The maximum range of a 446 MHz PMR (Private Mobile Radio) system — like walkie-talkies — depends heavily on the environment, terrain, antenna quality, and device build. However, in Dubai (and the **UAE in general)**, you are limited to:

- 446.000-446.200 MHz
- 0.5 W ERP (Effective Radiated Power)
- Fixed antenna (non-removable)
 - \rightarrow These are regulatory limits set by **TDRA**, and you cannot legally increase power or use external antennas.

📶 Real-World Range Estimates for PMR446 (0.5 W)

Environment	Typical Range	Notes
Dense urban (Dubai city)	300 m – 1 km	Tall buildings cause signal blockage/reflection
Open suburban areas	1 – 3 km	Fewer obstacles, flat terrain
Open rural/desert areas	3 – 5 km (best case)	Flat, unobstructed line-of-sight; best-case conditions
Hilltop to hilltop / line of sight	5 – 8 km	Only if clear sight, elevated positions (e.g., rooftop to rooftop)
Inside large buildings	1–3 floors, 50–300 meters	Concrete and steel reduce signal severely



Can You Extend the Range?

Not legally, in the UAE:

- × No external antennas
- × No power amplifiers
- \mathscr{C} Choose **better PMR446 radios** with good antennas (still fixed) and high-quality transceivers.
- \mathscr{O} Operate **from elevated positions** and avoid dense obstacles.



Power Limit	Legal Max Range in Dubai	
0.5 W ERP	~1–3 km in typical areas, up to 5–8 km in perfect line-of-sight	

If you need longer-range communication you'll need:

• A TDRA license

PROF