

Frequently Asked Questions (FAQs) on the use of paragraph (d) of the High-intensity Radiated Fields (HIRF) Protection Regulations for Aircraft Electrical and Electronic Systems

1. Purpose

This FAQs document provides responses to some questions that are frequently asked by industry concerning the use of paragraph (d) of 14 Code of Federal Regulations (CFR) §§ 23.1308, 25.1317, 27.1317, and 29.1317, High-intensity Radiated Fields (HIRF) Protection. FAQ answers contain no new or additional guidance material.

2. References

FAA Policy Memo, dated February 23, 2011, entitled *Use of paragraph (d) of the High-intensity Radiated Fields (HIRF) Protection Regulations for Aircraft Electrical and Electronic Systems starting December 1, 2012.*

3. Frequently Asked Questions (FAQs)

3.1 FAQ #1: An applicant applies for an STC project earlier, intending to complete it by November, 2012. The HIRF certification basis is to paragraph (d) of the HIRF rule. The project encounters delays and is not completed until early December 2012. What are the consequences of this scenario?

Answer:

Refer to the February 23, 2011 Policy Memo, referenced above. November 30, 2012 is a hard, regulatory deadline to issue the approval. In this case, the STC certificate cannot be issued using paragraph (d). The applicant will now have to show compliance to paragraph (a). In some cases, the applicant's design may not be certifiable under paragraph (a). Since this deadline is established by regulation, FAA staff cannot receive internal waivers to allow them to exercise flexibility to it.

3.2 FAQ #2: What happens on or after December 1, 2012 regarding the use of paragraph (d) of the HIRF protection regulations?

Answer:

Paragraph (d) of the HIRF protection regulations was specifically intended to have a limited lifetime. After December 1, 2012, paragraph (d) must no longer be

used. Previous certifications that used paragraph (d) as part of the certification basis remain certified.

3.3 FAQ #3: What happens on or after December 1, 2012, if the applicant holds a Supplemental Type Certificate (STC) issued under paragraph (d) of the HIRF protection regulations and wants to make a minor change?

Answer:

Since we do not re-establish a certification basis for a minor change under § 21.95, a minor change can be made to an STC issued with paragraph (d) of the HIRF protection regulations as part of the STC's certification basis. The evaluation of a change needs to consider the impact of the change on the HIRF protection characteristics, which would fall under § 21.93(a) "other characteristics affecting the airworthiness of the product." If the change is minor in the context of HIRF, then the parts related to the change will not require HIRF requalification. If the parts require requalification, then the change is a major change and compliance would need to be shown to paragraph (a) of the HIRF protection regulations.

3.4 FAQ #4: What happens on or after December 1, 2012, if the applicant holds an STC issued under paragraph (d) of the HIRF protection regulations and wants to make a major change that does not rise to the level of being a significant change under § 21.101, Designation of applicable regulations? Two example scenarios are included below:

FAQ #4.a: FAA issued an STC for an Electronic Flight Instrument System (EFIS) in aircraft model 123. After December 1, 2012 the aircraft manufacturer certifies a new model, the 123+, which has a different engine option. There is no effect on the STC's HIRF immunity. However, adding a model to the STC's eligibility requires an amendment to the STC and establishing a certification basis for that amendment. Can we accept an STC amendment project after December 1, 2012 with paragraph (d) of the HIRF protection regulations as part of the certification basis?

Answer:

No. The new STC for the model 123+ would have to adopt paragraph (a) of the HIRF protection regulations. But this would only apply to the new or modified systems for the model 123+, under § 21.101(b)(2), in this case the EFIS, not the parts of the model 123+ that were unchanged from the model 123.

FAQ #4.b: An STC holder holds an STC that added 2 Primary Flight Displays, 2 Multifunction Displays, 2 Attitude and Heading Reference Systems, and 2 Air

Data Computers (ADCs), model 456, to an aircraft. The STC is certified to paragraph (d) of the HIRF protection regulations. After December 1, 2012 the ADC's manufacturer discontinues the model 456 and replaces it with a new model 789. The model 789 as a LRU will comply with paragraph (a) of the HIRF protection regulations. Given that the entire system may not comply with paragraph (a) of the HIRF protection regulations:

- If the holder amends the STC to reflect the new ADCs, can paragraph (d) of the HIRF protection regulations be used? or
- Must the requirement now be paragraph (a) of the HIRF protection regulations for the entire integrated system?

Answer:

In this scenario, the issue is not whether paragraph (d) of the HIRF protection regulations applies, but instead the issue is the scope of a “system”. Generally, the ACOs have flexibility on defining the scope of a system. Paragraph (a) of the HIRF protection regulations should be applied for projects completed after December 1, 2012. But the ACO can use their engineering judgment on the scope of the system that requires compliance with the paragraph (a) of the HIRF protection regulations. The HIRF certification basis and related configuration needs to be clearly explained on the STC certificate, to avoid future confusion or ambiguity with regard to which “system” was certified to which HIRF regulation.

3.5 FAQ #5: After December 1, 2012, would there be any case in which the ACO establishes or agrees with a certification basis, where that basis could legally include paragraph (d) of the HIRF protection regulations rather than paragraph (a)?

Answer:

No. After December 2012, the assumption should be that the certification basis includes paragraph (a) of the HIRF protection regulations, and paragraph (d) of the HIRF protection regulations no longer applies.