casa systems

DS8x192

DOCSIS 3.1 CCAP Module

The Industry's First Full DOCSIS 3.1 Solution

Faster Speeds, Bigger Channels, More Usable Spectrum

Key Features

- Speeds up to 10Gbps
- Full OFDM
- Full 1.2 GHz Spectrum
- 4K QAM

Overview

Casa Systems' C100G award winning CCAP solution combines DOCSIS 3.1 CMTS and an MPEG video Edge-QAM in a high density, high availability 13 RU platform. The platform and modules support the CableLabs DOCSIS 3.1 standard, and are backward compatible with DOCSIS 3.0. Deployed by some of the worlds' leading service providers, the C100G's software defined architecture, industry-leading density, and integrated video capabilities provide a clear competitive edge in the delivery of ultra-broadband services.

Casa has long been the leader in CCAP channel density, both upstream and downstream owing to our unique design approach. We are continuing our leadership with a new downstream module, the DS8x192, which delivers speeds beyond 1G, and which supports the entire 1.2GHz spectrum required by DOCSIS 3.1, including both the SC-QAM and OFDM channels. With this latest addition to the family, Casa's C100G can now offer service providers more bandwidth at lower OPEX.

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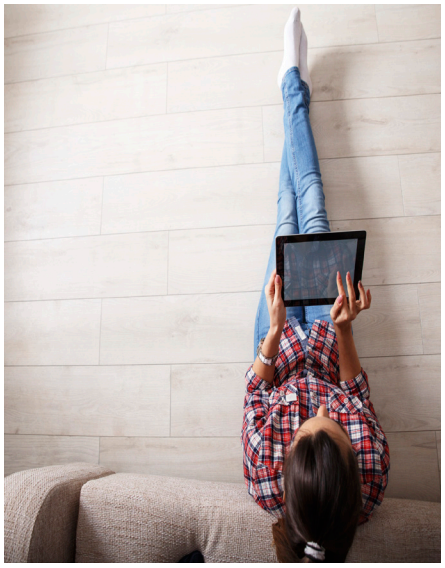
DOCSIS 3.1 CCAP Module

Speeds up to 10 Gigabit per second (Gbps) with Casa's DS8x192 Module



The industry's first full DOCSIS 3.1 CCAP line-card, the DS8x192, is the downstream module in the C100G. It supports DOCSIS 3.1, EuroDOCSIS 3.0, and DOCSIS 3.0 standards for service provider flexibility. The 8 physical RF F-connector ports each support the entire 1.2GHz spectrum (48MHz to 1.218GHz) for OFDM channels, and support SC-QAM. The narrowcast channels on each port can be used to transmit DOCSIS packets, SDV stream, and VOD stream on the same port. The DS8x192 also provides a pool of shared channels, which can be used to support linear broadcast, or as narrowcast channels by dividing the pool and assigning the channels to each individual RF port.

Casa's "Cable Once" design means that the DS8x192 will provide maximum flexibility as service providers' needs change over time. For example, a service provider could start with traditional MPEG video channels and DOCSIS channels on the same port as a true CCAP application. When the time is right to migrate to IPTV, the transition will be smooth.

One of the benefits of the DOCSIS 3.1 standard is the enablement of higher modulation orders to extract maximum throughput from existing spectrum. Service providers with spectrum to spare may not need to overhaul their HFC plant to support DOCSIS 3.1. Assuming a 1GHz plant, if all the traditional DOCSIS 3.0 channels are allocated below the 800MHz spectrum, providers can use the 800MHz – 1GHz spectrum for an OFDM block. With a full OFDM block (192MHz), and using 1024 QAM modulation, downstream speeds can reach 1.5Gbps, and go even higher as higher order modulation is adopted.

If the spectrum is not enough to deploy a full OFDM channel, providers can still utilize the existing D3.0 channels with a partial OFDM block to achieve 1Gbps speeds through channel bonding. Assuming 16-channel is being used today, a bonding of 16 SC-QAM channels + a partial block of 96MHz of OFDM channel can get to (16x38 + 900 Mbps) or 1.5 Gbps.

The C100G is designed to allow a smooth progression to 10Gbps services. Ramping up to provide 10Gbps services with Casa's C100G CCAP platform can be accomplished by adding additional D3.1 channels, to a total of 6, at 4096 QAM, using the full 1.2 GHz of spectrum. With a solution that supports 1Gbps services today and scales smoothly and flexibly to 10Gbps services in the future, we expect our C100G CCAP to be a workhorse for service providers for years to come.

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Standards Supported	DOCSIS 3.1, EuroDOCIS 3.0, DOCSIS 3.0
Frequency Range	48 MHz to 1.218 GHz
SC-QAM Channels	Up to 128 channels per port
OFDM Channels	Exceeds DOCSIS 3.1 modem capabilities of 2 OFDM (192 Mhz) channels per port
QAM Modulation	Annex A, B, or C
QAM Constellations	64, 128, 256 QAM
OFDM Constellations	BPSK, QPSK, 16, 64, 128, 256, 512, 1024, 2048, 4096 QAM
Data Rates (DOCSIS 3.0)	27 Mbps @ 64 QAM 38 Mbps @ 256 QAM
Data Rates (EuroDOCSIS 3.0)	36 Mbps @ 64 QAM 51 Mbps @ 256 QAM
Data Rates (DOCSIS 3.1, full OFDM block)	1.5 Gbps @ 1024 QAM 1.8 Gbps @ 4096 QAM
DS Channel Width	SC-QAM 6 MHz / 8 MHz OFDM Up to 192 Mhz
Frequency Step Size	1 Hz
Maximum Output Power (sum of all channels)	60 dBmV @ 1 ch / port 59 dBmV @ 2 ch / port 58 dBmV @ 4+ ch / port
Output step size	0.1 dB
Output accuracy	+/- 3 ppm
Return Loss	50 – 870 MHz, 14 dB 870 – 1218 MHz, 10 dB
Modulation Error Rate	43 dB (equalized)
Wideband Noise	– 73 dBc
Total Power	320W

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