INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE EIGHTH MEETING OF THE ASIA/PACIFIC REGIONAL SEARCH AND RESCUE WORK GROUP (APSAR/WG/8)

BANGKOK, THAILAND, 22 – 25 MAY 2023

The views expressed in this Report should be taken as those of the Meeting and not the Organization

Approved by the Meeting
Published by the ICAO Asia and Pacific Office, Bangkok

CONTENTS

APPENDICES

INTRODUCTION

Meeting

1.1 The Eighth Meeting of the Asia/Pacific Regional Search and Rescue Work Group (APSAR/WG/8) was held from 22 to 25 May 2023 at the Kotiate Wing of the ICAO Asia and Pacific Regional Office, Bangkok, Thailand.

Attendance

2.1 There were 60 participants registered for the meeting from 20 Administrations and one international organization including Australia, Brunei Darussalam, Cambodia, China, Hong Kong China, Fiji, France (New Caledonia), India, Indonesia, Japan, Malaysia, Maldives, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, United States of America, Viet Nam, Cospas-Sarsat Programme, and ICAO.

2.1 A list of registered participants is provided at **Appendix A to this report**.

Officers and Regional Office

3.1 Mr. Tai Kit, Head Air Traffic Control Specialist (Search and Rescue/Contingency Planning), Civil Aviation Authority of Singapore presided over the APSAR/WG/8 meeting throughout its duration as Chair.

3.2 Mr. Shane Sumner, Regional Officer ATM/AIM and Mr. Ying Weng Kit, ATM Officer, ICAO Asia/Asia and Pacific Regional Office, were Secretaries for the meeting. They were supported by Dr. Prakayphet Chalayonnawin, Programme Analysis Associate (ATM).

Opening of the Meeting

4.1 Mr. Tai Kit welcomed participants to the meeting as APSAR/WG Chair.

4.2 On behalf of Mr. Tao Ma, Regional Director of the ICAO Asia and Pacific Office, Mr. Shane Sumner welcomed participants to the APSAR/WG/8 meeting.

Documentation and Working Language

5.1 The working language of the meeting and all documentation was English. There were 16 Working Papers (WP), seven Information Papers (IP) and two flimsies considered by the meeting.

5.2 A list of papers is included at **Appendix B to this report**.

5.4 **DISCLAIMER:** The presentation of material in this report does not imply the expression of any opinion whatsoever on the part of ICAO, APANPIRG the ATM Sub-Group of APANPIRG or APSAR/WG concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries

Conclusions, Draft Conclusions, Draft Decisions and Decisions – Definition

6.1 The APSAR/WG recorded its actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

a) **Conclusions** deal with matters of a technical nature relating to regional guidance material for publication on the ICAO Asia/Pacific Regional Office website.

b) **Draft Conclusions** deal with matters that, according to APANPIRG terms of reference, require the attention of States, or action by the ICAO in accordance with established procedures;

c) **Draft Decisions** deal with the matters of concern only to APANPIRG and its contributory bodies; and

d) **Decisions** of the APSAR/WG relate solely to matters dealing with the internal working arrangements of APSAR/WG.

List of Conclusions, Draft Conclusions, Draft Decisions and Decisions

7.1 List of Conclusions

Nil

7.2 List of Draft Conclusions/Draft Decisions

Nil

7.3 List of Decisions

Nil

……

REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

Adoption of Agenda (WP/1)

1.1 The provisional agenda was adopted by the meeting.

Agenda Item 2: Review Outcomes of Related Meetings

Relevant Meetings Outcomes (WP/2)

2.1 The meeting was informed of SAR-related outcomes from:

- The 16th Meeting of the 36th Session of the ICAO Council was held on 18 July 2022.
- The 10th Meeting of the Air Traffic Management Sub-Group of APANPIRG (ATM/SG/10) was held by video teleconference from 17 to 21 October 2022.
- The 33rd Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/33) was held in Bali, Indonesia, from 22 to 24 November 2022.

2.2 Outcomes from the ICAO Council included the adoption of Amendment 48 to Annex 6 Part I, deferring the applicability of its provision for Autonomous Distress Tracking fitment to 1 January 2025. The meeting was informed that this was the second deferral of the applicability of these provision, and that the major aircraft manufacturers had already advanced ADT equipage in readiness for the previous applicability date of 1 January 2023. It was likely that equipped aircraft would soon be flying, and stakeholders needed to prepare for ADT implementation.

2.3 ATM/SG/10 had agreed to the following Conclusions drafted by APSAR/WG/7:

Conclusion ATM/SG/10-12: Checklist of Considerations in Readiness for Autonomous Distress Tracking; and

Conclusion ATM/SG/10-13: Revised Asia/Pacific Regional SAR Plan

2.4 The Checklist of Considerations in Readiness for Autonomous Distress Tracking, and the revised Asia/Pacific Regional SAR Plan, were available on the ICAO Asia/Pacific Regional Office eDocuments web-page at https://www.icao.int/APAC/Pages/eDocs.aspx (ATM tab, Search and Rescue sub-section).

2.5 ATM/SG/10 and APANPIRG/33 had been informed of Secretariat planning for the update of the Asia/Pacific Seamless ANS Plan, which was now intended to be done in 2023. The Seamless ANS Plan included in its element 7.42 the expectation of SAR implementation as a Priority 1 regional performance expectation. The two meetings had also been reminded that due to the lack of a current reporting system the regional implementation status of the performance expectations of the Asia/Pacific Seamless ANS Plan had not been updated.

2.6 In response to a query, the meeting was informed that future development of the Global Air Navigation Plan to include more than the current limited SAR-related Aviation System Block Upgrades (ASBUs) was not yet known. Any new SAR-related ASBUs would be assigned a regional implementation priority in updates of the Seamless ANS Plan. In the absence of such ASBUs, the performance expectations of the Asia/Pacific SAR Plan remained the main priority, together with the Seamless ANS Plan 7.42. The Regional Air Navigation Plan Volume II included the establishment and maintenance of a National Air Navigation Plan (NANP) that supported implementation of the GANP and regional air navigation planning (including specific plans for *inter alia* SAR) among its specific regional requirements.

Outcomes of the ICAO/IMO Joint Working Group Meeting (WP/3)

2.7 USA provided an overview of the outcomes of the Twenty-Ninth Meeting of the ICAO/International Maritime Organization (IMO) Joint Working Group on Harmonization of Aeronautical and Maritime Search and Rescue (ICAO/IMO JWG-SAR), which was held in London, United Kingdom, from 17 to 21 October 2022. It was noted that the Asia/Pacific Regional SAR Plan referenced the value of outcomes from the Joint Working Group.

2.8 JWG 29 had focused on a small set of critical matters:

1. Amendments to the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual;
2. Concerns relating to implementation of autonomous distress tracking of aircraft in flight; and
3. Discussion of how the JWG could assist States in implementing improvements to their SAR services.

2.9 Outcomes from JWG 29 regarding proposed IAMSAR Manual amendments included:

1. update on implementation of the Global Aeronautical Distress and Safety System (GADSS);
2. cooperation between SAR services and accident investigation authorities;
3. guidance on approval of entry into a State’s territory for SAR;
4. guidance on electronic night search;
5. guidance on SAR in windfarms; and
6. content regarding SAR exercises.

2.10 It was noted that the APSAR/WG had a long history of providing submissions to the ICAO/IMO JWG-SAR, as supported by the regional performance expectation in element 7.13 of the Asia/Pacific Regional SAR Plan. The Asia/Pacific Region was represented at JWG-SAR by two aeronautical SAR experts (Australia and Singapore) and three maritime experts (China, New Zealand and USA). Participation in the JWG-SAR by aeronautical and maritime experts from a broad geographical spread was strongly encouraged.

Agenda Item 3: Global Update

ICAO Update on the LADR (WP/4)

3.1 ICAO provided an update on the Location of an Aircraft in Distress Repository (LADR), which would support the Autonomous Distress Tracking (ADT) Standards in Annex 6 Part I. The LADR was intended to meet the requirements for information sharing as part of the Global Aeronautical Distress and Safety System (GADSS). The GADSS concept of operations and the functional specifications for the LADR were available at https://www.icao.int/safety/globaltracking.

3.2 Updated information on the LADR included hosting arrangements, expected availability for testing around mid-2023, and user access through the OPS CTRL directory.

3.3 ICAO would issue a State Letter once a deployment date for the LADR was confirmed. The State Letter would inform States how their Rescue Coordination Centres (RCCs) could subscribe to both OPS CTRL and LADR, and remind them to ensure that Air Navigation Service Providers (ANSPs) and aircraft operators also subscribe.

3.4 Noting that it was important that stakeholders were able to receive data on aircraft potentially in distress, the meeting was informed that the new ICAO Doc 10165 – GADSS Manual should be published later in 2023, and would provide greater detail on how stakeholders would work together using the LADR. Testing later in 2023 and early in 2024 in the North Atlantic (NAT) Region would serve to develop a model for other ICAO Regions.

3.5 ICAO was experiencing difficulty in getting aircraft operators to register their details in the OPS CTRL directory, and there were issues to be managed in the LADR regarding the input of FIRs, and SRRs. However, when subscribed, accessing the LADR should be relatively straightforward, requiring only a simple password-protected log-in on receipt of an ADT notification.

3.6 The ICAO/IMO JWG-SAR had suggested that the LADR design should also include the capability for international SAR Exercises (SAREX) without using the operational LADR. As it was expected there would initially be few ADT activations, stakeholder competency was likely to be lost without the ability for users to practice using the LADR system.

3.7 In response to a query, Cospas-Sarsat informed the meeting that it was anticipated that RCCs could define an area of interest from within which notifications of ADT activations would be received.

3.8 ELT(DT) activation would result in both a notification to the LADR and an alert to the RCC. Other types of ADT that would only send the notification to the LADR were not yet expected to enter widespread global use, and stakeholders should expect to mainly see ELT(DT) notifications/alerts.

3.9 It was also stressed in discussion that there were no fundamental changes to existing SAR alerting and coordination procedures between ATSUs and RCCs complying with the provisions of Annex 11 and Annex 12. Air Traffic Services Units (ATSUs) would receive ADT notifications distributed by the LADR and then take steps to assess the information and notify the RCC, in the same way that other incidental information or reports of in-flight emergencies were handled. Normally an Alert Phase (ALERFA) would be declared pending communication checks and confirmation with the flight crew. ATSU and RCC staff needed to be aware of the new ADT system, its capabilities and limitations.

3.10 In response to a query it was confirmed that the term 'subscribe', when used with reference to the LADR, was intended to indicate the process of gaining authorised access to the LADR through a process of registration, approval and granting of password-protected access. Subscription would be free-of-charge.

Status of the COSPAS-SARSAT Programme (WP/5, SP/1)

3.11 The meeting was provided with a status report on the Cospas-Sarsat system, including system operations, significant developments, space and ground segments, beacons, false alerts, reporting by RCCs on use of the distress alert data provided, and results of Cospas-Sarsat Mission Control Centres (MCCs) – SAR Point of Contact (SPOC) communication tests.

3.12 Since September 1982, the Cospas-Sarsat System has provided assistance in rescuing at least 57,413 persons in 17,663 SAR events (**Figure 1**). The distribution of all SAR events for 2021, the latest year for which statistics had been compiled and reviewed, was 18% for aviation, 45% for land and 37% for maritime (**Figure 2**).

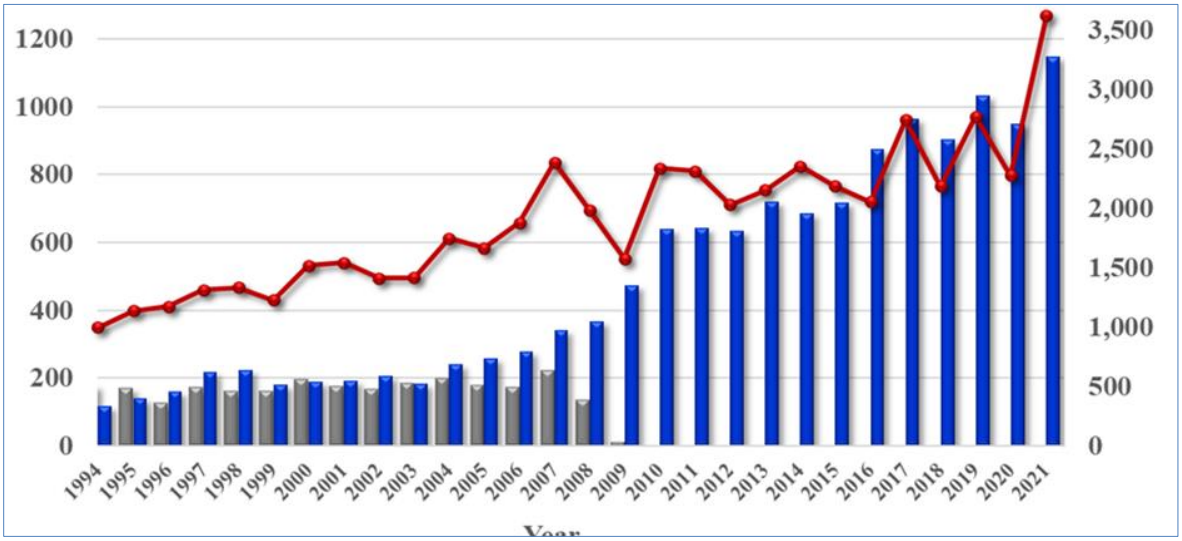

Figure 1: SAR Events with the Assistance of Cospas-Sarsat Data (Jan. 1994 - Dec. 2021)

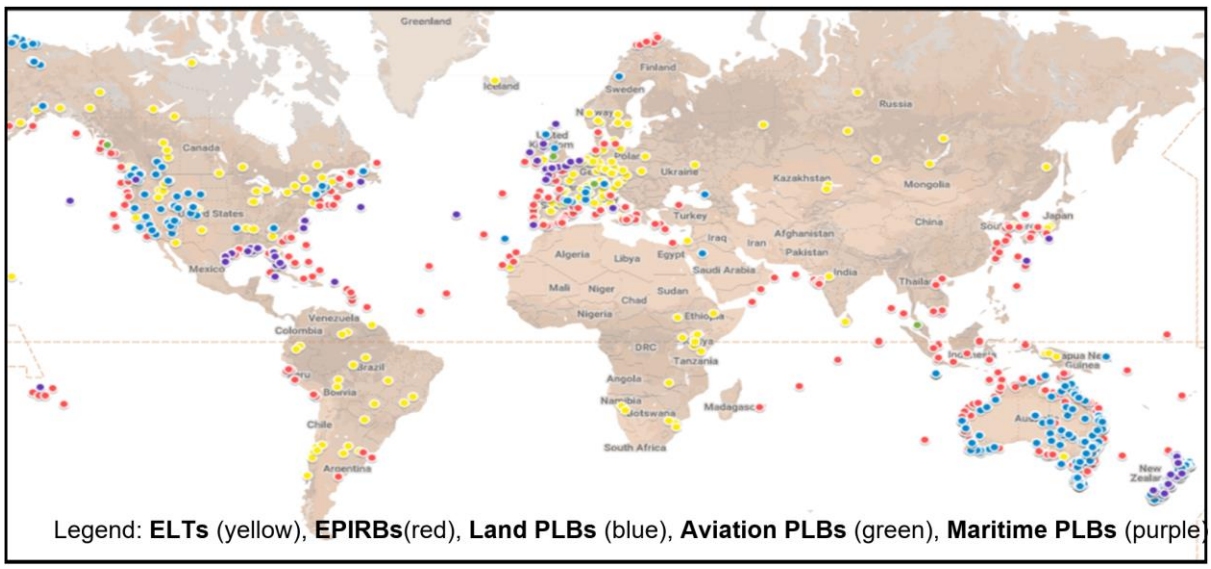

Figure 2: 2021 Geographic Distribution of SAR Events

3.13 Based on estimates made using beacon registration data and the number of activated beacons that had been registered, there were about 2,955,000 Cospas-Sarsat beacons deployed worldwide at the end of 2021 – an increase of about 16% over 2020. It was estimated that more than 75% were equipped with Global Navigation Satellite System (GNSS) receivers, but this number was around 50% for ELTs.

3.14 A new interface to the International Beacon Registration Database (IBRD) had been available from 2022, accommodating the registration of new beacon types such as Emergency Locator Transmitters (Distress Tracking) – ELT(DT)s, and second generation beacons (SGBs). The new IBRD was available at www.406registration.com/.

3.15 Regular testing of communications between MCCs that distributed alerts received from satellites and receiving SPOCs resulted in 19 of 31 operational MCCs reporting results (**Table 1**). Some MCCs did not support SPOCs outside their State and therefore were not required to conduct the tests

	2018	**2019**	**2020**	**2021**	***2022****
Number of SPOCs tested by MCCs	154	161	165	171	*171*
Non-responsive SPOCs (no response to tests)	8.44%	8.70%	7.23%	8.19%	*5.85%*
Rarely responsive SPOCs (less than 20% successful tests)	6.49%	5.59%	6.02%	3.51%	*5.85%*
SPOCs with low success ratio (between 20 and 50% successful tests)	10.39%	9.94%	7.23%	9.94%	*7.0%*
Insufficiently responsive SPOCs	**25.32%**	**24.22%**	**20.48%**	**21.44%**	***18.70%***
Note (*) 2022 information yet to be reviewed by the Cospas-Sarsat Joint Committee in June 2023.					

Table 1: SPOC Communication Test Results (2018 – 2022)

3.16 The Cospas-Sarsat Secretariat held copies of Agreements between MCCs 31 State SPOCs globally. Agreements between MCCs and APAC SPOCs at 15 April 2022 were:

- French MCC – JRCC Tahiti;
- Indian MCC – Nepal CAA;
- Vietnam MCC – Cambodia; and
- Vietnam MCC – Lao PDR

3.17 Cospas-Sarsat encouraged States to enter into agreements or understandings between SPOCs and their supporting MCCs and to provide a copy of such agreements/understandings to the Cospas-Sarsat Secretariat.

3.18 Distress alert messages were now sent by supporting MCCs to Cospas-Sarsat SPOCs in a revised SIT 185 format message, designed for greater clarity. Full details of the new message format could be found in the RCC Handbook, available at:

https://www.cospas-sarsat.int/images/stories/SystemDocs/Current/G007-NOV-29-2022.pdf.

3.19 Information was provided on system enhancements including advancing the MEOSAR system to its next operational phases (being at initial operational capability – IOC – since April 2023), full operational capability for first-generation beacon (FGB) ELT(DT)s from January 2023, focused developments necessary to begin operational phases for SGBs and second-generation ELT(DT)s, and the Return Link Service (RLS) that provided an acknowledgement to the user of a beacon with the RLS feature that the distress signal had been received and located by the system.

3.20 Cospas-Sarsat had begun consideration of the use of two-way communication (TWC) in 406 MHz distress beacon which could provide confirmation of receipt by RCCs of the distress signal, improve situational awareness through provision of additional information, reduce false alarms and allow SAR services to provide communication and guidance to the person in distress. The meeting was informed that the European Commission had been working on TWC for about three years, and next week would present a proposal to the IMO to formalize this functionality. TWC was also being proposed for maritime Emergency Position-Indicating Radio Beacons (EPIRBs).

3.21 It was not clear whether TWC would be a benefit or a challenge for the SAR community. Noting that the use of 121.5 MHz ELTs and Personal Locator Beacons (PLBs) was a national decision, it was outside its control. However, it was important that SAR stakeholders participated due to potential benefits such as tailoring the SAR response according to the information received in TWC. SAR stakeholders wishing to participate in this work could coordinate through their Cospas-Sarsat representative, who would then need to email the Cospas-Sarsat Secretariat. The meeting was reminded that only Cospas-Sarsat participants can join the Cospas-Sarsat Correspondence Working Group on Two-Way Communications. However, it was likely that the outcomes of its discussions would be presented in other ICAO/IMO meetings such as the JWG 30 in November 2023.

3.22 A series of video FAQs was available through the following links:

406.org/en/search-and-rescue/programme-videos-en; and

https://moodle.406.org/

3.23 Production of videos on ELT(DT), the new SIT 185 format message and use of the new IBRD was in progress.

3.24 Regarding the new six-element SIT 185 message format (reduced from 16 elements) the meeting was informed that the implementation of the new format message in MCC-SPOC communications was dependent on when MCCs updated their system software. It was noted that, while training for SPOCs was necessary, the training was very brief and would present no difficulty for RCC staff.

3.25 The meeting was invited to:

- provide details of any existing MCC-SPOC agreements/arrangements;
- note that Cospas-Sarsat had declared the ELT(DT) operational in January 2023;
- consider making advice on management of distress alerts from aircraft in flight available to RCCs; and
- encourage APSAR/WG member States participating in the Cospas-Sarsat Programme to join the Cospas-Sarsat Correspondence Working Group on Two-Way Communications.

GADSS, the ELT(DT), and a Model Template/Letter for Communication with SAR Authorities (WP/6, SP/2)

3.26 Cospas-Sarsat presented information on deployment of ELT(DT)s, developed to support GADSS. Noting the postponement of the ICAO requirement for ADT equipage to 1 January 2025, the meeting was informed that several major aircraft manufacturers had indicated they anticipated delivering aircraft equipped with ELT(DT)s as early as March 2023. Cospas-Sarsat had declared full operational capability (FOC) for ELT(DT)s designed using FGB technology, and work was in progress towards declaring FOC for ELT(DT)s with design based on second-generation beacon technology.

3.27 A model/template letter, intended to provide advice to SPOCs/RCCs for use until such time as LADR became available, was provided in **APSAR/WG/8 WP/6 Attachment 1** for review and revision. The model/template letter as presented in APSAR/WG/8 Flimsy 1 was reviewed by the meeting. Cospas-Sarsat would present the revised model/template letter in **Appendix C to this Report** for consideration by the Cospas-Sarsat 37th Joint Committee Meeting (JC-37) meeting scheduled to be held in May-June 2023.

3.28 In discussion the meeting was informed that ELT(DT)s would activate according to a number of criteria, in most cases requiring a SAR response if not corrected. However, their design had been engineered to have a very low false alarm rate, especially when compared to ELTs. If an ELT(DT) was triggered in flight it was likely to be an authentic alert. The four primary activation triggers were:

- Unusual attitude;
- Unusual speed;
- Collision with terrain or water; or
- Total loss of thrust/propulsion on all engines.

3.29 The minimum specification for criteria used to detect an in-flight aircraft distress event and trigger the transmission of information were available in EUROCAE Doc ED-237.

3.30 Similar to 406 MHz distress beacons, ELT(DT)s were configured to include the ICAO Aircraft Address and the aircraft operator's three-letter designator (3LD) in notifications/alerts and, consequently, in the SIT 185 message. The State of registry of the aircraft was decoded by the Cospas-Sarsat system from the Aircraft Address. ICAO noted that there were cases where aircraft imported to some States did not have their ATC transponder equipment correctly configured with the new Aircraft Address that must be assigned by the State of registry, and that the same issue could therefore potentially apply to 406 MHz distress beacons and ELT(DT)s. This matter could need to be raised at the Workshop on ICAO Aircraft Address and Target Identification in Surveillance Data and Flight Plan, which would be held in Bangkok on 6 June 2023.

Agenda Item 4: Asia/Pacific and Inter-Regional SAR Planning, Coordination and Cooperation

Asia/Pacific Regional Readiness for Autonomous Distress Tracking (WP/7)

4.1 The Secretariat presented the results of a survey of Asia/Pacific regional readiness for ADT, noting that with the expectation that increased numbers of aircraft equipped with ADT devices would potentially become operational from late 2022, and that ADT alerts would be distributed through the Cospas-Sarsat system and the ICAO LADR (when commissioned), there was an urgent need:

- for effort to be made to improve knowledge of GADSS among regulatory, airline, SAR and ANSP stakeholders; and

- to promote development of procedures among them in preparation for the likely appearance of ADT, including ELT(DT) before the end of 2022 and increasingly after the applicability date.

4.2 Noting the outcomes of the GADSS workshop held in conjunction with APSAR/WG/7 in 2022, the meeting was informed of the checklist of considerations for ADT (**APSAR/WG/8 WP/7 Attachment 1**) which had been circulated in State Letter (APAC) AP128/22 (ATM) on 13 September 2022 in order to survey APAC Administrations on their readiness for ADT.

4.3 Responses to the survey (**APSAR/WG/8 WP/7 Attachment 2**) indicated the majority of APAC Administrations were not ready for ADT. The majority had not yet developed procedures for the response to ADT notifications or ELT(DT) alerts, and had not conducted training of relevant SAR, ATS or aircraft operator personnel to understand such notifications and alerts.

4.4 The meeting considered that the survey questions/checklist of considerations was in need of update, particularly in the context of the delayed availability of the LADR.

4.5 There was some discussion of the need for the survey to be recirculated, and the timing of that recirculation. The meeting agreed that a modified survey that did not include an expectation of development of procedures for use of the LADR should be circulated with the dual aims of reminding States of the need to act now to prepare for the receipt of ELT(DT) alerts and notifications, and to gauge any improvement in State readiness for reporting to ATM/SG/11 in October 2023.

4.6 While noting that it was incumbent upon the formal POCs for ICAO correspondence in each State to ensure all stakeholders within the State received relevant State Letters, it was recognized that appropriate internal redistribution often did not occur. ICAO therefore agreed to additionally circulate the State Letter communicating the survey to ATM and SAR POCs identified in the ATM POC List (**APSAR/WG/8 WP/15** referred).

Procedures for Reception and Handling of ADT Notifications Received (WP/8)

4.7 The USA provided guidance and recommended procedures for RCC reception and handling of ADT notifications received from aircraft in flight that may be in distress. It was noted that ICAO considered the ADT device as providing a notification, not a distress alert, initially handled as an Alert Phase unless other information indicated otherwise. The LADR would inform the three key stakeholders, initially by email, about the availability of that information. Stakeholders were expected to access that information in the LADR.

4.8 The ADT device selected by major aircraft manufacturers (Airbus and Boeing) was the ELT(DT), which would send a 406 MHz Cospas-Sarsat-formatted message to the RCC at the same time as it sent an ADT notification to the LADR. The message to the RCC would be clearly titled ELT DISTRESS TRACKING, and would contain required ADT information plus other optional information.

4.9 A number of RCC procedures currently being considered for response to distress messages from an aircraft in flight were provided.

4.10 The USA and ICAO Europe/North Atlantic (EUR/NAT) Regional Office, in coordination with ICAO Headquarters, were developing the NAT Autonomous Distress Tracking Exercise with LADR (NAT DISTREX). The goal was testing of new procedures to be in place for ADT and LADR. The procedures were intended to serve as a model for other ICAO Regional Offices to encourage conducting a similar test.

4.11 In discussing whether ADT alerts would be distributed to the aeronautical RCC, maritime RCC, or both if there was no Joint RCC (JRCC), The meeting was reminded that Annex 12 stipulated that where separate aeronautical and maritime RCCs served the same area, States shall ensure the closest practicable coordination between the centres.

4.12 Cospas-Sarsat informed the meeting that, while an MCC could not distribute ELT and ELT(DT) alerts differently, the MCC could be configured to send all ELT and ELT(DT) alerts to multiple SPOCs. Further, SPOCs associated with any MCC may include ATS units in addition to aeronautical, maritime and joint RCCs. In the context of the unavailability of the LADR it was even more important that the identification of SPOCs for distribution of alerts must be included in formal agreements between MCCs and the State.

4.13 In response to a query it was confirmed that the Annex 6 requirement for fitment of ADT devices from 1 January 2025 only applied to aircraft of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness was first issued on or after 1 January 2024.

Aircraft Electronic Night Search Guidance (WP/9)

4.14 The meeting was informed of guidance developed by Australia to assist RCC personnel when planning night searches by aircraft using Electro-Optic/Infrared (EO/IR) and Night Vision Imaging Systems (NVIS). The guidance was being considered by the ICAO/IMO JWG-SAR for inclusion in the IAMSAR Manual

4.15 The *Aircraft Electronic Night Search Guidance* was provided in **APSAR/WG/8 WP/9 Appendix A**. Its purpose was to provide general guidance for SAR coordinators on electronic night searching by fixed-wing and rotary-wing aircraft using EO/IR and NVIS more broadly, not only for the 'circle search technique'. The guidance was aimed to provide RCC SAR coordinators with updated and improved general guidance to assist with:

- use of aircraft with EO/IR and NVIS capabilities,
- appreciation of the many variables that apply to EO/IR and NVIS aircraft night search operations,
- setting reasonable expectations of what can be achieved with appropriate regard to capability, effectiveness, limitations, and safety considerations, and
- enabling well informed decisions and discussions with aircraft operators and aircrew with an emphasis that, when considering any night search operation, SAR coordinators should be guided by the aircrew's expertise for best use of their aircraft and their individual sensor capability.

4.16 Meeting participants were invited to share the guidance with SAR subject matter experts within APSAR/WG participants' State SAR systems, and to invite those personnel to provide comments and any proposed enhancements for consideration by the ICAO/IMO JWG-SAR, by not later than Friday 8 September 2023, to the ICAO Secretariat or direct to the JWG-SAR.

Activities for Reducing Accidental Activation of ELT (IP/2)

4.17 Japan informed the meeting of activities for reducing accidental activation of ELT. While RCC would be sure to confirm the presence or absence of a flight in an emergency or distress condition, it was difficult to confirm and was therefore a time consuming process. Reducing the number of accidental activations of ELTs was a significant matter. APSAR/WG members were invited to share their experience and discuss what constituted effective and efficient activities.

iPhone Emergency Satellite Communications and Automatic Crash Detection Function – Impact on SAR and ANS Units (WP/10)

4.18 The meeting was provided with an overview of new capabilities on certain smartphones that could impact SAR and ANS units. In 2022 Apple had released a software update to enable its iPhone 14 users to text emergency services when out of cellular and Wi-Fi coverage. Android smartphones would have a similar capability in late 2023.

4.19 The iPhone 14 offered 'emergency SOS' via satellite to send text messages to emergency services, and automatic 'crash detection' using local cellular connection or Wi-Fi calling with an internet connection via the Apple Watch or iPhone.

4.20 The new capabilities in these smartphones and the growing number of commercial satellite systems and devices which could provide the communications network were examples of disruptive communications alerting systems that SAR services would face from new devices that were not properly regulated or interfaced with reliable and standardized message distribution systems. However, SAR services must be adaptable and make use of credible technology used by persons in distress. A good example was that the mobile telephone was often used in coastal waters rather than the internationally established radiotelephone channel 16 VHF-FM.

4.21 The meeting was informed that SAR services must adapt and evolve as new technology offered the potential to improve their performance. However, such technology and devices were often not properly regulated or interfaced with reliable message distribution systems. These new capabilities fell under the responsibility of national authorities to regulate and guide the functional design of the equipment and its operation to provide consistent and common capability for users and to ensure SAR services were not negatively impacted.

4.22 Discussion of this paper revealed a number of experiences, concerns and comments including:

- The existence of the International Emergency Response Coordination Centre, a service provided by Garmin and often operating outside the regulated aeronautical and maritime SAR structure but increasingly interacting with it;
- False alerts caused by phones/personal devices with crash detection functions in cases such as hard landings by light aircraft, violent/rough seas manoeuvring of small boats or jet-skis, motorcycles, amusement park rides
- The historical use of mobile phone detection methods in SAR operations;
- Aeronautical SAR authorities being increasingly contacted to deal with non-aeronautical SAR alerts;
- The need for the aeronautical and maritime SAR communities to not simply ignore the issue, but instead to keep informed of what's coming and plan ahead to work out how to respond, and how to use the new tech capability;
- Global proliferation of the technology and services due to their inexpensive nature and easy accessibility;
- Potentially growing number of 'relay centres' that receive alerts from personal devices and then contact RCCs

4.23 The Secretariat would approach ICAO Headquarters to learn what/whether ICAO global response was being considered. Further information on the ICAO/IMO JWG-SAR's consideration would also be sought. The meeting was invited to submit papers on this topic to APSAR/WG/9 to share experience and propose initiatives.

Outcomes of the Ninth Pacific Search and Rescue (PACSAR) Workshop (IP/3)

4.24 Australia presented the outcomes of the Ninth Pacific Search and Rescue (PACSAR) Workshop, held from 28 February to 03 March 2023 and jointly organized by the Government of Australia, the Pacific Community and the PACSAR Steering Committee with financial support by the Government of Australia, the International Maritime Organization (IMO) and Government of New Zealand. Although PACSAR was sponsored as part of the IMO's Integrated Technical cooperation Program and was established with a focus on improved implementation of maritime SAR Convention requirements in the Pacific, it had evolved to include discussion on the jointly important ICAO Annex 12 aeronautical SAR requirements.

Search and Rescue Exercise – SAREX 2023 - Rescue Coordination Centre, Mumbai – India (IP/4)

4.25 The meeting was informed of the SAREX 2023 conducted by Mumbai RCC, with active participation of all the concerned agencies. The SAREX simulated the loss of a flight SAREX023 from Ahmedabad to Mumbai, and was followed by analysis and discussion to evaluate the preparedness of the RCC and other agencies involved.

Establishment of MMRO Plan in Malaysia (IP/5)

4.26 Malaysia informed the meeting of the successful submission and establishment of the Maritime Mass Rescue Operation (MMRO) Plan by the Malaysia Maritime Enforcement Agency (MMEA) and involving all maritime Rescue Sub Centres (MRSCs), government and the private sector. The meeting was informed of the MMRO Plan objectives, criteria, victim management procedures, domestic and foreign cooperation, and public relations and media management.

4.27 Philippines took the opportunity presented by this paper to thank Malaysia (Civil Aviation Authority and RCC) for their prompt response and dispatch of search teams to assist in a recent search for a missing helicopter.

Malaysia Search and Rescue Update (IP/6)

4.28 Malaysia's update on SAR activities included a SAR administrative list, an update on improvements made in the implementation of six of the performance expectations of the Regional SAR Plan, and updated SPOC details for Malaysia's RCCs and RSCs.

China – Kyrgyz, China – Tajikistan, China – Kazakhstan SAR Agreement (IP/7)

4.29 The meeting was informed that China had signed inter-governmental civil aircraft SAR agreements with Russia, Mongolia, Kazakhstan, Kyrgyzstan and Tajikistan. Agreements with Kyrgyzstan and Tajikistan had been signed in May 2023, and in January 2023 the Kazakhstan Parliament passed a bill approving the agreement that was signed in September 2019. China would continue to seek the signing of such agreements with other neighbouring countries.

Regional Air Navigation Plan Update (WP/11)

4.30 The Secretariat presented an update on the Asia/Pacific Regional Air Navigation Plan (ANP), which was available on the ICAO APAC Regional Office website at:

http://www.icao.int/APAC/Pages/APAC-eANP.aspx

4.31 Proposals for Amendment (PfAs) to the ANP Volume I were necessary to enable the establishment by States of SRRs under the provisions of Annex 12, and required approval by the Council of ICAO. A PfA template was available on the ICAO Asia/Pacific Regional Office website ANP page.

4.32 PfAs concerning SRRs submitted by the following States had been approved by the Council and incorporated in the APAC ANP Vol I:

Lao PDR, Maldives, Nauru, Nepal, Papua New Guinea, Mongolia.

4.33 PfAs that were currently awaiting submission to the Council had been submitted by:

Australia, China (Beijing, Lanzhou, Sanya and Wuhan SRRs), Malaysia (Kuala Lumpur and Kota Kinabulu SRRs), Philippines and Singapore.

4.34 SRR PfAs submitted by the following States required further follow-up or coordination:

New Zealand and Republic of Korea.

4.35 **Figure 3** indicated the status of APAC SRR verification as at May 2023:

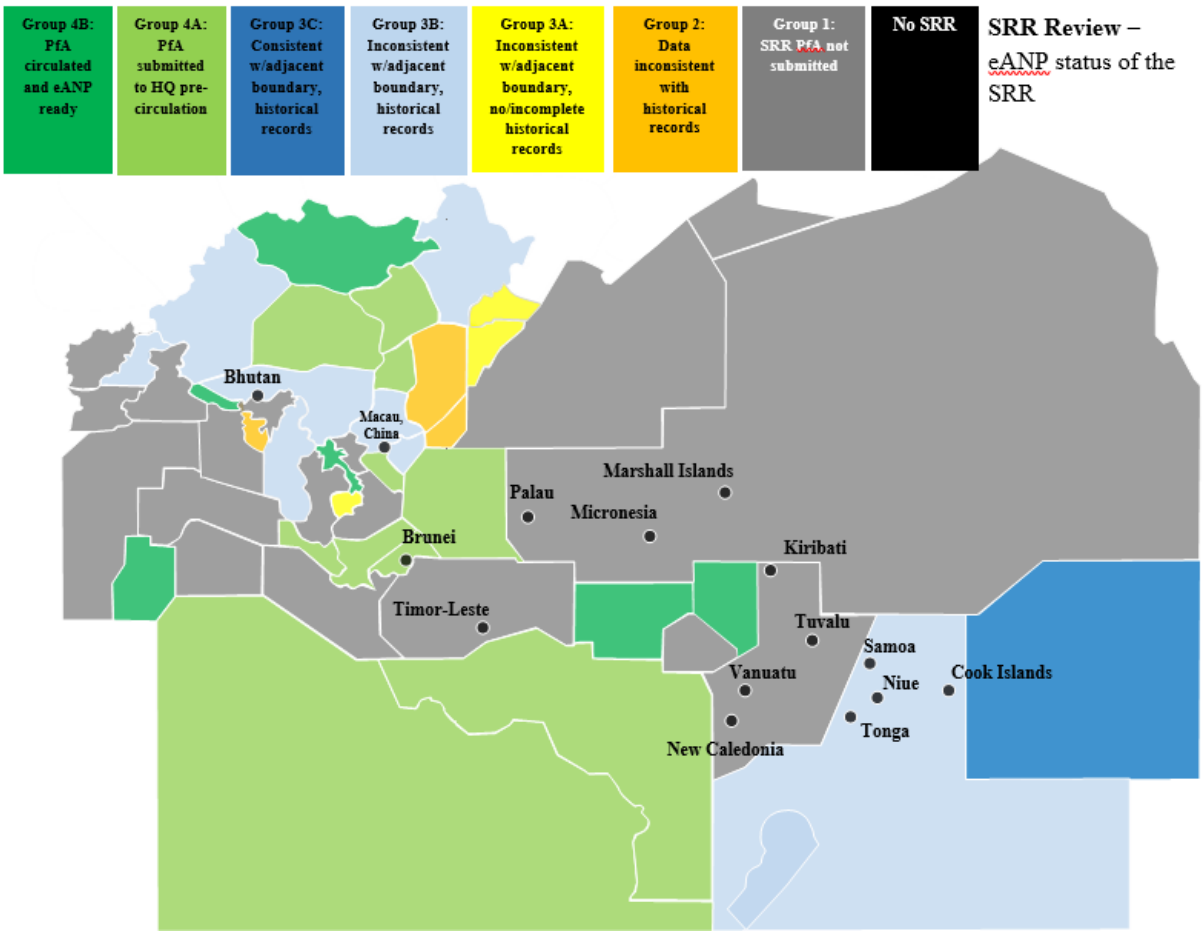

Figure 3: SRR Verification Status, as at May 2023

4.36 In response to a query, the meeting was informed that the distribution of alerts/notifications through the Cospas-Sarsat system was according to MCC service areas, each of which had their own geographical distribution plan. MCCs were encouraged to take SRRs into account when designing their service areas. While not a problem for Cospas-Sarsat, there was a number of overlapping service areas, including in the northern part of the APAC Region. States involved were encouraged to undertake bilateral discussions to resolve overlapping service areas, and report outcomes to the Cospas-Sarsat Secretariat for implementation of the modification. The Cospas-Sarsat system included in principle some degree of overlap in which a 25 kilometre buffer was applied to service areas. The alerts/notifications in these cases were sent to both SPOCS.

4.37 Regarding the distribution of ADT notifications through the LADR, it was understood that the system design may be based on FIR and/or aeronautical SRR data, and that it would consider an 80 nautical mile buffer for sending ADT notifications to its subscribers. Clarification would be sought by the Secretariat.

Regional SAR Status (WP/12)

4.38 The meeting was provided with an update of SAR implementation status in the APAC Region. The ICAO APAC Regional Office maintained records of the information provided from its accredited Administrations regarding SAR status, in order to report to APANPIRG.

4.39 The 2020 revision of the USOAP CMA Protocol Questions (PQs) had resulted in the total number relating to SAR being reduced from 26 to 16.

4.40 An analysis of the revised 16 Universal Safety Oversight Audit Programme (USOAP) SAR-related Protocol Questions in May 2022 indicated that the overall Effective Implementation (EI) for SAR had decreased when compared to the previous assessment. ICAO was still processing the transition of the revised USOAP Protocol questions on the USOAP website to reflect the changes, and the states would have been made aware of any corresponding changes to the PQ results. Regional average EI scores for SAR related PQs for the last four years (2020 and 2021 – 26 PQs, 2022 and 2023 – 16 merged PQs) were:

- May 2020 – 60%
- April 2021 – 59%
- May 2022 – 55%
- May 2023 – 55%

4.41 From the PQ analysis there was still weakness in the major areas of SAR indicated by USOAP:

- CE-3: 7.517 (26%) – [SAR service provider] SAR coordination agreements;
- CE-4: 7.499 (29%) – [SAR regulatory oversight] Implementation of training plan;
- CE-7: 7.505, 7.543 and 7.545 (38%, 47% and 49%) – [SAR regulatory oversight] effective regulatory surveillance oversight of SAR, Detailed Plans of SAR operations and checks that SAR operational personnel have regular training, including the conduct of SAREX; and
- CE-8: 7.507 (38%) – [SAR regulatory oversight and service provider] mechanism to eliminate SAR regulatory deficiencies.

4.42 The current status of SAR Agreements reported to the Regional Office as at 10 May 2022 are indicated in **APSAR/WG/8 WP/12 Attachments C and D**.

4.43 China requested that WP/12 Attachment C (List of SAR Agreements) be revised to delete reference to SAR agreements between China, Macao China and Hong Kong China as these were an internal matter within the State of China, and not international SAR agreements.

4.44 India informed the meeting that it had a requirement for SAR agreements with nine APAC States. Seven of the nine had been approached by India with draft SAR agreements, including one existing agreement for update. However, in some cases progress had been very slow. India requested participating Administrations to expedite the formalization of SAR agreements with India, and to inform India if there were any barriers to progress so as to mutually resolve issues.

4.45 The updated List of SAR Agreements and SAR Agreements Matrix are provided in **Appendices D and E to this Report**.

4.46 **Figure 4** illustrated the overall implementation status of the 41 elements of the Asia/Pacific Regional SAR Plan as at 11 May 2023. The details of each Administration's reported implementation status was provided in **APSAR/WG/8 WP/12 Attachment E**.

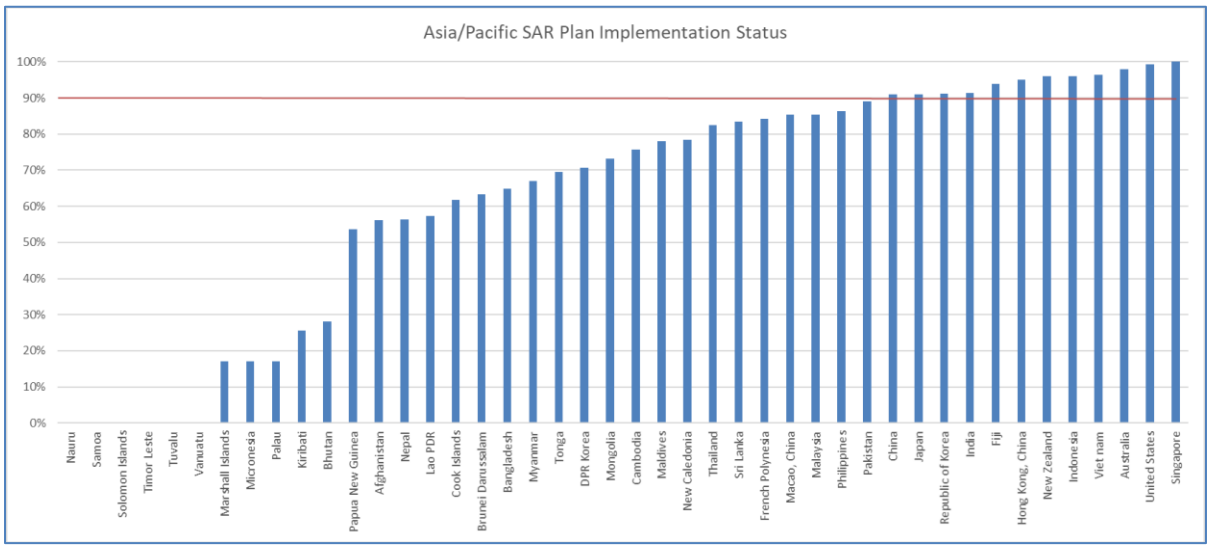

Figure 4: Asia/Pacific SAR Plan Implementation Status as at 11 May 2023

4.47 The Secretariat was requested to consider including in the figure an indication of where improvements in State implementation status had occurred.

4.48 Regional policy[1] established that States below 90% implementation would be considered to have an APANPIRG ANS Deficiency recorded for SAR implementation. There were 12 States/Administrations (no change compared to APSARWG/7) that had reported implementation of 90% or more:

> Australia, China, Hong Kong China, Fiji, India, Indonesia, Japan, New Zealand, Republic of Korea, Singapore, USA and Viet Nam.

[1] Asia/Pacific Air Navigation Plan Volume II Part 1 – General Planning Aspects (GEN) – Specific Regional Requirements

4.49 **Figure 5** provided an overview of reported Asia/Pacific SAR Plan compliance as at May 2023.

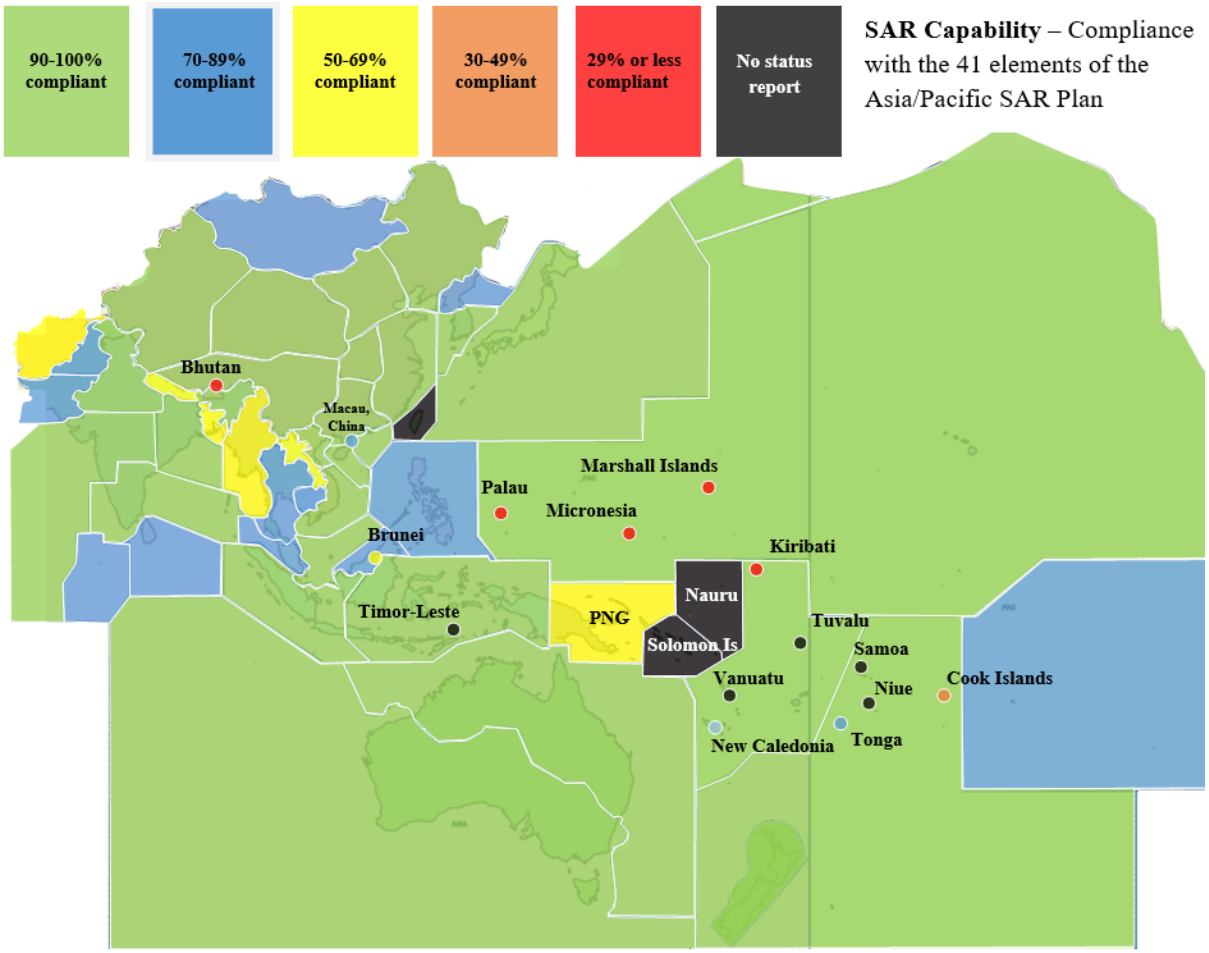

Figure 5: Reported Compliance with the Asia/Pacific SAR Plan, 11 May 2023

4.50 A revised SAR implementation reporting form presented by the Secretariat (**Flimsy 2**), drew the attention of the meeting to element 7.2 i) of the Regional SAR Plan, which had been included in its latest update to version 4.0 in 2022:

> *7.2 All States should:*
>
> *i) establish arrangements for situations where RCCs need to conduct SAR operations (in accordance with Annex 12) at the same time as the accident investigation authority needs to conduct search and recovery operations (in accordance with Annex 13).*

4.51 An associated reporting item was included in the revised SAR implementation reporting form. It was proposed that, while the implementation of this element would be tracked in reports submitted to ICAO, it would not be included in the implementation status scores until 2025, in order to mitigate against the potential reduction of scores in the nearer term.

4.52 In response to a Cospas-Sarsat request that a reporting item for MCC-SPOC formal agreements be included in the form, the meeting was informed that a new performance expectation on this matter may be inserted in the working draft of the next update of the Regional SAR Plan, which was due in 2024, An associated reporting item could then be inserted in the form, subject to formal agreement of the revised SAR Plan by APSAR/WG and ATM/SG.

4.53 Responding to a request for information on how to determine the timing of termination of a SAR operation, the meeting was informed that each case required individual assessment by the RCC and other participating State authorities. The IAMSAR Manual contained some guidance on considerations including, for example, review of the adequacy of the search and search area coverage, and medical advice on survivability.

Agenda Item 5: Asia/Pacific Regional SAR Plan

Asia/Pacific SAR Plan Update (WP/13)

5.1 The Secretariat informed the meeting that the Asia/Pacific SAR Plan Version 4.0, was approved by ATM/SG/10 under ***Conclusion ATM/SG/10-13: Revised Asia/Pacific Regional SAR Plan***, as drafted by APSAR/WG/7. The SAR Plan was available on the ICAO Asia/Pacific Regional Office eDocuments web-page.

5.2 Along with other regional plans that were subsidiary to the Asia/Pacific Seamless ANS Plan, the update cycle of the Asia/Pacific SAR Plan had been revised according to the schedule illustrated in **Figure 6**, as agreed by ATM/SG/10.

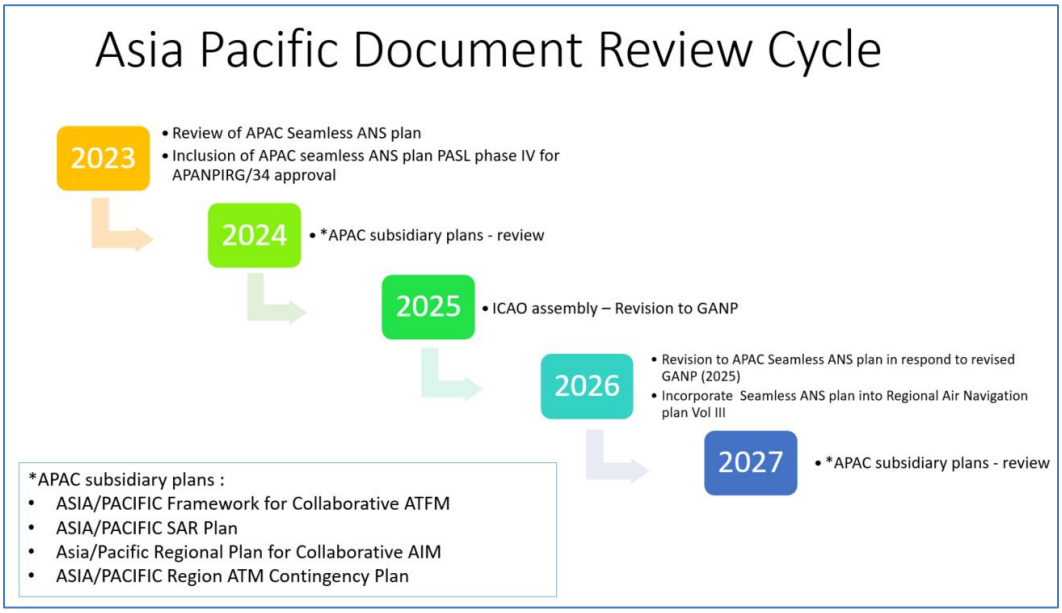

Figure 6: ATM-Related Document Review Cycle

Agenda Item 6: Any Other Business

APANPIRG ATM and Airspace Safety Deficiencies in the SAR Field (WP/14)

6.1 The meeting was informed of the SAR-related ATM and Airspace Safety Deficiencies as updated by APANPIRG/33 in November 2022. Deficiencies were recorded for States that had not reported implementation of 90% or more of the 41 elements of the Regional SAR Plan.

6.2 The following deficiency was deleted from the list by APANPIRG/33:

- SAR Capability
  - Fiji

6.3 There are no deletions proposed for consideration by APSAR/WG/8.

6.4 The following new Deficiency was added to the list by APANPIRG/33:

- Tuvalu

  Tuvalu became a member State of ICAO in 2017. No SAR implementation status reports had been received from Tuvalu.

6.5 Deficiencies remain listed for the following Asia/Pacific Administrations:

Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Macao China, Cook Islands, DPR Korea, French Polynesia, Kiribati, Lao PDR, Malaysia, Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nauru, Nepal, New Caledonia, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Vanuatu.

Aeronautical SAR Contact List (WP/15)

6.6 The consolidated Air Traffic Management Points of Contact (POC) List, including SAR POCs, was circulated to all APSAR/WG/8 meeting participants for review and update of SAR POC details. All Administrations were reminded to inform the ICAO Regional Office if at any time there was a change to their SAR POC/s.

6.7 The list was not to be confused with any listings of SAR Points of Contact (SPOCs) which were used for 24-hour SAR emergency contact purposes associated with RCCs and the Cospas-Sarsat distress beacon system.

Agenda Item 7: APSAR/WG Task List

APSAR/WG Terms of Reference and Task List (WP/16)

7.1 The APSAR/WG Terms of Reference and Task List were presented for review by the meeting.

7.2 The Task List as updated by the meeting is provided in **Appendix F to this Report**.

Agenda Item 8: Date and Venue of Next Meeting

8.1 APSAR/WG/9, potentially including a GADSS workshop, was provisionally expected to be held in the April – June 2024 timeframe. The format of the meeting will be face-to-face. Any State wishing to host the APSAR/WG/9 meeting was invited to contact the Secretariat.

Closing of the meeting

9.1 In closing the meeting the Chairman summarized the positive progress that had been achieved by the meeting and thanked participants for their contributions.

List of Participants

	STATE/NAME		TITLE/ORGANIZATION
1.	**AUSTRALIA (1)**		
	1.	Mr. Scott Constable	Principal Advisor Aviation Policy Australian Maritime Safety Authority **AUSTRALIA**
2.	**BRUNEI DARUSSALAM (2)**		
	2.	Mr. Mohamad Fauzi Mohamad Sidek	Deputy Director of Civil Aviation Department of Civil Aviation Brunei Darussalam **BRUNEI DARUSSALAM**
	3.	Mr. Hafizul Hamid	Search and Rescue Officer/Head of Air Navigation Services Department of Civil Aviation Brunei Darussalam **BRUNEI DARUSSALAM**
3.	**CAMBODIA (3)**		
	4.	Mr. Em Yuthea	Deputy Director General for Technocal State Secretariat of Civil Aviation Cambodia **CAMBODIA**
	5.	Mr. Sieng Seloske	Director of Rescue Coordination Center (RCC) State Secretariat of Civil Aviation Cambodia **CAMBODIA**

	STATE/NAME		TITLE/ORGANIZATION
	6.	Mr. Khun Chantheara	Chief of Search and Rescue, ANS Department State Secretariat of Civil Aviation Cambodia **CAMBODIA**
4.	**CHINA (5)**		
	7.	Ms. Li Xiaomeng	Assistant Office of Air Traffic Regulation Office Civil Aviation Administration of China (CAAC) **CHINA**
	8.	Mr. Peiran Zhu	Engineer Operation Supervisory Center Civil Aviation Administration of China (CAAC) **CHINA**
	9.	Mr. Weijun Pan	Dean of Air Traffic Management College Civil Aviation Flight University of China **CHINA**
	10.	Mr. Ao Liu	Engineer The Second Research Institute of the Civil Aviation Authority of China **CHINA**
	11.	Ms. Guo Chen	Engineer Air Traffic Management Bureau Civil Aviation Administration of China(CAAC) **CHINA**

	STATE/NAME		TITLE/ORGANIZATION
5.	**HONG KONG, CHINA (1)**		
	12.	Mr. Terence KC Chan	Senior Operations Officer Civil Aviation Department **HONG KONG, CHINA**
6.	**FIJI (1)**		
	13.	Mr. Ilimeleki Navula	Controller Standard/SAR Air Traffic Management Fiji Airports **FIJI**
7.	**FRANCE – NEW CALEDONIA (1)**		
	14.	Mr. Pierre Sylvestre-Baron	Head of ATSU/ARSC Direction Générale de l'Aviation Civile (DGAC) **FRANCE**
8.	**INDIA (5)**		
	15.	Mr. Davinder Arora	General Manager (ATM-AIS) Airports Authority of India **INDIA**
	16.	Mr. V. Muruganandam	General Manager (CNS) Airports Authority of India **INDIA**

	STATE/NAME		TITLE/ORGANIZATION
	17.	Mr. Yogendra Kumar Rohilla	Joint General Manager (ATM - AIS & SAR) Airports Authority of India **INDIA**
	18.	Mr. Rajiv Kumar Bansal	Joint General Manager Airports Authority of India **INDIA**
	19.	Sh. Sujay Nilkanth Ingle	MGR (CNS) Airports Authority of India **INDIA**
9.	**INDONESIA (4)**		
	20.	Mr. Ogi Gustira	Inspector of Air Navigation DGCA Indonesia, Directorate of Air Navigation **INDONESIA**
	21.	Mrs. Dessy Christiany	Inspector of Air Navigation DGCA Indonesia, Directorate of Air Navigation **INDONESIA**
	22.	Ms. Neneng Fernandez	DGCA Indonesia, Directorate of Air Navigation **INDONESIA**
	23.	Mr. Rangga Aribowo	SAR Agency **INDONESIA**

	STATE/NAME		TITLE/ORGANIZATION
10.	**JAPAN (2)**		
	24.	Mr. Yoshitaka Oota	Air Traffic Services Flight Information Officer Japan Civil Aviation Bureau **JAPAN**
	25.	Mr. Kohno Momokazu	Manager Japan Civil Aviation Bureau **JAPAN**
11.	**MALAYSIA (7)**		
	26.	Mr. Mani Vannan Ketena Samy	Deputy Director Civil Aviation Authority of Malaysia **MALAYSIA**
	27.	Mr. Mohd Rodzi Bin Salleh	Deputy Director Civil Aviation Authority of Malaysia **MALAYSIA**
	28.	Mr. Muhd Muzaffar bin Mustaffa Johari	Senior Assistant Director Civil Aviation Authority of Malaysia **MALAYSIA**
	29.	Mr. Mohammad Zaini Bin Zainal	Lieutenant Commander Maritime Malaysia Maritime Enforcement Agency **MALAYSIA**

	STATE/NAME		TITLE/ORGANIZATION
	30.	Mrs. Fadilah Yusof	Manager Telekom Malaysia Berhad **MALAYSIA**
	31.	Mr. Muhammad Faiz Noor Izhar	Engineer Advance Air Traffic Systems (M) Sdn. Bhd. **MALAYSIA**
	32.	Ms. Husna Saad	Product Owner Siaga Laboratories Sdn Bhd **MALAYSIA**
12.	**MALDIVES (1)**		
	33.	Mr. Ahmed Mohamed	Manager Search and Rescue (Aeronautical) Maldives Airports Company Ltd **MALDIVES**
13.	**PAKISTAN (2)**		
	34.	Mr. Syed Munawar Ali	A / Additional Director SAR Pakistan Civil Aviation Authority **PAKISTAN**
	35.	Ms. Iffat Semab	Joint Director ATS Pakistan Civil Aviation Authority **PAKISTAN**

	STATE/NAME		TITLE/ORGANIZATION
14.	**PHILIPPINES (1)**		
	36.	Ms. Maria Jazel S. Collada	Asst. Facility-In-Charge for Administration, PARCC Civil Aviation Authority of the Philippines **PHILIPPINES**
15.	**REPUBLIC OF KOREA (4)**		
	37.	Mr. Lee Junho	Assistant Director Ministry of Land, Infrastructure and Transport **REPUBLIC OF KOREA**
	38.	Mr. Shin Jaeho	Assistant Director Ministry of Land, Infrastructure and Transport **REPUBLIC OF KOREA**
	39.	Mr. Yoo Dong-sun	Assistant Director Air Traffic Management Office Ministry of Land, Infrastructure and Transport **REPUBLIC OF KOREA**
	40.	Mr. Shin Hansik	Senior Inspector Korea Coast Guard **REPUBLIC OF KOREA**

	STATE/NAME		TITLE/ORGANIZATION
16.	**SINGAPORE (2)**		
	41.	Mr. Tai Kit	Head ATC Specialist (Search and Rescue/Contingency Planning) Air Traffic Services Division Civil Aviation Authority of Singapore **SINGAPORE**
	42.	Mr. Muhammad Hafidz bin Ja'afar	Master Air Traffic Control Officer (SAR/CP) Civil Aviation Authority of Singapore **SINGAPORE**
17.	**SRI LANKA (1)**		
	43.	Mr. Cecil Kirieldeniya	Senior Manager ATC-SAR Airport & Aviation Services (Sri Lanka) Ltd **SRI LANKA**
18.	**THAILAND (7)**		
	44.	Ms. Chalinthra Thanakankorn	Head of Search and Rescue Oversight Standards Division The Civil Aviation Authority of Thailand **THAILAND**
	45.	Mr. Thanakorn Eiampan	Search and Rescue Oversight Standards Division Officer The Civil Aviation Authority of Thailand **THAILAND**

	STATE/NAME		TITLE/ORGANIZATION
	46.	Ms. Chaninan Ninpech	Search and Rescue Oversight Standards Division Officer The Civil Aviation Authority of Thailand **THAILAND**
	47.	Mr. Punlop Sungsillert	Chief of Technical and Standard Group Office of of the Search and Rescue Comission Ministry of Transport **THAILAND**
	48.	Ms. Phojchanee Saelim	Transport Technical Officer, Practitioner Level Office of the Search and Rescue Commission **THAILAND**
	49.	Ms. Awassada Phopratab	Transport Technical Officer Office of the Search and Rescue Commission **THAILAND**
	50.	Ms. Phattaraporn Sarikkha	Transport Technical Officer, Practitioner Level Office of the Search and Rescue Commission **THAILAND**
19.	**UNITED STATES OF AMERICA (1)**		
	51.	Mr. David Edwards	U.S. Coast Guard – Search and Rescue United States Coast Guard **UNITED STATES OF AMERICA**

	STATE/NAME		TITLE/ORGANIZATION
20.	**VIET NAM (4)**		
	52.	Mr. Nguyen Dinh Cong	Deputy General Director Vietnam Air Traffic Management Corporation (VATM) **VIET NAM**
	53.	Mr. Duong Van Khe	Director of Aviation Rescue Coordination Centre Vietnam Air Traffic Management Corporation (VATM) **VIET NAM**
	54.	Mr. Nguyen Nang Khanh	Chief of Northern Rescue Coordination Centre – ARCC **VIET NAM**
	55.	Mr. Hong Tran	Emergency Response Vietnam Airlines **VIET NAM**
21.	**COSPAS-SARSAT PROGRAMME (1)**		
	56.	Mr. Arnaud Sindou	Operation Officer International Cospas-Sarsat Programme **CANADA**

	STATE/NAME		TITLE/ORGANIZATION
22.	**ICAO (4)**		
	57.	Mr. Shane Sumner	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**
	58.	Mr. Hiroyuki Takata	Regional Officer, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**
	59.	Mr. Weng Kit Ying	Air Traffic Management Officer ICAO Asia and Pacific Regional Office **THAILAND**
	60.	Dr. Prakayphet Chalayonnawin	Programme Analysis Associate, Air Traffic Management ICAO Asia and Pacific Regional Office **THAILAND**

– – – – – – – – – – – – – –

LIST OF WORKING PAPERS AND INFORMATION PAPERS

WORKING PAPERS

NUMBER	AGENDA	TITLE	PRESENTED BY
WP/1	1	Provisional Agenda	Secretariat
WP/2	2	Relevant Meetings Outcomes	Secretariat
WP/3	2	Outcomes of the ICAO/IMO Joint Working Group Meeting	USA
WP/4	3	ICAO Update on LADR	Secretariat
WP/5	3	Status of the Cospas-Sarsat Programme	Cospas-Sarsat
WP/6	3	GADSS, the ELT(DT, and a Model/Template Letter for Communication with SAR Authorities	Cospas-Sarsat
WP/7	4	Asia/Pacific Regional Readiness for Autonomous Distress Tracking	Secretariat
WP/8	4	Procedures for Reception and Handling of ADT Alerts Received.	USA
WP/9	4	Aircraft Electronic Night Search Guidance	Australia
WP/10	4	iPhone 14 Emergency Satellite Communications and Automatic Crash Detection Function – Impact on SAR and ANS Units	USA
WP/11	4	Regional Air Navigation Plan Update	Secretariat
WP/12	4	Regional SAR Status	Secretariat
WP/13	5	Asia/Pacific SAR Plan Update	Secretariat
WP/14	6	APANPIRG ATM and Airspace Safety Deficiencies in the SAR Field	Secretariat
WP/15	6	Aeronautical SAR Contact List	Secretariat
WP/16	7	APSAR/WG Terms of Reference and Task List	Secretariat

INFORMATION PAPERS

NUMBER	AGENDA	TITLE	PRESENTED BY
IP/1	-	Provisional List of Working Papers and Information Papers	Secretariat
IP/2	4	Activities for Reducing Accidental Activation of ELT	Japan
IP/3	4	Outcomes of the Ninth Pacific Search and Rescue (PACSAR) Workshop	Australia
IP/4	4	Search and Rescue Exercise – SAREX 2023 (Rescue Coordination Centre, Mumbai – India)	India
IP/5	4	Establishment of MMRO Plan in Malaysia	Malaysia
IP/6	4	Malaysia Search and Rescue Update	Malaysia
IP/7	4	China – Kyrgyz, China – Tajikistan, China – Kazakhstan SAR Agreement	China

PRESENTATIONS

NUMBER	AGENDA	TITLE	PRESENTED BY
SP/1	3	(WP/5) Status of the Cospas-Sarsat Programme	Cospas-Sarsat
SP/2	3	(WP/6) GADSS, the ELT(DT), and a Model/Template Letter for Communication with SAR Authorities	Cospas-Sarsat

FLIMSIES

NUMBER	AGENDA	TITLE	PRESENTED BY
Flimsy 1	-	Review Feedback - Cospas-Sarsat MCC-SPOC Letter Template	Secretariat
Flimsy 2	-	Regional SAR Plan Monitoring and Reporting Form	Secretariat

……

MODEL/TEMPLATE LETTER

Advice to SPOCs/RCCs for Use Until Such Time as the LADR Becomes Available [to be reviewed at the 37th Session of the Cospas-Sarsat Joint Committee]

ELT(DT) information distribution management

This document provides guidance for the position information distribution management of ELT(DT)s in the absence of the Location of an Aircraft in Distress Repository (LADR), to comply with the ICAO SARPs related to the location of an aircraft in distress through Autonomous Distress Tracking (ADT).

At the time this document was developed, the LADR was under development and not yet ready to accept position information from an ADT device transmitting from an aircraft in distress and notify the appropriate subscribers.

As of 1 January 2023, Cospas-Sarsat declared readiness to operationally process and distribute data from a new beacon type, the ELT(DT). This ELT for Distress Tracking (DT) was specifically developed to support new ICAO Standards as part of its GADSS initiative.

ELT(DT)s are designed to be activated, either automatically or manually, while the aircraft is still in flight. As with all Cospas-Sarsat alerts, ELT(DT) messages shall be distributed directly to SAR authorities by MCCs in accordance with document C/S A.001 section 3.2.3.2.2. An ELT (DT) alert is triggered when an aircraft in-flight enters a state which, if no corrections are made to return that aircraft to a safe flight state, an accident is likely to occur.

An ELT(DT) may be designed using either a First-Generation Beacon (FGB) technology, per document C/S T.001, or as a Second-Generation Beacon (SGB) technology, per document C/S T.018. Currently, all operational beacons are FGBs.

Major aircraft manufacturers have indicated they anticipate delivering aircraft equipped with ELT(DT)s during 2023. However, the planned ICAO LADR, currently being developed by EUROCONTROL is not expected to be available before early 2024. As a result, there will be a number of months during which aircraft will be flying with ELT(DT)s, but the LADR, into which data from ELT(DT)s (and any other ADT devices) is to be submitted for access by air traffic service providers, aircraft operators, rescue coordination centres and other interested parties, will be unavailable.

When the LADR becomes available, Cospas-Sarsat will place data from each ELT(DT) transmission there and continue to alert SPOCs and RCCs directly (as shown in Figure 1).

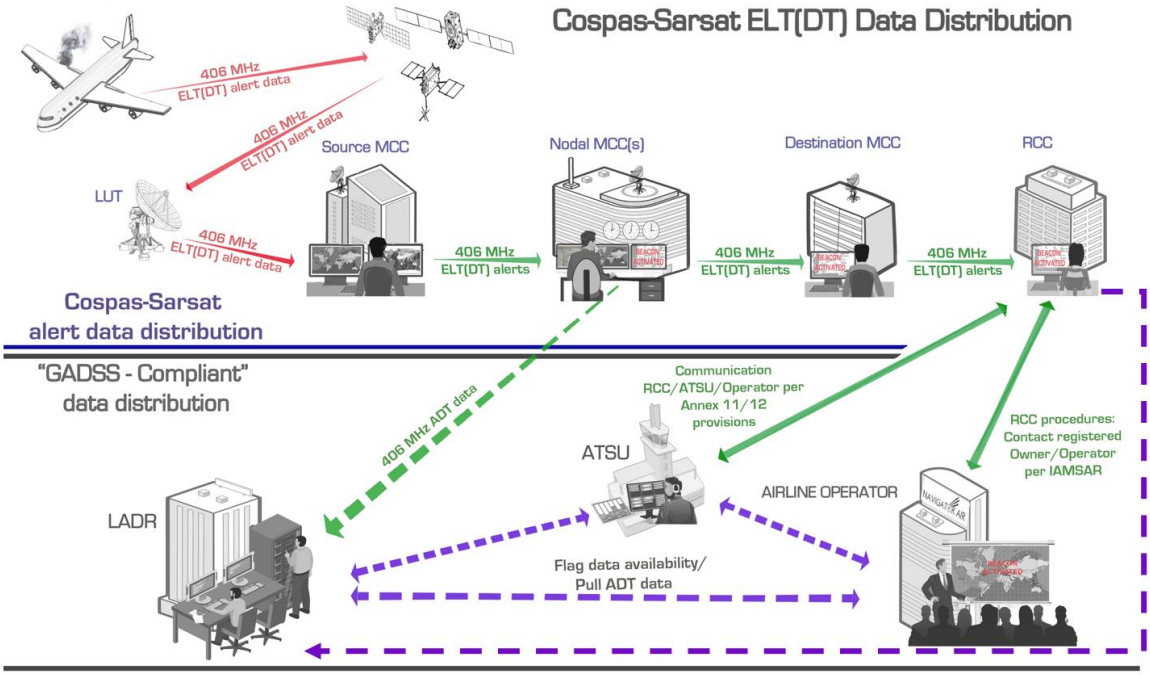

Figure 1: ELT(DT) data will be automatically distributed to designated SAR authorities (i.e., SPOCs), as well as placed in the future in the ICAO LADR, where it will be made available to ATS units, Operators and RCCs that have subscribed to the LADR.

Until the LADR becomes available, search and rescue (SAR) authorities should consider developing procedures with their partner Air Traffic Services Units (ATSU) to appropriately respond to distress messages emanating from ELT(DT)s from an aircraft still in flight. Such procedures should align with any existing procedures that deal with the coordination of in-flight emergencies between ATSUs and RCCs.

As a basis for further development, proposed SPOC/RCC actions to be taken after receipt of a SIT 185 message[1] from an ELT(DT) could include the following:

1. Note that the SIT 185 message reports the detection of a signal from the new beacon type, the ELT(DT); Paragraph 1 of the SIT 185 message contains "DISTRESS TRACKING" and Paragraph 3 clearly identifies the source of the message as "ELT DISTRESS TRACKING".

2. Study the basic event information provided in the ELT(DT) SIT 185 message:

   a. Paragraph 3 will provide the State of Registry of the aircraft decoded from the ICAO 24-bit address, and the operator, both contained in the beacon message,

   b. Paragraph 4 will provide the aircraft position.

3. Contact the appropriate ATS unit(s) and the operator per ICAO Annexes 11 and 12 to exchange further information about the possible (or confirmed) distress event. The contact information for both ATS unit and operator should be available within the new Ops Control Directory2 and/or listed in the RCC documentation and plans.

[1] The SIT 185 paragraph numbers and labels referenced apply to the recently agreed new format for SIT 185 messages. These may not apply if your supporting MCC has not yet adopted the new format.
[2] ICAO has not yet provided access to the Ops Control Directory to RCCs.

4. If necessary, request that the sending MCC send more of the data stored at the MCC level for the beacon event[1], to allow tracking of the flight using all (or more) of the information transmitted by the ELT(DT).

5. Contact your supporting MCC for any necessary clarifications about the content of a SIT 185 message.

6. Prepare for a SAR operation, while monitoring incoming messages for a possible cancellation message (in a SIT 185 Cancellation Message, Paragraph 1 contains "DISTRESS TRACKING COSPAS-SARSAT USER CANCELLATION ALERT").

In 2023, some MCCs will not yet be ELT(DT)-capable (or are backed up by an MCC that is not yet ELT(DT)-capable). Their supported SPOCs and RCCs may receive SIT 185 messages from an ELT(DT) detection that indicate "DATA DECODED FROM THE BEACON MESSAGE IS NOT RELIABLE"). If such a message originates from an FGB ELT(DT), any associated "Doppler positions" are likely to be unreliable due to the rapid aircraft motion. Only on rare occasions would it be expected that for an aircraft still in flight this Doppler information might be useful to SAR efforts. In a SIT 185 message for an ELT(DT) on a moving aircraft the "GNSS position" (new term) or "Encoded position" (legacy term) is the one that should be relied on. Note that the "GNSS" or "Encoded" position is not provided in a SIT 185 message that indicates "DATA DECODED FROM THE BEACON MESSAGE IS NOT RELIABLE".

The 15-digit Hex ID in the SIT 185 message may be decoded using an appropriate tool (e.g., http://cospas-sarsat.int/en/beacons-pro/beacon-message-decode-program-txsep/beacon-decode-2019) to help determine if the unreliable beacon message is associated with an FGB ELT(DT). In addition, a properly-upgraded nodal MCC associated with your supporting MCC may send a corresponding alert for the same Hex ID[2] (as forwarded by your supporting MCC), which could provide corroboration for an apparent FGB ELT(DT) message.

Further guidance for SPOCs/RCCs on ELT(DT)s, including sample messages, is available in the Cospas-Sarsat RCC Handbook at https://www.cospas-sarsat.int/en/documents-pro/system-documents.

…….

[1] By design, MCCs will distribute data to distress/SAR authorities for each ELT(DT) burst received within the first 30 seconds after activation, then will transmit a message only every 10 minutes thereafter. Once the LADR is available, SAR authorities generally should not need to request additional data from the sending MCC, since the LADR will contain data on every ELT(DT) transmission.

[2] When comparing the two Hex IDs you should compare only the first 11 characters. To compare the 11th character of the two Hex IDs, change the 11th character of each respective HEX ID to "0" if it is in the range of 0 to 7, and otherwise change it to "1". The first 11 characters of the two HEX IDs will match if they are associated with the same FGB ELT(DT). Contact your supporting MCC for guidance of matching the two Hex IDs.

SAR AGREEMENTS LIST

Updated: 25 May 2023

DATE	STATES	REMARKS
14 April 1972	ASEAN States – Indonesia, Malaysia, Philippines, Singapore and Thailand	Multilateral agreement
March 1997	ASEAN – Viet Nam	Viet Nam accession to 1972 ASEAN Agreement (as above)
August/Sept. 2004	Australia/Fiji	
November 1990	Australia / Indonesia	Updated 5 April 2004
April 2006	Australia / Maldives	Letter of Arrangement
2 April 2009	Australia / New Zealand	Notified 2013
February 2001	Australia / Papua New Guinea	
29 July 1999	Australia / New Caledonia	Maritime Arrangement for SAR Cooperation
8 October 1998	Australia / Solomon Islands	SAR Arrangement
29 April 2014	Australia/Sri Lanka	SAR Arrangement
16 December 1998	Brunei Darussalam / Malaysia	
22 December 2009	Bhutan / India	SAR Arrangement
February 1999	Cambodia / Viet Nam	Updated in 2009
11 September 2019	China/Kazakhstan	Agreement signed 2019. Approved by Kazakhstan Parliament 12 January 2023
May 2023	China/Kyrgyzstan	
May 2023	China/Tajikistan	
1 June 2009	Chile / New Zealand	SAR services coordination
16 May 2007	China / Republic of Korea	
notified 2003	China / United States	
Signed 25 Oct 2013	China/Mongolia	
20 July 2017	Cook Islands / New Zealand	Notified 3 August 2017
20 May 2021	Fiji / New Caledonia	LoA with Fiji RCC has been signed (Annex D of General LoA between France (New Caledonia) DAC-NC and Fiji Airports) in March 1st 2019, revised on May 20th 2021, version 2.5
12 December 2022	Fiji / New Zealand	Updated 12 December 2022 to align the New Zealand SRR boundary with the Auckland Oceanic FIR boundary.
June 1982	Indonesia / Singapore	
1990	Indonesia / Papua New Guinea	JBC MOU signed
25 August 1986	Indonesia / Philippines	
24 January 2018	Indonesia/Sri Lanka	MOU
1988, July 2006	Indonesia / United States	SAR Services Agreement
17 March 2010	Japan/Philippines	SAR Agreement
30 April 2008	Japan / Republic of Korea	
1986	Japan / United States	
1998	Lao PDR / Vietnam	Updated in 2009
05 March 2013	Lao PDR/Myanmar	

DATE	STATES	REMARKS
13 July 2019	Lao PDR/Thailand	
29 August 1985	Malaysia / Indonesia	
9 December 1985	Malaysia / Philippines	
11 August 1984	Malaysia / Singapore	
9 September 1985	Malaysia / Thailand	
25 June 2014	Maldives/Sri Lanka	
notified 2003	Marshall Islands / United States	
notified 2003	Micronesia / United States	
11 April 2008	Mongolia/Russian Federation	
22 May 2002	New Caledonia / New Zealand	
notified July 2007	New Zealand/Niue	Government aid agreement
20 August 2003	New Zealand / Samoa	Notified 2005
Notified July 2007	New Zealand/Tokelau	Government aid agreement
17 June 2005	New Zealand / Tonga	
16 April 2003	New Zealand / United States	
26 November 2002	Palau / United States	
July 1996	Philippines / Singapore	
20 September 1996	Philippines / Viet Nam	Updated 2015
30 July 2021	Philippines / United States	
September 1985	Singapore / Thailand	Updated July 1996
July 1996	Singapore / Viet Nam	

SAR LOA Matrix Date Last Amended: 25 May 2023 (✓ = SAR Agreement notified, blank cell = SAR Agreement not notified)

Administration	Afghanistan	Australia	Bangladesh	Bhutan	Brunei	Cambodia	China	Hong Kong China	Macao China	Cook Islands	DPR Korea	Fiji	French Polynesia	India	Indonesia	Japan	Kiribati	Lao PDR	Malaysia	Maldives	Marshall Is	Micronesia	Mongolia	Myanmar	Nauru	Nepal	New Caledonia	New Zealand	Niue (NZ)	Pakistan	Palau	PNG	Philippines	ROK	Samoa	Singapore	Solomon Is	Sri Lanka	Thailand	Timor Leste	Tonga	Tuvalu	Vanuatu	Viet Nam	USA
Afghanistan 0%																																													
Australia 88%												✓			✓					✓								✓				✓				✓	✓								
Bangladesh 0%																																													
Bhutan 50%														✓																																
Brunei 100%																			✓																										
Cambodia 33%																																												✓	
China[1] 38%								✓	✓														✓											✓											✓
Hong Kong, Ch 50%							✓																																					
Macao, China 100%							✓																																					
Cook Islands 25%																												✓																
DPR Korea 0%																																												
Fiji 30%		✓																									✓	✓																
Fr. Polynesia 0%																																												
India 11%				✓																																								
Indonesia 91%		✓																	✓												✓	✓			✓		✓	✓	✓				✓	✓
Japan 60%																																✓	✓										✓
Kiribati 0%																																												
Lao PDR 60%																								✓														✓					✓	
Malaysia 63%					✓										✓																	✓			✓			✓					-	
Maldives 67%		✓																																				✓						
Marshall Is. 100%																																												✓
Micronesia 100%																																												✓
Mongolia 100%							✓																																					
Myanmar 17%																		✓																											
Nauru 0%																																												
Nepal 0%																																												
New Caledonia 67%												✓																✓																
New Zealand[2] 89%		✓								✓																	✓		✓						✓					✓				✓
Niue 25%																												✓																
Pakistan 0%																																												
Palau 100%																																												✓
PNG 50%		✓													✓																													
Philippines 78%															✓	✓			✓																	✓			✓					✓	✓
ROK 67%							✓									✓																												
Samoa 17%																												✓																
Singapore 100%															✓				✓															✓						✓				✓	
Solomon Is. 33%		✓																																										
Sri Lanka 75%		✓													✓					✓																									
Thailand 75%															✓			✓	✓															✓			✓							✓	
Timor-Leste 50%															✓																														
Tonga 25%																												✓																
Tuvalu 0%																																													
Vanuatu 0%																																													
USA[3] 50%							✓								✓	✓					✓	✓						✓			✓		✓											
Viet Nam 75%						✓									✓			✓	-														✓			✓			✓					

[1] Also has ~~an agreement~~ agreements with Kazakhstan, Kyrgyzstan and Tajikistan.
[2] Also has an agreement with the Tokelau Islands and a SAR agreement with SAM State Chile
[3] Includes American Samoa, Guam, Johnston, Kingman, Midway, Mariana, Palmyra, Wake

APSAR/WG - TASK LIST

(Last amended APSAR/WG/8, 25 May 2023)

ID	Task Description	Start Date	Expected Finish Date	Resource Names/Remarks
4/2	ICAO requested that States monitor and report the effectiveness of their false alert education programmes.	May 2019	On-going	All APAC States Updated to 'ongoing' at APSAR/WG/6
4/6	~~China and~~ Nepal ~~were~~ was requested to provide more detailed analysis of the investigations into ELT non-activation problems in mountainous and high terrain areas.	May 2019	Closed	~~China and~~ Nepal APSAR/WG/6 – update: there was insufficient data so far available to progress this task. Future update to be provided.
5/1	Cospas-Sarsat requested States to provide feedback on notifications about system developments; a) provide feedback on the Cospas-Sarsat Video Library; b) participate in the development of modifications to distress alert message format; and c) provide details of any existing MCC-SPOC agreements/arrangements, and proposals for improving MCC-SPOC communications during tests and real alerts. d) provide feedback to Cospas-Sarsat on the status of the registration systems that were maintained by individual States (prev task 4/1)	APSAR/WG/5	Ongoing	APSAR/WG/4 Task 4/1 APSAR/WG/5/WP03 – APAC States APSAR/WG/6 WP/05 –APAC States APSAR/WG/7 WP/04 – APAC States APSAR/WG/8 WP/5 – APAC States Cospas-Sarsat has copies of only ~~three~~ four agreements between relevant MCCs and APAC RCCs/SPOCs (Tahiti, Nepal, Cambodia, Lao PDR)
5/2	States to use **APSAR/WG/6 WP/04 Attachment A** (the International Maritime Organisation's IMO Interim Guidance for SAR Services Regarding Implementation of Autonomous Distress Tracking of Aircraft in Flight) as a means to have their aeronautical and maritime SAR services coordinate to develop national and regional response procedures for ADT	APSAR/WG/5	Closed	APSAR/WG/6/WP04 – APAC States

ID	Task Description	Start Date	Expected Finish Date	Resource Names/Remarks
6/1	Adapt ADT Implementation Guidance from APSAR/WG/6 WP/04 Attachment A for inclusion in updated Regional SAR Plan	APSAR/WG/6	Completed	APSAR/WG/6 WP/04 – USA APSAR/WG/7: incorporated in Revised SAR Plan at Appendix E to the Report Also to be considered for inclusion in checklist of items for consideration under Action Item 7/5
6/2	Develop a generic version of the MOU between the SAR Service and the Accident Investigation Authority for inclusion in updated Regional SAR Plan	APSAR/WG/6	Completed	APSAR/WG/6 WP/09 – Australia, Singapore, USA (includes WP to ICAO/IMO JWG September 2021 to seek input). APSAR/WG/7: incorporated in Revised SAR Plan at Appendix E to the Report
6/3	2022 Update of Regional SAR Plan	APSAR/WG/6	Completed	APSAR/WG/6 WP/10 – Australia, Singapore, USA, coordinated by ICAO Regional Office, including coordination with other ICAO Regions for updated SAR plans. APSAR/WG/7: Completed apart from residual action item 7/6
7/1	Provide feedback to Cospas-Sarsat by not later than 03 June 2022 on the draft model/template for use by MCCs to inform State SAR SPOCs on GADSS, ELT(DT)s and alerts originating from aircraft in a distress condition	APSAR/WG/7	~~03 June 2022~~ Completed	APSAR/WG/7: Direct feedback to Cospas-Sarsat to avoid double handling due to the short timeframe. APSAR/WG/8 Report Appendix C
7/2	Establish what global activities such as workshops, training or guidance for ADT, including ELT(DT), and within the scope of ICAO, may be planned	APSAR/WG/7	~~03 June 2022~~ Completed	APSAR/WG/7: ICAO APAC to follow up with HQ. Feedback to be taken into account in consideration/planning in response to action item 7/3
7/3	Examine whether a further workshop or seminar on GADSS, including alert/notification distribution, LADR and coordination procedure development, may be programmed for APAC Region ~~before the end of 2022~~ in 2023/2024, possibly in conjunction with APSAR/WG/9.	APSAR/WG/7	~~31 August 2022~~ APSAR/WG/9	APSAR/WG/7: ICAO to see if/where a further workshop may be added to the work programme. Subject also to feedback from HQ to action item 7/2 and responses to survey under action item 7/6 APSAR/WG/8: updated as consequence of meeting discussion. Dependent on availability of experts (State SAR and ATS experts, EUROCONTROL, Cospas-Sarsat, IATA, ICAO HQ expert), and on the availability of the LADR.

ID	Task Description	Start Date	Expected Finish Date	Resource Names/Remarks
7/4	Develop brief guidance in the form of a checklist of considerations for actions by Regulators, Airlines, SAR Services and ANSPs when an ADT is activated	APSAR/WG/7	~~03 June 2022~~ Completed	APSAR/WG/7: To be completed for inclusion as Appendix D to the Report. ICAO, Chair, Australia, USA, IATA, Cospas-Sarsat. Include Regulatory input
7/5	Update SAR Plan paragraphs: a) 5.14 to 5.20 to include ELT(DT) information b) 6.1 to 6.6 to include latest USOAP and Regional SAR status	APSAR/WG/7	~~03 June 2022~~ Completed	APSAR/WG/7: a) Cospas-Sarsat in coordination with ICAO; b) ICAO
7/6	ICAO APAC State Letter; a) Remind states of applicability date; b) Remind them of the OPS CTRL and LADR registration process and encourage them to register; c) Include survey of APAC States on readiness for applicability of ADT 01 January 2023	APSAR/WG/7	~~31 August 2022~~ Completed	APSAR/WG/7: ICAO Subject to completion of guidance in action item 7/5, to be used as the basis of the survey.
8/1	Explore availability of a copy of EUROCAE Doc ED-237 for the information of APSAR/WG	APSAR/WG/8	02 June 2023	APSAR/WG/8 Report 3.29 ICAO
8/2	Coordinate with SURICG and Secretariat on ICAO Aircraft Address use in ELT and ELT(DT)	APSAR/WG/8	02 June 2023	APSAR/WG/8 Report 3.30 ICAO
8/3	Revise Checklist of Considerations for Readiness for ADT, and conduct re-survey	APSAR/WG/8	28 July 2023	APSAR/WG/8 Report 4.4 to 4.6 Australia, Chair, ICAO
8/4	Coordinate with ICAO EUR/NAT Regional Office and ICAO Headquarters on NAT DISTREX planning and outcomes, with a view to potential APAC DISTREX	APSAR/WG/8	28 July 2023	APSAR/WG/8 Report 4.10 ICAO
8/5	Provide comments and any proposed enhancements to Aircraft Electronic Night Search Guidance to ICAO/IMO JWG-SAR	APSAR/WG/8	08 July 2023	APSAR/WG/8 Report 4.16 All APSAR/WG/8 Administrations, through APSAR/WG JWG Member (Australia), or ICAO Secretariat for relay

ID	Task Description	Start Date	Expected Finish Date	Resource Names/Remarks
8/6	1. Explore what ICAO/IMO global response is being considered to respond to proliferation of technology and services for emergency satellite communications and automatic crash detection (non-ICAO applications) 2. Submit WPs on experience to APSAR/WG/9	APSAR/WG/8	APSAR/WG/9	APSAR/WG/8 Report 4.23 1. ICAO, ICAO/IMO JWG-SAR Chairs. 2. All APSAR/WG/8 Administrations
8/7	Seek clarification on LADR progress, and on notification distribution design (FIR, SRR and/or other?)	APSAR/WG/8	ATM/SG/11	APSAR/WG/8 Report 4.37 ICAO
8/8	Expedite finalisation of SAR agreements, and inform APSAR/WG of barriers to progress.	APSAR/WG/8	APSAR/WG/9	APSAR/WG/8 Report 4.45 All APAC States