406 MHz EMERGENCY BEACONS

EPIRBs, ELTs, and PLBs

Presented by: Ed Thiedeman
SAR Systems Specialist
CG-761

THE FUTURE OF 406 MHz EMERGENCY BEACONS

- Second-Generation Beacons (Spread Spectrum)
- Return Link Service (Galileo)
- EPIRBs/PLBs with AIS
- Distress Tracking ELTs

EPIRBs

INTERNATIONAL MARITIME ORGANIZATION (IMO)

INTERNATIONAL COSPAS-SARSAT PROGRAMME

RADIO TECHNICAL COMMISSION FOR MARITIME SERVICES (RTCM)

IMO UPDATE

- Navigation, Communications, and Search & Rescue (NCSR)
  - Update of IMO EPIRB Performance Standards and related instruments
- ICAO/IMO Joint Working Group on SAR
  - Assess 121.5 MHz reduced duty cycle impacts to SAR
- IMO/ITU Experts Group
  - Linking EPIRB Hex-IDs with AIS MMSI

COSPAS-SARSAT UPDATE

- First-Generation and Second-Generation EPIRB specifications published:
  - C/S T.001 – Specification for Cospas-Sarsat 406 MHz Distress Beacons (Issue 4, Rev 2)
  - C/S T.018 – Specification for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons (Issue 1, Rev 2)
- Developing Second-Generation Beacon Type Approval procedures
  - C/S T.021 – Cospas-Sarsat Second-Generation 406 MHz Distress Beacon Type Approval Standard
- Implementing the Galileo Return Link Service (RLS) protocols and procedures

RTCM UPDATE

- RTCM 11000.4 Standard for 406 MHz Satellite Emergency Position-Indicating Radiobeacons (EPIRB), July 17, 2016 (NEWEST version)
- Participating in 121.5 MHz locating signal reduced duty cycle performance assessments to support implementing AIS locating signals
- Assisting in developing second-generation beacon type approval testing procedures, especially radiated power measurement process
- Reviewing current maintenance procedures and intervals; developing recommendations for IMO consideration

DISTRESS TRACKING ELT

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

INTERNATIONAL COSPAS-SARSAT PROGRAMME

JOINT EUROCAE/RTCA WORKING GROUP

ICAO GLOBAL AERONAUTICAL DISTRESS AND SAFETY SYSTEM (GADSS) REQUIREMENTS

- Activated when an aircraft enters a distress state
- Provides 3D position report (Lat, Long, Time) at least once per minute
  - 4D position report (Lat, Long, Alt, Time) required for normal tracking (15 minute), encouraged for distress tracking reporting
- Supports locating aircraft post crash (circular error probability of 6 NM)
- May only be de-activated by same means as activation
- Delivered to ATSU, Operator, and ARCC/JRCC

COSPAS-SARSAT - ELT (DT) UPDATE

- First-Generation (C/S T.001, Issue 4. Rev 2) & Second-Generation (C/S T.018, Issue 1, Rev 2) Beacon characteristics and performance are defined and published
- Developing type approval procedures to verify ELT(DT) performance
- Alert processing and distribution procedures developed and being implemented by Cospas-Sarsat ground segment providers
- Leveraging the existing ELT distress alert distribution network to MCCs and RCCs

JOINT EUROCAE/RTCA WORKING GROUP

- Update of the EUROCAE ED-62B and RTCA DO-204B ELT minimal operating performance standards (MOPS)
- Draft document is in the final review and comment (FRAC) phase
- Next meeting to adjudicate received comments is 13-16 March 2018
- Future steps? Depends on results at next meeting of the workgroup

PLBs

INTERNATIONAL COSPAS-SARSAT PROGRAMME

RADIO TECHNICAL COMMISSION FOR MARITIME SERVICES (RTCM)

COSPAS-SARSAT UPDATE

- First- and Second-Generation PLB requirements published:
  - C/S T.001 – Specification for Cospas-Sarsat 406 MHz Distress Beacons (Issue 4, Rev 2)
  - C/S T.018 – Specification for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons (Issue 1, Rev 2)
- Reviewing and updating the type approval procedures to address:
  - Second-generation beacon specifications
  - AIS locating protocols
  - Return Link Service protocols
  - PLBs used on life saving appliances (e.g. approved PFDs)
- Exploring methods to improve the type approval process

RTCM UPDATE

- RTCM 11010.2 Standard for 406 MHz Satellite Personal Locator Beacons (PLBs) with Amendments 1 through 5, July 17, 2016
- Revising the RTCM 11010.2 to include an AIS locating signal; committee draft is out for review and comment
- Exploring and evaluating the performance of PLBs on life saving appliances (e.g. lifejackets and survival suits); developing testing standards for type approval process

QUESTIONS ?

Contact Info:

Ed Thiedeman

E-Mail: Edwin.B.Thiedeman@uscg.mil

Office: 202-372-2083

Mobile: 240-682-0570