# Prisma II 1 GHz SuperQAM Transmitter

The Prisma® II optical networks allow for best in class architectures with increased reliability, scalability, and cost-effectiveness. The Prisma II 1 GHz SuperQAM Transmitter offers flexibility and ease of set up in channel plan migrations that include large narrowcast loads, particularly in multi-wavelength architectures.

**Figure 1.** Prisma II 1 GHz SuperQAM Transmitter (Two Transmitters in Host Module)

## Features

- 1 GHz operation
- Designed to operate within the Prisma II platform, and Prisma XD platform
- Easy expansion to preset settings of 16, 32, 50, or 153 QAM channels
- Superior Fiber Dispersion Compensation
- High linearity for robust MER and BER performance, for high symbol rate QAM
- 100 GHz DWDM, channel availability
- Small $C0_2$ footprint: lowest power consumption per transmitter in the industry
- Status LEDs indicate module condition and simplify troubleshooting
- Blind-mate (push-on) RF and DC connectors
- RF input test points
- Nonvolatile storage of pre-set operating parameters simplifies installation procedures
- User selectable Automatic Gain Control (AGC)
- Multiple setup and control options
  - Local control via Local Craft Interface (LCI)
  - Local control via Intelligent Communications Interface Module (ICIM)
  - Remote monitoring via Transmission Network Control System (TNCS)
  - SNMP remote monitoring

## Product Specifications

**Table 1.** Optical

| Specification | Units | Forward QAM Tx & High Density QAM Tx | Notes |
|---|---|---|---|
| Wavelength Range<br>DWDM | nm<br>ITU | 1530 - 1562<br>20 - 59 | 1 |
| Connector Type | | Standard | |
| Output Power (minimum) | dBm | +10 | |
| Modulation Type | | Direct | 1 |

**Table 2.** Electrical

| Specification | Units | High Density QAM Tx | Notes |
|---|---|---|---|
| Bandwidth | MHz | 50 - 1002 | 2 |
| Required Nominal RF Input Level per Channel:<br>16 Channel Setting<br>32 Channel Setting<br>50 Channel Setting<br>153 Channel Setting (All Digital) | <br>dBmV<br>dBmV<br>dBmV<br>dBmV | <br>22 ± 0.5<br>19 ± 0.5<br>19 ± 0.5<br>13 ± 0.5 | <br>3<br>3<br>3<br>3, 4 |
| Front Panel RF Test Point Relative to Input | dB | -20 ± 1.0 | |
| RF Input Return Loss<br>50 - 1002 MHz | <br>dB | <br>16 | |
| Frequency Response<br>45 - 1002 MHz | <br>dB | <br>± 0.75 | |
| Power Consumption (maximum) | W DC | 7.5 | |

### Notes:

1. See **Ordering Information** for available ITU wavelengths.
2. RF input frequency range is 50-1002 MHz for 16 and 153 contiguous channels, 550-1002 MHz for 32 and 50 contiguous channels.
3. RF input levels specified are with Tx AGC off.

Unless otherwise noted, specifications are based on measurements made in accordance with NCTA Practices for Measurements made on Cable Television Systems using standard frequency assignments and are referenced to the ambient air temperature at the inlet to the Prisma II or Prisma XD chassis.

**Table 3.** Environmental

| Specification | Units | High Density Forward QAM Tx | Notes |
|---|---|---|---|
| Temperature Range<br>Operational, Full-Specification | °C<br>°F | 0 to 50<br>32 to 122 | 1 |
| Humidity | % | 0 to 95 | 1 |

### Note:

1. Recommended for use in non-condensing environments only.

Unless otherwise noted, specifications are based on measurements made in accordance with NCTA Practices for Measurements made on Cable Television Systems using standard frequency assignments and are referenced to the ambient air temperature at the inlet to the Prisma II chassis.

**Table 4.** Mechanical

| Specification | Units | High Density Forward QAM Tx | Notes |
|---|---|---|---|
| Depth | in.<br>cm | 8.80<br>22.35 | |
| Width | in.<br>cm | 1.03<br>2.62 | |
| Height | in.<br>cm | 3.48<br>8.84 | |
| Weight | lb<br>kg | 0.90<br>0.41 | |
| Module Width | slots | 1 | |

**Table 5.** Link Performance

| Channel Loading | MER† | BER | CNR‡ | Notes |
|---|---|---|---|---|
| 16 QAM | 38 | ≤ 1 e-9 | 53.5 | 1, 2, 3, 4, 6 |
| 32 QAM | 38 | ≤ 1 e-9 | 50.5 | 1, 2, 3, 4, 6 |
| 50 QAM | 38 | ≤ 1 e-9 | 48 | 1, 2, 3, 4, 6 |
| 153 QAM (all digital) | 36 | ≤ 1 e-9 | | 5 |

† All MER measurements are equalized; test equipment may limit measured performance.

‡ For links using Prisma II SuperQAM transmitter launched into 60 km SM fiber with -5 dBm optical input to the receiver (see note 5 below).

**Notes:**

1. With specified RF input levels and optical link conditions. CNR values referenced to CW carriers.
2. For use with 256 QAM modulation; use of 64 QAM modulation will exhibit improved performance.
3. Receiver with NEP = 7 pa / √Hz; ρ = 0.9 A/W.
4. BER is before Forward Error Correction (pre-FEC), with ITU-B J.83 Annex B QAM modulation.
5. 153 QAM channel loading (all digital) is only valid up to 40 km.
6. Mathematical modeling available for performance calculations in Broadcast / Narrowcast single receiver applications. Contact your Applications Engineering team.

Unless otherwise noted, specifications are based on measurements made in accordance with NCTA Practices for Measurements made on Cable Television Systems using standard frequency assignments and are referenced to the ambient air temperature at the inlet to the Prisma II chassis.

## Ordering Information

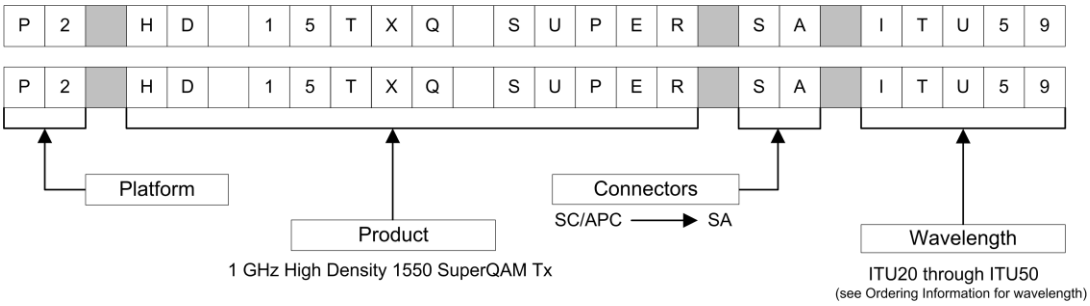


**Table 6.** Ordering Information - 1550 Forward High Density SuperQAM Tx 10 dBm Model P2-HD-15TXQ

| ITU Channels | Wavelength (nm) | Part Number |
|---|---|---|
| 20 | 1561.42 | 737635 |
| 21 | 1560.61 | 737636 |
| 22 | 1559.79 | 737637 |
| 23 | 1558.98 | 737638 |
| 24 | 1558.17 | 737639 |
| 25 | 1557.36 | 737640 |
| 26 | 1556.55 | 737641 |
| 27 | 1555.75 | 737642 |
| 28 | 1554.94 | 737643 |
| 29 | 1554.13 | 737644 |
| 30 | 1553.33 | 737645 |
| 31 | 1552.52 | 737646 |
| 32 | 1551.72 | 737647 |
| 33 | 1550.92 | 737648 |
| 34 | 1550.12 | 737649 |
| 35 | 1549.32 | 737650 |
| 36 | 1548.51 | 737651 |
| 37 | 1547.72 | 737652 |
| 38 | 1546.92 | 737653 |
| 39 | 1546.12 | 737654 |

| ITU Channels | Wavelength (nm) | Part Number |
|---|---|---|
| 40 | 1545.32 | 737655 |
| 41 | 1544.53 | 737656 |
| 42 | 1543.73 | 737657 |
| 43 | 1542.94 | 737658 |
| 44 | 1542.14 | 737659 |
| 45 | 1541.35 | 737660 |
| 46 | 1540.56 | 737661 |
| 47 | 1539.77 | 737662 |
| 48 | 1538.98 | 737663 |
| 49 | 1538.19 | 737664 |
| 50 | 1537.40 | 737665 |
| 51 | 1536.61 | 737666 |
| 52 | 1535.82 | 737667 |
| 53 | 1535.04 | 737668 |
| 54 | 1534.25 | 737669 |
| 55 | 1533.47 | 737670 |
| 56 | 1532.68 | 737671 |
| 57 | 1531.90 | 737672 |
| 58 | 1531.12 | 737673 |
| 59 | 1530.33 | 737674 |

Prisma II products include some of the industry's most complete range of high-performance optical components. See list below.

**Platform**

- 1310 Transmitters
- Forward Optical Receivers
- Reverse Optical Receivers
- 1550 nm Optical Amplifiers
- Receiver
- Ancillary Modules
- bdr Digital Reverse 1:2 Multiplexing System

For more information, refer to the following documents:

- Prisma II Data Sheet, part number 739199
- Prisma II Data Sheet, part number 739200
- Prisma II Data Sheet, part number 7011887
- Prisma II Data Sheet, part number 7011888
- Prisma II Data Sheet, part number 739202
- Prisma II Data Sheet, part number 739203
- Prisma II Data Sheet, part number 739205
- Prisma II Data Sheet, part number 744484

## Service and Support

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## For More Information

To learn more about this product, contact your local account representative.

To subscribe to receive end-of-life/end-of-sale information, go to http://www.cisco.com/cgi-bin/Support/FieldNoticeTool/field-notice.



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