NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Aircraft Certification Service Policy

IR N 8110.115

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3/31/2012

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3/31/2013

SUBJ: Applying Risk Based Resource Targeting to Type, Amended Type, Supplemental Type and Amended Supplemental Type Certification

1. Purpose of This Notice. This notice supplements the procedures and requirements of Federal Aviation Administration (FAA) Order 8110.4, *Type Certification*. The alternatives to the procedures and requirements are based on applying risk based resource targeting (RBRT) to new type certification (TC), amended TC, supplemental type certification (STC), or amended STC projects for domestic, non-organizational delegation applicants. In the case of RBRT, an amended TC project is one where there is a model designation change or a new model under an existing TC. Major changes in type design incorporated by the holder of a TC or a STC into the design approval should be processed under the RBRT process for major changes to type design.

2. Audience. We wrote this notice for all Aircraft Certification Service (AIR) employees with regulatory and safety oversight responsibility in the TC process.

3. How to Find This Notice. You can find a copy of this notice on the FAA website: http:www.faa.gov/regulations_policies/orders_notices/.

4. Background. Order 8110.4 prescribes FAA involvement in the TC process. However, the Order does not specify the manner in which all tasks and requirements must be accomplished. This notice authorizes the use of the RBRT process (including outputs) to direct FAA resources in the oversight of U. S. applicants' certification projects prior to issuance of a certificate. The use of RBRT to implement discretionary function meets the requirements of Title 14 of the Code of Federal Regulations (14 CFR) part 21.21(b) and 14 CFR 21.117(b)(1).

5. Using RBRT with Order 8110.4.

a. RBRT is a structured process for accomplishing many risk assessment and resource allocation responsibilities appearing throughout Order 8110.4. For example, the outputs from RBRT will help project offices make better decisions on where to be directly involved based on formally identified technical risks.

b. RBRT assessment results also help project offices focus their efforts on high risk rules. Order 8110.4 describes similar functions, but with a less exacting methodology. We should use RBRT assessment results to address risk by optimizing resources.

c. Applying RBRT assessments, and documenting project risk results and risk management options, supports the use of our discretionary function. RBRT allows us to optimize the certification procedures related to FAA involvement and oversight based on individual projects and their risk category. The use of RBRT is an acceptable alternative to instructions found in Order 8110.4 that deal with FAA involvement in finding compliance. For example, management options for airworthiness standards that are assessed as low risk can include FAA *receipt or acknowledgement* of the applicant's test plan *with no FAA approval required.* This also means that the use of designees is not needed in these areas. Order 8110.4C, paragraph 2-6c procedures indicate that the applicant's test plan must be FAA-approved, because the order is based on an assumed, but unspecified project complexity, criticality, and applicant competency. It also assumes FAA involvement.

6. How RBRT Operates.

a. AIR continues to develop and implement a safety management system (SMS). One of the key elements of SMS is appropriately allocating our resources based on safety risks. RBRT is a process with an associated information technology (IT) assessment tool that we can apply to business processes (including TC), to identify areas of risks. RBRT also helps us categorize those risks, and provides options to mitigate risk through targeted application of resources.

b. RBRT uses both organizational (qualities or characteristics of the applicant) and technical indicators to identify and categorize the risks in a specific TC, amended TC, STC, or amended STC project. FAA-assigned technical specialists using the RBRT assessment tool answer RBRT questions about the applicant's organization and experience with similar products or modifications, including design, production, and service. Technical specialists also answer questions about the proposed design, testing, and manufacturing processes for the product or modification.

c. RBRT assigns weights to the indicator questions associated with "probability" of noncompliance. "Probability" weights are combined with a "severity" rating based on the criticality of the product or modification to arrive at a composite risk value (CRV) for the project. FAA management can use the CRV to manage project risk by assigning resources to TC, amended TC, STC and amended STC projects by risk.

d. RBRT's assessment tool also provides a risk for each rule associated with a technical discipline (such as electrical systems, mechanical systems, and propulsion). This risk is based on technical specialist responses to the technical assessment questions. Based on the rule risk – low, medium, or high – RBRT identifies management options. These management options help target FAA resources to mitigate the risks for a specific project.

e. The project office (i.e., project focal, ASE, ASI or approving official) may disagree with the RBRT recommendations. If they disagree, they are to use the comment areas to explain why the recommendation is not appropriate and what other management option should be implemented, if any. This information is critical to maturing the process and our risk assessment methodologies. Approving officials (see paragraph 7.a(3)) may accept the management options, agree to any changes recommended, or otherwise modify the resource allocation

recommendations in their comment areas. None of the project team members can require other RBRT team members to change their decisions if they disagree. This is counter productive to the purpose of allowing team members to disagree with the output. It is important to remember all data is used to help mature the process and associated tool. The approving officials record their decisions in the decision record that is kept as part of the project file.

Note: Implementing no management option is allowed.

7. Who Will Use RBRT.

a. Members of the project office, as assigned, participating in the TC process, including TC, amended TC, STC, or amended STC for domestic, non-organizational delegation applicants, must accomplish RBRT assessments. The RBRT assessment is designed to be accomplished prior to sequencing, as the assessment results can assist in sequencing. The RBRT assessment can be found at http://rbrt.avs.faa.gov.

(1) The project manager (RBRT project focal) starts the assessment after receiving an applicant's certification plan (Refer to Order 8110.4C, Chapters 2-4(b) and 4-17). Refer to Order 8110.4C, Chapter 2-3(d) for certification plan requirements needed to support RBRT assessments.

(2) The applicant is highly encouraged to input the proposed applicable regulations for the project using the applicant portal in RBRT. This is applicable for 14 CFR 21, 23, 25, 27, 29, 33, 35, and CARs. All other regulations and Special conditions applicable to the project will not be assessed for risk in RBRT. The applicant is encouraged to also input the designees they propose to use for the project. The project manager will then accept the project and close the applicant portal permanently. The project manager still has the ability to include and/or edit applicant information after the applicant portal is closed. Projects with a certification basis prior to the Civil Aviation Regulations (CAR) and Manned Free Balloons (14 CFR 31) are exempt from RBRT.

(3) The project office manager (i.e., ACO or Branch manager) identifies the approving official, who will approve RBRT tool assessment results. (RBRT results identify the resources needed for the project.)

(4) The technical specialist (i.e., ASE, ASI) will perform the RBRT assessments for their disciplines. Because of this assessment, it is important that individuals assigned to the project are knowledgeable of our certification processes and if applicable the applicant's history with design (ASE) and production (ASI).

(5) The project team implements the approved RBRT results whenever possible to optimize resources. If at any time there is a significant change in the project (i.e. new designees, organizational changes), the Project focal has the authority to initiate a revision to the RBRT assessment for that project.

b. Management options identified by RBRT recommend levels of involvement for accomplishing the process prescribed in Order 8110.4. For example, RBRT allows for "applicant-showing-only" for a low risk rule. No direct FAA involvement or delegation is required. The applicant's role in a project does not change due to the RBRT process. The applicant is still responsible for complying with all of the applicable airworthiness regulations. They are also required to submit a certification plan to the project office to initiate a project. The only change is that the project office does not need to review and approve the applicant's substantiation data for low risk rules, nor is there a requirement for the project office to use designated engineering representatives (DERs) to support low risk rules. The applicant is still responsible for ensuring its proposed type design meets all of the applicable airworthiness regulations. The project office is responsible for overseeing the project and the issuance of the TC, amended TC, STC, or amended STC as applicable.

> **Note:** The Aircraft Certification Office (ACO) still must review and approve any required items per the most current policy unless specifically detailed in the RBRT output (e.g., Airworthiness limitations).

c. Deviations from RBRT-recommended management options, if any, for the identified risk for a given rule are approved alternatives, provided the deviations and rationale are documented and approved by the "approving official" identified for the project.

8. Key Considerations. The applicant must:

a. Demonstrate compliance to all applicable airworthiness requirements and special conditions;

b. Demonstrate an equivalent level of safety to the regulations; or

c. Have been granted an exemption from those regulations.

9. Anticipated Changes. Implementing additional elements of SMS will allow AIR to better use resources and apply discretionary function. As safety management implementation matures, we may further refine Order 8110.4 and other directives. We will also notify, train and schedule any new RBRT IT version changes to limit disruption to the service.

10. Implementation Questions. For questions regarding this notice, contact the Aircraft Engineering Division, Safety Management Design and Analysis Branch, AIR-150, email 7-AWA-AVS-AIR150/AWA/FAA or phone (202) 267-8558.

11. Distribution. Distribute this notice to the following FAA offices: AIR branch levels of Washington headquarters and all aircraft certification directorates, including all ACOs; manufacturing inspection offices, manufacturing inspection district offices, manufacturing inspection certificate management offices, and manufacturing inspection satellite offices, directorate standards staffs, and the Aircraft Certification Branch at the FAA Academy.

12. Records Management. Refer to Orders 0000.1, *FAA Standard Subject Classification System;* Order 1350.14, *Records Management;* Order 1350.15, *Records Organization, Transfer, and Destruction Standards;* or your office Records Management Officer or Directives Management Officer for guidance regarding retention and disposition of records.

13. Definitions.

a. Composite Risk Value: A number indicating the relative risk of an activity in a business process (e.g., TC, amended TC, STC, amended STC). May be used to prioritize activities in a given business process based on the risk value.

b. Group Risk Score: A number indicating the relative risk in a technical specialty (airframe, mechanical systems, powerplant, flight test, etc.) for a particular project.

c. Organizational Indicators: Answers to assessment questions about an applicant's organization. These answers help determine the risk with that particular applicant.

d. Probability: Ratio of the number of actual occurrences to the number of possible occurrences (for example, one in a million flight hours). Probability is often expressed with the denominator normalized to a single unit; so one in a million flight hours becomes 10^{-6} per flight hour.

e. Risk: Expression of the impact of an undesired event in terms of event severity and probability.

f. Severity: Level of harm of the outcome, if the event occurs. There may be multiple outcomes for a given base event.

g. Technical Indicators: Answers to assessment questions about the technical areas of a project.

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