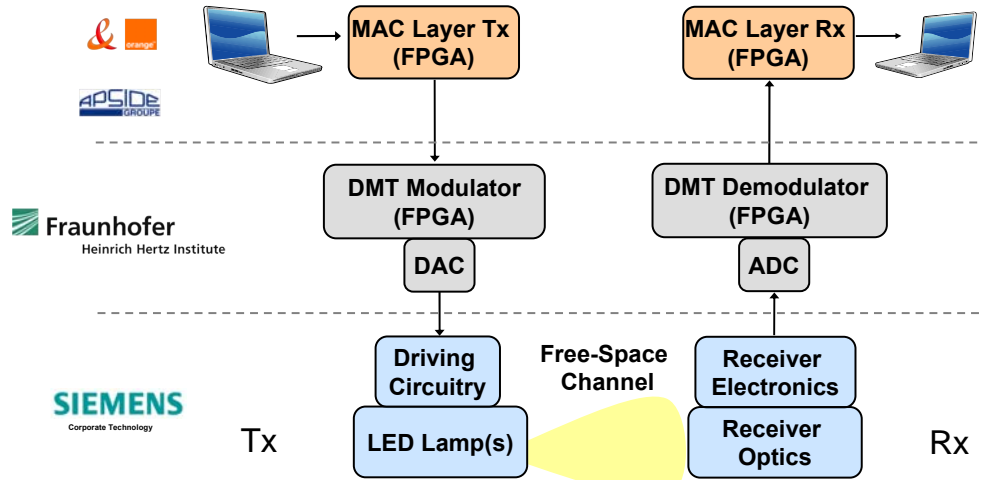


Demonstrator Block Scheme



Example setup



Analogue Tx Specs

Demonstrator V1

- Custom-designed driving circuit with an electrical 3-dB bandwidth of 90 kHz – 12 MHz
- Independently adjustable LED bias current
- LED module consisting of 6 thin-film phosphorescent white LEDs (OSTAR E3A). Luminous flux ~ 350 lm
- Integrated optic transforming rectangular LED area into circular light spot

Demonstrator V2 (end 2010)

- 16 lamps mounted in ceiling, driven in lockstep
- Analogue signal-distribution network supplying DAC signal to all lamps

Analogue Rx Specs

- Custom-designed two-stage amplifier with low-noise JFET input
- 3-dB bandwidth of 35 MHz
- 12 kV/A transimpedance gain
- 0.21 nW/Hz^{1/2} noise-equivalent power
- 70° Field of View
- Optimized optical filter with 500 nm cut-off wavelength
- Effective detector area of ~110 mm²
- Integrated 18-V supply for pin-diode biasing
- Improved noise reduction by battery-powering

PHY DSP Specs

Demonstrator V1

- Bit rate 84 Mbit/s
- Base-band signal bandwidth 25.5 MHz
- 7 subcarriers (16-I/FFT)
- 16-QAM on all subcarriers
- Power pre-equalisation
- Uncoded data transmission
- Overhead (cyclic prefix and training sequence) ~ 7 %
- Clock-synchronisation over cable

Demonstrator V2 (end 2010)

- 100-Mbit/s transmitted by 16 lamps
- Optimised transmission spectrum
- FEC implementation
- Automatic synchronisation

OW MAC Specs

