Corning SpiderCloud SCRN-320 Radio Node for Enterprise Radio Access Network (E-RAN)

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Features and Benefits

Supported service	LTE-LAA capable small cell
LTE capacity	128 active LTE users
LTE performance	400/50 Mbps peak DL/UL LTE throughput (with 20 MHz licensed channel)
Fronthaul network	Deployable over existing Ethernet switching infrastructure (VLAN)
Power source	Power-over-Ethernet (PoE+)
Installation	Wall and ceiling mountable
Authentication	Certificate-based authentication with SpiderCloud services node

High-performance LTE-LAA small cell for scalable indoor and venue deployments

The SCRN-320 is an LTE-LAA capable small cell that operates in a licensed LTE frequency carrier, aggregated with license-exempt 5 GHz spectrum, to deliver higher capacity and enhanced user experience without the need for new network elements or 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 small cells. The SCRN-320 builds upon the LTE-advanced functionalities of the E-RAN system and leverages CA and self-organizing networks (SON) capabilities to support LTE-LAA operation.
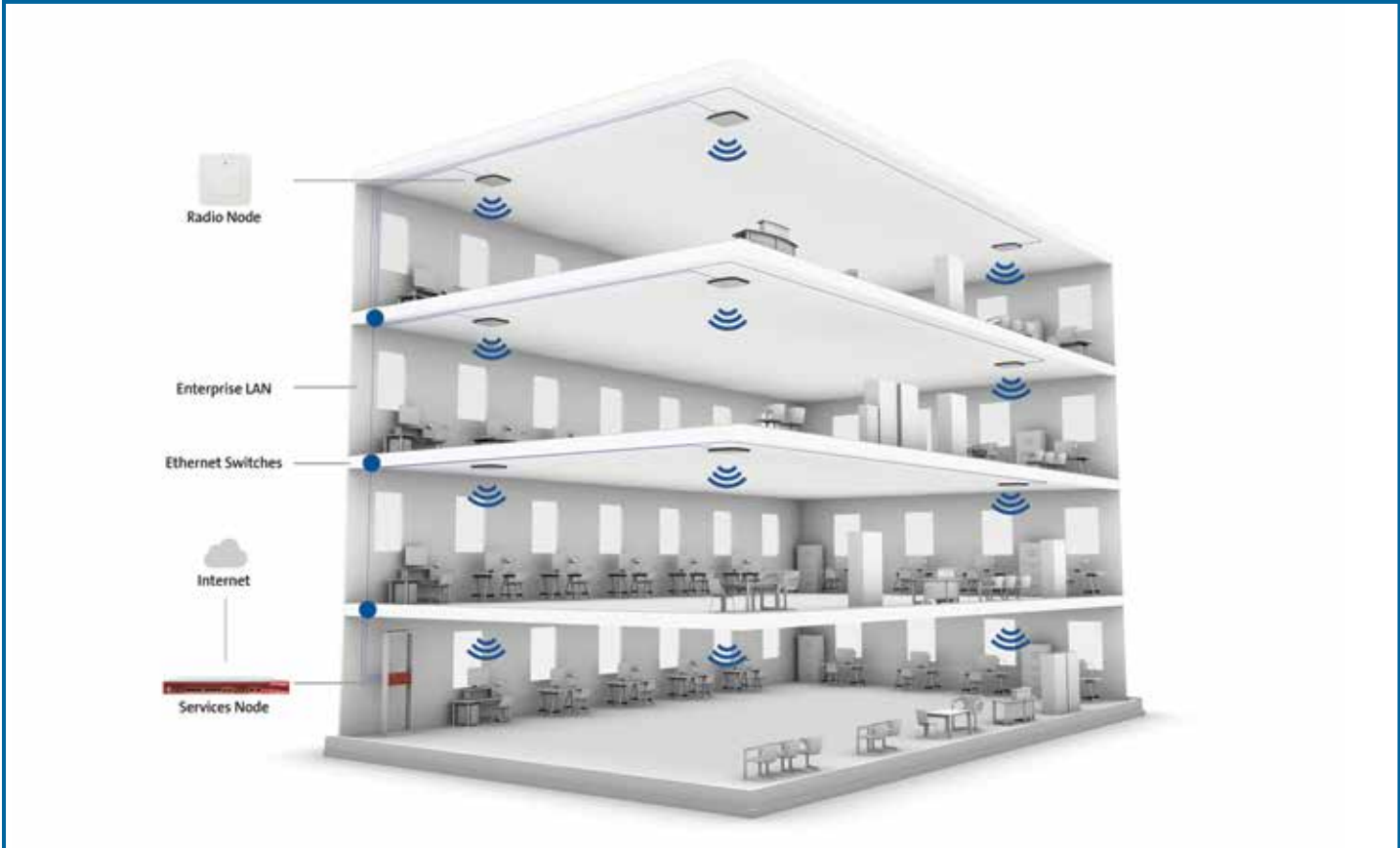

SCRN-320 | Figure 1

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Functional Overview

Radio Capabilities	Each SCRN-320 radio node supports a licensed LTE carrier paired with a supplemental downlink (SDL) 5 GHz carrier operating in UNII-1 (5150-5250 MHz) or UNII-3 (5725-5850 MHz) bands. Both licensed and unlicensed radios support 2x2 MIMO operation, enabling higher-user capacity and average data rates per radio node coverage footprint. When two unlicensed 20 MHz channels are paired with a licensed 20 MHz LTE channel, each SCRN-320 supports a peak downlink rate of 400 Mbps and a peak uplink rate of 50 Mbps.
Self-Organizing Networks	SpiderCloud radio nodes implement SON capability by listening to other radio nodes within the E-RAN and neighboring macro cells in multiple frequency bands, and performing continuous self-optimization to provide high-quality radio coverage and mobility. The SCRN-320 includes Wi-Fi baseband and RF chipset to support coexistence with other Wi-Fi systems or LTE-LAA devices.
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 LTE bands, with an orderable option for QMA connectors for use with external antennas.
Secure	SCRN-320 utilizes on-chip trusted platform module (TPM) functions to implement secure boot, and establish certificate-based IPsec tunnel to SpiderCloud services node for all LTE traffic. There is no management or console port on the radio node, and the radio node can be physically locked to prevent theft.

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
Ciphering	SNOW 3G and AES air interface encryption

Radio Specifications

Performance	Peak rates: 400/50 Mbps DL/UL (with 20 MHz)
	128 active users
	128 RRC_connected users
Licensed Radio	Multiple-band class options (see product SKUs)
	Channel sizes: 5, 10, 15, 20 MHz
	2 x 2 MIMO
	Maximum transmit power: 2 x 250 mW (27 dBm)
Unlicensed Radio	Band class 252 (UNII-1) or 255 (UNII-3)
	Channel size: 20 MHz
	2 x 2 MIMO
	Maximum transmit power: 2 x 400 mW (29 dBm)
Mobility	Inter radio node handover anchored at the services node
	Inter-frequency S1 handover to/from macro
	Intra-frequency S1 handover to/from macro
	Dual-band idle-mode UE load balancing

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Radio Specifications (cont.)

RF Management	LTE network listen
	Wi-Fi network listen
	Inter- and intra-frequency neighbor cell detection
	Auto assignment of physical cell identities (PCI)
	Automatic neighbor relation (ANR) management
QoS Features	Support for all LTE QCIs
	Guaranteed bit rate (GBR)
	Maximum bit rate (MBR)
	Aggregate maximum bit rate (AMBR)
Voice Services	VoLTE
	Eight data radio bearers (DRB) per UE

Physical Specifications

Enterprise Installation	Wall and ceiling mountable
	Mounting hardware included
	Padlock option
	Power-over-Ethernet: 802.3at
	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 Tx/Rx antennas (peak gain 5 dBi)
	One internal network listen antenna
	Option for four antenna connectors (QMA straight) for use with external antennas. Orderable as separate SKU.
Physical and Environmental	Dimensions: 183 x 183 x 36 mm (7.2 x 7.2 x 1.4 in)
	Weight: 1.23 kg (2.7 lbs)
	1 x 1000 Mbps Ethernet (RJ45)
	Operating temperature: 0 to 40°C
	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)

FCC Part 15, Class A

FCC Part 24 and 27

Materials: Directive 2011/65/EU on RoHS

General CE and NRTL marking

RF: EN:301 908-3 V11.1.3/-14 V11.2, EN301 893 V2.1.1

EMC: EN 301 489-1 V2.11, EN 301 489-50 V2.2.1

SAR: EN50360-2001/A1:2012

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Ordering Information

Part Number	Description
SCRN-320-0446	Licensed Band 4 (66) LTE Unlicensed Band 252 (5150-5250 MHz) or 255 (5725-5850 MHz) Monitors LTE 700/1900/2100 MHz and 5 GHz
SCRN-320-0246	Licensed Band 2 (25) LTE Unlicensed Band 252 (5150-5250 MHz) or 255 (5725-5850 MHz) Monitors LTE 700/1900/2100 MHz and 5 GHz
SCRN-320-0746	Licensed Band 7 LTE Unlicensed Band 252 (5150-5250 MHz) or 255 (5725-5850 MHz) Monitors LTE 2600/1800/2100 MHz and 5 GHz
SCRN-320-0246-EQ	SCRN-320-0246 with QMA connectors for external antennas.
SCRN-320-0446-EQ	SCRN-320-0446 with QMA connectors for external antennas.
SCRN-320-0746-EQ	SCRN-320-0746 with QMA connectors for external antennas.

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Notes:

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