

Apex™ Strand Small Cell RAN Solution- Coverage / Capacity

LTE-FDD, LTE-TDD, CBRS, DOCSIS & PON



Casa Systems' end-to-end small cell solution is designed to address coverage and capacity needs for today's mobile subscribers and use cases. Casa's Apex Radio Access Network (RAN) solutions include a range of small cells: Lifestyle, Enterprise, Strand and Micro small cells - to meet service providers' many different requirements.

The Apex Strand takes advantage of existing cable strand to cost-effectively support two LTE carriers. Several LTE-FDD and LTE-TDD licensed bands as well as 3.5GHz CBRS bands are supported.

Both Mobile Service Providers and MSOs can take advantage of the Apex Strand. The solution helps solve the powering, backhaul and site issues that have plagued large scale, small cell deployments for many years. By using the cable strand, small cell backhaul can be supported with DOCSIS or PON while power is provided by the Hybrid Fiber Coax (HFC) plant.

To develop the Apex Strand, Casa leveraged its experience developing, testing and deploying strand mounted Distributed Access Architecture (DAA) nodes for MSOs. As a leader in the cable broadband market, Casa's DOCSIS knowledge, experience with cable strand and Outside Plant Equipment deployments, provide a significant technology advantage.

Casa's Apex Strand can be supported by the incumbent EPC, however Casa can also provide an overlay virtualized small cell core, including HeNB and security gateways which provide the scale, intelligence, and deployment flexibility needed for small cell growth.

Highlights

- Strand mount picocell supporting licensed and CBRS band technologies in a rugged, carrier-grade solution
- 2W transmit power per LTE Carrier - Classified as a Microcell
- 2 LTE Carriers
- HFC plant powering
- Flexible transport options: DOCSIS 3.0, DOCSIS 3.1 & PON
- Smart plug-and-play installation
- Seamless mobility with the macro network
- SON: hybrid SON support with dSON and cSON; SON macro integration
- Intelligent traffic management with E2E QoS support

Technical Specifications

GENERAL	
Antennas	2 integrated directional panel antennas or 1 omni directional antenna per LTE carrier
Max TX Power	33 dBm (2 streams @ 30 dBm), 2W per LTE Carrier
EIRP (per sector)	20W
RF Ports	4 (Tx & Rx), 1 RF Sniffer Port, 1 GPS Port and 2 external antenna ports
Synchronization	GPS, IEEE 1588v2 timing
Power Source	HFC Power 42-90 VAC Quasi Sine 50-60 Hz
Backhaul Options	DOCSIS 3.0, DOCSIS 3.1 and PON
PHYSICAL AND ENVIRONMENTAL	
Operational Temperature	-40°C to 60°C, Humidity <95% non condensing
Protection	IP67
Dimensions	20 x 8 x 8 inches (LXHXD), 508 x 203 x 203 mm
Weight	10 Kg
Nominal Power Consumption (W)	45W @ 2x2W operation
ANTENNA	
Antenna Gain	10 dBi for integrated directional panel antennas, 6 dBi for omni antenna
Radiation Panel Azimuth	Directive panel antenna - different antenna specs may be supported upon request
Beamwidth Elevation	70 degrees (integrated directional panel antennas)
Beamwidth LTE	35 degrees (integrated directional panel antennas)
FREQUENCY BANDS	
	1, 3, 4, 7, 13, 38, 41, 42, 48, 66 and 71- additional bands and band combinations upon request
CAPACITY	
LTE Carriers	2 Carriers
MIMO Configuration	2x2 MIMO DL, UL Rx diversity (2Tx / 2Rx)
Throughput DL / UL Max. for TDD	240 / 30 Mbps with CA enabled
Throughput DL / UL Max for FDD	300 / 75 Mbps (64 QAM modulation), 400 /75 Mbps (256 QAM modulation) FDD mode with CA enabled
Max Users	Max. scheduled users / TTI: 16; max RRC connected users: 128 - 256
Users Dual Cell Mode Carrier	Supported
Aggregation Mode Counters and Alarms	Supported Over 500 performance counters; over 50 alarms
RADIO ACCESS TECHNOLOGY	
	R13

Technical Specifications

<p>Axyom Small Cell Manager</p>	<p>OAM&P</p> <ul style="list-style-type: none"> • H(e)MS small cell management system functions (3GPP TS 32.592 and TS 32.593) • TR-069 Auto-Configuration Server (with TR-196 and TR-181 Data Model Support) • KPI Management standard KPI definition (TS 32.453), custom KPI definition support • Fault Management 3GPP TS 32.111-2 Alarms (IRP/IS) • Syslog Server • X2 Gateway <p>SON</p> <p>Self-optimization</p> <ul style="list-style-type: none"> • Mobility load balancing (MLB) • Mobility robustness optimization (MRO) • Capacity and coverage optimization (CCO) • RACH organization • Energy saving <p>Self-healing</p> <ul style="list-style-type: none"> • Automatic cell outage detection • Software recovery <p>Self-configuration</p> <ul style="list-style-type: none"> • Automatic Neighbor Relation (ARO) • Physical Cell Identity (PCI) autoconfiguration • Radio Environment Management (REM) • S1/X2 autoconfiguration • RACH channel self-configuration • Channel Selection • Transmission Power Management • Optical Cluster Configuration
<p>Supported Services</p>	<p>Supported services include:</p> <ul style="list-style-type: none"> • LIPA: Local IP Access with a Local GW included in the eNB subsystem supported for providing edge & local offloading • SON: Hybrid SON support with dSON and cSON; dSON agent can work with or without cSON and supports using a real-time interface through X2 or TR-069; SON macro integration supported through X2-GW, X2-Proxy or direct connection • TR-069: TR-069 agent supports TR-196v2 and TR-181 data models