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RF Exposure Evaluation Report

Report No.: CQASZ20210600783E-02
Applicant: SHENZHEN HUBSAN TECHNOLOGY CO., LTD
Address of Applicant: Unit 2801-2802A, Building F, Xinghe WORLD, Yabao Road, Bantian Street, Longgang District, Shenzhen, China.
Equipment Under Test (EUT):
EUT Name: HUBSAN HT018F Remote Control
Model No.: HT018F
Brand Name: HUBSAN
FCC ID: 2AN75-HT018F-1TX
Standards: 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2021-6-1
Date of Test: 2021-6-1 to 2021-7-6
Date of Issue: 2021-7-6
Test Result: **PASS***

*In the configuration tested, the EUT complied with the standards specified above

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Jun Li

(Jun Li)

Approved By:

Sheek Luo

(Sheek Luo)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210600783E-02	Rev.01	Initial report	2021-7-6

2 Contents

	Page
1 VERSION.....	2
2 CONTENTS.....	3
3 GENERAL INFORMATION.....	4
3.1 CLIENT INFORMATION.....	4
3.2 GENERAL DESCRIPTION OF EUT.....	4
4 RF EXPOSURE EVALUATION.....	5
4.1 RF EXPOSURE COMPLIANCE REQUIREMENT.....	5
4.1.1 <i>Standard Requirement</i>	5
4.1.2 <i>Limits</i>	5
4.2 EUT RF EXPOSURE EVALUATION.....	6

3 General Information

3.1 Client Information

Applicant:	SHENZHEN HUBSAN TECHNOLOGY CO., LTD
Address of Applicant:	Unit 2801-2802A, Building F, Xinghe WORLD , Yabao Road, Bantian Street, Longgang District, Shenzhen,China.
Manufacturer:	SHENZHEN HUBSAN TECHNOLOGY CO., LTD
Address of Manufacturer:	Unit 2801-2802A, Building F, Xinghe WORLD , Yabao Road, Bantian Street, Longgang District, Shenzhen,China.
Factory:	Dongguan Tengsheng Industrial Co., Ltd.
Address of Factory:	A22# Luyi Street, Tianxin Village, Tangxia Town, Dongguan, China.

3.2 General Description of EUT

Product Name:	HUBSAN HT018F Remote Control
Model No.:	HT018F
Trade Mark:	HUBSAN
Hardware Version:	V1.0
Software Version:	V1.0
Frequency Range:	2405MHz ~ 2475MHz
Modulation Type:	OFDM
Number of Channels:	36(declared by the client)
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	RF test
Antenna Type:	PCB antenna
Antenna Gain:	2dBi
Power Supply:	Battery: 3.6V 4400mAh Li-Po 15.84Wh

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 CQASZ20210600780E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
2475	90.87	Peak
2475	86.85	Average

For 2475MHz wireless:

Field strength = 90.87dB μ V/m @3m

Ant. gain 0dBi; so Ant numeric gain=1.0

$$\text{So } p_t = \{ [10^{(90.87/20)} / 10^6 \times 3]^2 / 30 / 1.0 \} \times 1000 \text{mW} = 0.367 \text{mW}$$

$$\text{So } (0.367 \text{mW} / 5 \text{mm}) \times \sqrt{2.475 \text{GHz}} = 0.115,$$

$$0.115 < 3.0 \text{ for 1-g SAR}$$

So the SAR report is not required.