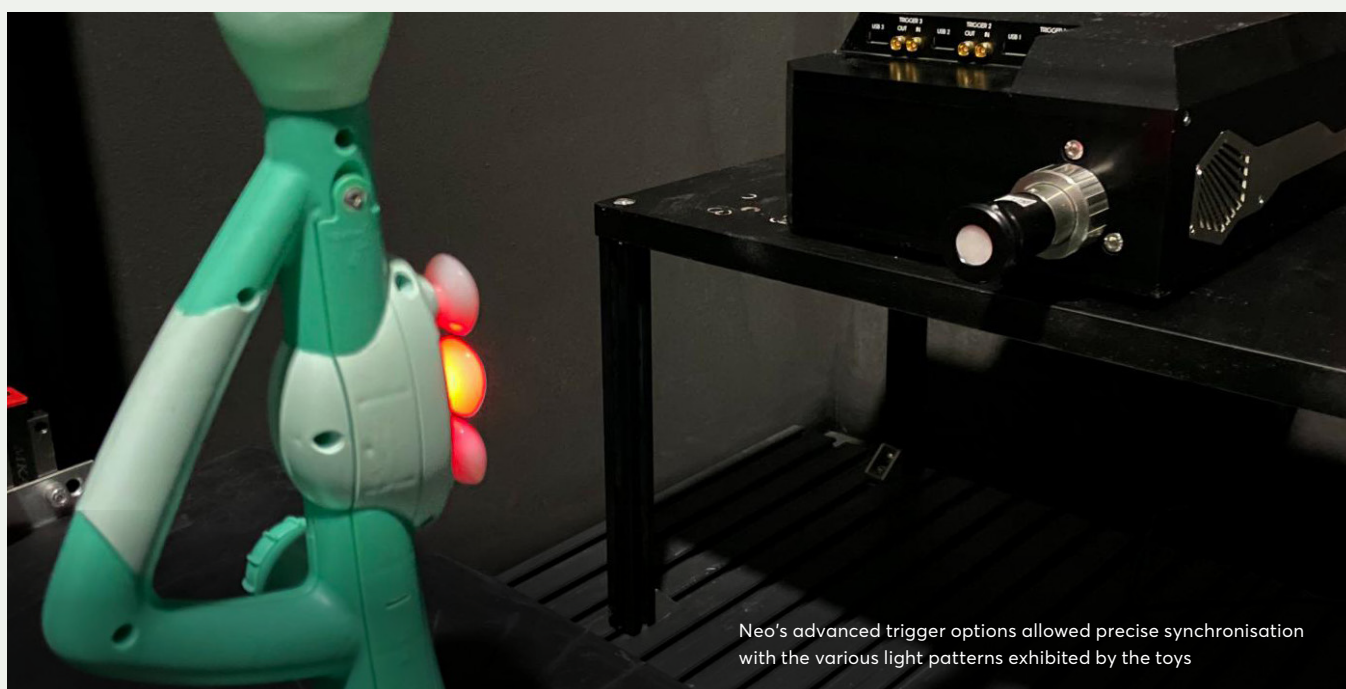


Toy inspection efficiency boosted with spectroradiometer



Neo's advanced trigger options allowed precise synchronisation with the various light patterns exhibited by the toys

Spectroscopy is used to test products in a multitude of industries. In food and beverages it is used to analyse food composition, detect contaminants, and ensure product quality, for example. In cosmetics, it is employed to ensure the quality, safety, and consistency of products.

Istanbul-based Kazlıçeşme Test Laboratories is a leading accredited laboratory that specialises in these and many other fields, including biocidal products, child and baby care products, leather, shoes, textiles, toys, stationery, and jewelry accessories. The company is dedicated to ensuring the safety and compliance of products according to national and international standards.

Safety testing toys: The requirements and challenges

Having started out in 2013 as Turkey's first and only leather R&D centre, more recent years have seen the company expand its capabilities in the toy inspection market, particularly focusing on toys containing electrical components.

The EN IEC 62115 standard, which governs the safety of electrical toys, details a specific requirement for optical safety, which involves assessing the light sources, such as LEDs, which are

commonly found in products imported from outside of Europe, and so can require re-inspection to ensure compliance with European safety standards.

Having taken the decision to enter this market, the test laboratory had a number of challenges to overcome. For instance, its main competitor in the field used a monochromator-based spectroradiometer to perform these tests. However, this type of instrumentation can often be slow and cumbersome, which could be a potential hindrance to the laboratory's ability to effectively compete, so it needed a more efficient solution. Enter Solak, a well-established consulting firm in the field of optical measurement setups.

Solak is well known for its expertise in consulting, technical service, and system integration for optical measurement. The company has built close relationships with the Turkish National Metrology Lab, the Turkish Standards Institution (TSE), and various educational institutions. Kazlıçeşme Test Laboratories reached out to Solak following a recommendation from colleagues at TSE, hoping to find a more efficient solution.

Solak had an existing relationship with Admesy, a company known for its advanced optical measurement solutions. This relationship began years ago when Solak connected with Admesy at an industry trade event. Over time, the partnership deepened, and Solak later acquired the first version of Admesy's cooled sensor spectroradiometer. Vural Koksall, Technical Sales Lead at Solak explains: "We bought a colorimeter from Admesy many years ago, as we met with the company at a trade show. Then we developed this relationship with Admesy for other projects. A couple of years ago we bought the first version of a cooled sensor spectroradiometer from Admesy, so we know their products, and we prefer to work with Admesy as their product offering is so versatile."

Solak provided Kazlıçeşme Test Laboratories with comprehensive technical guidance, helping them understand the specific requirements of the EN IEC 62115 standard and evaluating the laboratory's needs. Says Koksall: "After understanding all the client's needs, we recommended a number of instruments, and the customer purchased all of the items listed by us."

Finding the right solution: Admesy's Neo spectroradiometer

After thorough discussions, Solak proposed a solution centered around Admesy's Neo spectroradiometer. Neo was selected for several reasons. Firstly, its fast measurement capabilities, which were crucial for accurately capturing the behavior of intermittent light sources, such as blinking LEDs. The Neo's advanced trigger options also allowed precise synchronisation with the various light patterns exhibited by the toys. Neo also features a directly coupled large aperture cosine corrector and a wide spectral range, making it well-suited for the diverse testing needs of Kazlıçeşme Test Laboratories.

After purchasing the equipment, Kazlıçeşme Test Laboratories received extensive training from Solak on how to use the instruments, interpret the results, and generate reports. This ensured that the laboratory could fully leverage the capabilities of the Neo spectroradiometer.

One of the main challenges faced during the implementation of this solution was the varying light patterns exhibited by the toys. Each sample began emitting light in its unique sequence, with one LED activating just as another turned off. This posed a significant challenge for accurate measurement. However, Solak overcame this issue by leveraging the advanced trigger options provided by the Neo spectroradiometer, which allowed precise timing and synchronisation with the toys' light patterns.

Results and future plans

The collaboration between the three companies has yielded impressive results. The laboratory is now fully equipped to handle the optical safety testing of toys in accordance with the EN IEC 62115 standard. The implementation of the Neo spectroradiometer led to improvements in the efficiency and accuracy of the testing process, so Kazlıçeşme can now offer faster and more reliable testing services, enhancing their competitiveness in the market.

What's more, the successful integration of the Neo spectroradiometer has opened new avenues for software customisation, allowing Kazlıçeşme to offer tailored reporting screens for specific standards. This adaptability could help the company to attract a broader customer base and further build its position in the industry.

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