

RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2311001128AT
Applicant: DOREL JUVENILE GROUP
Address of Applicant: 2525 State Street Columbus Indiana United States
Manufacturer: DOREL JUVENILE GROUP
Address of Manufacturer: 2525 State Street Columbus Indiana United States
Factory: Zhongshan Camry Electronic Co., Ltd
Address of Factory: Baishawan Industrial Park, Qiwan Road, East District, Zhongshan, Guangdong, China

Equipment Under Test (EUT):

EUT Name: Smart Family Scale
Model No.: IH599
Trade Mark: safety 1ST
Standard(s) : KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2023-11-08
Date of Evaluation: 2023-11-13 to 2023-11-27
Date of Issue: 2024-02-05

Evaluation Result:	Pass*
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* In the configuration evaluated, the EUT complied with the standards specified above.

Ricky Liu

Ricky Liu
Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch Testing Center EEC Laboratory

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SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

EMC-TRF-03 Rev 1.1

Report No.: GZCR231100112803

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Revision Record			
Version	Report No.	Date	Remark
01	GZCR231100112803	2024-02-05	Original

Authorized for issue by			
		<div>Jim Li</div> <div>Jim Li/Project Engineer</div>	
		<div>Vico Cui</div> <div>Vico Cui/Reviewer</div>	

2 Evaluation Summary

Item	Standard	Method	Requirement	Result
RF Exposure	KDB447498D01 General RF Exposure Guidance v06	KDB447498D01 General RF Exposure Guidance v06	KDB447498D01 General RF Exposure Guidance v06	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 6 V (4*AAA size battery)
Cable(s):	None
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V4.2 LE
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	Integral Antenna
Antenna Gain:	2.54 dBi
Antenna Number:	1
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK);802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11
Channel Spacing:	5MHz
Antenna Type:	Integral Antenna
Antenna Gain:	2.54 dBi
Antenna Number:	1

4.2 Evaluating Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.



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4.3 Facility

The facility is recognized, certified, or accredited by the following organizations:

● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

● ISED (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

● VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.4 Deviation from Standards

None

4.5 Abnormalities from Standard Conditions

None



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5 Technical Requirements Specification

5.1 General Description of Applied Standards

KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions,

by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

5.2 RF Exposure Evaluation

5.2.1 Limit & Test Method

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

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 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
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * P_i * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

P_i = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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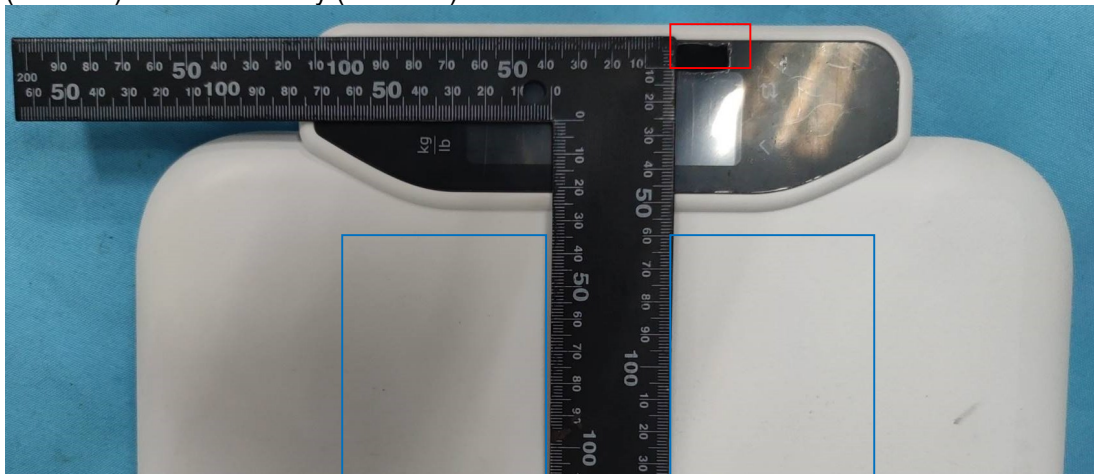
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5.2.2 Conclusion

Minimum distance from human body is 50 mm, refer to the below for the antenna location in the enclosure (Red box) and human body (Blue box):



For BLE

The Maximum Conducted Peak Output Power is 6.74 dBm in channel 2.480 GHz;
 6.74 dBm logarithmic terms convert to numeric result is nearly 4.721 mW

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$$

 General RF Exposure = $4.721 \text{ mW} / 50 \text{ mm} \times \sqrt{2.480 \text{ GHz}} = 0.149$ ① ;
 SAR requirement: $S = 3.0$ ② ;
 $\therefore ① < ②. \therefore$ the SAR report is not required.

For 2.4 GHz Wi-Fi

The Maximum Conducted Peak Output Power is 19.62 dBm in channel 2.462 GHz;
 19.62 dBm logarithmic terms convert to numeric result is nearly 91.622 mW

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$$

 General RF Exposure = $91.622 \text{ mW} / 50 \text{ mm} \times \sqrt{2.462 \text{ GHz}} = 2.875$ ① ;
 SAR requirement: $S = 3.0$ ② ;
 $\therefore ① < ②. \therefore$ the SAR report is not required.

The BLE and 2.4 GHz Wi-Fi cannot be transmitted at the same time, so the SAR report is not required.

Note: Refer to report No. GZCR231100112802 for EUT test Max Conducted Peak Output Power value.

6 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZCR2311001128AT

- End of the Report -