

Wireless Installation Considerations

The BLEhome family of products enables access using a wireless Bluetooth Low Energy (BLE) connection from anywhere within the operating range of your wireless network. Keep in mind the number and thickness of walls and ceilings, as well as the location of other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Keep the number of walls and ceilings between the wireless BLEhome product and other network devices to a minimum. Each wall or ceiling can reduce your wireless device range by 3-90 feet (1-30 meters). Position your devices so that the number of walls or ceilings is minimized.
2. Strive for a direct Line of Site (LoS) between network devices. A wall that is 1.5 feet thick, at a 45-degree angle, will appear to be almost three feet thick. At a two-degree angle it appears to be over 42 feet thick! Position your devices so that the signal will travel straight through a wall or ceiling, instead of at an angle, for the best RF reception.
3. Be aware of the type of building materials separating your devices. A solid metal door or aluminum studs may have a negative effect on range. Try to position the BLE device and Gateway so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.
4. Keep your product away (at least three to six feet) from large metal objects, electrical devices, electrical cords, or appliances that generate RF noise.
5. If you are using 2.4 GHz cordless phones or wireless products such as ceiling fans, lights, and home security systems, your wireless connection may degrade dramatically. Make sure your 2.4 GHz phone base is as far away from your wireless devices as possible. The base station transmits a signal even when the phone is not in use.
6. Avoid placing the wireless device directly onto a concrete floor or ground, it is good to have 1 meter separation for this case.