
# E300 Platform Datasheet

## ETSI

**Revision 1c, April 2006**

stratex
NETWORKS

# System Parameters

## General

| | |
|---|---|
| Operating Frequency Range | 5 to 38 GHz |
| Digital Line Rate | 2.048 Mbps (E1) |
| | 34.368 Mbps (E3) |
| | 155.52 Mbps (STM1) |
| Capacity Range Options | 4x, 5x, 8x, 10x, 16x, 20x, 32x, 40x, 48x, 52x, 64x, 75x E1 |
| | 1x, 2x, 3x, 4x, 8x E3 |
| | 1x, 2x STM1 |
| Modulation Options | QPSK, 16, 32, 64, 128 QAM |
| Error Correction | FEC, Reed Solomon Decoding |
| Adaptive Equalisation (except for IDU300sp 4x/16x) | 20 Tap |

## Radio Path Protection Options

| | | |
|---|---|---|
| Non Protected, 1+0 | | 5 - 38 GHz |
| Protected Hot Standby, 1+1 | | 5 - 38 GHz |
| Space Diversity, 1+1 | | 5 - 15 GHz |
| Frequency Diversity, 1+1 | | 5 - 15 GHz |
| Dual Path, Non-Protected, 2+0 | *XPIC Optional* | 5 - 38 GHz |
| Dual Path, Protected, 2+2 | *XPIC Optional* | 5 - 38 GHz |

## Standards Compliance

| | | |
|---|---|---|
| EMC | | EN 301 489 |
| Operation | *Outdoor Units* | ETS 300 019, Class 4.1 |
| Operation | *Indoor Units* | ETS 300 019, Class 3.2 |
| Storage | | ETS 300 019, Class 1.2 |
| Transportation | | ETS 300 019, Class 2.3 |
| Safety | | EN 60950 |
| Radio Frequency | | EN 302 217 Classes 2, 4 & 5B |
| Water Ingress | *Outdoor Units* | IEC 60529 (IPX6) |

## Environmental

| | | | |
|---|---|---|---|
| Operating Temperature | *Indoor Units* | *Guaranteed* | -5° to +45° C (23° to +113° F) |
| | *Outdoor Units* | *Guaranteed* | -33° to +55° C (-27° to +131° F) |
| | *Outdoor Units* | *Extended* [1] | -50° to +65° C (-58° to +149° F) |
| Humidity | *Indoor Units* | *Guaranteed* | 0 to 95%, non-condensing |
| | *Outdoor Units* | *Guaranteed* | 0 to 100% |
| Altitude | | *Guaranteed* | 4,500 meters (15,000 ft) |

## Fault and Configuration Management

| | |
|---|---|
| Protocol | SNMP v2 |
| Interface, electrical | Ethernet 10/100 Base-T or RS232 |
| Interface, physical | RJ-45 |
| Local/remote Configuration and Support Tool | Eclipse Portal |
| Performance Monitoring | To ITU-T Rec. G.826 |
| Routing Protocols supported | Static and dynamic routing, RIP I, RIP II, OSPF |
| Network Management | Stratex Networks ProVision |
| Engineering Orderwire | Via optional VoIP handset or external RS-422 Digital Orderwire Unit (eg: Ardax) |

## Emission Designator

| Bandwidth | | *3.5MHz* | *7MHz* | *13.75MHz* | *14MHz* | *27.5MHz* | *28MHz* | *55MHz* | *56MHz* |
|---|---|---|---|---|---|---|---|---|---|
| Emission Designator | *QPSK* | 3M50G7W | 7M00G7W | 13M75G7W | 14M0G7W | 27M5G7W | 28M0G7W | N/A | N/A |
| | *QAM* | N/A | 7M00D7W | 13M75D7W | 14M0D7W | 27M5D7W | 28M0D7W | 55M0D7W | 56M0D7W |

## Dispersive Fade Margin (DFM)

| | | *Gross Bit Rate Mbps* [2] | *Modulation Options* | *Symbol Rate Mbaud* | *DFM IDUsp* | *DFM IDU 20x/155o/ES* | *DFM RAC 30/3X/40* |
|---|---|---|---|---|---|---|---|
| Capacity/Modulation | *4xE1* | 9.4 | QPSK (16 QAM) | 4.7 (2.4) | 74.5 | | 88 (87) |
| | *5xE1* | 11.5 | QPSK (16 QAM) | 5.8 (2.9) | 73.5 | 86 (91) | 86 (91) |
| | *8xE1* | 18.8 | QPSK (16 QAM) | 9.4 (4.7) | 71.5 | | 80 (85) |
| | *10xE1* | 22.8 | QPSK (16 QAM) | 11.4 (5.7) | 70.5 | 78 (82) | 78 (82) |
| | *16xE1* | 37.6 | QPSK (16 QAM) | 18.8 (9.4) | 68.5 | | 71 (75) |
| | *20xE1* | 44.9 | QPSK (16 QAM) | 22.5 (11.2) | 67.5 | 68 (74) | 68 (74) |
| | *32xE1* | 75.2 | 16 QAM (64 QAM) | 18.8 (11.9) | | | 72 (63) |
| | *40xE1* | 88.9 | 16 QAM | 22.2 | | 63 | 63 |
| | *48xE1* | 106.8 | 32 QAM | 21.4 | | | 57 |
| | *52xE1* | 116.6 | 32 QAM | 23.3 | | 55 | 55 |
| | *64xE1* | 142.4 | 64 QAM | 23.7 | | 51 | 51 |
| | *75xE1* | 167.8 | 128 QAM (16 QAM / 64 QAM) | 24 (42 / 28) | | 50 (49 / 44) | 50 (49 / 49) |
| | *1xE3* | 37.6 | QPSK (16 QAM) | 18.8 (9.4) | | | 71 (75) |
| | *2xE3* | 75.2 | 16 QAM (64 QAM) | 18.8 (12.5) | | | 67 (61) |
| | *3xE3* | 112.8 | 32 QAM | 22.6 | | | 55 |
| | *4xE3* | 150.4 | 128 QAM | 21.5 | | | 51 |
| | *1xSTM1* | 167.0 | 128 QAM (16 QAM / 64 QAM) | 23.9 (41.8 / 27.8) | | 51 (50 / 51) | 51 (50 / 51) |
| | *2xSTM1* | 334.0 | 128 QAM | 47.8 | | | 41 |

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] Over full Extended Operating Temperature Eclipse may be subject to reduced performance. Contact Stratex Networks for more details.

[2] Gross bit rate includes usable customer payload plus radio overhead for FEC, NMS, AUX traffic, etc.

# Eclipse Terminal, Indoor Unit (IDU) Options

## General

| | | | |
|---|---|---|---|
| Configuration memory, removable [1] | | | 32 Mbyte CompactFlash card (rear access) |
| LED Indicators | | | 2x Tri-state LEDs ('IDU Status', 'ODU Status') |
| Line Interface, E1 electrical | *Standards Compliance* | | Compliant to ITU-T Rec. G.703, G.823 |
| | *Line Code* | | HDB3 |
| | *Impedance* | | 75Ω unbalanced or 120Ω balanced, configurable |
| IF Cable Connector | | | N-Type |
| IF Interface Parameters | | *Tx* | 311 MHz, -8 to -12 dBm |
| | | *Rx* | 126 MHz, -8 to -27 dBm |
| Protection Connector (where available) | | | 9 pin D-SUB |
| Auxiliary Data | *Aux Data Channels* | | 1 |
| | *Interface* | | RS232 or RS422 |
| | *Line Rate, configurable* | | 1.2 to 19.2 kbps, asynchronous<br>64 kbps, synchronous |
| | *Connector type* | | 9 pin D-SUB |
| Alarm I/O [1] | *External Alarm Inputs* | | 2x TTL |
| | *External Alarm Outputs* | | 4x Form C Relay |
| | *Connector type* | | 15 pin D-SUB |
| NMS LAN interface | *Type* | | 10/100baseT Ethernet |
| | *Connector* | | 8-pin RJ45 |
| Serial Maintenance Interface [1] | *Standard* | | Complies to TIA/EIA-561 |
| | *Speed* | | 1.2 to 115.2 kbps |
| | *Connector* | | 8-pin RJ45 |
| Electrical | *Input Voltage Range* | | -40.5 to -60.0 VDC |
| | *Power Consumption* | *IDUsp* | 10 W |
| | | *IDU 20x, 155o, ES* | 16 W |
| | *Protection Circuit* | | 5A Slow-Blow Fuse |
| Mechanical | *Dimensions* | | 44mm (1RU)x 482mm (19in) x 277mm (10.9in) |
| | *Weight* | | 1.6 kg (3.5 lb) |

## IDU Standard Performance (sp) options

| | *IDUsp 4x* | *IDUsp 16x* |
|---|---|---|
| Capacity Options (configurable) | 4x 2.048 Mbps (E1) | 4, 8, 16x 2.048 Mbps (E1) |
| Modulation | QPSK | QPSK |
| Traffic Connectors | 4x RJ45 | 16x RJ45 |
| Configuration Options | Non Protected (1+0) only | Non Protected (1+0) only<br>Protected Hot Standby (1+1) [1] |

## IDU Super-PDH and SDH options

| | *IDU 20x* | *IDU 155o* |
|---|---|---|
| Capacity Options (configurable) | 5, 10, 20, 40, 52, 64, 75x 2.048 Mbps (E1) | 1x 155.52 Mbps (STM1) |
| Modulation Options (configurable) | QPSK, 16 to 128 QAM | 16, 64, 128 QAM |
| Traffic Connectors | 20x RJ45 | SC [2] |
| Configuration Options | Non Protected (1+0) | Non Protected (1+0) |
| | Protected Hot Standby (1+1) | Protected Hot Standby (1+1) |
| | Protected Space Diversity (1+1) | Protected Space Diversity (1+1) |
| | 1+0 Unidirectional protection switch ring (UPSR) | |

## IDU Ethernet options [4]

| | | *IDU ES* |
|---|---|---|
| Capacity Options (configurable by downloadable License) | | 50, 100, 150, 200 Mbps |
| Modulation Options (configurable) | | QPSK, 16, 32, 64, 128 QAM |
| Ethernet Traffic Interface | *Interfaces* | 4x 10/100baseT Fast Ethernet |
| | *Connectors* | 4x 8-pin RJ45 |
| | *Frame size* | 64 - 1532 bytes |
| | *Ethernet transport channels* | 2 |
| | *Throughput capacity, per channel* | 2 - 98 Mbps, 2 Mbps increments |
| Wayside Traffic Channels | *Interfaces* | 8x 2.048 Mbps (E1) |
| | *Connectors* | 8x RJ45 |
| Configuration Options | | Non Protected (1+0) |

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] Not available for IDUsp 4x/16x units.

[2] IDU 1+1 protection does not support hitless switching or diversity configurations.

[3] For IDU 155o optical interface specifications refer to the Optical Interface Parameters under Transparent DAC Options.

[4] For more detailed Ethernet specifications refer to Eclipse Connect ES Datasheet.

# Eclipse Node, Intelligent Node Unit (INU) Common Units

### IDC, Indoor Chassis 1RU

| | | |
|---|---|---|
| Dedicated plug-in card slots | | 2 (NCC, FAN) |
| Universal plug-in card slots | | 4 |
| Maximum number of ODUs supported | | 3 |
| Dimensions (including mounting brackets) | | 44mm (1RU) x 482mm (19in) x 282.5mm (11.1in) |
| Weight | *Empty* | 2.6 kg (5.8 lb) |

### IDCe, Extended Indoor Chassis 2RU

| | | |
|---|---|---|
| Dedicated plug-in card slots | | 4 (NCC, NPC, 2x FAN) |
| Universal plug-in card slots | | 9 |
| Maximum number of ODUs supported | | 6 |
| Dimensions (including mounting brackets) | | 88mm (2RU) x 482mm (19in) x 282.5mm (11.1in) |
| Weight | *Empty* | 4.8 kg (10.6 lb) |

### NCC, Node Controller Card

| | | |
|---|---|---|
| NMS LAN interface | *Type* | 4-port 10/100baseT Hub |
| | *Connector* | 4x 8-pin RJ45 |
| Serial Maintenance Interface | *Standard* | Complies to TIA/EIA-561 |
| | *Speed* | 1200 bps to 115.2 kbps |
| | *Connector* | 8-pin RJ45 |
| Configuration memory, removable | | 32 Mbyte CompactFlash card (on-board) |
| Electrical | *DC Supply input range* | -40.5 to -60 VDC |
| | *DC Fuse type and rating* | 25A fast-acting ceramic body cartridge |
| | *Over voltage protection* | < -70 VDC |
| | *Under voltage protection* | -32 VDC |
| | *DC connector* | 2-pin DSUB power type |
| Power consumption (including DC/DC efficiency) | | < 4 W |
| LED Indicators | | 2x Tri-state ('Test', 'Status') |
| Dimensions (including front panel and rear connector) | | 22mm (0.5RU )x 260mm (10.2in) x 268mm (10.6in) |
| Weight | | 0.6 kg (1.35 lb) |

### NPC, Node Protection Card

| | | |
|---|---|---|
| Electrical | *DC Supply input range* | -40.5 to -60 VDC |
| | *DC Fuse type and rating* | 25A fast-acting ceramic body cartridge |
| | *Over voltage protection* | < -70 VDC |
| | *Under voltage protection* | -32 VDC |
| | *DC connector type* | 2-pin DSUB power type |
| Power consumption (including DC/DC efficiency) | | < 4 W |
| LED Indicators | | 2x Tri-state ('Protect', 'Status') |
| Dimensions (including front panel and rear connector) | | 22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in) |
| Weight | | 0.4 kg (0.88 lb) |

### FAN, Fan Card

| | | |
|---|---|---|
| Fans | | 2 |
| LED Indicators | | 1x Red LED ('Fault') |
| Power consumption | | < 2 W |
| Dimensions (including front panel and rear connector) | | 44mm (1RU) x 40mm (1.6in) x 264mm (10.4in) |
| Weight | | 0.23 kg (0.5 lb) |

### AUX, Auxilary Services Card

| | | |
|---|---|---|
| Aux Data Channels | | 3 |
| Interface | | RS232 or RS422 |
| Line Rate | *Asynchronous* | 1.2 to 19.2 kbps |
| | *Synchronous* | 64 kbps |
| Aux Data Connector | | High Density DSUB26 |
| External Alarm Inputs | *TTL Inputs* | Up to 6 [1] |
| | *TTL input thresholds* | 0.8V min low, 2.0V min high |
| External Alarm Outputs | *Form C Relays (NC)* | Up to 4 [1] |
| Alarms Connector | | High Density DSUB15 |
| LED Indicators | | 1x Tri-state ('Status') |
| Power consumption | | < 3 W |
| Dimensions (including front panel and rear connector) | | 22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in) |
| Weight | | 0.35 kg (0.77 lb) |

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] For applications requiring additional alarm inputs or outputs, multiple AUX cards can be installed if free INU/INUe slots are available. Optional stand-alone Alarm Interface Unit is available. Contact Stratex Networks for further details.

## Radio Access Cards (RAC)

### General

| | | |
|---|---|---|
| IF connector | | SMA[1] |
| IF interface | *Transmit* | 311 MHz, -8.0 to -12.0 dBm |
| | *Receive* | 126 MHz, -8 to -27 dBm |
| LED Indicators | | 2x Tri-state ('Online', 'Status') |
| Dimensions (including front panel and rear connector) | | 22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in) |
| Weight | | < 0.38 kg (0.84 lb) |
| Secondary Lightning protection | | Gas tube, 150 V |

### RAC 30

| | |
|---|---|
| ODUs supported | ODU300sp, hp, ep |
| Capacities supported | 5-75x E1, 1-4x E3, 1x STM1 |
| Modulations supported | QPSK, 16, 32, 64, 128QAM |
| Power consumption | 8 W |

### RAC 3X (>30MBaud)

| | |
|---|---|
| ODUs supported | ODU300hp, ep |
| Capacities supported | 64, 75x E1, 5-8x E3, 1-2x STM1 |
| Modulations supported | 16, 64, 128QAM |
| Power consumption | < 6.5 W |

### RAC 40 with XPIC

| | |
|---|---|
| ODUs supported | ODU300hp, ep |
| Capacities supported | 64, 75x E1, 1x STM1 |
| Modulations supported | 64, 128QAM |
| XPD Improvement | 20 dB |
| XPIC connectors | 2x SMB |
| Power consumption | 12 W |

## Data Access Cards (DAC)

### General

| | |
|---|---|
| LED Indicators | 1x Tri-state ('Status') |
| Power consumption (nominal) | < 3 W |
| Dimensions (including front panel and rear connector) | 22mm (0.5RU) x 130mm (5.1in) x 268mm (10.6in) |
| Weight (nominal) | < 0.34 kg (0.74 lb) |

### Transparent DAC Options

| | | | |
|---|---|---|---|
| Interface, configurable | *DAC 4x* | *Electrical* | 1 to 4x 2.048 Mbps (E1) |
| | *DAC 16x* | *Electrical* | 1 to 16x 2.048 Mbps (E1) |
| | *DAC 3xE3* | *Electrical* | 1 to 3x 34.368 Mbps (E3) |
| | *DAC 155o* | *Optical* | 1x 155.52 Mbps (STM1) |
| | *DAC 2x155o* | *Optical* | 1 or 2x 155.52 Mbps (STM1) |
| | *DAC 2x155e* | *Electrical* | 1 or 2x 155.52 Mbps (STM1) |
| Electrical interface parameters | *Standards Compliance* | *E1, E3* | Compliant to ITU-T Rec. G.703, G.823 |
| | | *STM1* | Compliant to ITU-T Rec. G.703, G.825 |
| | *Line code* | *E1, E3* | HDB3 |
| | | *STM1* | CMI |
| | *Connectors* | *DAC 4x* | RJ45 |
| | | *DAC 16x* | 48 pin mini-RJ21 |
| | | *DAC 3xE3* | Slimline BNC |
| | | *DAC 2x155e* | Slimline BNC |
| | *Impedance* | *E1* | 75Ω unbalanced or 120Ω balanced, configurable |
| | | *E3, STM1* | 75Ω unbalanced |
| Optical interface parameters | *Standards Compliance* | *STM1* | Compliant to ITU-T Rec. G.957, G.825 |
| | *Optical interface* | | Short Range S-1.1 |
| | *Connectors* | | SC |
| | *Tx Output Center Wavelength, $\lambda_c$* | | 1261 to 1310 nm |
| | *Tx Average Optical Output Power, $P_o$* | | -15 to -8 dBm |
| | *Rx Input Operating Center Wavelength, $\lambda c$* | | 1100 to 1600 nm |
| | *Rx Sensitivity, $P_{in}$* | | -34 dBm |
| | *Rx Input Power Saturation, $P_{in}$* | | -7 dBm |

### Multiplexer DAC Options

| | | | *DAC 155oM* |
|---|---|---|---|
| Interface | | *Optical* | 1x 155.52 Mbps (STM1) |
| Functionality | | | 1x STM1 (Interface) to 63x E1 (TDM Bus) Mux |
| Optical interface type (hot-swappable SFP) | | *Standard* | Long Range L1.1 |
| | | *Optional* | Intermediate Range (IR) |
| | | *Connectors* | LC |
| Optical interface parameters | | *Intermediate Range* | *Long Range L1.1* |
| | *Tx Output Center Wavelength, $\lambda_c$* | 1261 to 1360 nm | 1280 to 1355 nm |
| | *Tx Average Optical Output Power, $P_o$* | -15 to -8 dBm | -5 to 0 dBm |
| | *Rx Input Operating Center Wavelength, $\lambda c$* | 1265 to 1625 nm | 1260 to 1600 nm |
| | *Rx Sensitivity, $P_{in}$* | -28 dBm | -35 dBm |
| | *Rx Input Power Saturation, $P_{in}$* | -8 dBm | 0 dBm |
| | *Maximum Range* | 15 km | 40 km |
| Timing modes, configurable | | | Loop Time (Clock recovered from received STM1) |
| | | | Local Reference Clock (XO) |

### Ethernet DAC Options [2]

| | | *DAC ES* | *DAC GE* |
|---|---|---|---|
| Transport channels | | 2 | 2 |
| Throughput capacity, per channel | | 2 - 98 Mbps, 2 Mbps increments | 155 or 311 Mbps |
| Electrical Traffic Interface | | 4x 10/100baseT Fast Ethernet | 3x 10/100/1000baseT Fast Ethernet |
| Connectors | | 4x 8-pin RJ45 | 3x 8-pin RJ45 |
| Optical Traffic Interface | | | 1x optical IEEE 802.3z 1000BASE-LX |
| Connectors | | | 1x LC (SFP) |
| Optical interface parameters | *Tx Output Center Wavelength, $\lambda_c$* | | 1270 to 1355 nm |
| | *Tx Average Optical Output Power, $P_o$* | | -9.5 to -3 dBm |
| | *Rx Input Operating Center Wavelength, $\lambda c$* | | 1260 to 1610 nm |
| | *Rx Sensitivity, $P_{in}$* | | -20 dBm |
| | *Rx Input Power Saturation, $P_{in}$* | | -3 dBm |
| LED Indicators | | 1x Tri-state ('Status') | 1x Tri-state ('Status') |
| Frame size | | 64 - 1532 bytes | 64 - 9600 bytes |

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] RAC Installation Kit includes 3 meter jumper cable, SMA to N-type.

[2] For more detailed Ethernet specifications refer to Eclipse Liquid Bandwidth Ethernet Brochure.

## General ODU Specifications

| General | *ODU300 sp* | *ODU300 hp* | *ODU300 ep* |
|---|---|---|---|
| Frequency Band options | 7, 8, 11, 13, 15, 18, 23, 38 GHz | 7, 8, 11, 13, 15, 18, 23, 26, 28, 38 GHz | 5, L6, U6, 7, 8, 10, 11, 13, 15, 18, 23 GHz |
| Capacity support | 4, 5, 8, 10, 16, 20, 32, 40x E1 | 5, 10, 20, 40, 52, 64, 75x E1 | 5, 10, 20, 40, 52, 64, 75x E1 |
| | | 1, 2, 3, 4, 8x E3 | 1, 2, 3, 4, 8x E3 |
| | | 1 to 2x STM1 | 1 to 2x STM1 |
| Modulation support | QPSK, 16 QAM | QPSK, 16, 32, 64, 128 QAM | QPSK, 16, 32, 64, 128 QAM |
| **IF Specifications** | | | |
| Intermediate Frequency | *Transmit* | | 311 MHz |
| | *Receive* | | 126 MHz |
| IF Cable, recommended | *INU/IDU to ODU* | | Belden 9913 (RG-8) 50Ω |
| Maximum IF Cable length [1] | *INU/IDU to ODU* | | 300 meters (1,000 ft) |
| **ODU Interfaces** | | | |
| IF cable connector | | | N-Type |
| AGC monitor point | | | BNC |
| Antenna port Interface | *5 GHz* | | Coax, 7/16 DIN F |
| | *6-38 GHz* | | Standard EIA rectangular waveguide, refer to ODU System specifications |
| Polarisation, field selectable | | | Vertical (standard) or Horizontal |
| Antenna Mounting | *5 GHz, standard* | | Remote mount via coax connection |
| | *6-38 GHz, standard* | | Proprietary direct mount for antenna diameters 0.3 to 1.8m (1 to 6ft) |
| | | | Remote mount for antenna diameters >1.8m (>6ft) |
| | *6-38 GHz, optional* | | Remote mount via flex/elliptical waveguide |
| **General Transmitter Specifications** | | | |
| Transmit Power Tolerance | *5 to 26 GHz* | | ± 2 dB |
| | *38 GHz* | | ± 3 dB |
| Transmitter Source | | | Synthesized |
| Frequency Stability | | | ± 10 ppm |
| Manual Transmitter Power Control range | | *ODU300sp, hp* | *ODU300ep* |
| | *QPSK* | 20 dB | 30 dB |
| | *16QAM* | 18 dB | 26 dB |
| | *32QAM* | 17.5 dB | 25.5 dB |
| | *64QAM* | 17 dB | 25 dB |
| | *128QAM* | 16 dB | 24 dB |
| | *Resolution* | | 0.1 dB steps |
| | *Accuracy* | | ± 2 dB |
| Automatic Transmitter Power Control | *Range* | | Configurable over full available manual attenuation range |
| | *Resolution* | | 0.1 dB steps |
| | *Speed* | | 6 dB / sec |
| Transmitter Mute | | | > 50 dB |
| Channel Selection | | | By software control within tuning range of ODU |
| Synthesizer Resolution | | | 0.25 MHz |
| **General Receiver Specifications** | | | |
| Receiver Source | | | Synthesized |
| Frequency Stability | | | ± 10 ppm |
| Receiver Overload | *BER = 1x10 $^{-6}$* | | -22 dBm |
| Residual (Background) Bit Error Rate | | | Better than $10^{-13}$ |
| RSSI Accuracy [2] | *-40 to -70 dBm, 0 to +35 $^{o}$ C* | | ± 2 dB |
| | *-25 to -85 dBm, -33 to +55 $^{o}$ C* | | ± 4 dB |

| **Additional Protection Losses** | *Frequency Band* | *Main Channel* | *Protection Channel* |
|---|---|---|---|
| Splitter option | 5 GHz | 3.5 dB | 3.5 dB |
| | 6 to 18 GHz | 3.6 dB | 3.6 dB |
| | 21 to 26 GHz | 3.8 dB | 3.8 dB |
| | 38 GHz | 4 dB | 4 dB |
| Coupler option | 5 GHz | 1.5 dB | 6.4 dB |
| | 6 to 18 GHz | 1.6 dB | 6.6 dB |
| | 21 to 26 GHz | 1.8 dB | 6.8 dB |
| | 38 GHz | 2 dB | 7 dB |
| **Electrical** | | | |
| Power Consumption | *ODU300sp, hp* | | 40 W max |
| | *ODU300ep* | | 50 W max |
| **Mechanical** | | | |
| Size (H x W x D) | *ODU300sp, hp* | | 287mm (11.3 in) x 287mm (11.3 in) x 119mm (4.7 in) |
| | *ODU300ep* | | 287mm (11.3 in) x 287mm (11.3 in) x 175mm (6.9 in) |
| | *ODU Protection Splitter/Coupler* | | 600mm (11.2 in) x 250mm (11.2 in) x 105mm (6.4 in) |
| Weight, max | *ODU300sp, hp* | | 6.4 kg (14 lb) |
| | *ODU300ep* | | 8.3 kg (18.7 lb) |
| | *ODU Protection Splitter/Coupler* | *5 to 8GHz* | 8.5 kg (18.7 lb) |
| | | *11 to 38GHz* | 6.8 kg (15 lb) |

All specifications are typical values unless otherwise stated, and are subject to change without notice.

[1] Maximum IF cable length is quoted for recommended RG-8 cable. Longer distances are possible using higher specification cable, but performance is not guaranteed by Stratex Networks.

[2] RSSI accuracy is only valid when there is no unwanted signal or potential interferer present within ±28MHz of the RX frequency.

# ODU300sp RF Specifications

| | | | | 7 GHz | 8 GHz | 11 GHz | 13 GHz | 15 GHz | 18 GHz | 23 GHz | 38 GHz |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **System** | | | | | | | | | | | |
| Frequency Range, GHz | | | | 7.125 - 7.9 | 7.725 - 8.5 | 10.7 - 11.7 | 12.75 - 13.25 | 14.4 - 15.35 | 17.7 - 19.7 | 21.2 - 23.632 | 37.0 - 39.46 |
| T-R Spacings supported, MHz | | | | 154, 161, 245 | 119, 126, 151.614, 266, 311.32 | 490, 530 | 266 | 315, 420, 490, 644, 728 | 1010, 1092.5 | 1008, 1200, 1232 | 1260 |
| Maximum Tuning Range (dependent upon T-R spacing), MHz | | | | 56 | 140 | 165 | 84 | 245 | 380 | 370 | 340 |
| **Antenna Interface** | | | | | | | | | | | |
| Waveguide Type | | | | R84 (WR112) | R84 (WR112) | R120 (WR75) | R100 (WR90) | R140 (WR62) | R220 (WR42) | R220 (WR42) | R320 (WR28) |
| Flange Type | | | | UDR84 | UDR84 | UBR120 | UDR100 | UBR140 | UBR220 | UBR220 | UBR320 |
| Mating Flange Type | | | | PDR84 or CDR84 | PDR84 or CDR84 | PBR120 or CDR120 | PDR100 or CDR100 | PBR140 or CBR140 | PBR220 | PBR220 | PBR320 |
| **System Gain [1]** | | | | | | | | | | | |
| System Gain at $10^{-6}$ BER | *4xE1* | *7 MHz* | *QPSK* | 116.5 dB | 116.5 dB | 113.5 dB | 111.0 dB | 110.0 dB | 107.5 dB | 107.5 dB | 104.0 dB |
| | *5xE1* | *7 MHz* | *QPSK* | 116.0 dB | 116.0 dB | 113.0 dB | 110.5 dB | 109.5 dB | 107.0 dB | 107.0 dB | 103.5 dB |
| | *8xE1* | *13.75 / 14 MHz* | *QPSK* | 114.0 dB | 114.0 dB | 111.0 dB | 108.5 dB | 107.5 dB | 105.0 dB | 105.0 dB | 101.5 dB |
| | *10xE1* | *13.75 / 14 MHz* | *QPSK* | 113.0 dB | 113.0 dB | 110.0 dB | 107.5 dB | 106.5 dB | 104.0 dB | 104.0 dB | 100.5 dB |
| | *16xE1, 1xE3* | *27.5 / 28 MHz* | *QPSK* | 111.0 dB | 111.0 dB | 108.0 dB | 105.5 dB | 104.5 dB | 102.0 dB | 102.0 dB | 98.5 dB |
| | *20xE1* | *27.5 / 28 MHz* | *QPSK* | 110.0 dB | 110.0 dB | 107.0 dB | 104.5 dB | 103.5 dB | 101.0 dB | 101.0 dB | 97.5 dB |
| | *8xE1* | *7 MHz* | *16QAM* | 108.0 dB | 108.0 dB | 105.0 dB | 102.5 dB | 101.5 dB | 99.0 dB | 99.0 dB | 95.5 dB |
| | *10xE1* | *7 MHz* | *16QAM* | 107.0 dB | 107.0 dB | 104.0 dB | 101.5 dB | 100.5 dB | 98.0 dB | 98.0 dB | 94.5 dB |
| | *16xE1, 1xE3* | *13.75 / 14 MHz* | *16 QAM* | 105.0 dB | 105.0 dB | 102.0 dB | 99.5 dB | 98.5 dB | 96.0 dB | 96.0 dB | 92.5 dB |
| | *20xE1* | *13.75 / 14 MHz* | *16 QAM* | 104.0 dB | 104.0 dB | 101.0 dB | 98.5 dB | 97.5 dB | 95.0 dB | 95.0 dB | 91.5 dB |
| | *32xE1, 2xE3* | *27.5 / 28 MHz* | *16 QAM* | 101.5 dB | 101.5 dB | 99.0 dB | 96.5 dB | 95.5 dB | 93.0 dB | 93.0 dB | 89.5 dB |
| | *40xE1* | *27.5 / 28 MHz* | *16 QAM* | 101.0 dB | 101.0 dB | 98.0 dB | 95.5 dB | 94.5 dB | 92.0 dB | 92.0 dB | 88.5 dB |
| **Transmitter Specifications** | | | | | | | | | | | |
| Power Output, nominal | | | *QPSK* | 25.0 dBm | 25.0 dBm | 22.5 dBm | 20.0 dBm | 19.0 dBm | 17.0 dBm | 17.0 dBm | 15.0 dBm |
| | | | *16 QAM* | 23.0 dBm | 23.0 dBm | 20.5 dBm | 18.0 dBm | 17.0 dBm | 15.0 dBm | 15.0 dBm | 13.0 dBm |
| **Receiver Specifications [1]** | | | | | | | | | | | |
| Threshold at $10^{-6}$ BER | *4xE1* | *7 MHz* | *QPSK* | -91.5 dBm | -91.5 dBm | -91.0 dBm | -91.0 dBm | -91.0 dBm | -90.5 dBm | -90.5 dBm | -89.0 dBm |
| | *5xE1* | *7 MHz* | *QPSK* | -91.0 dBm | -91.0 dBm | -90.5 dBm | -90.5 dBm | -90.5 dBm | -90.0 dBm | -90.0 dBm | -88.5 dBm |
| | *8xE1* | *13.75 / 14 MHz* | *QPSK* | -89.0 dBm | -89.0 dBm | -88.5 dBm | -88.5 dBm | -88.5 dBm | -88.0 dBm | -88.0 dBm | -86.5 dBm |
| | *10xE1* | *13.75 / 14 MHz* | *QPSK* | -88.0 dBm | -88.0 dBm | -87.5 dBm | -87.5 dBm | -87.5 dBm | -87.0 dBm | -87.0 dBm | -85.5 dBm |
| | *16xE1, 1xE3* | *27.5 / 28 MHz* | *QPSK* | -86.0 dBm | -86.0 dBm | -85.5 dBm | -85.5 dBm | -85.5 dBm | -85.0 dBm | -85.0 dBm | -83.5 dBm |
| | *20xE1* | *27.5 / 28 MHz* | *QPSK* | -85.0 dBm | -85.0 dBm | -84.5 dBm | -84.5 dBm | -84.5 dBm | -84.0 dBm | -84.0 dBm | -82.5 dBm |
| | *8xE1* | *7 MHz* | *16 QAM* | -85.0 dBm | -85.0 dBm | -84.5 dBm | -84.5 dBm | -84.5 dBm | -84.0 dBm | -84.0 dBm | -82.5 dBm |
| | *10xE1* | *7 MHz* | *16 QAM* | -84.0 dBm | -84.0 dBm | -83.5 dBm | -83.5 dBm | -83.5 dBm | -83.0 dBm | -83.0 dBm | -81.5 dBm |
| | *16xE1, 1xE3* | *13.75 / 14 MHz* | *16 QAM* | -82.0 dBm | -82.0 dBm | -81.5 dBm | -81.5 dBm | -81.5 dBm | -81.0 dBm | -81.0 dBm | -79.5 dBm |
| | *20xE1* | *13.75 / 14 MHz* | *16 QAM* | -81.0 dBm | -81.0 dBm | -80.5 dBm | -80.5 dBm | -80.5 dBm | -80.0 dBm | -80.0 dBm | -78.5 dBm |
| | *32xE1, 2xE3* | *27.5 / 28 MHz* | *16 QAM* | -78.5 dBm | -78.5 dBm | -78.5 dBm | -78.5 dBm | -78.5 dBm | -78.0 dBm | -78.0 dBm | -76.5 dBm |
| | *40xE1* | *27.5 / 28 MHz* | *16 QAM* | -78.0 dBm | -78.0 dBm | -77.5 dBm | -77.5 dBm | -77.5 dBm | -77.0 dBm | -77.0 dBm | -75.5 dBm |

All specifications are referenced to the ODU antenna flange, and are typical values unless otherwise stated, and are subject to change without notice.

For Guaranteed values (over time and operational range) subtract 2 dB from Power Output, add 2dB to Threshold values, and subtract 4dB from System Gain values.

[1] System Gain & Rx Threshold values are for BER=$10^{-6}$. Values for BER=$10^{-3}$ are improved by 1dB.

## ODU300hp RF Specifications

| | | | | 7 GHz | 8 GHz | 11 GHz | 13 GHz | 15 GHz | 18 GHz | 23 GHz | 26 GHz | 28 GHz | 38 GHz |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **System** | | | | | | | | | | | | | |
| Frequency Range, GHz | | | | 7.125 - 7.9 | 7.725 - 8.5 | 10.7 - 11.7 | 12.75 - 13.25 | 14.4 - 15.35 | 17.7 - 19.7 | 21.2 - 23.632 | 24.52 - 26.483 | 27.5 - 29.5 | 37.0 - 39.46 |
| T-R Spacings supported, MHz | | | | 154, 161, 245 | 119, 126, 151.614, 266, 311.32 | 490, 530 | 266 | 315, 420, 490, 644, 728 | 1010, 1092.5 | 1008, 1200, 1232 | 1008 | 1008 | 1260 |
| Maximum Tuning Range (dependent upon T-R spacing), MHz | | | | 56 | 140 | 165 | 84 | 245 | 380 | 370 | 360 | 360 | 340 |
| **Antenna Interface** | | | | | | | | | | | | | |
| Waveguide Type | | | | R84 (WR112) | R84 (WR112) | R100 (WR90) | R120 (WR75) | R140 (WR62) | R220 (WR42) | R220 (WR42) | R220 (WR42) | R320 (WR28) | R320 (WR28) |
| Flange Type | | | | UDR84 | UDR84 | UDR100 | UBR120 | UBR140 | UBR220 | UBR220 | UBR220 | UBR320 | UBR320 |
| Mating Flange Type | | | | PDR84 or CDR84 | PDR84 or CDR84 | PDR100 or CDR100 | PBR120 or CDR120 | PBR140 or CBR140 | PBR220 | PBR220 | PBR220 | PBR320 | PBR320 |
| **System Gain** [1] | | | | | | | | | | | | | |
| System Gain at $10^{-6}$ BER | *5xE1* | *7 MHz* | *QPSK* | 119.5 dB | 119.5 dB | 114.5 dB | 113.5 dB | 112.5 dB | 109.5 dB | 109.5 dB | 108.5 dB | 107.5 dB | 106.0 dB |
| | *10xE1* | *13.75 / 14 MHz* | *QPSK* | 116.5 dB | 116.5 dB | 111.5 dB | 110.5 dB | 109.5 dB | 106.5 dB | 106.5 dB | 105.5 dB | 104.5 dB | 103.0 dB |
| | *16xE1, 1xE3* | *27.5 / 28 MHz* | *QPSK* | 114.5 dB | 114.5 dB | 110.0 dB | 109.0 dB | 107.5 dB | 105.0 dB | 104.5 dB | 103.5 dB | 102.5 dB | 101.0 dB |
| | *20xE1* | *27.5 / 28 MHz* | *QPSK* | 113.5 dB | 113.5 dB | 108.5 dB | 107.5 dB | 106.5 dB | 103.5 dB | 103.5 dB | 102.5 dB | 101.5 dB | 100.0 dB |
| | *10xE1* | *7 MHz* | *16QAM* | 110.5 dB | 110.5 dB | 106.0 dB | 105.0 dB | 103.5 dB | 101.0 dB | 100.5 dB | 99.5 dB | 98.5 dB | 97.0 dB |
| | *16xE1, 1xE3* | *13.75 / 14 MHz* | *16 QAM* | 108.5 dB | 108.5 dB | 104.0 dB | 103.0 dB | 102.0 dB | 99.0 dB | 99.0 dB | 98.0 dB | 97.0 dB | 95.5 dB |
| | *16xE1, 1xE3* | *7 MHz* | *64 QAM* | 103.0 dB | 103.0 dB | 98.5 dB | 97.5 dB | 96.0 dB | 93.5 dB | 93.0 dB | 92.0 dB | 91.0 dB | 89.5 dB |
| | *20xE1* | *13.75 / 14 MHz* | *16 QAM* | 107.5 dB | 107.5 dB | 103.0 dB | 102.0 dB | 100.5 dB | 98.0 dB | 97.5 dB | 96.5 dB | 95.5 dB | 94.0 dB |
| | *32xE1, 2xE3* | *27.5 / 28 MHz* | *16 QAM* | 106.0 dB | 106.0 dB | 101.0 dB | 100.0 dB | 99.0 dB | 96.0 dB | 96.0 dB | 95.0 dB | 94.0 dB | 92.5 dB |
| | *32xE1, 2xE3* | *13.75 / 14 MHz* | *64 QAM* | 100.0 dB | 100.0 dB | 95.5 dB | 94.5 dB | 93.0 dB | 90.5 dB | 90.0 dB | 89.0 dB | 88.0 dB | 86.5 dB |
| | *40xE1* | *27.5 / 28 MHz* | *16 QAM* | 104.5 dB | 104.5 dB | 100.0 dB | 99.0 dB | 97.5 dB | 95.0 dB | 94.5 dB | 93.5 dB | 92.5 dB | 91.0 dB |
| | *48xE1, 3xE3* | *27.5 / 28 MHz* | *32 QAM* | 101.0 dB | 101.0 dB | 96.5 dB | 95.5 dB | 94.0 dB | 91.5 dB | 91.0 dB | 90.0 dB | 89.0 dB | 87.5 dB |
| | *52xE1* | *27.5 / 28 MHz* | *32 QAM* | 101.0 dB | 101.0 dB | 96.0 dB | 95.0 dB | 94.0 dB | 91.0 dB | 91.0 dB | 90.0 dB | 89.0 dB | 87.5 dB |
| | *64xE1* | *27.5 / 28 MHz* | *64 QAM* | 97.0 dB | 97.0 dB | 92.5 dB | 91.5 dB | 90.0 dB | 87.5 dB | 87.0 dB | 86.0 dB | 85.0 dB | 83.5 dB |
| | *75xE1, 4xE3, 1xSTM1* | *55 / 56 MHz* | *16 QAM* | | | | | | 92.0 dB | 91.5 dB | 90.5 dB | 89.5 dB | 88.0 dB |
| | *75xE1, 4xE3, 1xSTM1* | *40 MHz* | *64 QAM* | | | 94.0 dB | | | | | | | |
| | *75xE1, 4xE3, 1xSTM1* | *27.5 / 28 MHz* | *128 QAM* | 93.0 dB | 93.0 dB | 88.5 dB | 87.5 dB | 86.0 dB | 83.5 dB | 83.0 dB | 82.0 dB | 81.0 dB | 79.5 dB |
| | *8xE3, 2xSTM1* | *55 / 56 MHz* | *128 QAM* | | | | | | 79.5 dB | 79.5 dB | 78.5 dB | 77.5 dB | 76.0 dB |
| **Transmitter Specifications** | | | | | | | | | | | | | |
| Power Output, nominal | | | *QPSK* | 28.5 dBm | 28.5 dBm | 24.0 dBm | 23.0 dBm | 22.0 dBm | 19.5 dBm | 19.5 dBm | 18.5 dBm | 18.0 dBm | 17.5 dBm |
| | | | *16 QAM* | 26.5 dBm | 26.5 dBm | 22.0 dBm | 21.0 dBm | 20.0 dBm | 17.5 dBm | 17.5 dBm | 16.5 dBm | 16.0 dBm | 15.5 dBm |
| | | | *32 QAM* | 26.0 dBm | 26.0 dBm | 21.5 dBm | 20.5 dBm | 19.5 dBm | 17.0 dBm | 17.0 dBm | 16.0 dBm | 15.5 dBm | 15.0 dBm |
| | | | *64 QAM* | 25.5 dBm | 25.5 dBm | 21.0 dBm | 20.0 dBm | 19.0 dBm | 16.5 dBm | 16.5 dBm | 15.5 dBm | 15.0 dBm | 14.5 dBm |
| | | | *128 QAM* | 24.5 dBm | 24.5 dBm | 20.0 dBm | 19.0 dBm | 18.0 dBm | 15.5 dBm | 15.5 dBm | 14.5 dBm | 14.0 dBm | 13.5 dBm |
| **Receiver Specifications** [1] | | | | | | | | | | | | | |
| Threshold at $10^{-6}$ BER | *5xE1* | *7 MHz* | *QPSK* | -91.0 dBm | -91.0 dBm | -90.5 dBm | -90.5 dBm | -90.5 dBm | -90.0 dBm | -90.0 dBm | -90.0 dBm | -89.5 dBm | -88.5 dBm |
| | *10xE1* | *13.75 / 14 MHz* | *QPSK* | -88.0 dBm | -88.0 dBm | -87.5 dBm | -87.5 dBm | -87.5 dBm | -87.0 dBm | -87.0 dBm | -87.0 dBm | -86.5 dBm | -85.5 dBm |
| | *16xE1, 1xE3* | *27.5 / 28 MHz* | *QPSK* | -86.0 dBm | -86.0 dBm | -86.0 dBm | -86.0 dBm | -85.5 dBm | -85.5 dBm | -85.0 dBm | -85.0 dBm | -84.5 dBm | -83.5 dBm |
| | *20xE1* | *27.5 / 28 MHz* | *QPSK* | -85.0 dBm | -85.0 dBm | -84.5 dBm | -84.5 dBm | -84.5 dBm | -84.0 dBm | -84.0 dBm | -84.0 dBm | -83.5 dBm | -82.5 dBm |
| | *10xE1* | *7 MHz* | *16 QAM* | -84.0 dBm | -84.0 dBm | -84.0 dBm | -84.0 dBm | -83.5 dBm | -83.5 dBm | -83.0 dBm | -83.0 dBm | -82.5 dBm | -81.5 dBm |
| | *16xE1, 1xE3* | *13.75 / 14 MHz* | *16 QAM* | -82.0 dBm | -82.0 dBm | -82.0 dBm | -82.0 dBm | -82.0 dBm | -81.5 dBm | -81.5 dBm | -81.5 dBm | -81.0 dBm | -80.0 dBm |
| | *16xE1, 1xE3* | *7 MHz* | *64 QAM* | -77.5 dBm | -77.5 dBm | -77.5 dBm | -77.5 dBm | -77.0 dBm | -77.0 dBm | -76.5 dBm | -76.5 dBm | -76.0 dBm | -75.0 dBm |
| | *20xE1* | *13.75 / 14 MHz* | *16 QAM* | -81.0 dBm | -81.0 dBm | -81.0 dBm | -81.0 dBm | -80.5 dBm | -80.5 dBm | -80.0 dBm | -80.0 dBm | -79.5 dBm | -78.5 dBm |
| | *32xE1, 2xE3* | *27.5 / 28 MHz* | *16 QAM* | -79.5 dBm | -79.5 dBm | -79.0 dBm | -79.0 dBm | -79.0 dBm | -78.5 dBm | -78.5 dBm | -78.5 dBm | -78.0 dBm | -77.0 dBm |
| | *32xE1, 2xE3* | *13.75 / 14 MHz* | *64 QAM* | -74.5 dBm | -74.5 dBm | -74.5 dBm | -74.5 dBm | -74.0 dBm | -74.0 dBm | -73.5 dBm | -73.5 dBm | -73.0 dBm | -72.0 dBm |
| | *40xE1* | *27.5 / 28 MHz* | *16 QAM* | -78.0 dBm | -78.0 dBm | -78.0 dBm | -78.0 dBm | -77.5 dBm | -77.5 dBm | -77.0 dBm | -77.0 dBm | -76.5 dBm | -75.5 dBm |
| | *48xE1, 3xE3* | *27.5 / 28 MHz* | *32 QAM* | -75.0 dBm | -75.0 dBm | -75.0 dBm | -75.0 dBm | -74.5 dBm | -74.5 dBm | -74.0 dBm | -74.0 dBm | -73.5 dBm | -72.5 dBm |
| | *52xE1* | *27.5 / 28 MHz* | *32 QAM* | -75.0 dBm | -75.0 dBm | -74.5 dBm | -74.5 dBm | -74.5 dBm | -74.0 dBm | -74.0 dBm | -74.0 dBm | -73.5 dBm | -72.5 dBm |
| | *64xE1* | *27.5 / 28 MHz* | *64 QAM* | -71.5 dBm | -71.5 dBm | -71.5 dBm | -71.5 dBm | -71.0 dBm | -71.0 dBm | -70.5 dBm | -70.5 dBm | -70.0 dBm | -69.0 dBm |
| | *75xE1, 4xE3, 1xSTM1* | *55 / 56 MHz* | *16 QAM* | | | | | | -74.5 dBm | -74.0 dBm | -74.0 dBm | -73.5 dBm | -72.5 dBm |
| | *75xE1, 4xE3, 1xSTM1* | *40 MHz* | *64 QAM* | | | -73.0 dBm | | | | | | | |
| | *75xE1, 4xE3, 1xSTM1* | *27.5 / 28 MHz* | *128 QAM* | -68.5 dBm | -68.5 dBm | -68.5 dBm | -68.5 dBm | -68.0 dBm | -68.0 dBm | -67.5 dBm | -67.5 dBm | -67.0 dBm | -66.0 dBm |
| | *8xE3, 2xSTM1* | *55 / 56 MHz* | *128 QAM* | | | | | | -64.0 dBm | -64.0 dBm | -64.0 dBm | -63.5 dBm | -62.5 dBm |

All specifications are referenced to the ODU antenna flange, and are typical values unless otherwise stated, and are subject to change without notice.

For Guaranteed values (over time and operational range) subtract 2 dB from Power Output, add 2dB to Threshold values, and subtract 4dB from System Gain values.

[1] System Gain & Rx Threshold values are for BER=$10^{-6}$. Values for BER=$10^{-3}$ are improved by 1dB.

## ODU300ep RF Specifications

| | | | | 5 GHz [1] | L6 GHz | U6 GHz | 7 GHz | 8 GHz | 10 GHz[2] | 11 GHz | 13 GHz | 15 GHz | 18 GHz | 23 GHz |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **System** | | | | | | | | | | | | | | |
| Frequency Range, GHz | | | | 4.4 - 5.0 | 5.925 - 6.425 | 6.425 - 7.11 | 7.125 - 7.9 | 7.725 - 8.5 | 10.0 - 10.68 | 10.7 - 11.7 | 12.75 - 13.25 | 14.4 - 15.35 | 17.7 - 19.7 | 21.2 - 23.632 |
| T-R Spacings supported, MHz | | | | 300, 312 | 252.04 | 340 | 154, 161, 245 | 119, 126, 151.614, 266, 311.32 | 91, 230, 143.5, 350 | 490, 530 | 266 | 315, 420, 490, 644, 728 | 1010, 1092.5 | 1008, 1200, 1232 |
| Maximum Tuning Range (dependent upon T-R spacing), MHz | | | | 56 | 56 | 56 | 56 | 140 | 165 | 165 | 84 | 245 | 380 | 370 |
| **Antenna Interface** | | | | | | | | | | | | | | |
| Waveguide Type | | | | N/A | R70 (WR137) | R70 (WR137) | R84 (WR112) | R84 (WR112) | R100 (WR90) | R100 (WR90) | R120 (WR75) | R140 (WR62) | R220 (WR42) | R220 (WR42) |
| Flange Type | | | | Coax | UDR70 | UDR70 | UDR84 | UDR84 | UDR100 | UDR100 | UBR120 | UBR140 | UBR220 | UBR220 |
| Mating Flange Type | | | | 7/16 DIN F | PDR70 or CDR70 | PDR70 or CDR70 | PDR84 or CDR84 | PDR84 or CDR84 | PDR100 or CDR100 | PDR100 or CDR100 | PBR120 or CDR120 | PBR140 or CBR140 | PBR220 | PBR220 |
| **System Gain [3]** | | | | | | | | | | | | | | |
| System Gain at $10^{-6}$ BER | *5xE1* | *7 MHz* | *QPSK* | 122.0 dB | 122.5 dB | 122.5 dB | 122.5 dB | 122.5 dB | 116.5 dB | 116.5 dB | 119.5 dB | 118.5 dB | 112.5 dB | 112.5 dB |
| | *10xE1* | *13.75 / 14 MHz* | *QPSK* | 119.0 dB | 119.5 dB | 119.5 dB | 119.5 dB | 119.5 dB | 113.5 dB | 113.5 dB | 116.5 dB | 115.5 dB | 109.5 dB | 109.5 dB |
| | *16xE1, 1xE3* | *27.5 / 28 MHz* | *QPSK* | 117.0 dB | 117.5 dB | 117.5 dB | 117.5 dB | 117.5 dB | 112.0 dB | 111.5 dB | 114.5 dB | 113.5 dB | 107.5 dB | 107.5 dB |
| | *20xE1* | *27.5 / 28 MHz* | *QPSK* | 116.0 dB | 116.5 dB | 116.5 dB | 116.5 dB | 116.5 dB | 110.5 dB | 110.5 dB | 113.5 dB | 112.5 dB | 106.5 dB | 106.5 dB |
| | *5xE1* | *3.5 MHz* | *16QAM* | 114.0 dB | 114.5 dB | 114.5 dB | 114.5 dB | 114.5 dB | | 108.5 dB | | | | |
| | *10xE1* | *7 MHz* | *16QAM* | 111.0 dB | 111.5 dB | 111.5 dB | 111.5 dB | 111.5 dB | 108.0 dB | 105.5 dB | 108.5 dB | 107.5 dB | 101.5 dB | 101.5 dB |
| | *16xE1, 1xE3* | *13.75 / 14 MHz* | *16 QAM* | 109.0 dB | 109.5 dB | 109.5 dB | 109.5 dB | 109.5 dB | 106.0 dB | 103.5 dB | 106.5 dB | 105.5 dB | 99.5 dB | 99.5 dB |
| | *16xE1, 1xE3* | *7 MHz* | *64 QAM* | 103.5 dB | 104.0 dB | 104.0 dB | 104.0 dB | 104.0 dB | 100.5 dB | 98.0 dB | 101.0 dB | 100.0 dB | 94.0 dB | 94.0 dB |
| | *20xE1* | *13.75 / 14 MHz* | *16 QAM* | 108.0 dB | 108.5 dB | 108.5 dB | 108.5 dB | 108.5 dB | 105.0 dB | 102.5 dB | 105.5 dB | 104.5 dB | 98.5 dB | 98.5 dB |
| | *32xE1, 2xE3* | *27.5 / 28 MHz* | *16 QAM* | 106.0 dB | 106.0 dB | 106.0 dB | 106.0 dB | 106.0 dB | 103.0 dB | 100.5 dB | 103.5 dB | 102.5 dB | 96.5 dB | 96.5 dB |
| | *32xE1, 2xE3* | *13.75 / 14 MHz* | *64 QAM* | 100.5 dB | 101.0 dB | 101.0 dB | 101.0 dB | 101.0 dB | 97.5 dB | 95.0 dB | 98.0 dB | 97.0 dB | 91.0 dB | 91.0 dB |
| | *40xE1* | *27.5 / 28 MHz* | *16 QAM* | 105.0 dB | 105.5 dB | 105.5 dB | 105.5 dB | 105.5 dB | 102.0 dB | 99.5 dB | 102.5 dB | 101.5 dB | 95.5 dB | 95.5 dB |
| | *48xE1, 3xE3* | *27.5 / 28 MHz* | *32 QAM* | 102.0 dB | 102.5 dB | 102.5 dB | 102.5 dB | 102.5 dB | 98.5 dB | 96.5 dB | 99.5 dB | 98.5 dB | 92.5 dB | 92.5 dB |
| | *52xE1* | *27.5 / 28 MHz* | *32 QAM* | 102.0 dB | 102.0 dB | 102.0 dB | 102.0 dB | 102.0 dB | 98.0 dB | 96.5 dB | 99.5 dB | 98.5 dB | 92.5 dB | 92.5 dB |
| | *64xE1* | *27.5 / 28 MHz* | *64 QAM* | 97.5 dB | 98.0 dB | 98.0 dB | 98.0 dB | 98.0 dB | 94.5 dB | 92.0 dB | 95.0 dB | 94.0 dB | 88.0 dB | 88.0 dB |
| | *75xE1, 4xE3, 1xSTM1* | *55 / 56 MHz* | *16 QAM* | | | | | | | | | | 92.0 dB | 92.0 dB |
| | *75xE1, 4xE3, 1xSTM1* | *40 MHz* | *64 QAM* | 97.0 dB | | 97.0 dB | | | 96.0 dB | 91.5 dB | | | | |
| | *75xE1, 4xE3, 1xSTM1* | *27.5 / 28 MHz* | *128 QAM* | 93.5 dB | 94.0 dB | 94.0 dB | 94.0 dB | 94.0 dB | 90.5 dB | 88.0 dB | 91.0 dB | 90.0 dB | 84.0 dB | 84.0 dB |
| | *8xE3, 2xSTM1* | *55 / 56 MHz* | *128 QAM* | | | | | | | | | | 81.0 dB | 81.0 dB |
| **Transmitter Specifications** | | | | | | | | | | | | | | |
| Power Output, nominal | | | *QPSK* | 30.5 dBm | 30.5 dBm | 30.5 dBm | 30.5 dBm | 30.5 dBm | 26.0 dBm | 25.0 dBm | 28.0 dBm | 27.0 dBm | 21.5 dBm | 21.5 dBm |
| | | | *16 QAM* | 26.5 dBm | 26.5 dBm | 26.5 dBm | 26.5 dBm | 26.5 dBm | 24.0 dBm | 21.0 dBm | 24.0 dBm | 23.0 dBm | 17.5 dBm | 17.5 dBm |
| | | | *32 QAM* | 26.0 dBm | 26.0 dBm | 26.0 dBm | 26.0 dBm | 26.0 dBm | 23.5 dBm | 20.5 dBm | 23.5 dBm | 22.5 dBm | 17.0 dBm | 17.0 dBm |
| | | | *64 QAM* | 25.5 dBm | 25.5 dBm | 25.5 dBm | 25.5 dBm | 25.5 dBm | 23.0 dBm | 20.0 dBm | 23.0 dBm | 22.0 dBm | 16.5 dBm | 16.5 dBm |
| | | | *128 QAM* | 24.5 dBm | 24.5 dBm | 24.5 dBm | 24.5 dBm | 24.5 dBm | 22.0 dBm | 19.0 dBm | 22.0 dBm | 21.0 dBm | 15.5 dBm | 15.5 dBm |
| **Receiver Specifications [3]** | | | | | | | | | | | | | | |
| Threshold at $10^{-6}$ BER | *5xE1* | *7 MHz* | *QPSK* | -91.5 dBm | -92.0 dBm | -92.0 dBm | -92.0 dBm | -92.0 dBm | -90.5 dBm | -91.5 dBm | -91.5 dBm | -91.5 dBm | -91.0 dBm | -91.0 dBm |
| | *10xE1* | *13.75 / 14 MHz* | *QPSK* | -88.5 dBm | -89.0 dBm | -89.0 dBm | -89.0 dBm | -89.0 dBm | -87.5 dBm | -88.5 dBm | -88.5 dBm | -88.5 dBm | -88.0 dBm | -88.0 dBm |
| | *16xE1, 1xE3* | *27.5 / 28 MHz* | *QPSK* | -86.5 dBm | -87.0 dBm | -87.0 dBm | -87.0 dBm | -87.0 dBm | -86.0 dBm | -86.5 dBm | -86.5 dBm | -86.5 dBm | -86.0 dBm | -86.0 dBm |
| | *20xE1* | *27.5 / 28 MHz* | *QPSK* | -85.5 dBm | -86.0 dBm | -86.0 dBm | -86.0 dBm | -86.0 dBm | -84.5 dBm | -85.5 dBm | -85.5 dBm | -85.5 dBm | -85.0 dBm | -85.0 dBm |
| | *5xE1* | *3.5 MHz* | *16 QAM* | -87.5 dBm | -88.0 dBm | -88.0 dBm | -88.0 dBm | -88.0 dBm | | -87.5 dBm | | | | |
| | *10xE1* | *7 MHz* | *16 QAM* | -84.5 dBm | -85.0 dBm | -85.0 dBm | -85.0 dBm | -85.0 dBm | -84.0 dBm | -84.5 dBm | -84.5 dBm | -84.5 dBm | -84.0 dBm | -84.0 dBm |
| | *16xE1, 1xE3* | *13.75 / 14 MHz* | *16 QAM* | -82.5 dBm | -83.0 dBm | -83.0 dBm | -83.0 dBm | -83.0 dBm | -82.0 dBm | -82.5 dBm | -82.5 dBm | -82.5 dBm | -82.0 dBm | -82.0 dBm |
| | *16xE1, 1xE3* | *7 MHz* | *64 QAM* | -78.0 dBm | -78.5 dBm | -78.5 dBm | -78.5 dBm | -78.5 dBm | -77.5 dBm | -78.0 dBm | -78.0 dBm | -78.0 dBm | -77.5 dBm | -77.5 dBm |
| | *20xE1* | *13.75 / 14 MHz* | *16 QAM* | -81.5 dBm | -82.0 dBm | -82.0 dBm | -82.0 dBm | -82.0 dBm | -81.0 dBm | -81.5 dBm | -81.5 dBm | -81.5 dBm | -81.0 dBm | -81.0 dBm |
| | *32xE1, 2xE3* | *27.5 / 28 MHz* | *16 QAM* | -79.5 dBm | -79.5 dBm | -79.5 dBm | -79.5 dBm | -79.5 dBm | -79.0 dBm | -79.5 dBm | -79.5 dBm | -79.5 dBm | -79.0 dBm | -79.0 dBm |
| | *32xE1, 2xE3* | *13.75 / 14 MHz* | *64 QAM* | -75.0 dBm | -75.5 dBm | -75.5 dBm | -75.5 dBm | -75.5 dBm | -74.5 dBm | -75.0 dBm | -75.0 dBm | -75.0 dBm | -74.5 dBm | -74.5 dBm |
| | *40xE1* | *27.5 / 28 MHz* | *16 QAM* | -78.5 dBm | -79.0 dBm | -79.0 dBm | -79.0 dBm | -79.0 dBm | -78.0 dBm | -78.5 dBm | -78.5 dBm | -78.5 dBm | -78.0 dBm | -78.0 dBm |
| | *48xE1, 3xE3* | *27.5 / 28 MHz* | *32 QAM* | -76.0 dBm | -76.5 dBm | -76.5 dBm | -76.5 dBm | -76.5 dBm | -75.0 dBm | -76.0 dBm | -76.0 dBm | -76.0 dBm | -75.5 dBm | -75.5 dBm |
| | *52xE1* | *27.5 / 28 MHz* | *32 QAM* | -76.0 dBm | -76.0 dBm | -76.0 dBm | -76.0 dBm | -76.0 dBm | -74.5 dBm | -76.0 dBm | -76.0 dBm | -76.0 dBm | -75.5 dBm | -75.5 dBm |
| | *64xE1* | *27.5 / 28 MHz* | *64 QAM* | -72.0 dBm | -72.5 dBm | -72.5 dBm | -72.5 dBm | -72.5 dBm | -71.5 dBm | -72.0 dBm | -72.0 dBm | -72.0 dBm | -71.5 dBm | -71.5 dBm |
| | *75xE1, 4xE3, 1xSTM1* | *55 / 56 MHz* | *16 QAM* | | | | | | | | | | -75.5 dBm | -75.5 dBm |
| | *75xE1, 4xE3, 1xSTM1* | *40 MHz* | *64 QAM* | -71.5 dBm | | -71.5 dBm | | | -73.0 dBm | -71.5 dBm | | | | |
| | *75xE1, 4xE3, 1xSTM1* | *27.5 / 28 MHz* | *128 QAM* | -69.0 dBm | -69.5 dBm | -69.5 dBm | -69.5 dBm | -69.5 dBm | -68.5 dBm | -69.0 dBm | -69.0 dBm | -69.0 dBm | -68.5 dBm | -68.5 dBm |
| | *8xE3, 2xSTM1* | *55 / 56 MHz* | *128 QAM* | | | | | | | | | | -65.5 dBm | -65.5 dBm |

All specifications are referenced to the ODU antenna flange, and are typical values unless otherwise stated, and are subject to change without notice.

For Guaranteed values (over time and operational range) subtract 2 dB from Power Output, add 2dB to Threshold values, and subtract 4dB from System Gain values.

[1] For switchable diplexer option, 5GHz system gain is reduced by 4 dB.

[2] 10GHz Power Output and System Gain specifications are reduced by 1.5dB and 3.5dB for 91MHz and 65MHz T-R options respectively.

[3] System Gain & Rx Threshold values are for BER=$10^{-6}$. Values for BER=$10^{-3}$ are improved by 1dB.