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RF Exposure Evaluation Report

Report No.: CQASZ20220300449E-02
Applicant: THINKCAR TECH CO., LTD.
Address of Applicant: 2606, building 4, phase II, TiananYungu, Gangtou community, Bantian, Longgang District, Shenzhen
Equipment Under Test (EUT):
EUT Name: THINKEASY BATTERY TEST CLIP 2
Test Model No.: TBTC2
Model No.: TBTC2
Brand Name: THINKCAR
FCC ID: 2AUARTHINKEASY
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
447498 D04 Interim General RF Exposure Guidance v01
Date of Receipt: 2022-03-25
Date of Test: 2022-03-25 to 2022-04-12
Date of Issue: 2022-04-15
Test Result: PASS*

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

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Rock Huang

(Rock Huang)

Approved By:

Jack Ai

(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220300449E-02	Rev.01	Initial report	2022-04-15

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4.1 RF EXPOSURE COMPLIANCE REQUIREMENT	错误！未定义书签。
4.1.1 <i>Standard Requirement</i>	错误！未定义书签。
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3 General Information

3.1 Client Information

Applicant:	THINKCAR TECH CO., LTD.
Address of Applicant:	2606, building 4, phase II, TiananYungu, Gangtou community, Bantian, Longgang District, Shenzhen
Manufacturer:	THINKCAR TECH CO., LTD.
Address of Manufacturer:	2606, building 4, phase II, TiananYungu, Gangtou community, Bantian, Longgang District, Shenzhen
Factory:	THINKCAR TECH CO., LTD.
Address of Factory:	2606, building 4, phase II, TiananYungu, Gangtou community, Bantian, Longgang District, Shenzhen

3.2 General Description of EUT

Product Name:	THINKEASY BATTERY TEST CLIP 2
Model No.:	TBTC2
Test Model No	TBTC2
Trade Mark:	THINKCAR
EUT Supports Radios application:	Bluetooth mode 2402-2480MHz
Software Version:	20211116.002
Hardware Version:	20220113.01
Sample Type:	☒ Mobile ☐ Portable ☐ Fix Location
EUT Power Supply:	Power by DC 16V

3.3 General Description of BLE

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V5.0
Modulation Technique:	Non Frequency Hopping Spread Spectrum(NFHSS)
Modulation Type:	GFSK
Number of Channel:	40
Transfer Rate:	1Mbps
Test Software of EUT:	FPC antenna
Antenna Type:	2.99 dBi
Antenna Gain:	Power by DC 16V

4 RF exposure 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 ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

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

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

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.24	-3±1	-2	0.631
Middle(2441MHz)	-2.5	-2±1	-1	0.794
Highest(2480MHz)	-2.76	-2±1	-1	0.794

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

Note: 1) Refer to report No. CQASZ20220300449E-01 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 ***