In order to achieve the high spectral efficiencies and seamless indoor coverage targeted for 5G, Fraunhofer IIS has developed the concept of a shared UE-side distributed antenna system (SUDAS). SUDAS is an infrastructure of many low-price and easy-to-implement relay nodes scattered in a building or a vehicle that receive signals from base stations and forward them in an mm-wave band. The signals are received by the user equipment (UE) in the building or vehicle.

SUDAS is a type of virtual MIMO (multiple input multiple output). More specifically, it is a UE-side coordinated multipoint (UE-CoMP) scheme that translates massive spatial multiplexing in a licensed mobile band into massive frequency multiplexing in an unlicensed mm-wave band or vice versa.

The benefits at a glance:
- Significantly improved indoor and in-car coverage
- Higher data rates of up to 10 Gbps and lower cost than small cells
- High degree of diversity and high robustness
- No regulatory issues about using the mm-wave band for 5G
- Transfer of 5G deployment cost from mobile network operators to end users (according to individual data rate needs)