# NAM-CATS 36
# Noise Certifications

***INTRODUCTORY NOTES***

## *1. GENERAL*

*1.1 Section 227 of the Civil Aviation Act, 2016 empowers the Executive Director of Civil Aviation to issue technical standard for civil aviation. Section 227 of the Civil Aviation Act, 2016 further empowers the Executive Director of Civil Aviation to incorporate into a technical standard any international aviation standard or any amendment without publishing the text of such standard or any amendment by mere reference to the title, number and year of issue of such standard or amendment or to any other particulars by which such standard or amendment is sufficiently identified.*

*1.2 The Executive Director of Civil Aviation has, pursuant to the empowerment mentioned above, issued technical standards relating to Regulation Part 36 (Standards Relating to Noise Certifications) to be known as Document NAM-CATS-36.*

*1.3 Document NAM-CATS-36 comprises the standards, rules, requirements, methods, specifications, characteristics and procedures which are applicable in respect of Standards Relating to Noise Certifications.*

*1.4 Where there is any perceived disparity of meaning or inconsistency between these technical standards and the regulations, the provisions of the regulations will take precedence.*

*1.5 Where there is a difference between a standard or procedure prescribed in ICAO documents and the Civil Aviation Technical Standards (CATS), the CATS standard will prevail.*

*1.6 The abbreviation CAR is used throughout this document when referring to any civil aviation regulation.*

*1.7 The abbreviation TS is used throughout this document when referring to any technical standard.*

*1.8 In this document the words "Executive Director" refers to the chief executive officer of the Authority appointed pursuant to section 34 of the Civil Aviation Act 2016 being the Executive Director of Civil Aviation.*

## *2. AMENDMENTS TO THE TECHNICAL STANDARDS*

*2.1 The NCAA Airworthiness Division has responsibility for the technical content of this technical standard.*

*2.2 This technical standard is issued, and may only be amended, under the authority of the Executive Director of Civil Aviation.*

*2.3 Requests for changes to the content of this technical standard must be forwarded to the Executive Director and may come from:*
*(a) technical areas within NCAA; or*
*(b) aviation industry service providers or operators; or*
*(c) pilots, engineers and maintenance organization staff.*

*2.4 The need to change the content of this technical standard may arise for any of the following reasons:*

*(a) to ensure safety;*

*(b) to ensure standardisation;*

*(c) to respond to changed NCAA regulations or standards;*

*(d) to respond to changes initiated by ICAO;*

*(e) to accommodate proposed initiatives or new technologies.*

*2.5 The NCAA may approve trials of new procedures or technologies to develop appropriate standards.*

**List of technical standards**

## 36.00.2 NOISE STANDARDS

### 1. General

The noise standards referred to in Part 36.00.2 are the appropriate noise standards contained in Annex 16, Volume I.

### 2. Noise standards for microlight aeroplanes

The average noise emittance limit of a microlight aeroplane at full power and a height of 500 ft AGL may not exceed 78 dBA when measured under the following conditions and procedures:

### 2.1 Environmental conditions

(1) Wind speed may not exceed 15 km/h at any time during test.

(2) Cloud base to be 5 000 ft AGL minimum.

(3) Cloud cover to be 4/8 maximum.

(4) No other air traffic is allowed in a 4 000 meter radius from the measurement position during any measurements.

(5) The test must be conducted during normal daylight hours.

### 2.2 Test equipment

(1) The equipment to be used, must consist of a sound level meter capable of giving an indication in dBA with a fast time response. The test equipment must be supplied with a separate sound calibrated and a wind screen.

(2) The test equipment must comply with the characteristics specified for Type 1 instruments in the publication No. 651 of the International Electrotechnical Commission.

(3) The equipment must be verified for compliance with the relevant specifications by the supplier on delivery of the equipment. The equipment must be calibrated annually thereafter by the South African Bureau of Standards.

**2.3 Certification**

(1) All tests must be conducted by a person qualified in the use of test equipment, in the presence of an authorised officer or inspector of the NCAA and/or a person approved by the body or institution designated by the Executive Director in terms of Part 149.

(2) Depending on the results, a noise certificate may be issued by the person conducting the test. All documentation must be completed in triplicate, a copy to be handed to the persons referred to in subparagraph (1) and the original to be kept by the manufacturer/owner. All microlight aeroplanes certified for production must have a copy of the noise certificate attached to the airframe logbook before delivery to the prospective owner.

(3) Approved manufacturers must supply all the relevant information on the noise certificate e.g. powerplant (type, horsepower), propeller (type, number of blades, diameter, pitch), gearbox ratio, noise reduction equipment, etc.

(4) Attached to the above certificate must be the following information regarding the test equipment:

(a) Make

(b) Model

(c) Serial number of the equipment

(d) Serial number of the microphone

(e) Serial number of the calibrator and the sound pressure level value and frequency of the calibrator

(f) The certificate number and date of the last verification by the SABS.

**2.4 Compliance by similarity**

Manufacturers/owners may obtain compliance by proving similarity to aeroplanes already tested and passed as described. When requesting compliance by similarity,

proof must be submitted, in writing, to show aircraft configuration, engine, propeller arrangement, noise reduction equipment, etc, to be identical to the model previously approved.

### 2.5 Compliance date

All microlight aeroplanes must comply with the above noise requirements.

### 2.6 Extensions

Manufacturers/owners of microlight aeroplanes which cannot comply with the limits as stated, may request written extension for a maximum period of six (6) months, during which period a second test may be conducted to prove compliance. No further extension will be granted.

### 2.7 Validity

Microlight aeroplanes tested in accordance with this standard, will remain legal unless the test configuration is altered. This includes items such as changing the propeller pitch, propeller diameter, propeller make and exhaust. Any change will require a re-test. Approved persons will certify that the aircraft configuration has not been changed, as per the noise certificate attached to the aircraft logbook during annual inspections.

### 2.8 Test procedure

(1) Test equipment:

(a) The equipment must be set up with its measurement microphone between 1.2 and 1.5 meters AGL. It must be fitted with a wind screen of which the sound attenuation characteristics are such that it will not affect the accuracy of the measurement.

(b) The equipment must be set to “A” weighting and “FAST” response.

Before and after each set of readings, the calibration of the equipment must be checked by means of the sound calibrator in accordance with the instructions of the manufacturer. If the calibration readings of the equipment before and after each set of readings does not coincide to within 1.5 dB, the readings obtained must be discarded and the calibration of the equipment controlled before the test is proceeded with.

(c) The equipment must be operated strictly in accordance with the instructions from the manufacturer.

(2) Test site:

(a) The test site must consist of a level piece of hard ground surface of radius of at least 10 meters. The surface may consist of hard ground free from any vegetation, compacted gravel, asphalt or concrete.

(b) No buildings, trees or other obstacles may be within 250 meters from the measurement position.

(3) Flight procedure:

The aeroplane must be flown in the test pattern as per Figure 1. All tests must be conducted at full power and at a height of 500 ft AGL. The flight path must pass directly over the measurement microphone position while a height of 500 ft AGL is maintained over the measurement microphone. Four traverses must be made, each from a different direction.

(4) Measurements:

(a) Readings must be taken of the maximum value indicated by the test equipment during the particular overflight. Note must be taken that the difference between the minimum reading with the aeroplane at the furthest position from the test site and the maximum reading during the overflight must be at least 10 dB. Less than that is an indication that the environmental background noise level cause an error in the readings of more than 1 dB.

(b) The differences between the four readings must not exceed 3 dB. If the differences exceed 3 dB, then the test must continue until four consecutive readings are obtained of which the largest difference between the readings does not exceed 3 dB.

(c) The four readings must be combined by taking the arithmetic average. The average value shall not exceed 78 dBA.

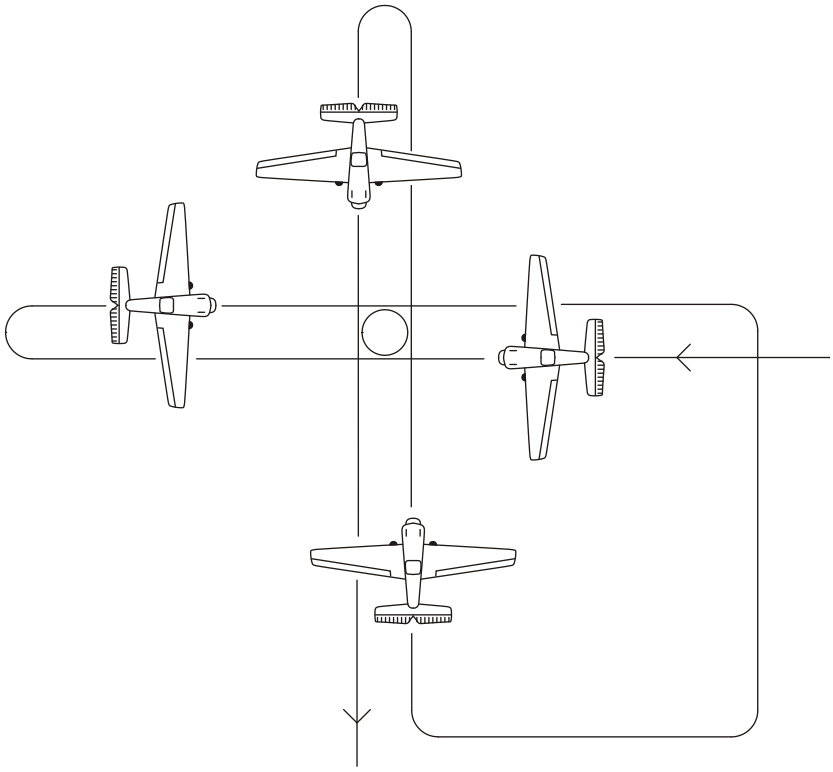
## 36.00.3 RECOGNITION OF FOREIGN NOISE CERTIFICATE

### 1. Standards

The standards that apply for the recognition of a foreign noise certificate are the appropriate noise standards referred to in TS 36.00.2.

## FIGURES

### Figure 1: Microlight aeroplane flight procedure



Test pattern to be flown as shown. Maximum radius from test point to be 1 000 meters at any time during test.