



ASSEMBLY — 39TH SESSION

EXECUTIVE COMMITTEE

Agenda Item 20: Environmental Protection – Aircraft Noise – Policy, Standardization and Implementation Support

ENVIRONMENTAL PROGRAMME ON HELICOPTER NOISE MITIGATION BY OPERATIONAL PROCEDURES

(Presented by Argentina)

EXECUTIVE SUMMARY

Based on the standardized noise mitigation procedure which is used by the Argentine Army in their Antarctic Bases to minimize the noise produced during helicopter operation, the Civil Aviation Administration in Argentina (ANAC) proposes to extend the implementation of such procedure throughout the national territory within the scope of civil aviation. This will allow to:

- preserve the habitat of natural reserves nationwide;
- achieve a greater acceptance of helicopter operations within urban areas;
- establish the corresponding regulations in the near future.

In order to implement such procedure in a systematic way ANAC, through its Training Centre (CIPE), is developing the following TRAINAIR PLUS Course: “Helicopter Noise Mitigation by Operational Means”, together with the Argentine Army.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective E – <i>Environmental Protection</i> .
<i>Financial implications:</i>	N/A
<i>References:</i>	Annex 16 — <i>Environmental Protection</i> , Volume I — <i>Aircraft Noise</i> , Part V – <i>Balanced Approach to Noise Management</i> Annex 6 — <i>Operation of Aircraft</i> , Part III — <i>International Operations — Helicopters</i> , Chapter 2

¹English and Spanish versions provided by Argentina.

1. BACKGROUND

1.1 After the United Nations Conference on Human Environment, carried out in Stockholm in 1972, the Committee on Aircraft Noise Emissions was created. The conclusions reached therein came into effect in 1977.

1.2 In 1980, after consultation with States on noise emissions in aviation, ICAO elaborated the text that was later included in Annex 16, Volume I: "Aircraft Noise".

1.3 Currently Annex 16, Vol. 1, Part V recommends the use of a "balanced approach" to the management of noise issues. Noise abatement procedures are included as one of the possible means to reduce the impacts of noise generated by aircraft operations. The use of these procedures for helicopters is recommended in Annex 6, Part III, Chapter 2.

1.4 In order to mitigate noise from the point of view of *helicopter operations*, the Argentine Army Aviation Body has developed a noise mitigation programme, which is currently being used as part of the training in the helicopter Flight Training Devices (FTDs), and applied to operations in the Antarctic. This initiative was presented to ICAO CAEP on its 2015 Steering Group Meeting.

1.5 This Programme aims at allowing the crew to plan the use of the best *Noise Mitigation Techniques* according to the conditions/situations encountered. These techniques are easy to apply on helicopters of the same type operating in urban areas, reaching a significant reduction of noise pollution.

1.6 For the purpose of implementing such programme over the whole national territory in a systematic way ANAC, through its Training Centre (CIPE), together with the Argentine Army, have started working on the development of a TRAINAIR PLUS Course called: "Helicopter Noise Mitigation by Operational Means".

2. ANALYSIS

2.1 Noise mitigation procedures

2.1.1 It is common knowledge that aircraft pilots can apply noise mitigation procedures to the phases of takeoff and approach to airports. Similarly, taking into account that most helicopter operators fly over highly populated urban areas and environmentally protected areas (Antarctic region and different nature reserves), it turns out to be essential to have an appropriate procedure to mitigate the noise level during such operations.

2.2 Noise mitigation operations training with FTDs

2.2.1 Even though there are theory syllabi, such as the one used by the Helicopter Association International (HAI), and also manufacturers' recommendations on noise mitigation for the different kinds of helicopters, Noise Mitigation Techniques could be maximized through the active practice of such procedures in the FTDs. The experience achieved by the Argentine Army has shown that pilots that were trained in these devices were able to internalize the procedures and also apply them systematically to all their operations.

2.2.2 The implementation of the "Environmental Programme on Helicopter Noise Mitigation by Operational Means" will allow pilots to get:

- **The knowledge:** through the theory course
- **The experience:** operating the FTD and applying such knowledge to varied geographical scenarios, with different levels of difficulty, interacting with factors such as: temperature, humidity, height, distance to terrain and different flight settings (take-off, hovering, in the cruise, final approach and landing), applying the acquired mitigation techniques, will allow the pilot to develop the appropriate professional criterion and the necessary expertise to face the changing conditions that might be encountered during real life operations.



View of an FTD and its computer



Approach to a hospital heliport viewed from an FTD

2.3 Course preliminary specifications

2.3.1 The current course proposal comprises a total of 7 (SEVEN) hours, distributed in 2 (TWO) days: 5 (FIVE) theory hours and 2 (TWO) practice hours in the FTD, plus 30 (THIRTY) minutes for the Final Test.

COURSE CONTENT	ALLOTTED TIME
COMMON HELICOPTER NOISE GENERATING SOURCES	01:00
NOISE EFFECT ON PEOPLE	01:00
OTHER FACTORS AND DIFFERENT HELICOPTER OPERATION SETTINGS THAT AFFECT THE WAY NOISE SPREADS	01:00
TECHNOLOGY CONTRIBUTION TO HELICOPTER NOISE MITIGATION	01:00
ICAO REGULATIONS (ANNEX 16) - ENVIRONMENTAL PROTECTION (NOISE POLLUTION PRODUCED BY HELICOPTERS)	01:00
TOTAL	05:00
FTD ACTIVITIES	ALLOTTED TIME
FTD FRASCA Bell UH-1H	02:00

FINAL TEST	00:30
TOTAL	02:30

2.3.2 This course requires ONE (1) hour annual **recurrent training**.

3. CONCLUSION

3.1 Virtual reality, like real life, offers our senses all the necessary information in order to interact with the cyberspace. The virtual context created by the computer allows the crew to integrate their knowledge, experience (practice) and expertise (criterion), facilitating the appropriate planning and application of the Noise Mitigation Techniques, but without the costs that real flying implies.

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