Radio Exposure Evaluation Report

FCC ID	:	**2AU6R04369**
Equipment	:	**802.11be (WiFi 7) 5G/ 6G 4X4 dual-Radio PTMP Base Station**
Brand Name	:	**ZYXEL**
Model Name	:	**Root Plus**
Applicant	:	**Zyxel Networks Corporation No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C**
Manufacturer	:	**Zyxel Networks Corporation No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C**
Standard	:	**47 CFR FCC Part 2 Subpart J, section 2.1091**

The product was received on Jul. 22, 2025, and testing was started from Sep. 13, 2025 and completed on Oct. 16, 2025. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR FCC Part 2 Subpart J, section 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. Hsinhua Laboratory, the test report shall not be reproduced except in full.

Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory
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Photographs of EUT V01

History of this test report

Report No.	Version	Description	Issued Date
FA542101	01	Initial issue of report	Jan. 15, 2026

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:
None

Reviewed by: Ben Tseng
Report Producer: Debby Hung

1 General Description

1.1 Information

1.1.1 EUT General Information

RF General Information			
Evaluation Mode	**Frequency Range (MHz)**	**Operating Frequency (MHz)**	**Modulation Type**
5GHz WLAN	5150-5250 5250-5350 5470-5725 5725-5850	5180-5240 5260-5320 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) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
6GHz WLAN	5925-6425 6525-6875	5955-6415 6535-6855	802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
5	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
6	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
7	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
8	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
9	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
10	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
11	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
12	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
13	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
14	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
15	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
16	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX
17	LYNwave Technology	OLA25B-127160-A	Metal Array	I-PEX

Ant.	Port	Gain (dBi)		
		5G	6G	GPS
5	1	-	13.9	-
6	2	-	12.8	-
7	3	-	14.3	-
8	4	-	13.8	-
9	5	-	15.1	-
10	6	-	15	-
11	1	12.1	-	-
12	2	13.6	-	-
13	3	12.1	-	-
14	4	13.9	-	-
15	5	14.4	-	-
16	6	13	-	-
17	1	-	-	L1: 4.5 / L5: 5.2

Note 1: The EUT has thirteen antennas.

For 5GHz function:

For IEEE 802.11 a/n/ac/ax/be mode (4TX/4RX)

Ant. 11 (port 1), Ant. 13 (port 3), Ant. 15 (port 5), Ant. 16 (port 6) could transmit/receive simultaneously.

Ant. 12 (port 2), Ant. 14 (port 4), Ant. 15 (port 5), Ant. 16 (port 6) could transmit/receive simultaneously.

The above antenna configurations were pre-tested, the worst case was Ant. 11 (port 1), Ant. 13 (port 3), Ant. 15 (port 5), Ant. 16 (port 6) and it was recorded in this test report.

For 6GHz function:

For IEEE 802.11 ax/be mode (4TX/4RX)

Ant. 5 (port 1), Ant. 7 (port 3), Ant. 9 (port 5), Ant. 10 (port 6) could transmit/receive simultaneously.

Ant. 6 (port 2), Ant. 8 (port 4), Ant. 9 (port 5), Ant. 10 (port 6) could transmit/receive simultaneously.

The above antenna configurations were pre-tested, the worst case was Ant. 5 (port 1), Ant. 7 (port 3), Ant. 9 (port 5), Ant. 10 (port 6) and it was recorded in this test report.

1.2 Testing Location

Test Lab.：Sporton International Inc. Hsinhua Laboratory			
☒	Hsinhua (**TAF:** 3785)	**ADD:** No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)	
		TEL: 886-3-327-3456	**FAX:** 886-3-327-0973
		Test site Designation No. TW3785 with FCC.	
☐	Wen 33rd.St. (**TAF:** 3785)	**ADD:** No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)	
		TEL: 886-3-318-0787	**FAX:** 886-3-318-0287
		Test site Designation No. TW0008 with FCC.	

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 / f²)*	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/f²)*	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

Multiple Transmitters Condition
Co-location as simultaneously transmitting (co-transmitting) and the evaluation shall be consider that simultaneous transmissions from co-located devices the individual transmitters are evaluated separately. After sum of the individual value (basic restriction / reference level) are measured/calculated also have to under basic restriction / reference level.
Co-transmitting mode: WLAN 5GHz+WLAN 6GHz

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

WLAN 5G Function:

Non-Beamforming

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm²)	Limit (mW/cm²)
5.2G;D1D	14.40	21.06	35.46	0.50	35.96	26	0.46435	1.00000
5.3G;D1D	14.40	15.00	29.40	0.50	29.90	26	0.11504	1.00000
5.6G;D1D	14.40	15.01	29.41	0.50	29.91	26	0.11530	1.00000
5.8G;D1D	14.40	21.09	35.49	0.50	35.99	26	0.46757	1.00000

Beamforming

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm²)	Limit (mW/cm²)
5.2G;D1D	13.01	21.06	34.07	0.50	34.57	26	0.33717	1.00000
5.3G;D1D	13.01	15.00	28.01	0.50	28.51	26	0.08353	1.00000
5.6G;D1D	13.01	15.01	28.02	0.50	28.52	26	0.08372	1.00000
5.8G;D1D	13.01	21.08	34.09	0.50	34.59	26	0.33872	1.00000

WLAN 6G Function:

Non-Beamforming

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm²)	Limit (mW/cm²)
6.2G;D1D	15.10	20.38	35.48	0.50	35.98	26	0.46649	1.00000
6.7G;D1D	15.10	20.39	35.49	0.50	35.99	26	0.46757	1.00000

Beamforming

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm²)	Limit (mW/cm²)
6.2G;D1D	14.60	20.38	34.98	0.50	35.48	26	0.41576	1.00000
6.7G;D1D	14.60	20.39	34.99	0.50	35.49	26	0.41672	1.00000

Simultaneous Transmission Analysis Mode: WLAN 5GHz+WLAN 6GHz

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Distance (cm)	S (mW/cm^2)	Limit (mW/cm^2)
5.8G;D1D	14.40	21.09	35.49	0.50	35.99	26	0.46757	1.00000
6.7G;D1D	15.10	20.39	35.49	0.50	35.99	26	0.46757	1.00000
Sum Ratio	0.93514							
Ratio Limit	1							

————THE END————