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Document for: Discussion and decision

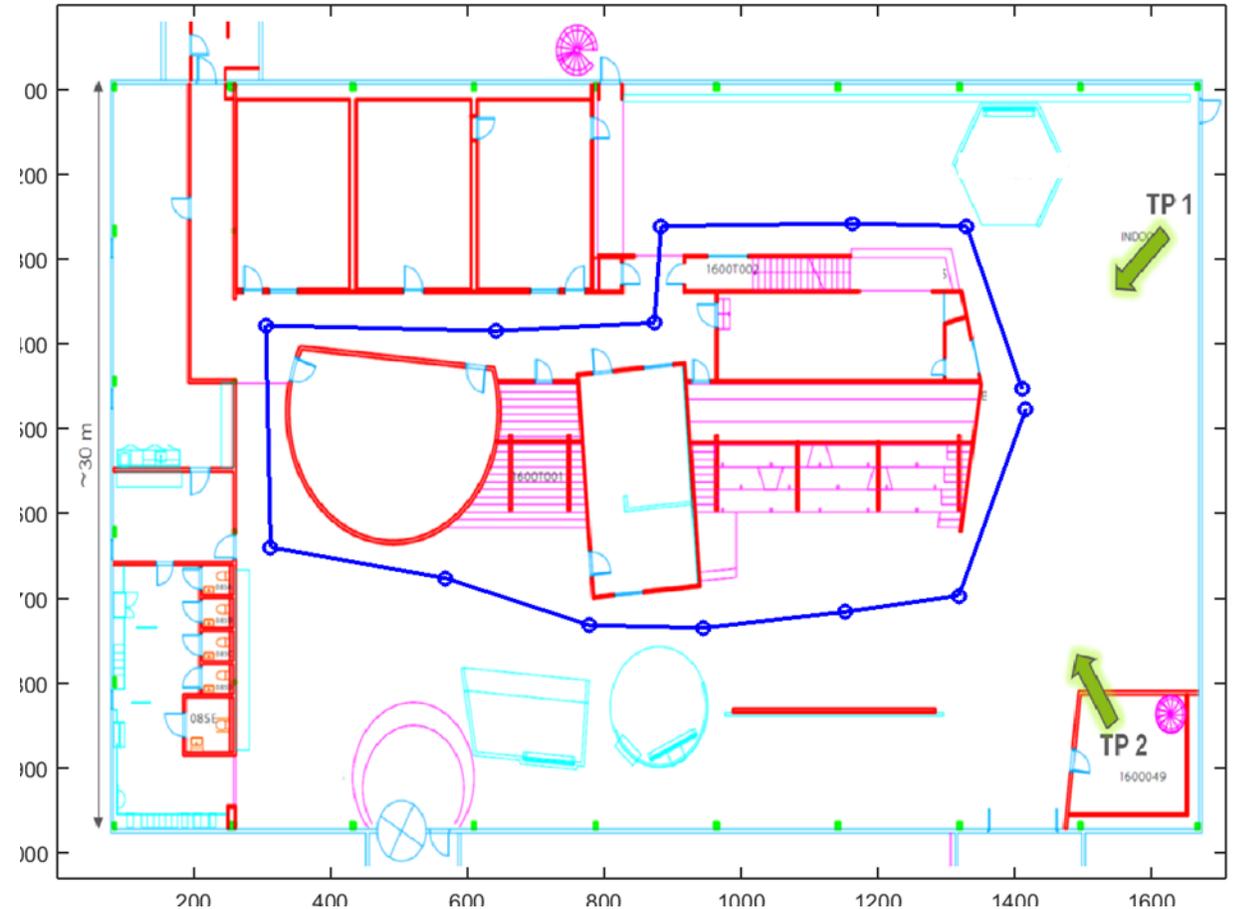


15 GHZ INDOOR RMS DELAY SPREAD

MEASUREMENT AREA



- › Indoor exhibition area:
 - Open spaces and some corridors
 - ~30x55 m
 - LOS and NLOS
 - TP1 used for these measurements
 - Blue line is UE route
- › Antenna heights:
 - BS at 3.7 m
 - UE at 1.6 m



MEASUREMENT EQUIPMENT



› 5G trial system at 15 GHz

- 2x100 MHz carriers
- 4x4 MIMO
- Complex channel estimates logged with 1 MHz resolution
- ~50k samples along measurement route

› Postprocessing:

- Average PDP over all Tx and Rx antennas
- Use 30 dB threshold for calculating delay spread
- Use samples with >20 dB SNR
- Antenna radiation patterns not accounted for

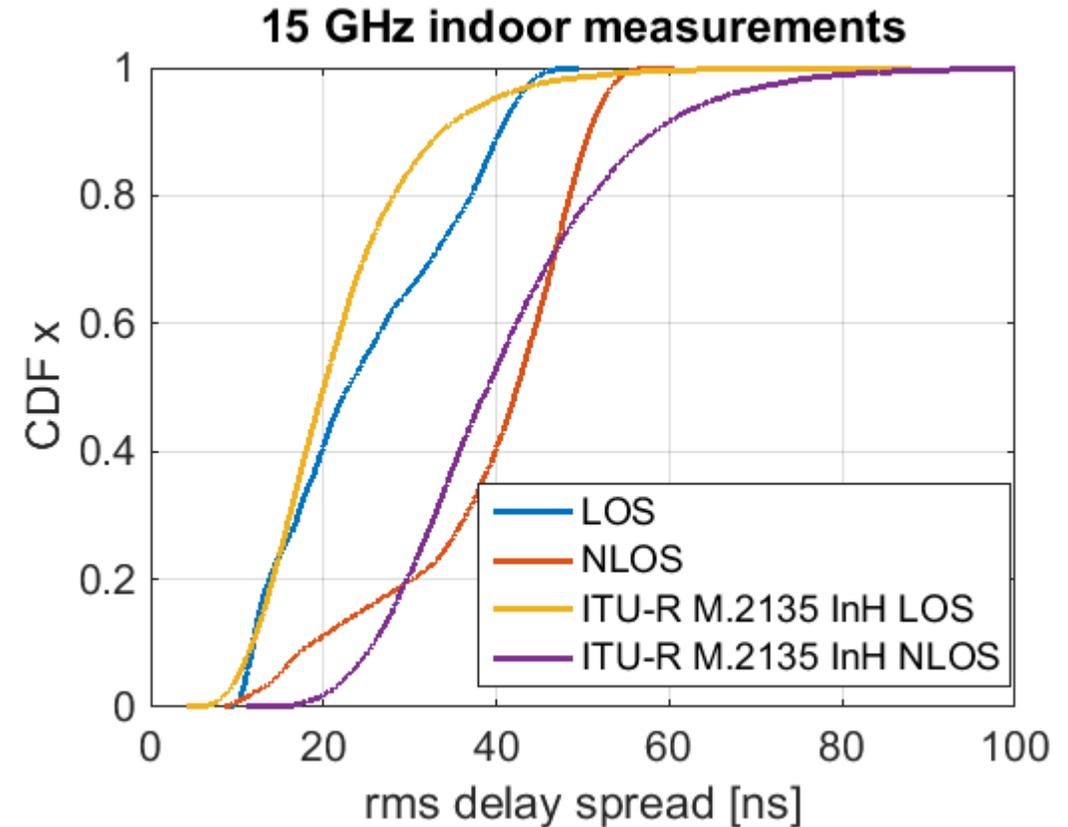


RESULTS

RMS DELAY SPREAD



	LOS	NLOS
Median delay spread [ns]	22.9	42.4
μ_{DS} [log10(s)]	-7.65	-7.43
ε_{DS} [log10(s)]	0.20	0.17

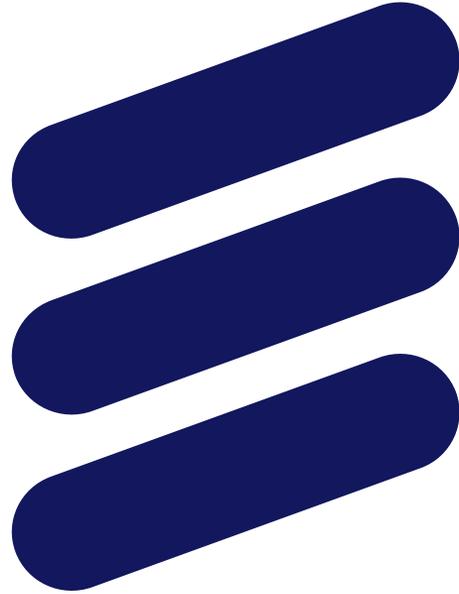


Very good match with ITU-R M.2135 Indoor hotspot model!

CONCLUSIONS



- › Indoor rms delay spread at 15 GHz measurement data analyzed
- › Very similar to IMT-Advanced Indoor hotspot model (ITU-R M.2135)
 - Indoor delay spread is probably determined by room size and not by frequency



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