

SATELLITE TERMINALS

TEST EQUIPMENT

COMPONENTS

CUSTOM ENGINEERING

5-BAND SATELLITE EMULATION SYSTEM (SES) FOR L THROUGH KA WITH DELAY/DOPPLER EFFECTS



Tampa Microwave is pleased to introduce a new modular, 5-Band, Satellite Emulation System (SES) to simulate the effects of delay and Doppler on the end-to-end satellite link. The SES is mission configurable such that any of the frequency bands L, C, X, Ku and Ka can be populated either at the factory or as a field upgrade that is a simply module plug-in. Control of the SES is via a remote desk top connection allowing the SES to be remotely controlled.

In addition to all the features contained in our legacy simulator product line, the SES provides the following additional capabilities:

- 5-Band Capable (L, C, X, KU, Ka)
- Channel Effects Processor (1RU rack) to permit adding up to 700ms of delay between uplink reception and downlink transmission
- Doppler offset up 10-7 of the center frequency
- Doppler Rate of Change controlled by a period of up to 24 hours
- Increased simulator range (up to 7.5 miles)
- SES field of view of 100 degrees
- Self contained RF modules permitting field upgrade to add or subtract frequency bands
- Selectable delay channels (1 to 4)
- Simple control via a 'Virtual Instrument Panel'

Building on Tampa Microwave's widely utilized legacy line of C, X, Ku and Ka band simulators, the SES creates end-to-end communication links without the need of scarce and expensive satellite space assets.

The system operator can modify all satellite link parameters including signal strength, delay, frequency, beacons and Doppler shift through a laptop-based user interface.



Specify any combination of these 5 frequency bands or purchase additional frequency bands at (813) 855 2251.

TECHNICAL SPECIFICATIONS

Frequency	UPLINK (GHz)	DOWNLINK (GHz)
L- Band	1.627 - 1.663	1.522 - 1.558
C - Band	5.85 - 6.425	3.625 - 4.2
X- Band	7.9 - 8.4	7.25 - 7.75
Ku Band2	14 - 14.5	11.7 - 12.2
Ka Band	30 - 31	20.2 - 21.2
Mechanical Dimensions		
RF Head	20" x 16" x 11.5"	
L Band - 70 MHz Up/Dwn Converter (per band)	1RU per EIA-310	1 required for each channel of delay
Channel Effects Processor (two bands of delay per CEP chassis)	1RU per EIA-310	1 required for each 2 channels of delay
Weight		
RF Head	40 lbs with five bands	
L- 70 MHz Converter	11 lbs	
CEP	15 lbs	
Environmental		
Operating Temperature	- 30 deg C - +50 deg C	
Humidity	100 % Condensing	
Rain	4" per hour	
Wind	40 mph	

Notes 1: Contact Tampa Microwave for a detailed set of RF performance specifications
 2: Additional Ku band uplink frequencies are available upon request

MODEL NUMBER SELECTION GUIDE

	X	X	X	X	X	X
Description	L Band	C Band	X Band	Ku Band	Ka Band	# of Cross Boxes
SES-	0 = No 1 = Yes	0 = No 1 = Yes	0 = No 1 = Yes	0 = No 1 = Yes	0 = No 1 = Yes	1 = Single Band 2 = Dual Band

Example: SES-001011 assigns No L, C, or KU, but specifies X, Ka and 1 CEP



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