

FCC – RF Exposure Report

Report Number	: 60.790.24.079.01S01	Date of Issue:	<u>November 25, 2024</u>
Model/HVIN	: <u>Bluetooth CAM Lock, Bluetooth Plunger Lock</u>		
Product Type	: <u>Twist Lock</u>		
Applicant	: <u>Mobile Technologies Inc.</u>		
Address	: <u>2345 NE Overlook Drive, Hillsboro OR 97006 United States of America.</u>		
Production Facility (1)	: <u>Shenzhen Maxway Technology CO., LTD</u>		
Address	: <u>3F, Building 4, Section A, 3rd Industrial Zone of Tangtou, Shiyan Town, Bao'an District, Shenzhen, China.</u>		
Production Facility (2)	: <u>Well Star Precision Technology Limited</u>		
Address	: <u>24 Bao Ta Road, Bao Tang Community, Hou Jie Town, Dongguan City, Guangdong Province, China</u>		
Production Facility (3)	: <u>VIETNAM IBE LASER TECHNOLOGY COMPANY LIMITED</u>		
Address	: <u>lot CN-34 and Lot CN-39, Thuan Thanh II industrial zone, An Binh & Mao Dien commune, Thuan Thanh district, Bac Ninh province, Vietnam</u>		
Test Result	: <input checked="" type="radio"/> Positive <input type="radio"/> Negative		
Total pages including Appendices	: <u>12</u>		

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2 Description of the Equipment Under Test

Description of the Equipment Under Test

Product:	Twist Lock
Model no.:	Bluetooth CAM Lock, Bluetooth Plunger Lock
Hardware Version Identification No. (HVIN)	Bluetooth CAM Lock, Bluetooth Plunger Lock
Product Marketing Name (PMN)	Twist Lock
Brand name:	N/A
FCC ID:	2AA2X-15000333V2
IC:	24439-15000333V2
Rating:	3.0 VDC (CR2477 Button Cell)
RF Transmission Frequency:	RFID: 125 kHz
Antenna Type:	RFID: Coil Antenna
Antenna Gain:	RFID: 0 dBi
Description of the EUT:	The Equipment Under Test (EUT) is a Twist Lock which support Bluetooth (BLE) function, Zigbee function and 125 kHz near field card access function.

3 Summary of Test Standards

Test Standards / Requirements	
ANSI Std C95.1-2019	Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 kHz – 300 GHz. (IEEE Std C95.1-2019)
47 CFR 1.1310	Radiofrequency radiation exposure limits.
KDB 447498 D01	General RF Exposure Guidance v06
KDB 680106 D01	Wireless Power Transfer v04



4 Details about the Test Laboratory

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13 Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2,
Shenzhen 518052, P.R.China
FCC Registration Number: 514049

FCC Registration No.: 514049
FCC Designation Number: CN5009
Telephone: 86 755 8828 6998
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4.1 Test Equipment Site List

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Electric and magnetic field probe Analyzer	NARDA	EHP-200A	180ZX10218	2025-2-20
Test software	NARDA	EHP200-TS	02.05	N/A
Shielding Room #2	TDK	BTC	----	2025-10-15

4.2 Measurement System Uncertainty

Measurement System Uncertainty

System Measurement Uncertainty	
Items	Extended Uncertainty
Uncertainty Evaluation for RF Exposure	1.45dB (Magnetic field) 1.45dB (Electric)

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3 and 4.3.4.

5 General Remarks

Remarks

Applicant informs that the model **Bluetooth Plunger Lock** have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction, with **Twist Lock, Bluetooth CAM Lock**.

The difference lies only in outlook / mechanical switch activation of the different models.

SUMMARY:

- All tests according to the regulations cited on page 4 were

n - Performed

o - **Not** Performed

- The Equipment Under Test

n - **Fulfills** the general approval requirements.

o - **Does not** fulfill the general approval requirements.

Sample Received Date: October 10, 2024

Testing Start Date: October 10, 2024


Testing End Date: November 18, 2024

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

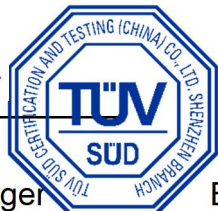
Reviewed by:

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EMC Test Engineer

6 Limit and Guidelines on Exposure to Electromagnetic Fields

According to §1.1310 system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

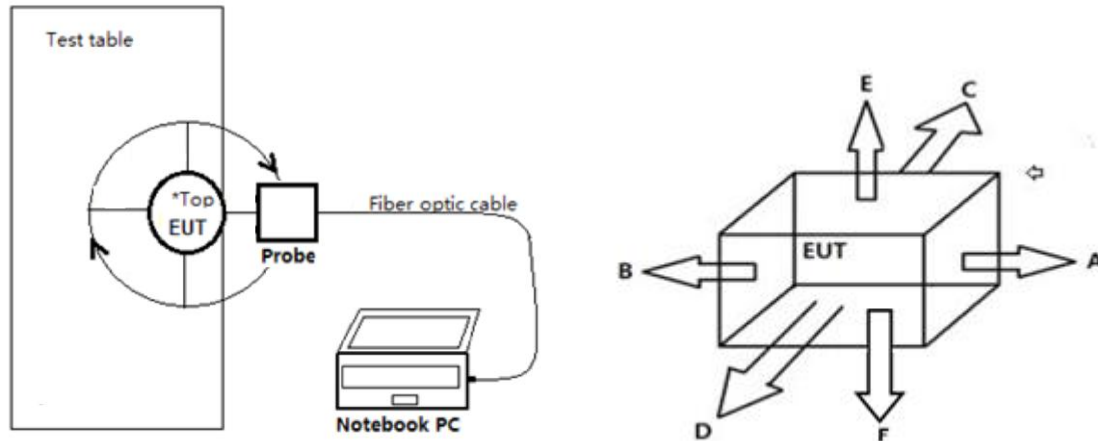
TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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

Per the guidance of KDB 680106, the E-field and H-field limits between 100 kHz to 300 kHz are to be considered the same as those at 300 kHz in Table 1 of § 1.1310 shown in the table above, any device (both portable and mobile) operating at frequencies below 100 kHz is considered compliant for the purpose of equipment authorization when the external (unperturbed) temporal peak field strengths do not exceed the 83 V/m for the electric field strength (E) and 90 A/m for the magnetic field strength (H).

7 Test Setup



The test distance between the edge of the EUT and the probe center is 20cm

8 Measurement Procedure

- The RF exposure test was performed on the table in anechoic chamber.
- The measurement was investigated between the edge of the EUT and center of the field
- probe in the closest state.
- Maximum E-field and H-field measurements were made on each of six sides of the EUT that could come in contact with a user. Six sides are defined as follows: Front (A), Rear (B), Left (C), Right (D), Top (E), Bottom (F) and Bottom and Refer to the test position diagram above.
- According to the guidance of KDB 680106 D01 v04, test distance 20cm was the distance between the edge of the EUT and the probe center.

9 Test Result

Operating Mode:

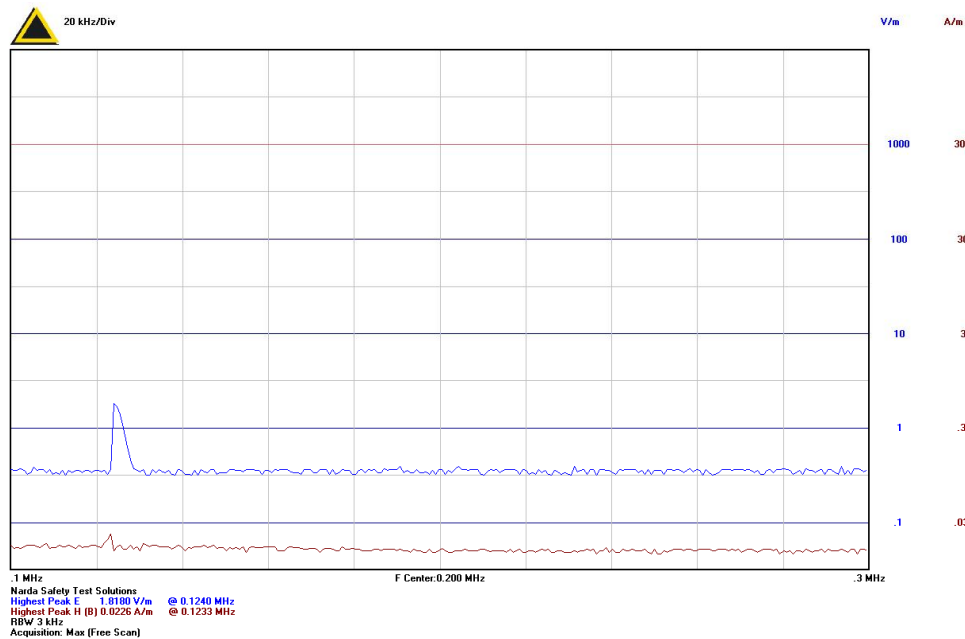
Electric Field Emissions				
Test Position	Test Distance (cm)	Measure Value (V/m)	Limit (V/m)	Result
Front	20	1.8180	614	PASS
Rear	20	0.3546	614	PASS
Left	20	0.3727	614	PASS
Right	20	0.3931	614	PASS
Top	20	0.3644	614	PASS
Bottom	20	0.3834	614	PASS
Magnetic Field Emissions				
Test Position	Test Distance (cm)	Measure Value (A/m)	Limit (A/m)	Result
Front	20	0.0226	1.63	PASS
Rear	20	0.0168	1.63	PASS
Left	20	0.0162	1.63	PASS
Right	20	0.0173	1.63	PASS
Top	20	0.0179	1.63	PASS
Bottom	20	0.0169	1.63	PASS

- The test result compliance with requirement

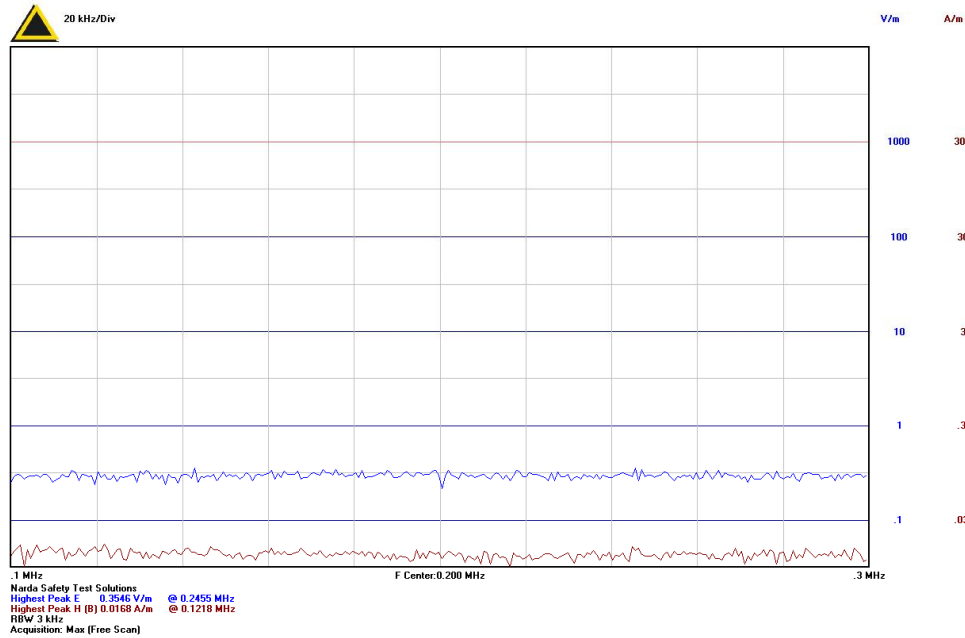


Test Result

Front



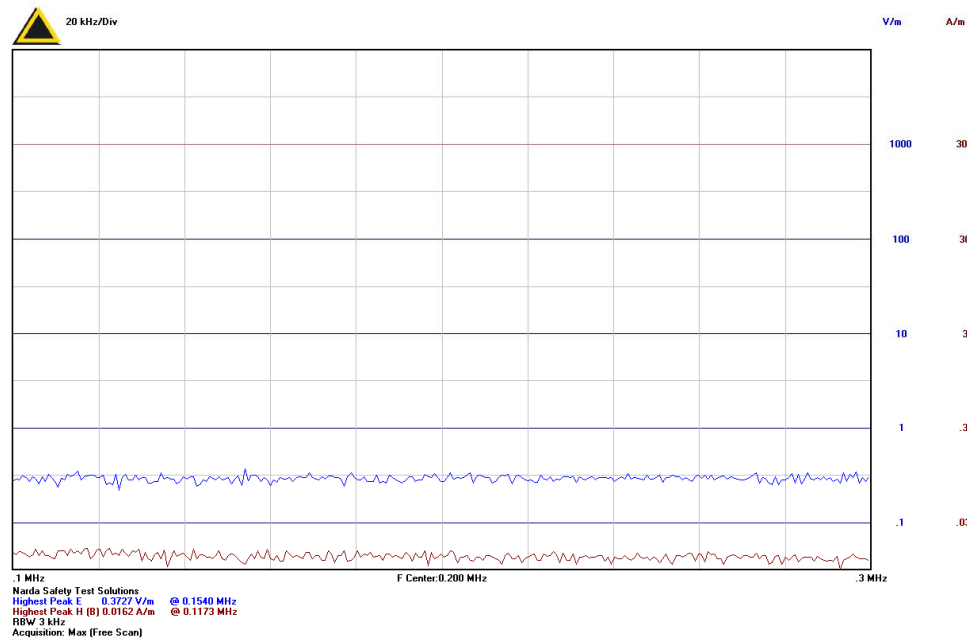
Rear



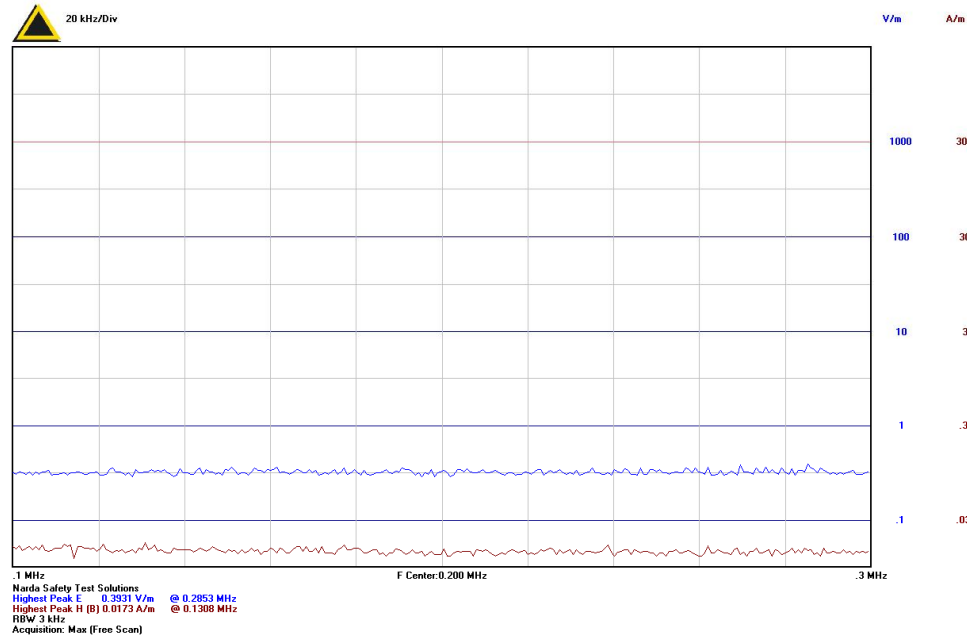


Test Result

Left



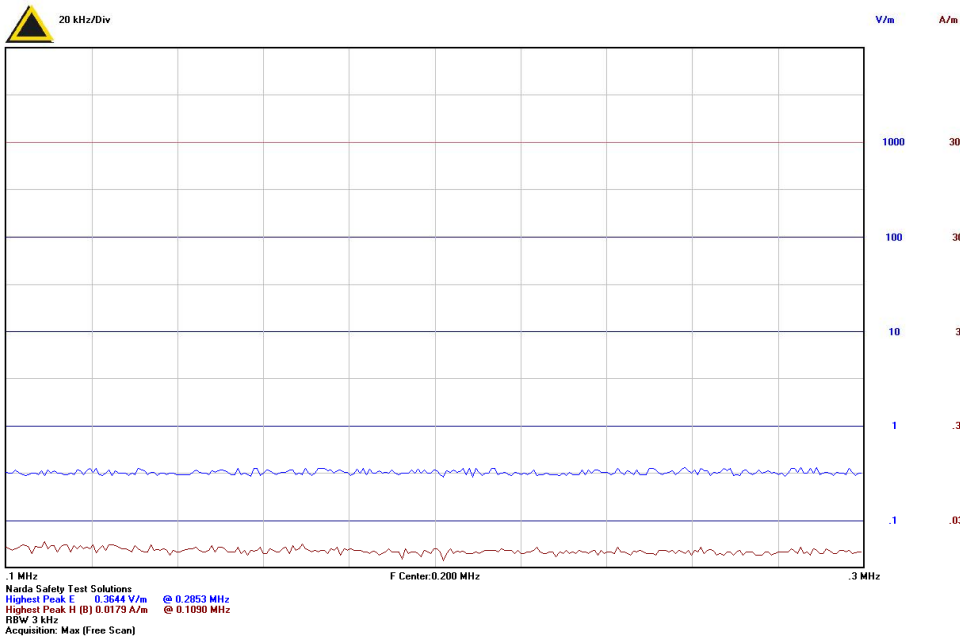
Right





Test Result

Top



Bottom

