Lambda:4 Overview

- R&D Company est. 2004, Hamburg, Germany

- History:
  2007 – PCB stack with bearing function
  2008 – handheld prototype (Smilla1) for bearing
  2009 – second handheld prototype (Smilla2)
  2010 – pilot projects „avalanche rescue“ and „locating missed persons“
  2011 – handheld prototype with bearing, distance measurement, barometric sensor for crew locate

Technical explanation

- Used frequency 2.4 GHz, other possible already done tests with 868/915 MHz
- Bearing, distance measurement, height difference, narrow bandwidth
- System components:
  - Handheld locator „Smilla“ / „Crewlocator“
  - Transponder different sizes, form factor from a packet of cigarettes down to credit card
  - Optional intelligent sensor „Argus“ – vision: drawing a situation map

Easy to use GUI
Analizing wave fields

- Lambda:4 group history:
- Car navigation R&D -> industrialisation
- Know How: Methods to analyze wave fields

- Receiver contains an antenna array
- 4 sides 7 antennas each
- Complex math algorithm “MUSIC”

\[
\hat{p}_{mc}(\alpha, \theta) = \left( \sum_{i=1}^{M} |e_i^H v_i|^2 \right)^{-1}
\]

Technical performance

- Outdoor with LOS up to 7 km coverage
- 3-D bearing information
- Indoor bearing up to 500m, distance measuring (DME) reliable up to 100m (to be improved soon)
- DME accuracy approx. 1-5m through walls, with LOS < 1m
- Height measurement +/- 0.5m
- Field tests made in different types of buildings including an underground station and a bunker
Thank you for your attention

- Feel free to try out our system after this session

- Contact

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