

Beam Steering Demonstrated:

line-of-sight ---
 non line-of-sight ---

Reflector

Blockage

Open Source FPGA implementation:

- ① Flexible transceiver
- ① GFDM waveform
- <https://owl.ifn.et.tu-dresden.de/>

- ② NI USRP RIO



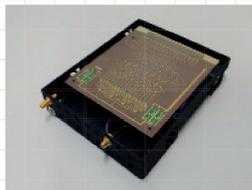
- ③ 1x16 switch for beam selection



- ④ Shared Local Oscillator (LO)
Generates 11.8 GHz signal



- ⑤ mmWave antenna
 - 1 x 16 antenna array
 - 16 x 16 Butler matrix
 - 16 Power Amplifiers



Receiver