

# Acterna DTS MPEG over QAM RF Analysis

## Realtime monitoring and testing

As the roll-out of Digital Programming continues, the Cable System Operators have to not only ensure the physical characteristics of their Digital “Broadcast” channels are within parameters, but also have to ensure that the content or digital payload is error free too. In addition, newer digital services, like VOD etc, are also requiring the System Operators to create error-resilient Digital “Narrowcast” architectures. Thus, where the System Operators once had to just ensure the reliability of their analog broadcast network’s physical characteristics, they are now forced to not only ensure the reliability of the physical layer of their analog broadcast, and digital broadcast and narrowcast networks but also the digital payload of their digital services’ channels.

The Head-ends of such Operations have finely tuned and optimized equipment that compensate for one another and any pre-determined degradations caused as a result of transmission between them. These compensatory actions range from

physical layer adjustments such as levels of signal to digital content adjustments like “de-jittering” the timing information present in Digital Video signals to compensate for network latency (especially while transitioning through data networks like Gigabit Ethernet). However, at times even these highly resilient networks and network elements end up in situations outside their “worst-case” scenario use cases and program degradation becomes visible.

Since viewing the “hay stack” of a Quadrature Amplitude Modulated (QAM) RF signal does not provide any insight into their digital payload, the Operators have to be able to gain visibility into the underlying “content” or MPEG-2 protocol layer to ensure programming content and other parameters like PCR (timing) data, PSI/SI (table) data etc. Acterna is proud to introduce the QAM interface into the ever-popular DTS MPEG Analyzer to help troubleshoot and fix such problems.

### Highlights

- Support 64 and 256 QAM modulation Schemes
- Constellation Diagram with quadrant and point zoom feature
- RF Layer measurements for correlation of MPEG and RF issues
- Easy-to-use graphical interface minimizes training requirements
- Modular mainframe allows for easy interchange of multiple interfaces. Access MPEG-2 streams at traditional, RF, or Data test points, and test both the MPEG and carrier signals
- Complete real-time analysis and monitoring to verify stream contents, service plans, PIDs, rates, timing parameters, and TR101 290. Event logs, triggers and reports for baselining and comprehensive monitoring
- Identify problems and collect evidence of faulty equipment or content to maximize response and resolution from vendors and content providers

## Specifications

### MPEG Measurements

as specified in the main product literature

### RF Interface

RF Interface Type 75 ohm, F81 connector  
 Modulation Types 64 and 256 QAM, Annex A, B or C. (selectable)

Standards Compliance DVS-031, DVB and DAVIC, DOCSIS 1.0, 1.1, and 2.0

### Symbol Rate User Input/Selectable

FEC Decoder ITU J83 A, B and C  
 Tunable Frequency Range 91 to 860 MHz  
 Frequency Resolution 62.5 kHz  
 Channel Bandwidth 6 MHz or 8 MHz (Euro)  
 Input Signal Level -15 dBmV to +35 dBmV  
 Acquisition Range -15 dBmV to +15 dBmV  
 Input Return Loss > 6 dB  
 Input Noise Figure 8 dB typical  
 Phase Noise -85 dBc/Hz @ 10 KHz typical  
 Depth of Interleave User Selectable

### Key RF Results

Tuner/FEC Lock Status Loss of Signal or signal out of required range  
 Average Channel Power Minimum, Maximum, Mean and Current shall be reported. (accuracy +/- 2dB from +15 to -15 dBmV)  
 Constellation Diagram Zoom into any quadrant  
 Modulation Error Ratio Minimum, Maximum, Mean and Current shall be reported.  
 Range 64 QAM: 21 to 35 dB Accuracy ±2 dB (typical)  
 Range 256 QAM: 28 to 35 dB Accuracy ±2 dB (typical)  
 Bit Error Rate Pre- and Post-FEC Range: 1.0 x 10<sup>-9</sup> to 1.0 x 10<sup>-2</sup>

## Ordering Information

### QAM Application Module

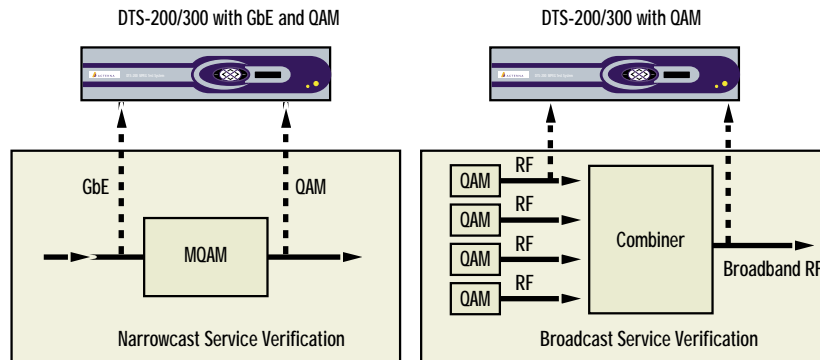
DTS-200 QAM Analysis Module	7553/91.15
DTS-200 QAM Analysis & Record Module	7553/91.17
DTS-300 QAM Analysis Module	7551/92.60
DTS-300 QAM Analysis & Record Module	7551/92.61

### Acterna DTS Packages with QAM Option

DTS-200 w/ QAM Analyze(Adv) and GbE Analyze(Adv)	7553/60
DTS-200 w/ QAM Analyze/Record(Adv) & GbE Analyze(Adv)	7553/61
DTS-200 w/ QAM Analyze(Std) & ASI Analyze(Std)	7553/63
DTS-200 w/ QAM Analyze(Adv) & ASI Analyze(Adv)	7553/64
DTS-200 w/ QAM & ASI Analyze/Record(Std)	7553/65
DTS-200 w/ QAM & ASI Analyze/Record(Adv)	7553/66
DTS-200 w/ QAM & ASI Analyzer/Record(Adv), GbE Analyze(Adv)	7553/69

### Additional Application modules available

DTS-200 ASI Analyzer	7553/91.07
DTS-200 ASI Analyzer/Recorder	7553/91.09
DTS-200 Gigabit Ethernet Analyzer	7553/91.19
DTS-200 QPSK Analyzer	7553/91.11
DTS-200 QPSK Analyzer/Recorder	7553/91.17
DTS-300 Gigabit Ethernet Analyzer	7551/92.80
DTS-300 QPSK Analyzer	7551/92.71
DTS-300 QPSK Analyzer/Recorder	7551/92.72



MPEG over QAM verification at all points of a RF network

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Acterna is present in more than 80 countries. To find your local sales office go to: [www.acterna.com](http://www.acterna.com)

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