

# PSAACRF Proposal

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## P802.3dg d2p1 Comments #158 and #159

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- Both Equation (190-19) and the description of PSACCRF in 190.7.2.2 need refinements for accuracy
  - Multiple disturber AFEXT is not the same as PSACCRF
  - Equation (190-19) doesn't show subtraction of IL in dB as needed to determine PSACCRF
  - There is only one link segment (no  $N$  required)
  - Variables should be presented using IEEE 802.3 style
  - These concerns are raised in P802.3dg d2p1 comments #158 and #159

# Proposed Remedies

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- Comment #158
  - Implement the changes shown in slide 4 of [https://www.ieee802.org/3/dg/public/November\\_2025/Maguire\\_Comments158and1159\\_dg\\_01\\_11252025.pdf](https://www.ieee802.org/3/dg/public/November_2025/Maguire_Comments158and1159_dg_01_11252025.pdf)
- Comment #159
  - Accommodated by comment #158

# Change P135, Lines 29 to 48 as shown:

190.7.2.2 Power sum alien attenuation to crosstalk ratio far-end (PSAACRF)

In order to limit the alien crosstalk at the far-end of a 100BASE-T1L link segment, the differential pair-to-pair alien far-end crosstalk (FEXT) loss between the disturbed 100BASE-T1L link segment and other disturbing 100BASE-T1L link segments is specified to meet the bit error ratio objective. To ensure that the total alien FEXT loss coupled into a 100BASE-T1L link segment is limited, power sum AACRF is specified as the insertion loss of the disturbed link (in dB) subtracted from the multiple disturber alien FEXT loss of the individual disturbers.

Power sum alien attenuation to crosstalk ratio far-end (PSAACRF) is determined by summing the power of the individual pair-to-pair differential alien FEXT values and subtracting the insertion loss (in dB) of the disturbed link segment over the frequency range 1 MHz to 60 MHz as follows in Equation (190-19).

$$PSAACRF(f) = \left( -10 \log_{10} \sum_{j=1}^m 10^{\frac{-AFEXT(f)_j}{10}} \right) - IL_d(f) \text{ dB} \tag{190-19}$$

where

$f$  is the frequency in MHz;  $1 \leq f \leq 60$

$AFEXT(f)_j$  the magnitude of the alien FEXT loss at frequency  $f$  of the disturbing 100BASE-T1L link segment  $j$  (1 to  $m$ ) for disturbed 100BASE-T1L link segment in dB

$IL_d(f)$  is the measured insertion loss of the disturbed link segment at frequency  $f$  in dB