

RF EXPOSURE REPORT



Report No.: 15070788-FCC-H2

Applicant	SHENZHEN HUBSAN INTELLIGENT COMPANY LIMITED	
Product Name	MINI QUADCOPTER FPV PLUS	
Model No.	H107D+	
Serial No.	H107D	
Test Standard	FCC 2.1091:2014	
Test Date	November 11 to November 27, 2015	
Issue Date	December 17, 2015	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification		<input checked="" type="checkbox"/>
Equipment did not comply with the specification		<input type="checkbox"/>
Winnie Zhang	David Huang	
Winnie Zhang Test Engineer	David Huang Checked By	
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only		

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
15070788-FCC-H2	NONE	Original	November 27, 2015
15070788-FCC-H2	V1	Change the modulation mode	December 16, 2015
15070788-FCC-H2	V2	Delete WIFI related information	December 17, 2015

2. Customer information

Applicant Name	SHENZHEN HUBSAN INTELLIGENT COMPANY LIMITED
Applicant Add	13th Floor, Bldg 1C, Shenzhen Software Industry Base, Xuefu Road, Nanshan District, Shenzhen, China, 518054
Manufacturer	DONGGUAN TENGSHENG INDUSTRIAL CO., LTD
Manufacturer Add	A22# Luyi Street, Tianxin Village, Tangxia Town, Dongguan, China

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao'an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT: MINI QUADCOPTER FPV PLUS

Main Model: H107D+

Serial Model: H107D

Date EUT received: November 27, 2015

Antenna Gain: 1.6 dBi

Input Power: Battery
Spec: 3.7V, 520mAh, 2.0Wh

Trade Name : HUBSAN

FCC ID: 2AEXY107DPRX

Type of Modulation: GFSK

RF Operating Frequency (ies): 5725-5850MHz

Number of Channels: 24CH

Port: Power Port

5. FCC §2.1091 - Maximum Permissible exposure (MPE)

6.1 Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
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

* = Plane-wave equivalent power density

6.2 Test Result

WIFI Mode:

Type	Test mode	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)
Output power	802.11	Low	5730	8.43	7.5±1
		Mid	5795	7.08	7.5±1
		High	5845	7.00	7.5±1

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For the antenna manufacturer provide only used limited to ERP/EIRP or radiated spurious emission test. The MPE evaluation as below:

Maximum output power at antenna input terminal: 8.5(dBm)

Maximum output power at antenna input terminal: 7.08mW

Prediction distance: >20 (cm)

Predication frequency: 5730(MHz) High frequency

Antenna Gain (typical): 1.6 (dBi)

Antenna Gain (typical): 1.45(numeric)

The worst case is power density at predication frequency at 20 cm: 0.002(mW/cm²)

MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm²)

0.002(mW/cm²) < 1.0 (mW/cm²)

Result: Pass