IEEE 802.11 TGbd Update for ITU-T CITS

Bo Sun, Sanechips IEEE 802.11 TGbd Chair

Date: 2023-03-17

Background

- In the ITU-T CITS conference in Mar 2019, IEEE 802.11bd was firstly introduced to the group.
 - <u>https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20190308-Geneva/10_IEEE%20802.11-TGbd-Introduction.pdf</u>
- 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
 - <u>https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20210326-e-meeting/08_IEEE_802-11_TGbd_report.pdf</u>
- 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
 - <u>https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20220318-e-meeting/16_IEEE_802_11_TGbd_status_report.pdf</u>
- In the ITU-T CITS conference in Sep 2022, the progress of IEEE 802.11bd was updated
 - https://www.itu.int/en/ITU-T/extcoop/cits/Documents/Meeting-20220923-e-meeting/24_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)

Submission

Re-cap of IEEE 802.11bd

- Formed in Dec 2018
- Leadership:
 - Chair:
 - Vice Chair: Hongyuan Zhang; Joseph Levy

Bo Sun;

- Tech Editor: Yujin Noh (Ex-
- Secretary:

Noh (Ex-Tech Editor: Bahar Sadeghi)

Yan Zhang (Ex-Secretary: James Lepp)

- Target:
 - Develop IEEE P802.11bd amendment standard
- PAR: <u>https://www.ieee802.org/11/PARs/P802_11bd_PAR_Detail.pdf</u>
- CSD: <u>https://mentor.ieee.org/802-ec/dcn/18/ec-18-0251-00-ACSD-p802-11bd.pdf</u>
- First meeting: Jan 2019, St. Louis, USA; recent meeting: Sep 2022, mix-mode (Hawaii, USA + remotely).
- **Public website:** <u>http://www.ieee802.org/11/Reports/tgbd_update.htm</u>
- Public contributions server: <u>https://mentor.ieee.org/802.11/documents?is_group=00bd</u>

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 P802.11bd successfully passed SA Ballot with final revision D8.0, and was officially published with editorial amendment
- The IEEE 1609 experts provided valuable comments and deeply participated in the comment resolution discussion through WG Letter Ballots and SA Ballots
- The TGbd has completed majority of its tasks
- IEEE 802 has sent IEEE P802.11bd D8.0 to ISO/IEC JTC1 SC6 for PSDO process
- IEEE 802.11bd amendment standard is available at <u>TechStreet</u> with \$151

IEEE 802.11bd Timeline

	Open	Close
D4.0 WG Recirculation	Mar 15	Mar 30
EC (Conditional) Approval for SA Ballot	Mar 18	
1 st SA Ballot	Apr 5	May 4 (30 days)
2 nd SA Ballot	Jun 2022	Jul. 2022
3 rd SA Ballot	Aug 2022	Aug 2022
4 th 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	

Thank You!