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47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

Z-Wave Roller Shutter Controller

Model: TD11000Z2

Trade Name: GOOD WAY

Issued to

GOOD WAY TECHNOLOGY CO., LTD.
3F, No. 135, Ln. 235, Baociao Rd., Sindian Dist., New Taipei City 231, Taiwan

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
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SGS Compliance Certification Service Inc.
程智科技股份有限公司

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan / 新北市五股區五工六路 11 號
t:(886-2) 2299-9720   f:(886-2) 2298-1882   www.sgs.tw   www.ccsrf.com

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Report No.: T180525D04-MC

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 8, 2018	Initial Issue	ALL	May Lin

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1. EUT SPECIFICATION

EUT	Z-Wave Roller Shutter Controller
Model	TD11000Z2
Model Discrepancy	N/A
Frequency band (Operating)	☒ 916MHz ☐ Others
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna Specification	For Z-Wave Antenna Gain : -3.0 dBi (Numeric gain 0.50)
Maximum Average output power	Z-Wave 3.00 dBm (1.995 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

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2. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \dfrac{\sqrt{30 \times P \times G}}{d}$ & $S = \dfrac{E^2}{377}$

Where E = Field strength in Volts / meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

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

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \textit{\textbf{Equation 1}}$$

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm²

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3. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where   P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm^2

Z-Wave:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
916	1.995	0.5	20	0.0002	1