SOTCA Satellite Communications Equipment

High-Performance Microwave Components and Subsystems

STC 83801U

IF to C-Band Synthesized Frequency Upconverter

STC 83801U fully synthesized dual conversion C-Band Upconverter module is providing a high-performance, convenient and economical solution for systems, requiring IF to C-Band interface.

PERFORMANCE

Fine frequency resolution, impressive amplitude and phase linearity, maintained by an internal amplitude and group delay equalizer and low phase noise, exceeding the Intelsat phase noise mask for IBS and IDR, spectral purity, high dynamic range make this converter ideally suitable for all current high speed data transmission rates and advanced digital modulation schemes.

MONITORING & CONTROL

Front panel hardware switch is used for selecting local or remote RS-232/RS485 monitoring and control (M&C) interfaces. Optionally a converter unit can be equipped with Ethernet M&C interface. Simple ASCII commands used to control and set the converter parameters can be customized on request to fit existing M&C system.

Applications

- Satellite ground stations
- Satellite multi-service systems
- DVB Uplinks

Key Features

- Standard and extended C-Bands
- 125 KHz frequency resolution
- Excellent phase noise
- Low group delay distortion
- User friendly interface
- Automatic sense of external 10 MHz reference

Options

- Redundancy switching capabilities by a built-in switch or an external rack mounted switching unit.
- Choice of 70MHz or 140MHz IF
- Ethernet remote monitoring and control

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Table 1. Technical Specifications

IF Input	
Frequency range	70 MHz ± 18 MHz (140 MHz ± 36 MHz Opt 1)
Impedance	50Ω or 75Ω
Connector	BNC F
Return Loss	> 23 dB
Input level	-35 dBm nom.
C-band Output	
Frequency Range: Model STC93801U - A	5850 MHz to 6425 MHz standard
Impedance	50Ω
Connector	SMA F (N-Type F Opt)
Return loss	> 14 dB
Output Power at P1dB	+10 dBm nominal
Performance	
Conversion Type	Dual, No Inversion
Step Size	125 KHz
Stability	
- over 24 hours	± 0.5 x 10-9
- 0°C -+50°C	± 1.0 x 10-8
Conversion Gain	35 dB ± 2 dB
Gain adjust	0 to 20 dB in 0.25 dB steps
Gain Ripple, ± 18 MHz	± 0.35 dB typ, ± 0.5 dB max
Gain Ripple, ± 36 MHz	0.75 dB typ, 1dB max
Gain Slope	0.05 dB/MHz
Gain stability	
- over 24 hours	±0.25 dB @ 25°C
- 0°C -+50°C	±1 dB
Group delay	
Linear	0.025 ns/MHz
Parabolic	0.01 ns/MHz²
Ripple	1.0 ns Peak-to-Peak
Phase Noise @ offset:	
100 Hz	-65 dBc/Hz
1 kHz	-80 dBc/Hz
10 kHz	-85 dBc/Hz
100 kHz	-95 dBc/Hz
1 MHz	-110 dBc/Hz
Spurious	
Non-carrier	-75dBm max
Carrier related	-65dBc max @ 0dBm Pout
Noise Figure	12 dB max
Intermodulation level	-50 dBc max. @ 0 dBm Pout
Carrier mute	-80 dBm min
AM/PM Conversion	0.1° @ -5 dBm Output

M & C Interface	
Local control interface, front panel	LCD 20x2, 16 buttons keypad, LED Indicator.
Remote control, back panel	- RS-422/485 9-pin D (M) - RS-232 9-pin D (M)
Alarm	- Summary Failure Relay
Test Points Front Panel	
RF Sample	SMA F, -20 dBc Nominal
IF Sample	BNC F, -20 dBc Nominal
Mechanical	
Width	19", standard rack mount
Height	1U(1.75")
Depth	16", plus connectors
Weight	10 lb
Construction	Aluminum Chassis
Power Requirements	
Voltage	115/230 VAC (auto-ranging)
Frequency	47 to 63 Hz
Dissipation	35W
Environmental	
Operating temperature	0 to +50 °C
Storage temperature	-20°C to 70°C
Altitude	10,000 Feet MSL
Humidity	0-95% , non-condensing
External Reference IN	Automatic sense of 10 MHz external reference @ 0dBm ± 3 dB, BNC (F)
Options	
1. IF 140MHz	IF = 140MHz ±36MHz
5. Ethernet M & C	Ethernet Interface, HTTP server,
6. N-Type F connector	On C-Band output
8. Redundancy Ready	Built-In switching capabilities

*+25°C Specification is subject to change without prior notice.

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