

TEST REPORT

Report Number. : NBK14653036A.V1

Applicant : HP Inc.
1501 Page Mill Road
Palo Alto, CA 94304, US

Model : CBVS1

FCC ID : AL8-CBVS1

IC : 457A-CBVS1

EUT Description : Wireless Charge Stand

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-210

Date Of Issue:
2023-09-11

Prepared by:
UL LLC
333 Pfingsten Road
Northbrook, IL 60062, US



Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2023-09-11	Original	bm

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: HP Inc.
1501 Page Mill Road
Palo Alto, CA 94304, US

EUT DESCRIPTION: Wireless Charge Stand

MODEL: CBVS1

SERIAL NUMBER: 62

SAMPLE RECEIPT DATE: 2023-05-09

DATE TESTED: 2023-05-09 to 2023-08-29

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Complies
ISED RSS-210 Issue 10, Annex B	Complies
ISED RSS-GEN Issue 5 + A1	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:

Prepared By:



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Consumer Technology Division
UL LLC

Bart Mucha
Test Engineer
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UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 5 + A1, and RSS-210 Issue 10.

3. FACILITIES AND ACCREDITATION

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

	Address	ISED Company Number	FCC Registration
<input checked="" type="checkbox"/>	Building: 333 Pfingsten Road Northbrook, IL 60062	2180A	US1291

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. 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.

4.2. 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.)

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U _{Lab}
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance Loop, 9KHz to 30 MHz	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.66 dB
Worst Case Frequency Error with Spectrum Analyzer	141.16 Hz
Worst Case Occupied Bandwidth	0.09dB / 2.00%

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

4.4. 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:

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT (Equipment Under Test) is an Wireless Charging Base used for charging wireless headset.

5.2. MAXIMUM RADIATED FIELD STRENGTH

The transmitter has a maximum peak field strength of:

With Load: 14.13dBuV/m @ 30m, receive antenna Hz (parallel to ground)

Without Load: 13.35dBuV/m @ 30m, receive antenna Hz (parallel to ground)

5.3. SOFTWARE AND FIRMWARE

FW version of the charge stand: V213.91.0.3089

5.4. WORST-CASE CONFIGURATION AND MODE

The EUT can be used only in single orientation table top position and it was tested as such.

The wireless charging base was tested with load (proper headphones) and without load – headphones removed.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are 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

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer / Brand	Model	Notes
Wireless Headset	Poly	Voyager Surround 85 UC	SIM Equipment
Power Supply	Baseus	65W Supply	Representative supply

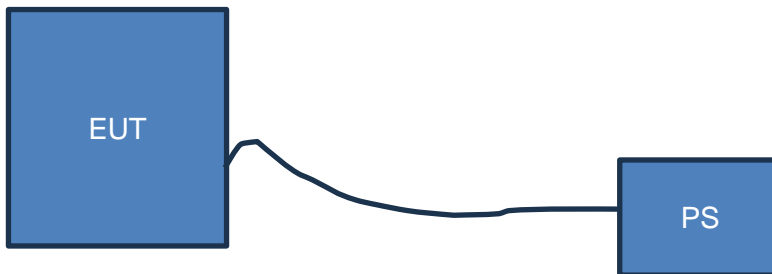
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Notes
1	Input Power	1	USB-C	-	1.5	Cable is permanently attached to charging base with USB-C connector on the other side.

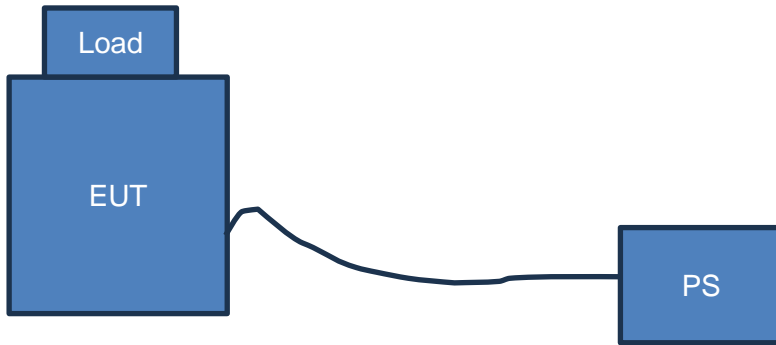
TEST SETUP

The EUT is an stand alone device. It was setup on 80cm support and was tested with and without load.

SETUP DIAGRAM without load



SETUP DIAGRAM with load



6. TEST AND MEASUREMENT EQUIPMENT

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

UL SOFTWARE			
*Radiated Software	UL	UL EMC	Ver 9.5, 12 APR 2023
*AC Line Conducted Software	UL	UL EMC	Ver 9.5, 12 APR 2023

Note: * indicates automation software version used in the compliance certification testing

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Receiver	Rohde & Schwarz	ESCI	54598	2022-12-08	2023-12-31
Active Loop Antenna	EMCO	6502/1	19723	2022-12-12	2023-12-31
Hybrid Antenna	SunAR RF Motion	JB1-UN	202902	2023-02-03	2024-02-29
Passive Loop Antenna	EMCO	EM-6872	232146	2022-09-29	2023-09-30

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	Rohde & Schwarz	ESR	86711	2022-12-18	2023-12-31
Transient Limiter	Electro-Metrics	EM7600-2	19866	N/A	N/A
High-Pass Filter	Solar Electronics	2803-150	53775	N/A	N/A
Attenuator	HP	8494B	226534	N/A	N/A
LISN - L1	Solar Electronics	8602-50-TS-50-N	19808	2022-12-06	2023-12-31
LISN - L2	Solar Electronics	8602-50-TS-50-N	19806	2022-12-06	2023-12-31

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Barometric Pressure/ Humidity/ Temperature Datalogger	Extech Instruments	SD700	80227	2023-01-25	2024-01-31
Barometric Pressure/ Humidity/ Temperature Datalogger	Extech Instruments	SD700	80491	2022-12-15	2023-12-31

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Environmental Chamber	Espec	BTX-475	87492	2023-02-24	2024-02-29
Signal Analyzer	Aglient	N9030A PXA	77811	2022-12-07	2023-12-31

7. OCCUPIED BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 10kHz. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

Tested By: BM06740 on 20230629

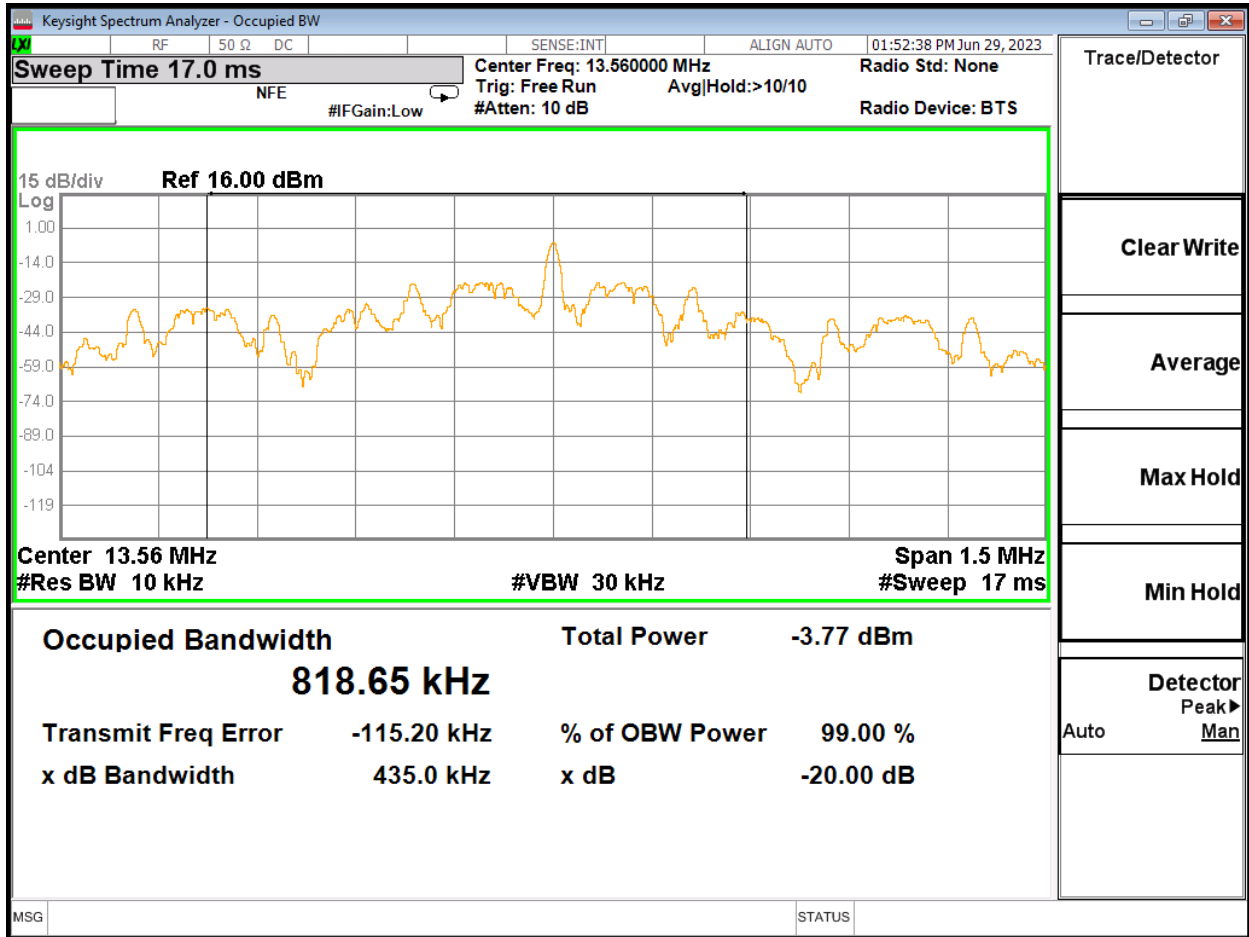
RESULTS

99% and 20dB BW

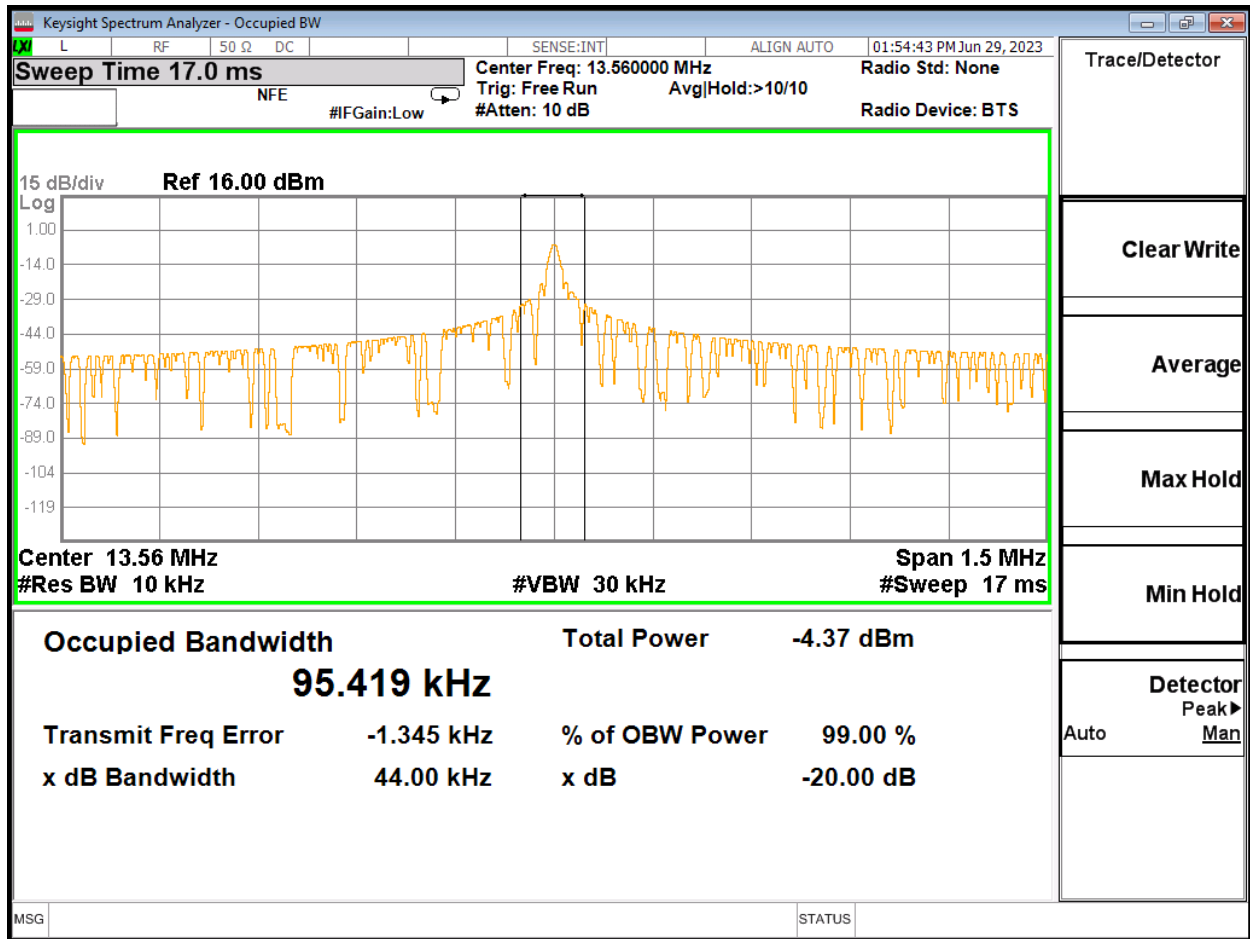
Type A (Reader Mode)

Mode	Frequency (MHz)	99% Bandwidth (KHz)	20dB Bandwidth (KHz)
w/ load	13.56	818.65kHz	435kHz
w/o load	13.56	95.419kHz	44kHz

7.1. Bandwidth with load



7.2. Bandwidth without load



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

§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)

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

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, 2013

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 0.009MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater.

RESULTS

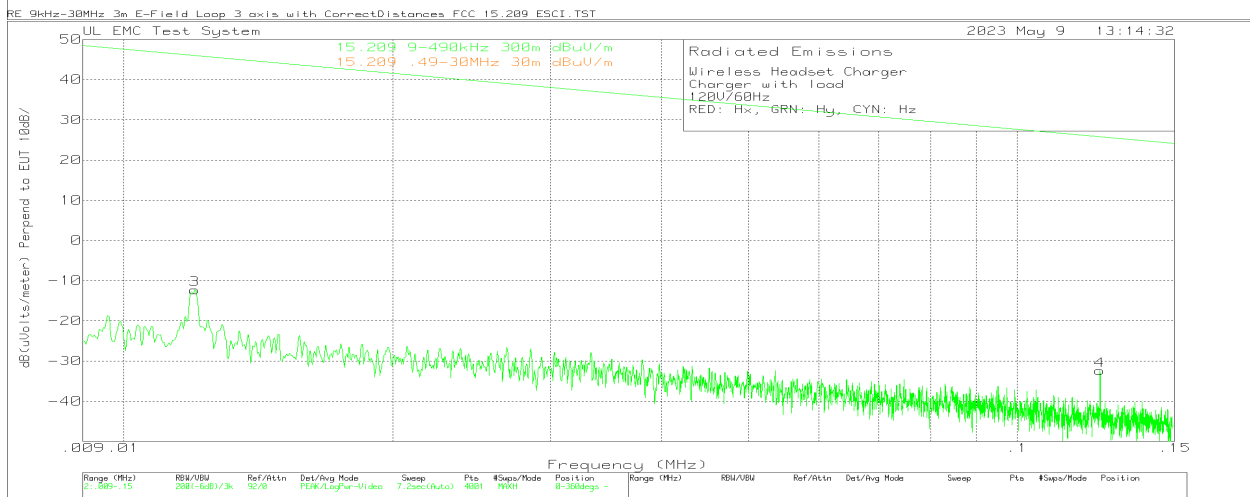
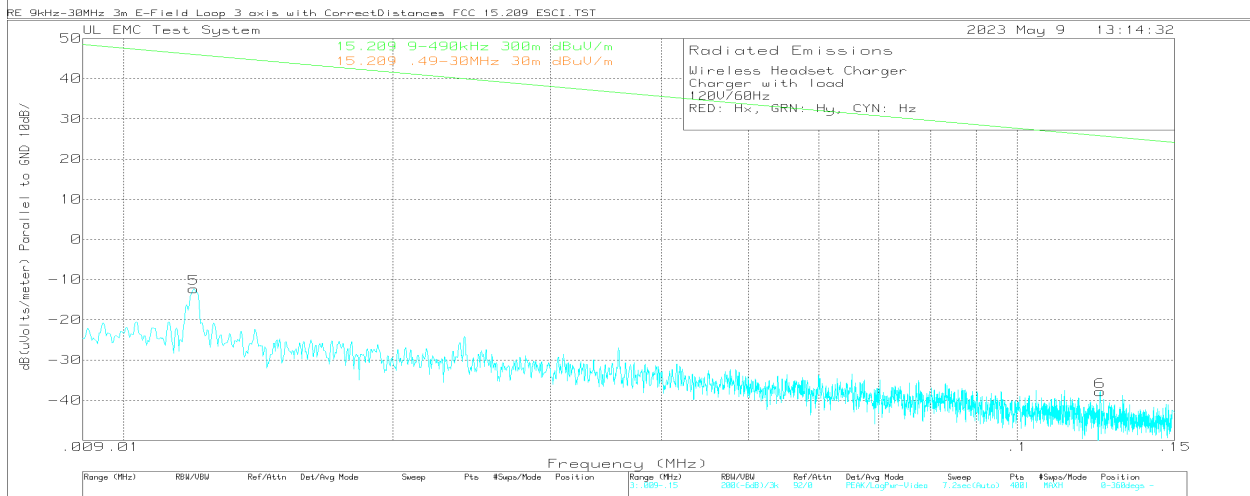
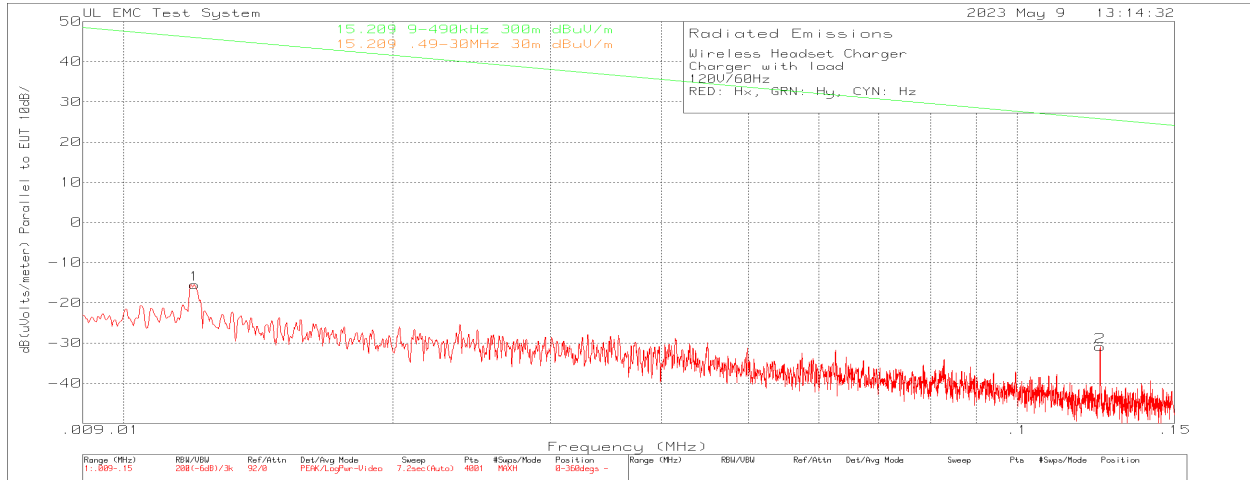
8.2. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.009 - 30 MHz), EUT WITH AC/DC ADAPTER

8.2.1. Fundamental Closeup with load



Wireless Headset Charger										
Charger with load										
120V/60Hz										
RED: Hx, GRN: Hy, CYN: Hz										
Trace MArkers										
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Loop E-Field Factor dB/m	Path Factor dB	Distance Correction Factor dB	Level dBuV/m	Limit 15.225 490kHz-30MHz 30m dBuV/m	Margin (dB)	Azimuth [Degs]
Hx										
1	13.5605	16.41	Pk	34.1	0.4	-40	10.91	84	-73.09	0-360
Hy										
2	13.5605	15.06	Pk	34.1	0.4	-40	9.56	84	-74.44	0-360
Hz										
3	13.5605	19.63	Pk	34.1	0.4	-40	14.13	84	-69.87	0-360
Pk - Peak detector										

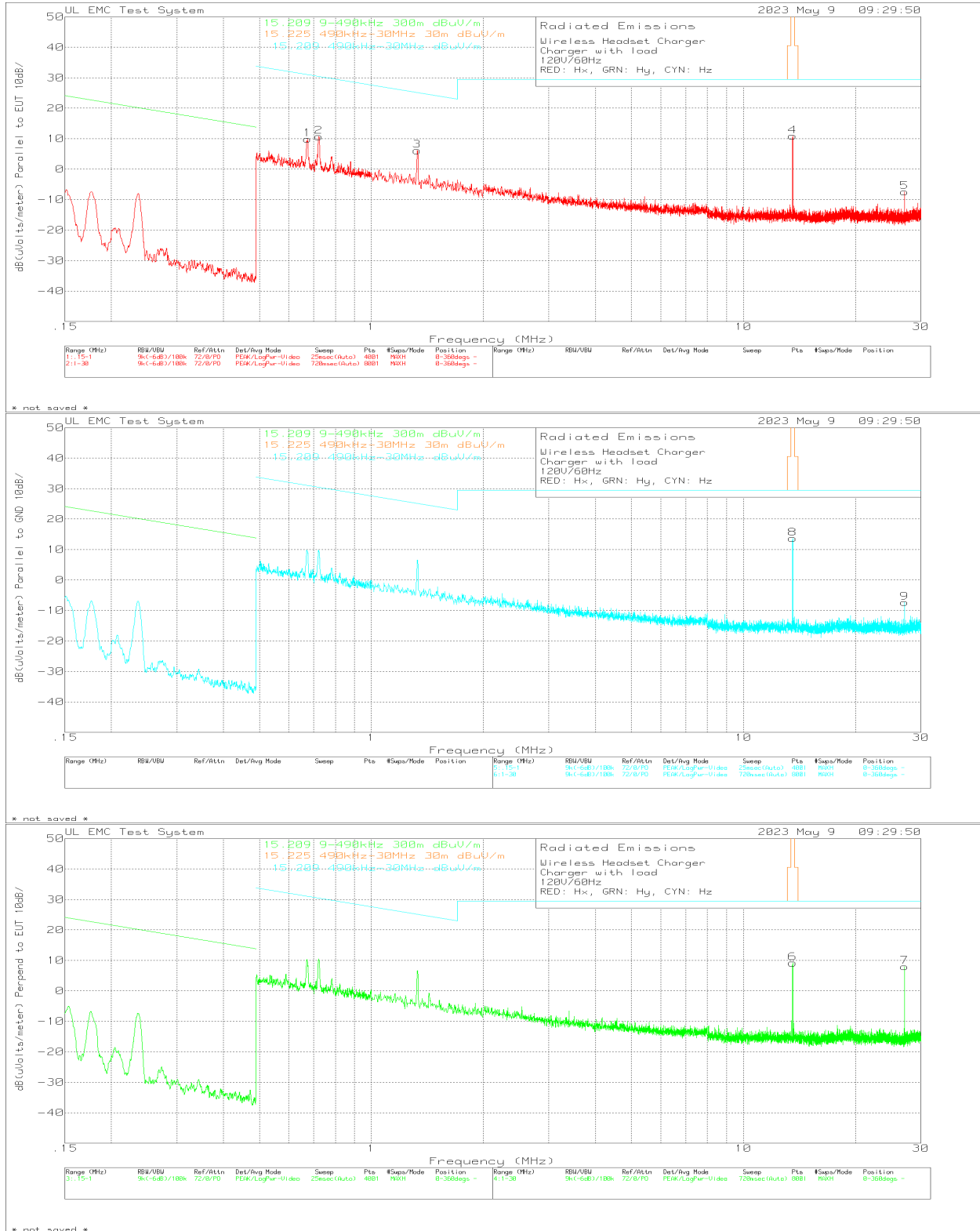
8.2.2. 9kHz – 150kHz with load



RE 9kHz-30MHz 3m E-Field Loop 3 axis with CorrectDistances FCC 15.209 ESCI.TST

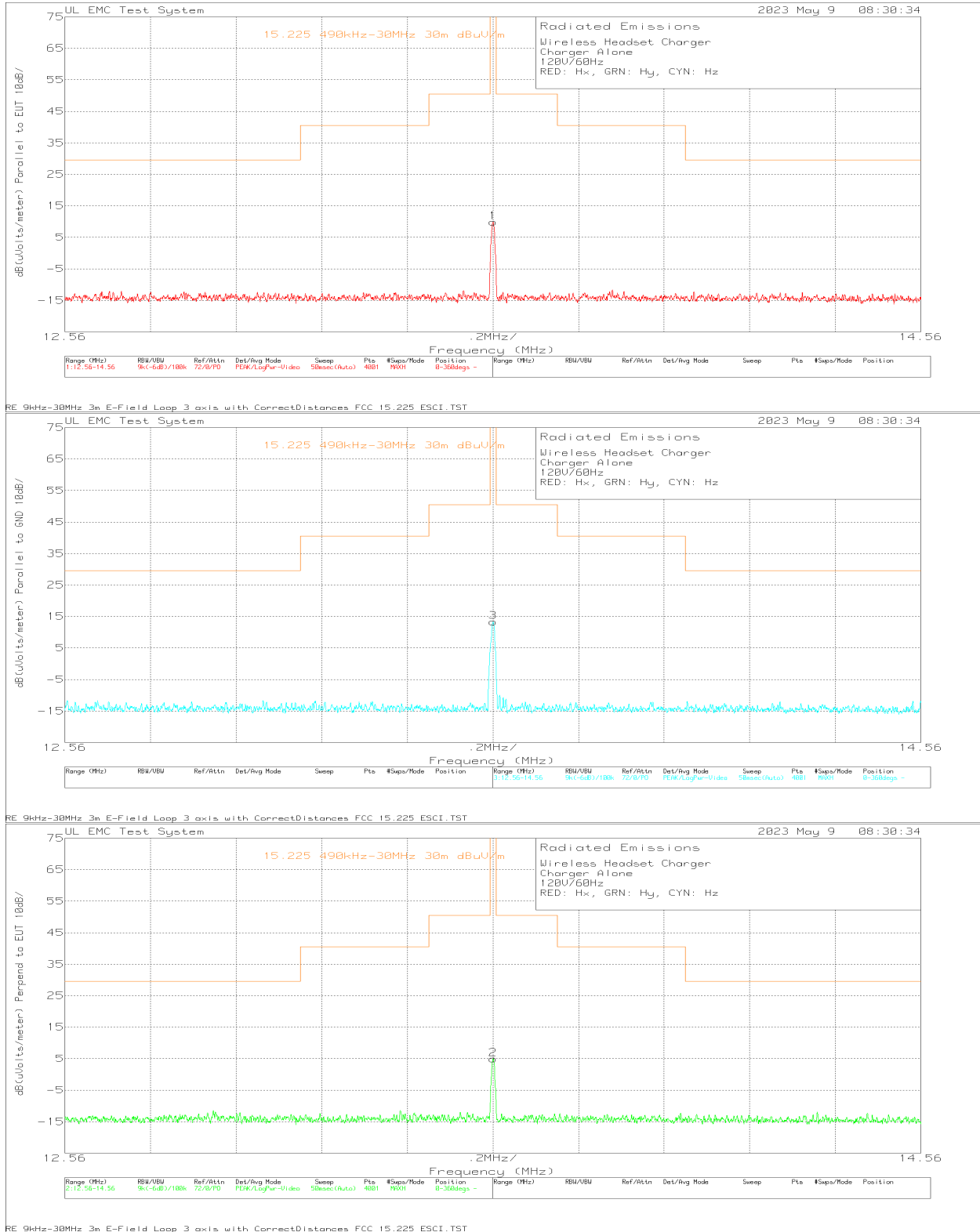
Wireless Headset Charger										
Charger with load										
120V/60Hz										
RED: Hx, GRN: Hy, CYN: Hz										
Trace MArkers										
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Loop E-Field Factor dB/m	Path Factor dB	Distance Correction Factor dB	Level dBuV/m	Limit 15.209 9-490kHz 300m dBuV/m	Margin (dB)	Azimuth [Degs]
Hx										
1	0.01201	40.53	Pk	24	0	-80	-15.47	46	-61.47	0-360
2	0.1238	36.69	Pk	12.4	0	-80	-30.91	25.75	-56.66	0-360
Hy										
3	0.01201	43.73	Pk	24	0	-80	-12.27	46	-58.27	0-360
4	0.12373	35.19	Pk	12.4	0	-80	-32.41	25.75	-58.16	0-360
Hz										
5	0.011975	43.73	Pk	24	0	-80	-12.27	46.03	-58.3	0-360
6	0.1238	29.73	Pk	12.4	0	-80	-37.87	25.75	-63.62	0-360
Pk - Peak detector										

8.2.3. 150kHz – 30MHz with load



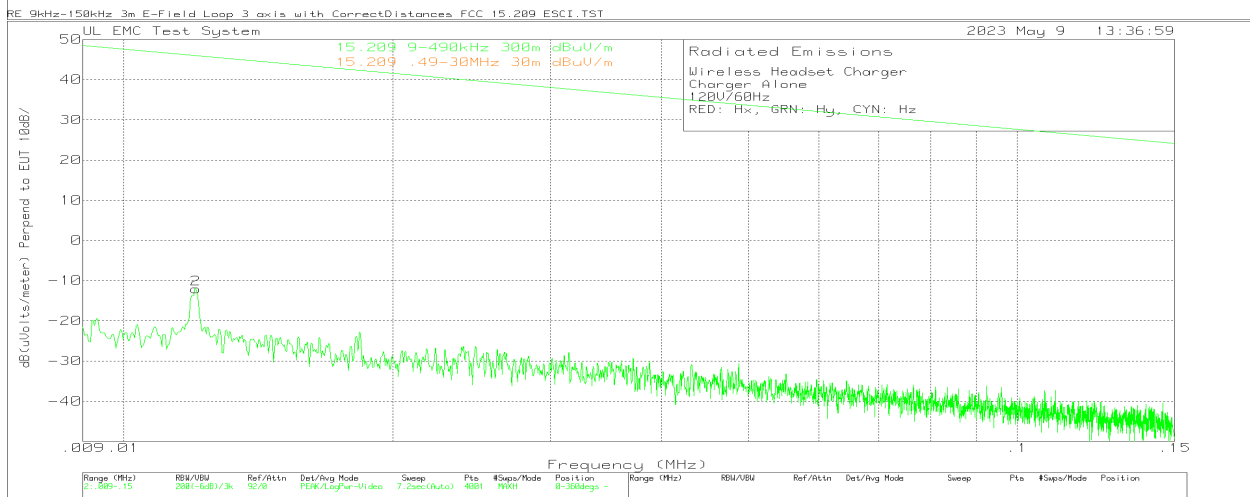
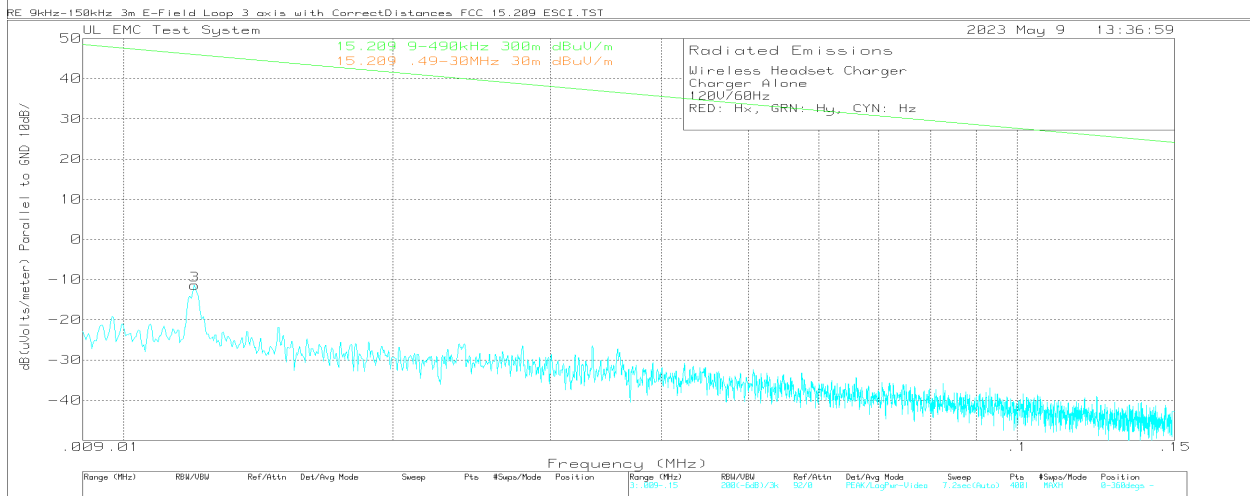
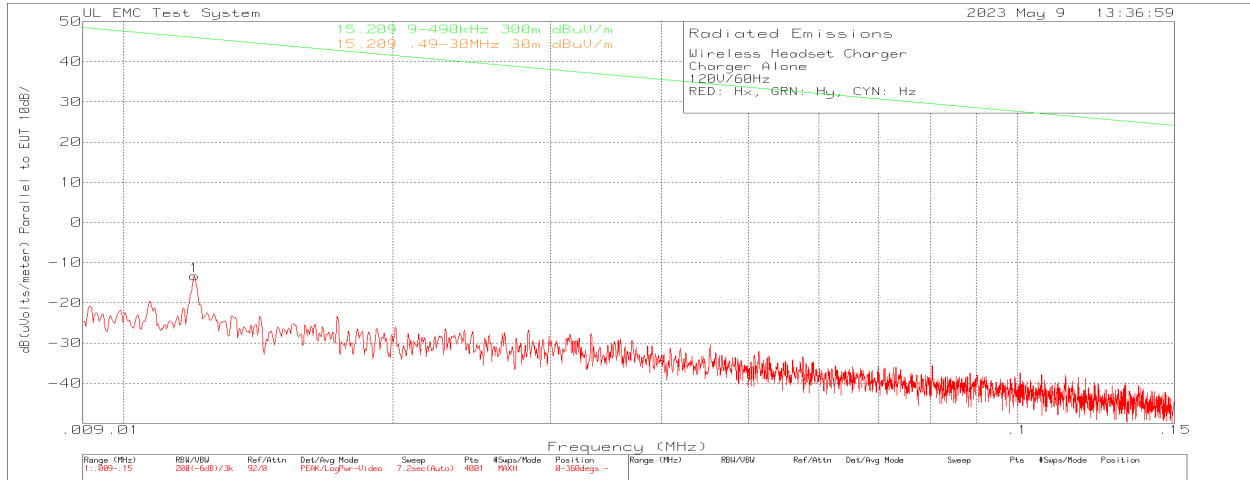
Wireless Headset Charger												
Charger with load												
120V/60Hz												
RED: Hx, GRN: Hy, CYN: Hz												
Trace MArkers												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Loop E-Field Factor dB/m	Path Factor dB	Distance Correction Factor dB	Level dBuV/m	Limit 15.225 490kHz-30MHz 30m dBuV/m	Margin (dB)	Limit 15.209 490kHz-30MHz dBuV/m	Margin (dB)	Azimuth [Degs]
Hx												
1	0.67355	0	Pk	49.8	0.1	-40	9.9	31.03	-21.13	31.03	-21.13	0-360
2	0.72233	1.41	Pk	49.2	0.1	-40	10.71	30.43	-19.72	30.43	-19.72	0-360
3	1.32625	0.92	Pk	45.1	0.1	-40	6.12	25.14	-19.02	25.14	-19.02	0-360
4	13.56063	16.36	Pk	34.1	0.4	-40	10.86	84	-73.14	29.54	-18.68	0-360
5	27.12175	-1.45	Pk	33.4	0.6	-40	-7.45	29.54	-36.99	29.54	-36.99	0-360
Hy												
6	13.56063	14.69	Pk	34.1	0.4	-40	9.19	84	-74.81	29.54	-20.35	0-360
7	27.12175	13.97	Pk	33.4	0.6	-40	7.97	29.54	-21.57	29.54	-21.57	0-360
Hz												
8	13.56063	19.17	Pk	34.1	0.4	-40	13.67	84	-70.33	29.54	-15.87	0-360
9	27.12175	-1.35	Pk	33.4	0.6	-40	-7.35	29.54	-36.89	29.54	-36.89	0-360
Pk - Peak detector												

8.2.4. Fundamental closeup without load



Wireless Headset Charger										
Charger Alone										
120V/60Hz										
RED: Hx, GRN: Hy, CYN: Hz										
Trace MArkers										
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Loop E-Field Factor dB/m	Path Factor dB	Distance Correction Factor dB	Level dBuV/m	Limit 15.225 490kHz-30MHz 30m dBuV/m	Margin (dB)	Azimuth [Degs]
Hx										
1	13.56	15.37	Pk	34.1	0.4	-40	9.87	84	-74.13	0-360
Hy										
2	13.5605	10.43	Pk	34.1	0.4	-40	4.93	84	-79.07	0-360
Hz										
3	13.56	18.85	Pk	34.1	0.4	-40	13.35	84	-70.65	0-360
Pk - Peak detector										

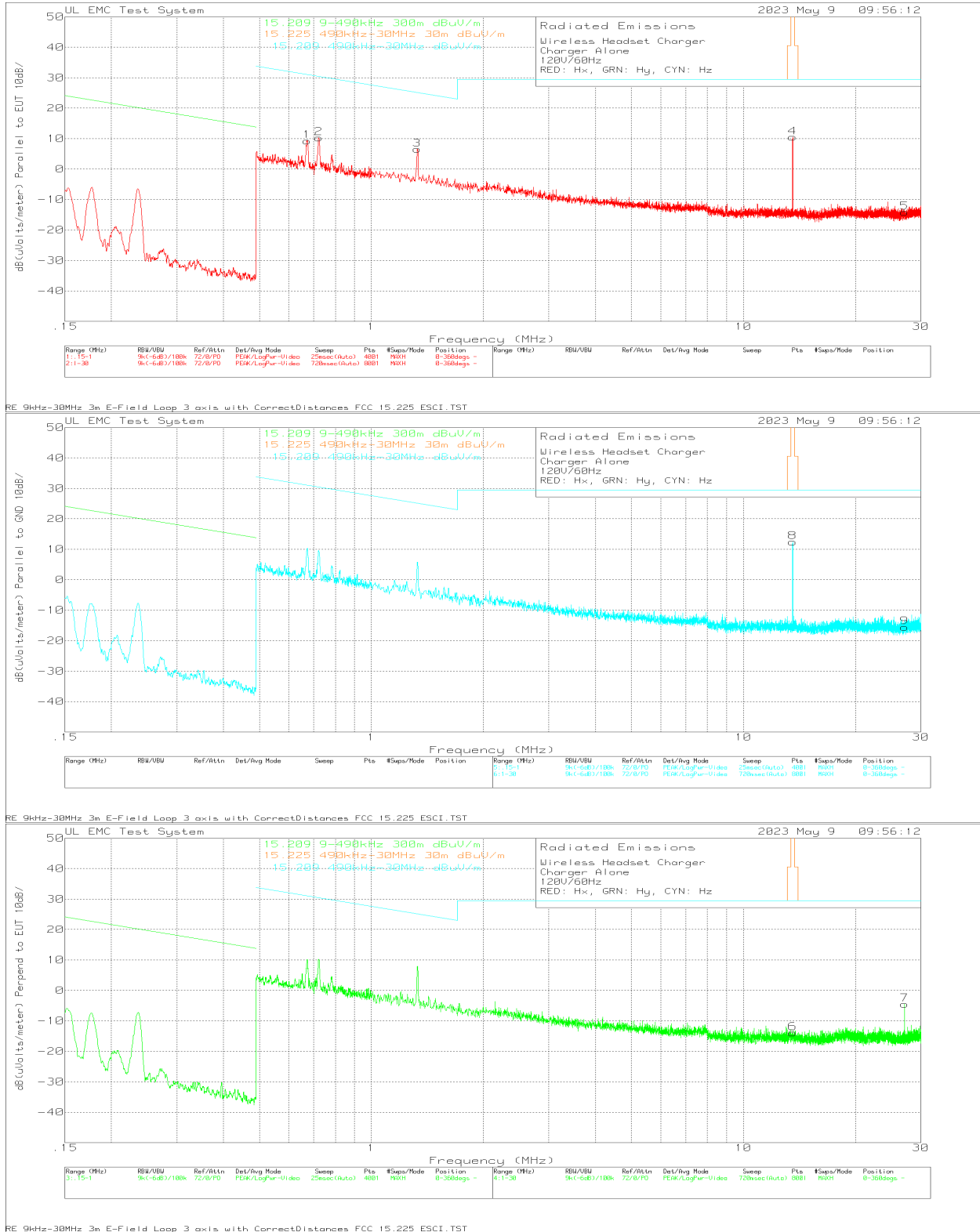
8.2.5. 9kHz – 150kHz without load



RE 9kHz-150kHz 3m E-Field Loop 3 axis with CorrectDistances FCC 15.209 ESCI.TST

Wireless Headset Charger										
Charger Alone										
120V/60Hz										
RED: Hx, GRN: Hy, CYN: Hz										
Trace MArkers										
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Loop E-Field Factor dB/m	Path Factor dB	Distance Correction Factor dB	Level dBuV/m	Limit 15.209 9-490kHz 300m dBuV/m	Margin (dB)	Azimuth [Degs]
Hx										
1	0.01201	42.68	Pk	24	0	-80	-13.32	46	-59.32	0-360
Hy										
2	0.012045	43.9	Pk	24	0	-80	-12.1	45.98	-58.08	0-360
Hz										
3	0.01201	44.6	Pk	24	0	-80	-11.4	46	-57.4	0-360
Pk - Peak detector										

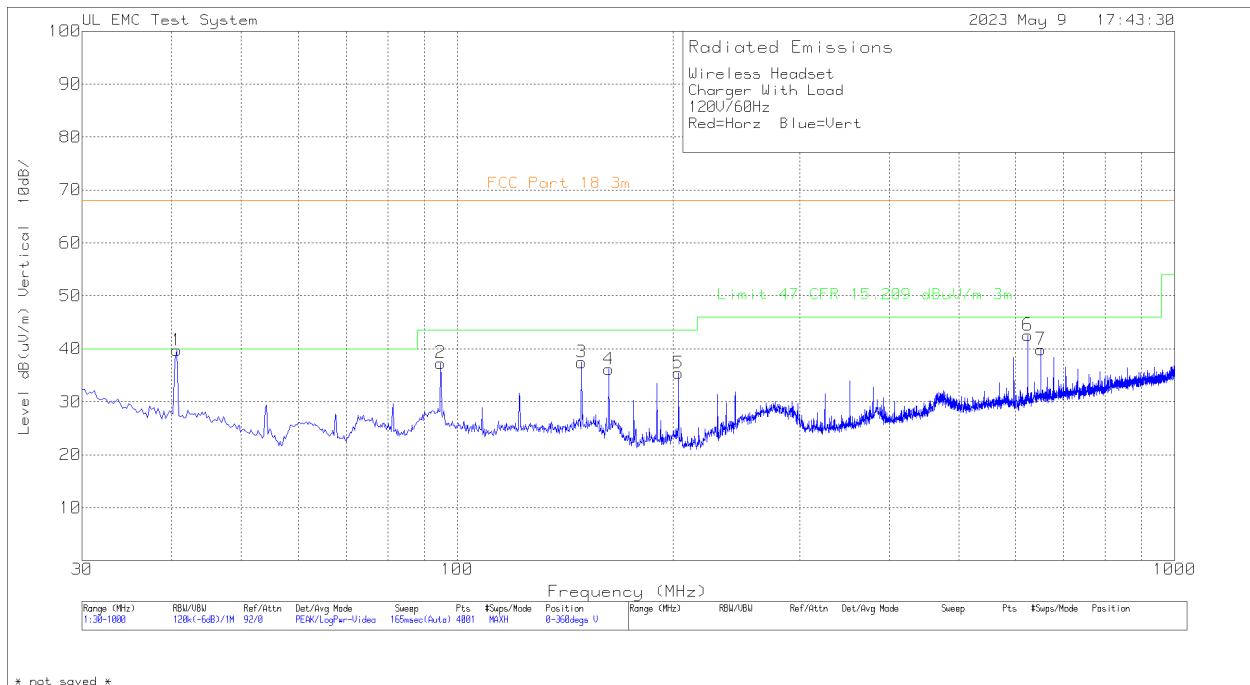
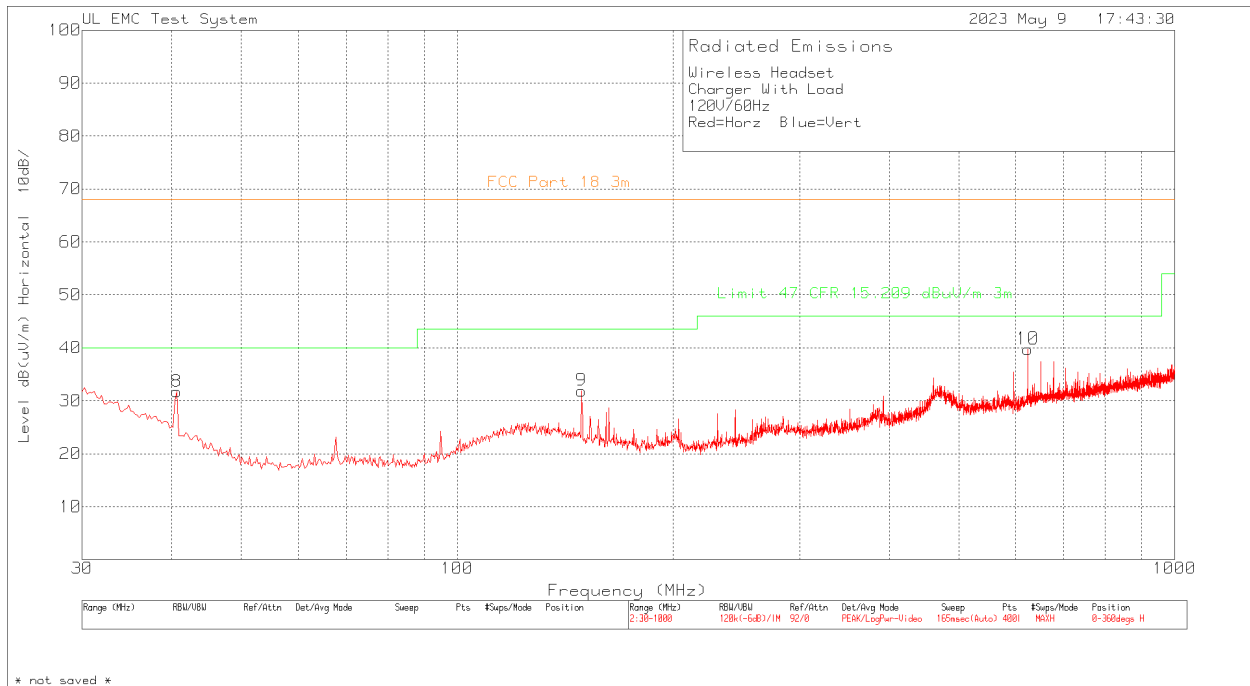
8.2.6. 150kHz – 30MHz without load



Wireless Headset Charger												
Charger Alone												
120V/60Hz												
RED: Hx, GRN: Hy, CYN: Hz												
Trace MArkers												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Loop E-Field Factor dB/m	Path Factor dB	Distance Correction Factor dB	Level dBuV/m	Limit 15.225 490kHz-30MHz 30m dBuV/m	Margin (dB)	Limit 15.209 490kHz-30MHz dBuV/m	Margin (dB)	Azimuth [Degs]
Hx												
1	0.67121	-0.62	Pk	49.8	0.1	-40	9.28	31.06	-21.78	31.06	-21.78	0-360
2	0.72105	0.98	Pk	49.2	0.1	-40	10.28	30.44	-20.16	30.44	-20.16	0-360
3	1.32625	1.35	Pk	45.1	0.1	-40	6.55	25.14	-18.59	25.14	-18.59	0-360
4	13.56063	16	Pk	34.1	0.4	-40	10.5	84	-73.5	29.54	-19.04	0-360
5	27.12538	-8.17	Pk	33.4	0.6	-40	-14.17	29.54	-43.71	29.54	-43.71	0-360
Hy												
6	13.56063	-8.41	Pk	34.1	0.4	-40	-13.91	84	-97.91	29.54	-43.45	0-360
7	27.12175	1.5	Pk	33.4	0.6	-40	-4.5	29.54	-34.04	29.54	-34.04	0-360
Hz												
8	13.56063	17.96	Pk	34.1	0.4	-40	12.46	84	-71.54	29.54	-17.08	0-360
9	27.12538	-9.55	Pk	33.4	0.6	-40	-15.55	29.54	-45.09	29.54	-45.09	0-360
Pk - Peak detector												

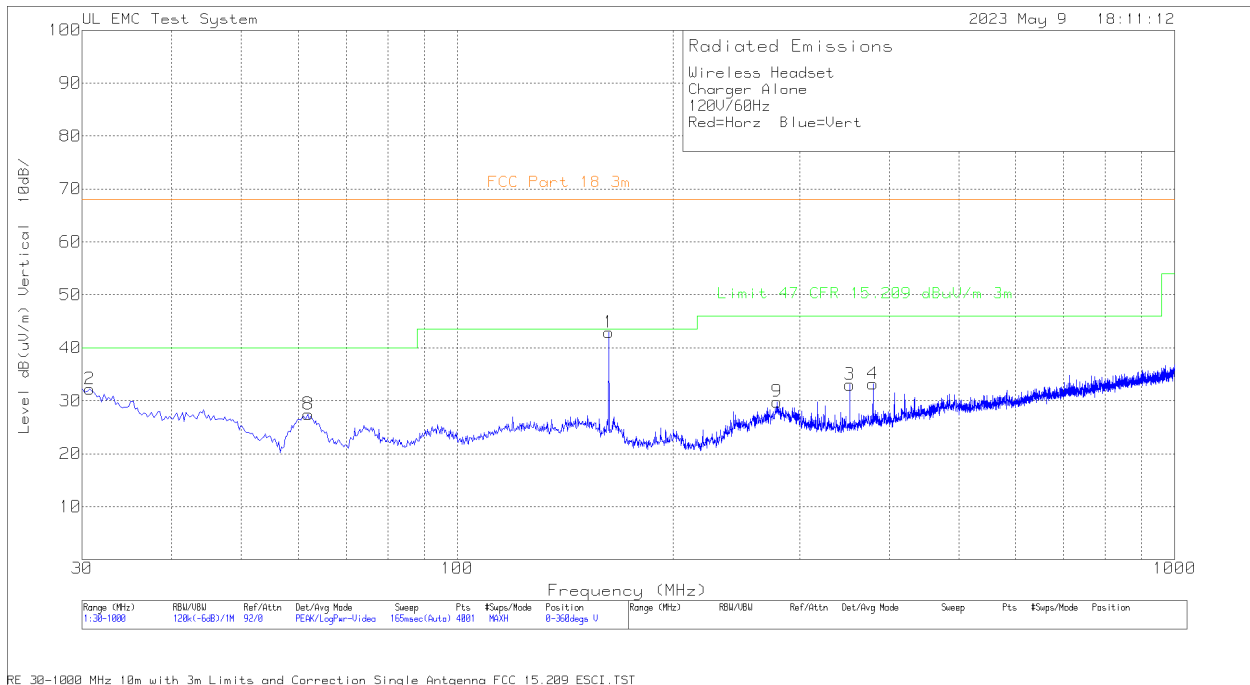
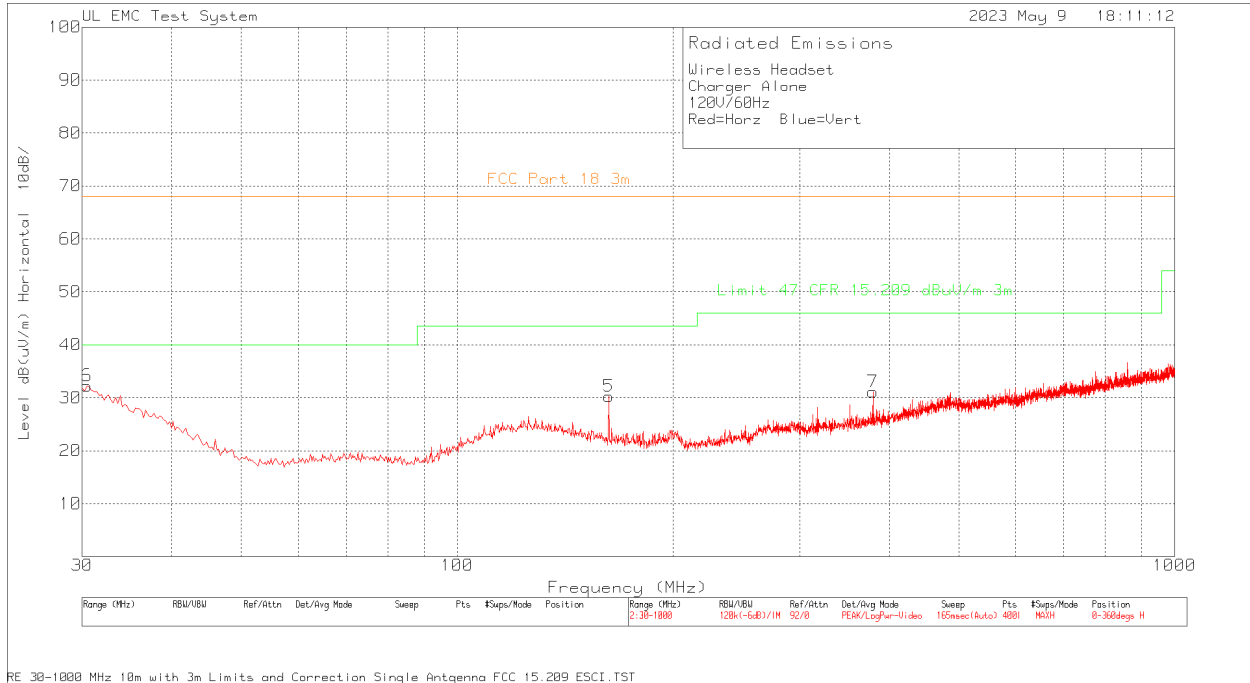
8.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

8.3.1. 30MHz-1GHz with load



Wireless Headset												
Charger With Load												
120V/60Hz												
Red=Horz Blue=Vert												
Trace MArkers												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	Distance Factor 10m to 3m dB	Level dBuV/m	Limit 47 CFR 15.209 @3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	40.67	52.29	Pk	19.5	-42.6	10.5	39.69	40	-0.31	0-360	97	V
2	94.7475	54.33	Pk	14.6	-42.1	10.5	37.33	43.52	-6.19	0-360	197	V
3	149.0675	49.96	Pk	18.6	-41.6	10.5	37.46	43.52	-6.06	0-360	97	V
4	162.6475	49.12	Pk	17.9	-41.4	10.5	36.12	43.52	-7.4	0-360	97	V
5	203.3875	48.2	Pk	18	-41.3	10.5	35.4	43.52	-8.12	0-360	97	V
6	623.8825	46.79	Pk	25.2	-39.9	10.5	42.59	46.02	-3.43	0-360	297	V
7	651.0425	43.3	Pk	25.8	-39.7	10.5	39.9	46.02	-6.12	0-360	197	V
8	40.67	44.34	Pk	19.5	-42.6	10.5	31.74	40	-8.26	0-360	399	H
9	149.0675	44.42	Pk	18.6	-41.6	10.5	31.92	43.52	-11.6	0-360	399	H
10	623.8825	43.98	Pk	25.2	-39.9	10.5	39.78	46.02	-6.24	0-360	99	H
Radiated Emission Data												
Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	Distance Factor 10m to 3m dB	Level dBuV/m	Limit 47 CFR 15.209 @3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity	
40.68	50.43	Qp	19.5	-42.6	10.5	37.83	40	-2.17	292	100	V	
623.76	47.25	Qp	25.2	-39.9	10.5	43.05	46.02	-2.97	7	256	V	
Pk - Peak detector												
Qp - Quasi-Peak detector												

8.3.2. 30MHz-1GHz without load



Wireless Headset												
Charger Alone												
120V/60Hz												
Red=Horz Blue=Vert												
Trace MArkers												
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	Distance Factor 10m to 3m dB	Level dBuV/m	Limit 47 CFR 15.209 @3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	162.6475	55.91	Pk	17.9	-41.4	10.5	42.91	43.52	-0.61	0-360	99	V
2	30.7275	37.53	Pk	26.9	-42.7	10.5	32.23	40	-7.77	0-360	400	V
3	352.525	43.64	Pk	20.4	-41.5	10.5	33.04	46.02	-12.98	0-360	99	V
4	379.685	43.08	Pk	21.1	-41.5	10.5	33.18	46.02	-12.84	0-360	99	V
8	62.01	45.97	Pk	13.5	-42.5	10.5	27.47	40	-12.53	0-360	299	V
9	279.0475	41.43	Pk	19.4	-41.5	10.5	29.83	46.02	-16.19	0-360	99	V
5	162.6475	43.27	Pk	17.9	-41.4	10.5	30.27	43.52	-13.25	0-360	400	H
6	30.485	37.26	Pk	27.1	-42.6	10.5	32.26	40	-7.74	0-360	400	H
7	379.685	41.03	Pk	21.1	-41.5	10.5	31.13	46.02	-14.89	0-360	297	H
Radiated Emission Data												
Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	Distance Factor 10m to 3m dB	Level dBuV/m	Limit 47 CFR 15.209 @3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity	
162.72	53.6	Qp	17.9	-41.4	10.5	40.6	43.52	-2.92	67.96	100	V	
Pk - Peak detector												
Qp - Quasi-Peak detector												

9. 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 $\pm 0.01\%$ (± 100 ppm).

TEST PROCEDURE

ANSI C63.10-2013 Clause 6.8

RESULTS

No non-compliance noted.

9.1. Frequency Stability Results

9.1.1. Tabular Data

Reference Frequency: EUT Channel 13.56 MHz @ 20°C Limit: ± 100 ppm = 1.356 kHz										
Power Supply	Envir. Temp	Frequency Deviation Measured with Time Elapse								
(Vac)	(°C)	Startup (MHz)	Delta (ppm)	@ 2 mins (MHz)	Delta (ppm)	@ 5 mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
120.00	50	13.5599940	6.268	13.5599840	7.006	13.5599810	7.227	13.5599810	7.227	± 100
120.00	40	13.5600190	4.425	13.5600040	5.531	13.5599970	6.047	13.5599930	6.342	± 100
120.00	30	13.5600520	1.991	13.5600350	3.245	13.5600260	3.909	13.5600220	4.204	± 100
120.00	20	13.5600790	0.000	13.5600660	0.959	13.5600580	1.549	13.5600530	1.917	± 100
120.00	10	13.5601010	-1.622	13.5600910	-0.885	13.5600860	-0.516	13.5600830	-0.295	± 100
120.00	0	13.5601080	-2.139	13.5601080	-2.139	13.5601040	-1.844	13.5601020	-1.696	± 100
120.00	-10	13.5600890	-0.737	13.5601020	-1.696	13.5601060	-1.991	13.5601070	-2.065	± 100
120.00	-20	13.5600400	2.876	13.5600710	0.590	13.5600820	-0.221	13.5600880	-0.664	± 100
102.00	20	13.5600800	-0.074	13.5600660	0.959	13.5600580	1.549	13.5600540	1.844	± 100
138	20	13.5600790	0.000	13.5600660	0.959	13.5600570	1.622	13.5600540	1.844	± 100

Frequency Stability Vnom Tnom



Frequency Stability Vnom T -20°C



Frequency Stability Vnom T -10°C



Frequency Stability Vnom T 0°C



Frequency Stability Vnom T 10°C



Frequency Stability Vnom T 30°C



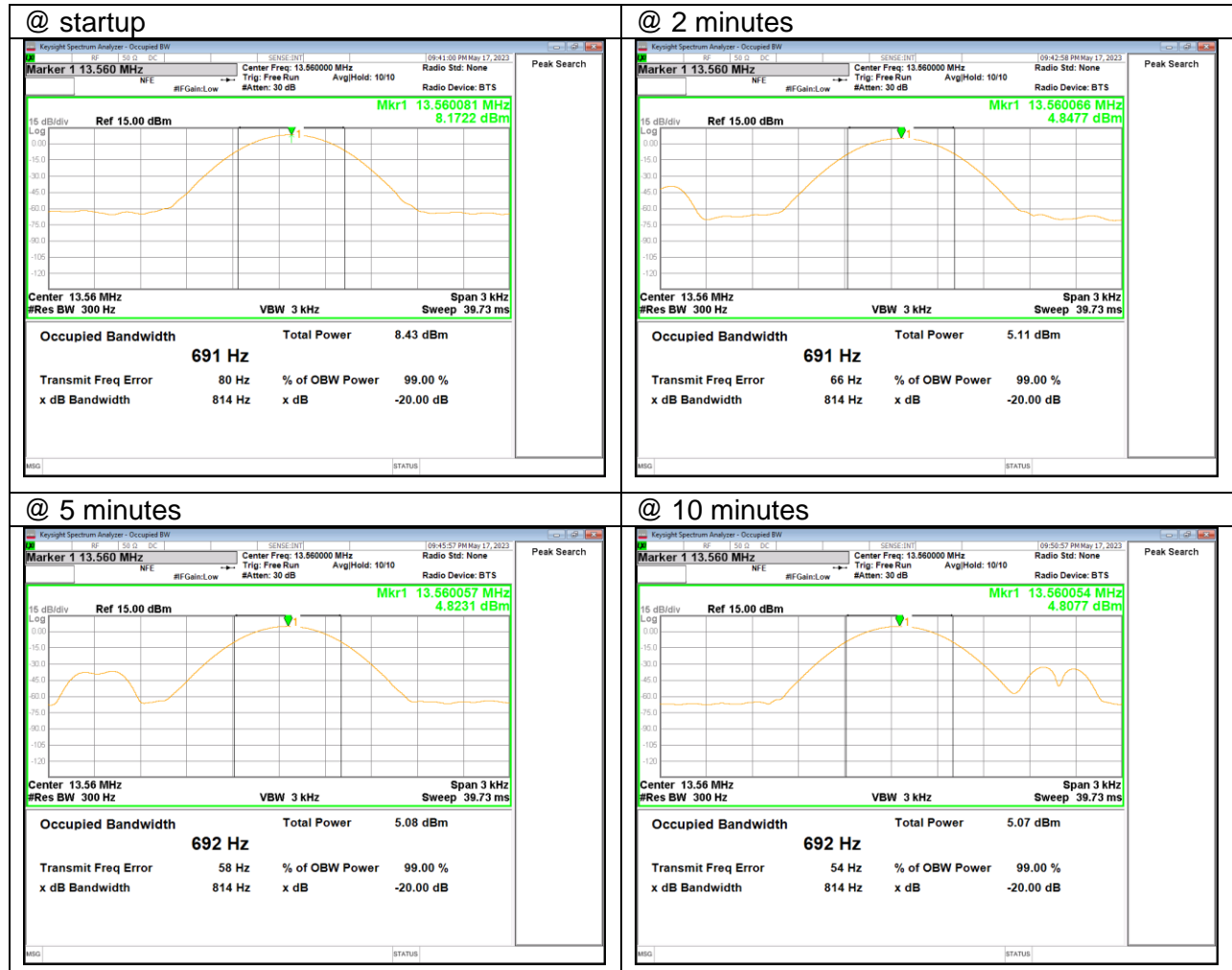
Frequency Stability Vnom T 40°C



Frequency Stability Vnom T 50°C



Frequency Stability Vlow Tnom



Frequency Stability Vhgh Tnom



10. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207
IC RSS-GEN, Section 8.8

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Notes:
1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

TEST PROCEDURE

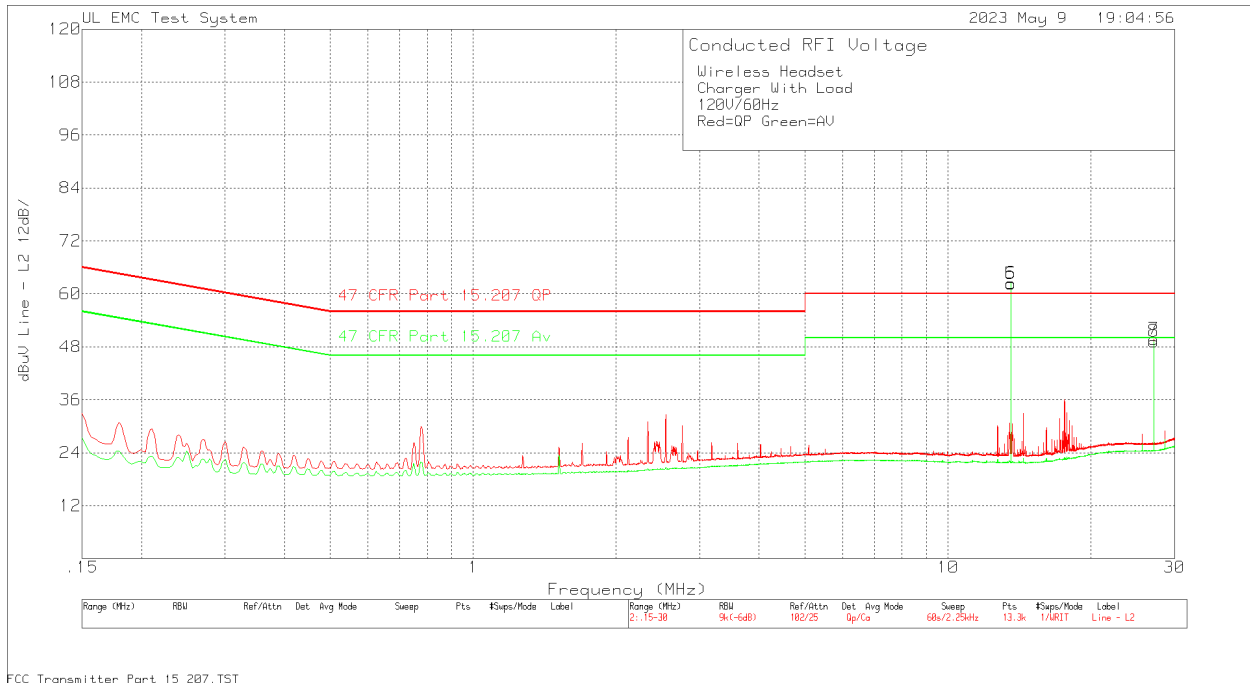
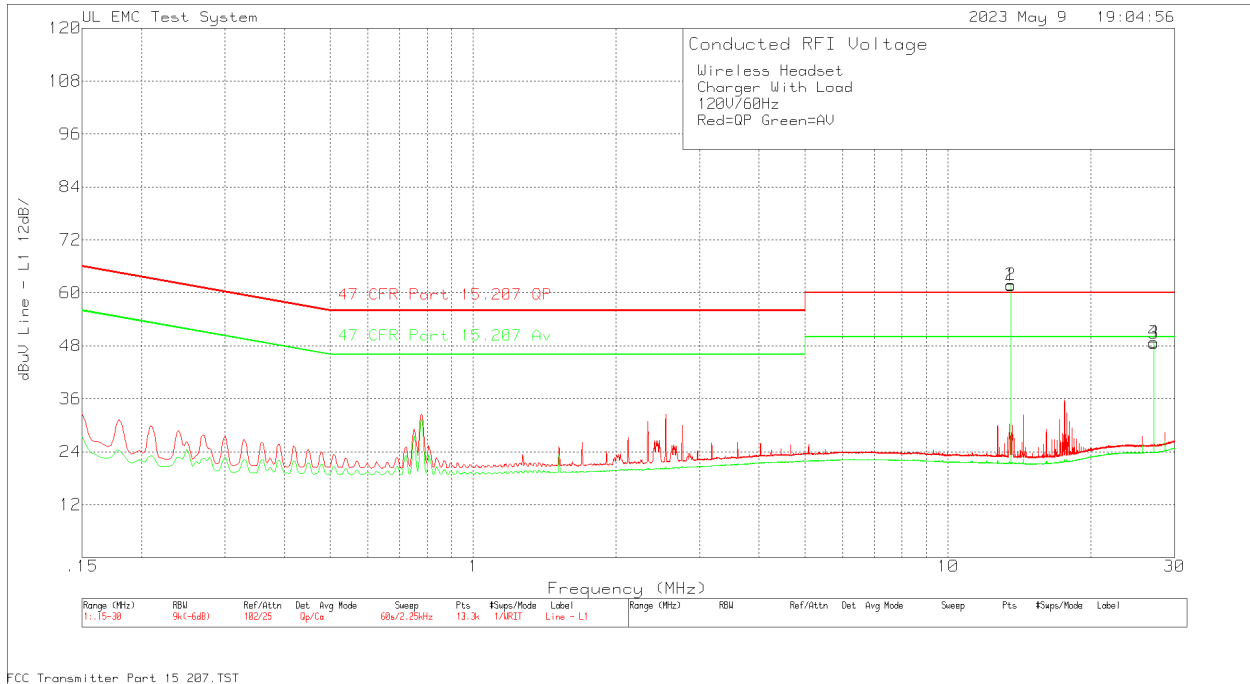
ANSI C63.10:2013
FCC KDB174176

RESULTS

No non-compliance noted:

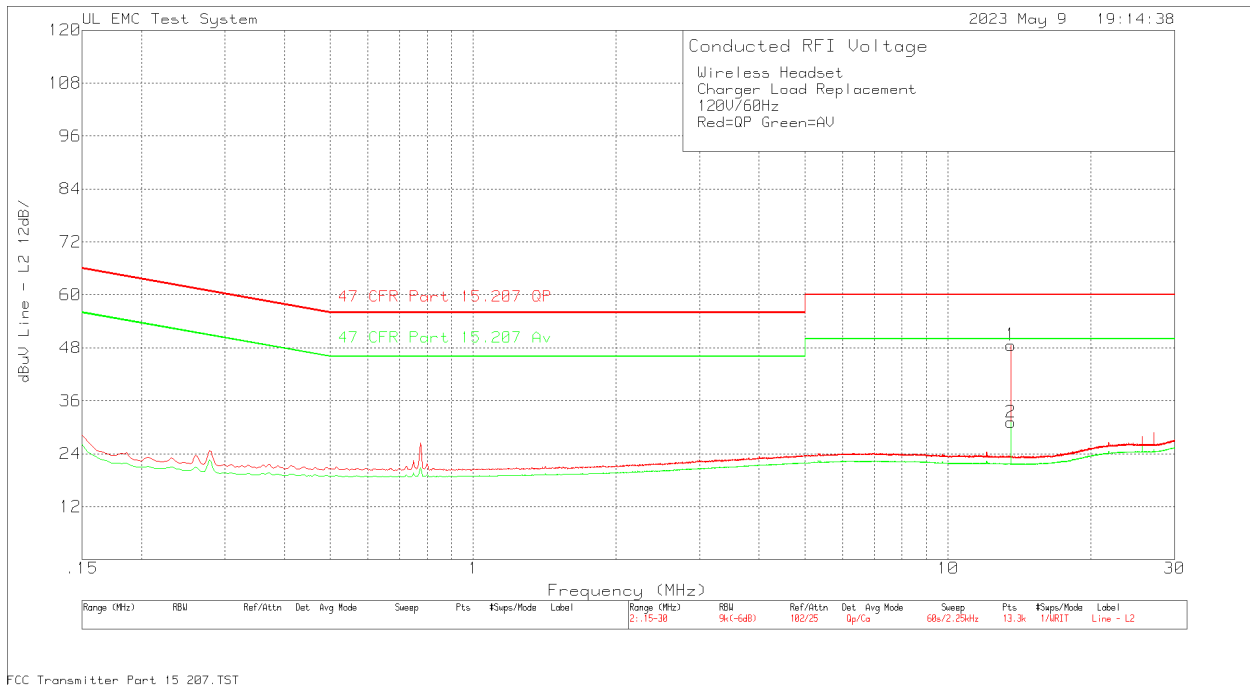
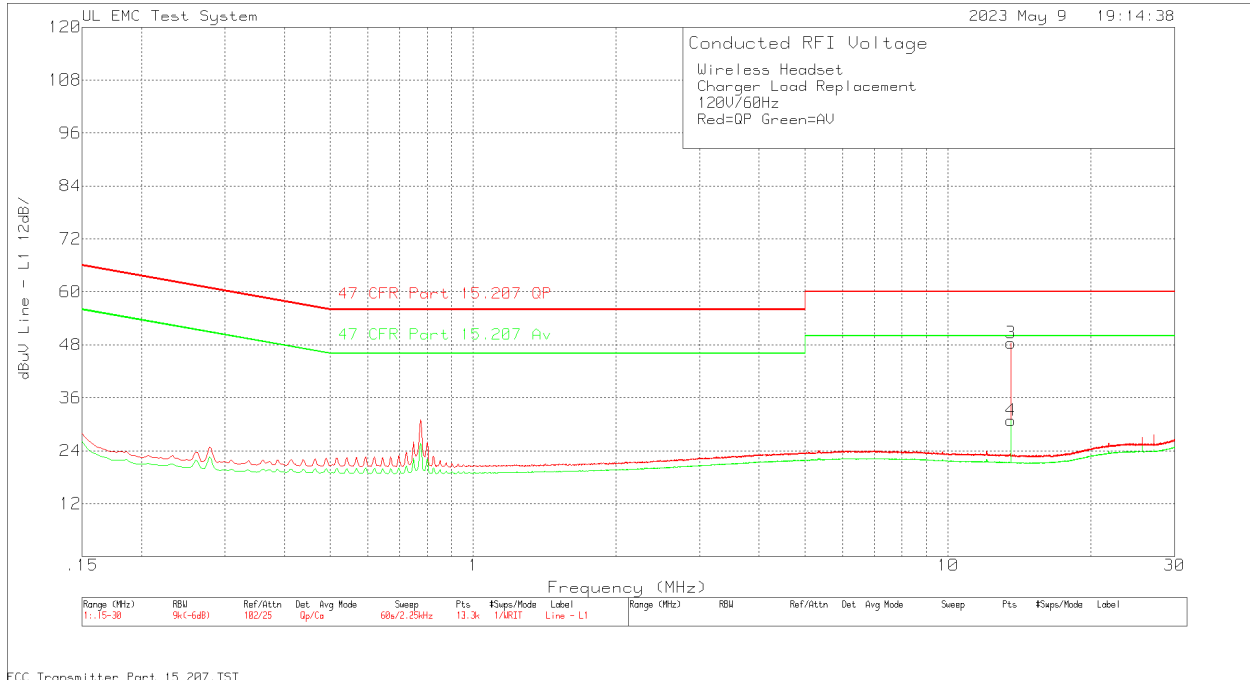
10.1. Conducted Emissions Data

10.1.1. 150kHz – 30MHz with Load



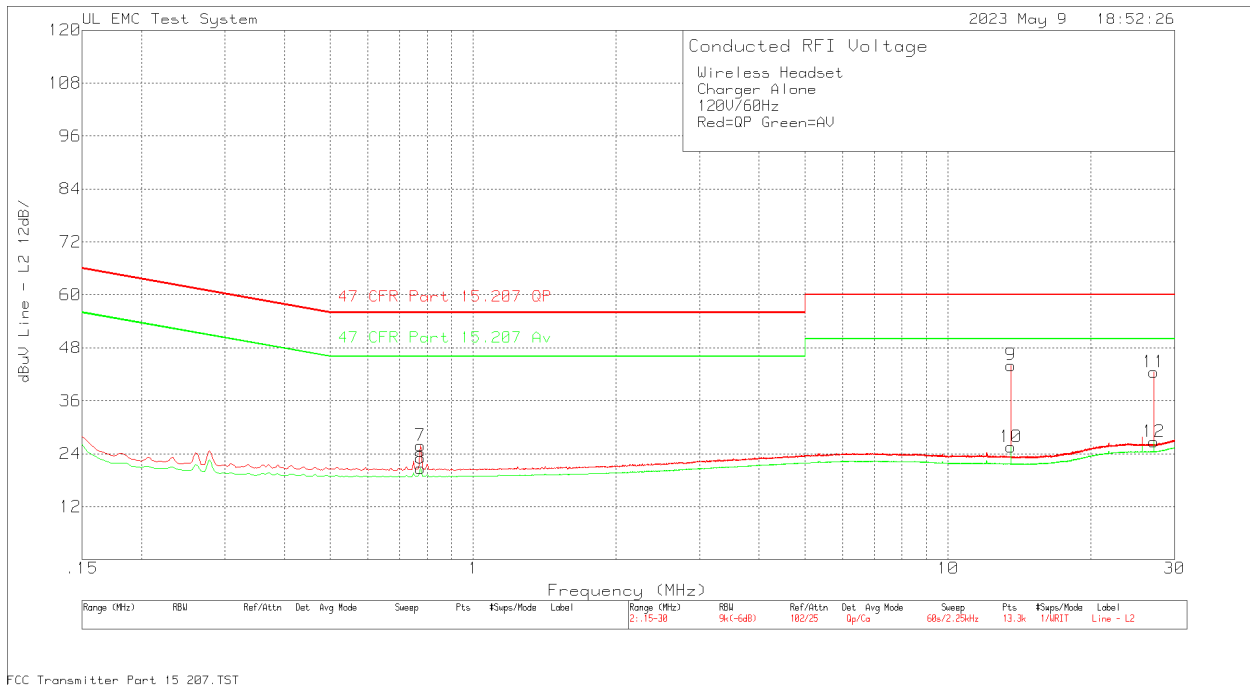
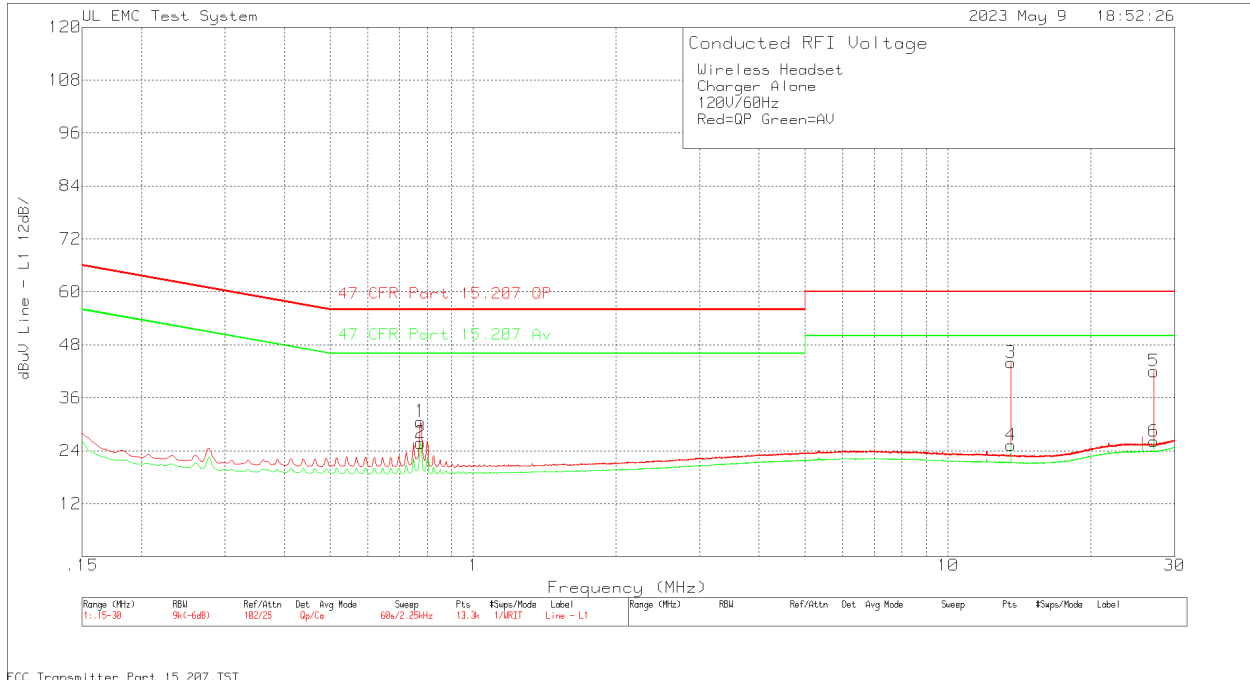
Wireless Headset											
Charger With Load											
120V/60Hz											
Red=QP Green=AV											
Trace MArkers											
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	LISN Factor dB	Path & TL Factor dB	Cable Extension Factor dB	Level dBuV	Limit 47 CFR Part 15.207 QP dBuV	Margin (dB)	Limit 47 CFR Part 15.207 Av dBuV	Margin (dB)
Line											
1	13.56	50.29	Qp	0.1	11.1	0.2	61.69	60	1.69	-	-
2	13.56	50.38	Ca	0.1	11.1	0.2	61.78	-	-	50	11.78
3	27.12075	36.4	Qp	0	11.8	0.4	48.6	60	-11.4	-	-
4	27.12075	36.6	Ca	0	11.8	0.4	48.8	-	-	50	-1.2
Neutral											
5	13.56	50.56	Qp	0.1	11.1	0.5	62.26	60	2.26	-	-
6	13.56	50.71	Ca	0.1	11.1	0.5	62.41	-	-	50	12.41
7	27.12075	36.93	Qp	0	11.8	1	49.73	60	-10.27	-	-
8	27.12075	36.4	Ca	0	11.8	1	49.2	-	-	50	-0.8
Qp - Quasi-Peak detector											
Ca - CISPR Average detection											

10.1.1. 150kHz – 30MHz non-radiating termination



Wireless Headset											
Charger Load Replacement											
120V/60Hz											
Red=QP Green=AV											
Trace MArkers											
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	LISN Factor dB	Path & TL Factor dB	Cable Extension Factor dB	Level dBuV	Limit 47 CFR Part 15.207 QP dBuV	Margin (dB)	Limit 47 CFR Part 15.207 Av dBuV	Margin (dB)
Line											
3	13.56	36.96	Qp	0.1	11.1	0.2	48.36	60	-11.64	-	-
4	13.56	19.44	Ca	0.1	11.1	0.2	30.84	-	-	50	-19.16
Neutral											
1	13.56	36.92	Qp	0.1	11.1	0.5	48.62	60	-11.38	-	-
2	13.56	19.44	Ca	0.1	11.1	0.5	31.14	-	-	50	-18.86
Qp - Quasi-Peak detector											
Ca - CISPR Average detection											

10.1.2. 150kHz – 30MHz without load



Wireless Headset											
Charger Alone											
120V/60Hz											
Red=QP Green=AV											
Trace MArkers											
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	LISN Factor dB	Path & TL Factor dB	Cable Extension Factor dB	Level dBuV	Limit 47 CFR Part 15.207 QP dBuV	Margin (dB)	Limit 47 CFR Part 15.207 Av dBuV	Margin (dB)
Line											
1	0.77325	20.02	Qp	0	10.6	0	30.62	56	-25.38	-	-
2	0.77325	15.18	Ca	0	10.6	0	25.78	-	-	46	-20.22
3	13.56	32.57	Qp	0.1	11.1	0.2	43.97	60	-16.03	-	-
4	13.56	13.8	Ca	0.1	11.1	0.2	25.2	-	-	50	-24.8
5	27.12075	29.8	Qp	0	11.8	0.4	42	60	-18	-	-
6	27.12075	13.95	Ca	0	11.8	0.4	26.15	-	-	50	-23.85
Neutral											
7	0.77325	15.33	Qp	0	10.5	0	25.83	56	-30.17	-	-
8	0.77325	10.15	Ca	0	10.5	0	20.65	-	-	46	-25.35
9	13.56	32.36	Qp	0.1	11.1	0.5	44.06	60	-15.94	-	-
10	13.56	13.81	Ca	0.1	11.1	0.5	25.51	-	-	50	-24.49
11	27.12075	29.69	Qp	0	11.8	1	42.49	60	-17.51	-	-
12	27.12075	13.94	Ca	0	11.8	1	26.74	-	-	50	-23.26
Qp - Quasi-Peak detector											
Ca - CISPR Average detection											