Title	**Demonstrate knowledge of and use electronic navigation equipment**

Level	4	Credits	5

Purpose	People credited with this unit standard are able to: demonstrate knowledge of marine electronic navigation aids and systems; and demonstrate and apply knowledge of marine global positioning system (GPS) and radar for position fixing and route planning.

Classification	Maritime > Navigation and Seamanship

Available grade	Achieved

Guidance Information

1   Legislation relevant to this unit standard includes:
Health and Safety at Work Act 2015;
Maritime Transport Act 1994 and subsequent amendments.

2   Definitions
Accepted industry practice refers to standardised practices and procedures accepted by the wider maritime industry as examples of best practice.
Vessel refers to any form of commercial or military watercraft; sometimes used in maritime circles interchangeably with the word *ship*.

3   Assessment information
All activities and evidence must be in accordance with accepted industry practice, and manufacturers' specifications.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of marine electronic navigation aids and systems.

Performance criteria

1.1   Electronic navigation aids and systems are described in terms of their use and function.

Range   GPS, chart plotter, electronic charts, radar, depth sounder, distance log, automatic identification system (AIS).

Outcome 2

Demonstrate and apply knowledge of marine GPS for position fixing and route planning.

Performance criteria

2.1 GPS functions are explained.

Range   position fixing (latitude and longitude), course, speed, waypoint, man overboard (MOB), positional datum, safety margin alarms, speed over ground (SOG), course over ground (COG).
evidence of 1 example for each function is required.

2.2 The limitations of GPS and precautions for their use are described.

Range   accuracy, selective availability.

2.3 The setup of a GPS and chart plotter is described.

Range   equipment, satellite geometry, initialisation, controls, accuracy, errors.

2.4 Electronic chart types are described in terms of their differences, advantages, disadvantages, limitations, and requirements for commercial use.

Range   electronic chart display and information system (ECDIS), raster, vector, corrections.

2.5 The need to use paper charts is explained.

2.6 An electronic navigation system that incorporates GPS is used as a navigation tool.

Range   transfer of route from paper chart, position fixing, hazard avoidance, waypoint entry, selection and realisation, route entry, passage monitoring, MOB, Mark and safety margin alarms.

Outcome 3

Demonstrate and apply knowledge of marine radar for position fixing and route planning.

Performance criteria

3.1 Radar systems are described in terms of their type, components, basic functions, and controls.

Range   types – pulse and solid state;
functions – overlays, north up, head up, off centre, true motion, stabilised, un-stabilised.

3.2 The use of radar is described in terms of navigational limitations and precautions.

    Range types – pulse and solid state;
           limitations and precautions – poor weather, sea conditions, reflectors, range discrimination.

3.3 Radar is setup and operated.

3.4 Radar is used to discriminate targets, fix vessel position, maintain a safe course and avoid collisions.

    Range bearing, range, radar transponder (RACON), search and rescue transponder (SART), electronic bearing line (EBL), variable range marker (VRM), parallel index, plotting.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	15 October 2015	31 December 2022
Review	2	26 November 2020	N/A

Consent and Moderation Requirements (CMR) reference	0054

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.