8802-3/802.3 REVISION REQUEST 1158

DATE: 8th Jul, 2004
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REQUESTED REVISION:
STANDARD: IEEE Std 802.3ah-2004
CLAUSE NUMBER: 65.2.3.2.3
CLAUSE TITLE: Special frame markers

PROPOSED REVISION TEXT:

— /T_FEC_E/ - end of FEC coded packet with even alignment.
If the starting running disparity is positive,
the T_FEC_E has the following pattern: /T/R/K28.5/D10.1/T/R/

If the starting running disparity is negative,
the T_FEC_E has the following pattern: /T/R/K28.5/D29.5/T/R/

RATIONALE FOR REVISION:

The FEC state machine looks ahead at the incoming bit stream and attempts to match 6 or 7 bytes to T_FEC_E or T_FEC_O. The match is declared is if received bit stream has Hamming distance of less than 6 from the bit sequence specified for T_FEC_O or T_FEC_E delimiters.

The problem is that T_FEC_E and T_FEC_O are only Hamming-distance 2 apart, and can be easily confused. The attached diagram shows an example where both T_FEC_O and T_FEC_E could be matched with only 2 bit errors each.

The FEC receive state machine can easily mistake Dx.x+T_FEC_E for T_FEC_O. When this happens, the FEC receive state machine discards the last byte of CRC32.

Page 2 in the attached diagram shows the increased Hamming distance when a modified T_FEC_E is used.

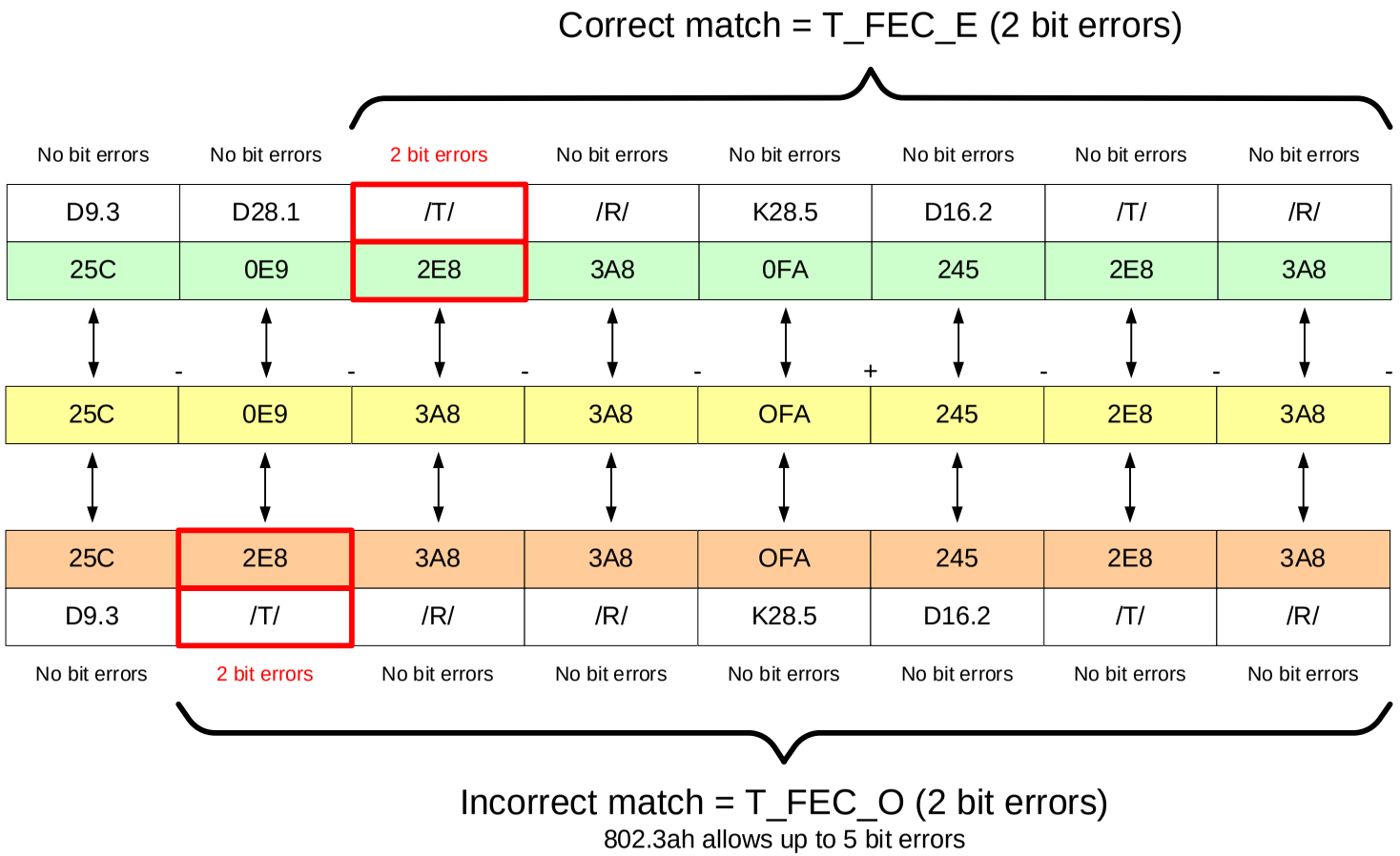
IMPACT ON EXISTING NETWORKS:

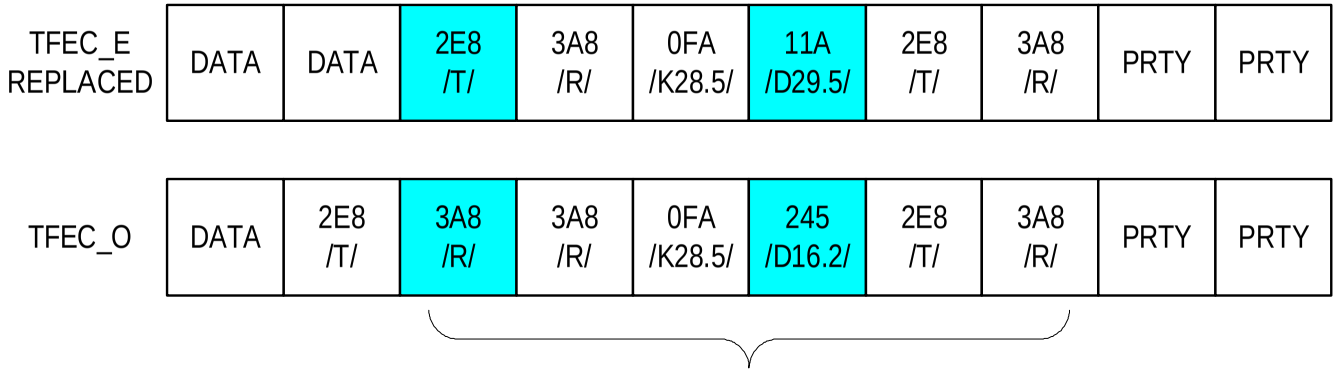
This modification may make FEC function not backward compatible.

Please attach supporting material, if any	
Submit to:- Bob Grow, Chair IEEE 802.3	
E-Mail: Bob.Grow@intel.com	
For official 802.3 use	
REV REQ NUMBER: 1158	
DATE RECEIVED: 8th Jul, 2004	
~~EDITORIAL~~/TECHNICAL	
ACCEPTED/~~DENIED~~	
BALLOT REQ'D YES/~~NO~~	
COMMENTS: 08-Mar-06 Ver: D2.0 Status: P	

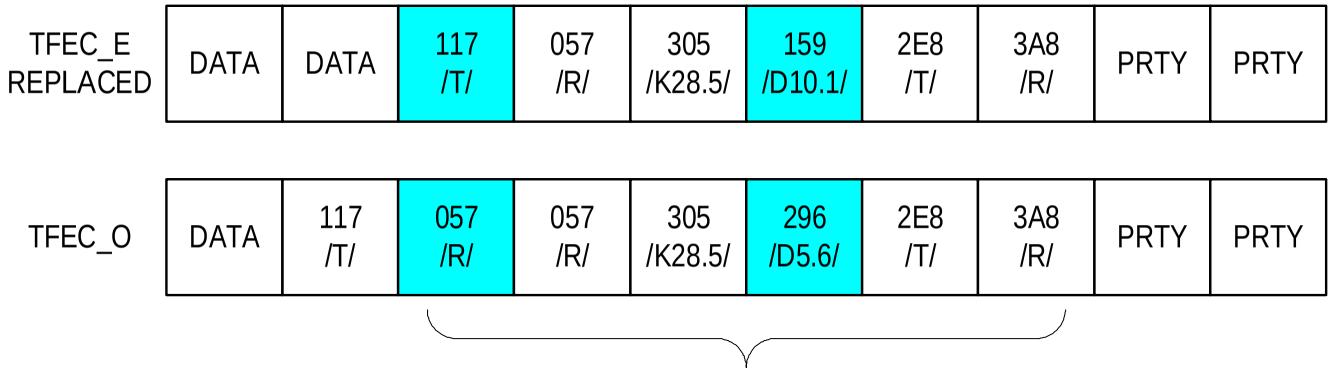
For information about this Revision Request see -

http://www.ieee802.org/3/maint/requests/revision_history.html#REQ1158





Hamming distance between modified TFEC_E and original TFEC_O when starting running disparity is negative



Hamming distance between modified TFEC_E and original TFEC_O when starting running disparity is positive