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Tera**h**ertz end-to-end wireless systems supp**o**rting ultra-high data **R**ate applications

ThoR

Deliverable D7.6

Mid-term ThoR Workshop (Japan)

Coordinator (EU): Thomas Kürner
Organisation: Technische Universität Braunschweig

Coordinator (Japan): Tetsuya Kawansihi
Organisation: Waseda University

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Vivid Components

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Dissemination level		
PU	**Public**	**X**
PP	**Restricted to other programme participants (including the Commission Services)**	
RE	**Restricted to a group specified by the consortium (including the Commission Services)**	
CO	**Confidential, only for members of the consortium (including the Commission Services)**	

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Change register

Version	Date	Author	Organisation	Changes
A_DRAFT	25-Nov-2019	Bruce Napier	Vivid	Initial
A	25-Nov-2019	Bruce Napier	Vivid	Formatting and typos

Reviewed by Tetsuya Kawanashi Waseda University A_DRAFT 25-Nov-2019

1. Statement of independence

The work described in this document is genuinely a result of efforts pertaining to the ThoR project. Any external source is properly referenced.

Confirmation by Authors: Bruce Napier Vivid Components

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2. Executive summary

The first ThoR workshop was organised and hosted by Waseda University on FRI 20-Sep-2019. The workshop title was:

Workshop on TeraHertz end-to-end wireless systems supporting ultra high data Rate applications (ThoR)

– THz communications for beyond 5G –

The agenda included three invited keynotes, presentations from the ThoR partners and a poster session. In addition, there was a small exhibition during the lunch and coffee breaks. Over seventy attendees were present, and the event was very well received. Based on this success, a follow-up event in Japan is under discussion in addition to the EU workshop planned at the end of the project.

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3. Overview

The first ThoR workshop was organised and hosted by Waseda University on FRI 20-Sep-2019. The workshop included three invited keynotes, presentations from the ThoR partners and a poster session. In addition, there was a small exhibition during the lunch and coffee breaks. Over seventy attendees were present, and the event was very well received. Based on this success, a follow-up event in Japan is under discussion in addition to the EU workshop planned at the end of the project.

The event details, were as follows:

Workshop on TeraHertz end-to-end wireless systems supporting ultra high data Rate applications (ThoR)

– THz communications for beyond 5G –

Organizer	Waseda Research Institute for Science and Engineering Optics for Photonic Networks Research Group, Optical Society of Japan
Date & Time	Friday, September 20th, 2019, 10:30 – 18:00
Venue	Nishi-Waseda Campus (Room 04/05 2F, Building 63), Waseda University
Technical Co-Sponsors	IEICE Technical Committee on Microwave Photonics Terahertz Systems Consortium
Admission	Free

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4. Program

10:30 Opening Address and Overview of ThoR
Thomas Kürner, Technische Universität Braunschweig, Germany
Tetsuya Kawanishi, Waseda University
11:00 Keynote #1: National Research Projects on THz Technologies in Japan
Akifumi Kasamatsu, National Research Institute of Information and Communications Technology, Japan.
11:40 Keynote #2: Technology Trends Toward Beyond 5G
Yoji Kishi, KDDI Research
12:20 Lunch & Exhibition

14:00 Overall System Design and Scenarios for Demonstrations,
Petr Jurčík, Deutsche Telekom
14:20 Network interface and mm-wave IF
Yigal Leiba, Siklu Communication
14:40 300 GHz RF front-end
Guillaume Ducournau, University of Lille/ IEMN Laboratory
15:00 Coffee break & Exhibition

15:30 THz propagation antennas (including THz standardization)
Akihiko Hirata, Chiba Institute of Technology
15:50 High-speed THz transmission (including Thor 1st DEMO)
Shintaro Hisatake, Gifu University
16:10 Panel discussion on role of THz in 6G

16:40 Coffee break & Exhibition

17:10 Keynote #3: 100 GHz Millimeter-wave ground-to-train communication
Kazuki Nakamura, Railway Technology Research Institute
17:50 Closing Remarks
Thomas Kürner, Technische Universität Braunschweig, Germany

Tetsuya Kawanishi, Waseda University, Japan
18:00 Reception

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5. Poster Presentations

P-1 Automatic Planning of 300 GHz Backhaul Links
Bo Kum Jung, Technische Universität Braunschweig, Germany

P-2 Regulatory Aspects for THz Communications
Thomas Kürner, Technische Universität Braunschweig, Germany

P-3 Antenna and propagation study for THz Communications
Akihito Hirata, Chiba Institute of Technology

P-4 Development of a 300 GHz Band TWT with a Folded Waveguide Fabricated by Micro Electro Mechanical Systems
Kunio Tsutaki, Shizuoka University

P-5 300 GHz InGaAs mHEMT front-end development
Iulia Dan, University of Stuttgart; Laurenz John, Fraunhofer IAF

P-6 70/80 GHz TRX modules
Yigal Leiba, Ran Timar, Siklu Communication

P-7 Towards super-heterodyne THz links pumped by photonic local oscillators
Iulia Dan[1], Shintaro Hisatake[2], Pascal Szriftgiser[3], Ralf-Peter Braun[4], Ingmar Kallfass[1], Guillaume Ducournau[5]
[1] University of Stuttgart, [2] Gifu University, [3] Laboratoire de Physique des Lasers Atomes et Molécules, UMR8523, CNRS, Université de Lille, [4] Deutsche Telekom, [5] IEMN, Univ. Lille, CNRS

6. Exhibitors

There were a dozen booths occupied by ten external exhibitors plus two from Waseda University:

1 Electronic Navigation Research Institute (ENRI)
2 Optoquest Co. Ltd.
3 Hitech & Facility Co. Ltd.
4 Yonezawa Company
5 Hitachi Kokusai Electric Inc.
6 Think-Lands Co.
7 Yazaki Corporation
8 sevensix Inc.
9 Sumitomo Osaka Cement Co. Ltd.
10 NEC Corporation

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7. Photos

Two photos showing the ThoR workshop sessions

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Attendees of the first ThoR workshop

The poster session during one of the coffee breaks

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Two photos showing the 12-booth exhibition

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