# Radio frequency engineering RFEN

Designing, installing and maintaining radio frequency based devices and software.

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| **Guidance Notes:**  Activities may include, but are not limited to:   * evaluating and selecting devices and software * integrating radio frequency (RF) sub-systems into larger systems * calibrating, tuning and maintaining devices and software * receiving, transmitting and converting data between analogue and digital devices, in accordance with industry and regulatory standards * developing, integrating and configuring antennas, readers and transmitters in hardware or software forms, including software-defined radio (SDR), radio frequency identification (RFID), near field communication (NFC), Bluetooth and Wi-Fi * adhering to established safety, security and quality standards.   Applications of this skill include, but are not limited to:   * wireless local area networks * wireless communication systems for voice, data and image, cellular radio systems, global positioning systems and military communications networks * navigation and sensor systems. |

## Level 2

Assists with setting up, tuning and functional checks of radio frequency devices and software.   
Resolves faults down to line replaceable unit level or escalates according to given procedures.   
Carries out user confidence checks and escalates faults according to given procedures.   
Integrates RF devices with software applications using static configurations.

## Level 3

Deploys, sets up, tunes and calibrates RF devices and software following maintenance schedules and using appropriate tools and test equipment.   
Incorporates hardware/firmware modifications. Interprets automatic fault/performance indications and resolves faults down to discrete component level or escalates according to given procedures.   
Implements communication protocols between system elements in accordance with defined standards.   
Integrates RF devices with software applications, incorporating dynamic reconfiguration of elements under software control to optimise their operational performance.

## Level 4

Investigates and resolves system-wide fault conditions using a wide range of diagnostic tools and techniques.   
Reconfigures equipment to circumvent temporary outages. Specifies, selects and integrates RF devices in a system.   
Defines internal communication protocols for transmission over the available frequencies.   
Reconfigures devices and software to optimise performance.

## Level 5

Monitors system performance, recommends equipment modifications and changes to operating procedures, servicing methods and schedules.   
Develops maintenance schedules and procedures. Approves equipment upgrades and modifications.   
Reviews industry and national standards on relevant RF protocols and regulations.   
Measures and evaluates the effectiveness of RF devices and software.

## Level 6

Provides overall direction and leadership for the use of RF based devices and software.   
Specifies requirements for radio frequency equipment performance and sets maintenance policy.   
Identifies opportunities to exploit new technologies and improve existing technologies and practices.  
Develops effective implementation and procurement strategies.