

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Preliminary Proposal of Usage model for THz communication in WLAN

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Abstract: In this document we propose an use case and some required items of WLAN application for THz wireless communications.

Purpose: for discussion

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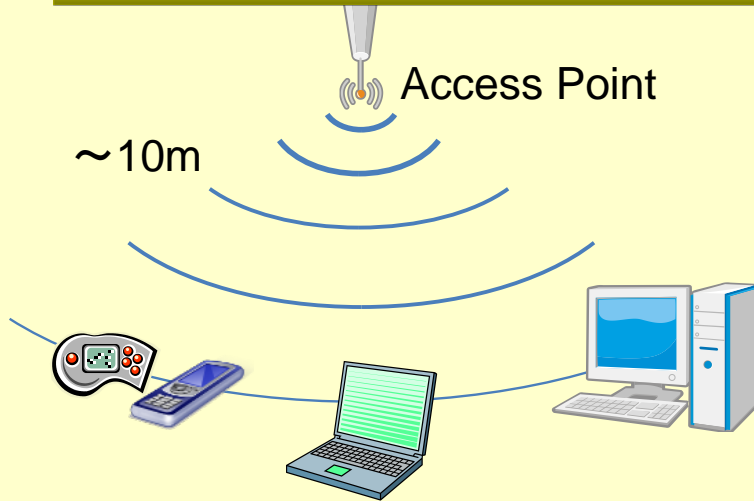
Preliminary Proposal of Usage model for THz communication in WLAN

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Use Case Vision

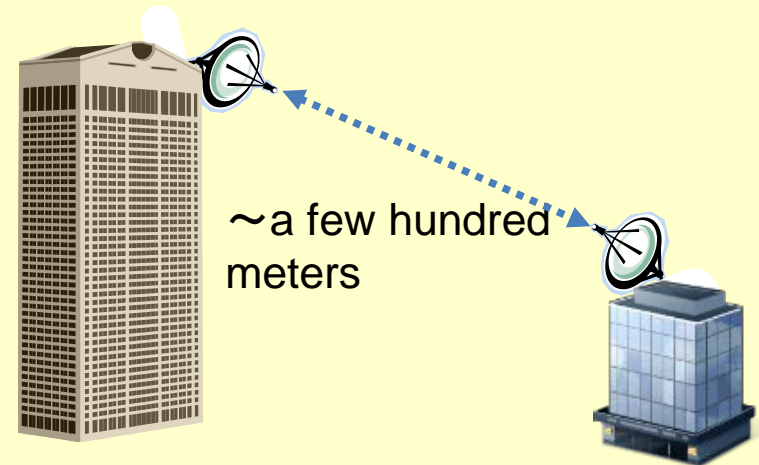
Optical Fiber



Mobile Tools, Personal Computer

Indoor **WLAN-like** Ultra High Speed downlink

Small Size Transceiver With High Gain Antenna

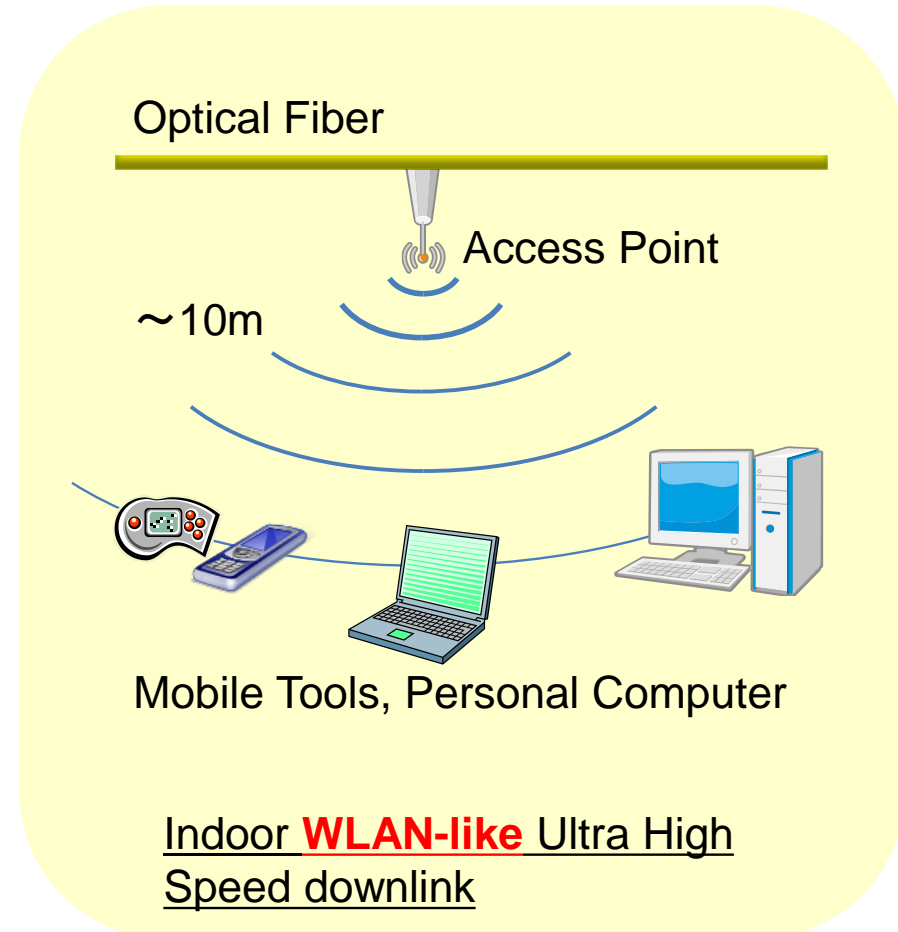


~a few hundred meters

Outdoor Inter-building (point to point) Ultra High Speed Wireless Communication (**Optional**)

WLAN-like Application (1/3)

- Wireless network topology
 - Star topology
 - Asymmetry: Ultra high rate only for downlink
- Antenna
 - Directional (but not so highly directive)
 - With support of beam steering



WLAN-like Application (2/3)

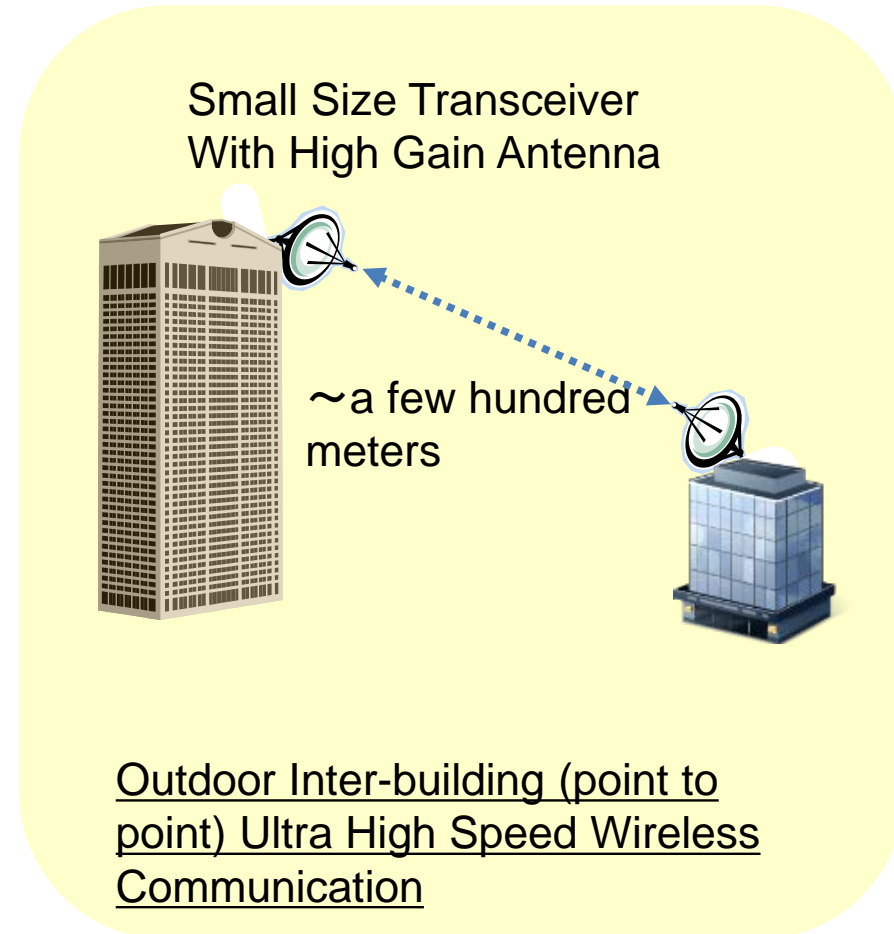
- Frequency and bandwidth
 - Several tens Bandwidth within 275~400GHz
- Data rates
 - Several tens of Giga bit/s for downlink
- Transmission range
 - About 10m

WLAN-like Application (3/3)

- Size, weight and power
 - Equivalent to conventional WLANs
 - Less than a few liters of volume, several hundreds gram of weight, and several tens of Watt of power consumption for an access point
 - Less than 1 Watt of power consumption for RF except for power amplifier

Point to Point Application (Optional)

- Inter-building communications
- Emergency use (If it can be carried by hand and worked by buttery power)
- Technical expectation similar to WLAN except using higher directive antenna without beam steering



We would like to discuss about more detail in the July meeting.

Thank you !