

Introduction of WGF™ Wire grid polarizer film

Asahi Kasei Corporation

**Electronics & Functional Products Division
WGF Project**

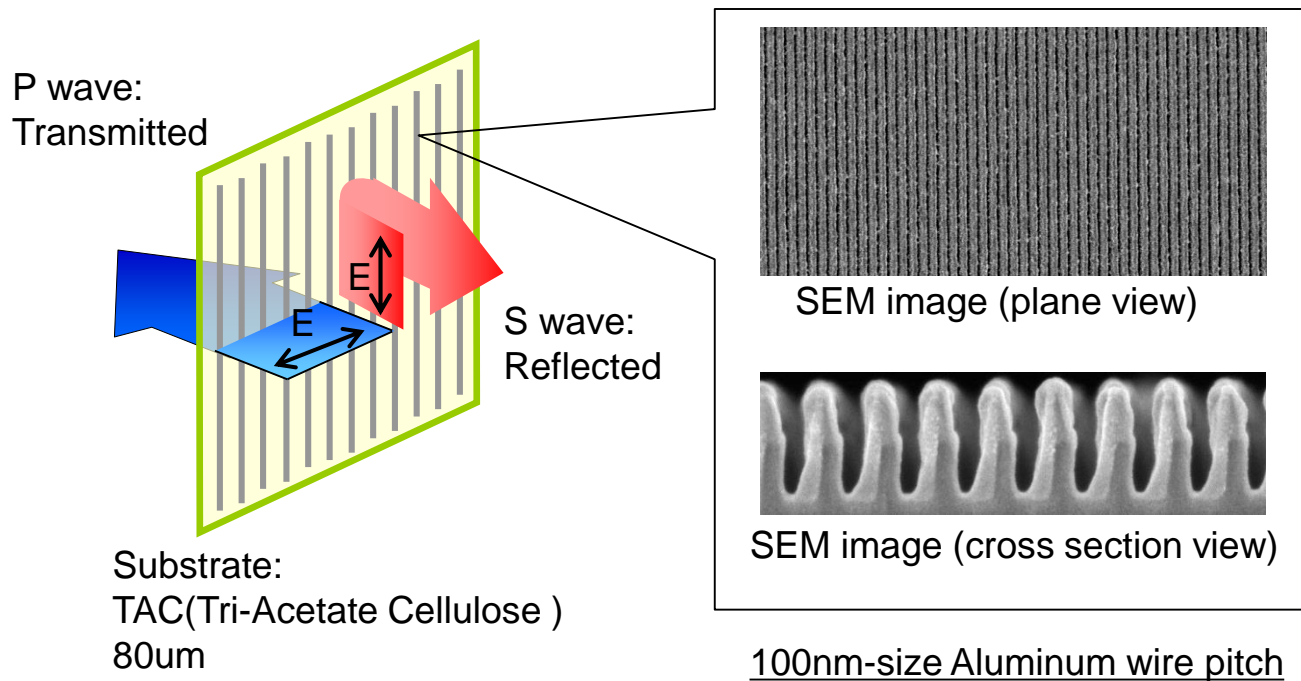
WGF™ - Outline -

What is WGF™?

"WGF™" is the world's first wire grid polarizer based plastic films. It has a high polarization separation performance in the broad wavelength range by using metal nano-size wires. Furthermore, it has excellent heat resistance compared to a typical absorption polarizer.

Asahi's Original Technology

- Continuous roll to roll nano-imprint process
- Nano-size structure (100nm pitch Al wire grid)



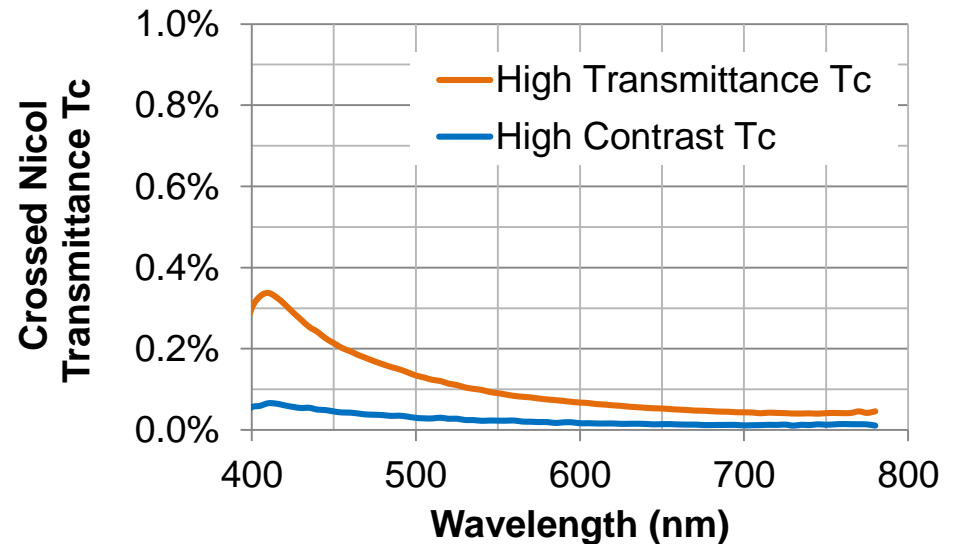
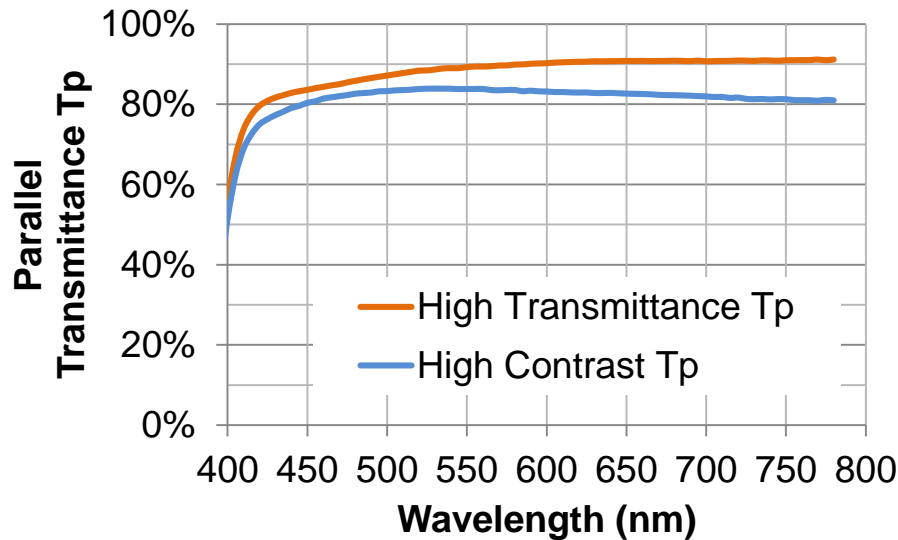
WGF Roll



WGF film

Optical performance of HC & HT grade

You can choose either standard grade, HC(High Contrast) or HT(High Transmittance) to suite your need. The Adhesive on a backside of substrate is also available.



Type	grade		450nm	550nm	650nm
HT; High Transmittance	HT11N (no-adhesive)	Tp (%)	83.59%	89.26%	90.81%
	HT11U (with adhesive)	Tc (%)	0.21%	0.09%	0.05%
HC; High Contrast	HC11N (no-adhesive)	Tp (%)	80.33%	83.79%	82.65%
	HC11U (with adhesive)	Tc (%)	0.05%	0.02%	0.01%

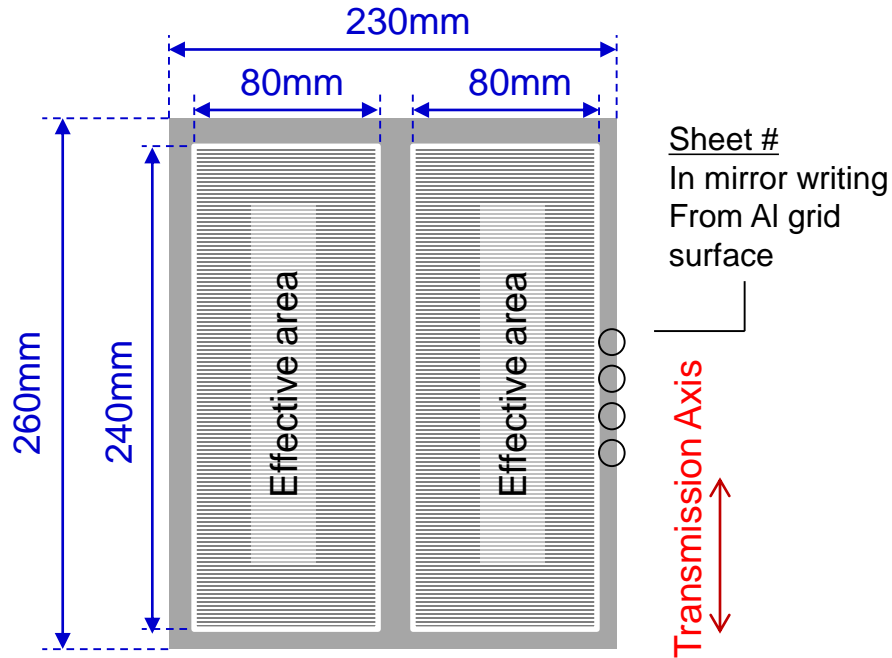
* Incident angle 0 deg * No AR coating on WGF

* These figures are typical values , not the values for guaranteeing

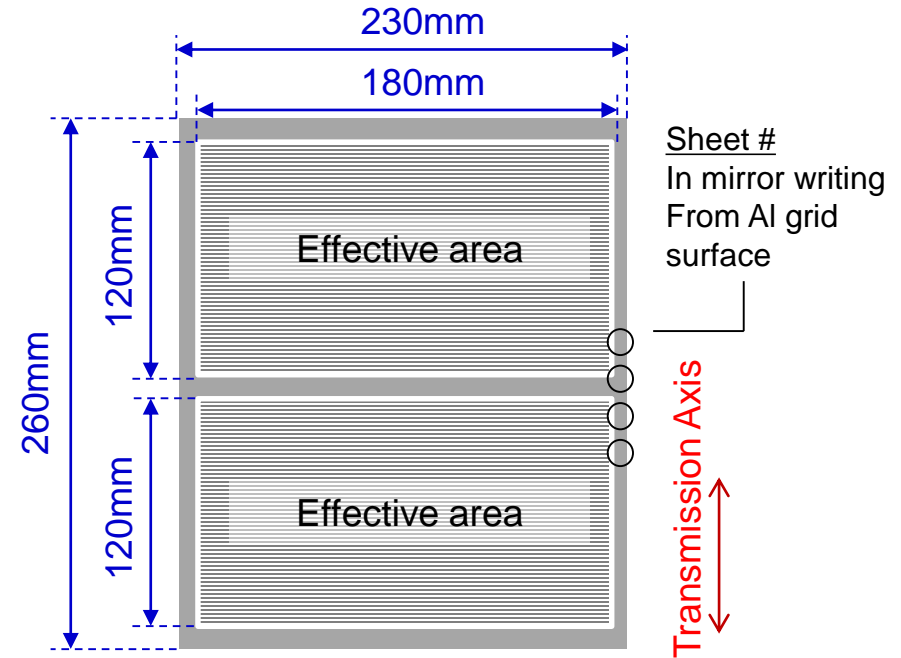
Product size & Configuration

Sheet size

Type. 1 Standard model 240x80mmx2windows

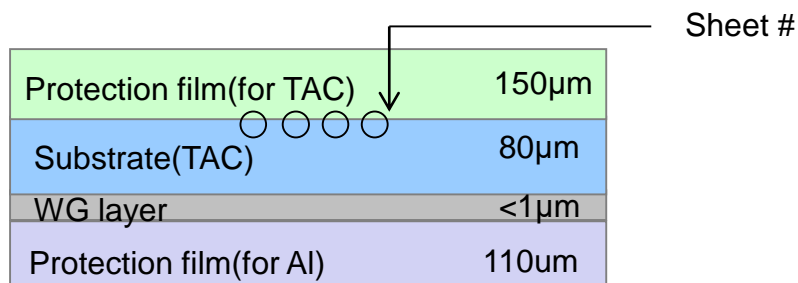


Type.2 developing 120x180mmx2windows

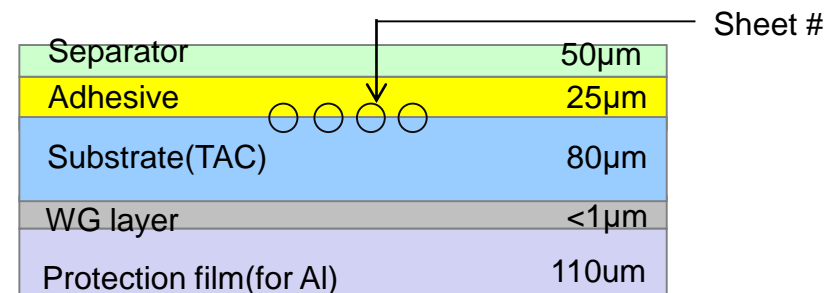


Configuration

HT11N&HC11N grade; no-adhesive

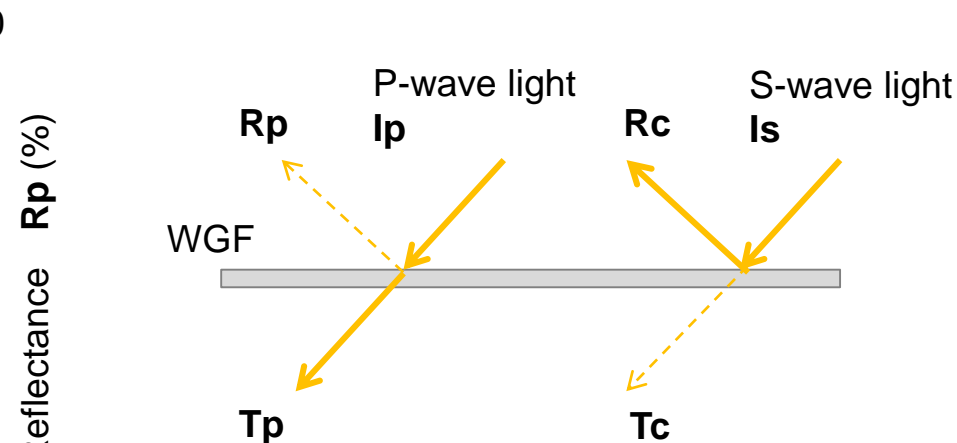
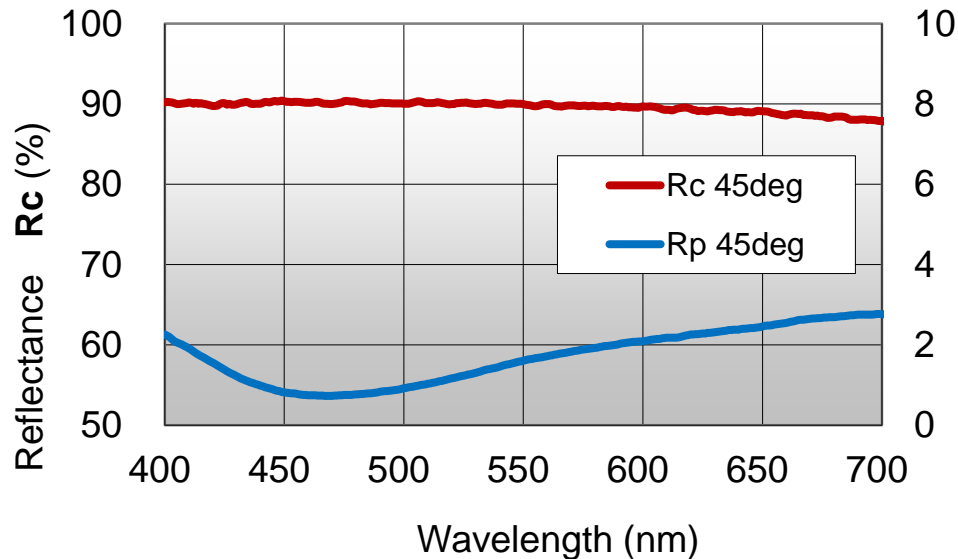
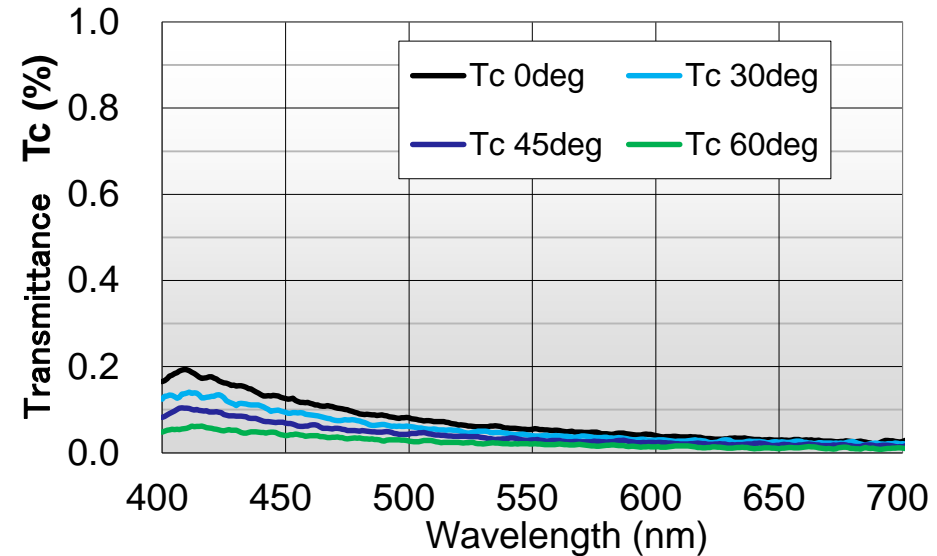
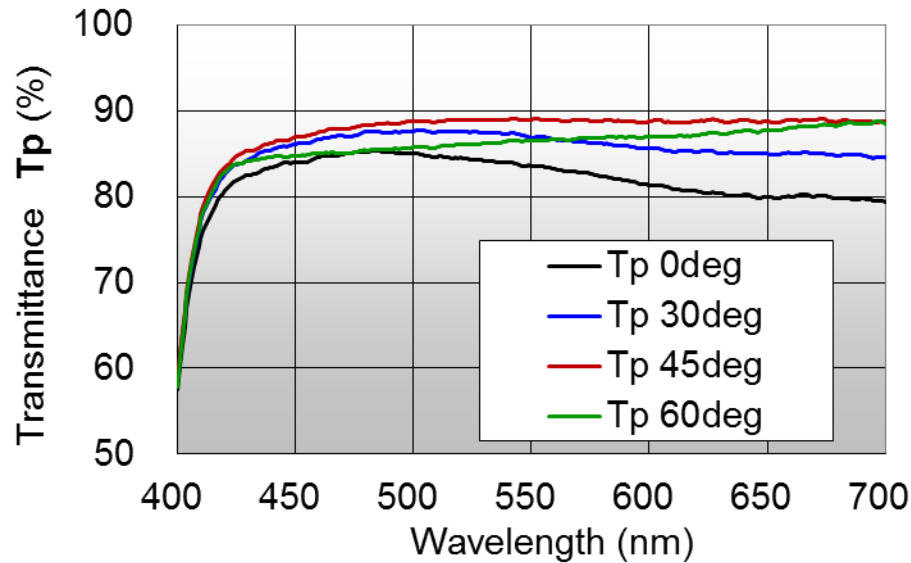


HT11U&HC11U grade; with-adhesive



Optical performance of HC at oblique incident

Tp & Tc, Rp & Rc at oblique incident



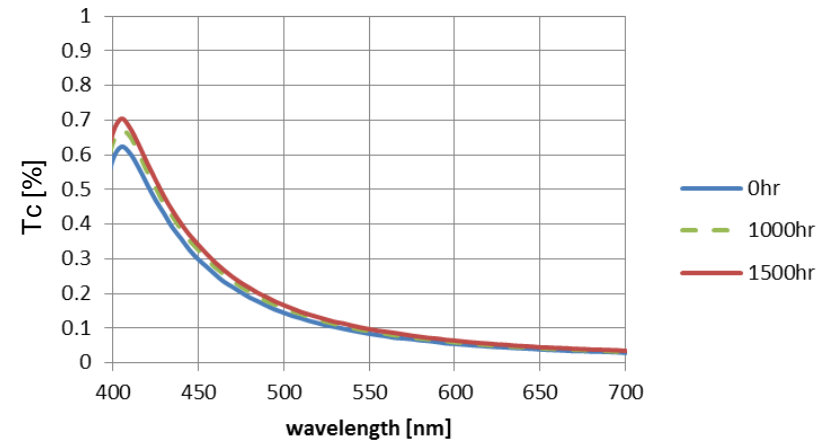
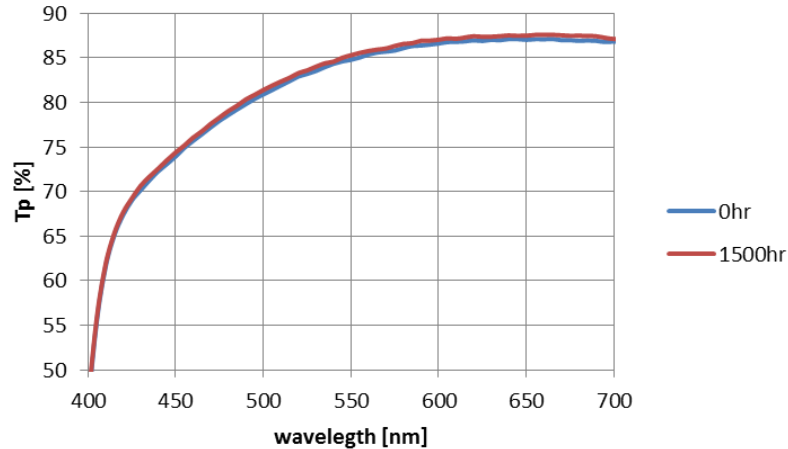
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Reliability

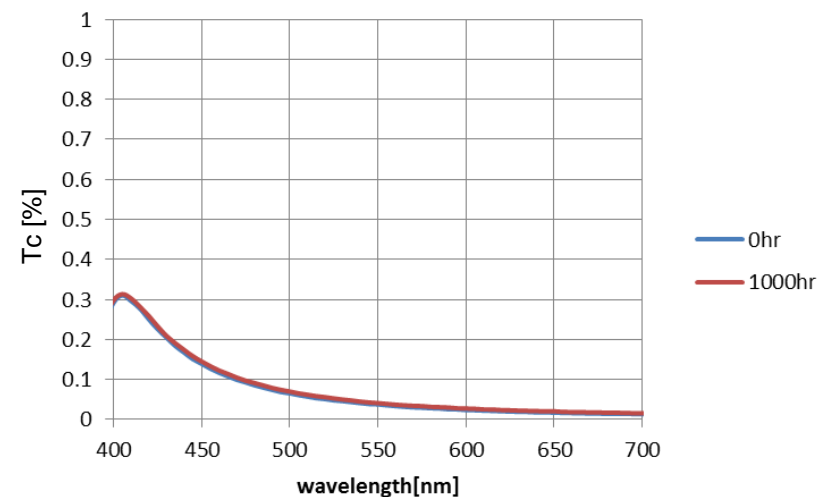
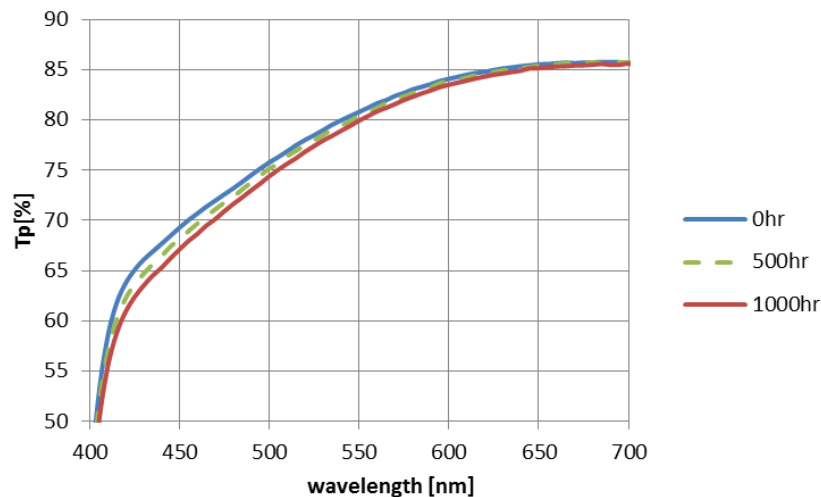
Optical performance of WGF before and after environmental tests

Heat and humid resistance @60degC/90%RH/1500hr

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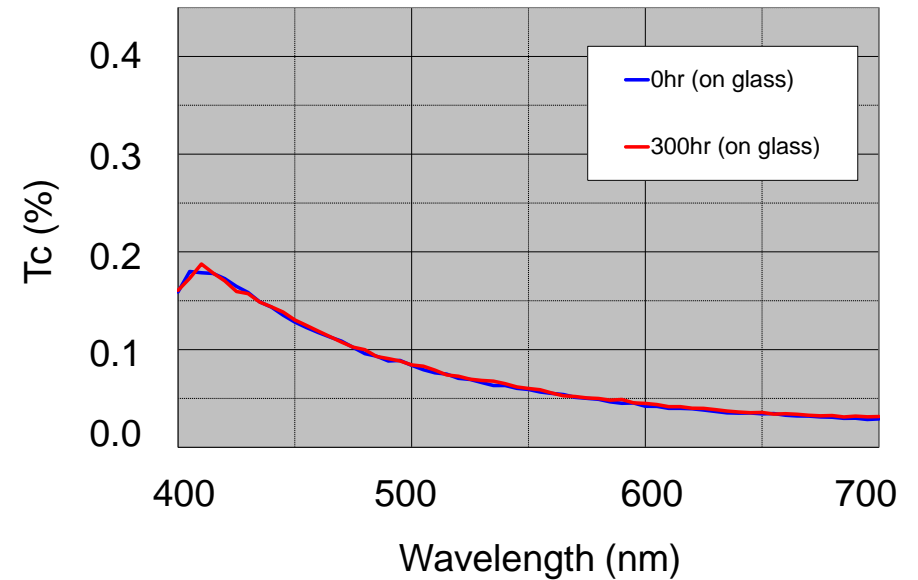
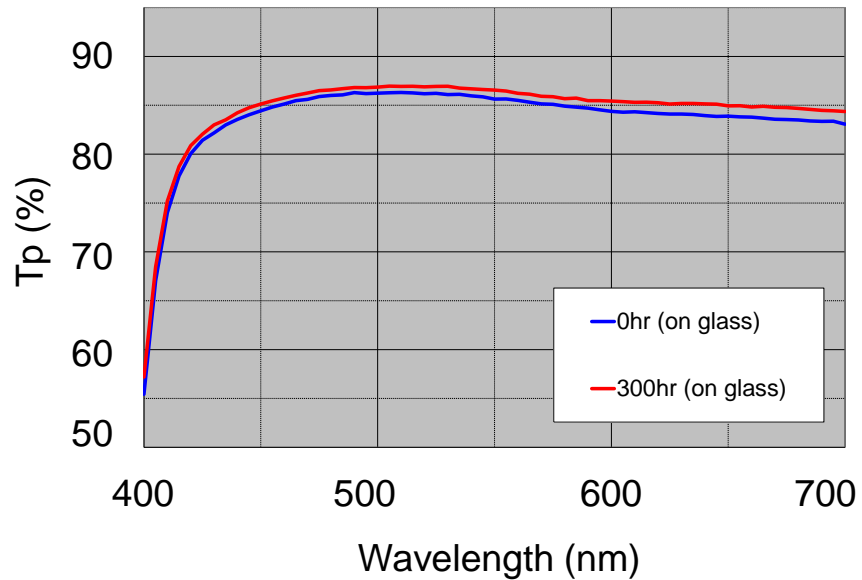
Heat resistance (105degC/dry/1000hr)



Reliability

Optical performance of WGF before and after light resistance test

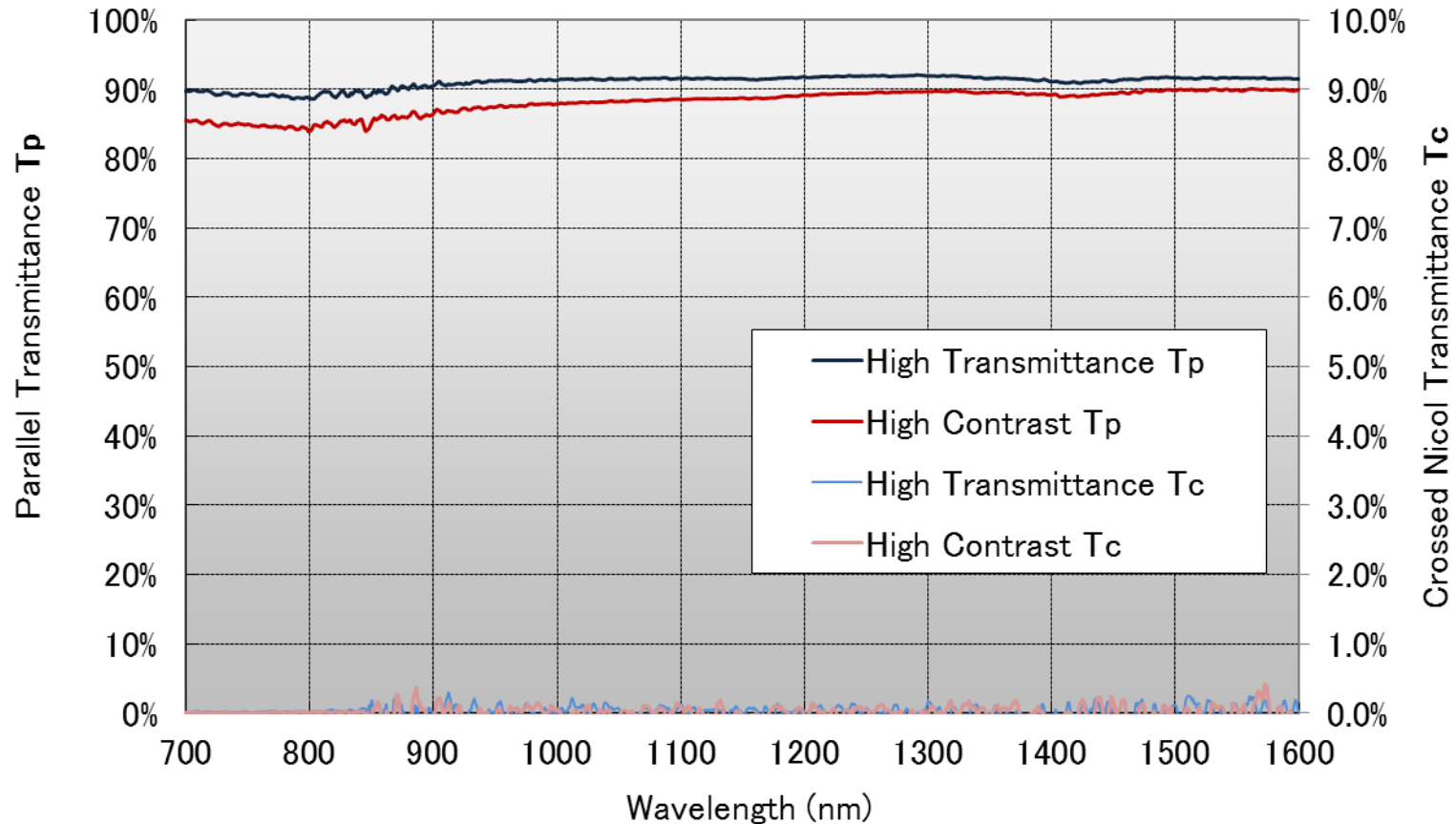
Sunshine weather meter 255W/m²/BPT63degC/spray free



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Optical performance in NIR range

WGF can polarize effectively in a wide range from Visible to NIR.



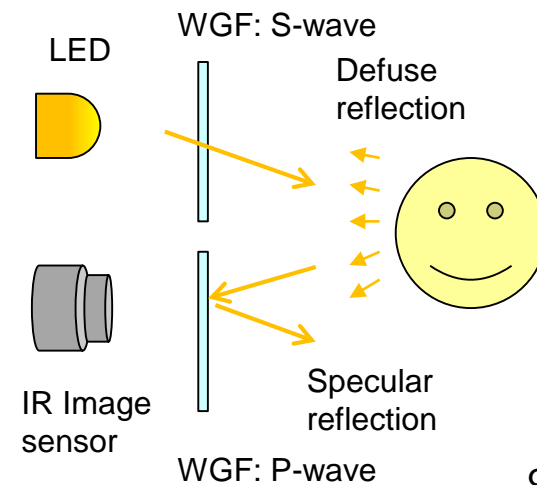
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Reducing a reflected light with WGF

Cutting specular reflection of IR light with WGF; With a objection illuminated by S-wave and detected by P-wave, excessive specular reflection can be reduce.



Illuminating a object from the front, specular reflection of light could be so strong that disturb software recognition. By detecting only defuse reflection, the image can be improved.



An example of scanning a barcode

Summary

Feature

- Reflective polarization film without absorption loss
- Flexible & excellent processability for cutting and laminating
- Less incidence dependence
- Effective in a wide range from Visible to NIR
- Excellent durability in a hard environment as high temperature (105degC/dry/1000hr) and humidity (60degC/90%RH/1500hr)

Applications



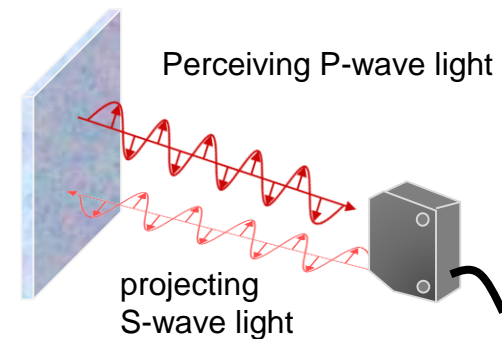
EVF(Electric View Finder)



Optical parts for HMD, head mounted display)



HUD, Head-up display



Noise reduction and anti-reflection of IR sensor

Contact us

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