

1 -To remove the unchanged parts for shorter document before final submission.

2 -----  
3 **Comment #55, #56, #57, #63, #70, #104, #105, #106, #107, #117, #120, #121, #122, #126, #128, #326, #327, #399,**  
4 **(TDL #268, #269, #358, #143 from D2.2)**

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6 Single-signature DLL state machines:

- 7 1. From comment #155 D2.2, the assignment 'pd\_dll\_power\_type <= parameter\_type' in the INITIALIZE state is not required  
8 (Figure 145-44, PD DLL state machine) and was already implemented in D2.3. Removing it also from Table 145-39.
- 9 2. From comment #167 D2.2, the assignment 'pse\_dll\_power\_type <= pse\_power\_type' in the INITIALIZE state is not required  
10 (Figure 145-43, PSE DLL state machine) and was already implemented in D2.3. Removing it also from Table 145-39.
- 11 3. Removing pse\_dll\_power\_type from the variable list. It is not used by the state machines Figures 145-43 and Figure 145-44.
- 12 4. Removing pse\_power\_type from the variable list. It is not used by the state machines Figures 145-43 and Figure 145-44.
- 13 5. pd\_dll\_single\_or\_dual was removed the entire draft due to the following reasons: (a) PD knows if it is a single-signature or  
14 dual-signature. (b) This information is in the TLVs fields anyway. As a result PD will use the correct DLL state machine.
- 15 6. pse\_dll\_single\_or\_dual was replaced with the variable sig\_type which already exists and generated but the connection check  
16 function. It is needed for PSE DLL state machine only.

17  
18 Dual-signature DLL state machines:

- 19 7. The suffix "(M)" was replace with "(X)" to prevent confusion with the Mode word.
- 20 8. The use of "Alternative" in a variable name was replaced with "Alt" for having shorter variable names.
- 21 9. PD DLL state machine variables must use variable names with the suffix XXX\_mode~~(M)~~(X) (e.g.  
22 PDRequestedPowerValue\_mode(X)) and their attributes need to use XXXA and XXXB (e.g.  
23 aLldpXdot3LocPDRequestedPowerValueA and aLldpXdot3LocPDRequestedPowerValueB without the suffix "Mode" or "Alt"  
24 due to the fact that the same attribute may be used in PSE or PD and using PSE attribute with the suffix "Mode" is confusing.
- 25 10. PSE DLL state machine variables must use variable names with the suffix XXX\_Alt(X) (e.g. PSEAllocatedPowerValue\_Alt(X)  
26 and their attributes need to use XXXA and XXXB (e.g. aLldpXdot3LocPSEAllocatedPowerValueA and  
27 aLldpXdot3LocPSEAllocatedPowerValueA without the suffix "Mode" or "Alt" due to the fact that the same attribute may be  
28 used in PSE or PD and using PSE attribute with the suffix "Mode" is confusing.
- 29 11. From comment #167 D2.2, the assignment 'pse\_dll\_power\_type <= pse\_power\_type' in the INITIALIZE state is not required  
30 (Figure 145-47, PSE DLL state machine). Removing pse\_dll\_power\_type from the variable list. It is not used by the state  
31 machines Figures 145-47 and Figure 145-48.
- 32 12. From comment #155 D2.2, the assignment 'pd\_dll\_power\_type <= parameter\_type' in the INITIALIZE state is not required  
33 (Figure 145-48, PD DLL state machine). Removing pse\_power\_type from the variable list. It is not used by the state machines  
34 Figures 145-47 and Figure 145-48.
- 35 13. Removing the variables pd\_dll\_power\_type and pse\_dll\_power\_types from Table 145-40.
- 36 14. In PSE\_POWER\_REVIEW state, the local\_system\_change\_Alt~~(M)~~(X) was reset to prevent it from being stuck in endless loop  
37 (set to local\_system\_change\_Alt~~(M)~~(X) <= FALSE). This is done according to Clause 21.5.2, "Once set, variables retain their  
38 values as long as succeeding blocks contain no references to them." As a result, we need to explicitly change it in the state  
39 when needed. Other option would be to treat the exit from RUNNING state to PSE\_POWER\_REVIEW as a triggering pulse but  
40 in this case we need to define this behavior in the local\_system\_change\_Alt~~(M)~~(X) variable definition. Same issues with the  
41 MIRROR\_UPDATE state for pse\_power\_update\_Alt~~(M)~~(X) <= True. Both methods were simulated and work. I choose the  
42 first one which is simple and covered by Clause 21.5.2.
- 43 15. Missing "\_mode~~(M)~~(X)" or "\_Alt~~(M)~~(X)" in some of the parameters
- 44 16. Adding missing dual-signature variables to clause 30 and updating clause 79 Tables.

45  
46 **Proposed Remedy:**

47 **Implement the following baseline with the proposed additions, deletions and changes.**  
48

49

50

**Proposed Baseline starts here**

52

53 *Make the following changes (insertion, deletions etc.) to 145.5*

54

55 **145.5 Data Link Layer classification**

56 Additional control and classification functions are supported using Data Link Layer classification using frames based on the IEEE  
57 802.3 Organizationally Specific TLVs defined in Clause 79. Single-signature PDs advertising a Class 4 signature or higher and  
58 dual-signature PDs support Data Link Layer classification (see 145.3.6). Data Link Layer classification is optional for all other  
59 devices. All reserved fields in transmitted Power via MDI TLVs shall contain zero, and all reserved fields in received Power via  
60 MDI TLVs shall be ignored.

61 **145.5.1 TLV frame definition**

62 Implementations that support Data Link Layer classification shall comply with all mandatory parts of IEEE Std 802.1AB-2016;  
63 shall support the Power via MDI Type, Length, Value (TLV) defined in 79.3.2 and may support the Power via MDI  
64 Measurements TLV defined in 79.3.8; and shall support the control state diagrams defined in 145.5.3.

65

66 **145.5.2 Data Link Layer classification timing requirements**

67

68 PSEs shall send an LLDPDU containing a Power via MDI TLV within 10 seconds of Data Link Layer classification being enabled  
69 in the PSE as indicated by the variable `pse_dll_enabled` (145.2.5.4, 145.5.3.3).

70

71 PDs shall set the state variable `pd_dll_ready` within 5 minutes of Data Link Layer classification being enabled in a PD as indicated  
72 by the variable `pd_dll_enabled` (145.3.3.4, 145.3.3.9, and 145.5.3.3).

73

74 Under normal operation, an LLDPDU containing a Power via MDI TLV with an updated value for the “PSE  
75 allocated power value” field shall be sent within 10 seconds of receipt of an LLDPDU containing a Power  
76 via MDI TLV where the “PD requested power value” field is different from the previously communicated  
77 value.

78

79 Under normal operation, an LLDPDU containing a Power via MDI TLV with an updated value for the “PD  
80 requested power value” field shall be sent within 10 seconds of receipt of an LLDPDU containing a Power  
81 via MDI TLV where the “PSE allocated power value” field is different from the previously communicated  
82 value.

83

84 **145.5.3 Power control state diagrams**

85 The power control state diagrams for PSEs and PDs specify the externally observable behavior of a PSE and PD Data Link Layer  
86 classification respectively.

87

88 Data Link Layer classification of PSEs connected to a single-signature PD, shall provide the behavior in the state diagram defined  
89 in Figure 145–43 and ~~Figure 145–45~~. Data Link Layer classification of PSEs connected to a dual-signature PD, shall provide the  
90 behavior in the state diagram defined in Figure 145–47 .

91

92 Single-signature PD Data Link Layer classification shall provide the behavior of the state diagram defined in Figure 145–~~46–44~~  
93 ~~and Figure 145–44~~. Dual-signature PD Data Link Layer classification shall provide the behavior of the state diagram defined in  
94 Figure 145–48.

95

96 **145.5.3.1 Conventions**

97 The body of this subclause is comprised of state diagrams, including the associated definitions of variables,  
98 constants, and functions. Should there be a discrepancy between a state diagram and descriptive text, the  
99 state diagram prevails.

100

101 The notation used in the state diagrams follows the conventions of state diagrams as described in 145.2.5.2.

102

103

104 *-Editor to splits the constants, variable and function list into one for PSE and one for PD.*  
105

### 106 **145.5.3.2 Single-signature system Constants**

107  
108 Variables PD\_DLLMAX\_VALUE, PD\_INITIAL\_VALUE, and PSE\_INITIAL\_VALUE, are quantized to fit the available resolution.  
109 Additional information on power levels for Classes 6 and 8 may be found in 145.3.8.2.1.

#### 110 PD\_DLLMAX\_VALUE

111 This value is derived from pd\_max\_power variable (145.3.3.4) described as follows:

112 pd_max_power	PD_DLLMAX_VALUE
113 0	130
114 1	39
115 2	65
116 3	130
117 4	255
118 5	400
119 6	600
120 7	620
121 8	999

#### 122 PD\_INITIAL\_VALUE

123 This value is derived as follows from the pd\_max\_power (145.3.3.4) variable used in the PD state  
124 Diagrams; defined in Figure 145–26:

125 pd_max_power	PD_INITIAL_VALUE
126 0	≤ 130
127 1	≤ 39
128 2	≤ 65
129 3	≤ 130
130 4	≤ 255
131 5	≤ 400
132 6	≤ 600
133 7	≤ 620
134 8	≤ 900

#### 135 PSE\_INITIAL\_VALUE

136 This value is derived as follows from pd\_allocated\_pwr, as defined in 145.2.5.4, which is used in the PSE state  
137 diagrams in 145.2.5.7:

138 pd_allocated_power	PSE_INITIAL_VALUE
139 1	130
140 1	39
141 1	65
142 1	130
143 1	130
144 2	255
145 3	400
146 3	600
147 4	620
148 4	900

### 149 **145.5.3.3 Single-signature system Variables**

150 The PSE power control state diagram (Figure 145–43) and PD power control state diagram (Figure 145–44) use the following  
151 variables:

#### 152 MirroredPDAutoclassRequest

153 The copy of the PD Autoclass request field in the Power via MDI TLV that the PSE receives from the remote system.

154 This variable is mapped from aLldpXdot3RemPDAutoclassRequest (30.12.3.1.18o).

155 Values:

162 FALSE: The PD does not request an Autoclass measurement to be performed.  
163 TRUE: The PD requests an Autoclass measurement to be performed.

164 **MirroredPDRequestedPowerValue**  
165 The copy of the PD Requested Power Value field in the Power Via MDI TLV that the PSE receives from the remote  
166 system in units of 0.1 W. This variable is mapped from the aLldpXdot3RemPDRequestedPowerValue attribute  
167 (30.12.3.1.17).  
168 Values: 1 through 999

169 **MirroredPDRequestedPowerValueEcho**  
170 The copy of the PD Requested Power Value field in the Power Via MDI TLV that the PD receives from the remote  
171 system. This variable is mapped from the aLldpXdot3RemPDRequestedPowerValue attribute (30.12.3.1.17).  
172 Values: 1 through 999

173

174 **MirroredPSEAllocatedPowerValue**  
175 The copy of the PSE Allocated Power Value field in the Power Via MDI TLV that the PD receives from the remote  
176 system in units of 0.1 W. This variable is mapped from the aLldpXdot3RemPSEAllocatedPowerValue attribute  
177 (30.12.3.1.18).  
178 Values: 1 through 999

179

180 **MirroredPSEAllocatedPowerValueEcho**  
181 The copy of the PSE Allocated Power Value field in the Power Via MDI TLV that the PSE receives from the remote  
182 system. This variable is mapped from the aLldpXdot3RemPSEAllocatedPowerValue attribute (30.12.3.1.18).  
183 Values: 1 through 999

184

185 **MirroredPSEAutoclassCompleted**  
186 The copy of the PSE Autoclass completed field in the Power via MDI TLV that the PD receives from the remote system.  
187 This variable is mapped from the aLldpXdot3RemPSE-AutoclassCompleted (30.12.3.1.18i) attribute.  
188 Values:  
189 FALSE: The PSE has not completed the Autoclass measurement, or it is not performing a Autoclass  
190 measurement.  
191 TRUE: The PSE has completed the Autoclass measurement.

192

193 **MirroredPSEAutoclassSupport**  
194 The copy of the PSE Autoclass support field in the Power via MDI TLV that the PSE receives from the remote system.  
195 This variable is mapped from the aLldpXdot3RemPSEAutoclassSupport (30.12.3.1.18m) attribute.  
196 Values:  
197 FALSE: The PSE does not support Autoclass  
198 TRUE: The PSE supports Autoclass

199

200 **PDAutoclassRequest**  
201 A boolean that indicates if the PD requests Autoclass in the PD. This variable is mapped from  
202 aLldpXdot3LocPDAutoclassRequest (30.12.2.1.18o).  
203 Values:  
204 FALSE: The PD does not request an Autoclass measurement to be performed.  
205 TRUE: The PD requests an Autoclass measurement to be performed.

206

207 **PDMaxPowerValue**  
208 Integer that indicates the actual PD power value of the local system in units of 0.1 W. The actual PD power value for a  
209 PD is the maximum input average power (see 145.3.8.2) the PD ever draws under the current power allocation.

210

211 **PDRequestedPowerValue**  
212 Integer that indicates the PD requested power value in the PD in units of 0.1 W. The value is the maximum input average  
213 power (see 145.3.8.2) the PD requests. This variable is mapped from the aLldpXdot3LocPDRequestedPowerValue  
214 attribute (30.12.2.1.17).  
215 Values:  
216 1 through PD\_DLLMAX\_VALUE

217

218 **PDRequestedPowerValueEcho**  
219 This variable is updated by the PSE state diagram. This variable maps into the aLldpXdot3LocPDRequestedPowerValue  
220 attribute (30.12.2.1.17).  
221 Values: 1 through 999

222 PSEAllocatedPowerValue  
223 Integer that indicates the PSE allocated power value in the PSE in units of 0.1 W. The value is the maximum input  
224 average power (see 145.3.8.2) the PD ever draws. This variable maps to the aLldpXdot3LocPSEAllocated-PowerValue  
225 attribute (30.12.2.1.18).  
226 Values: 1 through 999  
227  
228  
229 PSEAllocatedPowerValueEcho  
230 This variable is updated by the PD state diagram. This variable maps into the aLldpXdot3LocPSEAllocatedPowerValue  
231 attribute (30.12.2.1.18).  
232 Values: 1 through 999  
233 PSEAutoclassCompleted  
234 A boolean that indicates the PSE has completed the PD Autoclass request. This variable is mapped from the  
235 aLldpXdot3LocPSEAutoclassCompleted (30.12.2.1.18n) attribute.  
236 Values:  
237 FALSE: The PSE has not completed the Autoclass measurement, or it is not performing a Autoclass  
238 measurement.  
239 TRUE: The PSE has completed the Autoclass measurement.  
240 PSEAutoclassSupport  
241 A boolean control variable that indicates if the PSE supports Autoclass in the PSE. This variable is mapped from the  
242 aLldpXdot3LocPSEAutoclassSupport (30.12.2.1.18m) attribute.  
243 Values: FALSE: The PSE does not support Autoclass  
244 TRUE: The PSE supports Autoclass  
245 TempVar  
246 A temporary variable used to store Power Value in units of 0.1 W.  
247 Values: 1 through 999  
248  
249 local\_system\_change  
250 An implementation-specific control variable that indicates that the local system wants to change the allocated power  
251 value. In a PSE, this indicates it is going to change the power allocated to the PD. In a PD, this indicates it is going to  
252 request a new power allocation from the PSE.  
253 Values:  
254 FALSE: The local system does not wants to change the power allocation.  
255 TRUE: The local system wants to change the power allocation.  
256  
257 pd\_autoclass  
258 A control variable output by the PSE state diagram indicating whether the PSE has observed an Autoclass measurement  
259 request during Physical Layer Classification. See 145.2.5.4.  
260 Values:  
261 FALSE: The PSE does not observe an Autoclass measurement request.  
262 TRUE: The PSE observes an Autoclass measurement request.  
263 pd\_dll\_enabled  
264 A variable output by the PD state diagram (Figure 145–26) to indicate if the PD Data Link Layer classification  
265 mechanism is enabled.  
266 Values:  
267 FALSE: PD Data Link Layer classification is not enabled.  
268 TRUE: PD Data Link Layer classification is enabled.  
269  
270 pd\_dll\_ready  
271 An implementation-specific control variable that indicates that the PD has initialized Data Link Layer classification. This  
272 variable maps into the aLldpXdot3LocReady attribute (30.12.2.1.20).  
273 Values:  
274 FALSE: Data Link Layer classification has not completed initialization.  
275 TRUE: Data Link Layer classification has completed initialization.  
276  
277 ~~pd\_dll\_single\_or\_dual~~  
278 ~~A variable in the PD power control state diagram, defined in Figure 145–44, that indicates if the PD is a~~  
279 ~~single signature PD or a dual signature PD. Values: single: A single signature PD configuration is connected to~~  
280 ~~the PI. dual: A dual signature PD configuration is connected to the PI.~~  
281

282 pd\_full\_power  
283 A boolean control variable used in the PD Autoclass control state diagram that indicates if the PD should be in a mode  
284 where it consumes the amount of power it wants to be budgeted for.  
285 Values:  
286 FALSE: No requirement on PD power consumption.  
287 TRUE: The PD consumes the maximum amount of power it wants to be budgeted for.  
288

289 pse\_dll\_enabled  
290 A variable output by the PSE state diagram (Figure 145\_13) to indicate if the PSE Data Link Layer classification  
291 mechanism is enabled.  
292 Values:  
293 FALSE: PSE Data Link Layer classification is not enabled.  
294 TRUE: PSE Data Link Layer classification is enabled.  
295

296 ~~pse\_dll\_power\_type~~  
297 ~~A control variable output by the PD power control state diagram, defined in Figure 33–49, that indicates the PSE Type as 1 or 2,~~  
298 ~~see 79.3.2.4.1.~~  
299 ~~Values:~~  
300 ~~1: The PSE is a Type 1 PSE, for a Type 1 PSE~~  
301 ~~2: The PSE is a Type 2 PSE, for Type 2, Type 3, or Type 4 PSEs~~  
302

303 pse\_dll\_ready  
304 An implementation-specific control variable that indicates that the PSE has initialized Data Link Layer classification.  
305 This variable maps into the aLldpXdot3LocReady attribute (30.12.2.1.20).  
306 Values:  
307 FALSE: Data Link Layer classification has not completed initialization.  
308 TRUE: Data Link Layer classification has completed initialization.  
309

310 sig\_type  
311 ~~pse\_dll\_single\_or\_dual~~  
312 A variable ~~in the PSE power control state diagram defined in Figure 145–43~~ (generated from the ~~do\_exn\_check~~ do\_cxn\_chk  
313 function of the ~~Type 3 and Type 4 PSE state diagram in Figure 145–13~~) which indicates if the PSE is connected to a single-  
314 signature PD or dual-signature PD.  
315 Values:  
316 Invalid: Neither single-signature PD nor dual-signature PD connection check signature has been found. This include an  
317 open circuit condition.  
318 single: A single-signature PD configuration is connected to the PI.  
319 dual: A dual-signature PD configuration is connected to the PI.  
320

321 ~~pse\_power\_type~~  
322 ~~A control variable that indicates to the PD the type of PSE by which it is being powered.~~  
323 ~~Values:~~  
324 ~~1: The PSE is a Type 1 PSE.~~  
325 ~~2: The PSE is a Type 2, Type 3, or Type 4 PSE.~~  
326

327 trigger\_autoclass  
328 A control variable used in the PD to trigger a new Autoclass measurement request to the PSE.  
329 Values:  
330 FALSE: The PD does not want to trigger a new Autoclass measurement.  
331 TRUE: The PD wants to trigger a new Autoclass measurement.  
332

333 A summary cross-references between the DTE Power via MDI classification local and remote object class attributes and the PSE  
334 and PD power control state diagrams, including the direction of the mapping, is provided in Table 145–39.  
335

### 336 145.5.3.4 Timers

337 tautoclass\_timeout  
338 A timer used to detect the timeout of a pending Autoclass request by the PD. The value of this timer may be set to any  
339 value greater than 30 seconds.

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**145.5.3.5 Functions**

**do\_autoclass\_measure**

A function defined in the PSE state diagram, which measures PAutoclass as defined in 145.2.7.2. This function returns the following variables:

**P\_AUTOCLASS:**

The maximum power measured by the PSE, PAutoclass.

**pse\_power\_review**

This function evaluates the power allocation or budget of the PSE based on local system changes. The function returns the following variables:

**PSE\_NEW\_VALUE:**

The new maximum power value that the PSE expects the PD to draw in units of 0.1 W.

**pd\_power\_review**

This function evaluates the power requirements of the PD based on local system changes and/or changes in the PSE allocated power value. The function returns the following variables:

**PD\_NEW\_VALUE:**

The new maximum power value that the PD wants to draw in units of 0.1 W.

Remove from Table 145-39 the variables `pd_dll_power_type` and `pse_dll_power_type`.

**Table 145–39—Attribute to state diagram variable cross-reference**

Entity	Attribute	Mapping	State diagram variable
oLldpXdot3LocSystemsGroup Object Class			
PSE	aLldpXdot3LocPDRequestedPowerValue	←	PDRequestedPowerValueEcho
	aLldpXdot3LocPSEAllocatedPowerValue	←	PSEAllocatedPowerValue
	<del>aLldpXdot3LocReady</del>	←	<del>pse_dll_ready</del>
	aLldpXdot3LocPSEAutoclassSupport	←	PSEAutoclassSupport
	aLldpXdot3LocAutoclassCompleted	←	PSEAutoclassCompleted
PD	aLldpXdot3LocPDRequestedPowerValue	←	PDRequestedPowerValue
	aLldpXdot3LocPSEAllocatedPowerValue	←	PSEAllocatedPowerValueEcho
	<del>aLldpXdot3LocReady</del>	←	<del>pd_dll_ready</del>
	aLldpXdot3LocAutoclassRequest	←	PDAutoclassRequest
oLldpXdot3RemSystemsGroup Object Class			
PSE	aLldpXdot3RemPDRequestedPowerValue	→	MirroredPDRequestedPowerValue
	aLldpXdot3RemPSEAllocatedPowerValue	→	MirroredPSEAllocatedPowerValueEcho
	<del>aLldpXdot3RemPowerTypeValue<sup>†</sup></del>		<del>pd_dll_power_typeValue<sup>†</sup></del>
	<del>-11</del>	→	<del>-01</del>
	<del>-01</del>	→	<del>-10</del>
	aLldpXdot3RemPSEAutoclassSupport	→	MirroredPSEAutoclassSupport
aLldpXdot3RemAutoclassCompleted	→	MirroredPSEAutoclassCompleted	
PD	aLldpXdot3RemPSEAllocatedPowerValue	→	MirroredPSEAllocatedPowerValue
	aLldpXdot3RemPDRequestedPowerValue	→	MirroredPDRequestedPowerValueEcho
	<del>aLldpXdot3RemPowerTypeValue<sup>†</sup></del>		<del>pse_dll_power_typeValue<sup>†</sup></del>
	<del>-10</del>	→	<del>-01</del>
	<del>-00</del>	→	<del>-10</del>
aLldpXdot3RemAutoclassRequest	→	MirroredPDAutoclassRequest	

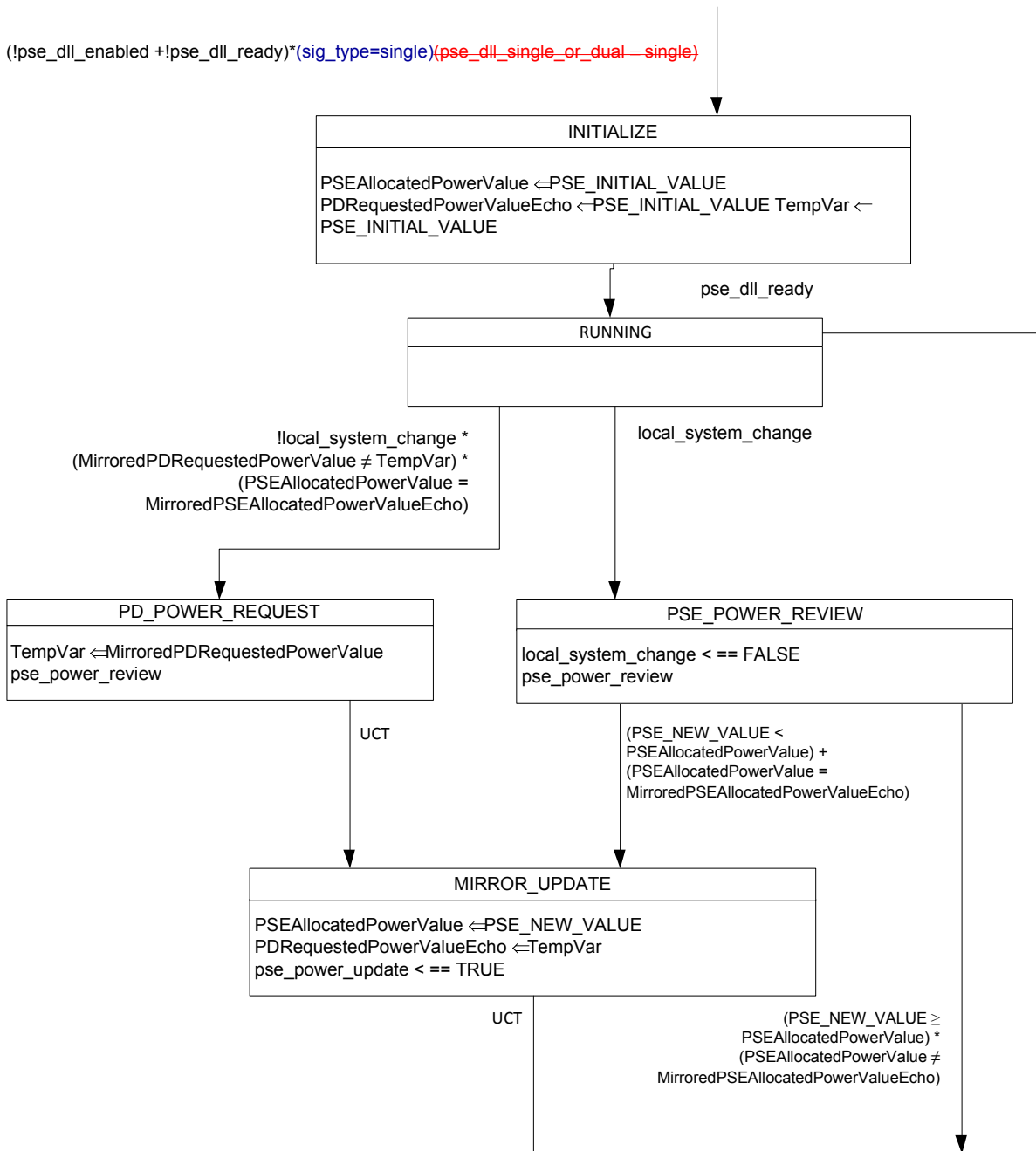
362 <sup>†</sup>Other value combinations mapping from aLldpXdot3RemPowerType\_mode(M) to pd\_dll\_power\_type or pse\_dll\_power\_type are not possible.

363 **145.5.3.6 State diagrams**

364 The general state change procedure for PSEs is shown in Figure 145–43.

365 **Make the following changes in Figure 145-43:**

366



**Figure 145–43—PSE power control state diagram**

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371 The general state change procedure for PDs is shown in Figure 145–44.

372 Make the following changes in Figure 145-44:

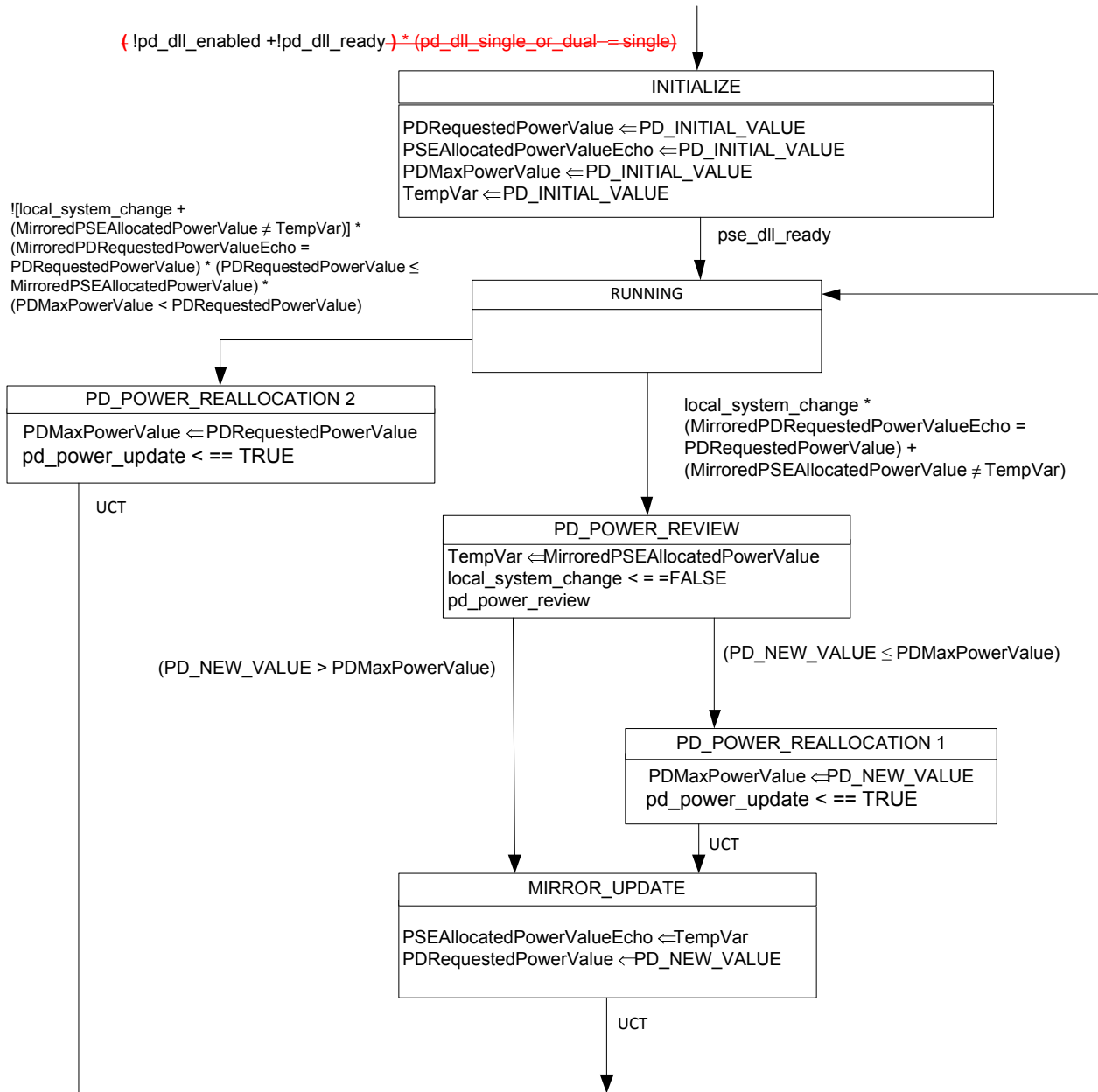


Figure 145–44—PD power control state diagram

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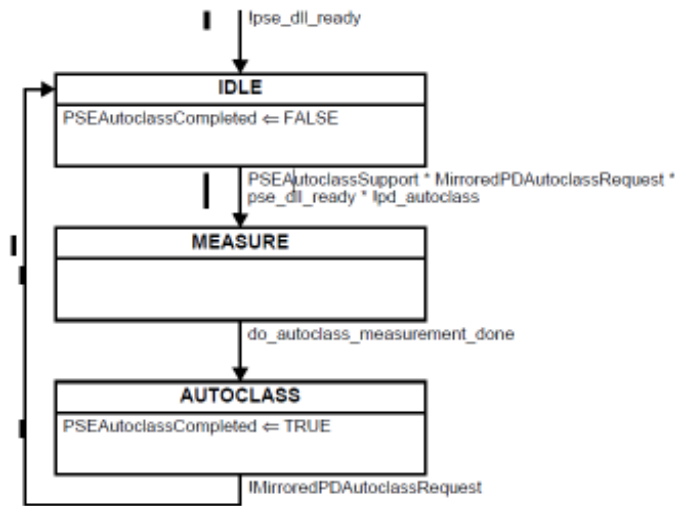


Figure 145-45—PSE DLL Autoclass control state diagram

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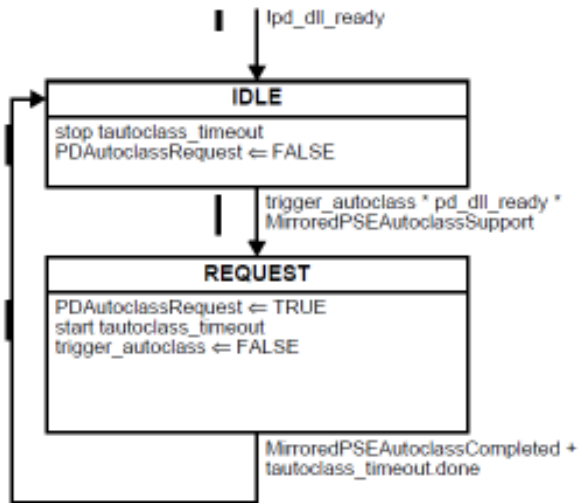


Figure 145-46—PD Autoclass control state diagram

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### 145.5.3.7 Dual-signature system constants

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**Editing Instructions**

1. The DLL state machines for dual-signature PSE and PD were edited to have separate constants, variables and functions for each state machine.
2. PSE state machine variables and constants have "\_Alt(X)" suffix and PD constants and variables have "\_mode(X)" suffix. Editor to verify implementation of this rule.
3. Attributes names have been updated and are not contain "Alternative", "Mode" they are ended only with "A" or "B" to indicate ModeA or ModeB or AltA or ALTB. Editor to verify implementation for clause 145.3, 30, 79.
4. Editor to update subclause numbers.
5. Editor to implement yseboodt\_04\_0317.pdf if accepted (regarding the constants) and make the necessary changes for dual-signature DLL SM.

**145.5.3.7 Dual-signature system constants – PSE state diagram**

Variables PD\_DLLMAX\_VALUE\_M, PD\_INITIAL\_VALUE, and PSE\_INITIAL\_VALUE\_Alt(X), are is quantized to fit the available resolution. Additional information on power levels for Class 5 Classes 6 and 8 may be found in 145.3.8.2.1.

This is not part of the base line

The following items: PD\_DLLMAX\_VALUE\_mode(X), PD\_INITIAL\_VALUE\_mode(X) MirroredPSEAllocatedPowerValue\_mode(X), PDMaxPowerValue\_mode(X), PDRequestedPowerValue\_mode(X), PSEAllocatedPowerValueEcho\_mode(X) pd\_dll\_enabled pd\_dll\_ready pd\_power\_review\_mode(X) were updated with \_mode(X) and moved to dual-signature DLL PD state machine section.

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~~PD\_DLLMAX\_VALUE\_mode(M)~~ \_\_\_\_\_

~~This value is derived from pd\_max\_power\_(M) variable (145.3.3.9) described as follows:~~

~~pd\_max\_power PD\_DLLMAX\_VALUE\_mode(M)~~

~~1 39~~

~~2 65~~

~~3 130~~

~~4 255~~

~~5 355~~

~~PD\_INITIAL\_VALUE\_mode(M)~~ \_\_\_\_\_

~~This value is derived as follows from the pd\_max\_power\_mode(M) variable (145.3.3.9) used in the PD state diagram (Figure 145-29):~~

~~pd\_max\_power\_mode(M) PD\_INITIAL\_VALUE\_mode(M)~~

~~1 ≤ 39~~

~~2 ≤ 65~~

~~3 ≤ 130~~

~~4 ≤ 255~~

~~5 ≤ 355~~

~~PSE\_INITIAL\_VALUE\_mode(M)\_Alt(X)~~

~~This value is derived as follows from pd\_allocated\_pwr\_pri or pd\_allocated\_pwr\_sec, as defined in 145.2.5.4, which is used in the state diagrams in 145.2.5.7:~~

~~pd\_allocated\_pwr\_pri PSE\_INITIAL\_VALUE\_mode(M)\_Alt(X)~~

~~pd\_allocated\_pwr\_sec~~

~~1 39~~

~~2 65~~

~~3 130~~

~~4 255~~

~~5 355~~

~~[single\_or\_dual is not used by the state machine]~~

~~single\_or\_dual~~

~~This variable indicates if the connected PD is a single-signature PD or a dual-signature PD.~~

~~Values: single: A single signature PD configuration is connected to the PI. dual: A dual signature PD~~

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~~configuration is connected to the PI.~~

### 145.5.3.8 Dual-signature ~~system-Variables-~~ PSE state diagram

The PSE power control state diagram (Figure 145-~~4347~~) and PD power control state diagram (Figure 145-44) use the following variables:

#### MirroredPDRequestedPowerValue Alt(X)mode(M)

The copy of the PD Requested Power Value field for Alternativemode(M)(X) in the Power Via MDI TLV that the PSE receives from the remote system in units of 0.1 W. This variable is mapped from the aLldpXdot3RemPDRequestedPowerValueA and aLldpXdot3RemPDRequestedPowerValueB attributes (30.12.3.1.18a and 30.12.3.1.18b).

When a PD mode is not active, the value is set to zero.

#### MirroredPDRequestedPowerValueEcho Alt(X)mode(M)

The copy of the PD Requested Power Value field for Alternativemode(M)(X) in the Power Via MDI TLV that the PD receives from the remote system. This variable is mapped from the aLldpXdot3RemPDRequestedPowerValueA and aLldpXdot3RemPDRequestedPowerValueB attributes (30.12.3.1.18a and 30.12.3.1.18b).

Values: 0 through 499.

When a PD mode is not active, the value is set to zero.

#### ~~MirroredPSEAllocatedPowerValue\_mode(M)\_\_\_\_\_~~

~~The copy of the PSE Allocated Power Value field for mode(M) in the Power Via MDI TLV that the PD receives from the remote system in units of 0.1 W. This variable is mapped from the aLldpXdot3RemPSEAllocatedPowerValue attribute ( ).~~

~~\_\_\_\_\_Values: 0 through 499~~

~~\_\_\_\_\_When a PD mode is not active, the value is set to zero.~~

#### MirroredPSEAllocatedPowerValueEcho ~~mode(M)~~ Alt(X)

The copy of the PSE Allocated Power Value field for ~~mode(M)(X)~~ Alt(X) in the Power Via MDI TLV that the PSE receives from the remote system. This variable is mapped from the aLldpXdot3RemPSEAllocatedPowerValueA and aLldpXdot3RemPSEAllocatedPowerValueB attributes (30.12.3.1.18c and 30.12.3.1.18d).

Values: 0 through 499

When a PD mode is not active, the value is set to zero.

#### PDRequestedPowerValueEcho Alt(X)mode(M)

This variable is updated by the PSE state diagram. This variable maps into the aLldpXdot3LocPDRequestedPowerValueA and aLldpXdot3LocPDRequestedPowerValueB attribute (30.12.2.1.1718a and 30.12.2.1.18b).

Values: 0 through 499

When a PD mode is not active, the value shall be set to zero.

#### ~~PDMaxPowerValue\_mode(M)\_\_\_\_\_~~

~~Integer that indicates the actual PD power value of the local system in units of 0.1 W. The actual PD power value for a PD is the maximum input average power (see 145.3.8.2) the PD ever draws under the current power allocation.~~

~~\_\_\_\_\_Values: 0 through 499~~

~~\_\_\_\_\_When a PD mode is not active, the value shall be set to zero.~~

#### ~~PDRequestedPowerValue\_mode(M)\_\_\_\_\_~~

~~Integer that indicates the actual PD power value of the local system in units of 0.1 W. The actual PD power value for a PD is the maximum input average power (see 145.3.8.2) the PD ever draws under the current power allocation.~~

~~Values: 0 through 499 When a PD mode is not active, the value shall be set to zero.~~

#### PSEAllocatedPowerValue ~~mode(M)~~ Alt(X)

Integer that indicates the PSE allocated power value in the PSE in units of 0.1 W. The value is the maximum input average power (see 145.3.8.2) the PD ever draws. This variable maps to the aLldpXdot3LocPSEAllocatedPowerValueA and aLldpXdot3LocPSEAllocatedPowerValueB attribute (30.12.2.1.18c and 30.12.2.1.18d).

Values: 0 through 499

When a PD mode is not active, the value shall be set to zero.

#### ~~PSEAllocatedPowerValueEcho\_mode(M)\_\_\_\_\_~~

~~This variable is updated by the PD state diagram. This variable maps into the \_\_\_\_\_~~

497 ~~aLldpXdot3LocPSEAllocatedPowerValue attribute~~  
498 ~~()~~  
499 ~~Values: 0 through 499.~~  
500 ~~When a PD mode is not active, the value shall be set to zero.~~  
501  
502 TempVar ~~(M)~~ Alt(X)  
503 A temporary variable used to store a Power Value in units of 0.1 W.  
504 Values: 0 through 499.  
505 ~~When a PD mode is not active, the value shall be set to zero.~~  
506  
507 local\_system\_change Alt(X)  
508 An implementation-specific control variable that indicates that the local system wants to change  
509 the allocated power value. In a PSE, this indicates it is going to change the power allocated to the  
510 PD over Alternative X. ~~In a PD, this indicates it is going to request a new power allocation from the PSE.~~  
511 Values:  
512 FALSE: The local system does not wants to change the power allocation.  
513 TRUE: The local system wants to change the power allocation.  
514  
515 ~~pd\_dll\_enabled~~  
516 ~~A variable output by the PD state diagram (Figure 145-26) to indicate if the PD Data Link Layer~~  
517 ~~classification mechanism is enabled.~~  
518 ~~Values:~~  
519 ~~FALSE: PD Data Link Layer classification is not enabled.~~  
520 ~~TRUE: PD Data Link Layer classification is enabled.~~  
521  
522 ~~pd\_dll\_power\_type~~  
523 ~~A Type 1 and Type 2 PSE state diagram control variable that indicates the Type of PD that is connected to the PSE as advertised~~  
524 ~~through Data Link Layer classification. Type 3 and Type 4 PSE state diagrams do not use this variable.~~  
525 ~~Values:-~~  
526 ~~1: PD is a Type 1 PD (default).~~  
527 ~~2: PD is a Type 2 PD.~~  
528  
529 ~~pd\_dll\_ready~~  
530 ~~An implementation specific control variable that indicates that the PD has initialized Data Link~~  
531 ~~Layer classification. This variable maps into the aLldpXdot3LocReady attribute (30.12.2.1.20).~~  
532 ~~Values:~~  
533 ~~FALSE: Data Link Layer classification has not completed initialization.~~  
534 ~~TRUE: Data Link Layer classification has completed initialization.~~  
535  
536 pse\_dll\_enabled  
537 A variable output by the PSE state diagram (Figure 145-13) to indicate if the PSE Data Link Layer classification  
538 mechanism is enabled.  
539 Values:  
540 FALSE: PSE Data Link Layer classification is not enabled.  
541 TRUE: PSE Data Link Layer classification is enabled.  
542  
543 ~~pse\_dll\_power\_type~~  
544 ~~A control variable output by the PD power control state diagram, defined in Figure 145-44, that indicates the PSE Type as~~  
545 ~~1 or 2, see 79.3.2.4.1.~~  
546 ~~Values:-~~  
547 ~~1: The PSE is a Type 1 PSE, for a Type 1 PSE.~~  
548 ~~2: The PSE is a Type 2 PSE, for a Type 2, 3 and, 4 PSEs~~  
549  
550

551 pse\_dll\_ready Alt(X)  
552 An implementation-specific control variable that indicates that the PSE has initialized Data Link Layer classification over  
553 Alternative (X). This variable maps into the aLldpXdot3LocReady attribute (30.12.2.1.20).  
554 Values:  
555 FALSE: Data Link Layer classification has not completed initialization.  
556 TRUE: Data Link Layer classification has completed initialization.  
557

558 ~~pse\_power\_type~~  
559 ~~———— A control variable that indicates to the PD the type of PSE by which it is being powered.~~  
560 ~~———— Values:~~  
561 ~~———— 1: The PSE is a Type 1 PSE.~~  
562 ~~———— 2: The PSE is a Type 2, Type 3, or Type 4 PSE.~~  
563

564 ~~pd\_dll\_single\_or\_dual~~  
565 ~~A control variable output by PD power control state diagram, defined in Figure 145-44, that indicates if the PD is a~~  
566 ~~single-signature PD or a dual-signature PD. Type 3 and Type 4 PD state diagrams do not use this variable.~~  
567 ~~Values:~~  
568 ~~single: A single-signature PD configuration is connected to the PI.~~  
569 ~~dual: A dual-signature PD configuration is connected to the PI.~~  
570

571 sig\_type  
572 A variable generated from the do\_cxn\_chk function in Figure 145-13 which indicates if the PSE is connected to a single-signature  
573 PD or dual-signature PD.  
574 Values:  
575 Invalid: Neither single-signature PD nor dual-signature PD connection check signature has been found. This include an  
576 open circuit condition.  
577 single: A single-signature PD configuration is connected to the PI.  
578 dual: A dual-signature PD configuration is connected to the PI.  
579

580  
581 ~~pse\_dll\_single\_or\_dual~~  
582 ~~A control variable output by PSE power control state diagram defined in Figure 145-43 (generated from the~~  
583 ~~do\_cxn\_check function of the Type 3 and Type 4 PSE state diagram in Figure 145-13 which indicates if the PSE is~~  
584 ~~connected to a single-signature PD or dual-signature PD.~~  
585 ~~Values:~~  
586 ~~invalid: ————— Neither a single-signature PD nor a dual-signature PD connection check signature has been~~  
587 ~~found. This includes an open circuit condition.~~  
588 ~~Single: ————— A single-signature PD configuration is connected to the PI.~~  
589 ~~dual: ————— A dual-signature PD configuration is connected to the PI.~~  
590

### 591 ~~145.5.3.9 Dual-signature system Functions~~

### 592 145.5.3.9 Dual-signature Functions – PSE state diagram

593

594 pse\_power\_review Alt(X)  
595 This function evaluates the power allocation or budget of the PSE based on local system changes. The function returns the  
596 following variables:  
597 PSE\_NEW\_VALUE Alt(X):  
598 The new maximum power value that the PSE expects the PD to draw in units of 0.1 W.

599 ~~pd\_power\_review~~  
600 ~~———— This function evaluates the power requirements of the PD based on local system changes and/or~~  
601 ~~changes in the PSE allocated power value. The function returns the following variables:~~  
602 ~~———— PD\_NEW\_VALUE:~~  
603 ~~———— The new maximum power value that the PD wants to draw in units of 0.1 W.~~  
604  
605  
606

607 **145.5.3.X1 Dual-signature constants – PD state diagram**

608  
609 Variables PD\_DLLMAX\_VALUE\_mode(X) and PD\_INITIAL\_VALUE\_mode(X), are quantized to fit the available resolution.  
610 Additional information on power level for Class 5 may be found in 145.3.8.2.1.

611  
612 PD\_DLLMAX\_VALUE\_mode(X)

613 This value is derived from pd\_max\_power\_mode(X) variable (145.3.3.9) described as follows:

<u>pd_max_power_mode(X)</u>	<u>PD_DLLMAX_VALUE_mode(X)</u>
<u>1</u>	<u>39</u>
<u>2</u>	<u>65</u>
<u>3</u>	<u>130</u>
<u>4</u>	<u>255</u>
<u>5</u>	<u>355</u>

620  
621  
622 PD\_INITIAL\_VALUE\_mode(X)

623 This value is derived as follows from the pd\_max\_power\_mode(X) variable (145.3.3.9) used in the PD state diagram  
624 (Figure 145-29):

<u>pd_max_power_mode(X)</u>	<u>PD_INITIAL_VALUE_mode(X)</u>
<u>1</u>	<u>≤39</u>
<u>2</u>	<u>≤ 65</u>
<u>3</u>	<u>≤ 130</u>
<u>4</u>	<u>≤255</u>
<u>5</u>	<u>≤355</u>

632  
633 **145.5.3.X2 Dual-signature Variables – PD state diagram**

634 The PD power control state diagram (Figure 145-48) use the following variables:

635  
636 MirroredPDRequestedPowerValueEcho\_mode(X)

637 The copy of the PD Requested Power Value filed for mode(X) in the Power Via MDI TLV that the PD receives from  
638 the remote system. This variable is mapped from the aLldpXdot3RemPDRequestedPowerValueModeA and  
639 aLldpXdot3RemPDRequestedPowerValueModeB attributes (30.12.3.1.18a and 30.12.3.1.18b).

640 Values: 0 through 499.

641 When a PD mode is not active, the value is set to zero.

642  
643 MirroredPSEAllocatedPowerValue\_mode(X)

644 The copy of the PSE Allocated Power Value field for mode(X) in the Power Via MDI TLV that the PD receives from the remote  
645 system in units of 0.1 W. This variable is mapped from the aLldpXdot3RemPSEAllocatedPowerValueA and  
646 aLldpXdot3RemPSEAllocatedPowerValueB attributes (30.12.3.1.18c and 30.12.3.1.18d).

647 Values: 0 through 499

648 When a PD mode is not active, the value is set to zero.

649  
650 PDMaxPowerValue\_mode(X)

651 Integer that indicates the actual PD power value of the local system in units of 0.1 W. The actual PD power value for a  
652 PD is the maximum input average power (see 145.3.8.2) the PD ever draws under the current power allocation.

653 Values: 0 through 499

654 When a PD mode is not active, the value shall be set to zero.

655  
656 PDRequestedPowerValue\_mode(X)

657 Integer that indicates the actual PD power value of the local system in units of 0.1 W. The actual PD power value for a  
658 PD is the maximum input average power (see 145.3.8.2) the PD ever draws under the current power allocation.

659 Values: 0 through 499

660 When a PD mode is not active, the value shall be set to zero.  
661  
662

663  
664 PSEAllocatedPowerValue\_mode(X)  
665 Integer that indicates the PSE allocated power value in the PSE in units of 0.1 W. The value is the maximum input  
666 average power (see 145.3.8.2) the PD ever draws. This variable maps to the aLldpXdot3LocPSEAllocatedPowerValueA  
667 and aLldpXdot3LocPSEAllocatedPowerValueB attribute (30.12.2.1.18c and 30.12.2.1.18d).  
668 Values: 0 through 499  
669 When a PD mode is not active, the value shall be set to zero.  
670  
671 PSEAllocatedPowerValueEcho\_mode(X)  
672 This variable is updated by the PD state diagram. This variable maps into the  
673 aLldpXdot3LocPSEAllocatedPowerValueA and aLldpXdot3LocPSEAllocatedPowerValueB attribute  
674 (30.12.2.1.18c and 30.12.2.1.18d).  
675 Values: 0 through 499.  
676 When a PD mode is not active, the value shall be set to zero.  
677  
678 TempVar\_mode(X)  
679 A temporary variable used to store a Power Value in units of 0.1 W.  
680 Values: 0 through 499.  
681 ~~When a PD mode is not active, the value shall be set to zero.~~  
682  
683 local\_system\_change\_mode(X)  
684 An implementation-specific control variable that indicates that the local system wants to change  
685 the requested power value. In a PD, this indicates it is going to change the power requested by the PD over  
686 mode X.  
687 Values:  
688 FALSE: The local system does not want to change the requested power.  
689 TRUE: The local system wants to change the requested power.  
690  
691 pd\_dll\_enabled\_mode(X)  
692 A variable output by the PD state diagram (Figure 145–26) to indicate if the PD Data Link Layer  
693 classification mechanism is enabled over mode (X).  
694 Values:  
695 FALSE: PD Data Link Layer classification is not enabled.  
696 TRUE: PD Data Link Layer classification is enabled.  
697  
698  
699 pd\_dll\_ready\_mode(X)  
700 An implementation-specific control variable that indicates that the PD has initialized Data Link  
701 Layer classification over mode (X). This variable maps into the aLldpXdot3LocReady attribute (30.12.2.1.20).  
702 Values:  
703 FALSE: Data Link Layer classification has not completed initialization.  
704 TRUE: Data Link Layer classification has completed initialization.  
705  
706 **145.5.3.X3 Dual-signature Functions – PD state diagram**  
707  
708 pd\_power\_review\_mode(X)  
709 This function evaluates the power requirements of the PD based on local system changes and/or  
710 changes in the PSE allocated power value. The function returns the following variables:  
711 PD\_NEW\_VALUE\_mode(X):  
712 The new maximum power value that the PD wants to draw in units of 0.1 W.  
713  
714  
715



716 Make the following changes to Table 145-40:

717

This is not part of the base line	
<p>1. New variables were added to clause 145.5, clause 30 and clause 79 to support dual-signature DLL state machine and related TLVs per the following concept based on single-signature DLL state machine with the relevant changes for dual signature. The concept used for single signature is based on the following example:</p> <p><b>State diagram variable e.g. PDRequestedPowerValueEcho</b> from Figure 145-43 PSE DLL state diagram is shown in Table 145-39. Table 145-39 shows that <b>PDRequestedPowerValueEcho</b> is mapped to <b>aLldpXdot3LocPDRequestedPowerValue</b>. <b>PDRequestedPowerValueEcho</b> is defined in the variable list of the state diagram. <b>aLldpXdot3LocPDRequestedPowerValue</b> is defined in clause 30 and in clause 79.</p> <p>2. In Table 145-40 the column <b>Attribute</b> doesn't have "mode" or "Alt" designation due to shared use in PSE and PD. See Lennart comment marked as mode_Alt_shared.</p>	

718

719 Table 145-40—Attribute to state diagram variable cross-reference

Entity	Attribute	Mapping	State diagram variable
oLldpXdot3LocSystemsGroup Object Class			
PSE	<a href="#">aLldpXdot3LocPDRequestedPowerValueA</a>	<==	PDRequestedPowerValueEcho_modeALT(MX=A)
	<a href="#">aLldpXdot3LocPDRequestedPowerValueB</a>	<==	PDRequestedPowerValueEcho_ALT(X=B)
	<a href="#">aLldpXdot3LocPSEAllocatedPowerValueA</a>	<==	PSEAllocatedPowerValue_mode(M) Alt(X=A)
	<a href="#">aLldpXdot3LocPSEAllocatedPowerValueB</a>	<==	PSEAllocatedPowerValue_Alt(X=B)
	<a href="#">aLldpXdot3LocReady</a>	<==	pse_dll_ready
PD	<a href="#">aLldpXdot3LocPDRequestedPowerValueA</a>	<==	PDRequestedPowerValue_mode(MX=A)
	<a href="#">aLldpXdot3LocPDRequestedPowerValueB</a>	<==	PDRequestedPowerValue_mode(X=B)
	<a href="#">aLldpXdot3LocPSEAllocatedPowerValueA</a>	<==	PSEAllocatedPowerValueEcho_mode(MX=A)
	<a href="#">aLldpXdot3LocPSEAllocatedPowerValueB</a>	<==	PSEAllocatedPowerValueEcho_mode(X=B)
	<a href="#">aLldpXdot3LocReady</a>	<==	pd_dll_ready
oLldpXdot3RemSystemsGroup Object Class			
PSE	<a href="#">aLldpXdot3RemPDRequestedPowerValueA</a>	→	MirroredPDRequestedPowerValue_modeALT(MX=A)
	<a href="#">aLldpXdot3RemPDRequestedPowerValueB</a>	→	MirroredPDRequestedPowerValue_ALT(X=A)
	<a href="#">aLldpXdot3RemPSEAllocatedPowerValueA</a>	→	MirroredPSEAllocatedPowerValueEcho_mode(M) Alt(X=A)
	<a href="#">aLldpXdot3RemPSEAllocatedPowerValueB</a>		MirroredPSEAllocatedPowerValueEcho_Alt(X=B)
	<del>aLldpXdot3RemPowerType-Value<sup>†</sup></del>	<del>→</del>	<del>pd_dll_power_type-Value<sup>†</sup></del>
	<del>-11</del>	<del>-01</del>	
	<del>-01</del>	<del>-10</del>	
PD	<a href="#">aLldpXdot3RemPSEAllocatedPowerValueA</a>	→	MirroredPSEAllocatedPowerValue_mode(X=A)
	<a href="#">aLldpXdot3RemPSEAllocatedPowerValueB</a>		MirroredPSEAllocatedPowerValue_mode(X=B)
	<a href="#">aLldpXdot3RemPDRequestedPowerValueA</a>	→	MirroredPDRequestedPowerValueEcho_mode(X=A)
	<a href="#">aLldpXdot3RemPDRequestedPowerValueB</a>		MirroredPDRequestedPowerValueEcho_mode(X=B)
	<del>aLldpXdot3RemPowerType-Value<sup>†</sup></del>	<del>→</del>	<del>pse_dll_power_type-Value<sup>†</sup></del>
	<del>-10</del>	<del>→</del>	<del>-01</del>
	<del>-00</del>	<del>→</del>	<del>-10</del>

720

721

722

723

724

<sup>†</sup>Other value combinations mapping from aLldpXdot3RemPowerType\_mode(M) to pd\_dll\_power\_type or pse\_dll\_power\_type are not possible.

725 *Update the following PSE state diagram Figure 145-47 per the following changes. In addition:*  
 726 *-Verify that all variable extensions are with “\_Alt(X)” only.*  
 727 **145.5.3.10 Dual-signature State diagrams**  
 728 The general state change procedure for PSEs is shown in Figure 145-47.

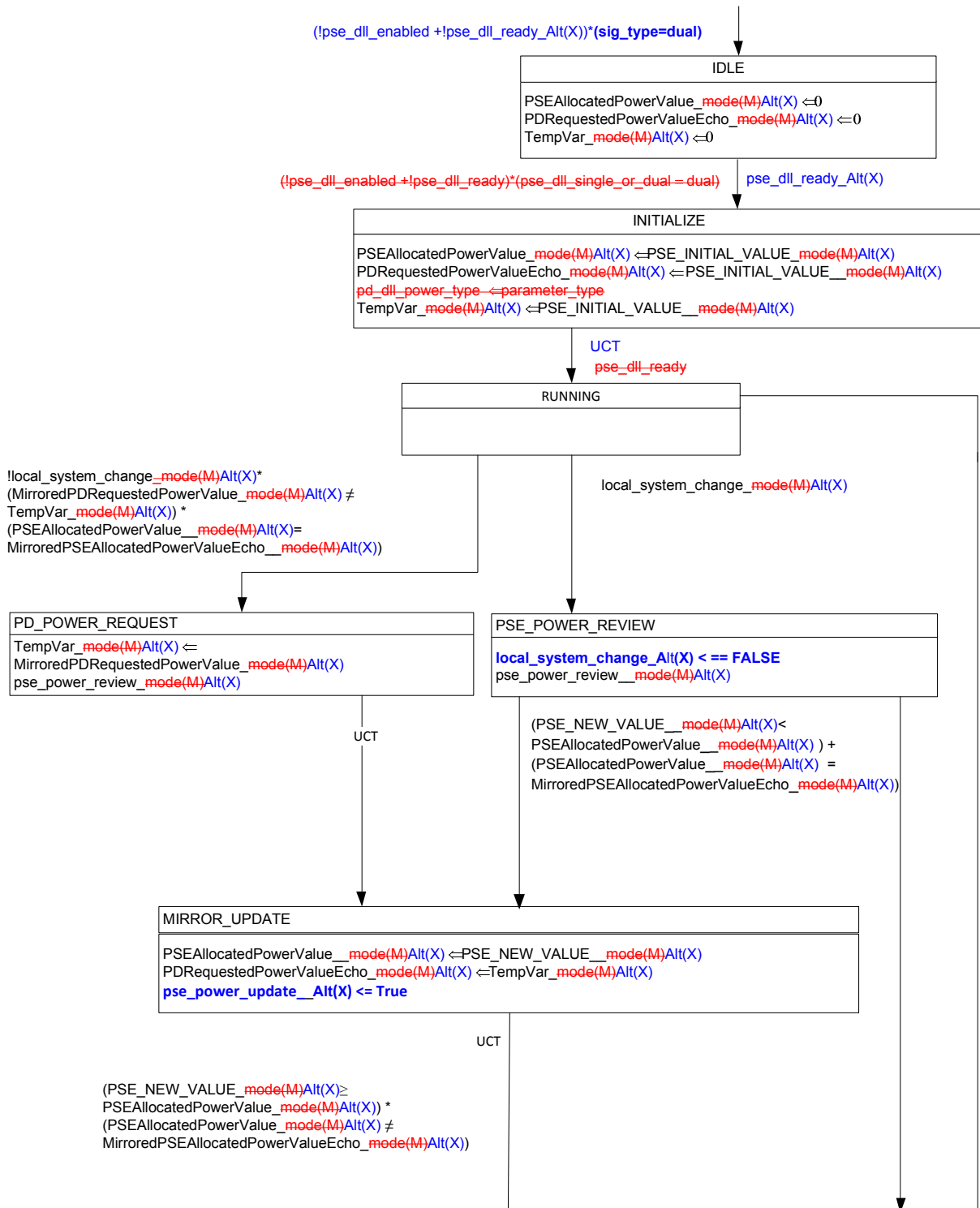


Figure 145-47—PSE power control state diagram Alternative (X) when connected to a dual-signature PD mode (X)

729  
730  
731

732 **Update the following PSE state diagram Figure 145-48. In addition:**  
 733 **-Verify that all variable extensions are with “\_mode(X)” only.**  
 734 The general state change procedure for PDs is shown in Figure 145–48.  
 735

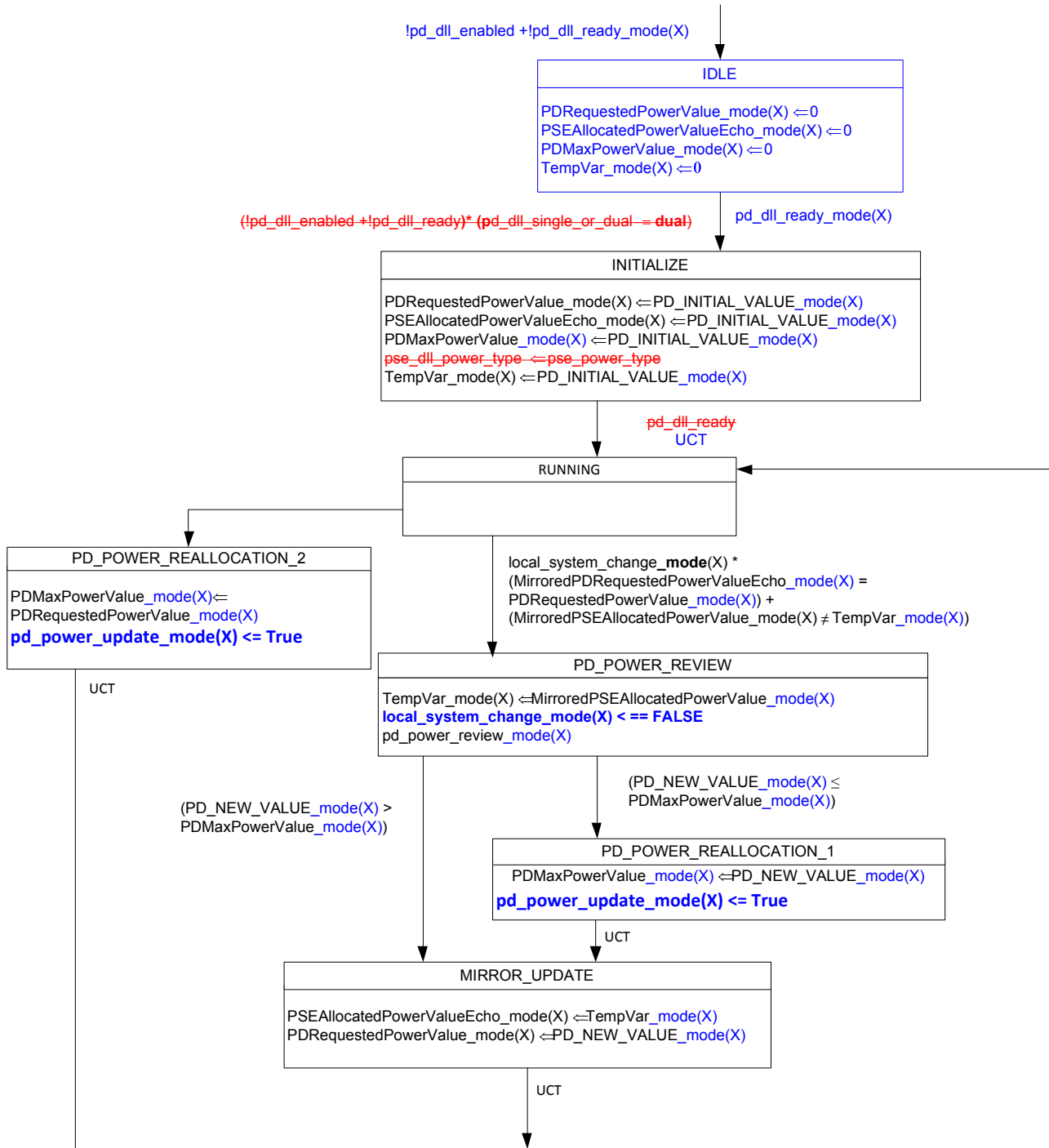


Figure 145–48—Dual-signature PD power control state diagram mode(X)

736  
 737  
 738

739 **145.5.4 State change procedure across a link ([single-signature](#))**

740 The PSE and PD utilize the LLDPDUs to advertise their various attributes to the other entity.

741

742 The PD may request a new power value through the aLldpXdot3LocPDRRequestedPowerValue (30.12.2.1.17) attribute in the  
743 oLldpXdot3LocSystemsGroup object class. The request appears to the PSE as a change to the  
744 aLldpXdot3RemPDRRequestedPowerValue (30.12.3.1.17) attribute in the oLldpXdot3RemSystemsGroup object class.

745

746 The PSE responds to the PD's request through the aLldpXdot3LocPSEAllocatedPowerValue (30.12.2.1.18) attribute in the  
747 oLldpXdot3LocSystemsGroup object class. The PSE also copies the value of the aLldpXdot3RemPDRRequestedPowerValue  
748 (30.12.3.1.17) in the oLldpXdot3RemSystemsGroup object class to the aLldpXdot3LocPDRRequestedPowerValue (30.12.2.1.17) in  
749 the oLldpXdot3LocSystemsGroup object class. This appears to the PD as a change to the  
750 aLldpXdot3RemPSEAllocatedPowerValue (30.12.3.1.18) attribute in the oLldpXdot3RemSystemsGroup object class.

751

752 The PSE may allocate a new power value through the aLldpXdot3LocPSEAllocatedPowerValue (30.12.2.1.18) attribute in the  
753 oLldpXdot3LocSystemsGroup object class. The request appears to the PD as a change to the  
754 aLldpXdot3RemPSEAllocatedPowerValue (30.12.3.1.18) attribute in the oLldpXdot3RemSystemsGroup object class. The PD  
755 responds to a PSE's request through the aLldpXdot3LocPDRRequestedPowerValue (30.12.2.1.17) attribute in the  
756 oLldpXdot3LocSystemsGroup object class. The PD also copies the value of the aLldpXdot3RemPSEAllocatedPowerValue  
757 (30.12.3.1.18) attribute in the oLldpXdot3RemSystemsGroup object class to the aLldpXdot3LocPSEAllocatedPowerValue  
758 (30.12.2.1.18) attribute in the oLldpXdot3LocSystemsGroup object class. This appears to the PSE as a change to the  
759 aLldpXdot3RemPDRRequestedPowerValue (30.12.3.1.17) attribute in the oLldpXdot3RemSystemsGroup object class.

760

761 The state diagrams describe the behavior above.

762

763 **145.5.4.1 PSE state change procedure across a link (single-signature)**

764 A PSE is considered to be in sync with the PD when the value of PSEAllocatedPowerValue matches the value of  
765 MirroredPSEAllocatedPowerValueEcho. When the PSE is not in sync with the PD, the PSE is allowed to change its power  
766 allocation.

767

768 During normal operation, the PSE is in the RUNNING state. If the PSE wants to initiate a change in the PD allocation, the  
769 local\_system\_change is asserted and the PSE enters the PSE\_POWER\_REVIEW state, where a new power allocation value,  
770 PSE\_NEW\_VALUE, is computed. If the PSE is in sync with the PD or if PSE\_NEW\_VALUE is smaller than  
771 PSEAllocatedPowerValue, it enters the MIRROR\_UPDATE state where PSE\_NEW\_VALUE is assigned to  
772 PSEAllocatedPowerValue. It also updates PDRRequestedPowerValueEcho and returns to the RUNNING state.

773

774 If the PSE's previously stored MirroredPDRRequestedPowerValue changes, a request by the PD to change its power allocation is  
775 recognized. It entertains this request only when it is in sync with the PD. The PSE examines the request by entering the  
776 PD\_POWER\_REQUEST state. A new power allocation value, PSE\_NEW\_VALUE, is computed. It then enters the  
777 MIRROR\_UPDATE state where PSE\_NEW\_VALUE is assigned to PSEAllocatedPowerValue. It also updates  
778 PDRRequestedPowerValueEcho and returns to the RUNNING state.

779

780

781

782 **145.5.4.2 PD state change procedure across a link (single-signature)**

783 A PD is considered to be in sync with the PSE when the value of PDRrequestedPowerValue matches the value of  
784 MirroredPDRrequestedPowerValueEcho. The PD is not allowed to change its maximum power draw or the requested power value  
785 when it is not in sync with the PSE.

786  
787 During normal operation, the PD is in the RUNNING state. If the PD's previously stored MirroredPSEAllocatedPowerValue is  
788 changed or local\_system\_change is asserted by the PD so as to change its power allocation, the PD enters the  
789 PD\_POWER\_REVIEW state. In this state, the PD evaluates the change and generates an updated power value called  
790 PD\_NEW\_VALUE. If PD\_NEW\_VALUE is less than PDMaxPowerValue, it updates PDMaxPowerValue in the  
791 PD\_POWER\_REALLOCATION1 state. The PD then finally enters the MIRROR\_UPDATE state where PD\_NEW\_VALUE is  
792 assigned to PDRrequestedPowerValue. It also updates PSEAllocatedPowerValueEcho and returns to the RUNNING state.

793  
794 In the above flow, if PD\_NEW\_VALUE is greater than PDMaxPowerValue, the PD waits until it is in sync with the PSE and the  
795 PSE grants the higher power value. When this condition arises, the PD enters the PD POWER\_REALLOCATION2 state. In this  
796 state, the PD assigns PDMaxPowerValue to PDRrequestedPowerValue and returns to the RUNNING state.

797 -Make the following changes:

798 -In addition verify the following:

799 1. Replace whenever applicable from index "M" to index "X".

800 2. PSE State machine variable e.g. PSEAllocatedPowerValue\_Alt(X) will have only \_Alt(X) extension and not \_mode(X)  
801 extension.

802 3. PD State machine variable e.g. PDMaxPowerValue\_mode(X), will have only \_mode(X) extension and not \_Alt(X)  
803 extension or anything else.

804 4. Attributes e.g. aLldpXdot3LocPDRrequestedPowerValueX will appear without the "Mode" or "mode" or "Alt" or  
805 "Alternative" extensions e.g. aLldpXdot3LocPDRrequestedPowerValueA or aLldpXdot3LocPDRrequestedPowerValueB  
806 etc.

807 **145.5.5 State change procedure across a link (dual-signature)**

808 The PSE and PD utilize the LLDPDUs to advertise their various attributes to the other entity.

809  
810 The PD may request a new power value through the aLldpXdot3LocPDRrequestedPowerValueA or  
811 aLldpXdot3LocPDRrequestedPowerValueB (30.12.2.1.18a and 30.12.2.1.18b) attribute in the oLldpXdot3LocSystemsGroup  
812 object class. The request appears to the PSE as a change to the aLldpXdot3RemPDRrequestedPowerValueA and  
813 aLldpXdot3RemPDRrequestedPowerValueB (30.12.3.1.18a and 30.12.3.1.18b) attribute in the oLldpXdot3RemSystemsGroup  
814 object class.

815  
816 The PSE responds to the PD's request through the aLldpXdot3LocPSEAllocatedPowerValueA and  
817 aLldpXdot3LocPSEAllocatedPowerValueB (30.12.2.1.18c and 30.12.2.1.18d) attribute in the oLldpXdot3LocSystemsGroup  
818 object class. The PSE also copies the value of the aLldpXdot3RemPDRrequestedPowerValueA and  
819 aLldpXdot3RemPDRrequestedPowerValueB (30.12.3.1.18a and 30.12.3.1.18b) in the oLldpXdot3RemSystemsGroup object class  
820 to the aLldpXdot3LocPDRrequestedPowerValueA and aLldpXdot3LocPDRrequestedPowerValueB (30.12.2.1.Z1 and  
821 30.12.2.1.Z2) in the oLldpXdot3LocSystemsGroup object class. This appears to the PD as a change to the  
822 aLldpXdot3RemPSEAllocatedPowerValueA and aLldpXdot3RemPSEAllocatedPowerValueB (30.12.3.1.18c and 30.12.3.1.18d)  
823 attribute in the oLldpXdot3RemSystemsGroup object class.

824  
825 The PSE may allocate a new power value through the aLldpXdot3LocPSEAllocatedPowerValueA and  
826 aLldpXdot3LocPSEAllocatedPowerValueB (30.12.2.1.18c and 30.12.2.1.18d) attribute in the oLldpXdot3LocSystemsGroup  
827 object class. The request appears to the PD as a change to the aLldpXdot3RemPSEAllocatedPowerValueA and  
828 aLldpXdot3RemPSEAllocatedPowerValueB (30.12.3.1.18c and 30.12.3.1.18d) attribute in the oLldpXdot3RemSystemsGroup  
829 object class. The PD responds to a PSE's request through the aLldpXdot3LocPDRrequestedPowerValueA and  
830 aLldpXdot3LocPDRrequestedPowerValueB (30.12.2.1.18a and 30.12.2.1.18b) attribute in the oLldpXdot3LocSystemsGroup  
831 object class. The PD also copies the value of the aLldpXdot3RemPSEAllocatedPowerValueA and  
832 aLldpXdot3RemPSEAllocatedPowerValueB (30.12.3.1.18c and 30.12.3.1.18d) attribute in the oLldpXdot3RemSystemsGroup  
833 object class to the aLldpXdot3LocPSEAllocatedPowerValueA and aLldpXdot3LocPSEAllocatedPowerValueB (30.12.2.1.18c  
834 and 30.12.2.1.18d) attribute in the oLldpXdot3LocSystemsGroup object class. This appears to the PSE as a change to the  
835 aLldpXdot3RemPDRrequestedPowerValueA and aLldpXdot3RemPDRrequestedPowerValueB (30.12.3.1.18a and 30.12.3.1.18b)  
836 attribute in the oLldpXdot3RemSystemsGroup object class.

837 The state diagrams describe the behavior above.

838 **145.5.5.1 PSE state change procedure across a link (dual-signature)**

839 A PSE is considered to be in sync with the PD when the value of PSEAllocatedPowerValue~~\_mode(M)~~ Alt(X) matches the value  
840 of MirroredPSEAllocatedPowerValueEcho~~\_mode(M)~~ Alt(X). When the PSE is not in sync with the PD, the PSE is allowed to  
841 change its power allocation.

842 During normal operation, the PSE is in the RUNNING state. If the PSE wants to initiate a change in the PD allocation, the  
843 local\_system\_change Alt(X) ~~\_mode(M)~~ is asserted and the PSE enters the PSE\_POWER\_REVIEW state, where a new power  
844 allocation value, PSE\_NEW\_VALUE Alt(X) ~~\_mode(M)~~, is computed. If the PSE is in sync with the PD or if  
845 PSE\_NEW\_VALUE~~\_mode(M)~~ Alt(X) is smaller than PSEAllocatedPowerValue~~\_mode(M)~~ Alt(X), it enters the  
846 MIRROR\_UPDATE state where PSE\_NEW\_VALUE~~\_mode(M)~~ Alt(X) is assigned to  
847 PSEAllocatedPowerValue~~\_mode(M)~~ Alt(X). It also updates PDRRequestedPowerValueEcho Alt(X) ~~\_mode(M)~~ and returns to the  
848 RUNNING state.

849 If the PSE's previously stored MirroredPDRRequestedPowerValue Alt(X) ~~\_mode(M)~~ changes, a request by the PD to change its  
850 power allocation is recognized. It entertains this request only when it is in sync with the PD. The PSE examines the request by  
851 entering the PD\_POWER\_REQUEST state. A new power allocation value, PSE\_NEW\_VALUE~~\_mode(M)~~ Alt(X), is computed.  
852 It then enters the MIRROR\_UPDATE state where PSE\_NEW\_VALUE~~\_mode(M)~~ Alt(X) is assigned to  
853 PSEAllocatedPowerValue~~\_mode(M)~~ Alt(X). It also updates PDRRequestedPowerValueEcho Alt(X) ~~\_mode(M)~~ and returns to the  
854 RUNNING state.

855 **145.5.4.4 145.5.2 PD state change procedure across a link (dual-signature)**

856 A PD is considered to be in sync with the PSE when the value of PDRRequestedPowerValue~~\_mode(M)~~ (X) matches the value of  
857 MirroredPDRRequestedPowerValueEcho~~\_mode(M)~~ (X). The PD is not allowed to change its maximum power draw or the requested  
858 power value when it is not in sync with the PSE.

859 During normal operation, the PD is in the RUNNING state. If the PD's previously stored  
860 MirroredPSEAllocatedPowerValue~~\_mode(M)~~ is changed or local\_system\_change~~\_mode(M)~~ (X) is asserted by the PD so as to  
861 change its power allocation, the PD enters the PD\_POWER\_REVIEW state. In this state, the PD evaluates the change and  
862 generates an updated power value called PD\_NEW\_VALUE~~\_mode(M)~~ (X). If PD\_NEW\_VALUE~~\_mode(M)~~ (X) is less than  
863 PDMaxPowerValue~~\_mode(M)~~ (X), it updates PDMaxPowerValue~~\_mode(M)~~ (X) in the PD\_POWER\_REALLOCATION1 state.  
864 The PD finally enters the MIRROR\_UPDATE state where PD\_NEW\_VALUE~~\_mode(M)~~ (X) is assigned to  
865 PDRRequestedPowerValue~~\_mode(M)~~ (X). It also updates PSEAllocatedPowerValueEcho~~\_mode(M)~~ (X) and returns to the RUNNING  
866 state.

867 In the above flow, if PD\_NEW\_VALUE~~\_mode(M)~~ (X) is greater than PDMaxPowerValue~~\_mode(M)~~ (X), the PD waits until it is in  
868 sync with the PSE and the PSE grants the higher power value. When this condition arises, the PD enters the PD\_POWER  
869 REALLOCATION\_2 state. In this state, the PD assigns PDMaxPowerValue~~\_mode(M)~~ (X) to  
870 PDRRequestedPowerValue~~\_mode(M)~~ (X) and returns to the RUNNING state.

871 **145.5.5 145.5.6 Autoclass**

872 A PSE can indicate it supports DLL Autoclass by means of the.....

873

874 **Make the following changes to clause 79:**

875  
876

**Table 79–9—IEEE 802.3 Organizationally Specific TLV/LLDP Local System Group managed object class cross references**

TLV name	TLV variable	LLDP Local System Group managed object class attribute
Power via MDI	PD requested power value mode <del>A(A)</del>	aLldpXdot3LocPDRequestedPowerValue <del>A</del> ModeA
	PD requested power value mode <del>B(B)</del>	aLldpXdot3LocPDRequestedPowerValue <del>B</del> ModeB
	PSE allocated power value Alternative A	aLldpXdot3LocPSEAllocatedPowerValueAAlternativeA
	PSE allocated power value <del>Alternative A</del> Alternative B	aLldpXdot3LocPSEAllocatedPowerValue <del>B</del> AlternativeB

877  
878  
879

**Table 79–10—IEEE 802.3 Organizationally Specific TLV/LLDP Remote System Group managed object class cross references**

TLV name	TLV variable	LLDP Remote System Group managed object class attribute
Power via MDI	PD requested power value mode A	aLldpXdot3RemPDRequestedPowerValueA <del>ModeA</del>
	PD requested power value mode B	aLldpXdot3RemPDRequestedPowerValue <del>B</del> ModeB
	PSE allocated power value Alternative A	aLldpXdot3RemPSEAllocatedPowerValueAAlternativeA
	PSE allocated power value <del>Alternative A</del> Alternative B	aLldpXdot3RemPSEAllocatedPowerValue <del>B</del> AlternativeB

880

**Add the following definitions to clause 30:**

881

**30.12.2.1.18a aLldpXdot3LocPDRequestedPowerValueA~~ModeA~~**

882

ATTRIBUTE

883

APPROPRIATE SYNTAX:

884

INTEGER

885

BEHAVIOUR DEFINED AS:

886

A GET attribute that returns the PD requested power value for the Mode A pairset in units of 0.1 W, ~~as defined in Equation (79–1), where aLldpXdot3LocPDRequestedPowerValueModeA is X~~. For a PD, it is the power value that the PD has currently requested from the remote system for the Mode A pairset. For a PSE, it is the power value for the ~~Mode~~ Alternative A pairset that the PSE mirrors back to the remote system.;

887

888

889

890

891

**30.12.2.1.18b aLldpXdot3LocPDRequestedPowerValue~~B~~ModeB**

892

ATTRIBUTE

893

APPROPRIATE SYNTAX:

894

INTEGER

895

BEHAVIOUR DEFINED AS:

896

A GET attribute that returns the PD requested power value for the Mode B pairset in units of 0.1 W, ~~as defined in Equation (79–1), where aLldpXdot3LocPDRequestedPowerValueModeB is X~~. For a PD, it is the power value that the PD has currently requested from the remote system for the Mode B pairset. For a PSE, it is the power value for the ~~Alternative~~ Mode B pairset that the PSE mirrors back to the remote system.;

897

898

899

900

**30.12.2.1.18c aLldpXdot3LocPSEAllocatedPowerValueA**

901

ATTRIBUTE

902

APPROPRIATE SYNTAX:

903

INTEGER

904

BEHAVIOUR DEFINED AS:

905

A GET attribute that returns the PSE allocated power value for the Alternative A pairset in units of 0.1 W, ~~as defined in Equation (79–2), where aLldpXdot3LocPSEAllocatedPowerValueAlternativeA is X~~. For a PSE, it is the power value for the Alternative A pairset that the PSE has currently allocated to the remote system. For a PD, it is the power value for the ~~Alternative~~ mode A pairset that the PD mirrors back to the remote system.;

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913

914 **30.12.2.1.18d aLldpXdot3LocPSEAllocatedPowerValueBAlternativeB**  
915 ATTRIBUTE  
916 APPROPRIATE SYNTAX:  
917 INTEGER  
918 BEHAVIOUR DEFINED AS:  
919 A GET attribute that returns the PSE allocated power value for the Alternative B pairset in units of 0.1 W, ~~as defined in~~  
920 ~~Equation (79-2), where aLldpXdot3LocPSEAllocatedPowerValueAlternativeB is X~~. For a PSE, it is the power value for the  
921 Alternative B pairset that the PSE has currently allocated to the remote system. For a PD, it is the power value for the ~~Alternative~~  
922 ~~mode~~ B pairset that the PD mirrors back to the remote system.;

923  
924 **30.12.3.1.18a aLldpXdot3RemPDRRequestedPowerValueAModeA**  
925 ATTRIBUTE  
926 APPROPRIATE SYNTAX:  
927 INTEGER  
928 BEHAVIOUR DEFINED AS:  
929 A GET attribute that returns the PD requested power value for the Mode A pairset that was used by the remote system to  
930 compute the power value that is ~~has~~ currently allocated to the PD. For a PSE, it is the PD requested power value for the ~~Mode~~  
931 ~~Alternative~~ A pairset received from the remote system. The definition and encoding of PD requested power value for the Mode A  
932 pairset is the same as described in aLldpXdot3LocPDRRequestedPowerValueAModeA (30.12.2.1.18a).;

933  
934 **30.12.3.1.18b aLldpXdot3RemPDRRequestedPowerValueBModeB**  
935 ATTRIBUTE  
936 APPROPRIATE SYNTAX:  
937 INTEGER  
938 BEHAVIOUR DEFINED AS:  
939 A GET attribute that returns the PD requested power value for the Mode B pairset that was used by the remote system to  
940 compute the power value that is ~~has~~ currently allocated to the PD. For a PSE, it is the PD requested power value for the ~~Mode~~  
941 ~~Alternative~~ B pairset received from the remote system. The definition and encoding of PD requested power value for the Mode B  
942 pairset is the same as described in aLldpXdot3LocPDRRequestedPowerValueBModeB (30.12.2.1.18b).;

943  
944 **30.12.3.1.18c aLldpXdot3RemPSEAllocatedPowerValueAAlternativeA**  
945 ATTRIBUTE  
946 APPROPRIATE SYNTAX:  
947 INTEGER  
948 BEHAVIOUR DEFINED AS:  
949 A GET attribute that returns the PSE allocated power value for the Alternative A pairset received from the remote system.  
950 For a PSE, it is the PSE allocated power value for the Alternative A pairset that was used by the remote system to compute the  
951 power value that it has currently requested from the PSE. For a PD, it is the PSE allocated power value for the ~~Alternative-mode~~ A  
952 pairset received from the remote system. The definition and encoding of PSE allocated power value for the Alternative A pairset is  
953 the same as described in aLldpXdot3LocPSEAllocatedPowerValueAAlternativeA (30.12.2.1.18c).;

954  
955  
956 **30.12.3.1.18d aLldpXdot3RemPSEAllocatedPowerValueBAlternativeB**  
957 ATTRIBUTE  
958 APPROPRIATE SYNTAX:  
959 INTEGER  
960 BEHAVIOUR DEFINED AS:  
961 A GET attribute that returns the PSE allocated power value for the Alternative B pairset received from the remote system.  
962 For a PSE, it is the PSE allocated power value for the Alternative B pairset that was used by the remote system to compute the  
963 power value that it has currently requested from the PSE. For a PD, it is the PSE allocated power value for the ~~mode~~ ~~Alternative~~ B  
964 pairset received from the remote system. The definition and encoding of PSE allocated power value for the Alternative B pairset is  
965 the same as described in aLldpXdot3LocPSEAllocatedPowerValueBAlternativeB (30.12.2.1.18d).;

966



967 **30.12.2.1.18g aLldpXdot3LocPowerClassxA ModeA**  
968 ATTRIBUTE  
969 APPROPRIATE SYNTAX:  
970 An ENUMERATED VALUE that has one of the following entries:  
971 pClassPSE PSE  
972 pClassPD PD  
973 BEHAVIOUR DEFINED AS:  
974 A read-only value that identifies the port Class of the given port associated with the local system [over Alternative A for a](#)  
975 [PSE or over mode A for a PD.](#);

976 **30.12.2.1.18h aLldpXdot3LocPowerClassxB ModeB**  
977 ATTRIBUTE  
978 APPROPRIATE SYNTAX:  
979 An ENUMERATED VALUE that has one of the following entries:  
980 pClassPSE PSE  
981 pClassPD PD  
982 BEHAVIOUR DEFINED AS:  
983 A read-only value that identifies the port Class of the given port associated with the local system [over Alternative B for a](#)  
984 [PSE or over mode B for a PD.](#);

985 **30.12.3.1.18g aLldpXdot3RemPowerClassxA ModeA**  
986 ATTRIBUTE  
987 APPROPRIATE SYNTAX:  
988 An ENUMERATED VALUE that has one of the following entries:  
989 pClassPSE PSE  
990 pClassPD PD  
991 BEHAVIOUR DEFINED AS:  
992 A read-only value that identifies the port Class of the given port associated with the local system [over Alternative B for a](#)  
993 [PSE or over mode B for a PD.](#);

994 **30.12.3.1.18h aLldpXdot3RemPowerClassxB ModeB**  
995 ATTRIBUTE  
996 APPROPRIATE SYNTAX:  
997 An ENUMERATED VALUE that has one of the following entries:  
1000 pClassPSE PSE  
1001 pClassPD PD  
1002 BEHAVIOUR DEFINED AS:  
1003 A read-only value that identifies the port Class of the given port associated with the local system [over Alternative B for a](#)  
1004 [PSE or over mode B for a PD.](#);

1005  
1006 **Add the following lines to Table 30-7**  
1007 aLldpXdot3RemPDRrequestedPowerValueA, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1008 aLldpXdot3RemPDRrequestedPowerValueB, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1009 aLldpXdot3RemPSEAllocatedPowerValueA, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1010 aLldpXdot3RemPSEAllocatedPowerValueB, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1011

1012 **Change the following in Table 30-7**  
1013 aLldpXdot3LocPSEAllocatedPowerValueA ModeA, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1014 aLldpXdot3LocPSEAllocatedPowerValueB ModeB, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1015 aLldpXdot3LocPDRrequestedPowerValueA ModeA, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1016 aLldpXdot3LocPDRrequestedPowerValueB ModeB, ATTRIBUTE, GET, column= LLDP Power via MDI Remote Package (conditional)  
1017

**End of Proposed Baseline**