

## SATCOM IF and RF Frequency Synthesizers

### SATCOM Series 1/3 Rack and 1/2 Rack Models L-Band IF Ka-Band RF



Unit shown in 1/3 rack form factor  
1:1 redundant configuration

MITEQ's SATCOM Series of exceptionally low phase noise synthesizers offer an economical solution for lab and SATCOM up and downlink testing. Three standard models are available; IF L-Band covering from 950 to 2150 MHz, RF Ka-Band covering 18.3 to 20.2 GHz and RF Ka-Band covering from 27.5 to 31 GHz. The SATCOM Series has a standard 1 kHz step size, with optional full-band fast switching available. The field-tested design and low power dissipation proves to demonstrate higher MTBF and higher reliability. These synthesizers are available in half-rack mounted chassis with front panel control and serial or parallel control through rear panel connectors.

Many additional models are available, see MITEQ catalog C-38B "Frequency Generation Products".

### Features

- 1/2 rack space, 1 RU  
 Models: IF L-Band 950 to 2150 MHz  
 RF Ka-Band 18.3 to 20.2 GHz  
 RF Ka-Band 27.5 to 31 GHz
- Selectable step sizes: 1 kHz standard
- Sweep function
- INTELSAT phase noise compliant
- Field-tested reliability
- Low power dissipation
- Superior to MIL-STD-188-164B phase noise specifications
- 10/100Base-T Ethernet interface
- Switching speed  $\leq$  500 ms with Ethernet control

### Available In 1/3 Rack Series Version

#### MITEQ MOS 1/3 Rack Synthesizers



- Tunable, Multioctave
- Band Coverages from 100 MHz to 20 GHz
- 1 kHz Step Size with custom step sizes available
- Phase Noise Specifications superior to Intelsat and MIL-STD-188-164B requirements
- 1/3 Rack 1 RU high package;  
 5.7" [144.78mm] x 1.34" [34.04mm] x 20" [508mm]

See Catalog C-38B or contact MITEQ for details

### Options

- Custom frequency bands
- Fixed LO frequencies
- Custom step sizes
- Available in modular form (MOSM)
- $<$  500  $\mu$ s switching speed with LVTTTL option

Specifications	IF Model	RF Model
Models	L-Band	Ka-Band
Output frequency range (Notes 1, 2)	950 – 2150 MHz	18.3 – 20.2 GHz, 27.5 – 31 GHz
Step size (Notes 3, 4)	1 kHz standard	
Output power	+13 dBm minimum	
Output power variation	±2 dB maximum	
Input reference frequency (Notes 5, 6)	10 MHz	
Input power level	0 ±3 dBm	
Output spurious		
In-band	-60 dBc minimum	
Out-of-band	-60 dBc minimum	
Output mute	20 dB minimum	60 dB minimum
Phase noise	See graph	
Offset from carrier	At 2 GHz	At 30 GHz
10 Hz	-52 dBc	-35 dBc
100 Hz	-72 dBc	-65 dBc
1 kHz	-84 dBc	-85 dBc
10 kHz	-91 dBc	-92 dBc
100 kHz	-93 dBc	-95 dBc
1 MHz	-111 dBc	-125 dBc
10 MHz	-131 dBc	-140 dBc
Output harmonic	-15 dBc typical	
Output impedance	50 ohm nominal	
Load VSWR	2.0:1 maximum, all phases	
Acquisition time (to phase lock)	300 us typical, 750 us maximum with Option 17TTL	
Summary alarm	In lock and power supply status	
AC or DC power requirements	100–240 VAC, 20 W Typical, 47–63 Hz	

Notes:

1. Custom frequency bands available, please contact MITEQ.
2. Frequency accuracy  $\pm 2.95 \times 10^{-9}$ .
3. Custom step size available, please contact MITEQ.
4. Other reference frequency option available, please contact MITEQ.
5. Close in phase noise dependent on reference.
6. Automatic 5/10 MHz internal/external reference selection option.
7. For serial interface, LD150273, visit [www.miteq.com](http://www.miteq.com)

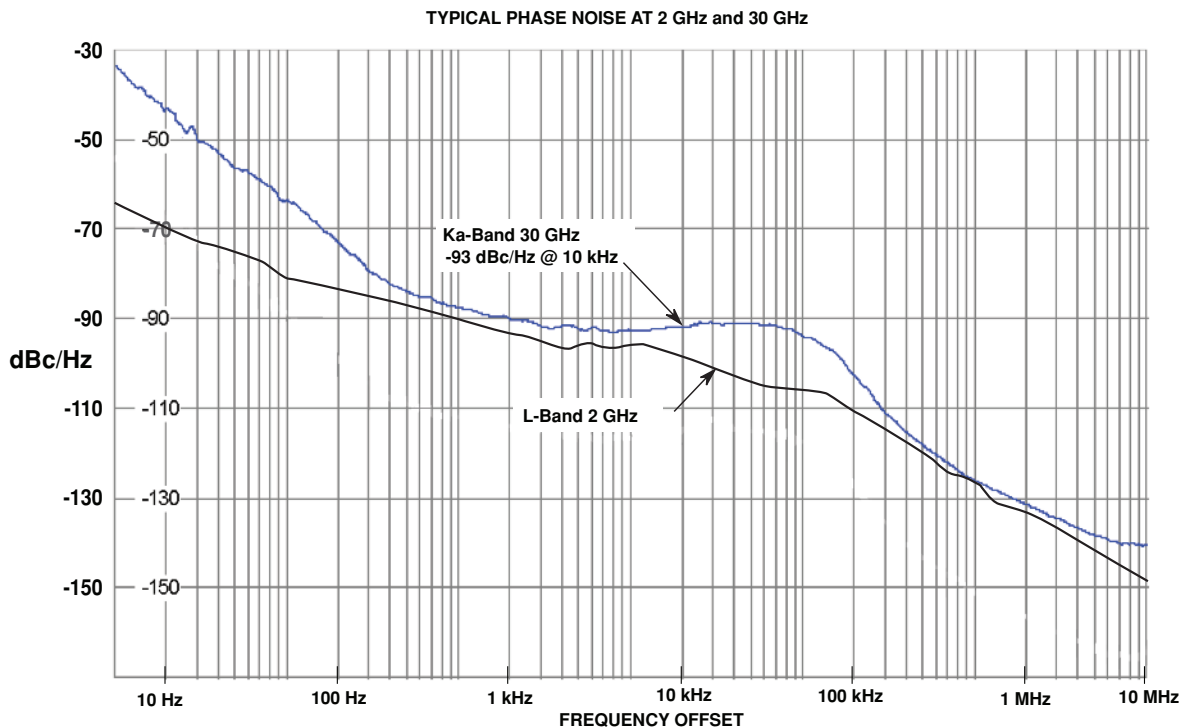
## Ordering Information

HRS-950215 (L-Band)  
HRS-275310 (Ka-Band)  
HRS-950215-TR 1/3 Rack (L-Band)  
HRS-275310-TR 1/3 Rack (Ka-Band)  
HRS-183202-TR 1/3 Rack (Ka-Band)

## Options

2. Front panel monitor connector -20 dBc.
- 17TTL.** LVTTTL optional interface. TTL alarm provided.
- 23B.** Rear panel reference “U-link”. This provides bypass of internal reference. Input 10 MHz at 0 ±3 dBm.
- 25.** Front panel connector.

Phase Noise Specifications



General Specifications

**Mechanical**

- Outline drawing ..... 175415
- Weight ..... 8 pounds (3.6 kg) typical in third rack
- Dimensions ..... 1.34" [34.04mm] x 7" [177.8mm] x 18" [457.2mm] (excluding connectors)
- Rear panel connectors
  - L-band ..... SMA female
  - Ka-band ..... K female
- Control connector ..... Ethernet, through RJ45 or 9-pin D for RS485

**Environmental**

- Temperature
  - Operating ..... 0 to 60°C
  - Storage ..... -50 to +100°C
- Humidity ..... Up to 95% at 40°C noncondensing
- Shock (nonoperating) ..... 30 g's, 10 ms pulse
- Vibration (survival) ..... 20 to 2000 Hz random to .04 G<sup>2</sup>/Hz
- Altitude ..... Up to 13,500 feet
- 100% testing ..... Frequency range
  - Output power
  - Discrete power
  - Spectral purity
  - Phase bursts
  - Alarm and monitors
- 100% screening ..... Temperature cycle/monitor

Note: Wider operating temperatures are available, please contact MITEQ.

**NEW!**

# RF SATCOM PRODUCTS

## Multiple Input Wideband Up and Down Block Converters

- Outdoor antenna mount
- Ku and Ka -Band Models



## New Addition to 1/3 Rack Block Converter Series

- Block Up and Down Converters with Internal Slope Adjustment over 1 GHz BW
- Available in all bands: C, X, Ku, and Ka

## 100K Noise Temperature Ka-Band LNB

- Small, reduced size package
- 5 models covering from 18.3 to 21.2 GHz



## Dual 1/2 rack size Combined Ku and Ka-Band Up and Down Block Converters

## New UPC2 Uplink Power Control Unit

- Improved User Interface with intuitive touchscreen display
- Ethernet Interface supports HTTP, Telnet and SNMPv1
- Site Diversity Switching - **Ideal for Ka-Band**



## 9800 Series Synthesized Converters with TT & C Bands



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