

**SKILLS FRAMEWORK FOR PUBLIC TRANSPORT  
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

<b>TSC Category</b>	Rail Systems Maintenance					
<b>TSC</b>	Radio System Maintenance					
<b>TSC Description</b>	Implement preventive and corrective maintenance activities of radio system					
<b>TSC Proficiency Description</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>	<b>Level 6</b>
	<b>PTP-RSM-1022-1.1</b>	<b>PTP-RSM-2022-1.1</b>	<b>PTP-RSM-3022-1.1</b>	<b>PTP-RSM-4022-1.1</b>		
	Carry out scheduled maintenance work on radio system	Conduct corrective maintenance on radio system	Troubleshoot faulty radio system to locate faults and recommend rectification methods	Diagnose root causes of radio system failure and review maintenance plans to prevent fault recurrence		
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>Operating principles and functions of radio system</li> <li>Components of radio system that includes: <ul style="list-style-type: none"> <li>Base station</li> <li>Mobile station</li> <li>Antennae or Leaky cable</li> <li>Network Management System (NMS)</li> <li>Radio Command Control Panel (RCCP)</li> </ul> </li> <li>Radio system architecture and components</li> <li>Operating instructions for radio application software</li> <li>Types and usage of tools and equipment for carrying out preventive maintenance on radio system</li> <li>Procedures for servicing radio system in accordance to organisational maintenance procedures, Work Instructions (WI) and/or Original Equipment</li> </ul>	<ul style="list-style-type: none"> <li>Operating principles and functions of radio system</li> <li>Components of radio system that includes: <ul style="list-style-type: none"> <li>Base station</li> <li>Mobile station</li> <li>Antennae or Leaky cable</li> <li>Network Management System (NMS)</li> <li>Radio Command Control Panel (RCCP)</li> </ul> </li> <li>Radio system architecture and components</li> <li>Operating procedures for radio application software</li> <li>Types and usage of tools and equipment for carrying out corrective maintenance on radio system</li> <li>Procedures to normalise faults on radio system</li> <li>Base Transceiver Station and Switch Nodes Operations</li> <li>Procedures to dismantle, repair, replace, and re-</li> </ul>	<ul style="list-style-type: none"> <li>Operating instructions for radio system</li> <li>Procedure for conducting system performance checks</li> <li>Common fault symptoms and malfunctions in radio system</li> <li>Methods of locating and rectifying faults</li> <li>Types and usage of troubleshooting techniques, equipment and tools</li> <li>Safety guidelines for usage of tools and equipment to execute troubleshooting on radio system</li> <li>Procedures to normalise faults on radio system</li> </ul>	<ul style="list-style-type: none"> <li>Factors affecting radio system performance</li> <li>Failure investigation and prevention methods</li> <li>Methods and tools for diagnostic analysis</li> <li>Organisational maintenance procedures, Work Instructions (WI) and/or Original Equipment Manufacturer (OEM) technical recommendation</li> <li>Types and methods of system performance checks on radio system</li> <li>Functional relationships between radio system, other communication systems and the overall rail system</li> </ul>		

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	<p>Manufacturer (OEM) technical manuals</p> <ul style="list-style-type: none"> <li>• Safety guidelines on the use of tools and equipment for preventive maintenance on radio system</li> <li>• Organisational maintenance documentation and fault reporting procedures</li> </ul>	<p>assemble radio system components</p> <ul style="list-style-type: none"> <li>• Safety guidelines on use of tools and equipment for corrective maintenance on radio system</li> <li>• Organisational maintenance documentation and fault reporting procedures</li> </ul>				
<b>Abilities</b>	<ul style="list-style-type: none"> <li>• Perform preparation work to conduct maintenance on radio system</li> <li>• Check serviceability of radio system and control equipment</li> <li>• Carry out preventive maintenance of radio system according to organisation maintenance procedures, WI and/or OEM technical manuals</li> <li>• Adhere to safety guidelines and operating instructions for tools and equipment during maintenance activities</li> <li>• Record radio system maintenance activities and report occurrences of faults identified</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret work orders and prepare for corrective maintenance</li> <li>• Apply procedures to normalise faults on radio system</li> <li>• Dismantle faulty components in radio system and equipment for corrective maintenance</li> <li>• Carry out rectification, repair and/ or replacement of faulty components</li> <li>• Reassemble and reinstate radio system</li> <li>• Perform functionality tests on radio system</li> <li>• Apply operating and safety measures in operating tools and equipment during maintenance work</li> <li>• Record and collate documentation on radio system maintenance activities</li> </ul>	<ul style="list-style-type: none"> <li>• Use troubleshooting tools, equipment and methods to locate and analyse causes of radio system faults</li> <li>• Test and check system performance and serviceability</li> <li>• Apply fault identification procedures to determine causes of malfunctions</li> <li>• Perform system software reconfiguration and/or upgrade</li> <li>• Recommend corrective actions for identified faults on radio system</li> <li>• Configure settings of radio system to reinstate system performance and serviceability</li> <li>• Implement procedures on safe usage of tools and equipment during maintenance work</li> <li>• Analyse maintenance work documented for radio system to identify possible workflow improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Establish structured failure investigation and specify functional testing requirements</li> <li>• Perform fault tree analyses to diagnose root cause failure on radio system</li> <li>• Review organisational radio system maintenance procedures and/or WI</li> <li>• Propose new and/or enhanced maintenance procedures and/or WI in reference to OEM technical recommendations</li> <li>• Monitor overall maintenance progress of radio system to determine system performance reliability and effectiveness</li> <li>• Develop solutions through analysing diagnostic data to prevent faults and failures recurrence</li> <li>• Develop troubleshooting, rectification and fault analysis methods and techniques</li> </ul>		

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				<ul style="list-style-type: none"><li>• Develop test procedures for system performance checks</li><li>• Coordinate radio system maintenance with other rail systems maintenance needs</li></ul>		
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