Measurements of optical properties of dichroic filters @ UNICAMP

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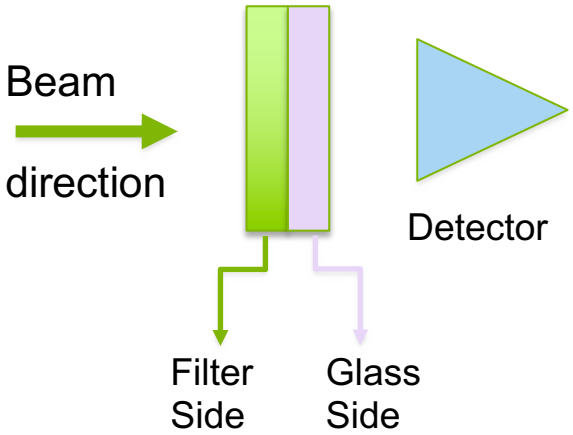
Dichroic Filters Samples

Company	Substrate	# Layers	AOI	Thickness	Layer Material
OPTO	B270	40	45 degrees	1mm	SiO_2 Ta_2O_5
Photon Export	Fused Silica	10	45 degrees	1mm	?
Photon Export	Fused Silica	10	45 degrees	2mm	?
ZAOT	B33	?	0 → 50 degrees	2mm	?
ZAOT - Antirefective	B33	?	0 → 50 degrees	2mm	?

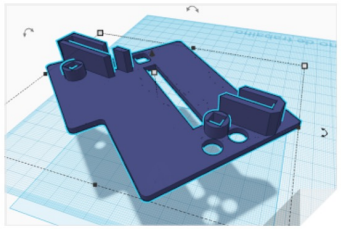
All the samples were measured on the following angles : 0º - 15º - 30º - 45º - 60º - 75º

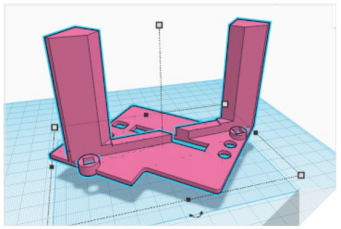
Transmittance and Reflectivity

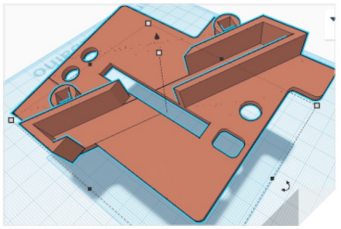
UV-VIS spectrometer Perkin-Elmer

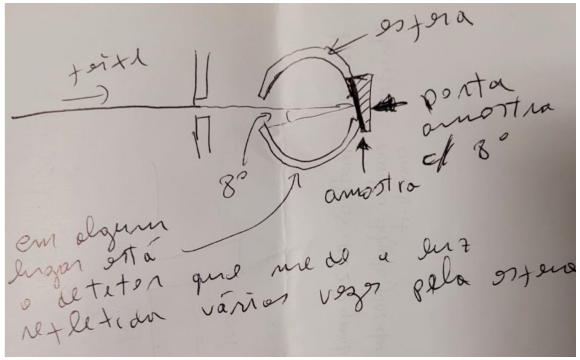


- Transmittance: (different angles)
- Reflectivity: 8º AOI beam
- Humidity and Temperature controled

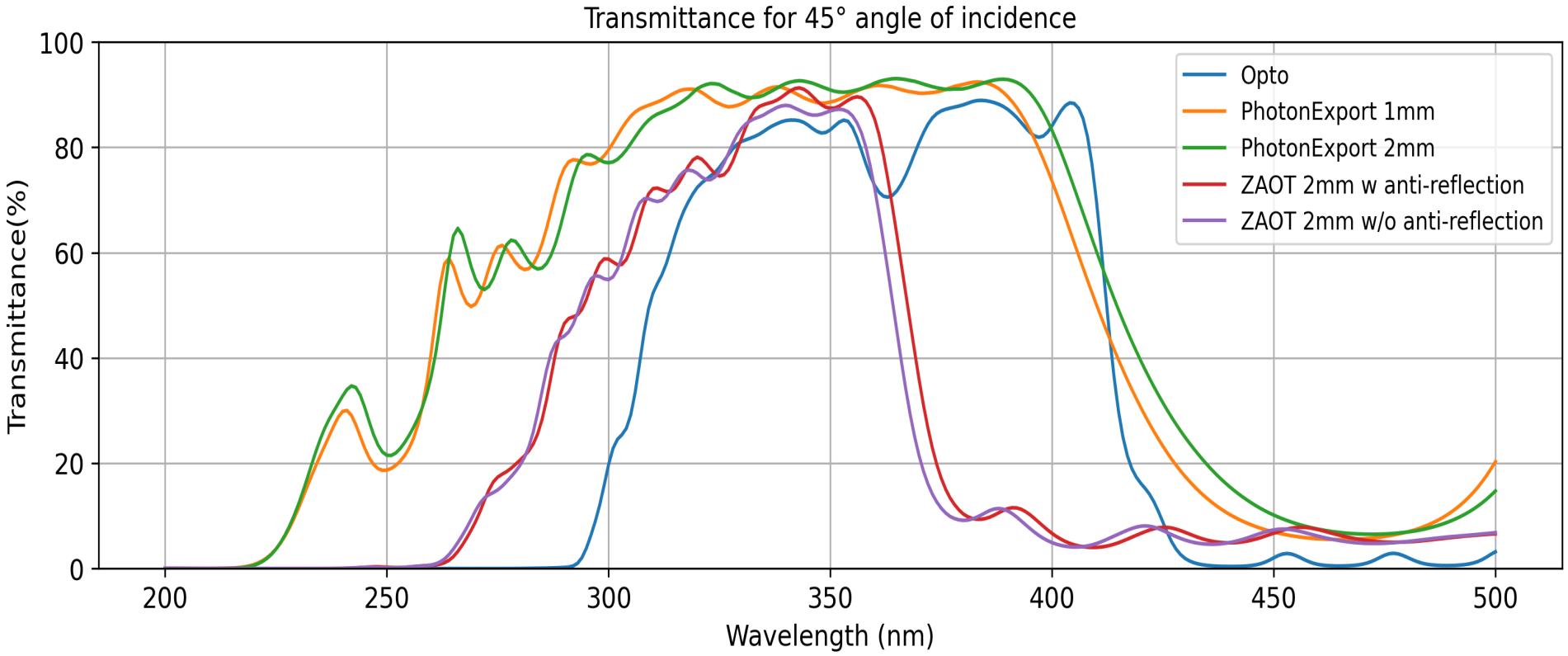




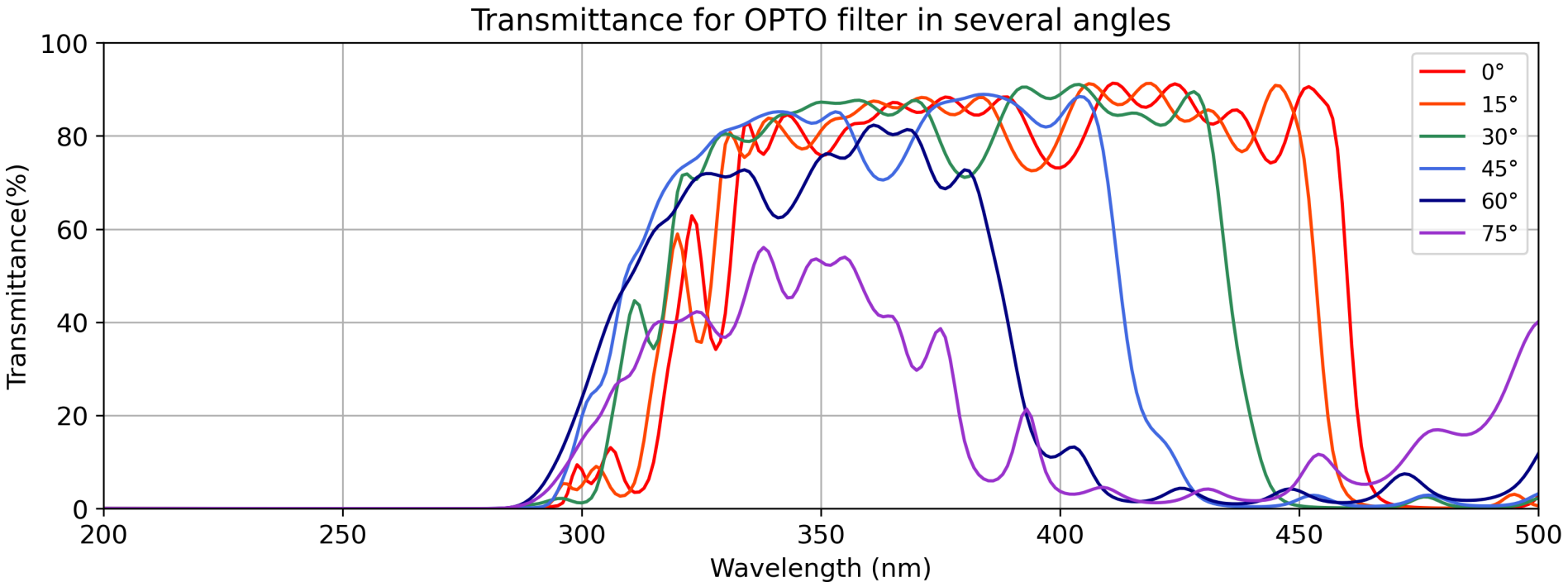




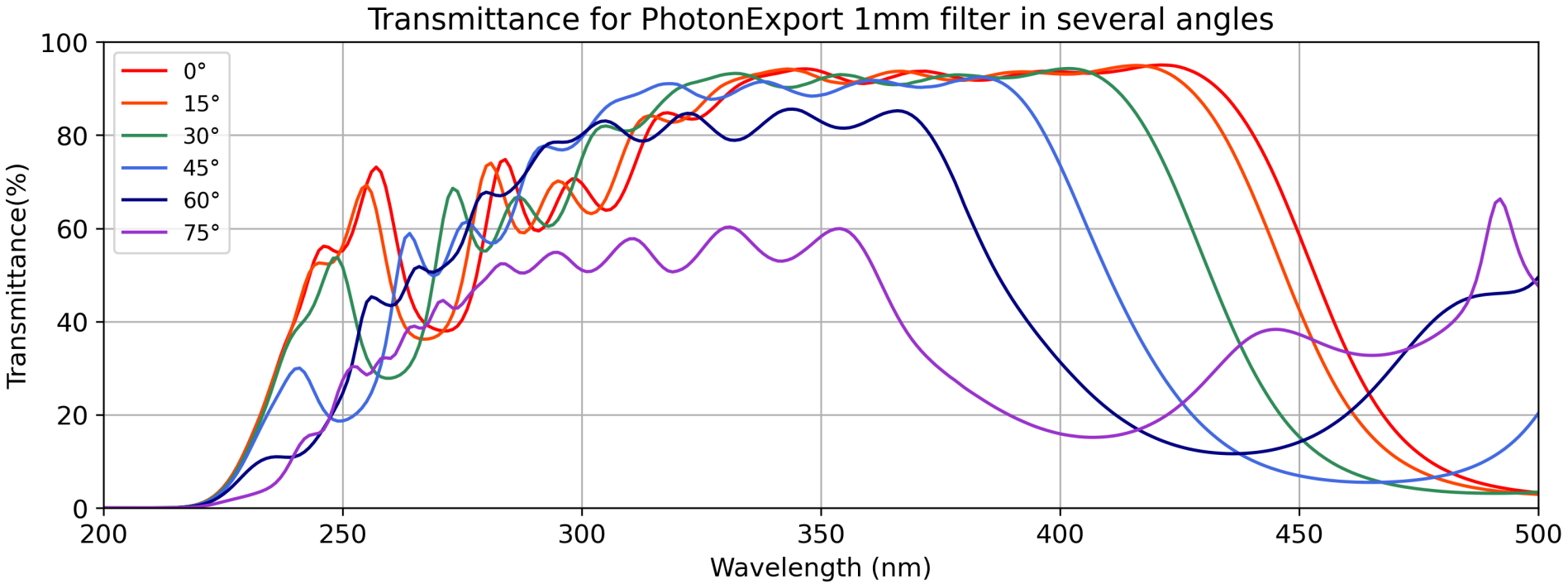
Comparison at 45º - all samples



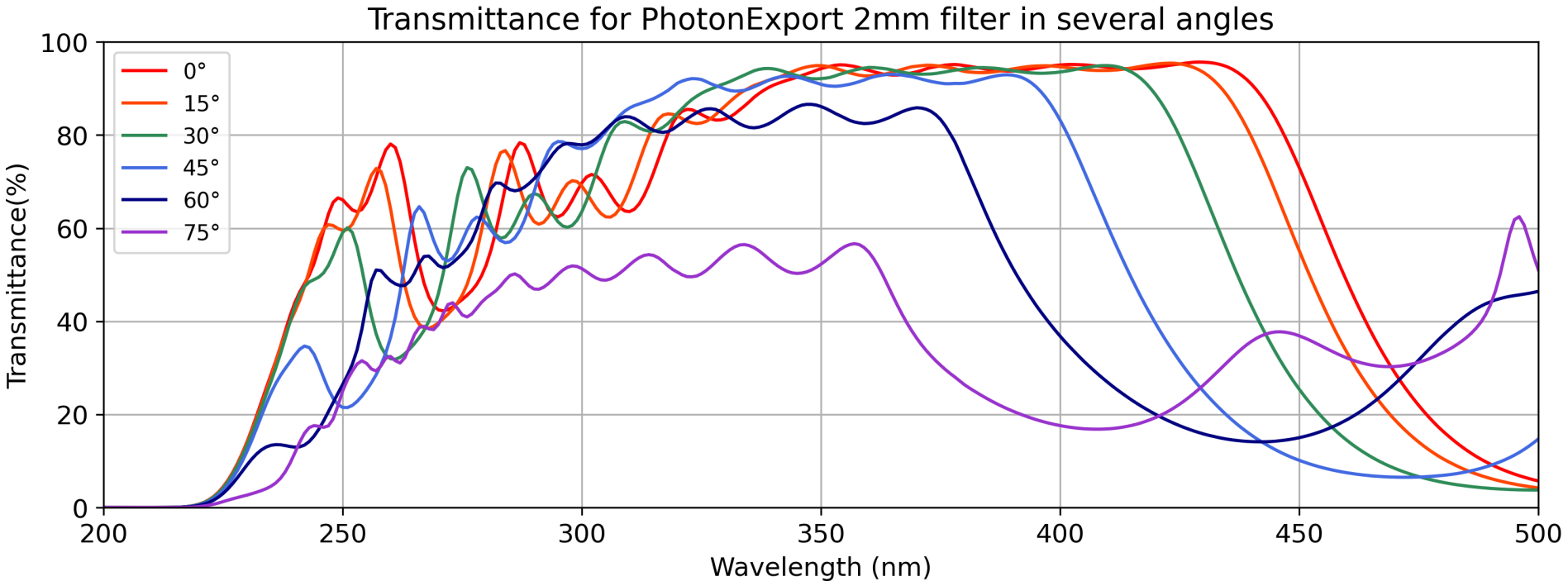
OPTO - Transmittance



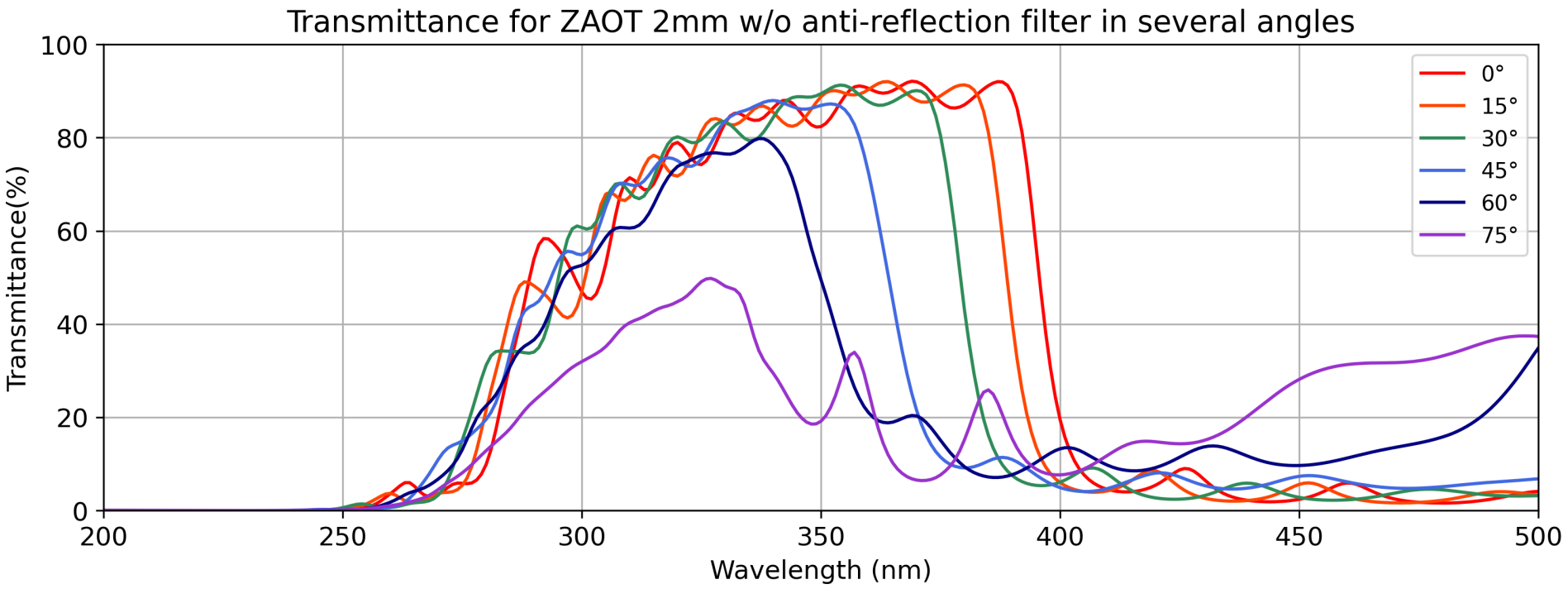
PhotonExport (1mm)- Transmittance



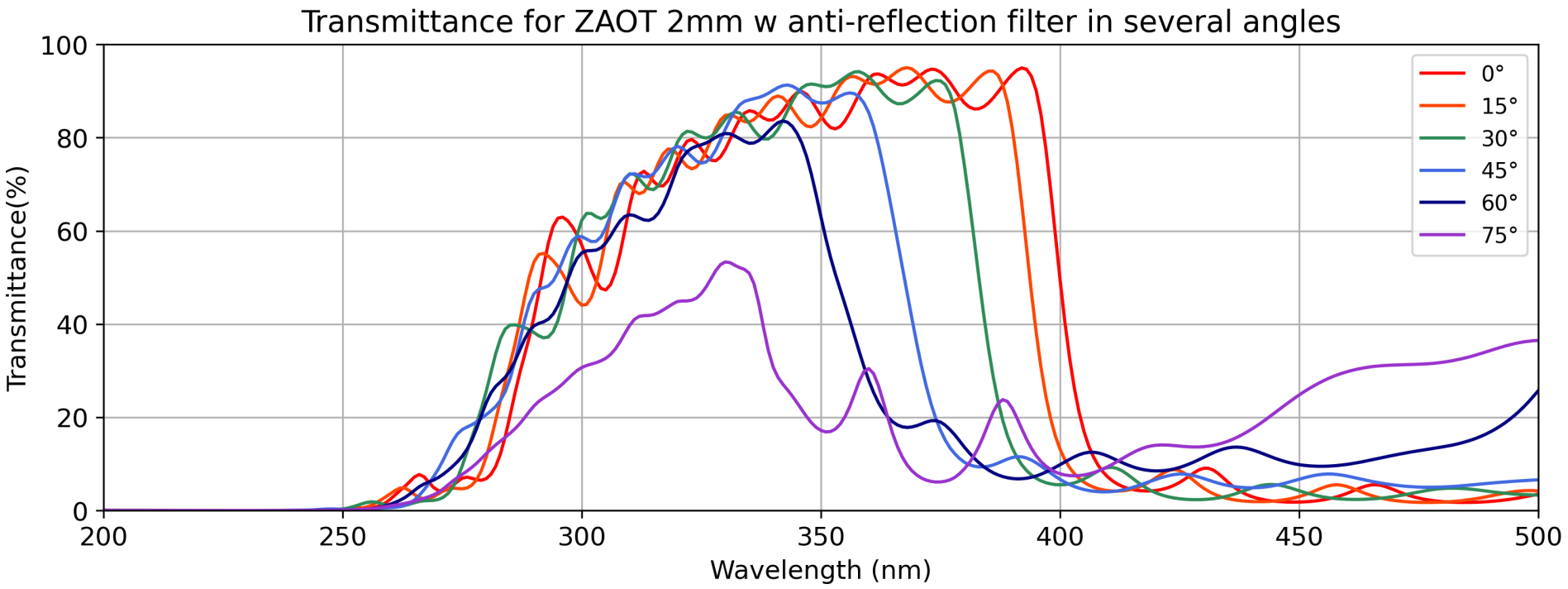
PhotonExport (2mm) - Transmittance



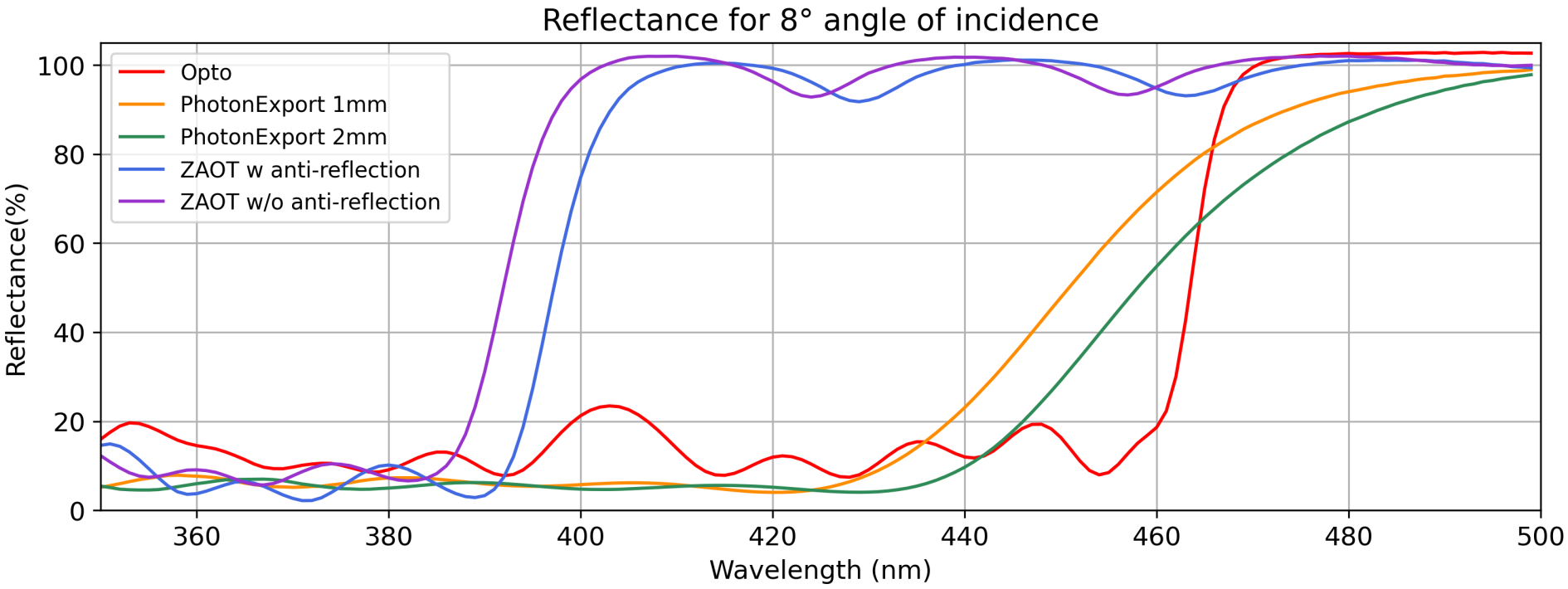
ZAOT (2mm) - Transmittance



ZAOT (2mm, anti-reflective) - Transmittance



Reflectivity



Summary

- Detailed information about the filters can help to understand better the differences among all the samples
- The OPTO and PhotonExport are in agreement with the AOI of 45 degrees.
- A sharper cutoff of the PhotonExport filters can be achived with more layers
- ZAOT ha different caracteristics is optimizade for smaller angles of incidence
- The reflectivity measurements are preliminary and limited just to 8 degrees AOI

Next Steps

- Reflectivity at angles different than 8 degrees (need to produced components)
- PTP coating
- Adeshion tests
- Imersion LN2