FCC 47 CFR MPE REPORT

Guangdong Joy Intelligent Technology Co., Ltd

Robot Vacuum Cleaner

Model Number: L2550-J

Additional Model: L2551-J, L2552-J, N2, S8 Pro, L2250, L2251-J, L2252-J, V980 Pro, CMSDJ707A, A10, A10+, T10, T10+, Q6 Pro, L6 Pro, L2550-H, BG1000, BG1000 Max, 5290, 05663, R7, 5290 ultra

FCC ID: 2AV2K-L2560

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Maximum Permissible Exposure

1. Applicable Standards

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

1.1. Limits for Maximum Permissible Exposure (MPE)

(a) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-10000			5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.o	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

1.2. MPE Calculation Method

$$E\ (V/m) = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd\ (W/m^2) = \frac{E^2}{377}$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

2. Conducted Power Result

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power (dBm)	Antenna gain	
					(dBi)	(Linear)
IEEE 802.11b	2412	16.16	41.3048	16±1	4	2.512
	2437	16.02	39.9945	16±1	4	2.512
	2462	15.79	37.9315	15±1	4	2.512
IEEE 802.11g	2412	19.42	87.4984	19±1	4	2.512
	2437	19.28	84.7227	19±1	4	2.512
	2462	19.08	80.9096	19±1	4	2.512
IEEE 802.11n HT20	2412	18.97	78.8860	18±1	4	2.512
	2437	18.76	75.1623	18±1	4	2.512
	2462	18.61	72.6106	18±1	4	2.512
IEEE 802.11n HT40	2422	21.54	142.5608	21±1	4	2.512
	2437	21.59	144.2115	21±1	4	2.512
	2452	21.42	138.6756	21±1	4	2.512

3. Calculated Result and Limit

Mode	Target power (dBm)	Antenna gain		Power Density (S) (mW/cm^2)	Limited of Power Density (S) (mW/cm^2)	Test Result
		(dBi)	(Linear)			
2.4G Band						
IEEE 802.11b	17	4	2.512	0.0250	1	Complies
IEEE 802.11g	20	4	2.512	0.0500	1	Complies
IEEE 802.11n HT20	19	4	2.512	0.0397	1	Complies
IEEE 802.11n HT40	22	4	2.512	0.0792	1	Complies

End of Test Report