

MPE Calculation

Applicant:	Rollease Acmeda Inc
Address:	7th Floor / 750 East Main Street, Stamford, CT 06902, USA
Product:	Li-ion 1.1Nm ARC Motor
FCC ID:	2AGGZ003B9ACA4A
Model No.:	MT01-1325-069001-S, MT01-1325-069002-S, MT01-1325-069003-S, MT01-1325-069005-S, MT01-1325-069015-S, MT01-1325-069018-S, MT01-1325-069019-S, MT01-1325-069020-S
Reference RF report #	709502303612-00B

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 ²)	Averaging Time (minutes)
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
300–1,500	/	/	f/1500	30
1,500–100,000	/	/	1.0	30

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

Calculation method for 433.92MHz

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

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):	72.38(dBuV/m)=0.0042V/m (f=433.92 MHz)
Measurement Distance(dMeas):	3 (m)
Equivalent Isotropically Radiated Power(EIRP):	0.000005292W=0.005292mW

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/cm²);

PG =0.005292mW (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 $0.031827\text{mW}/4 \pi R^2 = 1.0533 \times 10^{-6} (\text{mW}/\text{cm}^2) < 0.28928 (\text{mW}/\text{cm}^2)$

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: 2023-06-14

Date: 2023-06-14

Date: 2023-06-14