

Electronic Warfare (EW)

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The US Navy is the coordinating service branch charged with developing the nation's Electronic Warfare (EW) program. It has initiated a program to develop the next generation of the JCREW 3.3 system to detect and jam IEDs. Additionally, the Office of Naval Research (ONR) has announced its intention to direct improvements of existing JCREW system hardware, software, techniques and technologies.

The new designs require transceiver components to support more than 100MHz per channel instantaneous bandwidth with efficiencies of more than 40%. Signal generation must be multiple, simultaneous, low noise waveform capable. Jamming responses necessitate high-speed activation to GHz bandwidths and waveform generation must be switchable at nanosecond speeds.

Antennas must be available for mounted and dismounted applications and have very broad bandwidth to reduce the number of antennas necessary to cover mid-LF to mid-EHF frequencies.

The availability of a reliable and proven source of RF cable assemblies and interconnection solutions is critical to achieving the government's and therefore the EW system designer's critical objectives.

Rosenberger of North America has manufactured and supplied over 250,000 preformed semi-rigid (hard line) cable assemblies and an equivalent number of flexible/hand formable assemblies and 25,000 antenna cables directly to the JCREW program. These assemblies have been in the field since 2006. The company remains committed to providing reliable coaxial interconnect solutions in support of these new, and future, requirements.

Rosenberger's ISO 9001:2008 Certified Pennsylvania cable assembly facility can manufacture, test and certify more than 12,000 preformed semi-rigid (hard lines), 15,000 hand formable/flexible and 5000 antenna cable assemblies per week. All assembly is done in accordance with IPC/WHMA and applicable MIL standards.

The on-site design and application engineering staff has over 110 years of RF experience. Prototypes can be designed and manufactured in a matter of days, not weeks or months. The design and application engineers work closely with CAD engineers and dedicated prototype, quick-turn manufacturing cells.

Virtual imaging allows the sharing of design drawings, concepts and test data with customers. The breadth and support of Rosenberger's coaxial product offering virtually assures lower level material (connector) availability.

Rosenberger's focused core competence in coaxial product design and manufacturing, and design for manufacturing, is a critical element to be considered by the EW system designer. The demands of performance, cost, manufacturability and reliability must be given virtually equal attention.

For example, Rosenberger's introduction of corrugated antenna cable into the military environment directly addressed the EW designer's demands for a lightweight, flexible, ruggedized, weather-proof assembly suitable for vehicle-mounted or man-portable applications. These cables, typically terminated with Type N, TNC or 7-16 connectors have years of field- proven durability and electrical performance. Over 25,000 cables are currently in service.

Semi-Rigid (hard line) pre-formed cables offer solid, durable, repeatable designs with predictable performance. A complete line of standard connector designs with weights and costs comparable to flexible cable makes these cables an excellent material and financial choice for system designers. These battle proven and easily replaceable (for damage or upgrade) assemblies have become the standard for EW circuit designers in sea, land and air environments.

Hand-formable/flexible cable assemblies complete the interconnect design choices for EW systems. These insulated or un-insulated options have found broad acceptance in applications from commercial to military. For example, Rosenberger introduced RTK-028 Triple-Shielded 0.087" (dia.) ultra-flexible cable to the military and EW market. This cable has been praised by instrument designers and manufacturers for its superior RF shielding and flexibility. Precision length management protocols make the range of cables phase-matchable and stable to values approaching semi-rigid. A broad range of connectors is also available to the designer.