Nothing in this job description restricts management's right to assign or reassign duties and responsibilities to this job at any time.

DUTIES This is a non-career term job with the Metropolitan Washington Airports Authority (Airports Authority). Serves as a Radio Frequency Engineer in the Wireless Services and Radio Systems Division of the Technology Operations Department, Office of Technology. Performs the full range of analysis, design, implementation, optimization and enhancements of wireless and radio telecommunication networks, including link budgets analysis, system design and dimensioning, coverage planning, site identification, evaluation and zoning support, frequency planning, interference analysis and mitigation. Performs related functions.

--Performs Land Mobile Radio (LMR) and Radio over Internet Protocol (RoIP) communications systems engineering, design and implementation. Reviews existing and planned Radio Frequency (RF) networks; ensures compliance with licensing regulations; and performs requirements gathering, design review, change management, and final acceptance for new RF systems.

--Performs Radio Network Administration by monitoring system alarms and alerts. Monitors and analyzes system performance metrics to assist in frequency management, coverage/capacity planning, and solution evaluation and implementation.

--Conducts engineering, research and analysis of Airports Authority Land Mobile Radio (LMR) systems to develop and design 'in house', 'cost-effective' solutions to address multi-trunk systems challenges and ensure mitigation of any interference.

--Conducts radio frequency analysis on all radio and wireless systems on Airports Authority property to ensure proper operation and mitigation of radio frequency interference from different systems. Ensures high-availability of wireless systems while conducting radio system maintenance.

--Maintains radio systems, system components, radio configurations, and related documentation of all systems. Examines and analyzes radio systems for capacity, coverage, reliability, defects, system anomalies and performance, utilizing test equipment such as Aeroflex Land-Mobile Radio Test Set, Bird Technologies Site Analyzers, and Motorola R2670 Spectrum Analyzers.

--Participates or represents the Airports Authority in all locally held FCC and Regional Frequency meetings and meetings that may address or impact on Airports Authority wireless and radio systems. Provides technical expertise to any issues or items that need to be addressed. Ensures the Airports Authority is in compliance with all FCC and Regional meeting decisions and regulations. Reviews FCC Notices of Proposed Rule Making (NRPM) to determine the impact on the Airports Authority; conducts FCC Compliance activities.

--Ensures Tier I, II, and III technical support for all fixed network equipment (FNE) including radio frequency (RF) components, trunking controllers, dispatch consoles, network devices and subscriber units is handled according to best practices and Department guidelines. Coordinates Tier IV support with vendors when needed. May provide direct technical support, as needed.

--Communicates and interacts effectively with internal and external business contacts including but not limited to, other members of the unit/team, other Airports Authority employees (such as executives, managers, supervisors, professionals, and support staff), vendors/suppliers/tenants, and representatives of other public safety entities.

--Uses a computer and (a) modern office suite software (such as MS Office) to communicate (email); plan; schedule, word process; prepare presentations and graphics; manipulate data (spreadsheets and databases); and research (Internet use to search out new products and technologies and keep up with technology); (b) enterprise system/software for requisitioning, budgeting, time and attendance, payroll, and other functions, and (c) specialty systems/software used in the Department.

--Operates a motor vehicle airside and landside, on and off airport complexes, to attend meetings, visit jobs sites, and perform related functions.

--*Performs other duties as assigned*

MINIMUM QUALIFICATIONS (MQs)

To be rated qualified for this job, an applicant must meet all of the MQs listed below at the time of vacancy announcement closure.

1. A bachelor's degree in any field that provides a strong foundation for successful performance of the DUTIES in this job description, or any equivalent combination of education, experience and training that totals four years.

2. Six years of progressively responsible experience in conventional (repeaters) and trunk systems Radio Frequency (RF) technology including, (a) designing and testing of Land Mobile Radio (LMR) trunked digital voice and data radio systems and subsystems and (b) deploying new radio systems in critical systems where any radio communications service disruption would adversely affect operations such as public safety.

   A master's degree in any field providing strong foundation for successful performance of the DUTIES in this job description may be substituted for two of these six years.

PREFERRED QUALIFICATIONS

The qualifications listed below (if any) are preferred and may be considered in the selection process, but they are not required to be rated qualified for this job.

1. A Bachelor's Degree in Electrical Engineering.

2. Radio Frequency (RF) experience in the public safety sector and/or in the transportation industry with Motorola trunked radio and conventional systems.
3. Motorola Technical Associate Certificate.

KNOWLEDGE, SKILLS, ABILITIES AND OTHER FACTORS (KSAOs)

The following KSAOs are required for successful performance of this job and are a basis for rating and ranking applicants who are found to meet the MQs. *Local, Federal, airport industry or Airports Authority specific bodies of knowledge listed below may be acquired on the job, typically; ability to rapidly acquire them is required at the time of vacancy announcement closure.*

1. Comprehensive expert knowledge of a wide range of Radio Frequency (RF) Land Mobile Radio (LMR) trunked digital voice and data radio systems, principles, concepts, and methods including system architecture, integration techniques, and testing methods to review existing Radio Frequency (RF) structure, encapsulate its weaknesses, strengths, and potential to create enterprise architecture plans that align the Airports Authority's business goals and the Radio Frequency (RF) infrastructure such that the Radio Frequency (RF) infrastructure supports the business and helps achieve those goals.

2. Expert level knowledge in Radio Network Administration, Aeroflex Land-Mobile Radio Test Set, Bird Technologies Site Analyzers, and Motorola R2670 Spectrum Analyzers to perform troubleshooting, optimization, and repairs.

3. Skill to analyze complexities of existing Radio Frequency (RF) technology, review/revise/develop policy, initiate plans for enhancements, and provide technical and cost analysis information through written documentation and oral briefings.

4. Knowledge of FCC technical and operational regulations pertinent to spectrum management, interference mitigation techniques, and Radio Frequency (RF) engineering to provide recommendations on hardware, systems software, and applications software to support radio systems operations.

5. Skill in problem solving to select, organize and logically process relevant information (verbal, numerical or abstract) to solve a problem. This includes the ability to recognize subtle aspects of problems and identify relevant information. Examples include planning, communicating, and executing integrated processes to manage radio propagation modeling, analysis, and field verification.

6. Skill in written communication to understand written information (including facts, assertions and arguments), draw inferences, form hypotheses and develop logical arguments, and to express such information in writing so that others will understand and, at times, be convinced or persuaded. Examples include reviewing the written work of others (such as consultants) to resolve discrepancies in reports, overseeing the development and documentation of policies and procedures, and preparing or reviewing memoranda/letters.

7. Skill in oral communication to understand verbal information (including instructions, descriptions, and ideas) and to express such information verbally so that others will understand. Examples include exchanging routine and non-routine operational and

procedural information and technical information with team members, co-workers and Office management.

8. Skill in using a computer and (a) modern office suite software (such as MS Office) to plan, schedule, communicate, word process, prepare and develop reports, and perform research (Internet use, as in searching for performance information and keeping up with technology); (b) enterprise systems/software for requisitioning and other functions; and (c) specialty systems/software used in the Division.

RESPONSIBILITY Is responsible for RF Land Mobile Radio (LMR) and Radio over Internet Protocol (RoIP) communications with the full range of RF architecture responsibilities. Work ensures that the Airports Authority's RF Land Mobile Radio (LMR) and Radio over Internet Protocol (RoIP) communications remains operational and the applications it supports continue to support the Airports Authority operations.

Reports to the Manager, Wireless Services and Radio Systems (Supervisor). Most work flows to the incumbent as a result of assigned functions and processes. The Supervisor provides broad objectives and policy guidance for any recurring assignments and, in consultation with the incumbent, brief instructions and time frames for special projects. Work is expected to be complete, thorough, accurate, and adequate for the purposes of improving RF Land Mobile Radio (LMR) and Radio over Internet Protocol (RoIP) communications. The incumbent collaborates with and keeps the Supervisor informed and typically elevates highly complex or highly sensitive issues for assistance in resolution; initiative is expected. Work is typically reviewed in terms of quantity, quality, timeliness, customer service, teamwork adherence to guidelines, and other factors, including specific performance management requirements. Special projects are usually reviewed at milestones for effectiveness of project management and, once implemented, for overall impact.

Guidelines and references include the FCC guidelines, the Airport Use Agreement and Premises Lease, capital improvement programs for wireless services and radio systems of the Aviation Enterprise and Dulles Corridor Enterprise, and generally accepted principles of strategic business planning. The incumbent uses judgment in aligning guidelines, references, and existing and new technologies with the Division's business strategy and for analyzing the Airports Authority's RF structure and outlining its overall direction to achieve RF effectiveness, efficiency, agility, and durability.

EFFORT The work is split between sedentary work and field work. Incumbent may sit for extended periods while performing desk work and may spend significant time in the field as part of observing RF system performances. Regularly uses a computer to review existing and planned RF technology information and strategies and perform other functions. Exchanges information by telephone and email often. Typically exerts light physical effort in opening and closing file drawers, retrieving files and otherwise moving about to obtain or distribute work materials. In driving, safely operates vehicle using judgment based on weather, traffic and other factors.

WORKING CONDITIONS Works in an adequately lighted, ventilated, and temperature-controlled office setting. Occasionally traverses or works in areas that may require access by

climbing or crawling, and sometimes works in cramped or awkward position to manually adjust wires, controls, and other items of equipment including roof tops.

OTHER SIGNIFICANT JOB ASPECTS Must be able to work varied schedule of days and outside normal 8am-5pm business hours for scheduled and emergency maintenance and/or upgrades as well as standard on-call rotation. Is subject to hold-over and recall for IT emergencies and may need to work nights and weekends depending on operational requirements and other factors.