

Prüfbericht-Nr.: <i>Test report no.:</i>	CN23TGZZ (FCC-MPE) 001	Auftrags-Nr.: <i>Order no.:</i>	48216848	Seite 1 von 11 Page 1 of 11
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2023-03-13	
Auftraggeber: <i>Client:</i>	Askey Computer Corp. 10F, No. 119, JIANKANG RD. ZHONGHE DIST. NEW TAIPEI CITY			
Prüfgegenstand: <i>Test item:</i>	WiFi 6E Extender			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	AP5692W			
Auftrags-Inhalt: <i>Order content:</i>	FCC Certification			
Prüfgrundlage: <i>Test specification:</i>	IEEE Std C95.1 47 CFR §2.1091 47 CFR §1.1310 KDB 447498 D04			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-03-16			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003435592-001			
Prüfzeitraum: <i>Testing period:</i>	2023-04-01 - 2023-06-29			
Ort der Prüfung: <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
Prüflaboratorium: <i>Testing laboratory:</i>	Taipei Testing Laboratories			
Prüfergebnis*: <i>Test result*:</i>	Pass			
überprüft von: <i>compiled by:</i>	 Ryan Chen	genehmigt von: <i>authorized by:</i>	 Brenda Chen	
Datum: <i>Date:</i>	2023-07-07	Ausstellungsdatum: <i>Issue date:</i>	2023-07-07	
Stellung / Position:	Senior Project Manager	Stellung / Position:	Senior Project Manager	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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APPENDIX EP - PHOTOGRAPHS OF EUT

HISTORY OF THIS TEST REPORT

Revision	Description	Date Issued
R00	Original Release	2023-07-07

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
Appendix EP - Photographs of EUT

1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

2 Test Sites

2.1 Test Facilities

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,
New Taipei City 244
Taiwan (R.O.C.)
FCC Registration No.: 180491
ISED Registration No.: 25563

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a WiFi 6E Extender, it is a Wi-Fi extender amplifies and rebroadcasts your existing wireless network signal, extending its coverage to eliminate dead spots or weak areas. It helps expand the range and improve connectivity in places where the router's signal doesn't reach effectively.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 Ratings and System Details

Basic Information of EUT

Item	EUT Information
Kind of Equipment/Test Item	WiFi 6E Extender
Type Identification	AP5692W
FCC ID	H8N-AP5692W

Technical Specification of EUT

Item	EUT Information
Operating Frequency Range	ISM: 2400 MHz ~ 2483.5 MHz (both for WiFi and BLE) Other WiFi operating bands: U-NII-1: 5150 MHz ~ 5250 MHz U-NII-2A: 5250 MHz ~ 5350 MHz U-NII-2C: 5470 MHz ~ 5725 MHz U-NII-3: 5725 MHz ~ 5850 MHz U-NII-5: 5925 MHz ~ 6425 MHz U-NII-6: 6425 MHz ~ 6525 MHz U-NII-7: 6525 MHz ~ 6875 MHz U-NII-8: 6875 MHz ~ 7125 MHz
Modulation	DSSS (DBPSK, DQPSK, CCK) OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) OFDMA (1024QAM) GFSK
Operation Voltage	Adapter input 100-240 Vac, output 12 Vdc
Antenna Information	Refer to note as below

Note:

1. The antenna gain for BT is 1.81 dBi. The other antenna information is listed as below.

ANT	Gain (dBi)									Type	
	2.4 GHz	5GHz				6GHz					
		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3	U-NII-5	U-NII-6	U-NII-7	U-NII-8		
1	1.54	-	-	-	-	3.04	0.14	2.26	2.83	Dipole	
2	0.08	-	-	-	-	3.02	2.24	2.39	3.33	Dipole	
3	-	0.43	0.57	-0.01	0.81	-	-	-	-	Dipole	
4	-	2.97	2.32	2.90	3.01	-	-	-	-	Dipole	
5	-	-	-	-	-	3.36	0.84	1.33	3.01	Dipole	
6	-	-	-	-	-	3.53	1.38	1.52	2.12	Dipole	
Max Peak Gain		1.54	2.97	2.32	2.90	3.01	3.53	2.24	2.39	3.33	-
CDD	Power Directional Gain	1.54	2.97	2.32	2.90	3.01	3.53	2.24	2.39	3.33	-
	PSD Directional Gain	3.65	4.93	4.44	5.07	4.51	5.91	4.64	5.45	5.85	-
BFM	Power Directional Gain	3.65	4.93	4.44	5.07	4.51	5.91	4.64	5.45	5.85	-
	PSD Directional Gain	3.65	4.93	4.44	5.07	4.51	5.91	4.64	5.45	5.85	-

Note: The PSD directional gain has been measured, please refer to antenna test report.

4 Maximum Permissible Exposure Evaluation

4.1 Introduction

This Standard specifies requirements for, and provides guidance on, assessing compliance with the exposure limits of radiofrequency (RF) safety standards such as IEEE Std C95.1. This includes methodologies for making an assessment (by measurement or computation) of human exposure to ambient RF fields and induced body currents in the frequency range of 0 kHz to 300 GHz.

This Standard may also be used as a guide for making low-level environmental exposure assessments in areas around RF sources listed above, as well as other sources such as Wi-Fi devices.

4.2 Reference Levels

Where appropriate, the reference levels are derived from the basic restrictions by mathematical modelling and by extrapolation from the results of laboratory investigations at specific frequencies. They are given for the condition of maximum coupling of the field to the exposed individual, thereby providing maximum protection.

According to FCC 1.1310, the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b).

The FCC MPE limits from 47 CFR §1.1310 are shown in the table below

Frequency Range [MHz]	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [mW/cm ²]	Average Time [minutes]
(A) Limits for Occupational/Controlled Exposure				
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 – 100000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
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 – 100000			1.0	30

NOTE –

- (1) f is the frequency in MHz.
- (2) Provided that basic restrictions are met and adverse indirect effects can be excluded, field strength values can be exceeded. For the specific case of occupational exposures at frequencies up to 100 kHz, the derived electric fields can be increased by a factor of 2 under conditions in which adverse indirect effects from contact with electrically charged conductors can be excluded.
- (3) For frequencies between 100 kHz and 10 GHz, the quantities S_{eq} , E_2 and H_2 are averages over any 6 minutes.
- (4) For frequencies exceeding 10 GHz, S_{eq} , the quantities E_2 and H_2 are averages over any $68/f$ 1.05 minutes (f in GHz).

4.3 Classification of the Assessment Methods

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

MPE Calculation Method according to KDB 447498 D04 Interim General RF Exposure Guidance v01

General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table B.1 of § 1.1307(b)(1)(i)(C) to support an exemption from further evaluation from 300 kHz through 100 GHz.

The table applies to any RF source (i.e., single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least $\lambda/2\pi$. The thresholds are based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.

**TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES
SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION**

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	1,920 R ²
1.34	–	30	35.6 m	–	1.6 m	3,450 R ² /f ²
30	–	300	1.6 m	–	159 mm	3.83 R ²
300	–	1,500	159 mm	–	31.8 mm	0.0128 R ² f
1,500	–	100,000	31.8 mm	–	0.5 mm	19.2R ²

Subscripts L and H are low and high; λ is wavelength.
 From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.

5 Test Results

5.1 MPE-based Exemption

The calculated at a distance of 20 cm are shown as below:

<CDD>

Mode	Frequency (MHz)	Average Output Power (dBm)	Tune Up Power (dBm)	Average Output Power (mW)	Antenna Gain (dBi)	ERP (mW)	ERP Limit (mW)	Pass / Fail
Bluetooth	2440	11.44	11.50	13.93	1.81	13.06	768	Pass
WiFi 2.4GHz	2462	24.96	25.00	313.33	1.54	272.29	768	Pass
WiFi 5GHz	5785	23.94	24.00	247.74	3.01	306.20	768	Pass
WiFi 6GHz	6185	20.96	21.00	124.74	3.53	172.98	768	Pass

<Beamforming>

Mode	Frequency (MHz)	Average Output Power (dBm)	Tune Up Power (dBm)	Average Output Power (mW)	Antenna Gain (dBi)	ERP (mW)	ERP Limit (mW)	Pass / Fail
WiFi 2.4GHz	2437	21.94	22.00	156.33	3.65	220.82	768	Pass
WiFi 5GHz	5710	20.79	21.00	119.96	5.07	246.60	768	Pass
WiFi 6GHz	6185	14.94	15.00	31.19	5.91	75.16	768	Pass

Conclusion

The device complies with the FCC exposure requirements since the maximum ERP is below the FCC limit.

Either SAR-based or MPE-based exemption may be considered for test exemption for fixed, mobile, or portable device exposure conditions; therefore, the contributions from each exemption in conjunction with the measured SAR shall be used to determine exemption for simultaneous transmission according to Formula repeated from § 1.1307(b)(3)(ii)(B)

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

$$\text{Bluetooth LE} + \text{WiFi 2.4GHz} + \text{WiFi 5GHz} + \text{WiFi 6GHz} \\ = 13.06 / 768 + 272.29 / 768 + 306.20 / 768 + 172.98 / 768 = 0.9955$$

Therefore the maximum calculations of above situations are less than the "1" limit.