FCC RADIO EXPOSURE TEST REPORT

FCC ID	:	2AGZ3S01011
Equipment	:	Starry Atlas WiFi 6 Router, Wireless AX 2.5G Ethernet Gateway
Brand Name	:	Starry, ZYXEL
Model Name	:	S01011, EX5713-M0
Applicant	:	Starry, Inc. 38 Chauncy Street, Suite 200, Boston, MA 02111, USA
Manufacturer	:	Zyxel Communications Corporation No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan
Standard	:	47 CFR Part 2.1091

The product was received on Aug. 05, 2020, and testing was started from Aug. 24, 2020 and completed on Sep. 14, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Cliff Chang

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report....3
Summary of Test Result....4
1 General Description....5
1.1 EUT General Information....5
1.2 Table for Multiple Listing....5
1.3 Table for Product Information....5
1.4 Testing Location....6
2 Maximum Permissible Exposure....7
2.1 Limit of Maximum Permissible Exposure....7
2.2 MPE Calculation Method....7
2.3 Calculated Result and Limit....8

Photographs of EUT v01

History of this test report

Report No.	Version	Description	Issued Date
FA072421	01	Initial issue of report	Sep. 30, 2020

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
1. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification. 2. The presented declaration output power of WLAN 2.4 GHz for EUT in the report are provided by the manufacturer, and We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory does not guarantee its accuracy.

Reviewed by: Sam Chen

Report Producer: Viola Huang

1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	**Frequency Range (MHz)**	**Operating Frequency (MHz)**	**Modulation Type**
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) VHT: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5250 5250-5320 5500-5720 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

1.2 Table for Multiple Listing

Equipment Name	Brand Name	Model Name	Description
Starry Atlas WiFi 6 Router	Starry	S01011	There is nothing different for equipment, model and brand names, just for different marketing use.
Wireless AX 2.5G Ethernet Gateway	ZYXEL	EX5713-M0	

From the above models, model: S01011 was selected as representative model for the test and its data was recorded in this report.

1.3 Table for Product Information

CPU Model No.	RF Chip Model No.
88F7040	2.4GHz: QT6210X
	5GHz: QT7810X

1.4 Testing Location

Testing Location			
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|²,|H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 26 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$

2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)
5.2G;D1D	8.10	27.71	35.81	0.18	35.99	3.97192	26	0.46756	1.00000
5.3G;D1D	8.10	21.86	29.96	0.03	29.99	0.99770	26	0.11745	1.00000
5.6G;D1D-BF	7.40	22.57	29.97	0.02	29.99	0.99770	26	0.11745	1.00000
5.8G;D1D	6.30	29.69	35.99	0.00	35.99	3.97192	26	0.46756	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz + WLAN 5GHz

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm^2)	S Limit (mW/cm^2)	Ratio (S/Limit)
2.4G;G1D	6.12	29.54	35.66	0.33	35.99	3.97192	26	0.46756	1.00000	0.46756
5.8G;D1D	6.30	29.69	35.99	0.00	35.99	3.97192	26	0.46756	1.00000	0.46756
									Sum Ratio	0.93512
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

———THE END———