IEEE 1722a
Assumptions

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Green Text = Agreed to at a Face 2 Face (was Blue or Red)
Black Text = Not Decided
Changes Marked with Red from last version
Subtype Assignment

• New subtypes
  - 0x02 AVTP Audio Format
  - 0x03 AVTP Video Format
  - 0x04 Control Streams (Automotive/TSCS)
  - 0x7a AVDECC Discovery
  - 0x7b AVDECC Enumeration and Control
  - 0x7c AVDECC Connection Management
  - 0x7d Media Clock Negotiation

• Divide the subtype table between C and D to clarify that these are different subtype domains
Mac Address Assignment

• MCN needs MAC address (91:E0:F0:00:FF:01)
• 1722.1 has requested a block of 16k MAC addresses to be assigned by 1722a from the 1722 OUI (91:E0:F0:01:00:00 – 91:E0:F0:01:FF:FF)
Changes to current standard

• Redefine gateway info to only be valid for 61883 formats
• Gateway info field to be replaced by a protocol specific field that can be used in new protocols
• GV bit to also be redefined to be available for use in new protocol types or reserved where not used
AVTP Audio Format

• Support PCM audio
  – Support more channels
  – Simpler data parsing

• Event Markers

• Link Protection field to indicate encryption
AVTP Audio Format LPCM Format

- Timestamp in every packet
- Define a base required default format, a talker must support one of the formats, a listener must support both of the following:
  - 48k, 6 samples/packet, 32-bit sample size, 8 channels, interleaved
  - 44.1k, 6 samples/packet, 32-bit sample size, 8 channels
- We may want to split the defaults up by market
AVTP Video

• Support new native AVTP formats
  – Support RAW sensor data
    • Verify whether this can be done via new IIDC formats.
    • Requested by ISO Automotive Camera Committee

• Support RTP Payload formats
  – Support MJPEG (RFC 2435)
  – Support MJPEG2000 (RFC 5372)
  – Support H.264 (RFC 6184)
  – MPEG2 (RFC 2250) ????

• Event Markers
• Link Protection Field
• SOF/EOF Markers used in RTP and other formats
Media Clock Negotiation

- Frequency multipliers to match 1722.1
  - 1.001, 1/1.001, 24/25, 25/24
- Clock Quality field(s) to be added between priority1 and priority2
  - Media Clock variance should be determined by PTPDEV (16 bit field)
  - gptp_clock_period field related to gPTP interval typically 8ns or 40ns (8 bit field)
- Required Crystal GUID to be added for informational purposes to MCN Advertise packet
Real Time Format Change (the HDMI problem)

• Include markers to indicate change
  – Prechange indication??
  – Format identifier??
  – Formats are prenegotiated
  – One bit could set to indicate a change is coming and then reset to indicate the change is here

• Required in AVTP audio/video formats
• Add bits to 61883 base formats
• Could this be used by the 802.1 multitalker problem??
• This feature relies on HDCP and so we should put this on hold until we solve the HDCP Problem
Diagnostics

• Diagnostic Counter to be included with 1722a
  – List included in current draft
1722/1722a PICS

- 1722/1722a only (no PICS derived from IEC 61883 specific standards)
- Need PICS for AVTP audio/video
- Need PICS for MCN
DTCP/HDCP

• Include bit fields to support DTCP/HDCP
• New Link Protection enum to identify encryption type
  • 0=None
  • 1=DTCP
  • 2=HDCP
  • 3=AES128
  • 15=vendor specific
• 1722 will not work with the DTLA to get approval
• 1722 will only provide what is needed such that someone else could get formats approved by the DTLA
Control Streams

• Automotive base format
  – Flexray Protocol
  – CAN Protocol
  – LIN Protocol

• TSCS Protocol

• FlexRay synchronization ??
Low Latency Security/Encryption

• Informative Annex
• MacSec – per link encryption
• 802.1X – per LAN authentication
• DTCP – end to end AES 128 encryption
• How do I secure a live performance?
  – Class A Stream latency
• Need a volunteer or this will be dropped
Synchronization bits

• Need Synchronization Marker bits
• Currently M0 and M1
• Do we need more bits? Maybe 4 bits
• M0 used for format change
• M1 used to synchronize external events
• Can we add these same bits to the 61883 streaming formats?
Version 1 Format

• New format to support security header
  – Packet signing
  – Encryption
  – See avtp_dolsen_koftinoff_version_1_header.pdf
Other items?

• 10ns AVTP Timestamp resolution flag
Goals?

- Next draft due June 15 2012