

In support of comment 358

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Overview

- Previous presentation given in May 2007 showed how errors across the XAUI link could affect the laser on/off of the ONU.
- A motion was taken that resulted in the following text added to D1.0, "The XAUI interface as defined in Clause 47 is prohibited from use in the XEPON_PCS physical interfaces at the ONU."
- It is believed that this requirement is overly conservative and not necessary. In all practical implementations, these error conditions should not arise. Comment 358 recommends to remove this requirement.
- Further examination of Clause 49 provides new details.

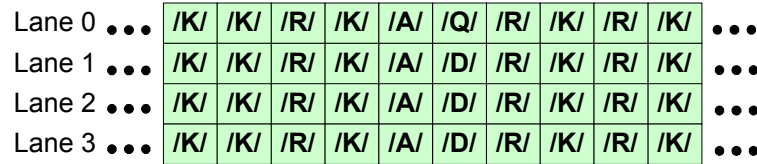
How do we get into a bad state?

- The only way the Transmit state machine can transmit data sync header bits is while in the TX_D state and when the tx_raw<71:0> vector contains 8 data bytes.
- There are four transitions into the TX_D state in Figure 49-14.
- Two transitions will cause control sync headers to be sent (we **do not** need to worry about these transitions):
 - From the TX_C state if the next tx_raw is a START.
 - From the TX_T state if the next tx_raw is a START.
- Two transitions will cause data sync headers to be sent (we **only** need to worry about these transitions):
 - From the TX_D state if the next tx_raw is DATA.
 - From the TX_E state if the next tx_raw is DATA.

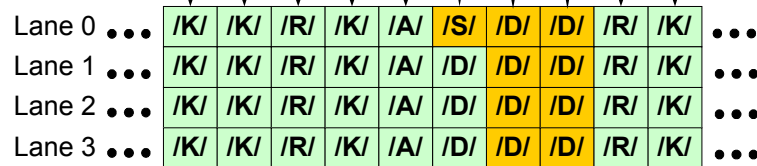
Most "likely" errors that can enable laser

Errors transition from TX_D to TX_D

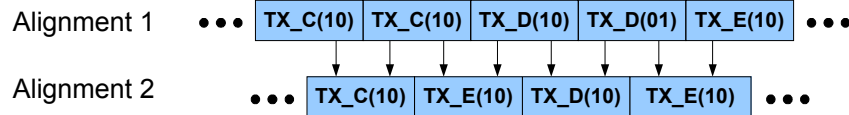
Signal at top of XAUI



Signal at end of XAUI



Clause 49 State



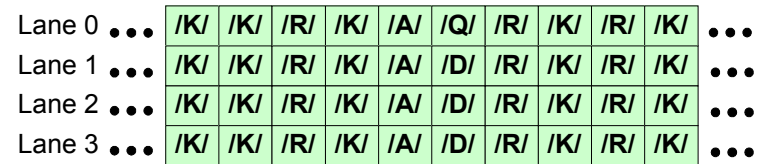
Expected Laser state

Actual Laser state (in alignment 1)

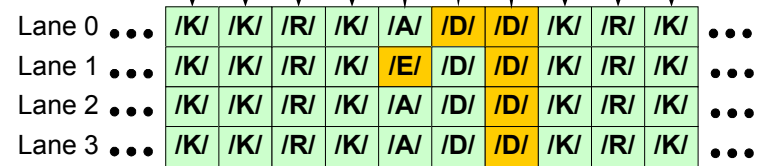
Actual Laser state (in alignment 2)

Errors transition from TX_E to TX_D

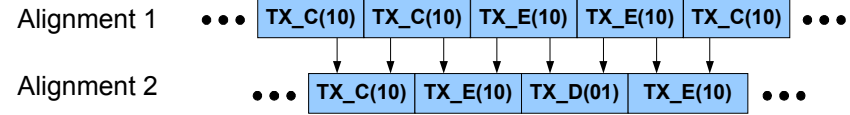
Signal at top of XAUI



Signal at end of XAUI



Clause 49 State (sync header)



Expected Laser state

Actual Laser state (in alignment 1)

Actual Laser state (in alignment 2)

Recap of what conditions must exist

- Need errors to turn IDLE into ERROR block
- Need errors to turn Sequence into DATA block
- Need errors to turn IDLE into DATA block.
- Need huge burst of very specific errors.
- Need valid codes to be changed with errors into other valid codes.
- Need errors on multiple lanes.
- Need consecutive errors on independent lanes.
- Need errors during sequence ordered set.
- Need correct Clause 49 alignment.

Suggested Remedy

- Comment 358
 - Clause 92
 - Subclause 92.2.1
 - Page 304
 - Line 13
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- Accept comment 358 by removing the sentence “The XAUI interface as defined in Clause 47 is prohibited from use in the XEPON_PCS physical interfaces at the ONU.”