

## RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

FCC ID: 2A9I9-PTZ-DOY2

### EUT Specification

EUT		Wireless Camera
<b>Frequency band (Operating)</b>		<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input type="checkbox"/> Others: BLE: 2402-2480MHz
<b>Device category</b>		<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
<b>Exposure classification</b>		<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>		<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>		17.27 dBm (0.0533W)
<b>Antenna gain (Max)</b>		2.32 dBi
<b>Evaluation applied</b>		<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm <sup>2</sup> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
<b>300-1500</b>	--	--	<b>F/300</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>5</b>	<b>6</b>
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
<b>300-1500</b>	--	--	<b>F/1500</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>1</b>	<b>30</b>

## **Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$**

Where

$P_d$ = Power density in  $\text{mW/cm}^2$

$P_{out}$ =output power to antenna in  $\text{mW}$

$G$ = gain of antenna in linear scale

$\pi=3.1416$

$R$ = distance between observation point and center of the radiator in  $\text{cm}$

$P_d$  the limit of MPE,  $1\text{mW/cm}^2$ . If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

## **Measurement Result**

Operating Mode	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits ( $\text{mW/cm}^2$ )
	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm <sup>2</sup> )	
WiFi 2.4G	17.27	17.27 ±1	18.27	2.32	0.0228	1

Result: No Standalone SAR test is required.