

RF EXPOSURE REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the procedures in ANSI C63.10(2013).

Applicant : Halo 2Cloud,LLC

Address : 6 CENTRAL ROW HARTFORD CT 06103, Hartford city, Connecticut State, United States

Manufacturer/ Factory : Dongguan Zhongkang Technology Electronics Co., Ltd.

Address : No.12 Yansha Road, TianXin, Tangxia Town, Dongguan City, Guangdong Province 523718, China

E.U.T. : JUMP STARTER, Portable Power Jump Starter, mophie powerstation go

Brand Name : 

Model No. : HALO BOLT ACDC WIRELESS, PWRSTION-GO-WRLS
(For model difference refer to section 1)

FCC ID : 2AV3U-00001

Measurement Standard : FCC PART 15 Subpart C

Date of Receiver : April 02, 2020

Date of Test : April 02, 2020 to April 18, 2020

Date of Report : April 18, 2020

In the configuration tested, the EUT complied with the standards specified above.

This test report is for the customer shown above and their specific product only. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product name : JUMP STARTER, Portable Power Jump Starter, mophie powerstation go

Main model : HALO BOLT ACDC WIRELESS

Additional model : PWRSTION-GO-WRLS

Brand name : 

Rating	:	Input	Output Port	
		DC 14V 0.85A (From External adapter) DC 12V (From Start Switch Port)	AC Port	USB Port
			AC 115V 60Hz, 65W max	USB 1 5V 2.4A USB 2 5V 2.4A
			Note1: Built-in DC 11.1V battery, 44400mWh Note2: Wireless Charging 5V 1A, 5W max	

Test voltage : AC 120V 60Hz

Adapter : Manufacturer: HALO
M/N: HALO-1201
Input: AC100V-240V, 50Hz/60Hz, 500mA
Output:DC14V 0.85A

Cable : DC Line: 1.05m unshielded.

Description of Model Difference : 1. Both of modes have the same circuit schematic, construction, PCB Layout and critical components. The difference in model number, brand name and product name due to trading purpose.
2. This product has two different appearance, please refer to the product photo for details

Note : According to the model difference, all tests were performed on model HALO BOLT ACDC WIRELESS.

Technical Specification (Wireless Charging):

Frequency Range	: 110.5-205KHz
Test Channel	: 115KHz
Type of Modulation	: ASK
Type of Antenna	: induction coil
Antenna Gain	: 0 dBi

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AV3U-00001 filing to comply with FCC Part 15, Subpart C Rule.

1.3 Test Facility and Location

Site Description

EMC Lab : Listed by CNAS, August 13, 2018
The certificate is valid until August 13, 2024
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01
The Certificate Registration Number is L5795.

Listed by A2LA, November 01, 2017
The certificate is valid until December 31, 2021
The Laboratory has been assessed and proved to be in compliance with ISO17025
The Certificate Registration Number is 4429.01

Listed by FCC, November 06, 2017
The Designation Number is CN1214
Test Firm Registration Number: 907417

Listed by Industry Canada, June 08, 2017
The Certificate Registration Number is 46405-9743A

Name of Firm : Dongguan Nore Testing Center Co., Ltd.
(Dongguan NTC Co., Ltd.)

Site Location : Building D, Gaosheng Science and Technology Park,
Hongtu Road, Nancheng District, Dongguan City,
Guangdong Province, China

2. Method of measurement

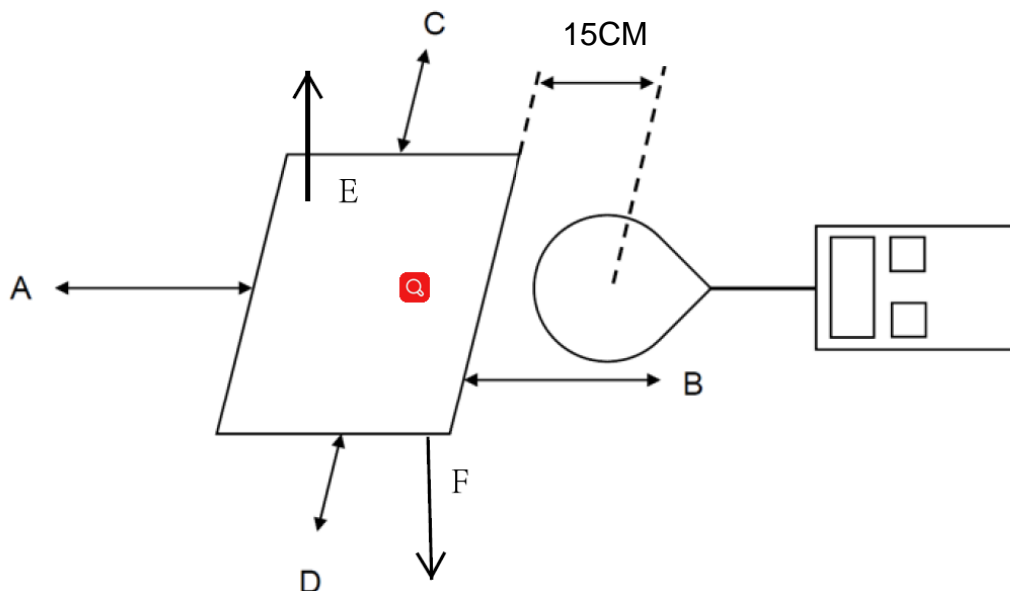
2.1 Applicable standard

According to 1.1307(b)(1), system operating under the provisions of this section shall be operated in amanner that ensures that the public is not exposed to radio frequency energy level in excess of the commission's guidelines.

According to 1.1310 and 2.1093 RF exposure is calculated.

According to KDB680106 D01V03: RF exposure wireless charging apps v03.

2.2 Test Setup



2.3 Test procedure

1. The RF exposure test was performed on 360 degree turn table in anechoic chamber;
2. The measurement probe was placed at test distance 15cm which is between the edge of the charger and 20cm between top of the charger and the geometric centre of probe.
3. The turn table was rotated 360d degree to search of highest strength.
4. The highest emission level was recorded and compared with limit as soon as measurement of each points (A,B,C,D,E) were completed.
5. The EUT were measured according to the dictates of KDB 680106D01V03

2.4 Equipment approval considerations

1. The EUT dose comply with item 5.2 of KDB 680106D01V03
 - a, Power transfer frequency is less than 1MHz.
YES; the device operated in the frequency range from 110.5-205KHz.
 - b, Output power from each primary coil is less than or equal to 15 watts
YES; the maximum output power of the primary coil is $5W < 15W$.
 - c, The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that able to detect and allow coupling only between individual pair of coils.
YES; the transfer system includes only single primary and secondary coils.
 - d, Client device is placed directly in contact with the transmitter.
YES; Client device is placed directly in contact with the transmitter.
 - e, Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
YES;
 - f, The aggregate H-field strengths at 15cm surrounding the device and 20cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
YES; The EUT field strength levels are less than $50\% \times \text{MPE limits}$.

2.5 E and H field strength

Limit

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,00	/	/	1.0	30
F=frequency in MHz *=Plane-wave equivalent power density RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz: 614V/m,1.63A/m).				

2.6 Test Result

Wireless charging load has been charge at zero charge, intermediate charge, and full charge.

Electric Field Emissions

Operation frequency	Test Position	Test Distance (cm)	Probe Measure Result(V/m)			Limit (V/m)	50% Limit (V/m)
			zero charge	intermediate charge	full charge		
115.0KHz	Side A	15	2.81	2.45	2.53	614	307
	Side B	15	2.48	2.50	2.43	614	307
	Side C	15	2.50	2.39	2.57	614	307
	Side D	15	2.55	2.98	2.39	614	307
	Side E	20	2.03	2.03	1.99	614	307

Magnetic Field Emissions

Operation frequency	Test Position	Test Distance (cm)	Probe Measure Result(A/m)			Limit (A/m)	50% Limit (A/m)
			zero charge	intermediate charge	full charge		
115.0KHz	Side A	15	0.0553	0.0551	0.0542	1.63	0.815
	Side B	15	0.0479	0.0524	0.0547	1.63	0.815
	Side C	15	0.0483	0.0537	0.0533	1.63	0.815
	Side D	15	0.0525	0.0543	0.0550	1.63	0.815
	Side E	20	0.0408	0.0360	0.0314	1.63	0.815

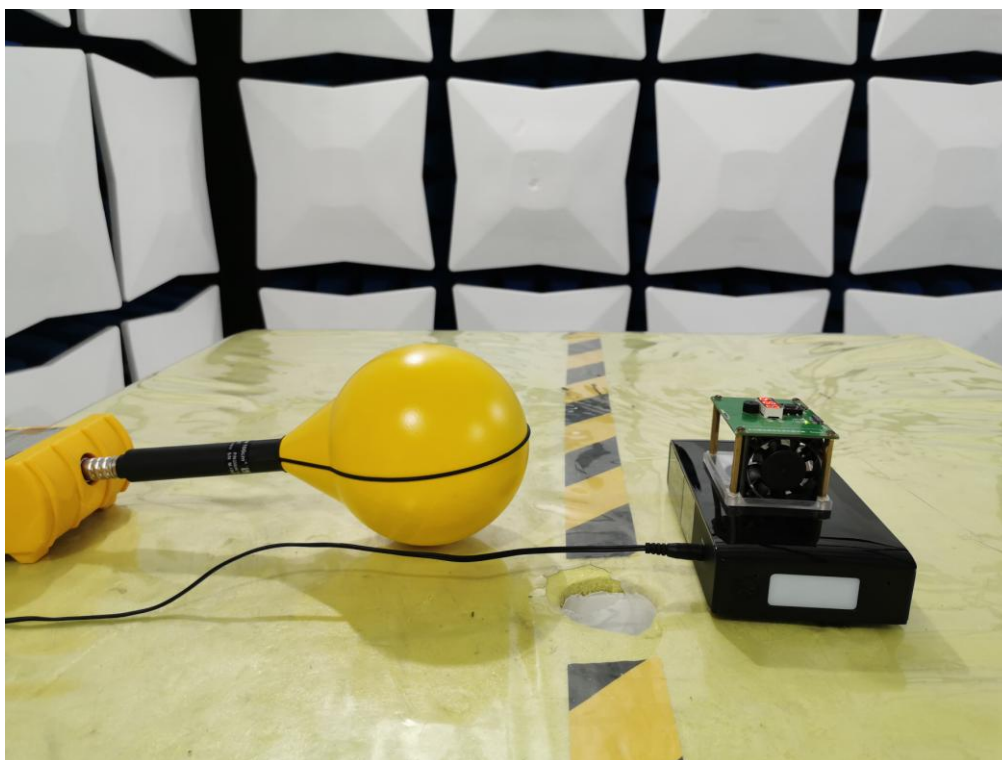
Uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Radiated emission (9KHz~30MHz): $\pm 2.60\text{dB}$

2.7 Test equipment list

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
3m semi-anechoic chamber	Chengyu	N/A	N/A	Mar. 26, 2020	1 Year
Exposure lever tester	Narda	ELT-400	N-0231	June 28, 2019	1 Year
Magnetic field probe 100cm ²	Narda	ELT Probe 100cm ²	M0675	June 28, 2019	1 Year

2.8 Test Photo



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