

# Maximum Permissible Exposure Evaluation

## FCC ID: 2APRB-T8204-W

### 1. Client Information

<b>Applicant</b>	:	Guangzhou Juan Intelligent Tech Joint Stock Co.,Ltd
<b>Address</b>	:	No.2 Plant, West of Shanxi country, Dashi street, Panyu District, Guangzhou City, China
<b>Manufacturer</b>	:	Guangzhou Juan Intelligent Tech Joint Stock Co.,Ltd
<b>Address</b>	:	No.2 Plant, West of Shanxi country, Dashi street, Panyu District, Guangzhou City, China

### 2. General Description of EUT

<b>EUT Name</b>	:	Net video recorder with touch screen	
<b>Models No.</b>	:	T8204-W, see Note(1)	
<b>Model Different</b>	:	All these models are the same PCB, layout and electrical circuit, the only difference is model or color.	
<b>Product Description</b>	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n (HT40): 2422MHz~2452MHz
		RF Output Power:	wlan0: 802.11b: 12.58dBm 802.11g: 8.43dBm 802.11n (HT20): 8.80dBm 802.11n (HT40): 6.73dBm wlan1: 802.11b: 10.12dBm 802.11g: 9.84dBm 802.11n (HT20): 8.58dBm 802.11n (HT40): 6.71dBm
		Antenna Gain:	4dBi External Antenna
		Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)
<b>Power Supply</b>	:	AC/DC adapter(Model:MX12L1-0502500U): Input:AC100-240V, 0.35A, 50/60Hz Output: DC 5V 2.5A	
<b>Software Version</b>	:	3.0.3.20	
<b>Hardware Version</b>	:	Hi3536D_V103_ZX	
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual	

**Note:**

**(1) models****Models No.**

T8208-W, WRM2-KIT02, ZR04JT, M0719HN4-W, M0719HN4-B, C2019HN4-W- II , C2019HN4-W, M074JN2-W, M074JN2-B, 1PJ2-2019W- II , 1PJ2-2019W, MWM730, NVR-SD6400NM-W-TU, SM-W4CHNVR-7IN-JA, WD-W4CHNVR-7IN-JA, M0719HN8-W, M0719HN8-B, LCD-KIT-2MP, D5309HN4-W, D5309HN8-W, M1011HN4-W, M1011HN8-W, M1560HN8-W, JA-T6204-W

## MPE Calculations for WIFI

### 1. Antenna Gain:

External Antenna: 4dBi.

### 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										
ANT	Mode	Freq. (MHz)	Conducted Power(max ) (dBm) [P]	Tune up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm <sup>2</sup> ) [S]	Power Density Limit (mW/cm <sup>2</sup> )	Result
ANT 1	B	2412	12.58	12±1	13	4	20	0.00997	1	PASS
		2437	11.76	11±1	12			0.00792		
		2462	11.65	11±1	12			0.00792		
	G	2412	8.43	8±1	9			0.00397		
		2437	8.42	8±1	9			0.00397		
		2462	8.07	8±1	9			0.00397		
	N20	2412	8.48	8±1	9			0.00397		
		2437	8.8	8±1	9			0.00397		
		2462	8.6	8±1	9			0.00397		
	N40	2422	6.68	6±1	7			0.00250		
		2437	6.73	6±1	7			0.00250		
		2452	6.61	6±1	7			0.00250		
ANT 2	B	2412	10.12	10±1	11	0.00629				
		2437	9.14	9±1	10	0.00500				
		2462	8.00	8±1	9	0.00397				
	G	2412	9.84	9±1	10	0.00500				
		2437	9.33	9±1	10	0.00500				
		2462	7.96	7±1	8	0.00315				
	N20	2412	8.58	8±1	9	0.00397				
		2437	7.99	8±1	9	0.00397				
		2462	7.09	7±1	8	0.00315				
	N40	2422	6.71	6±1	7	0.00250				
		2437	6.32	6±1	7	0.00250				
		2452	5.87	6±1	7	0.00250				
Max Power Density(mW/ cm <sup>2</sup> )			Power Density <sub>ant 1</sub> + Power Density <sub>ant 2</sub> =0.00997+0.00629=0.01626							
Note: wlan0 is ANT1 wlan1 is ANT2 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  $0.01626\text{mW} / \text{cm}^2 < \text{limit } 1\text{mW} / \text{cm}^2$ . 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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