International Civil Aviation Organization (ICAO)
South American Regional Office (SAM)
ICAO Webinar on Heliports
17 June 2022

SUMMARY OF DISCUSSIONS FROM THE ICAO HELIPORTS WEBINAR SAM REGION (SAMHELI22)

(Presented by the Secretariat)

SUMMARY	
This paper lists the outcomes from the ICAO Heliports Webinar for the SAM Region (code SAMHELI22) held virtually on June 17, 2022	
ICAO strategic objectives	*This paper is related to the following strategic objectives:* *A - Safety*

1 Background

1.1 ICAO Annex 14 Vol. II was completely updated on 2020 and a new fifth Edition was published (fourth edition dated 2013). This new amendment included changes on definitions of Design D, D-value, dynamic load-bearing surface, elongated, helicopter stand, helicopter taxiway, helicopter taxi-route, heliport reference point, protection area, touchdown/positioning circle, and touchdown/positioning marking; physical characteristics; visual aids; and rescue and firefighting.

1.2 With the publication of the fifth edition (year 2021) of the ICAO Heliport Manual (document 9261), an important update is also made to the manual that dates from 1995. Therefore, ICAO SAM Office considered necessary to communicate to States the relevant changes, so that it results in the updating of national regulations in this regard, as well as the incorporation of new provisions in the design and operation of heliports.

1.3 In addition to this, important developments in the field of Vertical Takeoff and Landing aircraft powered by electricity, also called e-VTOL, are changing completely the urban aviation scheme. These aircraft will revolutionize urban transportation by offering superior capabilities, according to their manufacturers, than helicopter operations and at a lower cost. Experts in the field predict that the traffic of these aircraft will increase dramatically in the coming years, so it is important that SAM States begin to analyze, from the AGA´s infrastructure point of view, the requirements for the facilities that serve these aircrafts.

1.4 To do this, the ICAO SAM Office is working with States to:

- ✓ Create awareness of the available documentation.
- ✓ Promote the sharing of experiences between States of the Region, as well as promote the involvement of academia and industry.
- ✓ Implementation of measures agreed by the States (at the local or regional level) - **To be defined.**

1.5 To achieve this, the Regional Office proposes:

- ✓ Create awareness of the available documentation.
- ✓ Survey the States to determine the baseline of the regulation and surveillance models of these providers.
- ✓ Identify existing gaps that prevent suppliers from achieving an acceptable level of operational safety in their processes.
- ✓ Implementation of measures agreed by the States (at the local or regional level) – To be defined.

2 The event

2.1 On June 17, 2022, the ICAO SAM Regional office held the webinar on Design and Operations of Heliports for the SAM Region with the support of ICAO HQ, SENASA (Spain), Royal Aeronautics Society (UK), the International Association of Oil and Gas Producers (IOGP), EASA and the Brazilian ANAC. Mr. Fabio Rabbani, Regional Director of the ICAO South American Regional Office, gave opening remarks to the audience.

2.2 The event's main objective was to raise awareness about the updates to the Heliport Manual (document 9261) and Annex 14 Vol. II, new developments of heliports, and the new concept of "vertiports" in order for States to review their requirements and ensure that they are kept up to date with the latest provisions. In addition, experience exchange was promoted during the event.

2.3 Over 70 participants attended the event from 20 different countries including CAA delegates, airport operators, Subject Matter Experts and others.

2.4 A recording of the event, along with the presentations and other information is available at the event's portal:
https://www.icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2022-RLA06901-HELIPUERTOS

3 Speakers

3.1 This time we had the support of the following speakers:

a. Jim Lyons – UK – Member of Royal Aeronautical Society – HDWG member
b. RC Raman – ICAO HQ – Technical Officer AOI Section – HDWG Secretary
c. Arturo Madrigal – SENASA Spain – HDWG Rapporteur
d. John Parker – IOGP representative – HDWG member
e. Maria Paula Macedo – ANAC Brazil – HDWG member

4 Agenda

4.1 The agenda took the delegates thru three sessions: Setting the scene and ICAO work, the Heliport Manual and State Experiences and the future of heliports. The topics where:

4.1.1 Setting the scene – Changes to AN14 Vol II & Doc. 9261

A walkthrough the background of ICAO Annex 14 Vol. II and its 9 amendments was presented, along with information of upcoming amendments that will include topics on:

- Certification and SMS for heliports
- Obstacle Limitation Surfaces
- Visual aids for heliports

A complete explanation on how the helicopter system is analyzed within ICAO working groups, which includes changes to facilitate a transition from prescriptive to performance-based approach. Some general information on the changes to document 9261 was also presented.

4.1.2 Work of ICAO Heliports Design Working Group (HDWG)

The presentation delivered by the HDWG Rapporteur focused on two items, the work developed by the working group and the tasks that lie ahead.

The HDWG was firmed as a study group and currently has 20 + members and 6 advisors.

The work already done by the HDWG, based on its Job Card which is now almost 95% complete, consisted in a comprehensive update to ICAO Annex 14 Vol. II and the Heliport Manual. The update includes provisions for the certification and SMS of international and open to public use heliports.

The future work of the HDWG includes amendments and updating of the Annex 14 Vol. II and the heliport manual, analysis of safety data and heliport safety advisory, support to ICAO and USOAP audits and dissemination of knowledge

A draft Job Card has been presented for the creation of a Vertiport Design Sub-Group inside the HDWG with the objective of developing SARPs and guidance material for VTOL aircraft operations and vertiports,

4.1.3 Part I. Offshore Heliports

The speaker from IOGP delivered a walk through the Part 1 of the Heliport Manual, which refers to offshore heliports.

The offshore Heliport Manual consists of eight distinct chapters and three appendices.

Chapter 1 – General – which includes the scope of the document (purpose-built helidecks on installations and vessels and special arrangements such as non-purpose-built shipside arrangements, which are otherwise covered in detail in the International Chamber of Shipping (ICS) Helicopter/Ship Guide 2021) and characteristics of common helicopter types.

Chapter 2 – Heliport data – which provides a template for authorization of offshore heliports including the content of a Helideck Directory (HD) – equivalent to the HLL - and a Helideck Information Plate (HIP).

Chapter 3 – Physical characteristics, includes guidance on several design related matters, including structural design, general design considerations, among others. In addition, appendix 1-A provides a simple

risk assessment process which can facilitate operations to helidecks and shipboard heliports where the TLOF is less than 1D, providing certain conditions are met.

Chapter 4 – Obstacles provide guidance on obstacle environment.

Chapter 5 – Visual aids - marking and lighting; this chapter covers guidance on helideck markings and lighting

Chapter 6 – Helideck rescue and firefighting facilities – a new scheme acknowledges the use of several different methods of distribution on both a solid plate and passive fire-retarding surface. In addition to sections on personnel levels and provision for emergency response procedures.

Chapter 7 – Winching areas on ships

Chapter 8 – Miscellaneous items – for the first time in the ICAO Heliport Manual provision is made for guidance on; criteria for parking areas and push-in parking areas; meteorological equipment and basic guidance on deck motion, reporting and recording; communications and Navigation equipment; Helicopter refueling operations and bird control on NPAI's.

Also, the speaker from IOGP provided reference to Helideck Workgroup information, the Helideck Info Share System and introducing the Master Minimum Helideck Equipment List (MMHEL).

4.1.4 Part II – Onshore Heliports

The speaker from RAeS introduced basic concepts of the onshore part of the Heliport Manual with particular focus on the 'defined area' as a building block, complete with objectives and attributes; and detailed explanation for the basis for changes to standards in a series of appendices

Part II mirrors its content structure to Annex 14 Vol. II, with chapters on:

- Chapter 1 – Introduction
- Chapter 2 – Site Selection, Management and Heliport Data
- Chapter 3 – Physical Characteristics
- Chapter 4 – Obstacle Environment
- Chapter 5 – Visual Aids
- Chapter 6 – Heliport Emergency Response

During his presentation, the speaker explained several recently developed concepts. with particular emphasis on:

- The 'design helicopter' as a basis for the establishment of minimum dimensions
- The necessity of a clearway, ground level or elevated, when using vertical procedures
- Elevation of the origin of the take-off climb and approach surfaces to achieve obstacle clearance for heliports in difficult environments
- The dangers of rotor downwash and outwash and provision for protection zones

Many pictorial examples were provided with particular focus on physical characteristics, obstacle clearance surfaces, markings, and lights

4.1.5 State Experience – Certification of Heliports – Spain

The representative from SENASA made a presentation on State experience on the certification of heliports.

He presented topics related to:

- Spanish aerodrome scheme
  Presented current EASA and national regulation related to the verification and authorization of heliports.

- The certified heliports
  The cases of Ceuta Heliport, Algeciras Heliport and Barcelona Race Circuit Heliport were presented.

- Certification legislation
  A brief explanation of Spain's national regulation related to Heliports (Real Decreto 862/09) which includes Aerodrome/heliport verification (certification) procedure; Standards and recommended practices from Annex 14 Volume II – Heliports; Heliport manual required – adapted form ICAO Manual on Certification of Aerodromes (doc. 9774) and SMS required according to ICAO SMM (doc 9859) principles
  This regulation is under currently under review in light of the amendments by ICAO and the experience gained by the State in the process of certification and continuous oversight.

- Accidents and incidents at heliports
  An important percentage of accidents and incidents were due to non-compliance with SARPs and lack of adherence to procedures and best practices (about 10% in Europe and the US).

- Benefits of the certification process
  Interesting analysis of the benefits of the certification of heliports in Spain, including the SMS, heliport manual and compliance with SARPs.

- The future
  Discussion about the future of the process.

4.1.6 State Experience - Brazil

Brazil gave a presentation on their experience related to heliports and helipads within Brazil, but with specific focus on congested urban areas (such as Sao Paulo Downtown).

ANAC gave a brief explanation of the national regulation and how ICAO SARPs are applied on the national context.

In addition, several processes such as the registration process, on-site inspections, basic evaluations and remote inspections was shared with the audience.

4.1.7 Vertiports - EASA

Finally, a brief presentation on vertiports was delivered by Spain's representative on behalf of EASA.

It started with explaining the need (the why?) of vertiports, as many important aspects are already ongoing such as:

- Several VTOL capable aircrafts are already in certification process
- Planning and investing on vertiports is already happening today
- There is a need to align vertiports design requirements due to the wide range of VTOL capable aircrafts specifications

And continued with a brief review on the background of EASA task force and their work for the preparation of a new document, based on EASA CS/GM for heliports, ICAO Annex 14 Vol. II, Doc. 9261 and inputs from VTOL manufacturers.

Right now, there is a 2 step approach to vertiports:

- 1st Step – Q1/2022: deliver a Prototype Technical Specifications (PTS) which is a non-regulatory guidance material for the design of vertiports, already available and published on March 2022.
- 2nd Step – 2023/24: future Vertiports Regulations as an amendment to R139/2014, which will include implementing rules, authority requirements, operator requirements, operations requirements, certification specifications and guidance material.

The Prototype Technical Specifications chapters were briefly explained.

- Chapter A – General
- Chapter B – Vertiport data
- Chapter C – Physical characteristics
- Chapter D – Obstacles
- Chapter E – Visual Aids
- Chapter F – En-route alternates
- Chapter G – Emergency procedures

On Chapter G, it was pointed out the need to have more input data, as the new e-VTOLs are mostly electric and lithium battery fires are treated different from usual aviation fuel fire.

5 Conclusion

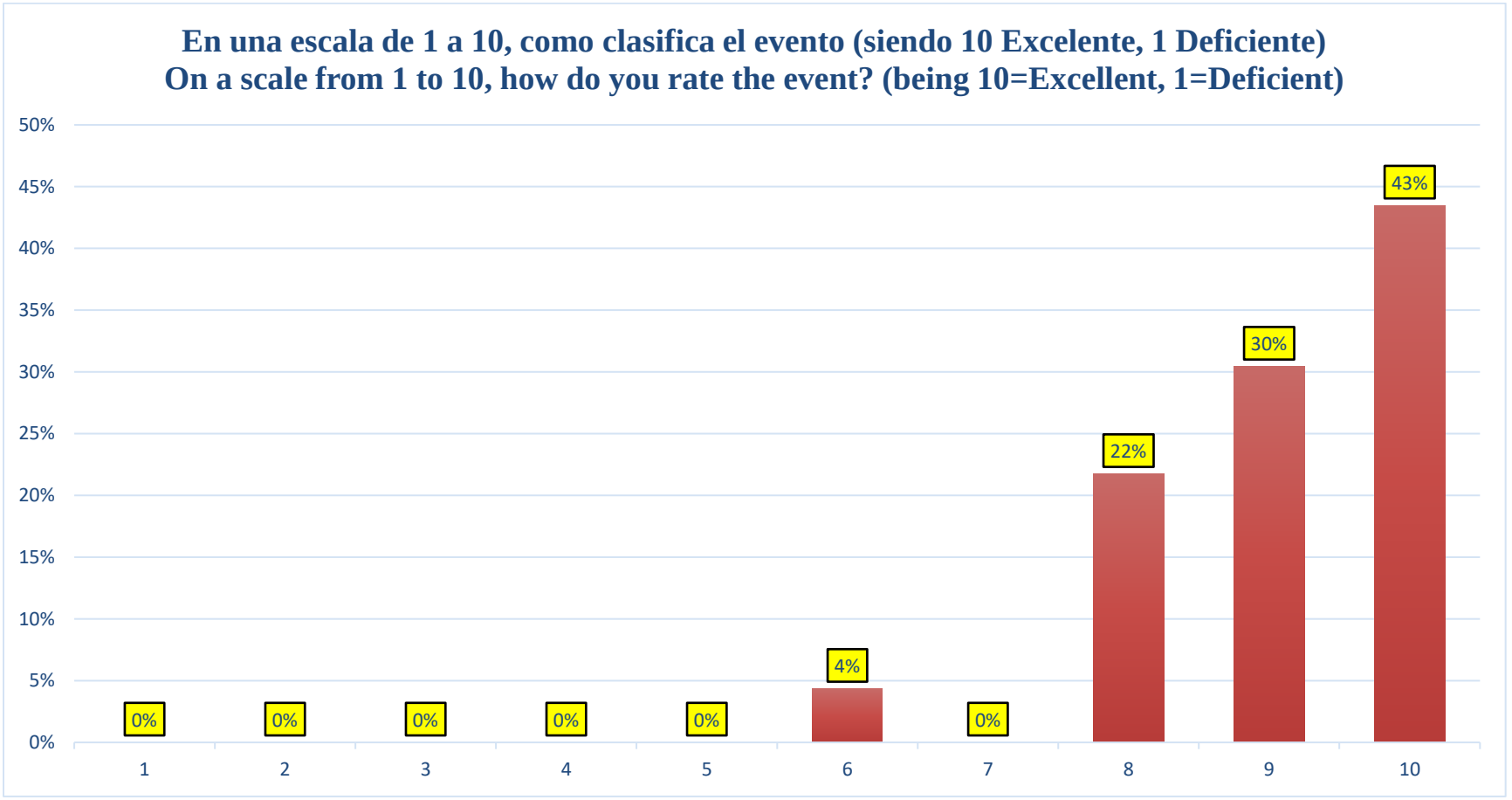
The event drove a lot of interest from participants, which make some important contributions thru the Q&A function and on a survey directed to participants after the event. A summary of the survey and Q&A is included as **Appendix** of this paper.

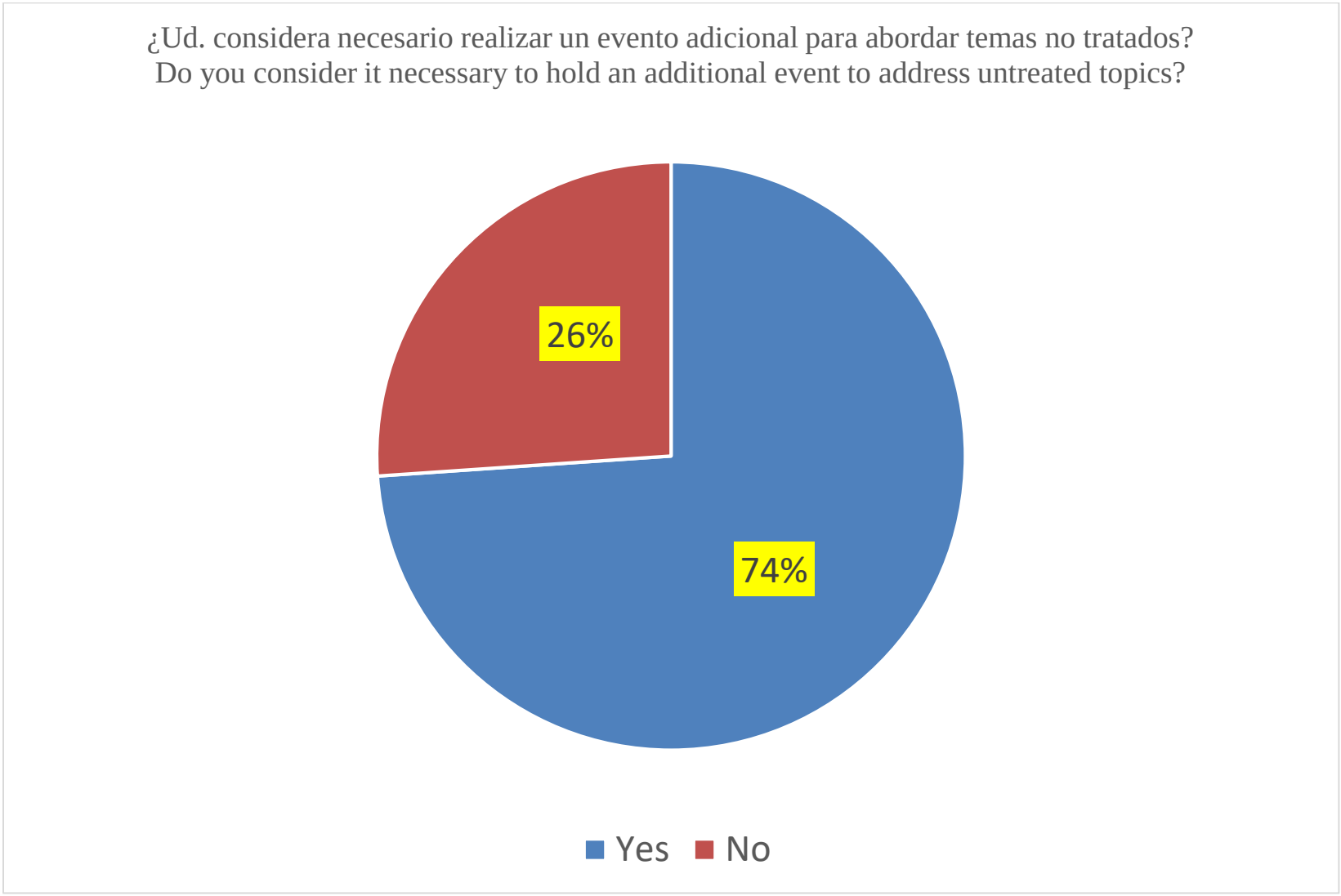
In general, the group concludes that:

- The new Heliport manual will be of great help to States on the modernization of heliports, both on-shore and off-shore.
- ICAO Annex 14 Vol. II will continue evolving to a more performance based approach.
- Although the scope of most ICAO documents are those facilities where international operations occur, in the case of heliports this guidance is used mostly for all cases, not only international operations.
- On the Vertiport arena, States need to plan resources, competences and training.
- This will represent an important challenge as technology is moving fast and needs will demand this preparation.

- END -

Appendix A – Feedback from SAMHELI22 participants and survey results




¿Ud. considera necesario realizar un evento adicional para abordar temas no tratados?
Do you consider it necessary to hold an additional event to address untreated topics?
26%
74%
Yes
No

SAMHELI22 SURVEY RESULTS TO QUESTION: IF YOU CONSIDER ANOTHER EVENT ON THE TOPIC NECESSARY, WHAT TOPIC OR ASPECT WOULD YOU ADDRESS?

Español	English
1. Señalamiento	1. signaling
2. Énfasis en los sistema de extinción de incendios e iluminación para operación nocturna	2. Emphasis on fire extinguishing systems and lighting for night operation
3. Superficies limitadoras de obstáculos	3. obstacle limitation surfaces
4. Helipuertos emplazados en lugares remotos, helipuertos amazónicos.	4. Heliports located in remote places, Amazonian heliports.
5. Profundizar en el tema central	5. Delve into the central theme
6. Certificación de helipuertos y OLS	6. Heliport certification and OLS
7. Gestión del espacio aéreo entre helipuertos o grupo de helipuertos y aeropuertos. En los cuales las trayectorias de salida o aproximación del aeropuerto se puedan interferir con las de los helipuertos.	7. Airspace management between heliports or group of heliports and airports. In which the departure or approach paths of the airport may interfere with those of the heliports.
8. Diseño de procedimientos de vuelo para aproximación y salida de helipuertos (IAP, SID)	8. Design of flight procedures for heliport approach and departure (IAP, SID)
9. Certificación de Helipuertos con las actualizaciones.	9. Heliport Certification with updates.
10. Se están implementando cambios en los documentos e introduciendo el desarrollo de nuevas tecnologías como los VTOL y los Vertiports, por lo que se requeriría de más profundidad de conocimiento al respecto.Gracias	10. Changes are being implemented in the documents and introducing the development of new technologies such as VTOL and Vertiports, so more depth of knowledge would be required in this regard. Thank you
11. Más detalles sobre el desarrollo del EVTOL, Vertiports y los reglamentos afectados.	11. More details on the development of EVTOL, Vertiports and the affected regulations
12. Inspecciones - Check list & Estudios Aeronáuticos	12. Inspections - Check list and Aeronautical Studies
13. Manual 9261 y sus nuevas especificaciones y recomendaciones	13. Manual 9261 and its new specifications and recommendations
14. Los temas que correspondan a las propuestas de normas que se estén desarrollando en las áreas que todavía están pendientes	14. The topics that correspond to the proposed standards that are being developed in the areas that are still pending
15. Específicamente el proceso de certificación, inspecciones continuas y el manual	15. Specifically the certification process, continuous inspections and the manual

Appendix B – Q&A inputs

Q&A Report SAMHELI22 – 17 June 2022
Topic : Webinar ID : RLA06901 – ICAO HELIPORTS DESIGN AND OPERATIONS WEBINAR

No.	Question (Original language)	Question (Google Translate)	Ask Name	Ask Email	Answer
1.	Good morning Arturo, In your presentation you mentioned that, in Spain, international heliport operators have to be certified, otherwise, which ones that aren't international heliports are recommended to be certified. Is it right? So, for those which are "recommended" to be certified, are there any specific actions have done by EASA to promote/encourage the certification of these heliports?	Buenos días Arturo, En su presentación mencionó que, en España, los operadores de helipuertos internacionales tienen que estar certificados, de lo contrario, se recomienda certificar cuáles que no son helipuertos internacionales. ¿Es correcto? Entonces, para aquellos que son "recomendados" para ser certificados, ¿hay alguna acción específica realizada por EASA para promover/fomentar la certificación de estos helipuertos?	Fábio Lopes Magalhães	fabio.magalhaes@anac.gov.br	Good Moring Fabio: The amendment for Annex 14 Vol II regarding certification, that will be effective in 2024, will be: - Obligation to certify heliports for international operations. - Recommendation to certify heliports open to public use. The exact scope of public use is left for the States to decide. In Spain we don't have international operations heliports, only 2 heliports open to public use commercial operations, an these have been certified a few years ago, before the recent development of ICAO SARPs for certification. We will speak of that in my next presentation. EASA has only developed requirements for areas of certified airports for the exclusive use of heliports, but has not developed requirements for standalone heliports, because most of them fall outside EASA's scope (which is restricted to open to public use, commercial operations and instrumental approaches and departures). Hope this clarifies the situation. We can expand it at Q&A. Regards. Arturo.

2.	Good morning Jim Lyons, A FATO should provide "ground effect", including a non-solid FATO? If yes, which others complementary considerations are required for a non-solid FATO to consider "ground effect"? In addition, for a non-solid FATO (for example, a roof top FATO), how can we appropriately provide the visual aids? (markings and lights)	Buenos días Jim Lyons, ¿Una FATO debería proporcionar "efecto suelo", incluida una FATO no sólida? En caso afirmativo, ¿qué otras consideraciones complementarias se requieren para que una FATO no sólida considere el "efecto suelo"? Además, para una FATO no sólida (por ejemplo, una FATO de techo), ¿cómo podemos proporcionar las ayudas visuales de manera adecuada? (marcas y luces)	Fábio Lopes Magalhães	fabio.magalhaes@anac.gov.br	Good Moring Fabio: The amendment for Annex 14 Vol II regarding certification, that will be effective in 2024, will be: - Obligation to certify heliports for international operations. - Recommendation to certify heliports open to public use. The exact scope of public use is left for the States to decide. In Spain we don't have international operations heliports, only 2 heliports open to public use commercial operations, and these have been certified a few years ago, before the recent development of ICAO SARPs for certification. We will speak of that in my next presentation. EASA has only developed requirements for areas of certified airports for the exclusive use of heliports, but has not developed requirements for standalone heliports, because most of them fall outside EASA's scope (which is restricted to open to public use, commercial operations and instrumental approaches and departures). Hope this clarifies the situation. We can expand it at Q&A. Regards. Arturo.
3.	The IOGP standards requires a rejected take-off distance of 3000feet. But, when Off-Shore, there is nothing mentionend about a RTOD (or a fly-by). How come?	Los estándares IOGP requieren una distancia de despegue rechazado de 3000 pies. Pero, cuando está en alta mar, no se menciona nada sobre	SHAKTIP ERSAD GOERDAT	shaktie.thug@gmail.com	**Answer 1:** The RTOD offshore (and onshore elevated heliports) is provided by the TLOF (surface) and FATO (containment). In the case of offshore this is normally a FATO/TLOF.

		un RTOD (o un sobrevuelo). ¿Cómo?			**Answer 2:** Current IOGP standard 690 and previously 590 have withdrawn the RTOD of 3000 feet, it is now a requirement for helicopters to be certified to operate to Performance Class 1 / 2 for offshore operations
4.	What is the relationship between the obstacles surfaces at the table (a, b, c) and the class of the helicopter? Why Class 3 has a steeper surface than Class 2 at the second section? Why it needs flat surface for the first section?	¿Cuál es la relación entre las superficies de obstáculos en la tabla (a, b, c) y la clase del helicóptero? ¿Por qué la Clase 3 tiene una superficie más empinada que la Clase 2 en la segunda sección? ¿Por qué necesita una superficie plana para la primera sección?	R H	reemhama@gmail.com	There is no direct relationship between the design type and the performance class of the helicopter. However, because OEI performance cannot meet the 12.5% gradient, PC1 (using category A procedures) will require the shallower OLS provided by type A (4.5%). The shallower gradient of two-slope type B surface is to allow the helicopter to accelerate to climbing speed (Vy). The level section is required to convert potential energy (height) to kinetic energy (speed) over a known surface to reach the take-off distance required (TODRH = speed plus 35 ft plus rate of climb). Before reaching this speed it is not possible for the helicopter to climb on one engine.
5.	En base a la experiencia de otros Estados, sería factible incorporar en la próxima enmienda del documento 9261 una tabla con tipos de helicópteros, performance o su correspondiente categoría de diseño de pendiente (A/B/C) . Gracias	Based on the experience of other States, it would be feasible to include in the next amendment to document 9261 a table with types of helicopters, performance or their	Sergio David Aramburu	saramburu@anac.gob.ar	Answered during the presentation (see recording)

		corresponding slope design category (A/B/C) . Thank you			
6.	Porque no se considera la inclusión de interceptores de combustibles en heliplataformas y buques.? En verificaciones realizadas a buques de bandera extranjera en aguas jurisdiccionales de mi Estado, se verificó que el drenaje se realizaba en forma directa hacia el mar, lo cual produce una contaminación en caso de un accidente con derrame de combustible en la FATO/TLOF.	Why is the inclusion of fuel interceptors in helidecks and ships not considered? In verifications carried out on foreign-flagged vessels in jurisdictional waters of my State, it was verified that the drainage was carried out directly towards the sea, which produces contamination in the event of an accident with a fuel spill in the FATO/TLOF.	Sergio David Aramburu	saramburu@anac.gob.ar	Answered during the presentation (see recording)
