Maximum Permissible Exposure Evaluation

FCC ID: 2AKID-WF40A

1. Client Information

Applicant	:	Parts Express Int'l. Inc.
Address	:	705 Pleasant Valley Dr., Springboro, Ohio 45066-1158, USA
Manufacturer	:	HIGH HIT ELECTRONICS (SHENZHEN) CO., LTD.
Address	:	BUILDING 25, AREA C, BUYONG INDUSTRIAL RD., SHA JING TOWN, BAO AN ZONE, SHENZHEN CITY, GUANGDONG PROVINCE, CHINA

2. General Description of EUT

EUT Name	:	WF40A Multi-Room Wi-Fi 2x20W Amplifier with IR Remote	
Models No.	:	WF40A, WFA28	
Model Difference	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is model name for commercial.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		Number of Channel:	802.11b/g/n(HT20):11 channels **see note(3)** 802.11n(HT40): 7 channels **see note(3)**
		RF Output Power:	802.11b: 18.42 dBm 802.11g: 17.58 dBm 802.11n (HT20): 18.71 dBm 802.11n (HT40): 18.61 dBm
		Antenna Gain:	0 dBi PIFA Antenna
		Modulation Type:	802.11b: DSSS(CCK, QPSK, BPSK) 802.11g: OFDM 802.11n: OFDM
		Bit Rate of Transmitter:	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n:up to 150Mbps

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Tel: +86 75526509301 Fax: +86 75526509195

Power Supply	:	DC Voltage Supply from AC Adapter
Power Rating	:	Input: AC 100-240V/50/60Hz 1A Output: DC15.0 V------2400mA
Connecting I/O Port(S)	:	Please refer to the User's Manual
Note: More information about the RF function, please refer the RF test reports.		

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MPE Calculations for WIFI

1. Antenna Gain:

PIFA Antenna: 0 dBi.

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

Where

S: power density
P: power input to the 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

4. Test Result:

Worst Maximum MPE Result

Mode	N_{TX}	Freq. (MHz)	Conducted Power(max) (dBm) [P]		ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm^2) [S]			Power Density Limit (mW/ cm^2)	Result
			Ant 1	Ant 2			Ant 1	Ant 2	Sum		
802.11b	1	2412	18.36	18.31	0	20	0.0136	0.0135	---	1.000	PASS
		2437	18.23	18.23	0	20	0.0132	0.0132	---		
		2462	18.42	18.31	0	20	0.0138	0.0135	---		
802.11g	1	2412	17.38	17.29	0	20	0.0109	0.0107	---		
		2437	17.36	17.43	0	20	0.0108	0.0110	---		
		2462	17.28	17.58	0	20	0.0106	0.0114	---		
802.11n (HT20)	2	2412	15.86	15.53	0	20	0.0077	0.0071	0.0148		
		2437	15.86	15.46	0	20	0.0077	0.0070	0.0147		
		2462	15.41	15.24	0	20	0.0069	0.0066	0.0135		
802.11n (HT40)	2	2422	15.57	15.62	0	20	0.0072	0.0073	0.0145		
		2437	15.40	15.52	0	20	0.0069	0.0071	0.0140		
		2452	15.25	15.36	0	20	0.0067	0.0068	0.0135		

Note:
(1) N_{TX}= Number of Transmit Antennas
(2) RF Output power specifies that Maximum Conducted Peak Output Power.

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/cm^2)
300-1,500	F/1500
1,500-100,000	1.0

For 802.11b/g/n (2412~2462 MHz)
MPE limit S: 1 mW/cm^2
The MPE is calculated as 0.0148mW / cm^2 < limit 1 mW / cm^2. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

-----END OF REPORT-----