

# Maximum Permissible Exposure Evaluation

**FCC ID: 2A23L-NBD-P-10**

## 1. Client Information

<b>Applicant</b>	:	NBDair Inc
<b>Address</b>	:	1023 Walnut Street, #100, Boulder, CO 80302 U.S.A
<b>Manufacturer</b>	:	NBDair Inc
<b>Address</b>	:	1023 Walnut Street, #100, Boulder, CO 80302 U.S.A

## 2. General Description of EUT

EUT Name	:	Display Panel	
HVIN/Models No.	:	2A23L-NBD-P-10, 2A23L-NBD-P-11, 2A23L-NBD-P-12, 2A23L-NBD-P-13, 2A23L-NBD-P-14, 2A23L-NBD-P-15, 2A23L-NBD-P-16, 2A23L-NBD-P-17, 2A23L-NBD-P-18	
Model Different	:	All these models are the same in the same PCB, layout and circuit, the only difference is the model name and appearance.	
Brand Name	:	weSPACE	
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 802.11n(HT40): 7 channels
	:	RF Output Power:	802.11b: 17.958dBm (MAX) 802.11g: 16.034dBm (MAX) 802.11n(HT20): 15.756dBm (MAX) 802.11n(HT40): 12.583dBm (MAX)
	:	Antenna Gain:	1.8dBi PCB Antenna
Power Rating	:	Input: 100-240V~, 50/60Hz, 0.65A MAX Output: DC 12V/1.5A	
Software Version	:	N/A	
Hardware Version	:	R35	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	the evaluation report used the EUT(20210517-24_01-2#).	



## MPE Calculations for WIFI

### 1. Antenna Gain:

PIFA Antenna:1.8dBi.

### 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:

#### 2.4G WiFi

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 <sup>2</sup> ) [S]	Limit of Power Density (mW/ cm <sup>2</sup> ) (S)
802.11B	17.958	18±1	19	1.8	20	0.0239	1
802.11G	16.034	16±1	17	1.8	20	0.0151	1
802.11N(HT20)	15.756	16±1	17	1.8	20	0.0151	1
802.11N(HT40)	12.583	13±1	14	1.8	20	0.0076	1

### 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 <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0



For 2.4WIFI:2412~2462 MHz  
MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as  $0.0239mW/cm^2 < limit\ 1mW/cm^2$ . 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.

**6. Conclusion:**

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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