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Federal Communications Commission
Office of the Secretary

WAIVER – EXPEDITED ACTION REQUESTED

Request for Waiver of Rules Governing Equipment Authorization

Basis of Compliance for EPIRB-AIS Product

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Dear Sir or Madam,

McMurdo Group (Orolia Ltd) has developed a new EPIRB-AIS (Emergency Position Indicating Radio Beacons - Automatic Identification System) product. This product is intended to meet the maritime SOLAS carriage requirements for an EPIRB with the additional functionality of an AIS position locating beacon. This is a new product for which we wish to establish a basis for FCC equipment authorization.

We submitted KDB Inquiry (Tracking Number 748667) requesting advice on the appropriate route to allow FCC authorization of the EPIRB-AIS product. The response indicated that a waiver was required for AIS-SART type products. The AIS functionality in this product is identical to an AIS-SART device but with the EPIRB-AIS device identifier replacing the AIS-SART identifier in the transmitted messages in accordance with ITU-R M.1371-5.

Background

It was in 2009 that Radio Technical Committee Maritime (RTCM) first proposed the use of AIS as an alternative to the 121.5 MHz homing beacon in the RTCM paper 017-2010-SC110-595. This paper was submitted to the 14th session of the IMO sub-committee on radio communications and search and rescue (COMSAR 14) for consideration and revision of IMO Resolution A.810 (19) Performance Standards for Float-free Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) Operating on 406MHz.

RTCM SC110 is in the process of drafting a new standard 11000.X specifically for EPIRB-AIS products. The standard is currently at CD stage and was reviewed at the recent RTCM meeting held September 25-26, 2014 at the RTCM offices in Arlington VA. The standard will now be circulated on Committee Draft Vote (CDV) for a 60 day comment period to coincide with the RTCM SC110 December meeting to close down any comments.

McMurdo Group are proposing to offer a range of EPIRB-AIS products with the following options for the homer functionality:

- (i) 406 MHz, AIS and 121.5 MHz,
- (ii) 406 MHz and AIS, and

(iii) 406 MHz and 121.5 MHz (as per existing regulations).

Current Regulations

This product is intended to meet maritime GMDSS equipment carriage requirements covered by 47 CFR Part 80 Subpart V – EPIRB including §80.1061 Special requirements for 406.0-406.1 MHz EPIRB stations. This subpart in turn calls for compliance with the technical and performance standards contained in RTCM 11000.2 and the standards specified in §80.1101(c)(5) as listed below:

- (i) IMO Resolution A.810(19) as amended by IMO Resolution MSC.56(66) and IMO Resolution MSC.120(74),
- (ii) IMO Resolution A.662(16),
- (iii) ITU-R M.633-3.

Furthermore, a Notice of Proposed Rule Making has been issued by FCC (FCC 14-20 released 28 February 2014) which affects this type of product. It is proposed to update the reference to the RTCM standard to call up RTCM 11000.3 which incorporates the following performance standards by reference:

- (i) COSPAS-SARSAT T.001,
- (ii) ITU-R M.690-1,
- (iii) IEC 61097-2.

The EPIRB-AIS product generally meets all of the above technical and performance standards with the following exception. 47 CFR §80.1061 (b) states:

"The 406.0-406.1 EPIRB must contain as an integral part a "homing" beacon operating only on 121.500 MHz that meets all the requirements described in the RTCM Recommended Standards document described in paragraph (a) of this section. The 121.500 MHz "homing" beacon must have a continuous duty cycle that may be interrupted during the transmission of the 406.0-406.1 MHz signal only. Additionally, at least 30 percent of the total power emitted during any transmission cycle must be contained within plus or minus 30 Hz of the carrier frequency."

The EPIRB-AIS product will require a waiver of this requirement for the following reason: as the AIS transmissions must be sent during this period, the 121.5 MHz signal will be interrupted for short periods while the AIS messages are sent using the AIS1 and AIS2 VHF frequencies.

The current draft of the new RTCM standard 11000.X states the following for combined AIS and 121.5 MHz operation:

"AIS and 121.5 MHz homing signal transmissions shall be interleaved. AIS transmissions shall take precedence over 121.5 MHz homing transmissions, which shall have a minimum duty cycle of 33%."

"The 121.5 MHz homing signal shall transmit asynchronously to AIS, with AIS taking precedence over 121.5 MHz homing transmissions. Individual AIS transmissions may interrupt homer audible sweeps, causing limited disturbance to the sweep pattern. Gaps in the 121.5 MHz homing transmission caused by individual AIS transmissions shall last no longer than 50ms. Once homer transmission resumes, the sweep profile shall continue as if the AIS transmission had not happened. 121.5 MHz homing transmissions may be interrupted for up to a maximum of 2 seconds once every 50 seconds +/- 2.5 seconds to encompass the 406 MHz signal."

47 CFR §80.393 provides for the use of the AIS1 and AIS2 frequencies. According to 47 CFR §80.13, the EPIRB-AIS should be considered as licensed by rule:

"A ship station is licensed by rule ... A ship station licensed by rule is authorized to transmit radio signals using a marine radio operating in the 156-162 MHz band, any type of AIS, any type of EPIRB, and any type of radar installation...."

Our product is an EPIRB-AIS equipment, as defined in ITU-R M.1371-5 Annex 1 Clause 2.1.8, and is fully compliant with that recommendation. It uses the AIS VHF Data Link to relay GPS-derived position information using burst transmission. Burst transmission behaviour will increase the probability of reception and is required for units such as EPIRB-AIS and AIS-SART.

As part of the test plan for the EPIRB-AIS product, it is intended to demonstrate compliance with the requirements of :

- (i) RTCM Standard 11000.X for 406 MHz Satellite Emergency Position Radio Beacons (EPIRB) with AIS including referenced standards,
- (ii) 47 CFR Part 80 Subpart E,
- (iii) 47 CFR Part 80 Subpart V,
- (iv) 47 CFR §80.1101(c)(5), and
- (v) ITU-R M.1371-5 (as applicable to EPIRB-AIS).

The product will be fully tested to the relevant international and US standards by an independent test laboratory before the test reports are submitted to United States Coast Guard for assessment against environmental and operational requirements. The results of this assessment will be included in any filing with the FCC.

We, McMurdo Group (Orolia Ltd), submit that this product offers a significant improvement in maritime safety by extending the power of AIS technology to EPIRBs. This will assist on-site Search And Rescue resources in rapidly determining the precise position of an active beacon. We can provide further product details and a test plan if required.

Therefore, we request that the FCC waive its rules to allow EPIRB-AIS products.

Our Remittance Advice Form 159 is enclosed.

Yours faithfully,



Neil Jordan

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