Cl **115** *SC* **115.2.5** *P* **64** *L* **6** # r02-1

RAN, ADEE Intel

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

(page and line numbers are in the diff version)

The newly added line has unbalanced round and square brackets and is thus a syntax error in Matlab:

idx_err = find(([diff(PCS_DEC_EN) < 0) 0] & GMII.RX_EN)+1;

SuggestedRemedy

Change this line to read

idx_err = find([(diff(PCS_DEC_EN) < 0) 0] & GMII.RX_EN)+1;

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace this line with:

idx_err = find([(diff(PCS_DEC_EN) < 0) 0] & GMII.RX_DV)+1;

where suggested remedy is accepted changing RX_EN with RX_DV.

Cl **115** *SC* **115.2.5** *P* **62** *L* **43** # r02-2

RAN, ADEE Intel

Comment Type **ER** *Comment Status* **D**

(page and line numbers are in the diff file)

This script uses GMII.RX_EN, described as "GMII RX_EN" signal.

Looking at signals in Figure 35-2 and 35.2.1.2.1, there is signal with that name in GMII.

Should it be RX_DV?

SuggestedRemedy

Change RX_EN to RX_DV everywhere.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.2.5** *P* **62** *L* **22** # r02-3

RAN, ADEE Intel

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

The code accesses PDB.PAYLOAD_ERR at indices (2:OFS+1, i) with OFS in the range 1 to 7 (0 is excluded), so it assumes PDB.PAYLOAD_ERR has at least 2 rows.

According to the variable definitions, PDB.PAYLOAD_ERR is a 1xL row vector, so the accessed elements do not exist, regardless of the data used, and results in an error. So the definition is broken and can't be used for implementing a PCS.

SuggestedRemedy

Since this is the formal definition of decoding and there is no other description, it is not clear what should be done instead.

Correct the code or the variable definitions so that they match. Verify that it runs on some sample data that matches the definitions, with no errors.

Preferably, provide input variable values that can be used to run an example (e.g. in the introductory comments, or add a section to Annex 115A). It would be good if a functional example can show both encoding and decoding (start with GMII TX signals, encode them, and decode the result to get the correct GMII RX signals).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace p. 62, lines 4 through 7, with:

```
PDB.PAYLOAD_ERR % PDB payload error flag, 8x(L/8) matrix. It indicates
          % if any of the bits within the corresponding byte of
          % the PDB payload belongs to a codeword that could not be
          % corrected.
```

Additionally, replace p.62, l.22:

```
ones(1,OFS) | PDB.PAYLOAD_ERR(2:OFS+1, i).';
```

with:

```
ones(1,OFS);
```

Replace p.62, l.24:

```
zeros(1,OFS) | PDB.PAYLOAD_ERR(2:OFS+1, i).';
```

with:

```
PDB.PAYLOAD_ERR(2:OFS+1, i).';
```

Replace "1+1" with "2" in p. 62, lines 46 through 54, as:

```
    % Assign final data.
    if ((OFS+LEN+1) < 8)
      GMII.RX_DV(8*(i-1)+OFS+LEN+2:8*(i-1)+8) = ...
       ones(1, 8-(OFS+LEN+1));
```

```
    GMII.RX_ER(8*(i-1)+OFS+LEN+2:8*(i-1)+8) = ...
      PDB.PAYLOAD_ERR(OFS+LEN+2:8, i)';

    GMII.RXD(8*(i-1)+OFS+LEN+2:8*(i-1)+8) = ...
      PDB.PAYLOAD(OFS+LEN+2:8, i)';
  end
```

Cl **115** *SC* **115.3.4** *P* **66** *L* **24** # r02-4

Perez De Aranda Alonso, Ruben Knowledge Developme

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

Table 115-6, Description column, read: "THP coefficients set identifier that are to be used in the next Transmit Block (see 115.3.6.2)"

SuggestedRemedy

It should read: "Identifier of the THP coefficients set that will be used to transmit the next Transmit Block (see 115.3.6.2)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.3.4** *P* **66** *L* **30** # r02-5

Perez De Aranda Alonso, Ruben Knowledge Developme

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

Table 115-6, Description column, not accurate cross reference "(see 115.2.4.1.1)"

SuggestedRemedy

Update the cross-reference to: "(see 115.2.4.1.3)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.3.4** *P* **66** *L* **38** # r02-6

Perez De Aranda Alonso, Ruben Knowledge Developme

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

Table 115-6, Description column: "Requested THP coefficients sent when PHD.RX.REQ.THP.SETID is not equal to 0"

SuggestedRemedy

Should read: "Requested THP coefficients when PHD.RX.REQ.THP.SETID is not equal to 0 (see 115.3.6.3)."
Suggested eliminate "sent", because the field is always sent regardless of request. Add corss-reference to state diagram that determines the value.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.3.4** *P* **67** *L* **6** # r02-7

Perez De Aranda Alonso, Ruben Knowledge Developme

Comment Type **T** *Comment Status* **D**

Table 115-6, Description column: "Indicates whether local PHY is able to receive PAM16 symbols belonging to payload data subblocks with reliability. This field reflects the value of the variable loc_rcvr_status. The local PHY uses this received PHD field to determine the value of the variable rem_rcvr_status (see 115.3.7.4)"
The term "reflect" seems not to be the most appropriate term, since an state diagram determines the value. According to PHY quality monitor state diagram, LOCPHD.RX.LINKSTATUS is not set to OK simultaneously to loc_rcvr_status (see states PMAMON_OK, and PMAMON_UPDATE). Because of that, I believe that the PHD field does not reflect the value of the variable loc_rcvr_status, but it is determined by the state diagram. However, note that clause 45 bit 3.519.15 is a true reflection of the state variable.

SuggestedRemedy

Suggest: "Indicates whether local PHY is able to receive PAM16 symbols belonging to payload data subblocks with reliability. The value of this field is determined by the PHY quality state diagram (see 115.3.7.4). The local PHY uses this received PHD field to determine the value of the variable rem_rcvr_status (see 115.3.5.4)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.3.4** *P* **67** *L* **15** # r02-8

Perez De Aranda Alonso, Ruben Knowledge Developme

Comment Type **T** *Comment Status* **D**

Table 115-6, Description column: "Indicates whether the local PHY is able to receive the PHD from its link partner with reliability. This reflects the value of the variable loc_rcvr_hdr_lock. The local PHY uses this received PHD field to determine the value of the variable rem_rcvr_hdr_lock (see 115.3.5.5)"
The term "reflect" seems not to be the most appropriate term, since an state diagram determines the value. The local PHD reception monitor state diagram assigns the value of LOCPHD.RX.HDRSTATUS. According to p. 69, l.8, LOCPHD fields assigned by the state diagrams shall only take effect at the start of a Transmit Block. Therefore, PHD.RX.HDRSTATUS cannot be really considered a pure reflection of rem_rcvr_hdr_lock. However, note that clause 45 bit 3.519.12 is a true reflection of the state variable

SuggestedRemedy

Suggest: "Indicates whether the local PHY is able to receive the PHD from its link partner with reliability. The value of this field is determined by the local PHD reception monitor state diagram. The local PHY uses this received PHD field to determine the value of the variable rem_rcvr_hdr_lock (see 115.3.5.5)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.3.4** *P* **67** *L* **24** # r02-9

Perez De Aranda Alonso, Ruben Knowledge Developme

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

Simplify description of link margin field, since many of the aspects are well defined in other subclause.

SuggestedRemedy

Suggest simpler text:
"The value of this field is determined by the PHY quality monitor state diagram (see 115.3.7.4) in response to link margin estimation as defined in 115.3.7.2. Upon PHD reception, the field is stored in bits 3.521.7:0 (see 45.2.3.47f.1)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **115** *SC* **115.3.4** *P* **69** *L* **4** # r02-10

Grow, Robert Knowledge Developme

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

Though out-of-scope, some changes might make it easier for the user of the standard if the processes of building the PHD to be transmitted and transmitting the PHD in a Transmit block is clarified; and similar receive clarifications.

The sentence "The prefix LOCPHD refers to the PHD transmitted to the link partner (from the local PHY) and the prefix REMPHD refers to the PHD received from the link partner (from the remote PHY)." can produce confusion and the misintepretation of LOCPHD fields represent the PHD fields currently transmitted in the Transmit Block. This is contradictory with p.69, l.8: "LOCPHD fields assigned by the state diagrams shall only take effect at the start of a Transmit Block, so that in this commit point the PHD information is sampled by the Header Builder to create the PHS to be transmitted in the Transmit Block."

In addition, in several state diagram and other descriptions, phrases like "LOCPHD.*** of the transmit PHD", may reinforce confusion between building the fields for the next PHD to be transmitted, and the PHD included in the current Transmit Block.

Though less significant, a similar confusion can exist on reception between the PHD in a Transmit Block being received, and the fields after reception, decoding and validation.

SuggestedRemedy

Change p.69, lines 4 through 16, as follows:
"Each PHY has to deal with transmit and receive PHDs simultaneously. The prefix LOCPHD refers to the fields of the PHD to be included in the next Transmit Block transmitted to the link partner (from the local PHY). LOCPHD fields assigned by the state diagrams shall be sampled at the start of a Transmit Block by the Header Builder to create the PHS included in that current Transmit Block.

The prefix REMPHD refers to the fields of the most recent PHD received, decoded and validated from the link partner (from the remote PHY). The PHY shall provide the new values of REMPHD fields after reception, decoding, and validation of a complete PHS (PHS0 to PHS13). New REMPHD field values are available immediately after validation of the complete PHS, which shall be completed between the end of the reception of PHS13 and the end of the received Transmit Block."

In addition, do following editorial changes:
p.74, l.51 - delete "in the transmitted PHD"
p.76, l.52 - delete "of the transmitted PHD"
p.78, l.27 - delete "on the transmitted PHD"
p.81, l.41 - delete "in the transmitted PHD"
p.82, l.19 - delete "of the transmitted PHD"
p.113, l.30 - change to read "Change the TXO_MSGT bit of register 3.500, and copy the new value to LOCPHD.OAM.MSGT."
p.113, l.32 - change to read "Copy the rest of the message to LOCPHD fields."
p.113, l.37 - change to read: "This happens when the REMPHD.OAM.PHYT field of the most recent received valid PHD is equal to the LOCPHD.OAM.MSGT field."

p.113, l.44 - delete "of the PHD"
p.115, l.27 - delete "of the transmit PHD"
p.115, l.44 - delete "of the transmit PHD"
p.115, l.49 - delete "of the PHD"
p.116, l.1 - delete "of the PHD"
p.117, l.1 - change to read: "Variable equivalent to the LOCPHD.OAM.MERT field."
p.118, l.8 - delete "of the PHD"
p.118, l.11 - change to read: "Variable equivalent to the content of the LOCPHD.OAM.DATAx fields."
p.118, l.15 - change to read: "Variable equivalent to the LOCPHD.OAM.PHYT field."
p.119, l.7 - delete "of the transmit PHD"
p.119, l.20 - delete "of the transmitted PHD"
p.119, l.42 - change to read: "LOCPHD.OAM.PHYT to the value of field REMPHD.OAM.MSGT of the most recent received valid PHD (txphd_phyt <= rxphd_msgt)."
p.119, l.49 - delete "of the transmit PHD"
p.75, l.51 - change to read "to that of the corresponding field of the most recent received valid PHD"
p.77, l.25 - delete "PHD"
p.78, l.3 - change to read "as the fields REMPHD.RX.REQ.THP.COEF[8:0]."
p.78, l.33 - change to read "of the most recent received valid PHD"
p.78, l.34 - change to read "the most recent received valid PHD contains a THP coefficients adaptation request from the link partner."
p.78, l.47 - change to read "REMPHD.RX.REQ.THP.SETID of the most recent received valid PHD is not equal to zero and is different from the"
p.116, l.27 - change to read "Variable equivalent to the field REMPHD.OAM.MSGT "
p.119, l.19 - change to read "occurs when the field REMPHD.OAM.PHYT of the most recent received valid PHD takes the"
p.119, l.32 - change to read "the field REMPHD.OAM.MSGT of the most recent received valid PHD takes a value that is different from that of the"
p.119, l.37 - chante to read "the most recent received valid PHD"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accept changes to p.69, lines 4 through 16, with modifications to preserve PICS items as they are and to indicate to what the fields are available in reception:
"…
The prefix REMPHD refers to the fields of the most recent PHD received, decoded and validated from the link partner (from the remote PHY). The new values of REMPHD fields shall be available to the state diagrams and registers immediately after reception, decoding, and validation of a whole PHS (PHS0 to PHS13) and before the reception of the Transmit Block that includes that PHS is completed."

Modify Vlaue/Comment of PICS items PMA7 and PMA8 accordingly to page 69, as:
+ PMA7: "PHD fields assigned by the state diagrams are sampled at the start of a Transmit Block and transmitted in that current Transmit Block"

+ PMA8: "Received PHD fields are available to state diagrams and registers after whole PHS reception, decoding, and validation, and before Transmit Block reception is completed"

Accept the other listed changes, with some additions and modifications:
p.74, l.51 - delete "in the transmitted PHD"
p.76, l.52 - delete "of the transmitted PHD"
p.78, l.27 - delete "on the transmitted PHD"
p.81, l.41 - delete "in the transmitted PHD"
p.82, l.19 - delete "of the transmitted PHD"
p.113, l.30 - change to read "Change the TXO_MSGT bit of register 3.500, and copy the new value to LOCPHD.OAM.MSGT."
p.113, l.32 - change to read "Copy the rest of the message to LOCPHD fields."
p.113, l.33 - delete "of the PHD"
p.113, l.34 - delete "of the PHD"
p.113, l.37 - change to read: "This happens when the REMPHD.OAM.PHYT field is equal to the LOCPHD.OAM.MSGT field."
p.113, l.44 - delete "of the PHD"
p.115, l.27 - delete "of the transmit PHD"
p.115, l.44 - delete "of the transmit PHD"
p.115, l.49 - delete "of the PHD"
p.116, l.1 - delete "of the PHD"
p.117, l.1 - change to read: "Variable equivalent to the LOCPHD.OAM.MERT field." (delete "being transmitted …")
p.117, l.8 - delete "of the PHD"
p.117, l.11 - change to read: "Variable equivalent to the content of the LOCPHD.OAM.DATAx fields." (delete "being transmitted …")
p.117, l.15 - change to read: "Variable equivalent to the LOCPHD.OAM.PHYT field." (delete "being transmitted …")
p.119, l.7 - delete "of the transmit PHD"
p.119, l.20 - delete "of the transmitted PHD"
p.119, l.42 - change to read: "LOCPHD.OAM.PHYT to the value of field REMPHD.OAM.MSGT (txphd_phyt <= rxphd_msgt)."
p.119, l.49 - delete "of the transmit PHD"
p.75, l.49 - change to read "From then on, the value of the variable rem_rcvr_hdr_lock is updated to that of the corresponding field of the most recent received valid PHD (rem_rcvr_hdr_lock <= REMPHD.RX.HDRSTATUS).
p.77, l.25 - delete "the PHD field"
p.78, l.3 - change to read "as the fields REMPHD.RX.REQ.THP.COEF[8:0]."
p.78, l.33 and l.34 - change to read "As soon as the value of the field REMPHD.RX.REQ.THP.SETID is not equal to zero, the most recent received valid PHD contains a THP coefficients adaptation request from the link partner."
p.78, l.47 - change to read "REMPHD.RX.REQ.THP.SETID is not equal to zero and is different from the"
p.116, l.23 - change to read: "Variable equivalent to the field REMPHD.OAM.MERT." (delete "of the last PHD that has been correctly received by the local PHY")
p.116, l.27 - change to read: "Variable equivalent to the field REMPHD.OAM.MSGT." (delete "of the last valid received PHD")
p.116, l.32 - change to read: "Variable equivalent to the fields REMPHD.OAM.DATAx." (delete "of the last PHD correctly received by the local PHY")
p.116, l.36 - change to read: "Variable equivalent to the field REMPHD.OAM.PHYT." (delete "of the last PHD that has been correctly

received by the local PHY")
p.119, l.1 and 2 - delete the two "received"
p.119, l.16 - delete "of the received PHD"
p.119, l.19 - delete "of the received PHD"
p.119, l.32 - delete "of a correctly received PHD"
p.119, l.37 - delete "of the received PHD"
p.119, l.40 - delete "of the received PHD"
p.119, l.42 - delete "of the received PHD"