



1 Radio links can meet the demand for higher data rates in future industrial processes.

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2 Receiver circuit manufactured in the 35 nm technology of Fraunhofer IAF.

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## DIRECTIONAL RADIO LINKS FOR INDUSTRY 4.0 AND 5G

The millimeter wave frequency range between 30 and 300 GHz enables the fast transmission of large amounts of data. Our high electron mobility transistors (HEMTs) address the highest frequencies with compact, monolithically integrated circuits. The systems realized with it are suitable e.g. for industrial applications and the extension of communication networks. Depending on frequency band and application, transfer rates of more than 100 Gbit/s can be achieved and distances of more than 30 km can be bridged.

### Fraunhofer Institute for Applied Solid State Physics IAF

Tullastrasse 72  
79108 Freiburg, Germany

#### Contact

Dr. Sébastien Chartier  
(Head of Business Unit  
High Frequency Electronics)  
Phone +49 761 5159-446  
sebastien.chartier@iaf.fraunhofer.de

[www.iaf.fraunhofer.de](http://www.iaf.fraunhofer.de)

Part of



#### Features

- Monolithically integrated circuits (MMICs)
- Integration of transmit and receive functions on a chip up to 440 GHz
- Co-integration of CMOS functions on printed circuit boards and on wafer level
- Data rates of more than 100 Gbit/s with real-time signal processing

#### Applications

- Transfer of large amounts of data in automated production processes
- Wireless extension of fiber optic networks in rural and urban areas
- Connections with data rates of Tbit/s between data centers and within office buildings