

CMD-N™ GS7000

**DOCSIS®- BASED, EMBEDDED TRANSPONDER
FOR CISCO® NODES**

**CHEETAH™
TECHNOLOGIES**



Cheetah Technologies
DOCSIS-based transponder utilizes
SCTE-HMS Standards to monitor and
control fiber nodes.

Cheetah DOCSIS-based transponders enable cable operators to proactively monitor and control fiber nodes using existing DOCSIS infrastructure. The Cheetah CMD-N™ GS7000 embedded transponder for Cisco GS7000 nodes utilizes the standards adopted by the SCTE-HMS subcommittee for fiber node monitoring and provides easy access to information and control through standard SNMP mibs. The transponder also features the optional ability to conduct HSIA and VoIP testing through embedded firmware. Features include: Ethernet port, optical tamper switch, standard cable modem LEDs, web page access, eMTA emulation and optional embedded VoIP testing. The transponder continuously monitors and reports out of tolerance conditions via SNMP traps and user definable alarming thresholds.

Monitored Parameters:

- Receiver Optical Power (mW)
- Transmitter Laser Power (mW)
- Power Supply Voltages (24, 8, 5, and -6)
- Node Internal Temperature
- Receiver Optical Alarm
- A/B Switch Status and Alarm
- Tamper
- Wink Switch Attenuation
- Modulation Error Rate (MER), Error Vector Magnitude (EVM) and Codeword Error Rate (CER)
- Optical Amplifier Input and Output Power (dBm), Laser Bias Current, and Laser Temperature
- Optical Switch Input and Output Power (dBm), Module Temperature, and Switch Temperature

Available Controls: (OSS or EMS required)

- A/B Switch Control
- Wink Switch Control

Node Monitoring Applications:

- Support for the Cisco GS7000 Series Nodes
- Differentiate between RF problems in the HFC network and headend problems
- Control attenuators (wink switches) to troubleshoot RF Return Path issues
- Control A/B switches to select redundant fiber paths
- Alarm on loss of light or degradation of fiber path
- Alarm on automatic receiver switching
- Provide optional VoIP testing capability at the point in the network where fiber becomes RF

- Downstream DOCSIS constellation, MER, EVM and CER measurement ability
- Provide analysis of network congestion via optional HSIA testing

Ethernet Port:

The Ethernet port provides local access to an embedded configuration page for control.

Optical Tamper Switch:

The optical tamper switch embedded in the transponder will report on the status of the node (opened or closed lid).

Cable Modem LEDs:

The cable modem LEDs display the registration status of the transponder in the DOCSIS network.

Embedded Web Page:

The embedded web page can be used to display both cable modem and HMS node data gathered from the transponder. Optional HSIA testing is supported through the web page and can be accessed either locally via the Ethernet port or remotely via a web browser application.

eMTA VoIP Testing: (Optional SW Required)

The transponder, when configured as a VoIP test point is capable of receiving and/or originating calls, determining MOS scores and measuring RTP statistics through the embedded firmware. At the end of each call, the test results are available through RTCO Extended reports. Some of the measured parameters are:

- MOS Listening Quality
- MOS Conversation Quality
- R factor
- External R factor
- Network packet loss
- Packets discarded due to jitter
- RTP round trip delay (mS)
- End system delay (mS)

CMD- N Specifications

General

| | |
|--------------------------------------|-----------------------------|
| DOCSIS | Version 2.0 |
| HMS Monitoring Protocol | SNMP v1 |
| DOCSIS Monitoring Protocol | SNMP v1, v2, v3 |
| RF Interface | Internal |
| Ethernet Interface | RJ45 |
| Operating Temperature | -40°C to +75°C |
| Humidity | 10% to 90% (non-condensing) |

RF Transmit/Receive

| | |
|------------------------------|-------------------|
| Tx Frequency Range | 5 to 42 MHz |
| Tx Output Power | +8 to +58 dBmV |
| Rx Frequency Range | 88 MHz to 860 MHz |
| Rx Input Level | -15 to +15 dBmV |
| Channel Bandwidth | 6 and 8 MHz |

Part Numbers

| | |
|-----------------------------------|------------|
| Transponder | 66900-0722 |
| Downstream RF Cable Kit | 66905-0340 |

