RF EXPOSURE EVALUATION

EUT Specification

EUT	CAR FM TRANSMITTER
Frequency band (Operating)	☐WLAN: 2.412GHz ~ 2.462GHz ☐WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐WLAN: 5.745GHz ~ 5825GHz ☒Others(88.1-107.9MHz)
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	48.91dBuV/m (-46.3476dBm)(0.000023mW)
Antenna gain	0dBi
Evaluation applied	MPE Evaluation

Standard Requirement

Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm2)	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*R2)

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 Frequency (MHz)	Max Output power (dBuV/m)	Max Output power (dBm)	Power Included Tune-up (dBm)	Max Output power (mW)	Power density at 20cm (mW/cm2)	Power density Limits (mW/cm2)
98.1	48.91	-46.3476	-45	0.000032	0.000000006	1.0

$$E = EIRP - 20\log D + 104.8$$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

EIRP= E-104.8+20logD=48.91-104.8+20log3=**-46.3476**dBm

Fox example: **(worst case) BT+FM： 0.000000006+0.0006=0.000600006<1**

The SAR measurement is not necessary.