

BEACON CODING PATTERN RECOGNITION

4th digit in all hexcodes reflects the beacon type / encoding protocol

STANDARD LOCATION PROTOCOL

If it begins with 278 then it must end with FFBF and is a standard location protocol beacon.

If it begins with 278 the 4th character is dictated by the user type : A Canadian coded beacon should not start with 278A or/and 278B hex codes – these are for Aircraft operator designator

278C is an EPIRB

278D is an EPIRB

2784 / 2785 is an MMSI encoded EPIRB (incorrectly coded as per Canadian coding protocols)

278 followed by 0,1,2 & 3 are all invalid codes

278 followed by 8 or 9 are serialized ELTs

278E is a PLB

2787 is a 24bit encoded ELT – the fifth digit must be an 8 – if it is outside of this range then the ICAO code is incorrect as it would represent a code that falls outside of the codes (C-F, C-G) assigned to Canada and reflected, and dictated by what is programmed in bits 41-64

27878 is a 24bit encoded ELT - this prefix should be followed by 0 or 1 for Canada – if it is outside of this range then the ICAO code is incorrect as it would represent a hex of C10000+ – current TC database only goes to **C0CDF8** (unless it is military – see below)

Canada's ICAO code range –

Canada Mil_144601(CB) = C0893C

Canada Mil_144614(CB) = C08941

Canada Mil_144615(CB) = C08940

Canada Mil_144616(CB) = C0893E

Canada Mil_15002(CB) = C063F4

Canada Mil_15003(CB) = C03A7E

Canada Mil_15005(CB) = C014BC

Canada Mil(CB) = C20000-C3FFFF

Canada(CA) = C00000-C3FFFF

If it begins with 278, the 6th through 10th character is dictated by bits 41-64 – the ICAO code.

6th character reflects the 3rd digit in ICAO code.

7th character reflects the 4th digit in ICAO code.

8th character reflects the 5th digit in ICAO code.

9th and 10th characters reflect the 6th digit in ICAO code.

If the 10th character is one of the following : 1,3,5,7,9 or B,D,F then a direction of SOUTH, LAT degrees 127 and LAT minutes 45 will be reflected. This is dictated by bits 65-74.

SERIAL USER PROTOCOL

If it begins with A78 then it is a serial user protocol and the 4th digit will reflect the encoding of bits 37-39 and what type of serial user

If it begins with A78 then the 4th digit cannot be numbers 1-5 or 7 (6 & 8 & 9 means tail mark or mmsi encoded and should also not be used in Canada but have been used historically)

If it begins with A78A then it is incorrectly coded for Canada – this designates a radio call sign

If it begins with A78B then it is incorrectly coded for Canada – this designates a radio call sign

If it begins with A78 and the fourth character is a "C" then it is not 24bit encoded – it is an ELT serial identification encoded only - without 24bit related to registration mark

4TH digit cannot be a "0" – this reflects an orbitography

If a beacon begins with A78D01 the seventh digit cannot be a "number" – it must be a letter from "A" TO "F".

If it begins with A78F the last four digits should be 1000 or 1001 – usually older beacons

If it begins with A78DF digits 13 & 14 represent the TAC - please pay careful attention as people replace their ELTs upon recertification and assume the code is the same because they have programmed the ELT much as they did the last one.

If it begins with A78D it should not be followed by a A, C, D or E. It can have a B but it is not the norm.

5th digit A will be Nationally assigned, no TAC and ICAO (hex) will be outside of Canadian range.

5th digit B will be Nationally assigned but will have an ICAO (hex) within range.

5th digit C will have a TAC but the ICAO (hex) will be outside of Canadian range.

5th digit D will have a TAC but the ICAO (hex) will be outside of Canadian range.

5th digit E will have a TAC but the ICAO (hex) will be outside of Canadian range.

If it begins with A78DF the 9th digit is DICTATED by the ICAO CODE programmed in bits 44-67

If it begins with A78D it should not be followed by A,B,C,D or E – the ICAO code will not be correct.

If it begins with A78D and is followed by numbers 0-7, it is an EPIRB
(If the numbers are 0-3 no TAC will be reflected as it will be nationally assigned)

If it begins with A78D and is followed by numbers 8 & 9 it is an ELT and no TAC will be reflected as it will be nationally assigned. The fifth digit represents bit 43 which dictates if it has a C/S certificate of is nationally assigned. If it is nationally assigned no TAC will be shown in bits 74-83.

If it begins with A78D then the 12th digit will be reflected in bits 68-73 and give the number of ELTs on board said aircraft (or at least what was programmed as being on board)

If it begins with A78D and ends in D, 5, 1 or 9 this will relate to bits 84-85 and represents a 121.5 aux radio device

If it begins with A78D and ends in 2 or 6, this represents a 9GHZ SART

If it begins with A78D and ends in 0, 8 or 4 this represents no aux radio device

If it begins with A78D and ends in 3 or 7 this represents "other" for aux radio device

If it begins with A78E then it is an EPIRB and should end in 01 *aux radio device