Multi-Layer Inkjet-Printed Capacitors (#6332)

Inkjet-printed low cost high frequency capacitors for use in electronics

Inventors at Georgia Tech have developed a method for inkjet printing that enables the rapid fabrication of extremely high frequency (EHF) components in minutes at an extremely low cost, on practically any substrate. This multi-layer method enables the deposit of layered materials without disturbing previously deposited layers. Inkjet printing requires smaller equipment, which offers the flexibility and portability to print and modify in remote locations.

Benefits/Advantages

- **Quick —** Rapid fabrication of extremely high frequency (EHF) components in minutes
- **Low cost —** Does not require a clean room and low chemical and material waste
- **Convenient —** Equipment is small enough to allow on-the-spot printing and modifications in remote locations

Potential Commercial Applications

- RF capacitors and inductors
- Antennas
- Electronic devices
- Printed wearable systems
- Communication
- Filtering
- Energy storage — can be extended out of mm-Wave to super-capacitors

Background/Context for This Invention

Flexible, multi-layer inkjet-printed capacitors with extremely high frequency are used for the fabrication of 2D and 3D antennas, as well as other passive components operating through mm-Wave frequencies. High frequency capacitors are used in the communication infrastructure field.

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More Information

U.S. Number: 9,343,233

Publications

For more information about this technology, please visit:
https://licensing.research.gatech.edu/technology/multi-layer-inkjet-printed-capacitors

Images:

The automated sequential delivery of multiple fluids. A varying number of delay gates imprinted in the

branches are shown in the figure.

COVID-19 and flu saliva test on paper: (A) The automatic sequential delivery of multiple reagents required for virus test; (B) Water pouring into the device triggers the virus assay, allowing the presence of SARS-CoV-2 and influenza A & B viruses to be visually identified by the color changes in the corresponding detection spot