IEEE 802.11 TGbd Update for ITU-T CITS

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IEEE 802.11 TGbd Chair

Date: 2022-09-19

Background

- **In the ITU-T CITS conference in Mar 2019, IEEE 802.11bd was firstly introduced to the group.**
  - https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20190308-Geneva/10_IEEE%20802.11-TGbd-Introduction.pdf
- **In the ITU-T CITS conference in Oct 2019, the progress of IEEE 802.11bd was updated**
  - https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20191028-e-meeting/13_IEEE802.11-TGbd_update_for_CITS.pdf
- **In the ITU-T CITS conference in Mar 2020, the progress of IEEE 802.11bd was updated**
  - https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20200306-Geneva/09_IEEE%20802.11-TGbd_Status-Report.pdf
- **In the ITU-T CITS conference in Mar 2021, the progress of IEEE 802.11bd was updated**
  - https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20210326-e-meeting/08_IEEE_802-11_TGbd_report.pdf
- **No progress report for ITU-T CITS conference in Oct 2020 and Oct 2021 respectively due to conflicting schedules**
- **In the ITU-T CITS conference in Mar 2022, the progress of IEEE 802.11bd was updated**
  - https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20220318-e-meeting/16_IEEE_802_11_TGbd_status_report.pdf
- **This document provide the update information of the IEEE 802.11bd progress since the latest update.**
- **All information in this document can be obtained from public sources and this document should be understood with the author's personal view.**

Note: ''At lectures, symposia, seminars, or educational courses, an individual presenting information on IEEE standards shall make it clear that his or her views should be considered the personal views of that individual rather than the formal position, explanation, or interpretation of the IEEE.'' IEEE-SA Standards Board Operation Manual (subclause 5.9.3)

Re-cap of IEEE 802.11bd

- **Formed in Dec 2018**
- **Leadership:**
  - Chair: Bo Sun;
  - Vice Chair: Hongyuan Zhang; Joseph Levy
  - Tech Editor: Yujin Noh (Ex-Tech Editor: Bahar Sadeghi)
  - Secretary: Yan Zhang (Ex-Secretary: James Lepp)
- **Target:**
  - Develop IEEE P802.11bd amendment standard
- **PAR: https://www.ieee802.org/11/PARs/P802_11bd_PAR_Detail.pdf**
- **CSD: https://mentor.ieee.org/802-ec/dcn/18/ec-18-0251-00-ACSD-p802-11bd.pdf**
- **First meeting: Jan 2019, St. Louis, USA; recent meeting: Sep 2022, mix-mode (Hawaii, USA + remotely).**
- **Public website:** http://www.ieee802.org/11/Reports/tgbd_update.htm
- **Public contributions server:** https://mentor.ieee.org/802.11/documents?is_group=00bd

Key Technology Features

- **PHY Layer**
  - Re-use 11ac PHY as much as possible.
  - Support backward compatibility with 11p, e.g. keeping 10 MHz L-STF, L-LTF and L-SIG.
  - Support 10 MHz and 20 MHz bandwidth, e.g. 2x down-clock of IEEE 802.11ac 20 MHz and 40 MHz signal.
  - Support LDPC and DCM
  - Support Midamble
  - Support MCS up to 256 QAM.
  - Support Round-Trip-Time Ranging
  - Support 60 GHz PHY based on 11ay
- **MAC Layer.**
  - Modification adaptive to new NGV PHY.
  - Backward compatible and co-exist with 11p
  - Support 10 MHz and 20 MHz channel access
  - Improve SAP interface with upper layer protocols.
  - Support of A-MPDU and A-MSDU
  - Support ranging based on FTM and 11az

Key Progress

- **IEEE 802.11 has resumed in-person meeting from May 2022**
- **IEEE P802.11bd went through 3 SA Ballot from D4.0 to D6.0, with the first draft D4.0 in April achieving more than 75% supportive ratio needed for an approved draft submitting for RevCom approval**
- **The TGbd CRC has resolved over 150 comments received during SA Ballots till Sep.**
- **D7.0 was released on Sep 20 and a 10-day SA Ballot recirculation for D7.0 started immediately**
- **IEEE 802.11 WG has approved a motion to request IEEE 802 EC to conditionally approve forwarding P802.11bd to RevCom for approval**
- **The IEEE 1609 experts provided valuable comments and deeply participated in the comment resolution discussion through WG Letter Ballots and SA Ballots**
- **IEEE 802 has sent IEEE P802.11bd D4.0 to ISO/IEC JTC1 SC6 for PSDO process liaison**
- **The TGbd has updated its timeline as in following slide to accommodate the potential milestone change in the future**

SA BallotResults – IEEE P802.11bd

Ballot ID	Ballot Close Date	Title	Ballot Type	Pool	Return	%Return	Abstain	%Abstain	Approve	Disapprove	%Approve
SA 1	10 May, 2022	SA Ballot for IEEE P802.11bd D4.0	Technical	139	110	79%	5	4%	101	4	92%
SA 2	05 Jul, 2022	1st SA Recirculation Ballot for IEEE P802.11bd D5.0	Recirculation	139	118	84%	5	4%	105	8	93%
SA3	30 Aug, 2022	2nd SA Recirculation Ballot for IEEE P802.11bd D6.0	Recirculation	139	121	87%	5	4%	110	6	95%
		Post Ballot Update							112	4	96%

IEEE 802.11bd Timeline

	Open	Close
D4.0 WG Recirculation	Mar 15	Mar 30
EC (Conditional) Approval for SA Ballot	Mar 18	
1st SA Ballot	Apr 5	May 4 (30 days)
2nd SA Ballot	Jun 2022	Jul. 2022
3rd SA Ballot	Aug 2022	Aug 2022
4th SA Ballot	Sep. 2022	Sep. 2022
Final 802.11 WG Approval	Sep. 2022	
Report to EC for conditional forwarding to Revcom	Sep. 2022	
802 EC Approval	Oct. 2022	
REVcom to SASB	Dec. 2022	

Future IEEE 802.11bd Teleconference Plan

- **Oct 3rd(Monday) 2022, 10:00am ~ 11:59am, ET**
- **Nov 1st, 2022, 10:00am ~ 11:59am, ET**

Thank You and Welcome to IEEE 802.11 TGbd!