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: 2ABC5-E0066

EUT Specification

EUT	Android Tablet
Frequency band (Operating)	☒WLAN: 2.412GHz ~ 2.462GHz ☒WLAN: 5.18GHz ~ 5.24GHz ☒WLAN: 5.745GHz ~ 5.825GHz ☒Others: 2.402GHz~2.480GHz BLE
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: 7.15dBm (0.0052W) BDR&EDR: 2.64dBm (0.0018W) 2.4G WiFi: 20.14dBm (0.1033W) 5.1G WiFi: 16.32dBm (0.0429W) 5.8G WiFi: 19.95dBm (0.0989W)
Antenna gain (Max)	BT: 1.99 dBi 2.4G WiFi: ANT1: 2.15 dBi; ANT2: 1.99 dBi 5.1G WiFi: ANT1: 2.99 dBi; ANT2: 2.83 dBi 5.8G WiFi: ANT1: 2.96 dBi; ANT2: 2.84 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
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

2.4GHz WiFi

ANT 1 worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm^2)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/cm^2)	
802.11g	2437	18.98	18.98±1	19.98	2.15	0.0325	1

ANT 2 worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm^2)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/cm^2)	
802.11g	2437	20.14	20.14±1	21.14	1.99	0.0409	1

MIMO worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm^2)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/cm^2)	
802.11g	2437	23.07	23.07±1	24.07	2.07	0.0818	1

5.1GHz WiFi
ANT 1 worst case:

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/ cm2)	Power density Limits (mW/cm2)
802.11ac (VHT40)	5230	16.32	16.32±1	17.32	2.98	0.0213	1

ANT 2 worst case:

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/ cm2)	Power density Limits (mW/cm2)
802.11ac (VHT40)	5230	16.03	16.03±1	17.03	2.83	0.0193	1

MIMO worst case:

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/ cm2)	Power density Limits (mW/cm2)
802.11ac (VHT40)	5230	19.19	19.19±1	20.19	2.91	0.0406	1

5.8GHz WiFi
ANT 1 worst case:

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/ cm2)	Power density Limits (mW/cm2)
802.11ac (VHT40)	5795	19.95	19.95±1	20.95	2.96	0.0489	1

ANT 2 worst case:

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/ cm2)	Power density Limits (mW/cm2)
802.11ac (VHT40)	5795	19.12	19.12±1	20.12	2.84	0.0393	1

MIMO worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm2)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm2)	
802.11ac (VHT40)	5795	22.57	22.57±1	23.57	2.90	0.0883	1

BLE worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm^2)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm^2)	
BLE(1M)	2402	7.15	7.15±1	8.15	1.99	0.0021	1

BT worst case:

Operating Mode	Channel Frequency	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits (mW/cm^2)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBi)	(mW/ cm^2)	
8DPSK	2441	2.64	2.64±1	3.64	1.99	0.0007	1

Note: 2.4G WiFi MIMO+5.1G WiFi MIMO+5.8G WiFi MIMO+ BLE+BDR&EDR simultaneous:
(0.0818+0.0406+0.0883+0.0021+0.0007)/1=0.2135/1=0.2135 < 1

Test Result: Pass