RF Exposure Evaluation

LIMIT

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)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500	-	-	f/300	6
1500–100,000	-	-	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30
30–300	27.5	0.073	0.2	30
300–1500	-	-	f/1500	30
1500–100,000	-	-	1.0	30

Note: f = frequency in MHz

EVALUATION METHOD

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

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

According to RF test report, the results are as follow:

FCC ID: 2AJ2B-TPX820

Worst case

WIFI Mode	Max. tune-up Power(dBm)	Max. tune-up Power(mW)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
ANT0 802.11n(H20)	13.00	19.95	0.006294	1.00	PASS
ANT1 802.11n(H20)	13.00	19.95	0.006294	1.00	PASS
Total ANT0+ ANT1 Power Density (mW/cm^2)			0.12589	1.00	PASS

Worst case WIFI 802.11n(H20)

WCDMA Band	Max. tune-up Power(dBm)	Max. tune-up Power(mW)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
2	24.00	251.19	0.0790	1.00	PASS
5	24.00	251.19	0.0790	0.55	PASS

LTE Band	Max. tune-up Power(dBm)	Max. tune-up Power(mW)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Result
4	24.50	281.84	0.0886	1.00	PASS

Note:

the below information is declared by the applicant,

1) *The exposure safety distance is 20cm.*
2) *Only use the maximum permissible antenna gain is 2 dBi calculate RF radiation exposure*
3) *All the transmitter work at the same time, transmitter combination LTE+WIFI Power Density (mW/cm2) =(0.12589/1)+(0.0886/1)=0.21449 (mW/cm2) <1 WIFI+WCDMA Power Density (mW/cm2)= (0.12589/1)+(0.0790/0.55)=0.2695(mW/cm2) <1,and all transmitter work at the same time is conform to the standard, when the Separation Distance≥20cm*