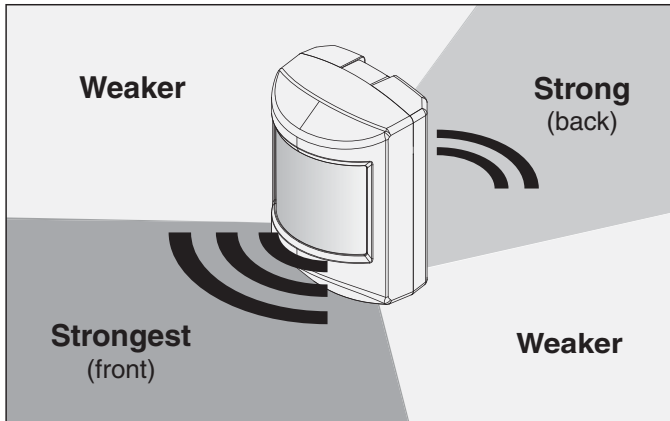


Wireless Signal Strength

A Directional signal strength

Wireless performance can vary depending on the orientation of the device. Depending on the device, max performance can be directional or planar. In the example below, the wireless signal is strongest from the front and back of the unit.

Refer to your device's instruction manual for details on directional signal strength.



Directional issues may be noticed with door sensors, for example, when the sensor performs differently depending on whether the door is open or closed. If communication is inconsistent, please add an additional repeater.

B Signal Range

Wireless signals can reflect and bounce, but it is best to assume that devices will communicate using a direct path.

However, signal range is impacted by sensor orientation, obstacles between sensors, and the environment's RF noise.

C Repeater

When wireless devices can not be positioned so that the direct signal path is within the areas of strong signal strength, a repeater may be required to relay the signal.

The repeater should be positioned so that direct signal path with each device is within the areas of strong signal.



Nexia devices, including the appliance module, dimmer module, and wired thermostat, function as repeaters that can extend the range of wireless signals.

Wireless Signal Interference

A Interference

For a successful wireless installation, it is critical to understand that the wireless network is influenced by the same environmental factors that affect other wireless systems. Interference from radio emitters, various electronic devices, and solid objects may degrade or stop communication.

Wireless competition

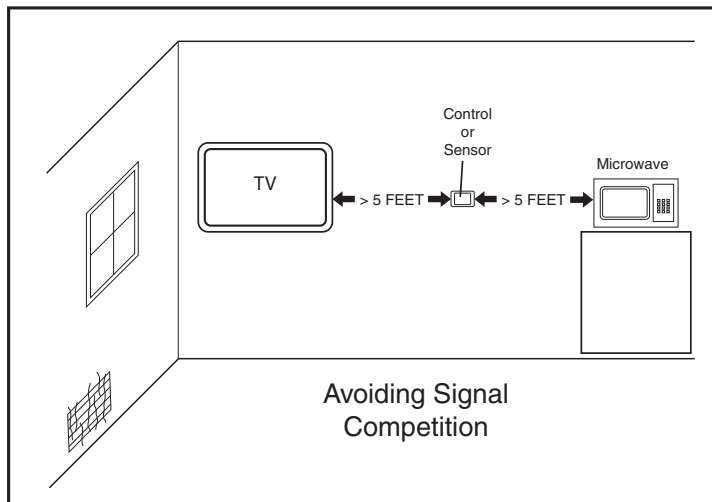
Too many wireless devices can saturate the environment.

- Do not place Nexia Wireless devices, wireless routers, or repeaters within 5 ft. of each other.
- Do not place radios of any type within 5 ft. of each other. This includes not only these wireless controls and sensors, but also wireless phones, security systems, cameras, cell phones, stereo receivers, TV's, baby monitors, cable boxes, HAM equipment, wireless remotes, game systems, microwave ovens, etc.

Multipath Distortion

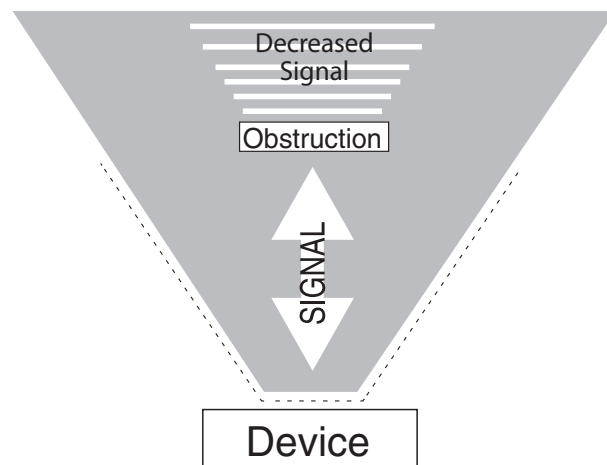
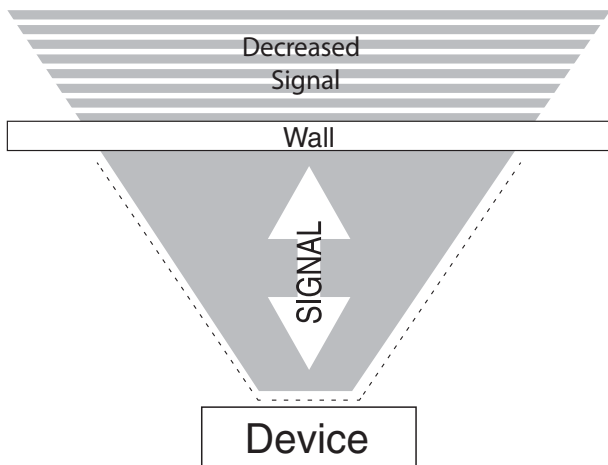
The RF signal will arrive at the receiver antenna by many different paths all simultaneously.

- The arrival of the same signal by way of multiple paths can lead to interference and a distorted signal. This is often referred to as "multipath distortion" and leads to "dead spots" around the home or room where the range will be less than expected.
- Relocating a device can often address multipath distortion issues.



B Obstructions

Obstructions in the path of the signal degrade or reflect the signal.



C

Materials That May Affect Signals

Metal objects, walls, and floors can affect wireless signals.

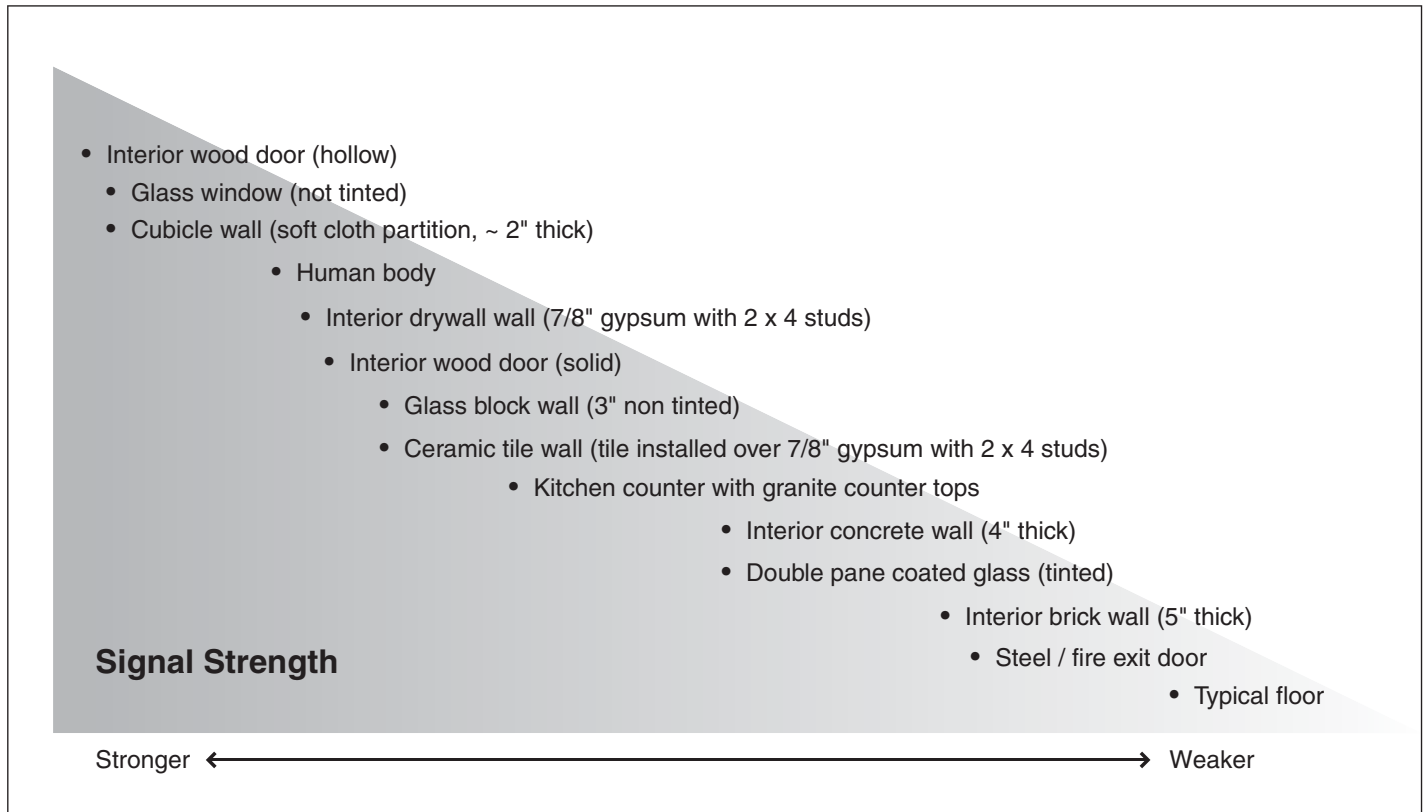
While not all-inclusive, a list of common construction and fabrication materials and their potential for adversely affecting wireless signals is provided in the following table.

Impact of Materials on Signal Range	
No Impact to Signal	Wood
	Plaster
	Synthetic materials: plastic, Lucite, fabric, composites, glass (window or other clear glass)
Causes Moderate Signal Loss	Water
	Brick or cinder block
	Marble or other soft stone
Causes Significant Signal Loss	Ceramic Tile
	Concrete
	Granite or other hard stone
	Bulletproof glass
	Mirrors and smoked or tinted glass
	Ferrous and nonferrous metal

D

Signal Strength Through Objects

Signal strength is greater through less dense and nonmetallic objects.



E

Mounting Considerations

Location

A wireless device may have significantly different signal strengths if its position changes relative to other wireless devices. If the sensor is losing communication with the portal, you may be able to improve the signal strength by moving it a short distance in any direction.

- Do not mount the sensor closer than 2 inches to any pipes, duct work, or other metal obstructions.
- Avoid metal obstructions, concrete, or brick walls between communicating devices.

Height

- For max coverage, devices are best placed at least 5 ft. above the floor, but not closer than 2 ft. from the ceiling. Place wireless sensors as high as possible in the location that offers the greatest amount of unobstructed coverage within a room to guarantee maximum connectivity.
- Unless an obstacle is in the way, all devices should be at the same height for best performance.
- Placing a wireless device too close to the ground or ceiling increases the likelihood of interference from furnishing, support structures, rafters, or other objects.

