

Updates for comment #95 (Joe Abler)

72.6.10.2.3 Coefficient update field

The coefficient update field carries correction information from the local receiver to the link partner transmit equalizer. The field consists of preset and initialization controls, an update gain, and coefficient updates for up to 3 transmit equalizer taps. The format of the coefficient update field is shown in Table 72-4. Cell 15 of the coefficient update field is transmitted first. The preset, initialize, update gain, and coefficient updates are set by the receiver adaptation process. The algorithm employed by the receiver adaptation process is beyond the scope of this standard.

Note: Table 72-4 will need to be updated to show preset and initialization encodings. Define bit 13 as preset, 1=preset coefficients. Define bit 12 as initialize, 1=initialize coefficients

72.6.10.2.3.2 Preset

The preset control is sent to request that the coefficients be set to a state where equalization is turned off. When received, the pre (k = -1) and post (k = +1) taps shall be set to a zero value and the main (k = 0) tap shall be set to its maximum value. The preset control shall only be initially sent when all coefficient status fields indicate not updated, and will then continue to be sent until update status for all coefficients indicate updated or maximum. Maximum status shall be returned when the main tap is updated. Maximum status shall be returned for the pre and/or post taps when the tap is updated and zero is its maximum supported value. Updated status shall be returned for the pre and/or post taps when the tap is updated and it supports additional settings above the value zero.

A new request to preset or initialize shall not be sent until the incoming status messages for all taps revert to not updated. Preset shall not be sent in combination with initialize or coefficient increment/decrement requests. If received, preset takes precedence.

72.6.10.2.3.3 Initialize

The initialize control is sent to request that the coefficients be set to configure the transmit equalizer to its INITIALIZE state. When received, the taps shall be set such that the transmit output meets the conditions defined in 72.6.10.3.2. The initialize control shall only be initially sent when all coefficient status fields indicate not updated, and will then continue to be sent until update status for all coefficients indicate updated. Updated status shall be returned for each tap when the tap update is completed.

A new request to preset or initialize shall not be sent until the incoming status messages for all taps revert to not updated. Initialize shall not be sent in combination with coefficient increment/decrement requests. If received, initialize takes precedence.

72.6.10.2.9 Variables

Preset

Boolean variable set to TRUE when a training frame has been completely received and the preset field of that frame is set to one and set to FALSE if set to zero.

Initialize

Boolean variable set to TRUE when a training frame has been completely received and the initialize field of that frame is set to one and the preset field is set to zero and set to FALSE otherwise.

dec

Boolean variable set to TRUE when a training frame has been completely received and the coefficient update field of that frame for this coefficient is decrement and preset is not activated and initialize is not activated, and set to FALSE on reception of any other value.

inc

Boolean variable set to TRUE when a training frame has been completely received and the coefficient update field of that frame for this coefficient is increment and preset is not activated and initialize is not activated, and set to FALSE on reception of any other value.

Note: Need to update Fig 72-6:

NOT_UPDATED box: `new_coeff <= COEFF_UPDATE(coeff, preset, initialize, inc, dec, gain)`

Add to left branch: `preset*(new_coeff = MAX_LIMIT)`

Add to center branch: `preset*(new_coeff < MAX_LIMIT)`

Initialize

72.7.1.10 Transmitter output waveform

The 10GBASE-KR transmitter includes programmable equalization to compensate for frequency-dependent loss in the backplane channel and facilitate data recovery at the receiver. This equalization may be accomplished with a three-tap finite impulse response (FIR) structure as shown in Figure 72–11. The actual implementation of the transmit equalizer, including the incorporation of additional taps, is beyond the scope of this standard.

Transmit equalizer performance is specified in terms of V_{pre} , V_{pst} , V_{ss} , R_{pre} , and R_{pst} , as defined in 72.7.1.11.

It should be noted that the valid ranges of $c(1)$ and $c(-1)$ coefficients may have positive or negative values. A value of zero is the value used to turn off equalization for the tap.

The state of the transmitter equalizer and hence the transmitter output waveform is manipulated via the protocol defined in 72.6.10 or via management. The changes in the transmitter output waveform resulting from coefficient update requests shall meet the requirements stated in Table 72–7. The coefficient update requests in Table 72–7 are to be followed by a coefficient update equal to hold for all taps. The results are to be verified after the coefficient status for all taps is reported as not_updated.

When sufficient increment or decrement updates have been applied to a given tap, it will reach a maximum or minimum limit governed by the coefficient range or by restrictions placed on minimum V_{ss} or maximum V_{pk} and the coefficient status is reported accordingly. The transmitter output waveform shall meet the requirements of Table 72–8 for all of the limiting cases represented in the table. Implementation of $c(-1)$ or $c(1)$ coefficient values greater than zero or less than the minimum defined by R_{pre} (min) and R_{pst} (min) is optional.

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Deleted: disable

Note: Need to update Table 72-8. All entries for c(1) and c(-1) listed as “maximum” should be changed to “equalization off”

72.10.4.3 PMD Control functions

Note: Update CF5 & CF7 to include preset and initialize states

72.10.4.4 Transmitter electrical characteristics

TC16 – how does this apply??

TC17 – Value of 2A – Where defined???