Roke Manor Research

A Siemens Company

Compact 'N Channel' High Frequency Superresolution Direction Finding and Enhanced Signal Copy

Background

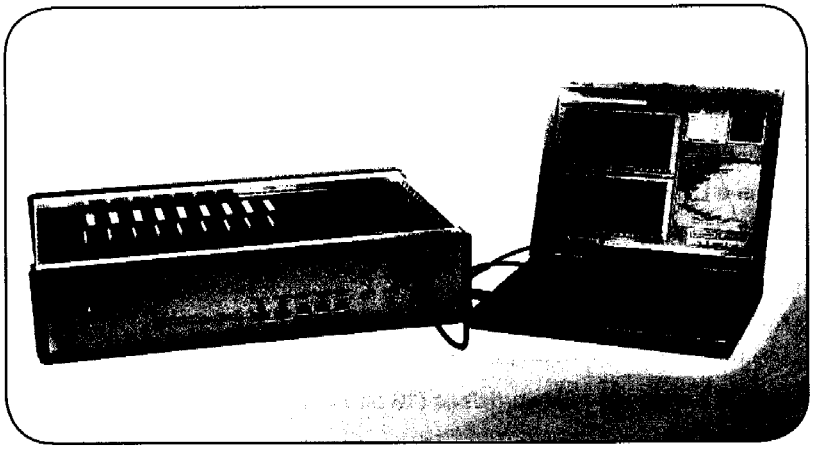
Over the last decade Roke Manor Research has established itself as a world leader in advanced superresolution DF systems and associated digital adaptive beamforming for enhanced signal reception. Many systems are in operational use at a range of locations around the world. The technology has demonstrated excellent performance and is regarded as providing the highest standard of Direction Finding (DF) capability.

The Technology

The N Channel collection hardware employed to date for these systems has comprised of a rack of VXI double superhet HF receivers, associated VXI PC controller and ancillary VXI modules for calibration.

Due to the recent advances in ADC technology it is now possible to offer a direct sampling 'N Channel' hardware solution at a fraction of the cost, size and power consumption of the VXI equipments. In addition the 0 to 30MHz wideband nature of the receivers provides a powerful wideband signal acquisition capability.

The new 'compact N Channel hardware' is able to directly support all our production superresolution DF and E-copy code.



9 channel collection with USB 2 interface for data transfer and control

Features

- Standard product has 9 x HF (0-30MHz) coherent, direct digitising, receivers all clocked from a common 80MHz source. (Straightforward extension to more receiver channels).
- Supports both wideband and narrow band data.
  - In wideband mode, blocks of the full 30MHz HF spectrum are transferred over the data interface
  - In narrow band mode continuous N channel data is streamed over the interface.
  - Up to 4 simultaneous narrow band frequency channels are supported simultaneously via 4 channel digital down converters.
  - For the USB2 interface up to 200kHz bandwidth can be continuously streamed for the 9 receiver system
  - Both wideband and narrow band modes can be supported simultaneously.
- Presently employs a USB2 interface for both data transfer and control but faster interfaces (e.g. Gigabit Ethernet) are in development.
- Fully supports our current production Superresolution Direction Finding (SRDF) and E-copy software (the hardware mimics an N channel VXI receiver rack).
- New energy detection provided for short duration signals.
- Each receiver includes a powerful FPGA to perform, for example, an 8k point FFT.

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See Resilient Networks, Miniature Radar Altimeters, 'Spinner' – and our other new technologies on stand 975

Roke Manor Research

Owned by Siemens, our client base includes Siemens, other companies and Government departments. Projects range from feasibility studies to designs for high volume manufacture. In addition, low volume manufacture can be undertaken in-house.

We bring a competitive edge to our clients by applying world-class talent to create innovative and timely solutions that meet their development needs.

Roke Manor Research is a unique company with a rich heritage and exceptional people. It is a business which prides itself on pioneering innovation and producing first-class technical solutions to demanding customer problems across commercial and defence arenas.

This comes from a foundation of world-class science and engineering expertise and an enviable breadth of knowledge and skill. In addition to technological excellence, the company embraces an entrepreneurial culture that balances engineering excellence, customer focus, business acumen and first-class project management skills.

Managing Director, Paul Stein appointed in 1996, has overseen the growth of business from £19m to over £40m. Paul is a member of the Ministry of Defence Scientific Advisory Council and sits on the South-East Science and Technology Advisory Council.

ENDS

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