Utilization of Modern Video Capture Technology for Certain Conformity Inspections

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CONFORMITY INSPECTIONS

Conformity Inspections are often a requirement of certain certification activities Some of these activities are for “Prototype component “ development that support design assumptions that allow verifying and validating fits, clearances, durability, or performance.

Other Times these inspections are performed to release articles for installation after the article has received its formal FAA production authorization, ie. For a PMA.

Automation; with the advent of high resolution video transmissions over the internet, the question being explored with this paper is does 8130.21H allow the use of these tools to be utilized for the execution of these inspections and do they provide a improvement over other defined methods.

AUTOMATION

Main Entry: **au·to·ma·tion**
Pronunciation: ˌȯt-ə-ˈmā-shən
Function: *noun*
1 : the method of making a device, a process, or a system operate by itself
2 : automatic operation of a device, process, or system by mechanical or electronic devices that replace human operators

In the example we wish to explore, using these definitions and the implied for process, system, electronic device! Replacing a human operator is NOT our objective but closely aligned enhancing the human operator!

WHAT IS REALLY BEING PERFORMED?

Typically two (2) uses, Conformity, or Releasing

PROTOTYPE PART INSPECTIONS

- Designee reviews any and as much objective evidence needed that the applicant has performed per their QMS all required inspection and/or tests of the article and attests by issuing a FAA 8130-9 to that fact.
- Designee may request and if so have access to the articles being validated [conformed].
- After review of all necessary documentation and at the discretion of the designee the designee may require applicant to re-inspect any design features they feel will satisfy the drawings or specifications that define the "to be approved design"

Note: Usually a DER has reviewed these drawings and issued a 8110-3 approving them in "Support" of the PMA design.

PURPOSE # 1 use of a 8130-3

Ref: FAA ORDER 8130.21H, para 1-12 c

INSPECTION & VALIDATION TO RELEASE TO SERVICE 8130.21H

This use of the 8130-3 for this discussion will be focused on NEW articles being released by the PAH.

Note: 8130.21H para 2-1 Clearly indicates that a 8130-3 though it's the "Preferred" way to document the articles approval, it is NOT mandatory or regulatory for domestic shipments.

2-1. General Information on Domestic Airworthiness Approvals.
a. FAA Form 8130-3 is the preferred method for documenting the approval of products and articles considered approved by the FAA. The FAA recommends each PAH include FAA Form 8130-3 for all eligible product and article shipments.

8130.21H, 1-12c

c. <u>Automation</u> and use of an electronic signature on FAA Form 8130-3 <u>is allowed by all persons who issue the form</u>; however, **<u>using automation</u>** and electronic signature does not relieve the designee or person authorized to issue FAA Form 8130-3 from <u>verifying the product or article conforms to FAA-approved design data and is in a condition for safe operation</u>.

We believe its clear by the above statement two distinct allowances are granted.

1. AUTOMATION 2. ELECTRONIC SIGNATURES

Note: Pay close attention to the words chosen; VERIFY, & CONDITION

8130.21H, para 2-1 g

g. The signature of the person authorized to issue FAA Form 8130-3 may be applied electronically to Block 13b from domestic or international locations. With the exception of paragraphs 1-10 and 1-11, at the time the signature is authorized to be placed on FAA Form 8130-3, **the person whose signature appears on the form must have direct access to the product or article to verify it conforms to FAA-approved design data and is in a condition for safe operation**

The terms "**Direct Access**" to the article to "Verify" and is in a "Condition", seems to imply that the designee my be able to "VISUALLY" see the article, not have to necessarily touch the article!

The order continues in a note:

Note: The time and location of the authorization of the form issuance may be different from the time and location of the printing of the form.

8130.21H, para 2-1 h

Blind Inspection?

h. In the case where a product or article is presented for inspection for the issuance of FAA Form 8130-3, and the product or **article is sealed** in a package **that does not afford a visible inspection**, the authorized person must obtain **objective** evidence to determine the appropriate inspections were conducted and approved before the issuance of FAA Form 8130-3.

Definition of objective evidence:

Information based on facts that can be proven through analysis, measurements, **OBSERVATION**, and other such means of research**.**

WHAT IS NEEDED IS A PROCESS
Some Basic Steps

1. Establish the type of part complexity that a remote visual inspection would be appropriate for!
2. Designee should establish the overall QMS health, and determine if the applicants QMS and staff can meet a minimum standard you would establish.
   - Tooling calibration, geographic MIDO's opinion of the applicants QMS etc.

3. Audio, Video quality minimums should be established and documented in a written procedure. Ie. HD quality, Band width, minimum lumens, zooming capability, and recording allowance at both sides, and multiple connections if designee requires.
4. Formal written procedures
5. Prior notifications and paperwork transmitted to designee in advance of inspection.
6. Designee may still require on-site if not satisfied with Video inspection.

BENEFIT ANALYSIS

FAA DESIGNEES & FAA ASI ARE LIMITED AND TRAVEL AND ECONOMIC LIMITATIONS CAN BE A REAL LIMITING FACTOR

- Therefore Remote Video Inspections can provide immediate benefits by
  - Elimination both travel cost, and time utilization to reach and return to home base.
  - A permanent and transferable record of the video inspection event would be available to oversight by FAA.
  - Cost savings to the applicant
  - A Green initiative, fuel and, pollution reduction.
  - FAA can always sit-in [web in] to any video inspection and perform oversight requirements.
  - Does not deviate from the intent of the order. “Verify Article Conforms & in a Condition….”

SIMULATION INSPECTION FOR EXPORT OF A TSO ARTICLE – C13 Life Vest

1. Paperwork was transmitted by PDF via email.
   a. Drawings, b. LODA, FAI, Materials, Testing, and C of C
2. 813-9 Original was received by mail, with a 8100-2
3. Received DERS GROUP Agreement procedure.
4. Verify Video equipment, Band width, and proper software in place.
5. Prior to accepting Video inspection request by applicant, we performed a QMS health check on-site [7-11-12] and found the facilities and staff adequately trained and able to meet all the minimum video inspection criteria.

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INSPECTION VALIDATION SIMULATION

SIMULATED VIDEO INSPECTION EXAMPLE

Legal Opinion regarding Remote inspections

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[redacted]

Dear [redacted]

Thank you for contacting us with your issue regarding the interpretation of FAA Order 8130.21G. The question is whether the language "direct access" in the Order requires the Designee to have physical access to products or articles for which the Designee will issue an 8130-3 tag. Following is an analysis of the interpretation of Order 8130.21G.

Summary

The plain language of the term "direct access" lends itself to an interpretation whereby use of remote digital inspections would be permissible. This position is strengthened by the fact that the Order permits blind inspections to be performed on the basis of objective evidence alone and the deference afforded designees in determining the extent to which an article must be inspected to ensure conformity to the approved data.

However, even though the plain language of the term "direct access" and additional provisions of the Order support an interpretation of the term permitting remote digital inspection, administrative agencies such as the FAA are given substantial deference under the law in interpreting their own regulations and guidance. Defining "direct access" to mean "in person" is a reasonable interpretation of the language, and a court would likely be inclined to defer to the FAA's interpretation in such a case because there is no language that starkly opposes such an interpretation. Such deference likely means that use of remote digital inspections would not be permitted.

It may be possible to argue that the FAA has previously determined that "direct access" allows remote digital access, and in such a case the FAA would not be permitted to change their interpretation of the guidance without notice and comment. Under the Alaska Hunters doctrine, once an agency interprets a rule, that interpretation is part of the rule and cannot be changed without the ordinary notice and comment process. In order for Alaska Hunters to apply, however, there must be evidence that the FAA has previously interpreted "direct access" to allow for remote digital inspections. Such evidence may be possible to produce because the technique

FAA DESIGNEE INSPECTIONS FOR DOMESTIC OR EXPORT
REQUIRING A 8130-3 RELEASE TAG

SCOPE:

Any request for DAR-F support shall require the requesting applicant to adhere to the following FAA National, Policies, and provide the following documentation prior to any inspections.

FAA National policies:

The following listed policies at their latest revision level at the time of the inspection will be applicable as may be appropriate and must be complied with by the applicants and designees when applicable.

FAA Orders:

- **8100.8 – Designee Mgmt Handbook**
- **8100.10 – RFC at a supplier outside a geographic area**
- **8120.2 - Production Approval and Certificate Mgmt Procedures**
- **8120.12 – PC Holder use of other-Parties to supplement their supplier control programs.**
- **8120.23 – Certificate Mgmt of PAH**
- **8130.2 - Airworthiness Certification of Aircraft and Related Products**
- **8110.44 – Conformity Inspection Notification Process**
- **8130.21 - Procedure for Completion and Use of the Authorized Release Certificate [8130-3 Tags]**
- **8110.42 - Parts Manufacturing Approval Procedures**
- **8150.1 - TSO Programs**
- **8110.4 - TC/ STC Procedures**
- **8120.17 - Implementation of Changes to CFR 14 Part 21 [Amdt 21-92]**
- **8120.13 – International Cooperation Supplier Surveilance Program Procedures.**
- **8110.51 - Acceptability of Previously approved certs compliance data from Foreign Sources.**

FAA Advisories:

- **AC21-29 - Suspected Un-approved Parts**
- **AC21-32 – Control of Products and Parts Shipped Prior to Type Cert Issuance**
- **AC21-51 – Applicant Showing of Compliance and Cert Statement**
- **AC45-2 - Identification and Registration**
- **AC21-44 – Issuance of Export Airworthiness Approvals under CFR 14 Part 21L**