

EcoFlow Inc.

TEST REPORT

SCOPE OF WORK

FCC TESTING—EF-AC-001

REPORT NUMBER

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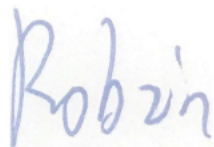


Intertek Report No.: 250725014SZN-003

EcoFlow Inc.Application
For
Certification**FCC ID: 2A2P9-EFAC001****EcoFlow Alternator Charger Plus 1000****Model: EF-AC-001****Brand Name: ECOFLOW, EF ECOFLOW****2.4GHz Wi-Fi Transceiver**

Report No.: 250725014SZN-003

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-24]

Prepared and Checked by:**Robin Zhou**
Senior Project Engineer**Approved by:****Johnny Wang**
Project Engineer
Date: 26 September 2025

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Intertek Testing Services Shenzhen Ltd. Longhua Branch

101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China.

Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751

MEASUREMENT/TECHNICAL REPORT

This report concerns (check one) Original Grant ☒ Class II Change ☐

Equipment Type: DTS - Part 15 Digital Transmission Systems (Wi-Fi transmitter portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes ☐ No ☒

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes ☐ No ☒

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-24] Edition] provision.

Report prepared by:

Robin Zhou

Intertek Testing Services Shenzhen Ltd. Longhua Branch

101, 201, Building B, No. 308 Wuhe Avenue,

Zhangkengjing Community, GuanHu Subdistrict, LongHua

District, Shenzhen, P.R. China.

Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6661

Table of Contents

1.0	<u>Summary of Test results</u>	4
2.0	<u>General Description</u>	5
2.1	Product Description	5
2.2	Related Submittal(s) Grants	5
2.3	Test Methodology	6
2.4	Test Facility	6
3.0	<u>System Test Configuration</u>	7
3.1	Justification	7
3.2	EUT Exercising Software	7
3.3	Special Accessories	8
3.4	Measurement Uncertainty	8
3.5	Equipment Modification	8
3.6	Support Equipment List and Description	8
4.0	<u>Measurement Results</u>	9
4.1	Maximum Conducted Output Power at Antenna Terminals	9
4.2	Minimum 6 dB RF Bandwidth	16
4.3	Maximum Power Density Reading	22
4.4	Out of Band Conducted Emissions	29
4.5	Out of Band Radiated Emissions	51
4.6	Transmitter Radiated Emissions in Restricted Bands	52
4.7	Field Strength Calculation	53
4.8	Radiated Spurious Emission	54
4.9	Radiated Emissions from Digital Section of Transceiver	60
4.10	Transmitter Duty Cycle Calculation and Measurements	61
5.0	<u>Equipment Photographs</u>	62
6.0	<u>Product Labelling</u>	62
7.0	<u>Technical Specifications</u>	62
8.0	<u>Instruction Manual</u>	62
9.0	<u>Confidentiality Request</u>	62
10.0	<u>Discussion of Pulse Desensitization</u>	62
11.0	<u>Test Equipment List</u>	63

1.0 Summary of Test results

Applicant: EcoFlow Inc.

Applicant Address: RM 401,Plant #1,Runheng Industrial Zone, Fuhai Street,Bao'an District, Shenzhen 518000, China

Manufacturer: EcoFlow Inc.

Manufacturer Address: RM 401,Plant #1,Runheng Industrial Zone, Fuhai Street,Bao'an District, Shenzhen 518000, China

Model: EF-AC-001

FCC ID: 2A2P9-EFAC001

TEST ITEM	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d), 15.209, FCC 15.205	Pass
AC Conducted Emission	15.207	N/A
Antenna Requirement	15.203	Pass (See Notes)

N/A: means not applicable, the EUT is powered by battery.

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

2.0 General Description

2.1 Product Description

The Equipment Under Test (EUT) is a EcoFlow Alternator Charger Plus 1000, EF-AC-001 with Wi-Fi function operating at 2412-2462MHz for 802.11b/g/n-HT20/ax-HE20, 11 channels with 5MHz channel spacing and 2422-2452MHz for 802.11n-HT40, 7 channels with 5MHz channel spacing. The EUT is powered by DC 12V, DC 24V, DC 60V from battery. For more detail information pls. refer to the user manual.

Ratings:

Charge Mode:

ALT IN Port Input: 12V/24V $\Rightarrow$ (11V-31V $\Rightarrow$), 75A Max

SOLAR Port Input: 48V $\Rightarrow$ (11V-60V $\Rightarrow$), 15A Max, 300W Max

BATTERY Port Output: 24V $\Rightarrow$ /40V-60V $\Rightarrow$, 20A Max, 1000W Max

Reverse Charge Mode:

BATTERY Port Input: 40V-60V $\Rightarrow$, 20A Max

SOLAR Port Input: 48V $\Rightarrow$ (11V-60V $\Rightarrow$), 15A Max, 300W Max

ALT IN Port Output: 13.8V/27.6V $\Rightarrow$, 75A Max

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM for OFDM; BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM for OFDMA; CCK, DQPSK, DBPSK for DSSS.

Antenna Type: PCB antenna

Antenna Gain: 0.63dBi (This information is provided by applicant, and the applicant is responsible for the authenticity of the provided information.)

2.2 Related Submittal(s) Grants

This is an application for certification of:

DTS- Part 15 Digital Transmission Systems (2.4GHz Wi-Fi transmitter portion).

Remaining portions are subject to the following procedures:

1. Receiver portion of Wi-Fi: exempt from technical requirement of this Part.
2. Other Digital Function: Subject to FCC Part 15B SDOC.

2.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.10-2020 + Cor.1-2023 and KDB 558074 D01 v05r02. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Justification Section"** of this Application.

2.4 Test Facility

The Semi-anechoic chamber and shielded room used to collect the radiated data and conducted data are Waltek Testing Group (Shenzhen) Co., Ltd. and located at 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70, Bao'an District, Shenzhen, Guangdong 518101, China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: CN5010).

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology.

The EUT was powered DC 12V or DC 24V or DC 60V from battery during the test. Only the worst data is reported in this report.

On 802.11b/g/n-HT20/n-HT40/ax-HE20 mode test, only one antenna is used, and all data rate were tested and only the worst case data is shown in the report.

For maximizing emissions, the EUT was rotated through 360°, the EUT was placed on the styrene turntable with 0.8m up to 1GHz and 1.5 m above 1GHz. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

The EUT and transmitting antenna was centered on the turntable.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The fixed frequency software uses ESP32, version v3.6.

The parameters of test software setting:

During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

3.3 Special Accessories

N/A.

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

3.5 Equipment Modification

Any modifications installed previous to testing by EcoFlow Inc. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Waltek Testing Group (Shenzhen) Co., Ltd.

3.6 Support Equipment List and Description

Description	Manufacturer	Remark
Battery (EcoFlow DEF TA 3 1500) (Provide by Applicant)	ECOFLOW	Model: EF-DL-H15-3

Applicant: EcoFlow Inc.

Date of Test: 31 July 2025

Worst Case Model: EF-AC-001

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

According to the KDB-558074 D01 v05r02 Sub clause 8.3.2.2 and ANSI C63.10-2020 + Cor.1-2023 Sub clause 11.9.2.2, when this option is exercised, the measured power is to be referenced to the OBW rather than the DTS bandwidth.

- a) Set span to at least 1.5 times the OBW.
- b) Set RBW = 1-5% of the OBW, not to exceed 1MHz.
- c) Set VBW $\geq 3 \times$ RBW.
- d) Number of points in sweep $\geq 2 \times$ span / RBW. (This gives bin-to-bin spacing $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)
- e) Sweep time = auto.
- f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- g) If transmit duty cycle $< 98\%$, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq 98\%$, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
- h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

Antenna 0.63 dBi, the maximum allowed transmitter output is 30dBm

Test Mode	Frequency [MHz]	Average power [dBm]	Duty Cycle [%]	DC Factor [dBm]	Result [dBm]	Result [mWatt]
IEEE 802.11b (CCK, 1Mbps)	2412	9.77	32.60	4.87	14.64	29.11
IEEE 802.11b (CCK, 1Mbps)	2437	11.62	32.60	4.87	16.49	44.57
IEEE 802.11b (CCK, 1Mbps)	2462	10.86	32.60	4.87	15.73	37.41
IEEE 802.11g (BPSK, 6Mbps)	2412	12.72	32.78	4.84	17.56	57.02
IEEE 802.11g (BPSK, 6Mbps)	2437	9.55	32.78	4.84	14.39	27.48
IEEE 802.11g (BPSK, 6Mbps)	2462	8.42	32.78	4.84	13.26	21.18
IEEE 802.11n-HT20 (BPSK, 6.5Mbps)	2412	10.76	31.64	5.00	15.76	37.67
IEEE 802.11n-HT20 (BPSK, 6.5Mbps)	2437	9.13	31.64	5.00	14.13	25.88
IEEE 802.11n-HT20 (BPSK, 6.5Mbps)	2462	7.95	31.46	5.02	12.97	19.82
IEEE 802.11n-HT40 (BPSK, 13.5Mbps)	2422	9.66	31.84	4.97	14.63	29.04
IEEE 802.11n-HT40 (BPSK, 13.5Mbps)	2437	8.35	32.22	4.92	13.27	21.23
IEEE 802.11n-HT40 (BPSK, 13.5Mbps)	2452	7.62	32.40	4.89	12.51	17.82
IEEE 802.11ax-HE20 (BPSK, 8Mbps)	2412	9.26	25.98	5.85	15.11	32.43
IEEE 802.11ax-HE20 (BPSK, 8Mbps)	2437	6.36	25.70	5.90	12.26	16.83
IEEE 802.11ax-HE20 (BPSK, 8Mbps)	2462	7.58	25.70	5.90	13.48	22.28

Cable loss: 0.7 dB External Attenuation: 0 dB

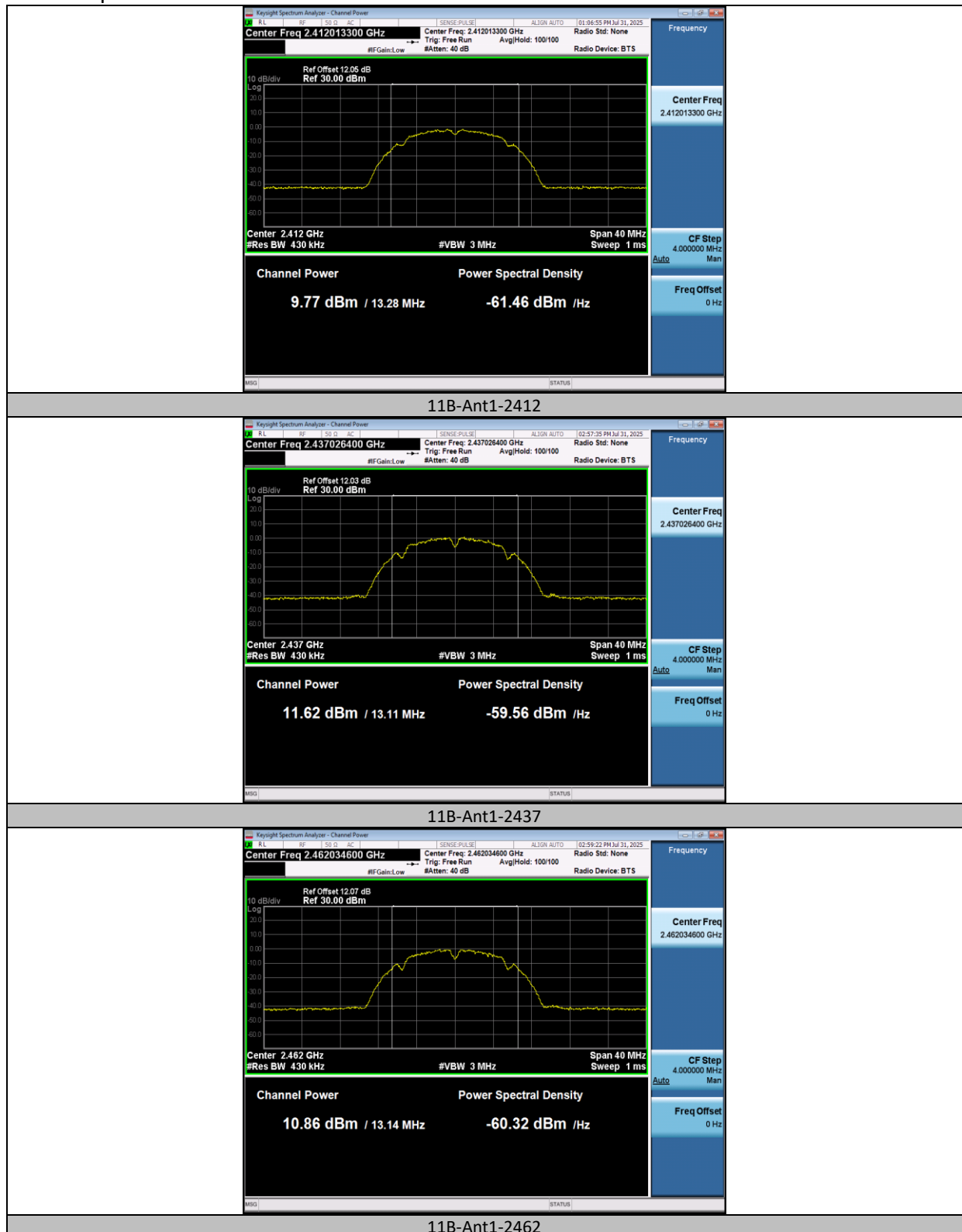
Cable loss, external attenuation has been included in OFFSET function

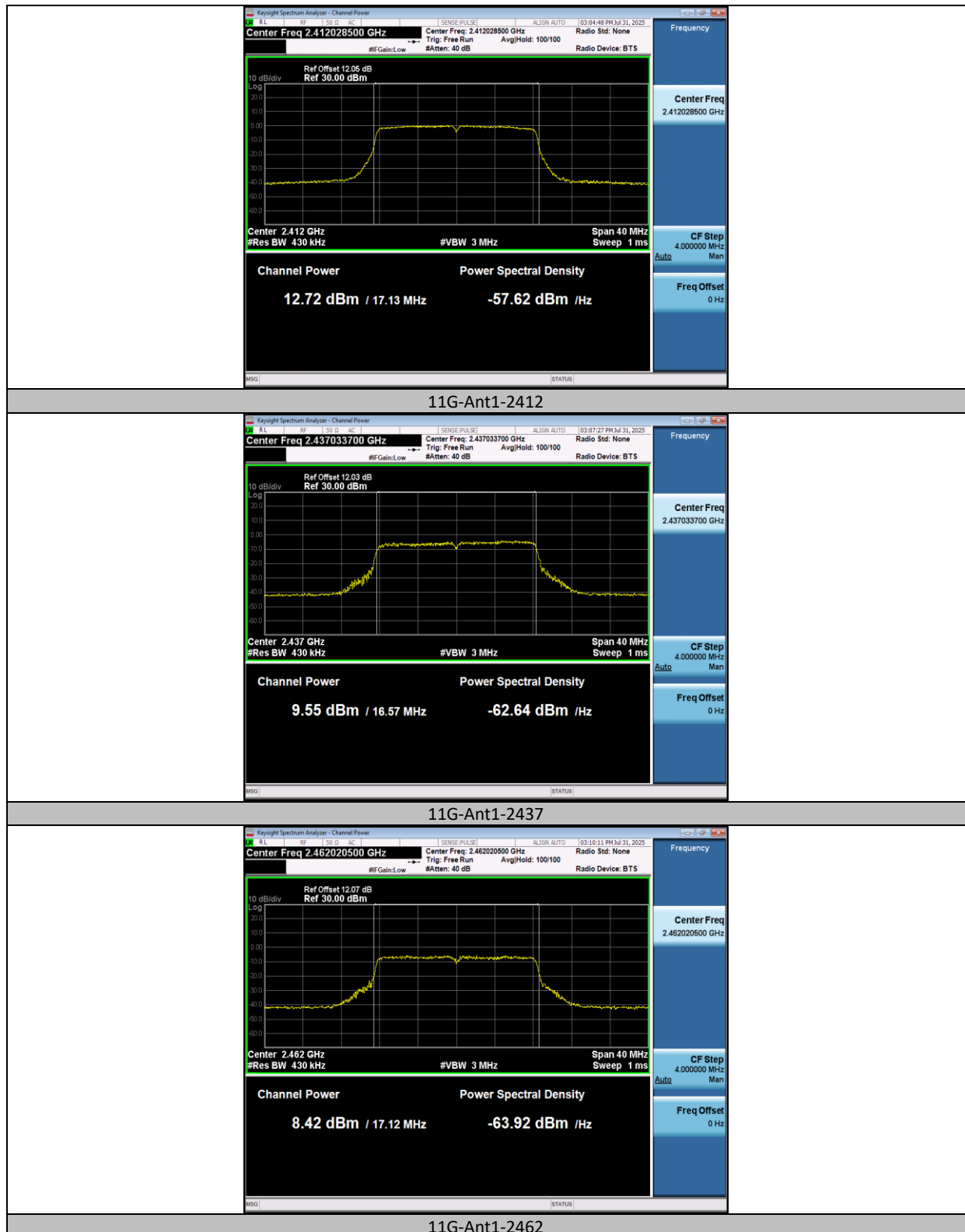
EUT max. output level = 17.56dBm

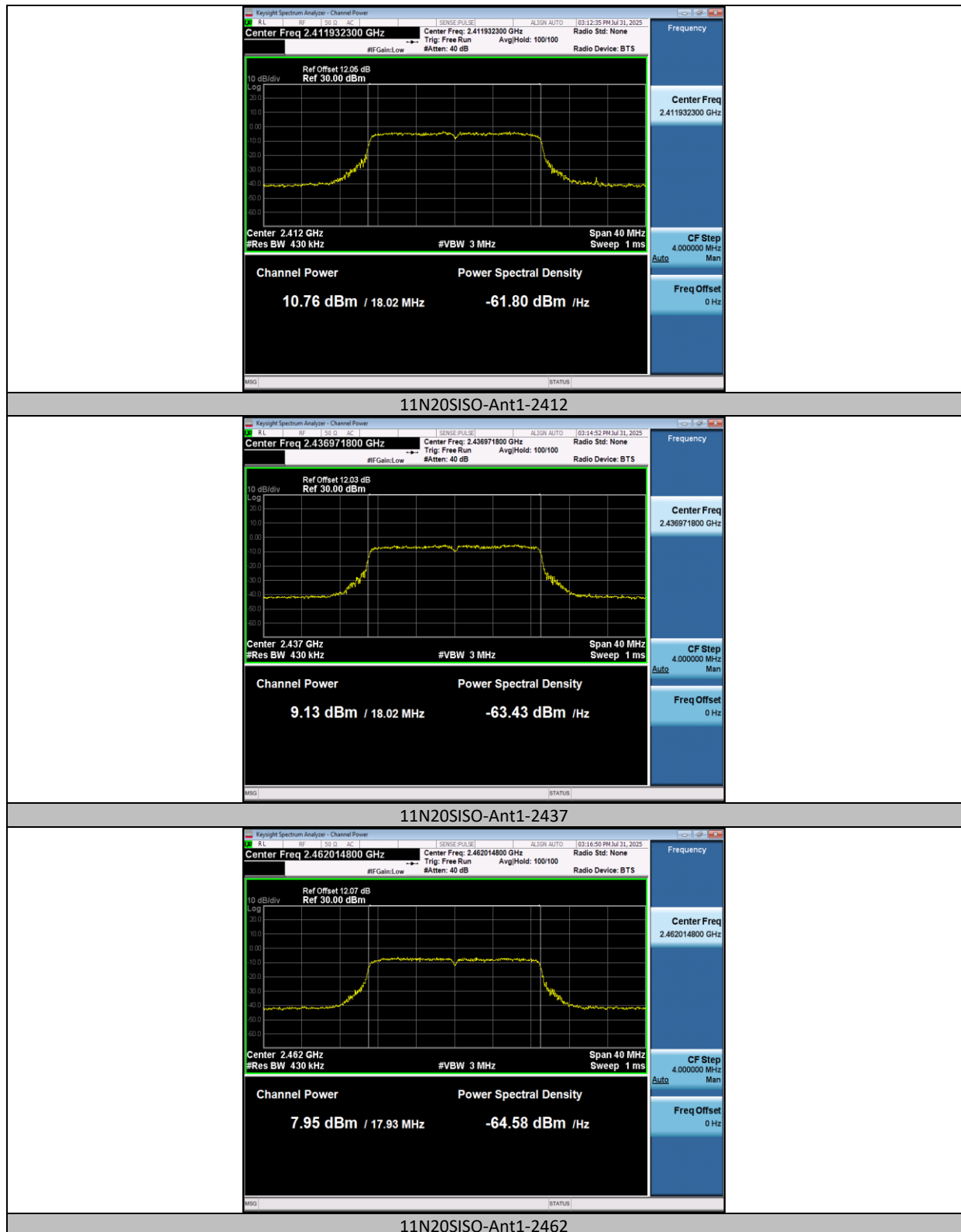
For RF Exposure, the information is saved with filename: RF exposure.pdf.

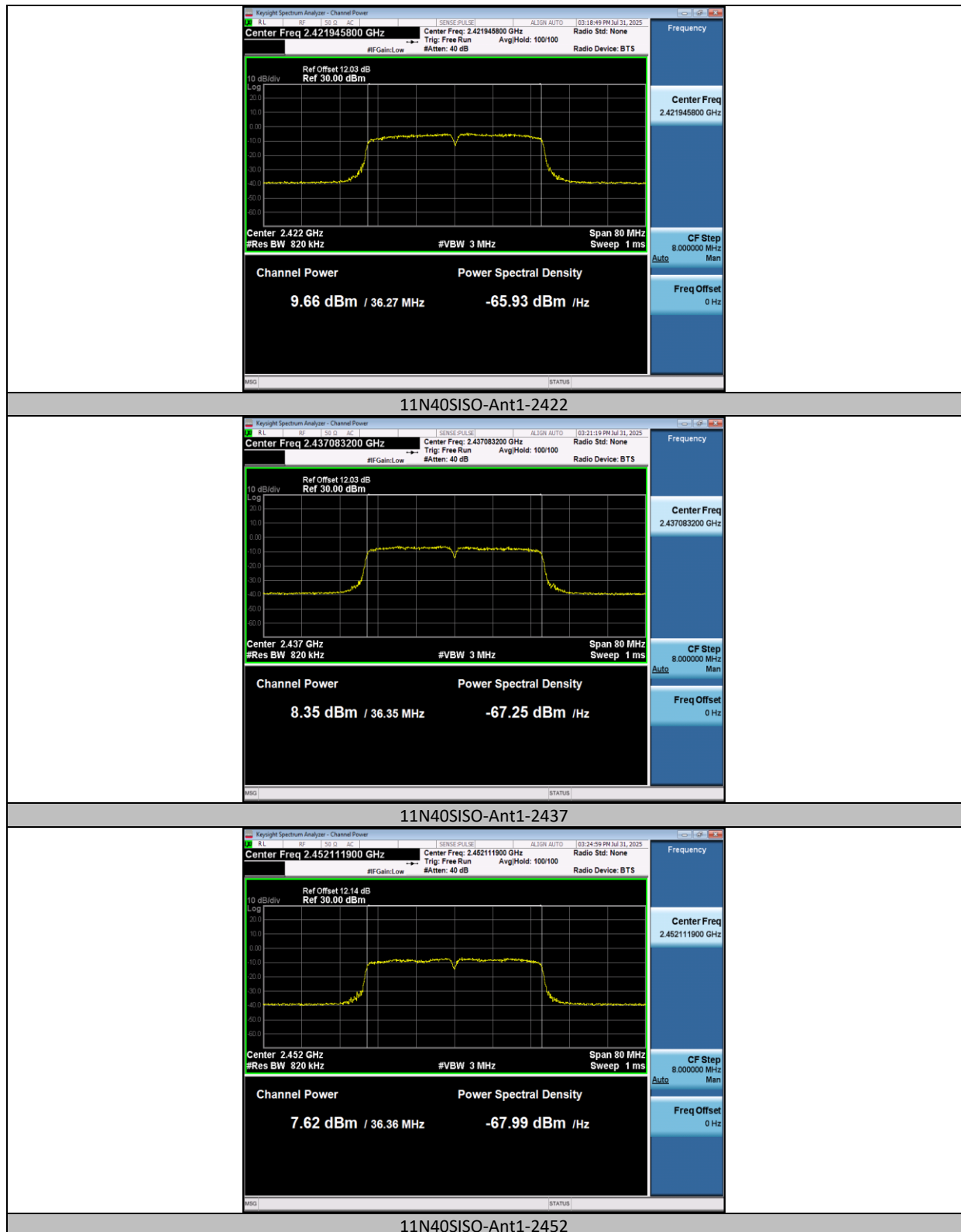
The test plots are attached as below.

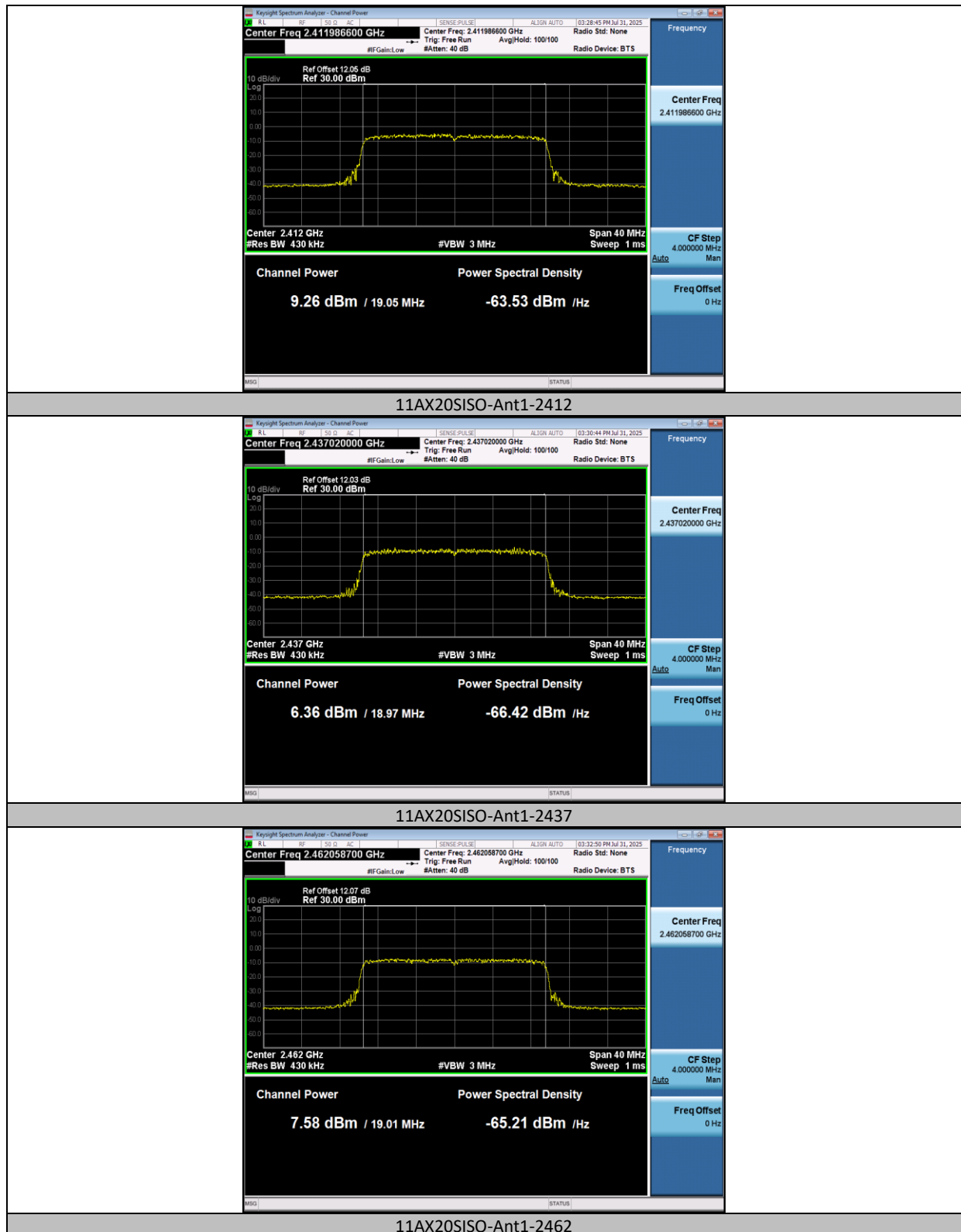
Test Graphs











Applicant: EcoFlow Inc.

Date of Test: 31 July 2025

Worst Case Model: EF-AC-001

4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a) (2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074 D01 v05r02. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	9.080
2437	9.280
2462	9.560

IEEE 802.11g (BPSK, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.040
2437	16.280
2462	16.320

IEEE 802.11n-HT20(BPSK, 6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.280
2437	16.680
2462	17.520

IEEE 802.11n-HT40 (BPSK, 13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	35.040
2437	34.960
2452	35.360

IEEE 802.11ax-HE20 (BPSK, 8Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.960
2437	17.400
2462	18.760

The test plots are attached as below.

