Technische Universität Braunschweig

Institut für Nachrichtentechnik

Introduction to TUBS' 300 GHz Channel Sounder

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One6G Workshop

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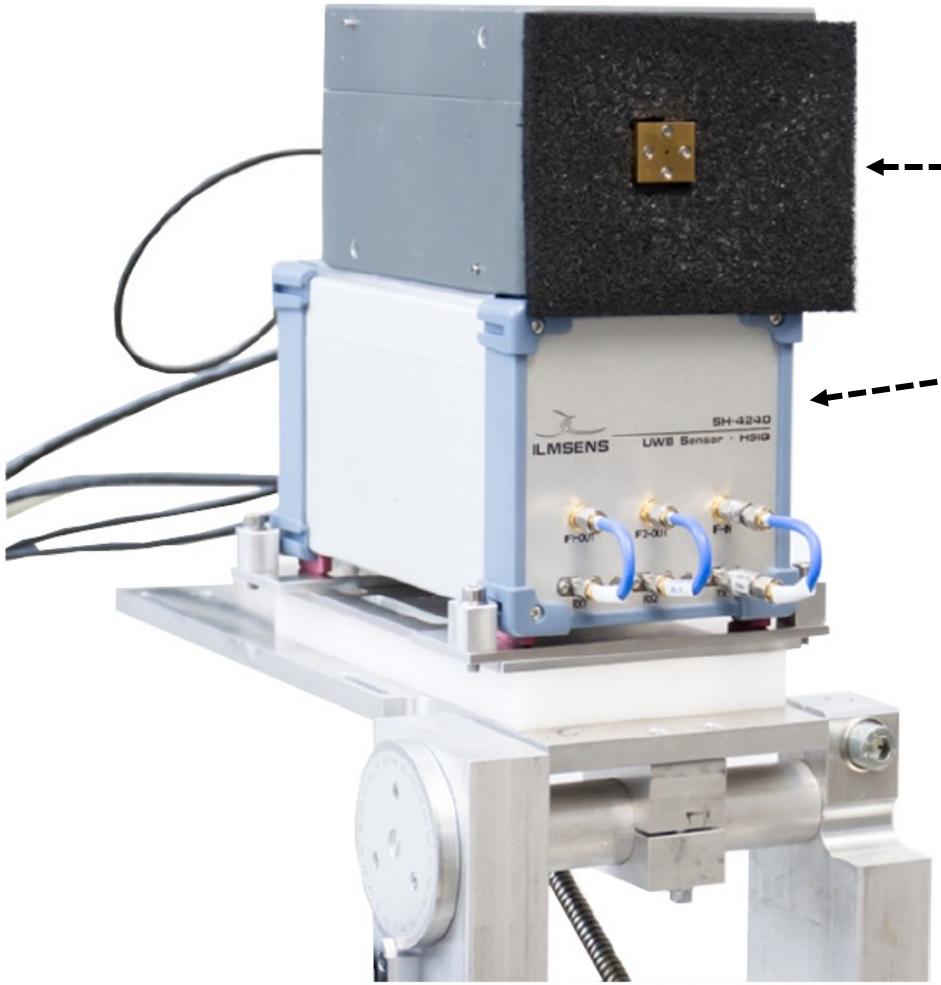
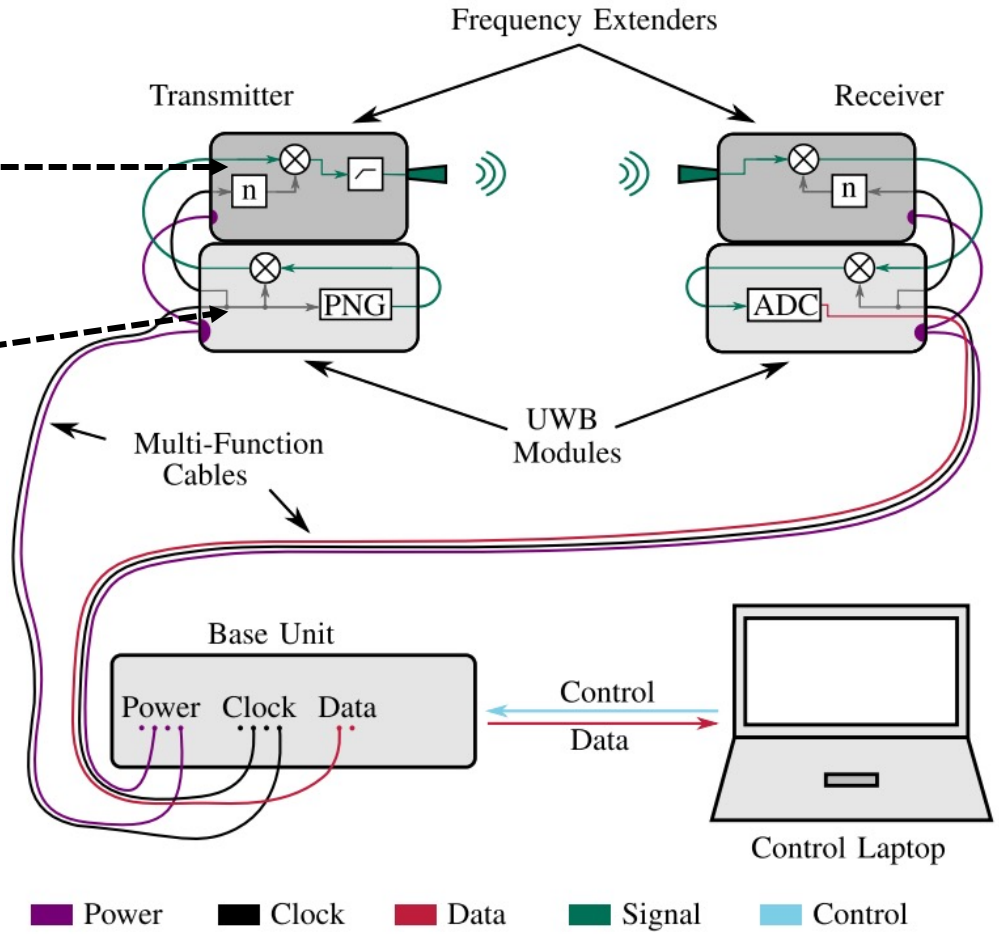
TUBS‘ M-Sequence Channel Sounder – Set-up



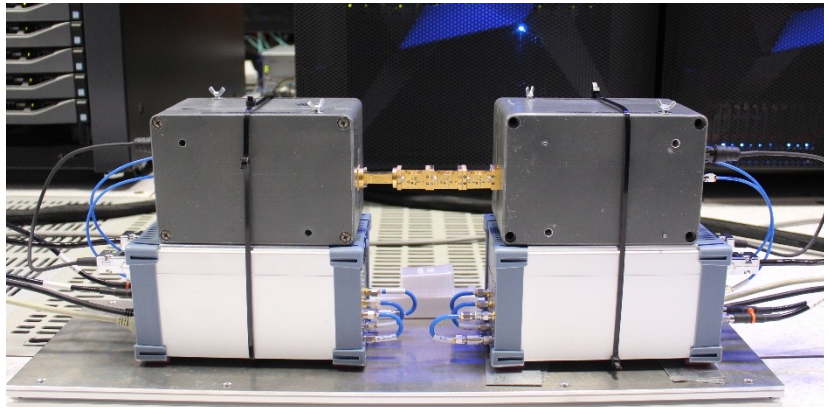


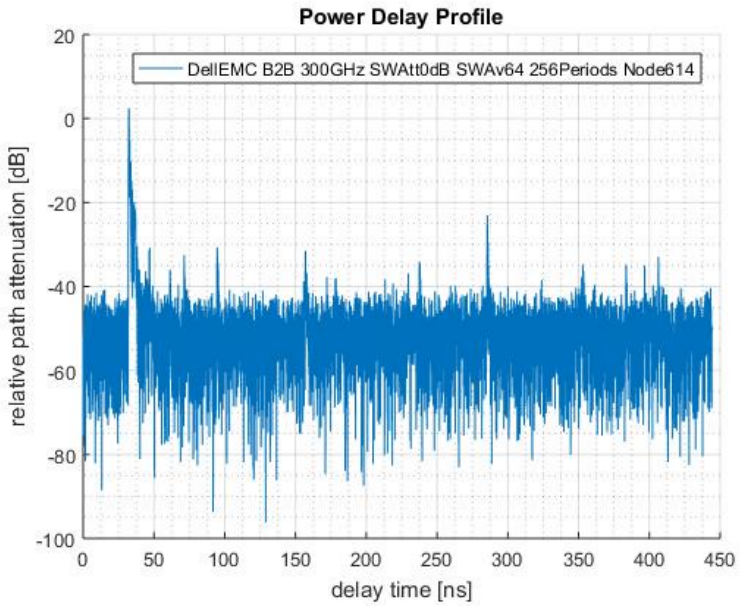
Channel Sounder Characteristics

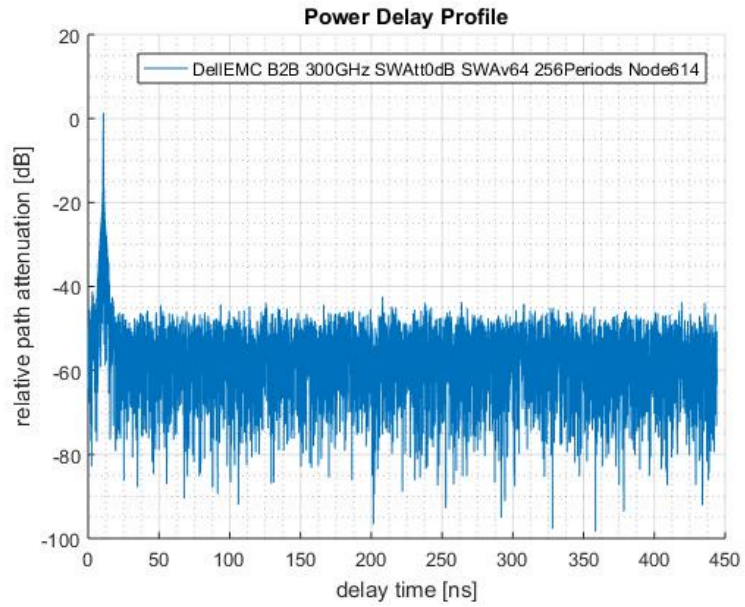
Parameter	Value
Clock Frequency	9.22 GHz
Bandwidth	approx. 8 GHz
Chip duration	108.5 ps
M-sequence order	12
Sequence length	4095
Sequence duration	444.14 ns
Subsampling factor	128
Acquisition time for one CIR	56.9 µs
Measurement Rate	17,590 CIR/s
Center Frequencies	9.2/64.3/304.2 GHz
SISO/MIMO	up to 4x4

Calibration

- Time-Zero-Calibration
- Back-to-back Calibration

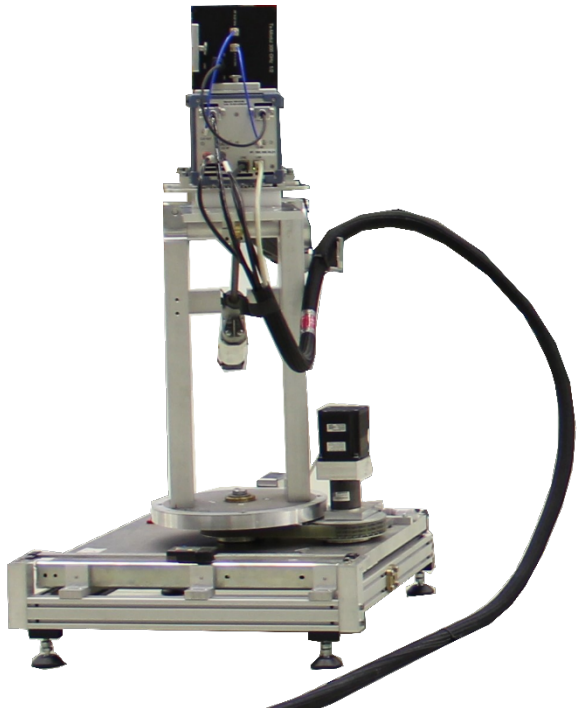




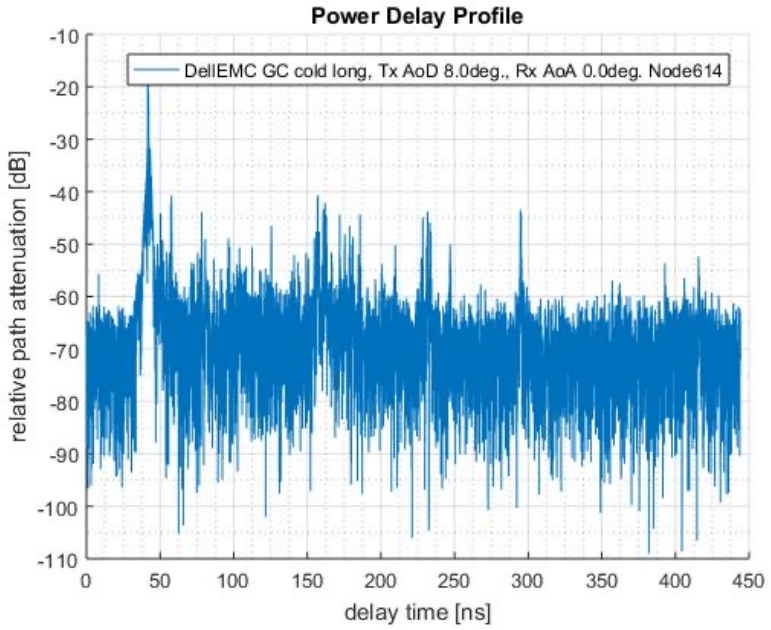


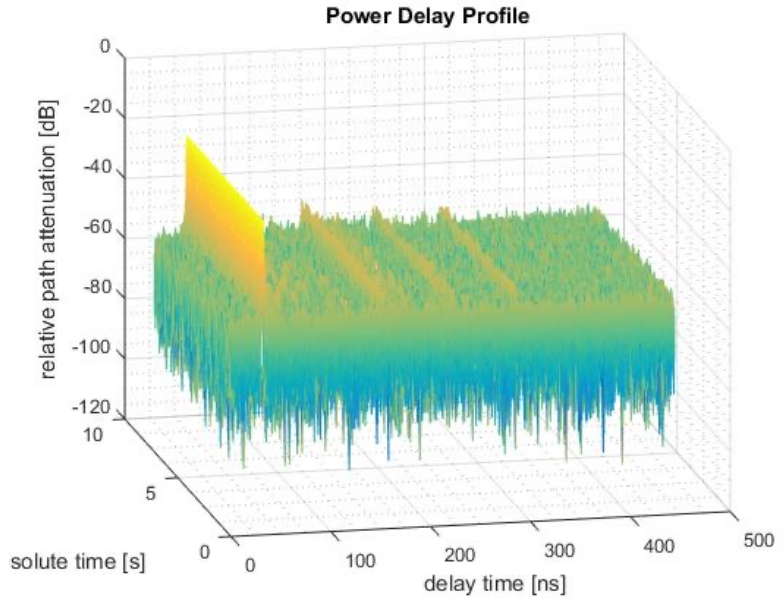
Custom-made Rotation Units

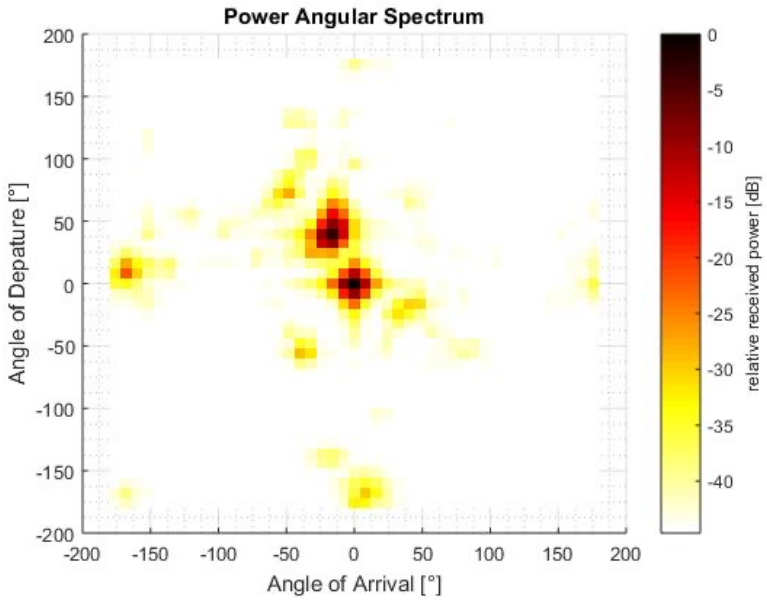
- Scan the whole horizontal plane
- Programmable starting and stopping angle
- Selectable step size



Possible Evaluation of Measurement Results







More information can be found here:

S. Rey, J. M. Eckhardt, B. Peng, K. Guan and T. Kürner, "Channel sounding techniques for applications in THz communications: A first correlation based channel sounder for ultra-wideband dynamic channel measurements at 300 GHz," *2017 9th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)*, 2017, pp. 449-453

Thank you very much for your attention.

Prof. Dr.-Ing. Thomas Kürner

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