RF EXPOSURE EVALUATION

EUT Specification

EUT	USB WIFI Module
Frequency band (Operating)	☒WLAN: 2.412GHz ~ 2.462GHz ☐WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☒WLAN: 5.725GHz ~ 5850GHz ☐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	For 2.4G: 16.60dBm(45.71mW) For 5.8G: 13.69dBm(23.39mW)
Antenna gain	0dBi
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)	Max Output power (dBm)	Tolerance	Max Tune- up power (mW)	Power density at 20cm (mW/ cm^2)	Power density Limits (mW/cm^2)
Test Mode: 802.11b						
Low	2412	14.88	±0.3	32.96	0.0066	1
Middle	2437	16.24	±0.3	45.08	0.0090	1
High	2462	15.98	±0.3	42.46	0.0084	1
Test Mode: 802.11g						
Low	2412	15.52	±0.3	38.19	0.0076	1
Middle	2437	16.05	±0.3	43.15	0.0086	1
High	2462	16.60	±0.3	48.98	0.0097	1
Test Mode: 802.11n(HT20)						
Low	2412	15.31	±0.3	36.39	0.0072	1
Middle	2437	15.94	±0.3	42.07	0.0084	1
High	2462	14.76	±0.3	32.06	0.0064	1
Test Mode: 802.11n(HT40)						
Low	2422	13.49	±0.3	23.93	0.0048	1
Middle	2437	12.44	±0.3	18.79	0.0037	1
High	2452	12.70	±0.3	19.95	0.0040	1

Test Mode: 802.11a						
Low	5745	11.51	±0.3	15.17	0.0030	1
Middle	5785	10.11	±0.3	10.99	0.0022	1
High	5825	11.07	±0.3	13.71	0.0027	1
Test Mode: 802.11ac(VHT20)						
Low	5745	13.69	±0.3	25.06	0.0050	1
Middle	5785	11.74	±0.3	16.00	0.0032	1
High	5825	11.54	±0.3	15.28	0.0030	1
Test Mode: 802.11ac(VHT40)						
Low	5755	11.59	±0.3	15.45	0.0031	1
High	5795	10.16	±0.3	11.12	0.0022	1
Test Mode: 802.11ac(VHT80)						
1	5775	11.04	±0.3	13.61	0.0027	1