



Engineering Test Report No. ETR2202544-02

Report Date	July 26, 2022	
Manufacturer Name	Enovation Controls LLC	
Manufacturer Address	5311 South 122nd East Ave Tulsa, OK 74146	
Test Item Name Model No.	BRP Infotainment Display OD1025-01	
Date Received	June 30, 2022	
Test Dates	July 18 & 19, 2022	
Specifications	FCC "Code of Federal Regulations" Title 47 Part 15, Subpart C, Section 15.247 FCC "Code of Federal Regulations" Title 47 Part 15, Subpart E, Section 15.407 Innovation, Science, and Economic Development Canada, RSS-GEN Innovation, Science, and Economic Development Canada, RSS-247	
Test Facility	Elite Electronic Engineering, Inc. 1516 Centre Circle, Downers Grove, IL 60515	FCC Reg. Number: 269750 IC Reg. Number: 2987A CAB Identifier: US0107
Signature		
Tested by	Tylar Jozefczyk	
Signature		
Approved by	Raymond J. Klouda, Registered Professional Engineer of Illinois – 44894	
PO Number	7667505	

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1. Report Revision History

Revision	Date	Description
-	26 JUL 2022	Initial Release of Engineering Test Report No. ETR2202544-02

2. Introduction

2.1. Scope of Tests

This document presents the results of a series of RF emissions tests that were performed on the Enovation Controls LLC BRP Infotainment Display (hereinafter referred to as the Equipment Under Test (EUT)). The EUT was manufactured and submitted for testing by Enovation Controls LLC located in Tulsa, OK.

2.2. Purpose

The test series was performed to determine if the Enovation Controls LLC BRP Infotainment Display, FCC ID: Z64-WL18DBMOD, meets the Class II Permissive Change requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, §15.247 and Subpart E, §15.407 for transmitters operating in the 55180 – 5850MHz band.

The test series was also performed to determine if the Enovation Controls LLC BRP Infotainment Display, IC 4511-WL18DBMOD meets the Class II Permissive Change requirements of the Innovation, Science, and Economic Development Canada Radio Standards Specification RSS-Gen and RSS-247 for transmitters operating in the 55180 – 5850MHz band.

The following modifications have been made to the original equipment:

- Antenna placement was modified.

The EUT is equipped with the following pre-certified radio module:

- Texas Instruments WL18MODGI Wi-Fi module (FCC ID: Z64-WL18DBMOD, ISED UPN: 4511-WL18DBMOD), operating in the 5GHz band.

Testing was performed in accordance with ANSI C63.10-2013.

2.3. Identification of the EUT

The EUT was identified as follows:

EUT Identification	
Product Description	BRP Infotainment Display
Model/Part No.	OD1025-01
Serial No.	N/A
Size of EUT	131.67mm x 75.29mm x 274mm
Software/Firmware Version	3.5
Device Type	Digitally Modulated Transmission Device
Band of Operation	5150 – 5250MHz (U-NII-1) 5250 – 5350MHz (U-NII-2A) 5470 – 5725MHz (U-NII-2C) 5725 – 5850MHz (U-NII-3)
Modulation Type	OFDM
Antenna Type	Chip
Antenna Gain (dBi) ¹	3.2dBi
Rated Output Power	802.11a: 0.18W (22.57dBm) 802.11n-HT20: 0.207W (23.16dBm) 802.11n-HT40: 0.1686W (22.27dBm)
Product FCC ID & ISED UPN Number	FCC ID: Z64-WL18DBMOD ISED UPN: 4511-WL18DBMOD
Note 1 – Antenna gain is supplied by the manufacturer and Elite is not responsible for the accuracy of the antenna gain.	

The EUT listed above was used throughout the test series.

3. Power Input

The EUT was powered by 12VDC from a 1-meter harness.

4. Grounding

The EUT was not connected to ground.

5. Support Equipment

The EUT was submitted for testing along with the following support equipment:

Description	Model #	S/N
Elite Support Laptop	hp	---

6. Interconnect Leads

The following interconnect cables were submitted with the test item:

Item	Description
12VDC Harness	Powers EUT
Serial Cable	Connects laptop to EUT

7. Modifications Made to the EUT

No modifications were made to the EUT during the testing.

8. Modes of Operation

The EUT and all peripheral equipment were energized. The unit was programmed to transmit in one of the following modes:

Mode	Frequencies
802.11a MCS0	- 5240MHz - 5260MHz - 5580MHz - 5785MHz
802.11n-HT20 MCS0	- 5180MHz - 5320MHz - 5500MHz - 5825MHz
802.11n-HT40 MCS0	- 5190MHz - 5310MHz - 5670MHz - 5795MHz
Note: All frequencies were tested at power setting 30dBm in the test software provided by Enovation Controls LLC personnel.	

9. Test Specifications

The tests were performed to selected portions of, and in accordance with, the test specifications.

- Federal Communications Commission "Code of Federal Regulations", Title 47, Chapter I, Subchapter A, Part 15, Subpart C
- Federal Communications Commission "Code of Federal Regulations", Title 47, Chapter I, Subchapter A, Part 15, Subpart E

- ANSI C63.10-2013, “American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices”
- KDB 558074 D01v05r02, April 2, 2019 – “Federal Communications Commission Office of Engineering and Technology Laboratory Division – Guidance For Compliance Measurements On Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of the FCC Rules”
- KDB 905462 D02 – “Federal Communications Commission Office of Engineering Technology Laboratory Division – Compliance Measurement Procedures for Unlicensed-National Information Infrastructure Devices Operating in the 5250-535MHz and 5470-5725MHz Bands Incorporating Dynamic Frequency Selection”
- RSS-Gen Issue 5, February 2020, Amendment 2, Innovation, Science, and Economic Development Canada, “General Requirements for Compliance of Radio Apparatus”
- RSS-247 Issue 2, February 2017, “Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices”

10. Test Plan

No test plan was provided. Instructions were provided by personnel from Enovation Controls LLC and used in conjunction with the FCC "Code of Federal Regulations" Title 47 Part 15, Subpart C, Section 15.247, FCC "Code of Federal Regulations" Title 47 Part 15, Subpart E, Section 15.407, Innovation, Science, and Economic Development Canada, RSS-247, and ANSI C63.10-2013 specifications.

11. Deviation, Additions to, or Exclusions from Test Specifications

There were no deviations, additions to, or exclusions from the test specifications during this test series.

12. Laboratory Conditions

The ambient parameters of the laboratory during testing were as follows:

Ambient Parameters	Value
Temperature	24.7°C
Relative Humidity	38%
Atmospheric Pressure	1003.5mb

13. Summary

The following EMC tests were performed, and the results are shown below:

Test Description	Requirements	Test Method	Results
Effective Isotropic Radiated Power (EIRP)	FCC 15.247 ISED RSS-247	ANSI C63.10:2013	Conforms
Case Spurious Radiated Emissions	FCC 15.247 ISED RSS-247	ANSI C63.10:2013	Conforms
Band-Edge Compliance	FCC 15.247 ISED RSS-247	ANSI C63.10:2013	Conforms

14. Sample Calculations

For Radiated Emissions:

The resultant field strength (FS) is a summation in decibels (dB) of the receiver meter reading (MTR),

the antenna correction factor (AF), and the cable loss factor (CF). If an external preamplifier is used, the total is reduced by its gain (-PA). If a distance correction (DC) is required, it is added to the total.

$$\text{Formula 1: FS (dB}\mu\text{V/m)} = \text{MTR (dB}\mu\text{V)} + \text{AF (dB/m)} + \text{CF (dB)} + (-\text{PA (dB)}) + \text{DC (dB)}$$

To convert the Field Strength dB μ V/m term to μ V/m, the dB μ V/m is first divided by 20. The Base 10 AntiLog is taken of this quotient. The result is the Field Strength value in μ V/m terms.

$$\text{Formula 2: FS (}\mu\text{V/m)} = \text{AntiLog} [(\text{FS (dB}\mu\text{V/m)})/20]$$

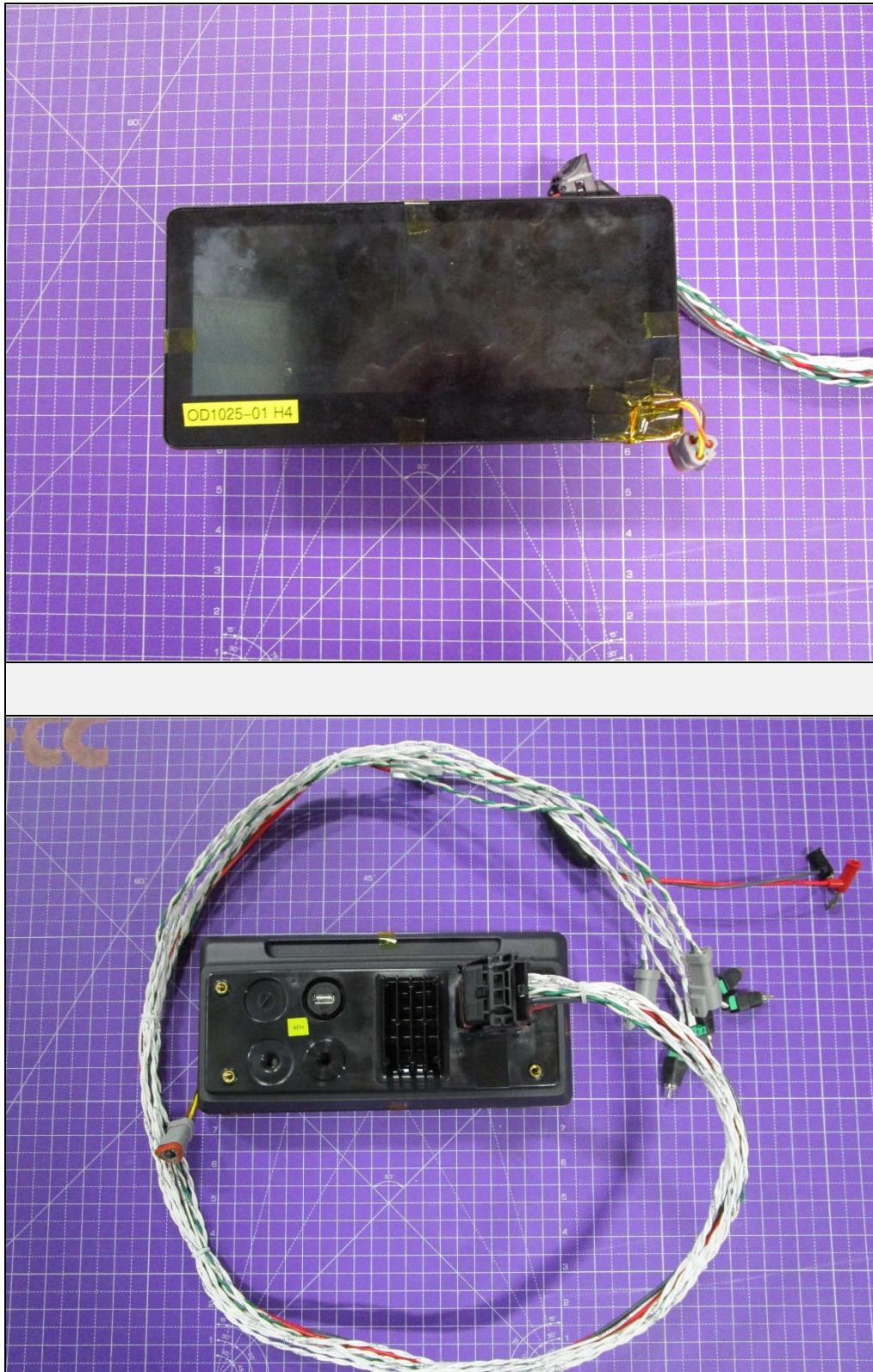
15. Statement of Conformity

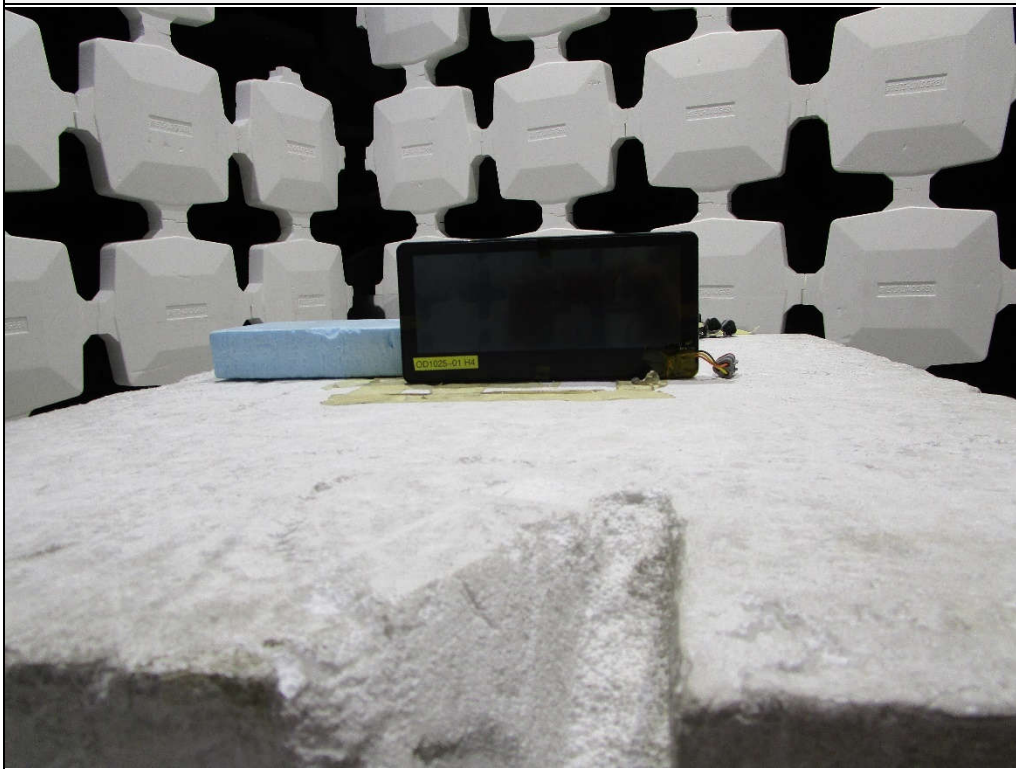
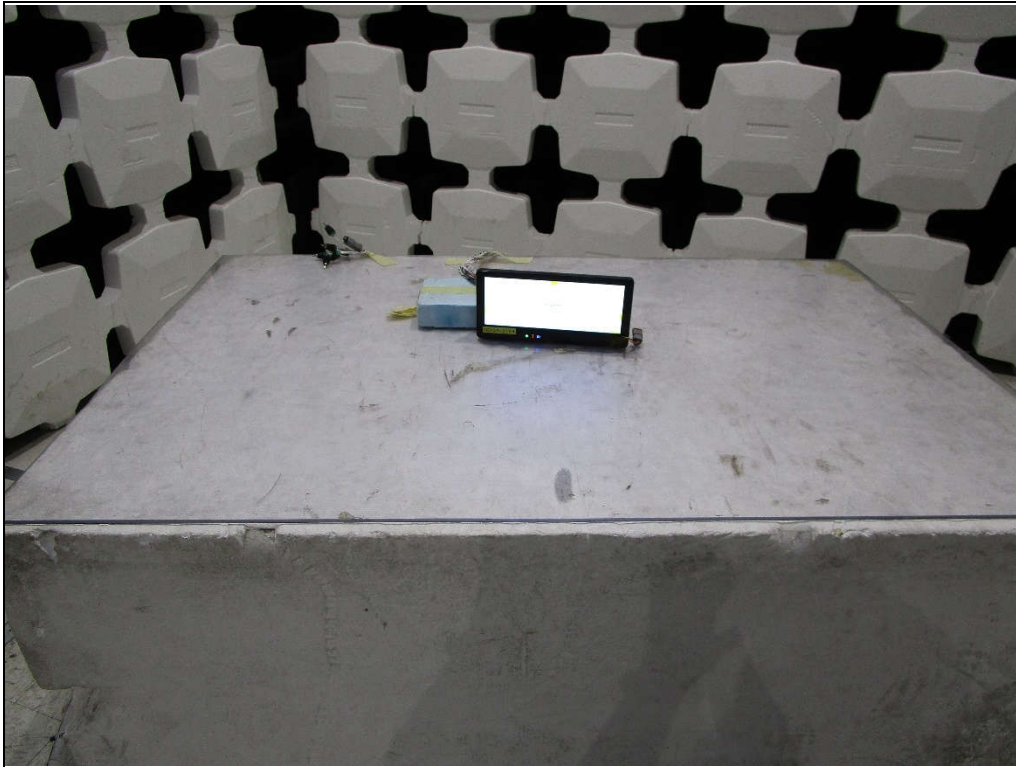
The Enovation Controls LLC BRP Infotainment Display (Model No. OD1025-01, Serial No. N/A) did fully conform to the selected requirements of FCC "Code of Federal Regulations" Title 47 Part 15, Subpart C, Section 15.247 and Innovation, Science, and Economic Development Canada, RSS-247.

16. Certification

Elite Electronic Engineering Incorporated certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the FCC "Code of Federal Regulations" Title 47 Part 15, Subpart C, Section 15.247 and Innovation, Science, and Economic Development Canada, RSS-247 test specifications. The data presented in this test report pertains to the EUT on the test date specified. Any electrical or mechanical modifications made to the EUT subsequent to the specified test date will serve to invalidate the data and void this certification.

17. Photographs of EUT





18. Equipment List

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Due Date
APW14	PREAMPLIFIER	PLANAR	PE2-35-120-5R0-10-12-SFF	PL22671	1-20GHz	9/21/2021	9/21/2022
CDZ3	LAB WORKSTATION	ELITE	LWS-10		WINDOWS 10	CNR	
NWQ2	DOUBLE RIDGED WAVEGUIDE ANTENNA	ETS LINDGREN	3117	66659	1GHZ-18GHZ	4/27/2022	4/27/2024
R29F	3M ANECHOIC CHAMBER NSA	EMC TEST SYSTEMS	3M ANECHOIC		30MHZ-18GHZ	3/25/2022	3/25/2023
RBG2	EMI ANALYZER	ROHDE & SCHWARZ	ESW44	101591	2HZ-44GHZ	3/31/2022	3/31/2023
SES0	24VDC POWER SUPPLY	P-TRANS	FS-32024-1M	001	18-27VDC	NOTE 1	
SMAT	DC POWER SUPPLY	VOLTEQ	HY3020EX	11885472	30VDC/20A	NOTE 1	
WKA1	SOFTWARE, UNIVERSAL RCV EMI	ELITE	UNIV_RCV_EMI	1	---	I/O	
XPQ5	FILTER	K&L MICROWAVE	11SH10-9000/U2000-O/O	1	5000-5800 MHZ	9/7/2021	9/7/2023

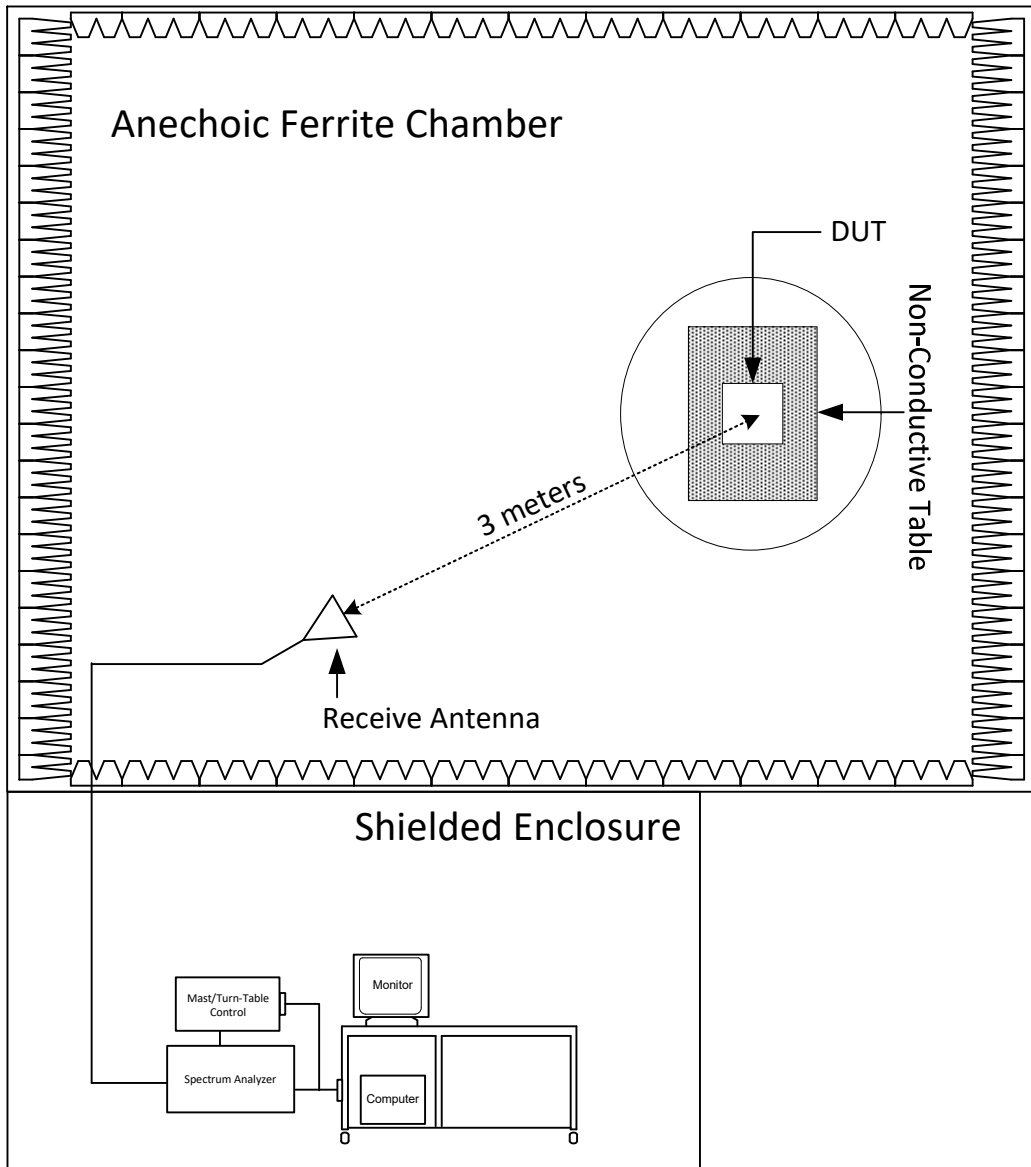
N/A: Not Applicable

I/O: Initial Only

CNR: Calibration Not Required

NOTE 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

19. Block Diagram of Test Setup



Radiated Measurements Test Setup

20. Effective Isotropic Radiated Power (EIRP)

EUT Information	
Manufacturer	Enovation Controls LLC
Product	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a

Test Setup Details	
Setup Format	Tabletop
Measurement Method	Radiated
Type of Test Site	Semi-Anechoic Chamber
Test Site Used	Room 29
Type of Antennas Used	Above 1GHz: Double-ridged waveguide (or equivalent)
Notes	

Measurement Uncertainty	
Measurement Type	Expanded Measurement Uncertainty
Radiated disturbance (electric field strength on an open area test site or alternative test site) (1 GHz – 6 GHz)	3.1

Requirements
The output power shall not exceed 4W (36dBm).

Procedure
<p>The EUT was placed on the non-conductive stand and set to transmit. A double ridged waveguide antenna was placed at a test distance of 3 meters from the EUT. The resolution bandwidth (RBW) of the spectrum analyzer was set to greater than the 6dB bandwidth. The EUT was maximized for worst case emissions (or maximum output power) at the measuring antenna. The maximum meter reading was recorded. The peak power output was measured for the low, middle, and high channels.</p> <p>The equivalent power was determined from the field intensity levels measured at 3 meters using the substitution method. To determine the emission power, a dipole antenna (double ridged waveguide antenna for all measurements above 1GHz) was then set in place of the EUT and connected to a calibrated signal generator. The output of the signal generator was adjusted to match the received level at the spectrum analyzer. The signal level was recorded. The reading was then corrected to compensate for cable loss (and antenna gain for all measurements above 1GHz), as required. The peak power output was calculated for low, middle, and high hopping frequencies.</p>

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Result	Max EIRP = 0.18W (22.57dBm)
Notes	

Freq (MHz)	Ant Pol	Wide BW Meter Reading (dBμV)	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total (dBμV/m)	EIRP (dBm)	Limit (dBm)	Margin (dB)
5240.00	H	75.04	5.19	34.57	0.00	114.80	19.50	36.00	-16.50
	V	72.80	5.19	34.57	0.00	112.56	17.26	36.00	-18.74
5260.00	H	74.22	5.18	34.60	0.00	114.00	18.70	36.00	-17.30
	V	75.39	5.18	34.60	0.00	115.17	19.87	36.00	-16.13
5580.00	H	75.21	5.12	34.93	0.00	115.27	19.97	36.00	-16.03
	V	74.79	5.12	34.93	0.00	114.85	19.55	36.00	-16.45
5785.00	H	77.08	5.26	35.53	0.00	117.87	22.57	36.00	-13.43
	V	74.53	5.26	35.53	0.00	115.32	20.02	36.00	-15.98

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Result	Max EIRP = 0.207W (23.16dBm)
Notes	

Freq (MHz)	Ant Pol	Wide BW Meter Reading (dBμV)	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total (dBμV/m)	EIRP (dBm)	Limit (dBm)	Margin (dB)
5180.00	H	76.10	5.22	34.44	0.00	115.76	20.46	36.00	-15.54
	V	75.94	5.22	34.44	0.00	115.60	20.30	36.00	-15.70
5320.00	H	77.76	5.15	34.66	0.00	117.57	22.27	36.00	-13.73
	V	75.58	5.15	34.66	0.00	115.39	20.09	36.00	-15.91
5500.00	H	78.58	5.07	34.81	0.00	118.46	23.16	36.00	-12.84
	V	71.26	5.07	34.81	0.00	111.14	15.84	36.00	-20.16
5825.00	H	74.58	5.28	35.72	0.00	115.58	20.28	36.00	-15.72
	V	70.36	5.28	35.72	0.00	111.36	16.06	36.00	-19.94

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Result	Max EIRP = 0.1686W (22.27dBm)
Notes	

Freq (MHz)	Ant Pol	Wide BW Meter Reading (dBμV)	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total (dBμV/m)	EIRP (dBm)	Limit (dBm)	Margin (dB)
5190.00	H	73.10	5.21	34.46	0.00	112.78	17.48	36.00	-18.52
	V	72.77	5.21	34.46	0.00	112.45	17.15	36.00	-18.85
5310.00	H	76.72	5.16	34.66	0.00	116.53	21.23	36.00	-14.77
	V	75.19	5.16	34.66	0.00	115.00	19.70	36.00	-16.30
5670.00	H	77.22	5.18	35.17	0.00	117.57	22.27	36.00	-13.73
	V	71.25	5.18	35.17	0.00	111.60	16.30	36.00	-19.70
5795.00	H	75.37	5.26	35.57	0.00	116.21	20.91	36.00	-15.09
	V	73.48	5.26	35.57	0.00	114.32	19.02	36.00	-16.98

21. Case Spurious Radiated Emissions

EUT Information	
Manufacturer	Enovation Controls LLC
Product	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a, 802.11n-HT20, 802.11n-HT40

Test Setup Details	
Setup Format	Tabletop
Type of Test Site	Semi-Anechoic Chamber
Test Site Used	Room 29
Type of Antennas Used	1 – 18GHz: Double-Ridged Waveguide (or equivalent)
Notes	

Measurement Uncertainty	
Measurement Type	Expanded Measurement Uncertainty
Radiated disturbance (electric field strength on an open area test site or alternative test site) (1 GHz – 6 GHz)	3.1
Radiated disturbance (electric field strength on an open area test site or alternative test site) (6 GHz – 18 GHz)	3.2

Procedure

Radiated measurements were performed in a 32ft. x 20ft. x 14ft. high shielded enclosure. The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads.

Preliminary radiated emissions tests were performed to determine the emission characteristics of the EUT. For the preliminary test, a broadband measuring antenna was positioned at a 3-meter distance from the EUT. The entire frequency range from 1 – 18GHz was investigated using a peak detector function.

The final open field emission tests were then manually performed over the frequency range of 1 – 18GHz.

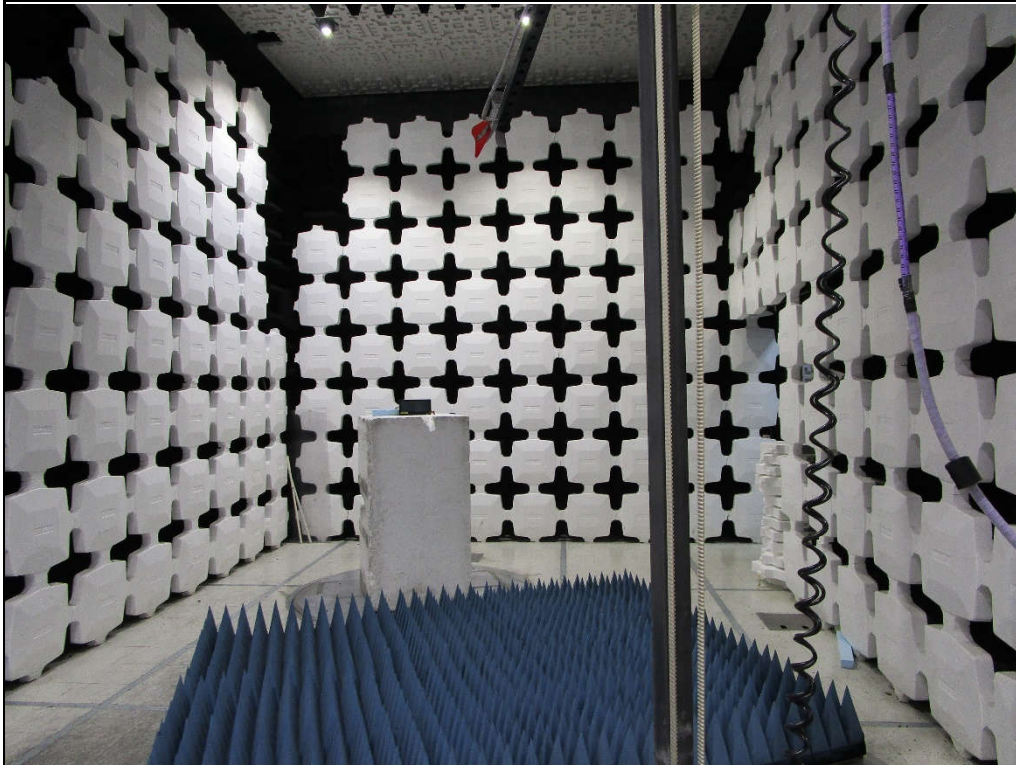
1) For all harmonics not in the restricted bands, the following procedure was used:

- a) The field strength of the fundamental was measured using a double ridged waveguide antenna. The waveguide antenna was positioned at a 3-meter distance from the EUT. The EUT was placed on a 1.5-meter-high non-conductive stand. A peak detector with a resolution bandwidth of 100 kHz was used on the spectrum analyzer.
- b) The field strengths of all of the harmonics not in the restricted band were then measured using a double-ridged waveguide antenna. The waveguide antenna was positioned at a 3-meter distance from the EUT. The EUT was placed on a 1.5-meter-high non-conductive stand. A peak detector with a resolution bandwidth of 100kHz was used on the spectrum analyzer.
- c) To ensure that maximum or worst-case emission levels at the fundamental and harmonics were measured, the following steps were taken when measuring the fundamental emissions and the spurious emissions:
 - i) The EUT was rotated so that all of its sides were exposed to the receiving antenna.
 - ii) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.
 - iii) The measuring antenna was raised and lowered for each antenna polarization to maximize the readings.
- d) All harmonics not in the restricted bands must be at least 20dB below levels measured at the fundamental. However, attenuation below the general limits specified in §15.209(a) is not required.

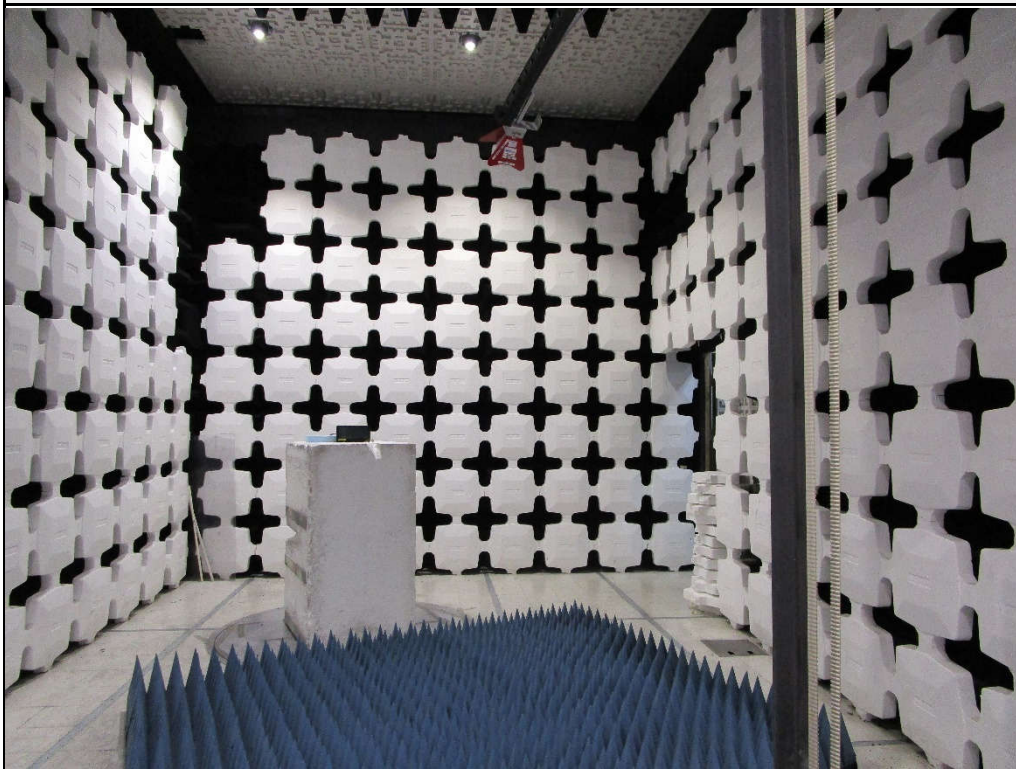
2) For all emissions in the restricted bands, the following procedure was used:

- a) The field strengths of all emissions above 1GHz were measured using a double-ridged waveguide antenna. The waveguide antenna was positioned at a 3-meter distance from the EUT. The EUT was placed on a 1.5-meter-high non-conductive stand. A peak detector with a resolution bandwidth of 1MHz was used on the spectrum analyzer.
- b) To ensure that maximum or worst-case emission levels were measured, the following steps were taken when taking all measurements:
 - i) The EUT was rotated so that all of its sides were exposed to the receiving antenna.
 - ii) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.
 - iii) The measuring antenna was raised and lowered for each antenna polarization to maximize the readings.
- c) For all radiated emissions measurements above 1GHz, the peak readings must comply with the §15.35(b) limits. §15.35(b) states that when average radiated emissions measurements are specified, there also is a limit on the peak level of the radiated emissions. The limit on the peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. Therefore, all peak readings above 1GHz must be no greater than 20dB above the limits specified in §15.209(a).

- d) Next, for all radiated emissions measurements above 1GHz, the resolution bandwidth was set to 1MHz. The analyzer was set to linear mode with a 10Hz video bandwidth in order to simulate an average detector. An average reading was taken.



Test Setup for Spurious Radiated Emissions, 1 – 18GHz – Antenna Polarization Horizontal



Test Setup for Spurious Radiated Emissions, 1 – 18GHz – Antenna Polarization Vertical

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5240MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
15720.00	H	46.85	Ambient	7.48	41.30	-38.20	57.43	743.73	5000.00	-16.55
	V	46.87	Ambient	7.48	41.30	-38.20	57.45	745.44	5000.00	-16.53

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
15720.00	H	31.70	Ambient	7.48	41.30	-38.20	0.00	42.28	129.99	500.00	-11.70
	V	31.76	Ambient	7.48	41.30	-38.20	0.00	42.34	130.89	500.00	-11.64

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5240MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5240.00	H	59.77		5.19	34.57	0.00	99.53	94700.02		
	V	55.90		5.19	34.57	0.00	95.66	60652.69		
10480.00	H	36.47	Ambient	6.64	37.68	-39.00	41.79	122.93	9470.00	-37.73
	V	36.63	Ambient	6.64	37.68	-39.00	41.95	125.21	9470.00	-37.57

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5260MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
15780.00	H	47.17	Ambient	7.45	41.36	-38.16	57.81	777.55	5000.00	-16.16
	V	47.40	Ambient	7.45	41.36	-38.16	58.04	798.41	5000.00	-15.93

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
15780.00	H	32.32	Ambient	7.45	41.36	-38.16	0.00	42.96	140.68	500.00	-11.01
	V	32.37	Ambient	7.45	41.36	-38.16	0.00	43.01	141.49	500.00	-10.96

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5260MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5260.00	H	55.17		5.18	34.60	0.00	94.95	55917.93		
	V	56.63		5.18	34.60	0.00	96.41	66153.24		
10520.00	H	37.40	Ambient	6.65	37.72	-38.98	42.79	137.86	6615.32	-33.62
	V	36.92	Ambient	6.65	37.72	-38.98	42.31	130.44	6615.32	-34.10

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5580MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
11160.00	H	48.20	Ambient	6.48	38.51	-39.05	54.13	508.86	5000.00	-19.85
	V	47.82	Ambient	6.48	38.51	-39.05	53.75	487.08	5000.00	-20.23

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
11160.00	H	32.18	Ambient	6.48	38.51	-39.05	0.00	38.11	80.46	500.00	-15.87
	V	32.17	Ambient	6.48	38.51	-39.05	0.00	38.10	80.37	500.00	-15.88

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5580MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5580.00	H	56.12		5.12	34.93	0.00	96.18	64399.31		
	V	57.01		5.12	34.93	0.00	97.07	71347.90		
16740.00	H	38.21	Ambient	7.67	42.05	-37.40	50.53	336.11	7134.79	-26.54
	V	37.99	Ambient	7.67	42.05	-37.40	50.31	327.71	7134.79	-26.76

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5785MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
11570.00	H	47.77	Ambient	6.93	38.71	-38.99	54.42	525.96	5000.00	-19.56
	V	47.60	Ambient	6.93	38.71	-38.99	54.25	515.77	5000.00	-19.73

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
11570.00	H	32.94	Ambient	6.93	38.71	-38.99	0.00	39.59	95.38	500.00	-14.39
	V	32.95	Ambient	6.93	38.71	-38.99	0.00	39.60	95.49	500.00	-14.38

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5785MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5785.00	H	61.71		5.26	35.53	0.00	102.50	133348.28		
	V	58.97		5.26	35.53	0.00	99.76	97271.91		
17355.00	H	37.52	Ambient	7.64	42.50	-37.42	50.24	325.19	13334.83	-32.26
	V	37.21	Ambient	7.64	42.50	-37.42	49.93	313.78	13334.83	-32.57

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5180MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
15540.00	H	46.93	Ambient	7.56	41.11	-38.29	57.31	733.86	5000.00	-16.67
	V	47.07	Ambient	7.56	41.11	-38.29	57.45	745.78	5000.00	-16.53

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
15540.00	H	31.73	Ambient	7.56	41.11	-38.29	0.00	42.11	127.53	500.00	-11.87
	V	31.75	Ambient	7.56	41.11	-38.29	0.00	42.13	127.82	500.00	-11.85

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5180MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5180.00	H	58.56		5.22	34.44	0.00	98.22	81478.37		
	V	58.57		5.22	34.44	0.00	98.23	81572.23		
10360.00	H	36.68	Ambient	6.63	37.56	-39.07	41.80	123.02	8157.22	-36.43
	V	36.30	Ambient	6.63	37.56	-39.07	41.42	117.76	8157.22	-36.81

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5230MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
10640.00	H	47.72	Ambient	6.66	37.82	-38.96	53.24	458.94	5000.00	-20.74
	V	47.75	Ambient	6.66	37.82	-38.96	53.27	460.53	5000.00	-20.71
15960.00	H	46.51	Ambient	8.88	41.45	-38.05	58.78	868.82	5000.00	-15.20
	V	47.11	Ambient	8.88	41.45	-38.05	59.38	930.95	5000.00	-14.60

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
10640.00	H	32.72	Ambient	6.66	37.82	-38.96	0.00	38.24	81.61	500.00	-15.74
	V	32.69	Ambient	6.66	37.82	-38.96	0.00	38.21	81.33	500.00	-15.77
15960.00	H	31.84	Ambient	8.88	41.45	-38.05	0.00	44.11	160.48	500.00	-9.87
	V	31.87	Ambient	8.88	41.45	-38.05	0.00	44.14	161.04	500.00	-9.84

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5320MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5320.00	H	58.97		5.15	34.66	0.00	98.78	86930.37		
	V	56.60		5.15	34.66	0.00	96.41	66171.58		

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5500MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
11000.00	H	47.04	Ambient	6.60	38.25	-39.03	52.85	439.23	5000.00	-21.13
	V	47.05	Ambient	6.60	38.25	-39.03	52.86	439.74	5000.00	-21.12

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
11000.00	H	32.21	Ambient	6.60	38.25	-39.03	0.00	38.02	79.65	500.00	-15.96
	V	32.22	Ambient	6.60	38.25	-39.03	0.00	38.03	79.74	500.00	-15.95

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5500MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5500.00	H	60.13		5.07	34.81	0.00	100.01	100143.30		
	V	52.63		5.07	34.81	0.00	92.51	42230.08		
16500.00	H	37.04	Ambient	7.66	41.41	-37.52	48.59	268.89	10014.33	-31.42
	V	35.86	Ambient	7.66	41.41	-37.52	47.41	234.74	10014.33	-32.60

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5825MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
11650.00	H	47.99	Ambient	6.92	38.77	-39.04	54.64	539.30	5000.00	-19.34
	V	47.22	Ambient	6.92	38.77	-39.04	53.87	493.55	5000.00	-20.11

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBμV/m)	Average Total at 3m (μV/m)	Average Limit at 3m (μV/m)	Margin (dB)
11650.00	H	32.73	Ambient	6.92	38.77	-39.04	0.00	39.38	93.07	500.00	-14.60
	V	32.72	Ambient	6.92	38.77	-39.04	0.00	39.37	92.97	500.00	-14.61

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5825MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5825.00	H	56.39		5.28	35.72	0.00	97.39	74062.15		
	V	52.70		5.28	35.72	0.00	93.70	48427.98		
17475.00	H	36.61	Ambient	7.58	42.45	-37.48	49.16	287.16	7406.22	-28.23
	V	36.50	Ambient	7.58	42.45	-37.48	49.05	283.54	7406.22	-28.34

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5190MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
15570.00	H	45.88	Ambient	7.55	41.15	-38.28	56.30	653.01	5000.00	-17.68
	V	46.96	Ambient	7.55	41.15	-38.28	57.38	739.46	5000.00	-16.60

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
15570.00	H	31.86	Ambient	7.55	41.15	-38.28	0.00	42.28	129.99	500.00	-11.70
	V	31.88	Ambient	7.55	41.15	-38.28	0.00	42.30	130.29	500.00	-11.68

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5190MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5190.00	H	50.27		5.21	34.46	0.00	89.95	31430.93		
	V	49.34		5.21	34.46	0.00	89.02	28239.51		
10380.00	H	35.84	Ambient	6.64	37.58	-39.06	40.99	112.11	3143.09	-28.95
	V	36.65	Ambient	6.64	37.58	-39.06	41.80	123.06	3143.09	-28.14

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5310MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
10620.00	H	47.78	Ambient	6.66	37.80	-38.96	53.28	461.40	5000.00	-20.70
	V	47.83	Ambient	6.66	37.80	-38.96	53.33	464.06	5000.00	-20.65
15930.00	H	46.63	Ambient	7.87	41.44	-38.07	57.87	782.37	5000.00	-16.11
	V	46.65	Ambient	7.87	41.44	-38.07	57.89	784.18	5000.00	-16.09

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
10620.00	H	32.67	Ambient	6.66	37.80	-38.96	0.00	38.17	81.02	500.00	-15.81
	V	32.72	Ambient	6.66	37.80	-38.96	0.00	38.22	81.49	500.00	-15.76
15930.00	H	32.89	Ambient	7.87	41.44	-38.07	0.00	44.13	160.85	500.00	-9.85
	V	31.94	Ambient	7.87	41.44	-38.07	0.00	43.18	144.18	500.00	-10.80

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5310MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5310.00	H	54.08		5.16	34.66	0.00	93.89	49508.22		
	V	52.32		5.16	34.66	0.00	92.13	40427.54		

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5670MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
11340.00	H	47.53	Ambient	6.68	38.61	-38.94	53.88	494.27	5000.00	-20.10
	V	47.71	Ambient	6.68	38.61	-38.94	54.06	504.62	5000.00	-19.92

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
11340.00	H	32.29	Ambient	6.68	38.61	-38.94	0.00	38.64	85.50	500.00	-15.34
	V	32.27	Ambient	6.68	38.61	-38.94	0.00	38.62	85.30	500.00	-15.36

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5670MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5670.00	H	55.91		5.18	35.17	0.00	96.26	65004.52		
	V	49.87		5.18	35.17	0.00	90.22	32429.75		
17010.00	H	37.12	Ambient	7.70	42.41	-37.37	49.85	310.92	6500.45	-26.41
	V	37.76	Ambient	7.70	42.41	-37.37	50.49	334.70	6500.45	-25.77

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5795MHz
Notes	Peak and Average Measurements in the Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
11590.00	H	48.17	Ambient	6.95	38.73	-39.01	54.85	552.69	5000.00	-19.13
	V	48.59	Ambient	6.95	38.73	-39.01	55.27	580.07	5000.00	-18.71

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBµV/m)	Average Total at 3m (µV/m)	Average Limit at 3m (µV/m)	Margin (dB)
11590.00	H	32.75	Ambient	6.95	38.73	-39.01	0.00	39.43	93.64	500.00	-14.55
	V	32.79	Ambient	6.95	38.73	-39.01	0.00	39.47	94.08	500.00	-14.51

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5795MHz
Notes	Peak Measurements in Non-Restricted Bands

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5795.00	H	52.86		5.26	35.57	0.00	93.70	48396.62		
	V	51.53		5.26	35.57	0.00	92.37	41525.52		
17385.00	H	36.57	Ambient	7.67	42.50	-37.44	49.30	291.75	4839.66	-24.40
	V	36.24	Ambient	7.67	42.50	-37.44	48.97	280.87	4839.66	-24.73

22. Band-Edge Compliance

EUT Information	
Manufacturer	Enovation Controls LLC
Product	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a, 802.11n-HT20, 802.11n-HT40

Test Setup Details	
Setup Format	Tabletop
Measurement Method	Radiated
Type of Test Site	Semi-Anechoic Chamber
Test Site Used	Room 29
Type of Antennas Used	Above 1GHz: Double-Ridged Waveguide (or equivalent)
Notes	N/A

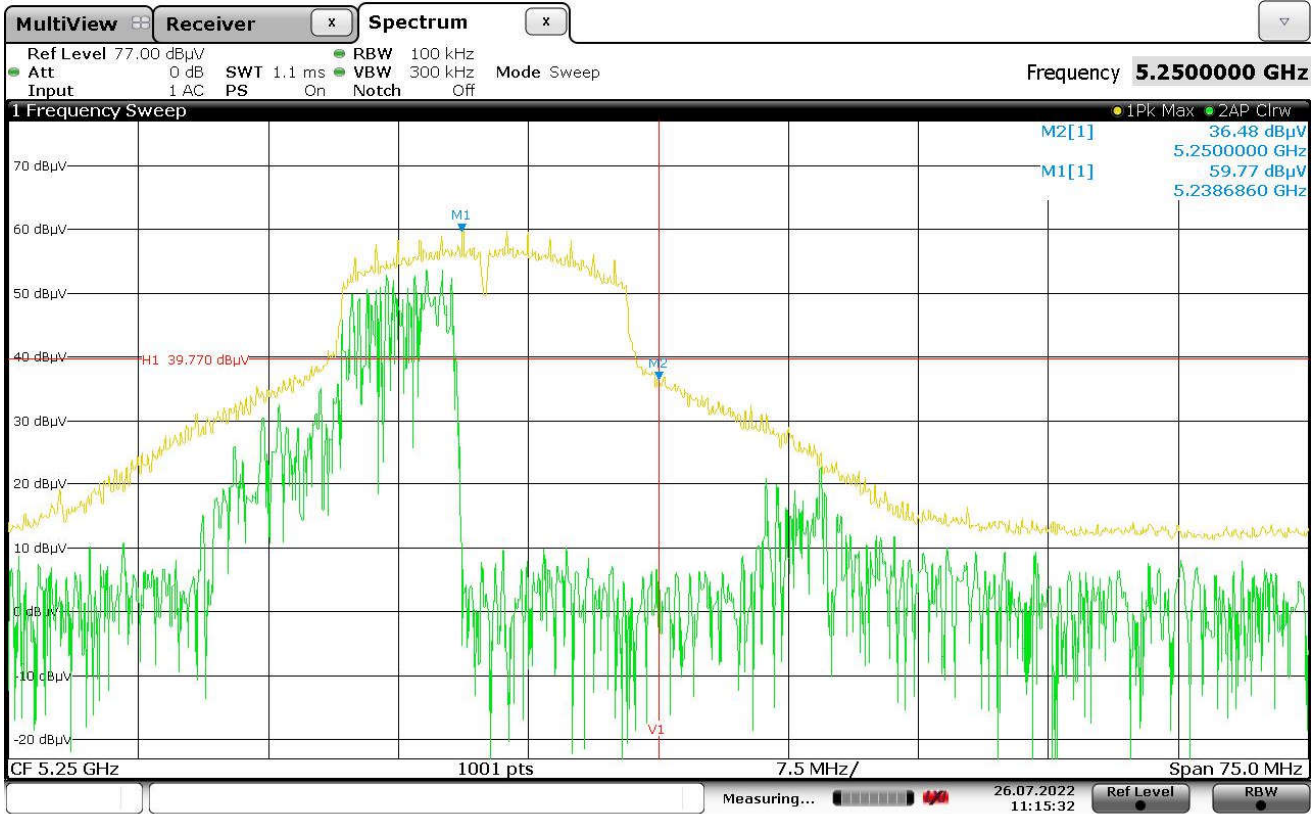
Measurement Uncertainty	
Measurement Type	Expanded Measurement Uncertainty
Radiated disturbance (electric field strength on an open area test site or alternative test site) (1 GHz – 6 GHz)	3.1

Procedure
<p>1) Low Band Edge:</p> <ul style="list-style-type: none"> a) The EUT was setup inside the test chamber on a non-conductive stand and a broadband measuring antenna was placed at a test distance of 3 meters from the EUT. b) The EUT was set to transmit continuously at the channel closest to the low band-edge. c) The EUT was maximized for worst case emissions at the measuring antenna and the maximum meter reading was recorded. d) To determine the band edge compliance, the following spectrum analyzer settings were used: <ul style="list-style-type: none"> o Center Frequency = Low band-edge frequency. o Span = Wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation. o Resolution Bandwidth (RBW) = $\geq 1\%$ of the span. o 'Max-Hold' function was engaged. e) The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined. f) The marker was set on the peak of the in-band emissions. A display line was placed 20dB down from the peak of the in-band emissions. All emissions which fall outside of the authorized band of operation must be below the 20dB display line. (All emissions to the left of the center frequency (band-edge) must be below the display line.) g) The analyzer's display was then screenshot and saved. <p>2) High Band Edge:</p> <ul style="list-style-type: none"> a) The EUT was setup inside the test chamber on a non-conductive stand and a broadband measuring

antenna was placed at a test distance of 3 meters from the EUT.

- b) The EUT was set to transmit continuously at the channel closest to the high band-edge.
- c) The EUT was maximized for worst case emissions at the measuring antenna and the maximum meter reading was recorded.
- d) To determine the band edge compliance, the following spectrum analyzer settings were used:
 - o Center Frequency = High band-edge frequency.
 - o Span = Wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation.
 - o Resolution Bandwidth (RBW) = $\geq 1\%$ of the span.
 - o 'Max-Hold' function was engaged.
- e) The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined.
- f) The marker was set on the peak of the in-band emissions. A display line was placed 20dB down from the peak of the in-band emissions. All emissions which fall outside of the authorized band of operation must be below the 20dB down display line. (All emissions to the left of the center frequency (band-edge) must be below the display line.)
- g) The analyzer's display was then screenshot and saved.

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5240MHz
Notes	Low Band Edge



Date: 26 JUL 2022 11:15:32

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5250.00	H	36.48		5.18	34.59	0.00	76.25	6495.93	9470.00	-3.27

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11a
Frequency Tested	5260MHz
Notes	Low Band Edge



Date: 26 JUL 2022 11:04:18

Freq (MHz)	Ant Pol	Meter Reading (dBµV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBµV/m)	Peak Total at 3m (µV/m)	Peak Limit at 3m (µV/m)	Margin (dBm)
5250.00	V	32.69		5.18	34.59	0.00	72.46	4198.95	6615.32	-3.95

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5180MHz
Notes	High Band Edge – Peak and Average Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5150.00	H	22.22		5.23	34.38	0.00	61.83	1234.78	5000.00	-12.15
	V	23.15		5.23	34.38	0.00	62.76	1374.32	5000.00	-11.22

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBμV/m)	Average Total at 3m (μV/m)	Average Limit at 3m (μV/m)	Margin (dB)
5150.00	H	10.33		5.23	34.38	0.00	0.00	49.94	314.11	500.00	-4.04
	V	10.87		5.23	34.38	0.00	0.00	50.48	334.26	500.00	-3.50

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5320MHz
Notes	High Band Edge – Peak and Average Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5350.00	H	26.17		5.14	34.68	0.00	65.98	1991.38	5000.00	-8.00
	V	21.63		5.14	34.68	0.00	61.44	1180.74	5000.00	-12.54

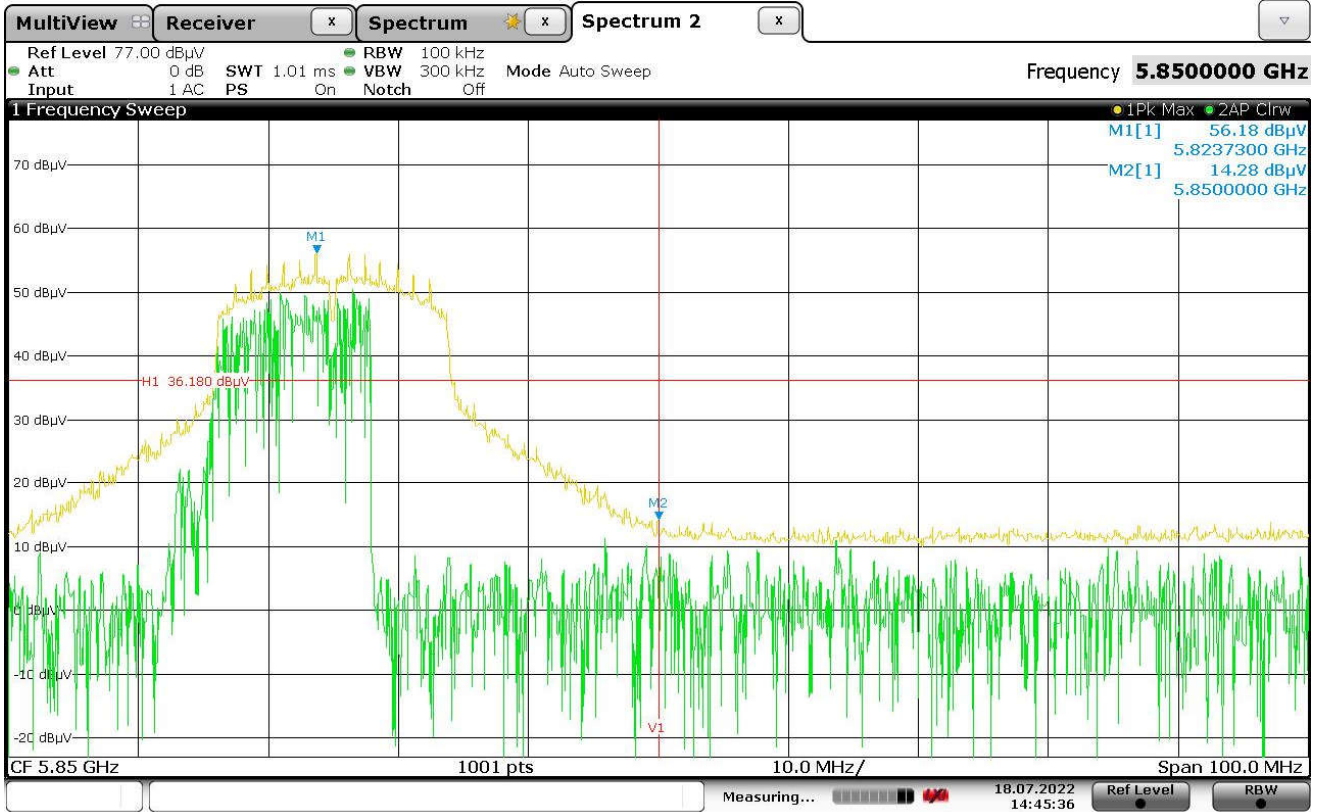
Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBμV/m)	Average Total at 3m (μV/m)	Average Limit at 3m (μV/m)	Margin (dB)
5350.00	H	10.10		5.14	34.68	0.00	0.00	49.91	313.08	500.00	-4.07
	V	9.93		5.14	34.68	0.00	0.00	49.74	307.01	500.00	-4.24

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5500MHz
Notes	Low Band Edge



Date: 19 JUL 2022 10:41:21

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT20
Frequency Tested	5825MHz
Notes	Low Band Edge



Date: 18 JUL 2022 14:45:36

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5190MHz
Notes	High Band Edge – Peak and Average Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5150.00	H	22.95		5.23	34.38	0.00	62.56	1343.04	5000.00	-11.42
	V	22.79		5.23	34.38	0.00	62.40	1318.52	5000.00	-11.58

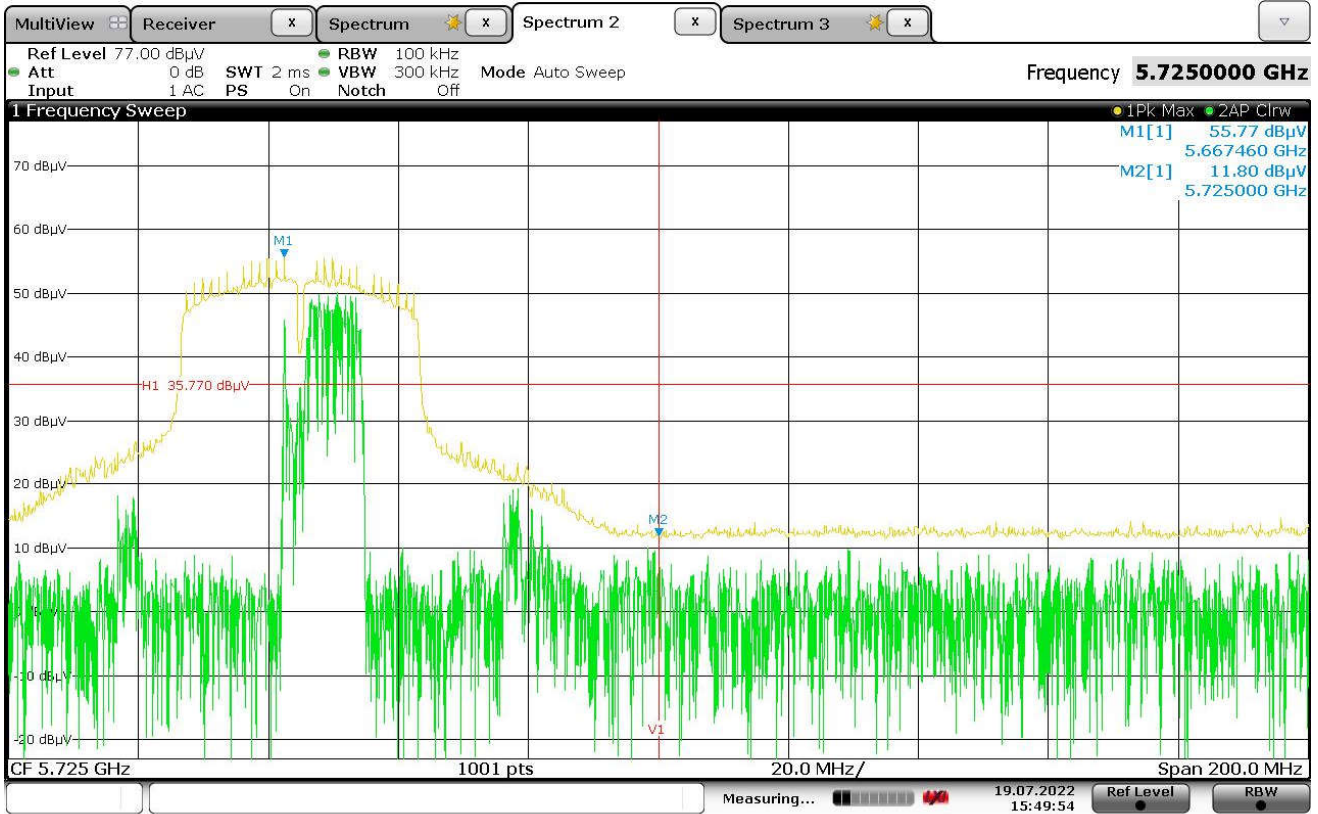
Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBμV/m)	Average Total at 3m (μV/m)	Average Limit at 3m (μV/m)	Margin (dB)
5150.00	H	10.02		5.23	34.38	0.00	0.00	49.63	303.10	500.00	-4.35
	V	10.07		5.23	34.38	0.00	0.00	49.68	304.85	500.00	-4.30

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5310MHz
Notes	High Band Edge – Peak and Average Measurements

Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	Cable Factor (dB)	Antenna Factor (dB/m)	Pre Amp (dB)	Peak Total at 3m (dBμV/m)	Peak Total at 3m (μV/m)	Peak Limit at 3m (μV/m)	Margin (dBm)
5350.00	H	25.40		5.14	34.68	0.00	65.21	1822.44	5000.00	-8.77
	V	23.60		5.14	34.68	0.00	63.41	1481.34	5000.00	-10.57

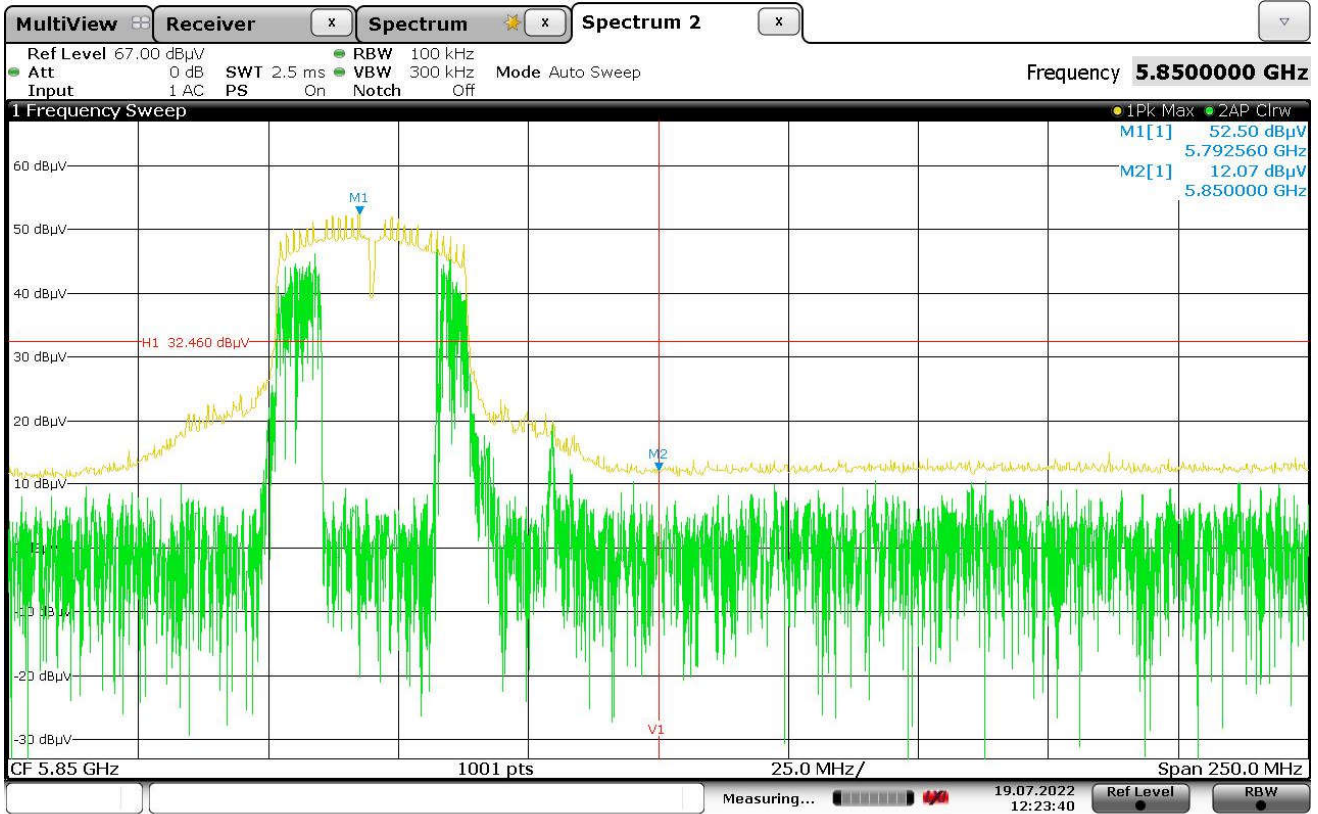
Freq (MHz)	Ant Pol	Meter Reading (dBμV)	Ambient	CBL Fac (dB)	Ant Fac (dB/m)	Pre Amp (dB)	Duty Cycle Factor (dB)	Average Total at 3m (dBμV/m)	Average Total at 3m (μV/m)	Average Limit at 3m (μV/m)	Margin (dB)
5350.00	H	10.41		5.14	34.68	0.00	0.00	50.22	324.45	500.00	-3.76
	V	10.17		5.14	34.68	0.00	0.00	49.98	315.61	500.00	-4.00

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5725MHz
Notes	Low Band Edge



Date: 19 JUL 2022 15:49:54

Test Details	
Manufacturer	Enovation Controls LLC
EUT	BRP Infotainment Display
Model No.	OD1025-01
Serial No.	N/A
Mode	802.11n-HT40
Frequency Tested	5850MHz
Notes	Low Band Edge



Date: 19 JUL 2022 12:23:40

24. Scope of Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELITE ELECTRONIC ENGINEERING, INC.
1516 Centre Circle
Downers Grove, IL 60515
Robert Bugielski (QA Manager) Phone: 630 495 9770 ext. 168
Email: rbugielski@elitetest.com
Craig Fanning (EMC Lab Manager) Phone: 630 495 9770 ext. 112
Email: cfanning@elitetest.com
Brandon Lugo (Automotive Team Leader) Phone: 630 495 9770 ext. 163
Email: blugo@elitetest.com
Richard King (FCC/Commercial Team Leader) Phone: 630 495 9770 ext. 123
Email: reking@elitetest.com
Website: www.elitetest.com

ELECTRICAL

Valid To: June 30, 2023

Certificate Number: 1786.01

In recognition of the successful completion of the A2LA Accreditation Program evaluation process, accreditation is granted to this laboratory to perform the following automotive electromagnetic compatibility and other electrical tests:

Test Technology:**Test Method(s) ¹:*****Transient Immunity***

ISO 7637-2 (including emissions); ISO 7637-3;
ISO 16750-2:2012, Sections 4.6.3 and 4.6.4;
CS-11979, Section 6.4; CS.00054, Section 5.9;
EMC-CS-2009.1 (CI220); FMC1278 (CI220, CI221, CI222);
GMW 3097, Section 3.5; SAE J1113-11; SAE J1113-12;
ECE Regulation 10.06 Annex 10

Electrostatic Discharge (ESD)

ISO 10605 (2001, 2008);
CS-11979 Section 7.0; CS.00054, Section 5.10;
EMC-CS-2009.1 (CI 280); FMC1278 (CI280); SAE J1113-13;
GMW 3097 Section 3.6

Conducted Emissions

CISPR 25 (2002, 2008), Sections 6.2 and 6.3;
CISPR 25 (2016), Sections 6.3 and 6.4;
CS-11979, Section 5.1; CS.00054, Sections 5.6.1 and 5.6.2;
GMW 3097, Section 3.3.2;
EMC-CS-2009.1 (CE 420); FMC1278 (CE420, CE421)

Radiated Emissions Anechoic

CISPR 25 (2002, 2008), Section 6.4;
CISPR 25 (2016), Section 6.5;
CS-11979, Section 5.3; CS.00054, Section 5.6.3;
GMW 3097, Section 3.3.1;
EMC-CS-2009.1 (RE 310); FMC1278 (RE310);
ECE Regulation 10.06 Annex 7 (Broadband)
ECE Regulation 10.06 Annex 8 (Narrowband)

(A2LA Cert. No. 1786.01) Revised 06/24/2021



Page 1 of 8

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Vehicle Radiated Emissions</i>	CISPR 12; CISPR 36; ICES-002; ECE Regulation 10.06 Annex 5
<i>Bulk Current Injection (BCI)</i>	ISO 11452-4; CS-11979, Section 6.1; CS.00054, Section 5.8.1; GMW 3097, Section 3.4.1; SAE J1113-4; EMC-CS-2009.1 (RI112); FMC1278 (RI112); ECE Regulation 10.06 Annex 9
<i>Radiated Immunity Anechoic (Including Radar Pulse)</i>	ISO 11452-2; ISO 11452-5; CS-11979, Section 6.2; CS.00054, Section 5.8.2; GMW 3097, Section 3.4.2; EMC-CS-2009.1 (RI114); FMC1278 (RI114); SAE J1113-21; ECE Regulation 10.06 Annex 9
<i>Radiated Immunity Magnetic Field</i>	ISO 11452-8
<i>Radiated Immunity Reverb</i>	ISO/IEC 61000-4-21; GMW 3097, Section 3.4.3; EMC-CS-2009.1 (RI114); FMC1278 (RI114); ISO 11452-11
<i>Radiated Immunity (Portable Transmitters)</i>	ISO 11452-9; EMC-CS-2009.1 (RI115); FMC1278 (RI115)
<i>Vehicle Radiated Immunity (ALSE)</i>	ISO 11451-2; ECE Regulation 10.06 Annex 6
<i>Vehicle Product Specific EMC Standards</i>	EN 14982; EN ISO 13309, ISO 13766; EN 50498; EC Regulation No. 2015/208; EN 55012
<i>Electrical Loads</i>	ISO 16750-2
Emissions Radiated and Conducted (3m Semi-anechoic chamber, up to 40 GHz)	47 CFR, FCC Part 15 B (using ANSI C63.4:2014); 47 CFR, FCC Part 18 (using FCC MP-5:1986); ICES-001; ICES-003; ICES-005; IEC/CISPR 11, Ed. 4.1 (2004-06); AS/NZS CISPR 11 (2004); IEC/CISPR 11 Ed 5 (2009-05) + A1 (2010); KN 11 (2008-5) with RRL Notice No. 2008-3 (May 20, 2008); CISPR 11; EN 55011; KS C 9811; CNS 13803 (1997, 2003); CISPR 14-1; EN 55014-1; AS/NZS CISPR 14.1; KS C 9814-1; KN 14-1; IEC/CISPR 22 (1997); EN 55022 (1998) + A1(2000); EN 55022 (1998) + A1(2000) + A2(2003); EN 55022 (2006); IEC/CISPR 22 (2008-09); AS/NZS CISPR 22 (2004); AS/NZS CISPR 22, 3rd Edition (2006); KN 22 (up to 6 GHz); CNS 13438 (up to 6 GHz); VCCI V-3 (up to 6 GHz); CISPR 32; EN 55032; KS C 9832; KN 32; ECE Regulation 10.06 Annex 14
Cellular Radiated Spurious Emissions	ETSI TS 151 010-1 GSM; 3GPP TS 51.010-1, Sec 12; ETSI TS 134 124 UMTS; 3GPP TS 34.124; ETSI TS 136 124 LTE; E-UTRA; 3GPP TS 36.124

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
Emissions (cont'd)	
Current Harmonics	IEC 61000-3-2; EN 61000-3-2; KN 61000-3-2; KS C 9610-3-2; ECE Regulation 10.06 Annex 11
Flicker and Fluctuations	IEC 61000-3-3; EN 61000-3-3; KN 61000-3-3; KS C 9610-3-3; ECE Regulation 10.06 Annex 12
Immunity	
Electrostatic Discharge	IEC 61000-4-2, Ed. 1.2 (2001); IEC 61000-4-2 (1995) + A1(1998) + A2(2000); EN 61000-4-2 (1995); EN 61000-4-2 (2009-05); KN 61000-4-2 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-2; EN 61000-4-2; KN 61000-4-2; KS C 9610-4-2; IEEE C37.90.3 2001
Radiated Immunity	IEC 61000-4-3 (1995) + A1(1998) + A2(2000); IEC 61000-4-3, Ed. 3.0 (2006-02); IEC 61000-4-3, Ed. 3.2 (2010); KN 61000-4-3 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-3; EN 61000-4-3; KN 61000-4-3; KS C 9610-4-3; IEEE C37.90.2 2004
Electrical Fast Transient/Burst	IEC 61000-4-4, Ed. 2.0 (2004-07); IEC 61000-4-4, Ed. 2.1 (2011); IEC 61000-4-4 (1995) + A1(2000) + A2(2001); KN 61000-4-4 (2008-5); RRL Notice No. 2008-5 (May 20, 2008); IEC 61000-4-4; EN 61000-4-4; KN 61000-4-4; KS C 9610-4-4; ECE Regulation 10.06 Annex 15
Surge	IEC 61000-4-5 (1995) + A1(2000); IEC 61000-4-5, Ed 1.1 (2005-11); EN 61000-4-5 (1995) + A1(2001); KN 61000-4-5 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-5; EN 61000-4-5; KN 61000-4-5; KS C 9610-4-5; IEEE C37.90.1 2012; IEEE STD C62.41.2 2002; ECE Regulation 10.06 Annex 16
Conducted Immunity	IEC 61000-4-6 (1996) + A1(2000); IEC 61000-4-6, Ed 2.0 (2006-05); IEC 61000-4-6 Ed. 3.0 (2008); KN 61000-4-6 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); EN 61000-4-6 (1996) + A1(2001); IEC 61000-4-6; EN 61000-4-6; KN 61000-4-6; KS C 9610-4-6

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
Immunity (cont'd)	
Power Frequency Magnetic Field Immunity (<i>Down to 3 A/m</i>)	IEC 61000-4-8 (1993) + A1(2000); IEC 61000-4-8 (2009); EN 61000-4-8 (1994) + A1(2000); KN 61000-4-8 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-8; EN 61000-4-8; KN 61000-4-8; KS C 9610-4-8
Voltage Dips, Short Interrupts, and Line Voltage Variations	IEC 61000-4-11, Ed. 2 (2004-03); KN 61000-4-11 (2008-5); RRL Notice No. 2008-4 (May 20, 2008); IEC 61000-4-11; EN 61000-4-11; KN 61000-4-11; KS C 9610-4-11
Ring Wave	IEC 61000-4-12, Ed. 2 (2006-09); EN 61000-4-12:2006; IEC 61000-4-12; EN 61000-4-12; KN 61000-4-12; IEEE STD C62.41.2 2002
Generic and Product Specific EMC Standards	IEC/EN 61000-6-1; AS/NZS 61000-6-1; KN 61000-6-1; KS C 9610-6-1; IEC/EN 61000-6-2; AS/NZS 61000-6-2; KN 61000-6-2; KS C 9610-6-2; IEC/EN 61000-6-3; AS/NZS 61000-6-3; KN 61000-6-3; KS C 9610-6-3; IEC/EN 61000-6-4; AS/NZS 61000-6-4; KN 61000-6-4; KS C 9610-6-4; EN 50130-4; EN 61326-1; EN 50121-3-2; EN 12895; EN 50270; EN 50491-1; EN 50491-2; EN 50491-3; EN 55015; EN 60730-1; EN 60945; IEC 60533; EN 61326-2-6; EN 61800-3; IEC/CISPR 14-2; EN 55014-2; AS/NZS CISPR 14.2; KN 14-2; KS C 9814-2; IEC/CISPR 24; AS/NZS CISPR 24; EN 55024; KN 24; IEC/CISPR 35; AS/NZS CISPR 35; EN 55035; KN 35; KS C 9835; IEC 60601-1-2; JIS T0601-1-2
<i>TxRx EMC Requirements</i>	EN 301 489-1; EN 301 489-3; EN 301 489-9; EN 301 489-17; EN 301 489-19; EN 301 489-20
<i>European Radio Test Standards</i>	ETSI EN 300 086-1; ETSI EN 300 086-2; ETSI EN 300 113-1; ETSI EN 300 113-2; ETSI EN 300 220-1; ETSI EN 300 220-2; ETSI EN 300 220-3-1; ETSI EN 300 220-3-2; ETSI EN 300 330-1; ETSI EN 300 330-2; ETSI EN 300 440-1; ETSI EN 300 440-2; ETSI EN 300 422-1; ETSI EN 300 422-2; ETSI EN 300 328; ETSI EN 301 893; ETSI EN 301 511; ETSI EN 301 908-1; ETSI EN 908-2; ETSI EN 908-13; ETSI EN 303 413; ETSI EN 302 502; EN 303 340; EN 303 345-2; EN 303 345-3; EN 303 345-4

<u>Test Technology:</u>	<u>Test Method(s) ¹:</u>
<i>Canadian Radio Tests</i>	RSS-102 (RF Exposure Evaluation only); RSS-111; RSS-112; RSS-117; RSS-119; RSS-123; RSS-125; RSS-127; RSS-130; RSS-131; RSS-132; RSS-133; RSS-134; RSS-135; RSS-137; RSS-139; RSS-140; RSS-141; RSS-142; RSS-170; RSS-181; RSS-182; RSS-191; RSS-192; RSS-194; RSS-195; RSS-196; RSS-197; RSS-199; RSS-210; RSS-211; RSS-213; RSS-215; RSS-216; RSS-220; RSS-222; RSS-236; RSS-238; RSS-243; RSS-244; RSS-247; RSS-251; RSS-252; RSS-287; RSS-288; RSS-310; RSS-GEN
<i>Mexico Radio Tests</i>	IFT-008-2015; NOM-208-SCFI-2016
<i>Japan Radio Tests</i>	Radio Law No. 131, Ordinance of MPT No. 37, 1981, MIC Notification No. 88:2004, Table No. 22-11; ARIB STD-T66, Regulation 18
<i>Taiwan Radio Tests</i>	LP-0002 (July 15, 2020)
<i>Australia/New Zealand Radio Tests</i>	AS/NZS 4268; Radiocommunications (Short Range Devices) Standard (2014)
<i>Hong Kong Radio Tests</i>	HKCA 1039 Issue 6; HKCA 1042; HKCA 1033 Issue 7; HKCA 1061; HKCA 1008; HKCA 1043; HKCA 1057; HKCA 1073
<i>Korean Radio Test Standards</i>	KN 301 489-1; KN 301 489-3; KN 301 489-9; KN 301 489-17; KN 301 489-52; KS X 3124; KS X 3125; KS X 3130; KS X 3126; KS X 3129
<i>Vietnam Radio Test Standards</i>	QCVN 47:2015/BTTTT; QCVN 54:2020/BTTTT; QCVN 55:2011/BTTTT; QCVN 65:2013/BTTTT; QCVN 73:2013/BTTTT; QCVN 74:2020/BTTTT; QCVN 112:2017/BTTTT; QCVN 117:2020/BTTTT
<i>Vietnam EMC Test Standards</i>	QCVN 18:2014/BTTTT; QCVN 86:2019/BTTTT; QCVN 96:2015/BTTTT; QCVN 118:2018/BTTTT
<i>Unlicensed Radio Frequency Devices (3 Meter Semi-Anechoic Room)</i>	47 CFR FCC Part 15C, 15D, 15E, 15F, 15G, 15H (using ANSI C63.10:2013, ANSI C63.17:2013 and FCC KDB 905462 D02 (v02))
<i>Licensed Radio Service Equipment</i>	47 CFR FCC Parts 20, 22, 24, 25, 27, 30, 73, 74, 80, 87, 90, 95, 96, 97, 101 (using ANSI/TIA-603-E, TIA-102.CAAA-E, ANSI C63.26:2015)

Test Technology:

OIA (Over the Air) Performance
 GSM, GPRS, EGPRS
 UMTS (W-CDMA)
 LTE including CAT M1
 A-GPS for UMTS/GSM
 LTS A-GPS, A-GLONASS,
 SIB8/SIB16
 Large Device/Laptop/Tablet Testing
 Integrated Device Testing
 WiFi 802.11 a/b/g/n/a

Test Method(s) ¹:

CTIA Test Plan for Wireless Device Over-the-Air Performance (Method for Measurement for Radiated Power and Receiver Performance) V3.8.2;
 CTIA Test Plan for RF Performance Evaluation of WiFi Mobile Converged Devices V2.1.0

Electrical Measurements and Simulation

AC Voltage / Current

(1mV to 5kV) 60 Hz
 (0.1V to 250V) up to 500 MHz
 (1µA to 150A) 60 Hz

FAA AC 150/5345-10H
 FAA AC 150/5345-43J
 FAA AC 150/5345-44K

DC Voltage / Current

(1mV to 15-kV) / (1µA to 10A)

FAA AC 150/5345-46E

Power Factor / Efficiency / Crest Factor

(Power to 30kW)

FAA AC 150/5345-47C
 FAA EB 67D

Resistance

(1mΩ to 4000MΩ)

Surge

(Up to 10 kV / 5 kA) (Combination Wave and Ring Wave)

On the following products and materials:

Telecommunications Terminal Equipment (TTE), Radio Equipment, Network Equipment, Information Technology Equipment (ITE), Automotive Electronic Equipment, Automotive Hybrid Electronic Devices, Maritime Navigation and Radio Communication Equipment and Systems, Vehicles, Boats and Internal Combustion Engine Driven Devices, Automotive, Aviation, and General Lighting Products, Medical Electrical Equipment, Motors, Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment, Household Appliances, Electric Tools, Low-voltage Switchgear and Control gear, Programmable Controllers, Electrical Equipment for Measurement, Control and Laboratory Use, Base Materials, Power and Data Transmission Cables and Connectors

¹ When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA R101 - General Requirements - Accreditation of ISO-IEC 17025 Laboratories.

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1²

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Unintentional Radiators</u> Part 15B	ANSI C63.4:2014	40000

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1²

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Industrial, Scientific, and Medical Equipment</u> Part 18	FCC MP-5 (February 1986)	40000
<u>Intentional Radiators</u> Part 15C	ANSI C63.10:2013	40000
<u>Unlicensed Personal Communication Systems Devices</u> Part 15D	ANSI C63.17:2013	40000
<u>U-NII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10:2013	40000
<u>U-NII with DFS Intentional Radiators</u> Part 15E	FCC KDB 905462 D02 (v02)	40000
<u>UWB Intentional Radiators</u> Part 15F	ANSI C63.10:2013	40000
<u>BPL Intentional Radiators</u> Part 15G	ANSI C63.10:2013	40000
<u>White Space Device Intentional Radiators</u> Part 15H	ANSI C63.10:2013	40000
<u>Commercial Mobile Services (FCC Licensed Radio Service Equipment)</u> Parts 22 (cellular), 24, 25 (below 3 GHz), and 27	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>General Mobile Radio Services (FCC Licensed Radio Service Equipment)</u> Parts 22 (non-cellular), 90 (below 3 GHz), 95, 97, and 101 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment)</u> Part 96	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1²

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Maritime and Aviation Radio Services</u> Parts 80 and 87	ANSI/TIA-603-E; ANSI C63.26:2015	40000
<u>Microwave and Millimeter Bands Radio Services</u> Parts 25, 30, 74, 90 (above 3 GHz), 97 (above 3 GHz), and 101	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Broadcast Radio Services</u> Parts 73 and 74 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Signal Boosters</u> Part 20 (Wideband Consumer Signal Boosters, Provider-specific signal boosters, and Industrial Signal Boosters) Section 90.219	ANSI C63.26:2015	40000

² Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (<https://apps.fcc.gov/oetcf/eas/>) for a listing of FCC approved laboratories.



Accredited Laboratory

A2LA has accredited

ELITE ELECTRONIC ENGINEERING INC.

Downers Grove, IL

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 19th day of May 2021.



Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1786.01
Valid to June 30, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.