

## Notification of a Proposal to issue a Certification Memorandum

### Use of Remote Technologies for the real-time witnessing of inspections and tests

EASA Proposed CM No.: **CM-21.A-B-001 Issue 1** issued **8 April 2020**

**Regulatory requirement(s): 21.A.33, 21.A.239, 21.B.100 of Annex I to Regulation (EU) 748/2012**

In accordance with the EASA Certification Memorandum procedural guideline, the European Union Aviation Safety Agency proposes to issue an EASA Certification Memorandum (CM) on the subject identified above. All interested persons may send their comments, referencing the EASA Proposed CM Number above, to the e-mail address specified in the “Remarks” section, prior to the indicated closing date for consultation.

EASA Certification Memoranda clarify the European Union Aviation Safety Agency’s general course of action on specific certification items. They are intended to provide guidance on a particular subject and, as non-binding material, may provide complementary information and guidance for compliance demonstration with current standards. Certification Memoranda are provided for information purposes only and must not be misconstrued as formally adopted Acceptable Means of Compliance (AMC) or as Guidance Material (GM). Certification Memoranda are not intended to introduce new certification requirements or to modify existing certification requirements and do not constitute any legal obligation.

EASA Certification Memoranda are living documents into which either additional criteria or additional issues can be incorporated as soon as a need is identified by EASA.

Log of issues

Issue	Issue date	Change description
1	08.04.2020	First issue

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## 1. Introduction

### 1.1. Purpose and scope

The purpose of this Certification Memorandum is to provide guidance to be considered by applicants for TC, changes to TC, STC, repair or ETSOA intending to apply the use of real-time remote technologies for the witnessing of inspections and tests addressed in point 21.A.33 of Annex I to Regulation (EU) 748/2012.

In particular, it addresses the cases where EASA witnesses remotely in real-time an inspection or test as part of its involvement determined in accordance with point 21.B.100. The guidelines for these cases are defined in paragraph 4.

Some considerations are provided in paragraph 5 for cases where applicants carry out or witness remotely inspections or tests, which take place in a facility where it is a too huge burden, not necessary or not possible to physically attend. As an example, this scenario can occur in the framework of the activities defined in point 21.A.239 (b).

This certification memorandum does not provide guidance for flight test activities conducted in accordance with point 21.A.35.

NOTE: This Certification Memorandum does not apply to means such as video, audio or other information generally used to support project certification data when it is difficult to observe the results of certain tests, such as high-intensity radiated field tests, in-flight icing tests, or water ingestion tests.

### 1.2. References

Reference	Title	Code	Issue	Date
1	Use of Remote Technology during the Performance of Inspections and Tests by Federal Aviation Administration	PS-AIR-21-1901	First issue	31/3/2020

### 1.3. Definitions

Remote technology for witnessing of inspections and tests	Remote technology for witnessing is intended as any <u>real-time</u> video and audio communication means, which aims at replacing the physical presence of the witness (being EASA or the applicant) during the execution of an inspection or test
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### 1.4. Abbreviations

CS	Certification Specification
DOA	Design Organisation Approval
DOA TL	DOA Team Leader
ETSOA	European Technical Standard Order Approval



HD	High Definition
STC	Supplemental Type Certificate
TC	Type Certificate

## 2. Background

EASA acknowledges that the use of real-time remote technology for the purpose of allowing witnesses or participants to tests and inspection in order to perform their duties without physical attendance can reduce certification costs and improve certification timelines, while allowing for a more efficient use of the human resources. This Certification Memorandum provides guidance on the use of remote technology to carry out tests and inspections as defined in Regulation (EU) 748/2012 point 21.A.33 Inspections and tests.

Real-time remote technology may have limitations that could render it unsuitable for some applications. Accordingly, careful consideration and risk management should be applied when making a determination when to use it. The factors listed in paragraph 3 should be considered in determining when remote technology could be used. These factors are however not exhaustive and should not be treated as a checklist.

## 3. Considerations when to apply real-time remote technologies

### General Considerations.

**The following should be considered when applicant intend to use real-time remote technologies:**

- As an overarching principle, it needs to be determined whether the nature of the inspection or test allows the use of real-time remote technologies. As an example, for a cockpit human factors evaluation in a simulator involving EASA pilots and flight test engineers to verify compliance to CS 25.1302, the use of remote technologies is considered as not adequate due to the high sensory nature of the activity;
- Complexity, novelty, and safety criticality of the product, article or system to be inspected or tested, should be taken into account. These aspects however do not prevent a priori the use of real-time remote technologies for inspection or test if properly compensated by thorough preparation, adapted test setup, efficient test execution and/or availability of results from previously conducted engineering tests;
- Level of competence and experience of the personnel in the use of the particular procedures and equipment that will be used to conduct the inspection or test;
- Previous experience of the facility conducting or supporting the inspection or test and similarity with already performed inspections or tests;
- Appropriateness of the inspection and test instruments and/or equipment, especially if used to evaluate qualitative aspects of a product, article or system;
- Unless otherwise indicated by an EASA approved manual and/or procedure, the use of remote technology to conduct witnessing activities is to be agreed on a case by case basis; and
- To support compliance demonstration activities, images and recorded videos may already be provided by applicants and referenced in associated compliance documents. However, the mere review of recorded videos of inspections and tests are not considered as real-time witnessing of compliance demonstration activities retained by EASA in accordance with point 21.B.100 or as real-time verification by the independent checking function of a Design Organisation Approval Holder in accordance with point 21.A.239 (b).



### Equipment and Setup Considerations.

The following should also be considered when determining whether real-time remote technology could be used to carry out an inspection or test, keeping in mind that the use of remote technology should also enable EASA (or the applicant) to review any data and information related to compliance demonstration and to witness or carry out any test or inspection in accordance with point 21.A.33 (d):

- Suitability of video resolution, fidelity, and field of view for the inspection or test being conducted;
- Need for multiple cameras, imaging systems, or microphones and whether the person performing or witnessing the inspection or test can switch between them, or direct them to be switched;
- Controllability of viewing position, direction, zoom, and lighting;
- Appropriateness of audio fidelity for the evaluation being conducted;
- Uninterrupted communication between the person(s) authorised to remotely witness the activity and the personnel conducting the inspection or test exists at the location where the product, article or system is located;
- Need for specific testing devices or equipment (for example, fast-frame cameras, special lighting conditions, or sensitive listening devices, mobile phones with cameras for HD video calls);
- Whether personnel have been adequately trained in the proper set up, validation, and use of the technology, tools and/or equipment to be used;
- Interaction aspects between the personnel performing the inspection or test and personnel that need to witness the inspection and test, such as possibility to stop the test, ask a question, move equipment etc. ; and
- Need for the retention of the audio, video, or other information. EASA may request that the person conducting the inspection or test record and save video, audio, or other information for a specified time to enable post-test evaluation.

## 4. Remote witnessing of tests and inspections by EASA – guidelines

This paragraph provides guidelines for an applicant to carry out inspections and tests allowing EASA real-time witnessing with the support of remote technologies.

### 4.1. Information to be provided

An applicant intending to use real-time remote technology to allow EASA witnessing of inspections or tests should document this approach in the project related documentation such as certification programme, certification test plan, or compliance inspection plan.

The following items constitute a necessary, non-exhaustive list to be included in the project certification documents:

- A description of how the product, article or system(s) or equipment will be inspected or tested, including:
  - Preparation activities performed before the start of the remote witnessing such as conformity of the test article and test setup
  - Detailed description of the test set-up
  - Detailed description of how the witnessing activity is intended to be developed
  - Pass/fail criteria
  - Personnel in charge of conducting the activity and their level of competence
- Identified limitations of the use of remote technologies compared to an equivalent 'in person' EASA witnessing scenario
- The proposed date and location of each inspection and test and other logistical aspects (time difference, etc.)
- Any other relevant information



EASA will:

- Determine whether the use of real-time remote technology will ensure that EASA can properly perform its duties
- Make a determination whether the real-time remote technology can be used to witness the inspection or test. The test will be considered valid only if the use of remote technology has given full satisfaction as per the initially agreed expectations (e.g. no interruption of live streaming, sufficiently high resolution, etc.). Otherwise the test shall be repeated
- Inform the applicant of their determination

## 4.2. Records

An applicant that has used real-time remote technology to carry out an inspection or test should, as appropriate, provide a chronological description of the test or inspection and any adjustments to the real-time remote technology equipment (cameras, microphones, etc.) made over the course of the inspection or test and the reasons for the adjustments.

## 4.3. Limitations to the use of remote technologies

The setup and use of real-time remote technology to carry out certain inspections or tests is considered and has proven to be challenging and often unacceptable to EASA. Extra precautions should be taken when making a determination if the use of real-time remote technology is appropriate to carry out or witness inspections or tests. Examples of design features that are hardly subject to an adequate evaluation through real-time remote witnessing include but are not limited to:

- Cabin attendant direct view
- Legibility of markings and placards
- Tests involving the generation of smoke (smoke detection, propagation, penetration and evacuation)
- Testing involving the use of naïve subjects
- Effectiveness of life vest container security seals
- Evaluation of sharp edges
- Human factor related activities
- Usability of escape slides.

## 4.4. Update of design organisation manuals

Despite the fact that the use of real-time remote technologies can be proposed at project level to allow EASA to witness or carry out inspections or tests, EASA supports and encourages the update of the design organisation manual to include this feature.

Repeated use of real-time remote technology may be authorised for a DOA holder in its procedures manual. A DOA holder seeking to use real-time remote technology shall apply to EASA for a significant change of its Design Assurance System according to point 21.A.247. The DOA holder should document the procedures in its procedures manual as specified in point 21.A.243, and submit the revised manual to their DOA TL in accordance with established procedures for making changes to the manual. The DOA TL will review the submitted changes for the use of remote technology methods in accordance with applicable regulations.

## 4.5. DOA holder's performance credit

When assessing requests to use real-time remote technologies for witnessing tests or inspections, EASA will take into consideration the DOA holder's performance and the risk associated with the affected compliance demonstration items.



The applicant is encouraged to provide an assessment of the compliance demonstration items impacted by the use of real-time remote technologies together with the associated DOA holder's performance, the likelihood of an unidentified non-compliance and its impact on product level.

Following the principles laid down in point 21.B.100, the lower the risk, the higher is the probability that EASA may concur on the use of real-time remote technologies for witnessing.

## 5. Remote witnessing of tests and inspections by applicants – guidelines

This paragraph provides guidelines to applicants who want to witness inspections or tests performed by third party organisations (laboratories, test facilities, etc.), or in the case of the activities defined by 21.A.239 (b) with the support of real-time remote technologies.

The use of real-time remote technologies for witness inspections or tests is considered as a significant change to the procedures of an APDOA holder or to the design assurance system of a DOA holder, and must be described in its procedures or handbook, and submitted for approval to the Agency via an EASA Form 81 or EASA Form 82 respectively.

With due consideration of the guidelines provided in paragraph 4, APDOA and DOA holder organisations are recommended to submit with their application for the approval of the significant change the following:

- Description of laboratories, test facilities and remote technology system/equipment to be used by the third party organisation for the execution of the inspection and test
- Evidence of review for suitability and acceptance of those facilities/system/equipment by the applicant
- Procedures to be followed by third party organisations (laboratories, test facilities, etc.) in the execution of the inspections and tests
- Evidence of review and acceptance of those procedures by the applicant
- Identification of third party organisation personnel required to execute the tasks defined in those procedures, supported by information about their relevant educational background, professional qualification and experiences
- Evidence of the authorisations granted to those third party organisation personnel
- Evidence of arrangements for compliance with Part 21.A.239(a)(3) for the independent monitoring of compliance with, and adequacy of, the procedures to be followed by the third party organisation in the execution of test and inspection

## 6. Validation projects

In the framework of projects where EASA is not acting as primary certification authority, proposals to use remote technology for witnessing will be evaluated on a case by case basis.

The guidelines provided in paragraph 4 apply.

EASA involvement in such projects will be determined in accordance with the applicable bilateral agreements, working arrangements and applicable regulations in force. In these cases, EASA will reserve the right to retain the compliance activities affected by witnessing via real-time remote technologies or delegate those activities to the primary certification authority.

## 7. Cybersecurity aspects

There are cases where testing/inspection facilities are subject to strict security limitations. When using real-time remote technologies for witnessing inspections or tests, it is the responsibility of the applicant to



provide an equivalent level of security. This can include digital security protection, verification of witness personal data etc.

## 8. Remarks

1. This EASA Proposed Certification Memorandum will be closed for public consultation on the 29 of April 2020. Comments received after the indicated closing date for consultation might not be taken into account.
2. Comments regarding this EASA Proposed Certification Memorandum should be referred to the Certification Strategy and Programming Department, Certification Directorate, EASA. E-mail [CM@easa.europa.eu](mailto:CM@easa.europa.eu) and copying the reference person indicated on the EASA webpage where this document is made available.
3. For any question concerning the technical content of this EASA Proposed Certification Memorandum, please contact:

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