

FCC RF EXPOSURE REPORT

For

BE22000 Ceiling Mount Wi-Fi 7 Access Point

MODEL NUMBER: AP9778

REPORT NUMBER: 4790887256-1-RF-5

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Prepared for

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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	July 27, 2023	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: TP-Link Corporation Limited
Address: Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hong Kong

Manufacturer Information

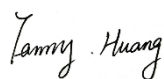
Company Name: TP-Link Corporation Limited
Address: Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hong Kong

EUT Information

EUT Name: BE22000 Ceiling Mount Wi-Fi 7 Access Point
Model: AP9778
Brand: tp-link
Sample Received Date: June 8, 2023
Sample Status: Normal
Sample ID: 6163500
Date of Tested: July 4, 2023 to July 27, 2023

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47CFR§2.1091	PASS
KDB-447498 D01 V06	PASS

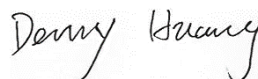
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 and KDB 447498 D01 General RF Exposure Guidance v06.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B, the VCCI registration No. is C-20012 and T-20011
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Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.

4. DESCRIPTION OF EUT

EUT Name/PMN:		BE22000 Ceiling Mount Wi-Fi 7 Access Point
Model/HVIN1:		AP9778
FVIN:		V1.0
BLE	Frequency Range:	2402 MHz to 2480 MHz
	Type of Modulation:	GFSK
	Data Rate:	1 Mbps/ 125 kbps
Product Description (2.4G WLAN)	Frequency Range:	2412 MHz to 2462 MHz
	Type of Modulation:	IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g/n: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11ax: OFDMA(1024-QAM, 256-QAM, 64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11be: OFDMA(4096-QAM,1024-QAM, 256-QAM, 64-QAM, 16-QAM, QPSK, BPSK)
	Radio Technology:	IEEE802.11b/g/n HT20/n HT40/ax HE20/ax HE40/be EHT20/be EHT40
Product Description (5G RLAN)	Frequency Range:	5180 MHz to 5240 MHz 5260 MHz to 5320 MHz 5500 MHz to 5720 MHz 5745 MHz to 5825 MHz
	Type of Modulation:	IEEE 802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDMA(1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11be: OFDMA(4096QAM, 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
	Radio Technology:	IEEE802.11a/n HT20/n HT40/ ac VHT20/ac VHT40/ac VHT80/ac VHT160/ ax HE20/ax HE40/ax HE80/ax HE160/ be EHT20/be EHT40/be EHT80/be EHT160/be EHT240
Product Description (6G RLAN)	Operation Frequency:	UNII-5 Band: 6115 MHz ~ 6415 MHz UNII-6 Band: 6435 MHz ~ 6515 MHz UNII-7 Band: 6535 MHz ~ 6875 MHz UNII-8 Band: 6895 MHz ~ 7095 MHz
	Type of Modulation:	IEEE 802.11ax: OFDMA (BPSK, QPSK,16QAM,64QAM, 256QAM, 1024QAM) IEEE 802.11be: OFDMA (BPSK, QPSK,16QAM,64QAM, 256QAM, 1024QAM, 4096QAM)
	Radio Technology:	IEEE802.11ax HE20/ax HE40/ax HE80/ax HE160/ be EHT20/be EHT40/be EHT80/be EHT160/be EHT320
Normal Test Voltage:		DC 12 V via adapter/ DC 12 V via POE adapter

5. REQUIREMENT

LIMIT AND CALCULATION METHOD

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

RF EXPOSURE LIMIT

Frequency Range (MHz)	E-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

CALCULATION METHOD

$$S = PG / 4\pi R^2$$

Where:

S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

CALCULATED RESULTS

Radio Frequency Radiation Exposure Evaluation

(Worst case)				
Operating Mode	Max. Tune up Power	Max. Directional Antenna Gain	Power density	Limit
	(dBm)	(dBi)	(mW/ cm ²)	
BLE	18	2	0.01273	1

(Worst case)				
Operating Mode	Max. Tune up Power	Max. Directional Antenna Gain	Power density	Limit
	(dBm)	(dBi)	(mW/ cm ²)	
WIFI 2.4G	29.5	2	0.17985	1

(Worst case)				
Operating Mode	Max. Tune up Power	Max. Directional Antenna Gain	Power density	Limit
	(dBm)	(dBi)	(mW/ cm ²)	
WIFI 5G	29.9	2	0.19720	1

(Worst case)				
Operating Mode	Max. Tune up Power	Max. Directional Antenna Gain	Power density	Limit
	(dBm)	(dBi)	(mW/ cm ²)	
WIFI 6G	26	2	0.08034	1

Note:

1. The calculated distance is 25 cm.
2. The power comes from operation description.
3. The manufacturer declared that the EUT cannot support BLE&WIFI 2.4G, BLE&WIFI 5G, BLE&WIFI 6G simultaneous emission, but it can support WIFI 2.4G&WIFI 5G&WIFI 6G simultaneous emission.
4. 2.4 GHz WiFi + 5 GHz WiFi + 6 GHz WiFi = 0.17985 + 0.19720 + 0.08034= 0.45739 (mW/cm²)

Therefor the maximum calculations of above situations are less than the “1” limit.

END OF REPORT