P-LINK

MILLIMETER-WAVE RADIO SIGNALS, HIGH-DATA-RATE THROUGH PLASTIC MEDIA

WHAT IS P-LINK?

P-Link is a plastic link allowing transmission of 4K video, cellular radio signals, and millimeter radar signals on more than 10 meters. At least 15 Gbs data rate for 10 meters and further of plastic cable.

- Only electromagnetic physics as radio transmission, no optical physics.
- Lighter than copper, more flexible than optical fiber.
- Robust resistance to vibrations, electromagnetic interference, and mechanic moves.
- Low-cost solution versus optical fiber and copper line:
  - Easy to deploy: low deployment cost.
  - Easy to repair: low exploitation cost.
- Demonstration: 6 Gbs for 2 meters.
- Technology potential: Transmission of at least 15 Gbs data rate for 10 meters and more.

APPLICATIONS

- In vehicles:
  - high-data-rate broadcast communication.
  - bump multiple radar distribution.
- High-data-rate communication for robotics.
- In cell antenna base, multi-channel communication for mmW backhaul.
- Domotic: high-data-rate, room-to-room communication.
- Potential medical mmW radar (in room, possibly in body).
- Etc.

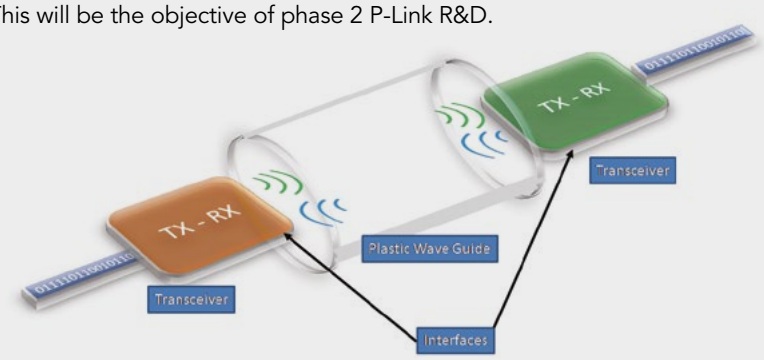
WHAT'S NEW?

Comparison to other technologies:

- Full duplex, multiple channels.
- No additional conversion (optics), no equalization (copper).
- No micron-level alignment (optics), no electrical contact (copper).
- Low loss versus copper and wireless.
- High-energy efficiency (around 1pJ/bit/m).

HOW DOES IT WORKS?

The P-Link emitter transforms digital SDI in mmW modulated signal (60 GHz in the demonstration). From horn-antenna-interface the mmW signal is propagated from the plastic link to the receiver, which delivers digital SDI.
The optimum P-Link frequency band is between 100 and 200 GHz.
This will be the objective of phase 2 P-Link R&D.



WHAT'S NEXT?

Bilateral:

- Development of customer ad-hoc solution using ST's 60 GHz transceiver and radio antenna horn interface.

Partnership:

- R&D on optimised interface for 100-150 GHz band
- R&D on optimised plastic coupling structures
- R&D on a 100-150 GHz multi-channel transceiver for P-Link

PATENTS 8 PATENTS

IN PARTNERSHIP WITH

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PUBLICATION

RWS 18: "A 12Gbs 64QAM and OFDM compatible Millimeter-Wave Communication Link Using Plastic Waveguide Design" F.Voineau, C.Dehos, B.Martineau, M.Sié, M.Perchicot, H.Nguyen, A.Ghiotto and E.Kerhervé; 2018 IEEE Radio and Wireless Symposium (RWS) Anaheim CA 2018, pp250-252.
ST-Leti-IMS publication

INTERESTED IN THIS TECHNOLOGY?

Contact:
Didier Belot
didier.belot@cea.fr
+33 608 751 309

Leti, technology research institute
Commissariat à l'énergie atomique et aux énergies alternatives
Minatec Campus | 17 avenue des Martyrs | 38054 Grenoble Cedex 9 | France
www.leti-cea.com
@CEA_Leti CEALeti Leti

INSTITUT CARNOT Leti