

FD-MIMO AND RAN4

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FD-MIMO AND RAN4



- › RAN#68 has approved a WI to develop FD-MIMO for up to 16 radios
 - Further work might be expected in the future
- › Current RAN4 specifications do not clearly differentiate “AAS” and “non AAS”; not clear which spec to apply
- › AAS RAN4 specification development not yet adequate for a larger number of multiple radios
 - Non AAS spec unsuitable (e.g. emissions limits increase 12dB!)
- › It is essential to ensure good quality RAN4 specifications for FD-MIMO to become reliable commercial technology

NEED FOR GOOD RAN4 SPECIFICATIONS



- › RAN4 specifications are needed for FD-MIMO to:
 - Capture proper behavior and characteristics of multi-antenna systems with larger number of antennas
 - Guarantee co-existence between operators
 - › Not just emissions directly, but also in band behavior of systems can impact coexistence
 - Confidence of reliable and stable network performance for the owner-operator when deploying the technology in a network
 - A framework that allows for innovation and quality for base-station vendors
 - › Develop proper requirement metrics as current “single antenna Port” derived requirements are not yet fully adapted for large number of multi-antenna systems such as FD-MIMO

ISSUES TO CONSIDER WITH CURRENT SPECIFICATIONS



- › The current specifications (non AAS and future AAS) are very unclear as to what types of system each applies to and how many radios are supported
- › Emissions limits are unbounded for arrays in the current specifications
 - AAS deriving a solution for up to maximum 8 radios
 - Impact of intra array coupling not yet properly captured
- › Signal quality requirements not shown to guarantee good performance for systems with higher amounts of beamforming
- › Receiver requirements may not be applicable for new receiver architectures with more radios
 - Envisage that systems with lots of TX also have more RX
- › Aspects of current specifications (e.g. need for conducted testing, sensitivity, TAE etc.) may artificially limit innovation and the range & viability of products available.



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