Namibia Civil
Aviation Authority

Aviation Directive

Reference Number: 1/2/4-1

Personnel Licensing

February 2024

ISSUING OF REMOTELY PILOTED AIRCRAFT SYSTEM (RPAS) CERTIFICATE

Approval

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	Position	**Name**	**As signed**	**Date**
Reviewed by:	Senior Manager PEL	Andrew Theron		27/02/2024
Legal revision:	Chief Legal Counsel	Christoph Seimelo		28/02/2024
Checked and Recommended for Approval by:	General Manager: Safety	Ericsson Nengola		28/02/2024
NCAA Approval:	Executive Director: NCAA	Toska Sem		28/02/2024

NCAA 2024 -02- 28 Private Bag 12003 Ausspannplatz Windhoek Office of the Executive Director

1. Legal

1.1 Pursuant to section 38 (6) of the Civil Aviation Act, "the Executive Director may issue an Aviation Directive ("AD") comprised of a permission, approval or procedure, or the imposition of a condition, restriction, or prohibition which the Executive Director believes on reasonable grounds to be –

a. consistent with the objectives of applicable regulatory requirements, procedures, or documents; and
b. necessary and expedient to better achieve the objects of the Act".

1.2 This AD sets in place requirements for issue of remote pilot operator certificates.

2. Background

2.1 There is currently no guidance in the regulations on the issue of remote pilot certificates. While there are approved aviation training organisations for Remotely Piloted Aircraft Systems (RPAS), the NCAA needs a legal mechanism to issue a RPAS certificates.

3. Purpose

3.1 This directive aims to provide the legal framework for the issue of RPAS certificates to qualifying persons.

4. Applicability

4.1 This directive applies to all RPAS Operators authorised in terms of NAMCAR Part 101 and directive NCAA 1/2/3-6 and to give guidance to RPAS training organisations approved in terms of NAMCAR Part 141. The guidelines in this directive do not apply to persons flying toys or model aircraft when these systems are used exclusively for recreational purposes. However, these persons must comply with Namibia's legislation, ordinances, restrictions or other agreed upon guidance regarding the flight of model aircraft and/or toys.

5. Effective Date

5.1 This directive shall be effective from **1st March 2024** until cancelled or superseded by promulgated relevant regulations or a revised substitution.

6. References

6.1 The following regulations are referred to in this document:
a. NAMCAR Part 101, 2020 as amended; and
b. NAMCAR Part 141, 2001 as amended.

7. Action Required

7.1. The Namibia Civil Aviation Authority (NCAA) may issue a certificate to an RPAS operator, providing they meet the criteria outlined in this directive.

7.2. The certificate referred to in 8.1 shall permit the holder to operate their RPAS in Namibian Airspace provided they comply with all other requirements related to their type of operation.

7.3. An operator aspiring for an RPAS pilot certificate shall apply to PEL using form FSS PEL -RPAS accompanied by all the required documents listed on the form and the application proof of payment of N$300.

7.4. The certificate referred to in paragraph 8.1 shall be valid for a period of two years from the date of issue.

7.5. The certificate referred to in para 8.1 shall be deemed valid from the date of its expiry if the conditions for renewal are met within 90 days prior to its expiry with the renewal application completed on form FSS PEL-RPAS accompanied by a valid RPAS certificate, the operator's certified logbook and the fee prescribed in Section 8.3 above.

7.6. An applicant must pass a skills test for the reissuance of the RPAS certificate if the certificate has lapsed. In this case, the reissued certificate will be rendered valid from the date of passing of the skills test.

8. Rules for Issuance of the Remotely Piloted Certificate

8.1. General rules

8.1.1. Unless undergoing a skills test or receiving instruction, no person shall act either as a remote pilot of a Remotely Piloted Aircraft (RPA) unless that person is the holder of a valid remote pilot certificate, containing the ratings suitable for the purpose of executing the operation.

8.1.2. A remote pilot certificate may be issued for the following categories—
a. Aeroplane; or

b. Multi-rotor; or
c. Hybrid –vertical take-off and landing (VTOL).

8.1.3. A remote pilot shall have the following ratings on their personal certificate—
a. Visual line-of-sight operations (VLOS);
b. Extended visual line-of-sight operations (E-VLOS);
c. Beyond visual line-of-sight operations (B-VLOS); and
d. Night Operations.

8.2. Requirements for the Issue of a Remote Pilot Certificate

8.2.1. An applicant for a remotely piloted certificate must—
a. Not be less than 16 years of age;
b. Hold at least —
i. a valid class 3 medical certificate for B-VLOS operations or operations involving remotely piloted aircraft classified as category III in Part 101.
ii. A Restricted Certificate of Proficiency in Radiotelephony (Aeronautical), for operations involving RPAS classified category III in Part 101
iii. Level 4 English language proficiency level.
iv. provide proof of flight training referred to in paragraph 8.4.
c. have passed—
i. an online theoretical knowledge examination referred to in paragraph 8.3; and
ii. a practical skills test referred to in paragraph 8.5.

8.3. Online Theoretical Knowledge Examination

8.3.1. The online theoretical knowledge examination applicable to the category of certificate sought must be passed within 90 days preceding the practical skills test.

8.3.2. The theoretical knowledge examination shall be conducted at a test centre or ATO accredited by the NCAA.

8.3.3. The theoretical knowledge examination should cover the basic knowledge on the following subjects covering the content of Appendix A of this Directive:
a. NAMCARS & NAMCATS of RPAS Part 101 (airlaw and operational procedures);
b. RPAS: Basic knowledge;
c. Aerodynamics (principles of flight);
d. Human factors;

e. Navigation;
f. Meteorology (weather);
g. Operational procedures.

8.4. Flight Training

8.4.1. The flight training syllabi as specified in Appendix B of this directive for the different categories of certificate shall be as approved by the Executive Director.

8.4.2. The institution conducting the training MUST be approved by the Executive Director and shall issue a certificate of training stating that flight training has been successfully completed.

8.4.3. All flight training shall be conducted with a remotely piloted aircraft of the same category for which the certificate is sought.

8.5. Practical Skills Test

8.5.1. The practical skills test for a remote pilot certificate shall be conducted by an examiner accredited by the Executive Director within 30 days of completing the flight training.

8.5.2. The practical skills test shall be conducted with a remotely piloted aircraft of the same type for which the certificates are sought.

8.5.3. The holder of the remote pilot certificate shall submit the practical skills test form to the NCAA within 30 days of completion of the practical skills test.

8.5.4. The practical skills test shall include the applicable sections for the extended visual line of sight (E-VLOS) and beyond visual line of sight (B-VLOS) ratings if one or more of these ratings are sought, this would include night operations.

8.6. Certificate Renewal

8.6.1. A remote pilot certificate shall be valid for a period of two years from the date of issue or renewal.

8.6.2. A revalidation check shall be conducted in the 90-day period before the expiry of the remote pilot certificate, by an examiner accredited by the NCAA.

8.6.3. The revalidation check shall be conducted on a remotely piloted aircraft of the same type for which the certificate is held.

8.6.4. The holder of a remote pilot certificate shall submit the revalidation check form to the NCAA within 30 days of the revalidation check.

8.6.5. Should the remote pilot certificate lapse for more than 36 months, conditions of initial issue will have to be met before the certificate is re-issued.

8.7. Pilot logbook

8.7.1. A holder of a remote pilot certificate must maintain a record of all his or her flight time, instrument time, simulation time and instruction time.

8.7.2. Where electronic logbooks are used, the electronic data must be printed on paper at least every 90 days and the printed pages filed sequentially.

8.7.3. The pilot must retain all pilot logbooks for at least five years from the date of the of remote pilot certificate expiry.

8.7.4. The holder of a remote pilot certificate must make the logbook available for inspection upon request by the NCAA.

9. Validation of a Certificate Issued by a Foreign CAA

9.1. Application for the validation of an RPAS certificate issued by an appropriate Authority shall be made on Form FSS PEL VAL RPAS.

9.2. The Executive Director may recognize RPAS certificates issued by an appropriate Authority if the standard of such foreign certificate or rating is deemed to be equivalent to, or higher than, the Namibian certificate.

9.3. Before the Executive Director validates a foreign certificate, he or she must confirm the validity of the foreign certificate or rating with the appropriate Authority of the issuing Contracting State.

9.4. Notwithstanding the provisions of 8.8.2 and 8.8.3 above, any applicant for the validation of a foreign RPAS certificate must write and pass the theoretical knowledge examination at an NCAA-approved Test Centre, and successfully pass the final practical skills test with an NCAA approved Examiner.

10. Certificates of Proficiency Issued by an approved ATO prior to this Directive.

10.1. Applicants who completed training for a Remotely Piloted Aircraft Certificate at an NCAA-approved ATO prior to the date of publication of this directive will be granted a certificate valid for two years dated from the date they obtained the certificate of proficiency. The Certificate of Proficiency will be granted on the condition the applicants satisfy the provisions of sections 8.2 and 8.7 of this directive.

11. Enforceability of the Directive

11.1. This directive shall be enforceable to all participating Part 141 approved Aviation Training Organisations and operators authorised in terms of NAMCARs Part 101 from the 91st day following the date of publication thereof.

Issued by

NAMIBIA CIVIL AVIATION AUTHORITY NCAA 2024 -02- 28 Private Bag 12003 Ausspannplatz Windhoek Office of the Executive Director

Toska Sem
Executive Director

APPENDIX A: RPAS THEORETICAL KNOWLEDGE SYLLABUS

1. AIRLAW AND OPERATIONAL PROCEDURES

a. NAMCAR Part 101
b. Integrated Aeronautical Information Package (AIP, AIP Supp, AIC, NOTAM) -Use of applicable documents.

2. RPAS: BASIC KNOWLEDGE

a. Lights for remotely Piloted aircraft
b. Airframes
c. Handling/care/Securing
d. Propulsion systems (As applicable to the category of certificate)
e. Electric Motors- Brushed motors, brushless
f. Electronic Speed controllers
g. Petrol engines
h. Fuel mixtures
i. Propellers and Rotors (sizes , length and pitch)
j. Servo Motors and Servo Actuators used in remotely piloted aircraft
k. Radio control link (C2 Link)
l. Radio Control transmitter and receiver- Setup (as applicable to category of certificate)
m. Frequencies used
n. Data link
o. airborne receiver
p. remote pilot station – command and control functions; telemetry; detect and avoid uplink and downlink; first person view (FPV),mission planner software; position and obstacle mapping; and waypoint navigation;
q. frequencies used and setup.
r. Wireless links general –
s. line-of-sight-
t. coverage range
u. antennas as used in remotely piloted aircraft systems
v. Flight controller (autopilot system) –
w. inputs and outputs
x. inertial measurement unit (IMU)
y. flight modes and facilities; and
z. setup.

3. BATTERIES

a. sealed lead-acid (SLA)
b. nickel-cadmium (NiCad)
c. nickel-metal hydride (NiMH)
d. lithium-ion (Li-Ion);
e. lithium polymer (Li-Poly/LiPo);
f. charging of batteries;

g. Safety concerns; and Battery fires.

4. AERODYNAMICS (PRINCIPLES OF FLIGHT)

a. Forces acting on an aircraft (As applicable to the category of certificate
b. Weight
c. Lift
d. Thrust
e. Drag
f. Axes on an aircraft and the motion about the axes
g. Lateral axis-pitch
h. Longitudinal axis- roll
i. Normal Axis -yaw
j. Control of motion about the axes (as applicable to the category of certificate)
k. Weight and balance (as applicable to the category of certificate
l. Dimensions and weight of aircraft
m. Arm, moment, reference datum, flight station, center of gravity
n. Forward and aft limitations of CG
o. The stall (applicable to the Aeroplane Category only)
p. Boundary Layer
q. Stalling Angle of Attack
r. Aeroplane characteristics at the stall
s. Flight controls (applicable to the Multi Rotor of VTOL Category Only)
t. Different Configurations and Frames
u. Flight Controls: Collective control. Cyclic control, Anti-Torque control
v. Rotor blade stall
w. Ground Effect

5. HUMAN FACTORS

a. Vision
b. Empty Field Myopia
c. Adaption to darkness
d. Autokinesis
e. Visual scanning techniques
f. Hearing
g. Aviation Psychology
h. Stress (stressors) and managing stress
i. Decision making (factors affecting)
j. Situational awareness
k. Managing risk
l. Attitudes
m. Workload -Attention and Information Processing
n. Fatigue and sleep
o. Body rhythm/jet lag
p. Substance abuse and flying- Medications & Anesthetics, Alcohol and Drugs
q. Toxic Hazards

6. NAVIGATION

a. Maps and Charts

b. Aeronautical chart information:
c. Symbols, Scales and Units of Measurement,
d. Latitude and Longitude
e. Use of charts- position locating, measurement of direction and distance, True and magnetic track
f. Time and Longitude
g. 24-hour system
h. UTC and local time
i. Sunrise and Sunset
j. GPS- Components of a GPS system used on an RPA

7. METEOROLOGY (WEATHER)

a. The earth's atmosphere
b. Composition and physical properties
c. Factors affecting Air Density
d. Pressure- measurements, station and sea level pressure, effects of temperature
e. Calculations- Pressure altitude, Density Altitude and Altimeter settings (for fixed -wing , VTOL and BVLOS only)
f. Clouds
g. Types applicable to low level flying and recognition
h. Associated Precipitation and turbulence
i. Icing-Formation, freezing rain, Frost and effect of ice and frost on RPAS performance (for fixed -wing , VTOL and BVLOS only)
j. Surface based layers
k. Fog and Mist formation
l. Haze/Smoke
m. Effect on vision
n. Wind and gusts
o. Pressure gradient
p. Low level winds
q. Windshear
r. Turbulence-types of
s. Thunderstorms
t. Development stages and associated weather conditions
u. Hazards- updrafts/downdrafts/gust fronts/ downbursts /microbursts /hail /lightning /antennas
v. Aviation weather reports: TAF, METAR, ATIS and Non-Aviation Sources

APPENDIX B: RPAS PRACTICAL TRAINING SYLLABUS

1. GENERAL

a. Flight training may be a combination of simulator and aircraft training. The exercises do not need to comply with the sequence provided below.

2. ITEMS APPLICABLE TO ALL RPAS CATEGORIES:

a. Aircraft pre-flight inspection and setup.
b. Post-launch in-flight evaluation procedures (checking of systems directly after launch – if applicable to the category of certificate).
c. Automated flying and flight controller flight modes.
d. First person view (fpv) flying (if applicable).
e. Parachute-assisted landing (if applicable to the category of certificate).
f. Evasive action (manoeuvres) to avoid collisions.
g. Post-flight inspection.
h. ATTI mode

3. ITEMS APPLICABLE TO THE AEROPLANE CATEGORY:

a. Climbing and descending.
b. Turning whilst maintaining altitude.
c. Climbing and descending turns.
d. Speed changes while maintaining altitude.
e. Horizontal figure eight.
f. Stalls.
g. Take-offs, approaches, and landings.
h. Catapult launch if applicable.
i. Hand launch if applicable.
j. Engine failure at altitude, after take-off and on the approach.
k. VTOL – vertical take-off and landing if applicable.

4. ITEMS APPLICABLE TO MULTI-ROTOR AND VTOL CATEGORIES: (AS APPLICABLE)

a. Tail-in hover.
b. Tail-in hover performing squares and circles.
c. Tail-in hover yawing slowly to right and left.
d. Tail-in hover, move to right then to the left.
e. Tail-in hover, move forwards then backwards.
f. Tail-in hover, ascend and descend.
g. Take-off, approach, and landing
h. Tail-in hover performing a horizontal figure eight.
i. Tail-in hover performing a vertical rectangle.
j. Side-on hover (both sides).
k. Transition from hover to forward flight.
l. Transition from forward flight to hover.
m. Turns from level flight.
n. Climbing and descending from level flight.
o. Nose-in hover.
p. Autorotation.
q. From hover fly a square box rotating (yawing) the multi-rotor in the direction of flight.

r. From hover fly a circle rotating (yawing) the multi-rotor nose-in to the centre of the circle.
s. Control in level flight.
t. Actions after failure of a motor

SAMPLE CERTIFICATE

NCAA/RPAS CERTIFICATE-0001

Namibian RPAS Certificate

CERTIFICATE HOLDER PHOTOGRAPH

Personal Details	
Name	JOHN DOE
Identity/ Passport Number	NCAAPEL2001
Nationality	NAMIBIAN
Address	4 RUDOLF HERTZOG STREET WINDHOEK
RPAS CertificateDetails	
CertificateNumber	0001
CertificateCategory & Ratings	MULTIROTOR VLOS
Category of Operation	II
RadioTelephony Certificate(Type & expiry)	RESTRICTED 31/03/2027
Language Proficiency (Level & expiry)	LEVEL 4 31/03/2025
Expiry Date	31/03/2024

Conditions of Issue

1. This Certificate is **ONLY** valid when accompanied by a valid NCAA issued medical certificate.
2. This Certificate should be carried at all times when utilizing its privileges in accordanc with the Namibian Regulations

CERTIFICATE HOLDER SIGNATURE

NCAA INSPECTOR SIGNATURE

NCAA STAMP