



RADIO EXPOSURE TEST REPORT

FCC ID : 2AU6R04371

Equipment : 802.11be (WiFi 7) 5G/6G 2X2 Dual-Radio PTMP CPE,
802.11be (WiFi 7) 5G/6G 2X2 Dual-Radio PTMP Solution

Brand Name : ZYXEL

Model Name : Leaf Plus, Root

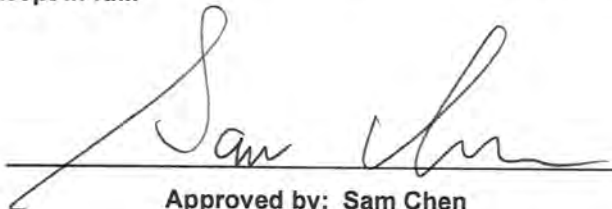
Applicant : Zyxel Networks Corporation
No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu
30075, Taiwan, R.O.C

Manufacturer : Zyxel Networks Corporation
No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu
30075, Taiwan, R.O.C

Standard : 47 CFR Part 2.1091

The product was received on Jul. 22, 2025, and testing was started from Nov. 20, 2025 and completed on Dec. 30, 2025. We, Sporton International Inc. Hsinchu 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. Hsinchu Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

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History of this test report

TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A1_1 Ver1.1

Page Number : 3 of 10
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Report Version : 01



Summary of Test Result

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

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen

Report Producer: Cathy Chiu



1 General Description

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	5180-5250 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) 802.11be/EHT240: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
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)

1.2 Antenna Information

Ant.	Port of EUT	Port		Brand	Model Name	Antenna Type	Connector	Gain (dBi)
		5GHz	6GHz					
1	1	2	-	LYNwave	OLA25B-247160-A	Patch Antenna	SMA	Note1
	2	1	-					
	3	-	2					
	4	-	1					

Note 1:

Port of EUT	Antenna Gain (dBi)				
	WLAN 5GHz				
	5150~5250MHz	5250~5350MHz	5470~5650MHz	5650~5800MHz	5800~5850MHz
1	11.1	11.6	10.7	11.3	10.4
2	11.0	10.9	10.8	10.5	10.8
3	-	-	-	-	-
4	-	-	-	-	-

Port of EUT	Antenna Gain (dBi)			
	WLAN 6GHz			
	5925~6125MHz	6125~6525MHz	6525~6825MHz	6825~6875MHz
1	-	-	-	-
2	-	-	-	-
3	10.0	11.4	11.1	11.4
4	10.3	11.3	11.6	10.8

Note2: The above information was declared by manufacturer.

Note 3: Directional gain information

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$
BF	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$

Ex.

Directional Gain (NSS1) formula :

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

$$NSS1(g1,1) = 10^{G1/20} ; NSS1(g1,2) = 10^{G2/20} ; NSS1(g1,3) = 10^{G3/20} ; NSS1(g1,4) = 10^{G4/20}$$

$$g_{j,k} = (NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2$$

$$DG = 10 \log[(NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2 / N_{ANT}] \Rightarrow 10$$

$$\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$$

Where ;

$$5.150-5.250\text{GHz } G1 = 11.1 \text{ dBi} ; G2 = 11 \text{ dBi} ; DG = 14.06\text{dBi}$$

$$5.250-5.350\text{GHz } G1 = 11.6 \text{ dBi} ; G2 = 10.9 \text{ dBi} ; DG = 14.27\text{dBi}$$

$$5.470-5.650\text{GHz } G1 = 10.7 \text{ dBi} ; G2 = 10.8 \text{ dBi} ; DG = 13.76\text{dBi}$$

$$5.650-5.800\text{GHz } G1 = 11.3 \text{ dBi} ; G2 = 10.5 \text{ dBi} ; DG = 13.92\text{dBi}$$

$$5.800-5.850\text{GHz } G1 = 10.4 \text{ dBi} ; G2 = 10.8 \text{ dBi} ; DG = 13.61\text{dBi}$$

$$5.925-6.125\text{GHz } G1 = 10 \text{ dBi} ; G2 = 10.3 \text{ dBi} ; DG = 13.16\text{dBi}$$

$$6.125-6.525\text{GHz } G1 = 11.4 \text{ dBi} ; G2 = 11.3 \text{ dBi} ; DG = 14.36\text{dBi}$$

$$6.525-6.825\text{GHz } G1 = 11.1 \text{ dBi} ; G2 = 11.6 \text{ dBi} ; DG = 14.36\text{dBi}$$

$$6.825-6.875\text{GHz } G1 = 11.4 \text{ dBi} ; G2 = 10.8 \text{ dBi} ; DG = 14.12\text{dBi}$$

<For 5GHz function>

For IEEE 802.11a/n/ac/ax/be (2TX/2RX):

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

<For 6GHz function>

For IEEE 802.11ax/be (2TX/2RX):

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.



1.3 Table for Multiple Listing

Equipment Name	Model Name	Channel Marketing
802.11be (WiFi 7) 5G/6G 2X2 dual-Radio PTMP CPE	Leaf Plus	Online Channels
802.11be (WiFi 7) 5G/6G 2X2 dual-Radio PTMP Solution	Root	Offline Channels

Note 1: From the above models, model: Leaf Plus was selected as representative model for the test and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.

1.4 Accessories

Accessories
Fixed Rack*1 (for antenna used)
Fixed Ring*2

1.5 Testing Location

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
	Test site Designation No. TW3787 with FCC.
	Conformity Assessment Body Identifier (CABID) TW3787 with ISCED.



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/ cm ²)	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 ²)	<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/ cm ²)	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 ²)	<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 42 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

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)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.2G;D1D	14.06	23.69	37.75	0.50	38.25	42	0.30150	1.00000	0.3015
5.3G;D1D	14.27	15.59	29.86	0.13	29.99	42	0.04501	1.00000	0.04501
5.6G;D1D	13.76	16.20	29.96	0.03	29.99	42	0.04501	1.00000	0.04501
5.8G;D1D	13.92	28.16	42.08	0.50	42.58	42	0.81713	1.00000	0.81713
6.2G;D1D	13.16	22.82	35.98	0.01	35.99	42	0.17918	1.00000	0.17918
6.7G;D1D	14.36	19.69	34.05	0.50	34.55	42	0.12861	1.00000	0.12861

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)	S Limit (mW/cm ²)	Ratio (S/Limit)
5.8G;D1D	13.92	28.16	42.08	0.50	42.58	42	0.81713	1.00000	0.81713
6.2G;D1D	13.16	22.82	35.98	0.01	35.99	42	0.17918	1.00000	0.17918
Sum S/Limit Ratio	0.99631								
Ratio Limit	1								

————THE END————