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: Z63-P301201

EUT Specification

EUT	Treat Arcade
Model Number	P301201
Series Model	P301XXX (“X” represent “0-9” or “A-Z”)
Model Difference	Note: All models are identical except model name.
Rating	Input: 5V⎓2A
Frequency band (Operating)	☒BT: 2.402GHz ~ 2.480GHz ☒WLAN: 2.412GHz ~ 2.462GHz ☒WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☒WLAN: 5.745GHz ~ 5825GHz
Device category	☐Portable (<20cm separation) ☒Mobile (>20cm separation)
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（peak power）	BLE: -1.04 dBm IEEE 802.11b: 20.26 dBm IEEE 802.11g: 18.80 dBm IEEE 802.11n-HT20: 18.38 dBm 5180 MHz to 5240 MHz: 13.17 dBm 5260 MHz to 5320 MHz: 13.50 dBm 5500 MHz to 5700 MHz: 13.67 dBm 5745 MHz to 5825 MHz: 13.50 dBm
Antenna gain (Max)	BT: 4.5 dBi 2.4GHz WIFI: 4.5 dBi 5.8G WIFI: 6.1 dBi
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=20cm
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.

For multiple RF sources: Multiple RF sources are exempt if:
in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation

$$\sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

$Evaluated_k$: the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.
$Exposure\ Limit_k$: either the general population/uncontrolled maximum permissible exposure (MPE) or specific Absorption rate (SAR) limit for each fixed, mobile, or portable RF source k.

Measurement Result

Operation Mode	Channel Frequency (MHz)	Max Measured Power (dBm)	Tune up tolerance (dBm)	Max tune up conducted power (dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/ cm2)	Power density Limits (mW/ cm2)
BLE (1Mbps)	2480	-1.04	-1±1	0	1.000	4.5	2.818	0.000561	1
2.4GHz WIFI (802.11b)	2462	20.26	20±1	21	125.893	4.5	2.818	0.070586	1
5180 MHz to 5240MHz (802.11a)	5240	13.17	13±1	14	25.119	6.1	4.074	0.020357	1
5260 MHz to 5320MHz (802.11a)	5300	13.50	14±1	15	31.623	6.1	4.074	0.025628	1
5500 MHz to 5700MHz (802.11a)	5600	13.67	14±1	15	31.623	6.1	4.074	0.025628	1
5745 MHz to 5825MHz (802.11a)	5785	13.50	14±1	15	31.623	6.1	4.074	0.025628	1

Maximum Simultaneous transmission MPE Ratio for Bluetooth & 2.4G WIFI & 5.8G WIFI

Maximum MPE ratio (Bluetooth)	Maximum MPE ratio (2.4G WIFI)	Maximum MPE ratio (5.8G WIFI)	∑ MPE ratios	Limit	Results
0.000561	0.070586	0.025628	0.096775	1.000	Pass

Signature:

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