5G Demo Session   European Wireless 2016, 19.05.2016

List of demonstrations:

Exploiting Lossy Links in 5G Communications

Rescue Project, EU (AGH University of Science and Technology, FQS Poland, Irinove, Japan Advanced Institute of Science and Technology (JAIST), University of Oulu, Technische Universität Dresden, Technische Universität Ilmenau, Thales Communications & Security, UbiTech, The Centre for Communication Systems Research).

The constant increase in the number of devices as well as the exponential growth in the exchanged data volumes make the future networks highly dense in terms of number of nodes and conveyed traffic. In a wireless environment, this density challenges today's wireless communication techniques and protocols and calls for new interference mitigation strategies in these inherently interference limited environments. A major requirement for 5G becomes offering robust, efficient and low latency information transfer over such dynamic and complex networks. We aim to influence with our solution 5G researchers and stakeholders in policymaking and future wireless standards mainly 5G and IEEE802.11x.
We propose to demonstrate our new communication paradigm called Links on the fly (LOTF) which is based on distributed joint source channel coding, lossy forwarding relaying and advanced network protocol, through an integrated and fully operational proof of concept. Our demo aims to highlight how LOTF enables communication over lossy links in a set of scenarios and configurations where communication with state of the art solutions is deemed impossible.
Our demo will highlight the feasibility of the new LOTF concept based on a practical testbed consisting of 3 USRP (Universal Software Radio Peripheral) devices and the open software platform GNU Radio. Three different concepts comprising the physical and medium access layer impact of LOTF are compared to a base line concept. The results are presented in an easy-to-access way: difference in performance is highlighted by the parallel transmission of a picture, whereby speed and quality of the arriving pictures illustrates the performance gain. The demo is lively and quick to understand. Surrounding 3-4 posters and a video explain on an easy way the LOTF concept and its practical validation.

19 Gbit/s live over-the-air

Anite, Bittium, Eltel, Exfo, Haltian, Indalgo, Mediatek, Nokia, Sarikam, OAMK, BusinessOulu, PehuTech, PulseElectronics, University of Oulu, Ficora, VTT, YLE

A video about how Nokia achieved 19.1 Gbps throughput at 15GHz carrier frequency in 2015 October in Oulu.   This system as part of 5GTN will be used to push the limits even further with multiple carrier frequencies and antenna types.

IoT connectivity and data processing at the Network Edge

VTT Technical Research Centre of Finland

Demonstrating how intelligent data processing and services can be realized at the IoT network edge. Presenting the modular IoT Gateway software for connectivity between different technologies.

Field Trial of Citizens Broadband Radio Service (CBRS)

Centre for Wireless Communications (CWC), University of Oulu, VTT Technical Research Centre of Finland (VTT), Centria University of Applied Sciences (Centria), Turku University of Applied Sciences (TUAS), Nokia, Fairspectrum.

This demonstration presents a field trial of the latest US spectrum sharing concept for mobile broadband. The proposed demonstration is part of the Finnish spectrum sharing trial continuum that started in 2013 with the World's first Licensed Shared Access (LSA) trial. The demonstration is now expanded towards the US three-tier Citizens Broadband Radio Service (CBRS) model for 3.5 GHz band that introduces an additional more dynamic sharing layer in addition to the two layers available in the LSA model. The trial is implemented based on the Federal Communications Commission (FCC's) definitions and Wireless Innovation Forum (WInnF) Spectrum Sharing Committee's recommendations.

5G (Dresden Technical University (DTU))

TBD

VLC-RF Network Test-Bed

Centre for Wireless Communications (CWC), University of Oulu

A hybrid radio-optical wireless network will be presented. The network consists of a visible light communication (VLC) system integrated into a radio-based (RF) network. Live video will be transmitted, and switching (i.e., vertical handover) from one network to another will be demonstrated.