



Ebatco Nano

A Bimonthly Newsletter

Nano

Brief

Ebatco President Dr. Dehua Yang and Vice President Ms. Ming Li represented the company at Space Tech Expo USA in Anaheim, CA, from June 2–4. During the event, they explored emerging space-industry technologies and connected with key leaders shaping the sector's future. They also met with current and prospective customers to discuss how Ebatco's ISO/IEC 17025:2017-accredited contract laboratory services can support their technical challenges and strengthen the solutions they deliver to their own clients.

To stay aligned with market needs and continue engaging with customers throughout 2026, Ebatco will participate in additional regional and national conferences and exhibitions listed below.

- September 28 - October 1 – IMAT Materials Solutions Expo 2026, Booth #208, Québec City Convention Centre, Quebec City, Canada
- October 13-15 – SEMICON West 2026, Booth #6808, representing Kyowa Interface Science Co., Ltd., Moscone Center, San Francisco, CA
- October 28-29 – MD&M Midwest 2026, Booth #3636, Minneapolis Convention Center, Minneapolis, MN

Please stop by our booth to discuss the incredible world of material testing, characterization, and failure analysis that could support your unmet R&D and quality assurance needs with our staff scientists. We hope to see you soon!

Ebatco

Open House to Thank You in Person

Ebatco has scheduled an open house on **Thursday, August 6, 2026**, from **3:00 p.m. to 8:00 p.m.** We are looking forward to welcoming both current and prospective customers, and friends and neighbors for an afternoon of appreciation, social and scientific connection and fun discussion. Guests can participate in a guided tour of our facility, featuring state-of-the-art analytical instruments, meet Ebatco scientists and engineers, who may have been supporting you for years, socialize with peer professionals who have shared analytical and testing challenges and solutions, and enjoy catered food, beverages, and several exciting door prizes. **For full details, please refer to the attached announcement.** Please put the date on your calendar and plan on joining this cool event of science meets social. We look forward to seeing you soon.

Customer Showcase and Testimonials

As a new addition to our bimonthly newsletter, we are adding a customer showcase and feedback column. In this inaugural column, we are proud to present Mr. Steven Maurer, Director of Product Development at a Medical Device Company. His comment upon finishing a recent project surely made our day when we received it: *"Our team has reviewed and find the reported analysis very meaningful. We will likely reach out in the next month for a larger set of samples to be tested on production parts. Always appreciative of the great work we get from your team."*

Steven, thank you so much for your encouraging feedback and we are happy to learn that the analysis results are meaningful and to your expectation. We are looking forward to continuing our lab service support to you at any time!

Case

Study

Optics Characterization Using a Universal Measurement Spectrophotometer

Precise, well-defined characterization of optical components such as mirrors, lenses, and filters is fundamental to advancing product development and manufacturing in industries such as display technologies, solar energy, and advanced photonics. Confirming that each optical component performs its intended function helps to support product quality and to meet required measurement standards demanded across industries. For example, knowing the angle-dependent reflection spectrum of

glass in LCDs and OLEDs helps engineers understand how ambient light interacts with the display surface to avoid glare, contrast loss, and color shifting. Additionally, anti-reflective coatings on the optics in VR headsets must perform well across a wide range of angles to reduce the amount of ghosting and glare, which has a direct effect on the user's immersive experience and eye strain. Having complete control over optical characterization parameters enables accurate, reproducible measurements that verify products like these meet their intended performance specifications.

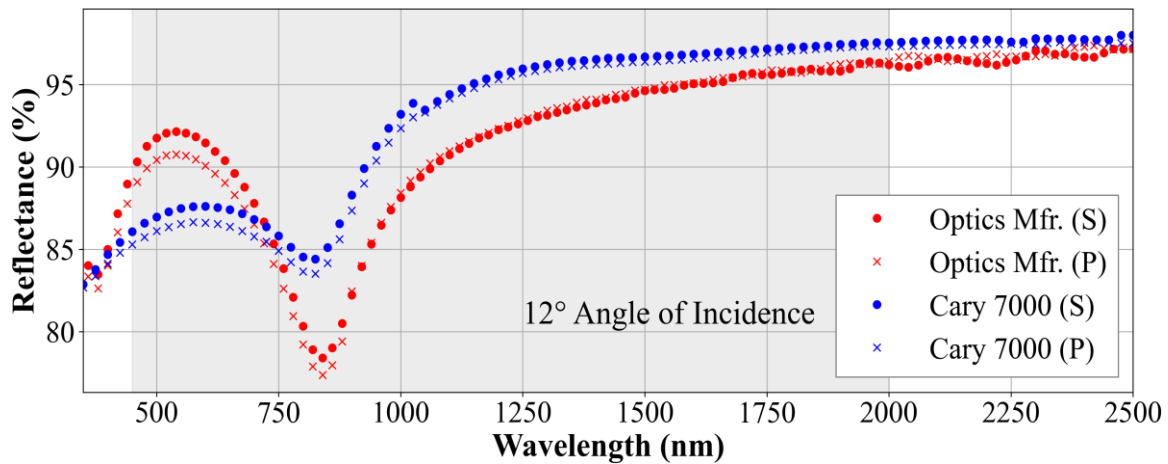


Figure 1. Reflectance spectra of aluminum mirrors at a 12° AOI using S (dots) and P (crosses) polarizations, comparing Cary 7000 (blue) to Optics Manufacturer (red). The gray shaded regions highlight the spectral region over which the performance characteristics are guaranteed by the manufacturer.

Ebatco's Agilent Cary 7000 Ultraviolet-Visible-Near Infrared (UV-Vis-NIR) spectrophotometer comes with a Universal Measurement Accessory (UMA) that is capable of measuring diffuse scatter, reflectance, transmittance, and absorbance through independent 360° sample rotation and 10-350° detector positioning. It can measure absolute specular reflectance with an angle of incidence (AOI) ranging from 5-85°. The UMA also comes with an automatic polarizer capable of controlling the input polarization at any angle from 0-90°. It leverages these independent degrees of freedom without a need to manually reposition the sample or adjust the input beam optics, ensuring robust measurements. To highlight the UMA's diverse optical characterization capabilities, two measurements were made on different optics samples using different UMA modalities.

First, the reflectance spectra of an aluminum mirror using both vertical (S) and horizontal (P) polarized light were measured, as

shown in Figure 1. For this measurement, the sample angle relative to the input beam was 12° and the detector angle was 24° . The blue traces are data taken by the Cary 7000, and the red traces are data reported by the optics manufacturer (note that the optics manufacturer data was taken on a mirror from a representative lot, so the Cary 7000 and optics manufacturer datasets were taken on different aluminum mirrors). The Cary 7000 data for both polarizations shows a flat reflectance from 1200 – 2500 nm, with a minimum in reflectance around 840 nm, a recovery towards 500 nm, and another decrease in reflectance in the UV region. This response is consistent with the optics manufacturer dataset. Ultimately, the manufacturer guarantees an average reflectance, R_{avg} , of greater than 90% from 450 nm – 2 μm . The Cary 7000 measures R_{avg} in that wavelength range of 92.6% for P polarization and 93.2% for S polarization, passing performance specifications.

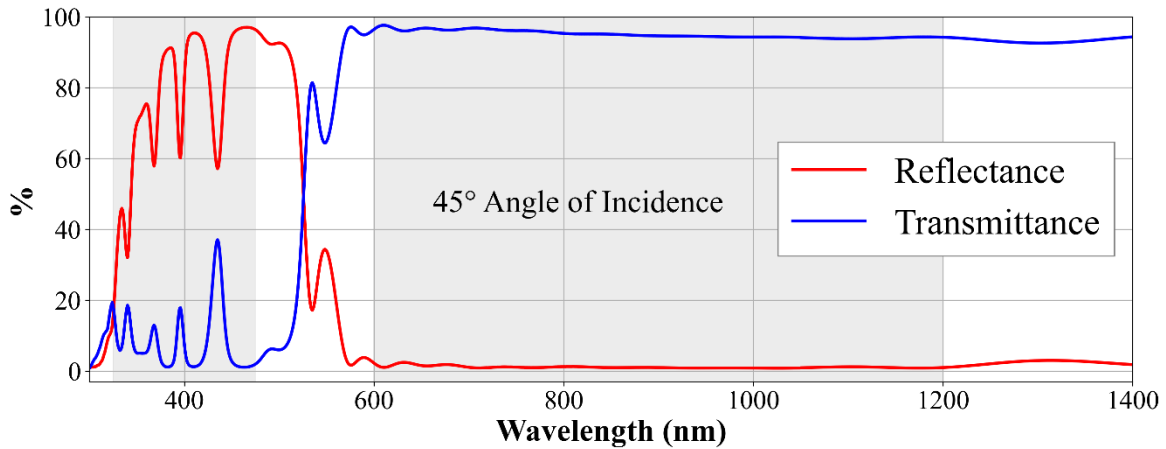


Figure 2. Reflectance and transmittance of a dielectric filter at a 45° AOI. The gray shaded regions highlight the spectral regions over which the performance characteristics are guaranteed.

Second, the reflectance and transmittance spectra of a dielectric filter were co-measured at a 45° sample angle—the manufacturer-specified AOI—which is shown in Figure 2. The purpose of the filter is to separate the shorter, blue wavelengths from the longer, red wavelengths. The detector angle was set to 90° for the reflection measurement and set to 180° for the transmission measurement. The optics manufacturer guarantees the average transmission, T_{avg} , from 600 to 1200 nm should be greater than 85%, and R_{avg} from 325 to 475 nm should be greater than 90%. With a measured T_{avg} of 95% the transmission specification is met. However, the R_{avg} was measured at 77%, indicating the filter does not reflect wavelengths in the UV-Vis range as well as advertised.

As demonstrated above, the Cary 7000 equipped with a UMA offers comprehensive control for the optical characterization of various materials. With its independent control of wavelength, polarization, sample angle, and detector angle, the instrument enables precise, reproducible measurements that meet the rigorous demands of modern optical component development.

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