

March 08, 2022

CESI SPA
Via Raffaele Rubattino 54
Milano, Italy 20134

Dear Francesca Gaetani,

Enclosed is the EMC Wireless test report for compliance testing of the CESI SPA, JuiceBox 2.01 40A Commercial as tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), Part 15 Subpart C for Intentional Radiators.

Thank you for using the services of Eurofins Electrical and Electronic Testing NA, Inc. If you have any questions regarding these results or if Eurofins Electrical and Electronic Testing NA, Inc. can be of further service to you, please feel free to contact me.

Rheine Nguyen

Documentation Department
Eurofins Electrical and Electronic Testing NA, Inc.

Reference: WIR113585-FCC-CO-LOCATION Report



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FCC Test Report

Applicant name: CESI S.p.A

Product: EV Charger

Report: WIR113585-FCC-CO-LOCATION

Applicant Address:

**Via Raffaele Rubattino 54
Milano, Italy 20134**

Prepared By:
Eurofins Electrical and Electronic Testing NA, Inc.
3162 Belick St.
Santa Clara CA, 95054

FCC Test Report

Applicant name : CESI S.p.A

Product: EV Charger

Standard

47 CFR FCC Part 15, Subpart C (Section 15.247)

Part 22, Part 24, Part 27

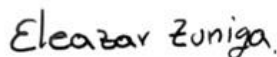
ANSI C63.10: 2013 2009



Gary Chou

Wireless Engineering Manager, Wireless Laboratory

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of Part 22 Subpart H and Part 24 Subpart E and Part 27 Subpart L of the FCC Rules under normal use and maintenance.



Eleazar Zuniga,
Director, Wireless Laboratory

Report Status Sheet

Revision	Report Date	Reason for Revision
Ø	March 08, 2022	Initial Issue.

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I. Executive Summary

A. Executive Summary

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.205 & 15.209 & 15.247(d)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit.

Note:

1.Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

II. Equipment Information

A. Overview

EUT Summary Table

Product:	EV Charger	
Brand:	CESI S.p.A	
Model(s) Tested:	JuiceBox 2.01 40A	
Series Model:	JuiceBox 2.01 32A, JuiceBox 2.01 48A, JuiceBox 2.01 80A	
Filing Status:	Original	
EUT Specifications:	Primary Power:	120Vac.
	Voltage: 120Vac.	
	Voltage Frequency:	50/60 Hz
	Technology / Type of Modulations:	WLAN 802.11 B/G/N: DSSS/ OFDM NFC : ASK UMTS : OFDM LTE : OFDM
	Operating Frequency :	NFC:13.56 MHz WLAN: 2412-2462 MHz Cellular: WCDMA: BAND 2 1850 MHz- 1910 MHz BAND 5 824 MHz-849 MHz LTE: BAND 2 1850 MHz- 1910 MHz BAND 4 1710 MHz- 1755 MHz BAND 5 824 MHz-849 MHz BAND 12 699 MHz- 712 MHz BAND 13 777 MHz- 787 MHz
	FCC ID:	2A4LRJB201NA
	ISED ID:	N/A
	Hardware Rev:	09
	Firmware Rev:	05
	Antenna Type:	WLAN: Chip Antenna 1.86dBi RFID: PCB LOOP Antenna

		Cellular (WCDMA/ LTE): Flexible Ultra Wide Band Antenna -Band 2/ 5: 5 dBi -Band 12/ 13: 2.7 dBi
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 20.3° C	
	Relative Humidity: 47.5%	
	Barometric Pressure: 860-1060 mbar	
Evaluated by:	Gary Chou	
Issue Date(s):	March 08, 2022	

NOTE: The following modules can be chosen to be configured in the EUT.

	Model No.	FCC ID	Note
Cellular	Telit	RI7LE910NAV2	-
WLAN	Silicon Labs	QOQWGM160P	-
RFID	NXP	OWRCLEV6630B	-
BLE	Silicon Labs	QOQ13	function disable

B. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	WIDEBAND RADIO COMMUNICATION TESTER	RHODE & SCHWARZ	CMW 500	12010002K50	-	-
B	Laptop	ACER	A315-51-533U	NXGNPAA0167300AA597600	-	-

Note: (Describe the outline of a simulator, if used for the tests, as a note under the table.)

Insert Cable Connections to/from EUT provided by test team.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
	-	-	-	-	0	-

Note: The core(s) is(are) originally attached to the cable(s).

General Description of Applied Standards

C. References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

- 47 CFR FCC Part 15, Subpart C (Section 15.247)
- 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10:2013

D. Test Site

All testing was performed at Eurofins Electrical and Electronic Testing NA, Inc., 3162 Belick St. Santa Clara, CA 95054. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

Eurofins Electrical and Electronic Testing NA, Inc. has been accredited by the American Association for Laboratory Accreditation (A2LA) (Certificate #: 0591.02) in accordance with ISO/IEC 17025:2017.

Eurofins Electrical and Electronic Testing NA, Inc. is part of the Eurofins Electrical & Electronics (E&E) global compliance network.

E. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty	K	Confidence Level
RF Frequencies	±4.52 Hz	2	95%
RF Power Conducted Emissions	±2.32 dB	2	95%
RF Power Conducted Spurious Emissions	±2.25 dB	2	95%
RF Power Radiated Emissions	±3.01 dB	2	95%

Uncertainty Calculations Summary

F. Modifications**a) Modifications to EUT**

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

G. Disposition of EUT

The test sample including all support equipment (if any), submitted to the Electromagnetic Compatibility Lab for testing was returned to CESI S.p.A upon completion of testing.

III. Electromagnetic Compatibility Criteria for Intentional Radiators

Radiated Emission and Bandage Measurement

Limits of Radiated Emission and Bandage Measurement:

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

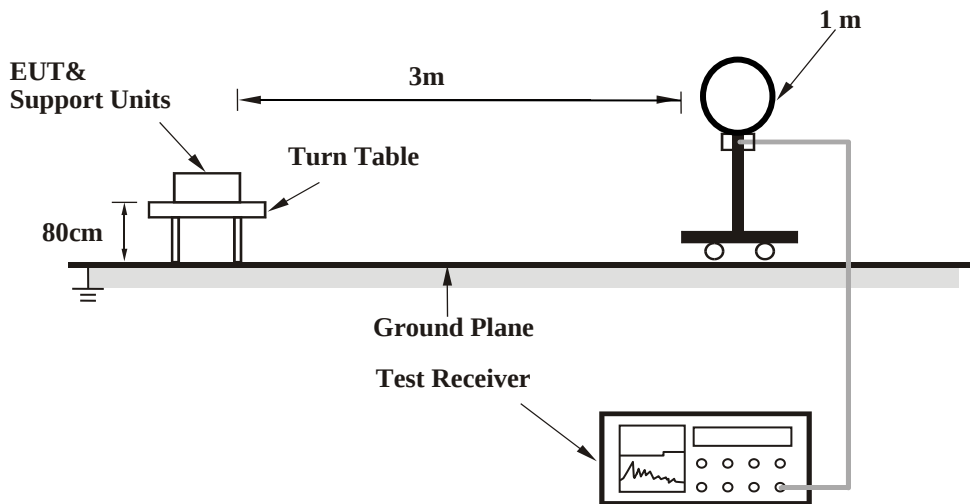
Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Test Procedures:

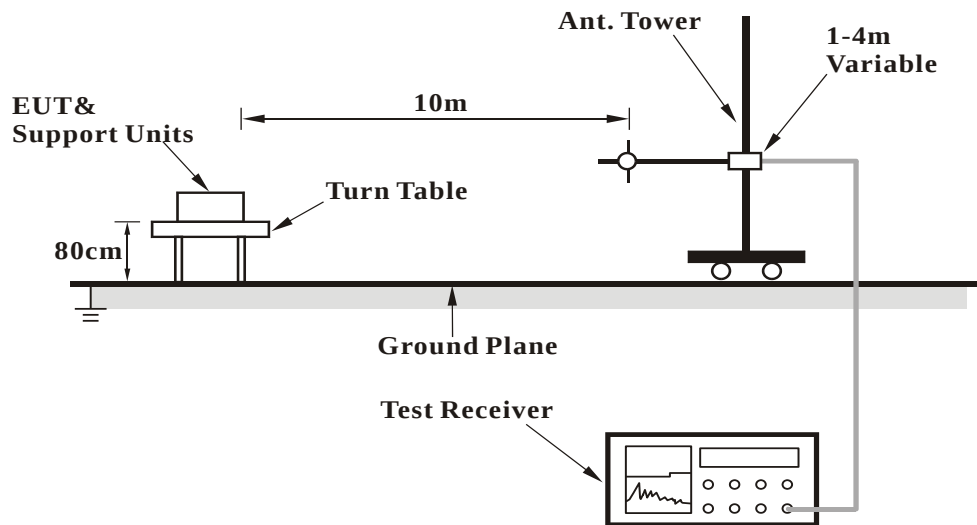
The transmitter was turned on. Measurements were performed of the low, mid and high Channels. The EUT was rotated orthogonally through all three axes. Plots shown are corrected for both antenna correction factor and distance and compared to a 3 m limit line. Only noise floor was measured above 18 GHz.

Test Setup

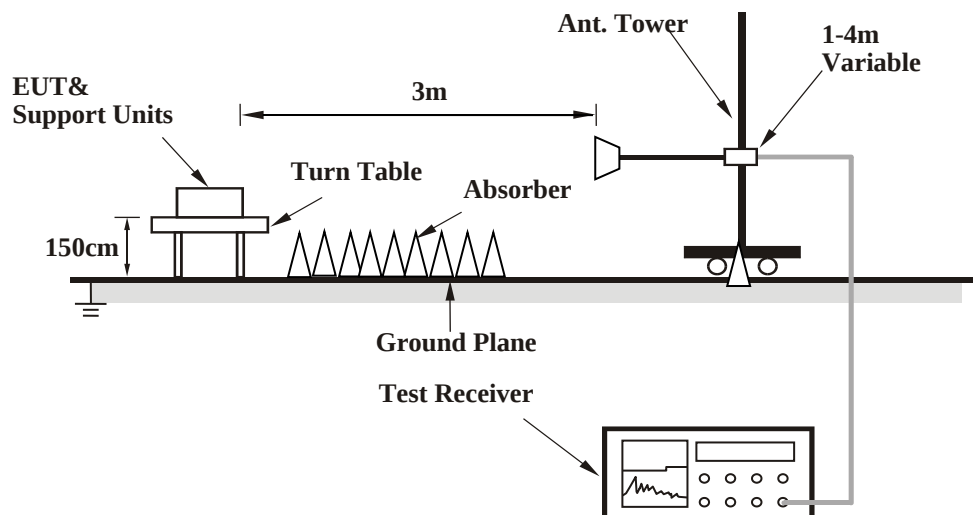
For Radiated Emission Below 30MHz



For Radiated emission 30 MHz to 1GHz



For Radiated emission 30 MHz to 1GHz



Test Results: The EUT was tested is **compliant** with Radiated Spurious Emissions Requirements.

Test Equipment List

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2017.

Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2003	EMI Test Receiver	ROHDE & SCHWARZ	N9030B	10/08/2021	10/08/2022
1S2399	Turntable Controller	SUNOL SCIENCE	SC99V	Not Required	Not Required
1S2486	5 Meter Chamber Control Room	Panashield	5 Meter Control Room	Not Required	Not Required
1S2435	Horn Antenna	ETS-LINDGREN	3117	03/03/2021	03/09/2023
N/A	Preamplifier	EMC Instrument	EMC118A45SE	Note 1	Note 1
1S2668	Preamplifier	Sonoma Instrument	310N	Note 1	Note 1
1S2600	Antenna	TESEQ GmbH	D-12623	05/ 11/ 2021	05/ 11/ 2023
1S3983	Loop Antenna	ETS-LINDGREN	6512	10/ 14 /2021	10/ 14 /2023
Note 1: Verified by calibrated instrumentation at the time of testing					

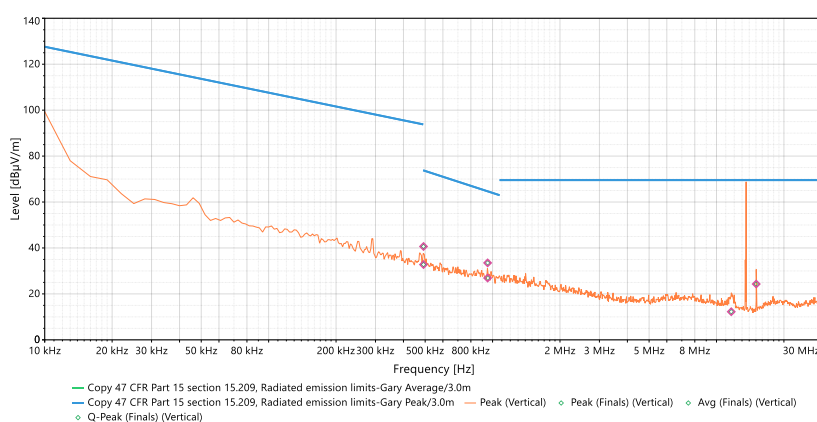
Test Engineer: Rafael Aguilar

Test Date(s): 02/28/2022

Test Data

Radiated Emissions (10 kHz~30 MHz)

EUT Test Condition		Measurement Detail	
Input Power	120 Vac	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Rafael Aguilar
Antenna Polarity & Test Distance: Loop Antenna 0 degree At 3m			
Test Mode : LTE, NFC and WLAN transmit simultaneously			

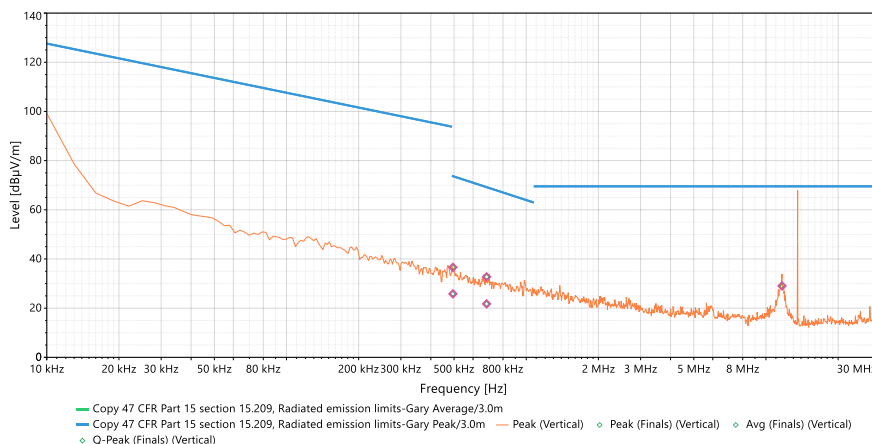


Antenna Polarity & Test Distance: Loop Antenna 90 degree At 3m															
No.	Frequency (MHz)	Polarization	Level Peak [dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Level Average [dB(uV/m)]	Limit Average dB(uV/m)	Margin Average [dB]	Level QP [dB(uV/m)]	Limit QP dB(uV/m)	Margin QP [dB]	Height (cm)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	0.491	0	-	-	-	-	-	-	40.65442	93.80284	-53.148	1	0	20.15	Pass
2	0.9504	0	-	-	-	-	-	-	33.49568	64.69301	-31.197	1	0	15.46	Pass
3	11.637	0	-	-	-	-	-	-	12.23892	69.54	-57.301	1	277	4.91	Pass
4	15.043	0	-	-	-	-	-	-	24.30484	69.54	-45.235	1	108	2.77	Pass

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin against the limit.

EUT Test Condition		Measurement Detail	
Input Power	120 Vac	Detector Function	Quasi-Peak
Environmental Conditions	25 deg. C, 70% RH	Tested By	Rafael Aguilar
Antenna Polarity & Test Distance: Loop Antenna 90 degree At 3m			
Test Mode : WCDMA/LTE, NFC and WLAN transmit simultaneously			



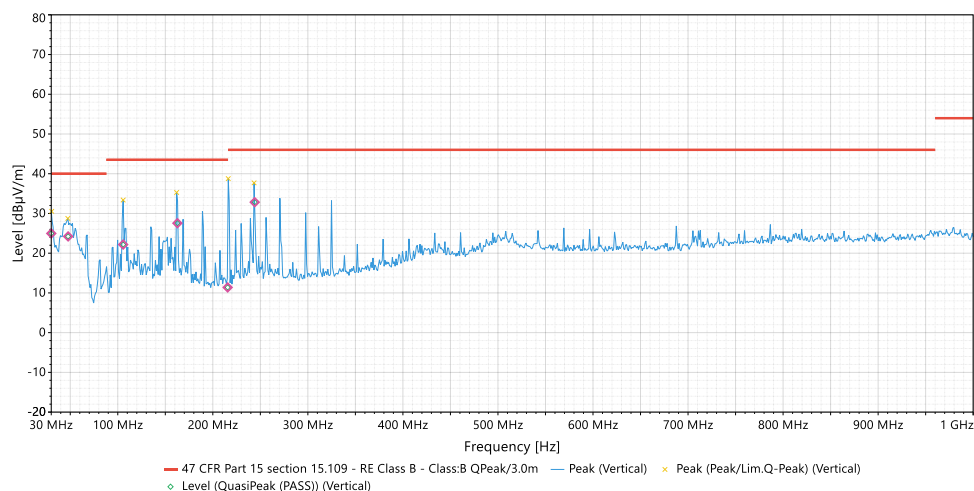
Antenna Polarity & Test Distance: Loop Antenna 90 degree At 3m															
No.	Frequency (MHz)	Polarization	Level Peak [dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Level Average [dB(uV/m)]	Limit Average dB(uV/m)	Margin Average [dB]	Level QP [dB(uV/m)]	Limit QP dB(uV/m)	Margin QP [dB]	Height (cm)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	0.4928	0	-	-	-	-	-	-	36.782	73.749	-36.968	1	272	20.07	Pass
2	0.699	0	-	-	-	-	-	-	33.810	70.702	-36.892	1	178	17.65	Pass
3	11.670	0	-	-	-	-	-	-	29.042	69.54	-40.498	1	291	4.9	Pass

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin against the limit.

Radiated Emissions (30 MHz~1000 MHz)

EUT Test Condition		Measurement Detail	
Input Power	120 Vac	Frequency Range	30MHz-1GHz
Environmental Conditions	25 deg. C, 70% RH	Tested By	Rafael Aguilar
Test Mode	WCDMA/LTE, NFC and WLAN transmit simultaneously		

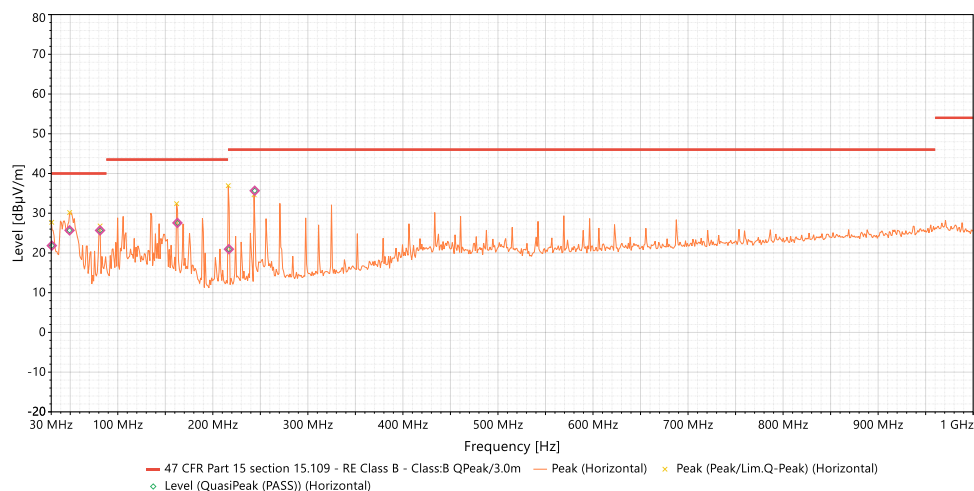


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level Peak[dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Height (cm)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	30.048	Vertical	24.97254	40	-15.0275	1.2	41	-9.56	Pass
2	47.76	Vertical	24.22218	40	-15.7778	1.17	272	-18.36	Pass
3	105.66	Vertical	22.17209	43.5	-21.3279	1.61	101	-12.73	Pass
4	162.724	Vertical	27.5495	43.5	-15.9505	3.16	121	-14.74	Pass
5	215.616	Vertical	11.37843	43.5	-32.1216	2.02	175	-15.18	Pass
6	244.084	Vertical	32.84018	46	-13.1598	1.68	314	-12.91	Pass

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin against the limit.

EUT Test Condition		Measurement Detail	
Input Power	120 Vac	Frequency Range	30MHz-1GHz
Environmental Conditions	25 deg. C, 70% RH	Tested By	Rafael Aguilar
Test Mode	WCDMA/LTE, NFC and WLAN transmit simultaneously		



Antenna Polarity & Test Distance: Horizontal at 3m									
No.	Frequency (MHz)	Polarization	Level Peak[dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Height (cm)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	30.6	Horizontal	21.83987519	40	-18.16012481	1.01	259	-7.68	Pass
2	49.292	Horizontal	25.67978934	40	-14.32021066	1.07	138	-17.59	Pass
3	81.374	Horizontal	25.66752747	40	-14.33247253	1.5	0	-18.72	Pass
4	162.736	Horizontal	27.55978466	43.5	-15.94021534	1.58	179	-15.44	Pass
5	216.936	Horizontal	20.95250625	46	-25.04749375	1.8	329	-15.15	Pass
6	244.084	Horizontal	35.6575784	46	-10.3424216	1.89	0	-12.8	Pass

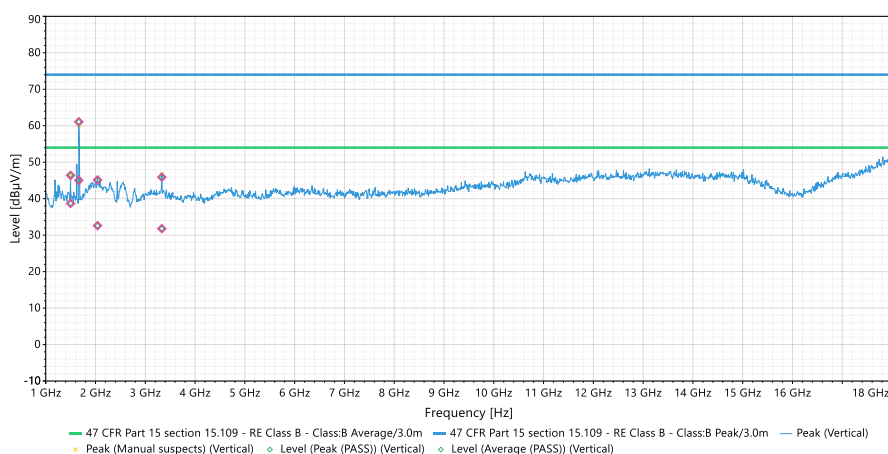
REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin against the limit.

Radiated Emissions (Above 1GHz)

EUT Test Condition		Measurement Detail	
Input Power	120 Vac	Frequency Range	30MHz-1GHz
Environmental Conditions	25 deg. C, 70% RH	Tested By	Rafael Aguilar
Test Mode	WCDMA/LTE, NFC and WLAN transmit simultaneously		

Vertical

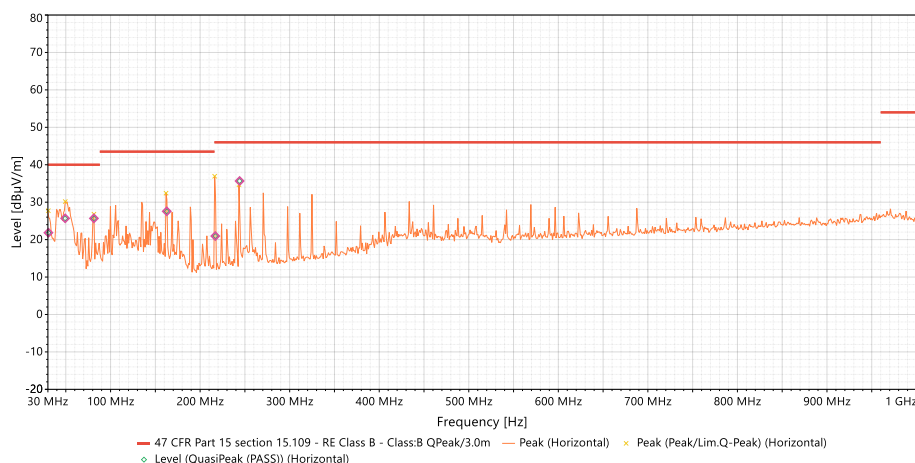


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level Peak[dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Height (cm)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	1499.8	Vertical	46.40469	74	-27.5953	1.48	100	-13.08	Pass
2	1499.8	Vertical	38.71779	54	-15.2822	1.48	100	-13.08	Pass
3	1664.7	Vertical	61.07741	74	-12.9226	1.94	205	-13.23	Pass
4	1664.7	Vertical	45.04349	54	-8.95651	1.94	205	-13.23	Pass
5	2040.4	Vertical	45.13276	74	-28.8672	1.93	0	-10.75	Pass
6	2040.4	Vertical	32.60056	54	-21.3994	1.93	0	-10.75	Pass
7	3332.4	Vertical	45.90154	74	-28.0985	1.55	306	-11.99	Pass
8	3332.4	Vertical	31.78286	54	-22.2171	1.55	306	-11.99	Pass

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin against the limit.

EUT Test Condition		Measurement Detail	
Input Power	120 Vac	Frequency Range	30MHz-1GHz
Environmental Conditions	25 deg. C, 70% RH	Tested By	Rafael Aguilar
Test Mode	WCDMA/LTE, NFC and WLAN transmit simultaneously		



Antenna Polarity & Test Distance: Horizontal at 3m									
No.	Frequency (MHz)	Polarization	Level Peak[dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Height (cm)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	1666.4	Horizontal	56.86306	74	-17.1369	1	215	-13.3	Pass
2	1666.4	Horizontal	43.7466	54	-10.2534	1	215	-13.3	Pass
3	2201.9	Horizontal	46.46187	74	-27.5381	1.93	100	-10.96	Pass
4	2201.9	Horizontal	32.89739	54	-21.1026	1.93	100	-10.96	Pass
5	3332.4	Horizontal	49.88911	74	-24.1109	1.27	358	-12.15	Pass
6	3332.4	Horizontal	35.43221	54	-18.5678	1.27	358	-12.15	Pass

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin against the limit.

IV. Pictures of test Arrangements

Please see setup photo file

V. Model difference declaration letter:

Enel X North America, Inc.
360 Industrial Road
San Carlos, CA 94070
USA

03/04/2022

Eurofins Electrical and Electronic Testing NA, Inc.
914 West Patapsco Avenue
Baltimore, MD 21230

RE: Model Declaration

We, Enel X North America, declare that following JuiceBox 2.01 product family filed under FCC ID: 2A4LRJB201NA.

JuiceBox 32, JuiceBox 40, JuiceBox 48 and JuiceBox 80, all have the same main board with the same RF devices. The only difference is the charging power output. JuiceBox 48 and JuiceBox 80 has a different relay board but it has no impact to emission.

Please contact me if there is any information you may need.

Sincerely,



Giovanni Bertolino
Head of e-Mobility, North America

END OF REPORT