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Welcome to the first edition of the TWEETHER newsletter!

TWEETHER is a European research initiative, funded under H2020, that brings together world-leading European industries and academic institutions across Europe to set a milestone in the millimetre wave technology with the realization of the first W-band (92-95GHz) wireless system for distribution of high speed internet everywhere.



We are pleased to start with this issue the TWEETHER' newsletter that will be released periodically, bringing you updates on the main project activities and progress.

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THALES

BLUWAN



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fibernova



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TWEETHER project

Today's proliferation of smartphones and tablets running applications that make an extensive use of data traffic, such as multi-player games or video streaming, has in turn resulted in a colossal increase in bandwidth demand.

Microwave wireless solutions impose some limitations in terms of bandwidth and capacity that can be only overcome by the exploitation of unused portions of the spectrum at higher frequencies. In particular, millimetre wave region, allocating multi-gigahertz signal, are the most promising solution to support the increasing data throughput and to be a credible, cost-effective fibre complement for last mile access.

The TWEETHER aim is to realise the millimetre wave point to multipoint segment to finally link fibre, and sub-6GHz distribution for a full three segment hybrid network, that is the most cost-effective architecture to reach mobile or fix final individual client.

Such a system, combined with the development of beyond state-of-the-art affordable millimetre wave devices, will provide backhaul for 4G and future 5G and access everywhere with performance similar to the fibre to overcome the digital divide that prevents a large part of population from data hungry internet contents.

To achieve this challenge, novel W-band technology with unique performances for boosting wide adoption of W-band systems will be developed. More concretely, a powerful and compact transmission hub based on a novel traveling wave tube (TWT) power amplifier with performance precluded to any other technology and compact and low-cost terminals based on advanced chipsets will be implemented.

More concretely, the **scientific and technologic objectives of TWEETHER** will be:

- 1** Define the future wireless network architecture for small cell backhaul and access applications, leveraging the W-band spectrum and the point to multipoint principle to enable an energy and spectrum efficient and high performing network.
- 2** Develop the millimetre wave technology with unique performances for boosting wide adoption of W-band systems.
- 3** Integrate the developed technology into the RF front end modules to achieve cost effective and compact network nodes.
- 4** Validate the enhanced capabilities provided by the TWEETHER system by means of a small scale field trial, which will be a vehicle towards the exploitation of the developed technology.



TWEETHER Consortium at a glance

The Consortium includes eight partners from four countries France, Germany, Spain and United Kingdom, representing the most qualified entities for bringing this great step ahead in millimetre wave wireless communications into reality.



Lancaster University (ULANC) is in the one percent top universities in the world and the tenth university in UK. ULANC brings top international level expertise in the design and simulation of slow wave structures for millimetre wave vacuum electron devices and applications, in simulation of wireless system performance and additive manufacturing of microstructures. The high level of innovation that Lancaster University brought in the field defines it as one of the leading universities in the field of TWTs.



Thales Electron Devices SAS (TED) in France, designs and manufactures travelling wave tubes (TWT) for communications and other systems, in particular at high microwave frequencies. TED is the world's leading supplier of tubes for space, scientific research, broadcasting and industry applications, and number one in Europe for telecommunication and defence applications, with more than 60 years of experience in developing and producing TWTs for all worldwide applications. TED will tackle all the fabrication and assembling issues for the TWT realization and will deal with the market exploitation aspects.



BLUWAN, provider of carrier-grade multi-gigabit wireless solutions, has launched at the Mobile World Congress (MWC) the LinkFusion 2, the latest release of its point-to-multipoint millimetre wave network access and backhaul system for cost effectively delivering 20 times the bandwidth of rival systems. As an equipment supplier, Bluwan will derive the specifications of the system and radio products according to the expected market needs analyzed with operators. Moreover, BLUWAN will design the low power part of transceiver breadboards and terminal lens, and then will couple the radios with its Linkfusion system.



OMMIC is a leading foundry in Europe and brings to the consortium advanced epitaxy capabilities to support HEMT transistors, different high frequency advanced processes for power and low noise, a design team dedicated to the processes available in house and a wafer fab. OMMIC also brings to the project a set of technology demonstrators working at 94 GHz.



HF Systems Engineering GmbH & Co. KG (HFSE) is one of the few European SMEs with the required expertise in mechanical microfabrication fundamental for the TWT parts and the front-end integration. HFSE has also a strong heritage in millimetre-wave circuit manufacturing and packaging, which will be utilized for the packaging and integration of MMIC components into modules.



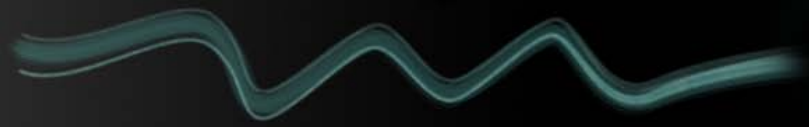
Goethe University of Frankfurt am Main is one of the leading centres for THz and millimetre-wave technology in Germany, having a strong expertise in the design of parts for THz slow wave structures, input and output couplers, antennas, millimetre wave measurements for chip and tubes, and electronics for high data rate transmission.



Fibernova is an operator specialised in the deployment of high performance end to end wireless networks. Fibernova will participate in the system specification and will be in charge of the system integration, and the setup, configuration and operation of the field trial of the TWEETHER project.



Universitat Politècnica de València (UPVLC) has a well-established expertise in the definition of novel architectures and technologies for broadband wireless network and has pioneered EU-funded research on multigigabit wireless and wireline converged access networks. UPVLC will participate in the system specification, in the definition of the scenarios and use cases of the field trial and in the set-up of the TWEETHER network platform.



Save the date

TWEETHER AT THE EUROPEAN CONFERENCE ON NETWORKS AND COMMUNICATION – EUCNC 2015

EuCNC 2015 is the 24th edition of a successful series of technical conferences in the field of telecommunications, sponsored by the European Commission. The conference is open to the entire world research community and it focuses on communications systems and networks, reaching applications and services. While it aims at showcasing the results of projects from successive European R&D programs co-financed by the European Commission, it also targets to bring together researchers from all over the world to present the latest research results in networks and communications and the new developments in this field.

TWEETHER has been invited to participate to the Special Session: “5G scenarios and use cases: how new mmWaves technologies can lead to an immersive user experience”.



This Special Session will take place on 30th June 2015 in Paris, France.

More information: <http://www.eucnc.eu/?q=node/130>

TWEETHER AT RF MST CLUSTER MEETING

The RF MST Cluster Meeting is co-organized with the European Commission and is open to all RF Microsystems projects. The main goals of this workshop are to share the latest developments obtained in the RF MST projects funded by the European Commission, and to promote exchanges between scientists active in the same area as well as synergies between projects.



TWEETHER project has been invited to participate in the annual RF MST Cluster Meeting, which will take place on 1st July 2015 in Barcelona, Spain.

More information: <http://congress.cimne.com/memswave2015/frontal/Objectives.asp>

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TWEETHER in the news

24 March 2015

EE BOSS CLAIMS BT MERGER WILL SPUR 5G

EE was working with the University of Surrey and the University of Lancaster to develop some of the standards and technologies that might be associated with 5G.

Read more: <http://www.mobileworldlive.com/ee-boss-claims-bt-merger-will-spur-5g>

11 February 2015

EE, THE LARGEST AND MOST ADVANCED DIGITAL COMMUNICATIONS COMPANY IN BRITAIN, WORKS CLOSELY WITH THE EU'S HORIZON 2020 "TWEETHER" PROJECT

EE Principal Network Architect, Professor Andy Sutton, said: "We've invested in 4G and taken the UK back to a position of leadership in mobile, and now we're investing in 5G so that we can define the next step, and keep both us and the UK mobile industry one step ahead. Working closely with academic institutions such as the 5GIC at the University of Surrey and the EU's Horizon 2020 'TWEETHER' project at Lancaster University on technologies that are truly ground-breaking, EE will continue to change the way people think of what's possible with mobile. We will continue to evolve new 4G technologies, as they lay the perfect foundation for being a global leader in 5G."

Read more: <http://ee.co.uk/our-company/newsroom/2015/02/11/ee-commits-to-new-network-investment-plan>

21 January 2015

W-BAND WIRELESS BROADBAND SYSTEM AIMS TO STREAMLINE SERVICES

Rural blackspots and network congestion could end thanks to a new wireless high-speed data communications system under development by a European team led by engineers at Lancaster University.

Read more: <http://www.theengineer.co.uk/news/w-band-wireless-broadband-system-aims-to-streamline-services/1019762.article#ixzz3Pa91XbWk>

22 December 2014

UNIVERSITY SECURES FUNDING FOR MAJOR HIGH-SPEED DATA PROJECT

Engineers at Lancaster University in the UK are to lead a project developing the world's first W-band wireless system, which will lead to a greater availability of cost-effective, high-speed internet.

Read more: <http://horizon2020projects.com/il-ict/university-secures-funding-for-major-high-speed-data-project/>