



Reconfigurable Digital Coherent Receiver for Hybrid Optical Fiber/Wireless Metro-Access Networks

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Publication date:
2011

Document Version
Publisher's PDF, also known as Version of record

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Citation (APA):

Arlunno, V., Guerrero Gonzalez, N., Caballero Jambrina, A., Borkowski, R., Pham, T. T., Rodes Lopez, R., ... Tafur Monroy, I. (2011). Reconfigurable Digital Coherent Receiver for Hybrid Optical Fiber/Wireless Metro-Access Networks. Poster session presented at 2nd Annual Workshop on Photonic Technologies for Access and Biophotonics, Stanford, CA, United States.

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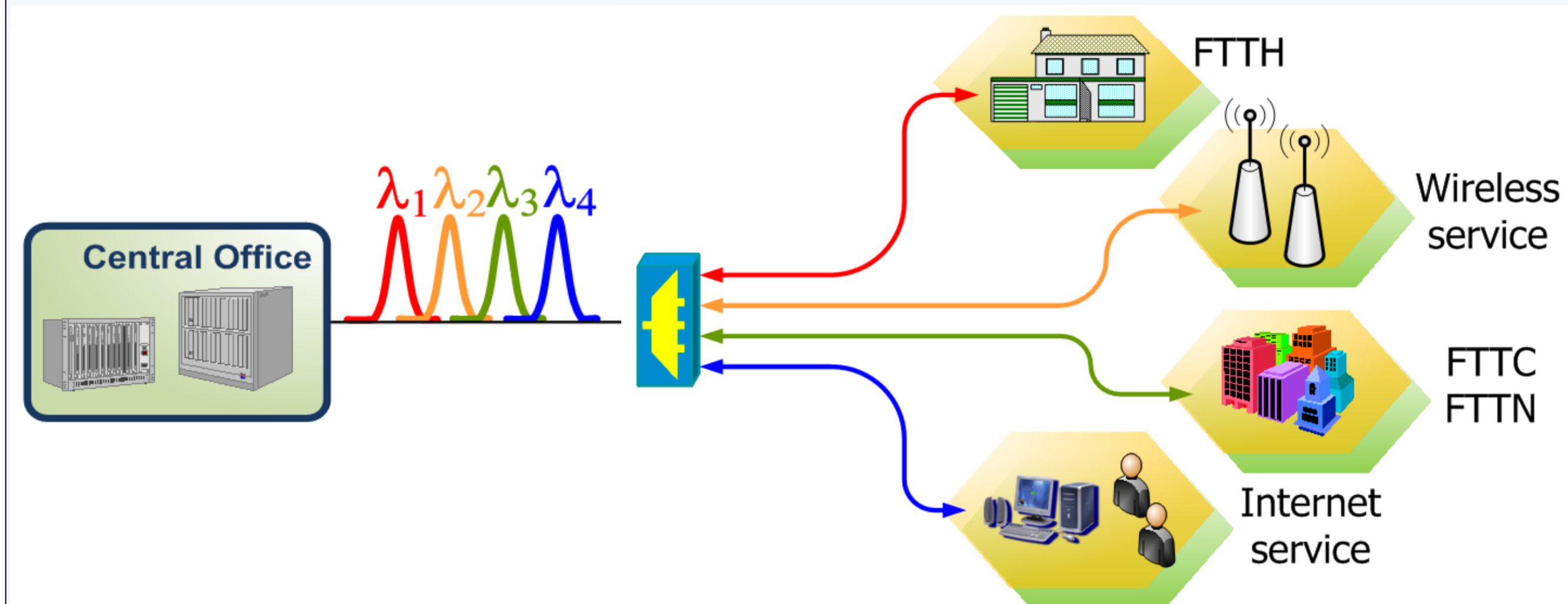
Reconfigurable Digital Coherent Receiver for Hybrid Optical Fiber/Wireless Metro-Access Networks

Valeria Arlunno, Neil Guerrero Gonzalez, Antonio Caballero Jambrina, Robert Borkowski, Tien Thang Pham, Roberto Rodes, Xu Zhang, Maisara Binti Othman, Kamau Prince, Xianbin Yu, Jesper Bevenssee Jensen, Darko Zibar and Idelfonso Tafur Monroy

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Scenario

Wired and Wireless Service Convergence in Access Network



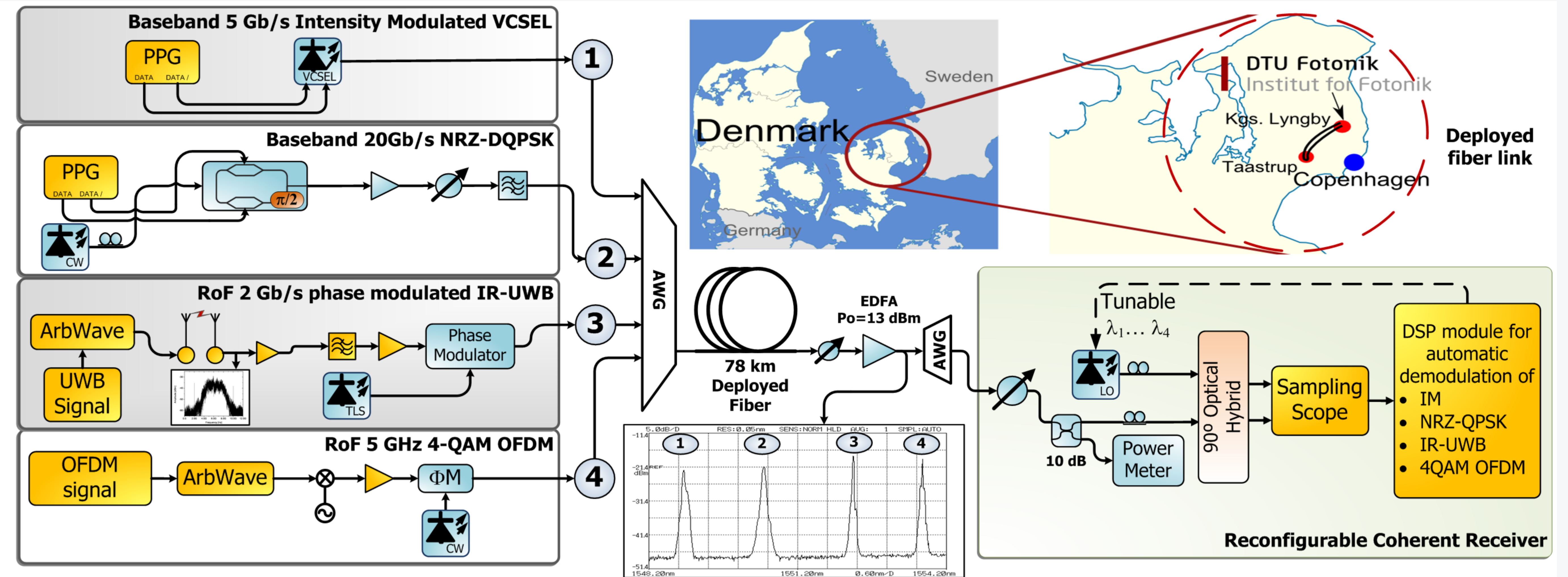
- Next generation networks need to support **diverse broadband services**
- Need for **re-configurability** and accomodation of **bandwidth requirements**

Simultaneous transmission of wireless and wireline signals over the same optical fiber access platform

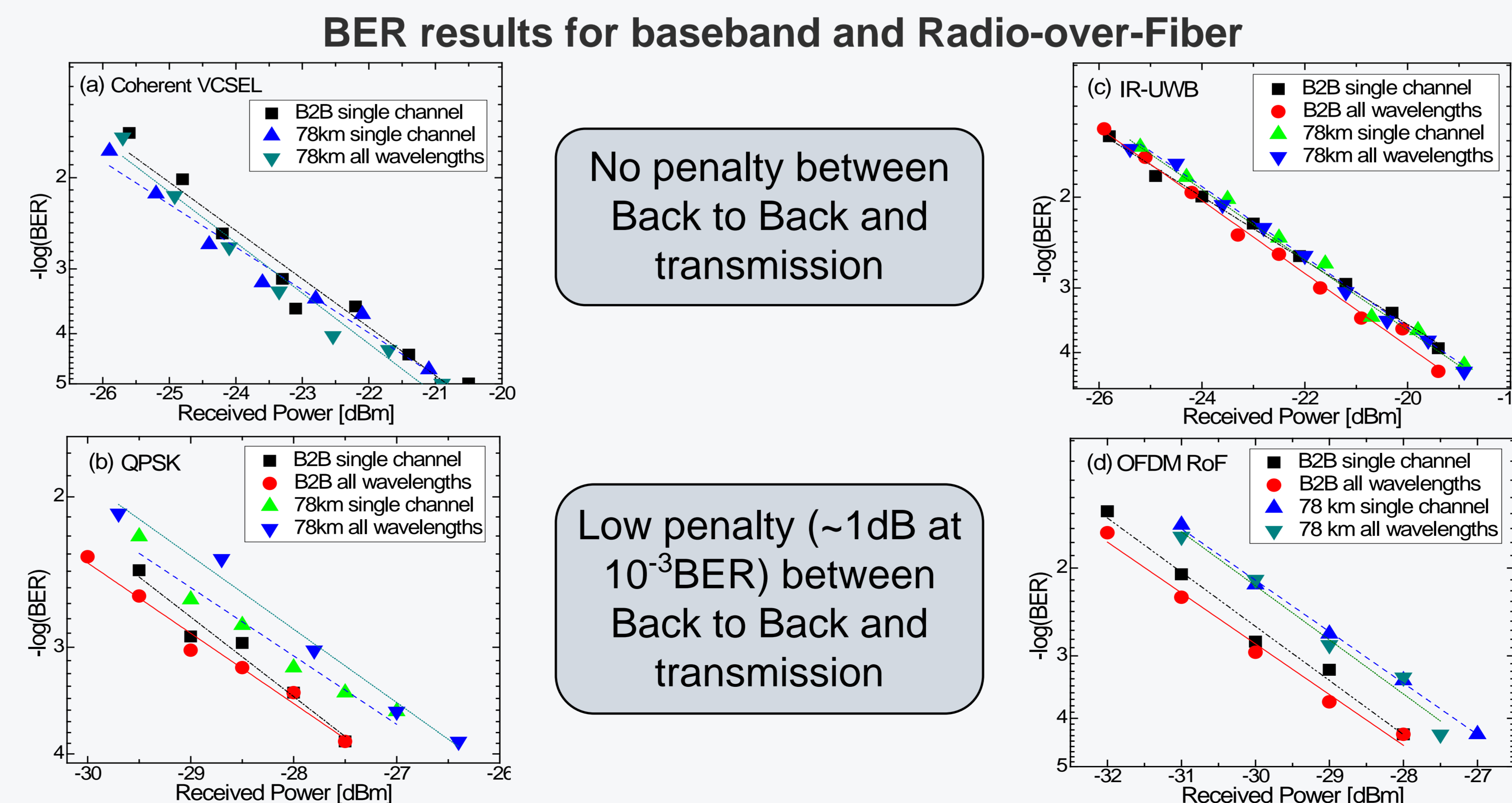
Key Technologies

- **Mixed modulation formats, baseband and Radio-over-Fiber, supporting wireline and wireless services:**
 - Baseband 5 Gbps Intensity-Modulated VCSEL
 - Baseband 20 Gbps NRZ-DQPSK
 - Radio-over-Fiber 2 Gbps phase-modulated IR-UWB
 - Radio-over-Fiber 5 GHz 4-QAM OFDM
- **Single reconfigurable digital coherent receiver**
 - Linear signal demodulation
 - Frequency offset compensation
 - Digital phase-locked loop (DPLL)
 - Digital dispersion compensation

Setup Description



Results



Conclusions

- **Single reconfigurable DSP enabled coherent receiver supporting heterogeneous wireless/wireline next generation metro-access networks**
- Experimental demonstration of **simultaneous transmission** of different types of services over deployed fiber link
- Experimental demonstration **automatic recognition of modulation formats**