1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant:	TK Products Inc.
Address of applicant:	11013 NE 39th St,Suite A , Vancouver , WA 98682 , USA
Manufacturer:	Xiamen Rayten Industries Co.,ltd
Address of manufacturer:	867-1# Xike Street, Tongan Area,Xiamen,Fujian,CHINA

General Description of EUT:

Product Name:	CASCADE/Note
Trade Name	/
Model No.:	TK-1028-CSC
Adding Model(s):	TK-5000-TXD, TK-1040-CP, TK-1041-SK, TK-1042-LM, TK-1046-M
Rated Voltage:	Charging Port:DC12.6V Battery:DC11.1V
Battery Capacity:	2500mAh
Adapter Model:	MODEL NO.:HY13012601000UL INPUT: AC100-240V, 50-60Hz, 0.32A OUTPUT:DC12.6V, 1.0A
Software Version:	V2.01
Hardware Version:	Rev:1.0
FCC ID:	2AUF2TK1028
Equipment Type:	Fixed

Technical Characteristics of EUT:

Bluetooth Version:	V4.2 (BR/EDR mode)
Frequency Range:	2402-2480MHz
RF Output Power:	9.81dBm (Conducted)
Data Rate:	1Mbps, 2Mbps, 3Mbps
Modulation:	GFSK, π/4 DQPSK, 8DPSK
Quantity of Channels:	79
Channel Separation:	1MHz
Type of Antenna:	PCB Antenna
Antenna Gain:	0dBi

1.2 Standard Applicable

According to §1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density

1.3 MPE Calculation Method

$S = (30*P*G) / (377*R^2)$

S = power density (in appropriate units, e.g., mw/cm^2)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

Maximum Tune-Up output power: 10(dBm)

Maximum peak output power at antenna input terminal: 10.00(mW)

Prediction distance: >20(cm)

Prediction frequency: 2480 (MHz)

Antenna gain: 0 (dBi)

Directional gain (numeric gain): 1.0

The worst case is power density at prediction frequency at 20cm: 0.0020(mw/cm^2)

MPE limit for general population exposure at prediction frequency: 1 (mw/cm^2)

Result: Pass