

IRIS

BROADBAND OPTICAL MONITORING SYSTEM

AKRA

MONOCHROMATIC OPTICAL MONITORING SYSTEM



MEASUREMENT EXAMPLES

Distribution in the UK & Ireland



Lambda

Characterisation,
Measurement &
Analysis

Lambda Photometrics Limited
Lambda House Batford Mill
Harpenden Herts AL5 5BZ
United Kingdom

E: info@lambdaphoto.co.uk
W: www.lambdaphoto.co.uk
T: +44 (0)1582 764334
F: +44 (0)1582 712084

ESSENT OPTICS

Application of the IRIS Broadband Optical Monitoring Systems (BBM) from EssentOptics provides for significant improvement in quality indicators of complex multilayer optical coatings, including those with non-quarter-wavelength design and coatings with multiple control wavelengths (coatings for laser optical elements, broadband dichroic filter etc.).

The use of the IRIS monitoring system significantly increases the process yield and virtually eliminates the need for trial runs, even for new processes.

Excellent spectral resolution (up to 0,8 nm) and high signal-to-noise ratio (up to 5000:1) allows our customers to obtain the most error-sensitive multilayer coatings with unlimited number of layers.

The AKRA and IRIS systems offer fast and reliable process monitoring and ensure improved product yields, reduced production costs and increased repeatability even for the most challenging deposition runs.

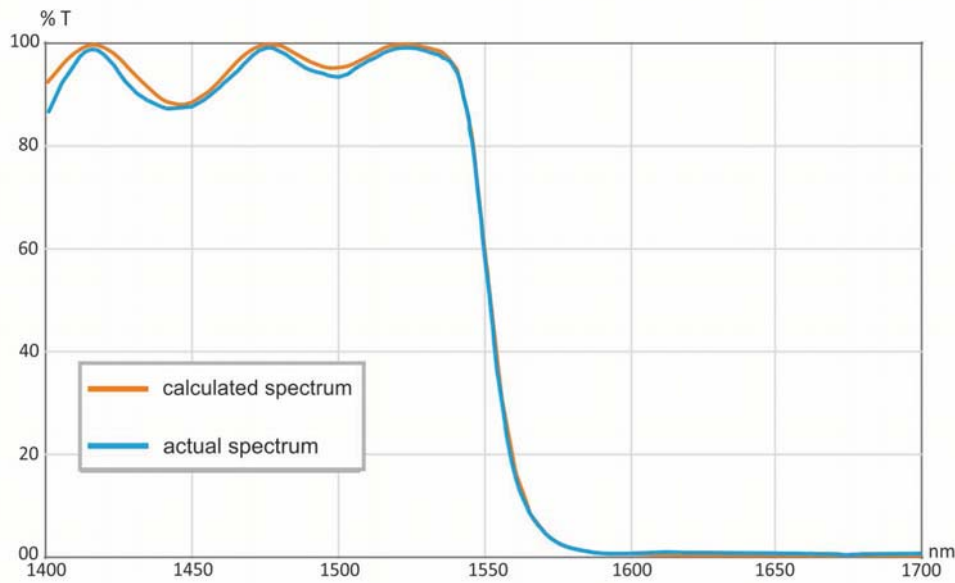
Application of the AKRA Monochromatic Optical Monitoring System offers unparalleled opportunities to design and produce optical coatings covering the broadest wavelength range - from UV to IR. Sophisticated optical design and vast software features provide for radical reduction of the manual operations during the deposition processes.

The transition to the new system is easy and quick for coating engineers having experience with standard optical monitoring systems since the AKRA system also utilizes a monochromator as a spectrum separation element.

Accurate and real-time display of the changing transmission or reflection values is supported with the built-in unique ability to scan the entire spectrum after deposition of each layer. This feature significantly increases process and product yields and almost eliminates the need for trial runs.



SHORTPASS FILTER



Shortpass filter with more than 20 layers.

Target specifications:

Cut-Off wavelength: 1550 nm

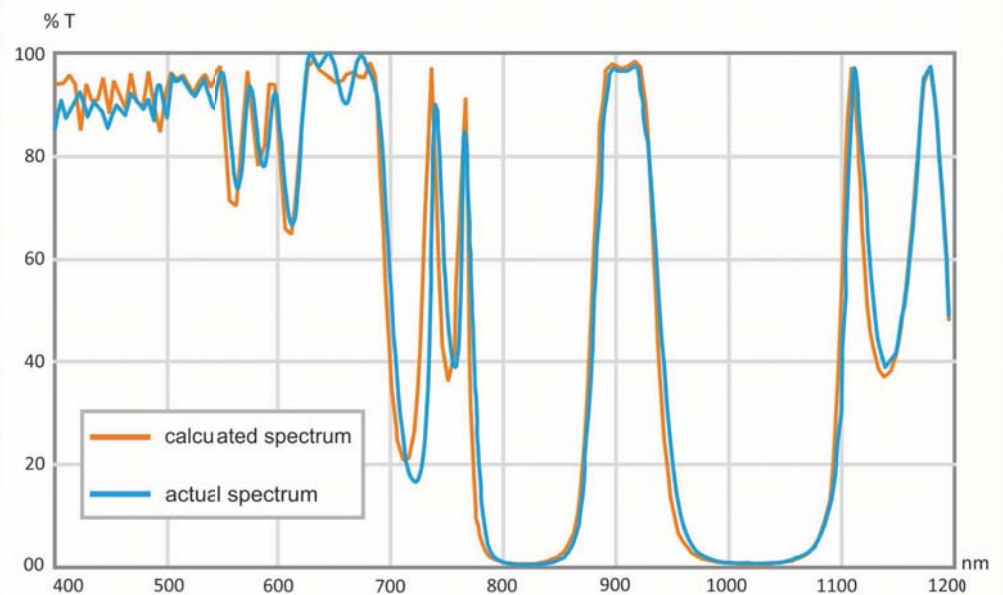
Cut-Off tolerance: +/- 1%

T > 99% @ 1530 nm

T(rejection band) < 0,1%

Applicable product: IRIS

BAND-PASS FILTER



Band-pass filter optimized for 910 nm and composing of more than 30 layers.

Target specifications:

$T_{\max} \geq 98\%$ @ 910 nm

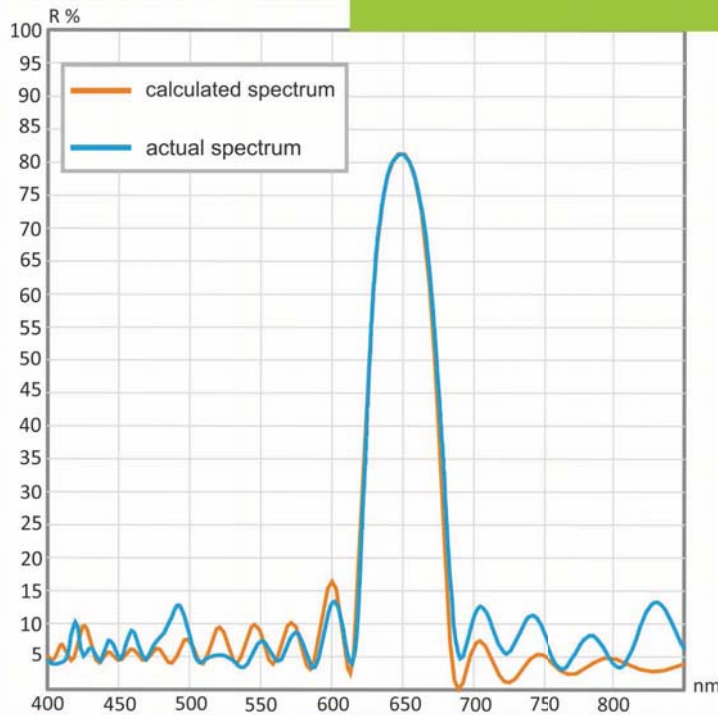
FWHM ≤ 50 nm

T < 1% (800 - 850 nm)

T < 1% (990 - 1060 nm)

Applicable product: IRIS, AKRA

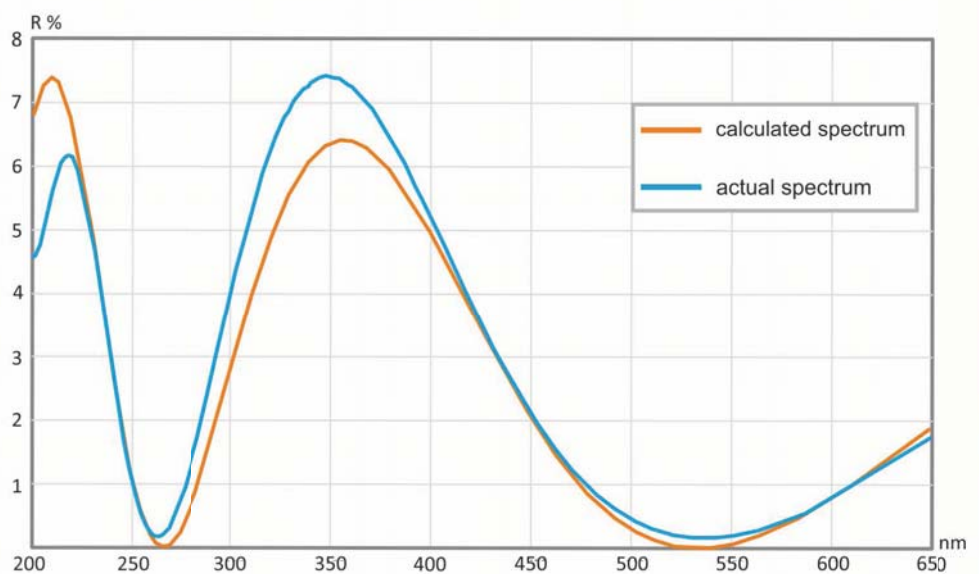
NARROWBAND DIELECTRIC MULTILAYER MIRROR



Target specifications:
 $R_{\max} \geq 80\%$ @ 650 nm
 $\text{FWHM} \leq 55$ nm

Applicable product: IRIS, AKRA

ANTIREFLECTION COATING AT TWO WAVELENGTHS

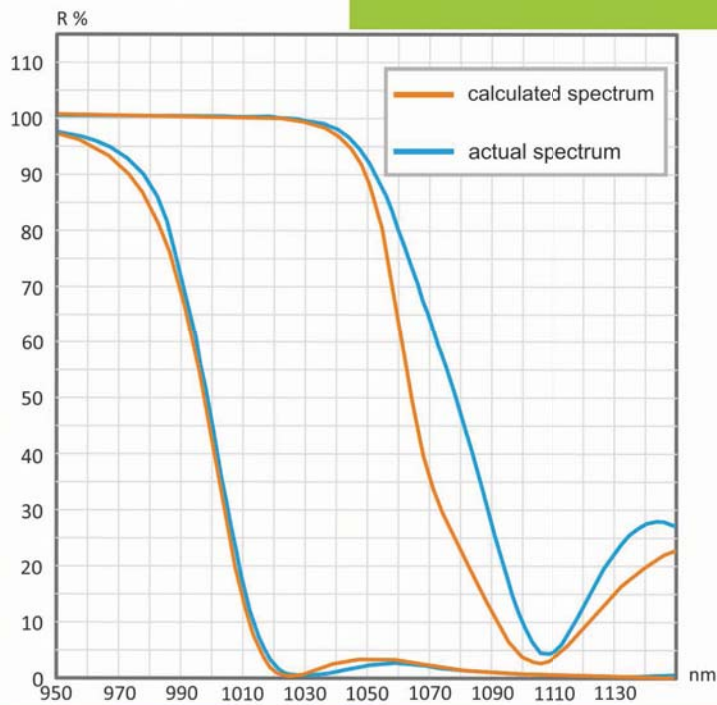


Antireflection coating
effective at two wavelengths
simultaneously in the visible
region, 255 nm and 532 nm

Target specifications:
 $R \leq 0,2\%$

Applicable product: IRIS

POLARIZER AT 56 DEG



Thin film polarizer optimized for maximum efficiency at 1030 nm / 56 deg AOI.

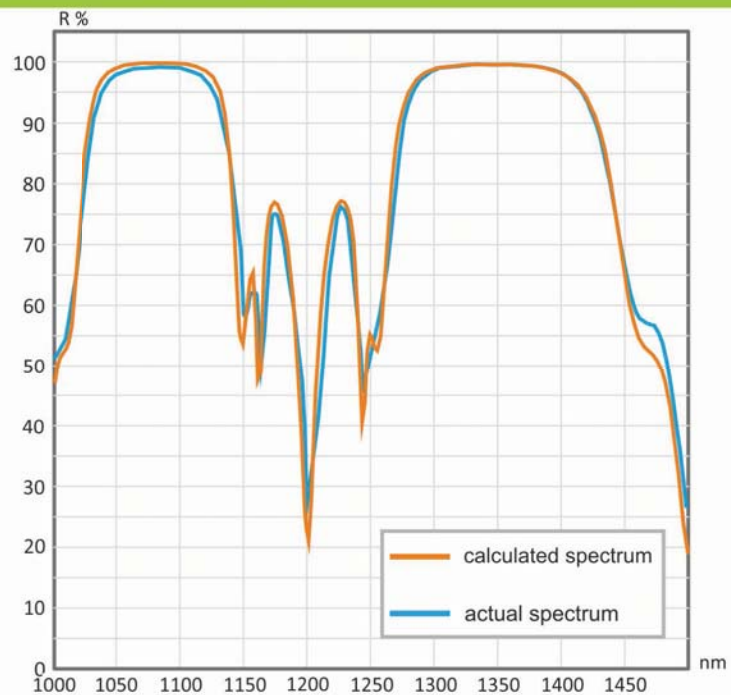
Target specifications:
Rs/Rp ratio > 100

Applicable product: IRIS, AKRA

INTERFERENCE MIRROR AT TWO WAVELENGTH

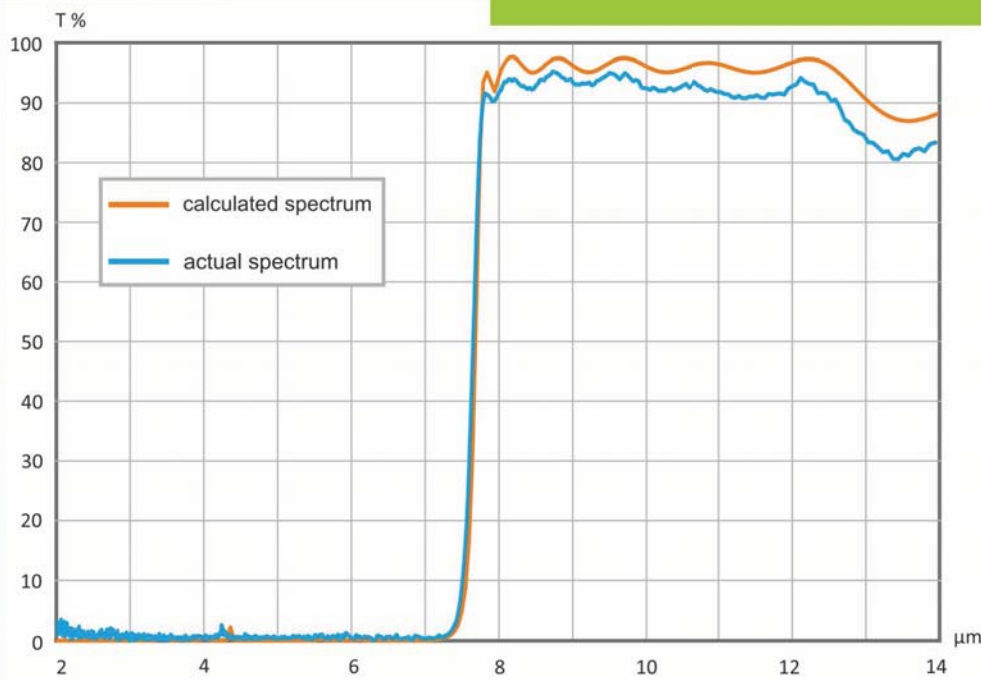
Multilayer interference mirror with specified performance at two wavelengths – 1064 nm and 1350 nm.

Target specifications:
Ravg > 99% @ 45 deg AOI



Applicable product: IRIS

IR LONGPASS FILTER



IR longpass filter produced on Ge substrate, with broadband (8-14 μm) AR coating on the back side.

Target specifications:

Cut-On wavelength: 7,6 μm

Cut-On tolerance: +/- 0,15 μm

$T(\text{passband}) > 95\%$ @ 8-12 μm

$T(\text{passband}) > 85\%$ @ 12-14 μm

$T(\text{rejection band}) < 1\%$

Applicable product: IRIS, AKRA

IR LONGPASS FILTER

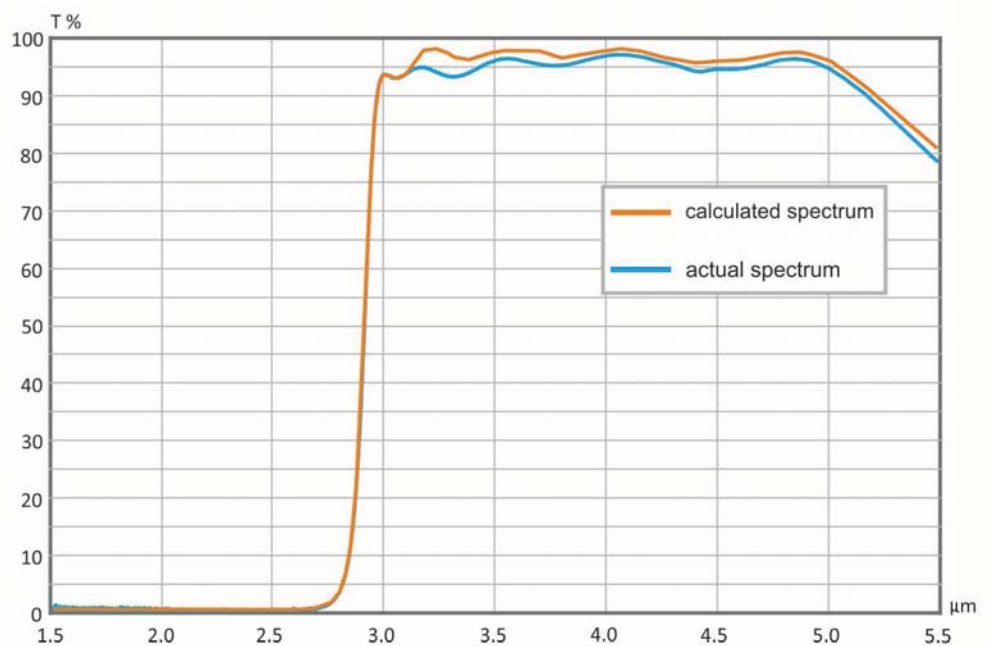
Mid-wave infrared longpass filter with broadband AR coating on the back side.

Target specifications:

Cut-On wavelength: 2,95 μm

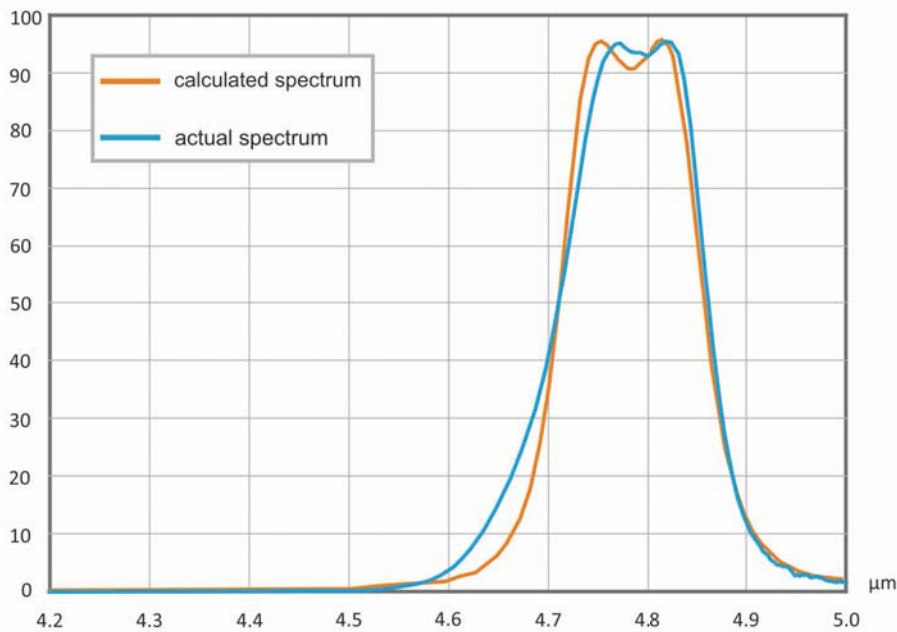
Cut-On tolerance: +/- 0,02 μm

$T(\text{passband}) \geq 95\%$



Applicable product: IRIS, AKRA

BAND-PASS FILTER



IR band-pass filter with 19 layers optimized at 4,78 μm. The Si/SiO layer stack is coated on sapphire substrate.

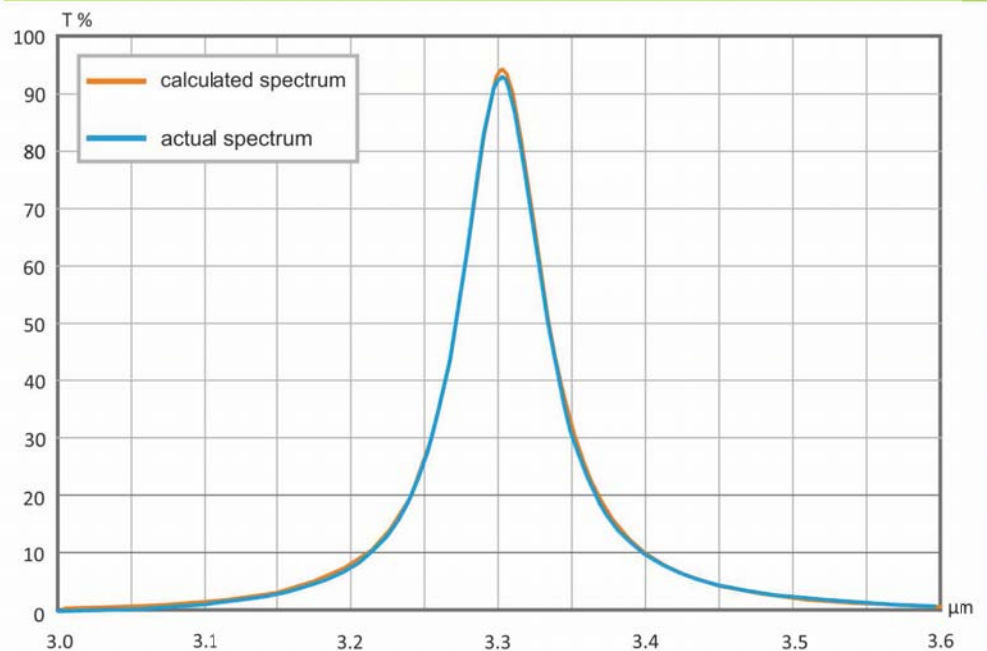
Target specifications:

$T_{\max} \geq 90\%$ @ 4,78 μm

Tenth width (ZW) ≤ 260 nm

Applicable product: IRIS, AKRA

NARROWBAND FILTER



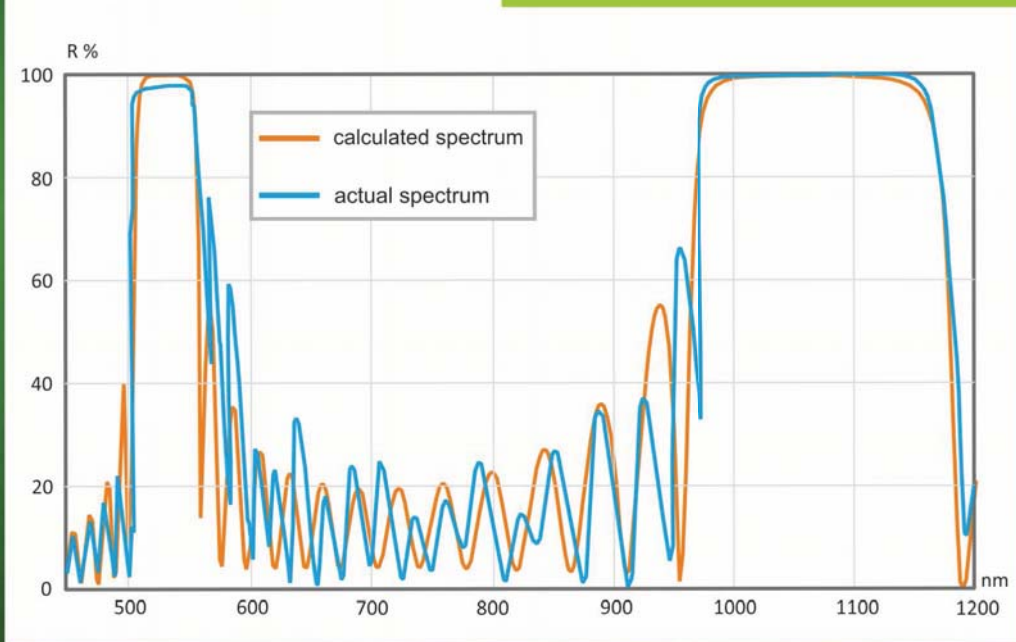
IR narrow band-pass filter for 3.3 μm center wavelength, having 11 layers of Si and SiO materials deposited on sapphire substrate.

Target specifications:

$T_{\max} > 90\%$ @ 3,3 μm

Applicable product: AKRA

INTERFERENCE MIRROR AT TWO WAVELENGTHS



Multilayer interference mirror at two wavelengths – 532 nm and 1064 nm. The thin film stack is designed for operation at 0 deg AOI.

Target specifications:

$R \geq 99\%$ @ 1064 nm

$R \geq 98\%$ @ 532 nm

Applicable product: IRIS

Distribution in the UK & Ireland



**Characterisation,
Measurement &
Analysis**

Lambda Photometrics Limited
Lambda House Batford Mill
Harpenden Herts AL5 5BZ
United Kingdom

E: info@lambdaphoto.co.uk

W: www.lambdaphoto.co.uk

T: +44 (0)1582 764334

F: +44 (0)1582 712084