

RF EXPOSURE EVALUATION REPORT

Application No.: GZCR2503000304HS
Applicant: Hisense Ronshen (Guangdong) Refrigerator Co., Ltd.
Address of Applicant: No.8 Ronggang Road Ronggui Shunde Foshan Guangdong P.R. China
Manufacturer: Hisense Ronshen (Guangdong) Refrigerator Co., Ltd.
Address of Manufacturer: No.8 Ronggang Road Ronggui Shunde Foshan Guangdong P.R. China
Factory: Hisense Home Appliances Group Co., Ltd .Qingdao Branch
Address of Factory: Hisense R/D center, #399 Songling Road, Qingdao, Shandong 266000, China
Product Name: Wireless module
Model No.: HL7401SG
Standard(s) : KDB 447498 D01 V06
47 CFR Part 1.1310
Date of Receipt: 2025-03-06
Date of Evaluation: 2025-04-25 to 2025-04-25
Date of Issue: 2025-06-13

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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Revision Record			
Version	Report No.	Date	Remark
01	GZCR250300030407	2025-06-13	Original

Authorized for issue by:			
		Pank Feng	
		Pank Feng/Project Engineer	
		Vico Cui	
		Vico Cui/Reviewer	



2 Evaluation Summary

Item	Standard	Method	Requirement	Result
RF Exposure	KDB 447498 D01 V06	KDB 447498 D01 V06	47 CFR Part 1.1310	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 5V
 Cable(s): N/A
 RF Parameter: Please refer to test report GZCR250300030402 for BLE details
 Please refer to test report GZCR250300030403 for BT details
 Please refer to test report GZCR250300030404 for 2.4GHz Wi-Fi details
 Please refer to test report GZCR250300030405 for 5GHz Wi-Fi details

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Evaluating Location

All tests were performed at:
 SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
 No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,
 Guangdong, China 510663
 Tel: +86 20 82155555
 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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5.2.2 Conclusion

Normal use condition for Distance
between antenna and body: 20cm declared by applicant

For Bluetooth BLE

Antenna Gain: 1.5 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	1.412537545	3.15	2.07	0.00058	1	Complies
2440	1.412537545	2.84	1.92	0.00054	1	Complies
2480	1.412537545	4.5	2.82	0.00079	1	Complies

For Bluetooth Classic

Antenna Gain: 1.5 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	1.412537545	2.49	1.77	0.00050	1	Complies
2441	1.412537545	2.45	1.76	0.00049	1	Complies
2480	1.412537545	1.91	1.55	0.00044	1	Complies

For 2.4 GHz Wi-Fi

Antenna Gain: 1.5 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
11B						
2412	1.412537545	11.14	13.00	0.00365	1	Complies
2442	1.412537545	12.84	19.23	0.00540	1	Complies
2462	1.412537545	13.34	21.58	0.00606	1	Complies
11N20						
2412	1.412537545	14.6	28.84	0.00810	1	Complies
2442	1.412537545	15.84	38.37	0.01078	1	Complies
2462	1.412537545	16.48	44.46	0.01249	1	Complies

For 5G Wi-Fi

Antenna Gain: 3 dBi

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
802.11a						
5580	1.995	9.17	8.26	0.00328	1	Complies

The Bluetooth and Wi-Fi can be transmitted simultaneously, the result is

$0.00079/1+0.00050/1+0.01249/1+0.00328=0.01706<1$

So SAR is not require.

Note: Refer to report No. GZCR250300030402 to GZCR250300030405 for EUT test Max Conducted Peak Output Power value.



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6 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2503000304HS

- End of the Report -



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