

## RADIO SYSTEMS SPECIALIST

### FUNCTION OF THE JOB

Under direction, to perform specialized technical work in the installation, repair, and maintenance of Frequency Modulation (FM) land mobile, and microwave communications systems and equipment; to plan, design, and implement such systems; to assist in the administration of the Countywide trunked digital and analog radio communications networks; and to perform other duties as required.

### CHARACTERISTIC DUTIES AND RESPONSIBILITIES

1. Assists in the administration of the trunked radio communications system by performing network design, planning, installation and maintenance, configuration and upgrades; monitoring operation of system; adjusting parameters to ensure optimum performance; performing user maintenance activities; system audits and serving as back up for system security and coordination of infrastructure maintenance.
2. Acts as project lead worker who installs, repairs, and maintains data transport/data network equipment and media including wireless, fiber, DS1/T1, channel banks, multiplexers, routers, automatic protection switches, and performs network service and dynamic data impairment analysis.
3. Uses computer diagnostics to repair and maintain a variety of FM land-mobile, microwave, and base transmitter communications systems and electronic equipment such as hand-held and mobile radios, pagers, base transmitters, microwave units, communications consoles, system controllers, and system management terminals.
4. Performs set-up, modifications, and upgrades to equipment by using computer software to program required and customized specifications, configurations, and priority levels; and by installing software.
5. Tests and certifies operational parameters of new equipment by using computer service software and communications analyzer to ensure compliance with specifications, FCC rules, and compatibility with users' system and the trunked radio system.
6. Monitors, diagnoses, and responds to multiple system alarms and events on a 24x7x365 basis.
7. Diagnoses and isolates malfunctions in a wide variety of technologically advanced equipment; researches technical service manuals and reviews schematic diagrams; performs maintenance and repairs to the component level; and tests equipment for proper functioning.
8. Provides technical support and training to other technicians; oversees and reviews the work of other technicians; coordinates and prioritizes the scheduling of daily and emergency service requests; and assists in the selection and evaluation of staff.
9. Develops standards and procedures for equipment maintenance and installation, and for technician training.
10. Implements periodic optimization of the trunked radio and microwave network system infrastructure; and assists in the administration of the system.
11. Designs and implements in-building bidirectional radio frequency (RF) amplification systems to provide reliable public safety trunked radio communications in dense mission-critical buildings.
12. Creates and updates custom radio programming templates based on the needs of each agency; records all steps of the programming process.
13. Provides consulting services to clients including planning, design, and installation of communications networks and systems, consoles (E9-1-1 dispatch centers), E-9-1-1 display, routing, and logging equipment, and components; prepares proposals, specifications, and cost estimates; orders equipment; and coordinates on-site installation.
14. Acts as a liaison for customers regarding requests for service, complaints, or observed problems with communications systems or equipment.
15. Provides information to and trains users on an individual and group basis in the proper operation, usage, and care of, and in the federal rules and regulations concerning electronic and communications equipment.
16. Provides accurate and detailed records of services performed on automated computer system including time spent on service, parts used, and other relevant information; creates and runs radio system user requested reports.
17. Provides emergency service response (on call status) to all County 911 communication centers on a 24x7x365 basis; provides support and coordination with Milwaukee County Emergency Management for regional communication needs.
18. Orders, receives, inspects, secures, and inventories parts and equipment for service and installations.

CHARACTERISTIC DUTIES AND RESPONSIBILITIES (continued)

19. Maintains testing and repair equipment, tools, and workspace.
20. Establishes and maintains effective working relationships with customers including other County departments, outside organizations, vendors, and co-workers.
21. Performs other duties as required.

QUALIFICATIONS

Essential Knowledge and Abilities

1. Comprehensive knowledge of the methods, procedures, specifications, and equipment used in the design and operation of trunked radio, land-mobile, and microwave communications systems.
2. Comprehensive knowledge of the techniques, methods, procedures, and tools used in the installation, repair, and maintenance of trunked radio, land-mobile, and microwave communications systems and electronic equipment.
3. Comprehensive knowledge of the operational theory, parameters, and applications of radio frequency (RF) technologies, including digital, microprocessor, microwave, and trunked radio, and of RF-related mathematics, circuit design, and electronics.
4. Comprehensive knowledge of IP networking, servers, routers, switches, P25 trunking, point-to-point data transport, including Ethernet, T1/DS1 lines and fiber, fiber multiplexers, routers, and automatic protection switches, and the equipment and procedures employed for Bit Error Rate (BER) and transmission impairment testing.
5. Comprehensive knowledge of computer-based network systems and equipment such as 800 MHZ trunked radio simulcast, including computerized diagnostics and operational controls.
6. Comprehensive knowledge of the use, operation, calibration, and care of various electronic tools and diagnostic equipment and software.
7. Comprehensive knowledge of the state and federal rules, regulations, codes and standards governing radio communications operations and installation.
8. Ability to diagnose problems, make repairs and resolve issues in a timely manner.
9. Ability to read, understand, and interpret complex schematic diagrams and instruction manuals.
10. Ability to prioritize and schedule service requests; and review the technical work of others.
11. Ability to analyze the communications needs of clients, prepare proposals and cost estimates; and to recommend and design appropriate communications systems using CAD technology.
12. Ability to train staff and users in the proper usage of communications and electronic equipment.
13. Ability to plan, assign, schedule and review the work of others.
14. Ability to effectively interact with sensitivity with persons from diverse cultural, socioeconomic, educational, racial, ethnic, and professional backgrounds, and persons of all ages and lifestyles.
15. Ability to communicate effectively, both verbally and in writing.
16. Ability to prepare and maintain accurate and detailed reports and records using the computer system and database application.
17. Ability to establish and maintain effective working relationships with customers including other County departments, outside organizations, vendors and co-workers.

Training and Experience

1. High School Diploma or GED.
2. Four (4) years of work experience in the installation, repair, or maintenance of FM land mobile, or microwave communications equipment or consoles.
3. Post high school education at a technical school, college, or university in two-way radio communications design or servicing, or in electronics or a closely related field with course work in two-way radio communications may be substituted for one (1) year of the work experience requirement.
4. Valid driver's license.