

Since 1997, C-MAP NT electronic charts have been the industry benchmark in digital navigation technology. Important benefits to mariners have always included:

An innovative digital charting standard

- ♦ **IHO-S57 compatible data format** - all the information and advantages of professional charting, in an efficient and cost effective package.
- ♦ **Object-oriented, vector charts** - "intelligent" charts compared to raster or simple vector equivalents.
- ♦ **Seamless coverage** - continuous coverage layers of any given navigation area.
- ♦ **Fullest preservation of official chart information** - no inappropriate scaling, manipulation or dilution of original chart data.

The most detailed and up-to-date electronic chart library in the world

- ♦ **Highest chart count** - more original charts than any other publisher. Some 20,000 as of autumn 2001.
- ♦ **Best Detail Rating** - more detailed charts and marina/port plans than any other electronic chart library.
- ♦ **Best updating record** - more charts updated in real-time than any other electronic chart publisher.

Extra information not found on official government charts

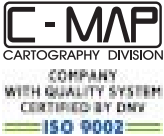
- ♦ **True Color Nav-Aids™** - Extensive NavAids information, memorized for display in true shapes and colors on-screen.
- ♦ **Port Info™** - complete and detailed databases of port facilities and services, and how to contact them.
- ♦ **Tide Info™** - tidal information for all primary Tidal Stations worldwide. Clear graphs display depth at high and low water for sunup and sundown. Tidal prediction functions for planning ahead.

Extensive resources and advanced chart production techniques

- ♦ **In-house expertise and homegrown technologies** - All electronic chart production systems have been designed and developed by C-MAP's cartographers, software programmers and hardware engineers. All are dedicated and refined for highly efficient, yet quality-oriented chart production and updating. In fact, C-MAP offers its expertise, data management tools, and chart production services to many National Hydrographic Services around the world in their efforts to develop official electronic nautical charts (ENCs).
- ♦ **In-house chart production** - C-MAP utilizes ONLY its own trained and qualified personnel for all electronic chart production. This ensures the effective control of all processes and maximum flexibility in meeting market

requirements. Using internal resources has also permitted the achievement of highly efficient production without sacrificing stringent quality standards.

- ♦ **Commitment to Quality** - C-MAP NT is derived from electronic chart data produced by the C-MAP Cartography Division, employing an ISO 9000 quality system (CERT-03303-98-AQ-VIO-SINCERT).



C-MAP NT's success has been recognized with NMEA's Best Electronic Charts Award for three years running since 1999.



Building on NT...

NT+ is therefore a natural evolution of this electronic chart standard and based on the belief that the BEST can always be made BETTER! New benefits with NT+ include:

Improved chart display¹

- ♦ **Paper chart appearance** - all the classic advantages of electronic charts with the familiar look of a paper chart. C-MAP's experience with professional navigation, and in particular highly effective chart display, have resulted in a new chart look for NT+. This new look makes creative use of colors, patterns, and icons to increase the familiarity and usability of the content-rich NT+ database.

- ♦ **New NavAids symbology styles** - Depending on navigation situations and mariner's preference Aids to Navigation may now be configured for three basic styles, including:

INTERNATIONAL	
NavAids shown in "real life" shapes and colors for quick visual recognition (as per official INT1 standard paper chart presentation).	
US	
NavAids shown in simplified shapes and real colors (as generally found on NOAA paper charts).	
SIMPLIFIED	
NavAids shown in generic symbols for minimum visual clutter on-screen.	

Selecting the best NT+ charts for your navigation needs

C-cards

C-MAP NT+ electronic charts are sold in a wide range of compositions, usually referred to as "c-cards" or "cartridges". NT+ c-cards cater to virtually every type of navigation requirement in virtually any corner of the globe.

Whether you need local chart coverage around your favorite harbor or fishing grounds, or an extensive area for long range cruises, there is a c-card that is right for you. C-MAP's dynamic on-line catalogs will help you to quickly and easily find it.

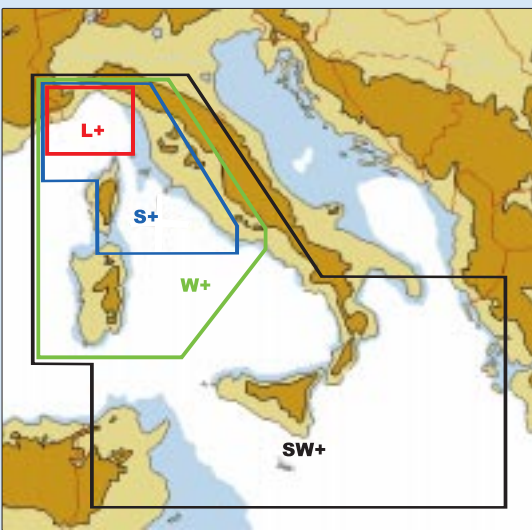
Just log onto www.c-map.com to browse and print catalog pages, or contact your local dealer or C-MAP Office for assistance.

Composition types

Regular c-cards (often called "precision" c-cards), supply navigators with ALL the information from the most detailed charts available for the area covered.

These NT+ c-cards are available in a variety of sizes providing for variable navigation needs³:

Local+	Limited coverage around a given port or popular navigation area. Look for the L+ in c-card catalogs.
Standard+	Optimal coverage area for medium range navigation. Look for the S+ in c-card catalogs.
Wide+	Coverage area for long-range navigation. Look for the W+ in c-card catalogs.
SuperWide+	Coverage area for extra long-range navigation. Look for the SW+ in c-card catalogs.



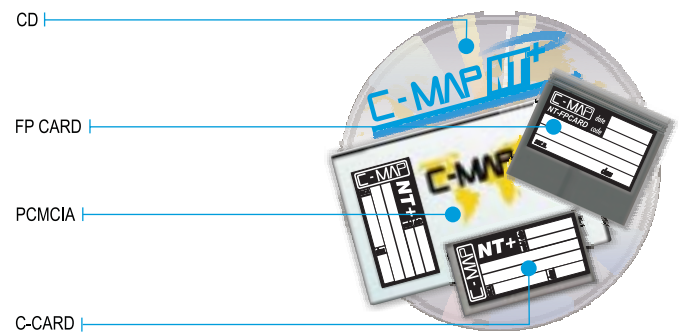
In addition to the full catalog of precision c-cards, C-MAP also offers various special application charts, including:

- ♦ general scale charts for coastal passage purposes;
- ♦ commercial / fishing data for offshore navigation, with extra bathymetric, depth and bottom information;
- ♦ inland waterway, river and lake c-cards;
- ♦ other special application c-cards.

If you do not find the right c-card for your electronic charting needs, contact C-MAP.

Do you have the right card?

NT+ c-cards are available on a wide range of industry standard solid-state memory media, including: C-MAP proprietary c-cards, PCMCIA cards, FP C-cards, etc.



- ♦ **Before purchasing an NT+ c-card, check the user manual of your charting system to verify which memory media it accepts. If you have any doubts, ask your local C-MAP dealer or the manufacturer of your charting system for assistance.**

Care

C-cards are designed and built for a rugged environment. They are not, however, impervious to damage. Certain care should be noted and taken to ensure proper operation.

- ♦ C-cards are water resistant, but not waterproof. Immersion in water will cause damage. Salt water or any residues must be removed before turning on your charting system or permanent damage will result.

- ♦ C-cards are durable and heat resistant, but extensive exposure to direct sunlight or other sources of heat can cause irreparable damage. Always store c-cards in a cool dry place.

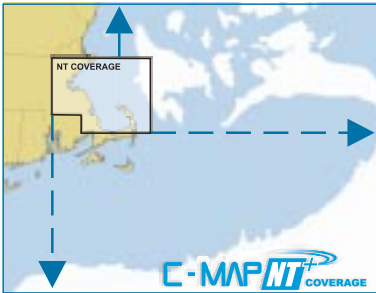
Warning! Warranty will be voided by: physical damage, water immersion or spray resulting in corroded contacts.



Regardless of display style, in-depth information is always available for NavAids on C-MAP NT+ charts. Just point with your cursor and use the QUICK INFO mode or the chart INFO query of your plotter to view all details of NavAids (or any other objects for that matter!).

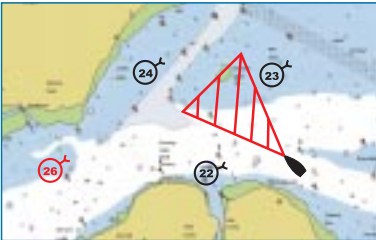
New product catalogs

- ♦ **Increased chart coverage at lower prices** - Important advances in data compression now permit C-MAP to offer significantly increased coverage areas without sacrificing compatibility with current navigation systems. This has in turn resulted in much more coverage at much lower cost.



New functionality²

- ♦ **Guardian Technology™** continuously scans the electronic chart data in front of the boat to detect rocks and shallows that could pose a threat if the vessel continues along its current course. Triggering timely and clear alarms, Guardian provides a new level of safety only found in large commercial shipping to date.



- ♦ **C-Forecast™** is a weather service that provides mariners with high resolution, accurate, 24 hour weather forecasts directly onto C-MAP NT+ charts. This innovative system avoids interpretation of complicated synoptic charts, which only provide general, low-resolution forecasts. C-Forecast relies upon NOWCASTING INTERNATIONAL Ltd's high resolution data collected from local met offices and then entered into a powerful weather model which predicts Wind Direction and Strength as well as Wave Height.



C-Forecast is currently available in select geographic areas, and coverage is increasing daily. If you are unsure about C-Forecast coverage in your area, feel free to contact C-MAP for information.

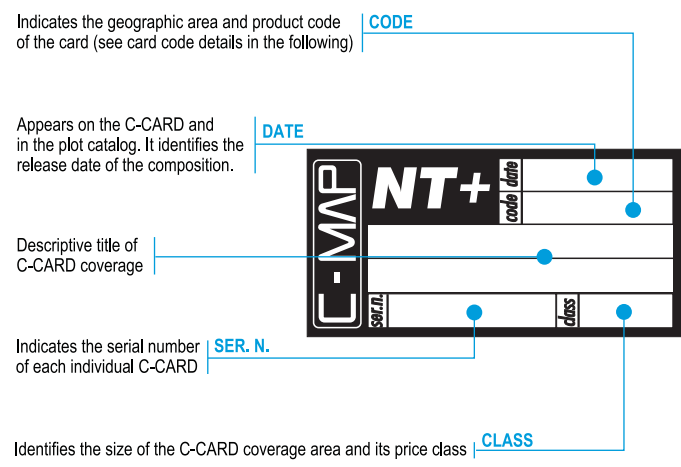
¹ NT+ is backwards compatible with current NT charting systems. Full benefits of improved chart display are optimized on systems "designed for NT+" (or by updating NT system SW to NT+).

² Guardian Technology and C-Forecast are available only on certain NT+ charting systems. Check with your reseller or system manufacturer for a listing of systems with these features.

C-card information

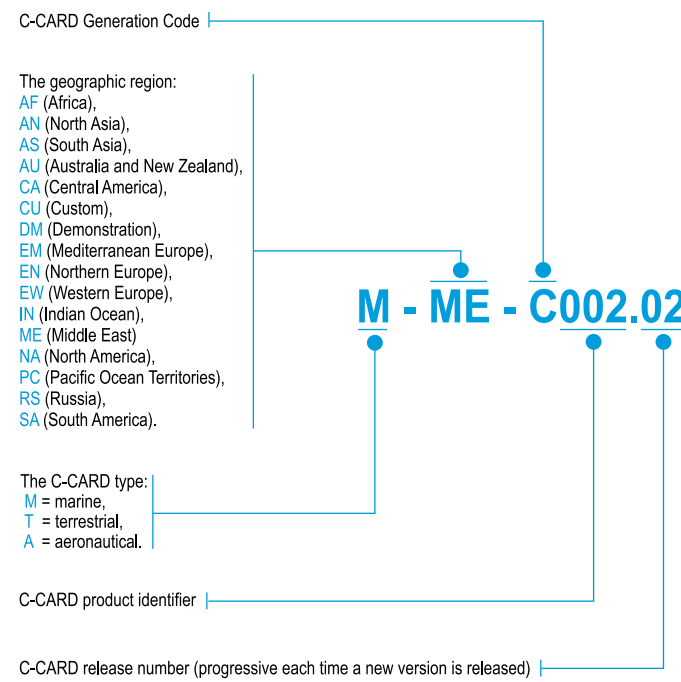
C-CARD label

Regardless of what media your c-cards are stored on, you will find the following product information on the label:



C-CARD products codes

The following is an example of marine c-card B002 of the Mediterranean region, in its 2nd release.



Cartography functions of your plotter

Regardless of make and model, most charting systems based on C-MAP NT+ electronic cartography provide navigators with important functions for fine-tuning chart display and accessing in-depth information on chart objects.

Feature display selection

This option allows mariners to select what type of information to display on-screen, depending on specific navigation purposes and situations. Chart information may be added or removed from the screen by categories. The categories found on the chart legend page of this Guide are indicative of how information is usually grouped on charting systems, and so how it may be selected or not for on-screen display.

Customized presentation

In addition to selecting *what* information to display at any given moment, mariners may decide *how* to display it.

- ♦ Most charting systems offer a wide array of options for customizing chart and supplementary data windows on-screen.
- ♦ As noted in other sections of this guide, C-MAP has predisposed special chart presentation functions to adjust the appearance of chart objects as best suited to current navigation requirements (see NavAids display styles).
- ♦ C-MAP has also prepared its electronic charts for display in various color schemes⁴, predisposed for ideal viewing under diverse lighting conditions (ie: bright sunlight, dawn and dusk, night).

⁴ Distinct color schemes are available on charting systems with color displays.

Chart information

Two basic functions are available on most C-MAP based charting systems for accessing in-depth information for chart objects.

- ♦ **QUICK INFO** - by selecting this info mode from the menu (see individual plotter manuals for instructions), just point the cursor at most any object and an pop-up window will report detailed characteristics.
- ♦ **CHART INFO** - by activating the info query function, detailed information for all objects under the cursor will be reported on a tree diagram in a separate window.

Registration and Feedback

Register for benefits

Once you have purchased your c-cards, C-MAP urges you to register as a preferred customer. Important benefits include:

- ♦ guaranteeing your warranty and facilitating customer servicing;
- ♦ ensuring that you are kept abreast of important product information;
- ♦ special commercial offers;
- ♦ c-card updating notices;
- ♦ product related navigation warnings.

Product Registration is easily performed on-line at www.c-map.com or by returning a Warranty Card to the C-MAP Office nearest you.

Customer feedback

In order to constantly improve our charts we invite you to report any problems or feedback you may have.

You may compile a "navigator response form" on our web site, or send your input to our C-MAP Office, including at least:

- ♦ Your full contact information (including e-mail), if you wish to be advised of eventual actions taken by C-MAP.
- ♦ Full and exact product information as reported on the label of your c-card.

- ♦ A precise and detailed description of the problems and/or comments you have, citing as a minimum: chart code (as found in SOURCE OF DATA page during chart INFO viewing on your plotter); display scale; and lat/lon coordinates.
- C-MAP cartographers will process your observations and report back findings and recommendations as quickly as possible.

The importance of being up-to-date

How up-to-date are your charts?

The updating status of your NT+ electronic charts may be determined in two manners:

- ♦ The "release number" of your c-card (the last two digits of the code), provide a general indicator of how recently it was published. By comparing it to the current NT+ catalog at any given moment, you may determine if any newer releases are available.
- ♦ Precise update date, corresponding to relative NTM booklets, is reported for each chart in your c-card. To view this information, simply access the INFO function of your charting system and select the SOURCE OF DATA page.

Updating

Too many mariners do not update their charts or obtain new editions when published. This leaves them open to potentially dangerous navigation situations due to the use of obsolete information.

C-MAP updates its chart library from Notices to Mariners, new chart editions and other authoritative sources, as these are published.

These updates are made available to C-MAP users in the form of new c-card releases (or versions), on an increasingly frequent basis.

Special pricing to encourage updates of your NT+ C-cards is available through your dealer or through C-MAP directly. In certain regions, special updating programs provide for the automatic delivery of new C-card released to subscribing customers.



C-MAP believes its electronic charts to be as accurate as the sources utilized to create and maintain them. While we urge you to update your c-cards as frequently as possible, please remember that electronic charts are NOT currently considered legal replacements of official government charts and so should be used only as supplements to these and prudent navigation habits.

The source of C-MAP charts

C-MAP electronic chart products are derived, in part, from the products and with the permission of various National Hydrographic Authorities, other Public Agencies and private information publishers.

- ♦ Source publisher acknowledgments and warnings are posted in C-MAP product catalogs (see content listing pages).
- ♦ Navigators may also view source data information on any C-MAP based charting system by using the data INFO function and selecting the SOURCE OF DATA page. Publisher name as well as edition and updating information are reported.
- ♦ Where due, Royalty Charges are included in C-MAP product prices and paid to source publishers.

If you would like more information regarding the sources of C-MAP electronic charts, royalty arrangements or the regulations governing the use of electronic charts, please contact C-MAP directly.



No National Hydrographic Office has verified the information in C-MAP products and none accept liability for the accuracy of reproduction or any modifications made thereafter. No National Hydrographic Office warrants that C-MAP products satisfy national or international regulations regarding the use of appropriate products for navigation.

Respecting the limitations of charts – electronic and paper

Electronic charts are only as reliable as the sources utilized in their production. C-MAP takes great care in making use of the best source materials possible in any given navigation area. We also strive to overcome any apparent limitations in these. However, some shortcomings in source materials cannot be detected and resolved, and so they are transferred to the electronic charts derived from them.

Even though they are up-to-date, hydrographic and navigation information on official paper charts can often lag behind reality, just because the process of collecting new data and transferring it to charts is very slow and very expensive.

Maybe even more important is the potentially limited quality of geographic positions on paper charts with respect to today's high precision remote position systems (especially GPS).

Don't take precision for granted!

Modern GPS receivers usually provide navigators with Latitude and Longitude readouts down to hundredths of minutes, instilling an exaggerated sense of security that such positions, especially on electronic charts, must be accurate compared to surrounding chart information. However, when plotted on any chart (paper or electronic), the Latitude and Longitude from a GPS receiver *may not* correspond exactly to one's real position at any given moment.

This is attributable not only to the above noted reasons (ie: possible shortcomings in chart information), but also to potential limitations in GPS precision (due to signal degradation, either intentional on the part of GPS operators, or circumstantial due to local interferences).

Therefore electronic charts should be employed with the same prudence that is taken for granted when navigating with classic paper charts.



For more information regarding source data limitations, GPS, or any other aspect of precise navigation with electronic charts, feel free to contact C-MAP.

Warranty Information

Limited 12-Month Warranty

With the return of a Warranty Card (or on-line registration), C-MAP warrants to owners of this product that such product shall be operative and free of defects in factory-provided material and workmanship for 12 months after original purchase. Contact your dealer or C-MAP for local warranty limitations.

Potentially defective c-cards should be returned to the location of purchase.

Limits of Liability

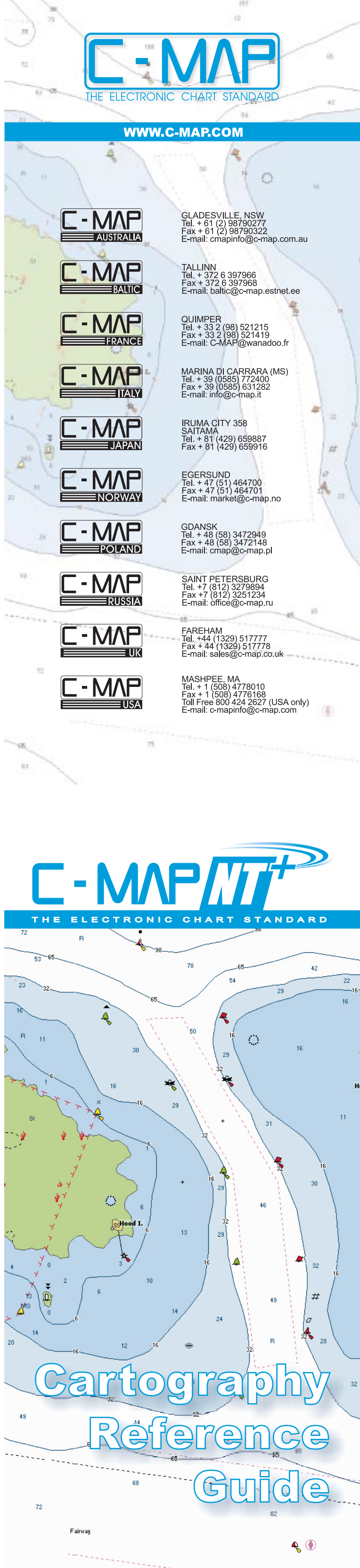
The foregoing shall constitute the sole and exclusive remedy of any owner of this product for breach of warranty including the implied warranties of merchantability and fitness. In no event shall C-MAP be liable for special or consequential damages; nor shall they be liable for the representatives of retail sellers.

Notices

Copyright© 2001 C-MAP S.r.l. - Italy. All rights reserved. No part of this publication or the information it contains may be reproduced, translated, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), without prior written permission of C-MAP.



Electronic charts are inadequate as a primary means for navigation and should be used only as a supplement to official government charts and traditional navigation methods.



Cartography Reference Guide

³ Some product types are only available in certain markets. Refer to local NT+ catalogs for availability in your area.