



# **OFDM-based Dynamic Spectrum Access** *(Demonstration)*

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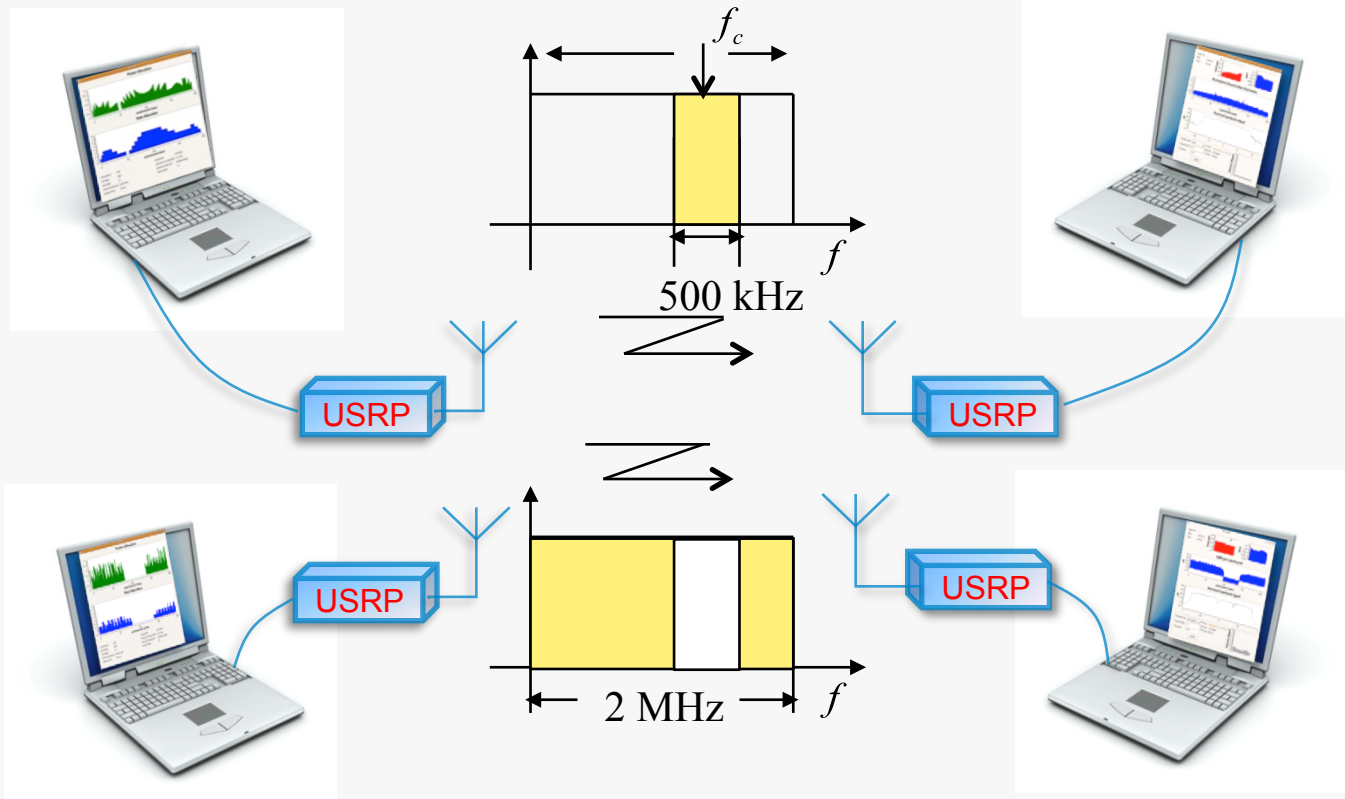
**RWTH Aachen University**

DySPAN 2010, Singapore, 07.04.2010

# Demonstration scenario

- Interference-free coexistence of two OFDM systems within a common frequency band

PU

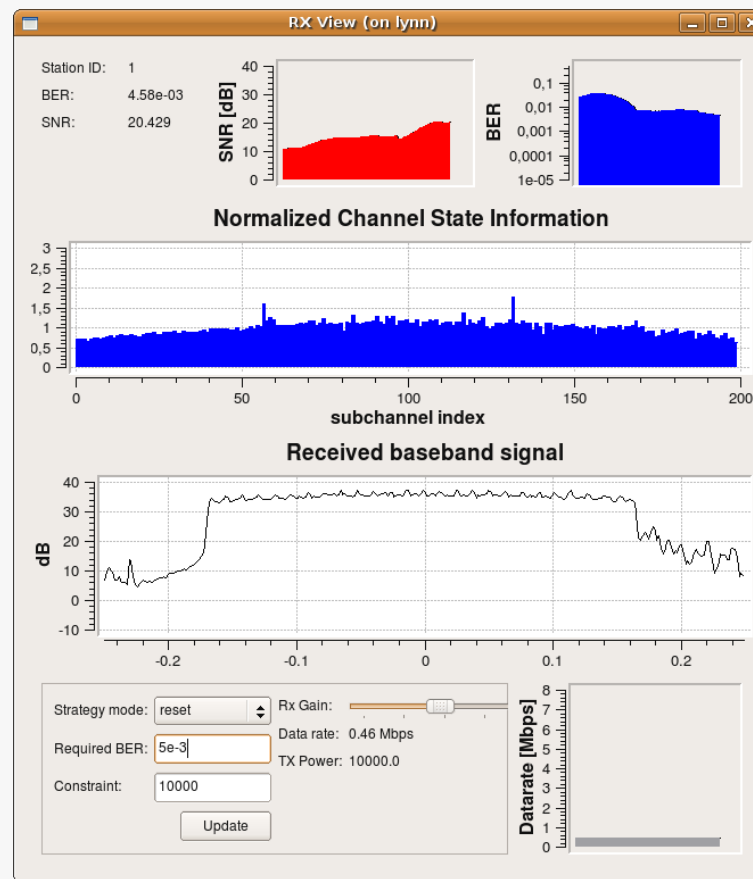


SU

# Demonstration scenario



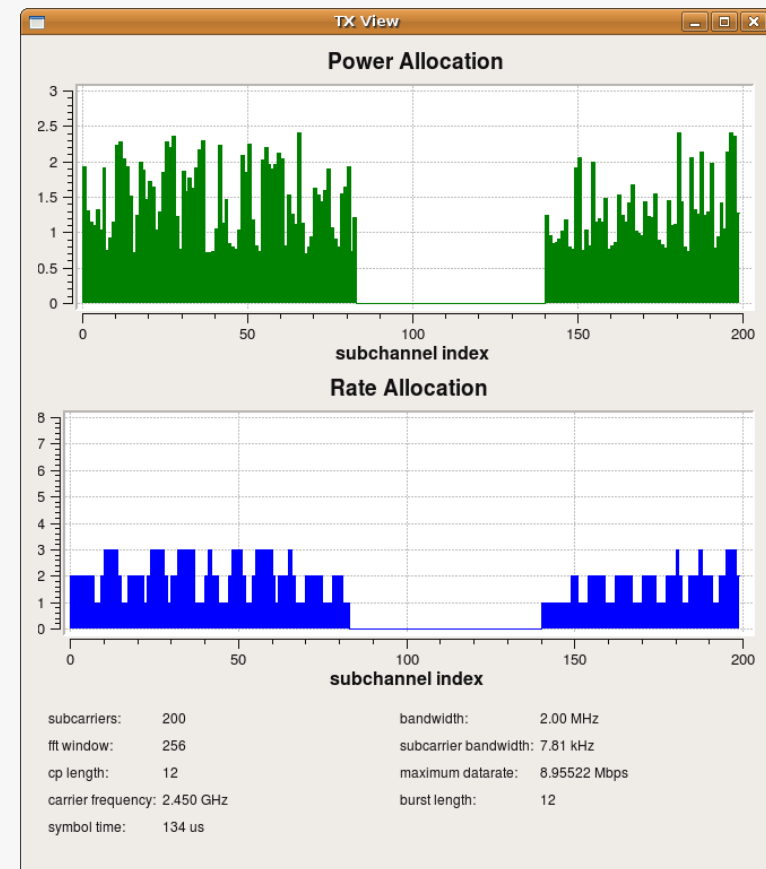
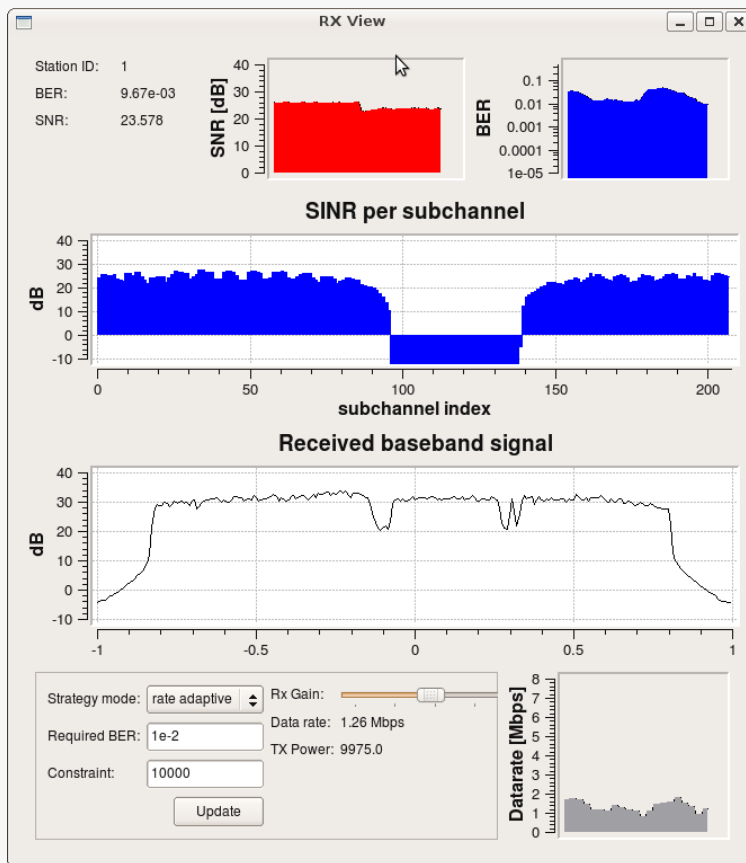
- The performance of PU transmission is not affected by SU communication



# Demonstration scenario



- SU system detects parts of unused spectrum and adapts its transmission parameters (used subchannels, rate and power allocation) satisfying given requirements (constrained total power, required rate, BER)



# System architecture



- Reconfigurable continuous one-way transmission of OFDM symbol frames
- Baseband signal processing is implemented in **GNU Radio**
- Blocks for adaptive (de)mapping and power loading allows for capacity achieving functionality
- The backbone of the system is realized over local Ethernet network by **CORBA event service**
- The central control unit (**resource manager**) determines optimal transmission parameters for given requirements
- **Resource manager** can be easily configured for different DSA scenarios

