

# LightMachinery Quote For Atmospheric Dispersion Correct (ADC) prisms for the HISPEC project

## Material:

We would ask to be customer provided material to aid in traceability.

Minimum 8-12 parts per material requested. This allows for the 4 manufactured assemblies, plus testing manufacturing techniques and coating deposition.

## Quote

Octangular Shape – HIDPRV -0010-A0107 Qt 4

Serialized TWE measurements for each prism showing that they meet the specification on the drawing.

Serialized test reports of each prism that include all critical dimensions such as E1 and E2 apex angles, bond line wedge if there is any, maximum diameter, and angle between wedge axes of E1 and E2 within the assembly.

AR coating performance of each run (AOI 0 deg, collimated beam, witness samples permitted)

## Wedge Measurement:

Equipment Measurement Device: Moore Divider Head (EQ-12750) 1440 Precision Index + Auto Collimator.

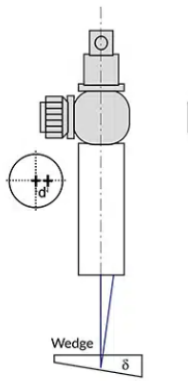
Accurate measurements to 1 arc second.

Stated Angle requirements +/- 36 arc seconds.

Brief setup:

Set Reference Edge, rotate dividing head to expected angle. Measure reflected surface with Autocollimator to determine difference from expected.

“Autocollimators are a combination of collimator and telescope sharing the same optical path via a beam splitter. Via the collimator functionality, the structure engraved on the reticle is imaged to infinity. The device under test is placed in the optical path and reflects the light back into the autocollimator. This reflected light is imaged into the camera plane of the autocollimator via the telescope functionality.”



## Bonding Method:

Optical Contact between Wedge plates – Norland 61 Sealant on edge

If unable to achieve stable contact (Color contact, fails under coating conditions/heat due to properties of substrate glass) back up method - NOA61 bond.

Use of “Nordson Ultimius I” allows for precise control of glue application volume and resulting thickness. Can be tested and controlled to allow reproducible results in final wedge thickness which can be compensated for.

## AntiReflection coating:

To be coated internally at LightMachinery.

Note – these curves are for the reflection coating only and do not take into account loss due to absorption or scatter in the substrate.

These curves are *Theoretical Models* and are the target, **not a guaranteed performance**.

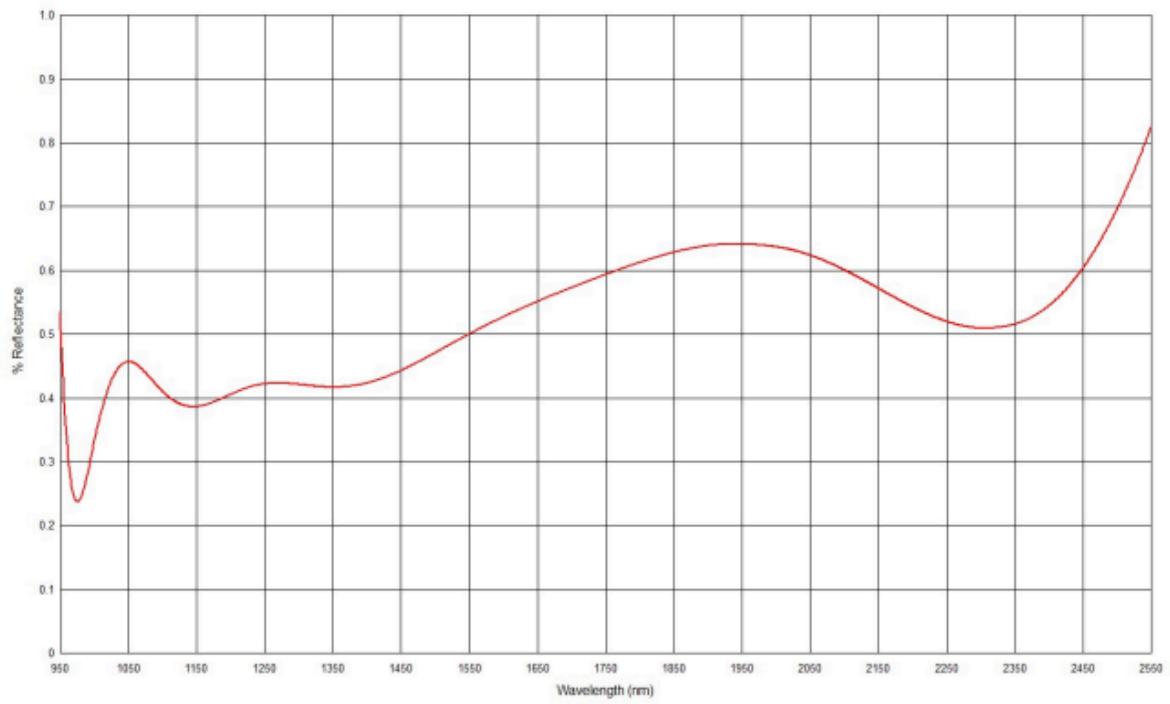
Performance will be the best effort and that can not be fully accessed until tested on supplied substrates. This is not a trivial antireflection coating specification. If there are any regions that require more weight for science work please let us know to prioritize.

Any significant deviation will be verified with the purchaser.

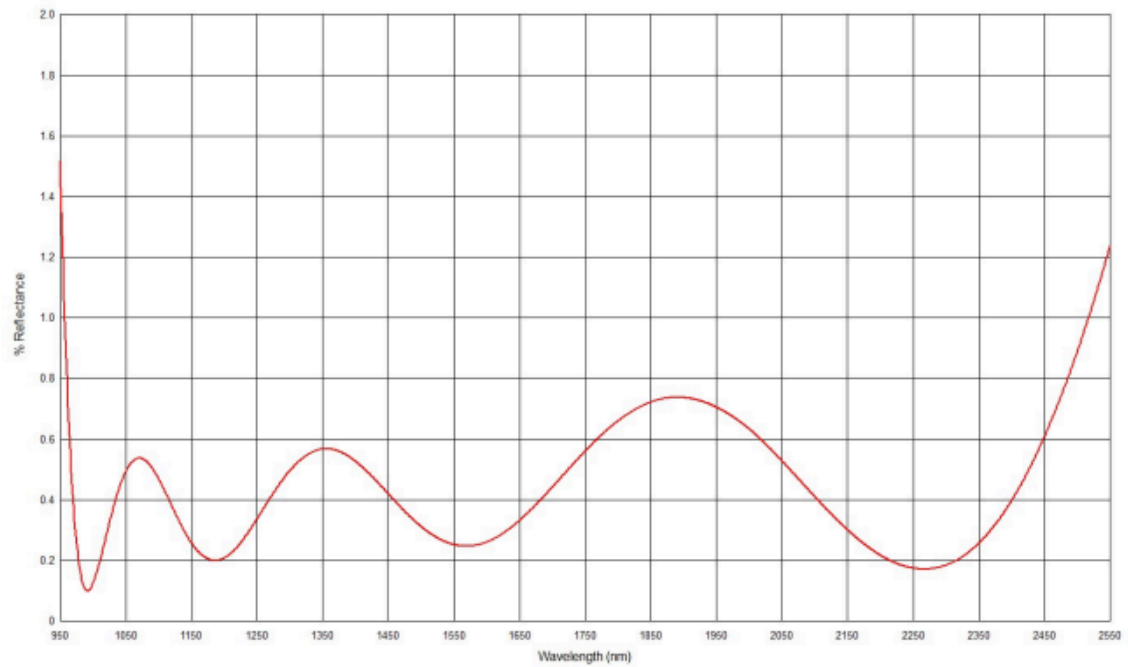
Goal:

From 0.97um-2.5um  $R_{max} < 1\%$ ,  $R_{avg} < 0.75\%$

## S-LAH71



## S-FPM4



Note – R abs for S-FPM4 in the IR will very likely not be under R\_max 1%

These theoretical curves should be considered best results, production results are likely to be worse due to manufacturing tolerances.

AR is measured at 6 degrees, not 0 for reflection but can be verified with a 0 degree transmission measurement.

R\_Average should be achievable, R\_max is unlikely at all points.

Coating witnesses can be provided if requested

## TWE measurement

Transmitted wavefront will be measured using a Zygo GPI Interferometer.

## Cost:

Cost, not including material (customer Supplied) would be 24k USD for 4 parts.

## Lead Time

After Receipt of materials: 16 weeks.