ORDER

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TYPE VALIDATION AND POST-TYPE VALIDATION PROCEDURES

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DEPARTMENT OF TRANSPORTATION
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FOREWORD

In this order, we define the principles guiding Aircraft Certification Office and Directorate staffs certificating imported and exported aircraft, engines, and propellers. We also define principles used to maintain the continued airworthiness of imported and exported products.

We prescribe the roles and responsibilities of the importing authority (the validating authority or VA), the exporting authority (the certificating authority or CA), and the applicant.

We set up specific procedures for certification personnel working with the European Aviation Safety Agency (EASA) and the Joint Aviation Authorities of Europe (JAA). The procedures are based on the type validation principles (TVP) and post-type validation principles (PTVP) we adopted with EASA and JAA. We define certification personnel duties when we at the FAA are the validating authority, and when we are the certificating authority.

If we adhere to these principles and procedures, we'll ensure an imported product will meet the same level of safety as a comparable product designed, manufactured, and certified within the validating authority's country.

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TABLE OF CONTENTS

CHAPTER 1. GENERAL

CHAPTER 2. TYPE CERTIFICATION, TYPE VALIDATION, AND POST-TYPE VALIDATION: AN OVERVIEW

SECTION 1. TYPE CERTIFICATION AND TYPE VALIDATION

SECTION 2. POST-TYPE VALIDATION

CHAPTER 3. FAA/EASA/JAA TYPE VALIDATION PROCEDURES

SECTION 1. INTRODUCTION

SECTION 2. TYPE VALIDATION: KEY CONCEPTS

SECTION 3. RESPONSIBILITIES OF DIRECTORATE STANDARDS STAFF

SECTION 4. FAA AS THE VALIDATING AUTHORITY

SECTION 5. FAA AS THE CERTIFICATING AUTHORITY

CHAPTER 4. FAA/EASA/JAA POST-TYPE VALIDATION PROCEDURES

SECTION 1. INTRODUCTION

SECTION 2. CONTINUED AIRWORTHINESS

CHAPTER 1. GENERAL

1. PURPOSE. This document defines FAA policy and procedures in type certification and post-type certification for imported and exported products (aircraft, aircraft engines, or propellers).

a. We define the expectations, roles, and responsibilities of the importing authority (the validating authority, or VA), the exporting authority (the certificating authority, or CA), and the applicant. We establish specific procedures for certification personnel working with the European Aviation Safety Agency (EASA) and member authorities of the Joint Aviation Authorities of Europe (JAA). This order incorporates Notice 8110.70, FAA/JAA Type and Post-Type Validation Principles

b. If we adhere to these principles and procedures, we'll ensure an imported product that meets the same level of safety as a comparable product designed, manufactured, and certified within the VA's jurisdiction.

2. DISTRIBUTION. Distribute this order to the Washington headquarters branch levels in the Aircraft Certification Service, Flight Standards Service, and Office of Environment and Energy; the branch levels of the regional aircraft certification directorates and regional Flight Standards Divisions; all aircraft certification field offices; all Aircraft Evaluation Groups (AEG).

3. SCOPE.

a. All Bilateral Partners. The principles in chapter **2** apply to certification/validation programs with all bilateral partner authorities. You will find more guidance in advisory circular (AC) 21-23, Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported to the United States, dated November 17, 2004. FAA certification personnel must consult the appropriate bilateral airworthiness agreements (BAA) or bilateral aviation safety agreement implementation procedures for airworthiness (BASA IPA) to determine specific expectations for an individual bilateral partner and us.

(1) Do not develop extra certification procedures without first contacting the International Policy Office, AIR-40, and the Certification Procedures Branch, AIR-110. If you are on a validation team, however, your team may set up project-specific documents on administrative details such as team members, responsibilities, and schedule commitments. These administrative details must be consistent with chapter **2** of this order, AC 21-23, and the applicable bilateral agreement.

(2) You can obtain an up-to-date list of countries with which the United States has a bilateral agreement from AIR-40, or directly from their website (http://www.faa.gov/certification/aircraft/BAA-BASA_Listing.htm). AC 21-23 also lists the types of products allowable for import from each country.

b. European Aviation Safety Agency (EASA). The European Parliament approved legislation setting up EASA in July 2002. The new agency began operating in September 2003, assuming the certification and validation authority previously exercised by individual national aviation authorities (NAAs). EASA will recognize existing bilateral agreements between the

United States and European Union member states until a single, new bilateral agreement is negotiated between the United States and the European Union. FAA certification personnel must use the procedures in chapters **3** and **4** when:

(1) Conducting validation programs on imported products of European Union countries where the applicant seeks an FAA type certificate (TC) or supplemental type certificate (STC). (Note that the United States must have a BAA or BASA IPA with that country), or

(2) Conducting certification programs on U.S. products where the applicant seeks an EASA type certificate (TC) or supplemental type certificate (STC).

> **NOTE:** Appendix **1** lists all European Union member states with a BAA or BASA IPA with the United States.

c. Joint Aviation Authorities of Europe (JAA). Because not all countries in Europe are member states of the European Union, U.S. companies will still seek approval from the JAA as the representative of those countries. JAA has agreed to accept an EASA certification decision as the basis for its recommendation to member authorities, without additional investigation.

(1) FAA certification personnel must use the procedures in chapters **3** and **4** when conducting certification programs on U.S. products for which the applicant seeks a type approval from the JAA or a non-EU JAA member authority.

(2) FAA certification personnel may also use the procedures in chapters **3** and **4** when conducting validation programs on products being imported from Norway, Romania, and Switzerland at the specific request of their NAA.

4. BACKGROUND. In the mid-1990's, the JAA and we recognized the need to streamline certification and continued airworthiness processes applied to imported aviation products. We established type validation and post-type validation principles in a letter of understanding, signed in November 1997. These principles were amended in November 2001. The FAA and NAAs who are members of JAA currently apply these principles when validating products designed/manufactured in each other's countries.

a. FAA/EASA/JAA Type Validation and Post-Type Validation Principles. Forming EASA gave everyone the opportunity to look at the validation and post-validation processes, to incorporate lessons learned, and tailor them to the new European aviation certification system. As a result, we streamlined the principles and extended the scope. FAA/EASA/JAA type validation principles and post-type validation principles are in appendix **4**. EASA, JAA, and we agreed to this document in October 2004.

b. Airworthiness Standards. In TVP/PTVP, we refer to the airworthiness codes used by both FAA and EASA as "airworthiness standards" or "standards." These standards include those in Title 14 of the Code of Federal Regulations (14 CFR) and EASA Certification Specifications (CS). We cannot call them "requirements" or "regulations" due to the European Union's unique regulatory structure.

5. REFERENCES.

a. Title 14, Code of Federal Regulations (14 CFR) part 21.

b. FAA Order 8100.5, Aircraft Certification Service Mission, Responsibilities, Relationships, and Programs.

c. FAA Order 8110.4, Type Certification.

d. FAA Order 8110.37, Designated Engineering Representative (DER) Guidance Handbook.

e. FAA Advisory Circular 21-23, Airworthiness Certification of Civil Aircraft, Engines, Propellers, and Related Products Imported to the United States.

f. International Civil Aviation Organization (ICAO) Annex 8, Airworthiness of Aircraft.

g. FAA Airworthiness Directive Manual, FAA-AIR-M-8040.1

6. SUGGESTIONS FOR IMPROVEMENT.

a. If you find deficiencies, need clarification or want to suggest improvements to this order, please send a record (written or electronic) to the Aircraft Certification Service, Planning and Financial Resources Management Branch, AIR-530, Attention: Directives Management Officer. You can use FAA Form 1320-19, Directive Feedback Information, available at http://feds.faa.gov/

b. You may also send a copy to the Aircraft Engineering Division, AIR-100, Attention: Comments to Order 8110.XX. If you urgently need an interpretation, you may contact AIR-110 at 202-267-9588. Always use Form 1320-19 to follow up each verbal conversation.

7. RECORDS MANAGEMENT. Refer to FAA Orders 0000.1, FAA Standard Subject Classification System, 1350.14, Records Management; and 1350.15, Records, Organization, Transfer, and Destruction Standards, or see your office Records Management Officer/Directives Management Officer for how to retain or dispose of records.

8. DEFINITIONS. See appendix **2**.

9. ACRONYMS. See appendix **3**.

10. –199. RESERVED

CHAPTER 2. TYPE CERTIFICATION, TYPE VALIDATION, AND POST-TYPE VALIDATION: AN OVERVIEW

200. GENERAL. All aircraft, engines, and propellers must meet and maintain minimum design and performance standards before they can be produced and operated.

a. ICAO requires each contracting state to adopt airworthiness standards for the design and performance of aeronautical products. States must ensure that aircraft, including components (engines and propellers), meet these airworthiness standards. ICAO allows states to accept a product approved by another ICAO contracting state without further showing, or to render valid another country's determination that a product meets airworthiness standards.

(1) Two ways of determining a product is airworthy, depending on its origin, are type certification and type validation.

(2) Section **1** below defines the general principles FAA certification personnel follow when carrying out certification and validation programs.

b. The responsibilities of the certificating authority (CA) and validating authority (VA) do not end once an aircraft, engine, or propeller is certificated/validated. Under ICAO Annex 8, the state of registry is responsible for the safety of any aircraft on their national register. This means the VA becomes accountable for the continued airworthiness of imported products operated under their registry. The CA, as state of design, must send mandatory continuing airworthiness information to the state of registry.

(1) We refer to these collectively as "post-type validation activities." Like type validation, they require the close cooperation of both CA and VA. (See paragraph **202**.)

(2) Section **2**, further on, defines the principles FAA certification personnel follow when performing post-type validation functions.

SECTION 1. TYPE CERTIFICATION AND TYPE VALIDATION

201. TYPE CERTIFICATION. Type certification is the process by which an aviation authority determines compliance of a product to applicable standards, such as noise, environmental, procedural, and airworthiness. Aviation authorities use this process to establish compliance of a domestically manufactured product to their national airworthiness standards. We at the FAA, for example, establish compliance to Title 14 of the Code of Federal Regulations (14 CFR) for products designed and manufactured in the United States. Certification requires direct involvement with an applicant to ensure that they show compliance.

a. Certificating Authority (CA). The CA is responsible for the original type certificate. For example, the FAA is the CA for applicants/certificate holders in the United States. The CA issues the final design approval, or compliance finding, for products designed in their country. The CA may document their approval by issuing a TC or STC.

b. When a product is exported to another country, the CA is expected to support their acceptance by the importing country. To minimize duplicate certifications, the CA should be able to act for the importing authority. The CA, therefore, makes compliance findings to their own airworthiness standards and, when agreed in a bilateral agreement, makes compliance determinations to the VA's airworthiness standards. Note, however, that bilateral agreements are not required for exporting a product. The United States can export a product to a foreign country even though we do not have a bilateral agreement with that country. Applications to non-bilateral countries for their design approvals or import acceptance should still be transmitted from the FAA to the other aviation authority.

c. Regulatory Basis for CA Activities. FAA personnel serving as CA use procedures based on 14 CFR part 21 subpart B. Among other things, these regulations establish certification basis for a product: the applicable noise, fuel venting, exhaust emissions, and airworthiness standards (§ 21.17), equivalent level of safety findings (§ 21.21), special conditions (§ 21.16), and exemptions.

d. FAA Certification Procedures. FAA Order 8110.4, Type Certification Process, defines the procedures used by personnel certificating products designed and manufactured in the United States.

202. TYPE VALIDATION.

a. Aircraft, engines, and propellers are often designed and manufactured in one country and then exported to another.

b. Validation is the process most commonly used to establish the compliance of an imported product to the importing state's applicable airworthiness standards. Validation is, in other words, a special form of certification.

c. Validating Authority (VA). The VA is responsible for validating the CA TC or STC. We at the FAA are the VA for applicants/approval holders outside the United States.

d. Validations require trust, communication, and cooperation among the authorities and the applicant.

e. Once compliance is established, the VA may issue a type certificate for the product to show the aircraft, engine, or propeller complies with their airworthiness standards. This TC is sometimes called an import TC or a validated TC.

f. Validation is not universally applied. Some aviation authorities have adopted alternate approaches for imported aviation products. Australia, for example, does not issue a TC for products with FAA or EASA/JAA TC. Australian authorities familiarize themselves with the type design so they can capably oversee the aircraft when it is added to the registry. Other authorities have adopted similar approaches.

g. FAA certification personnel must, therefore, consult the bilateral agreement with a foreign country to identify our responsibilities when a U.S. product is exported there.

203. CONDUCTING AN FAA VALIDATION. We can conduct validations of foreign products only under bilateral agreements. FAA certification personnel must consult the correct BAA or BASA IPA to find specific expectations for the individual bilateral partner and us.

a. Bilateral agreements are concluded when we are fully confident in a partner aviation authority and where there is a certification system that produces equivalent results to the U.S. system. We start, therefore, assuming that all compliance determinations within the scope of the bilateral agreement can be assigned to the CA. We then decide which determinations to reserve for ourselves due to the design's complexity or unique features.

b. The FAA should not unnecessarily duplicate work done by the CA. For example, if we're the VA, we should use issue papers mainly to address differences between FAA and CA airworthiness standards and interpretations. When the CA and FAA airworthiness standards and interpretations are identical, we should rely on the CA to the maximum extent possible. This reliance includes accepting the CA's issue paper or equivalent in place of an FAA issue paper. Any such acceptance will be based on our validation team's technical familiarization of the product, and must be supported by the product accountable directorate. In certain cases, even when FAA and CA airworthiness standards and interpretations are identical, we will still need to write our own issue paper. For example, we'll write issue papers for equivalent safety findings, per § 21.21(b)(1). We will also write issue papers on certification basis and other unique import requirements.

c. Regulatory Basis for VA Activities. The procedures we use as VA are based on 14 CFR § 21.29, Issue of Type Certificate: Import Product.

(1) This regulation says the FAA may issue a TC for a product that is:

(a) Manufactured in a country with which the United States has an agreement to accept these products for export and import, and

(b) To be imported into the United States.

(2) The regulation says the FAA may certificate such a product if the CA of the country in which the product was manufactured certifies that it was examined, tested, and found to meet:

(a) Applicable FAA airworthiness standards as designated in 14 CFR §21.17, or

(b) Applicable CA airworthiness standards plus any other airworthiness standards that the FAA prescribes to provide a level of safety equivalent to 14 CFR § 21.17.

NOTE: 14 CFR § 21.29 has similar provisions for FAA aircraft noise, fuel venting, and exhaust emissions requirements.

(3) In the case of special classes of aircraft (gliders, airships, and other non-conventional aircraft) for which we have not identified acceptable airworthiness criteria, we must make public notification of the airworthiness standards established under 14 CFR § 21.17(b).

204. FAA VALIDATION PROCESS.

a. The validation process begins when an application is submitted to us through the CA. The applicant gives us a familiarization briefing. We establish the certification basis. Technical information goes back and forth in the form of data, specialist meetings, technical compliance, and/or the development of issue papers. Finally, we issue the design approval. Process steps can be summarized as:

(1) Applicant submits application to the FAA through the CA;

(2) Applicant and CA familiarize the FAA with the details of the design, CA certification basis, and the methods of compliance (MOC);

(3) FAA establishes the VA certification basis;

(4) FAA defines areas of special interest in issue papers;

(5) FAA determines their involvement and assigns compliance determinations to the CA;

(6) CA makes compliance determinations to the elements assigned them by the FAA;

(7) FAA makes compliance determinations to any elements of the FAA certification basis that they retained and notifies the CA;

(8) CA issues a final statement of compliance to the FAA's certification basis; and

(9) FAA issues the TC.

b. A validation program doesn't duplicate the CA certification program. It is not an opportunity to audit the CA's competence, or to scrutinize their work.

c. Sometimes the TC application is for a product in a category not previously certificated, or the product is more complex than previously certificated by the CA. We may then increase the scope of the validation program. The CA should notify us as soon as they learn of this pending application, so each authority can plan for any additional resources required.

d. Compliance Determinations. Compliance determinations are the decisions that establish that the applicant has satisfied a specific airworthiness standard. Determinations of compliance to FAA airworthiness standards may be made either by the CA or us. It is our prerogative to determine our involvement in establishing compliance to our airworthiness standards. We may retain the compliance determination, or assign it to the CA. We will formally and specifically identify any retained compliance determinations, preferably early in the program.

> **NOTE:** The FAA may still request technical help from the CA on a retained compliance determination under the terms of a bilateral agreement. For example, we may ask the CA to witness a test for us.

(1) We will maximize assigning compliance determinations to the CA. We may entrust all compliance determinations to the CA, and rely solely on their compliance statements. If we retain any compliance determination, we have to justify it.

(2) Once we decide to assign a compliance determination to the CA, we must ensure that they understand any unique FAA requirements for compliance. We must coach the CA on acceptable MOC and provide them with all publications and documents that affect the determinations for the assigned items.

(3) We will accept CA compliance determinations as if we made them ourselves. We will limit our compliance determination activities to specific, formally identified areas, and not review compliance determinations that we assigned to the CA since communication throughout the project ensures the FAA understands what has been accomplished.

(4) When the CA carries out an activity for us, the CA may do it directly or under their legally constituted delegation system. This means that in other countries, the CA may assign compliance determinations to FAA airworthiness standards to one of their delegated organizations.

(5) We must gain enough product knowledge during validation so we can carry out our continued airworthiness responsibilities. Product knowledge includes continued operational safety issues. When justified, we may request compliance documents, including those related to determinations that were assigned to the CA.

e. Compliance Findings. Based on the compliance statement from the CA and the summary of compliance determinations, we make a final compliance finding and issue a TC.

205. COMMUNICATIONS. Communication is critical to success. Our experience with validation programs shows that effective communication between the VA, CA, and applicant is vital. Program delays are often the result of miscommunication.

a. Communicating with the Applicant.

(1) When acting as VA, we at the FAA must work through the CA to achieve airworthiness standards compliance. Communications should flow through the CA to the applicant. On the rare occasion when the CA cannot be involved, we are responsible for giving them details of any communication with a foreign applicant.

(2) The CA, FAA and applicant will have frequent, regularly scheduled telephone conferences to review the program status, discuss open validation issues, and areas of VA interest.

(3) The FAA may ask the applicant to clarify things during a project. Feedback from FAA to CA and applicant is necessary to confirm if the clarification and explanations are adequate.

b. Communications between Authorities.

(1) Since the CA must understand the FAA position on all the items for which the CA will make determinations of compliance, each authority must include the other in communications throughout the validation program.

(2) We expect there will be an early exchange of information between the CA and the FAA. This exchange will include: proposed use of exceptions (§ 21.101(b)) to the latest CA airworthiness standards, special conditions, exemptions, equivalent safety findings, and MOCs. This exchange will ease the process and help the applicant reach timely validation. Even before the formal application, we at the FAA should respond to applicant requests to discuss issues. The applicant should make those requests through the CA.

(3) Each authority will normally seek the other's opinions before resolving significant issues. They may even postpone meeting with the applicant until the other authority is adequately represented. The FAA must be notified by the CA of all validation meetings, and invited to participate.

(4) Similarly, authorities will coordinate and circulate all correspondence. The CA must be sent copies of all correspondence between the FAA and applicant. Likewise the FAA should get copies of all validation correspondence between the CA and applicant.

(5) The CA should notify the FAA as soon as possible of all novel or unusual design features, and other design features that may require an exemption, a special condition, an equivalent level of safety finding, or the development of a technical issue paper.

206. SUPPLEMENTAL TYPE CERTIFICATES (STC). FAA certification personnel must review the applicable BASA IPA to determine which, if any, STC provisions are included in the agreement.

> **NOTE:** BAAs, as opposed to BASA IPAs, do not permit U.S. acceptance of STCs from the other country.

a. We should apply a certification procedure similar to paragraphs **203** and **204** and adjust it for the size and complexity of the design change.

b. The key elements to this approach, as outlined in paragraph **204a**, apply to STC validation programs. Specifically, when serving as VA for an STC, we will:

(1) Maximize delegation of compliance determinations to the CA;

(2) Instruct the CA in acceptable MOCs for assigned items; and

(3) Accept CA compliance determinations as if we made them ourselves.

c. Although we may decide to retain a compliance determination, we must justify it.

207. –219. RESERVED

SECTION 2. POST-TYPE VALIDATION

220. POST-TYPE VALIDATION ACTIVITIES. When the validation program is concluded, the VA and CA should set up regular feedback and continued communication (including specific focal points) on service difficulties, trends, and general experiences with the product. Post-type validation activities (CA/VA) are defined as:

a. Approving changes to the approved type design by the TC holder (including revisions of manuals) not requiring a new or amended TC,

b. Approving airworthiness data, including in-service information, and

c. Continued airworthiness activities including the issuance of Airworthiness Directives.

221. VA RESPONSIBILITIES DURING POST-TYPE VALIDATION.

a. The approach to validation in paragraphs **203** and **204** also applies to approving changes to type design. The FAA, as VA, must ensure that the type design, as amended by post-type certification design changes, continues to comply with its FAA certification basis and is documented to an acceptable standard. As VA, we must also ensure the continued airworthiness of the product, since we are responsible for the safety of all products on our registry.

b. The FAA, as VA, has the right to inquire into any post-type validation activities to ensure acceptable continued airworthiness of aircraft registered in the United States, and any products fitted to such aircraft.

c. The FAA, as VA, has the right to seek information so we can understand and agree on:

(1) Findings of compliance made by the CA to all FAA airworthiness standards,

(2) Any mandatory corrective action, and/or

(3) Any significant ongoing continued airworthiness issue and how it is resolved.

d. We in the FAA, as VA, should become involved with the CA to resolve continued operational safety issues directly related to an accident or incident in the U.S. Again, we should assign maximum responsibility for resolving those issues to the CA.

222. CA RESPONSIBILITIES DURING POST-TYPE VALIDATION.

a. When the FAA is CA, we will monitor the continued airworthiness of the type certificated product worldwide and issue Airworthiness Directives (AD) when necessary. The FAA will inform the VA immediately of all such mandatory actions, including those resulting from reports under 14 CFR § 21.3 on aircraft under VA jurisdiction and products fitted on such aircraft.

b. When the FAA is CA, the certificate holder and we will help the VA investigate significant airworthiness issues about aircraft under VA jurisdiction and products fitted on such aircraft. This support includes giving the VA:

(1) Status of any FAA airworthiness investigations

(2) Status of FAA plans for AD actions within ex parte requirements.

(3) Timely access to related design data and other certification documents as they request.

> **NOTE:** Bilateral agreements commit the FAA to provide timely information to a bilateral partner authority. Similarly, protection of proprietary data protection is an obligation under our BASA IPAs. We cannot withhold access to data based on the issue of its being proprietary.

223.–299. RESERVED

CHAPTER 3. FAA/EASA/JAA TYPE VALIDATION PROCEDURES

SECTION 1. INTRODUCTION

300. GENERAL. The FAA and aviation authorities in Europe have been bilateral partners for more than 70 years, facilitating the import and export of hundreds of products. Our shared vision of validation with Europe is that it should be a simple process based on mutual authority and trust, which leads to design acceptance in compliance with the VA airworthiness standards. This process requires effective continual communication between all parties. The FAA/EASA/JAA type validation principles are based on this shared vision.

a. Chapter **3** defines how to implement the type validation principles with Europe. This chapter is divided into four additional sections.

(1) Section **2** details key TVP concepts, and defines the four phases of a typical validation project.

(2) Section **3** defines responsibilities of the Directorate standards staff in maintaining documentation on FAA and EASA airworthiness standards.

(3) Section **4** defines the procedures used to apply TVP when we (the FAA) are the validating authority (VA).

(4) Section **5** defines the procedures used to apply TVP when we are the certificating authority (CA).

301. APPLICABILITY. This chapter applies to all validation programs with EU member states or non-EU JAA member states, for products covered by a bilateral agreement, and that lead to a type certificate (TC), or supplemental type certificate (STC).

302. SEQUENTIAL VS. CONCURRENT CERTIFICATION/VALIDATION. The FAA/EASA/JAA Type validation principles permit either sequential or concurrent validation.

a. Sequential Validations. Here, the CA has completed its certification, or is well advanced in certification, before the applicant requests VA validation. The CA has established and approved the certification basis and acceptable MOC. Certification flight tests may have been completed. In fact, the CA may already have issued a type certificate to the applicant, and the product may be in service. They may not have considered VA airworthiness standards and MOC.

b. Concurrent Validations. The applicant requests early validation of the product, well before the CA has completed all their certification findings, and while any certification issues may be efficiently addressed in the design development and compliance demonstration. Both authorities' airworthiness standards and acceptable MOC are addressed simultaneously. The CA and VA will meet early with the applicant to identify their respective applicable airworthiness standards. A common VA/CA type design should be their objective. They will strive to achieve a common certification basis, including special conditions, certification plans, and acceptable

MOC. This promotes approval/closure according to the project schedule. Although CA and VA are working in parallel, everyone must ensure that the CA remains in the leading role.

c. Best Practices. We at the FAA and EASA encourage concurrent certification/validation because it can result in a more efficient program for both the applicant and the authorities. Concurrent certification/validation projects promote CA and VA development of common exceptions to the latest airworthiness standards, special conditions, exemptions, equivalent safety findings and acceptable MOC. Applicants can satisfy both authorities' airworthiness standards during the product design phase. (Extensive design changes are frequently required when the applicant pursues CA certification without considering VA airworthiness standards.) Lastly, concurrent certification/validation projects will quickly expose areas where jointly-agreed solutions are not readily available.

d. Emphasis of this Order. We assume, throughout this order, that validation activities will be carried out concurrently. We'll highlight the differences between concurrent and sequential validations when they exist.

SECTION 2. TYPE VALIDATION: KEY CONCEPTS

303. NEW TERMINOLOGY. The type validation principles approved by the FAA, EASA and JAA in October 2004 formally defined four terms: validation item (VI), standards differences (significant standards differences (SSD), non-significant standards differences (non-SSD), and standards equivalencies. These are not new terms. They have appeared in previous certification/validation procedures under different names. More importantly, however, the principles established rules that EASA and we are expected to follow when using these terms in a certification/validation project. We will examine each term in the following paragraphs.

304. VALIDATION AUTHORITY CERTIFICATION BASIS. The VA certification basis is the sum of applicable airworthiness standards identified by the VA, plus exemptions, special conditions, and equivalent level of safety findings declared by the VA. It establishes VA design acceptance of an imported product or certification of the design change.

a. Compliance with the VA certification basis for the product is based on compliance with the CA certification basis plus:

(1) The standards differences for the particular amendment pair of standards, and any exemptions, special conditions, and equivalent level of safety findings issued by the VA; or

(2) Any exemptions, special conditions, and additional airworthiness standards issued by the VA that provide an equivalent level of safety.

> **NOTE:** These standards differences are all applicable significant standards differences (SSD, see paragraph **309a(1)**) and non-significant standards differences (non-SSD, see paragraph **309a(2)**) identified by the VA.

b. For the FAA, these two methods of demonstrating compliance with the VA certification basis are based on the requirements defined in 14 CFR § 21.29 (a) (1) (ii) (See paragraph **203c(2)**). The first method corresponds to the first provision in (ii). This method demonstrates compliance with the applicable airworthiness requirements in 14 CFR § 21.17. Compliance with CA standards insures compliance with FAA requirements when CA standards are equal or more stringent than FAA requirements. Demonstrating compliance to the standards differences accounts for the remaining requirements. The second method corresponds to the second provision in (ii). Here, we prescribe additional airworthiness requirements to provide a level of safety equivalent to the level defined by requirements in 14 CFR § 21.17.

c. Establishing the VA Certification Basis. The VA certification basis must be defined early in a validation program if the program is to be conducted efficiently. Once established, the VA certification basis does not change except when:

(1) Unsafe conditions arise,

(2) Design changes affect the certification basis,

(3) The VA learns of design features that require special conditions or exemptions, or

(4) The applicant elects to comply with later amendments.

d. Operational requirements, such as 14 CFR parts 91, 121, 125, 135, or JAR OPS, may prescribe equipment requirements that affect the aircraft, engine, or propeller design. The VA should identify these requirements early in the program so they may be included, if the applicant asks, in the validation program. Coordination is required with the appropriate FAA flight standards aircraft evaluation group (AEG) or JAA operational group (or EASA equivalent, when established).

305. VALIDATION ITEM (VI). We define a validation item, generally, as a certification item or airworthiness standard of particular interest to the VA. VIs identify aspects of the design or proposed MOC that warrant further technical involvement (beyond familiarization) by the VA. VIs are primarily used to define and explain VA airworthiness standards and interpretations distinct from CA airworthiness standards. VIs are normally identified during familiarization.

a. Validation items consist of: applicable generic VIs, project VIs, and applicable SSDs. These terms are described in greater detail in paragraphs **306, 307, and 309a(1)** respectively.

b. VA Involvement. The basic principle behind the VI is that the VA won't review CA compliance determinations, or be involved in a deep review of the MOC, except in areas that fall within the scope of the identified VI. A VI must be raised for any item in which the VA intends to be involved in compliance determination. In most cases, we expect the VA to rely on the CA to determine compliance for VIs. Paragraphs **352** and **380** define appropriate VA involvement.

306. GENERIC VALIDATION ITEMS. Generic VIs are certification items the VA identifies for particular scrutiny in all products of a certain class, such as all transport aircraft, or all reciprocating engines.

a. Generic VI Lists. Each directorate should know the VIs raised on previous validation projects of a certain type that could apply to future projects. It's important to make the applicant and CA aware of these common issues early in a validation project. The way to disseminate this information is to develop and publish a generic VI list.

b. Use the following criteria to identify generic VIs:

(1) New VA standards where *the VA* has no past experience with their application to a product. The standards have an important impact on the whole product or a critical feature *and* engineering judgment is required to establish compliance,

(2) New VA standards where *the CA* has no past experience with their application to a product. The standards have an important impact on the whole product or a critical feature *and* engineering judgment is required to establish compliance,

(3) Airworthiness standards where VA and CA interpretive, advisory, MOC, or guidance materials are different or insufficient,

(4) Commonly occurring project VIs (see note at the end of paragraph **307**)

(5) Standards identified for special emphasis by the VA in a data-driven risk assessment analysis for the product class. If VA and CA both identified a standard for special emphasis, it generally should not be a VI.

307. PROJECT VALIDATION ITEMS. The validation project may also have unique elements due to a product's design, use, or the methods for establishing compliance. The VA may identify these elements for special review and consideration. Unlike the generic VIs that could apply to all products of a certain class, project VIs are established only to address unique project elements.

a. Project VI Selection Criteria. Project VIs are limited to the following seven specific sources. Project VIs identified using criteria **(1)**, **(2**), **(3),** and **(4)** may result in special conditions.

(1) New Technology. Technology that is new to the FAA or EASA as a whole, not just new to VA team members. For instance, if technology used by the applicant were new to the VA team but not the VA itself, we don't consider it a project VI. VA management is responsible for making sure the VA team members are properly informed of earlier use of the technology, VA standards and MOC. (See paragraph **347**, for further details on VA management responsibilities when we are the VA.)

(2) Novel Applications of Existing Technology. Existing technology being applied for the first time to a particular product line is not automatically novel. Additionally, "novel" applies to the FAA and EASA as a whole, not just VA team members.

(3) Unconventional Product Use. This criterion applies when a product is used for a purpose for which it wasn't designed.

(4) Unsafe Conditions. The product has design features where experience with other products in service has shown an unsafe condition might occur in that product, even though compliance with the standards in the VA certification basis can be demonstrated. The unsafe condition is measured with respect to the overall level of safety intended by the product VA certification basis.

> **NOTE:** Use the principle of "unsafe condition" only to upgrade the level of safety of the product if the VA has mandated, or will immediately mandate, that upgraded level of safety to other products with similar design features.

(5) New Standard Interpretations or MOC for Existing Standards. Different interpretations/MOC applied by the CA from those already agreed to between CA and VA. We don't consider a MOC or standards interpretation "novel" or "new" if both the FAA and EASA applied them previously in a similar context.

(6) Exemptions. Subjects identified by VA or CA as potentially requiring an exemption from VA standards.

(7) Equivalent Safety Findings. Subjects identified by applicant, CA, or VA as potentially requiring an equivalent level of safety finding to VA standards.

> **NOTE:** Project VI may be added to the list of generic VIs if the associated issue is expected to have a broader applicability to future programs. The VA will determine this and update the generic VI list accordingly.

308. STANDARDS EQUIVALENCIES. A 14 CFR standard and its counterpart CS/JAR may be equivalent, despite differences in texts. Both standards must meet the following conditions to be equivalent:

a. They must have the same regulatory objective, and

b. They must contain equivalent technical standards, so compliance with one standard meets compliance with the other.

309. STANDARDS DIFFERENCES. When we compare airworthiness standards developed by the FAA and the EASA/JAA, we see that each organization often adopted different airworthiness standards. In some cases, the 14 CFR airworthiness standards are more stringent than CS/JAR airworthiness standards. For example, the FAA requires an 8 lb. bird to comply with 14 CFR § 25.631, Amendment 25-23. EASA requires only a 4 lb. bird to comply with CS-25.631. In other cases the EASA airworthiness standard is more stringent. CS-E 530, Fire Precautions, requires engine mounts to be fireproof; that electronic engine controls to be at least fire resistant, and that the engine be electrically bonded to preclude ignition sources. 14 CFR § 33.17 does not require any of these. We must consider these standards differences when establishing the VA certification basis.

a. When the 14 CFR and CS/JAR airworthiness standards are not equivalent, standards differences are then divided into two classes: significant standards differences (SSD) and non-significant standards differences (non-SSD).

(1) Significant Standards Differences (SSD) may require type design changes, approved manual changes, or imposing operational limitations to meet VA airworthiness standards. The type design or operation approved by the VA could then differ from the type design and operation approved by the CA.

(2) Non-Significant Standards Differences (Non-SSD) do not result in a difference classified by the VA as significant. Differences will not result in type design changes, approved manual changes, or imposing operational limitations to meet VA airworthiness standards.

b. SSD and non-SSD are used to identify standards differences. For harmonized airworthiness standards, differences in interpretive guidance material that meet the criteria in paragraph **306a(3)** will be addressed as generic VI.

c. The only functional difference between an SSD and a Non-SSD in the validation process is the level of VA involvement in the compliance determinations. The VA may choose to retain the compliance determinations of SSD, or ask the CA to make those determinations for them. The CA will, however, make compliance determinations for all non-SSD not otherwise identified as VIs, per paragraphs **306** and **307**.

d. Standards Differences and the VA Certification Basis. All SSD and non-SSD are part of the VA certification basis. SSD and non-SSD are treated in the same manner in this regard.

(1) VA SSD and Non-SSD, plus VA exemptions, equivalent level of safety findings and special conditions are combined with the CA certification basis to form the VA certification basis. To better understand this concept, see the VA certification basis defined in paragraph **304**.

(2) SSD and Non-SSD are based on a specific amendment-pair of airworthiness standards. All projects with a common amendment-pair of airworthiness standards will have the same SSD and non-SSD lists.

(3) Although an SSD or non-SSD may not apply to a particular product, it is still included in the VA certification basis. For example, an SSD on ditching airworthiness standards doesn't apply when validating an aircraft not approved for ditching. The SSD would still be included in the VA certification basis, however, and used if the aircraft were certified for ditching in future.

e. Compliance with VA Airworthiness Standards. Compliance with VA airworthiness standards is to be established for all identified applicable standards differences, both SSD and Non-SSD. The VA is responsible for defining the standards differences for each validation project, since these SSD and non-SSD define unique VA airworthiness standards.

310. METHODS OF COMPLIANCE (MOC).

a. General. The VA accepts CA methods of compliance when they accept the CA certification basis as part of the VA certification basis, except for specific methods of compliance documented in VIs.

b. Reviewing Methods of Compliance. It's important that the VA understands the MOC used or to be used. The CA and the applicant will brief the VA on the MOC as part of a project's technical familiarization phase (see paragraph **315**). CA and applicant will provide general information sufficiently detailed to allow the VA team to understand the general principle of the MOC. When the VA determines the need to evaluate a MOC with the CA and applicant, the VA confines their evaluation to the general, overall methodology proposed by the applicant. This evaluation can include the assumptions, boundary conditions, and critical parameters of that methodology essential to the technical adequacy of the MOC. Test plans, test parameters, and other MOC steps should be left to the CA to further define and approve. The VA has to justify, and limit, their review of test plans, test parameters, and other MOC steps to the issues covered by the VI.

c. Establishing Methods of Compliance. When there is new technology, novel application of existing technology or MOC, novel MOC, or unconventional product use, the VA will work closely with the CA and applicant during the technical familiarization phase of the program to establish acceptable MOC. The object is to establish common FAA and EASA MOC. When that's not possible, the VA is responsible for identifying unique MOC in a VI.

d. Accepted Methods of Compliance. Once the VA accepts a MOC for a given standard on any program with the CA, the VA accepts that MOC in the future as long as the original assumptions apply. An exception occurs if the VA determined the MOC insufficient. VA and CA must discuss this.

311. COMPLIANCE DETERMINATIONS. As in any certification program, the applicant shows compliance with airworthiness standards and the authority accepts this demonstration when they're satisfied that the standards are met. The decision to accept the demonstration is a compliance determination in the type validation principles.

a. The authority determines that the applicant has shown compliance with the standards. Both CA and VA may make compliance determinations in a validation program. The CA will make compliance determinations for all items in the CA certification basis, and does the same to all non-SSDs, and assigned VIs.

b. We should avoid the practice of authorities making joint determinations of compliance for any one specific standard unless there is a justifiable benefit.

c. The VA decides which authority makes the compliance determinations for each VI. The VA may either retain the compliance determination associated with a VI or assign the compliance determination to the CA. The VA should inform the CA of progress and results of retained compliance determinations. Sharing this information promotes smooth future assignment of similar compliance determinations.

d. VA compliance determinations are limited to retained VIs. The VA will not reinvestigate any assigned compliance determinations.

312. ISSUE PAPERS, CERTIFICATION REVIEW ITEM (CRI) AND ACTION ITEM (AI). We at the FAA prepare issue papers identifying the certification basis and validation items. EASA/JAA use two documentation systems to define certification bases and validation items, and to follow their resolution. They are the certification review item system, and the action item system. If we as FAA staff are involved in EASA validation activities, we must understand these systems.

a. Issue Papers. FAA Order 8110.4 shows us how to develop issue papers. It establishes the following issue paper designation system: G-1, type certification basis; G-2, determination of compliance; G-3, environmental consideration; G-4, import requirements. The FAA validation team writes an issue paper for each VI.

b. Certification Review Item (CRI). EASA/JAA use CRIs for the same reason we use issue papers. They document a certification or validation subject that requires an interpretation to be clarified, or that represents a major technical or administrative problem. EASA/JAA use CRIs for significant or controversial regulatory, technical policy, and means of compliance issues. Routine items in showing compliance and work relationships will not normally be raised as a CRI unless special circumstances exist.

c. Action Item (AI). EASA/JAA use the action item system to advance non-sensitive issues. AIs document non-controversial items that require special attention. AIs do *not* require a CRI.

(1) AIs are most often used to record actions during certification and validation programs and to trace their progress. The AI will define the characteristic to check, the relevant standards, the interpretations used, the action, and responsibilities. The AI system is the basic means to record necessary EASA, FAA, and applicant actions and the basis for their resolution. AIs may also be used as an internal EASA discussion paper.

(2) The EASA project certification manager (PCM) sets up an action item system with the applicant. The object is to make all actions in the EASA process traceable, and ensure continuous and adequate processing of all action items.

> **NOTE:** "Action item" is the official EASA term for these documents. The terms certification action items (CAI) or validation action items (VAI) have, however, been used to describe these documents. They are interchangeable.

313. TYPE VALIDATION: FOUR PHASES. Type validation principles divide a typical type validation program into four phases: general familiarization, technical familiarization, determining VA involvement, and compliance determinations. Their objectives and milestones are summarized in the following paragraphs. You will find detailed descriptions of FAA activities in each of these phases in sections **4** and **5** of this chapter.

a. Before receiving an application, the VA should be able to discuss policy and regulatory issues with the CA to promote timely validation later on.

b. CA and VA Staff Involvement.

(1) It's essential that CA certification/policy/regulatory staff support the VA in the four phases of a validation program, in particular by attending validation meetings. This is especially important when those meetings cover new exemptions, special conditions and equivalent safety findings.

(2) The VA team will seek advice from VA policy/regulatory staff when considering new exemptions, special conditions, and equivalent level of safety findings applicable to the VA certification basis.

314. PHASE I: GENERAL FAMILIARIZATION.

a. Objective. The applicant and CA present an overview of the project to the VA. The two objectives to this phase are to:

(1) Establish general timelines for the validation process,

(2) Familiarize the VA with the design and help them set up their validation team, and

b. Initiation. Phase I begins when the VA receives CA type certification application.

c. Completion. Phase I ends when:

(1) The VA has set up their validation team,

(2) VA, CA, and applicant have established the initial validation schedule to complete the validation process. The applicant is responsible for proposing a realistic timetable, gaining CA and VA concurrence. The applicant is also responsible for staying as close as possible to the agreed schedule.

d. During the general familiarization meeting, the VA should give a copy of the generic VI list and the standards differences list to both CA and applicant. Early availability of these lists sets the stage for phase II.

e. After phase I, the technical disciplines on a validation team may advance through the phases at different speeds. There is no need for one technical discipline to delay their validation efforts because of the slower progress of another unrelated technical discipline.

315. PHASE II: TECHNICAL FAMILIARIZATION.

a. Objective. The applicant and CA present the project's technical definition and associated compliance methods to the VA. This phase has several objectives:

(1) Familiarizing the VA technical team with the project's design and compliance methodology,

(2) Establishing an initial VA certification basis,

(3) Identifying initial VIs, and

(4) Setting up strong communications between VA, CA, and applicant's technical specialists.

b. The CA and applicant should give general information to the VA so the VA may understand the design and compliance methods. The VA should ask clarifying questions to understand the material. If participants need in-depth discussion or debate of the materials, it's done during phase III.

c. Initiation. Phase II starts with the scheduling of a technical familiarization meeting (or meetings), unless the product is a derivative and the VA determines that changes from previously validated designs don't warrant the briefing.

d. Completion. Phase II ends when the VA establishes the initial VA certification basis and identifies initial VIs.

(1) Once the initial VA certification basis has been established, it will not change except when unsafe conditions arise, design changes affect the certification basis, or when the applicant elects to comply with later amendments. The provisions in 14 CFR § 21.17 and EASA Annex Part 21, Paragraph 21A.17 still apply. A new certification basis is established if the project is not completed in the allowable time.

(2) The initial VIs are defined based on the applicant's design description. Added VIs may be identified during phases III and IV if there's a change to design, intended use of the product, assumptions used for certification, or compliance methods.

316. PHASE III: DETERMINING VA INVOLVEMENT.

a. Objective. The VA specifically identifies which compliance determinations are assigned to the CA, and which the VA retains.

b. Initiation. Phase III begins after establishing the VA certification basis and initial VIs.

c. Completion. Phase III ends when:

(1) The VA has established final VIs for the project,

(2) VA issues a closure document identifying which authority makes compliance determinations with the airworthiness standards for the VIs,

(3) The VA issues an issue paper/CRI (or an addition to the closure document) that identifies and justifies any information they requested to gain product familiarity (see paragraph **319**), and

(4) The completion schedule for the validation program (phase IV) is confirmed.

NOTE: Design/MOC changes may occur during phase IV, yielding new VIs. This would not require a return to phase III.

317. PHASE IV: COMPLIANCE DETERMINATIONS.

a. Objective. The VA and CA make compliance determinations for their assigned VIs.

NOTE: When an activity is carried out by the CA for the VA, that activity may be carried out by the CA or under their legally constituted delegation system.

b. Initiation. Phase IV begins when the VA issues the document or documents establishing compliance determination responsibilities for the VIs.

c. During phase IV of aircraft validation programs, the VA may also conduct abbreviated flight evaluations for a final assessment of airworthiness, maintainability and operational suitability of the aircraft, and to support introducing the aircraft into VA jurisdiction.

d. Approved manuals must be submitted for VA review and acceptance.

e. Completion. Phase IV ends when the VA issues the type certificate or equivalent design approval.

318. PROGRAM SCHEDULES AND ACCOUNTABILITY. Experience shows that significant program delays have occurred because participants failed to establish a program schedule and commit resources to support the schedule. All three parties – VA, CA, and applicant – share this responsibility.

a. Initial Program Schedule. The initial program schedule is established during phase I – general familiarization. The applicant is responsible for proposing a realistic program schedule and seeking CA and VA concurrence. Establishing the initial validation schedule is a phase I completion milestone.

b. Completion of the Project. VA, CA, and applicant will reexamine the program schedule during phase III and update it if necessary. Confirming the program schedule for project completion (phase IV) is a phase III completion milestone.

c. Accountability. The FAA project manager and EASA PCM are responsible for monitoring progress and securing the necessary resources to support any agreed-upon timelines. They inform their respective management if or when meeting the agreed milestones is in jeopardy. The FAA, EASA, and applicant's management are responsible for resolving conflicts (see paragraph **323**) and making resources available to meet the schedule.

319. PRODUCT FAMILIARITY AND CONTINUED AIRWORTHINESS RESPONSIBILITIES.

a. The type validation principles are a project management tool VAs use to manage their resources during a certification/validation program. Under TVP, the VA will make compliance determinations for the retained VIs. The CA makes all other compliance determinations.

b. Relying on the CA does not mean the VA abdicates their responsibilities. Under ICAO, the VA is responsible for the safety of any aircraft under their jurisdiction. Though their active involvement in certification/validation is limited to VIs, the VA must develop an understanding of the design over its full breadth, and at sufficient depth to discharge their continued airworthiness responsibilities. They must develop this understanding by exchanging technical information in a manner that doesn't delay the program or undermine the CA. The VA must maintain a balanced approach.

c. Recognizing the VA's continued airworthiness responsibilities, the TVP provide mechanisms to gather this information throughout all phases of the validation program. For example, detailed discussions will occur during technical familiarization (phase II) when the product has unique or novel design features, or unconventional use. Additionally, the CA, VA and applicant should have frequent, regularly-scheduled telephone conferences covering program status, open validation issues, and areas of VA interest. Aircraft design and certification can be an iterative process. Recognizing that some issues may not be totally defined until phase IV, (compliance determination), the TVP provide for continued communication between VA and CA for purposes of awareness. For example, design changes may occur as late as phase IV and must be communicated to the VA.

d. The VA is responsible for using the mechanisms provided by TVP to gather the information required to discharge their continued airworthiness responsibilities. The VA has the opportunity for input during phases I, II, and III. In addition, the VA may ask for information such as test plans or other compliance documents, for determinations made by the CA. The VA may ask for this information for product awareness only—not to check on the CA, or for approval, acceptance or comment.

e. The VA must manage and control requests for information, a responsibility shared by both team and management. Based on the information gathered during phase II, (technical familiarization), and phase III, (determining VA involvement), the validation team may identify certification/compliance activities that they'd like to follow during phase IV, (compliance determination). The team should be cautious when requesting information on these activities. They must justify the request, making the case that access to the information increases their ability to discharge airworthiness responsibilities. When we at the FAA are the VA, the project manager must carefully review these requests and accompanying justifications to ensure they are consistent with the intent of TVP. The FAA standards staff management makes the final decision on these requests. Paragraphs **319g** and **h** below cover expectations governing request for additional information.

f. If, as a result of activities associated with paragraphs **319**, the VA wants to challenge a CA compliance determination, they raise the issue immediately to VA senior management for

resolution. The VA should rarely challenge the CA determinations. When we are the VA, the project manager raises the situation to the accountable directorate manager who will resolve it with the CA. This differs from the issue resolution process described in paragraph **323**.

g. Request for information about VIs assigned to the CA. During phase III, the VA determines which VIs to assign the CA and which to retain. While the VA should maximize reliance on the CA, the TVP recognize the importance of staying aware of certification/compliance activities during phase IV, even in CA assigned areas. The VA maintains awareness by either retaining the VI (as defined in paragraphs **352** or **380**) or by communicating for purposes of awareness. When the VI is assigned to the CA, you should remember that:

(1) VA active involvement with a VI ends once it's assigned to the CA. However, the VA may ask for more information when they require it to carry our their continued airworthiness responsibilities. Those requests for more information must be identified and justified in the VI issue paper, VI CRI or the phase III closure document.

(2) Requests for information must *not* be made for every VI assigned to the CA. The VA should exercise engineering judgment when deciding to ask for information. Consider the following examples:

(a) When there is a novel application of existing technology, a VI is established to ensure that the subject is fully discussed during phase II technical familiarization. If the technology is *well established and understood* when the issue paper is closed at the end of phase III, the VA should assign the compliance determination to the CA and not request access to test plans or other compliance documents.

(b) When there is new technology, or the application is novel, a VI is established to make sure the subject is discussed during phase II technical familiarization. Even though the VA team is confident in the CA's ability to make a compliance determination, the VA may feel that their own understanding of the design or possible failure modes is incomplete. In this case, the VA team *should ask for information* to complete their understanding of the technology or its application. This information may be in the form of compliance documents supplied by the CA.

h. Request for Information about Certification Areas Outside of VIs. To understand the design over its full breadth and at sufficient depth to discharge continued airworthiness responsibilities, you may also request information, such as test plans or other compliance documents, about areas outside of VIs. The VA must understand the product's critical design elements, not just those associated with VIs. The VA must identify and justify this request in an issue paper.

> **NOTE:** These items are not VIs, so it's not likely that there will be issue papers on them. You must generate a new issue paper if you want access to the information.

320. APPROVED MANUALS. Approved manuals in the SSD definition include those required by 14 CFR, CS/JAR plus any extra manuals submitted by the applicant and approved by the authorities as a part of the type certification.

a. Required Manuals. FAA regulations require applicants to supply manuals and continued airworthiness instructions with each product.

(1) The required manuals for type certification are: airplane, balloon, and rotorcraft flight manuals; the instruction manual for installing and operating the engine, and the instruction manual for installing and operating the propeller. The manual sections requiring approval are in 14 CFR §§ 23.1581, 25.1581, 27.1581, or 29.1581 for aircraft, §31.81 for balloons, in §33.5 for engines, and in §35.3 for propellers.

(2) Instructions for continued airworthiness are required for each balloon, engine, propeller, airplane, and rotorcraft. Approval is required only for the airworthiness limitations section of the instructions for continued airworthiness. The sections that require approval are defined in 14 CFR §§ 23.1529, 25.1529, 27.1529, or 29.1529 for aircraft, §31.82 for balloons, §33.4 for engines, and in §35.4 for propellers.

> **NOTE:** Although only those manual sections listed above require approval, the entire package of data, in manual or data form, must be determined acceptable to the Administrator. This may require the appropriate flight standards' AEG review and acceptance.

b. Other Submitted Manuals. Structural repair manuals, engine overhaul manuals, or component maintenance manuals may be submitted as a part of a type certification. Although we don't require them, we will approve these manuals during type certification. Standards differences that require changes to these manuals are also defined as SSD.

> **NOTE:** Some non-EU NAAs require more manuals as additional national airworthiness standards. They will be identified in a CRI.

321. SUPPLEMENTAL TYPE CERTIFICATES. TVP recognizes that modifications vary in scope and complexity. The validation process has to adjust appropriately. We do this by classifying all STCs as either basic or non-basic. When they receive an STC application, the CA will classify the STC as either basic STC or non-basic, in accordance with CA procedures. The VA will concur with CA classification by accepting the application. When they disagree with the classification, VA and CA should follow the issue resolution process in paragraph **323**.

> **NOTE:** The FAA does not validate STCs associated with all products from EASA/JAA countries. Consult the appropriate bilateral agreement before accepting an STC validation program.

a. Supplemental Type Certificate Classification Criteria:

(1) Non-basic STCs will generally be more complex and may require some VA involvement (see paragraphs **359** and **390**). Criteria for non-basic STCs are:

(a) Changes classified as significant, under14 CFR/JAR § 21.101(b) and EASA's Annex Part 21, Paragraph 21A.101(b).

(b) Changes meeting any of the criteria in paragraphs **306** and **307**, defining SSDs, project and generic VIs; and

(c) Any other design changes categorized as a non-basic STC by the CA.

(2) We consider all other STCs as basic STCs. Here, the CA issues a statement of compliance to the VA certification basis. The VA accepts the statement, reviews the application for completeness, and issues an STC (see paragraphs **359** and **390**).

b. For all STCs, significant revisions to approved manuals must be submitted to the VA for review and acceptance. For an individual certification project, the CA will consult with the VA when deciding which revisions are significant and not.

322. COMMUNICATIONS. Program reviews show that effective communications between the VA, CA, and applicant are key to a successful validation program. Program delays are often the result of poor communication. The VA must stay in the communications loop between CA and applicant during all phases of the program for the VA to adequately understand CA and applicant actions. This is particularly true where the CA is determining compliance for the VA. Use the general procedures given in paragraph **205**. Based on past experience, we recommend the following specific procedures:

a. Teleconferences. CA, VA and applicant project managers are required to conduct frequent, regularly scheduled telephone conferences to review program status and discuss open validation issues. We recommend monthly teleconferences.

b. Formal Confirmation Procedure. The VA will often request clarifying information from the applicant during a project. Feedback from VA to CA and applicant is necessary to confirm how clear and adequate the explanations were. The FAA, EASA, and industry have agreed to implement such a confirmation process. Key points are as follows:

(1) The applicant will respond to VA questions within 14 days. If the data is not available, the applicant will give the date when data will be available.

(2) Validation team members will acknowledge the applicant's response within 30 days, saying whether they got enough information to answer the question and complete that phase of the project.

(3) If the team member has not replied to the applicant in 30 days, the FAA project manager or EASA PCM will contact the team member's direct management and resolve the problem.

323. ISSUE RESOLUTION PROCESS. FAA and EASA management will closely follow the validation programs. The CA, applicant and VA project managers have a collective responsibility to ensure they make every effort to resolve certification impasses between VA and CA teams at the lowest possible level. However, teams should elevate impasses gradually to higher VA and CA management until they get resolution, or the appeal process has run its course. We should not delay the applicant's certification program while authorities are resolving issues.

NOTE: The exception to this is compliance issues discovered when fulfilling product familiarity responsibilities under paragraph **319 (**see paragraph **319(i)**).

a. The FAA and EASA issue resolution process assigns three levels of responsibilities to break an impasse. The three levels are:

(1) FAA project manager, EASA PCM, and applicant program manager,

(2) FAA accountable directorate manager, EASA product head, applicant manager, and

(3) FAA Aircraft Certification Service Director, EASA Certification Director, and applicant senior management.

b. The FAA project manager, EASA PCM, and applicant program manager are primarily responsible for resolving validation issues.

c. If managers and applicant can't establish a plan within two weeks to solve the problem, they refer the issue to the next level up.

d. If management at this second level can't make a plan to solve the problem within the next two weeks, they refer the issue to the third level.

324. PROGRAM REVIEWS. CA and VA may, for selected projects, review the proper implementation of TVP principles to identify areas for improvement in the type validation principle process. Appendix **5** lists criteria that they can use in these reviews.

325.–329. RESERVED

SECTION 3. RESPONSIBILITIES OF DIRECTORATE STANDARDS STAFF

330. GENERAL. The directorate standards staffs play a key role in ensuring that ACOs have the latest information needed to support a successful validation program. For each product class in their responsibility (14 CFR part 23, 29, and so forth), the directorate's standards staff is responsible for:

a. Developing the Generic VI Lists. The lists should:

(1) Cite the applicable 14 CFR airworthiness standard or standards,

(2) Summarize the technical issue,

(3) Refer to any information issue papers.

b. Publishing and Updating the Generic VI Lists. Publish the lists' contents in a commonly known location. Standards staffs may post the generic VI lists on their websites.

c. Forwarding the Generic VI Lists to EASA. Notify EASA and JAA of changes to the generic VI lists as they occur.

331. COMPARISONS OF 14 CFR AND CS/JAR TEXT. Literal comparison of the airworthiness standards developed by the FAA and EASA/JAA shows there are places where airworthiness standards texts differ extensively. Here, the directorates' standards staff must evaluate the text to determine if the two standards are equivalent or different.

a. Standards Equivalencies. In some cases, 14 CFR and counterpart CS/JAR airworthiness standards may be determined equivalent despite text differences. For instance, 14 CFR part 33 and CS-E/JAR E have been determined to be largely equivalent. Paragraph **332** lists the procedures directorate standards staffs should use to determine the equivalence of 14 CFR and the CS/JAR airworthiness standards. The responsible directorate's standards staff must approve standard equivalencies.

b. Standards Differences. More often, different texts between the standards result in standards differences. Paragraph **333** lists the procedures standards staffs should use when airworthiness standards are not equivalent.

332. IDENTIFYING STANDARDS EQUIVALENCIES.

a. To determine the equivalency of a particular 14 CFR and CS/JAR standards, the standards staffs must do the following:

(1) Identify those airworthiness standards, or group of airworthiness standards with a common objective. The objective must be clearly understood. It can be quantitative (such as 9.0 g), or qualitative (such as "without exceptional pilot skill").

(2) Define the minimum airworthiness standards of both 14 CFR and the CS/JAR.

(3) Review the regulatory/standards interpretive material. For EASA, acceptable means of compliance (AMC) and guidance material (GM) contain airworthiness standards interpretive material. At the FAA, we find regulatory interpretive material in the preambles to notices and final regulations, plus any formally issued interpretations by FAA headquarters, the accountable directorate, or the Office of the Chief Counsel. For the JAA, the advisory circular-joint (ACJ), advisory material joint (AMJ), and temporary guidance material (TGM) may contain regulatory interpretive material.

(4) Establish the equivalence of these minimum airworthiness standards. Standards staffs must determine that the airworthiness standards in 14 CFR and the CS/JAR yield an equivalent technical result.

(5) Coordinate the Standards Equivalence Lists with EASA. FAA standards staffs must coordinate standards equivalence lists with their EASA counterparts, and develop procedures to do this. Our object is to make sure that each authority operates from the same standards equivalence list for each amendment pair.

(6) Approve the Standards Equivalence Lists. Both FAA and EASA approve their respective standards equivalence lists. The appropriate directorate approves the lists for the FAA, and the Regulation and Certification Directors approve for EASA. Once these lists are approved we will use them for all validation programs.

(7) Document the findings. Standards staff must record their results in detail using standard Directorate practices.

(a) This document should list the 14 CFR and CS/JAR, or group of airworthiness standards, the associated interpretive material, and factors that contributed to this determination.

(b) How specific the 14 CFR and CS/JAR airworthiness standards are determine the rigor of detail required to document the equivalence of airworthiness standards. Obvious equivalencies require less rigor. Subtle equivalencies need more.

(c) Retain these documents for future reference. The standards staff should keep a record of standards equivalency lists they developed for each 14 CFR and CS/JAR amendment pair. The lists may be needed in future validation programs involving aircraft, engines, or propellers certificated at one of these earlier amendment levels.

(8) Compare new 14 CFR and the CS/JAR language. Standards staffs must compare applicable airworthiness standards each time the FAA and EASA issue an amendment to their airworthiness standards. Changes in language may negate a previously established equivalency. Alternately, amendments to either the 14 CFR or the CS/JAR may lead to additional standards equivalencies. The documents defining standards equivalencies must be updated accordingly.

b. Compliance with the CS/JAR will automatically meet the 14 CFR airworthiness standards when the two standards are equivalent. We will require no further finding of compliance to 14 CFR.

333. STANDARDS DIFFERENCES LISTS. 14 CFR-CS/JAR differences must be compiled into lists. Each list is unique to a particular amendment-pair of 14 CFR-CS/JAR. An amendment-pair is a particular 14 CFR amendment number and the chronologically corresponding CS/JAR change and amendment number. Once a list is generated for a particular amendment-pair of airworthiness standards, that list is used as a reference for all validation projects where the FAA and EASA certification bases consists of that same amendment-pair. A standards difference list does not include those differences found to be equivalent as determined in accordance with paragraphs **308** and **332**.

a. We at the FAA and EASA develop and maintain the standards differences lists to support all validation programs. FAA standards staffs and EASA counterparts will develop these comprehensive standards differences lists. All differences except those found to be equivalent are included in the lists. We will maintain a list of those standards where the 14 CFR is more stringent than the CS. EASA will maintain a list of those standards where the CS is more stringent than 14 CFR. The FAA and EASA will coordinate these lists, and make them publicly available.

> **NOTE:** These lists define *standards* differences. 14 CFR-CS/JAR standards with identical language but differences in advisory or interpretive material should be dealt with, if necessary, as separate VIs. See paragraph **305** for more information on developing and using VIs.

b. Standards difference lists will provide the following:

(1) 14 CFR-CS/JAR amendment pair covered by the list,

(2) Identification of all 14 CFR-CS/JAR differences by paragraph number,

(3) Classification of each as an SSD or non-SSD,

(4) Brief explanation of why the standard is more stringent, and

(5) Reference to any associated policy or interpretive material (see paragraph **332a(3)** for a detailed list of interpretive material).

> **NOTE:** We have established with JAA, and will establish with EASA, baseline standards differences lists for 14 CFR parts 23, 25, 27, 29, and 33. For copies of these lists, contact the standards staff at the appropriate accountable directorate.

c. FAA Standards Staff Responsibilities. Each standards staff is responsible for developing and maintaining the standards differences lists for the airworthiness standards they administer (such as 14 CFR part 23, part 29 and part 33). Their specific responsibilities are:

(1) Defining Standards Differences. To define the standards differences for a 14 CFR-CS/JAR amendment pair, the staffs must:

(a) Identify the 14 CFR-CS/JAR Standards Differences. FAA standards staffs will compare each 14 CFR standard with the CS/JAR and identify all differences. The staff compares the language found in the 14 CFR and CS/JAR only. Differences between FAA advisory circulars (AC) and JAA advisory circulars joint (ACJ) or JAA advisory material joint (AMJ) or between ACs and acceptable means of compliance (AMC) and guidance material (GM) do not qualify as standards differences.

> **NOTE:** Compare each individual 14 CFR standard to the entire set of CS/JAR standards, not just the corresponding paragraphs in the CS/JAR. Due to organizational differences, 14 CFR standards are, in some cases, addressed in several locations in the CS/JAR.

(b) Identify the 14 CFR Standards that are More Stringent than the CS. A standard is more stringent when compliance with the CS would not demonstrate compliance with 14 CFR.

NOTE: When using these standards differences lists for a certification program under 14 CFR § 21.29, the Administrator will prescribe additional airworthiness standards supplementing the exporting authority's standards. These additional standards ensure that the proposed design meets the FAA's applicable airworthiness standards. An examination of the product is necessary to establish them. The examination must be made when the product is presented for certification. Consider the project-specific MOC and the product's design when making the final determination of which authority's standards are more stringent. For example, one set of standards will state a quantitative value, while the counterpart standard will state a qualitative value. The product's design could, then, determine which standard is more stringent. The validation team makes these determinations when conducting the product validation. In practice, the validation team rarely modifies the standards staff's categorization of the standards differences. The validation team documents and coordinates all standards difference categorization changes with the standards staff.

(c) Classify the Difference as an SSD or a Non-SSD. We must determine if the standards differences are substantive, and if the differences could result in type design or approved manual changes to meet VA standards. This will determine if there's an SSD or a non-SSD. To find out, FAA standards staffs review all interpretive material associated with the identified standards differences. We may use this review to lessen the standards differences when EASA and we have agreed to a common MOC. For us, the interpretive material is in the preambles to notices and final airworthiness standards, and any formally issued interpretations by FAA headquarters, the accountable directorate, or the Office of the Chief Counsel.

NOTE: Each standard staff may determine whether to maintain separate lists for SSDs and non-SSDs or combine them into one list.

(d) Coordinate the Standards Differences Lists with EASA. FAA standards staffs must coordinate the standards differences lists with their EASA counterparts. Staffs should develop coordination procedures. Our object is to make sure that each authority operates from the same standards differences lists for each amendment pair.

NOTE: The standards staff should work with their EASA counterparts to determine the most efficient method for developing the standards difference lists--to develop one all-inclusive list, or work individually.

(e) Approve the Standards Differences Lists. Both FAA and EASA approve their respective standards differences lists. The appropriate directorate approves the lists for us and the Regulation and Certification Directors approve for EASA. Once these lists are approved we will use them for all validation programs.

(2) Updating the Standards Differences Lists. A new standards differences list is developed each time either EASA or we issue an amendment or change to airworthiness standards. Each directorate standards staff works with their counterpart EASA organization to update the lists. Each standards staff must develop internal procedures to efficiently review new 14 CFR and CS/JAR amendments' effects on the standards differences lists.

(3) Retaining all Standards Differences Lists for Future Reference. There will be a current standards differences list as well as lists generated for earlier amendment pairs. Each directorate standards staff will keep a historical record of the standards differences lists developed for each 14 CFR-CS/JAR amendment pair. The lists may be needed in future validation programs involving aircraft, engines, or propellers certificated at one of these earlier amendment levels.

(4) Publishing the Standards Differences Lists. Once a standards differences list is generated for a particular amendment-pair of airworthiness standards, that list is published and should be used for all validation projects where the regulatory basis consists of that amendment-pair. Each directorate standards staff posts current and historical standards differences lists on their certification Internet website.

(5) Difference lists may be presented in any manner that meets the needs of the respective directorate, the corresponding EASA organization, and the overall objectives of this paragraph.

334. PROGRAM STATUS MONITORING. We at the FAA and EASA will maintain a list of all ongoing certification/validation programs to help management monitor program status. The list will include completion dates for each validation phase and key points of contact. Each directorate's standards staff will maintain a list of ongoing projects.

335.–339. RESERVED

SECTION 4. FAA AS THE VALIDATING AUTHORITY

340. GENERAL. FAA certification personnel will find themselves in one of two very distinct roles when working on a validation program. For each validation program, we will either be the certifying authority (CA) or the validating authority (VA). The roles and responsibilities are very different in these two situations. The unique roles and responsibilities of FAA team members acting as VA on validation programs are described in this section.

> **NOTE:** EASA is the CA for a product imported to the United States from an EU member state. For a non-EU JAA member state, that state's NAA is the CA when a product is imported to the United States from that state.

a. As paragraph **313** indicated, the type validation principles divide a typical validation program into four phases. These four phases overlay our validation process defined in paragraph **204.** See how the phases correspond in Figure **3-1.** We modified the terms used to define the steps in the validation process to reflect the terms in the type validation principles.

For the same reason, we added an additional component (Step 2. Applicant, EASA, and FAA conduct general familiarization meeting).

FIGURE 3-1. VA FOUR-PHASE TYPE VALIDATION PROCESS

Type Validation Program Phases	FAA Validation Process
Phase I: General familiarization	1. FAA receives application through EASA or NAA. 2. Applicant, EASA, and FAA conduct general familiarization meeting
Phase II: Technical familiarization	3. Applicant, EASA, and FAA conduct technical familiarization meetings. 4. FAA establishes its VA certification basis. 5. FAA defines the VIs. FAA identifies applicable generic VIs FAA identifies project VIs FAA identifies SSD and non-SSD for the project
Phase III: Determining FAA involvement	6. FAA determines their level of involvement for the VIs.
Phase IV: Compliance determinations	7. EASA makes compliance determinations for assigned VIs and the non-SSD. 8. FAA makes compliance determinations for retained VIs and notifies EASA. 9. EASA issues statement of compliance to FAA VA certification basis. 10. FAA issues a type certificate.

b. The following paragraphs define the roles and responsibilities of FAA validation teams and standards staffs for each phase and component of the process.

341. PHASE I: GENERAL FAMILIARIZATION.

a. General. There are two components:

(1) We receive application through EASA or NAA (see paragraph **342**), and

(2) Applicant, EASA, and we conduct general familiarization meeting (see paragraph **343**).

b. Objective. The applicant and EASA give us an overview of the project. There are two objectives:

(1) To establish general timelines to complete the validation,

(2) To familiarize us with the design and thereby help us set up our validation team.

c. Initiation. Phase I begins when we receive the type certificate application from EASA or NAA (for applications from non-EASA member states).

> **NOTE:** We should respond to requests to discuss issues before formal applications. The applicant should make these requests through EASA.

d. Completion. Phase I ends with the following items completed:

(1) The FAA has set up their validation team,

(2) FAA, EASA, and applicant have set up the initial schedule to complete the validation process.

> **NOTE:** After phase I, the technical disciplines on a validation team may advance at different speeds. There's no need for a technical discipline to delay their validation efforts because of the slower progress of another unrelated technical discipline.

342. FAA RECEIVES APPLICATION THROUGH EASA OR NAA.

a. The applicant sends an application for a U.S. type certificate to EASA or the NAA of the state of design. Applications from authorities who are members of the JAA, not in EASA, and have a bilateral agreement with United States have the option of applying directly to us. EASA/NAA forwards the application to the product accountable FAA directorate. Applicants may submit applications for products that have already received a EASA or NAA TC. Applicants may also submit applications for products for which they already applied for a EASA or NAA type certificate.

b. FAA Project Manager's Responsibilities prior to the General Familiarization Meeting. Upon receipt of an application, the FAA project manager:

(1) Reviews the application to determine compliance with 14 CFR § 21.15, Application for Type Certificate, FAA Order 8110.4, and the appropriate bilateral agreement.

(2) Responds in writing to the EASA or NAA within 30 days, identifying any application deficiencies to the EASA or NAA for resolution. Letter will indicate if we need a general familiarization meeting.

(3) Ensures that the applicant and EASA/JAA know about the generic VI list posted on the product accountable directorate's website; and

(4) Conducts a top-level review of our generic VI list.

343. APPLICANT, EASA, AND FAA CONDUCT THE GENERAL FAMILIARIZATION MEETING. The key element of this phase is the general familiarization meeting, which should last no more than two days. An effective general familiarization meeting maximizes the quality of any follow-on meetings.

a. Meeting Agenda. The general familiarization meeting agenda will include:

(1) Design overview. The applicant presents an overview of the product design, as currently known, emphasizing new or unusual design features. For derivative programs, applicant should clearly describe and emphasize the changed parts.

(2) Status of program. EASA, with applicant support, brief the program status. This should include a briefing on EASA decisions already made, such as the composition of certification team and commitments to certification schedule and specific milestones.

(3) Validation schedule. The applicant briefs a validation program schedule. The presentation should allow for open discussions between FAA and EASA on resource requirements and risks. The briefing should offer enough information for us to establish the appropriate technical disciplines, the team's size, and develop guidance for them. The FAA project manager, EASA PCM, and applicant project manager set up the initial validation schedule during the general familiarization meeting. Our standards staff needs to make sure that management is both aware and involved with our approval of the timelines and associated resource requirements.

(4) Validation Item discussion. The FAA will discuss applicable VIs. We will give the applicant and EASA the current generic VI list for the type of product under review, but need not provide the associated informational issue papers. If they're available, we should show the applicant and EASA how to find the full text of each generic VI. We must make it clear that the generic VIs will be reviewed in greater detail for project applicability during the technical familiarization phase of the project.

(5) Standards Differences List discussion. If available, we'll also provide copies of the standards differences lists. The lists will be discussed further during phase II--technical familiarization.

(6) Action Items and meeting minutes. Early in the meeting, attendees should decide who among them will keep meeting minutes and compile a separate set of action items. Regardless who prepares the minutes, FAA and EASA team attendees should agree to their content. The minutes-taker should send copies to the FAA project manager and EASA PCM.

b. Meeting Attendees. The applicant, EASA PCM, and FAA project manager, and possibly the FAA standards staff manager and project officer, attend the meeting. FAA and EASA technical specialists do not, as a rule, attend. Detailed technical information will not be presented since the objective is for the applicant to provide only a broad overview of the project. However, the applicant should bring the people qualified to make the presentations, and agree to a validation schedule.

c. Exceptions to conducting a General Familiarization Meeting. Participants may want to waive the general familiarization meeting. This is acceptable only if:

(1) The project is well understood by the FAA, and phase I objectives are met by other means (correspondence, teleconference**,** and direct discussion), and

(2) EASA and applicant are experienced in this type of project, and their capabilities are well known to us.

> **NOTE:** Before deciding to forego a general familiarization meeting, we must carefully consider the goals of this phase of the project. Specifically, we must ensure that the correct validation team is assembled for the technical familiarization meetings. We could waste time if the correct FAA team members are not at the technical familiarization meetings. Conversely, we'll waste staff hours if an unneeded specialist attends a technical familiarization meeting. The project manager must have a good understanding of the overall project schedule and key milestones, and agree to those schedule milestones, before the technical familiarization phase begins.

c. FAA Project Manager's Responsibilities during Phase I. After completing the general familiarization meeting, the FAA project manager will:

(1) Determine the size of our validation team and the technical disciplines needed. Consider the schedule agreed to during the general familiarization meeting when selecting team members. Submit a list of validation team members to the EASA; and

(2) Prepare the FAA technical team for the technical familiarization phase. The project manager will brief the validation team on the results of the general familiarization meeting. This preparation will also include refresher training on the type validation principles. How much preparation the team will need is up to the validation project manager. In addition to

the project's significance, the manager should also consider the validation team members' experience with validation projects and type validation principles.

> **NOTE:** We can include the EASA certification team in FAA team validation refresher training. This will give the EASA team a useful perspective on our team, and we'll have a valuable opportunity to familiarize ourselves with EASA procedures. The FAA project manager should coordinate this training with the EASA PCM.

344. PHASE II: TECHNICAL FAMILIARIZATION. The main purpose of technical familiarization is to acquaint FAA technical specialists in each functional area with the design features of the product and the applicant's approach to compliance with the requirements. The applicant presents the technical definition of the project and the associated compliance methodology. A collateral benefit is for EASA technical specialists and us to develop a strong working and communication relationship. A trusting relationship is critical for an efficient validation process.

a. General. Phase II has three components. Although each has specific deliverables, the components are linked and worked simultaneously. The components are:

(1) Applicant, EASA, and FAA conduct technical familiarization meetings (see paragraph **345**),

(2) FAA establishes our VA certification basis (see paragraph **346**), and

(3) FAA defines the VIs (see paragraphs **347, 348, 349**, and **350**).

b. Objective. Phase II objectives are to:

(1) Familiarize the FAA technical team with the design and associated compliance methodology for the project,

(2) Establish an initial VA certification basis,

(3) Identify initial VIs, and

(4) Establish strong communications between the FAA, EASA, and applicant's technical specialists.

c. Initiation. Phase II begins with the scheduling of a technical familiarization meeting (or meetings), unless the product is a derivative and we determine that changes from previously validated designs don't warrant the meeting.

d. Completion. Phase II ends when we at the FAA establish the initial VA certification basis and identify the initial VIs.

(1) We will release a G-1 issue paper defining our initial certification basis. We will also release issue papers that define our initial VIs. The issue papers will state the issue and our position only. The applicant and EASA team respond to the issue papers during phase III.

(2) We define the initial VIs based on the applicant's description of the design. Additional VIs may be identified during phases III and IV if there's a change to the design, intended use of the product, assumptions used for certification, or compliance methodology.

(3) We must manage the VI issue papers to ensure they're are all released by the phase II completion date. However, significant design changes may extend the technical familiarization phase of the program. These changes must be reflected in the program schedule. The FAA, EASA, and applicant must review the impact of these design changes on the phase II completion date and on the overall program schedule.

e. Communication. Effective communication between FAA, EASA, and applicant is vital to a successful validation program. Initiating and maintaining strong open communication are responsibilities of all three participants.

(1) FAA Responsibilities. Our FAA team members must promote a collaborative relationship with EASA counterparts.

(a) The FAA team will primarily work through EASA. Communications between the applicant and us should include the EASA team. On rare occasions when EASA cannot be involved, we will provide details of communication with the applicant to the EASA team.

(b) FAA familiarization meetings with the applicant must include EASA representation.

(2) Formal Confirmation Procedure. During familiarization, the VA will often ask for clarifying information from the applicant. Feedback from the VA to CA and applicant is necessary to make sure the explanations are clear and adequate. The FAA, EASA, and industry agreed to implement a confirmation process, detailed in paragraph **322b**. The FAA validation team will adhere to this procedure during technical familiarization.

f. FAA Project Manager's Responsibilities during Phase II. The FAA project manager's responsibilities are to:

(1) Participate in the mandatory, regularly scheduled telephone conferences with the EASA PCM and the applicant's program manager.

(2) Consider changes to the validation team based on discussions of technical and certification issues. Submit an updated list of validation team members to the EASA when changes occur.

g. FAA Technical Specialist Responsibilities during Phase II. FAA technical specialist responsibilities are:

(1) Manage the technical familiarization in their technical responsibility. The FAA specialist will work with EASA and applicant to determine if a technical familiarization briefing is needed for that specialty. This decision should take into account the specific goals of phase II, as well as the general goals of validation.

(2) Identify VI and prepare the associated issue papers. The generic VI list should always be reviewed for applicability to the project.

(3) Be aware that 14 CFR and CS/JAR standards and MOC differences may result in VIs.

(4) Work closely with counterpart EASA specialist to identify the certification issues. Consider each identified issue to determine if a VI is needed. In most cases the EASA team will be given the responsibility to resolve the identified issues. VIs will only be raised when the identified issues meet the criteria outlined in paragraph **305**.

(5) Support the FAA/EASA communications objectives and confirmation procedures outlined in paragraph **322**.

(6) We also encourage FAA technical specialists to seek advice from the standards staff when considering new exemptions, special conditions, and equivalent level of safety findings applicable to the VA certification basis.

(7) Remembering our continued operational safety responsibilities, communicate and understand all of the product's critical aspects, not just those associated with validation items (paragraph **319**).

h. Familiarization Flights. We may conduct familiarization flights if an aircraft is available. This may happen during phase II of a sequential validation program. In a concurrent validation program, an aircraft is typically not available until phase IV. See paragraph **353f** for the objectives of familiarization flights.

345. APPLICANT, EASA, AND FAA CONDUCT TECHNICAL FAMILIARIZATION MEETINGS. During technical familiarization meetings, we gain an understanding of the applicant's design and general compliance methodology. The goal is to get enough information to identify VIs (and develop the associated issue papers) and develop the VA certification basis. It's essential to gain a broad technical familiarization early in all validation projects. This task typically involves our entire FAA validation team.

a. FAA technical familiarizations meetings with the applicant must include EASA representation.

b. Technical Familiarization Meetings. The number of meetings will be driven by the complexity and uniqueness of the project.

(1) Meeting Agenda. A typical agenda includes:

(a) Product design and technical features. The briefing should permit us to fully understand the product design and any unique or novel design features. The applicant and EASA should brief the details when: the product has novel design features, novel applications of existing technology, or its use is unconventional, the product contains design features where experience has shown an unsafe condition might occur, new standards interpretations or MOC for the existing standards are proposed, and the product has design features identified on the FAA generic VI list. The briefing involves the FAA as early as possible in discussions about higher risk aspects of a program. It also allows early definition of our position, and promotes collaboration between EASA and us on developing new special conditions or MOC.

(b) Maturity of the design. The objectives of phase II can't be satisfied until a substantially complete design is available for review. The applicant must notify the authorities of design areas not fully defined. If this is the case, more meetings will be required.

(c) Proposed MOC. The applicant and EASA describe the proposed MOC (paragraph **310**), focusing on general methodology rather than specific test plans and details of analysis. There should be enough information to allow the FAA validation team to understand the general principle of the MOC used or to be used. Deep discussion of MOC (including those for SSDs) should be conducted in phase III. We should not require further discussion of MOC used and accepted by both the FAA and EASA for harmonized standards and non-SSD. The applicant presents detailed information on the MOC to establish compliance with airworthiness standards related to the design and technical features, such as basic loads or fatigue, judged significant by the EASA. In a sequential validation project, EASA will already have a position on the MOC, and discuss it at the meeting. In a concurrent validation program, the authorities will review the applicant's proposals together.

> **NOTE:** The FAA technical specialists must be particularly aware of design features that may require development of new MOC. In these cases, early FAA involvement is essential to jointly develop acceptable MOC with EASA and to maximize compliance with our airworthiness standards.

(d) EASA or JAA Certification Basis. For sequential certification/validation projects, EASA/JAA should identify their certification basis and give an overview of significant compliance findings established during its certification program. For concurrent certification/validation projects, the EASA or JAA provide an overview of the certification basis as defined.

(e) Compliance Determinations to the EASA Certification Basis. EASA describes any compliance determinations already made to their certification basis. This applies more to sequential than to concurrent validation programs.

(f) Exemptions, and Special Conditions, and Equivalent Level of Safety Findings. In a sequential validation program, EASA briefs the background, history, rationale, and methodology for exemptions, special conditions, and equivalent level of safety findings granted. In a concurrent validation program, the applicant briefs the FAA and EASA on requested exemptions, special conditions, and equivalent level of safety proposals.

(g) Project Schedule. The applicant briefs EASA and us on key milestones in the design development.

(2) Meeting Attendees. The applicant, EASA, and FAA technical specialists attend these meetings. FAA attendees include engineering technical specialists, flight test pilot, and AEG representatives, as needed. The applicant program manager, EASA PCM, EASA certification/regulatory staff, and the FAA project manager may also attend.

(3) Meeting Documentation. Early in the meeting, attendees should decide who among them will keep and distribute meeting minutes. Regardless who prepares the minutes, FAA and EASA team attendees should agree to their content. The minutes-taker should send copies to the FAA project manager and EASA PCM.

> **NOTE:** The applicant should provide all technical material to the authorities before the meeting. We recommend at least two weeks in advance.

c. FAA Project Manager's Responsibilities during the Technical Familiarization Meetings.

(1) Attend technical familiarization meetings to promote communication between FAA team members and EASA counterparts. Project managers can delegate this to senior specialists, as appropriate.

(2) Ensure that all the appropriate technical specialties are represented, and avoid meeting duplication.

(3) Ensure that meeting minutes and action items are recorded and accepted. Make sure that it's clear who will record and distribute the minutes and action items. Pay attention to who accepts the minutes for EASA, the applicant, and us. It's particularly important that the distribution of action items in the minutes is clearly defined.

(4) Ensure that action items developed in the meetings are addressed under the confirmation procedures in paragraph **322b**.

d. FAA Technical Specialist Responsibilities during the Technical Familiarization Meetings.

(1) Work with EASA and applicant to develop a meeting agenda. The technical specialist must notify the FAA program manager of all cross-functional areas. It makes good sense for technical specialists from different disciplines to participate jointly in technical familiarization meetings, since modern aircraft, engine and propeller designs are highly integrated.

(2) Ask clarifying questions to understand the design and proposed methods of compliance. Our goal is to identify VIs and develop our FAA initial position in the associated issue papers. The VIs will be resolved in phase III.

(3) Discharge project manager responsibilities for a technical familiarization meeting when delegated.

346. FAA ESTABLISHES CERTIFICATION AND VALIDATION AUTHORITY CERTIFICATION BASES. Our responsibilities during the development of the bases are:

a. Define the FAA Certification Basis. The FAA project manager, supported by the validation team, establishes the certification basis for the product per FAA Order 8110.4, Type Certification.

(1) The project manager should also consult the applicable BASA IPA, since some BASA IPAs define the date and process for determining a certification basis.

(2) As paragraph **304d** indicates, operational requirements may prescribe equipment requirements affecting aircraft, engine, or propeller design. The validation team should identify these requirements early in the program. Coordination with the appropriate FAA flight standards Aircraft Evaluation Group (AEG) is required. Flight standardization board (FSB) for pilot type rating and training requirements, flight operations evaluation board (FOEB) for master minimum equipment list (MMEL), and maintenance review board (MRB) activities are covered in FAA Orders 8110.4, 8300.10, and 8400.10.

(3) The FAA certification basis is developed in a G-1 issue paper, according to established directorate procedures.

b. Review the EASA Certification Basis. While we develop our certification basis, EASA establishes theirs, including CS standards, JAR regulations and their change/amendment levels. We review the EASA/JAA certification basis and compare it to ours. We also review exemptions, special conditions, and equivalent level of safety findings proposed or granted by EASA to determine if similar FAA actions are required. If we need to, the validation team consults the appropriate standards staff.

c. Define the VA Certification Basis for the Product. Having defined our certification basis and reviewed the EASA certification basis, the FAA validation team defines the VA certification basis for the product.

(1) As paragraph **304** indicates, the VA certification basis is the EASA certification basis plus any additional standards the FAA determines necessary to provide a level of safety equivalent to the level established by its certification basis. These additional standards include all SSD and non-SSD identified by us, plus any exemptions and special conditions we issued.

(2) The FAA validation team will define the VA certification basis in the G-1 issue paper. The team develops, coordinates, and gains approval for the issue paper following directorate issue paper procedures.

d. The steps listed above in paragraphs **346a, b**, and **c** may occur more than once during a validation program. Developing both the FAA and EASA certification bases are frequently iterative processes between each authority and the applicant. This is especially true for derivative products, where both FAA and EASA/JAA regulations permit reversions to

amendment levels that pre-date the date of application for the change. The FAA and EASA/JAA certification bases and the FAA VA certification basis may evolve during a project.

e. The FAA validation team will work closely with EASA and applicant during the technical familiarization phase to establish its certification basis when there is no precedent. This occurs for new technology, a novel application of existing technology or MOC, a novel MOC, or when product use is unconventional.

347. FAA DEFINES THE VIs. We divide validation items into three categories: generic VIs, project VIs, and SSD. FAA validation team, project manager, and standards staff general responsibilities concerning VIs are defined in this paragraph. Specific responsibilities for each VI category are in paragraphs **348, 349,** and **350**.

a. FAA Validation Team Responsibilities when Defining VIs. The FAA validation team's general responsibilities for VIs are to:

(1) Identify the VIs relevant to the project.

(a) Validation items must be identified as early in the validation process as possible.

(b) When there is no precedent, the FAA validation team will work closely with EASA and applicant to establish the VI and develop common FAA/EASA understanding of the issues in the VI. EASA involvement will put them in a better position to ultimately accept associated compliance determination delegations.

(2) Develop issue papers defining the VIs. The FAA validation team will develop issue papers to define each generic VI, project VI, and SSD.

(a) The FAA validation team will prepare issue papers on VIs for many of the same reasons that they prepare them for domestic certification programs (per FAA Order 8110.4). The main difference is that issue papers are used in validation programs primarily to identify FAA standards or MOC distinct from EASA.

(b) The FAA validation team should not unnecessarily duplicate EASA work. We shouldn't write issue papers as matters of record or to compile a complete set of FAA documents matching the generic issue papers, when this duplicates other EASA materials. When FAA and EASA positions are equivalent, we may accept the EASA CRI instead of an FAA issue paper (see paragraph **203b** for further details).

(c) The FAA validation team reviews all EASA special conditions, exemptions, and equivalent level of safety CRIs. The validation team consults with the accountable directorate standards staff to determine if we need to issue similar special conditions, exemptions, and equivalent level of safety findings. If so, we must process our own issue papers.

(3) Coordinate the VI Issue Papers in Accordance with Directorate Procedures. At this phase, issue papers state the issue and our position. The applicant and EASA will respond in phase III.

b. FAA Project Manager Responsibilities when defining VIs. The FAA project manager oversees issue paper development and coordination. The project manager will also ensure that the program schedule is maintained. Specific project manager responsibilities are defined in the following paragraphs.

(1) Ensure that proposed VIs are required. The FAA project manager will review each proposed VI and determine that it meets the criteria in paragraphs **348** and **349**.

(2) Coordinate VI Issue Papers using Directorate Procedures. The FAA project manager will coordinate all VI issue papers with the appropriate standards staff using directorate issue paper coordination procedures. Issue papers affecting maintenance and operation will also require coordination with the appropriate flight standards AEG.

(3) Give copies of issue papers to EASA PCM and Applicant. The FAA project manager sends all VI issue papers to the EASA PCM and applicant. EASA and applicant respond during phase III.

c. FAA Standards Staff Responsibilities. The standards staff will review and approve all issue papers the validation team submits, following directorate issue paper coordination processes. The staff will ensure that the team properly applied generic and project VI selection criteria.

348. FAA IDENTIFIES APPLICABLE GENERIC VIs. The FAA validation team is responsible for identifying the generic VI. Specific validation team responsibilities toward generic VI are to:

a. Identify applicable generic VI. Using the generic VI list and issue papers referenced in it, the team will identify applicable generic VI as they become familiar with the product and the applicant's proposed MOC.

b. Define the generic VI in an issue paper. When applicable, the FAA validation team will adapt the issue papers referred to in the generic VI list to reflect project details. Since many commonly applied FAA issue papers were developed for certification projects, they are not worded appropriately for use in a validation project. We must, therefore, modify these issue papers to focus on the differences in 14 CFR and CS/JAR standards and MOC.

c. Identify any additional generic VI. Generic VI are not limited to items on the generic VI list assembled by the standards staff. Using the same criteria in paragraph **306**, the FAA team may identify generic VI while conducting the validation program. We don't expect to identify many generic VI this way, however.

349. FAA IDENTIFIES PROJECT VIs. The FAA validation team is also responsible for identifying the project VI. The team will apply the seven criteria in paragraph **307** to define them. The team will identify applicable project VI as they become familiar with the aircraft and the applicant's proposed MOC.

> **NOTE:** Although generic and project VI are distinguished in these procedures, the team handles them the same way in the validation

process. For example, there is no need to distinguish between generic and project VI when presenting VIs to EASA and applicant. We should, however be ready to justify a VI according to the guidelines in the type validation principles and this order.

350. FAA IDENTIFIES APPLICABLE SSD AND NON-SSD. The FAA validation team is responsible for identifying the SSD and non-SSD for the project, since compliance statements are required for all differences in airworthiness standards. The difference list developed by the standards staff in accordance with paragraph **333** is the only document generally necessary for this purpose. Under normal circumstances, only the SSDs may become validation items.

a. Identified SSD and non-SSD will, when combined with the EASA certification basis and any FAA exemptions and special conditions, encompass the regulatory basis that the applicant must comply with in the validation program. Therefore it's important to complete this task early in a project.

b. FAA Validation Team Responsibilities - Projects *With* Defined Standards Differences Lists. The FAA validation team's responsibilities for identifying applicable SSD and non-SSD are to:

(1) Identify the 14 CFR and CS/JAR Amendment Pair. The FAA validation team must identify the 14 CFR and CS/JAR amendment pair applying to the project. The FAA certification basis will define the amendment level of 14 CFR used to validate the product. The JAR amendment level is defined in the JAA certification basis. The CS amendment level is defined in the EASA certification basis.

> **NOTE:** The airworthiness standards referred to in a certification basis may be at different amendment levels. Some airworthiness standards in the certification basis of a derivative product may be at later amendment levels than other standards because of negotiations that occurred during the derivatives' certification. Plus, the applicant for both new and derivative products may choose to voluntarily comply with later amendments.

(2) Identify the appropriate Standards Differences Lists. The FAA validation team will review the existing standards differences lists published by the standards staff to identify the lists appropriate for the product being validated. For example, an application for a new type certificate is subject to the airworthiness standards in effect on the date of application. The standards difference list developed for the latest amendment pair would, therefore, apply in this case. A standards difference list developed for an earlier 14 CFR and CS/JAR amendment pair may be appropriate for the validation of a derivative aircraft, engine, or propeller.

(3) Record Applicable SSD and Non-SSD in an Issue Paper. The FAA validation team will record the applicable SSDs and non-SSDs for the project in an issue paper. Although an SSD or non-SSD may not apply to a particular product, it's still included in the VA certification basis. For example, an SSD on ditching airworthiness standards doesn't apply when validating an aircraft not approved for ditching. In this case, any ditching standards SSDs would

not be included in the SSD/non-SSD issue paper, but would be included in the VA certification basis issue paper.

(4) Coordinate Applicable SSD and Non-SSD Issue Paper with the Standards Staff. As they coordinate all VI issue papers, the team coordinates the applicable SSD and non-SSD issue paper with the standards staff using directorate procedures. This allows for EASA and applicant comment.

> **NOTE:** The tasks listed above may occur more than once during a validation program since the developments of both FAA and EASA certification bases are often iterative. Each change to a certification basis by EASA or us will require reassessment of the applicable SSD and non-SSD.

c. Projects *Without* Defined Standards Differences Lists. As paragraph **333** indicates, standard staffs will develop standards differences lists each time a new 14 CFR, or CS/JAR amendment is issued. These new lists will define the standards differences for that 14 CFR and CS/JAR amendment pair. These lists will not address all 14 CFR and CS/JAR amendment pairs, however. There will be projects that involve 14 CFR and CS/JAR amendment pairs for which no standards differences lists were developed—such as 14 CFR and JAR amendment pairs that predate the type validation principles.

(1) The FAA validation team and directorate standards staff have additional responsibilities when there is no standards difference list. The validation team, working with the directorate standards staff, will define a standards differences list for the amendment pairs that comprise the certification basis and VA certification bases of the product. The validation team's additional responsibilities are defined in paragraph **350d**, below.

(2) The directorate standards staff helps the team develop the standards differences list. They will also review and approve the list the team proposes. The directorate standards staff's responsibilities are defined in paragraph **350e** and **f.**

d. Added FAA Validation Team Responsibilities - Projects *Without* Defined Standards Differences Lists. The FAA validation team is responsible for developing the standards differences lists when no list was developed for a 14 CFR and CS/JAR amendment pair used on their project. In these cases, the validation team will:

(1) Identify the standards differences lists closest to the products' amendment pair or pairs. The team must start by referring to the standards differences lists corresponding to the amendment-pair of airworthiness standards closest to those defined in the product's EASA and FAA certification bases. Beginning with this standards differences list, the team will repeat steps (2) and (3) for each intervening 14 CFR and CS/JAR amendment pair. The team need only consider those airworthiness standards affected by the intervening amendments.

(2) Identify and compile the standards differences. The FAA validation team compares each 14 CFR standard with its CS/JAR counterpart and identifies all differences. We determine standards differences by directly comparing the language found in 14 CFR or CS/JAR only. In making these determinations, we compare each individual 14 CFR standard to the entire

set of CS/JAR standards to determine if the minimum 14 CFR standards will be satisfied by the CS/JAR standards in total. Due to organizational differences, 14 CFR standards are, in some cases, addressed in several locations in the CS/JAR.

(3) Identify the 14 CFR standards that are more stringent than the CS. A standard is more stringent when compliance with the CS would not demonstrate compliance with 14 CFR.

(4) Classify the Difference as an SSD or a Non-SSD. The FAA validation team must determine if the standards differences are substantive, and if the substantive differences could result in type design changes to meet 14 CFR standards. This determines if an SSD or a non-SSD exists. The validation team will review all interpretive material associated with the standards differences they identified. The team can use this review to mitigate the standards differences when EASA and we have agreed to a common MOC.

> **NOTE:** This work involves tasks normally executed by a standards staff. The FAA validation team must work closely with the standards staff in performing these tasks. See paragraph **350e** for further definition of the standards staff support role.

(5) Submit the Proposed Standards Differences Lists to the Standards Staff for Review and Approval. The FAA validation team will send the standards differences lists they developed for this amendment pair to the standards staff for review and approval. Standards staff review and approval is required, because the standards difference list developed for this project will be used on all future FAA validation projects using this 14 CFR and CS/JAR amendment pair.

> **NOTE:** The validation team will use the standards difference list to define the applicable SSD and non-SSD following the list's approval by the standards staff. See paragraphs **350b(3), (4)**, and **(5)** for details. The project should not be delayed pending EASA/JAA approval of the standards differences lists.

e. Added FAA Standards Staff Responsibilities - Projects *Without* Defined Standards Differences Lists. The standards staff has a unique responsibility for harmonizing activities with EASA. They therefore are the most familiar with the current and historic standards differences. The standards staff must be available to review the FAA validation team's proposed standards differences list. The standards staff will:

(1) Advise the FAA validation team on how to define standards differences for amendment pairs not covered by existing standards differences lists.

(2) Review and approve the validation team's standards differences lists for the amendment-pair using issue papers.

(3) Retain and publish the approved standards difference list. Once approved, the standards differences list is used on all future EASA projects validated to this amendment pair.

The standards staff will, therefore, keep a copy of the approved list and post it on the directorate's certification website.

f. Added FAA Standards Staff Management Responsibilities - Projects *Without* Defined Standards Differences Lists. Standards staff management responsibilities in these cases are to:

(1) Ensure that they commit appropriate standards staff support to this activity. Also, standards staff management must ensure support of validation project milestones.

(2) Submit the approved differences lists to EASA regulation and certification directors for their approval. Approval of EASA regulation and certification directors is required because, once defined, these standards differences lists will be used for all future EASA projects validated to this amendment-pair.

351. PHASE III: DETERMINING FAA INVOLVEMENT.

a. General. This phase of the program has one major component: the FAA determines its level of involvement for the VIs. The procedures the validation team and directorate standards staff should use are given in paragraph **352**.

b. Objective. The objective of this phase is to specifically identify which compliance determinations we assign to the EASA team, and which we retain.

c. Initiation. This phase begins once the initial certification basis and VIs have been identified. This could begin at the first technical meeting following phase II. We encourage team members to start this work as soon as possible.

d. Completion. Phase III ends when all of the following items are completed:

(1) FAA has established the final VIs for the project,

(2) FAA issues a document or documents that identify who---EASA or we---makes compliance determinations with the airworthiness standards identified in the VIs,

(3) FAA issues an issue paper (or an addition to the closure document) that identifies and justifies any information we request to gain product familiarity (see paragraph **319**), and

(4) All have agreed to the validation timelines.

> **NOTE:** Design/MOC changes may occur during phase IV, yielding new VIs. This doesn't require a return to phase III.

e. Communication: Formal Confirmation Procedure. While determining their involvement, the VA may ask for clarifying information from the applicant. Feedback from the VA to CA and applicant is necessary to make sure that answers and explanations are clear and adequate. EASA, industry, and we have agreed to implement a confirmation procedure, detailed in paragraph **322b**. The validation team will adhere to this procedure during this phase.

352. FAA DETERMINES LEVEL OF INVOLVEMENT FOR THE VIs. Once the VIs are identified, we must determine which VI (that is, which generic VIs, project VIs and SSDs) to keep or assign to the EASA team. Remember that FAA/EASA or FAA/JAA agreement on a certification standard is not required for us to assign a compliance determination. The FAA is responsible for instructing the CA on acceptable MOC. The CA should ask for help from us if guidance is incomplete or unclear. We are expected to continue relying on the CA for similar compliance determinations in future programs, once the CA successfully showed that they could find compliance to the FAA standard. Therefore, both the validation team and standards staff have roles in determining which compliance determinations are assigned to EASA. Both must remember that the goal is to maximize assigning to the EASA team. Specific validation team and standards staff responsibilities follow.

a. FAA Validation Team Responsibilities.

(1) The validation team reviews the applicant and EASA position for each issue paper. Based on these position statements, which may be supplemented through additional coordination (discussed in paragraph **351f(1)**), the validation team recommends retaining or assigning the compliance determination for each VI. The FAA validation team documents their recommendation to assign or retain a VI in the end of each VI issue paper. The issue paper conclusion will also document the justification for retaining the compliance determination, according to the type validation principles. Justification normally falls into the following general areas:

(a) New or novel features,

(b) New FAA airworthiness standards, where judgment is required in their initial application,

(c) Sensitive issues (usually associated with an accident or incident on a product with similar design features), and

(d) New MOC or novel applications of existing MOC.

(2) Based on information gathered during phase II, technical familiarization, and phase III, determining VA involvement, the validation team may identify certification/compliance activities that they want to follow during phase IV, compliance determination. The team must justify their requests, making it clear that access to the requested information will affect their ability to discharge continued airworthiness responsibilities. (See paragraph **319.**)

b. FAA Project Manager Responsibilities. The FAA project manager has the following responsibilities:

(1) Coordinate completion and closure of all VI issue papers. In phase II, the issue papers are released with a statement of issue and FAA position. During phase III, applicant and CA will add their formal positions to each issue paper. Based on their responses, supplemented by additional discussions, meetings (if needed) and correspondence with the EASA team and applicant, we will decide how to dispose of the issue paper and assign any associated compliance

determinations. We document these decisions in the conclusion of each issue paper. Coordinate all of these activities to support each issue paper's conclusion and closure.

(2) Review the validation team's requests (and accompanying justifications) for product familiarity information, to ensure they are consistent with TVP intent (see paragraph **319**). Document these areas and justify requests in issue papers or in the phase III closure document.

(3) Issue a closure document summarizing retained and assigned VI, once all the VI issue papers are closed. Send that document to the FAA standards staff for review and approval.

(4) Work with EASA PCM and applicant project manager to set-up final validation schedule.

(5) Participates in mandatory, regularly scheduled telephone conferences with the EASA PCM and applicant's program manager.

c. FAA Standards Staff Responsibilities. FAA standards staff responsibilities in assigning VIs are to:

(1) Record what Determinations are Assigned. The standards staff monitors which compliance determinations we assigned and retain. Once EASA has successfully shown that they can make a compliance determination to our standard, we should continue assigning similar compliance determinations on future programs. By tracking the compliance determinations assigned to EASA, the FAA standards staff ensures consistent future VI assignments.

(2) Review the VI Issue Papers. The standards staff will review VI issue papers prepared by the validation team to ensure they properly justify retaining FAA involvement in a VI.

d. FAA Standards Staff Management Responsibilities. Standards staff management makes the final decision on VIs assigned to EASA and which we retain. Assignment can occur at different times for each technical discipline involved in the project. The FAA standards staff management also makes the final decision on our requests for access to information to enhance our product familiarity (see paragraph **319**).

353. PHASE IV: COMPLIANCE DETERMINATIONS.

a. General. There are four components to this phase of a validation project:

(1) EASA makes compliance determinations for assigned VIs and non-SSD (see paragraph **354**).

(2) FAA makes compliance determinations for retained VIs (see paragraph **355**).

(3) EASA issues statement of compliance to the FAA certification basis (see paragraph **356**).

(4) FAA issues a type certificate (see paragraph **357**).

b. Objective. In this phase, we complete the familiarization flights and compliance determinations on time, and on schedule.

c. Initiation. Begins with the issuance of the document or documents establishing the compliance determination responsibility for the VIs.

d. Completion. Ends with FAA issuing a type certificate.

e. FAA Project Manager's Responsibilities.

(1) Oversee the validation team progress,

(2) Join the mandatory, regularly scheduled telephone conferences with the EASA PCM and the applicant's program manager. Conferences may increase as the project nears its close, to accommodate the increased activity at the completion of a major project.

> **NOTE:** To support our continued airworthiness responsibilities (paragraph **319**), the project manager should ask the EASA PCM if they have concerns with any compliance findings. For example, were there discrepancies in showing compliance, or areas where compliance was demonstrated but with narrow margins of safety? The project manager must emphasize that we ask this information for continued airworthiness purposes, not to scrutinize compliance findings.

f. FAA Flight Test Pilot and Engineer Responsibilities. FAA familiarization flights will occur during this phase for concurrent validation programs. We conduct them concurrently with the EASA flight team. Familiarization flights will:

(1) Identify any potential compliance issues to the EASA team and applicant for resolution. Our goal is to cooperate with the EASA team.

(2) Familiarize us with the type design to support continued operational safety of the U.S.-registered fleet.

(3) Familiarize us with the type design and operation of the aircraft to support operational introduction of the aircraft in the United States. This normally involves FAA AEG pilots. They will need this introduction to support flight standardization board (FSB) development of crew training requirements, and flight operations evaluation board (FOEB) development of the U.S. master minimum equipment list (MMEL).

> **NOTE:** Familiarization flights are *not* certification flight tests. Certification flight tests will be performed by EASA. Our involvement in certification flight tests is only permitted when defined in a VI.

354. EASA MAKES COMPLIANCE DETERMINATIONS FOR ASSIGNED VIs AND NON-SSD. FAA responsibilities do not end once we assign a compliance determination to EASA. Once we decide to assign a compliance determination, we may be asked to support EASA team activities. It's the FAA validation team's responsibility to inform EASA on acceptable methods of compliance for each VI assigned to EASA. Our team will send all FAA publications and documents that affect making compliance determinations for the assigned items. The team must forward these documents in time to support the project schedule that EASA, the applicant, and we negotiated.

355. FAA MAKES COMPLIANCE DETERMINATIONS FOR RETAINED VIs.

a. Validation Team Responsibilities. The FAA validation team will:

(1) Review the applicant's data and make determinations of compliance for the VIs we retain.

(2) Keep EASA informed of progress and results of FAA compliance determinations. Sharing this information promotes smooth future assignment of similar compliance determinations. If we keep EASA aware of our compliance activities, it's possible we could assign those activities in the future.

b. FAA Project Manager Responsibilities. The FAA project manager's responsibilities are:

(1) Tracking the progress of each retained VI through the development of appropriate milestones, to ensure that any effect on the validation program schedule is visible. We must set up clear milestones for completing retained compliance determinations as early as possible in the program to make sure we never lose sight of them. The retained compliance determinations must be made in time to support the agreed schedule.

(2) Sending a letter or other document to the EASA PCM when the validation team completes the compliance determinations for all retained VIs. This letter or document is official notice to EASA. Here is a suggested form for this statement:

> The FAA retained the following compliance determinations for the {product name}, as specified in FAA letter {letter reference}:
>
> {list the retained items}
>
> The FAA has satisfactorily completed their review and acceptance of all required compliance documents for these items. We determined that the retained items are in compliance with the FAA certification basis.

356. EASA ISSUES STATEMENT OF COMPLIANCE TO THE FAA CERTIFICATION BASIS. EASA will certify that the product complies with our certification basis and issue a compliance statement to us at the end of the program. This is only after the EASA team has completed the compliance determinations for all assigned VIs and non-SSD, and

we complete the compliance determinations for all retained VIs. The form of this certification basis compliance statement is as follows:

> *With the determinations of compliance made by FAA and summarized in [letter or document] dated [date], the EASA certifies that the [product descriptor] complies with the FAA certification basis as identified in issue paper G-1, issue [issue no.], dated [date].*

357. FAA ISSUES A TYPE CERTIFICATE. The FAA may issue a type certificate for the imported aircraft, engine, or propeller upon receipt of the EASA statement of compliance to our certification basis.

358. RESPONSIBILITIES WHEN THE FAA IS THE VA. Figure **3-2** below summarizes the key components of each of the four phases of the program. It indicates FAA PM, standards staff and specialist involvement in each component. It also shows EASA and applicant involvement. **Bold check marks** indicate primary responsibility.

FIGURE 3-2. RESPONSIBILITIES WHEN FAA IS VA

Type Validation Program Phases	FAA PM	Standards Staff	FAA Specialist	Applicant	EASA PCM
Phase I: General Familiarization					
FAA receives application through EASA	✓			✓	✓
Establish initial validation schedule	✓			✓	✓
Conduct/attend general familiarization meeting	✓			✓	✓
FAA establish validation team	✓				
FAA conducts TVP refresher training	✓		✓		
Phase II: Technical Familiarization					
Conduct/attend technical familiarization meetings	✓		✓	✓	✓
FAA establish certification and validation bases	✓	✓			✓
FAA defines VIs					
• Generic VI	✓		✓		
• Project VI	✓		✓		
• SSD and non-SSD	✓	✓	✓		
Identify areas where product familiarity will be necessary	✓		✓		
Phase III: Determining FAA Involvement					
FAA determines involvement for the VIs	✓		✓		
Conduct regularly-scheduled telecons	✓		✓	✓	✓

FIGURE 3-2. RESPONSIBILITIES WHEN FAA IS VA (CONTINUED)

Type Validation Program Phases	FAA PM	Standards Staff	FAA Specialist	Applicant	EASA PCM
Issue closure document identifying retained and assigned VIs	✓				
FAA identifies areas where product familiarity will be necessary	✓		✓		✓
Confirm schedule for program completion	✓			✓	✓
Phase IV: Compliance Determinations					
EASA makes compliance determinations for assigned VIs and non-SSDs					✓
FAA makes compliance determinations for retained VIs	✓	✓	✓	✓	
EASA issues statement of compliance to FAA VA certification basis				✓	✓
FAA issues type certificate	✓				

359. SUPPLEMENTAL TYPE CERTIFICATES. EASA will classify an STC per the criteria in paragraph **321**.

a. The FAA will review the application and classification. Acceptance of the application signifies our concurrence with the classification. If we don't concur with the classification, we make every effort to understand the rationale used by EASA. Many times additional information about the design change may resolve technical differences. When the disagreement cannot be resolved, we must follow the issue resolution process in paragraph **323.** STC validation programs, once classified, will proceed as follows:

b. Non-basic STCs may require FAA technical involvement. Validation procedures similar to paragraphs **340** through **356** shall be applied, but adjusted for the size and complexity of the design change. Based on our familiarity with the design change, the FAA may declare no technical involvement and issue the STC based solely on the certifying statement from EASA.

c. Basic STCs will not require any FAA technical involvement. We use the following process:

(1) The application will be made by the applicant through EASA and will include the following:

(a) Copy of the EASA STC,

(b) A description of the change, together with the make and model of the product,

(c) Requested date for issuance of the FAA STC,

(d) Declaration of the certification basis. Normally, the FAA certification basis is the same as that established for the product modified by the STC,

(e) Certifying statement from EASA that the change complies with the stated certification basis.

(f) Basic documentation as follows, as applicable:

1. Compliance checklist

2. AFM supplement

3. Master document/master drawing list

4. Manufacturing and installation instruction drawings

5. Maintenance/repair manual supplements

6. Weight and balance data

7. Instructions for continued airworthiness

(2) We will review the application for completeness and issue the FAA STC.

d. EASA submits significant revisions to approved manuals to us for review and acceptance for all STCs. For an individual certification project, EASA will consult with us when they decide which revisions are significant and which are not.

360.–369. RESERVED

SECTION 5. FAA AS THE CERTIFICATING AUTHORITY

370. GENERAL. In this section we describe the unique roles and responsibilities of FAA team members acting as certificating authority (CA) on validation programs in which EASA is the validating authority (VA). The roles and responsibilities defined here differ from those detailed in the previous section, which covered our duties if we serve as VA.

> **NOTE:** EASA is the VA for a product being imported to an EU member state as well to any non-EU JAA authority from the United States.

a. The FAA project manager and team members have a very important and significant responsibility when we serve as CA. In addition to our primary responsibility of determining compliance with the 14 CFR airworthiness standards, we are responsible for determining compliance to the CS standards. Although EASA will issue its own type certificate, they will do so based, in large part, on the compliance determinations that we made.

b. To fulfill our responsibilities, we on the FAA team must make every effort to develop a good working relationship with our EASA team counterparts. This responsibility rests not only with the project manager, but also with the individual technical specialists.

c. The EASA validation process very closely resembles our validation process, since the FAA and EASA apply the type validation principles and four phases to their validation programs. These phases and components are listed in figure **3-3**.

> **NOTE:** We're now presenting the validation process from the FAA as CA perspective. We add an additional component (Component 10, "Applicant declares compliance to EASA certification basis") for the same reason. Note also, that component 12 is unique to the JAA validation process.

FIGURE 3-3. CA FOUR-PHASE TYPE VALIDATION PROCESS

Type Validation Program Phases	EASA Validation Process Components
Phase I: General familiarization	1. FAA reviews application and forwards it to EASA. 2. Applicant, EASA, and FAA conduct general familiarization meeting.
Phase II: Technical familiarization	3. Applicant, EASA, and FAA conduct technical familiarization meetings. 4. EASA establishes certification and validation bases. 5. EASA defines VIs.
Phase III: Determining EASA involvement	6. EASA determines level of involvement for VIs.
Phase IV: Compliance determinations	7. FAA makes compliance determinations for assigned VIs and non-SSD. 8. EASA makes compliance determinations for retained VIs and notifies FAA. 9. FAA issues statement of compliance to EASA certification basis. 10. Applicant declares compliance to EASA certification basis. 11. EASA issues a type certificate for EU member states and sends report to non-EU JAA NAAs. 12. NAA issues type certificate.

d. The following paragraphs define the roles and responsibilities of FAA certification teams and FAA standards staffs for each phase and component of the process.

> **NOTE:** For the purposes of this document, "technical specialist" means a general specialist. We don't necessarily mean an *engineer*.

371. PHASE I: GENERAL FAMILIARIZATION.

a. General. There are two components to this phase:

(1) FAA reviews application and forwards it to EASA (see paragraph **372**), and

(2) Applicant, EASA, and FAA conduct general familiarization meeting (see paragraph **373**).

b. Objective. The applicant and FAA present an overview of the project to EASA. There are two objectives:

(1) To establish general timelines for the completion of the validation, and

(2) To familiarize EASA with the design to help them set up their validation team.

c. Initiation. This phase starts when EASA receives the type certification application from the FAA.

> **NOTE:** EASA should respond to requests to discuss issues before formal applications. The applicant should make these requests through us at the FAA.

d. Completion. This phase of the program ends when:

(1) EASA has set up their validation team,

(2) FAA, EASA, and applicant have established the initial schedule to complete the validation.

> **NOTE:** After phase I, the technical disciplines represented on a validation team may move through these phases at different speeds. There is no need for a technical discipline to delay their validation work because of the slower progress of another unrelated technical discipline.

372. FAA REVIEWS APPLICATION AND FORWARDS IT TO EASA.

An application by a U.S. manufacturer for a EASA type validation should be sent to us to review before we forward it EASA.

a. The FAA project manager will review the application to determine its compliance with the requirements in EASA implementing rule (IR) 21A.15 or JAR 21N15, and the applicable

bilateral agreement. The FAA project manager should make sure that the application contains as much of the following information as available at the time. (Much of this information will *not* be available at the time of application for concurrent EASA validation programs):

(1) The FAA type certificate and type certificate data sheet, if available,

(2) A definition of the airworthiness standards on which we based, or will base, our design approval,

(3) The amendment level of the EASA airworthiness standard that the applicant proposes and we believe to be equivalent to the FAA standards,

(4) Date of application to the FAA,

(5) A planning date for EASA type certification,

(6) A description of all novel or unusual design features known to the applicant or us that might make it necessary for EASA to issue special conditions under JAR 21N16 or IR 21A.16B, or that might require a special review of acceptable means of compliance,

(7) All known or expected exemptions or equivalent level of safety findings relating to our airworthiness standards for design approval that might affect compliance with the applicable EASA airworthiness standards,

(8) The name of the first European country that will receive delivery of the product (if known) and the delivery schedule, and

(9) A list of the NAAs the applicant wants to apply to for a type certificate (for non-EU states only).

b. The FAA project manager will forward the application to EASA after reviewing and revising it (if necessary).

373. APPLICANT, EASA, AND FAA CONDUCT THE GENERAL FAMILIARIZATION MEETING. The key element of this phase of the program is the general familiarization meeting. An effective general familiarization meeting maximizes the quality of follow-on meetings.

a. FAA Project Manager Responsibilities Before the General Familiarization Meeting.

(1) Coordinate the general familiarization meeting with EASA and applicant.

(2) Conduct a top-level review of EASA generic VI list, if available, with the applicant. The directorate standards staff should know about EASA generic VIs.

(3) Ensure that the applicant will supply enough information in the meeting to allow EASA to set up their validation team.

b. Meeting Agenda. We expect a general familiarization meeting to last no more than two days. The meeting agenda will include:

(1) Design overview. The applicant briefs an overview of the product design, emphasizing new or unusual design features. For derivative programs, applicants must clearly describe and emphasize the changed parts of the design.

(2) Status of program. We, supported by the applicant, review the current program status. The review should include a briefing of any decisions we already made, such as the composition of certification team, commitments to certification schedule, and specific milestones. It should provide sufficient information for EASA to establish the appropriate technical disciplines, size of the validation team, and guidance for the team.

(3) Validation schedule. The applicant will propose a validation program schedule. Their presentation should include open discussions with the FAA and EASA about resource requirements and risks. The briefing should offer enough information for EASA to establish the appropriate technical disciplines, the team's size, and develop guidance for them. The FAA project manager, EASA or JAA PCM, and applicant project manager set up the initial validation schedule during the general familiarization meeting. Our standards staff needs to make sure that management is both aware and involved with our approval of the timelines and associated resource requirements. We have to approve these things before going to phase II.

> **NOTE:** The FAA and some U.S. applicants have established mutually accepted certification milestones as a part of the certification process improvement (CPI) effort. The timetables negotiated under CPI may have to be adjusted to accommodate EASA in validation programs.

(4) Validation Item discussion. EASA will discuss applicable VIs. EASA will give the applicant and FAA a list of current generic VIs for the type of product under review. EASA will decide on the applicability of generic VIs during the technical familiarization phase.

(5) If available, EASA should also provide a copy of the standards differences lists defined in paragraph **333**. The lists will be discussed further during phase II, technical familiarization.

(6) Meeting Minutes And Action Items. The applicant or we will record meeting minutes, action items and decisions taken. They also compile them into a list. All three parties will review the action item list and meeting minutes to ensure that they agree on their contents.

c. Meeting Attendees. The applicant, EASA representative, the FAA project manager, (and possibly the FAA project officer, aircraft certification office or engine certification office manager) will attend the meeting. FAA and EASA technical specialists do not, as a rule, attend the general familiarization meeting because detailed technical information is not presented. However, the applicant should bring the people necessary to make the agenda presentations and to agree to a schedule.

d. Exceptions to a General Familiarization meeting. It's acceptable to skip the general familiarization meeting only if:

(1) EASA well understand the project, the phase I objectives are met by other means (correspondence, teleconference**,** and direct discussion), and

(2) The applicant and we are experienced in this type of project, and these capabilities are well known to EASA.

> **NOTE:** Before deciding to forego a general familiarization meeting, EASA and we must carefully consider the goals of this phase. Specifically, EASA must ensure that the correct validation team is assembled for the technical familiarization meetings. Time may be wasted if the right EASA team members are not at the technical familiarization meetings. Conversely, resources could be misused if a specialist goes to technical familiarization meetings they don't have to. Finally, EASA must have a good understanding of the overall project schedule and key milestones, and agree to those schedule milestones, before the technical familiarization phase begins.

e. FAA Project Manager Responsibilities After the General Familiarization Meeting. After the general familiarization meeting, the FAA project manager has to get the FAA technical team ready for the technical familiarization phase of the project. In addition to the significance of the project, the manager should consider the team members' experience with validation projects and type validation principles. The project manager should:

(1) Brief the team on the results of the general familiarization meeting, and

(2) Conduct refresher training on the type validation principles. (AIR-100 developed the refresher training material and distributed it to each directorate.)

> **NOTE:** The EASA PCM or a validation team member may attend the refresher training given to the FAA team. This will give us a good perspective on the EASA team, and also give our team members an opportunity to familiarize themselves with EASA procedures. The FAA project manager should coordinate this training with the EASA PCM.

374. PHASE II: TECHNICAL FAMILIARIZATION. Technical familiarization acquaints the EASA technical specialists in each functional area with the design features of the airplane and the applicant's approach to compliance with the applicable standards. A collateral benefit of familiarization is developing a working relationship and communication link between EASA technical specialists and us. A trusting relationship between authority specialists is critical for efficient validation.

a. General. There are three components to this phase. Although each component has specific deliverables, the components are linked together and work in parallel.

(1) Applicant, EASA, and FAA conduct technical familiarization meetings (see paragraph **375**),

(2) EASA establishes their certification basis and VA certification basis (see paragraph **376**), and

(3) EASA defines the VIs (see paragraph **377**).

b. Objective. The applicant briefs the technical definition of the project and associated compliance methodology to the EASA team. This phase's objectives are to:

(1) Familiarize the EASA technical team with the design and compliance methods for the project,

(2) Establish an initial VA certification basis,

(3) Identify the initial VIs,

(4) Set up communication between the FAA, EASA, and applicant's technical specialists, and

c. Initiation. Phase II begins with the scheduling of a technical familiarization meeting (or meetings), unless the product is a derivative and the VA determines that changes from previously validated designs don't warrant the meeting.

d. Completion. The phase ends when EASA has established the initial VA certification basis and initial VIs.

(1) EASA will release an A-1 CRI, defining their initial VA certification basis. They also release CRIs to define their initial VIs. Each CRI contains a statement of the issue and EASA position only. The applicant and FAA team will respond to the CRIs during phase III.

(2) The initial VIs are defined based on the applicant's description of the design. Additional VIs may be identified during phase III and IV if the design, intended use of the product, assumptions used for certification, or compliance methodologies change.

(3) EASA must manage the VI CRI to ensure that they are all released by the phase II completion date. However, significant design changes may extend the technical familiarization phase of the program. These changes must be reflected in the program schedule. The FAA, EASA, and applicant must review the impact of these design changes on the phase II completion date and on the overall program schedule.

e. Communication. Effective communication between FAA, EASA, and applicant is vital for a successful validation program. All participants share the responsibility for setting up and maintaining strong communications.

(1) FAA Responsibilities. We FAA team members must promote a collaborative relationship with our EASA counterparts.

(a) As inevitable changes to a design or compliance methodology happen during a program, the FAA team must communicate these changes to the EASA team to ensure common understanding of the standards.

(b) Team members should routinely consult with EASA counterparts to ensure that approaches to compliance are mutually acceptable, and to alert EASA of potential validation issues. The FAA team may have to defer decisions on sensitive issues until they consult with EASA.

(c) The EASA team will primarily work through us to achieve compliance with EASA/JAA standards. Communications between the EASA team and applicant should, therefore, include us. On the rare occasions when we cannot be involved, the EASA team is responsible for providing details of any communication with the applicant to us.

(d) EASA familiarization meetings with the applicant must include FAA representation.

> **NOTE:** While it's been common in the past for an applicant and CA to work out compliance solutions for design problems without consulting the VA, it's not a good idea. If both applicant and CA invest resources before notifying the VA, and the VA has a different position regarding compliance standards, this could cause trouble and compromise the trust built thus far. The method we prefer is for the CA to bring the VA into the problem early on, so the applicant and CA are informed of any unique VA compliance standards.

(2) Formal Confirmation Procedure. During familiarization, the VA will, of necessity, often ask for clarifying information from the applicant. Feedback from VA to CA and applicant is necessary to make sure the answers are clear and adequate. The FAA, EASA, and industry have agreed to implement confirmation procedures (see paragraph **322b**). The applicant and EASA validation team must adhere to this procedure during technical familiarization. We must, as CA, encourage both parties to comply with the procedure.

f. FAA Project Manager's Responsibilities. The FAA project manager has the following responsibilities in this phase:

(1) Participate in the mandatory regularly scheduled teleconferences with the EASA PCM and the applicant's program manager.

(2) Forward copies of all requested FAA issue papers to the EASA PCM for information. These are generally limited to unique import requirements, acceptable means of compliance, equivalent level of safety findings special conditions, and exemptions.

g. FAA Standards Staff Responsibilities. It's essential that FAA standards staff support the four phases of a validation program, particularly by attending validation meetings. It's equally important that FAA standards staff attends meetings that discuss new exemptions, new special conditions and new equivalent safety findings.

h. Familiarization Flights. A flight article may be available for VA familiarization flights during phase II of a sequential validation program. In a concurrent program, however, a flight article is typically not available for familiarization until phase IV.

375. APPLICANT, EASA, AND FAA CONDUCT TECHNICAL FAMILIARIZATION MEETINGS. The FAA certification team should help the EASA team understand the applicant's design and general compliance methodology. The EASA team will use this information to develop the VA certification basis, including SSD and non-SSD, and the initial VIs. EASA technical familiarization meetings are a key element.

a. EASA familiarizations meetings with the applicant must include FAA representation.

b. FAA Project Manager's Responsibilities. The FAA project manager is responsible for planning and conducting technical familiarization meetings, and must:

(1) Work with the FAA team and the EASA PCM to identify needed technical familiarization topics.

(2) Work with the PCM and applicant to develop meeting agendas.

(3) Attend technical familiarization meetings to promote communication between FAA team members and European counterparts.

(4) Ensure that all the appropriate FAA and EASA technical specialties are represented at the meetings to avoid meeting duplication.

(5) Ensure that there are procedures for recording and accepting meeting minutes and action items. It must be clear who's going to prepare these items, when they will be prepared, who will accept them for EASA, applicant, and us. The distribution list for minutes and actions items must also be accurate.

(6) Brief the FAA certification basis and any compliance determinations made to the certification basis.

c. FAA Technical Specialist Responsibilities. FAA technical specialist responsibilities for technical familiarization meetings are to:

(1) Identify Need for Meetings. Help the applicant and FAA PM identify aspects of the design or compliance program that might benefit from early EASA scrutiny. Such aspects might include new or novel features, new MOC, and areas that have resulted in significant EASA involvement or issues in past programs.

(2) Prepare for Meetings. Help the applicant get ready for technical familiarization meetings. FAA technical specialists should:

(a) Review any identified standards differences and potential EASA VI to ensure that the applicant is prepared to address them;

(b) Advise the applicant of any emerging European issues that may affect the design or compliance standards;

(c) Work with EASA and applicant to develop a meeting agenda. The technical specialist must notify the FAA program manager of any cross-functional areas. It makes good sense for a number of FAA technical specialists to participate jointly in technical familiarization meetings, since today's aircraft, engine and propeller designs are highly integrated.

(3) Participate in meetings. FAA team members must participate in European technical familiarization meetings covering their specialty areas. During a meeting, team members should:

(a) Ask clarifying questions as necessary to understand the issues raised by the EASA,

(b) Follow up on issues identified by the EASA. As CA representative, the FAA technical specialist will be in a better position to work routinely with the applicant.

(c) Promote joint FAA /EASA resolution of issues. The FAA technical specialist must develop a clear definition of differences between 14 CFR and JAR/CS standards if joint resolution cannot be achieved.

(d) Promote assigning the compliance determinations to us where there is no perceived need for further EASA involvement.

d. Technical Familiarization Meetings. Technical familiarization meetings will typically take place between FAA, EASA, and applicant technical specialists. EASA familiarizations meetings with the applicant must include FAA representation. How many meetings there are will depend on the complexity and uniqueness of the project.

(1) Meeting Agenda. A typical technical familiarization meeting agenda will include:

(a) Product design and technical features. The applicant's briefing should help EASA to fully understand the product design and any unique or novel design features. The applicant should present detailed discussions when: the product has novel design features, or its use is unconventional; the product contains design features where experience has shown an unsafe condition might occur; new standard interpretations or MOC for the existing standards are proposed; or the product design features items identified on the EASA generic VI list. This involves the EASA as early as possible to discuss any higher risk aspects of a program, to allow early definition of our position, and promote collaboration between EASA and us on developing new special conditions or MOC.

(b) Maturity of the design. Phase II objectives cannot be satisfied until a substantially complete design is available for review. The applicant must inform the authorities of design areas not fully defined at the time of the meeting. We may need more meetings.

(c) Proposed MOC. The applicant and FAA will describe the proposed MOC (see paragraph **310**). The description should focus on the general methodology rather than specific test plans, details of analysis, and so forth. The information should be sufficiently detailed to help EASA validation team understand the general principle of the MOC used, or to be used. In-depth discussion of MOC (including those for SSDs as necessary) should be conducted in phase III. We shouldn't need further discussion of MOC used and accepted by both EASA and us for harmonized standards, and for non-SSD. The applicant presents detailed information on the MOC that are used, or are to be used, to establish compliance with airworthiness standards related to the design and technical features, such as basic loads, or fatigue, that we judged significant. We will discuss our position on the applicant's proposed MOC in a sequential validation project. The authorities will review the applicant's proposals together in a concurrent validation program.

(d) FAA Certification Basis. For sequential certification/validation projects, we should identify our certification basis and present an overview of any significant compliance findings established during our program. For concurrent certification/validation projects, the FAA project manager will give an overview of the FAA certification basis as defined at the time, or as we expect.

(e) Compliance Determinations to the FAA Certification Basis. The FAA project manager will describe any compliance determinations already made to the FAA certification basis. This applies more to sequential certification/validation programs.

(f) Exemptions, and Special Conditions, and Equivalent Level of Safety Findings. In a sequential validation program, the FAA project manager will brief comprehensively on the background, history, rationale, and methodology for exemptions, special conditions, and equivalent level of safety findings that were granted. In a concurrent validation program, the applicant will brief EASA and us on requested exemptions, special conditions, and equivalent level of safety proposals.

(g) Project Schedule. The applicant should be prepared to brief EASA and us on key milestones of design aspect development.

(2) Meeting Attendees. Applicant, EASA, and FAA technical specialists will attend these meetings. FAA meeting attendees will include engineering technical specialists, standards staff, flight test pilot, AEG representatives, and manufacturing inspection representatives, as needed. The applicant program manager, EASA PCM, FAA project manager and project officer may also attend.

(3) Meeting Documentation. The proceedings of all technical familiarization meetings must be documented. Meeting minutes are normally kept for this purpose. One or more of the participants prepares them, and it should be agreed early in any meeting who will do it. Regardless who takes on the task, the FAA and EASA team members in attendance should agree to their content. The FAA project manager and EASA project certification manager (PCM) should receive copies of minutes.

376. EASA ESTABLISHES VALIDATING AUTHORITY CERTIFICATION BASIS. By definition, the EASA VA certification basis will consist of the FAA certification basis plus any additional standards that EASA determines are necessary to provide a level of safety equivalent to the EASA VA certification basis. EASA must, therefore, fully understand the FAA certification basis before they can define their own certification basis. The FAA certification team is responsible for creating this understanding. Our specific responsibilities are to:

a. Inform EASA of the FAA Certification Basis. The FAA certification team will establish the certification basis for the product following Order 8110.4, Type Certification. We develop the certification basis in a G-1 issue paper, according to established directorate procedures. The FAA project manager will send a copy of the G-1 issue paper to the EASA PCM to support EASA efforts to develop the VA certification basis.

b. Inform EASA of Exemptions, Special Conditions, and Equivalent Level of Safety Findings. The FAA project manager will inform the EASA PCM of all exemptions, special conditions, and equivalent level of safety findings identified by us or requested by the applicant. We should make a comprehensive explanation of the airworthiness standards, policies and rationale that led to these exemptions, special conditions, and equivalent level of safety findings. The FAA project manager will send copies of issue papers on these topics to the EASA PCM. We develop these issue papers using existing FAA practices: they feature FAA and applicant positions only.

c. Review the EASA VA Certification Basis. The EASA validation team will document their certification basis proposal, including the project-specific SSD and non-SSD, in a CRI and send it to us for comment. The FAA certification team will respond formally.

> **NOTE:** Developing both the FAA and EASA certification bases are frequently iterative processes between each authority and the applicant. This is especially true for derivative products, where both FAA and EASA regulations provide for reversions to amendment levels pre-dating the application date for the change. FAA and EASA certification bases may, therefore, change during a project.

377. EASA DEFINES THE VIs. The EASA validation team will define a set of VIs for the project during phase II. Although they may request technical information (see paragraph **319**), active EASA involvement in compliance determinations is limited to the documented VIs. The EASA validation team will develop a CRI for each VI. The initial release of a CRI will typically have a problem statement and an EASA team position. Each CRI will have provisions for an applicant position statement and an FAA team position statement. The FAA's certification team is responsible for reviewing all VI issued by the EASA team and interacting with the team when appropriate. The FAA project manager's responsibilities are to:

a. Forward the CRI to applicant. The EASA PCM will generally release the CRI to the FAA project manager. The FAA project manager forwards a copy to the applicant for comment. The EASA PCM may, alternately, send the CRI to the applicant and the FAA project manager simultaneously, if the FAA project manager agrees to it.

b. Coordinate the FAA response. The FAA project manager is also responsible for forwarding a copy of the CRI to the appropriate FAA certification team members for review and comment. We will respond formally to each VI during phase III after we review the EASA and applicant positions. Although the FAA project manager and certification team may respond to many CRIs, other CRIs may involve coordination with the standards staff.

378. EASA DEFINES SSD AND NON-SSD. As VA, the EASA team is responsible for defining the project-specific SSD and non-SSD. The EASA team will define these SSD and non-SSD in a CRI or CRIs. FAA team involvement is as follows:

a. Projects *with* defined standards differences lists. The FAA certification team will check the content of the SSD and non-SSD CRI against the most relevant 14 CFR and CS/JAR standards differences lists. When the project amendment-pair has a defined standards differences list (see paragraph **333**), the FAA team doesn't need to consult with the standards staff in developing a position to the EASA SSD/non-SSD CRI. The project manager should consult the project officer to determine how involved the standards staff should be in responding to the CRI.

b. Projects *without* defined standards differences lists. The FAA team must consult the standards staff when the project involves an amendment pair with no defined standards differences list. The team also consults the staff on other situations where the proposed difference is unclear or in dispute. The standards staff, responsible for harmonization, has the best understanding of current and historical standards differences.

379. PHASE III: DETERMINING EASA INVOLVEMENT.

a. General. This phase has one major component: EASA determines their level of involvement for the VIs. See paragraph **380** for procedures used by the certification team and the directorate standards staff.

b. Objective. The objective is to specifically identify which compliance determinations are assigned to us, and which EASA retains.

c. Initiation. Phase III begins once the initial VA certification basis and VIs have been identified. This could begin at the first technical meeting following phase II. We should encourage EASA to start as soon as possible.

d. Completion. This phase ends when all of the following items have been completed:

(1) EASA has established the final VIs,

(2) EASA has issued a document or documents that identify whether EASA or FAA is to make compliance determinations with the airworthiness standards identified in the VIs,

(3) EASA issues a CRI (or an addition to the closure document) that identifies and justifies any information that they request for the purpose of product familiarity (see paragraph **319**), and

(4) All have agreed to the timelines for the completion of the program (phase IV).

NOTE: Design/MOC changes may occur during phase IV, yielding new VIs. This doesn't require a return to phase III.

e. Communication: Formal Confirmation Procedure. While determining their involvement, the VA may ask for clarifying information from the applicant. Feedback from the VA to CA and applicant is necessary to confirm how accurate and clear the answers are. EASA, industry, and we have agreed to implement this confirmation procedure, detailed in paragraph **322b**. The FAA validation team sticks to this procedure during this phase.

380. EASA DETERMINES LEVEL OF INVOLVEMENT FOR THE VIs. Once the VIs are identified, EASA must determine VIs to retain and VIs to assign us at the FAA. We emphasize here that FAA/EASA agreement on a certification standard is not required for EASA to assign a compliance determination. EASA must, however, be confident that the FAA team understands EASA standards and will follow through with the associated compliance determinations. EASA makes the final decision and normally document it in the conclusion of each CRI. The goal is to maximize assignment to the FAA team. The FAA project manager and certification team should actively encourage assignment. Specific responsibilities are as follows.

a. FAA Project Manager Responsibilities. The FAA project manager has the following responsibilities.

(1) Participate in the mandatory regularly scheduled teleconferences with the EASA PCM and applicant's program manager.

(2) Coordinate FAA response to each CRI. In phase II, the EASA team with a problem statement and EASA team position releases the CRI. During phase III, the applicant and FAA formally respond to each CRI. Based on these responses, maybe supplemented by additional discussions, meetings (if needed) and correspondence with the FAA team and applicant, EASA will decide on disposing of the CRI and assigning any associated compliance determinations. The FAA project manager is responsible for coordinating the development of an FAA position on each CRI to support closure of each CRI.

(3) EASA will identify areas in which they require additional knowledge, participation in, or continued awareness of compliance activities in phase IV (see paragraph **319**). They will document these areas and justify requests in CRIs or in the phase III closure document. The FAA project manager must review the justification to make sure the request is consistent with the intent of TVP.

(4) The FAA project manager should express, in discussions with EASA PCM, our interest in performing compliance determinations for EASA. The FAA project manager should work with the EASA PCM to maximize assignment to us.

(5) Review EASA team decisions on retaining compliance determinations. The FAA project manager should make sure that any requests for retention are justified.

(6) Compile a list of assigned VIs. The FAA project manager should provide a list of all assigned VI to the accountable directorate. The standards staff will stay aware of VIs assigned us and those retained by EASA. Once we successfully demonstrated that we can make a compliance determination to a CS/JAR standard, we expect that EASA will continue to assign these items in future. By being aware of which VIs were assigned, the standards staff can make the case for future delegation. Each directorate standards staff must develop standardization procedures and record keeping processes to promote awareness of European delegation practices.

(7) Work with EASA PCM and applicant project manager to set-up final validation schedule.

b. FAA Certification Team Responsibilities. The certification team will review the European team position to each CRI. Based on this EASA position statement, and supplemented by additional coordination with EASA and the applicant, the validation team will formulate an FAA response to each CRI.

(1) During phase III the FAA certification team must develop a clear understanding of the intent of each EASA CRI raised as a VI. Key elements that we must define are:

(a) Differences in 14 CFR and CS/JAR or MOC. If no differences exist, our team should suggest that EASA either withdraw the CRI or assign the determination to us.

(b) Justification for retention. The FAA team should review the EASA justification for retaining a compliance determination. EASA retention of compliance determinations should be limited to the following areas:

1. New or novel features,

2. New EASA airworthiness standards, where judgment is required in their initial application,

3. Sensitive issues (usually associated with an accident or incident on a product with similar design features), or

4. New MOC or novel applications of existing MOC.

(2) Write the FAA response to the CRI. The responsible FAA team member or members will draft an FAA position statement for each CRI. Our response may benefit from standards staff involvement for CRIs dealing with new technology features, novel MOC, or other non-routine areas. Team member and FAA project manager will determine if they need to coordinate with the standards staff. Our position may include some or all of the following elements:

(a) Acknowledgement of EASA position.

(b) Reflection of differences relative to FAA standards.

(c) Indication of willingness to accept assignment from EASA for compliance determination.

(d) Comments regarding applicant's position to CRI.

NOTE: Although we will get opportunity to formally reply to each CRI as part of the CRI coordination process, EASA makes the final conclusion to a CRI and any decisions to retain or assign compliance determinations associated with a VI.

381. PHASE IV: COMPLIANCE DETERMINATIONS.

a. General. There are seven components to this phase of a validation project. Listed below, their interrelation is illustrated in figure **3-4**:

(1) FAA makes compliance determinations for assigned VIs and non-SSD (see paragraph **382**),

(2) EASA makes compliance determinations for retained VIs (see paragraph **383**),

(3) FAA issues statement of compliance to EASA certification basis (see paragraph **384**),

(4) Applicant declares compliance to EASA certification basis (see paragraph **385**),

(5) EASA issues TC for EU member states (see paragraph **386**), and notifies JAA,

(6) EASA informs JAA NAAs of TC issuance (see paragraph **387**),

(7) JAA NAA issues its type certificate (see paragraph **388**).

b. Objective. The objective of phase IV is to complete the compliance determinations on time, and conduct familiarization flight evaluations (on concurrent validation programs). We will make the compliance determinations for assigned VIs and non-SSDs. EASA will make the compliance determinations for retained VIs.

c. Initiation. Phase IV begins with issue of the document or documents establishing the compliance determination responsibility for the VIs.

d. Completion. This phase ends when EASA issues their TC, or non-EU NAAs issue their TC, or both.

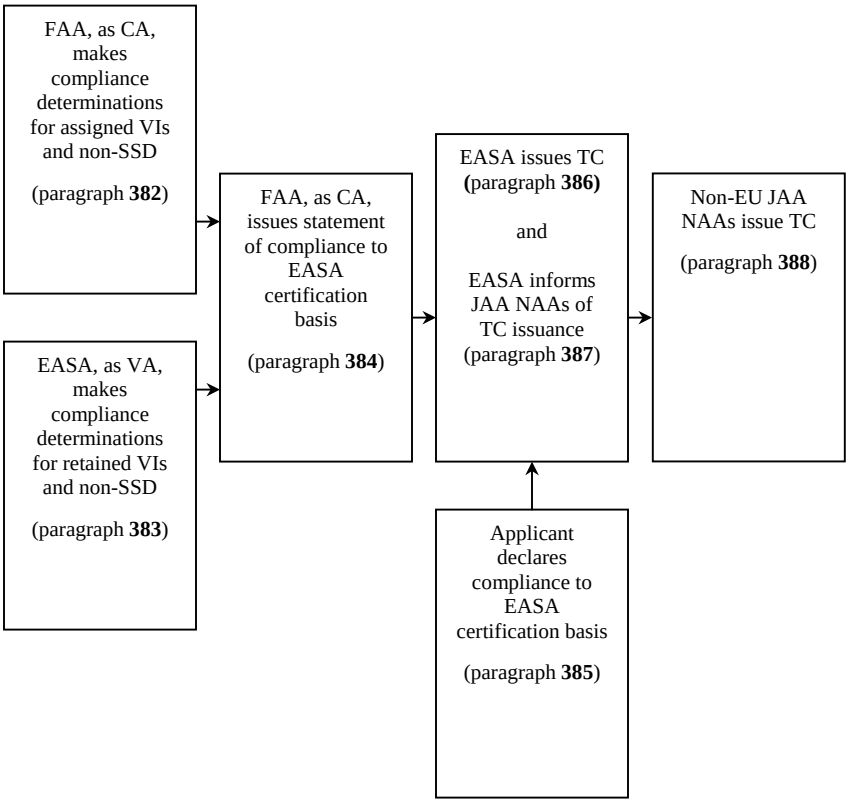
e. FAA Project Manager's Responsibilities.

(1) Oversee the certification team's progress,

(2) Join mandatory regularly scheduled teleconferences with the EASA PCM and the applicant's program manager. These teleconferences may increase as the project nears its close to accommodate the increased activity in completing a major project.

NOTE: The FAA project manager will support EASA in their continued airworthiness responsibilities (paragraph **319**). The project manager should inform the EASA PCM of concerns we have with any compliance findings. For example, were there discrepancies in showing compliance or were there areas where compliance has been demonstrated but with narrow margins of safety? The project manager must emphasize that we are providing this information for continued airworthiness purposes. It is not to be used to scrutinize compliance findings.

FIGURE 3-4. PHASE IV: COMPLIANCE DETERMINATION COMPONENTS (FAA AS CA)



f. FAA Flight Test Pilot and Engineer Responsibilities. EASA familiarization flights will occur during this phase for concurrent certification/validation programs. These flight evaluations will be conducted concurrently with the FAA flight test activities. EASA familiarization flight objectives are to:

(1) Identify potential compliance issues for the applicant and us to resolve. The goal is to work cooperatively with the FAA team.

(2) Familiarize EASA with the type design to support continued operational safety of the European registered fleet.

(3) Familiarize EASA with the type design and operation of the aircraft to support introducing the aircraft in Europe.

> **NOTE:** Familiarization flights are *not* certification flight tests. The FAA will perform certification flight tests, including tests specifically conducted to determine compliance with EASA certification standards. EASA involvement in certification flight tests will only occur when the purpose of the flight test falls within the scope of the identified VI, and then only when direct involvement is justified.

382. FAA MAKES COMPLIANCE DETERMINATIONS FOR ASSIGNED VIs AND Non-SSD. The FAA certification team has the following responsibilities for determining compliance to assigned VIs (that is, to all assigned generic VIs, project VIs, SSDs and non-SSD):

a. Understand the EASA compliance standards. Our team must thoroughly understand the EASA/JAA standards when we are assigned compliance determinations. Direct communication between FAA specialists and EASA specialists is the best way to promote this understanding. We must actively seek information from EASA, and, staying aware of the program schedule, time our requests reasonably and correctly.

b. Ensure that FAA designees understand the EASA compliance requirements. We can carry out compliance determinations assigned to us, or delegate the work to an appointed designated engineering representative (DER) or delegation option authorization (DOA) representative. Either representative with the proper authorization may make compliance determinations to the CS/JAR. As a result, FAA technical specialists must ensure the EASA compliance standards are fully understood by our designees who make those determinations. Direct communication between FAA designees and EASA specialists is acceptable, if we are informed of discussion results.

> **NOTE:** See FAA Order 8110.37 for criteria used to authorize DER and DOA representatives to make compliance determinations to CS/JAR standards.

c. Make assigned compliance determinations for EASA. The FAA certification team will ensure that the documentation submitted by the applicant substantiates compliance. The team reviews the applicant's data and makes compliance determinations for all aspects of EASA certification basis assigned by EASA, including all non-SSD and all assigned VIs.

d. EASA may request copies of the compliance reports under provisions of paragraph **319**. Reports will be supplied for informational purposes only. They should not be used to review compliance determinations we made. The FAA project manager and the EASA/JAA PCM must carefully monitor these situations. Concerns in this area can be minimized by regular communications between the FAA, EASA, and applicant specialists.

383. EASA MAKES COMPLIANCE DETERMINATIONS FOR RETAINED VIs. The EASA validation team is solely responsible for determining compliance to the retained VIs. Once EASA is satisfied that compliance has been shown for the retained items, the EASA PCM issue a statement of compliance against all the retained items. This letter will be addressed to the FAA project manager and copied to the applicant. Although we are not formally involved in these determinations, the FAA team should stay informed of European team activities associated with these compliance determinations. By doing so, we'll be in a better position to promote the future assignment of similar compliance determinations to us.

384. FAA ISSUES STATEMENT OF COMPLIANCE TO THE EASA CERTIFICATION BASIS. As noted above, the EASA PCM will send a letter or other document to the FAA project manager when the EASA validation team has completed the

compliance determinations for all retained VIs. This officially notifies us that EASA completed its efforts. We can then make a compliance finding to the EASA certification basis. We will issue a statement of compliance to the EASA certification basis upon issuing an FAA type certificate and completing all assigned compliance determinations. The form of this certification basis compliance statement is as follows:

> *With the determinations of compliance made by EASA and summarized in [letter or document] dated [date], the FAA certifies that the [product descriptor] complies with the EASA certification basis as identified in certification review item A-1, issue [issue no.], dated [date].*

385. APPLICANT DECLARES COMPLIANCE TO THE EASA VA CERTIFICATION BASIS. The EASA validation process requires the applicant to declare that they showed compliance with the EASA certification basis.

a. The applicant must submit this declaration before the EASA PCM can issue their statement of compliance to the EASA certification basis.

b. A sample applicant's declaration of compliance is as follows:

[..Product Type..] DECLARATION OF COMPLIANCE

Reference: 1. Type Design Definition……, Issue…., Rev…..

2. Airworthiness and Environmental Standards as Defined in CRI…., EASA type certificate basis, issue…, dated…

or, JAA type certificate basis, issue…, dated…

3. Compliance record book….

4. Compliance checklist document…

On behalf of [..applicant.] I hereby declare that ……... has shown that the [product type..] defined under reference 1. complies with the airworthiness and environmental requirements defined in …

Details of compliance are recorded in the compliance record book and associated compliance checklist.

No feature or characteristics are found which would make the [..product..] unsafe provided it is [....] operated and maintained in accordance with instructions and limitations as defined in the corresponding approved document.*

Date Signature

[.. = installed,] to be included for engines and propellers*

c. The FAA program manager should notify the applicant that EASA requires this statement of compliance, since it's unique to the European validation process. We have no direct responsibility for developing this compliance statement.

386. EASA ISSUES TYPE CERTIFICATE. Based on the FAA statement of compliance and applicant's declaration of compliance, the EASA Certification Director will issue an EASA TC.

387. EASA INFORMS JAA NAAs OF TYPE CERTIFICATE ISSUANCE.

a. The EASA PCM will submit a report on EASA's TC to non-EU NAAs for information.

b. The final statement of compliance officially notifies the JAA NAA that:

(1) The product's type design is adequately documented,

(2) All date required to issue a type certificate, or equivalent, are available,

(3) The documents necessary to issue a type certificate are acceptable, and

(4) The compliance documents are kept available to the EASA team and non-EU NAAs.

388. NON-EU JAA NAAs ISSUE TYPE CERTIFICATE. Based on EASA's type certificate and recommendation to JAA, the JAA will issue a letter of recommendation for type certificate, or equivalent, to the NAAs.

389. RESPONSIBILITIES WHEN THE FAA IS THE CA. Figure **3-5** below summarizes the key components of each of the four phases of the program. It indicates FAA PM, standards staff and specialist involvement in each component. It also shows EASA and applicant involvement. **Bold check** marks indicate primary responsibility.

FIGURE 3-5. RESPONSIBILITIES WHEN FAA IS CA

Type Validation Program Phases	FAA PM	Standards Staff	FAA Specialist	Applicant	EASA PCM
Phase I: General Familiarization					
FAA reviews application and forwards it to EASA/JAA	✓			✓	
Establish initial validation schedule	✓			✓	✓
Conduct/attend general familiarization meeting	✓	✓		✓	✓
EASA establish validation team					✓
FAA conducts TVP refresher training	✓		✓		
Phase II: Technical Familiarization					
Conduct/attend technical familiarization meetings	✓	✓	✓	✓	✓
EASA establish certification and validation bases	✓	✓			✓
EASA defines VIs					
• Generic VI	✓				✓
• Project VI	✓				✓
• SSD and non-SSD	✓				✓
Conduct regularly-scheduled telecons	✓			✓	✓
Phase III: Determining EASA Involvement					
EASA determines its level of involvement for the VIs	✓	✓	✓		✓
EASA Identifies areas where product familiarity will be necessary	✓				✓
Conduct regularly-scheduled telecons	✓		✓	✓	✓

FIGURE 3-5. RESPONSIBILITIES WHEN FAA IS CA (CONTINUED)

Type Validation Program Phases	FAA PM	Standards Staff	FAA Specialist	Applicant	EASA PCM
Phase IV: Compliance Determinations					
FAA makes compliance determinations for assigned VIs and non-SSDs	✓		✓		
EASA makes compliance determinations for retained VIs	✓			✓	✓
FAA issues statement of compliance to EASA VA certification basis	✓			✓	✓
Applicant declares compliance to EASA/JAA certification basis				✓	
EASA issues type certificate					✓

390. SUPPLEMENTAL TYPE CERTIFICATES. The STC application will be made by the applicant through us. EASA requires STC applications to describe a change and identify any re-investigations (compliance determinations) necessary to show compliance (compliance checklist). The applicant must justify these demonstrations either by arrangement with the TC holder or through their own resources. If by their own resources, the applicant must justify that the arrangement is not necessary. The FAA must review and concur with the applicant's justification. We forward the applicant's justification and our concurrence statement with the application to EASA. We will help the applicant prepare the application.

> **NOTE:** The scope of the current BASA IPA should be reviewed to determine which STC projects can be accepted. Generally, only STCs for U.S. products will be accepted.

a. The applicant will classify the STC as basic or non-basic, following paragraph **321** and we'll only forward applications that we concur with. We will support any questions EASA may have on the classification of the STC. EASA's acceptance of the application signifies concurrence with the classification. If EASA doesn't concur with the classification, we need to make every effort to explain the rationale we used. Many times additional information about the design change may resolve any technical differences. When the disagreement cannot be resolved, we all use the issue resolution process in paragraph **329.** STC validation programs, once classified, will proceed as outlined below.

b. Non-Basic STCs may require EASA technical involvement. EASA will use procedures similar to those used to validate a TC, but adjusted for the size and complexity of the design change. Based on their familiarity with the design change, EASA may declare no technical involvement and issue the STC based solely on the certifying statement from the FAA. The FAA will support any EASA technical involvement, applying certification procedures similar to those in paragraphs **370** through **388**, but adjusted for the size and complexity of the design change.

c. Basic STCs will not require any EASA technical involvement. The FAA will use the following process:

(1) Certificate the STC in accordance with FAA Order 8110.4.

(2) Help the applicant assemble the application. Review it for completeness. The application will include the following:

(a) Copy of the FAA STC,

(b) Description of the change, together with the make and model of the product,

(c) Applicant's requested date for issuance of the EASA STC,

(d) Declaration of the certification basis. Normally, the EASA certification basis is the same as that established for the product modified by the STC,

(e) Certifying statement from us that the change complies with the stated certification basis.

(f) The applicant's justification and our concurrence statement.

(g) Basic documentation as follows, as appropriate:

1. Compliance checklist

2. AFM supplement

3. Master document/master drawing list

4. Manufacturing and installation instruction drawings

5. Maintenance/repair manual supplements

6. Weight and balance data

7. Instructions for continued airworthiness

(3) The FAA will forward the application to EASA and support any inquiries from them.

d. We will submit significant revisions to approved manuals to EASA for review and acceptance for all STCs. For an individual certification project, we'll consult with EASA when they decide which revisions are significant and which are not.

391.–399. RESERVED

CHAPTER 4. FAA/EASA/JAA POST-TYPE VALIDATION PROCEDURES

SECTION 1. INTRODUCTION

400. GENERAL. This chapter applies only to post-validation activities with EASA/JAA Member States. Chapter **2**, Section **2** contains general information applicable to all countries. This chapter has five sections. Section **1** defines the scope and vision for the post-type validation principles (PTVP). Section **2** covers continued airworthiness. Section **3** covers the type design change approval process. Section **4** focuses on FAA roles and responsibilities when acting as the validating authority. Section **5** focuses on FAA roles and responsibilities when acting as the certificating authority.

401. SCOPE. Authorities' responsibilities do not end after they certificate and validate an imported product. The FAA and the EASA/JAA established post-type validation principles defining the roles and responsibilities of the CA and VA. Like the type validation principles, the post-type validation principles set the proper level of VA involvement. This chapter addresses the principles to apply during the post-type validation phase of validation programs and defines CA and VA conduct. It supplements the authorities' procedures defining their internal functions.

a. This chapter applies to post-type validation activities:

(1) Undertaken by the TC or STC holder only. It is not intended to address any activities undertaken by anyone other than the TC or STC holder.

(2) On any validated aircraft, aircraft engine or propeller, including those products validated under procedures other than TVP.

> **NOTE:** For STC holders, these procedures only apply when the STC holder modifies their own STC.

b. For the purposes of this document, post-type validation activities are:

(1) Approval of changes to the approved type design (including revision of manuals) not resulting in a new TC or STC. These changes may be necessary for customer-unique design features, product improvements, any other design changes made by the TC holder, and revisions to approved manuals.

(2) Approval of airworthiness data included in an applicant's service information.

(3) Continued airworthiness activities, including the issuance of airworthiness directives (AD).

c. Post-type validation principles do not apply to design data used to support repairs. Such data must be approved or accepted, as appropriate, by the CA in a manner acceptable to the VA. Reciprocal acceptance of design data used to support repairs will be done according to the appropriate bilateral agreement.

402. VISION.

a. PTVP aims to:

(1) Ensure that the VA is able to discharge their responsibilities for continued airworthiness of the product, where appropriate,

(2) Ensure that the type design, as amended by the post-type certification design changes, complies with the VA certification basis and that this is documented to an acceptable standard, and

(3) Achieve these objectives by using efficient and practical processes.

b. In discharging post-type validation responsibilities, the VA should rely to the maximum extent possible on CA findings and actions.

> **NOTE:** When the CA carries out an activity for the VA, that activity may be carried out by them, or by their legally constituted designee or delegation system. The CA may allow qualified designees or delegated organizations make compliance determinations to VA airworthiness standards.

c. Except where the TC or STC holder asks for more VA involvement and both CA and VA agree, VA involvement will be limited to activities, including design changes, affecting:

(1) Aircraft types registered, or to be registered, in VA jurisdiction, or

(2) Other products imported or to be imported into VA jurisdiction.

d. There is a strong link between the TVP and PTVP when it comes to design approval. For example, the post-type validation principles provide guidelines for determining when to notify the VA of a design change made after the product has been validated and is in production. The guidelines for determining proper VA involvement, as set by the type validation principles, are then applied.

SECTION 2. CONTINUED AIRWORTHINESS

403. GENERAL. CA, VA, and TC/STC holder share responsibility for continued airworthiness. These basic responsibilities are rooted in the Chicago Convention on International Civil Aviation in 1944. Over time, they've been supplemented by bilateral agreements and the FAA/EASA/JAA post-type validation principles.

a. ICAO Annex 8 Obligations. Post-type validation principles do not compromise CA and VA continued airworthiness obligations. Nor do the procedures in this order. The obligations are defined in International Civil Aviation Organization (ICAO) Annex 8, *Airworthiness of Aircraft,* Part II, Chapter 4, *Continuing Airworthiness of Aircraft*. The VA, as state of registry, is responsible for the continued airworthiness of aircraft, including imported

products, on their national register (or, for Europe, a register in their jurisdiction). The CA, as state of design, must send mandatory continued airworthiness information to the states of registry.

b. BAA/BASA IPA Obligations. Bilateral agreements (such as a BASA IPA) may also include specific notice and information-sharing requirements for continued airworthiness information between signatories. For instance, the IPAs establish the expectation that signatories will share significant in-service events. The IPAs also specify reporting obligations for malfunctions, failures and defects, and sharing mandatory continued airworthiness information. Some agreements also identify what information other countries should give us, so we can efficiently process mandatory continued airworthiness information from a bilateral partner.

c. FAA/EASA/JAA Post-Type Validation Principles. For EASA and JAA products, these principles further define CA and VA roles and responsibilities for carrying out continued airworthiness activities under bilateral agreements.

404. COMMUNICATION. After the TC or STC is issued, CA and VA must continue to communicate throughout the product life.

a. At the end of a TC or STC validation program, the VA and CA should set up a process for regular feedback and continued communication. At a minimum, this process must:

(1) Identify specific points of contact within the CA, VA, and certificate holder's organization; and

(2) Establish a regular schedule for talk on service difficulties, planned mandatory corrective actions, trends, and general experiences with the product.

b. CA, VA and certificate holder should agree on the frequency of communications. How often we communicate should be influenced by the type and complexity of the product, number of aircraft registered in the VA jurisdiction, and the overall level of post-certification design changes being incorporated into the product's design. For major products, this interval should be no less that twice a year.

c. We can achieve regular feedback and continued communication by several means ranging from face-to-face meetings to teleconferences, emails and faxes. Program managers should consider exchanging tables or data summaries. Before a regularly scheduled conference, VA, CA, and applicant should agree on the appropriate venue.

405. LEVEL OF INVOLVEMENT. FAA/EASA/JAA post-type validation principles establish that:

a. The VA has the right to seek information from the CA necessary to ensure acceptable continued airworthiness of aircraft registered in VA jurisdiction and products fitted to any such aircraft.

b. The VA will become involved with the CA when resolving continued airworthiness issues directly related to an accident or incident in VA jurisdiction. However, the CA is responsible for resolving design issues.

c. The CA and TC/STC holder will support the VA in investigating significant continued airworthiness issues in products used, aircraft registered, or products fitted to any such aircraft in the VA country.

406. ROLES AND RESPONSIBILITIES. Specific CA, VA, and TC/STC holder responsibilities are:

a. TC/STC Holder:

(1) Reports any failure, malfunction, or defect to the CA per 14 CFR § 21.3, EASA Annex 21 Part 21, paragraph 21A.3 or JAR 21.3.

(2) Supports VA investigations of relevant significant airworthiness issues.

(3) Develops required design changes to address unsafe conditions referenced in an Airworthiness Directive as specified in 14 CFR § 21.99 or in EU law.

b. CA Responsibilities: The CA must:

(1) Monitor the world type-certificated fleet's continued airworthiness, notify the VA of significant airworthiness issues, and issue ADs as necessary. This includes ADs resulting from reports under 14 CFR § 21.3, and EASA Annex 21 Part 21, paragraph 21A.3, relating to aircraft types registered in the VA's country and to products fitted to any such aircraft.

(2) Regularly confer with the VA on service difficulties, planned mandatory corrective actions, trends, and general experiences with the product they validated.

(3) Issue ADs as necessary.

(a) The CA will immediately notify the VA when issuing ADs or other mandatory authority actions to help the VA adopt them where appropriate.

NOTE: "Ex parte" contact restrictions may apply to discussion with a TC/STC holder. Consult FAA-AIR-M-8040.1, the Airworthiness Directive Manual.

(b) When the CA approves an alternative method of compliance (AMOC) of general applicability to an existing AD (one not based on proprietary data), they will notify the VA to help them adopt the same AMOC.

(4) Inform the VA of all significant airworthiness issues and mandatory corrective actions to help the VA adopt them. The CA should also consult the applicable bilateral agreement, since it may include specific notification and information-sharing requirements.

(5) Supports VA investigations of relevant significant airworthiness issues.

c. VA Responsibilities: The VA must:

(1) Monitor the airworthiness of all aircraft on its aircraft register.

(2) Through regular communication with the CA, keep informed of service difficulties, planned mandatory corrective actions, trends, and general experiences with the imported product.

(3) Issue ADs as necessary.

(a) The VA will discuss with the CA and TC/STC holder when considering issuing an AD that adds to or varies from those issued by the CA. Although the VA should seek CA input before taking any unilateral mandatory corrective action, a VA decision is not limited by CA actions.

> **NOTE:** "Ex parte" contact restrictions may apply to discussion with a TC/STC holder. Consult FAA-AIR-M-8040.1, the Airworthiness Directive Manual.

(b) When the VA approves an alternative method of compliance (AMOC) of general applicability to an existing AD (one not based on proprietary data), they will notify the CA to help them adopt the same AMOC.

(4) Confer with the CA on service incidents involving products on its register imported from the CA's country.

(5) Determine necessary continued airworthiness activities for the VA fleet based on discussions with the CA and TC holder, and reviewing the actions they took and proposed.

407. SERVICE INFORMATION APPROVAL.

a. The CA approves service information requiring approval according to their normal procedures.

b. Design changes contained in service information should be approved using the type design change approval procedures defined paragraph **410**, before issuing the service information

408. UPDATES TO THE MASTER MINIMUM EQUIPMENT LIST (MMEL) AND THE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS. After type certification, the VA will continue to be involved in updates to the MMEL and instructions for continued airworthiness, as determined by applicable VA procedures. For us, those procedures are FAA Orders 8110.4, 8300.10, and 8400.10.

409. FAA AS THE VALIDATING AUTHORITY. We are responsible for continued airworthiness of all products on our registry. However, we must maintain a balanced approach and, therefore, must manage and control the requests for information. While carrying out our continued airworthiness responsibilities, we need to continue to rely on EASA to the maximum extent practicable.

a. After a validation program, we work with EASA to set up a structure to communicate service difficulties, planned mandatory corrective actions, trends, and general experiences with the imported product. For standardization and consistency, the project manager and PCM should set up this communication, coordinating with the office manager, the appropriate standards staff, and corresponding EASA organizations. We must document the communication program and include, at a minimum:

(1) Points of contact in the FAA, EASA, and TC/STC holder's organization; and

(2) A regular schedule and method for future communication.

b. We at the FAA have the right to inquire deeply enough into any post-type validation activities to ensure acceptable continued airworthiness of aircraft registered in the United States and any products fitted to such aircraft. The first contact should always be between the focal points identified in the documented communication program. This information inquiry may include:

(1) EASA findings of compliance to FAA airworthiness standards related to in-service events;

(2) Any mandatory corrective action, and/or

(3) Any significant ongoing continued airworthiness topic and its means of resolution.

c. We will evaluate service information and EASA mandatory continued airworthiness information and issue ADs, as necessary, per existing FAA guidance material, such as FAA-AIR-M-8040.1, the Airworthiness Directive Manual.

(1) If we expect to mandate a significant variant to an EASA AD or issue unilateral action, we will tell EASA first.

(2) Whenever we approve an AMOC of general applicability, we will notify our EASA point of contact, as identified in a communication document.

d. We should expect to get involved with EASA to resolve continued operational safety issues directly related to an accident or incident in the U. S. However, we should assign the resolution of those issues to the maximum extent possible to EASA.

410. FAA AS THE CERTIFICATING AUTHORITY.

a. After ending a validation program, we'll work with EASA to set up a program to communicate service difficulties, planned mandatory corrective actions, trends, and general experiences with the imported product. For standardization and consistency, the project manager and PCM should set it up, coordinating with the office manager, the appropriate standards staff, and corresponding EASA organizations. The communication program should be documented and include:

(1) Points of contact in the FAA, EASA, and TC/STC holder organization; and

(2) A regular schedule and method for future communication.

b. We will monitor the continued airworthiness of the type-certificated product worldwide and issue ADs when necessary, following our guidance material.

(1) We will notify EASA immediately of all such mandatory actions, including those resulting from reports under 14 CFR § 21.3 relating to aircraft validated by EASA and products fitted on those aircraft.

(2) Whenever we approve an AMOC of general applicability, we'll send this information to the EASA point of contact identified in the communication program document.

c. The FAA and the certificate holder will support EASA in investigating significant airworthiness issues relevant to aircraft under the EASA jurisdiction and products fitted to such aircraft. This support includes providing EASA with:

(1) Status of any related FAA investigations,

(2) Status of FAA plans for mandating corrective actions related to the investigations, and timely EASA access to design data and other certification documents, as they ask.

SECTION 3. TYPE DESIGN CHANGE APPROVAL PROCESS

411. GENERAL. Aircraft typically experience a variety of design changes after being certificated to meet market requirements and for product improvement. The CA and VA must approve these changes to ensure the aircraft continues to comply with the applicable airworthiness standards. Approving changes to the type design is a responsibility shared by the CA, VA, and TC/STC holder. Post-type validation principles define each of their roles and responsibilities in the approval process. Figure 4-1 illustrates the type design change approval process.

a. TC/STC Holder Defines Design Change. As figure **4-1** illustrates, the approval process begins with defining the design change. The TC/STC holder will define the design change relative to the current definition of the approved type design validated by the VA.

b. TC/STC Holder Classifies Change as Major or Minor. Using CA procedures, the TC/STC holder classifies design changes as either major or minor. The VA will accept these classifications without further investigation.

c. CA Approves Minor Design Changes. When the TC/STC holder classifies the design change as minor, the CA approves these changes against their own and the VA certification basis using CA normal procedures. Once approved by the CA, changes will be deemed approved by the VA. The VA may not receive prior notification of such changes except when there are changes to approved manuals. The TC/STC holder will include the design change in the VA type design definition, which defines the VA's approved configuration.

d. TC/STC Holder Categorizes Major Changes. The TC/STC holder will further categorize major design changes as level 1 or level 2 major changes. Criteria for categorizing changes are in paragraph **411a**.

e. CA Approves Level 2 Major Design Changes. Level 2 major changes are approved the same way as minor changes in **410c** above.

f. CA and VA Notified of Level 1 Major Design Change. The TC/STC holder will inform the CA of their intent to have a level 1 major change validated by the VA at the same time that they notify the CA of the change. The CA will immediately notify the VA of their intent. This early notification facilitates developing a comprehensive set of airworthiness standards that comply with both the CA and VA certification basis (see paragraph **422**). For configurations not targeted for the VA market, a TC/STC holder may opt not to obtain VA approval for a particular level 1 major design change. However, we encourage TC/STC holders to obtain VA approval for any design change that could eventually be incorporated into the VA fleet.

g. TC Holder Submits Application. The TC/STC holder submits the design change categorization as part of their application for certification/validation of the design change. For level 1 major changes, they send the application to the VA and CA at the same time.

h. VA Acknowledges Receipt and Makes Preliminary Assessment On Level of Involvement in Level 1 Major Design Changes. After receiving a design change application, the VA will respond to the CA (within 30 days is recommended) to acknowledge receipt and to share their preliminary assessment.

i. Determining VA Involvement. The level of VA involvement in level 1 major design changes is decided between the CA and the VA in accordance with the TVP vision. The validation process for any design change will be greatly simplified in most cases when compared to new type validation products. New VIs may be created to address features of the design change not included in the original type validation program. The VA must identify the VIs associated with the change (see paragraphs **306, 307, and 309**) and then identify whether the CA or the VA will determine compliance for each VI. The VA should rely on CA findings and actions to the maximum extent possible. VA involvement in level 1 major changes is limited to VIs associated with the design change. These VIs are developed in accordance with TVP. The VA is ultimately responsible for defining and justifying their involvement in any level 1 major change validation program.

j. Approval of Level 1 Major Changes/Compliance Statements.

(1) The VA finds compliance to all retained VIs and sends a letter to the CA indicating that all retained compliance determinations are completed.

(2) The CA assesses the design change and makes compliance findings using their internal procedures.

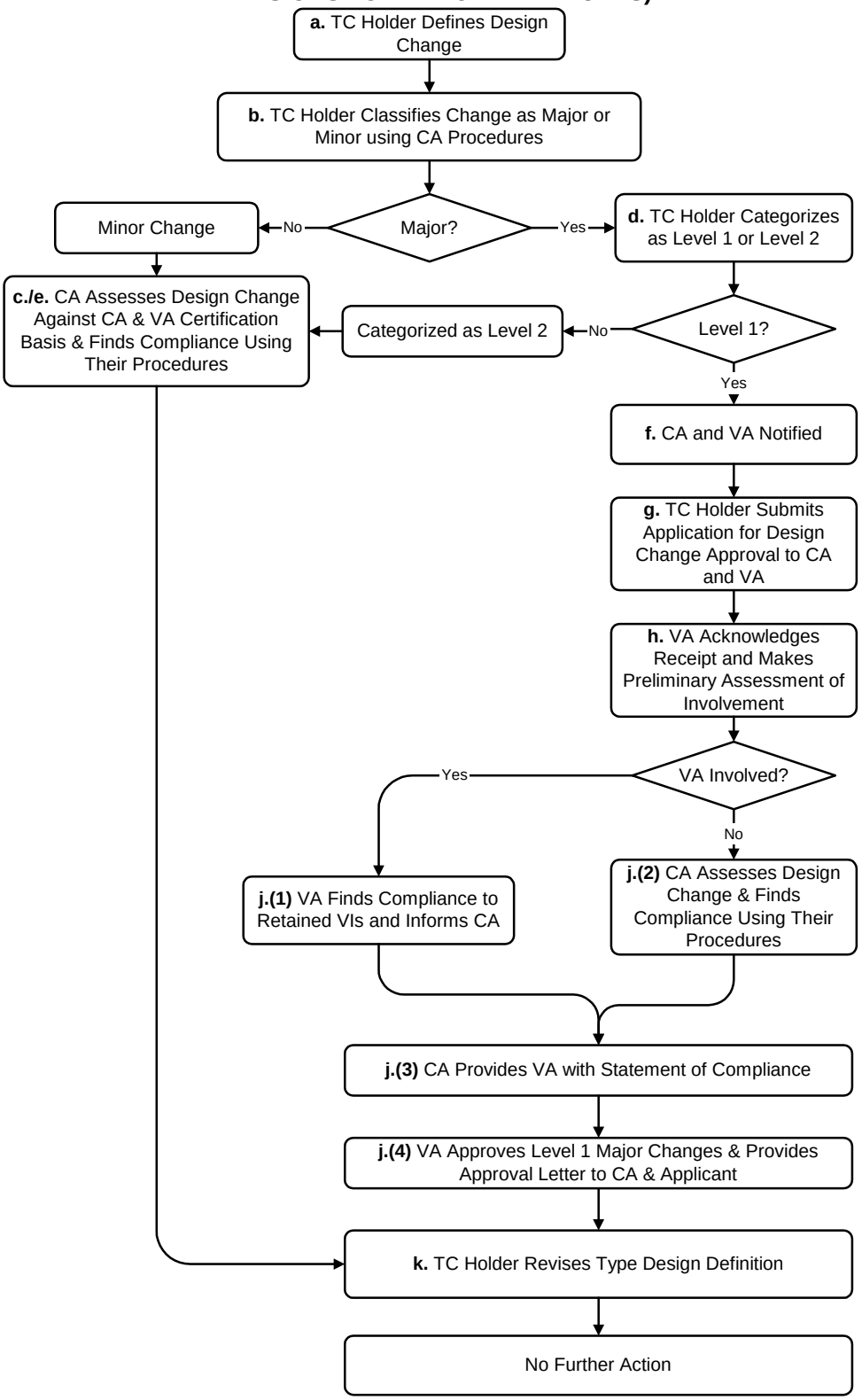
(3) After both CA and VA complete their compliance determinations, the CA sends a statement of compliance to the VA certification basis to the VA for all level 1 major changes.

The statement indicates compliance with the VA certification basis. The CA may issue individual statements for each design change or collective statements for lists of approved changes.

(4) The VA approves the level 1 major design change after receiving the CA compliance statement(s) and sends an approval letter to the CA, and a copy to the applicant.

k. TC Holder Revises Type Design Definition. The type design definition specifying the VA's current type design will record all major design changes that the CA approved on the VA's behalf (level 2 changes) or that the VA approved on the basis of CA compliance findings (level 1 changes). These records will be provided to the VA in a timely manner (we recommend within 90 days). This is the final step in the approval process.

FIGURE 4-1. TYPE DESIGN CHANGE APPROVAL PROCESS (INCLUDING APPROVAL OF REVISIONS TO APPROVED MANUALS)



412. MAJOR DESIGN CHANGE CATEGORIZATION. EASA and we use a concept that defines major design changes as either level 1 major or level 2 major. This makes the assignment of design change approvals to the CA easier. The following paragraphs discuss this categorization of major design changes, which is the principal feature of post-type validation principles.

a. Level 1 Major Design Change Categorization Criteria. Post-type validation principles provide eight criteria categorizing level 1 major changes. They are listed below. The first six apply to all products, regardless of the procedure used to validate them. The seventh applies only to approvals issued using TVP. The eighth criterion applies only to approvals issued using processes other than TVP.

(1) 14 CFR 21.101(b). Changes classified as significant, in accordance with 14 CFR § 21.101(b) and EASA Annex Part 21, Paragraph 21A.101(b). Under these regulations, significant changes may be required to comply with later amendments to the applicable airworthiness standards. It is important that the CA and the VA coordinate positions on the application of this rule.

(2) Change in Certification Basis. Changes resulting in a certification basis that differs from that of the product being changed, for example, new special conditions, exemptions, or equivalent level of safety findings. If the CA or TC/STC holder proposes a new exemption, special condition, or a equivalent level of safety finding, the VA must be given an opportunity, through the level 1 major categorization, to review and comment on the proposal. Similarly, the VA must be informed of applicants who voluntarily apply later amendments to a major change.

(3) New Interpretations/Novel MOC. Changes involving new interpretations of the standards, or novel MOC. An MOC or standard interpretation is not “novel” or “new” if both the FAA and EASA applied it previously in a similar context.

(4) Approved Manual Revisions. Design changes involving approved manual revisions where existing approved VA limitations, or performance, or flight manual procedures are affected (paragraph **320** defines approved manuals).

(5) Type Certificate or Data Sheet Changes. Any change affecting the actual TC or TC data sheet (that is, derivative models). These changes will likely require VA involvement and, depending on the extent of the changes, extensive VA involvement and fuller application of elements of the type validation process, as defined in chapter **3**.

(6) Other Changes. Any other design changes categorized as level 1 major by the CA, TC holder, or STC holder for changes to their STC.

> **NOTE:** This criterion may be applied when the design change would not otherwise be categorized as a Level 1 Major change. The CA or TC/STC holder may apply this criterion when there is a perceived benefit for early VA involvement or when the design change is of a type not addressed in the post-type validation principles. The criterion may be applied when there are specific

concerns about the operational introduction of a modification, and when early VA involvement is desired to ensure acceptance. For example, VA operating rules are occasionally amended to retroactively require installation of equipment that is not specifically required in the VA airworthiness standards. A level 1 categorization, and the resulting early VA involvement, may aid acceptance of the initial design changes proposed to support compliance with these retroactive operating rules by ensuring the correct interpretation of the operating rule and smooth operational introduction of the change.

(7) For design changes to products approved using TVP:

(a) The change involves a VI and use of a method of compliance different from those agreed by the CA and VA for use in the basic certification/validation.

(b) The change involves a VI for which the VA has retained the compliance determination during the type validation program.

(8) For design changes to products approved using a process *other* than TVP, the change involves areas where the VA exercised the compliance determination during the type validation program.

b. Level 2 Major Design Change Categorization Criteria. All major design changes not classified as level 1 major (per the criteria above) are categorized as level 2 major.

413. RECORDKEEPING.

a. The VA must monitor a validated product's type design definition. The TC/STC holder must, therefore, keep records of changes to the type design definition and periodically provide copies to the VA. Records should include the design change identification number, a brief title of the change, the categorization of the major change (level 1 or 2), affected approved manuals, and the CA approval dates (if complete.)

b. The VI list must be appended any time a design change to a product introduces a new VI. For example, if a post-TC design change introduces a new technology that requires an issue paper/CRI, it should be added to the VI list to ensure that any subsequent design changes affecting the new equipment are properly categorized.

414. –419. RESERVED

SECTION 4. TYPE DESIGN CHANGE APPROVAL: FAA AS VALIDATING AUTHORITY

420. GENERAL. Level 1 major type design changes are approved differently than level 2 major and minor type design changes. As paragraph **427** indicates, the VA has no role in approving minor and level 2 major changes. When we at the FAA are VA, EASA approves

these changes in accordance with their normal procedures, against the EASA and our certification bases. We will, however, receive notice of level 1 major changes when application is made to the CA. We will review the level 1 major design change application and determine how involved we'll become. Our involvement will match how complex and unique the design change is, while considering the general principle of maximum delegation to the CA.

a. This section defines FAA certification staff duties when approving type design changes acting as VA. The following paragraphs follow the flow chart in figure **4-1**.

b. Type design, in the context of validation, consists of the definition in 14 CFR § 21.31, plus any associated approved manuals.

421. TYPE CERTIFICATE HOLDER CLASSIFIES DESIGN CHANGE.

a. Major and Minor Design Change Classification. A TC/STC holder classifies each design change as a major or minor change under criteria and procedures established by their authority.

b. Level 1 – Level 2 Major Design Change Categorization. The TC/STC holder categorizes major changes as either a level 1 or 2 major change using the criteria in paragraph **411**. We should understand the process for categorization and discuss with EASA and the TC/STC holder when the categorization does not meet the intent of the BASA IPA.

c. FAA Acceptance of Design Change Categorization.

(1) A fundamental axiom of post-type validation principles is that the VA will accept the design change categorizations made by the applicant and CA. As noted previously, EASA or the NAA will approve level 2 major and minor design changes for us, with no FAA involvement.

(2) The FAA project manager must work closely with the EASA PCM to ensure a common understanding of the level 1/level 2 categorization criteria before they implement the post-type validation principles.

(3) The EASA PCM should contact the FAA project manager when a major design change categorization is in question.

(4) We may occasionally discuss the categorization of a level 2 design change after EASA or the NAA approves it, if we believe it should have been categorized as level 1. These discussions' primary goal is for us to understand the reasons for the categorization. Discussions shouldn't be used to challenge EASA/NAA design approvals. If first discussions do not clarify the issue, further discussion should focus on developing better design change categorization guidelines for future projects.

422. FAA NOTIFIED OF LEVEL 1 MAJOR DESIGN CHANGE.

a. We will receive notification of all level 1 major design changes through EASA when our validation is requested. FAA notification may come before the formal application for the change, if necessary, to meet the objectives outlined in the note below. For configurations not

targeted for our market, a TC/STC holder may opt *not* to obtain FAA approval for a particular level 1 major design change.

> **NOTE:** Our early involvement provides the best opportunity for the development of a comprehensive set of airworthiness standards in compliance with both the EASA and our certification bases. Additionally, our early involvement provides the best opportunity for jointly agreed acceptable MOC and identifying areas where jointly agreed solutions are not readily available.

b. This notice will typically come as an application for certification/validation of a design change. An application for a level 1 major design change should include the following information, at a minimum:

(1) Model applicability,

(2) Reason for categorization as level 1,

(3) Description of change,

(4) Proposed EASA/FAA certification basis, and

(5) Modification project schedule.

423. FAA RESPONDS TO LEVEL 1 DESIGN CHANGE APPLICATION. We will review the application and respond to the CA.

a. Involve AEG in Design Change Validations. The FAA program manager will forward copies of level 1 design change applications to the responsible AEG for comment. Operating requirements, such as 14 CFR parts 91, 121, 125, 135, or JAR OPS, and so forth may prescribe equipment requirements affecting the aircraft design. Conversely, the design change may affect equipment required to meet operating requirements. The design change may also affect crew training. The FAA validation project manager must coordinate with AEG.

b. Send FAA Response to EASA. After receiving a design change application, we must promptly (within 30 days) respond to the EASA PCM.

(1) The FAA response will:

(a) Acknowledge that we received the application,

(b) Inform EASA and applicant of our preliminary position on the proposed certification basis, and

(c) Inform EASA and applicant of our general intent regarding involvement in the design change validation.

(2) The response may contain some or all of the following:

(a) Indication of potential changes to the certification basis. We will respond to the applicant's proposed certification basis, in other words, the amendment level of the airworthiness standards proposed for the certification of the change. We may also indicate that we will, or won't, need a G-1 issue paper.

(b) Indication of intent (or not) to review any associated approved manuals, as a condition for validating the design change.

(c) Identification of expected validation team members, if any.

(d) Identification of need (or lack of need) for a familiarization meeting.

(e) Indication of the assignment of compliance determinations, if known.

(f) Other information as appropriate, or needed, such as: identification of applicable VIs, potential operational introduction issues, requests for additional information, and comments on the proposed validation schedule. These last comments are vitally important if we can't support the schedule.

424. FAA ESTABLISHES CERTIFICATION BASIS FOR LEVEL 1 MAJOR DESIGN CHANGES.

a. Establishing the Certification Basis. When level 1 major design changes require a certification basis revision, the FAA program manager will establish an FAA certification basis for the proposed change by applying regulatory and guidance material. The revised basis will be defined in a G-1 issue paper. We won't develop a G-1 issue paper if the original certification basis is acceptable. This decision will normally be documented in the FAA initial response letter, described in paragraph **423b.**

b. Identify VIs. The FAA program manager will identify the VIs for the proposed change using procedures in paragraphs **347** to **350**. The program manager must consider whether FAA issue papers written for the original type validation, and subsequent amended type validations, apply to any post-TC design change. The purpose is to define the "old VIs" that apply to the new design change. We may also produce new issue papers for other aspects of the design change or associated methods of compliance unique to the design change. Our intent is to identify any new VI covering design features or methods of compliance not included in the original validation. For example, a design change may add a heads-up display (HUD) to an airplane that lacked one. We may want to apply an issue paper to the design change, defining acceptable means of compliance for the HUD.

425. FAA DETERMINES INVOLVEMENT IN LEVEL 1 MAJOR DESIGN CHANGES.

a. After establishing our certification basis for the design change and identifying VIs, the program manager must decide on the FAA involvement in the approval of the design change. This involvement is determined under the general type validation and post-type validation principles. A full range of FAA involvement is possible. Extensive design change could warrant

a full validation program, including general and technical familiarization meetings. A simple design change may require no more information than what's in the application. In some cases we may be able to decide compliance determinations based entirely on the information in the application letter. We may assign all compliance determinations to EASA, who would then apply our MOC to establish compliance. Or we could choose to become involved in a determination. Even if we choose not to become involved, however, the project manager must instruct the EASA in acceptable MOC. Here are three examples of whether or not we become involved:

(1) The TC/STC holder proposes to change the airworthiness limitations section in the instructions for continued airworthiness as a result of further analysis of fatigue test data. After reviewing the application for the design change, we determine that the change will not affect the FAA certification basis and that our involvement is not required. We notify the PCM in a letter assigning all compliance determinations.

(2) The TC/STC holder proposes to change a vertical stabilizer primary structure from conventional aluminum to carbon fiber composite on an airplane with no composite primary structure. We respond to the application, through the EASA PCM, asking for a familiarization briefing. Then, we write a G-1 issue paper saying we intend to propose a new certification basis for the changed parts of the airplane to incorporate new loads and damage tolerance airworthiness standards issued since the original TC was approved.

(3) The TC/STC holder proposes to add a new air-data measurement system to the aircraft, including a new concept for measuring airspeed, altitude, and angle of attack. This system is the only source of these critical data for flight crew and airplane systems use. We respond to the application, through the EASA PCM, asking for a familiarization briefing. We also indicate that a VI may be raised to document the agreed MOC for the new equipment.

b. We will normally establish our final position on involvement in a level 1 major design change approval after the CA certification basis is defined, including the definition of applicable CRIs (existing or new), interpretive material, and so forth.

c. We expect all compliance determinations associated with a level 1 major design change approval to be assigned to the EASA. We will retain a compliance determination only when justified. Justification for involvement will normally fall into one or more of the following areas:

(1) New or novel features,

(2) New VA airworthiness standards, where judgment is required in their initial application,

(3) Sensitive issues, usually associated with an accident or incident on a product with similar design features, or

(4) New methods of compliance (MOC) or novel application of existing MOC.

d. We will give EASA written notice and justification for any retained compliance determinations. We'll use an issue paper.

e. As in type validation, an activity that is carried out by EASA on our behalf during post-type validation may be carried out either directly by EASA or under their legally constituted certification system. EASA may, therefore, assign an NAA to make compliance determinations to FAA standards, and approve FAA compliance data.

426. CLOSING ACTIONS FOR LEVEL 1 MAJOR DESIGN CHANGES.

a. Compliance Statements. At the end of a level 1 major design change project, EASA must complete all compliance determinations to establish compliance with the FAA certification basis. This will enable us to find compliance and approve the level 1 major change. Below are suggested steps for completing the validation of a design change:

(1) FAA completes any retained items. As with a type validation program, the FAA program manager sends a letter to the EASA PCM that we completed all retained compliance determinations.

(2) EASA issues compliance statement. EASA provide a statement of compliance to the FAA certification basis for the approved level 1 major change when EASA and we completed their compliance determinations. This statement should include the following words.

> *EASA certifies that the following modification to the [model designation] complies with the FAA certification basis as defined in [design change identifier Issue Paper G-1 or FAA TCDS if no G-1 issue paper was required for the design change].*
>
> *[Design change identification]*

b. FAA approves change. We will approve the level 1 major modification after receiving, from EASA, the FAA certification basis compliance statement, described in paragraph **426a**. The FAA project manager sends a letter to the EASA PCM approving the change. We also send a copy to the applicant.

427. LEVEL 2 MAJOR AND MINOR DESIGN CHANGES.

a. The VA has no role in approving level 2 major and minor design changes. EASA will review and approve level 2 major and minor design changes against the FAA certification basis for us. We won't receive notice of application for minor or level 2 major design changes. However, the PCM may contact the FAA project manager to discuss design change classifications, if needed.

b. The CA will periodically give us a list of approved level 2 major changes to the FAA type definition with a collective statement of compliance to the FAA certification basis for the listed changes. We propose every three months as a suitable time period. The list will also allow the FAA and CA to review the major design change categorization process to ensure a common understanding of categorization criteria, so it's applied correctly in future projects.

c. The FAA project manager should send copies of CA approval notices for level 2 major design changes to the responsible AEG.

428. RECORD KEEPING.

a. The FAA must monitor a validated product's approved type design definition. The TC holder must, therefore, keep records of changes to the type design definition and give copies to the FAA project manager periodically, or as they agree.

b. Major changes to the FAA type design definition. This record should include: the design change identification number, a brief title of the change, category of change (level 1 or level 2), affected approved manuals and the EASA/FAA approval dates (if complete).

429. UPDATES TO THE VI LIST. The VI list must be updated any time a post-TC design change introduces a new VI. For example, if a post-TC design change introduces new technology equipment that requires an issue paper, we should add that issue paper to the VI list to make sure that any subsequent design changes affecting the new equipment are properly categorized. The FAA project manager updates the VI list and coordinates any changes with the TC holder and CA.

430.–439. RESERVED

SECTION 5. TYPE DESIGN CHANGE APPROVAL: FAA AS CERTIFICATING AUTHORITY

440. GENERAL. Level 1 major type design changes are approved differently than level 2 major and minor type design changes. As paragraph **447** indicates, the VA has no role in approving minor and level 2 major changes. Acting as the CA, the FAA approves level 2 major and minor changes against the EASA certification basis. EASA will, however, receive notification of level 1 major changes when application is made to us. We must set up procedures with the TC/STC holder to make sure that EASA is notified of these changes. Once notified, EASA will review the level 1 major design change application and determine their level of involvement. EASA involvement in a level 1 major design change validation will be commensurate with the how complex and unique the design change is, under the general principle of maximum assignment to the CA (FAA).

a. This section defines FAA certification personnel duties approving type design changes when acting as CA. The following paragraphs follow the flow chart in figure **4-1**.

b. Type design, in the context of validation, consists of the definition in 14 CFR § 21.31, plus any associated approved manuals.

441. TYPE CERTIFICATE HOLDER CLASSIFIES DESIGN CHANGE.

a. Major and Minor Design Change Classification. The TC/STC holder will classify each design change as a major change or a minor change under 14 CFR § 21.93, "Classification of Design Changes" and existing ACO/ECO procedures.

b. Level 1 – Level 2 Major Design Change Categorization. The TC/STC holder categorizes major change as either level 1 or 2 major change using the criteria in paragraph **411**. The FAA ACO/ECO must have a process in place with the TC/STC holder to extend the current major/minor classification, as specified in 14 CFR § 21.93, to the level 1/level 2 major categorization. The FAA ACO/ECO may choose to oversee aspects of the categorizing process. For example, the ACO/ECO may choose to work out procedures with the TC/STC holder to enable us to review and approve the application and categorize the design change, before forwarding the application to the EASA PCM.

(1) We consider all major changes for which the applicant wants VA approval level 1 major changes if the TC holder lacks an acceptable classification system.

(2) The TC/STC holder should include the change level 1/level 2 category as a part of the application for design change certification/validation.

c. FAA Review of Design Change Categorization. The TC/STC holder submits the design change categorization as a part their application. The responsible ACO/ECO will review and approve the application and categorization, per standard procedures. Before agreeing to the categorization, the FAA project manager must consult: the list of VIs retained by EASA during the original validation, or its equivalent; and the level 1 major change criteria given above. This is to ensure both their classification considers previously retained VIs and consistent application of the criteria.

d. EASA Acceptance of Design Change Categorization.

(1) A fundamental axiom of post-type validation principles is that the VA will accept the design change categorizations made by the applicant and CA. As noted previously, we will approve level 2 major and minor design changes for EASA without their involvement.

(2) The FAA PM must work closely with the EASA PCM to ensure common understanding of level 1/level 2 categorization criteria before implementing the post-type validation principles.

(3) The FAA project manager should contact the EASA PCM when questioning a major design change categorization.

(4) EASA may occasionally discuss how we categorized a level 2 design change after we approve it (if they believe it should have been level 1). The discussion's main goal is for EASA to understand the reasons for our categorization. No one should use discussions to challenge our design approvals. If the initial discussions don't clarify the issue, further discussion should focus on developing better design change categorization guidelines for future projects.

442. EASA NOTIFIED OF LEVEL I MAJOR DESIGN CHANGES.

a. The TC/STC holder will notify us of their intent to have EASA validate a change at the same time they notify us of the change. We will immediately notify the EASA PCM of their intent. EASA notification may come before the formal application for the change, if necessary,

to meet the objectives outlined in the note below. For configurations not targeted for the EU market, a TC/STC holder may opt not to get EASA approval for a particular level 1 major design change. We should encourage the TC/STC holder to get EASA approval of any design change that could eventually be incorporated into the EU fleet.

> **NOTE:** EASA early involvement provides the best opportunity to develop a comprehensive set of airworthiness standards complying with both EASA and FAA certification bases. Additionally, early EASA involvement provides the best opportunity for jointly-agreed acceptable MOC and to identify areas where jointly agreed solutions are not readily available.

b. Application for Level 1 Major Design Change. The ACO/ECO should have procedures with the TC holder to define the application content. Applications for level 1 major design change should include the following information, at a minimum:

(1) Model applicability,

(2) Reason for categorization as level 1,

(3) Description of change,

(4) Proposed EASA/FAA certification basis, and

(5) Modification project schedule.

443. EASA RESPONDS TO LEVEL 1 DESIGN CHANGE APPLICATION. EASA will review the application and respond to us.

a. The ACO/ECO should set up administrative procedures with the PCM to ensure that EASA responds to us promptly after getting the design change application (we recommend a 30-day deadline). EASA PCM response should tell the applicant and us of their preliminary position on the proposed certification basis and their general intent regarding involvement in the design change validation. The EASA response may contain some or all of the following:

(1) Indication of potential changes to the EASA certification basis. The EASA may respond to the applicant's proposed certification basis, in other words, the amendment level of the CS/JAR proposed for certification of the change. EASA may also indicate that a CRI will (or won't) be needed.

(2) Indication of intent (or not) to review any associated approved manuals, as a condition for validation of the design change.

(3) Identification of expected validation team members, if any.

(4) Identification of need (or lack of need) for a familiarization meeting.

(5) Indication of delegation of compliance determinations, if known.

(6) Other information, such as: identification of applicable VIs, potential operational introduction issues, requests for additional information, and comments on the proposed validation schedule. Comments are vitally important if EASA cannot support the schedule.

444. EASA ESTABLISHES CERTIFICATION BASIS FOR LEVEL 1 MAJOR DESIGN CHANGES.

a. EASA Establishes its Certification Basis. The EASA team will either confirm the applicability of the certification basis in the TC, or establish a revised EASA certification basis that applies to the change. Any proposed changes to the EASA reference certification basis will be identified in a CRI. If the design change doesn't require a certification basis revision, (in other words, the certification basis in the TC is acceptable) the decision should be documented in the EASA initial response letter, described in paragraph **443**.

b. EASA Identifies the VIs. EASA will identify VIs for the proposed change. The EASA program manager must consider whether CRIs written for the original type validation and for subsequent amended type validations apply to any post-TC design change. The EASA team may also decide to issue new CRIs covering aspects of the design change or associated methods of compliance unique to the design change, that is, not included with the original type validation. For example, a design change may add a heads-up display (HUD) to an airplane that previously lacked one. EASA may want to apply a CRI to the design change to define acceptable MOC.

c. FAA Communication Responsibilities.

(1) FAA Certification Basis. EASA may not be able to finalize their certification basis for the modification until we have established our own certification basis. The FAA program manager will send a courtesy copy of the FAA certification basis issue paper, if one is produced, to the EASA PCM at each stage of development. Similarly, we must notify EASA if we decide to apply the certification basis referenced in the TC to the modification with no changes.

(2) FAA Issue Papers. The FAA program manager should send the EASA PCM a copy of any new FAA issue papers developed for the design change project. This coordination will have two functions: to alert the EASA team to a new FAA issue specific to the design change; and to give the EASA team enough information to decide if they need a new CRI.

445. EASA DETERMINES INVOLVEMENT IN LEVEL 1 MAJOR DESIGN CHANGES.

a. After establishing their certification basis and identifying any new VIs, EASA must decide on the extent of their involvement, if any, in the approval of the design change. They decide this based on the general type validation and post-type validation principles. A full range of EASA involvement is possible. An extensive design change could warrant a full validation program including general and technical familiarization meetings. A simple design change may require no more information than what's provided with the application.

b. The ACO/ECO should work out procedures with EASA to make sure that EASA involvement is defined on time and in enough detail for efficient project management.

c. EASA may choose to assign all, or some, compliance determinations to the FAA. We will apply EASA MOC to establish compliance with all the assigned EASA airworthiness standards.

d. The final EASA position on involvement in level 1 major design change validations will normally be established after the FAA certification basis is defined, including applicable existing or new issue papers, interpretive material, and so forth.

e. All compliance determinations associated with a level 1 major design change approval should be assigned to us. EASA will retain a compliance determination only when justified. Justification for involvement will normally fall into one or more of the following areas:

(1) New or novel features, new EASA airworthiness standards where judgment is required in their initial application,

(2) New VA airworthiness standards, where judgment is required in their initial application,

(3) Sensitive issues, usually associated with an accident or incident on a product with similar design features,

(4) New methods of compliance (MOC) or novel application of existing MOC.

f. The FAA PM ensures that appropriate justification accompanies any request for EASA team involvement in compliance determination activities. Any discussion on justification for involvement should initially between the PM and PCM. If justification is still disputed, subsequent discussion should be elevated per the issue resolution process in paragraph **323**.

g. As in type validation, an activity carried out by us for EASA during post-type validation may be carried out either directly by us or under our legally constituted certification system. The FAA may, therefore, allow our qualified designees to make compliance determinations to EASA airworthiness standards, and approve EASA compliance data.

446. CLOSING ACTIONS FOR LEVEL 1 MAJOR DESIGN CHANGES.

a. Compliance Statements. At the end of a level 1 major design change project, the FAA must complete all determinations needed to establish compliance with the EASA certification basis. This will enable EASA to make a finding of compliance and approve the level 1 major change. Below are suggested steps for validating a design change:

(1) EASA Completes Any Retained Items. As with a type validation program, the EASA PCM will give the FAA project manager a written statement indicating all retained compliance determinations have been completed. The FAA PM and the EASA PCM should agree on the form of the written statement in advance.

(2) FAA Issues Compliance Statement. After all compliance determinations are completed, including any EASA retained, we will provide a statement of compliance to the

EASA certification basis for each approved level 1 major change. This statement should include the following:

> *The FAA certifies that the following modification to the [model designation] complies with the EASA certification basis as defined in [design change identifier CRI or EASA [JAA] TCDS if no certification basis CRI was required for the design change].*
>
> *[Design change identification]*

b. EASA approves change EASA will approve the level 1 major modification after receiving our compliance statement. The EASA PCM will send a letter to the FAA project manager approving the change. They'll also send a copy to the applicant.

447. LEVEL 2 MAJOR AND MINOR DESIGN CHANGES.

a. The VA has no role in approving level 2 major and minor design changes. The FAA will review and approve level 2 major and minor design changes against the EASA certification basis for EASA. EASA will not get notice of application for minor or level 2 major design changes. However, the FAA project manager may contact the EASA PCM to discuss design change categorizations, if needed.

b. The FAA PM and the TC/STC holder will develop procedures to periodically give the EASA PCM a list of approved level 2 major changes to the EASA type design definition, with a collective statement of compliance to the EASA certification basis for the listed changes. Every three months is suitable time. The list will also give EASA and us a chance to review the Major design change categorization process to ensure a common understanding of criteria for categorizing.

448. RECORD KEEPING. EASA will monitor the approved EASA type design definition. We must ensure that the TC/STC holder keeps records of changes to the type design definition and sends copies to the EASA PCM when asked. This record should include each design change identification number, a brief title, the change category (levels 1 or 2), affected approved manuals, and the EASA/FAA approval dates (if complete). This record should be updated quarterly or other schedule as agreed by EASA, the applicant, and us.

449. UPDATES TO THE VI LIST. The VI list must be updated any time a post-TC design change introduces a new VI. For example, if a post-TC design change introduces new technology equipment that requires a new CRI, that CRI should be added to the VI list to ensure that any subsequent design changes affecting the new equipment are appropriately categorized. The EASA PCM updates the VI list and coordinating any changes with the TC/STC holder and us.

450.–499. RESERVED

APPENDIX 1. EUROPEAN UNION MEMBER STATES WITH BAA OR BASA IPA WITH THE UNITED STATES

Austria

Belgium

Czech Republic

Denmark

Finland

France

Germany

Italy

The Netherlands

Poland

Spain

Sweden

United Kingdom

APPENDIX 2. DEFINITIONS OF TERMS USED IN THIS ORDER

References to the appropriate paragraphs and subparagraphs where you'll find more complete discussion are at the end of each definition.

1. Action Items, (AI): EASA documents used to advance non-controversial items that require special attention. Action Items involve subjects that would *not* require a certification review item (CRI). See paragraph **312**.

2. Amendment Pair: The number of the 14 CFR amendment and numbers of both comparable CS/JAR change and amendment in effect on a specific date. For this order, the term is specific to airworthiness standards for airplanes, rotorcraft, balloons, engines, and propellers (i.e., 14 CFR parts 23, 25, 27, 29, 31, 33, and 35). A new amendment pair is established when either a new 14 CFR amendment or a new JAR change or amendment to a change becomes effective. See paragraphs **331** and **333**.

3. Approved Manuals: Manuals, or sections of manuals, requiring approval by the aviation authorities as part of the certification program. These include the approved sections of the flight manual, the airworthiness limitation section of the instructions for continued airworthiness (ICA), the engine and propeller installation and operating instruction manuals, and the certification maintenance requirements, where applicable. See paragraph **320**.

4. Assignment of Finding of Compliance: The validating authority entrusts the certificating authority to make findings of compliance to the validating authority (VA) certification basis. This definition is for this document only and should not be confused with other delegations under 14 CFR parts 21 or 183.

5. Certificating Authority, (CA): Aviation authority responsible for the original type certificate or supplemental type certificate. Certificating authority means the FAA for applicants/certificate holders located in the United States, and EASA for applicants/certificate holders located in the European Community and in JAA member states, for products under JAA procedures. The certificating authority may also be referred to as the exporting authority. See paragraph **201**.

6. Certification Action Items, (CAI): Name sometimes given to EASA action items. See paragraph **312**.

7. Certification Review Items, (CRI): EASA/JAA documents used to record a certification or validation issue needing clarification or representing a major technical or administrative problem. Used for significant or controversial regulatory, technical policy, and means of compliance issues. CRI are the EASA/JAA counterparts to FAA issue papers. See paragraph **312**.

8. Certification Specifications, (CS): EASA airworthiness standards corresponding to 14 CFR parts 23, 25, 27, 29, 33, 35, and so forth.

APPENDIX 2. DEFINITIONS OF TERMS USED IN THIS ORDER (CONTINUED)

9. Compliance Determination: Determination, by either the CA or the VA, that the applicant has demonstrated compliance with identified, individual airworthiness standards. See paragraph **204d**.

10. Compliance Finding: Official act by which the responsible authority makes a legal finding that the applicant has demonstrated compliance with all identified applicable airworthiness standards. See paragraph **204e**.

11. Generic Validation Item: Certification item identified by the VA for particular scrutiny in all products of a certain class. The VA will publish and periodically update generic validation item lists that will be publicly available. See paragraph **306**.

12. Letter of Recommendation: Official document issued by the JAA to JAA member states, acknowledging compliance with the JAA certification basis and recommending that the national authority issue a type certificate or its equivalent.

13. Level 1 Major Changes: Design changes that affect the certification basis, or require certain revisions to approved manuals, or meet other specific criteria according to the guidelines of the post-type validation principles. See paragraph **411a** for a full list of criteria.

14. Level 2 Major Changes: Changes to type design *not* classified as level 1 major changes. See paragraph **411a**.

15. Methods of Compliance, (MOC): Analyses, tests, or inspections used by the applicant to demonstrate compliance with the certification and validation airworthiness standards. MOC include descriptions of methodologies employed, assumptions used in applying the methodologies, and discussions of the procedures used to verify the methodologies. See paragraph **310**.

16. National Aviation Authority, (NAA): Aviation authority of a EU member state or JAA member state.

17. Non-Significant Standards Differences, (Non-SSD): Airworthiness standards where the VA and CA airworthiness standards are different, but *not* classified as significant standards differences. Compliance with all VA non-SSD is required. See paragraph **309a(2)**.

18. Post-Type Validation: Process leading to approval of post-type certification design changes, data used in repairs, and airworthiness data including service information. Continued airworthiness activities are also post-type validation activities. See paragraph **220**.

19. Project Validation Item: Certification item unique to a particular validation project, for example, unique design, usage, or methods of compliance (MOC). A project validation item is established solely to address that uniqueness. See paragraph **307**.

APPENDIX 2. DEFINITIONS OF TERMS USED IN THIS ORDER (CONTINUED)

20. Standards Differences Lists: Lists of significant standards differences and non-significant standards differences assembled for each 14 CFR CS/JAR amendment pair. Standards differences lists are jointly developed by FAA and EASA/JAA, published, and made public. See paragraph **333**.

21. Significant Standards Differences (SSD): VA airworthiness standard with no CA equivalent, resulting in a difference that may require type design changes, approved manual changes, or the imposition of operational limitations to meet the VA standards. The type design or operation approved by the VA could then differ from the design and/or operation approved by the CA. See paragraph **309a(1)**.

22. Technical Specialist: For this document, "technical specialist" means any specialist involved in certification activities. Term is not restricted to an engineer with that job title.

23. Type Certification: Process used by an aviation authority to establish compliance of a product to a set of noise, environmental, procedural, airworthiness and other standards. See paragraph **201**.

24. Type Validation: For this document, type validation is type certification of an imported product to the importing country's applicable requirements or airworthiness standards. Process leads to issuance of new and amended type certificates when FAA is the VA. When EASA is VA, type validation leads to issuance of an EASA type certificate valid in all EASA member states. When an NAA of a non-EU JAA member state is VA, type validation leads to a letter of recommendation for type certificate from the JAA to the NAAs. Term also describes the general principles adopted by FAA and EASA/JAA for determining appropriate VA involvement in validations, whether they are new or amended type certifications, or major level 1 design changes. See paragraph **202**.

25. Validating Authority, (VA): Aviation authority responsible for validating the CA type certificate or supplemental type certificate. Validating authority means EASA for applicants/approval holders located in the United States, and FAA for applicants/approval holders in the European Community and JAA member states. Validating authority may also be called the importing authority. See paragraph **202**.

26. Validation Authority Certification Basis: Applicable airworthiness standards identified by the VA plus any exemptions, special conditions, and equivalent level of safety findings declared by VA to establish design acceptance of an imported product or to certify the design change. See paragraph **304**.

27. Validation Item, (VI): Certification item or airworthiness standard of particular interest to the VA. Three types of VI are: an SSD, a project validation item, and generic validation item. See paragraph **305**.

APPENDIX 2. DEFINITIONS OF TERMS USED IN THIS ORDER (CONTINUED)

28. Validation Team: Team of technical specialists assembled by VA to conduct the validation program. Project manager heads the team. Project manager identifies technical disciplines required for the team, and is prime interface between VA and CA.

APPENDIX 3. ACRONYMS

ACJ	Advisory Circular Joint (JAA)
ACO	Aircraft Certification Office
AEG	Aircraft Evaluation Group
AMJ	Advisory Material Joint (JAA)
BAA	Bilateral Airworthiness Agreement
BASA	Bilateral Aviation Safety Agreement
CA	Certificating Authority
CAA	Civil Aviation Authority
CFR	Code of Federal Regulations
CRI	Certification Review Item (JAA)
CS	Certification Specification (EASA)
EASA	European Aviation Safety Agency
FAR	Federal Aviation Regulations
FOEB	Flight Operations Evaluation Board
FSB	Flight Standardization Board
IP	Issue Paper (FAA)
IPA	Implementation Procedures for Airworthiness
IR	Implementing Rules
JAA	Joint Aviation Authorities
JAR	Joint Aviation Requirements
MMEL	Master Minimum Equipment List
MOC	Methods of Compliance
MRB	Maintenance Review Board
Non-SSD	Non-Significant Standards Difference
PCM	Project Certification Manager
SSD	Significant Standards Difference
STC	Supplemental Type Certificate
TC	Type Certificate
TGM	Temporary Guidance Material (EASA)
VA	Validating Authority
VI	Validation Item

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES

Dated October 6, 2004

FAA/EASA/JAA

Type Validation Principles/

Post-Type Validation Principles

October 6, 2004

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

Table of Contents

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

Section I: Definitions

1. **Airworthiness Standards:** The technical standards used by the Certificating Authority (CA) and Validating Authority (VA) to certificate the airworthiness of a product, part or appliance. The Federal Aviation Administration (FAA) uses the regulations defined in 14 CFR parts 21, 23, 25, 27, 29, 31, 33 and 35. European Aviation Safety Agency (EASA) has adopted a set of Certification Specifications (CS), CS-22, -23, -25, -27, -29, -E, -P, -VLR and -VLA, as a means of compliance to the essential requirements as defined in European Commission (EC) 1592/2002. The Joint Aviation Authorities (JAA) developed a set Joint Aviation Requirements (JAR), JAR-22, 23, 25, 27, 29, E, P, VLA, and VLR.

2. **Approved Manuals**: Manuals, or sections of manuals, requiring approval by the airworthiness authorities as part of the certification program. These include the approved sections of the Flight Manual, the airworthiness limitation section of the Instructions for Continued Airworthiness (ICA), the engine and propeller installation and operating instruction manuals, and the certification maintenance requirements, where applicable.

3. **Basic Supplemental Type Certificate (Basic STC):** A Supplemental Type Certificate that does not require VA technical involvement.

4. **Certificating Authority (CA):** The airworthiness authority responsible for the original Type Certificate or Supplemental Type Certificate. Certificating Authority means the FAA for applicants/certificate holders located in the United States, and EASA for applicants/certificate holders located in the European Community and in JAA Member States, for products under JAA procedures. The Certificating Authority may also be referred to as the exporting authority.

5. **Compliance Determination:** The determination, by either the CA or the VA, that the applicant has demonstrated compliance with identified, individual airworthiness standards.

6. **Compliance Finding:** The official act by which the responsible authority makes a legal finding that the applicant has demonstrated compliance with all identified applicable airworthiness standards.

7. **Generic Validation Item:** A certification item identified by the VA for particular scrutiny in all products of a certain class. The VA will publish and periodically update Generic Validation Item lists that will be publicly available.

8. **Non-Basic Supplemental Type Certificate (Non-Basic STC):** A Supplemental Type Certificate whose validation may require VA technical involvement.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

9. **Non-Significant Standards Difference (Non-SSD):** A VA airworthiness standard that has no CA equivalent, yet it does not result in a difference that is classified by the VA as significant.

10. **Product Class**: For the purpose of this document, the product class refers to category, class, aircraft engines or propellers.

11. **Project Validation Item:** A certification item that is unique to a particular validation project, for example, unique design, usage, or Methods of Compliance (MOC). A Project Validation Item is established solely to address that uniqueness.

12. **Significant Standards Difference (SSD):** A VA airworthiness standard that has no CA equivalent, which results in a difference that may require type design changes, approved manual changes, or the imposition of operational limitations to meet the VA standards. The type design or operation approved by the VA could then differ from the design and/or operation approved by the CA.

13. **Standards Equivalencies**: The FAA and EASA airworthiness standards that are determined to be equivalent despite their language differences.

14. **Validating Authority (VA):** The airworthiness authority responsible for the validation of the CA's Type or Supplemental Type Certificate. Validating Authority means EASA for applicants/approval holders located in the United States and the FAA for applicants/approval holders located in the European Community and JAA Member State. The validating authority may also be referred to as the importing authority.

15. **Validating Authority Certification Basis:** The applicable airworthiness standards identified by the VA plus any Exemptions, Special Conditions, and Equivalent Level of Safety Findings declared by the VA to establish its design acceptance of an imported product or to certify the design change.

16. **Validation Item (VI)**: A certification item or airworthiness standard of particular interest to the VA. There are three types of VI: a SSD, a Project Validation Item, and a Generic Validation Item.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

Acronyms

AMOC – Alternative Method of Compliance

CA – Certificating Authority

CFR – Code of Federal Regulations

CRI – Certification Review Item

CS – Certification Specifications

EASA – European Aviation Safety Agency

FAA – Federal Aviation Administration

ICA – Instructions for Continued Airworthiness

ICAO – International Civil Aviation Organization

IP – Issue Paper

JAA – Joint Aviation Authorities

JAR – Joint Aviation Requirements

MMEL – Master Minimum Equipment List

MOC – Methods of Compliance

PTVP – Post Type Validation Principles

SSD – Significant Standards Difference

STC – Supplemental Type Certificate

TC – Type Certificate

TVP – Type Validation Principles

VA – Validating Authority

VI – Validation Item

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

Section II: Type Validation Principles

1. Scope

1.1 This section defines the normal conduct of both the CA and VA for the type validation of aircraft, aircraft engines, and propellers. It applies to all validation programs leading to a type certificate (TC), or supplemental type certificate (STC).

1.2 This section establishes the principles and the general process governing:

- How the VA will establish its Certification Basis.
- How the VA will establish its involvement in the certification program, including, how and by whom the compliance determinations will be made to the VA Certification Basis.
- How the VA will gain familiarity with the product in order to carry out its continued airworthiness responsibilities.

1.3 As appropriate, this section will also be used to determine VA involvement in Level 1 Major design changes (see Section III: Post Type Validation Principles).

1.4 The VA has sovereign authority over the certification process and compliance findings within its jurisdiction.

1.5 The Type Validation Principles (TVP) are intended to define how the VA will routinely exercise its rights. If there are overwhelming reasons to go outside these defined principles, the VA will technically justify those reasons in every instance.

1.6 The TVP are not intended, in any way, to diminish the VA's responsibilities or future right to type design information. In particular, the VA must have ready access to information necessary to carry out continuing airworthiness responsibilities.

2. Vision

2.1 The vision of all validation projects is:

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

A simple process based on mutual authority trust, which leads to design acceptance in compliance with the VA's airworthiness standards. This process requires effective communication between all parties on all matters related to the validation process.

2.2 The expectation is that there will be an early and open exchange of information and discussion between the CA and the VA. Special emphasis should be given to: proposed use of exceptions to the latest CA airworthiness standards (that is, the application of 21.101/21A.101), Special Conditions, Exemptions, Equivalent Level of Safety Findings, and Methods of Compliance (MOCs). This exchange will ease the validation process and benefit the applicant in reaching a timely validation.

Note: The VA should be responsive to requests to discuss policy and regulatory issues prior to formal applications. The applicant through the CA should make these requests to the VA.

2.3 The ultimate decision to establish the CA and VA Certification Bases rests with the CA and VA, respectively.

2.4 The expectation is that, except for a limited number of cases, the determinations of compliance with the VA's Certification Basis will be made by the CA, as requested by the VA. Nevertheless, the VA must maintain a general awareness and understanding of the CA's compliance activities to be able to exercise its responsibilities as a State of Registry. The VA is able to make findings of compliance, without further showing, based upon statements of compliance by the CA.

2.5 The Type Validation Principles permit validation to take place as either a concurrent or a sequential process. The preferred approach from the authorities' perspective is for a concurrent process.

2.5.1 In a concurrent validation, the applicant requests validation of the product early in the process, well before the CA has completed all its certification findings, and while any VIs may be efficiently addressed in the design development and compliance demonstration. A common VA/CA type design should be an objective of a concurrent validation. This approach may allow the applicant to address VIs during the demonstration of compliance to the CA Certification Basis. Concurrent validation can result in a more efficient program, for both the applicant and authorities, and is therefore encouraged. However, care must be exercised to ensure that the CA remains in the leading role.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

2.5.1.1 Concurrent certification/validation projects provide the best opportunities for collaborative development of both CA and VA use of exceptions to the latest airworthiness standards, Special Conditions, Exemptions, Equivalent Level of Safety Findings and acceptable MOC. Additionally, concurrent certification/validation projects provide for early identification of areas where jointly agreed solutions are not readily available.

2.5.1.2 The CA and VA will meet early with the applicant to identify their respective applicable standards and will strive to achieve a common Certification Basis and acceptable MOC to the maximum extent possible.

2.5.2 In a sequential validation, the CA has completed its certification, or is well advanced in the certification process, before the applicant requests validation by the VA. In this case, the CA Certification Basis and acceptable MOCs have been established and approved by the CA. Certification flight tests may have been completed. In fact, the CA type certificate may already have been issued and the product may be in service.

2.6 The authorities recognize the benefits to aviation safety of efficiently run validation programs. These programs provide an opportunity for the assessment of significant safety features, in accordance with the concepts in this document. This will enable and facilitate the reciprocal acceptance of the work of the authorities and the long-term cooperation and effectiveness of the authorities and the manufacturers.

3. Airworthiness Standards: Equivalencies and Differences

3.1 Standards Equivalencies

3.1.1 A literal comparison of the airworthiness standards developed by the FAA and the EASA indicates that there are instances where the standards text differs extensively. In some cases, the FAA and EASA airworthiness standards may be determined to be equivalent despite such text differences.

3.1.2 The 14 CFR and CS standards must meet both of the following conditions to be equivalent:

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

a) They must have the same regulatory objective, and

b) They must contain equivalent technical standards such that compliance with one standard would meet compliance with the other.

3.1.3 The appropriate Directorates within the FAA and EASA must approve standards Equivalencies.

3.2 Standards Differences

3.2.1 A comparison of the airworthiness standards developed by the FAA and the EASA indicates that they sometimes differ. In some cases, the 14 CFR are more stringent than the CS; in other instances the CS are more stringent. These standards differences must be considered when establishing the VA certification basis for a product.

3.2.2 Standards Differences are unique to a particular amendment-pair of standards. An amendment-pair is defined as a particular CS/JAR amendment number and a comparable 14 CFR amendment number.

3.2.3 Standards Differences for the current standards will be updated as the 14 CFR and CS amendments change. There will be a current set of Standards Differences, as well as other Standards Differences that have been generated for other amendment-pairs in the past.

3.2.4 Once a particular set of Standards Differences is generated for a particular amendment-pair, that set of Standards Differences will be published and should be used for all validation projects where the regulatory bases consist of that amendment-pair.

3.2.5 In a particular validation project, especially for derivative products, the amendment-pair that form the CA and VA Certification Bases may not have a set of Standards Differences. In that case, the VA team will consult with the Policy/Regulatory staff during Phase II of the validation project (See 5.3) to identify the Standards Differences for the amendment-pair that comprise the CA and VA Certification Bases of the product. The team must begin their work by referring to the Standards Differences that correspond to an amendment-pair

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

of regulations that is closest to those of the product CA and VA Certification Basis.

3.2.6 The list of Standards Differences must be developed and approved by the appropriate Directorates within the FAA and EASA and provided to the VA team.

3.2.7 Standards Differences are divided into two classes: Significant Standards Differences (SSD) and Non-Significant Standards Differences (Non-SSD).

a) SSDs are defined as VIs, and thus the VA may choose to retain involvement in the associated compliance determinations.

b) The CA will determine compliance against all Non-SSDs outside the VIs. VA investigation of MOC associated with Non-SSDs will be limited to items within the scope of identified VIs.

3.2.8 All interpretive and guidance material associated with the Standards Differences must be identified.

3.2.9 Differences in interpretive advisory, or guidance material, may exist even when the standards are identical or equivalent. When appropriate, these differences will be addressed in Generic VIs.

4. Validation Items

4.1 VIs identify aspects of the design or proposed MOC that warrant further technical involvement (beyond familiarization) by the VA. VIs are normally identified during the familiarization process. The basic principle behind the VI is that the VA will not review compliance determinations by the CA, or be involved in an in-depth review of the MOC except in areas, which fall within the scope of the identified VI.

4.2 VIs consist of:

a) Applicable SSDs,

b) Project VIs, and

c) Applicable Generic VIs.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

4.3 All applicable SSDs, Project VIs, and applicable Generic VIs are identified in individual Issue Papers (FAA) or Certification Review Items (EASA).

4.4 Project VIs. A validation project may contain unique elements due to the product's design, use, or proposed MOC. The VA may identify these elements for special review and consideration. Project VIs are developed by the VA team solely to address unique project elements. They must meet one of the following criteria:

a) New Technology - This is technology that is new to the FAA or the EASA as a whole, not just new to the VA team members. For instance, if technology used by the applicant were new to the VA team but not the VA itself, it would not be considered a Project VI. It is the VA management's responsibility to make sure the VA team members are properly informed of the earlier use of the technology, VA standards and MOC.

b) Novel Applications of Existing Technology - This is where a particular technology is being used in a manner that causes the precepts of the technology to be questioned. However, it does not mean that existing technology being applied for the first time to a particular product line is automatically novel. Additionally, novel applies to the FAA or EASA as a whole, not just the VA team members.

c) The Product Use is Unconventional - This is where a product is being used for a purpose for which it was previously not designed.

d) Unsafe Condition - The product contains design features where experience with other products in service has shown an unsafe condition might occur in that product, even though compliance with the standards in the VA Certification Basis can be demonstrated. Unsafe is measured with respect to the overall level of safety intended by the product VA Certification Basis.

Note: This principle of "unsafe condition" should only be used to upgrade the level of safety of the product if the VA has mandated, or will immediately mandate, that upgraded level of safety to other products with similar design features. .

e) New Standard Interpretations or MOC for the Existing Airworthiness Standards – These are interpretations/MOC applied by the CA that are different from those already agreed to between the CA and the

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

VA. An MOC or standards interpretation would not be considered "novel" or "new" if it had been applied previously in a similar context by both the FAA and EASA.

f) Exemptions - These are subjects identified by the VA or CA as potentially requiring an exemption from the VA standards.

g) Equivalent Level of Safety Findings - These are subjects identified by the VA or CA as potentially requiring an Equivalent Level of Safety Finding to the VA standards.

Note: Project VI may be added to the list of Generic VIs if the associated issue is expected to have a broader applicability to future programs. The VA will make this determination and update the Generic VI list accordingly.

4.5 Generic VIs. These consist of VIs that have been identified by the VA for particular scrutiny in all products of a certain class. Generic VI lists must be developed and approved by the appropriate Directorates within the FAA and EASA. The VA will publish and periodically update a list of Generic VIs for each product class. The VA team will identify applicable VIs from this list during its familiarization with the particular validation project. Generic VIs include:

a) New VA standards where there is no past experience by the VA with their application to a product, they have an important impact on the whole product or a critical feature, and engineering judgment is required to establish compliance,

b) New VA standards where there is no past experience by the CA with their application to a product, they have an important impact on the whole product or a critical feature, and engineering judgment is required to establish compliance,

c) Airworthiness standards where VA and CA interpretive, advisory, MOC, or guidance materials differ or are insufficient,

d) Commonly occurring Project VIs (See Note after Paragraph 4.4.g), and

e) Standards identified for special emphasis by the VA in a data-driven risk assessment analysis for the product class. (If the VA and the CA have both identified a standard for special emphasis, it generally should not be a VI.)

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

5. Validation Process

5.1 General

5.1.1 The paragraphs that follow (5.2 through 5.5) discuss the four phases of a validation project. The events that begin and end each phase are identified. The concepts discussed are summarized in the table in the Appendix to this Section.

5.1.2 Before the receipt of an application, the VA should be able to discuss policy and regulatory issues with the CA for the purpose of future timely validation.

5.1.3 It is the applicant's responsibility to propose a realistic time-scale, to seek the CA and VA concurrence and to take appropriate action with the CA and VA to stay as close as possible to the agreed schedule.

5.1.4 Certain technical disciplines on a VA team may be at different phases of the validation project, depending on the progress of their efforts (this is particularly true for Flight Test). There is no need for any technical discipline to hold up its validation efforts to wait for those that are not as far along.

5.1.5 It is essential that relevant CA Policy/Regulatory staff supports the VA in the four phases of a validation program. It is particularly important that CA Policy/Regulatory staff attend meetings that discuss new Exemptions, new Special Conditions and new Equivalent Level of Safety Findings.

5.1.6 The VA team will seek advice from the VA Policy/Regulatory staff when considering new Exemptions, new Special Conditions and new Equivalent Level of Safety Findings applicable to the VA Certification Basis.

5.1.7 In accordance with14 CFR §21.29 and notwithstanding the EASA's Annex Part 21, Paragraph 21A.17, once the initial VA Certification Basis has been established, it will remain unchanged except when: unsafe conditions arise, design changes are made that affect the Certification Basis, or when the applicant elects to comply with later amendments.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

5.1.8 Upon identification of the VI and agreement to the MOC, the expectation is that the CA will make all determinations of compliance on behalf of the VA, except for defined subjects limited to VI.

5.1.9 When the CA on behalf of the VA carries out an activity, that activity may be carried out by the CA or under its legally constituted delegation system.

5.1.10 The VA will not review any of the determinations made by the CA outside those areas defined by the VI.

5.1.11 FAA and EASA management will closely follow the validation programs. Their efforts include the following:

a) Dispute Resolution. The CA, applicant and VA Project Managers have a collective responsibility to ensure that every effort is made to resolve all certification disputes between the VA and CA teams as the program progresses, at the lowest possible level. However, impasses should be expeditiously elevated to consecutively higher levels of management within the VA and the CA until resolution has been obtained or the appeal process has run its course. The objective is to not delay the applicant's certification program while the authorities are resolving their issues.

b) Program Status Monitoring. The FAA and EASA will maintain a list of all on-going certification/validation programs to enable management to monitor the programs' status. The list will include the dates of completion for each validation phase and the key points of contact.

c) Program Reviews. The FAA and EASA may, for selected projects, review the implementation of these Principles for the purpose of identifying potential areas for improvement in the validation process.

5.2 Phase I - General Familiarization

5.2.1 Phase I begins when the VA receives the type certification application. In this phase, the applicant proposes an overall validation schedule. Based upon this information, the VA team,

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

when formed, will establish the initial validation schedule for the completion of the validation process.

5.2.2 A key element of Phase I is the General Familiarization Meeting. At this meeting, the applicant will present an overview briefing of the project to the VA and familiarize the VA with the design, as currently known. The briefing should provide sufficient information for the VA to establish the appropriate technical disciplines, size of the VA team, and guidance for the team. This should maximize the effectiveness of any follow-on meetings. The meeting is expected to last no more than two days. A General Familiarization Meeting may not be required if the VA agrees that changes from previously validated designs do not warrant the briefing.

5.2.3 At the General Familiarization Meeting, the VA should provide a copy of the Generic VI List defined in paragraph 4.4. If available, the VA should also provide a copy of the Standards Differences Lists defined in paragraph 3.2. The lists will be discussed further during Phase II - Technical Familiarization.

5.2.4 Phase I ends with the establishment of the VA team and an initial validation schedule.

5.3 Phase II - Technical Familiarization

5.3.1 Phase II has several objectives: technical familiarization with the project by the VA; establishment of the initial VA Certification Basis; and establishment of the initial VIs.

5.3.2 These objectives can only be fully satisfied when the applicant has presented a complete description of the design to the VA. The initial VIs are defined based on the applicant's description of the design. Additional VIs may be identified during Phase III and Phase IV if the design, intended use of the product, assumptions used for certification, or compliance methodologies change.

5.3.3 Phase II begins with the scheduling of a Technical Familiarization Meeting (or meetings), unless the product is a derivative and the VA determines that changes from previously validated designs do not warrant the briefing.

5.3.4 It is expected that all VA functional areas would be represented at the technical familiarization meeting so that the briefing takes place

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

only once. It is recognized that once information is received, the size of the actual VA team may be changed. For instance, if there are no significant propulsion issues, the VA team may not have a full-time propulsion member.

5.3.5 For concurrent validation projects, the CA will:

a) Identify its proposed Certification Basis, and

b) Thoroughly brief the VA on all proposed Exemptions, Special Conditions, and Equivalent Level of Safety Findings.

5.3.6 For sequential validation projects, the CA will:

a) Identify its Certification Basis and present an overview of any significant compliance findings established during its certification program, and

b) Thoroughly brief the VA on all Exemptions, Special Conditions, and Equivalent Level of Safety Findings issued by the CA to ensure they are fully understood by the VA.

5.3.7 The CA and the applicant will present detailed information on:

a) Any novel design features, novel applications of existing technology, or unconventional uses of the product,

b) Any design features where experience has shown an unsafe condition might occur,

c) New standard interpretations or MOC for existing standards, and

d) Any design features items identified on the VA's Generic VI list.

The VA should ask clarifying questions and have dialogue as necessary to properly understand the material presented. In-depth discussion or debate of the material is to be done, if needed, during Phase III of the project.

5.3.8 The VA will use the information listed in the previous paragraphs to establish the VA Certification Basis for the project. This information will also serve the purpose of providing the VA the necessary

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

knowledge to appropriately deal with continued operational safety issues.

5.3.9 Of prime importance is the opportunity for the VA to understand the MOC used or to be used. The CA and the applicant will provide general information on the MOC that have been used (sequential certification/validation) to the VA during the technical familiarization phase. This general information should be sufficiently detailed to allow the VA team to understand the general principle of the MOC used or to be used. In depth discussion of MOC should be conducted during VA team meetings in Phase III. However, further discussion of MOC that have been used and accepted by both the CA and VA for harmonized standards and for Non-SSD should not be required.

Note: Once the VA has accepted a MOC for a given standard on any program with the CA, the expectation is that the VA will accept that MOC in the future as long as the assumptions made in the MOC are applicable. An exception is where a past MOC has been determined not to be sufficient. This determination must be discussed between the VA and the CA.

5.3.10 The CA and the applicant will present detailed information on the MOC that are used, or are to be used, to establish compliance with airworthiness standards related to subjects referred to under 5.3.7, such as basic loads, or fatigue, that are judged to be significant by the CA. The CA and the applicant should also present information relative to those standards identified for special emphasis by the VA in a data-driven risk assessment analysis for the product class.

5.3.11 Where there is no precedent, i.e. for new technology, novel applications of existing technology or MOC, novel MOC, or the product use is unconventional, the VA will work closely with the CA and the applicant to establish an acceptable VA Certification Basis and MOC.

5.3.12 When the VA determines there is a need to evaluate or review an MOC with the CA and the applicant, in accordance with the concepts in this document, the VA will confine its evaluation or review to the general, overall methodology to be used by the applicant, including assumptions, boundary conditions and critical parameters of that methodology that are essential to the technical adequacy of the MOC. Details in the form of test plans, test

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

parameters and other MOC steps should be determined by the CA, except for items identified in paragraph 5.4.5.3.

5.3.13 The CA and VA will prepare Issue Papers/CRIs, which identify the Certification Basis and other items such as unique import requirements, acceptable means of compliance, Equivalent Level of Safety Findings, and Special Conditions. The CA should make copies of its Issue Papers/CRIs available to the VA. When the CA and VA's positions are equivalent, the CA's Issue Papers/CRIs may be used directly by the VA in lieu of a VA Issue Paper/CRI. Nevertheless, the VA must process its own Issue Papers/CRIs, which address Equivalent Level of Safety Findings or Special Conditions.

5.3.14 All applicable Non-SSDs will be listed in a CRI or Issue Paper.

5.3.15 The VA should identify operational standards with design impacts early in the program so they may be included in the validation program.

5.3.16 Phase II may include the familiarization flights by the VA.

5.3.17 Phase II ends with the establishment of the initial VA Certification Basis and initial VIs.

5.4 Phase III - Determining VA Involvement

5.4.1 The objective of Phase III is to specifically identify which compliance determinations the CA will make on behalf of the VA and identify those determinations that the VA wishes to retain.

5.4.2 Phase III begins with the VA team meeting following the establishment of the VA Certification Basis and initial VI.

5.4.3 The VA decides which authority will make the compliance determinations for each VI. The VA may either retain the compliance determination associated with a VI or it may request the CA to make the compliance determination on behalf of the VA.

5.4.4 The practice of authorities making joint determinations of compliance for any one specific standard should be avoided unless there is a justifiable benefit.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

5.4.5 CA Determinations.

5.4.5.1 The VA is responsible for instructing the CA on acceptable MOC. The CA should request assistance from the VA, if the guidance is incomplete or unclear.

5.4.5.2 The VA is expected to continue to rely on the CA for similar compliance determinations on future programs, once the CA has successfully demonstrated to the VA that it can find compliance to the VA standard.

5.4.5.3 When the VA has requested that the CA determine compliance to the VA Certification Basis, the VA should only request test plans or other compliance documents supporting those determinations when:

a) The subject has been identified and justified in an Issue Paper/CRI or the Phase III closure document (see paragraph 5.4.7) as an area in which the VA requires additional knowledge, participation in, or continued awareness of compliance activities; or

b) They are related to likely continued operational safety issues.

5.4.5.4 The VA may not request compliance documents in order to review the CA's compliance determinations. In the rare event that, as a result of activities associated with paragraph 5.4.5.3, the VA wishes to challenge a compliance determination made by the CA, the issue will be immediately raised to the level of VA senior management for resolution.

5.4.6 Determinations retained by the VA.

5.4.6.1 The VA will rely, to the maximum extent possible, on the CA to make compliance determinations on behalf of the VA. Justification is required for any compliance determination retained by the VA. Justification normally falls into the following general areas:

a) New VA airworthiness standards where judgment is required in their initial application,

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

b) New or novel features,

c) Sensitive issues (usually associated with an accident or incident on a product with similar design features), or

d) New MOC or novel application of existing MOC.

5.4.6.2 The VA may request technical assistance from the CA on a retained VI under the terms of a bilateral agreement. For example, the VA may request that the CA witness a test on its behalf.

5.4.7 Phase III ends when the final VIs have been established, a closure document that identifies which authority is to make compliance determinations with the airworthiness standards within the VIs has been issued, and the time schedule for the completion of validation program (Phase IV) has been confirmed.

5.5 Phase IV - Compliance Determinations

5.5.1 Phase IV begins immediately after the establishment of compliance responsibility.

5.5.2 The CA and VA make their compliance determinations during Phase IV.

5.5.3 During Phase IV of aircraft validation programs, the VA may also conduct abbreviated flight evaluations for a final assessment of airworthiness, maintainability and operational suitability of the aircraft, and to support the operational introduction of the aircraft into the jurisdiction of the VA.

5.5.4 Approved manuals must be submitted to the VA for review and acceptance before any signature on behalf of the VA.

5.5.5 Compliance with the VA Certification Basis for the product will be based on compliance with:

a) The Certification Basis of the CA, plus the standards differences for the particular amendment pair of standards, plus any Exemptions, Special Conditions, and Equivalent Level of Safety Findings issued by the VA; or

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

b) The Certification Basis of the CA, plus any Exemptions, Special Conditions, and other additional requirements issued by VA that provide an equivalent level of safety.

5.5.6 On the basis of a bilateral agreement between the VA and the CA, the following statement is to be given by the CA (exporting authority) to the VA (importing authority) at the end of the validation project so that the VA may issue its Type Certificate.

"With the determinations of compliance made by the {*VA*} and summarized in {*Letter or document*} dated {*Date*}, the {*CA*} certifies that the {*Specific product type and model*} complies with the {*VA's* } Certification Basis as identified in {*Certification Review Item A-1 or Issue Paper G-1*} dated {*Date*}."

5.5.7 The statement in 5.5.6 above requires the VA to list all compliance determinations it has made in a letter or report to the CA.

5.5.8 Phase IV ends with the issuance of the Type Certificate by the VA.

6. Supplemental Type Certificates

6.1 These TVP will also be used to determine VA involvement in STC validation programs. To facilitate the application of the TVP, the CA will classify the STC as either a Basic STC or a Non-Basic STC. The VA will concur with the CA's classification through acceptance of the application.

6.2 Non-Basic STCs will generally be more complex and may require some VA involvement. Criteria for a Non-Basic STC are:

a) Changes classified as significant, in accordance with 14 CFR/JAR 21.101(b) and EASA's Annex Part 21, Paragraph 21A.101(b).

b) Changes addressing any of the criteria identified in Section 4, defining SSDs, Project and Generic VIs; and

c) Any other design changes categorized as a Non-Basic STC by the CA.

6.3 All other STCs would be considered Basic STCs.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

6.4 For all STCs, significant revisions to approved manuals must be submitted to the VA for review and acceptance, before any signature on behalf of the VA. For an individual certification project, the CA will consult with the VA when it decides which revisions are significant and which are not significant.

6.5 When EASA is the VA and the STC applicant has not entered into an arrangement with the Type Certificate holder, the FAA shall review the applicant's justification and concur with the applicant's position that an arrangement is not necessary. The applicant's justification and the FAA concurrence statement will be provided to EASA.

6.6 For Basic STCs, the VA accepts the statement of compliance from the CA to the VA Certification Basis and issues a VA STC. Normally, the VA Certification Basis for a Basic STC is the same as that established for the product modified by the STC.

6.7 For Non-Basic STCs, the validation procedures will follow all or part of the TVP process, as appropriate depending on the complexity of the modification. It is possible for the VA to declare no technical involvement.

7. Communication

7.1 Effective communication between the VA, CA and applicant are the key to a successful validation program. Program delays are often the result of poor communication.

7.2 Continued communication with the VA during all phases of the validation program is necessary in order for the VA to adequately understand actions taken by the CA and applicant. This is particularly true for those areas in which the CA is determining compliance on behalf of the VA in accordance with paragraph 5.4.5 of this Section.

7.3 Communication with the Applicant.

7.3.1 The VA must work through the CA to achieve compliance. VA communications should, therefore, flow through the CA to the applicant. On the limited occasions when the CA is not able to be involved, the VA is responsible for providing details of any communication with an applicant to the CA.

7.3.2 The CA, VA and applicant will have frequent, regularly-scheduled telephone conversations to review the program status, discuss

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

open validation issues, and areas of VA interest (see paragraph 5.4.5.3 of this Section).

7.3.3 The VA will often request clarifying information from the applicant during a project. A feedback mechanism from the VA to the CA and applicant is necessary to confirm the adequacy of the clarification and explanations provided.

7.4 Communication between Authorities

7.4.1 The CA must understand the VA's position on all the items for which the CA has been assigned compliance determination responsibility. Therefore, each authority must include the other in communications related to matters that affect these compliance determinations.

7.4.2 The expectation is that there will be an early exchange of information and discussion between the CA and the VA. The VA should be responsive to requests to discuss policy and regulatory issues prior to formal applications. These requests should be made to the VA by the applicant through the CA.

7.4.3 Each authority will normally seek the other's opinions before significant issues are resolved. The VA must be notified of all meetings relevant to the validation and be given the opportunity for participation.

7.4.4 The CA must be copied on all correspondence between the VA and the applicant. The VA should be copied on all correspondence between the CA and the applicant that is specifically relevant to the validation.

7.4.5 The CA should notify the VA as soon as possible of all novel or unusual design features, and all other design features that may require an Exemption, a Special Condition, an Equivalent Level of Safety Finding, or the development of an Issue Paper/CRI.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

TVP Appendix

Summary of Validation Phases

Project Phase	Objective	Beginning	Ending
Phase I	General familiarization	Receipt of application by VA	Establishment of VA team and initial validation schedule
Phase II	Technical familiarization	Familiarization briefing	Establishment of initial VA Certification Basis and initial VI
Phase III	Determining VA Involvement	First technical team meeting	Final VI established, Document defining which authority is to make which determinations issued, Time schedule for IV established
Phase IV	Compliance determinations	Establishment of compliance responsibility	Issuance of VA Type Certificate

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

Section III: Post-Type Validation Principles

1. Scope

1.1 This section addresses the principles to be applied during the post type validation phase of validation programs and defines the normal conduct of both the CA and VA. It is supplementary to the Authorities' procedures defining their internal functions. It applies to post-type validation activities:

a) Undertaken by the Type Certificate (TC), or Supplemental Type Certificate (STC) Holder only. It is not intended to address any activities undertaken by any person other than the TC or STC Holder.

b) On a validated aircraft, aircraft engine or propeller.

1.2 For the purposes of this document, post-type validation activities are:

a) Approval of changes to the approved type design (including revision of manuals) not resulting in a new TC or STC.

b) Approval of airworthiness data included in an applicant's service information.

c) Continued airworthiness activities.

1.3 These type validation principles do not apply to design data used in support of repairs. Such data must be approved or accepted, as appropriate, by the CA in a manner which is acceptable to the VA. Reciprocal acceptance of design data used in support of repairs will be done in accordance with the appropriate bilateral agreement.

2. Vision

2.1 In discharging its responsibilities, the VA should seek to rely to the maximum extent possible on the findings made and actions taken by the CA.

2.2 The VA's involvement will be limited to activities, including design changes, affecting aircraft types registered, or due to be registered, in the

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

jurisdiction of the VA and other products imported or planned to be imported, except where the TC or STC Holder requests greater VA involvement and this is agreed by the CA and VA.

2.3 When an activity is carried out by the CA on behalf of the VA, that activity may be carried out by the CA or under the legally constituted designee or delegation system of the CA.

3. Objectives

3.1 To ensure that the VA is able to discharge its responsibilities for the continued airworthiness of the product, where appropriate.

3.2 To ensure that the type design, as amended by post-type certification design changes, complies with the VA Certification Basis and that this is documented to an acceptable standard.

3.3 To achieve these objectives through the use of efficient and practical processes.

4. Continued Airworthiness

4.1 Nothing in the procedures below shall compromise the obligations established under ICAO Annex 8.

4.2 The VA and CA shall establish a structured process for each validation product, including specific focal points, for regular feedback and continued communication on service difficulties, planned mandatory corrective actions, trends, and general experiences with the product.

4.3 The CA will monitor the continued airworthiness of the world type certificated fleet and will issue Airworthiness Directives where necessary. The CA will inform the VA immediately of all such mandatory corrective actions, including those resulting from reports under 14 CFR 21.3 and EASA's Annex Part 21, Paragraph 21A.3 relating to aircraft types under the jurisdiction of the VA and products fitted to any such aircraft. Immediate notification of this information will facilitate VA adoption of the mandatory corrective actions where appropriate.

4.4 The VA is responsible for the safety of any aircraft under its jurisdiction. With regard to post-type validation activities, it has the right to seek

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

information, including access to design data, to understand and agree on findings of compliance made by the CA to all VA requirements and on any mandatory corrective action or any significant on-going continued airworthiness topic and its means of resolution, necessary to ensure acceptable continued airworthiness of aircraft registered in the jurisdiction of the VA and products fitted to any such aircraft.

4.5 It is expected that the VA will become involved with the CA in the resolution of continued airworthiness issues directly related to an accident or incident in the jurisdiction of the VA. However, the resolution of any design issues is the responsibility of the CA.

4.6 The CA and TC or STC Holder will support the VA in investigating significant continued airworthiness issues relevant to products used and aircraft registered in the jurisdiction of the VA or products fitted to any such aircraft. This support includes providing the VA with:

a) The status of any related CA investigations,

b) The status of CA plans for mandating corrective actions related to the investigations, and

c) Timely VA access to design data and other certification documents, as requested by the VA.

4.7 When either authority approves an Alternative Method of Compliance (AMOC) of general applicability to an existing AD (i.e., one not based on proprietary data), it will inform the other authority to facilitate the adoption of the same AMOC by the other authority.

4.8 Any activity by the VA in relation to continued airworthiness, including any proposal to deviate from ADs issued by the CA or to issue additional ADs, will be decided by the VA on the basis of discussions with the CA and the TC or STC Holder and a review of the actions taken and proposed by these entities.

5. Design Change Approval Process (Including Revisions to Approved Manuals)

5.1 Changes to the design covered by these procedures include those necessary for customer unique design features, product improvements and any other design changes, including revisions to approved manuals, made by the TC Holder, or STC Holder on its own STC, for whatever

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

reason. The validation process for any design change will be greatly simplified in most cases when compared to new type certification projects.

5.2 Where design changes are proposed, they will be defined relative to the current definition of the approved type design as validated by the VA.

5.3 Design changes will be classified as either Major or Minor in accordance with the criteria and procedures of the CA and these classifications will be accepted by the VA without further investigation.

5.4 Design changes classified as Major will be further categorized in accordance with the CA procedures as Level 1 Major or Level 2 Major as defined below.

5.5 Level 1 Major design changes are any of the following:

5.5.1 Changes classified as significant, in accordance with 14 CFR 21.101(b) and EASA's Annex Part 21, Paragraph 21A.101(b).

5.5.2 Changes resulting in a different Certification Basis to that of the product being changed, e.g. new Special Conditions, Exemptions, or Equivalent Level of Safety Findings.

5.5.3 Changes involving new interpretations of the standards, or novel MOC.

Note: An MOC or standards interpretation would not be considered "novel" or "new" if it had been applied previously in a similar context by both the FAA and the EASA.

5.5.4 For design changes to approvals issued using TVP:

a) the change involves a VI and involves the use of a method of compliance different from those agreed by the CA and VA for use in the basic certification/validation.

b) the change involves a VI for which the VA has retained the compliance determination during the type validation program.

5.5.5 For design changes to approvals issued using a process other than TVP, the change involves areas where the VA exercised

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

the compliance determination during the type validation program.

5.5.6 Design changes involving Approved Manual revisions where existing approved VA limitations, performance, or Flight Manual procedures are affected.

5.5.7 Any change that affects the actual type certificate or type certificate data sheet (i.e., derivative models).

5.5.8 Any other design changes categorized as Level 1 Major by the CA, the TC Holder, or the STC Holder for changes to its STC.

5.6 Level 2 Major design changes are all other major design changes not categorized as Level 1 Major.

5.7 Design changes classified as Minor or Level 2 Major (see 5.6) will be approved by the CA in accordance with that authority's normal procedures, against the CA and VA Certification Bases, and will be deemed to be approved by the VA. The VA will not receive prior notification of such changes except when there are changes to approved manuals, in which case the manual revisions will be submitted for the VA's record. All changes will be included in the TC Holder's Type Design/STC definition which defines the VA's approved configuration.

5.8 The VA will receive notification of all Level 1 Major design changes, at the same time as the CA. VA notification may come before the formal application for the change, if necessary, to meet the objectives outlined in the Note below. (For configurations not targeted for the VA market, a TC/STC holder may opt not to obtain the VA approval for a particular Level 1 Major design change. However, the TC/STC holder is encouraged to obtain approval of the VA for any design changes that could eventually be incorporated into the VA fleet.) New VIs may be created to address features of the design change not included in the original type validation program.

Note: Early involvement of the VA provides the best opportunity for the development of a comprehensive set of airworthiness standards in compliance with both the CA and VA certification bases. Additionally, early involvement of the VA provides the best opportunity for jointly agreed acceptable MOC and to identify areas where jointly agreed solutions are not readily available.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)

5.9 With respect to the determinations of compliance, it is expected that the VA will only become involved in areas that are considered Level 1 Major changes per paragraph 5.5 and fall within the scope of the VIs to be developed for the change per the Type Validation Principles, Section II, paragraph 4, and then only where this can be technically justified.

5.10 VA involvement in Level 1 Major design changes will be discussed and decided between the CA and VA in accordance with the vision of post-type validation (paragraph 2 above) and the criteria of the Type Validation Principles.

5.11 The CA will provide the VA with a Statement of Compliance with the VA Certification Basis for all Level 1 Major design changes. This may be achieved through the provision of individual statements for each design change or by providing collective statements for lists of approved changes. The VA will approve all Level 1 major changes, except in cases defined in paragraph 5.8.

5.12 All design changes approved by the CA on behalf of the VA or approved by the VA on the basis of compliance determinations made by the CA will be recorded in the Type Design/STC definition specifying the VA's current type design or STC and provided to the VA.

5.13 This design change approval process is illustrated in the Appendix to this Section.

6. Approval of Service Information

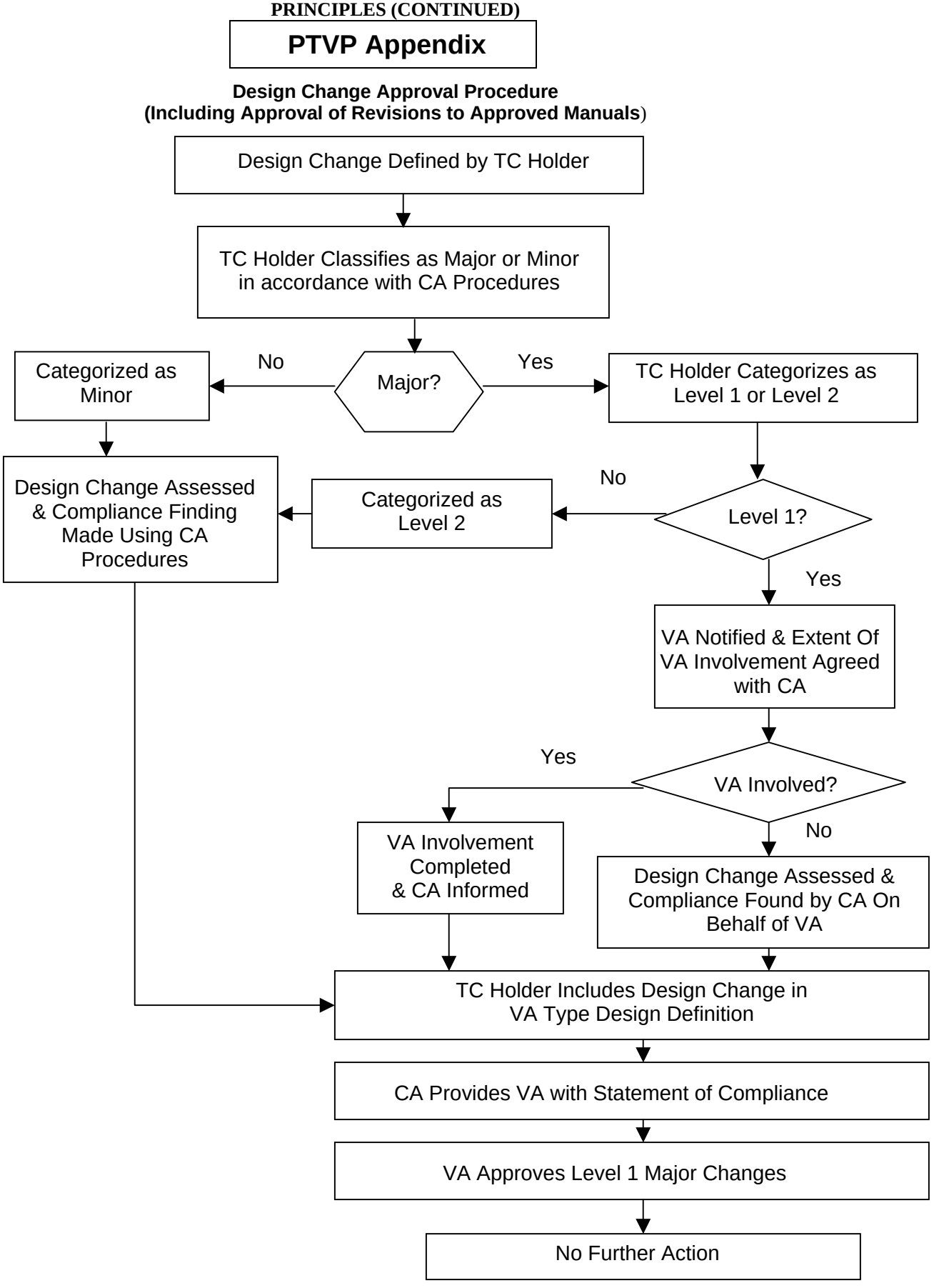
6.1 Service information requiring approval will be approved by the CA in accordance with that authority's normal procedures.

6.2 Design changes contained in service information should be approved using the procedures in 5 above, prior to the issuance of the service information.

7. Updates to the Master Minimum Equipment List (MMEL) and the Instructions for Continued Airworthiness

After type certification, the VA will continue to be involved in updates to the MMEL and Instructions for Continued Airworthiness, as determined by the applicable VA procedures.

APPENDIX 4. FAA/EASA/JAA TYPE VALIDATION PRINCIPLES/POST-TYPE VALIDATION PRINCIPLES (CONTINUED)



APPENDIX 5. TYPE VALIDATION PROJECT REVIEW CRITERIA

This is a list of criteria to use in the management review of type validation principles (TVP) projects. Terms to use when the EASA is the VA are in brackets {}. Terms to use when the FAA is the VA are in brackets []. Guidelines for judging success are listed in Italics.

Phase I - General familiarization

1. Was a familiarization meeting held and did VA management attend?
2. Did it result in an agreed upon certification schedule and milestones?
3. Did it result in the establishment of the VA's technical team?
4. Were the applicant and CA notified of the availability of generic VI and standards difference lists.
5. Was the information presented by the applicant sufficient to accomplish 2, 3, and 4 above?

Phase II - Technical familiarization

1. Was a technical familiarization meeting held?
2. What was the size of the VA technical team and did the entire VA technical team attend?
3. Did the applicant and CA present the CA certification basis and methods of compliance?
4. Was this meeting held as previously scheduled during the general familiarization meeting (was schedule affected by availability of VA team members)?
5. Was the initial VA certification basis established?
6. How long after the initial technical familiarization meeting did it take until the VA certification basis was established?
7. Did establishment of the VA certification basis reduce the size of the validation technical team? If not, why not?
8. Were more technical familiarization meetings required to establish the VA certification basis?
9. Were SSDs and non-SSDs established and agreed to for the amendment pair used on this project?
10. Were the initial validation items (VI) established? How many VI were established?
11. Do the VI meet the criteria of paragraphs **305**, **306**, and **307** of Order 8110.52? *If no, any VI not meeting the criteria should be withdrawn. Please list VI that are withdrawn.*
12. Do all {certification review items (CRI)} [issue papers (IP) related to determinations of compliance] correlate with the VI? *If no, an {CRI} [IP] that do not correlate should be withdrawn. Please list the {CRI} [IP] that are withdrawn.*

13. Is the VA reviewing determinations of the CA outside the VI? *Justify these as VI or stop doing the review.*

APPENDIX 5. TYPE VALIDATION PROJECT REVIEW CRITERIA (CONTINUED)

14. How many {certification action items (CAI)} [IP related to actions or certification basis] have been identified? What is the justification of the {CAI} [IP]?
15. Do all {CRI and CAI} [IP] have schedules for close out?

Phase III - Determination of VA Involvement

1. Has the VA provided a document assigning VI compliance determinations to be assigned to the CA?
2. What percentage of the VI did the VA assigned to the CA?
3. For each of those VI not assigned, why was it not assigned?
4. Has substantiation for retained compliance determination been provided and did VA management review the substantiation? *If compliance determinations are retained what was the identified justifiable benefit?*
5. Were there any requests for information for product familiarity purposes (paragraph **319**)? Did any requests result in a compliance determination challenge? Were these raised to the accountable directorate manager?

Phase IV – Compliance Determinations

1. For concurrent projects, how many generic VIs were added after familiarization flights were conducted? Were any other VI added during phase IV?
2. Has the VA provided a document listing all compliance findings it has made to the CA?

General Criteria

1. How frequently did the VA make visits?
2. Were project milestones met? If not, why not?
3. Does the project meet the vision of TVP stated in paragraph 2 of the TVP?