



## NetStream 5x200

NetStream 5x200 is a carrier-class radio that supports 5.x to 6.0 GHz and complies with FCC, IC (Canada), MII (China), WPC (India) and Universal regulations (factory default: 5.8 GHz FCC/IC). The multi-band radio is part of the NetStream Series that delivers high capacity and extended range for carriers' backhaul needs.

Packing native TDM and Ethernet over a single wireless link, NetStream 5x200 provides 200 Mbps net aggregate throughput (up to 16 E1/T1 plus Ethernet) at a range of up to 40 km/25 miles.

NetStream 5x200 comes with an integrated antenna.

### Product Highlights

- 200 Mbps Ethernet net throughput and up to 16 E1s/T1s (Native TDM transport)
- Long range – up to 40 km/25 miles
- Supports intra-site and inter-site TDD synchronization to maximize network capacity
- Adaptive asymmetric throughput – dynamic allocation between uplink and downlink
- Advanced OFDM and MIMO technologies for operation in nLOS/NLOS and dense radio environments
- Robust and reliable to operate in tough conditions and extreme temperatures



## Product Specifications

### Configuration

|                      |  |
|----------------------|--|
| Architecture         | Outdoor Unit with integrated antenna   |
| PoE to ODU Interface | Outdoor CAT-5e cable; Maximum cable length: 100 m for 10/100BaseT and 75 m for 1000BaseT |

### Radio

|                                |   |
|--------------------------------|---|
| Capacity                       | 200 Mbps net aggregate throughput (up to 16 E1s/T1s plus Ethernet)          |
| Range                          | Up to 40 km / 25 miles  |
| Channel Bandwidth              | Configurable: 5, 10, 20 or 40 MHz (for the default band)                    |
| Modulation                     | 2x2 MIMO-OFDM (BPSK/QPSK/16QAM/64QAM)                                       |
| Adaptive Modulation & Coding   | Supported   |
| Automatic Channel Selection    | Supported   |
| DFS                            | Not Supported (for the default band)  |
| Diversity                      | Supported   |
| Spectrum View                  | Supported   |
| Max Tx Power                   | 25 dBm  |
| Duplex Technology              | TDD   |
| Error Correction               | FEC k = 1/2, 2/3, 3/4, 5/6  |
| Processing Speed               | 380,000 PPS   |
| Encryption                     | AES 128; FIPS 197   |
| Supported Indoor Units         | IDU-NetStream RM and DT; NetStream PoE device                               |
| Bandwidth Allocation           | Configurable: Symmetric or Asymmetric                                       |
| QoS                            | Packet classification to 4 priority queues according to 802.1p and Diffserv |
| VLAN Support                   | 802.1Q, QinQ, 4094 VLANs  |
| Ethernet Ring Protection       | Supported, including Ethernet 1+1   |
| TDD Intra Site Synchronization | Supported   |
| TDD Inter Site Synchronization | Supported through common GPS receiver per site                              |
| Monitored Hot Standby (MHS)    | 1+1 with NetStream link   |

### Supported Bands

| Band                   | Channel BW 5 MHz       | Channel BW 10 MHz    | Channel BW 20 MHz    | Channel BW 40 MHz    | Radio Compliance  |
|------------------------|------------------------|----------------------|----------------------|----------------------|---|
| <b>5.8 GHz FCC/IC*</b> | <b>5.7275 - 5.8475</b> | <b>5.725 - 5.850</b> | <b>5.725 - 5.850</b> | <b>5.725 - 5.850</b> | <b>FCC 47CFR Part 15.247; IC RSS-210</b>                    |
| 5.0 GHz Universal      | 4.9975 - 5.1525        | 4.995 - 5.155        | 4.990 - 5.160        | 4.980 - 5.170        | Universal   |
| 5.1 GHz Universal      | 5.1475 - 5.3375        | 5.145 - 5.340        | 5.140 - 5.345        | 5.130 - 5.355        | Universal   |
| 5.2 GHz FCC/IC         | 5.2525 - 5.3475        | 5.255 - 5.345        | 5.255 - 5.345        | 5.255 - 5.345        | FCC 47CFR Part 15.407; IC RSS-210                           |
| 5.4 GHz FCC/IC         | 5.4775 - 5.7175        | 5.480 - 5.715        | 5.480 - 5.715        | 5.480 - 5.715        | FCC 47CFR Part 15.407; IC RSS-210                           |
| 5.4 GHz IC             | 5.4775 - 5.7175        | 5.480 - 5.715        | 5.480 - 5.715        | 5.480 - 5.715        | IC RSS-210  |
| 5.4 GHz Universal      | 5.4725 - 5.7225        | 5.470 - 5.725        | 5.465 - 5.730        | 5.455 - 5.740        | Universal   |
| 5.8 GHz MII China      | 5.7375 - 5.8375        | 5.735 - 5.840        | 5.730 - 5.845        | 5.720 - 5.855        | CMIIT RTA   |
| 5.8 GHz WPC            | 5.8325 - 5.8675        | 5.830 - 5.870        | 5.825 - 5.875        | 5.815 - 5.855        | WPC (India) G.S.R 38(E) dated 19 January, 2007 Notification |
| 5.9 GHz Universal      | 5.7275 - 5.9525        | 5.725 - 5.955        | 5.720 - 5.960        | 5.710 - 5.970        | Universal   |
| 6.0 GHz Universal      | 5.6975 - 6.0525        | 5.695 - 6.055        | 5.690 - 6.060        | 5.680 - 6.070        | Universal   |

\* Default Band

### Mechanical

|                |                          |
|----------------|--------------------------|
| ODU Dimensions | 30(w) x 30(h) x 10(d) cm |
| ODU Weight     | 2.9 kg / 6.39 lbs        |

### Power

|                   |                                   |
|-------------------|-----------------------------------|
| Power Feeding     | Power provided over ODU-IDU cable |
| Power Consumption | <20 W                             |

### Environmental

|                        |  |
|------------------------|--|
| Operating Temperatures | -35°C to 60°C / -31°F to 140°F   |
| Humidity               | 100% condensing, IP67 (totally protected against dust and against immersion up to 1 m) |

### Safety

|                 |  |
|-----------------|--|
| FCC/IC (cTUVus) | UL 60950-1, UL 60950-22, CAN/CSA C22.2 60950-1, CAN/CSA C22.2 60950-22 |
| ETSI            | EN/IEC 60950-1, EN/IEC 60950-22  |

### EMC

|                 |  |
|-----------------|--|
| FCC             | CFR47 Class B, Part15, Subpart B       |
| ETSI            | EN 300 386, EN 301 489-1, EN 301 489-4 |
| CAN/CSA-CEI/IEC | CISPR 22-04 Class B                    |



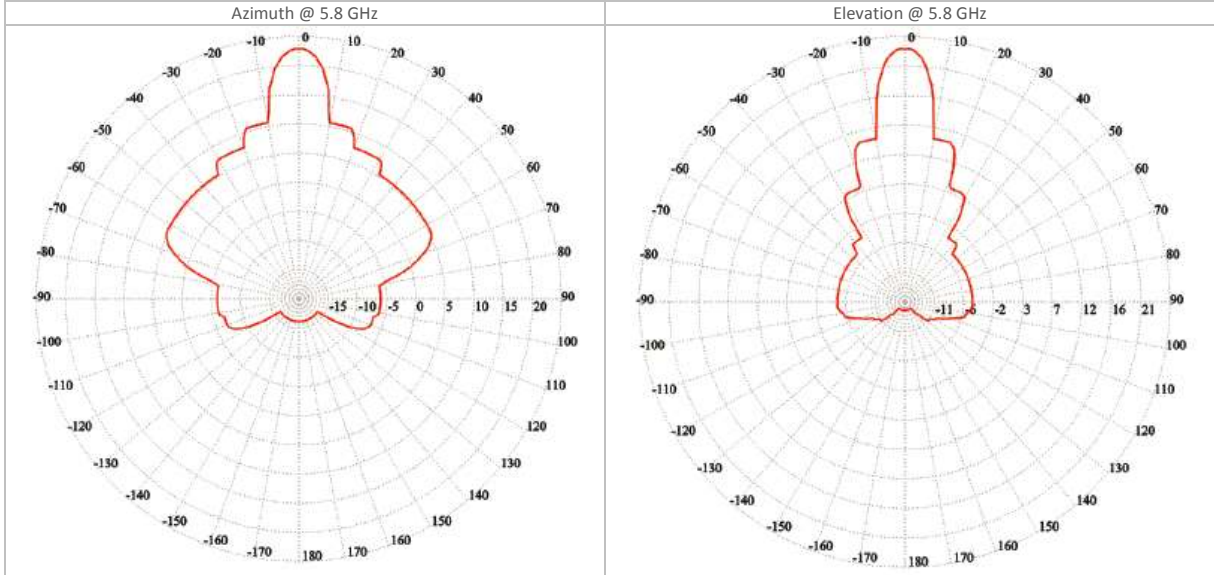
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### Integrated Antenna

|                        |                                       |
|------------------------|---------------------------------------|
| Gain                   | 23 dBi                                |
| VSWR                   | 1.5 :1 (typ)                          |
| 3 dB Beam width        | 10° (typ)                             |
| AZ & EL Beam Squint    | 0                                     |
| Polarization           | Dual Linear (Vertical and Horizontal) |
| Side lobes Level       | ESTI EN 302 326-3 V1.1.2 DN3          |
| Cross Polarization     | ESTI EN 302 326-3 V1.1.2 DN3          |
| F/B Ratio              | -30 dB                                |
| Port To Port Isolation | 30 dB (max)                           |
| Lightning Protection   | DC grounded                           |

### Antenna Pattern



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