

Talking with Micha Perlman, Orbotech's Senior Marketing Manager (PCB Division)

Dan: Micha I know that Taiyo America and Orbotech have been working together for many years, over fifteen years in fact, since you developed Orbotech's first DI solder mask. I'd like to start with something a little more recent and ask you about your latest DI solutions and the collaboration with the customers and Taiyo.

Micha: During the past 3 years, Orbotech has introduced two new DI models with multi wavelengths that cover a wider range of energy wavelengths delivering higher production capacity with better adhesion and polymerization. As these new DI have multi-wavelength light sources, they match any resists. Nevertheless, in order to further boost the solutions' capabilities and provide our customers with even higher throughputs and better overall results – better than that of any other DI in the market - we have worked closely and developed an enhanced solder mask solution that boosts the throughput while delivering maximum quality and structure.

Dan: Okay now you really have me interested. Please elaborate. What is this new multi wavelength technology? Laser based or the LED based DI?

Micha: Actually, we use both technologies. We further developed our field proven laser-based LDI, replacing the solid state laser with multi wavelength energy built with powerful laser diodes and imaged with our leading large scale optics technology (LSO). The Nuvogo™ family of machines has far higher laser energy and images solder resist and photoresist for patterning with superior quality, at double the speed and much more.

In addition, in 2016 Orbotech launched the Orbotech Diamond™ 8, a complete new DI system designed for the unique needs of solder mask imaging, based on LED light energy and DMD scanners.

Dan: After so many years with laser-based DI, what moved you to develop a DI with LED technology?

Micha: Solder mask imaging requires very high energy of typically 300 to 1000mJ/Cm² and more. In most cases the ink type cannot be replaced with new sensitive solder resists like are used in photoresist patterning films. The machine was developed for mass production where the imaging speed is critical. Therefore, in order to ensure that our solder mask DI is a competitive alternative to a exposure machine, we needed to ensure much higher energy levels at a lower cost. This is exactly the area where an LED light source has the advantage, and delivers the required energy for high throughput and competitive cost.

Dan: Why have you chosen to move from the Large-Scale Optics (LSO) to DMD scanners?

Micha: Laser energy and Large-Scale Optics are needed with fine line patterning. This is not the case with solder mask exposure, where the smallest features are typically dams of 2 mil wide and above. Multiple DMD heads with low energy, low cost LED were selected as they deliver double and triple imaging speeds when imaging solder mask ink with low sensitivity.

Dan: Can you tell us about the status of these new technologies?

Micha: Sure, The Nuvogo™ family of solutions, which is based on our 20+ year old LSO technology with a 1000 plus system installed base, was adopted by the market extremely fast. Over 300 Nuvogo DI machines have already been installed for the most advanced PCB patterning in the Pacific and in the West and about 40 of them are being used for Solder Mask.

We recently launched the Orbotech Diamond™8 with DMD scanner technology and it has already made significant headway in this market with more than 15 customers in the Pacific and the West.

Dan: Your DI machine was installed for 12 months in the Taiyo America facility in Carson City for solder mask ink optimization. Can you tell us about the results of your collaboration with Taiyo?

Micha: As trusted partners for so many years, Orbotech made certain to update Taiyo America about these new DI solutions and the new multi wavelength light source. Realizing that the future of Taiyo SM DI business requires modifications to the SM ink, Taiyo America and Orbotech collaborated on a new SM ink optimization project. In order to maximize the efficiency of the R&D and testing process in April 2016 Orbotech installed the new DI in Taiyo's facilities in Carson City. Over the following 12 months Taiyo succeeded in modifying 3 of their more common SM ink series, including all the different colors and variations with the same UL certification. The test results show higher sensitivity and 40 to 60% higher imaging throughput. In addition, new inks were developed which are 3 to 4 times faster and more sensitive than the SM ink used today in America. This strong cooperation between Taiyo and Orbotech is a win-win situation where our customers come out on top and everyone can reap the benefits.

Dan: Micha, thank you for talking with me today. I really found this very interesting.

Micha: My pleasure Dan.

For more information go to www.orbotech.com and to Orbotech's YouTube channel @ https://www.youtube.com/results?search_query=orbotech.

Michael (Micha) Perlman Biography

Michael (Micha) Perlman is a senior marketing manager at Orbotech where he is currently responsible for new market development. Over the past 25 years, Micha has spearheaded the marketing of many of Orbotech's solutions for the PCB industry, including AOI, AOS, inkjet, laser drilling and more. Micha has worked alongside global customers to understand their needs and meet them based on his in-depth understanding of advanced global PCB markets and technology trends. Micha is Orbotech's leader for collaboration with PCB dry film and ink suppliers to ensure best quality and performance for Orbotech's direct imaging and inkjet users.