P802.3bt D3.0 – Dual-signature LLDP v110

Info (not part of baseline)

Purpose

This is an overhaul for the LLDP specification in Clause 79, specifically addressing dual-signature operation. It aims to address the issues raised in comments #130, #293, #294, #296, and #297.

All of the requirements we currently have in Clause 79 regarding which fields to set to which value depending on the PD Type and such really don't belong there. Clause 79 defines the format of the PoE TLV. How that TLV is to be used must be defined in Clause 33 and Clause 145. Therefore this baseline scraps all of the requirements that were added to subclauses 79.3.2.5, 79.3.2.6, and it's dual-signature brethren.

TODO: align state diagrams with text.

Changelog

v100 First full proposal
v110 Moved DLL requirements to Clause 145 from Clause 79

145.5.3a Power requests and allocations

The variables PDRequestedPowerValue and PDRequestedPowerValue_mode(X) allow a PD to request an amount of power from the PSE. The variables PSEAllocatedPowerValue and PSEAllocatedPowerValue_alt(X) allow the PSE to allocate an amount of power to the PD.

PSEs shall use values in the range defined in Table 145–41 for PSEAllocatedPowerValue and PSEAllocatedPowerValue_alt(X) where X can be A or B. PDs shall use the values in range defined in Table 145–42 for PDRequestedPowerValue and PDRequestedPowerValue_mode(X) where X can be A or B.

Table 145–41 — Permitted values for PSEAllocatedPowerValue and PSEAllocatedPowerValue_alt(X)

PSE Type	2-pair / 4-pair	PD construction	PSEAllocatedPowerValue	PSEAllocatedPowerValue_alt(X)
3, 4	2-pair	—	1 – 255	0
	4-pair	single-signature	1 – 999	0
		dual-signature	0	1 – 499

Table 145–42 — Permitted values for PDRequestedPowerValue and PDRequestedPowerValue_mode(X)

PSE Type	2-pair / 4-pair	PD construction	PDRequestedPowerValue	PDRequestedPowerValue_mode(X)
3, 4	—	single-signature	1 – 999	0
	2-pair	dual-signature	1 – 255	1 – 499
	4-pair		0	1 – 499

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Note: we can remove the PSE Type column from Table 145–41 and 145–42.

Info (not part of baseline)

Restore sections on PD requested power and PSE allocated power. The new subclause in Clause 145 above will deal with what needs to be filled out in particular circumstances.

79.3.2.5 PD requested power value

Replace content above the dashed line with content below the dashed line as follows:

The PD requested power value field shall contain the PDs requested power value defined in Table 79–5, for Type 1, Type 2, and single-signature Type 3 and Type 4 PDs. The fields for PD requested power value shall be set to the sum of PD requested power value Mode A and PD requested power value Mode B in Table 79–6a, for Type 3 and Type 4 dual-signature PDs.

The PD requested power value field shall contain the PDs requested power value defined in Table 79–5.

Change Table 79–5 as follows:

Table 79–5 — PD requested power value field

Bit	Function	Value/meaning
15:0	PD requested power value	~~Power = 0.1 × (decimal value of bits) Watts.~~ Power expressed in units of 0.1 W. Valid values for these bits are decimal + 0 through ~~255~~ 999.

79.3.2.6 PSE allocated power value

Replace content above the dashed line with content below the dashed line as follows:

The PSE allocated power value field shall contain the PSE's allocated power value defined in Table 79–6 for PSEs connected to single-signature PDs and Type 1 and Type 2 PDs.

The sum of the PSE allocated power value Alternative A field and the PSE allocated power value Alternative B field, as defined in Table 79–6a, shall be provided in the PSE allocated power value field for Type 3 and Type 4 PSEs connected to a dual-signature PD. The sum of the PSE allocated power value Alternative A field and the PSE allocated power value Alternative B field may be provided in the PSE allocated power value field for Type 1 and Type 2 PSEs when connected to a dual-signature PD.

The PSE allocated power value field shall contain the PSEs allocated power value defined in Table 79–6.

Change Table 79–6 as follows:

Table 79–6 — PSE allocated power value field

Bit	Function	Value/meaning
15:0	PSE allocated power value	~~Power = 0.1 × (decimal value of bits) Watts.~~ Power expressed in units of 0.1 W. Valid values for these bits are decimal + 0 through ~~255~~ 999.

79.3.2.6a Dual-signature PD requested power value Mode A and Mode B

The "Dual-signature PD requested power value Mode A and Mode B" fields shall contain the PD requested power value defined in Table 79–6a and Table 79–6aa for Mode A and for Mode B of a dual-signature PD.

~~If Mode (X) is non-active while the other mode is active, the inactive PD requested power value Mode (X) field value shall be set to 0.~~

~~Single-signature PDs shall set the PD requested power value Mode A and Mode B fields to 0.~~

"Dual-signature PD requested power value Mode A" and "Dual-signature PD requested power value Mode B" are the maximum input average power levels (see 145.3.8.2) the PD is requesting for the respective Mode.

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Each field has its own Table. Table 79–6a and 79–6b are the only exception where two fields share a Table.

Change Table 79–6a as follows and create new Table 79–6aa:

Table 79–6a — Dual-signature PD requested power value field for Mode A

Bit	Function	Value/meaning
15:0	Dual-signature PD requested power value Mode A	Power expressed in units of 0.1 W. Valid values for these bits are decimal +0 through 499.

Table 79–6aa — Dual-signature PD requested power value field for Mode B

Bit	Function	Value/meaning
15:0	Dual-signature PD requested power value Mode B	Power expressed in units of 0.1 W. Valid values for these bits are decimal +0 through 499.

79.3.2.6b PSE allocated power value Alternative A and Alternative B

The "PSE allocated power value Alternative A field" and the "PSE allocated power value Alternative B" field shall contain the values in Table 79–6b and Table 79–6ba. ~~for Type 3 and Type 4 PSEs operating over both pairsets when connected to a dual-signature PD.~~

Change Table 79–6b as follows and create new Table 79–6ba:

Table 79–6b — PSE allocated power value field for Alternative A

Bit	Function	Value/meaning
15:0	PSE allocated power value for Alternative A	Power expressed in units of 0.1 W. Valid values for these bits are decimal +0 through 499.

Table 79–6ba — PSE allocated power value field for Alternative B

Bit	Function	Value/meaning
15:0	PSE allocated power value for Alternative B	Power expressed in units of 0.1 W. Valid values for these bits are decimal +0 through 499.

Move the paragraph below (with changes) to above Table 79–6b in this subclause.

The "PSE allocated power value Alternative A" and "PSE allocated power value Alternative B" fields are the maximum input average power levels (see 145.3.8.2) the PSE expects the dual-signature PD to draw on the respective Alternatives. ~~"PSE allocated power value Alternative A" and "PSE allocated power value Alternative B"~~ These fields are the power levels at the dual-signature PD PI. The PSE uses ~~this value~~ these values to compute $P_{Class\text{-}2P}$ as defined in 145.2.7. ~~A PSE providing power to a Type 1, Type 2, or single-signature Type 3 or Type 4 PD, places 0 in the "PSE allocated power value Alternative A" and "PSE allocated power value Alternative B" fields defined in Table 79–6b.~~