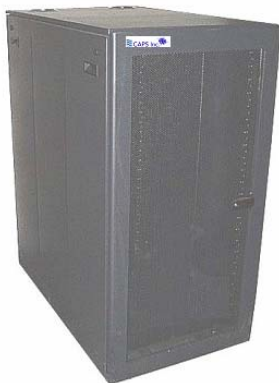


The RX1909 Digital RF Receiver and Signal Processor



signal processor



8 input digital down converter



waveform generator

Features

- 4/8 RF (S/L-band) signal inputs
- 14-bit Direct Digital Down Conversion
- Magnetron synchronization/Klystron/SS Option
- Dual RADAR receive channel configurable
- Standard industry outputs (ASTERIX, RDIF, CD2 etc)
- Doppler or MTI processing
- Outstanding clutter suppression using adaptive signal processing with:
 - High Resolution Clutter Maps
 - CFAR processing
 - Independent full range extent clutter processing on all filters
 - Full range clutter processing on both Main and Aux receive channels

The Problem

The design of this modern radar receiver resulted from a study of the current and likely future needs of the Civil and Military air traffic control community. With the improvement of cooperative surveillance technologies - Secondary Surveillance Radar (SSR) systems with Mode S capability and the advent of ADS-B, the perceived importance of the traditional "Primary" Surveillance Radar (PSR) over the past 10 years appeared to be diminishing. This diminishing importance of tradition PSR technology lead to industry directing new product investment dollars toward cooperative surveillance

technologies and away from supporting the PSR radar and abandoning the aging traditional PSR air surveillance product enhancements and next generation systems. This resulted in leaving users with the high cost of acquiring spare components to maintain their PSR radar systems.

The Solution

Hence, the introduction of the RX-1909 Digital RF Receiver and Signal Processor upgrade for primary radar systems. The RX-1909 upgrades aging PSR radar and extends its service life well past 20 years. The RX-1909 replaces cabinets of obsolete circuit assemblies with 4, 19 inch rack mount Line Replaceable Units (LRU).

The RX-1909 replaces all the existing hardware in a radar receive chain starting at the Low Noise Amplifier (LNA) and provides plot messages over industry standard LAN connectivity. System oscillators, STALOs and COHOs, are replaced with extremely low phase noise synthesizers enabling improvements in sub clutter visibility. Complicated multi stage RF to baseband down conversion is replaced with state-of-the-art wide dynamic range direct to digital down conversion (DDC). Magnetron frequency stabilization and phase control is all performed digitally providing a true coherent on receive radar receiver. Industry standard highly reliable Enterprise Server computer technology performs all the necessary signal processing and target extraction functions previously performed by cabinets of custom hardware that are expensive to maintain and difficult to source spare assemblies.