CORNING

E-RAN Introduction
Capabilities, Technology, and Deployment

Simple Installation. Quick Deployment. Unmatched Capabilities.

Reliable wireless coverage has evolved from a want to a need for most governments, enterprises, and venues, with service demands increasing every day. Now, the connectivity needs of employees, contractors, guests, and first responders in buildings of all sizes can be cost-efficiently addressed.

The Corning® SpiderCloud® enterprise radio access network (E-RAN), with a broad family of radios, flexible deployment topology, and IP/Ethernet transport, is the key to servicing more locations than ever before. The radio nodes enable unprecedented cellular coverage and capacity through secure IP/IPSec data connections over readily available Ethernet and internet services.

Optimize your network. Learn more about the Corning SpiderCloud solution.

What is an enterprise radio access network (E-RAN)?

An E-RAN system is made up of one services node that manages a group of radio nodes (access points) that are attached to it. All of the radio nodes are powered by Ethernet, which makes them quick and easy to install.

How does E-RAN work?

- PoE+-powered radio nodes install on ceiling or wall

- Radio nodes connect to services node over Ethernet LAN and internet

- Services node connects to operator network over internet

- Reliable cellular coverage and capacity inside buildings

E-RAN Platform

An E-RAN system is made up of one rack-unit-sized services node that manages multiple single-carrier or dual-carrier radio nodes operating in 3G, LTE, and unlicensed spectrum.

Services Node

The services node lies at the heart of the SpiderCloud® E-RAN solution. It ensures that the E-RAN system is easy to deploy and manage and that it delivers the performance mobile operators expect. The services node is access technology agnostic, supporting UMTS, LTE, and LTE-LAA. It orchestrates the self-organizing network (SON) process, controls the operation of different radio nodes during neighbor discovery, gathers information from different radio nodes, and creates optimized neighbor lists based on information received from the neighbor scans.

SON capabilities include:
- Discovering the macro cells in the area along with the internal small cell and Wi-Fi topology.
- Assigning UMTS primary scrambling codes, LTE physical cell identifier, and LAA unlicensed channels.
- Setting maximum transmit power levels.
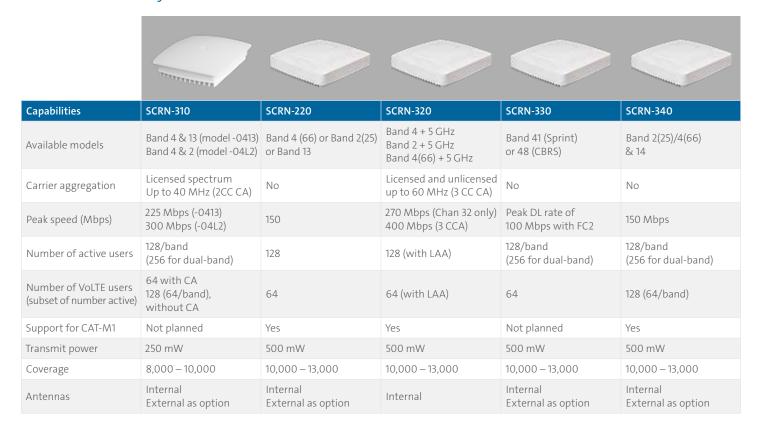- Automatically configuring cell neighbor lists to make the system operational.

Radio Nodes

Like Wi-Fi access points, radio nodes are small with low profiles. An E-RAN platform offers a wide range of radio nodes for many different applications and mobile operator configurations. All models are powered by PoE+ (802.11at) Ethernet switch ports.

Installation is quick and easy using commonly available PoE+.
1. Pull a structured cable (CAT 5e or greater).
2. Attach the radio to wall or ceiling.
3. Connect Ethernet patch cords at both ends.

Radio Node Family

Capabilities	SCRN-310	SCRN-220	SCRN-320	SCRN-330	SCRN-340
Available models	Band 4 & 13 (model -0413) Band 4 & 2 (model -04L2)	Band 4 (66) or Band 2(25) or Band 13	Band 4 + 5 GHz Band 2 + 5 GHz Band 4(66) + 5 GHz	Band 41 (Sprint) or 48 (CBRS)	Band 2(25)/4(66) & 14
Carrier aggregation	Licensed spectrum Up to 40 MHz (2CC CA)	No	Licensed and unlicensed up to 60 MHz (3 CC CA)	No	No
Peak speed (Mbps)	225 Mbps (-0413) 300 Mbps (-04L2)	150	270 Mbps (Chan 32 only) 400 Mbps (3 CCA)	Peak DL rate of 100 Mbps with FC2	150 Mbps
Number of active users	128/band (256 for dual-band)	128	128 (with LAA)	128/band (256 for dual-band)	128/band (256 for dual-band)
Number of VoLTE users (subset of number active)	64 with CA 128 (64/band), without CA	64	64 (with LAA)	64	128 (64/band)
Support for CAT-M1	Not planned	Yes	Yes	Not planned	Yes
Transmit power	250 mW	500 mW	500 mW	500 mW	500 mW
Coverage	8,000 – 10,000	10,000 – 13,000	10,000 – 13,000	10,000 – 13,000	10,000 – 13,000
Antennas	Internal External as option	Internal External as option	Internal	Internal External as option	Internal External as option

Deployment Process

Corning Enterprise Services offers systems integrators full facilitation for E-RAN installations. Our well-documented, structured, repeatable processes can make installations faster and easier.

Typical small cell deployment

Site Walk ▸ Site Design and Approval ▸ Site Installation ▸ Commissioning ▸ In-Service

DAS headend deployment

RF Design and Approval ▸ Headend Installation ▸ Commissioning ▸ In-Service

Where is the services node hosted?
The services node is hosted in a local data center or telecom equipment room. It requires two Ethernet ports for internet backhaul to the core network and fronthaul to the radio nodes.

Is there a minimum number of radio nodes required in a building?
As few as one radio node can be deployed for a small public or commercial space. Generally, about one radio node per 12,000 square feet is recommended. For a typical small cell deployment, iBwave predictive designs based on a site walk should be done to determine final radio node quantities.

Should all the radio nodes in an E-RAN system be the same model?
No. Any radio node that has been qualified for an operator's network can be mixed and matched in an E-RAN system. For example, E-RAN can manage RN-310 (dual carrier LTE), RN-220 (frequency agile LTE), RN-320 (LTE-LAA), and RN-340 (dual carrier LTE, including FirstNet) radio nodes across multiple buildings.

Have more questions? Visit **corning.com/eran** today.

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