



# MULTI-CHANNEL RECEIVER TESTBED



MITRE

## DESCRIPTION

The Multi-channel Receiver Testbed (MCRT) is a flexible platform for evaluating Digital Antenna Electronics (DAE). The MCRT provides seven (7) channels of high-fidelity digital complex data received from any CRPA-type antenna at either the L<sub>1</sub> or L<sub>2</sub> carrier (electronically switchable). It produces digital In-phase and Quadrature (I&Q) samples for each channel at 26 MSPS. For use with a dual frequency GPS receiver, a complementary single channel, either at L<sub>2</sub> or L<sub>1</sub>, is provided.

## THE MCRT

- 1) allows recording of raw real-time data for off-line processing
- 2) provides a standard interface to allow other organizations to evaluate their digital processing systems
- 3) allows evaluation of DAE algorithms with hardware-in-the-loop
- 4) can be configured as an RF-to-RF appliqué

In the data acquisition recording mode, a user can record either equalized channels (to improve channel matching across the RF channels) for evaluating the performance Space Tool Adaptive Processing (STAP) algorithms or unequalized channels (e.g., for evaluating the performance of Space Frequency Adaptive Processing (SFAP)). A calibration unit provides signals for calculating the equalizer filter coefficients.

## FEATURES

- ▶ Three 19" rack mounted units
- ▶ Null depth up to 50 dB
- ▶ C/A compatible
- ▶ P(Y) compatible (no crypto)
- ▶ M-code compatible (no crypto)
- ▶ 32-FIR taps for STAP/equalization
- ▶ RF-to-RF appliqué mode:
  - 4 dB Noise figure
  - Adjustable RF gain
- ▶ Built-in LNA for passive antenna
- ▶ Data recording capability:
  - V-metro compatible interface
  - 12-bit LVDS I&Q raw data

## APPLICATIONS

Evaluation of DAE algorithms

## FOR FURTHER INFORMATION CONTACT:

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