

RF Exposure Evaluation Report

Report No.: CQASZ20200300119E-06
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 ZINO 2, HUBSAN ZINO 2+
Model No.: ZINO 2, ZINO 2+
Test Model No.: ZINO 2
Brand Name: HUBSAN
Standards: EN 62479:2010
Date of Receipt: 2019-12-16
Date of Test: 2019-12-16 to 2020-01-03
Date of Issue: 2020-03-10
Test Result: **PASS***

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

Tested By:

Tom Chen

(Tom chen)

Reviewed By:

Aaron Ma

(Aaron Ma)

Approved By:

Jack Ai

(Jack Ai)



1 Version

Revision History of Report

Report No.	Version	Description	Issue Date
CQASZ20191201316E-08	Rev.01	Initial report	2020-01-03
CQASZ20200300119E-06	Rev.02	Add product name: HUBSAN ZINO 2+, Model No.: ZINO 2+, change of applicant's address and removes the frequency band of 5150MHz~ 5250mhz from the original EUT	2020-03-10

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
3.3 GENERAL DESCRIPTION OF 5G WIFI	4
3.4 TEST LOCATION	6
3.5 DEVIATION FROM STANDARDS.....	6
3.6 ABNORMALITIES FROM STANDARD CONDITIONS.....	6
3.7 OTHER INFORMATION REQUESTED BY THE CUSTOMER	6
4 EQUIPMENT LIST.....	7
5 EN 62479 REQUIREMENT	8
5.1 GENERAL DESCRIPTION OF APPLIED STANDARDS	8
5.2 HUMAN EXPOSURE TO THE ELECTROMAGNETIC FIELDS	8
5.3 RF EXPOSURE EVALUATION.....	8
5.3.1 Limit	8
5.3.2 Test Result.....	8
PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS	9

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.

3.2 General Description of EUT

Product Name:	HUBSAN ZINO 2, HUBSAN ZINO 2+	
Model No.:	ZINO 2, ZINO 2+	
Test Model No.:	ZINO 2	
Trade Mark:	HUBSAN	
EUT Supports Radios application:	5G WIFI: 5725MHz~5850 MHz	
Sample Type:	remote-control unit: Mobile production	
	plane unit: Portable production	
Test Software of EUT:	Atheros Radio test 2(manufacturer declare)	
Power Supply:	remote-control unit	Battery: 3.6V 3350 mAh Li-Po
	plane unit	Battery: 15.2 V 3800 mAh Li-Po Power Supply: MODEL: P173D3000 INPUT: 100-240V~50/60Hz 1.2A OUTPUT: 17.3V 3000mA

3.3 General Description of 5G WIFI

Frequency Range:	5725MHz~5850 MHz	
Modulation Type:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK)	
remote-control unit:	Hardware version:	EA04058034-04
	Software version:	V0.1.1
	Antenna Type:	Integral antenna
	Antenna Gain:	ANT1: 3.0dBi ANT2: 3.0dBi
plane unit:	Hardware version:	EA04058086-02
	Software version:	V0.1.1
	Antenna Type:	Integral antenna
	Antenna Gain:	ANT1: 3.0dBi ANT2: 3.0dBi
EIRP(remote-control unit:):	9.64dBm(9.20mW)* Max	

	The EIRP data refer to the report CQASZ20200300119E-03
EIRP(plane unit):	10.68dBm(11.69mW)* Max
	The EIRP data refer to the report CQASZ20200300119E-04

Note:

Model No.: ZINO 2, ZINO 2+

Only the model ZINO 2 was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

Operation Frequency Each of Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
For IEEE 802.11a operation in the 5725 MHz to 5850 MHz band							
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz	--	--	--	--	--	--

Using test software was control EUT work in continuous transmitter and receiver mode.and select test channel as below:

Mode	Tx/Rx Frequency	Test RF Channel Lists		
		Lowest(L)	Middle(M)	Highest(H)
IEEE 802.11a	5725 MHz to 5850 MHz	Channel 149	Channel 157	Channel 165
		5745 MHz	5785 MHz	5825 MHz

3.4 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.,

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District,
Shenzhen, China

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 EQUIPMENT List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Horn Antenna	R&S	HF906	CQA-012	2019/9/26	2020/9/25
Bilog Antenna	R&S	HL562	CQA-011	2019/9/26	2020/9/25
EMI Test Receiver	R&S	ESR7	CQA-005	2019/10/25	2020/10/24
Spectrum analyzer	R&S	FSU26	CQA-038	2019/10/25	2020/10/24
Spectrum analyzer	R&S	FSV40	CQA-075	2019/6/11	2020/6/10
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	4012339	2019/10/25	2020/10/24
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2019/10/25	2020/10/24
Preamplifier	EMCI	EMC184055SE	CQA-089	2019/9/25	2020/9/24
Universal Radio Communication Tester	Rohde & Schwarz	CMW500	CQA-022	2019/9/25	2020/9/24
high-low temperature chamber	Auchno	OJN-9606	CQA-S003	2019/9/25	2020/9/24
Signal generator	R&S	SME06	CQA-024	2019/9/26	2020/9/25
Vector signal generator	R&S	SMBV100A	CQA-039	2019/9/25	2020/9/24
DC power	KEYSIGHT	E3631A	CQA-028	2019/9/26	2020/9/25
RF Control Unit	Tonsced	JS0806-2	CQA-057	2019/9/26	2020/9/25
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2019/9/26	2020/9/25
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2019/9/26	2020/9/25
RF Cable (9KHz~40GHz)	CQA	N/A	C005	2019/9/26	2020/9/25

5 EN 62479 REQUIREMENT

5.1 General Description of Applied Standards

Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)

5.2 Human exposure to the Electromagnetic fields

This International Standard provides simple conformity assessment methods for low-power electronic and electrical equipment to an exposure limit relevant to electromagnetic fields (EMF). If such equipment cannot be shown to comply with the applicable EMF exposure requirements using the methods included in this standard for EMF assessment, then other standards, including IEC 62311 or other (EMF) product standards, may be used for conformity assessment.

5.3 RF Exposure Evaluation

5.3.1 Limit

According to EN 62479 clause 4.2 Low-power electronic and electrical equipment is deemed to comply with the provisions of this standard if it can be demonstrated using routes B, C or D that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level P_{max} .

$P_{max} = 20 \text{ mW}$ (13 dBm) according to ICNIRP guidelines, since the EUT is General public used.

Remark:

B: The input power level to electrical or electronic components that are capable of radiating electromagnetic energy in the relevant frequency range is so low that the available antenna power and/or the average total radiated power cannot exceed the low-power exclusion level defined in EN 62479 clause 4.2

C: The available antenna power and/or the average total radiated power are limited by product standards for transmitters to levels below the low-power exclusion level defined in EN 62479 clause 4.2

D: Measurements or calculations show that the available antenna power and/or the average total radiated power are below the low-power exclusion level defined in EN 62479 clauses 4.2.

5.3.2 Test Result

remote-control unit::

The EIRP of the EUT is 9.20 mW which is below the max permitted sending level of 20 mW (13dBm), and then the EUT is not need to conduct SAR measurement.

plane unit:

The EIRP of the EUT is 11.69 mW which is below the max permitted sending level of 20 mW (13dBm), and then the EUT is not need to conduct SAR measurement.

PHOTOGRAPHS OF EUT Constructional Details

Refer to APPENDIX 2 PHOTOGRAPHS OF EUT for CQASZ20200300119E-01.

*** End of Report ***