

# SIGNAL\_OK stability

In support of comments against IEEE 802.3ct D1.2

Comment #: 11, 17, 29, 32, 35

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# References

- 100GBASE ZR Draft 802.3ct\_D1p1.pdf, Private Area
- ITU-T G.709 - Interfaces for the optical transport network
- ITU-T G.798 - Characteristics of optical transport network hierarchy equipment functional blocks
- trowbridge\_3cn\_01a\_0119.pdf, IEEE P802.3cn Task Force, Long Beach, March 2019
- bruckman\_3ct\_01a\_200213, IEEE P802.3ct Task Force, teleconference February 13<sup>th</sup>, 2020
- bruckman\_3ct\_02a\_200213, IEEE P802.3ct Task Force, teleconference February 13<sup>th</sup>, 2020
- bruckman\_3ct\_01\_200312, IEEE P802.3ct Task Force, teleconference March 12<sup>th</sup>, 2020

# General

- During the March 12<sup>th</sup>, 2020 Teleconference I presented a contribution related with the alignment process and indication behavior in D1.2:
  - bruckman\_3ct\_01\_200312
- As a conclusion of the technical discussions during the Teleconference I added another option to handle the SIGNAL\_OK stability issue.
- In this contribution I present this option.

# Reminder:

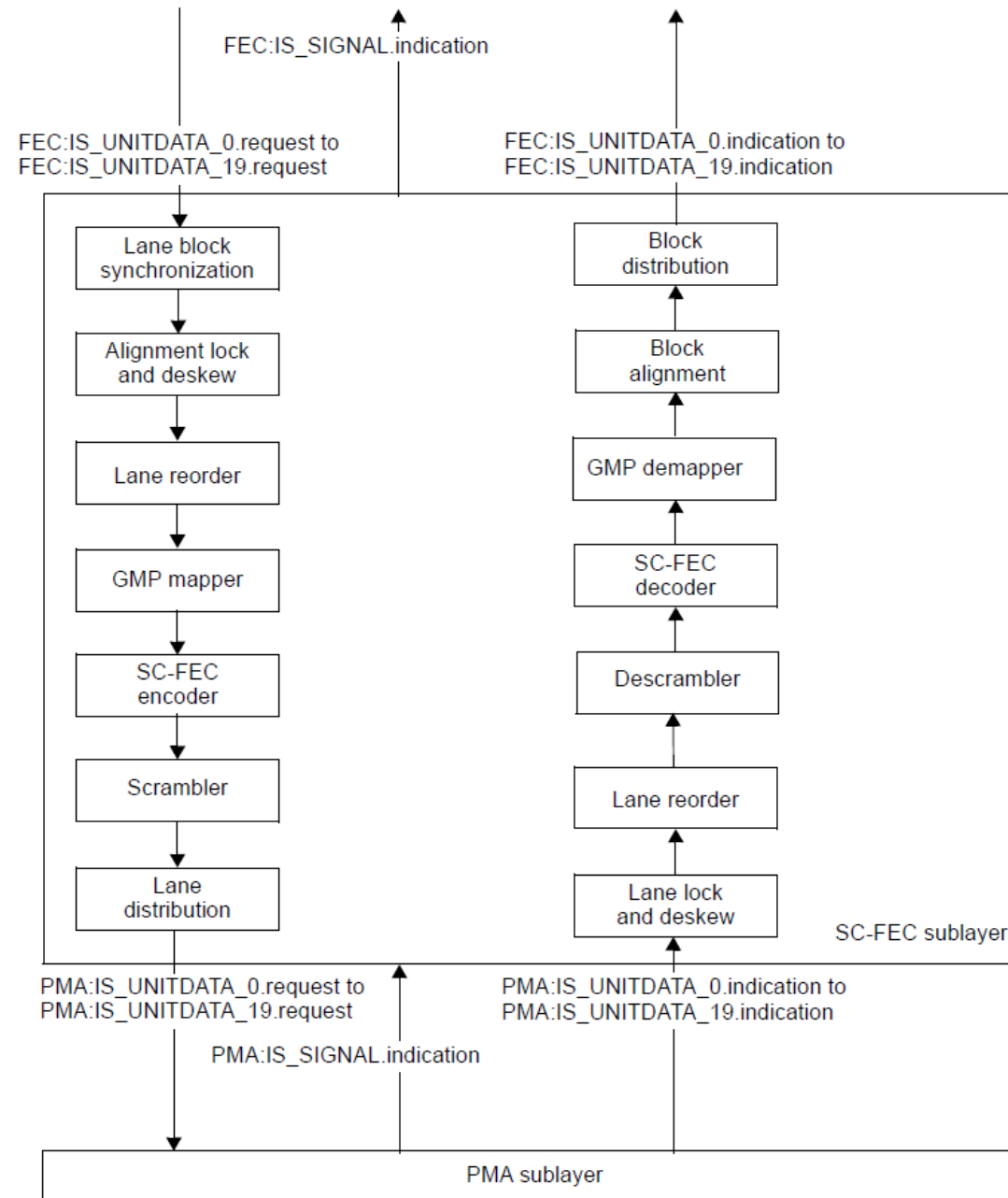


Figure 153–2—SC-FEC functional block diagram

# SIGNAL\_OK indication

- Instead of using the pre-FEC `fec_align_status` variable that is “noisy” use the `rx_block_lock` signal from Figure 82–12 Block lock state diagram.
  - `Rx_block_lock` is after-FEC
  - In any case it seems we need to use this indication since if `rx_block_lock` is FALSE we should set `SIGNAL_OK` to FAIL.
- Change
  - The `SIGNAL_OK` parameter of the `FEC:IS_SIGNAL.indication` primitive can take one of two values: OK or FAIL. The value is set to OK when ~~the FEC receive function has identified codeword boundaries as indicated by `fec_align_status`~~ `rx_block_lock` equal to true. That value is set to FAIL when ~~the FEC receive function is unable to reliably establish codeword boundaries as indicated by `fec_align_status`~~ `rx_block_lock` is equal to false. When `SIGNAL_OK` is FAIL, the `rx_bit` parameters of the `FEC:IS_UNITDATA_i.indication` primitives are undefined.

# Data flow stability

- Data flow shall be stable during the frequent loss of alignment events
- To achieve this the following changes are suggested (see details in bruckman\_3ct\_01\_200312):
  - Use fas\_in\_counter instead of fas\_counter, so that during a re-synchronization the FAS location is retained until a new FAS location is identified by the synchronization state machine.
    - Note that if the synchronization loss was due to BER, the new FAS location will be equal to the previous one.
  - Do not allow bits to be discarded during the deskew process.