

Canadian Mission Control Center Canadian Beacon Registry



Beacon Manufacturers Workshop
Major Kelly Freitag



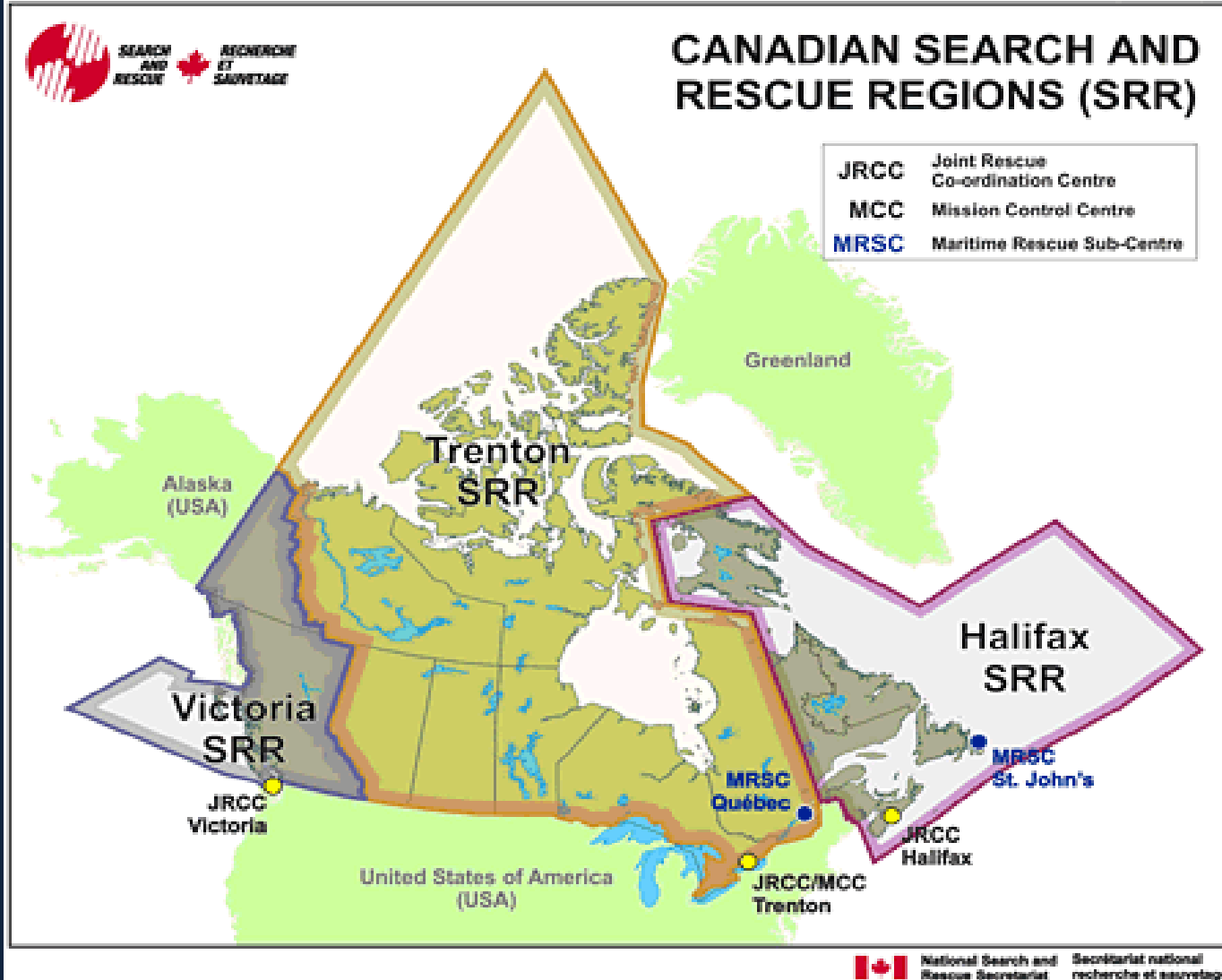
Outline

- Canada's Area of Response
- Canada's Alerts
- Select 406 Issues
- What CMCC / CBR is doing
- What we are proposing
- Contact Information and Questions

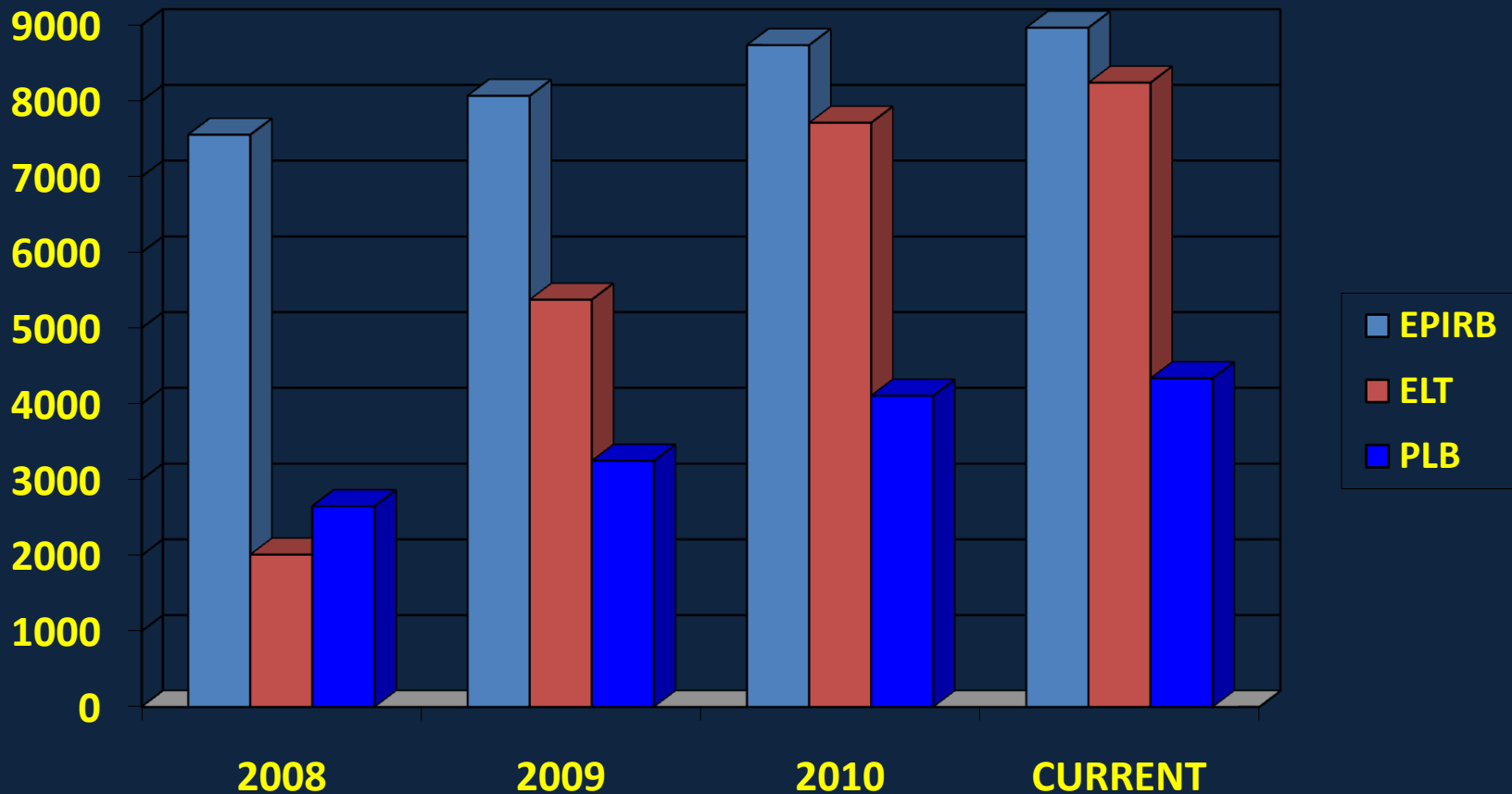


Canada's SAR Region

Canada



Canadian Coded Beacons Registered



- EPIRB - 8967 ELT - 8242 PLB - 4339
- TOTAL = 21,548 + 2000 Military



Canada's Alerts

- 2009 registration rate seen at the desk at CMCC:
 - ELT 52.3%
 - EPIRB 69.9%
 - PLB 78.8%
- 2010 registration rate seen at the desk at CMCC:
 - ELT 65.4%
 - EPIRB 72.1%
 - PLB 75.8%



Canada's Alerts

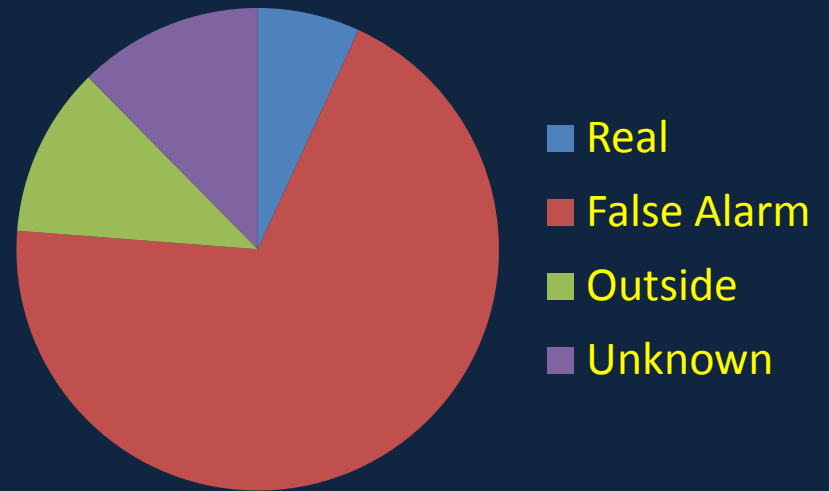
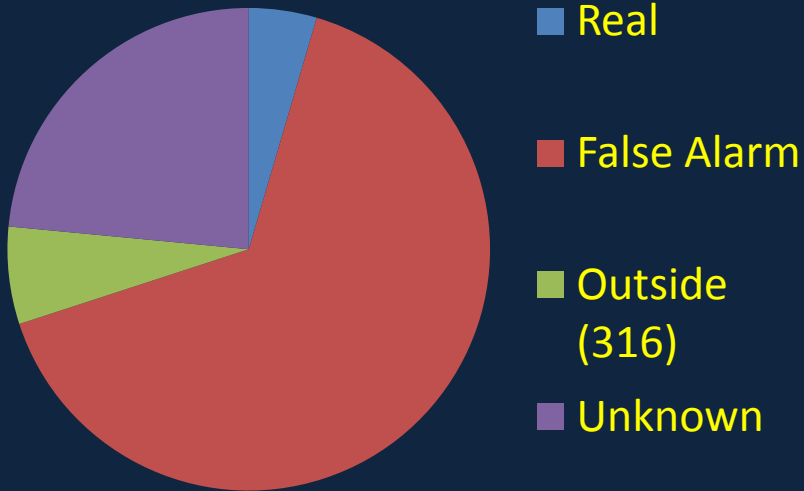
- 2009 Registration Rate
 - based on inverted frame sync
 - ELT 71.7%
 - EPIRB 87.4%
 - PLB 93.9%
 - Total: 76.1%
- 2010 Registration Rate
 - Based on inverted frame sync
 - ELT 85.3%
 - EPIRB 87.4%
 - PLB 95.9%
 - Total: 86.4%
- Current registered (approximate): 22,000
- Current estimated beacon population: 25,500



Canada's Alerts

2009

2010



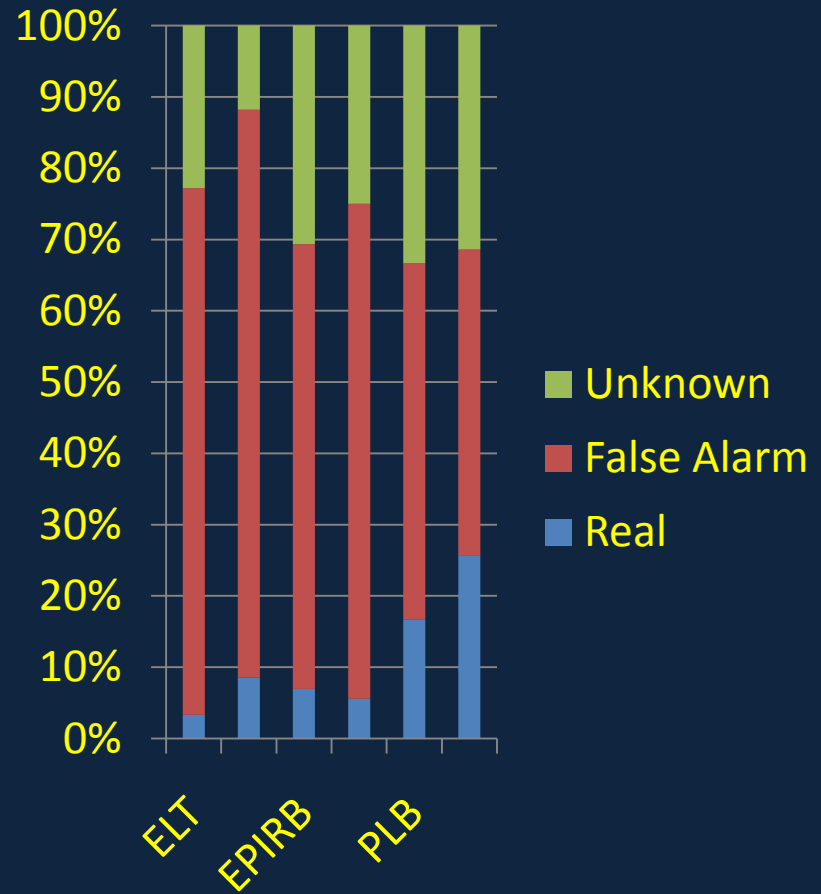
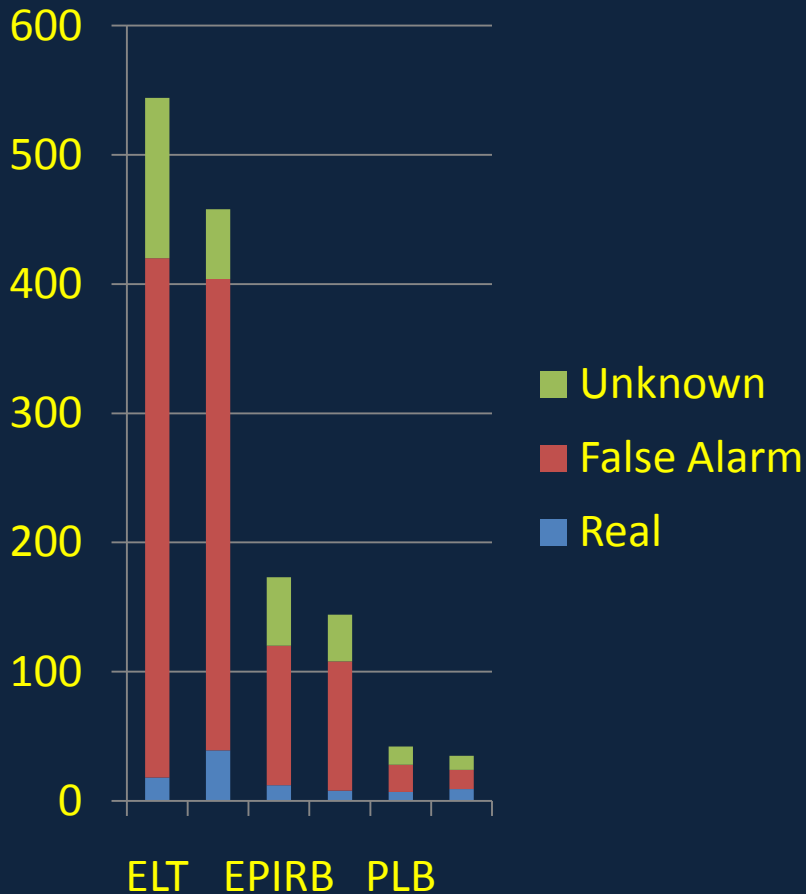
2009 Total: 832

2010 Total: 825



Canada's Alerts

2009 & 2010 by Beacon and Alert Type (# and %)



Within each graph and beacon type, left column is 2009 and right column is 2010



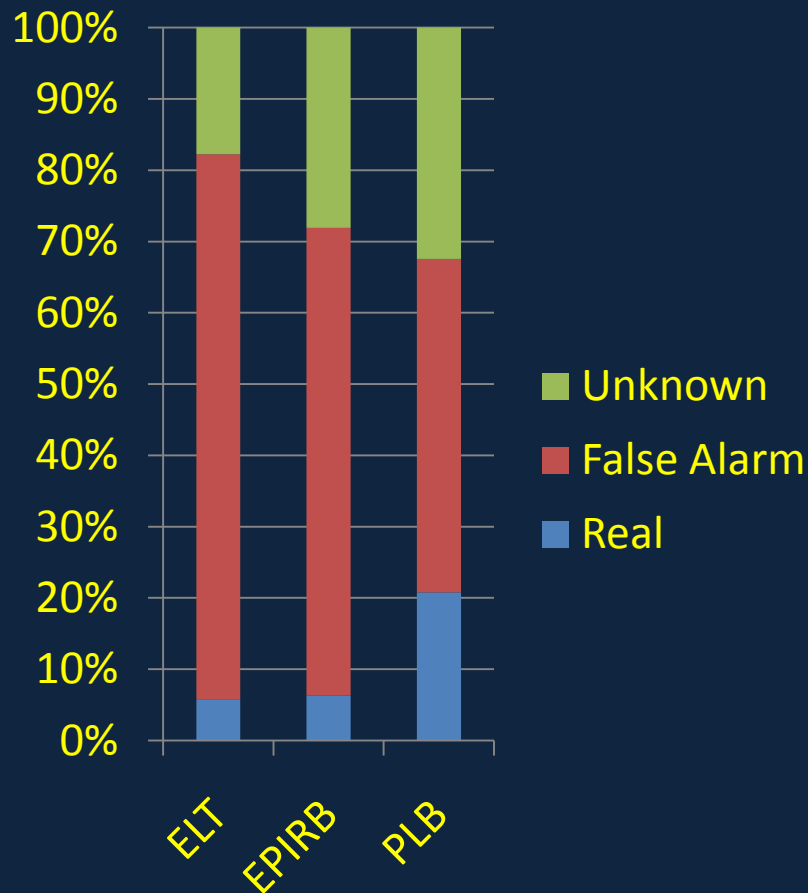
Select 406 Issues

- Unregistered Beacons
 - Gives Undetermined Alerts
- Secondary data
 - 24 Bit address
 - MMSI
 - TAC Number
- Without mandatory registration, we require secondary data



Select 406 issues

Alerts (2009 / 2010 combined)

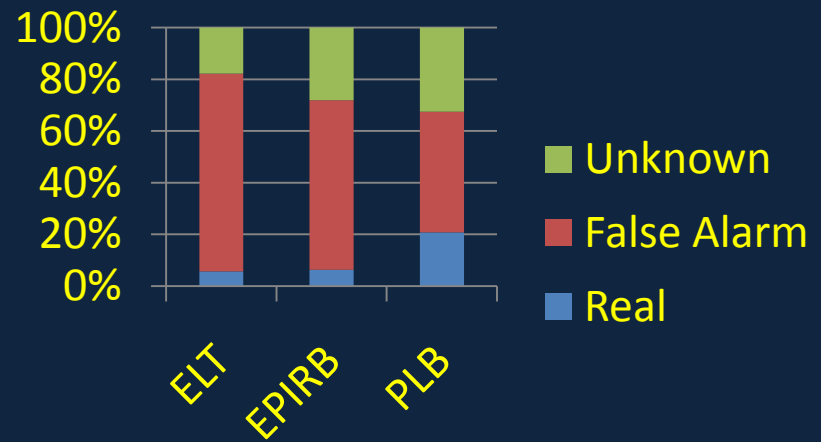
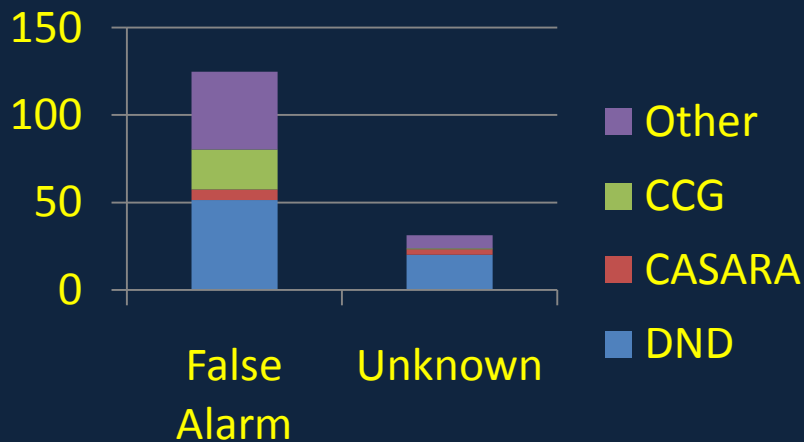


- In Canada, ELT's require 24 Bit
 - When unregistered, we CMCC can trace = less undetermined.
- EPIRBS – serialized; only some have MMSI
- PLB's – most have no secondary data = significant undetermined



Select 406 issues

Resources spent (hours) and Alerts (2009 / 2010 combined)



- Unregistered - FA / Undetermined consume valuable hours at huge cost = unacceptable
- Registered - False Alarms are solved with a phone call = acceptable



False and Undetermined Alarms

Calendar year	False Alarms			Total Alerts reported			% FA
	2008	2009	2010	2008	2009	2010	
EPIRBs	52	162	136	64	176	144	91
ELTs	237	537	419	267	556	458	93
PLBs	11	35	26	18	42	35	76

Note 2008 – Doppler only

The significance indicates the value of placing a GPS on every beacon



False Alert Rate

Percentage of beacon population that result in false alerts

	2008	2009	2010
False Alert rate EPIRBs *	0.59%	1.53%	1.13%
False Alert rate ELTs *	1.95%	6.01%	4.97%
False Alert rate PLBs *	0.27%	0.83%	0.66%



SAR RESPONSE

- Approx 50% of alerts are detect only (no Doppler)
- Unregistered beacons means limited response until location is received (average 1 hr)
- “one-hit wonder” – can’t respond
- CMCC will decode and find registry ELT only
- CBR will attempt to contact manufacturer for EPIRB and PLB – business hours only



MEOSAR – False Alarm Effect

Victim of our own success?

- IMO and ICAO dictate RCC/SPOCs treat all alerts received as distress
- MEOSAR will create a location on every burst
- What will SPOC/JRCCs do with unregistered alerts and a location? “one hit wonders”?
- Two options
- 1) launch on every instance – expensive with (90% of alerts false)
- 2) treat as false until proven other wise – Concordia
- Registration must be mandatory!



CMCC and CBR understand importance of registration

- Working towards our goal of 100% registration – 1yr update
- All unregistered beacons from alerts and beacon test advisories are passed to the CBR for follow-up and registration
- Any lead that gives possible location of beacons are researched to ensure registration

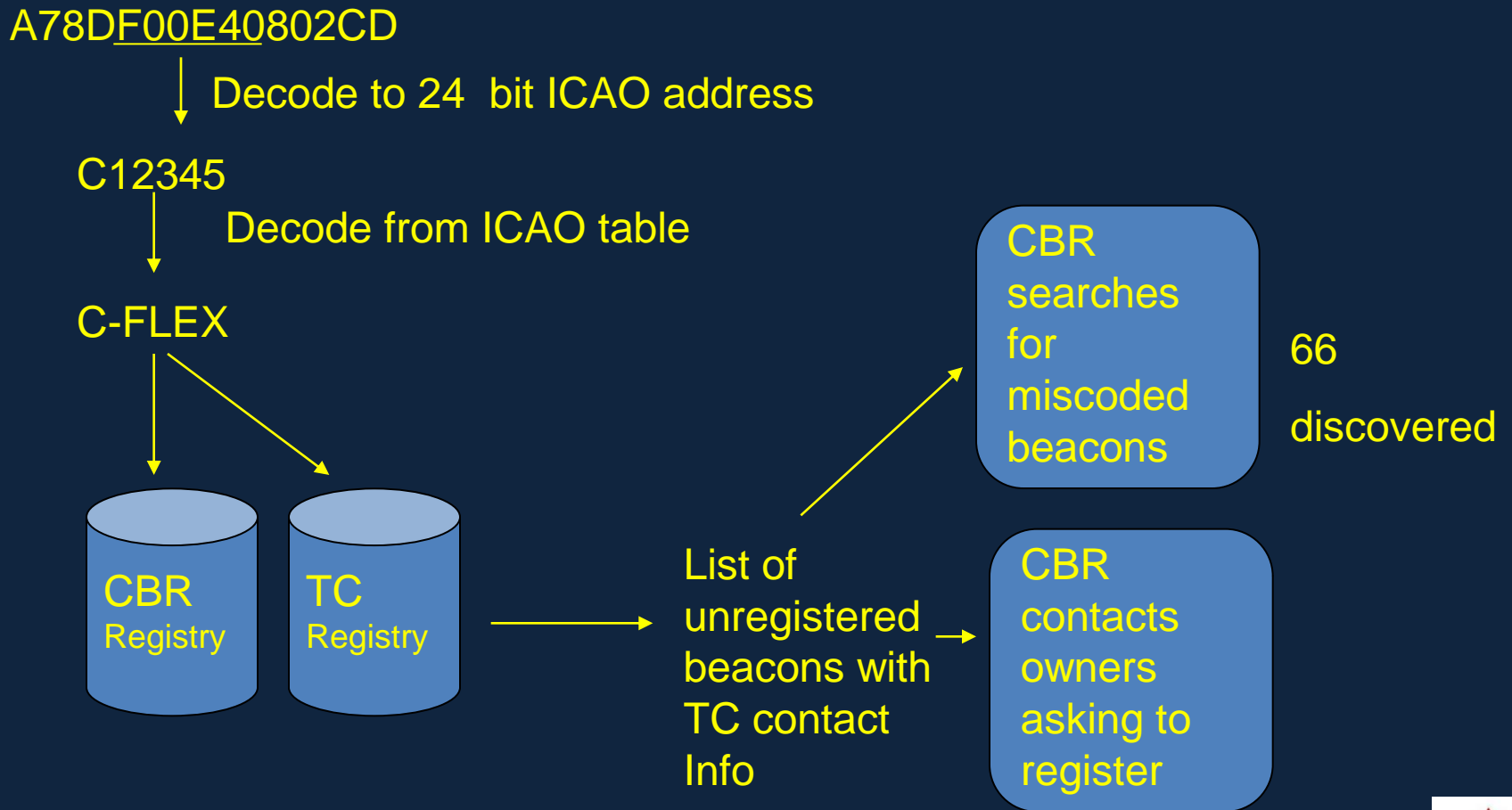


What CMCC and CBR are doing

- Use of inverted frame:
 - We are prototyping software that takes all Canadian coded inverted frame detections from our GEOLUTs and compares them to the beacon registry.
 - All unregistered are passed to the CBR for follow-up and registration
 - Highlights problem beacons
 - This follow-up is very labor intensive



What CMCC and CBR are doing (ELT)



What we are proposing

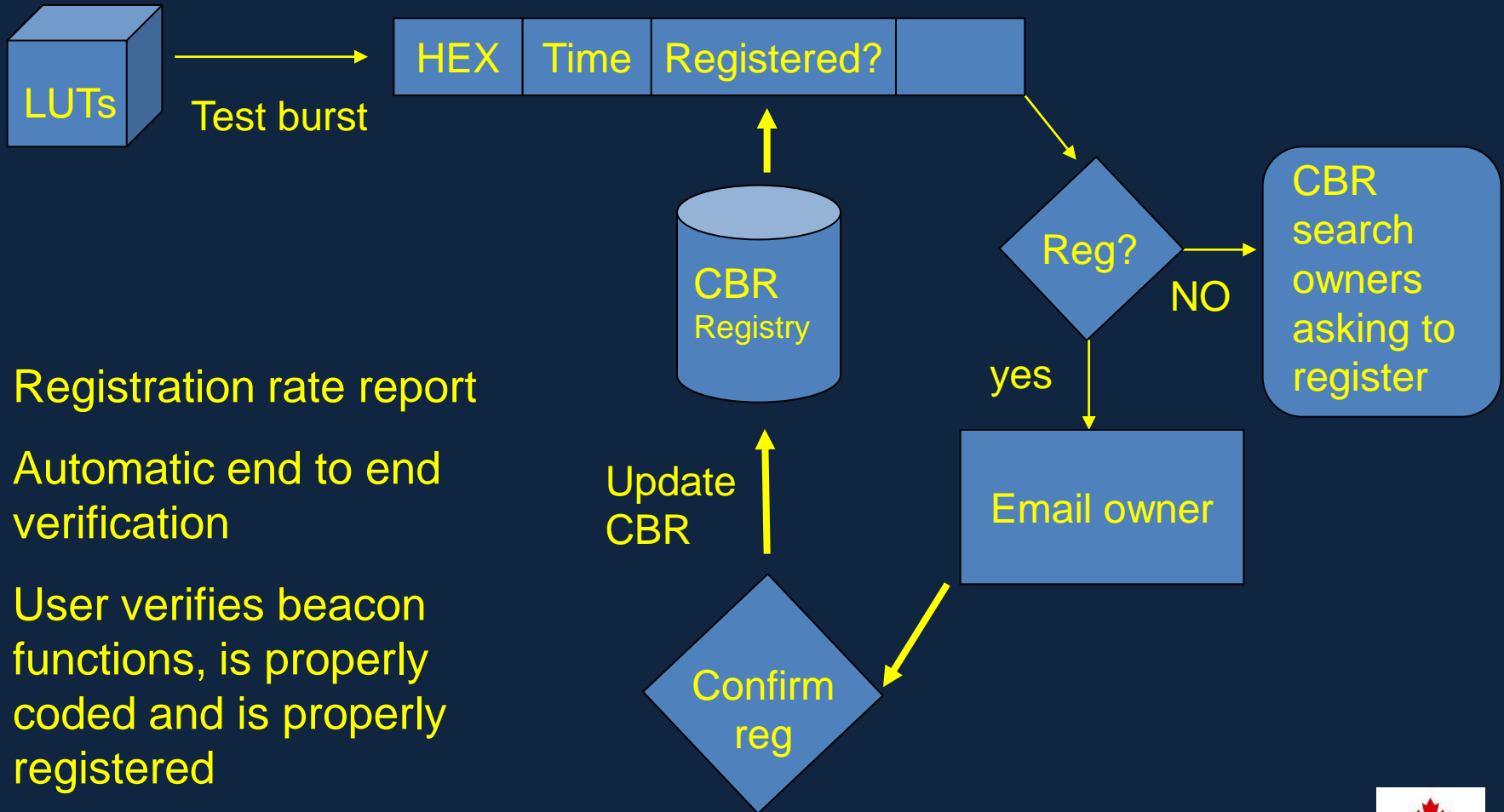
- Expanding and automating our use of the prototype software using inverted frame transmissions to enhance registration



- Supply an automated verification within this tool



What we are proposing



- Registration rate report
- Automatic end to end verification
- User verifies beacon functions, is properly coded and is properly registered
- User gains confidence



What can Manufactures do?

- These tools are help to overcome current unregistered beacons but we need to ensure better registration of future beacons
- Our proposed solution:
 - Have all manufacturers send Canadian Hex Ids to CBR once coded along with the Distributor/Reseller they are sold to
 - Resellers to send same information when sold to end user
 - Supply CBR with owners of Beacons – serial number



Costly to ensure registration?

- Manufactures currently benefit from:
- Free space segment
- Free ground segment
- Free alert and distribution centre
- Free rescue service
- Free registry service



Other

- Regulating bodies – add CBR to change of registration checklist
- Promote proper disposal
- Non Detection of ELTs – 70% detection rate
- Last two years 57 ELTs (real distress) and 29 non detections



Contact Information

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Questions

