

Department
Air Traffic Agency (LFA)

**MODE S TRANSPONDER AND EMERGENCY LOCATOR
TRANSMITTER ENCODING AND EMERGENCY
LOCATOR TRANSMITTER REGISTRATION**

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1 Inspection directory

<i>Inspection no.</i>	<i>Date</i>	<i>Additions/modifications</i>
Rev. A	10.05.1996	First edition
Rev. B	22.04.2009	Mode S code: changed from ordinal number to sequential number ELT encoding: detailed description of the encoding options, and added special provisions for portable ELTs
Rev. C	2026	Addition with ELT(DT) and SGB

2 Purpose

This airworthiness notice (AN) defines the encoding of secondary radar mode select transponders (Mode S) installed on aircraft and of emergency locator transmitters (ELTs) operating on the 406 MHz frequency, as well as the necessary measures for submitting the associated information to Austro Control GmbH.

This airworthiness notice is published on the legal basis of Section 31(6) of the Austrian Civil Aircraft and Aviation Equipment Ordinance (ZLLV) 2010, Federal Law Gazette II no. 143/2010, in the currently applicable version, and following the completion of a notification procedure pursuant to Directive (EU) 2015/1535.

3 Scope

This airworthiness notice applies to all aircraft registered in Austria equipped with Mode S transponders and/or ELTs operating on the 406 MHz frequency.

4 Entry into force

This airworthiness notice shall enter into force on the date of publication and shall replace airworthiness notice 16B.

It applies to new encodings/registrations and changes to existing encodings/registrations.

Existing Mode S and ELT encodings/registrations completed after previous airworthiness notice 16 inspections may be left unchanged.

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5 Description / Regulation

5.1 Mode S transponder - encoding

ICAO Annex 10, Volume III, Part I, Chapter 5 stipulates that all Mode S transponders require encoding. This code shall consist of a national identifier and an individual part to be assigned by the respective air traffic authority.

The identifier part specified for Austria (*Country Code Partition*), pursuant to ICAO Annex 10, Volume III, Part I, Chapter 9, consists of 9 bits in digital format, as follows:

binary 0100 01 000
hexadecimal 440 000
decimal 4 456 448

For Austrian civil aircraft, the individual part of this code is defined as follows:

A sequential number is added to Austria's international digital address. In accordance with the technical requirements of the respective transponder, the resulting sum must be transposed into the required number system.

The code is issued by Austro Control GmbH and must be requested by the aircraft owner by submitting a completed form (FO_LFA_AIR_010). The form is available on the 'Forms' page of the Austro Control website.

5.2 ELT – Encoding

5.2.1 General

ICAO and COSPAS-SARSAT (C/S) require encoding for ELTs emitting at 406 MHz. Unlike the Mode S code, which is issued by Austro Control GmbH, the ELT code must be generated by the aircraft operator by following the procedures laid down by the International Civil Aviation Organisation (ICAO) and COSPAS-SARSAT and then registered with Austro Control GmbH. These procedures are described in detail in ICAO Annex 10, Volume III, Part II, Chapter 5. The following information provides an overview of the process for encoding an ELT and registering it with Austro Control GmbH.

Further information on encoding can be found in:

- ICAO Annex 10, Volume III, Part II, Chapter 5
- C/S T.001 ('*Specification for Cospas-Sarsat 406 MHz Distress Beacons*')
- C/S T.018 ('*Specification for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons*')

A fixed part of the code is country encoding. This was established by the International Telecommunication Union (ITU) and reads as follows for Austria (see ITU.INT and COSPAS-SARSAT.INT - websites):

binary 001 100 1011
decimal 203

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Only 3 options are available for the further definition of the individual code:

- Encoding with identifier
- Encoding with Mode S transponder code
- Encoding with a sequential number (only for air transport companies)

For ELTs that also transmit position data, the '*long message*' format must always be used!

When encoding, care must be taken to use the modified Baudot code, as set out in Table 1 below. (Reference: Table 5.1 in Appendix to Chapter 5 of ICAO Annex 10, Volume III, Part II).

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<i>Letter</i>	<i>Code</i>		<i>Figure</i>	<i>Code</i>	
	<i>MSB</i>	<i>LSB</i>		<i>MSB</i>	<i>LSB</i>
A	111000		(-)*	011000	
B	110011				
C	101110				
D	110010				
E	110000		3	010000	
F	110110				
G	101011				
H	100101				
I	101100				
J	111010		8	001100	
K	111110				
L	101001				
M	100111				
N	100110				
O	100011		9	000011	
P	101101		0	001101	
Q	111101		1	011101	
R	101010		4	001010	
S	110100				
T	100001		5	000001	
U	111100		7	011100	
V	101111				
W	111001		2	011001	
X	110111		/	010111	
Y	110101		6	010101	
Z	110001				
()**	100100				

MSB = most significant bit

LSB = least significant bit

* = hyphen

** = space

Letter, Code, Figure, MSB = most significant bit, LSB = less significant figure, hyphen, space

Letter, Code, Figure, MSB = most significant bit, LSB = least significant bit, hyphen, space

Table 1: modified Baudot code; extract from ICAO Annex 10, Volume III, Part II, Appendix to Chapter 5, Table 5.1

5.2.2 Encoding with identifier

Here, the aircraft registration number, including the Austrian prefix 'OE-', is converted into digital form and encoded in the ELT. If the aircraft is equipped with more than one ELT, then a distinc-

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tion shall be made between the encodings, e.g. using an added sequential number or bit 82 and 83. The resulting data word is structured as follows:

25	27	36	37	40	81	83	85			
F	1	COUNTRY	0	0	1	AIRCRAFT REGISTRATION MARKING (UP TO 7 ALPHANUMERIC CHARACTERS) (42 BITS)	0	0	A	A

Country, Aircraft registration marking (up to 7 alphanumeric characters) (42 bits)

Country, aircraft registration marking (up to 7 alphanumeric characters) (42 bits)

Table 2: Aircraft registration marking; extract from 'Examples of Coding', ICAO Annex 10, Volume III, Part II, Appendix to Chapter 5

F: format flag:

0 = short message

1 = long message

A: auxiliary radio-locating device:

00 = no auxiliary radio-locating device

01 = 121.5 MHz

11 = other auxiliary radio-locating device

82–83 specific ELT number

Bits 82-83 are used to create a unique ELT identification when several ELTs encoded with the Aviation User Protocol are installed on the same aircraft. '00' indicates the first ELT on the aircraft encoded using this protocol, whilst '01', '10' and '11' identify additional ELTs, all encoded using the Aviation User Protocol. (Extract from C/S T.001 – Issue 4)

5.2.3 Encoding with Mode S transponder code

In this case, the ELT is programmed with the aircraft-specific 24-bit Mode S code (as described in Chapter 4.1) of the respective aircraft. If the aircraft is equipped with more than one ELT, a distinction can be made here with bit 68 to 73. It is advisable to programme only permanently installed transponders with the Mode S code.

25	27	36	37	40				44	67	68	73	74	83	85	
F	1	COUNTRY	0	1	1	T	T	T	C	AIRCRAFT ADDRESS (24 BITS)		SEE NOTE 3	SEE NOTE 2	A	A

Country, aircraft address (24 bits), see note 3, see note 2

Country, aircraft address (24 bits), see Note 3, see Note 2

Table 3: Aircraft address; Extract from 'Examples of coding', ICAO Annex 10, Volume III, Part II, Appendix to Chapter 5

F: format flag:

0 = short message

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1 = long message

T: Beacon type TTT:

= 011 indicates 24-bit aircraft address is encoded

C: certificate flag bit:

1 = to indicate that the COSPAS-SARSAT Type Approval Certificate number is encoded in bits 74 to 83

0 = otherwise

A: auxiliary radio-locating device:

00 = no auxiliary radio-locating device

01 = 121.5 MHz

11 = other auxiliary radio-locating device

Note 2: COSPAS-SARSAT Type Approval Certificate number in binary notation with the least significant bit on the right.

Note 3: Serial number, in binary notation with the least significant bit on the right, of any additional ELTs carried on the same aircraft; otherwise, default to zeros, if only one ELT is carried.

5.2.4 Encoding with a serial number (air transport company)

An air transport company has the option of programming the ICAO identification (ICAO Doc 8585) with an ELT serial number managed by the air transport in the emergency locator transmitter.

In this case, a cross-reference list must be maintained between the aircraft registration numbers and the installed, encoded devices; this list must be accessible for search and rescue purposes throughout the entire operational life of the aircraft. The registered 'emergency contact' must have demonstrable access to this cross-reference list (see also Special provisions).

25	27	38	37	40				44				61	62	73	74	83	85		
F	1	COUNTRY	0	1	1	T	T	T	C	OPERATOR 3-LETTER DESIGNATOR				SERIAL NUMBER 1-4096		SEE NOTE 2		A	A

Country, operator 3-letter designator, serial number 1-4096, see note 2

Country, operator 3-letter designator, serial number 1-4096, see Note 2

Table 4: Aircraft operator designator and serial number; Extract from 'Examples of coding', ICAO Annex 10, Volume III, Part II, Appendix to Chapter 5

F: format flag:

0 = short message

1 = long message

T: Beacon type TTT:

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= 001 indicates operating agency and serial number are encoded

C: certificate flag bit:

1 = to indicate that the COSPAS-SARSAT Type Approval Certificate number is encoded in bits 74 to 83
0 = otherwise

A: auxiliary radio-locating device:

00 = no auxiliary radio-locating device
01 = 121.5 MHz
11 = other auxiliary radio-locating device

Note 2: COSPAS-SARSAT Type Approval Certificate number in binary notation with the least significant bit on the right.

5.2.5 ELT serial number

In this case, the serial number of the respective ELT shall be digitally transposed and programmed. The TAC (COSPAS SARSAT Type Approval Certification number), if allocated, must be encoded. The TACs are listed here: <https://www.cospas-sarsat.int/en/beacons-pro/experts-beacon-information/approved-beacon-models-tacs>

This form of encoding is recommended for transmitters that are frequently switched between different aircraft.

25	27	36	37	40				44	63	64	73	74	83	85
F	1	COUNTRY	0	1	1	T	T	T	C	SERIAL NUMBER DATA (20 BITS)	SEE NOTE 1	SEE NOTE 2	A	A

Country, serial number data (20bits), see note 1, see note 2

Country, serial number data (20-bits), see Note 1, see Note 2

F: format flag:

0 = short message
1 = long message

T: Beacon type:

= 000 indicates Serial Number of ELT is enclosed

C: Certification flag bit:

1 = to indicate that it is a COSPAS-SARSAT Type Approval Certificate number is encoded in bits 74 through 83
0 = otherwise

A: auxiliary radio-locating device

00 = no auxiliary radio-locating device
01 = 121.5 MHz

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11 = other auxiliary radio-locating device

Note 1: 10 bits, all 0s

Note 2: COSPAS-SARSAT Type Approval Certificate Number in binary notation, with the least significant bit on the right

Note 3: Serial number, in binary notation with the least significant bit on the right, of any additional ELTs carried on the same aircraft; otherwise, default to zeros, if only one ELT is carried.

5.2.6 Special provisions for Survival ELTs within a single organisation

5.2.6.1 Background

This special provision was introduced because experience has shown that misleading registration details are increasingly common in the case of emergency transmitters that are not permanently installed on the same aircraft.

One example would be transmitters installed in life rafts. Such life rafts are usually only used for specific routes and are therefore often carried on board the aircraft for a single flight.

It is not considered useful to register/deregister these ELTs with Austro Control GmbH, since they are usually no longer on board when the registration process has been completed. However, in order for the operator of these ELTs to make use of this special provision, and in order to reduce the administrative burden, it is necessary to register the relevant ELTs once with Austro Control GmbH and to establish a procedure for tracking the relevant emergency transmitters within the operator's/owner's organisation. If a database already exists that provides information on the whereabouts of the transmitter, then that database can be used.

5.2.6.2 Procedure

The following points must be addressed in the procedure:

1. The ELT must be registered with Austro Control GmbH.
2. The installation or storage location must be properly documented (list, database or similar).
3. The registered 'emergency contact' must demonstrably have access to this data.
4. The ELT must be programmed with a unique identification number, as described in Chapter 4.2.4.
5. The use of these ELTs is only permitted within the organisation's own fleet. This regulation does not cover the lending of the emergency transmitter, which would require re-registration of the device with the new owner/operator (change of owner/operator).

The first time an ELT covered by this special provision is registered, the owner of the aircraft shall submit the associated internal procedure.

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5.2.6.3 Exclusion from the special provision for survival ELTs

This special provision shall not apply to:

- permanently installed ELTs
- 'Survival' emergency transmitters that are permanently carried on the aircraft
- ELTs on aircraft not registered in Austria (e.g.: wet lease)

5.2.7 Special provisions for ELTs in life rafts in the context of the initial issuing of the aircraft's papers

5.2.7.1 Background

Some companies provide a life raft temporarily for the transfer of an aircraft; these rafts may be fitted with an emergency transmitter that is not registered in Austria. This special provision is intended to enable the use of this service.

This special provision constitutes a deviation from the requirements set out in ICAO Annex 10, Volume III, Part II, Chapter 5, Section 5.1.9 (d) and applies to all aircraft defined in Chapter 2 (scope) which, as part of the 'initial issuing of the aircraft's papers' are required to carry a life raft for transfer of the aircraft to Austria.

In this particular case, it is acceptable if the ELT carried on board the life raft is not registered in Austria, as long as a clear assignment of the emergency transmitter and of the remaining data is ensured and the owner or operator of the emergency transmitter is not resident in Austria.

5.2.7.2 Procedure

The operator of the aircraft must ensure the following:

1. The ELT must be duly registered in the country of its owner,
2. the 'emergency contact' listed in the registration must be informed that the ELT in question is located in an aircraft registered in Austria and must also have sufficient information about the aircraft's flight plan; and
3. the 'emergency contact' information of the operator of the aircraft must be directly available to the emergency contact of the owner of the ELT.

This information shall be provided to Austro Control GmbH on request.

The raft with the ELT in question shall be removed from the aircraft immediately after the transfer flight.

5.2.7.3 Exclusion from the special provisions for ELTs in life rafts

Life rafts that remain in the possession of the operator of the aircraft must be programmed and registered according to the general guidelines of this airworthiness notice before the transfer flight.

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5.2.8 ELT (Distress Tracking)

ELT(DT) may fulfil more than one purpose. During flight, they can serve as ELT(DT) – in-flight tracking – or, if an incident is detected, as automatic ELT (ELT(AD), ELT(AF) or ELT(AP)). These ELTs that serve more than one purpose must always be encoded with the ELT(DT) Location Protocol.

The encoding used must be the aircraft-specific 24-bit Mode S code.

ELT(DT) must be encoded as described below. The following table shows the protocol with the description of each bit.

Only one ELT per aircraft can be identified with the aircraft specific 24-bit Mode S code.

Aircraft specific 24-bit Mode S code:

- bit 25 format flag '1'
- bit 26 protocol flag '0'
- bits 27 to 36: country code '001 100 1011' (see 4.2.1)
- bits 37 to 40: 4-bit protocol code '1001'
- bits 41 to 42: set to '00' for the aircraft's 24-bit address
- bits 43 to 66: 24-bit aircraft address
-

All ELT(DT)s must be registered in accordance with Chapter 4.3.

25	←27		←37		←86		107	←115		←133							
26	36→		40→←41		85→		106→	114	132→		144→						
61 BITS PDF-1					BCH-1		26 BITS PDF-2					BCH-2					
2	10	4	45			21	8	18			12						
F O R M A T & P R O T O C O L F L A G	C O U N T R Y C O D E	PC	26 BITS IDENTIFICATION DATA		19 BITS LATITUDE LONGITUDE				S U P P L E M E N T A R Y D A T A	Δ LATITUDE		Δ LONGITUDE		12-BIT BCH ERROR CORRECTING CODE			
			2	24	1	8	1	9		1	4	4	1		4	4	
		10	01	type of beacon identity	24-bit aircraft address or TAC & serial number or 15-bit aircraft operator designator or ELT(DT) Location Test protocol	N	D	E		D	-	M	S		-	M	S
							E	E		E		I	E				
		S	R	R	G	W	E	E		+	N	C	+		N	C	
			E	E	E		U	O			U	O					
							S	E		E		E	D			E	D
							S	S		S		S	S				
						0 - 90		0 - 180									
						(1/2 deg)		(1/2 deg)									
↑ Bits 41 and 42 = indication of type of ELT(DT) beacon identity												↑ 107-108 = means of activation					
F=1												↑ 109-112 = altitude					
P=0												↑ 113-114 = encoded location freshness or PDF-2 rotating field indicator					

Format & Protocol flag, country code, Identification data, type of beacon identity, 24-bit

Format & protocol flag, country code, identification data, type of beacon identity, 24-bit aircraft address or TAC (type acceptance

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aircraft address or TAC &serial number of 15-bit aircraft operator designator or ELT (DT) location test protocol

19 bits, latitude, longitude, degrees, 21-bit BCH error correcting code, supplementary data, minutes, seconds, 12-bit BCH error correcting code, or rotating field data

Bits 41 and 42 = indication of type of ELT(DT) beacon identity, means of activation, altitude, encoded location freshness or PDF-2 rotating field indicator

certificate) & serial number of 15-bit aircraft operator designator or ELT(DT) location test protocol

19 bits, latitude, longitude, degrees, 21-bit BCH error correcting code, supplementary data, minutes, seconds, 12-bit BCH error correcting code, or rotating field data

Bits 41 and 42 = indication of type of ELT(DT) beacon identity, means of activation, altitude, encoded location freshness or PDF-2 rotating field indicator

Table 5: Specification for COSPAS-SARSAT 406 MHz Distress Beacons; Excerpt from C/S T.001

5.2.9 Second-Generation Beacons (SGB) ELTs

In principle, second-generation ELTs should be coded as described in the previous chapters. Details are contained in Chapter 3.2 of COSPAS-SARSAT document C/S T.018 (*‘Specification for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons’*).

For SGB ELTs used as ELT(DT)s, the Mode S code (and, where applicable, the air transport company code – see the ‘Content’ column, point ‘4 – Aviation 24-bit address’ in the table below) or the air transport company code followed by a serial number must be programmed. Identification encoding is not permitted in this case.

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**Table 3.1: Minimum Requirement main field in the beacon message
(transmitted in every burst)**

C/S G.008 reqmt Para.	Description	Number of bits	Bit numbers in message	Content
3.7.1a	TAC Number	16	1-16 (MSB=1)	16-bit TAC # (0 to 65,535) [†]
3.7.1a	Serial Number	14	17-30	14-bit serial number (0 to 16,383) [†]
3.7.1a	Country code	10	31-40 (MSB=31)	A three-digit decimal country code number (0 to 999). Country codes are based on the International Telecommunication Union (ITU) Maritime Identification Digit (MID) country code available on the ITU website: (www.itu.int/cgi-bin/htsh/glad/cga_mids.sh).
3.7.1d	Status of homing device	1	41	On beacon activation a '1' indicates that the beacon is equipped with at least one homing signal and a '0' indicates that the beacon is not equipped with any homing signals or that they have been deliberately disabled. Once the homing signal in the beacon has been activated, a '1' indicates that at least one homing device is functional and transmitting. A '0' indicates that no homing device is functional, or it has been deliberately disabled.
	RLS function(s)	1	42	A '0' indicates a beacon without RLS capability or with this capability disabled. A '1' indicates a beacon with RLS capability enabled (e.g., RLS Type-1 automatic acknowledgement, RLS Type-2 manual acknowledgement, or RLS Type 3 two-way communication (message) service).
N/A	Test Protocol	1	43	A '0' indicates normal beacon operation. A '1' indicates a Test Protocol message for non-operational use. Selection of test protocol is not an end-user capability.

Description, number of bits, bit numbers in message, content

TAC number, serial number, country code, a 3-digit decimal country code number. Country codes are based on the International Telecommunication Union (ITU) Maritime Identification Digit (MID) country code available on the ITU website

Status of homing device, on beacon activation a '1' indicates that the beacon is equipped with at least one homing signal and a '0' indicates that the beacon is not equipped with any homing signals or that they have been deliberately disabled. Once the homing signal in the beacon has been activated, a '1' indicates that at least one homing device is functional and

Description, number of bits, bit numbers in message, content

TAC number, serial number, country code, a 3-digit decimal country code number. Country codes are based on the International Telecommunication Union (ITU) Maritime Identification Digit (MID) country code, which is available on the ITU website

Status of homing device: On beacon activation, a '1' indicates that the beacon is equipped with at least one homing signal and a '0' indicates that the beacon is not equipped with any homing signals or that they have been deliberately disabled. Once the homing signal in the beacon has been activated, a '1' indicates that at least one homing device is functional and transmit-

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transmitting. A , or '0' indicates that no homing device is functional, or it has been deliberately disabled.

A '0' indicates a beacon without RLS capability or with this capacity disabled. A '1' indicates a beacon with RLS capability enabled (e.g. RLS type-1 automatic acknowledgement, RLS type-2 manual acknowledgement, or type-3 two way communication (message) service).

A '0' indicates normal beacon operation. A '1' indicates a test protocol message for non-operational use. Selection of test protocols is not an end-user capability.

The TAC and serial number combination shall be unique (see section 3.6)

TAC value range 65, 521 – 65, 535 is reserved for system beacons (eg. Reference and QMS beacons, calibration beacon, simulators, etc) see document C/S T022.

ting. A, or '0', indicates that no homing device is operational, or that it has been deliberately disabled.

A '0' indicates a beacon without RLS capability or with this capability disabled. A '1' indicates a beacon with RLS capability enabled (e.g. RLS type-1 automatic acknowledgement, RLS type-2 manual acknowledgement, or type-3 two-way communication (message) service).

A '0' indicates normal beacon operation. A '1' indicates a test protocol message for non-operational use. Selection of test protocol is not an end-user capability.

The TAC and serial number combination shall be unique (see Section 3.6)

TAC value range 65,521–65,535 is reserved for system beacons (e.g. reference and QMS beacons, calibration beacons, simulators, etc.) see document C/S T022.

* The TAC and serial number combination shall be unique (see section 3.6).

† TAC value range 65,521 - 65,535 is reserved for System beacons (e.g., reference and QMS beacons, calibration beacon, simulators, etc.) – See document C/S T.022.

Location is provided to 3.4 resolution max in the following order : degrees (0 to 90) m in 1-degree increments, decimal parts of a degree, default parts of a degree, default value of bits. If the beacon does not have encoded location capability, then these bits shall be set to the following default value, bits, flag

Vessel, A 3-digit binary field identifier is first transmitted to identify the following message content : no aircraft or maritime identity (maybe defined for national use, default content for bits 94-137 is all 0, maritime MMSI, radio call sign, aircraft registration marking (tail number) aircraft aviation 24-bits address, aircraft operator

Location is provided to 3.4 resolution max in the following order: degrees (0 to 90), m in 1-degree increments, decimal parts of a degree, default parts of a degree, default value of bits. If the beacon does not have encoded location capability, then these bits shall be set to the following default value:

Vessel ID: A 3-digit binary field identifier is first transmitted to identify the following message content: no aircraft or maritime identity (this may be defined for national use; default content for bits 94-137 is all 0), maritime MMSI, radio call sign, aircraft registration marking (tail number), aircraft aviation 24-bit address, aircraft operator and serial number, spare, reserved for system test-

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and serial number, spare, reserved for system testing	ing
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C/S G.008 reqmt Para.	Description	Number of bits	Bit numbers in message	Content
3.7.1g	Encoded GNSS location	1 7 15	(MSB= 45, 52, 68, 76) 44 45-51 52-66	Location* is provided to 3.4 m resolution max in the following order: N/S flag (N=0, S=1); Degrees (0 to 90) in 1-degree increments; Decimal parts of a degree (0.5 to 0.00003); (Default value of bits = 0 1111111 000001111100000). If the beacon does not have encoded location capability [†] , then these bits shall be set to the following default value: Bits = 1 1111111 000001111100000. E/W flag (E=0, W=1); Degrees (0 to 180) in 1-degree increments; Decimal parts of a degree (0.5 to 0.00003); (Default value of bits = 0 11111111 111110000011111). If the beacon does not have encoded location capability [†] , then these bits shall be set to the following default value: Bits = 1 11111111 111110000011111.
3.7.1h	Vessel ID	3	91-93	A three-digit binary field identifier is first transmitted to identify the following message content: 000 - No aircraft or maritime identity (may be defined for national use [‡] ; default content for bits 94-137 is all 0's); 001 – Maritime MMSI; 010 – Radio call sign; 011 – Aircraft Registration Marking (Tail Number); 100 – Aircraft aviation 24 Bit Address; 101 – Aircraft operator and serial number; 110 – Spare; 111 – Reserved for System Testing (may contain

* All position information is encoded as degrees and decimal parts of a degree, or as fractions of these units to be as close as possible to the actual position. Latitude and longitude data are rounded off (i.e. not truncated) to the available resolution. All rounding shall follow normal rounding conventions, for example with a resolution of 4, 0.000 to 1.999 shall be rounded down to 0 and 2.000 to 3.999 shall be rounded up to 4.

[†] If a beacon model has an external navigation input capability but is installed in a configuration in which a navigation signal will never be supplied to the interface (i.e., an ELT in a GA aircraft which cannot supply the navigation signal to the beacon), then this (no capability) is the preferred default that should be used under those circumstances. However, if the external navigation connection in the installed configuration is uncertain, then the alternate default (no position available at this time) should be used.

[‡] The information contained in this field shall be static even when defined for national use, otherwise the 23-Hex ID will be affected, and such a beacon would need to be considered under of letter of compatibility (LoC).

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TRANSMITTER ENCODING AND EMERGENCY
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C/S G.008 reqmt Para.	Description	Number of bits	Bit numbers in message	Content
		44	94-137	3 - Aircraft Registration Marking [*] : Is encoded using the modified-Baudot code shown in Table 3.2. This code enables 7 characters to be encoded using 42 bits (6x7=42), 94 to 135 (1 to 42 within the field). Two bits (136 and 137 (43 and 44 within the field)) are spare and shall be coded as 00. The modified-Baudot characters will be right justified with a modified-Baudot space (100100) being used where no character exists. If no Aircraft Registration Mark is available, then insert a series of 7 spaces (100100).
	Vessel ID (continued)	44	94-137	4 – Aviation 24 Bit Address [†] : Shall either be encoded as a 24-Bit Binary Number, followed by 20 spare bits all of which are coded as 0 or shall be encoded as a 24-Bit Binary Number, followed by the 3-letter aircraft operator designator [‡] . The 3 letters are encoded using the modified-Baudot code shown in Table 3.2 [§] (3x5 = 15 Bits) followed by 5 spare bits all of which are coded as 0. If there is no 3LD for the aircraft operator, then the 3LD is coded as "ZGA", i.e., bits 118 to 137 are set to 10001 01011 11000 00000.

*** WARNING:** These coding schemes when used in an ELT(DT) (i.e., bits 138-140 are '011'), are NOT compliant with the mandatory data elements defined in ICAO document 10150 (either no 3LD aircraft operator (for 3 - Aircraft Registration Marking) or no aircraft identifier is available (for 5 - Aircraft operator and serial number)) and the associated data cannot be stored in the LADR. Manufacturers wishing to comply with ICAO GADSS requirements and use these coding options should consult the relevant Administration's aviation authorities for guidance prior to coding a beacon with these coding options.

[†] This coding (when the aircraft 24-bit address and the 3LD designator of the aircraft operator are provided in the "Vessel ID" field) is compliant with the mandatory data elements defined in ICAO document 10150, "Manual on the Functional Specifications for the Location of an Aircraft in Distress Repository (LADR)".

The LADR is a facility, that will be used by Cospas-Sarsat, to support ICAO requirements for autonomous location of an aircraft in distress contained in Annex 6, Part I, section 6.18 to the Convention on International Civil Aviation.

[‡] A 3-letter aircraft operator designator (3LD) from the list of "Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services" published by the International Civil Aviation Organization (ICAO) as document 8585.

[§] The aircraft operator designator (3 letters) can be encoded in 15 bits using a shortened form of the modified-Baudot code (i.e.: all letters in the modified-Baudot code are coded in 6 bits, with the first bit = "1". This first bit can, therefore, be deleted to form a 5-bit code).

Aircraft registration marking is encoded using the modified-baudot code shown in table 3.2. This code enables 7 characters to be encoded using 42 bits. Two bits are spare and shall be code das 00. The

Aircraft registration marking is encoded using the modified Baudot code shown in Table 3.2. This code enables 7 characters to be encoded using 42 bits. Two bits are spare and shall be coded as 00. The modi-

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modified-baudot will be right justified with a modified-baudot space being used where no character exists. If no aircraft registration mark is available then insert a series of 7 spaces.

Aviation Shall either be encoded as a 24-bit binary number followed by 20 spare bits all of which as code as 0 or shall be encoded as a 24-bit binary number followed by the 3 letter aircraft operator designator. The 3 letters are encoded using the modified-baudot code shown in table 3.2 followed by 5 spare bits of all which are code das 0. If there is no 3LD fort he aircraft operator then the 3LD is coded ZGA

fied Baudot will be right justified with a modified Baudot space being used where no character exists. If no aircraft registration mark is available, then insert a series of 7 spaces.

Aviation shall either be encoded as a 24-bit binary number followed by 20 spare bits, all of which are set to 0, or it shall be encoded as a 24-bit binary number followed by the 3-letter aircraft operator designator. The three letters are encoded using the modified Baudot code shown in Table 3.2, followed by five spare bits, all of which are set to 0. If there is no 3LD for the aircraft operator then the 3LD is coded ZGA

Table 6: ‘Minimum Requirement’ main field in the beacon message; extract from C/S T.018

This results in a 23-digit hex code, which must be indicated for the registration.

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5.3 ELT registration

The final code generated using one of the options listed above must be converted to hexadecimal format. The accuracy of this hex code can be verified via the COSPAS-SARSAT website at <http://www.cospas-sarsat.int>.

According to COSPAS-SARSAT document C/S S.007, AUT-Section, the company Austro Control GmbH is responsible for the registration.

The registration of new ELTs or changes to existing registrations (codes, ELT exchanges, emergency contacts, etc.) shall be carried out online via the following Austro Control website: https://www.austrocontrol.at/piloten/such_und_rettungsdienst/registrierung_elt

6 Attachments and appendices

None.