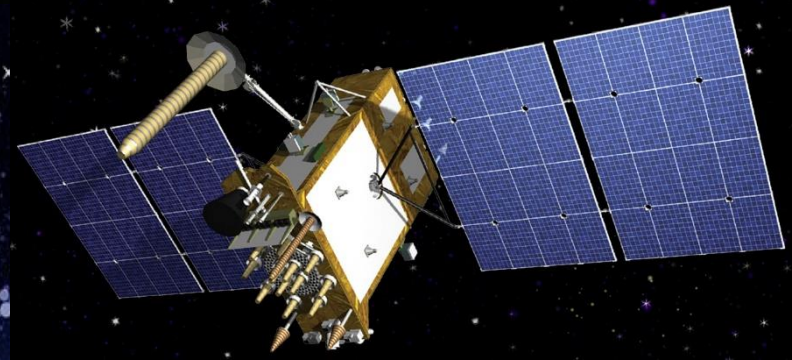
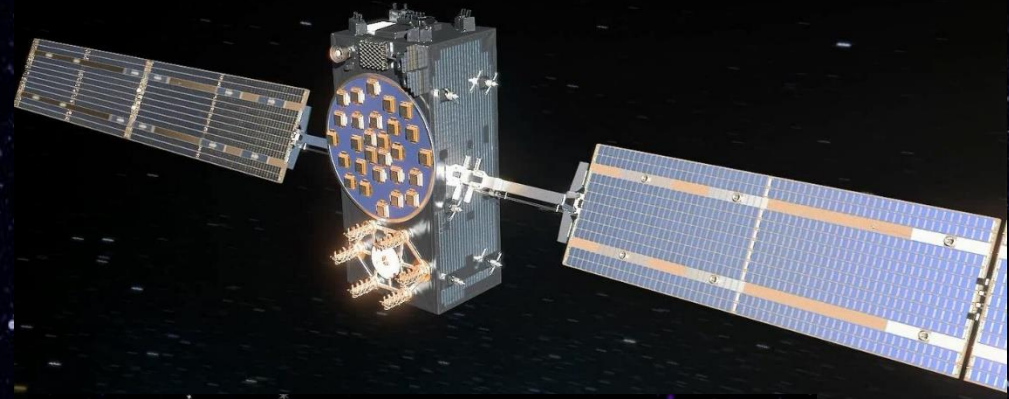
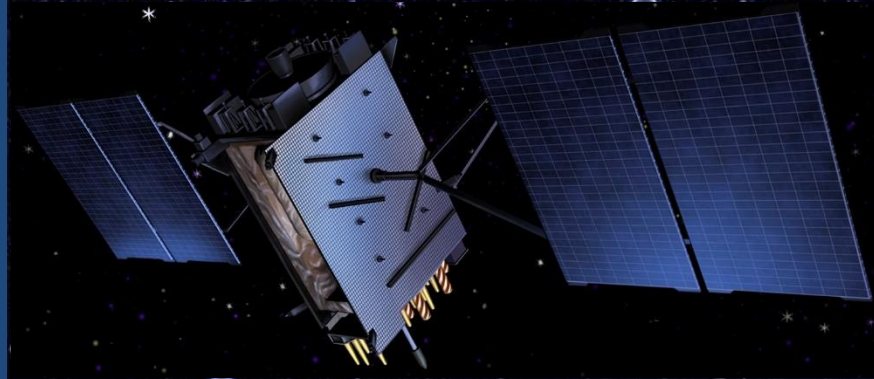


Beacon Manufacturers Workshop

16 June 2023



PRELIMINARY RESULTS OF THE 2023 SURVEY OF BEACON MANUFACTURERS

Andryey Zhitenev
Cospas-Sarsat Secretariat

Preliminary Results of the 2023 Survey of Beacon Manufacturers

2023 Survey

- conducted by the Cospas-Sarsat Secretariat since 1991, annually
- **40** beacon manufacturers participated in the 2023 survey
- geographical distribution of participating manufacturers:
 - Europe: **44%**
 - North America: **23%**
 - Rest of the World: **33%**

Beacon Manufacturer Survey Objectives

- Collect from beacon manufacturers production figures for previous to understand industry status and market trends
- For frequency channel management purposes, such as planning frequency channel opening and closure
- Collect information for the evaluation of current beacon population and as an input for the model to estimate forecast for future years
- Collect information on planned type-approval activity for planning the Secretariat work

2023 Survey

- Questions about production volumes and plans for :
 - beacons operating in different frequency channels,
 - location protocol/non-location protocol beacons,
 - beacons of different type (EPIRBs, PLBs, ELTs)
 - ELT categories: -AF, -AP, -AD, -S
 - EPIRB categories: Float Free, Non-Float Free, with VDR.

- Questions about production volumes in 2022 and plans for 2023 in respect of new beacon types (SGBs and ELT(DT)s) and RLS-enabled beacons;

- Questions about the anticipated in-service life of EPIRBs, ELTs and PLBs.

2023 Survey Web-Based Forms

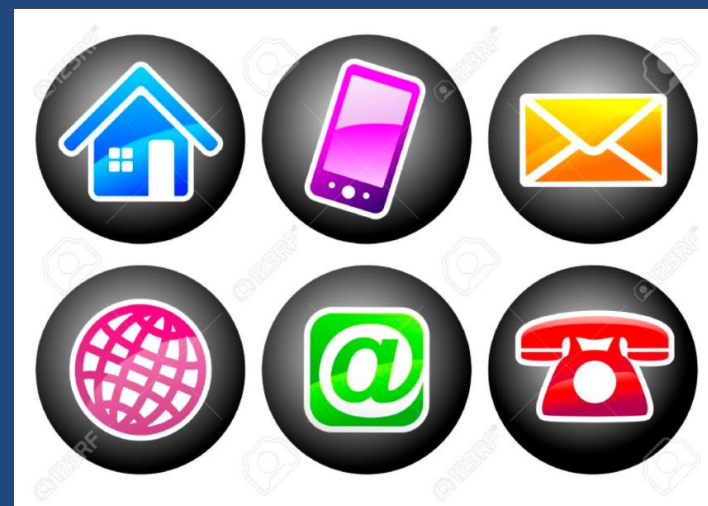
<https://www.cospas-sarsat.int/en/documents-pro/documents/beacon-manufacturer-survey-2023>



The screenshot shows the COSPAS-SARSAT website interface. At the top left, the logo reads "COSPAS-SARSAT.INT PRO" with the tagline "INTERNATIONAL SATELLITE SYSTEM FOR SEARCH AND RESCUE" and "406™ DISTRESS ALERTING SERVICE". To the right is the "COSPAS SARSAT" logo. Further right are language options for "Français" and "Русский", a Facebook icon, and a "COSPAS-SARSAT REGULAR" button. A red navigation bar contains the following menu items: "SYSTEM", "BEACONS", "DOCUMENTS", "MEETINGS", and "CONTACT LISTS", each with a dropdown arrow. Below the navigation bar, a text block states: "If you require a PDF version of this form, please find it here: https://www.cospas-sarsat.int/images/cospas_sarsat/pdf_uploads/2023_B-mans_Survey_Form.pdf". A large grey rectangular area is present below the text. At the bottom of the page, the title "2023 Survey of Cospas-Sarsat 406 MHz Beacon Manufacturers" is displayed.

2023 Survey Submission Methods

- online web form : 53%
- email : 47%



IN 2022 ...



Photo by BBC Music

2023 Survey Highlights

215,538

beacons were produced Worldwide in 2022,
3.5% increase in comparison with 2021

2023 Survey Highlights

Distribution of Beacon Manufacturers
by Annual Production Volumes in 2021 and 2022 (*)

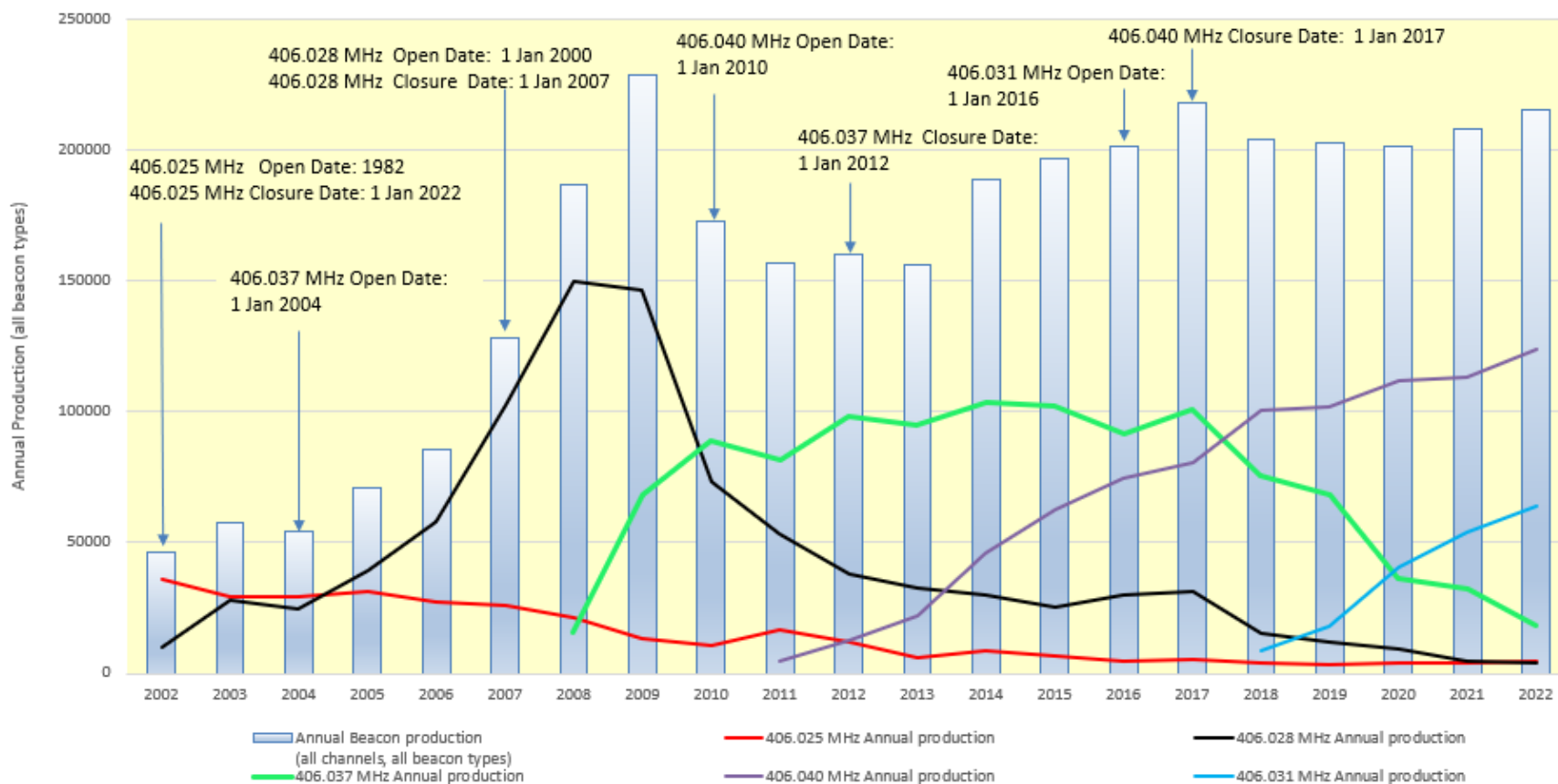
Annual production	Count of manufacturers with production in 2021	% to Total in 2021	Count of manufacturers with production in 2022	% to Total in 2022
"0" production	7	15.9%	4	10.0%
1-499 units	14	31.8%	19	47.5%
500-999 units	4	9.1%	4	10.0%
1000-5000 units	14	31.8%	5	12.5%
> 5000 units	5	11.4%	8	20.0%
TOTAL	44	100.0%	40	100.0%



* 500, 1K, 5 K thresholds used, as was requested by BMW 2020

2023 Survey Results: Beacons Production trends (By Frequency Channel)

Figure 1: ANNUAL BEACON PRODUCTION TRENDS (all beacon types) BASED ON THE ANNUAL SURVEY RESULTS



2023 Survey Results

Detailed Distribution of 2022 Production

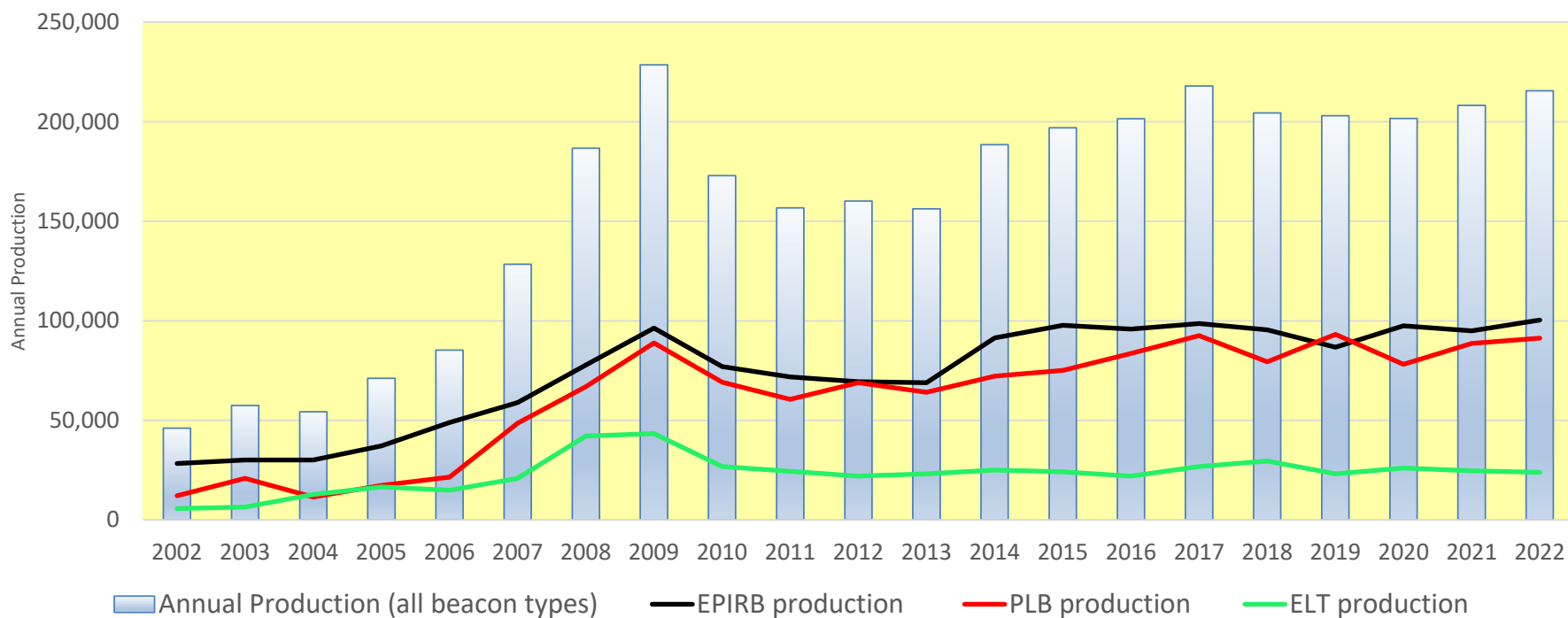
Beacon type	2022	% of Total Beacon Type	% of Global Production Total
	Global Production, units		
Total ELTs, Including:	23,904	100%	11.1%
- ELT(AF)	15,308	64.0%	7.1%
- ELT(AP)	1,015	4.2%	0.5%
- ELT(AD) and ELT(S)	7,581	31.7%	3.5%
- ELT(DT)	0	0.0%	0.0%
Total EPIRBs, including:	100,380	100%	46.6%
- EPIRB Float Free and EPIRB VDR	44,556	44.4%	20.7%
- EPIRB Non-Float Free	55,824	55.6%	25.9%
Total PLBs	91,254	100%	42.3%
Total of Global Production for all beacon types	215,538	100%	100.0%

Beacon manufacturers indicated that in 2022 they produced approximately 10,000 first-generation RLS-enabled beacons, and there was no production of ELT(DT)s or SGBs.

2023 Survey Results

Beacon Production Trends (by beacon type)

Annual Beacon Production Trends by the beacon type



2023 Survey - Location Protocol Beacons

Beacon Type	Production of LP-beacons, units	Ratio of LP-beacons to all beacons produced, %	Ratio to all LP-beacons, %
EPIRBs	80,273	80.0%	42.8%
PLBs	87,043	95.4%	46.4%
ELTs	20,113	84.1%	10.7%
All 406 MHz Beacon Types	187,429	87.0%	100.0%

An estimated aglobal population of about **1,573,000** LP beacons were in use at the end of 2022, which corresponds to 78 % of all beacons deployed worldwide

(76% - in 2021, 73% - in 2020, 70% - in 2019, 63% - in 2018, 59% - in 2017)

Estimated Global Beacon Population

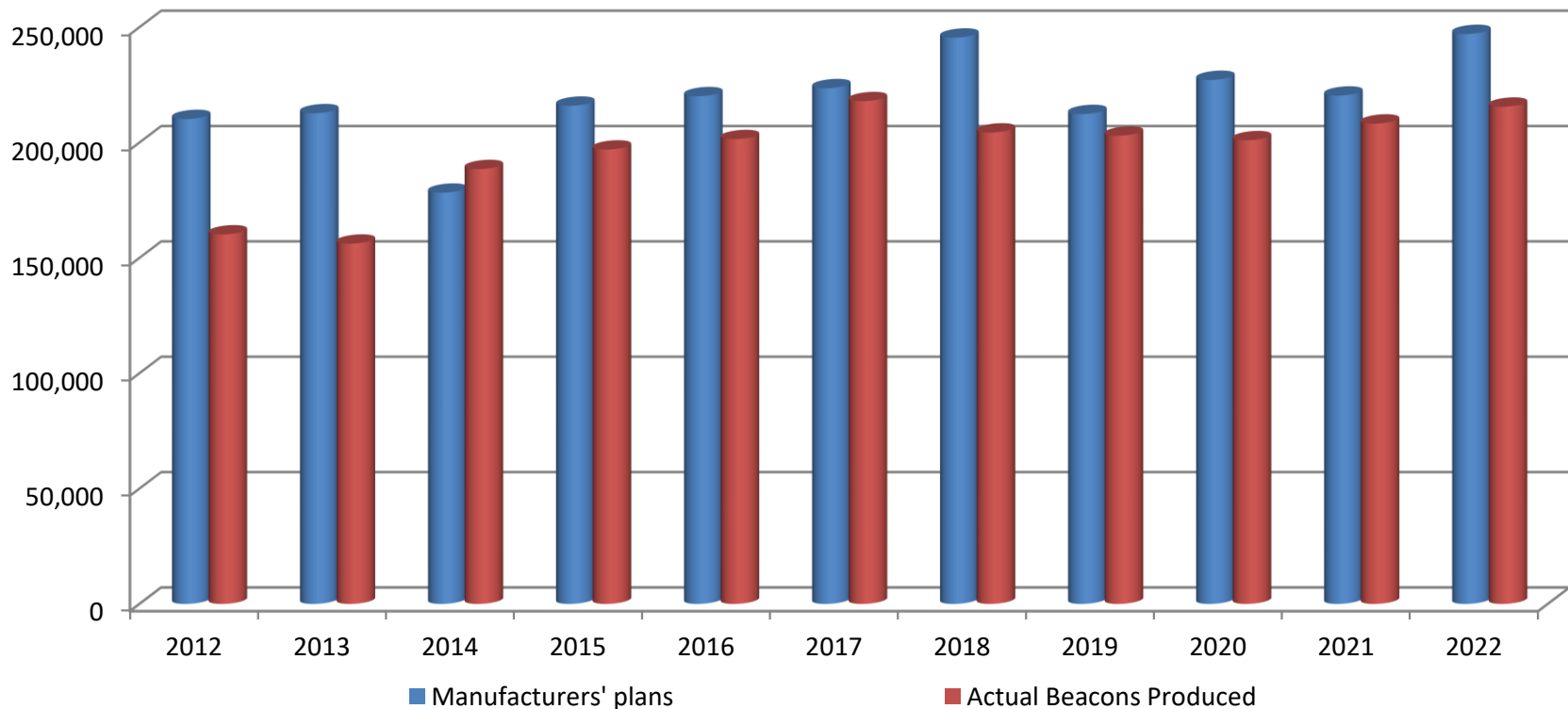
- About **2,006,000** beacons were in use at the end of **2022** (using the assumed-replacement-period estimation method)
- Annual change in global beacon population: **+2.8%**
- Production in 2022(**~215,000**) was higher than in 2012 (**~160,000**)

Beacon Manufacturers' Plans for 2023

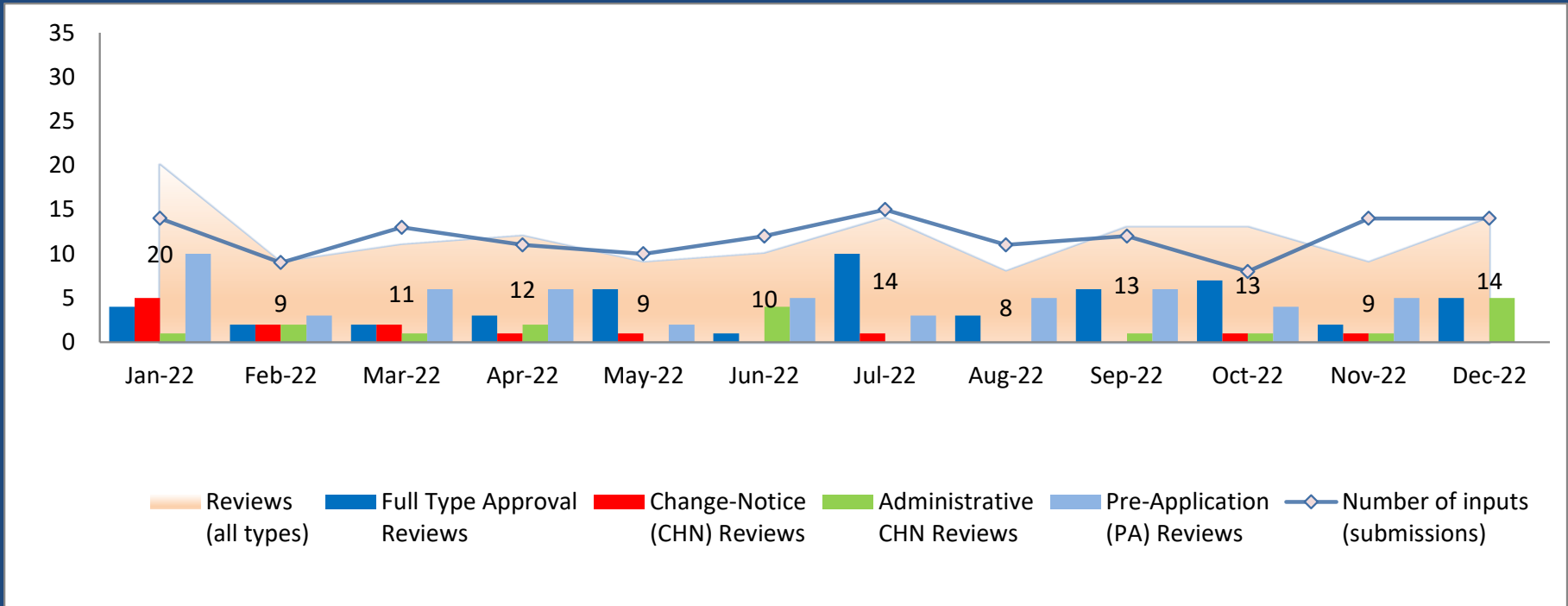
- In 2023, beacon manufacturers plan to produce over **228,400** new beacons (+6% over the actual 2022 production volume), including:
 - 101,400 new EPIRBs,
 - 25,000 new ELTs,
 - 102,000 new PLBs.
- Beacon manufacturers indicated that they plans to produce in 2023 over 27,000 FGB RLS-enabled beacons and about 1000 ELT(DT)s and SGBs.
- Based on the beacon manufacturers plans for **2023**, the estimated global population of 406 MHz beacons at the end of 2023 could reach **2,073,000 units** (using the assumed 10-year in-service-life period).

Comparison of Beacon Manufacturers' Plans vs Actual Annual Production in 2022

Beacon Type	Manufacturers' Plans for 2022	Actual Production in 2022	Actual over Plans Discrepancy, %
All beacon types	247,000	215,500	-14.6%



Type Approval Activity in 2022



In 2022, the Secretariat performed 138 reviews of type-approval submissions, including:

- 14 submission for full type approvals,
- 14 change notices (“technical”) submissions;
- 18 submissions for administrative change notices,
- 53 previews of re-application submissions .

Type Approval Activity in 2022

Type of Type-Approval Applications	Approved Type-Approval (TA) Applications in 2022			
	Number of Approvals Granted	Median Case Duration, Days	Median Number of TA Reviews	Median Response Time, Days
Full type-approval applications(*)	11	141	4	29
Technical Change Notice (CHNs)(*)	4	150	3	31
Administrative CHNs(**)	9	30	1	27
Pre-application			1	17
All types of TA applications	24	134	3	26

NOTES:

* - All full type-approval and some technical CHN applications require review and approval by the Parties (approximately 14 days)

** - Administrative CHN applications do not require review and approval by the Parties

Type Approval Applications - Problems and Issues (1)

- ❑ Incomplete TA application packages and missing technical data from beacon manufacturers:
 - **Description of beacon modes and features (especially for special-use, beacon and beacons with non-standard and novel features)**
 - **battery cell technical data (e.g., self-discharge rate)**
 - **PIE indication (description of PIE criteria)**
 - **TCXO oscillator technical data**
 - **missing information in beacon manual**
 - **missing technical items listed in section 5.1 of C/S T.007**

- ❑ Inconsistency of technical data from beacon manufacturers and test facilities:
 - **Declared number of Self-tests/GNSS Self-tests**
 - **Self-test / GNSS Self-test duration**
 - **P/Ns for the beacon HW, PCB Assembly, SW version , etc.**
 - **Beacon model names**

Type Approval Applications - Problems and Issues (2)

- Type approval issues during testing at test facilities:
 - **Non-compliances observed during TA testing and revealed during TA review**
 - **Deviations from standard test procedures**
 - **Modifications of beacon during TA testing**
 - **Test report problems**
 - **Missing information**

- FAO Secretariat : issues related to type approval standards and TA review procedures
 - **Ambiguity of and a need for clarifications and development**
 - **Lack of test procedures and methodologies (e.g. , test requirements for beacon current measurement)**
 - **Lack of standardised forms for reporting test results**

Type Approval Applications - Pre-application Consultations

- 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

Type Approval Applications - Pre-application Consultations

- Pre –application consultations are highly recommended when:
 - beacons have with novel or non-standard features,
 - beacons are intended for operation on-standard operating scenarios,
 - for special-use beacons to be approved with LoC,
 - beacons with known non-compliances,
 - new beacon types (e.g., SGBs, ELT(DT)s),
 - CHNs applications with modifications that are not covered by Section 6,
 - beacon that are fit with TCXO from new TCXO manufacturer,
 - new beacon manufacturers,
 - in other circumstances, when a pre-test advise and recommendation from the Secretariat are needed.

For more information...

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