Australian Government

DEFIN015 Locate electromagnetic emissions

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

DEFIN015 Locate electromagnetic emissions

Modification History

Release	TP Version	Comments
2	DEF12V2	New unit.
1	DEF12V1	Primary release.

Unit Descriptor

This unit covers the competency required to establish the direction from which a received emission was transmitted ("direction finding") from the clandestine or overt interception of a transmitted electromagnetic emission ("intercept"). This unit also covers the production and reporting of a triangulated emission point-of-origin assessment.
No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication. In a Defence context, this means that there is no civilian need to hold this unit in order to meet licensing, legislative, regulatory or certification requirements.

Application of the Unit

This unit was designed for Defence personnel working within the electronic warfare and signals intelligence fields but may be applicable to any individual employed within a similar role.
Typically individuals perform this activity independently with indirect supervision. The application of this unit in the workplace involves the use of specialist sensor equipment to establish a magnetic line of bearing to the source of an emission, and the triangulation of multiple sensor bearings to determine the best point estimate of the transmitting antenna's location.
All activities are carried out in accordance with relevant standard procedures.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency.	Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. **Prepare for direction finding activities**	1.1 A direction finding task plan is developed, detailing key tasks and timelines. 1.2 Direction finding ***equipment*** is prepared considering the task requirements and duration. 1.3 Tasks and orders are received and clarified where required. 1.4 Liaison is conducted with higher, subordinate, and supporting ***stakeholders.***
2. **Intercept emission**	2.1 Direction finding equipment is operated according to ***manufacturer specifications*** and ***standard procedures.*** 2.2 ***Target emission*** is ***intercepted*** in accordance with the direction finding task. 2.3 Target emission identity is confirmed in accordance with standard procedures. 2.4 ***Legal requirements*** for interception activities are identified and applied during the process.
3. **Locate emission**	3.1 A line of bearing to the target emission is determined. 3.2 Methods to improve the accuracy of direction finding measurements are recognised and applied. 3.3 The direction finding measurement is validated and reported in accordance with standard procedures. 3.4 Direction finding processes are applied to multiple direction finding sites in accordance with standard procedures. 3.5 A best point estimate of the emission point of origin is determined using lines of bearing communicated from multiple sensors.
4. **Report findings**	4.1 Direction finding outcomes are ***reported*** to relevant personnel in accordance with standard procedures.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Required Skills

- listen effectively

- communicate effectively within the workplace
- follow instructions and directives
- report information appropriate to the situation
- assess the situational value of information
- use organisational systems and equipment to conduct direction finding
- triangulate lines of bearing

Required Knowledge

- antenna theory
- communication networks systems and architecture
- electromagnetic spectrum
- radio frequency propagation
- international time zones and date lines
- organisational guidelines and procedures
- direction finding systems and equipment
- direction finding and geolocation principles
- direction finding procedures
- compliance principles
- telecommunications legislation
- privacy legislation
- reporting procedures and formats
- magnetic to grid conversion
- triangulation mathematical equations

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:

- the underpinning knowledge and skills
- relevant legislation and workplace procedures
- other relevant aspects of the range statement
- convert a magnetic line of bearing to a grid line of bearing for triangulation compilation
- triangulate the location of the isolated emission within a specified and acceptable margin of error

Consistency in performance

Competency should be demonstrated in a range of direction finding activities conducted over time utilising current specialist sensor equipment and procedures to ensure the candidate is assessed across a variety of relevant workplace situations, direction finding systems, and target communications environments.

Context of and specific resources for assessment

Context of assessment

Competency should be assessed in the workplace or in a simulated workplace environment.

Specific resources for assessment

Access is required to organisational guidelines and procedures

Range Statement

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the Performance Criteria is detailed below.	
Equipment may include:	• ancillaries • antennas • direction finding units • receivers

Stakeholders may include:	• colleagues • customers • operators • supervisors or line managers • users
Manufacturer specifications may include:	• equipment specifications • operator manuals
Standard procedures may include:	• Australian Standards • Defence Instructions • doctrinal pamphlets • job guides, other publications • manufacturers' handbooks, industry specifications and technical instructions • workplace health and safety regulations • organisational policies and procedures • procedure manuals • relevant local government by laws • relevant state/territory or federal legislation • Routine Orders • Standing Operating Procedures • Standing Orders • written and verbal orders
Target emission may include:	• navigational beacon • radar transmission • radio transmission • search and rescue beacon • weapon systems
Legal requirements may include:	• international law • privacy legislation • telecommunications legislation
Reported may include:	• verbal briefs • written briefs • verbal organisation specific reports • written organisation specific reports

Unit Sector(s)

Not applicable.