RF Exposure Report

Report No.:	SABEMT-WTW-P20080442
FCC ID:	K7S-08277
Test Model:	E9450
Series Model:	E8250
Received Date:	Aug. 21, 2020
Test Date:	Sep. 09, 2020
Issued Date:	Oct. 20, 2020
Applicant:	Belkin International, Inc.
Address:	12045 East Waterfront Drive Playa Vista, CA. 90094, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
SABEMT-WTW-P20080442	Original release.	Oct. 20, 2020

1   Certificate of Conformity

Product:	AX5400 DUAL-BAND GIGABIT WiFi 6 ROUTER
Brand:	Linksys
Test Model:	E9450
Series Model:	E8250
Sample Status:	ENGINEERING SAMPLE
Applicant:	Belkin International, Inc.
Test Date:	Sep. 09, 2020
Standards:	FCC Part 2 (Section 2.1091)
	IEEE C95.3 -2002
References Test Guidance	KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** _____Oct. 20, 2020_____

Joyce Kuo / Specialist

Approved by : _____ , **Date:** _____Oct. 20, 2020_____

Clark Lin / Technical Manager

2   RF Exposure

2.1   Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
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
1500-100,000	…	…	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2   MPE Calculation Formula

Pd = (Pout*G) / (4*pi*r^2)

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

2.3   Classification

The antenna of this product, under normal use condition, is at least 43cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna NO.	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type
Ant 1_Dual Band	4.79	2.4-2.4835GHz	Dipole	i-pex(MHF)
	4.26	5.15-5.25GHz		
	4.79	5.25-5.35GHz		
	5.58	5.47-5.725GHz		
	5.58	5.725-5.85GHz		
Ant 2_Dual Band	5.15	2.4-2.4835GHz	Dipole	i-pex(MHF)
	5.74	5.15-5.25GHz		
	6.37	5.25-5.35GHz		
	6.87	5.47-5.725GHz		
	6.3	5.725-5.85GHz		
Ant 3_A Band	4.16	5.15-5.25GHz	Dipole	i-pex(MHF)
	4.44	5.25-5.35GHz		
	5.72	5.47-5.725GHz		
	5.82	5.725-5.85GHz		
Ant 3_A Band	4.28	5.15-5.25GHz	Dipole	i-pex(MHF)
	4.67	5.25-5.35GHz		
	4.43	5.47-5.725GHz		
	4.17	5.725-5.85GHz		

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.5   Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max AV Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm²)	Limit (mW/m²)
WiFi 2.4G	2412-2462	526.096	7.98	43	0.14221	1
WiFi 5G (U-NII-1)	5180-5240	827.684	10.66	43	0.41468	1
WiFi 5G (U-NII-2A)	5250-5320	204.544	11.12	43	0.11393	1
WiFi 5G (U-NII-2C)	5500-5720	198.692	11.71	43	0.16233	1
WiFi 5G (U-NII-3)	5745-5825	927.009	11.52	43	0.56616	1

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2. 2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.98$ dBi

    5GHz U-NII-1: Directional gain = The directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.66$ dBi

    5GHz U-NII-2A: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.12$ dBi

    5GHz U-NII-2C: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.71$ dBi

    5GHz U-NII-3: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 11.52$ dBi

Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.14221 / 1 + 0.56616 / 1 = 0.70837

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

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