Appendix SBS

Integrated SBS Spectrum Analyzer Option

Revision: 31 October 2017

This appendix describes the additional functions provided by the RC4000's Integrated Spectrum Analyzer option. The SBS option for the RC4000 product integrates a high performance spectrum analyzer view into the interactive control of your satellite antenna. The SBS option operates over the frequency range of 950 to 2150 MHz and an RF sensitivity to -85dBm dependent on RF configuration.

Applicable to RC4000 software version 2.0x and higher.

1.1 Appendix Organization

This appendix is provided as a supplement to the baseline RC4000 manual. The corresponding paragraphs in the baseline RC4000 manual are referred to when data specific to the Integrated SBS Spectrum Analyzer option is described.

1.2 Software Configuration

The Integrated spectrum analyzer option provides the facility for the operator to observe the L-band receive spectrum of the satellite which can be an aid in identification and peaking.

RC4000 software configuration is presented in the form RC4Kabvwxyz where abvwxyz represents: (Mount manufacturer/Model) **ab** (Nav Sensor Option) **v** (Tracking Option) **w** (Remote Option) **x** (Receiver Option) **y** (Thor Receiver Option) **z**

This feature is categorized as one of the (Digit 12) TOP CARD RECEIVER options of the RC4000.

OPTION CATEGORY	DESIGNATOR	DESCRIPTION
Spectrum Analyzer/ Beacon Receiver	N	No integrated receiver supported
	A	ASC (Atlantic Satellite Corp.) Beacon
	B	Novella Beacon
	C	Avcom Spec An
	D	Avcom Spec An & DVB
	E	ASC Beacon & DVB
	F	Avcom Spec An & Novella Beacon
	G	Avcom SBS2 SpecAn/Beacon & DVB
	H	DVB-S2
	I	DVB-S2 & Novella
	J	DVB-S2 & SBS2 Spec An/Beacon
	N	None
	R	DVB Receiver
	S	Novella Beacon & DVB

Software supporting the integrated beacon receiver would therefore be designated in the form RC4Kabvwx**y**z. The SBS Spectrum Analyzer would be letters C or D in the "y" digit.

2.0 INSTALLATION

The SBS Spectrum Analyzer option to the RC4000 is factory installed. It is powered from the 24V internal supply of the RC4000 and communicates with the ACU via a serial data connection. The option adds 9 Watts to the overall ACU power dissipation.

3.0 OPERATION

The Spectrum Analyzer function is enabled by clicking the Rx spectrum button on the right side of the ACU functional window.


The Spectrum Analyzer functional window consists of the spectrum display on the left side and spectrum analyzer controls on the right side.

The spectrum display with 10 by 10 graticule, shows the start frequency center frequency and stop frequency beneath, all in MHz. Below the center frequency is the RF center frequency, in MHz, determine using the local oscillator frequency for the operating feed. The LO frequency is shown in the

upper left hand corner of the spectrum display.

The right hand side of the spectrum display shows the graticular amplitude levels. The controls on the right side of the window are Frequency, Amplitude, Bandwidth, and Marker.

3.1 Frequency Control
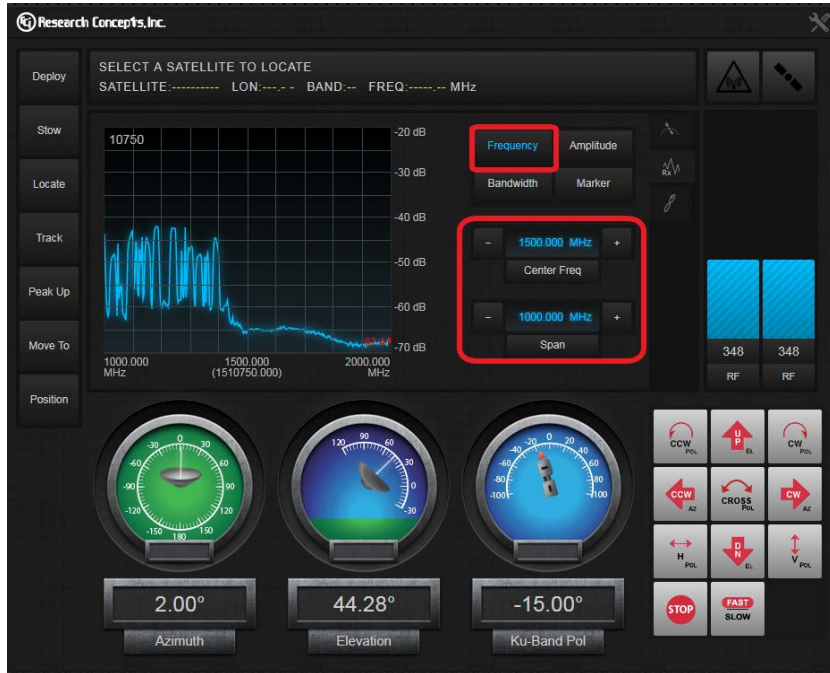
The Frequency control allows the Center Frequency and Span to be controlled. Both parameters may be incremented by using the + - keys. The Increment for Center frequency is 1/5th of one division. Additionally, the center frequency may be adjusted by direct entry in the numeric window. Center Frequency can be adjusted to be anywhere within the range of 950 to 2150MHz. The allowable spans are: 10KHz, 20KHz, 50KHz, 100KHz, 200KHz, 500KHz, ...through 2000MHz. Span is sometimes adjusted automatically based on changed in center frequency.

3.2 Amplitude Control
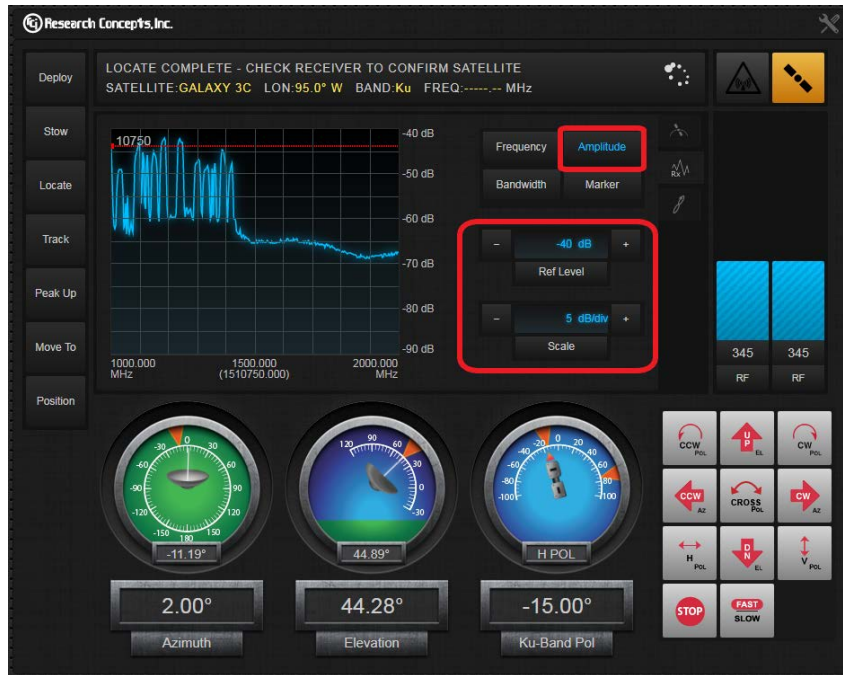
The Amplitude control allows the Reference Level and Vertical Scale (dB/division) to be adjusted. Again, both controls are incremented/ decremented via the + - buttons. The allowable values for Scale are 1, 2, 5, and 10 dB per division. The Reference Level increments by 5dB steps and can also be direct entered. The allowable Reference Level range is -70 to 0dB.
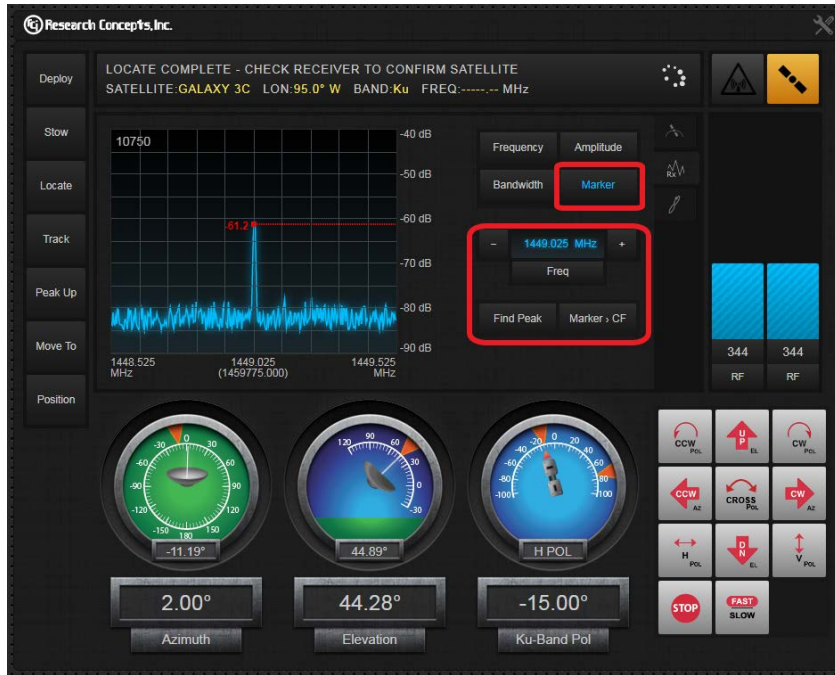
3.3 Bandwidth Control
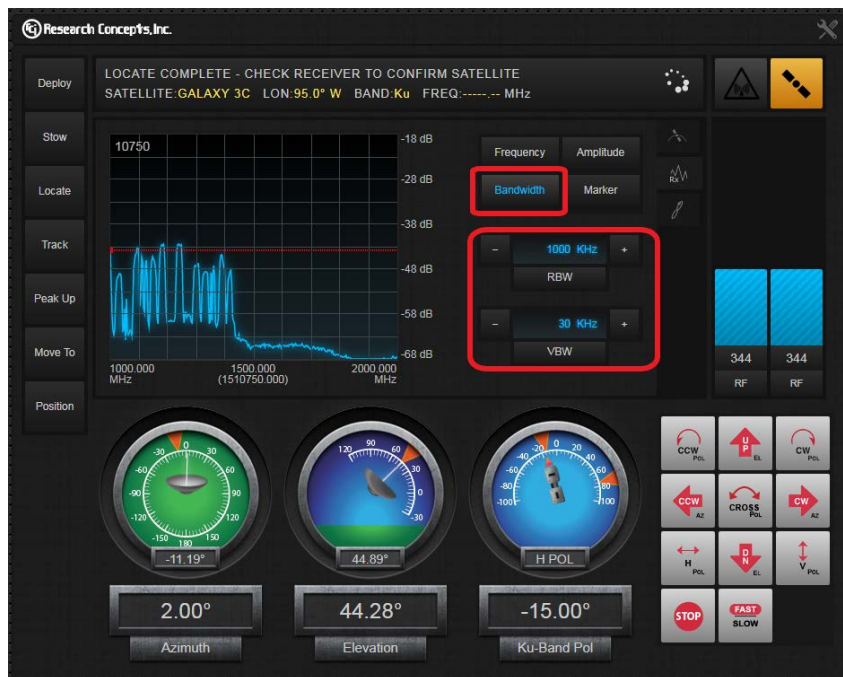
The Bandwidth Controls allows the Resolution Bandwidth (RBW) and Video Bandwidth (VBW) to be seen. The Resolution Bandwidth can be adjusted to 10KHz, 100KHz, 300KHz, and 1MHz. The Video

Bandwidth is not adjustable and fixed at 30KHz.

3.4 Marker Control

The Marker Button displays the Marker controls. The Marker is designated by a red mark with a dotted line running to the vertical scale on the right. The Marker Level is displayed to the left of the red mark on each sweep. The Marker Frequency is displayed in the Freq. window. The Marker Frequency can be set by direct entry or using the + - buttons to increment by 1/5th of a frequency division.   The Find Peak Button positions the Marker on the highest level visible on the current sweep. The Marker -> CF changes the Center Frequency of the span to that of the Current Marker.
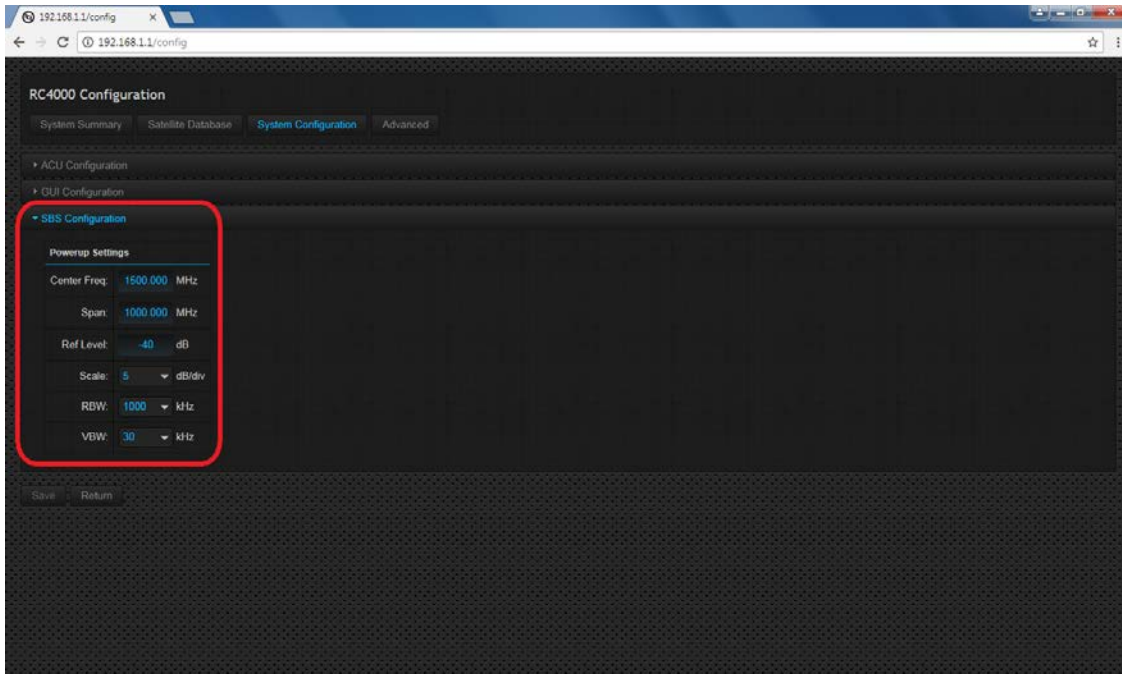
4 Configuration

To configure the SBS spectrum analyzer, select the CONFIG tools button in the upper right corner, or add "/config" to the IP address.
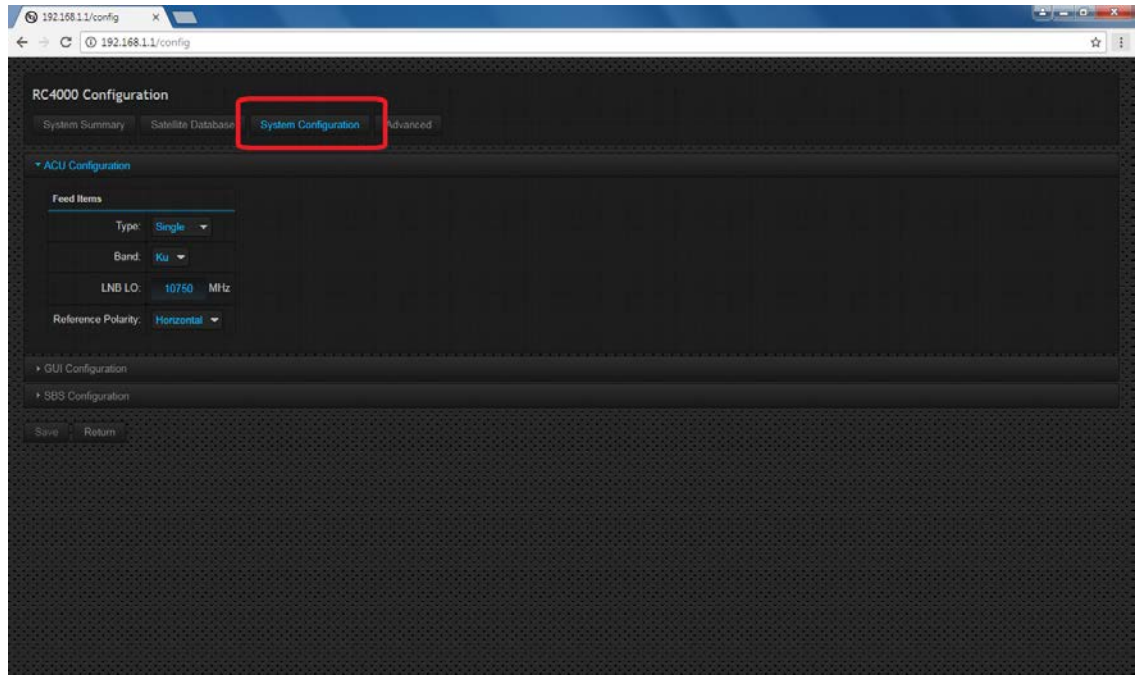
While in the configuration page select "System Configuration".

The SBS spectrum Analyzer initial settings can be set and "Save"d on this page. The factory default values are shown. An IP reset of the Web Server PCB of the RC4000 will return the values to those shown.