

Source: Ericsson
Agenda Item: 6.1
Document for: Discussion and decision



28 AND 60 GHZ SHOPPING MALL ANGULAR SPREADS

MEASUREMENT EQUIPMENT



› Base station

- 10 dBi wide beam antenna
- Tx power: 12 dBm @ 28 GHz, 8 dBm @ 60 GHz
- Antenna height: 17 m (7th floor balcony)

› UE

- Antenna height: 1.6 m height (on 3rd floor)
- Narrow beam antenna on rotating table
 - > 34 dBi @ 28 GHz
 - > 32 dBi @ 60 GHz
- Scanning angles:
 - > 360 degrees (azimuth)
 - > -10 +40 degrees (elevation)
 - > significant oversampling in relation to HPBW, no peaks missed



INDOOR MEASUREMENT AREAS



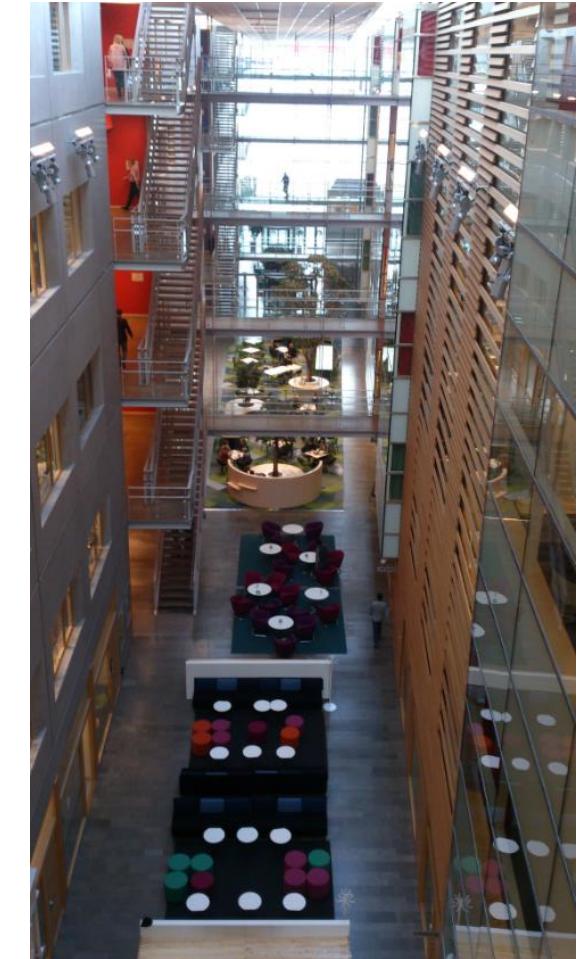
Tx



28 GHz



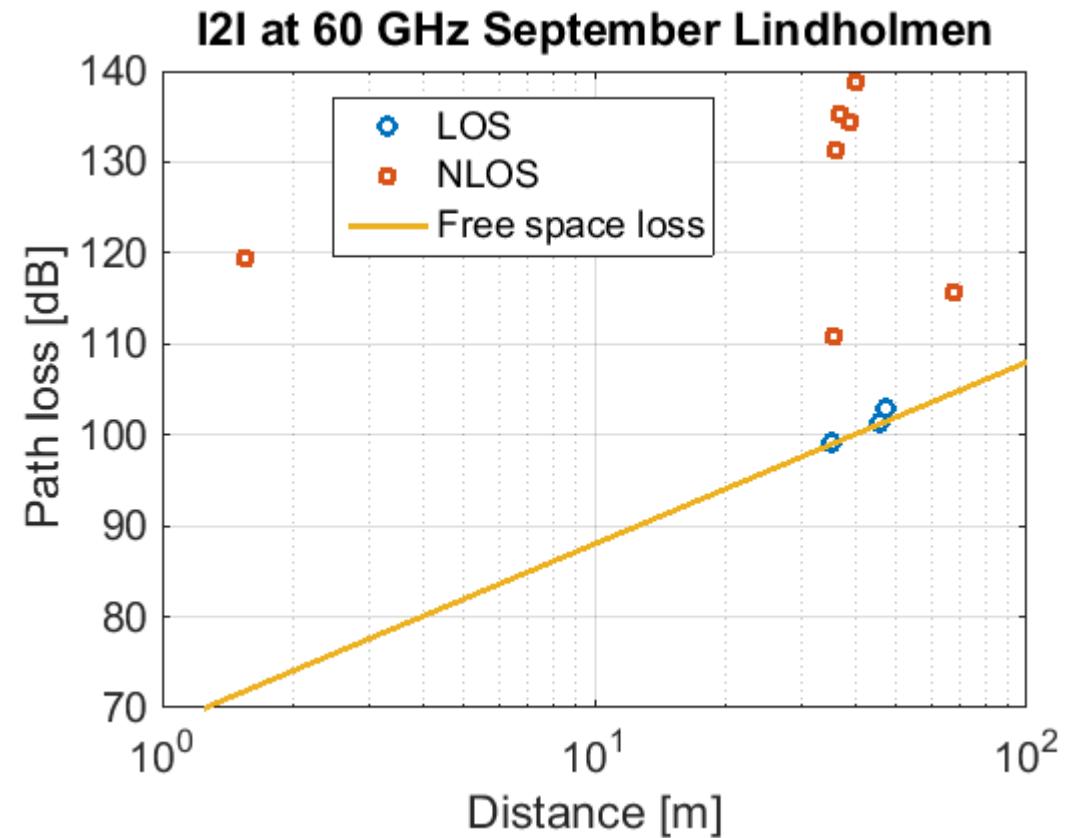
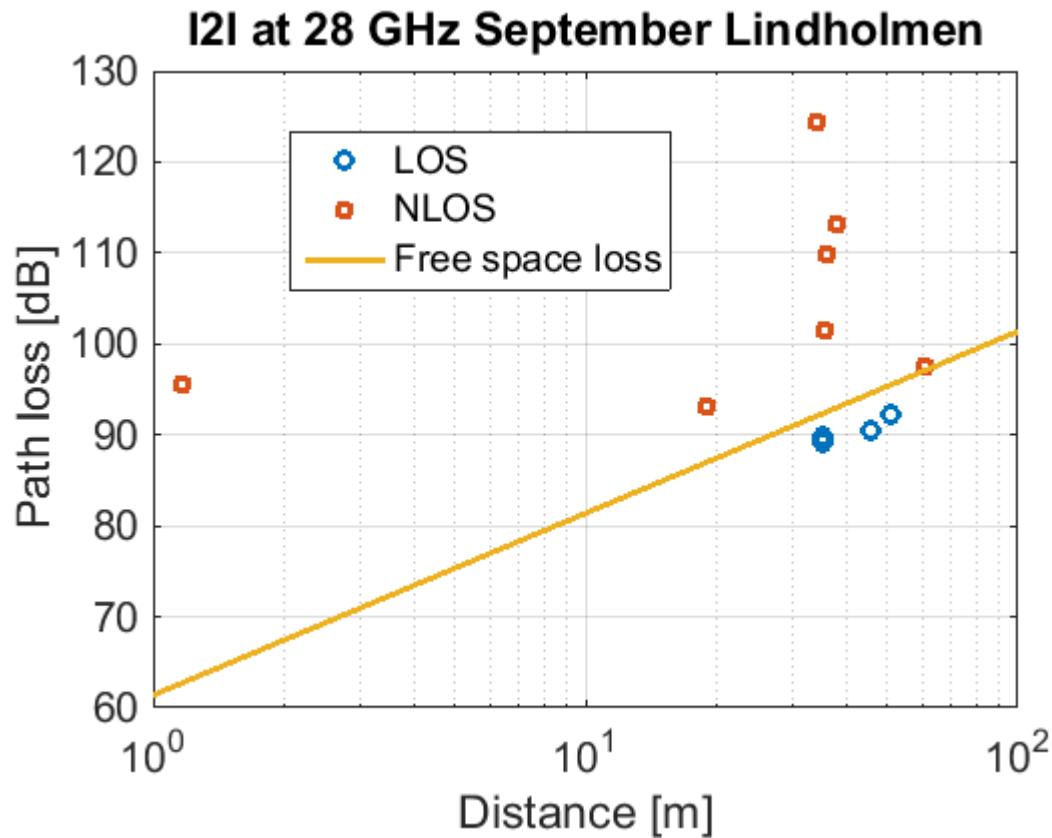
60 GHz



View from Tx

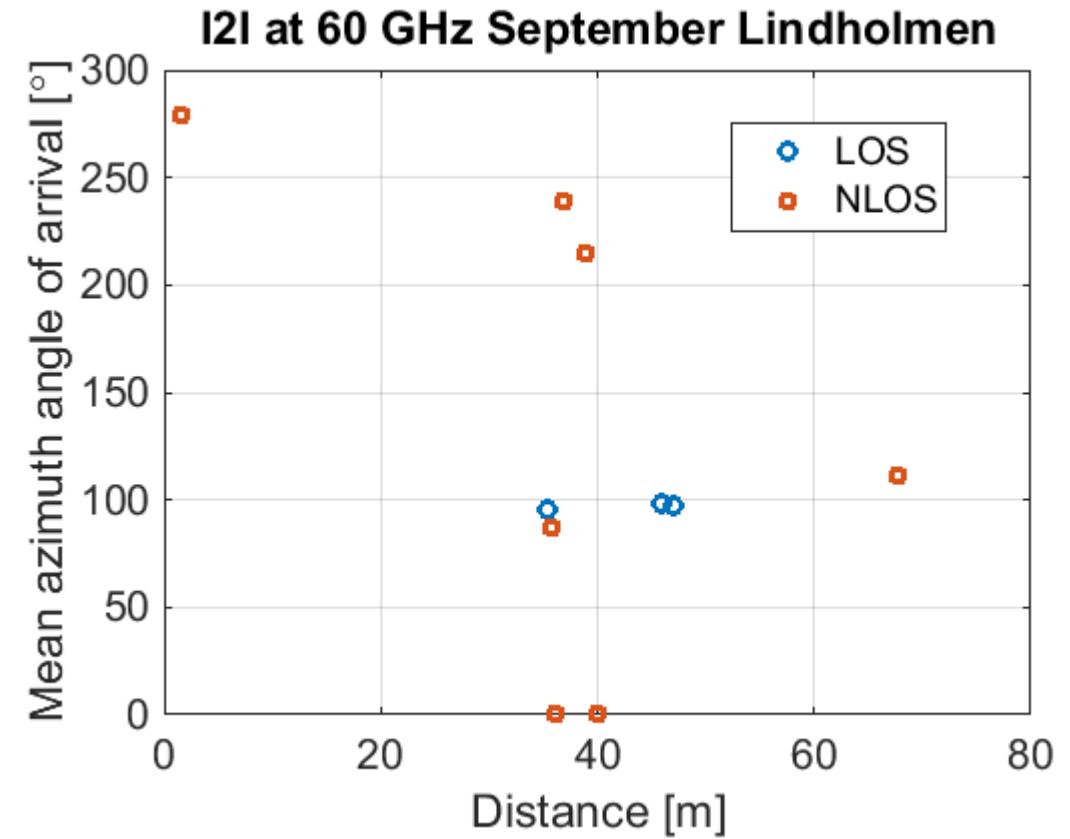
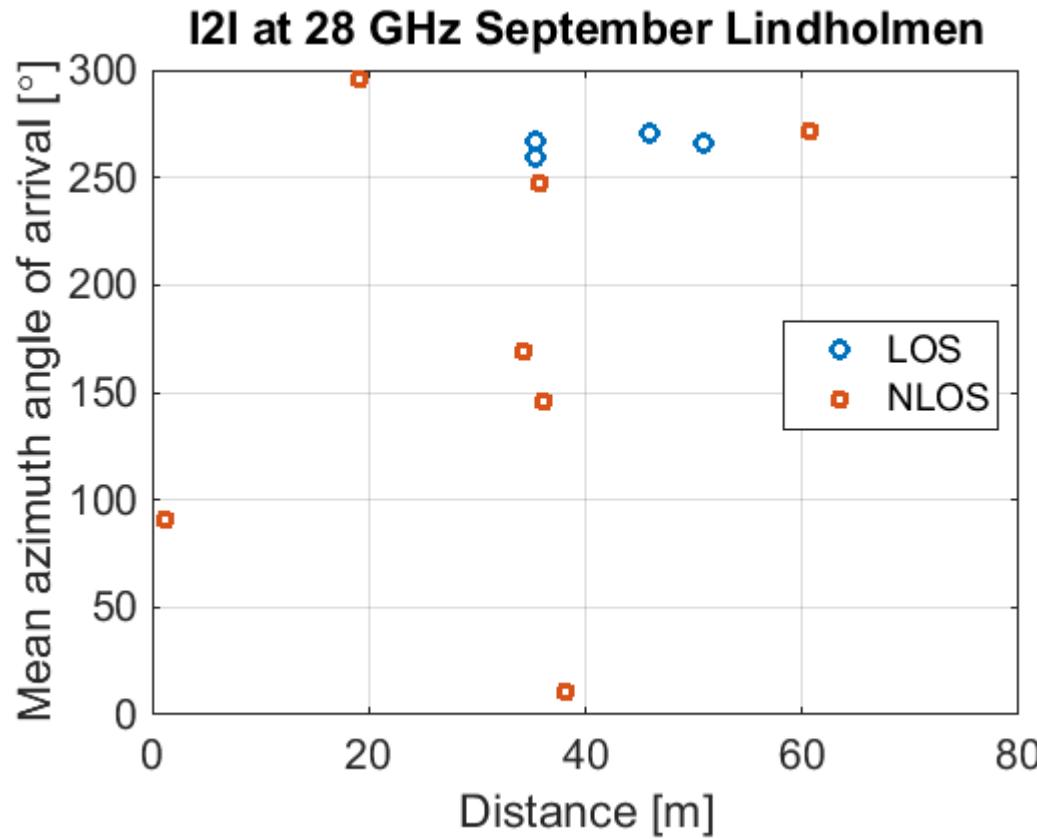
RESULTS

PATH LOSS



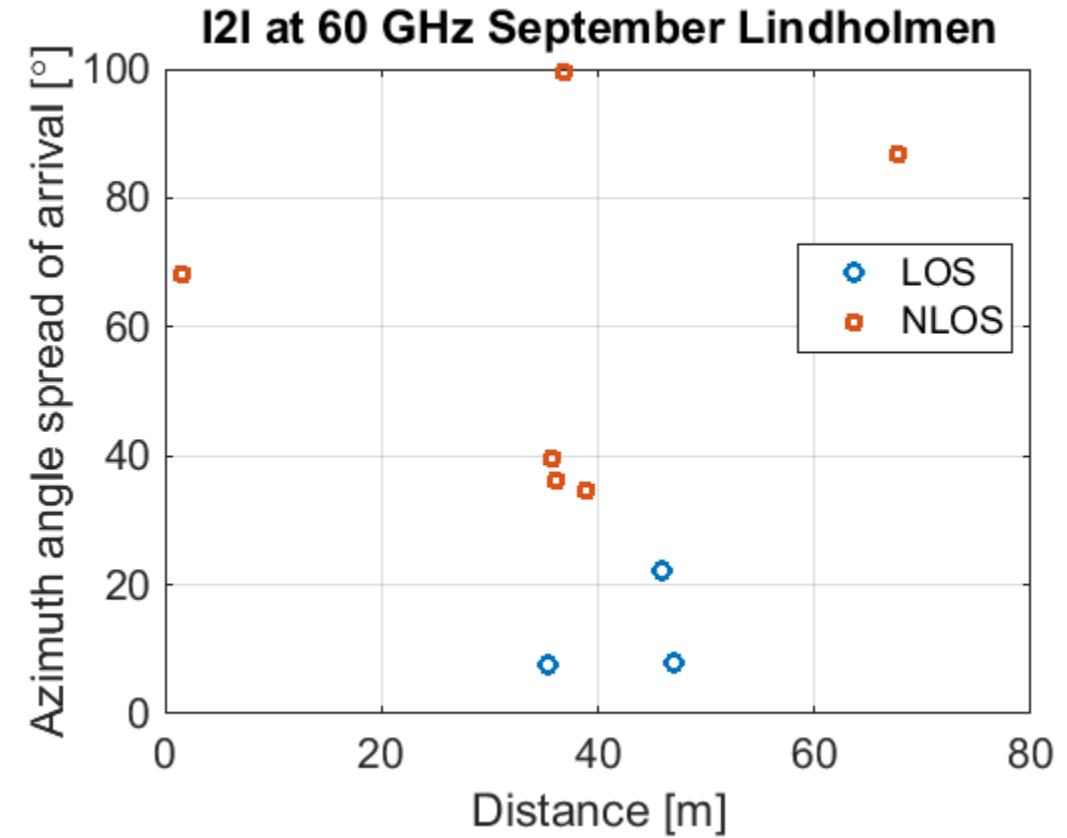
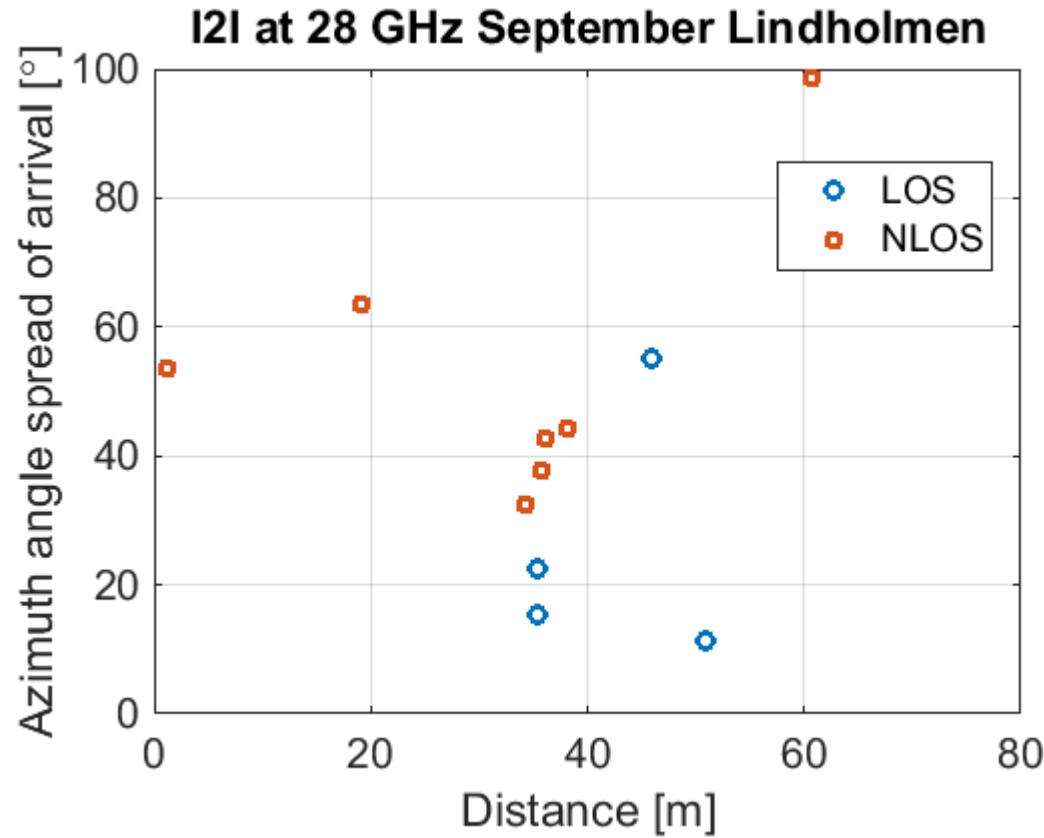
RESULTS

MEAN AZIMUTH ANGLE OF ARRIVAL



RESULTS

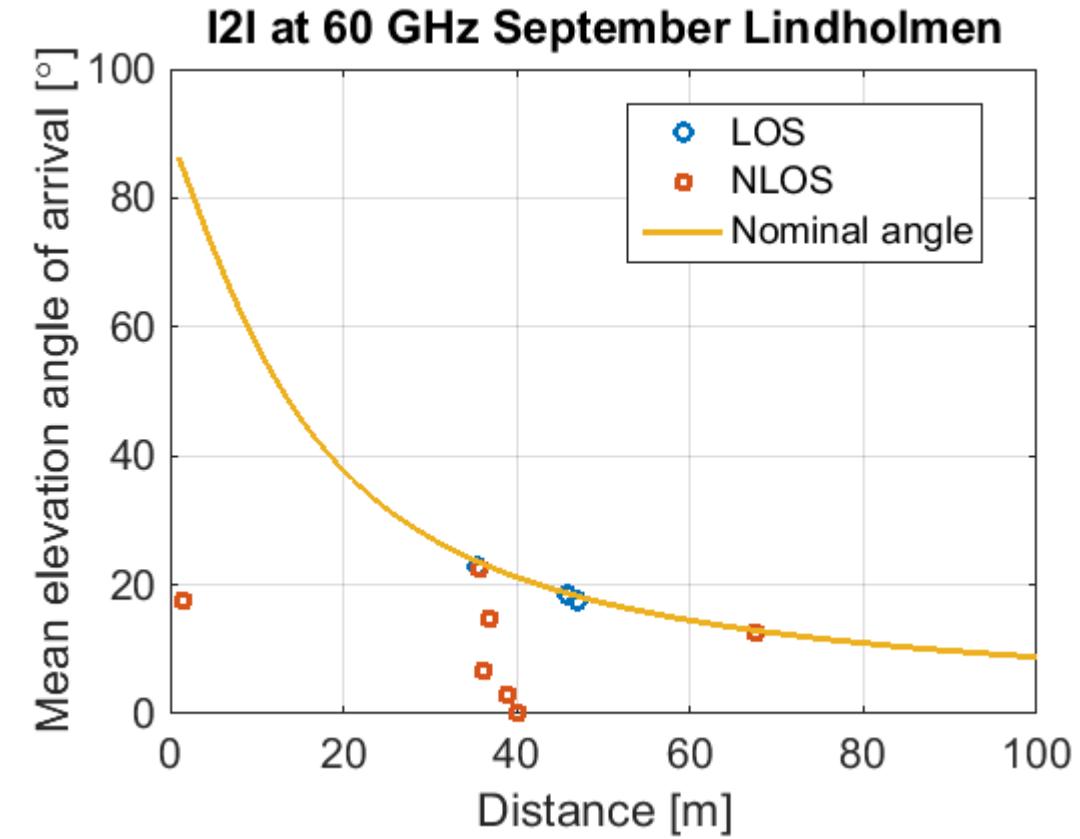
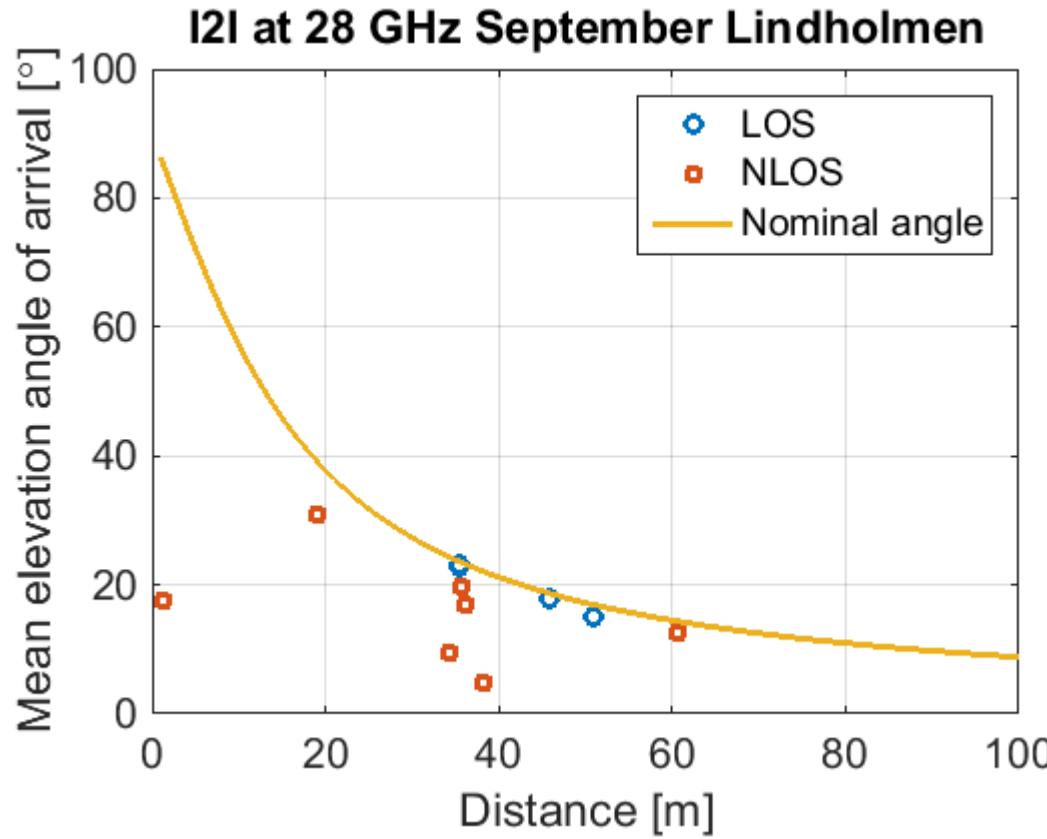
RMS AZIMUTH ANGLE SPREAD OF ARRIVAL



Median RMS AOA spread [°]	28 GHz	60 GHz
LOS	19	8
NLOS	44	68

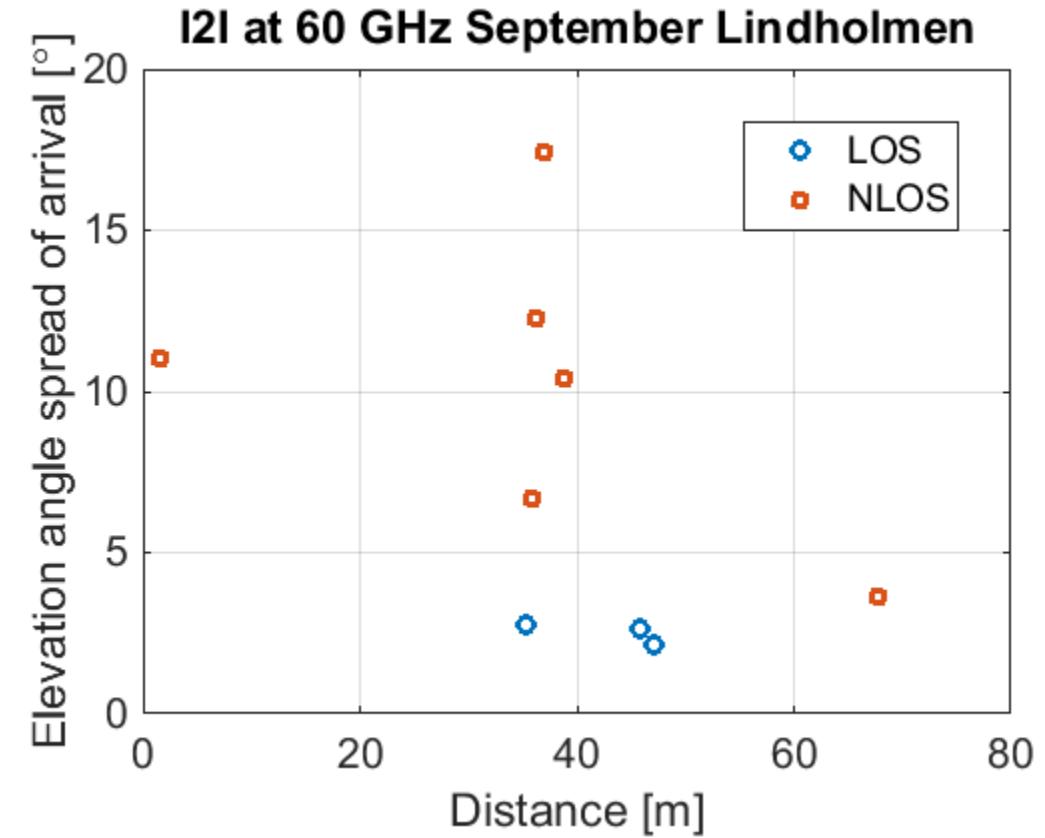
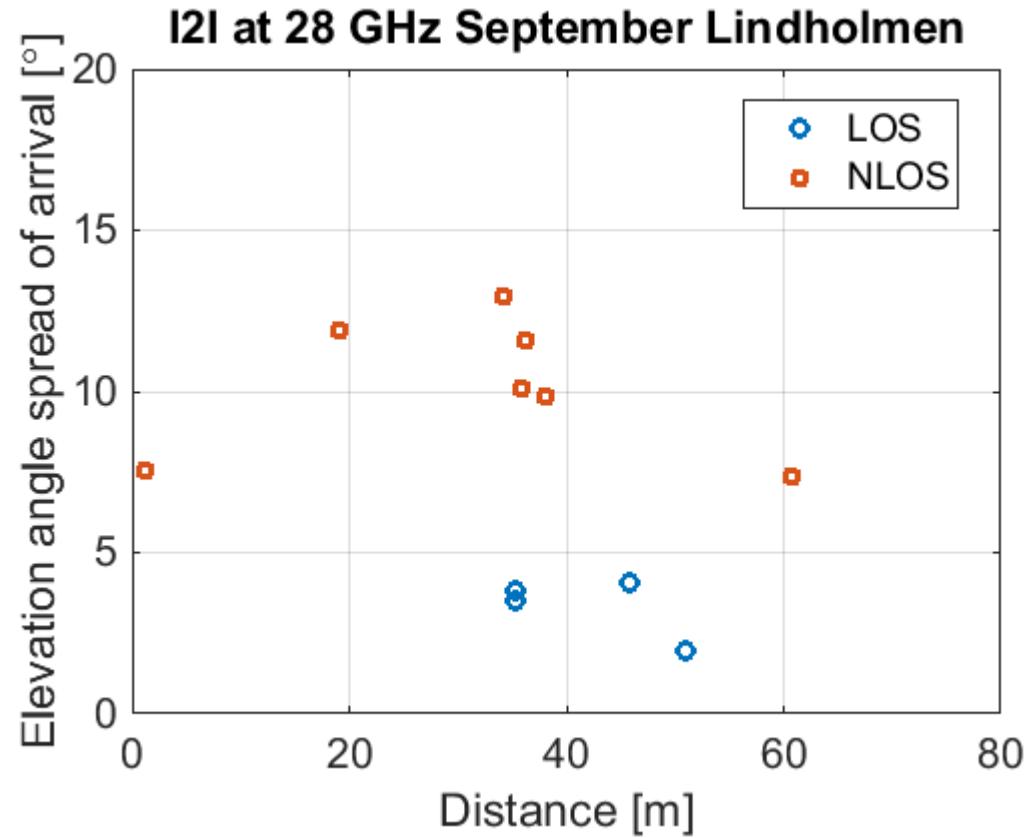
RESULTS

MEAN ELEVATION ANGLE OF ARRIVAL



RESULTS

RMS ELEVATION ANGLE SPREAD OF ARRIVAL



Median RMS EOA spread [°]	Lindholmen	Molndal
LOS	4	3
NLOS	10	7

CONCLUSIONS



- › Similar angular characteristics at both frequencies
- › NLOS EOA offset is always towards horizon



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