RAN #71, Sitges, Spain, Dec. 7-10 2015

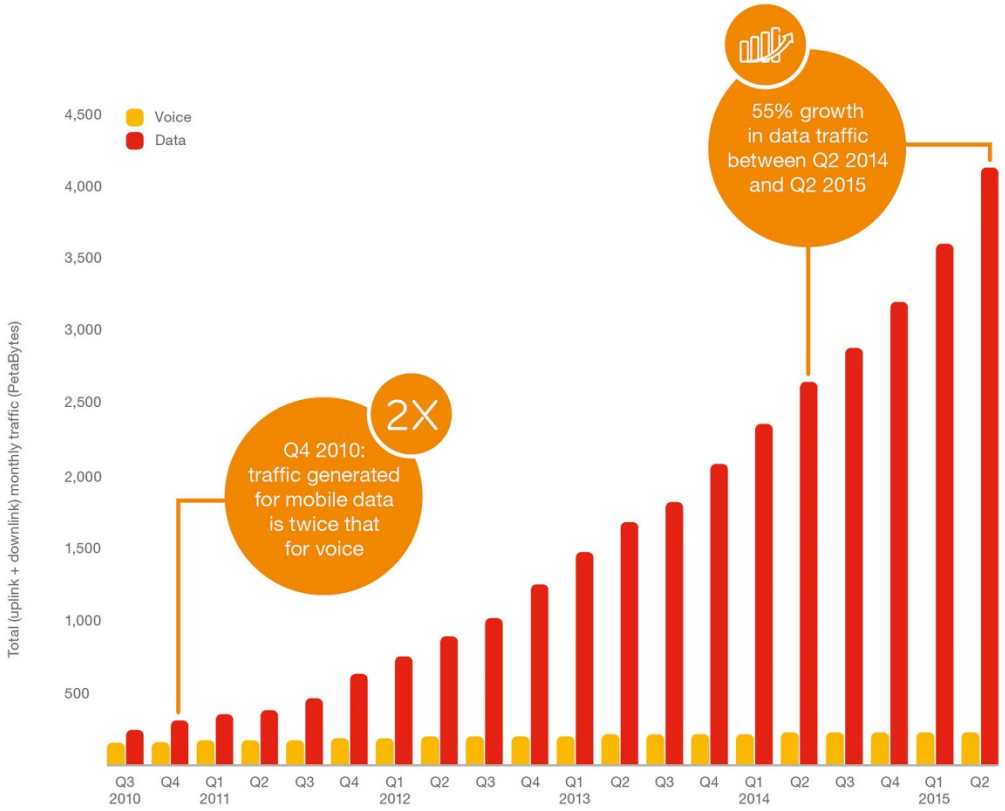
AI 14.1.1

RP-151981

Motivation for Work Item on UL 256QAM for LTE

Ericsson

Demand in higher data rate



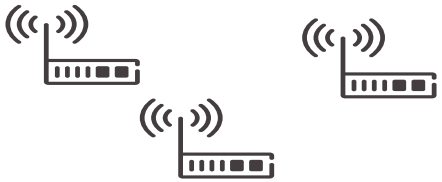
Ericsson mobility report

Higher spectral efficiency is one of multiple ways that are needed to meet the increased data rate demand

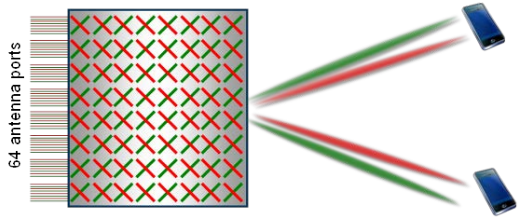
Use Cases

Small Cells deployments

In both licensed and unlicensed spectrum



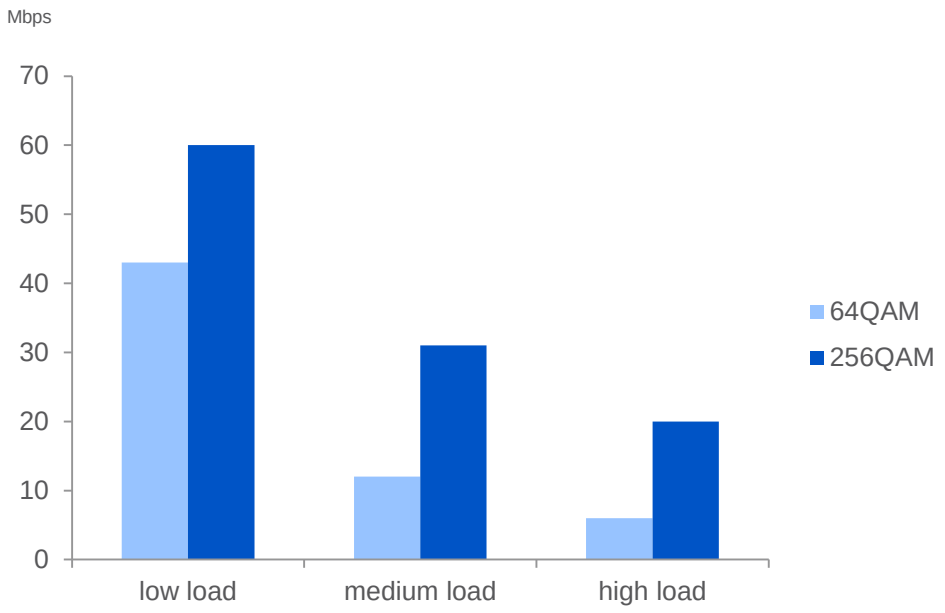
Many receive antennas at eNB



Multiple use cases for 256QAM in UL

Evaluation results

- Indoor small cell deployment
  - 1 Tx and 2 Rx
  - LAA-LAA coexistence
    - 50/50 UL/DL traffic
  - Mean user throughput
  - Without EVM impairment



Significant performance gains by introducing 256QAM in UL

Proposal

Introduce 256QAM support in UL for LTE to enable

- Significant increase in data rates in small cell deployments
- Leverage fully the benefits of many receiver chains in eNB

ERICSSON

Appendix: Work Plan

- 2016 Q1
  - RAN1
    - Define a framework for how to introduce 256QAM in the UL
  - RAN4
    - Specify EVM, MPR and A-MPR requirements
- 2016 Q2
  - RAN1
    - Conclude on MCS table design and complete PHY design
    - Define potential new UE categories
  - RAN2
    - Define RRC signaling
    - Define potential new UE categories
  - RAN4
    - Specify demodulation performance requirements if needed