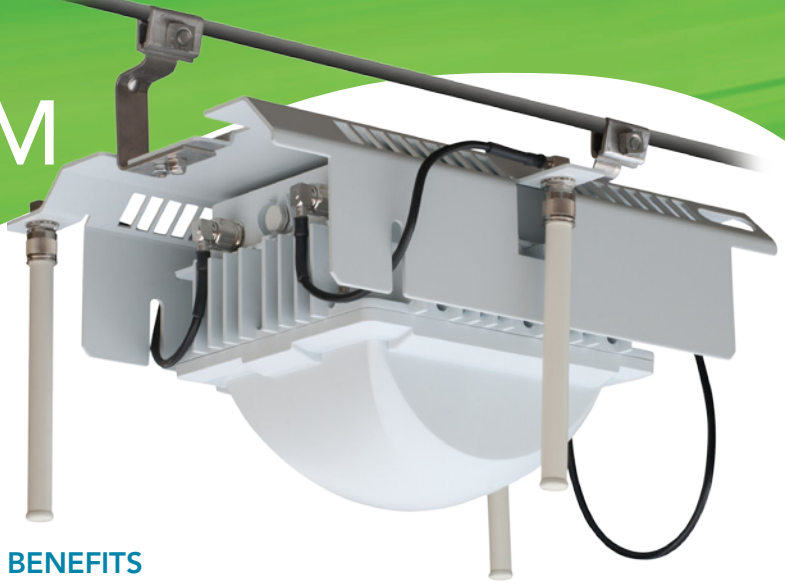
ZoneFlex™ 7761-CM

Dual-Band 802.11n Smart Wi-Fi Outdoor AP
with Integrated DOCSIS 3.0 Modem



First high performance strand-mounted 802.11n Smart Wi-Fi access point with cable modem

The Ruckus ZoneFlex 7761-CM is a the first purpose-build strand-mounted access point to combine dual-band 802.11n with an integrated DOCSIS 3.0 certified modem and patented smart antenna array technology to deliver unprecedented range and reliabiity for multiple system cable operators (MSOs)

The Ruckus 7761-CM is lightweight and can be easily installed and integrated with the cable operator's network. It leverages existing cable assets, including mounting, power, backhaul and customer service systems to quickly and easily extend wireless services to cable operators' customers.

The Ruckus ZoneFlex 7761-CM leverages the industry's best dual-band 802.11n outdoor smart antenna technology to fulfill the promises of 802.11n — while delivering unparalleled simplicity, throughput, range and reliability at a fraction of the cost of conventional alternatives.

The ZoneFlex 7761-CM implements Ruckus-patented BeamFlex™ smart antenna technology that enables consistent, high-performance, extended coverage and multimedia support. Network operators can create different quality of service for various WLANs to provide tiered services.

The ZoneFlex 7761-CM is the industry's first AP to integrate a DOCSIS 3.0 modem supporting 8 downstream and 4 upstream bonded channels with theoretical data rates of up to 340 Mbps (downstream) and 130 Mbps (upstream).

The Ruckus ZoneFlex 7761-CM is ideal for MSOs expanding branded broadband services through their cable infrastructure to provide hotspot services to neighborhoods, resorts, train stations, and other public locations. The 7761-CM delivers broadband services outdoors to extend managed wireless LANs (WLANs) for strand mounted locations and where Ethernet cabling is not feasible.

The ZoneFlex 7761-CM can be centrally managed by the ZoneDirector Smart WLAN controller as part of a unified indoor/outdoor wireless LAN or deployed as a standalone AP and managed individually or through the FlexMaster remote Wi-Fi management system.

BENEFITS

Integrated DOCSIS 3.0 modem with 8 x 4 bonded channels

Ruggedized outdoor enclosure with DOCSIS 3.0 certified modem providing bonded 8 downstream and 4 upstream channels

Unprecedented outdoor Wi-Fi performance

Advanced, Smart Wi-Fi design with concurrent 802.11n dual-band radios

Unified, centralized Wi-Fi management eases administration

ZoneDirector and/or FlexMaster provide a detailed view into and control over both indoor and outdoor Smart Wi-Fi APs enabling seamless and system-wide administration of the entire wireless environment

Unmatched Wi-Fi range and reliability

Adaptive antenna technology with 802.11n (3 x 3) combined with unique interference avoidance technology delivers up to 9dBi of signal gain to maximize capacity and coverage

Extended coverage means fewer APs

Directional, high-gain antennas dynamically combine to deliver two- to four-times the coverage area compared to typical outdoor APs

Proven support for IP-based voice and video over Wi-Fi

A dynamic directional antenna array and expert QoS software optimize delay-sensitive, IP video and high-density voice over Wi-Fi (VoFi) applications and PoE output allows connecting other devices such as an IP camera

Strand mounted hardened enclosure for outdoor deployment

IP-67 water and dust proof enclosure with strand mount for deployment on MSOs

Enables a myriad of new services and service opportunities

Smart Wi-Fi applied outdoors now enables new revenue-generating services such as community Wi-Fi, IP-video applications, multimedia hotspots, extended WLAN services outdoors and 3G data offloading

Lower deployment costs and reduced truck rolls

Lightweight enclosure simplifies deployment. Remote reboots between APs and Cable Modem Management minimizes truck rolls

Ruckus™ WIRELESS

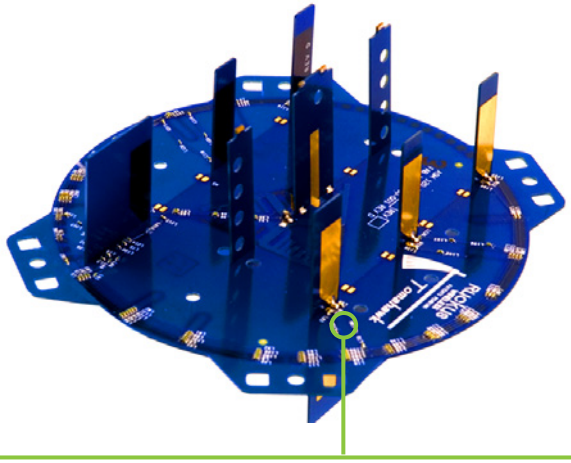
ZoneFlex™ 7761-CM

Strand-Mounted, Dual-Band 802.11n Smart Wi-Fi AP

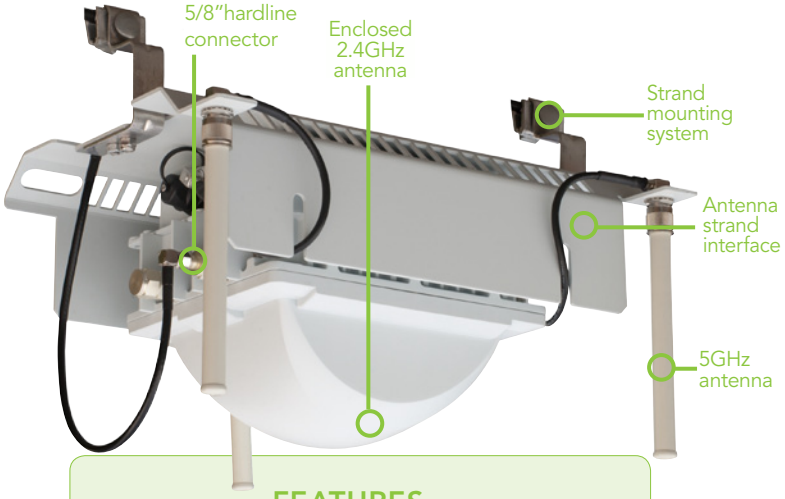
Remote monitoring and network management

The Ruckus 7761-CM can be remotely managed using either the Ruckus Wi-Fi FlexMaster management platform and/or the Service Provider's own Cable Management system to take advantage of the best of both worlds in terms of cable network management and wireless monitoring.

The integrated management approach provides complete network-wide support for Fault, Configuration, and Performance Management. Patent pending software algorithm allows the Ruckus 7761-CM to be remotely controlled from either the Cable MSO management system or from the wireless mesh interface in the case of temporary network interruptions, thereby avoiding expensive and inefficient truck rolls.



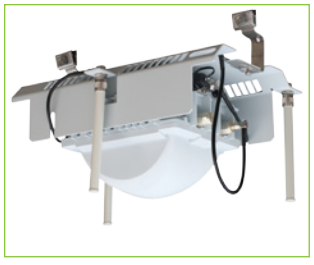
A patented smart antenna array integrates six high-gain vertically-polarized and six horizontally-polarized antenna elements. This enables up to 4096 potential antenna combinations and up to 9 dBi gain, thereby delivering unprecedented range extension and signal reliability. The dual polarized smart antenna increases the effectiveness of spatial-multiplexing, resulting in higher data rates.



FEATURES

- Concurrent dual-band (5GHz/2.4GHz) operation
- Adaptive antenna technology and advanced RF management
- Automatic interference avoidance, optimized for high-density environments
- Integrated smart antenna array with over 4,000 unique patterns for ultra availability
- Standard 802.3af output for IP surveillance camera
- Strand mountable
- Extended tempature range for cold climates (-40° C)
- Multicast IP video streaming
- Four queues per client station
- 16 BSSIDs with unique QoS and security policies
- WEP, WPA-PSK (AES), 802.1X support
- Flexible tunneling with L2TP
- Band steering
- Airtime fairness
- Integrated 8 x 4 DOCSIS 3.0 modem
- Remote reboots between AP and CM
- Dynamic channel management

ZONEFLEX 7761-CM PRODUCT HIGHLIGHTS



Internal 2.4 GHz smart antenna array with high gain 5 GHz external antennas

Ruggedized and "not-obvious" outdoor enclosure

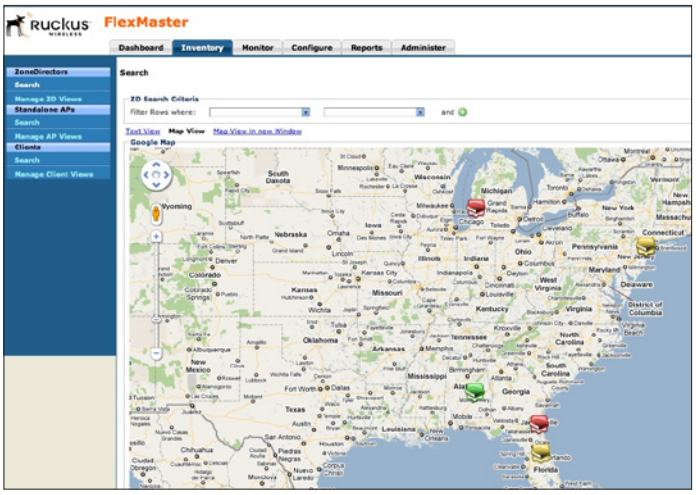
Integrated DOCSIS 3.0 cable modem leverages existing MSO cable plant

Lightweight for ease of installation

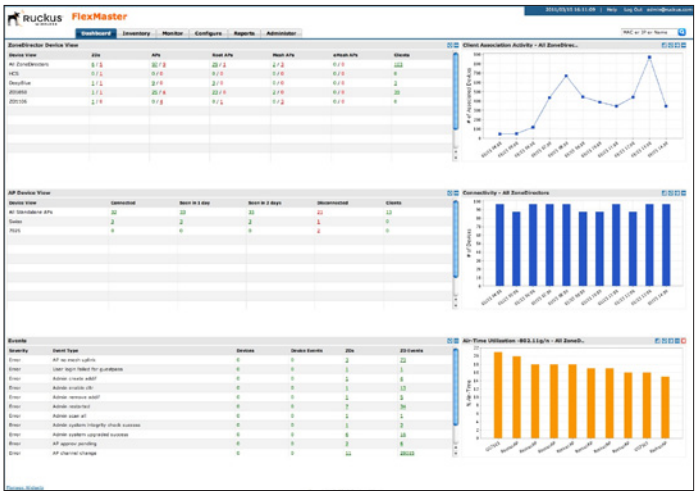
ZoneFlex™ 7761-CM

Strand-Mounted, Dual-Band 802.11n Smart Wi-Fi AP

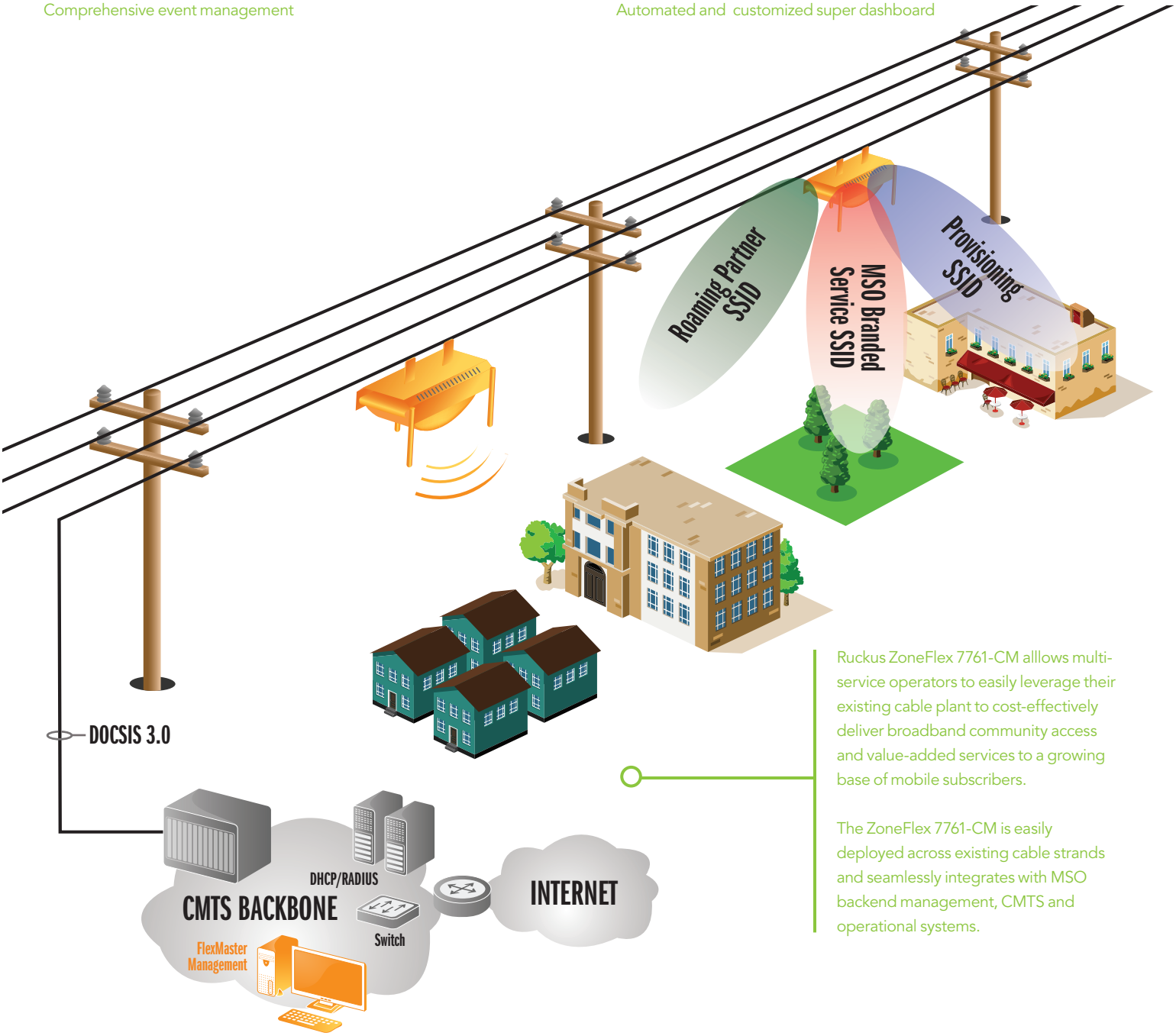
ZoneFlex 7761-CM detailed planning and troubleshooting with FlexMaster



Comprehensive event management



Automated and customized super dashboard



Ruckus ZoneFlex 7761-CM alllows multi-service operators to easily leverage their existing cable plant to cost-effectively deliver broadband community access and value-added services to a growing base of mobile subscribers.

The ZoneFlex 7761-CM is easily deployed across existing cable strands and seamlessly integrates with MSO backend management, CMTS and operational systems.

Specifications

PHYSICAL CHARACTERISTICS

POWER	• Power by Cable Infrastructure (40-90 V) • 40 to 90V AC quasi-square wave, 47 to 63 Hz through common 5/8" hardline connector
POWER DRAW	• 12V DC option • 10W standby mode • 25W (with Heater and PoE output Disabled) • 60W (with Heater and PoE output Enabled)
PHYSICAL SIZE	• 17" (432mm) L x 14" (356mm) W x 12" (305 mm) H
WEIGHT	• 17 lbs (7.7 Kg)
ANTENNA	• 2.4 GHz – Internal antenna array with directional and omni high-gain elements that provide over 4,000 unique antenna patterns • 5 GHz – three (3) external antennas 5dBi
ETHERNET PORTS	• 1 port, auto MDX, auto-sensing RJ45 • 10/100 Mbps Power over Ethernet (802.3af) output
ENVIRONMENTAL CONDITIONS	• IP-67 rated • Operating air temperature: -40°C – 65° C (-40°F – 149°F) Shock and vibration: ETSI300-019-1-4
PROTECTION	• IEC 60000-4-5

CABLE MODEM SPECIFICATIONS

STANDARD	• DOCSIS 3.0 with 8 x 4 bonded channels • Euro-DOCSIS 3.0 (optional)
CABLE MODEM THROUGHPUT	• Up to 320 Mbps (theoretical)
PROTECTION CIRCUITS	• IEEE C62, 41-1991 • GR1089 – 6 kV (3000 A) surge

PERFORMANCE AND SUPPORTED CONFIGURATIONS

CONCURRENT STATIONS	• Up to 100/radio (200/AP)
TARGET UDP THROUGHPUT	• Up to 50 Mbps sustained throughput over 500 feet to client devices

TRAFFIC MANAGEMENT AND QUALITY OF SERVICE

CLASSES OF SERVICE	• Voice, video, best effort and background
SOFTWARE QUEUES	• Four per station
802.11e	• Supported
AUTOMATIC TRAFFIC CLASSIFICATION	• Automatic type of service tagging for multicast video packets
RATE LIMITING	• Supported
VLAN SUPPORT	• 802.1Q
HEURISTIC CLASSIFICATION	• Supported

MANAGEMENT

CONFIGURATION	• Web user interface, CLI (Telnet), SSH HTTP/S, SNMP statistics interface
STATISTICS	• LAN, wireless and associated stations (accessible via Web UI)
AUTO AP SOFTWARE UPDATES	• FTP or TFTP, remote auto available
MANAGEMENT	• FlexMaster or individually managed • SNMP v3

WI-FI

STANDARDS	• IEEE 802.11a/b/g/n • 2.4GHz and 5GHz concurrent operation
SUPPORTED DATA RATES	• 802.11n: 6.5Mbps – 130Mbps (20MHz) 6.5Mbps – 270Mbps (40MHz) • 802.11a: 54, 48, 36, 24, 18, 12, 9 and 6 Mbps • 802.11b: 11, 5.5, 2 and 1 Mbps • 802.11g: 54, 48, 36, 24, 18, 12, 9 and 6 Mbps
RADIO CHAINS	• 3 x 3
SPATIAL STREAMS	• 2
RF POWER OUTPUT	• 27 dBm/500 mW
CHANNELIZATION	• 20 MHz and/or 40 MHz
FREQUENCY BAND	• IEEE 802.11n: 2.4 – 2.484 GHz and 5.15 – 5.85 GHz • IEEE 802.11a: 5.15 – 5.85 GHz • IEEE 802.11b: 2.4 – 2.484 GHz
OPERATING CHANNELS	• 2.4 GHz channels: US/Canada: 1-11, Europe (ETSI X30): 1-13 • 5 GHz channels: Country dependent for the following channel ranges: 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165
BSSID	• Up to eight per radio (16 total)
POWER SAVE	• Supported for client
WIRELESS SECURITY	• WEP, WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, 802.1x
CERTIFICATIONS	• U.S. (in process) • WEEE/RoHS compliance • Wi-Fi Alliance Certification (Wi-Fi Certified™) (in process) • DOCSIS 3.0 certification (in progress)

Product Ordering Information

Model	Description
ZoneFlex 7761-CM Dual Band 802.11n Outdoor Access Point	
901-7761-USCM	Centrally managed concurrent dual band 802.11n outdoor access point with cable modem

Ruckus Wireless, Inc.
880 West Maude Avenue, Suite 101, Sunnyvale, CA 94085 USA (650) 265-4200 Ph \ (408) 738-2065 Fx

Ruckus™ WIRELESS

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