REPORT No.: SZ23060013S01

TEST REPORT

APPLICANT	:	Shenzhen Xhorse Electronics Co., Ltd.
PRODUCT NAME	:	KEY TOOL LITE
MODEL NAME	:	XDKML0
BRAND NAME	:	Xhorse
FCC ID	:	2AI4T-XDKML0
STANDARD(S)	:	FCC 47 CFR Part 2(2.1093)
RECEIPT DATE	:	2023-06-09
TEST DATE	:	2023-07-20
ISSUE DATE	:	2023-08-15

Edited by: Xie Yiyun

Xie Yiyun (Rapporteur)

Approved by: Shen Junsheng

Shen Junsheng (Supervisor)

MORLAB

Shenzhen Morlab Communications Technology Co., Ltd.
FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

DIRECTORY

Change History		
Version	Date	Reason for Change
1.0	2023-08-15	First edition

1. MPE Results Summary

Operation Frequency	Highest MPE Summary	
	E-field(V/m)	H-field(A/m)
125 KHz	37.14	1.5827
134 KHz	27.16	1.5991

Note: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.

2. Technical Information

Note: Provide by applicant.

2.1. Applicant and Manufacturer Information

Applicant:	Shenzhen Xhorse Electronics Co., Ltd.
Applicant Address:	Floor 28, Block A, Building NO.6, international innovation Valley, Nanshan District, Shenzhen
Manufacturer:	Shenzhen Xhorse Electronics Co., Ltd.
Manufacturer Address:	Floor 28, Block A, Building NO.6, international innovation Valley, Nanshan District, Shenzhen

2.2. Equipment Under Test (EUT) Description

Product Name:	KEY TOOL LITE
EUT NO.:	3#
Hardware Version:	VN10V06
Software Version:	V149
Frequency Bands:	NFC: 13.56 MHz 125 KHz 134 KHz 315 MHz (Rx)
Modulation Mode:	NFC: ASK 125 KHz: ASK 134 KHz: ASK
Antenna Type：	NFC: FPC Antenna 125 KHz: Loop Antenna 134 KHz: Loop Antenna

Note: For more detailed description, please refer to specification or user manual supplied by the applicant and/or manufacturer.

2.3. Applied Reference Documents

Leading reference documents for testing:

Identity	Document Title	Method determination /Remark
FCC 47CFR Part 2(2.1093)	Radio Frequency Radiation Exposure Evaluation: Portable Devices	No deviation
KDB 447498 D01v06	General RF Exposure Guidance	No deviation
Note 1: Additions to, deviation, or exclusions from the method shall be judged in the “method determination” column of add, deviate or exclude from the specific method shall be explained in the “Remark” of the above table.		

3. RF Exposure Requirement

3.1. Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

3.2. Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3. RF Exposure Limit

Basic Restrictions Reference levels

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

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz

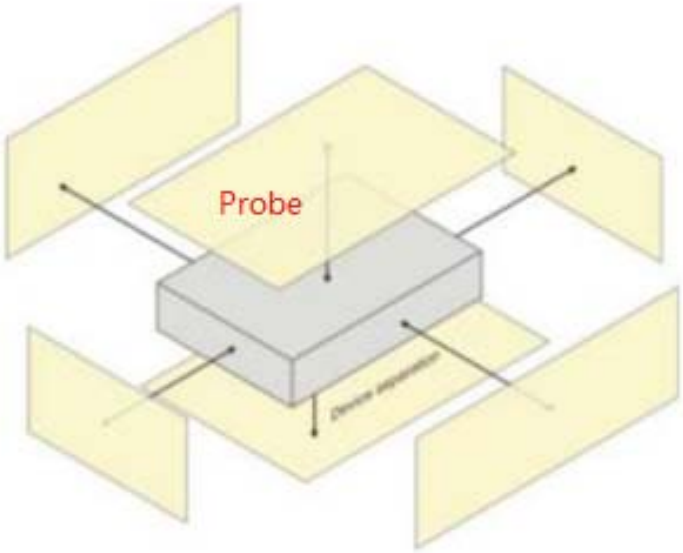
* = Plane-wave equivalent power density

Note: Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1: 614 V/m and 1.63 A/m.

3.4. Test Information

The EUT working at normal charging mode, use the E-Probe measure the H-field Strength, E-field Strength separately.

3.5. Test Setup



4. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial No./ SW Version	Calibration	
				Last Cal.	Due Date
STT	Broadband Field meter	SEM-600	D-1044	2021.11.15	2024.11.14
STT	Probe	LF-04	I-1044	2021.11.15	2024.11.14
STT	Probe holder	TR-01	N/A	N/A	N/A
STT	Optical fiber line	L=5M	N/A	N/A	N/A

5. RF Exposure Assessment

➢ **Environment of Test Condition**

EUT: KEY TOOL LITE	Test Date: 2023.07.20
Temperature: 25 ± 2℃ Humidity: 20-60%	

➢ **Test Results**

E-field Strength Result (Test frequency range from 125 KHz)					
Test Loading	**Exposure Position**	**Distance (mm)**	**E-field Strength (Max. V/m)**	**Limit (V/m)**	**Verdict**
125 KHz	Front Side	10	22.71	614	PASS
	Back Side	10	15.09	614	PASS
	Left Side	10	18.56	614	PASS
	Right Side	10	16.82	614	PASS
	Top Side	10	37.14	614	PASS

E-field Strength Result (Test frequency range from 134 KHz)					
Test Loading	**Exposure Position**	**Distance (mm)**	**E-field Strength (Max. V/m)**	**Limit (V/m)**	**Verdict**
134 KHz	Front Side	10	14.58	614	PASS
	Back Side	10	12.79	614	PASS
	Left Side	10	12.18	614	PASS
	Right Side	10	12.03	614	PASS
	Top Side	10	27.16	614	PASS

H-field Strength Result (Test frequency range from 125 KHz)					
Test Loading	**Exposure Position**	**Distance (mm)**	**H-field Strength (Max. A/m)**	**Limit (A/m)**	**Verdict**
125 KHz	Front Side	10	1.5827	1.63	PASS
	Back Side	10	1.5081	1.63	PASS
	Left Side	10	0.3673	1.63	PASS
	Right Side	10	0.4861	1.63	PASS
	Top Side	10	0.6108	1.63	PASS

H-field Strength Result (Test frequency range from 134 KHz)					
Test Loading	**Exposure Position**	**Distance (mm)**	**H-field Strength (Max. A/m)**	**Limit (A/m)**	**Verdict**
134 KHz	Front Side	10	1.5991	1.63	PASS
	Back Side	10	1.4145	1.63	PASS
	Left Side	10	0.4579	1.63	PASS
	Right Side	10	0.9617	1.63	PASS
	Top Side	10	0.7681	1.63	PASS

Note：

1. The most conservative distance gap of 10 mm was used for testing.
2. The maximum power of NFC is less than 1 mW per the manual information, therefore it is not required for RF exposure.
3. The EUT test photos, please see the Annex B.
4. This device does not support simultaneous transmission.

6. Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for Radiated Frequency	$7*10^{8}$
Uncertainty for test site temperature and humidity	0.6℃
	3%

Note：95% confidence levels, k = 2.

Annex A General Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

Facilities and Accreditations

The FCC designation number is CN1192, the test firm registration number is 226174.

Note：

The main report is end here and the other Annex B will be submitted separately.

****** END OF REPORT ******