

Maximum Permissible Exposure Evaluation

FCC ID: 2AWDM-A9D

1. Client Information

Applicant	:	Winpal Electronics Co.,Ltd
Address	:	Room602, Building A1, Huafeng Hi-Tech Industrial Park, Hangkong road, Gushu, Xixiang, Baoan, Shenzhen, China 518102
Manufacturer	:	Winpal Electronics Co.,Ltd
Address	:	Room602, Building A1, Huafeng Hi-Tech Industrial Park, Hangkong road, Gushu, Xixiang, Baoan, Shenzhen, China 518102

2. General Description of EUT

EUT Name	:	Dash Camera
Models No.	:	A9D
Model Different	:	N/A
Brand Name	:	COXPAL
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
	conducted power:	802.11b: 15.85dBm 802.11g: 14.59 dBm 802.11n (HT20): 14.66 dBm 802.11n (HT40): 14.74 dBm
	Antenna Gain:	1.71dBi FPC Antenna
Power Rating	:	Input:DC 12-24V Output USB 1: 5V 1A USB 2:5V 2.1A
Software Version	:	Ver01
Hardware Version	:	Ver02
Connecting I/O Port(S)	:	Please refer to the User's Manual
Remark	:	the MPE report used the EUT(TBBJ-20200903-19-2#).

MPE Calculations for WIFI

1. Antenna Gain:

FPC Antenna:1.71dBi.

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)	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	1	2412	15.85	15±1	16	1.71	20	0.0117
		2437	15.50	15±1	16	1.71	20	0.0117
		2462	15.44	15±1	16	1.71	20	0.0117
802.11g	1	2412	14.46	14±1	15	1.71	20	0.0093
		2437	14.59	14±1	15	1.71	20	0.0093
		2462	14.17	14±1	15	1.71	20	0.0093
802.11n(HT20)	1	2412	14.51	14±1	15	1.71	20	0.0093
		2437	14.66	14±1	15	1.71	20	0.0093
		2462	14.26	14±1	15	1.71	20	0.0093
802.11n(HT40)	1	2422	14.65	14±1	15	1.71	20	0.0093
		2437	14.74	14±1	15	1.71	20	0.0093
		2452	14.55	14±1	15	1.71	20	0.0093

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 2.4WIFI:2412~2462 MHz
2422~2452 MHz

MPE limit S: 1mW/ cm²

The MPE is calculated as $0.0117 \text{ mW} / \text{cm}^2 < \text{limit } 1\text{mW} / \text{cm}^2$. 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.

6. Conclusion:

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

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