M2400S™ 2.4 GHz
Access Point & Subscriber Unit
Broadband Wireless System

The M2400S™ point-to-multipoint wireless broadband platform offers service providers and network operators a cost effective, enterprise grade solution for fixed wireless connectivity at 2.4 GHz. The system provides up to 5 Mbps to the subscriber and a range of 25 miles.

Range

» The M2400S™ Access Point (AP) and Subscriber Unit (SU) both include integrated dual polarized patch antennas as well as a connector for an optional external antenna. Utilizing the internal antennas, the M2400S™ provides a range of 15 miles line-of-sight (LOS) with 10 dB fade margin to spare. Range can be extended to over 25 miles by attaching an optional grid antenna to the SU. On the AP, operators can utilize the internal sector antenna or attach an external sector or omni antenna.

Flexibility

» This highly flexible 2.4 GHz system features eight channels that users can redefine by selecting frequencies in single MHz increments. The SU will scan all channels until it associates with a properly configured AP. This allows redundancy of APs as well as a simple and quick method to switch channels on an entire sector. In addition, the software switchable dual polarized antennas allow for outstanding frequency agility.

Speed

» The M2400S™ delivers up to 5 Mbps and utilizes Trango's patent pending SmartPolling™ algorithm to adaptively poll subscriber units, ensuring the lowest latency for active subscribers.

Interference Mitigation

» The M2400S™ offers powerful resistance to interference with the Automatic Repeat Request (ARQ) feature, which automatically re-transmits errored packets to mask RF errors to higher layer protocols. In addition, the M2400S™ provides mitigation tools such as automatic SU power leveling, and threshold control.

Highlights

- Up to 5 Mbps usable subscriber throughput
- Up to 25-mile range with external antenna
- Up to 126 subscriber units per access point
- 8 channels, narrow 10 MHz channel size
- ARQ and automatic SU power leveling

Integrated Design

» The M2400S™ radios are fully weatherized outdoor units featuring Power-over-Ethernet (PoE) designed for quick deployment and easy installation.

Security and Authentication

» The M2400S™ offers MAC-level authentication coupled with over-the-air data scrambling for secure operation.

Management Features

» The M2400S™ offers remote and local management via Telnet, SNMP and HTTP via browser. Tools such as site survey and upstream/downstream CIR/MIR controls allow operators control and flexibility in managing networks.

Patented SMARTPolling™

The M2400S™ system is equipped with SMARTPolling™, a powerful prioritization scheme designed to ensure the highest quality of service to active bandwidth subscribers. SMARTPolling™ allows the AP to dynamically and adaptively poll each SU efficiently favoring subscribers that are engaged in passing traffic, guaranteeing the lowest latency for those users.

Specifications

RADIO PARAMETERS	
Frequency of Operation	2400 - 2483 MHz
Channels	8 non-overlapping, user changeable
Channel Spacing	10 MHz
RF Power Output (AP & SU)	+23 dBm Max Setting +10 dBm Min Setting
Modulation Format	Direct Sequence Spread Spectrum (DSSS)
Certification / Compliance	FCC Part 15.247
Receiver Sensitivity (BER 10^{-6})	-90 dBm typical

DATA AND OPERATIONAL PARAMETERS	
Access Method	TDD with SmartPolling™
User Data throughput	Up to 5 Mbps
Upstream/Downstream Throughput	Dynamic, automatically adjusts to suit demand
Bandwidth Control	CIR and MIR upstream/downstream control by AP
Maximum Number SUs per AP	126
Interference Handling	Automatic Retransmit Request (ARQ) plus rate shifting to lower C/I.
Security	Trango proprietary authentication method, based on MAC address and alphanumeric base ID; over the air data scrambling.
Configuration & Management	Telnet, SNMP, TFTP, HTTP

ANTENNA PARAMETERS (AP)	
Internal Antenna	Integrated 13 dBi 60° X 18° sectoral patch array dual polarized (HPOL/VPOL)
Omni Antenna (Optional)	+12 dBi
Sector Antenna (Optional)	+17 dBi 90° (available in horizontal or vertical polarization)

ANTENNA PARAMETERS (SU)	
Internal Antenna	Integrated 15 dBi 32° X 18° patch array dual polarized (HPOL/VPOL)
Grid Antenna (Optional)	+24 dBi

RANGE (LOS)	
Standard Integrated Antenna (Each End)	15 Miles (w/10 dB fade margin)
Standard AP Antenna and SU w/Grid Antenna	25 Miles (w/15 dB fade margin)

POWER PARAMETERS	
Power Method	Power-over-Ethernet (PoE Injector JBox included)
Voltage Input	20 VDC 600 mAmp
Standard Power Supply	120 VAC to 20 VDC
PoE Cat-5 Max Cable Length	100 meters on 24 AWG STP Cat-5 cable
Power	10 W max

PHYSICAL AND ENVIRONMENTAL	
Ethernet Interface	RJ45, 10/100BaseT, auto sense, auto negotiate
External Antenna Connector	SMA reverse polarity
Reset Button	Resets unit to factory default settings
Radio Enclosure	All-weather, powder coated, cast aluminum with Polycarbonate radome
Temperature Range	-40° to 60° C (-40° to 140° F)
Radio Weight	4 lbs
Radio Dimensions	12.5” X 8” X 2.75”

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