TELECOM INFRA PROJECT

mmWAVE

This Project Group Charter establishes the scope, intellectual property and copyright terms used to develop the materials identified in this Project Group. Only Participants that execute this Working Group Charter will be bound by its terms and be permitted to participate in this Project Group and shall be considered "Contributors" in the Project Group as defined in the Telecom Infra Project IPR Policy document.

TIP Board of Directors Approval Date: 6/27/2017

1. PROJECT GROUP NAME

Millimeter-wave Networks

2. PURPOSE

The Internet and telecommunication services usage will change significantly in the future. Therefore, very high performance and cost-efficient access/metro networks will be necessary. Changing user behavior and related expectations on broadband connectivity in residential and other diverse environments will lead to ever-increasing total traffic volumes as well as usage that is more diverse and different coverage requirements. The Millimeter-wave (mmWave) Networks TIP project group will drive consensus towards a few key telecom operator use-cases and appropriate system architectures for such wireless access/metro networks that use mmWave based technologies.

Specifically the project group focus will cover the following key scenarios:

   i.   Delivering fiber-like gigabit data rates to homes/enterprises/MDUs
  ii.   Mobile backhaul
 iii.   Dense connectivity for Smart Cities

Building on this foundation, the project group will define cost efficient solutions and cost economic models for such networks. This project group will

also aim to aggregate overall demand for wireless network infrastructure to ensure a vibrant open, community-driven ecosystem, that will meet the needs of telecom operators. The project group will deliver hardware reference-blueprints, comprehensive validation methodologies and functional/performance test plans that cover both the radio interface and the mesh wireless network– up to a fiber connection point. It will include control-plane and network management functionalities for the entire system.

In order to accelerate the deployments of mmWave networks, this project group will also bring forward innovative network planning methodologies and tools, software routing protocols & simulation platforms. Additionally, it will focus on guidelines and recommendations for municipalities and spectrum covering permits and street furniture attachment rights. Ultimately, this project group will share with the community the lessons learned and best practices by means of design/test plan documents, proof-of concepts, presentations, and white papers.

3. PROJECT GROUP SCOPE

The Millimeter-wave (mmWave) Networks project group will cover the following areas and share the outcome with the community:

i. Identification of key use-cases and suitable wireless system architectures for the specific traffic demand models and deployment scenarios. Build a framework for modelling of the overall cost economics (CAPEX, OPEX) of a proposed mmWave network.
ii. Develop cost-efficient mmWave solutions.
iii. Create test methodologies and comprehensive test plan documents for operator-defined use-cases. These documents will form the basis for the validation of the specific mmWave radio access technology and the mesh wireless network. This includes the ability to meet specific quality of service, stability, availability and reliability targets, etc. This also covers functional and performance test plans for lab tests and field trials.
iv. Define mmWave network planning and design tools, data collection techniques. Specify data-formats including LIDAR and 2D/3D map data and propagation modelling.
v. Develop a set of guidelines for municipalities to enable low-cost and rapid mmWave network deployment in all geographies. This may include best practices for attachment rights on street furniture, spectrum usage and permitting processes.

vi.   Collaborate on software implementations including development, enhancement of routing protocols for mesh wireless networks and simulation platforms for mmWave network modeling.

vii.   Coordinate with other relevant bodies and organizations concerned with the field of mmWave technologies, systems, and networks.

4. PROJECT GROUP DELIVERABLES

i.   Describe typical use cases for mesh mmWave networks in different geographic areas.

ii.   Develop and reference cost economic models for fiber-like data connectivity to homes using mesh mmWave networks in different geographic areas.

iii.   Author a comprehensive validation document that covers methodologies for the testing of both specific mmWave radio access technology and mesh wireless network.

iv.   Develop a framework for planning/simulation tool software for mmWave network design along with description of data formats and details of propagation models.

v.   Share best practices for deployment of low-cost mmWave mesh networks, attachment rights, spectrum usage in the form of a document or whitepaper.

vi.   Contribute hardware design and protocol software for a cost-efficient mmWave solution.

5. PATENT LICENSING

The patent license for all Contributions, Draft Specifications and Final Specifications within this Project Group shall be:

[Check one box]

x RAND License Option, as set forth in Section 5.2.1 of the Telecom Infra Project IPR Policy.

▢ Royalty-free License Option, as set forth in Section 5.2.2 of the Telecom Infra Project IPR Policy.

6. FINAL DELIVERABLE COPYRIGHT LICENSING

Project Group agrees to grant the following copyright license for the Final Specification:

[Check one box]

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7. INITIAL PROJECT CHAMPIONS

DT, Facebook, Intel, Vodafone

8. CHAIR AND(OR) CO-CHAIR OF PROJECT GROUP

CHAIR
Andreas Gladisch, Deutsche Telekom, Vice President Convergent Networks and Infrastructure

CO-CHAIR
Salil Sawhney, Facebook, Connectivity Technologies and Ecosystems Manager

ACCEPTANCE

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Contact Name

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Contact Title

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Email Address

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Telephone Number (Include Country Code)

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Company Name

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Company Address, City, State, Country, Postal Code

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Company Web Page URL

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Primary services or products the company provides

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Signature   Date

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Signed by (print name)