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3D Space-Saving Electronics

Efficient Antenna Production with LDS Technology

July 2009, Garbsen, Germany – More functions, less space. That is the dilemma facing the electronic engineers developing consumer electronics products. Molex, a leading manufacturer of electronic components supplies three dimensionally shaped cell phone antennae made using the LDS method – a technique which easily satisfies the challenging demands of this technology.

Molex recently announced that they have shipped the 20 millionth antenna manufactured by LDS technology. “We have been involved in the development of molded interconnect devices for ten years, and played a part in the breakthrough of this technology on the market,” says Ellen Maassen, Antenna Business Unit Director at Molex. Inc. She is now enjoying the continuous rise in demand for these efficient and economical components. LDS technology today has overtaken the previous standard methods, and Molex uses it to produce several million components a month. There are already plans to expand the production capacity further.

The LDS method developed by the specialist German laser company LPKF Laser & Electronics AG uses single-component injection molded parts as the starting material. A laser beam takes only a few seconds to write the electronic circuit layout on the surface of the plastic component. The structure activated in this way is then metalized. Almost all the major polymer manufacturers sell special polymers designed for use with the LDS method. Nils Heininger, Vice President PCB/MID Equipment at LPKF Laser & Electronics AG describes the cooperative efforts: “LPKF and Molex work together on the further development of LDS technology. This has helped Molex become the main producer of LDS antennae, and acquire an enormous range of process expertise”.

The LDS method boasts two major advantages over other technologies. Firstly, there is the full 3D-capability compared to other methods; for example flex-circuits or stamped bendable parts. LDS components occupy the shape that is made available - function follows form. Because of the laser structuring, any changes to the layout can be carried out without changing any tools – ideal conditions for the production of different types of antennae. Secondly, the technology boasts very high levels of efficiency: short cycle times, maintenance-free and rugged laser systems capable of 24/7-operation and low reject rates – ideal conditions for successful operation. And not only for cell phones!

About LPKF

LPKF Laser & Electronics AG manufactures machines and laser systems used in electronics fabrication, medical technology, the automotive sector, and the production of solar cells. Around 20 percent of the workforce is engaged in research and development.