



OPENCELLULAR

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: 10/19/2016

1. PROJECT GROUP NAME

OpenCellular – Wireless Access Platform Design

2. PURPOSE

The OpenCellular group is working on developing architectures and designs for wireless access platforms and related technologies, targeting low cost, energy efficiency and easy maintainability. The goal is to innovate on the technology, engage with software projects developing solutions running on the OpenCellular platform, and support an ecosystem of OEMs, distributors and system integrator around OpenCellular based solutions.

3. PROJECT GROUP SCOPE

Starting with the first version (known as Connect-1) of OpenCellular developed at Facebook, the project group will innovate in the areas of, but not necessarily limited to:

- i. Baseband and general-purpose processing module
- ii. RF transceiver and timing sync module
- iii. Intra and inter connect technologies
- iv. Digital and analog front-end technologies including amplifiers and antenna sub-systems
- v. Board/system management and monitoring including out-of-band access techniques
- vi. Integrated backhaul and power solutions including supporting and maximum utilization of locally available resources
- vii. Industrial and mechanical designs
- viii. PHY/Layer-1 implementation and upper layers integration support for various wireless access technologies

- ix. Bootloader, firmware, RTOS, OS drivers and system security including remote management and upgrades
- x. Testing framework, infra and tools for production and on ground (deployments)
- xi. Productizing, production optimization and innovative deployment models including support for local manufacturing and entrepreneurship for OpenCellular based solutions
- xii. And every technology that has the potential to improve the efficiency, simplicity, manageability and handling of OpenCellular

4. PROJECT GROUP DELIVERABLES

The project group will produce the following deliverables

- i. The group will maintain a collaboration portal holding documentation for the OpenCellular components and guidelines for contributors, software developers, OEMs, distributors, integrators and deployments
- ii. The group will release use case specific SKUs and technology alternatives within an OpenCellular generation as well as working on new generations of OpenCellular. The project group will incorporate technological advances available in the industry or driven by OpenCellular and the learnings and feedback from the community adopting OpenCellular in manufacturing, production and deployments.

5. PATENT LICENSING

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

[Check one box]

- 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]

- Creative Commons Copyright Attribution 4**, Each Project Group Contributor agrees that its Contributions are subject to the Creative Commons Attribution 4.0 International license - <http://creativecommons.org/licenses/by/4.0/legalcode>.

- **Full Release of Copyright into the public domain**, Each Project Group Contributor agrees to release its Contributions to the public domain and waive all copyrights associated with them.

For software components developed in this project group, either the upstream project license shall apply or, for standalone software development specific to OpenCellular, a BSD license shall apply.

7. INITIAL PROJECT CHAMPIONS

Horizon Computing, EE, Amarisoft

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

Chair

Dr. Kashif Ali, Facebook

Co-Chair

Martin Rehwald, Facebook

9. PARTICIPATION CRITERIA

Participants of the working group need to commit to the licensing terms set out in this project charter and actively contribute to one or multiple activities listed in the project group scope. Active participation hereby means:

- i. Constructive contributions including questions in the (sub)project forum
- ii. Contribution of specification, design, schematic and layout
- iii. Development, contribution and availability of new technologies, relevant for the OpenCellular evolution, for the community
- iv. Software contributions related to OpenCellular system, including porting software stacks for various wireless access technologies
- v. Testing and manufacturing of OpenCellular based solutions
- vi. Integration, deployment and operation of OpenCellular based solutions