Possible 4PPoE Compatibility Matrixes

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A Compatibility Objective

- The goal of writing a compatibility objective should be to keep it simple yet meaningful.

- The compatibility objective (objective 14) from the .at project is a good example.

- Two approaches are shown in this presentation:

  - A direct extension of the .at objective.

  - The simplest compatibility matrix possible.
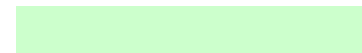
The .at Objective

PD Operation based on PSE

	IEEE Std 802.3af PSE	PoEP PSE
IEEE Std 802.3af PD	Operates	Operates
PoEP PD < 12.95W	Operates	Operates[Note 1]
PoEP PD > 12.95W	PD shall provide user active indication	Operates[Note 1]

Note 1: Operates with extended power classification

- (1) Column per PSE type.
- (N) Rows per PD type.
  - N is the number of power levels that the PD could operate at.
  - Power levels correspond to previous PD types, not negotiated power levels.
  - Example: Type 2 PD could operate as either Type 1 or Type 2.

Direct Extension of the .at Objective

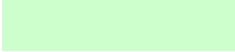| #	PD Type		PSE Type		
	Description		802.3 Type 1	802.3 Type 2	New 4P Device
			.af	.at	.bt
1	IEEE802.3 Type 1 PD		work (2 Pair)	work (2 Pair)	work^ (2/4 Pair)
2	IEEE802.3 Type 2 PD <12.95W		work (2 Pair)	work (2 Pair)	work^ (2/4 Pair)
3	IEEE802.3 12.95W<Type 2 PD <25.5W		Power up as Type 1 or notify underpowered* (2 Pair)	work (2 Pair)	work^ (2/4 Pair)
4	New 4P Device < 12.95W		work (2 Pair)	work (2 Pair)	work^ (4 Pair)
5	12.95W < New 4P Device < 25.5W		Power up as Type 1 or notify underpowered (2 Pair)	work (2 Pair)	work^ (4 Pair)
6	25.5W < New 4P Device ≤ TBD		Power up as Type 1 or notify underpowered (2 Pair)	Power up as Type 2 or notify underpowered (2 Pair)	work^ (4 Pair)

currently in standard

Notes:

* Current wording for Type 2 PD powered by Type I PSE: A Type 2 PD that does not successfully observe a 2-Event Physical Layer classification or Data Link Layer classification shall conform to Type 1 PD power restrictions and shall provide the user with an active indication if underpowered. The method of active indication is left to the implementer.

^ A new 4P PSE should be smart enough to determine, without help from the PD, whether to send power down 2 or 4 pairs. A new 4P PSE will negotiate with either the 2P or 4P PD to determine the power level supported (0-->??W).

IEEE802.3 4P Compatibility Matrix Ad-Hoc.
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The Simplest Approach

#	PD Type		PSE Type		
		Description	802.3 Type 1	802.3 Type 2	New 4P Device
			.af	.at	.bt
1	IEEE802.3 Type 1 PD (0-12.95W)		work (2 Pair)	work (2 Pair)	work^ (2/4 Pair)
2	IEEE802.3 Type 2 PD (0-25.5W)		Power up as Type 1 or notify underpowered* (2 Pair)	work (2 Pair)	work^ (2/4 Pair)
3	New 4P Device (0-??W)		Power up as Type 1 or notify underpowered (2 Pair)	Power up as Type 2 or notify underpowered (2 Pair)	work^ (4 Pair)

currently in standard

Notes:

* Current wording for Type 2 PD powered by Type I PSE: A Type 2 PD that does not successfully observe a 2-Event Physical Layer classification or Data Link Layer classification shall conform to Type 1 PD power restrictions and shall provide the user with an active indication if underpowered. The method of active indication is left to the implementer.

^ A new 4P PSE should be smart enough to determine, without help from the PD, whether to send power down 2 or 4 pairs. A new 4P PSE will negotiate with either the 2P or 4P PD to determine the power level supported (0-->??W).