

NANEO[®]

NANEO - Precision IBS Coatings

Technical Data Sheet

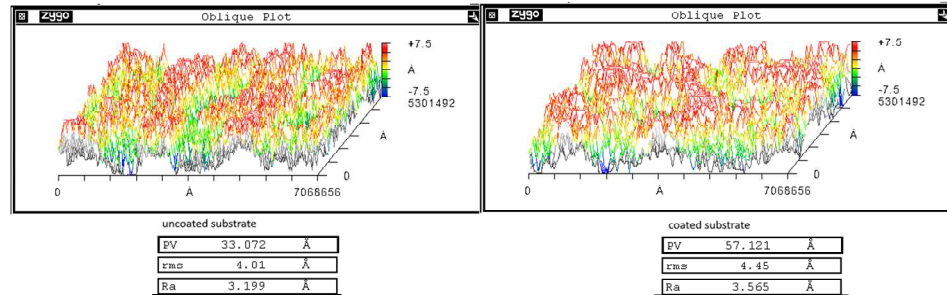
High quality optical ITO Coatings by IBS

ITO layer on a bare substrate
ITO layer embedded in high precision IBS optical coating

Short Description

NANEO provides high optical quality high-transmission, low-resistance ITO coatings sputtered with the IBS technique either on a bare substrate or integrated in an optical coating. Substrates can be temperature-sensitive, as the sputtering process's working temperature is 100°C, and on demand it could even go down to 60°C. Typically achieved results (depending on ITO layer thickness) for a maximum transmission comprise a sheet resistance of 120 Ω/sq for an ITO layer thickness of 50 nm.

Moreover, the presence of the ITO layer on the substrate does not contribute in a significant way to its roughness, keeping thus the amount of scattering light low.

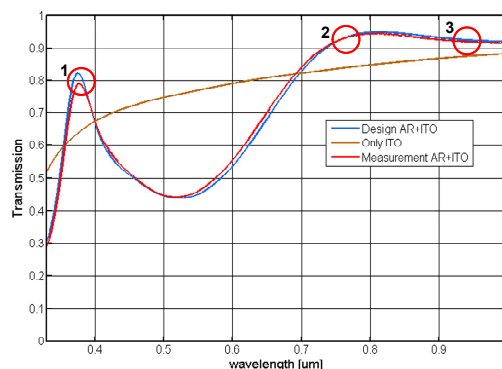


In the table below is reported the measured sheet resistance for various ITO thicknesses deposited with the standard process. As can be seen, the sheet resistance scales with the ITO layer thickness, whereas the resistivity reveals that the layers are to some extent qualitatively different with the 60 nm layer having a minimum resistivity.

Example 1 ITO Single Layer

ITO thickness (nm)	Sheet Resistance (Ω/sq)	Resistivity (10 ⁻⁴ · Ω · cm)
20	494	9.9
31	241	7.5
59	99	5.9
104	63	6.6
163	52	8.5
308	31	9.6

Example 2 ITO Layer embedded in multi-wavelength AR coating



Ta > 80% @ 370nm (1)
Ta > 94% @ 760nm (2)
Ta > 93% @ 935nm (3)
AOI 0-10°