RF Exposure Evaluation Declaration

FCC ID:	BRWSPMAR8020T
Applicant:	Horizon Hobby, LLC
Application Type:	Certification
Product:	Receiver
Model No.:	AR8020T
Brand Name:	Spektrum
FCC Classification:	Digital Transmission System (DTS)
Test Procedure(s):	447498 D01 General RF Exposure Guidance v06

Reviewed By: Sunny Sun
(Sunny Sun)

Approved By: Robin Wu
(Robin Wu)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
2005RSU059-U2	Rev. 01	Initial Report	09-19-2020	Valid

CONTENTS

General Information

Applicant:	Horizon Hobby, LLC
Applicant Address:	2904 Research Rd., Champaign IL 61821
Manufacturer:	Horizon Hobby, LLC
Manufacturer Address:	2904 Research Rd., Champaign IL 61821
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

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

- **MRT facility is an FCC accredited testing laboratory (MRT Designation No. CN1166) on the FCC website.**
- **MRT facility is an ISED recognized testing laboratory (MRT Reg. No. CN0001) on the ISED website.**
- **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 A2LA under the A2LA Program (Cert. No. 3628.01) and CNAS under the CNAS Program (Cert. No. L10551) in EMC, Safety, Radio, Telecommunications and SAR testing.**

1. PRODUCT INFORMATION

1.1. Feature of Equipment under Test

Product Name:	Receiver
Model No.:	AR8020T
Brand Name:	Spektrum
Operating Frequency:	2404~2476MHz
Channel Number:	23
Type of modulation:	GFSK
Identification Number:	01

1.2. Antenna Information

Antenna	Antenna A	Antenna B
Antenna Type	Monopole Antenna	Monopole Antenna
Model	SPM-ELASY-000068	SPM-ELASY-000067
MAX. Antenna Gain	1.5dBi	1.5dBi

Note: This device only supports SISO mode, and two antennas of this device cannot transmit simultaneously.

1.3. Working Frequencies

Channel	Frequency	Channel	Frequency
00	2404 MHz	12	2442 MHz
01	2412 MHz	13	2446 MHz
02	2411 MHz	14	2450 MHz
03	2414 MHz	15	2452 MHz
04	2417 MHz	16	2456 MHz
05	2420 MHz	17	2459 MHz
06	2424 MHz	18	2463 MHz
07	2427 MHz	19	2466 MHz
08	2430 MHz	20	2469 MHz
09	2433 MHz	21	2473 MHz
10	2437 MHz	22	2476 MHz
11	2440 MHz	--	--

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: $Pd = (Pout*G)/(4*pi*r^2)$

Where
Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416
r = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, $1mW/cm^2$. 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	Receiver
Test Item	RF Exposure Evaluation

Test Mode	Frequency Range (MHz)	Maximum Average Power (dBm)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)	Result
GFSK	2404 ~ 2476	25.06	26.56	0.0901	1	Pass

Note: E.I.R.P (dBm) = Average Power (dBm) + Antenna Gain (dBi), Antenna Gain (dBi) = 1.5 dBi.

The End

Appendix - EUT Photograph

Refer to “2005RSU059-UE” file.