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RF Exposure Evaluation Report

Report No.: CQASZ20210901556E -02
Applicant: E-SENSE Technology Co., Ltd
Address of Applicant: 8F., No. 10, Lane 366, Sec. 2 Zhongshan Rd., Zhonghe Dist., New Taipei City 235, Taiwan
Equipment Under Test (EUT):
EUT Name: Wireless presenter
Model No.: R400, HCR-400, 12-HCR400, G400, HCG-400, 12-HTG400, HCR400
Test Model No.: HCR400
Brand Name: N/A
FCC ID: 2AAQO-R4002
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-09-08
Date of Test: 2021-09-08 to 2021-09-16
Date of Issue: 2021-09-24
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
CQASZ20210901556E -02	Rev.01	Initial report	2021-09-24

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3 General Information

3.1 Client Information

Applicant:	E-SENSE Technology Co., Ltd
Address of Applicant:	8F., No. 10, Lane 366, Sec. 2 Zhongshan Rd., Zhonghe Dist., New Taipei City 235, Taiwan
Manufacturer:	ShenZhen HAWK Technology CO., LTD.
Address of Manufacturer:	2F., D Building, San Wei Community Industrial Park, Xixiang Street, Baoan District, Shenzhen
Factory:	ShenZhen HAWK Technology CO., LTD.
Address of Factory:	2F., D Building, San Wei Community Industrial Park, Xixiang Street, Baoan District, Shenzhen

3.2 General Description of EUT

Product Name:	Wireless presenter
Model No.:	R400, HCR-400, 12-HCR400, G400, HCG-400, 12-HTG400, HCR400
Test Model No.:	HCR400
Trade Mark:	N/A
Hardware Version:	R400_MAIN_V10
Software Version:	R400_dongle_V10
Frequency Range:	2411MHz ~ 2476MHz
Modulation Type:	GFSK
Number of Channels:	3 (declared by the client)
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Software of EUT:	Button fixed frequency
Antenna Type:	PCB antenna
Antenna Gain:	1dbi
Power Supply:	2*AAA battery, DC3.0V

4 RF Exposure Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to 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.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.2 EUT RF Exposure Evaluation

1) For 2.4G

$$e_{irp} = p_t \times g_t = (E \times d)^2 / 30$$

where:

p_t = transmitter output power in watts,

g_t = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, $10^{((dB\mu V/m)/20)/10^6}$,

d = measurement distance in meters (m)---3m,

$$\text{So } p_t = (E \times d)^2 / 30 / g_t$$

The worst case (refer to report CQASZ20210801434E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
2411	91.69	Peak
2411	88.50	Average

For 2411MHz wireless:

Field strength = 91.69dBuV/m @3m

Ant. gain 1dBi; so Ant numeric gain=1.2589

$$\text{So } p_t = \{ [10^{(91.69/20)} / 10^6 \times 3]^2 / 30 / 1.2589 \} \times 1000 \text{mW} = 0.352 \text{mW}$$

$$\text{So } (0.352 \text{mW} / 5 \text{mm}) \times \sqrt{2.411 \text{GHz}} = 0.109,$$

0.109 < 3.0 for 1-g SAR

So the SAR report is not required.