

## MPE Calculation

|                       |                                                            |
|-----------------------|------------------------------------------------------------|
| Applicant:            | Rollease Acmeda Inc                                        |
| Address:              | 7th Floor / 750 East Main Street, Stamford, CT 06902, USA  |
| Product:              | Li-ion 0.5Nm ARC Motor                                     |
| FCC ID:               | 2AGGZ003B9ACA51                                            |
| Model No.:            | MT01-1320-069001-S, MT01-1320-069002-S, MT01-1320-069003-S |
| Reference RF report # | 709502304149-00B                                           |

Limits for Maximum Permissible Exposure (MPE) (\$1.1310, \$2.1091)

| (B) Limits for General Population/Uncontrolled Exposure |                               |                               |                                     |                          |
|---------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| Frequency Range (MHz)                                   | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Averaging Time (minutes) |
| 0.3–1.34                                                | 614                           | 1.63                          | *(100)                              | 30                       |
| 1.34–30                                                 | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | 30                       |
| 30–300                                                  | 27.5                          | 0.073                         | 0.2                                 | 30                       |
| 300–1,500                                               | /                             | /                             | f/1500                              | 30                       |
| 1,500–100,000                                           | /                             | /                             | 1.0                                 | 30                       |

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

Calculation method for 433.92MHz

$$\text{EIRP} = p_t \times g_t = (E \times d)^2 / 30$$

where

|       |                                                                 |
|-------|-----------------------------------------------------------------|
| $p_t$ | is the transmitter output power in watts                        |
| $g_t$ | is the numeric gain of the transmitting antenna (dimensionless) |
| $E$   | is the electric field strength in V/m                           |
| $d$   | is the measurement distance in meters (m)                       |

For 433.92MHz.

|                                                |                                           |
|------------------------------------------------|-------------------------------------------|
| Field Strength (EMeas):                        | 80.18(dBuV/m)=0.0102V/m<br>(f=433.92 MHz) |
| Measurement Distance(dMeas):                   | 3 (m)                                     |
| Equivalent Isotropically Radiated Power(EIRP): | 0.000031212W=0.031212mW                   |

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4 \pi R^2$  = power density (in appropriate units, e.g. mW/cm<sup>2</sup>);

PG =0.031212mW (in appropriate units, e.g., mW);

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

The max power density  $0.031212\text{mW}/4 \pi R^2 = 6.2125 \times 10^{-6} (\text{mW}/\text{cm}^2) < 0.28928 (\text{mW}/\text{cm}^2)$

Result: Compliant

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Reviewed by:

Prepared by:

Tested by:






Hui TONG

Jiaxi XU

Cheng Huali

EMC Section Manager

EMC Project Engineer

EMC Test Engineer

Date: 2023-07-11

Date: 2023-07-11

Date: 2023-07-11