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SABIC Innovative Plastics and LPKF Laser & Electronics Team Up

PITTSFIELD, Mass. — As electronics continue to shrink in size, they are also expanding in functionality. Each new mobile phone, PDA and music player incorporates more bells and whistles in thinner, smaller packages. To help device manufacturers miniaturize, SABIC Innovative Plastics and LPKF Laser & Electronics AG have worked together to develop a new approach. By combining LPKF's Laser Direct Structuring (LDS) technology with specialized SABIC Innovative Plastics materials, it is now possible to integrate electronic and mechanical functionality – such as a mobile phone antenna – in a single module, saving space and reducing manufacturing costs and development lead time. By working side by side with partners such as LPKF on breakthrough ideas, SABIC Innovative Plastics continues to help customers achieve business success.

"Our collaboration with SABIC Innovative Plastics benefits joint customers by giving them a wider range of LDS-enabled materials available worldwide to use when designing new molded interconnect devices using our patented laser technology," said Nils Heininger, vice president PCB/MID Equipment, LPKF Laser & Electronics. "These innovative materials are helping to drive market adoption of our LDS technology, which will benefit both consumers and OEMs."

Replacing printed circuit boards, harness and metal inserts that require significant space within a device is critical to electronics manufacturers. Today OEMS are using molded interconnect devices, which integrate circuit tracks into the plastics part, that are created using LDS technology. The laser sculpts an intricate, three-dimensional structure on the molded plastic housing in preparation for metallization. Only special plastics that can be metalized are suitable for LDS technology.

Full Portfolio of LDS-Enabled Compounds for Design Freedom

SABIC Innovative Plastics has developed a full portfolio of these special plastics with LDS-enabled LNP compounds based on polyphthalamide (PPA), polyphenylene oxide (PPO), nylon and polycarbonate/acrylonitrile butadiene styrene (PC/ABS).

"LDS is an elegant solution to the problem of shrinking real estate in electronics today," said Nitin Apte, general manager for LNP* products at SABIC Innovative Plastics. "To give electronics manufacturers the broadest choice of materials for use with LDS, SABIC Innovative Plastics has developed a number of LNP specialty compounds, including the PC/ABS-based compound. Further, as part of our ongoing development efforts in this arena, we are installing an LPKF laser system in our Shanghai Center of Excellence to assist global customers with prototyping."

The benefits of LDS technology also include reduced environmental impact compared to traditional etching because no caustic chemicals are required; and lower tooling costs because one-component injection molding can be used instead of two-component injection molding.