



SpiderCloud® Radio Node SCRN-200



High Performance 3G Small Cell

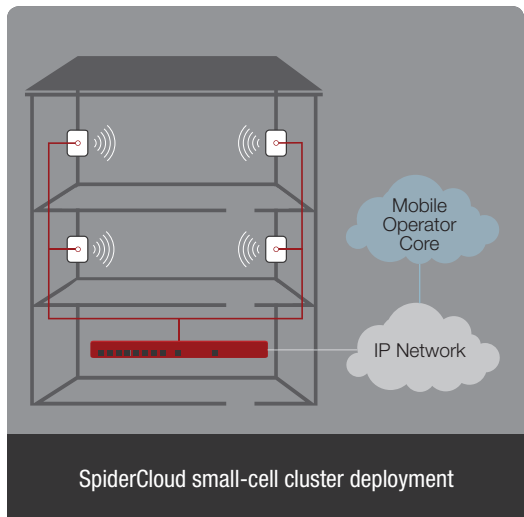
The SpiderCloud Radio Node is a high-performance, 3G small cell specially designed for large in-building deployments.

Each radio node supports 16 simultaneous 3G voice or data channels, a peak downlink rate of 14.4 Mb/s and a peak uplink rate of 5.7 Mb/s. Radio nodes support optional software upgrade to HSPA+ speeds and additional dedicated channels. SpiderCloud develops its own PHY/MAC software, which enables it to implement receive diversity for superior uplink performance, and implement soft handovers.

To support the self-organizing capabilities of the small-cell cluster, SpiderCloud Radio Nodes have advanced “network listen” capabilities. Radio nodes are able to listen to other radio nodes, as well as to 2G and 3G macrocells. Scans are done at startup and, later, periodically.

Security has been a major consideration in the radio node’s design. All communication between a radio node and the SpiderCloud Services Node occurs through an IPSec tunnel. Encryption keys and device certificates are securely stored using on-chip Trusted Platform Module (TPM) functions, allowing support for a secure boot process, and certificate-based authentication. There is no management or console port on the radio node and the radio node can be physically locked to prevent theft.

SpiderCloud Radio Nodes can be installed on walls or ceilings. Both network connectivity and power are provided over Ethernet. The radio node has no fans and is completely convection cooled. Antennas are built-in with an option to use external antennas as required



SpiderCloud small-cell cluster deployment

Radio Node Capabilities

- Custom MAC / PHY software that supports soft handover and receive diversity
- 16 active voice and data subscribers per cell, upgradable to higher capacity
- 14.4 Mb/s peak downlink, 5.7 Mb/s peak uplink, upgradable to HSPA+
- Internal antennas with option for external
- Compatible with Ethernet switching infrastructure
- Power-over-Ethernet
- Wall and ceiling mountable, plenum-rated
- Ease of physical installation on-par with enterprise Wi-Fi access points
- Certificate-based authentication with SpiderCloud Services Node



Performance	• 16 simultaneous voice and data users • Peak rates: 14.4 Mb/s DL & 5.7 Mb/s UL
Frequency Bands	• UMTS Band I (UL:1920-1980 MHz & DL:2110-2170 MHz) with GSM 900/1800 monitor • UMTS Band II (UL:1850-1910 MHz & DL:1930-1990 MHz) with GSM 850/1900 monitor • UMTS Band IV (UL:1710-1755 MHz & DL:2110-2155 MHz) with GSM 850/1900 monitor
Radio and Antennas	• Transmit power: 100 mW (20 dBm) • Receive diversity • Two internal omni-directional antennas • Antenna gain: 2 dBi • Option for external antennas (TNC connectors)
RF Management	• UMTS network monitor (inter- and intra-frequency neighbor cell detection) • GSM network monitor • Auto detection of primary scrambling codes
Mobility Management	• Inter small-cell soft handover • Handover from small-cell cluster to macrocell (inter-RAT, inter-frequency)
Timing and Synchronization	• IEEE 1588v2 compliant (PTP) • Real-time synchronization to services node
RAB Support	• CS: 12.2 Kb/s AMR, half-rate AMR • R99 PS: 64 Kb/s, 384 Kb/s • HSPA: Rel 6, all categories • Multi-RAB: 1 x CS, up to 3 x PS
Security	• Trusted Platform Module (TPM) • Secure boot and secure key storage • IPSec tunneling to services node • X.509 certificate-based authentication

Network Management	• Auto provisioning • Centrally configured and managed through services node • TR-196 based data model
Enterprise Installation	• Mounting hardware included • Padlock option • Ceiling or wall mount • Plenum-rated • Power-over-Ethernet: compatible with 802.3af and 802.3at • Power consumption: 12 W (max)
LED Indicator	• 1 x tri-color LED (RGB) • Status indications: boot, normal, disabled, fault, emergency call, radio node tracking
Physical and Environmental	• Dimensions: 238 x 190 x 49 mm (9.4 x 7.5 x 1.9 in) • Weight: 0.91 Kg (2 lbs) • 1 x 10/100 Mb/s Ethernet interface (RJ45) • Operating temperature: - 0 to 50°C (vertically mounted) - 0 to 40°C (horizontally mounted) • Storage temperature: 0 to 85°C • Operating humidity: 0 to 90% non condensing • Storage humidity: 0 to 90% non condensing • Ingress protection rating: 30
Regulatory Compliance	• Safety: EN 60950, CB certification (IEC 60950) • EMI Directive 1999/5/EC on R&TTE: - EN 50385 - EN 301 489-1 and 301 489-23 - EN 301 908-1 and 301 908-3 • FCC Part 15, Class A • FCC Part 24 (UMTS Band II) • FCC Part 27 (UMTS Band IV) • Industry Canada: RSS-133, RSS-139, ICES-003 (Class A) • Materials: Directive 2002/95/EC on RoHS • General: CE and NRTL marking