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**SUBJECT: CODING, AND REGISTRATION OF CAPE VERDE 406 MHZ EMERGENCY LOCATOR TRANSMITTERS (ELT)**

**DATE: 23/08/2009**

### 1. PURPOSE

- A. This Circular has been produced to provide guidance on the options available when coding, and the method for registering 406 MHz ELT when installed in Cape Verde registered aircraft. It is not intended to replace the current system documents which provide the specification for 406 MHz beacons, including all the technical details and options for applicable coding protocols (C/S T.001), or the procedure for Cospas-Sarsat type approval testing (C/S T.007).

### 2. APPLICABILITY

- A. This Technical Circular applies to owners and operators of Cabo Verde registered aircraft, required to equip their aircraft with ELT in accordance with CV CAR Part 7.

### 3. BACKGROUND

- A. In compliance with Annex 6 Part I, CV-CAR Part 7.1.125 a) requires that all Cabo Verde registered aircraft must be equipped with ELT, in accordance with the specified requirements.
- B. As per the requirements of Annex 10 Vol III, CV CAR Part 7.1.125 c) requires that "after 1 August 2009, no person may operate an aircraft unless the aircraft is equipped with an ELT, which has been registered with the Authority."
- C. AAC ensures that ELT current registered data are made immediately available to Cabo Verde civil aviation Rescue Coordination Center at Empresa de Aeroportos e Segurança Aerea ASA - SA at Sal Island (See AIP) and to Cospas-Sarsat Programme (International 406 Mhz Beacon Registration Database (IBRD) to allow for the timely identification and location of aircraft in distress for search and rescue purposes.

### 4. DESCRIPTION

#### 4.1 CODING

- A. The International Civil Aviation Organization (ICAO) recommends that "each beacon shall be assigned a unique coding and shall be registered" with the appropriate authority (Convention on International Civil Aviation, Annex 10, Volume I, Part I, Chapter 5. Emergency Locator Transmitter (ELT) for Search and Rescue.

- B. Identification data can be provided in various alphanumeric formats, depending on the coding protocol required by the responsible administration (see section 3). It is encoded together with the country code and other information in the beacon message in binary format. However, for the purpose of transmission to SAR services in the alert message produced by Cospas-Sarsat, the unique identification of a 406 MHz beacon encoded in bits 26-85 of the beacon message is provided as a 15 hexadecimal character string, referred to as the beacon 15 Hex Identification, or beacon 15 Hex ID.
- C. The beacon 15 Hex ID is used:
- (1) to correlate all the messages transmitted by a particular beacon;
  - (2) to provide SAR services with information on the ship, the aircraft or the beacon
  - (3) owner in case of beacon alert (see section 2.3); and
  - (4) to retrieve information from the beacon registration databases.
- D. The ICAO has defined four coding methods which can be used to identify 406 MHz Emergency Locator Transmitters (ELTs) (Convention on International Civil Aviation, Annex 10, Appendix D to Part I - Emergency Locator Transmitter Coding).
- E. Each message sent by a 406 MHz must include the unique identification of the ELT. The complete ELT identification code includes the: protocol flag, protocol code, country code and identification data.
- F. The four coding methods, recommended by ICAO, which can be used to identify 406 MHz Emergency Locator Transmitters (ELTs) and that are acceptable to AAC are:

List of available Coding options for user Protocols		
Application	Identification Data	Protocols
ELT (Aviation)	Unique ELT Serial Number*	Serial User
	Aircraft Operator Designator and Serial Number*	Serial User
	CV issued 24-bit Mode S Aircraft Address Code**	Serial User
	Aircraft Registration Marking	Aviation User

*Note 1: (\*) Serial number means a unique number assigned by an administration or beacon manufacturer. Assigned serial number must provide unique beacon identification when used with the country code. Serial numbers assigned by a manufacturer must provide unique beacon identification when used with the Cospas-Sarsat type approval certificate number assigned to that beacon model*

*Note 2: (\*\*) 24-bit Address Codes are issued on request to individual civil aircraft for coding Mode S ATC transponders and ELTs where required. These are available by requesting to AAC. On subsequent transfer of aircraft to another ICAO member state the 24-bit ATC Transponder/ELT Mode S address code must be replaced by an address code issued by the new State of Registry.*

- G. Coding ELTs with the Beacon Serial Number. Protocol code bits 37 to 39 for this method of encoding identification data are set to "011" to designate the serial user protocol. Bits 40 to 42 are used to identify the beacon type and coding method (i.e. "000" to indicate an ELT serial number) since the same serial user protocol is used for several applications. If bit 43 is set to

"1", the Cospas-Sarsat type approval certificate number is encoded in bits 74 to 83. This will help ensure that the serial identity of the beacon is unique.

- H. Coding ELTs with the Aircraft Operator Designator and a Serial Number. The 3-letter Aircraft Operator Designator (AOD), defined in ICAO DOC 8585, is a unique identification of Aircraft Operators. The AOD can be coded in the serial user protocol
- I. Coding ELTs with the Aircraft 24-bit Address. The Aircraft 24-bit Address is a unique 24 bit binary code assigned to the aircraft by national administrations in accordance with Annex 10 to the Convention on International Aviation. The Aircraft 24-bit Address is coded in the serial user protocol.
- J. Coding ELTs with the Aircraft Nationality and Registration Marking. The aircraft nationality and registration marking is a unique alphanumeric number assigned by national administrations in accordance with Annex 10 to the Convention on International Civil Aviation. This is coded in the aviation user protocol.

## 4.2 REGISTRATION

- A. All 406 MHz ELTs should be registered with the AAC, using the attached Form (33-044) – Official Registration Form for 406 Mhz ELT, even if not fitted to an aircraft. Many ELT are inadvertently activated when in storage or transit, and these false alerts invariably result in SAR action if the owner cannot be identified and questioned.
- B. It is mandatory that 24-hour telephone contact number is provided when registering ELTs and that the AAC should be informed subsequently if the owner and/or contact number are changed. A copy of the form to be used when registering is shown at Annex A to this circular.
- C. Registration, in accordance with paragraph A should be made with the Cape Verde Civil Aviation at the address below:

Agência de Aviação Civil  
Airworthiness Department  
Av. Cidade de Lisboa nº 34  
CP 371 Praia Cabo Verde  
Tel: 00238-2603430  
Fax: 00238-2611075

- D. The aircraft owner or operator shall notify the Authority of any changes to the above required registry information.
- E. Further information, if required, may be obtained from the Cospas-Sarsat system documents, which are available to be downloaded from their web site at <http://www.cospas-sarsat.org> or from the AAC address above. The documents that are felt to be of prime interest are:
  - (i) G.003 Introduction to the Cospas-Sarsat System (New issue available in Oct. 2010)
  - (ii) G.005 Cospas-Sarsat Guidelines on 406 MHz Beacon Coding, Registration and Type Approval, Issue 2 - Revision 3
  - (iii) S.007 Handbook of Regulations on 406 MHz and 121.5 MHz Beacons

## 4.3 FURTHER INFORMATION AND CONTACTS

- A. A point of contact at Cape Verde Civil Aviation Authority for further information on ELT matters, for operators of Cape Verde registered aircraft, is:

Mr. Agnelo Barbosa  
Civil Aviation Authority, Av. Cidade de Lisboa nº 34, CP 371 Praia Cabo Verde  
Tel: 00238-2603430, Fax: 00238-2611075, E-mail: abarbosa@acivil.gov.cv

- B. Cabo Verde civil aviation Rescue Coordination Center can be contacted at:

Mr. Arlindo Neves, Aeroporto International Amilcar Cabral, Centro de Controlo Oceanico  
Tel: 00238 24111730 Fax: 002411219 AFS: GVSCYCYX

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This Circular is issued for information, guidance and necessary action

**Please e-mail, fax the completed form in annex A to:**


Cape Verde ELT Database,  
AAC Av. Cidade de Lisboa nº 34 CP 371 Praia Cabo Verde  
Tel: 00238-2603430  
Fax: 00238-2611075  
E-mail: dgeral@acivil.gov.cv



Carlos Monteiro

President of the Board

## ANNEX A

<b>REPUBLICA DE CABO VERDE</b>  <b>AGÊNCIA DE AVIAÇÃO CIVIL</b> <i>Civil Aviation Authority</i>	<b>OFFICIAL 406 MHZ EMERGENCY LOCATOR TRANSMITER REGISTRATION FORM</b>																															
Enter Unique Identifier Number <i>(15 digit provided by ELT manufacturer)</i>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">8</td> <td style="text-align: center;">9</td> <td style="text-align: center;">10</td> <td style="text-align: center;">11</td> <td style="text-align: center;">12</td> <td style="text-align: center;">13</td> <td style="text-align: center;">14</td> <td style="text-align: center;">15</td> </tr> </table>																	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15																		
Do you have any Cape Verde Beacons already registered? Yes <input type="checkbox"/> No <input type="checkbox"/>																																
Type of ELT <input type="checkbox"/> Fixed <input type="checkbox"/> Non-Fixed Survival Type Unit																																
ELT Manufacturer:	Model No :																															
<b>PLEASE SPECIFY TYPE OF ELT REGISTRATION</b>																																
<input type="checkbox"/> New ELT Registration <span style="margin-left: 200px;"><input type="checkbox"/> Change of ELT Ownership</span> <input type="checkbox"/> ELT Registration Update <span style="margin-left: 150px;"><input type="checkbox"/> Replacement Beacon</span>																																
If applicable, enter 15-Dig Hex Code for Beacon Replaced <table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"></table>																																
Complete <b>ONLY ONE</b> of the four boxes below, according to the coding of the ELT:																																
Unique Serial No. of ELT:	Aircraft Operator Designator and Operator's Serial No.:																															
Aircraft Registration Marking:	CV- Allocated 24-Bit Aircraft Address:																															
<b>OWNER/OPERATOR INFORMATION</b>																																
Owner, Dept. or Company Name: Leasing Agent: Authorized Representative or Emergency Contact Name:																																
<b>Mailing Address</b>	<b>Telephone Information (Include Country &amp; Area Code)</b>																															
Street address:  City: State/Province: Postal Code: Country: Email address:	Home: Work: Cell: Fax: Other:																															
<b>AIRCRAFT INFORMATION</b>																																
<b>Aircraft</b>	<b>Propulsion Type</b>																															
Manufacturer: Type and Model: Principal Airport-City and State: Registration Marks: Serial number: CV- Allocated 24-Bit Aircraft Address: Nº of Engines : Crew : Seats : Primary Colour: Secondary Colours: Distinctive Features (Decal, strips, lettering):  Additional Data (Lifesaving and survival equipment, etc):	<input type="checkbox"/> Piston <input type="checkbox"/> Turbo Prop <input type="checkbox"/> Turbo Jet <input type="checkbox"/> None <input type="checkbox"/> Turbo Fan <input type="checkbox"/> Turbo Shaft Other :  Aircraft Type <input type="checkbox"/> Aeroplane <input type="checkbox"/> Helicopter <input type="checkbox"/> Glider <input type="checkbox"/> Gyroplane Other :																															
<b>REQUIRED EMERGENCY CONTACT INFORMATION</b> <small>(DO NOT INCLUDE OWNER, UNLESS NOT ABOARD)</small>																																
Primary 24-Hour Point of Contact (Mandatory)	Alternate 24-Hour Point of Contact																															
Full Name (First and last)  Relationship: Home: Work: Cell: Fax: Other:	Full Name (First and last)  Relationship: Home: Work: Cell: Fax: Other:																															
Signature:	Date:																															
<b>AAC USE ONLY</b>																																
Remarks/Further Information: AAC Ref. number: Created by: Date:																																
Agência de Aviação Civil- Av. Cidade de Lisboa, nº34 C.P.371 Várzea, Praia - Cabo Verde; Tel. + 238 2603430; Fax. +238 2611075 www.aac.cv																																
Form 33-044																																