

Apex™ Enterprise Small Cell

RAN Solution - Coverage & Capacity

LTE-FDD, LTE-TDD, CBRS



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, and Strand small cells - to meet service providers' many different deployment requirements.

Casa's Apex Enterprise Small Cell is designed for business environments. The Enterprise small cell leverages Casa Systems' in-house designed L2/L3 Protocol Stack software, designed for the challenges of dense heterogeneous environments. Apex Enterprise Small Cells are part of Casa's overall Small Cell Solution. Other components of the solution are:

- The Axyom Element Management System (AeMS) - The AeMS provides real-time SON and Small Cell Gateway functions that reduce operational costs, speed time to market, and optimize the customer experience. An advanced GUI gives control over all small cell and small cell gateway parameters.
- The Axyom Small Cell Gateways - aggregation of control and user plane traffic and capabilities necessary to manage large clusters of small cells.
- The Axyom Virtual Management Controller - VNF management and integration.
- The Axyom Location Function - real-time small cell location information which is critical in some countries to support emergency services.

Key Features

- High performance 3GPP LTE Protocol Stack
- Up to 64 active users, 16 scheduled users / TTI
- 2 LTE carriers
- MIMO 2x2 and Network Listen RF interfaces
- Self-configuration based on TR-069
- ARNF algorithms for self-managing and optimal neighbor list
- High efficiency multi-agent platform for SON and O&M
- Advanced LTE scheduler including QoS aware scheduling and frequency selective scheduling
- Support of frequency dynamic MRO
- Power over Ethernet (PoE) option



Delivering high performance with minimum power consumption and smooth integration with existing Radio Access Network (RAN), the Apex Enterprise small cell is ideally suited for network densification while also supporting VoLTE, IoT and QoS based services.

Casa Systems' mobile broadband solutions are engineered for high performance, strong security, ease of integration, and most of all, flexibility. Whether seeking small cells to densify an existing network and add capacity, or to profit from services, such as IoT, Private LTE, and location insight, service providers will find a comprehensive and innovative answer with Casa Systems..

Technical Specifications

GENERAL	
Max TX Power	24 dBm (2 streams @21 dBm), 250 mW per LTE carrier
Antenna Configuration	2 x 2 MIMO DL, UL Rx diversity (2 Tx /2 Rx) per LTE carrier
Antennas	6 Internal Antennas
RF Ports	4 TX & RX ports, 1 sniffer port, 1 GPS port
Network Listen	1700-2100 MHz, 2500 -2700 MHz, 3500 MHz
BW Channelization	5, 10, 15, 20 MHz
Interfaces	LTE: S1-U, S1-MME, X2
Backhaul Options	10/100/1000 Gigabit Ethernet, RJ-45
PHYSICAL AND ENVIRONMENTAL	
Dimensions	220 mm x 220 mm x 42 mm / 8.7 in x 8.7 in x 1.65 in
Weight	<1 kg
Nominal Power Consumption Power	< 25W at full capacity
Operational Temperature	12 VDC @ 2A, power supply @ 110/220 VAC / Power over Ethernet (PoE) option
Humidity	-10°C to 55°C
Protection	5% to 95% Relative Humidity
	IP50

Technical Specifications

FREQUENCY BANDS	1, 3, 4, 7 or 48 - additional bands and band combinations upon request
CAPACITY LTE Carriers Throughput DL / UL Max. for TDD Throughput DL / UL Max. for FDD Max. Simultaneous Active Users	2 240 / 30 Mbps with CA enabled 300 / 75 Mbps (64 QAM modulation), 400 / 75 Mbps (256 QAM modulation) FDD mode with CA enabled Max. scheduled users / TTI: 16; max RRC connected users: 64
OTHER FEATURES	
Advanced Feature Support	Access control: Open, Hybrid or Closed access CMAS (Commercial Mobile Alert System) ETWS (Earthquake and Tsunami Warning System) SIPTO (Selective IP Traffic Offload) VoLTE and ViLTE Release 15 WEA QoS Service Enforcement / QoS Based Scheduling
Security Features	IPSEC: AES, 3DES PKI: IKEv2 key management, certificate-based authentication (x.509) Secure boot
Axyom Element Management System (AeMS)	OAM&P <ul style="list-style-type: none"> • TR-069 Auto-Configuration Server (with TR-196v2 and TR-181 Data Model Support) • KPI Management standard KPI definition (TS 32.453), custom KPI definition support • Fault Management • Syslog Server • X2 Gateway • H(e)MS small cell management system functions (3GPP TS 32.592 and TS 32.593) • HTTP REST Real time monitoring interface SON / Plug and Play Self-configuration and optimization <ul style="list-style-type: none"> • Automatic Neighbor Relation (ANR) • Physical Cell Identity (PCI) optimization • S1/X2 autoconfiguration • Mobility robustness optimization (MRO) • RACH optimization • Self Healing
Supported Services	Supported services include: <ul style="list-style-type: none"> • 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