SUPPLEMENTARY INSTRUCTION - IS

IS No. E94-001
Revision B

Approved by:	Ordinance No. 3.275/SAR of 22 October 2019.	
Subject:	Remotely Piloted Aircraft System Design Authorization - General Procedures	Source: SAR/GGCP

1 OBJECTIVE

1.1 1.1.1 This Supplementary Instruction - IS is intended to provide information on the procedures for the design authorization of a Remotely Piloted Aircraft System - RPAS), as set in Subpart E of the Brazilian Civil Aviation Special Regulation No. 94 - RBAC-E 94.

2 REVOCATION

2.1 This IS cancels and replaces IS E94-001 of 2 May 2017.

3 FUNDAMENTALS

3.1 Art. 66, § 1 of Law no. 7,565, of December 19, 1986 (Brazilian Code of Aeronautics - CBAer), states that it is the duty of the aeronautical authority to promote and establish minimum safety standards for the design of aircraft and other aeronautical components.

3.2 Art. 8, XVII of Law No. 11,182, of September 27, 2005, provides jurisdiction to the National Civil Aviation Agency - ANAC as civil aviation authority to approve and issue certificates, attestations, approvals and authorizations related to the activities of the civil aviation flight safety system.

3.3 Resolution 30, of May 21, 2008, considering the wording given by Resolution no. 162 of July 20, 2010, establishes in its art. 14 that ANAC may issue IS to clarify, detail and guide the application of the requirement set in a RBAC.

3.4 Art. 14 of Resolution 30, of May 21, 2008, modified by Resolution No. 162, of July 20, 2010, also determines in its Paragraph 1 that the applicant that intends, for any purpose, to demonstrate compliance with the requirement set forth in a RBAC may adopt the means and procedures previously specified in IS or present duly justified alternative means or procedures, requiring, in that case, the analysis and express agreement of the competent ANAC body. Paragraph 2 of the same article determines that the alternative means or procedure must guarantee a level of safety equal to or greater to the one established by the applicable requirement or to achieve the objective of the procedure normalized in the IS.

3.5 Section E94.401 of RBAC-E 94 states that, except in the cases listed, it is only allowed to operate a civil RPAS in Brazil if the RPAS design is authorized by ANAC taking into account the RPAS class, the maximum operating height and the type of operation (Visual Line of Sight - VLOS or Beyond Visual Line of Sight - BVLOS).

4 DEFINIÇÕES

4.1 **Applicant:** Person requesting ANAC and other government bodies, authorizations and approvals required for the RPAS design.

4.2 **Responsible Technician:** Engineer with adequate assignment and registration in the Council Regional of Engineering and Agronomy - CREA.

5 DEVELOPMENT OF THE SUBJECT

5.1 Applicability

5.1.1 This IS applies to anyone who intends to obtain authorization from an RPAS project in accordance with Subpart E of RBAC-E 94.

5.2 Assignment of Responsibilities

5.2.1 Authorization of an RPAS project is a process that aims to ensure that the unmanned aircraft meets the applicable minimum airworthiness requirements. This activity involves responsibilities for those who intends to receive the authorization and for the ANAC.

5.2.2 The following are the responsibilities of applicants:

5.2.2.1 Request the opening of an RPAS design authorization process with ANAC, as set forth in Appendix B;

5.2.2.2 Submit to GGCP the technical documents related to the demonstration of compliance with the requirements of Subpart E of RBAC-E 94;

5.2.2.3 Submit any further clarifications and technical data requested by ANAC;

5.2.2.4 Perform the analyzes and all laboratory, ground and flight tests, as applicable, deemed necessary by ANAC to authorize the design of RPAS, and prepare and submit to ANAC test results reports (if applicable);

5.2.2.5 To permit inspections by ANAC, when necessary, to determine the conformity of the RPAS with the technical data presented, as well as to prove compliance with the requirements of Subpart E of RBAC-E 94; and

5.2.2.6 Allow GGCP to witness or perform, if applicable, the laboratory, ground and flight tests required to verify compliance with the requirements of Subpart E of RBAC-E 94..

5.2.3 The responsibilities of ANAC are:

5.2.3.1 Respond to the applicant, within a period of thirty (30) days, from the date of receipt of the initial request, informing the opening of the case and its number, or informing the pending issues that prevented the opening of the process;

5.2.3.2 Analyze the scope and sufficiency of the administrative documents and technical documents submitted by the applicant;

5.2.3.3 Request clarifications and/or new documents and technical data considered necessary for the analysis of the design;

5.2.3.4 Witness or perform, at its discretion, and if applicable, the laboratory, ground and flight tests required to verify compliance with the airworthiness requirements for the RPAS design authorization;

5.2.3.5 Authorize the RPAS project when it is ensured that it meets the applicable airworthiness requirements.

5.3 RPAS Design Authorization Process

5.3.1 The RPAS design authorization process is divided in the following phases:

a) Preliminary;

b) Initial;

c) Compliance demonstration and findings;

d) Final.

5.3.2 In case ANAC identifies, in any phase, any aspect that prevents the development of RPAS design authorization process, the applicant will be informed by ANAC which will declare the reasons.

5.3.3 Preliminary phase

5.3.3.1 Guidance to the process: Prior to initiating the development of a RPAS project, it is recommendable that the applicant obtains as much information as possible about the applicable rules. ANAC may respond to queries regarding the procedures for obtaining authorization, as well as provide guidance on appropriate regulatory material, common policies or other relevant guidance material. Questions may be sent to the following e-mail: rpas.ggcp@anac.gov.br.

5.3.3.2 Development tests: Depending on the design, it may necessary to perform mechanical, structural, flammability, qualification, systems and equipment functioning and other development flight tests. These flight tests may be performed in accordance with the rules established by ANAC for experimental operations. The applicant shall consult the Supplementary Instruction No. E94-503-001 revision A or later, titled “Issuance of Experimental Airworthiness Certificate for Remotely Piloted Aircraft” for further information on this subject. It is important that the applicant reaches a certain mature level before applying for a RPAS design authorization in order to avoid changes in the design or in its assumptions, which are normal in the early development phases, which would result in excessive changes to technical date presented to ANAC during the compliance demonstration and findings phase, what would cause waste of resources from both ANAC and the applicant itself.

a) Result reports containing conclusions, technical specifications, etc., may be accepted by ANAC in the context of the design authorization depending on the level of control and records used in the test and the representativity of the prototype.

b) Some development tests may still be performed after the process opening, however the applicant may be prepared to mitigate the risk of having to revise technical date already analyzed by ANAC.

5.3.3.3 Initial meeting: Prior to the opening of an RPAS project authorization process, an initial meeting may be requested by the applicant or ANAC. At this meeting a brief presentation of the design can be made by the applicant and it is a good opportunity to describe the technical details of the project to ANAC. The main purpose is to familiarize the authority with the project proposal, especially identifying systems or installation specificities, as well as new technologies or configurations. In addition, on this occasion, the applicant may be informed of the need to comply with additional requirements, according to RBAC-E 94.401(b), special conditions, alternative means of compliance, etc. To maximize the efficiency of such meeting, it is recommended that, prior to it, the applicant prepare a draft of the complete set of the documentation required to request the opening of the process so the applicant can take the opportunity to address objective doubts about aspects which still require clarification.

5.3.3.4 Opening request and work plan: The applicant must submit the documentation necessary to the opening of the RPAS design authorization process in accordance with the Appendix B of this Supplementary Instruction, including a work plan for the proposed RPAS design authorization application. This plan will define the used authorization basis, equivalent levels of safety, exemptions, list of affected requirements, means of compliance, concept of operations (CONOPS) and proposed schedule. The work plan will thus be a provision or guide to the process. It must be noted that this document will be agreed between the parties involved and may be revised, if necessary, whenever there is a change in the assumptions originally used. The documentation may be delivered to ANAC personally in its offices, by letter or through the e-mail ggcpdoc.sjc@anac.gov.br.

5.3.4 Initial phase

5.3.4.1 Process opening: A project authorization process for RPAS is initiated upon receipt by the ANAC of a letter sent by the applicant, requesting the opening of a design authorization process for the RPAS. The work plan and the basic RPAS data (as per Appendix B) must also be sent along with the letter. The administrative and technical documentation will be reviewed by ANAC and in case they contain all the required information, ANAC will inform the applicant, via official letter, the formal opening of the process, including the process number and the coordinator and deputy-coordinator assigned to the project.

a) The formal opening of the process does not imply in the immediate acceptance of the proposed work plan. The work plan must be formally accepted by ANAC before the applicant begins submitting the technical data.

b) In case ANAC identifies the existence of a request or need to establish an acceptable means of compliance, equivalent level of safety, special condition or exemption, it will initiate in this stage the development of an issue paper (*Ficha de Controle de Assunto Relevante* - FCAR) to formalize the technical discussion.

5.3.5 Compliance demonstration and findings

5.3.5.1 Submission of technical data: All technical data concerning the RPAS project foreseen in the Work Plan accepted by ANAC must be submitted for review and acceptance. These data must show that the RPAS proposal meets all the requirements defined in the Work Plan. It is emphasized that it is the applicant's responsibility to demonstrate compliance with applicable regulations. All technical data must be presented in documents (reports, drawings) with revision control, identification and signature of its author and approval of the Responsible Technician.

5.3.5.2 Declaration of conformity: If tests are required, the Responsible Technician - RT must verify the conformity of the installed aircraft, parts, components or systems with the technical data presented and the approved test proposals and send a Declaration of Conformity document signed to ANAC.

5.3.5.3 Compliance demonstration tests: The compliance demonstration tests (either on ground or flight), in case foreseen in the work plan, are under the responsibility of the applicant and performed by it. ANAC may opt to witness these tests. It is strongly recommended that the applicant submit a test proposal for ANAC acceptance with details on the procedures and expected results before the preparation of the tests to avoid duplication of work and waste of resources. The preparation of the aircraft to flight tests in accordance with test proposals previously accepted are under the responsibility of the applicant and consist, among other, in the following activities: installation and calibration of test instrumentation which will be verified by ANAC in conformity inspections and setting the aircraft in the weight and balance conditions established for the flight test. After performing compliance demonstration tests, the applicant must elaborate and submit to ANAC test result reports (including evidences such as photos, videos and logs), properly signed by the RT and, whenever applicable, by the remote pilot who performed the tests.

5.3.5.4 Analysis of technical data: ANAC will examine the data submitted, review the proposals for tests, conduct inspections and, if it so wishes, will witness the tests. It is emphasized that ANAC is responsible to determine whether the technical data presented herein are sufficient or not to demonstrate compliance with the requirements.

5.3.5.5 Test with ANAC witnessing: After the conclusion of all compliance demonstration activities defined in the Work Plan, ANAC will send to the applicant a list of points and aspects which must be tested with ANAC witnessing. It is recommended that the applicant prepare and submit to ANAC a test proposal report including all points and aspects which will be evaluated. This test will primarily focus on aspects with larger impact on impact, which require subjective evaluation or those where the demonstration test results did not offer much certainty on the compliance with the requirement. After the test, ANAC personnel will elaborate a witness report. The main conclusions will be informed to the applicant.

5.3.6 Final phase

5.3.6.1 Statement of compliance: Upon completion of all activities defined in the Work Plan, the applicant must submit a statement duly completed and signed by the RT, attesting compliance with all applicable requirements, according to RBAC-E 94.401(b)(3).

5.3.6.2 Authorization letter and data sheet: Once ANAC has accepted or approved all technical data, inspections, tests, manuals and documentation necessary to the closure of the process, ANAC will issue a RPAS design authorization letter which will be accompanied by a RPAS Design Authorization Data Sheet (DADS) which will be published on ANAC website.

5.4 Closure of the Authorization Process

5.4.1 The process will be closed after the issuance of the RPAS design authorization letter accompanied with the RPAS Design Authorization Data Sheet.

5.4.2 The applicant may request at any time the filing of the process at his convenience.

5.4.3 If a process remains for more than 05 (five) months without any manifestation or response by the applicant, it will be compulsorily filed by GGCP.

5.4.4 After being filed, the process may be reopened at the request of the applicant. The reopening of the process will entail all administrative costs related to the opening of a new process, including, where appropriate, the payment of a new TFAC related to the opening of the process.

5.5 Suspension or Cancellation of an Authorization

5.5.1 ANAC will suspend or cancel an RPAS project authorization if it is found that the design has characteristics that lead to unsafe conditions.

5.6 Confidentiality

5.6.1 All technical data presented to GGCP to substantiate the authorization of a project of RPAS are considered property of the holder of the design and therefore of reserved character and can not therefore be transmitted or used by third parties, except with express authorization of its holder.

6 APPENDICES

APPENDIX A – LIST OF REDUCTIONS

APPENDIX B – DOCUMENTS REQUIRED TO OPEN A PROCESS

APPENDIX C – CONTROL OF CHANGES

7 FINAL DISPOSITIONS

7.1 The missing cases will be settled by ANAC.

7.2 This IS comes into force on the date of its publication.

APPENDIX A – LIST OF REDUCTIONS

A.1 Acronyms

a) ANAC — *Agência Nacional de Aviação Civil* (National Civil Aviation Agency)

b) ART — *Anotação de Responsabilidade Técnica* (Technical Responsibility Note)

c) BVLOS — Beyond Visual Line of Sight

d) CAVE — *Certificado de Autorização de Voo Experimental* (Experimental Airworthiness Certificate)

e) CONOPS — Concept of Operations

f) CREA — *Conselho Regional de Engenharia e Agronomia* (Engineering and Agronomics Regional Board)

g) DADS — Design Authorization Data Sheet

h) FCAR — *Ficha de Controle de Assunto Relevante* (Issue Paper)

i) IMC — Instrument Meteorological Conditions

j) IS — *Instrução Suplementar* (Supplementary Instruction)

k) RBAC — *Regulamento Brasileiro da Aviação Civil* (Brazilian Civil Aviation Regulation)

l) RPA — Remotely Piloted Aircraft

m) RPAS — Remotely Piloted Aircraft System

n) RPS — Remote Pilot Station

o) TFAC — *Taxa de Fiscalização da Aviação Civil* (Civil Aviation Fee)

p) VLOS — Visual Line of Sight

q) VMC — Visual Meteorological Conditions

APPENDIX B – DOCUMENTS REQUIRED TO OPEN THE PROCESS

B.1 Technical Documents

B.1.1 Work Plan with the following information.

a) RPAS general description, including:

I - Name and model of the Remotely Piloted Aircraft – RPA;

II - Name and model of the Remote Pilot Station – RPS;

III - Drawing of the three views of the aircraft, with dimensions;

IV - Photos of RPA and RPS, when possible;

V - Maximum takeoff weight foreseen;

VI - Intended class of approval;

VII - Takeoff and landing mode;

VIII - Simplified description of the main safety mechanisms (parachutes, redundant systems for navigation, propulsion, electrical power, etc);

IX - Description of any relevant or unusual aspects of RPAS operation, such as catapult launching, landing by mechanical coupling, etc.

b) Concept of Operations (CONOPS) proposed for the RPAS, including:

I - Determination whether the requested authorization intends to operate on or beyond the visual line of sight;

II - Maximum distance between RPA and RPS;

III - Foreseen uses and applications;

IV - Area or operational environment (urban, rural, sparsely populated areas);

V - Environmental conditions or limitations (VMC, IMC, daylight, night, rain);

VI - Other unusual operational aspects (for example, radio or RPS handover, operation of multiple RPA by a single remote pilot, etc);

VII - Determination of the proposed maximum operating height/altitude.

c) List of requirements to be demonstrated to obtain the RPAS design authorization (including special conditions, exemptions and equivalent level of safety) with its respective proposed means of compliance.

d) Master list of reports.

e) Proposed schedule for the execution of the activities related to the compliance demonstration.

B.2 Administrative Documents

B.2.1 Letter requesting the opening of the RPAS design authorization process;

B.2.2 Declaration of responsibility for the RPAS design, informing name, address and CPF or registration in the CREA of the RT;

B.2.3 Number of the Technical Responsibility Note - ART related to the engineering service to be executed, containing a description of the design submitted to ANAC;

NOTE 1 – It must be informed a valid ART for work or service specific to the design which it is intended to be authorized on behalf of the RT. In case the applicant informs an ART on behalf of its company, it must also inform a ART for role or function which demonstrate the bond of the company with an engineer with proper attribution in CREA.

NOTE 2 – The ART must be paid to be considered valid.

B.2.4 Declaration exempting GGCP from any liens and liabilities for occasional damage to the aircraft or third parties during ground and flight tests;

B.2.5 Copy of TFAC's proof of payment (if applicable).

APPENDIX C – CONTROL OF CHANGES

CHANGES IMPLEMENTED IN REVISION B	
CHANGED ITEM	**CHANGE IMPLEMENTED**
2.1.1	Indication of the revokation of the previous version
5.3	Restructuration on the presentation of the phases to facilitate the understanding of the subject.
5.4	Reordering of the information to emphasize that the mean mode of closure is the authorization of the design and simplification of the content for further clarity.
Appendix A	Inclusion of the reductions introduced in this revision.
B.1	Reorganization of the information to better organize the work plan separating data which constitute the mean basic aspects of the design, the concept of operation and the certification basis and means of compliance.
B.2.2	Introduction of a note to explain the issue of the ART.