

The model **UCM4540** is designed for Digital video on demand applications. It is comprised of a single versatile QAM Modulator and QAM Upconverter. The fully digital modulator may be configured for QPSK, 16, 32, 64, 128, or 256 QAM operation. The input MPEG2 Transport streams are encoded for error correction, modulated and upconverted into 6 or 8 MHz bandwidth channels in the 53 to 858 MHz frequency range. The RF output level is +61 dBmV maximum.

The UCM4540 is remotely controllable over a serial RS232, RS485, Terminal and optional SNMP. Full control of the unit, including output frequency and level as well as modulator parameters such as modulation type, symbol rate, excess bandwidth, encoding, etc. is accomplished via the front panel or WaveCom's Demonstration MultiAgile software. Status and alarm data can also be viewed either from the front panel or remotely. It offers a very compact solution for Demand video applications on a cable system.



Features Include:

- Independent QAM Modulator and Upconverter in a 1U chassis
- Fully agile upconverter covers entire frequency range of 53 to 858 MHz
- Fully synthesized tuning for drift free operation (12.5 kHz step size)
- Selection of data inputs including DVB parallel/synchronous serial, and DVB-ASI
- Both DVB, DAVIC (ITU-T J.83 Annex A) and Digicipher II™ (ITU-T J.83 Annex B) encoding standard
- Includes nonvolatile memory to save configuration through power down and power loss
- Local control via LCD and 4 soft touch push buttons
- Programmable, remotely controllable units using RS232, RS485, Terminal or optional SNMP
- High reliability, state-of-the-art design using Microstrip MMIC and Surface Mount technology
- Conservative component derating and 100% burn in help ensure reliable operation

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THE WAVECOM
DIGITAL QAM MODULATOR/UPCONVERTER
UCM4540

SPECIFICATIONS — WAVECom UCM4540**DIGITAL QAM MODULATOR/UPCONVERTER****INPUT - QAM MODULATOR**

Allowable input bit rate error Coding	Corresponding to ± 25 kSymb/sec DVB, DAVIC (ITU-T J.83 Annex A), DCII (ITU-T J.83 Annex B)
Input format	DVB - ASI 188/204 Coaxial, DVB - Parallel, DVB - Synchronous serial
Data connectors ASI BNC female Parallel/Synch Serial	75 Ohm 25 socket D Subminiature w/female threaded posts

IF OUTPUT - QAM MODULATOR

Output frequency	44.0 MHz center frequency (43.75 MHz for 8 MHz bandwidth) +25 to +40 dBmV
Output level	75 Ohm
Output impedance	F female
Output connector	± 0.4 dB (over bandwidth = 0.8 symbol rate)
Output flatness	± 50 ns max
Group delay variation	100 Hz
Carrier frequency accuracy	-55 dBc
Mute level	-55 dBc, 5 to 750 MHz
Spurious	QPSK, 16, 32, 64, 128, 256 QAM
Modulation	7.1 MS/sec max
Symbol rate	

MONITORING AND ALARMS - QAM MODULATOR

Clock and Data Activity	LCD Reading
IF Output Level	LCD Reading
Summary Alarm	Red LED
Status & Alarm Codes	LCD Reading

IF INPUT - QAM UPCONVERTER

IF Frequency (center of the band)	44.00 MHz (43.75 MHz for 8 MHz bandwidth)
Bandwidth	Passband 6 MHz (optional 8 MHz)
Input Level	+25 to +35 dBmV (total power)
Impedance	75 ohm
Return Loss	20 dB
Connector	F type (female)
IF Detector Accuracy	1 dB
IF attenuator Step Size	0.05 dB typical
IF AGC (for carrier/digital input)	enable/disable

RF OUTPUT - QAM UPCONVERTER

Frequency Range	53 to 858 MHz (band center)
Frequency Step Size	12.5 kHz
Frequency Accuracy	2 ppm
Frequency Response (any 5 MHz band)	± 0.3 dB
Frequency Response (any 7 MHz band)	± 0.4 dB (for wide band options)
Group Delay (any 5 MHz band)	15 nsec p-p max (8 nsec typ)
Output Level	+61 dBmV max.
Output Level Step Size	0.05 dB typical
RF Detector Accuracy	± 1.0 dB typical
Gain Control Range	+45 to +61 dBmV
Impedance	75 ohm
Return Loss (inband)	16 dB
Connector	F type
RF Monitor Point (calibrated)	20 dBc ± 0.5 dB
Spurious (50 MHz to 950 MHz)	-60 dBc (70 dBc typ)
Phase Noise	
1 to 10 kHz (double side band noise power)	-37 dBc (-40 dBc typ)
10 to 50 kHz (double side band noise power)	-54 dBc (-57 dBc typ)
50 kHz to 3 MHz (double side band noise power)	-53 dBc (-55 dBc typ)
10 kHz Offset (SSB)	-95 dBc/Hz @ 10 kHz (-99 dBc/Hz typical)
Broadband Noise (average noise all Channels outside ± 18 MHz)	-12 dBmV/6 MHz (-15 dBmV/6 MHz typ) -11 dBmV/8 MHz (8 MHz option) -30 dBmV/6 MHz at twice RF freq
Modulated Adjacent Noise (6 MHz channel)	
+/- 3 to 3.75 MHz	-58 dBc min (>60 typ)
+/- 3.75 to 9 MHz	-62 dBc min (>64 typ)
+/- 9 to 15 MHz	-65 dBc min
Modulated Adjacent Noise (8 MHz channel option)	
+/- 4 to 5 MHz	-58 dBc min
+/- 5 to 12 MHz	-61 dBc min
+/- 12 to 20 MHz	-64 dBc min
Carrier Mute	Automatic upon frequency change

GENERAL - SYSTEM

Remote Control Serial Interface	RS232 or RS485 (software selectable) (Optional SNMP)
Connector	Dual RJ45
Power Requirements	100 to 240 VAC, 50 to 60 Hz
Power Consumption	80 Watts
Operating Temperature	10 to 40°C (50 to 104°F)
Mounting	Standard 19" (48.3 cm) 1U (1.75") rack space
Dimensions	19" (w) x 14.25" (d) x 1.75" (h) (48.3 x 36.2 x 4.45 cm)
Weight	11 lbs (5 kg)
F Connectors	ANSI SP-406-1998

OPTIONS

1P4 - 43.75 MHz IF with 8 MHz Passband
2S1 - SNMP Proxy Agent & Interface
2R3 - Redundant Power Supply (100 to 240 VAC)

ACCESSORIES

RS232/485 Serial Interface Adapter
MA4000 COMKIT
SNMP Manual (with Option 2S1 only)



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