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Maximum Permissible Exposure Evaluation

FCC ID: 2APPZ-A32I

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)

EUT Specification

Product Name:	IP Phone
Trade Mark:	Fanvil
Model/Type reference:	A32i
Listed Model(s):	A32, A32V
Frequency band (Operating)	☒BT: 2.402GHz ~ 2.480GHz ☒BLE: 2.402GHz ~ 2.480GHz ☒WLAN: 2.412GHz ~ 2.462GHz ☒RLAN: 5.180GHz ~ 5.240GHz ☒RLAN: 5.745GHz ~ 5.825GHz ☐Others
Device category	☐Portable (<20cm separation) ☐Mobile (>20cm separation) ☒fixed (>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
Antenna gain (Max)	3.7dBi for 2.4GHz 3.2dBi for 5GHz WIFI
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*R^2)
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/cm^2. 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

BLE							
Type	Channel frequency (MHz)	Max. 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)
GFSK	2402	-1.53	-1±1	0	3.7	0.00047	1
	2440	-0.02	0±1	1	3.7	0.00059	1
	2480	0.76	0±1	1	3.7	0.00059	1

BR/ EDR							
Type	Channel frequency (MHz)	Max. 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)
GFSK	2402	1.02	1±1	2	3.7	0.00074	1
	2441	2.40	2±1	3	3.7	0.00093	1
	2480	3.25	3±1	4	3.7	0.00117	1
π /4-DQPSK	2402	-0.83	0±1	1	3.7	0.00059	1
	2441	0.11	0±1	1	3.7	0.00059	1
	2480	1.28	1±1	2	3.7	0.00074	1
8-DPSK	2402	-0.66	0±1	1	3.7	0.00059	1
	2441	0.76	0±1	1	3.7	0.00059	1
	2480	1.57	1±1	2	3.7	0.00074	1

2.4G WIFI							
Type	Channel frequency (MHz)	Max. 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)
802.11 n20	2412	18.22	18±1	19	3.7	0.03705	1
	2437	18.63	18±1	19	3.7	0.03705	1
	2462	19.04	19±1	20	3.7	0.04664	1
802.11n40	2422	16.88	16±1	17	3.7	0.02337	1
	2437	17.26	17±1	18	3.7	0.02943	1
	2462	17.47	17±1	18	3.7	0.02943	1

5G WIFI U-NII-1							
Type	Channel frequency (MHz)	Max. 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)
802.11 n20	5180	12.56	12±1	13	3.2	0.00829	1
802.11 n20	5200	12.25	12±1	13	3.2	0.00829	1
802.11a	5240	11.91	11±1	12	3.2	0.00659	1
802.11 n40	5190	11.12	11±1	12	3.2	0.00659	1
	5230	10.53	10±1	11	3.2	0.00523	1
802.11 ac80	5210	8.96	8±1	9	3.2	0.00330	1

5G WIFI U-NII-3							
Type	Channel frequency (MHz)	Max. 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)
802.11 a	5745	14.15	14±1	15	3.2	0.01314	1
802.11a	5785	13.90	13±1	14	3.2	0.01044	1
802.11 a	5825	13.78	13±1	14	3.2	0.01044	1
802.11 n40	5755	11.73	11±1	12	3.2	0.00659	1

802.11 n40	5795	11.61	11±1	12	3.2	0.00659	1
802.11 ac80	5775	9.67	9±1	10	3.2	0.00416	1

The WLAN or Bluetooth can transmit simultaneously

WLAN Power density at 20cm (mW/cm^2)	BT Power density at 20cm (mW/cm^2)	Total Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
0.04664	0.00117	0.004781	1

Note

For a more detailed features description, please refer to the RF Test Report.

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