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Ref. T2/6.04

MSC/Circ.1078
6 June 2003

GUIDELINES TO ADMINISTRATIONS ON REPORTING FALSE ALERTS

1 The Sub-Committee on Radio Communications and Search and Rescue (COMSAR), at its seventh session (13 to 17 January 2003), developed Guidelines to Administrations on reporting false alerts, given in the annex.

2 The Maritime Safety Committee, at its seventy-seventh session (28 May to 6 June 2003), with a view to ensuring that the problem of false alerts is handled properly, agreed the annexed Guidelines the purpose of which is to advise Administrations how to collect information using the standardized forms when reporting false alerts to the Organization.

3 Member Governments are invited to bring these Guidelines to the attention of all parties concerned.

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ANNEX

GUIDELINES TO ADMINISTRATIONS ON REPORTING FALSE ALERTS

1 Background

1.1 Ships to which the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, applies were permitted to install radio equipment for the Global Maritime Distress and Safety System (GMDSS) from 1 February 1992.

1.2 SOLAS ships constructed on or after 1 February 1995 were required to carry GMDSS radio equipment. All SOLAS ships were required to carry GMDSS radio equipment from 1 February 1999.

1.3 With the installation of GMDSS radio equipment, false distress alerts have become a major problem to the efficient operation of search and rescue services, thus having potentially serious effects on real distress situations and the safety of life at sea.

1.4 False alerts in the IAMSAR Manual are defined as: *"Any alert received by the SAR system indicating an actual or potential distress situation, when no such situation actually exists"*.

1.5 Due to an increasing problem it was decided to start collection of data on the causes for false alerts.

1.6 Statistics from (M)RCCs show that the percentage of false alerts are approximately 95-100% of the total alerts received, mainly caused by lack of knowledge of the relevant conventions, codes and regulations.

1.7 Over the next years to come, new equipment will be developed, along with a huge group of new GMDSS users, as the non-SOLAS and pleasure craft fleet starts to implement the GMDSS. Based on experience gained throughout the implementation period of the GMDSS, one should therefore still expect false alerts and "interference" within the system, which degrade the efficiency of the GMDSS.

1.8 The monitoring of the overall efficiency and possible anomalies is therefore of vital importance.

2 Procedures on how to collect information on false alerts

2.1 The whole chain of actions related to false alerts starts upon reception of the alert at the (M)RCC. The operational procedures for handling an alert at the (M)RCC is laid down in MSC/Circ.959 - "*Interim procedures for RCCs on receipt of distress alerts*". If the alert is proved to be false, the next step should be to seek as much information as possible on what caused the activation of the distress alert, and this should be done as soon as possible, while the GMDSS operator onboard have a fresh memory about what happened.

2.2 The different alerting systems within the GMDSS have different capabilities. Therefore there have been developed different questionnaires for each alerting system containing questions sufficient for the use in a GMDSS-SMR (System Monitoring and Reporting) programme (see COMSAR/Circ.29 "*Guidance for the voluntary use of the standardized questionnaires and formats for reporting false alerts in collecting data on false alerts*").

2.3 The questionnaires are prepared for Inmarsat-C and in "telex-mode" and therefore the layout looks complicated. If e-mail or other equivalent communication facilities are available on board, such systems could be used, thus providing the ship with a more user-friendly layout. If such facilities are available on board the ship, the (M)RCC may use the questionnaire as a guideline when using voice communications for investigation.

2.4 One should also bear in mind a possible increase in workload at the (M)RCCs when investigating false alerts. However, this is necessary in the endeavour of reducing the number of false alerts. The use of modern forms of communications and preformatted messages will ease the burden for the (M)RCCs.

3 How to record information

3.1 The record should give information on the reason why the false alert was transmitted, with references to the questionnaires and, if necessary, to other relevant information sources of interest.

3.2 The monitoring of false alerts consists, in general, of two parts:

.1 the monitoring of alerting system performance and anomalies. This may be performed by system operators of special interests or an overall System Monitoring and Reporting Programme; and

.2 the monitoring of operational false alerts and determining cause of activation. This may be performed by Administrations in co-operation with authorized agencies.

3.3 Operational false alerts may have a variety of origins and causes. In general these are divided into categories such as:

.1 "mishandling";

.2 "human error";

.3 "technical";

.4 "mounting failure"; or

.5 "environmental conditions" .

Under these categories it is defined "types" of causes related to each of the different alerting systems capabilities. COMSAR/Circ.29 contains examples of "types" of causes and different categories.

3.4 Administrations should take into account the above mentioned system to catalogue the causes and to endeavour establishment of paper or electronic recording systems, which enable systemised lessons learned to be derived.

4 Co-operation between agencies

4.1 The investigation of false alerts should not only focus on causes for activation, but also look for other anomalies which might endanger the ship's safety, such as:

.1 improper coding of the alerting systems;

.2 wrong or no position given in the distress alert;

.3 improper and/or multiple transmissions of DSC relay alert;

.4 identity not found in database or database not available; or

.5 other anomalies which might cause confusion among SAR Authorities about which ship was in distress and its position.

4.2 A co-operation between all involved agencies should be established; due to the fact that a false distress alert may involve more agencies than if the distress alert was real. It is important that the agencies involved have a common understanding of the importance of such an investigation.

4.3 The agencies or bodies involved upon a false distress alert may be:

.1 if received through VHF-, MF-, HF-DSC: the ship, the coast radio station receiving the distress alert, the associated (M)RCC, the licensing authority and the maritime authorities;

.2 if received through the Inmarsat system: the ship, the land earth station (LES), the associated (M)RCC, register countries licensing bureau, the maritime authorities and Inmarsat Ltd.; and

.3 if received through COSPAS-SARSAT: the ship, the Mission Control Centres (MCCs), one or more (M)RCCs, registered country's licensing bureau, the maritime authorities and the COSPAS-SARSAT organization.

5 How to derive lessons learned

5.1 Determination of the cause of false alerts is totally dependent on the feedback and information received from national (M)RCCs and SAR points of contacts (SPOCs). National Administrations should therefore encourage their (M)RCCs and SPOCs to provide timely information, which describes the cause and disposition for activations of each false distress alert. One should also look for both specific causes and general trends.

5.2 An example of this is the investigation conducted by COSPAS-SARSAT (COMSAR 5/7) during 1998 on the number of false alerts produced by specific type approved 406 MHz EPIRB models in use in the Spanish search and rescue regions (SRRs). The collected information related specifically to the beacon false alert rate, and it was discovered that of 155 false alerts from a

population of 4990 registered 406 MHz EPIRBs, the beacon false alert rate was significantly higher for some beacon models than others.

5.3 Further investigations against manufacturers and users would then establish what exactly causes these activations and appropriate measures may be taken to solve the problem.

6 Evaluation of, and statistics on, false alerts

6.1 The false alert rate can be calculated in three ways, as a function of the beacon population, as a function of total alerts transmitted to SAR authorities and as a function of specific alerting device models. This can be calculated as described below.

.1 False alert rate as a function of population

The false alert rate as function of the total beacon population can be viewed as a method of tracking false alerts from a System perspective. The rate could be calculated by dividing the number of false alerts and undetermined alerts occurring world-wide with the reporting Administration country code(s), by the estimated total of ship installations of the specific alerting device with the reporting Administrations country code(s).

$$\text{False alert rate} = \frac{\text{False and undetermined alerts world-wide with reporting country code(s)}}{\text{Estimated total number of ship installations with reporting country code(s)}}$$

.2 False alert rate as a function of the total number of alerts

The false alert rate calculated as a function of the total number of alerts can be viewed as representing the SAR response perspective and is the traditional view of false alert rate. This rate should be calculated by dividing the number of false alerts and undetermined alerts transmitted to SAR authorities of the reporting country, by the number of total alerts transmitted to the SAR authorities within its search and rescue region (SRR).

$$\text{System operation perspective} = \frac{\text{Number of the false alerts and undetermined alerts received at the responsible (M)RCC}}{\text{Total number of alerts received at the responsible (M)RCC}}$$

.3 False alert rates as a function of alerting equipment model

The false alert rate for each alerting equipment model is used as a first step for identifying possible problems with specific variants of models. This rate is calculated by dividing the number of false alerts attributed to a given equipment model variant (e.g. beacon model, type and activation method) transmitted to SAR authorities of the reporting country, by the number of equipment of that model, registered in the reporting country's registration database.

$$\text{False alert rate by equipment model} = \frac{\text{Number of model false alerts received and transmitted to SAR authority}}{\text{Estimated numbers of equipment model registered}}$$

6.2 Administrations are encouraged to conduct further analysis on those models that exhibit high false alert rates with a view to identifying their causes. Caution is advised in drawing conclusions in respect of possible beacon problems from this data since experience has shown that false alerts can be caused by factors not related to equipment design.

7 How to report collected information

7.1 The COSPAS-SARSAT has put in place a system monitoring and reporting programme, (document C/S A.003), part of which contains guidelines for COSPAS-SARSAT Participants to collect data on beacon populations and activations, and to provide reports to the Organization. It should be stressed that data is only collected and reported to the COSPAS-SARSAT by Participants in the Programme. Specifically, data is collected and reported by more than 20 Mission Control Centres (MCCs) in the ground system network, which receive feedback information from the (M)RCCs or to whom the MCCs have transmitted distress alert data.

7.2 Administrations not being a participant of the COSPAS-SARSAT Programme are requested to report investigations on 406 MHz false alerts directly to IMO, as appropriate.

7.3 Inmarsat Ltd. is also running a SMR programme, called the Distress Alert Quality Control System (DAQCS), which is able to generate a number of statistical reports on distress alerting (real and false) via Inmarsat systems. Unlike (M)RCCs Inmarsat Ltd. keeps information about all alerts handled by the Inmarsat systems, and may share certain reports with (M)RCCs or maritime Administrations. Information on distress alerts received from (M)RCCS may also be used as a comparison with Inmarsat's own data to achieve the highest quality of distress services. Inmarsat Ltd. also sends messages to all ships sending multiple Inmarsat-C distress alerts within a month, if number of alerts from the same ship is >2. The purpose of this message is to enquire from the Master the reason(s) for sending alerts and to offer advise and assistance in the correct operation of Inmarsat communication equipment and to identify any problems.

7.4 Each SAR authority should, via the associated LES or MCC, report an instant feedback whether an alert was false or not, and a preliminary cause. Both Inmarsat Ltd., through IMSO, and the COSPAS-SARSAT will then, based on investigations gathered, provide IMO with annual false alert statistics and analysis with an overall view.

7.5 Until a superior GMDSS-SMR Voluntary Group of Experts is established as agreed by COMSAR 7, Administrations are encouraged to submit annual statistics on the cause of false alerts received within own Search and Rescue Region, using the formats decided upon for such reporting as described in COMSAR/Circ.29, to IMO.

7.6 When an overall GMDSS-SMR Voluntary Group of Experts is established, the procedures for reporting false alerts might be reported as:

.1 Inmarsat alerts being reported through the Inmarsat system; and

.2 406 MHz alerts being reported through the COSPAS-SARSAT system.

7.7 DSC alerts should be analysed by Administrations and reported directly to IMO.
