

## RF EXPOSURE EVALUATION

### EUT Specification

<b>EUT</b>	Security Camera
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input checked="" type="checkbox"/> WLAN: 2.422GHz ~ 2.452GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.24GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others(Bluetooth: 2.402GHz ~ 2.480GHz)
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
<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>	19.10dBm(81.28mW)
<b>Antenna gain</b>	2.64 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> )
300-1500	--	--	F/1500
1500-100000	--	--	1

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

Where

$P_d$  = Power density in  $mW/cm^2$

$P_{out}$  = output power to antenna in Mw

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

$P_d$  the limit of MPE,  $1mW/cm^2$ . 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

Channel	Channel Frequency (MHz)	Max Output power (dBm)	Max Output power (mW)	Power density at 20cm ( $mW/cm^2$ )	Power density Limits ( $mW/cm^2$ )
Test mode: IEEE 802.11b					
Low	2412	16.94	49.43	0.01806	1
Middle	2437	13.55	22.65	0.00828	1
High	2462	14.72	29.65	0.01083	1
Test mode: IEEE 802.11g					
Low	2412	19.10	81.28	0.02970	1
Middle	2437	17.03	50.47	0.01844	1
High	2462	17.55	56.89	0.02079	1
Test mode: IEEE 802.11n(HT20)					
Low	2412	17.59	57.41	0.02098	1
Middle	2437	15.44	34.99	0.01278	1
High	2462	16.13	41.02	0.01499	1
Test mode: IEEE 802.11n(HT40)					
Low	2422	15.84	38.37	0.01402	1
Middle	2437	15.66	36.81	0.01345	1
High	2452	15.81	38.11	0.01392	1

According to the test result of power density at separation distance 20cm, compliance with RF Exposure requirement.