



RADIO EXPOSURE TEST REPORT

FCC ID : 2AYRA-100025
Equipment : Velop 7 Max
Brand Name : Linksys
Model Name : LNM620, LNM620WH, LNM620MS, LNM620EC, SPNM62
Applicant : Linksys USA, Inc.
121 Theory, Irvine, CA. 92617, USA
Standard : 47 CFR Part 2.1091

The product was received on May 15, 2025, and testing was started from May 15, 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: Rex Liao

Sporton International Inc. Hsinchu Laboratory

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



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Photographs of EUT v01



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



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: Muse Chan



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: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
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, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be/EHT240: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
6GHz WLAN	5925-7125	5955-7095	802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11be: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM)
Bluetooth	2400-2483.5	2402-2480	LE: GFSK



1.2 Antenna Information

Ant.	Port				Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	2.4GHz	5GHz	6GHz	Bluetooth					
1	1	1	-	-	Galtronics	02102140-08200B-1	PCB Antenna	I-PEX	Note1
2	2	2	-	-	Galtronics	02102140-08200B-2	PCB Antenna	I-PEX	
3	-	-	1	1	Airgain	N08CBAUB-PK1-LG65U	PCB Antenna	I-PEX	
4	-	-	2	-	Airgain	N06CBAUA-T2M48-PK1-LA110U	PCB Antenna	I-PEX	

Note 1:

Ant.	Antenna Gain (dBi)									
	WLAN 2.4GHz	WLAN 5GHz				WLAN 6GHz				Bluetooth
		UNII 1	UNII 2A	UNII 2C	UNII 3	UNII 5	UNII 6	UNII 7	UNII 8	
1	2.34	2.30	2.30	2.40	2.40	-	-	-	-	-
2	2.42	2.77	2.77	2.46	2.59	-	-	-	-	-
3	-	-	-	-	-	2.80	2.20	2.60	4.00	2.70
4	-	-	-	-	-	4.00	4.20	4.20	4.20	-

Note 2: The above information was declared by manufacturer.

<For 2.4GHz function>**For IEEE 802.11b/g/n/VHT/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 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.

<For Bluetooth function> (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

Port 1 could transmit/receive simultaneously.

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 $N_{ANT} \leq 4$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ant}} \left[\sum_{k=1}^{N_{ant}} g_{j,k} \right]^2}{N_{ant}} \right]$
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 :

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

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

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

$$DG = 10 \log[(NSS1(g1,1) + NSS1(g1,2))^2 / N_{ANT}] \Rightarrow 10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$$

Where ;

$$2.4G \ G1 = 2.34 \text{ dBi} ; G2 = 2.42 \text{ dBi} ; DG = 5.39 \text{ dBi}$$

$$5G \ UNII-1 \ G1 = 2.3 \text{ dBi} ; G2 = 2.77 \text{ dBi} ; DG = 5.55 \text{ dBi}$$

$$5G \ UNII-2A \ G1 = 2.3 \text{ dBi} ; G2 = 2.77 \text{ dBi} ; DG = 5.55 \text{ dBi}$$

$$5G \ UNII-2C \ G1 = 2.4 \text{ dBi} ; G2 = 2.46 \text{ dBi} ; DG = 5.44 \text{ dBi}$$

$$5G \ UNII-3 \ G1 = 2.4 \text{ dBi} ; G2 = 2.59 \text{ dBi} ; DG = 5.51 \text{ dBi}$$

$$6G \ UNII-5 \ G1 = 2.8 \text{ dBi} ; G2 = 4 \text{ dBi} ; DG = 6.43 \text{ dBi}$$

$$6G \ UNII-6 \ G1 = 2.2 \text{ dBi} ; G2 = 4.2 \text{ dBi} ; DG = 6.27 \text{ dBi}$$

$$6G \ UNII-7 \ G1 = 2.6 \text{ dBi} ; G2 = 4.2 \text{ dBi} ; DG = 6.45 \text{ dBi}$$

$$6G \ UNII-8 \ G1 = 4 \text{ dBi} ; G2 = 4.2 \text{ dBi} ; DG = 7.11 \text{ dBi}$$



1.3 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Description
LN620	For retail
LN620WH	For warehouse
LN620MS	For superstore
LN620EC	For e-commerce
SPN62	For service provider

Note 1: From the above models, model: LN620 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.

1.3.1 Table for EUT Support Function

Function	Support
AP Router	WLAN 2.4GHz, 5GHz UNII 1~3, 6GHz UNII 5~8 and Bluetooth
Mesh	WLAN 5GHz UNII 1~3 and 6GHz UNII 5~8

Note: The above information was declared by manufacturer.

1.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter 1 (Interchangeable plug)	Ktec	KSA-45P-45W D5	INPUT: 100-240V~50/60Hz, 1.5A OUTPUT: 5.0V, 3.0A, 15.0W, 9.0V, 3.0A, 27.0W, 12.0V, 3.0A, 36.0W, 15.0V, 3.0A, 45.0W, 20.0V, 2.25A, 45.0W, 3.3-21.0V, 2.25A Max, 45.0w Max. 3.3-16.0V, 3.0A Max, 45.0w Max.
Adapter 2 (Fixed plug)	Frecom	FC045P13-150300U	INPUT: 100-240V~50/60Hz, 1.2A OUTPUT: 5.0V, 3.0A, 15.0W ; 9.0V, 3.0A, 27.0W ; 12.0V, 3.0A, 36.0W ; 15.0V, 3.0A, 45.0W
Others			
RJ-45 cable 1*1, non-shielded, 1.8m			
RJ-45 cable 2*1, non-shielded, 0.9m			
USB Type C cable*1, shielded, 1.5m (only for adapter 1 use)			
US plug*1 (only for adapter 1 use)			



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 ISED.



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 35 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

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)	EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	5.39	26.99	32.38	0.50	32.88	1.94089	35	0.12608	1.00000	0.12608
5.2G;D1D	5.55	27.20	32.75	0.50	33.25	2.11349	35	0.13729	1.00000	0.13729
5.3G;D1D	5.55	23.62	29.17	0.50	29.67	0.92683	35	0.06021	1.00000	0.06021
5.6G;D1D	5.44	23.89	29.33	0.50	29.83	0.96161	35	0.06247	1.00000	0.06247
5.8G;D1D	5.51	27.69	33.20	0.50	33.70	2.34423	35	0.15228	1.00000	0.15228
6.2G;D1D	6.43	-	28.96	0.50	29.46	0.88308	35	0.05736	1.00000	0.05736
6.4G;D1D	6.27	-	26.93	0.50	27.43	0.55335	35	0.03595	1.00000	0.03595
6.8G;D1D	6.45	-	27.21	0.50	27.71	0.59020	35	0.03834	1.00000	0.03834
7.0G;D1D	7.11	-	25.02	0.50	25.52	0.35645	35	0.02315	1.00000	0.02315
2.4G;BT-LE	2.7	7.57	10.27	0.50	10.77	0.01194	35	0.00078	1.00000	0.00078

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz + WLAN 5GHz + WLAN 6GHz + Bluetooth

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	5.39	26.99	32.38	0.50	32.88	1.94089	35	0.12608	1.00000	0.12608
5.8G;D1D	5.51	27.69	33.20	0.50	33.70	2.34423	35	0.15228	1.00000	0.15228
6.2G;D1D	6.43	-	28.96	0.50	29.46	0.88308	35	0.05736	1.00000	0.05736
2.4G;BT-LE	2.70	7.57	10.27	0.50	10.77	0.01194	35	0.00078	1.00000	0.00078
Sum Ratio	0.33650									
Ratio Limit	1									

—————THE END—————