

Maximum Permissible Exposure Evaluation

FCC ID: 2AH3V-VPC2100WI

1. Client Information

Applicant : VISIONPLUS (HK) LIMITED
Address : UNIT 04, 7/F BRIGHT WAY TOWER NO.33 MONG KOK RD, KL,
HONGKONG, CHINA
Manufacturer : VISIONPLUS (HK) LIMITED
Address : UNIT 04, 7/F BRIGHT WAY TOWER NO.33 MONG KOK RD, KL,
HONGKONG, CHINA

2. General Description of EUT

EUT Name	:	HEAVY DUTY WIFI IP CAMERA	
Models No.	:	VPC2100WI	
Model Difference	:	N/A	
Product Description	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz	
		Number of Channel:	802.11b/g/n(HT20):11channels
		Output Power:	802.11b: 15.29 dBm 802.11g: 12.94 dBm 802.11n (HT20): 11.47 dBm
		Antenna Gain:	3 dBi Dipole Antenna
		Modulation Type:	802.11b: CCK, QPSK, BPSK 802.11g: OFDM 802.11n: OFDM
Power Supply	:	DC power from DC Cable.	
Power Rating	:	DC 12~32V.	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Note: More detail information about Equipment, please refer to User's manual, more information about the RF, please refer to test report.			

MPE Calculations for WIFI

1. Antenna Gain:

Dipole Antenna: 3 dBi.

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}	Frequency (MHz)	Power (dBm) [P]	ANT Gain (dBi) [G]	Turn-up Power Tolerance (dB)	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
2.4G							
802.11b	1	2412	15.29	3	±1	20	0.01689441
802.11g	1	2412	12.94	3	±1	20	0.00983429
802.11n (HT20)	1	2412	11.47	3	±1	20	0.00701040
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 802.11b/g/n (2412~2462 MHz)

MPE limit S: 1 mW/ cm²

The MPE is calculated as 0.01689441mW / cm² < limit 1 mW / cm². 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.