

# Maximum Permissible Exposure Evaluation

## FCC ID: A5M-SNOWMAN

### 1. Client Information

<b>Applicant</b>	:	Lenovo (Beijing) Limited
<b>Address</b>	:	No.6 Chuang Ye Road, Shangdi Information Industry Haidian District, Beijing, China
<b>Manufacturer</b>	:	HangZhou XiongMai Technology CO., LTD.
<b>Address</b>	:	9th Floor, Building 9, Yinhu Innovation Center, No.9 FuXian Road, YinHu Street, Hangzhou, China

### 2. General Description of EUT

<b>EUT Name</b>	:	Snowman S
<b>Models No.</b>	:	Snowman S, Snowman, Thinker, ThinkLife C
<b>Model Difference</b>	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance color.
<b>Product Description</b>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
	Number of Channel:	802.11b/g/n(HT20):11 channels <i>see note(3)</i> 802.11n(HT40): 7 channels <i>see note(3)</i>
	RF Output Power:	802.11b: 16.87dBm 802.11g: 14.67dBm 802.11n (HT20): 14.65dBm 802.11n (HT40): 14.52dBm
	Antenna Gain:	2.5dBi Internal 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
	<b>Power Supply</b>	:

TB-RF-075-1.0

<b>Power Rating</b>	:	AC/DC Adapter Model(BT-TC-015): Input: AC 120~240V 50-60Hz 0.3A Output: DC 5V/1.5A
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual
<b>Note:</b> More information about the RF function, please refer the RF test reports.		

## MPE Calculations for WIFI

### 1. Antenna Gain:

Internal Antenna: 2.5dBi.

### 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 <sub>TX</sub>	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]
802.11b	1	16.87	16±1	17	2.5	20	0.01773
802.11g	1	14.67	14±1	15	2.5	20	0.01119
802.11n (HT20)	1	14.65	14±1	15	2.5	20	0.01119
802.11n (HT40)	1	14.52	14±1	15	2.5	20	0.01119

Note:

(1) N<sub>TX</sub>= 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 <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

For 802.11b/g/n (2412~2462 MHz)

MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as **0.01773**mW / cm<sup>2</sup> < limit 1mW / cm<sup>2</sup>. 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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