Maximum Permissible Exposure Evaluation

FCC ID: 2APJB-NE1

1. Client Information

Applicant	:	Netool llc
Addres	:	P.O. box 2500, Minden Nv 89423, USA
Manufacturer	:	WUDOUMI ELECTRONICS TECHNOLOGY COMPANY
Address	:	3F, 5th Building, Xinjihui industrial zone, Bantian Street, Longgang, Shenzhen

2. General Description of EUT

EUT Name	:	Battery operated Ethernet Packet analyzer and Wi-Fi router	
Models No.	:	NE1, NE2, NE3	
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance color.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		RF Output Power:	802.11b: 14.54dBm 802.11g: 13.88dBm 802.11n (HT20): 12.80dBm 802.11n (HT40): 13.16dBm
		Antenna Gain:	2dBi Ceramics Antenna
Power Rating	:	Input: DC 5.0 V/1A from the USB Cable. DC 3.7V 2600mAh by Li-ion Battery. Output: DC 5V/0.8A	
Software Version	:	N/A	
Hardware Version	:	N/A	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

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MPE Calculations for WIFI

1. Antenna Gain:

PCB Antenna: 2dBi.

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:

Mode	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm^2) [S]
802.11b	14.54	14±1	15	2	20	0.00997
802.11g	13.88	13±1	14	2	20	0.00792
802.11n (HT20)	12.80	12±1	13	2	20	0.00629
802.11n (HT40)	13.16	13±1	14	2	20	0.00792

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: $1mW/cm^2$
The MPE is calculated as ***$0.00997mW/cm^2 < limit\ 1mW/cm^2$***. 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.

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