



Fact Sheet: AusENC

Guide to the AHO's ENC numbering system

Most official Electronic Navigation Charts (ENC) produced by the Australian Hydrographic Office (AHO) follow a simple grid-based location system, while those covering ports often combine the coverage only obtainable by using several paper nautical charts (PNC).

This guide explains the six differing levels of detail available within the AusENC service and the file numbering system that tells you where they are located.

The components

All ENC must adhere to an eight-character file numbering convention controlled by the International Hydrographic Organization (IHO).

National Identifier (always 2 letters)	Navigation Purpose Code (no. in range 1 to 6)	Unique File IDr (always 5 characters)
AU	2	4 5 6 7 8

These letters and numbers include:

National Identifier:

National Identifier (always 2 letters)	Navigation Purpose Code (no. in range 1 to 5)	Unique File ID (always 5 characters)
AU	2	4 5 6 7 8

ENC produced by the AHO have the following national identifiers as the first two characters:

- AU - Australia
- PG - Papua New Guinea
- SB - Solomon Islands
- 7U - Australian test datasets.

Near neighbours include:

- NZ – New Zealand
- FR – France (charting parts of the SW Pacific Ocean)
- GB – United Kingdom (charting parts of the SW Pacific Ocean and Indian Ocean)
- ID – Indonesia
- US – United States (charting parts of the SW Pacific Ocean).

Navigation Purpose Code:

National Identifier (always 2 letters)	Navigation Purpose Code (no. in range 1 to 6)	Unique File ID (always 5 characters)
AU	2	4 5 6 7 8

ENC are compiled within six scale-ranges to suit differing navigation purposes.

When a user zooms in beyond the maximum scale, for example, of a Navigation Purpose Code 2 ENC, their system will automatically open a Navigation Purpose Code 3 ENC (if one exists in that area).

Navigation Purpose Codes are:

Navigation Purpose Code	Usage	Area (as produced by the AHO)
1	Overview - ocean coverage for international passage planning	30° x 30°
2	General - sea area coverage for offshore navigation	10° x 10°
3	Coastal - continental shelf coverage for coastal navigation	1° x 1°
4	Approach (to coast) - near shore coverage for inshore navigation, including coastal shipping routes.	1° x 1° (plus a few chart-based ENC in the Coral Sea.
5	Harbour – for navigation from the pilot boarding ground to the berth and in coastal bays and inlets.	Customised to cover port and pilotage areas.
6	ENC containing high-density bathymetric data (i.e. depth contours every 1m) to support navigation in areas otherwise restricted by depth. These products are also referred to as 'High Density bathymetric ENC' (HDbENC).	Customised to cover channels and maneuvering areas

Unique File Identifier:

National Identifier (always 2 letters)	Navigation Purpose Code (no. in range 1 to 6)	Unique File ID (always 5 characters)
AU	2	4 5 6 7 8

This part of the file name is at the discretion of each ENC producing nation.

Some hydrographic offices chose to model their ENC scheme upon their PNC schemes, refining multiple different scales into six scale-ranges and clipping them to remove the overlaps inherent within all PNC schemes. This has resulted in a variety of complex numbering systems. Other hydrographic offices use, or are moving to, a grid-based system.

AHO ENC identification system

The AHO uses a combination of a grid-based system for offshore and coastal coverage, combined with a chart/port-based system for the largest scale areas. The scheme may be summarised as:

- Navigation Purpose Codes 1 to 4 - square grids of latitude and longitude
- Isolated Navigation Purpose Code 4 - covering certain isolated offshore reefs in the Coral Sea retain the limits and number of the existing PNC
- Navigation Purpose Code 5 - retain the number of the largest scale PNC
- Navigation Purpose 6 (HDbENC) - are based on the extents of a particular area of interest.

AHO grid-based ENC system

The grid-based system uses the latitude and longitude of the southwest corner of the ENC as the Unique File ID.

As all AusENC are located south of the equator and east of Greenwich, all latitudes are southern latitudes and all longitudes are eastern longitudes.

ENC with different Navigation Purpose Codes may share a common latitude and longitude as their southwest corner, however the Navigation Purpose Code will always differ.

National Identifier (always 2 letters)	Navigation Purpose Code (no. in range 1 to 6)	Unique File Identifier	
		Latitude	Longitude
AU	2	3 0	1 2 0

Examples:

AU 1 30120	An Australian Navigation Purpose Code '1' (30° x 30°) ENC whose southwest corner is 30° S and 120° E with coverage extending 1° north and east from the origin.
AU 2 30120	An Australian Navigation Purpose Code '2' (10° x 10°) ENC whose southwest corner is 30° S and 120° E with coverage extending 1° north and east from the origin.
AU 3 30120	An Australian Navigation Purpose Code '3' (1° x 1°) ENC whose southwest corner is 30° S and 120° E with coverage extending 1° north and east from the origin.
SB 4 10160	A Solomon Islands Navigation Purpose Code '4' (1° x 1°) ENC whose southwest corner is 10° S and 160° E with coverage extending 1° north and east from the origin.
PG 4 09155	A Papua New Guinea Navigation Purpose Code '4' (1° x 1°) ENC whose southwest corner is 9° S and 155° E with coverage extending 1° north and east from the origin.

AHO Harbour and HD bathymetric ENC ‘UN Location Code’ system – (new AU5 and AU6 from 2019-20 onward)

Navigation Purpose Code 5 and 6 ENC are typically smaller than 1° x 1° in size, so are unsuited to a grid-based system. These typically cover a harbour, or part of a shipping channel. However, in many cases numbering based upon the PNC they were originally sourced from is no longer relevant as ENC scales, size and level of detail have evolved beyond what can be represented on PNC and/or the PNC may not actually exist.

To address this, the AHO has adopted international transport hub identifiers. Generally these are a three letter abbreviation of the name of the port (similar to those used for airports), combined with a number to denote the individual ENC within that port.

Examples for Port Kembla (AU5PKL01), Sydney (AU6SYD01) and Cairns (AU6CNS01) are:

National Identifier (always 2 letters)	Navigation Purpose Code (no. in range 1 to 6)	Unique File Identifier
AU	5	PKL01
AU	6	SYD01
AU	6	CNS01

The first three characters of the Unique File ID are taken from the United Nations Location Code (UN/LOCODE) used for transport hubs worldwide.

The last characters are a two-digit number that starts at ‘01’ and increases generally as the area covered gets closer to the wharves, the main harbour or to an anchorage.

AHO chart/port-based ENC system – ‘Harbour’ ENC – (existing AU5 ENC produced until 2020)

Navigation Purpose Code 5 ENC produced prior to mid-2020 covering ports, bays and coastal inlets, still retain a link to the PNC, or multiple charts, they were originally based upon. A small number of isolated reefs and islands in the Coral Sea also retain a chart-based Unique File ID.

The UN/LOCODE system is progressively replacing the older chart-based system for all commercial ports as new editions are published.

National Identifier (always 2 letters)	Navigation Purpose Code (no. in range 1 to 6)	Unique File Identifier
AU	5	262X4

The Unique File ID includes five characters linking the ENC to either a single paper chart, multiple paper charts or the large-scale plan for which it provides equivalent coverage.

'P0' is used to denote that the ENC is based on a single PNC, or the main body of a chart if it also included a plan. An ENC numbered in the form '194P0', indicates the ENC contains coverage at least equivalent to PNC AUS194.

If 'P' is followed by a number between 1 to 9, it is used to denote that the ENC is based on a plan from the named chart. An ENC numbered in the form '256P2' indicates the ENC contains coverage of the second plan depicted on the PNC AUS256.

'X' is used to indicate a range of PNC. ENC of equivalent coverage to several PNC are numbered in the form '262X4', indicating the ENC contains coverage equivalent to all PNC in the range AUS262 to AUS264, as in following example:

	<p>The ENC identifier 'AU5262X4' indicates:</p> <ul style="list-style-type: none"> • AU – Australian official ENC • 5 – 'Harbour' Navigation Purpose Code • 262X4 – contains content and coverage at least equivalent to PNC AUS262 to AUS264
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Other examples:

<p>AU 5 194P0</p>	<p>An Australian Navigation Purpose Code '5' (Harbour) ENC originally based upon AUS194.</p>
<p>AU 5 198X9</p>	<p>An Australian Navigationa Purpose Code '5' (Harbour) ENC originally based upon AUS198 to AUS199.</p>
<p>AU 5 256P1</p>	<p>An Australian Navigation Purpose Code '5' (Harbour) ENC originally based upon the first Plan on AUS256.</p>