RF EXPOSURE EVALUATION

According to FCC 1.1310: 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)

FCC ID：**2ADFS-D10**

EUT Specification

EUT	AUTOMOTIVE DIAGNOSTIC & ANALYSIS SYSTEM
Frequency band (Operating)	☐WLAN: 2.412GHz ~ 2.462GHz ☒WLAN: 5.18GHz ~ 5.24GHz ☐WLAN: 5.745GHz ~ 5.825GHz ☐Others: 2.402GHz~2.480GHz (BT2.1)
Device category	☐Portable (<20cm separation) ☒Mobile (>20cm separation) ☐Others ___
Exposure classification	☐Occupational/Controlled exposure (S = 5mW/cm2) ☒General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	☐Single antenna ☒Multiple antennas ☐Tx diversity ☐Rx diversity ☐Tx/Rx diversity
Max. output power	12.25 dBm (0.0168W)
Antenna gain (Max)	1.5 dBi (two antennas are the same)
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*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

5 GHz WiFi:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm2)	(mW/cm2)
802.11n(HT 20)	5180	11.02	11.02±1	12.02	1.5	0.0045	1
	5200	12.25	12.25±1	13.25	1.5	0.0059	1
	5240	11.99	11.99±1	12.99	1.5	0.0056	1
802.11ac(HT20)	5180	12.25	12.25±1	13.25	1.5	0.0059	1
	5200	11.78	11.78±1	12.78	1.5	0.0053	1
	5240	10.77	10.77±1	11.77	1.5	0.0042	1
802.11n(HT 40)	5190	11.36	11.36±1	12.36	1.5	0.0048	1
	5230	12.09	12.09±1	13.09	1.5	0.0057	1
802.11ac(HT40)	5190	11.81	11.81±1	12.81	1.5	0.0054	1
	5230	11.20	11.20±1	12.20	1.5	0.0047	1
802.11ac(HT80)	5210	10.71	10.71±1	11.71	1.5	0.0042	1