

RF EXPOSURE REPORT

FCC ID: 2BQSR-TU19MR

Report Reference No. : 25EFSS10007 11521

Date of issue..... : 2025-11-21

Applicant's name..... : NINGBO HAPPY ELECTRICAL CO.,LTD

Address..... : DONGFAN,HENGHE TOWN,CIXI CITY,ZHEJIANG,CHINA

Equipment..... : Remote Control Mechanical Timer Switch

Trade Mark..... : N/A

Model : TU19MR

Ratings..... : (TX) Input: 120Vac, 60Hz, 1A

Testing Laboratory : DongGuan ShuoXin Electronic Technology Co., Ltd.

Address..... : Zone A, 1F, No. 6, XinGang Road YuanGang Street,
XinAn District, ChangAn Town, DongGuan City,
GuangDong, China

According..... : 447498 D04 Interim General RF Exposure Guidance v01

Test Engineer:



Blue Qiu

Responsible Engineer :



Leo Chen

Authorized Signatory:



Smile Wang

MPE CALCULATION METHOD:

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).
The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

$$eirp = pt \times gt = (EXd)^2/30$$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, --- $10^{((dBuV/m)/20)}/10^6$

d = measurement distance in meters (m)---3m

$$\text{So } pt = (EXd)^2/30 \times gt$$

$$\text{Ant gain} = 2dBi[-2.15+2dBd(0.9661)]$$

$$\text{Field strength} = 75.15 \text{ dBuV/m @3m@315.4806MHz}$$

$$\text{So } Pt = \{ [10^{(75.15/20)}/10^6 \times 3]^2/30 \} \times 1000 \text{ mW} = 0.0098 \text{ mW} < 37.3 \text{ mW}$$

$$\text{So } ERP = 0.0098 \times 0.9661 = 0.0095 < 37.3 \text{ mW}$$

Comply with KDB 447498 D01 V04 B.4

END