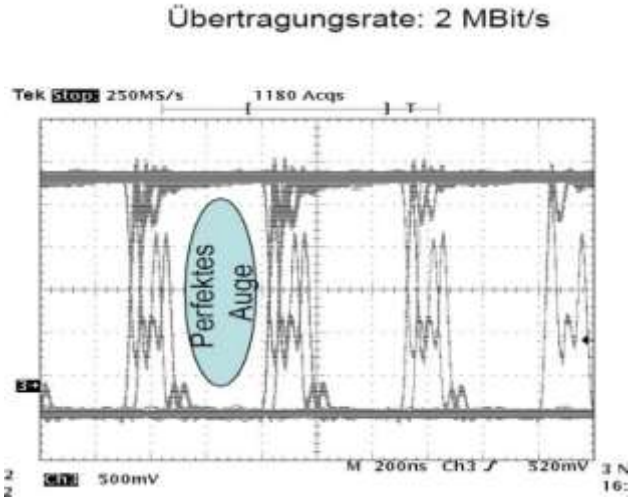
dualMode-Radio

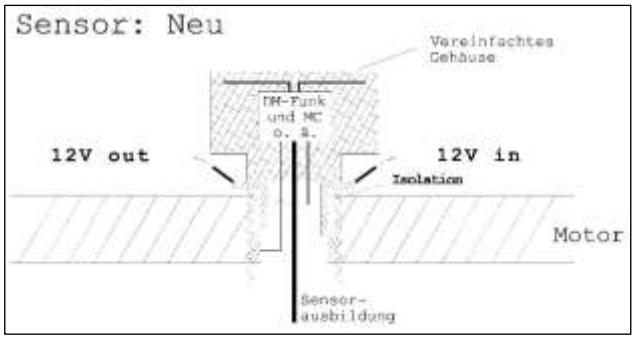
Radio transmission technique with two free space modes

Invention

Most current radio transmission techniques use locally generated signals for the demodulation of the received signals. The electronic devices like synthesizers and local oscillators needed for the de-modulation are expensive and require much space. dualMode-Radio exploits two free space modes of the same frequency for transmission. In addition to the wanted signal the emitter provides a signal at the same frequency for the demodulation, which is orthogonal to the wanted signal. Thus there is no need for a local oscillator or a synthesizer in the receiver, which means significant reduction in the number of electronic devices. Besides this the requirements on the transmitter oscillator are much less than in conventional system as wanted signal and demodulation signal originate from the same source. Additionally there is also a significant decrease of power consumption. Especially in the GHz-range dualMode-Radio has obvious cost advantages. dualMode-Radio can be used with almost all modulation schemes and it is insensitive to the Doppler effect as the signal for demodulation is sent with the wanted signal.



Measured data of a 2,45 GHz-Prototyp



Transmitter concept

Commercial Opportunities

dualMode-Radio is a simple and cost saving alternative to established transmission techniques. An interesting field of application is short range transmission like car-to-car communication, RFID-technology or chip-to-chip communication to replace connections by wire.

Current Status

dualMode-Radio was developed at the University of Applied Sciences in Aachen. On behalf of the University of Applied Sciences in Aachen the PROvendis GmbH offers exclusive licences on dualMode-Radio and opportunities for further development to innovative companies. Patents are granted in Europe, the US and Japan.

An invention of the FH Aachen University of Applied Sciences.

Competitive Advantages

- Simple design, reduced number of devices
- Reduced power consumption
- Low requirements to sender oscillator
- Applicable to the most modulation schemes
- Simple application
- Up to the high GHz-range
- Insensible to Doppler-effect

Technology Readiness Level

1 2 3 4 **5** 6 7 8

Technology validated in relevant environment

Industries

- Automotive Industry

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