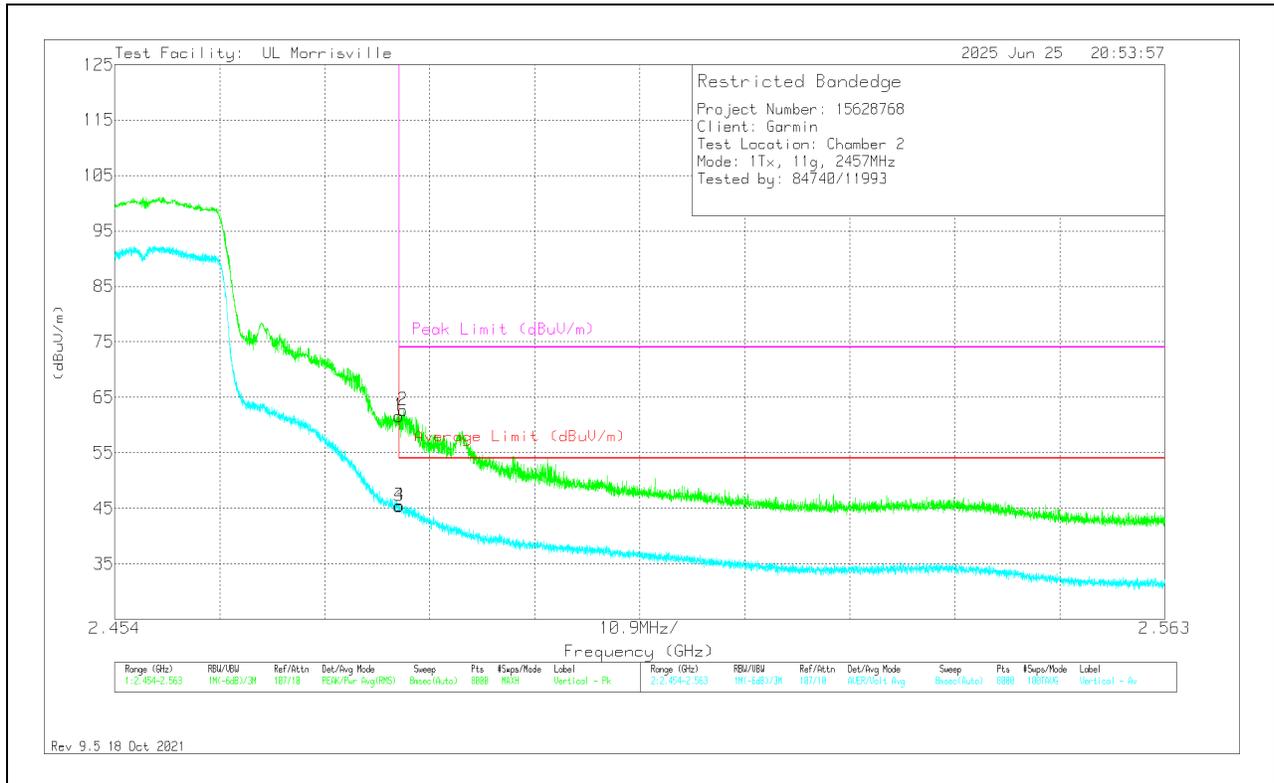
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 2.4835	54.67	Pk	32.5	-25.5	61.67	-	-	74	-12.33	228	217	V
2	* ** 2.48392	55.68	Pk	32.5	-25.5	62.68	-	-	74	-11.32	228	217	V
3	* ** 2.4835	38.37	ADV	32.5	-25.5	45.37	54	-8.63	-	-	228	217	V
4	* ** 2.48357	38.47	ADV	32.5	-25.5	45.47	54	-8.53	-	-	228	217	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, CH 11)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	61.99	Pk	32.5	-25.5	68.99	-	-	74	-5.01	195	123	H
2	* ** 2.48415	60.85	Pk	32.5	-25.6	67.75	-	-	74	-6.25	195	123	H
3	* ** 2.48354	43.69	ADV	32.5	-25.5	50.69	54	-3.31	-	-	195	123	H
4	* ** 2.48364	44.19	ADV	32.5	-25.5	51.19	54	-2.81	-	-	195	123	H

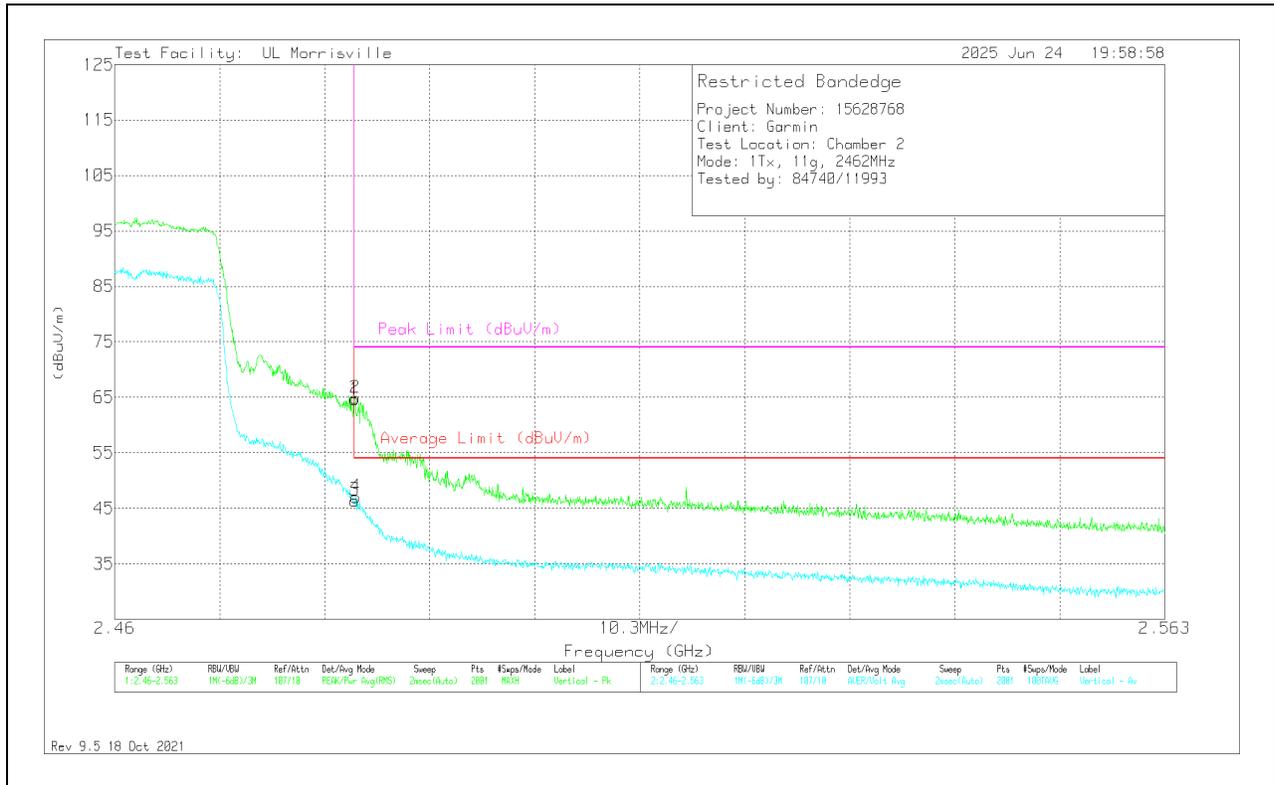
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	57.61	Pk	32.5	-25.5	64.61	-	-	74	-9.39	19	147	V
2	* ** 2.48359	57.87	Pk	32.5	-25.5	64.87	-	-	74	-9.13	19	147	V
3	* ** 2.48354	39.41	ADV	32.5	-25.5	46.41	54	-7.59	-	-	19	147	V
4	* ** 2.48364	40.06	ADV	32.5	-25.5	47.06	54	-6.94	-	-	19	147	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

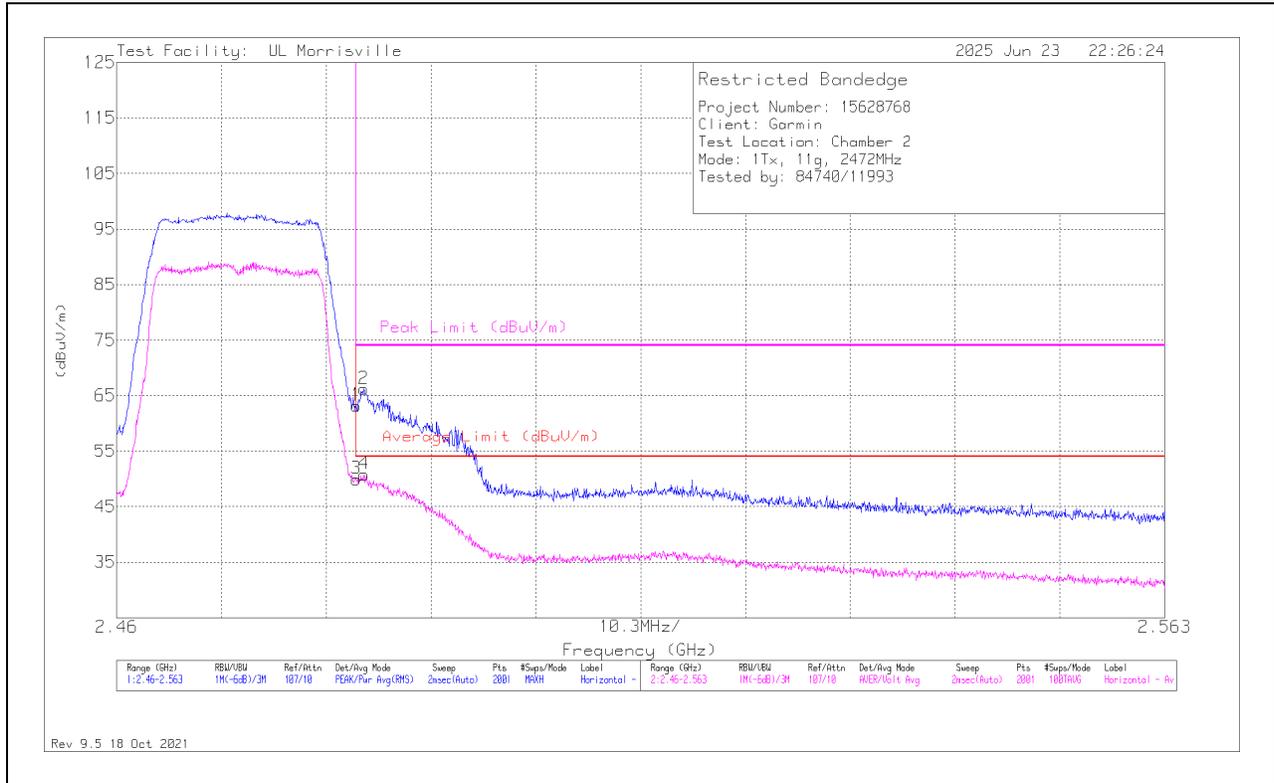
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, CH 13)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	56.22	Pk	32.5	-25.5	63.22	-	-	74	-10.78	190	237	H
2	*** 2.48426	59.3	Pk	32.5	-25.6	66.2	-	-	74	-7.8	190	237	H
3	*** 2.48354	42.96	ADV	32.5	-25.5	49.96	54	-4.04	-	-	190	237	H
4	*** 2.48431	43.92	ADV	32.5	-25.6	50.82	54	-3.18	-	-	190	237	H

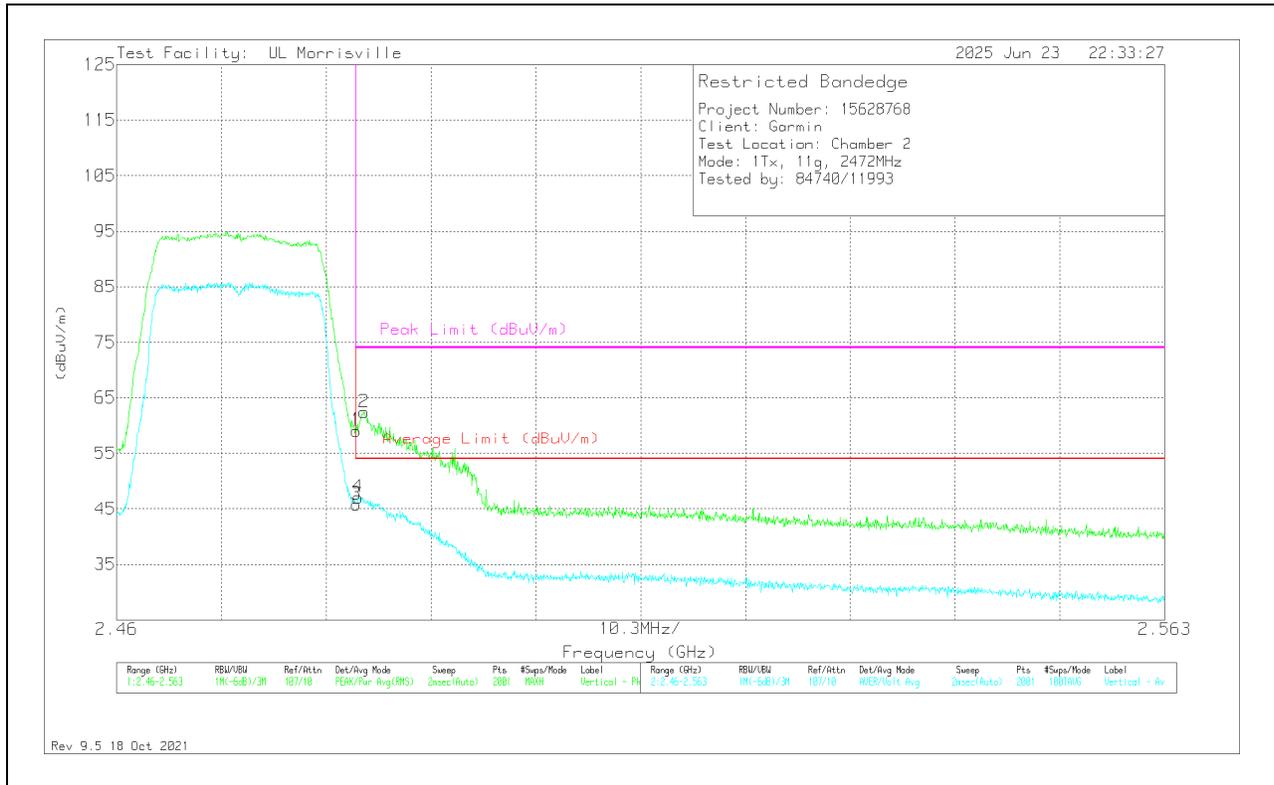
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	52.06	Pk	32.5	-25.5	59.06	-	-	74	-14.94	251	275	V
2	* ** 2.48431	55.52	Pk	32.5	-25.6	62.42	-	-	74	-11.58	251	275	V
3	* ** 2.48354	38.8	ADV	32.5	-25.5	45.8	54	-8.2	-	-	251	275	V
4	* ** 2.48374	40.06	ADV	32.5	-25.5	47.06	54	-6.94	-	-	251	275	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

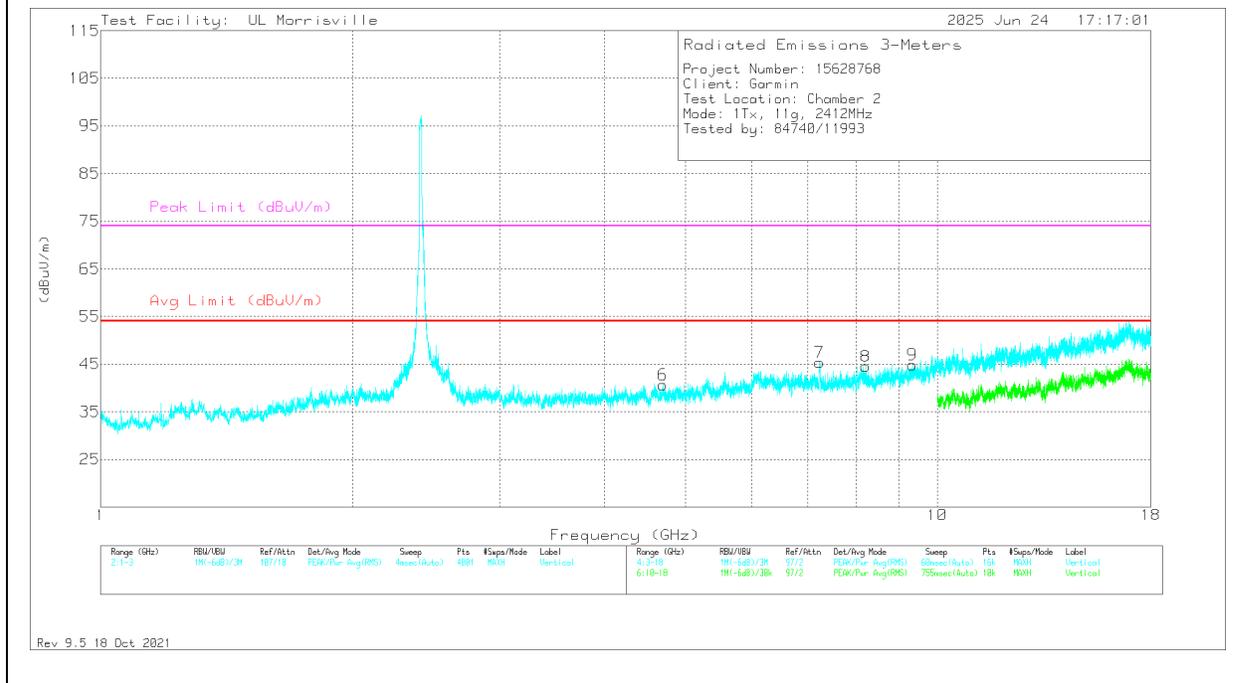
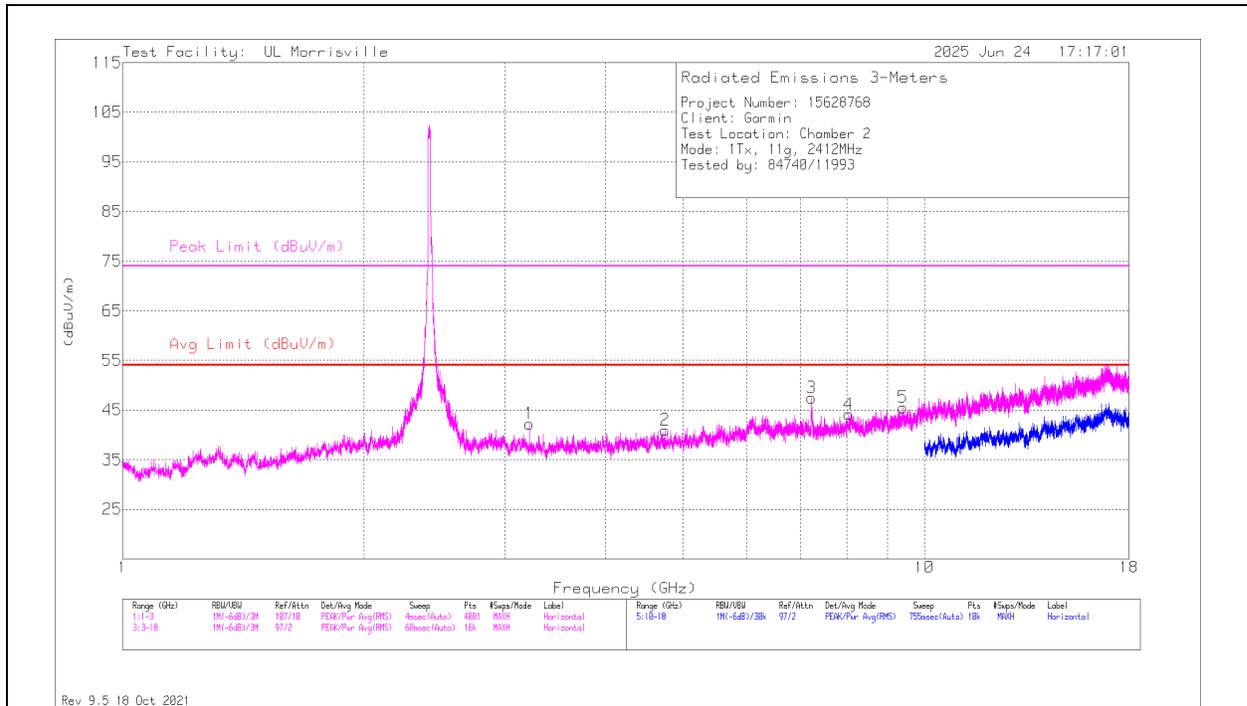
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL, CH 1 RESULTS



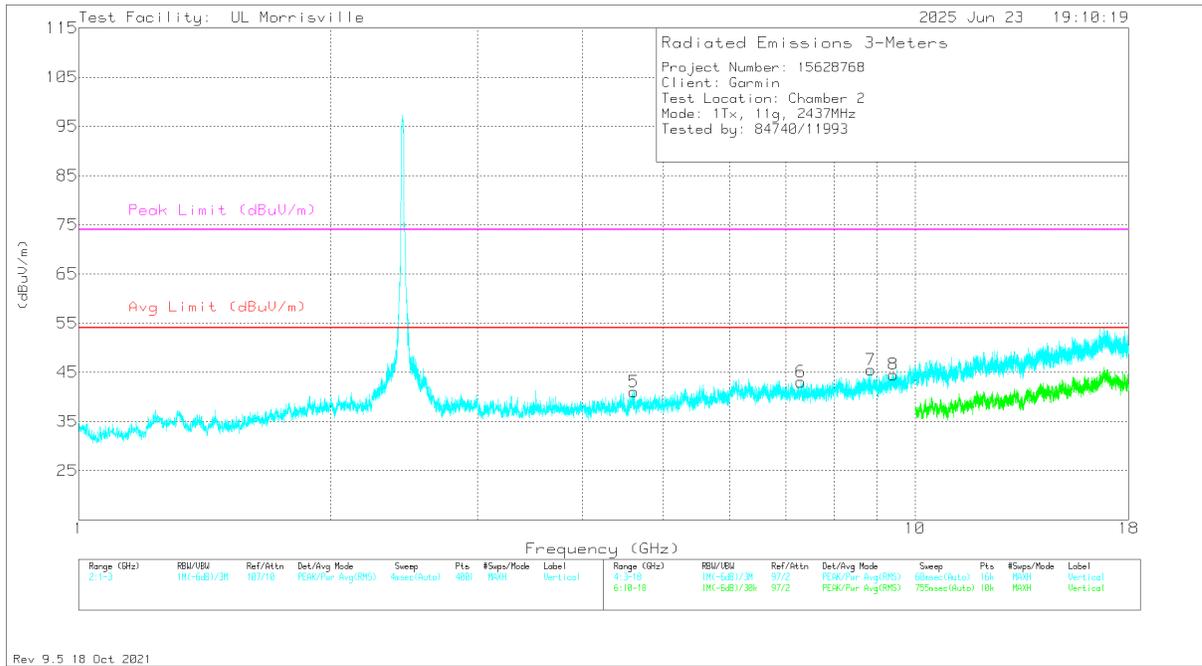
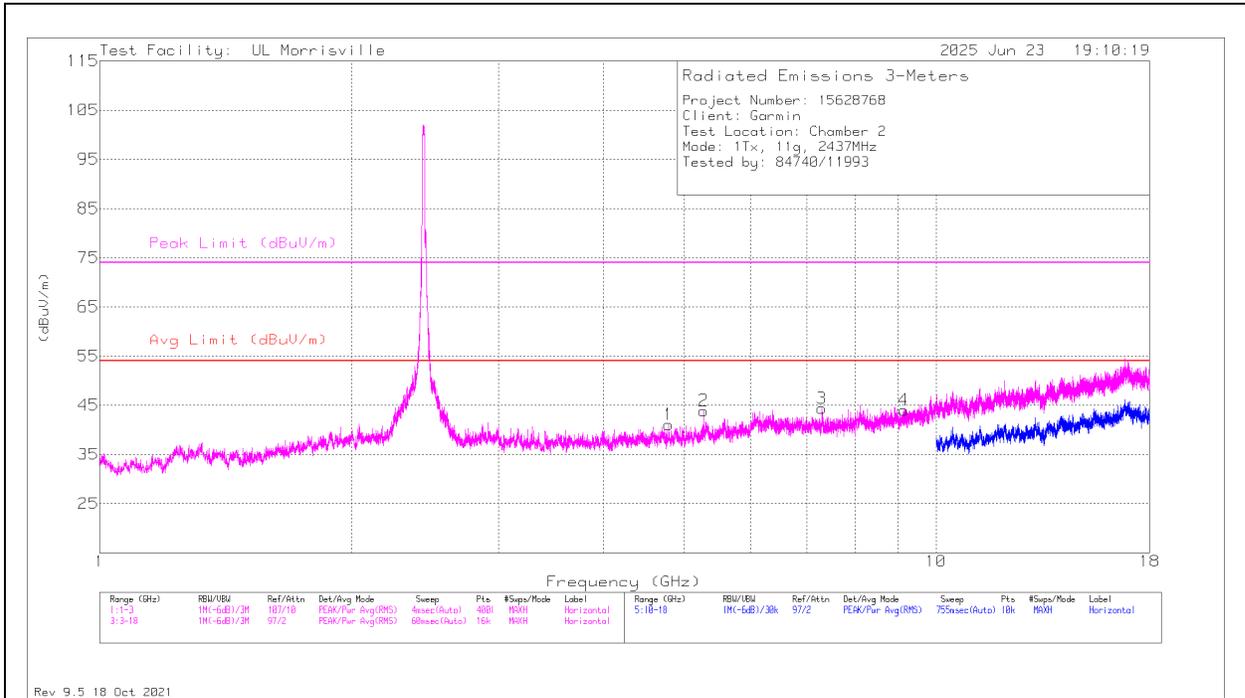
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	*** 4.75125	52.17	Pk	34.2	-45.4	40.97	54	-13.03	74	-33.03	0-360	200	H
4	*** 8.05219	49.52	Pk	35.8	-41.2	44.12	54	-9.88	74	-29.88	0-360	200	H
5	*** 9.40969	49.89	Pk	36.2	-40.6	45.49	54	-8.51	74	-28.51	0-360	200	H
6	*** 4.69781	51.19	Pk	34.1	-44.6	40.69	54	-13.31	74	-33.31	0-360	199	V
8	*** 8.21531	50.62	Pk	35.8	-41.9	44.52	54	-9.48	74	-29.48	0-360	199	V
9	*** 9.34406	49.39	Pk	36.1	-40.7	44.79	54	-9.21	74	-29.21	0-360	101	V
1	3.21563	54.65	Pk	33.1	-45.5	42.25	-	-	-	-	0-360	101	H
7	7.23188	52.55	Pk	35.6	-42.8	45.35	-	-	-	-	0-360	101	V
3	7.23656	54.44	Pk	35.6	-42.6	47.44	-	-	-	-	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

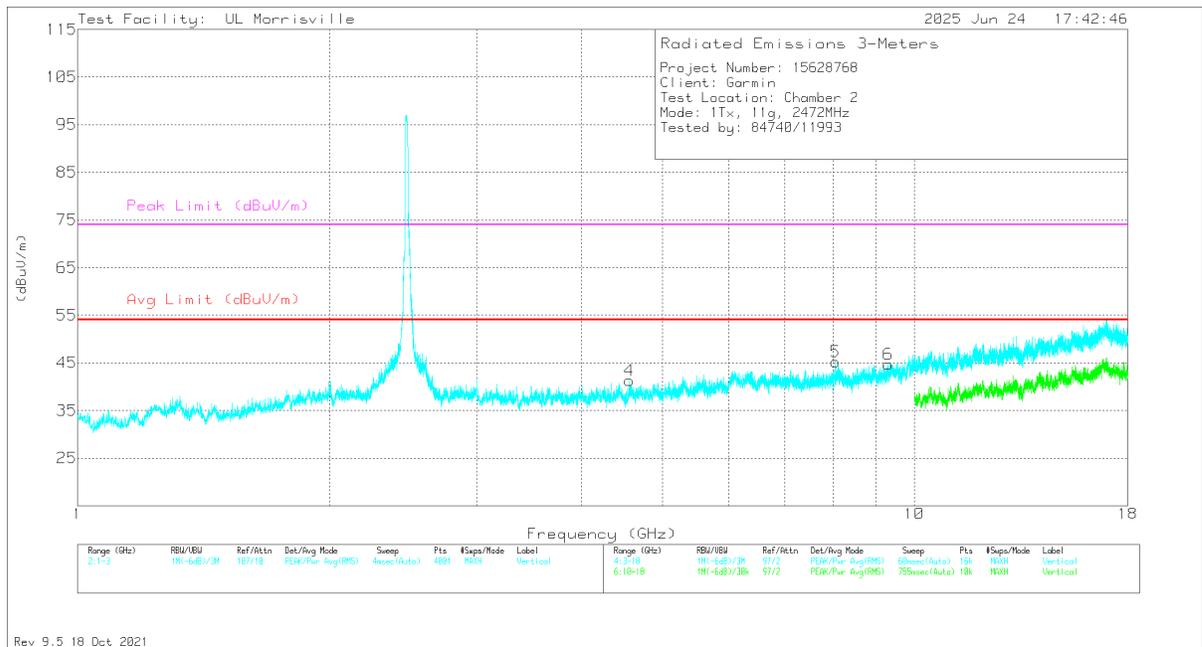
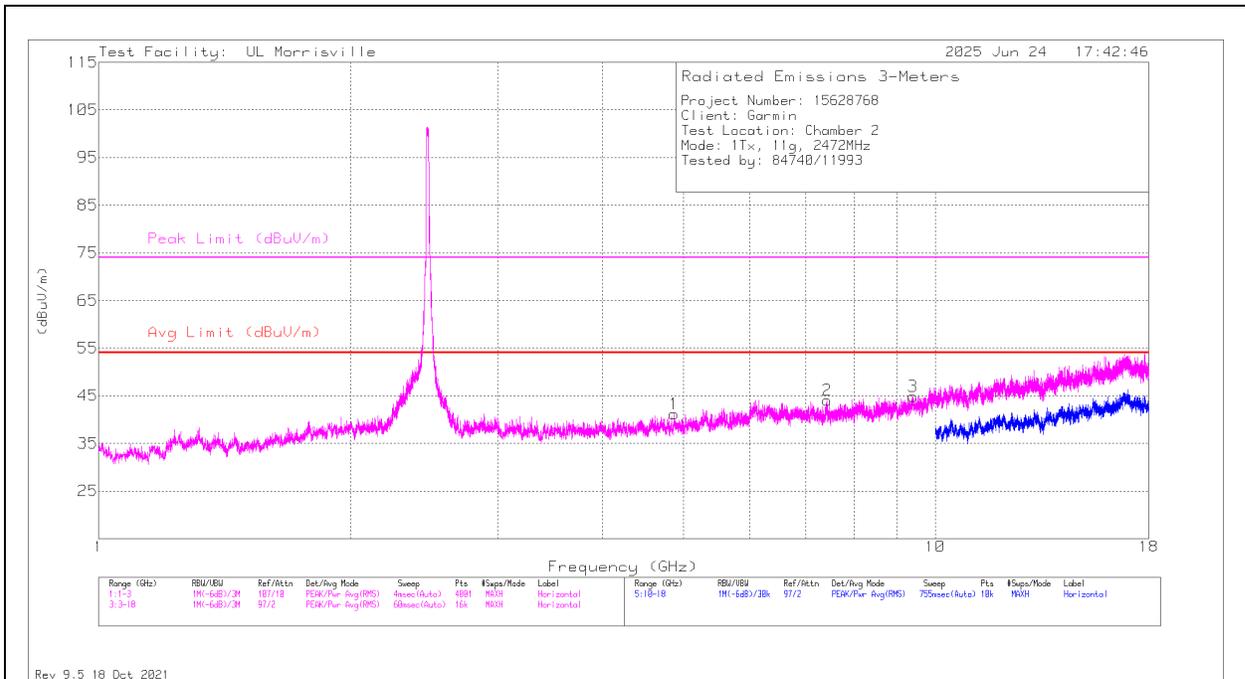
### MID CHANNEL, CH 6 RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.79156	51.66	Pk	34.2	-44.8	41.06	54	-12.94	74	-32.94	0-360	101	H
3	*** 7.30313	51.44	Pk	35.6	-42.7	44.34	54	-9.66	74	-29.66	0-360	101	H
4	*** 9.14438	48.61	Pk	35.9	-40.5	44.01	54	-9.99	74	-29.99	0-360	101	H
5	*** 4.61344	52.75	Pk	34	-45.7	41.05	54	-12.95	74	-32.95	0-360	199	V
6	*** 7.30031	50.16	Pk	35.6	-42.7	43.06	54	-10.94	74	-30.94	0-360	199	V
8	*** 9.41531	49.56	Pk	36.2	-41.2	44.56	54	-9.44	74	-29.44	0-360	199	V
2	5.27063	52.97	Pk	34.2	-43.3	43.87	-	-	-	-	0-360	101	H
7	8.85563	50.18	Pk	35.9	-40.6	45.48	-	-	-	-	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, CH 13 RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.87594	51.4	Pk	34.1	-44.3	41.2	54	-12.8	74	-32.8	0-360	101	H
2	*** 7.42875	50.22	Pk	35.6	-41.8	44.02	54	-9.98	74	-29.98	0-360	101	H
3	*** 9.4125	49.53	Pk	36.2	-40.9	44.83	54	-9.17	74	-29.17	0-360	101	H
4	*** 4.56281	52.24	Pk	34	-44.9	41.34	54	-12.66	74	-32.66	0-360	101	V
5	*** 8.05313	50.64	Pk	35.8	-41.2	45.24	54	-8.76	74	-28.76	0-360	101	V
6	*** 9.30563	49.26	Pk	36.1	-40.7	44.66	54	-9.34	74	-29.34	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

**10.2.6. 2.4 WLAN 802.11n HT20 MODE**

**BANDEGE (LOW CHANNEL, CH 1)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	55.25	Pk	32.3	-25.1	62.45	-	-	74	-11.55	176	291	H
2	*** 2.38838	59.75	Pk	32.3	-25	67.05	-	-	74	-6.95	176	291	H
3	*** 2.38996	41.05	ADV	32.3	-25.1	48.25	54	-5.75	-	-	176	291	H
4	*** 2.38959	41.13	ADV	32.3	-25	48.43	54	-5.57	-	-	176	291	H

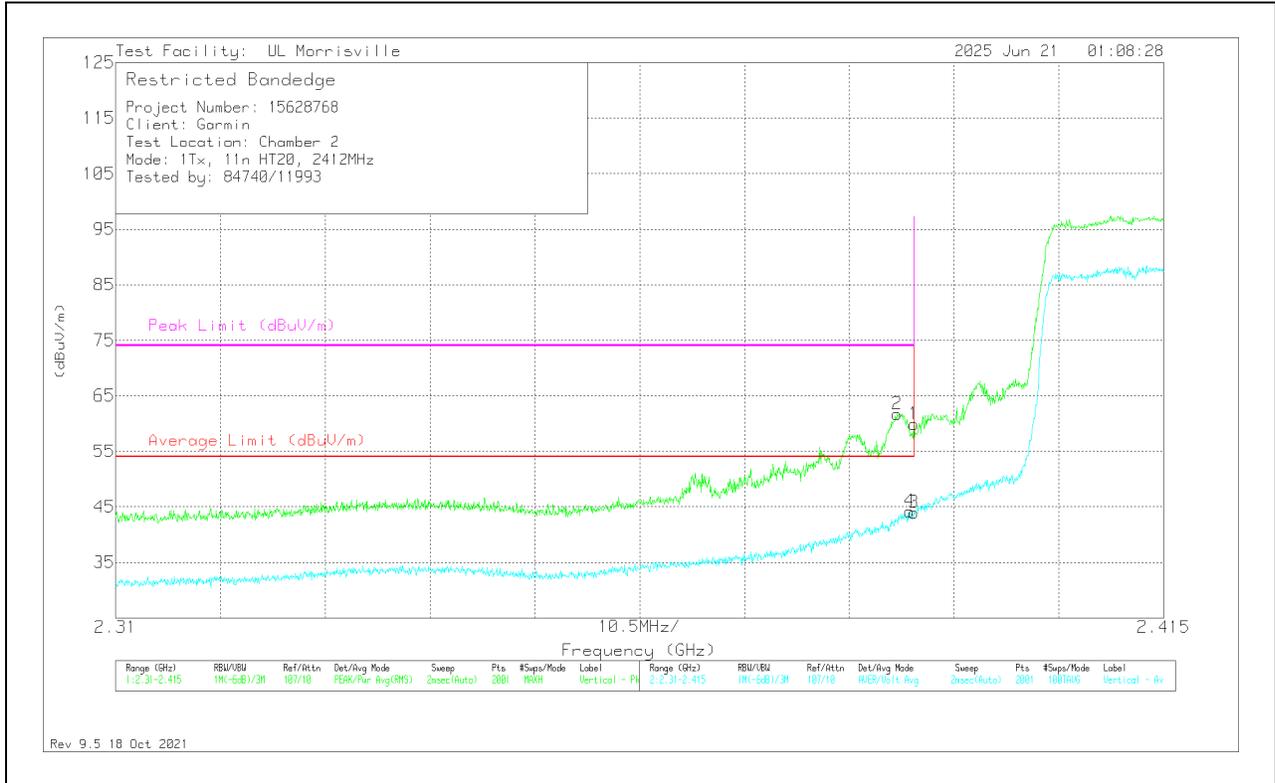
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	52.66	Pk	32.3	-25.1	59.86	-	-	74	-14.14	92	288	V
2	*** 2.38828	54.4	Pk	32.3	-25	61.7	-	-	74	-12.3	92	288	V
3	*** 2.38996	36.72	ADV	32.3	-25.1	43.92	54	-10.08	-	-	92	288	V
4	*** 2.38954	36.88	ADV	32.3	-25	44.18	54	-9.82	-	-	92	288	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

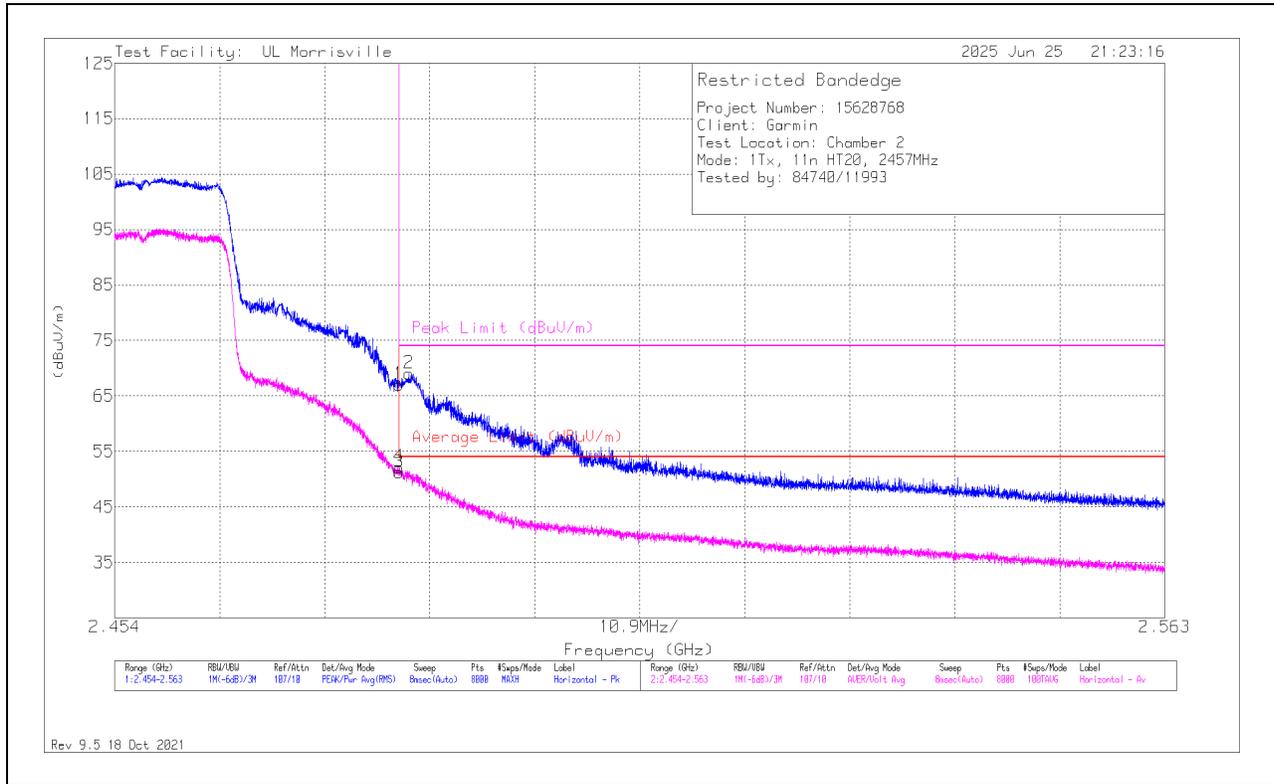
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, CH 10)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 2.4835	60.03	Pk	32.5	-25.5	67.03	-	-	74	-6.97	199	187	H
2	* ** 2.48451	62.2	Pk	32.5	-25.6	69.1	-	-	74	-4.9	199	187	H
3	* ** 2.4835	44.22	ADV	32.5	-25.5	51.22	54	-2.78	-	-	199	187	H
4	* ** 2.48353	45.17	ADV	32.5	-25.5	52.17	54	-1.83	-	-	199	187	H

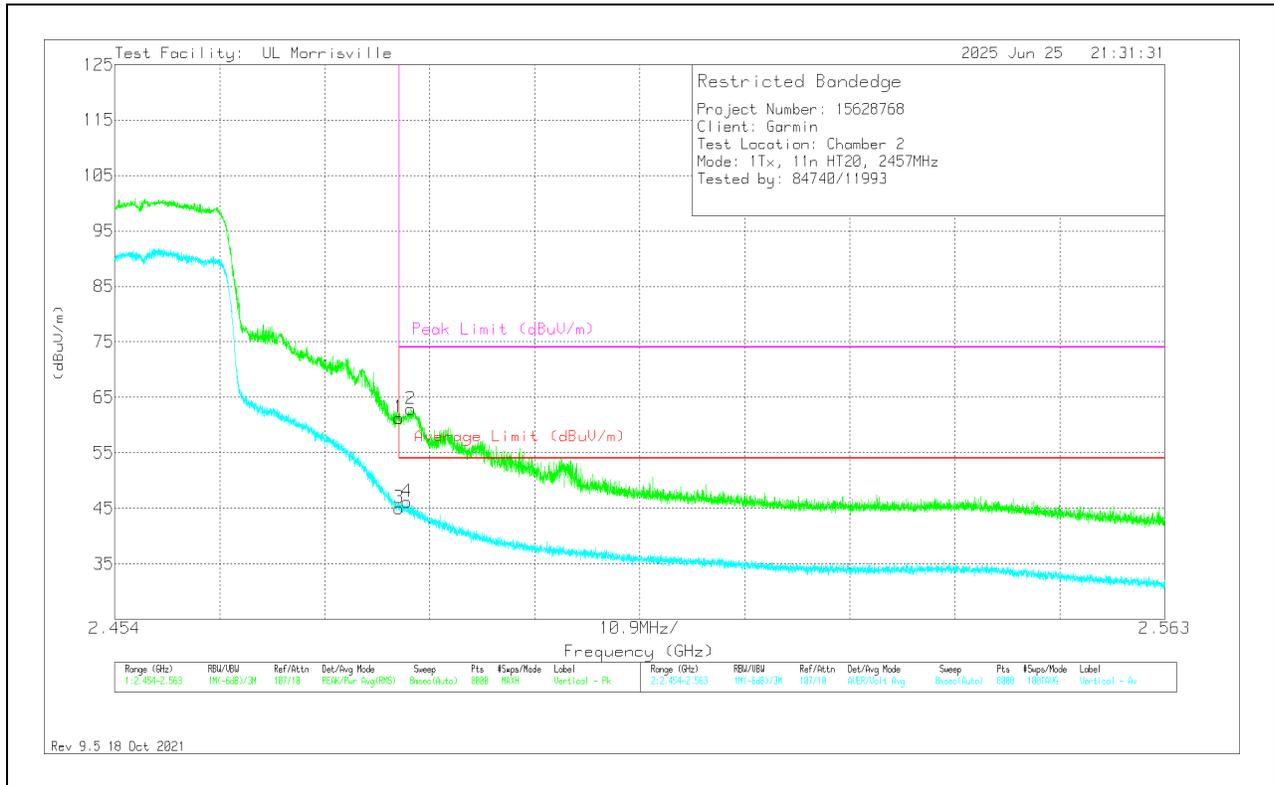
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 2.4835	54.34	Pk	32.5	-25.5	61.34	-	-	74	-12.66	226	220	V
2	* ** 2.48476	55.96	Pk	32.5	-25.6	62.86	-	-	74	-11.14	226	220	V
3	* ** 2.4835	38.05	ADV	32.5	-25.5	45.05	54	-8.95	-	-	226	220	V
4	* ** 2.48433	39.23	ADV	32.5	-25.6	46.13	54	-7.87	-	-	226	220	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

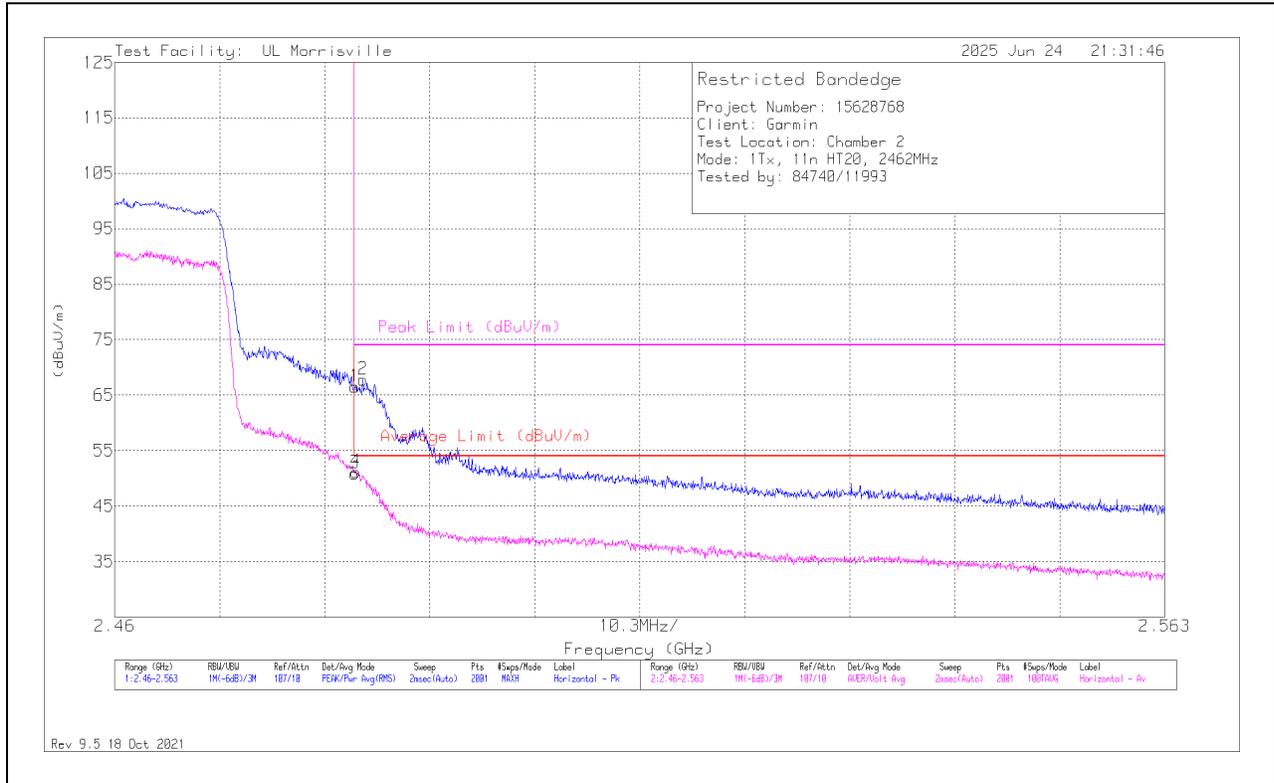
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

**BANDEDGE (HIGH CHANNEL, CH 11)**

**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	59.5	Pk	32.5	-25.5	66.5	-	-	74	-7.5	202	185	H
2	*** 2.48436	60.88	Pk	32.5	-25.6	67.78	-	-	74	-6.22	202	185	H
3	*** 2.48354	43.88	ADV	32.5	-25.5	50.88	54	-3.12	-	-	202	185	H
4	*** 2.48364	44.15	ADV	32.5	-25.5	51.15	54	-2.85	-	-	202	185	H

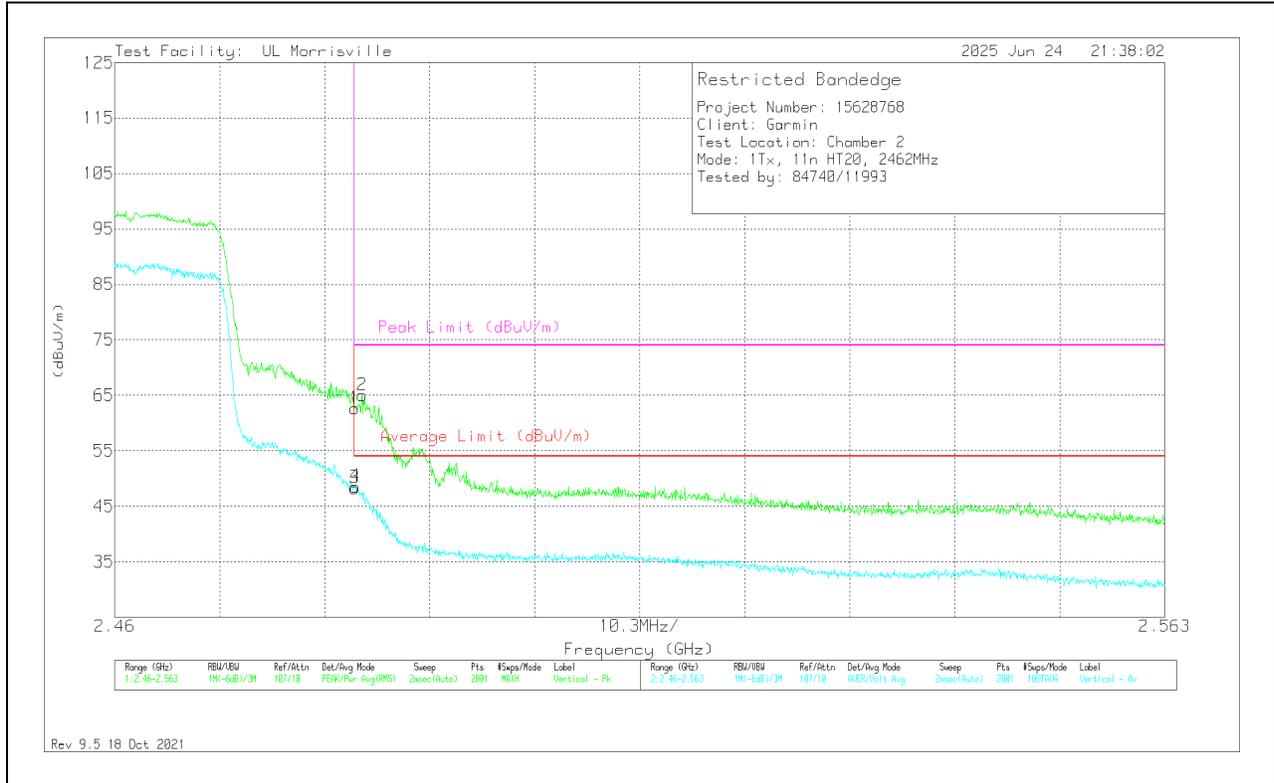
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

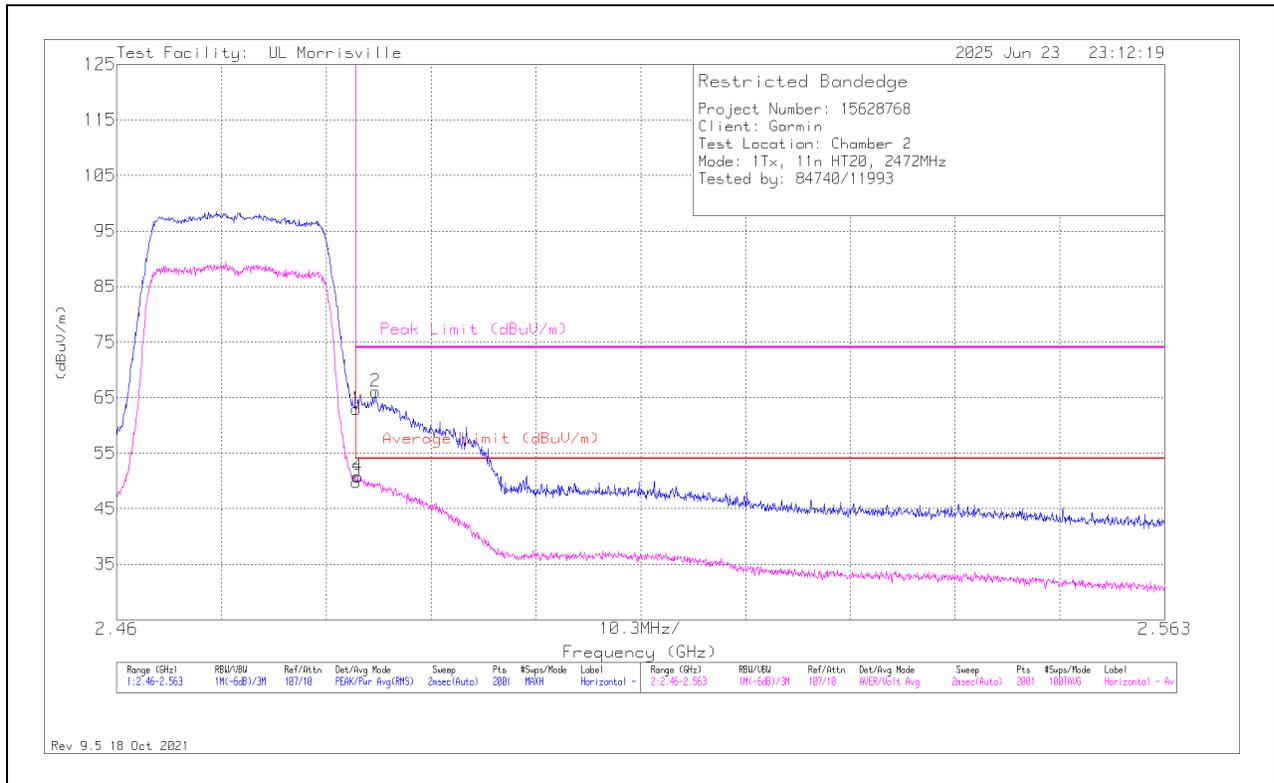


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	55.61	Pk	32.5	-25.5	62.61	-	-	74	-11.39	230	219	V
2	* ** 2.48426	58.09	Pk	32.5	-25.6	64.99	-	-	74	-9.01	230	219	V
3	* ** 2.48354	41.31	ADV	32.5	-25.5	48.31	54	-5.69	-	-	230	219	V
4	* ** 2.48359	41.53	ADV	32.5	-25.5	48.53	54	-5.47	-	-	230	219	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, CH 13)

### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	55.91	Pk	32.5	-25.5	62.91	-	-	74	-11.09	200	188	H
2	*** 2.48544	59.15	Pk	32.5	-25.6	66.05	-	-	74	-7.95	200	188	H
3	*** 2.48354	42.83	ADV	32.5	-25.5	49.83	54	-4.17	-	-	200	188	H
4	*** 2.48369	43.76	ADV	32.5	-25.5	50.76	54	-3.24	-	-	200	188	H

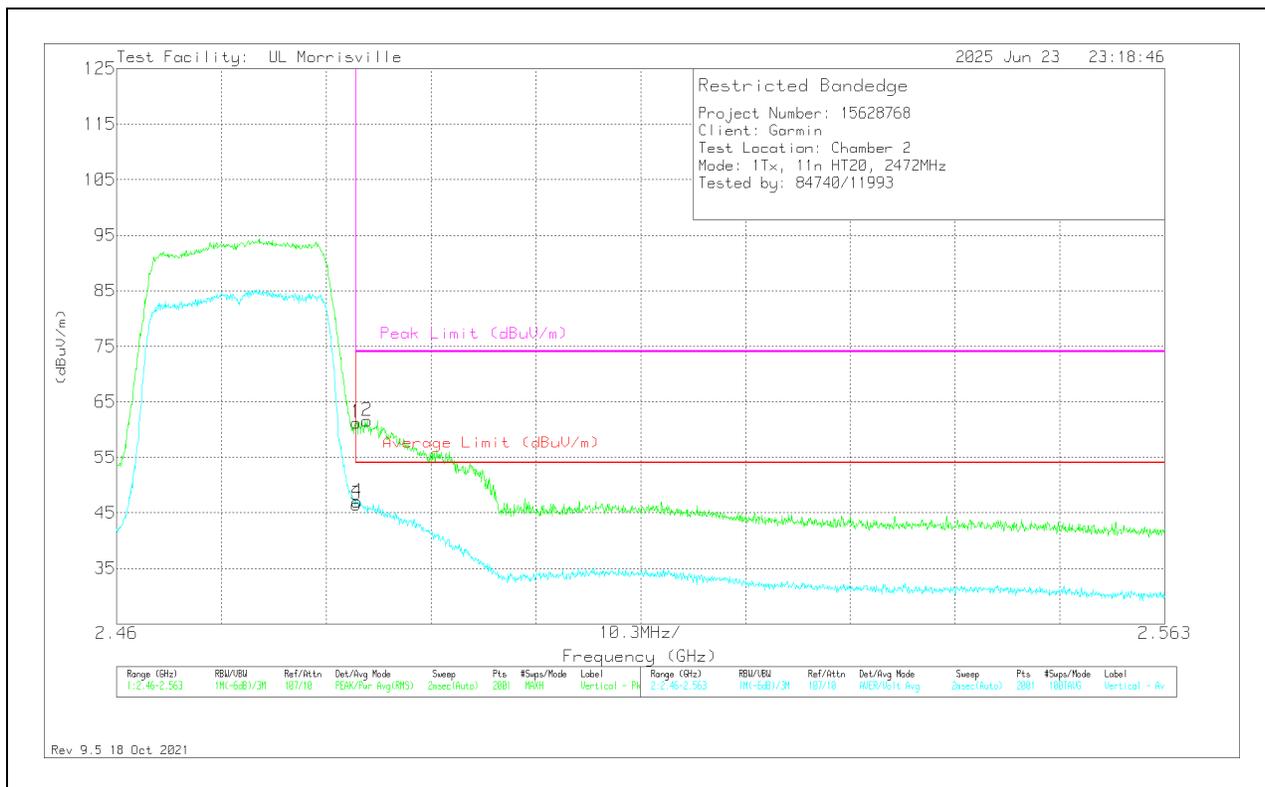
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

### VERTICAL RESULT

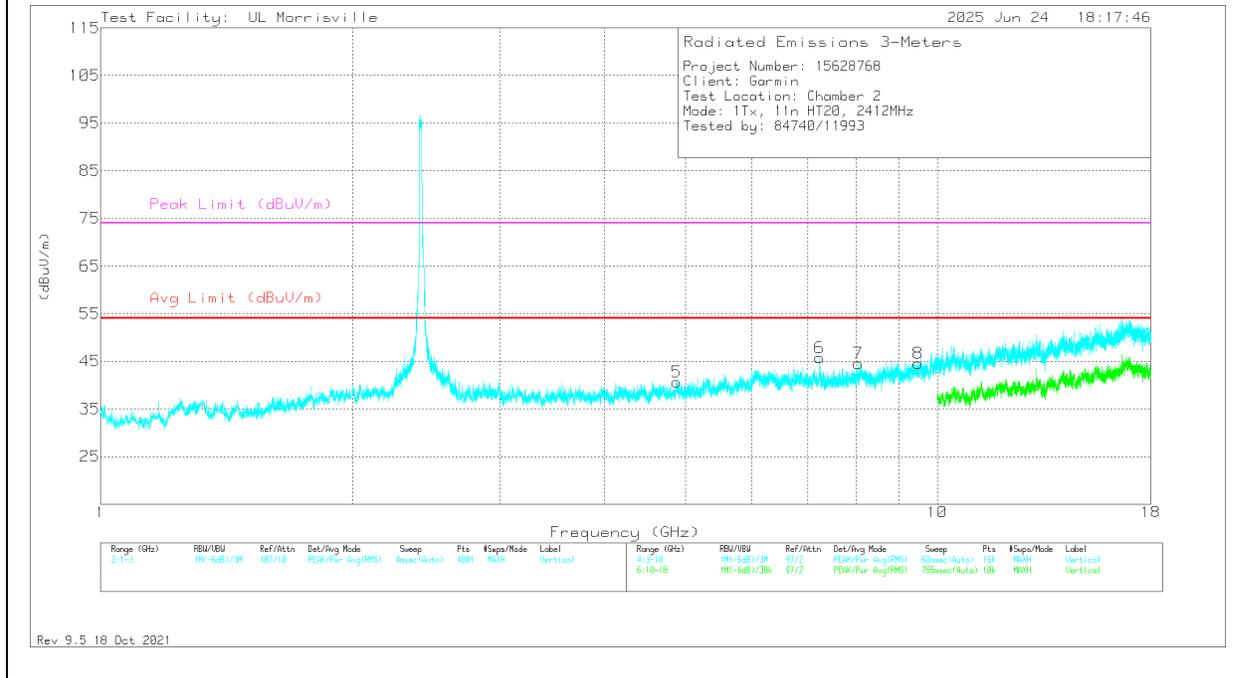
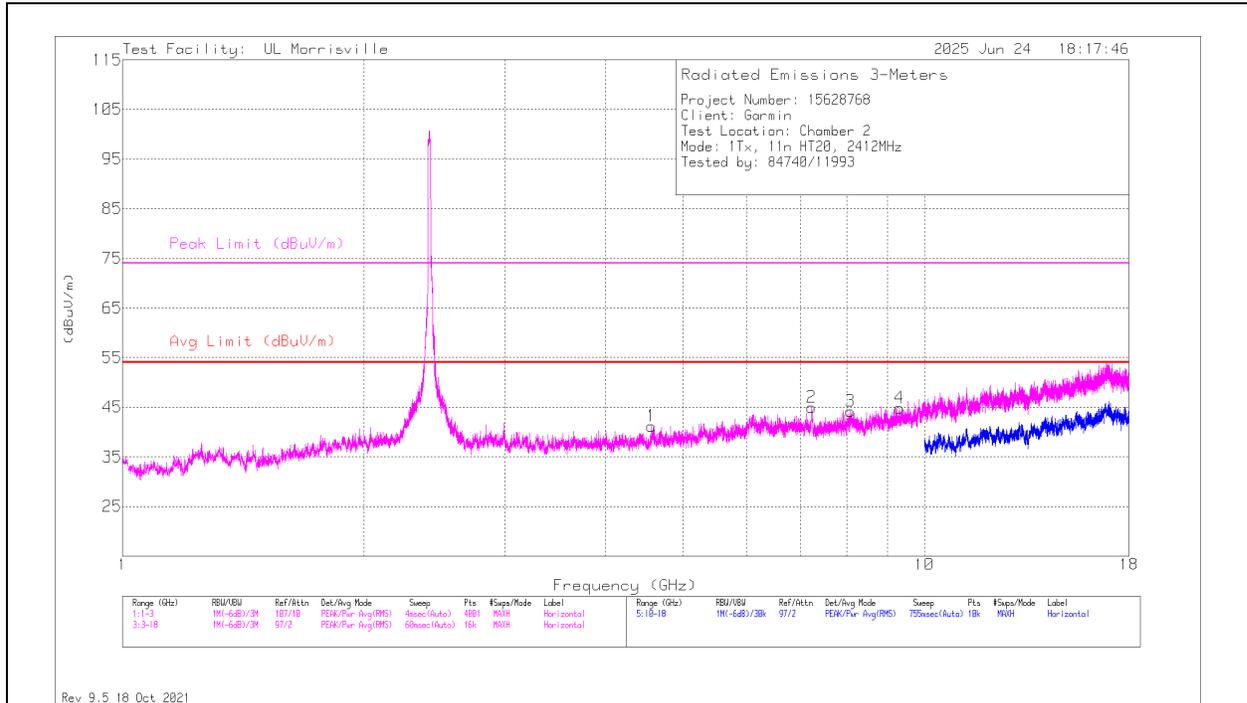


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	54.26	Pk	32.5	-25.5	61.26	-	-	74	-12.74	311	202	V
2	* ** 2.48462	54.74	Pk	32.5	-25.6	61.64	-	-	74	-12.36	311	202	V
3	* ** 2.48354	39.52	ADV	32.5	-25.5	46.52	54	-7.48	-	-	311	202	V
4	* ** 2.48364	40.02	ADV	32.5	-25.5	47.02	54	-6.98	-	-	311	202	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

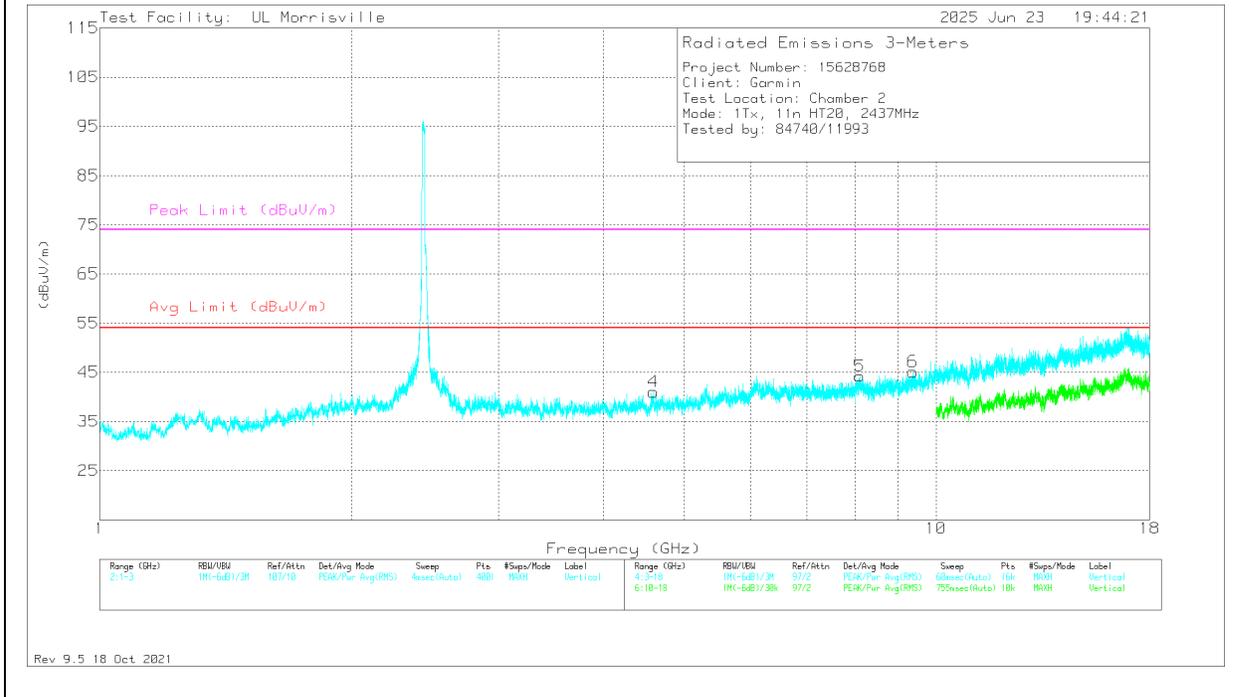
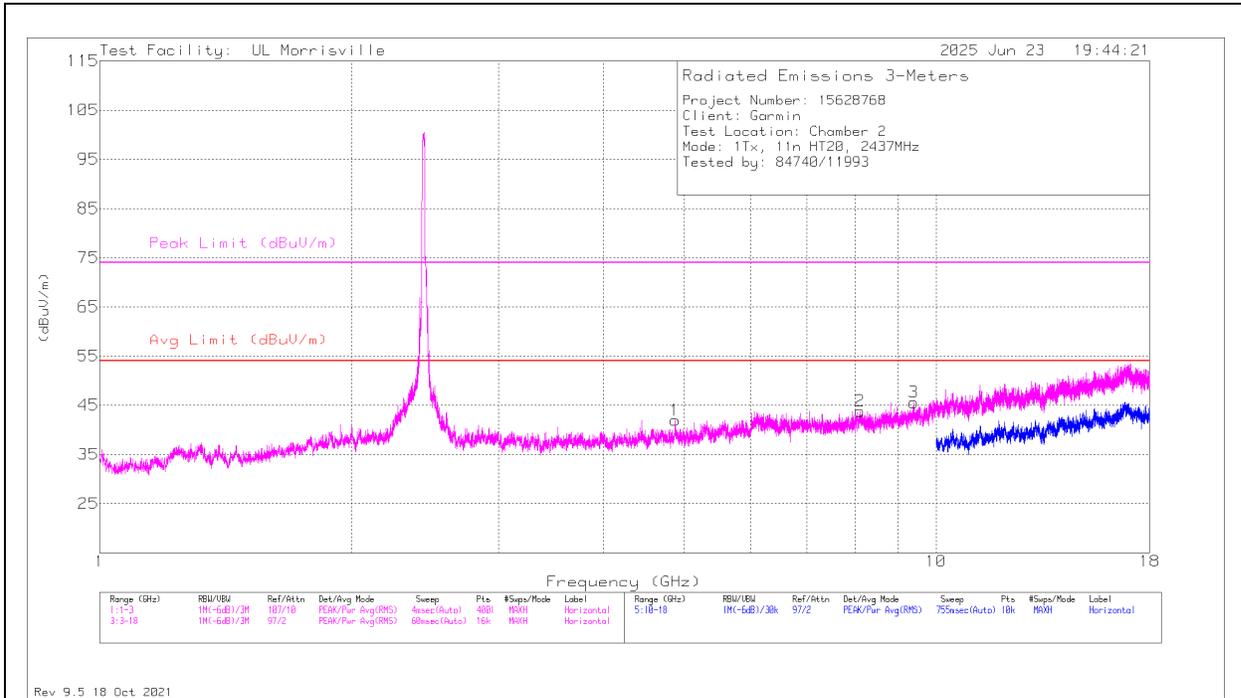
## LOW CHANNEL, CH 1 RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.56469	52.1	Pk	34	-44.9	41.2	54	-12.8	74	-32.8	0-360	101	H
3	*** 8.08219	50.38	Pk	35.8	-42	44.18	54	-9.82	74	-29.82	0-360	200	H
4	*** 9.31219	49.52	Pk	36.1	-40.8	44.82	54	-9.18	74	-29.18	0-360	200	H
5	*** 4.87875	50.99	Pk	34.1	-44.4	40.69	54	-13.31	74	-33.31	0-360	101	V
7	*** 8.05219	49.96	Pk	35.8	-41.2	44.56	54	-9.44	74	-29.44	0-360	101	V
8	*** 9.48656	49.72	Pk	36.4	-41.5	44.62	54	-9.38	74	-29.38	0-360	101	V
2	7.23656	52	Pk	35.6	-42.6	45	-	-	-	-	0-360	101	H
6	7.23656	52.75	Pk	35.6	-42.6	45.75	-	-	-	-	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, CH 6 RESULTS



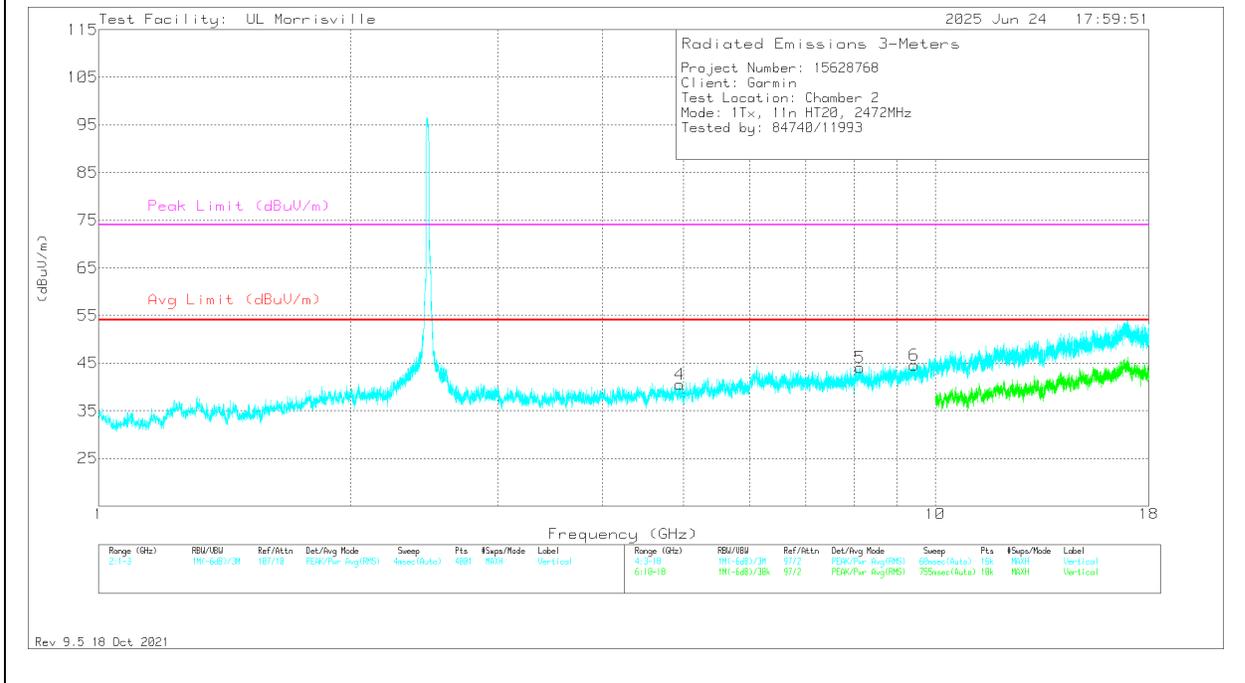
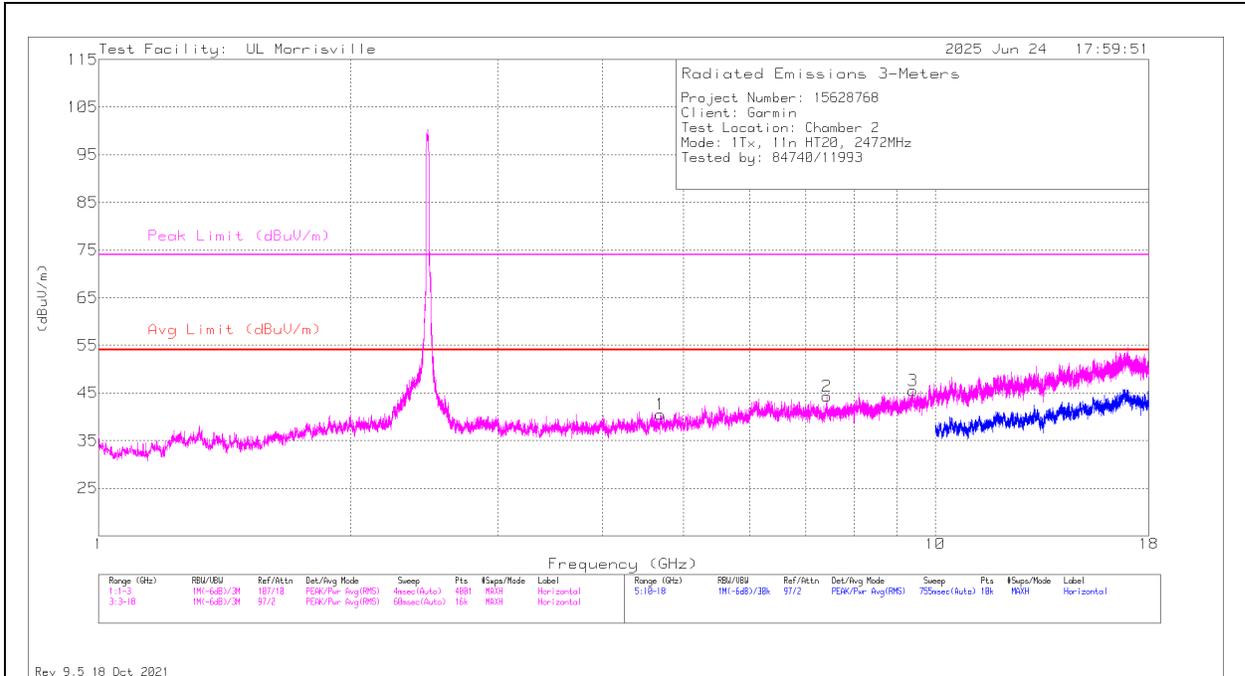
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.875	52.14	Pk	34.1	-44.3	41.94	54	-12.06	74	-32.06	0-360	101	H
2	*** 8.10656	49.3	Pk	35.8	-41.3	43.8	54	-10.2	74	-30.2	0-360	199	H
3	*** 9.40781	49.78	Pk	36.2	-40.4	45.58	54	-8.42	74	-28.42	0-360	101	H
4	*** 4.59094	51.92	Pk	34	-44.9	41.02	54	-12.98	74	-32.98	0-360	101	V
5	*** 8.10469	49.73	Pk	35.8	-41.3	44.23	54	-9.77	74	-29.77	0-360	200	V
6	*** 9.37969	49.78	Pk	36.2	-40.9	45.08	54	-8.92	74	-28.92	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, CH 13 RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 4.69031	51.42	Pk	34.1	-45	40.52	54	-13.48	74	-33.48	0-360	200	H
2	* ** 7.42219	50.97	Pk	35.6	-42.3	44.27	54	-9.73	74	-29.73	0-360	200	H
3	* ** 9.40781	49.7	Pk	36.2	-40.4	45.5	54	-8.5	74	-28.5	0-360	200	H
4	* ** 4.95094	52	Pk	34	-45.5	40.5	54	-13.5	74	-33.5	0-360	199	V
5	* ** 8.12719	50.01	Pk	35.8	-41.7	44.11	54	-9.89	74	-29.89	0-360	101	V
6	* ** 9.43313	49.9	Pk	36.3	-41.6	44.6	54	-9.4	74	-29.4	0-360	199	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

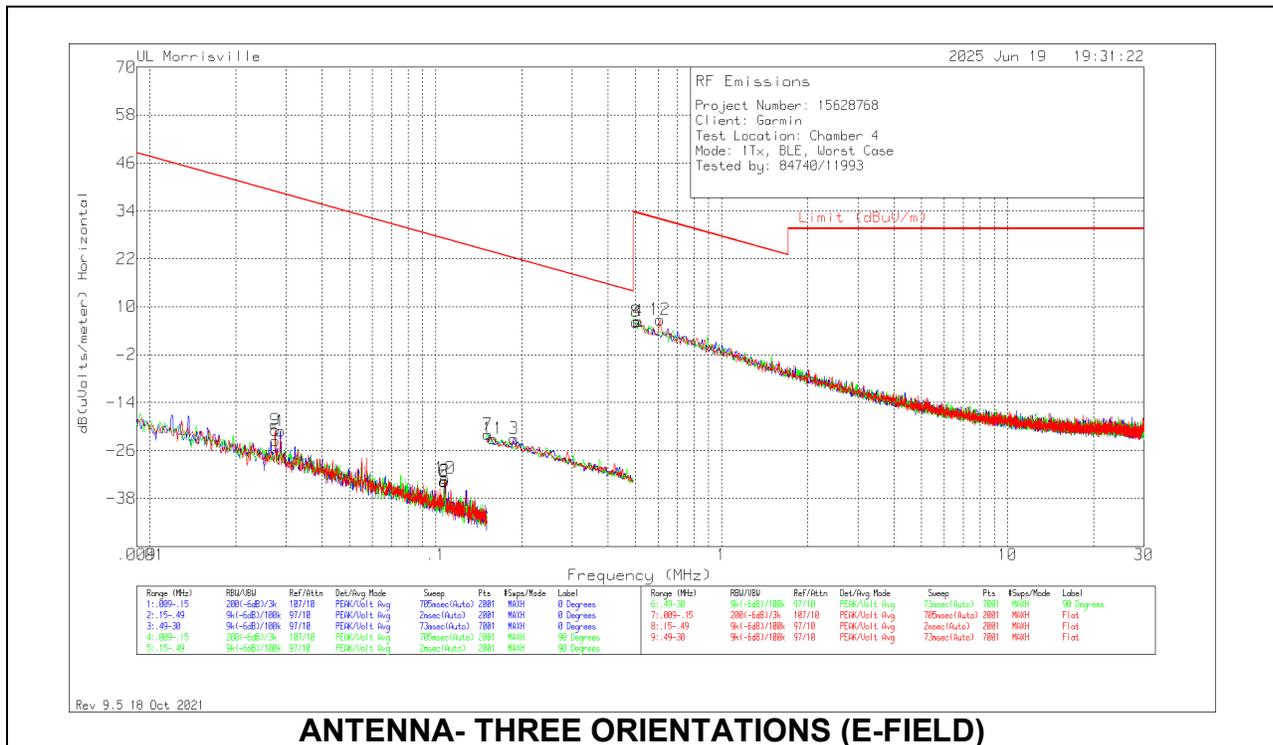
Pk - Peak detector

### 10.3. 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).

#### 10.3.1. BLE

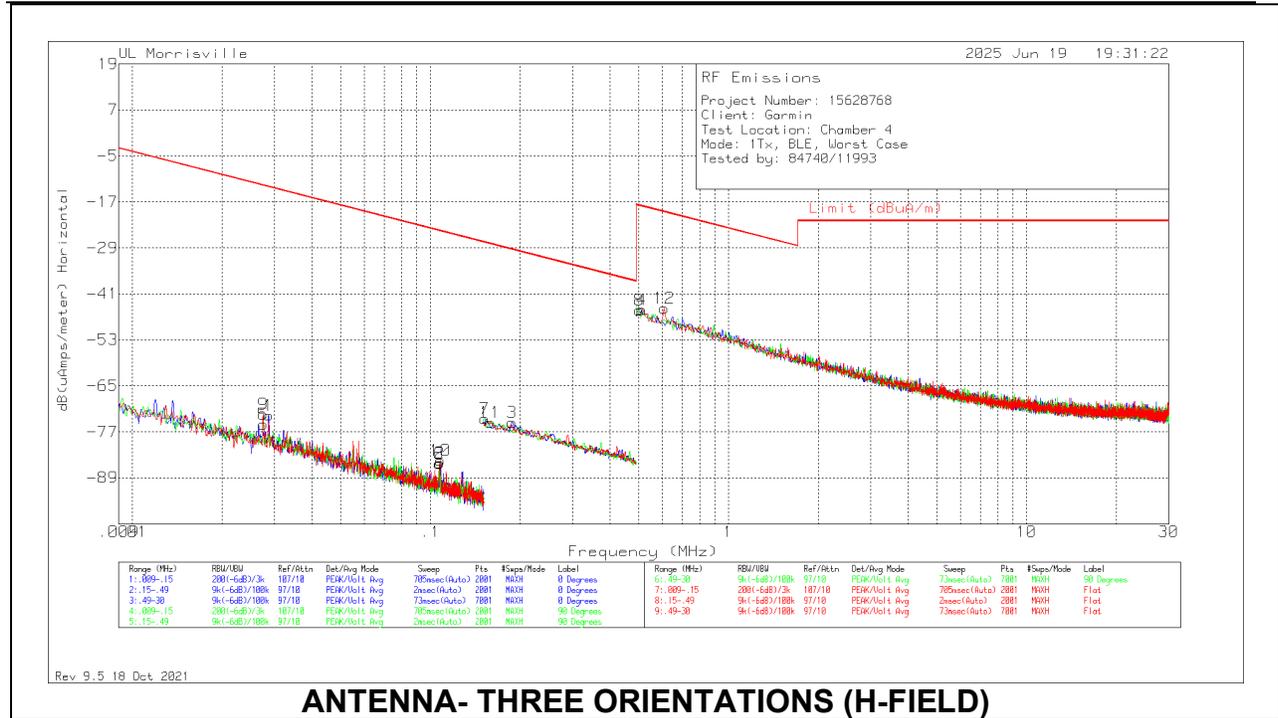
#### SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



#### 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	.02746	43.19	Pk	13.3	0	-80	-23.51	38.83	58.83	-62.34	0-360	90 degs
9	.02746	45.76	Pk	13.3	0	-80	-20.94	38.83	58.83	-59.77	0-360	Flat
1	.02867	45.63	Pk	13.2	0	-80	-21.17	38.46	58.46	-59.63	0-360	0 degs
6	.10677	35.16	Pk	11.1	0	-80	-33.74	27.04	-	-60.78	0-360	90 degs
2	.10734	35.25	Pk	11.1	0	-80	-33.65	26.99	-	-60.64	0-360	0 degs
10	.1079	35.99	Pk	11.1	0	-80	-32.91	26.94	-	-59.85	0-360	Flat
7	.15204	47.01	Pk	11	0	-80	-21.99	23.97	43.97	-45.96	0-360	90 degs
11	.15876	45.99	Pk	11	0	-80	-23.01	23.59	43.59	-46.6	0-360	Flat
3	.188	46.02	Pk	11	0	-80	-22.98	22.12	42.12	-45.1	0-360	0 degs
8	.50265	35.11	Pk	11	.1	-40	6.21	33.58	-	-27.37	0-360	90 degs
4	.51108	35.24	Pk	11	.1	-40	6.34	33.43	-	-27.09	0-360	0 degs
12	.60805	35.63	Pk	11	.1	-40	6.73	31.93	-	-25.2	0-360	Flat

Pk - Peak detector



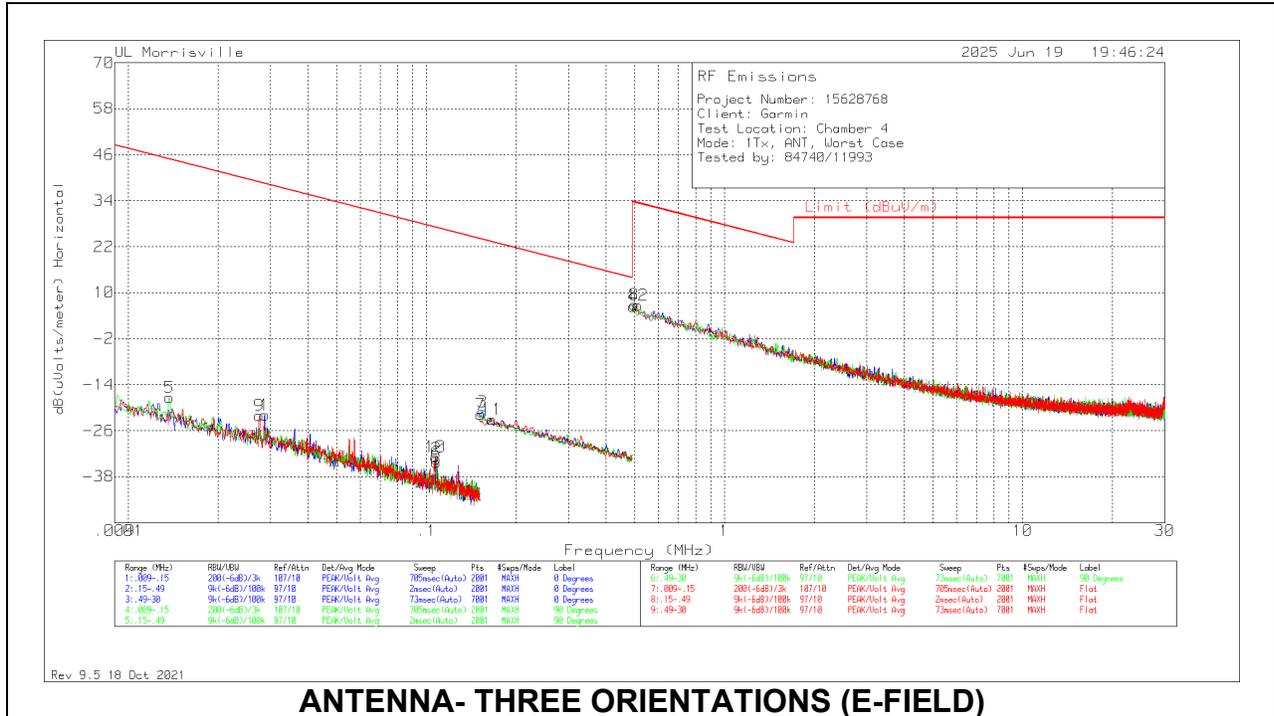
**ANTENNA- THREE ORIENTATIONS (H-FIELD)**

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	.02746	43.19	Pk	-38.2	0	-80	-75.01	-12.67	7.33	-62.34	0-360	90 degs
9	.02746	45.76	Pk	-38.2	0	-80	-72.44	-12.67	7.33	-59.77	0-360	Flat
1	.02867	45.63	Pk	-38.3	0	-80	-72.67	-13.04	6.96	-59.63	0-360	0 degs
6	.10677	35.16	Pk	-40.4	0	-80	-85.24	-24.46	-	-60.78	0-360	90 degs
2	.10734	35.25	Pk	-40.4	0	-80	-85.15	-24.51	-	-60.64	0-360	0 degs
10	.1079	35.99	Pk	-40.4	0	-80	-84.41	-24.56	-	-59.85	0-360	Flat
7	.15204	47.01	Pk	-40.5	0	-80	-73.49	-27.53	-7.53	-45.96	0-360	90 degs
11	.15876	45.99	Pk	-40.5	0	-80	-74.51	-27.91	-7.91	-46.6	0-360	Flat
3	.188	46.02	Pk	-40.5	0	-80	-74.48	-29.38	-9.38	-45.1	0-360	0 degs
8	.50265	35.11	Pk	-40.5	.1	-40	-45.29	-17.92	-	-27.37	0-360	90 degs
4	.51108	35.24	Pk	-40.5	.1	-40	-45.16	-18.07	-	-27.09	0-360	0 degs
12	.60805	35.63	Pk	-40.5	.1	-40	-44.77	-19.57	-	-25.2	0-360	Flat

Pk - Peak detector

**10.3.2. ANT/ANT+**

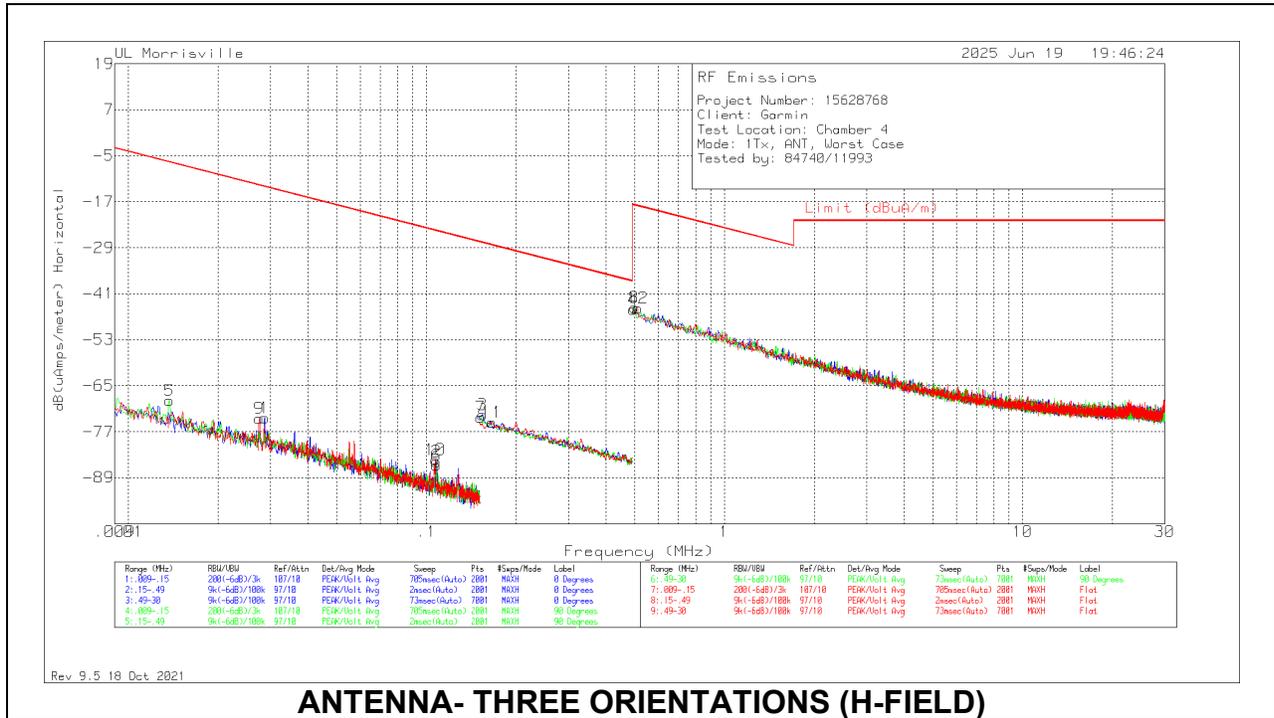
**SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)**



**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	.01376	45.49	Pk	17.1	0	-80	-17.41	44.83	64.83	-62.24	0-360	90 degs
9	.02753	44.63	Pk	13.3	0	-80	-22.07	38.81	58.81	-60.88	0-360	Flat
1	.02867	44.96	Pk	13.2	0	-80	-21.84	38.46	58.46	-60.3	0-360	0 degs
10	.10719	36.16	Pk	11.1	0	-80	-32.74	27	-	-59.74	0-360	Flat
2	.10783	35.66	Pk	11.1	0	-80	-33.24	26.95	-	-60.19	0-360	0 degs
6	.10812	34.69	Pk	11.1	0	-80	-34.21	26.93	-	-61.14	0-360	90 degs
7	.15187	47.3	Pk	11	0	-80	-21.7	23.97	43.97	-45.67	0-360	90 degs
3	.154	47.93	Pk	11	0	-80	-21.07	23.85	43.85	-44.92	0-360	0 degs
11	.1659	46.01	Pk	11	0	-80	-22.99	23.21	43.21	-46.2	0-360	Flat
4	.49422	35.23	Pk	11	.1	-40	6.33	33.73	-	-27.4	0-360	0 degs
8	.49843	35.77	Pk	11	.1	-40	6.87	33.65	-	-26.78	0-360	90 degs
12	.51108	35.6	Pk	11	.1	-40	6.7	33.43	-	-26.73	0-360	Flat

Pk - Peak detector



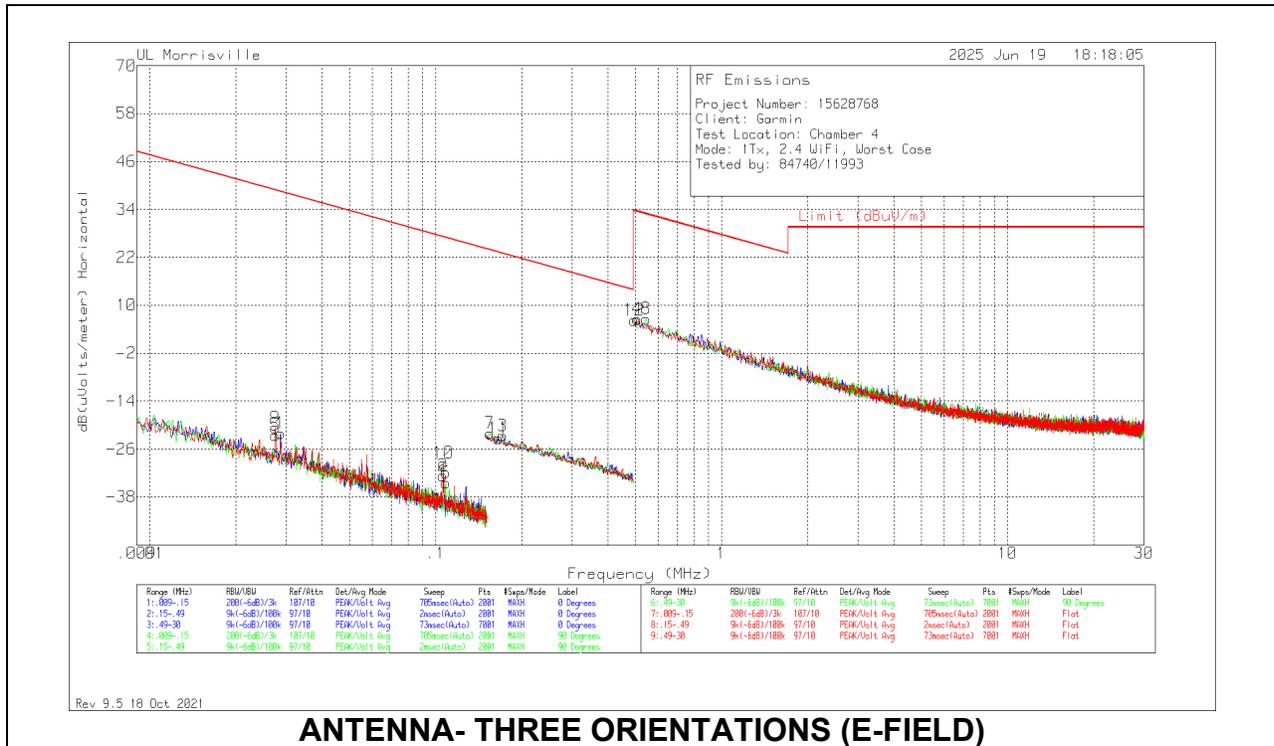
**ANTENNA- THREE ORIENTATIONS (H-FIELD)**

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	.01376	45.49	Pk	-34.4	0	-80	-68.91	-6.67	13.33	-62.24	0-360	90 degs
9	.02753	44.63	Pk	-38.2	0	-80	-73.57	-12.69	7.31	-60.88	0-360	Flat
1	.02867	44.96	Pk	-38.3	0	-80	-73.34	-13.04	6.96	-60.3	0-360	0 degs
10	.10719	36.16	Pk	-40.4	0	-80	-84.24	-24.5	-	-59.74	0-360	Flat
2	.10783	35.66	Pk	-40.4	0	-80	-84.74	-24.55	-	-60.19	0-360	0 degs
6	.10812	34.69	Pk	-40.4	0	-80	-85.71	-24.57	-	-61.14	0-360	90 degs
7	.15187	47.3	Pk	-40.5	0	-80	-73.2	-27.53	-7.53	-45.67	0-360	90 degs
3	.154	47.93	Pk	-40.5	0	-80	-72.57	-27.65	-7.65	-44.92	0-360	0 degs
11	.1659	46.01	Pk	-40.5	0	-80	-74.49	-28.29	-8.29	-46.2	0-360	Flat
4	.49422	35.23	Pk	-40.5	.1	-40	-45.17	-17.77	-	-27.4	0-360	0 degs
8	.49843	35.77	Pk	-40.5	.1	-40	-44.63	-17.85	-	-26.78	0-360	90 degs
12	.51108	35.6	Pk	-40.5	.1	-40	-44.8	-18.07	-	-26.73	0-360	Flat

Pk - Peak detector

**10.3.3. 2.4 WLAN**

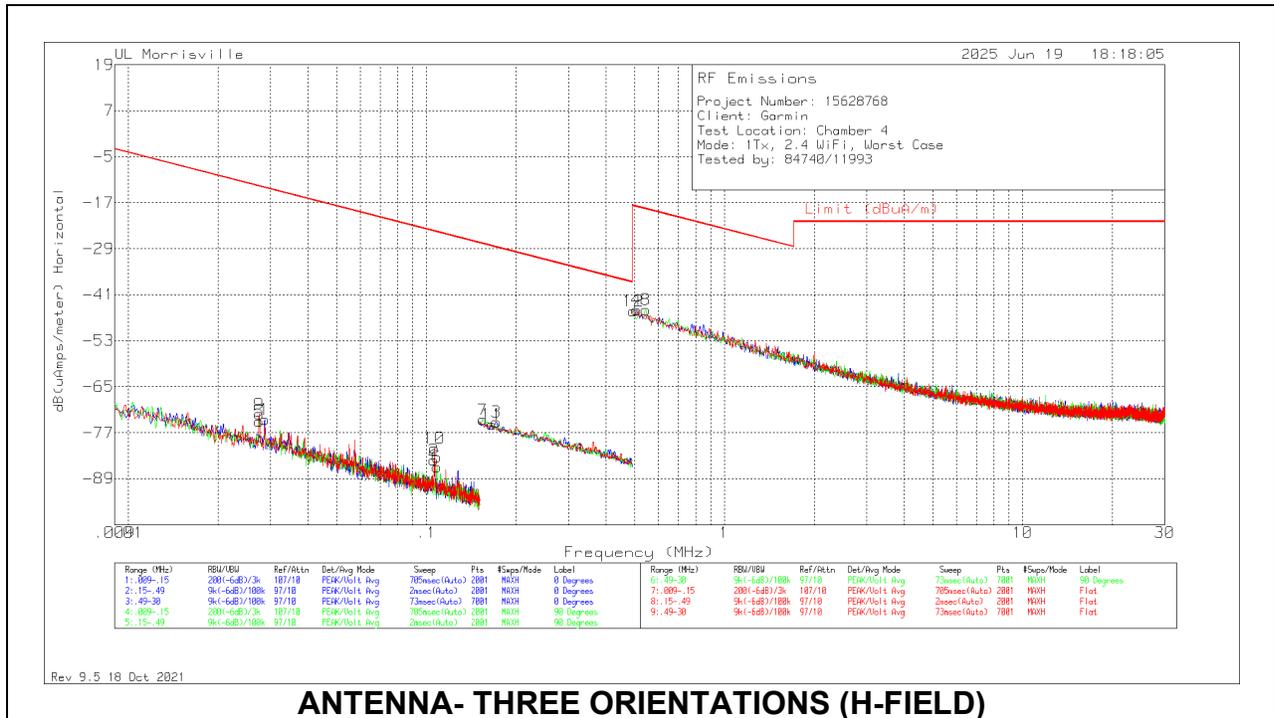
**SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)**



**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	.02746	46.03	Pk	13.3	0	-80	-20.67	38.83	58.83	-59.5	0-360	Flat
5	.02753	44.11	Pk	13.3	0	-80	-22.59	38.81	58.81	-61.4	0-360	90 degs
1	.02867	44.76	Pk	13.2	0	-80	-22.04	38.46	58.46	-60.5	0-360	0 degs
2	.10609	36.23	Pk	11.1	0	-80	-32.67	27.09	-	-59.76	0-360	0 degs
10	.10641	39.39	Pk	11.1	0	-80	-29.51	27.06	-	-56.57	0-360	Flat
6	.10847	34.47	Pk	11.1	0	-80	-34.43	26.9	-	-61.33	0-360	90 degs
7	.15459	46.87	Pk	11	0	-80	-22.13	23.82	43.82	-45.95	0-360	90 degs
11	.16556	45.64	Pk	11	0	-80	-23.36	23.23	43.23	-46.59	0-360	Flat
3	.17108	46.36	Pk	11	0	-80	-22.64	22.94	42.94	-45.58	0-360	0 degs
12	.49422	35.19	Pk	11	.1	-40	6.29	33.73	-	-27.44	0-360	Flat
4	.50686	35.41	Pk	11	.1	-40	6.51	33.51	-	-27	0-360	0 degs
8	.54481	35.47	Pk	11	.1	-40	6.57	32.88	-	-26.31	0-360	90 degs

Pk - Peak detector



**ANTENNA- THREE ORIENTATIONS (H-FIELD)**

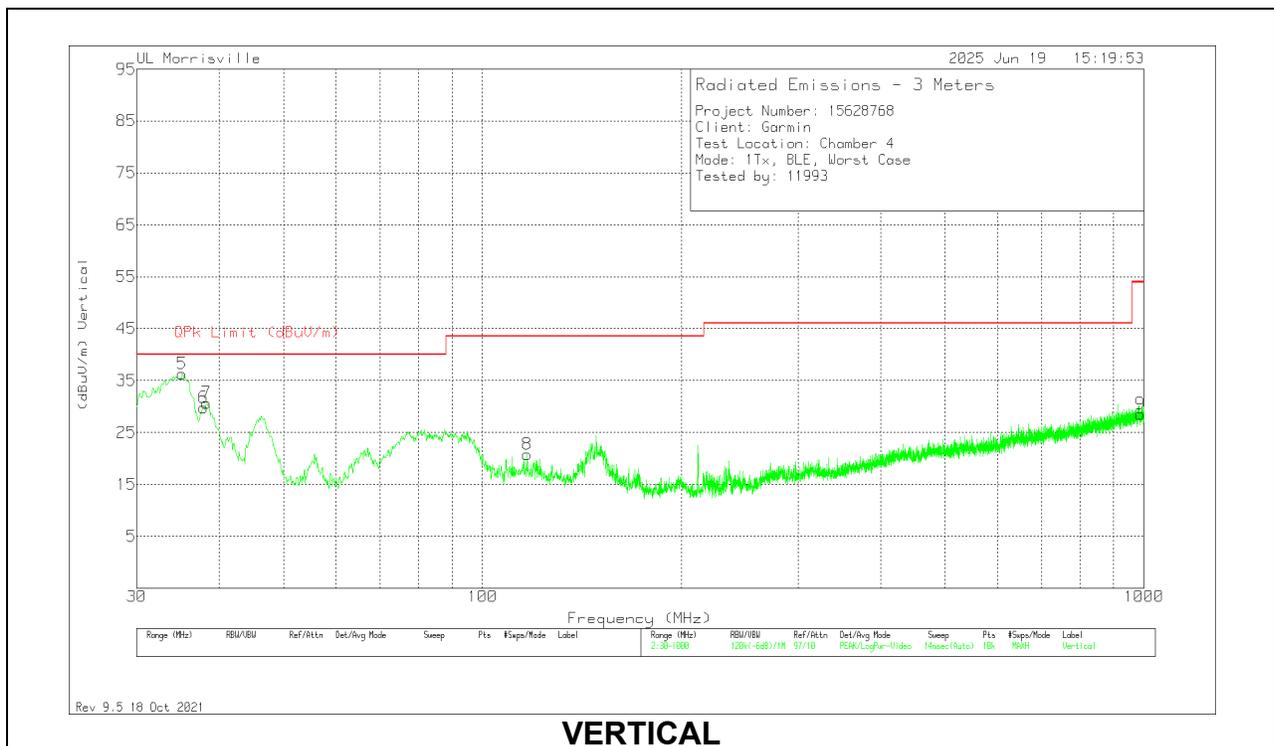
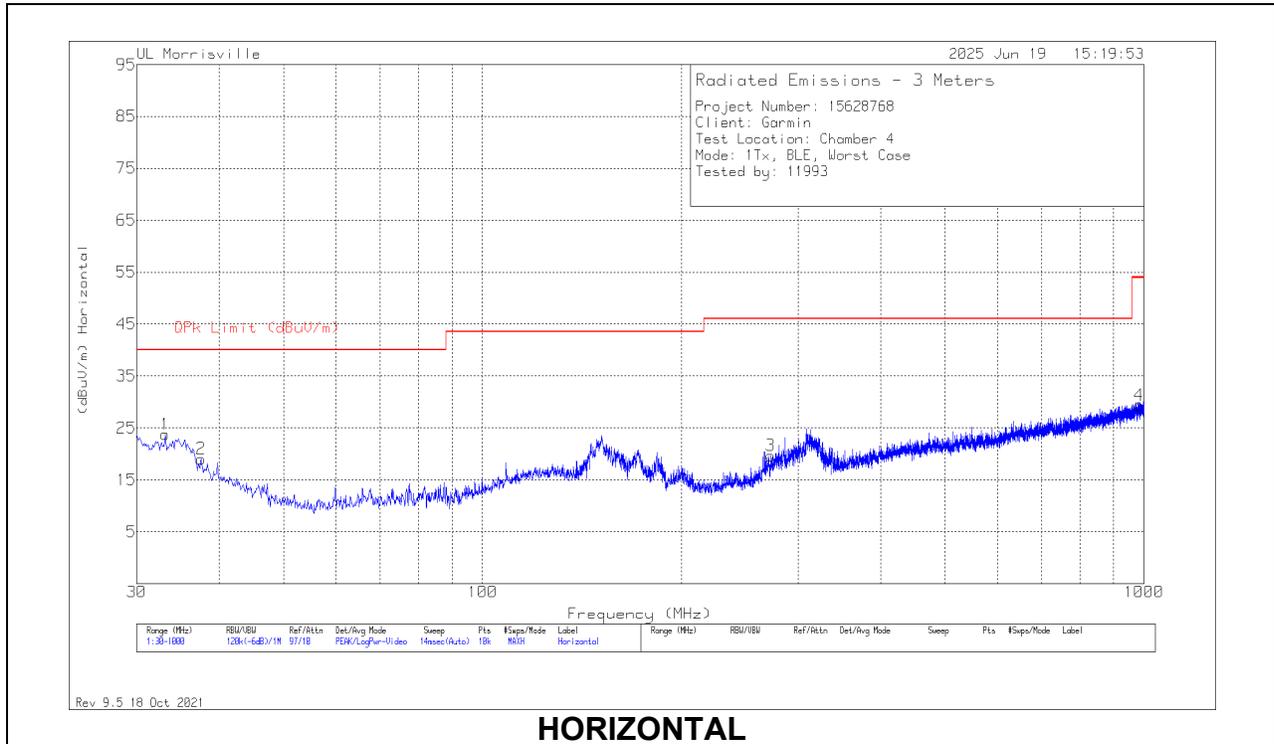
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
9	.02746	46.03	Pk	-38.2	0	-80	-72.17	-12.67	7.33	-59.5	0-360	Flat
5	.02753	44.11	Pk	-38.2	0	-80	-74.09	-12.69	7.31	-61.4	0-360	90 degs
1	.02867	44.76	Pk	-38.3	0	-80	-73.54	-13.04	6.96	-60.5	0-360	0 degs
2	.10609	36.23	Pk	-40.4	0	-80	-84.17	-24.41	-	-59.76	0-360	0 degs
10	.10641	39.39	Pk	-40.4	0	-80	-81.01	-24.44	-	-56.57	0-360	Flat
6	.10847	34.47	Pk	-40.4	0	-80	-85.93	-24.6	-	-61.33	0-360	90 degs
7	.15459	46.87	Pk	-40.5	0	-80	-73.63	-27.68	-7.68	-45.95	0-360	90 degs
11	.16556	45.64	Pk	-40.5	0	-80	-74.86	-28.27	-8.27	-46.59	0-360	Flat
3	.17108	46.36	Pk	-40.5	0	-80	-74.14	-28.56	-8.56	-45.58	0-360	0 degs
12	.49422	35.19	Pk	-40.5	.1	-40	-45.21	-17.77	-	-27.44	0-360	Flat
4	.50686	35.41	Pk	-40.5	.1	-40	-44.99	-17.99	-	-27	0-360	0 degs
8	.54481	35.47	Pk	-40.5	.1	-40	-44.93	-18.62	-	-26.31	0-360	90 degs

Pk - Peak detector

### 10.4. WORST CASE BELOW 1 GHZ

#### 10.4.1. BLE

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



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90628 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	*** 37.566	29.25	Pk	21.8	-32	19.05	40	-20.95	0-360	200	H
3	*** 272.597	29.57	Pk	19.4	-29.3	19.67	46.02	-26.35	0-360	100	H
4	*** 982.831	24.85	Pk	29.1	-24.6	29.35	53.97	-24.62	0-360	100	H
6	*** 37.857	39.89	Pk	21.6	-31.7	29.79	40	-10.21	0-360	100	V
8	*** 116.912	31.86	Pk	19.8	-30.9	20.76	43.52	-22.76	0-360	100	V
9	*** 988.166	24.83	Pk	29.2	-25.5	28.53	53.97	-25.44	0-360	200	V
1	33.104	30.53	Pk	24.8	-31.6	23.73	-	-	0-360	100	H
5	35.141	44.46	Pk	23.5	-31.7	36.26	-	-	0-360	100	V
7	38.2935	40.89	Pk	21.3	-31.5	30.69	-	-	0-360	100	V

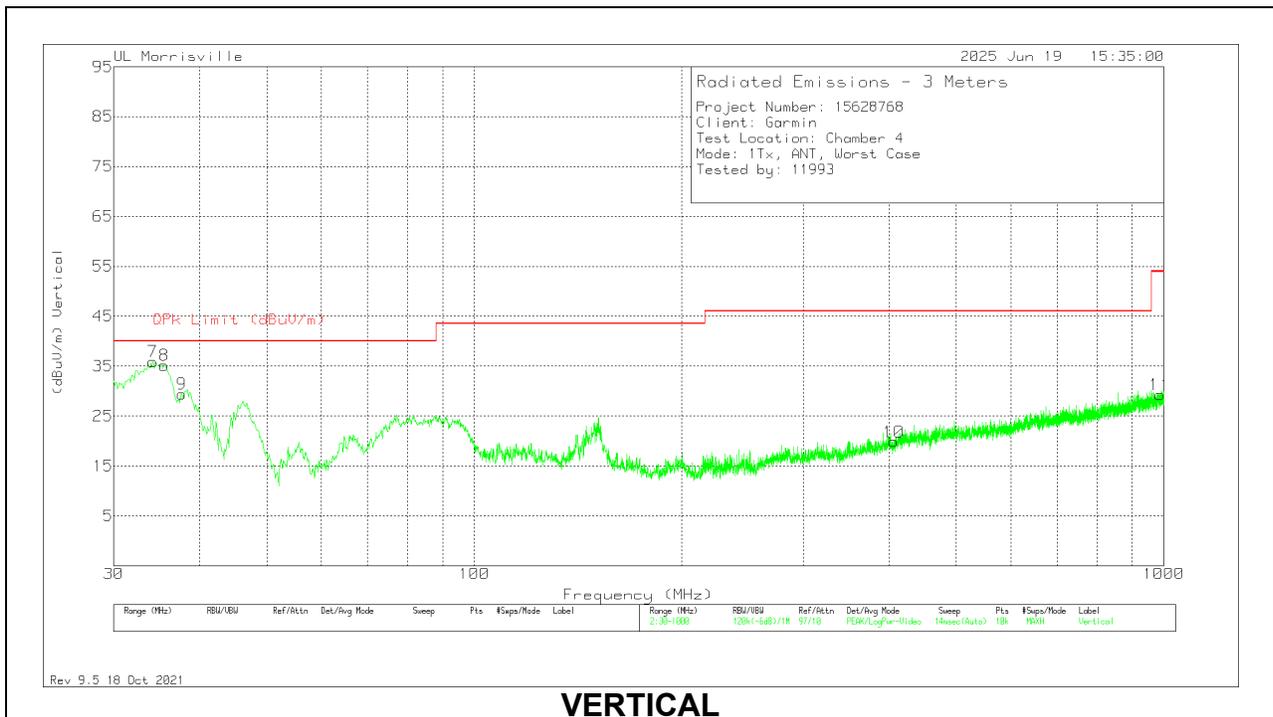
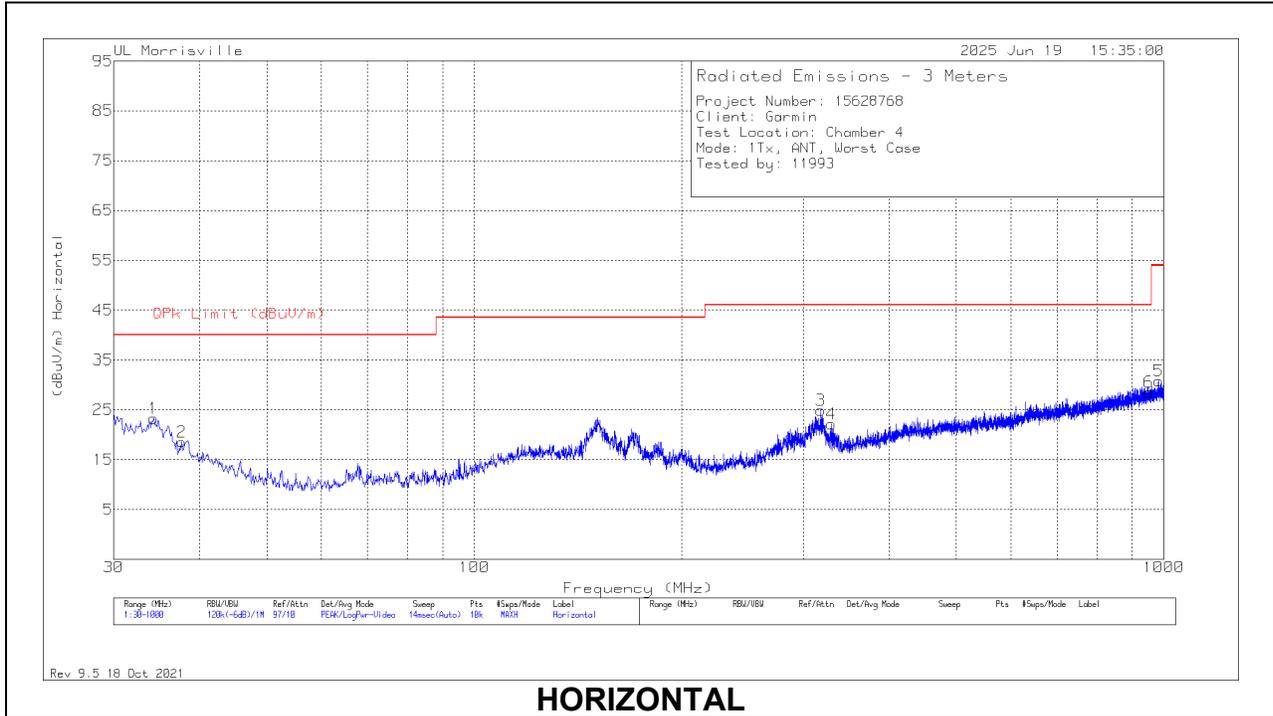
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

**10.4.2. ANT/ANT+**

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



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90628 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	*** 37.663	28.78	Pk	21.7	-31.9	18.58	40	-21.42	0-360	200	H
4	*** 329.439	31.58	Pk	20	-29.4	22.18	46.02	-23.84	0-360	100	H
5	*** 983.219	26.34	Pk	29.1	-24.6	30.84	53.97	-23.13	0-360	300	H
6	** 951.5	25.29	Pk	28.8	-25.6	28.49	46.02	-17.53	0-360	100	H
9	*** 37.663	39.6	Pk	21.7	-31.9	29.4	40	-10.6	0-360	100	V
10	*** 405.972	27.14	Pk	21.9	-29.2	19.84	46.02	-26.18	0-360	100	V
11	*** 987.099	25.23	Pk	29.2	-25.1	29.33	53.97	-24.64	0-360	200	V
7	34.171	43.28	Pk	24.1	-31.5	35.88	-	-	0-360	100	V
1	34.268	30.8	Pk	24	-31.5	23.3	-	-	0-360	200	H
8	35.529	43.62	Pk	23.2	-31.6	35.22	-	-	0-360	100	V
3	318.284	33.78	Pk	20	-28.9	24.88	-	-	0-360	100	H

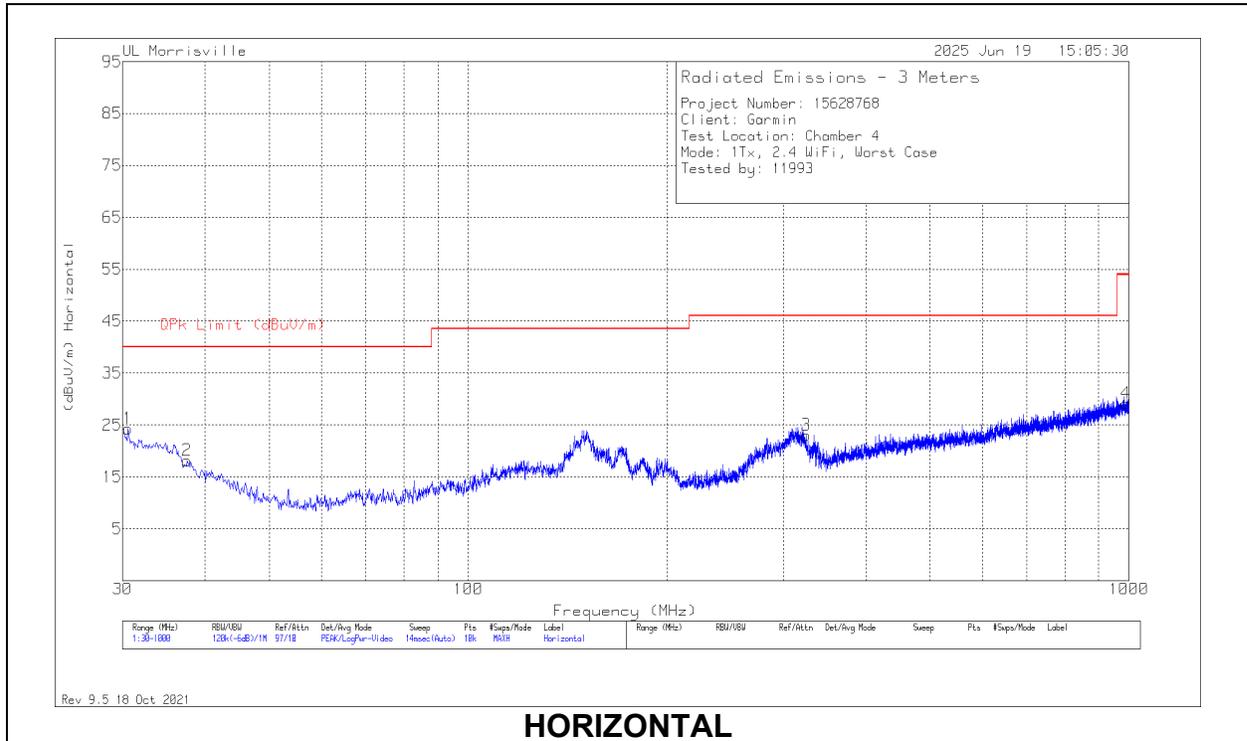
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

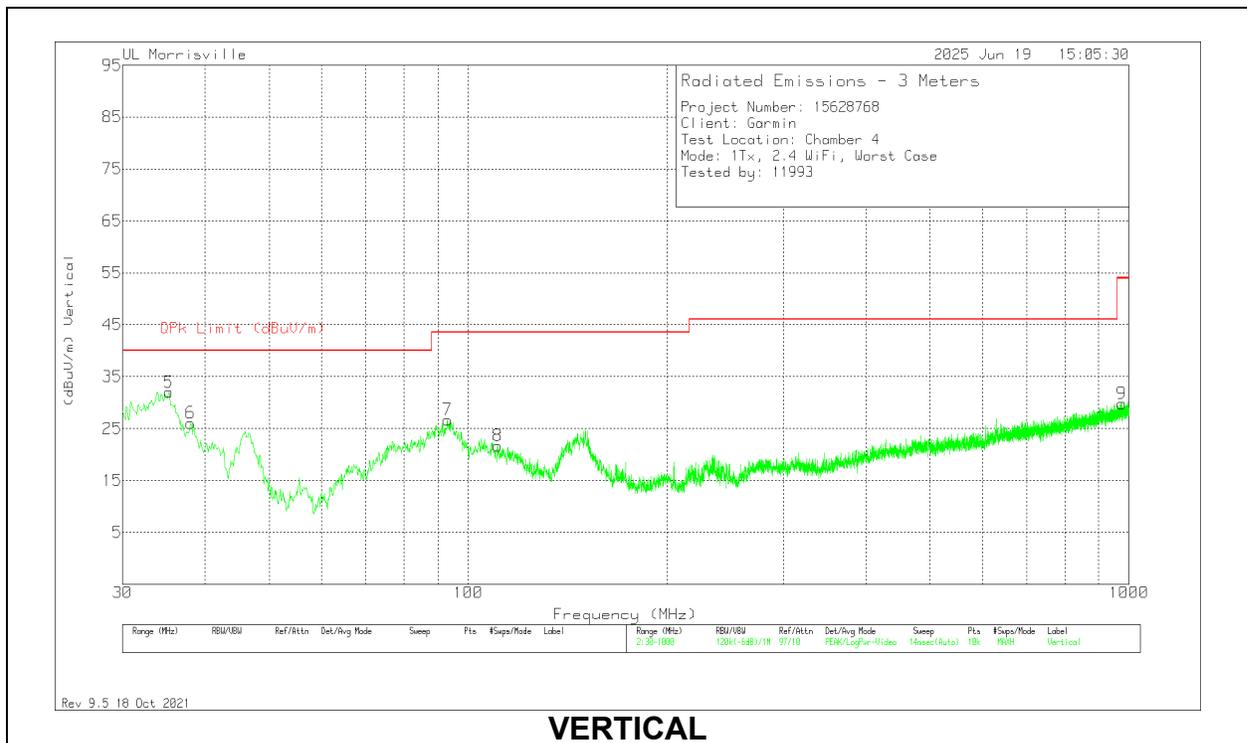
Pk - Peak detector

**10.4.3. 2.4 WLAN**

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



**HORIZONTAL**



**VERTICAL**

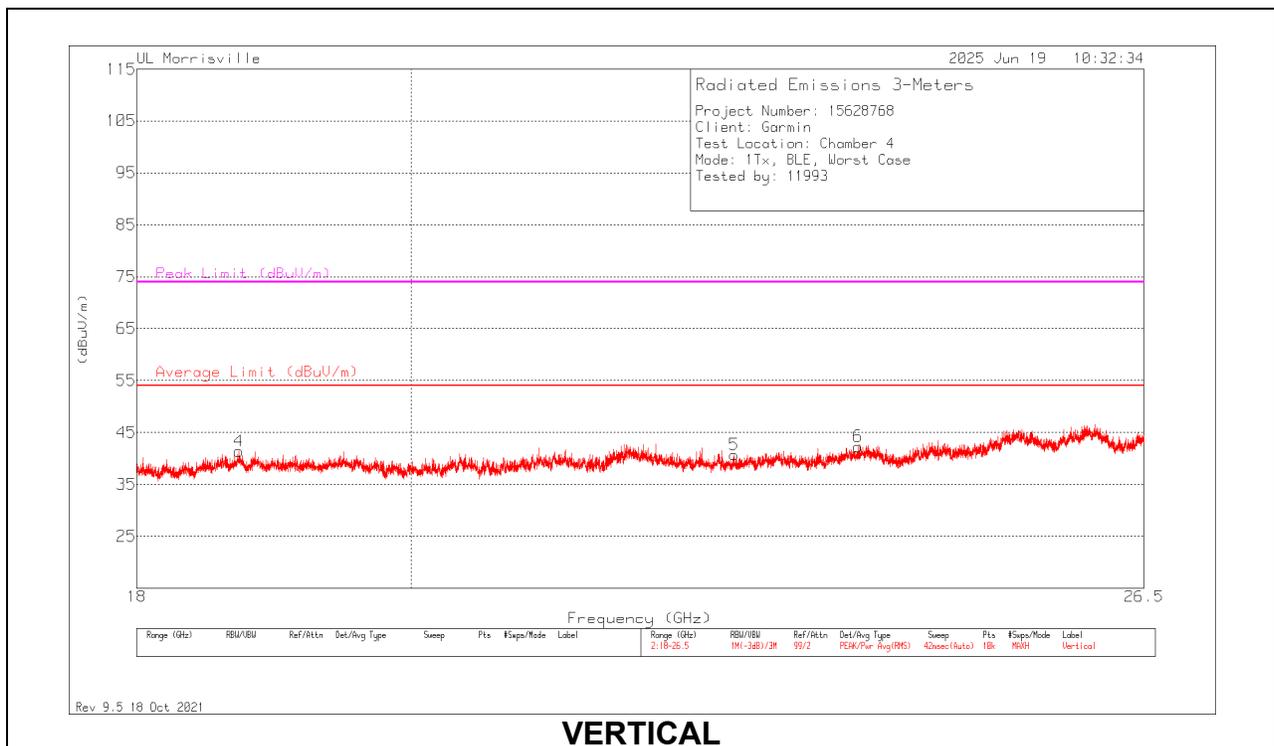
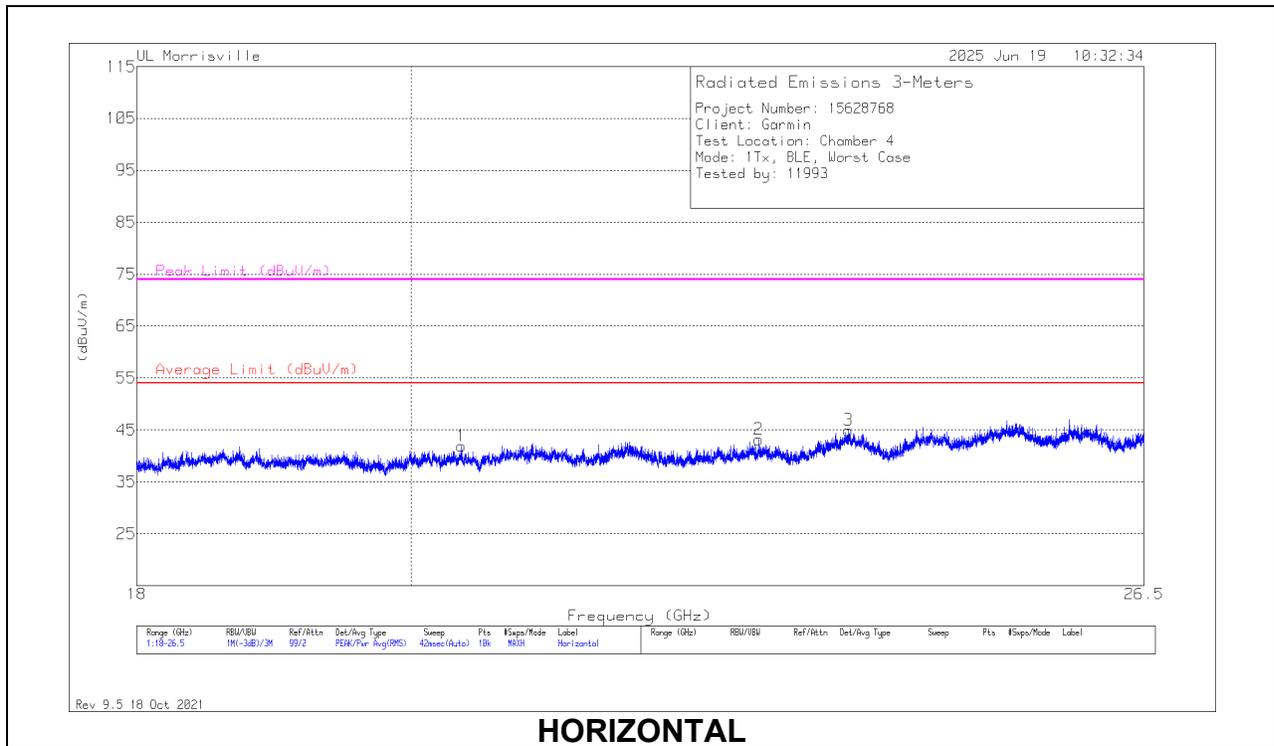
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90628 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	*** 37.566	28.31	Pk	21.8	-32	18.11	40	-21.89	0-360	100	H
3	*** 324.686	32.38	Pk	20.1	-29.4	23.08	46.02	-22.94	0-360	100	H
4	*** 990.203	25.43	Pk	29.2	-25.5	29.13	53.97	-24.84	0-360	100	H
6	*** 38.051	36.1	Pk	21.5	-31.6	26	40	-14	0-360	100	V
8	*** 110.801	33.75	Pk	18.9	-31	21.65	43.52	-21.87	0-360	100	V
9	*** 974.877	26.27	Pk	29	-25.5	29.77	53.97	-24.2	0-360	100	V
1	30.582	29.26	Pk	26.5	-31.5	24.26	-	-	0-360	100	H
5	35.238	40.28	Pk	23.4	-31.7	31.98	-	-	0-360	100	V
7	93.05	42.87	Pk	14.5	-30.7	26.67	-	-	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

## 10.5. WORST CASE 18-26 GHZ

### 10.5.1. BLE

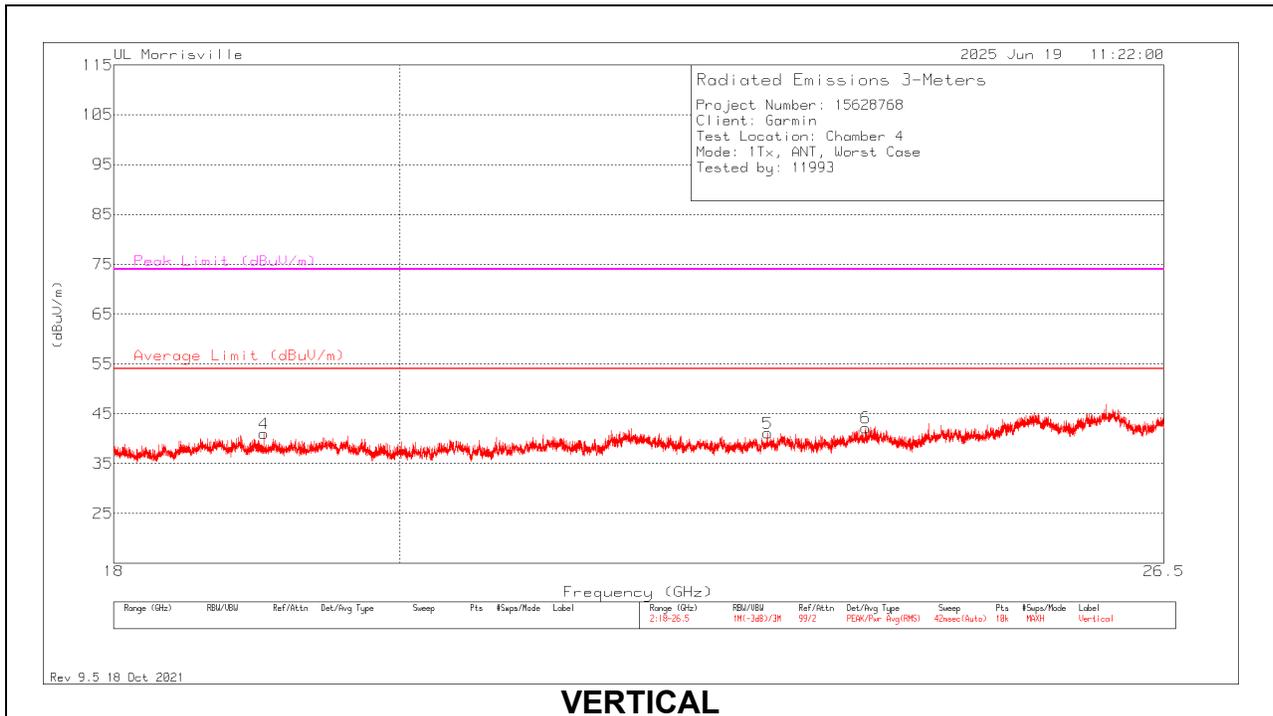
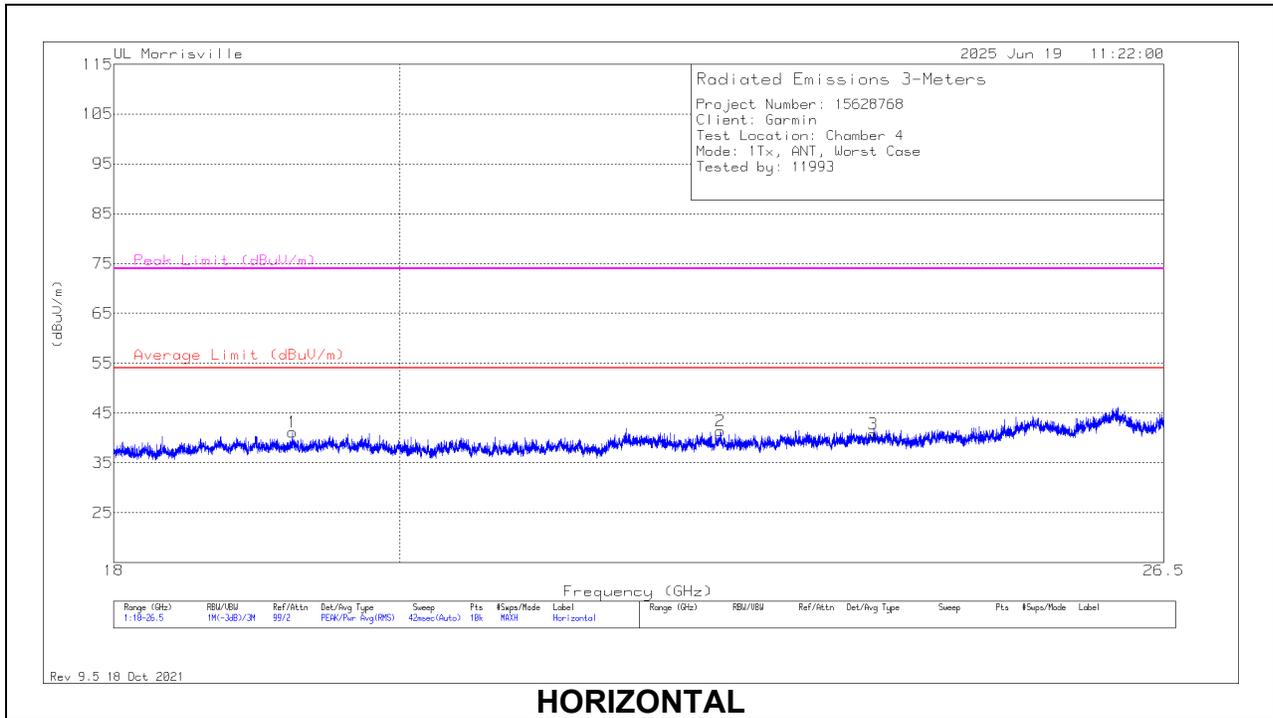
#### SPURIOUS EMISSIONS 18-26 GHZ (WORST-CASE CONFIGURATION)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	91186 (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	* ** 20.38826	49.66	Pk	32.8	-40.6	41.86	54	-12.14	74	-32.14	0-360	100	H
2	* ** 22.85471	48.64	Pk	33.5	-39	43.14	54	-10.86	74	-30.86	0-360	100	H
3	* ** 23.65618	49.66	Pk	33.8	-38.5	44.96	54	-9.04	74	-29.04	0-360	100	H
4	* ** 18.71988	49.55	Pk	32.5	-40.7	41.35	54	-12.65	74	-32.65	0-360	150	V
5	* ** 22.64309	47.11	Pk	33.4	-39.8	40.71	54	-13.29	74	-33.29	0-360	250	V
6	* ** 23.74373	46.72	Pk	33.9	-38.3	42.32	54	-11.68	74	-31.68	0-360	300	V

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

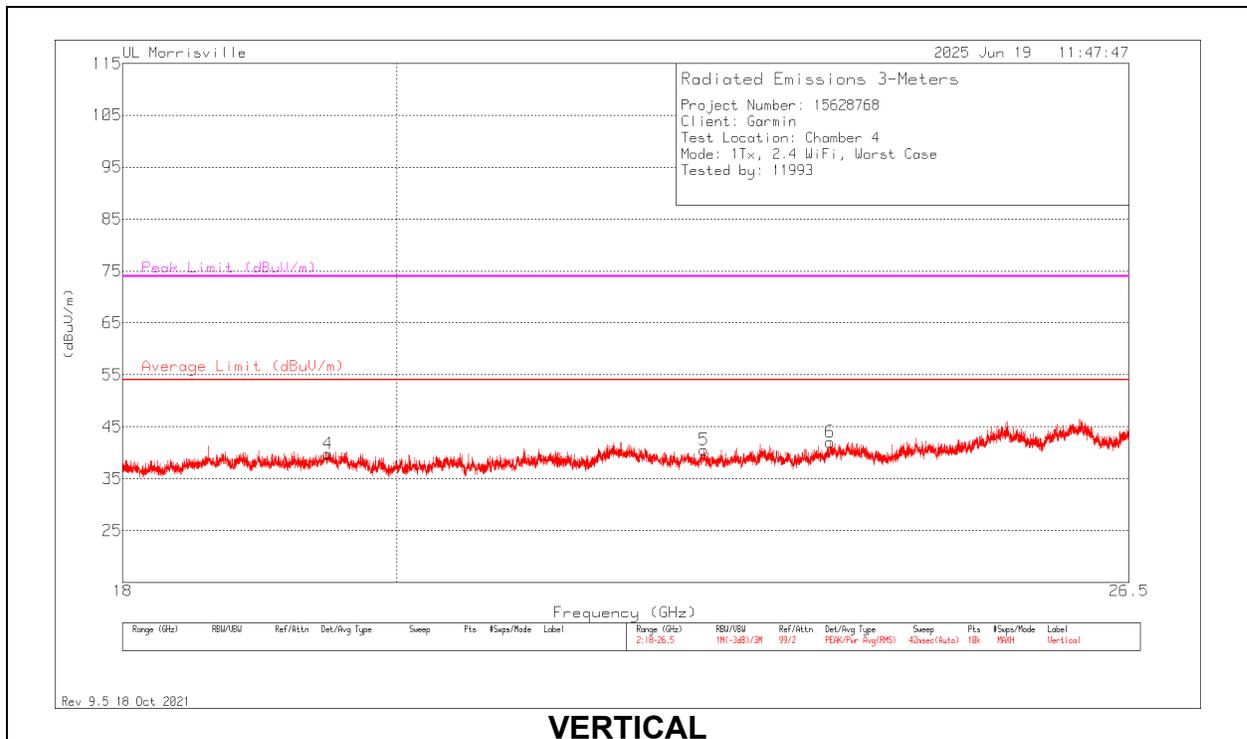
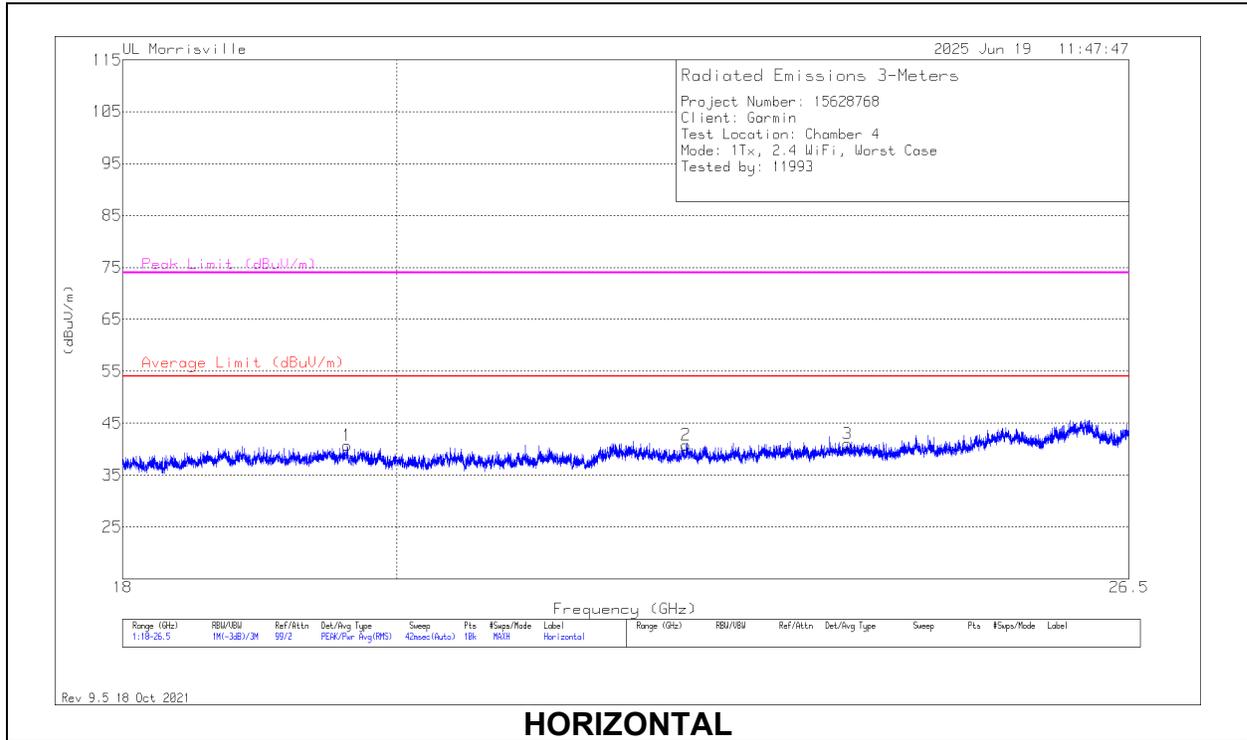
**10.5.2. ANT/ANT+**  
**SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	91186 (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	* ** 19.22643	49.27	Pk	32.6	-40.7	41.17	54	-12.83	74	-32.83	0-360	100	H
2	* ** 22.5088	47.42	Pk	33.4	-39.4	41.42	54	-12.58	74	-32.58	0-360	200	H
3	* ** 23.80747	45.61	Pk	34	-38.8	40.81	54	-13.19	74	-33.19	0-360	200	H
4	* ** 19.02245	49.37	Pk	32.5	-40.9	40.97	54	-13.03	74	-33.03	0-360	150	V
5	* ** 22.90231	47.39	Pk	33.5	-39.8	41.09	54	-12.91	74	-32.91	0-360	150	V
6	* ** 23.74628	46.5	Pk	33.9	-38.2	42.2	54	-11.8	74	-31.8	0-360	250	V

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

**10.5.3. 2.4 WLAN**  
**SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	91186 (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	* ** 19.62334	49.01	Pk	32.5	-40.8	40.71	54	-13.29	74	-33.29	0-360	100	H
2	* ** 22.35071	47.53	Pk	33.3	-40.1	40.73	54	-13.27	74	-33.27	0-360	100	H
3	* ** 23.78452	45.07	Pk	34	-38.1	40.97	54	-13.03	74	-33.03	0-360	100	H
4	* ** 19.4797	47.87	Pk	32.7	-40.8	39.77	54	-14.23	74	-34.23	0-360	200	V
5	* ** 22.5088	46.51	Pk	33.4	-39.4	40.51	54	-13.49	74	-33.49	0-360	300	V
6	* ** 23.62474	46.6	Pk	33.8	-38.4	42	54	-12	74	-32	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

## 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.

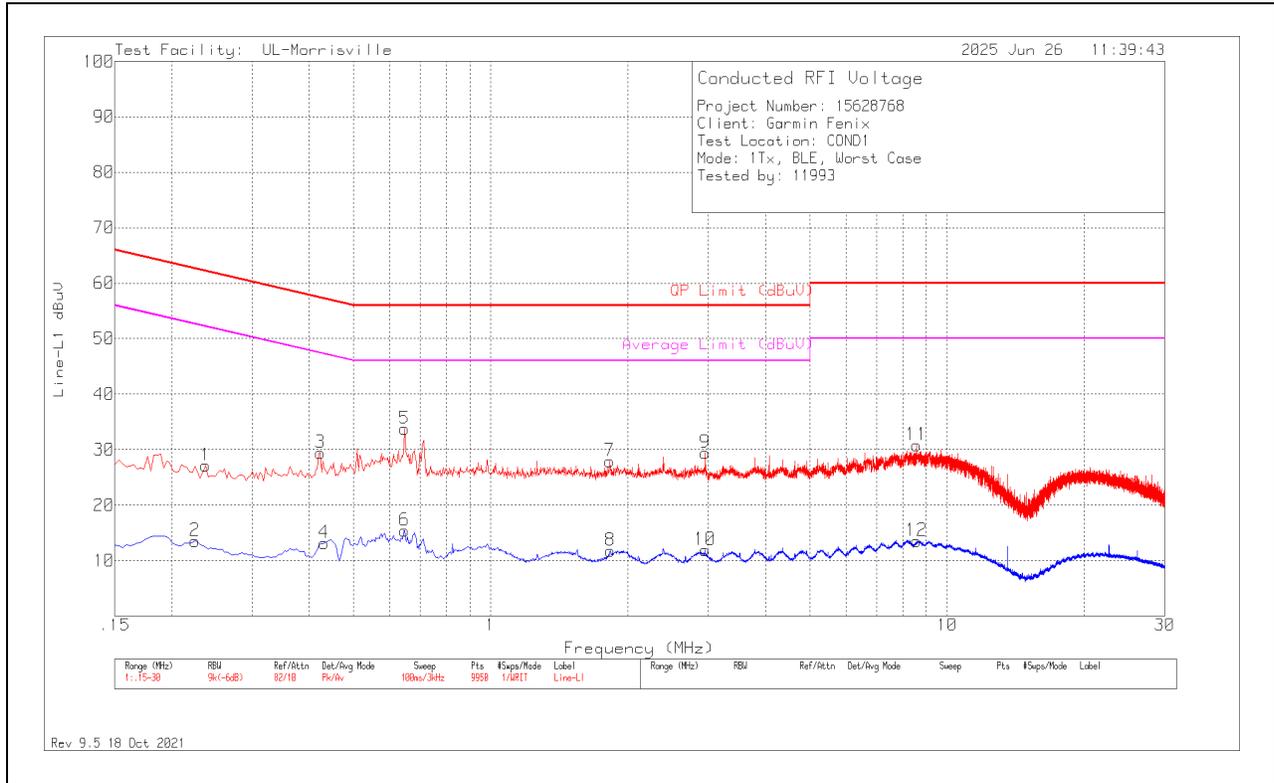
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both lines.

### RESULTS

### 11.1.1. AC Power Line Norm (BLE)

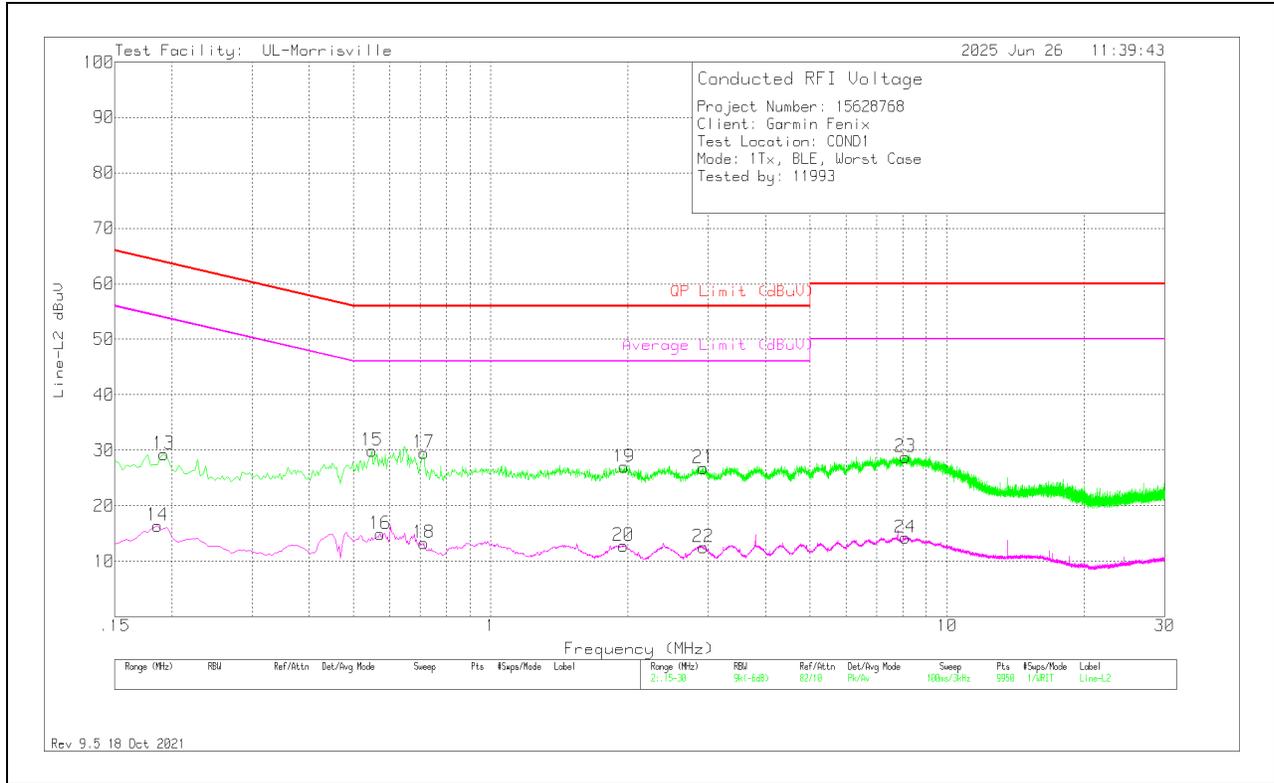
### LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
2	.225	3.75	Av	.1	9.7	13.55	-	-	52.63	-39.08
1	.237	17.3	Pk	.1	9.7	27.1	62.2	-35.1	-	-
3	.423	19.59	Pk	.1	9.7	29.39	57.39	-28	-	-
4	.432	3.29	Av	.1	9.7	13.09	-	-	47.21	-34.12
5	.648	24.03	Pk	0	9.7	33.73	56	-22.27	-	-
6	.648	5.73	Av	0	9.7	15.43	-	-	46	-30.57
7	1.821	18.17	Pk	0	9.7	27.87	56	-28.13	-	-
8	1.83	2.05	Av	0	9.7	11.75	-	-	46	-34.25
9	2.949	19.72	Pk	0	9.7	29.42	56	-26.58	-	-
10	2.952	2.18	Av	0	9.7	11.88	-	-	46	-34.12
11	8.571	21.02	Pk	.1	9.7	30.82	60	-29.18	-	-
12	8.583	3.71	Av	.1	9.7	13.51	-	-	50	-36.49

Pk - Peak detector  
 Av - Average detection

**LINE 2 RESULTS**

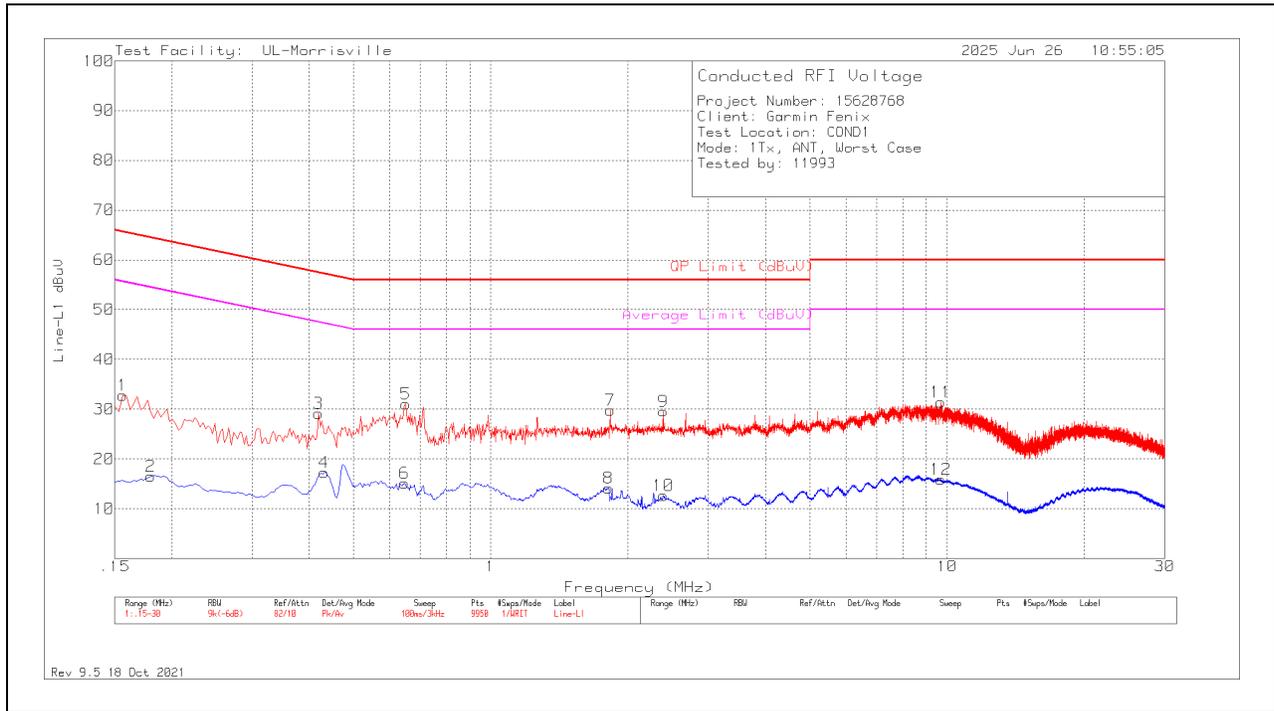


Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
14	.186	6.47	Av	.2	9.7	16.37	-	-	54.21	-37.84
13	.192	19.43	Pk	.2	9.7	29.33	63.95	-34.62	-	-
15	.549	20.16	Pk	0	9.7	29.86	56	-26.14	-	-
16	.573	5.19	Av	0	9.7	14.89	-	-	46	-31.11
17	.714	19.88	Pk	0	9.7	29.58	56	-26.42	-	-
18	.714	3.54	Av	0	9.7	13.24	-	-	46	-32.76
20	1.956	3.11	Av	0	9.7	12.81	-	-	46	-33.19
19	1.959	17.27	Pk	0	9.7	26.97	56	-29.03	-	-
21	2.919	17.05	Pk	0	9.7	26.75	56	-29.25	-	-
22	2.922	2.81	Av	0	9.7	12.51	-	-	46	-33.49
24	8.106	4.41	Av	.1	9.7	14.21	-	-	50	-35.79
23	8.112	18.99	Pk	.1	9.7	28.79	60	-31.21	-	-

Pk - Peak detector  
 Av - Average detection

**11.1.2. AC Power Line Norm (ANT/ANT+)**

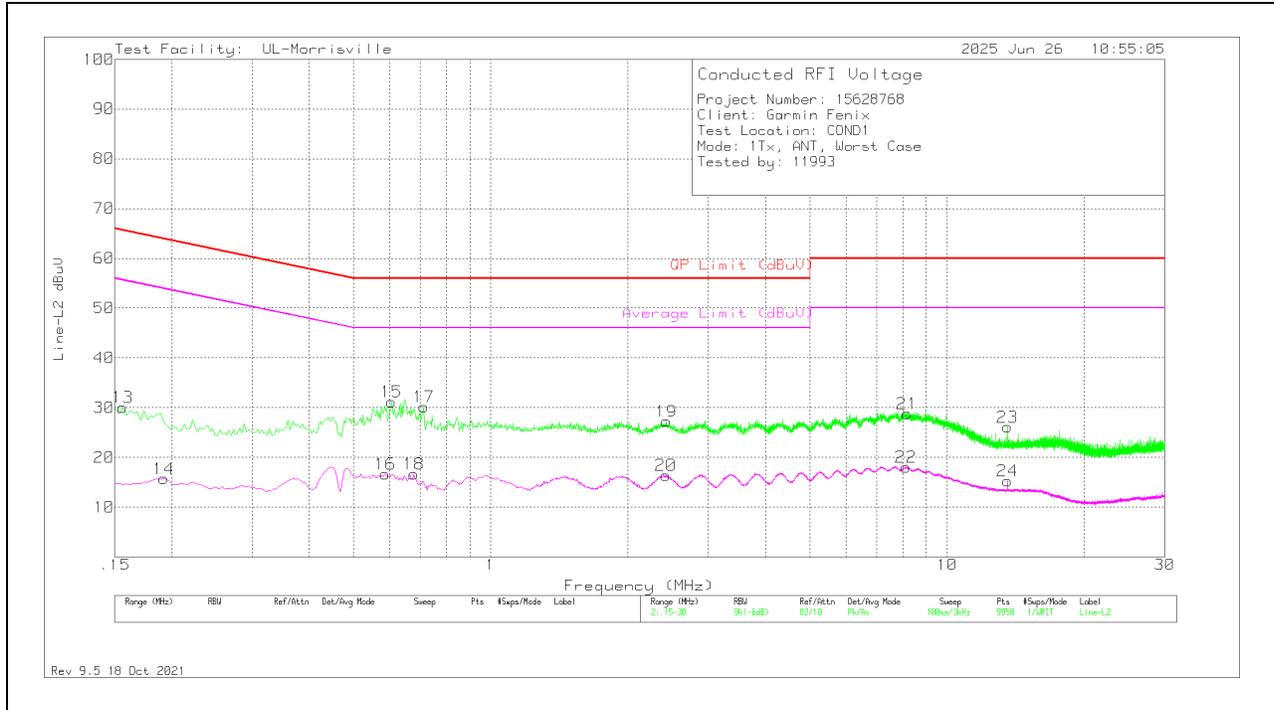
**LINE 1 RESULTS**



Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.156	22.87	Pk	.2	9.7	32.77	65.67	-32.9	-	-
2	.18	6.57	Av	.2	9.7	16.47	-	-	54.49	-38.02
3	.42	19.32	Pk	.1	9.7	29.12	57.45	-28.33	-	-
4	.432	7.51	Av	.1	9.7	17.31	-	-	47.21	-29.9
6	.648	5.47	Av	0	9.7	15.17	-	-	46	-30.83
5	.651	21.29	Pk	0	9.7	30.99	56	-25.01	-	-
8	1.809	4.45	Av	0	9.7	14.15	-	-	46	-31.85
7	1.827	20.06	Pk	0	9.7	29.76	56	-26.24	-	-
9	2.388	19.89	Pk	0	9.7	29.59	56	-26.41	-	-
10	2.388	2.91	Av	0	9.7	12.61	-	-	46	-33.39
11	9.696	21.62	Pk	.1	9.7	31.42	60	-28.58	-	-
12	9.696	6.06	Av	.1	9.7	15.86	-	-	50	-34.14

Pk - Peak detector  
 Av - Average detection

### LINE 2 RESULTS

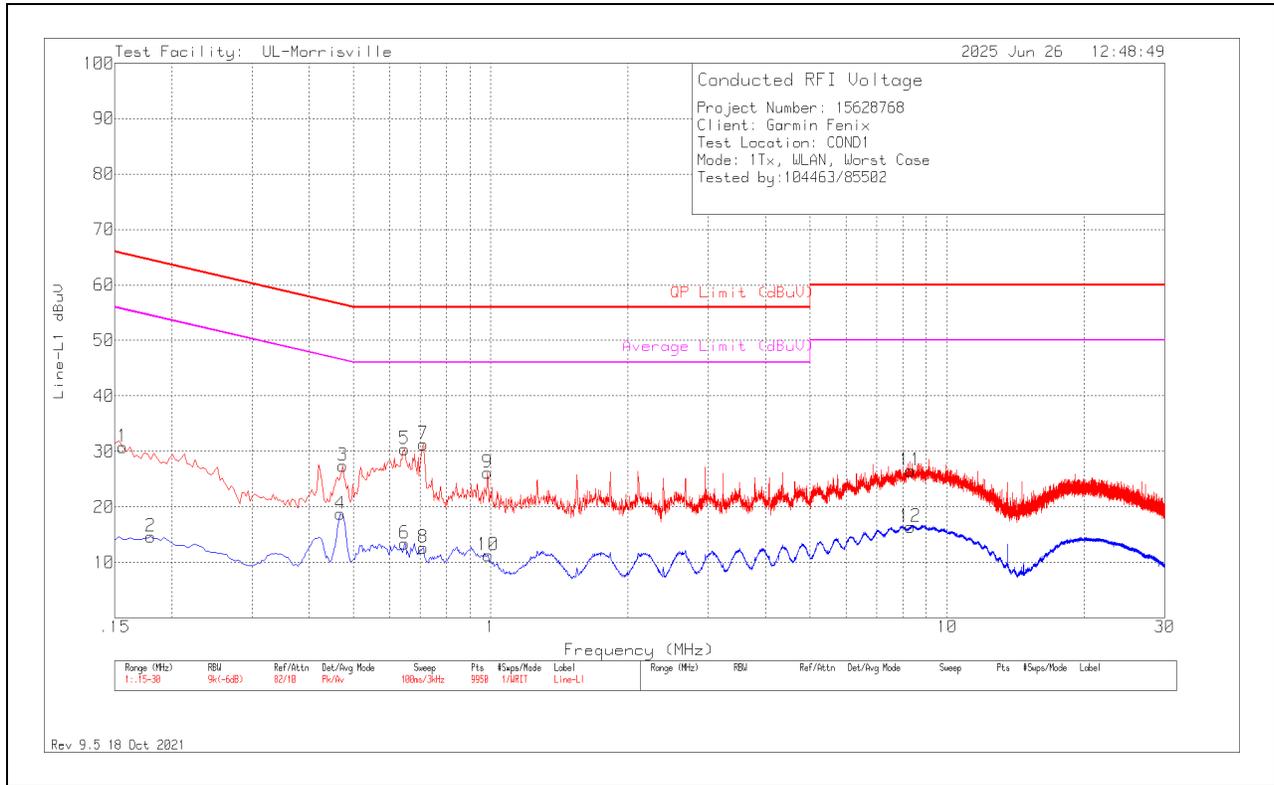


Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.156	20.11	Pk	.2	9.7	30.01	65.67	-35.66	-	-
14	.192	5.8	Av	.2	9.7	15.7	-	-	53.95	-38.25
16	.588	6.97	Av	0	9.7	16.67	-	-	46	-29.33
15	.606	21.43	Pk	0	9.7	31.13	56	-24.87	-	-
18	.678	6.92	Av	0	9.7	16.62	-	-	46	-29.38
17	.714	20.45	Pk	0	9.7	30.15	56	-25.85	-	-
20	2.418	6.66	Av	0	9.7	16.36	-	-	46	-29.64
19	2.427	17.52	Pk	0	9.7	27.22	56	-28.78	-	-
22	8.133	8.23	Av	.1	9.7	18.03	-	-	50	-31.97
21	8.184	19	Pk	.1	9.7	28.8	60	-31.2	-	-
23	13.56	16.19	Pk	.1	9.8	26.09	60	-33.91	-	-
24	13.563	5.35	Av	.1	9.8	15.25	-	-	50	-34.75

Pk - Peak detector  
 Av - Average detection

### 11.1.3. AC Power Line Norm (2.4 WLAN)

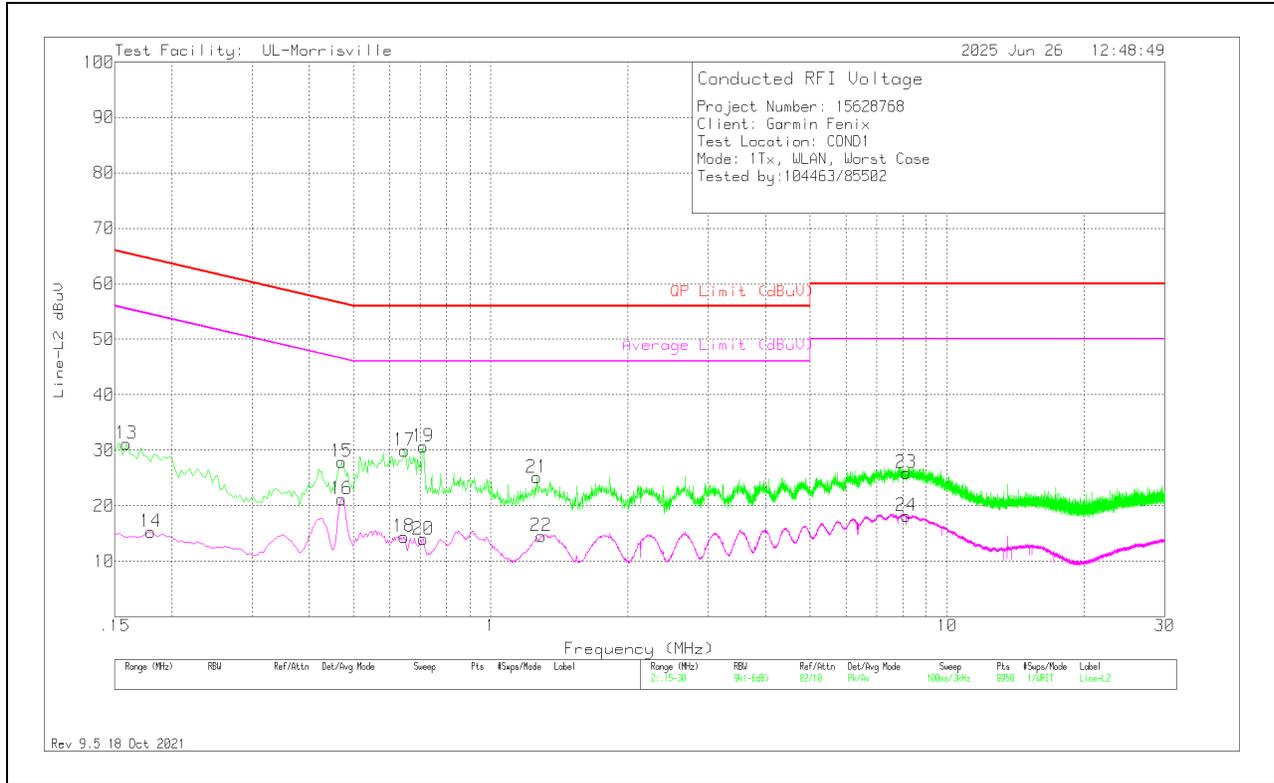
#### LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)	
1	.156	20.92	Pk	.2	9.7	30.82	65.67	-34.85	-	-	
2	.18	4.74	Av	.2	9.7	14.64	-	-	54.49	-39.85	
4	.468	9.01	Av	0	9.7	18.71	-	-	46.55	-27.84	
3	.474	17.69	Pk	0	9.7	27.39	56.44	-29.05	-	-	
5	.648	20.74	Pk	0	9.7	30.44	56	-25.56	-	-	
6	.648	3.66	Av	0	9.7	13.36	-	-	46	-32.64	
7	.711	21.59	Pk	0	9.7	31.29	56	-24.71	-	-	
8	.711	2.98	Av	0	9.7	12.68	-	-	46	-33.32	
9	.984	16.42	Pk	0	9.7	26.12	56	-29.88	-	-	
10	.987	1.6	Av	0	9.7	11.3	-	-	46	-34.7	
11	8.298	16.73	Pk	.1	9.7	26.53	60	-33.47	-	-	
12	8.313	6.63	Av	.1	9.7	16.43	-	-	50	-33.57	

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)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.159	21.27	Pk	.2	9.7	31.17	65.52	-34.35	-	-
14	.18	5.34	Av	.2	9.7	15.24	-	-	54.49	-39.25
15	.471	18.23	Pk	0	9.7	27.93	56.5	-28.57	-	-
16	.471	11.48	Av	0	9.7	21.18	-	-	46.5	-25.32
18	.645	4.7	Av	0	9.7	14.4	-	-	46	-31.6
17	.648	20.23	Pk	0	9.7	29.93	56	-26.07	-	-
19	.711	20.96	Pk	0	9.7	30.66	56	-25.34	-	-
20	.711	4.25	Av	0	9.7	13.95	-	-	46	-32.05
21	1.263	15.39	Pk	0	9.7	25.09	56	-30.91	-	-
22	1.29	4.8	Av	0	9.7	14.5	-	-	46	-31.5
23	8.139	16.08	Pk	.1	9.7	25.88	60	-34.12	-	-
24	8.139	8.36	Av	.1	9.7	18.16	-	-	50	-31.84

Pk - Peak detector  
 Av - Average detection

## 12. SETUP PHOTOS

Please refer to R15628768-EP1 for setup photos

**END OF TEST REPORT**

# TEST REPORT

**Report Number:** R15628768-E2

**Applicant :** Garmin International Inc.  
1200 East 151<sup>st</sup> Street  
Olathe, KS 66062-3426, USA

**Model :** A05201

**FCC ID :** IPH-05201

**IC :** 1792A-05201

**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:**

2025-08-22

**Prepared by:**

UL LLC

12 Laboratory Dr.

Durham, NC 27713 U.S.A.

TEL: (919) 549-1400



## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2025-08-14	Initial Issue	Chandler Stanley
V2	2025-08-22	Editorial Changes	Manish Baral

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Garmin International Inc.  
1200 East 151<sup>st</sup> Street  
Olathe, KS 66062-3426, USA

**EUT DESCRIPTION:** Extremity Worn Digital Transceiver

**MODEL:** A05201

**SERIAL NUMBER:** 603037845 / 604021419 / 604021450 / 604021458

**SAMPLE RECEIPT DATE:** 2025-05-14, 2025-06-02, and 2025-06-20

**DATE TESTED:** 2025-05-28 and 2025-06-26

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

UL 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:



Chandler Stanley  
Engineer  
Consumer, Medical and IT Segment  
UL LLC

## 2. TEST RESULTS SUMMARY

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

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

- 1) Antenna gain and type (see section 6.3)

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		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 CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024, 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, 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
<input type="checkbox"/>	Building: 12 Laboratory Dr Durham, NC 27713, USA	US0067	2180C	825374
<input checked="" type="checkbox"/>	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)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

#### 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.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

## 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, WWAN (NTN, LTE Cat M1), 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	11.53	14.22
2402 - 2480	Enhanced DQPSK	10.84	12.13
2402 - 2480	Enhanced 8PSK	10.24	10.57

### 6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

The radio utilizes a slot antenna, with a maximum gain of -3.35 dBi.

### 6.4. SOFTWARE AND FIRMWARE

SW Ver 16.29  
HW Rev V1

### 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 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.

## 6.6. DESCRIPTION OF TEST SETUP

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adaptor	Garmin/Phihong	AQ27A-59CFA	N/A	N/A

### I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Proprietary	1	4 pin Proprietary	Non-Shielded	<3m	Used for charging only

### TEST SETUP

EUT was configured using its own built-in push buttons prior to testing. For final emissions testing, the EUT was connected to AC mains.

### SETUP DIAGRAMS

Please refer to R15628768-EP1 for setup diagrams

## 7. 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.

## 8. TEST AND MEASUREMENT EQUIPMENT

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

### Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
<b>Conducted Room 1</b>					
90416	Spectrum Analyzer	Keysight Technologies	N9030A	2024-09-23	2025-09-23
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
Pad II	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2025-05-25	2026-05-25
Pad IV	SMA Coaxial 10dB Attenuator 25MHz-18GHz	CentricRF	C18S2-10	2024-08-17	2025-08-17
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
211057	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA

### Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
<b>1-18 GHz</b>					
86408	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-06-19	2025-06-19
<b>Gain-Loss Chains</b>					
91977	Gain-loss string: 1-18GHz	Various	Various	2025-05-31	2026-05-31
<b>Receiver &amp; Software</b>					
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-05-12	2026-05-12
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
200540	Environmental Meter	Fisher Scientific	15-077-963	2023-07-19	2025-07-19

Note: All equipment was in calibration at the time of testing.

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
<b>0.009-30MHz</b>					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
<b>30-1000 MHz</b>					
90628	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-02	2026-01-02
<b>1-18 GHz</b>					
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-04-09	2026-04-09
<b>18-40 GHz</b>					
91186	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2024-05-16	2026-05-16
<b>Gain-Loss Chains</b>					
207638	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-22	2025-06-06
207639	Gain-loss string: 25-1000MHz	Various	Various	2024-05-22	2025-06-06
207640	Gain-loss string: 1-18GHz	Various	Various	2024-05-22	2025-06-06
207640	Gain-loss string: 1-18GHz	Various	Various	2025-06-13	2026-06-13
225795	Gain-loss string: 18-40GHz	Various	Various	2025-06-13	2026-06-13
<b>Receiver &amp; Software</b>					
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-04-21	2026-04-21
81018	Spectrum Analyzer	Agilent	E4446A	2024-07-31	2025-07-31
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2025-04-17	2026-04-17
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
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2024-08-01	2025-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2025-04-17	2026-04-17
236852	AC Power Source	California instruments	NA	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

Note: All equipment was in calibration at the time of testing.

## 9. ANTENNA PORT TEST RESULTS

### 9.1. 20 dB AND 99% BANDWIDTH

#### LIMITS

None; for reporting purposes only.

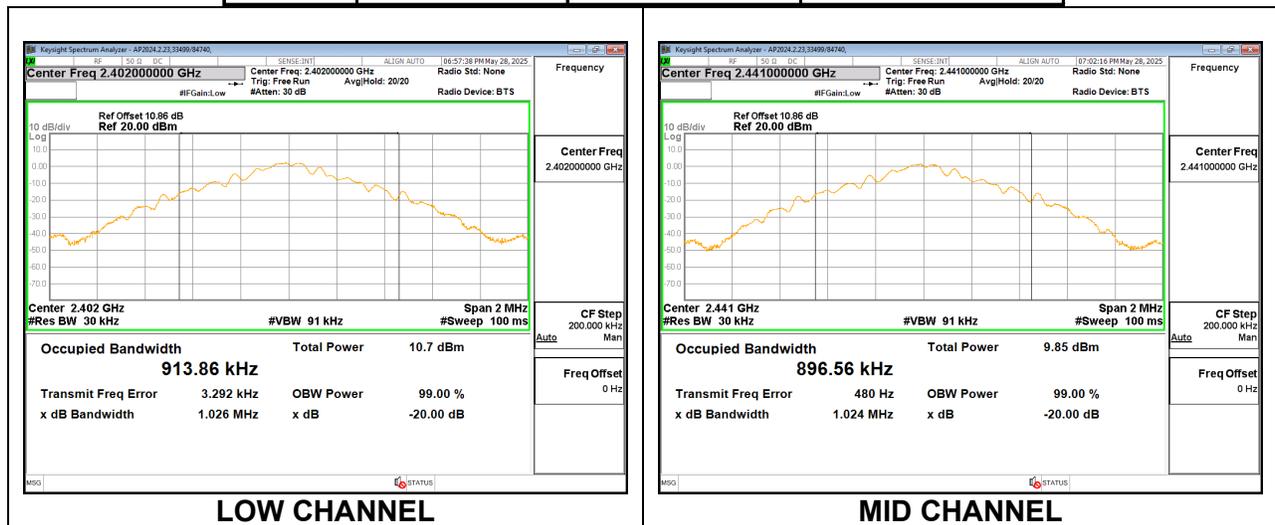
#### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to  $\geq 1\%$  of the 20 dB bandwidth. The VBW is set to  $\geq$  RBW. The sweep time is coupled.

#### RESULTS

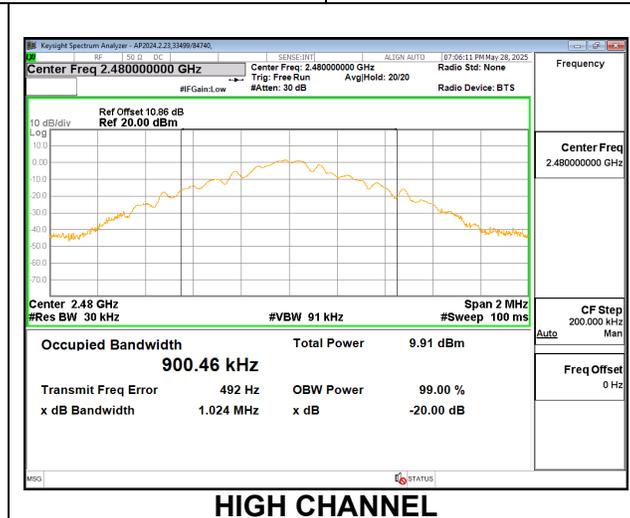
##### 9.1.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (kHz)
Low	2402	1.026	913.86
Mid	2441	1.024	896.56
High	2480	1.024	900.46



**LOW CHANNEL**

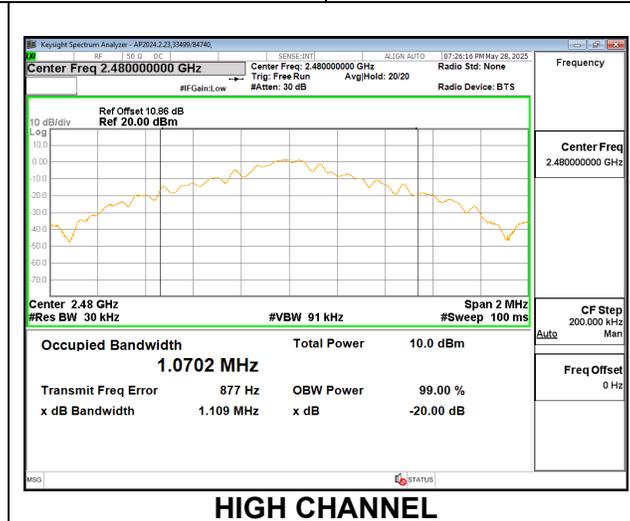
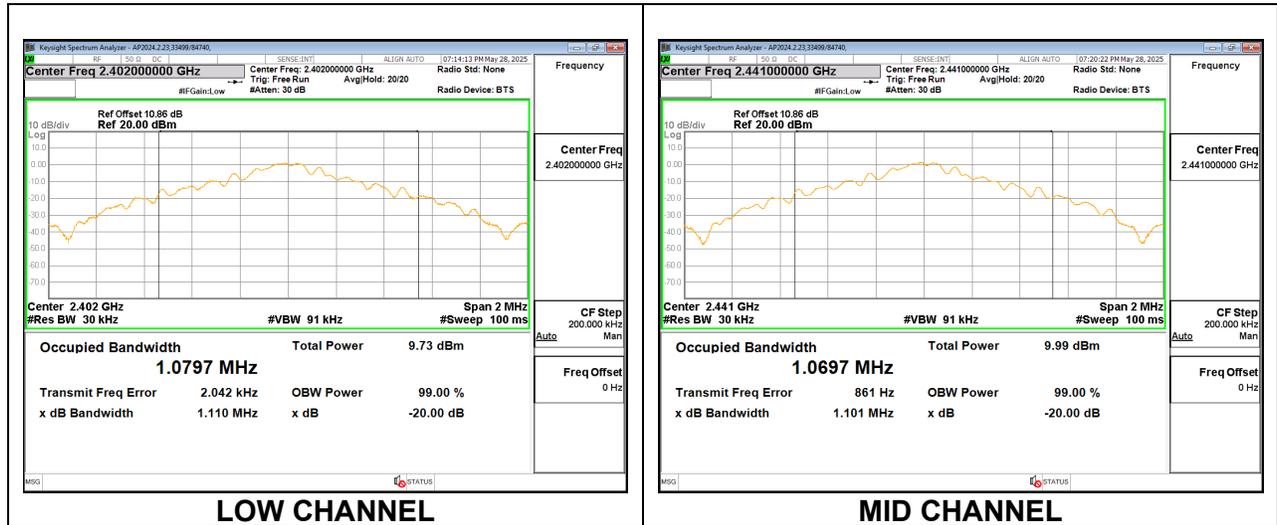
**MID CHANNEL**



**HIGH CHANNEL**

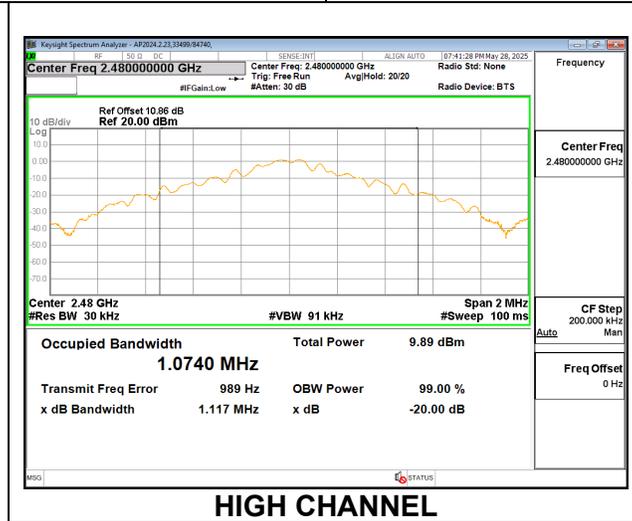
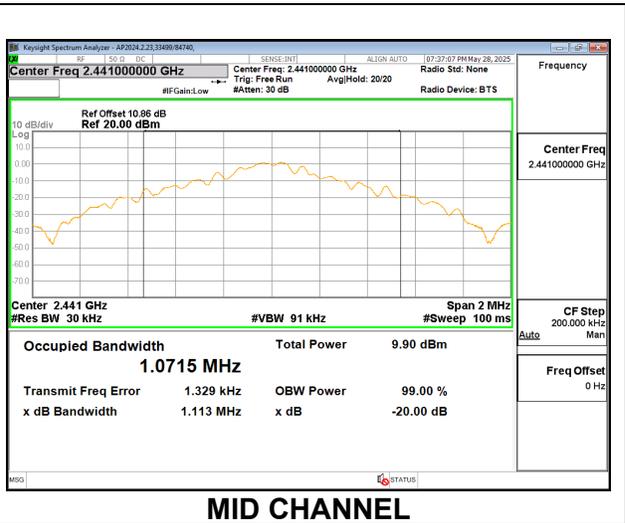
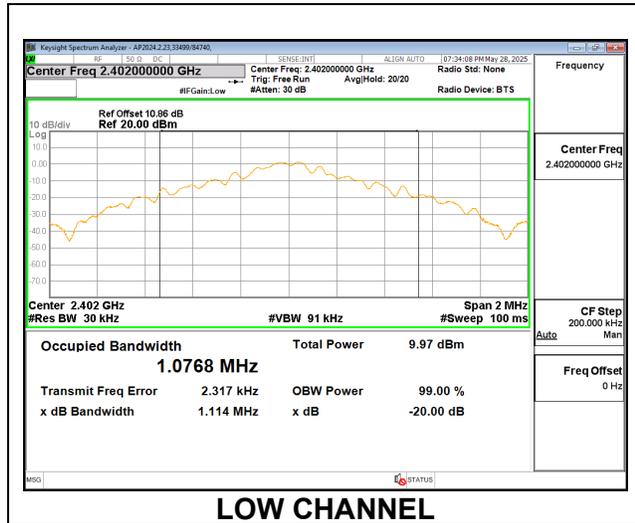
### 9.1.2. BLUETOOTH ENHANCED DATA RATE QPSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.110	1.0797
Mid	2441	1.101	1.0697
High	2480	1.109	1.0702



### 9.1.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.114	1.0768
Mid	2441	1.113	1.0715
High	2480	1.117	1.0740



## 9.2. 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  $VBW \geq RBW$ . The sweep time is coupled.

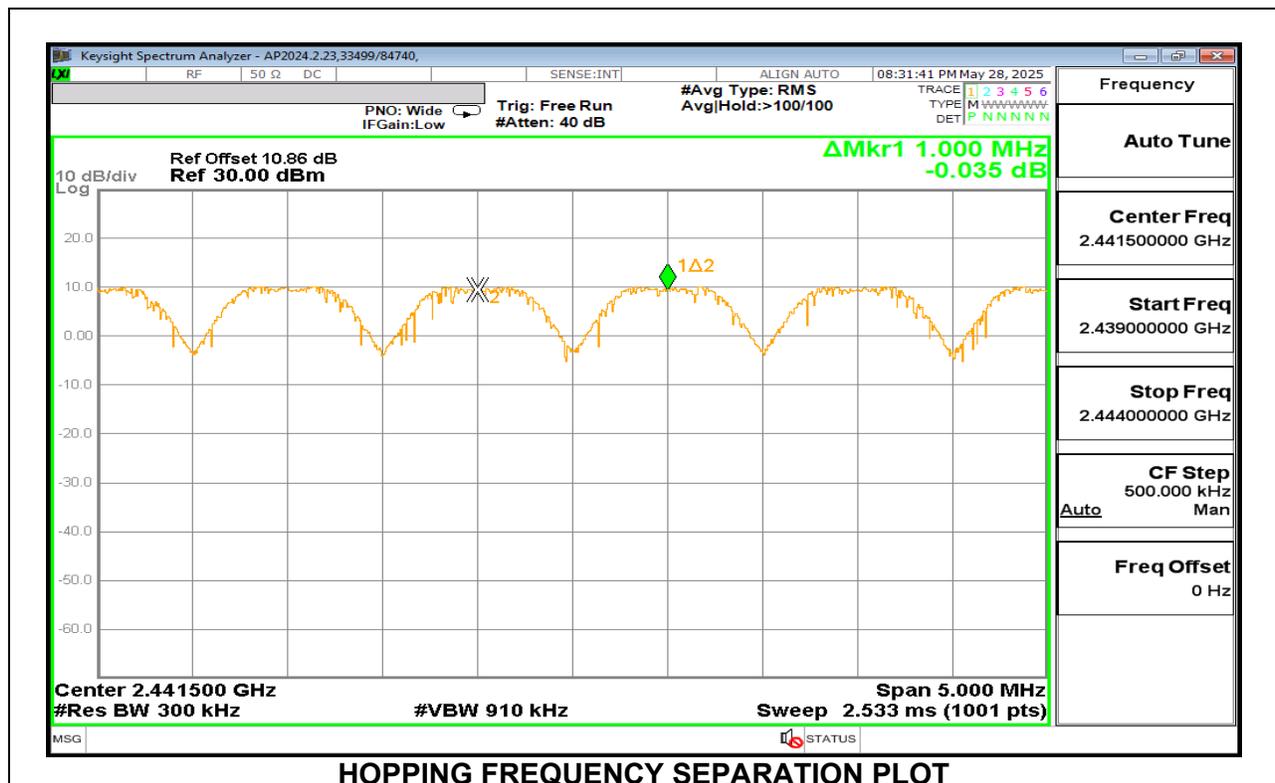
### RESULTS

The largest 20 dB BW among all modes was 1.117 MHz.

$$1.117 \text{ MHz} \times (2/3) = 0.745 \text{ MHz}$$

Since the separation of 1.000 MHz is greater than 0.745 MHz, the channel separation is compliant.

#### 9.2.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION





### **9.3. 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.

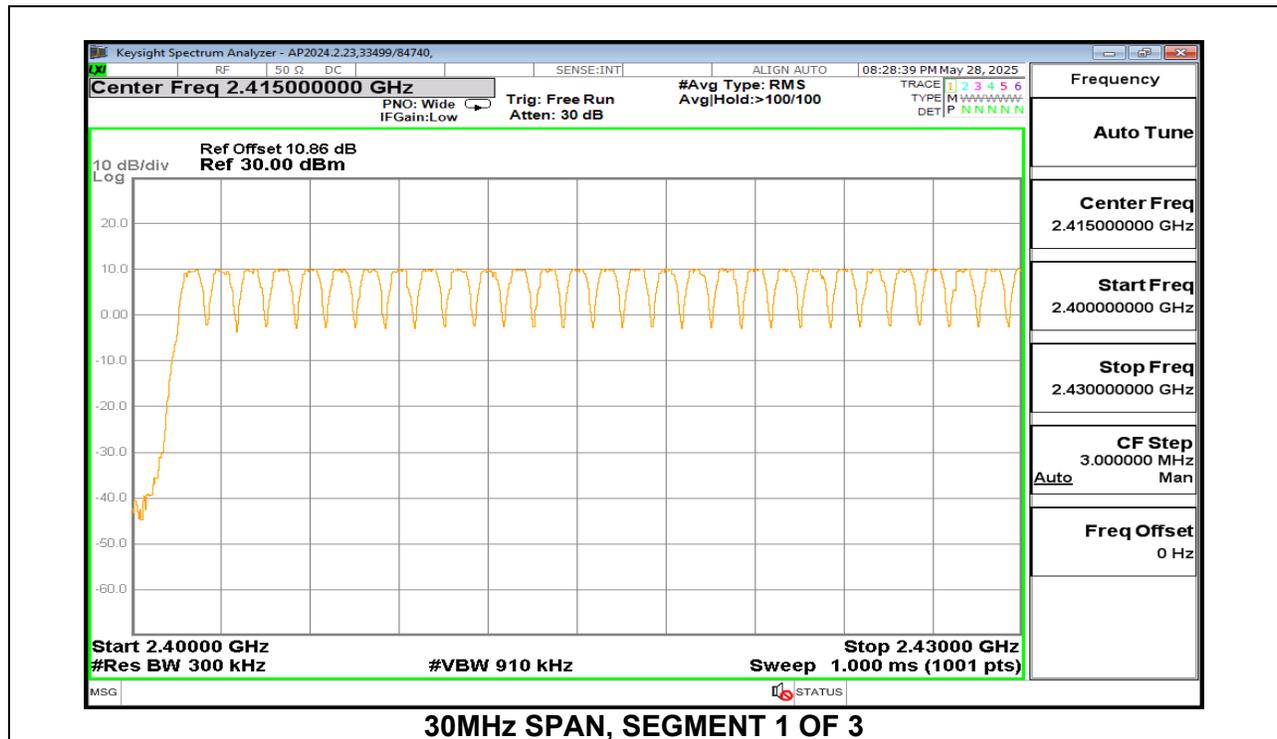
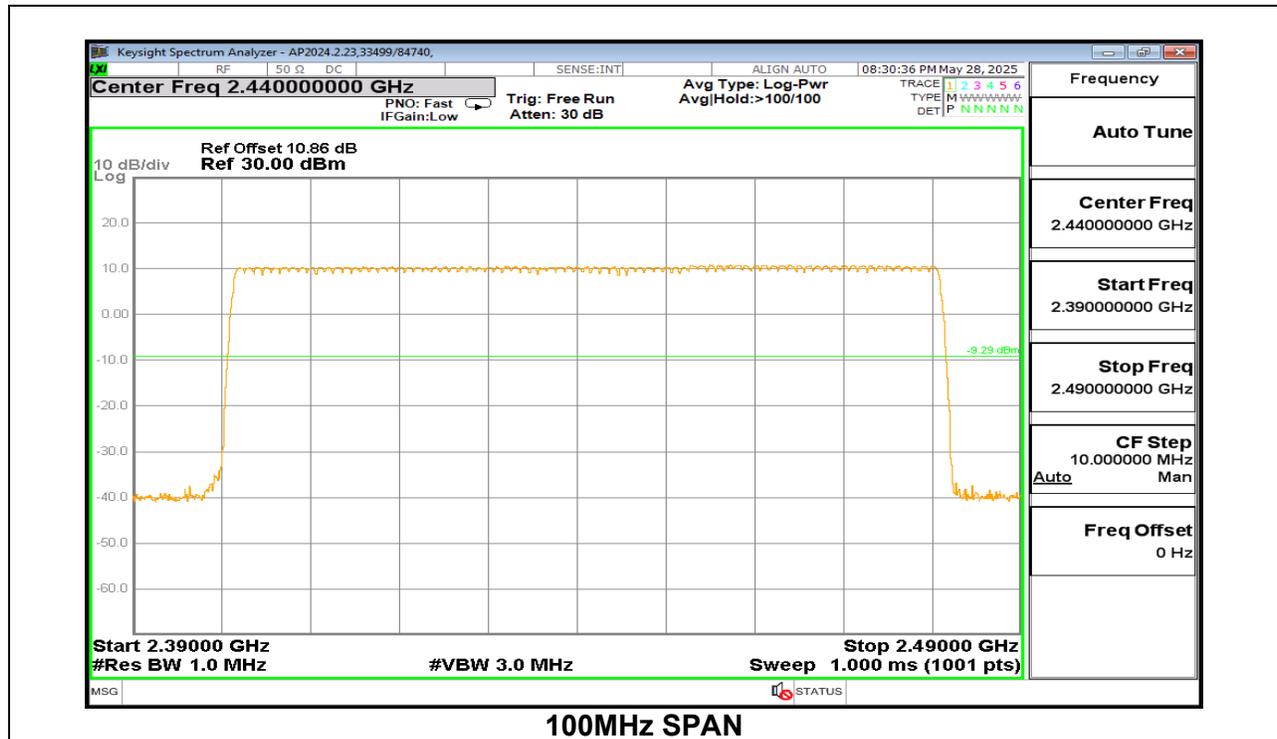
#### **TEST PROCEDURE**

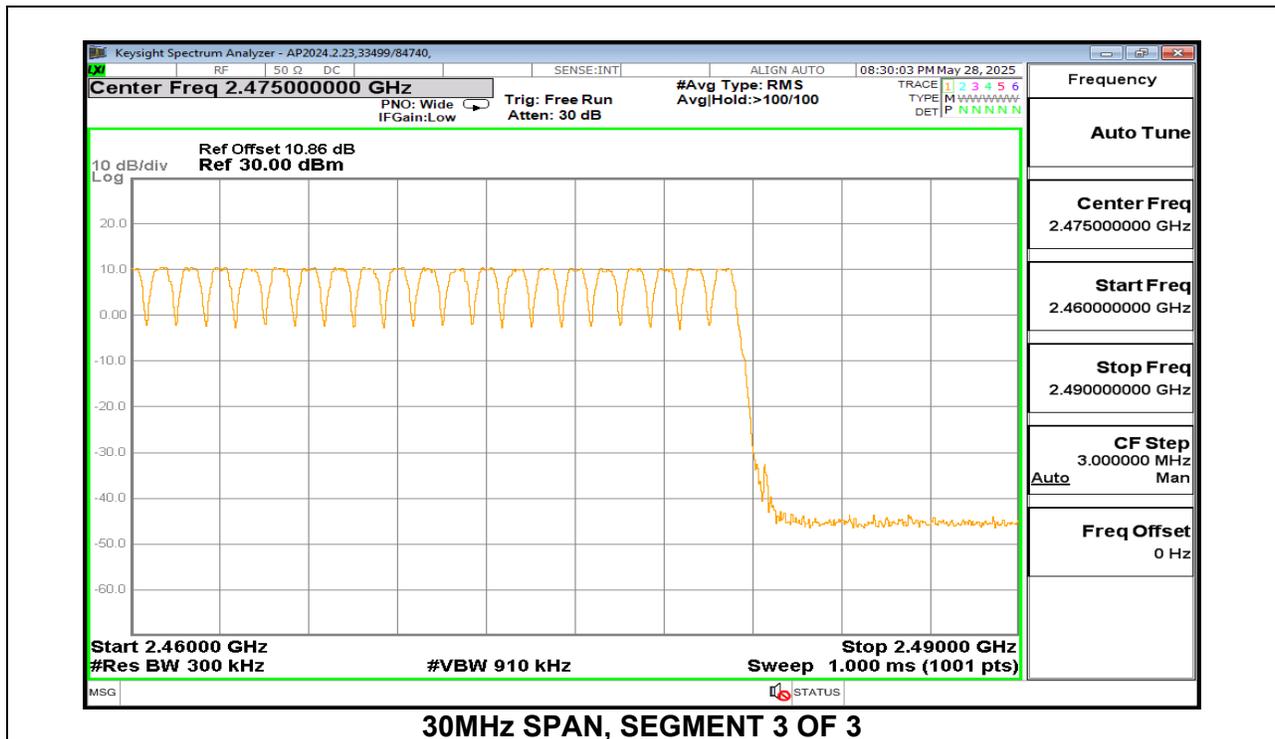
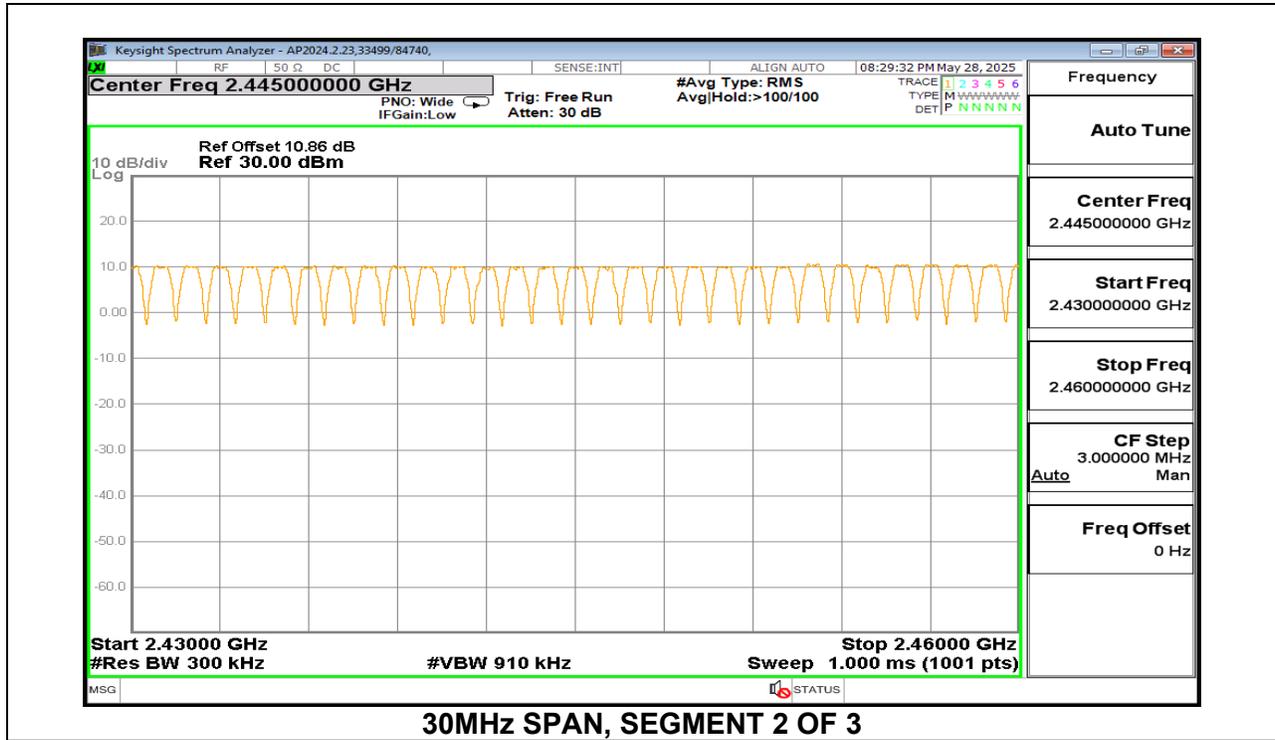
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

#### **RESULTS**

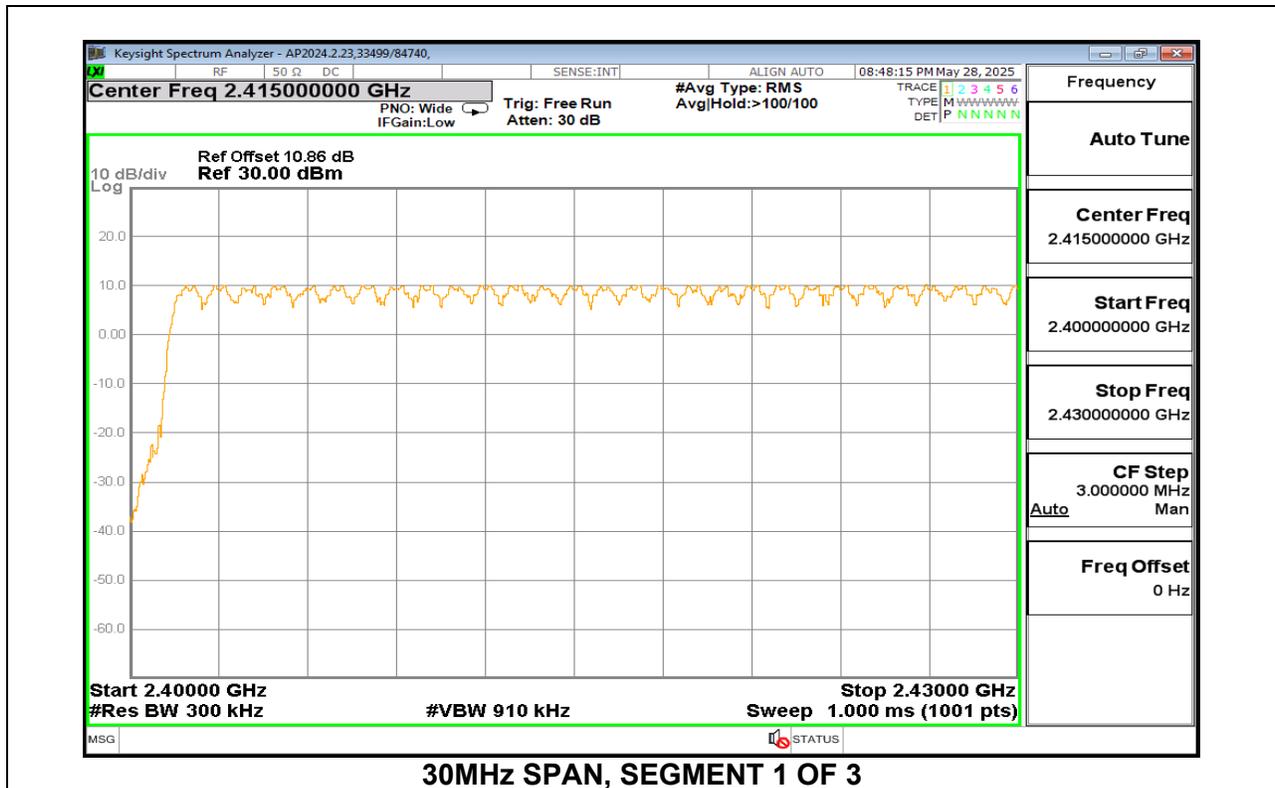
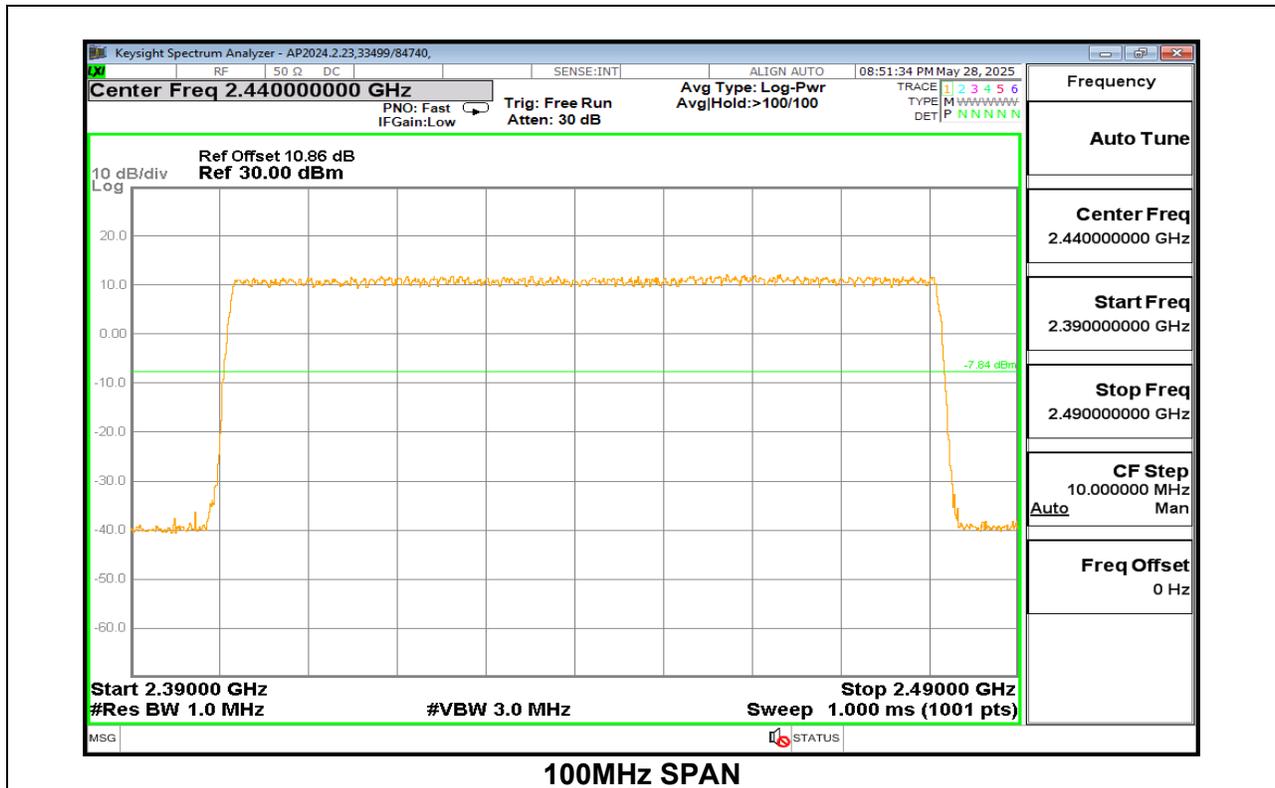
Normal Mode: 79 Channels Observed

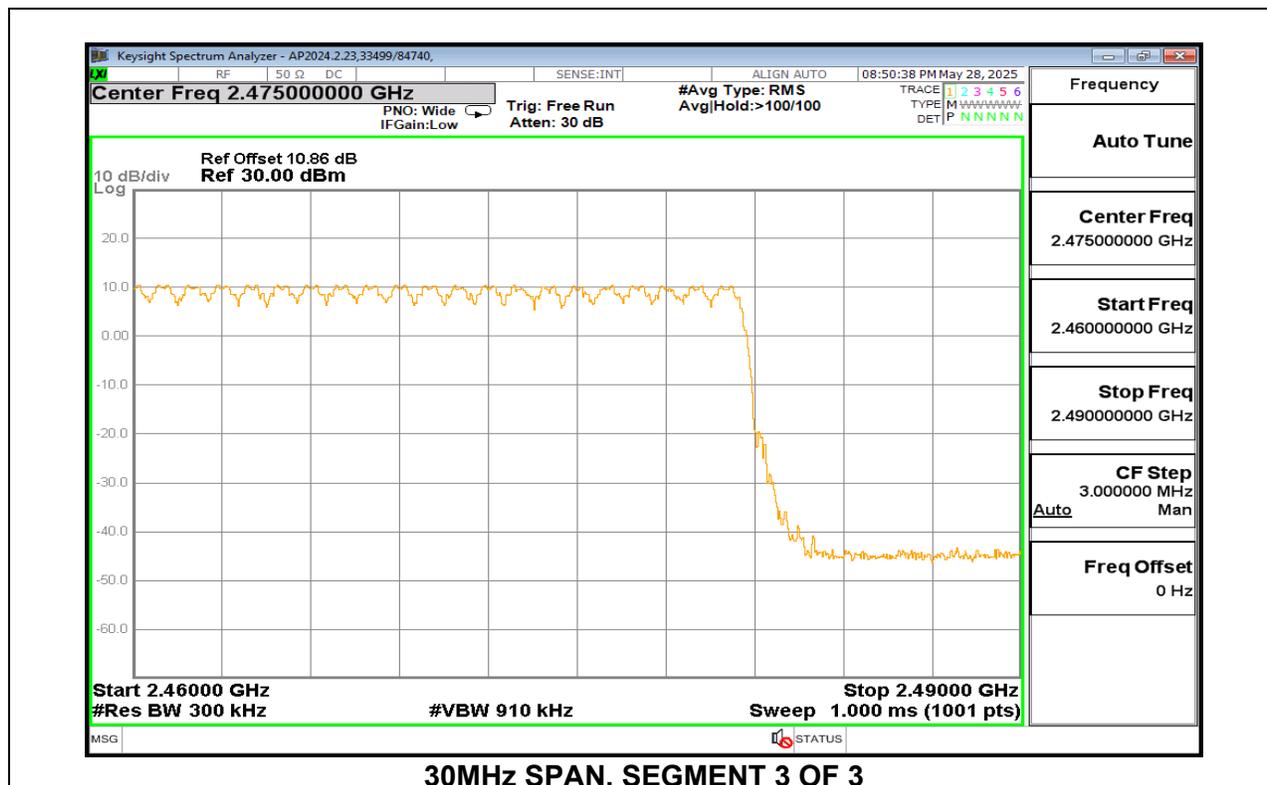
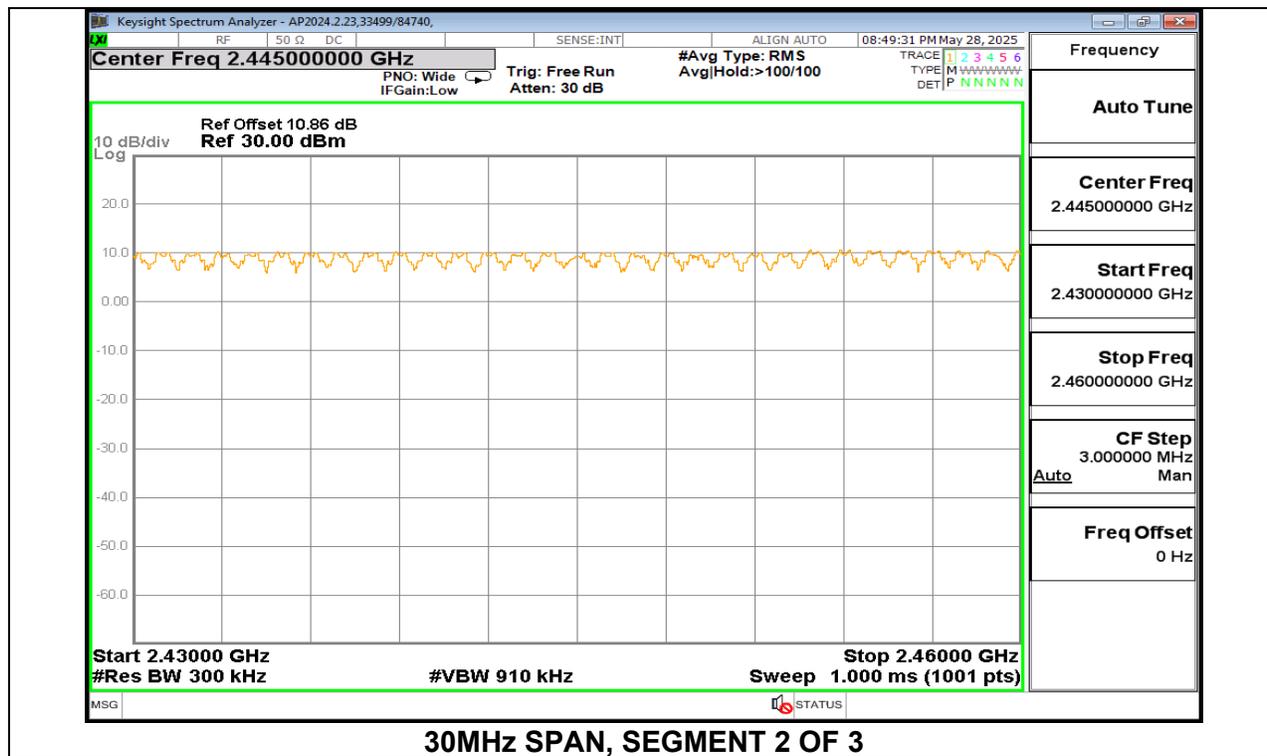
### 9.3.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION



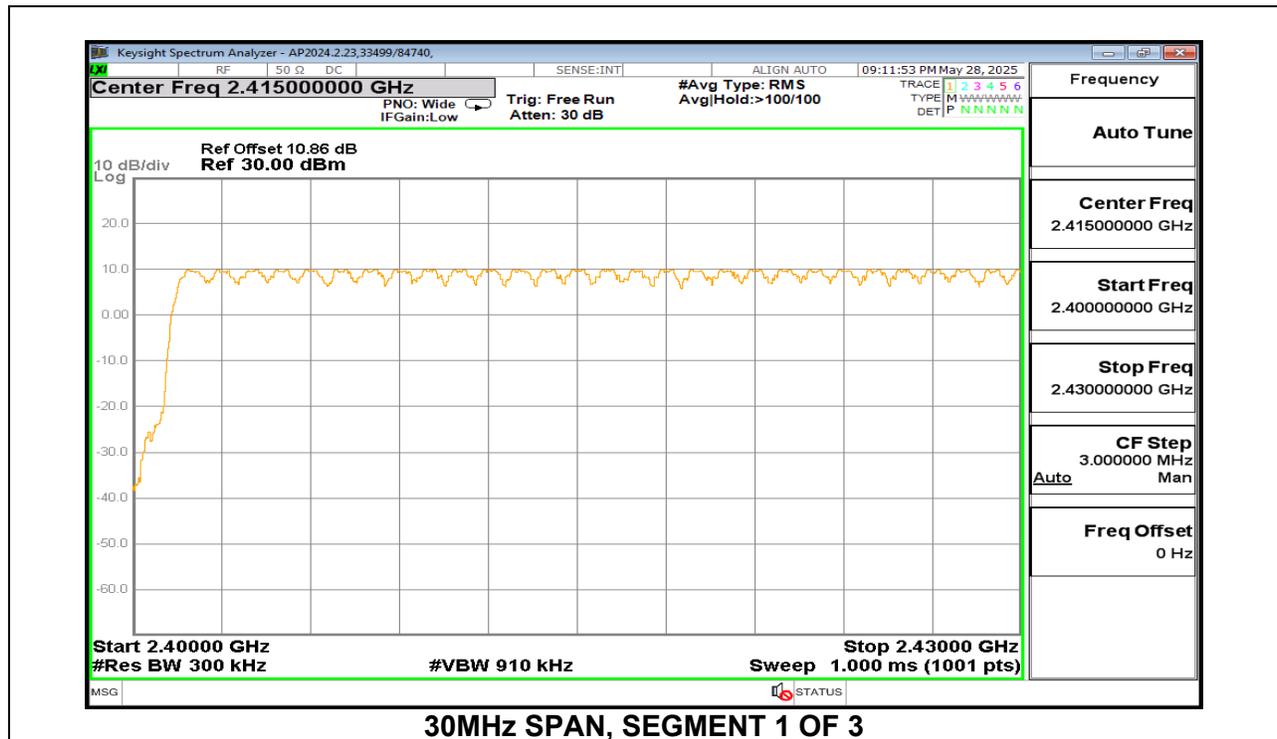
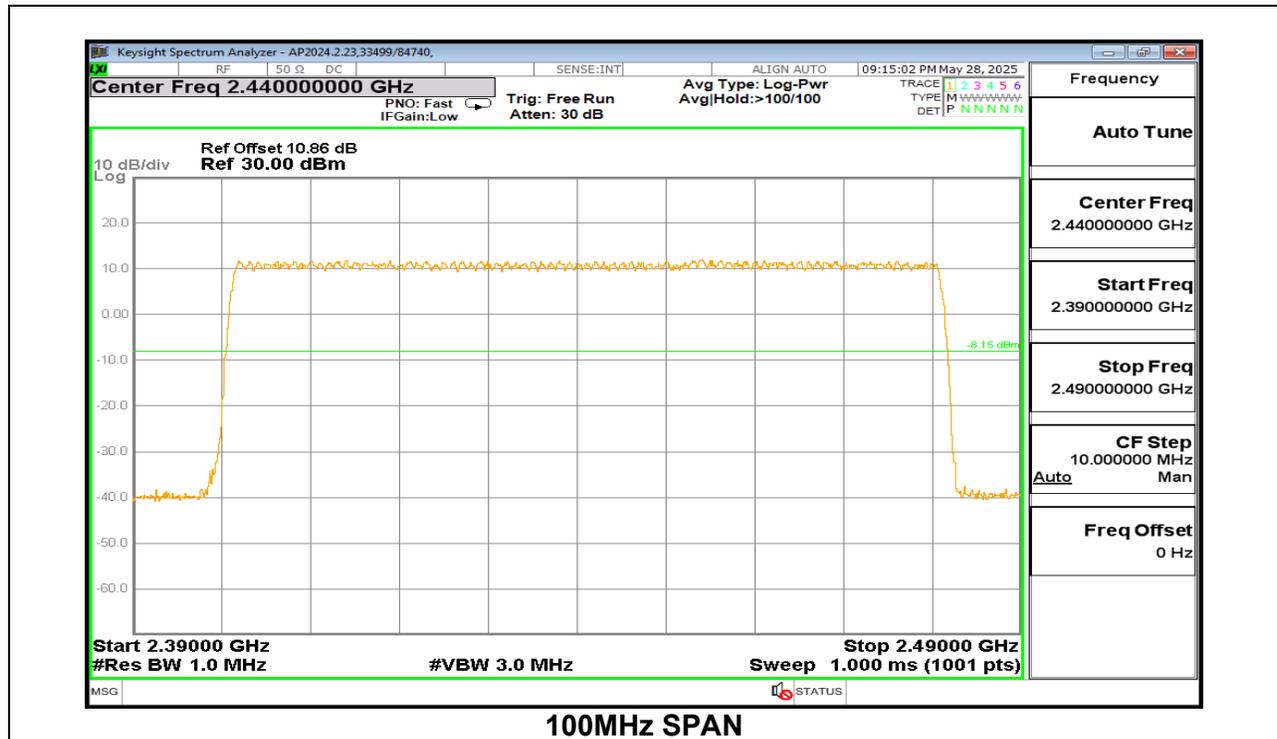


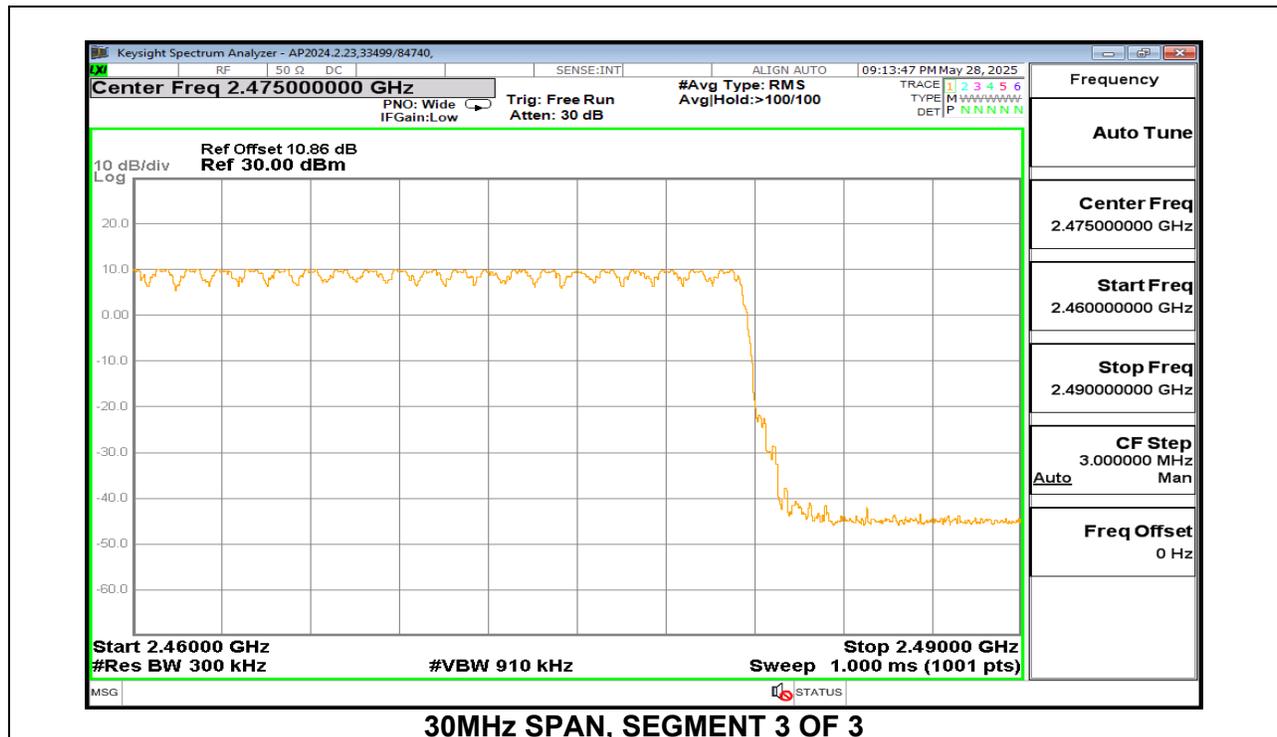
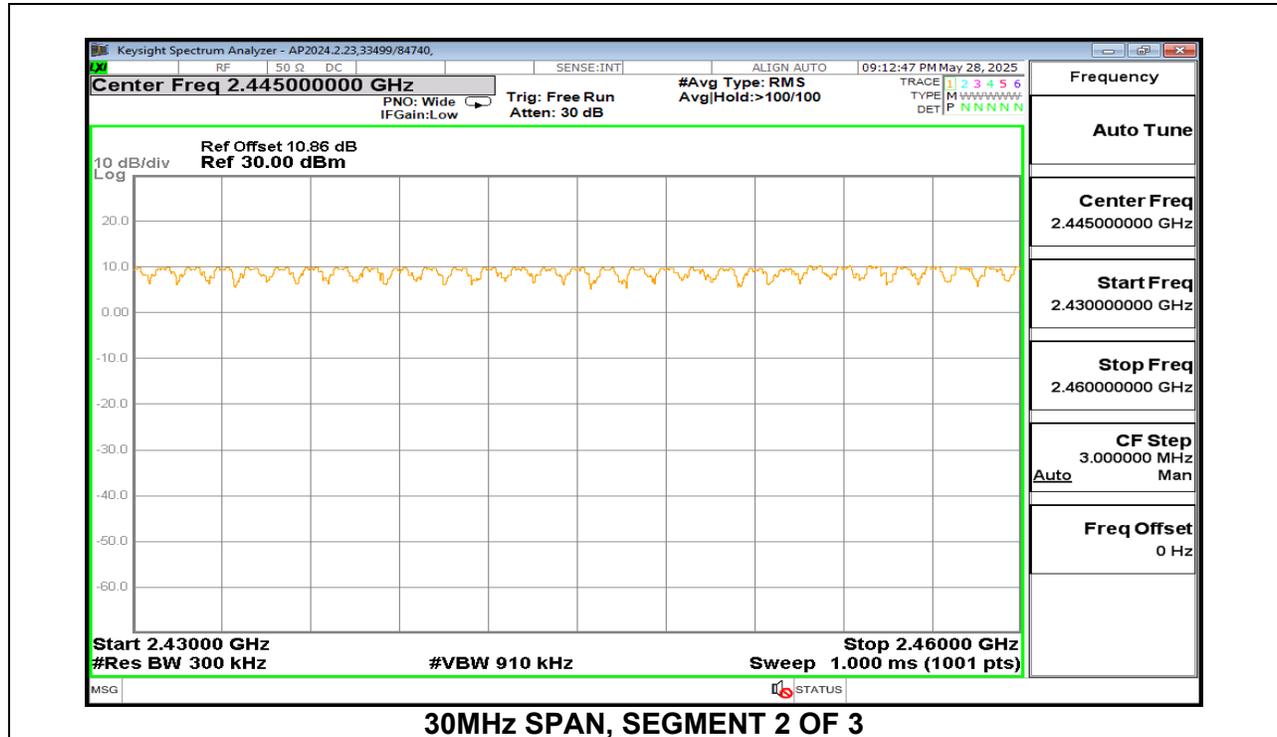
### 9.3.2. BLUETOOTH ENHANCED DATA RATE QPSK MODULATION





### 9.3.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION





## **9.4. 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.

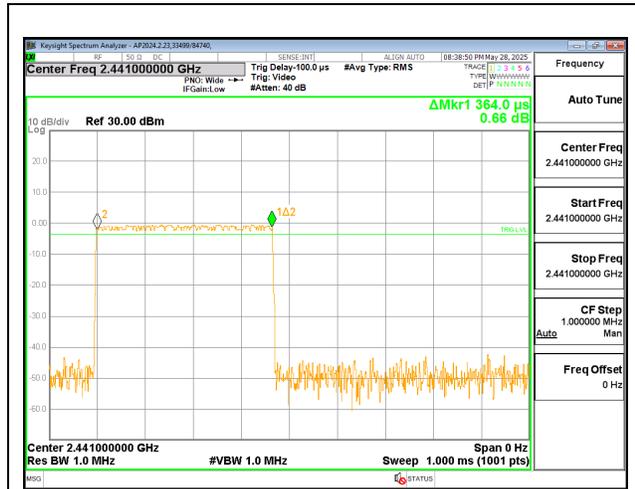
The average time of occupancy in the specified 3.16 second period (79 channels \* 0.4 s) is equal to  $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{ pulse width}$ .

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

### **RESULTS**

### 9.4.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

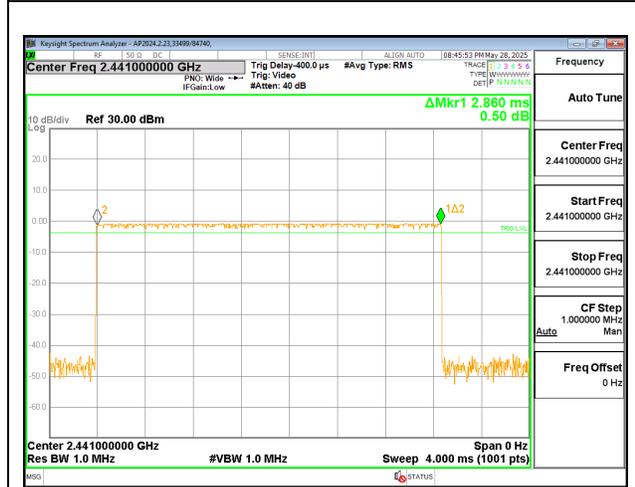
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.364	32	0.1165	0.4	-0.2835
DH3	1.616	16	0.2586	0.4	-0.1414
DH5	2.860	11	0.3146	0.4	-0.0854
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.364	8	0.02912	0.4	-0.3709
DH3	1.616	4	0.06464	0.4	-0.3354
DH5	2.86	3	0.08580	0.4	-0.3142



**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**

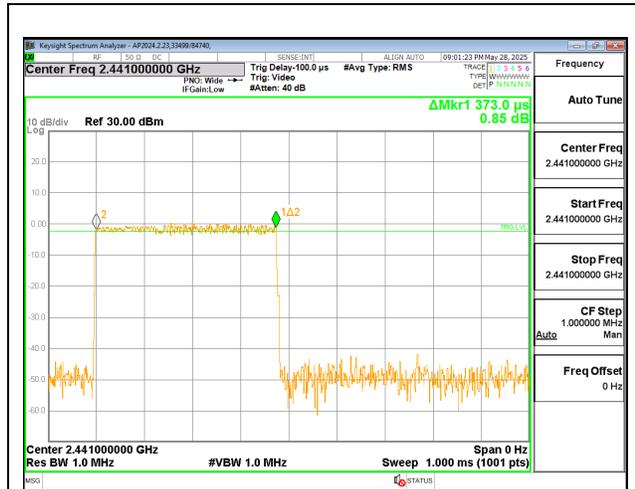


**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – DH5**

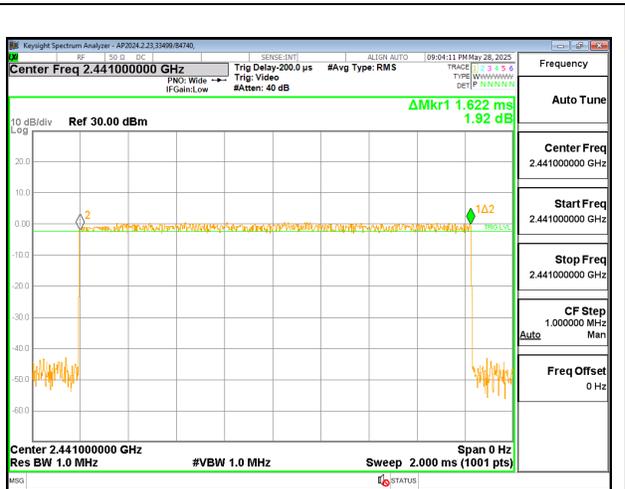
### 9.4.2. BLUETOOTH BASIC DATA RATE QPSK MODULATION

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
QPSK Normal Mode					
3DH1	0.373	32	0.11936	0.4	-0.28064
3DH3	1.622	17	0.27574	0.4	-0.12426
3DH5	2.864	8	0.22912	0.4	-0.17088

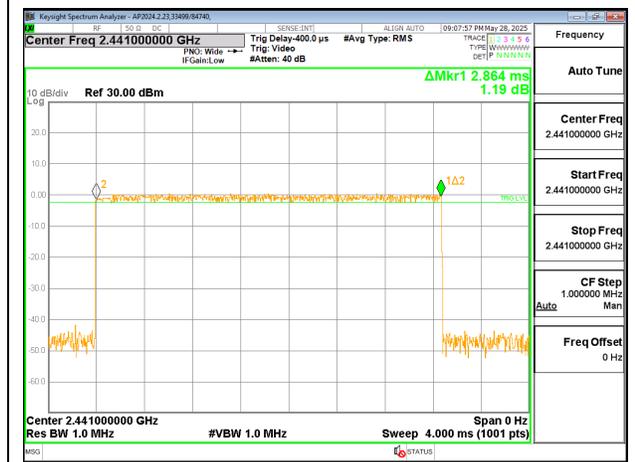
Note: for AFH(QPSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate demonstrates compliance with channel occupancy when AFH is employed.



**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**

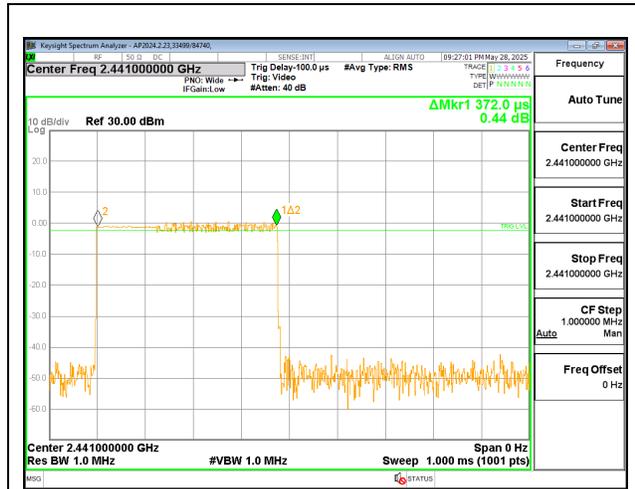


**NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5**

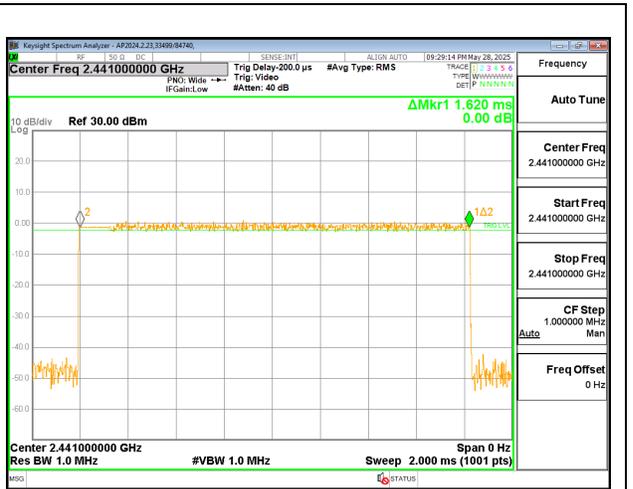
### 9.4.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK Normal Mode					
3DH1	0.372	32	0.11904	0.4	-0.28096
3DH3	1.620	13	0.2106	0.4	-0.1894
3DH5	2.864	12	0.34368	0.4	-0.05632

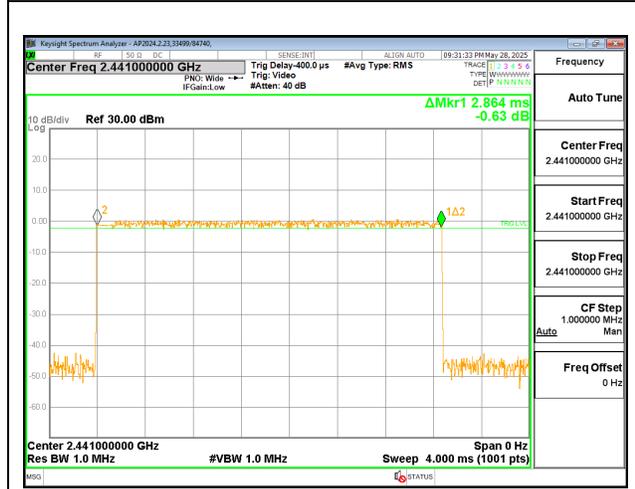
Note: for AFH(8PSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate demonstrates compliance with channel occupancy when AFH is employed.



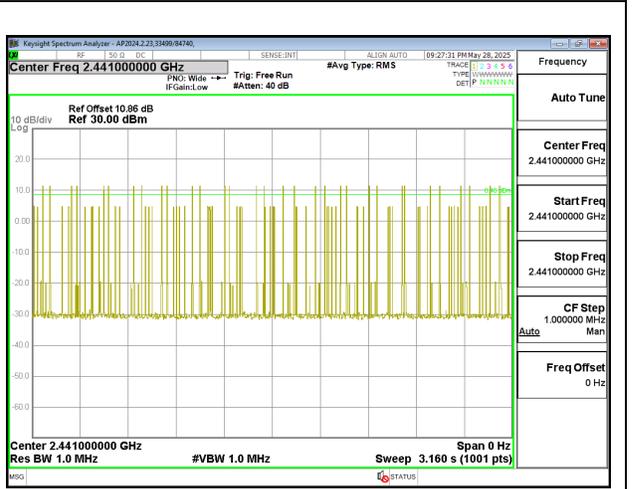
**PULSE WIDTH – 3DH1**



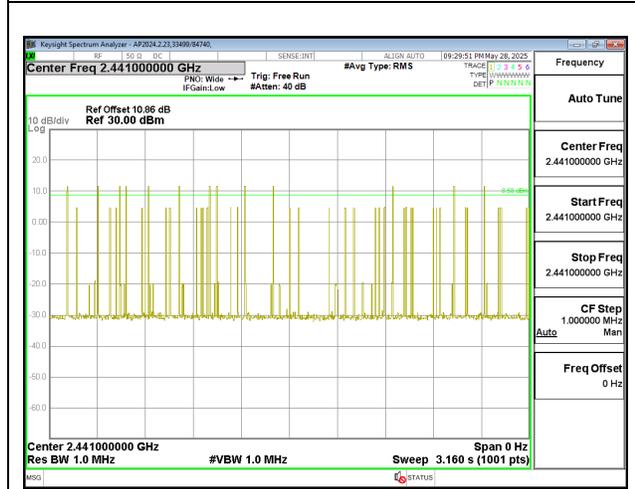
**PULSE WIDTH – 3DH3**



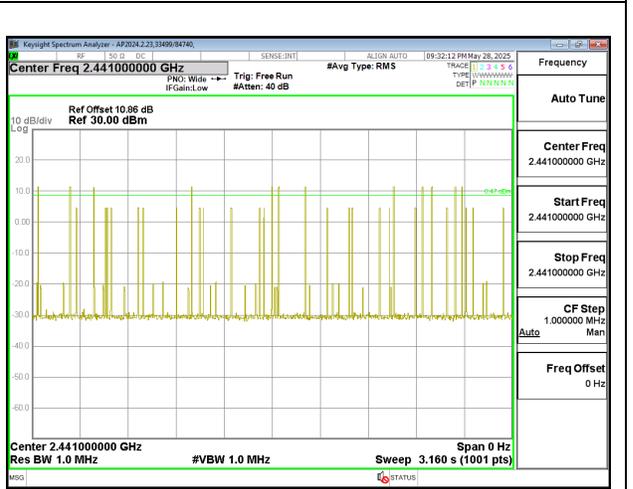
**PULSE WIDTH – 3DH5**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH1**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH3**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH5**

## **9.5. 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 12.37 dB (including 2.37 dB cable and a 10.00 dB pad) was entered as an offset in the power meter.

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

### **RESULTS**

### 9.5.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Tested By:	104463/85502 And 105900/84740
Date:	2025-06-30

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	11.53	21	-9.47
Middle	2441	10.60	21	-10.40
High	2480	10.81	21	-10.19

### 9.5.2. BLUETOOTH ENHANCED DATA RATE DQPSK MODULATION

Tested By:	104463/85502 And 105900/84740
Date:	2025-06-30

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.46	21	-10.54
Middle	2441	10.54	21	-10.46
High	2480	10.84	21	-10.16

### 9.5.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Tested By:	104463/85502 And 105900/84740
Date:	2025-06-30

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.24	21	-10.76
Middle	2441	10.17	21	-10.83
High	2480	10.16	21	-10.84

## **9.6. AVERAGE POWER**

### **LIMITS**

None; for reporting purposes only

### **TEST PROCEDURE**

Measurements are performed using a wideband gated RF power meter.

The cable assembly insertion loss of 12.37 dB (including 2.37 dB cable and a 10.00 dB pad) was entered as an offset in the power meter.

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

### **RESULTS**

### 9.6.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Tested By:	104463/85502 And 105900/84740
Date	2025-06-30

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	10.481
Middle	2441	9.489
High	2480	9.696

### 9.6.2. BLUETOOTH ENHANCED DATA RATE QPSK MODULATION

Tested By:	104463/85502 And 105900/84740
Date	2025-06-30

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	9.297
Middle	2441	9.400
High	2480	9.675

### 9.6.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Tested By:	104463/85502 And 105900/84740
Date	2025-06-30

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	9.636
Middle	2441	9.547
High	2480	9.551

## **9.7. 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.

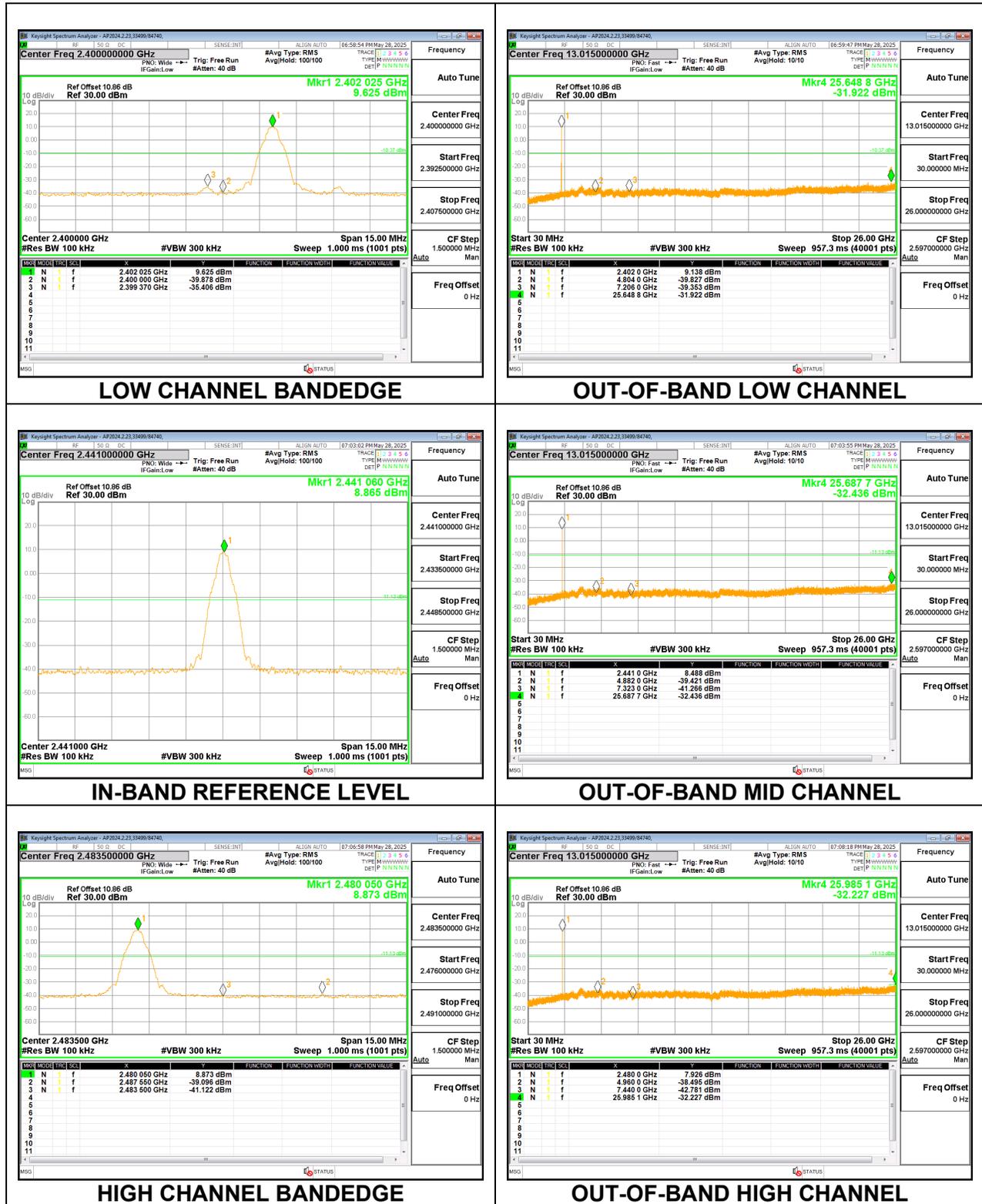
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

### **RESULTS**

## 9.7.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

### SPURIOUS EMISSIONS, NON-HOPPING

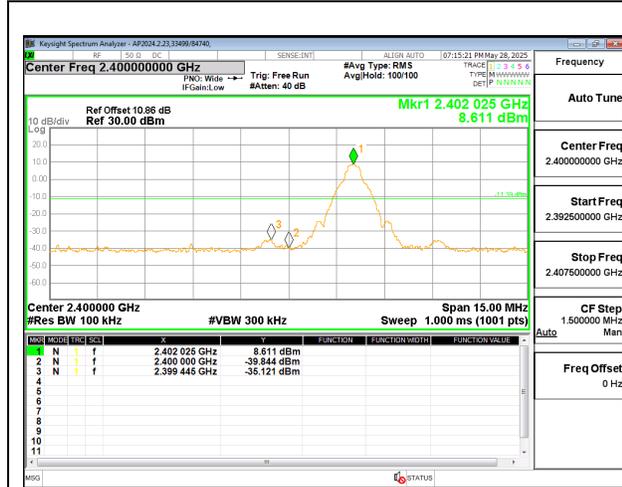


**SPURIOUS BANDEGE EMISSIONS WITH HOPPING ON**

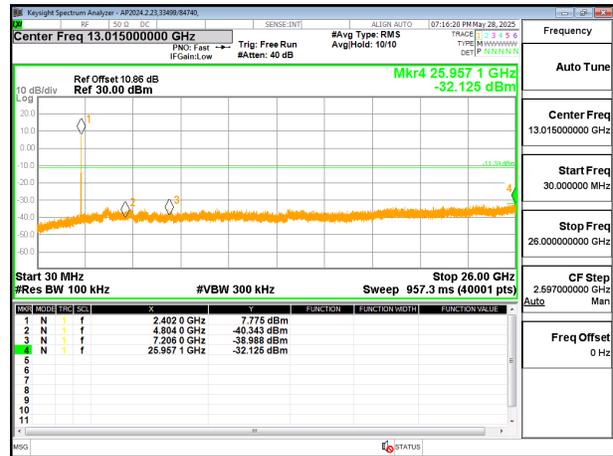


## 9.7.2. BLUETOOTH ENHANCED DATA RATE QPSK MODULATION

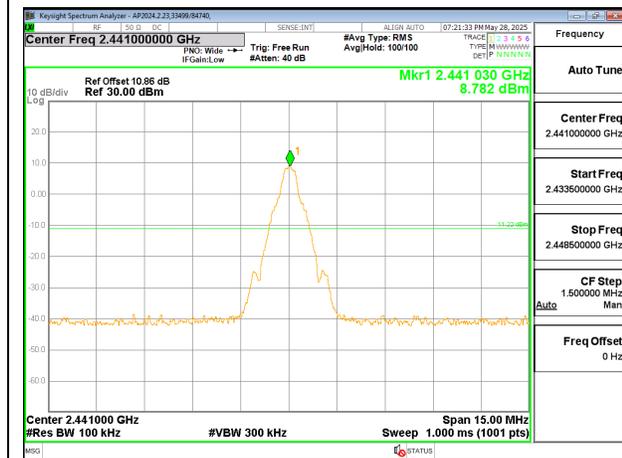
### SPURIOUS EMISSIONS, NON-HOPPING



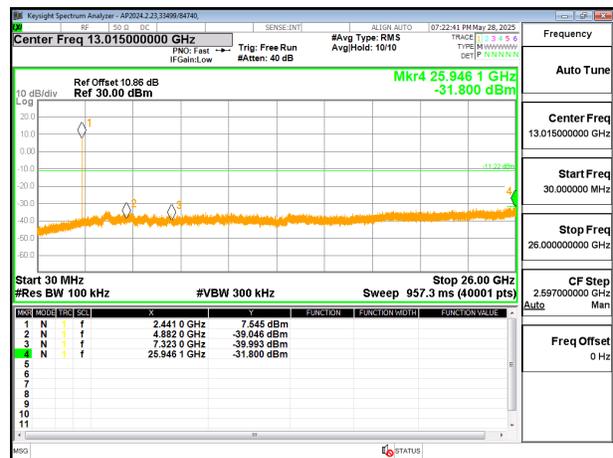
LOW CHANNEL BANDEDGE



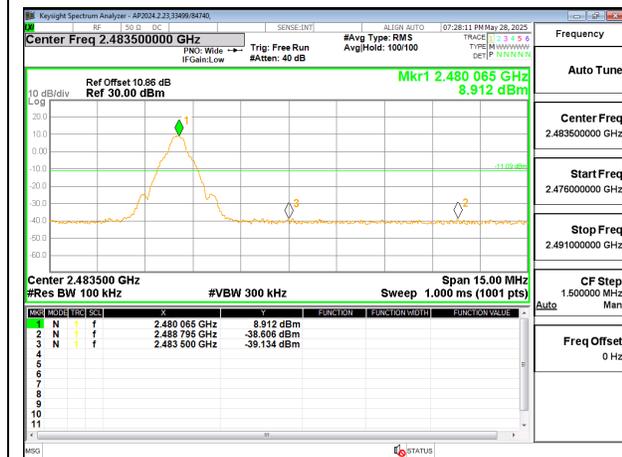
OUT-OF-BAND LOW CHANNEL



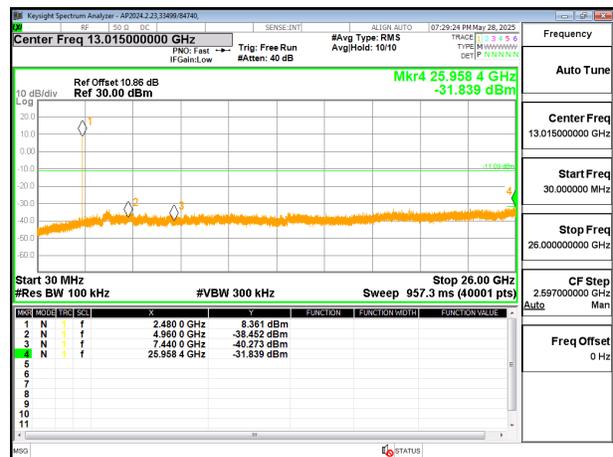
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



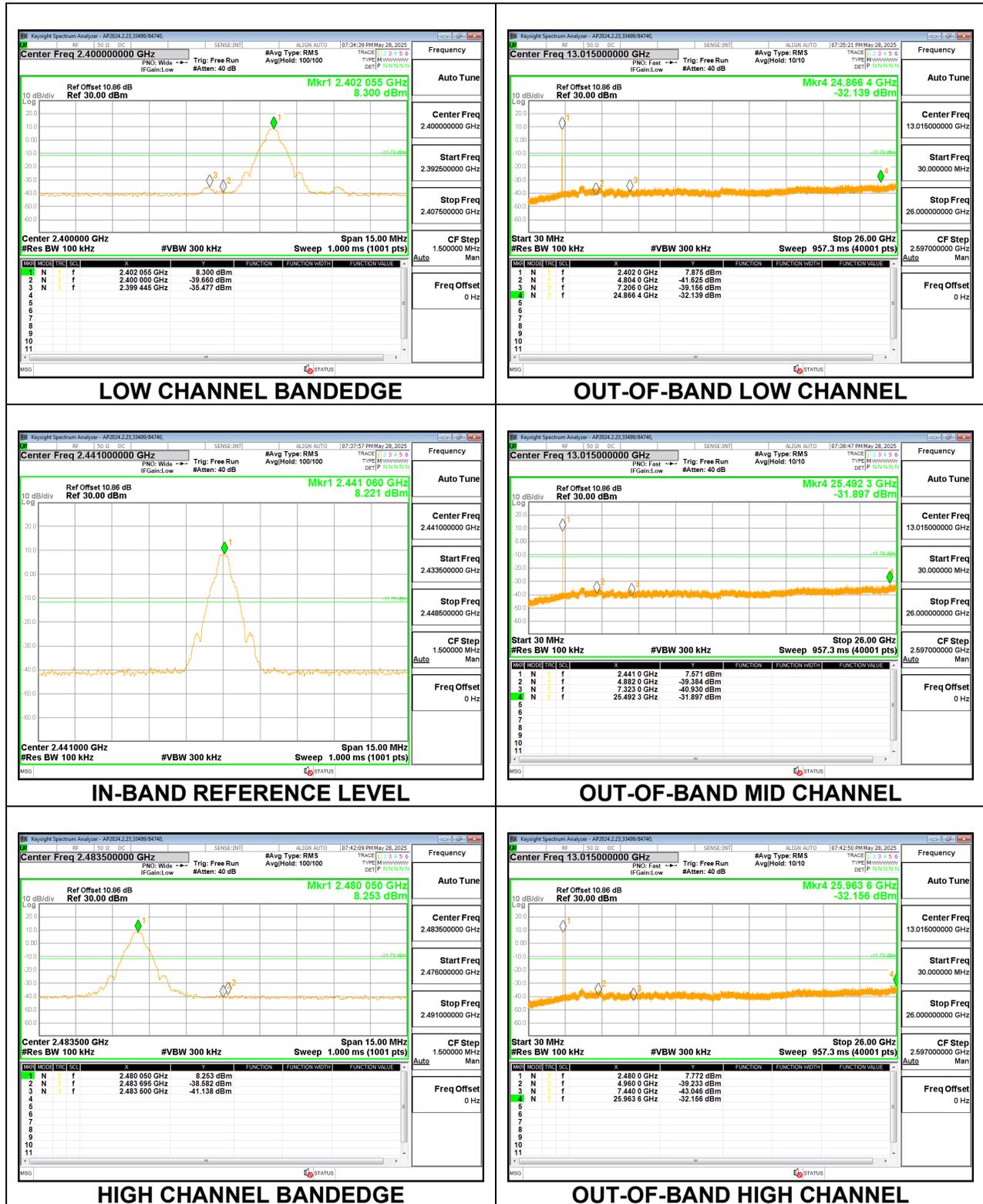
OUT-OF-BAND HIGH CHANNEL

**SPURIOUS BANDEGE EMISSIONS WITH HOPPING ON**



### 9.7.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

#### SPURIOUS EMISSIONS, NON-HOPPING



**SPURIOUS BANDEGE EMISSIONS WITH HOPPING ON**



## 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

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 3 MHz for peak measurements.

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

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to 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).

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

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

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

## 10.1. TRANSMITTER ABOVE 1 GHz

### 10.1.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

#### PROCEDURE

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

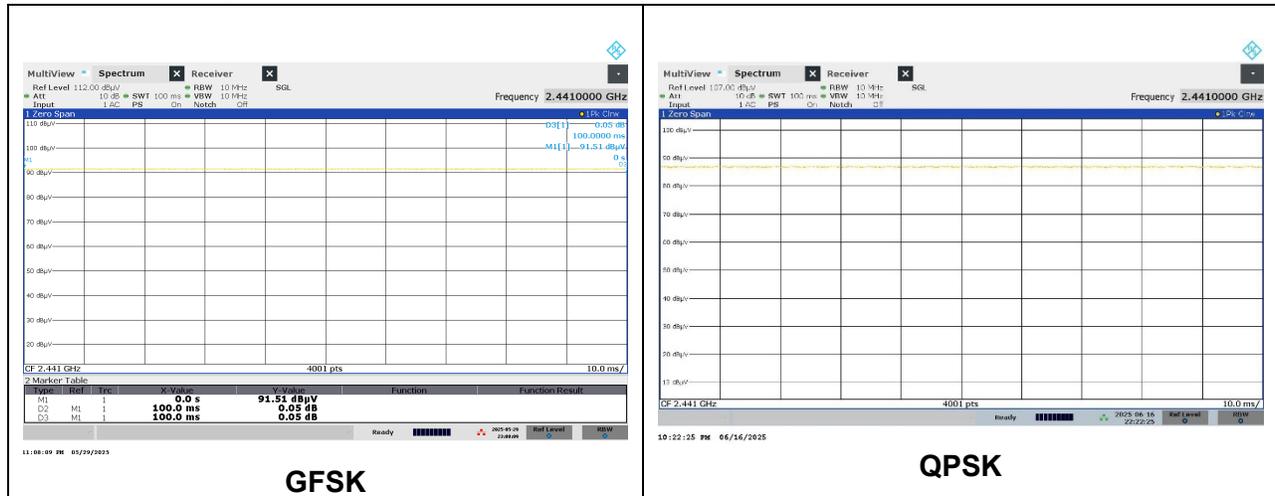
#### ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
Bluetooth GFSK	100.000	100.000	1.000	100	0.00	0.010
Bluetooth QPSK	100.000	100.000	1.000	100	0.00	0.010
Bluetooth 8PSK	100.000	100.000	1.000	100	0.00	0.010

#### DUTY CYCLE PLOTS

Tested By: 85501

Test Location: Chamber 4



GFSK

QPSK

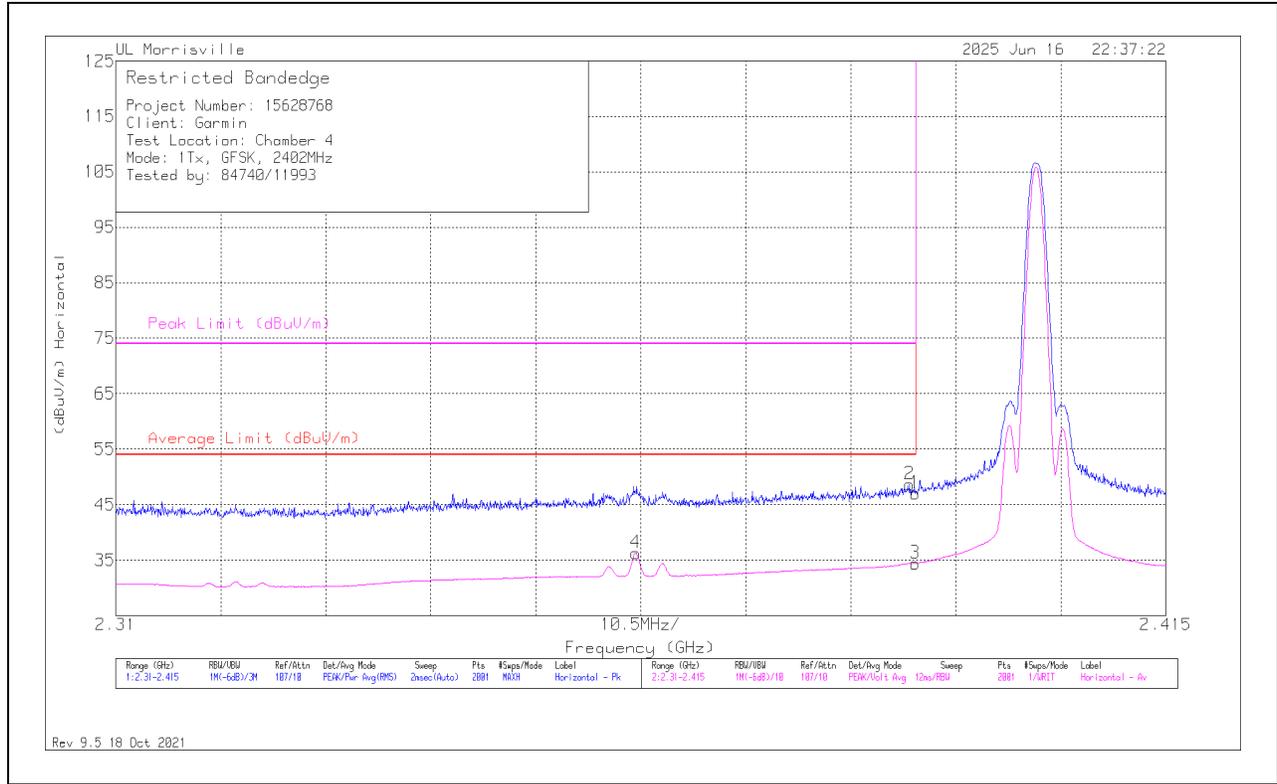


8PSK

### 10.1.2. BLUETOOTH BASIC DATA RATE GFSK MODULATION

#### BANDEDGE (LOW CHANNEL)

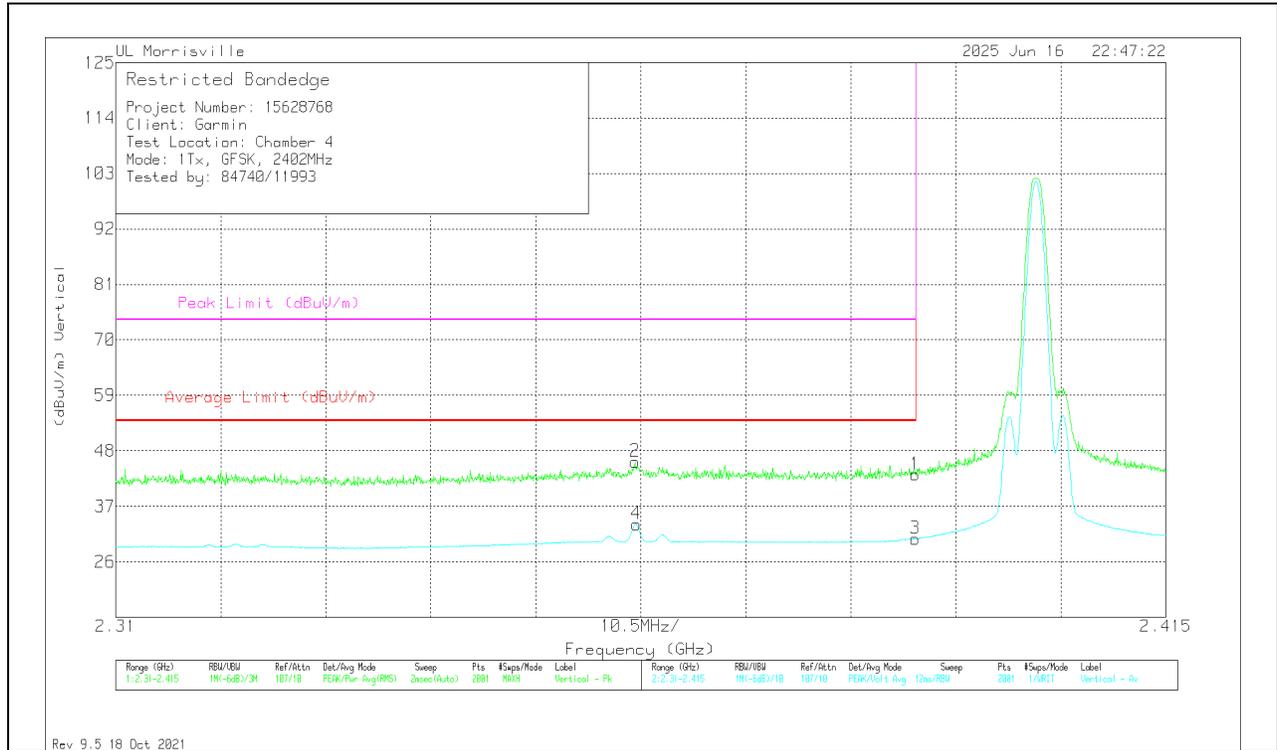
#### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	38.21	Pk	32	-23.2	47.01	-	-	74	-26.99	173	114	H
2	*** 2.38938	39.9	Pk	32	-23.2	48.7	-	-	74	-25.3	173	114	H
3	*** 2.38996	25.63	VA1T	32	-23.2	34.43	54	-19.57	-	-	173	114	H
4	*** 2.36198	27.31	VA1T	31.9	-23	36.21	54	-17.79	-	-	173	114	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	206211 (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	34.49	Pk	32	-23.2	43.29	-	-	74	-30.71	41	346	V
2	* ** 2.36192	36.91	Pk	31.9	-23	45.81	-	-	74	-28.19	41	346	V
3	* ** 2.38996	21.79	VA1T	32	-23.2	30.59	54	-23.41	-	-	41	346	V
4	* ** 2.36208	24.56	VA1T	31.9	-23	33.46	54	-20.54	-	-	41	346	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

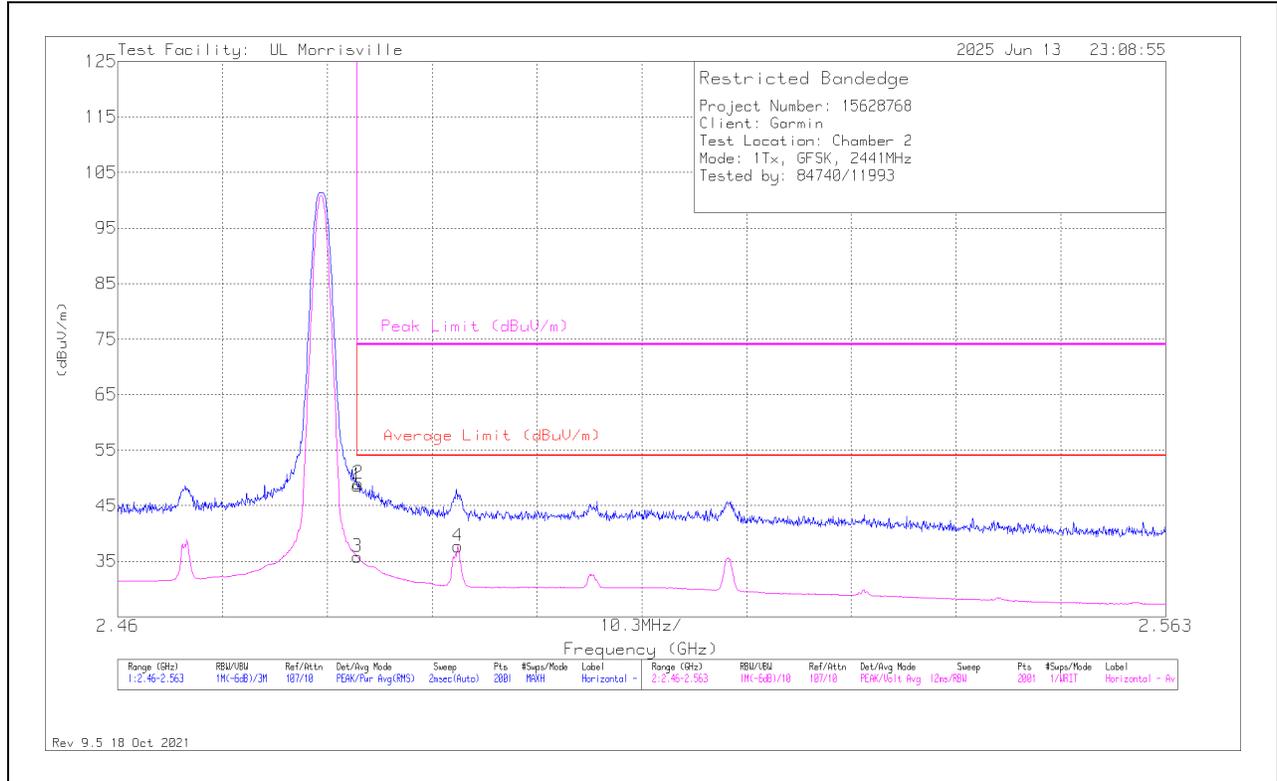
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

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

**BANDEGE (HIGH CHANNEL)**

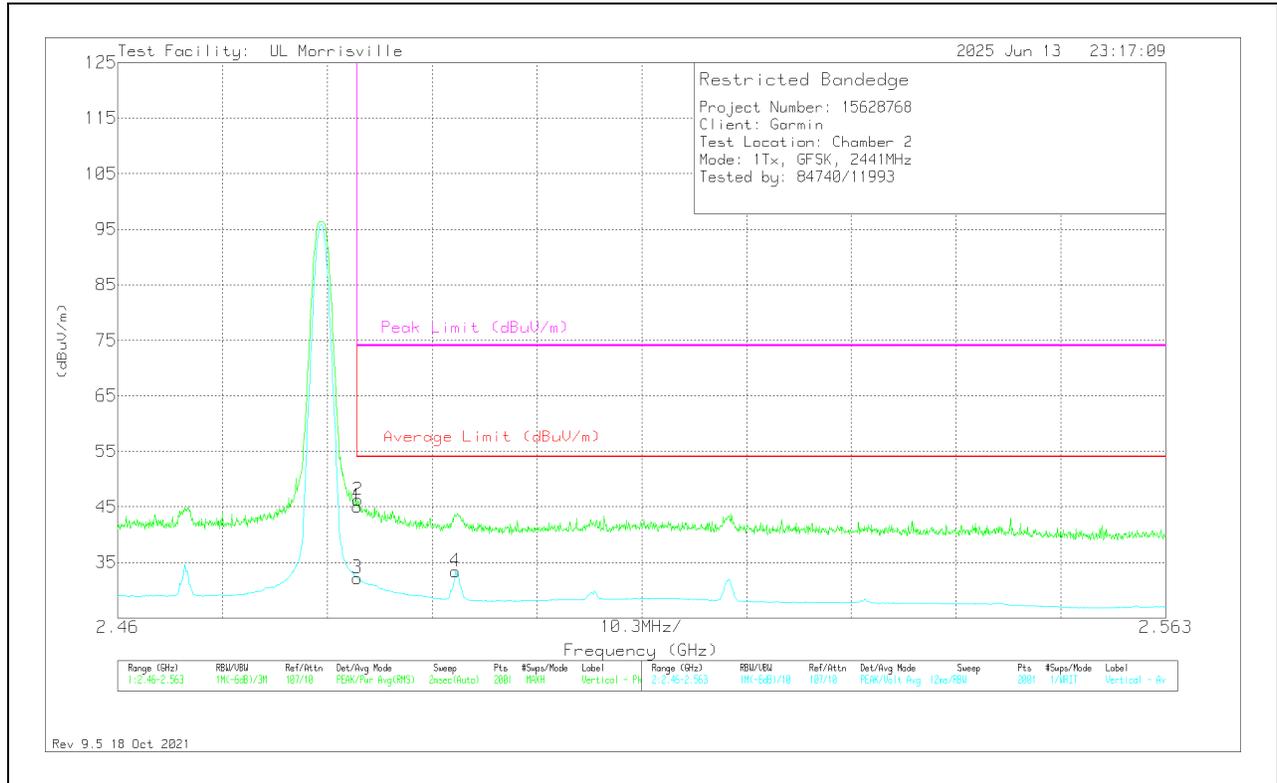
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	41.62	Pk	32.5	-25.5	48.62	-	-	74	-25.38	169	146	H
2	* ** 2.48364	41.97	Pk	32.5	-25.5	48.97	-	-	74	-25.03	169	146	H
3	* ** 2.48354	28.8	VA1T	32.5	-25.5	35.8	54	-18.2	-	-	169	146	H
4	* ** 2.49342	31.21	VA1T	32.5	-26	37.71	54	-16.29	-	-	169	146	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

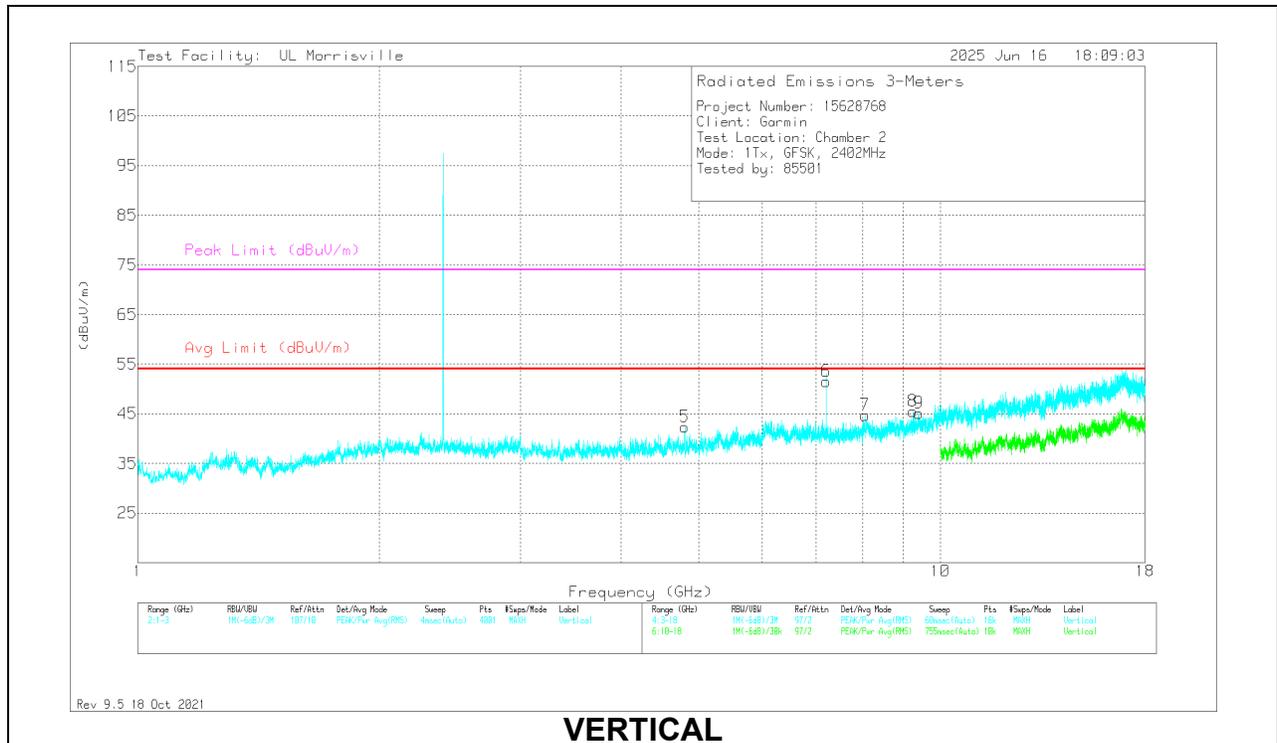
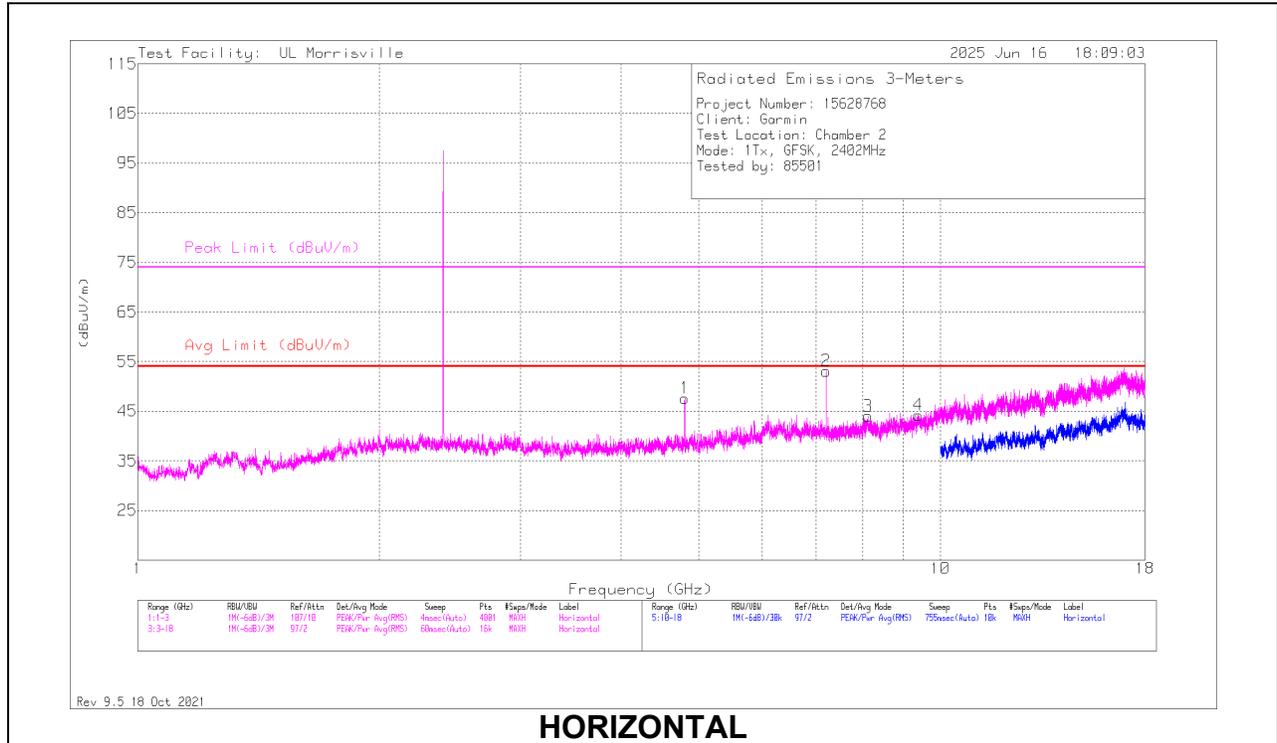


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	38.09	Pk	32.5	-25.5	45.09	-	-	74	-28.91	147	104	V
2	* ** 2.48359	39.24	Pk	32.5	-25.5	46.24	-	-	74	-27.76	147	104	V
3	* ** 2.48354	25.16	VA1T	32.5	-25.5	32.16	54	-21.84	-	-	147	104	V
4	* ** 2.49317	26.89	VA1T	32.5	-26	33.39	54	-20.61	-	-	147	104	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



**RADIATED EMISSIONS**

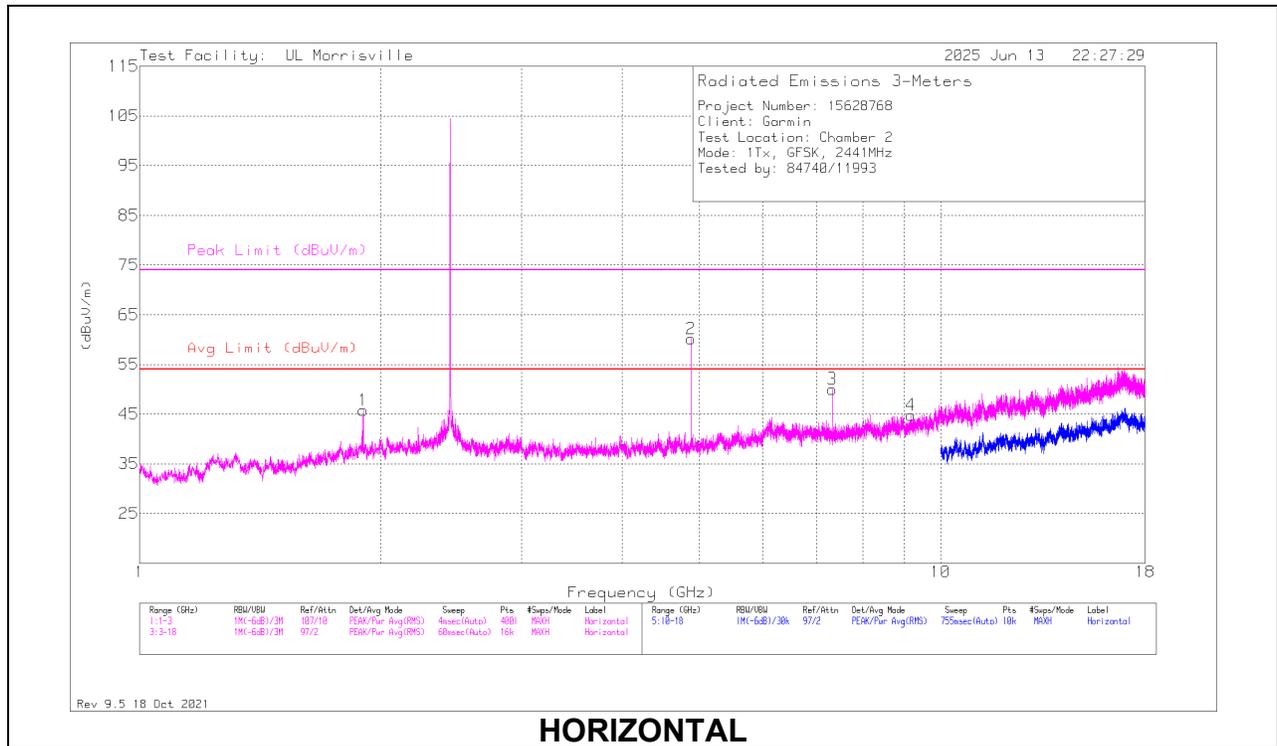
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 4.80375	58.59	Pk	34.2	-45.2	47.59	54	-6.41	74	-26.41	0-360	101	H
3	*** 8.13094	50.19	Pk	35.8	-42	43.99	54	-10.01	74	-30.01	0-360	199	H
4	*** 9.38625	49.41	Pk	36.2	-41.4	44.21	54	-9.79	74	-29.79	0-360	101	H
5	*** 4.80375	53.35	Pk	34.2	-45.2	42.35	54	-11.65	74	-31.65	0-360	101	V
7	*** 8.05688	50.26	Pk	35.8	-41.4	44.66	54	-9.34	74	-29.34	0-360	199	V
9	*** 9.40125	49.81	Pk	36.2	-40.9	45.11	54	-8.89	74	-28.89	0-360	101	V
6	7.20469	58.57	Pk	35.6	-42.6	51.57	-	-	74	-22.43	0-360	199	V
2	7.20563	60.06	Pk	35.6	-42.6	53.06	-	-	74	-20.94	0-360	199	H
8	9.24375	50.76	Pk	36	-41.3	45.46	-	-	74	-28.54	0-360	199	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

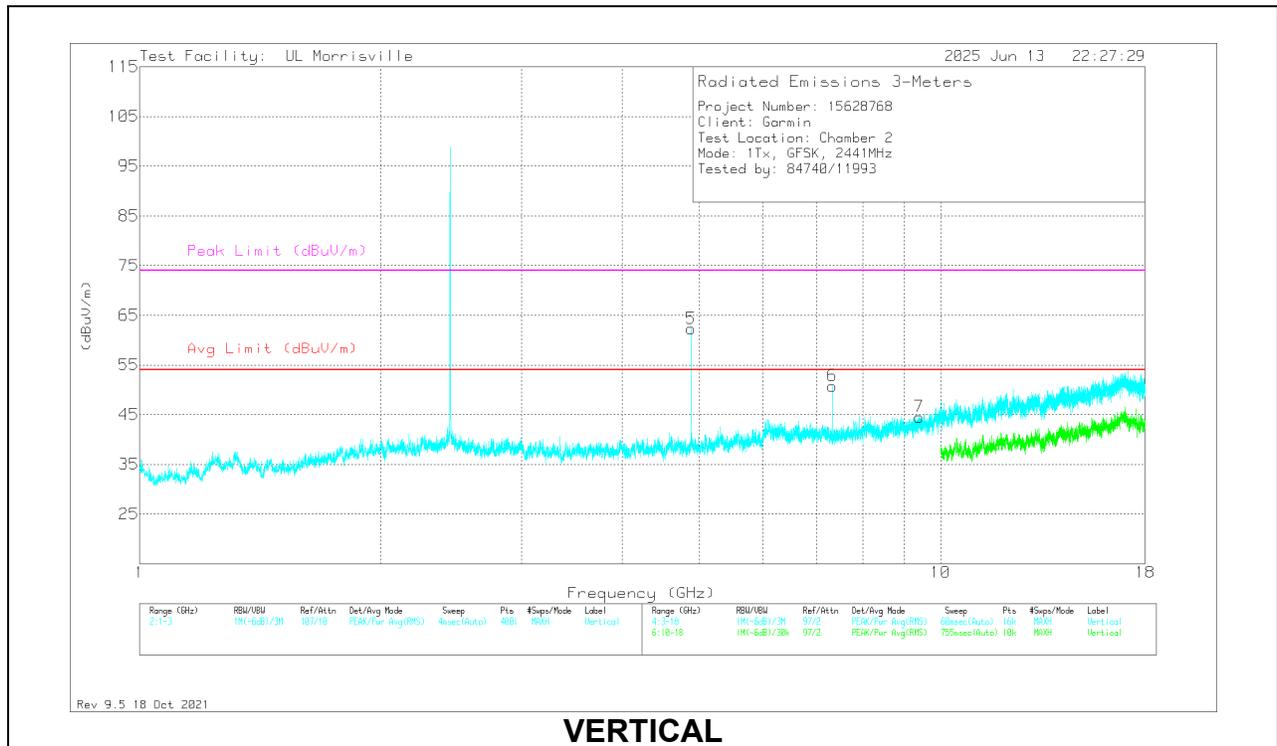
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

### MID CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 4.88166	73.43	PK2	34.1	-44.5	63.03	-	-	74	-10.97	96	110	H
	* ** 4.88199	60.58	V1TV	34.1	-44.5	50.18	54	-3.82	-	-	96	110	H
3	* ** 7.32274	59.21	PK2	35.6	-43.5	51.31	-	-	74	-22.69	103	373	H
	* ** 7.32301	50.33	V1TV	35.6	-43.5	42.43	54	-11.57	-	-	103	373	H
4	* ** 9.18094	49.35	Pk	36	-40.6	44.75	54	-9.25	74	-29.25	0-360	101	H
5	* ** 4.88223	74.37	PK2	34.1	-44.5	63.97	-	-	74	-10.03	288	102	V
	* ** 4.882	60.66	V1TV	34.1	-44.5	50.26	54	-3.74	-	-	288	102	V
6	* ** 7.32345	61.59	PK2	35.6	-43.5	53.69	-	-	74	-20.31	108	103	V
	* ** 7.32299	52.97	V1TV	35.6	-43.5	45.07	54	-8.93	-	-	108	103	V
7	* ** 9.40688	48.75	Pk	36.2	-40.4	44.55	54	-9.45	74	-29.45	0-360	200	V
1	1.9015	38.64	Pk	31	-23.9	45.74	54	-8.26	74	-28.26	0-360	200	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

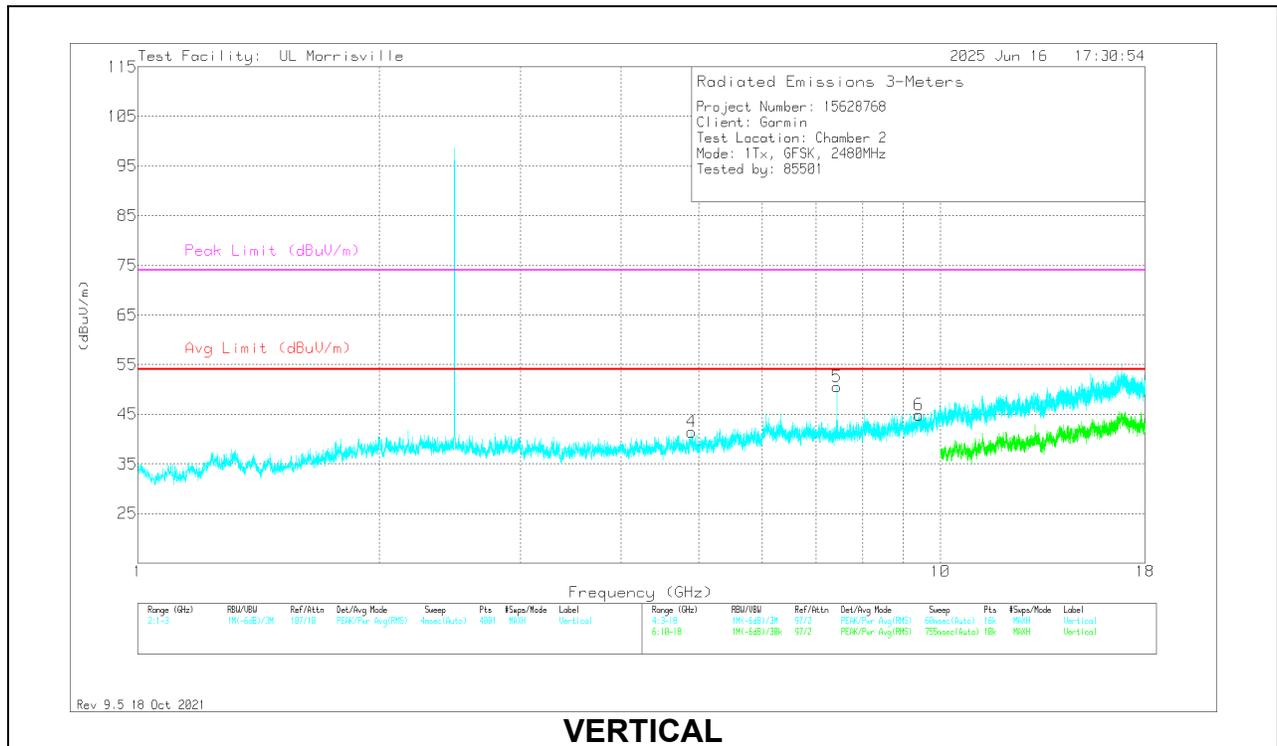
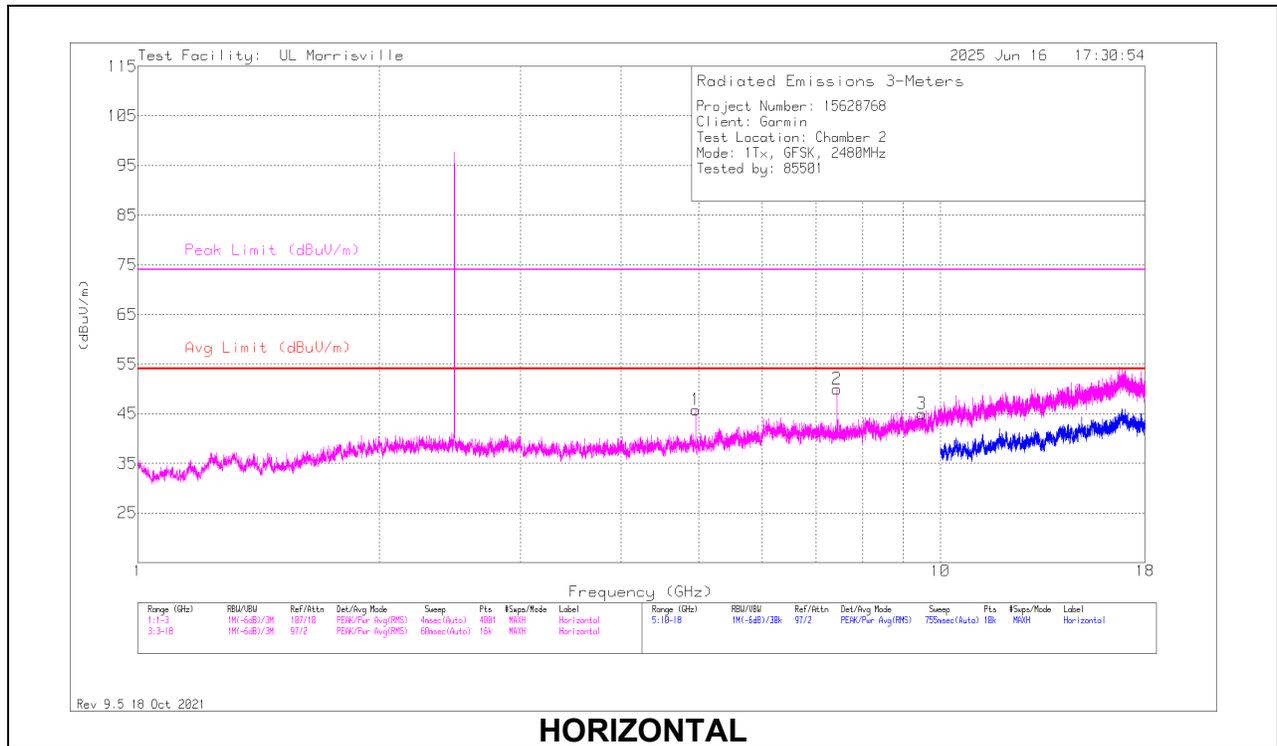
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

V1TV - VB=1/Ton, Linear Voltage Average where: Ton is packet duration

### HIGH CHANNEL RESULTS



**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.95938	57.03	Pk	34	-45.3	45.73	54	-8.27	74	-28.27	0-360	200	H
2	*** 7.44036	60.23	PK2	35.6	-42.6	53.23	-	-	74	-20.77	327	202	H
	*** 7.43986	43.32	V1TV	35.6	-42.6	36.32	54	-17.68	-	-	327	202	H
3	*** 9.48	49.96	Pk	36.4	-41.4	44.96	54	-9.04	74	-29.04	0-360	200	H
4	*** 4.90125	52.25	Pk	34.1	-44.9	41.45	54	-12.55	74	-32.55	0-360	101	V
5	*** 7.4394	60.33	PK2	35.6	-42.5	53.43	-	-	74	-20.57	150	198	V
	*** 7.43986	43.23	V1TV	35.6	-42.6	36.23	54	-17.77	-	-	150	198	V
6	*** 9.40969	49.28	Pk	36.2	-40.6	44.88	54	-9.12	74	-29.12	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

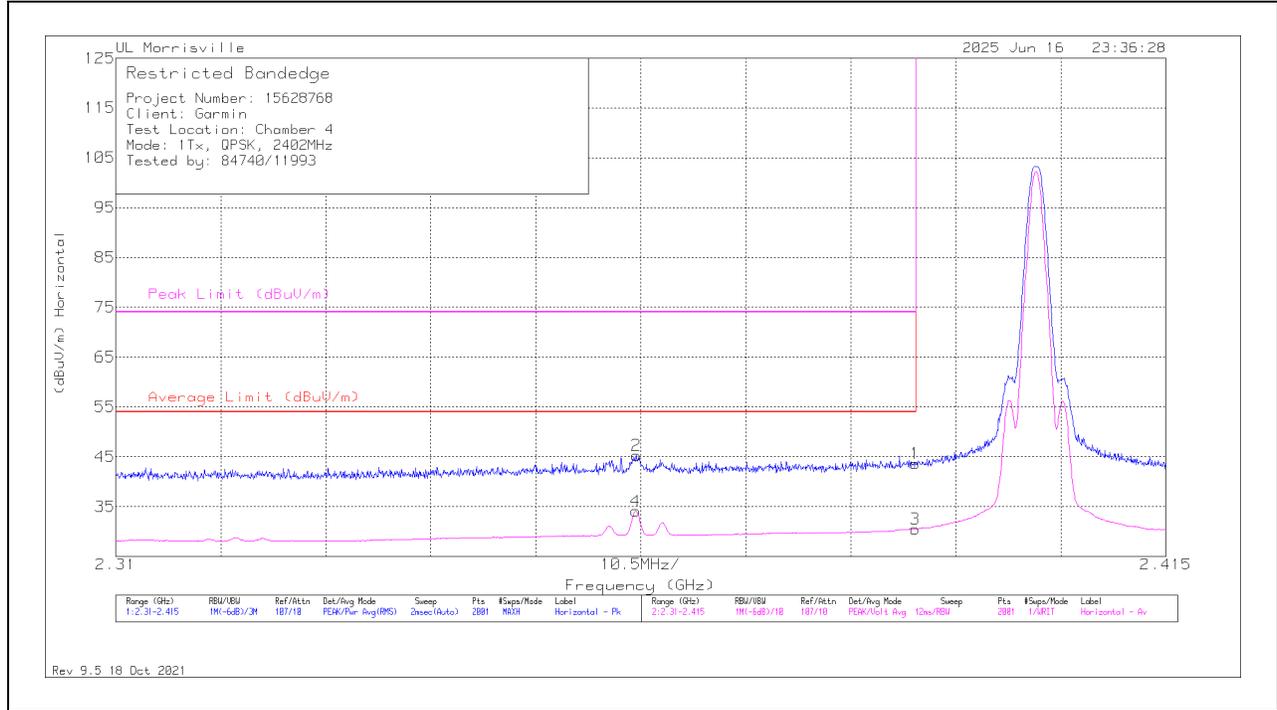
PK2 - Maximum Peak

V1TV -  $VB=1/Ton$ , Linear Voltage Average where: Ton is packet duration

### 10.1.3. BLUETOOTH ENHANCED DATA RATE QPSK MODULATION

#### BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	34.88	Pk	32	-23.2	43.68	-	-	74	-30.32	200	277	H
2	*** 2.36203	36.34	Pk	31.9	-23	45.24	-	-	74	-28.76	200	277	H
3	*** 2.38996	21.72	VA1T	32	-23.2	30.52	54	-23.48	-	-	200	277	H
4	*** 2.36198	25.18	VA1T	31.9	-23	34.08	54	-19.92	-	-	200	277	H

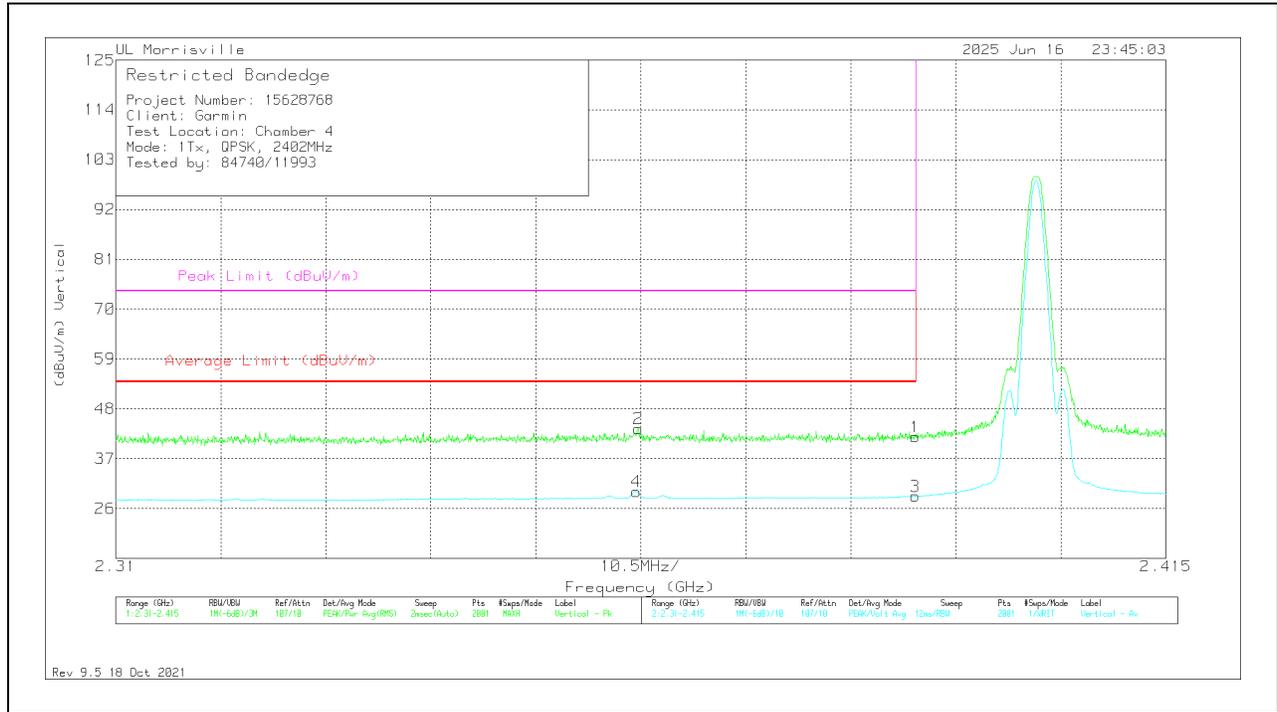
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - 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

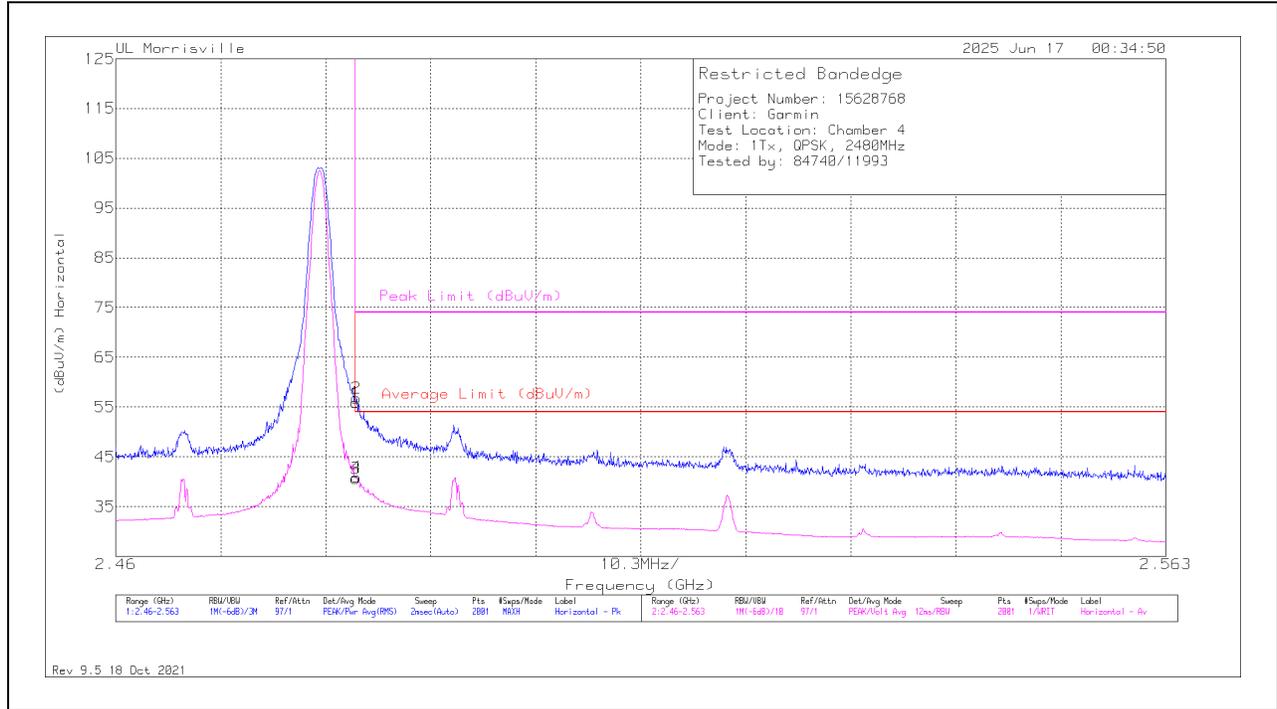


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	32.98	Pk	32	-23.2	41.78	-	-	74	-32.22	212	272	V
2	* ** 2.36224	34.76	Pk	31.9	-23	43.66	-	-	74	-30.34	212	272	V
3	* ** 2.38996	19.89	VA1T	32	-23.2	28.69	54	-25.31	-	-	212	272	V
4	* ** 2.36203	20.81	VA1T	31.9	-23	29.71	54	-24.29	-	-	212	272	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)**

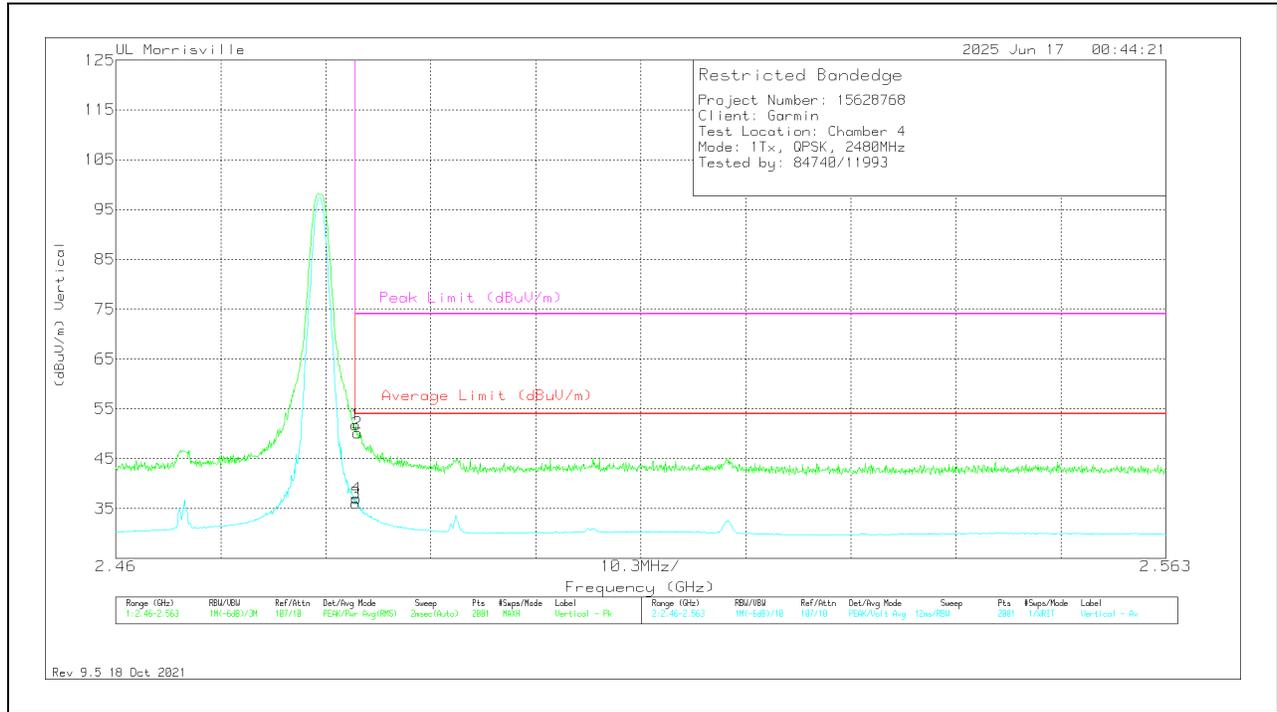
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	46.46	Pk	32.3	-22.8	55.96	-	-	74	-18.04	171	140	H
2	*** 2.48359	47.25	Pk	32.3	-22.8	56.75	-	-	74	-17.25	171	140	H
3	*** 2.48354	31.18	VA1T	32.3	-22.8	40.68	54	-13.32	-	-	171	140	H
4	*** 2.48359	31.37	VA1T	32.3	-22.8	40.87	54	-13.13	-	-	171	140	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

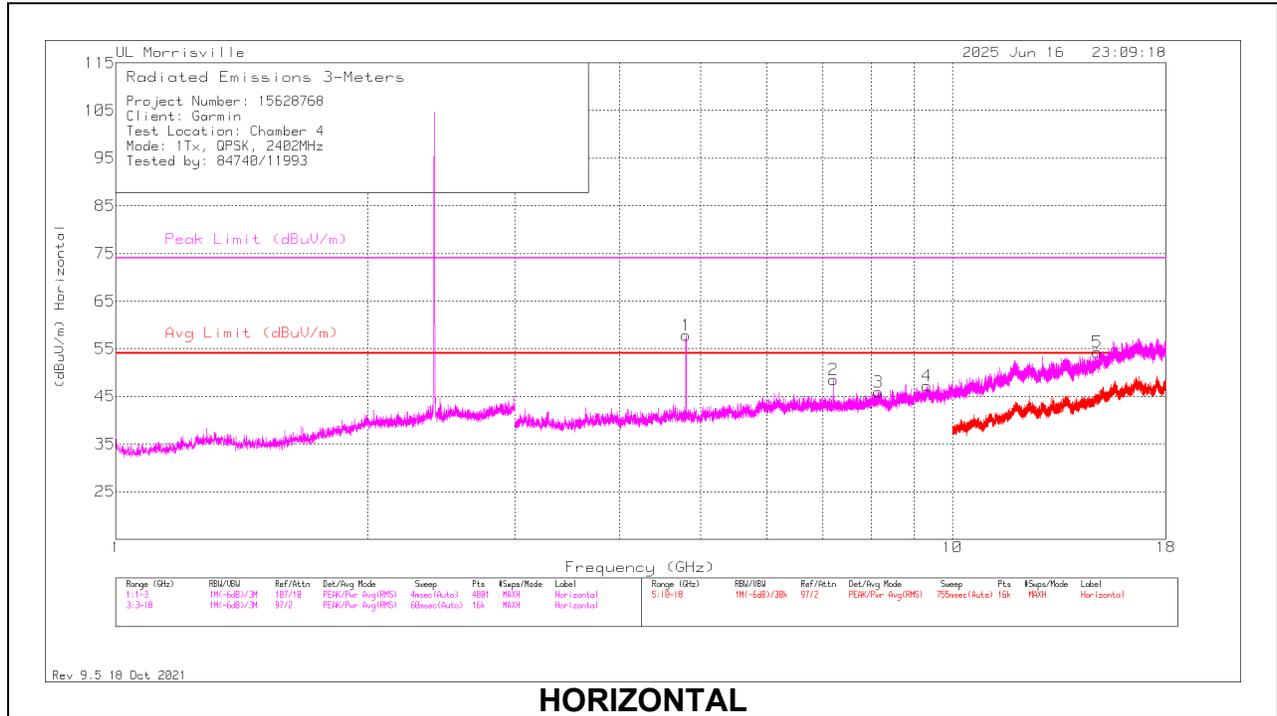


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	42.27	Pk	32.3	-22.8	51.77	-	-	74	-22.23	156	144	V
2	*** 2.48374	40.67	Pk	32.3	-22.8	50.17	-	-	74	-23.83	156	144	V
3	** 2.48354	26.49	VA1T	32.3	-22.8	35.99	54	-18.01	-	-	156	144	V
4	*** 2.48359	27.51	VA1T	32.3	-22.8	37.01	54	-16.99	-	-	156	144	V

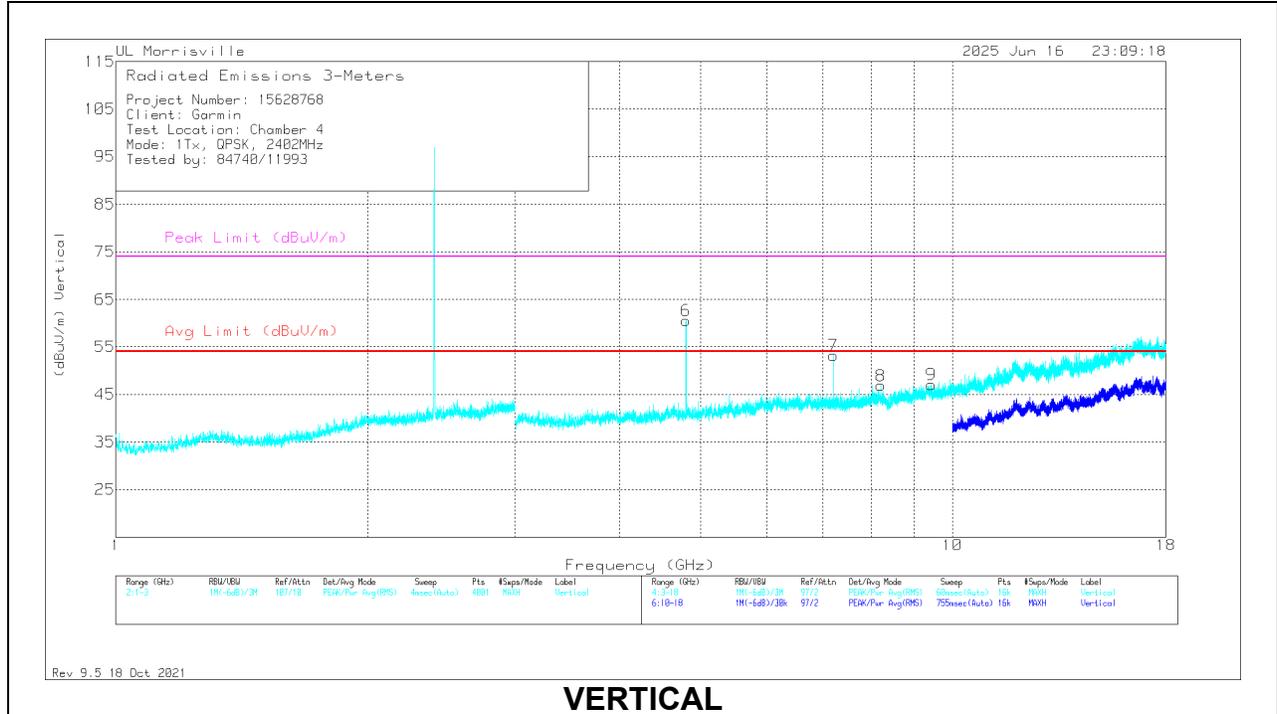
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 \*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band  
 Pk - Peak detector  
 VA1T - Linear Voltage Average VB=1/Ton where: Ton is transmit duration

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	*** 4.80379	36.36	PK2	33.9	-31.4	38.86	-	-	74	-35.14	108	112	H
	*** 4.80398	44.79	V1TV	33.9	-31.4	47.29	54	-6.71	-	-	108	112	H
3	*** 8.15719	37.04	Pk	35.6	-26.7	45.94	54	-8.06	74	-28.06	0-360	100	H
4	*** 9.33281	34.9	Pk	36.4	-24.1	47.2	54	-6.8	74	-26.8	0-360	100	H
6	*** 4.8043	55.48	PK2	33.9	-31.4	57.98	-	-	74	-16.02	173	378	V
	*** 4.80399	41.18	V1TV	33.9	-31.4	43.68	54	-10.32	-	-	173	378	V
8	*** 8.21156	37.47	Pk	35.7	-26.3	46.87	54	-7.13	74	-27.13	0-360	200	V
9	*** 9.43875	35.64	Pk	36.5	-25.1	47.04	54	-6.96	74	-26.96	0-360	200	V
2	7.20563	40.7	Pk	35.5	-27.7	48.5	-	-	-	-	0-360	100	H
7	7.20563	45.4	Pk	35.5	-27.7	53.2	-	-	-	-	0-360	200	V
5	14.91	33.79	Pk	39.5	-19	54.29	-	-	-	-	0-360	100	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

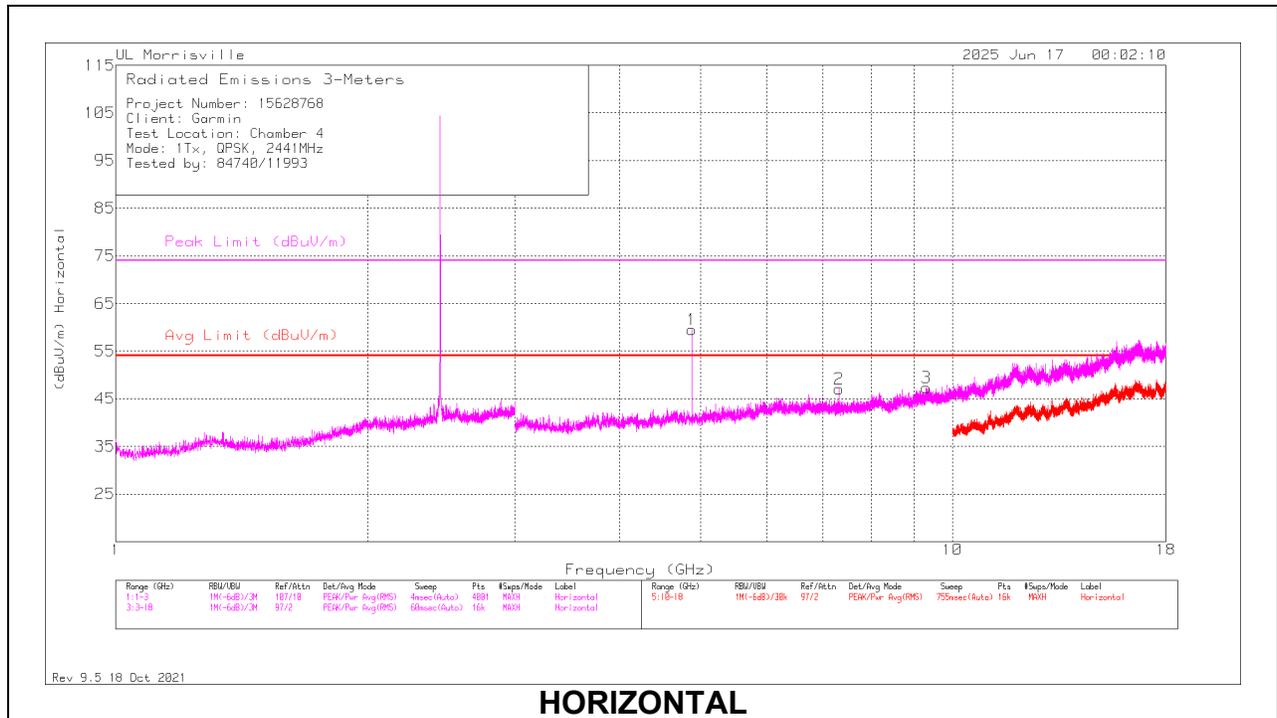
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

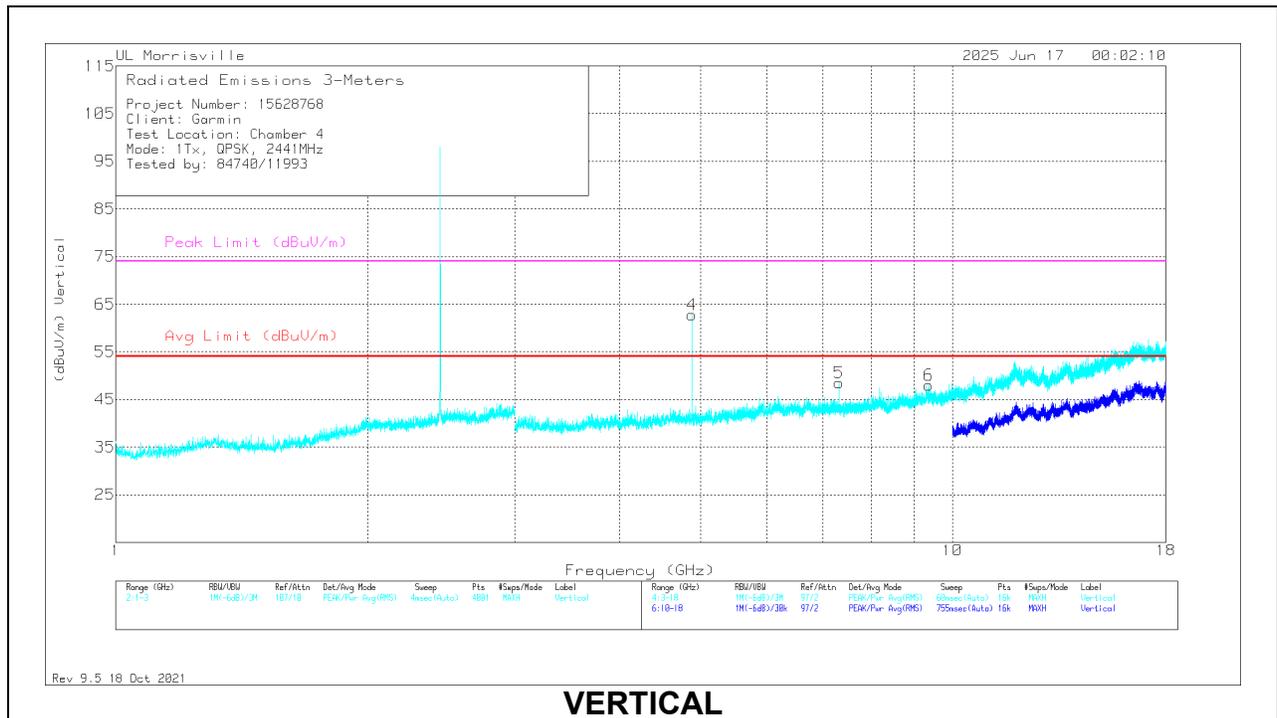
PK2 - Maximum Peak

V1TV - VB=1/Ton, Linear Voltage Average where: Ton is packet duration

### MID CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	*** 4.88154	38.01	PK2	33.9	-31	40.91	-	-	74	-33.09	93	101	H
	*** 4.88198	45.03	V1TV	33.9	-31	47.93	54	-6.07	-	-	93	101	H
2	*** 7.32281	39.31	Pk	35.5	-27.7	47.11	54	-6.89	74	-26.89	0-360	100	H
3	*** 9.31406	35.59	Pk	36.3	-24.6	47.29	54	-6.71	74	-26.71	0-360	100	H
4	*** 4.88169	62.22	PK2	33.9	-31	65.12	-	-	74	-8.88	268	102	V
	*** 4.88198	47.8	V1TV	33.9	-31	50.7	54	-3.3	-	-	268	102	V
5	*** 7.32352	46.47	PK2	35.5	-27.7	54.27	-	-	74	-19.73	97	115	V
	*** 7.32299	34.17	V1TV	35.5	-27.7	41.97	54	-12.03	-	-	97	115	V
6	*** 9.36656	36.18	Pk	36.4	-24.6	47.98	54	-6.02	74	-26.02	0-360	200	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

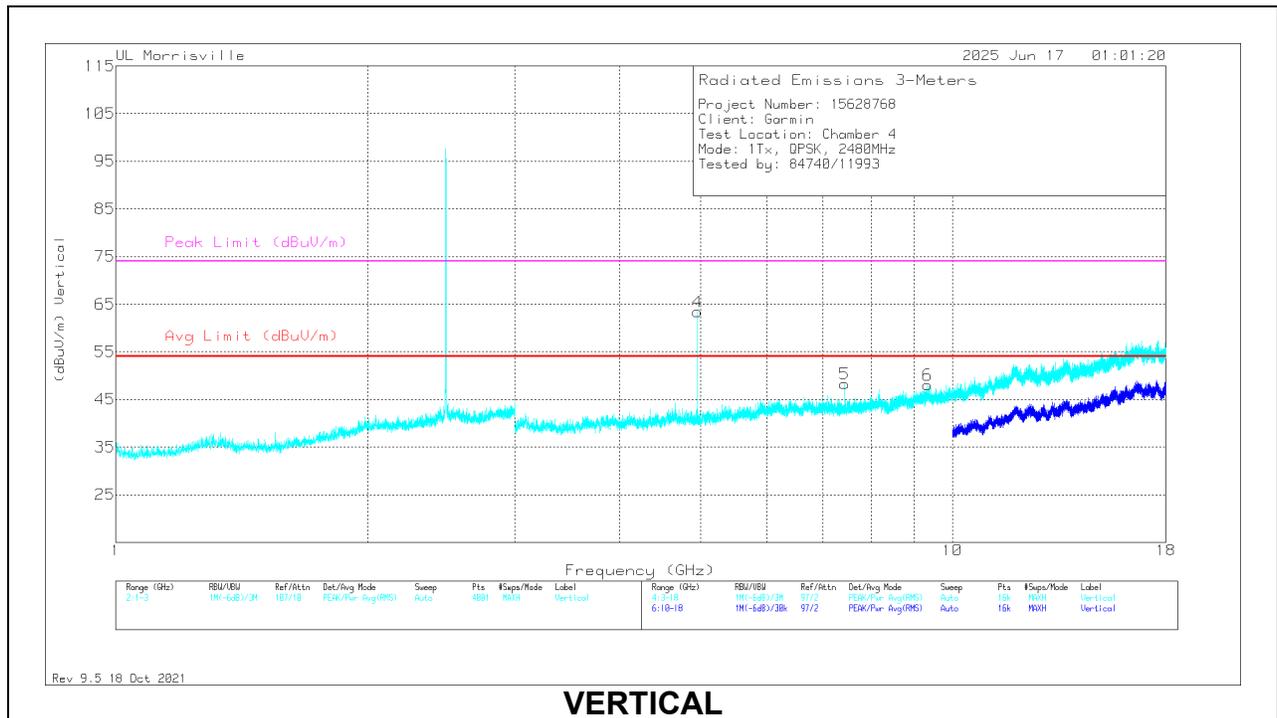
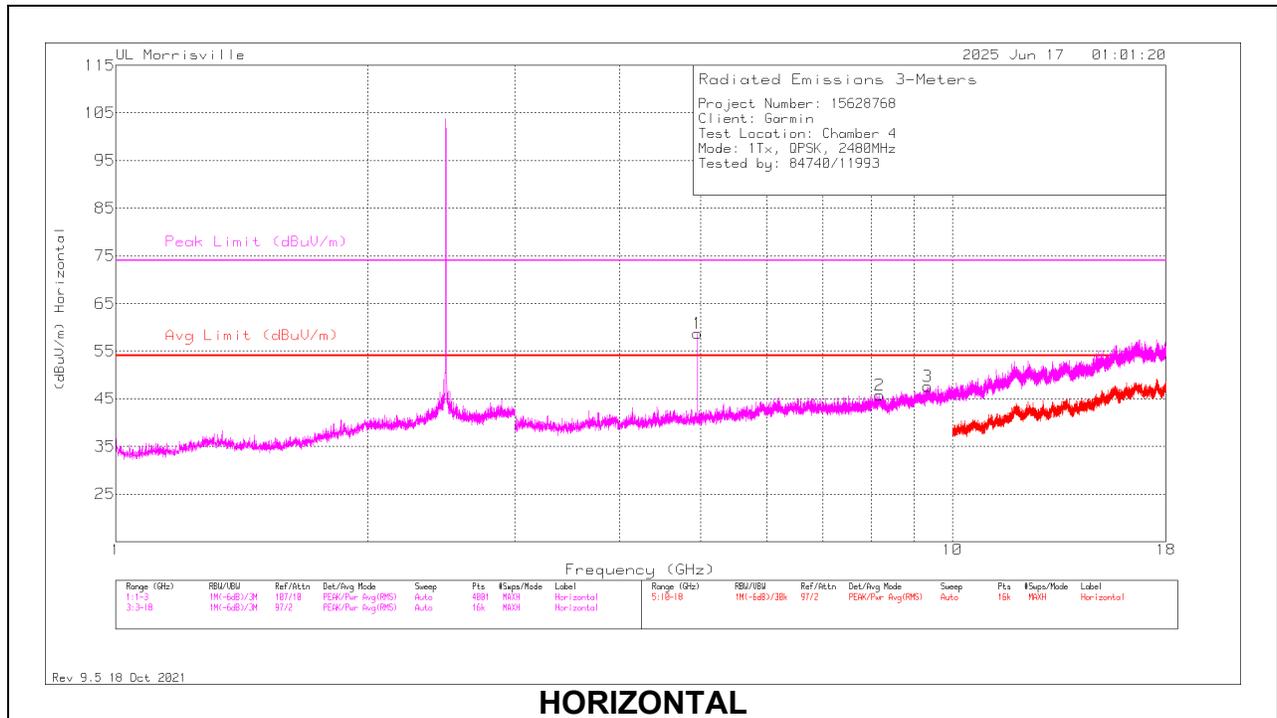
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

V1TV - VB=1/Ton, Linear Voltage Average where: Ton is packet duration

### HIGH CHANNEL RESULTS



**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (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	*** 4.95968	58.99	PK2	33.8	-30.8	61.99	-	-	74	-12.01	83	115	H
	*** 4.95999	45.54	V1TV	33.8	-30.8	48.54	54	-5.46	-	-	83	115	H
2	*** 8.18906	36.25	Pk	35.7	-26.2	45.75	54	-8.25	74	-28.25	0-360	100	H
3	*** 9.33469	35.39	Pk	36.4	-24.2	47.59	54	-6.41	74	-26.41	0-360	100	H
4	*** 4.95971	61.3	PK2	33.8	-30.8	64.3	-	-	74	-9.7	278	105	V
	*** 4.96001	47.1	V1TV	33.8	-30.8	50.1	54	-3.9	-	-	278	105	V
5	*** 7.44042	44.95	PK2	35.6	-27.9	52.65	-	-	74	-21.35	97	121	V
	*** 7.43999	33.01	V1TV	35.6	-27.9	40.71	54	-13.29	-	-	97	121	V
6	*** 9.33979	36.18	PK2	36.4	-24.2	48.38	-	-	74	-25.62	98	161	V
	*** 9.33869	21.48	V1TV	36.4	-24.2	33.68	54	-20.32	-	-	98	161	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

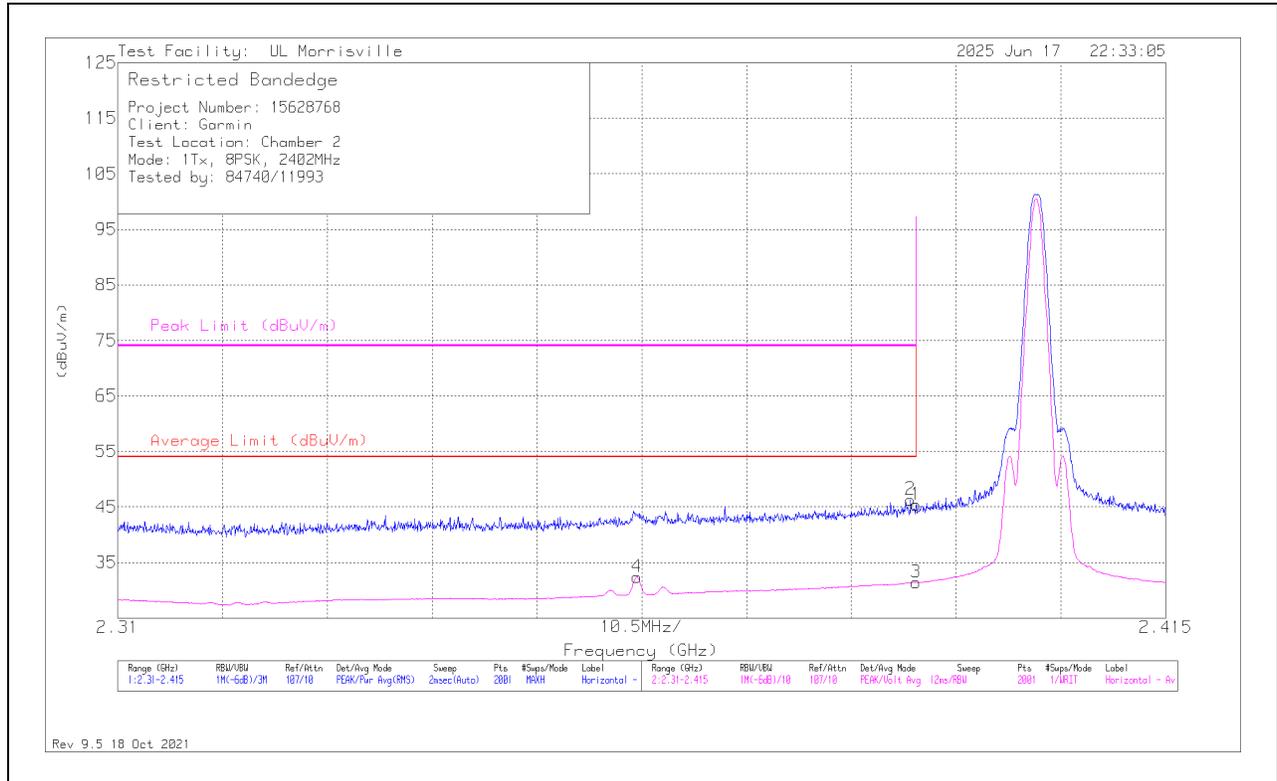
PK2 - Maximum Peak

V1TV -  $V_B=1/T_{on}$ , Linear Voltage Average where:  $T_{on}$  is packet duration

### 10.1.4. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

#### BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	38.2	Pk	32.3	-25.1	45.4	-	-	74	-28.6	231	289	H
2	*** 2.38943	38.99	Pk	32.3	-25	46.29	-	-	74	-27.71	231	289	H
3	*** 2.38996	24.19	VA1T	32.3	-25.1	31.39	54	-22.61	-	-	231	289	H
4	*** 2.36203	25.78	VA1T	32.1	-25.5	32.38	54	-21.62	-	-	231	289	H

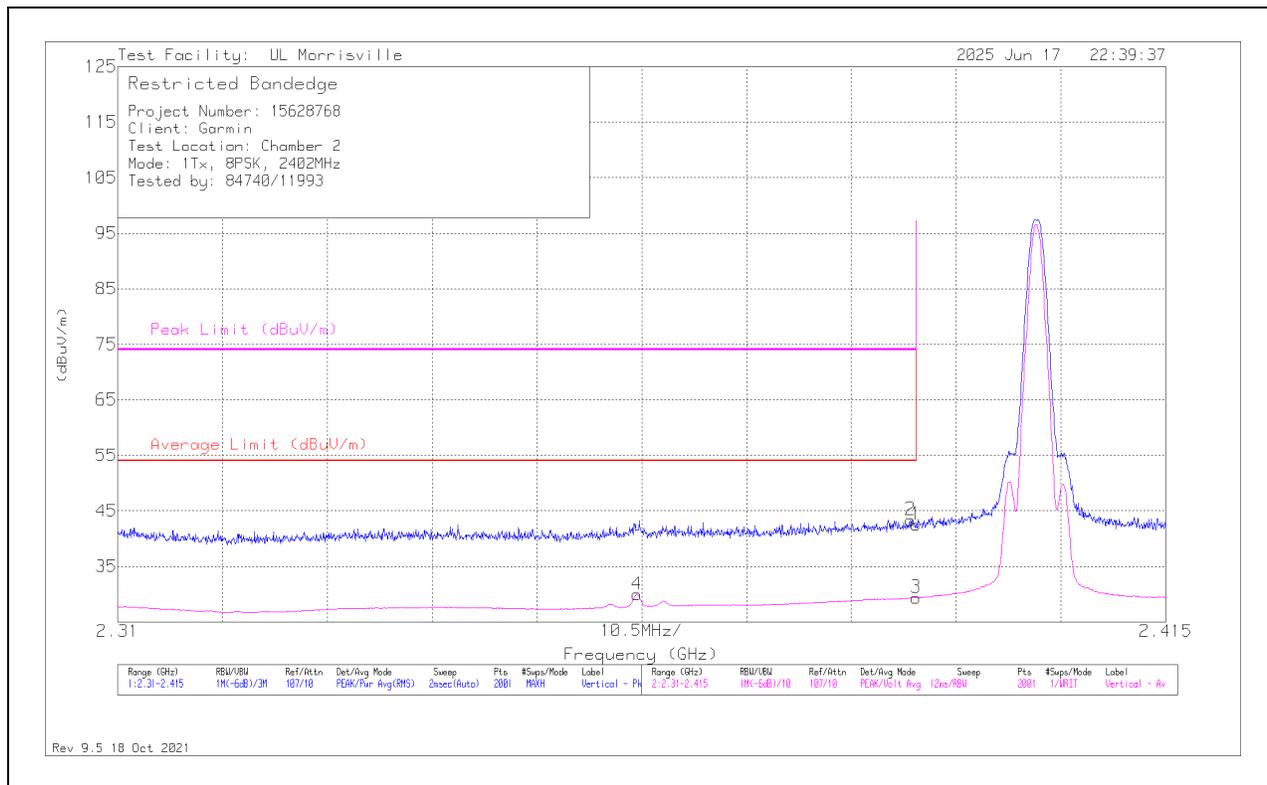
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

\*\* - 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	86408 (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	35.33	Pk	32.3	-25.1	42.53	-	-	74	-31.47	304	183	V
2	* ** 2.38943	36.05	Pk	32.3	-25	43.35	-	-	74	-30.65	304	183	V
3	* ** 2.38996	22.17	VA1T	32.3	-25.1	29.37	54	-24.63	-	-	304	183	V
4	* ** 2.36203	23.34	VA1T	32.1	-25.5	29.94	54	-24.06	-	-	304	183	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

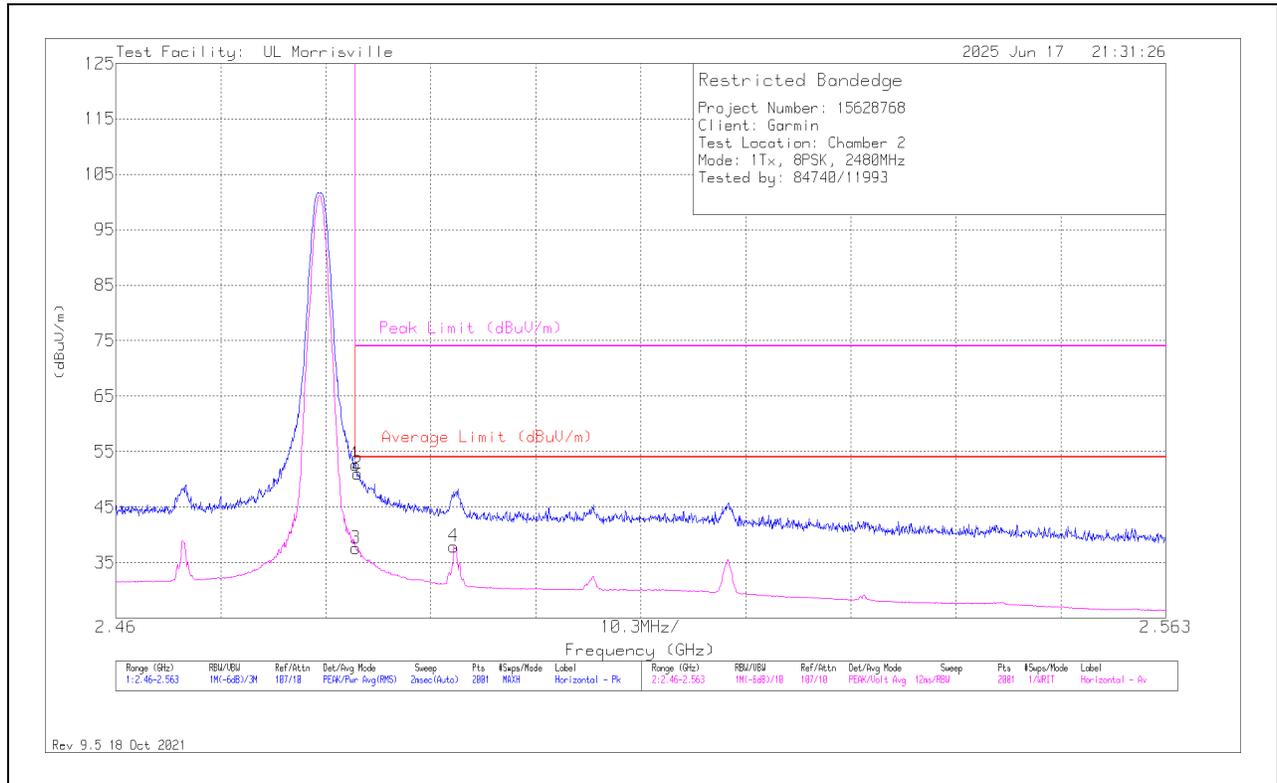
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

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

**BANDEDGE (HIGH CHANNEL)**

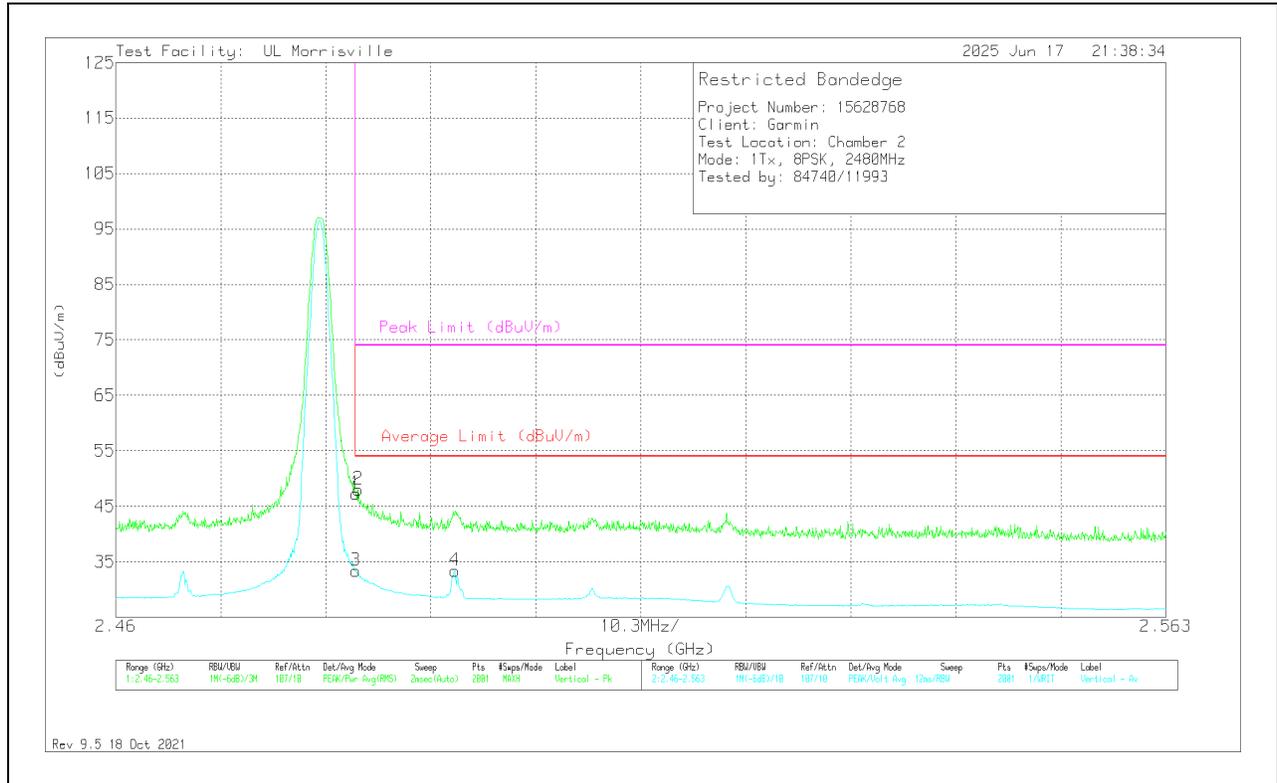
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	32.5	-25.5	52.64	-	-	74	-21.36	235	244	H
2	*** 2.48374	44.08	Pk	32.5	-25.5	51.08	-	-	74	-22.92	235	244	H
3	*** 2.48354	30.57	VA1T	32.5	-25.5	37.57	54	-16.43	-	-	235	244	H
4	*** 2.49317	31.35	VA1T	32.5	-26	37.85	54	-16.15	-	-	235	244	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	86408 (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	40.26	Pk	32.5	-25.5	47.26	-	-	74	-26.74	292	307	V
2	*** 2.48379	41.06	Pk	32.5	-25.5	48.06	-	-	74	-25.94	292	307	V
3	*** 2.48354	26.36	VA1T	32.5	-25.5	33.36	54	-20.64	-	-	292	307	V
4	*** 2.49327	26.88	VA1T	32.5	-26	33.38	54	-20.62	-	-	292	307	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

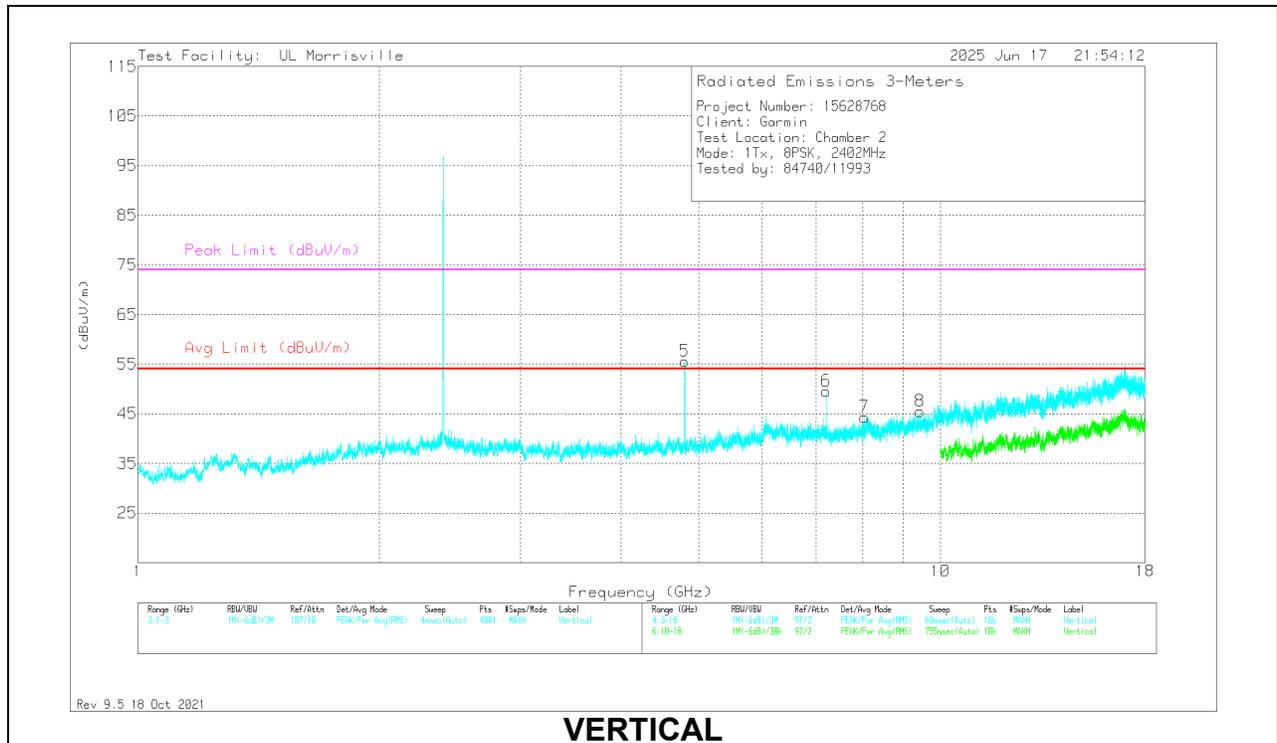
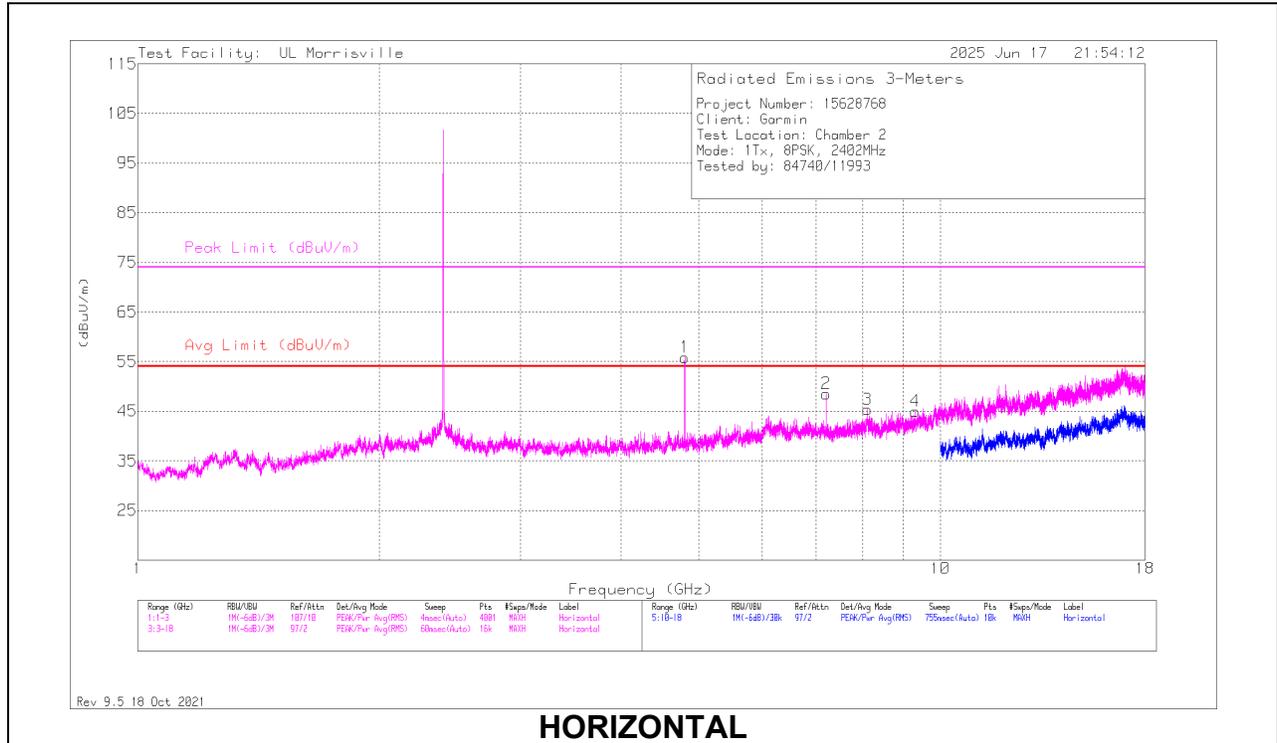
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

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

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL RESULTS



**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	* ** 4.80352	67.73	PK2	34.2	-45.2	56.73	-	-	74	-17.27	335	110	H
	* ** 4.80399	58.06	V1TV	34.2	-45.2	47.06	54	-6.94	-	-	335	110	H
3	* ** 8.11313	50.61	Pk	35.8	-41.1	45.31	54	-8.69	74	-28.69	0-360	199	H
4	* ** 9.30469	49.52	Pk	36.1	-40.7	44.92	54	-9.08	74	-29.08	0-360	199	H
5	* ** 4.80374	70.86	PK2	34.2	-45.2	59.86	-	-	74	-14.14	169	260	V
	* ** 4.80401	57.45	V1TV	34.2	-45.2	46.45	54	-7.55	-	-	169	260	V
7	* ** 8.04938	49.75	Pk	35.8	-41.2	44.35	54	-9.65	74	-29.65	0-360	199	V
8	* ** 9.43406	50.76	Pk	36.3	-41.6	45.46	54	-8.54	74	-28.54	0-360	101	V
2	7.20563	55.51	Pk	35.6	-42.6	48.51	-	-	-	-	0-360	101	H
6	7.20563	56.53	Pk	35.6	-42.6	49.53	-	-	-	-	0-360	101	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

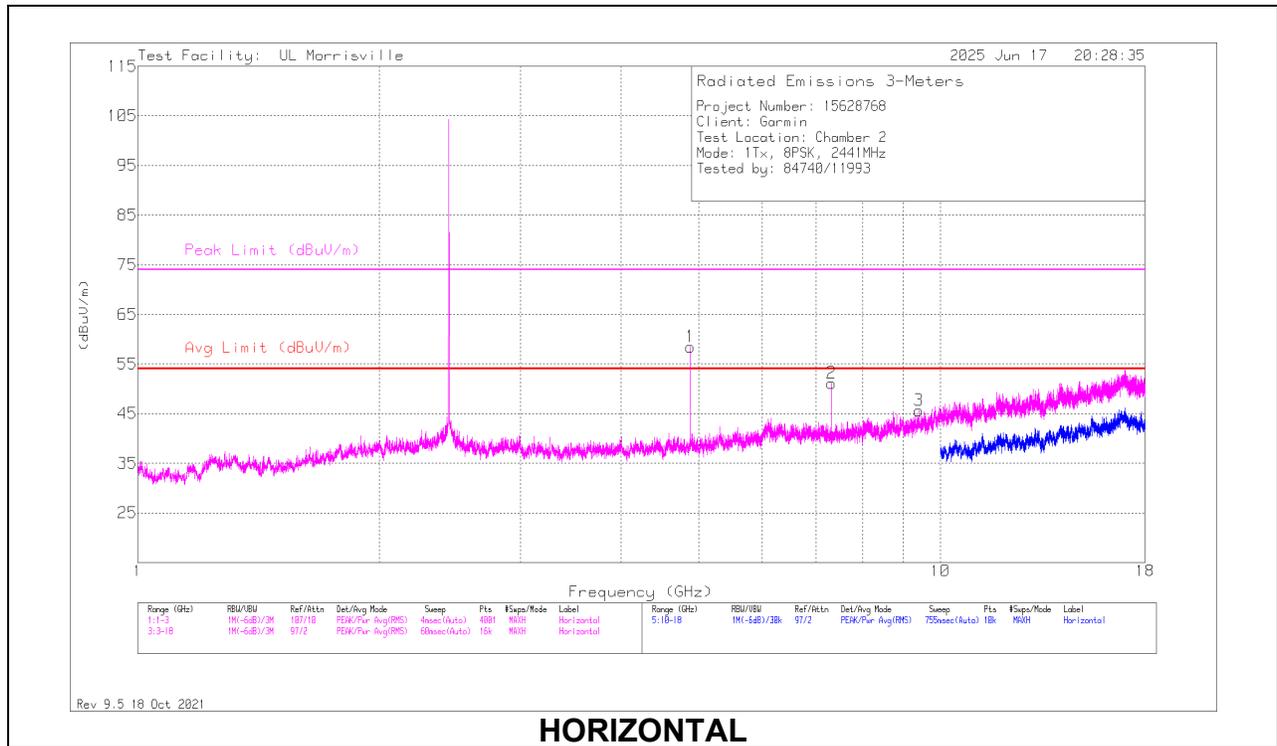
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

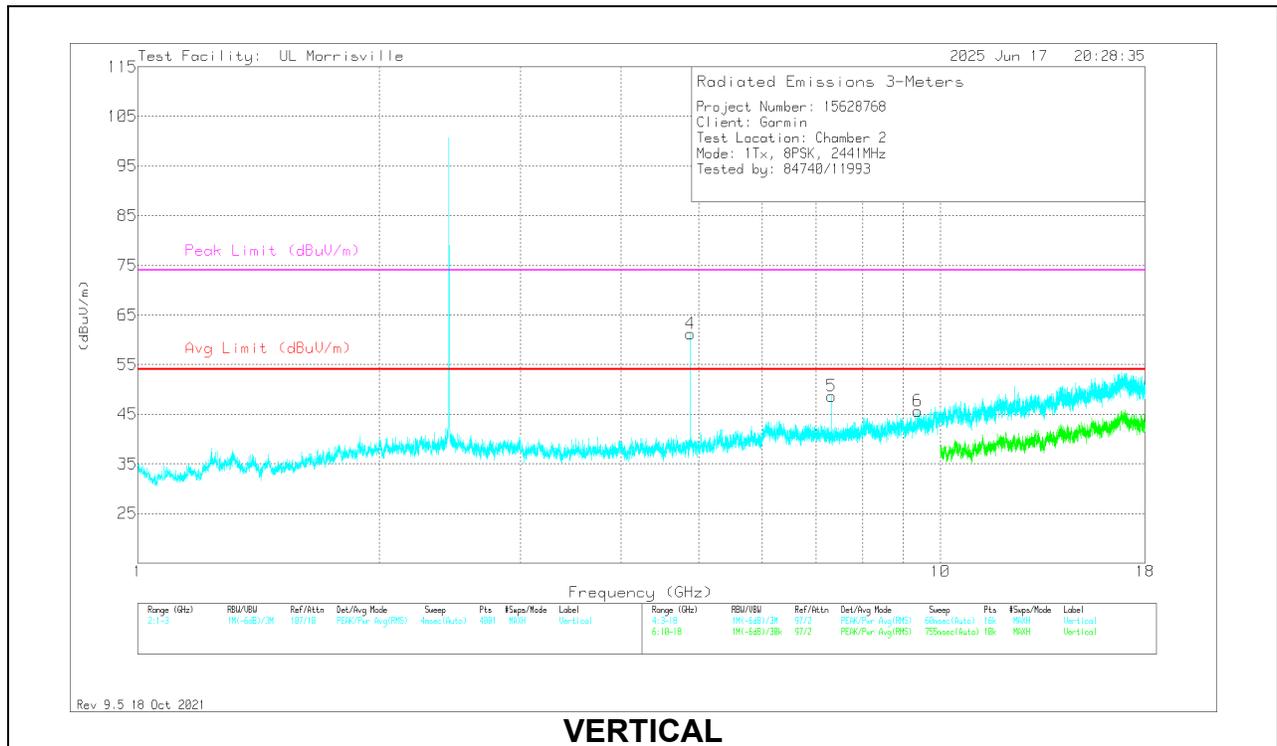
PK2 - Maximum Peak

V1TV -  $V_B=1/T_{on}$ , Linear Voltage Average where:  $T_{on}$  is packet duration

### MID CHANNEL RESULTS



### HORIZONTAL



### VERTICAL

**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.88241	73.32	PK2	34.1	-44.6	62.82	-	-	74	-11.18	282	147	H
	*** 4.88198	54.61	V1TV	34.1	-44.5	44.21	54	-9.79	-	-	282	147	H
2	*** 7.32316	63.15	PK2	35.6	-43.5	55.25	-	-	74	-18.75	118	115	H
	*** 7.32307	48.71	V1TV	35.6	-43.5	40.81	54	-13.19	-	-	118	115	H
3	*** 9.40688	49.79	Pk	36.2	-40.4	45.59	54	-8.41	74	-28.41	0-360	200	H
4	*** 4.88224	76.99	PK2	34.1	-44.5	66.59	-	-	74	-7.41	146	244	V
	*** 4.88199	58.18	V1TV	34.1	-44.5	47.78	54	-6.22	-	-	146	244	V
5	*** 7.32341	62.74	PK2	35.6	-43.5	54.84	-	-	74	-19.16	319	120	V
	*** 7.32301	48.64	V1TV	35.6	-43.5	40.74	54	-13.26	-	-	319	120	V
6	*** 9.37313	50.36	Pk	36.1	-40.8	45.66	54	-8.34	74	-28.34	0-360	200	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

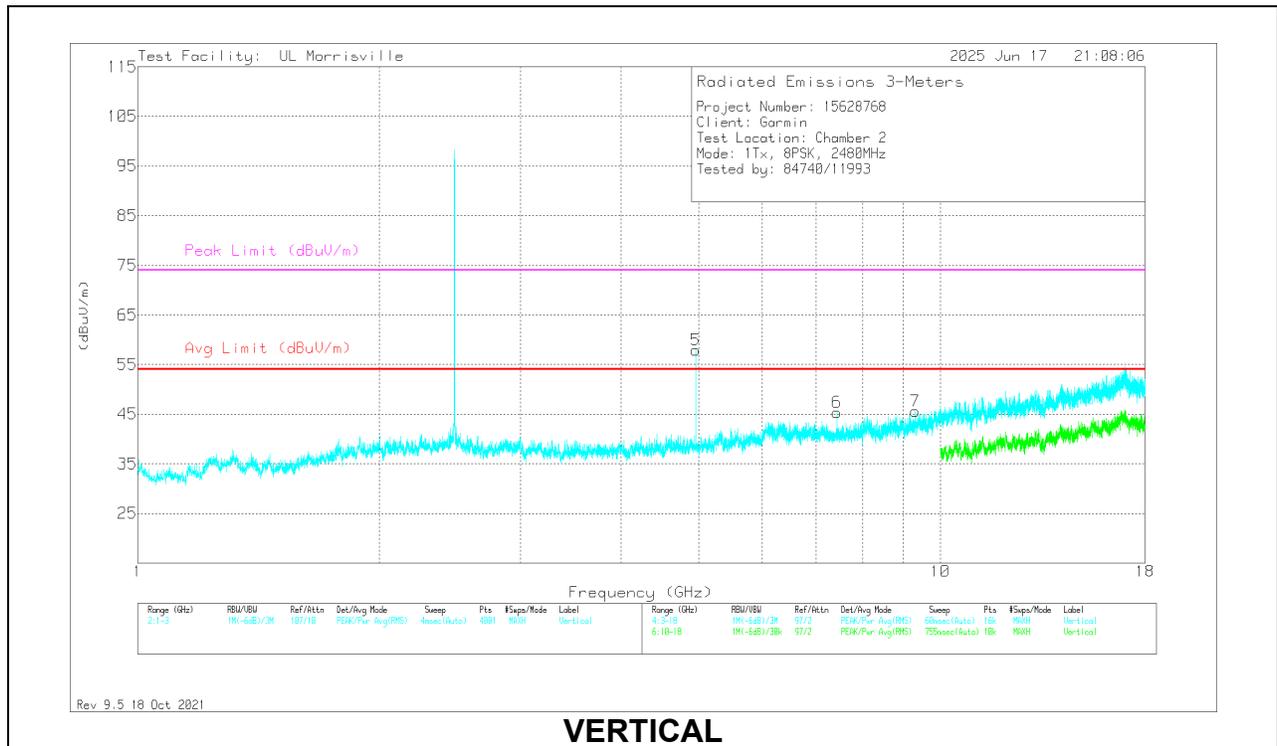
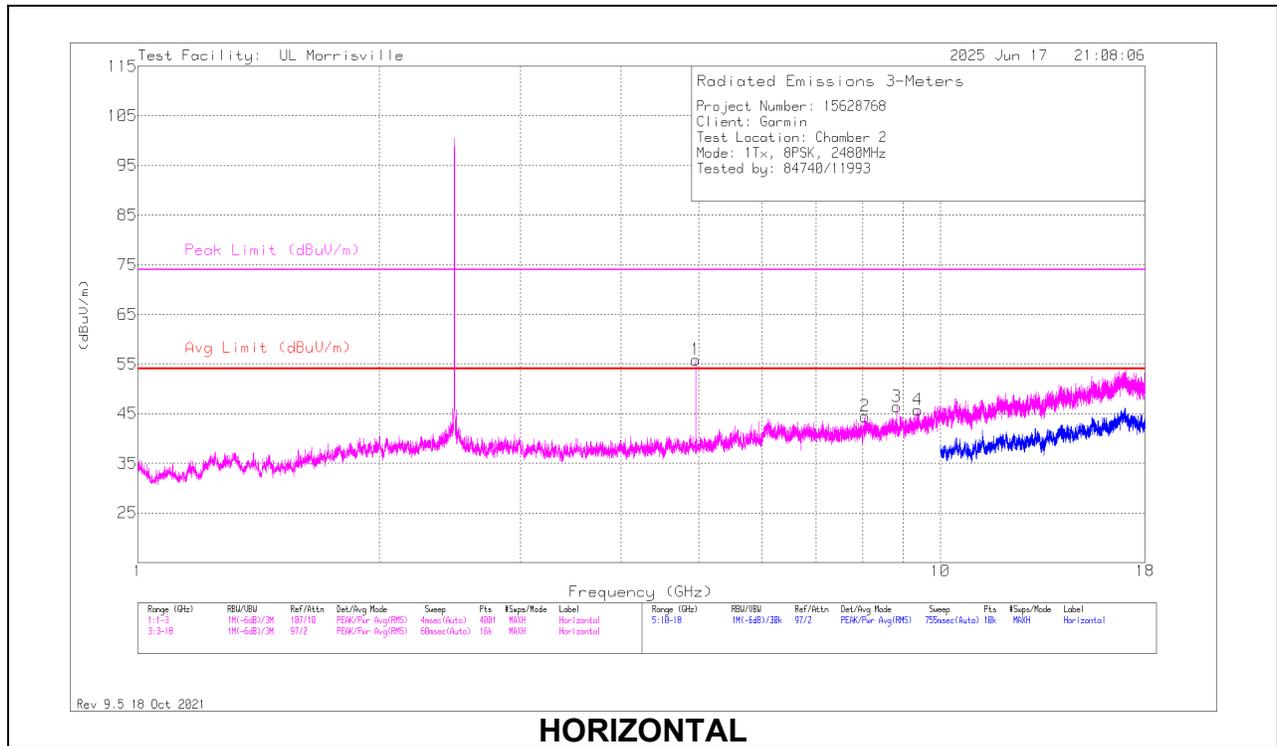
\*\* - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

V1TV -  $V_B=1/T_{on}$ , Linear Voltage Average where:  $T_{on}$  is packet duration

### HIGH CHANNEL RESULTS



**RADIATED EMISSIONS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	86408 (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	*** 4.95973	70.34	PK2	34	-45.3	59.04	-	-	74	-14.96	290	121	H
	*** 4.95997	57.13	V1TV	34	-45.3	45.83	54	-8.17	-	-	290	121	H
2	*** 8.055	49.95	Pk	35.8	-41.3	44.45	54	-9.55	74	-29.55	0-360	101	H
4	*** 9.37594	50.18	Pk	36.2	-40.6	45.78	54	-8.22	74	-28.22	0-360	199	H
5	*** 4.95965	72.54	PK2	34	-45.3	61.24	-	-	74	-12.76	153	248	V
	*** 4.96001	59.18	V1TV	34	-45.3	47.88	54	-6.12	-	-	153	248	V
6	*** 7.43906	52.21	Pk	35.6	-42.5	45.31	54	-8.69	74	-28.69	0-360	199	V
7	*** 9.31125	50.17	Pk	36.1	-40.7	45.57	54	-8.43	74	-28.43	0-360	101	V
3	8.83219	50.16	Pk	35.9	-39.6	46.46	-	-	-	-	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

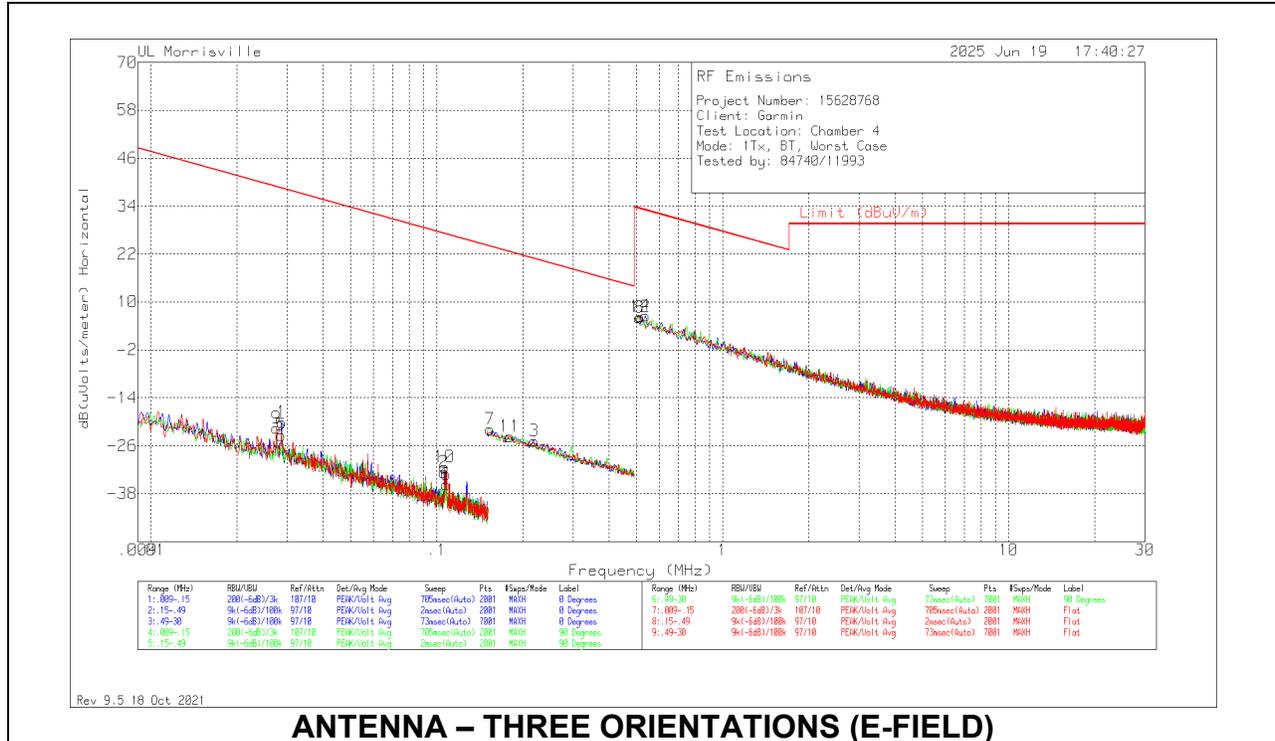
PK2 - Maximum Peak

V1TV - VB=1/Ton, Linear Voltage Average where: Ton is packet duration

## 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).

### SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



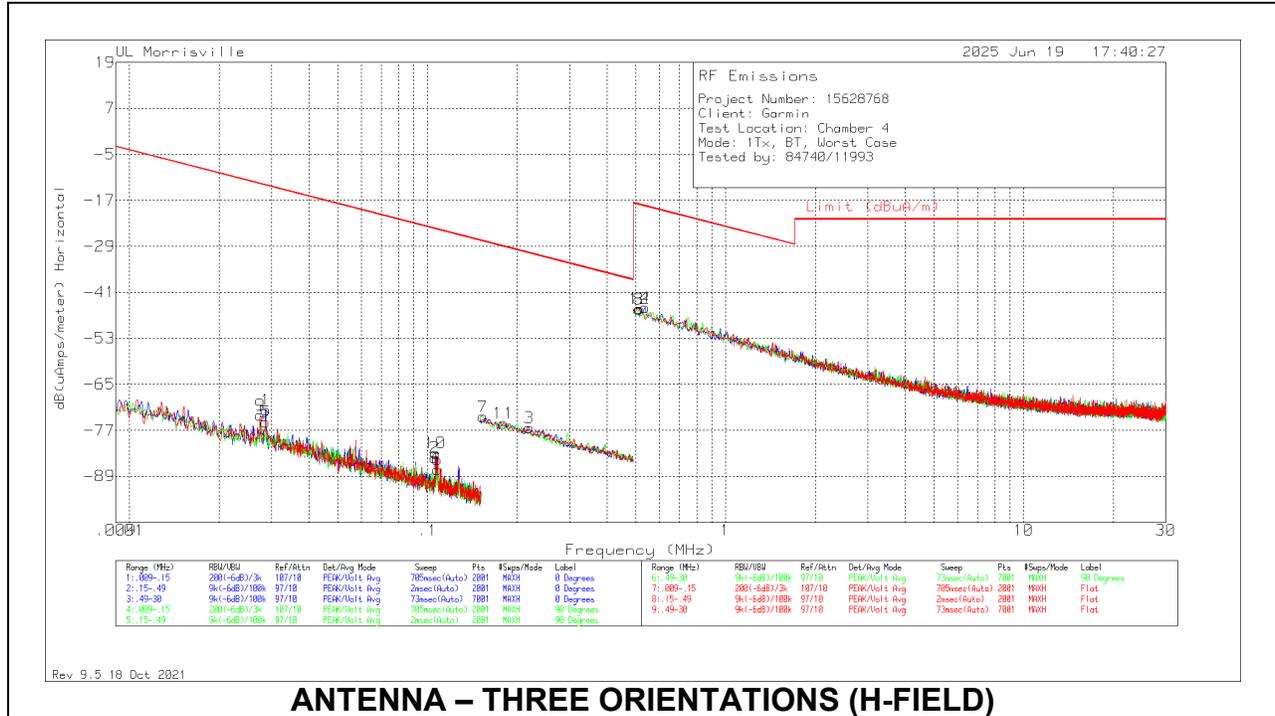
### ANTENNA – THREE ORIENTATIONS (E-FIELD)

#### Below 30MHz Data

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	.02753	45.11	Pk	13.3	0	-80	-21.59	38.81	58.81	-60.4	0-360	Flat
5	.0286	43.49	Pk	13.2	0	-80	-23.31	38.48	58.48	-61.79	0-360	90 degs
1	.02867	46.63	Pk	13.2	0	-80	-20.17	38.46	58.46	-58.63	0-360	0 degs
2	.10584	36.26	Pk	11.1	0	-80	-32.64	27.11	-	-59.75	0-360	0 degs
10	.10648	37.5	Pk	11.1	0	-80	-31.4	27.06	-	-58.46	0-360	Flat
6	.10812	33.17	Pk	11.1	0	-80	-35.73	26.93	-	-62.66	0-360	90 degs
7	.1534	47.04	Pk	11	0	-80	-21.96	23.89	43.89	-45.85	0-360	90 degs
11	.17992	45.32	Pk	11	0	-80	-23.68	22.5	42.5	-46.18	0-360	Flat
3	.21885	44.23	Pk	10.9	.1	-80	-24.77	20.8	40.8	-45.57	0-360	0 degs
8	.51108	35.04	Pk	11	.1	-40	6.14	33.43	-	-27.29	0-360	90 degs
12	.5153	35.21	Pk	11	.1	-40	6.31	33.36	-	-27.05	0-360	Flat
4	.53638	35.4	Pk	11	.1	-40	6.5	33.01	-	-26.51	0-360	0 degs

Pk - Peak detector

**SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)**



**ANTENNA – THREE ORIENTATIONS (H-FIELD)**

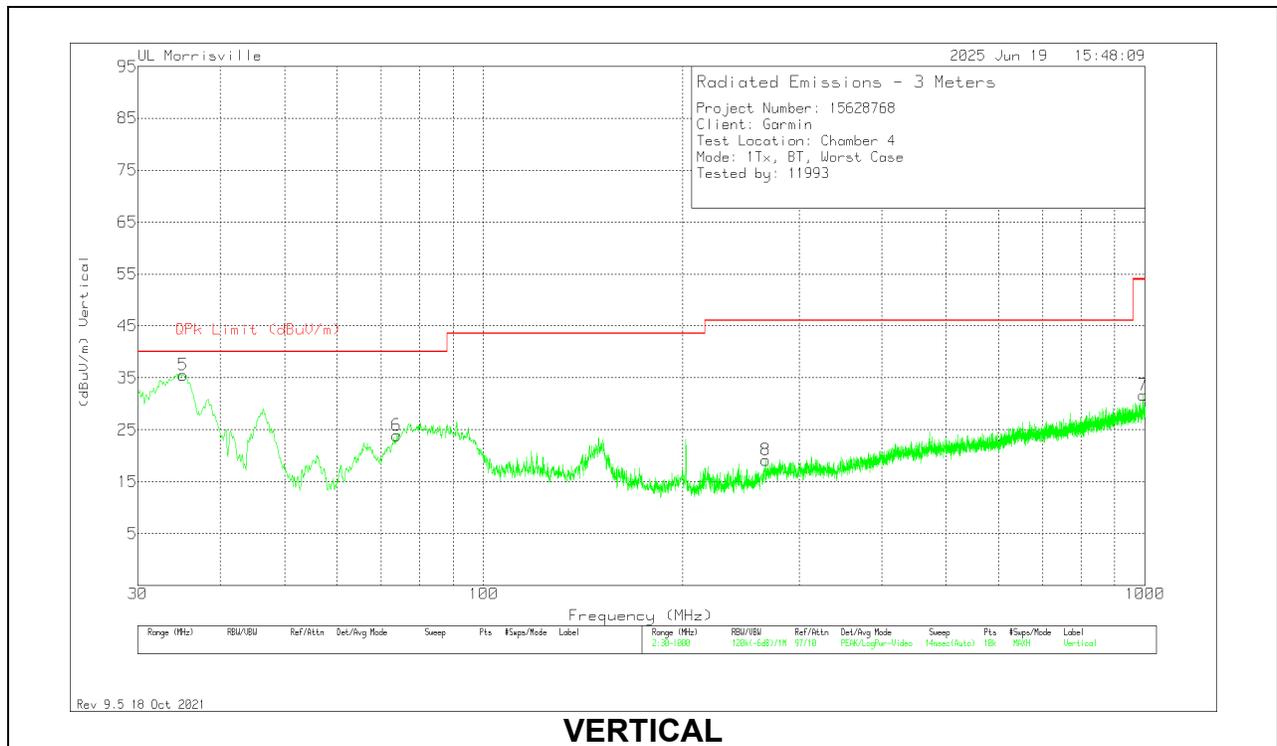
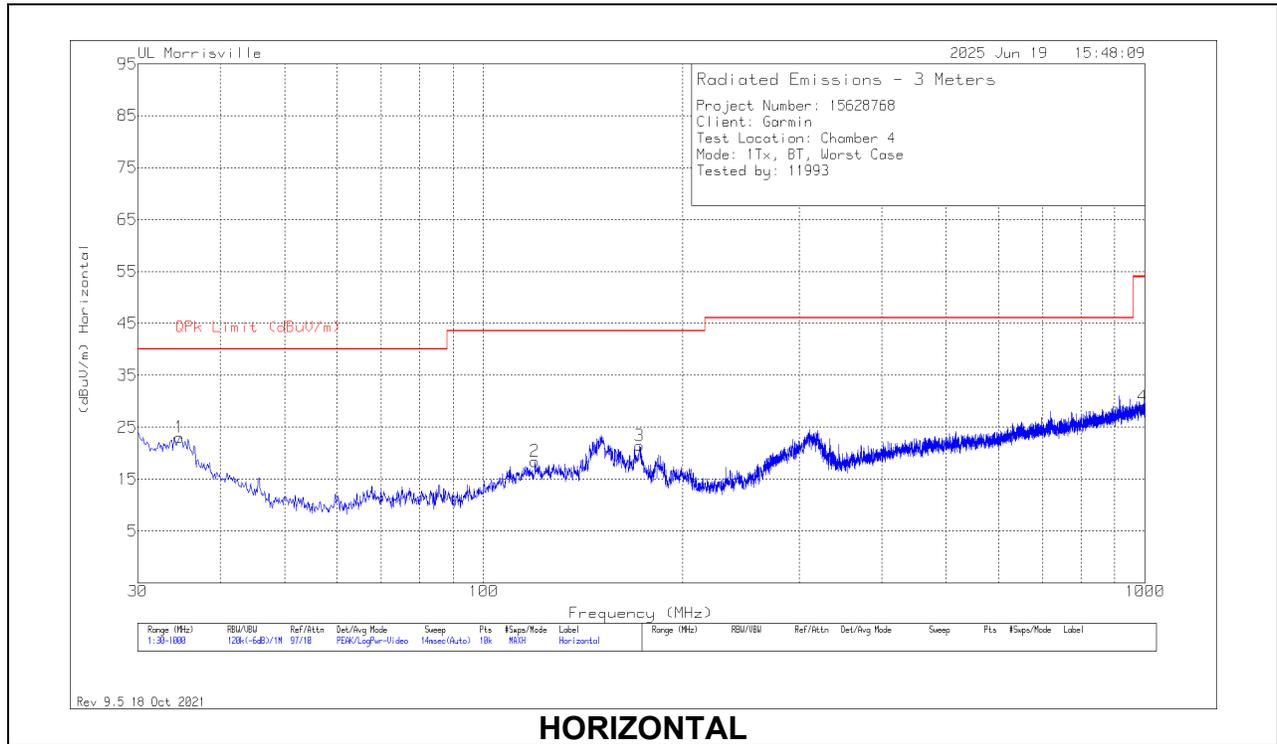
**Below 30MHz Data**

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)	QP/AV Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
9	.02753	45.11	Pk	-38.2	0	-80	-73.09	-12.69	7.31	-60.4	0-360	Flat
5	.0286	43.49	Pk	-38.3	0	-80	-74.81	-13.02	6.98	-61.79	0-360	90 degs
1	.02867	46.63	Pk	-38.3	0	-80	-71.67	-13.04	6.96	-58.63	0-360	0 degs
2	.10584	36.26	Pk	-40.4	0	-80	-84.14	-24.39	-	-59.75	0-360	0 degs
10	.10648	37.5	Pk	-40.4	0	-80	-82.9	-24.44	-	-58.46	0-360	Flat
6	.10812	33.17	Pk	-40.4	0	-80	-87.23	-24.57	-	-62.66	0-360	90 degs
7	.1534	47.04	Pk	-40.5	0	-80	-73.46	-27.61	-7.61	-45.85	0-360	90 degs
11	.17992	45.32	Pk	-40.5	0	-80	-75.18	-29	-9	-46.18	0-360	Flat
3	.21885	44.23	Pk	-40.6	.1	-80	-76.27	-30.7	-10.7	-45.57	0-360	0 degs
8	.51108	35.04	Pk	-40.5	.1	-40	-45.36	-18.07	-	-27.29	0-360	90 degs
12	.5153	35.21	Pk	-40.5	.1	-40	-45.19	-18.14	-	-27.05	0-360	Flat
4	.53638	35.4	Pk	-40.5	.1	-40	-45	-18.49	-	-26.51	0-360	0 degs

Pk - Peak detector

### 10.3. WORST CASE BELOW 1 GHZ

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



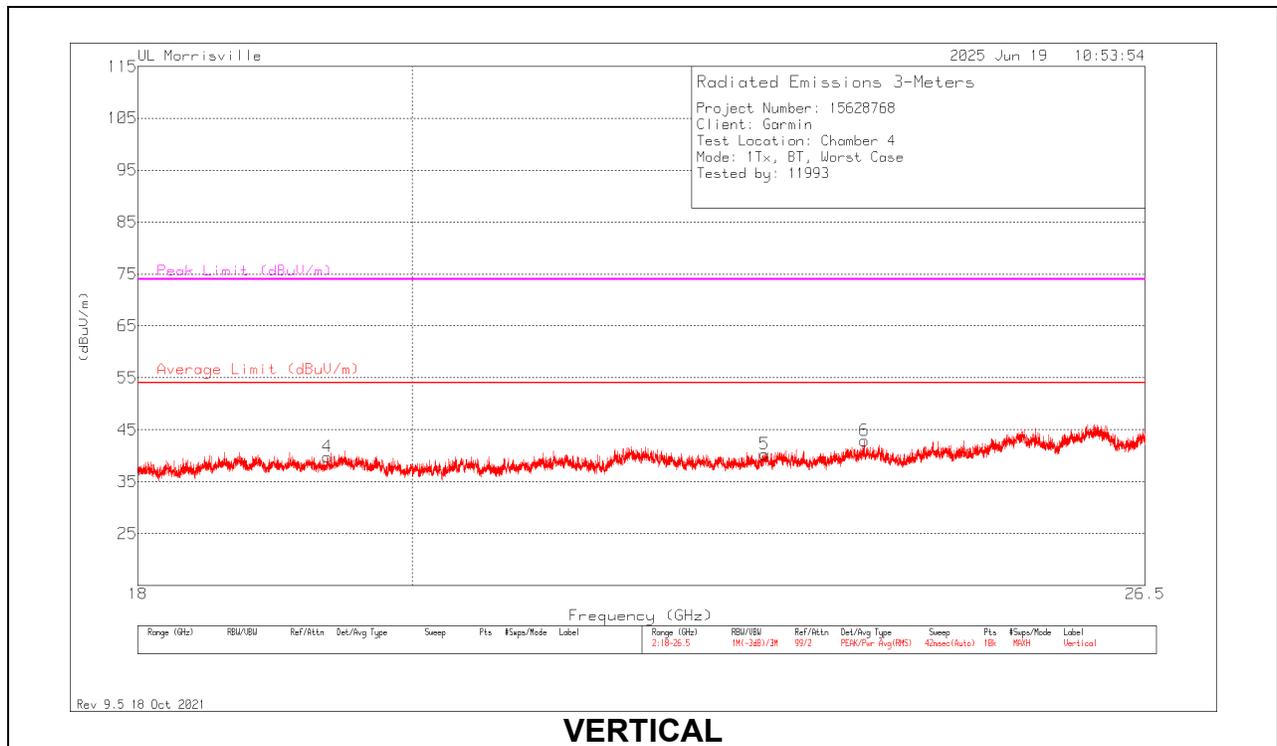
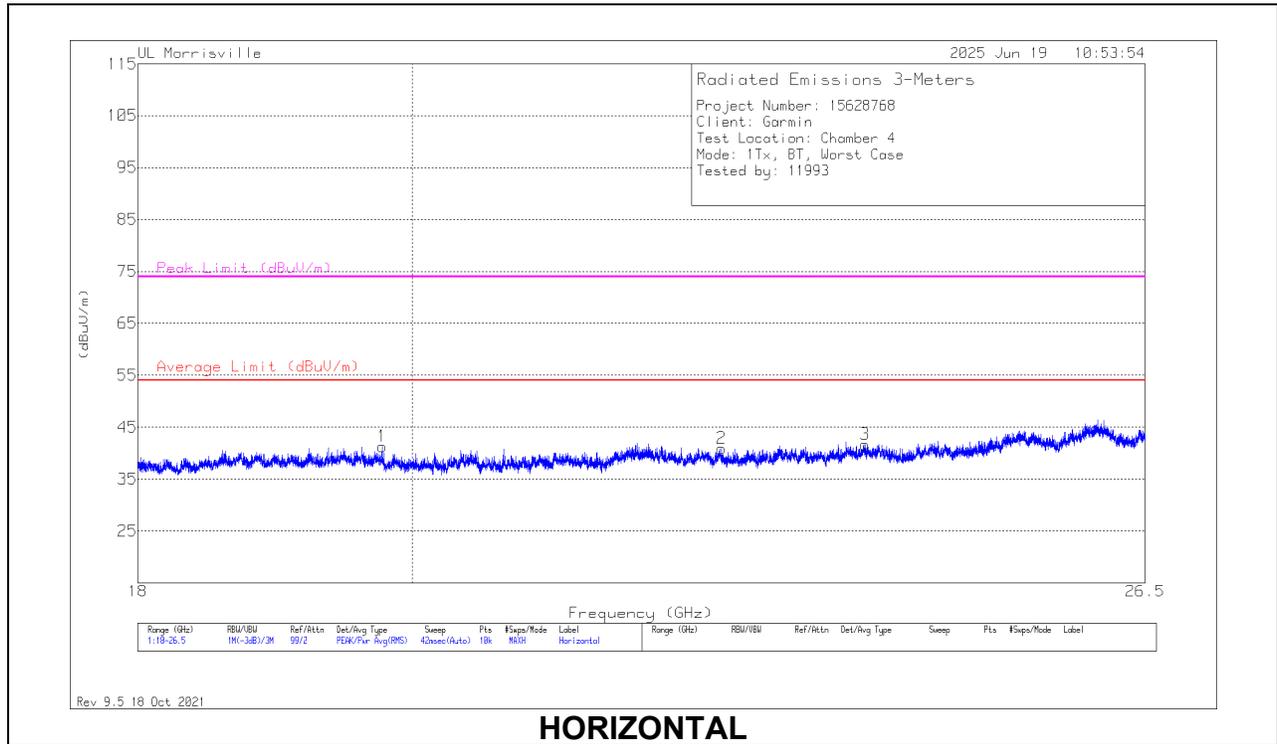
**Below 1GHz Data**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90628 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* ** 119.628	28.96	Pk	20	-30.6	18.36	43.52	-25.16	0-360	300	H
3	* ** 172.105	33.46	Pk	17.8	-29.8	21.46	43.52	-22.06	0-360	100	H
4	* ** 991.561	25.15	Pk	29.2	-25.4	28.95	53.97	-25.02	0-360	100	H
6	* ** 73.941	40.92	Pk	14.2	-31.2	23.92	40	-16.08	0-360	100	V
7	* ** 992.725	27.72	Pk	29.2	-25.2	31.72	53.97	-22.25	0-360	100	V
8	* ** 267.068	30.06	Pk	19.2	-30.1	19.16	46.02	-26.86	0-360	200	V
1	34.656	30.95	Pk	23.8	-31.7	23.05	-	-	0-360	200	H
5	35.141	43.8	Pk	23.5	-31.7	35.6	-	-	0-360	100	V

Pk - Peak detector

### 10.4. WORST CASE 18-26 GHZ

#### SPURIOUS EMISSIONS 18-26 GHZ (WORST-CASE CONFIGURATION)



**18 – 26GHz Data**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	91186 (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	*** 19.77037	49.56	Pk	32.5	-40.8	41.26	54	-12.74	74	-32.74	0-360	100	H
2	*** 22.5207	47.58	Pk	33.4	-40.1	40.88	54	-13.12	74	-33.12	0-360	250	H
3	*** 23.79642	46.22	Pk	34	-38.6	41.62	54	-12.38	74	-32.38	0-360	100	H
4	*** 19.35986	48.25	Pk	32.6	-41.1	39.75	54	-14.25	74	-34.25	0-360	300	V
5	*** 22.89721	46.66	Pk	33.5	-39.9	40.26	54	-13.74	74	-33.74	0-360	250	V
6	*** 23.79387	47.34	Pk	34	-38.4	42.94	54	-11.06	74	-31.06	0-360	200	V

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.

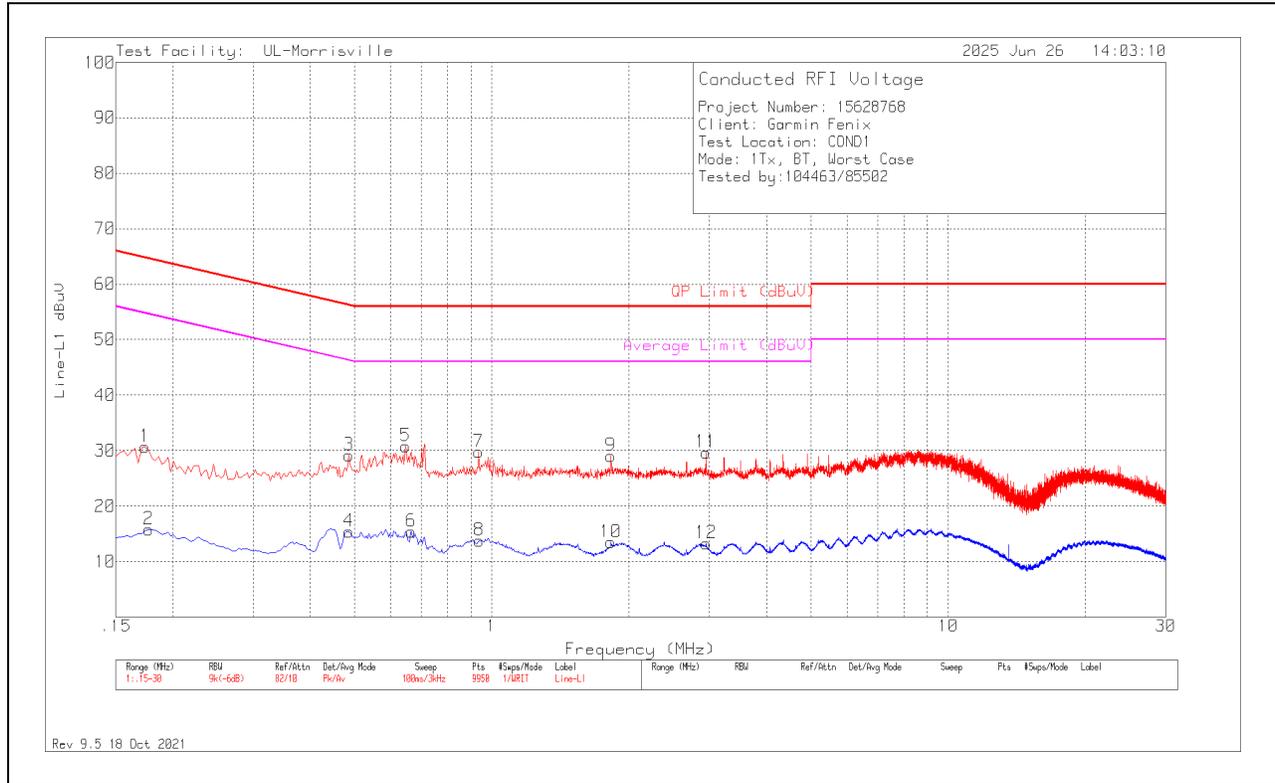
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

### RESULTS

### 11.1.1. AC Power Line Norm

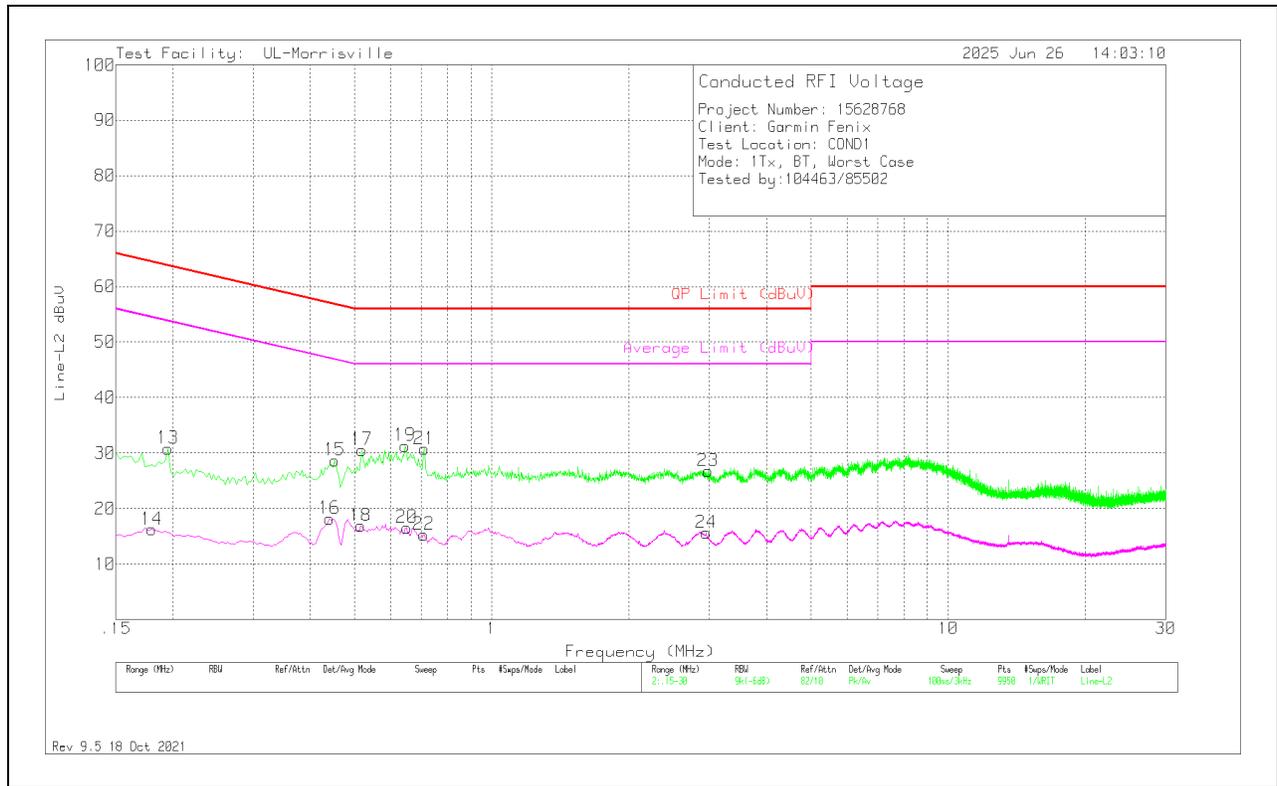
### LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VDF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.174	20.74	Pk	.2	9.7	30.64	64.77	-34.13	-	-
2	.177	5.83	Av	.2	9.7	15.73	-	-	54.63	-38.9
3	.486	19.47	Pk	0	9.7	29.17	56.24	-27.07	-	-
4	.486	5.65	Av	0	9.7	15.35	-	-	46.24	-30.89
5	.648	21.08	Pk	0	9.7	30.78	56	-25.22	-	-
6	.666	5.7	Av	0	9.7	15.4	-	-	46	-30.6
7	.936	20.03	Pk	0	9.7	29.73	56	-26.27	-	-
8	.939	4.09	Av	0	9.7	13.79	-	-	46	-32.21
9	1.824	19.31	Pk	0	9.7	29.01	56	-26.99	-	-
10	1.824	3.75	Av	0	9.7	13.45	-	-	46	-32.55
11	2.946	19.98	Pk	0	9.7	29.68	56	-26.32	-	-
12	2.949	3.52	Av	0	9.7	13.22	-	-	46	-32.78

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)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
14	.18	6.3	Av	.2	9.7	16.2	-	-	54.49	-38.29
13	.195	20.9	Pk	.2	9.7	30.8	63.82	-33.02	-	-
16	.441	8.34	Av	.1	9.7	18.14	-	-	47.04	-28.9
15	.453	18.81	Pk	.1	9.7	28.61	56.82	-28.21	-	-
18	.516	7.13	Av	0	9.7	16.83	-	-	46	-29.17
17	.519	20.88	Pk	0	9.7	30.58	56	-25.42	-	-
19	.645	21.57	Pk	0	9.7	31.27	56	-24.73	-	-
20	.651	6.77	Av	0	9.7	16.47	-	-	46	-29.53
22	.7095	5.58	Av	0	9.7	15.28	-	-	46	-30.72
21	.711	21.02	Pk	0	9.7	30.72	56	-25.28	-	-
24	2.949	5.88	Av	0	9.7	15.58	-	-	46	-30.42
23	2.976	17.02	Pk	0	9.7	26.72	56	-29.28	-	-

Pk - Peak detector  
 Av - Average detection

## **12. SETUP PHOTOS**

Please refer to R15628768-EP1 for setup photos

**END OF TEST REPORT**

# TEST REPORT

**Report Number:** R15628768-E2

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

**Model :** A05201

**FCC ID :** IPH-05201

**IC :** 1792A-05201

**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:**  
2025-08-11

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



## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2025-08-11	Initial Issue	Charles Moody

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Garmin International Inc.  
1200 East 151<sup>st</sup> Street  
Olathe, KS 66062-3426, USA

**EUT DESCRIPTION:** Extremity Worn Digital Transceiver

**MODEL:** A05201

**SERIAL NUMBER:** 604021458, 604021450, 604021458, 604021429

**SAMPLE RECEIPT DATE:** 2025-05-14, 2025-06-02

**DATE TESTED:** 2025-06-26 TO 2025-07-23

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:



Charles Moody  
Lead Project 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)		
Tx Spurious Emissions	IC RSS-210, Annex B.6 IC RSS-GEN, Section 8.9 (Transmitter)		
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	See Note 1

**\*\*NOTE 1:** AC Mains testing not performed. As declared by the customer, EUT NFC doesn't function while in charging mode. Therefore, testing was not performed.

## 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
<input type="checkbox"/>	Building: 12 Laboratory Dr Durham, NC 27713, U.S.A	US0067	2180C	825374
<input checked="" type="checkbox"/>	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 <sub>Lab</sub>
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:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

## 6. EQUIPMENT UNDER TEST

### 6.1. DESCRIPTION OF EUT

The EUT is an 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 the 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	28.39

### 6.3. SOFTWARE AND FIRMWARE

EUT 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 Y orientation was determined to be the worst-case orientation. Therefore, all final radiated testing was performed with the EUT in the Y orientation.

In addition, Type A, B, AB, AF, and F with and without a tag were investigated to determine the worst case based on the highest power and spurious emissions. Type F 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
Power Supply	Phihong	AQ27A-59CFA	n/a	n/a
Laptop	Lenovo	T14 Gen3	PF4FKVY8	n/a
NFC Reader	Synnix Technology Co.	CL-2100R	N/A	N/A

### 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 EUT

### SETUP DIAGRAM

Please refer to R15628768-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 - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	<b>Conducted Room 1</b>				
90416	Spectrum Analyzer	Keysight Technologies	N9030A	2024-09-23	2025-09-23
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
NA	NFC Probe Kit	EMCO	7405	NA	NA

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	<b>0.009-30MHz</b>				
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
	<b>30-1000 MHz</b>				
90628	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-02	2026-01-02
	<b>Gain-Loss Chains</b>				
207638	Gain-loss string: 0.009-30MHz	Various	Various	2025-06-13	2026-06-13
207639	Gain-loss string: 25-1000MHz	Various	Various	2025-06-13	2026-06-13
	<b>Receiver &amp; Software</b>				
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-04-21	2026-04-21
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	<b>Additional Equipment used</b>				
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

## 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.

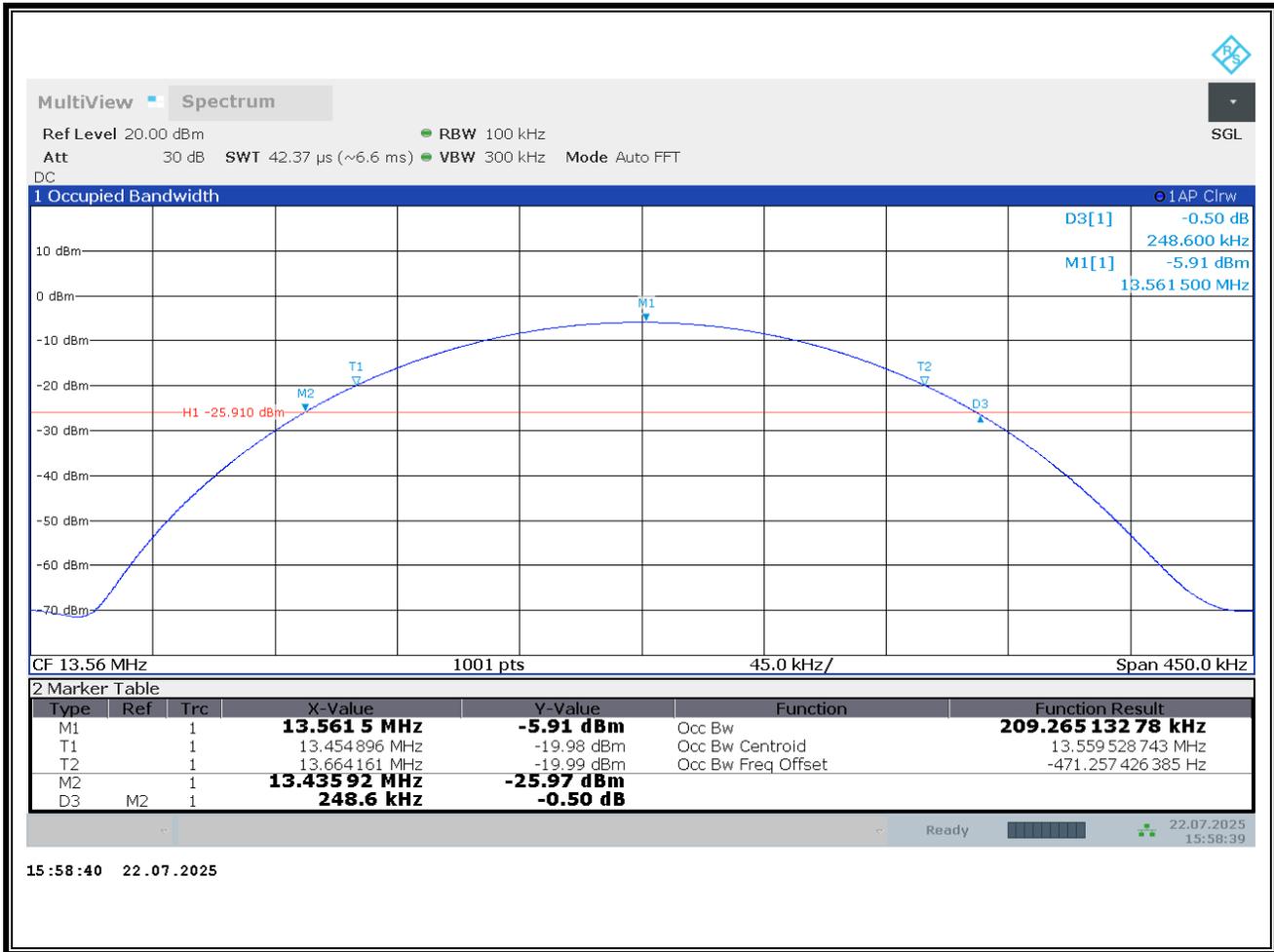
### TEST PROCEDURE

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.

### RESULTS – TAG ON

Mode	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (MHz)
Type F	13.56	248.6	209.27

### 8.1. Type F (Tag On)



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 10<sup>th</sup> 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  $40 \cdot \log(\text{test distance} / \text{specification distance})$ .

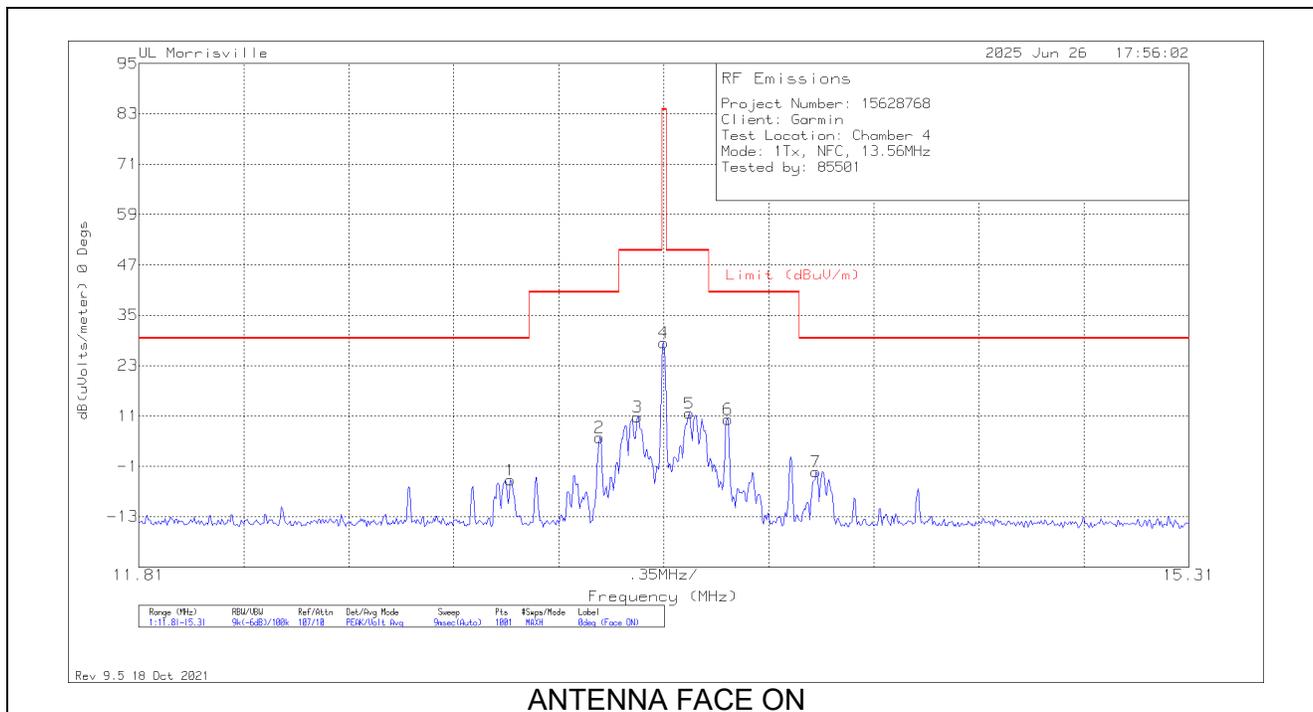
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field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

### **RESULTS**

## 9.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (<30MHz)

### 9.2.1. TYPE F, TAG ON

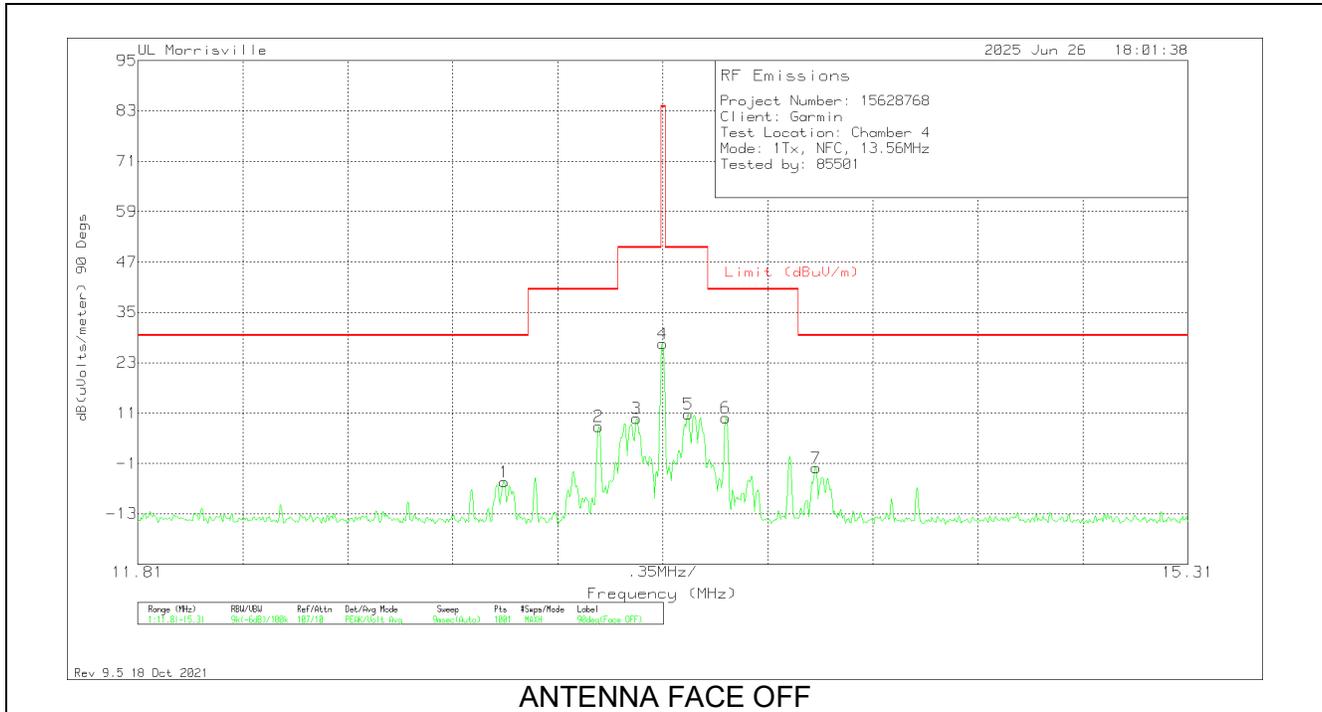
#### FUNDAMENTAL



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	13.049	24.69	Pk	10.6	.4	-40	-4.31	29.5	-33.81	179	100	0 degs
2	13.3465	34.85	Pk	10.6	.4	-40	5.85	40.5	-34.65	179	100	0 degs
3	13.4725	39.76	Pk	10.6	.4	-40	10.76	50.5	-39.74	179	100	0 degs
4	13.56	57.39	Pk	10.6	.4	-40	28.39	84	-55.61	179	100	0 degs
5	13.644	40.58	Pk	10.6	.4	-40	11.58	50.5	-38.92	179	100	0 degs
6	13.7735	39.18	Pk	10.6	.4	-40	10.18	40.5	-30.32	179	100	0 degs
7	14.0675	26.63	Pk	10.6	.4	-40	-2.37	29.5	-31.87	179	100	0 degs

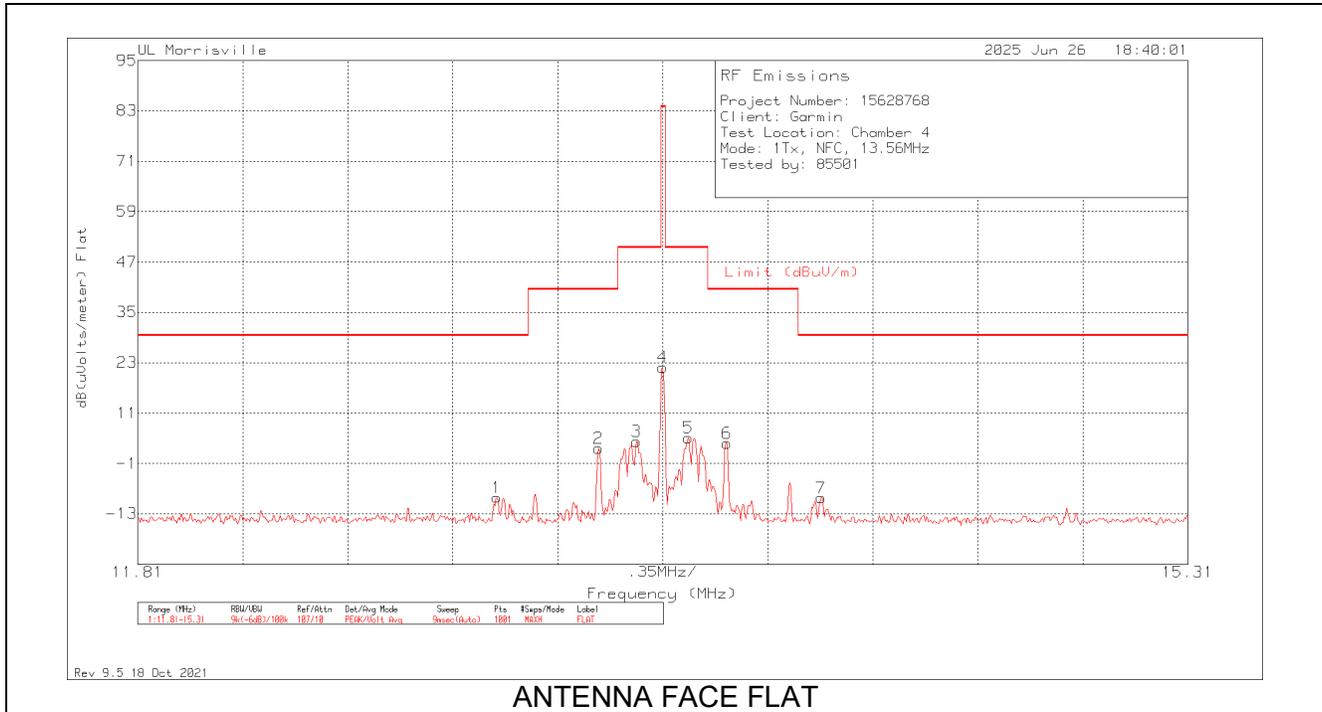
Pk - Peak detector



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	13.0315	23.63	Pk	10.6	.4	-40	-5.37	29.5	-34.87	260	100	90 degs
2	13.3465	36.77	Pk	10.6	.4	-40	7.77	40.5	-32.73	260	100	90 degs
3	13.4725	38.68	Pk	10.6	.4	-40	9.68	50.5	-40.82	260	100	90 degs
4	13.56	56.49	Pk	10.6	.4	-40	27.49	84	-56.51	260	100	90 degs
5	13.644	39.78	Pk	10.6	.4	-40	10.78	50.5	-39.72	260	100	90 degs
6	13.77	38.91	Pk	10.6	.4	-40	9.91	40.5	-30.59	260	100	90 degs
7	14.071	26.92	Pk	10.6	.4	-40	-2.08	29.5	-31.58	260	100	90 degs

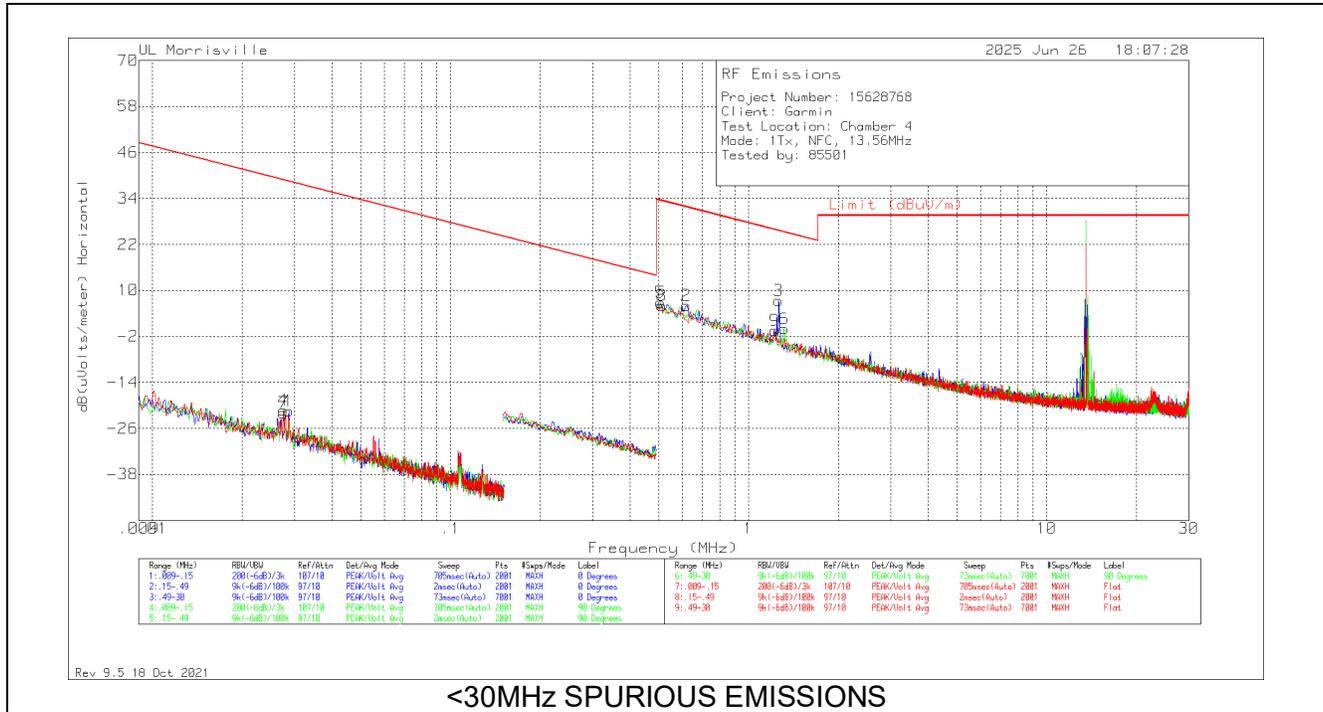
Pk - Peak detector



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	13.007	19.92	Pk	10.6	.4	-40	-9.08	29.5	-38.58	168	100	Flat
2	13.3465	31.62	Pk	10.6	.4	-40	2.62	40.5	-37.88	168	100	Flat
3	13.4725	33.17	Pk	10.6	.4	-40	4.17	50.5	-46.33	168	100	Flat
4	13.56	50.93	Pk	10.6	.4	-40	21.93	84	-62.07	168	100	Flat
5	13.644	34.15	Pk	10.6	.4	-40	5.15	50.5	-45.35	168	100	Flat
6	13.7735	32.77	Pk	10.6	.4	-40	3.77	40.5	-36.73	168	100	Flat
7	14.0885	19.79	Pk	10.6	.4	-40	-9.21	29.5	-38.71	168	100	Flat

Pk - Peak detector

**SPURIOUS EMISSION – E FIELD**

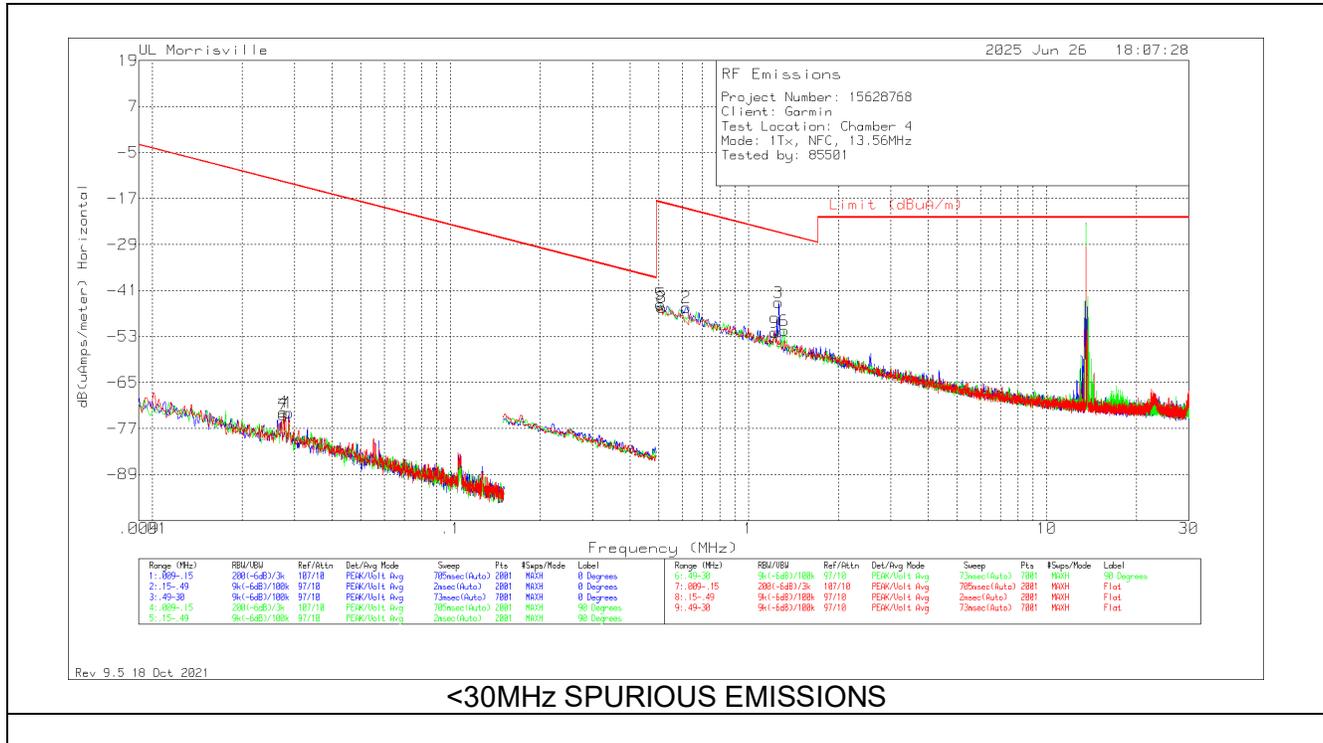


<30MHz SPURIOUS EMISSIONS

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
4	.02753	45.43	Pk	13.3	0	-80	-21.27	38.81	58.81	-60.08	0-360	90 degs
7	.02753	44.74	Pk	13.3	0	-80	-21.96	38.81	58.81	-60.77	0-360	Flat
1	.02867	45.38	Pk	13.2	0	-80	-21.42	38.46	58.46	-59.88	0-360	0 degs
5	.50686	35.74	Pk	11	.1	-40	6.84	33.51	-	-26.67	0-360	90 degs
8	.51108	34.99	Pk	11	.1	-40	6.09	33.43	-	-27.34	0-360	Flat
2	.61648	34.94	Pk	11	.1	-40	6.04	31.81	-	-25.77	0-360	0 degs
9	1.22358	28.46	Pk	11	.1	-40	-4.44	25.85	-	-26.29	0-360	Flat
3	1.26153	36.22	Pk	11	.1	-40	7.32	25.59	-	-18.27	0-360	0 degs
6	1.31634	28.89	Pk	11	.1	-40	-0.01	25.22	-	-25.23	0-360	90 degs

Pk - Peak detector

**SPURIOUS EMISSION – H FIELD**

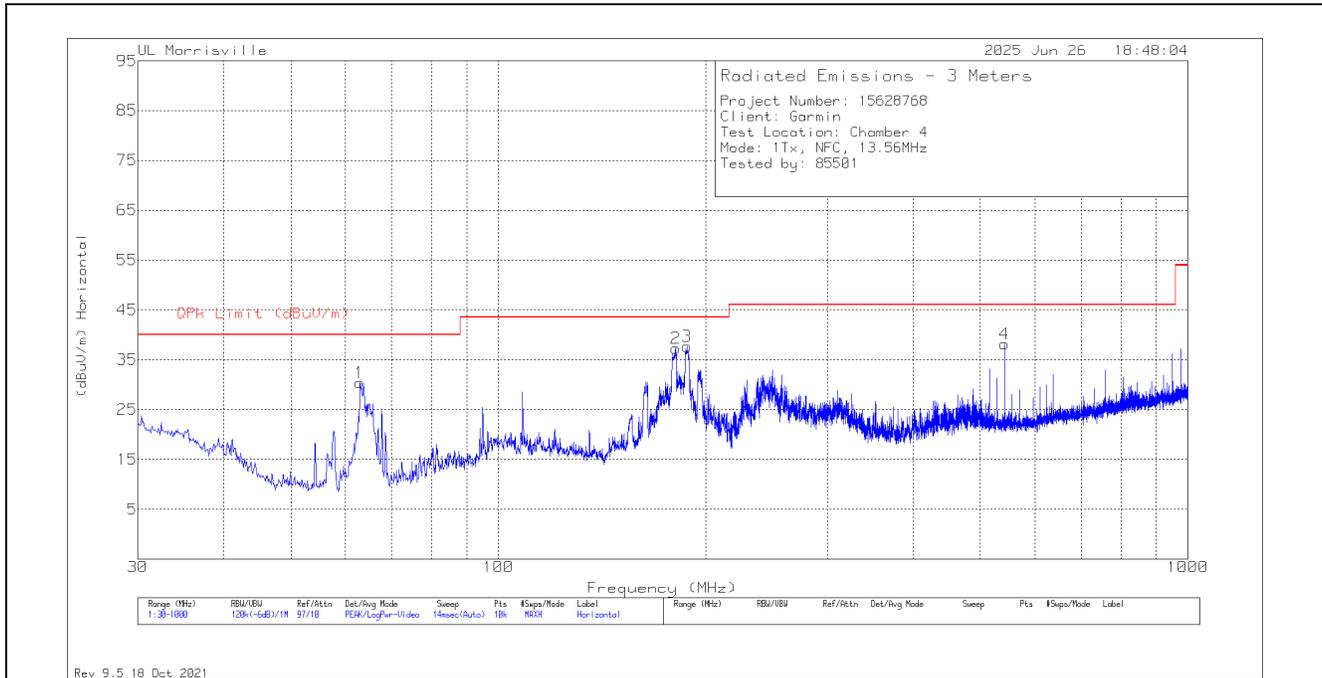


Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
4	.02753	45.43	Pk	-38.2	0	-80	-72.77	-12.69	7.31	-60.08	0-360	90 degs
7	.02753	44.74	Pk	-38.2	0	-80	-73.46	-12.69	7.31	-60.77	0-360	Flat
1	.02867	45.38	Pk	-38.3	0	-80	-72.92	-13.04	6.96	-59.88	0-360	0 degs
5	.50686	35.74	Pk	-40.5	.1	-40	-44.66	-17.99	-	-26.67	0-360	90 degs
8	.51108	34.99	Pk	-40.5	.1	-40	-45.41	-18.07	-	-27.34	0-360	Flat
2	.61648	34.94	Pk	-40.5	.1	-40	-45.46	-19.69	-	-25.77	0-360	0 degs
9	1.22358	28.46	Pk	-40.5	.1	-40	-51.94	-25.65	-	-26.29	0-360	Flat
3	1.26153	36.22	Pk	-40.5	.1	-40	-44.18	-25.91	-	-18.27	0-360	0 degs
6	1.31634	28.89	Pk	-40.5	.1	-40	-51.51	-26.28	-	-25.23	0-360	90 degs

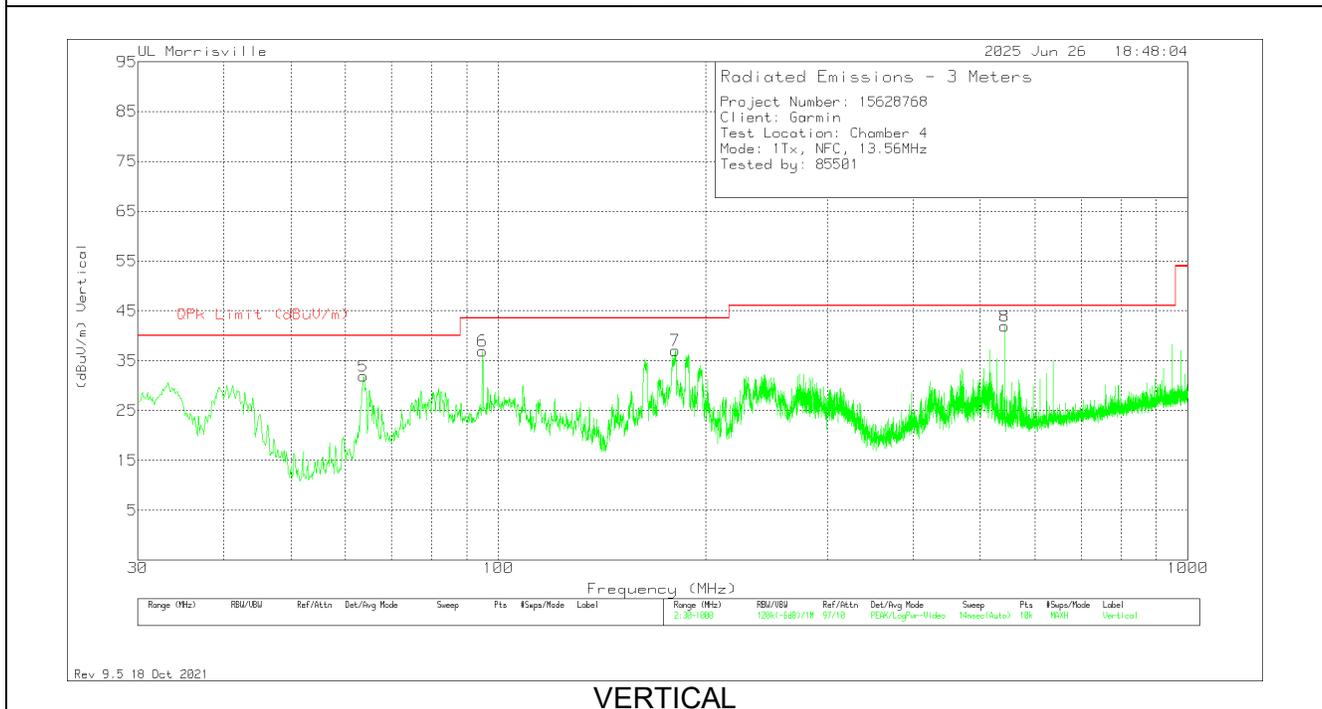
Pk - Peak detector

### 9.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

#### 9.3.1. TYPE F, TAG ON



HORIZONTAL



VERTICAL

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90628 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	62.98	47.81	Pk	14	-31.4	30.41	40	-9.59	0-360	200	H
5	63.756	49.16	Pk	14.1	-31.4	31.86	40	-8.14	0-360	200	V
6	94.893	52.29	Pk	15.1	-30.5	36.89	43.52	-6.63	0-360	100	V
7	180.641	50.35	Pk	17.2	-30.5	37.05	43.52	-6.47	0-360	100	V
2	180.932	50.62	Pk	17.2	-30.5	37.32	43.52	-6.2	0-360	100	H
3	187.9009	47.04	Qp	17.2	-29.9	34.34	43.52	-9.18	338	145	H
4	542.354	42.07	Pk	24.2	-28.1	38.17	46.02	-7.85	0-360	200	H
8	542.3877	45.69	Qp	24.2	-28.1	41.79	46.02	-4.23	317	120	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  $\pm 0.01\%$  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  $\pm 0.01\%$  ( $\pm 100$  ppm).

### TEST PROCEDURE

ANSI C63.10-2020 Clause 6.8

### RESULTS

No non-compliance noted.

#### 10.1. Type F, Tag On

		Limit: $\pm 100$ ppm = 1.356 kHz								
		Frequency Deviation Measured with Time Elapse								
Power Supply	Envir. Temp	Startup	Delta	@ 2 mins	Delta	@ 5 mins	Delta	@ 10 mins	Delta	Limit
(Vdc)	(°C)	(MHz)	(ppm)	(MHz)	(ppm)	(MHz)	(ppm)	(MHz)	(ppm)	(ppm)
3.91	50	13.5595070	5.826	13.5595051	0.501	13.5595044	0.398	13.5595035	0.413	$\pm 100$
3.91	40	13.5595529	-28.024	13.5595201	-0.605	13.5595135	-0.273	13.5595115	-0.177	$\pm 100$
3.91	30	13.5595579	-31.711	13.5595508	-2.869	13.5595480	-2.817	13.5595353	-1.932	$\pm 100$
3.91	20	<b>13.5595149</b>	0.000	<b>13.5595119</b>	0.000	<b>13.5595098</b>	0.000	<b>13.5595091</b>	0.000	$\pm 100$
3.91	0	<b>13.5595154</b>	-0.369	<b>13.5595181</b>	-0.457	<b>13.5595202</b>	-0.767	<b>13.5595400</b>	-2.279	
3.91	10	13.5595113	2.655	13.5595133	-0.103	13.5595160	-0.457	13.5595182	-0.671	$\pm 100$
3.91	-10	13.5595374	-16.593	13.5595397	-2.050	13.5595423	-2.397	13.5595490	-2.942	$\pm 100$
3.91	-20	13.5595568	-30.900	13.5595600	-3.547	13.5595610	-3.776	13.5595628	-3.960	$\pm 100$
4.50	20	<b>13.5595097</b>	3.835	<b>13.5595096</b>	0.170	<b>13.5595094</b>	0.029	13.5595093	-0.015	$\pm 100$
3.35	20	13.55951328	1.191	13.55950932	0.190	13.55951133	-0.113	13.55951136	-0.167	$\pm 100$

Tested by: 104463/85502

Test date: 2025-07-23

NOTE: EUT was tested at 3.35 V for a low voltage condition as this is the lowest operating voltage of the EUT.

## 11. SETUP PHOTOS

Please refer to R15628768-EP1 for setup photos

**END OF TEST REPORT**



## SAR EVALUATION REPORT

IEEE Std 1528-2013

*For*

**51mm Extremity Worn Digital Transceiver**

**FCC ID: IPH-05201**

**Model Name: A05201**

**Report Number: 15628768-S1**

**Issue Date: 2025-08-12**

*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**



**Revision History**

Rev.	Date	Revisions	Revised By
V1	2025-08-12	Initial Issue	--

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# 1. Attestation of Test Results

Applicant Name		Garmin International Inc.			
FCC ID		IPH-05201			
Model Name		A05201			
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		<a href="#">Equipment Class</a> - Highest Reported SAR (W/kg)			
		PCT	DTS	DSS	DXX
Head		0.092	0.168	0.030	0.001
Extremity		0.154	0.116	0.029	0.001
Simultaneous TX	Head	0.122	N/A	0.122	0.122
	Extremity	0.183	N/A	0.183	0.183
Date Tested		2025-04-29 to 2025-08-06			
Test Results		Complies			
<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>					
Approved & Released By:			Prepared By:		
					
Sunghoon Kim Senior Laboratory Engineer UL Korea, Ltd. Suwon Laboratory			Lindsay Ryan Project 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.

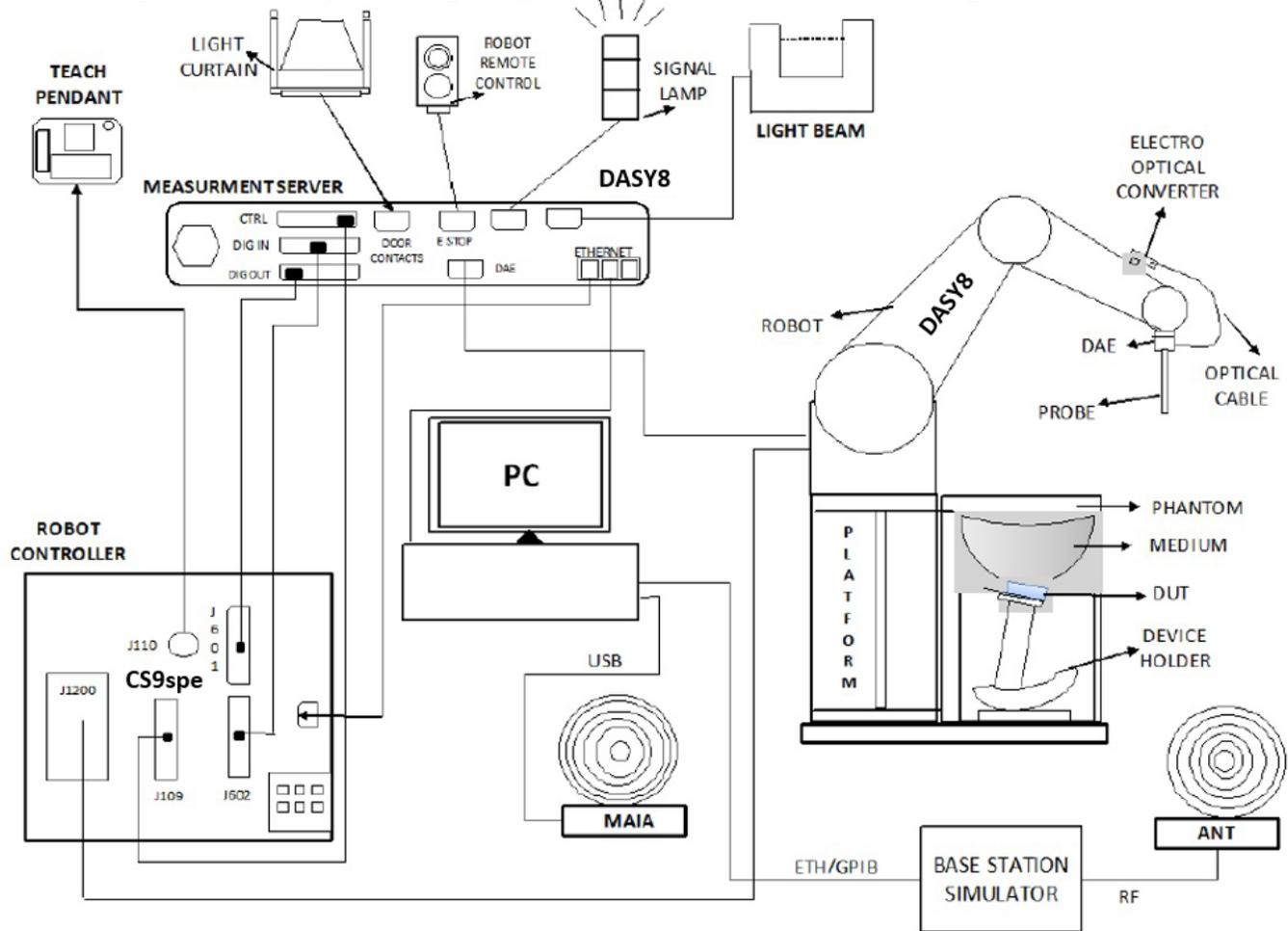
- SAR Lab 1A
- SAR Lab 2A

	Address	ISED CABID	ISED Company Number	FCC Registration
<input type="checkbox"/>	Building: 12 Laboratory Dr Durham, NC 27713, U.S.A	US0067	2180C	825374
<input checked="" type="checkbox"/>	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<sup>1</sup> 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.

<sup>1</sup> 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	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$	≤ 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: $\Delta x_{Zoom}, \Delta y_{Zoom}$			≤ 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 1 <sup>st</sup> 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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
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: $\delta$ 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 <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> 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 <sup>1</sup>	Keysight	E5063A	MY54100681	2024-07-31	2025-07-31
Network Analyzer <sup>2</sup>	Keysight	E5063A	MY54100681	2025-08-01	2026-08-01
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

#### System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Date	Cal. Due Date
Signal Generator <sup>1</sup>	Keysight	N5181A	MY50140788	2024-08-01	2025-08-01
Signal Generator <sup>1</sup>	Keysight	N5182B	MY51350128	2024-07-09	2025-07-09
3-Path Diode Power Sensor <sup>1</sup>	Rohde & Schwarz	NRP8S	112236	2024-07-12	2025-07-12
3-Path Diode Power Sensor <sup>1</sup>	Rohde & Schwarz	NRP8S	112237	2024-07-12	2025-07-12
RF Power Meter <sup>1</sup>	Keysight	N1912A	MY55136012	2024-08-02	2025-08-02
RF Power Sensor	Keysight	N1921A	MY55090025	2024-08-16	2025-08-16
RF Power Sensor <sup>1</sup>	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 <sup>1</sup>	Speag	PowerSource1	4278	2024-06-17	2025-06-17
RF Power Source <sup>2</sup>	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	CLA 13	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):

- Equipment not used past calibration due date.
- 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  $\leq 30\%$ , 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	<b>S/N</b>	<b>Notes</b>
	3604021707	Radiated Sample #1
	3604021429	Radiated Sample #2
	603037845	Conducted Sample #1
Hardware Version	A05201	
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 <sup>1</sup> 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) <sup>2</sup>
Bluetooth	2.4 GHz	BR, EDR, and LE	100% (GFSK) <sup>2</sup>
ANT/ANT+	2.4GHz	GFSK	N/A <sup>3</sup>
NFC	13.56 MHz	Type A, B, A & B, F, A & F	100% (Type F) <sup>2</sup>

### Notes:

1. NTN bands only.
2. Duty cycle is referenced from §9.
3. Measured Duty Cycle is not required due to SAR test exemption.

### 6.3. General LTE SAR Test and Reporting Considerations

Item	Description																																																														
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz (BW = 60 MHz)																																																													
		Channel Bandwidth																																																													
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																								
	Low	<b>18700</b> <b>/1860</b>	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7																																																								
	Mid	<b>18900</b> <b>1880</b>	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880																																																								
	High	<b>19100</b> <b>1900</b>	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3																																																								
	Band 4	Frequency range: 1710 - 1755 MHz (BW = 45 MHz)																																																													
		Channel Bandwidth																																																													
		20 MHz <sup>1</sup>	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz																																																								
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7																																																								
	Mid	<b>20175</b> <b>1732.5</b>	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5																																																								
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3																																																								
	Band 12	Frequency range: 699 – 716 MHz (BW = 17 MHz)																																																													
		Channel Bandwidth																																																													
		20 MHz	15 MHz	10 MHz <sup>1</sup>	5 MHz	3 MHz	1.4 MHz																																																								
Low			23060/ 704	23035/ 701.5	23025/ 700.5	23017/ 699.7																																																									
Mid			<b>23095</b> <b>707.5</b>	23095/ 707.5	23095/ 707.5	23095/ 707.5																																																									
High			23130/ 711	23155/ 713.5	23165/ 714.5	23173/ 715.3																																																									
LTE transmitter and antenna implementation	Refer to Appendix A.																																																														
Maximum power reduction (MPR)	<p><b>Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Modulation</th> <th colspan="6">Channel bandwidth / Transmission bandwidth (N<sub>RB</sub>)</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> </thead> <tbody> <tr> <td>QPSK</td> <td>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 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>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 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>&gt; 5</td> <td>&gt; 4</td> <td>&gt; 8</td> <td>&gt; 12</td> <td>&gt; 16</td> <td>&gt; 18</td> <td>≤ 3</td> </tr> <tr> <td>256 QAM</td> <td colspan="6">≥ 1</td> <td>≤ 5</td> </tr> </tbody> </table> <p>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</p>	Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						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
Modulation	Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> )						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																																																								
Power reduction	No																																																														
Spectrum plots for RB configurations	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.																																																														

## 7. RF Exposure Conditions (Test Configurations)

### 7.1. Standalone SAR Test Exclusion Considerations

Since the *Dedicated Host Approach* is applied, the standalone SAR test exclusion procedure in KDB 447498 § 4.3.1 is applied in conjunction with KDB 616217 § 4.3 to determine the minimum test separation distance:

- When the separation distance from the antenna to an adjacent edge is  $\leq 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.
- When the separation distance from the antenna to an adjacent edge is  $> 5$  mm, the actual antenna-to-edge separation distance is applied to determine SAR test exclusion.

### SAR Test Exclusion Calculations

#### Antennas < 50mm to adjacent edges

##### Head

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)	Calculated Threshold Value
		dBm	mW	Back	Back
ANT/ANT+	2480	6.50	4.50	10	0.7 -EXEMPT-

##### Note(s):

According to KDB 447498, if the calculated threshold value is  $>3$  then SAR testing is required. Head exposure is only required for Bluetooth as it is the only communication system supporting voice mode.

##### Extremity

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)	Calculated Threshold Value
		dBm	mW	Back	Back
ANT/ANT+	2480	6.50	4.50	5	1.4 -EXEMPT-

##### Note(s):

According to KDB 447498, if the calculated threshold value is  $>7.5$ , then SAR testing is required.

### 7.2. Required Test Configurations

The table below identifies the standalone test configurations required for this device according to the findings in Section 7.1:

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/BT	Head	10	Front	N/A	Yes	
	Extremity	0	Back	N/A	Yes	
NFC	Head	10	Front	N/A	Yes	
	Extremity	0	Back	N/A	Yes	
ANT/ANT+	Head	10	Front	N/A	No	1
	Extremity	0	Back	N/A	No	1

##### Note(s):

1. Testing not required per §7.1.

## 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  $\pm 2^\circ\text{C}$  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 ( $\epsilon_r$ ) and conductivity ( $\sigma$ ) of typical tissue-equivalent media recipes are expected to be within  $\pm 5\%$  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  $\epsilon_r$  and  $\sigma$  may be relaxed to  $\pm 10\%$ . This is limited to frequencies  $\leq 3$  GHz.

#### Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	$\epsilon_r$	$\sigma$ (S/m)	$\epsilon_r$	$\sigma$ (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 ( $\epsilon_r$ )			Conductivity ( $\sigma$ )		
					Measured	Target	Delta	Measured	Target	Delta
SAR 1A	2025-06-10	Head	13	13	54.0	55.0	-1.80%	0.72	0.75	-4.27%
				12	54.0	55.0	-1.76%	0.72	0.75	-4.28%
				14	54.0	55.0	-1.87%	0.72	0.75	-4.25%
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	2025-07-21	Head	1900	1900	41.3	40.0	3.33%	1.30	1.40	-7.21%
				1850	41.4	40.0	3.52%	1.27	1.40	-9.29%
				2000	41.2	40.0	3.00%	1.36	1.40	-2.86%
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 1A	2025-08-04	Head	1640	1640	42.1	40.3	4.46%	1.18	1.31	-9.79%
				1625	42.1	40.3	4.45%	1.17	1.30	-9.89%
				1665	42.0	40.2	4.51%	1.19	1.32	-9.77%
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%
SAR 2A	2025-07-29	Head	1900	1900	40.8	40.0	2.10%	1.33	1.40	-5.00%
				1920	40.8	40.0	2.08%	1.34	1.40	-4.14%
				1950	40.8	40.0	2.00%	1.36	1.40	-3.07%
SAR 2A	2025-07-29	Head	2100	2100	40.6	39.8	2.02%	1.45	1.49	-2.35%
				2000	40.7	40.0	1.82%	1.39	1.40	-0.71%
				2200	40.5	38.6	5.06%	1.52	1.62	-6.11%

## 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:  $2.0 \pm 0.2$  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  $\geq 15.0$  cm for SAR measurements  $\leq 3$  GHz and  $\geq 10.0$  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  $\pm 10\%$  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 $\pm 10\%$	Meas. Zoom Scan	Normalize to 1 W	Target (Ref. Value)	Delta $\pm 10\%$	
SAR 1A	2025-06-10	CLA13 SN: 1017	2026-03-10	17.0	0.025	0.499	0.538	-7.28%	0.016	0.319	0.336	-4.99%	1
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%	2
SAR 1A	2025-07-21	D1900V2 SN: 5d202	2025-10-11	17.0	1.900	37.910	40.200	-5.70%	1.020	20.352	21.200	-4.00%	3
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%	4
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%	
SAR 1A	2025-08-04	D1640V2 SN: 359	2026-04-30	17.0	1.620	32.323	34.200	-5.49%	0.911	18.177	18.600	-2.28%	5
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%	6
SAR 2A	2025-07-29	D1900V2 SN: 5d202	2025-10-11	17.0	1.960	39.107	40.200	-2.72%	1.030	20.551	21.200	-3.06%	7
SAR 2A	2025-07-29	D2100V2 SN: 1043	2025-10-11	17.0	2.070	41.302	44.200	-6.56%	1.050	20.950	22.400	-6.47%	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 <sub>RB</sub> )						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 <sub>RB</sub> )	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  $\leq \frac{1}{2}$  dB higher than the QPSK or when the reported SAR for the QPSK configuration is  $\leq 1.45$  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	NB Position	Maximum Average Power (dBm)										
					18700	18900	19100	MPR	Tune-up Limit						
					1860 MHz	1880 MHz	1900 MHz								
20	QPSK	1	0	Low	23.2	23.2	23.6	0	24.0						
		1	3	NB7	23.2	22.1	23.3	0	24.0						
		1	5	High	23.3	23.3	23.3	0	24.0						
		3	0	Low	23.3	22.9	23.6	0	24.0						
		3	1	NB7	23.1	23.1	23.4	0	24.0						
		3	3	High	23.6	23.0	23.0	0	24.0						
	16QAM	1	0	Low	23.8	23.1	22.9	0	24.0						
		1	3	NB7	23.3	23.4	23.4	0	24.0						
		1	5	High	23.9	23.1	22.9	0	24.0						
		3	0	Low	23.4	23.3	23.7	0	24.0						
		3	1	NB7	23.9	23.4	23.2	0	24.0						
		3	3	High	23.3	23.2	23.8	0	24.0						
	15	QPSK	1	0	Low	23.2	23.2	22.9	0	24.0					
			1	3	NB5	23.3	23.2	22.6	0	24.0					
1			5	High	23.3	23.4	23.1	0	24.0						
3			0	Low	23.3	23.6	22.9	0	24.0						
3			1	NB5	23.2	23.1	22.9	0	24.0						
3			3	High	23.2	23.6	23.0	0	24.0						
16QAM		1	0	Low	23.3	23.3	23.3	0	24.0						
		1	3	NB5	23.5	23.4	23.5	0	24.0						
		1	5	High	23.5	23.5	23.3	0	24.0						
		3	0	Low	23.3	23.6	23.5	0	24.0						
		3	1	NB5	23.9	23.5	23.4	0	24.0						
		3	3	High	23.9	23.6	23.3	0	24.0						
10		QPSK	1	0	Low	23.2	23.4	23.6	0	24.0					
			1	3	NB3	23.2	23.4	23.2	0	24.0					
	1		5	High	23.3	23.4	23.3	0	24.0						
	3		0	Low	23.3	23.4	24.0	0	24.0						
	3		1	NB3	23.1	23.3	23.0	0	24.0						
	3		3	High	23.3	23.3	23.5	0	24.0						
	16QAM	1	0	Low	22.7	22.6	22.5	1	23.0						
		1	3	NB3	23.0	23.8	22.9	0	24.0						
		1	5	High	23.3	23.6	23.4	0	24.0						
		3	0	Low	23.2	23.7	22.9	0	24.0						
		3	1	NB3	23.4	23.6	23.5	0	24.0						
		3	3	High	23.5	23.1	23.6	0	24.0						
						18650	18900	19150	MPR	Tune-up Limit					
						1855 MHz	1880 MHz	1905 MHz							
					18650	18900	19150	MPR	Tune-up Limit						
					1855 MHz	1880 MHz	1905 MHz								
					1	0	Low			23.2	23.4	23.6	0	24.0	
					1	3	NB3			23.2	23.4	23.2	0	24.0	
					1	5	High			23.3	23.4	23.3	0	24.0	
					3	0	Low			23.3	23.4	24.0	0	24.0	
						18650	18900	19150	MPR	Tune-up Limit					
						1855 MHz	1880 MHz	1905 MHz							
						3	1	NB3			23.1	23.3	23.0	0	24.0
						3	3	High			23.3	23.3	23.5	0	24.0
						6	0	Low			22.7	22.6	22.5	1	23.0
						6	0	Low			21.2	21.3	21.2	2	22.0

**LTE Band 2 Measured Results (continued)**

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					18625	18900	19175	MPR	Tune-up Limit
					1852.5 MHz	1880 MHz	1907.5 MHz		
5	QPSK	1	0	Low	23.2	23.3	23.9	0	24.0
		1	3	NB1	23.2	23.2	22.1	0	24.0
		1	5	High	23.3	23.3	23.2	0	24.0
		3	0	Low	22.4	22.4	22.0	1	23.0
		3	1	NB1	22.7	22.5	22.4	1	23.0
		3	3	High	22.4	22.4	22.0	1	23.0
	16QAM	6	0	Low	22.7	22.7	22.6	1	23.0
		1	0	Low	23.1	23.9	23.0	0	24.0
		1	3	NB1	23.9	24.0	23.2	0	24.0
		1	5	High	23.8	23.9	23.0	0	24.0
		3	0	Low	22.5	22.3	22.2	1	23.0
		3	1	NB1	22.7	22.5	21.7	1	23.0
		3	3	High	22.2	22.1	22.1	1	23.0
		6	0	Low	21.2	21.2	21.2	2	22.0
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					18615	18900	19185	MPR	Tune-up Limit
					1851.5 MHz	1880 MHz	1908.5 MHz		
3	QPSK	1	0	Low	23.1	23.8	23.4	0	24.0
		1	3	Low	23.0	23.6	23.1	0	24.0
		1	5	High	23.3	23.6	23.4	0	24.0
		3	0	Low	22.4	22.1	22.7	1	23.0
		3	1	Low	22.6	22.2	22.5	1	23.0
		3	3	High	22.4	22.1	22.5	1	23.0
	16QAM	6	0	Low	21.5	21.3	21.7	2	22.0
		1	0	Low	22.0	22.7	21.8	1	23.0
		1	3	Low	22.2	22.8	22.0	1	23.0
		1	5	High	22.0	22.7	21.9	1	23.0
		3	0	Low	21.6	21.4	21.4	2	22.0
		3	1	Low	21.2	21.4	21.5	2	22.0
		3	3	High	21.1	21.1	21.3	2	22.0
		6	0	Low	21.1	20.9	21.0	2	22.0
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					18607	18900	19193	MPR	Tune-up Limit
					1850.7 MHz	1880 MHz	1909.3 MHz		
1.4	QPSK	1	0	Low	23.4	23.3	23.4	0	24.0
		1	3	Low	23.0	24.0	23.0	0	24.0
		1	5	High	23.3	23.7	23.3	0	24.0
		3	0	Low	22.8	22.1	22.7	1	23.0
		3	1	Low	22.2	22.7	22.8	1	23.0
		3	3	High	22.4	22.3	22.2	1	23.0
	16QAM	6	0	Low	21.5	21.4	21.4	2	22.0
		1	0	Low	22.8	22.7	22.6	1	23.0
		1	3	Low	22.9	22.8	22.8	1	23.0
		1	5	High	22.7	22.6	22.6	1	23.0
		3	0	Low	21.6	21.4	21.4	2	22.0
		3	1	Low	21.2	21.9	21.0	2	22.0
		3	3	High	21.5	21.3	21.3	2	22.0
		6	0	Low	21.0	20.6	21.3	2	22.0

**LTE Band 4 Measured Results**

BW (MHz)	Mode	RB Allocation	RB Offset	NB Position	Maximum Average Power (dBm)				
					20050	20175	20300	MPR	Tune-up Limit
					1720 MHz	1732.5 MHz	1745 MHz		
20	QPSK	1	0	Low	23.4	23.4	23.3	0	24.5
		1	3	NB7	23.2	23.2	23.2	0	24.5
		1	5	High	23.2	23.3	23.5	0	24.5
		3	0	Low	23.3	23.2	23.5	0	24.5
		3	1	NB7	23.0	23.1	22.9	0	24.5
		3	3	High	23.2	23.1	23.4	0	24.5
	16QAM	6	0	Low	23.7	23.5	23.5	0	24.5
		1	0	Low	22.8	23.4	23.7	0	24.5
		1	3	NB7	23.0	23.4	23.5	0	24.5
		1	5	High	22.8	23.4	23.7	0	24.5
		3	0	Low	23.7	23.7	23.6	0	24.5
		3	1	NB7	24.1	23.2	23.5	0	24.5
		3	3	High	23.7	23.5	23.6	0	24.5
		6	0	Low	23.2	23.1	23.3	0	24.5
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					20025	20175	20325	MPR	Tune-up Limit
					1717.5 MHz	1732.5 MHz	1747.5 MHz		
15	QPSK	1	0	Low	23.4	23.3	23.2	0	24.5
		1	3	NB5	23.2	23.2	22.0	0	24.5
		1	5	High	23.2	23.2	23.2	0	24.5
		3	0	Low	23.2	23.1	23.0	0	24.5
		3	1	NB5	23.3	23.1	23.0	0	24.5
		3	3	High	23.2	23.1	23.0	0	24.5
	16QAM	6	0	Low	23.7	23.6	23.4	0	24.5
		1	0	Low	23.5	23.8	23.1	0	24.5
		1	3	NB5	23.5	23.6	23.5	0	24.5
		1	5	High	23.7	23.6	23.2	0	24.5
		3	0	Low	23.7	23.1	23.7	0	24.5
		3	1	NB5	23.6	23.2	23.7	0	24.5
		3	3	High	23.6	23.5	23.9	0	24.5
		6	0	Low	23.1	23.1	23.1	0	24.5
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					20000	20175	20350	MPR	Tune-up Limit
					1715 MHz	1732.5 MHz	1750 MHz		
10	QPSK	1	0	Low	23.6	23.3	23.3	0	24.5
		1	3	NB3	23.4	23.2	23.1	0	24.5
		1	5	High	23.6	23.3	23.3	0	24.5
		3	0	Low	23.1	23.3	23.1	0	24.5
		3	1	NB3	23.0	23.1	22.7	0	24.5
		3	3	High	23.0	23.1	23.1	0	24.5
	16QAM	6	0	Low	22.5	22.7	22.6	1	23.5
		1	0	Low	23.3	22.8	23.1	0	24.5
		1	3	NB3	23.6	23.0	23.6	0	24.5
		1	5	High	23.4	22.8	23.4	0	24.5
		3	0	Low	23.9	23.7	23.2	0	24.5
		3	1	NB3	23.7	23.2	23.6	0	24.5
		3	3	High	24.0	23.7	23.0	0	24.5
		6	0	Low	21.1	21.1	20.9	2	22.5

**LTE Band 4 Measured Results (continued)**

BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					19975	20175	20375	MPR	Tune-up Limit
					1712.5 MHz	1732.5 MHz	1752.5 MHz		
5	QPSK	1	0	Low	23.4	23.3	23.3	0	24.5
		1	3	NB1	23.3	23.2	22.0	0	24.5
		1	5	High	23.2	23.3	23.3	0	24.5
		3	0	Low	22.3	22.2	22.0	1	23.5
		3	1	NB1	22.4	22.2	22.0	1	23.5
		3	3	High	22.3	22.2	22.0	1	23.5
	16QAM	6	0	Low	22.7	22.6	22.4	1	23.5
		1	0	Low	22.9	23.4	23.2	0	24.5
		1	3	NB1	23.1	23.4	23.6	0	24.5
		1	5	High	22.9	23.3	23.4	0	24.5
		3	0	Low	22.8	22.3	22.9	1	23.5
		3	1	NB1	22.7	22.3	22.7	1	23.5
		3	3	High	22.8	22.1	22.9	1	23.5
		6	0	Low	21.1	21.0	21.1	2	22.5
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					19965	20175	20385	MPR	Tune-up Limit
					1711.5 MHz	1732.5 MHz	1753.5 MHz		
3	QPSK	1	0	Low	23.4	23.4	23.3	0	24.5
		1	3	Low	23.0	22.9	22.9	0	24.5
		1	5	High	23.3	23.3	23.2	0	24.5
		3	0	Low	22.0	22.4	22.4	1	23.5
		3	1	Low	22.1	22.7	22.3	1	23.5
		3	3	High	22.3	22.2	22.2	1	23.5
	16QAM	6	0	Low	21.3	21.7	21.6	2	22.5
		1	0	Low	21.9	21.8	21.7	1	23.5
		1	3	Low	22.2	22.0	21.9	1	23.5
		1	5	High	21.8	21.8	21.8	1	23.5
		3	0	Low	21.3	21.3	21.2	2	22.5
		3	1	Low	21.2	21.4	20.9	2	22.5
		3	3	High	21.4	21.2	21.3	2	22.5
		6	0	Low	20.9	20.9	21.2	2	22.5
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					19957	20175	20393	MPR	Tune-up Limit
					1710.7 MHz	1732.5 MHz	1754.3 MHz		
1.4	QPSK	1	0	Low	23.4	23.2	23.2	0	24.5
		1	3	Low	22.2	22.8	22.8	0	24.5
		1	5	High	23.4	23.2	23.2	0	24.5
		3	0	Low	22.2	22.6	22.6	1	23.5
		3	1	Low	22.2	22.2	22.3	1	23.5
		3	3	High	21.9	22.1	22.1	1	23.5
	16QAM	6	0	Low	21.6	21.2	21.2	2	22.5
		1	0	Low	22.9	21.4	22.5	1	23.5
		1	3	Low	23.0	21.4	22.6	1	23.5
		1	5	High	23.0	21.1	22.4	1	23.5
		3	0	Low	21.1	20.9	21.1	2	22.5
		3	1	Low	21.1	20.7	20.7	2	22.5
		3	3	High	21.2	20.9	21.1	2	22.5
		6	0	Low	21.0	20.6	20.5	2	22.5

**LTE Band 12 Measured Results**

BW (MHz)	Mode	RB Allocation	RB Offset	NB Position	Maximum Average Power (dBm)				
					23060	23095	23130	MPR	Tune-up Limit
					704 MHz	707.5 MHz	711 MHz		
10	QPSK	1	0	Low	23.6	23.6	23.6	0	25.0
		1	3	NB3	23.5	23.5	23.5	0	25.0
		1	5	High	23.5	23.6	23.6	0	25.0
		3	0	Low	23.5	23.5	23.5	0	25.0
		3	1	NB3	23.3	23.5	23.3	0	25.0
		3	3	High	23.4	23.4	23.4	0	25.0
	16QAM	6	0	Low	23.0	22.7	22.7	1	24.0
		1	0	Low	23.1	23.7	23.7	0	25.0
		1	3	NB3	23.4	23.8	23.8	0	25.0
		1	5	High	23.1	23.7	23.7	0	25.0
		3	0	Low	24.0	23.5	23.5	0	25.0
		3	1	NB3	24.5	23.5	23.9	0	25.0
		3	3	High	24.0	23.4	23.4	0	25.0
		6	0	Low	21.6	21.7	21.4	2	23.0
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					23035	23095	23155	MPR	Tune-up Limit
					701.5 MHz	707.5 MHz	713.5 MHz		
5	QPSK	1	0	Low	23.7	23.6	23.8	0	25.0
		1	3	NB1	23.5	23.5	23.6	0	25.0
		1	5	High	23.5	23.6	23.8	0	25.0
		3	0	Low	22.5	22.5	22.8	1	24.0
		3	1	NB1	22.6	22.4	22.2	1	24.0
		3	3	High	22.5	22.5	22.7	1	24.0
	16QAM	6	0	Low	22.8	22.7	22.8	1	24.0
		1	0	Low	23.3	23.8	24.1	0	25.0
		1	3	NB1	23.5	23.8	23.9	0	25.0
		1	5	High	23.2	24.0	24.0	0	25.0
		3	0	Low	23.1	23.0	23.0	1	24.0
		3	1	NB1	22.9	22.6	22.9	1	24.0
		3	3	High	23.1	22.9	22.2	1	24.0
		6	0	Low	21.2	21.4	21.4	2	23.0
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					23025	23095	23165	MPR	Tune-up Limit
					700.5 MHz	707.5 MHz	714.5 MHz		
3	QPSK	1	0	Low	23.6	23.9	23.6	0	25.0
		1	3	Low	23.3	23.7	23.2	0	25.0
		1	5	High	23.6	23.7	23.5	0	25.0
		3	0	Low	22.7	22.3	22.6	1	24.0
		3	1	Low	22.4	22.4	22.0	1	24.0
		3	3	High	22.5	22.3	22.5	1	24.0
	16QAM	6	0	Low	22.0	21.5	21.9	2	23.0
		1	0	Low	22.0	22.0	22.0	1	24.0
		1	3	Low	22.3	22.3	22.3	1	24.0
		1	5	High	22.1	21.9	22.0	1	24.0
		3	0	Low	21.5	21.6	21.6	2	23.0
		3	1	Low	21.6	21.5	21.6	2	23.0
		3	3	High	21.6	21.6	21.3	2	23.0
		6	0	Low	21.2	21.2	21.4	2	23.0
BW (MHz)	Mode	RB Allocation	RB offset	NB Position	Maximum Average Power (dBm)				
					23017	23095	23173	MPR	Tune-up Limit
					699.7 MHz	707.5 MHz	715.3 MHz		
1.4	QPSK	1	0	Low	23.6	24.5	23.5	0	25.0
		1	3	Low	23.2	24.2	22.4	0	25.0
		1	5	High	23.5	24.2	23.5	0	25.0
		3	0	Low	22.8	22.2	22.6	1	24.0
		3	1	Low	22.4	22.5	22.4	1	24.0
		3	3	High	22.6	22.4	22.4	1	24.0
	16QAM	6	0	Low	21.7	21.5	21.9	2	23.0
		1	0	Low	21.9	22.8	23.5	1	24.0
		1	3	Low	21.9	23.0	22.5	1	24.0
		1	5	High	22.0	22.8	23.5	1	24.0
		3	0	Low	21.2	21.6	22.6	2	23.0
		3	1	Low	21.3	21.0	21.3	2	23.0
		3	3	High	21.3	21.4	22.4	2	23.0
		6	0	Low	21.1	20.8	20.8	2	23.0

**NTN n23**

Sub-Carrier Spacing (kHz)	Mode	SC Size	SC Offset	Maximum Average Power (dBm)				
				25501	25600	25699	MPR	Tune-up Limit
				2000.1MHz	2010MHz	2019.9MHz		
3.75	BPSK	1	0	23.6	23.3	23.4	0	24.0
		1	23	23.4	23.2	23.4	0	24.0
		1	46	23.4	23.4	23.5	0	24.0
	QPSK	1	0	23.5	23.6	23.6	0	24.0
		1	23	23.7	23.5	23.6	0	24.0
		1	46	23.5	23.5	23.6	0	24.0
Sub-Carrier Spacing (kHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				25501	25600	25699	MPR	Tune-up Limit
				2000.1MHz	2010MHz	2019.9MHz		
15	BPSK	1	0	23.6	23.5	23.7	0	24.0
		1	5	23.6	23.6	23.6	0	24.0
		1	10	23.7	23.5	23.7	0	24.0
	QPSK	1	0	23.7	23.5	23.7	0	24.0
		1	5	23.6	23.5	23.7	0	24.0
		1	10	23.6	23.6	23.6	0	24.0
		3	0	20.4	20.1	20.2	0	24.0
		3	9	20.3	20.1	20.1	0	24.0
		6	0	20.1	20.1	20.0	0	24.0
		12	0	20.9	21.1	21.2	1	23.0

**NTN n255**

Sub-Carrier Spacing (kHz)	Mode	SC Size	SC Offset	Maximum Average Power (dBm)				
				261505	261674	261843	MPR	Tune-up Limit
				1626.6MHz	1643.5MHz	1660.4MHz		
3.75	BPSK	1	0	22.5	22.5	22.6	0	24.0
		1	23	22.6	22.6	22.6	0	24.0
		1	46	22.5	22.5	22.6	0	24.0
	QPSK	1	0	22.6	22.7	22.7	0	24.0
		1	23	22.6	22.7	22.8	0	24.0
		1	46	22.6	22.7	22.7	0	24.0
Sub-Carrier Spacing (kHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				261505	261674	261843	MPR	Tune-up Limit
				1626.6MHz	1643.5MHz	1660.4MHz		
15	BPSK	1	0	22.2	22.2	22.4	0	24.0
		1	5	22.1	22.3	22.4	0	24.0
		1	10	22.1	22.3	22.4	0	24.0
	QPSK	1	0	22.1	22.2	22.4	0	24.0
		1	5	22.1	22.2	22.3	0	24.0
		1	10	22.1	22.3	22.3	0	24.0
		3	0	21.4	21.5	21.6	0	24.0
		3	9	21.4	21.5	21.5	0	24.0
		6	0	20.9	20.9	21.0	0	24.0
		12	0	19.5	19.6	19.7	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  $\leq 1.2$  W/kg.

Mode	Bandwidth	Channel	Frequency (MHz)	Tune-up PowerLimit
				Main Antenna
802.11b DSSS (SISO)	20 MHz	1	2412	18.5
		6	2437	18.5
		11	2462	18.5
		12	2467	16.0
		13	2472	15.0
802.11g OFDM (SISO)	20 MHz	1	2412	18.5
		6	2437	18.5
		11	2462	18.5
		12	2467	15.5
		13	2472	15.5
802.11n OFDM (SISO)	20 MHz	1	2412	16.0
		6	2437	16.0
		11	2462	16.0
		12	2467	15.0
		13	2472	14.5

### Wi-Fi 2.4GHz Measured Results

Band	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)
DSSS 2.4 GHz	802.11b	1	2412	17.1	18.5	Yes
		6	2437	16.9	18.5	
		11	2462	17.0	18.5	
		12	2467	14.4	16.0	
		13	2472	13.1	15.0	
OFDM 2.4 GHz	802.11g	1	2412	17.1	18.5	No
		6	2437	17.2	18.5	
		11	2462	16.6	18.5	
		12	2467	12.9	15.5	
		13	2472	12.8	15.5	
	802.11n (HT20)	1	2412	15.1	16.0	No
		6	2437	15.9	16.0	
		11	2462	14.3	16.0	
		12	2467	13.4	15.0	
		13	2472	12.8	14.5	

**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  $\leq \frac{1}{4}$  dB higher than the primary mode.

Band	Mode	Channel	Frequency (MHz)	Tune-up PowerLimit
				Main Antenna
				Maximum
Bluetooth 2.4 GHz	BR	0	2402	11.5
		1	2403	11.5
		39	2441	11.5
		77	2479	11.5
		78	2480	11.5
	EDR, $\pi/4$ DQPSK	0	2402	11.5
		1	2403	11.5
		39	2441	11.5
		77	2479	11.5
		78	2480	11.5
	EDR, 8-DPSK	0	2402	11.5
		1	2403	11.5
		39	2441	11.5
		78	2480	11.5
	LE	37	2402	2.5
		0	2404	6.5
		17	2440	6.5
		35	2476	6.5
		36	2478	3.0
		39	2480	3.0

#### Bluetooth Measured Results

Band	Mode	Ch #	Freq. (MHz)	Maximum Average Power (dBm)		
				Meas Pwr	Tune-up	SAR Test (Yes/No)
Bluetooth 2.4 GHz	BR GFSK	0	2402	11.5	11.5	Yes
		1	2403	10.2	11.5	
		39	2441	9.5	11.5	
		77	2479	10.1	11.5	
		78	2480	10.1	11.5	
	EDR, $\pi/4$ DQPSK	0	2402	10.3	11.5	No
		1	2403	10.3	11.5	
		39	2441	9.5	11.5	
		77	2479	10.2	11.5	
		78	2480	10.1	11.5	
	EDR, 8-DPSK	0	2402	10.4	11.5	No
		1	2403	10.4	11.5	
		39	2441	9.5	11.5	
		78	2480	9.7	11.5	
	LE, GFSK	37	2402	1.7	2.5	No
		0	2404	5.3	6.5	
		17	2440	5.2	6.5	
		35	2476	4.8	6.5	
		36	2478	1.0	3.0	
		39	2480	1.4	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 F	100	100	100.00%	1.00

**Note(s):**

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

### Duty Cycle Plots

Type F



### 9.5. ANT/ANT+

#### Maximum Output Power (Tune-up Limit) for ANT/ANT+

Maximum tune-up tolerance limit is 6.5 dBm (GFSK). This power level qualifies for exclusion of SAR testing. Please refer to section 10.9. Standalone SAR Test Exclusion Considerations & Estimated SAR

## 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:

- $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
- $\leq 0.6$  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
- $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  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:

- $\leq 0.4$  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  $\leq 0.8$  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 offset	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	5	High	24.0	23.3	0.004	0.005	1
							3	1	NB7	24.0	23.1	0.006	0.007	
				Strap 2	18900	1880.0	3	1	NB7	24.0	23.1	0.009	0.011	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
										Strap 3	18900	1880.0	3	
Extremity	QPSK	0	Back	Strap 1	18900	1880.0	1	5	High	24	23.3	0.094	0.110	2
							3	1	NB7	24	23.1	0.096	0.118	
				Strap 2	18900	1880.0	3	1	NB7	24.0	23.1	0.109	0.134	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
										Strap 3	18900	1880.0	3	

### 10.2. LTE Band 4 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	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	23.4	0.019	0.024	3
							3	0	Low	24.5	23.2	0.019	0.026	
				Strap 2	20175	1732.5	3	0	Low	24.5	23.2	0.020	0.027	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
										Strap 3	20175	1732.5	3	
Extremity	QPSK	0	Back	Strap 1	20175	1732.5	1	0	Low	24.5	23.4	0.110	0.142	4
							3	0	Low	24.5	23.2	0.109	0.147	
				Strap 2	20175	1732.5	3	0	Low	24.5	23.2	0.100	0.135	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
										Strap 3	20175	1732.5	3	

### 10.3. LTE Band 12 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	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	0	Low	25.0	23.6	<0.001	<0.001	-
							3	0	Low	25.0	23.5	<0.001	<0.001	
				Strap 2	23095	707.5	1	0	Low	25.0	23.6	<0.001	<0.001	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
										Strap 3	23095	707.5	1	
Extremity	QPSK	0	Back	Strap 1	23095	707.5	1	0	Low	25.0	23.6	0.026	0.036	5
							3	0	Low	25.0	23.5	0.024	0.034	
				Strap 2	23095	707.5	1	0	Low	25.0	23.6	0.025	0.035	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	NB Position	Power (dBm)		10-g SAR (W/kg)		Plot No.
										Tune-up Limit	Meas.	Meas.	Scaled	
										Strap 3	23095	707.5	1	

### 10.4. NTN Band 23

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	BPSK	10	Front	Strap 1	25501	2000.1	1	10	24.0	23.7	0.079	0.085	6
					25600	2010.0	1	5	24.0	23.6	0.076	0.083	
					25699	2019.9	1	0	24.0	23.7	0.086	<b>0.092</b>	
				Strap 2	25699	2019.9	1	0	24.0	23.7	0.081	0.087	
				Strap 3	25699	2019.9	1	0	24.0	23.7	0.083	0.089	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.
Extremity	BPSK	0	Back	Strap 1	25501	2000.1	1	10	24.0	23.7	0.063	0.068	7
					25600	2010.0	1	5	24.0	23.6	0.061	0.067	
					25699	2019.9	1	0	24.0	23.7	0.055	0.059	
				Strap 2	25501	2000.1	1	10	24.0	23.7	0.061	0.065	
				Strap 3	25501	2000.1	1	10	24.0	23.7	0.062	0.066	

### 10.5. NTN Band 255

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
									Tune-up Limit	Meas.	Meas.	Scaled	
Head	BPSK	10	Front	Strap 1	261505	1626.6	1	10	24.0	22.2	0.019	0.029	8
					261674	1643.5	1	0	24.0	22.3	0.041	0.061	
					261843	1660.4	1	0	24.0	22.4	0.055	0.079	
				Strap 2	261843	1660.4	1	0	24.0	22.4	0.046	0.066	
				Strap 3	261843	1660.4	1	0	24.0	22.4	0.047	0.068	
RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		10-g SAR (W/kg)		Plot No.
Extremity	BPSK	0	Back	Strap 1	261505	1626.6	1	10	24.0	22.2	0.052	0.079	9
					261674	1643.5	1	0	24.0	22.3	0.025	0.037	
					261843	1660.4	1	0	24.0	22.4	0.104	0.150	
				Strap 2	261843	1660.4	1	0	24.0	22.4	0.099	0.143	
				Strap 3	261843	1660.4	1	0	24.0	22.4	0.097	0.140	

### 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	0.079	100.0%	18.5	16.9	0.082	0.119	10
				Strap 2	6	2437	0.075	100.0%	18.5	16.9	0.116	<b>0.168</b>	
				Strap 3	6	2437	0.087	100.0%	18.5	16.9	0.088	0.127	
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.
Extremity	802.11b	0	Back	Strap 1	6	2437	0.058	100.0%	18.5	16.9	0.080	<b>0.116</b>	11
				Strap 2	6	2437	0.085	100.0%	18.5	16.9	0.079	0.114	
				Strap 3	6	2437	0.049	100.0%	18.5	16.9	0.072	0.104	

### 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%	11.5	9.5	0.019	<b>0.030</b>	12
				Strap 2	39	2441	100.0%	11.5	9.5	0.019	0.030	
				Strap 3	39	2441	100.0%	11.5	9.5	0.019	0.030	
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%	11.5	9.5	0.018	<b>0.029</b>	13
				Strap 2	39	2441	100.0%	11.5	9.5	0.017	0.027	
				Strap 3	39	2441	100.0%	11.5	9.5	0.018	0.029	

### 10.8. NFC

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Accessory	Freq. (MHz)	Duty Cycle	Tolerance Scaling <sup>1</sup>	1-g SAR (W/kg)		Plot No.
								Meas.	Scaled	
Head	Type F	10	Front	Strap 1	13.56	100%	2	<0.001	<b>&lt;0.001</b>	-
				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 <sup>1</sup>	10-g SAR (W/kg)		Plot No.
								Meas.	Scaled	
Extremity	Type F	0	Back	Strap 1	13.56	100%	2	<0.001	<b>&lt;0.001</b>	-
				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.

### 10.9. Standalone SAR Test Exclusion Considerations & Estimated SAR

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ , for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f_{(\text{GHz})}$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

When the standalone SAR test exclusion is applied to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

- $(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}/x}] \text{ W/kg}$  for test separation distances ≤ 50 mm; where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.
- 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is > 50 mm.

RF Air interface	RF Exposure Conditions	Frequency (GHz)	Max. tune-up tolerance Power		Min. test separation distance (mm)	SAR test exclusion Result*	Estimated 1-g SAR (W/kg)
			(dBm)	(mW)			
ANT/ANT+	Head	2.480	6.5	4.5	10	0.8	0.094

**Conclusion:**

\*: The computed value is ≤ 3; therefore, this qualifies for Standalone SAR test exclusion.

RF Air interface	RF Exposure Conditions	Frequency (GHz)	Max. tune-up tolerance Power		Min. test separation distance (mm)	SAR test exclusion Result*	Estimated 10-g SAR (W/kg)
			(dBm)	(mW)			
ANT/ANT+	Extremity	2.480	6.5	4.5	5	1.6	0.076

**Conclusion:**

\*: The computed value is ≤ 7.5; therefore, this qualifies for Standalone SAR test exclusion.

## 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  $\geq 0.8$  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  $\geq 1.45$  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  $\geq 1.5$  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)			$\Sigma$ 1-g SAR (W/kg)
		1	2	3	1+2+3
		WWAN	BT	NFC	
Head	Front	0.092	0.030	0.001	0.122

RF Exposure conditions	Test Position	Standalone SAR (W/kg)			$\Sigma$ 10-g SAR (W/kg)
		1	2	3	1+2+3
		WWAN	BT	NFC	
Extremity	Back	0.154	0.029	0.001	0.183

Appendixes

**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**