RF Exposure Declaration

FCC ID: LCB-090531

Model No: SOKKIA MODEL: GRX1/S, TOPCON MODEL: HiPer II /S

We, Topcon Positioning System, hereby declare that RF exposure evaluated by MPE (Maximum Permissible Exposure) calculation is complied with RSS-102. The calculation formula of the MPE distance is below.

Calculations

Given

$$E = \sqrt{(30 \times P \times G)} / d$$

And

$$S = E^2 / 3770$$

Where

E = Field strength in Volts / Meter
P = Power in Watts
G = Numeric antenna Gain
d = Distance in meters
S = Power Density in mill Watts / square meter

Combining equations, rearranging the terms to express the distance as a function of the remaining variable changing to unit oh Power to mW and Distance to cm, and substituting the logarithmic of power and gain yields:

$$d = 0.282 \times 10^{((P + G) / 20)} / \sqrt{S}$$

Where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW / cm^2

Rearranging terms to calculate the power density at a specific distance yields

$$S = 0.0795 \times 10^{((P + G) / 10)} / (d^2)$$

The power density in units of mW/cm^2 is converted to units of W/m^2 by multiplying by a factor of 10.

Results

Frequency Range	MPE Distanse (cm)	Output Power (dBm)	Antenna Gain (dBi)	FCC Power Density (mW/cm^2)	IC Power Density (W/m^2)
461 – 465 MHz	20.0	29.8	2.4	0.033	0.33

FCC Limit: 0.308 mW/cm^2
IC Limit: 3.08 W/m^2

Date: May 26, 2010

Name: Katsuya Mizuide

Signature: