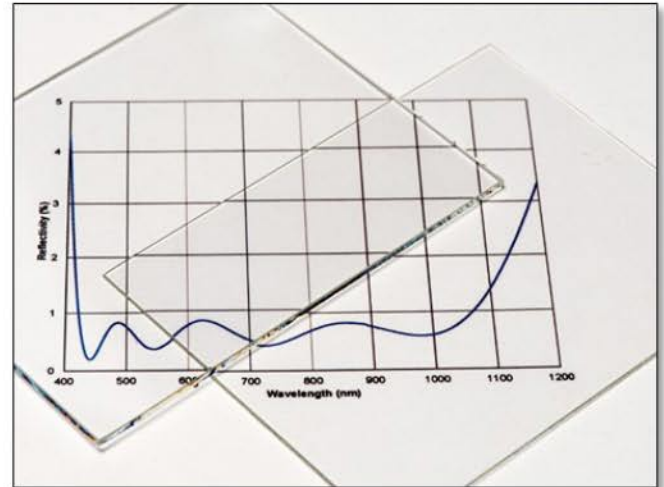


## Sensor and Scanner Window Solutions

### Imaging • 3D Metrology and Mapping • Obstacle Avoidance

Optical and image sensor use is on the rise with growing applications in industrial 3D metrology, machine vision, automotive obstacle avoidance, security and surveillance, document and 3D scanning, gesture recognition and other digital imaging applications. Abrisa Technologies' rare combination of performance coating design and volume glass fabrication offers the OEM an opportunity for a Total Solution for their sensor and scanning windows; an excellent balance of optical coating performance and economies of scale.



Abrisa Technologies now offers a selection of coated solutions for both laser line and broad spectral ranges from the visible to SWIR, with large angle-of-incidence accommodation and high throughput. Spectrally selective coatings for use outdoors or with discreet diode emitters are also available.

#### Sensor and Scan Window Coatings:

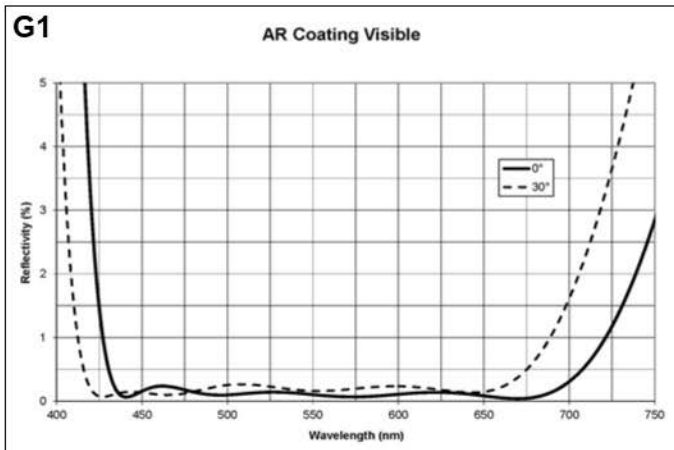
- |   |                                    |
|---|------------------------------------|
| • Anti-Reflection Visible (425nm-675nm)   | Ravg < 0.5% (AOI = 0-30°)          |
| • Anti-Reflection Visible-NIR (425-950nm) | Ravg < 1.0% (AOI = 0-30°)          |
| • Anti-Reflection SWIR (900-1700nm)       | Ravg < 1.0% (AOI = 0-30°)          |
| • Broad Angle Anti-Reflection Laser Line  | Ravg < 0.5% (AOI = 0-50°)          |
| • Ultra-low Anti-Reflection NIR Diode     | Ravg < 0.1% (AOI = 0-30°)          |
| • Cut Off, IR Blocking Filter/Mirror      | Visible Transmission, NIR Blocking |
| • Cut On, VIS Blocking Filter, Mirror     | Visible Blocking, NIR Transmitting |

#### Damage Resistant and “Tough” Environment Solutions:

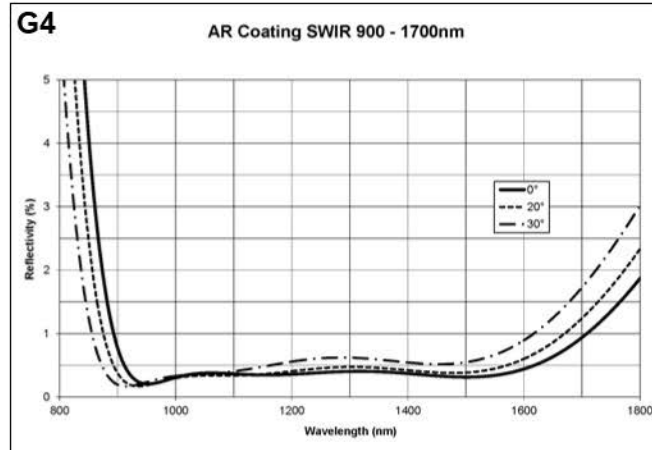
Many applications for sensors and scanners are industrial or for field use where uptime and reduced product maintenance are not just desirable, but a necessity. Abrisa Technologies offers coated sensor and scanner window solutions for these “tough” use environments as well, whether they be outdoors in sunlight, on the seas or on the road, installed in a hot and humid factory, have high traffic interface contact or constant exposure to dirt and other contaminants.

# Sensor and Scanner Window Solutions

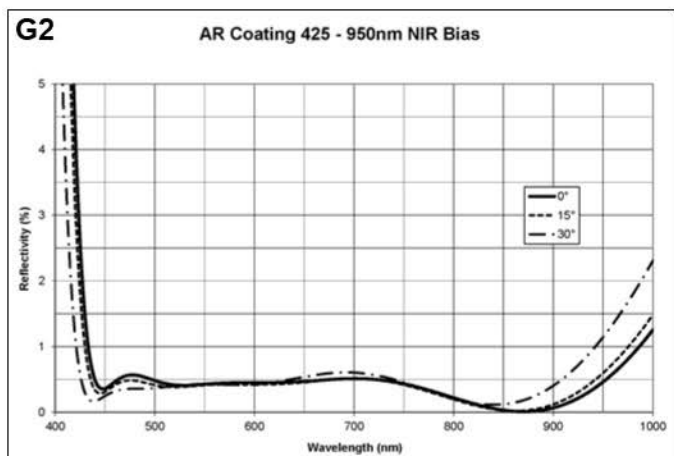
## Imaging • 3D Metrology and Mapping • Obstacle Avoidance



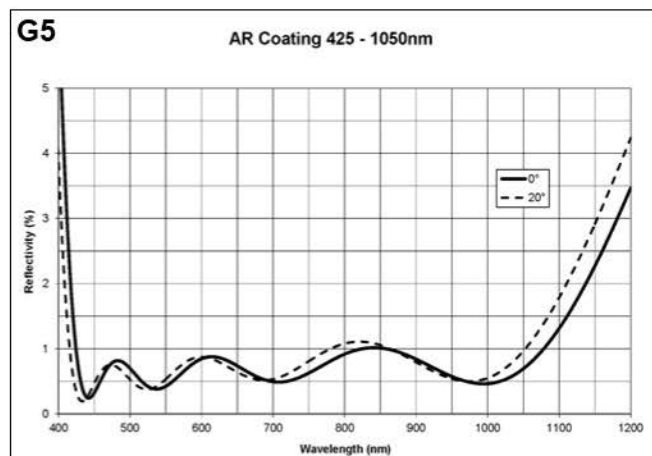
- Visible AR coating for full color LCD & OLED Displays
- $R_{avg} < 0.5\%$  (AOI = 0-30°) 425-675nm
- Also available with oleo/hydrophobic properties



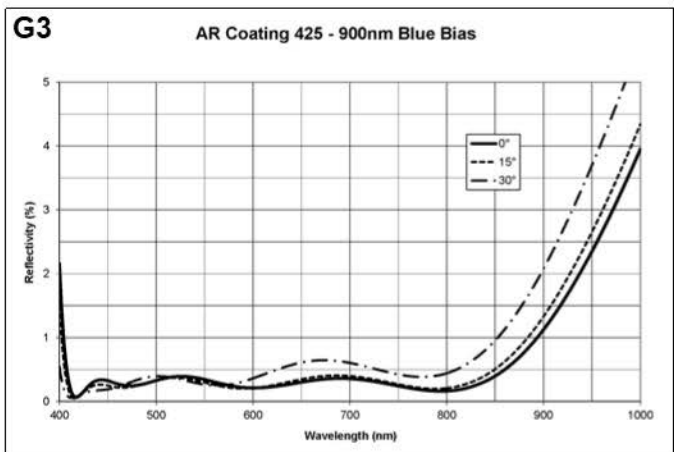
- Coating for machine vision & spectral analysis
- $R_{avg} < 1.0\%/1.5\%$  900-1700nm (AOI = 0/30°)
- Also available with oleo/hydrophobic properties



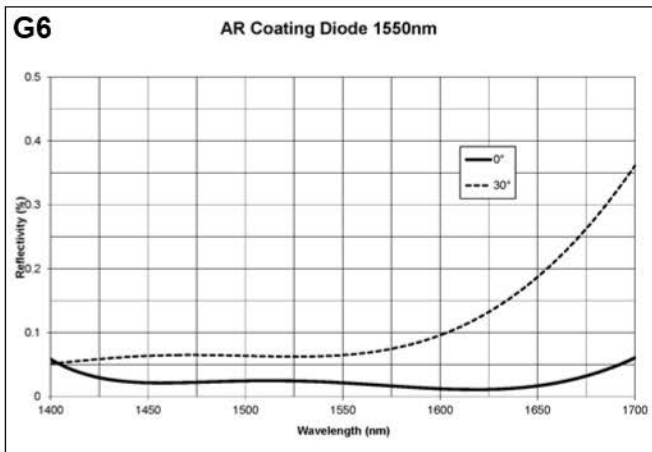
- VIS-NIR coating compensates for weak diode signal
- $R_{avg} < 1\%$  425-900nm &  $R < 0.5\%$  NIR, (AOI = 0-30°)
- Also available with oleo/hydrophobic properties



- Expanded range VIS-NIR AR coating
- $R_{avg} < 1.0\%$  425-1050nm (AOI = 0-20°)
- Accommodates diode emitter sources (730-980nm)



- VIS-NIR coating to enhance blue responsivity
- $R_{avg} < 1.25\%/1.5\%$  425-850nm (AOI = 0/30°)
- Also available with oleo/hydrophobic properties

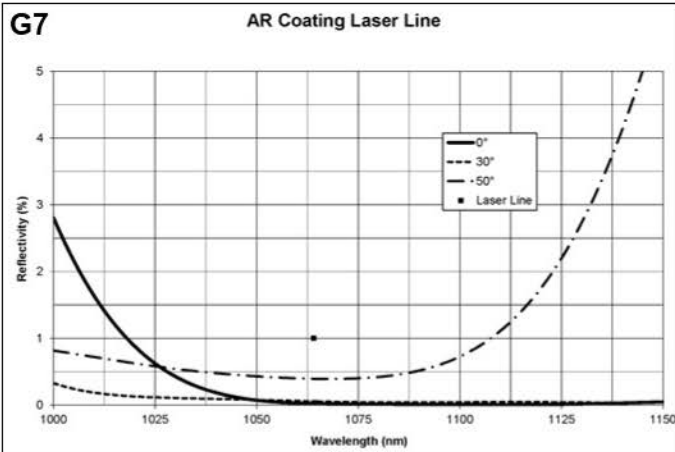


- Low loss coating  $R < 0.1\%$  for 1550nm
- Maximum signal preservation for diode emitters
- Accommodates diode spectral variance/thermal drift

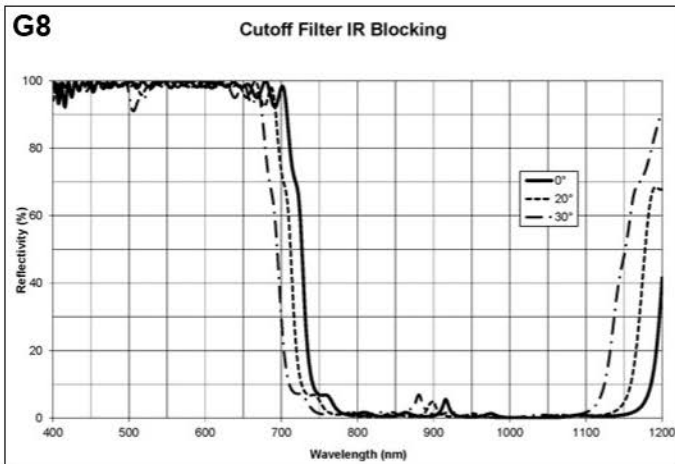


# Sensor & Scanner Window Solutions

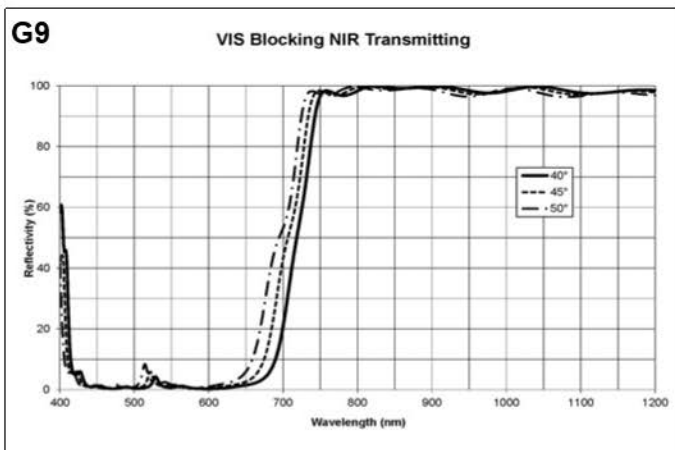
## Security and Surveillance • Machine Vision • Displays



- Wide angle coating for 3D metrology, printing, scanning
- $R_{avg} < 0.5\%$  (0-50°) at single wavelength
- Custom designs for diode & laser wavelengths



- Heat or NIR blocking, visible light transmitting
- Protects underlying sensor from NIR heat load
- Blocks unwanted NIR diode source interference



- Visible reflecting, NIR Transmitting
- Reduces visible light saturation, improves contrast
- Transmits diode source emitter wavelengths

## Options

### Coatings:

- Custom V-Coat, Multi-band, Broadband AR
- AR Coatings to MIL-C-14806 A
- ITO/IMITO for EMI Shielding, Heater, LC Devices
- Custom SWP, LWP, Bandpass, UV & NIR Blocker
- Broad/Narrowband Scanning Mirror Coatings
- Deposition onto Filters, Silicon & Other Materials
- Autoclavable, Bio or Chemically Compatible

### Substrates:

- **Fabrication to Shape & Size**
  - Cut & Seam or Circle Ground to Size & Shape
  - Precision CNC - Holes, Bevels, Steps, Notches
- **Damage Resistant Substrates**
  - HIE™ Aluminosilicates
  - AGC Dragontrail™
  - Corning® Gorilla®
  - SCHOTT AS 87
  - Chemically Strengthened Soda Lime Float
- **Low Expansion Chemically Resistant Substrates**
  - SCHOTT Borofloat® 33
- **Ultra Thin and Wafer Substrates**
  - AGC EN-A1
  - Corning® 0211 & Eagle XG®
  - SCHOTT AF32, D263® & AS 87

### Easy-to-Clean & Anti-Fog Solutions:

- Oleo/Hydrophobic Options
- ITO Heater, HTAF Anti-Fog Solutions

### Graphics & Bus Bars:

- Color Matched Epoxy Ink
- Non-Conductive Ink
- High Temperature Frit Ink
- Deadfront Ink - Partially Transmissive
- Infrared IR Transmitting Ink
- Silver Epoxy, Silver Frit, CrNiAu Bus Bars

# Sensor and Scanner Window Solutions

## Imaging • 3D Metrology and Mapping • Obstacle Avoidance

### Glass Fabrication



### Coating Deposition



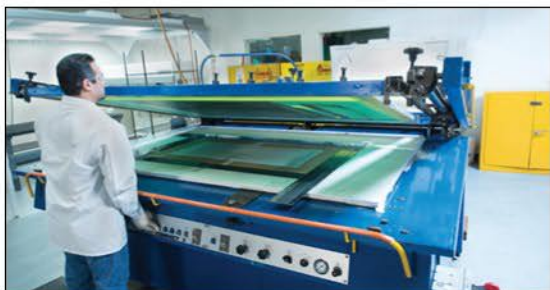
### CNC Machining



### Strengthening - Chemical & Heat



### Screen Printing of Graphics



Abrisa Technologies is a recognized global supplier of high quality, fabricated glass components, optical thin film coatings, and custom glass solutions for a wide variety of industries.

US based, Abrisa Industrial Glass fabrication facility in Santa Paula, CA and ZC&R Coatings for Optics facility in Torrance, CA serve diverse industries such as microelectronics and displays, semiconductor, military, automotive, aerospace, medical, biomedical and scientific R&D.

We provide custom specialty flat glass and coating products for applications such as: flat panel display, touch and gesture recognition; visible to IR imaging and surveillance; entertainment, indoor and outdoor lighting; advanced instrumentation; and photonics.



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