RF exposure

According to 447498 D01 General RF Exposure Guidance v06
The 1-g and 10-g SAR test exclusion thresholds for 100 ㎒ to 6 ㎓ at test separation distances ≤ 50 mm are determined by:
[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[√*f*(㎓)] ≤ *3.0 for 1-g SAR* and ≤ *7.5 for 10-g extremity SAR*,
Where;
f(㎓) is the RF channel transmit frequency in ㎓
Power and distance are rounded to the nearest ㎽ and *mm* before calculation
The result is rounded to one decimal place for comparison

Results – Bluetooth EDR (3Mbps)

Frequency (㎓)	Distance (mm)	Max Average tune-up power (dBm)		Calculation value	Exclusion Threshold
		(dBm)	(㎽)		
2.402	5	4.00	2.51	0.78	≤3.0
2.442	5	4.00	2.51	0.79	≤3.0
2.480	5	4.00	2.51	0.79	≤3.0

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)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (㎒)	Electric field strength(V/m)	Magnetic field strength (A/m)	Power density (㎽/㎠)	Average time
(A) Limits for Occupational / Control Exposures				
300 – 1 500	--	--	f/300	6
1 500 - 100000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300 – 1 500	--	--	f/1500	6
1 500 – 100 000	--	--	1	30

f= frequency in ㎒

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

Where,

Pd = power density in ㎽/㎠

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, 1 ㎽/㎠. 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 – Telecommand

Frequency (㎓)	Max tune-up power (dBm)	Antenna gain (dBi)	Power density at 20 ㎝(㎽/㎠)	Limit (㎽/㎠)
903	12.50	1.20	0.004 66	0.60
915	12.50	1.20	0.004 66	0.61
927	12.50	1.20	0.004 66	0.62