

Documentation for Competitive Sensors Analysis

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The sensors used in this analysis were available in popular retailers and home improvement stores as of July 2013.

The following tests were carried out by experts trained in NEMA WD-7; the Occupancy Motion Sensors Standard.

The tests performed was adapted from the fundamental procedure of the NEMA WD-7 standard, but expanded to measure “fine” motion detection. The NEMA standard defines test procedures for major and minor motion. Lutron defined a new set of parameters to quantify fine motion performance using the same procedure as the NEMA WD-7 standard.

Testing Parameters:

- 1) The device under test (DUT) is mounted in a wallbox 45' from the floor on center, plumb and square to test grid.
- 2) The installed and powered sensor is allowed to stabilize operation before testing is begun.
- 3) Test is conducted in the grid areas defined by NEMA WD-7 2000. 3' x 3' grids. Testing is completed in the center of the grid.

Fine motion testing is performed using a heated robotic “hand” at the following specifications:

- 1) Hand is heated to 95°F.
- 2) Hand is 4” x 6” and 0.75” thick.
- 3) Hand is rotated 90 degrees. The hand at rest is such that the 4x6” area is perpendicular to the sensor. The

motion of the hand is a 90 degree rotation such that the sensor “sees” a 0.75” x 6” area. Sensors that respond to this motion get a point each time that motion is detected. The rotation is repeated 4 times. Scores can range from 0-4, where 4 is the best possible score.

- 4) Score is a sum of the total score for each cell, over a 24 foot (12 feet to the left and 12 to the right of the sensor) by 21 foot grid (outwards from the sensor).
- 5) Scores were normalized to the best scoring manufacturer (Manufacturer X Score / Best Manufacturer Score).