Job Description

Position: Digital RF Engineer
Department: Lab
Supervisor: Lab Manager
Classification: Exempt

Role:

The Digital RF Engineer will serve as the subject matter expert in the areas of digital RF and RF based networking topologies including LAN and WAN based systems. As amateur radio technology migrates from analog to digital and becomes increasingly dependent on software based and FPGA embedded systems, this position will be required to maintain an understanding of leading-edge work in the industry and bring that experience to ARRL in terms of developing technology, technology-based content, and provide support to members in these areas. Short term objectives will include being involved with design, deployment, and management of a high-speed wireless telecommunications network via amateur radio; documenting the process of creating and deploying a portable mesh network; coordinating with the Emergency Management department to incorporate mesh networking into the ARES program; lead development of learning modules in the ARRL Learning Center related to these technology areas.

Major Duties & Responsibilities:

- Perform digital design, research and development and develop digital projects, as assigned in support of ARRL objectives.
- Responsible for performing electronic testing as assigned in support of ARRL objectives.
- Write technical articles and reports, as assigned, in support of ARRL objectives.
- Perform competent technical reviews of materials published in or being considered for ARRL publications and periodicals.
- Provide technical membership support and maintain technical membership contacts.
- Participate in the administration of the ARRL Laboratory activities.
- Other duties assigned as needed.

Accountability:

- The Digital RF Engineer reports directly to the ARRL Lab Manager.

Education and Experience

- A bachelor's degree in a radio or electronics technical discipline, or equivalent professional experience.
- General Class or higher Amateur Radio license, with a commitment to obtain an Amateur Extra license within one year of hire.

Knowledge, Skills, and Abilities:

- Broad experience and familiarity with the amateur radio practice and applications.
- Experience in RF design techniques and practice.
- General familiarity with test equipment, such as oscilloscopes, signal generators, arbitrary-waveform generators, and spectrum analyzers.
- General familiarity with modern amateur radio equipment.
- Ability to perform engineering-level testing and electronic design.
- Ability to initiate and manage projects related to ARRL technical objectives, including timelines, and expected metrics of performance and completion
- Experience writing and updating well-organized reports on project progress, including metrics/
- Ability to write technically appropriate and accurate articles, chapters, and books about various amateur radio technical topics, as assigned
- Propensity to perform peer-review of articles, chapters, and books.
- Ability to communicate with others and be able to explain technical subject matter to non-technical people.
- Working knowledge of MS Office and desktop applications.
- Must possess the ability to use hand tools.
- Must be a self-starter with a desire to see a project through to completion.

Essential Functions and Responsibilities

15%	Assist with the planning and implementation of a high-speed wireless data network using off the shelf Part 97 and Part 15 components.
15%	Assist in the development of the testing of the performance of amateur radio equipment in digital operating modes.
15%	Coordinate the use of mesh networking with ARES.
15%	Working with the Director of Emergency Communications, plan and implement high-speed-mesh-networking jump kits for deployment.
15%	Document the process of creating and implementing high-speed digital networking, at ARRL HQ and in the field, working with outside entities as needed.
10%	Assist in the development of web pages, articles, book chapters, books and Lifelong Learning modules in areas of expertise.
5%	Membership contacts to help resolve technical problems experienced by members.
5%	Use membership and industry contact to promote amateur radio and to sell ARRL Membership and publications.

Interpersonal Skill

- Work normally involves contact with technical and non-technical persons inside and outside of the organization. Outside contacts take the form of vendors, consultants, and volunteers.

Physical requirements:

- Ability to sit or stand at a desk workstation for extended periods.
- Ability to use hand tools and test equipment.
- Ability to lift up to 50 pounds.

Mental requirements:

- Ability to understand written and verbal technical material and instructions.
- Ability to concentrate on specific tasks for indefinite periods.

Supervision required:

- This position requires some supervision, but it is expected that the employee can be given general assignments and will develop specific work solutions and plans from those assignments. The supervision required is essentially that of planning overall objectives and workload and to fine tune the solutions and plans developed by the employee.

Working conditions and environment:

- Electronic workbenches.
- Electronic laboratory facility.
- Office or meeting facilities at other organizations for professional travel to meetings, conventions, or symposia.
- Outdoor environments for possible field testing of antennas, or for radio noise.

Tools and equipment used:

- Electronic workbench, hand tools, power tools and electronic test equipment.

Non-essential job functions:

- Physical maintenance of Laboratory facilities.
- Driving of automobiles to pick up needed parts or to local meetings and functions.
- Travel by automobile of common-carrier transportation to ARRL Conventions, industry meetings or technical symposia, etc.

Safety requirements:

- Normal office safety practices.
- Technical and physical ability to work with electronic circuits and voltages safely.
- Technical and physical ability to work with soldering equipment and hand tools safely.
- Technical and physical ability to work with small power equipment safely by using safe operating procedures and by using and operating supplied safety features.
- Safety goggles, laboratory coat, tower-climbing belt and hard hat are available and shall be used by the employee when appropriate.

- Technical and physical ability to work with slightly toxic and caustic chemicals by following safety instructions provided by the chemical manufacturers.
- Ventilation of work area occasionally required and operated by employee.

Personal Appearance:

- Work environment is Lab/shop/office. Dress code is business casual with special attention to safety. No loose-fitting garments or jewelry that could get caught in machinery or equipment. Personal safety equipment will be provided when required.