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: 2AJFX-MINI5

EUT Specification

EUT	**DDPai**
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☒ WLAN: 5.18GHz ~ 5.24GHz ☐ WLAN: 5.745GHz ~ 5.825GHz ☒ Others: 2.402GHz~2.480GHz
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	BLE: 5.416dBm (0.0035W) BDR&EDR: 7.433dBm (0.0055W) 5.1GWiFi: 16.11dBm (0.0408W)
Antenna gain (Max)	BT & WiFi: 2dBi
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

5.1GHz WiFi:
ANT A:

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)
802.11a	5180	13.56	13.56±1	14.56	2	0.0090	1
	5200	11.87	11.87±1	12.87	2	0.0061	1
	5240	14.06	14.06±1	15.06	2	0.0101	1
802.11n20	5180	12.60	12.60±1	13.6	2	0.0072	1
	5200	10.69	10.69±1	11.69	2	0.0047	1
	5240	11.32	11.32±1	12.32	2	0.0054	1
802.11ac20	5180	12.46	12.46±1	13.46	2	0.0070	1
	5200	11.48	11.48±1	12.48	2	0.0056	1
	5240	11.43	11.43±1	12.43	2	0.0055	1
802.11n40	5190	12.31	12.31±1	13.31	2	0.0068	1
	5230	12.82	12.82±1	13.82	2	0.0076	1
802.11ac40	5190	12.18	12.18±1	13.18	2	0.0066	1
	5230	12.37	12.37±1	13.37	2	0.0069	1
802.11ac80	5210	13.07	13.07±1	14.07	2	0.0080	1

ANT B:

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)
802.11a	5180	13.11	13.11±1	14.11	2	0.0081	1
	5200	11.80	11.80±1	12.8	2	0.0060	1
	5240	12.14	12.14±1	13.14	2	0.0065	1
802.11n20	5180	13.02	13.02±1	14.02	2	0.0080	1
	5200	12.39	12.39±1	13.39	2	0.0069	1
	5240	11.57	11.57±1	12.57	2	0.0057	1
802.11ac20	5180	11.62	11.62±1	12.62	2	0.0058	1
	5200	11.60	11.60±1	12.6	2	0.0057	1
	5240	11.35	11.35±1	12.35	2	0.0054	1
802.11n40	5190	13.48	13.48±1	14.48	2	0.0088	1
	5230	11.95	11.95±1	12.95	2	0.0062	1
802.11ac40	5190	12.86	12.86±1	13.86	2	0.0077	1
	5230	11.85	11.85±1	12.85	2	0.0061	1
802.11ac80	5210	13.13	13.13±1	14.13	2	0.0082	1

ANT A+ANT B:

Operating Mode	Channel Frequency	ANT A Power density at 20cm	ANT B Power density at 20cm	ANT A+ANT B Power density at 20cm	Power density Limits
	(MHz)	(mW/ cm2)	(mW/ cm2)	(mW/ cm2)	(mW/cm2)
802.11n20	5180	0.0072	0.0080	0.0152	1
	5200	0.0047	0.0069	0.0116	1
	5240	0.0054	0.0057	0.0111	1
802.11ac20	5180	0.0070	0.0058	0.0128	1
	5200	0.0056	0.0057	0.0113	1
	5240	0.0055	0.0054	0.0109	1
802.11n40	5190	0.0068	0.0088	0.0156	1
	5230	0.0076	0.0062	0.0138	1
802.11ac40	5190	0.0066	0.0077	0.0143	1
	5230	0.0069	0.0061	0.0130	1
802.11ac80	5210	0.0080	0.0082	0.0162	1

BEL&BDR+EDR:

Operating Mode	Channel Frequency (MHz)	Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
BLE	2402	5.167	5.167±1	6.167	2	0.0013	1
	2440	5.358	5.358±1	6.358	2	0.0014	1
	2480	5.416	5.416±1	6.416	2	0.0014	1
BDR&EDR	2402	5.101	5.101±1	6.101	2	0.0013	1
	2441	5.252	5.252±1	6.252	2	0.0013	1
	2480	5.369	5.369±1	6.369	2	0.0014	1
	2402	7.124	7.124±1	8.124	2	0.0020	1
	2441	7.392	7.392±1	8.392	2	0.0022	1
	2480	7.433	7.433±1	8.433	2	0.0022	1

Note: BT and WIFI cannot support simultaneous transmission.