

Received Comments

NG-EPON IC 1st Task Force review comments

CI 00 SC P L # 1  
 NoName  
 Comment Type E Comment Status D  
 SuggestedRemedy  
 Proposed Response Response Status O

CI 00 SC 0 P 21 L 20 # 170  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 what is "full tunability" vs. just tunability?  
 SuggestedRemedy  
 strike "full"  
 Proposed Response Response Status O

CI 00 SC 0 P 23 L 22 # 171  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 Imprecise language - "In this case, the taps nearer the OLT diverts a smaller fraction of power than the taps farther away, resulting in approximately equal portion of power reaching every ONU."  
 not every ONU get an equal "portion of power", instead each ONU receives at approximately the same power level.  
 SuggestedRemedy  
 Change to "In this case, a tap nearer the OLT diverts a smaller fraction of power than a tap farther away, resulting in each ONU receiving approximately equal optical input power from the OLT."  
 Proposed Response Response Status O

CI 00 SC 0 P 23 L 28 # 172  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 clean up language - "An added advantage of the ring topology compared to the bus or the tree is that the OLT receives its own transmission signal can detect the ring fiber failure almost instantaneously, instead of relying on ONU protocol timeout."  
 SuggestedRemedy  
 "An added advantage of the ring topology compared to the bus or the tree is that the OLT receives its own transmission signal. This allows the OLT to detect a failure in the fiber ring almost instantaneously rather than waiting for a protocol timeout while communicating with the ONU."

Proposed Response Response Status O

CI 00 SC 0 P 23 L 33 # 173  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 "The advantages of a wavelength routed ODN becomes obvious when one compares the optical power loss of a power splitter to that of a wavelength mux/demux."  
 Is it really obvious? If so, then why do we need to explain it?  
 SuggestedRemedy  
 Change to  
 "A wavelength routed ODN has clear advantages over a power-split ODN when compared on the basis of power-loss budgets."  
 Proposed Response Response Status O

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CI 00 SC 0 P 25 L 16 # 174  
NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

grammar  
"Expecting broadband applications to be deeply integrated into day-to-day life, mobile Internet 16 access to be universally popular by 2020, under the same strategy, China plans for take rates of 17 fixed broadband access and mobile 3G/LTE broadband access to reach 70% and 85%, 18 respectively. The fraction of villages provided with broadband services is expected to reach 98%."

SuggestedRemedy  
change to

"China expects broadband applications to be deeply integrated into day-to-day life and mobile Internet access to be universally available and accepted by 2020. Under the same strategy, China plans for 98% of villages to have access to broadband services with 70%-85% take-rates for fixed and mobile broadband access."

Proposed Response Response Status O

CI 00 SC 0 P 25 L 25 # 176  
NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

Speaking of the past as if it is the future.

SuggestedRemedy

Change to "At the end of the 1st half of 2014, the median bandwidth usage per subscriber in North America was ..."

Proposed Response Response Status O

CI 00 SC 0 P 25 L 25 # 175  
NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

"H1 2014" - abbreviations for calendar quarters need to be consistent - preference is to spell these out

SuggestedRemedy

Change "H1 2014" to "the first half of 2014"

Proposed Response Response Status O

CI 00 SC 0 P 25 L 29 # 177  
NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

unclear grammar "Note that there is a steady 29 bandwidth consumption growth of more than 30% per year,

SuggestedRemedy

change to "Note that there is a steady 30% per-year growth of bandwidth being consumed..."

Proposed Response Response Status O

CI 00 SC 0 P 25 L 31 # 178  
NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

unnecessary phrases  
"What is even more interesting is the fact that the large growth in the mean and median bandwidth 32 consumption in fixed access networks (when compared with 2011 numbers as published by the"

SuggestedRemedy

change to "What is even more interesting is that the growth in the mean and median bandwidth consumption in fixed access networks (when compared with 2011 numbers as published by the"

Proposed Response Response Status O

CI 00 SC 0 P 26 L 3 # 179  
NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

unnecessary abbreviation of NA

SuggestedRemedy

spell out North America

Proposed Response Response Status O

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NG-EPON IC 1st Task Force review comments

CI 00 SC 0 P 27 L 21 # 180  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 to only one consumer? ""to an average consumer""

SuggestedRemedy  
 change to ""the average consumer""

Proposed Response Response Status O

CI 00 SC 0 P 27 L 24 # 181  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 confusing language ""The recent emergence of proxy 23 caches allowing Netflix streaming to areas without the official support for Netflix drove the large 24 (5%) increase in Netflix traffic in Latin America, which was previously observed at <1% range as 25 of the end of the H1 2013, as reported by the same source.""

SuggestedRemedy  
 change to ""The recent emergence of proxy caches allows Netflix to be consumed in regions without official Netflix support. This development has supported a 5% growth of Netflix streaming in Latin America where the rate observed prior to the first half of 2013 was less than 1%. ""

Proposed Response Response Status O

CI 00 SC 0 P 29 L 12 # 182  
 NOLL, KEVIN TIME WARNER CABL

Comment Type T Comment Status X  
 ""The probability of multiple subscribers executing simultaneous speed tests is negligible""

How does the author come to the conclusion?

SuggestedRemedy  
 Provide support for this statement.

Proposed Response Response Status O

CI 00 SC 0 P 29 L 13 # 183  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 ""For example, in 2024, it is expected that under the heavy demand scenario and with 32 13 subscribers, consume approximately 1 Gb/s of downstream peak hour traffic.""

What is meant?

SuggestedRemedy  
 Rewrite

Proposed Response Response Status O

CI 00 SC 0 P 30 L 20 # 184  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 Confusing grammar in footnote 1

SuggestedRemedy  
 Rewrite to ""If a worst-case view is preferred, then assume a 10G-EPON with 32 subscribers each consuming 4 simultaneous streams of UHD-2 ""8K"" video at 50Mb/s each. The operator would still have enough headroom to support bursts, and therefore a service offering, of more than 2Gbp/s.""

Proposed Response Response Status O

CI 00 SC 0 P 32 L 0 # 185  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 figure didnt render in the PDF

SuggestedRemedy  
 fix

Proposed Response Response Status O

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CI 00 SC 0 P 32 L 16 # 187  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 ""with an example of 16 data rates for.""  
 for what?  
 SuggestedRemedy  
 Proposed Response Response Status O

CI 00 SC 0 P 32 L 16 # 186  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 mixed use of ""business"" user vs. ""commercial"" user  
 SuggestedRemedy  
 pick one and stay uniform  
 Proposed Response Response Status O

CI 00 SC 0 P 34 L 11 # 188  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type T Comment Status X  
 ""The current projections, shown in Figure 15, in terms of bandwidth demand per household (in 11 residential applications) calls for approximately 300 Mb/s around end of year 2016""  
 Figure 15 does not support this statement, nor does it describe bandwidth demand.  
 SuggestedRemedy  
 reword or remove this entire paragraph  
 Proposed Response Response Status O

CI 00 SC 0 P 37 L 8 # 189  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 ""Service providers currently primarily offer""  
 SuggestedRemedy  
 change to ""Service providers primarily offer""  
 Proposed Response Response Status O

CI 00 SC 0 P 37 L 9 # 190  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 ""Projecting based from current users bandwidth demand""  
 SuggestedRemedy  
 Change to ""Projecting from current users bandwidth demand""  
 Proposed Response Response Status O

CI 00 SC 0 P 59 L 13 # 129  
 Remein, Duane Huawei Technologies  
 Comment Type ER Comment Status X  
 Space is needed between the figure and the table to cleanly delineate the figure title from the table.  
 SuggestedRemedy  
 Review the report and provide additional white space wherever this condition arises.  
 Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

CI 01 SC P 13 L 11 # 162  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 Grammar

1G-EPON will soon become a de-facto legacy technology, providing \*less-bandwidth intensive\* services

SuggestedRemedy  
 1G-EPON will soon become a de-facto legacy technology, providing \*lower-bandwidth\* services

Proposed Response Response Status O

CI 01 SC P 13 L 15 # 163  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 Grammar

The NG-EPON would operate at \*the\* aggregate data rates above 10Gb/s

SuggestedRemedy  
 The NG-EPON would operate at aggregate data rates above 10Gb/s

Proposed Response Response Status O

CI 01 SC P 13 L 16 # 1  
 Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D

Higher capacity is clearly a requirement for NG-EPON, but will likely lead to larger physical footprint compared to 1G and 10G EPON. Also, even with more sophisticated power savings strategies, power footprint may very possibly be larger compared to 1G and 10G EPON.

SuggestedRemedy  
 Suggest physical and power footprints should be \*minimized\* (i.e. not necessarily reduced from 1G and 10G EPON).

Proposed Response Response Status O

CI 01 SC P 13 L 19 # 164  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
 Confusing sentence

The largest application areas for EPON include residential and commercial subscriber access (for voice, video and data), and mobile backhaul, offered in triple- and quad-play packages.

SuggestedRemedy  
 The dominant applications for EPON include triple-play packages for Internet access, voice, and video offered to residential and commercial subscribers, private network access for commercial subscribers, and mobile backhaul for carriers.

Proposed Response Response Status O

CI 01 SC P 13 L 8 # 161  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status D  
 Grammar

""The demand for high-spded data services has driven the market \*to\* residential service offerings reaching""

SuggestedRemedy  
 ""The demand for high-spded data services has driven the market \*for\* residential service offerings reaching""

Proposed Response Response Status O

CI 01 SC 1 P 13 L 11 # 58  
 Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X

""1G-EPON will soon become a de-facto legacy technology, providing less-bandwidth intensive services""  
 ""will"" needs to be avoided, if possible. Also, a platform does not provide services, but delivers services.

SuggestedRemedy  
 Chaneg to read: ""1G-EPON is expected to soon become a de-facto legacy technology, delivering less-bandwidth intensive services to end customers.""

Proposed Response Response Status O

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NG-EPON IC 1st Task Force review comments

Cl 01 SC 1 P 13 L 14 # 59  
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X

""The NG-EPON would operate at the aggregate data rates above 10 Gb/s to provide higher per-subscriber data rates and at the same time reduce the physical and power footprint of the access network""

I believe it is fair to say that these are expectations we all agree to

SuggestedRemedy

Change the wording to read: ""The NG-EPON is expected to operate at the aggregate data rates (per OLT port) above 10 Gb/s to provide higher per-subscriber data rates and at the same time reduce the physical and power footprint of the PON-based optical access network""

Proposed Response Response Status O

Cl 02 SC P 14 L 2 # 7  
Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D

FTTB defined here as ""Fiber To The Business"". Then, in section 3 (p. 16) it is defined as ""fiber-to-the-building, -business, or -basement"". This is ambiguous: ""building"" implies a residential MDU, which is a very different application from fiber-to-the-business. Later in the document, FTTB appears to be used with B=building, not B=business. FTTB = fiber-to-the-building is the usual use in the lexicon.

SuggestedRemedy

Suggest to define here FTTB = ""Fiber To The Building"". And make change in section 3. (Fiber-to-the business I don't believe has an accepted acronym, it is usually just spelled out).

Proposed Response Response Status O

Cl 03 SC P 16 L 2 # 2  
Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D

re: ""There are a number of WDM-PON-based access architectures""; actually this section is about all PON architectures.

SuggestedRemedy

change ""WDM-PON"" to ""PON""

Proposed Response Response Status O

Cl 03 SC P 16 L 30 # 4  
Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D

Could be semantics, but I don't consider ""type of optical modulation"" to determine optical architecture.

SuggestedRemedy

propose to delete ""type of optical modulation.""

Proposed Response Response Status O

Cl 03 SC P 16 L 33 # 5  
Harstead, Ed Alcatel-Lucent

Comment Type T Comment Status D

OFDM is just a particular modulation that can be used for FDM. Propose to use the more generic term.

SuggestedRemedy

change ""OFDM"" to ""FDM"".

Proposed Response Response Status O

Cl 03 SC P 16 L 5 # 3  
Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D

""local office"" is an unexpected and ambiguous term for FTTB. And it's redundant for FTTH and FTTB to be defined here when they are defined again (and more accurately) in the list below.

SuggestedRemedy

Suggest to delete ""located in the proximity of the end-subscriber premises (in case of FTTH) 4 or the local office (FTTB)""

Proposed Response Response Status O

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NG-EPON IC 1st Task Force review comments

CI 03 SC P 16 L 7 # 165  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

The descriptions of each architecture are very similar to those in other sources.

For example [http://en.wikipedia.org/wiki/Fiber\\_to\\_the\\_x](http://en.wikipedia.org/wiki/Fiber_to_the_x)

SuggestedRemedy

Include appropriate citations.

Proposed Response Response Status O

CI 03 SC P 17 L 2 # 167  
 NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X

reference to Table 1 should be to Figure 1

SuggestedRemedy

fix reference

Proposed Response Response Status O

CI 03 SC P 18 L 1 # 6  
 Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D

For completeness, need a subsection on TDM PON.

SuggestedRemedy

There's already a section on TDM PON architecture in section 6.2. As there is for WDM-PON and hybrid PON. Not clear what exactly to propose for TDM PON as I don't understand the partitioning between sections 3 and 6. Further, it seems that the discussion of TDMA MAC should be in the TDM PON section, and the MSD-WDM-PON and other sections could then refer to it.

Proposed Response Response Status O

CI 03 SC 3 P 16 L 2 # 61  
 Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

Multiple acronyms that are used in the document and not included in the list right now.

SuggestedRemedy

Update the list of acronyms used in the document with all acronyms present in the text, e.g., L2 is not in the list right now. Scrub the whole document. During the scrub, confirm that the given acronym is used more than 1 time. All acronyms with a single use should be removed from the document and full name of the term should be used.

Proposed Response Response Status O

CI 03 SC 3 P 16 L 2 # 60  
 Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

Orphan text with no subheading

SuggestedRemedy

Insert subclause 3.1 with the heading "'Taxonomy of PON access architectures'"

Proposed Response Response Status O

CI 03 SC 3 P 16 L 32 # 62  
 Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

Acronyms need to be expanded on the first use, e.g., PHY, OFDM, CDM. etc.

SuggestedRemedy

Scrub teh document. Make sure that the acronyms are expanded on the first use.

Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

CI 03 SC 3 P17 L0 # 66  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X  
 Table 1 needs some editorial work. Last column should be made wider, and columns 1, 2, 3 can be made more narrow to compensate for wider column 4. Alternatively, multiple entries in column 4 should be done one per line

SuggestedRemedy  
 Pick one option, and implement

Proposed Response Response Status O

CI 03 SC 3 P17 L1 # 63  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X  
 Captions for tables under the table are not very readable.

SuggestedRemedy  
 Move all captions for tables to location over the table and not under it.

Proposed Response Response Status O

CI 03 SC 3 P17 L2 # 64  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X  
 ""Table 1 illustrates different types of PON architectures"" -= I think ""Figure 1"" is meant here

SuggestedRemedy  
 Change to ""Figure 1 illustrates different types of PON architectures""

Proposed Response Response Status O

CI 03 SC 3 P17 L3 # 65  
 Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X  
 ""Note that each line connecting the OLT and ONU represents a pair of wavelength channels one wavelength channel in the downstream direction and one wavelength channel in the upstream direction."" is contradictory with the note under Figure 1: ""Each color represents an independent communication channel of one or more wavelengths per direction""

SuggestedRemedy  
 Either a single line (and colour) is one bidirectional wavelength pair, or not. Which is it then? Align both notes, and at best, remove the one under Figure 1 and leave it only in text.

Proposed Response Response Status O

CI 03 SC 3.0 P18 L2 # 120  
 Remein, Duane Huawei Technologies

Comment Type ER Comment Status X  
 Figure 1 is no longer referenced from the text.

SuggestedRemedy  
 Remove the figure.

Proposed Response Response Status O

CI 03 SC 3.0 P18 L3 # 122  
 Remein, Duane Huawei Technologies

Comment Type T Comment Status X  
 It would be good if we described the most common PONs deployed (TDM-PON)

SuggestedRemedy  
 Add at 3.1, renumbering as required  
 TDM-PON  
 A TDM-PON provided all ONUs with the same wavelength pair (one downstream and one upstream) over a single fiber. This provides virtual P2P links to each ONU over a P2MP media by multiplexing data to each ONU in both directions in time, Hence the term TDM-PON. Most PONs deployed to date, including 1G-EPON and 10G-EPON, fall into this category.

Proposed Response Response Status O



Received Comments

NG-EPON IC 1st Task Force review comments

CI 03 SC 3.1 P 18 L 11 # 121  
 Remein, Duane Huawei Technologies

Comment Type E Comment Status X  
 customer, end-customer, subscriber, end-subscriber  
 These all refer to the same thing, perhaps we can settle on a single term

SuggestedRemedy  
 use subscriber exclusively

Proposed Response Response Status O

CI 03 SC 3.2.1 P 19 L 24 # 69  
 Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X  
 "No other ONU is allowed to transmit during the same window of time." - this is only true for the ONU sharing the same wavelength

SuggestedRemedy  
 Change text to read "No other ONU >>sharing the same wavelength channel<< is allowed to transmit during the same window of time."

Proposed Response Response Status O

CI 03 SC 3.1 P 18 L 5 # 67  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X  
 ""dedicated pair of wavelength channels, (one downstream and one upstream), creating logical"" - no need for "" around paras

SuggestedRemedy  
 Change to ""dedicated pair (one downstream and one upstream) of wavelength channels, creating logical""  
 Similar change on page 19, line 3

Proposed Response Response Status O

CI 03 SC 3.3 P 21 L 24 # 123  
 Remein, Duane Huawei Technologies

Comment Type T Comment Status X  
 Figure input

SuggestedRemedy  
 see figure in ngepon\_remein\_1\_0215  
 Add the following ref. text at the bottom of section 3.3  
 The above topologies can be used with either WDM-PONs or TDM-PONs. For PONs using WDM these topologies can be further categorized as wavelength selected or wavelength routed (see figure xxx).  
 The wavelength selected category utilizes power splitters in the ODN as above. In the ONU a wavelength filter is used to select the desired downstream wavelength and a tunable laser is used to produce the correct upstream wavelength.  
 The wavelength routed category utilizes WDM mux/demux components in the ODN in lieu of power splitters. In the ONU a wideband receiver can be used as the desired downstream wavelength is determined by the ODN. A tunable laser is used to produce the correct upstream wavelength.

Proposed Response Response Status O

CI 03 SC 3.2.1 P 19 L 16 # 68  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X  
 Figure 2 preceeds text and reference within it.

SuggestedRemedy  
 Move Figure 2 to line 26.5, since it is first referenced in line 26 right now. Similarly, Figure 3 should be moved to line 11.5, page 20, and Figure 4 to line 16.5, page 21.

Proposed Response Response Status O

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NG-EPON IC 1st Task Force review comments

CI 03 SC 3.3 P 22 L 1 # 70  
 Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

Figure 5 has two issues;  
 a) it precedes references to individual elements within the followign text, and  
 b) it is composed of three sep[arate figures (a, b, c) that would be better off placed closer to callout in text.

SuggestedRemedy

Break Figure 5 into three separate figures (5, 6, 7) and renumber following figures and update their references.  
 Move new Figure 5 to page 23, line 13.5. Move new Figure 6 to page 23, line 23.5. Move new Figure 7 to page 23, line 27.5.

Proposed Response Response Status O

CI 03 SC 3.3 P 23 L 31 # 57  
 Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

"It should be noted that, for WDM-based systems"

SuggestedRemedy

Unnecessary use of keyword "should". Change to "For WDM-based systems"

Proposed Response Response Status O

CI 03 SC 3.3 P 23 L 35 # 72  
 Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X

"Power splitters typically lose approximately Nx3 dB for a 2 N split whereas a wavelength mux/demux may lose only 0.7dB to 2.5dB regardless of the port count."  
 The quoted loss numbers are on the ideal side. Actual devices have insertion loss even as high as 4dB, excluding connectors. Also, since we already list just advantaged, disadvantages should be noted as well, including narrow pass pand and requirement for athermal operation when field deployed.

SuggestedRemedy

Change the text to read: "Power splitters feature insertion loss of approximately Nx3 dB for a 2^N split, whereas a wavelength mux/demux feature insertion loss between 1 dB and 4 dB, depending on manufacturing technique, tolerances, etc. Simultaneously, a wavelenght mux/demux features a strong temperature dependence of their wavelength passbands, requiring special measures for athermal operation in a typical field deployment."  
 ""

Proposed Response Response Status O

CI 03 SC 3.3 P 23 L 36 # 71  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X

"split whereas a wavelength mux/demux may lose only 0.7dB to 2.5dB regardless of the port" - space missing between numeric value and units

SuggestedRemedy

Change to "split whereas a wavelength mux/demux may lose only 0.7 dB to 2.5 dB regardless of the port". Make sure space is non-breakable.

Proposed Response Response Status O

CI 03 SC Table-1 P 17 L 0 # 166  
 NOLL, KEVIN TIME WARNER CABL

Comment Type T Comment Status X

Last line in the table suggests "mix" for PHY channel connectivity type and has "?" as the name of the network type.

SuggestedRemedy

Remove this line or add some names.

Proposed Response Response Status O

Received Comments

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CI 04 SC 2 P 25 L 25 # 8  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 the section title indicates Internet bandwidth, but the text below does not.  
 SuggestedRemedy  
 Change ""bandwidth usage"" to ""Internet bandwidth usage"", at least in the first sentence.  
 Proposed Response Response Status O

CI 04 SC 2 P 26 L 12 # 9  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 the section title indicates Internet bandwidth, but the text below does not.  
 SuggestedRemedy  
 replace ""bandwidth consumption"" with ""Internet bandwidth consumption""  
 Proposed Response Response Status O

CI 04 SC 2 P 27 L 3 # 10  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 re: ""This fact is mostly attributed to pervasive xDSL 3 access in Europe, and slower adoption of higher-speed copper and fiber-based access 4 technologies."" Without any attributions, this assertion seems to contradict a conclusion to be drawn from the preceding and following text, that the reason is because Europe is a few years behind in Netflix adoption.  
 SuggestedRemedy  
 remove the assertion  
 Proposed Response Response Status O

CI 04 SC 4 P 30 L 16 # 11  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status D  
 Title of section is ""Bandwidth Consumption Operator Data"". It is specifically data representing only DOCSIS traffic for a NA MSO. An IPTV operator would see much larger traffic growing more slowly.  
 SuggestedRemedy  
 Rename section ""Bandwidth consumption - NA MSO"". State in the first sentence that this section considers only DOCSIS traffic: i.e. Internet traffic and managed unicast video, but does not include linear TV.  
 Proposed Response Response Status O

CI 04 SC 4.2 P 25 L 24 # 73  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 ""Consumption of Internet Traffic"" - likely, it should read ""Regional Consumption of Internet Traffic"", to represent correctly the fact that the section indeed presents views for individual regions.  
 SuggestedRemedy  
 Per comment  
 Proposed Response Response Status O

CI 04 SC 4.2 P 25 L 25 # 147  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 In this section the term bandwidth is used while referring to GB & TB.  
 SuggestedRemedy  
 Replace ""bandwidth"" with ""data"" throughout this section.  
 Proposed Response Response Status O

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CI 04 SC 4.2 P 25 L 31 # 74  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 ""irrespective of the access technology they use in their first mile networks"" - we already have a section that speaks about data from one of providers. Reference would be welcome.  
 SuggestedRemedy  
 ""irrespective of the access technology they use in their first mile networks - see also 4.4 for an example of operator data.""  
 Proposed Response Response Status O

CI 04 SC 4.2 P 27 L 15 # 77  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 Description for South America and APAC is merged together.  
 SuggestedRemedy  
 Remove ""When compared with NA, the average bandwidth consumption in the APAC region (Figure 9) is lower""  
 Proposed Response Response Status O

CI 04 SC 4.2 P 26 L 11 # 76  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 Figure 7 is placed ahead of its reference in text.  
 SuggestedRemedy  
 Move Figure 7 to page 27, line 11.5  
 Similarly, Figure 8 and 9 should be moved to page 27, line 26.5  
 Proposed Response Response Status O

CI 04 SC 4.3 P 28 L 13 # 83  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Subclause 4.3 is all about downstream bandwidth consumption. It does not mention upstream bandwidth consumption even once.  
 SuggestedRemedy  
 Change the title of 4.3 to ""Downstream Bandwidth Consumption Forecast Residential Access""  
 Also, to provide current data first and then models for the future, I suggest we move 4.3 to after current section 4.6  
 Proposed Response Response Status O

CI 04 SC 4.2 P 26 L 5 # 75  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 A reference to 4k content availability would be welcome.  
 SuggestedRemedy  
 Reference to be used (one of many available): <http://blog.netflix.com/2014/05/netflix-now-streaming-in-ultra-hd-4k.html>  
 Proposed Response Response Status O

CI 04 SC 4.3 P 29 L 1 # 80  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Looking at Figure 10 and 11, the difference between moderate and heavy demand scenarios is not immediately obvious.  
 SuggestedRemedy  
 Merge figures 10 and 11, showing moderate and heavy scenario for the given subscriber population in a single chart.  
 Proposed Response Response Status O

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CI 04 SC 4.3 P 29 L 7 # 81  
Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X

""To complete the demand picture, it is necessary to add the maximum individual peak burst demand, which requires additional bandwidth for headroom, the size of which needs to accommodate a least one successful speed test run by a subscriber already receiving the maximum offered service level. This extra bandwidth is necessary because subscribers expect to be able to successfully complete a speed test even during peak hour traffic."" - this statement is unnecessarily complex.

SuggestedRemedy

Change to read: ""To complete the bandwidth demand picture, it is necessary to further add the maximum peak burst demand needed to accommodate a least one successful speed test run by a subscriber already receiving the maximum offered service level. Subscribers typically expect to be able to successfully complete a speed test even during peak hour and when simultaneously consuming other digital content.""

Proposed Response Response Status O

CI 04 SC 4.3 P 30 L 4 # 82  
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X

The footnote to text ""demand in residential access up to the year 2024"" is pretty legthy. I suggest to have it moved to the end of the paragraph instead.

SuggestedRemedy

Move ""If, instead of a statistical view a worst-case view is preferred, a 10G-EPON could support subscribers, each streaming four simultaneous streams of UHD-2 8k video at 50 Mb/s each, and still have enough headroom to support bursts, and therefore a service offer, of more than 2 Gb/s."" to page 30, end of line 6.

Proposed Response Response Status O

CI 04 SC 4.4 P 32 L 1 # 78  
Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

Figure 14 is missing.

SuggestedRemedy

It is OK in Word document, yet missing in PDF version. Please bring it back.

Proposed Response Response Status O

CI 04 SC 4.4 P 32 L 1 # 148  
Remein, Duane Huawei Technologies

Comment Type E Comment Status X

Missing figure

SuggestedRemedy

Add figure or remove para referencing figure 14.

Proposed Response Response Status O

CI 04 SC 4.4 P 32 L 1 # 40  
Powell, Bill Alcatel-Lucent

Comment Type ER Comment Status D

The actual Fig. 14 seems to be missing from the PDF, but is contained in the companion MS Word file.

Add Fig. 14 from NGEPON D1.0 TR - MS Word file

SuggestedRemedy

Proposed Response Response Status O

CI 04 SC 4.5 P 32 L 15 # 150  
Remein, Duane Huawei Technologies

Comment Type E Comment Status X

Does 20+ years qualify as ""Over the last few years""?

SuggestedRemedy

Strike the phrase. Add historical to the sentence so it reads ""There has been a clear historical trend for a ...""

Proposed Response Response Status O

Received Comments

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CI 04 SC 4.5 P 32 L 17 # 149  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Stranded phrase: ""with an example of 16 data rates for""  
 SuggestedRemedy  
 Strike phrase.  
 Proposed Response Response Status O

CI 04 SC 4.5 P 34 L 12 # 56  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 ""Should the same trend in bandwidth consumption (...) be""  
 SuggestedRemedy  
 Unnecessary use of a keyword ""should"". Change to ""If the same trend in bandwidth consumption (...) is""  
 Proposed Response Response Status O

CI 04 SC 4.6 P 34 L 36 # 84  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 This is not a magazine paper, lengthy intro is not needed: ""In contrast to the previous section on forecasted bandwidth consumption, this section addresses forecasting of bandwidths offered to residential subscribers, which is in principle independent of actual bandwidth demands.""  
 SuggestedRemedy  
 Change to read: ""This subclause presents a forecast model for offered bandwidth in residential access, which is independent from the actual observed bandwidth demand.""  
 Proposed Response Response Status O

CI 04 SC 4.6 P 35 L 12 # 86  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Remove the royal ""we"" from the text, including all abbreviations, and make it read less like a science paper: ""We next suggest that more than Gigabit service will not be offered until there is something faster than Gigabit Ethernet in the home, because again those higher service offerings couldn t be tested in a speed test. Therefore, we posit: once offered bandwidths reach the maximum capability of subscriber end terminals in the home network (which has already happened for FTTH networks), the maximum offered bandwidth will be governed by the maximum bandwidth capability of subscriber end terminals in the home network. The latter is examined next.""

SuggestedRemedy  
 Change to read: ""Given the lack of subscriber driven demand for access rates exceeding 1 Gb/s, as well as lack of technical options to increase network rates within homes without a major investment into home networking, the maximum offered bandwidth remains limited by the maximum network rate of subscriber end terminals and their home network. ""  
 Proposed Response Response Status O

CI 04 SC 4.6 P 35 L 21 # 87  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Text requires simplification and technical cleanup: ""The adoption of Ethernet LAN over UTP bandwidths in the home is approximated by the solid red line in Figure 13. Extrapolating this adoption trend predicts 10G Ethernet over UTP in the home within the next 10 years. Alternatively, intermediate Ethernet speeds over cat-5 UTP are under consideration in IEEE 802.3 Working Group: 2.5G and 5G. Finally, it s possible that none of these higher speed technologies gain significant traction in the home, maybe because of the proliferation of wireless devices at the expense of wired devices. These four possibilities are represented by the dashed red lines in Figure 16"".  
 SuggestedRemedy  
 Change the text to read: ""Figure 16 (solid red line) demonstrates the evolution of wired Ethernet speeds in home LANs. Assuming that the speed evolution continues in the future, 10 Gb/s Ethernet is expected to become popular in home LANs within the next 10 years, though do require re-cabling of homes and upgrades of end terminals. There are also two alternative wired Ethernet speeds under development within IEEE 802.3 WG, i.e., 2.5 Gb/s and 5 Gb/s, which promise the reuse of the existing category 5/5e cabling, and likely allow for coexistence of 1 Gb/s, 2.5 Gb/s, and 5 Gb/s PHYs on the same network. These four possibilities are represented by the dashed red lines in Figure 16.""  
 Proposed Response Response Status O

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CI 04 SC 4.6 P 35 L 22 # 151  
 Remein, Duane Huawei Technologies  
 Comment Type T Comment Status X  
 Incorrect ref to Figure 13  
 SuggestedRemedy  
 change to Figure 16,  
 Proposed Response Response Status O

CI 04 SC 4.6 P 35 L 7 # 85  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Remove the royal "we" from "We suggest that operators would never offer speeds that cannot be realized and speed-tested by subscriber end terminals in the home network. The maximum that can be speed-tested in the home today is approximately 1 Gb/s, using a Gigabit Ethernet home network and Gigabit Ethernet end terminals. We note that current Gigabit service offerings are the first time that offered bandwidth equals the capability of subscriber end terminals in the home network."  
 SuggestedRemedy  
 Change to read: "Operators would only offer access speeds that can be realized using existing in-home networking solutions and then successfully speed-tested by a subscriber using the appropriate end terminals. Given the very slow rate of adoption of 10 Gb/s Ethernet in home networking, 1 Gb/s (and slower) wired Ethernet and wireless Ethernet solutions (cabling and terminals) remain predominant in most homes. This means, in practice, that the current gigabit rate offerings already match the theoretical maximum network throughput of user terminals and home networks, leaving little justification for further increase in offered data rates."  
 Proposed Response Response Status O

CI 04 SC 4.6 P 36 L 1 # 88  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Rewording plus updating technical facts in the text: "In parallel, the approximate real world peak speeds of IEEE Std 802.11b, .g, .n, and early .ac wireless LANs (for a single end user device) in the home are indicated by the solid blue curve. A linear extrapolation (on a semi-log scale) is shown by the dashed blue line, and predicts a 3 Gb/s peak speed in 10 years. However, this is speculative, as there is no plan in IEEE 802.11 to achieve this peak speed in the home; it is not clear if even 1 Gb/s becomes practical."  
 SuggestedRemedy  
 Change to read: "Figure 16 also shows the evolution of wireless Ethernet (802.11) speeds in home LANs, covering 802.11b, .g, .n, and early .ac devices. A linear extrapolation (shown with a dashed blue line) indicates that a 3 Gb/s peak data rate should become available for the use in wireless home LANs within the next 10 years. However, at this time there is no demonstrated 802.11 technology able to support such data rates within wireless home LANs and it is not clear whether sustained 1 Gb/s data rates over wireless LAN are practical."  
 Proposed Response Response Status O

CI 04 SC 4.6 P 36 L 6 # 89  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Text in lines 6-12 is highly repetitive from previous observations in the same section  
 SuggestedRemedy  
 Change text in lines 6-12 to read as follows: "Considering previous observations on maximum offered data rates with the anticipated availability of wired and wireless home LAN solutions exceeding 1 Gb/s data rates, the maximum offered data rates for residential customers are expected to fall between 1 Gb/s and 10 Gb/s, depending primarily on the availability of cost-effective solutions to deploy multi-gigabit network infrastructure and terminals at homes. Given the shift towards the use of more convenient wireless LANs in home environment, and the lack of clear technical path towards 1+ Gb/s data rates, there is a good chance that the delivery of multi-gigabit data rates to residential subscribers may be overly aggressive and be limited only to power users and early adopters."  
 Proposed Response Response Status O

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CI 04 SC 4.7 P 36 L 13 # 90  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Text on split ratios should be cleaned up to avoid repetition and focus the section just on conclusions  
 SuggestedRemedy  
 Use tracked changes per ngepon\_0215\_hajduczenia\_1.pdf  
 Proposed Response Response Status O

CI 04 SC 5 P 32 L 14 # 12  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status X  
 Section title ""Bit rate trends"" implies a wide scope of trends, however the scope of this section is limited to Internet traffic.  
 SuggestedRemedy  
 Propose to rename section ""Bit rate trends - Internet traffic"".  
 Proposed Response Response Status O

CI 04 SC 5 P 32 L 15 # 13  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 Text says that Figure 15 shows ""bandwidth consumption"". Isn't it really showing maximum offerable Internet bandwidth? (a different thing)  
 SuggestedRemedy  
 Propose to replace first sentence as follows:  
 ""Over the last few years, there has been a clear trend for a steady increase in bandwidth consumption for residential and business customers. Figure 15, which shows maximum offerable Internet bandwidth of NA MSOs, is indicative of this trend.""  
 Proposed Response Response Status O

CI 04 SC 5 P 34 L 11 # 19  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status D  
 re ""The current projections, shown in Figure 15, in terms of bandwidth demand per household (in residential applications) calls for approximately 300 Mb/s around end of year 2016."" But Figure 15 shows maximum permitted Internet bandwidth, not demand. The rest of the paragraph mentions both bandwidth demand/consumption and offered bandwidth (Nielsen).  
 SuggestedRemedy  
 Propose to replace mentions of bandwidth demand/consumption with ""offered bandwidth"".

Proposed Response Response Status O

CI 04 SC 5 P 34 L 16 # 16  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 re ""For NG-EPON to be suitable to provide services around 2020 and beyond, it is necessary to support delivery of at least 1 Gb/s (on average) per household (in a residential scenario), as well as the ability to scale up to 10 Gb/s per household (burstable)"". This seems like one of the most important requirements for NG-EPON in the document. Is this section the best place to put it?

SuggestedRemedy  
 Propose to move this requirement to section 5, Requirements for NG-EPON.

Proposed Response Response Status O

CI 04 SC 7 P 36 L 29 # 14  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 Shipment reports give an indication of how many ONUs are connected to each OLT port, but do not directly indicate optical split ratio, since we don't know the splitter fill%. E.g., an 8:1 shipment ratio could equally imply 1:16 optical split at 50% fill, 1:32 optical split at 25% fill, or 1:64 optical split at 12.5% fill.

SuggestedRemedy  
 I think it's safer to just indicate that shipment data indicates the ratio of ONUs to OLT ports ranges from 4:1 to 16:1.

Proposed Response Response Status O



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CI 04 SC 7 P 36 L 31 # 15  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status D  
 re ""Most new FTTx projects assume 1:16 or 1:32 split ratios"", data I have access to shows that over recent years, the most commonly deployed split ratio is 1:64  
 SuggestedRemedy  
 Reword as ""Most new FTTx projects assume 1:16, 1:32 or 1:64 split ratios""  
 Proposed Response Response Status O

CI 05 SC 1 P 37 L 6 # 18  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status D  
 re ""the aggregate capacity required to support residential users over the next 10 years is expected to reach at least 55 Gb/s in the downstream direction""... I recall in Atlanta that there was a request for the justification of this number, which I don't see. In the document so far I do see:  
 (1) section 4.2: power users exceed 5 TB/month of Internet traffic. This averages to 2 Mb/s. Could be more in peak hour, let's say 10 Mb/s. 30% CAGR is mentioned. If that continued for 10 years, in 2024 power users would consume approx.140 Mb/s.  
 (2) section 4.3: bandwidth demand modeling using ""worst case"" assumptions forecasts 1 Gb/s peak hour traffic for 32 subscribers on a PON. For FTTB/512 subscribers, 13 Gb/s.  
 (3) section 4.4: DOCSIS traffic, for example 70 Mb/s per subscriber in year 2020.  
 (4) section 4.5: 600 Mb/s maximum permitted Internet traffic in 2020. Requirements stated: NG-EPON to support 1 Gb/s (average) and 10 Gb/s (peak).  
 (5) section 4.6: maximum forecasted service offering out to 2024: 10 Gb/s (although could be less). Adding 10 Gb/s to the aggregate demand in section 4.3 yield 11 Gb/s (FTTH) and 23 Gb/s (FTTB).  
 SuggestedRemedy  
 suggest to add explanation for 55 Gb/s some where in section 4. Or, replace it with the biggest number in section 4: 23 Gb/s.  
 Proposed Response Response Status O

CI 05 SC 4 P 38 L 6 # 41  
 Powell, Bill Alcatel-Lucent  
 Comment Type E Comment Status D  
 If no one has a suggestion for a reference number, suggest simply removing the ""[reference needed]"" note, since the current text seems OK without a specific reference.  
 SuggestedRemedy  
 Proposed Response Response Status O

CI 05 SC 5.10 P 47 L 4 # 155  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Several grammatical issues:  
 ""mechanisms ... is""  
 ""support ... support""  
 SuggestedRemedy  
 Change sentence to read:  
 ""NG-EPON is expected to support all the mechanisms necessary to implement differentiated QoS that are necessary for delivery of residential and business service types.""  
 Proposed Response Response Status O

CI 05 SC 5.10.4 P 50 L 10 # 156  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Fig 27 illustrates WiFi not residential services:  
 ""The public WiFi backhaul service is very similar to the residential service (see Figure 27),""  
 SuggestedRemedy  
 Change to read:  
 ""The public WiFi backhaul service (see Figure 27) is very similar to the residential service, ""  
 Proposed Response Response Status O

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CI 05 SC 5.10.5 P 51 L 8 # 157  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 EVPL used once and not defined  
 SuggestedRemedy  
 please spell out the acronym  
 Proposed Response Response Status O

CI 05 SC 5.12.1 P 52 L 18 # 104  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 The original contribution quoted incorrectly 10/10G-EPON. Calculations were done for 10/1G-EPON, as quoted by the report.  
 SuggestedRemedy  
 Change ""10/10G-EPON"" to ""10/1G-EPON"" in 5.12.1  
 Proposed Response Response Status O

CI 05 SC 5.10.6 P 51 L 15 # 42  
 Powell, Bill Alcatel-Lucent  
 Comment Type E Comment Status D  
 Since subsection 5.10.6 is in ""Section 5.10 Service Types"" - suggest changing the title of 5.10.6 to ""Service Requirements for NG-EPON"" since this section is not just enumerating generic NG-EPON requirements.  
 SuggestedRemedy  
 Proposed Response Response Status O

CI 05 SC 5.13 P 53 L 1 # 159  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 ""10/10G-EPON is expected to run of bandwidth"" is this like a run on a bank? Will we see a bandwidth depression? Or is this more like a marathon?  
 SuggestedRemedy  
 add ""out"" to it reads: ""10/10G-EPON is expected to run out of bandwidth""  
 Proposed Response Response Status O

CI 05 SC 5.12.1 P 52 L 16 # 158  
 Remein, Duane Huawei Technologies  
 Comment Type T Comment Status X  
 This para discussing cost is nearly duplicated in section 7.3 pg 86. There is no need for this duplication.  
 SuggestedRemedy  
 Replace entire section 5.12 with the following:  
 The system cost for various access technologies can be examined in a number of ways. Two common methods are to compare equipment costs or to compare service delivery costs (e.g., cost per 1 Gb/s of service). Both of these are discusses further in subclause 7. It is expected that the service delivery cost in NG-EPON (when such systems become commercially available) is similar to 1G-EPON and 10G-EPON, while providing higher density (higher number of connected customers) and higher aggregate capacity.  
 Proposed Response Response Status O

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CI 05 SC 5.13 P 53 L 3 # 160  
 Remein, Duane Huawei Technologies

Comment Type TR Comment Status X

This statement strikes me as disingenuous:  
 ""Some of the emerging business-class applications, such as cell tower fronthaul, are expected to drive bandwidth exhaustion in 10G-EPON and push forward the development and then deployment of NG-EPON.""  
 Everything I read about front haul indicates it cannot be supported by TDM-PON systems. Here are a few statements in a very recent report:

Fronthaul CoE is DOA!

The definitive stand on the use of CPRI over Ethernet (CoE) comes from the Metro Ethernet Forum (MEF) Mobile Backhaul Implementation Agreement (IA). [MEF 22.1.1, Mobile Backhaul Phase 2, Amendment 1-Small Cells, July 2014.] Its Section 4.1.1 Radio Coordination lists coordination requirements from ""no coordination"" to ""very tight coordination"". Both Fronthaul and CPRI have very tight coordination requirements. This level of coordination is out of scope for the current IA, because ""MEF Ethernet Services cannot currently support the fronthaul of CPRI."". This is a sound conclusion based on Fronthaul requirements such as ""highly stringent performance characteristics, such as extremely low latency and jitter""

SuggestedRemedy  
 Strike the sentence.

Proposed Response Response Status O

CI 05 SC 5.2 P 37 L 16 # 92  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X

Speak of needs, and not what will happen

SuggestedRemedy  
 Change ""NG-EPON will provide service to two general classes of users"" to ""NG-EPON is expected to provide service to two general classes of users"".

Proposed Response Response Status O

CI 05 SC 5.2 P 37 L 20 # 55  
 Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

""NG-EPON should support each of these user classes by enabling flexible ONU configurations. ""

SuggestedRemedy  
 Avoid normative language in the report. Change to ""NG-EPON is expected to support both aforementioned user classes by enabling flexible ONU configurations. ""

Proposed Response Response Status O

CI 05 SC 5.2 P 37 L 21 # 94  
 Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X

""a hybrid-TWDM approach"" - I do not believe we use this term anymore.

SuggestedRemedy  
 change to ""a hybrid PON approach (see 3.2)""

Proposed Response Response Status O

CI 05 SC 5.2 P 37 L 27 # 54  
 Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

""NG-EPON should enable such flexible ONU configurations and the coexistence of varying configurations on the same PON.""

SuggestedRemedy  
 Avoid normative language in the report. Change to: ""NG-EPON is expected to support such flexible ONU configurations and the coexistence of varying configurations on the same PON.""

Proposed Response Response Status O

Received Comments

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CI 05 SC 5.3 P 37 L 31 # 53  
 Hajduczenia, Marek Bright House Network

Comment Type T Comment Status X

Unclear wording in ""Today operators require support of 1:32 split ratio on their PONs. NG-EPON is expected to operate with that same split ratio should support higher split ratios. ""

SuggestedRemedy

Avoid the use of normative language in report. Also, need to clarify the language in the second sentence. Change to: ""Today operators deploying PON typically require the support for the split ratio of at least 1:32. NG-EPON is expected to support at least the same split ratio as 1G-EPON and 10G-EPON, or (preferably) a higher split ratio to increase customer density per OLT port. ""

Proposed Response Response Status O

CI 05 SC 5.3 P 37 L 31 # 152  
 Remein, Duane Huawei Technologies

Comment Type E Comment Status X

Missing conjunction: ""NG-EPON is expected to operate with that same split ratio should support higher split ratios.""

SuggestedRemedy

Change to read:  
 ""NG-EPON is expected to operate with that same split ratio and should support higher split ratios.""  
 ^^

Proposed Response Response Status O

CI 05 SC 5.4 P 38 L 2 # 93  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X

""as well as placement of OLT locations relative to population centers."" - the word ""locations"" is not really needed here.

SuggestedRemedy

Remove ""locations"" in the highlighted text. It is meaningless

Proposed Response Response Status O

CI 05 SC 5.4 P 38 L 6 # 95  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X

Reference needed ...

SuggestedRemedy

Use the following reference: Martin Carroll, ""NG-PON2 & Opportunities for Operators"", presented at ECOC NG-PON2 Workshop, September 2014, Cannes

Proposed Response Response Status O

CI 05 SC 5.5 P 38 L 25 # 96  
 Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X

""<="" character got separated from the rest of the text.

SuggestedRemedy

Make sure that there is a non-breakable space between ""<="" and the following number. THis applies to line 22, 25, 28, 31.

Proposed Response Response Status O

CI 05 SC 5.5 P 38 L 26 # 153  
 Remein, Duane Huawei Technologies

Comment Type T Comment Status X

Given that the bullet point starts with Medium power budget class I believe the following statement should also be about med. pwr budget class:  
 ""The low power budget is typically implemented in the form of PON ODN with the split ratio of at least 1:32 and the reach of at least 10 km.""

Likewise line 29 and 32 are not about low power budget

SuggestedRemedy

Line 26 Change ""low"" to ""medium"" so the statement reads:  
 ""The medium power budget is typically implemented in the form of PON ODN with the split ratio of at least 1:32 and the reach of at least 10 km.""  
 Line 29 Change ""low"" to ""high""  
 Line 32 Change ""low"" to ""extended""

Proposed Response Response Status O

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CI 05 SC 5.5 P 38 L 38 # 154  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 ""insertions loss"" need not be plural  
 SuggestedRemedy  
 change to ""insertion loss""  
 Proposed Response Response Status O

CI 05 SC 5.7.3 P 43 L 13 # 99  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 Cumbersome wording: ""to be critical for acceptance of an NG-EPON"" ...  
 SuggestedRemedy  
 Change to ""to be critical for NG-EPON""  
 Proposed Response Response Status O

CI 05 SC 5.7 P 39 L 16 # 97  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 No need for future tense here: ""Many operators expect that NG-EPON will maintain the ability to coexist"" - it is a statement of a fact  
 SuggestedRemedy  
 Change to ""Many operators expect that NG-EPON maintains the ability to coexist""  
 Proposed Response Response Status O

CI 05 SC 5.7.3.4 P 45 L 7 # 100  
 Hajduczenia, Marek Bright House Network  
 Comment Type TR Comment Status X  
 Part of the text from R09 in 5.11.4 is missing.  
 SuggestedRemedy  
 Add :""; NG-EPON needs to simultaneously meet requirements listed in 5.7.3.2 and 5.7.3.3."" at the end of line 7.  
 Proposed Response Response Status O

CI 05 SC 5.7.2 P 42 L 4 # 98  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Sentence is unnecessarily complex: ""The migration to NG-EPON needs to assume that at the time NG-EPON becomes commercially available, the access network is expected to include a mixture of 1G-EPON and 10G-EPON devices, operating with either dual-rate OLT ports, or dedicated 1G-EPON and 10G-EPON OLT ports with external wavelength splitter / combiner.""  
 SuggestedRemedy  
 Change to read: ""When NG-EPON becomes commercially available, it is expected that in many cases, the access network includes a mixture of 1G-EPON and 10G-EPON devices, deployed in either of the coexistence modes discussed in 5.4.6.""  
 Proposed Response Response Status O

CI 05 SC 5.7.3.6 P 45 L 11 # 101  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 5.7.3.6 is likely named incorrectly.  
 SuggestedRemedy  
 Change title of 5.7.3.6 to ""NG-EPON Coexisting with 1G-EPON, 10G-EPON, but no RF overlay"", Move 5.7.3.6 to 5.7.3.5.  
 Proposed Response Response Status O

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Cl 05 SC 5.7.3.7 P 46 L 4 # 102  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 WDM PON should WDM-PON  
 SuggestedRemedy  
 Per comment  
 Proposed Response Response Status O

Cl 05 SC 5.7.3.7 P 46 L 7 # 52  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 ""The operation of the wavelength configuration protocol should be reliable and prevent a situation in which an ONU after a reboot / reset impacts other customers by transmitting on incorrect upstream wavelength channels.""  
 SuggestedRemedy  
 Avoid the use of normative language in the report. Change to ""The operation of the wavelength configuration protocol needs to be reliable and prevent a situation in which an ONU after a reboot / reset impacts other customers by transmitting on incorrect upstream wavelength channels.""  
 Proposed Response Response Status O

Cl 05 SC 5.9 P 46 L 33 # 51  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 ""The power-saving mechanism should be fully configurable on per ONU or OLT port basis, providing the operator with full control of the sleep period, detection threshold for ONU inactivity, etc.""  
 SuggestedRemedy  
 Avoid normative language in the report. Change to ""The power-saving mechanism needs to be fully configurable on per ONU or OLT port basis, providing the operator with full control of the sleep period, detection threshold for ONU inactivity, etc.""  
 Proposed Response Response Status O

Cl 05 SC 5.9 P 46 L 35 # 50  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 ""The NG-EPON OLT should support a mix of ONUs with enabled power-saving mechanism and with disabled power-saving mechanism on the same OLT port.""  
 SuggestedRemedy  
 Avoid normative language in the report. Change to ""The NG-EPON OLT is expected to support a mix of ONUs with enabled power-saving mechanism and with disabled power-saving mechanism on the same OLT port.""  
 Proposed Response Response Status O

Cl 05 SC 5.9 P 46 L 37 # 49  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 ""The NG-EPON OLT should support different configuration parameters for the power-saving mechanism for different groups of ONUs on the same OLT port.""  
 SuggestedRemedy  
 Avoid normative language in the report. Change to ""The NG-EPON OLT is expected to support different configuration parameters for the power-saving mechanism for different groups of ONUs on the same OLT port.""  
 Proposed Response Response Status O

Cl 05 SC 5.9 P 46 L 39 # 103  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 ""At the same time, it is also expected that NG-EPON OLT implement"" should be ""At the same time, it is also expected that NG-EPON OLT implement>>s<<""  
 SuggestedRemedy  
 Proposed Response Response Status O

Received Comments

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CI 05 SC 7 P 44 L 1 # 191  
 Tanaka, Kazuki KDDI R&D Laboratorie

Comment Type T Comment Status X  
 Draft says: ""Unidirectional (downstream-only, with center wavelength at 1550 nm) RF overlay"". But the wavelength seems to be imprecise.

SuggestedRemedy  
 The sentence should be changed to: ""Unidirectional (downstream-only, with wavelength range from 1550 nm to 1560 nm) RF overlay"".

Proposed Response Response Status O

CI 05 SC 7.3.3 P 44 L 28 # 17  
 Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D  
 References to ""RF overlay"" in section title and following text remain. As discussed in Atlanta, there is no definition for ""RF overlay"" in the document, and the term seems to be used interchangeably with RFoG. I believe we agreed to use RFoG, which is defined.

SuggestedRemedy  
 Replace ""RF overlay"" with ""RFoG"" everywhere.

Proposed Response Response Status O

CI 05 SC 7 P 44 L 3 # 192  
 Tanaka, Kazuki KDDI R&D Laboratorie

Comment Type T Comment Status X  
 Draft says: ""Bidirectional (with downstream center wavelength at 1550 nm and upstream center wavelength at 1610 nm)"". But the wavelength seems to be imprecise.

SuggestedRemedy  
 The sentence should be changed to: ""Bidirectional (with downstream wavelength range from 1550 nm to 1560 nm and upstream wavelength range from 1550 nm to 1610 nm)"".

Proposed Response Response Status O

CI 06 SC 2 P 54 L 13 # 20  
 Harstead, Ed Alcatel-Lucent

Comment Type T Comment Status D  
 Propose to add subsection 6.2.1.1 on bit-interleaving, which can facilitate the implementation of high speed TDM PONs.

SuggestedRemedy  
 Text will be sent in a separate contribution: ngepon\_0215\_harstead\_01

Proposed Response Response Status O

CI 05 SC 7 P 45 L 2 # 193  
 Tanaka, Kazuki KDDI R&D Laboratorie

Comment Type E Comment Status X  
 Since this sub-section describes ""NG-EPON Coexisting with 10G-EPON and Optional RF Overlay, ""1G-EPON"" in line 2 must be a typographical error.

SuggestedRemedy  
 Replace ""1G-EPON"" by ""10G-EPON"".

Proposed Response Response Status O

CI 06 SC 2.3 P 55 L 17 # 21  
 Harstead, Ed Alcatel-Lucent

Comment Type E Comment Status D  
 re: ""complete reuse of the currently existing TDM-PON solutions per wavelength."" ""Complete"" is an overstatement, as 10G EPON OLT and ONU optics will likely not be reusable.

SuggestedRemedy  
 Delete the sentence.

Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

Cl 06 SC 2.3 P 56 L 15 # 22  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 gratuitous salesmanship in "This particular arrangement is therefore ideal for supporting both residential and commercial services on a single access platform."  
 SuggestedRemedy  
 replace "is therefore ideal for supporting" with "can support"  
 Proposed Response Response Status O

Cl 06 SC 2.3 P 56 L 17 # 23  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 gratuitous salesmanship in "Hybrid PON access systems are natural candidates for stacking multiple 10G-EPON systems in either symmetric or asymmetric configurations."  
 SuggestedRemedy  
 delete "are natural candidates for stacking" with "stack".  
 Proposed Response Response Status O

Cl 06 SC 2.3 P 57 L 2 # 24  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 gratuitous salesmanship in "Such data channels are ideal to provide multi-Gb/s access service to commercial customers."  
 SuggestedRemedy  
 replace "are ideal to" with "can".  
 Proposed Response Response Status O

Cl 06 SC 3 P 57 L 20 # 25  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status D  
 disagree with "While a number of more spectrally efficient modulation schemes have been proposed to-date [references needed], the level of their technical maturity at this time would likely not allow for their immediate application into the optical access network, primarily because of the resulting cost and complexity of optical modules, specifically on the ONU side." The subsequent sections propose simple duobinary and PAM-4 modulation schemes that could be cost-effective in ONUs when compared to the cost of tunable lasers required by some other NG-EPON candidate technologies. 25 Gb/s duobinary in particular uses the same (non-tunable) ONU optics as 10G EPON.  
 SuggestedRemedy  
 propose to delete this text.  
 Proposed Response Response Status O

Cl 06 SC 3 P 57 L 20 # 28  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status D  
 Should be clear that in the interest of low cost, only direct detection is considered (vs. coherent detection).  
 SuggestedRemedy  
 After "...more than one bit to be encoded into a single baud." add this sentence: "To meet the requirements of low cost, only direct detection systems are considered in the following sections."  
 Proposed Response Response Status O

Cl 06 SC 3.6 P 68 L 3 # 26  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 6.3.6 is actually not a new section, it is part of 6.3.5 (OFDM)  
 SuggestedRemedy  
 delete 6.3.6 section title  
 Proposed Response Response Status O



Received Comments

NG-EPON IC 1st Task Force review comments

Cl 06 SC 5 P72 L 26 # 27  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status D  
 in Figure 49, correct downstream spectrum for RFoG is still not indicated (1540-1565). Also RFoG upstream spectrums are not correct: should be 1600-1620 and 1260-1360.  
 SuggestedRemedy  
 correct the figure. Also, show RFoG spectra in Table 7, to be consistent with other items.  
 Proposed Response Response Status O

Cl 06 SC 6 P74 L 10 # 194  
 Tanaka, Kazuki KDDI R&D Laboratorie  
 Comment Type T Comment Status X  
 In the section 5.7.2, the draft says ""the NG-EPON may partially or completely reuse 1G-EPON downstream and/or upstream spectrum"". However, the section 6.6 does not mention about this.  
 SuggestedRemedy  
 To keep consistency with the section 5.7.2, add the following sentence (which is based on the section 5.7.2) after the line 10 on page 74.  
 ""Once all 1G-EPON active devices have been removed from the given ODN, the NG-EPON may partially or completely reuse 1G-EPON downstream and/or upstream spectrum, assuming that TDM or WDM separation between 10G-EPON and NG-EPON upstream channels is possible.""  
 Proposed Response Response Status O

Cl 06 SC 6 P74 L 28 # 31  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 Not sure why I understand that Plan B, which does not require co-existence with 1G-EPON, does not take advantage of the O-band (while Plan D, which must require 1G-EPON co-existence, does use the O-band and causes overlap). Again, 20 nm and 10 nm spectral widths seem arbitrary.  
 Also don't understand why ""existing wavelength filters on 1G-EPON devices"" is relevant in this scenario that does not require 1G-EPON coexistence.

SuggestedRemedy  
 not sure, not sure what the authors had in mind here.  
 Proposed Response Response Status O

Cl 06 SC 6.1 P74 L 14 # 29  
 Harstead, Ed Alcatel-Lucent  
 Comment Type T Comment Status X  
 Plan A is for NG-EPON coexistence with 1G-EPON (1260-1360 upstream) and 10G-EPON. It proposes NG-EPON to be 10 nm 1550-1560 downstream and 10 nm 1530-1540 upstream. But why 10 nm? Seems arbitrary. TDM-PON would probably require less, TWDM-PON upstream probably more, and WDM-PON definitely more. According to ngepon\_0115\_harstead\_03a.pdf, in this scenario the spectrum available is:  
 upstream: 1524-1560 and 1596-1625 nm  
 downstream: 1539-1560 and 1596-1625 nm  
 (then, once the NG-EPON technology is selected and required amount of spectrum is determined, then can choose from the above.  
 SuggestedRemedy  
 propose to replace 10 nm 1550-1560 downstream and 10 nm 1530-1540 with upstream: 1524-1560 and 1596-1625 nm  
 downstream: 1539-1560 and 1596-1625 nm  
 Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

CI 06 SC 6.2 P 53 L 27 # 124  
 Remein, Duane Huawei Technologies  
 Comment Type T Comment Status X  
 ""CDM-PON, or""  
 While we have a description of OFDM-PON there is no such thing for CDM-PON, this is the only place it is mentioned in the report.  
 SuggestedRemedy  
 Strike ""CDM-PON, or""  
 Proposed Response Response Status O

CI 06 SC 6.2.1 P 54 L 35 # 125  
 Remein, Duane Huawei Technologies  
 Comment Type T Comment Status X  
 ""Throughout this history, commercially deployed TDM PON bit rates have consistently doubled every two years""  
 I know of no 2 Gpbs or 4 Gpbs or 8 Gpbs PON systems. The trend line does not reflect actual PON rates  
 SuggestedRemedy  
 Change to read:  
 ""On average commercially deployed TDM PON bit rates tend to double once every two years if plotted over the last 20 years.""  
 Proposed Response Response Status O

CI 06 SC 6.2 P 74 L 27 # 30  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 inappropriate terminology: ""RF overlay"" here and throughout section 6.6  
 SuggestedRemedy  
 replace with ""RFoG""  
 Proposed Response Response Status O

CI 06 SC 6.2.3 P 55 L 15 # 106  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 We have a name for ""a hybrid TDM-PON / WDM-PON system"" - it is a ""hybrid PON""  
 SuggestedRemedy  
 Change ""hybrid TDM-PON / WDM-PON"" to ""hybrid PON"" within 6.2.3  
 Proposed Response Response Status O

CI 06 SC 6.2.1 P 53 L 36 # 105  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 ""as shown in Figure 1 [eh2].""  
 SuggestedRemedy  
 Figure 1 should be Figure 29 (likely)  
 Reference [eh2] is also incorrect and needs to be updated  
 Proposed Response Response Status O

CI 06 SC 6.3 P 57 L 9 # 107  
 Hajduczenia, Marek Bright House Network  
 Comment Type T Comment Status X  
 Text in lines 9-13 seems to be a repetition of text from introduction to 6.2.1. It is best if we avoid repetition of text, unless it is strictly needed.  
 SuggestedRemedy  
 Mark the text for removal, or reference 6.2.1 for challenges of TDM PON.  
 Similarly first sentence on page 57, line 26 should be changed to read: ""NRZ modulation is the simplest and lowest cost way to transmit data over optical fiber.""  
 Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

Cl 06 SC 6.3 P 57 L 9 # 126  
Rerein, Duane Huawei Technologies

Comment Type E Comment Status X

This first para with it's four bullets is nearly identical to 6.2.1.

SuggestedRemedy

Change 6.3 as follows:

Strike the 1st para and it's bullets.

Reword 1st sentence of 2nd para from:

""While it may be possible to achieve the next step in speed with NRZ transmission, penalties resulting from increasing line rate could be offset to some extent by using more advanced, non-NRZ modulation schemes that allow more than one bit to be encoded into a single baud.""

To:

""While it may be possible to overcome the issues outlined in 6.2.1 and achieve the next TDM-PON speed step with NRZ transmission, increased penalties due to the higher line rate could be offset to some extent by using more advanced, non-NRZ modulation schemes. Such schemes allow more than one bit to be encoded into a single baud. ""

Proposed Response Response Status O

Cl 06 SC 6.3 P 75 L 1 # 32  
Harstead, Ed Alcatel-Lucent

Comment Type T Comment Status X

Plan C is the most constrained case. When the correct spectra for RFoG are considered, the available spectrum to avoid overlap are:

upstream: 1524-1539

downstream: 1596-1599

as indicated in ngepon\_0115\_harstead\_03a.pdf  
(Again, 10 nm spectra mentioned are arbitrary).

SuggestedRemedy

replace 1595-1605/1530-1540 with 1596-1599/1524-1539.

Proposed Response Response Status O

Cl 06 SC 6.3.1 P 57 L 26 # 108  
Hajduczenia, Marek Bright House Network

Comment Type E Comment Status X

It is not clear why the whole text is written in Past Simple tense.

SuggestedRemedy

Convert the statement into Present Simple.

Proposed Response Response Status O

Cl 06 SC 6.3.1 P 57 L 37 # 109  
Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status X

Avoid breaking tables across pages

SuggestedRemedy

Proposed Response Response Status O

Cl 06 SC 6.3.1 P 58 L 18 # 127  
Rerein, Duane Huawei Technologies

Comment Type E Comment Status X

wording improvement:

""For the upstream direction, 10GBASE-PR(X)-D4 has 0.5 dB worse sensitivity, so ONU launch powers will need to be 0.5 dB higher.""

SuggestedRemedy

change to:

""In the upstream direction, the 10GBASE-PR(X)-D4 receive sensitivity is 0.5 dB worse, so ONU launch powers will need to be 0.5 dB higher.""

Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

Cl 06 SC 6.3.1 P 58 L 20 # 128  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 missing space: ""25 Gb/sand""  
 SuggestedRemedy  
 to: ""25 Gb/s and""  
 ^  
 Proposed Response Response Status O

Cl 06 SC 6.3.2 P 59 L 13 # 111  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 Format of Table 4 is different than any other table in the document (1, 2, 3)  
 SuggestedRemedy  
 Align formats of all tables in the document to make them consistent.  
 Proposed Response Response Status O

Cl 06 SC 6.3.1 P 58 L 6 # 110  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 It is not clear why the NOTE text is in paren  
 SuggestedRemedy  
 Remove () around the note. It can be part of the main text without any problems.  
 Proposed Response Response Status O

Cl 06 SC 6.3.2 P 60 L 27 # 112  
 Hajduczenia, Marek Bright House Network  
 Comment Type E Comment Status X  
 It is not clear why the text on page 60, lines 27-31 and following page, lines 1-8 is bulleted.  
 SuggestedRemedy  
 Convert the target text into regular paragraphs.  
 Proposed Response Response Status O

Cl 06 SC 6.3.2 P 59 L 0 # 48  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status D  
 ""To cost-optimize a TDM-PON, the lowest bandwidth components should be placed in the ONU, i.e., the duobinary encoding should be done by the ONU receiver for downstream""  
 SuggestedRemedy  
 Avoid normative language in the report. Change to: ""To cost-optimize a TDM-PON, the lowest bandwidth components need to be placed in the ONU, i.e., the duobinary encoding is performed within the ONU receiver for the downstream direction.""  
 Proposed Response Response Status O

Cl 06 SC 6.3.2 P 61 L 12 # 113  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 ""dispersion compensation for the considered bit rates"" - I believe early on we define the acronym DC for Dispersion Compensation. It is not used consistently, though, in the draft  
 SuggestedRemedy  
 Replace all instances of ""dispersion compensation"" when the name of a function is implied, with ""DC"".  
 Proposed Response Response Status O



Received Comments

NG-EPON IC 1st Task Force review comments

Cl 06 SC 6.3.4.2 P 64 L 7 # 43  
 Powell, Bill Alcatel-Lucent  
 Comment Type ER Comment Status D  
 Replace editor note ""[REF]" with reference ""[21]"  
 SuggestedRemedy  
 Proposed Response Response Status O

Cl 06 SC 6.3.4.3 P 64 L 19 # 46  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status D  
 ""should be more than offset by reduced signal distortion"  
 SuggestedRemedy  
 Avoid normative language in the report. Change to ""is expected to be at least offset by reduced signal distortion"  
 Proposed Response Response Status O

Cl 06 SC 6.3.5 P 65 L 17 # 132  
 Remein, Duane Huawei Technologies  
 Comment Type T Comment Status X  
 ""A cyclic prefix is added to minimize inter-symbol interference (ISI)"  
 I don't think the CP minimizes the ISI rather it mitigates it's impact.  
 ISI is not use anywhere else in the doc and does note need it's own TLA  
 SuggestedRemedy  
 Change to: ""A cyclic prefix is added to mitigate inter-symbol interference"  
 Proposed Response Response Status O

Cl 06 SC 6.3.5 P 65 L 24 # 133  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 ""After equalization the FFT the signal is sent"  
 wording  
 SuggestedRemedy  
 Change to: ""After equalization and FFT the signal is sent"  
 Proposed Response Response Status O

Cl 06 SC 6.3.5 P 65 L 26 # 45  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status D  
 ""In addition, one point should be explained"  
 SuggestedRemedy  
 Avoid normative language in the report. Remove the statement: "" In addition, one point should be explained"" altogether.  
 Proposed Response Response Status O

Cl 06 SC 6.3.6 P 68 L 3 # 117  
 Hajduczenia, Marek Bright House Network  
 Comment Type TR Comment Status X  
 Unknown reference [NG-PON2 WP]  
 SuggestedRemedy  
 Provide the reference to this paper  
 Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

CI 06 SC 6.3.6 P 68 L 3 # 134  
Remein, Duane Huawei Technologies

Comment Type T Comment Status X

It is not obvious to me from the previous 2 drafts and comments where these two paragraphs came from. There is some similarity to material submitted in tao\_ngepon\_01a\_1501 but there are also significant differences. Should this be part of 6.3.5?

SuggestedRemedy

Subtend this section to the OFDM section.

Proposed Response Response Status O

CI 06 SC 6.4.1 P 68 L 18 # 35  
Powell, Bill Alcatel-Lucent

Comment Type E Comment Status D

Add reference [8] to Figure caption at end of line (right after ""Type""), or after ""Figure 43"" in line 19.

SuggestedRemedy

Proposed Response Response Status O

CI 06 SC 6.4.3 P 70 L 26 # 135  
Remein, Duane Huawei Technologies

Comment Type E Comment Status X

wording: ""employ some of sort of a WDM router""

SuggestedRemedy

change to ""employ a WDM router or multiplexer""

Proposed Response Response Status O

CI 06 SC 6.4.3 P 72 L 3 # 44  
Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status D

""two different output ports should be assigned to an ONU and a 2 N AWG should be used at the RN, as depicted in Figure 48.b""

SuggestedRemedy

Avoid normative language in report. Change to: ""two different output ports need to assigned to an ONU and a 2 N AWG is then used at the RN, as depicted in Figure 48.b""

Proposed Response Response Status O

CI 06 SC 6.5 P 72 L 27 # 136  
Remein, Duane Huawei Technologies

Comment Type E Comment Status X

Figure and title split across page.

SuggestedRemedy

Don't do that! Adjust text and figure so that both the figure and the title are on the same page.

Proposed Response Response Status O

CI 06 SC 6.5 P 73 L 1213 # 36  
Powell, Bill Alcatel-Lucent

Comment Type TR Comment Status D

In Table 7, change RFOG wavelengths as follows:

Downstream:

- Change 1550 to 1540-1565
- Add table note [4] beside new values
- Add Note [4] below table pointing to the SCTE 174 2010 RFOG reference [50]

Upstream:

- Change 1310/1610 to:
  - RFoG1 - 1260-1360 + add table note [4] beside new values
  - RFoG2 - 1600-1620 + add table note [4] beside new values

SuggestedRemedy

Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

CI 06 SC 6.5 P73 L13 # 137  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Can table footnotes be aligned to 1st column of table? left margin alignment makes it look like these are separate from the table.  
 SuggestedRemedy  
 Please do so.  
 Proposed Response Response Status O

CI 06 SC 6.6.5 P75 L39 # 139  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Try not to split the table across pages, if necessary to do so, the header should be duplicated.  
 SuggestedRemedy  
 Review report for split tables and rearrange so they don't split across pages or duplicate the header.  
 Proposed Response Response Status O

CI 06 SC 6.6.2 P74 L38 # 91  
 Hajduczenia, Marek Bright House Network  
 Comment Type ER Comment Status X  
 ""The transition from 1G to 10G lasers should be relatively straightforward""  
 SuggestedRemedy  
 Avoid normative 802.3 language in a report. Change to ""The transition from 1G to 10G lasers is expected to be relatively straightforward""  
 Proposed Response Response Status O

CI 06 SC 6.8.1 P79 L1 # 140  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Table footnotes not associated with table  
 SuggestedRemedy  
 Avoid splitting footnotes with other doc text.  
 Proposed Response Response Status O

CI 06 SC 6.6.3 P75 L10 # 138  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Excess white space  
 ""Off- the-shelf""  
 ^  
 SuggestedRemedy  
 change to ""Off-the-shelf""  
 Proposed Response Response Status O

CI 06 SC 6.8.2 P80 L1 # 141  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 Orphaned table title.  
 SuggestedRemedy  
 Keep all table titles and tables on the same page  
 Proposed Response Response Status O



Received Comments

NG-EPON IC 1st Task Force review comments

Cl 06 SC 6.9 P 83 L 19 # 119  
 Hajduczenia, Marek Bright House Network  
 Comment Type TR Comment Status X  
 Seems that the text at the end of line 19 got truncated.  
 SuggestedRemedy  
 Change text in line 19 to read: ""only at layer 2, but also at layers above."" - taken from D09  
 Proposed Response Response Status O

Cl 06 SC 6.9 P 83 L 9 # 118  
 Hajduczenia, Marek Bright House Network  
 Comment Type TR Comment Status X  
 There are two sections in the report with MTU discussion: 5.11 and 6.9  
 SuggestedRemedy  
 Change title of 6.9 to ""Support for MTU of >2kB""  
 Proposed Response Response Status O

Cl 06 SC 6.9 P 83 L 9 # 142  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 This section on MTU size appears to be more of a requirement than a technical feasibility.  
 SuggestedRemedy  
 Move to section 5 (probably 5.14).  
 Proposed Response Response Status O

Cl 07 SC 2 P 86 L 15 # 33  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 re ""Depending on the wavelength agility of NG-EPON ONUs"" assumes NG-EPON = hybrid- or WDM-PON.  
 SuggestedRemedy  
 Add to beginning of sentence: ""If NG-EPON employs hybrid- or WDM-PON technology, then...""  
 Then, add to end of paragraph: ""If NG-EPON employs TDM-PON technology, then there is no change to existing configuration processes.""  
 Proposed Response Response Status O

Cl 07 SC 7.3 P 87 L 7 # 144  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 The section is discussing cost not value:  
 ""is hard to speculate on the relative value of such a device.""  
 SuggestedRemedy  
 Change ""value"" to ""cost""  
 Proposed Response Response Status O

Cl 08 SC P 88 L 3 # 34  
 Harstead, Ed Alcatel-Lucent  
 Comment Type E Comment Status D  
 re: ""increase in the bandwidth consumption (around 50% CAGR per year)"" , I believe the 50% CAGR specifically derives from the residential unicast traffic in section 4.4.  
 SuggestedRemedy  
 Add ""unicast"" to the sentence: ""increase in the residential unicast bandwidth consumption"". Or, leave it less specific by deleting ""(around 50% CAGR per year)"".   
 Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

CI 08 SC 8 P 88 L 21 # 146  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status X  
 We shouldn't over indulge in hyperbole: ""and universally accepted"". Nothing we could do will be universally accepted.  
 SuggestedRemedy  
 strike the phrase.  
 Proposed Response Response Status O

CI 08 SC 8 P 88 L 4 # 145  
 Remein, Duane Huawei Technologies  
 Comment Type T Comment Status X  
 ""the need for optical access is evident"" - but we already have that with 1G and 10G-epon  
 SuggestedRemedy  
 Add ""higher speed"" so the statement reads: ""the need for higher speed optical access is evident""  
 Proposed Response Response Status O

CI 09 SC P 89 L 18 # 37  
 Powell, Bill Alcatel-Lucent  
 Comment Type ER Comment Status D  
 Change ""Power"" to ""Powell""  
 SuggestedRemedy  
 Proposed Response Response Status O

CI 09 SC P 91 L 1 # 39  
 Powell, Bill Alcatel-Lucent  
 Comment Type E Comment Status D  
 Is this note about [41] or some other reference? I was able to access reference [41] just fine...  
 Suggest changing to a reference that the note applies to or remove note.  
 SuggestedRemedy  
 Proposed Response Response Status O

CI 09 SC P 91 L 21 # 38  
 Powell, Bill Alcatel-Lucent  
 Comment Type ER Comment Status D  
 Change Ref. [50] to read:  
 SCTE 174 2010, Radio Frequency over Glass Fiber-to-the-Home Specification,  
[http://www.scte.org/documents/pdf/standards/SCTE 174 2010.pdf](http://www.scte.org/documents/pdf/standards/SCTE_174_2010.pdf)  
 SuggestedRemedy  
 Proposed Response Response Status O

CI 3.2 SC P 19 L 8 # 168  
 NOLL, KEVIN TIME WARNER CABL  
 Comment Type E Comment Status X  
 ""For simplicity"" is incorrect. The explanations are reduced for brevity. In fact, though, each sub-section DOES mention how the downstream works.  
 SuggestedRemedy  
 CHange to ""For brevity"" or remove the sentence.  
 Proposed Response Response Status O

Received Comments

NG-EPON IC 1st Task Force review comments

Cl 3.2.2 SC P 20 L 10 # 169  
NOLL, KEVIN TIME WARNER CABL

Comment Type E Comment Status X  
clarity in grammar - "" on all upstream wavelength channels at a time""

SuggestedRemedy  
change to ""simultaneously transmits on all upstream wavelength channels ""

Proposed Response Response Status O

Cl 67 SC 7.3 P 86 L 29 # 143  
Remein, Duane Huawei Technologies

Comment Type T Comment Status X  
The following statements appear contradictory:  
""It is expected that the price of a single wavelength NG-EPON ONU be comparable to the price of 10/10G-EPON ONU, with the premium attributed primarily to the tunable optics (if used by operators).""  
and later in the same para:  
""It is probably reasonable to expect the first generation of NG-EPON ONUs cost 4 times more than current 10/10G-EPON ONUs, with additional premium for tunable optics (if used by operators).""

SuggestedRemedy  
Change the second sentence to read:  
""... first generation of multi-wavelength NG-EPON ONUs cost 4 times ...""

Proposed Response Response Status O

Cl 99 SC 99 P 7 L 1 # 79  
Hajduczenia, Marek Bright House Network

Comment Type ER Comment Status D  
TOC contains references to Tables and Figures - that makes looking through it harder.

SuggestedRemedy  
Separate TOC into three lists:  
a) table of contents (with headers only)  
b) list of tables  
c) list of figures

Proposed Response Response Status O