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

DUTIES Serves as journey (full performance) level Electronics Technician in the AEM/Electronics Section of the Electrical Services Division at Washington Dulles International Airport (IAD), Metropolitan Washington Airports Authority. Installs, tests, adjusts, maintains, troubleshoots, repairs/replaces and modifies the full range of electronic equipment and systems. Applies the theories, principles, requirements and standards of the trade and uses the full range of tools of the trade. Troubleshoots equipment and complete electronic systems. Uses specialized software to adjust equipment/systems and diagnose problems. Uses diagrams, prepares schematics, etc. Performs related functions.

Maintains, troubleshoots and repairs electronic systems and controls such as fire alarm systems, multi-user flight information systems, digital signage and wayfinding systems, digital display computers (DDCs) and flight information system monitors, fuel line controls, and public announcement (PA) systems; synchronizes terminal clocks. Adjusts electronic and/or electro-mechanical controls on automatic doors, audio/visual conferencing equipment, etc. May work on software systems and may need to diagnose and replace central processing units (CPU's) associated with electronic systems and controls.

Keeps up-to-date on changing electronic technology and participates with management, engineers and contractors in reviewing plans for proposed electronic systems and the modernization of existing systems. Maintains various kinds and types of electronic systems from 30+ year-old technologies for which parts are often not available to state-of-the-art systems, such as fire alarm systems with networked computers and addressable smoke detectors in remote buildings reporting to a central network command center in the Public Safety Communications Control Center. For contingency purposes, receives training on newly installed systems while they are still under warranty, such as the routing of the cables, the lay out and how ties are made, where the drawings and spare parts are, etc. As assigned, inspects contractor's work on new or existing electronic systems to ensure it meets code and accepted trade practices; writes reports of findings.

Troubleshoots, solid state and digital controller electronics, Category 5/5e, Category 6 and fiber optic cables using a wide variety of tools and equipment such as meggers, volt-ohm meters, oscilloscope, digital multimeter, logic probe, logic pulser, frequency counter, computer [laptop and personal computer (PC)] and audio generator. Example: In Siemens fire alarm system, uses diagnostic computer program, troubleshoots circuit boards and detectors, and takes readings of circuits. Troubleshoots to component level on computerized information systems and replaces components; measures resistance in cable or to ground in tracing wire to determine where signal is lost; and performs other troubleshooting. In addition to visual, audio and electronic/electrical examinations, talks to users regarding nature of malfunctions, as in diagnosing problems involving radio frequencies, telephone lines and PA systems.

Updates operating software and parameters of software for computerized PA systems, fire alarm systems, lighting control systems in terminals, and airfield lighting control system (failure of system to remain online results in flight delays and severely impacts traveling public).

Tests, performs preventive maintenance and troubleshoots controls and proper operation of electric and diesel fire pumps.

Works planned and emergency outages, such as operates tripping mechanism; locates shorts, grounds, capacitance imbalance, breaks, etc.; pulls wire and makes necessary cable repairs associated with electronic equipment.

Uses manufacturers' manuals, specifications, schematics and blueprints when available and accurate; modifies schematics and drawings as required.

Repairs electronic equipment, such as interface panels, amplifiers, transmitters, TV monitors, programmable smoke detectors, tamper switches, PCs, etc. Calculates and designs circuits as required.

Performs preventive maintenance such as testing the synchronized clock system and operation of lines for fire alarms, cleaning transmitters, etc. Periodically tests systems, such as by activating alarms and resetting signals.

As assigned, performs a full range of duties in all areas of the Airport, airside and landside, such as repairs fire alarm and PA devices, panels, automatic equipment controls, detection systems, programmable logic controllers (PLCs), central processing units (CPUs), digital control components, etc.

Uses a variety of hand tools and specialized equipment such as digital volt/ohm meter, phone/communication tester, capacitance checker, radio and telecommunications devices.

Uses a computer/laptop and (a) modern office suite software (such as MS Office) to communicate (email), word process (light word processing only), and research (Internet use regarding systems and controls information); (b) enterprise system/software such as the CMMS; and (c) special systems/software used in the Division to diagnose, troubleshoot, take readings, update operating software, etc.

Handles hazardous materials (such as chemicals) in accordance with regulations and other requirements. Works according to fire codes and National Fire Protection Association (NFPA) standards as well as Federal Aviation Administration (FAA) regulations concerning airfield lighting. Works safely in accordance with safety procedures.

Stays abreast of technological advances affecting IAD electrical/electronic equipment and systems. As opportunities arise in the course of daily work, recommends (based on observations) improvements in preventive maintenance and in practical use of modern technology.

Sets up and cleans up work-site. Performs 'shop keeping' tasks common to the trade, and as assigned.

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 other trade workers, supervisors, professionals and support staff), and employees in various Airports Authority and tenant units located at IAD (such as building managers and employees receiving electronic/electrical services), manufacturers/vendors/suppliers, contractors, and other parties/persons. There is occasional or incidental contact with Airports Authority personnel concerning code-related work. Occasionally escorts contractors to work sites.

Maintains radio/phone contact with supervisor/shop leader/base and customers, keeping them informed.

Drives a vehicle (such as a pick-up truck, mini-van or bucket truck) to and from work locations, airside and landside, performs operator maintenance on vehicle and keeps it in orderly condition.

Performs other duties as assigned.

Critical features of this job are described under the headings below. They may be subject to change through reasonable accommodation or otherwise.

MINIMUM QUALIFICATIONS (MQs)

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

1. A high school diploma or a Certificate of General Educational Development (GED); or an equivalent combination of education, experience and training.

2. a. Five years of progressively responsible experience (post high school) in the maintenance and repair of electronic equipment and systems (as described in the DUTIES in this job description), to include one year specializing in testing, diagnosis, maintenance and repair of a range of electronic equipment and systems, such as, but not limited to, fire detection and suppression controls, automatic door controls, conveyor system controls, communication systems and programmable logic controllers (PLCs) governing specialized systems. This qualification requirement includes knowledge of the theories, principles, requirements and standards of the electronics trade. [National Institute for Certification in Engineering Technologies (NICET) Level II (or higher) certificates in various electrical and mechanical systems comprise one form of evidence of four years of progressively responsible electronic trade experience, but they are not, by themselves, evidence of the one year of experience specializing in testing, diagnosis, maintenance and repair of a range of electronic equipment and systems, as specified above.] **OR**

   b. An equivalent combination of four years of education, experience and training in the electronics trade, such as, but not limited to, graduation from a program of vocational education or apprenticeship or another program of progressive instruction in the electronics trade that is provided or approved by the US military, a State Employment Service or a school-industry partnership and is integrated with or supplemented by on-the-job experience in the trade, plus one (additional) year of post program experience specializing in testing,

diagnosis, maintenance and repair of a range of electronic equipment and systems, as specified above.

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. NICET Level II (or higher) certification in Fire Alarm Systems.

2. Knowledge of, and skill in applying, FAA regulations for airfield lighting.

3. Experience diagnosing and fixing problems with networked computers.

4. Experience working safely in a skilled trade on a busy airfield, or in an equivalent work environment such as, but not limited to, work in a skilled trade requiring prolonged concentration and attention to detail amid maritime or motor freight cargo loading/unloading, or other types of near-constant movements/operations that require continuous situational awareness and alertness due to continually changing circumstances and events.

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 application/placement.*

1. Full performance (journey) level knowledge of, and skill in, electronic equipment and system installation, testing, adjustment, maintenance, troubleshooting and repair/replacement. This includes but is not limited to:

    Knowledge of the theories, principles, requirements and standards of the electrical trade (such as transformers, rectifiers, series circuits, linear integrated circuits, suppression circuits and the National Electric Code) and the electronics trades (such as PLCs, resonant circuits, sensors, optoelectronic and fiber optic components).

    Knowledge of airport electronic systems and controls such as fire alarm, public address, digital messaging systems and controls for automatic lighting, multi user flight information display, etc., and the theory of their operation, to perform preventive maintenance, calculate circuits, recognize malfunctions and locate their causes, and determine the best methods for correcting defects, such as to maintain or restore the signals from detectors or sensors over electrical lines, telephone lines and network cables for the activation of equipment in remote locations.

    Knowledge of Federal Aviation Administration (FAA) regulations for airfield lighting, and skill in installing, modifying and using various electronic systems.

Ability to rapidly acquire, retain and apply technical knowledge of new equipment and systems as they come on line.

2. Skill in using tools, technical manuals, schematics, materials and other equipment and guides in journey level electrical and electronic work. Examples include:

   Skill in using hand and power tools of the trades in routine and non-routine work, such as volt-ohm meters, digital multimeter, logic probe, logic pulser, frequency counter, oscilloscope, computer and audio generator to locate areas of malfunction, to determine whether a line is energized or where a signal is lost, to repair equipment such as interface panels, different kinds of amplifiers and transmitters, and to perform related functions.

   Skill in using test equipment and computer networking in working on electronic systems.

   Skill in using manufacturers' manuals, specifications, schematics, blueprints and other diagrams (including block diagrams and wiring diagrams) to determine appropriate settings or alignments and trace circuits, and to perform related functions.

   Skill in developing new drawings or modifying existing schematics.

3. Skill in problem solving to select, organize and logically process relevant information (verbal, numerical or abstract) to solve a problem. This includes ability to recognize subtle aspects of problems, identify relevant information and make balanced recommendations and decisions. Examples include assessing electrical and electronic system performance by taking readings, calculating line loads using specialized software, etc.; maintaining and troubleshooting controls for fire alarm systems; and troubleshooting runway sensor systems.

4. Skill in using a computer/laptop (a) modern office suite software (such as MS Office) to communicate (email), word process (light word processing only), and research (Internet use regarding systems and controls information as in searching for parts and performance information and keeping up with technology); (b) enterprise system/software such as the CMMS; and (c) special systems/software used in the Division to diagnose, troubleshoot, take readings, update operating software, etc.

5. Skill in written communication to understand written information (including instructions, descriptions and ideas), and to express such information in writing so that others will understand. Examples include reading technical-operational materials (such as technical manuals, maintenance schedules and work orders) and administrative-programmatic materials (such as IAD and Airports Authority supply procedures), and writing briefly about similar types of matters, such as closing out work orders and reviewing Safety Data Sheets (SDS).

6. 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 with co-workers, contractors and customers.

7. Interpersonal skills to interact with contacts in a businesslike, customer service-oriented manner.

8. Knowledge of Federal, state and/or Airports Authority safety rules and procedures to work safely.

RESPONBILITY Is responsible, at the full performance (journey) level, for installing, testing, maintaining, troubleshooting, repairing and modifying electrical and electronic equipment and systems to help provide efficient power and control operations and services, as assigned, within prescribed limits and according to codes, regulations and other guidelines. Independently plans, lays out and completes regularly recurring work. Typically seeks assistance only on unusual or very complex problems. Makes decisions and recommendations within the scope of one's assignments and authority, keeps the Supervisor informed and brings matters not covered by established procedures or other guidelines forward for guidance or resolution. Works to close tolerances in programming controls, calibrating equipment and making alignments and fine-tuning to specific voltages. Work is subject to review in process, upon completion and in other ways (such as performance of electrical and electronic equipment/systems after repair, nature and number of call-backs, and comments by customers) in terms of quality, quantity, timeliness, customer service, teamwork, adherence to requirements and other factors, including attainment of specified performance management goals and objectives.

EFFORT Work requires moderate to heavy physical exertion (such as frequent, prolonged periods of exerting 20 to 40 pounds of force or continual exertion of force in the range of 10 to 20 pounds), and considerable mental attention (as in working in very close proximity to energized electro-mechanical equipment). Frequently moves from one area to another and ascends/descends stairs in checking equipment. Stoops, stretches, bends, kneels or otherwise positions self to access and use or fix work objects and to work in tight spaces; may do such for long periods. Carries or otherwise moves and sets up parts weighing up to 50 pounds or more. Must be constantly alert for indications of potential equipment problems or safety issues, such as stuck gauges, overheating motors and changes in motor sounds or alarm bells. May use ladder, personnel lift and bucket truck to reach work objects. Distinguishes color coded wiring. Uses computer. Obtains information about the status of equipment/systems from dials and gauges. Reviews schematics containing small print. Operates vehicle using judgment in consideration of traffic, weather and other factors. Communicates by two-way radio and telephone.

WORKING CONDITIONS Generally works inside buildings, but also works outside; may work outside in all kinds of weather. Sometimes works with dirty, greasy parts. Is sometimes exposed to hazardous substances (such as lead and solvents), possibility of injury from driving/working on busy airfield, falls, cuts, bruises, eye injuries, electrical shocks and burns (from working amid energized equipment), fumes/gases (from working in electrical manholes), extremely loud noises (such as noise from jet aircraft and industrial machinery) and other unpleasant/discomforting conditions, risks and hazards. Works in confined spaces, such as electrical vaults. Exercises care, follows safety precautions/procedures, and uses personal protective equipment and other safety gear: hard hat, safety shoes, hearing protection, eye protection, respirator mask, safety-recovery

harness with tripod and confined space monitor, lock-out/tag-out procedures, etc. Is subject to time pressures of restoring operation of equipment or systems essential to airport or airline functions, safety or security.

OTHER SIGNIFICANT JOB ASPECTS Is subject to hold-over or recall on a 24-hour basis for essential services and emergencies such as equipment/system outages and snow removal.