Extending Power via MDI
for IEEE 802.3BT Baseline part-2

Fred Schindler, **Seen** Simply

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v4

Purpose

To add the ability to assign unused channel power.

$$P_{unch} = P_{Class} - P_{ch} - P_{PD}$$

The PSE owns P_{unch}.

The P_{unch} value is determined by this proposal.
P_{PD} is the power the PD is drawing.

What is new?

Class 6 or 8 PDs may request up to P_{Class} from the PSE using LLDP.

$P_{unch} = 0$ by default for Class 6 or 8 PDs when LLDP is not used.

Clause 33.2.6

Table 33–7—Physical Layer power classifications (P_{Class})

Class	Number of Classification Events	Minimum power levels at output of PSE (P_{Class})
0	1	15.4 Watts
1	1	4.00 Watts
2	1	7.00 Watts
3	1	15.4 Watts
4	2	30W or P_{Type} as defined in Table 33–11 whichever is less
5	4	45W or P_{Type} as defined in Table 33–11 whichever is less
6	4	60W or P_{Type} as defined in Table 33–11 whichever is less
7	5	75W or P_{Type} as defined in Table 33–11 whichever is less
8	5	P_{Type} as defined in Table 33–11

NOTE 1—This is the minimum power at the PSE PI. For maximum power available to PDs, see Table 33–18.

NOTE 2—Data Link Layer classification takes precedence over Physical Layer classification.

No change is required because PSEs already provides Pclass.

Clause 33.3.7.2/5

33.3.7.2

For Class 6 or Class 8 PDs, the input guaranteed available average power is the maximum power the PD shall consume when no additional information is available to the PD regarding actual channel DC resistance. If such a PD has additional information and does not cause the PSE to source more than P_{Class} it may exceed the maximum input guaranteed average power.

33.3.7.5

Under normal operating conditions when there are no transients applied at the PD PI, Class 6 or Class 8 PDs, shall operate below the PD extended template defined in Figure 33-18. PDs of all other classes the PD shall operate below the PD upperbound template defined in Figure 33–18

No change is required because Class 6 or Class 8 PDs may already draw up to PSE Pclass.

Clause 33.6.3.2

PD_DLLMAX_VALUE
This value is derived from pd_max_power variable (33.3.3.3) described as follows:

pd_max_power	PD_DLLMAX_VALUE
0	130
1	39
2	65
3	130
4	255
5	TBD
6	TBD
7	TBD
8	TBD

PD_INITIAL_VALUE
This value is derived as follows from the pd_max_power (33.3.3.3) variable used in the PD state diagram (Figure 33–16):

pd_max_power	PD_INITIAL_VALUE
0	≤ 130
1	≤ 39
2	≤ 65
3	≤ 130
4	≤ 255
5	TBD
6	TBD
7	TBD
8	TBD

For class 6 and 8 PDs,
The PD_DLLMAX_VALUE equals the PSE-Pclass Table 33-7 value for the class used.
The PD_INITIAL_VALUE needs to be less than or equal to the PSE-Pclass Table 33-7 value for the same class.

Clause 33.6.3.2, continued

PSE_INITIAL_VALUE

This value is derived as follows from parameter_type and the mr_pd_class_detected (33.2.4.6) variable used in the PSE state diagram (Figure 33–9):

parameter_type	mr_pd_class_detected	PSE_INITIAL_VALUE
1	0	130
1	1	39
1	2	65
1	3	130
1	4	130
2	4	255
3	5	TBD
3	6	TBD
4	7	TBD
4	8	TBD

For class 6 and 8 PSEs,
The PSE_INITAL_VALUE is the PSE-Pclass Table 33-7 value for the same class.

Motion

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Turning complexity into understanding.