Maximum Permissible Exposure (MPE) Compliance

BDA-UHF-4/4W-70-A
FCC ID Q8KUHF4W70

At the Low, Middle, & High operating frequencies of 406MHz, 456MHz, & 505MHz (Downlink) and 411MHz, 461MHz, & 510MHz (Uplink) the MPE limit for the General Population/Uncontrolled Exposure is as follows: Downlink = 0.271mW/cm2, 0.304mW/cm2, and 0.337mW/cm2 (f/1500mW/cm2) and Uplink = 0.274mW/cm2, 0.307mW/cm2, and 0.340mW/cm2 (f/1500mW/cm2).

The analysis is provided below.

Power Density (S) = EIRP/(4πR²), Therefore, R≥√EIRP/S x 4π

From the above calculations, with:

Downlink Maximum Antenna Gain = 2 dBi	Uplink Maximum Antenna Gain = 8 dBi
Downlink Minimum Cable Loss = -2 dB	Uplink Minimum Cable Loss = -2 dB
Downlink Maximum output power = 31dBm	Uplink Maximum output power = 31dBm

S = 0.271 mW/cm2	S = 0.274 mW/cm2
= 0.304 mW/cm2	= 0.307 mW/cm2
= 0.337 mW/cm2	= 0.340 mW/cm2

EIRP = 31dBm or 1.25 W (worst case)	EIRP = 37dBm or 5.0 W (worst case)

Therefore,

R = 19.16cm (Downlink)	R = 38.11cm (Uplink)
= 18.09cm (Downlink)	= 36.00cm (Uplink)
= 17.18cm (Downlink)	= 34.21cm (Uplink)

These are the minimum safe distances for the general population for each antenna at low middle and high operating frequencies.