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Trend-setting research project 5GNOW on the future of mobile communications rated “excellent”

The European Commission has awarded the highest scientific excellence honor to the 5GNOW project, one of the first EU research projects aimed at advancing development of the next generation of mobile networks (5G) and strengthening European competitiveness. In the final project review in Brussels, the European Commission acknowledged a major impact which the project had on 5G pre-standardization.

Researchers of 5GNOW, a research project funded by the 7th Framework Programme for Research and Technological Development of the European Commission, came from the Fraunhofer Heinrich Hertz Institute (project lead), Alcatel-Lucent Germany (technical lead), and partners like the Technical University Dresden, the French institute for applied research CEA LETI, the Polish software developer IS-Wireless as well as National Instruments Hungary.

The partners analyzed and selected several waveform technologies for the next generation of mobile networks (5G). 5G is expected to make intriguing application visions such as the Internet of Things, Gigabit Wireless Connectivity and the Tactile Internet a reality. In order to support such diverse services, the radio access part has to be flexible, scalable, content-aware, robust, reliable, and efficient in terms of energy and spectrum. Wireless data is transported by radio waves which can have different forms. Such “waveforms” are of key interest to 5G researchers, because they determine how well specific use cases can be supported in 5G. 5GNOW has questioned the underlying design principles of today’s 4G LTE-A radio access network and designed, improved and assessed new candidate waveform technologies for 5G.

5GNOW project coordinator PD Dr. Gerhard Wunder, Fraunhofer HHI, praises the success achieved: “5GNOW truly made an impact on both from academic and industrial pre-standardization. 5GNOW tools and technologies will be used in the upcoming standardization phase for 5G.”

Thorsten Wild, technical lead of 5GNOW, from Alcatel-Lucent’s Bell Labs, says: “5G NOW helped to make the scientific community aware of the opportunities which waveforms offer in future mobile systems. The candidate waveforms which had been developed within the project are a big step forward in defining

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the key ingredients of a future 5G standard. 5GNOW has laid the foundation for the upcoming standardization phase.”

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One of the key technology components which came out of 5GNOW, is a filtering functionality together with advanced signal processing. This provides more than 100 times better interference rejection in a fragmented spectrum of scenarios and offers higher network spectral efficiency and, thus, better user service provision. In addition, 5GNOW has demonstrated that the candidate waveforms offer the robustness and latency required to leverage efficient radio access for the Internet of Things and the Tactile Internet. These results indeed enable an efficient and scalable air interface supporting the highly varying set of requirements originating from main 5G drivers.

In the course of the project, 5GNOW results have been highly visible through great showcase and demonstration activities at flagship conferences and industry expositions in the ICT sector. Unprecedented highlights have been the first ever “Demo Night” at the IEEE GLOBECOM 2014 in Austin, Texas, and the participation in the Mobile World Congress 2015 in March in Barcelona as part of the first European Commission’s 5G booth, and which was visited by Günther Oettinger, EU Commissioner for Digital Economy and Society, and European Commission Vice-President Andrus Ansip. These public demonstrations have proved that 5GNOW new air interface technology components are real and beneficial. 5GNOW has eventually fostered the Horizon 2020 5G Public Private Partnership (5GPPP) Initiative by the European Commission. 5GNOW research will be followed up in the EU’s FANTASTIC-5G project which started on July 1st, 2015.

More information on 5GNOW: www.5gnow.eu

More information on FANTASTIC-5G: www.fantastic5g.eu

The **Fraunhofer Heinrich Hertz Institute** is a world leader in the development of mobile and fixed broadband communication networks and multimedia systems. From photonic components and systems through fiber optic sensor systems to video coding and transmission, the Fraunhofer HHI works together with its international partners from research and industry. www.hhi.fraunhofer.de

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