RF EXPOSURE EVALUATION

EUT Specification

EUT	IP Camera
Frequency band (Operating)	☒WLAN: 2.412GHz ~ 2.462GHz ☐WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐WLAN: 5.745GHz ~ 5825GHz ☐Others(Bluetooth: 2.402GHz ~ 2.480GHz)
Device category	☐Portable (<20cm separation) ☒Mobile (>20cm separation) ☐Others ___
Antenna diversity	☒Single antenna ☐Multiple antennas ☐Tx diversity ☐Rx diversity ☐Tx/Rx diversity
Max. output power	21.49dBm(140.93mW)
Antenna gain	2.01dBi
Evaluation applied	☒MPE Evaluation ☐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: Pd=(Pout*G)\(4*pi*R^2)

Where
Pd= Power density in mW/cm^2
Pout=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
Pd 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	Channel Frequency (MHz)	gain of antenna in linear scale	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	2412	1.5885	20.48	±0.5	125.31	0.040	1
Middle	2437	1.5885	21.49	±0.5	158.12	0.050	1
High	2462	1.5885	21.10	±0.5	144.54	0.046	1
802.11g							
Low	2412	1.5885	18.11	±0.5	72.61	0.023	1
Middle	2437	1.5885	19.54	±0.5	100.93	0.032	1
High	2462	1.5885	19.28	±0.5	95.06	0.030	1
802.11n HT20							
Low	2412	1.5885	18.43	±0.5	78.16	0.025	1
Middle	2437	1.5885	19.84	±0.5	108.14	0.034	1
High	2462	1.5885	19.47	±0.5	99.31	0.031	1
802.11n HT40							
Low	2422	1.5885	20.70	±0.5	131.83	0.042	1
Middle	2437	1.5885	19.53	±0.5	100.69	0.032	1
High	2452	1.5885	16.58	±0.5	51.05	0.016	1