



CTK Co., Ltd.  
The Power Leader of Global Regulatory Compliance

## CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea

Tel: +82-31-339-9970 Fax: +82-31-624-9501

www.e-ctk.com

---

# RF EXPOSURE EVALUATION

**Applicant** : Suntech International Ltd.

**Applicant Address** : B-1506, Great Valley, 32, 9-Gil, Digital-Ro,  
Geumcheon-Gu, Seoul, KOREA

**Kind of Product** : SigFox IOT Device

**FCC ID** : WA2-ST730

**Certification  
Number ISED** : 21484-ST730

**Equipment  
model name** : ST730

**Antenna type** : PCB Antenna

**Antenna Gain** : -0.01 dBi @900MHz, 2.84 dBi @2.4GHz



## **\*\* MPE Calculations \*\***

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

$EIRP = P + G$	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)
----------------	--

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$$G = \text{Log}^{-1} (\text{dB antenna gain} / 10)$$

### **Power density at the specific separation:**

$S = PG / (4R^2\pi)$	Where, S = Maximum power density (mW/cm <sup>2</sup> ) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
----------------------	---

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm<sup>2</sup> .

The power density at 50cm does not exceed the 1 mW/cm<sup>2</sup> limit.

### **Estimated safe separation:**

$R = \sqrt{(PG / 4\pi)}$	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20cm = limit for MPE)
--------------------------	--



**CTK Co., Ltd.**  
The Power Leader of Global Regulatory Compliance

# CTK Co., Ltd.

(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea  
Tel: +82-31-339-9970 Fax: +82-31-624-9501  
www.e-ctk.com

## 900 MHz

Mode	P (dBm)	P (mW)	G (dBi)	S (mW/cm <sup>2</sup> )	R (cm)
FHSS	22.232	167.19	-0.01	<b>0.0332</b>	<b>20</b>

## 2.4 GHz

Mode	P (dBm)	P (mW)	G (dBi)	S (mW/cm <sup>2</sup> )	R (cm)
WLAN	9.70	9.33	2.84	<b>0.0036</b>	<b>20</b>

## Multiple transmitters (900 MHz + 2.4 GHz)

Mode	P (dBm)	P (mW)	G (dBi)	EIRP (mW)	S (mW/cm <sup>2</sup> )	R (cm)
FHSS	22.232	167.19	-0.01	166.80	/	/
WLAN	9.70	9.33	2.84	17.95		
Combined	/	/	/	184.75		