Angle Filter

Gary Sharp Innovations polarization-based Angle Filters transmit light based on angle of incidence (AOI). At normal incidence the filter acts like a neutral linear polarizer. Off-normal, the low-pass transmission function is independent of azimuth and color neutral. Transmission declines with increasing AOI ending in a rejection band above 60°. The filters are free of internal structures, thereby avoiding unwanted straylight and image artefacts. As such, the filter is suitable for use in the image and illumination paths. Applications include ambient rejection, stray-light filtering, atrefact mitigation and privacy filtering.

Key Features

- Low insertion loss
- Transmission as f(AOI)
- Azimuth Independence
- High contrast rejection band
- Broadband visible
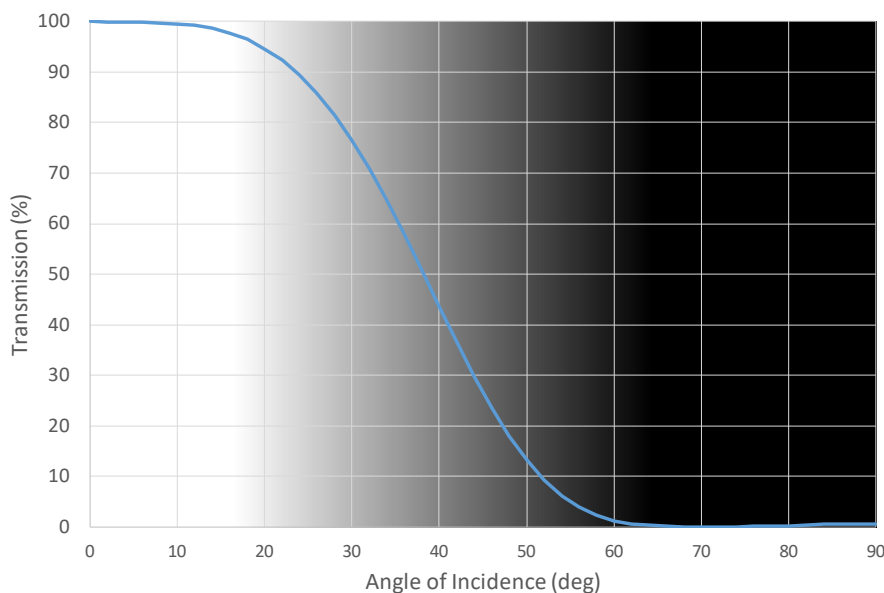- Excellent optical quality
- Also acts as a polarizer

Applications

- Stray light management
- Ambient light rejection
- Ghost image reduction
- Privacy filtering

Reliability

- Temperature
- Humidity

Transmission Vs Angle of Incidence

Angle Filter Photopic Performance

Parameter	Description	Units	Specifications
Normal Incidence Insertion Loss[1]	(Output-Input)/Input	%	12
90% point	Output falls to 90% of maximum	deg	24
50% point	Output falls to 50% of maximum	deg	38
10% point	Output falls to 10% of maximum	deg	52
10% point Azimuthal Variation	Output variation over Azimuth	%	<1
Rejection band	The blocked AOI range	deg	61-90
Rejection band limit	Max leakage in rejection band	%	2

Reliability Performance

Parameter	Test Condition	Δ Rejection Limit
Heat	80°C for 500 hours	<3.0%
Humidity	60°C @ 90% RH for 500 hours	<5.0%
Ultraviolet	400W Mercury lamp @ 30cm	<3.0%
Cold	-30°C for 500 hours	<3.0%
Thermal Shock	-30°C|70°C 100 cycles	<5.0%

Form Factor and Configuration

Parameter	Description/Units	Value
Filter Dimension (HxWxT)	mm	40X40X2.75
Endcaps	Default, Eagle Glass (mm)	0.55
Anti-Reflection Coatings	Default, HEA Coatings (%)	<0.25
Edge Finish	Deburred	
Clear Aperture	From Edge (mm)	1.0

[1]Assuming polarized light at the input