1. Title	Verify the design of inverters of trains and perform design reviews
2. Code	EMRADE508A
3. Range	Apply the professional knowledge and techniques of inverter circuit engineering to verify the design of inverter systems of trains and perform design reviews according to the design requirements and matching with the overall train design.
4. Level	5
5. Credits	6
6. Competency	Performance Requirements 6.1 Design requirements for inverter systems of trains to match with the overall train design ♦ Understand the design requirements for inverter systems of trains and master the key points. The system equipment includes: • Main circuit and electronic power circuits of inverter • Electronic control equipment of inverter • Inverter protection devices and circuits ♦ Master the key points of the overall train design and the techniques of matching the design inverter systems of trains with the overall train design 6.2 Methods and procedures of verifying the design of inverter systems of trains and performing design reviews ♦ Verify the design of the main circuit and electronic power circuits of the inverter according to the total secondary electricity demand of the auxiliary systems of the train including air-conditioning and refrigeration system ♦ Verify the design of the main circuit and electronic power circuits of the inverter according to the electricity specifications of the auxiliary systems of the train ♦ Verify the arrangement of the connection of the main circuit and output circuits of the inverter according to the functional requirements for load distribution of the auxiliary systems of the train in case of inverter failure ♦ Verify the electronic control design according to the switch requirements for the electronic power circuits of the inverter ♦ Verify the electronic control design according to the requirements for storing records on the inverter operation and failures ♦ Verify the design of the inverter protection equipment and circuit according to the requirements for inverter system protection functions ♦ Verify the design of the inverter protection equipment and circuit according to the requirements for inverter system protection functions

		♦ Review comprehensively the design of the inverter according to the electricity demand of the auxiliary systems of the train ♦ Consider the safety, reliability, comfort, environmental protection and efficiency of trains during design reviews
	6.3 Professionalism in verifying and reviewing the design of inverter systems of trains	♦ Verify the design of inverter systems of trains and perform design reviews according to the standards and requirements for work safety, health, environmental protection and quality management of railway works ♦ Understand the safety guidelines as required by the law and codes of practice in verifying and reviewing the design of inverter systems of trains
7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to verify the design of the inverter system equipment of trains efficiently according to the design requirements and standards for the auxiliary systems and transformers of the train ; and (ii) Capable to review the design of inverter systems of trains efficiently according to the standards complying with the overall train design.	
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses professional knowledge of electronics.	