

IEEE 1722b Work Items and Preliminary Planning

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Revision History

Revision	Made By	Date	Description
0.1	Gordon Bechtel	2020-02-24	Initial Release
0.2	Gordon Bechtel	2020-02-26	Included notes from 1722 working group discussion on 2020-02-25.

Planning for 1722b Work

- This presentation identifies all the potential topics for work in 1722b
- The following slides summarize each topic and lists potential work items

Today's work:

- Have I missed any major work topics?
- There are a lot of question marks in the following slides. **We need everyone's participation to help fill in the blanks.**

Thanks!

Topic Areas:

- Temporally Redundant Audio Format
- H.265 Video Format
- AV1 Video Format
- CRF Improvements
- CAN/LIN Improvements
- Expand AVTP Sequence Number
- GM Identity and Expanded AVTP Timestamps
- Clarification on tu Bit and its Meaning
- Guidance on Handling Out-of-Order PDUs
- MAAP and P802.1CQ Coexistence
- Editorial Updates

Temporally Redundant Audio Format

- *Description:* Document a format carrying temporally redundant audio to overcome a loss of a sequence of PDUs often seen on non-wired network media like WiFi.
- *Contributor(s):* Ashley Butterworth, Apple
- *Proposal(s):*
 - http://grouper.ieee.org/groups/1722/contributions/2019/Butterworth_AVTP_TRAF.pdf
- *Topic Owner:* Ashley Butterworth
- *Work Items and Potential areas of impact to 1722-2016:*
 1. *Decide whether or not this is whole new format or a modification of an existing format. Make a proposal. If we choose path A, these are the impacts. If we choose path B, these are the impacts.*
 1. *Does it fit in the AAF clause? Possibly. Would it be backwards compatible?? Do we need it to be? Don and Ashley discussed for a while. One version is temporally redundant; one version is not (ie: regular). Perhaps by adding a “codepoint”.*
 2. *Could we simply add a flag bit to all audio formats? Or all media streaming formats? What about command and control formats? Is there even a way to do this?*
 3. *Assistant: Craig. Owner: Ashley.*

H.265 Video

- *Description:* Add an H.265 video transport format to IEEE 1722
- *Contributor(s):* Frank Baehren, Intel; Kieran Tyrrell, Sienda; Ashley Butterworth, Apple
- *Proposal:*
 - http://grouper.ieee.org/groups/1722/contributions/2017/Butterworth_AVTP_HVEC.pdf
 - <http://grouper.ieee.org/groups/1722/contributions/2019/IEEE1722-Tyrrell-video-discussion-082719.pdf>
- *Topic Owner:* ??
- *Work Items and Potential areas of impact to 1722-2016:*
 - *Use the format subtype in compressed video format. We'll probably add H.265 as another compressed video format using the format field already defined. This is Don's "codepoint". In this case, it would be an RFC format like the others already listed in 1722-2016.*
 - **!**Gordy, Don**!** Follow with Frank and Keiran for ownership of this one.

AV1 Video

- *Description:* Add an AV1 video transport format to IEEE 1722
- *Contributor(s):* Frank Baehren, Intel; Kieran Tyrrell, Sienda; Ashley Butterworth, Apple
- *Proposal:*
 - http://grouper.ieee.org/groups/1722/contributions/2017/Butterworth_AVTP_HVEC.pdf
 - <http://grouper.ieee.org/groups/1722/contributions/2019/IEEE1722-Tyrrell-video-discussion-082719.pdf>
- *Topic Owner:* ??
- *Work Items and Potential areas of impact to 1722-2016:*
 - Complete further investigation into AV1; determine if it is worthwhile to add to include in 1722b.
 - Is AV1 fully open? What kind of standard is it? Max: It is open and royalty free format. See its [entry on Wikipedia](#). Developed by Alliance for Open Media.
 - **!**Gordy, Don**!** Follow with Frank and Keiran for ownership of this one.

Improve Clock Reference Format

- *Description:* Improve CRF to accommodate lost PDUs and establish a generic media time.
- *Contributor(s):* Frank Baehren, Intel
- *Proposal:*
 - http://grouper.ieee.org/groups/1722/contributions/2019/1722b_fbaehren_CRF_Proposal.pdf
- *Topic Owner:* ??
- *Work Items and Potential areas of impact to 1722-2016:*
 - *!**Gordy**!* Follow with Frank to be an owner of this one.
 - *Don:* May need a new “codepoint” in order to be backward’s compatible. Need a proposal with detailed recommendation.

Improve CAN and LIN Formats

- *Description:* Increase the CAN and LIN bus identifiers to allow transport of more CAN and LIN buses.
- *Contributor(s):* Don Pannell, NXP
- *Proposal:*
 - http://grouper.ieee.org/groups/1722/contributions/2020/IEEE1722b-pannell-larger_bus_id_size-2019-12.potx.pdf
- *Topic Owner:* Don Pannell, NXP
- *Work Items and Potential areas of impact to 1722-2016:*
 - *!**Don**!* Present an updated proposal.
 - *How to be backwards compatible?*
 - *Max: Will this include CAN XL? Maybe? Although CAN XL is looking to encapsulate Ethernet?*
 - *Possibly make this change generic for all formats?*
 - *Add a CRC check for security and safety??*

Expand AVTP Sequence Number

- *Description:* Increase the size of the AVTP sequence number to enlarge the wrap-around time in high bandwidth streams (such as uncompressed video) and help identify/resolve sequencing issues with an AVTP stream received by a listener.
- *Contributor(s):*
- *Proposal:*
- *Topic Owner:*
- *Work Items and Potential areas of impact to 1722-2016:*
 - *Already solved if you embed this in UDP, which provides a 32-bit sequence number. Obviously, this adds more overhead. Especially troublesome for high-bandwidth video.*
 - *Backwards compatibility is an issue.*
 - *Dave: It's been brought about by many people, sort of generically.*
 - *The group feels that this is a possible topic worth pursuing, but without a "sponsor" it's hard to put a lot of time/effort into it, especially considering the impact it will have on backward compatibility with previous versions.*
 - *!***Gordy***! Put this topic on the list for further discussion. Is it in or out??*

Add GM Identity and Expand AVTP Timestamp

- *Description:* Add a GM identity to clearly communicate which grandmaster a timestamp is associated with and enlarge the AVTP timestamp to reduce errors caused by frequent rollovers.
- *Contributor(s):* Ashley Butterworth, Apple
- *Proposal:*
http://grouper.ieee.org/groups/1722/contributions/2019/Butterworth_AVTP_Ver1Header.pdf
- *Topic Owner:* Ashley Butterworth
- *Work Items and Potential areas of impact to 1722-2016:*
 - *Create a proposal.*
 - *New version, same subtype.*

Clarify Use of tu bit and Its Meaning

- *Description:* Clarify and provide background on the proper use of the tu bit and its meaning for clock stability.
- *Contributor(s):* Marc Illouz, L-Acoustics
- *Proposal:*
 - <http://grouper.ieee.org/groups/1722/contributions/2020/IEEE1722b-Illouz-tuBitClarification.pdf>
- *Topic Owner:* ??
- *Work Items and Potential areas of impact to 1722-2016:*
 - **!**Gordy**!** Ask Marc if he'll be the owner of this topic.
 - Clarification should help with the current version and with Ashley's new version which include a GM identifier.
- << 2020-02-25: Got to here.>>

Add Guidance on Handling Out-of-Order PDU Arrival

- *Description:* The use of FRER (Frame Redundancy and Elimination for Reliability) has the potential to delivery PDUs out of order to a listener. This item will document guidance on how a listener handles this situation.
- *Contributor(s):*
- *Proposal:*
- *Topic Owner:*
- *Work Items and Potential areas of impact to 1722-2016:*

MAAP and P802.1CQ Coexistence

- *Description: Modify 1722 to coexist with P802.1CQ's expansion of MAC Address assignment protocols.*
- *Contributor(s): Roger Marks*
- *Proposal:*
 - <http://grouper.ieee.org/groups/1722/contributions/2019/IEEE1722-Marks-P802-1CQ-2019-07-30-v00.pdf>
- *Topic Owner:*
- *Work Items and Potential areas of impact to 1722-2016:*

Editorial Updates

- *Description:* Miscellaneous editorial updates
- *Contributor(s):*
- *Proposal:*
- *Topic Owner:* ??
- *Work Items and Potential areas of impact to 1722-2016:*
 - Update references to standards that have updated since last publication, such as 802.1AS-2020.

Generic Work Item

- *Description:*
- *Contributor(s):*
- *Proposal:*
- *Topic Owner:*
- *Work Items and Potential areas of impact to 1722-2016:*