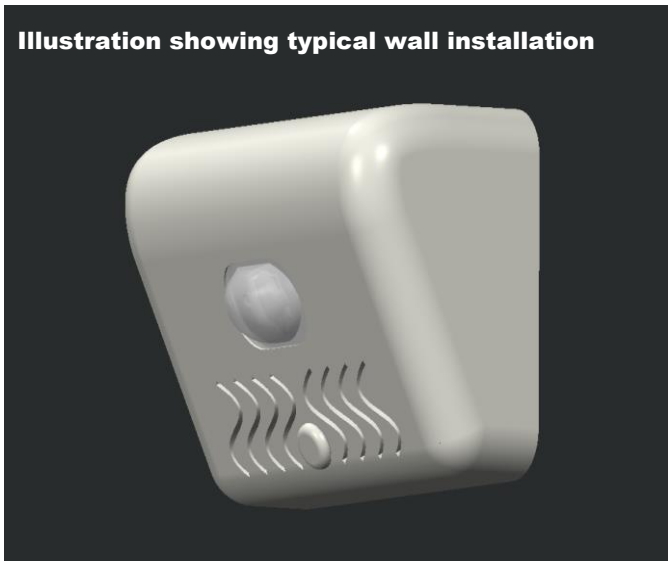
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 351
Long Range EN54-23 Wall Optic Clear

Designed for long range coverage meeting EN54 Part 23 requirements for a wall mounted signal optic positioned at a height of 2.4m. This optic can be used to efficiently illuminate areas up to 15m square. Larger areas can be illuminated with reduced efficiency.

A typical installation of the optic in an enclosure is shown below:



- **Designed for Cree XP-E2, XP-G2, XM-L2, Luxeon Rebel, Luxeon TX and Luxeon M LEDs. (Other LEDs may be used).**

- **Rating vs effective LED output required:**
  W-2.4-12 160 lumens
  W-2.4-13 185 lumens
  W-2.4-14 210 lumens
  W-2.4-15 240 lumens

- **Light transmission efficiency of 85%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

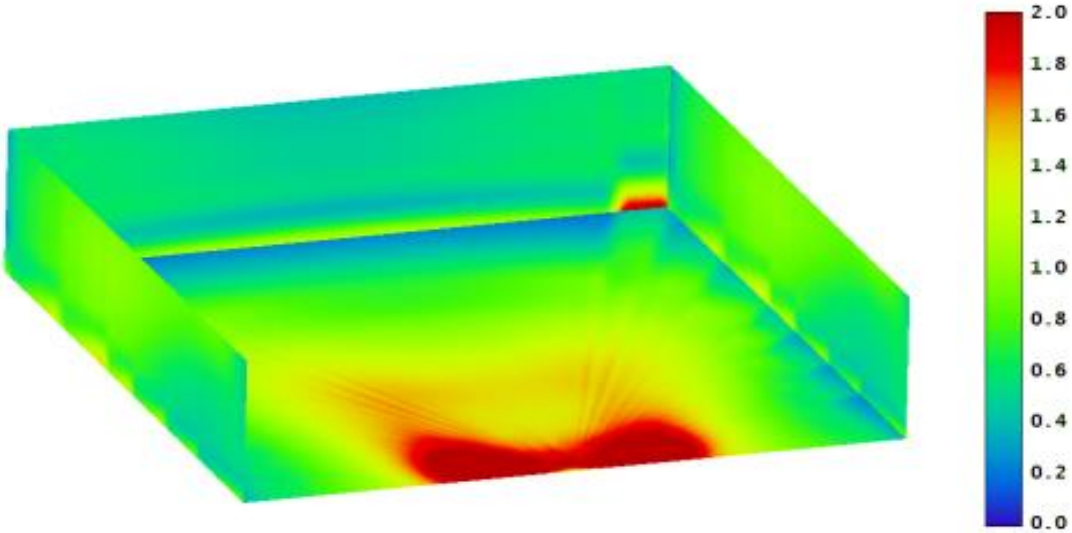
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

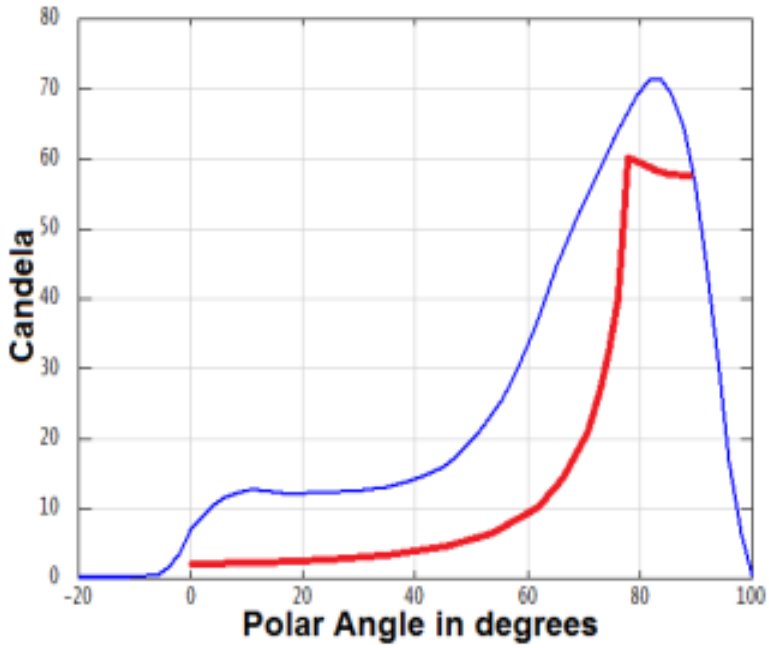
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 351
Long Range EN54-23 Wall Optic Clear

The plot below shows the variation in flux level at the boundary of a 2.4m high, 12m square area as specified by EN54-23 when illuminated using a Cree XP-L2 LED emitting 160 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for W-2.4-12 compliance converted to candela values, (shown in red) from a Cree XP-E2 LED with an effective output of 160 lumens. (Note: To determine the peak lumens required to generate 160 effective lumens refer to Appendix A of EN54-23.)



Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk

Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

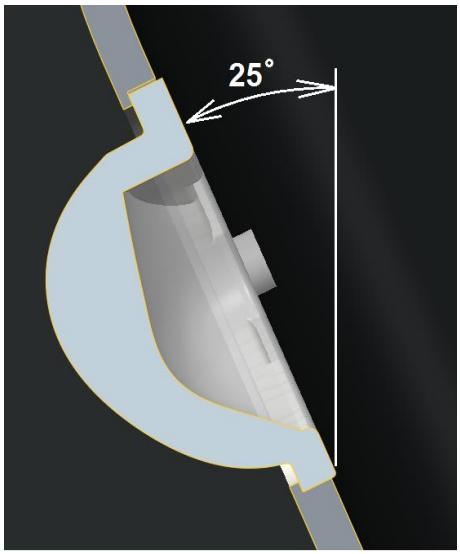
POLYMER OPTICS LTD
intelligent engineering with light

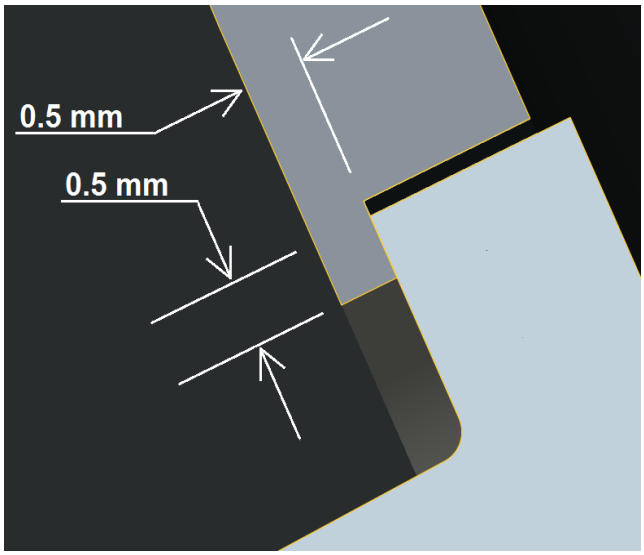
Part No. 351
Long Range EN54-23 Wall Optic Clear

The picture below is a 3D interactive model of the part. Click to activate.

The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The optic is designed to be mounted at an angle of 25° to the vertical with the gate vestige facing upwards. The maximum size of the lip of a retaining cover placed over the optic is shown below:





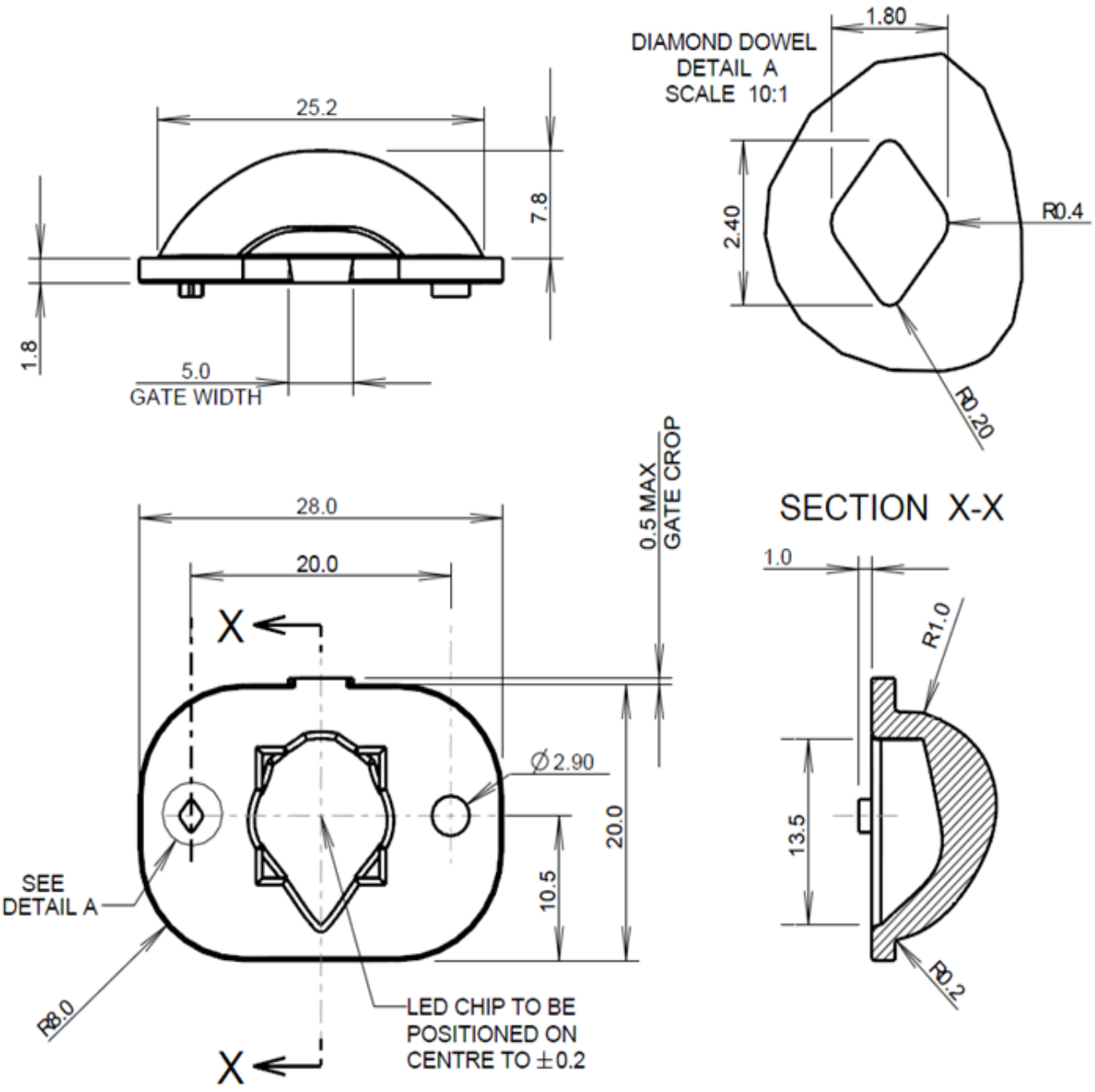
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 351
Long Range EN54-23 Wall Optic Clear

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

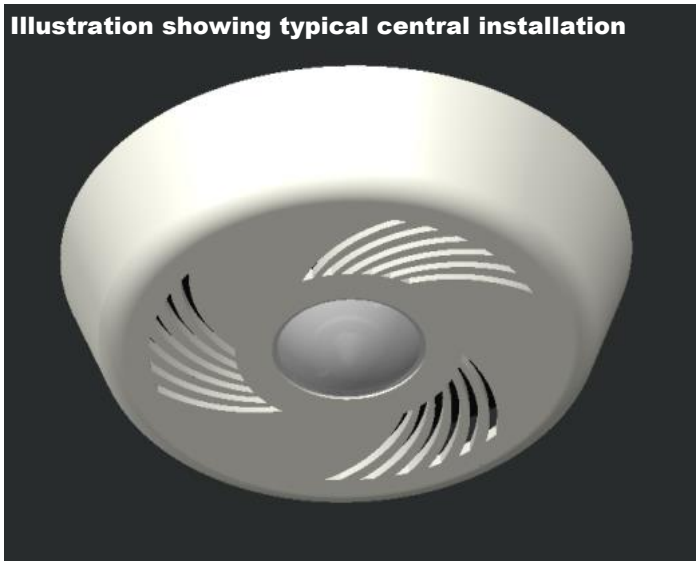
© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 361
Long Range EN54-23 Ceiling Optic Clear

Designed for long range coverage meeting EN54 Part 23 requirements for a ceiling mounted signal optic positioned at a height of 3m. This optic can be used to efficiently illuminate areas up to 18m in diameter. Larger areas can be illuminated with reduced efficiency.

This optic would usually be centrally mounted as shown below:



- **Designed for Cree XP-E2, XP-G2, XM-L2, Luxeon Rebel and Luxeon TX LEDs. (Other LEDs may be used).**

- **Rating vs effective LED output required:**
  - **C-3-15 160 lumens**
  - **C-3-16 175 lumens**
  - **C-3-17 195 lumens**
  - **C-3-18 210 lumens**

- **Light transmission efficiency of 87%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

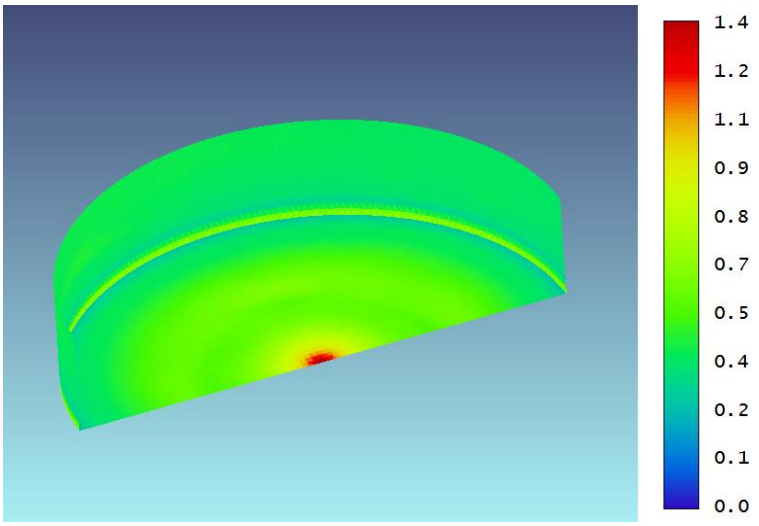
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

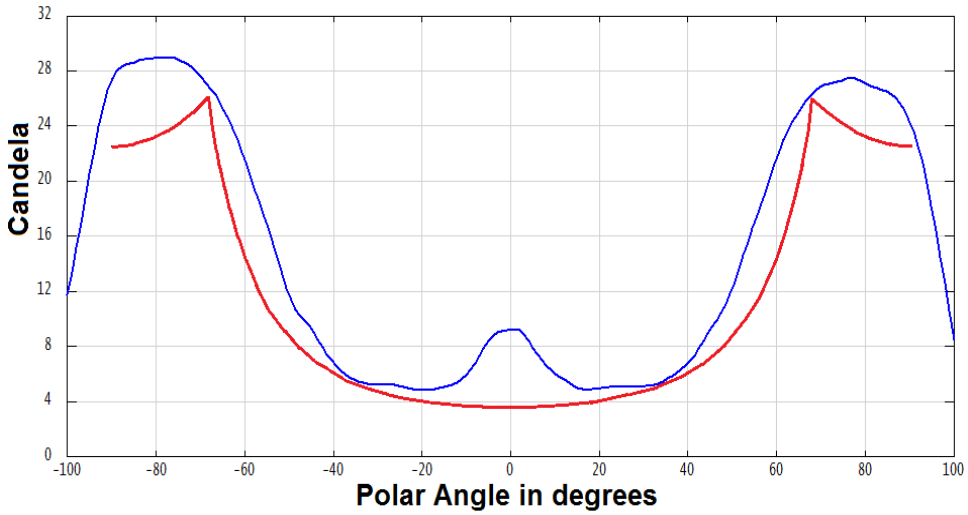
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 361
Long Range EN54-23 Ceiling Optic Clear

The plot below shows the variation in flux level at the boundary of a 3m high, 15m diameter cylinder as specified by EN54-23 when illuminated using a Cree XM-L2 LED emitting 160 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for C-3-15 compliance converted to candela values, (shown in red) from a Cree XM-L2 LED with an effective output of 160 lumens. (Note: To determine the peak lumens required to generate 160 effective lumens refer to Appendix A of EN54-23.)



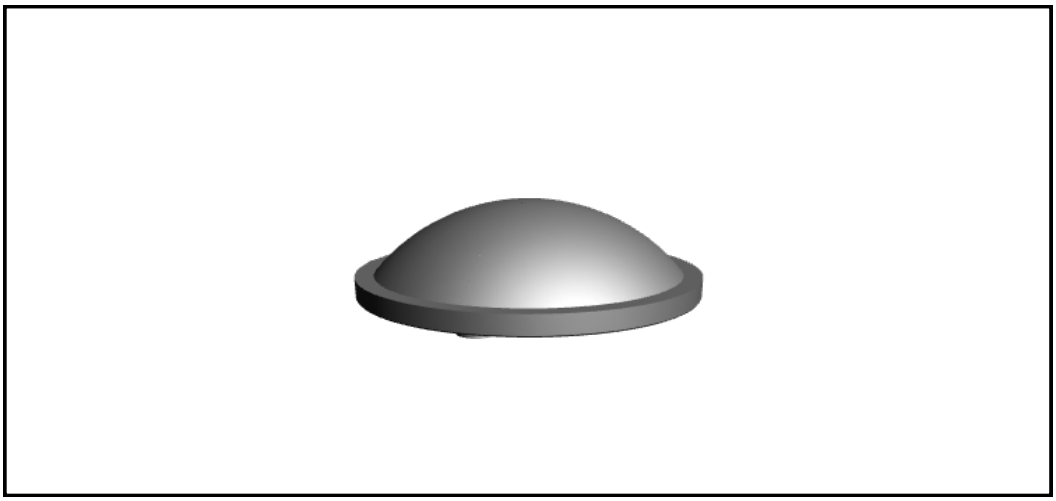
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

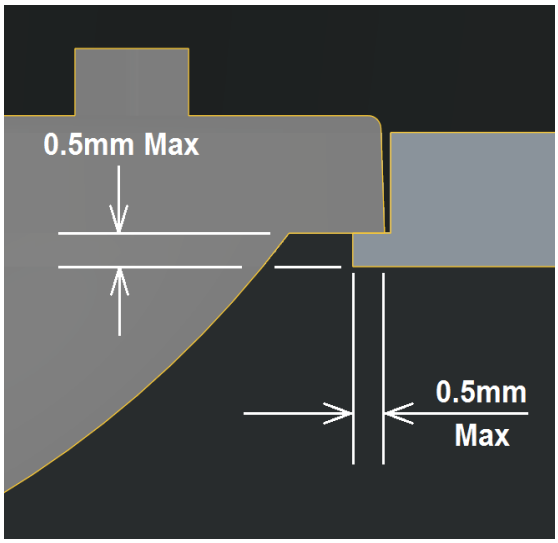
Part No. 361
Long Range EN54-23 Ceiling Optic Clear

The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The maximum size of the lip of a retaining cover placed over the optic is shown below:



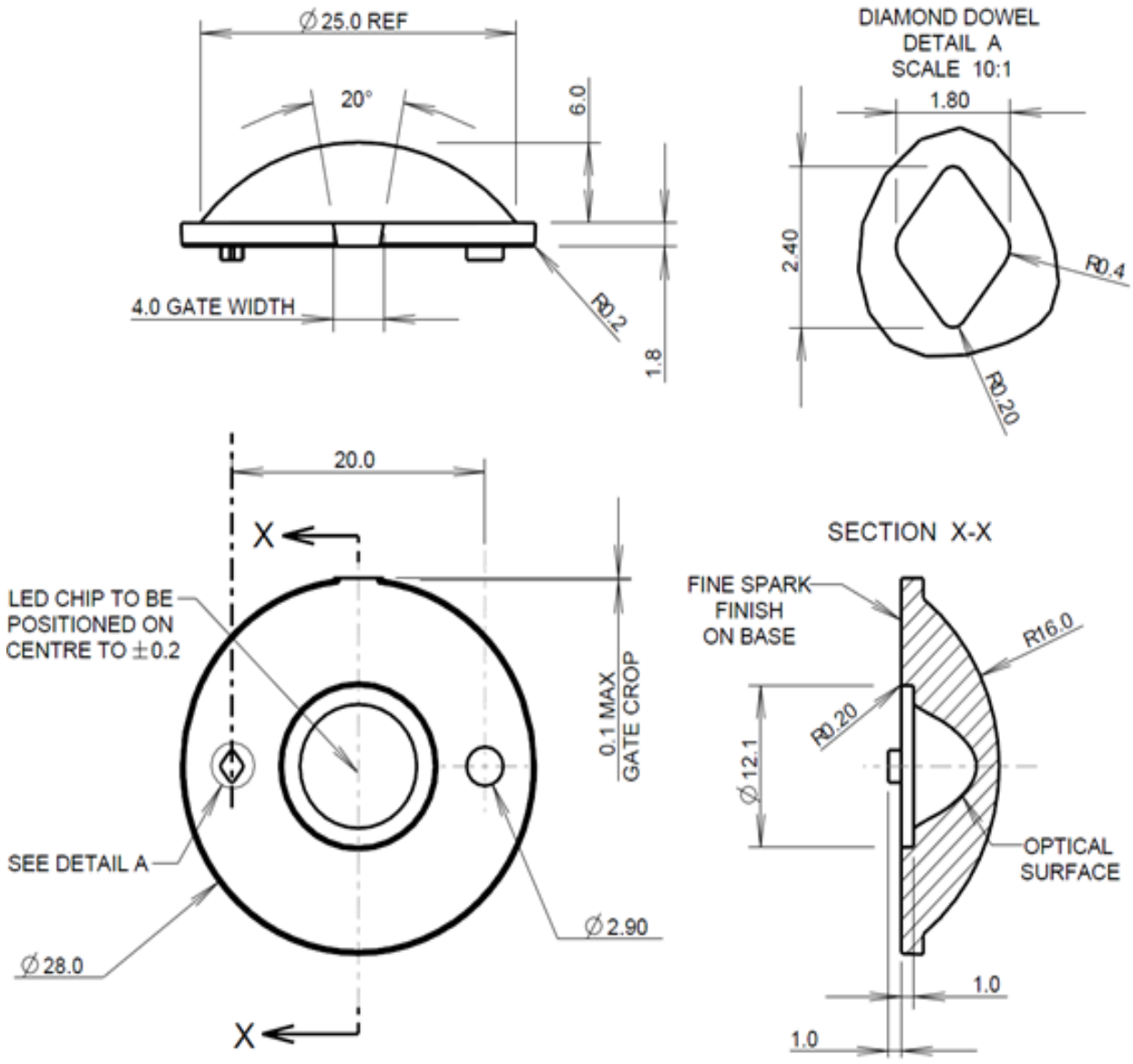
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 361
Long Range EN54-23 Ceiling Optic Clear

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

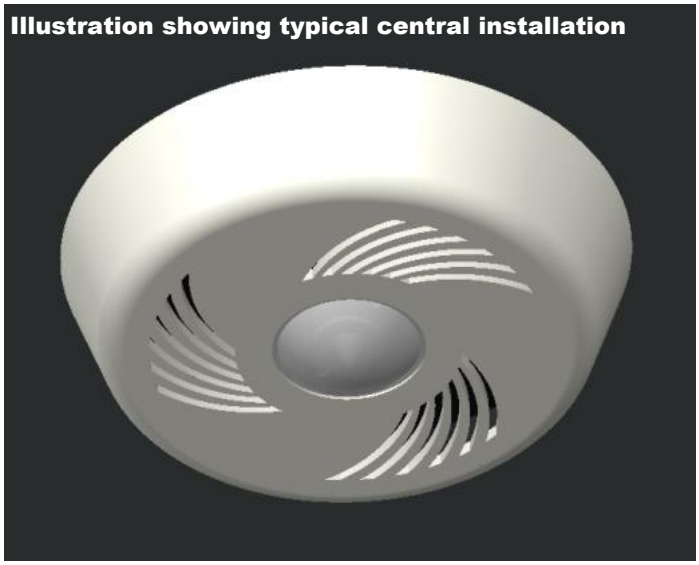
© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 414
Short Range EN54-23 Ceiling Optic Clear

Designed for short range coverage meeting EN54 Part 23 requirements for a ceiling mounted signal optic positioned at a height of 3m. This optic can be used to efficiently illuminate areas up to 9m in diameter. Larger areas can be illuminated with reduced efficiency.

This optic would usually be centrally mounted as shown below:



- **Designed for Cree XP-E2, XP-G2, XM-L2, Luxeon Rebel and Luxeon TX LEDs. (Other LEDs may be used).**

- **Rating vs effective LED output required:**
  C-3-7 62 lumens
  C-3-8 70 lumens
  C-3-9 80 lumens

- **Light transmission efficiency of 87%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

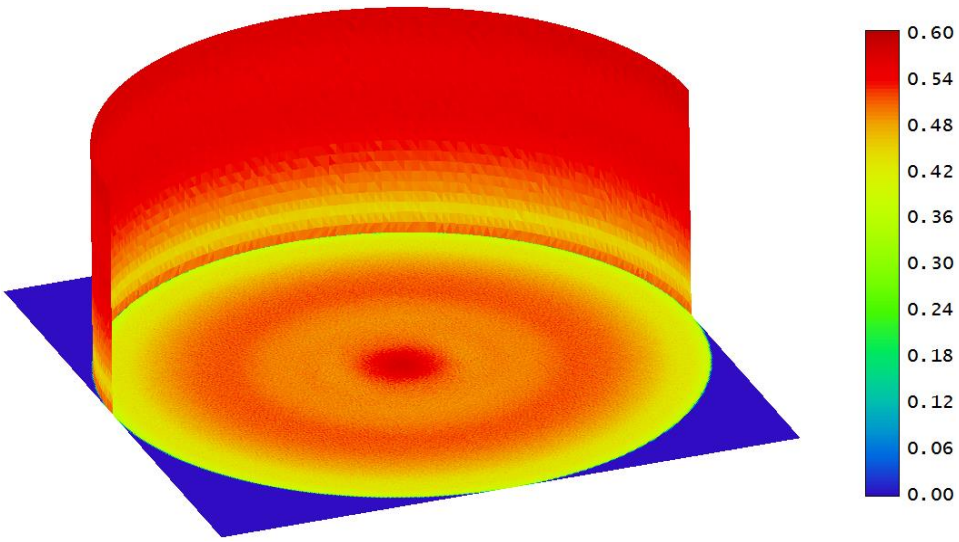
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

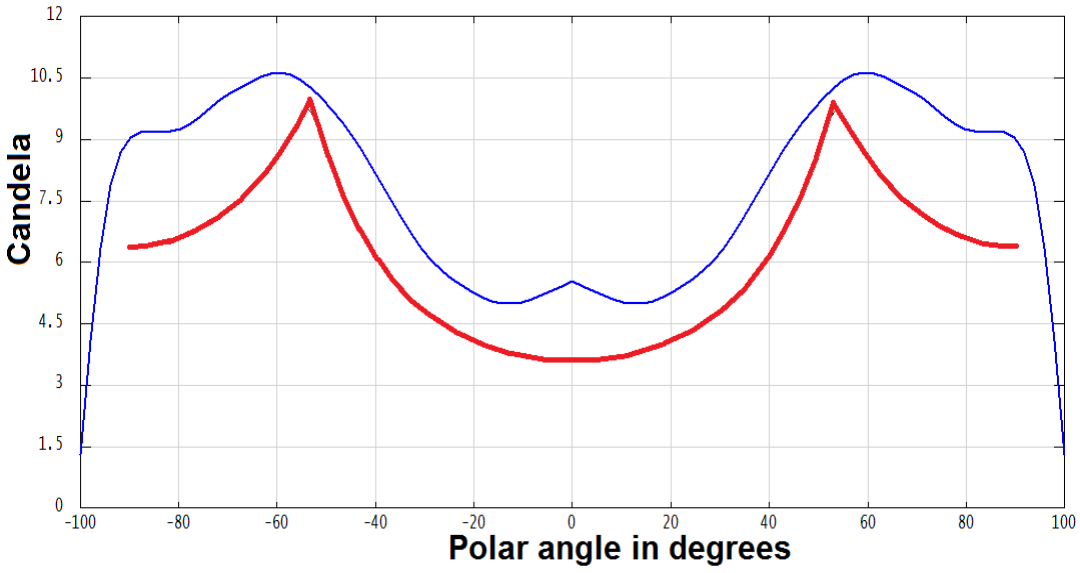
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 414
Short Range EN54-23 Ceiling Optic Clear

The plot below shows the variation in flux level at the boundary of a 3m high, 8m diameter cylinder as specified by EN54-23 when illuminated using a Cree XP-E2 LED emitting 70 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for C-3-8 compliance converted to candela values, (shown in red) from a Cree XP-E2 LED with an effective output of 70 lumens. (Note: To determine the peak lumens required to generate 70 effective lumens refer to Appendix A of EN54-23.)



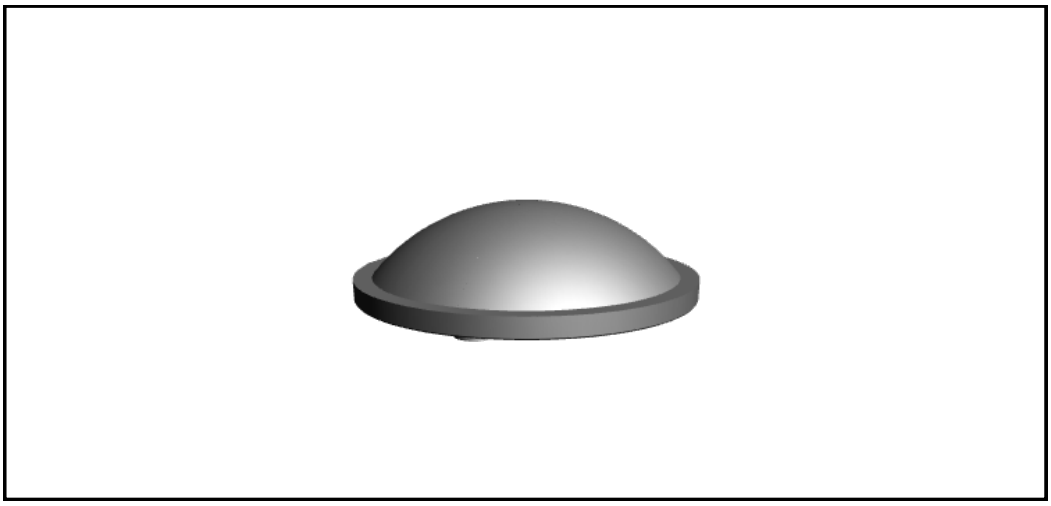
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

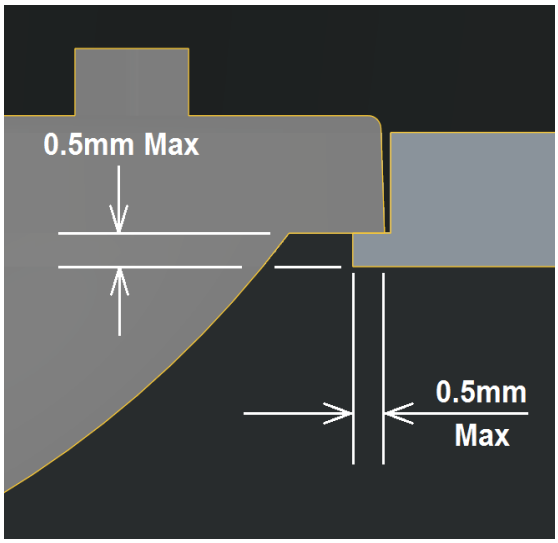
Part No. 414
Short Range EN54-23 Ceiling Optic Clear

The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The maximum size of the lip of a retaining cover placed over the optic is shown below:



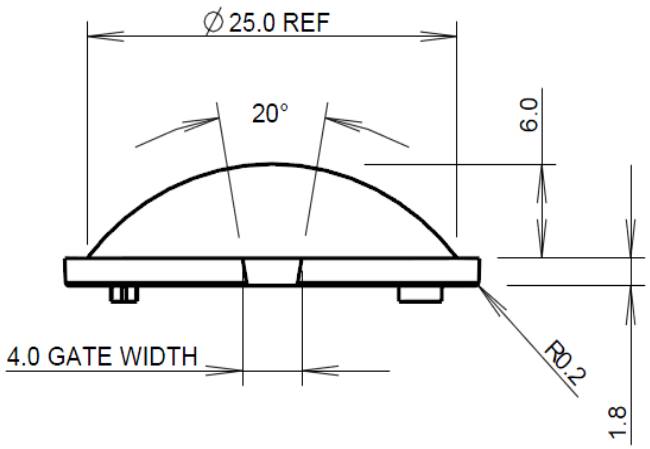
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

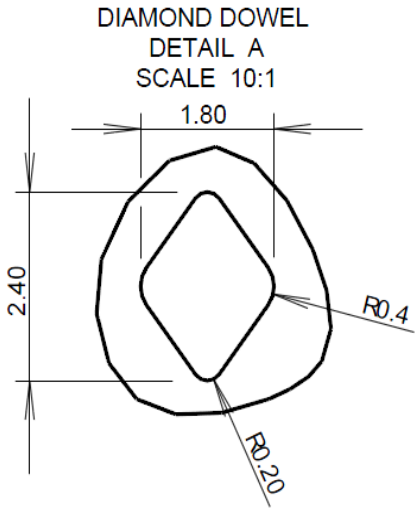
© Copyright Polymer Optics Limited 2015

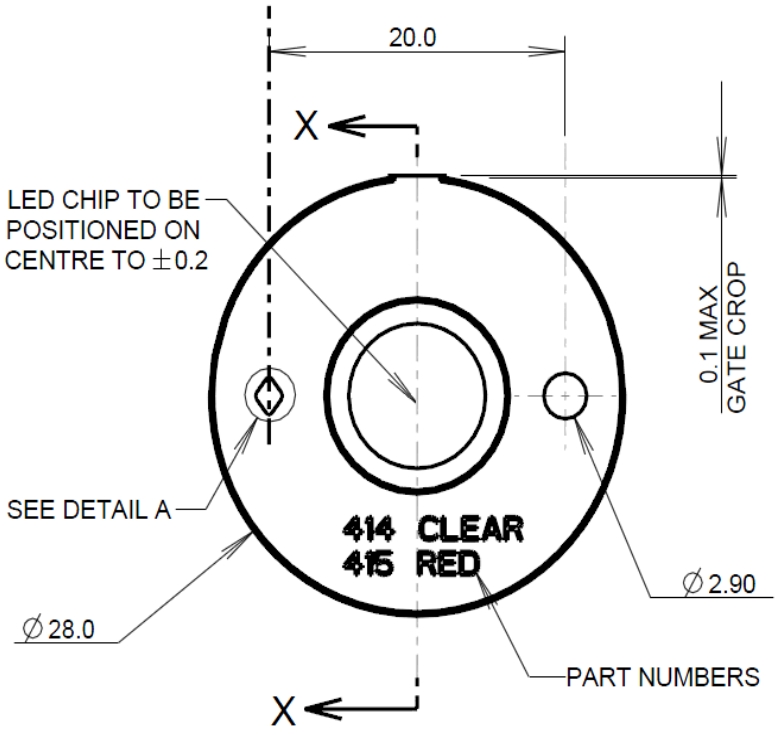
POLYMER OPTICS LTD
intelligent engineering with light

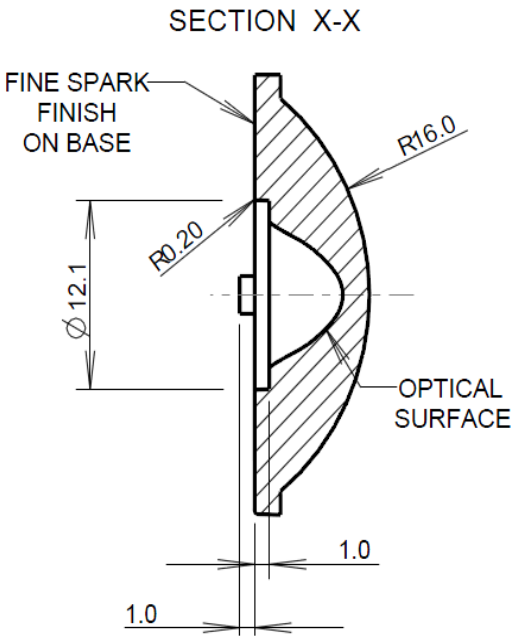
Part No. 414
Short Range EN54-23 Ceiling Optic Clear

Typical dimensional tolerances to
+/-0.2mm









In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

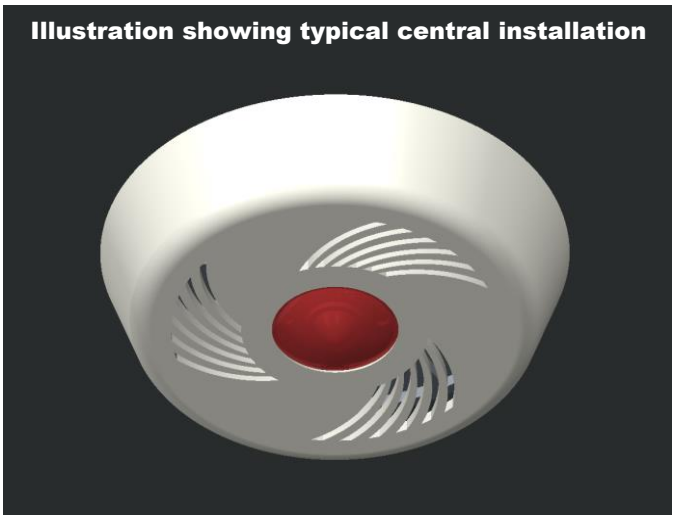
© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 415
Short Range EN54-23 Ceiling Optic Red

Designed for short range coverage meeting EN54 Part 23 requirements for a ceiling mounted signal optic positioned at a height of 3m. This optic can be used to efficiently illuminate areas up to 8m in diameter. Larger areas can be illuminated with reduced efficiency.

This optic would usually be centrally mounted as shown below:



- **Designed for for warm white, (2700K) versions of the Cree XM-L2 and Luxeon TX LEDs.**

- **Rating vs effective LED output required:**
  C-3-6 105 lumens
  C-3-7 116 lumens
  C-3-8 128 lumens

- **Light transmission efficiency of 44%**

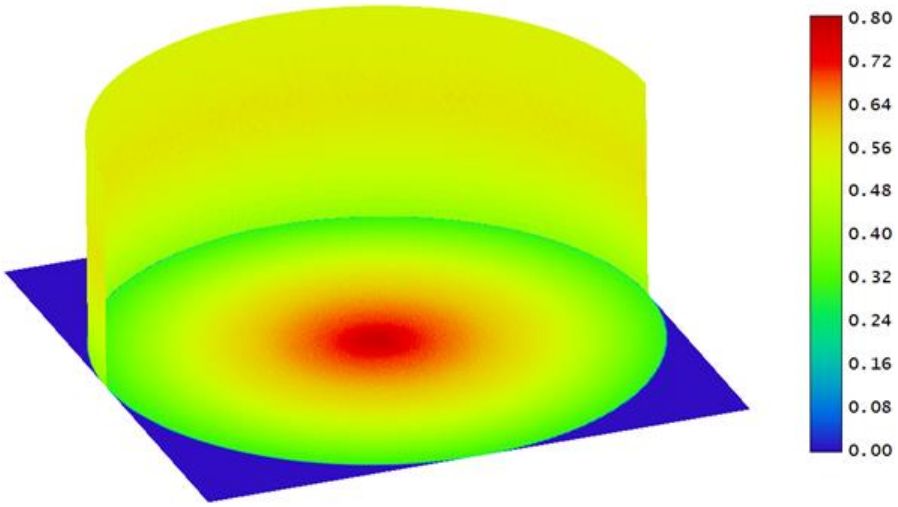
- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

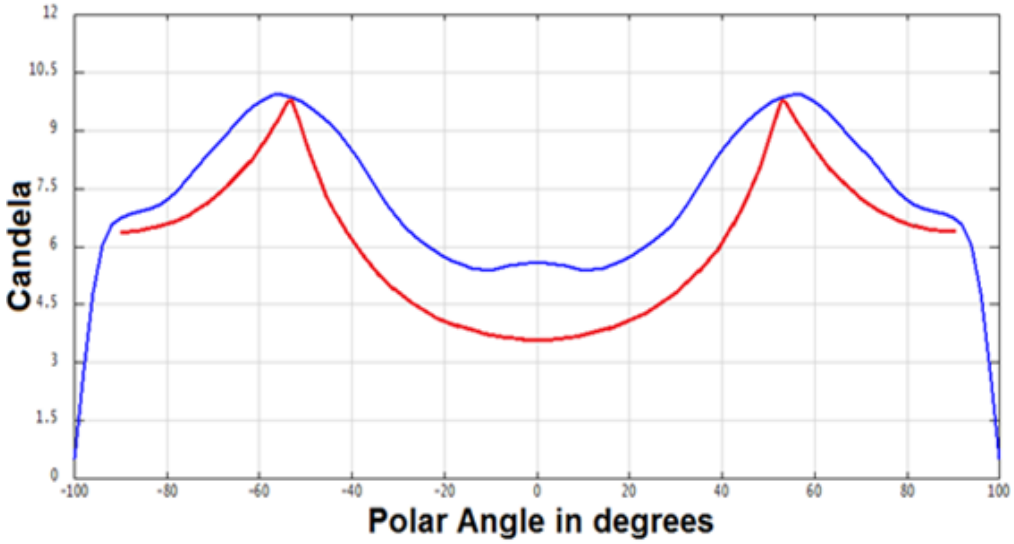
© Copyright Polymer Optics Limited 2015

Part No. 415
Short Range EN54-23 Ceiling Optic Red

The plot below shows the variation in flux level at the boundary of a 3m high, 8m diameter cylinder as specified by EN54-23 when illuminated using a warm white 2700K Cree XM-L2 LED emitting 128 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for C-3-8 compliance converted to candela values, (shown in red) from a 2700K Warm White Cree XM-L2 LED with an effective output of 128 lumens. (Note: To determine the peak lumens required from effective lumens refer to Appendix A of EN54-23.)



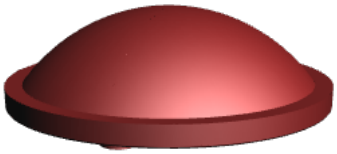
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

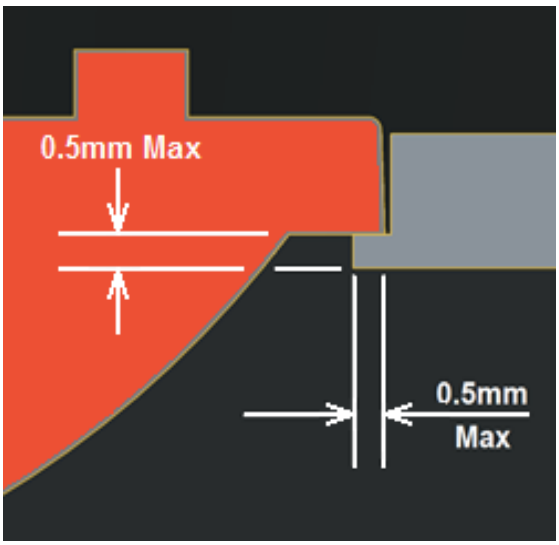
Part No. 415
Short Range EN54-23 Ceiling Optic Red

The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The maximum size of the lip of a retaining cover placed over the optic is shown below:



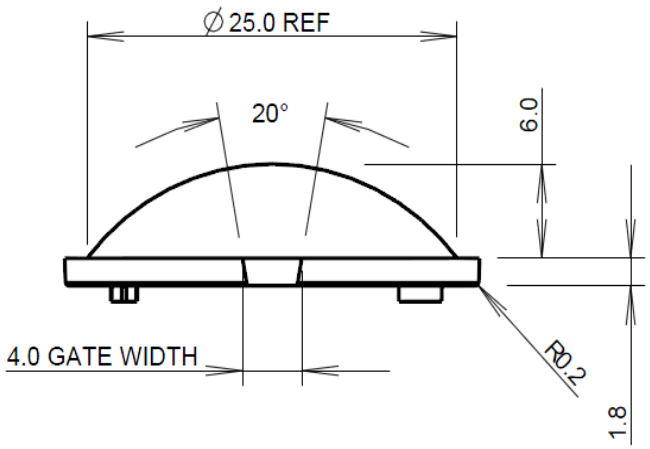
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

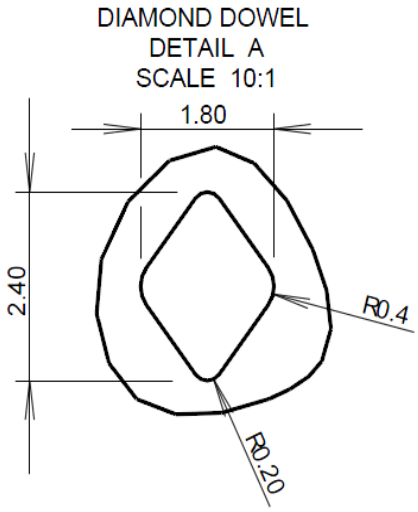
© Copyright Polymer Optics Limited 2015

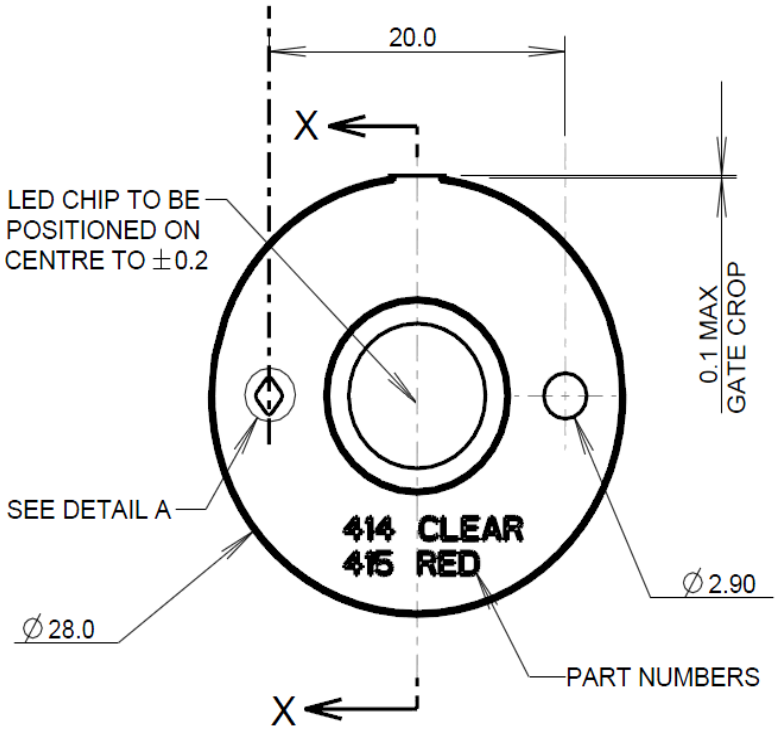
POLYMER OPTICS LTD
intelligent engineering with light

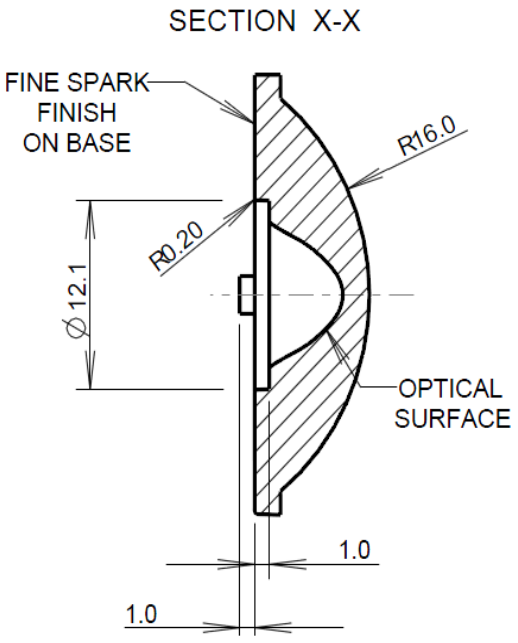
Part No. 415
Short Range EN54-23 Ceiling Optic Red

Typical dimensional tolerances to
+/-0.2mm









In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

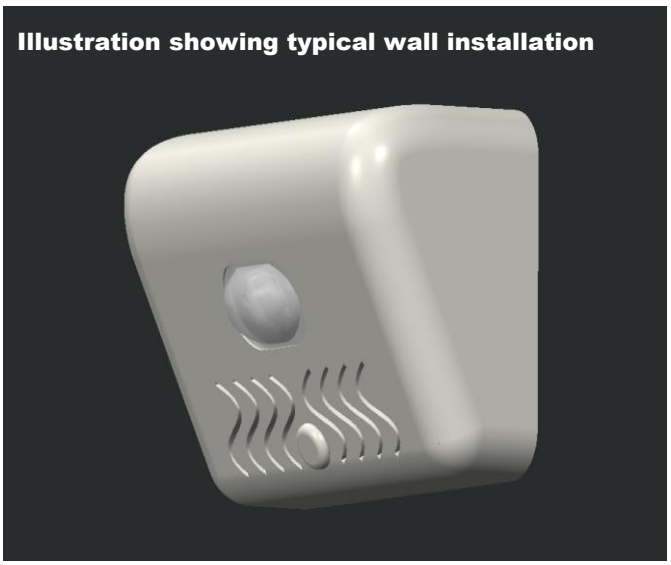
© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 422
Short Range EN54-23 Wall Optic Clear

Designed for short range coverage meeting EN54 Part 23 requirements for a wall mounted signal optic positioned at a height of 2.4m. This optic can be used to efficiently illuminate areas up to 8m square. Larger areas can be illuminated with reduced efficiency.

A typical installation of the optic in an enclosure is shown below:



- **Designed for Cree XP-E2, XP-G2, XM-L2, Luxeon Rebel, Luxeon TX and Luxeon M LEDs. (Other LEDs may be used).**

- **Rating vs effective LED output required:**
  W-2.4-6 55 lumens
  W-2.4-7 70 lumens
  W-2.4-8 90 lumens

- **Light transmission efficiency of 83%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

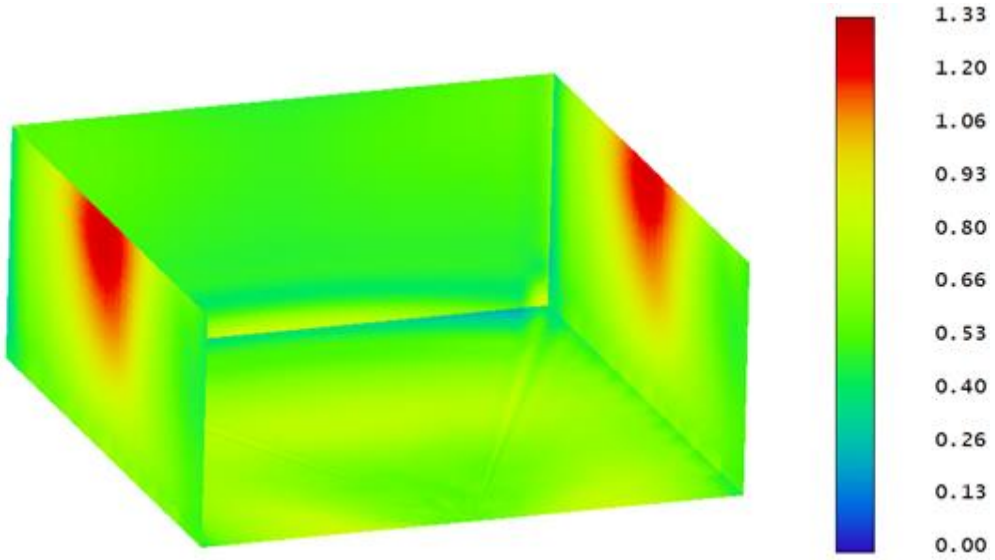
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

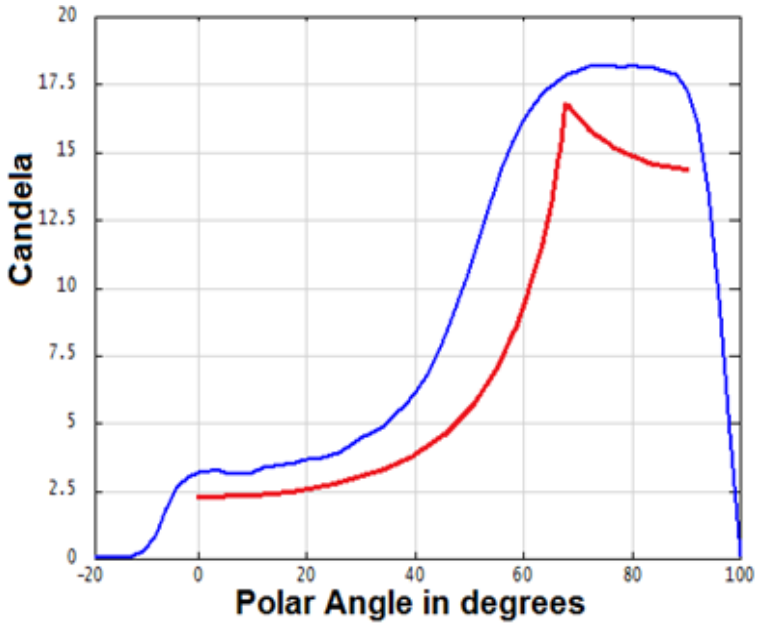
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 422
Short Range EN54-23 Wall Optic Clear

The plot below shows the variation in flux level at the boundary of a 2.4m high, 6m square area as specified by EN54-23 when illuminated using a Cree XP-E2 LED emitting 55 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for W-2.4-6 compliance converted to candela values, (shown in red) from a Cree XP-E2 LED with an effective output of 55 lumens. (Note: To determine the peak lumens required to generate 55 effective lumens refer to Appendix A of EN54-23.)



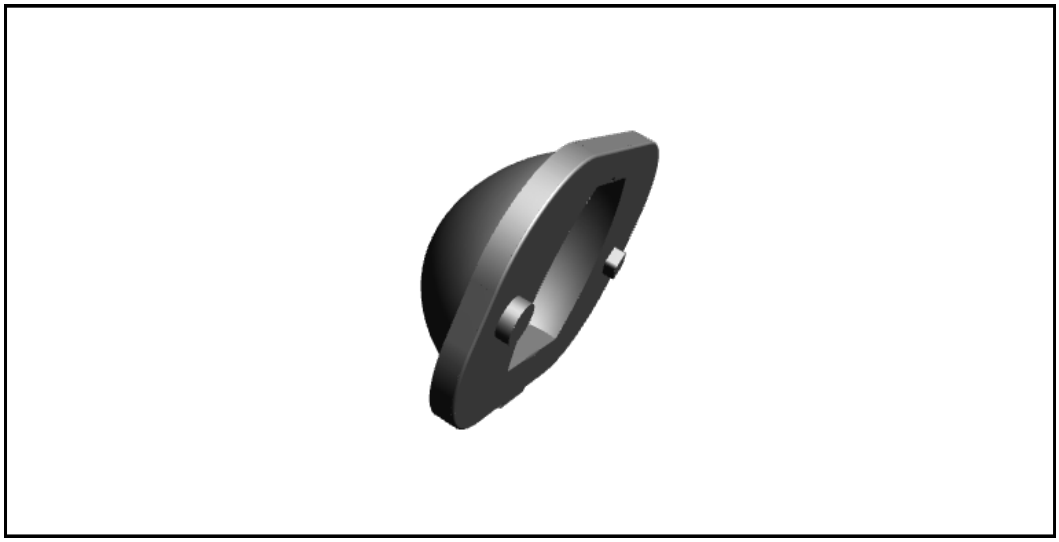
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

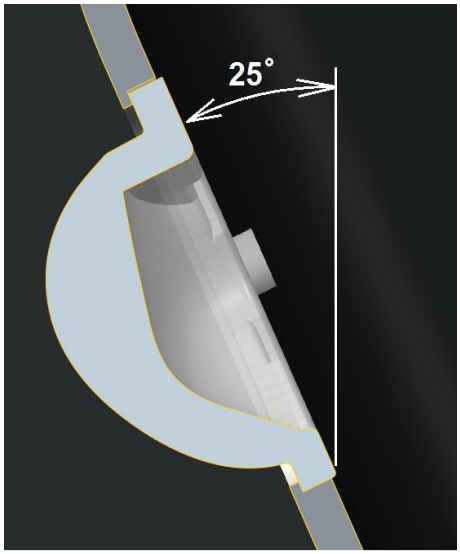
Part No. 422
Short Range EN54-23 Wall Optic Clear

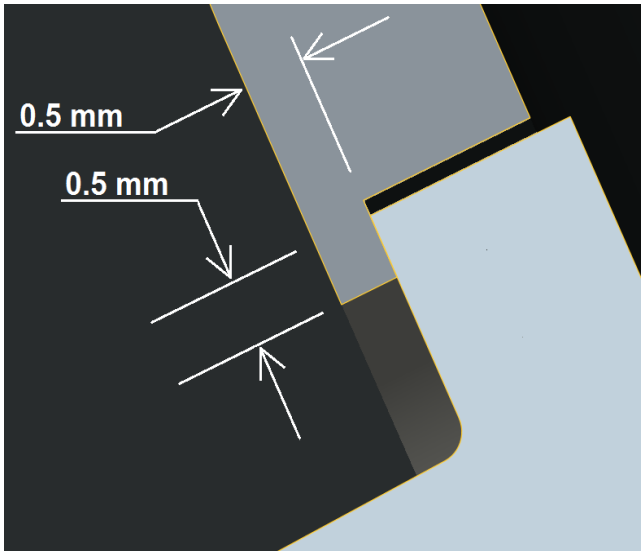
The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The optic is designed to be mounted at an angle of 25° to the vertical with the gate vestige facing upwards. The maximum size of the lip of a retaining cover placed over the optic is shown below:





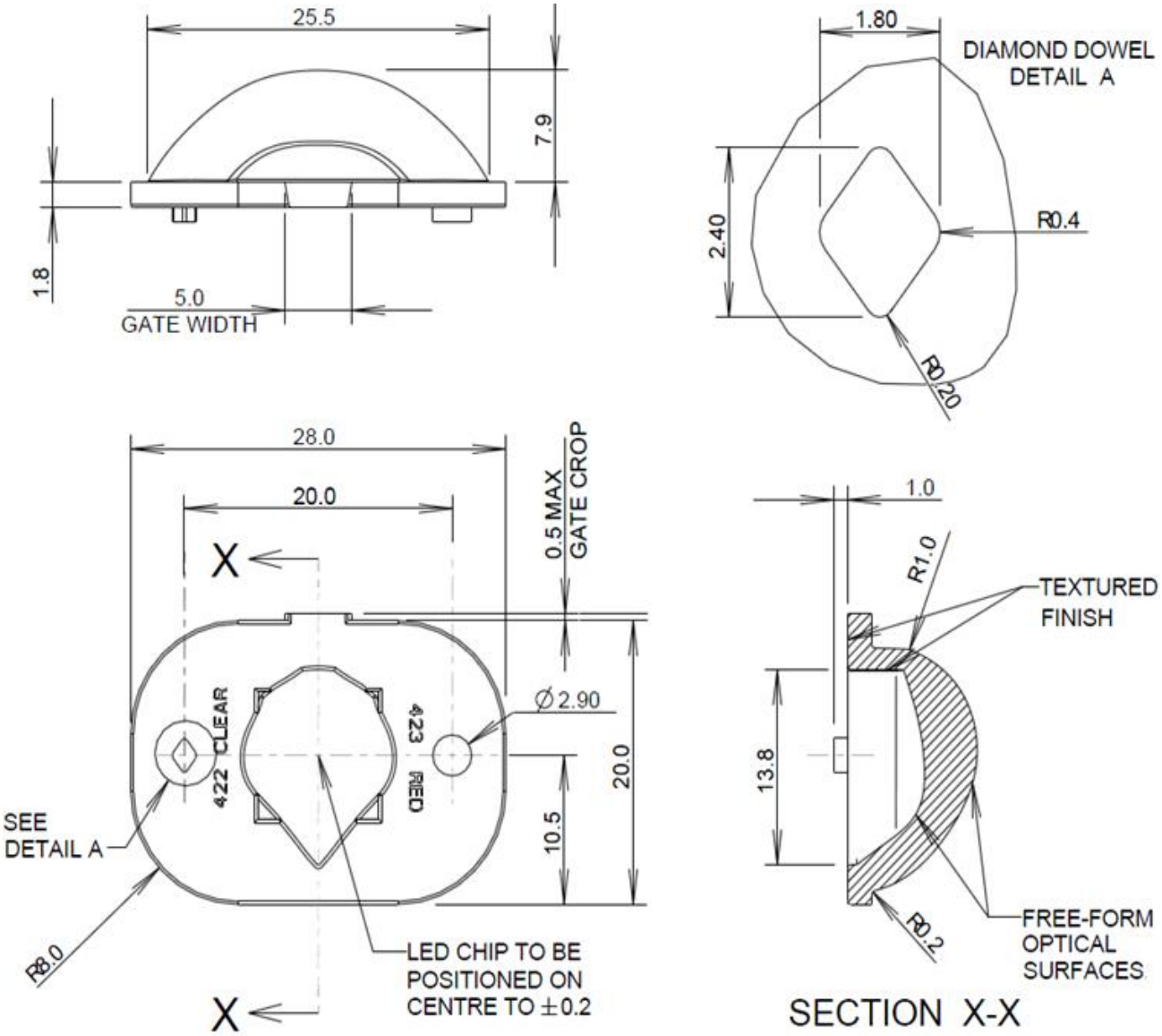
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 422
Short Range EN54-23 Wall Optic Clear

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

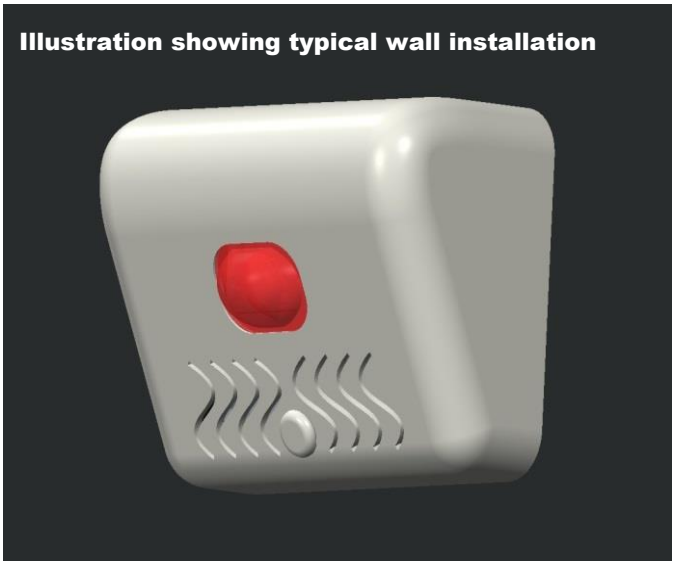
© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 423
Short Range EN54-23 Wall Optic Red

Designed for short range coverage meeting EN54 Part 23 requirements for a wall mounted signal optic positioned at a height of 2.4m. This optic can be used to efficiently illuminate areas up to 8m square. Larger areas can be illuminated with reduced efficiency.

A typical installation of the optic in an enclosure is shown below:



- **Designed for Warm White 2700K versions of the Cree XM-L2 and Luxeon TX LEDs.**

- **Rating vs effective LED output required:**
  W-2.4-5 95 lumens
  W-2.4-6 130 lumens
  W-2.4-7 160 lumens
  W-2.4-8 195 lumens

- **Light transmission efficiency of 44%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

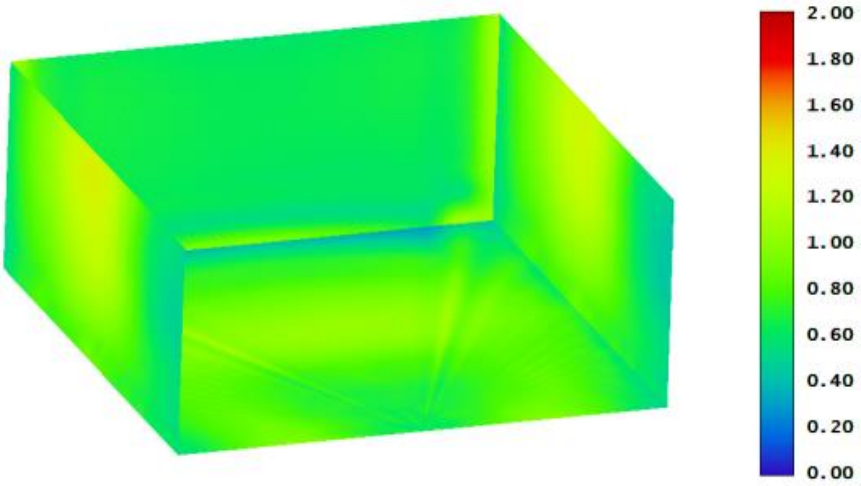
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

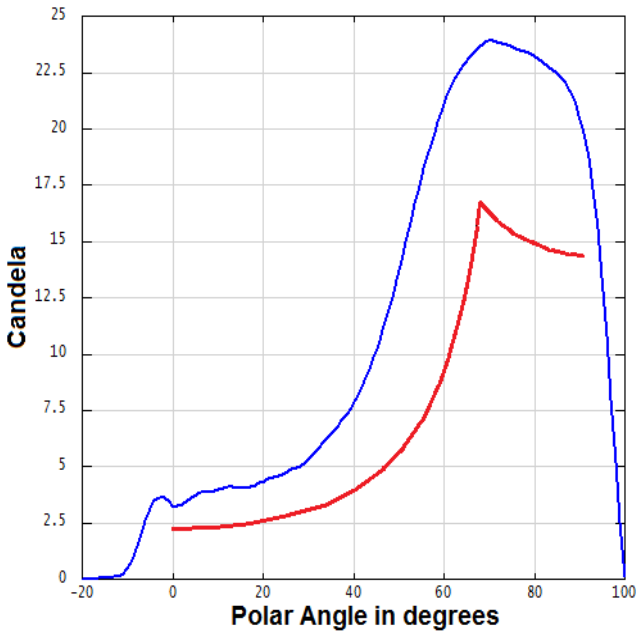
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 423
Short Range EN54-23 Wall Optic Red

The plot below shows the variation in flux level at the boundary of a 2.4m high, 6m square area as specified by EN54-23 when illuminated using a Warm White 2700K Cree XP-L2 LED emitting 130 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for W-2.4-6 compliance converted to candela values, (shown in red) from a Warm White 2700K Cree XP-L2 LED emitting 130 effective lumens. (Note: To determine the peak lumens required to generate 130 effective lumens refer to Appendix A of EN54-23.)



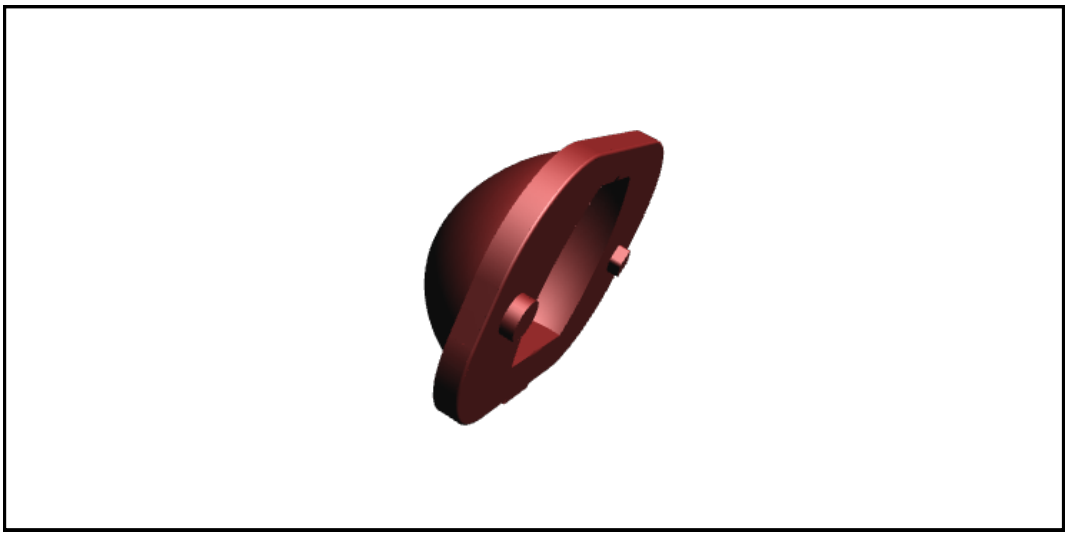
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

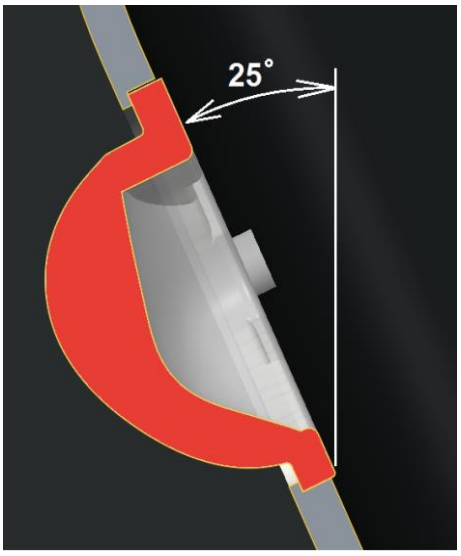
Part No. 423
Short Range EN54-23 Wall Optic Red

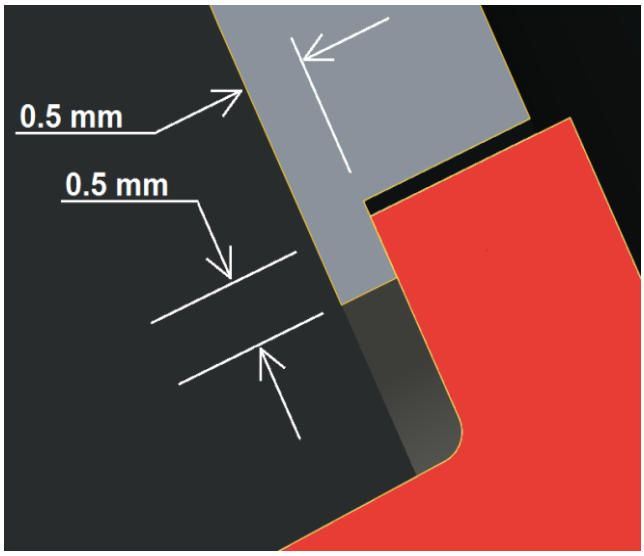
The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The optic is designed to be mounted at an angle of 25° to the vertical with the gate vestige facing upwards. The maximum size of the lip of a retaining cover placed over the optic is shown below:





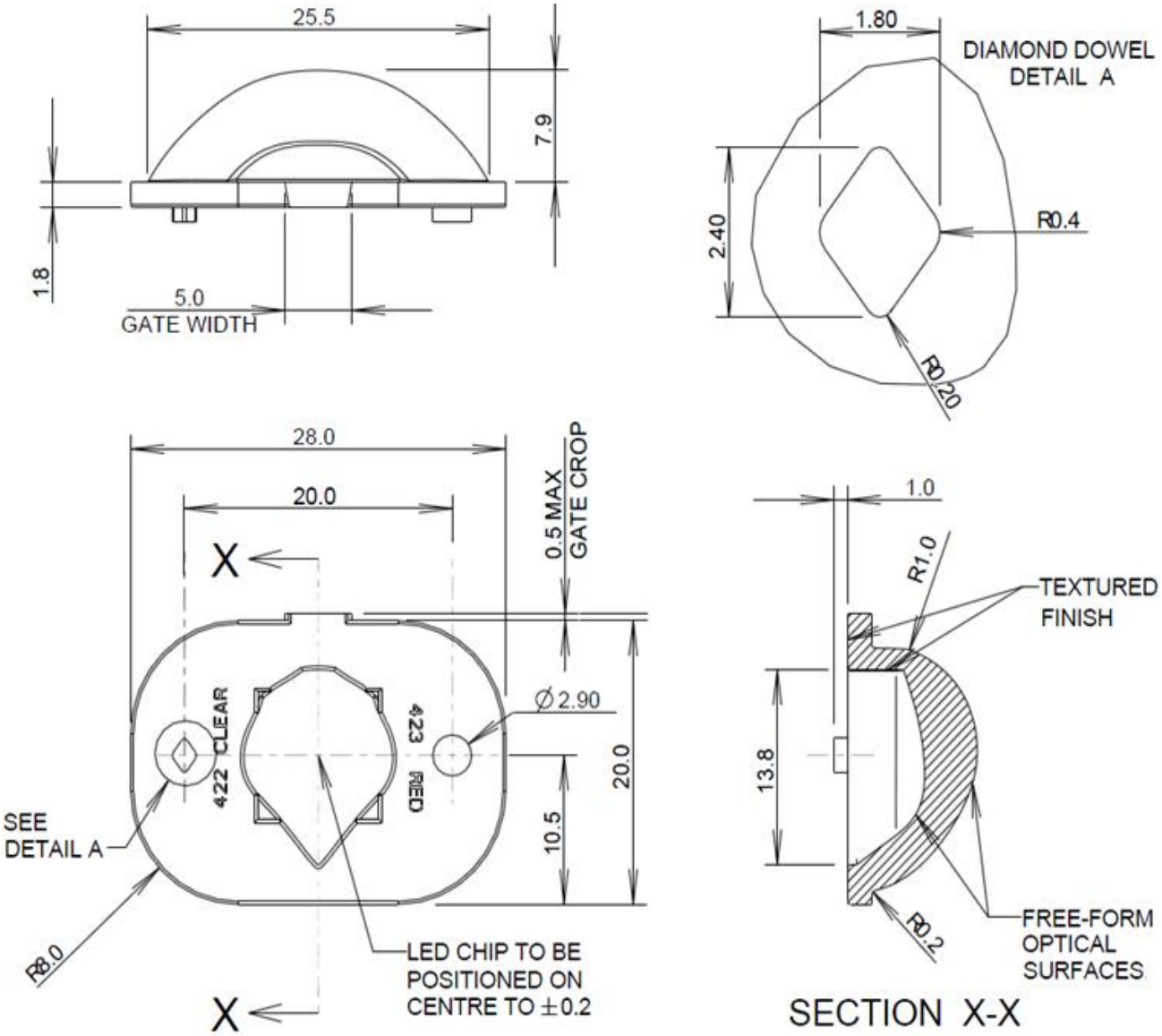
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 423
Short Range EN54-23 Wall Optic Red

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 437
Long Range 120° Sector EN54-23 Ceiling Optic Clear

Designed for long range coverage meeting EN54 Part 23 requirements for a ceiling mounted Visual Alarm Device (VAD) positioned at a height of 3m. Three of these optics mounted around the base of a VAD can be used to efficiently illuminate areas from 12m to 18m in diameter.

Three of these optics would typically be mounted as shown below:

- **Designed for Cree XP-E2, XP-G2, XM-L2, Luxeon Rebel, Luxeon TX and Luxeon M LEDs. (Other LEDs may be used).**

- **Rating vs effective LED output required:**

  C-3-12 44 lumens
  C-3-14 56 lumens
  C-3-16 69 lumens
  C-3-18 104 lumens

- **Light transmission efficiency of 85%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

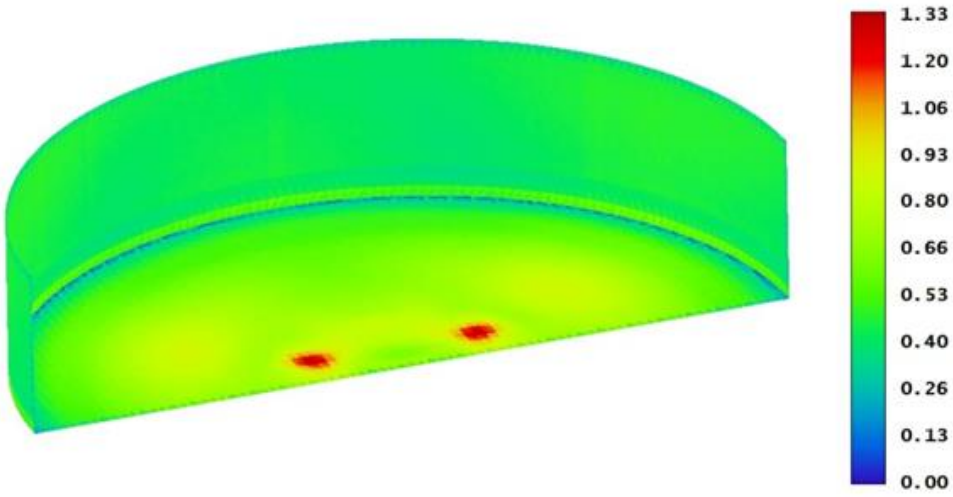
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

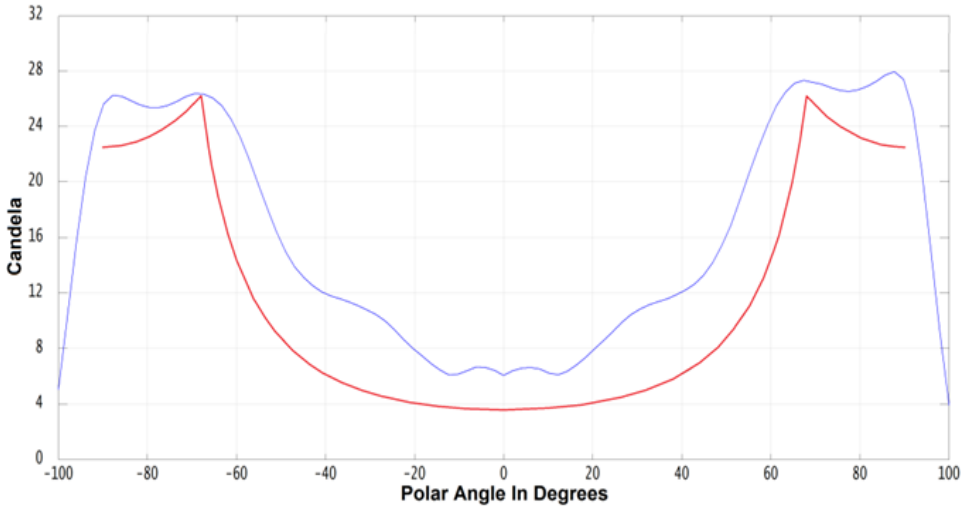
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 437
Long Range 120° Sector EN54-23 Ceiling Optic Clear

The plot below shows the variation in flux level at the boundary of a 3m high, 15m diameter cylinder as specified by EN54-23 when illuminated using x3 Cree XM-G2 LEDs each emitting 61 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for C-3-15 compliance converted to candela values, (shown in red) from x3 Cree XM-G2 LEDs each with an effective output of 61 lumens. (Note: To determine the peak lumens required to generate 61 effective lumens refer to Appendix A of EN54-23.)



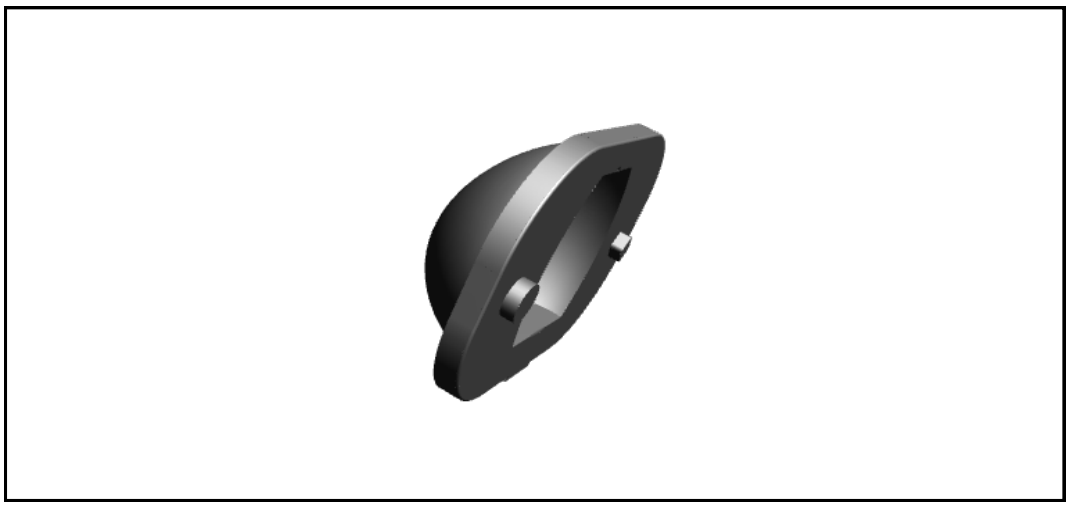
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

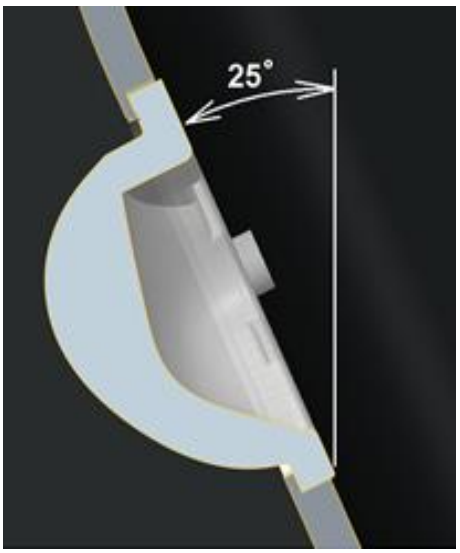
Part No. 437
Long Range 120° Sector EN54-23 Ceiling Optic Clear

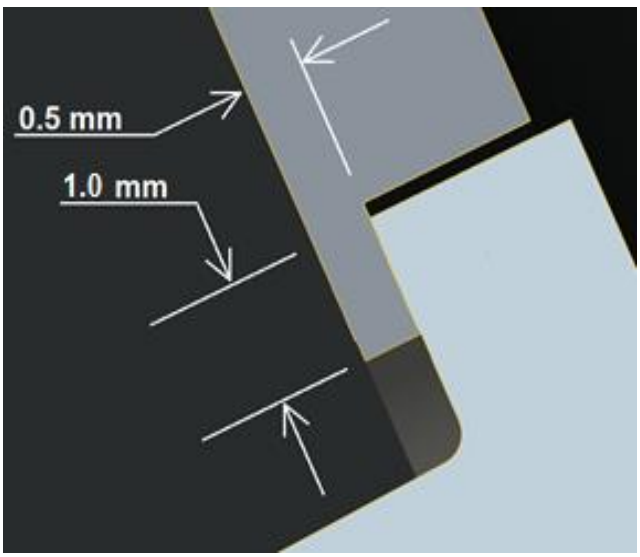
The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The optic is designed to be mounted at an angle of 25° to the vertical with the gate vestige facing upwards. The maximum size of the lip of a retaining cover placed over the optic is shown below:





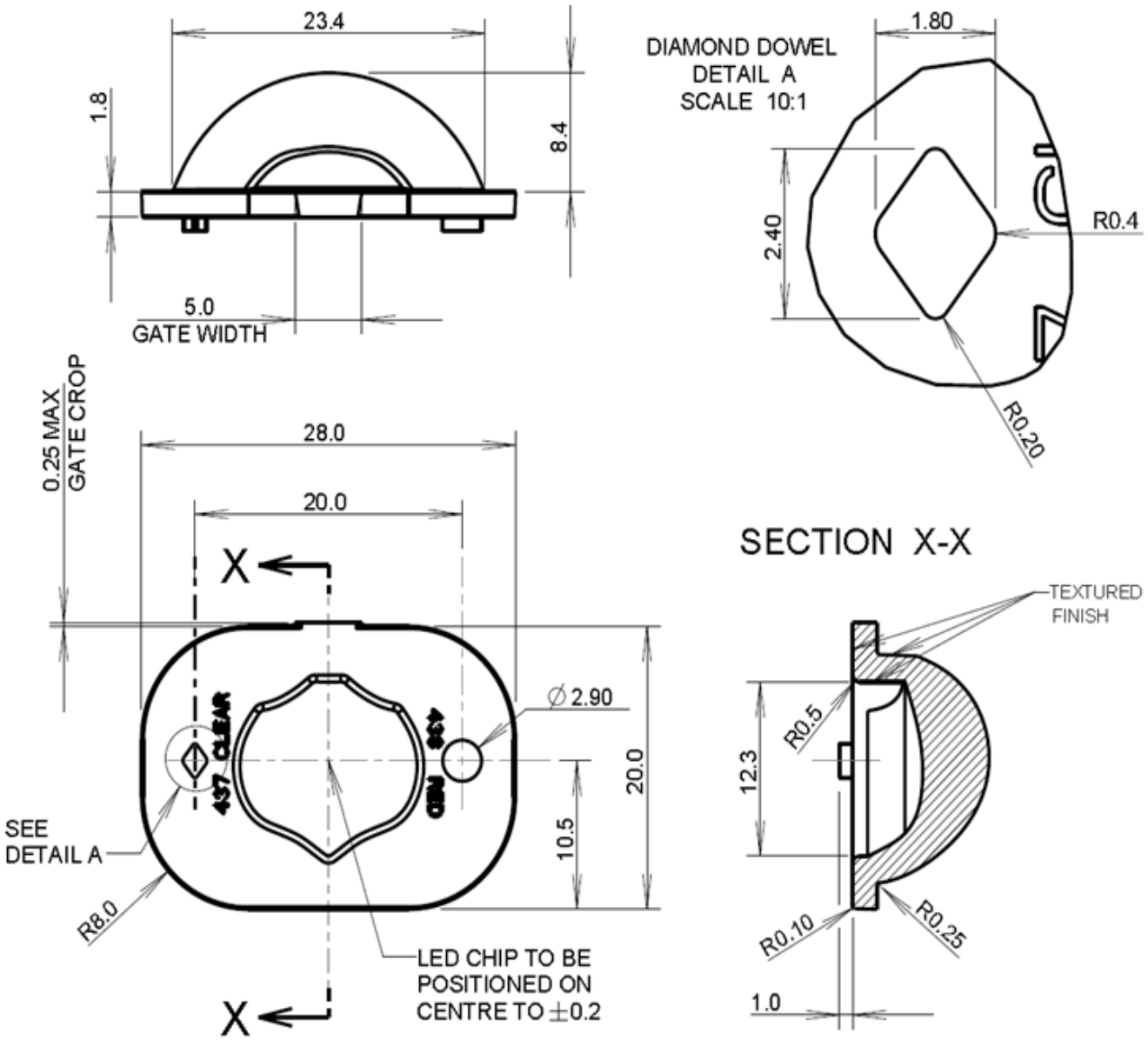
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 437
Long Range 120° Sector EN54-23 Ceiling Optic Clear

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

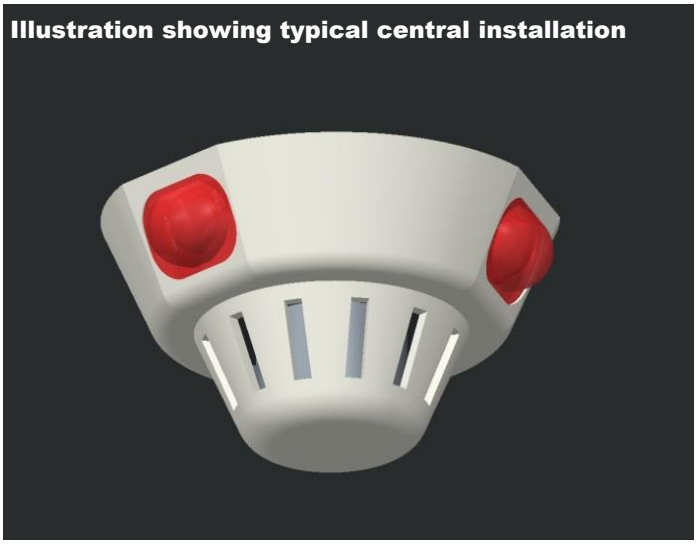
© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 438
Long Range 120° Sector EN54-23 Ceiling Optic Red

Designed for long range coverage meeting EN54 Part 23 requirements for a ceiling mounted Visual Alarm Device (VAD) positioned at a height of 3m. Three of these optics mounted around the base of a VAD can be used to efficiently illuminate areas from 12m to 16m in diameter.

Three of these optics would typically be mounted as shown below:



- **Designed for Warm White 2700K Cree XM-L2 and Luxeon TX LEDs.**
- **Rating vs effective LED output required:**

  C-3-10 72 lumens
  C-3-12 90 lumens
  C-3-14 115 lumens
  C-3-16 140 lumens

- **Light transmission efficiency of 44%**
- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

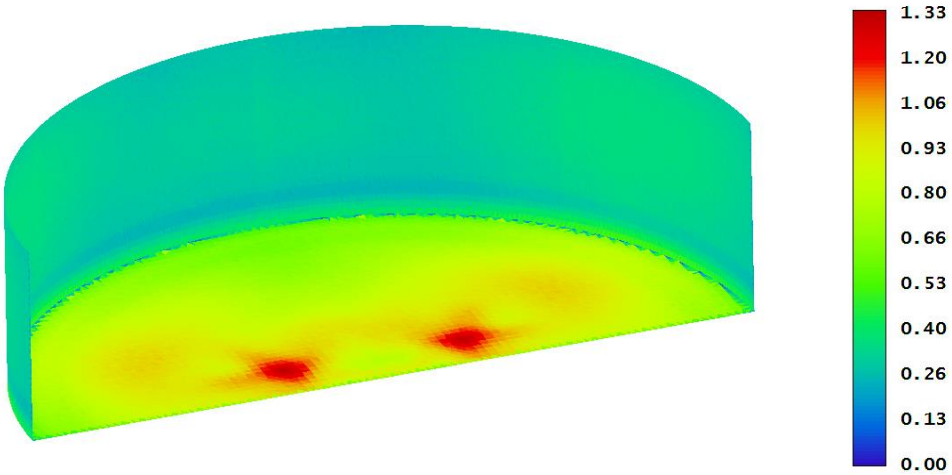
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

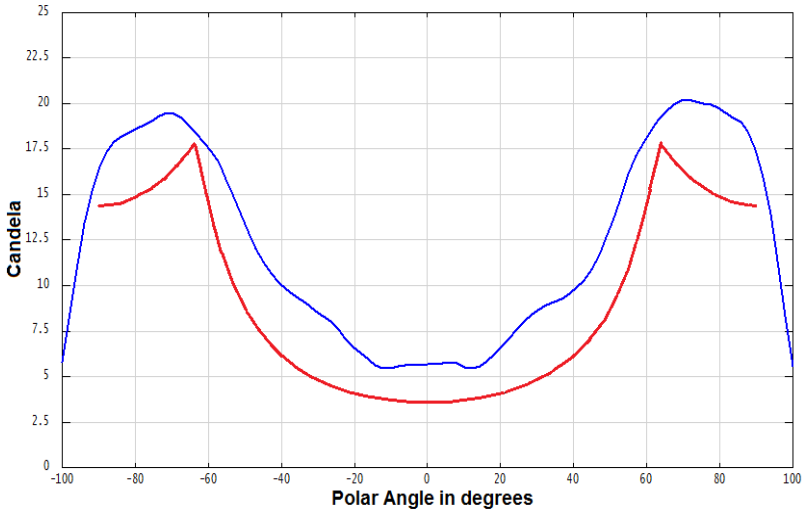
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 438
Long Range 120° Sector EN54-23 Ceiling Optic Red

The plot below shows the variation in flux level at the boundary of a 3m high, 15m diameter cylinder as specified by EN54-23 when illuminated using x3 Warm White 2700K Cree XM-L2 LEDs each emitting 90 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for C-3-15 compliance converted to candela values, (shown in red) from x3 x3 Warm White 2700K Cree XM-L2 LEDs each with an effective output of 90 lumens. (Note: To determine the peak lumens required to generate 90 effective lumens refer to Appendix A of EN54-23.)



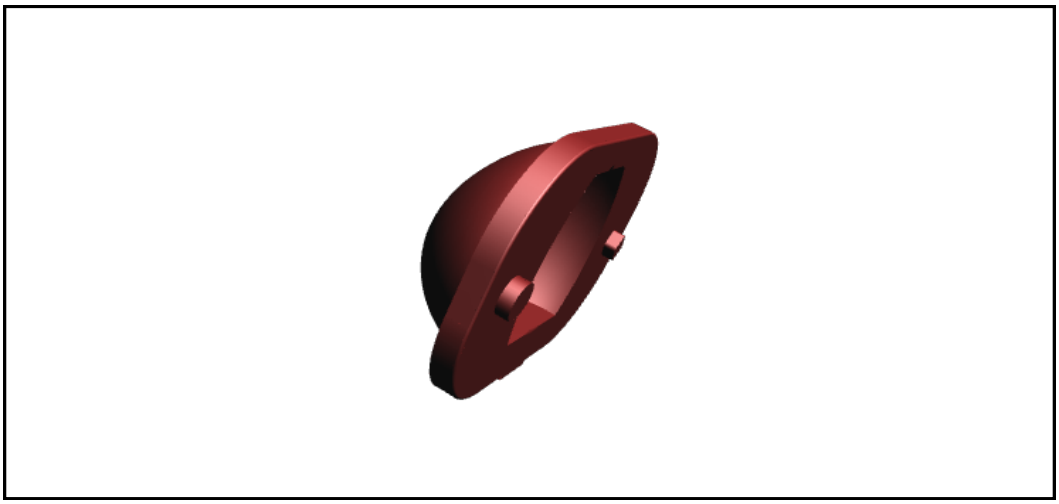
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

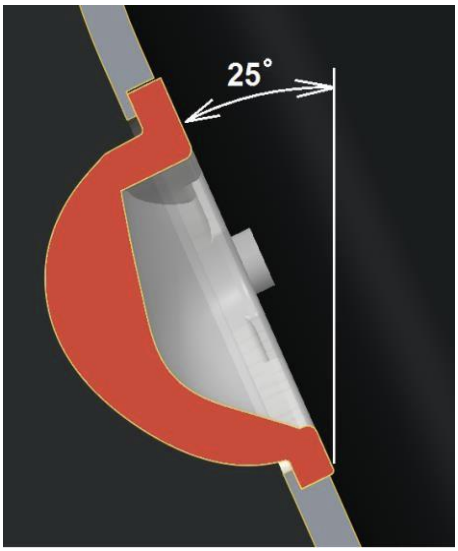
Part No. 438
Long Range 120° Sector EN54-23 Ceiling Optic Red

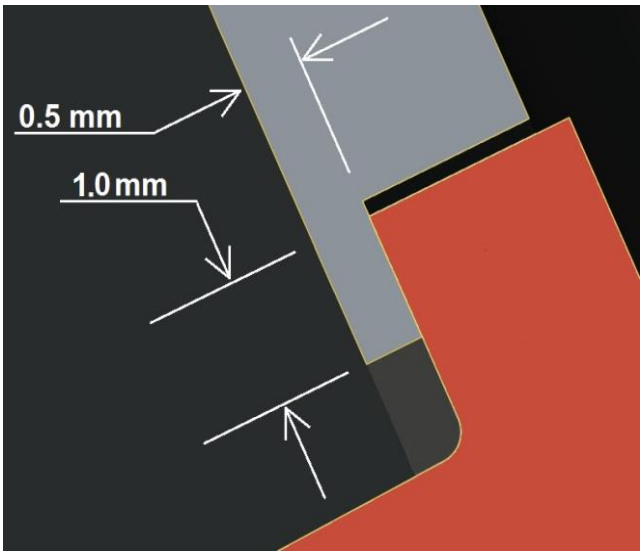
The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The optic is designed to be mounted at an angle of 25° to the vertical with the gate vestige facing upwards. The maximum size of the lip of a retaining cover placed over the optic is shown below:





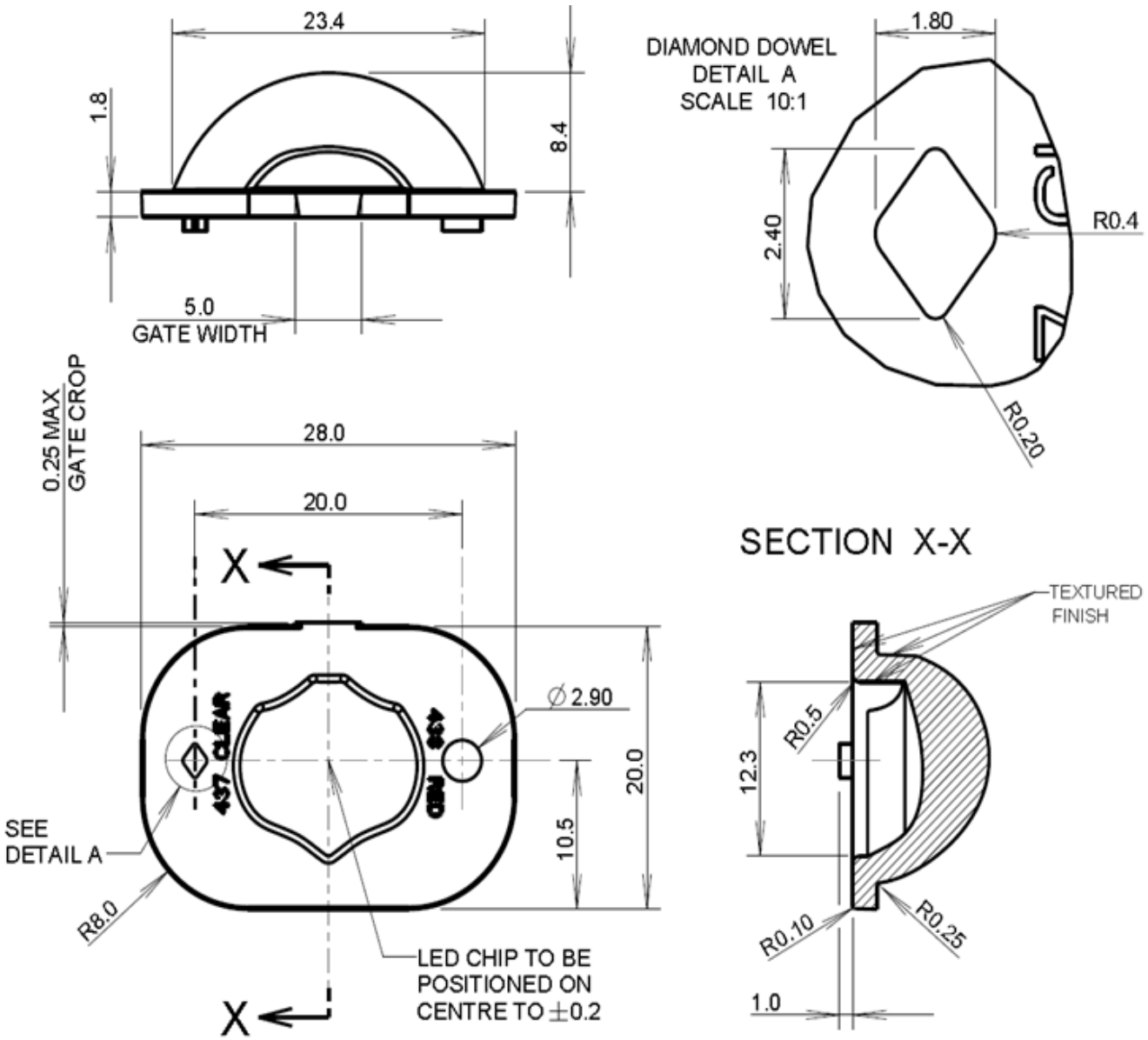
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 438
Long Range 120° Sector EN54-23 Ceiling Optic Red

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

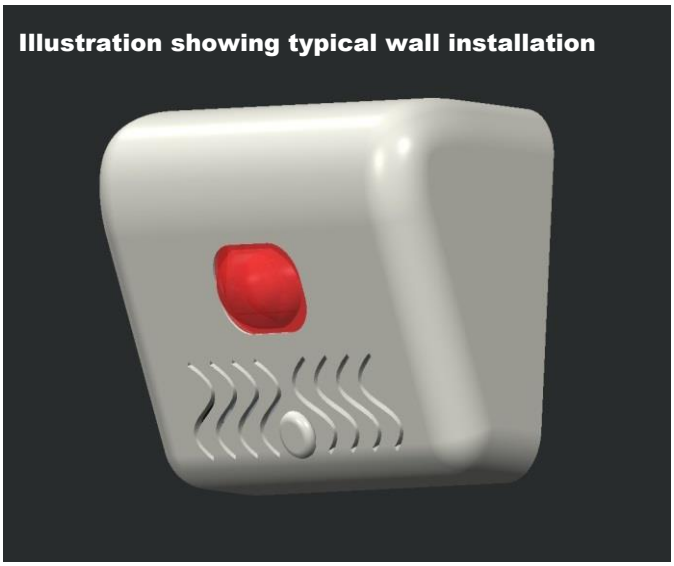
© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 443
Long Range EN54-23 Wall Optic Red

Designed for long range coverage meeting EN54 Part 23 requirements for a wall mounted signal optic positioned at a height of 2.4m. This optic can be used to efficiently illuminate areas up to 8m square. Larger areas can be illuminated with reduced efficiency.

A typical installation of the optic in an enclosure is shown below:



- **Designed for Warm White 2700K versions of the Cree XM-L2 and Luxeon TX LEDs.**

- **Rating vs effective LED output required:**

  W-2.4-5 90 lumens
  W-2.4-6 110 lumens
  W-2.4-7 150 lumens
  W-2.4-8 195 lumens

- **Light transmission efficiency of 47%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

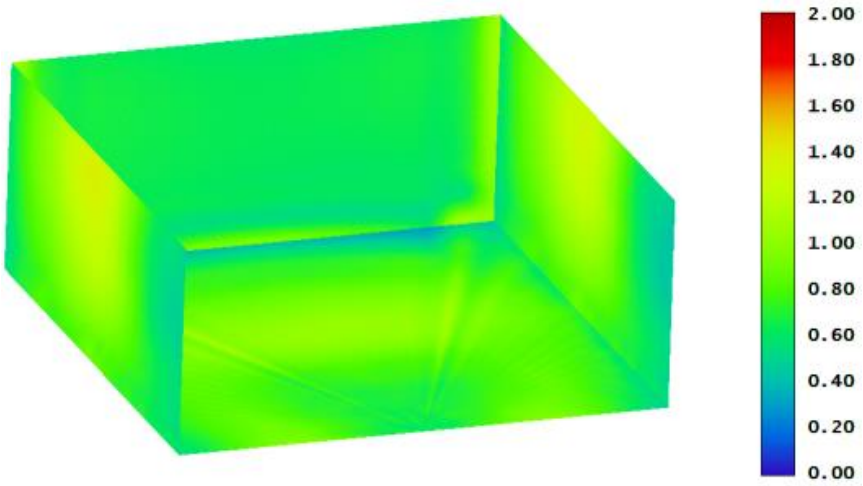
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

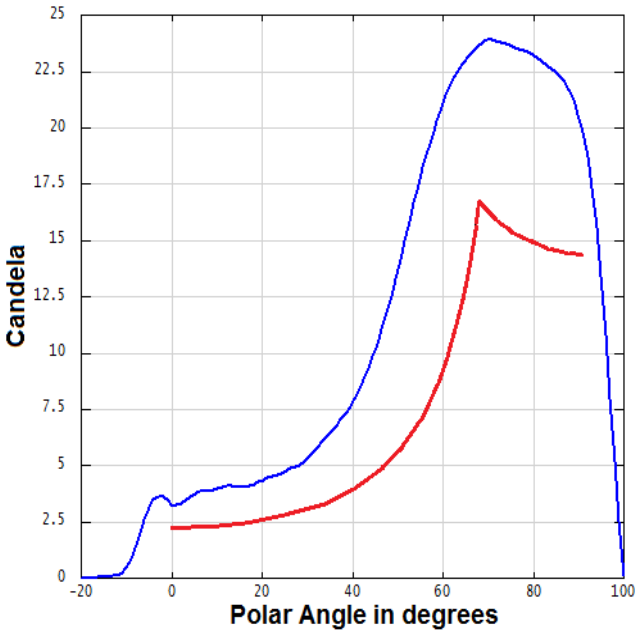
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 443
Long Range EN54-23 Wall Optic Red

The plot below shows the variation in flux level at the boundary of a 2.4m high, 6m square area as specified by EN54-23 when illuminated using a Warm White 2700K Cree XP-L2 LED emitting 110 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for W-2.4-6 compliance converted to candela values, (shown in red) from a Warm White 2700K Cree XP-L2 LED emitting 110 effective lumens. (Note: To determine the peak lumens required to generate 110 effective lumens refer to Appendix A of EN54-23.)



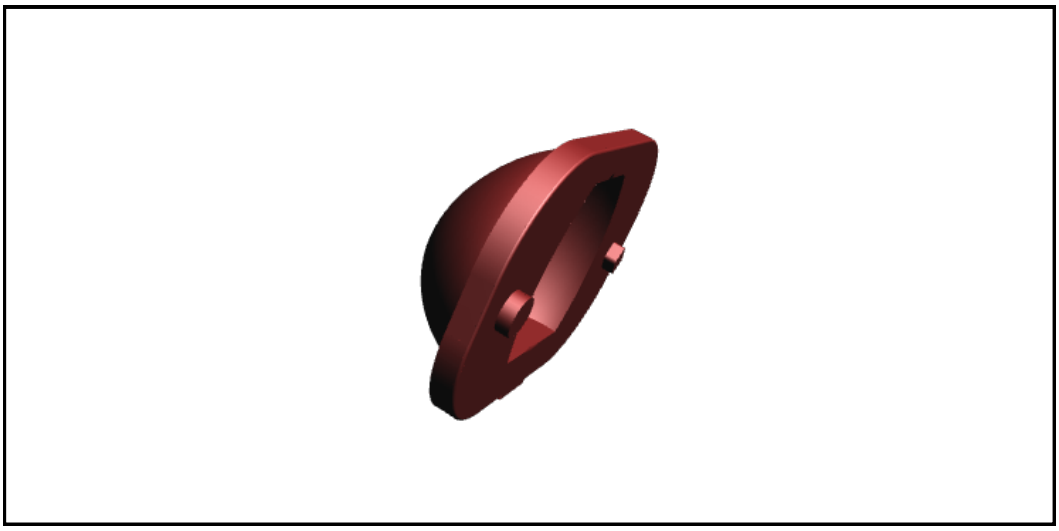
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

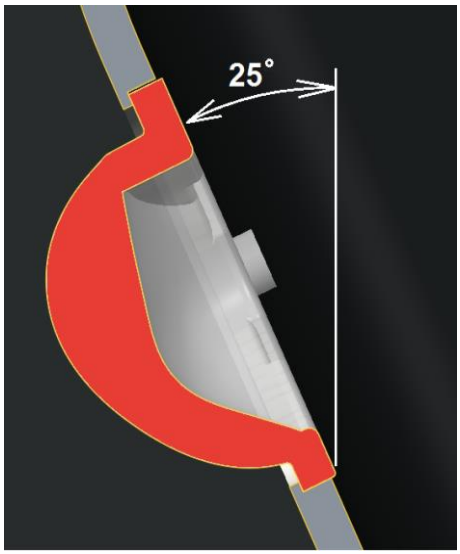
Part No. 443
Long Range EN54-23 Wall Optic Red

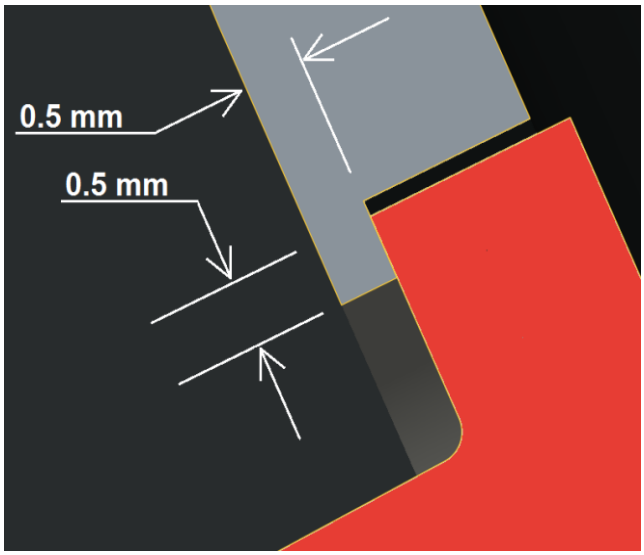
The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The optic is designed to be mounted at an angle of 25° to the vertical with the gate vestige facing upwards. The maximum size of the lip of a retaining cover placed over the optic is shown below:





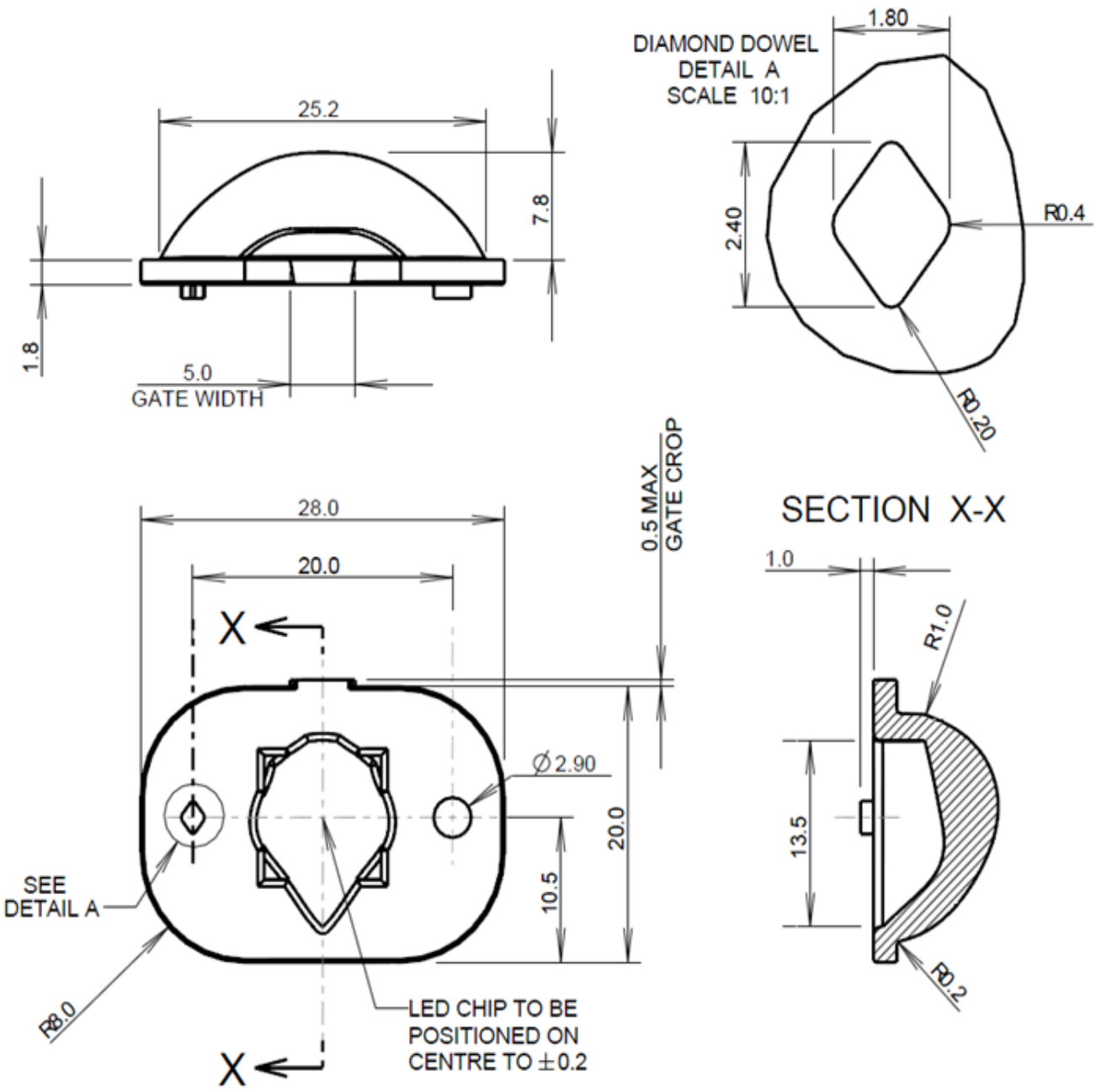
Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 443
Long Range EN54-23 Wall Optic Red

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, 6 Kiln Ride, Wokingham, Berkshire RG40 3JL, England
Tel/Fax: +44 (0)1189 893341 info@polymer-optics.co.uk www.polymer-optics.co.uk
Incorporating Automotive, Security & Electronics Division. Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2015

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 953
Long Range Vertical Mounting EN54-23 Wall Optic Clear

This optic has been designed for long range coverage meeting EN54 Part 23 requirements for a vertical wall mounted signal optic positioned at a height of 2.4m. This optic can be used to efficiently illuminate areas between 10m and 17m square. For applications requiring less than 10m coverage the short range #955 optic will be more efficient.

- **Designed for Cree XP-E2, XP-G2, XM-L2, Luxeon Rebel, Luxeon TX and Luxeon M LEDs. Other Lambertian output LEDs may be used.**

- **Rating vs effective LED output required using Cree XM-L2:**

  W-2.4-10 115 lumens
  W-2.4-11 115 lumens
  W-2.4-12 125 lumens
  W-2.4-13 150 lumens
  W-2.4-14 175 lumens
  W-2.4-15 200 lumens
  W-2.4-16 225 lumens
  W-2.4-17 270 lumens

- **Light transmission efficiency of 85%**

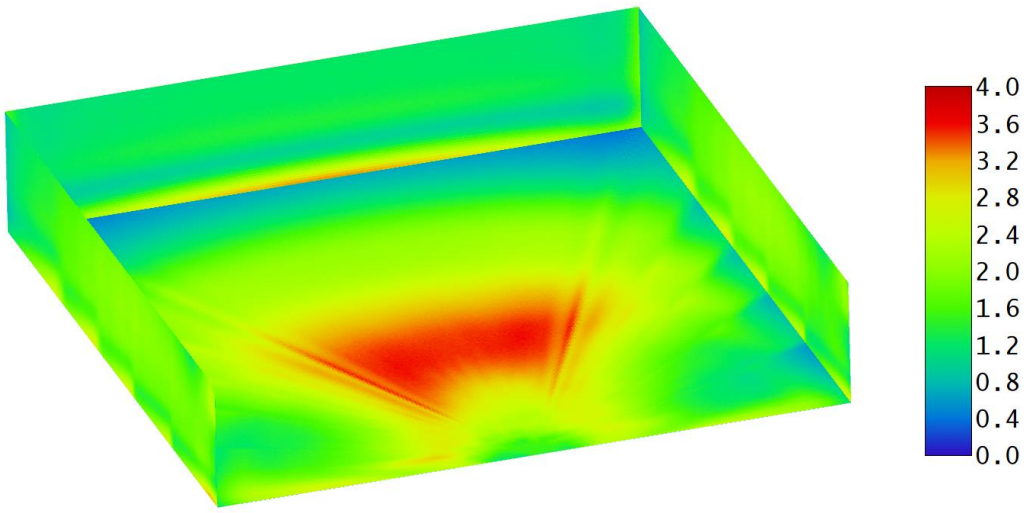
- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90
© Copyright Polymer Optics Limited 2019

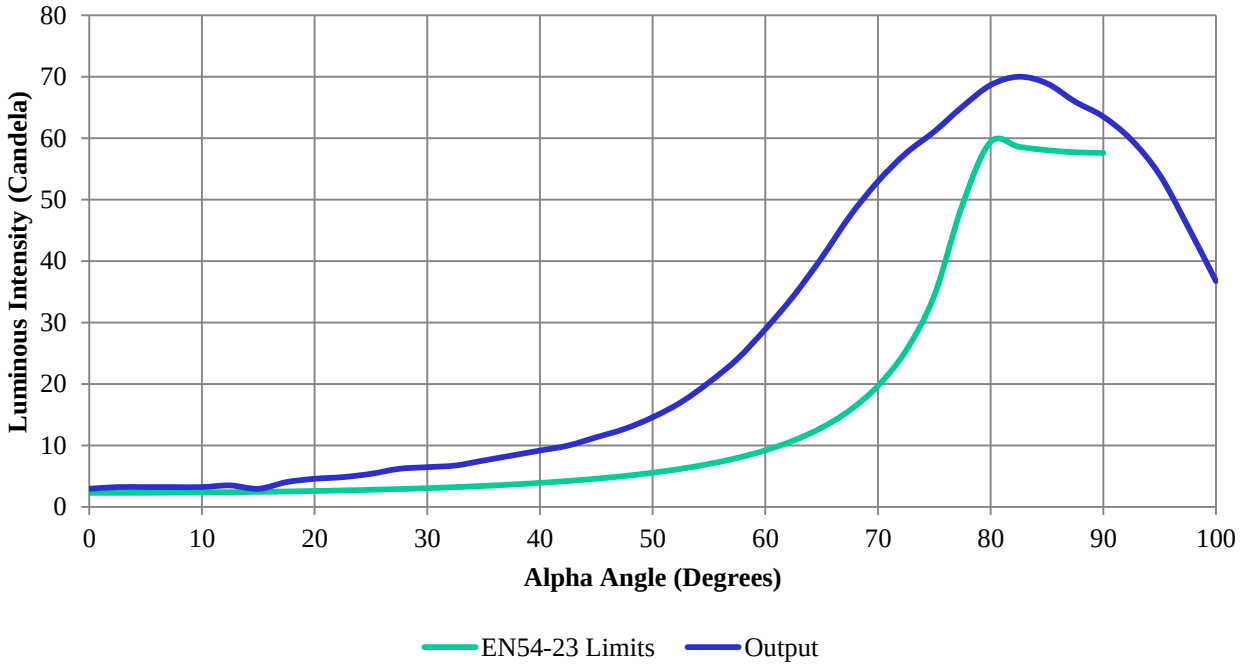
POLYMER OPTICS LTD
intelligent engineering with light

Part No. 953
Long Range Vertical Mounting EN54-23 Wall Optic Clear

The plot below shows the variation in flux level at the boundary of a 2.4m high, 12m square area as specified by EN54-23 when illuminated using a Cree XM-L2 LED emitting 125 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for W-2.4-12 compliance converted to candela values, (shown in green) from a Cree XM-L2 LED with an effective output of 125 lumens. (Note: To determine the peak lumens required to generate 125 effective lumens refer to Appendix A of EN54-23.)

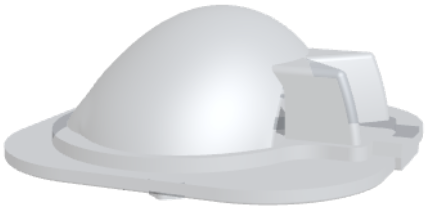


Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90
© Copyright Polymer Optics Limited 2019

POLYMER OPTICS LTD
intelligent engineering with light

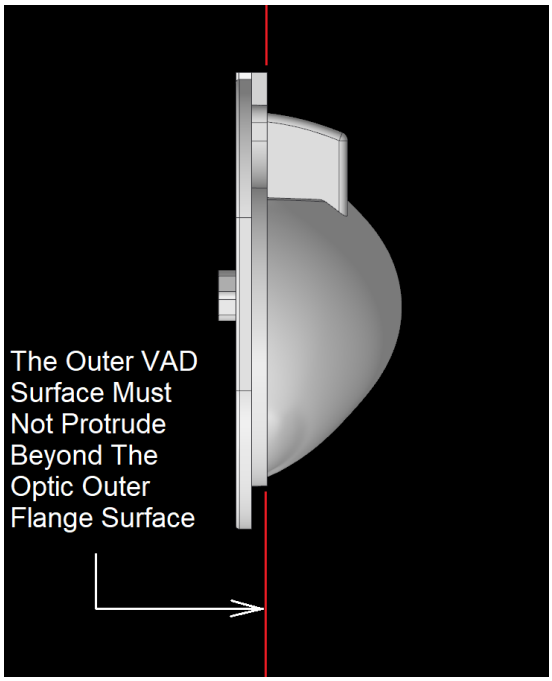
Part No. 953
Long Range Vertical Mounting EN54-23 Wall Optic Clear

The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

The optic is designed to be mounted vertically with the gate vestige and prisms facing upwards. There is a 0.9mm step in the optic flange which the VAD outer casing should overlap. To prevent the light output from the optic being obscured outer surface of the VAD should not protrude beyond the top surface of the optic flange.

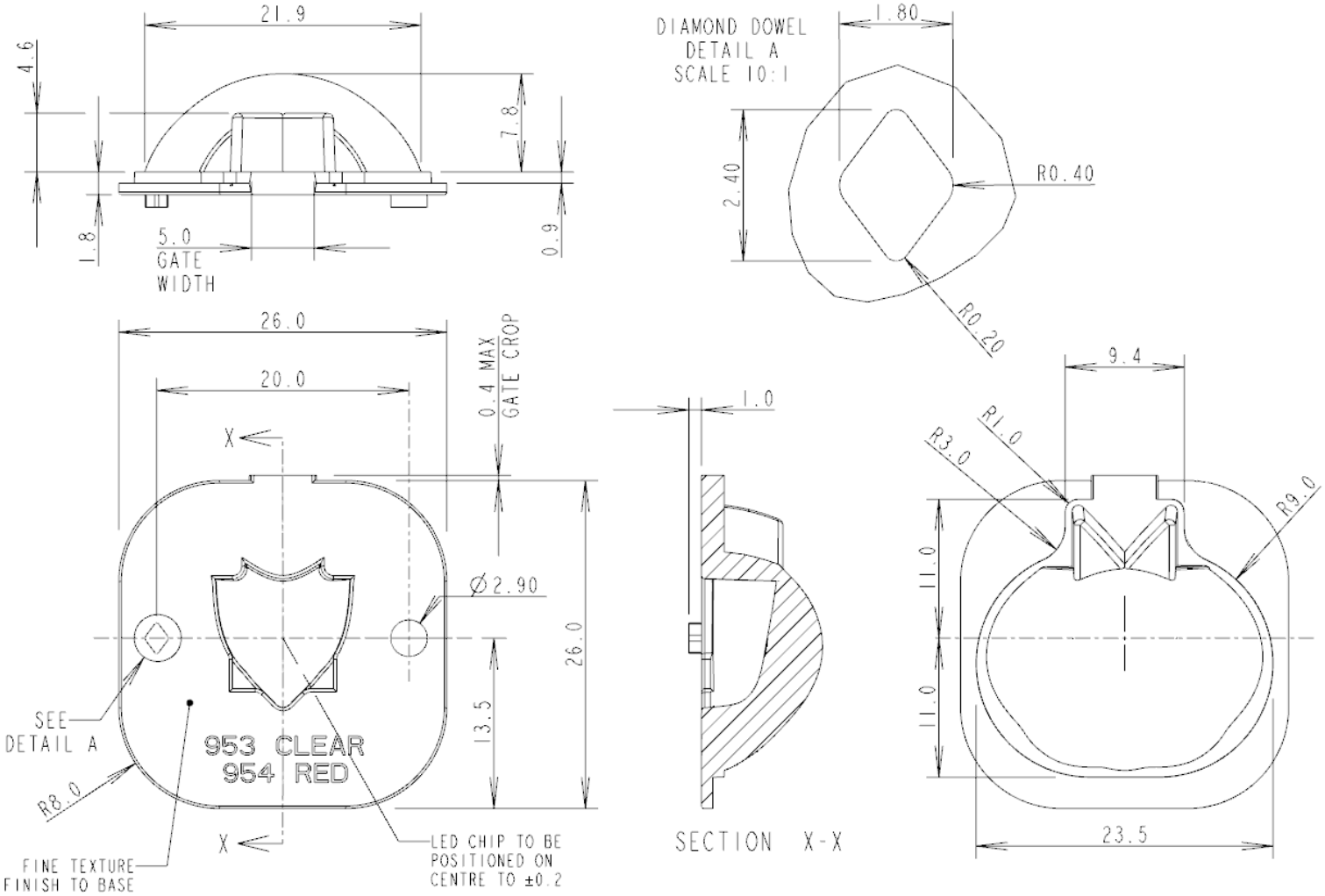


Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90
© Copyright Polymer Optics Limited 2019

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 953
Long Range Vertical Mounting EN54-23 Wall Optic Clear

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90
© Copyright Polymer Optics Limited 2019

POLYMER OPTICS LTD
intelligent engineering with light

Part No. 955
Short Range Vertical Mounting EN54-23 Wall Optic Clear

This optic has been designed for short range coverage meeting EN54 Part 23 requirements for a vertical wall mounted signal optic positioned at a height of 2.4m. This optic can be used to efficiently illuminate areas of up to 9m square. For applications requiring 10m or more coverage the long range #953 optic will be more efficient.

- **Designed for Cree XP-E2, XP-G2, XM-L2, Luxeon Rebel, Luxeon TX and Luxeon M LEDs. Other Lambertian output LEDs may be used.**

- **Rating vs effective LED output required using Cree XP-G2:**

  W-2.4-3 50 lumens
  W-2.4-4 50 lumens
  W-2.4-5 50 lumens
  W-2.4-6 60 lumens
  W-2.4-7 80 lumens
  W-2.4-8 90 lumens
  W-2.4-9 110 lumens

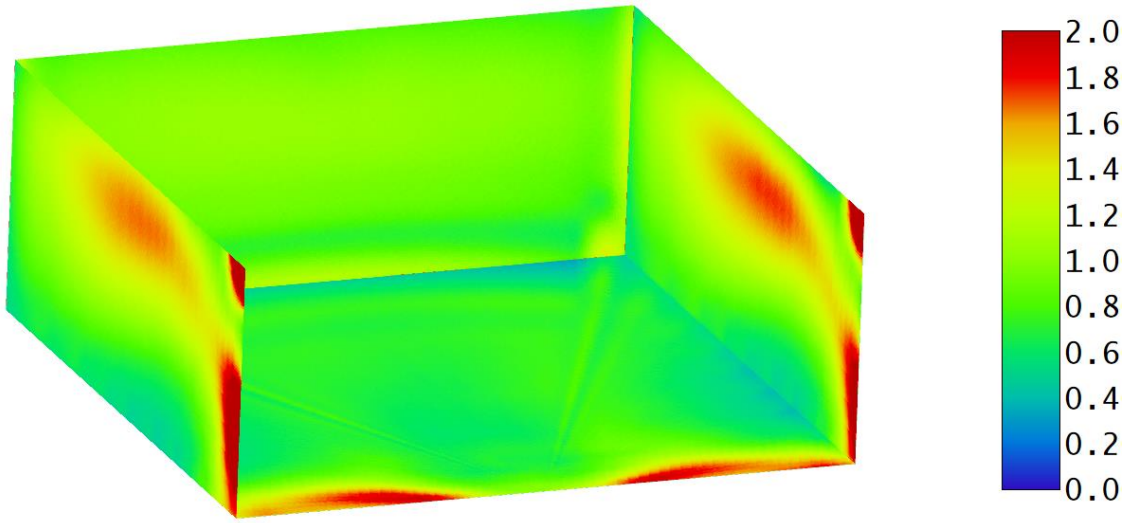
- **Light transmission efficiency of 85%**

- **Precision moulded in optical grade Polycarbonate meeting the V-2 flammability requirement of EN54-23.**

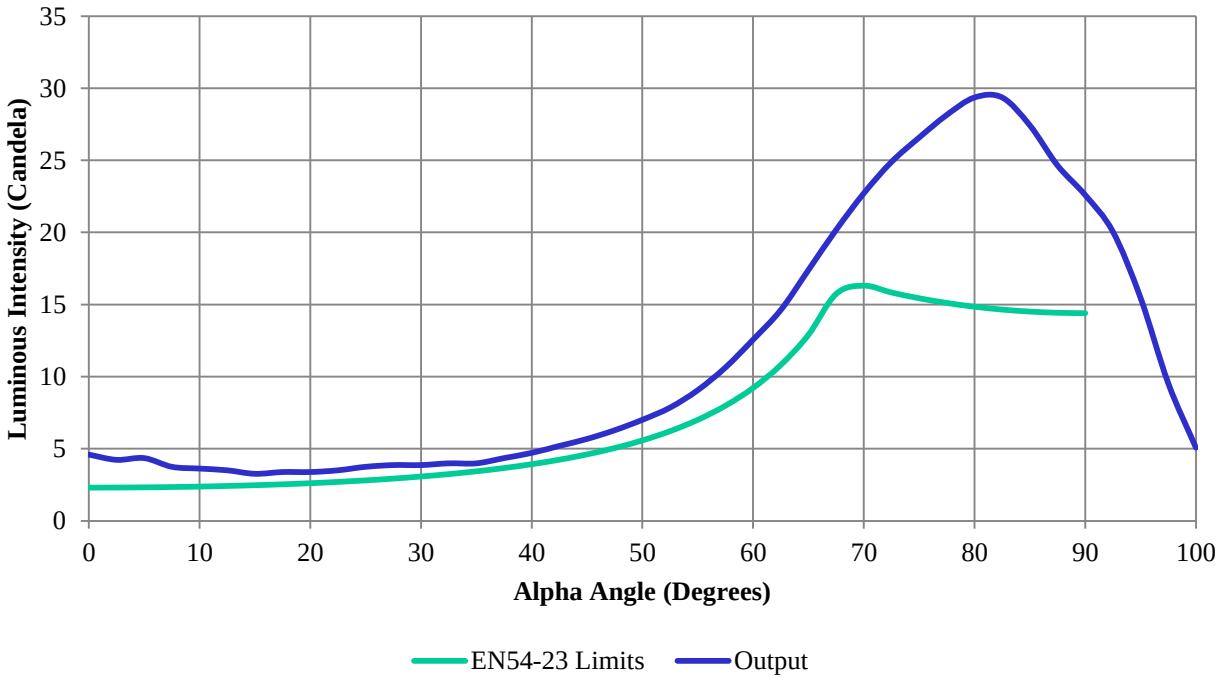
Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90
© Copyright Polymer Optics Limited 2019

Part No. 955
Short Range Vertical Mounting EN54-23 Wall Optic Clear

The plot below shows the variation in flux level at the boundary of a 2.4m high, 6m square area as specified by EN54-23 when illuminated using a Cree XP-G2 LED emitting 60 effective lumens. (Note: EN54-23 specifies that the flux values are to be measured on a surface facing the source at the boundary.)



The graph below shows the optic output, (shown in blue) compared with the minimum 0.4 Lux level for W-2.4-6 compliance converted to candela values, (shown in green) from a Cree XP-G2 LED with an effective output of 60 lumens. (Note: To determine the peak lumens required to generate 60 effective lumens refer to Appendix A of EN54-23.)

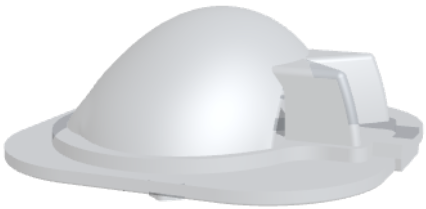


Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90
© Copyright Polymer Optics Limited 2019

POLYMER OPTICS LTD
intelligent engineering with light

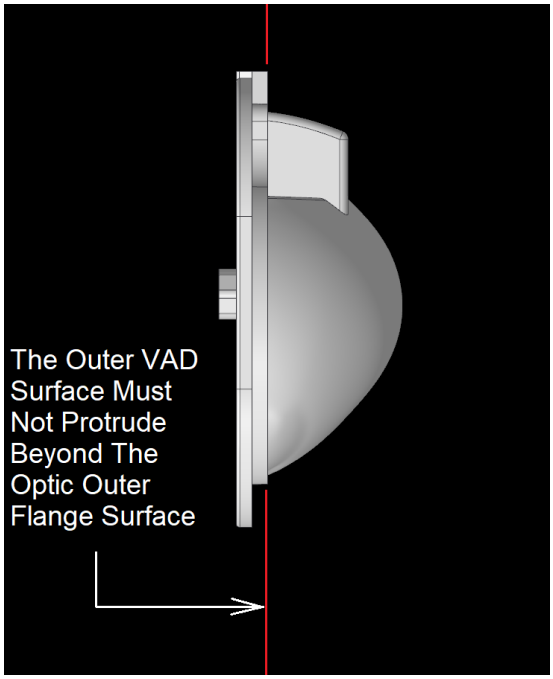
Part No. 955
Short Range Vertical Mounting EN54-23 Wall Optic Clear

The picture below is a 3D interactive model of the part. Click to activate.



The optic is located on the PCB using a diamond dowel inserted in to a 2.5mm diameter hole and a peg in to a 3mm diameter hole. The distance between the two hole centres required is 20mm. (See dimensional drawing overleaf).

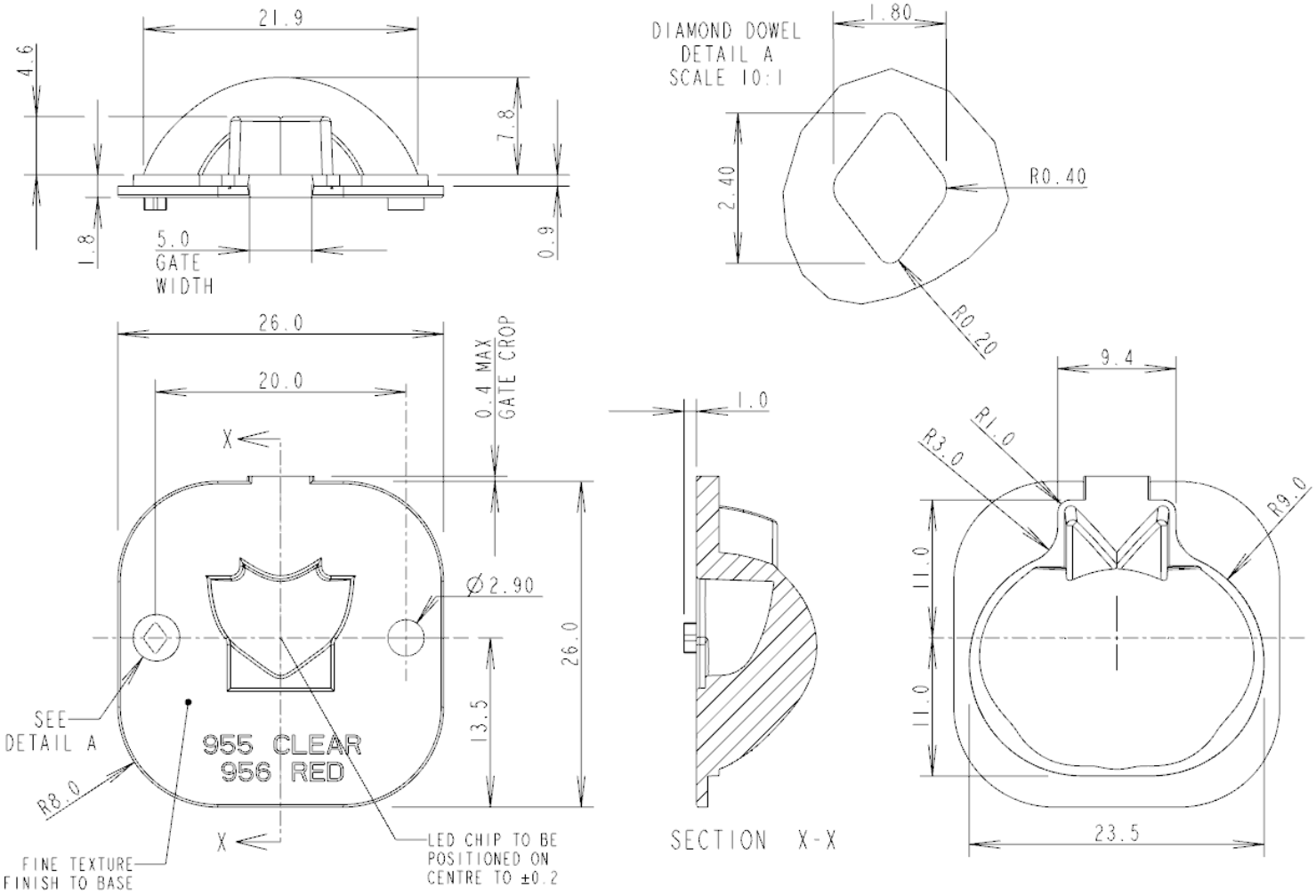
The optic is designed to be mounted vertically with the gate vestige and prisms facing upwards. There is a 0.9mm step in the optic flange which the VAD outer casing should overlap. To prevent the light output from the optic being obscured outer surface of the VAD should not protrude beyond the top surface of the optic flange.



Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90
© Copyright Polymer Optics Limited 2019

Part No. 955
Short Range Vertical Mounting EN54-23 Wall Optic Clear

Typical dimensional tolerances to
+/-0.2mm



In order to determine if the particular beam properties and performance of this optic are suitable for your application POL suggests that you obtain samples from POL or their distributors for your own product testing.

Due to continuous product improvement, POL reserve the right to change specifications without notice.

Polymer Optics Limited, The Hall, Priory Hill, Rugby Road, Wolston, Coventry, CV8 3FZ, England
Tel: +44 (0)2476 937394 info@polymer-optics.co.uk www.polymer-optics.co.uk
Registered in England No. 3593960 VAT Registration No. 711 1407 90

© Copyright Polymer Optics Limited 2019