

SUB-COMMITTEE ON NAVIGATION,  
COMMUNICATIONS AND SEARCH AND  
RESCUE  
6th session  
Agenda item 14

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## DEVELOPMENTS IN GMDSS SATELLITE SERVICES

### Status and plans of BDMSS for recognition and use in GMDSS

Submitted by China

#### SUMMARY

*Executive summary:* This document provides information of BeiDou Message Service System (BDMSS), including its status, functional capabilities and development plan, and invites the Sub-Committee to give guidance as to preparatory works of the recognition of BDMSS for use in GMDSS

*Strategic direction, if applicable:* 6

*Output:* 6.2

*Action to be taken:* Paragraph 14

*Related documents:* MSC 99/12/1, MSC 99/22; resolutions A.1001(25) and A.1110(30) and MSC.1/Circ.1414

#### Background

1 At MSC 99, China submitted document MSC 99/12/1, applying for the recognition of BeiDou Message Service System (BDMSS) as a GMDSS service provider. The Committee, after consideration, referred the application to the NCSR Sub-Committee for evaluation, and authorized the Sub-Committee to invite IMSO to conduct the Technical and Operational Assessment according to resolution A.1001(25), as appropriate.

#### Status

2 The BeiDou Navigation Satellite System (BDS) owns and operates the only satellite network that provides mobile satellite service (MSS), radio navigation satellite service (RNSS) and radio determination satellite service (RDSS) simultaneously. It is capable of providing these services in real time within its coverage area. As the system develops, it will include the whole globe into its coverage by the year 2020.

3 As a functional component of BDS, BDMSS constellation consists of five geostationary orbit (GEO) satellites and one in-orbit spare satellite. GEO satellites carrying message service payloads can provide message service for Asia and Western Pacific area with overlapping coverage, and will expand to global coverage in the future. Therefore, BDMSS is suited to provide communication and emergency services for transport industries (e.g. maritime, aviation).

4 BDMSS supports ship-to-shore, shore-to-ship and ship-to-ship maritime safety communications. BDMSS safety data communication service supports the call types required, providing four levels of priority for all communication types. The BDMSS safety data communication service uses an enhanced information processing platform, which is capable of assigning priority to selected users.

5 BDMSS has, since 2003, been providing maritime safety services for ships navigating in ocean areas surrounding China. At present, BDMSS has more than 450,000 satellite communication service subscribers across multiple sectors, including over 40,000 maritime service subscribers.

6 The BDMSS satellite network provides 24 x 7 data and broadcast services. System service performance is continuously monitored by using user terminals to constantly test the communication services, and statistical analysis is carried out accordingly. Since 2003, BDS has been in stable operation, with a total service outage of 55 minutes, and its actual availability reaches 99.99925%. At present, BDMSS fully meets the criterion of availability of at least 99.9% for communication network as defined in resolution A.1001(25). Additionally, the network availability will be further increased through constant investment and performance improvement.

#### **Outstanding functional capabilities**

7 BDMSS adopts short-burst data service mechanism, and supports ship-to-shore, shore-to-ship and ship-to-ship alarm and short messages, with four levels of priorities, providing distress alarm, emergency, safety and routine communications for maritime users. The optimal short-burst data response can be completed in one second.

8 In most cases, user terminals are under the coverage of multiple BDMSS satellites. Additionally, all BDMSS user terminals are designed with omnidirectional antennas, which means there is no need of antenna adjustment. This ensures the service availability in situations such as harsh marine environments and/or single satellite failure.

#### **Development plan**

9 BDMSS is scheduled for further upgrade to provide global coverage. BDMSS global system will be designed to be fully compatible with its existing terminal products and services to achieve seamless and smooth service transition, alleviating ship operators from burdens of purchasing new equipment.

10 To achieve the objective of providing GMDSS communications, BDMSS plans to invest sufficient funds to build an integrated Maritime Safety Information (MSI) broadcasting system, and promises additional funds for integration and validation of GMDSS services with Rescue Coordination Centres (RCCs) and MSI suppliers.

11 BDMSS will start the cooperation with RCCs and MSI suppliers to integrate with the system of mission control centre (MCC) to support search and rescue data push and safety information broadcast. BDMSS plans to build a test platform to demonstrate and verify that BDMSS, integrated with RCC and MSI providers, can meet GMDSS communication requirements.

12 BDMSS are also prepared to work with terminal manufacturers and relevant international organizations such as IEC to develop related standards. Shipborne terminal manufacturers have already begun the development of BDMSS-based GMDSS communication terminals and integration with other shipborne GMDSS systems that have already been in use.

### **Plan for recognition**

13 In preparation for recognition by IMO of BDMSS for use in the GMDSS, China intends to submit a BDMSS self-assessment report, in accordance with resolution A.1001(25), to the Sub-Committee at its seventh session in 2020, and specific work related to the assessment will be carried out with IMSO.

### **Action requested of the Sub-Committee**

14 The Sub-Committee is invited to consider the information provided in this document and provide guidance on the preparatory works of the recognition of BMDSS for use in GMDSS.

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