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RF Exposure Evaluation Report

Report No.:	CQASZ20220701271E-03
Applicant:	Shenzhen Leaderment Technology Co., Ltd.
Address of Applicant:	1st Floor, Building 24, Longcheng Industrial Zone Gaofeng Community, Dalang Street, Longhua District, shenzhen, China 518109
Equipment Under Test (EUT):	
EUT Name:	Car Charger
Model No.:	UBCH449
Test Model No.:	UBCH449
Brand Name:	UNBREAKcable
FCC ID:	2ASUP-UBCH449
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 447498 D04 Interim General RF Exposure Guidance v01
Date of Receipt:	2022-07-25
Date of Test:	2022-07-25 to 2022-08-10
Date of Issue:	2022-08-11
Test Result:	**PASS***

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

Tested By: lewis zhou

(Lewis Zhou)

Reviewed By: K. Liao

(K Liao)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220701271E-03	Rev.01	Initial report	2022-08-11

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3 General Information

3.1 Client Information

Applicant:	Shenzhen Leaderment Technology Co., Ltd.
Address of Applicant:	1st Floor, Building 24, Longcheng Industrial Zone Gaofeng Community, Dalang Street, Longhua District, shenzhen, China 518109
Manufacturer:	Shenzhen Leaderment Technology Co., Ltd.
Address of Manufacturer:	1st Floor, Building 24, Longcheng Industrial Zone Gaofeng Community, Dalang Street, Longhua District, shenzhen, China 518109
Factory:	Sage Human Electronics International Co., Ltd.
Address of Factory:	4th Floor, A- building, No.2 Guiyuan Road, Guihua Community, Guanlan Town, Longhua New District, Shenzhen China

3.2 General Description of EUT

Product Name:	Car Charger
Model No.:	UBCH449
Test Model No.:	UBCH449
Trade Mark:	UNBREAKcable
Software Version:	V1.1
Hardware Version:	V1.1
EUT Power Supply:	Power by DC 12-24V

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK
Transfer Rate:	1Mbps/2Mbps
Number of Channel:	40
Product Type:	☒ Mobile ☐ Portable ☐ Fix Location
Antenna Type:	Chip antenna
Antenna Gain:	3dBi

3.4 General Description of BT

Operation Frequency:	2402MHz~2480MHz
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Product Type:	☒ Mobile ☐ Portable ☐ Fix Location
Antenna Type:	Chip antenna
Antenna Gain:	3dBi

Note：

The above parameters will directly affect the test results. The information is provided by the applicant.

4 MPE Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

The table applies to any RF source (i.e., single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least $\lambda/2\pi$. The thresholds are based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.For mobile devices that are not exempt per Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP20cm inFormula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{\text{th}}\,(\text{mW}) = ERP_{20\,\text{cm}}\,(\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave Dipole.
SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure

1) For BT Classic

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	3.82	4.0±1	5.0	3.16
Middle(2441MHz)	4.34	4.5±1	5.5	3.55
Highest(2480MHz)	5.06	5.0±1	6.0	3.98
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.54	4.5±1	5.5	3.55
Middle(2441MHz)	4.93	5.0±1	6.0	3.98
Highest(2480MHz)	5.61	5.5±1	6.5	4.47
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	4.8	5.0±1	6.0	3.98
Middle(2441MHz)	5.35	5.5±1	6.5	4.47
Highest(2480MHz)	6.3	6.5±1	7.5	5.62

2) For BLE Classic

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GFSK(1Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.55	1.5±1	2.5	1.78
Middle(2440MHz)	1.72	1.5±1	2.5	1.78
Highest(2480MHz)	1.98	2.0±1	3.0	2.00
GFSK(2Mbps) mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	1.6	1.5±1	2.5	1.78
Middle(2440MHz)	1.76	1.5±1	2.5	1.78
Highest(2480MHz)	2.23	2.5±1	3.5	2.24

The maximum output power of this product is less than 3060mW

Note: 1) Refer to report No. CQASZ20220701271E-02 for EUT test Max Conducted Peak Output Power value.

2) EUT's Bluetooth module is more than 20cm away from the human body.

*** END OF REPORT ***