

JDSU PathTrak™ HCU200

Reduce entry cost and size but not performance

Key Benefits:

- Target maintenance down to a single subscriber with MACTrak™, rather than using a scattered approach
- HCU200 with MACTrak can analyze live cable modem US carrier quality on crowded upstreams providing more than just spectrum-based monitoring and troubleshooting
- Increase network availability and service up time
- Protect core revenue and reduce risk of customer churn because of poor service quality
- Improve operational efficiency and reduce operational costs with DSAM interaction
- Eliminate the need for stand-alone hub/headend spectrum and QAM analysis tools
- Compact monitoring solution
- Easy expansion of existing PathTrak system



Front and rear views of the HCU200



Applications:

- Monitor hubs previously thought too small for PathTrak coverage
- Interaction for field tools (DSAM Field View and Field View QAM™)
- Know the impact of impairments on subs service
- Fix the most critical problems first with Codeword Error Detection
- Verify that you've really fixed THE problem causing service impact
- See all impairment types including "invisible" linear impairments and laser clipping, not just simple ingress

HCU200

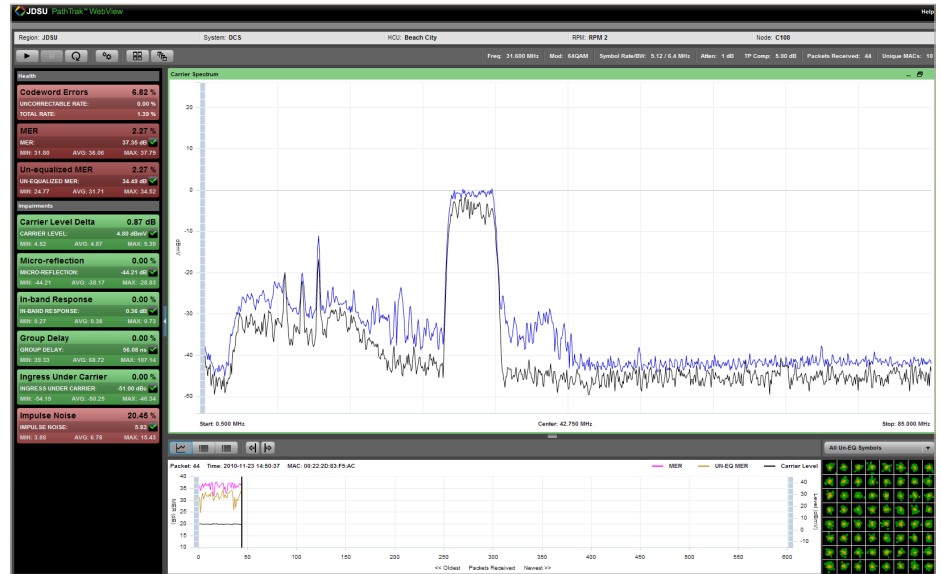
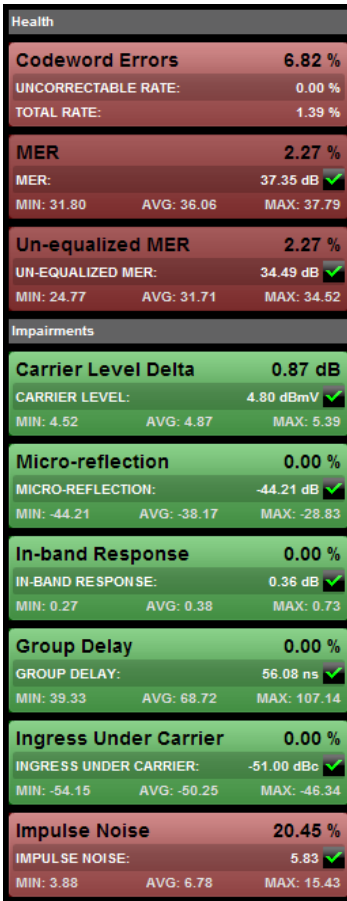
The biggest changes in the emerging DOCSIS® 3.0 environment are upstreams crowded with wider carriers and higher-modulation quadrature amplitude modulation (QAM) carriers that are more sensitive to impairments. In these environments, it is more important than ever to proactively mitigate issues that are likely to cause service disruption, achieved through preventative maintenance procedures designed to harden the plant and make it less susceptible to noise. The other half of the solution enables efficient troubleshooting using the right tools to rapidly identify and fix problems.

The complete PathTrak Return Path Monitoring capability is now offered in a 16-port 1-RU unit with robust solid-state data storage. It is ideal for small hubs and headends where larger units are not feasible due to space or cost issues. It also provides an attractive option for just adding a few additional nodes of monitoring capacity when existing HCUs are full, for instance, due to node splits.

The HCU200 delivers all PathTrak capabilities, including MACTrak technology with its codeword error detection, and MAC address extraction for true cable modem troubleshooting. It is DOCSIS 3.0 compatible, including 0.5 to 85 MHz frequency range, making it future-proof for upstream expansion and fully compatible with existing PathTrak hardware. Each HCU200 contains its own digital signal processor (DSP) plus spectrum and QAM analyzer measurement engines, therefore, adding additional HCU200s later will not affect overall system speed or performance.

Carrier-based data extracted is independent of modem or CMTS hardware/firmware revisions to provide a consistent picture to NOC staff and field technicians working on different parts of the plant. Other complimentary systems can poll modem and CMTS data every few hours to get aggregate statistics to flag nodes or modems, but PathTrak provides complete real-time information to technicians trying to fix problems in the field.

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The full MACTrak display condenses all information onto one informative page.

MAC Address	Packets from this MAC	Percent of All Packets (%)	Packets with Codeword Errors (%)	Min MER (dB)	Min UN-EQ MER (dB)	Min Carrier Level (dBmV)	Max Micro-reflection (dB)	Max In-band Response (dB)	Max Group Delay (ns)	Max Ingress Under Carrier (dBc)	Max Impulse Noise
00:14:D1:3C:A5	688	59.46	0.00	27.71	26.96	5.27	-33.05	0.97	296.99	-28.52	10.86
98:FC:11:54:42:7	4	0.35	0.00	27.81	26.53	5.44	-34.44	0.58	146.94	-29.80	4.14
A4:8A:DB:99:A9	88	7.61	0.00	27.85	25.51	4.92	-31.61	1.00	283.96	-27.93	5.15
00:22:2D:6C:B5	15	1.30	0.00	28.08	26.85	5.46	-35.86	1.07	200.58	-28.62	5.34
C4:3D:C7:A6:2B	8	0.69	0.00	28.30	26.69	5.07	-34.01	0.84	104.25	-29.67	5.11
00:26:18:07:A2:7	74	6.40	0.00	28.34	27.07	5.42	-32.57	1.11	273.38	-28.14	5.83
00:22:90:DE:CC	5	0.43	0.00	28.52	28.10	5.50	-36.82	0.54	159.22	-29.41	6.28

The MACTrak MAC address display and filtering shows the customers who are experiencing problems.

The Impairment Dashboard shows at-a-glance in simple red light/green light format whether a node has a problem and, if so, the most likely cause.

Part Number	Description
HCU200	HCU200 16-port return path monitoring module. Spectrum only but field upgradable to QAMTrak or full MACTrak capabilities. This is a -48 VDC powered unit, the optional AC adaptor is required if DC power is not available where this unit will be installed.
HCU200-MACPACK	HCU200 16-port return path monitoring module with full capabilities including QAMTrak analyzer and MACTrak. This is a -48VDC powered unit, the optional AC adaptor is required if DC power is not available where this unit will be installed.
HCU200-AC-ADPTR	AC to -48VDC adaptor for use with HCU200. Supports one HCU200.
HCU200-MACPACK-UPG	Field upgrade to MACTrak technology for HCU200. Adds QAMTrak analyzer plus MAC address decode capability, codeword error detection, and improved impulse noise detection capabilities.
HCU200MCMON	HCU200 MACTrak Performance Monitoring factory upgrade (at time of order with HCU200 or HCU200-MACPack).
HCU200MCMON-UPG	HCU200 MACTrak Performance Monitoring Optional Field Upgrade.



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