NOTICE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Aircraft Certification Service Policy

IR N 8110.109

Effective Date:
08/18/09

Cancellation Date:
08/18/10

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

1. Purpose of this notice. This notice supplements the procedures and requirements of Federal Aviation Administration (FAA) Orders 8110.4, *Type Certification*, and 8110.37, *Designated Engineering Representative Handbook.* The alternatives are based on applying risk based resource targeting (RBRT) to new type, amended type, or supplemental type certification projects for domestic, non-organizational delegation applicants. In the case of RBRT, an amended Type Certification (ATC) project is one where there is a model designation change or a new model under an existing Type Certification (TC). At the present time, this is not intended to be applied to those major changes or amendments being accomplished under Title 14 of the Code of Federal Regulations, part 21.97 (14 CFR §21.97).

2. Who this affects. We wrote this notice for all Aircraft Certification Service (AIR) employees with current regulatory and safety oversight responsibility in the type certification process.

3. Where you can get a copy of this notice. You can find a copy of this notice on the FAA website: https://employees.faa.gov/tools_resources/orders_notices/.

4. Cancellation. This notice cancels IR N 8110.108, Applying Risk Based resource Targeting to Type, Amended Type and Supplemental Type Certification, dated August 18, 2008.

5. Background. Order 8110.4 prescribes FAA involvement in the type certification process. However, the Order does not specify the manner in which all tasks and requirements must be accomplished. This notice authorizes the use of RBRT outputs where appropriate to determine the level of FAA involvement in the oversight of U. S. applicants' certification projects prior to issuance of a certificate. The use of RBRT to implement discretionary authority meets the requirements of 14 CFR §21.21(b).

6. Using RBRT with Order 8110.4and Order 8110.37.

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

b. RBRT assessment results also help FAA technical specialists focus their efforts in high risk areas and set appropriate levels of individual designee oversight. Order 8110.4 describes similar functions, but with a less exacting methodology. We should use RBRT assessment results whenever possible to optimize resources.

c. Applying RBRT assessments, and documenting project risk results and risk management options, supports the use of our discretionary authority. 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 equivalent and acceptable alternative to related Order 8110.4 instructions. For example, management options for projects with low group risk scores will 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 8110.4, 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. Additionally, this notice supplements Order 8110.37 by allowing the FAA to accept applicant test plans with requiring designees to "recommend approval" of test plans.

7. 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 an assessment tool that we can apply to business processes (including type certification), 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 type, amended, or supplemental type certification project. FAA-assigned technical specialists using the RBRT assessment tool answer RBRT questions about the applicant's organization and its 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, ATC, Supplemental Type Certification (STC) and amended STC projects by risk.

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

e. Each technical specialist may agree, or disagree with RBRT tool management options. If they disagree, they are to use the comment area to explain why the management option is not appropriate and what other management option should be taken. The approving official (reference 8.a(2)) may accept the management options, agree to any changes recommended by the technical team, or otherwise modify the resource allocation recommendations after discussion with project team members. They record their decisions in the decision record that is kept as part of the project file.

f. Outside these calculations of CRV and group risk score, the RBRT tool also provides valuable information about designee oversight. Using the RBRT tool, FAA technical specialists will answer a set of questions to evaluate each designee's general past performance and their experience in the specific area of the project. The RBRT tool shows the results of the designee evaluations as green, yellow, or red – indicating the recommended level of FAA designee oversight for the project.

8. Who will use RBRT.

a. All FAA project managers, aerospace engineers, flight test pilots, and manufacturing aviation safety inspectors, as assigned, participating in the type certification process, including type, amended, or supplemental type certificates for domestic, non-organizational delegation applicants must accomplish RBRT assessments upon availability. For the purpose of RBRT, an amended TC project is one where there is a model designation change or a new model under an existing TC.

(1) The project manager starts the assessment after receiving an applicant's certification plan, as part of the "establishment of a TC project" task, per Order 8110.4, Chapter 2-4(b). Refer to Order 8110.4, Chapter 2-3(d) for certification plan requirements needed to support RBRT assessments.

(2) The aircraft certification office (ACO) manager identifies the staff member who will approve RBRT tool assessment results (approving official). (RBRT results identify the resources needed for the project.)

(3) The project manager implements the approved RBRT results whenever possible to optimize resources.

b. Management options identified by RBRT are authorized levels of involvement for accomplishing the process prescribed in Order 8110.4. For example, RBRT allows for "applicant-showing-only" in low group risk areas. 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 the applicable airworthiness regulations. They are also required to submit a certification plan to the ACO to initiate a project. The only change is that the ACO does not need to review and approve the applicant substantiation data for low risk projects, nor is there a requirement for the applicant to have DERs to support low risk projects. The applicant is still responsible for ensuring its proposed type design meets all the applicable airworthiness regulations. The ACO is responsible for monitoring the project to

ensure the data per the approved certification plan is submitted per the agreed schedule and the ACO still issues TC, amended TC, or STC as applicable. The only data that would be considered approved in the case of "applicant showing only" would be that identified as type design data under 14 CFR 21.31. Note: The ACO still must review and approve any required items per policy, such as the Airworthiness Limitations.

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

9. Important reminder. Remember that 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.

10. Anticipated Changes. Implementing additional elements of SMS will allow us in the AIR to better use resources and apply discretionary authority. As safety management implementation matures, we may further refine Order 8110.4 and other directives.

11. Implementation questions. For questions regarding this notice, contact the Aircraft Engineering Division, AIR-100, at (202) 267-3394.

12. Records management. Refer to Orders 0000.1, *FAA Standard Subject Classification System;* Order 1350.14, *Records Management;* and 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. Distribution. Distribute this notice to the following FAA offices: AIR branch levels of Washington headquarters and all aircraft certification directorates, including all aircraft certification offices; 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.

14. Definitions.

a. Composite Risk Value: A number indicating the relative risk of an activity in a business process. 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, and so forth) for a particular project.

c. Organizational Indicators: Answers to assessment questions about an applicant's organization. These answers help determine the risk with this 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; therefore, 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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