TSC Category	Rail Systems Maintenance					
TSC	Station Air-Conditioning Systems Maintenance					
TSC Description	Implement preventive and corrective maintenance of station air-conditioning systems					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
	PTP-RSM-1036-1.1	**PTP-RSM-2036-1.1**	**PTP-RSM-3036-1.1**	**PTP-RSM-4036-1.1**		
	Carry out scheduled maintenance work on station air-conditioning systems	Conduct corrective maintenance on station air-conditioning systems	Troubleshoot and locate faults on station air-conditioning systems and recommend rectification methods	Diagnose root causes of station air-conditioning systems failure and review maintenance plans to prevent fault recurrence		

Knowledge	• Types, functions and operating principles of station air-conditioning systems
	• Types and functions of station air-conditioning components that includes:
	  • Cooling tower system
	  • Chiller system
	  • Air Handling Unit system
	  • Fan coil unit
	  • Package Unit Air Conditioner
	  • Local Sequential Controller (LSC)
	  • Motor Control Centre
	• Procedures for servicing station air-conditioning systems in accordance to organisational maintenance procedures, Work Instructions (WI) and/or Original Equipment Manufacturer (OEM) technical manuals
	• Types and methods of measuring station air-conditioning systems performance
	• Safety guidelines on use of tools and equipment
		• Types, functions and operating principles of station air-conditioning systems
		• Types and functions of station air-conditioning components that includes:
		  • Cooling tower system
		  • Chiller system
		  • Air Handling Unit system
		  • Fan coil unit
		  • Package Unit Air Conditioner
		  • Local Sequential Controller (LSC)
		  • Motor Control Centre
		• Risk assessment procedures
		• Procedures to dismantle, repair, replace and reassemble station air-conditioning components
		• Procedures for conducting performance checks and identifying faults on station air-conditioning systems
		• Safety guidelines on use of tools and equipment for corrective
			• Fundamentals of mechanical and electrical instrumentation and controls
			• Concepts of refrigeration cycles and vapour compression
			• Common fault symptoms in station air-conditioning systems
			• Methods of locating and rectifying faults
			• Types of troubleshooting techniques, equipment and tools
			• Safety guidelines for usage of tools and equipment to execute troubleshooting on station air-conditioning systems
			• Cause and effect diagrams
			• Schematic and control diagrams of station air-conditioning systems
			• Functional relationships between station air-conditioning systems and the overall rail system
				• Concepts of refrigeration cycles and vapour compression
				• Factors affecting station air-conditioning systems performance
				• Failure investigation and prevention methods
				• Methods and tools for diagnostic analysis
				• Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations
				• Types and methods of testing station air-conditioning systems performance
				• Functional relationships between station air-conditioning systems, other Environmental Control Systems (ECS) and the overall rail system		

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	for preventive maintenance on station air-conditioning systems • Types and usage of Personal Protective Equipment (PPE) for station air-conditioning systems • Organisational maintenance documentation and fault reporting procedures	maintenance on station air-conditioning systems • Types and usage Personal Protective Equipment (PPE) for station air-conditioning systems • Organisational maintenance documentation and fault reporting procedures				
Abilities	• Perform preparation work to conduct preventive maintenance on station air-conditioning systems • Follow organisational maintenance procedures, WI and/or OEM technical manuals to carry out preventive maintenance on station air-conditioning systems • Perform serviceability checks on station air-conditioning systems • Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work • Record station air-conditioning systems maintenance activities and report occurrences of faults identified	• Interpret work orders and prepare for corrective maintenance • Apply fault identification procedures to determine causes of station air-conditioning systems faults • Dismantle faulty station air-conditioning systems for corrective maintenance • Repair and/or replace faulty air-conditioning components • Reassemble and reinstate station air-conditioning systems • Perform functional tests on air-conditioning systems • Apply operating and safety measures in operating tools and equipment during maintenance work • Record and collate documentation of station air-conditioning systems maintenance work	• Use troubleshooting tools, equipment and methods to locate and analyse causes of station air-conditioning systems faults • Recommend corrective actions for identified faults on station air-conditioning systems • Implement procedures on safe usage of tools and equipment during maintenance work • Analyse maintenance work documented for station air-conditioning systems to identify possible workflow improvements to prevent fault recurrence	• Guide Establish structured failure investigation and specify functional testing requirements • Perform fault tree analyses to diagnose root cause failure of air-conditioning systems • Review organisational station air-conditioning systems maintenance procedures • Propose new and/or enhanced maintenance procedures and/or WI in reference to OEM technical recommendations • Monitor overall maintenance progress of station air-conditioning systems to ascertain effectiveness of maintenance procedures • Develop solutions by analysing diagnostic data to prevent faults and failures recurrence • Develop troubleshooting, rectification and fault analysis methods • Develop test procedures for performance checks		

				• Coordinate station air-conditioning systems maintenance with ECS and other rail systems maintenance needs		