

EPIRB-AIS ID ISSUE

Presented in Beacon Manufactures Workshop 2017

By

Association of Radio Industries and Businesses

Back Ground

- It is well known that two IDs are assigned to a EPIRB-AIS, one is a unique HEX ID for a EPIRB and the other is a non-unique ID for AIS.
- The AIS signals defined in International Standard ITU-R REC. M.1374 for AIS-SART / AIS-MOB / EPIRB-AIS are similar and has non-unique ID which clearly stated not for identifying the Ship (or the person) in distress.
- This means that if the GNSS receiver in one of these devices fail to fix the position, the AIS signal is no use for Search And Rescue.
- This poses problem especially in the case of EPIRB-AIS as EPIRB signal from such device can identify the ship in distress and the independent position will be provided, however, AIS signal from same device does not provide any information, causing confusion that there might be two accidents.
- The problem was not well recognized by SAR professionals until similar AIS-SART/AIS-MOB signals with no position data had been received.

COSPAS-SARSAT Effort

- The problem these two IDs may cause had been recognized by RTCM and the means to relate the two IDs were incorporated into the RTCM Standard.
- Also COSPAS-SARSAT Secretariat has proposed to include AIS IDs to EPIRB registration databases.
- However, these measures were discussed in COSPAS-SARSAT meetings only and not notified to SAR professionals in general.
- To effectively use these information ICAO/IMO JWG is a ideal place to promote these efforts.

Proposed Measure incorporated to mitigate the problem

First Generation Beacon

- RTCM Standard stipulate that part of AIS message data should be used to transmit EPIRB Hex ID so that AIS signal and EPIRB signal can be matched.
- COSPAS-SARSAT Secretariat asks administrations to record AIS ID in their EPIRB registration database.

Second Generation Beacon

- RTCM Standard stipulate that part of AIS message data should be used to transmit EPIRB Hex ID so that AIS signal and EPIRB signal can be matched.
- COSPAS-SARSAT Secretariat asks administrations to record AIS ID in their EPIRB registration database.
- Transmit AIS ID in the EPIRB signal rotating field to be sent to SPOC to match AIS signal and EPIRB distress Alert.

Effectiveness of The Three Methods

- Having data in EPIRB Database is always proposed to solve various problems, however, there are always comments that these Databases are not always available and sometime searching which national registration database the particular beacon is registered, takes time.
- Including AIS ID in rotational field of Beacon transmission is only for a Second Generation Beacon and not applicable to a first generation beacon which is expected to be into market earlier, beside the Second Generation Beacon signal will be decoded only at MEOLUTs.
- Having EPIRB ID in AIS signal is effective because AIS receivers are common in SAR institutions and on ships. This will solve the problem at the point of SAR activities. This method should be understood by marine communities.

RTCM Standard

- As AIS receiver is on SOLAS Ships and reception of EPIRB-AIS AIS signal is displayed on ECDIS or Radar screen “EPIRB ACTIVE” which is widely promoted in IMO.
- EPIRB-AIS send a burst of 8 AIS message per a minute and 8 bursts (8 minutes) consist one cycle of bursts.
- Message Type 1 and 14 are allowed to be send.
- RTCM standard stipulate to substitute some “EPIRB ACTIVE” message data in Message 14 to be “O_(Operation) + EPIRB Hex ID”.

RTCM EPIRB-AIS Message Sequence

	Channel	Message Type	Message Contents		Channel	Message Type	Message Contents
1	AIS1/AIS2	1	Position	5	AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
	AIS1/AIS2	14	"EPIRB ACTIVE"		AIS1/AIS2	14	"O"+15Hex ID"
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
2	AIS1/AIS2	1	Position	6	AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
3	AIS1/AIS2	1	Position	7	AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
4	AIS1/AIS2	1	Position	8	AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position
	AIS1/AIS2	1	Position		AIS1/AIS2	1	Position

How the IDs are displayed

- On the display of AIS receivers, “EPIRB ACTIVE” and EPIRB ID is displayed every four minutes alternatively.

> 974xyyyy : EPIRB ACTIVE



> 974xyyyy : OH₁H₂H₃H₄H₅H₆H₇H₈H₉H₁₀H₁₁H₁₂H₁₃H₁₄H₁₅

- If properly fixed, the Mark will appear on a near by ship radar or ECDIS display.

Recommendations

- Note the information provided.
- If possible create the MSC circular to inform the SAR experts the measures taken to resolve the two ID problem of EPIRB-AIS; and
- Consider to revise the AIS recommendation ITU-R Rec. M1371.