| #22 | Type: E | TF: TF4 | Clause: 0 | Page: 1 | Line: 1 | Commenter: Glen Kramer / Broadcom |

Comment Status: Proposed　Response Status: Accept　Comment Satisfaction: None　　　Category: -

The header on each page says "IEEE Standard for Standard for.."

Remove one "Standard for"

-

| #25 | Type: T | TF: TF4 | Clause: 13 | Page: 244 | Line: 1 | Commenter: Glen Kramer / Broadcom |

Comment Status: Proposed　Response Status: Accept　Commenter Satisfaction: None　　　Category: -

There are several issues with Clause 13 organization: 1) we don't have multiple profiles, so sub-clause 13.1 title "Profile-independent eOAM management" does not make sense. Also subclause title "DPoE eOAM management" doesn't make sense because we don't distinquish that as a package anymore. 2) Sub-clause 13.2.4 "Timing Requirements" is out of place at the end of the clause. This sublcause belongs to section 3.1.1 Requirements, where all other requirements are collected. 3) sumehow sub-clause 13.2.1.4 "Multipart OAMPDU response sequence" got placed between sublauses defining various events. 4) There are two subclauses titled "eOAMPDU structure" next to each other. The first one carries no useful information. 5) Sub-clause 4.4 "Extended OAM" defines SIEPON.4 OUI. It does not belong to clause 4. This material belowngs to sub-clause 13.2.1, which describes extended OAMPDU format.

Modify clause 13 as shown in tf4_2108_kramer_5.pdf (whole clause replacement).   The marked-up changes vs. D0.4 are shown in tf4_2108_kramer_10.pdf.

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| #16 | Type: TR | TF: TF4 | Clause: 14.2 | Page: 265 | Line: 15 | Commenter: Glen Kramer / Broadcom |

Comment Status: Proposed　Response Status: Accept　Commenter Satisfaction: None　　　Category: -

Section 14.2 Branch 0xDA "identification" needs to be updated to reflect changing UNI Port name to Service Port.

Modify section 14.2 as shown in tf4_2108_kramer_1.pdf

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| #1 | Type: ER | TF: TF4 | Clause: 2 | Page: 27 | Line: 24 | Commenter: Marek Hajduczenia / Charter |

Comment Status: Proposed　Response Status: Accept　Commenter Satisfaction: None　　　Category: -

This comment addresses Action Item #40: IEEE Std 802.1ad is no more and it has been merged into 802.1Q standard

Here is the list of needed changes: - remove IEEE Std 802.1ad reference - update IEEE Std 802.1Q to read as follows: "IEEE Std 802.1Q-2018™, Standard for Local and Metropolitan Area Networks—Bridges and Bridged Networks." - remove text on page 97, line 17 from "Note that all of the defined device-based VLAN modes may operate on single-tagged (IEEE Std 802.1Q-17 compliant) or double-tagged (IEEE Std 802.1ad™-compliant) frames" to "Note that all of the defined device-based VLAN modes may operate on single-tagged or double-tagged (IEEE Std 802.1Q compliant) frames" - change all instances of "IEEE 802.1ah layer" to "MAC-in-MAC layer" - afterwards, change "This layer exists only in IEEE 802.1ah" to "This layer exists only in MAC-in-MAC" - afterwards, change all references to "IEEE Std 802.1ah" to "IEEE Std 802.1Q"; - finally, change in Table 14-159 the term "PREAMBLE_802.1ah" to "PREAMBLE_MAC_in_MAC"

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| #2 | Type: ER | TF: TF4 | Clause: 2 | Page: 27 | Line: 27 | Commenter: Marek Hajduczenia / Charter |

Comment Status: Proposed　Response Status: Accept　Commenter Satisfaction: None　　　Category: -

This comment addresses Action Item #40: update references to IEEE Std 802.1AE and IEEE Std 802.1X

Make the followign changes: - remove IEEE Std 802.1AE™-2006" from the draft, it is not used anymore - remove IEEE Std 802.1X™-2004" from the draft, it is not used anymore - remove IEEE Std 802.1X™-2010" from the draft, it is not used anymore

-

| #4 | Type: ER | TF: TF4 | Clause: 2 | Page: 28 | Line: 21 | Commenter: Marek Hajduczenia / Charter |

Comment Status: Proposed　Response Status: Accept　Commenter Satisfaction: None　　　Category: -

This comment addresses Action Item #40: update ITU-T references

Make the following changes: - update date for G.984.3 to 2014.01 - update date for G.987.1 to 2016.03

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| #3 | Type: ER | TF: TF4 | Clause: 2 | Page: 28 | Line: 7 | Commenter: Marek Hajduczenia / Charter |

Comment Status: Proposed　Response Status: Accept　Commenter Satisfaction: None　　　Category: -

This comment addresses Action Item #40: update references to IEEE Std 802.3

Make the following changes: - change publication year for 802.3 from 2015 to 2018 (we will need to likely change that one against when 802.3dc project is done and 2021 release becomes available) - remove IEEE Std 802.3ah - remove IEEE Std 802.3av - insert IEEE Std 802.3ca™-2020, Amendment 9 to IEEE Std 802.3™-2018, Physical Layer Specifications and Management Parameters for 25 Gb/s and 50 Gb/s Passive Optical Networks - add to IEEE Std 802.3az™-2010: ", now part of IEEE Std 802.3™"

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| #8 | Type: TR | TF: TF4 | Clause: 14.3.2 | Page: 280 | Line: 1 | Commenter: Marek Hajduczenia / Charter |

Comment Status: Proposed　Response Status: Accept　Commenter Satisfaction: None　　　Category: -

This comment addresses Action Item #44

Make updates per tf4_2108_hajduczenia_05.pdf, adding two new attributes i.e., aMediaTypeSupported and aMediaTypeUsed, allowing for the discovery of media types supported (list of) and actually used (single value) on the given context object

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#9　　Type: TR　TF: TF4　Clause: 14.3.7.4　　　　Page: 291　　Line: 1　Commenter: Marek Hajduczenia / Charter

Comment Status: Proposed　Response Status: Accept　　　Commenter Satisfaction: None　　　　　Category: -

This comment addresses Action item #32, updates to the aFecMode attribute. The description calls for the following three sub-tasks: -　　#32.1 Change is needed to indicate new data rates. -　　#32.2 Default should be set to enabled. -　　#32.3 Also, FEC should be per ONU, not per LLID. In reviewing the existing attributes, I noticed we have … an overlap in the attribute names. We have aFecMode attribute (0x07/0x01-3A, subclause 14.3.7.4), which represents the FEC operation on the PON port, and then we have another aFecMode attribute (0xDB/0x06-05, subclause 14.4.7.3), which seems to independently control the upstream and downstream FEC status. I focused first on the second instance i.e., 0xDB/0x06-05, subclause 14.4.7.3. Changes to the 0xDB/0x06-05 attribute to address #32.2 and #32.3 sub-tasks would be as follows: -　　In aFecMode.sFecDown and aFecMode.sFecUp, change the default value from "disabled" to "enabled" (addresses #32.2) -　　Modify the existing text "The aFecMode attribute is associated with the LLID or the ONU object" to read "The aFecMode attribute is associated with the ONU object" (addresses #32.3) -　　Strike the following text: "If aFecMode attribute is associated with the downstream-only LLID object, the OLT and the ONU ignore the sub-attribute aFecMode.sFecUp." (addresses #32.3) However, the sub-task #32.1 got me looking into the 802.3ca to understand whether we even have a way to disable FEC in Nx25G-EPON. All Clause 45 register updates were focused on extending FEC-related counters i.e., corrected FEC codewords counter (Register 3.76, 3.77) and uncorrected FEC codewords counter (Register 3.78, 3.79), while leaving the FEC capability registers (FEC ability register (Register 3.74), FEC control register (Register 3.75)) unchanged. This tells me there was no expectation that the Nx25G-EPON system would be able to disable FEC in either direction. This puts the purpose of the aFecMode attribute (0xDB/0x06-05, subclause 14.4.7.3) into question, since FEC is always enabled for downstream and upstream, and the purpose of having an attribute that will always return "enabled" on read and fail on attempting to disable FEC is somewhat questionable. I would therefore recommend we remove aFecMode (0xDB/0x06-05, subclause 14.4.7.3), which seems to be pretty much useless in Nx25G-EPON system, where FEC cannot be disabled. Once that aFecMode (0xDB/0x06-05, subclause 14.4.7.3) attribute is gone, the value of the aFecMode (0x07/0x01-3A, subclause 14.3.7.4) attribute also becomes questionable, since it would always return "enabled", given that it is not possible to disable the FEC at all. I would therefore recommend we also remove aFecMode (0x07/0x01-3A, subclause 14.3.7.4), which adds no value at all, reporting always one and the same value of "enabled". My assumption is that (a) NMS systems will need to be updated to support Nx25G-EPON systems anyway, so adding logic to not check FEC status in Nx25G-EPON would not be disruptive at all in this case, and (b) even if the NMS was not updated and did query the ONU for this attribute, ONU is always able to respond with the "Unsupported" error code (0xA1) we already have in the standard. I think, therefore, that the removal of both of these attributes would be the cleanest way to move forward to address this Action Item.

remove aFecMode (0x07/0x01-3A, subclause 14.3.7.4), update associated aggregate table, and PICS remove aFecMode (0xDB/0x06-05, subclause 14.4.7.3), update associated aggregate table, and PICS

-

#10　　Type: T　TF: TF4　Clause: 14.4.1.7　　　　Page: 298　　Line: 25　Commenter: Glen Kramer / Broadcom

Comment Status: Proposed　Response Status: Accept　　　Commenter Satisfaction: None　　　　　Category: -

TLV name does not match the associated attribute name

Change Table 14-63 title from "ONU L-ONU Count TLV (0xDB/0x00-07)" to "ONU LLID Capability TLV (0xDB/0x00-07)"

-

#17　　Type: T　TF: TF4　Clause: 14.4.1.8　　　　Page: 298　　Line: 26　Commenter: Glen Kramer / Broadcom

Comment Status: Proposed　Response Status: Reject　　　Commenter Satisfaction: None　　　　　Category: -

The attribute aOnuPonPortCount represents the number of PON ports supported by the given ONU. But the architecture clause does not explain how multiple PON ports can be supported. Is the idea that PMD would have multiple PON ports with only a single one enabled at a time?

Discussion is needed. If multiplePON ports are possible, consider changing the attribute name to aOnuPonPortCapability

No specific changes proposed at this time.

#18　　Type: T　TF: TF4　Clause: 14.4.7　　　　Page: 298　　Line: 7　Commenter: Glen Kramer / Broadcom

Comment Status: Proposed　Response Status: Accept　　　Commenter Satisfaction: None　　　　　Category: -

The aOnuLlidCapability reports the number of LLIDs, not the L-ONUs.

Replace "L-ONUs" with "LLIDs" on lines 7 and 8

-

#20　　Type: T　TF: TF4　Clause: 3.1　　　　Page: 30　　Line: 2　Commenter: Glen Kramer / Broadcom

Comment Status: Proposed　Response Status: Accept　　　Commenter Satisfaction: None　　　　　Category: -

Missing definitions in Section 3.1

Copy the following definitions from 802.3ca into 1904.4 section 3.1: 1) 25G-EPON 2) 25/10G-EPON 3) 25/25G-EPON 4) 50G-EPON 5) 50/10G-EPON 6) 50/25G-EPON 7) 50/50G-EPON 8) Nx25G-EPON

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#23　　Type: TR　TF: TF4　Clause: 14.4.1.14　　　　Page: 303　　Line: 13　Commenter: Glen Kramer / Broadcom

Comment Status: Proposed　Response Status: Accept　　　Commenter Satisfaction: None　　　　　Category: -

On one of consensus calls we discussed the need to identify specific instances of UNIs and other ports.

The presentation and the notes from the call are shown in tf4_2108_kramer_2.pdf. The proposed changes to the draft are shown in tf4_2108_kramer_9.pdf　Summary of changes: 1) TypeInstance field is reported by aSrvPortCapability attribute for every service port instance 2) Expanded eSafe types to match the latest eDOCSIS 3) A new attribute aSrvPortDescription is added 4) TypeInstance field is added to aSrvPortType attribute

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#11　　Type: T　TF: TF4　Clause: 14.4.1.14　　　　Page: 304　　Line: 20　Commenter: Glen Kramer / Broadcom

Comment Status: Proposed　Response Status: Accept　　　Commenter Satisfaction: None　　　　　Category: -

TLV name does not match the associated attribute name

Change Table 14-70 title from "ONU Service Port Type TLV (0xDB/0x00-10)" to "ONU Service Port Capability TLV (0xDB/0x00-10)"

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#27　　Type: TR　TF: TF4　Clause: 14.4.1.18　　　　Page: 306　　Line: 1　Commenter: Ryan Tucker / Charter

Comment Status: Proposed　Response Status: Accept　　　Commenter Satisfaction: None　　　　　Category: Post-deadline

This comment addresses action item #23.

Make updates per tf4_2108_tucker_1.pdf. Summary: Update initial section text. Remove 1G/2G/10G Downstream line rates. Add 25G and 50G downstream line rates Remove 1G/2G Upstream line ratesAdd 25G and 50G upstream line rates.

-

#13	Type: T	TF: TF4	Clause: 14.4.2.16	Page: 318	Line: 17	Commenter: Glen Kramer / Broadcom

Comment Status: Proposed	Response Status: Accept	Commenter Satisfaction: None	Category: -

TLV name does not match the associated attribute name

Change Table 14-92 title from "LLID Information TLV (0xDB/0x01-20)" to "LLID Type TLV (0xDB/0x01-20)"

-

#15	Type: E	TF: TF4	Clause: 14.4.2.17	Page: 319	Line: 14	Commenter: Glen Kramer / Broadcom

Comment Status: Proposed	Response Status: Accept	Commenter Satisfaction: None	Category: -

Misspelled "srevice"

On page 319, line 14, change to "Service Port" On page 400, line 16, change to "service port"

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#19	Type: E	TF: TF4	Clause: 14.4.2.17	Page: 319	Line: 18	Commenter: Glen Kramer / Broadcom

Comment Status: Proposed	Response Status: Reject	Commenter Satisfaction: None	Category: -

In the draft, we usually capitalize object names (e.g., Queue object, UNI Port object, PON Port object). In all other contexts, these words are not capitalized (e.g., queue threshold, queue associated with a UNI port, PON port monitoring). Exceptions to this rule exist in the draft. Also, the capitalization distinction is not immediately apparent to readers - it simply appears as inconsistent capitalization.

Discuss whether we continue with the existing approach or simply use lower case notation throughout the draft. The word "object" is used to clarify when we talk about OAM context objects vs. any other uses. If we decide to continue the current capitalization rule, review all instances of "service ports" and capitalize when it refers to a context object. For example in "When the object is service port..."

No specific changes proposed at this time.

#14	Type: T	TF: TF4	Clause: 14.4.2.17	Page: 319	Line: 20	Commenter: Glen Kramer / Broadcom

Comment Status: Proposed	Response Status: Accept	Commenter Satisfaction: None	Category: -

TLV name does not match the associated attribute name

Change Table 14-93 title from "Service Port Information TLV (0xDB/0x01-21)" to "Service Port Type TLV (0xDB/0x01-21)"

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#12	Type: E	TF: TF4	Clause: 14.4.2.18	Page: 320	Line: 20	Commenter: Glen Kramer / Broadcom

Comment Status: Proposed	Response Status: Accept	Commenter Satisfaction: None	Category: -

Typo in Table 14-94, row 6, column "Notes" -- "unirirectional LLID"

S.B. "unidirectional LLID"

-

#7	Type: TR	TF: TF4	Clause: 14.4.11.1	Page: 389	Line: 1	Commenter: Marek Hajduczenia / Charter

Comment Status: Proposed	Response Status: Accept	Commenter Satisfaction: None	Category: -

This comment addresses Action Item #34, i.e., "What happens when aEeeStatus is set to enabled, but the UNI does not support the EEE function? Need to support querying the ONU capability separately in addition to enabling/disabling the feature."

As defined today, attribute aEeeStatus (0xDB/0x08-20) is defined as a R/W attribute, which allows the NMS (via OLT) to query the status or set the status of the EEE function. As such, it does read a bit in an odd manner, specifically when considering the existing values: enabled/disabled, which are more of a status (read operation) then the state change (write operation). There a number of changes that should be done to this attribute to improved its definition - see tf4_2108_hajduczenia_02.pdf for details, specifically: - convert the existing attribute into a R/O mechanism to read the status of the EEE function on the given UNI port, including the addition of a new return value of "not_supported" to cover the cases where EEE is not supported. - create a new action to set the PoE function on the given UNI port, with clear information that the attempt to enable the EEE on a port will cause the ONU to simply ignore the request - there is no need to raise any alarms. The OLT may as well read the status again and confirm whether the EEE was enabled or not, if the OLT chooses to perform an action without checking the capability of the given port to begin with.

-

#6	Type: TR	TF: TF4	Clause: 14.4.11.2	Page: 389	Line: 16	Commenter: Marek Hajduczenia / Charter

Comment Status: Proposed	Response Status: Accept	Commenter Satisfaction: None	Category: -

This comment addresses Action Item #35, i.e., "What happens when aPoeStatus is set to enabled, but the UNI does not support the PoE function? Need to support querying the ONU capability separately in addition to enabling/disabling the feature."

As defined today, attribute aPoeStatus (0xDB/0x08-21) is defined as a R/W attribute, which allows the NMS (via OLT) to query the status or set the status of the PoE function. As such, it does read a bit in an odd manner, specifically when considering the existing values: enabled/disabled, which are more of a status (read operation) then the state change (write operation). There a number of changes that should be done to this attribute to improved its definition - see tf4_2108_hajduczenia_01.pdf for details, specifically: - convert the existing attribute into a R/O mechanism to read the status of the PoE function on the given UNI port, including the addition of a new return value of "not_supported" to cover the cases where PoE is not supported. - create a new action to set the PoE function on the given UNI port, with clear information that the attempt to enable the PoE on a port will cause the ONU to simply ignore the request - there is no need to raise any alarms. The OLT may as well read the status again and confirm whether the PoE was enabled or not, if the OLT chooses to perform an action without checking the capability of the given port to begin with.

-

#5	Type: TR	TF: TF4	Clause: 14.4.11.3	Page: 390	Line: 1	Commenter: Marek Hajduczenia / Charter

Comment Status: Proposed	Response Status: Accept	Commenter Satisfaction: None	Category: -

This comment addresses Action Item #36, i.e., "Not clear what specific difference this attribute makes at the ONU. Can it be set in conflict with aPhyType (0x07/0x00-20)? The attribute purpose and function need to be clarified."

I examined the use case for the original DPoE amendment request that resulted in the aMediaType attribute. In certain implementations, a single service port is connected to an Ethernet switch, exposing two UNI ports: one implemented as an RJ45 interface and another one implemented as an SFP/SFP+ pluggable cage. Only one is expected to be active at any time. From the ONU perspective, it can see only a single service port, but an operator needs a way to *identify and control* which UNI port is being used: the RJ45 one or the pluggable one. The purpose of the aMediaType is to achieve precisely that operator required function, allowing the operator to identify and enable specific UNI port type on this service port. This achieves maximum implementation flexibility. On the other hand, the aPhyType attribute is derived from the IEEE Std 802.3, 30.3.2.1.2 attribute and it is a read-only attribute, which identifies only the UNI port PHY type connected to the given service port. There is no mechanism to switch between BASE-X and BASE-T (for example) to achieve the functionality addressed by the aMediaType attribute. As such, I recommend for the attribute *not* to be removed. There are a couple of improvements to the aMediaType attribute (14.4.11.3) that could be done, though: - Add the missing space in "This attribute represents themedia type for a media-selectable" (note "themedia") - Rename "sfp" to "pluggable" (since implementations can easily use sfp+ cage)

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| #24 | Type: T | TF: TF4 | Clause: 4 | Page: 46 | Line: 1 | Commenter: Glen Kramer / Broadcom |

Comment Status: Proposed Response Status: Accept   Commenter Satisfaction: None   Category: -

Clause 4 "Specification Features" used to be called "Specification Packages" in 1904.1. Without multiple packages in 1904.4, this clause seems to not have a clear purpose. However, some of the material in this clause is relevant to the definition of the scope of the standard. However, Clause 5 is called "Scope and Architecture". The only text relevant to scope in Clause 5 is subclause 5.2 "Coverage"

The standard's flow and clarifty would benefit from rearranging clauses 4 and 5 as follows: 1) Make Clause 4 describe only the architecture of the Nx25G-EPON and SIEPON.4 (presented in separate comment) 2) Make Clause 5 describe the scope of the 1904.4 specification. The scope definition relies on the material presented in Acrchitecture clause, so it needs to go after the architecture clause, but before we dive into specific technical details. The proposed Clause 5 text is shown in tf4_2108_kramer_6.pdf. Note that the Section 5.2 "Coverage" from the old "Scope and Architecture" clause became section 5.2 "Scope of the standard" in the new Clause 5 "Scope and coverage of the standard"

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| #26 | Type: T | TF: TF4 | Clause: 5 | Page: 48 | Line: 1 | Commenter: Glen Kramer / Broadcom |

Comment Status: Proposed Response Status: Accept   Commenter Satisfaction: None   Category: -

On one of the consensus calls we discussed the new Architecture clause, which contained new figures and new definitions. Several issues were discussed and resolved on the call (see tf4_2108_kramer_7.pdf): 1) MPCP sublayer needs to be extended to PLID and MLID MACs, since CCPDUs are MAC Control messages, biut are carried in MLID (see slides 9-10)   2) decision was made to show layering diagram with primitives and interfaces, similarly to what was done in 1904.2 (see slide 11)

The updated Clause 4 "Nx25G-EPON Architecture" is proposed in tf4_2108_kramer_3.pdf.   The file tf4_2108_kramer_11.pdf shows the differences vs. the version discussed on the call. Compared to D0.4, the entire clause should be considered a change (new material)

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| #21 | Type: T | TF: TF4 | Clause: 5.3.5.7 | Page: 57 | Line: 1 | Commenter: Glen Kramer / Broadcom |

Comment Status: Proposed Response Status: Accept   Commenter Satisfaction: None   Category: -

Section 5.3.5.7 defines a generic notation for extending primitive names with sublayer interface designation.This material belongs to the same clause where various primitive acronyms are introduced. Also figure title is wrong. The figure has nothing to do with the authentication.

Move the entire subclause 5.3.5.7 to become 3.5. Existing subclause 3.5 should become 3.6. Make the following changes: 1) Remove mention of C-ONU and C-OLT. They are not introduced at this point and are irrelevant to this material. 2) Modfy the figure to use correct sublayer names (per 802.3) 3) Correct figure title The new clause text with the above changes is shown in tf4_2108_kramer_4.pdf.

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