

	TRIANGLE: 5G Applications and Devices Benchmarking
	Experiment Overview

PHYSCHED: Design space exploration and performance testing for PHY & scheduler

Motivation –The motivation of the experiment was to explore the design space for improvement and further implementation of a LTE eNB scheduler algorithm that is going to be a part of Software-defined RAN for 4G and 5G, developed by IS-Wireless and to perform advanced 3GPP conformance testing of link-level simulation tool, which is a key software component of ISW’s 5G Toolset

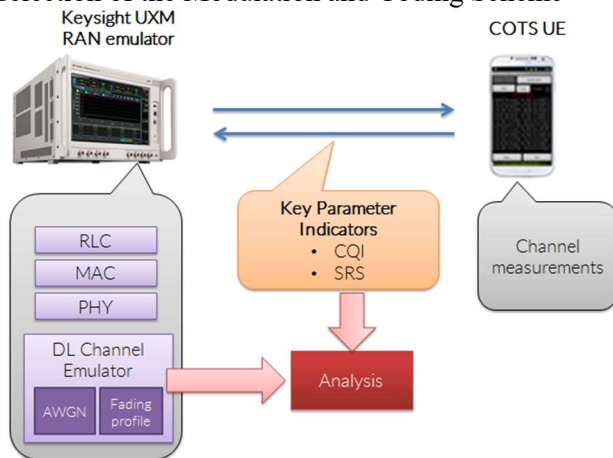
Key Objectives

There were two objectives for the experiment

- 1) Design space exploration of standard-compliant environment for LTE eNB Scheduler optimization
- 2) Testing and validation of LTE PHY Lab downlink receiver processing chain.

How Does It Work?

The UXM RAN Emulator was used to simulate the scheduler activity by selection of spectrum bandwidth, assignment of specific resources for the user and selection of the Modulation and Coding Scheme

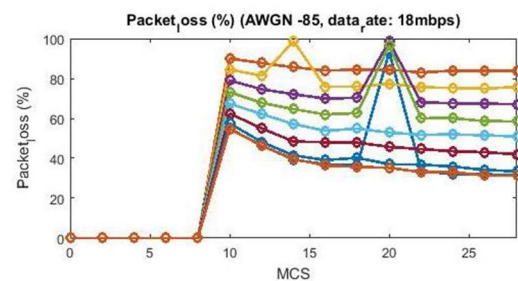


DL Channel emulator was used to model the channel influence by adding the noise (AWGN) and applying fading profiles defined in 3GPP specification such as (pedestrian, vehicular or high-speed train

Key Results

Work is still ongoing on the LTE-PHY experiment, but for the Scheduler experiment The KPIs measured and returned by both UXM and TACS4 were analyzed dependent on the transmission configuration and known channel profile for multiple scenarios.

- i) The KPI results correspond to the expectations in




regards to various scheduling decisions

- ii) Results confirm the assumptions for the Scheduler

Testbed Components Used

UXM RAN Emulator	Test Automation Platform (TAP)
TACS4 Performance Tool	Android UEs

Facts			
Company:	IS Wireless		
Coordinator:	L. Kwiatkowski		
Duration:	01/01/2018 - 01/07/2018		
		Company Mission:	IS-Wireless develops algorithms, protocols and tools for 4G and 5G mobile networks

Experimenter’s Impression: “we had the opportunity to use the specialized equipment to explore a design space for the scheduling algorithms we have gained a solid ground for improvement and further implementation of our solutions for 4G/5G base stations”