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Testing of passive infrared detector Optex RX-40QZ according to CLC/TS 50131-2-2 (2 appendices)

SP Technical Research Institute of Sweden has performed functional tests of a passive infrared detector in accordance with the CENELEC standard CLC/TS 50131-2-2:2004.

Identification

Your reference: Sebastian Håkansson/2010-11-12
Delivery of test objects: 2010-11-12
Status of test objects: Without complaint
Manufacturer: Optex
Model: RX-40QZ
Grade: 2
Lens: Standard
Settings: Pulse count = 2
Delivered documentation: Installation Instructions No. 59-0757-5 0904-30

Specification

Detection area: ~12 m, see diagram in Appendix
Mounting height: 1.5 – 2.4 m.

Date of test

December 13 – 23, 2010.

Summary of test results

The detector fulfils the requirements.

Measurement conditions

The measurements are made in a temperature stabilized laboratory with the temperature $+23\text{ °C} \pm 2\text{ °C}$. The full length of the laboratory is 35 m. The infrared detector is placed on a photogoniometer on 2.4 m height. The goniometer is turned horizontally to select each test point.

Standard walk test target (SWT) temperature difference: $3\text{ °C} \pm 0.3\text{ °C}$

Instrument code: Photogoniometer, IR-thermometer

Measurement accuracy

Angle of detection: $\pm 0.1^\circ$
Distance: $\pm 0.2\text{ m}$
Temperature: $\pm 0.2\text{ °C}$

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The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95 %. The standard uncertainty of measurement has been determined in accordance with EA Publication EA-4/02.

Measurement method

The testing is performed in accordance with applicable parts of standard CLC/TS 50131-2-2:2004 and SP method no 4240.

Measurement result

The result of the testing is presented following the paragraphs of the standard.

4.4.1 Immunity to air flow

Increase of air temperature from ambient to 40 °C with gradient 5 °C/min. Stabilization at 40 °C during 4 minutes. Ramp down with heat off and stabilize at ambient for 2 min. The cycle is repeated 5 times.

No alarms were detected. The detector fulfils the requirement.

4.4.2 Immunity to visible and near infrared radiation

A light source is placed at 5 meters distance, scanning over the detector at a speed of 0.5 m/s. A double pane of glass is placed in front of the detector. A total of 10 scans are performed.

No alarms were detected. The detector fulfils the requirement.

6.4.1 Detection within and across the boundary

A Standard Walk Test target was used in each test point, moving at 1.0 m/s (across) and 0.3 m/s (within) a total of 3 m at $\pm 45^\circ$ angle to the detector radial line. The detector set an alarm at 100 % of the test points, see sketch in Appendix.

The detector fulfils the requirement (95 %).

6.4.2 Detection at high velocity and with intermittent movement

A Standard Walk Test target was used, moving at 2.0 m/s along the prescribed lines. Intermittent movement is not required for a Grade 2 detector. The detector set an alarm at all test points.

The detector fulfils the requirement.

6.4.3 Verify the close-in detection performance

A Standard Walk Test target was used, moving at 0.4 m/s along the prescribed lines. The detector set an alarm at all test points.

The detector fulfils the requirement.

6.4.4 Verify the effect of control adjustments on detection

The detector does not offer any control adjustments, the test is not applicable.

6.4.5 Verify the significant reduction of specified range

The test is not required for a Grade 2 detector.

Remark

The result in this test report is valid only for the item tested.

SP Technical Research Institute of Sweden Measurement Technology - Communication

Mikael Lindgren
Technical Manager/Officer

Appendices

Installation Instructions

Results from Walk Test

Appendix 1

Appendix 1

Installation Instructions

1. INSTALLATION HINTS

① Avoid direct sunlight.

② Avoid looking directly at air conditioning or heating vents.

③ Avoid vapor or high humidity that can cause condensation.

④ Avoid Curtain, Screen, etc. blocking detection area.

⑤ Do not install outdoors.

2. DESCRIPTION AND OPERATION

3. DETECTION AREA

WIDE ANGLE

■ TOP VIEW

■ SIDE VIEW

LONG RANGE (OPTIONAL LENS : FL-60N)

— IMPORTANT —

When selecting the long range detection pattern , always set pulse count selector to "2" .

■ TOP VIEW

■ SIDE VIEW

■ **PATTERN AREA SELECTION**

Use the optional lens FL-60N for long range area.

FL-60N
Engraved
"LONG RANGE"

■ **HOW TO REMOVE & FIT LENS**

To remove , press both lens hooks to outside and push to the front.
To fit , press the lens into cover from the front.

COVER INSIDE

Appendix 2

**Result from Walk Test Detection Performance
within and across the boundary
Detector 1**

