



# E4441A DVB QAM Coder (Discontinued - Support Information Only)

## Data Sheet

### Modulation

Modulation Types: 16, 32, 64, 128 and 256 QAM

Symbol Mapping: DVB compliant, user defined

Error Vector Magnitude: <1% typical<sup>1</sup>

<sup>1</sup>Valid when using internal clock with all impairments off and root raised cosine filter as supplied. Receive filter assumed to be a perfect match.

### Channel Characteristics

Channel Filter Type: Root raised cosine, raised cosine, user defined.

Channel Filter Alpha: 0.15, 0.13

Symbol Rate (selectable)

<b>Nominal Channel Bandwidth</b>	<b>Internal (Mbaud)</b>	<b>External (Mbaud)</b>
8 MHz	6.890	5.2 to 7.0 <sup>3</sup>
	6.872 <sup>2</sup>	5.2 to 7.0 <sup>3</sup>
	6.875 <sup>2</sup>	5.2 to 7.0 <sup>3</sup>
	6.900 <sup>2</sup>	5.2 to 7.0 <sup>3</sup>
6 MHz	5.274 <sup>2</sup>	5.2 to 7.0 <sup>3</sup>
4 MHz	3.445	2.6 to 3.5 <sup>3</sup>
2 MHz	1.7225	1.3 to 1.75 <sup>3</sup>

<sup>2</sup>Optional, see ordering information.

<sup>3</sup>Fully Variable.

### Data Source

Data Source Type

Internal 223 - 1 PRBS

Internal Packetized 223 - 1 PRBS

Internal MPEG-2 Null Packets

Internal Arbitrary Fixed Symbol

External 188 byte MPEG-2 Packet Input

External 204 byte MPEG-2 Packet Input



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### Channel Coding

Channel Coding: As per ETS 300 429  
Channel Coding Control  
Randomization On/Off  
Sync Inversion On/Off  
Reed-Solomon Encoding On/Off  
Byte Interleaving On/Off  
Differential Encoding On/Off

### Impairments

Gaussian Noise: On/off  
Eb/No Range: +3 to +30 dB for 64 QAM<sup>4</sup>  
Eb/No Accuracy:  $\pm 0.12$  dB<sup>4</sup>  
Crest Factor: >15 dB

Spurious Tone: On/off  
Frequency Range:  $\pm(1$  kHz to 5.75 MHz)  
Frequency Accuracy:  $\pm 0.1\%$   
S/I Range: -6 to +45 dB  
S/I Accuracy:  $\pm 0.3$  dB to 3.5 MHz

Carrier Leakage: On/off  
Magnitude Range: -80 to -10 dB wrt rms output  
Magnitude Accuracy:  $\pm 0.2$  dB  
Angle Range: -180 to +180° C  
Angle Accuracy:  $\pm 1$  ° C to -40 dB wrt signal

I/Q Magnitude Imbalance: On/off  
Range:  $\pm 2$  dB  
Accuracy:  $\pm 0.1$  dB

I/Q Quadrature Imbalance<sup>5</sup>: On/off  
Range: 80 to 100 ° C typical

Inverted Spectrum: On/off

<sup>4</sup>Excluding residual EVM.

<sup>5</sup>Function of 8780A or 8782B vector signal generator. Not available with ESG-D digital signal generators.

### I & Q Outputs

Level: 0.28 V rms (nominal) into 50 ohms<sup>6</sup>  
Residual dc Offset: <300  $\mu$ V  
Connectors: BNC

<sup>6</sup>With 223 - 1 PRBS data source selected.

### Symbol Clock Output

Type: TTL compatible  
Connector: BNC

### MPEG-2 Input<sup>7</sup>

Type: DVB-PI as per DVB document A010 Oct 1995

Connector: 25-pin sub-miniature D-connector

<sup>7</sup>Includes external clock input which can be used to clock either internal or external data.

#### Control

Local Control: Windows®-based graphical user interface controls ESG-D digital signal generator or 8780A/ 8782B vector signal generators and E4441A DVB QAM coder

Remote Control: -IB interface, SCPI control

#### General Specifications

Dimensions (mm): 125 H, 420 W, 390 D

Weight: 11 kg

Operating Temperature: 5 to 40 ° C

Storage Temperature: -40 to +70 ° C

Humidity: 80% relative humidity to 40 ° C

Power: 125 VA

EMC: CISPR11 Level A; EN55011, 1991. EN55082-1; 1992

Safety: IE950:1991