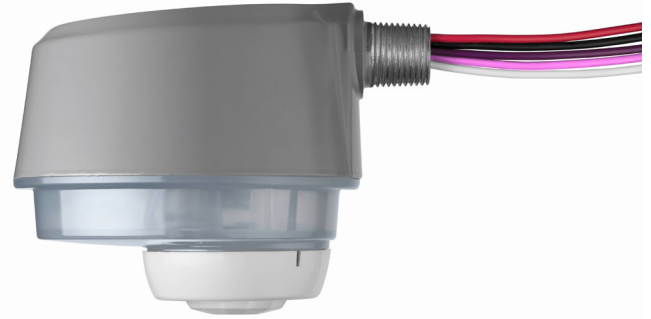


## Limelight by Lutron Wireless Field-Installable Radio Sensor Module (RSM)

The Limelight by Lutron RSM (LL-EXTMOUNT) consists of a radio frequency (RF) control device with integral motion and daylight sensors. It is installed into an appropriately sized fixture wall opening, leaving the RSM external while controlling 0–10 V electronic LED drivers in the fixture. A Limelight gateway is required to enable wireless fixture controls and sensor functions. A Limelight gateway connects fixture controls and sensors into a high performance wireless system.



LL-EXTMOUNT

### Features

- Fixtures can be grouped together to turn an entire floor or open parking lot on at once to maximum available brightness.
- Sensors are employed to reduce power consumption. The savings are measured and emailed monthly as energy usage reports.
- The LL-EXTMOUNT contains a mesh radio and motion and daylight sensor electronics in one product. It is IP65 rated and thus serves as a convenient field-installable option for retrofit applications.
- Wireless repeaters are not required and typical jobs are completed with a single gateway. A cellular gateway option eliminates the need to get an Ethernet connection.
- Single sign-on for Lutron interior and exterior controls when connected to Enterprise Vue.

### Models Available

Model Number	Installation to Fixture	Description
LL-EXTMOUNT-L	Field – retrofit	Limelight by Lutron UL Listed Field-installable Radio Sensor Module (RSM) - for 8 to 15 ft (2.4 to 4.6 m) mounting height
LL-EXTMOUNT-M	Field – retrofit	Limelight by Lutron UL Listed Field-installable Radio Sensor Module (RSM) - for 15 to 30 ft (4.6 to 9.1 m) mounting height
LL-EXTMOUNT-H	Field – retrofit	Limelight by Lutron UL Listed Field-installable Radio Sensor Module (RSM) - for 30 to 40 ft (9.1 to 12.2 m) mounting height

<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

## System Components

### Limelight by Lutron Enabled Luminaire

The Limelight by Lutron field-installable fixture-external radio sensor module (RSM) can be retrofitted onto a variety of luminaires. Installation can be done either as a field retrofit or in an OEM factory. Fixtures with a Limelight-enabled RSM can turn on/off and provide full dimming drive capability of 0–10V LED drivers. Installation of the fixture-external LL-EXTMOUNT control module is straight-forward. When AC (120 – 277 V~) power is applied, the fixture powers up with a factory default setting of 100% light output until the Limelight by Lutron commissioning process begins.

Contact Lutron for assistance in identifying current OEM fixture offerings for your application at 1.844.LUTRON1.

### Limelight by Lutron Gateway

- The gateway serves as the communication hub between the RSMs and the Web User Interface.
- Up to 800 RSMs per gateway.
- Connects to the internet via an Ethernet cable or cellular connection.
- Secured in tamper-proof capable housing.
- The gateway communicates to the cloud server through an internet connection.
- Fixtures can be grouped into multiple zones, operating hours established, with information on the system’s status and performance immediately available.
- Every fixture in the system is individually addressable.

### Limelight by Lutron Radio Sensor Module (RSM)

Every RSM has a fully integrated wireless radio. The radios use high-density mesh wireless technology to ensure extremely reliable, long-range performance in outdoor environments. These radios provide:

- A robust, redundant communications scheme.
- Communication in parking facilities among multiple floors above or below.

Each radio communicates to the “neighbor” radios around it, creating a high-density mesh.

This redundant communications system enables Limelight by Lutron to be self-healing. If a radio ever stops functioning or is vandalized, the other radios will immediately search out and establish communication with other neighbors in the mesh. This high-density mesh system enables the Limelight by Lutron control system to operate smoothly even in the most difficult conditions.

- **Motion Sensor:** A passive infrared motion sensor is included in the LL-EXTMOUNT.
  - Creates optimal motion coverage.
  - Captures all sensing activity (time of day and fixture number) in a centralized database for activity reporting and analysis.
- **Daylight Sensor:** Daylight harvesting capabilities are supported.
  - Provides daylight measurements every 15 minutes (programmable).
  - Measures foot candles per fixture to analyze for maximum daylight harvesting capability.

Job Name:	Model Numbers:
Job Number:	

### Specifications *(continued)*

#### Limelight by Lutron UL Listed Field-installable Radio Sensor Module (RSM)

##### Model

- LL-EXTMOUNT

##### Standards

- cULus Listed
  - UL244A
  - UL773A
  - CSA 22.2 No. 205
- IP65 and UL Wet Location rated when correctly installed on a fixture with corresponding water ingress ratings
- FCC 15.247/IC RSS-247

##### Power Requirements

- Input power: 120–277 V~ (± 10%) 50/60 Hz (phase-to-phase possible)
- Device consumption: 1.0 W (load enabled)  
0.5 W (load disabled)
- Maximum Load: 5 A at 120 V~ (600 W)  
3.65 A at 277 V~ (1000 W)

##### Operating Temperature

- -40 °F–158 °F (-40 °C–70 °C)

##### External Housing

- Aluminum Alloy
- 0.5 in (12.7 mm) NPT thread male
- Silver color only

##### Installation

- The RSM must be physically connected to a conductive surface that is earth grounded (i.e., conduit, junction box, luminaire, etc.)
- The RSM should always be mounted with the motion sensor lens pointing toward the ground surface
- The internal RF antenna polarization is optimized to work best when the motion sensor lens is pointing toward the ground surface
- If being used as a non-dim load controller, cap the violet wire and cap the pink wire. See wiring diagram for details

##### Water Ingress

- Tested to the UL Wet Location and IP65 dust and water ingress protection standards

##### Mounting

- Regardless of whether factory- or field-installed, it is the responsibility of the installer to attach the RSM to the fixture in a manner that maintains the IP65 integrity
- Lutron will only warranty water ingress issues if proper attachment methods are observed

##### Wet Location Mounting

- An excellent method of attachment to a fixture is a Myers Hub (not included)
- There are a variety of styles depending on the luminaire type, environment, and desired motion sensing coverage
- Ensure that the Myers Hub includes an O-ring gasket which has excellent environmental ratings
- When using a Myers Hub, the best solution is to use a thread sealant. If thread sealant is not available, apply high torque in all areas
- Observe all national and local codes

##### Warranty

- <http://Lutron.com/limelightwarranty>

*continued on next page...*

Job Name:   Job Number:	Model Numbers:
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## Specifications *(continued)*

### Limelight by Lutron UL Listed Field-installable Radio Sensor Module (RSM) *(continued)*

#### Features

- Power Measurement: Accurate to +/- 5% with loads above 10 W
- Non-Class 2 isolated 0–10 V<sub>DC</sub> dimming output, capable of sinking up to 1.0 mA of 0–10 V<sub>DC</sub> signal
- On board temperature sensor, accurate to +/-2 °C
- Works with ballasts and drivers whose inrush current does not exceed NEMA410 standards for electronic ballast/driver
- Integrated high-density mesh radio transceiver
  - IC and FCC approved Title 47 Part 15 Subpart B and Subpart C section 15.247 for Digital Transmission Systems Operating within the band 2400–2483.5 MHz
  - RF transmissions security: 128 AES plus application layer
- Can be configured to control non-dim loads

#### Built-in Motion and Daylight Sensor

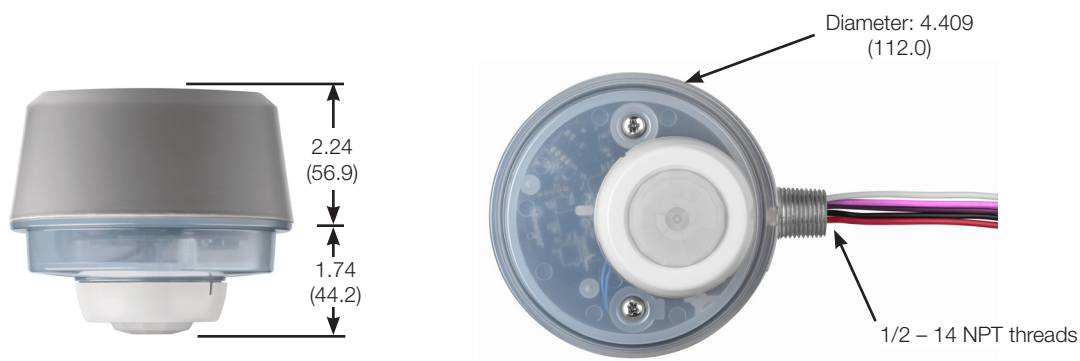
- Energy savings from motion sensing
- Wirelessly choose between multiple sensitivity profiles to optimize settings for various environments such as flat lot, parking deck, high wind
- Daylight sensor measures light up to 1500 fc
- Built-in LED to provide user feedback when motion is detected
- Wirelessly field re-programmable
- Recommended mounting heights between 8 – 40 ft (2.4 – 12.2 m)
  - Low: 8 – 15 ft (2.4 – 4.6 m) (e.g., parking garage)
  - Medium: 15 – 30 ft (4.6 – 9.1 m) (e.g., pole lights)
  - High: 30 – 40 ft (9.1 – 12.2 m) (e.g., specialty poles)
- Motion detection can be disabled (ships disabled, requires system activation to enable)
- Daylight sensor can be disabled independently of motion detection (ships disabled, requires system activation to enable)

<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

### Dimensions

Dimensions shown as in (mm)

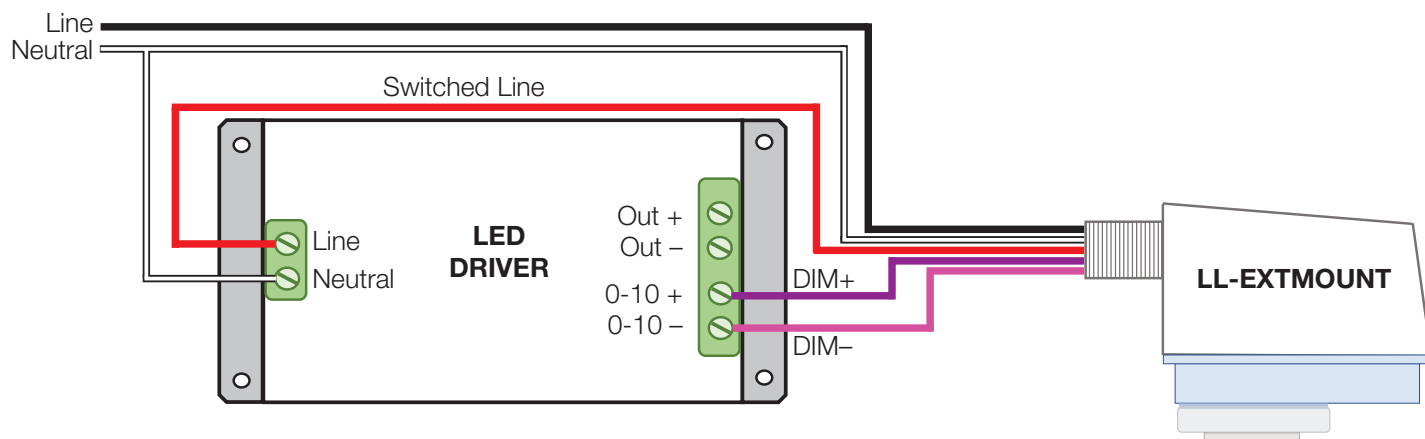
#### LL-EXTMOUNT



Job Name:	Model Numbers:
Job Number:	

# Wiring

## Wiring Diagram (LL-EXTMOUNT)



Note: 0-10 V LED drivers used with these products must support switching power to turn on/off.

Job Name:	Model Numbers:
Job Number:	

## Coverage

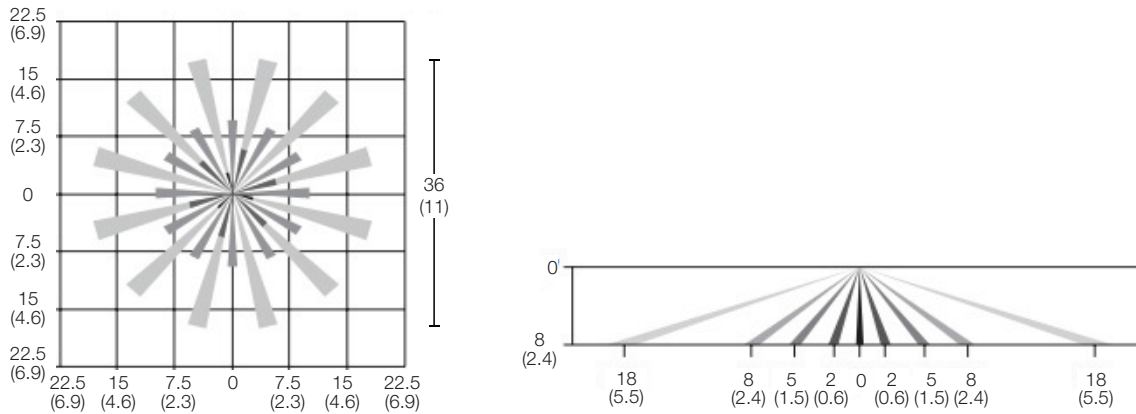
All measurements on the graph are shown in ft (m)

### Limelight by Lutron Passive Infra-Red (PIR) Sensor

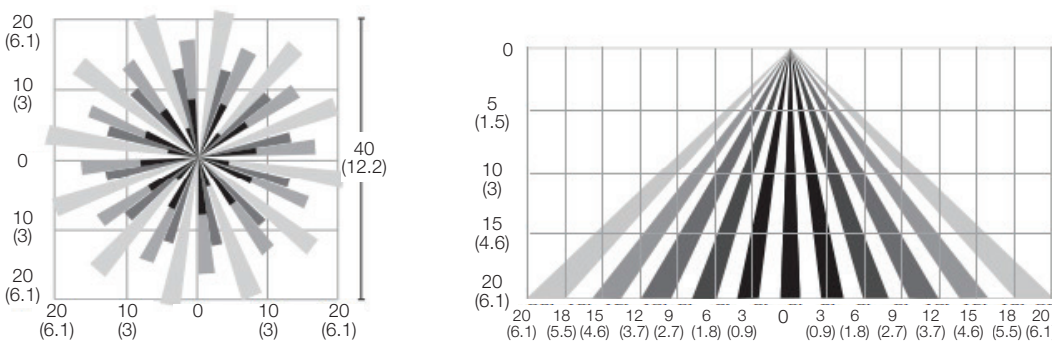
Limelight by Lutron PIR can be configured wirelessly to have different sensitivity levels depending on its environment.

- Sensor sensitivity can be adjusted (in the software) to reduce coverage.
- Significantly hot or cold temperatures can substantially reduce the sensitivity of motion sensors.
- Mounting heights greater than 15 ft (4.6 m) reduces the likelihood of a motion sensor detecting a pedestrian. Sensors for pole-mounted area fixtures are intended to detect vehicular motion.
- Insufficient spacing between fixtures can create gaps in motion sensor coverage where motion will not be detected.

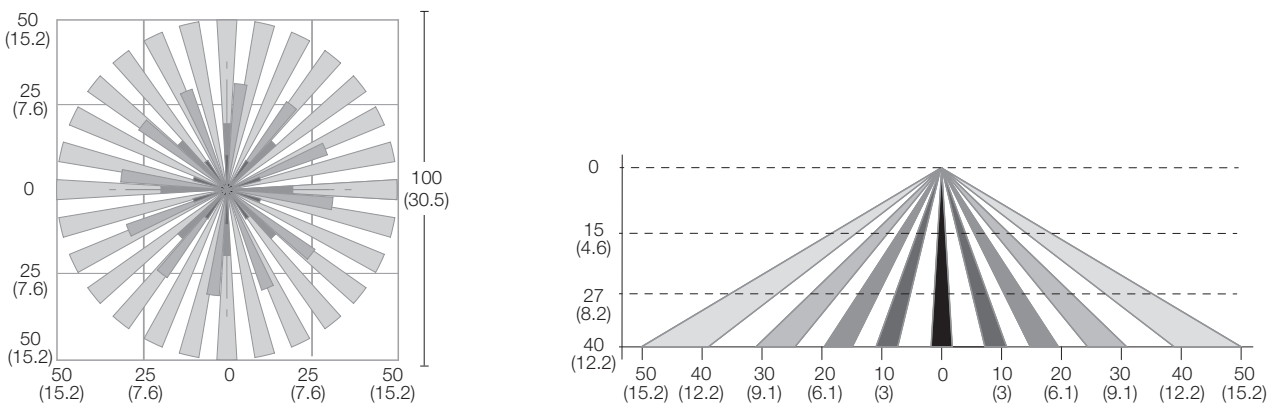
#### Height: 8 ft (2.4 m) and LL-EXTMOUNT-L:



#### Height: 20 ft (6.1 m) and LL-EXTMOUNT-M



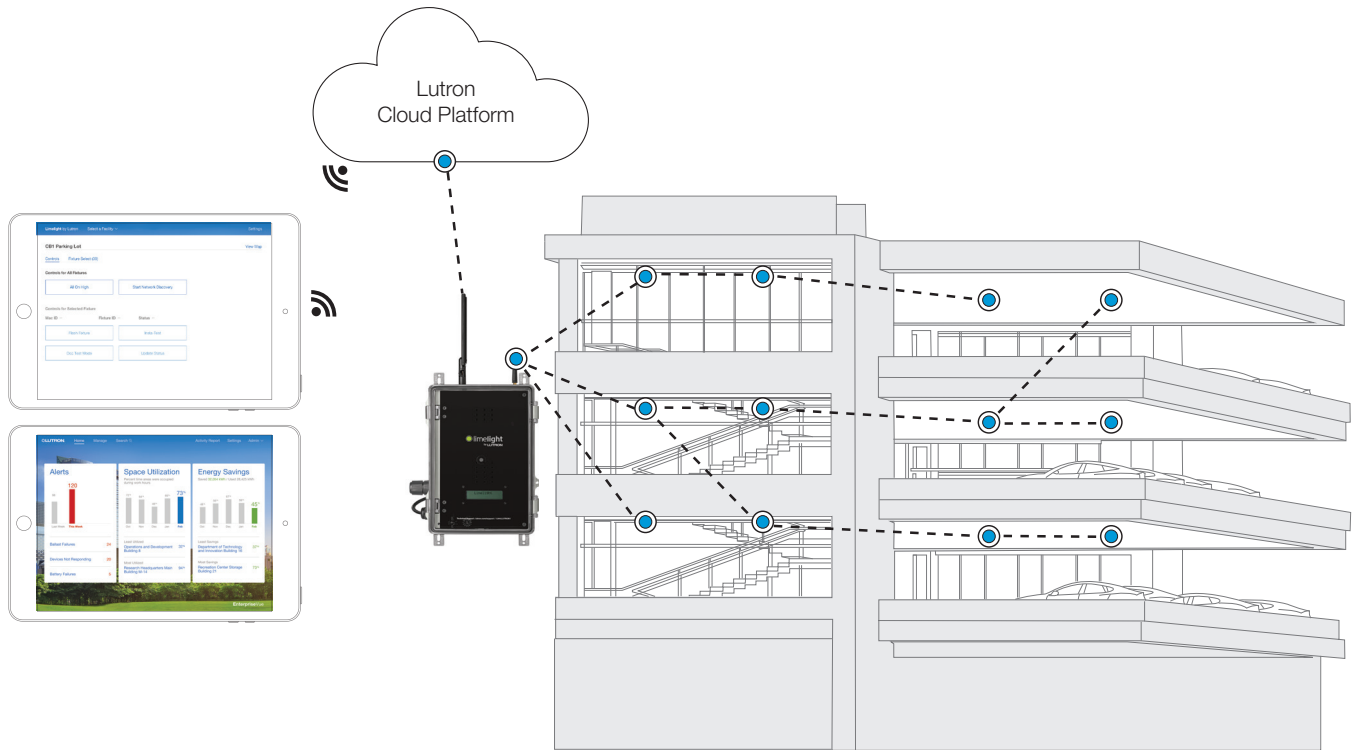
#### Height: 40 ft (12.2 m) and LL-EXTMOUNT-H



<p><b>Job Name:</b></p> <p><b>Job Number:</b></p>	<p><b>Model Numbers:</b></p>
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### Technical System Overview

Log in using Enterprise Vue (sold separately) or access directly via [www.limelightbylutron.com](http://www.limelightbylutron.com) website (included with system).



#### Web-Based Interface Capabilities

- Turn all fixtures on (via override) with a single button
- Run diagnostics on a fixture
- Check fixture status and identify errors
- Flash any fixture
- Total number of connected luminaires
- Group fixtures
- Change system settings (timeclocks, motion sensing groups, light levels, and more)
- View a live map showing the status of all fixtures
- Perform manual overrides

#### Gateway

- Wireless high-density mesh to luminaires
- Cellular or Ethernet to the cloud
- Typically wall-mounted inside a facility utility closet

#### Limelight by Lutron Enabled Luminaire

- Each luminaire is shipped with the Limelight by Lutron radio and sensor (optional) integrated into the luminaire
- A retrofit (external-mount) is also available
- Each Limelight by Lutron sensor has motion and daylight sensing
- Up to 800 luminaires controlled by a single gateway as long as no other range restrictions are violated \*

\* For parking garages, nodes should be no farther than 4 floors above or below the gateway (i.e., If the gateway is on floor 1, then nodes can be on floors 1-5. If the gateway is on floor 5, then nodes can be on floors 1-9.)

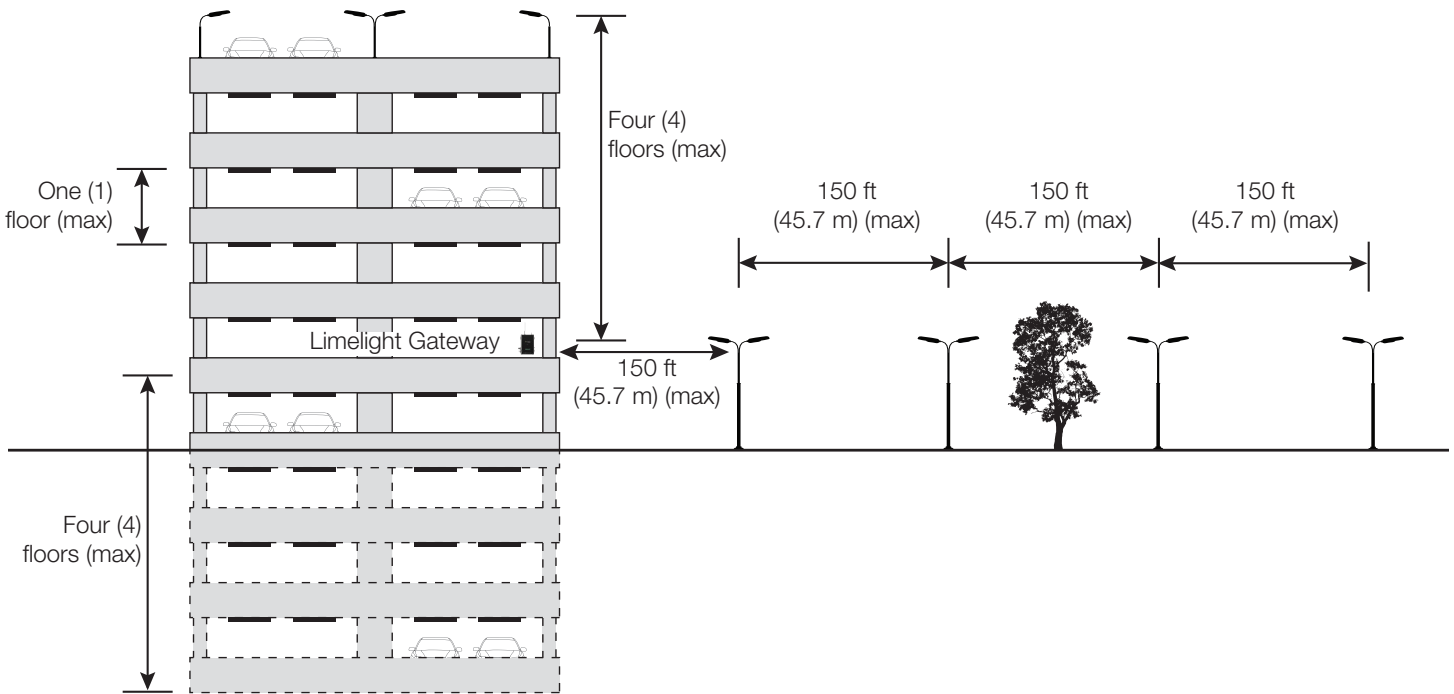
#### **LUTRON** SPECIFICATION SUBMITTAL

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Job Name:	Model Numbers:
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### Wireless Range Best Practices Diagram



### Wireless Range Best Practices

RF range recommendations	Parking Garage	Flat Lot
3 nodes within this distance of the gateway	50 ft (15.2 m)	150 ft* (45.7 m)
Max distance from the gateway to any one node	500 ft (152.4 m) horizontal / 4 floors vertical	3000 ft (914.4 m) horizontal / 4 floors vertical
Max distance from node to node	50 ft (15.2 m) horizontal / 1 floor vertical	150 ft (45.7 m) horizontal / 1 floor vertical
Gateway proximity to dense metal obstructions (including electrical panels)	Minimum 2 ft (0.6 m) away	Minimum 2 ft (0.6 m) away
Max number of luminaires controlled by a single gateway	Up to 800	Up to 800

\* If the gateway is not at or above ground level or there is more than one wall between the gateway and nodes, the 50 ft (15.2 m) spacing guideline should be used.

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<b>Job Number:</b>	