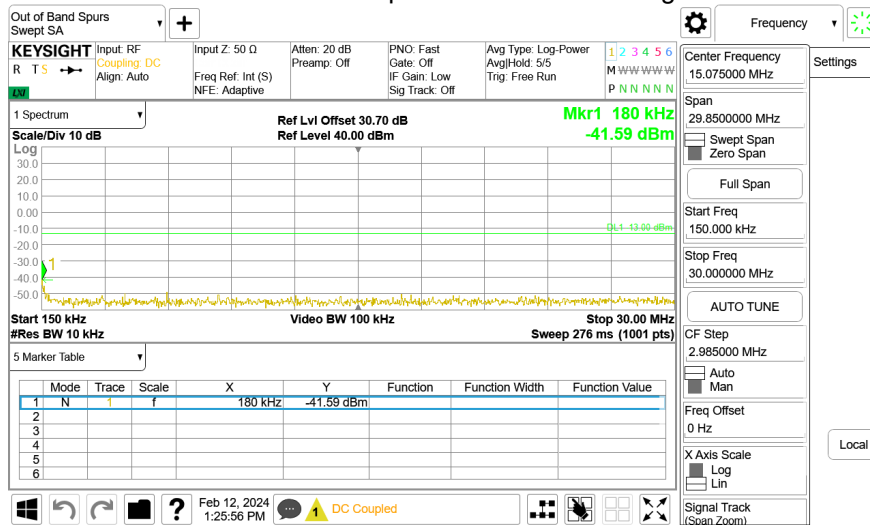
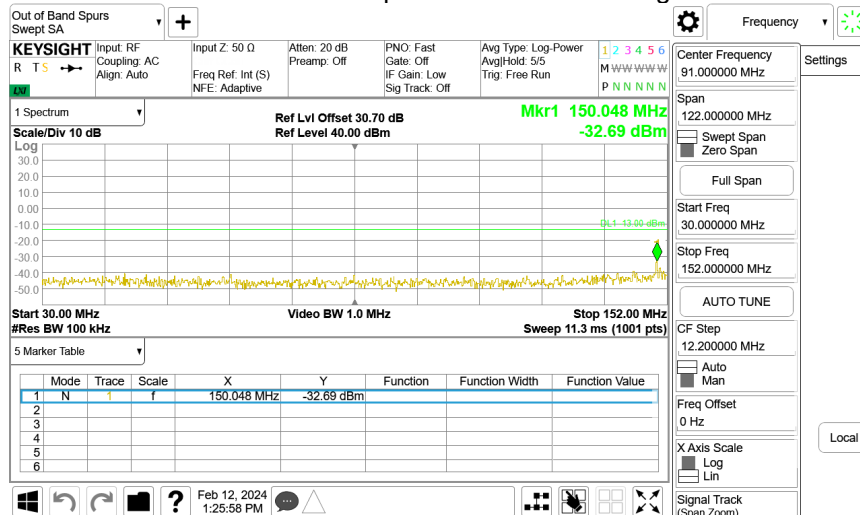


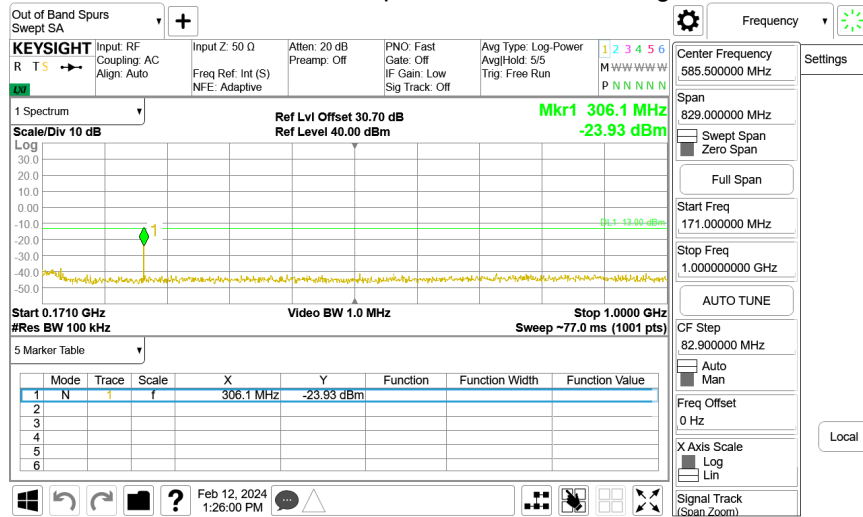
150PS 153MHz Spurious Emissions Range 2



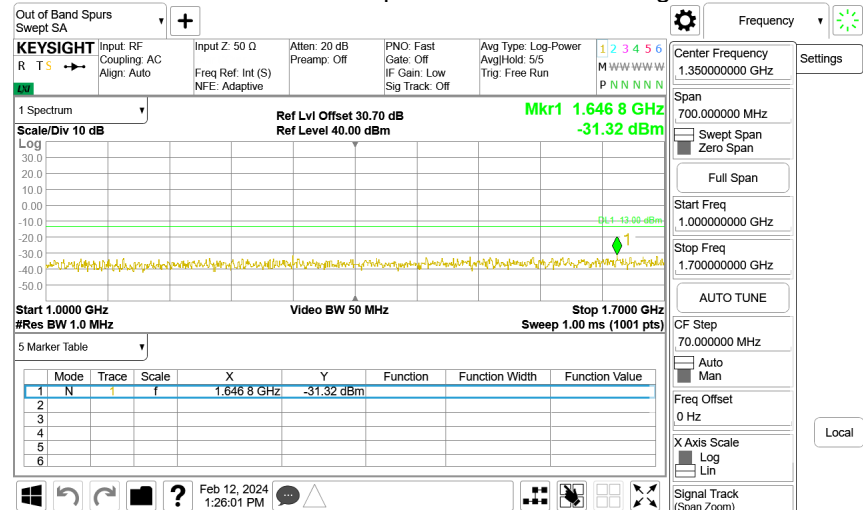
150PS 153MHz Spurious Emissions Range 3



150PS 153MHz Spurious Emissions Range 4



150PS 153MHz Spurious Emissions Range 5



3.7 Noise Figure

Governing Doc	FCC Part 90.219	Room Temperature (°C)	20.5		
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	38.6		
Test Location	Richmond	Barometric Pressure (kPa)	101.8		
Test Engineer	Zara Vali	Date	February 12, 2024		
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz				
Test Equipment Used	Manufacturer	Model	Serial Number	Calibration date	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	Dec 12, 2023	Dec 12, 2026
Spectrum Analyzer	Keysight	N9020B	MY62153079	Oct 25, 2023	Aug 1, 2025
Frequency Range:	☒ 2 times of the passband on each band				
Detector:	☒ Average				
RBW:	☒ 910 kHz				
Type of Facility:	☒ Tabletop				
Distance:	☒ Direct				
Noise Figure on each band is less than the 9 dB required.					
Compliant ☒ Non-Compliant ☐ Not Applicable ☐					

Test setup

Based on FCC KDB 935210 D05 Indus Booster Basic Meas v01r03: 2019, the system maximum gain and the noise density is measured. Measurements were performed within the EUT's passband.

The noise figure is then calculated by $NF = NP - Gain + KTB \text{ Noise}$; where NP is in band noise power per Herz, Gain is measured at the maximum noise frequency with -55 dBm input signal in UL. KTB Noise is 174dB/Hz.

The EUT was set to **Operation Mode #1 with configuration Mode #1**.



Results

Test Band	Gain (dB)	kTB (dBm/Hz)	Measured Value (dBm/Hz)	Noise Figure (dB)
UHF PS	57.3	-174	-108.4	8.29
VHF PS	58.4	-174	-110.2	5.43

3.8 Frequency Stability

The DMU and RU37 are synchronized to the same reference clock. Therefore there is no frequency error after down and up frequency conversion are performed.

The frequency stability check is not applicable to the EUT.

3.9 Radiated Emissions – Enclosure 30 MHz – 1 GHz

Standard	FCC Part 15 Subpart B (§ 15.109) FCC Part 90 (§ 90.219 and § 90.210)												
Basic Standard(s)	ANSI C63.4: 2014, CISPR 16-2-1 ANSI C63.26-2015 KDB 935210 D05 v01r04												
Tested by	Zara Vali												
Test date	February 12, 2024												
Test location	Richmond lab, stand #2												
Applied limit	<table border="1"> <thead> <tr> <th colspan="2">Radiated Emission FCC Class B Limit at 3 Meters</th> </tr> <tr> <th>Frequency (MHz)</th><th>Quasi-peak (dB µV/m)</th></tr> </thead> <tbody> <tr> <td>30 – 88</td><td>40</td></tr> <tr> <td>88 – 216</td><td>43.5</td></tr> <tr> <td>216 - 960</td><td>46</td></tr> <tr> <td>960 – 1000</td><td>54</td></tr> </tbody> </table> Note 1. The lower limit shall apply at the transition frequency Note 2. Additional provisions may be required for cases where interference occurs Since the Class B limit is more stringent than the other limits, the other limits have not been presented.	Radiated Emission FCC Class B Limit at 3 Meters		Frequency (MHz)	Quasi-peak (dB µV/m)	30 – 88	40	88 – 216	43.5	216 - 960	46	960 – 1000	54
Radiated Emission FCC Class B Limit at 3 Meters													
Frequency (MHz)	Quasi-peak (dB µV/m)												
30 – 88	40												
88 – 216	43.5												
216 - 960	46												
960 – 1000	54												
Test set-up description	☒ Equipment on a table of 80 cm height ☐ Equipment on the floor (insulated from ground plane) ☐ Other:												
Test method applied	☒ SAC with measurement distance [m]: ☒ 3 ☐ 10 ☐ FAR CISPR 16-2-3 with measurement distance [m]: 3 ☐ FAR IEC 61000-4-22 with measurement distance [m]: 3 ☐ TEM Waveguide according to IEC 61000-4-20												
Supplementary test set-up	☒ Measurements were made in semi-anechoic chamber that complies to CISPR 16. Preliminary (peak) measurements. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak detector below 1GHz and average detector above 1GHz) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.												
VERDICT: PASS													

Test Method

This test measures the radiating levels from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standard(s) referenced in the test summary section of this report. The Equipment Under Test (EUT) was configured based upon the requirements of the applicable test standard. Initially, the primary emission frequencies are identified by positioning a broadband receive antenna three meter from the EUT.

A scan was made with an EMC Analyzer, controlled by EMC Test Software, Tile7! with the receiver in the peak mode. The receiver IF bandwidth was 120 kHz and scan step was less than 30kHz. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to produce horizontal and vertical polarities while the turntable is rotated to determine the worst emitting configuration. Measurements were then made using CISPR quasi peak when the peak readings were within 10dB of the limit line. The numerical results are included herein to demonstrate compliance.

Test Setup

The EUT was placed on a 0.8 m non-conducting table above a Turn table in SAC.

The EUT was set to **Operation Mode #1 with configuration Mode #1**.



Test Result

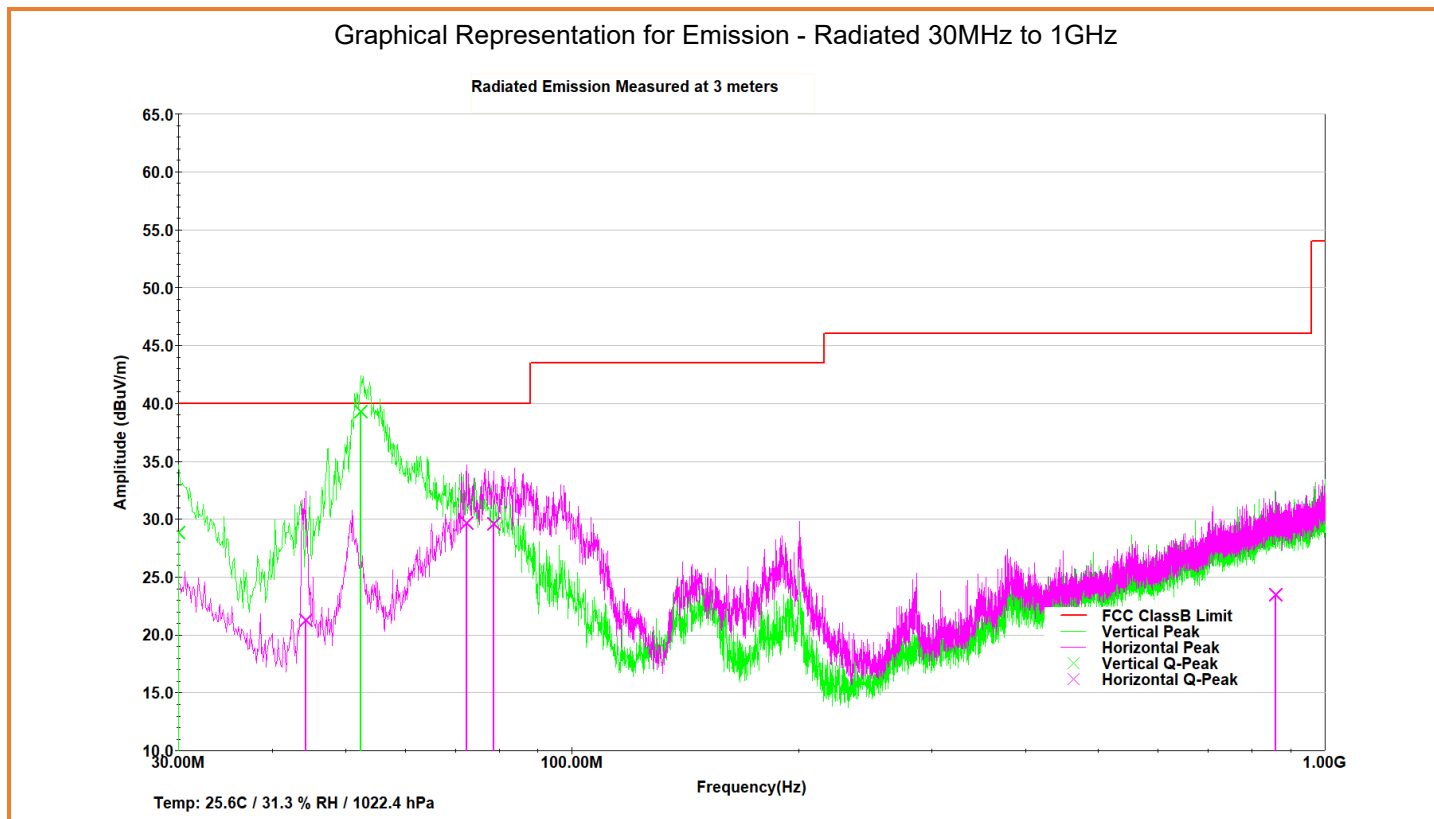


Table Representation for Emission - Radiated 30MHz to 1GHz

Frequency	Ant. Pol.	Raw_QPeak	AF	System_dB	Q_Peak	Margin	FCC Limit
MHz	V/H	dBuV	dB/m	dB	dBuV/m	dB	dBuV/m
44.34234	H	5.8	14.9	0.5	21.2	18.8	40
72.45471	H	16.6	12.3	0.7	29.7	10.3	40
78.70921	H	17.1	11.7	0.8	29.6	10.4	40
859.796	H	-5.5	26	3	23.5	22.5	46

Frequency	Ant. Pol.	Raw_QPeak	AF	System_dB	Q_peak	Margin	FCC Limit
MHz	V/H	dBuV	dB/m	dB	dBuV/m	dB	dBuV/m
30.00525	V	3.3	25.1	0.4	28.8	11.2	40
52.40768	V	27.1	11.5	0.6	39.3	0.7	40

Note (1) Quasi-peak (dBuV/m) = Raw Quasi-peak (dBuV) + Antenna Factor (dB/m) + System_dB
 System_dB = Cable loss(dB)

3.10 Radiated Emissions above 1 GHz

Standard	FCC Part 15 Subpart B (§ 15.109) FCC Part 90 (§ 90.219 and § 90.210)										
Test Method	ANSI C63.4: 2014, CISPR 16-2-1 ANSI C63.26-2015 KDB 935210 D05 v01r04										
Tested by	Zara Vali										
Test date	February 12, 2024										
Test location	Richmond, Stand #3										
Applied limit	<table border="1"> <thead> <tr> <th colspan="3">Radiated Emission FCC/ Class B Limit at 3 Meters</th> </tr> <tr> <th>Frequency (GHz)</th><th>Average (dBμV/m)</th><th>Peak (dBμV/m)</th></tr> </thead> <tbody> <tr> <td>> 1</td><td>54</td><td>74</td></tr> </tbody> </table> Since the Class B limit is more stringent than the other limits, the other limits have not been presented.		Radiated Emission FCC/ Class B Limit at 3 Meters			Frequency (GHz)	Average (dB μ V/m)	Peak (dB μ V/m)	> 1	54	74
Radiated Emission FCC/ Class B Limit at 3 Meters											
Frequency (GHz)	Average (dB μ V/m)	Peak (dB μ V/m)									
> 1	54	74									
Test set-up description	☒ Equipment on a table of 80 cm height ☐ Equipment on the floor (insulated from ground plane) ☐ Other:										
Operating modes of EUT	The EUT is configured as "Dive Mode", the wireless charger is powered by 120V/60Hz or 230V/50Hz.										
Test method applied	☐ OATS or SAC with measurement distance [m]: ☒ 3 ☐ 10 ☒ FAR CISPR 16-2-3 with measurement distance [m]: 3 ☐ FAR IEC 61000-4-22 with measurement distance [m]: 3 ☐ TEM Waveguide according to IEC 61000-4-20										
Supplementary test set-up	☒ Measurements were made in FAR chamber that complies to CISPR 16. Preliminary (peak) measurements. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak detector below 1GHz and average detector above 1GHz) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.										
VERDICT: PASS											

Test Method

This test measures the radiating levels from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standards referenced in the test summary section of this report. The EUT was configured based upon the requirements of the applicable test standard. Initially, the primary emission frequencies are identified by positioning a broadband receive antenna three meter from the EUT. A scan was made with an EMC Analyzer, controlled by EMC Test Software, Tile7 with the receiver in the peak mode. The receiver IF bandwidth was 1MHz and scan step was about 0.5 MHz. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to produce horizontal and vertical polarities while the turntable is rotated to determine the worst emitting configuration. Measurements were then made using CISPR averaging when the peak readings were within 10 dB of the peak limit line. The numerical results are included herein to demonstrate compliance.

Emission level is presented according to the below formula:

Emission level (dBuV/m) = Detected level (dBuV) + Cable Loss (dB) + Antenna Factor (dB/m) + Pre-Amplifier Gain (dB)

Test Setup

Description of test set-up:

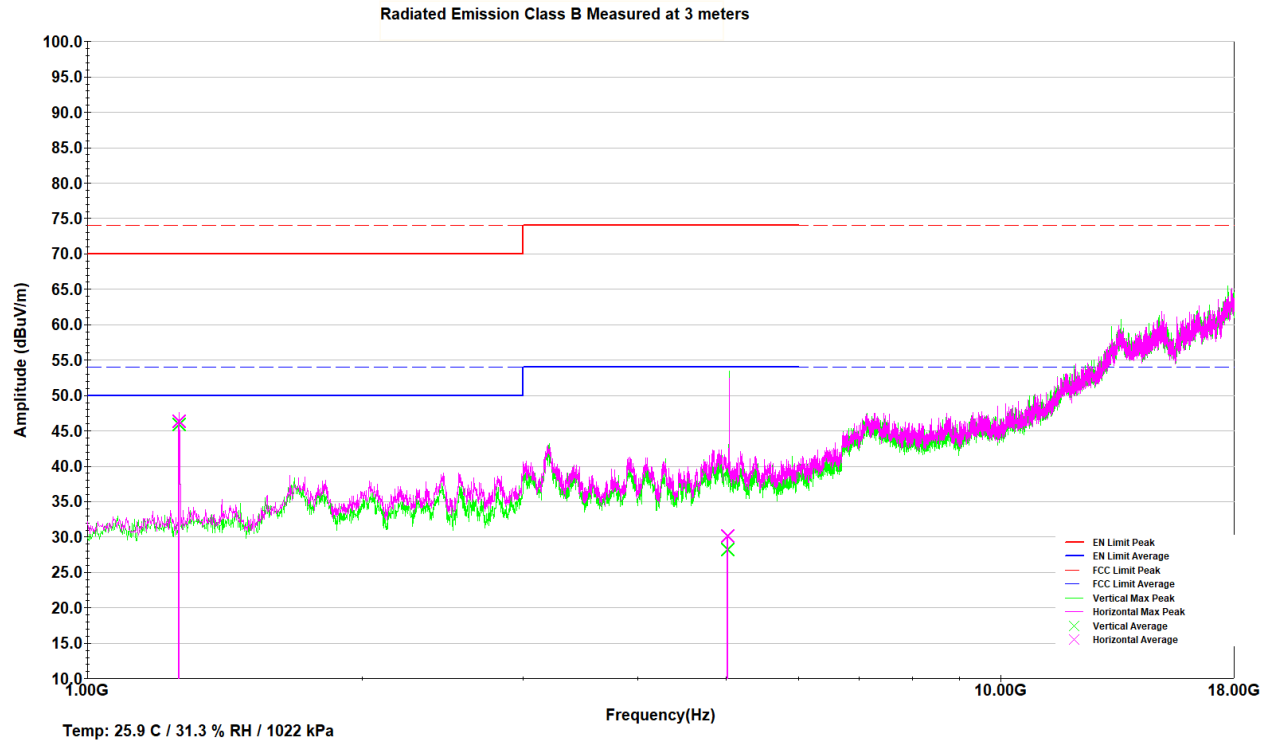
The EUT was placed on a 0.8 m non-conducting table above a Turn table in SAC.

The EUT was set to **Operation Mode #1 with configuration Mode #1**.



Test Result

Graphical Representation for Emission - Radiated 1 to 18GHz



Frequency	AntFac	Sys_dB	Peaks	Peak Margin	AVG	AVG Margin
MHz	dB	dB	dBuV/m	dB	dBuV/m	dB
1259.964	24.73	-29.71	47.43	26.573	46.277	7.723
5022.356	33.95	-22.32	41.73	32.273	30.09	23.91

Note (1) Quasi-peak (dBuV/m) = Raw Quasi-peak (dBuV) + Antenna Factor (dB/m) + Sys_dB (dB)

Sys_dB (dB) = Cable loss(dB) + Preamp Gain(dB)

Note (2) Average measurement around 18 GHz were below the average limit line.

3.11 Conducted Emissions at AC Power Port

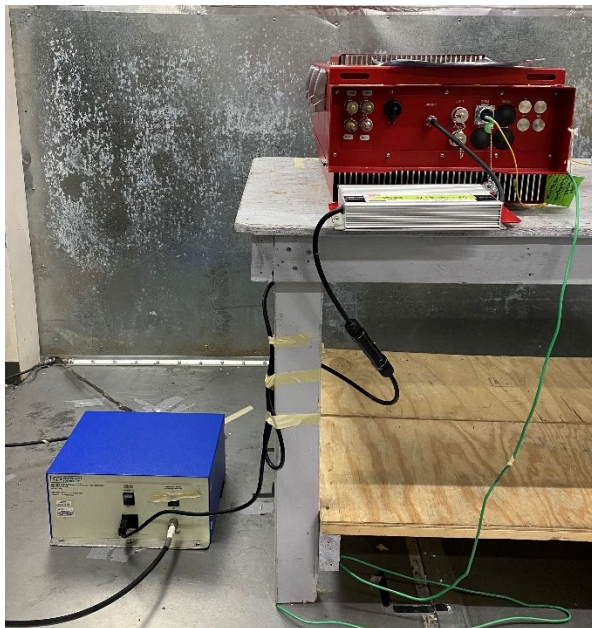
Standard	FCC Part 15 Subpart B (§ 15.107)															
Test Methods	ANSI C63.4:2014, CISPR 16-2-1															
Tested by	Zara Vali															
Test date	February 12, 2024															
Test location	Richmond Lab, Stand #1															
Applied limit	<table border="1"><thead><tr><th colspan="3">AC Port Conducted Emission Class B Limit</th></tr><tr><th>Frequency (MHz)</th><th>Quasi-Peak (dBμV)</th><th>Average (dBμV)</th></tr></thead><tbody><tr><td>0.15 - 0.50</td><td>66 to 56</td><td>56 to 46</td></tr><tr><td>0.50 – 5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></tbody></table> Note 1. The lower limit shall apply at the transition frequencies. Note 2. The limit decreases linearly with the logarithm of the frequency in the 0.15 to 0.50 MHz	AC Port Conducted Emission Class B Limit			Frequency (MHz)	Quasi-Peak (dB μ V)	Average (dB μ V)	0.15 - 0.50	66 to 56	56 to 46	0.50 – 5	56	46	5-30	60	50
AC Port Conducted Emission Class B Limit																
Frequency (MHz)	Quasi-Peak (dB μ V)	Average (dB μ V)														
0.15 - 0.50	66 to 56	56 to 46														
0.50 – 5	56	46														
5-30	60	50														
Test set-up description	<table border="1"><tr><td>☒</td><td>Set-up Type A (40 cm distance to vertical ground plane, 80 cm over ground plane)</td></tr><tr><td>☐</td><td>Set-up Type B (40 cm distance to horizontal ground plane)</td></tr><tr><td>☐</td><td>Floor standing equipment set-up (10 cm over ground plane)</td></tr><tr><td>☐</td><td>Other:</td></tr></table>	☒	Set-up Type A (40 cm distance to vertical ground plane, 80 cm over ground plane)	☐	Set-up Type B (40 cm distance to horizontal ground plane)	☐	Floor standing equipment set-up (10 cm over ground plane)	☐	Other:							
☒	Set-up Type A (40 cm distance to vertical ground plane, 80 cm over ground plane)															
☐	Set-up Type B (40 cm distance to horizontal ground plane)															
☐	Floor standing equipment set-up (10 cm over ground plane)															
☐	Other:															
Operating modes of EUT	The EUT is configured as "Dive Mode", the wireless charger is powered by 120V/60Hz or 230V/50Hz.															
Test method applied	<table border="1"><tr><td>☒</td><td>Artificial mains network (AMN)</td></tr><tr><td>☐</td><td>Voltage Probe</td></tr></table>	☒	Artificial mains network (AMN)	☐	Voltage Probe											
☒	Artificial mains network (AMN)															
☐	Voltage Probe															
VERDICT: PASS																

Test Method

This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices. Testing was performed in accordance with the test standard(s) referenced in the test summary section of this report. The Equipment Under Test (EUT) was configured based upon the requirements of the applicable test standard. Initially a scan was made with an EMC Analyzer, controlled by EMC Test Software, Tile7!, from 150 kHz to 30 MHz on each phase with the receiver in the peak mode. The measuring bandwidth was set up to 9 kHz. Measurements were then made using CISPR16-1 quasi peak and averaging detectors when the peak readings were within 10dB of the Quasi-peak limit line.

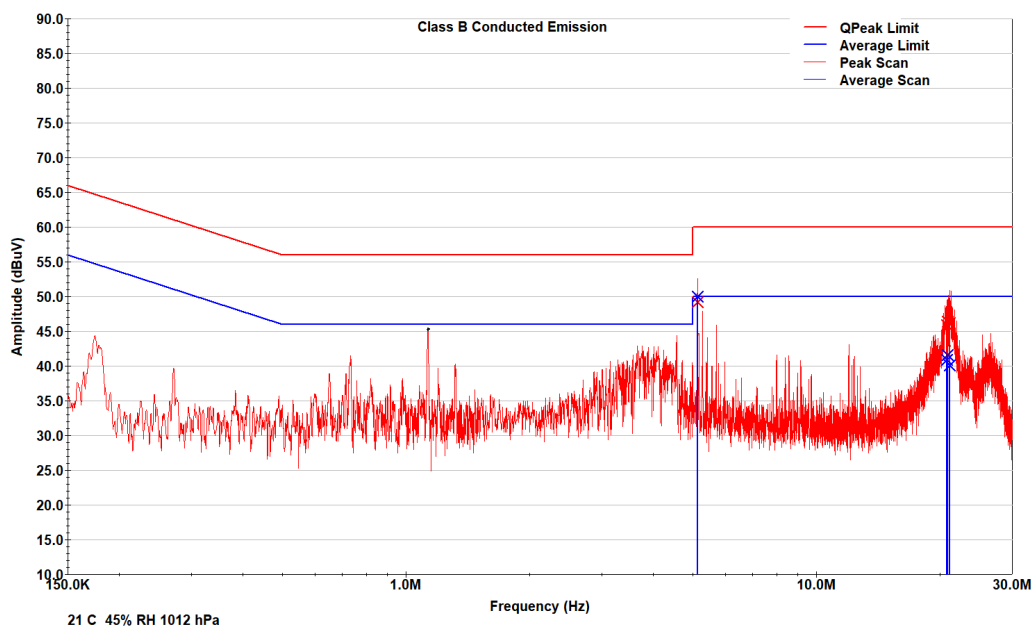
Test Setup

The EUT was placed on a 0.8m non-conducting table above GRP.



Test Results

Conducted Emission 150 kHz - 30MHz Class B, 120V/60Hz AC Main L1



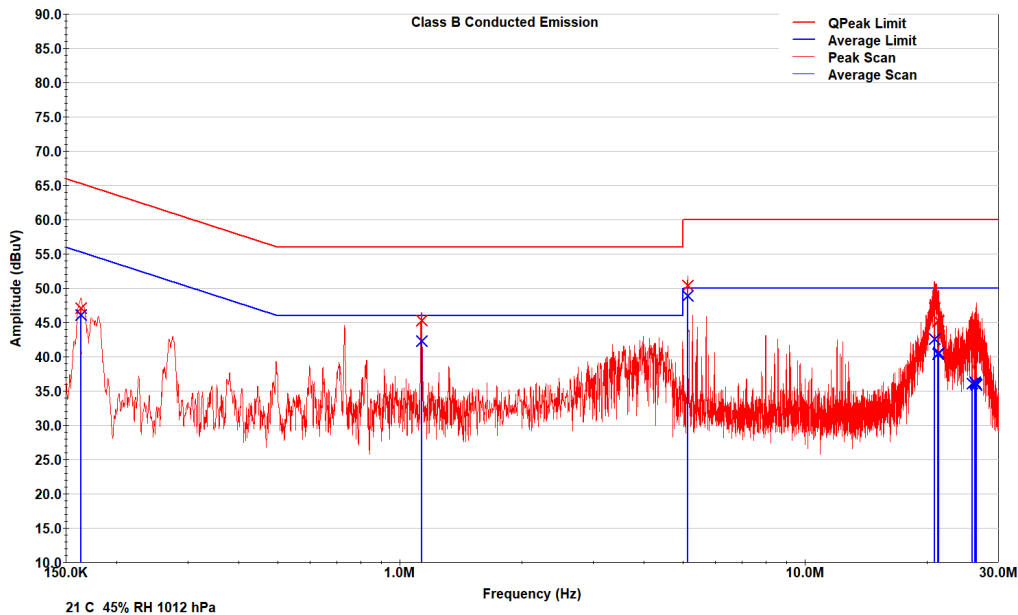
Frequency	Correction Factor	QPeak	QPeak Margin	QPeak Limit	Average	Average Margin	Average Limit
MHz	dB	dBuV	dB	dBuV	dBuV	dB	dBuV
5.135	28.66	49.21	10.79	60	49.971	0.03	50
20.798	29.08	45.88	14.12	60	40.874	9.13	50
20.921	29.097	46.45	13.55	60	41.559	8.44	50
21.09	29.124	46.16	13.84	60	40.121	9.88	50

Note (1) All other frequencies were not measured because either they were ambient background noise, or their peak pre-measurement was at least 20 dB below the limit line.

Note (2) Emission level is presented according to the below formula:

Conducted Emission (dBuV) = Measured Emission (dBuV) + Correction Factor (dB)
Correction Factor (dB) = LISN Transduce Factor (dB) + Cable loss(dB) + 20 dB limiter(dB)

Conducted Emission 150 kHz - 30MHz Class B, 120V/60Hz AC Main L2



Frequency	Correction Factor	QPeak	QPeak Margin	QPeak Limit	Average	Average Margin	Average Limit
MHz	dB	dBuV	dB	dBuV	dBuV	dB	dBuV
0.163	28.627	47.05	18.25	65.3	46.11	9.19	55.3
1.131	28.573	45.27	10.73	56	42.336	3.66	46
5.132	28.66	50.43	9.57	60	48.953	1.05	50
20.925	29.098	47.07	12.93	60	42.6	7.4	50
21.326	29.116	45.33	14.67	60	40.411	9.59	50
21.364	29.112	45.19	14.81	60	40.561	9.44	50
25.901	29.164	41.98	18.02	60	36.078	13.92	50
26.254	29.2	42.07	17.93	60	36.265	13.73	50
26.336	29.201	42.02	17.98	60	36.127	13.87	50
26.509	29.2	41.91	18.09	60	35.917	14.08	50

Note (1) All other frequencies were not measured because either they were ambient background noise, or their peak pre-measurement was at least 20 dB below the limit line.

Note (2) Emission level is presented according to the below formula:

Conducted Emission (dBuV) = Measured Emission (dBuV) + Correction Factor (dB)
Correction Factor (dB) = LISN Transduce Factor (dB) + Cable loss(dB) + 20 dB limiter(dB)

List of test equipment

Test Stand #1					
Equipment	Manufacturer	Model	Labtest ID	Last calibration	Calibration due*
EMC Analyzer	Agilent Technologies	E7405A	272	27 September, 2023	27 September, 2024
LISN	Com-Power	LIN-120C	920	23 July, 2023	23 July, 2024
RF Cable	MRO	n/a	n/a	IHC ²	IHC ¹
AC Power Source	Pacific Power Source	360AMXT-UPC32	955	IHC ³	IHC ¹
Used Software	Tile! 7 v7.3.0.6				
Test Stand #2					
EMC Analyzer	Agilent Technologies	E7405A	272	27 September, 2023	27 September, 2024
Broadband Antenna	Sunol	JB1	371	24 October, 2022	24 October, 2024
Motion Controller	Sunol	SC104V	235A	IHC ¹	IHC ¹
Antenna Tower	Sunol	TWR95-4	235B	IHC ¹	IHC ¹
Turn Table	Sunol	SM46C	235C	IHC ¹	IHC ¹
EMC Shielded Enclosure	USC	USC-26	374	IHC ¹	IHC ¹
RF Cable	MRO	n/a	n/a	IHC ²	IHC ¹
Used Software	Tile! 7 v7.3.0.6				
Test Stand #3					
Horn Antenna	A.H Systems	SAS-571	227C	13-Sept-2022	13-Sept-2024
EMC Analyzer	Agilent Technologies	E7405A	272	07-Sept-2023	07-Sept-2024
Motion Controller	Sunol	SC104V	235A	IHC ¹	IHC ¹
Antenna Tower	Sunol	TWR95-4	235B	IHC ¹	IHC ¹
Turn Table	Sunol	SM46C	235C	IHC ¹	IHC ¹
EMC Shielded Enclosure	USC	USC-26	374	IHC ¹	IHC ¹
RF Cable	A.H. Systems	SAC-26G-3	227D	IHC ²	IHC ¹
RF Preamplifier	Agilent	8449B	273	IHC ²	IHC ¹
Used Software	Tile! 7 v7.3.0.6				
Note 1) IHC = In House Calibration Calibration interval extended based on enough calibration data and experience of use (see IECEE OD-5011:2015 clause 8.3)					

Prepared by: LabTest Certification Inc.
Date Issued: June 11, 2024
Project No.: 22192

Client: Avari Wireless Inc.
Report No.: 20.01.22192-1
Revision No.: 1

Annex

Annex 1 - ISO 17025 ACCREDITATION CERTIFICATE

For complete scope of certification use

https://labtestcert.com/wp-content/uploads/2024/04/LabTest-Certification-Inc-Cert-and-Scope-File-03-12-2024_1710259791.pdf

END OF REPORT