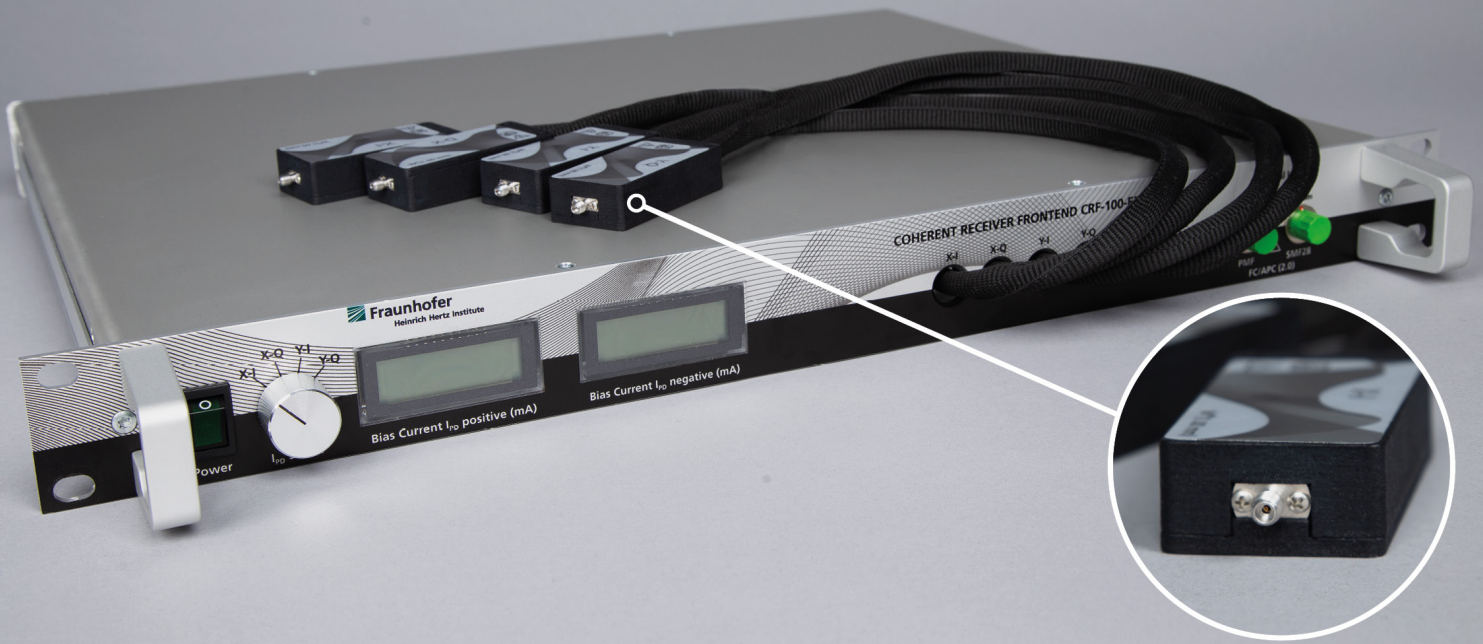


110 GHz COHERENT RECEIVER FRONTEND



AT A GLANCE

- Optical coherent receiver in a compact 19"-chassis with 110 GHz bandwidth
- Optional LO Laser for C- or L-Band included
- Coherent detection of high-speed optical dual-polarization m-PAM and m-QAM signals

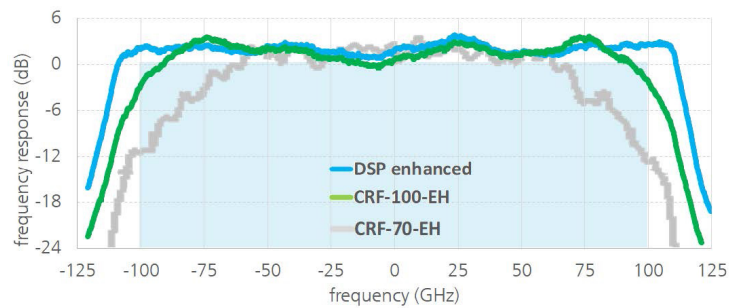
Applications

- 110 GHz Coherent optical receiver in a compact 19"-chassis
- 4 optical extender heads for direct connection to high-bandwidth oscilloscopes
- 1mm (W) connector, ruggedized version on request
- Coherent receiver with integrated PBS, 4 BPD and optical 90° hybrid
- Coherent detection of high-speed optical QPSK and m-QAM signals
- Simultaneous polarization diverse coherent detection of I/Q
- Optical inputs for local oscillator and data signal
- S+C+L+U-band operating λ range

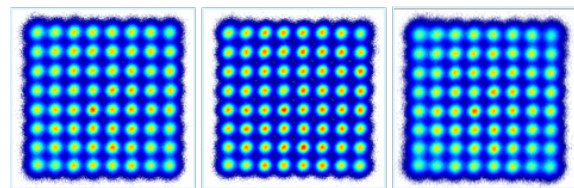
Technical Background

- Test and measurement up to 110 GHz
- Development of multi-Terabit transmission systems and components
- Polarization-diverse detection of highspeed signals with various modulation formats (m-PAM, m-QAM, 4D)
- Coherent receiver frontend for single-mode optical data transmission
- O/E converter for detection of arbitrary optical waveforms
- High-resolution optical spectrum-measurements

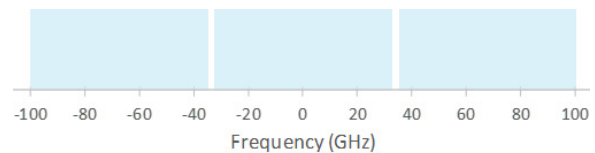
	CRF - 100 - EH
Operating wavelength range (nm)	S-band to U-band (1490 – 1640)
6dB cut-off frequency (GHz)	110
Average CRF responsivity (Sig mA/W)	> 40
Common mode rejection ratio (dB _c)	< -20(DC)
Imbalance I _{Sig} and I _{LO} (dB _c)	< 2 (DC)
Phase deviation (deg)	< +/- 8.0
Optical Return Loss (dB _c @1550nm)	> 35
Polarization extinction ratio for Sig & LO (dB _c)	> 20
Internal local oscillator laser	Optional
Optical extender head	Yes
Optical connectors	FC/LC/E2000-APC
HF-connectors	female W®
P-N Skew (ps)	<2
I-Q and X-Y Skew (ps)	<10 (<5*)



200 GHz Detection Bandwidth



Joint Detection of 2.3 Tbps Superchannel



3 x 64-Gb/s 64-QAM

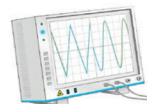
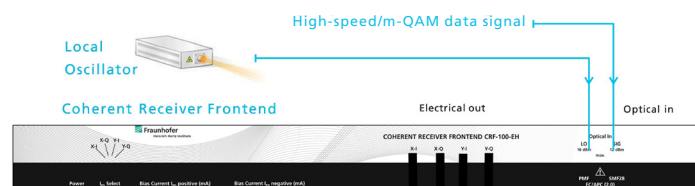


Dr. rer. nat. Colja Schubert
 Photonic Networks and Systems

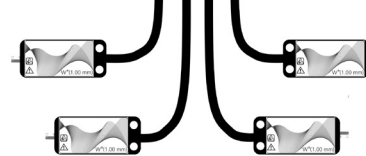
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Real-time Oscilloscope



Analog-to-Digital Converters for real-time processing

Typical setup using the 100 GHz coherent receiver frontend

Accessories	
RDAD-100m	Ruggedized 1 mm male to 1 mm (W®) male
RDAD-100f	Ruggedized 1 mm male to 1 mm (W®) female
RDAD-185m	Ruggedized 1 mm male to 1.85 mm (V®) male
RDAD-185f	Ruggedized 1 mm male to 1.85 mm (V®) female

