

P802.3ah Draft 1.0 Comments

**Cl 61**      **SC 61.0**                      **P 279**      **L 22**      # **589**  
 Barrass, Hugh                              Cisco Systems

**Comment Type**    **E**              **Comment Status**    **D**  
 Revision history should be the same as other clauses

**SuggestedRemedy**  
 Change to:<CR><CR>Draft 1.2 November 2002 Draft for IEEE P802.3ah Task Force review

**Proposed Response**              **Response Status**    **W**  
 PROPOSED ACCEPT.

**Cl 61**      **SC 61.1**                      **P 250**      **L 1**      # **99112**  
 Tzannes, Marcos                              Aware

**Comment Type**    **TR**              **Comment Status**    **D**  
 2-PASS-TL and 2-BASE-TL address two separate market segments. 2-BASE-TL provides operation without underlying POTS service and therefore addresses the business market. 2-PASS-TL provides operation with underlying POTS service and therefore addresses the residential market.

**SuggestedRemedy**  
 The long-reach copper PHY EFM standard should specify two port types:<CR>- Port type #1: 2-BASE-TL, long reach EFM for business customers (without underlying POTS) based on SHDSL.<CR>- Port type #2: 2-PASS-TL, long reach EFM for residential customers (with underlying POTS) based on ADSL2.

**Proposed Response**              **Response Status**    **W**  
 UNRESOLVED COMMENT AT THIS POINT.<CR><CR>PROPOSED REJECT.<CR>I recommend to make a change to the objectives of the Task Force.<CR><CR>Voting to reject:<CR>Yes: 20 <CR>No: 12

**Cl 61**      **SC 61.1**                      **P 280**      **L 10**      # **591**  
 Barrass, Hugh                              Cisco Systems

**Comment Type**    **E**              **Comment Status**    **D**  
 The sentence:<CR><CR>"These systems are intended to be used in the public as well as private networks, therefore must be compliant with all the appropriate regulatory, governmental and regional requirements."<CR><CR>May be interpreted as meaning that the systems must comply with all governmental and regional requirements simultaneously (which would be impossible). It is better to say that the systems are capable of compliance - since the appropriate profile for a given region will ensure compliance.

**SuggestedRemedy**  
 Change the sentence to:<CR><CR>"These systems are intended to be used in the public as well as private networks, therefore must be capable of compliance with all the appropriate regulatory, governmental and regional requirements."

**Proposed Response**              **Response Status**    **W**  
 PROPOSED ACCEPT.

**Cl 61**      **SC 61.1**                      **P 280**      **L 4**      # **590**  
 Barrass, Hugh                              Cisco Systems

**Comment Type**    **T**              **Comment Status**    **D**  
 The use of "10PASS-TS-DMT/10PASS-TS-QAM" is redundant (unless it implies 2 separate PHYs). Also the change was made without any corresponding comment.

**SuggestedRemedy**  
 Change back to<CR><CR>"10PASS-TS"

**Proposed Response**              **Response Status**    **W**  
 PROPOSED ACCEPT.

**Cl 61**      **SC 61.1.5.4**                      **P 283**      **L 9**      # **592**  
 Barrass, Hugh                              Cisco Systems

**Comment Type**    **T**              **Comment Status**    **D**  
 Based on comment #958 for draft 1.1 (from Tom Mathey), the PMI aggregation function is not well explained. In particular there is a need for an explanation of how multiple Mill instances are handled.

**SuggestedRemedy**  
 Substitute subclause 61.1.5.4 with the contents of file<CR><CR>barrass\_cmts\_1\_0103.pdf

**Proposed Response**              **Response Status**    **W**  
 PROPOSED ACCEPT.

**Cl 61**      **SC 61.2.1.3.2**                      **P 282**      **L 3**      # **493**  
 Matt, Squire                              Hatteras Networks

**Comment Type**    **E**              **Comment Status**    **D**  
 Rename tx\_buffer\_empty as it doesn't really indicate an empty buffer.

**SuggestedRemedy**

**Proposed Response**              **Response Status**    **W**  
 PROPOSED REJECT. Need specific remedy

**Cl 61**      **SC 61.2.2.1**                      **P 291**      **L 5**      # **600**  
 Barrass, Hugh                              Cisco Systems

**Comment Type**    **E**              **Comment Status**    **D**  
 Figure has no figure number or cross reference.

**SuggestedRemedy**  
 Make figure comply with IEEE document standards.

**Proposed Response**              **Response Status**    **W**  
 PROPOSED ACCEPT.

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Cl 61 SC 61.2.2.3 P 289 L 49 # 495  
Matt, Squire Hatteras Networks  
Comment Type E Comment Status D  
Eliminate the notes in the algorithm.  
SuggestedRemedy  
Can either delete the notes and do nothing else, or specify the types of errors. b1 would be FragTooSmall, b2 would be LostFrag, c2ii would be LostFrag.  
Proposed Response Response Status W  
PROPOSED ACCEPT.

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Cl 61 SC 61.2.2.3 P 290 L 37 # 494  
Matt, Squire Hatteras Networks  
Comment Type E Comment Status D  
One line 15 we say 64,000. On line 37 we say 64K. Suggest we spell it out in both cases.  
SuggestedRemedy  
Change 64K to 64,000.  
Proposed Response Response Status W  
PROPOSED ACCEPT.

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Cl 61 SC 61.2.2.3 P 291 L 37 # 593  
Barrass, Hugh Cisco Systems  
Comment Type T Comment Status D  
The error handling described in 61.2.2.3 is redundant and (in some aspects) contradicts that described in 61.2.2.5. This subclause can be slimmed down by using references to the error handling subclause.  
SuggestedRemedy  
Replace 61.2.2.3 with the contents of the file <CR><CR>barrass\_cmts\_2\_0103.pdf  
Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE. Discuss at STF

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Cl 61 SC 61.2.2.4 P 292 L 39 # 595  
Barrass, Hugh Cisco Systems  
Comment Type E Comment Status D  
Not clear what is meant by 32B  
SuggestedRemedy  
Change "32B" to "32 Bytes (minFragmentSize)"  
Proposed Response Response Status W  
PROPOSED ACCEPT.

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Cl 61 SC 61.2.2.4 P 292 L 39 # 597  
Barrass, Hugh Cisco Systems  
Comment Type T Comment Status D  
Only min fragment is defined, max fragment must be added.  
SuggestedRemedy  
Add item 3 in list:<CR><CR>Fragments cannot be more than 128 Bytes (maxFragmentSize)  
Proposed Response Response Status W  
PROPOSED ACCEPT.

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Cl 61 SC 61.2.2.5 P 291 L 21 # 496  
Matt, Squire Hatteras Networks  
Comment Type T Comment Status D  
Its not clear why in one case (line 21) we flush the buffers but don't forward 'garbage' to the MAC, but in the other (line 24) we do forward garbage. I think in either case we would want to be consistent.  
SuggestedRemedy  
Forward the garbage to the MAC in both cases.  
Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE.

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Cl 61 SC 61.2.2.5 P 291 L 8 # 497  
Matt, Squire Hatteras Networks  
Comment Type T Comment Status D  
We use the terms 'greater' and 'less' than here liberally. But I don't think its clear how to handle sequence number wrapping.  
SuggestedRemedy  
Use split horizon to have two spaces where you only consider things in the nextSequenceNumber thru nextSequenceNumber+2^11 (modular arithmetic). Any sequence number outside that range results in the BadFragmentReceived error. For example, if expected=1 and next=2^12-1, thats a problem, but would be missed by the defined checks.  
Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE. Needs discussion at STF

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Cl 61 SC 61.2.2.5 P 292 L 52 # 598  
 Barrass, Hugh Cisco Systems  
 Comment Type E Comment Status D  
 remove TBDs  
 SuggestedRemedy  
 for both min and max fragment - replace "TBD" with "in 61.2.2.4"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 61 SC 61.2.2.5 P 293 L 8 # 594  
 Barrass, Hugh Cisco Systems  
 Comment Type T Comment Status D  
 Error handling instructions need completion.  
 SuggestedRemedy  
 Change paragraph to:<CR><CR>If the nextFragmentSequenceNumber is less than the expectedFragmentSequenceNumber (or greater than expectedFragmentSequenceNumber + 211) then assert PAF\_BadFragmentReceived. Discard the fragment, do not increment expectedFragmentSequenceNumber.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.

Cl 61 SC 61.2.2.6.1 P 293 L 37 # 596  
 Barrass, Hugh Cisco Systems  
 Comment Type E Comment Status D  
 Referenced subclause for gamma interface is known.  
 SuggestedRemedy  
 Replace subclause with:<CR><CR>The PAF interfaces with the PHYs across the gamma-interface. The gamma-interface specification is defined in 61.2.3.1.1. This subclause specifies the data, synchronization and control signals that are transmitted between the TPS-TC and the PAF.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 61 SC 61.2.2.6.3 P 294 L 17 # 599  
 Barrass, Hugh Cisco Systems  
 Comment Type E Comment Status D  
 The document must not use "must"  
 SuggestedRemedy  
 Replace "must" with "shall"  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 61 SC 61.2.2.7 P 293 L 28 # 498  
 Matt, Squire Hatteras Networks  
 Comment Type TR Comment Status D  
 Yank this section. Its wrong.  
 SuggestedRemedy  
 Proposed Response Response Status W  
 PROPOSED REJECT. Need more detail

Cl 61 SC 61.2.2.7 P 295 L 29 # 601  
 Barrass, Hugh Cisco Systems  
 Comment Type T Comment Status D  
 Subclause contradicts 61.2.2.1 and references a non-existent figure  
 SuggestedRemedy  
 Replace subclause with:<CR><CR>Fragment frame structure is defined in 62.2..2.1.  
 Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 61 SC 61.2.2.8 P 296 L 1 # 602  
 Barrass, Hugh Cisco Systems  
 Comment Type T Comment Status D  
 Entire subclause contradicts definitions in 61.2.2.1 through 61.2.2.5  
 SuggestedRemedy  
 Delete entire subclause.<CR><CR>(it could be replaced with a newer, valid, version if required).  
 Proposed Response Response Status W  
 PROPOSED ACCEPT IN PRINCIPLE.

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Cl 61 SC 61.2.3 P 300 L 4 # 603  
Barrass, Hugh Cisco Systems

Comment Type E Comment Status D

Subclause editor's note appears to be here for good. The information should be included in the preamble and the note ditched.

SuggestedRemedy

Add a sentence to the opening paragraph:<CR><CR>"The term δTPS-TCö is borrowed from the definition in ITU-T g.993. In this context the term δTC = Transmission Convergence" is sufficient as no other types of TC are defined in this document (e.g. PMS-TC). Hence, in the interest of brevity, this subclause will use "TC" within the text and diagrams."<CR><CR>Delete the first editor's note.

Proposed Response Response Status W  
PROPOSED ACCEPT.

Cl 61 SC 61.2.3.1.1 P 301 L 15 # 604  
Barrass, Hugh Cisco Systems

Comment Type E Comment Status D

The words "Additional paragraphs" are redundant

SuggestedRemedy

Delete "Additional paragraphs"

Proposed Response Response Status W  
PROPOSED ACCEPT.

Cl 61 SC 61.2.3.1.2 P 302 L 11 # 607  
Barrass, Hugh Cisco Systems

Comment Type T Comment Status D

Previous comment #977 (from Vladimir Oksman) has not been implemented correctly.<CR><CR>The definition of the alpha/beta interface should be in this section - not separately in Clause 62 and Clause 63.

SuggestedRemedy

Replace entire subclause 61.2.3.1.2 with the contents of subclause 62.1.4.1 (and all inferior subclauses) plus the following paragraph:<CR><CR>"Refer to Clauses 62 and 63 for definitions of the G.994 messaging, Operation Channel (OC) and Indicator Bits (IB) mechanisms for accessing remote parameters."<CR><CR>Replace subclause 62.1.4.1 (and all inferior subclauses) with:<CR><CR>"A complete definition of the alpha/beta interface is contained in 61.2.3.1.2"

Proposed Response Response Status W  
PROPOSED ACCEPT.

Cl 61 SC 61.2.3.1.2 P 302 L 29 # 605  
Barrass, Hugh Cisco Systems

Comment Type TR Comment Status D

It is entirely unacceptable that an error is detected in one sublayer and not propagated to further sublayers.<CR><CR>If the FEC detects, but cannot correct an error (or errors) in a frame then an error signal must be passed upwards with that frame. Detected errors must not be "swept under the carpet."

SuggestedRemedy

Comment #653 referenced in the footnote must be reconsidered (and accepted).

Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE.

Cl 61 SC 61.2.8 P 294 L 1 # 499  
Matt, Squire Hatteras Networks

Comment Type TR Comment Status D

The state diagram section, variables and pictures, is out of date.

SuggestedRemedy

Proposed Response Response Status W  
PROPOSED REJECT. Need specific remedy

Cl 62 SC 62.1.4.1.2 P 322 L 54 # 99113  
Barrass, Hugh Cisco

Comment Type T Comment Status D

Receive error signal must be passed upwards across the alpha/beta interface.

SuggestedRemedy

Add line:<CR><CR>f) Receive Forward Error Correction detected but not corrected error, asserted for the whole FEC frame in which the error is detected (PMA\_FEC\_uncorrected\_error)<CR><CR>Additionally, the signal must be added to the table (Table 62.1)

Proposed Response Response Status W  
PROPOSED ACCEPT IN PRINCIPLE. UNRESOLVED COMMENT. Reference comment 653.

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Cl 62 SC 62.3.2.2.9 P 374 L 12 # 608  
 Barrass, Hugh Cisco Systems

Comment Type T Comment Status D

Comment #270 has not been implemented correctly. Options for interleaver block size should be removed.

SuggestedRemedy

Delete the sentence<CR><CR>"The interleaver block length I shall be normally equal to S/8. Optionally, it may be equal to S/4 or S/2."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Cl 62 SC 62.4.4.2.2 P 376 L # 586  
 Simon, Scott Cisco Systems, Inc

Comment Type T Comment Status D

The reference contains a description of an optional feature, pilot tones, in 8.2.3.1. EFM should reduce the number of options in the PHY by making modes mandatory or removing them.<CR><CR>If EFM mandates pilot tones, the specific pilot tone should be specified OR EFM VTU-Os shall support a pilot tone on any downstream tone.

SuggestedRemedy

Add text to 62.4.4.2.2:<CR><CR>8.2.3.1: Support for pilot tones is mandatory. 10PASS-T-LT PHYs shall support the transmission of a pilot tone on any downstream tone.

Proposed Response Response Status W

PROPOSED REJECT. Pilot tone selection is part of DMT specs

Cl 62 SC 62.4.4.2.2 P 376 L # 587  
 Simon, Scott Cisco Systems, Inc

Comment Type T Comment Status D

The reference contains details about the cyclic extension function of MCM-VDSL (8.2.2). The total cyclic extension equation must choose values such that <CR><CR>(Lcp + Lcs - Beta) = m x 2^(n+1)<CR><CR>the reference then states, that minimally, the equation should meet 40\*2^n, and that other values are allowed as options.<CR><CR>EFM should reduce the number of options in the PHY by making modes mandatory or removing them.

SuggestedRemedy

Add text to 62.4.4.2.2:<CR><CR>8.2.2: Values to constrain the total cyclic extension other than 40\*2^n are not supported by 10PASS-T

Proposed Response Response Status W

PROPOSED REJECT. Cyclic extension function is part of MCM specs

Cl 62 SC 62.4.4.2.2 P 376 L # 585  
 Simon, Scott Cisco Systems, Inc

Comment Type T Comment Status D

The reference contains an optional synchronous transmission mode (8.2.3.4).<CR><CR>Synchronous mode would be difficult to implement across a binder of cable (particularly in an unbundled environment). None of the simulation results that demonstrate MCM-VDSL's ability to satisfy the objectives rely on synchronous mode.<CR><CR>Making synchronous mode an option would require a new port type to differentiate between synchronous-capable and synchronous-incapable PHYs<CR><CR>EFM should reduce the number of options in the PHY by making modes mandatory or removing them.

SuggestedRemedy

Add text to 62.4.4.2.2:<CR><CR>8.2.3.4: Synchronous mode is not supported by 10PASS-T

Proposed Response Response Status W

PROPOSED REJECT. Need discussion at STF

Cl 62 SC 62.4.4.2.2 P 376 L 20 # 584  
 Simon, Scott Cisco Systems, Inc

Comment Type T Comment Status D

The reference portion related to the Constellation encoder (MCM-VDSL 8.2.5) allows different implementations to vary the maximum number of encoded bits per sub-carrier. Varying implementations will reduce interoperability and interchangability.<CR><CR>EFM should reduce the number of options in the PHY by picking one value.

SuggestedRemedy

Add text to 62.4.4.2.2:<CR><CR>8.2.5: For 10PASS-T, Bmax\_d shall be 15, Bmax\_u shall be 15.

Proposed Response Response Status W

PROPOSED REJECT. Constellation encoder function is part of MCM specs

Cl 62 SC 62.4.4.2.2 P 377 L 8 # 582  
 Simon, Scott Cisco Systems, Inc

Comment Type TR Comment Status D

There is no mention of the exact number of sub-carriers that the PHY must support. If this number is not specified, different implementations may not be interoperable or interchangeable.

SuggestedRemedy

Add the text:<CR><CR>"10PASS-T shall support modulation on Nsc = 4096 sub-carriers (n = 4). The actual number of sub-carriers carrying data on a link may be less than Nsc"

Proposed Response Response Status W

PROPOSED REJECT. The number of sub-carrier are well defined in the MCM spec. They work fine. No need to change the specs

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Cl 62 SC 62.4.4.2.2 P 379 L 23 # 581  
Simon, Scott Cisco Systems, Inc

Comment Type E Comment Status D

References to the rest of MCM-VDSL 8.2.x are left out. For example, 8.2.3 is not mentioned.

SuggestedRemedy

Add a line:<CR><CR>"All other subclauses in MCM-VDSL are referenced stet."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Need specific remedy

Cl 62 SC 62.4.4.4.7 P 380 L 16 # 588  
Simon, Scott Cisco Systems, Inc

Comment Type TR Comment Status D

The definition of bit swapping in the reference (MCM-VDSL 10.7) specifies the protocol, but not the algorithm for bit swapping. If the algorithm is not specified, varying implementations may converge to different rates on the same loop environment.

<CR><CR>Furthermore, the frequency at which the algorithm is applied should also be standardized so that all PHYs update to line conditions at the same rate.<CR><CR>EFM PHYs should be interoperable and interchangeable. EFM should specify a bit swapping algorithm and a frequency at which the algorithm is applied.

SuggestedRemedy

Add text to 62.4.4.4.7:<CR><CR>10PASS-T shall use Campello's Solution to Margin-Adaptive Loading (as described in Understanding DSL Technology by T. Starr, J. Cioffi, and P. Silverman) as the algorithm to determine when and how to initiate a bitswapping operation.<CR><CR>Editor's Note: The details of applying the algorithm to the specified bit rate and SNR margin are TBD<CR><CR>The bit loading algorithm shall be applied every 10 seconds on an operational link.

Proposed Response Response Status W

PROPOSED REJECT. Part of MCM specs.

Cl 62 SC 62.4.4.7 P 386 L 38 # 579  
Simon, Scott Cisco Systems, Inc

Comment Type T Comment Status D

The description of FMT implementations is unnecessary for 802.3ah. One may choose to design their PHY in any number of infinite ways, there is no need for us to reference a specific implementation.

SuggestedRemedy

Remove 62.4.4.7 and edit 62.4.4 to remove the reference to MCM-VDSL Annex B

Proposed Response Response Status W

PROPOSED REJECT. Part of MCM specs that needs to be there

Cl 62 SC 62.4.4.8 P 386 L 43 # 580  
Simon, Scott Cisco Systems, Inc

Comment Type TR Comment Status D

Since 4.3125KHz tone spacing is mandatory, the use of 8.625KHz tone spacing is redundant.

SuggestedRemedy

Remove 62.4.4.8. Update 62.4.4 to remove the reference to MCM-VDSL Annex C.

Proposed Response Response Status W

PROPOSED REJECT. The use of 4.3125 and 8.625 KHz are integral part of MCM specs. Your similar comment was discussed at length in the last meeting of IEEE and was rejected. The tone spacing option is a must for DMT based modulation similar to constellation size for SCM.

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Cl **62A** SC **62A.3** P **377** L # **99114**  
 Simon, Scott Cisco Systems, Inc.

Comment Type **TR** Comment Status **D**

The text of the subclause refers to user-defined bandplan and PSD Mask profiles. No constraints are placed on the definition of user-defined bandplans.

*SuggestedRemedy*

Using appropriate editorial license, create subclause 62A.3.3.4.1 "User-defined bandplan" with the following text:<CR><CR>10PASS-T PHYs shall support user-defined bandplans within the limits described below. User defined bandplans are specified by choosing a set of frequency bands, their transmission direction and their boundaries.<CR><CR>Up to 4 frequency bands may be selected. Frequency band 0 may be selected to transmit in either the upstream or downstream direction. Frequency bands 1 and 3 transmit downstream. Frequency bands 2 and 4 transmit upstream.<CR><CR>The start and end frequencies of each band may be specified in integer multiples (n) of 4KHz, where n >= 6 and n <= 3000. The minimum separation between bands is TBD. If a PHY is set with a profile that violates a minimum band separation, then TBD (the PHY ignores the setting, or refuses to link, etc. If band 0 is selected as a downstream band, the band 0 end and band 1 start frequencies may be both set to n = 35, indicating that band 0 and band 1 will operate as a single contiguous downstream band.<CR><CR>-----<CR><CR>Using appropriate editorial license, create subclause 62A.3.3.4.2 "User-defined PSD mask" with the following text:<CR><CR>For each selected frequency band, a user-defined PSD mask may also be specified by selecting a maximum transmit PSD for that band. 10PASS-T PHYs shall support setting the maximum transmit PSD of each band as follows in 0.5dBm/Hz increments. Band 0: TBD (ed note. this max PSD should match the same number from ADSL). Band 1: TBD, Band 2: TBD, Band 3: TBD, Band 4: TBD.<CR><CR>-----<CR><CR>Also, include a table to summarize each of the parameters in a user defined profile and its limits. Example (and only and example!):<CR><CR>Band 0 Activate: 1,0<CR>Band 0 Start: 4-34<CR>Band 0 End: 5-35<CR>Band 0 Max PSD: -40dBm/Hz<CR>Band 1 Activate: 1,0<CR>Band 1 Start: 35-3000<CR>Band 1 End: 36-3000<CR>Band 1 Max PSD: -55dBm/Hz<CR>etc. etc. etc.<CR><CR>-----<CR><CR>Also, add the following note to the bottom of 62A.3.1<CR><CR>Ed. Note: Conformance testing for 10PASS-T phys should be based on cycling each parameter above and observing the output of the PHY on a spectrum analyzer. The actual procedure and limits for doing so should be described in A62B.

Proposed Response Response Status **W**  
 PROPOSED REJECT. Needs discussion at STF

Cl **62A** SC **62A.3.3.5** P **406** L **53** # **583**  
 Simon, Scott Cisco Systems, Inc

Comment Type **E** Comment Status **D**

The text "Create another table yyy defines TBD number of profiles and for each profile specify the values for each parameter in Table xxx as TBD." was intended to be an instruction to the editor, not text for the draft.

*SuggestedRemedy*

1) Remove the text "Create another table yyy defines TBD number of profiles and for each profile specify the values for each parameter in Table xxx as TBD."<CR><CR>2) Create another table yyy defines TBD number of profiles and for each profile specify the values for each parameter in Table xxx as TBD.

Proposed Response Response Status **W**  
 PROPOSED ACCEPT IN PRINCIPLE. Needs discussion at STF