Additive manufacturing for RF electronics

In the past years additive manufacturing techniques have been considerably improved and also entered the consumer market resulting in better available and cheaper solutions. The advantage 3D printers offer compared to traditional manufacturing processes are high flexibility and fast time to market. This is especially important for highly customized parts and small and medium batch sizes.

As many RF applications are part of this category, some research has been done on how circuits can be produced with 3D printers. Approaches have been reported to create substrates using FDM and SLA printers. Another interesting utilization are dielectric resonator antennae for which the highly customizable shape and good resolution attained open new possibilities.

More specialized Inkjet and aerosol jet printers are used to create metallic structures. This could allow for passive components such as transmission lines and couplers to be directly printed onto any substrate including previously printed ones.

Here an overview of the research done in this area is to be given, focusing on the different manufacturing techniques proposed. A comparison of their performance regarding precision, minimum feature size, customizability and losses shall be given where possible.

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