Analysis and assessment of the GMDSS performance of Inmarsat Global Limited

Submitted by IHB

SUMMARY

Executive Summary: This document provides details of the analysis and assessment of the performance by Inmarsat Global Limited of the Company's obligations for the provision of maritime services within the GMDSS, as overseen by IMSO, which are relevant to WWNWS-SC

Action to be taken: Paragraph 2.

Related documents: NCSR 1/18 dated 8 April 2014

1. See attached document.

2. The Sub-Committee is invited to note the information provided and take action as appropriate.

INTERNATIONAL MARITIME ORGANIZATION

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SUB-COMMITTEE ON NAVIGATION, COMMUNICATIONS AND SEARCH AND RESCUE
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CONSIDERATION OF DEVELOPMENTS IN INMARSAT AND COSPAS-SARSAT

Analysis and assessment of the GMDSS performance of Inmarsat Global Ltd

Submitted by the International Mobile Satellite Organization (IMSO)

SUMMARY

Executive summary:	This document provides analysis and assessment of the performance by Inmarsat Global Ltd of the company's obligations for the provision of maritime services within the GMDSS, as overseen by IMSO. The information covers the period from 1 November 2012 to 31 October 2013. It is assessed that, during this period, Inmarsat has continued to provide a sufficient quality of service to meet its obligations under the GMDSS.
Strategic direction:	5.2
High-level action:	5.2.5
Planned output:	5.2.5.4
Action to be taken:	Paragraph 10
Related documents:	NCSR 1/18/1; COMSAR 14/INF.6; COMSAR 17/17; MSC/Circ.1077 and resolutions MSC.130(75) and A.1001(25)

Introduction

1 This document is the formal report to IMO by the International Mobile Satellite Organization (IMSO) on the performance by Inmarsat Global Ltd (Inmarsat) of that company's public service obligations in respect to the GMDSS, as established in articles 3(1) and 5 of the Convention on the International Mobile Satellite Organization, and Clause 2.1.2 of the Public Services Agreement between IMSO and Inmarsat (PSA), submitted in accordance with the requirement of section 2.5 of resolution A.1001(25). This report covers the period from 1 November 2012 to 31 October 2013. The previous report to IMO, covering the period 1 November 2011 to 31 October 2012, was made to the seventeenth session of the COMSAR Sub-Committee in document COMSAR 17/5/1.

Status of the Inmarsat network

2 The operational status of key elements of the space and ground segments of the relevant Inmarsat systems is summarized in the following table:

	AOR-E	**POR**	**IOR**	**AOR-W**
OPERATIONAL SATELLITES	INMARSAT-3 F2 15.5°W	INMARSAT-3 F3 178°E	INMARSAT-3 F1 64.5°E	INMARSAT-3 F4 54°W

2.1 The table shows four operational Inmarsat-3 satellites in the primary locations over four ocean regions. Inmarsat operates other satellites to provide non-GMDSS services and these satellites are configured to act as on-orbit spares for the rapid restoration of essential GMDSS services in the event of a prime satellite failure. Operational procedures are in place to ensure that full sparing capability is retained with this arrangement of the constellation and these procedures are exercised to demonstrate and maintain their effectiveness. Inmarsat-2 F1, F3 and F4 are no longer operational and have been placed in "graveyard orbit". Inmarsat-2 F2 continues to provide commercial leased services and remains available to back up the AOR-W and POR satellites if needed.

Performance of the Inmarsat network

Availability figures for each service/ocean region

3 The availability of all GMDSS components, including distress alerting, SAR Coordination, MSI broadcast and general communications within the Inmarsat system during the 13-month period from 1 October 2012 to 31 October 2013 is shown in the following table:

	AOR-E	**IOR**	**POR**	**AOR-W**
SPACE SEGMENT	100.0000%	100.0000%	100.0000%	100.0000%
INMARSAT-B/F77	100.0000%	100.0000%	100.0000%	100.0000%
INMARSAT-C	100.0000%	100.0000%	100.0000%	100.0000%

The definition of availability and methods of calculation are based on the approach adopted in section 3.5 of Report ITU-R M.918-1 "Availability of Communications Circuits in the Maritime Mobile-Satellite Service", dated 15 December 1989.

3.1 These figures illustrate the effective reliability of the core GMDSS components, and may be taken as a measure of the availability of the GMDSS services which rely on those components, including those providing general communications. The figures tabulated in paragraph 3 above indicate that there was 100% availability of the core GMDSS services during the reporting period.

3.2 Neither Inmarsat C, the base satellite communications service for the GMDSS which is used for distress alerting, SAR coordination communications and broadcast of Maritime Safety Information as well as SSAS, LRIT and general communications, nor Inmarsat B/F77 which may be used in the GMDSS for distress calling and general communications, experienced any periods of non-availability during the period.

3.3 The availability of the Inmarsat FleetBroadband network, which is not part of the GMDSS but is used extensively by shipping world-wide for general communications, was 99.95% over the same period. This represents a total period of non-availability of FleetBroadband of 4 hours and 23 minutes.

3.4 It should be noted that the availability figures do not include any element of the communication links from any LES to MRCCs or other national agencies, which are entirely a matter for the country concerned.

Number of Land Earth Stations providing GMDSS services

3.5 The number of Land Earth Stations remained unchanged during the period covered by this report. There were 80 Inmarsat-B/M/F77 and 37 Inmarsat-C Land Earth Stations, located at various sites world-wide, provide the essential ground-based gateways for GMDSS related communications using e-mail, telex, and telephony. The figures include virtual, as well as real LESs and illustrate the total number of points of access to the network. There are enough LESs in each system to ensure robust operation and provide alternatives in the event of local failure. These LESs also operate the Inmarsat space and ground segments for distress alerting, follow-up communications and promulgation of MSI.

Number of ship Earth stations

3.6 Inmarsat had over 170,000 registered GMDSS-capable mobile terminals at the end of October 2012, *of which more than 145,000 were Inmarsat C and mini-C terminals.* In view of the competitive environment in which the company operates, Inmarsat does not make public the breakdown of these totals. However, many of these terminals are no longer in use.

Number of distress priority calls/alerts through the system

3.7 All distress alerts and calls through the Inmarsat system during the period between 1 November 2012 and 31 October 2013 were handled correctly and delivered promptly. Inmarsat uses the Distress Alert Quality Control System (DAQCS) to provide quantitative data on the number of distress priority calls, alerts and messages.

3.8 The numbers of **ship-to-shore Inmarsat-C** distress alerts received were as follows:

	AOR-E	AOR-W	IOR	POR	Total
Nov 12 – Oct 13	245	216	260	179	900
Nov 11 – Oct 12	295	157	349	199	1000

These figures include distress alerts originated by Inmarsat Mini-C terminals, not all of which are GMDSS compliant.

3.9 The numbers of **shore-to-ship Inmarsat-C** distress priority messages were as follows:

	AOR-E	AOR-W	IOR	POR	Total
Nov 12 – Oct 13	0	0	1	5	7
Nov 11 – Oct 12	183	78	398	503	1162

These figures include distress priority messages originated by Inmarsat Mini-C terminals, not all of which are GMDSS compliant.

3.10 The numbers of **ship-to-shore** priority voice calls via F77 were as follows:

Priority	AOR-E	AOR-W	IOR	POR	Total (previous year)
Safety	26	26	27	21	100 (140)
Urgency	97	52	104	60	313 (451)
Distress	37	26	23	9	95 (229)

3.11 The numbers of **shore-to-ship** priority calls via F77 were as follows:

Priority	AOR-E	AOR-W	IOR	POR	Total (previous year)
Safety	7	0	5	0	12 (15)
Urgency	0	0	0	0	0 (0)
Distress	10	8	6	10	34 (71)

3.12 The number of **ship-to-shore voice distress** priority calls via Inmarsat B was as follows:

AOR-E	AOR-W	IOR	POR	Total
14	3	71	75	3 (133)

3.13 In general, the distress and safety usage of these Inmarsat systems is not widely different from that of the previous year, except for a marked reduction in the number of shore-to-ship Inmarsat C distress priority messages world-wide.

- Since the total number of Inmarsat C distress alerts in all ocean regions is generally of a similar level to that seen in previous years and shore-to-ship priority calls via F77 have not increased, it is not clear what method is now being used by RCCs to contact ships that have declared a distress using Inmarsat C.

- For F77, the number of ship-to-shore priority voice calls has remained at broadly similar levels to previous years.

- The overall number of distress priority calls via Inmarsat B in all Ocean Regions continues to reflect the diminishing use of this legacy system, which will now be retained in service by Inmarsat until 30 December 2016, and not closed at the end of 2014 as had previously been notified. Document NCSR 1/18/1 provides more information on this.

Action to reduce false alerts

4 Inmarsat continues to contact those vessels concerned with the transmission of multiple distress alerts and, where the alerts have apparently been false, seeks to assist the vessel to improve its procedures to avoid such occurrences in future. Where vessels respond to such approaches by Inmarsat, the reasons given for initiating false distress alerts invariably are attributed to human error, equipment test or equipment fault. However, many vessels do not respond to these contacts and no further action by Inmarsat is possible.

4.1 Following the request by the COMSAR Sub-Committee at its fifteenth session (COMSAR 15/16, paragraph 5.4), IMSO has agreed with Inmarsat a procedure whereby the Director General of IMSO will write to the flag State of any vessel that does not respond to the approach by Inmarsat after they have initiated apparent multiple false distress alerts. There have been no such cases during the last year.

4.2 During the second half of the period covered by this report, a number of Moroccan-registered fishing vessels have been originating numerous and repeated false distress alerts which have caused concern in a number of RCCs. Investigations indicate that these vessels have been fitted with Inmarsat C terminals for fisheries monitoring (VMS) purposes that do not include a keyboard and display screen but do provide a red distress button. This configuration is not encouraged by Inmarsat but has been promoted by the manufacturer concerned. Repeated approaches to Moroccan authorities by Inmarsat and IMSO have not yet led to a satisfactory resolution of this problem.

SafetyNET messages

5 SafetyNET messages consist of Maritime Safety Information (MSI) broadcasts via the Enhanced Group Call (EGC) capability of Inmarsat C. The messages are originated by authorised Information Providers, which include NAVAREA Coordinators, METAREA Issuing Services and some Rescue Coordination Centres. The standards against which most of these broadcasts are issued have been established by the International Hydrographic Organization (IHO) and World Meteorological Organization (WMO). The total number of SafetyNET calls worldwide fluctuates according to the season, but has been generally stable at a slightly higher level of usage during the past year. For example, while 32,782 were issued during October 2012, 36,804 were issued during October 2013, and the average number of messages issued each month during 2013 was 34,026.

Satellite failure contingency exercises

6 The programme of satellite failure contingency exercises, carried out by Inmarsat at the request of IMSO and noted in paragraph 2.1 of this report, continues. These exercises are designed to ensure that Inmarsat is able to restore the essential maritime distress and safety services (distress alerting, SAR Coordination communications and Maritime Safety Information (MSI) broadcasts) within 1 hour after a confirmed satellite failure, as required by resolution A.1001(25). Exercises include participation not only by Inmarsat's satellite control, network operations staff and management, but also the active involvement of relevant Land Earth Station Operators (LESOs).

6.1 Exercises are planned to be carried out, in general, every three months and a different ocean region is chosen for each exercise. During 2012/13, satellite failure contingency arrangements have been exercised in the IOR (November 2012), AORE (June 2013) and IOR (November 2013). An exercise planned for the POR in April 2013 was cancelled because of problems with the Inmarsat-2 F1 satellite, which was subsequently taken out of service. The exercise in the IOR during November 2012 was carried out at the Operational Backup Centre (OBC) at Burum in the Netherlands, in order to exercise the staff, communications and decision-making at that emergency standby facility.

6.2 IMSO participates actively in the planning, execution and review of all satellite failure contingency exercises and continues to work with Inmarsat to broaden the scope of these events.

Evolution of the Maritime-Mobile Satellite services

7 On 25 July 2013 the latest Inmarsat-4 satellite was successfully launched from Kourou in French Guiana. This satellite, to be known as "Alphasat", will be used primarily to provide additional broadband capacity over Europe, the Middle East and Africa, but it will also offer additional L-band space segment redundancy to enhance the resilience of maritime distress and safety services under its footprint.

Resolution of GMDSS-related disputes

8 Since his last report to the Sub-Committee, the Director General has been asked to assist in the resolution of two incidents in which a significant number of ships was denied GMDSS-related satellite services for political or commercial reasons. In one case, ships were denied access to GMDSS satellite services because of an international trade embargo; and in the other because of a legal/commercial dispute between some parties in the service supply chain. In both instances the Director General was informed by the affected authorities and was requested to liaise with Inmarsat. The Director General offered mediation and

professional advice to the parties concerned and to the Secretary-General of IMO, to clarify the issues involved and assist in reaching a satisfactory arrangement for restoring essential GMDSS services to the ships concerned.

Conclusions

9 Inmarsat's maritime business remains the largest single contributor to the company's revenues. This is recognized by the company and reflected in the amount of effort given to the promotion and development of the maritime sector. At the same time, Inmarsat continues to provide maritime distress and safety services for the GMDSS at either no cost or a special rate.

9.1 In view of the foregoing review of the status and performance of the relevant Inmarsat systems, it is IMSO's overall assessment that, during the period covered by this report, Inmarsat Global Ltd has continued to provide fully operational maritime mobile satellite distress and safety communication services for the GMDSS and fulfil the company's public service obligation as stated in paragraph 2.1.2 of the PSA.

Action requested of the Sub-Committee

10 The Sub-Committee is invited to note:

.1 the information provided on the status and performance of the Inmarsat network (sections 2 and 3);

.2 the ongoing programme to reduce false distress alerts by contacting vessels which originate repeated false alerts, including current difficulties with some Moroccan fishing vessels, and the procedure whereby IMSO will write to the flag State of vessels that do not respond these contacts (section 4);

.3 the information provided on the international SafetyNET broadcast (paragraph 5);

.4 the ongoing programme of satellite failure contingency exercises (section 6);

.5 the information provided on the evolution of the maritime mobile satellite services (paragraph 7);

.6 the information provided on the resolution of GMDSS-related disputes (paragraph 8); and

.7 the contents of this report in general and, in particular, the conclusion that Inmarsat Global Ltd has continued to provide a sufficient quality of service to meet its obligations under the GMDSS during the period covered by the report (paragraph 9.1).