Technical Article

General Troubleshooting for Wireless Lighting Controls

Product: WSS10, WSS0S, WSC04 and WSC15 **Article ID:** 070609-BC/AM-02

Date: July 06, 2009

Summary: This article provides basic troubleshooting for wireless lighting control systems.

Information: Wireless communication distance is determined by four factors: Output power, receive sensitivity, antenna systems and the environment.

For the wireless controls:

- Output power is regulated by the FCC
- Receiver sensitivity is fixed
- Fixed Antennas are integrated into the product
- Factors affecting the Environment include: device placement, obstructions (metal, concrete, other construction materials) and interference
- Noise interference can be either line noise (from motors) or Radio Frequency (RF)

In an indoor environment, the wireless controls have a typical range of 30-150 feet. As the obstructions and/or interference is lighter or heavier the range will be more or less.

If the products are not performing adequately in the application, review the following.

Summary of performance limiting factors:

1. Obstructions
2. Interference
3. Product variations
4. Dip Switch Settings
5. Product LED indicators

Possible resolutions:

Obstructions:

- Does the system work more reliably at close range (without obstructions)?
- Identify nearby metal, concrete and other objects possibly affecting signal strength.
- Can either device be relocated (even slightly) away from obstructions to improve the system performance?

Interference:

- Does the system work better at certain times of the day?
- Look for pieces of equipment that may affect wireless performance when they are ON.
- Try using a signal strength meter to measure 315MHz (RF) noise floor and quantify packet receiving reliability.

Leviton Mfg. Co., Inc. Lighting Management Systems
20497 SW Teton Avenue, Tualatin, OR 97062 1-800-736-6682 Tech Line: 1-800-959-6004 Fax: 503-404-5594 www.leviton.com/lms

Product variations:

- Replace one piece of hardware at a time to isolate any variation in product performance.

Dip Switch Settings:

- Verify proper dip switch settings on the Receiver Switch.
    - Dip Switch 1: In the left position (off) is AutoON; in the right position (on) is ManualON.
    - Dip Switch 2: In the left position (off) for Walk Thru Off.
    - Dip Switch 3 and 4: These set the time delay; both in the left position (off) will be a 2 minute (test) time delay.

Product LED indicators:

- Occupancy Sensor LED: Make sure LED flashes red once every 60 seconds to verify packet transmission.
- Receiver Switch LED: Make sure LED locator flashes red verifying reception of a packet from Sensor or Remote.
- Verify correct programming of device(s) using the Receiver Switch.
    - Enter programming and go to learn mode.
    - Verify flashing green LED locator which signifies device learned.
    - Press the learn button on the transmitter device to unlearn the device, green LED should flash one less or there should be a red LED (no devices learned).
    - Press the transmitter device to relearn the device address again.
    - Green LED locator should flash again for the number of devices programmed.

Contact: If you have any questions or concerns or require further troubleshooting, please call LMS technical support at (800) 959-6004.

Leviton Mfg. Co., Inc. Lighting Management Systems
20497 SW Teton Avenue, Tualatin, OR 97062 1-800-736-6682 Tech Line: 1-800-959-6004 Fax: 503-404-5594 www.leviton.com/lms