



Beacon Manufacturer's Workshop

21 May 2010

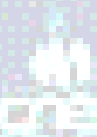
Beacon Coding Issues



Beacon Coding Issues Overview



- Overview on National Use fields
- National Use fields for US Beacons
- USMCC Special Processing
- Beacon Coding Issues:
 - Improper requests for US National use coding
 - Requests for USMCC Special processing for off-the-shelf beacons
 - Unauthorized coding of US National Location Protocol beacons
 - Coding non-serialized beacons for vessels and aircraft
 - Recoding non-serialized beacons for vessels and aircraft





Beacon Coding Issues

Overview on National Use Fields



- The coding of beacons with National use fields must be centrally (nationally) controlled in order to prevent the coding of duplicate beacon Ids
- For non-US coded beacons with National use fields, the Manufacturer should contact the appropriate National authority (see document C/S S.007 “Handbook of Regulations on 406 MHz and 121.5 MHz Beacons)
- For US coded beacons, it is required that beacons with National use fields be allocated by NOAA



Beacon Coding Issues

Overview on US National Use Fields

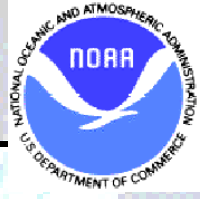


- National use fields allocated by NOAA for US coded beacons:
 - For Serialized user, National use (bit 43 = 0):
 - Bits 44-51 (Manufacturer's Block) are allocated to a Manufacturer to code off-the-shelf-beacons
 - Bits 76-83 (Spare Bits) are allocated to a US Government program for USMCC special processing
 - Must be coded as all zeroes if not allocated by NOAA
 - For National User Protocol, bits 40–47 are allocated to a US Government program for USMCC special processing
 - For National Location Protocol, Bits 41–50 are allocated to a US Government program for USMCC special processing



Beacon Coding Issues

Overview on US National Use Fields



- ITU has allocated 10 country codes to the United States to encode/register beacons.
- NOAA allocates sets of beacon IDs with National use fields for only 1 country code per allocation (usually 366) in order to conserve beacon IDs for future allocations.



Beacon Coding Issues

Special Processing for US National use



Except for the Manufacturer's Block for serialized user beacons, US beacons are coded as National use in order to enable USMCC Special processing:

- Perform special routing for US (Government) Special Programs
 - Replaces or appends to normal USMCC routing based on location
 - Only affects USMCC processing (other MCCs process normally)
 - Requires that NOAA allocate a range of consecutive beacon Ids

- Provide special registration in the NOAA RGDB to refer to a non-NOAA registration database (e.g., JSETs) for US Special Programs
 - One beacon specially registered in the NOAA RGDB represents a range of consecutive beacon Ids allocated by NOAA (to avoid registering each beacon in the RGDB and in a non-NOAA registration database)
 - Enables USMCC alert messages to US RCCs to identify the non-NOAA registration database



Beacon Coding Issues

US National Protocol beacons



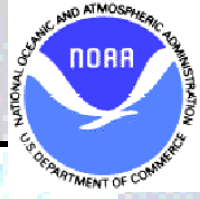
- Issue: requests are made to use National Location Protocol and other National Use Protocols when USMCC special processing is not needed
 - USMCC Special processing requires significant configuration management and administrative costs for each range of allocated beacons
 - In recent years, NOAA has received many requests for USMCC special processing for US Government (military) programs
 - Blocks of National Use beacons (except the Manufacturer's Block for serialized user) are allocated to Special Programs, not to Manufacturers

- ❑ Action: Manufacturers should refer customers to the NOAA Operations Officer (Shawn Maddock) to request the allocation of National Use beacons.



Beacon Coding Issues

Special Processing & Off-the-Shelf Beacons



- Issue: Off-the-shelf beacons (i.e., beacons not specially coded in coordination with NOAA) are not appropriate for USMCC Special processing (routing or registration)
 - USMCC Special processing requires significant configuration management and administrative costs for each range of allocated beacons (is not appropriate for a small number of beacons)
 - No assurance that beacons bought off-the-shelf will have a range of consecutive beacon Ids

- ❑ Action: Manufacturers should refer customers who require Special processing to the NOAA Operations Officer (Shawn Maddock) to request the allocation of National Use beacons



Beacon Coding Issues



Miscoded National Location Protocol beacons

- Issue: Many US beacons have been coded with National Location Protocol with no NOAA authorization or outside of the range of beacons allocated by NOAA to the associated US Government program:
 - Over 300 ELTs registered in RGDB
 - Over 5,800 EPIRBs registered in RGDB
 - Over 6,800 PLBs registered in RGDB

- This improper coding may result in:
 - Duplicate beacon Ids (may result in incorrect registration, and delayed or improper RCC response)
 - Beacon Id being identified with an incorrect Special Program or the Special Program not being identified for the beacon Id (expected special routing does not occur or unexpected special routing occurs)

- ❑ Action: Manufacturers should ensure that the coding of National Location Protocol (and other National use) beacons is pre-authorized by NOAA and within the range of beacons allocated by NOAA to that US Government program



Beacon Coding Issues

Coding Non-Serialized beacons



- **Issue:** Failure to properly code a non-serialized beacon (encoded with a vehicle or aircraft operator Id) for a vessel or aircraft may result in a duplicate beacon Id and incorrect beacon registration
 - Vehicle/aircraft operator Id includes MMSI, Aircraft 24 Bit Address, Aircraft Operator Designator, Radio Call Sign, Tail Number

- **Example: ELT encoded with 24 Bit address reserved for shipping**
 - RGDB data (if available) does not provide information on the specific ELT
 - Alert data would be confused if another beacon with the same Id is active

- ❑ **Action:** Manufacturers should inform beacon owners and beacon service centers that non-serialized beacons must be encoded with an appropriate vehicle or aircraft operator Id



Beacon Coding Issues

Coding Non-Serialized beacons



- Issue: Failure to properly code multiple non-serialized beacons (encoded with a vehicle Id) for a vessel or aircraft may result in a duplicate beacon Id and incorrect beacon registration
 - Vehicle/aircraft operator Id includes MMSI, Aircraft 24 Bit Address, Aircraft Operator Designator, Radio Call Sign, Tail Number

- **Example: A second non-serialized beacon on the same vessel**
 - Code multiple beacons on vessel with a unique (relative) count that is encoded in the beacon Id (e.g., beacon 1 or 2 on the vessel)

- ❑ Action: Manufacturers should inform beacon owners and beacon service centers that non-serialized beacons must be encoded with a unique relative Id for a vessel or aircraft.



Beacon Coding Issues

Recoding Non-Serialized beacons



- **Issue:** Failure to recode a non-serialized beacon (encoded with a vehicle or aircraft operator Id) when the beacon is transferred to another vehicle or aircraft operator may result in a duplicate beacon Id and incorrect beacon registration

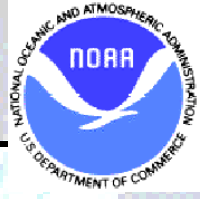
- **Example 1:** Owner 1 sells an EPIRB coded with MMSI to Owner 2 and buys a new beacon for his vessel. If Owner 2 does not recode the Id of the purchased beacon, the 2 owners have duplicate beacon IDs

- **Example 2:** ELT transferred to a different aircraft
 - ELT must be recoded with new aircraft Id (by electronic interface or other method) and re-registered in NOAA RGDB with new beacon Id
 - Recoding and re-registration must be coordinated to avoid incorrect or missing registration

- ❑ **Action:** Manufacturers should inform beacon owners and beacon service centers that non-serialized beacons must be encoded with an appropriate vehicle or aircraft operator Id.



Beacon Coding Issues



➤ Questions?

