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NIGERIA CIVIL AVIATION REGULATIONS

PART 21 — REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)

Introduction

Part 21 sets forth the requirements for the certification, registration, operations, and surveillance of Remotely Piloted Aircraft Systems (RPAS).

It incorporates relevant requirements governing the safe operation of RPAS as contained in the ICAO Annexes 1, 2 and 6 Part I and Annex 10 Vol. VI to the Chicago Convention and the principles of ICAO Docs 10019, 9668.

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NIGERIA CIVIL AVIATION REGULATIONS

PART 21 — REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)

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NIGERIA CIVIL AVIATION REGULATIONS

PART 21 — REMOTELY PILOTED AIRCRAFT SYSTEMS (RPAS)

21.1. GENERAL

21.1.1.—(*a*) This part applies to certification, registration, operations, and surveillance of Remotely Piloted Aircraft Systems (RPAS). Applicability

21.1.1.1. This part sets out :

(*a*) The classification of RPAS
(*b*) Security Requirements
(*c*) The registration and marking of RPAS
(*d*) RPAS Operating Requirements Definitions
(*e*) RPAS Maintenance Requirements
(*f*) Requirement for ROC
(*g*) Requirement for Manufacturers
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21.1.1.2. Nothing in this Part applies to ;

(*a*) a control-line model aircraft (that is, a model aircraft that is constrained to fly in a circle, and is controlled in attitude and altitude, by means of inextensible wires attached to a handle held by the person operating the model) ; or

(*b*) a model aircraft indoors ; or

(*c*) a remotely piloted airship indoors ; or

(*d*) a small balloon within 100 metres of a structure and not above the top of the structure ; the operation of a remotely piloted balloon or a hot air balloon ; or

(*e*) remotely piloted tethered balloon that remains below 400 feet above ground level ; or

(*f*) a firework rocket not capable of rising more than 400 feet above ground level.

21.1.1.3. A flight does not take place indoors in accordance with 21.1.1.2 of this regulations, if the building in which it takes place has the roof, or one (1) or more walls, removed.

21.1.1.4. All RPAS classified under subsection 21.2.1.2 shall be registered by the Nigeria Civil Aviation Authority.

21.1.1.5. Private, Recreational, Educational or Research RPAS Operations :

(*a*) No person may conduct private or recreational or educational or research RPAS operations unless :

(*i*) the flights are below Four Hundred feet (400 ft) AGL ;

(*ii*) the flights are limited to VLOS operations ;

(*iii*) the flight are conducted outside a radius of 10 km of any aerodrome or helipad or heliport ;or as may be prescribed by the Authority or the Nigeria Airspace Management Agency ;

(*iv*) the flights are not conducted over any congested area ;

(*v*) the RPAS is in compliance with all relevant sections of this Part and any regulations and laws of the Federal Republic of Nigeria ;

(*b*) Recreational RPAS operations are forbidden in restricted, prohibited, danger areas and Special Use Areas (SUA) as published in the Nigeria Aeronautical Information Publication (AIP),

(*c*) Private RPAS operations and educational/research RPAS operations are forbidden in restricted, prohibited, danger areas and Special Use Areas (SUA) as published in the Nigeria Aeronautical Information Publication (AIP), without prior authorisation from the Authority and any other relevant Governmental agencies.

Definitions

21.1.2. "*Accident*" means an occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which :

(*a*) a person is fatally or seriously injured as a result of :

— being in the aircraft, or
— direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
— direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew ; or

(*b*) the aircraft sustains damage or structural failure which :

— adversely affects the structural strength, performance or flight characteristics of the aircraft, and
— would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome) ; or

(*c*) the aircraft is missing or is completely inaccessible.

Interpretation.

Note 1.— For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified, by ICAO, as a fatal injury.

Note 2.— An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Note 3.— The type of unmanned aircraft system to be investigated is addressed in 5.1 of Annex - 13 — Aircraft Accident and Incident Investigation.

Note 4.— Guidance for the determination of aircraft damage can be found in Attachment E of Annex 13.

Aerial work.— means an aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

Aerodrome.— means a defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome Operating minima.— means the limits of usability of an aerodrome for :

(*a*) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions ;

(*b*) landing in 2D instrument approach operations, expressed in terms of visibility and/or runway visual range minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions ; and

(*c*) landing in 3D instrument approach operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the type and/or category of the operation.

Aeroplane.— means a power -driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

Airborne Collision Avoidance System (*ACAS*).— means an aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

Aircraft.— means any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Aircraft category.— means classification of aircraft according to specified basic characteristics, e.g. aeroplane, helicopter, glider, free balloon.

Air traffic.— means all aircraft in flight or operating on the manoeuvring area of an aerodrome.

Air traffic control clearance.— means authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Air traffic control service.— A service provided for the purpose of :

(*a*) preventing collisions :

(*i*) between aircraft, and

(*ii*) on the manoeuvring area between aircraft and obstructions ; and

(*b*) expediting and maintaining an orderly flow of air trafficAir traffic control unit means a generic term meaning variously, area control centre, approach control unit or aerodrome control tower.

Air traffic service.— means a generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

Air traffic services unit.— means a generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.

Authority.— means The Nigeria Civil Aviation Authority.

Automatic Dependent Surveillance.— means Broadcast (ADS-B), a means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

Autonomous aircraft.— means an unmanned aircraft that does not allow pilot intervention in the management of the flight.

Autonomous operation.— means an operation during which a remotely piloted aircraft is operating without pilot intervention in the management of the flight.

Aircraft operating manual.— means a manual, acceptable to the State of the Operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft.

Note 1.— The aircraft operating manual is part of the operations manual.

Note 2.— For RPAS, this includes information related to the whole system, including the RPS.

Alternate aerodrome.— means an aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following :

Take-off alternate.— An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate.— An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en-route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note.— The aerodrome from which a flight departs may also be an enroute or a destination alternate aerodrome for that flight.

Beyond visual line-of-sight (*BVLOS*) *operation.*— means an operation in which the remote pilot or RPA observer does not use visual reference to the remotely piloted aircraft in the conduct of flight.

Certificate.— means an official document issued by the Authority attesting to the successful completion of certification.

C2 Link.— means the data link between the remotely piloted aircraft and the remote pilot station for the purposes of managing the flight.

C2 Link.— communications service provider (C2CSP) means an entity which provide a portion of, or all of, the C2 Link service for operation of an RPAS.

Note.— An RPAS operator may also be its own C2CSP.

C2 Link coverage area.— means the area in which the C2 Link service can be received including the area where the QoSD does not meet the QoSR.

C2 Link interruption.— means any temporary situation where the C2 Link is unavailable, discontinuous, introduces too much delay, or has inadequate integrity ; but where the lost C2 Link decision time has not been exceeded.

C2 Link log.— means a record of the activities related to the C2 Link.

C2 Link service.— means a communication service providing the C2 Link.

C2 Link service.— area means the area within the C2 Link coverage area where the C2 Link QoSD meets the QoSR.

C2 Link specification.— means the minimum performance to be achieved by the C2 Link equipment in conformity with the applicable airworthiness system design requirements.

COMAT.— means operator material carried on an operator's aircraft for the operator's own purposes.

Commercial RPAS operation.— means all RPAS operation for remuneration or hire.

Configuration deviation list (*CDL*) means a list established by the organization responsible for the type design with the approval of the State of Design which identifies any external parts of an aircraft type which may be missing at the commencement of a flight, and which contains, where necessary, any information on associated operating limitations and performance correction.

Continuing airworthiness.— means the set of processes by which an aircraft, remote pilot station, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life.

Continuing airworthiness records.— means records which are related to the continuing airworthiness status of an aircraft, remote pilot station, engine, propeller or associated part.

Conspicuity.— means quality of an aircraft (*e.g*. lighting or paint scheme), allowing it to be easily seen or noticed by others (*e.g*. by pilots, ATCOs, aerodrome personnel).

Continuing airworthiness.— means the set of processes by which an aircraft, remote pilot station, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life.

Control area.— means a controlled airspace extending upwards from a specified limit above the earth.

Controlled aerodrome.— means an aerodrome at which air traffic control service is provided to aerodrome traffic.

Controlled airspace.— means an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

Controlled airspace means a n airspace of defined dimensions within
which air traffic control service is provided in accordance with the airspace classification.

Controlled flight.— Any flight which is subject to an air traffic control clearance.

Controller-Pilot Data Link Communications (*CPDLC*).— means a means of communication between controller and pilot, using data link for ATC communications.

Control zone.— means a controlled airspace extending upwards from the surface of the earth to a specified upper limit.

Controlled flight. Any flight which is subject to an air traffic control clearance.

Dangerous goods.— means articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions.

Note.— The provisions of Annex 18 govern the international transport of dangerous goods by air including their classification.

Defined point after take-off (*DPATO*).— means the point, within the take-off and initial climb phase, before which the helicopter's ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required.

Note.— For RPAS, defined points apply to remotely piloted helicopters operating in performance Class 2 only.

Data link communications.— means a form of communication intended for the exchange of messages via a data link.

Defined point before landing (*DPBL*).— means the point, within the approach and landing phase, after which the helicopter's ability to continue the flight safely, with one engine inoperative, is not assured and a forced landing may be required.

Note.— For RPAS, defined points apply to remotely piloted helicopters operating in performance Class 2 only.

Detect and avoid.— means the capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Duty.— means any task that flight or cabin crew members are required by the operator to perform, including, for example, flight duty, administrative work, training, positioning and standby when it is likely to induce fatigue.

Note.— For RPAS this includes remote flight crew members.

Duty period.— means a period which starts when a flight or cabin crew member is required by an operator to report for or to commence a duty and ends when that person is free from all duties.

Note.— For RPAS this includes remote flight crew members and other remote crew members.

Flight manual.— means a manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

Note.— For RPAS, this includes information related to the whole system,including the RPS and remote flight crew members.

Flight simulation training device.— means any one of the following three types of apparatus in which flight conditions are simulated on the ground :

A flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated ;

A flight procedures trainer, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class ;

A basic instrument flight trainer, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.

Note.— For RPAS, the RPS is equivalent to the “flight deck,” and may not be specific to the type of RPA being used.

Fatigue.— means a physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase, or workload (mental and/or physical activity) that can impair a crew member’s alertness and ability to safely operate an aircraft or perform safety-related duties.

Fatigue Risk Management System (*FRMS*) means a data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles and knowledge as well as operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

Flight data analysis.— means a process of analysing recorded flight data in order to improve the safety of flight operations.

Flight duty period.— means a period which commences when a remote crew member is required to report for duty that includes a flight or a series of flights and which finishes when the remote crew member's duty ends.

Flight plan.— means specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

Flight termination system.— means a system intended to terminate flight and minimize the possibility of injury or damage to persons, property or other aircraft.

Flight time – remotely piloted aircraft systems.— means the total time from the moment a C2 Link is established between the remote pilot station (RPS) and the remotely piloted aircraft (RPA) for the purpose of taking off or from the moment the remote pilot receives control following a handover until the moment the remote pilot completes handover or the C2 Link between the RPS and RPA is terminated at the end of the flight.

Handover.— means the act of passing piloting control from one remote pilot station to another.

Helicopter.— means a heavier -than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes.

Note.— Some States use the term "rotorcraft" as an alternative to "*helicopter*".

Human Factors principles.— means principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

Human performance.— means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Incident.— means an occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Note.— The types of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies are listed in Attachment C of Annex 13 – Aircraft Accident and Incident Investigation.

IFR.— means the symbol used to designate the instrument flight rules.

IFR flight.— means a flight conducted in accordance with the instrument flight rules.

Instructions for Continuing Airworthiness (*ICA*) means a set of descriptive data, maintenance planning and accomplishment instructions, developed by a design approval holder in accordance with the certification basis for the aeronautical product. The ICAs provide air operators with the necessary information to develop their own maintenance programme and also for approved maintenance organizations to establish the accomplishment instructions.

Instrument Meteorological Conditions (*IMC*).— means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

Landing area.— means that part of a movement area intended for the landing or take- off of aircraft.

License.— means official or legal permission granted by the Authority to engage in a regulated activity.

Lost C2 Link decision state.— means the state of the RPAS in which a C2 Link interruption has occurred, but the duration of which does not exceed the lost C2 Link decision time.

Lost C2 Link decision time.— means the maximum length of time permitted before declaring a lost C2 Link state during which the C2 Link performance is not sufficient to allow the remote pilot to actively manage the flight in a safe and timely manner appropriate to the airspace and operational conditions.

Lost C2 Link state.— means the state of the RPAS in which the C2 Link performance has degraded, as a result of a C2 Link interruption that is longer than the lost C2 Link decision time, to a point where it is not sufficient to allow the remote pilot to actively manage the flight in a safe and timely manner.

Maintenance.— means the performance of tasks on an aircraft, remote pilot station, engine, propeller or associated part required to ensure the continuing airworthiness of an aircraft, remote pilot station, engine, propeller or associated part including any one or combination of overhaul, inspection, replacement, defect rectification, and embodiment of a modification or repair. Maintenance Control Manual. means a document that describes the operator's procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator's aircraft on time and in a controlled and satisfactory manner.

Maintenance programme.— means a document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, such as a reliability programme, necessary for the safe operation of those aircraft to which it applies.

Master minimum equipment list (*MMEL*).— means a list established for a particular aircraft type by the organization responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures.

Minimum equipment list (*MEL*).— means a list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the MMEL established for the aircraft type.

Note.— For RPAS this includes inoperative equipment of the RPAS, not only the RPA.

Movement area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

Night.— means the hours between the sunset and sunrise.

Nominal C2 Link state.— means the state of the RPAS when the C2 Link performance is sufficient to allow the remote pilot to actively manage the flight of the RPA in a safe and timely manner appropriate to the airspace and operational conditions.

NOTAM.— means a notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

Operational control.— means the exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

Operations in performance Class 1.— means operations with performance such that, in the event of a critical engine failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, unless the failure occurs prior to reaching the take-off decision point (TDP) or after passing the landing decision point (LDP), in which cases the helicopter must be able to land within the rejected take-off or landing area.

Note.— For RPAS, this refers to remotely piloted helicopters only.

Operations in performance Class 2.— means operations with performance such that, in the event of critical engine failure, performance is available to enable the helicopter to safely continue the flight to an appropriate landing area, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required.

Note.— For RPAS, this refers to remotely piloted helicopters only.

Operations in performance Class 3.— means operations with performance such that, in the event of an engine failure at any time during the flight, a forced landing will be required.

Note.— For RPAS, this refers to remotely piloted helicopters only.

Operations manual.— means a manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

Operations specifications.— means the authorizations, including specific approvals, conditions and limitations associated with the air operator certificate and subject to the conditions in the operations manual.

Note.— For RPAS these specifications are associated with the RPAS operator certificate.

Operator.— means the person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Note.— In the context of remotely piloted aircraft, an aircraft operation refers to the operation of an RPAS.

Operator's maintenance control manual.— means a document which describes the operator's procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator's aircraft on time and in a controlled and satisfactory manner.

Note.— For RPAS this includes all parts and components of the RPAS, not only the RPA.

Permit.— means a generic term for any approval to fly an RPAS granted by the Authority.

Populous Area.— means congested area of cities, towns or settlements or an open air assembly.

Private RPAS operation.— means all RPAS operation other than commercial or recreational.

Psychoactive substances means alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

Quality of Service (*QoS*).— means the totality of the characteristics of an entity that bear on its ability to satisfy stated and implied needs Quality of service delivered (QoSD) means a statement of the QoS achieved or delivered to the RPAS operator by the C2CSP.

Quality of service experienced (*QoSE*).— means a statement expressing the QoS that the remote pilot believes they have experienced.

Quality of service required (*QoSR*).— means a statement of the QoS requirements of the RPAS operator to the C2CSP.

Note.— The QoSR may be expressed in descriptive terms (criteria) listed in the order of priority, with preferred performance value for each criterion. The C2CSP then translates these into parameters and metrics pertinent to the service.

Recreational RPAS operation.— means all RPAS operation for entertainment or leisure.

Remote co-pilot.— means a licensed remote pilot serving in any piloting capacity other than as remote pilot-in-command but excluding a remote pilot who is in the remote pilot station for the sole purpose of receiving flight instruction.

Remote crew member means a person assigned by an operator with duties connected to the operation of a remotely piloted aircraft system during a flight duty period.

Remote cruise relief pilot.— means a remote flight crew member who is assigned to perform remote pilot tasks during cruise flight, to allow the remote pilot-in- command to obtain planned rest.

Remote flight crew member.— means a licensed flight crew member charged with duties essential to the operation of a remotely piloted aircraft system during a flight duty period.

Remote pilot.— means a person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time.

Remote pilot in command.— means the remote pilot designated by the operator as being in command and charged with the safe conduct of a flight.

Remote pilot station (*RPS*).— means the component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

Remotely piloted aircraft (*RPA*) means an unmanned aircraft which is piloted from a remote pilot station.

Remotely piloted aircraft system (*RPAS*).— means a remotely piloted aircraft, its associated remote pilot station(s), the required C2 Link(s) and any other components as specified in the type design.

Research RPAS operations.— generally denotes RPAS used to perform scientific studies, such as weather research or geophysical surveying.

Rest period.— means a continuous and defined period of time, subsequent to and/or prior to duty, during which flight or cabin crew members are free of all duties.

Note.— For RPAS, this applies to remote flight crew members and other remote crew members.

Remotely Piloted Aircraft System operating manual.— means a manual, acceptable to the State of the Operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the RPA and each associated RPS model and other material relevant to the operation of the remotely piloted aircraft system.

Required Communication Performance (*RCP*).— means a statement of the performance requirements for operational communication in support of specific ATM functions.

Required Communication Performance type (*RCP type*).—means a label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

RPA observer.— means a trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

RPAS operator certificate (*ROC*).— means a certificate authorizing an operator to carry out specified RPAS operations.

RPAS-recorder system (*RPAS-RS*).— means the recorder system installed in the remotely piloted aircraft system for the purpose of complementing accident/incident investigation. RPAS recorder systems consists of the following :

An RPA-recorder system (RPA-RS). Any type of recorder system installed in the remotely piloted aircraft for the purpose of complementing accident/incident investigation.

An RPS-recorder system (RPS-RS). Any type of recorder system installed in the RPS for the purpose of complementing accident/incident investigation.

Risk mitigation.— means the process of incorporating defences or preventive controls to lower the severity and/or likelihood of a hazard's projected consequence.

Rotorcraft.— means a power-driven heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors.

Safety.— means the state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

Safety management system (*SMS*).— means a systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.

Safety oversight.— means a function performed by a State to ensure that individuals and organizations performing an aviation activity comply with safety-related national laws and regulations.

Safety performance.— means the Authority's or a service provider's safety achievement as defined by its safety performance targets and safety performance indicators.

Safety performance indicator.— means a data-based safety parameter used for monitoring and assessing safety performance.

Safety risk.— means the predicted probability and severity of the consequences or outcomes of a hazard.

Segregated airspace.— means airspace of specified dimensions allocated for exclusive use to a specific user(s).

Serious incident.— means an incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the

time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down.

Note 1.— The difference between an accident and a serious incident lies only in the result.

Note 2.— Examples of serious incidents can be found in Attachment C of Annex 13.

Service level agreement (*SLA*) means the agreement between the C2CSP and the RPAS operator covering the safety, performance, service area and security of the C2 Link provision as required for the RPAS operator's intended operations.

Specific approval.— means a specific approval is an approval which is documented in the Operations Specifications for commercial air transport operations or in the list of specific approvals for non-commercial operations.

Note.— The terms authorization, specific approval, approval and acceptance are further described in Attachment D.

State of Design.— means the State having jurisdiction over the organization responsible for the type design.

State of Manufacture.— means the State having jurisdiction over the organization responsible for the final assembly of the aircraft, remote pilot station, engine or propeller.

State of Registry.— means the State on whose register the aircraft is entered.

Note 1.— In the case of the registration of aircraft of an international operating agency on other than a national basis, the States constituting the agency are jointly and severally bound to assume the obligations which, under the Chicago Convention, attach to a State of Registry. See, in this regard, the Council Resolution of 14 December 1967 on Nationality and Registration of Aircraft Operated by International Operating Agencies which can be found in Policy and Guidance Material on the Economic Regulation of International Air Transport (Doc 9587).

Note 2.— For RPAS, this refers to the State on whose register the RPA is entered.

State of the Aerodrome.— means the State in whose territory the aerodrome is located.

Note.— For RPAS, the aerodrome includes an airport, heliport or landing location over which the State has jurisdiction.

State of the Operator.— means the State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

State of the RPS service provider.— means the State where the RPS service provider has its primary place of business.

State safety programme (*SSP*).— means an integrated set of directives and activities aimed at improving safety.

Surveillance.— means the State activities through which the State proactively verifies through inspections and audits that aviation licence, certificate, authorization or approval holders continue to meet the established requirements and function at the level of competency and safety required by the State.

Switchover.— means the act of transferring the active data link path between the RPS and the RPA from one of the links or networks that constitutes the C2 Link to another link or network that constitutes the C2 Link.

Synthetic vision system.— (*SVS*) means a system to display data -derived synthetic images of the external scene from the perspective of the flight deck.

Target level of safety (*TLS*).— means a generic term representing the level of risk which is considered acceptable in particular circumstances.

Traffic avoidance advice.— means advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision.

Traffic information.— means information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

Type certificate.— means a document issued by a State to define the design of an aircraft type and to certify that this design meets the appropriate airworthiness requirements of that State.

Unmanned free balloon.— means a non-power-driven, unmanned, lighter than-air aircraft in free flight.

VFR.— means the symbol used to designate the visual flight rules.

VFR flight.— means a flight conducted in accordance with the visual flight rules.

Visibility.— means Visibility for aeronautical purposes is the greater of :

(*a*) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background ;

(*b*) the greatest distance at which lights in the vicinity of 1000 candelas can be seen and identified against an unlit background.

Note 1.— The two distances have different values in air of a given extinction coefficient, and the latter b) varies with the background illumination. The former a) is represented by the meteorological optical range (MOR).

Aviation Security as "Safeguarding civil aviation against acts of unlawful interference. This objective is achieved by a combination of measures and human and material resources".

Note 2.— The definition applies to the observations of visibility in local routine and special reports, to the observations of prevailing and minimum visibility reported in the aerodrome routine meteorological report (METAR) and aerodrome special meteorological report (SPECI) and to the observations of ground visibility.

Visual line-of-sight (*VLOS*) *operation.*— means an operation in which the remote pilot maintains direct unaided visual contact with the RPA.

Visual meteorological conditions (*VMC*).— means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than.

Visual line-of-sight (*VLOS*) *operation.*— means an operation in which the remote pilot or RPA observer maintains direct unaided visual contact with the remotely piloted aircraft.

Abbreviations and Acronyms

21.1.3.—(*a*) The following abbreviations and acronyms are used in this Part.

AAO — Approved Aviation Organisation
ACAS — airborne collision avoidance system
ADRS — aircraft data recording system
ACPA — eronautical Communications Panel
ADS-B — automatic dependent surveillance — broadcast
AFIS — aerodrome flight information service
AGL — above ground level
AMSL — above mean sea level
AIR — airborne image recorder
AIRS — airborne image recording system
ANC — Air Navigation Commission
ANSP — air navigation service provider
ATC — air traffic control
ATCO — air traffic control officer
ATM — air traffic management
ATPL — airline transport pilot licence
ATS — air traffic services
BRLOS — beyond radio line-of-sight
BVLOS — beyond visual line-of-sight
C2 — command and control
CA — collision avoidance
CARS — cockpit audio recording system
CDL — configuration deviation list
CofA — certificate of airworthiness
CNS — communication, navigation and surveillance
COMAT — operator material
CPA — closest point of approach
CPDLC — controller-pilot data link communications

CVR — cockpit voice recorder
DAA — detect and avoid
ELT — emergency locator transmitter
EM — electromagnetic
EUROCAE — European Organisation for Civil Aviation Equipment
FCC — flight control computer
FDR — flight data recorder
FMS — flight management system
FRMS — fatigue risk management system
FSS — fixed satellite service
FSTD — flight simulation training device
GPWS — ground proximity warning system
HALE — high-altitude, long-endurance
HF — high frequency
HMI — human-machine interface
ICA — instructions for continuing airworthiness
IFR — instrument flight rules
IMC — instrument meteorological conditions
ITU/WRC — International Telecommunication Union/World Radio communication Conference
LIDAR — light detection and ranging
MA — manoeuvre advisories
MAC — mid-air collision
MAWS — minimum altitude warning system
MCM — maintenance control manual
METAR — aerodrome routine meteorological report
MMEL — master minimum equipment list
MPL — multi-crew pilot licence
MTOM — maximum take-off mass
Next Gen — next generation air transportation system
NM — nautical mile
NMAC — near mid-air collision
NOTOC — Notice to the remote pilot-in-command
NOTAM — notice to airmen
NSIB — Nigerian Safety Investigation Bureau
PBN — performance-based navigation
PIC — pilot-in-command
PPL — private pilot licence
QoSD — Quality of Service Document
QoSR — Quality of Service Required
RCP — required communication performance
RF — radio frequency
RLOS — radio line-of-sight
ROC — RPAS operator certificate

RPA — remotely piloted aircraft
RPA-RS — remotely piloted aircraft-recorder system
RPAS — remotely piloted aircraft system(s)
RPAS-RS — remotely piloted aircraft system-recorder system
RPL — remote pilot licence
RPASP — Remotely Piloted Aircraft Systems Panel
RPS — remote pilot station(s)
RTOC — RPAS Training Organisation Certificate
RPS-RS — remote pilot station-recorder system
RVSM — reduced vertical separation minimum
RWC — remain-well-clear
SARPs — Standards and Recommended Practices
SATCOM — satellite communication
SESAR — single European Sky ATM research
SIP — structural integrity programme
SLA — service level agreement
SLS — service level specifications
SMS — safety management system
SPECI — aerodrome special meteorological report
SSP — State Safety Programme
SSR — secondary surveillance radar
SWIM — system-wide information management
TAWS — terrain awareness warning system
TC — type certificate
TCDS — type certificate data sheet
TEM — threat and error management
TLS — target level of safety
Tsloss — time (sustained loss of link)
TSO — technical standard order
UAS — unmanned aircraft system
UASSG — Unmanned Aircraft Systems Study Group
UAV — unmanned aerial vehicle (obsolete term)
VFR — visual flight rules
VHF — very high frequency
VLL — very low level
VLOS — visual line-of-sight
VMC — visual meteorological conditions

Exemptions

21.1.4.—(a) Exemptions under this Part are granted in accordance with Part 1 of these Regulations.

Classification of RPA

21.2.1.1.—(*a*) RPA may be classified according to their weight as follows :

(*i*) *NANO* : Less than 250grms and shall be flown within the VLOS of the pilot with prior authorisation from the Authority.

(*ii*) *MICRO* : 250grms but less than 2kgs and shall be flown within the VLOS of the pilot with prior authorisation from the Authority.

(*iii*) *SMALL* : 2kgs but less than 25kgs and shall be flown only within the visual line of sight of the pilot with prior authorisation of the Authority.

(*iv*) *MEDIUM* : 25kgs but less than or equal to 150kgs which shall be flown either within the VLOS of the pilot or BVLOS of the piolt with prior aithorisation of the Authority.

(*v*) *LARGE* : Greater than 150kg which shall be flown either within the VLOS of the pilot or BVLOS of the pilot with prior authorisation of the Authority.

(*b*) There are three (3) main operational risk categories of RPAS :

(*i*) Open – these present the lowest risk and do not require prior authorisation before operating the RPAS but must be registered.

(*ii*) *Specific* – these create a higher risk and require authorisation to operate the RPAS.

(*iii*) Certified – these require the RPAS and its operator and pilot to be certified and generally treat RPAS like manned aircraft.

Registration and Marking of RPAs

21.3.1.1.—(*a*) An aircraft is eligible for registration if it is —

(1) Owned by :

(*i*) A citizen of Nigeria,

(*ii*) An individual citizen of another State who is lawfully admitted for permanent residence in Nigeria,

(*iii*) A corporation lawfully organised and doing business under the laws of Nigeria and the aircraft is based and primarily used in Nigeria,

(*iv*) A government entity of Nigeria or political subdivision thereof.

(*b*) No person may own, register or operate RPA with military specifications.

Registration of RPAs

21.3.1.2.—(*a*) No person may operate an RPAS unless the RPAS has been registered and a certificate of registration issued by the Authority.

(*b*) The application for registration of RPA shall :

(1) be made in a form and manner specified by the Authority ;
(2) proof of ownership (such as a bill of sale) ; and
(3) proof of payment of the applicable fee ;
(4) End User Certificate.

(*c*) The Authority will maintain a register of RPAS containing the information specified in these regulations.

(*d*) The certificate of registration is not be transferable.

(*e*) A foreign registered RPAS shall not operate in Nigeria unless there is proof of registration from another State or country and is authorised by the Authority.

Display of Registration Marks

21.3.1.3.—(*a*) The registration marks shall be displayed in a form and manner prescribed by the Authority.

De-registration of RPAS

21.3.1.4. —(*a*) The Authority shall remove an aircraft from the Nigerian registry if :

(1) The owner of the RPAS does not meet the eligibility provisions of Section 21.3.1.1.

(2) If a holder of a valid de-registration Power of Attorney applies to the Authority for de-registration.

(3) When the holder of a Certificate of Registration, owner or lessor or his duly authorized attorney applies in writing for de-registration of the aircraft from the Nigerian Register.

(4) When the Authority is satisfied that :

(*i*) The aircraft is destroyed, lost or stolen and cannot be found or ;
(*ii*) The aircraft is permanently withdrawn from use or ;
(*iii*) The aircraft is registered in a country other than Nigeria or ;
(*iv*) The RPAS has a Certificate of Airworthiness (if applicable) ; which has lapsed for 5 or more years or.

(5) Where the Authority exercises its power of de-registration of an RPAS, the Certificate of Registration shall be cancelled and the entry of the aircraft in the aircraft register shall be deleted.

(6) Nothing in this section shall require the Authority to cancel the registration of an aircraft if, in its opinion, it would be inexpedient in the public interest to do so.

Identification Plate

21.3.1.5. The identification plate shall be securely affixed either :

(*a*) in a prominent position near the main entrance or compartment ; or

(*b*) affixed conspicuously to the exterior of the RPAS if there is no main entrance or compartment.

21.4. RPAS Operators Certificate (ROC)

Requirement for certificate

21.4.1.1. No person may operate an RPA except in accordance with the terms and conditions of the ROC.

Application for RPAS Operator Certificate (ROC).

21.4.1.2.—(*a*) An application for the issuance of an RPAS operator certificate shall be in a form prescribed the Authority with proof of payment of the prescribed fee.

(*b*) The application shall address the following matters, having regard to the nature, degree and risk of the intended operation :

(1) the name and address of the applicant ;
(2) the details of the operation for the RPAS authorization or ROC ;

(3) the applicant's application as required by the Authority ;

(4) the identification of a person who will have primary responsibility for the operation ;

(5) the identification of any person who is to have or is likely to have control over the exercise of the privileges under the certificate ;

(6) details of the physical locations to be used in the operation ;

(7) an operational risk assessment that :

(*i*) identifies the known and likely hazards to people, property and other aircraft of the proposed operation ;

(*ii*) includes a description of the measures that will be implemented to mitigate or manage the risk ;

(8) procedures for reporting information to the Authority including incidents and accidents ;

(9) operating requirements for personnel licensing, qualifications, training and competency including remote pilot and remote flight crew qualifications, training or medical requirements ;

(10) details of the number and specifications of the aircraft to be used, including any identification system used on the aircraft (for example color schemes, unique identification numbers, markings) ;

(11) details of the control system to be used to pilot the aircraft ;

(12) procedures for the maintenance of aircraft and measures to ensure continued airworthiness ;

(13) inflight procedures, including minimum distances from persons or property ;

(14) procedures for handling cargo, including dangerous goods, or dropping items, if such operations are intended ;

(15) the manufacturer's Declaration of Compliance or approval from an AAO ;

(16) procedures for controlling, amending and distributing the application ; and

(17) any other approvals that are required to conduct the proposed operation.

(*c*) The Authority may require only those matters in paragraph (*b*) that the Authority considers are appropriate in the particular circumstances to be contained in the application.

Issuance of RPAS Operator Certificate

21.4.1.3.—(*a*) The Authority may issue an ROC to a person who has applied under paragraph 21.4.1.2.

(*b*) When issuing an ROC under paragraph (*a*), the Authority may :

(1) impose requirements on the RPAS and may specify procedures to be followed by the operator of any RPA that are operated under the authority of the ROC ;

(2) specify any additional conditions that the Authority considers necessary in the interest of aviation safety ; and

(3) after considering the type of RPA to be used, determine that any RPA to be operated under the ROC shall display identification markings in accordance with 21.3, if the Authority considers that it is necessary in the interest of aviation safety.

RPAS Operator Certificate

21.4.1.4.—(*a*) The ROC shall consist of two documents – the Certificate and the Operations Specifications in accordance with IS: 21.4.

(*b*) Contents of the ROC.

(1) The ROC shall include :

(*i*) the State of the Operator and issuing authority ;

(*ii*) the ROC number and its expiration date ;

(*iii*) the RPAS operator name, trading name (if different) and address of the principal place of business ;

(*iv*) the date of issue, signature and title of the Authority representative;

(*v*) the location where the contact details of operational management can be found;

(*vi*) the description of the types of operations authorized ;

(*vii*) the type(s) or model(s) of RPA authorized for use ; and

(*viii*) the authorized types of operation.

(*c*) Validity of an ROC

(1) An ROC issued by the Authority is valid for a period of five (5) years unless :

(*i*) The Authority amends, suspends, revokes or otherwise terminates the certificate ;

(*ii*) The ROC holder surrenders it to the Authority.

Conditions for Operation for RPAS Operator Certificate

21.4.1.5. The certificate holder is responsible for ensuring that any personnel involved in an operation conducted under the authority of the ROC are notified of and comply with the requirements of this Regulations.

Renewal of Certificate

21.4.1.6.—(*a*) A holder of a current ROC who wishes to continue to exercise the privileges of the operator certificate beyond its date of expiration shall apply for the renewal of the operator certificate by completing the application as prescribed by the Authority.

(*b*) An application for renewal of ROC shall be made at least 90 days before the end of the existing period of validity.

(*c*) Amendment of an ROC.

(1) The Authority may amend any ROC if :

(*i*) The Authority determines that safety of operation and the public interest require the amendment ; or

(*ii*) The ROC holder applies for an amendment.

21.5. General and Operator Responsibilities

Compliance with Laws, Regulations and Procedures

21.5.1.1.—(*a*) The PIC shall comply with the relevant laws, regulations and procedures of the States in which the aircraft is operated.

(*b*) If an emergency situation which endangers the safety of the aircraft or persons necessitates the taking of action which involves a violation of local regulations or procedures, the PIC shall :

(1) Notify the appropriate local Authority without delay.

(2) Submit a report of the circumstances, if required by the State in which the incident occurs ; and

(3) Submit a copy of this report to the Authority if an ROC or State of Register if in general aviation.

(*c*) Each PIC shall submit reports specified in paragraph (b) to the Authority within 10days in the form prescribed.

(*d*) to the Authority within 10 days in the form prescribed.

Safety Management System

21.6.1.1.—(a) A RPAS operator shall have in place a safety management system in accordance with provision of Part 20 of these Regulations.

Use of Psychoactive Substance

21.7.1.1.—(*a*) Use of psychoactive substance is prohibited in accordance with the provisions Parts 1, 2 and 8 of these Regulations.

Safety-critical Services

21.8.1.1.—(*a*) The operator shall ensure that the provider of safety-critical services has organisational structure, documented procedures, resources and personnel sufficient to ensure the safe provision of services.

(*b*) Safety-critical services shall include :

(1) provision of geographical data and limitations ;
(2) collection and forwarding of occurrence data ;
(3) the training of remote pilots ;
(4) communication services supporting the C2 Link ;
(5) provision of services through RPS located anywhere in the world ; and
(6) provision of services related to flight planning and management including related safety risk assessments.

Safe operation of the C2 Link

21.8.1.2.—(*a*) The Authority will be responsible for the oversight of the C2 Link service provision, whether any of the C2 Link components are under the control of the RPAS operator or a C2 Link communications service provider (C2CSP).

(*b*) When the operator exercises direct control over the entire C2 Link(s), the operator shall be responsible for the safe operation of all C2 Link components. Such responsibilities shall be detailed in a Service Level Agreement (SLA) internal to the operator.

(*c*) When a portion of, or all of, the C2 Link(s) is under the operational control of a C2CSP, the operator shall establish an SLA with the C2CSP prior to commencing operations.

(*d*) The Authority will ensure that an SLA exist between the operator and C2CSP.

(*e*) The SLA shall contain at least :

(1) legal identification of the party(ies) ;

(2) scope of the provided service, including hours of service and service area ;

(3) performance requirements of the C2 Link provision, including the QoSR which is commensurate with the C2 Link specification required, under normal conditions, for the operator's intended operations ;

(4) security measures and management, including security requirements for the C2 Link provision ;

(5) procedures for planned outages and contingencies, including reporting requirements ;

(6) safety management responsibilities and processes related to safety risk management and safety assurance, including safety risk assessment and mitigation, safety performance monitoring and measurement, safety reporting, and safety analysis ;

(7) arrangements to facilitate oversight of the C2 Link service provision by the State of the Operator ; and

(8) the C2CSP Emergency Response Plan (ERP) including how they would address service losses and how they would be restored.

(*f*) In exercising its oversight function of the C2 Link service provision in accordance with 21.9.1.3(*a*), the Authority will :

(1) verify that the C2 Link service is to be provided by an authorised C2CSP ;

(2) establish and document monitoring processes to ensure that the C2 Link service provision meets the established requirements, including C2 Link quality of service required (QoSR) and security ;

(3) establish and document monitoring processes to raise findings, and to request and monitor corrective actions related to the C2 Link service provision ;

(4) take appropriate measures, when necessary, to resolve C2 Link service provision findings identified in application of the continuous monitoring processes ; and

(5) approve, in accordance with its national regulations, the use of a C2CSP which has been authorized as per 21.9.1.3(f)(1) above.

(*g*) The C2CSP shall establish and document processes to perform C2CSP monitoring of the QoSD as part of their routine operations, with the objective of ensuring that the C2 Link service provision meets the applicable requirements, including the C2 Link QoSR specified in the SLA.

(*h*) The operator shall be responsible for monitoring that the C2 Link service provision QoSD meets the QoSR, including its security, and shall :

(1) document any observed anomalies ; and

(2) report any observed anomalies to the C2CSP, in accordance with the SLA.

(*i*) The operator shall notify the Authority of :

(1) all C2 Link provision degradations with regards to the SLA that occur during operations ; and

(2) degradations that cannot be resolved by direct interaction between the operator and the C2CSP, when the C2CSP is not the operator.

Safe operation of the RPS

21.8.1.3.—(*a*) The operator shall be responsible for the safe operation of all RPS involved in the operation.

(*b*) Each RPS used shall be installed at the intended operational location by personnel who have the required level of expertise and competence for the task, as determined by the type certificate holder.

(*c*) During installation of the RPS, the installer shall verify that it meets applicable airworthiness and operational requirements and that it provides proper connection with the specified RPA type(s).

(*d*) When one or more of the RPS involved in the operation are under the control of a service provider, this service provider shall be under the safety oversight of the State of the Operator in conjunction with the State of the RPS service provider, if different.

(*e*) When one or more of the RPS involved in the operation are under the control of a service provider, this service provider shall only allocate tasks to :

(1) remote flight crews which are properly trained and competent ;

(2) remote pilots holding a valid remote pilot licence (RPL) issued or rendered valid by the State of the Operator, complemented by appropriate ratings ; and

(3) remote flight crews which are medically fit.

(*f*) The safety, security and performance of the RPS service provided shall be acceptable to the State of the Operator and to the State of the RPS service provider.

(*g*) If the RPS is operated by an RPS service provider, the safety and security aspects of the RPS shall be addressed in an SLA between the RPAS operator and the RPS service provider.

(*h*) Any SLA with an RPS service provider shall include the continuing airworthiness records addressed in paragraph 21.11.1.2 of this Regulations.

21.9. RPAS Flight Operations

Operating Facilities

21.9.1.1.—(*a*) No flight shall be commenced by an RPAS operator unless it has been ascertained by every reasonable means available, that the ground, space, air and/or water facilities available and directly required on such flight, for the safe operation of the RPAS, are adequate for the type of operation under which the flight is to be conducted and are adequately operated for this purpose.

(*b*) An RPAS Operator shall report any inadequacy of facilities observed during the course of operations to the concerned ATS provider, if applicable, without undue delay.

Note.— "Reasonable means" in this Standard is intended to denote the use of information available to the operator either through official information published by the aeronautical information services or readily obtainable from other sources.

RPAS Operating Requirements

21.9.1.2.—(*a*) No person shall operate a RPA in a manner that would cause a hazard to persons, property or other aircraft.

(*b*) Operating Rules. A person operating a RPA shall comply with the general operating rules as listed below :

(1) A person operating an RPA, registered in Nigeria or holding an operator certificate from Nigeria, and its RPAS shall,

(*i*) not operate in Nigeria without appropriate authorisations from the Authority and other relevant security agencies,

(*ii*) not engage in international air navigation without appropriate authorisation from the State from which the take-off of the RPA is made.

(*iii*) not operate across the territory of another State, without special authorisation issued by each State in which the flight is to operate, which shall be obtained prior to take-off if there is reasonable expectation, when planning the operations, that the aircraft may enter the airspace concerned.

Note : This authorisation may be in the form of agreements between the States involved shall :

(*iv*) not operate over the high seas without prior coordination with the appropriate ATS Authority, which shall be obtained prior to take-off if there is reasonable expectation, when planning the operations, that the aircraft may enter the airspace concerned.

(*v*) operate in accordance with conditions specified by the State of Registry, and the State of the Operator if different, and the State(s) in which the flight is to operate.

(*vi*) ensure that the RPAS meets the performance and equipment carriage requirements for the specific airspace in which the flight is to operate.

(2) Once authorization has been received from the Authority, the operator shall :

(*i*) file a flight plan prior to operation of a RPA.

(*ii*) notify the Authority and ATC immediately in the event of a flight cancellation, and

(*iii*) in the case of changes to the proposed flight, submit such changes to the Authority and ATC for consideration.

(*c*) Certificates and Licences. No person may operate an RPA, registered in Nigeria or holding an operator certificate from Nigeria unless the RPA, RPAS and the remote pilot has obtained the proper approvals of the Authority, as listed below.

(1) An RPAS shall be approved, taking into account the interdependencies of the components, in accordance with Nig. CARs Part 5, including :

(*i*) A certificate of airworthiness for the RPA where applicable, and

(*ii*) The associated RPAS components specified in the type design certificate and maintained in accordance with national regulations.

(2) An operator shall have an RPAS operator certificate issued in accordance with this Part 21.

(3) Remote pilots shall be licensed or have their licences rendered valid in accordance with Nig. CARs Part 2.

(*d*) Request for Authorisation.

(1) The request for authorisation referred to in paragraph (b) above shall be made by providing the required information in the application form.

(2) A request for authorization to operate an RPA in Nigeria shall be made by following the requirements in Nig. CARs Part 10.2.1.3 and providing the required information in the application form.

(*e*) Documents to be held by the RPAS operator.

(1) The following documents, manuals and information specific to the RPAS operator, shall where applicable, be made available to the Authority, in their authentic form, at the location of the RPAS operator's operational management or any other location specified by the Authority :

(*i*) ROC ;

(*ii*) Operations Specifications relevant to the RPA and RPS models, associated with the ROC ;

(*iii*) operations manual, including the RPAS operating manual and the RPS manual ;

(*iv*) RPA/RPAS flight manual ;

(*v*) maintenance control manual (MCM) ;

(*vi*) third party liability insurance certificate(s) ;

(*vii*) certificate of registration of each RPA ;

(*viii*) C of A / permit of each RPA (if applicable) ;

(*ix*) certificates of any additional RPAS components ;

(*x*) all radio station licences (if applicable) ;
(*xi*) all noise certificates (if applicable) ;
(*xii*) notification of special loads ; and cargo manifests

(*f*) Documents at the RPS(s)

(1) Documents, manuals and information, including, but not limited to the following, where applicable, shall be available at the RPS(s) planned to be used during the flight :

(*i*) operations manual including the MEL, CDL, RPAS operating manual and RPS manual ;
(*ii*) RPA or RPAS flight manual ;
(*iii*) Operations Specifications relevant to the RPA and RPS models associated with the ROC ;
(*iv*) Journey log book for the RPA ;
(*v*) MCM, maintenance log book and technical log for the RPAS ;
(*vi*) details of the filed, current, ATS and operational flight plans ;
(*vii*) current and suitable aeronautical charts for the route of flight and all routes along which it is reasonable to expect that the flight may be diverted, including departure, arrival and approach charts for all relevant aerodromes or heliports ;
(*viii*) information concerning search and rescue services for the area of the intended flight ;
(*ix*) notice to airmen (NOTAM) and aeronautical information service (AIS) briefing documentation ;
(*x*) meteorological information ; if required
(*xi*) fuel requirements, fuel load and records ;
(*xii*) cargo manifests and information on dangerous goods ;
(*xiii*) mass and balance documentation ; and
(*xiv*) any other documentation that may be pertinent to the flight or required by the Authority and or any other state involved in the operation.

(2) The documents in the aforementioned lists may be submitted to the Authority in either hard or electronic copy formats.

RPAS Operating and Performance Limitations

21.9.1.3.—(*a*) No operator shall operate a RPAS that :

(1) exceeds its designed performance limitations for any operation, as established by the state of design ;

(2) exceeds the operating limitations contained in the RPAS user manual, or its equivalent ;

(3) exceeds the mass limitations, if applicable.

Obstacle Data

21.9.1.4.—(*a*) The operator shall use available obstacle data for :

1) remotely piloted aircraft, develop procedures to comply with obstacle clearance.

(2) remotely piloted helicopters, develop procedures to comply with the take-off, initial climb, approach and landing phases detailed in the code of performance established by the state of design.

Note.— See Annex 4 and Annex 15, Chapter 5 and Appendix 1 and the Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM), Chapter 5 for methods of presentation of certain obstacle data.

(*b*) The operator shall take account of charting accuracy when assessing compliance.

Functions and Duties of the Remote Pilot-in-Command

21.9.1.5.—(*a*) The functions and duties of a designated remote pilot-in-command are as follows :

(1) ensuring the operator's RPAS operations are conducted in accordance with these Regulations ;

(2) maintaining a record of the qualifications held by each person operating a RPAS for the operator ;

(3) monitoring the operational standards and proficiency of each person operating a RPAS for the operator ; and

(4) maintaining a complete and up-to-date reference library of operational documents required by the Authority for the types of operations conducted by the operator.

Duties of Flight Operations Officer/Flight Dispatcher

21.9.1.6.—(a) Where required in the operations manual, a flight operations officer/flight dispatcher in conjunction with a method of control and supervision of flight operations in accordance this Regulations shall :

(1) assist the remote pilot-in-command in flight preparation and provide the relevant information ;

(2) assist the remote pilot-in-command in preparing the operational and ATS flight plans, sign when applicable and file the ATS flight plan with the appropriate ATS unit ;

(3) furnish the remote pilot-in-command while in flight, by appropriate means, with information which may be necessary for the safe conduct of the flight ; and

(4) notify the appropriate ATS unit when the position of the RPA cannot be determined by an aircraft tracking capability and/or attempts to establish communication with the remote pilot are unsuccessful.

(*b*) In the event of an emergency, a flight operations officer/flight dispatcher shall :

(1) initiate such procedures as outlined in the operations manual while avoiding taking any action that would conflict with ATC procedures ; and

(2) convey safety-related information to the remote pilot-in-command that may be necessary for the safe conduct of the flight, including information related to any amendments to the flight plan that become necessary in the course of the flight.

Note.— It is equally important that the remote pilot-in-command also convey similar information to the flight operations officer/ flight dispatcher during the course of the flight, particularly in the context of emergency situations.

Inspection, Testing, and Demonstration of Compliance.

21.9.6.2.—(*a*) A remote pilot or person manipulating the flight controls of a RPA shall, upon request, make available to the Authority :

(1) The remote pilot certificate ; and

(2) Any other document, record, or report required to be kept under this part.

(3) The remote pilot, RPAS observer, owner, operator, or person manipulating the flight controls of a RPA shall, upon request, allow the Authority to make any test or inspection of the RPAS, the remote pilot, the person manipulating the flight controls of a RPA, and, if applicable, the RPA observer to determine compliance with this section.

Flight Preparation

21.9.6.3.—(*a*) The operator shall develop procedures to ensure that a flight is not commenced unless :

(1) the RPA is airworthy, duly registered and that appropriate certificates with respect thereto are in possession of the RPA ;

(2) the instruments and equipment installed in the RPAS are appropriate, taking into account the expected flight conditions ;

(3) the RPS(s) used for the flight is (are) serviceable and compatible with the RPA used ;

(4) a C2 link with the RPA is expected to be available for the duration of the flight and matches the performance criteria ;

(5) any necessary maintenance has been performed ;

(6) the mass of the RPA and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected ;

(7) any load carried is properly distributed and safely secured ; and

(8) the RPA operating limitations, contained in the flight manual, or its equivalent, will not be exceeded.

Meaning of Standard Unmanned Operating Conditions

21.9.6.4.—(*a*) A RPA is operated in standard unmanned aircraft operating conditions if, during the operation :

(1) the RPA is operated within the visual line-of-sight of the person operating the RPA ;

(2) the RPA is operated at or below 120m (400ft) above ground level (AGL) by day ; and

(3) the RPA is not operated within 30m of a person, measured horizontally, who is not directly associated with the operation of the RPA.

(*c*) The RPA is not operated :

(1) in a prohibited area; or
(2) in a restricted area; or
(3) over a populated area; or
(4) within 4km of the movement area of a controlled aerodrome ; and

(*d*) the RPA is not operated over an area where a fire, police or other public safety or emergency operation is being conducted without the approval of a person in charge of the operation ; and

(*e*) the person operating the RPA operates only that RPA.

Visual Line-of-Sight Operations

21.9.6.5.—(*a*) This rule applies to the RPA VLOS operations.

(*b*) A RPAS operator shall not operate a RPA to which this rule applies in:

(1) any area in which the person's view of the surrounding airspace in which the RPA will operate is obstructed ; or

(2) meteorological conditions that obstruct the person's ability to maintain visual line-of-sight of the aircraft.

(*c*) A person who operates a RPA to which this rule applies shall at all times :

(1) maintain visual line-of-sight with the RPA or be in direct communications with a RPA observer that maintains visual line-ofsight with the RPA ; and

(2) be able to see the surrounding airspace in which the RPA is operating ; and

(3) operate the RPA below any cloud base.

(*d*) For the purposes of this rule, visual line-of-sight means a straight line along which the remote pilot or RPA observer has a clear view and which may be achieved with the use of :

(1) spectacles, contact lenses, or a similar device used for vision correction of the user to no better than normal vision but not the use of an electronic, mechanical, electromagnetic, optical, or electrooptical instrument ; or

(2) a first person view system and a trained and competent RPA observer who maintains :

(*i*) visual line-of-sight of the RPA ; and

(*ii*) sight of the surrounding airspace in which the RPA is operating ; and

(*iii*) has direct communication with the person who is operating the RPA.

Beyond Visual Line-Of-Sight (BVLOS) operations

21.9.6.6.—(*a*) To conduct BVLOS operations, the operator shall obtain Authorisation from the Authority after conducting operation safety risk assessment.

(*b*) Prior to conducting a controlled BVLOS operation, coordination shall be affected with the ATC unit involved regarding —

(1) Any operational performance limitations or restrictions unique to the RPAS (e.g. unable to perform standard rate turns) ;

(2) Any pre-programmed lost C2 link flight profile or flight termination procedures ; and

(3) Direct telephone communication between the Remote Pilot Station (RPS) and the ATC unit for contingency use, unless otherwise approved by the ATC unit(s) involved.

(*c*) Communication between the Remote Pilot Station (RPS) and the ATC unit(s) shall be as required for the class of airspace in which operations occur and shall utilize standard ATC communications equipment and procedures, unless otherwise approved by the ATC unit involved.

(*d*) C2 link transaction time shall be minimized so as not to inhibit the remote pilot's ability to interface with the RPAS compared to that of a manned aircraft.

(*e*) RPAS operating BVLOS shall only operate within Radio line of sight (RLOS). Operation beyond Radio line of sight shall require special Authorisation from the Authority after indicating all operational control functions and safety measures associated to the type of operation.

(*f*) Remote Pilot Station for RPAS operations BVLOS will be designed in such way to match the performance of the type of C2 link (BRLOS/RLOS) with which they will be used.

(*g*) No person shall conduct BVLOS operations under VFR unless the following conditions are met :

(*i*) the Authority or any other State in whose airspace the operation occurs has approved the operation ;

(*ii*) the RPA remains in VMC throughout the flight ; and

(*iii*) a DAA capability or other mitigation is used to assure the RPA remains well clear of all other traffic ; or

(*iv*) the area is void of other traffic ; or

(*v*) the operation occurs in specifically delimited or segregated airspace.

Populated Areas

21.9.6.7.—(*a*) Operations over heavily populated areas or over open air assemblies of people shall require special considerations such as the following—

(1) Altitudes for safe operation ;

(2) Consequences of uncontrolled landing ;

(3) Obstructions ;

(4) Proximity to airports/emergency landing fields ;

(5) Local restrictions regarding RPAS operations over heavily populated areas ; and

(6) The emergency termination of a RPA flight.

Take-off/ launch

21.9.6.8. RPAS may be operated from established aerodromes/RPAS ports or from any other location depending on operational requirements and system configuration, design and performance.

Take-off/ launch from aerodromes

21.9.6.9.—(*a*) For operations from established aerodromes the remote pilot shall consider the following :

(1) Regulations pertaining to RPAS operations on or near an aerodrome ;

(2) Complexity and density of aircraft operations ;

(3) Ground operations (e.g. taxiway width, condition, other ground traffic) ;

(4) C2 link continuity ;

(5) Payload considerations ;

(6) Wake turbulence ;

(7) Performance and capability related to take-off distance/run available and minimum obstruction climb requirements, departure procedures and any flight restricting conditions associated with operations to or from the aerodrome ; and

(8) Availability of emergency recovery areas.

Weather and Day Limitations

21.9.6.10.—(*a*) A person shall not operate a RPA :

(1) in or into a cloud ; or

(2) at night ; or

(3) in conditions other than visual meteorological conditions (VMC) :

(*i*) unless permitted by another provision of this Part, or in accordance with an air traffic control clearance.

(*b*) 21.9.6.10 (*a*) does not apply if the person holds an Authorisation under this Regulation allowing these operations.

Take-off/ launch from other than aerodromes

21.9.6.11.—(*a*) For operations from other than established aerodromes, the remote pilot shall consider the following :

(1) take-off/launch area and condition ;

(2) location and height of all obstructions that could hinder launch and recovery ;

(3) performance and capability related to obstacle clearance, departure procedures (if applicable) and any flight-restricting conditions ;

(4) availability of emergency recovery areas ;

(5) ATC communications, if required ;

(6) C2 link continuity ;

(7) payload considerations ; and

(8) density and proximity of overflight traffic.

Landing/ recovery

21.9.6.12. RPAS may land at aerodromes or at almost any other location depending on operational requirements and system configuration, design and performance.

Landing/ recovery at aerodromes

21.9.6.13.—(*a*) For operations at aerodromes, the remote pilot shall consider the following :

(1) regulations pertaining to RPAS operations on or near an aerodrome ;

(2) complexity and density of aircraft operations ;

(3) performance and capability related to landing distance available and obstacle clearance, arrival procedures and any flight-restricting conditions ;

(4) wake turbulence ;

(5) ground operations (e.g. taxiway width, condition, other ground traffic) ;

(6) C2 link continuity ;

(7) payload considerations ; and

(8) availability of emergency recovery areas.

Landing/ recovery at other than aerodromes

21.9.6.14. —(*a*) For operations at other than aerodromes, the remote pilot shall consider the following :

(1) landing/recovery area and condition ;

(2) location and height of all obstructions that could hinder landing or recovery (e.g. cables, towers, trees) ;

(3) performance and capability related to obstacle clearance, arrival procedures (if applicable) and any flight-restricting conditions ;

(4) availability of emergency recovery areas ;

(5) ATC communications, if required ;

(6) C2 link continuity ;

(7) payload considerations ; and

(8) density and proximity of overflight traffic.

Night Operations

21.9.6.15.—(*a*) A person shall not operate a RPA at night unless the operation is :

(1) indoors ; or

(2) a shielded operation.

(*b*) 21.9.6.15 (*a*) does not apply if the person holds an Authorisation under these Regulations allowing these operations.

21.9.6.16. In 21.9.6.16. In order to limit any potential environmental impact, the operator shall make position information of any RPA flight in a distress situation available to the appropriate organizations, as established by the Authority. Location of an RPA in Distress

Note 1. — All RPA autonomously transmit information to the RPS, more than once every minute, from which the position of the RPA can be determined by the operator.

21.9.6.17 A person who is operating a RPA shall give way to and remain clear of all aircraft on the ground and in flight. Right-of-Way

21.9.6.18.—(*a*) No person shall operate a RPA over a person unless that person is : Operation Over and Near People

(1) Directly participating in the operation of the RPA ; or

(2) Located under a covered structure or inside a stationary vehicle that can provide reasonable protection ;

(3) Directly associated with the operation of the RPA or the RPA is operated no closer than 30m, measured horizontally from a second person not directly associated with the operation of the RPA.

(*b*) the requirement of paragraph (a)(3), do not apply if :

(1) the second person is standing behind a fixed wing RPA while the fixed wing RPA is taking off ;

(*c*) the requirement of paragraphs (a)(1),(2) or (3) do not apply if :

(1) the person has consented that the RPA is allowed to fly over or near a person ; and

(2) the RPA is operated no closer than 15m, measured horizontally, from a person.

21.9.6.19.—(*a*) Reporting of incidents — Incident/ Accident Reporting

(1) The remote pilot-in-command shall be responsible for :

(*i*) notifying the Authority by the quickest available means of any incident involving RPAS.

(*ii*) submitting a report in a form and manner acceptable to the Authority within 72 hours from the time of incident.

(2) Unlawful Interference. The PIC shall submit a report to the local authorities and to the Authority, without delay, following an act of unlawful interference.

(*b*) Accident notification —

(1) If an emergency situation which endangers the safety of the RPA or persons necessitates the taking of action which involves a violation of local rules or procedures, the Remote PIC shall—

(*i*) notify the appropriate local Authority and NSIB without delay ;

(*ii*) submit a report of the circumstances, if required by the State in which the incident occurs ; and

(*iii*) submit a copy of this report to the Authority.

(2) Each Remote PIC shall submit reports specified in paragraph (1) above to the Authority within 72 hours in the form prescribed by the Authority.

Temporary Authorisation of RPAS Activities

21.9.6.20.—(*a*) The Authority may grant upon application a temporary Authorisation(s) to person(s) intending to operate RPAS not registered in Nigeria—

(1) This authorisation is only applicable to ROC holders in Nigeria and the intended RPAS applicant must be a foreign ROC holder.

(2) The period of Authorisation will be for twenty-one (21) days and renewable based on the determination by the Authority ;

(3) Such application shall be submitted to the Authority and processed within four (4) weeks.

Special Authorisation

21.9.6.21.—(*a*) No person shall operate an RPAS in the following operations without special authorisation from the Authority —

(1) The carriage of goods ;
(2) The carriage of dangerous goods ;
(3) Night operations ;
(4) Banner towing ;
(5) Cross border operations ;
(6) Hazardous operations ;
(7) Dropping and discharging of things ;
(8) Acrobatic, drone swarms and racing flights ;
(9) Operations in the restricted areas of aerodromes ;
(10) Operations in areas of high RF transmission/interference (*e.g.* radar sites, high tension wires).

(*b*) A request for special authorization shall be made in a form and manner as prescribed by the Authority.

(*c*) The request for authorization shall be made not less than thirty days before the date of intended operation.

(*d*) Copies of all pertinent certificates, the licences of the remote pilots and the Radio Station Licence shall be included with the request for special authorization.

Fatigue Management

21.9.6.22.—(*a*) The operator shall establish and implement a fatigue management programme. Such policies and procedures shall be documented in the operations manual and may include :

(1) Training and education on personal and operational fatigue related risk and counter measures.

(2) Implementation of mitigation where necessary and monitoring of their effectiveness.

(3) Continued review of fatigue related risk through safety management processes.

(*b*) The programme shall address flight and duty times and be included in the operations manual.

(*c*) The operator shall ensure all personnel involved in the operation and maintenance of RPAS receive fatigue management training from an approved organization.

(*d*) The operator shall ensure all personnel involved in the operation and maintenance of RPAS do not carry out their duties while fatigued.

Note.— Guidance on fatigue management programmes can be found in the Oversight of Fatigue Management Approaches (Doc 9966).

21.9.6.23.—(*a*) Operations Manual— Flight Operations Manual

(1) A RPAS operator must provide an operations manual for the use and guidance of the RPAS operations personnel concerned. The operations manual

(2) The RPAS Operator shall to provide a copy of the operations manual together with all amendments and/or revisions, for review and acceptance and/or approval, incorporating in the operations manual such mandatory material as may require by the Authority.

(3) The operations manual, which may be issued in separate parts corresponding to specific aspects of operations, shall be organized in the following structure IS: 21.9.6.23.

(*i*) general ;
(*ii*) RPAS operating information ;
(*iii*) areas, routes and aerodromes ; and
(*iv*) training.

(4) The operator shall provide the remote flight crew with an RPAS flight manual for each RPA type operated, which includes each associated RPS model, containing the normal, abnormal and emergency procedures relating to the operation of all the relevant systems associated with the operation of each RPA and of the checklists to be used.

21.9.6.24.—(*a*) A journey log book shall be maintained for every RPA engaged in international air navigation in which particulars of the RPAS and its crew shall be entered at the end of the duty period of each remote pilotincommand. Journey Log Book

Note.— An RPA journey log may also consist of a section that stays in the RPA and an RPS section at each remote pilot station.

(*b*) The RPA journey log shall contain the following items :

(1) RPA nationality and registration ;
(2) a record of each RPS used in the course of a flight ;

(3) the duration of use for each RPS and the times of transfer between RPS ;

(4) date ;

(5) remote crew member names and duty assignments ;

(6) departure and arrival points and times ;

(7) purpose and type of flight ;

(8) observations regarding the flight ; and

(9) signature of the remote pilot-in-command.

(*c*) A signature shall be required for each instance in which the remote pilot-in-command is changed, which may include whilst the RPA is still airborne.

Note.— The journey log may need to accommodate multiple remote pilot-in-command signature blocks.

Operator Record-Keeping

21.9.6.25.—(*a*) The operator shall establish a system of record-keeping that allows adequate storage and reliable traceability of all activities, covering in particular all the elements related to RPAS operations as defined in the operations manual and management system processes as defined in this chapter.

(*b*) The format of the records shall be specified in the operator's procedures.

(*c*) Records shall be stored in a manner that ensures protection from damage, alteration and theft, for a period determined by the State of the Operator.

Record Retention of RPAS Operator Certificate

21.9.6.26.—(*a*) Each holder of a ROC shall maintain :

(1) A record containing the names of the remote pilots and other crew members involved in each flight, in respect of the system, the time of each flight or series of flights ; and

(2) A record containing maintenance action, modification or repair performed on the system, including :

(*i*) name of person performing the work ;

(*ii*) the dates work was performed ;

(*iii*) in the case of modification, the manufacturer, model and description of parts or equipment modifying the system ; and

(*iv*) if applicable, any instruction provided to complete the work.

(*b*) Each owner of a RPAS who transfers ownership to another person shall, at the time of transfer, deliver to that person all records referred to in paragraph (a)(2).

(*c*) Each owner of a RPAS shall ensure that the records referred to in subsection (*a*)(1) and (*a*)(2).

(1) are made available to the Authority on request and are retained for a period of :

(*i*) for the records referred to in paragraph (*a*)(1), 12 months after the day they are created ;

(*ii*) for records referred to in paragraph (*a*)(2), 24 months after the day they are created.

Documentation

21.9.6.27. Each applicant for the issuance of an ROC shall hold copies of all relevant equipment manuals, technical standards and practices, technical bulletins and instructions, legislation, and any other document that is necessary to establish procedures for their operations.

Flight Recorder Records

21.9.6.28. The operator shall ensure, to the extent possible, in the event the RPAS becomes involved in an accident or incident, the preservation of all related RPA-RS and RPS-RS records and, if necessary, the associated recorders, and their retention in safe custody pending their disposition as determined in accordance with NSIB Regulations.

ROC Inspection requirements

21.9.6.29.—(*a*) The ROC Holder shall ensure that no flight takes place unless :

(1) the RPA is maintained in an airworthy condition ;

(2) the RPS is maintained and serviceable ;

(3) the serviceability of the C2 Link has been verified ;

(4) all the other necessary RPAS components are serviceable ;

(5) any operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable ; and

(6) the maintenance of the RPA and RPS are performed in accordance with manufacturer data.

(*b*) For each RPA type, the ROC holder shall establish and implement a maintenance programme in accordance with the manufacturer's manuals and considering the results of the operational risk assessment.

(*c*) The operator shall not operate an RPAS above 25kg unless it is maintained and released to service by an approved maintenance organization or Authorised person(s), either of which should be acceptable to the Authority. The person responsible for the maintenance release shall be licensed in accordance with Nig. CARs Part 2 of this Regulation.

(*d*) Any persons signing a maintenance release shall be authorized in accordance with the Maintenance Control Manual of the ROC holder.

(*e*) For each RPA and for each RPS, the operator shall maintain a Technical Log including records of operating hours / cycles as relevant to the type of RPA and RPS.

Airspace

21.9.6.30.—(*a*) A person operating a RPA shall :

(1) unless operating in segregated airspace, not operate in airspace within 30m, measured horizontally, of a person who has not given consent for the RPA to operate over them ;

(2) maintain observation of the surrounding airspace in which the aircraft is operating for other aircraft ; and

(3) not operate the RPA at any height above 120m (400ft) AGL except in accordance with paragraph (*c*).

(*b*) Nothing in paragraph (a) requires a person to obtain consent from any person if operating :

(1) under the authority of an approved aviation organization ; and

(2) in airspace used by that organization.

(*c*) A person operating a RPA more than 4km from an aerodrome boundary and above 120m (400ft) AGL shall ensure that the operation remains within Class G airspace (uncontrolled airspace) and shall :

(1) operate in segregated airspace designated for that purpose ; or

(2) ensure that at least 24 hours before the operation, a person authorized by an approved person or approved aviation organization, notifies the air navigation service provider (ANSP), for the issuance of a NOTAM, containing the following information :

(*i*) the name, address, and telephone number of the operator ;
(*ii*) the location of the proposed operation ;
(*iii*) the date, time and duration of the proposed operation ;
(*iv*) the maximum height AGL proposed for the RPA operation.

Segregated and Non-Segregated Airspace

21.9.6.31.—(*a*) Segregated. A person shall not operate a RPA within segregated airspace unless the person has approval to do so from the administering Authority responsible for the segregated airspace area.

(*b*) Non-Segregated Airspace. RPAS operations shall conform to the existing airspace requirements. These airspace requirements include, but are not limited to, communication, navigation and surveillance requirements, separation from traffic and distances from clouds of the airspace.

(1) RPA operated in non-segregated controlled airspace, shall comply with existing ATM procedures.

(2) RPA operating in non-segregated uncontrolled airspace shall interact with other airspace users without impacting the safety or efficiency of existing flight operations.

Controlled Airspace

21.9.6.32.— (*a*) A person shall not operate a RPA in controlled airspace without Authorisation from the ATC unit responsible for that airspace ; and

(*b*) A person shall not operate a RPA in controlled airspace unless he or she :

(1) holds a relevant qualification for the use of an aeronautical radio ;

(2) maintains a listening watch on a specified frequency or frequencies specified in the direction; and

(3) makes broadcasts on a specified frequency or frequencies and/or maintains other ways of communication requested by the ATC unit at the specified interval giving the specified information in the direction.

(*c*) In paragraph (*b*), relevant qualification means any of the following qualifications :

(1) an aeronautical radio operator certificate;

(2) a remote pilot licence (or flight crew licence);

(3) an air traffic control licence ;

(4) a military qualification equivalent to a licence mentioned in paragraph (*c*)(2) or (*c*) (3).

(*d*) The Authority may direct, in regard to a particular RPA or type of RPA, that a person must not operate the RPA, or a RPA of that type, unless the person :

(1) holds a relevant qualification for the use of an aeronautical radio; and

(2) maintains a listening watch on a specified frequency or frequencies specified in the direction ; and

(3) makes broadcasts on a specified frequency or frequencies and/or maintains other ways of communication requested by the ATC unit at the specified interval giving the specified information in the direction.

(*e*) In this regulation, the person must comply with all directives issued by the ATC Unit.

Airspace Knowledge

21.9.6.33.— (*a*) This rule applies to a person who operates a RPA.

(*b*) A person to whom this rule applies shall :

(1) ensure that before each flight, the person is aware of the airspace designation under Nig. CARs Part 14 and any applicable airspace restrictions in place in the area of intended operation ; or

(2) conduct the operation under the direct supervision of a person who is aware of the airspace designation under Nig. CARs Part 14 and any applicable airspace restrictions in place in the area of intended operation.

Hazard and Risk Mitigations

21.9.6.34. No RPAS Operator may operate without a hazard identification system as approved by the Authority.

Dropping of Articles

21.9.6.35. No RPAS Operator may allow any object to be dropped in flight if such action creates a hazard to other persons or property.

Aerodromes

21.9.6.36.—(*a*) A person shall not operate a RPA on or within 4km of :

(1) an uncontrolled aerodrome, unless :

(*i*) the operation is undertaken in accordance with an agreement with the aerodrome operator ; and

(*ii*) each remote pilot has a RPA observer in attendance while the aircraft is in flight ; and

(*iii*) the RPA is not operated at a height of more than 120 m (400 ft) AGL unless the operator has been approved by the Authority to operate the RPA above 120 m (400 ft) AGL ; and

(2) a controlled aerodrome, unless it is operated in accordance with an Authorisation from the relevant air traffic control (ATC) unit ; and

(3) any aerodrome, unless the person :

(*i*) is the holder of, or is under the direct supervision of the holder of, a remote pilot qualification issued by an approved person or approved aviation organization ; or

(*ii*) is under the direct supervision of a person appointed to give instruction in the operation of a RPA by an approved person or approved aviation organization ; or

(*iii*) is the holder of a remote pilot licence issued under Nig. CARs Part 2 of this Regulations.

(*b*) Paragraph (*a*) does not apply to an operation that is conducted :

(1) outside of the boundary of the aerodrome; and

(2) in airspace that is physically separated from the aerodrome by a barrier that is capable of arresting the flight of the RPA.

Approved Person or Organisation (AAO)

21.9.7.1.—(*a*) In this section, an approved person or organisation (AAO) means a person or organization having appropriate expertise in the design, construction or operation of a RPA, or appropriate knowledge of airspace designations and restrictions, and who has been approved by the Authority to perform one or more of the following specified functions :

(1) issuing a remote pilot qualification for operating a RPA ;

(2) appointing persons to give instruction to operators of RPA ;

(3) authorizing a person to notify the air navigation service provider, for the issuance of a NOTAM, of a RPA operation ;

(4) authorizing the construction or modification of a RPA greater than 15kg ;

(5) inspecting and approving the construction of a RPA greater than 15kg ; or

(6) authorizing the operation of a RPA greater than 15kg.

21.10. RPA Continuing Airworthiness

Note 1.— For the purpose of this chapter, “RPA” includes: engines, propellers, components, accessories, instruments, equipment and apparatus including emergency equipment.

Note 2.— While a certificate of airworthiness is only issued to the aircraft component of an RPAS, the continuing airworthiness aspects of RPS are also indirectly provided in this chapter.

Note 3.— Reference is made throughout this chapter to the requirements of the State of Registry. When the State of the Operator is not the same as the State of Registry, it may be necessary to consider any additional requirements of the State of the Operator.

Operator's Continuing Airworthiness Responsibilities

21.10.1.1.—(*a*) Operators shall ensure that, in accordance with procedures acceptable to the State of Registry :

(1) each RPA is maintained in an airworthy condition ;

(2) the operational and emergency equipment necessary for an intended flight is serviceable if applicable;

(3) each RPA conforms to the approved design and is maintained in a condition for the safe operation of the RPAS.

(4) each RPS conforms to the approved design and is maintained in a condition for the safe operation of the RPAS.

(*b*) The operator shall not operate an RPAS unless maintenance on the RPAS, including any associated engine, propeller and part, is carried out :

(1) by a person or organization in accordance with procedures that are authorized by the State of Registry; and

(2) there is a maintenance release in relation to the maintenance carried out (does not apply to 25kg and below RPAS).

(*c*) The operator shall employ a person or group of persons to ensure that all maintenance is carried out in accordance with the maintenance control manual.

(*d*) The operator shall ensure that the maintenance of its RPAS is performed in accordance with the maintenance programme.

(*e*) The operator shall ensure that maintenance personnel receive initial and continuation training acceptable to the State of the Operator that includes the application of Human Factors principles.

Continuing Airworthiness Records

21.10.1.2.—(*a*) The operator shall ensure that the following records are kept for the periods mentioned in 21.10.1.2(*b*) :

(1) the total time in service (hours, calendar time and cycles, as appropriate) of the RPA and all life-limited components of the RPAS ;

(2) the current status of compliance with all applicable mandatory continuing airworthiness information ;

(3) appropriate details of modifications and repairs ;

(4) the time in service (hours, calendar time and cycles, as appropriate) since the last overhaul of the RPA or RPAS components subject to a mandatory overhaul life ;

(5) the current status of the RPAS compliance with the maintenance programme(s) ; and

(6) the detailed maintenance records to show that all requirements for the signing of a maintenance release have been met.

(*b*) The records in 21.10.1.2 (*a*)(1) to 5) shall be kept for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service and the records in 21.10.1.2(*a*)(6) for a minimum period of one year after the signing of the maintenance release.

(*c*) In the event of a temporary change of operator, the records shall be made available to the new operator. In the event of any permanent change of operator, the records shall be transferred to the new operator.

Note 1.— For a temporary change of operator, continuing airworthiness records or related documents must be provided to the contracting State in a format acceptable to the State of Registry, on request.

Note 2.— In the context of 8.4.3, a judgment on what should be considered as a temporary change of operator will need to be made by the State of Registry in the light of the need to exercise control over the records, which will depend on access to them and the opportunity to update them.

(*d*) For each RPA and for each RPS, records kept and transferred in accordance with 21.11.1.2 shall be maintained in a form and format that ensures readability, security and integrity of the records at all times.

Note 1.— The form and format of the records may include, for example, paper records, film records, electronic records or any combination thereof.

Note 2.— Guidance regarding electronic aircraft continuing airworthiness records is included in the Airworthiness Manual (Doc 9760).

Continuing Airworthiness Information

21.10.1.3.—(*a*) The operator of an RPAS approved in accordance with this Part shall monitor and assess maintenance and operational experience with respect to continuing airworthiness and provide the information as prescribed by the State of Registry and report through the system specified by the Authority.

(*b*) The operator of an RPAS approved in accordance with this Part shall obtain and assess continuing airworthiness information and recommendations available from the organization responsible for the type design and shall implement resulting actions considered necessary in accordance with a procedure acceptable to the State of Registry.

Modifications and Repairs

21.10.1.4.—(*a*) All modifications and repairs shall comply with airworthiness requirements acceptable to the State of Registry. Procedures shall be established to ensure that the substantiating data supporting compliance with the airworthiness requirements are retained.

Approved Maintenance Organization

21.10.1.5. An approved maintenance organization shall comply with Nig. CARs Part 6 Maintenance organization approval (apply to 25kg and above RPAS).

Maintenance Release

21.10.1.6.—(*a*) When maintenance is carried out by an approved maintenance organization, the maintenance release shall be issued by the approved maintenance organization in accordance with the provisions of Nig. CARs Part 6.

(*b*) When maintenance is not carried out by an approved maintenance organization, the maintenance release shall be completed and signed by a person appropriately licensed in accordance with Nig. CARs Part 2 to certify that the maintenance work performed has been completed satisfactorily and in accordance with approved data and procedures acceptable to the State of Registry (only apply to RPAS above 25kg).

(*c*) When maintenance is not carried out by an approved maintenance organization, the maintenance release shall include the following :

(1) basic details of the maintenance carried out including detailed reference of the approved data used ;

(2) the date such maintenance was completed ; and

(3) the identity of the person or persons signing the release.

21.10.2. MANUALS, LOGS AND RECORDS

Flight Manual

21.10.2.1. The flight manual shall be updated by implementing changes made mandatory by the Authority.

Operator's Maintenance Control Manual

21.10.2.2.—(*a*) The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance control manual for the RPA and RPS, acceptable to the State of Registry, in accordance with the requirements of this subsection. The design of the manual shall observe Human Factors principles.

(*b*) The operator shall ensure that the maintenance control manual is amended as necessary to keep the information contained therein up to date.

(*c*) Copies of all amendments to the operator's maintenance control manual shall be furnished promptly to all organizations or persons to whom the manual has been issued.

(*d*) The operator shall provide the State of the Operator and the State of Registry with a copy of the operator's maintenance control manual, together with all amendments and/or revisions to it and shall incorporate in it such mandatory material as the State of the Operator or the State of Registry may require.

(*e*) The operator's maintenance control manual provided in accordance with this subsection which may be issued in separate parts, shall contain the following information :

(1) a description of the procedures required by 21.10.1.1(*a*) including, when applicable :

(*i*) a description of the administrative arrangements between the operator and the approved maintenance organization ;

(*ii*) a description of the RPA and RPS maintenance procedures and the procedures for completing and signing the RPA maintenance release when maintenance is based on a system other than that of an approved maintenance organization.

(2) names and duties of the person or persons required by 21.10.1.1(*c*) ;

(3) a reference to the maintenance programme(s) required by 21.10.3.3(*a*) ;

(4) a description of the methods used for the completion and retention of the operator's continuing airworthiness records required by 21.10.1.2 ;

(5) a description of the procedures for monitoring, assessing and reporting maintenance and operational experience required by 21.10.1.3(*a*) ;

(6) a description of the procedures for complying with the service information reporting requirements of Nig. CARs Part 5.

(7) a description of procedures for assessing continuing airworthiness information and implementing any resulting actions, as required by 21.10.1.3(*b*) ;

(8) a description of the procedures for implementing action resulting from mandatory continuing airworthiness information ;

(9) a description of establishing and maintaining a system of analysis and continued monitoring of the performance and efficiency of the maintenance programme(s), in order to correct any deficiency in that programme ;

(10) a description of the RPA and RPS types and models to which the manual applies ;

(11) a description of procedures for ensuring that unserviceability affecting airworthiness are recorded and rectified ; and

(12) a description of the procedures for advising the State of Registry of significant in-service occurrences.

Maintenance Programme

21.10.2.3.—(*a*) The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, maintenance programme(s), approved by the Authority, containing the information required by 21.10.2.3 for RPA, the RPS, any ground-based infrastructure and ground-based equipment under the direct control of the operator. The design and application of the operator's maintenance programme shall observe Human Factors principles.

(*b*) Copies of all amendments to the maintenance programme(s) shall be furnished promptly to all organizations or persons to whom the maintenance programme has been issued.

(*c*) A maintenance programme for each RPA, each RPS and any ground based communication infrastructure as required by 21.11.2.3 shall contain the following information :

(1) maintenance tasks and the intervals at which these are to be performed, taking into account the anticipated utilization of the RPAS ;

(2) when applicable, a continuing structural integrity programme ;

(3) procedures for changing or deviating from 1) and 2) above ; and

(4) when applicable, condition monitoring and reliability programme descriptions for the RPAS and all its components.

(*d*) Maintenance tasks and intervals that have been specified as mandatory in approval of the type design shall be identified as such.

(*e*) The maintenance programme(s) shall be based on maintenance programme information made available by the State of Design or by the organization responsible for the type design, and any additional applicable experience.

21.11. Licences for Remote Pilots will be issued in accordance with the provision Nig. CAR's Part 2. RPA Personnel Licence

21.12. RPAS Instrument, Data and Equipment

21.12.1.1.—(*a*) No person shall operate an RPAS unless it is equipped with required instrument and navigation equipment appropriate to the type of operation and category of RPAS. General

(*b*) RPAS shall meet the performance and equipment carriage requirements for the specific airspace in which the flight is to operate.

21.12.1.2.—(*a*) RPAS shall have C2 Link equipment that connects the RPS and the RPA and shall support the following communication tasks : C2 Link

(1) data commands to modify the flight profile and the configuration of the RPA ;

(2) telemetry data regarding the position, configuration and status of the RPA ;

(3) data for communications with external entities, if applicable ;

(4) data required for detect and avoid capability ;

(5) flight data recording requirements, if applicable ;

(6) data to support RPS handover, if applicable ; and

(7) link health monitoring functions.

(*b*) The C2 Link shall comply with performance requirements as contained in IS:21.12.1.2.

(*c*) The RPAS C2 Link system shall be operated only in frequency bands which are appropriately allocated and protected by the ITU Radio Regulations.

(*d*) C2 Link system frequency assignment planning shall be designed to provide immunity from harmful interference and not create harmful interference.

21.12.1.3.—(*a*) ATC communication capabilities shall meet the required communication performance (RCP), if an RCP is specified for the airspace in which the RPA is operating. ATC Communication

(*b*) RPAS pilots shall ensure that ATC is made aware of any operation that should take place in areas which are likely to affect manned and controlled air traffic.

(*c*) RPAS communication with ATC shall be through a very high frequency (VHF) voice, which may include the requirement to support ATC data link.

Note : The C2 link provide the connection between the remote pilot and the RPA control and may be considered functionally equivalent to, for example, the control wires or databus between the cockpit and the control surfaces possibly via the FCC. The RPA should therefore use data links that can be assured to meet communication transaction time, continuity, availability and integrity levels appropriate for the airspace and operation. SARPs related to these parameters will be needed.

Detect and Avoid (DAA) and Transponder Operations

21.12.1.4.—(*a*) DAA Operational Requirements.

(1) Any RPAS operated in accordance with instrument flight rules shall have a DAA capability which enables the remote flight crew to avoid conflicting traffic and other hazards.

(2) DAA shall provide the remote flight crew with the capability of exercising vigilance for the purpose of detecting and avoiding potential collisions with other aircraft. The remote flight crew should exercise vigilance even when air traffic services are provided.

(3) When DAA is used to avoid hazards other than conflicting traffic, its use should cause no undue hazard to other aircraft or persons or property on the surface.

(4) DAA shall provide the flight crew with the capability of ensuring appropriate action is taken when different hazards are present at the same time, irrespective of whether DAA is provided by one system or different systems.

(5) The remote pilot shall be able to intervene in the management of automated hazard avoidance manoeuvre except when the C2 link to the RPA is not available.

(6) RPAS controls, displays and alerting shall be appropriate to enable the remote pilot to recognise when an action may be necessary to override the automated hazard avoidance maneuver.

(*b*) DAA equipment.

(1) In approving the operational use of DAA equipment :

(*i*) The Authority will ensure that the DAA equipment meets the appropriate airworthiness requirements.

(*ii*) The Authority will ensure that the operator has carried out a safety risk assessment of the operations supported by the DAA equipment, including RPAS controls, displays and alerting related to DAA as noted above.

(*iii*) The Authority will ensure that the operator has established and documented the operational limitations, procedures for the use of, and training requirements for, the DAA equipment.

(*c*) Automated Collision Avoidance

(1) The RPA shall be equipped with a DAA system that is capable of performing automated collision avoidance manoeuvre, except where the collision avoidance responsibilities of the remote pilot can be adequately exercised otherwise.

(2) Notwithstanding the provisions in 21.12.1.4.(b), the Authority may approve RPAS operations without automated collision avoidance, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of safety will be maintained. The specific safety risk assessment shall include at least the :

(*i*) reliability of the C2 Link ;
(*ii*) diversity of multiple links, if installed ; and
(*iii*) reliability of other systems that are required to allow the remote pilot to exercise control of the RPA flight trajectory.

(*c*) Transponder operations. RPA, shall comply with existing transponder operating rules in the same way as manned aircraft and as required by the class of airspace within which they are operating.

21.13. SECURITY REQUIREMENTS FOR RPAS OPERATOR

General Principles and Responsibilities

21.13.1.1. —(*a*) Any person or organization applying as RPAS operator shall undergo and obtain a Security Clearance and End User Certificate from the appropriate Security Agency.

(*b*) An RPAS operator providing services within Nigeria shall develop and implement a written RPAS Operator Security Programme. A person or organization shall not operate a Remotely Piloted Aircraft (RPA) within Nigeria unless he/she has submitted a proposed RPAS Operator Security Programme for his/her operations to NCAA for approval.

(*c*) This security programme shall indicate measures and resources employed to ensure the safeguarding of the RPS/RPA against unlawful interference during flight or while on ground and the use of RPAS to commit acts of unlawful interference.

(d) Security measures and technical procedures to protect the C2 link against unlawful or unintentional interference should also be indicated in the security programme.

(*e*) An RPAS operator shall within thirty days of approval of its security programme ensure that the programme is implemented and in full operation.

(*f*) The RPAS operator shall be responsible for the security of their RPS, facilities, personnel training and for the establishment of procedures to effectively recognize and respond to acts of unlawful interference against civil aviation.

Physical Security of the Installed RPS during Operational Use

21.13.1.2.— (*a*) When the RPS is installed in a compartment or room, the following shall apply :

(1) The compartment or room where the RPS is operated shall be equipped with a door capable of being locked. This door shall be closed and locked during operation, except when necessary to permit access and egress by authorized persons.

(2) The RPAS operator shall ensure that unauthorized access to RPS is reasonably prevented and means shall be provided for monitoring from RPS the entire door area outside the compartment to identify persons requesting entry and to detect suspicious behaviour or potential threat.

(3) Develop and implement measures to protect the facility from unlawful entry (access control)

Physical Security of the Installed RPS When not In Use

21.13.1.3.—(*a*) The RPAS operator shall ensure the physical protection of the RPS when not in-use.

Physical Security of Mobile RPS

21.13.1.4.—(*a*) In the case of portable RPS, the operator shall ensure that :

(1) The RPSs are only released for use to authorized personnel and only for the time necessary ;

(2) Procedures are put in place to restrict unauthorized access or proximity to the operator at the RPS during the flight time in order to keep the pilot flying safe devoid of any intervention or distraction ;

(3) When not in use, the RPS shall be stored in a secure place free from sabotage or unlawful malicious interference.

Command and Control (C2) Link Security

21.13.1.5.—(*a*) The RPAS operator shall :

(1) Ensure the Safety and Security of Command and Control (C2) link which is the data link between the remotely piloted aircraft and the remote pilot station for the purpose of managing flight. The C2 link must be free from cyber threat such as hacking, spoofing and other forms of interference or malicious hijack so as to protect the integrity of vital components.

(2) Ensure the confidentiality of the messages exchanged between the RPS and RPA ;

(3) Ensure that access to computer based hardware is limited to persons identified and authenticated by the operator.

(4) Ensure that handovers between non-collocated RPS necessitate additional verifications and controls to assure the process are not interfered with by unauthorized individuals.

(5) Develop and implement measure to protect the integrity and identified critical system/data used for civil aviation

21.13.1.6.—(*a*) The RPAS operator shall :

Security Management of RPAS

(1) Assign an appropriately qualified and trained person as a Ground Security coordinator to coordinate the ground security duties.

(2) Ensure that RPA are stored and prepared for flight in a manner that will prevent and detect tampering and ensure the integrity of vital components.

(3) Ensure that no RPA is used to carry weapon, incendiary or explosive device, dangerous article, dangerous substance, chemicals/biological/ nuclear,weapon,without,appropriate authorization acceptable to the Authority.

(4) Ensure that no person flies a RPA over any prohibited or restricted airspace/area/infrastructure such as airports and navigational aids.

(5) Not use RPAS to observe and photograph restricted places.

(6) Ensure that all RPAS are properly identified with a registration number.

(7) Ensure staff members are adequately trained on aviation security awareness.

(8) Establish a system of record keeping that allows adequate storage and reliable traceability of all activities covering at a minimum security incident, and security training.

(9) Ensure that records are stored in a manner that ensures protection from damage, alteration and theft.

(10) Comply with any applicable security directives or circulars issued by the Authority.

(11) Permit NCAA Aviation Security Inspector to carry out security inspection, audit, test and Vulnerability assessment as may be necessary to determine compliance with the appropriate requirements prescribed in this section and for implementation monitoring to verify that the level of security continues to be met.

(12) Establish a security management system comprising a threat-based, risk-managed approach under which to assess and manage the security risks, threats and impacts. The security management system shall include a risk policy transparent, predictable and controllable, focused on the largest risks.

21.13.1.7.—(*a*) RPAS operator shall :

Emergency/ Contingency Plan

(1) Develop an emergency preparedness plan/ contingency plan that prescribes actions to be taken by the RPAS operator under emergency conditions or security incidents. The RPAS operator shall be responsible for periodic reviews of these plans. The plans should also include procedures for recovery and resumption of normal operations, if an interruption occurs, after the emergency conditions or security incidents are resolved.

(2) Ensure that plans are exercised regularly, and post-exercise reviews should be conducted to ensure operator's familiarity with the procedures, and to evaluate the appropriateness of the plans.

Aerodrome Operations

21.13.1.8.—(*a*) Any aerodrome serving RPAS operations shall include in its written airport security programme measures for RPAS operations appropriate to meet the requirements of the National Civil Aviation Security Programme (NCASP).

21.14. REQUIREMENTS FOR MANUFACTURER

Applicability

21.14.1.1.—(*a*) This part applies to any manufacturer who intends to get the Authority's approval to manufacture RPA and RPS.

21.14.1.2.—(*a*) To meet the requirements for operations for a specific RPAS, the means of compliance shall consist of data (tests, analysis, industry consensus standards) and the results or justification used to demonstrate that the RPAS meets the predetermined level of safety the Authority has established as acceptable.

(*b*) An applicant requesting Authority acceptance of a means of compliance shall submit the following information to the Authority in a manner specified by the Authority :

(1) Detailed description of the means of compliance ; and

(2) Justification, including any substantiating material, showing that the means of compliance establishes achievement of or equivalency to the predetermined safety level.

Note : As described in the Introduction to the ICAO Model UAS Regulations, each State will need to establish minimum safety levels (design or technical) to which manufacturers must demonstrate compliance. It is recommended the minimum safety levels be provided in an advisory circular or other guidance document for ease of amendment.

Manufacturer Declaration

21.14.1.3.—(*a*) For each model of RPAS that is intended to conduct any operation, the manufacturer shall provide the Authority with a declaration in accordance with subsection (1).

(1) the manufacturer's declaration shall :

(*i*) specify the manufacturer of the RPAS, the model of the system, the maximum take-off weight of the RPA, the operations that the RPA is intended to undertake and the category of RPA, such as fixed-wing aircraft, rotary-wing aircraft, hybrid aircraft or lighter-than-air aircraft ; and

(*ii*) specify that the system meets the means of compliance applicable to the operations for which the declaration was made.

(*b*) The manufacturer's declaration is invalid if :

(1) the Authority has determined that the model of the RPA does not meet the terms set out in the means of compliance, or

(2) the manufacturer has notified the Authority of an issue related to the design of the model under section.

Notice to the Authority

21.14.1.4.—(*a*) A manufacturer that has made a declaration to the Authority under section 21.14.1.3 shall notify the Authority of any issue related to the design of the model of the RPAS that results in the system no longer meeting the technical requirements set out in the means of compliance referred in subparagraph 21.14.1.22 (b)(2), as soon as possible after the issue is identified.

Documentation

21.14.1.5.—(*a*) A manufacturer that has made a declaration to the Authority in respect of a model of a RPAS under section 21.14.1.3 shall make available to each owner of that model of system :

(1) a maintenance program that includes :

(*i*) instructions related to the servicing and maintenance of the system ; and

(*ii*) an inspection program to maintain system readiness ;

(2) any mandatory actions the manufacturer issues in respect of the system ;

(3) a RPAS operating manual that includes :

(i) a description of the system ;

(*ii*) the ranges of weights and centers of gravity within which the system may be safely operated under normal and emergency conditions and, if a weight and center of gravity combination is considered safe only within certain loading limits, those load limits and the corresponding weight and center of gravity combinations ;

(*iii*) with respect to each flight phase and mode of operation, the minimum and maximum altitudes and velocities within which the aircraft can be operated safely under normal and emergency conditions ;

(*iv*) a description of the effects of foreseeable weather conditions or other environmental conditions on the performance of both the system and the RPA ;

(*v*) the characteristics of the system that could result in severe injury to crew members during normal operations ;

(*vi*) the design features of the system and their associated operations that are intended to protect against injury to persons not involved in the operations ;

(*vii*) the warning information provided to the remote pilot in the event of a degradation in system performance that results in an unsafe system operating condition ;

(*viii*) procedures for operating the system in normal and emergency conditions ; and

(*ix*) assembly and adjustment instructions for the system.

Record Retention for Manufacturer

21.14.1.6. —(*a*) A manufacturer that has made a declaration to the Authority in respect of a model of a RPAS under section 21.14.1.3 shall keep, and make available to the Authority on request :

(1) a current record of all mandatory actions in respect of the system ; and

(2) a current record of the results of and the reports related to the verifications that the manufacturer has undertaken to ensure that the model of the system meets the technical requirements applicable to the operations for which the declaration was made.

(*b*) The manufacturer shall keep the records referred to in subsection (*a*)(1) for the greater of :

(1) two years following the date that manufacturing of that model of RPAS permanently ceases, and

(2) the lifetime of the RPA that is an element of the model of system referred to in paragraph (*a*).

21.15. TRANSPORT OF DANGEROUS GOODS ON RPAS

General Principles

21.15. 1.1. —(*a*) No RPA shall carry dangerous goods as cargo except by the holder of an ROC with specific approval to carry dangerous goods or as approved by the Director General.

(*b*) RPAS Operators with no specific approval for the transport of dangerous goods as cargo shall :

(1) Establish a dangerous goods training programme that meets the requirements of Nig. CAR's Part 15 of this regulations as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals.

(2) Establish dangerous goods policies and procedures in its operations manual, to meet, at a minimum, requirements of Nig. CAR's Part 15 of this regulation to :

(*i*) Identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods ; and

(*ii*) Report to the Authority occasions when undeclared dangerous goods are discovered in cargo and also dangerous goods accidents and incidents.

(*c*) RPAS Operators with a specific approval for the transport of Dangerous goods as cargo shall :

(1) Establish a dangerous goods training programme that meets the requirements of Nig. CAR's Part 15 of this regulations as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals.

(2) Establish dangerous goods policies and procedures in its operations manual, to meet, at a minimum, requirements of Nig. CAR's Part 15 of this regulation to :

(*i*) Identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods ; and

(*ii*) Report to the Authority occasions when undeclared dangerous goods are discovered in cargo and also dangerous goods accidents and incidents.

(3) Report to the Authority any occasions when dangerous goods are discovered to have been carried ;

(*i*) when not loaded, segregated, separated or secured in accordance with Technical Instructions,

(*ii*) without information having been provided to the remote pilot-in command ;

(4) Accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an RPA ; and

(5) Provide the remote pilot-in-command with accurate information concerning dangerous goods that are to be carried as cargo in the format required in Nig. CAR's Part 15.

(6) Develops procedures for the remote pilot to notify emergency services at the scene of an incident or accident of the information provided to the remote pilot on the NOTOC.

(*d*) RPAS Operator shall ensure that all personnel, including third-party personnel, involved in the acceptance, handling, loading and unloading of cargo are informed of the operator's specific approval and limitations with regards to the transportation of dangerous goods.

(*e*) Most of the dangerous goods carriage requirements contained in Nig. CAR's Part 15 are considered applicable to RPA as written.

(*f*) RPAS operator shall ensure that security measures or precautions are taken during the transportation of dangerous goods on board aircraft to minimize theft or misuse of dangerous goods that may endanger persons, property or environment.

(*g*) Transport of Dangerous Goods by air via Remotely Piloted Aircraft (RPA) shall have the same procedures as aircraft operator as contained in Nig. CAR's (Part 15).

21.16. Cargo Compartment Safety

Transport of Items in the Cargo Compartment

21.16.1.1. —(*a*) RPAS operators shall establish policies and procedures for the transport of items in the cargo compartment, which include the conduct of a specific safety risk assessment. The risk assessment shall include at least the :

(1) Hazards associated with the properties of the items to be transported ;

(2) Capabilities of the operator ;

(3) Operational considerations (e.g. area of operations, diversion time) ;

(4) Capabilities of the RPA and its systems (e.g. cargo compartment fire suppression capabilities) ;

(5) Containment characteristics of unit load devices ;

(6) Packing and packaging ;
(7) Safety of the supply chain for items to be transported ; and
(8) Quantity and distribution of dangerous goods items to be transported.

2.16.1.2.—(*a*) The elements of the cargo compartment(s) fire protection system, as approved by the State of Design or Authority, and a summary of the demonstrated cargo compartment fire protection certification standards, shall be provided in the RPA flight manual or other documentation supporting the operation of the RPAS.

(*b*) The Operator shall establish policies and procedures that address the items to be transported in the cargo compartment. These shall ensure, to a reasonable certainty, that in the event of a fire involving those items, it can be detected and sufficiently suppressed or contained by the elements of the RPA design associated with cargo compartment fire protection, until the RPA makes a safe landing.

21.17. GENERAL PROVISIONS

Insurance

21.17.1.1.—(*a*) No person shall operate or cause to be operated or commit any other person to operate RPAS unless there is in force a minimum insurance policy, commensurate with the risk of the operation conducted, in respect of the RPAS and third party risks and proof of insurance document submitted to the Authority.

(*b*) Notwithstanding the provisions of 21.18.1.1(*a*), the Authority may dispense with requirement depending on the type of operation.

Privacy of Persons and Property

21.18.1.1.—(*a*) Any person conducting operations using RPAS fitted with cameras shall operate them in a responsible way to respect the privacy of others.

(*b*) No person shall use a RPAS to do any of the following—

(1) conduct surveillance of —

(*i*) A person without the person's consent.
(*ii*) Private real property without the consent of the owner.

(2) Photograph or film an individual, without the individual's consent, for the purpose of publishing or otherwise publicly disseminating the photograph or film. This requirement should not apply to news gathering, or events or places to which the general public is invited.

(*c*) Infrared or other similar thermal imaging technology equipment fitted on RPAS should only be for the sole purpose of —

(1) Scientific investigation ;
(2) Scientific research ;
(3) Mapping and evaluating the earth's surface, including terrain and surface water bodies and other features ;
(4) Investigation or evaluation of crops, livestock, or farming operations ;

(5) Investigation of forests and forest management;
(6) Other similar investigations of vegetation or wildlife;
(7) Border surveillance as approved by the Authority.
(8) Search and rescue
(9) Asset Inspection
(10) Environmental monitoring

Discharging or Dropping Goods

21.18.1.2.—(a) No person shall cause things to be dropped or discharged from an RPAS in a way that creates a hazard to another aircraft, persons or property.

Reports of Violation

21.18.1.3.—(*a*) Any RPAS Operator or employee of an operator, who knows of a violation under this Regulations, shall report it to the Authority.

(*b*) Any person who has a complaint of any operation of an RPAS shall report to the Authority and the Authority will determine if additional investigation is required.

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IS 21.4. CERTIFICATE OF REGISTRATION WILL BE ISSUED BY THE RPAS PORTAL IN THIS FORMAT

NIGERIA CIVIL AVIATION AUTHORITY

Certificate Number

CERTIFICATE OF REGISTRATION

REMOTEDLY PILOTED AIRCRAFT SYSTEMS (RPAS)

1. Nationality and Registration Marks	2. Manufacturer and Manufacturer's Designation of RPAS	3. Manufacturer Serial Number
		4. Date of Manufacture
5. Name of Registered Operator		
6. Address of Operator		
7. Name and Address of Owner (*if different from above*)		

8. It is hereby certified that the above-described RPAS has been duly entered on the register of the Federal Republic of Nigeria in accordance with Convention on International Civil Aviation dated 7th December, 1944, and with the Civil Aviation Act and the Regulations issued thereunder.

9. Date of Issue : ....

by authority of the
Nigeria Civil Aviation Authority

Note :

1. No entries or endorsements may be made in the foregoing certificate except in the manner and by the persons authorized for that purpose.
2. This certificate must be carried along during operations
3. This certificate is not transferable.

IMPORTANT

PLEASE READ CAREFULLY

This certificate is issued for registration purpose only and is not a certificate of title. The Nigeria Civil Aviation Authority does not determine rights of ownership between private persons.

On any change in the ownership of RPAS, **the RPAS, the registration and certificate become void** from the date of change and the documents must be returned **IMMEDIATELY** to the issuing authority with the appropriate section duly completed. This certificate must not be handed over the new owner. Similar action is also required if the RPAS is destroyed or permanently withdrawn from use.

When the registration has become void, the RPAS may not again be flown until a new Certificate of Registration has been obtained. Any application for re-registration of the RPAS shall be made on the prescribed form, copies of which may be obtained from issuing authority.

SECTION I

NOTICE OF CHANGE OF OWNERSHIP

I hereby notify that, with effect from the ……. Day of ……...…….. 20 ……..... the ownership of the RPAS described overleaf was transferred to ……..

..……

(*Fill in name and address of new owner*)

Name :..... Designation: .....

* Signature : ..... Date : .....

SECTION II

NOTICE THAT RPAS HAS BEEN DESTROYED OR PERMANENT WITHDRAWN FROM USE

I hereby notify that the registration of the RPAS described overleaf should be cancelled by reason of :

+(*a*) the RPAS having been destroyed
+(*b*) the RPAS having been permanently withdrawn from use.

Name :..... Designation: .....

* Signature : ..... Date : .....

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SECTION III

NOTICE OF ANY OTHER CHANGE AFFECTING THE REGISTRATION OF THE RPAS (CHANGE OF OPERATOR, ETC)

I hereby notify that the registration of the RPAS described overleaf should be cancelled by reason of : ……..
……

Name :..... Designation: .....

* Signature : ..... Date : .....

* The signature required is that of the owner(s) as shown in this Certificate of Registration. If the owner is a body corporate, the signature shall be that of Managing Director, Secretary or other official duly authorized to sign under the seal of the Company.
* **Delete if not applicable**

RPAS REGULATIONS IMPLEMENTING STANDARD S (IS)

IS: 21.4.1.2. APPLICATION FOR ISSUE/RENEWAL /VARIATION OF REMOTELY PILOTED AIRCRAFT (RPA)

FORM : AC-AWS-61F

APPLICATION FOR ISSUE/RENEWAL/VARIATION OF REMOTELY PILOTED AIRCRAFT OPERATOR CERTIFICATE (ROC)

1. Official Business Name :.....
   Address : .....
   Telephone(s) ..... Email : .....
2. Description of the applicant's business organization and corporate structure and name and address of those entities and individuals having a major financial interest : .....
   .....
   .....
3. (*a*) Base of Operations(Address) : .....
   (*b*) Description of facilities : .....
4. (*a*) Maintenance Base (Address) : .....
   (*b*) Description of proposed operation : .....
5. Key Management personnel (Last name, first name, middle name and resume/CV for all these positions) :
   (*a*) Accountable Officer (if different from above) : .....
   Experience / Qualifications .....
   (*b*) Head of Operations : .....
   Experience / Qualifications .....
   (*c*) Quality & Safety : .....
   Experience / Qualifications .....
   (*d*) Maintenance Controller :.....
   Experience / Qualifications .....
6. State in respect of the following documents, date(s) of submission, approval ref. No. & Date(s) :.....
   (*i*) Maintenance Control Manual (MCM)
   Submission date : ..... Approval Ref. No. & Date :.....
   (*i*) Operations Manual
   Submission date : ..... Approval Ref. No. & Date :.....
7. RPAS/UAV Data
   Number of RPAS/UAV : .....
   Manufactures : .....
   MTOW(Kg) : .....

Payload : .....

Endurance : .....

Power Source : ☐ Battery ☐ Fuel

Operations : ☐ VLOS ☐ BVLOS ☐ EVLOS

Provide details list of RPAS/UAV with Communication and Navigation installed.....

8. Crew Training: Provide details of Operations training for all positions.

9. Current ROC held (attach a copy):

(*i*) Certificate No :.....

(*ii*) Date of Issue : .....

(*iii*) Expiring Date : .....

(*iv*) Issuing Authority : .....

10. RPAS/UAV Type for which variation is sought state the number of each type to be added :

.....

11. In respect of each RPAS/UAV type to be included in the ROC, please indicate the following :

(*i*) Maintenance programme : .....

(*ii*) Minimum Equipment List : .....

(*iii*) RPAS/UAV Technical Log :.....

(*iv*) Arrangement for maintenance support : .....

12. Mandatory Occurrence Reporting (State whose responsibility it is) :

.....

.....

13. Particulars of maintenance personnel including age, nationality, qualification (Ratings and Currency) and Experience (please attach list)

14. Training arrangements for personnel responsible for supervising the maintenance support for RPAS/UAV to be included in the ROC (this should be made before introducing the RPAS intoservice) – Type of training and number of personnel involved to be stated in respect of the following :

Management :.....

Supervision : .....

Quality Assurance : .....

(*Attach further details as necessary*)

Arrangement for RPAS/UAV and system familiarization training and related maintenance practices for maintenance personnel (State type of training and number of maintenance personnel involved) :

15. Provisions for a periodic refresher course and O.J.T Programme (also state frequency)

Is an airworthiness occurrence control system in place? YES/NO

If yes, state :

— Method of operation :.....

— Procedures for ensuring that organization responsible for manufacture of each RPAS/ UAVtype receives adequate report of occurrences : .....

16. In respect of each RPAS/UAV type to be included in ROC, please indicate :

(*i*) Particulars of operations personnel including age, nationality, qualification (ratings and currency on assigned RPAS/UAV), and experience (list to be attached)

(*ii*) Training arrangement for personnel responsible for flight operations of RPAS/UAV to be included in the ROC (this should be made before introducing the RPAS/UAV into service) – state type of training and number of personnel involved, including flight crew and operations personnel (list to be attached)

17. Expatriate quota for foreign staff, if applicable (attach pertinent papers) :

18. Last audit/inspection of RPAS organization carried out by NCAA :

(*i*) Location(s) .....

(*ii*) Date(s).....

19. Fee paid :

Amount : ..... Receipt No. ..... Date : .....

Name : ..... Signature : .....

Designation : ..... Date : .....

Note : 1. (i) Application for grant of an ROC must be submitted at least 90 days before the date of intended operation. However, the operations manual must be submitted not less than 60 days before this date.

(*ii*) Application for variation of an ROC must be submitted at least 30 days before the date intended operations.

(*iii*) Application for the renewal of an ROC must be submitted at least 30 days before the expiry date of the existing certificate.

2. The Authority must be given at least 10 days prior notice of a proposed change of a nominated post holder.

3. The fee to be paid for grant or variation of an ROC is as per the latest revision of the Civil Aviation (fees) Regulations.

4. Annual and utilization fee are also to be paid in respect of an ROC.

20. Proof of financial capability (Attachment) : .....

21. Security Clearance if applicable : ..... (attachment) .....

* Delete/leave blank if not applicable.

TO BE COMPLETED BY THE NCAA

(*i*) Received by (Name & Signature): …….....……..

(*ii*) Date : …….....……....…….

(*iii*) Assigned Certificate No : .....……

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(*iv*) Officer assigned for assessment

.....

.....

.....

(*v*) Date forwarded to assigned officers : ……..……..…

(*vi*) Remarks : ….……

.....……..

.....…….....

IS 21.5.4. CONTENTS OF THE ROC

Note.— An electronic copy of the ROC is required to be carried on board the RPS (*see* 21.10.6.23 (*f*)).

<table>
<tr><td colspan="3">RAPS OPERATOR CERTIFICATE</td></tr>
<tr><td rowspan="2"></td><td>NIGERIA</td><td rowspan="2"></td></tr>
<tr><td>NIGERIA CIVIL AVIATION AUTHORITY</td></tr>
<tr><td>ROC NO [4]
Expiry Date [5]</td><td>OPERATOR NAME [6]
Operator's trading name [7]:
Operator address [8]:
Telephone [9]:
Email:</td><td>OPERATIONAL POINTS OF CONTACT [10]
Contact details, at which operational management can be contacted without delay, are listed in .....[11]</td></tr>
<tr><td colspan="3">This certificate certifies that .....[12] is authorized to perform international RPAS operations, as defined in the operations specifications, in accordance with the operations manual and the .....[13]</td></tr>
<tr><td colspan="2">Date of Issue [14]:</td><td>Name and Signature [15]:
Title</td></tr>
</table>

Notes. —

1. For use of the State of the Operator.
2. Replace by the name of the State of the Operator.
3. Replace by the identification of the issuing authority of the State of the Operator.
4. Unique ROC number, as issued by the State of the Operator.
5. Date after which the ROC ceases to be valid (dd-mm-yyyy).
6. Replace by the operator's registered name.
7. Operator's trading name, if different. Insert "dba" before the trading name (for "doing business as").
8. Operator's principal place of business address.
9. Operator's principal place of business telephone details, including the country code. Email to be provided if available.
10. The contact details include the telephone numbers, including the country code, and the email address (if available) at which operational management can be contacted without undue delay for issues related to flight operations, airworthiness, remote flight crew competency, dangerous goods and other matters, as appropriate.

11. Insert the controlled document, carried on board, in which the contact details are listed, with the appropriate paragraph or page reference, e.g.: “Contact details are listed in the operations manual, Gen/Basic, Chapter 1, 1.1" or “… are listed in the operations specifications, page 1" or “… are listed in an attachment to this document”.

12. Operator’s registered name.

13. Insertion of reference to the appropriate civil aviation regulations.

14. Issuance date of the ROC (dd-mm-yyyy).

15. Title, name and signature of the authority representative. In addition, an official stamp may be applied on the ROC.

NIGERIA CIVIL AVIATION AUTHORITY

ROC - OPERATIONS SPECIFICATIONS

OPERATIONS SPECIFICATIONS FOR EACH AIRCRAFT MODEL:

For each RPA model in the operator's fleet, identified by aircraft make, model and variant, the following information shall be included :

(*a*) issuing authority contact details ;
(*b*) operator name and ROC number ;
(*c*) date of issue and signature of the authority representative ;
(*d*) RPA model ;
(*e*) RPS model ;
(*f*) types and areas of operations ; and
(*g*) special limitations and specific approvals.

Note. — If specific approvals and limitations are identical for two or more models, these models may be grouped in a single list.

3.2. The operations specifications layout referred to in 21.5.4.1, shall be as follows :

Note.— The MEL constitutes an integral part of the operations manual.

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OPERATIONS SPECIFICATIONS (*subject to the approved conditions in the Operations manual*)				
ISSUING AUTHORITY CONTACT DETAILS[1] Telephone : +234-1-4721521 Fax : +234-1-2790421 E-mail : *info@ncaa.gov.ng*				
ROCK # [2] :	OPERATOR NAME [3]		DATE [4]	
Operator trading name[3]:				
RPA Model[5] and variant:				
RPS Model and variant:				
Types of Operation[6]:				
Area(s) of operation[7]:				
Special limitations[8]:				
SPECIAL AUTHORIZATIONS	YES	NO	DESCRIPTION[9]	REMARKS
Dangerous goods	☐	☐		
Low Visibility Operations :				
Approach and Landing	☐	☐	CAT[10]:__ RVR:__m DH__ ft	
Take-off	☐	☐	RVR [11] ____ m	
Operational Credits	☐	☐	[12]	
VLOS [13]	☐	☐		
BVLOS [14]	☐	☐		
RLOS [15]	☐	☐		
BRLOS [16]	☐	☐		
AR Navigation Specifications for PBN authorizations	☐	☐	[17]	
Continuing Airworthiness	☐	☐	[18]	
Others [19]	☐	☐		

Notes. —

1. Telephone and contact details of the authority, including the country code. Email to be provided if available.

2. Insert the associated ROC number.

3. Insert the operator's registered name and the operator's trading name, if different. Insert "dba" before the trading name (for "doing business as").

4. Issuance date of the operations specifications (dd-mm-yyyy) and signature of the authority representative.

5. Insert the Commercial Aviation Safety Team (CAST)/ICAO designation of the RPA make, model and series, or master series, if a series has been designated. The CAST/ICAO taxonomy is available at: http://www.intlaviationstandards.org/. *Note*— there could be multiple entries in this section.

6. Very high level (VHL) operations above FL 600, aerial work, long duration flight, commercial transport, etc.

7. List the geographical area(s) of authorized operation (by geographical coordinates or specific routes, flight information region or national or regional boundaries), as defined by the issuing authority.

8. List the applicable special limitations (e.g. day-only, population density and altitude limitations).

9. List in this column the most permissive criteria for each specific approval (with appropriate criteria).

10. Insert the applicable precision approach category (e.g. CAT II, III). Insert the minimum RVR in metres and decision height in feet. One line is used per listed approach category.

11. Insert the approved minimum take-off RVR in metres, or the equivalent horizontal visibility if RVR is not used. One line per approval may be used if different approvals are granted.

12. Reserved for future use.

13. Visual line of sight operations.

14. Beyond visual line of sight operations.

15 Radio line of sight

16. Beyond radio line of sight operations

17. Performance-based navigation (PBN): one line is used for each PBN AR navigation specification approval (e.g. RNP AR APCH), with appropriate limitations listed in the "Description" column.

18. Insert the name of the person/organization responsible for ensuring that the continuing airworthiness of the RPAS is maintained and the regulation that requires the work, *i.e.* within the ROC regulation or a specific approval.

19. Other authorizations or data can be entered here, using one line (or one multi-line block) per authorization (e.g. special approach authorization, approved navigation performance)

IS: 21.10.6.23. The operations manual shall contain at the least the following :

(1) General :

(*i*) Instructions outlining the responsibilities of operations personnel pertaining to the conduct of flight operations.

(2) Information and policy relating to fatigue management including :

(i) policies pertaining to flight time, flight duty period, duty period limitations and rest requirements for remote flight crew members in accordance with section 21.9.6.24 ; and

(*ii*) where applicable, policy and documentation pertaining to the operator's FRMS in accordance with 21.9.6.22.

(3) A list of the navigational equipment to be carried including any requirements relating to operations where performance-based navigation is prescribed.

(4) Where relevant to the operations, the long-range navigation procedures and the nomination and utilization of diversion aerodromes.

(5) The circumstances in which a radio listening watch is to be maintained.

(6) The method for determining minimum flight altitudes.

(7) The methods for determining aerodrome operating minima.

(8) Ground handling arrangements and procedures.

(9) Procedures, as prescribed in Annex 12, for remote pilots-in-command observing an accident.

(10) The remote flight crew for each type of operation including the designation of the succession of command.

(11) Specific instructions for the computation of the quantities of fuel and oil to be carried, taking into account all circumstances of the operation including the possibility of the failure of one or more engines while en-route.

(12) Instructions for mass and balance control.

(13) Instructions for the conduct and control of ground de-icing/anti-icing operations.

(14) The specifications for the operational flight plan.

(15) Standard Operating Procedures (SOPs) for each phase of flight.

(16) Instructions on the use of normal checklists and the timing of their use.

(17) Departure contingency procedures.

(18) Instructions on the maintenance of altitude awareness and the use of automated or remote flight crew altitude call out.

(19) Instructions on the use of autopilots and auto-throttles.

Note.— Instructions on the use of autopilots and auto-throttles, together with (24) and (28), are essential for avoidance of approach and landing accidents and controlled flight into terrain accidents.

(20) Instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved.

(21) Departure and approach briefings.

(22) Procedures for familiarization with areas, routes and aerodromes.

(23) Stabilized approach procedure.

(24) Limitation on high rates of descent near the surface.

(25) Conditions required to commence or to continue an instrument approach.

(26) Instructions for the conduct of precision approach (PA) procedures, approach procedures with vertical guidance (APV) and non-precision approach (NPA) procedures.

(27) Allocation of remote flight crew duties and procedures for the management of remote crew workload during night and IMC instrument approach operations.

(28) Instructions and training requirements for the avoidance of controlled flight into terrain and, when installed, policy for the use of the ground proximity warning system (GPWS).

(29) Policy, instructions, procedures and training requirements for the avoidance of collisions and the use of the detect and avoid (DAA) capability.

Note.— Procedures for the operation of ACAS are contained in PANS-OPS (Doc 8168), Volume I, and in PANS-ATM (Doc 4444), Chapters 12 and 15.

(30) Information and instructions relating to the interception of civil RPA including :

(*a*) procedures, as prescribed in Nig. CAR's Part 8 for remote pilots-in-command of intercepted aircraft ; and

(*b*) visual signals for use by intercepting and intercepted aircraft, as contained in Nig. CAR's Part 8.

(31) For RPA intended to be operated above 15 000 m (49 000 ft.), procedures in the event that a decision to descend is taken, covering :

(*i*) the necessity of giving the appropriate ATS unit prior warning of the situation and of obtaining a provisional descent clearance ; and

(*ii*) the action to be taken in the event that communication with the ATS unit cannot be established or is interrupted.

Note.— Guidance material on the information to be provided is contained in Circular 126 — Guidance Material on SST Aircraft Operations.

(32) Details of the safety management system (SMS) provided in accordance with Nig. CAR's Part 20.

(33) Information and instructions on the carriage of dangerous goods, in accordance with section 21.16 of these Regulations including action to be taken in the event of an emergency.

Note.— Guidance material on the development of policies and procedures for dealing with dangerous goods incidents on board aircraft is contained in Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods (Doc 9481).

(34) Security instructions and guidance.

(*c*) RPAS operating information.

(1) Certification limitations and operating limitations.

(2) The normal, abnormal and emergency procedures to be used by the remote flight crew and the checklists relating thereto as required by section 21.9.6.23 of these Regulations.

(3) Operating instructions and information on climb performance with all engines operating, if provided in accordance with this section.

(4) Flight planning data for pre-flight and in-flight planning with different thrust/power and speed settings.

(5) The maximum crosswind and tailwind components for each RPA type operated and the reductions to be applied to these values having regard to gusts, low visibility, runway surface conditions, remote crew experience, use of autopilot, abnormal or emergency circumstances, or any other relevant operational factors.

(6) Instructions and data for mass and balance calculations.

(7) Instructions for RPA loading and securing of load.

(8) RPAS systems, associated controls and instructions for their use, as required by section 21.9.6.23 of this Regulations.

(9) The minimum equipment list and configuration deviation list for the RPA types operated and specific operations authorized, including any requirements relating to operations where performance-based navigation is prescribed. Checklist of emergency and safety equipment and instructions for its use.

(10) Emergency evacuation procedures for the RPS, including type-specific procedures, remote crew coordination, assignment of remote crew's emergency positions and the emergency duties assigned to each remote crew member.

(11) Procedures to mitigate at least the emergencies and contingencies as required by section 21.13.1.7 of this Regulations.

(*d*) Routes and aerodromes.

(1) A route guide to ensure that the remote flight crew will have, for each flight, information relating to communication facilities, navigation aids, aerodromes, instrument approaches, instrument arrivals and instrument departures as applicable for the operation, and such other information as the operator may deem necessary for the proper conduct of flight operations.

(2) The minimum flight altitudes for each route to be flown.

(3) Aerodrome operating minima for each of the aerodromes that are

likely to be used as aerodromes of intended landing or as alternate aerodromes.

(4) The increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities.

(5) The necessary information for compliance with all flight profiles required by regulations, including but not limited to, the determination of :

(*i*) for remotely piloted aircraft, take-off runway length requirements for dry, wet and contaminated conditions, including those dictated by system failures which affect the take-off distance ;

(*ii*) take-off climb limitations ;

(*iii*) en-route climb limitations ;

(*iv*) approach climb limitations and landing climb limitations ;

(*v*) for remotely piloted aircraft, landing runway length requirements for dry, wet and contaminated conditions, including systems failures which affect the landing distance ; and

(*vi*) supplementary information, such as tire speed limitations.

(*e*) Training

(1) Details of the remote flight crew training programme, as required by Nig. CARs Part 8.10.1.15 and IS:8.10.1.15.

(2) Details of the flight operations officer/flight dispatcher training programme when employed in conjunction with a method of flight supervision in accordance with Nig. CARs 8.10.35.

(*f*) RPS Identification

The operator shall include within the operations manual the following details for all RPS that it operates :

(*a*) the individual or legal entity holding ownership of each RPS ;

(*b*) the RPS manufacturer and manufacturer's designation for the RPS ;

(*c*) the serial number of each RPS ;

(*d*) indication of the type, model and variant of each RPA an RPS is capable of controlling ; and

(*e*) other relevant data as required by applicable legislation.

IS:21.12.1.2.—(*a*) The C2 Link shall comply with the following performance requirements :

(1) *Transaction time* : the maximum time for the completion of the operational communication transaction after which the initiator should revert to an alternative procedure ; two values are specified :

(*i*) RLP nominal time (TT 95%). The maximum nominal time within which 95% of operational communication transactions is required to be completed

(*ii*) RLP expiration time (ET). The maximum time for the completion of the operational communication transaction after which the initiator is required to revert to an alternative procedure.

(2) *Continuity* : the probability that an operational communication transaction can be completed within the communication transaction time.

(3) *Availability* : the probability that an needed; and operational communication transaction can be initiated when needed ; and

(4) *Integrity* : the probability of one or more undetected errors in a completed communication transaction.

(5) *RLP type* :A label (e.g. RLP X) that represents the values assigned to RLP parameters for communication.

(6) *RLP type allocation* : The process of apportioning the various RLP type values to the various parts of the system.

(7) RPAS C2 function: Function = Intended behaviour of a product based on a defined set of requirements regardless of implementation.

(8) Examples of RPAS C2 functions include all the functions by which a remote pilot is effectively having control over the RPA navigation, attitude and the RPA airborne systems.

(9) RLTP (Required Link Technical Performance): The technical transit time for C2 data delivery that does not include the human (or the automatic response system) times for message composition, operational response by human operator (or automatic system), and recognition of the operational response.

(10) *RLTPX* : The maximum time allocated to the critical transit times for a C2 message, allocated to system X.