HEADQUARTERS: 914 WEST PATAPSCO AVENUE • BALTIMORE, MARYLAND 21230 • PHONE (410) 354-3300 • FAX (410) 354-3313

07/01/2021

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.

Sincerely yours,

Rheine Nguyen
Documentation Department
Eurofins Electrical and Electronic Testing NA, Inc.

Reference: (\CESI SPA\WIR113585-FCC247)

ACCREDITED
TESTINGCERT #0591.02

Certificates and reports shall not be reproduced except in full, without the written permission of Eurofins Electrical and Electronic Testing NA, Inc. While use of the A2LA logo in this report reflects Eurofins Electrical and Electronic Testing NA, Inc. accreditation under these programs, the report must not be used by the client to claim product certification, approval, or endorsement by A2LA, or any agency of the Federal Government. This letter of transmittal is not a part of the attached report.

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

Electromagnetic Compatibility Criteria
Test Report

for the

CESI SPA
JuiceBox 2.01 40A Commercial

Tested under
the FCC Certification Rules
contained in
15.247 Subpart C for Intentional Radiators

Report: WIR113585-FCC247_Rev 1.0

07/01/2021

Prepared For:

CESI SPA
Via Raffaele Rubattino 54
Milano, Italy 20134

Prepared By:
Eurofins Electrical and Electronic Testing NA, Inc.
3162 Belick St
Santa Clara, CA 94587

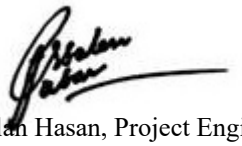
 © 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Electromagnetic Compatibility Criteria
Test Report

for the

CESI SPA
JuiceBox 2.01 40A Commercial

Tested under
the FCC Certification Rules
contained in
15.247 Subpart C for Intentional Radiators



Arsalan Hasan, Project Engineer
Electromagnetic Compatibility Lab

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 the FCC Rules Part 15.247 under normal use and maintenance.

Gary Chou

Gary Chou,
Manager, Wireless Laboratory

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	07/01/2021	Initial Issue.
1.0	04/06/2022	Add the conducted power test result

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Table of Contents

I. Executive Summary 1
A. Purpose of Test 1
B. Executive Summary 1
II. Equipment Configuration 2
A. Overview 2
B. References 3
C. Test Site 3
D. Measurement Uncertainty 3
E. Equipment Overview and Test Configuration 4
F. Modifications 5
a) Modifications to EUT 5
b) Modifications to Test Standard 5
G. Disposition of EUT 5
III. Electromagnetic Compatibility Criteria for Intentional Radiators 6
Radiated Spurious Emissions Requirements and Band Edge 6
Conducted Power measument 11

 © 2022, Eurofins Electrical and Electronic Testing NA, Inc.

List of Tables

Table 1. Executive Summary of EMC Part 15.247 ComplianceTesting 1
Table 2. EUT Summary Table 2
Table 3. References 3
Table 4. Uncertainty Calculations Summary 3
Table 5. Restricted Bands of Operation 6
Table 6. Radiated Emissions Limits Calculated from FCC Part 15, § 15.209 (a) 7

List of Plots

Plot 1. Radiated Emissions, Low Channel, 1-18GHz, Average 8
Plot 2. Radiated Emissions, Low Channel, 1-18GHz, Peak 8
Plot 3. Radiated Emissions, Mid Channel, 1-18GHz, Average 9
Plot 4. Radiated Emissions, Mid Channel, 1-18GHz, Peak 9
Plot 5. Radiated Emissions, High Channel, 1-18GHz, Average 10
Plot 6. Radiated Emissions, High Channel, 1-18GHz, Peak 10

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the CESI SPA JuiceBox 2.01 40A Commercial, with the requirements of Part 15, §15.247. All references are to the most current version of Title 47 of the Code of Federal Regulations in effect. In accordance with §2.1033, the following data is presented in support of the Certification of the JuiceBox 2.01 40A Commercial. CESI SPA should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the JuiceBox 2.01 40A Commercial, has been **permanently** discontinued.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, §15.247, in accordance with CESI SPA, purchase order number 4500012287. All tests were conducted using measurement procedure ANSI C63.10-2013.

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC/ IC Cluse	Test Item	Result	Remarks
15.205 &15.209 & 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth & 99% bandwidth	N/A	Note 2
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	N/A	Note 2
15.203	Antenna Requirement	PASS	PCB antenna (without connector) meet the requirement.

Note:

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

2 Please refer FCC report: QOQ13

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Equipment Configuration

A. Overview

Eurofins Electrical and Electronic Testing NA, Inc. was contracted by CESI SPA to perform testing on the JuiceBox 2.01 40A Commercial, under CESI SPA's purchase order number 4500012287.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the CESI SPA, JuiceBox 2.01 40A Commercial.

The results obtained relate only to the item(s) tested.

Model(s) Tested:	JuiceBox 2.01 40A Commercial	
Series Model:	JuiceBox 2.01 32A, JuiceBox 2.01 48A, JuiceBox 2.01 80A	
EUT Specifications:	Primary Power: 110-240VAC	
	FCC ID: 2A4LRJB201NA	
	Type of Modulations:	OFDM/ ASK
	Equipment Code:	DTS
	Maximum Output Power:	18.79 dBm
	EUT Frequency Ranges:	60 Hz
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 15-35º C	
	Relative Humidity: 30-60%	
	Barometric Pressure: 860-1060 mbar	
Evaluated by:	Arsalan Hasan	
Report Date(s):	04/06/2022	

Table 1. EUT Summary Table

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

B. References

CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
ANSI C63.4:2014	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ISO/IEC 17025:2017	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
KDB 558074 v05r02	Guidance For Performing Compliance Measurements On Digital Transmission Systems (DTS) Operating Under Section 15.247

Table 2. References

C. Test Site

All testing was performed at Eurofins Electrical and Electronic Testing NA, Inc., 3162 Belick Street, 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.

Radiated Emissions measurements were performed in a 3 meter semi-anechoic chamber (equivalent to an Open Area Test Site). In accordance with §2.948(a)(3), a complete site description is contained at Eurofins Electrical and Electronic Testing NA, Inc.

D. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty	K	Confidence Level
Radiated Emissions, (30 MHz – 1 GHz)	±3.24	2	95%
Radiated Emissions, (1 GHz – 6 GHz)	±3.92	2	95%
Conducted Emission Voltage	±2.44	2	95%
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%

Table 3. Uncertainty Calculations Summary

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

E. Equipment Overview and Test Configuration

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: Voltage: 120Vac.	120Vac.
	Voltage Frequency:	50/60 Hz
	Technology / Type of Modulations:	WLAN 802.11 B/G/N: DSSS/ OFDM NFC : ASK UMTS : OFDM LTE : OFDM BLE : GFSK
	Operating Frequency :	**NFC**:13.56 MHz **WLAN**: 2412-2462 MHz **BLE:** 2402-2480MHz **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
	Firmwave Rev:	05
	Antenna Type:	WLAN: Chip Antenna 1.86dBi BLE: PCB Antenna 1dBi 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.	
	Temperature: 20.3º C	

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Environmental Test Conditions:	Relative Humidity: 47.5%
	Barometric Pressure: 860-1060 mbar
Evaluated by:	Arsalan Hasan
Issue Date(s):	April 06, 2022

Ports and Cabling

Ref. Id	Port Name on EUT	Cable Description or reason for no cable	Qty	Length as tested (m)	Max Length (m)	Shielded? (Y/N)	Termination Box ID & Port Name
--	AC input	--	--	--	--	no	--
--	CPT port	EV charging cable	--	--	--	no	--

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 submitted to the Electro-Magnetic Compatibility Lab for testing was returned to CESI SPA upon completion of testing.

 © 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.209 Radiated Spurious Emissions Requirements and Band Edge

Test Requirements: **§15.247(d); §15.205:** Emissions outside the frequency band.

§15.205(a): Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
[1] 0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	([2])
13.36-13.41			

Table 4. Restricted Bands of Operation

[1] Until February 1, 1999, this restricted band shall be 0.490 – 0.510 MHz.
[2]Above 38.6

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Test Requirement(s): **§ 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 Table 5.

Frequency (MHz)	§ 15.209(a),Radiated Emission Limits (dBµV) @ 3m
30 - 88	40.00
88 - 216	43.50
216 - 960	46.00
Above 960	54.00

Table 5. Radiated Emissions Limits Calculated from FCC Part 15, § 15.209 (a)

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.

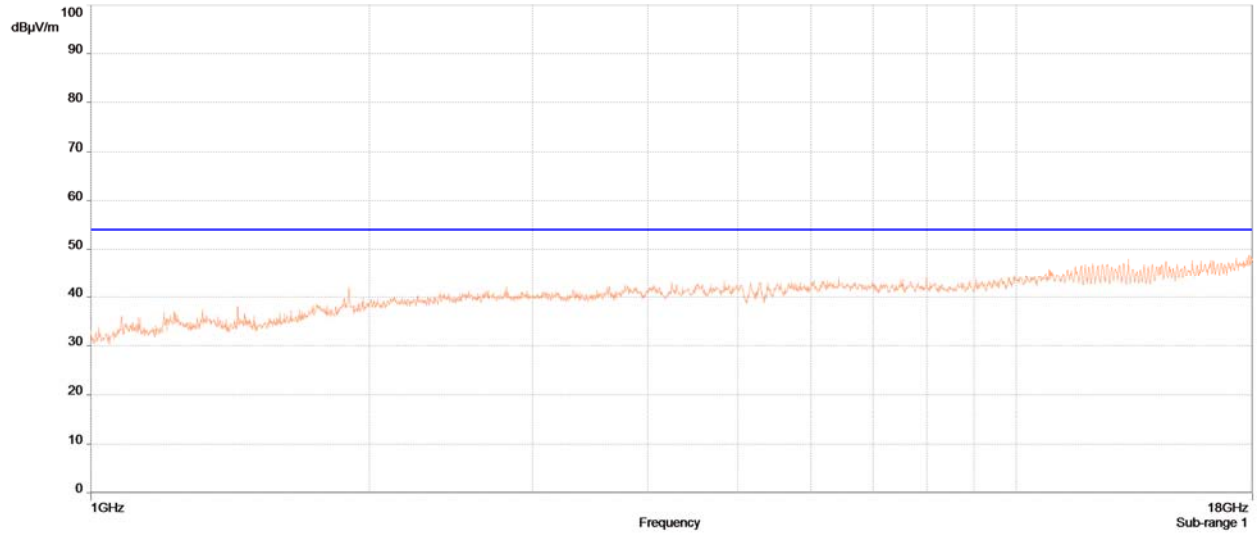
Test Results: The EUT was **compliant** with the Radiated Spurious Emission limits of **§ 15.247(d) and § 15.209**.

Test Engineer(s): Arsalan Hasan

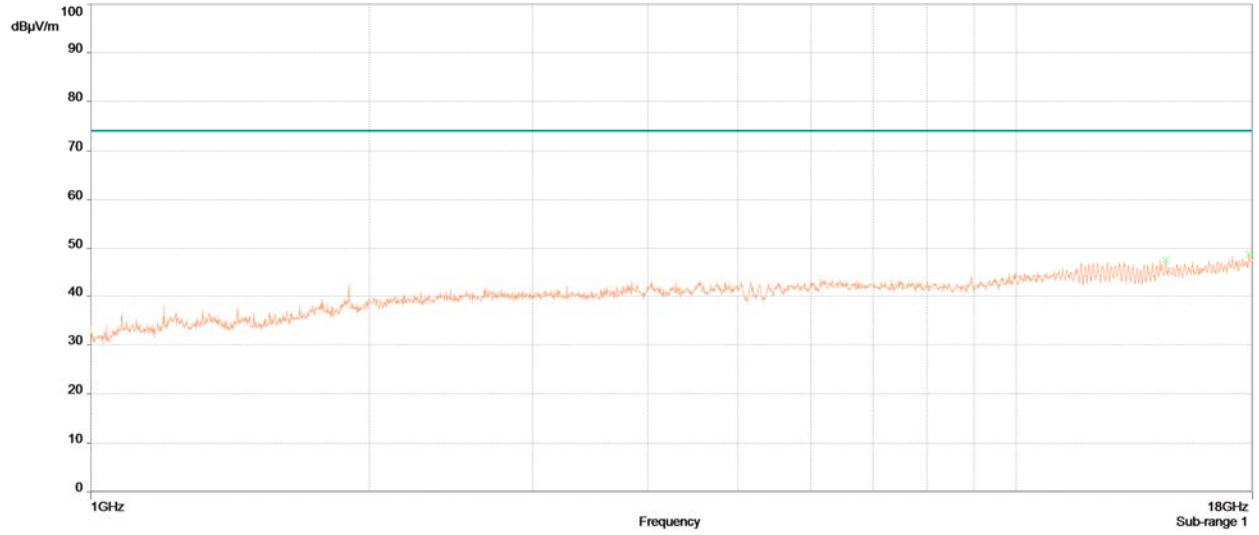
Test Date(s): 06/30/2021

 © 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Radiated Spurious Emissions, Test Results

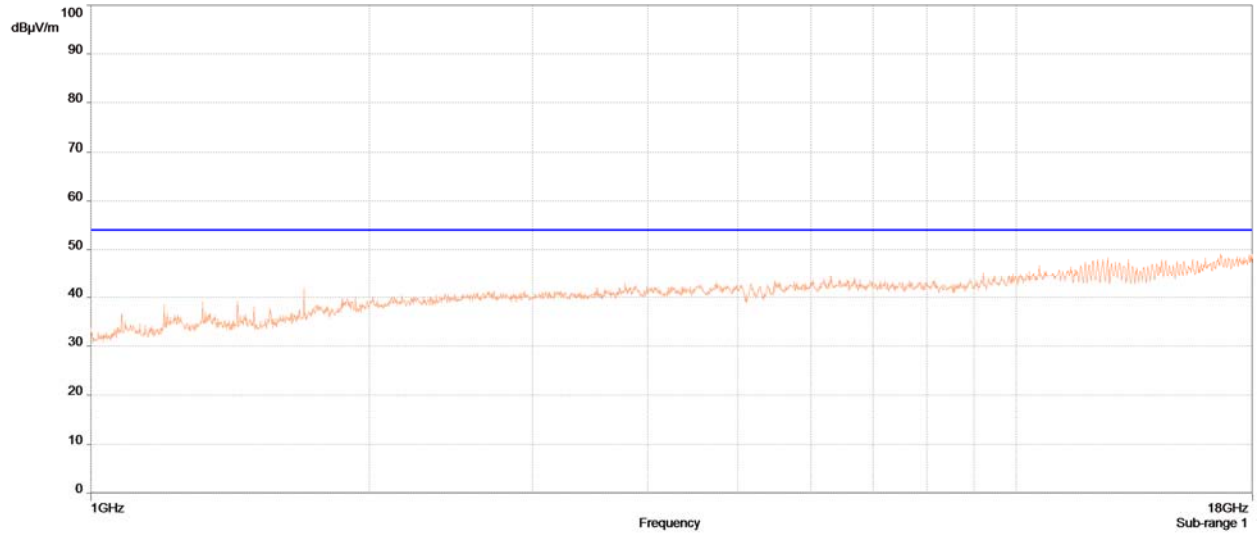


Plot 1. Radiated Emissions, Low Channel, 1-18GHz, Average

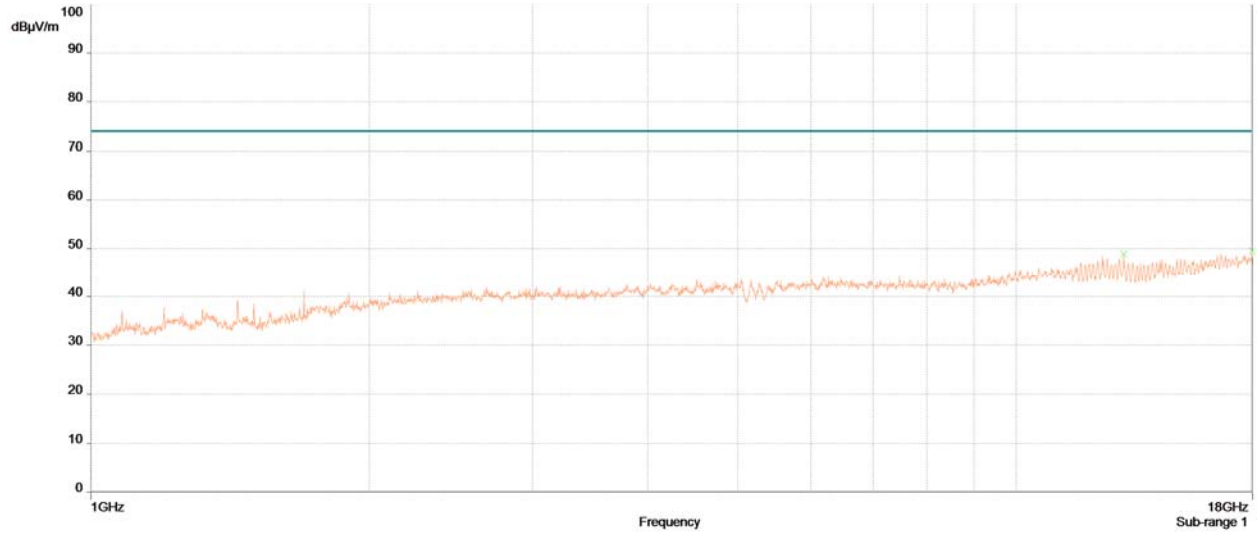


Plot 2. Radiated Emissions, Low Channel, 1-18GHz, Peak

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

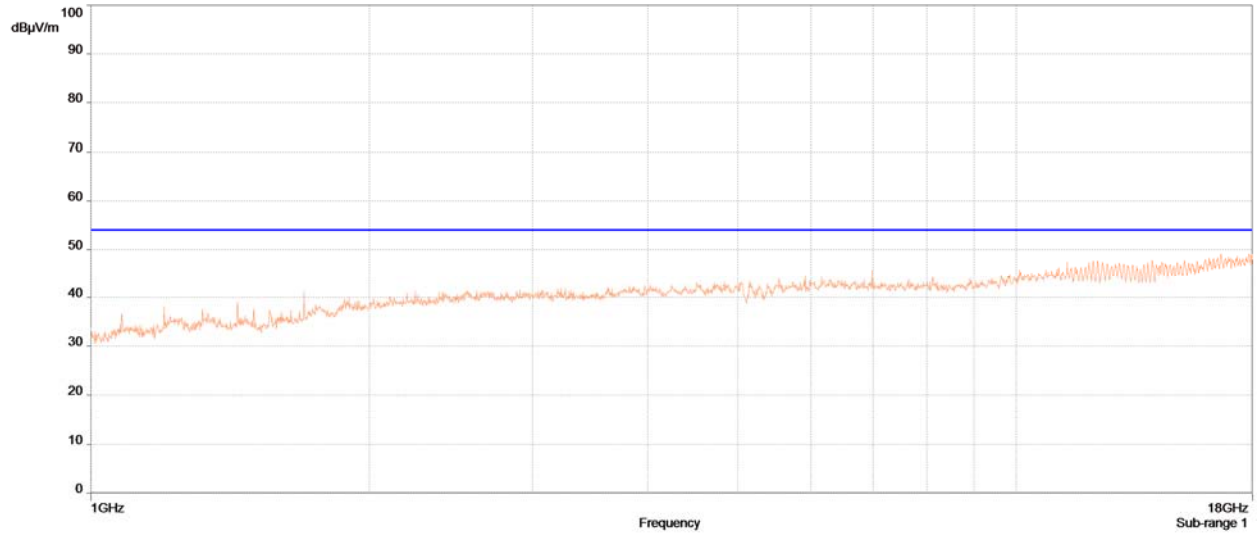


Plot 3. Radiated Emissions, Mid Channel, 1-18GHz, Average

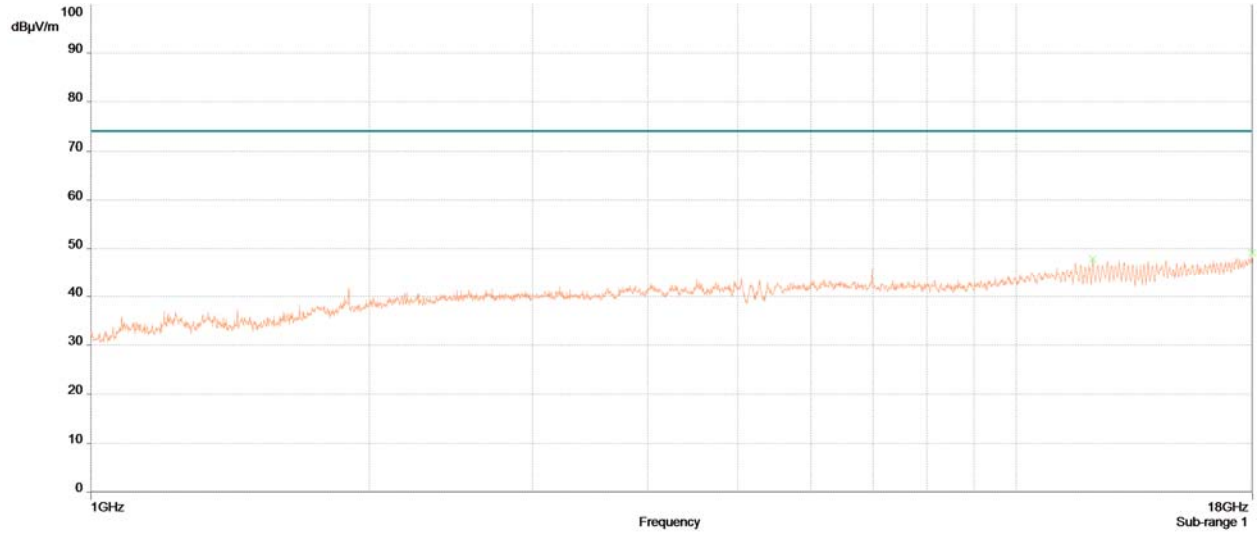


Plot 4. Radiated Emissions, Mid Channel, 1-18GHz, Peak

 © 2022, Eurofins Electrical and Electronic Testing NA, Inc.



Plot 5. Radiated Emissions, High Channel, 1-18GHz, Average



Plot 6. Radiated Emissions, High Channel, 1-18GHz, Peak

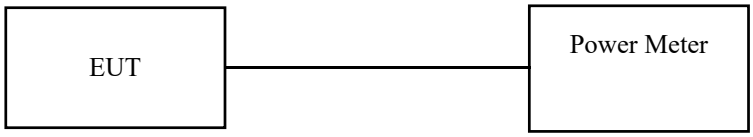
© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

§ 15.209 Radiated Spurious Emissions Requirements and Band Edge

Limits of Conducted Output Power Measurement:

Test Procedures:
A power meter sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level

Test Setup:



Test Results: The EUT was tested is **compliant** with Conducted Output Power Measurement.

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
N/A	Power Meter	ROHDE & SCHWARZ	NRQ6	10/08/2021	10/08/2022
Note 1: Verified by calibrated instrumentation at the time of testing					

Test Engineer: Rafael Aguilar

Test Date(s): 04/28/2022

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

Test Data

B Mode

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	17.43	30	Pass
6	2437	18.35	30	Pass
11	2462	17.53	30	Pass

G Mode

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	17.73	30	Pass
6	2437	18.76	30	Pass
11	2462	14.92	30	Pass

N Mode (HT20)

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	14.23	30	Pass
6	2437	18.79	30	Pass
11	2462	14.59	30	Pass

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.

End of Report

© 2022, Eurofins Electrical and Electronic Testing NA, Inc.