

IEEE 802.3 Clause 30 management, MIB, definitions for Ethernet, registers and function

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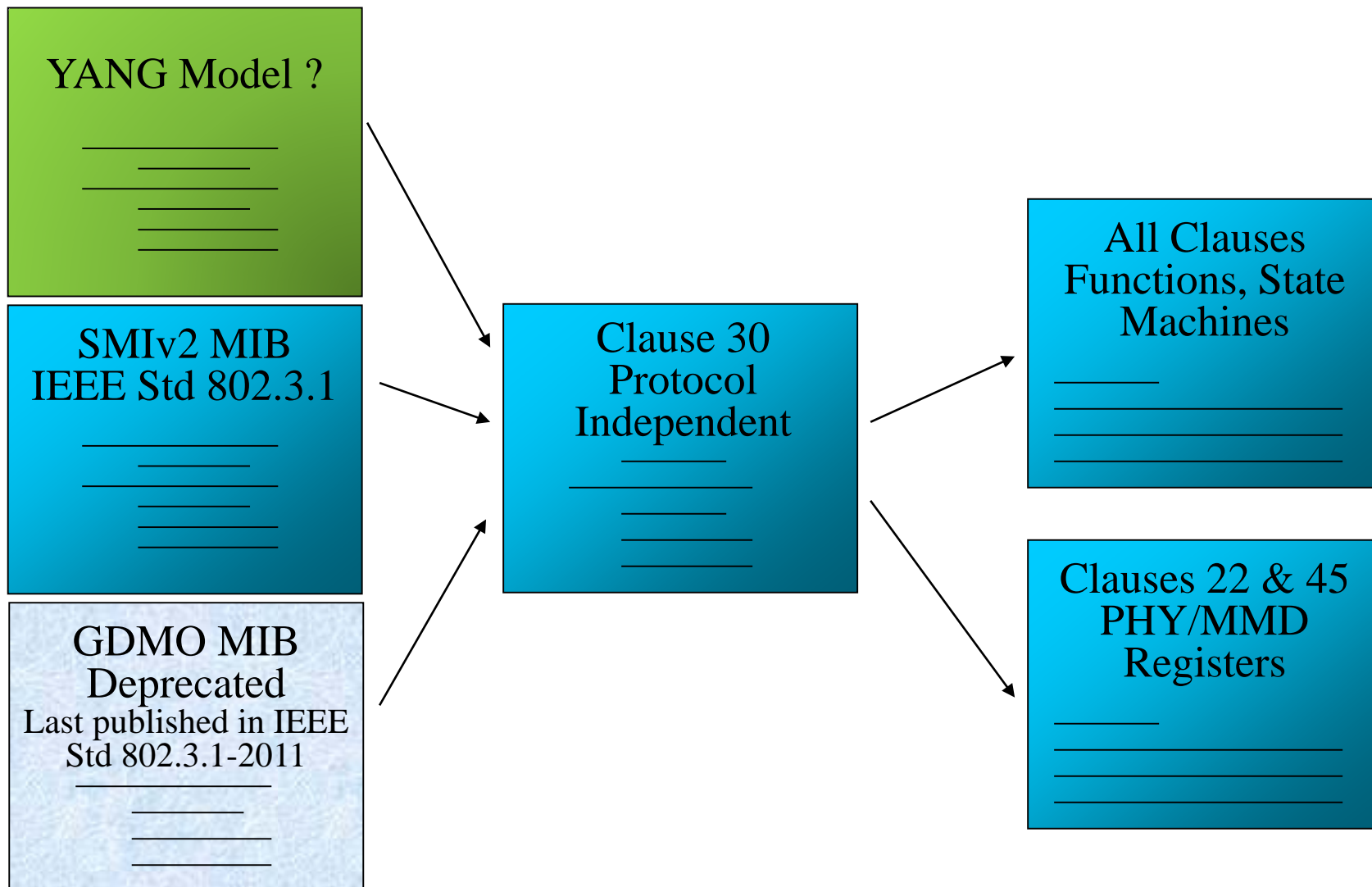
IEEE 802.3 approach

- Protocol independent Management Clause
 - IEEE Std 802.3 Clause 30 Management
 - Referenced by protocol dependent MIBs
- Protocol dependent Management Information Base (MIB)
 - Guidelines for the Definition of Managed Objects (GDMO)
 - Deprecated except object branch and leaf assignments
 - Structure of Management Information Version 2 (SMIv2) MIB
 - Supports management using SNMP
 - IEEE Std 802.3.1MIB Definitions for Ethernet
 - Yet Another Next Generation (YANG) model
 - Supports management using NETCONFIG
 - Work just starting on YANG model for IEEE 802.3 Ethernet

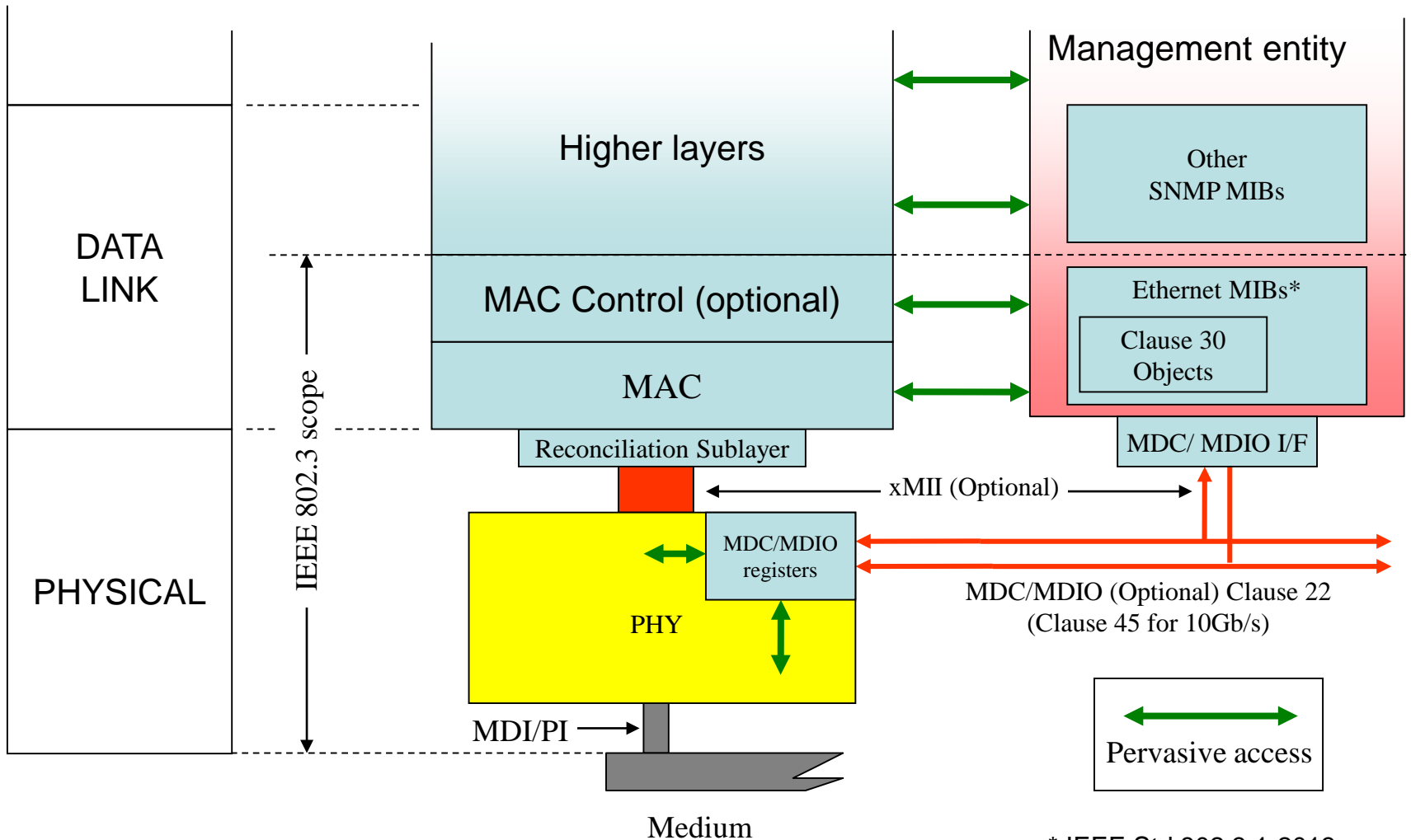
Clause 30 Management elements

- Objects, attributes, actions or notifications
- Generally only provide elements that are associated with hardware function
 - Behaviours references functions and registers within the relevant Clause of IEEE 802.3
- Generally don't provide elements if it doesn't require hardware support
 - Examples
 - Attributes that could be calculated from other objects
 - These may be provided in protocol dependent MIB

References to and from IEEE Std 802.3 Clause 30



Management model

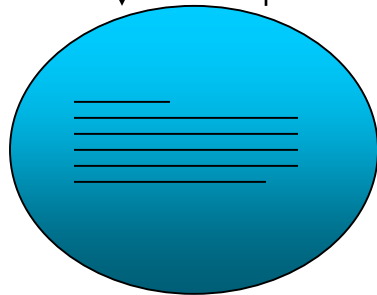
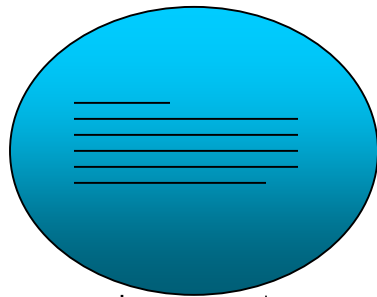


* IEEE Std 802.3.1-2013

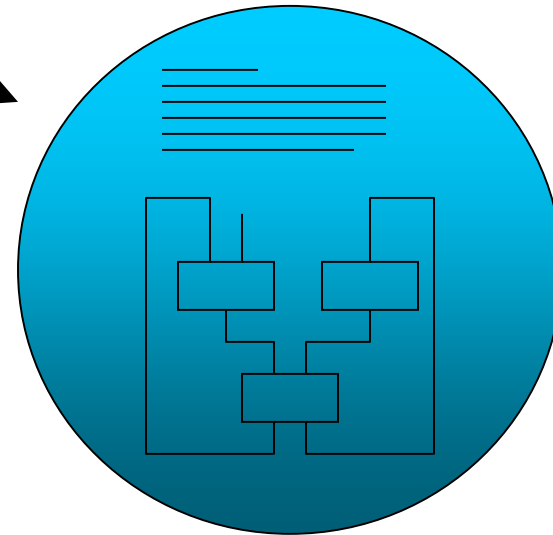
MIB, Registers and Function

Function in PHY needs register access to make it manageable across xMII

MIB definition



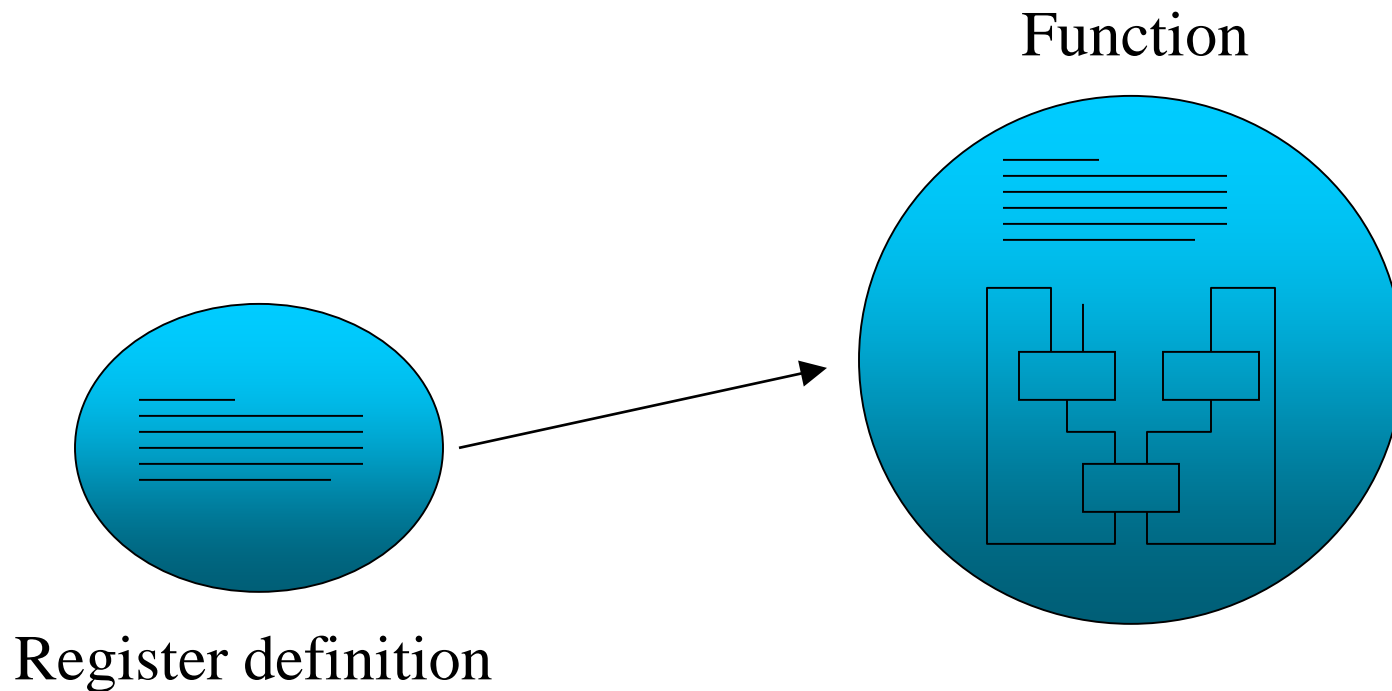
Function



Register definition

MIB, Registers and Function

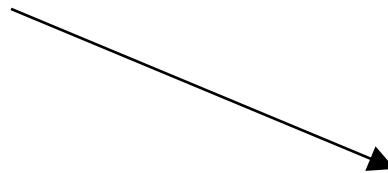
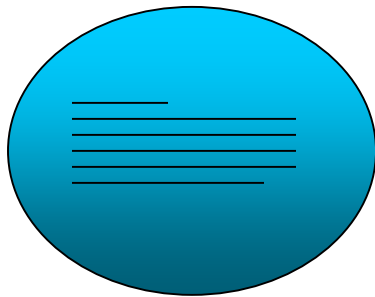
Can have a register but no MIB attribute. Example: PHY test mode



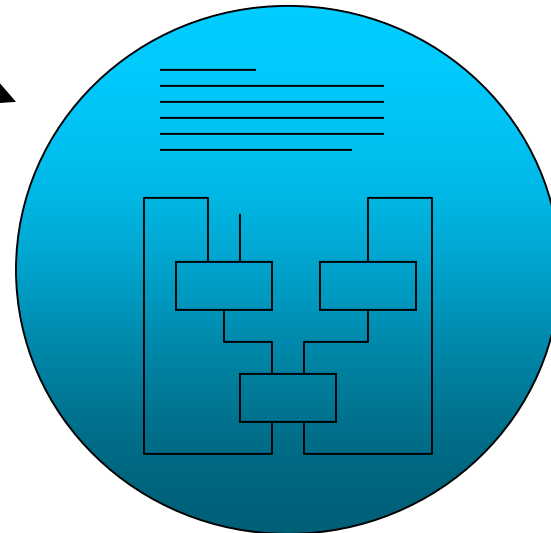
MIB, Registers and Function

Can have a MIB attribute but no register. Example: MAC packet counters

MIB definition



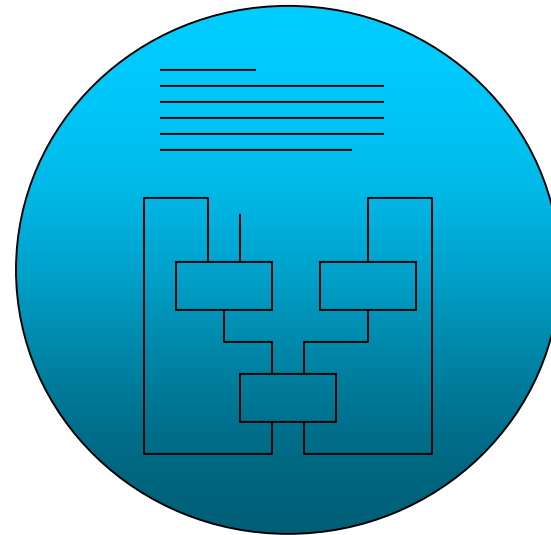
Function



MIB, Registers and Function

Can have a function but no register or MIB attribute

Function

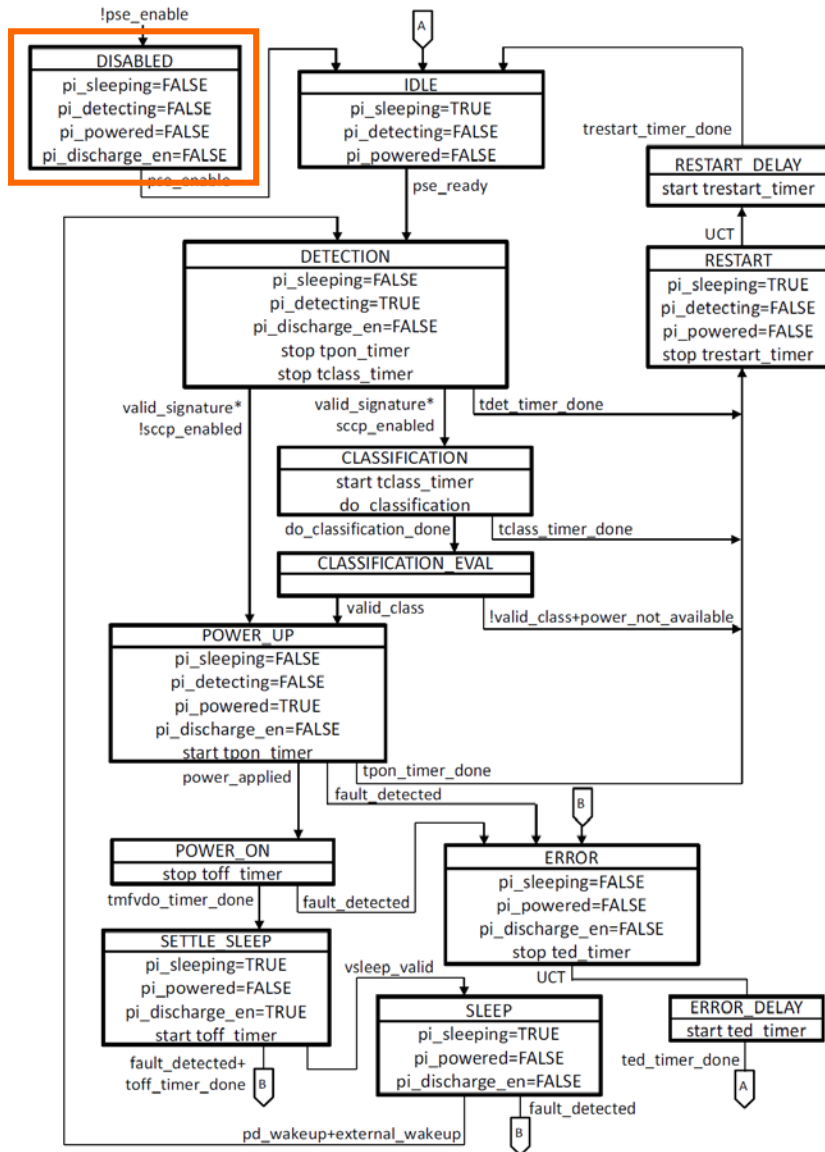


Summary

- Protocol independent Clause 30
 - Generally hardware related objects
 - References functions and/or registers in other clauses
- Protocol dependant MIBs
 - GDMO
 - Deprecated (last published in IEEE Std 802.3.1-2011)
 - GDMO object branch and leaf assignments kept for OAM
 - SMIPv2
 - Supports management using SNMP
 - Published in IEEE Std 802.3.1 MIB definitions for Ethernet
 - YANG
 - Supports management using NETCONFIG
 - Work just starting on YANG support for IEEE 802.3 Ethernet

Review of initial IEEE P802.3bu Clause 30 draft proposal

PSE Disabled



oPoDLPSE managed object class (30.14)				
aPoDLPSEID	ATTRIBUTE	GET		X
aPoDLPSEAdminState	ATTRIBUTE	GET		X
aPoDLPSEPowerDetectionStatus	ATTRIBUTE	GET		X
aPoDLPSEType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDPowerClass	ATTRIBUTE	GET		X
aPoDLPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPoDLPSEInvalidClassCounter	ATTRIBUTE	GET		X
aPoDLPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPoDLPSEOverLoadCounter	ATTRIBUTE	GET		X
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter	ATTRIBUTE	GET		X
aPoDLPSEActualPower	ATTRIBUTE	GET		X
aPoDLPSEPowerAccuracy	ATTRIBUTE	GET		X
aPoDLPSECumulativeEnergy	ATTRIBUTE	GET		X
acPoDLPSEAdminControl	ACTION			X

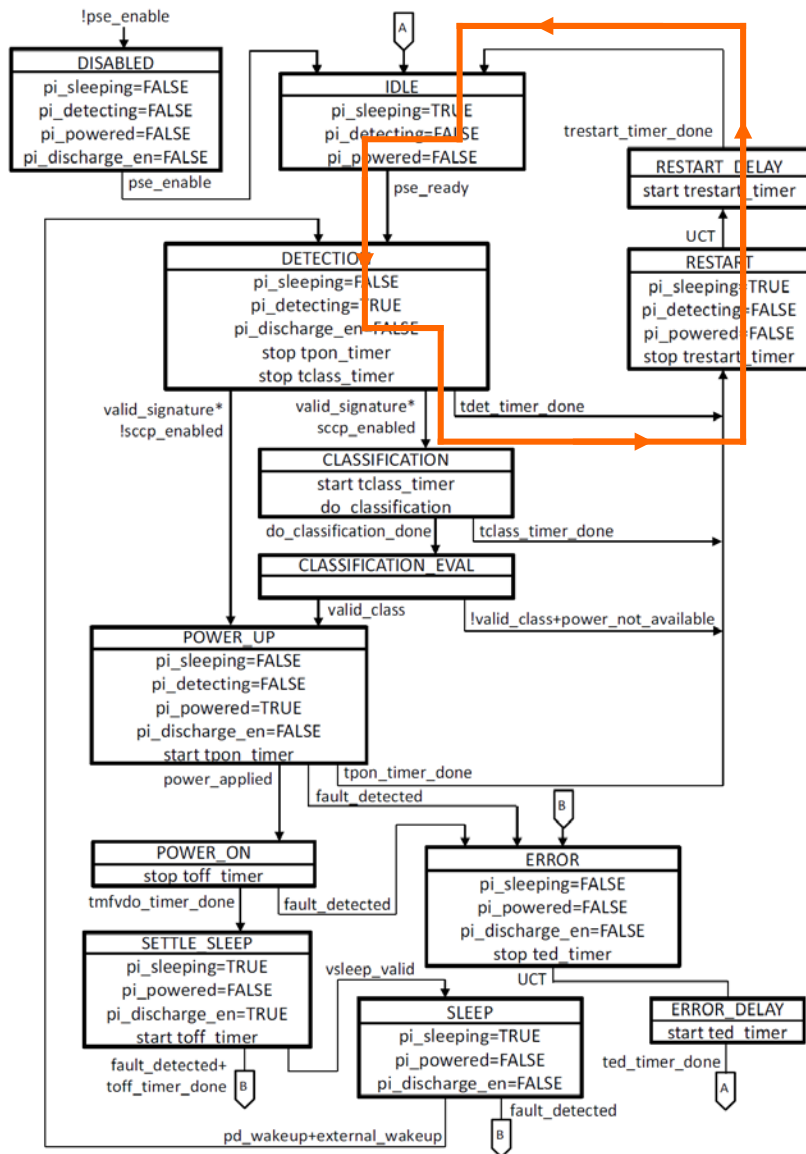
Attribute

aPoDLPSEAdminState
aPoDLPSEPowerDetectionStatus
aPoDLPSEDetectedPDType
aPoDLPSEDetectedPDPowerClass
aPoDLPSEInvalidSignatureCounter
aPoDLPSEInvalidClassCounter
aPoDLPSEPowerDeniedCounter
aPoDLPSEOverLoadCounter
aPoDLPSEMaintainFVSAbsentCounter

Value

disabled
disabled
unknown
unknown
Not incrementing
Not incrementing
Not incrementing
Not incrementing
Not incrementing

Invalid or no Signature



oPoDLPSE managed object class (30.14)				
aPoDLPSEID	ATTRIBUTE	GET		X
aPoDLPSEAdminState	ATTRIBUTE	GET		X
aPoDLPSEPowerDetectionStatus	ATTRIBUTE	GET		X
aPoDLPSEType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDPowerClass	ATTRIBUTE	GET		X
aPoDLPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPoDLPSEInvalidClassCounter	ATTRIBUTE	GET		X
aPoDLPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPoDLPSEOverLoadCounter	ATTRIBUTE	GET		X
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter	ATTRIBUTE	GET		X
aPoDLPSEActualPower	ATTRIBUTE	GET		X
aPoDLPSEPowerAccuracy	ATTRIBUTE	GET		X
aPoDLPSECumulativeEnergy	ATTRIBUTE	GET		X
acPoDLPSEAdminControl	ACTION			X

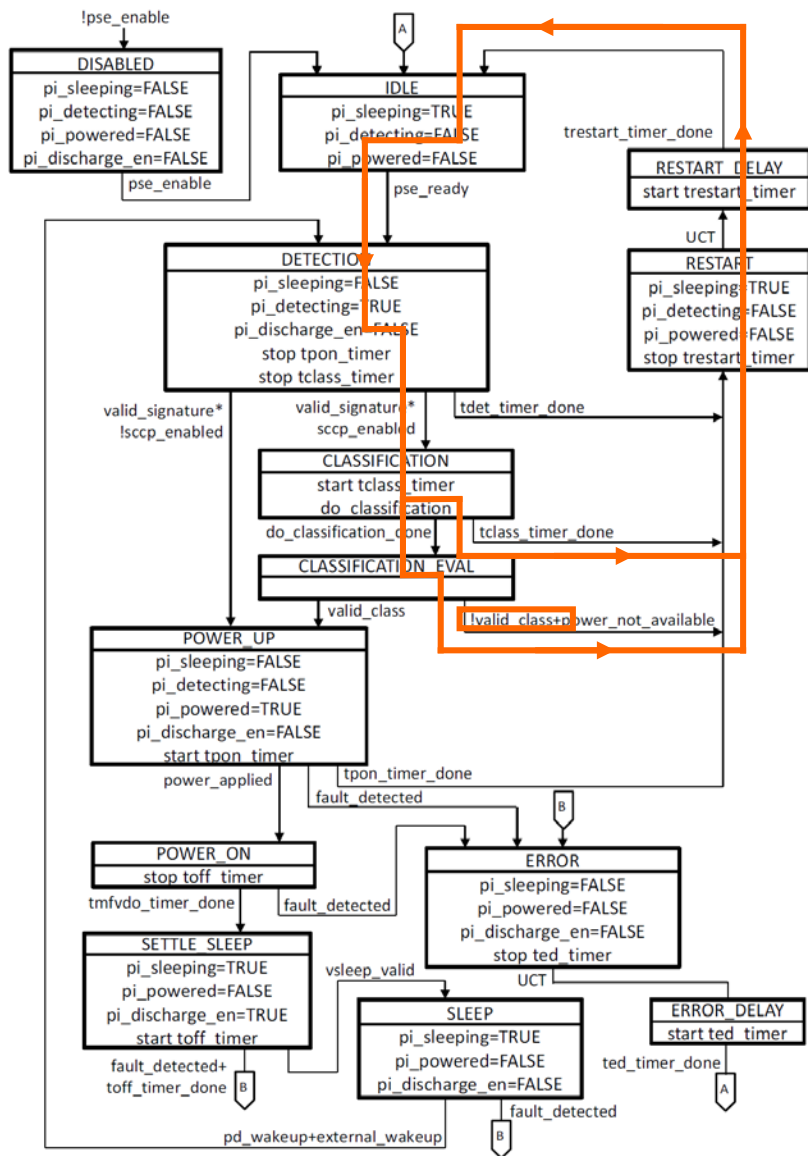
Attribute

- aPoDLPSEAdminState
- aPoDLPSEPowerDetectionStatus
- aPoDLPSEDetectedPDType
- aPoDLPSEDetectedPDPowerClass
- aPoDLPSEInvalidSignatureCounter
- aPoDLPSEInvalidClassCounter
- aPoDLPSEPowerDeniedCounter
- aPoDLPSEOverLoadCounter
- aPoDLPSEMaintainFVSAbsentCounter

Value

- enabled
- searching
- unknown
- unknown
- Increment
- Not incrementing
- Not incrementing
- Not incrementing
- Not incrementing

Classification timeout or invalid



oPoDLPSE managed object class (30.14)				
aPoDLPSEID	ATTRIBUTE	GET		X
aPoDLPSEAdminState	ATTRIBUTE	GET		X
aPoDLPSEPowerDetectionStatus	ATTRIBUTE	GET		X
aPoDLPSEType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDPowerClass	ATTRIBUTE	GET		X
aPoDLPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPoDLPSEInvalidClassCounter	ATTRIBUTE	GET		X
aPoDLPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPoDLPSEOverLoadCounter	ATTRIBUTE	GET		X
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter	ATTRIBUTE	GET		X
aPoDLPSEActualPower	ATTRIBUTE	GET		X
aPoDLPSEPowerAccuracy	ATTRIBUTE	GET		X
aPoDLPSECumulativeEnergy	ATTRIBUTE	GET		X
acPoDLPSEAdminControl	ACTION			X

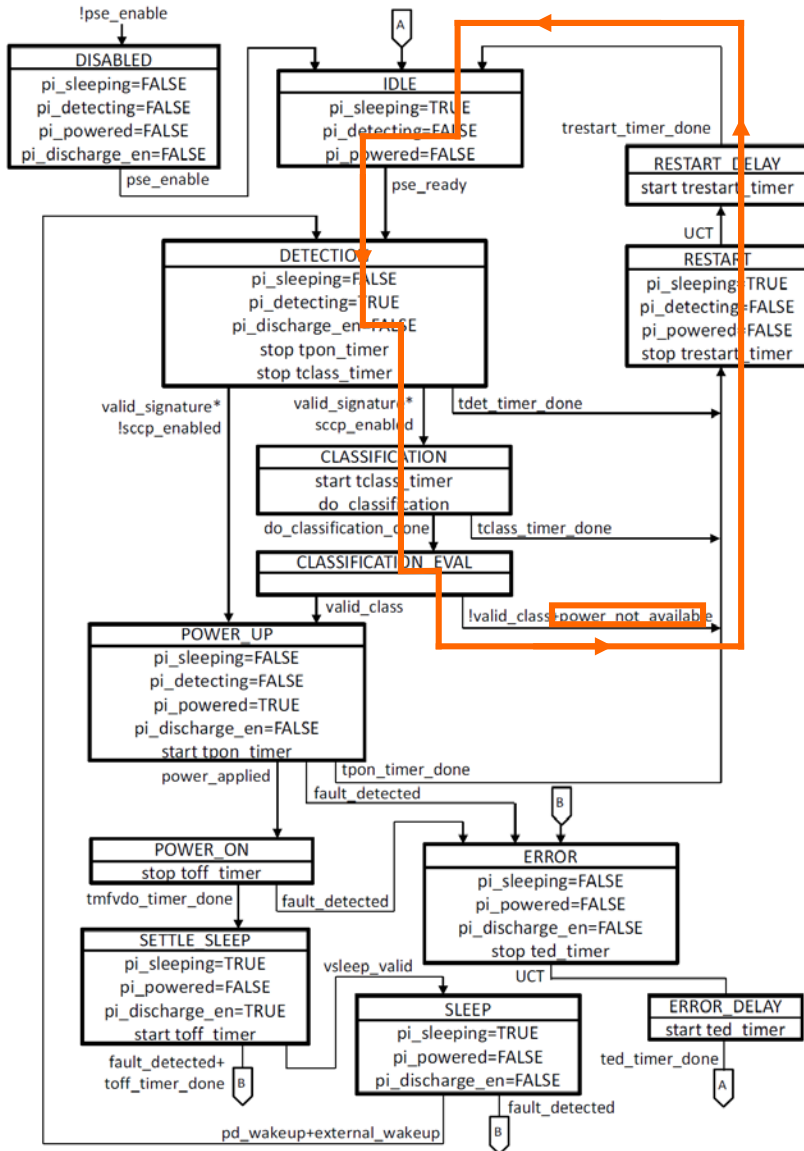
Attribute

aPoDLPSEAdminState
 aPoDLPSEPowerDetectionStatus
 aPoDLPSEDetectedPDType
 aPoDLPSEDetectedPDPowerClass
 aPoDLPSEInvalidSignatureCounter
 aPoDLPSEInvalidClassCounter
 aPoDLPSEPowerDeniedCounter
 aPoDLPSEOverLoadCounter
 aPoDLPSEMaintainFVSAbsentCounter

Value

enabled
 searching
 unknown
 unknown
 Not incrementing
 Increment
 Not incrementing
 Not incrementing
 Not incrementing

Classification timeout or invalid



oPoDLPSE managed object class (30.14)				
Attribute	Method	Direction	Read Only	Write Only
aPoDLPSEID	GET	ATTRIBUTE	X	
aPoDLPSEAdminState	GET	ATTRIBUTE	X	
aPoDLPSEPowerDetectionStatus	GET	ATTRIBUTE	X	
aPoDLPSEType	GET	ATTRIBUTE	X	
aPoDLPSEDetectedPDType	GET	ATTRIBUTE	X	
aPoDLPSEDetectedPDPowerClass	GET	ATTRIBUTE	X	
aPoDLPSEInvalidSignatureCounter	GET	ATTRIBUTE		X
aPoDLPSEInvalidClassCounter	GET	ATTRIBUTE		X
aPoDLPSEPowerDeniedCounter	GET	ATTRIBUTE		X
aPoDLPSEOverLoadCounter	GET	ATTRIBUTE		X
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter	GET	ATTRIBUTE		X
aPoDLPSEActualPower	GET	ATTRIBUTE		X
aPoDLPSEPowerAccuracy	GET	ATTRIBUTE		X
aPoDLPSECumulativeEnergy	GET	ATTRIBUTE		X
acPoDLPSEAdminControl		ACTION		X

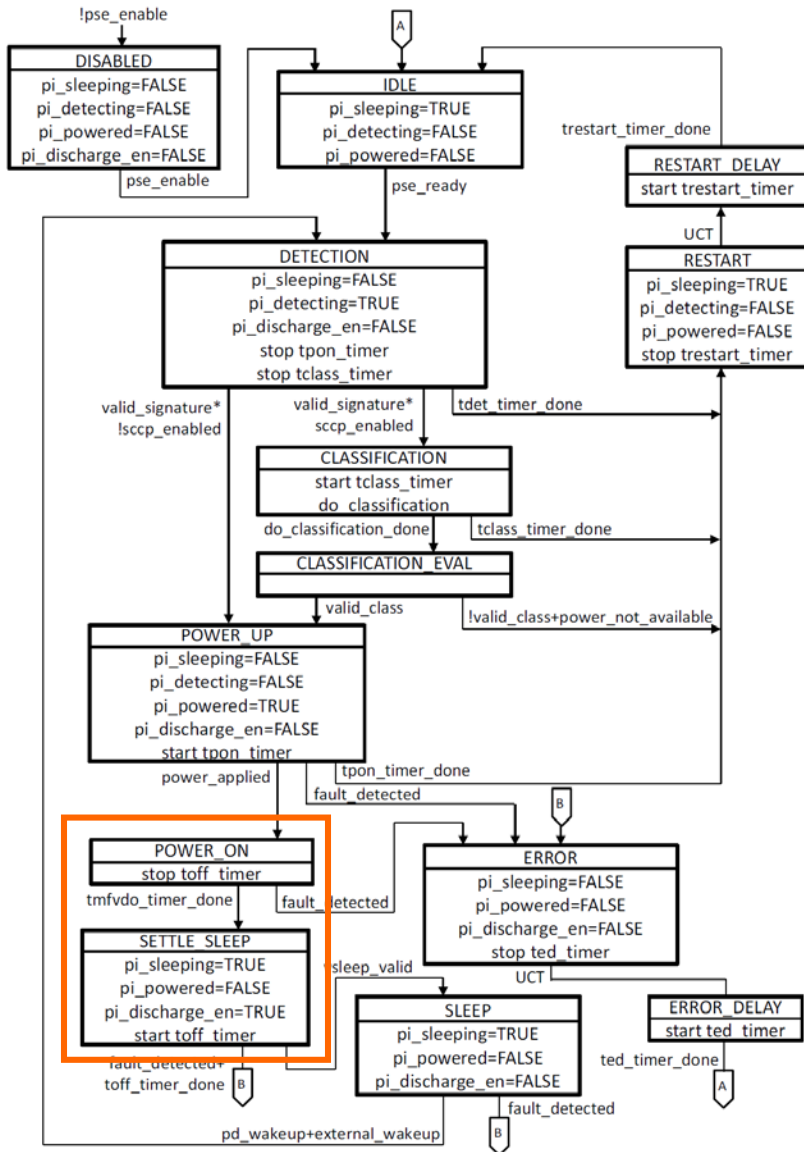
Attribute

- aPoDLPSEAdminState
- aPoDLPSEPowerDetectionStatus
- aPoDLPSEDetectedPDType
- aPoDLPSEDetectedPDPowerClass
- aPoDLPSEInvalidSignatureCounter
- aPoDLPSEInvalidClassCounter
- aPoDLPSEPowerDeniedCounter
- aPoDLPSEOverLoadCounter
- aPoDLPSEMaintainFVSAbsentCounter

Value

- enabled
- searching
- unknown
- unknown
- Not incrementing
- Not Incrementing
- Increment
- Not incrementing
- Not incrementing

Delivering Power



oPoDLPSE managed object class (30.14)				
Attribute	Method	Access	Incrementing	Value
aPoDLPSEID	ATTRIBUTE	GET	X	
aPoDLPSEAdminState	ATTRIBUTE	GET	X	disabled
aPoDLPSEPowerDetectionStatus	ATTRIBUTE	GET	X	deliveringPower
aPoDLPSEType	ATTRIBUTE	GET	X	[PD type]
aPoDLPSEDetectedPDType	ATTRIBUTE	GET	X	[PD class]
aPoDLPSEDetectedPDPowerClass	ATTRIBUTE	GET	X	
aPoDLPSEInvalidSignatureCounter	ATTRIBUTE	GET		Not incrementing
aPoDLPSEInvalidClassCounter	ATTRIBUTE	GET		Not incrementing
aPoDLPSEPowerDeniedCounter	ATTRIBUTE	GET		Not incrementing
aPoDLPSEOverLoadCounter	ATTRIBUTE	GET		Not incrementing
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter	ATTRIBUTE	GET		Not incrementing
aPoDLPSEActualPower	ATTRIBUTE	GET	X	
aPoDLPSEPowerAccuracy	ATTRIBUTE	GET	X	
aPoDLPSECumulativeEnergy	ATTRIBUTE	GET	X	
acPoDLPSEAdminControl	ACTION			X

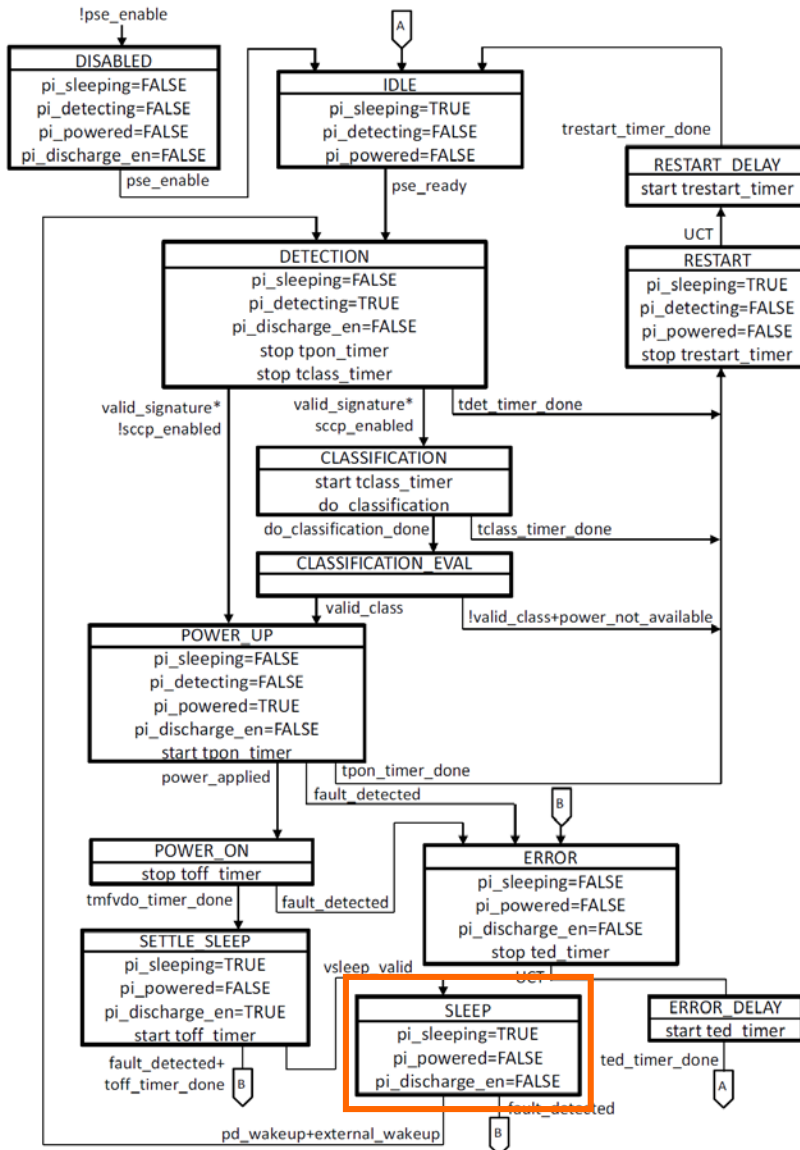
Attribute

- aPoDLPSEAdminState
- aPoDLPSEPowerDetectionStatus
- aPoDLPSEDetectedPDType
- aPoDLPSEDetectedPDPowerClass
- aPoDLPSEInvalidSignatureCounter
- aPoDLPSEInvalidClassCounter
- aPoDLPSEPowerDeniedCounter
- aPoDLPSEOverLoadCounter
- aPoDLPSEMaintainFVSAbsentCounter

Value

- disabled
- deliveringPower
- [PD type]
- [PD class]
- Not incrementing
- Not incrementing
- Not incrementing
- Not incrementing
- Not incrementing

Sleep



oPoDLPSE managed object class (30.14)				
aPoDLPSEID	ATTRIBUTE	GET		X
aPoDLPSEAdminState	ATTRIBUTE	GET		X
aPoDLPSEPowerDetectionStatus	ATTRIBUTE	GET		X
aPoDLPSEType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDType	ATTRIBUTE	GET		X
aPoDLPSEDetectedPDPowerClass	ATTRIBUTE	GET		X
aPoDLPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPoDLPSEInvalidClassCounter	ATTRIBUTE	GET		X
aPoDLPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPoDLPSEOverLoadCounter	ATTRIBUTE	GET		X
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter	ATTRIBUTE	GET		X
aPoDLPSEActualPower	ATTRIBUTE	GET		X
aPoDLPSEPowerAccuracy	ATTRIBUTE	GET		X
aPoDLPSECumulativeEnergy	ATTRIBUTE	GET		X
acPoDLPSEAdminControl	ACTION			X

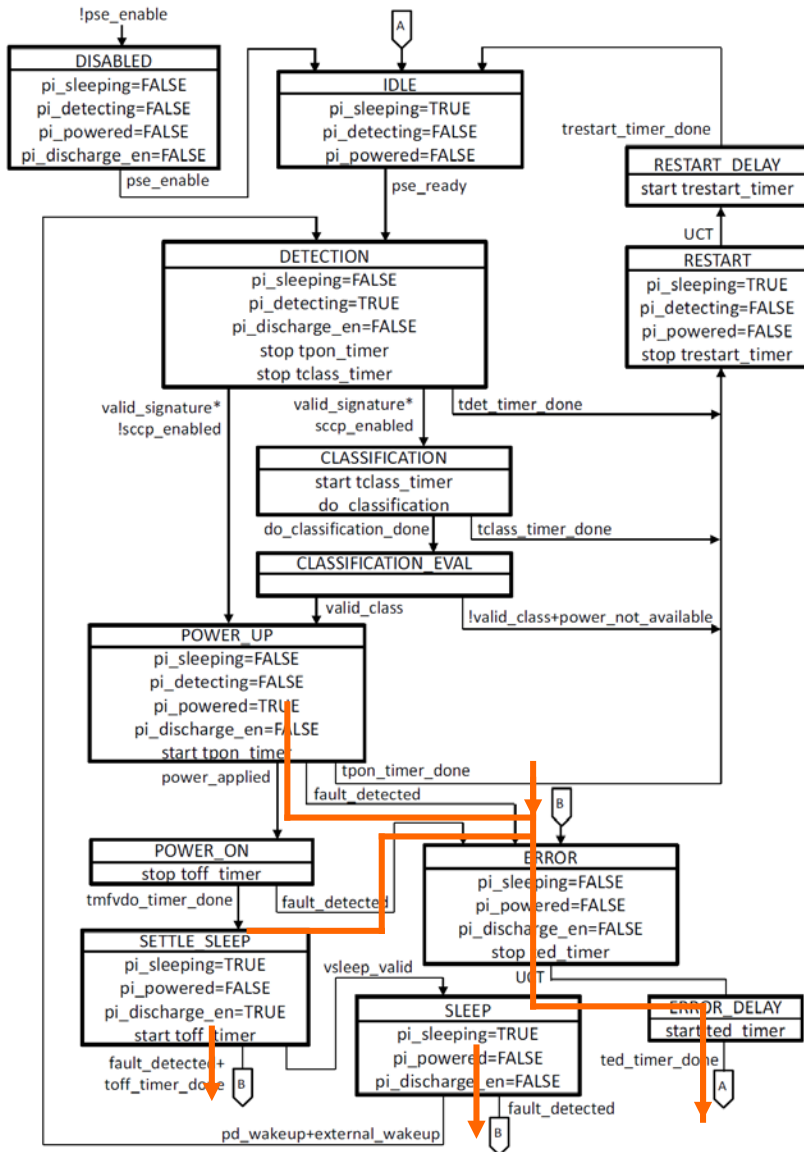
Attribute

aPoDLPSEAdminState
aPoDLPSEPowerDetectionStatus
aPoDLPSEDetectedPDType
aPoDLPSEDetectedPDPowerClass
aPoDLPSEInvalidSignatureCounter
aPoDLPSEInvalidClassCounter
aPoDLPSEPowerDeniedCounter
aPoDLPSEOverLoadCounter
aPoDLPSEMaintainFVSAbsentCounter

Value

disabled
sleep
unknown
unknown
Not incrementing
Not incrementing
Not incrementing
Not incrementing
Not incrementing

Overload



oPoDLPSE managed object class (30.14)				
Attribute	Value	Method	Control	Read Only
aPoDLPSEID		GET		X
aPoDLPSEAdminState		GET		X
aPoDLPSEPowerDetectionStatus		GET		X
aPoDLPSEType		GET		X
aPoDLPSEDetectedPDType		GET		X
aPoDLPSEDetectedPDPowerClass		GET		X
aPoDLPSEInvalidSignatureCounter		GET		X
aPoDLPSEInvalidClassCounter		GET		X
aPoDLPSEPowerDeniedCounter		GET		X
aPoDLPSEOverLoadCounter		GET		X
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter		GET		X
aPoDLPSEActualPower		GET		X
aPoDLPSEPowerAccuracy		GET		X
aPoDLPSECumulativeEnergy		GET		X
acPoDLPSEAdminControl				X

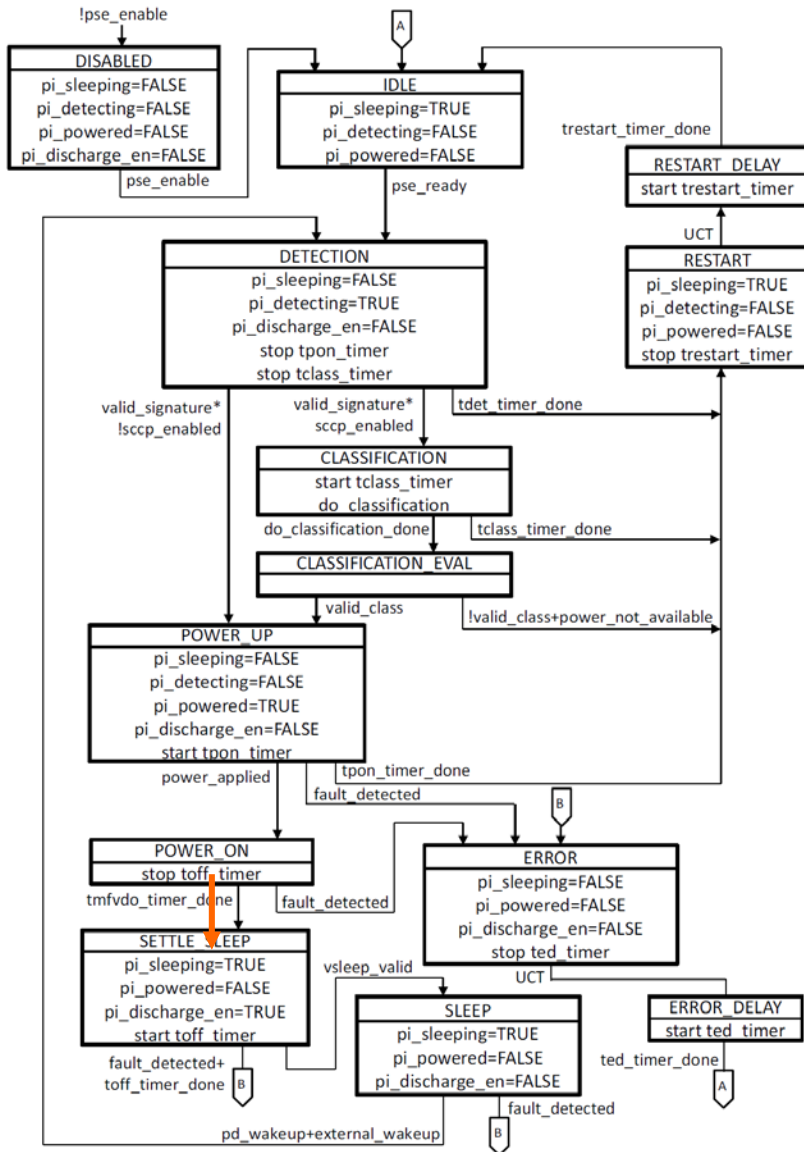
Attribute

- aPoDLPSEAdminState
- aPoDLPSEPowerDetectionStatus
- aPoDLPSEDetectedPDType
- aPoDLPSEDetectedPDPowerClass
- aPoDLPSEInvalidSignatureCounter
- aPoDLPSEInvalidClassCounter
- aPoDLPSEPowerDeniedCounter
- aPoDLPSEOverLoadCounter
- aPoDLPSEMaintainFVSAbsentCounter

Value

- enabled
- searching
- unknown
- unknown
- Not incrementing
- Not Incrementing
- Not incrementing
- Increment
- Not incrementing

Maintain FVS Absent



oPoDLPSE managed object class (30.14)				
Attribute	Access	Method	Value	Increment
aPoDLPSEID	ATTRIBUTE	GET	X	
aPoDLPSEAdminState	ATTRIBUTE	GET	X	
aPoDLPSEPowerDetectionStatus	ATTRIBUTE	GET	X	
aPoDLPSEType	ATTRIBUTE	GET	X	
aPoDLPSEDetectedPDType	ATTRIBUTE	GET	X	
aPoDLPSEDetectedPDPowerClass	ATTRIBUTE	GET	X	
aPoDLPSEInvalidSignatureCounter	ATTRIBUTE	GET		X
aPoDLPSEInvalidClassCounter	ATTRIBUTE	GET		X
aPoDLPSEPowerDeniedCounter	ATTRIBUTE	GET		X
aPoDLPSEOverLoadCounter	ATTRIBUTE	GET		X
aPoDLPSEMaintainFullVoltageSignatureAbsentCounter	ATTRIBUTE	GET		X
aPoDLPSEActualPower	ATTRIBUTE	GET	X	
aPoDLPSEPowerAccuracy	ATTRIBUTE	GET	X	
aPoDLPSECumulativeEnergy	ATTRIBUTE	GET	X	
acPoDLPSEAdminControl	ACTION			X

Attribute

- aPoDLPSEAdminState
- aPoDLPSEPowerDetectionStatus
- aPoDLPSEDetectedPDType
- aPoDLPSEDetectedPDPowerClass
- aPoDLPSEInvalidSignatureCounter
- aPoDLPSEInvalidClassCounter
- aPoDLPSEPowerDeniedCounter
- aPoDLPSEOverLoadCounter
- aPoDLPSEMaintainFVSAbsentCounter

Value

- disabled
- sleep
- unknown
- unknown
- Not incrementing
- Not incrementing
- Not incrementing
- Not incrementing
- Increment

Thank You!