

60.11 Protocol Implementation Conformance Statement (PICS) proforma for Clause 60, Physical Medium Dependent (PMD) sublayer and medium, type 1000BASE-PX10 and 1000BASE-PX20 (long wavelength passive optical networks)¹

60.11.1 Introduction

The supplier of a protocol implementation that is claimed to conform to Clause 60, Physical Medium Dependent (PMD) sublayer and medium, type 1000BASE-PX, shall complete the following Protocol Implementation Conformance Statement (PICS) proforma. A detailed description of the symbols used in the PICS proforma, along with instructions for completing the PICS proforma, can be found in Clause 21.

60.11.2 Identification

60.11.2.1 Implementation identification

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|--|--|
| Supplier ¹ | |
| Contact point for enquiries about the PICS ¹ | |
| Implementation Name(s) and Version(s) ^{1,3} | |
| Other information necessary for full identification—e.g., name(s) and version(s) for machines and/or operating systems; System Name(s) ² | |
| NOTES 1—Required for all implementations. 2—May be completed as appropriate in meeting the requirements for the identification. 3—The terms Name and Version should be interpreted appropriately to correspond with a supplier’s terminology (e.g., Type, Series, Model). | |

¹Copyright release for PICS proformas: Users of this standard may freely reproduce the PICS proforma in this annex so that it can be used for its intended purpose and may further publish the completed PICS.

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60.11.2.2 Protocol Summary

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|--|---|
| Identification of protocol standard | IEEE Std 802.3ah-200x, Clause 60, Physical Medium Dependent (PMD) sublayer and medium, type 1000BASE-PX |
| Identification of amendments and corrigenda to this PICS proforma that have been completed as part of this PICS | |
| Have any Exception items been required? No <input type="checkbox"/> Yes <input type="checkbox"/> (See Clause 21; the answer Yes means that the implementation does not conform to IEEE Std 802.3ah-200x.) | |

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| Date of Statement | |
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60.11.3 Major capabilities/options

| Item | Feature | Subclause | Value/Comment | Status | Support |
|--------|--|-----------|---|--------|---|
| MD | MDIO capability | 60.2 | Registers and interface supported. | O | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| *PCS | PCS and PMA | 60.1 | Clause 36 PCS and PMA support | M | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| HT | High temperature operation | 60.9.4 | -5 to 85 °C | O | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| LT | Low temperature operation | 60.9.4 | -40 to 60 °C | O | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| *PX10U | 1000BASE-PX10-D or 1000BASE-PX10-U PMD | 60.3 | Device supports 10km | O/1 | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| *PX10D | 1000BASE-PX10-D or 1000BASE-PX10-U PMD | 60.3 | Device supports 10km | O/1 | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| *PX20U | 1000BASE-PX20-D or 1000BASE-PX20-U PMD | 60.4 | Device supports 20km | O/1 | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| *PX20D | 1000BASE-PX20-D or 1000BASE-PX20-U PMD | 60.4 | Device supports 20km | O/1 | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| *INS | Installation / Cable | 60.4.1 | Items marked with INS include installation practices and cable specifications not applicable to a PHY manufacturer. | O | Yes <input type="checkbox"/> No <input type="checkbox"/> |

60.11.4 PICS proforma tables for Physical Medium Dependent (PMD) sublayer and medium, type 1000BASE-PX10 and 1000BASE-PX20 (long wavelength passive optical networks)

60.11.4.1 PMD functional specifications

| Item | Feature | Subclause | Value/Comment | Status | Support |
|------|--------------------------------------|-----------|--|--------|---------|
| FN1 | Transmit function | 60.3.2 | Conveys bits from PMD service interface to MDI | M | Yes [] |
| FN2 | Transmitter optical signal | 60.3.2 | Higher optical power transmitted is a logic 1 | M | Yes [] |
| FN3 | Receive function | 60.3.3 | Conveys bits from MDI to PMD service interface | M | Yes [] |
| FN4 | Receiver optical signal | 60.3.3 | Higher optical power received is a logic 1 | M | Yes [] |
| FN5 | Signal detect function (downstream) | 60.3.4.1 | Mapping to PMD service interface | M | Yes [] |
| FN6 | Signal detect parameter (downstream) | 60.3.4.1 | Generated according to Table 60-4 | M | Yes [] |

60.11.4.2 PMD to MDI optical specifications for 1000BASE-PX10-D

| Item | Feature | Subclause | Value/Comment | Status | Support |
|--------|---|-----------|--|----------|--------------------|
| PX10D1 | 1000BASE-PX10-D transmitter | 60.4.1 | Meets specifications in Table 60-5 | PX10D: M | Yes [] N/A [] |
| PX10D2 | 1000BASE-PX10-D receiver | 60.4.2 | Meets specifications in Table 60-7 | PX10D: M | Yes [] N/A [] |
| PX10D3 | 1000BASE-PX10-D stressed receiver sensitivity | 60.4.2 | Meets specifications in Table 60-7 | PX10D: O | Yes [] N/A [] |
| PX10D4 | 1000BASE-PX10-D receiver damage threshold | 60.4.2 | If the receiver does not meet the damage requirements in Table 60-7 then label accordingly | PX10D: M | Yes [] N/A [] |

60.11.4.3 PMD to MDI optical specifications for 1000BASE-PX10-U

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| Item | Feature | Subclause | Value/Comment | Status | Support |
|--------|---|-----------|--|-------------|--------------------|
| PX10U1 | 1000BASE-PX10-U transmitter | 60.4.1 | Meets specifications in Table 60–5 | PX10D: M | Yes [] N/A [] |
| PX10U2 | 1000BASE-PX10-U receiver | 60.4.2 | Meets specifications in Table 60–7 | PX10D: M | Yes [] N/A [] |
| PX10U3 | 1000BASE-PX10-U stressed receiver sensitivity | 60.4.2 | Meets specifications in Table 60–7 | PX10D: O | Yes [] N/A [] |
| PX10U4 | 1000BASE-PX10-U receiver damage threshold | 60.4.2 | If the receiver does not meet the damage requirements in Table 60–7 then label accordingly | PX10D: M | Yes [] N/A [] |

60.11.4.4 PMD to MDI optical specifications for 1000BASE-PX20-D

| Item | Feature | Subclause | Value/Comment | Status | Support |
|--------|---|-----------|---|-------------|--------------------|
| PX20D1 | 1000BASE-PX20-D transmitter | 60.5.1 | Meets specifications in Table 60–8 | PX20D: M | Yes [] N/A [] |
| PX20D2 | 1000BASE-PX20-D receiver | 60.5.2 | Meets specifications in Table 60–10 | PX20D: M | Yes [] N/A [] |
| PX20D3 | 1000BASE-PX20-D stressed receiver sensitivity | 60.5.2 | Meets specifications in Table 60–10 | PX20D: O | YES [] N/A [] |
| PX20D4 | 1000BASE-PX20-D receiver damage threshold | 60.5.2 | If the receiver does not meet the damage requirements in Table 60–10 then label accordingly | PX20D: M | Yes [] N/A [] |

60.11.4.5 PMD to MDI optical specifications for 1000BASE-PX20-U

| Item | Feature | Subclause | Value/Comment | Status | Support |
|--------|---|-----------|---|-------------|--------------------|
| PX20U1 | 1000BASE-PX20-U transmitter | 60.5.1 | Meets specifications in Table 60-8 | PX20U: M | Yes [] N/A [] |
| PX20U2 | 1000BASE-PX20-D receiver | 60.5.2 | Meets specifications in Table 60-10 | PX20U: M | Yes [] N/A [] |
| PX20U3 | 1000BASE-PX20-U stressed receiver sensitivity | 60.5.2 | Meets specifications in Table 60-10 | PX20U: O | YES[] N/A[] |
| PX20U4 | 1000BASE-PX20-U receiver damage threshold | 60.5.2 | If the receiver does not meet the damage requirements in Table 60-10 then label accordingly | PX20U: M | Yes [] N/A [] |

60.11.4.6 Optical measurement requirements

| Item | Feature | Subclause | Value/Comment | Status | Support |
|------|---|-----------|--|--------|--------------------|
| OM1 | Measurement cable | 60-2 | 2 to 5 meters in length | M | Yes [] |
| OM2 | Wavelength and spectral width measurement | 60.8.2 | Measured using an optical spectrum analyzer per TIA/EIA-455-127 under modulated conditions | M | Yes [] |
| OM3 | Average optical power | 60.8.3 | Measured using the methods specified in TIA/EIA-455-95[B7] | M | Yes [] |
| OM4 | Extinction ratio | 60.8.4 | Measured using the methods specified in ANSI/TIA/EIA-526-4A-1997 [B13] | M | Yes [] |
| OM5 | RIN ₁₅ OMA | 60.8.7 | As described in 58.8.7 | M | Yes [] |
| OM6 | Transmit eye | 60.8.8 | Eye must be measured with respect to mask and using Bessel-Thomson filter | M | Yes [] |
| OM7 | Transmitter and dispersion penalty measurements | 60.8.9 | As described in 58.8.7 | M | Yes [] |
| OM8 | Receive sensitivity | 60.8.10 | With specified pattern | M | Yes [] |
| *OM9 | Stressed receiver conformance test | 60.8.11 | As described in 60.8.11 | O | Yes [] N/A [] |

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60.11.4.7 Characteristics of the fiber optic cabling and MDI

| Item | Feature | Subclause | Value/Comment | Status | Support |
|------|---|-----------|---|--------|------------------------------|
| FO1 | Fiber optic cabling | 60.10 | Specified in Table 60–16 | INS:M | Yes [] N/A [] |
| F02 | End -to-end channel loss | 60.10 | Meeting the requirements of Table 60–1 | INS:M | Yes [] N/A [] |
| FO3 | Maximum discrete reflectance - singlemode fiber | 60.10.2 | Less than -26 dB | INS:M | Yes [] N/A [] |
| FO4 | MDI requirements | 60.10.4 | Meet the interface performance specifications of IEC 61753-1, if remateable | INS:O | Yes [] No [] N/A [] |

60.11.4.8 Environmental specifications

| Item | Feature | Subclause | Value/Comment | Status | Support |
|------|---------------------------------------|-----------|--|--------|--------------------|
| ES1 | General safety | 60.9.1 | Conforms to IEC-60950 | M | Yes [] |
| ES2 | Laser safety —IEC Class 1 | 60.9.2 | Conform to Class 1 laser requirements defined in IEC 60825-1 | M | Yes [] |
| ES3 | Documentation | 60.9.2 | Explicitly defines requirements and usage restrictions to meet safety certifications | M | Yes [] |
| ES4 | Operating temperature range labelling | 60.9.5 | If required | M | Yes [] N/A [] |