

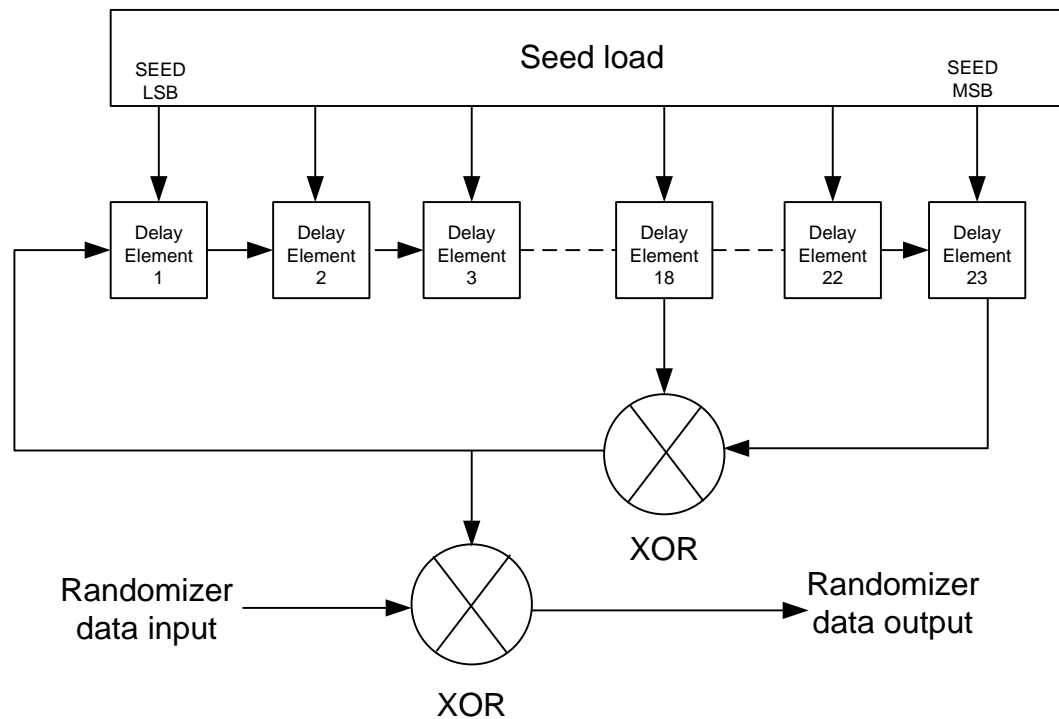
Bit Scrambler for 802.3bn

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Upstream Data Scrambler 1

- DOCSIS 3.1 (section 7.4.5):
 - $X^{23} + X^{18} + 1$
 - 23 b seed specified by CMTS on an Upstream Channel Descriptor
 - Seed loaded at beginning of grant
- Recommend:
 - Use D3.1 polynomial $X^{23} + X^{18} + 1$ (see D3.1 Figure 7-4)
 - Default Seed = 4732BA h. Initialized at beginning of grant.
Seed can be made programmable. Note: DS PLC scrambler use the same seed and it is non- programmable.

Upstream Data Scrambler 2



Upstream PLC Scrambler

- DOCSIS 3.1:
 - No Upstream PLC
- Recommend:
 - Use polynomial $X^{23} + X^{18} + 1$ (slide 3-4)
 - Default Seed = 4732BA h. Initialized at beginning of grant.

Downstream Data Scrambler

- DOCSIS 3.1 (section 7.5.5.3):
 - Use $GF[2^{12}]$ polynomial to scramble symbols, allowing descrambling per profile.
- Recommend:
 - Downstream is broadcast (no profile). Use a bit scrambler
 - Use polynomial $X^{23} + X^{18} + 1$ (slide 3-4)
 - Default Seed = 4732BA h. Initialized on first codeword of Downstream frame

Downstream PLC Scrambler

- DOCSIS 3.1:
 - Use GF[12] polynomial to scramble symbols
- Recommend:
 - Use polynomial $X^{23} + X^{18} + 1$ (slide 3-4)
 - Default Seed = 4732BA h. Initialized at start of Downstream frame.

Proposed Motion

Move to:

- Adopt the upstream bit scrambler recommendation on pages 2 and 3 of montreuil_3bn_01_0514.pdf for the PCS MAC data path function. The seed shall have a default value and may also be set via the PHY Link.
- Adopt the downstream bit scrambler recommendation on pages 4 and 5 of montreuil_3bn_01_0514.pdf for the PCS MAC data path function. The seed shall have a default value and may also be set via the PHY Link.
- Adopt the downstream PHY Link bit scrambler recommendation on page 6 of montreuil_3bn_01_0514.pdf. Update the draft via the next comment round.

Moved:

Seconded: