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| Summary of the Workshop on Visual Light Communications & Optical Wireless Communication |
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Abstract

This document sumarises the outcome of the ITU-R workshop held at the Dutch Radiocommunications Agency in Amersfoort on 8 March 2017 on Optical Wireless Communications.

**Summary of the Workshop on Visual Light Communications & Optical Wireless Communication**

On the 8th of March, an interesting workshop on Visible Light Communication (VLC), also called Optical Wireless Communication (OWC), took place at the Dutch Radiocommunications Agency in Amersfoort (NL). Several international experts in this field attended the workshop. The background for organizing this workshop is the Study-question the Dutch administration initiated (in 2015) at the International Telecommunication Union (ITU) in Geneva to think about the possibilities and challenges using VLC/OWC to get enhanced spectrum efficiency. In order to come to solid insights on this topic, this workshop was an excellent occasion to share knowledge about these subjects. One of the most important themes discussed was on standardization. Mr Les Brown (Associate Rapporteur ITU-T) and Mr Tunςar Baykaș (Medipol University, Turkey, member in IEEE) shared status updates on the progress of international standardization when it comes to VLC/OWC (e.g ITU/T, IEEE, 802.11, 802.15). Professor Ton Koonen (Technical University in Eindhoven and Scientific director of the Institute of Photonic Integration) presented his most recent research. Additionally, Dr. Volker Jungnickel (Fraunhofer Heinrich-Hertz-Institute, Germany ) presented the research ongoing in Germany and on the status of different (business and consumer) applications of VLC/OWC. He underlined the need for a global standardisation within the industry. A paper document on Li-Fi was sent by Ivica Stevanovic (Bakom/Ofcom, the Radiocommunications agency of Switzerland) as input to the workshop.

Due to the multidisciplinary setting of the workshop, the attendees were able to create a complete picture of the different aspects of VLC/OWC. By sharing knowledge, a good base was created for further research. During the meeting it became clear that VLC/OWCoffers interesting opportunities for governments, research institutes, and companies, when it comes to spectrum management, spectrum engineering and business development. It became obvious during the workshop that VLC/OWC has a global reach, seeing the research and business developments ongoing in international industry and research institutes in Asia, US, and Europe.

It is not a coincidence that the Netherlands is taking initiatives on VLC/OWC on the international stage. Improving the efficient use of spectrum by different means is one of the core tasks of the Radiocommunications Agency. In the Netherlands the Technical University of Eindhoven is working on research and development in the field of Optical Wireless Communication, IR and Photonics successfully for many years already. On top, we appreciate very much companies like Philips and KPN being positively involved in this new developments. Representatives of these companies also contributed into the workshop by sharing their thoughts about the technical capabilities of VLC/OWC for indoor and outdoor use.

The ultimate purpose of this venture is to investigate to what extent VLC/OWC can contribute to society e.g. in respect of e.g. increasing the availability of more (in-room) mobile broadband spectrum, by enlighten the congested parts of the spectrum, and increase the telecom capacity for increasing data throughput.

The outcomes and findings at this workshop will be shared by the Dutch delegation into the next ITU/R Study Group meeting in Geneva (June 2017) where VLC/OWC will be addressed..