



Noise Certification Workshop

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SESSION 2: AIRCRAFT NOISE CERTIFICATION

ROLES AND RESPONSIBILITIES IN NOISE CERTIFICATION

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SUMMARY

This paper addresses the roles and responsibilities of parties involved in the process of noise certification and in the issuance and use of the noise certification documentation.

1. INTRODUCTION

1.1 Aeroplanes and helicopters built today are required to meet the noise certification requirements as set by the certifying authorities of the world. These are normally based on Certification Standards adopted by the Council of ICAO. They are contained in Annex 16 — *Environmental Protection, Volume I — Aircraft Noise* to the Convention on International Civil Aviation. This paper addresses the roles and responsibilities of various parties that are involved in the system as recommended by Annex 16, Volume 1.

1.2 Parties that are primarily involved are the applicant and/or holder of the type certificate, the type certifying authority, the holder of an individual airplane and the aviation authority of the state of registry of the airplane. Other parties involved are ICAO, the aircraft operators and the airports. The information resulting from noise certification is also relevant to the general public and to policy makers.

2. THE PRIMARY PROCESS

The process leading to the issuing a noise document (such as a noise certificate or another document carried on board that contains the required noise certification information) can be separated in two phases: the (noise) type certification and the issuance of the individual document attesting noise certification.

2.1 THE ISSUANCE OF A NOISE TYPE CERTIFICATE

2.1.1 The designer will ensure that the design meets the applicable noise standards. This is primarily achieved by using state of the art propulsion technology and aircraft design. It is the task of the design organisation to prove that the design meets the requirements. This is

normally done through the carrying out of noise tests as part of the extensive test program that is required before a type certificate can be issued.

2.1.2 The design organisation will propose a process by which it will show compliance with the requirement. This plan is generally designated the Noise Compliance Demonstration Plan (NCDP). The certificating authority will normally not accept noise tests that were not carried out according to a NCDP that was accepted before the actual noise tests were carried out. It is the task of the type certificating authority to study the NCDP and to judge whether the plan is expected to show compliance according to the requirements.

2.1.3 Following this the applicant will carry out the noise tests. It is the role of the certificating authority to convince themselves that the measurements are carried out properly. This will normally require the witnessing of the noise tests by one or more experts from the certificating authorities.

2.1.4 Once the measurements are finished the applicant will analyse the data and present a detailed report on this to the certificating authority. This report will contain all the measured and corrected data. The authority will verify that the analysis has been carried out properly.

2.1.5 Approval of the noise certification compliance substantiation is a condition for issuance of a type certificate. Depending on the legal system of the certificating authority this can be either the type certificate that also covers the airworthiness of the design or a separate noise type certificate.

2.2 **ISSUANCE OF A NOISE DOCUMENT**

2.2.1 Once the type certificate has been issued individual aircraft are built according to this approved design. These aircraft will have an owner and will be registered in one of the states. It is the responsibility of the owner to see to it that all required documentation, including a noise document is on board the aircraft. To this end the owner will apply for issuance of this document through a procedure as prescribed by the state of registry. This procedure will normally contain a verification that the aircraft is in conformity with the approved (noise) type design. If the state of registry is not the state of design, the (Noise) Type Certificate will first have to be validated.

2.2.2 Based on evidence that the individual aircraft is indeed in conformity with the (noise) type certificated design, the state of registry will issue the noise document or approve other documents that are carried on board the aircraft and contain the noise certification data.

2.2.3 It is the responsibility of the aircraft owner to see to it that the aircraft continues to meet the (Noise) Type Certificate and it is the task of the certificating authority to have a process in place that ascertains that this is the case.

3. ESTABLISHING NOISE REQUIREMENTS

3.1 ICAO's role

ICAO, and in particular the Council Committee on Aviation Environmental Protection (CAEP), plays a leading role in the establishment of noise certifications requirements. This committee of experts gathers relevant information on noise reduction technology, the number of people affected by aircraft noise and the economic aspects of noise reduction. It also draws upon the experience of nations that are actively involved in noise type certification (primarily those states that have aircraft manufacturing companies in their territory).

3.2 CAEP (and its Working groups and task groups) proposes and maintains the ICAO Noise Standards contained in Annex 16 — *Environmental Protection*, Volume I — *Aircraft Noise* to the Convention on International Civil Aviation.

3.3. It is the role of the individual states to establish national noise certification requirements based on ICAO's Standards.

4. USERS OF NOISE CERTIFICATION DOCUMENTATION

4.1 Due to the high technical level involved in the establishment of the noise Standards, the certificated noise levels are recognized as being the source of reliable information for the noise produced by an aircraft and many airport authorities tend to use this information for the purpose of controlling the noise climate around their airports.

4.2 Because of the relevance of noise certification levels for the operational performance of an aircraft owners and aircraft operators use this information in decisions related to the purchase and operation of aircraft.

4.3 Noise certificated levels, when monitored over time, can provide information on the development of noise technology. They are an important source of background information in the ICAO-CAEP process of updating the noise certification Standards.

5. CONCLUSION

5.1 The noise certification process as established by ICAO and contained in Annex 16 is primarily established through a cooperation of aircraft designer organisations and certifying authorities. The results of this process are used by states of registry to issue noise certification documents. Users are basically the State's authorities, airports, (prospective) aircraft owners and operators