RF exposure

According to **FCC part 1.1310** : the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in § 1.1307(b)

According to **RSS-Gen 3.2** : the requirements in Radio Standards Specification RSS-102, Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), shall be met.

Friis transmission formula: $Pd = (Pout \times G)/(4 \times pi \times R^2)$

Where,

Pd = power density

Pout = output power to antenna in ㎽

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd the limit of MPE, f/1500 ㎽/㎠. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Results

Operation mode / Data Rate	Frequency (㎒)	Peak output power (dBm)	Antenna gain (dBi)	Power density at 20 ㎝(㎽/㎠)	Power density at 20 ㎝(W/㎡)	Limit (㎽/㎠)	Limit (W/㎡)
Bluetooth / 1 Mbps	2 441	6.18	-0.66	0.000 71	0.007 10	1	10
Bluetooth / 2 Mbps	2 441	4.65	-0.66	0.000 50	0.005 00	1	10
Bluetooth / 3 Mbps	2 441	4.79	-0.66	0.000 51	0.005 10	1	10

Result: The power density does NOT exceed the limit