LLDP Text[1]: Only sections with changes are included.

Clause 79

79.3.2 Power Via MDI TLV

Clause 33 defines two option power entities: a Powered Device (PD) and Power Sourcing Equipment (PSE). These entities allow devices to draw/supply power over the sample generic cabling as used for data trans-mission. The Power Via MDI TLV allows network management to advertise and discover the MDI power support capabilities of the sending IEEE 802.3 LAN station. This TLV is also required to perform Data Link Layer classification as defined in 33.6. Figure 79–3 shows the format of this TLV.

Restore Figure 79-3 from 802.3-2012, change caption to "Power via MDI TLV format for Type 1 and Type 2"

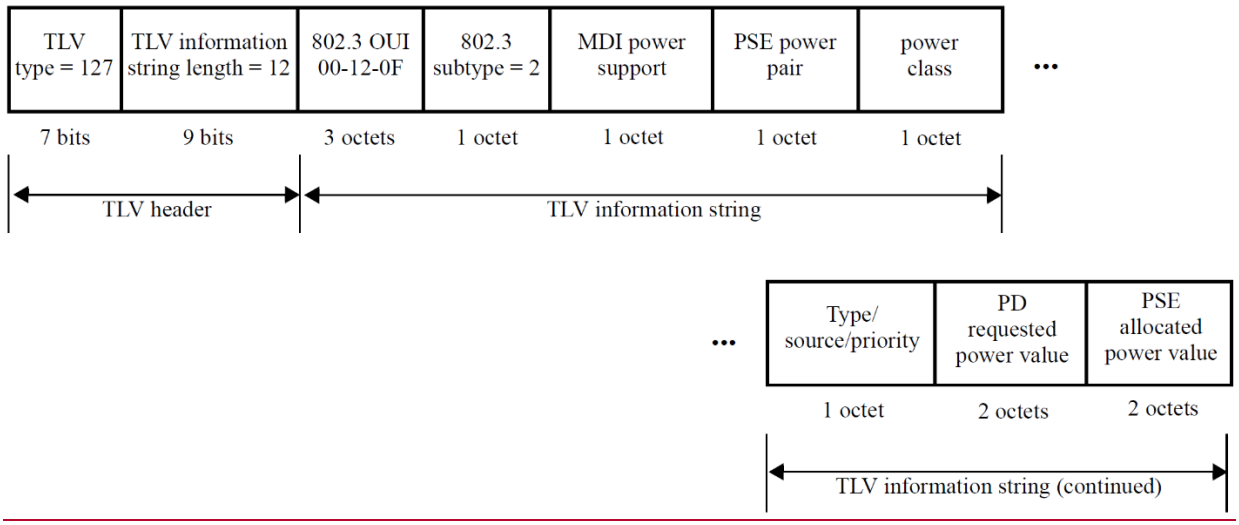

Figure 79–3—Power Via MDI TLV format

To support also long MDI TLVs a second frame size is defined as shown in Figure 79–3a

[1] Text is directly related to yseboodt_3_0915_v120.pdf

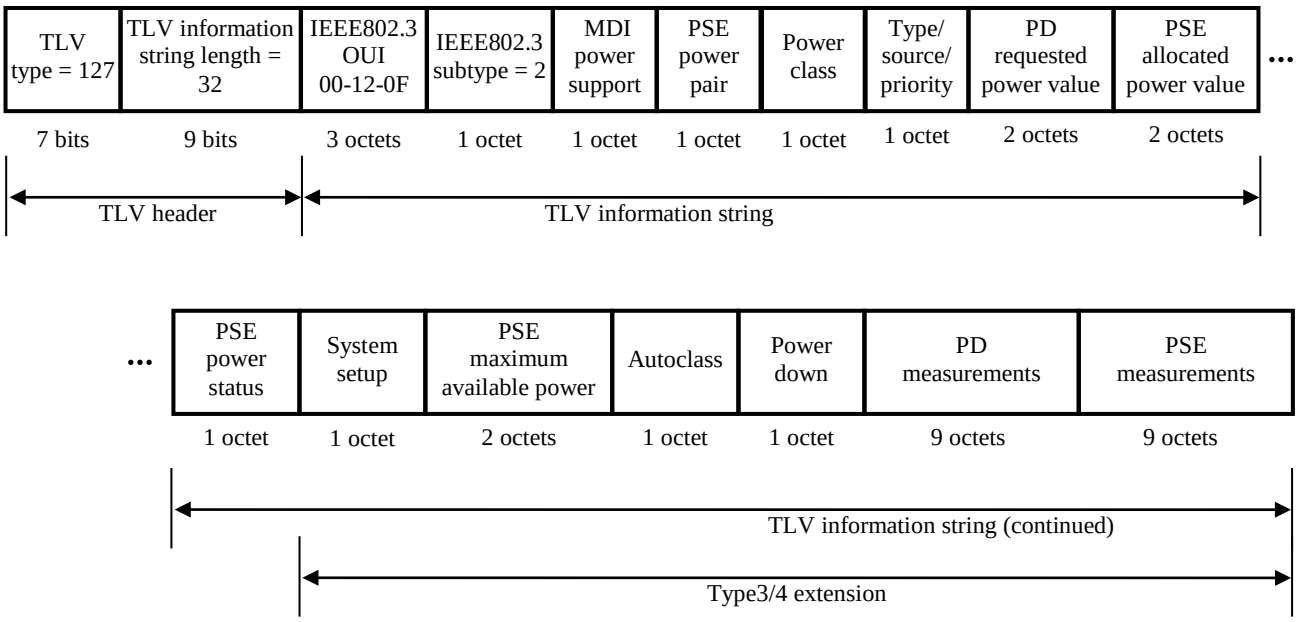

Figure 79–3a—Power Via MDI TLV format for Type 3 and Type 4

79.3.2.5a PSE maximum available power

The PSE maximum available power field shall contain the highest power the PSE can grant as defined in Table 79-5a. The PSE shall set the value of this field taking available power budget and hardware capabilities into account.

Table 79–5a—PSE Maximum available power value field

Bit	Function	Value/meaning
15:0	PSE Maximum available power value	Power = 0.1 × (decimal value of bits) Watts. Valid values for these bits are decimal 1 through 999.

79.3.2.6c PD measurements

The PD measured voltage value field may be included to carry the PD's measured voltage value at the port defined in Table 79-6c.

The PD measured current value field may be included to carry the PD's measured current value at the port defined in Table 79-6c.

The PD measured energy value field may be included to carry the PD's measured energy consumption value at the port defined in Table 79-6c.

Table 79–6c—PD measurements

~~Bit~~	~~Function~~	~~Value/meaning~~
~~31:16~~	~~V_{PD}~~	~~V_{PD} = 0.1 x (decimal value of bits) V~~

		~~Valid values for these bits are decimal 1 through 570~~
~~15:0~~	~~$I_{PORT\text{-}PD}$~~	~~$I_{PORT\text{-}PD}$ = 0.1 x (decimal value of bits) mA Valid values for these bits are decimal 1 through 9620~~

Bit	Function	Value/meaning
71	Voltage support	1 = PD supports voltage measurement 0 = PD does not support voltage measurement
70	Current support	1 = PD supports current measurement 0 = PD does not support current measurement
69	Energy support	1 = PD supports energy measurement 0 = PD does not support energy measurement
68:67	Measurement source	Determine where the measurement is to be taken. 0 0 = No request 0 1 = Pairset Alternative A 1 0 = Pairset Alternative B 1 1 = Port total
66	Voltage request	Request voltage measurement 1 = PSE request for voltage measurement 0 = No request for voltage measurement
65	Current request	Request current measurement 1 = PSE request for current measurement 0 = No request for current measurement
64	Energy request	Request energy measurement 1 = PSE request for energy measurement 0 = No request for energy measurement
63:48	Voltage measurement	V_{Port_PD} = (decimal value of bits) mV Valid values for these bits are decimal 1 through 57000
47:32	Current measurement	I_{Port} or $I_{Port\text{-}2P}$ = 0.1 x (decimal value of bits) mA Valid values for these bits are decimal 0 through 20000
31:0	Energy measurement	Total energy consumed at the port or pairset value = 0.1 x (decimal value of bits) in kJ[2] ·since power on.

Measurement values (Voltage measurement, Current measurement and Energy measurement shall be set to 0 in case the corresponding request bit is 0. If a device does not support a particular measurement, the corresponding measurement value shall be set to 0.

79.3.2.6d PSE measurements

The PSE measured voltage value field may be included to carry the PSE's measured voltage value at the port defined

[2] 1kJ = 1kWs

in Table 79-6d.

The PSE measured current value field may be included to carry the PSE's measured current value at the port defined in Table 79-6d.

The PSE measured energy value field may be included to carry the PSE's measured energy consumption value at the port defined in Table 79-6d.

Table 79–6d—PSE measurements

~~Bit~~	~~Function~~	~~Value/meaning~~
~~31:16~~	~~V_{PSE}~~	~~V_{PSE} = 0.1 x (decimal value of bits) V~~ ~~Valid values for these bits are decimal 1 through 570~~
~~15:0~~	~~$I_{PORT\text{-}PD}$~~	~~$I_{PORT\text{-}PD}$ = 0.1 x (decimal value of bits) mA~~ ~~Valid values for these bits are decimal 1 through 9620~~

Bit	Function	Value/meaning
71	Voltage support	1 = PSE supports voltage measurement 0 = PSE does not support voltage measurement
70	Current support	1 = PSE supports current measurement 0 = PSE does not support current measurement
69	Energy support	1 = PSE supports energy measurement 0 = PSE does not support energy measurement
68:67	Measurement source	Determine where the measurement is to be taken. 0 0 = No request 0 1 = Pairset Alternative A 1 0 = Pairset Alternative B 1 1 = Port total
66	Voltage request	Request voltage measurement 1 = PD request for voltage measurement 0 = No request for voltage measurement
65	Current request	Request current measurement 1 = PD request for current measurement 0 = No request for current measurement
64	Energy request	Request energy measurement 1 = PD request for energy measurement 0 = No request for energy measurement
63:48	Voltage measurement	V_{PORT_PSE} = (decimal value of bits) mV Valid values for these bits are decimal 1 through 57000
47:32	Current measurement	I_{PORT} or $I_{PORT\text{-}2P}$ = 0.1 x (decimal value of bits) mA Valid values for these bits are decimal 0 through 20000
31:0	Energy measurement	Total energy consumed at the port or pairset

		value = 0.1 x (decimal value of bits) in kJ[3] since power on.

Measurement values (voltage, current or energy) shall be set to 0 in case the corresponding request bit is 0. If a device does not support a particular measurement, the corresponding measurement value shall be set to 0.

79.3.2.6e Autoclass

The Autoclass field shall contain the bits defined in Table 79-6a to control Autoclass. See 33.2.6.3, 33.3.5.3 and Annex 33-Cfor details on Autoclass. Using the Autoclass field to trigger a new Autoclass measurement allows a PD to change maximum power consumption.

Table 79–6e—Autoclass field

Bit	Function	Value/meaning
7:3	Reserved	Transmit as zero. Ignore on receive.
2	PSE Autoclass support	1 = PSE supports Autoclass 0 = PSE does not support Autoclass
1	Autoclass completed	1 = Autoclass measurement completed 0 = Autoclass idle
0	Autoclass request	1 = PD requests Autoclass measurement 0 = Autoclass idle

The sequence of Autoclass as triggered by LLDP is listed in Table 79-f.

Table 79–6f— Sequence of events for Autoclass triggered via LLDP

sequence	Function
1	PD switches to a mode where maximum power is consumed
2	PD sends LLDP frame with request_autoclass=1 set
3	PSE sees the frame with request_autoclass=1 and performs the measurement and budget reduction
4	PSE sends LLDP frame with completed_autoclass=1 set
5	PD receives LLDP frame with completed_autoclass=1 and sets request_autoclass=0
6	PSE receives LLDP frame with request_autoclass=0 and sets completed_autoclass=0

79.3.2.6f Request power down

[3] 1kJ = 1kWs

The request power down field shall be set as defined in Table 79-6g. This field may be set to value 0xDD by a PD that no longer requires power from the PI.

Table 79–6g—PD Request power down field

Bit	Function	Value/meaning
7:0	power down	Value = 0xDD triggers a power down. Any other value is ignored

79.4.2 IEEE 802.3 Organizationally Specific TLV/LLDP Local and Remote System group managed object class cross references

The cross references between the IEEE 802.3 TLVs and the LLDP Local System Group managed object class (see 30.12.2) attributes are listed in Table 79–9. The cross references between the IEEE 802.3 TLVs and the LLDP Remote System Group managed object class (see 30.12.3) attributes are listed in Table 79–10. The cross-references between the EEE TLV, the EEE Fast Wake TLV, and the EEE local (30.12.2) and remote (30.12.3) object class attributes are listed in Table 79–9 and Table 79–10.

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
MAC/PHY Configuration/Status		
Power via MDI	Port class	aLldpXdot3LocPowerPortClass
	PSE MDI power support	aLldpXdot3LocPowerMDISupported
	PSE MDI power state	aLldpXdot3LocPowerMDIEnabled
	PSE pairs control ability	aLldpXdot3LocPowerPairControlable
	PSE power pair	aLldpXdot3LocPowerPairs
	Power class	aLldpXdot3LocPowerClass
	Power type	aLldpXdot3LocPowerType
	Power source	aLldpXdot3LocPowerSource
	Power priority	aLldpXdot3LocPowerPriority
	PD requested power value	aLldpXdot3LocPDRequestedPowerValue
	PSE allocated power value	aLldpXdot3LocPSEAllocatedPowerValue
	PSE available power	aLldpXdot3LocPSEMaxAvailPower
	PSE Autoclass support	aLldpXdot3LocPSEAutoclassSupport
	Autoclass completed	aLldpXdot3LocAutoclassCompleted
	Autoclass request	aLldpXdot3LocAutoclassRequest
	Power down	aLldpXdot3LocPowerDownRequest
	PD Voltage support	aLldpXdot3LocPDMeasVoltageSupport
	PD Current support	aLldpXdot3LocPDMeasCurrentSupport
	PD Energy support	aLldpXdot3LocPDMeasEnergySupport
	PD Measurement source	aLldpXdot3LocPDMeasurementSource
	PD Voltage measurement	aLldpXdot3LocPDMeasurementVoltage
	PD Current measurement	aLldpXdot3LocPDMeasurementCurrent

	PD Energy measurement	aLldpXdot3LocPDMeasurementEnergy
	PSE Voltage support	aLldpXdot3LocPSEMeasVoltageSupport
	PSE Current support	aLldpXdot3LocPSEMeasCurrentSupport
	PSE Energy support	aLldpXdot3LocPSEMeasEnergySupport
	PSE Measurement source	aLldpXdot3LocPSEMeasurementSource
	PSE Voltage measurement	aLldpXdot3LocPSEMeasurementVoltage
	PSE Current measurement	aLldpXdot3LocPSEMeasurementCurrent
	PSE Energy measurement	aLldpXdot3LocPSEMeasurementEnergy
Link Aggregation (deprecated)		
Maximum Frame Size		
EEE		
EEE Fast Wake		

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

TLV name	TLV variable	LLDP Local System Group managed object class attribute
MAC/PHY Configuration/Status		
Power via MDI	Port class	aLldpXdot3RemPowerPortClass
	PSE MDI power support	aLldpXdot3RemPowerMDISupported
	PSE MDI power state	aLldpXdot3RemPowerMDIEnabled
	PSE pairs control ability	aLldpXdot3RemPowerPairControlable
	PSE power pair	aLldpXdot3RemPowerPairs
	Power class	aLldpXdot3RemPowerClass
	Power type	aLldpXdot3RemPowerType
	Power source	aLldpXdot3RemPowerSource
	Power priority	aLldpXdot3RemPowerPriority
	PD requested power value	aLldpXdot3RemPDRequestedPowerValue
	PSE allocated power value	aLldpXdot3RemPSEAllocatedPowerValue
	PSE available power	aLldpXdot3RemPSEMaxAvailPower
	PSE Autoclass support	aLldpXdot3RemPSEAutoclassSupport
	Autoclass completed	aLldpXdot3RemAutoclassCompleted
	Autoclass request	aLldpXdot3RemAutoclassRequest
	Power down	aLldpXdot3RemPowerDownRequest
	PD Voltage support	aLldpXdot3RemPDMeasVoltageSupport
	PD Current support	aLldpXdot3RemPDMeasCurrentSupport
	PD Energy support	aLldpXdot3RemPDMeasEnergySupport
	PD Measurement source	aLldpXdot3RemPDMeasurementSource
	PD Voltage measurement	aLldpXdot3RemPDMeasurementVoltage
	PD Current measurement	aLldpXdot3RemPDMeasurementCurrent
	PD Energy measurement	aLldpXdot3RemPDMeasurementEnergy
	PSE Voltage support	aLldpXdot3RemPSEMeasVoltageSupport
	PSE Current support	aLldpXdot3RemPSEMeasCurrentSupport
	PSE Energy support	aLldpXdot3RemPSEMeasEnergySupport

	PSE Measurement source	aLldpXdot3RemPSEMeasurementSource
	PSE Voltage measurement	aLldpXdot3RemPSEMeasurementVoltage
	PSE Current measurement	aLldpXdot3RemPSEMeasurementCurrent
	PSE Energy measurement	aLldpXdot3RemPSEMeasurementEnergy
Link Aggregation (deprecated)		
Maximum Frame Size		
EEE		
EEE Fast Wake		

Clause 30: Management

Remove the managed object classes as introduced in Draft 1.2 (Aug. 15) 30.12.2.1.18a, 30.12.2.1.18b, 30.12.2.1.18c, 30.12.2.1.18d to state before BT

Insert new managed object classes in local (30.12.2) and in remote (30.12.3). The object class attributes are listed in Table 79–9 and Table 79–10. The detailed definitions to follow:

30.12.2.1.18a aLldpXdot3LocPSEMaxAvailPower

BEHAVIOUR DEFINED AS:

This field This field is encoded according to Table 79–5a, where aLldpXdot3LocPSEMaxAvailPower.;

30.12.2.1.18b aLldpXdot3LocPSEAutoclassSupport

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6e, where aLldpXdot3LocPSEAutoclassSupport.;

30.12.2.1.18c aLldpXdot3LocAutoclassCompleted

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6e, where aLldpXdot3LocAutoclassCompleted.;

30.12.2.1.18d aLldpXdot3LocAutoclassRequest

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6e, where aLldpXdot3LocAutoclassRequest.;

30.12.2.1.18e aLldpXdot3LocPowerDownRequest

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6g, where aLldpXdot3LocPowerDownRequest.;

30.12.2.1.18f aLldpXdot3LocPDMeasVoltageSupport

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6c, where aLldpXdot3LocPDMeasVoltageSupport.;

30.12.2.1.18g aLldpXdot3LocPDMeasCurrentSupport

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6c, where aLldpXdot3LocPDMeasCurrentSupport.;

30.12.2.1.18h aLldpXdot3LocPDMeasEnergySupport

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6c, where aLldpXdot3LocPDMeasEnergySupport.;

30.12.2.1.18i aLldpXdot3LocPDMeasurementSource

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6c, where aLldpXdot3LocPDMeasurementSource.;

30.12.2.1.18j aLldpXdot3LocPDMeasurementVoltage

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6c, where aLldpXdot3LocPDMeasurementVoltage.;

30.12.2.1.18k aLldpXdot3LocPDMeasurementCurrent

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6c, where aLldpXdot3LocPDMeasurementCurrent.;

30.12.2.1.18l aLldpXdot3LocPDMeasurementEnergy

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6c, where aLldpXdot3LocPDMeasurementEnergy.;

30.12.2.1.18m aLldpXdot3LocPSEMeasVoltageSupport

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6d, where aLldpXdot3LocPSEMeasVoltageSupport.;

30.12.2.1.18n aLldpXdot3LocPSEMeasCurrentSupport

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6d, where aLldpXdot3LocPSEMeasCurrentSupport.;

30.12.2.1.18o aLldpXdot3LocPSEMeasEnergySupport

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6d, where aLldpXdot3LocPSEMeasEnergySupport.;

30.12.2.1.18p aLldpXdot3LocPSEMeasurementSource

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6d, where aLldpXdot3LocPSEMeasurementSource.;

30.12.2.1.18q aLldpXdot3LocPSEMeasurementVoltage

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6d, where aLldpXdot3LocPSEMeasurementVoltage.;

30.12.2.1.18r aLldpXdot3LocPSEMeasurementCurrent

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6d, where aLldpXdot3LocPSEMeasurementCurrent.;

30.12.2.1.18s aLldpXdot3LocPSEMeasurementEnergy

BEHAVIOUR DEFINED AS:

This field is encoded according to Table 79–6d, where aLldpXdot3LocPSEMeasurementEnergy.;

Remove the managed object classes as introduced in Draft 1.2 (Aug. 15) 30.12.3.1.18a, 30.12.3.1.18b, 30.12.3.1.18c, 30.12.3.1.18d to state before BT

Insert new managed object classes as listed below. The detailed definitions to follow:

30.12.3.1.18a aLldpXdot3RemPSEMaxAvailPower

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMaxAvailPower 30.12.2.1.18a.

30.12.3.1.18b aLldpXdot3RemPSEAutoclassSupport

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEAutoclassSupport 30.12.2.1.18b.

30.12.3.1.18c aLldpXdot3RemAutoclassCompleted

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocAutoclassCompleted 30.12.2.1.18c.

30.12.3.1.18d aLldpXdot3RemAutoclassRequest

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocAutoclassRequest 30.12.2.1.18d.

30.12.3.1.18e aLldpXdot3RemPowerDownRequest

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPowerDownRequest 30.12.2.1.18e.

30.12.3.1.18f aLldpXdot3RemPDMeasVoltageSupport

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPDMeasVoltageSupport 30.12.2.1.18f.

30.12.3.1.18g aLldpXdot3RemPDMeasCurrentSupport

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPDMeasCurrentSupport 30.12.2.1.18g.

30.12.3.1.18h aLldpXdot3RemPDMeasEnergySupport

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPDMeasEnergySupport 30.12.2.1.18h.

30.12.3.1.18i aLldpXdot3RemPDMeasurementSource

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPDMeasurementSource 30.12.2.1.18i.

30.12.3.1.18j aLldpXdot3RemPDMeasurementVoltage

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPDMeasurementVoltage 30.12.2.1.18j.

30.12.3.1.18k aLldpXdot3RemPDMeasurementCurrent

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPDMeasurementCurrent 30.12.2.1.18k.

30.12.3.1.18l aLldpXdot3RemPDMeasurementEnergy

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPDMeasurementEnergy 30.12.2.1.18l.

30.12.3.1.18m aLldpXdot3RemPSEMeasVoltageSupport

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMeasVoltageSupport 30.12.2.1.18m.

30.12.3.1.18n aLldpXdot3RemPSEMeasCurrentSupport

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMeasCurrentSupport 30.12.2.1.18n.

30.12.3.1.18o aLldpXdot3RemPSEMeasEnergySupport

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMeasEnergySupport 30.12.2.1.18o.

30.12.3.1.18p aLldpXdot3RemPSEMeasurementSource

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMeasurementSource 30.12.2.1.18p.

30.12.3.1.18q aLldpXdot3RemPSEMeasurementVoltage

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMeasurementVoltage 30.12.2.1.18q.

30.12.3.1.18r aLldpXdot3RemPSEMeasurementCurrent

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMeasurementCurrent 30.12.2.1.18r.

30.12.3.1.18s aLldpXdot3RemPSEMeasurementEnergy

BEHAVIOUR DEFINED AS:

The definition and encoding of this field is the same as described in aLldpXdot3LocPSEMeasurementEnergy 30.12.2.1.18s.