The Director of Civil Aviation has, in terms of section 163(1) of the Civil Aviation Act, 2009 (Act No. 13 of 2009) read with Part 11 of the Civil Aviation Regulations, 2011, amended Documents SA-CATS 47, SA-CATS 61 (Appendix 2.0A, Appendix 2.0C and Appendix 12.0), SA-CATS 65, SA-CATS 66, SA-CATS 67, SA-CATS 68, SA-CATS 69, SA CATS 136, SA CATS 139 and SA-CATS172 as reflected in the Schedules hereto. The Amendments to the Technical Standards as contained in the Schedules shall come into operation on 1 October 2015.

Poppy Khoza
Director of Civil Aviation
Date: 30 SEP 2015

SCHEDULE 1

1. SUBSTITUTION OF DOCUMENT OF SA-CATS 47 OF THE TECHNICAL STANDARDS

1.1 The following Document is hereby substituted for Document SA-CATS 47:

47.01.3 REQUIREMENT FOR AIRCRAFT MARKING

1. Definitions

Any word or expression, to which a meaning has been assigned in the Act, and the Regulations, bears the same meaning unless the context indicates otherwise, and:
"SCHEDULE 25: THE COLOUR VISION PROTOCOL"

Applicability
This technical standard is applicable to the following categories:

Class I
(a) Air Transport Pilots
(b) Commercial Pilots

Class II
Private Pilots with the following:
(a) Night Flying
(b) IF Rating
(c) Flying a Glass Cockpit Aircraft

1. Ishihara Test
All applicants will be required to submit themselves for Ishihara Test;

(a) Applicants must be able to demonstrate ability to perceive readily those colours the perception of which is necessary for the safe performance of duties;
(b) The use of tinted lenses to obtain adequate colour perception is not permitted;
(c) The medical examiner shall instructs the person being tested to report the number on a plate they can see and warns the subject that on some occasions they may not see a number;
(d) Ishihara test to be conducted as per manufacturer’s instructions test at a distance 75cm with plane of plates at right angles to line of vision under daylight or daylight simulated light;
(e) Applicants should see this number with a viewing time of about 3 seconds allowed for each plate, undue hesitation on the part of the subject may be the first indication of colour deficiency;
(f) Ishihara plates should be updated periodically or if showing any signs of fading;
(g) The Director shall only allow, 24 or 38 plates test version to be used for screening of colour vision;

(h) The Ishihara test is to be considered passed for the 24 Plates, if the 1<sup>st</sup>-15<sup>th</sup> are identified correctly, with no errors, presented in a random order;

(i) The Ishihara test is to be considered passed for the 38 Plates, if the 1<sup>st</sup>-24<sup>th</sup> are identified correctly, with no errors presented in a random order.

Class II medical certificate Applicants who fail to obtain a satisfactory score of the Ishihara Tests may nevertheless be assessed as fit.

A medical certificate may be issued if medical conclusion indicates that the applicant has a colour perception defect which is compatible with the safe exercise of the privileges of the license, provided the certificate is endorsed with the following limitations:

(a) For private pilot license privileges only;
(b) Not valid for night flying;
(c) Not valid for IFR flying or flying of EFIS equipped aircraft where the EFIS is the Primary Flight Instrument;
(d) Meet visual criteria for a Class II Medical Certificate; and
(e) The applicant shall submit a satisfactory report from an ophthalmologist every 2 years if the if < 40 years of age and every year if > 40 years of age.

Applicants who fail to pass in the Ishihara test and who wish to apply for a Class II PPL without restrictions and Class I medical certificate shall undergo further colour perception testing to establish whether they are colour safe using the Colour Assessment Diagnosis (CAD)

For Class I and Class II PPL without restrictions
CAD tests should be conducted under SACAA protocols as indicated below.

The CAD test will only pass as colour safe, those individuals who perform as well as individuals with colour vision in the normal range on the most difficult aviation colour vision tasks

Applicants will be required to present the Ishihara

The Definitive CAD will assess red/green colour vision and yellow/blue colour vision. The test can be done simultaneously or individually but will run somewhat faster if you only assess one type of colour vision at a time. The CAD will establish class of colour vision loss and whether pass (colour safe) or fail (colour unsafe).

(1) Applicants will be required to produce identity documents prior to examination

(2) Applicants may not wear coloured contact lenses

(3) A report from an Ophthalmologist that confirm that there are no visual defects, which must include:
   • Refraction errors
   • Peripheral vision
   • Exclusion of any acute or chronic eye disease
   • Lens abnormality
   • Absence of any medication that may cause colour vision defect.

The procedure for testing for colour deficiency using the Colour Assessment and Diagnosis (CAD) shall be as follows:
   • The applicant’s eye will be positioned at display height and at a distance of 1.4 meters.
   • The illumination in the room will be arranged such that no light falls directly on the display
   • The ambient illumination on the display surface will not exceed 1 lux.

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During this test, the applicant will see a coloured target moving diagonally across a central square in one of four possible directions (top-right, top-left, bottom-right, or bottom-left).

The response box has four buttons laid out to form a square.

The applicant’s task is to press the appropriate button to indicate the corresponding direction of movement.

When unsure, the applicant has to make their best guess

For best results, the applicant will be instructed to maintain fixation on the Centre of the square and not to track the moving target.

The applicant can request for representation of the current presentation if, for any reason, the subject failed to attend to the task, but not more than twice.

The applicant will start with the learning mode to familiarize themselves with the fools before being exposed to the definitive test.

**Interpretation of the CAD Results**

In the case of class 1 medical certificate, applicants shall have normal perception of colours or be colour safe;

(a) Colour Assessment and Diagnosis (CAD) test is considered passed if the threshold is equals to or less than 6SU for deutan deficiency, or equals or less than 12 SU for protan deficiency;

(b) A threshold greater than 2 SU for tritan deficiency will be disqualifying;

(c) A threshold greater than 2 SU for tritan deficiency indicates an acquired cause which should be investigated;

Applicants who fail further colour perception testing shall be assessed as unfit. A medical certificate may be issued if medical conclusion indicates that the applicant has a colour perception defect which is compatible with the safe exercise of the privileges of the license, provided the certificate is endorsed with the following limitations:

(d) For private pilot license privileges only;
(e) Not valid for night flying;
(f) Not valid for IFR flying or flying of EFIS equipped aircraft where the EFIS is the Primary Flight Instrument'
(g) Meet visual criteria for a Class II Medical Certificate; and
(h) The applicant shall submit a satisfactory report from an ophthalmologist every 2 years if the if < 40 years of age and every year if > 40 years of age

Operational Colour Vision Test and Medical Practical Flight Test

Applicable

Class I-Commercial Pilots only

Class II- with no colour vision restrictions on the medical certificate

Operational Colours Vision Test

1. An applicant for a Class I(Commercial) or Class II who has defective color vision, must demonstrate the the ability to pass an OCVT which includes:

(a) The ability to read and correctly interpret in a timely manner aeronautical charts and Jeppesen chart legents:

   (i) Including print in various sizes, colors, and typefaces; conventional markings in several colors; and terrain colors.

   (ii) Aeronautical chart reading may be performed under any light condition where the chart will normally be read.

Medical Practical Flight Test
(1) The Director may require applicants to demonstrate their ability to perceive color in an EFIS-equipped aircraft or EFIS Cockpit Simulator with the panel lighting set to the comfort of the applicant day and night and must include the interval from dawn to dusk;

(2) Medical Practical Flight Test shall be conducted in a Level C or D simulator, or such lessor device as determined by the Director in the instance of a specific;

(3) The Test shall be conducted by a panel of specialists appointed by the Director and will be coordinated by Authorized Officers (Medical Assessor) of the SACAA;

(4) The panel shall comprise of the following:
   (a) A representative Authorized Officers from the SACAA;
   (b) Designated Aviation Medical Examiner with either preferred experience in flying;
   (c) An Ophthalmologist;
   (d) Designated Flight Examiner as determined by the Director; and
   (e) The procedure for the medical practical flight test shall be approved by the Directors;

(5) Applicants must have the ability to demonstrate the following:
   (a) Must read and correctly interpret in a timely manner aviation instruments or displays, particularly those with colored limitation marks;
   (b) Must read and interpret colored instrument panel lights, especially marker beacon lights, warning or caution lights, weather displays, etc;
   (c) Must recognize terrain and obstructions in a timely manner; have the applicant select several emergency landing fields, preferably under marginal conditions, and describe the surface
   (d) Must visually identify in a timely manner the location, color and significance of aeronautical lights;
   (e) An applicant may be issued a medical with operational limitations should the panel appointed by the Director deem it necessary finds necessary for safety;
   (f) Applicants will be afforded a single opportunity for a Medical Practical Flight Test; and
Operating limitations required by physical deficiencies may restrict holders to certain aircraft types, special equipment or control arrangements, or special operating conditions.

**Considerations for Applicants with Class I Comm who fail a CAD and pass the OCVT and PMFT tests**

To Fly as CPL in a Multi-Crew environment by day and night as a Deuteranope with the following restrictions:

(a) The holder does not meet the ICAO medical standard as per Annex 1 and is therefore restricted to fly within the South African borders on a South African registered aircraft only.

(b) Applicants who fail the CAD will not qualify for Air Transport Pilot Licence operations;

(c) Annual ophthalmological assessment will be required to determine any refractory, visual field or lens translucency change every two years is < 40 years and annually if > 40 years;

(d) The applicants must inform his/her employer and cockpit crew members of his Red-Green Colour deficiency;

(e) Restricted to a Cabin Altitude of maximum 8000ft AMSL at night or during IFR conditions;

(f) May not perform any CAT II approaches;

(g) Apply a minimum required flight hours as prescribed in SA-CARS/CATS Part 61 before allowing him to fly as PIC with CPL. The amount of additional hours required was not determined.; and

(h) The decision and restrictions will be reviewed, should there be a change in his condition or new evidence become available regarding Deuteranopia and flight safety’.

**SCHEDULE 6**