TEST REPORT
BS EN IEC 62311:2020

Product：	EcoFlow STREAM AC Pro
Trade Mark：	EF ECOFLOW, ECOFLOW
Model Name：	EF-EA-AC-P2K-1200
Family Model：	EF-EA-AC-P2K-800, EF-EA-AC-P2K-600, EF-EA-AC-2K-800
Report No.：	S25021305107001

Prepared for

EcoFlow Inc.

RM 401, Plant #1, Runheng Industrial Zone, Fuyuanyi Road, Zhancheng Community, Fuhai Street, Bao'anDistrict,ShenzhenCity,Guangdong Province, P.R.China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name	:	EcoFlow Inc.
Address	:	RM 401, Plant #1, Runheng Industrial Zone, Fuyuanyi Road, Zhancheng Community, Fuhai Street,Bao'anDistrict, ShenzhenCity,Guangdong Province, P.R.China
Manufacturer's Name	:	EcoFlow Inc.
Address	:	RM 401, Plant #1, Runheng Industrial Zone, Fuyuanyi Road, Zhancheng Community, Fuhai Street,Bao'anDistrict, ShenzhenCity,Guangdong Province, P.R.China
Product description		
Product name	:	EcoFlow STREAM AC Pro
Trademark	:	EF ECOFLOW, ECOFLOW
Model and/or type reference	:	EF-EA-AC-P2K-1200
Family Model	:	EF-EA-AC-P2K-800, EF-EA-AC-P2K-600, EF-EA-AC-2K-800
Standards	:	BS EN IEC 62311:2020

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the of (Electromagnetic Compatibility Regulations 2016) requirements. And it is applicable only to the tested sample identified in the report.

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Test Sample Number		S250213051008
Date of Test		
Date (s) of performance of tests	:	Feb. 13, 2025 ~ Feb. 28, 2025
Date of Issue	:	Feb. 28, 2025
Test Result	:	**Pass**

Prepared By	:	Allen Liu (Project Engineer)
Reviewed By	:	Aaron Cheng (Supervisor)
Approved By	:	Alex Li (Manager)

Shenzhen NTEK Testing Technology Co., Ltd. NTEK Report Seal

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Revision History

Report No.	Version	Description	Issued Date
S25021305107001	Rev.01	Initial issue of report	Feb. 28, 2025

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>EcoFlow STREAM AC Pro</td></tr>
<tr><td>Trade Mark</td><td>EF ECOFLOW, ECOFLOW</td></tr>
<tr><td>Model Name.</td><td>EF-EA-AC-P2K-1200</td></tr>
<tr><td>Family Model</td><td>EF-EA-AC-P2K-800, EF-EA-AC-P2K-600, EF-EA-AC-2K-800</td></tr>
<tr><td>Model Difference</td><td>All models are the same circuit and RF module, except model's name, power.</td></tr>
<tr><td>Product Description</td><td>The EUT is EcoFlow STREAM AC Pro
<table>
<tr><td>Operation Frequency:</td><td>☒BLE: 2402~2480MHz
☒2.4G WIFI: 802.11b/g/n/ax (20MHz):2412~2472MHz
802.11n (40MHz):2422~2462MHz</td></tr>
<tr><td>Antenna Designation:</td><td>PCB Antenna;</td></tr>
<tr><td>Antenna Gain(Peak)</td><td>BLE: ANT 1: 3.87dBi; ANT 2: 6.17dBi
2.4G WIFI: ANT 1: 3.87dBi; ANT 2: 6.17dBi</td></tr>
<tr><td>Modulation Type:</td><td>☒BLE: GFSK
☒IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK)
☒IEEE 802.11g/n (HT20/HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK)
☒IEEE 802.11ax(HT20): OFDMA(QPSK,BPSK,16QAM, 64QAM,256QAM,1024QAM)</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Adapter</td><td>N/A</td></tr>
<tr><td>Battery</td><td>DC 19.2V, 1.92KWh</td></tr>
<tr><td>Power Rating</td><td>1. PV input: 4 channels
15-60Vdc, single channel 16A Max, 500W Max. 4 channels totaling 2000W Max.
2. AC parallel interface: 1 channel
184-264Vac, 10A, 2300W;
3. AC grid connection interface: 1 channel
Grid connected output: 184-264Vac, 3.5A, 800W;
Grid input: 184-264Vac, 10A, 2300W;
4. AC load output: 2 channels, with a total output of 2300W for both channels. If one channel carries 2300W, the other channel cannot carry the load;
Inverter output: 184-264Vac, 5.3A, 1200W;
Bypass output: 184-264Vac, 10A, 2300W</td></tr>
<tr><td>Hardware Version</td><td>N/A</td></tr>
<tr><td>Firmware version:</td><td>N/A</td></tr>
<tr><td>Software Version</td><td>N/A</td></tr>
</table>

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

BLE

Channel	Frequency (MHz)
00	2402
01	2404
……	……
……	…….
38	2478
39	2480

2.4G WIFI

Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452	13	2472
02	2417	06	2437	10	2457		
03	2422	07	2442	11	2462		
04	2427	08	2447	12	2467		

2.EN IEC 62311 REQUIREMENT

2.1 GENERAL INFORMATION

The essential requirements of Directive 99/5/ec in the article 3.1(a) and the limits must be taken from Council Recommendation 99/519/EC for General Population or from the ICNIRP Guidelines for Occupational Exposure, EN IEC 62311:2020 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)

2.2 LIMIT

Basic Restrictions Reference levels

Council Recommendation 99/519/EC Annex II

Basic restrictions for electric, magnetic and electromagnetic fields (0Hz to 300GHz)

Frequency range	Magnetic flux density (mT)	Current density (Ma/m2) (rms)	Whole body average SAR (W/kg)	Localised SAR (head and trunk) (W/kg)	Localised SAR (limbs) (W/kg)	Power density, S (W/m2)
0Hz	40	-	-	-	-	-
>0-1Hz	-	8	-	-	-	-
1-4Hz	-	8/f	-	-	-	-
4-1000Hz	-	2	-	-	-	-
1000Hz-100kHz	-	f/500	-	-	-	-
100kHz-10MHz	-	f/500	0.08	2	4	-
10MHz-10GHz	-	-	0.08	2	4	-
10-300GHz	-	-	-	-	-	10

Note:

(1)f is the frequency in Hz.

(2)The basic restriction on the current density is intended to protect against acute exposure effects on central nervous system tissues in the head and trunk of the body and includes a safety factor. The basic restrictions for ELF fields are based on established adverse effects on the central nervous system. Such acute effects are essentially instantaneous and there is no scientific justification to modify the basic restrictions for exposure of short duration. However, since the basic restriction refers to adverse effects on the central nervous system, this basic restriction may permit higher current densities in body tissues other than the central nervous system under the same exposure conditions.

(3)Because of electrical inhomogeneity of the body, current densities should be averaged over a cross section of 1cm2 perpendicular to the current direction.

(4)For frequencies up to 100 kHz, peak current density values can be obtained by multiplying the rms value by √2(=1.414). For pulses of duration tp the equivalent frequency to apply in the basic restrictions should be calculated as=1/(2tp)

(5)For frequencies up to 100kHz and for pulsed magnetic fields, the maximum current density associated with the pulses can be calculated from the rise/fall times and the maximum rate of change of magnetic flux density. The induced current density can then be compared with the appropriate basic restriction.

(6)All SAR values are to be averaged over any six-minute period.

(7)Localised SAR averaging mass is any 10g of contiguous tissue; the maximum SAR so obtained should be the value used for the estimation of exposure. These 10g of tissue are intended to be a mass of contiguous tissue with nearly homogeneous electrical properties. In specifying a contiguous mass of tissue, it is recognised that this concept can be used in computational dosimetry but may present difficulties for direct physical measurements. A simple geometry such as cubic tissue mass can be used provided that the calculated dosimetric quantities have conservation values relative to the exposure guidelines.
(8)For pulses of duration tp the equivalent frequency to apply in the basic restrictions should be calculated as=1/(2tp). Additionally, for pulsed exposures, in the frequency range 0,3 to 10GHz and for localised exposure of the head, in order to limit and avoid auditory effects caused by thermoelastic expansion, an additional basic restriction is recommended. This is that SA should not exceed 2mJ kg-1 averaged over 10g of tissue.

Reference Levels
Council Recommendation 99/519/EC Annex III
Reference levels for electric, magnetic and electromagnetic fields (0Hz to 300GHz)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m^2)
0-1Hz	-	$3,2\times10^4$	4×10^4	-
1-8Hz	10000	$3,2\times10^4/f^2$	$4\times10^4/f^2$	-
8-25Hz	10000	4000/f	5000/f	-
0.025Hz-0,8kHz	250/f	4/f	5/f6,25	-
0,8-3kHz	250/f	5	6,25	-
3-150kHz	87	5	6,25	-
0,15-1MHz	87	0.73/f	0,92/f	-
1-10MHz	$87/f^{1/2}$	0.73/f	0,92/f	-
10-400MHz	28	0.073	0,092	2
400-2000MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046f^{1/2}$	f/200
2-300GHz	61	0,16	0,20	10

Note:
(1)As indicated in the frequency range column.
(2)For frequencies between 100kHz and 10GHz, Seq, E2, H2 and B2 are to be averaged over any six-minute period.
(3)For frequencies exceeding 10GHz, Seq, E2, H2 and B2 are to be averaged over any 68/.1.05-minute period (.in GHz).
(4)No E-field value is provided for frequencies <1Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 20kV/m. Spark discharges causing stress or annoyance should be avoided.

2.3 Limit calculations for radiated electric field strength measurement

For the calculation of the limits, the near field proportionality factor $1/d_3$ has been used. For ten times the distance, the level is decreased by the cubical, giving 60 dB.

Frequency range	Limit V/m @0.3m	Limit V/m @3m	Limit (add.span)
30MHz-400MHz	28V/m(149dBuV/m)	89dBuV/m	69 dBuV/m
400MHz-2GHz	27.5V/m-61.5V/m (149dBuV/m-155dBuV/m)	89dBuV/m	69dBuV/m
		95dBuV/m	75dBuV/m
2GHz-300GHz	61V/m(155dBuV/m)	95dBuV/m	75dBuV/m

To deal with reflexions, other effects due to the measurement in 3 m distance and to deal with a measurement uncertainty of at least 5 dB, an additional span of 20 dB has been added.

For additional three times the distance, the level is decreased by additional 30 dB.

Frequency range	Limit V/m @0.1m	Limit V/m @3m	Limit (add.span)
30MHz-400MHz	28V/m(149dBuV/m)	59dBuV/m	39 dBuV/m
400MHz-2GHz	27.5V/m-61.5V/m (149dBuV/m-155dBuV/m)	59dBuV/m	39dBuV/m
		65dBuV/m	45dBuV/m
2GHz-300GHz	61V/m(155dBuV/m)	65dBuV/m	45dBuV/m

To deal with reflexions, other effects due to the measurement in 3 m distance and to deal with a measurement uncertainty of at least 5 dB, an additional span of 20 dB has been added.
Limits for radiated field according to EN 55022 / CISPR 22 for a class B appliance:

Frequency range	Limit dBuV/m @3m Peak	Limit dBuV/m @3m QP or Average
30MHz-230MHz		40 dBuV/m QP
230MHz-1GHz		47dBuV/m QP
1GHz-3GHz	70dBuV/m Peak	50dBuV/m AV
3GHz-6GHz	74dBuV/m Peak	54dBuV/m AV

Conclusion: If the requirements for radiated emissions according to EN 55022 / CISPR 22 or other standards with the same limits are fulfilled, also the EMF requirements for the measured frequency range are fulfilled

3.Result

Pd= (Pout*G)\ (4*pi*R^2)

Where
Pd= Power density in mW/cm^2
Pout=output power to antenna in mW
G= Numeric gain of the antenna relative to isotropic antenna
Pi=3.1416
R= distance between observation point and center of the radiator in cm(20cm)
Pd the limit of MPE, 1mW/cm^2. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.
mW=10^(dBm/10)

R=20cm

BLE

Mode	Frequency (MHz)	maximum output power (dBm)	maximum output power (mW)	Power Density (S) (mW/ cm^2)	Limit of Power Density (S) (mW/ cm^2)	Result
GFSK(1M) (ANT1)	2440	5.56	3.5975	0.0007	1	Pass
GFSK(1M) (ANT2)	2440	7.17	5.2119	0.0010	1	Pass
GFSK(2M) (ANT1)	2440	4.42	2.7669	0.0006	1	Pass
GFSK(2M) (ANT2)	2440	7.08	5.1050	0.0010	1	Pass

2.4GHz WIFI

ANT 1

Mode	Frequency (MHz)	maximum output power (dBm)	maximum output power (mW)	Power Density (S) (mW/ cm^2)	Limit of Power Density (S) (mW/ cm^2)	Result
802.11b	2472	17.93	62.0869	0.0124	1	Pass
802.11g	2472	17.24	52.9663	0.0105	1	Pass
802.11n20	2472	16.35	43.1519	0.0086	1	Pass
802.11n40	2462	16.14	41.1150	0.0082	1	Pass
802.11ax20	2472	16.26	42.2669	0.0084	1	Pass

ANT 2

Mode	Frequency (MHz)	maximum output power (dBm)	maximum output power (mW)	Power Density (S) (mW/ cm^2)	Limit of Power Density (S) (mW/ cm^2)	Result
802.11b	2412	17.94	62.2300	0.0124	1	Pass
802.11g	2412	16.56	45.2898	0.0090	1	Pass
802.11n20	2412	15.57	36.0579	0.0072	1	Pass
802.11n40	2422	15.86	38.5478	0.0077	1	Pass
802.11ax20	2412	15.59	36.2243	0.0072	1	Pass

Note:

1. The Output power is the maximum eirp power of this EUT, and the data comes from the RF report for this EUT.
2. The assess distance is 20cm.

END OF REPORT