

REGULATORY PROPOSAL

FOR LICENSE AND RATING REQUIREMENTS
FOR AIRCRAFT WITH VERTICAL TAKEOFF AND
LANDING CAPABILITIES

SPL – Department of Civil Aviation Personnel

**REGULATORY PROPOSAL FOR LICENSE AND RATING REQUIREMENTS FOR AIRCRAFT
WITH VERTICAL TAKEOFF AND LANDING CAPABILITIES**

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INTRODUCTION

Nowadays, urban Mobility is one of the most studied and relevant issues in academic and public policy makers environment. This phenomenon is related to the challenging public interest issue of, in one side, provide better urban transport systems, without the possibility of building or enlarging actual infrastructure, and, in the other side of the coin, enhance quality of life indicators of the citizens.

Additionally, the raising global concerns regarding climate changes related to the higher air pollution indicators due to the burning of carbon fuel is an interesting trigger to lead to alternative Technologies, using clean or renewable energy sources, to be Applied on urban Mobility solutions.

In this challenging scenario, a variety of new Technologies/solutions are being fostered. Among these ones, due to its relationship with the technical discussion to be addressed in this document, the following items should be highlighted:

- New Technologies evolving electric power storage batteries.
- Electric engines.
- Performance monitoring and management integrated systems.
- Decision making methodologies and systems.

So, the raising interest and scale of such new technical solutions fosters the development of also new business models regarding urban Mobility. However, the progress of these studies must be followed by policy makers discussions regarding the development of a regulatory environment that could foster the implementation of urban Mobility optimization solutions.,

In this scenario, our global Society is being exposed to new urban Mobility projects that evolves the development of a new environment that would support the use of aircraft that would be able to run optimal and energy clean Mobility solutions, even in a high-density air traffic scenario.

Finally, these same projects are presenting to the Society a new aircraft concept, that should be used, mainly, in high density urban Spaces and have the following technical characteristics:

- Multiengine/multirotor.
- Small operational range (the actual projects limit its aircrafts to a 150 nm range).
- Electric powered, using specific batteries to storage this electric energy.
- Composite structures, exclusively.
- Monitoring, controlling and automation extra high levels.

Despite the High potential that these new Technologies/solutions must demonstrate its feasibility of being used in new urban Mobility solutions, it also demands the development of discussion and solutions, made by governmental policy makers, to provide a regulatory framework to support the development of these new urban Mobility environments.

The challenge addressed to the government policy makers can be put, in a short basis, as to the necessity of the establishment of a new regulatory framework to support the certification and the surveillance of the new urban Mobility environment being glimpsed.

The main regulatory issues related to the policy makers challenge are:

- **Project and product certification:** the unrestricted of the actual rules related to aircraft certification already shows its infeasibility, since these new aircraft have new and specific technical specs already cited in this document. The Department of Airworthiness has recently submitted to public consultation the set of requirements to a specific design as per [Aviso n° 10/2023](#).
- **Operational certification:** due to the complexities related to new operational procedures, energy management and air operations in a shared and dense air space, the regulation regarding operations should also be reshaped to allow the operational certification of these new scenario.
- **Personnel certification:** since the civil aviation personnel will be dealing with new Building and operational Technologies, new requirements and training methodologies should be developed and applied.

However, it is crucial to highlight that this document will be focused on the regulatory framework related to Personnel Certification.

REGULATORY CHALLENGE

The new Technologies evolved in the new air urban Mobility solutions imposes to the industry and to the regulators the necessity of the development of new studies to guide the establishment of a new regulatory framework to support the certification and surveillance efforts related to the formation and qualification of the aviation personnel that will be employed in this new environment.

In the Brazilian scenario, it is a must that ANAC Brazil keeps itself in the loop of such technological discussions since EVE is a Brazilian enterprise and, by this, ANAC will be the primary Civil Aviation Authority – CAA regarding the EVE-100 certification process. In addition to this, advanced air Mobility projects are being developed in Brazilian major cities which becomes a catalyst to the regulatory framework development discussions.

With this in mid, ANAC Brazil is developing its own studies, in close cooperation with aircraft manufacturers, air operators, training providers and other CAA.

Important to quote that these studies are still in an initial phase since there is a global shortage of data related to these new Technologies and its operations.

However, the development of the new regulatory framework regarding aviation personnel must start since, by the initial projections due to the operational profile and its volume, it becomes clear that new resources (pilots and mechanics, mainly) will be needed.

So, the regulatory challenge that is put in front of ANAC Brazil, regarding aviation personnel is: definition of new PEL requirements, in a way that should be prevented any resource shortage to these new air operations and keeping in mind that the Brazilian safety performance, as established in our National Aviation Safety Plan - NASP, cannot be jeopardized. Other critical element is the development of this new regulatory framework in a pace that would not jeopardize the implementation of any advanced air Mobility Project.

REGULATORY CHALLENGE SOLUTION

APPROACH

Considering the new aircrafts launching schedule, there is no choice to the CAA than start immediately its effort in developing new PEL requirements, even considering the unprecedented and mainly flexible new operational environment that is being put in front of them.

Regarding the cited CAA efforts, must be highlighted the following:

- **FAA:** published [NPRM 23-8](#), containing a proposal of a regulatory framework addressing airworthiness, operational and PEL issues. Besides the analysis of any other regulatory proposal is not the objective of this document, it is noted that the FAA proposal seems to be restrictive, since its basis pushes to a conservative approach to deal with the new Technologies related to the advanced air Mobility projects. The FAA proposal revises the requirements associated with powered-lift category adapting them to the challenge imposed by the new projects.
- **EASA:** published [Opinion n° 3/2023](#) that makes clear the intention of having a performance-based approach for the new regulatory framework definition, specifically what is concerned to PEL requirements. The European proposal defines a new aircraft category: *VTOL-capable aircraft, VCA*.

Important to quote that discussions regarding the objective of this document were not initiated within the International Civil Aviation Organization – ICAO Personnel Training and Licensing Panel – PTLP. However, an ICAO Study Group, called Advanced Air Mobility Study Group AAM SG, is beginning to study what should be the competencies related to the aviation personnel employed in these future air operations.

Within this scenario of initial regulatory discussions and proposals and considering the aggressive launching schedules that are being presented by aircraft manufacturers, it became a strategic issue for ANAC Brazil the development of studies and a proposal of a regulatory framework to support the new advanced air Mobility environment.

Thus, with the main intention of gathering data and studies, ANAC Brazil started its representation on Society of Automotive Engineering – SAE specific G-35 Study Group and in ICAO PTLP and AAM SG.

From these technical discussions and data sharing with industry and regulatory representatives, it became clear to ANAC Brazil, regarding the establishment of new PEL requirements related exclusively to AAM, that:

- **AMTEM Personnel (Mechanics):** The actual regulatory framework regarding PEL requirements related to AMTEM supports the future demand associated with AAM. This conclusion comes from the fact that the actual PEL requirements establishes the fundamental knowledge that an AMTEM must prove and, also, establishes the necessity of a mechanic to be submitted to specific training programs related to each aircraft model/type rating continuous airworthiness program. So, efforts related to the improvement of the AMTEM PEL regulatory basis can be focused on the development of new training programs development methodologies and can be run under usual timelines.
- **Pilots:** Industry and CAA already know that the actual PEL regulatory framework needs to be evolved for supporting the future demands related to the certification of VTOL-capable aircraft pilots. This conclusion comes from the mapped necessity of developing new PEL requisites based of competencies needed and performance showed by the pilots. Since CAA are going to face new disruptive Technologies, related to VTOL-capable aircraft operations, it is natural that new PEL requirements must be developed. These new PEL requirements must have, in its basis:
 - Performance based regulation.
 - Focus on competencies development training.
 - Revision of Simulation Training device's role in a training program.

As already said in this document, industry expectation, based on its business cases and CONOPS, is that there will be no time for having the usual schedule for the development of new PEL regulatory framework.

Thereby, it is already a consensus between industry representatives and CAA that, beyond the technical aspects already raised in this document, the new PEL regulatory framework must be developed to provide regulatory solution for both scenarios described above:

- PEL requirements related to future VTOL-capable aircraft pilots that already have a commercial pilot license, even in airplane or rotorcraft aircraft categories. These pilots, as the forecast until now presented by the industry, will be employed in the beginning of VTOL-capable aircraft air operations; and
- PEL requirements related to future VTOL-capable aircraft pilots that do not have any previous experience as a pilot or performing commercial operations. This solution is being called Ab Initio Training/Requirements.

Finally, the new PEL requirements must treat the following parameters:

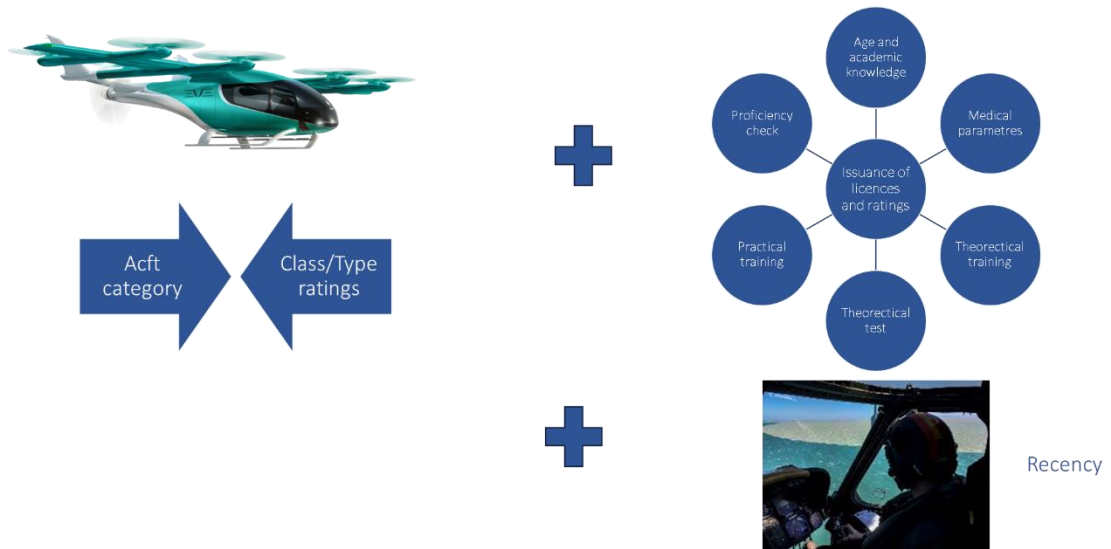


Figure 1: PEL regulatory framework scheme.

PEL REGULATORY FRAMEWORK PROPOSITION BASIS

Following the path for having a PEL regulatory framework focused on VTOL-capable aircraft air operations evolved personnel, it is important to reinforce that, at this moment, there is no need to propose any Evolution related to PEL requirements associated to AMTEM personnel.

Therefore, this proposal will focus on a new PEL regulatory framework for the adequate treatment of future VTOL-capable aircraft pilots' needs, due to the industry technical requirements and the safety indicators established in Brazilian NASP.

Before the starting to explore the new PEL regulatory framework propositions, it is important to highlight the following characteristics, related exclusively to VTOL-capable aircraft air operations:

- **Aircraft category:** Due to the unforeseen and exclusive technical and operational characteristics of VTOL-capable aircraft (multi-engine/multirotor; small range, electric powered; specific batteries for energy storage; composite structures; high levels of monitoring controlling and automation; and operated by Only one pilot), it is not possible to use the actual defined aircraft categories.
- **Uniqueness technical solution Applied to each aircraft project:** in the opposite of what can be Applied nowadays, regarding similarities between technical solutions Applied to some airplanes and rotorcrafts, each VTOL-capable aircraft brings uniqueness technical solutions. Consequently, any effort on trying to establish a class rating for VTOL-capable aircrafts proves to be unfruitful.
- **Operational profile:** since its genesis, VTOL-capable aircraft are being designed for its use, exclusively, in small range flights, with a mean flight time between 10 and 15 minutes. Because of it, CAA should begin its efforts for the definition of new PEL requisites, in a challenging and flexible new operational environment.
- **Change in pilot role during the flight:** the VTOL-capable pilots will be inserted in a new kind of air operation that does not require a pilot second-in-command, with monitoring and controlling systems acting in a very higher level compared to the current solutions. In addition, since the beginning of VTOL-capable aircraft operations, the higher automation level installed in aircraft systems results in a major change in the pilot role, that will become mainly monitoring aircraft performance nor than flying the aircraft.
- **Competencies and performance approach:** Since there is not enough data to support actual decision-making rulemaking processes, CAA must invest in

regulatory frameworks that must be based on the definition of the competencies needed for the pilots and the observation of their performance while running these same competencies.

- **Pilots demands profile:** due to the forecasts related to the operational profile and quantities of air operations with VTOL-capable aircraft, the demand for pilots will be in such a quantity that CAA must develop a PEL framework that encompasses pilots that already have a commercial pilot license (even in airplane or rotorcraft) and pilots with no experience in flying air commercial operations.

PROPOSAL OF A NEW PEL REGULATORY FRAMEWORK

Considering all the aspects already highlighted in this document, the proposition of a ANAC Brazil solution for the establishment of a new PEL regulatory framework for supporting the emerging VTOL-capable aircraft air operations will be exposed.

This technical proposition must establish the new requirements related to the following aspects, prescribed in Chicago Convention Annex 1, and exposed in Figure 1 of this document:

- Aircraft category definition.
- License and ratings Applied to this new aircraft category.
- Age requirement.
- Academic background.
- Medical Certification.
- Training needs, even for the theoretical or the practical training.
- Theoretical examination.
- Proficiency check.
- Recency

In addition, this new PEL regulatory framework must encompass the following:

- License issuance for pilots that already have a commercial pilot license, either in airplane or rotorcraft categories.
- License issuance for pilots that does not have any experience in running commercial air operations (*Ab initio*).
- Recurrent Training.
- Instructors.
- Examiners.

General Requirements

The new PEL regulatory framework here propose can be split in two streams.

The first stream is related to the establishment of PEL requirements that must be Applied to all pilots that would request a license for operating VTOL-capable aircraft.

This stream has, as its scope, the following definitions:

- Aircraft category definition.
- License and ratings Applied to this new aircraft category.
- Age requirement.
- Academic background.
- Medical Certification.

Aircraft category definition

As already exposed in this document, VTOL-capable aircraft have technical and operational characteristics that turns unfeasible the direct application of the actual PEL requirements, defined in RBAC 61.

Hence, the definition of a new aircraft category appears as the solution to be proposed.

Consequently, here is proposed the establishment of a new aircraft category called “VTOL-capable aircraft”, VCA.

Ratings Applied to the new aircraft category.

As already mentioned in this document, the uniqueness of the VCA projects presented until now, it is clear to ANAC Brazil that it is still not possible to work on the definition of a class rating associated to the new VCA category.

Consequently, for the definition of this proposal, ANAC Brazil works with the scenario that each certified VCA will have a specific type rate associated to it.

Age requirement

Due to the actual legal framework related to anyone that will be employed in a public service, ANAC Brazil is proposing that the minimum age for having a VCA license and rating is 18 years old.

Academic background

ANAC Brazil does not see any technical reason for changing what is already defined in RBAC 61 regarding the academic background requirement associated with the commercial pilot license.

As a result, and since the focus of this analysis is related to pilots that will be employed in commercial VCA air operations, it is proposed that the VCA pilots must demonstrate that have completed, successfully, high school level.

Medical certification

Considering, mainly, that VCA air operations will be held by just one pilot onboard, and, in addition, these air operations will be performed in a high-density air traffic Aerospace, ANAC Brazil proposes that VCA pilots must have First Class Medical Certificate (as for commercial pilots operating IMC/IFR), as established in RBAC 67.

Recency

Due to the uniqueness of the operational profile and flight mean time that will be observed in VCA air operations, it is clear that the actual recency requirements, established in RBAC 61, will not be applicable to this case. Additionally, there is not enough operational data to drive studies for better defining recency requirements for VCA pilots.

Therefore, ANAC Brazil proposes that the recency requirement for VCA pilots must be, at this initial stage, that the pilot must prove the execution of at least one VCA air operation in the last 45 days.

Specific requirements for each VCA pilot stream

The second part of this ANAC Brazil technical proposal refers to the PEL requirements that would be associated with each VCA pilot stream.

Remembering, VCA pilot streams are:

- License and ratings issuance for pilots that already have a commercial pilot license, even in airplane or rotorcraft categories.
- License and ratings issuance for pilots that do not have any prior experience in commercial air operations (*Ab initio*).
- Recurrent training.
- Instructor pilot.
- Examiner

License and ratings issuance for pilots that already have a commercial pilot license, even in airplane or rotorcraft categories.

This section has as its main aim the proposal of the additional technical requirements related to the issuance of a VCA license and rating for pilots that already have a commercial pilot license, even in airplane or rotorcraft categories.

The additional technical requirements can be clustered in:

- Flight experience in aircraft of VCA category.
- Flight training and assessment.
- Operational suitability.
- Operational training.
- Supervised flights.

Important to quote that the stream proposed here must be followed as it is listed above. By saying this the Supervised flights can Only be made after the Operational training phase. This Operational training phase must be Applied just after the successful completion of the Operational suitability phase. Finally, the Operational suitability phase must be preceded by the Practical training and assessment stage.

Other critical aspect that must be made clear in this proposal is that after the successful completion of the Operational suitability stage the VCA license and rating will be issued to the pilot. The next steps must be Applied just for the pilots that will be employed in commercial and certified VCA air operations.

The privileges associated to a VCA license are equal to the ones associated with the actual commercial pilot license.

Returning to this stream path, the Operational training must be Applied just to VCA pilots that already have VCA license and any rating at it related. Crucial in this proposal is that, at the end of this stage the pilot must be able to perform solo flights in commercial operations.

The final stage of this stream, the Supervised flights stage, must happen after the successful completion of the Operational training phase. At this final stage, the pilot will be flying exclusively solo, as can be better observed following this document.

Flight experience in VCA category

As already exposed in this document, the actual VCA air operations business plans forecast an initial demand for pilots that will be filled by pilots that already have commercial pilot license. However, due to the uniqueness of the VCA projects and its operational environment, it is not possible to develop a relation between flight time performed in airplanes/rotorcrafts and VCA.

In addition to it, and with straight relation to the small range and low mean time flight related to this new environment, the building hour process for VCA pilots seems more complex than any other similar scenario already studied until now.

However, since this stream is exclusively built for pilots that already have a commercial pilot license. In ANAC Brazil perspective it is possible to take credit from all the flight hours already flew by these pilots for considering this Chicago Convention Annex 1 requirement accomplished for the issuance of a VCA license.

Therefore, ANAC Brazil proposed that there is no need to define any requirement of having additional VCA flight hour for granting a VCA license to pilots that already have a commercial pilot license.

However, to fulfill the necessity of granting, at least, the minimum safety level established in Brazil's NASP, if any requirement related to VCA flight experience will be asked there must be a technical counterpart to it. This technical counterpart, as already foreseen in Chicago Convention Annex 1, is that these pilots must be submitted to a training program, composed of the stages already cited in this document, based on the Competency Based Training and Assessment – CBTA methodology.

Flight training and assessment

The uniqueness of the technical solutions embedded in VCA projects until now presented by the industry, besides leading to the definition of having just type ratings, drives the

industry and regulators to develop new training programs based on methodologies that would not Only focus on tasks performed during the flight.

Important to highlight that the technical proposal to be showed in this document refers to the training needs associated to the issuance of VCA license and a type rate to it related and then, the allowance to this same pilot to perform commercial operations.

As already cited in this document and foreseen by ICAO, the alternative path to be followed to develop the new VCA training programs must be the use of the CBTA methodology.

However, as well known by all civil aviation stakeholders, the use of the CBTA methodology in the development of pilot training programs is still incipient.

Additionally, it is known that the development of training programs based on the CBTA methodology requires a gap analysis as in its genesis. However, due to the actual lack of operational data regarding VCA operations, this initial gap analysis phase gets severely jeopardized.

Therefore, the technical solution for this scenario must be associated to the development of an intermediate scenario that still lists a package of phases of flight/tasks/maneuvers that must be performed by the pilots, but, instead of establishing a relation between this package and specific operational margins, must establish a relation between this same package and a set of competencies, skills and attitudes that must be showed properly by the VCA pilots.

Given the above, it is important to start the drill through of the ANAC Brazil proposal regarding the training program to be Applied to future VCA pilots that already have a commercial pilot license.

The drill through of the proposal will be based on the establishment of two major training blocks:

- Theoretical training.
- Practical training

Theoretical training

For the pilots that already have a commercial pilot license there is no need for having specific theoretical training and assessment, since all the knowledge related to this stage is already owned by these pilots.

So, exclusively for these already commercial pilots, the only theoretical training that must be Applied is the one related to the type rating to be issued.

However, it is important to reinforce that this theoretical training must be developed following the CBTA methodology. As a result, there is no need to establish any requirement associated to a minimum number of hours to these theoretical training.

Also relevant to say, in ANAC Brazil presented technical proposal, the VCA manufacturer is responsible for the proposition of this type rating theoretical training proposal. This training will be evaluated and approved during the Operational Evaluation process, held inside the project/product certification program.

Flight training

As proposed for the theoretical training, there is no need for developing a specific practical training for future VCA pilots that already have a commercial pilot license. With this being said, the practical training program to be Applied to these pilots is just the one related to the issuance of each type rating to be requested.

Following the already established technical basis of this proposal, also the practical training must be developed following the CBTA methodology.

It is important to reinforce that, by following CBT methodology, there will be no definition regarding a minimum workload to be Applied to these new practical training. However, all these new practical training should establish a relation between the competencies that must be developed or fostered and each phase of flight/task/maneuver to be performed by the pilots.

Also relevant to say, in ANAC Brazil presented technical proposal, the VCA manufacturer is responsible for the proposition of this type rating practical training proposal. This training will be evaluated and approved during the Operational Evaluation process, held inside the project/product certification program.

Additional remarks due to the Practical Training:

- For each phase of flight/task/maneuver defined in the training program, abnormal and emergency situations must be added/predicted.
- As already proposed, the training proposed must be built under CBTA methodology. As a direct consequence, there will be no minimum workload to be achieved by any phase of the training. What must be made clear is that all the competencies needed for the safe VCA operation was developed/fostered.

Flight assessment

ANAC Brazil proposes that the flight assessment can be performed in two different ways:

- At the end of the flight assessment, following the established in Instrução Suplementar IS 00-002 and its Type rating pilot assessment sheet.

- In a “progressive check ride” model, where the competencies developed/fostered are observed, assessed, and registered as the flight training is being Applied. ANAC Brazil suggests the use of this model since it is the more effective assessment mode to be Applied within any training program based on the CBTA methodology.

Operational Suitability

Due to the uniqueness of the VCA projects and its operational environment, it comes clear to ANAC Brazil that, even for pilots that already have a commercial pilot license, it is necessary to establish a specific stage at the training program with the main aim of providing a minimum operational experience before the issuance of the VCA license.

This specific stage is called Operational Suitability and has the aim to develop/foster competencies related to the VCA operations within its real operational environment.

Remarks:

- What is called here Operational Suitability is like the actual requirement that establishes a minimum off light hours in the new aircraft category that the license will be requested.
- The Operational Suitability stage is Only applicable for the issuance of the VCA license. For the issuance of type ratings additional to the initial one, that is issued with the VCA license. There is no need to perform, again, the Operational Suitability stage.
- Due to the dynamics of the new VCA, it is not necessary for a VCA pilot to be approved in an ATP ANAC Brazil theoretical exam to have its type rating.

Breaking down the Operational Suitability stage, ANAC Brazil proposes the establishment of requirements related to:

- Minimum content; and
- Minimum workload.

Minimum content

The minimum content of an Operational Suitability state is:

Missions/Tasks
Flight planning
<i>En Route flight – cross country</i>
<i>Night flight</i>

<i>Basic IFR</i>
<i>Special/specific maneuvers, as defined in aircraft AFM and operator SOP</i>

Minimum workload

The Operational Suitability stage must be composed of a minimum of 20 VCA operations, using the same type rating trained during its specific Theoretical and flight training phases.

An alternative means of compliance can be proposed by an ATO or a certified air operator. This alternative Operational Suitability stage must be based, exclusively, on CBTA methodology.

Remarks:

- VCA operations is defined as the bundle of the following phases off light: engines start – take-off – landing – engines off.
- The 20 VCA air operations here proposed can be performed in a simulator training device, following LOFT training basis.
- The minimum content and the minimum workload must be Applied as specified on the aircraft AFM and on the operator SOP.
- For each mission/task, abnormal and emergency situations must be foreseen.

Operational training

The Operational training stage is not necessary for the issuance of a VCA license. It is Applied, exclusively to pilots that already have a VCA license and will be employed in commercial air operations using VCA.

This stage must be composed by tasks/maneuvers related to a real commercial flight and has as the Amin aim the promotion of the final adjustments to the VCA pilot to be employed in these operations. This practical training must have the minimum content proposed above.

Missions/Tasks
<i>Special/specific maneuvers as defined in aircraft AFM and in operator SOP</i>
<i>LOFT</i>

Remarks:

- The content proposed must be Applied/simulated as established in the aircraft AFM and in the operator SOP.
- For each mission/task, abnormal and emergency situations must be foreseen.
- The Operational Training stage must be based on the CBTA methodology. As a result, there is no definition regarding a minimum workload related to this phase of the training program.

Supervised flights

After the successful completion of the Operational Training stage, the VCA pilot will be able to run commercial air operations employing VCA. However, the pilot’s initial solo operations must be realized under the supervision of an instructor pilot. Since also this stage must be developed under CBTA methodology, there will be no definition regarding a minimum workload associated to this stage.

PEL Framework for pilots that already have a commercial pilot license - Schematic.

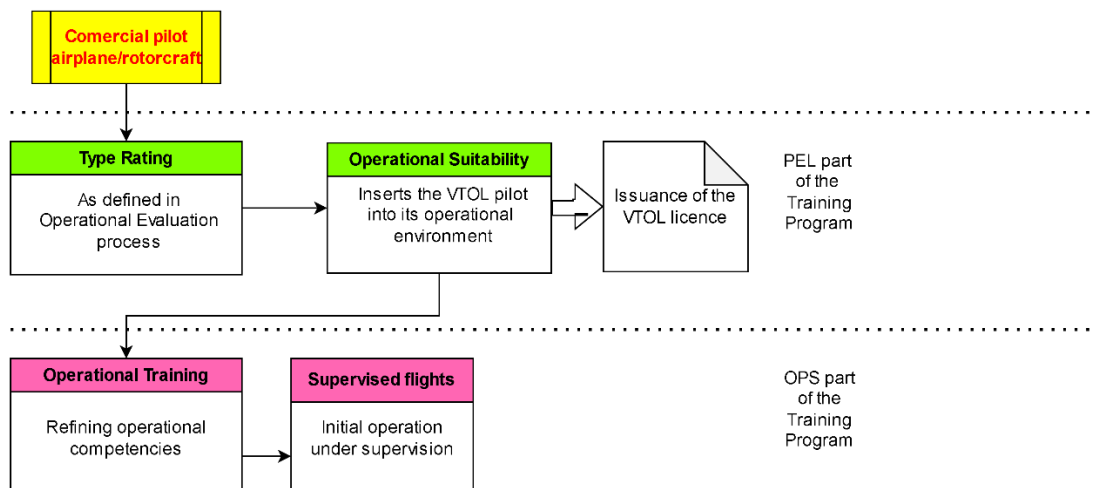


Figure 2: PEL Framework for pilots that already have a commercial pilot license - Schematic.

Issuance of VCA license for pilots with no commercial operations experience

This document section is for the establishment of ANAC Brazil proposal regarding the PEL specific requirements related to the issuance of a VCA license to pilots that do not have prior experience on commercial flights/air operations.

The additional technical requirements can be clustered in:

- Flight experience in aircraft of VCA category.
- Flight training and assessment.
- Operational suitability.
- Operational training.
- Supervised flights.

Important to quote that the stream proposed here must be followed as it is listed above. By saying this the Supervised flights can Only be made after the Operational training phase. This Operational training phase must be Applied just after the successful completion of the Operational suitability phase. Finally, the Operational suitability phase must be preceded by the Flight training and assessment stage.

Other critical aspect that must be made clear in this proposal is that after the successful completion of the Operational suitability stage the VCA license and rating will be issued to the pilot. The next steps must be Applied just for the pilots that will be employed in commercial and certified VCAair operations.

The privileges associated to a VCA license are equal to the ones associated with the actual commercial pilot license.

Returning to this stream path, the Operational training must be Applied just to VCA pilots that already have VCA license and any rating at it related. Crucial in this proposal is that, at the end of this stage the pilot must be able to perform solo flights in commercial operations.

The final stage of this stream, the Supervised flights stage, must happen after the successful completion of the Operational training phase. At this final stage, the pilot will be flying exclusively solo, as can be better observed following this document.

Flight experience in aircraft of VCA category

As already exposed in this document, the actual VCA air operations business plans forecast an initial demand for pilots that will be filled by pilots that already have commercial pilot license. However, due to the uniqueness of the VCA projects and its

operational environment, it is not possible to develop a relation between flight time performed in airplanes/rotorcrafts and VCAs.

In addition to it, and with straight relation to the small range and low mean time flight related to this new environment, the building hour process for VCApilots seems more complex than any other similar scenario already studied until now.

However, since this stream is exclusively built for pilots that already have a commercial pilot license. In ANAC Brazil perspective it is possible to take credit from all the flight hours already flew by these pilots for considering this Chicago Convention Annex 1 requirement accomplished for the issuance of a VCA license.

Therefore, ANAC Brazil proposed that there is no need to define any requirement of having additional VCA flight hour for granting a VCA license to pilots that already have a commercial pilot license.

However, to fulfill the necessity of granting, at least, the minimum safety level established in Brazil's NASP, if any requirement related to VCA flight experience will be asked there must be a technical counterpart to it. This technical counterpart, as already foreseen in Chicago Convention Annex 1, is that these pilots must be submitted to a training program, composed of the stages already cited in this document, based on the Competency Based Training and Assessment – CBTA methodology.

Flight training and assessment

The uniqueness of the technical solutions embedded in VCA projects until now presented by the industry, besides leading to the definition of having just type ratings, drives the industry and regulators to develop new training programs based on methodologies that would not Only focus on tasks performed during the flight.

Important to highlight that the technical proposal to be showed in this document refers to the training needs associated to the issuance of VCA license and a type rate to it related and then, the allowance to this same pilot to perform commercial operations.

As already cited in this document and foreseen by ICAO, the alternative path to be followed to develop the new VCA training programs must be the use of the CBTA methodology.

However, as well known by all civil aviation stakeholders, the use of the CBTA methodology in the development of pilot training programs is still incipient.

Additionally, it is known that the development of training programs based on the CBTA methodology requires a gap analysis as in its genesis. However, due to the actual lack of

operational data regarding VCA operations, this initial gap analysis phase gets severely jeopardized.

Therefore, the technical solution for this scenario must be associated to the development of an intermediate scenario that still lists a package of phases of flight/tasks/maneuvers that must be performed by the pilots, but, instead of establishing a relation between this package and specific operational margins, must establish a relation between this same package and a set of competencies, skills and attitudes that must be showed properly by the VCA pilots.

Given the above, it is important to start the drill through of the ANAC Brazil proposal regarding the training program to be Applied to future VCA pilots that already have a commercial pilot license.

The drill through of the proposal will be based on the establishment of two major training blocks:

- Theoretical training.
- Practical training

Theoretical training

The future VCA pilot will not need to complete successfully a theoretical course approved by ANAC Brazil. However, the future VCA pilot must realize and be approved in a theoretical examination proposed exclusively by ANAC Brazil.

The knowledge and competencies that must be by the ANAC Brazil theoretical examination are proposed as above:

Field of knowledge	Content to be developed/examined
<i>Legal and regulatory framework</i>	Rules and regulatory procedures that are related and relevant to the employment of the privileges associated to a commercial pilot license, Rules of the Air and your practices and procedures.
<i>Aircraft general knowledge</i>	Engines/propellers operational principles, instruments/avionics, and aircraft systems; Aircraft and engine operational limitations; access and correct interpretation of aircraft AFM operational data and constraints; aircraft and its equipment/systems proper checklists.

<p><i>Flight planning, knowledge related to performance data and weight-balance procedures</i></p>	<p>Loading procedures and its effects on the weigh-balance aircraft limitations; aircraft gravity center calculation and its interpretation due to the aircraft limitation and performance; aircraft performance sheets/graphics knowledge and adequate application; Flight planning procedures; Air Rules operational and radiophonic procedures; Altimeter adjustment procedures; and Air Rules procedures due to air operations in high density air space</p>
<p><i>Human performance</i></p>	<p>Human performance, including TEM – Threat and Error Management principles</p>
<p><i>Meteorology</i></p>	<p>Basic aeronautic meteorology concepts and knowledge; Meteorology info access and its effective application; Altimetry; Critical climate conditions; Meteorology predictions info access and its effective application, Meteorological charts and reports; Relevant air operation areas meteorology info/charts/predictions; Pressure systems movements, front structures and relevant meteorological phenomena that can jeopardize regular air operations; “Icing” knowledge, Front penetrating procedures; prevention/evasion from adverse climate conditions to a VFR flight.</p>
<p><i>Air navigation</i></p>	<p>Practical issues related to air navigation; Air navigation procedures, including the correct use of navigation charts/instruments/air navigation aids; Air navigation systems knowledge and its appropriate application.</p>
<p><i>Operational procedures</i></p>	<p>TEM methodology Applied to human operational performance; Aeronautical documentation (AIP, NOTAM, codes, abbreviations, i.e.); Altimeter adjustment procedures; Abnormal and emergency procedures, including avoidance of IMC conditions during VFR flight and other adverse meteorological conditions as downwash, wake turbulence, outwash, and vortices; Loading procedures and dangerous goods basic knowledge; Safety briefings;</p>

	stalls; dynamic rollover and other operational hazards
<i>Principles of flight</i>	VCA principles off light
<i>Radiotelephony</i>	Phraseology and communication procedures Applied to VFR and IFR operations, as applicable. Procedures in case of communication failure

Important to quote that the theoretical training and assessment here described is not the Only one that must be submitted to the new VCA pilot.

After the basic flight training, described in the next item of this document, the new VCA pilot must be submitted to the Type rating training program, that is also composed by a theoretical and flight stages.

Other important remark related to the theoretical training and assessment here exposed is that both must be based on the CBTA methodology, what pushes ANAC Brazil for having no definition regarding the workload associated to the basic theoretical training.

The theoretical training related to the specific Type rating training program must be proposed by the aircraft manufacturer, also based on the CBTA methodology, and will be analyzed and approved by ANAC Brazil during the Operational Evaluation process.

Flight training

The flight training here proposed by ANAC Brazil can be split in two moments: basic flight training, specific type rating flight training.

The basic flight training, to be performed just after the initial theoretical assessment, has as its main aim the development and consolidation, in a practical environment, of the aeronautical knowledge/skills/competencies (airmanship) related to a safe VCA operation. This flight training phase must be split in two: local flights and cross-country flights. The minimum content for each part is proposed by ANAC Brazil as follows:

Basic flight training – Local flights – Missions/Tasks
<i>Aircraft familiarization</i>
<i>Flight planning</i>
<i>Preflight procedures</i>

<i>Engines start and taxi</i>
<i>Vertical take-off</i>
<i>Rolling take-off</i>
<i>Climb to hover</i>
<i>Transition – from vertical flight to horizontal flight</i>
<i>Local flights</i>
<i>Conversion – from horizontal flight to vertical flight</i>
<i>Descent to hover</i>
<i>Approach and vertical landing</i>
<i>Approach and rolling landing</i>

Basic flight training – Cross country flights – Missions/Tasks
<i>Flight planning</i>
<i>Preflight procedures</i>
<i>Engines start and taxi</i>
<i>Vertical take-off</i>
<i>Rolling take-off</i>
<i>Climb to hover</i>
<i>Transition – from vertical flight to horizontal flight</i>
<i>Cross country flights</i>
<i>Conversion – from horizontal flight to vertical flight</i>
<i>Descent to hover</i>
<i>Approach and vertical landing</i>
<i>Approach and rolling landing</i>
<i>Air navigation</i>

<i>Local night flight</i>
<i>Cross country night flight</i>
<i>Radio aids navigation</i>
<i>Basic IFR</i>

Remarks:

- For each mission/task proposed, abnormal and emergency situations must be foreseen.
- This basic flight training must not be Applied to pilots that already have a commercial or VCA pilot license.
- The missions/tasks related to the “Basic IFR” content must be like the actual description of such training related to the issuance of a private pilot license, without IFR rating. The aim of this mission/tasks is to provide to the pilot the necessary knowledge and skill for preventing the insertion, and its evasion, of IMC meteorological conditions during VFR flights.
- The training here proposed by ANAC Brazil must be based on the CBTA methodology. Hence, there is minimum workload to be proposed related to this part of the training program.

The Type rating flight training stage must also be proposed, by the aircraft manufacturers, based on the CBTA methodology.

Remarks regarding the Type Rating flight training stage:

- For each mission/task to be inserted and detailed into the Flight Training manufacturers proposal, abnormal and emergencies must be foreseen.
- The flight training related to the specific Type rating training program must be proposed by the aircraft manufacturer, also based on the CBTA methodology, and will be analyzed and approved by ANAC Brazil during the Operational Evaluation process.

Flight Assessment

ANAC Brazil proposes that the flight assessment can be performed in two different ways:

- At the end of the flight assessment, following the established in Instrução Suplementar IS 00-002 and its Type rating pilot assessment sheet.
- In a “progressive check ride” model, Where the competencies developed/fostered are observed, assessed, and registered as the flight training

is being Applied. ANAC Brazil suggests the use of this model since it is the more effective assessment mode to be Applied within any training program based on the CBTA methodology.

Operational Suitability

Due to the uniqueness of the VCA projects and its operational environment, it comes clear to ANAC Brazil that, even for pilots that already have a commercial pilot license, it is necessary to establish a specific stage at the training program with the main aim of providing a minimum operational experience before the issuance of the VCA license.

This specific stage is called Operational Suitability and has the aim to develop/foster competencies related to the VCA operations within its real operational environment.

Remarks:

- What is called here Operational Suitability is like the actual requirement that establishes a minimum off light hours in the new aircraft category that the license will be requested.
- The Operational Suitability stage is Only applicable for the issuance of the VCA license. For the issuance of type ratings additional to the initial one, that is issued with the VCA license. There is no need to perform, again, the Operational Suitability stage.
- Due to the dynamics of the new VCA, it is not necessary for a VCA pilot to be approved in an ATP ANAC Brazil theoretical exam to have its type rating.

Breaking down the Operational Suitability stage, ANAC Brazil proposes the establishment of requirements related to:

- Minimum content; and
- Minimum workload

Minimum content

The minimum content of an Operational Suitability state is:

Missions/Tasks
Flight planning
<i>En Route flight – cross country</i>
<i>Air navigation</i>
<i>Night flight</i>

<i>Navigation with radio aids</i>
<i>Basic IFR</i>
<i>Special/specific maneuvers, as defined in aircraft AFM and operator SOP</i>

Minimum workload

The Operational Suitability stage must be composed of a minimum of 50 VCA operations, using the same type rating trained during its specific Theoretical and flight training phases.

An alternative means of compliance can be proposed by an ATO or a certified air operator. This alternative Operational Suitability stage must be based, exclusively, on CBTA methodology.

Remarks:

- VCA operations is defined as the bundle of the following phases off light: engines start – take-off – landing – engines off.
- The 50 VCA air operations here proposed can be performed in a simulator training device, following LOFT training basis.
- The minimum content and the minimum workload must be Applied as specified on the aircraft AFM and on the operator SOP.
- For each mission/task, abnormal and emergency situations must be foreseen.

Operational Training

The Operational training stage is not necessary for the issuance of a VCA license. It is Applied, exclusively to pilots that already have a VCA license and will be employed in commercial air operations using VCA.

This stage must be composed by tasks/maneuvers related to a real commercial flight and has as the main aim the promotion of the final adjustments to the VCA pilot to be employed in these operations. This practical training must have the minimum content proposed above.

Missions/Tasks
<i>Special/specific maneuvers, as established on aircraft AFM and operator SOP</i>
<i>LOFT</i>

Remarks:

- The content proposed must be Applied/simulated as established in the aircraft AFM and in the operator SOP.
- For each mission/task, abnormal and emergency situations must be foreseen.
- The Operational Training stage must be based on the CBTA methodology. As a result, there is no definition regarding a minimum workload related to this phase of the training program.

Supervised Flights

After the successful completion of the Operational Training stage, the VCA pilot will be able to run commercial air operations employing VCA. However, the pilot’s initial solo operations must be realized under the supervision of an instructor pilot. Since also this stage must be developed under CBTA methodology, there will be no definition regarding a minimum workload associated to this stage.

PEL Framework for pilots with no commercial operations experience – Schematic

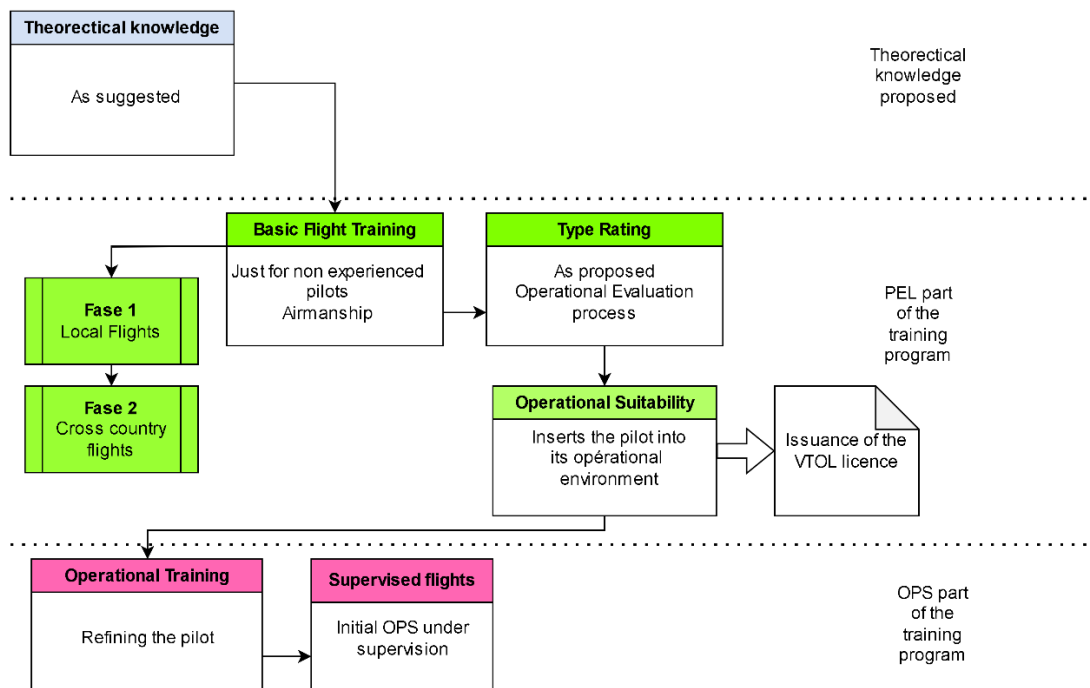


Figure 3: PEL Framework for pilots with no commercial operations experience – Schematic.

Type Rating Recurrent Training

The same requirement established in RBAC 61 for the renewal of type ratings related to airplane or rotorcraft aircraft categories must be Applied to the new VCA category.

ANA Brazil proposes that the basis of the VCA Type rating training must be operational issues/maneuvers/competencies that would be identified as the ones that must be improved by the pilot (gap analysis).

Hence, the recurrent training must be developed in a way that all the operational data gathered during the type rating validity must be used for detecting the competency Fields that must be improved in the pilot. Alternative mean to the data gathering process can be the execution of flight simulator sessions for the ATO/air operator to identify pilots' current gaps.

The gaps found, even by the data gathering process or by the preliminary flight simulator sessions, must compose the first part of the recurrent type rating training.

Besides the concern of focusing the type rating recurrent training on the gaps presented by each pilot, abnormal/emergency situation cannot be neglected in the recurrent training. Therefore, the recurrent training must have a specific module Where abnormal/emergency situations will be trained as in the type rating initial training.

VCA Type Rating Recurrent Training - Schematic

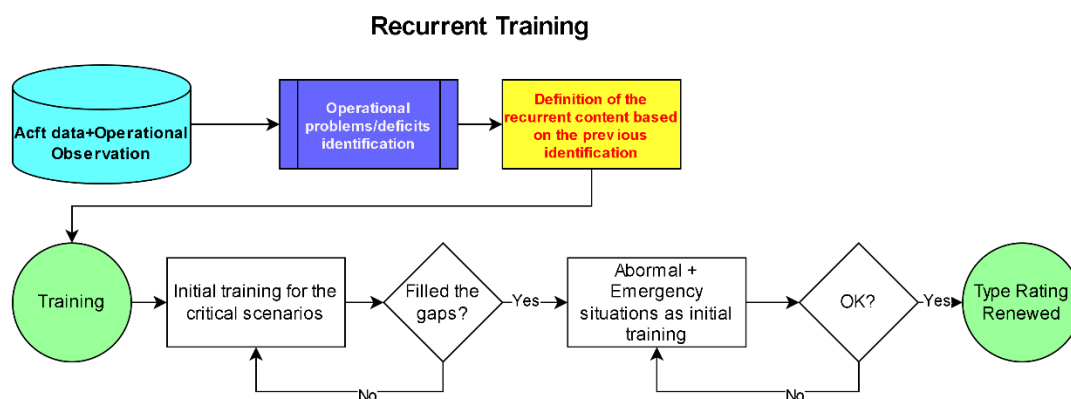


Figure 4: VCA Type Rating Recurrent Training - Schematic

VCA instructor pilot

ANAC Brazil proposes the issuance of an authorization for a VCA pilot to hold instruction privileges. This authorization will be issued Only for VCA pilots that already had a commercial pilot license, even in airplane or rotorcraft categories.

Besides the basic premise cited, the VCA pilot that would ask for an instructor authorization must go through the following: **theoretical training and assessment, flight training, On the Job Training and Final Assessment.**

The flight instructor authorization will be linked to the type rating associated to the On-the-Job Training phase.

As already observed in this document, also for the issuance of a VCA instructor pilot authorization must evolve distinct scenarios. These distinct scenarios are related to the observation if the future VCA instructor pilot already had an instructor pilot rating/authorization or did not reach this compliance.

Remark:

- ANAC Brazil, in this proposal, considers that Every pilot that acted under an authorization for being flight instructor in any certified air operator, even without possessing an instructor rating, must be considered as a pilot that has the right to take credit from this previous experience.

So, detailing the phases that a VCA pilot must be approved for having the VCA instructor pilot authorization granted, ANAC Brazil proposes.

Theoretical knowledge

The pilot that would wish a VCA instructor training authorization must successfully complete a theoretical course/training certified/approved by ANAC Brazil.

After finishing this theoretical training, the pilot must be submitted to a theoretical exam, provided exclusively by ANAC Brazil, and must be considered approved in this same exam. The knowledge and competencies that will be verified in this theoretical exam are:

Content
<i>Instruction technics application</i>
<i>Student performance evaluation technics</i>
<i>Learning process</i>
<i>Elements related to an effective training</i>
<i>Training, tests, and assessment philosophies</i>
<i>Training programs development</i>
<i>Classes planning</i>

<i>Use of a broad of teaching/training tools and techniques</i>
<i>Student errors analysis and treatment</i>
<i>Human Performance a TEM – Threat and Error Management principles</i>
<i>Risks related to the execution of abnormal/emergency procedures</i>

Important to highlight that this theoretical training and assessment must not be Applied to the pilots that already had an instructor rating or already acted as an instructor pilot in a certified air operator.

Remarks:

- The theoretical assessment must be Applied after the beginning of the flight instructor flight training.

Flight training

After the approval on the theoretical exam, the pilot that wants a VCA instructor pilot authorization must successfully complete a specific flight training.

The instructor flight training must have, as its main objective, the development of the following competencies:

Competencies/content
<i>Flight instruction techniques, identification of possible incorrect practices by the student and TEM methodology application</i>
<i>Instructional techniques appliance, due to the training of the tasks/maneuvers predicted in a training program</i>

Remark:

- The instructor flight training program must be developed under the CBTA methodology statements. Hence, ANAC Brazil will not develop any minimum workload to be associated to this stage of a VCA instructor pilot training program.

On the Job Training

After achieving the approval on the Flight Training, the future VCA flight instructor will need to realize and considered approved on an On-the-Job Training stage.

The On-the-Job Training phase must be Applied by a pilot with the related valid VCA type rating, and authorization to act as an instructor or an examiner.

Remark:

- The On-the-Job training program stage must be developed under the CBTA methodology statements. Hence, ANAC Brazil will not develop any minimum workload to be associated to this stage of a VCA instructor pilot training program.

Flight assessment

After the successful completion of the On-the-Job training stage, the future VCA instructor pilot must be submitted to a flight assessment Where his/her skills/knowledge/competencies acting as an instructor pilot will be evaluated during a real/simulated VCA pilot training task. Just after the approval on this final stage the pilot will be able to have issued a VCA instructor pilot authorization.

Initial cadre solution

ANAC Brazil proposes that the first VCA instructor pilots must be the VCA manufacturer test pilots and/or pilots evolved in the development of the manufactures training program, during the Operational Evaluation process.

VCA instructor pilot authorization validity

ANAC Brazil proposal is that any VCA instructor pilot authorization has as its validity a period of 24 months. After this period, if it would be of the pilot's will, he/she can be submitted to a new flight assessment and, if approved, can renew for more 24 months its VCA instructor pilot authorization.

VCA instructor pilot authorization - Schematic

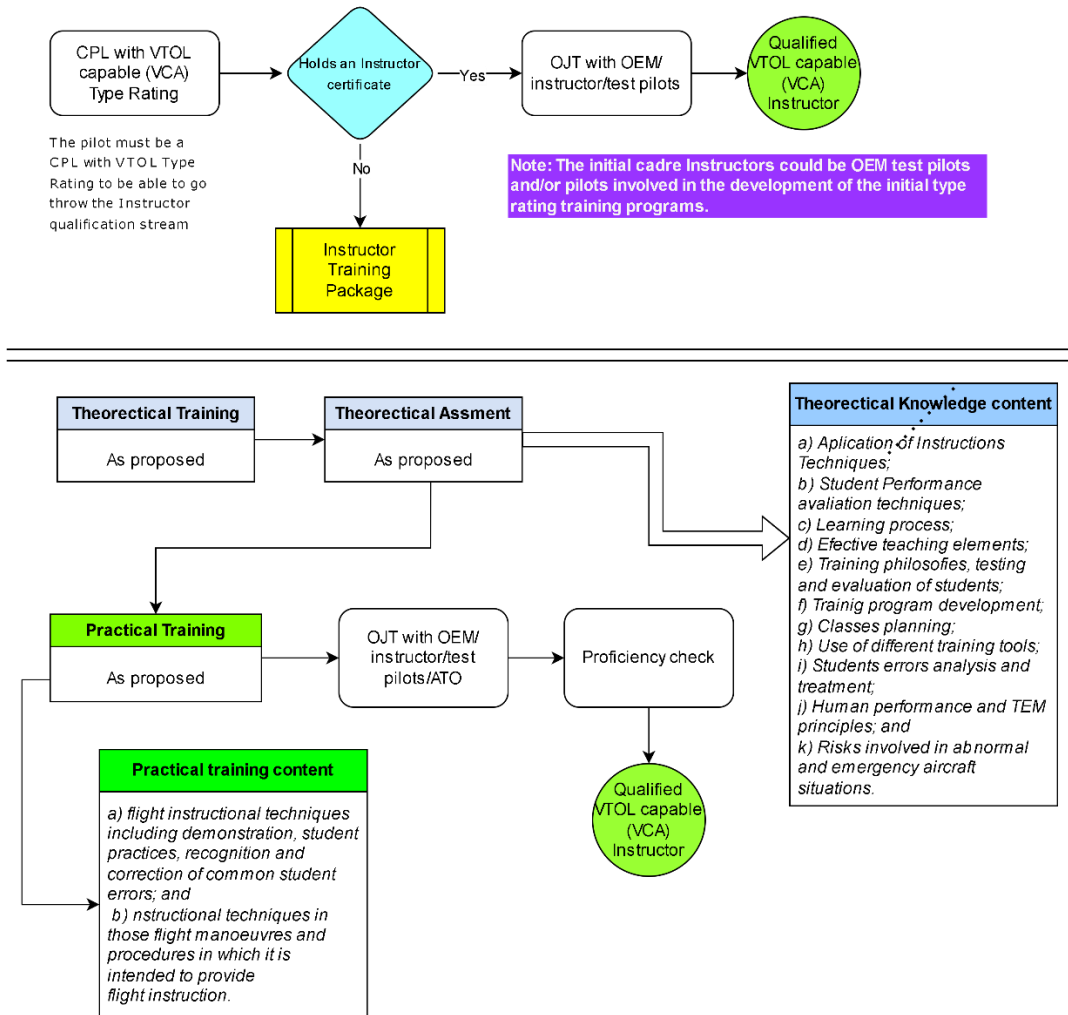


Figure 5: VCA instructor pilot authorization - Schematic.

VCA examiner pilot

ANAC Brazil proposes the issuance of an authorization for a VCA pilot to hold examiner privileges. This authorization will be issued Only for VCA pilots that already had a commercial pilot license, even in airplane or rotorcraft categories, and, in addition, holds a VCA instructor pilot authorization for the same type rating that the pilot wants to act as an examiner.

Besides the basic premise cited, the VCA pilot that would ask for an examiner authorization must go through the following: theoretical training and assessment, flight training, On the Job Training and Final Assessment.

The flight examiner authorization will be linked to the type rating associated to the On-the-Job Training phase.

As already observed in this document, also for the issuance of a VCA examiner pilot authorization must evolve distinct scenarios. These distinct scenarios are related to the observation if the future VCA examiner pilot already had an examiner pilot authorization or did not reach this compliance.

Remark:

- ANAC Brazil, in this proposal, considers that Every pilot that acted under an authorization for being flight examiner in any certified air operator must be considered as a pilot that has the right to take credit from this previous experience.

So, detailing the phases that a VCA pilot must be approved for having the VCA examiner pilot authorization granted, ANAC Brazil proposes.

Theoretical knowledge

The pilot that would wish a VCA examiner authorization must successfully complete a theoretical course/training offered exclusively by ANAC Brazil.

After finishing this theoretical training, the pilot must be submitted to a theoretical exam, provided exclusively by ANAC Brazil, and must be considered approved in this same exam. The knowledge and competencies that will be verified in this theoretical exam are:

Content
<i>Principles of Ethics</i>

<i>Risk management – Threat and Error Management (TEM)</i>
<i>Human Factors fundamentals]</i>
<i>Assessments basic methodologies</i>
<i>Competency based assessment</i>

On the Job Training

After being approved on the ANAC Brazil theoretical exam, the future VCA examiner pilot must be submitted to the On-the-Job Training, specifically for the VCA Type Rating that he/she wants to act as an examiner.

The On-the-Job Training stage must be Applied by a VCA examiner pilot with its related Type rating and examiner authorization valid.

Remark:

- The On-the-Job training stage must be developed under the CBTA methodology statements. Hence, ANAC Brazil will not develop any minimum workload to be associated to this stage of a VCA examiner pilot training program.

Flight assessment

After the successful completion of the On-the-Job training stage, the future VCA examiner pilot must be submitted to a flight assessment Where his/her skills/knowledge/competencies acting as an examiner pilot will be evaluated during a real/simulated VCA pilot flight assessment task. Just after the approval on this final stage the pilot will be able to have issued a VCA examiner pilot authorization.

Initial cadre solution

ANAC Brazil proposes that the first VCA instructor pilots must be the VCA manufacturer test pilots and/or pilots evolved in the development of the manufactures training program, during the Operational Evaluation process.

VCA examiner pilot authorization validity

ANAC Brazil proposal is that any VCA examiner pilot authorization has as its validity a period of 24 months. After this period, if it would be of the pilot's will, he/she can be submitted to a new flight assessment and, if approved, can renew for more 24 months its VCA examiner pilot authorization.

VCA examiner pilot authorization - Schematic

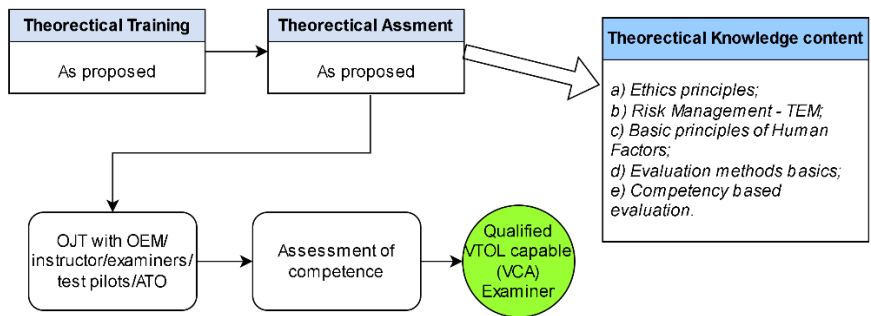
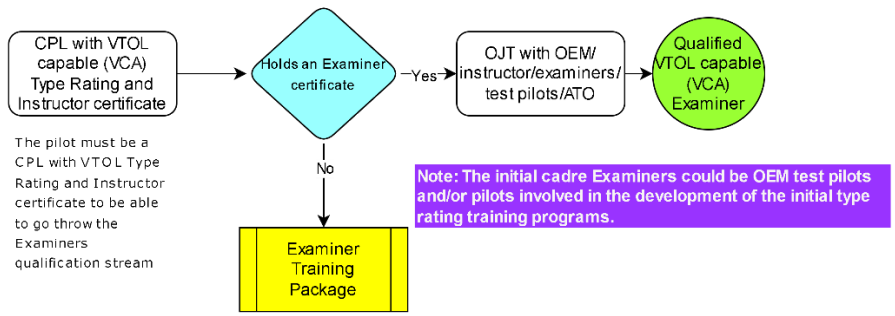


Figure 6: VCA examiner pilot authorization - Schematic.

Use of FSTD in VCA Pilots Training Programs

Considering the actual VCA projects 'development, it is already known that the development of a Full Flight Simulator – FFS Level D for each VCA type rating has the potential to severely jeopardize the business plans of these same aircraft. Hence, the proposed PEL regulatory framework must foresee the unfeasibility of having an FFS Level D for all VCA Type rating training programs.

However, it is also known that the use of simulation devices within any training program grants huge achievements in the Fields of absorption and consolidation of skills/knowledges/competencies.

Since this document brings to light ANAC Brazil new PEL regulatory framework to be Applied to the also new VCA environment, and since all the training programs here proposed are to be based on CBTA methodology, a new approach to the use of simulation devices in the development of training programs must be presented.

This new approach, that tries to foster the development of “zero flight time training” based on CBTA methodology, is based on a relevant change in the actual paradigm regarding the use of complex and unique FFS for the development of each type rating training program. To reinforce this necessity of changing the actual paradigm regarding FFS, cannot be forgotten the fast development of training Technologies that uses Virtual and/or Augmented Reality devices.

The change in the technical paradigm that is here proposed by ANAC Brazil can be written as: the FSTD/FFS must not keep its central role in the development of the training programs and must be seeing as a training tool, not necessarily totally representative of the type rating to be training, to support the development and consolidation of the skills/knowledge/competencies defined as necessary to proper and safely operate the specific VCA type rating.

With this change in the actual FFS use paradigm, new training scenarios can be explored and implemented by the ATOs, after ANAC Brazil approval. These new scenarios can be listed, as examples, bellow:

- Acceptance of training programs that would not use FFS Level D.
- Use of more than one FSTD in a VCA type rating training program.
- Use of one FSTD in more than one specific VCA Type rating training program.
- Virtual/Augmented reality devices usage.

CONCLUSION

As the major conclusion of this paper, can be observed the feasibility for the establishment of a new Brazilian PEL framework related to the new VCA environment.

The new PEL framework initial proposal can be resumed as above:

- Aircraft category: new aircraft category must be created as “vertical take-off and landing aircraft” and named as VCA category.
- Ratings related to this new aircraft category: ANAC Brazil proposed that, at this initial moment, just type ratings will be associated to each VCA approved Project.
- Recency: the VCA pilot must perform any VCA air operation in the last 45 days.
- VCA pilot license issuance.
 - Age requirement: 18 years
 - Academic background: demonstrate that have completed, successfully, high school level.
 - Medical Certificate: First Class Medical Certificate (as for ATP).
 - Privileges: the privileges of a VCA pilot license Holder will be the same privileges associated to a commercial pilot license holder.
 - Flight experience in VCA: since the formation and qualification of VCA pilots must be based on the CBTA methodology, ANAC Brazil proposes the absence of such requirement in the new PEL framework Applied to VCAs.
 - For pilots that already have a commercial pilot license (even in airplane or in rotorcraft): after the Type rating specific training and the Operational Suitability stage, there will be the issuance of a VCA pilot license, associated to the type rating that was trained. Therefore, there will be no additional training to be Applied to these already commercial pilots.
 - For pilots that do not have previous experience in commercial operations: these candidates will be submitted to:
 - ✓ Theoretical knowledge assessment, provided exclusively by ANAC Brazil.
 - ✓ Basic flight training stage, based on CBTA, and with the aim of airmanship and basic competencies development.
 - ✓ Operational Suitability stage.
 - Flight assessment: at the end of the training program, the pilot must be submitted to a flight assessment and just after its approval the VCA pilot license must be issued.
- VCA type rating issuance

VCA type rating will be issued after the following:

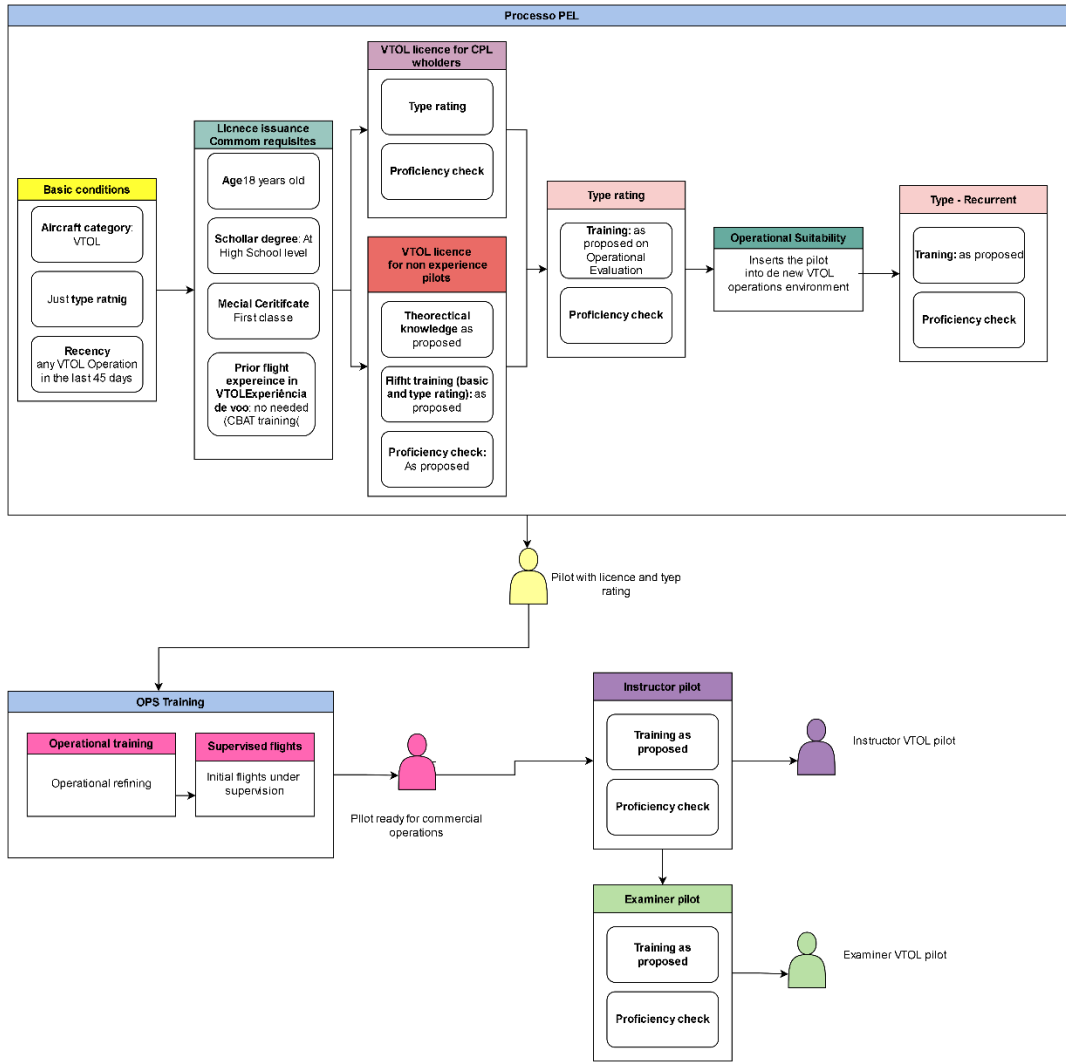
- The pilot must be submitted and approved on a Training program, based on CBTA methodology and approved by ANAC Brazil. His Type rating training program must be proposed by the VCA manufacturer and approved by ANAC Brazil during the Operational Evaluation assessment.
 - Be approved in a flight assessment.
 - The actual validity requirement and rule related to type rating must be Applied to the new VCA type ratings.
- VCA instructor pilot authorization

For the issuance of a VCA instructor pilot authorization, the candidate must:

- Be a VCA license and the specific valid type rating holder.
 - Be submitted and approved on a specific instructor pilot training program.
 - Be submitted and approved on a proper flight assessment.
 - The instructor pilot authorization has a 24-month validity.
 - Privileges: The VCA instructor pilot can act in a training program related to the VCA type rating associated to its authorization.
 - The instructor pilot's initial cadre can be composed by manufacturer's teste pilots or by pilots involved in Operational Evaluation process.
- VCA examiner pilot authorization.

For the issuance of a VCA examiner pilot authorization, the following must be proven:

- Be a VCA license Holder, with valid instructor and type ratings.
- Be submitted and approved in an approved training program.
- Realize and be approved in a proficiency check.
- Have a valid VCA pilot license and a type rating valid. This type rating must be equal to the one the proficiency evaluation will be applied.
- Privileges: The VCA examiner pilot must only be employed in proficiency checks related to aircraft that was made the on-the-job Training by the ANAC examiner.
- The examiners pilot's initial cadre can be composed by manufacturer's teste pilots or by pilots involved in Operational Evaluation process.





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