TEST REPORT

Report Number: R15191165-E5

Applicant	:	Garmin International Inc. 1200 East 151St Street Olathe, KS 66062-3426, USA
Model	:	A04413
FCC ID	:	IPH-04413
IC	:	1792A-04413
EUT Description	:	Wearable Smart Watch
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C: 2024 RSS-210 ISSUE 11:2024 RSS-GEN ISSUE 5 + A1 + A2: 2021

Date Of Issue:
2024-07-03

Prepared by:
UL LLC
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ACCREDITED
CERT #0751.06

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
v1	2024-05-01	Initial Issue	Brian Kiewra
V2	2024-05-06	Added OBW values to tabular data in section 8. Added nominal voltage note to section 10	Brian Kiewra
V3	2024-07-03	Revised FW version and updated RSS-210 to issue 11.	Brian Kiewra

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: Wearable Smart Watch

MODEL: A04413

SERIAL NUMBER: 3467745434

SAMPLE RECEIPT DATE: 2024-03-13

DATE TESTED: 2024-03-18 to 2024-03-27

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 15 SUBPART C: 2024	
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:

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

Prepared By:

Brian Kiewra
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) IC RSS-210, Annex B.6 IC RSS-GEN, Section 8.9 (Transmitter)		
Tx Spurious Emissions			
Frequency Stability	FCC §15.225 (e) RSS-210, Annex B.6		
AC Mains Line Conducted Emissions	FCC §15.207 IC RSS-GEN, Section 8.8		

4. FACILITIES AND ACCREDITATION

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

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

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

5.2. DECISION RULES

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

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U_{Lab}
Radio Frequency (Spectrum Analyzer)	419.38 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

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

MAINS CONDUCTED EMISSIONS

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

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a smartwatch 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 as follows:

Fundamental Frequency (MHz)	E-Field (dBuV/m)
13.56	17.69

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 8.00.

6.4. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, and with and without a tag. It was determined that X orientation and with tag was worst-case configuration. Therefore, all final radiated testing was performed with the EUT in X orientation and with a tag.

Type A was also determined to be worst-case.

6.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Tag Reader	Advanced Card Systems	ACR1252U	RR554-214365	V5MACR1252
USB-A power supply	Bose	S008AHU0500160	072381Z60770055AE	-
Laptop	Lenovo	21AJS0KL00	PF4FKVY8	-

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

SETUP DIAGRAM

Please refer to R15191165-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.
90416	Spectrum Analyzer	Keysight Technologies	N9030A	2023-06-09	2024-06-30
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2024-01-12	2025-01-12
179892	Environmental Meter	Fisher Scientific	15-077-963	2023-07-26	2024-06-31
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2023-06-14	2024-06-14
90411	Spectrum Analyzer	Keysight Technologies	N9030A	2023-08-02	2024-08-02
76023	Temp/Humid Chamber	Cincinnati Sub-Zero	ZPH-8-3.5-SCT/AC	2024-01-12	2025-01-12
238710	Environmental Meter	Fisher Scientific	15-077-963	2023-06-27	2024-06-27
SOFTEMI	Antenna Port Software	UL	Version 2022.8.16	NA	NA

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-01-24	2025-01-24
30-1000 MHz					
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-01-30	2026-01-30
Gain-Loss Chains					
91974	Gain-loss string: 0.009-30MHz	Various	Various	2023-05-16	2024-05-16
91976	Gain-loss string: 25-1000MHz	Various	Various	2023-05-16	2024-05-16
Receiver & Software					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-07-19	2024-07-19
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05
PS216	AC Power Source	Elgar	CW2501M	NA	NA

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	2023-04-04	2024-04-04
179892	Environmental Meter	Fisher Scientific	15-077-963	2023-07-26	2024-06-31
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2023-07-31	2024-07-31
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2023-08-01	2024-08-01
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2023-04-04	2024-04-04
PS214	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

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.

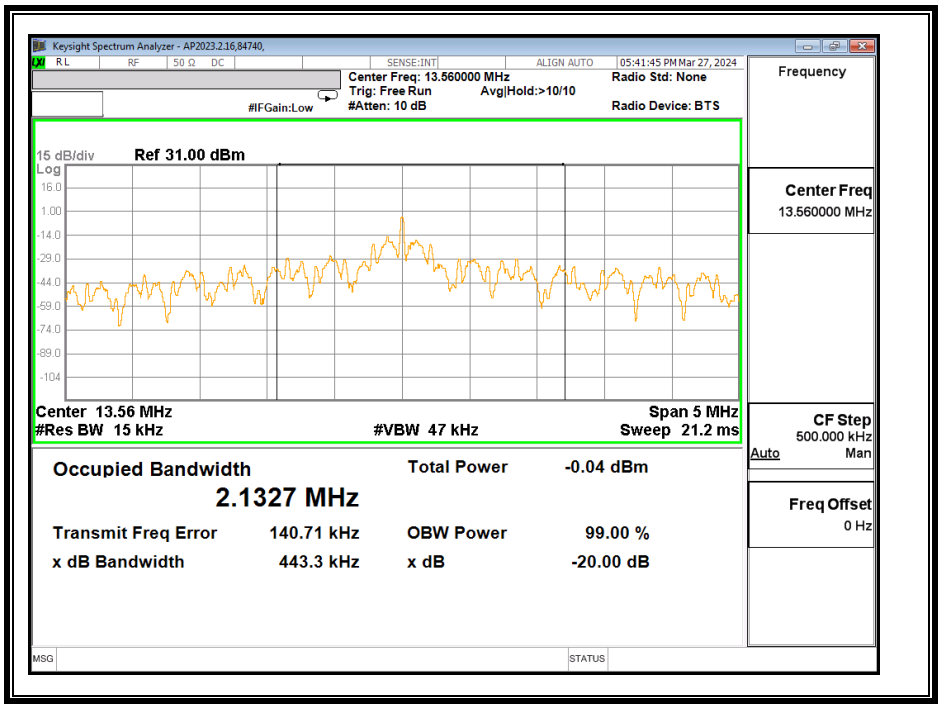
TEST PROCEDURE

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.

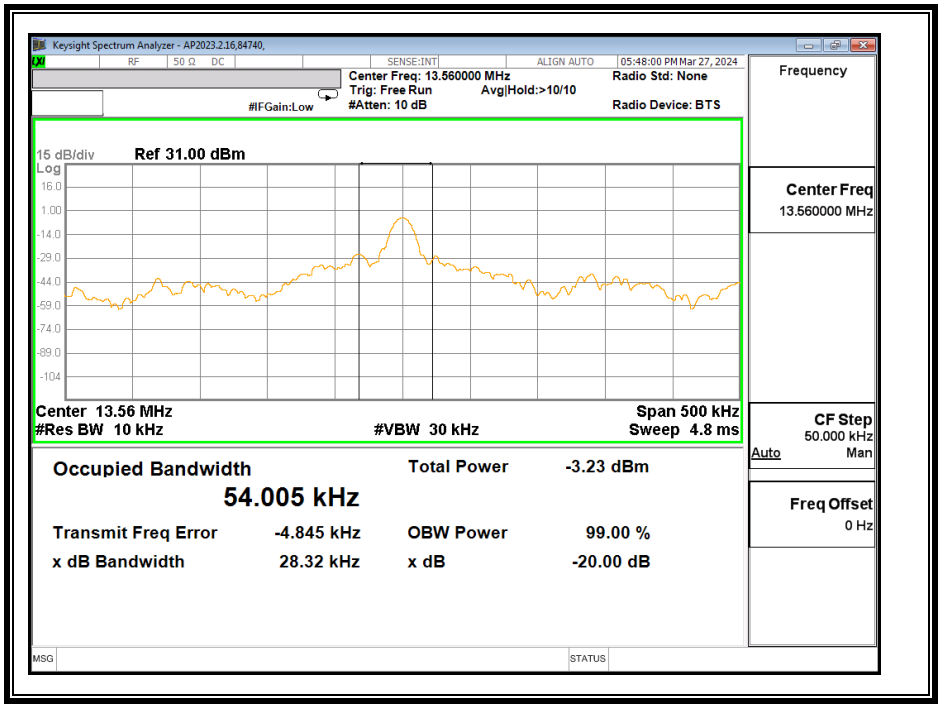
RESULTS

Mode	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (MHz)
Type A	13.56	443.3	2.1327
Type B	13.56	28.32	0.0540
Type F	13.56	432.1	1.0975

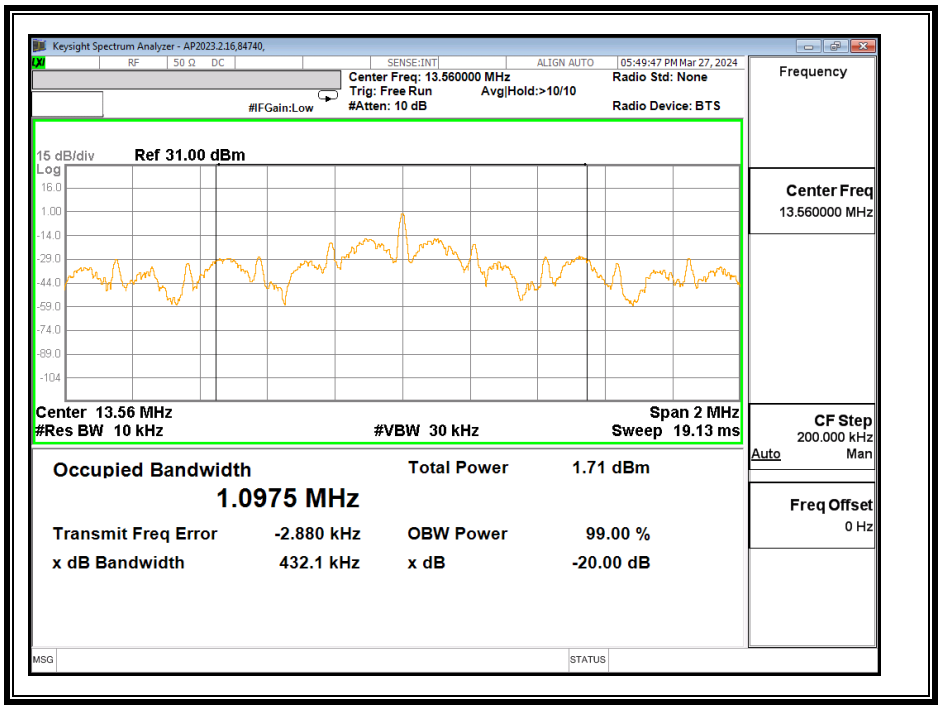
8.1. Type A (CE Mode)



8.2. Type B (CE Mode)



8.3. Type F (CE Mode)



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

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

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

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

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

TEST PROCEDURE

ANSI C63.10 - 2020

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

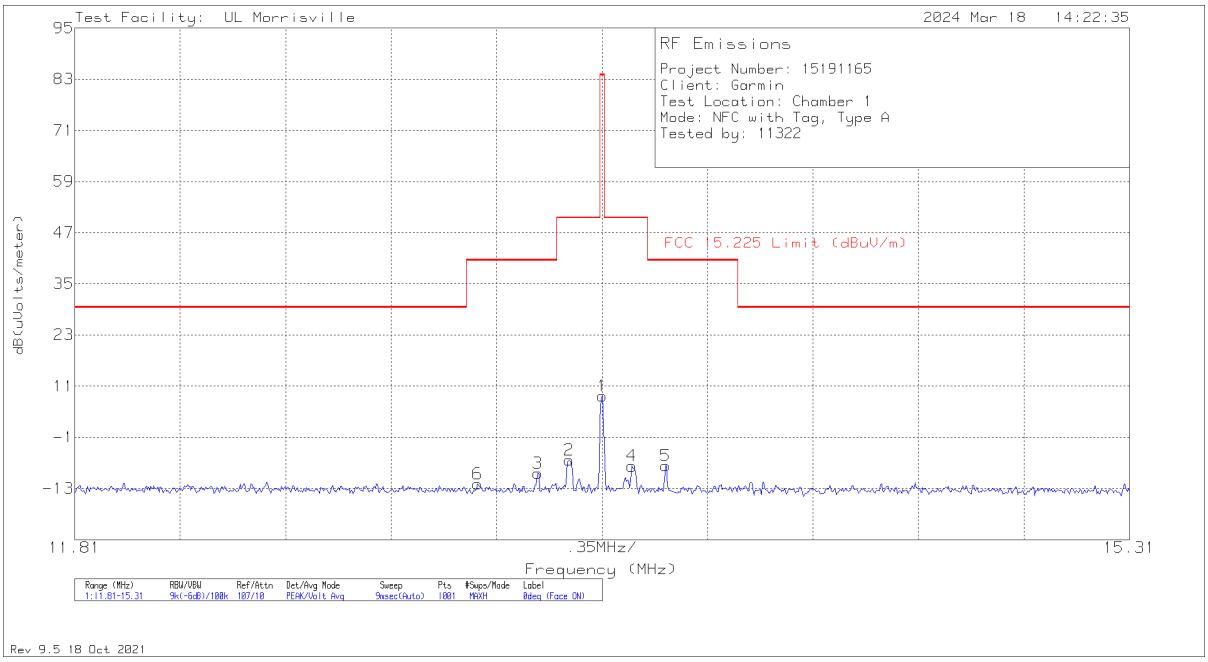
Note: For all Below 30MHz test data, all measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz – 30 MHz) to clearly show the relative levels of fundamental and spurious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

RESULTS

9.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (<30MHz)

9.2.1. TYPE A, TAG ON

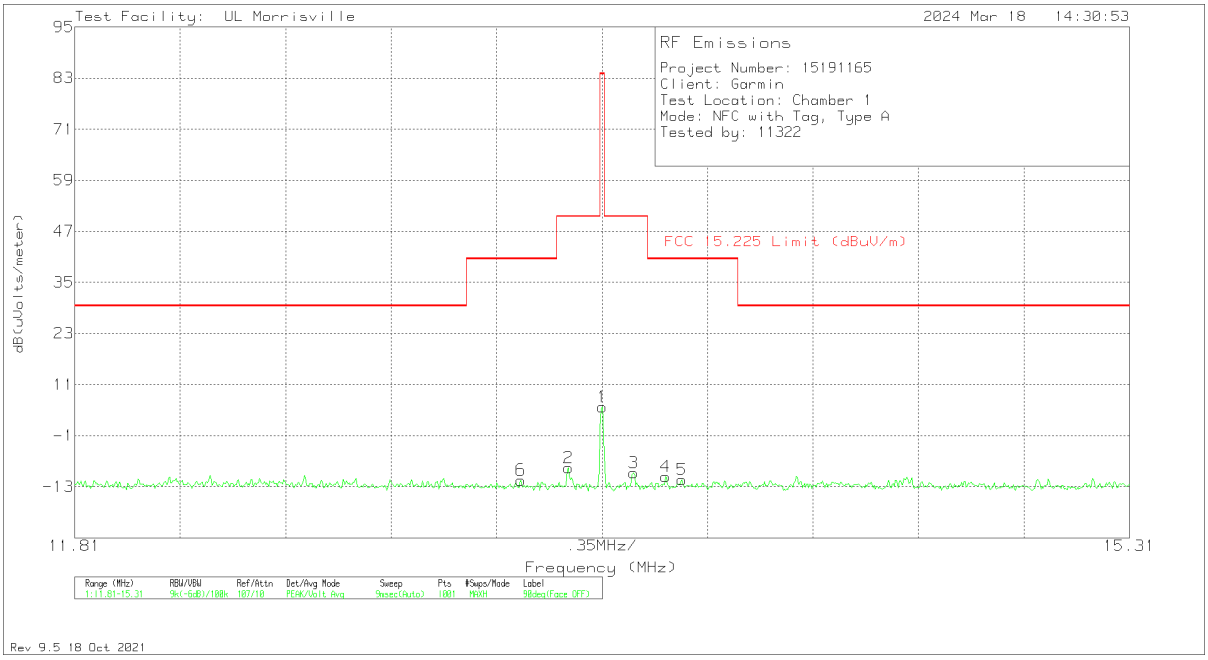
FUNDAMENTAL



ANTENNA FACE ON

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
6	13.147	16.75	Pk	10.7	.6	-40	-11.95	40.5	-52.45	0	0 degs
3	13.3465	19.27	Pk	10.7	.6	-40	-9.43	40.5	-49.93	0	0 degs
2	13.4515	22.34	Pk	10.7	.6	-40	-6.36	50.5	-56.86	0	0 degs
1	13.56	37.39	Pk	10.7	.6	-40	8.69	84	-75.31	0	0 degs
4	13.658	20.95	Pk	10.7	.6	-40	-7.75	50.5	-58.25	0	0 degs
5	13.77	21.08	Pk	10.7	.6	-40	-7.62	40.5	-48.12	0	0 degs

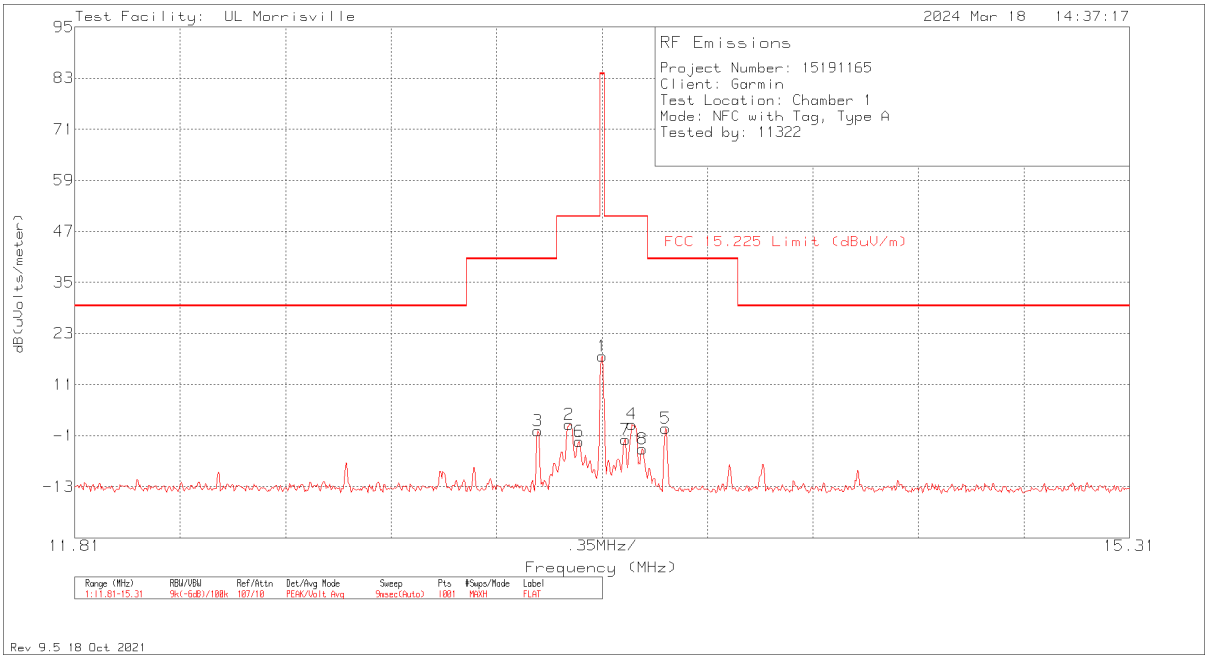
Pk - Peak detector



ANTENNA FACE OFF

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
6	13.2905	17.26	Pk	10.7	.6	-40	-11.44	40.5	-51.94	89	90 degs
2	13.448	20.11	Pk	10.7	.6	-40	-8.59	50.5	-59.09	89	90 degs
1	13.56	34.39	Pk	10.7	.6	-40	5.69	84	-78.31	89	90 degs
3	13.665	18.95	Pk	10.7	.6	-40	-9.75	50.5	-60.25	89	90 degs
4	13.77	18.06	Pk	10.7	.6	-40	-10.64	40.5	-51.14	89	90 degs
5	13.826	17.32	Pk	10.7	.6	-40	-11.38	40.5	-51.88	89	90 degs

Pk - Peak detector

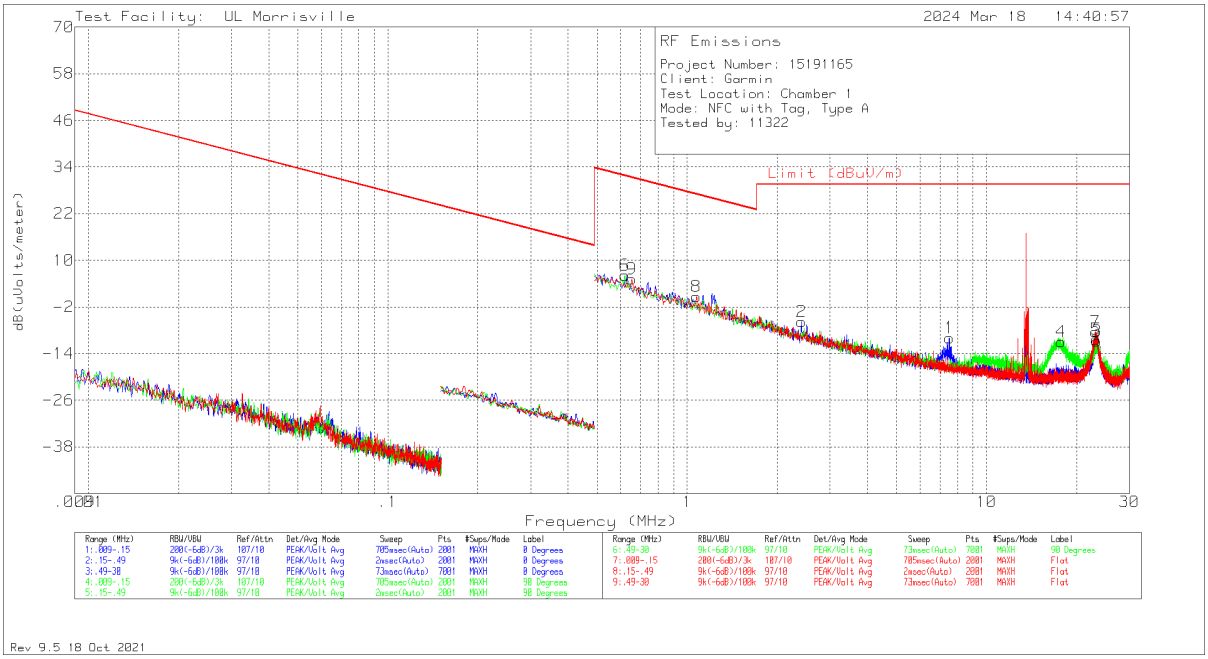


ANTENNA FACE FLAT

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
3	13.3465	28.81	Pk	10.7	.6	-40	.11	40.5	-40.39	355	Flat
2	13.4515	30.36	Pk	10.7	.6	-40	1.66	50.5	-48.84	355	Flat
6	13.483	26.33	Pk	10.7	.6	-40	-2.37	50.5	-52.87	355	Flat
1	13.56	46.39	Pk	10.7	.6	-40	17.69	84	-66.31	355	Flat
7	13.637	26.72	Pk	10.7	.6	-40	-1.98	50.5	-52.48	355	Flat
4	13.658	30.38	Pk	10.7	.6	-40	1.68	50.5	-48.82	355	Flat
8	13.693	24.61	Pk	10.7	.6	-40	-4.09	50.5	-54.59	355	Flat
5	13.77	29.39	Pk	10.7	.6	-40	.69	40.5	-39.81	355	Flat

Pk - Peak detector

SPURIOUS EMISSION – E FIELD

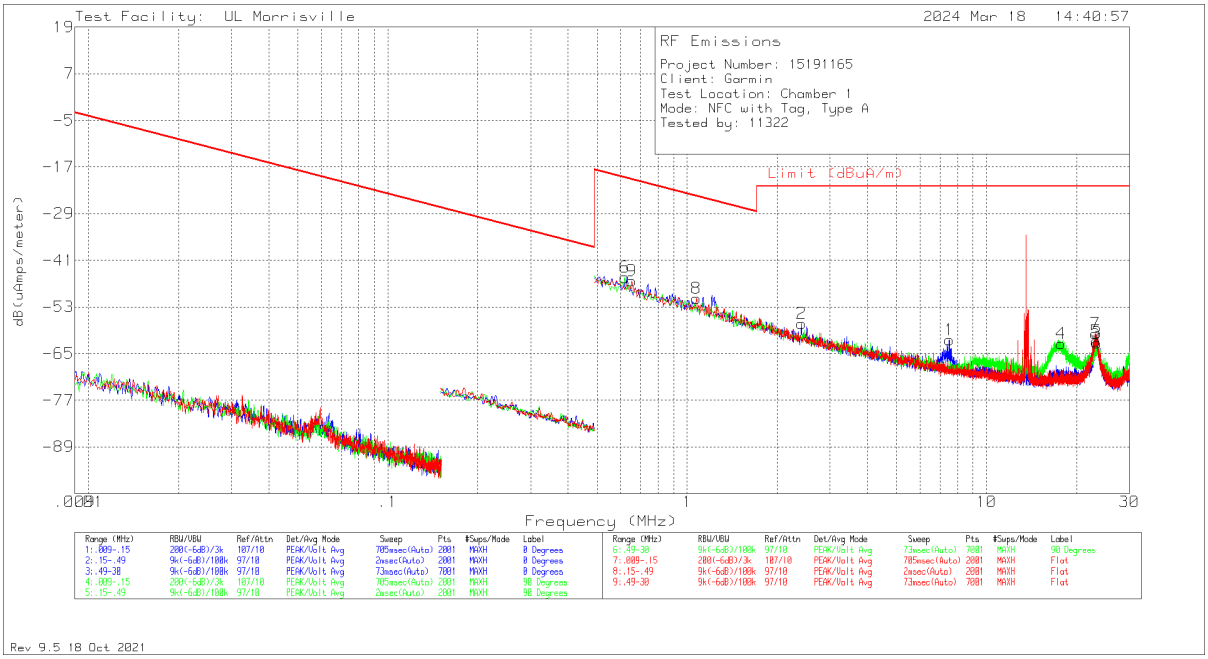


<30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
6	.6207	34.79	Pk	11.2	.1	-40	6.09	31.75	-	-25.66	0-360	90 degs
9	.65442	33.84	Pk	11.2	.1	-40	5.14	31.29	-	-26.15	0-360	Flat
8	1.07181	29.04	Pk	11.4	.2	-40	.64	27	-	-26.36	0-360	Flat
2	2.4125	22.56	Pk	11.4	.3	-40	-5.74	29.54	-	-35.28	0-360	0 degs
1	7.50542	18.59	Pk	11	.5	-40	-9.91	29.54	-	-39.45	0-360	0 degs
4	17.74609	17.84	Pk	10.5	.7	-40	-10.96	29.54	-	-40.5	0-360	90 degs
7	23.11306	21.09	Pk	9.7	.9	-40	-8.31	29.54	-	-37.85	0-360	Flat
5	23.21424	19.08	Pk	9.7	.9	-40	-10.32	29.54	-	-39.86	0-360	90 degs
3	23.34072	18.58	Pk	9.7	.9	-40	-10.82	29.54	-	-40.36	0-360	0 degs

Pk - Peak detector

SPURIOUS EMISSION – H FIELD



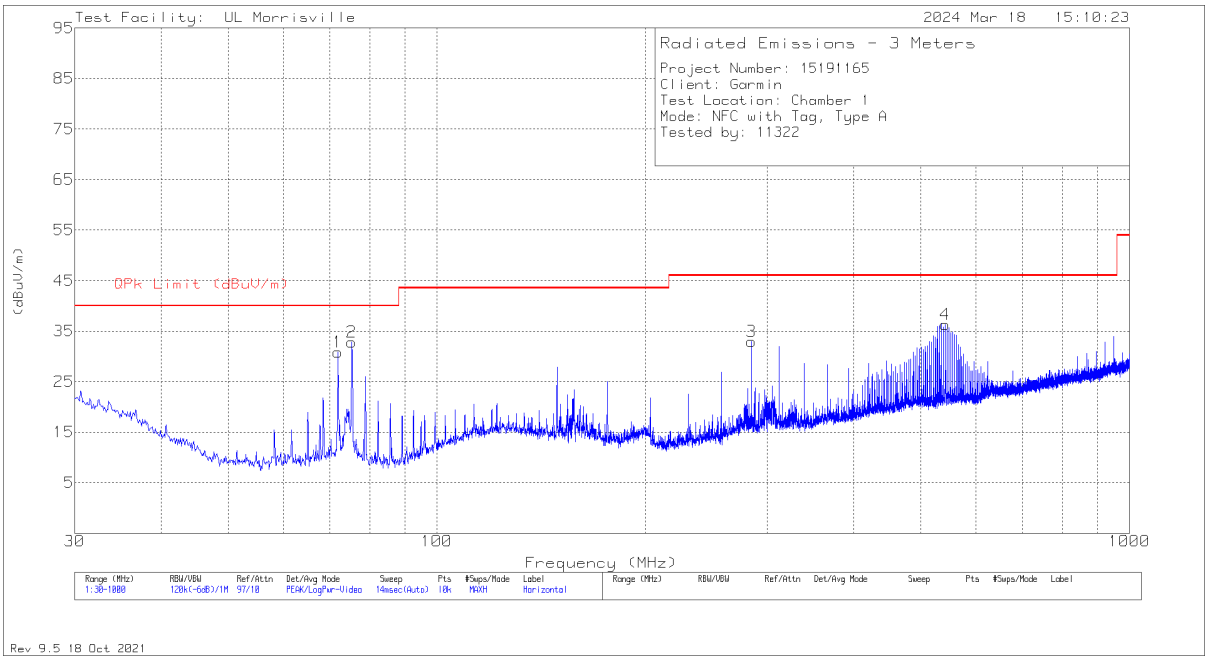
<30MHz SPURIOUS EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	135144 (dBuV/m)	Gain/Loss (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uAmps/meter)	QP/AV Limit (dBuA/m)	PK Limit (dBuA/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
6	.6207	34.79	Pk	-40.3	.1	-40	-45.41	-19.75	-	-25.66	0-360	90 degs
9	.65442	33.84	Pk	-40.3	.1	-40	-46.36	-20.21	-	-26.15	0-360	Flat
8	1.07181	29.04	Pk	-40.1	.2	-40	-50.86	-24.5	-	-26.36	0-360	Flat
2	2.4125	22.56	Pk	-40.1	.3	-40	-57.24	-21.96	-	-35.28	0-360	0 degs
1	7.50542	18.59	Pk	-40.5	.5	-40	-61.41	-21.96	-	-39.45	0-360	0 degs
4	17.74609	17.84	Pk	-41	.7	-40	-62.46	-21.96	-	-40.5	0-360	90 degs
7	23.11306	21.09	Pk	-41.8	.9	-40	-59.81	-21.96	-	-37.85	0-360	Flat
5	23.21424	19.08	Pk	-41.8	.9	-40	-61.82	-21.96	-	-39.86	0-360	90 degs
3	23.34072	18.58	Pk	-41.8	.9	-40	-62.32	-21.96	-	-40.36	0-360	0 degs

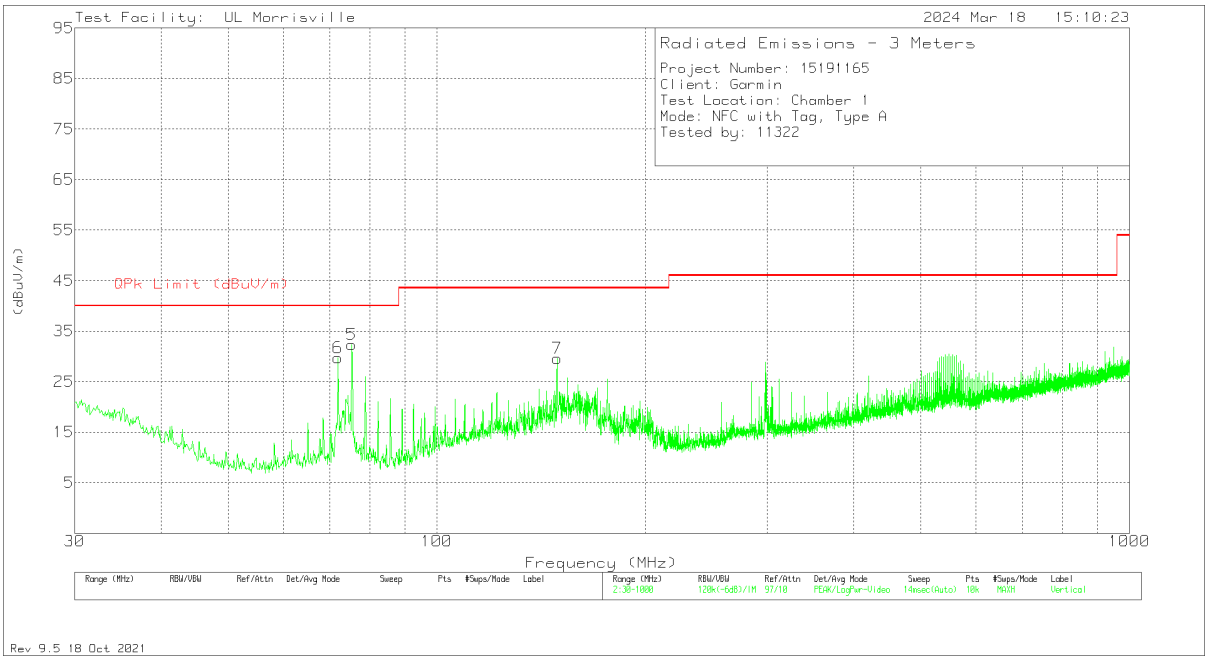
Pk - Peak detector

9.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

9.3.1. TYPE A, WITH TAG



HORIZONTAL



VERTICAL

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	90629 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	72.001	47.47	Pk	14.5	-31.1	30.87	40	-9.13	0-360	199	H
6	72.001	46.38	Pk	14.5	-31.1	29.78	40	-10.22	0-360	100	V
2	75.396	49.67	Pk	14.4	-31.2	32.87	40	-7.13	0-360	199	H
5	75.396	49.11	Pk	14.4	-31.2	32.31	40	-7.69	0-360	100	V
7	149.116	41.44	Pk	18.8	-30.6	29.64	43.52	-13.88	0-360	100	V
3	284.722	42.74	Pk	19.5	-29.3	32.94	46.02	-13.08	0-360	99	H
4	541.772	40.51	Pk	24.3	-28.5	36.31	46.02	-9.71	0-360	99	H

Pk - Peak detector

10. FREQUENCY STABILITY

LIMIT

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

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

TEST PROCEDURE

ANSI C63.10-2020 Clause 6.8

RESULTS

No non-compliance noted.

Nominal Voltage: 3.91Vdc.

10.1. TYPE A, WITH TAG

Reference Frequency: EUT Channel 13.56 MHz @ 20ºC Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measureed with Time Elapse								
(Vdc)	(ºC)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
3.91	50	13.5597339	3.154	13.5597296	3.472	13.5597286	3.545	13.5597283	3.566	± 100
3.91	40	13.5597402	2.691	13.5597364	2.970	13.5597359	3.002	13.5597358	3.013	± 100
3.91	30	13.5597596	1.260	13.5597556	1.555	13.5597560	1.524	13.5597570	1.446	± 100
3.91	***20***	***13.5597766***	***0.000***	***13.5597734***	***0.240***	***13.5597708***	***0.434***	***13.5597681***	***0.630***	***± 100***
3.91	10	13.5598075	-2.273	13.5598053	-2.115	13.5598077	-2.293	13.5598114	-2.562	± 100
3.91	0	13.5598328	-4.142	13.5598313	-4.030	13.5598318	-4.069	13.5598328	-4.144	± 100
3.91	-10	13.5598379	-4.520	13.5598391	-4.606	13.5598386	-4.569	13.5598376	-4.496	± 100
3.91	-20	13.5598236	-3.460	13.5598269	-3.705	13.5598253	-3.588	13.5598227	-3.395	± 100
3.30	20	13.5598095	-2.422	13.5597980	-1.575	13.5597919	-1.127	13.5597870	-0.767	± 100
4.5	20	13.5597944	-1.313	13.5597871	-0.774	13.5597838	-0.526	13.5597802	-0.262	± 100

Tested by: 33499/84740, 84740
Test date: 2024-03-27

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	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.

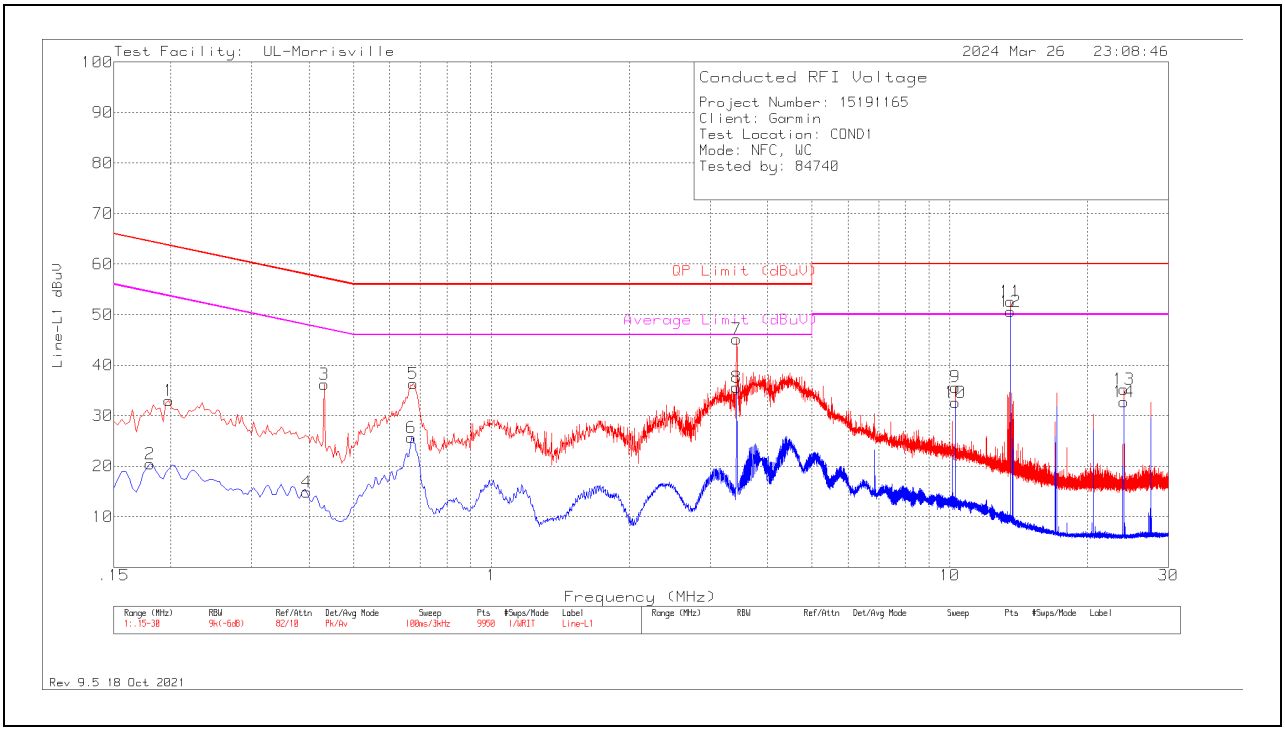
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both lines.

RESULTS

11.1. AC POWER LINE NORM

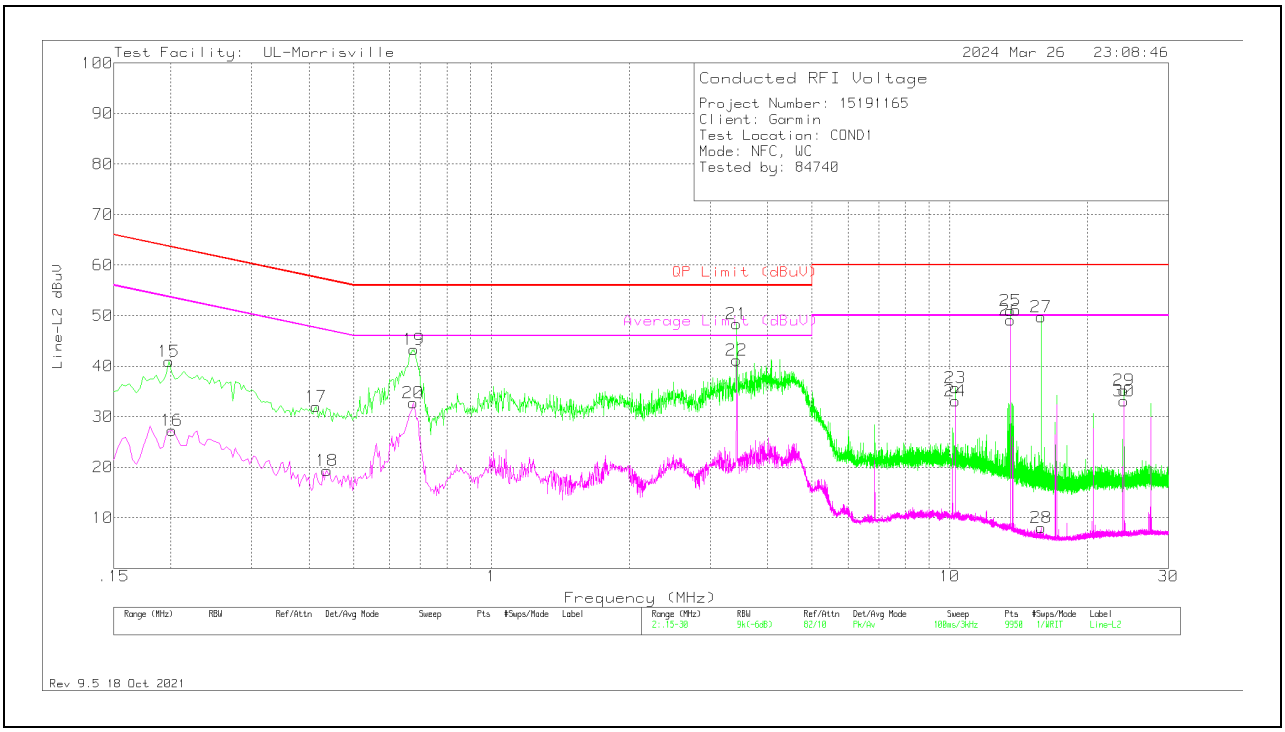
LINE 1 RESULTS



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	.198	22.95	Pk	.2	9.8	32.95	63.69	-30.74	-	-
2	.18	10.3	Av	.3	9.8	20.4	-	-	54.49	-34.09
3	.432	26.33	Pk	.1	9.8	36.23	57.21	-20.98	-	-
4	.396	4.92	Av	.1	9.8	14.82	-	-	47.94	-33.12
5	.675	26.42	Pk	.1	9.8	36.32	56	-19.68	-	-
6	.669	15.79	Av	.1	9.8	25.69	-	-	46	-20.31
7	3.432	35.27	Pk	.1	9.8	45.17	56	-10.83	-	-
8	3.429	25.64	Av	.1	9.8	35.54	-	-	46	-10.46
9	10.287	25.56	Pk	.1	10	35.66	60	-24.34	-	-
10	10.287	22.53	Av	.1	10	32.63	-	-	50	-17.37
11	13.56	42.39	Pk	.2	10	52.59	60	-7.41	-	-
12	13.5602	35.87	Ca	.2	10	46.07	-	-	50	-3.93
13	24	24.67	Pk	.3	10.2	35.17	60	-24.83	-	-
14	24	22.25	Av	.3	10.2	32.75	-	-	50	-17.25

Pk - Peak detector
Av - Average detection
Ca - CISPR 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)
15	.198	30.91	Pk	.2	9.8	40.91	63.69	-22.78	-	-
16	.201	17.31	Av	.2	9.8	27.31	-	-	53.57	-26.26
17	.414	22.08	Pk	.1	9.8	31.98	57.57	-25.59	-	-
18	.438	9.46	Av	.1	9.8	19.36	-	-	47.1	-27.74
19	.678	33.36	Pk	.1	9.8	43.26	56	-12.74	-	-
20	.675	22.85	Av	.1	9.8	32.75	-	-	46	-13.25
21	3.429	38.47	Pk	.1	9.8	48.37	56	-7.63	-	-
22	3.42871	31.28	Ca	.1	9.8	41.18	-	-	46	-4.82
23	10.287	25.61	Pk	.1	10	35.71	60	-24.29	-	-
24	10.287	23.04	Av	.1	10	33.14	-	-	50	-16.86
25	13.56	40.82	Pk	.2	10	51.02	60	-8.98	-	-
26	13.5602	31.64	Ca	.2	10	41.84	-	-	50	-8.16
27	15.84	39.44	Pk	.2	10.1	49.74	60	-10.26	-	-
28	15.84	-2.23	Av	.2	10.1	8.07	-	-	50	-41.93
29	24	24.71	Pk	.3	10.2	35.21	60	-24.79	-	-
30	24	22.63	Av	.3	10.2	33.13	-	-	50	-16.87

Pk - Peak detector
Av - Average detection
Ca - CISPR average detection

12. SETUP PHOTOS

Please refer to R15191165-EP1 for setup photos

END OF TEST REPORT