

Global Maritime Distress & Safety System (GMDSS)

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Beacon Manufacturers Workshop

September 2018

IMO GMDSS Modernization

- Changes to SOLAS Chapters III and IV
- Modernization Work Plan reviewed and supported at NCSR 5
 - Introduces additional GMDSS Satellite Service Providers
 - Updates the Performance Standards for EPIRBs
 - Addresses consequential changes to related instruments
 - IMO Resolutions
 - Maritime Safety Committee Circulars
 - ITU Recommendations
 - IEC Standards

Outcomes of IMO/ITU Experts Group

- Updated draft revision of SOLAS chapters III and IV
 - Updated definitions
 - Satellite EPIRB → EPIRB
 - Clarify provision for EPIRB as secondary means of ship-to-shore distress alerts
 - Agreed to keep “five years” for EPIRB maintenance interval and delete “the manufacturer’s battery expiration date”
- Supported draft revision of IMO Performance Standards for EPIRBs
 - supported proposed provision of a GNSS receiver for position fixes and associated indicator for satisfactory or unsatisfactory GNSS reception
 - supported methodology of RTCM STANDARD 11000.4 for transmitting EPIRB beacon ID in AIS message 14, linking 406 MHz distress alert with AIS locating signal as from same device

Outcomes of IMO/ITU Experts Group

- Consequential changes to related instruments
 - Resolution A.696(17), Type approval of satellite emergency position-indicating radio beacons (EPIRBs) operating in the COSPAS-SARSAT system
 - MSC/Circ.1039, Guidelines for shore-based maintenance of satellite EPIRBs
 - MSC/Circ.1040, Guidelines on annual testing of 406 MHz satellite EPIRBs
 - Recommendation ITU-R.M.633-4
- Updated work plan for submission to NCSR 6
- Invited USA to submit updated draft revision of IMO Performance Standards for EPIRBs to NCSR 6

Navigation, Communications, and Search & Rescue (NCSR) Sub-Committee

- NCSR 6 asked to:
 - Review changes to SOLAS Chapters III and IV and submit to MSC for adoption
 - Review updated Performance Standards for EPIRBs
 - Prepare updated resolution, Performance Standards for EPIRBs, for MSC
 - Address consequential changes to related instruments:
 - Resolution A.696(17), Type approval of EPIRBs operating in the COSPAS-SARSAT system
 - MSC/Circ.1039, Guidelines for shore-based maintenance of satellite EPIRBs
 - MSC/Circ.1040, Guidelines on annual testing of 406 MHz satellite EPIRBs
- Next step is Maritime Safety Committee review and action

Global Aeronautical Distress & Safety System (GADSS)

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Objectives of GADSS

- Ensure timely detection of aircraft in distress
- Timely initiation of SAR actions
- Ensure tracking of aircraft in distress with timely and accurate location of end of flight
- Provide accurate information for directing SAR actions
- Enable efficient and effective SAR operations
- Ensure timely retrieval of Flight Recorder Data

GADSS CONOPS (Version 6.0)

- Aircraft Tracking – aircraft operator process to maintain and update, at standard intervals, ground-based record of four dimensional positions of individual aircraft in flight (ICAO Annex 6)
- Autonomous Distress Tracking – capability for transmission of information from which position of aircraft in distress can be determined at least once every minute and resilient to failures of aircraft electrical power, navigation and communication systems
- Post Flight Localization and Recovery – rescue of possible survivors and recovery of aircraft structure, components and critical flight data in a timely manner
- GADSS Information Management and Procedures – infrastructure and services for exchange and timely dissemination of GADSS information

Aircraft Tracking (AT)

- Tracking of aircraft in normal operations
- AT function leverages existing technologies to support SAR:
 - Assists in timely identification and location of aircraft
 - Reduces reliance on procedural methods to determine aircraft position
 - Helps ensure availability and sharing of aircraft position data (with relevant entities)
 - Helps improve effectiveness, efficiency and performance of ATS Unit Alerting
- Automated 4 dimensional position (4D – latitude, longitude, altitude and time) at reporting interval of 15 minutes or less

Autonomous Distress Tracking (ADT)

- Identify location of aircraft in distress with aim to establish the location of accident site within 6 NM radius
- Emergency Locator Transmitter (ELT) – the primary purpose of an ELT is to locate survivors; however also aids in localization and recovery of wreckage
- Distress tracking ELT (ELT(DT)) developed by Cospas-Sarsat
- Other technology ADT solutions are under development

Post Flight Localization and Recovery

- Following an accident & immediately at end of flight, begins rescue phase for locating potential survivors with immediate/highest priority
- Accurate aircraft position information (1 NM or better) and/or homing signals guide SAR services to site
- Beneficial for accident investigation authorities to recover aircraft structure, components and critical flight data in a timely manner

GADSS Information Management and Procedures

- SWIM – System wide information management
- Distress Tracking Repository (DTR) – secure web-based storage facility to house position/location information of aircraft in distress or potentially in distress
- DTR and SWIM are the means to make available to stakeholders, in a timely manner, the last known position of an aircraft in distress
- DTR and SWIM are in development

Recent Developments

- GADSS CONOPS (Version 6.0) released on 07 June 2017
- Distress Tracking Data Repository (DTR) white paper released 30 August 2018
- ELT(DT) – ELT designed for activation in-flight to provide ADT
- Cospas-Sarsat updated C/S T.001 & T.007 and C/S T.018 & T.021 in June 2018 to add, define, and specify ELT(DT) requirements and testing
- EUROCAE/RTCA updated ELT MOPS (ED-62/DO-204) to include ELT(DT)

Improvements possible independent of GADSS

- Verify operators meet 406MHz ELT requirements
- Improve overall registration of 406MHz ELTs
- Review existing emergency and abnormal operations procedures to maximize ELT potential to effectively provide distress alerting via manual inflight activation
- Improve coordination and mechanism/process to receive overdue position reports
- Improve initial testing and continued proficiency in emergency procedures
- Improve ICAO SARPS to reduce time period of communication checks leading to declaration of an emergency phase
- Improve RCC situational awareness by sharing air traffic information in its SAR region

Thank you for your attention!

Questions?