

FCC RF Exposure

EUT Description: Dehumidifier

ModelNo.:DD11C-12,DD11A-6,DD11A-8,DD11A-10,DD11A-12,DD11A-15,DD11A-16,DD11B-6,DD11B-8,DD11B-10,DD11B-12,DD11B-15,DD11B-16,DD11C-6,DD11C-8,DD11C-10,DD11C-15,DD11C-16,DD11D-6,DD11D-8,DD11D-10,DD11D-12,DD11D-15,DD11D-16,DD12A-16,DD12A-18,DD12A-20,DD12A-24,DD12A-25,DD12A-30,DD12B-16,DD12B-18,DD12B-20,DD12B-24,DD12B-25,DD12B-30,DD12C-20,DD10A-6,DD10A-8,DD10A-10,DD10A-12

FCC ID: 2BXC3-DD11C-12

Equipment type: mobile equipment

RF Exposure Evaluation

Limits

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

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

Where

Pd = power density in mW/cm², **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 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.

Test Procedure

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

**Test Result of RF Exposure Evaluation****2.4G**

Frequency (MHz)	Field strength (dBuV/m)	EIRP(dBm)	Max tune-up (mW)	Antenna Gain(dBi)	Min. distance(cm)	Calc. thresholds	limit
2408	96.42	1.2624	1.3373	2.54	20	0.000477	1.0
2440	94.95	-0.2076	0.9533	2.54	20	0.000340	1.0
2474	97.76	2.6024	1.8207	2.54	20	0.000650	1.0

WiFi

Maximum peak output power at antenna input terminal (dBm):	24.89
Maximum peak output power at antenna input terminal (mW):	308.32
Prediction distance (cm):	20
Antenna Gain, typical (dBi)	2.5
Maximum Antenna Gain (numeric):	1.78
The worst case is power density at predication frequency at 20 cm (mW/cm ²):	0.109
MPE limit for general population exposure at prediction frequency (mW/cm ²):	1

BLE

Maximum peak output power at antenna input terminal (dBm):	7.80
Maximum peak output power at antenna input terminal (mW):	6.03
tune-up conducted power(dBm):	9.0
tune-up conducted power(mW):	7.94
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	2.5
Maximum Antenna Gain (numeric):	1.78
The worst case is power density at predication frequency at 20 cm (mW/cm ²):	0.0028
MPE limit for general population exposure at prediction frequency (mW/cm ²):	1

$$S(\text{total})=S(2.4G)+S(\text{WIFI})+S(\text{BLE})=0.00065+0.109+0.0028=0.11245 \text{ mW/cm}^2$$

Conclusion: the max result : $0.11245 \leq 1.0$ compliance with FCC's RF Exposure.