

IALA Recommendation E-106

On The Use Of Retroreflecting Material On Aids To Navigation Marks Within The IALA Maritime Buoyage System

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Document Revisions

Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

Date	Page / Section Revised	Requirement for Revision
December 2005	Entire document	Formatted to reflect IALA documentation hierarchy

Recommendation On The Use Of Retroreflecting Material On Aids To Navigation Marks Within The IALA Maritime Buoyage System

(IALA Recommendation E-106, May, 1998)

THE COUNCIL

RECALLING that the use of retroreflecting material on aids to navigation is becoming increasingly widespread particularly in the case of unlighted aids where by the projection of a light, which may range from a hand-held spotlight to a powerful searchlight, an aid can more easily be located and some times identified;

RECOGNISING the need to harmonise the ways in which retroreflecting material is used so as to obviate the proliferation of different methods of use, which may be confusing to the mariner;

RECOGNISING ALSO the results of trials carried out to determine how retroreflecting material could be best displayed on aids to navigation to give the optimum information to the mariner without incurring undue increased maintenance problems for the Authority;

RECOGNISING FURTHER that some Authorities require only a method (the Standard Code) whereby an aid can be detected with a degree of identification, especially for lateral marks. Others, such as the Scandinavian countries with complicated channels and archipelagos frequented by small craft, require a method (the Comprehensive Code) giving more detailed identification of an aid;

HAVING CONSIDERED that, as retroreflecting material which appears as black by day shows as white when illuminated at night, blue material should be used in the Comprehensive Code as being the best compromise where black day colour is appropriate;

TAKING INTO CONSIDERATION the proposals of the IALA Engineering Committee:

ADOPTS the standard Code and the Comprehensive Code, described in the Annex to this Recommendation, as the codes to be used for marking aids to navigation by retroreflecting material;

RECOMMENDS that:





1. Administrations intending to mark aids to navigation with retroreflecting material use either the Standard Code or Comprehensive Code, as appropriate. Administrations should not use both Codes unless the areas of use can be clearly defined.

2. Administrations advise mariners:
 - a) of the type of marking in use in any given area; and,
 - b) that using a bright light to identify an aid to navigation, in particular the beam of a searchlight, can seriously affect the night vision of those upon whom the light is directed. Some recover quickly from a loss of night vision but others have a much slower recovery rate and may be seriously incapacitated. To leave a light switched on for longer than is absolutely necessary is thus likely to put others at risk.
3. Although retroreflecting material can be of great benefit to navigation, particularly for small craft, it should be used only to enhance the efficiency of an aid to navigation and not as a substitute for a light.

REVOKES IALA Recommendation for the use of retroreflecting material on aid to navigation marks within the IALA Maritime Buoyage System, dated November, 1985

ANNEX

CODES TO BE USED FOR MARKING AIDS TO NAVIGATION BY RETROREFLECTING MATERIAL







CODE STANDARD		STANDARD CODE
TYPE DE MARQUAGE ET CODE	Aspect de Nuit/Aspect by Night	TYPE OF MARK AND CODE
<i>Marques latérales vertes</i> ^{1&2} Une bande horizontale ou une forme verte, par ex. un triangle dans la Région A de balisage ou un carré dans la Région B de balisage		<i>Green Lateral Marks</i> ^{1&2} One green band or green shape; i.e. a triangle in Buoyage Region A or a square in Buoyage Region B
<i>Marques latérales rouges</i> ¹ Une bande horizontale ou une forme rouge, par ex. un carré dans la Région A de balisage ou un triangle dans la Région B de balisage		<i>Red Lateral Marks</i> ¹ One red band or red shape; i.e. a square in Buoyage Region A or a triangle in Buoyage Region B
<i>Marques spéciales jaunes</i> ³ Une bande horizontale, un X ou un symbole, jaune		<i>Yellow Special Marks</i> ³ One yellow band or a yellow X, or yellow symbol
<i>Marques d'eaux saines, Marques de danger isolé, Marques Cardinales</i> ⁴ Bandes horizontales, lettres, chiffres ou symboles, blancs		<i>Safe Water, Isolated Danger & Cardinal Marks</i> ⁴ White bands, letters, numerals or symbols

CODE DETAILLE

COMPREHENSIVE CODE

Les marques latérales vertes et rouges et les marques spéciales jaunes sont identiques à celles du Code Standard.

Green and red lateral marks, and yellow special marks, are the same as those in the Standard Code.

<i>Marques d'eaux saines</i> ⁵ Combinaison de bandes horizontales ou verticales rouges et blanches, comprenant au moins une bande de chaque couleur		<i>Safe Water Marks</i> ⁵ A combination of red and white horizontal bands or vertical stripes. At least one band or stripe of each colour
<i>Marques de danger isolé</i> ⁶ Bandes horizontales, bleues et rouges, au moins une bande de chaque couleur		<i>Isolated Danger Marks</i> ⁶ Blue and red horizontal bands. At least one band of each colour
<i>Marques Cardinales Nord</i> ⁵ Une bande horizontale bleue sur la partie noire de la marque et une bande horizontale jaune sur la partie jaune de la marque		<i>North Cardinal Marks</i> ⁵ A horizontal blue band on the black portion of the mark and a horizontal yellow band on the yellow portion of the mark
<i>Marques Cardinales Est</i> ⁷ Deux bandes horizontales bleues sur la partie supérieure noire de la marque		<i>East Cardinal Marks</i> ⁷ Two horizontal blue bands on the upper black portion of the mark
<i>Marques Cardinales Sud</i> ⁸ Une bande horizontale jaune sur la partie jaune de la marque et une bande horizontale bleue sur la partie noire de la marque		<i>South Cardinal Marks</i> ⁸ A horizontal yellow band on the yellow portion of the mark and a horizontal blue band on the black portion of the mark
<i>Marques Cardinales Ouest</i> ³ Deux bandes horizontales jaunes sur la partie supérieure jaune de la marque		<i>West Cardinal Marks</i> ³ Two horizontal yellow bands on the upper yellow portion of the mark.

Les Services qui n'ont besoin que d'un marquage simple, et seulement pour la détection des aides, peuvent n'utiliser que des lettres, des chiffres ou des symboles en matériau rétro réfléchissant blanc.

Administrations wishing to use retroreflecting material simply for detection purposes may use only white material in the form of letters, numbers or symbols.

Pour les notes N^o 1 à 6, voir au verso.

For notes Nos. 1 to 6, see the next page.

Note

¹ No special code for preferred channel marks is provided, the predominant colour of the buoy only being used.

² It may be difficult for the observer to discriminate between green and blue retroreflecting material, particularly where only one of these colours is being observed on its own. In principle, green buoys should carry only one green band, whereas blue is always used in combination with another colour, except in the case of East Cardinal marks which have two blue bands. However, this principle may be violated where one of the bands has become damaged.

³ It may be difficult for the observer to discriminate between yellow and white retroreflecting material particularly where only one of these colours is being observed on its own. Thus only one yellow band may be used on a special mark to avoid confusion with a West Cardinal mark in the comprehensive code.

⁴ Care should be taken that the amount of white retroreflecting material used on an aid does not detract from its daytime appearance.

⁵ The coefficient of retroreflection of blue and red is very much less than white or yellow, and to ensure proper recognition the following must be observed:

- Safe water marks: The red bands or stripes must be at least twice the width of the white bands or stripes. The separation distance between the colours must be at least twice the width of the white bands or stripes.
- North and South Cardinal Marks: The blue bands must be at least twice the width of the yellow bands. The separation distance must be at least twice the width of the yellow bands.

⁶ to ensure proper recognition of isolated danger marks the blue and red bands should be of equal width and separated by a distance at least equal to the width of a band.