IEEE 802.3 Interpretations Report

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Dallas, TX

David Law

David_Law@3Com.com

Interpretations Status

- 2 new interpretation received
  - 1-07/06 - 1000BASE-X IFG encoding rules
    - Submitter withdrew request at meeting
  - 2-07/06 - 10GBASE-T MDI impedance balance

  Available on Interpretations area of web site

  HTTP://www.ieee802.org/3/interp/index.html

IEEE-SA Standards Companion
Text on interpretations

Interpretations are a unique form of commentary on the standard. They are not statements of what the standard should have done or meant to say. Interpretations cannot change the meaning of a standard as it currently stands. Even if the request points out an error in the standard, the interpretation cannot fix that error. The interpretation can suggest that this will be brought up for consideration in a revision or amendment (or, depending on the nature of the error, an errata sheet might be issued).

However, an interpretation has no authority to do any of this. It can only discuss, address, and clarify what the standard currently says. The challenge for the interpreters is to distinguish between their expertise on what 'should be,' their interests in what they 'would like the standard to be,' and what the standard says. Interpretations are often valuable, though, because the request will point out problems that might otherwise have gone unaddressed.

http://standards.ieee.org/guides/companion/part2.html#interpret

Request 2-11/06

Interpretation Request

This is a request for interpretation of subclause 55.8.2.2 of the recently published 10GBASE-T standard, IEEE Std 802.3an-2006.

Subclause 55.8.2.2 states:

Impedance balance is a measure of the impedance-to-ground difference between the two MDI contacts used by a duplex link channel and is referred to as common-mode-to-differential-mode impedance balance. The common-mode-to-differential-mode impedance balance, $Z_{bal}(f)$, of each channel of the MDI shall meet the relationship:

$$Z_{bal}(f) \geq \begin{cases} 48 & 1 \leq f < 30 \\ 44 - 19.2\left(\dfrac{f}{50}\right) & 30 \leq f \leq 500 \end{cases} \tag{55-55}$$

where f is the frequency in MHz when the transmitter is transmitting random or pseudo random data.

Request 2-11/06 (continued)

Equation 55-55 therefore provides the limit to which MDI impedance balance must be equal to or exceed. When however this limit line is plotted it passes through zero at 120MHz, representing it would appear no limit, and then continues to be increasingly negative after that.

On comparison with equivalent cabling specification it would appear that the equation is missing a log(10) frequency dependency. This seems to be confirmed by the presentation 'Impedance Balance' given by Terry Cobb at the July 2005 meeting [http://www.ieee802.org/3/an/public/jul05/cobb_1_0705.pdf]. Based on this information it appears that the equation should actually read:

$$Z_{\text{bal}}(f) \geq \begin{cases} 48 & 1 \leq f < 30 \\ 44 - 19.2\log_{10}\left(\dfrac{f}{50}\right) & 30 \leq f \leq 500 \end{cases}$$

Please could you confirm if this is correct.

Request 2-11/06 – Proposed response

Classification: Defect

This appears to be an error in the standard and has been referred to the Maintenance Task Force for correction through a corrigendum (see minutes of 11/06 802.3 closing plenary).

IEEE 802.3 Motion

IEEE 802.3 approves the proposed Interpretation response to Interpretation requests 2-11/06 as presented without the need for a 30 day letter ballot.

Request 1-07/06

Interpretation Number: 1-07/06
Topic: 10GBASE-X Physical Coding Sublayer (PCS)
Relevant Clause: Clause 48
Classification:

- Question 1: IEEE 802.3ae-2002, Clause 48.2.6.1.4, cvtx_terminate definition

- Question 2: IEEE 802.3ae-2002, Clause 48.2.6.2.1, transmit process

- Question 3: IEEE 802.3ae-2002, Clause 46.2.1, interframe and 48.2.4.2.3 idle cell insertion/deletion

- Question 4: IEEE 802.3ae-2002, Clause 46.2.6.1.3, deskew error definition

- Question 5: IEEE 802.3ae-2002, Figure 48-7, PCS syncrhonization state diagram

IEEE 802.3 Interpretation Request 1-07/06 D1.1 Working Group recirculation ballot results

Ballot opened 30th Oct 2006, closed 13th November 2006

Comments received: 16

	#	%		Status
		Actual	Require	
Abstain	25	23.0	< 30	PASS
Disapprove with comment	3*	-	-	-
Disapprove without comment	0	-	-	-
Approve	83	96	≥ 75	PASS
Ballots returned	109	54	≥ 50	PASS
Voters	202	-	-	-

* Based on comment responses the 2 Disapproves indicated they would flip

Comment resolution meeting report

- Met Tuesday afternoon
  - Thanks to those that attended
- Reviewed Interpretation Request 1-07/06 /D1.1
- Responded to 16 comments

E (Editorial)	5
ER (Editorial required)	0
T (Technical)	9
TR (Technical required)	2

- Based on comment responses
  - 2 disapprove indicated they would flip
  - 1 remaining disapprove is from D1.0 ballot
    - Received email indicating flip but did not receive in ballot

IEEE 802.3 Motion

IEEE 802.3 authorises the IEEE P802.3 Interpretations Ad Hoc to conduct meetings and recirculation ballots as necessary to resolve comments received during the Working Group recirculation ballot(s) of the response to Interpretation request 1-07/06 [10GBASE-X].