NewNet
WiMAX BroadBand

NewNet WiMAX
WiMAX CPEo 550 Series

Outdoor modem for cost effective and convenient wireless broadband access with integrated voice

The outdoor CPEo 550 Series Customer Premises Equipment (CPE) lets Communication Service Providers (CSP) extend the coverage of critical broadband and Voice over IP (VoIP) services on WiMAX 802.16e networks, enhancing service to end-users in both urban areas and remote regions and reducing CSP network investment and support costs.

Innovation and Low Total Cost of Ownership

The outdoor WiMAX CPEo 550 integrates VoIP functionality directly into the unit – a unique feature that provides simpler installation and improved reliability with fewer points of potential failure in an outdoor WiMAX with VoIP solution. Additional benefits include decreased external ATA interoperability test needs, and decreased cost of having multiple boxes.

Integrated VoIP along with a design that utilizes cross-polarized antennas with wide beam widths show NewNet Communication Technologies continued innovation with the CPEo 550. These features and a number of others allow NewNet Communication Technologies to continue to lead the 802.16e CPE market in convenience, reliability, and performance with an ultimate focus on low total cost of ownership for WiMAX CSPs.

Reliable and Efficient

The CPEo 550 has substance and simplicity, and is designed from the start for reliability and efficiency. As an outdoor unit with data and multiple voice access ports, it provides an effective solution to home networking needs even in cell edge areas. Factors such as integrated multiple antennas, no moving parts and advanced ventilation improve the operational life span of this device. With VoIP integrated into the WiMAX modem outdoor unit there is only a single "intelligent box" in the solution, avoiding the need for a separate ATA box and the potential for multiple points of failure. Failures can cause increased support calls, truck rolls, and product re-shipments, significantly increasing operational costs (OPEX). The reliability and streamlined design of the CPEo 550 effectively reduce failures and therefore significantly decrease OPEX.

The CPEo 550 makes installation and maintenance quicker and simpler. A comprehensive, intuitive, user-friendly Graphical User Interface (GUI) and intelligent LEDs make it easy for an CSP's installer or a user to easily check the status of the device and get it working quickly.

State of the Art Antenna Technology

The CPEo 550 Series features multiple cross-polarized antennas that help with angular dispersion, essentially allowing the CPE to be more sensitive to the different angular polarizations of a signal. In a multi-path environment, such as with OFDM, cross polarized antennas offer better protection from fades.

The integrated antennas also have a wide beam width, increasing the vertical and horizontal widths of the beam by approximately 50% over typical directional, high-gain outdoor CPE. This increased beam width enables hassle-free, easy orientation. The CPE will get the best possible radio signals with a simple alignment, and plug and play setup.

NewNet's CPEo 550 Series features multiple cross polarized antennas to support diversity techniques such as Maximum Ratio Combining (MRC), and MIMO Matrix A and B. Combined with multi-antenna operations at the access points and open and closed- loop adaptive antenna techniques, NewNet's access points and CPE solution provides best-in-class range to the CSPs, reducing the overall CAPEX requirements as well as offering multiple revenue streams.

Convenience

All access ports in the plug and play CPEo 550 are integrated on to one junction box that resides inside the customer premises. The device comes with all the necessary device drivers pre-loaded. Pre-loaded device drivers mean no CDs are required for end user installation. The CPE can work with Windows, MAC and LINUX operating systems with out any user intervention. Subscribers just connect the device via the indoor POE junction box to their computer and voice handsets and the device is ready to offer WAN/ VoIP services.

The network will automatically detect the device and perform the necessary authentication processes. Finally, over the air (OTA) software upgrades eliminate the need for CSP intervention.

Performance

The outdoor mounted CPEo 550 provides significant improvement in the coverage and capacity capabilities of the network, reducing the number of base sites required to address a given geography and boosting the bandwidth available to end-users.

Simple mounting bracket on the back of the CPEo 550

Outdoor CPE device performance is a factor of antenna gain, antenna beam width, receiver sensitivity, orientation, diversity techniques used and effective transmitter power. The radiated performance of WiMAX CPE devices can differ dramatically. In a typical environment, 3 to 6dB low-end performance by CPEs on your network can translate to the need for over two times as many access points in order to provide the same level of service. This factor needs special attention particularly during the initial deployment periods of the network.

With high receive sensitivity and innovative antenna technology, the CPEo 550 stretches the service level regions in a network, reducing base station infrastructure requirements for CSPs, and offering subscribers better quality data and voice services (with QoS).

In addition, as the number of subscribers increase on the network, interference introduced by the devices themselves can dramatically reduce the service level areas from the original network plans. NewNet Communication Technologies CPEo 550 design offers best in class shielding and supports power control to mitigate these risks. In cases where the unit is installed on high rise buildings, CSPs may face an issue of CPE being able to reach most of the adjacent cells. This causes interference on the overall network and might prevent the CPE from locking into a single cell. CPEo 550 features select cell locking to assist CSPs in such situations.

Control

NewNet's CPEo 550 Series supports remote management capability allowing management and health monitoring of the device from a centralized network or element management system. CPEs support a wide range of statistics for the CSP to look at the network performance from the device perspective. In addition, advanced security and authentication protocols protect the end-user and the CSP from external threats.

Why NewNet

NewNet is leading the industry with award winning, end-to-end WiMAX solutions that address the full scope of an operator's deployment needs. The NewNet WiMAX solutions portfolio includes access, core, devices, network management and services. NewNet's best-in-class quality assurance processes, along with a track record of WiMAX commercial deployments worldwide, offer service providers the confidence that they are getting a high-quality, reliable solution. NewNet's comprehensive wireless broadband portfolio addresses the needs of the wireless broadband market with end-to-end solutions covering all aspects of the broadband wireless access deployment. Our deep and extensive product and services portfolio, decades of R&D investment, and experience as a global supplier of broadband wireless access solutions allow us to offer the best in class WiMAX solutions.

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CPEo 550 Series Specifications

Connectivity	1 Ethernet port 2 Integrated ATA ports (VoIP)
Outdoor Coverage	Up to 5 Kilometers range**
Radio Performance	WiMAX Certification Ready Band supoort: 2.3 GHz and 3.5GHz (Separate Products) 26dBm WimMAX output power Antenna gain: CPEo 23550 = 12.5dBi; CPEo 35550 = 14dBi Antenna beam widths: > 40 deg horizontal and > 20 deg vertical Highly sensitive receiver that beats the RCT specifications by an average of 5dB across all modulation schemes Two branch Maximum Ratio Combining Diversity (MRC) Convolution Turbo Coding (CTC) Hybrid Automatic Repeat request (HARQ) Power control: Transmit dynamic range > 46 dB
Channel Support	3.5GHz product supports 5 / 7 / 10MHz & 2.3GHz product supports 5MHz & 10MHz.
Physical & Electrical Characteristics	External power: 100-240 volts AC input Power over Ethernet Dimensions : 318 (h) X 176 (w) X 100 (d) mm Weight : 1.3Kgs Operating temperature: -40 deg C to +55 deg C Operating humidity: 5% to 95%, non-condensing US and international plug support
Modulation Schemes	QPSK, 16QAM, 64QAM
Quality of Service Classes	BE (Best Effort) UGS (Unsolicited Grant Service) RTPS (Real Time Polling Service) NRTPS (Non Real Time Polling Service) ERTPS (Extended Real Time Polling Service)
Security	Device authentication based on X.509 digital certification Authentication methods according to IEEE 802.16e, EAP-TLS and EAP-TTLS AES (128-bit CCM) data encryption and authentication Residential firewall
Remote Configuration & Software Upgrade	OTA (Over The Air) field upgradeable SNMP v3 Agent TR-069 Agent OMA Agent
OS & Browser Compatibility	Windows Mac LINUX Internet Explorer or Firefox 1.0 or higher
Environmental and Regulatory	Asia Europe Canada Latin America

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