

Extending Power via MDI for IEEE 802.3BT part-2

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v6

Purpose

To add the ability to assign unused channel power.

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

The PSE owns P_{unch} .

The P_{unch} value is determined by this proposal.

P_{PD} is the power the PD is drawing.

Unused Channel Power Loss Owner

For the worst-case configuration, the PSE provides at least the minimum power level for a PD request—see table line one.

By default PSEs using LLDP own P_{unch} , and reduces the power provided so that the PD receives the power requested—see table line two.

Class 6 and 8 PDs may negotiate the ownership of the unused channel power. $P_{unch} = 0$ in the last table line.

Channel	Power Watts				
Length (m)	PSE	Channel	PD	Comment	Punch (W)
100	60.0	9.00	51.0	IEEE 802.3bt Type-3, Class 6, TBD	0.00
50.0	54.8	3.75	51.0	The PSE retains unused channel power	5.25
50.0	60.0	4.50	55.5	The PD use all Pclass power, $P_{unch} = 0$	0.00

Unused Channel Power Loss Owner

The existing power negotiation mechanism allocates P_{unch} indirectly. PDs request the power required.

Class 6 or 8 PDs may request up to P_{Class} from the PSE using LLDP. When $P_{\text{PD}} = P_{\text{Class}}$, $P_{\text{unch}} = 0$.

PSEs may provide worst-case power, P_{Class} from Table 33-7.

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

The PD power value may be dynamically allocated.

Punch Effect

Class 6 and 8 PDs may request up to P_{Class} .

PSEs without LLDP need to provide P_{Class} .

Mechanisms outside of the standard may be used to permit PSEs without LLDP to claim P_{unch} when connected to class 6 and 8 PDs.

When a PD uses LLDP to request more than the PD input class average power, the PSE may provide the minimum power necessary to meet a valid PD request up to a power value of P_{Class} .

Punch Changes to PoE Clauses

No additional TLV changes

No MIB changes

No State Diagram change

Conclusion

A method for dynamically assigning unused channel power, P_{unch} , has been provided.

Straw Poll

I support the direction proposed by this presentation.

Y:

N:

Next Step

Provide baseline text for this feature.

Seen Simply

Turning complexity into understanding.