

16 For instance, some LESs provide email, or Internet (direct) drop access to the SafetyNET service that allows registered MSI providers to send Enhanced Group Call (EGC) messages using email from any computer with access to the Internet. Each user interface has its own access procedure and syntax command, which should be checked with the Inmarsat C LES operator or service provider.

17 In accordance with resolution A.801(19), as amended, the availability and robustness of the communication links between LESs and the associated RCCs, or other shore-based national agencies, are under the responsibility of the Government(s) in whose territory the LES is located. At least two LESs are located in each ocean region under Inmarsat's coverage area in order to provide a sufficient level of robustness as well as redundancy. Inmarsat MSSs are located in London and Burum with two servers located at each site and each server hosts application redundancy providing geographical redundancy and eight layers of technical redundancy.

RescueNET

18 Inmarsat has recently invested in the enhancement and development of shore side services for MSI providers and RCCs, including the free RescueNET service. Access to the service is independent from LES and instead uses a secure web interface to the MSSs, providing a single interface for GMDSS services and Inmarsat safety services including:

- .1 reception of Fleet Safety distress alert;
- .2 distress alert relay;
- .3 SAR Coordination broadcasts;
- .4 reception of distress priority message;
- .5 transmission of distress priority message;
- .6 distress chat;
- .7 access to vessel databases;
- .8 access to SAR database; and
- .9 tracking of a vessel in distress.

Availability

19 In accordance with section 3.5.2 of resolution A.1001(25), IMSO is required to report to IMO on the availability of Inmarsat's space segment, provision of spare satellite capacity and network control function. The network availability of a recognized mobile satellite communication system is expected to achieve at least 99.9% in a given year.

20 No degradations in service were reported over this period. Inmarsat informed IMSO that on the 6 April 2020, during a routine maintenance at Burum NCS, an anomaly was detected by their engineers. In order to safeguard the system, all the NCS traffic was diverted to alternative NCSs. During the transfer procedure, communications including distress remained available through the highly redundant ground infrastructure.

21 Inmarsat confirmed that no distress alerts or communications were affected or missed during the above-mentioned incidents. The relevant alarm was increased at NOC, and a specific procedure was set to react to this alarm while the incident was being investigated by Inmarsat. In accordance with section 3.5.3 of resolution A.1001(25), Inmarsat notified IMSO on the day of the incidents and submitted a detailed report afterwards.

22 The figures provided by Inmarsat as reflected in table 3 assures that the GMDSS services provided by Inmarsat have achieved an availability equal to or above the 99.9% benchmark set out by resolution A.1001(25) during the reporting period. The figures are consistent with the information that there were no outages reported during the audit period.

	IOR	AOR-E	POR	AOR-W
Space Segment	100.00%	100.00%	100.00%	100.00%
Inmarsat C	100.00%	100.00%	100.00%	100.00%
Inmarsat-F77	100.00%	100.00%	100.00%	100.00%

Table 3: Availability figures

The definition of availability and methods of calculation in the Maritime Mobile Satellite Service are given in ITU Recommendation ITU-R M.828-2 (03/06), which superseded ITU-R M. 828-1 of 1992-1994.

23 Inmarsat satisfies this requirement through spare satellites designated for ensuring restoration of effective communication over the network for GMDSS services in the unexpected event of a prime satellite failure. The specific distribution of I-3 and I-4 satellites across the geostationary orbit provides a sufficient level of overlap over the ocean regions.

Contingency exercises

24 In accordance with section 3.6.2 of resolution A.1001(25), IMSO and Inmarsat conduct contingency exercises to prove efficiency and effectiveness of the arrangements put in place by Inmarsat to restore the GMDSS services within 1 hour in case of a prime satellite failure. These exercises are performed according to the contingency changeover procedures prepared by Inmarsat for each of the primary satellites.

25 The contingency exercises are carried out once for each ocean region every year – four in total. These exercises are performed alternately between the NOC in London and Inmarsat's OBC, Burum in the Netherlands. The exercises at OBC are conducted in order to test the operational capacity and communication links there, as well as to familiarize the NOC staff with the arrangements available at OBC. Satellite contingency exercises conducted in 2020 are provided in the following table 4. Due to the outbreak of COVID-19, some of the exercises in 2020 were exceptionally conducted only at the NOC in London by remote participation through video conference systems.

	Date	Region	Location
1st exercise	19 Feb 2020	AORE	NOC (London)
2nd exercise	8 Apr 2020	POR	Remote
3rd exercise	10 Jun 2020	IOR	Remote
4th exercise	20 Oct 2020	AORW	Remote

Table 4: Contingency exercises in 2020

26 Following each exercise, Inmarsat submits a report to IMSO providing information on the outcome of the exercise, including lessons learned and areas identified for further improvement. Inmarsat keeps contingency changeover procedures under review and updates them based on the feedback received from OBS staff, LESs and IMSO. In addition to the regulatory nature, these exercises have proven to be an essential part of Inmarsat's ongoing training programme for the new and existing staff members stationed at the London headquarters, the backup facility and LESs.

Distress alerts through the Inmarsat C systems

27 An Inmarsat C distress alert is a preformatted data packet transmitted from the shipborne terminal to the associated MRCC upon activation of a dedicated distress button on the shipborne terminal. The total number of ship-to-shore Inmarsat C distress alerts received during the reporting period is provided in table 5.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
IOR	5	13	4	12	96	4	18	209	26	11	19	7
AOR-E	130	11	44	96	69	133	46	280	35	37	88	94
POR	214	55	125	15	2	81	68	76	49	74	78	120
AOR-W	13	37	31	150	64	84	35	108	209	225	93	214
Total	357	103	200	261	135	298	149	464	293	336	259	428

Table 5: Inmarsat C distress alerts received between 1 October 2019 and 30 September 2020

False distress alerts

28 The *Guidelines for the avoidance of false distress alerts* (resolution A.814(19)), highlights the role and responsibility of Administrations to avoid and stop transmission of false distress alerts from ships under their registries. The resolution contains a guideline for Administrations in the annex which invites Administrations to consider establishing and using national enforcement measures to prosecute those who:

- inadvertently transmit a false distress alert without proper cancellation, or who fail to respond to a distress alert due to misuse or negligence;
- repeatedly transmit false distress alerts; and
- deliberately transmit false distress alerts.

29 Each distress alert transmitted on Inmarsat C system is considered real, unless it is proven otherwise by the MRCC that receives it. Inmarsat is aware of distress alerts sent by its GMDSS safety services. When a distress alert is suspected to be false, or an MRCC provide feedback on a false distress alert, Inmarsat attempts to contact the ship concerned to find the underlying reasons of the false distress alerts and offers assistance, if required. Inmarsat informed that not all ships respond to its follow-up call, and the causes ships usually report to the satellite service providers are related to human error, equipment test (use of real distress alerting service to test the terminal instead of built-in testing function) or malfunctioning equipment. The issue with false distress alerts received from mobile satellite communication systems recognized for the GMDSS is under discussion at the ICAO/IMO Joint Working Group on Harmonization of Aeronautical and Maritime Search and Rescue.

Broadcasting Maritime Safety Information

30 Inmarsat manages and operates the SafetyNET (II) service to facilitate the broadcast of MSI from registered information providers to ships at sea. SafetyNET (II) receiving capability is part of the Inmarsat C, Mini-C and Fleet Safety shipborne equipment, which is one of the mandatory carriage requirements for ships engaged on voyages within the sea area A3 according to the provisions of SOLAS chapter IV, as amended.

31 Certified SafetyNET users (NAVAREA Coordinators, METAREA Issuing Services and RCCs) submit their MSI messages, with the appropriate priority, i.e. distress, urgency or safety, to LESs providing EGC services for further broadcasting of their messages to the intended geographical area and automatic reception on Inmarsat C, Mini C and Fleet Safety SES simultaneously. The IMO Enhanced Group Call Coordinating Panel, in cooperation with IHO and WMO, undertakes the coordination of times for scheduled transmissions.

32 Inmarsat is contracted for broadcast of MSI messages in all 21 IMO approved NAV/MET areas.

33 The number of MSI messages broadcast through the Inmarsat networks fluctuates in the year based on various factors, particularly the meteorological events and forecast. Table 6 below provides the number of MSI messages broadcast informed by Inmarsat in this reporting period. On average, there were 33,900 messages per month, including repeated messages.

	AOR-E	AOR-W	IOR	POR	Total
Oct. 19	4667	4208	6979	6980	22834
Nov. 19	8111	7258	11352	11443	38164
Dec. 19	9834	6938	11979	11305	40056
Jan. 20	10146	5632	10577	10393	36748
Feb. 20	3926	5721	6305	9346	25298
Mar. 20	8171	6639	11451	10519	36780
Apr. 20	7165	6022	9138	9618	31943
May 20	6850	5728	10657	10470	33705
June 20	7891	6719	9241	11321	35172
July 20	9824	6778	8630	10397	35629
Aug. 20	9568	7235	7860	10757	35420
Sep. 20	9734	7388	8416	9527	35065

Table 6: EGC SafetyNET messages
between 1 October 2019 and 30 September 2020

SafetyNET II

34 Inmarsat has launched its SafetyNET II service for use by all certified SafetyNET users. SafetyNET II runs in parallel to the existing SafetyNET service and does not require installation of new shipborne terminals. The new service is seamless to all seafarers.

35 With SafetyNET II, MSI providers and SAR services can create their messages using an interactive secure web-based interface and submit messages directly to Inmarsat for simultaneous broadcasting over the Inmarsat C, Mini-C and Fleet Safety networks. The service offers some new features such as enhanced broadcasts scheduling, message cancellation and multiple text input methods. Currently, 8 MSI providers and 50 MRCCs are using the SafetyNet II system, and around 20% of the total of MSI broadcasted is being sent through the SafetyNet II.

36 SafetyNET II is available only to authorized, certified and registered MSI providers and RCC operators. Registration for SafetyNET II requires a Certificate of Authorization issued by the IMO Enhanced Group Call Coordinating Panel.

Resolution A.707(17) compliance

37 Inmarsat provides maritime distress, urgency and safety services, including distress alert/calls at no cost to the ships at sea in accordance with the provisions of resolution A.707(17) *on Charges for distress, urgency and safety messages through the Inmarsat system*.

38 There are no charges to the mariners for the reception of SafetyNET messages. Inmarsat broadcasts SafetyNET messages with distress priority free-of-charge and messages with safety priority at a lower cost than standard messaging rates.

Public Services Committee meetings

39 In accordance with section 4 of the PSA signed with Inmarsat, IMSO and Inmarsat regularly, or at the request of one party, hold Public Service Committee (PSC) meetings. These meetings are attended by the Director General, as accompanied by a member of the Directorate staff, the non-executive Chairman of the Board of Inmarsat, Chief Executive Officer of Inmarsat, Inmarsat Company Secretary and any other relevant person(s) from Inmarsat. PSC provides the fora to discuss high-level policy matters between Inmarsat and IMSO that falls under the scope of the PSA, including public service obligations of the company.

40 The following PSC meetings were convened in 2020:

2020
5 March 2020 (Remote)
16 April 2020 (Remote)
18 June 2020 (Remote)
27 October 2020 (Remote)

Table 7: PSC meetings in 2020

Introduction of the monthly fee for Inmarsat C

41 Inmarsat has introduced a monthly "Network Access Fee" for all Inmarsat C terminals, which includes maritime fixed, maritime mobile, land and aviation terminals. Maritime safety services remain unchanged. All GMDSS distress, urgency and safety communications to and from the vessel are free. Inmarsat has also excluded from these charges the Inmarsat C SESs used by MSI providers and RCCs for monitoring of EGC broadcasts. Inmarsat informed IMSO the following reasons for this decision-making:

- .1 Despite the reduction of messaging across the platform, Inmarsat and its Land Earth Station Operators (LESO) still need to invest in the continuation of Inmarsat C services including adding additional satellite capacity to maintain the service. A number of LESO stopped and closed their service recently.
- .2 A number of Inmarsat C terminals are barred since they do not pay their bills. Although the GMDSS alerting function is still available even on the barred terminals, the barred terminals have no other service capability so a message cannot be sent from shore to ship by normal means, even for safety and only RCCs can send a message, as a distress priority message, through reserved Inmarsat procedures. While this arrangement raises some concerns, it still meets GMDSS requirements in principle.

- .3 Without a monthly fee, there is no incentive to deactivate, even when the terminal is no longer operational. This makes it difficult for Inmarsat to ascertain the "true" user base and gather information to maintain a reliable safety service for RCCs. So far, over 24,000 ghost terminals have been identified.
- .4 Inmarsat has seen a large number of reactivations with vessels changing flag, name, owner per month. This has led to detentions and fines as they cannot be provisioned in time, so Inmarsat is improving the service as Inmarsat is committed to providing Inmarsat C services into future satellite constellations. Because some providers of Point of Service Activation (PSA) charge high fees to deactivate, some owners chose not to officially deactivate their terminals. Also, some terminals are moved to a new vessel, but remains under the old provisioning, or else a vessel reflags, renames, etc. More than 1,000 changes are recorded in a month and Inmarsat's implementation of the monthly fee will provide more control and accuracy of terminal registration data.
- .5 Inmarsat is seeing a falloff in the use of communication services generally through Inmarsat C. In view of this trend away from traditional maritime messaging services, and related accounting practices, the US01 and RS01 Accounting Authorities (AAs) are in the process of closing and Inmarsat expects more to do so.

Conclusion

42 In view of the information provided in this document, it is IMSO's overall conclusion that, during the period covered by this report, Inmarsat has successfully provided the recognized maritime mobile satellite distress and safety communication services for the GMDSS and fulfilled the company's public service obligation as stated in the PSA.

Action requested of the Sub-Committee

43 The Sub-Committee is invited to consider the report in general and make any decision, as it deems appropriate.
