Interpretation Number: 2-07/06
Topic: 100BASE-LX10 & 100BASE-BX10 receive sensitivity
Relevant Clause: Table 58-4 and 58-6
Classification: Unambiguous

Interpretation Request

Std 802.3ah-2004 Section 58 Page 241/242

I would be very grateful if you could help clarify a point in the above document.

Table 58-4 100Base-LX10 receive characteristics: second line, reads "Receiver sensitivity (max)   -25dBm"

Similarly, Table 58-6 100Base-BX10 receive characteristics: line 5 reads "Receiver sensitivity (max)   -28.2dBm"

Q) I take this as meaning a device which has a receiver sensitivity of say -30bBm is too sensitive and does not meet the requirements and therefore cannot classed as 100Base-LX10 or 100Base-BX10? I do not understand this as usually you would state the minimum receiver sensitivity rather that the maximum. Surely the more sensitive the receiver the better?

The reason I ask is that I have been looking into industrial media converters an have found most are marketed as 100Base-FX even ones using WDM on one single mode fibre (which should be 100Base-BX10) Also many of the converters have output power >-8dBm and sensitivity >-25/28dBm (some have -37dBm) which to my understanding means the could not qualify as 100Base-LX10 or 100Base-BX10

My company wants to develop a long range media converter for use on undersea applications(>100Km) and we would prefer to do it to a standard (100base LX10) but to go such a long distance requires high power and good sensitivity which means we would exceed the limits and couldn't market our unit as complying with 802.3.

Interpretation for IEEE Std 802.3-2005

The term 'max' used here means that a number more positive is not acceptable, and a number more negative is acceptable. A receive sensitivity of -30dBm therefore does meet the requirements of this standard.