

RF EXPOSURE EVALUATION

EUT Specification

EUT	IP Camera
Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz for 802.11b/g/n(HT20) 2.422GHz ~ 2.452GHz for 802.11n(HT40) <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input type="checkbox"/> Others(Bluetooth: 2.402GHz ~ 2.480GHz)
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
Antenna diversity	<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
Max. output power	16.66 dBm (46.34mW)
Antenna gain	2.01 dBi
Evaluation applied	<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 ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in Mw

G = gain of antenna in linear scale

π = 3.1416

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

P_d the limit of MPE, 1mW/cm². 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	Gain	Channel Frequency (MHz)	Max Output power (dBm)	Tolerance	Max Tune-UP power (mW)	Power density at 20cm (mW/ cm ²)	Power density Limits (mW/cm ²)
802.11b							
Low	2.01	2412	14.33	±0.5	30.41	0.0096	1
Middle	2.01	2437	15.55	±0.5	40.27	0.0127	1
High	2.01	2462	16.46	±0.5	49.66	0.0157	1
802.11g							
Low	2.01	2412	15.08	±0.5	36.14	0.0114	1
Middle	2.01	2437	15.97	±0.5	44.36	0.0140	1
High	2.01	2462	16.62	±0.5	51.52	0.0163	1
802.11n HT20							
Low	2.01	2412	15.11	±0.5	36.39	0.0115	1
Middle	2.01	2437	16.08	±0.5	45.50	0.0144	1
High	2.01	2462	16.66	±0.5	52.00	0.0164	1
802.11n HT40							
Low	2.01	2422	14.14	±0.5	29.11	0.0092	1
Middle	2.01	2437	15.04	±0.5	35.81	0.0113	1
High	2.01	2452	15.49	±0.5	39.72	0.0126	1