

Broadband Forum Project Participation
Agreement
("Agreement")

Project name: Open Broadband – WWC Reference Implementation for 5G-RG ("OB-5WWC")

Project IPR type: Modified RAND (BBF IPR Policy) for Submissions; RANDZ (Apache 2.0) for Contributions

Thank you for your interest in participating in the Project. Please print, complete, and sign, then scan and email a pdf file of the signed Agreement to info@broadband-forum.org. If necessary, send an original signed Agreement to Broadband Forum - 5177 Brandin Court - Fremont, CA 94538 - USA.

Please read this document and any attachments carefully before signing and keep a copy for your records.

Entity name: _____

Entity address: _____

Point of Contact: _____

E-Mail: _____

Telephone: _____ Fax: _____

This Project will develop two types of deliverables:

- a software deliverable or deliverables in the form of source code and any resulting object code compiled from such source code, together defined herein as the "Program(s)" (the object code taken as a whole, and not any individual component part used independently); and
- related, non-code software development support items defined herein as "Artifacts". The items that could be developed in this Project and categorized as Artifacts include, but are not limited to, the items described as such in Sections A and B of the Charter below. However, for the avoidance of doubt, items beyond relevant software development support items are developed in the BBF Technical Committee according to established BBF procedures.

Except as otherwise provided in the attached charter of this Project ("Charter"), participation in this Project is subject to the Broadband Forum Intellectual Property Rights Policy ("BBF IPR Policy"), and the Broadband Forum Rules of Procedure ("Policies and Procedures"), copies of which may be found at: <https://www.broadband-forum.org/about-the-broadband-forum/membership/policies-and-procedures..>

Notwithstanding the above, the provisions of this Agreement are as of the date below under further review by BBF. If and when a revised version of this Agreement is reviewed and approved by BBF, the undersigned, and BBF shall amend this Agreement to be identical to the final Project agreement approved by BBF, and the terms of such revised Agreement shall apply retroactively to the date of this Agreement; provided,
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however, if the undersigned is not willing to accept such changes and sign such an amendment, it shall have the right to withdraw from the Project, and withdraw all Submissions and Contributions it has made to such Project, and the license and other obligations set forth in this Agreement and the Project IPR Policy shall not apply to such Submissions and Contributions.

By signing and returning a copy of this Agreement, you represent that you have read and understood the Charter that follows this signature page ("Charter"), BBF IPR Policy (as modified by the Charter), and Rules of Procedure, and accept and agree to be bound by the terms and processes, as applicable, of each of these documents.

Please sign: _____ Date: _____

Name/Title: _____

CHARTER OF THE
OPEN BROADBAND – WWC Reference Implementation for 5G-RG

NOTE: Because certain of the rules applicable to this Project lie outside the Broadband Forum Intellectual Property Rights Policy (“BBF IPR Policy”), a current copy of which may be found at: <https://www.broadband-forum.org/IPRPolicy2016.pdf>, this Project has been chartered under a variation of the BBF IPR Policy (the BBF IPR Policy, with the changes set forth below, is referred to as the “Project IPR Policy.” **Except as set forth below under Part D, the terms of the BBF IPR Policy shall apply to the Project and its deliverables.**

A. Detailed description of the Project:

Open Broadband-5WWC is an open source project focused on creating a reference implementation of the BBF specified Wireless Wireline Convergence solution for 5G capable Residential Gateways (5G-RG). The goal is to provide a production grade 5G solution stack capable of integration with OpenWRT/RDK-B frameworks and to provide a reference for testing AGF and RG test tool development.

In order to achieve this objective, the project is divided into four main parts:

- Part 1: 5G-RG protocol Stack. An open source implementation of the control (PPPoEv1) and user (5WE) plane transport.
Primary goals include:
 - Control plane stack based on PPPoEv1 supporting the following CP and NCP protocols as described in TR-456i1
 - LCP
 - EAP-5G
 - VNSCP
 - VSNP
 - User plane stack based on 5WE as described in RFC8822 providing:
 - Support for IPv4, IPv6 and Ethernet PDU sessions
 - QFI packet marking
 - Stretch goal: Map a PDU to an ETH interface
 - Suitable for OEMs and other developers to easily integrate into various product platforms
 - e.g., Linux-based platforms (e.g., OpenWRT and RDK-B) with chips from most any SoC vendor
 - e.g., Residential gateways, either in retail or from service provider
- Part 2: Authentication support
 - Implement auth response needed to support 5G-AKA and EAP-AKA USIM methods.

- Part 3: QoS
 - Mark 5WE packets with QFI as per PDU QoS rules
 - Stretch goal: Implement RG-LWAC rules to map DSCP and/or PCP
- Part 4: NAS Messaging
 - Registration Management
 - Session Management

B. Detailed description of Project deliverable(s):

1. Artifacts:

- OB-5WWC software architecture specification
- OB-5WWC Functional behavior descriptions
- OB-5WWC Test and methodology

2. Program:

- OB-5WWC software deliverables or deliverables in the form of source code and any resulting object code compiled from such source code (the object code taken as a whole, and not any individual component part used independently)

C. Deliverable(s) include (check all that apply):

- None
- Reference Implementation
- Stand-alone Software

D. BBF IPR Policy Variant Rules

The development of the Artifacts and Program(s) shall be deemed to be a "Project" under this Project IPR Policy.

As a condition to being permitted to participate in this Project, and by so participating, each Participant, and his or her employer, agrees as follows:

(a) For purposes of this Project IPR Policy, "Member" shall mean, individually and collectively, any individual and entity (whether or not a BBF member) participating in this Project. For the avoidance of doubt, no individual or entity that is not a member of the Broadband Forum will acquire any rights or assume any obligations except with respect to its participation in this Project, the Project's work in process, and its final deliverables.

(b) With respect to any Participant in this Project that is not representing a Broadband Forum member, such individual shall, solely for the purpose of participation in the Project, be deemed to be a Representative, and his or her employer (if any) will be deemed to be a Member, under the Project IPR Policy.

(c) Under this Project IPR Policy, defined terms applicable to the Program(s) shall have the meanings set forth in the Apache 2.0 license and defined terms applicable to the Artifacts shall have the meanings set forth in the BBF IPR Policy.

(d) The following text shall replace Section 3.1 of the BBF IPR Policy with respect to the Submissions of Artifacts and Contribution of Programs:

3.1 License Obligations

(i) With respect to the Program(s), any Participant making a Contribution to the Project shall be deemed, by taking such action, to have agreed that if the Draft Software in connection with which the Contribution made is finally approved by the Forum, the Contributor will provide a License under Apache 2.0 license (<https://www.apache.org/licenses/LICENSE-2.0>).

Note: For the avoidance of doubt only the terms of the Apache 2.0 license apply to Program(s) and not the BBF IPR Policy.

(ii) With respect to all other Submissions (i.e., Artifacts) any Submitter agrees to make such Submissions pursuant to the terms of the BBF IPR Policy. To the extent that any other Submissions would result in the infringement of a patent, they will be considered a "Draft Specification" under the BBF IPR Policy.

(e) The following text shall replace Section 3.2 of the BBF IPR Policy with respect to the Program(s) only: (for Artifacts, Section 3.2 is used as is.)

3.2 Member Disclosure and Identification Obligations

If at any time prior to the time that the draft Program is declared to be at final approval (as defined in the Rules of Procedure) a Participant shall become aware that either it, or one of its Related Parties, Owns a Necessary Claim or Claims that it is unwilling to License under RAND, (which shall not include any Necessary Claim or Claims under its own Contribution(s)), it shall identify such Necessary Claim(s), and the portion(s) of the Draft Software that would result in such infringement. In the case of Necessary Claims under non-public patent applications, the disclosure of such claims need not be in such detail as would disclose any trade secrets.

(f) All other provisions and defined terms in the BBF IPR Policy shall be deemed to be modified in the Project IPR Policy to the extent necessary to accommodate the above modifications.

E. Roles & Responsibilities:

Board of Directors – Are the overall authority for the Project, from initiation to termination. The Board has to approve this document and any amendments made thereafter.

Chair(s) - Are recommended by the Project participants and appointed by the Board. They are responsible for the conduct of the meetings and completion of the Project and its deliverables.

Project Participants – BBF Members are free to join the Project pending their signing of this Agreement.

Non-BBF Members can join the Project pending approval of the Board and signing this Agreement.

F. Process (exceptions to BBF Policies and Procedures):

Documents / deliverables approval will be recommended, assented and minuted at a regular meeting of the Project, with final approval by the Board.

G. Working with external groups:

Will be governed by a separate agreement between that group and the Board of BBF. Agreements may be made with other external groups (recommended by the Project participants and approved by the Board of BBF), but will not necessarily be listed in this Charter.

H. Amending the Charter:

May be recommended by a consensus of the participants of the Project, with approval by the Board of Directors. Any proposed amendments to the description and deliverables of the Project will receive a higher degree of due diligence as to whether that 'scope' proposal should be approved or whether a new 'scope' should be a new stand-alone Project.

Opting out from Projects with amended Charters:

In the event that the BBF Board of Directors approve any amendment to the Charter in its original or later amended state, any Participant in the Project may give written notice to info@broadband-forum.org of its withdrawal from the Project. In such event, its obligations under the BBF IPR Policy and Rules of Procedure, each as amended by this Charter, shall extend only to the most current drafts of the Project Deliverables as of the date of such withdrawal.

Appendix
A

**Broadband
Forum**

**INTELLECTUAL PROPERTY RIGHTS IDENTIFICATION
FORM**

This form MUST be used by a Representative required or desiring to make a disclosure of IPR at any time prior to the date that the Project declares a Draft Software Program or Artifact to be at final approval. Disclosure of Necessary Claims that will not be Licensed, is REQUIRED.

NOTE: All blanks must be completed in order for this form to be given consideration. This form is subject to the Intellectual Property Rights Policy approved by Broadband Forum (the "Forum") for use by this Project (the "Project IPR Policy"), and the related Policies and Procedures document of the Forum "Rules of Procedure". ***All capitalized terms used in this form are intended to have the meanings given to them in the Project IPR Policy or the Rules of Procedure.***

Name of Project Member:	
Name of Representative Completing this Form on Behalf of Project Member:	
Mailing Address of Representative:	
Email Address of Representative:	
Draft Software Program or Artifact to which this Identification Form relates:	

A. The Representative hereby represents the following on behalf of him/herself and the Project Member, as the context requires:

1. The Representative is authorized to complete and submit this Identification Form on behalf of the Project Member, and to make the following representations and warranties.
2. The Representative and the Project Member have each reviewed the Project IPR Policy and Rules of Procedure, and agree that this Identification Form is being completed and submitted in full compliance with the same.
3. The Project Member hereby asserts that it has become aware that it Owns Necessary Claim(s) (other than under its own Submissions or Contributions, in the case of the first option below) relating to the Draft Software and/or Artifacts under development by the above Project, and asserts:

that no guarantee of License rights is made (or that such rights will in fact be denied in some or all cases) as to the Necessary Claims Owned by it and identified

on **Exhibit A**, none of which relate to any of its Submission(s) or Contribution(s), together with the portions of the Draft Software and/or Artifacts that would result in such infringement.

that it is willing to provide a License without compensation and which it has, at its election, identified such claims on **Exhibit A**, together with the portions of the Draft Software and/or Artifacts that would result in such infringement.

that it is willing to provide a License for a royalty or other compensation, and which it has, at its election, identified such claims on **Exhibit A**, together with the portions of the Draft Software and/or Artifacts that would result in such infringement. This assurance does not require that the Representative specifically identify any such Necessary Claims on this Exhibit A.

NOTE: You may elect one option for some Necessary Claims and the other option for other Necessary Claims, so long as the attached Exhibit is completed properly.

4. If the Project Member has become aware of potentially Necessary Claims owned by third parties relating to the Draft Software and/or Artifacts under development by the above Project, it has identified such claims on **Exhibit A**, together with the portions of the Draft Software and/or Artifacts that would result in such infringement.

This Identification Form has been submitted on _____, 20__.

Name of Project Member

By: _____
Signature of
Representative

Name: _____

Exhibit A

WITHHELD IPR

Jurisdiction and Patent Number	Necessary Claim	Affected Portion of Draft Specification

**AVAILABLE IPR FOR WHICH A ROYALTY-FREE LICENSE
WILL BE REQUIRED**

Jurisdiction and Patent Number	Necessary Claim	Affected Portion of Draft Specification

**AVAILABLE IPR FOR WHICH A LICENSE FOR A ROYALTY OR OTHER
COMPENSATION WILL BE REQUIRED**

Jurisdiction and Patent Number	Necessary Claim	Affected Portion of Draft Specification

THIRD PARTY IPR

List here all Necessary Claim(s) Owned by third parties, to the extent of your knowledge.

Jurisdiction and Patent Number	Necessary Claim	Affected Portion of Draft Specification