PRELIMINARY RESULTS OF THE 2022 SURVEY OF BEACON MANUFACTURERS
Andryey Zhiltenev
Cospas-Sarsat Secretariat
Preliminary Results of the 2022 Survey of Beacon Manufacturers
2022 Survey - Participants

- conducted by the Cospas-Sarsat Secretariat since 1991, annually

- **42** beacon manufacturers participated in the 2022 survey
- geographical distribution of participating manufacturers:

  - Europe: 33%
  - North America: 30%
  - Rest of the World: 37%
Extended 2022 Survey Questionnaire

• Better structured and more detailed survey form:
  – detailed beacon types and categories
    • ELT: (AF) / (AD) / (AP) / (S), ELT(DT)
    • EPIRB: FF, Non FF, VDR
  – questions about the source of navigation data (ELTs)
  – questions about production volumes and plans for new beacon types: SGBs, ELT(DT)s, RLS

• Web-based survey form submission method
  – 38% of submissions
  – future automation of data collection and processing
  – higher reliability of data collection and processing
2022 Survey Web-Based Forms


If you require a PDF version of this form, please find it here: https://www.cospas-sarsat.int/images/cospas_sarsat/pdf_uploads/2022-B-mans-Survey-Form.pdf

2022 Survey of Cospas-Sarsat 406 MHz Beacon Manufacturers
2022 Survey Submission Methods

- email : 57%
- web : 38%
- other (phone) : 4%
2022 Survey Highlights

207,218

beacons produced Worldwide in 2021

3.1% increase from 2020
## 2022 Survey Highlights

### Distribution of Beacon Manufacturers by Annual Production Volumes in 2021 and 2020 (*)

<table>
<thead>
<tr>
<th>Annual production</th>
<th>Count of manufacturers in 2021</th>
<th>% to Total in 2021</th>
<th>Count of manufacturers in 2020</th>
<th>% to Total in 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;0&quot; production</td>
<td>3</td>
<td>7.1%</td>
<td>9</td>
<td>19.1%</td>
</tr>
<tr>
<td>1-499 units</td>
<td>16</td>
<td>38.1%</td>
<td>16</td>
<td>34.0%</td>
</tr>
<tr>
<td>500-999 units</td>
<td>4</td>
<td>9.5%</td>
<td>5</td>
<td>10.6%</td>
</tr>
<tr>
<td>1000-5000 units</td>
<td>14</td>
<td>33.3%</td>
<td>11</td>
<td>23.4%</td>
</tr>
<tr>
<td>&gt; 5000 units</td>
<td>5</td>
<td>11.9%</td>
<td>6</td>
<td>12.8%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>42</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>47</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

* 500, 1K, 5 K thresholds - as requested by BMW 2020
2022 Survey Highlights

Annual Production

• 2021: **207,218** beacons produced globally (+3.1% vs 2020)

• 2020: ~ 201,000 (-1%)
• 2019: ~203,000 (-0.3%)
• 2018: ~204,000 (-6.5%)
• 2017: ~218,000 (+8.4%)
• 2016: ~201,000 (+2.3%)
• 2015: ~197,000 (+4.5%)
• 2014: ~189,000 (+20.7%)
• 2013: ~156,000 (-2.5%)
• 2012: ~160,000 (+2.2%)

10-year average annual production growth: +4,500 units (+3% p.a.)
## 2022 Survey – Detailed Beacon Distribution

<table>
<thead>
<tr>
<th>Beacon type</th>
<th>2021 Global Production, units</th>
<th>% of Total Beacon Type</th>
<th>% of Global Production Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total ELTs, Including:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ELT(AF)</td>
<td>16,566</td>
<td>67.2%</td>
<td>8.0%</td>
</tr>
<tr>
<td>- ELT(AP)</td>
<td>937</td>
<td>3.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>- ELT(AD) and ELT(S)</td>
<td>7,153</td>
<td>29.0%</td>
<td>3.5%</td>
</tr>
<tr>
<td>- ELT(DT)</td>
<td>0</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total EPIRBs, including:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- EPIRB Float Free and EPIRB VDR</td>
<td>41,252</td>
<td>43.4%</td>
<td>19.9%</td>
</tr>
<tr>
<td>- EPIRB Non-Float Free</td>
<td>53,707</td>
<td>56.6%</td>
<td>25.9%</td>
</tr>
<tr>
<td><strong>Total PLBs</strong></td>
<td><strong>87,603</strong></td>
<td><strong>100%</strong></td>
<td><strong>42.3%</strong></td>
</tr>
<tr>
<td><strong>Total of Global Production for all beacon types</strong></td>
<td><strong>207,218</strong></td>
<td><strong>100%</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Beacon manufacturers indicated that in 2021 they produced about 1,600 FGB RLS-enabled beacons, and there was no production of SGBs.
**2022 Survey - Location Protocol Beacons**

An estimated **1,484,000** LP beacons were in use at the end of 2021, which corresponds to 76% of all beacons deployed worldwide (73% - in 2020, 70% - in 2019, 63% - in 2018, 59% - in 2017).

<table>
<thead>
<tr>
<th>Beacon Type</th>
<th>Production of LP-beacons, units</th>
<th>Ratio of LP-beacons to all beacons produced, %</th>
<th>Ratio to all LP-beacons, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPIRBs</td>
<td>79,267</td>
<td>83.5%</td>
<td>43.1%</td>
</tr>
<tr>
<td>PLBs</td>
<td>87,294</td>
<td>99.6%</td>
<td>47.5%</td>
</tr>
<tr>
<td>ELTs</td>
<td>17,333</td>
<td>70.3%</td>
<td>9.4%</td>
</tr>
<tr>
<td>All 406 MHz Beacon Types</td>
<td>183,894</td>
<td>88.7%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
## 2022 Survey – Navigation Data Source (ELTs)

<table>
<thead>
<tr>
<th>ELT category</th>
<th>EXT Nav</th>
<th>EXT+INT Nav</th>
<th>INT Nav</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELT (AF)</td>
<td>12,004</td>
<td>1,763</td>
<td></td>
</tr>
<tr>
<td>ELT (AP)</td>
<td></td>
<td>338</td>
<td></td>
</tr>
<tr>
<td>ELT (S) and ELT(AD)</td>
<td></td>
<td></td>
<td>3,228</td>
</tr>
<tr>
<td>ELT (DT)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All ELT categories</td>
<td>12,004</td>
<td>2,101</td>
<td>3,228</td>
</tr>
</tbody>
</table>
Estimated Global Beacon Population

- About **1,949,000** beacons were in use at the end of **2021** (using the assumed-replacement-period estimation method).
- Annual change in global beacon population: ~ **+2.7%**
- Production in **2021 (~207,000)** was higher than in **2011 (~157,000)**
- Estimates obtained with the alternative method (the Registration Rate method) indicates that in **2021 global beacon population could have reached 2,959,000** units.
Estimates of Beacon Population as Function of the Assumed Beacon Life Cycle

### Analysis of Beacon Life Cycle Reported by Beacon Manufacturers and Estimated Global Population

<table>
<thead>
<tr>
<th>Beacon Type</th>
<th>Historical modelling assumption, years</th>
<th>Median life cycle based on survey of 2022 (2021/2020/2019/2018), years</th>
<th>Weighted* life cycle Based on survey of 2022 (2021/2020/2019/2018), years</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPIRB</td>
<td>10</td>
<td>10 (10/8/9/8)</td>
<td>10(8/9/9/9)</td>
</tr>
<tr>
<td>PLB</td>
<td>10</td>
<td>10 (10/9/8/8)</td>
<td>8 (8/8/7/7)</td>
</tr>
<tr>
<td>ELT</td>
<td>10</td>
<td>15(12/15/15/10)</td>
<td>17(18/19/16/17)</td>
</tr>
<tr>
<td>ALL beacon types</td>
<td>10</td>
<td>10 (10/10/10/10)</td>
<td>10(9/9/9/9)</td>
</tr>
<tr>
<td>Estimated Global 406-MHz beacon population in 2021</td>
<td>~1,949,000 (“10-10-10” assumption)</td>
<td>~2,223,000 (“10-10-12” assumption)</td>
<td>~2,090,000 (“10-8-17” assumption)</td>
</tr>
</tbody>
</table>

Note: * Weighted life cycle (WLS) was calculated with the formula:

\[ WLS = \frac{\sum (L_i \times W_i)}{\sum W_i}, \text{ where:} \]

- \( L_i \) is the beacon life cycle reported by the \( i \)-th beacon manufacturer for a beacon type,
- \( W_i \) (weighting factor) is the annual production volume of a beacon type, as reported by the \( i \)-th beacon manufacturer.
Manufacturers’ Production Plans for 2022

• For 2022, beacon manufacturers plan to produce over 265,000 new beacons (+28% over the actual 2021 production volume), including:
  - 107,000 new EPIRBs,
  - 27,000 new ELTs,
  - 131,000 new PLBs.

• Beacon manufacturers indicated their 2022 plans to produce about 25,000 FGB RLS-enabled beacons and 100 FGB ELT(DT)s. There are no SGB production plans.

• Based on the beacon manufacturers plans for 2022, an estimated global population of 406 MHz beacons at the end of 2022 could reach: 2,053,000 units (using the assumed-replacement-period estimation method; likely higher using the registration-rate method)
Comparison of Beacon Manufacturers’ Plans vs Actual Annual Production

<table>
<thead>
<tr>
<th>Beacon Type</th>
<th>Manufacturers’ Plans for 2021</th>
<th>Actual Production in 2021</th>
<th>Actual over Forecast Discrepancy, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>All beacon types</td>
<td>220,300</td>
<td>207,200</td>
<td>-6.0%</td>
</tr>
</tbody>
</table>
In 2021, the Secretariat performed 135 reviews of type-approval submissions, including:

- 16 submission for full type approvals,
- 32 change notices (“technical”) submissions;
- 17 submissions for administrative change notices,
- 61 previews of re-application submissions.
Type Approval Applications - Pre-application Consultations

- Pre-application consultations are highly recommended when:
  - beacons with novel or non-standard features,
  - beacons with customer-specific non-standard operating scenarios,
  - special-use (LoC) beacons,
  - beacons with known non-compliances,
  - new beacon types (e.g., SGBs, ELT(DT)s),
  - CHNs for modifications not covered by Section 6,
  - application for two or more models,
  - beacon with TCXO from a new TCXO manufacturer,
  - new beacon manufacturers;
  - other circumstances, when a pre-test advise and recommendation from the Secretariat is needed.
Objectives of pre-application/pre-test consultations:

- familiarization with the beacon design and features, intended operating scenarios, modes of operation
- define the applicable standards
- pre-application check of documentation and technical data items
- define a need for a case-specific test setup/procedures
- define a scope of type-approval testing
For more information...

Cospas-Sarsat Programme
1250 Rene Levesque Blvd, Suite 4215
Montreal, Quebec  H3B  4W8
Canada

Phone: +1 514 500 7999
Fax:  +1 514 500 7996
Website: www.406.org
E-mail: mail@406.org
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