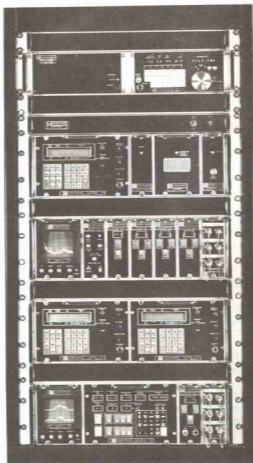


WJ-9040/SYS001

BroadBand Collection System (BBCS)



Introduction

The WJ-9040/SYS001 BroadBand Collection System provides an integrated search, acquisition, display, and monitor capability with frequency coverage of 5 kHz to 12.4 GHz. This system consists of components from the WJ-9040 Modular Receiving System and a WJ-8969 Microwave Receiver, combining to offer high performance and versatility in a cost-effective, compact system. Among the unique characteristics of the BBCS is extensive signal routing capability to facilitate narrowband processing, double demodulation, and other processing requirements. The BBCS can process a variety of signal types using up to 28 IF bandwidth filters ranging from 100 Hz to 36 MHz and demodulators capable of AM, FM, CW, USB, LSB, Pulse, and FSK detection.

The entire system may be locally controlled, via front panel controls, or remotely controlled, using a system computer and W-J furnished applications software. The computer applications software uses a menu-driven prompting system to simplify operator familiarization.

RF Coverage

Broad frequency coverage is achieved by using three receiver models, all capable of both channel and sector scan:

<u>Model</u>	<u>Type</u>	<u>Frequency Range</u>
WJ-8626	HF	5 kHz to 30 MHz
WJ-8628	VHF/UHF	20 MHz to 1400 MHz
WJ-8969	Microwave	1 GHz to 12.4 GHz

Using this complement of receivers, wideband frequency coverage is achieved without sacrificing performance. In the BBCS, receivers are fully synthesized and optimized for their respective frequency bands. For example, the HF receiver can perform analysis on emitters using IF bandwidths as narrow as 100 Hz, providing the selectivity and sensitivity required in the HF signal environment. To reduce the potential for intermodulation distortion, all receivers are equipped with preselectors. Input to each receiver is controlled by switch matrices which accept input from multiple antennas or from other receivers in the form of IF or video.

Signal Distribution and Analysis

A key feature of the BBCS is its ability to route receiver RF, IF, video, and audio throughout the system. This feature permits, for example, IF, video, or audio from the microwave receiver to be processed in the VHF/UHF or HF receiver, providing double demodulation capability.

Signal activity from either of two VHF/UHF receivers may be viewed on a display provided in the system. The display shows either a digitally refreshed (DRD) RF panoramic presentation or an IF presentation. In the RF pan mode, signal activity within the limits of a sector scan is displayed until the receiver generates an update. In DRD mode, the operator can move a cursor about the display and handoff to a monitor receiver without halting the scanning receiver. In the IF pan mode, signals within the selected tuner passband are displayed. This feature is particularly useful in a manual search mode.

For fine grain analysis, an FFT spectrum analyzer offers extremely fine resolution for presentation of signals of interest. Any signal received by the system, HF through microwave, can be analyzed on the FFT display, which offers resolution as fine as 10 Hz and can display up to 100 kHz of bandwidth with a very rapid sweep time. Also incorporated into the FFT are signal storage and comparison, variable signal integration and decay, and frequency measurement functions.

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