Alien crosstalk and PBO

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What is special on 802.3bz?
access points,
installed cabling (from Nordin Berlin)

TSB-162 WAP Typical Uniform Cell Size

Standard assumes short disturber at receiver end. This works OK except for very short lengths due to equipment patchcords. Disturbing signal attenuation is not considered.
If the length of disturbing and disturbed channel are different, PSAACR-F is curved.

Therefore for SNR calculation the straight limit line should not be used.
CAT5e, Cat6 alien-XT offset from CAT6A

• From wagner_ngeabt_01a_0115 it can be deducted that for 100m the limit lines could be for cat5e:
  – PSANEXT : 75-15log(f) > 100 MHz 15 dB offset
  – PSAACR-F: 55 -20log(f) 22 dB offset

• Proposal of 15 dB for cat5e is a good starting but does not match measurements, too optimistic

• Cat6 needs therefore to be considered too. Various presentations, 15 dB offset viable, insertion loss is less
PSANEXT and PSAFEXT comparison

- Up to 200 MHz ANEXT always less
• For more details see Pittsburg Schicketanz_3bz_01_0515

• Disadvantage of PBO: less immunity to impulse noise
Alien crosstalk is an attenuation
To get power the transmit filter needs to be known
How was it calculated, using PSD shown below?
Is 2.5 and 5 defined?
Could not reproduce the values
PSAFEXT and SNR page 6 (Sedarat_3bz_01_230615)

• How was SNR calculated:
  – PSAFEXT – IL of disturbed pair
    • Curved PSAACRF line
  – PSAFEXT – IL of disturbing pair (usual calculation, limit line)
    • Straight line

  – Coupling length of disturbing pair different from channel length?
• Last Bullet
  – Only 1/6 contributes but in power-sum
  – Was that considered?

  – From Sedarat_3bz_01_230615

• Mixed aggressor model: each of 6 aggressors contributes 1/6 to the total crosstalk power
• The offset needed for 5G is always less than measured 22 dB so therefore it would not run
• 2,5 G only for less than 75m.
1000Base-T and cat5e cabling
discussion June 23

- ACR-F hidden margin in most cablings
  - At 62.5 MHz ACR-F limit is 21.1 dB, for PAM5 + FEC borderline, but with hidden margin OK
- Alien noise with measured PSAACRF offset of 22 dB
  - at 62.5 MHz 18 dB SNR at 100m
  - at 62.5 MHz 21 dB SNR at 50m
  - Critical with 6 disturbers and U/UTP cabling

Very old F/UTP
Class D measurement
PSAACRF negligible
Usual in central Europe