OMEGA OPTICAL | OMEGA OPTICAL HOLDINGS

LASER COMPONENTS®

QuantaMAX

QuantaMAX – for high performance interference filters

Outstanding spectral characteristics on a wide variety of substrate materials utilizing our state-of-the-art deposition technology, *Dual Magnetron Reactive Sputtering (DMRS).*

Transmission

For today's most sensitive instruments, **QuantaMAX optical coatings** provide exceptional throughput. As seen in Figure 1, a standard 510-560 interference filter achieves transmission in excess of 97%. Combined with deep out of band attenuation, **QuantaMAX optical coatings** make every photon count.

Optical Density

For many applications, the out of band blocking at the detector is as important as the overall transmission. Figure 2 shows the out of band blocking from 300-1000nm and the optical density average of >6.0. A filter with these characteristics operating in a system with an ideal light source and detector could be expected to have a signal/noise ratio of exceeding 10,000:1, while collecting all available signal.

Lot to Lot Reproducibility

With the *Dual Magnetron Reactive Sputtering* (DMRS) process, **QuantaMAX optical coatings** employ the latest methods in optical thin-film design and deposition control. Utilizing the DMRS technology we achieve very precise individual layer thickness, along with forward and backward "proof-reading" of layer execution, leading to a high degree of predictability and reproducibility lot-to-lot. As depicted in Figure 3, the edge of the 650-670 bandpass filter varies only 1 nm in either the cut-on or cut-off edges across a sampling of 5 individual deposition lots.

Minimized Transmission Band Distortion

The ability to precisely deposit a layer of coating material of optimized optical thicknesses in a stable and highly reproducible manner throughout the deposition cycle provides excellent transmission characteristics with minimal pass-band rippling. Figure 4 and 5 show the typical performance of long-pass and short-pass interference filters.

Figure 1 – *actual performance* **Transmission of a standard 510-560 interference filter**

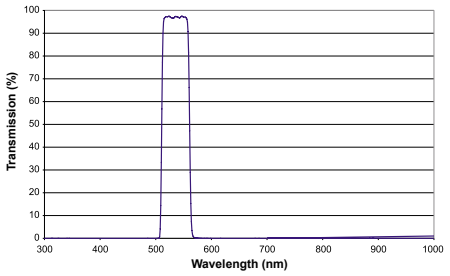


Figure 2 – *actual performance* **Optical Density of a standard 510-560 interference filter**

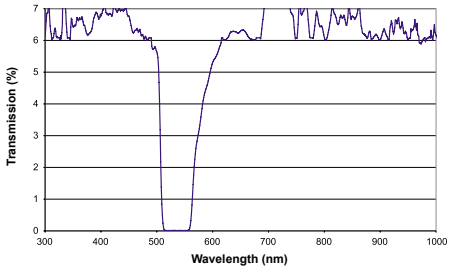


Figure 3 – *actual performance* **Lot to Lot Reproducibility**

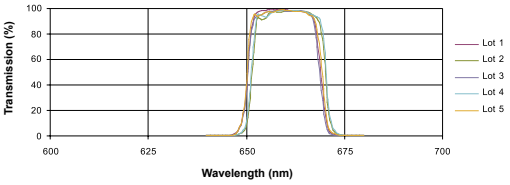


Figure 4 – *actual performance* **Long Pass Interference Filter**

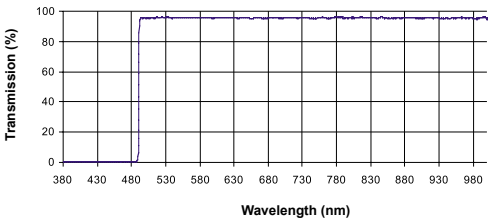
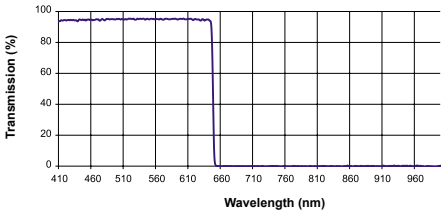


Figure 5 – *actual performance* **Short Pass IR Filter**



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