Corning SpiderCloud SCRN-310 Radio Node for Enterprise Radio Access Network (E-RAN)

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Features and Benefits

Supported service	Multiaccess small cell supporting concurrent UMTS and LTE operation
Supported bands/channels	Available in multiple FDD band combinations
UMTS capacity	32 UMTS channels
LTE capacity	64 active LTE users and up to 128 LTE RRC connections
UMTS performance	21/5 Mbps peak DL/UL UMTS throughput
LTE performance	150/50 Mbps peak DL/UL LTE throughput
Fronthaul network	Deployable over new or existing ethernet switching infrastructure
Power source	Power-over-Ethernet (PoE+)
Installation	Wall and ceiling mountable
Authentication	Certificate-based authentication with SpiderCloud services node

High-performance multiaccess 3G and 4G small cell for scalable indoor and venue deployments

The SCRN-310 is an integrated multiaccess UMTS and LTE small cell with self-organizing networks (SON) capability.

As the demand for mobile broadband accelerates, mobile network operators need to efficiently utilize both UMTS and LTE technologies, without creating new network complexity. The SpiderCloud® scalable small-cell system, called an enterprise radio access network (E-RAN), hides the complexity of radio management and mobility and provides operators with a single touchpoint to aggregate and manage a large network of UMTS, LTE, and multiaccess (UMTS and LTE) small cells.
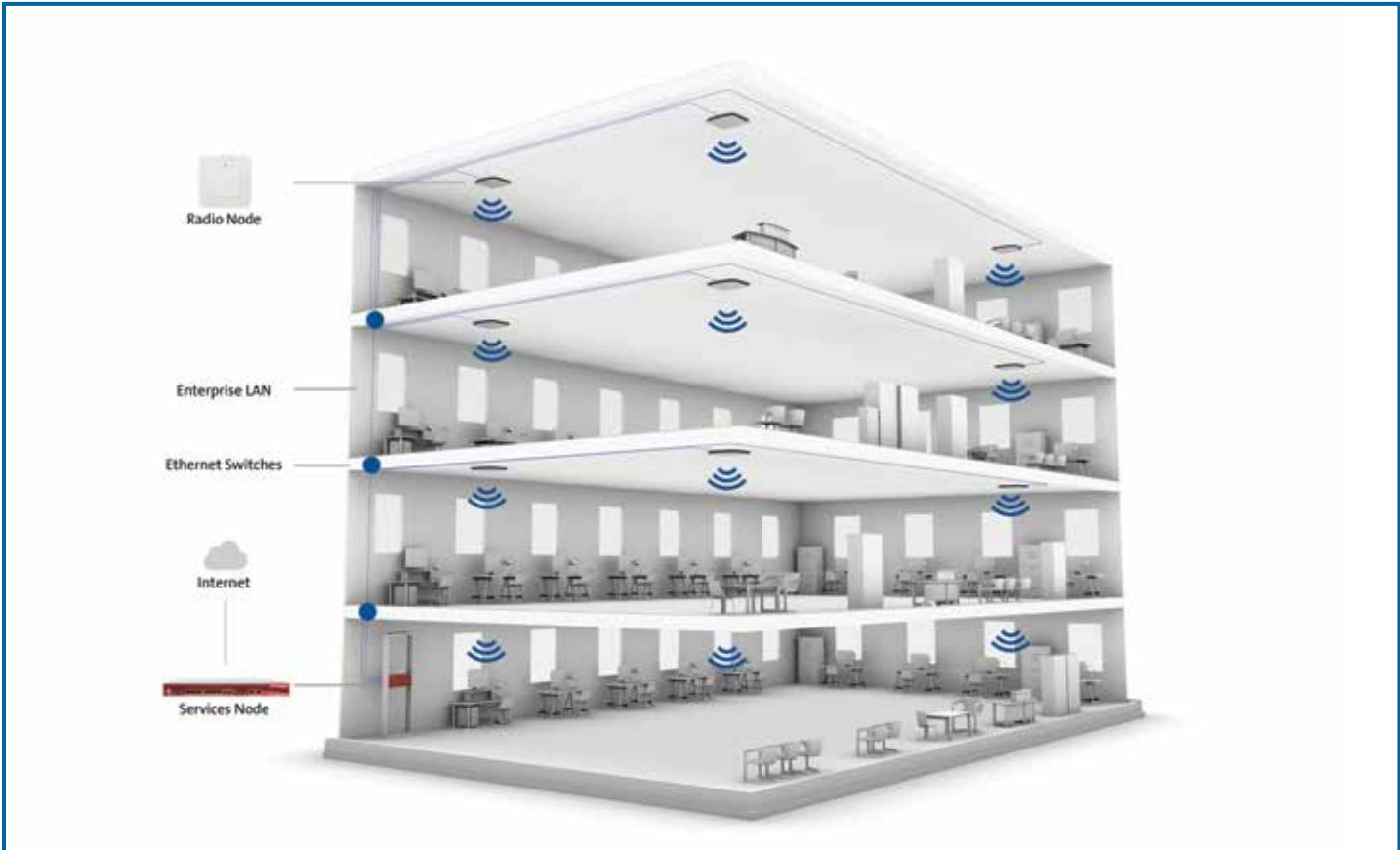

SCRN-310 | Figure 1

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Functional Overview

UMTS Radio	Each SCRN-310 supports up to 32 simultaneous UMTS voice and data channels; a peak downlink rate of 21 Mbps and a peak uplink rate of 5 Mbps. SpiderCloud implements receive diversity for superior uplink performance and implements soft handovers.
LTE Radio	Each SCRN-310 supports up to 64 active LTE users and 128 RRC connections per band. When used with 20 MHz channel bandwidth, it supports a peak downlink rate of 150 Mbps and a peak uplink rate of 50 Mbps. Both SCRN-310 bands can be used for LTE operation, and for carrier aggregation.
Self-Organizing Networks	The radio node implements self-organizing networks (SON) capability by listening to other radio nodes within the E-RAN and neighboring LTE, UMTS, and GSM macrocells in multiple frequency bands, and performing continuous self-optimization to provide high-quality radio coverage and mobility.
Easy to Install	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 for both UMTS and LTE with an orderable option for four SMA connectors for use with external antennas.
Secure	SCRN-310 utilizes on-chip trusted platform module (TPM) functions to implement secure boot and establish certificate-based IPsec tunnel to SpiderCloud services node for all UMTS and LTE traffic. There is no management or console port on the radio node, and the radio node can be physically locked to prevent theft.

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Radio Node

Enterprise LAN

Ethernet Switches

Internet

Services Node

Building Diagram | Figure 2

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System Specifications

Security	Secure boot and secure key storage using trusted platform module (TPM) functions
	IPsec tunneling to services node
	X.509 certificate-based authentication
Timing and Synchronization	IEEE 1588v2-based (PTP) synchronization to services node
	Cellular network listen for phase synchronization to LTE macro eNodeBs

UMTS Radio Specifications

Performance	Up to 32 simultaneous voice and data channels
	Peak rates: 21 Mbps DL, 5 Mbps UL
Radio Antenna	Peak transmit power: 1 x 250 mW (24 dBm)
	Receive diversity
RF Management	UMTS and GSM network monitor
	Inter- and intra-frequency neighbor cell detection
	Auto detection of primary scrambling codes
Mobility	Inter small-cell soft handover
	Handover from small-cell to/from macro (inter-RAT, inter-frequency)
RAB Support	CS: 12.2 kbps AMR, WB-AMR
	R99 PS: 64 kbps, 384 kbps
	HSPA+: Rel 7, all categories
	Multi-RAB: 1 X CS, up to 3 X PS
Ciphering	3G KASUMI

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LTE Radio Specifications

Performance	Peak rates: 150 Mbps DL, 50 Mbps UL (with 20 MHz)
	64 active users
	128 RRC_connections
Radio	Channel sizes: 3, 5, 10, 15, 20 MHz
	2 x 2 MIMO
	Maximum transmit power: 2 x 125 mW (24 dBm)
RF Management	LTE, UMTS, and GSM network monitor
	Inter- and intra-frequency neighbor cell detection
	Auto detection of physical cell identities (PCI)
	Automatic neighbor relation (ANR) management
Mobility	Inter radio node handover anchored at services node
	Handover to/from macro (inter-frequency, intra-frequency)
	CSFB to GSM, CDMA, or UMTS
	SRVCC to UMTS or GSM
Ciphering	SNOW 3G and AES air interface encryption
Voice Services	VoLTE
	Circuit-switched fallback
QoS Features	Support for all LTE QoS class identifiers (QCIs) (1-9)
	Four data radio bearers (DRB) per UE
	Guaranteed bit rate (GBR)
	Maximum bit rate (MBR)
	Aggregate maximum bit rate (AMBR)

Physical Specifications

Enterprise Installation	Wall and ceiling mountable
	Mounting hardware included
	Padlock option
	Power-over-Ethernet: 802.3 at maximum power consumption: 30 W
LED Indication	1 x tri-color LED (RGB)
	Status indications: boot, normal, disabled, fault, emergency call, radio node tracking
Antenna Options	Four internal antennas (gain 2 dBi each)
	Option for four antenna connectors (SMA straight) for use with external antennas. Orderable as separate SKU.
Physical and Environmental	Dimensions: 239 x 206 x 53 mm (9.4 x 8.1 x 2.1 in)
	Weight: 1.37 kg (3.0 lbs)
	1 x 100/1000 Mbps Ethernet (RJ45)
	Operating temperature: 0 to 50°C (vertically mounted)
	Operating temperature: 0 to 40°C (horizontally mounted)
	Storage temperature: 0 to 85°C
	Operating humidity: 0 to 90% noncondensing
	Storage humidity: 0 to 90% noncondensing
	Ingress protection rating: IP30

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Regulatory Compliance and Certification

Certifications	Safety EN 60950, CB certification (IEC 60950, UL 60950-1, CAN/CSA-C22.2 No.60950-1)
	R&TTE Directive 1999/5/EC:
	EN 301 489-1, 301 489-23
	EN 301 908-1, 301 908-3, 301 908-14
	EN 50385 and EN 62311 (SAR)
	FCC Part 15, Class A
	Industry Canada: ICES-003 (Class A)
	Materials: Directive 2011/65/EU on RoHS
	General CE and NRTL marking
	FCC Part 24 (Band 2) and Part 27 (Band 4)
	Industry Canada: RSS-133, RSS-139
	IFETEL Mexico
	Anatel Brazil

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Ordering Information | MxU Assembly Configurations

Part Number	Description
SCRN-310-04L2	Operates in Band 4 (LTE) and Band 2 (UMTS or LTE) Monitors LTE B2/B4, UMTS B2/B4/B5, GSM 850/1900
SCRN-310-04L2-E	Same as SCRN-310-04L2 with four SMA antenna connectors
SCRN-310-0205	Operates in Band 2 (LTE) and Band 5 (UMTS or LTE) Monitors LTE B2/B4/B5, UMTS B2/B5, GSM 850/1900
SCRN-310-0205-E	Same as SCRN-310-0205 with four SMA antenna connectors
SCRN-310-0701	Operates in Band 7 (LTE) and Band 1 (UMTS or LTE) Monitors LTE B3/B7/B20, UMTS B1/B8, GSM 900/1800
SCRN-310-0701-E	Same as SCRN-310-0701 with four SMA antenna connectors
SCRN-310-0703	Operates in Band 7 (LTE) and Band 3 (LTE) Monitors LTE B3/B7/B20, UMTS B1/B8, GSM 900/1800
SCRN-310-0703-E	Same as SCRN-310-0703 with four SMA antenna connectors
SCRN-310-0301	Operates in Band 3 (LTE) and Band 1 (UMTS or LTE) Monitors LTE B3/B7/B20, UMTS B1/B8, GSM 900/1800
SCRN-310-0301-E	Same as SCRN-310-0301 with four SMA antenna connectors
SCRN-310-0702	Operates in Band 7 (LTE) and Band 2 (UMTS) Monitors LTE B7, UMTS B2/B5, GSM 850/1900
SCRN-310-0702-E	Same as SCRN-310-0702 with four SMA antenna connectors
SCRN-310-0413-2XL	Operates in Band 4 (LTE) and Band 13 (LTE) Monitors LTE B4/B13
SCRN-310-0413-E-2XL	Same as SCRN-310-0413-2XL with four SMA antenna connectors

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Notes:

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