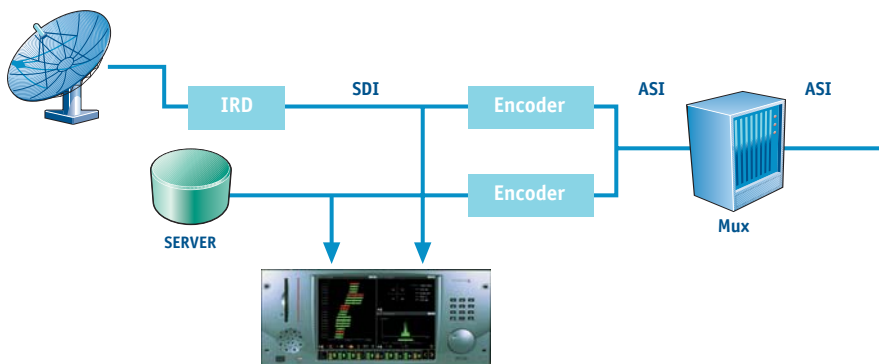




DVStation: Advanced Monitoring for Digital Networks

## Quality Monitor Module

The Quality Monitor Module (QMM) is a Single-ended, real-time Picture Quality Monitor Module for the DVStation family. It provides real-time evaluation of video compression quality. Impairments such as MPEG block noise, black out and freeze frame are quickly identified allowing corrective action to be taken. Individual alarms can be set on each parameter allowing you to be notified of problems when and where you choose.



### KEY FEATURES

- Real-time Picture Quality Evaluation
- Real-time monitoring without a reference signal
- Source material independent
- Supports both NTSC and PAL
- Automate impairment detection
  - MPEG Quality
  - Black out
  - Freeze frame
- HTML, VNC, X-Window, SNMP and CORBA Remote Control
- Extensive long term logging of picture quality
- Built in trend analysis and graphing
- Extensible alarm system

### SINGLE-ENDED MEASUREMENT

Using the Cyclic Zero Cross Detection algorithm, the DVStation QMM provides a running visual indication of video picture quality. The system uses a single-ended architecture which doesn't require a reference signal.

### GRAPHICAL DISPLAY

The status of video quality scores is graphically displayed. Various impairments such as block noise, freeze frames and blackouts are displayed in different colors for instant identification of the situation. The displayed quality scores are based on the Single Stimulus Continuous Quality Scale (SSCQS) method and provide results that are clearly comparable with "subjective" quality test results using real human subjects.

### QUALITY SCALE

5	Excellent	Imperceptible
4	Good	Perceptible but not annoying
3	Fair	Slightly Annoying
2	Poor	Annoying
1	Bad	Very Annoying

### BANDWIDTH VS. PICTURE QUALITY

Managing bandwidth is difficult enough for fixed bandwidth transmission. Statistical multiplexing makes it even harder to manage. Gathering long term statistics is necessary for meaningful improvement of service performance. Long term analysis of both Picture Quality and Transport Stream PID bandwidth with full time correlation can be achieved by combining the DVStation Transport Stream Processor (TSP) with the QMM.

A quick look at the DVStation log file reveals the full relationship between bandwidth and quality. Additionally, data can be exported to a spreadsheet for long term trend analysis.

[Main Log Directory](#)  
[Measurement Log Directory](#)  
[View Summary Report](#)

**DVStation**  
By Pixelmetrix Corporation

**DVStation Quality Monitor Log (qmmlog.20011112.2) [View as text \(tab-delimited\)](#)**

**Port 4 (04)**

Time	UTC Time	Source	Source Name	Mean_Quality	Min_Quality	Max_Quality	Integration_Period_s	Quality_State
14:55:05.412	06:55:05.412(+8.0)	04	Port 4	3.847	2.644	4.613	5	Good
14:55:10.412	06:55:10.412(+8.0)	04	Port 4	4.018	3.394	4.348	5	Good
14:55:15.419	06:55:15.419(+8.0)	04	Port 4	3.859	2.856	4.307	5	Good
14:55:20.417	06:55:20.417(+8.0)	04	Port 4	3.306	2.155	4.028	5	Good
14:55:25.413	06:55:25.413(+8.0)	04	Port 4	3.399	2.552	4.350	5	Good
14:55:30.412	06:55:30.412(+8.0)	04	Port 4	3.672	2.363	4.483	5	Good
14:55:35.419	06:55:35.419(+8.0)	04	Port 4	4.049	2.553	4.612	5	Good
14:55:40.413	06:55:40.413(+8.0)	04	Port 4	3.961	2.861	4.487	5	Good
14:55:45.415	06:55:45.415(+8.0)	04	Port 4	4.033	3.394	4.307	5	Good
14:55:50.426	06:55:50.426(+8.0)	04	Port 4	3.597	2.526	4.291	5	Good
14:55:55.417	06:55:55.417(+8.0)	04	Port 4	3.230	2.155	3.957	5	Good
14:56:00.509	06:56:00.509(+8.0)	04	Port 4	3.231	2.363	4.351	5	Good

## IMPAIRMENT DETECTION

Alarm thresholds can be set on any of the DVStation's QMM's parameters:

- Video Quality threshold
- Time duration for black-out
- Time duration of freeze

## COMPREHENSIVE LOGGING

In addition to the alarm thresholds, you can configure the QMM to periodically log picture quality over a user-defined interval. For each measurement interval the minimum, maximum, and average picture quality points are recorded. Additionally, with the click of the mouse, graphs of picture quality can be created for long term trend analysis.



## SPECIFICATIONS

### Input Signal Format

- 270 Mb/s serial component digital video
- ITU-R BT.601, BT.655, SMPTE 259M

### Impairment detection

- MPEG Quality
- Black-out
- Freeze frame

### User Parameters

- Quality Threshold
- Time duration for black-out
- Time duration for freeze frame

## APPLICATIONS

The QMM can be used alone or in conjunction with other DVStation modules to provide flexible solutions for fault isolation and performance monitoring. For example, a quality problem detected by QMM could trigger other DVStation modules to record a snapshot of the transport stream at several upstream locations. This provides you with a full view of your network enabling problems to be quickly located.

Additionally, a DVStation equipped with the QMM module can validate the quality of source material as well as compare the resultant program at the other end of the transmission chain.

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