Zhejiang Kezheng Electronic Product Inspection

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Maximum Permissible Exposure Evaluation

FCC ID: 2AT9WMT-900668

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

| EUT | Robotic Vacuum Cleaner | | | | | |
|----------------------------|---|--|--|--|--|--|
| Frequency band (Operating) | ⊠ WLAN: 2.412GHz ~ 2.462GHz | | | | | |
| | ☐ WCDMA Band II, Band IV, Band V | | | | | |
| | ☐ LTE FDD Band 2, Band 4, Band 5, Band 12 | | | | | |
| | 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 | | | | | |
| | | | | | | |
| Max. output power | WIFI: 13.38dBm | | | | | |
| | N. T. O. T. | | | | | |
| Antenna gain (Max) | WI Bi Zi Bi | | | | | |
| Evaluation applied | ⊠ Mes Eval anon | | | | | |
| | SAR Evaluation | | | | | |

Limits for Maximum Permissible Exposure (MPE)

| Frequency | Electric Field | Magnetic Field | Power | Average | | | | | | |
|---|----------------|--|--------|---------|--|--|--|--|--|--|
| Range(MHz) | Strength(V/m) | trength(V/m) Strength(A/m) Density(mW/cm²) | | 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/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 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

| Operating Mode | Channel Frequency (MHz) | Max. 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) |
|-------------------|-------------------------------|------------------------------------|-------------------------------|-----------------------------------|--------------------------|--------------------------------|-------------------------------|
| 802.11b | 2437.0 | 12.20 | 12.20±1 | 13.20 | 2 | 0.0066 | 1 |
| 802.11g | 2437.0 | 13.38 | 13.38±1 | 14.38 | 2 | 0.0086 | 1 |
| 802.11n (HT20) | 2462.0 | 12.36 | 12.36±1 | 13.36 | 2 | 0.0068 | 1 |

Note

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