



RF Exposure Evaluation Declaration

FCC ID: 2ASGB-US142019

APPLICANT: Impossible Aerospace Corporation

Application Type: Certification

Product: 2.4GHz HD Wireless Link

Model No.: IAUS11901a, IAUS11901b, IAUS11901c

Brand Name: Impossible Radio -1

FCC Classification: Digital Transmission System (DTS)

Test Procedure(s): KDB 447498 D01v06

Test Date: April 13 ~ 24, 2019

Reviewed By:

Kevin Guo

(Kevin Guo)

Approved By:

Robin Wu

(Robin Wu)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1904RSU030-U2	Rev. 01	Initial Report	04-26-2019	Valid

§2.1033 General Information

Applicant:	Impossible Aerospace Corporation
Applicant Address:	2222 Ronald Street, Santa Clara, CA 95050 USA
Manufacturer:	Taisync Technology LLC
Manufacturer Address:	4620 Fortran Drive, Suite 209, San Jose, CA 95134
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Test Device Serial No.:	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. PRODUCT INFORMATION

1.1. Feature of Equipment under Test



Product Name:	2.4GHz HD Wireless Link
Model No.:	IAUS11901a, IAUS11901b, IAUS11901c
Brand Name:	Impossible Radio -1
RF Specification:	2.4GHz
Working Voltage:	DC 5V

Note: These models are different in the shape of their shielding enclosures, which are used to accommodate different mounting configurations. The material and PCBA are the same.

1.2. Product Specification Subjective to this Report

RF Specification	
Frequency Range:	2412 ~ 2472 MHz
Type of Modulation:	OFDM
Channel Bandwidth	2.5MHz / 10MHz
Data Rate:	Bandwidth 2.5MHz: 115200kbps Bandwidth 10MHz: 2.3 Mbps ~12Mbps

1.3. Description of Available Antennas

Antenna Plots	Antenna Type	Manufacturer	Frequency Band (GHz)	Max Peak Gain (dBi)
	Dipole Antenna 1#	Saixun	2.4 ~ 2.5	5.0
	PCB Antenna 2#	Airgain	2.4 ~ 2.5	2.0

Note: When operating at 2.5MHz BW status, only dipole antenna 1# can be used. When operating at 2.5MHz and 10MHz BWs status, both antennas can be used.

These information will be shown in operational description and user manual by manufacturer.

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: 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 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1mW/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.

2.2. Test Result of RF Exposure Evaluation

Product	2.4GHz HD Wireless Link
Test Item	RF Exposure Evaluation

Test Mode / Bandwidth	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
Ant 1				
10MHz	2412 ~ 2472	29.77	0.1887	1
2.5MHz	2412 ~ 2472	31.27	0.2666	1
Ant 2				
2.5MHz	2412 ~ 2472	28.88	0.1538	1

Note 1: Antenna 1 and the module should be connected by an RF cable (Cable loss = 1.2dB).

So $EIRP_{Ant\ 1}$ (dBm) = Conducted Power(dBm) + Peak Gain_{Ant 1}(dBi) – RF Cable Loss(dB)

Note 2: $EIRP_{Ant\ 2}$ (dBm) = Conducted Power(dBm) + Peak Gain_{Ant 2}(dBi)

CONCLUSION:

The max Power Density at R (20 cm) = 0.2666mW/cm² < 1 mW/cm².

_____ The End _____

Appendix A – EUT Photograph

Refer to “1904RSU030-UE” file.