

FCC RF Exposure

EUT Description: SIM Vend

ModelNo.:SIM Vend,SIM Vend SD01,SIM Vend SD02,SIM Vend SD03,SIM Vend SD04,SIM Vend SD05, SSK, SSK-A

FCC ID: 2AGQF-SIMVEND

Equipment type: mobile plant

1. Limits

According to KDB 447498 D01 General RF Exposure Guidance v06 and part 2.1093, 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)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

F = frequency in MHz

Formula: $Pd = (P_{out} * G) / (4 * \pi * r^2)$

Where :

Pd = power density in mW/cm²,

P_{out} = output power to antenna in mW;

G = gain of antenna in linear scale,

$\pi = 3.14$;

R = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest

channel individually.

3. Test Result of RF Exposure Evaluation

WIFI

	Output power (dBm/ mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b	3.69/2.3388	1.96	0.00073	1.0	Pass
802.11g	4.29/2.6853	1.96	0.00084	1.0	Pass
802.11n20	3.91/2.4604	1.96	0.00077	1.0	Pass
802.11n40	3.58/2.2803	1.96	0.00071	1.0	Pass
U-NII-1 802.11a	6.35/4.3152	4.41	0.00168	1.0	Pass
U-NII-1 802.11n(HT20)	6.30/4.2658	4.41	0.00237	1.0	Pass
U-NII-1 802.11n(HT40)	7.25/5.3088	4.41	0.00292	1.0	Pass
U-NII-1 802.11ac(HT20)	6.31/4.2756	4.41	0.00235	1.0	Pass
U-NII-1 802.11ac(HT40)	7.28/5.3456	4.41	0.00294	1.0	Pass
U-NII-1 802.11ac(HT80)	2.27/1.6866	4.41	0.00093	1.0	Pass
U-NII-3 802.11a	13.07/20.2768	4.41	0.01114	1.0	Pass
U-NII-3 802.11n(HT20)	13.24/21.0863	4.41	0.01158	1.0	Pass
U-NII-3 802.11n(HT40)	7.65/5.8210	4.41	0.00320	1.0	Pass
U-NII-3 802.11ac(HT20)	13.09/20.3704	4.41	0.01119	1.0	Pass
U-NII-3 802.11ac(HT40)	7.58/5.7280	4.41	0.00315	1.0	Pass
U-NII-3 802.11ac(HT80)	10.79/11.9950	4.41	0.00659	1.0	Pass

BT

Frequency(MHz)	Field strength(dBuV/m)	EIRP(dBm/mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
2402	89.39	-5.7776/0.2644	1.96	0.00008	1.0	Pass
2440	88.33	-6.8276/0.2076	1.96	0.00006	1.0	Pass
2480	90.43	-4.7276/0.3367	1.96	0.00010	1.0	Pass

BT+WIFI:0.00010+0.01158=0.01168 < 1