



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

CTK Co., Ltd.

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RF EXPOSURE EVALUATION

Applicant : TO21 COMMS Co.,Ltd.

Applicant Address : 2-504, Ace high-end tower, 61, Digital-ro-26-gil,
Guro-gu, Seoul, 152-724, Korea

Kind of Product : Pocket Theater

**Equipment
model name** : RTSB7000L

Antenna type : PCB Antenna

Antenna Gain : -2 dBi @2.4GHz, 0 dBi @5GHz

* * 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)
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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/cm²) 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)
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The Maximum permissible exposure (MPE) for the general population is 1 mW/cm².

The power density at 50cm does not exceed the 1 mW/cm² 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)
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2.4 GHz

Mode	P (dBm)	P (mW)	G (dBi)	S (mW/cm ²)	R (cm)
802.11n HT20	9.03	8.00	-2	0.0010	0.063

5 GHz

Mode	P (dBm)	P (mW)	G (dBi)	S (mW/cm ²)	R (cm)
802.11n_HT20	12.67	18.49	0	0.0037	1.21

Multiple transmitters (2.4 GHz + 5 GHz)

Mode	P (dBm)	P (mW)	G (dBi)	EIRP (mW)	S (mW/cm ²)	R (cm)
2.4 GHz	9.03	8.00	-2	5.04		
5 GHz	12.67	18.49	0	18.49		
Combined				23.53	0.0047	1.37