

10BASE-Te Auto-Negotiation

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Overview

- This presentation proposes specification changes that are required to enable a mechanism that allows management to advertise a preference between 10BASE-T and 10BASE-Te.
- The presentation is intended to serve as the Suggested Remedy for Comment #179 submitted against P802.3az/D1.3.



Presentation Outline

- Create an EEE Capability bit for 10BASE-Te (3.20.0).
- Create an EEE Advertisement bit for 10BASE-Te (7.60.0, 7.61.0).
- Define transmission behavior for 10BASE-T/10BASE-Te dependent upon the local device and link partner EEE Advertisement bits.



10BASE-Te Capability

Clause 45, Section 45.2.3.9a, p. 120, line 46, T

Comment:

Provide capability information to enable management selection of preference between 10BASE-Te and 10BASE-T

Suggested Remedy:

Change:	"3.20.0	Reserved	Ignore on read"
To:	"3.20.0	10BASE-Te	1=10BASE-Te is supported 0= 10BASE-Te is not supported"

On Page 120, line 23, Change: "...the capability of the PCS to support EEE functions..."

To: "...the capability to support EEE functions..."

Add subsection 45.2.3.9a.7 10BASE-Te support (3.20.0) as follows:

If the device supports the energy efficient version of 10BASE-T (10BASE-Te) as defined in 14.3.1.2 this bit shall be set to a 1.



10BASE-Te Advertisement

Clause 45, Section 45.2.7.13a, p. 122, line 26, T

Comment:

Advertise 10BASE-Te to provide management the ability to select a preference.

Suggested Remedy:

Change:

"7.60.0 Reserved Ignore on read RO

To:

"7.60.0 10BASE-Te 1=10BASE-Te R/W
0= 10BASE-T "

Add section 45.2.7.13a.7, "10BASE-Te EEE Supported"

If the device supports EEE operation for 10BASE-Te as defined in 14.3.1.2, and 10BASE-Te operation is desired, this bit shall be set to 1. The device shall not advertise a capability it does not support.



10BASE-T/Te Transmission Behavior for EEE-capable Devices

- In all cases, both the Local Device (LD) and Link Partner (LP) advertise 10BASE-T (half- or full-duplex) in the Technology Ability Field of the AN Advertisement Register (Register 4).

Case	LD Supports	LD Adv. (7.60.0)	LP Adv. (7.61.0)	LP/LD Resolution	LD Transmits
1	10BT	0	0,1,or --	10BT	10BT
2	10BTe	1	0	10BT	10BTe
3	10BTe	1	1	10BTe	10BTe
4	10BT/10BTe	0	0,1,or --	10BT	10BT
5	10BT/10BTe	0 or 1	0	10BT	10BT
6	10BT/10BTe	1	--	10BT	10BTe
7	10BT/10BTe	0	--	10BT	10BT
8	10BT/10BTe	1	1	10BTe	10BTe



Energy
Efficient
Ethernet

0 : 10BASE-T; 1 : 10BASE-Te; -- : Not Advertised



Indicates cases where transmitted type differs from resolved.



10BASE-T/Te Transmission Rules for EEE-capable Devices

- When a link is resolved to 10BASE-T or 10BASE-Te, a local device transmits according to this resolved PHY type, EXCEPT under the following conditions:
 - If the local device does not support the resolved type, then it transmits the type it does support. (e.g. if the link resolves to 10BASE-T, but the local device only supports 10BASE-Te, then it transmits 10BASE-Te).
 - Else if the link partner did not advertise a preference, then the local device transmits according to its own preference. (e.g. if the link resolves to 10BASE-T, but the link partner did not indicate a preference, then the local device transmits according to its own local preference).



Summary

- A mechanism has been presented that allows management to advertise a preference between 10BASE-T and 10BASE-Te. Changes to IEEE P802.3az/D1.3 to enable this mechanism are:
 - 10BASE-Te Capability bit (3.20.0)
 - 10BASE-Te Advertisement bit (7.60.0)
 - Definition of 10BASE-T/10BASE-Te auto-negotiation and transmission rules.



Thank you

