Abstracts

Integrated Millimeter-Wave Systems and Subsystems Using Finline and Related E-Plane Technologies

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Reduced production costs is one of the most important requirements for the successful and widespread application of millimeter-wave systems in the future. Finline integration techniques, combined with E-plane- or milled-block waveguide technology, provide a suitable solution. Three already realized millimeter-wave sensors, using this design approach will be described: - a 61-GHz Doppler sensor, being used to determine the top dead center in combustion engines, accuracy being a few angle minutes; - A dual-polarization front-end for a frequency-agile 94-GHz Pulse-Doppler-radar featuring an overall conversion loss of 11 dB (pin-diode switch, filter, diplexer-circulator, and mixer losses are included); - a 66-GHz radar front-end for a helicopter obstacle warning radar with only four separated millimeter-wave "Super" components (the provided output power is 1.5 W peak, the achieved receiver conversion loss is less than 7 dB).

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