



## APPLICATION

The Comtech EF Data Model UT-4505/X Up Converter is the ultimate in high performance and cost effective C-Band frequency conversion. The UT-4505/X can be used for SCPC, DAMA and TDMA as well as full transponder HDTV and analog TV. Spectral purity, stability, group delay characteristics fully meet or exceed the requirements of all domestic, international, and regional commercial satellite networks. Wideband units are available.

## HIGH GAIN

The UT-4505/X has +17 dBm minimum output level at the 1 dB compression point and 35 dB of gain as a basic standard. These standard capabilities permit longer cable runs to the high power amplifier, or compensate for elaborate combining networks without adding expensive options such as external line amplifiers.

## LOW PHASE NOISE

The phase noise performance of the Comtech EF Data UT-4505/X Up Converter exceeds the Intelsat phase noise mask for IBS and IDR services by more than 9 dB. This allows high capacity earth stations to add more modulators and still meet transmission standards. The close in phase noise is also very low making the converter ideal for low bit rate digital circuits such as those used in DAMA hub earth stations.

## REMOTE CONTROL

The remote control interface is selectable between EIA-232 and EIA-485. All configuration control, status retrieval and adjustments are available with simple ASCII commands through the serial interface or through the front panel menu. As a cost option, the remote control command structure can be customized in order to accommodate existing network control software.

## DETACHABLE I/O MODULE

Each UT-4505/X Up Converter is equipped with a detachable I/O Module (IOM) that establishes input and output connection types. The module inserts into a rear enclosure of the converter taking no additional outside space. The IOM includes a Type N connector for the RF path and a BNC connector at either 50 or 75 Ohms for the IF path.

## DAISY CHAIN REDUNDANCY SWITCHING

The converter uses CEFD's proprietary "Daisy Chain" integrated switching technology. The Daisy Chain design removes the relays associated with a centralized protection switch tray and distributes them across the individual converters. CEFD was awarded patent 5,666,646 on this distributed protection switch topology.

Daisy Chain technology successfully eliminates a central switching chassis, two power supplies, a microprocessor, and several long, costly cables. Widely accepted in the industry, CEFD's Daisy Chain provides both pricing and marketing advantages.

## MINIMUM RACK SPACE

Due to its small rack height (1.75 inches) and the elimination of the space penalty paid for a separate 1+N switch chassis, the Comtech EF Data Model UT-4505/X and the Daisy Chain switch architecture provide the most compact and cost effective converter subsystem available. The units are ideal for the construction of transportable systems such as "flyaway terminals", and high capacity earth stations accessing many transponders, where space utilization and economy are prime considerations.



[www.satcom-services.com](http://www.satcom-services.com)

Mike Termond

[mike@satcom-services.com](mailto:mike@satcom-services.com)

Phone: 1.805.649.1384

Fax: 1.805.649.1174

### Frequency Range

UT-4505	5845 to 6425 MHz
UT-4505/E	6725 to 7025 MHz
UT-4505/F	6425 to 6725 MHz
UT-4505/G	5925 to 6725 MHz
UT-4505/H	5850 to 6650 MHz
UT4505/J	7025 to 7075 MHz
Conversion	Dual, No Inversion
Step Size	125 kHz standard, 1kHz optional
Preset Channels	32 Frequencies and Gains
Stability Over Time	+/- 1 x 10 <sup>-3</sup> /Day
Stability Over Temp	+/- 1 x 10 <sup>-3</sup> 0 to 50°C

### IF Input

Noise Figure	12 dB Maximum at 0 dB Attenuation
Level	-35 dBm Typical
Range	52 to 88 or 104 to 176 MHz
Impedance	50 or 75 Ohms
Return Loss	23 dB Min. with IO Module or Switch Module

### RF Output

Output Level	+17 dBm at 1 dB Compression
Intermodulation	-50 dBc @ 0 dBm Output SCL
Carrier Mute	-70 dBc
Non-carrier Spurious	-80 dBm
Carrier Spurious	-65 dBc @ 0 dBm Output
AM to PM	0.1*/dB at -5 dBm Out
Return Loss	20 dB Minimum with IO Module 18 dB Minimum with Switch Module
Impedance	50 Ohms

### Transfer

Gain	35 dB +/- 2 dB
Attenuation Adjust	0 to 25 in 0.25 dB Steps 0.1 dB Steps Optional
Gain Stability	+/- 0.25 dB/Day
Ripple	+/- 0.25 dB (+/- 18MHz), 0.75 dB (+/- 36MHz)
Slope	0.05 dB/MHz

### External Ref.

Input, either 5 or 10 MHz @ +3dBm  
Optional 10 MHz Rear Panel Reference Output

### Group Delay

Linear Group Delay	0.03 ns/MHz
Parabolic Delay	0.01 ns/MHz <sup>2</sup>
Group Delay Ripple	1 ns Peak-to-Peak

Phase Noise	Limit (dBc/Hz)		Typical (dBc/Hz)	
	UT4505	UT4505/X	UT4505	UT4505/X
100 Hz	-80	-69	-83	-72
1 KHz	-89	-79	-92	-82
10 KHz	-95	-89	-97	-92
100 KHz	-105	-99	-109	-102
1 MHz	-120	-109	-124	-112

### Remote Control (Rear Panel)

COMM Port EIA-485 or EIA-232

### Indicators (Front Panel)

Power On	Green LED
Mute	Yellow LED
Remote	Yellow LED
Reference	Yellow LED
Stored Fault	Red LED
Fault	Red LED

### Test Points (Front Panel)

RF Sample	SMA, -20 dBc Nominal
IF Sample	BNC, -20 dBc Nominal
Optional L.O. Sample	

### Power

Voltage	90 to 250 VAC Autoranging, optional -48 VDC
Frequency	47 to 63 Hz
Dissipation	60 Watts

### Environmental

Temperature	0 to 50°C (32 to 122°F)
Altitude	10,000 Feet MSL
Humidity	0 to 95 % Relative

### Physical

Width	19 Inches (48.30 cm)
Height	1.75 Inches (4.45 cm)
Depth	22 Inches (55.90 cm)
Weight	15 Pounds (7.00 kg)

### MTBF

49,740 hrs. (calculated)  
>100,000 hrs. (field experience)

### Summary Alarm

Relay Closure Form C



www.satcom-services.com

Mike Termondt

mike@satcom-services.com

Phone: 1.805.649.1384

Fax: 1.805.649.1174