

COMMENT RESPONSE DOCUMENT

EASA CRD of Proposed Certification Memorandum CM-21.A-B-001 Issue 1
Use of Remote Technologies for the real-time witnessing of inspections and tests
[Published on 08 April 2020 and officially closed for comments on 15 May 2020]

NOTE: The published CM takes into consideration the comments of this CRD as well as internal EASA feedback. Therefore, some parts of the document may be moderately different from the consultation version even if not directly linked with one of the following comments. Despite several changes, the essence has not been modified with respect to the consultation version, hence not requiring a second consultation.

Commenter 1: Jet Aviation AG – Bastiaan Out / Airworthiness Officer / 14.04.2020

Comment # 1

Would you consider the possibility for the DOA team leader to decide if a proposed procedure is not a significant change? If a DOA limits (for example: simple tests (coupon mechanical tests, glass tests) on non-critical interior parts with applicant witnessing only with non-EASA witnessing/involvement) its use of remote witnessing severely, and the DOA performance is high, the DOA team leader may want to forego on a significant change, and instead take the opportunity to inspect the new procedure and its implementation with the next audit cycle.

An example is the CM for 3D printed parts, where it states that a procedure for 3D printed parts may or may not be a significant change

EASA response: PARTIALLY AGREED

Criteria for the classification of the change to the design assurance system are the same for all type of organisations. The review of the type of test/inspection for which the remote witnessing is proposed together with the associated real time remote participation, and of current approved procedures of an organisation may lead to conclude that the change is not significant.

The method of working of an organisation, which would include real time remote participation for certain key activities, , should be documented in the handbook/procedure to comply with Part 21.A.14(b) or 21.A.243. The change to the procedure/handbook may be significant, and it will depend from the type of test/inspection, the technology proposed for remote participation and current approved procedures which may already document such method of working. APDOA/DOA holders should contact the assigned DOATL to evaluate the significance of the change. See revisited subparagraph 4.6 and paragraph 5.

Commenter 2: Rusada – Tim Alden / Partner & Special Projects Director / 16.04.2020

Comment # 2

I would be interested to know more because, as a solution provider to OEM /MRO and Operators where we actively record the completion of inspections, inclusion of a form of remote inspection technology would not be too difficult to achieve. My main question would centre around the level of recording and proof of compliance needed from an audit perspective. Let me explain...

1. Recording the settings of the device recording the inspection – yes that can be done.
2. Interactive session to show inspection done – so would a stored recording of the process be required or, some form of acknowledgement? It makes a material difference to the technology and ultimately the storage and cost of storing potentially large files in a secure cloud.
3. Recording the details of the person performing the inspection, duplicate inspection, their qualifications – all these are not an issue.
4. Associating the record with OEM instructions again is not an issue
5. Associating the inspection with the generation of a form 1 or 8130 again is not an issue, however, would the creation of a digitally signed certificate rather than just a generated form be better?

EASA response: NOTED

The guidelines of the CM with respect to remote participation technology are kept general on purpose. Technological specificities will be managed at project level.

Commenter 3: Thompson Aero Seating – Iain Holmes / Senior Certification Engineer / 29.04.2020

Comment # 3

Regarding the list of general considerations under Section 3 of the CM. TAS believe that it in a significant number of cases the test facility may be unwilling to take on the responsibility of completing testing without at least one test witness on site, even in cases where they have previous experience of successfully testing similar seats. Therefore, the following comments all consider having at least one TAS test witness located at the test facility throughout testing.

EASA response: NOTED

EASA acknowledges this comment and will consider it in the assessment of the following TAS comments.

Comment # 4

Regarding equipment and setup provisions under Section 3 of the CM. TAS would propose that it would be best to have the remote viewing technology directed and/or controlled by the test witness located at the test facility, due to familiarity with the test article and test plan. This would enable faster and more accurate



response to requests from the EASA remote witness for different or additional views of the hardware and setup, as well as facilitating specific requested examinations of post-test conditions.

EASA response: NOTED

Please consider that the CM does not prevent this scenario. However, EASA prefers not to explicitly state who should or should not direct and/or control the remote viewing technology.

Comment # 5

The current considerations listed under Section 4.1 of the CM state that a “test will be considered valid only if the use of remote technology has given full satisfaction as per the initially agreed expectations” and then gives an example of no interruption of live streaming. A typical seat dynamic test could last anywhere between 6 – 12 hours from start to finish depending on complexity of the test setup. Is it the expectation of the agency that a full uninterrupted live stream is available throughout? In addition, given the nature and physical size of some test facilities there is not always perfect network coverage (either WiFi or mobile phone) and it is entirely possible and indeed likely that the connection will be interrupted at some stage. TAS believe that the current wording of the CM leaves very little flexibility to deal with the challenges we have all faced when using remote technology even in a less hostile office environment, let alone a large scale test facility.

EASA response: PARTIALLY AGREED

While interruptions in the live streaming of the event may be considered acceptable by EASA on a case-by-case basis, the word “uninterrupted” is used in the CM to specify an expected key capability of any kind of technology that is used to support remote participation to inspections and tests. A live streaming session may include one or more breaks in which the EASA witness decides not to actively participate to the event. This is typically the case of lunch breaks, physiological breaks or test preparation phases that the EASA witness does not deem necessary or efficient to continuously monitor. However, during those breaks it should be possible to have cameras continuously monitoring the test article and the test rig and for EASA to review the related video recordings (e.g. through time-lapse videos). Audio recordings should also be available, upon EASA request.

Comment # 6

Following on from comment #5, if there is no requirement for uninterrupted live streaming then it would be necessary to agree the key points during the test procedure which are required to be live streamed to the remote witness.

EASA response: NOTED

See comment #5

Furthermore EASA agrees that the evaluation of the proposed technology should not be performed while the certification test or inspection takes place. The CM has been revisited to include a new subparagraph 4.2 (Evaluation of the proposed technology and schedule) in which it is clarified that the applicant is expected to



arrange a preliminary trial to allow EASA to evaluate and accept the proposed technology. Once a successful trial is performed, the technology is expected to enable EASA to adequately witness the certification test or inspection. If this is not the case, EASA may request the repetition of the test/inspection.

Comment # 7

The requirement for records with the level of detail outlined in Section 4.2 of the CM would be extremely time-consuming to provide for the full duration of a seat dynamic test.

EASA response: NOT AGREED

The remote participation to tests and inspections requires the use of a different way of managing the certification event compared to when the EASA witness can participate in person. While the EASA person that remotely witnesses a test or an inspection has to face limitations that are intrinsic in the process and mainly affect the capability of perceiving certain aspects of the event and of physically interacting with the test article and the test rig. Nonetheless, the live streaming of the event offers the possibility to record audio and video material that can support the evaluation of the test conduction and of the test results. EASA considers that the availability of audio and video recordings is a significant compensating feature for the above-mentioned limitations, and creates a negligible additional burden for the applicant. The case by case assessment of each proposal remains valid.

Comment # 8

What consideration has been given to the practicalities of working across time zones when witnessing tests remotely? Have EASA internally defined what would be considered an acceptable time difference? For example, there are instances where testing may be conducted at facilities in the USA rather than Europe where tests may be running outside of standard business hours in Europe.

EASA response: AGREED

The text of the CM-21.A-B-001 is modified as follows: subparagraph 4.1 third bullet point ‘The proposed date and location of each inspection and test, including all relevant logistical aspects (time difference, start and end time of each live streaming session, etc.);’



Commenter 4: Redak Consulting – Franz Redak / CEO / 29.04.2020

Comment # 9

With reference to paragraph 3)

Equipment and Setup Considerations: The wording in bullet 7 suggests that we have to identify if the personnel are “adequately trained in the proper setup” ... of the real time remote technology. Does that impose that these persons are to be qualified and authorised by the DOA? If so this would be an undue burden on the DOA and highly subjective. Such technologies “Zoom, WebEx, Skype, etc.) are fragile software instruments and are depending on a number of topics which cannot be put on DOA shoulders. Attending a number of EASA WebEx meetings shows that even EASA personnel is not always able to cope with the challenges of this technology. Suggest to remove

EASA response: AGREED

The text of the CM-21.A-B-001 is modified as follows: ‘Whether personnel have been sufficiently familiarised with the use of the real time communication technologies to be able to discharge their responsibilities;’

Comment # 10

With reference to paragraph 4.1

The wording here is identifying the need to propose a “real-time remote tech” as part of the CP. We assume this is appropriate for a large scale (TC) effort. Considering the lower end of the spectrum however, this seems to be a rather difficult task. Imagine presenting a specific function of an EFIS ground test to be witnessed. I believe there should be a reasonable simple way by EASA actively requesting witnessing rather than the DOA proposing witnessing.

Also the details identified here are extensive. e.g. the detailed description of how witnessing activity is intended to be developed is highly depending on EASA experts. Active involvement of experts and identifying the need for such would be appreciated, rather than the DOA spending excess of time to find out what EASA wants to see.

EASA response: NOT AGREED/PARTIALLY AGREED

First comment about not identifying in the CP: NOT AGREED, because EASA leaves the decision of where and how to document the use of remote technology for test witnessing to the applicant. As a general practice, EASA expects the approach to be documented in the project certification programme and the specificities in the test/inspection plan/report.

Second comment about EASA/DOA requesting/proposing witnessing: PARTIALLY AGREED, all certification activities (including potential remote witnessing) are agreed between the applicant and EASA at project level.



Comment # 11

With reference to paragraph 4.1

EASA will: make a determination whether the real-time remote technology can be used: this wording suggests that EASA can first determine the technology as acceptable, but later during the testing identify it not acceptable on a subjective (depending on EASA equipment shortcoming) basis. The DOA shall have a reasonable good expectation and confidence on the EASA agreed CP to run through his compliance demonstration programme.

EASA response: NOTED

EASA agrees that the content of paragraph 4.1 (Information to be provided) needs to be reconsidered. The paragraph in question has therefore been revisited to include text that exclusively defines the minimum information to be included in the project documentation. In addition to that, EASA has decided to create a new subparagraph 4.2 (Evaluation of the proposed technology and schedule) that includes the two sentences highlighted in the comment together with further guidance on the need to arrange preliminary trials in order to allow EASA to evaluate and accept the proposed technology before the certification test or inspection takes place. In the same subparagraph EASA clarifies that any deviation from the accepted schedule of the remote participation sessions will have to be agreed by EASA.

Comment # 12

With reference to paragraph 4.4 and 5

Does that mean that a DOA using this technology only from time to time, this process does not need to be specifically agreed as a significant change and identified in the handbook. What are the criteria (frequency, number per year) for such?

EASA response: NOTED

Only repeated regular request to EASA for remote participation should trigger the update of the handbook/procedures. The change to the procedure/handbook may be significant, and it will depend from the type of test/inspection, the technology proposed for remote participation and current approved procedures which may already document such method of working. APDOA/DOA holders should contact the assigned DOATL to evaluate the significance of the change. See revisited subparagraph 4.6 and paragraph 5.

Comment # 13

With reference to paragraph 5

Some (all) criteria identified here seem to address topics which are not related to the real time remote witnessing but to general test accomplishment. The CM identifies only the remote-witnessing being clarified. We suggest to review these items since there are two separate and independent topics as where the general qualification of tests and their accomplishment is already considered in other parts of the regulation and should be in place prior to the integration of such new technologies. Instead as identified in the headline, it does not reveal any guidelines on the actual remote witnessing topic. This is such as Software to be used, equipment to be available (PC, Headsets, size of screen, etc.), how to establish connection, who is to be included, location related limitations such as speed of internet etc. Examples:

- description of facilities



- evidence of suitability
- identifying personnel and their educational background etc.
- evidence of monitoring compliance of 3rd parties.

EASA response: AGREED

The entire paragraph 5 was revisited.

Commenter 5: Capgemini – Matthieu Ritter / Head of Aerospace & Defense Segment / 20.04.2020

Comment # 14

Our company has developed a specific Remote Assistance platform, mainly used to for Remote inspection of nuclear plants or production support and under test by an aerospace OEM: <https://bit.ly/3bfo0rZ>

Are you considering this solution (or similar) appropriate to answer the CM conditions?

EASA response: NOTED

The technical solution looks very promising. EASA would like to highlight that the objective of the CM is to provide guidance for applicants for them to identify and propose an appropriate technical solution for remote inspections or tests. The appropriateness of a solution should then be evaluated through a trial and will not only result from the intrinsic qualities of the technology or tool but also depend on the type of inspection or test to be performed; it will be assessed on a case by case basis before it can be agreed to be used for recurrent similar cases.

Commenter 6: Federal Office of Civil Aviation – Alexander Kugele / Certification Engineer / 23.04.2020

Comment # 15

The proposed CM “Use of Remote Technologies for the REAL-TIME witnessing of inspection and tests” provides some guidance on the use of remote technologies for real-time witnessing.

What would be the possible the way out if the assessment/evaluation determines that the use of remote technologies is not suitable (besides relocating the test article)? Possible situations:

- A DO could enter an arrangement with another suitably rated local DO;
- A DO could nominate suitable local staff as CVE (provided this is captured by DO procedure);
- A DO could delegate specific tasks to other persons (provided this is captured by DO procedure, e.g. delegation to DERs for activities in the US).



EASA response: NOTED

It should be up to the applicants to propose solutions, which will be evaluated on a case by case basis. The three options proposed might represent reasonable solutions, but please note that they may all be significant changes.

Commenter 7: Lufthansa Technik GmbH – Dagmar Elten / Head of Quality Management / 27.04.2020

Comment # 16

With reference to Chapter 4.3

We propose to change chapter 4.3 to “possible use of remote technologies” instead using limitations, since the list of inspections and tests may alter and extend. In any case, its use shall be discussed with the PCM of the related project and documented and agreed with the Certification Programme.

EASA response: NOT AGREED

EASA prefers to provide limitations to the applicability and eventually remove them in a future issue of the document. Some internal EASA guidance will be shared among the different panels about the possible use of remote participation for witnessing of tests and carrying out of inspections. PCMs will be aware of these internal guidelines and they will be able to provide information for specific cases.

Comment # 17

With reference to Chapter 4.4

To our opinion, a Significant Change to the Design Organisation Handbook is not necessary. The acceptance of the DOA TL during the next scheduled audit checking the general use of remote technologies should be sufficient and would avoid unnecessary administration effort.

EASA response: PARTIALLY AGREED

The method of working of an organisation, which would include real time remote participation for certain key activities, should be documented in the handbook/procedure to comply with Part 21.A.14(b) or 21.A.243. The change to the procedure/handbook may be significant, and it will depend on the type of test/inspection, the technology proposed for remote participation and current approved procedures which may already document such method of working. APDOA/DOA holders should contact the assigned DOATL to evaluate the significance of the change. See revisited subparagraph 4.6 and paragraph 5.

Comment # 18

With reference to Chapter 7

Beside the cyber security, issues the remote technologies might interfere with privacy rights



EASA response: NOTED

It is reminded that the sharing of data is based on an agreement between all the parties. In addition, EASA is subject to data protection rules and confidentiality provisions.

Commenter 8: ASD AWC Design Organisation Approval Working Group – Dieter Stege / 28.04.2020

Comment # 19

With reference to the title.

For which purpose has been the term 'real-time' used here? It may lead to different interpretations. The term 'real-time' requires a definition.

EASA response: AGREED

'Real-time' has been added in the "definition" subparagraph. The text of the CM-21.A-B-001 is modified as follows: 'Real-time: information that is delivered as it happens'.

Comment # 20

With reference to the front page.

The list of Regulatory requirements should not directly address 21.A.239. Delete 21.A.239 but may include 21.A.615.

EASA response: PARTIALLY AGREED

21.A.239 is considered applicable taking into consideration that the introduction of such technology may affect the method of working of the independent checking function. 21.A.245 for the suitability of the equipment to be used and 21.A.257 for the arrangements to be made by the DOA Holder to allow EASA participation are also considered applicable and are added.

21.A.615 is added.

Comment # 21

With reference to section 1.1.

There is no need to include DOA internal scope stated on p3 as '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).' The CM should focus on Agency witnessing under 21.A.33 only.



Delete all requirements/details about witnessing as part of the DOA covered Design Assurance System (including subcontractor). Do not add DAS details not specified in 21.A.239.

EASA response: NOT AGREED

Remote witnessing by the applicant has been a fundamental pillar in the creation of the certification memorandum. This position is to cover the cases where EASA does not retain the test/inspection as part of the LOI and the applicant does not intend to be physically present at the test/inspection facility. In these cases, as per paragraph 5, the remote witnessing processes will be part of the DO procedures and therefore verified by the DOA TL.

Comment # 22

With reference to section 1.3.

Should focus on EASA witnessing only. Delete reference to 'applicant'.

EASA response: NOT AGREED

See comment #21.

Comment # 23

With reference to section 3.

The statement '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' seems to be meant as binding requirements within this CM. Delete this statement to avoid confusion.

EASA response: NOT AGREED

The 'case by case' evaluation of each proposal to use remote participation technologies is a fundamental pillar of the CM. It allows EASA to assess each inspection/test against the proposed means to display it remotely, and make a determination about the appropriateness of each solution.

Comment # 24

With reference to section 4.1.

The statement 'The following items constitute a necessary, non-exhaustive list to be included in the project certification documents' seems to be meant as binding requirements under this CM. Revise to read 'The following items should be considered to be included in the project certification documents'.

EASA response: AGREED

See revisited subparagraph 4.1.



Comment # 25

With reference to section 4.1.

Which competence is meant in the statement 'Personnel in charge of conducting the activity and their level of competence'? Delete reference to competence.

EASA response: PARTIALLY AGREED

The comment is not agreed regarding the proposal to delete reference to competence. However, it is agreed to specify which competence we refer to. The text of the CM-21.A-B-001 is modified as follows:

'intended as:

- Level of competence in inspection/test execution and experience 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.'*

Comment # 26

With reference to section 4.4.

Use of term 'manual'? Replace with 'Handbook'

EASA response: AGREED

It should be either DOA handbook or procedures and APDOA procedures or manual of procedures. Subparagraph 4.5 (it was 4.4) title updated.

Comment # 27

With reference to section 4.4.

The need that '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.' should be limited to those cases where EASA witnessing is included as permanent option. Any DOA (and supplier) internal remote technology there is no need for a significant change application.

Revise text to read: 'A DOA holder seeking to use on a regular basis real-time remote technology as EASA witnessing option shall apply to EASA for a significant change of its Design Assurance System according to point 21.A.247.'

EASA response: NOT AGREED

The method of working of an organisation, which would include real-time remote participation for certain key activities, should be documented in the handbook/procedure to comply with Part 21.A.14(b) or 21.A.243. The change to the procedure/handbook may be significant, and it will depend on the type of



test/inspection, the technology proposed for remote participation and current approved procedures which may already document such method of working. APDOA/DOA holders should contact the assigned DOATL to evaluate the significance of the change. See revisited subparagraph 4.6 and paragraph 5.

Comment # 28

With reference to section 4.4.

Which risk is meant in the statement '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.'

Delete that sentence.

EASA response: AGREED

The subparagraph was removed.

Comment # 29

With reference to section 5.

The use of real-time remote technologies for witness inspections or tests is not considered a change in the process principles of the certification test management and, for this reason, it is not a DAS significant change.

This kind of change should be considered not significant in general and mainly for those organisation already performing test monitoring using digital technology

EASA response: NOT AGREED

See comment #27.

Comment # 30

With reference to section 5.

Since the following elements are typically part of a all changes to the DAS:

- 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

It should be better to highlight just that a specific training should be set for this technology if any

EASA response: PARTIALLY AGREED



Paragraph 5 was updated. Rather than training, due to the simple nature of technology to be used, familiarisation with the technology is expected.

Comment # 31

With reference to section 5.
That scope is outside 21.A.33.
Delete chapter 5.

EASA response: NOT AGREED

See comment #21.

Commenter 9: Embraer – Fabricio Oliveira de Toledo / Regulations and Operational Suitability / 15.05.2020

Comment # 32

Based on these requirements, Embraer would like to offer the following comments:

- The third paragraph of the chapter “1.1. Purpose and scope” should be revised to remove the sentence “As an example, this scenario can occur in the framework of the activities defined in point 21.A.239 (b)” as follows:

*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).***

- The title of chapter 5 should be revised from “Remote witnessing of tests and inspections by applicants – guidelines” to “Remote witnessing of tests and inspections by third party organisations”.
- The first and the second paragraphs of the chapter 5 should be revised as follows:

*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 **to generate data for compliance documents submitted to independent checking function defined by 21.A.239 (b).***



The **use adoption** of real-time remote technologies for witness inspections or tests **performed by third party organisations** 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.

- In the seventh bullet of the chapter “3. Considerations when to apply real-time remote technologies”, under “General Considerations”, Embraer proposes to delete the sentence “or as real-time verification by the independent checking function of a Design Organisation Approval Holder in accordance with point 21.A.239 (b)” and include an additional bullet, as shown below:
 - 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)~~
 - **To support the tasks that might facilitate the preparation for the independent checking function of a Design Organisation Approval Holder in accordance with point 21.A.239 (b), the DOAH may use real time remote technology to involve the person in charge of signing compliance documents in the test/inspection.**

Justification:

The motivation for all the above proposed changes relies on the fact that test witness and inspections are not part of the independent checking function of a DOAH in accordance with point 21.A.239 (b), and there is no obligation on the Annex I to the Regulation (EU) No 748/2012 “Part 21” for an applicant to witness a test or compliance inspection that the applicant is in charge of, nor to inspect a test article or setup that the applicant is in charge of the conformity. The Design Approval Holder may involve the person in charge of signing compliance documents in the test/inspection, in order to ease the independent checking function execution. However, it does not substitute the execution of the independent checking function.

EASA response: NOT AGREED

The independent checking function may have to witness tests or carry out inspections to be able to discharge its responsibilities. It might not be mandatory, but it is certainly an ordinary way of proceeding for certain type of tests/inspections. If so far, a CVE deemed necessary to discharge his/her responsibilities to witness a test or carry out an inspection on site, asking him/her to do it remotely may significantly impact his/her way of working and ability to be independent in the verification of activities performed by others remotely.

The method of working of an organisation, which would include real time remote participation for certain key activities, should be documented in the handbook/procedure to comply with Part 21.A.14(b) or 21.A.243. The change to the procedure/handbook may be significant, and it will depend from the type of test/inspection, the technology proposed for remote participation and current approved procedures which may already document such method of working. APDOA/DOA holders should contact the assigned DOATL to evaluate the significance of the change. See revisited subparagraph 4.6 and paragraph 5.



Commenter 10: The Boeing Company – Todd Siegler / Director, System Safety & Regulatory Affairs /15.05.2020

Comment # 33

With reference to:

Section: 3

Page:4

Paragraph: second bullet

THE PROPOSED TEXT STATES:

...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;

REQUESTED CHANGE:

...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;

JUSTIFICATION:

This statement is unclear.

EASA response: AGREED

The second bullet point of paragraph 3 General considerations has been revisited The text of the CM-21.A-B-001 is modified as follows: ‘Performances of the technologies for real-time remote participation should be taken into account and properly complemented by thorough preparation, adapted test setup, efficient and transparent test execution and/or availability of results from previously conducted engineering tests to confirm real-time participation equipment setup, as necessary’.

Comment # 34

With reference to:

Page:5

Paragraph: 4.1

THE PROPOSED TEXT STATES:

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.



REQUESTED CHANGE:

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, *certification test report or compliance inspection report*.

JUSTIFICATION:

Outlining the intent to utilize remote technology in a certification programme provides visibility to the regulatory agency of the applicant's intent to use remote technology on specific testing or compliance inspections. The certification programme, not the test or compliance inspection plan, should be the authority for proposing the option to use remote technology.

It would be over burdensome to always include the list remote technology items/actions as defined in Section 4.1 in the test or compliance inspection plan when the use of remote technology is considered an option. The applicant should already have processes in place for the use of remote technology in identifying minimum imaging system requirements, different camera/audio setup requirements, etc. for the various types of tests that are good candidates for remote technology.

It is preferred that the test or compliance inspection report will document the list of items/actions as defined in Section 4.1 and to identify or describe any issues or actions taken during the test or inspection. The approach of documenting the use of remote technology in the test or compliance inspection report aligns with FAA Policy Statement PS-AIR-21-1901

EASA response: PARTIALLY AGREED

Subparagraph 4.1 has been revisited. The text of the CM-21.A-B-001 is modified as follows: 'An applicant intending to use real-time remote participation to enable EASA to witness tests or carry out inspections should document this approach in the project certification programme'.

Comment # 35

With reference to:

Section: 4.1

Page: 6

Paragraph: second bullet

THE PROPOSED TEXT STATES:

...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

REQUESTED CHANGE:

...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.). *Depending on the type of test being performed, the test may be paused and re-started if an unsatisfactory remote technology condition is identified and corrected.* Otherwise the test shall be repeated



JUSTIFICATION:

Some tests to be repeated require a lengthy re-start process. At the discretion of the remote test witness person, there should be the option to continue the test once the interruption has been resolved. This would allow unsatisfactory conditions to be identified and corrected real time and allow the testing to continue.

EASA response: PARTIALLY AGREED

EASA agrees that the evaluation of the proposed technology should not be performed while the certification test or inspection takes place. The CM has been revisited to include a new subparagraph 4.2 (Evaluation of the proposed technology and schedule) in which it is clarified that the applicant is expected to arrange a preliminary trial to allow EASA to evaluate and accept the proposed technology. Once a successful trial is performed, the technology is expected to enable EASA to adequately witness the certification test or inspection. If this is not the case, EASA may request the repetition of the test/inspection.

Commenter 11: Airbus Operations GmbH – Stephan Runge / Regulations and Assurance Manager /15.05.2020

Comment # 36

As far as remote Technologies for the real-time witnessing of certification inspections and tests are concerned, it is worth noting that the content of this draft EASA Certification Memo is almost aligned to the content of the FAA Policy Statement ref. PS-AIR-21-1901 issued on 31 March 2020.

However, FAA policy statement addresses as well the topic for production conformity tests or inspections which is not the case in the EASA Certification Memo.

General Comment:

Guidelines for use of remote technologies for the real-time witnessing of production conformity tests/inspections (by the Competent Authority as per 21.A.157* or the POA holder as per 21.A.139**) should be included in the EASA Certification Memo.

*GM 21.A.157 specifies that the Competent Authority investigation may include; audits, enquiries, questions, discussions and explanations, monitoring, witnessing, inspections, checks, flight and ground tests and inspection of completed products, parts or appliances produced under the POA

**21.A.139 specifies that the quality system shall contain control procedures for inspection and testing

EASA response: NOT AGREED

The purpose of the EASA CM is to explicitly exclude production conformity tests or inspections. These activities cannot be included in a certification guideline. However, the EASA flight standard directorate has prepared an FAQ for the EASA website. It includes guidelines for “remotely conducting tasks for the issuance of an ‘EASA Form 1’ for prototype and new produced parts, appliances, and products other than complete aircraft”.

Comment # 37

With reference to section 1.1 Purpose and scope



For clarification the word "recorded" should be added.

Airbus proposed new wording:

"This Certification Memorandum does not apply to means such as *recorded* video, audio or other information....."

EASA response: NOT AGREED

EASA acknowledges that this note was not clear. Therefore, the wording of this subparagraph has been completely revisited, but not as proposed by Airbus. The text of the CM-21.A-B-001 is modified as follows: 'NOTE: this certification memorandum does not apply to the process of generation of videos, audio recordings or any other data needed to support the evaluation of the outcome of the tests that are difficult to observe (e.g. dynamic tests on seats, impact tests, ballistic tests on flight deck boundaries, high-intensity radiated field tests, in-flight icing tests, or water ingestion tests).'

Comment # 38

With reference to section 1.3 Definitions

For the same reason, "live" should be added. (Just at this place for all other "real-time" places.)

Alternatively "real-time" itself should become subject of "Definitions".

NOTE:

Airbus understanding is that "recorded" videos have to be distinguished from "real-time (live)" videos.

Airbus proposed new wording:

"Remote technology for witnessing is intended as any real-time (*live*) video and audio communication means....."

EASA response: AGREED

The real-time definition has been added. See comment #19.

Comment # 39

With reference to section 1.4 Abbreviations

Within "ETSOA", A stands for "Authorisations"

Airbus proposed new wording:

European Technical Standard Order Approval ~~Approval~~ *Authorisations*

EASA response: AGREED

The abbreviation has been corrected.



Comment # 40

With reference to section 3 Considerations

General Considerations

The first bullet point include only one example of inspection when real-time remote technologies are not appropriate.

Airbus request:

Example(s) when these remote technologies *are appropriate* should be added.

EASA response: NOT AGREED

See comment #16.

Comment # 41

With reference to section 3 Considerations

General Considerations, second bullet:

Within the second bullet point, the complexity, novelty, and safety criticality of the product, article or system to be inspected or tested are considered, where it should be the complexity and capacity/capability effectiveness of the real-time remote witnessing technologies.

Complexity, novelty, and safety criticality of the product, article or system are not key drivers for the ability to implement real time remote witnessing, they are used for "L-O-I" determination.

Airbus proposed new wording:

Consider "*Complexity/capacity/capability*" criteria of the real time remote technologies to read as follows:

~~Complexity, novelty, and safety criticality of the product, article or system to be inspected or tested,~~ *Complexity/capacity/capability* of the real time remote technologies should be taken into account *and* ~~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, as necessary."~~

EASA response: PARTIALLY AGREED

EASA agrees on the principle. However, the second bullet point of paragraph 3 General considerations has been revisited. The text of the CM-21.A-B-001 is modified as follows: 'Performances of the technologies for real-time remote participation should be taken into account and properly complemented by thorough preparation,



adapted test setup, efficient and transparent test execution and/or availability of results from previously conducted engineering tests to confirm real-time participation equipment setup, as necessary’.

Comment # 42

With reference to section 3 Considerations

General Considerations

Within the sixth bullet point, what are these manuals/procedures approved by EASA?

To be noted that DOA handbooks/procedures are not approved by EASA.

Airbus requests:

- Please add references or examples for the manuals/procedures referred in this bullet.
- Please precise that also DOA holder provided documents can be used.

EASA response: PARTIALLY AGREED

The text of the CM-21.A-B-001 is modified as follows: ‘Unless otherwise already foreseen by the APDOA procedures or DOA handbook, the use of remote participation is to be agreed on a case by case basis with EASA’.

Comment # 43

With reference to section 3 Considerations

"Equipment and Setup Considerations", 5th bullet:

The CM text calls for

"...the person(s) authorised to remotely witness the activity..."

This might suggest any difference to an on-site test or inspection.

Airbus would like to ask to clarify:

Persons “authorized” to remotely witness test & inspections hold the same authorisation/delegation like persons that witness test/inspections on-site.

EASA response: NOTED

The answer is yes.



Comment # 44

With reference to section 3 Considerations

Equipment and Setup Considerations

Fifth bullet point states:

"*Uninterrupted* communication between the person(s) authorised to remotely witness the activity and the personnel conducting the inspection or test".

This is seen as too much stringent/conservative.

Depending on the nature/kind of test/inspection, short unexpected interruptions should be considered (audio or video connection cut for a short time due to network/link issues). Such interruption should be assessed on case by case basis and the remote witnessing could be resumed from where it stopped (e.g. for cabin inspections).

Airbus proposed new wording:

"~~Uninterrupted~~ *Continuous* 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. *If short interrupts appear, this needs to be mutually evaluated and agreed, if the inspection/test could be continued or if it needs to be aborted.*

EASA response: PARTIALLY AGREED

While interruptions in the live streaming of the event may be considered acceptable by EASA on a case-by-case basis, the word "uninterrupted" is used in the CM to specify an expected key capability of any kind of technology that is used to support remote participation to inspections and tests. A live streaming session may include one or more breaks in which the participants do not actively participate to the event. However, during those breaks it should be possible to have cameras continuously monitoring the test article and the test rig and for EASA to request and have access to the related video recordings.

Comment # 45

With reference to section 3 Considerations

Equipment and Setup Considerations

The ninth bullet point states:

"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."

Whatever the test/inspection witnessing is done on-site or remotely, the video/audio records do not constitute the MoC. The test/inspection reports are the MoC.

The use of real time remote witnessing shall not create new or additional constraints and burden on the applicant.

The need for retention shall be clearly expressed and determined before the test, as in some case, it need special instruction and condition to allow personal record (droits à l'image).



In addition, why remote condition is requiring this extra need of post-test evaluation?

When EASA is physically performing the witnessing there will be no record so no post-test evaluation beyond the classical test report.

If it is judged necessary the post-test evaluation is independent of doing the test/inspection remote or on-site.

(We fully agree with EASA statement made in the note to sub-section 1.1 of the CM)

Airbus proposed modified wording:

~~“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.”~~
data transmitted during the remote test/inspection shall be specified before the test/inspection is planned in detail.”

EASA response: NOT AGREED

The remote participation to tests and inspections requires the use of a different way of managing the certification event compared to when the EASA witness can participate in person. While the EASA officer that remotely witnesses a test or an inspection has to face limitations that are intrinsic in the process and mainly affect the capability of perceiving certain aspects of the event and of physically interacting with the test article and the test rig. Nonetheless, the live streaming of the event offers the possibility to record audio and video material that can support the evaluation of the test conduction and of the test results. EASA considers that the availability of audio and video recordings is a significant compensating feature for the above-mentioned limitations, and creates a negligible additional burden for the applicant.

Comment # 46

With reference to section 3 Considerations

Equipment and Setup Considerations

PROPOSAL for NEW item:

Add a bullet to address prerequisites on EASA side, e. g. need for a given web browser, or dedicated software license or hardware to participate to the remote activity.

Airbus propose to add following wording:

Prerequisites needed on the EASA side to participate to the remote witnessing activity (e.g. dedicated web browser, software licenses, hardware etc.)” shall be specified before the test/inspection planning is started

EASA response: NOT AGREED

Prerequisites on EASA side are not foreseen as necessary and would create unnecessary burdensome effort. Furthermore, the guidelines of the CM with respect to witnessing technology are kept general on purpose. Technological specificities will be managed at project level.



Comment # 47

With reference to section 4.1 Information to be provided

“EASA Tasks”, second bullet point:

"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"

Both quoted sentences are not relevant to the EASA determination before the test/inspection witnessing but to the validation of the test when completed using remote technology for witnessing.

Airbus request:

These 2 sentences should be moved to a new sub-section “4.2 Validation”.

EASA response: PARTIALLY AGREED

EASA agrees that the content of paragraph 4.1 (Information to be provided) needs to be reconsidered. The paragraph in question has therefore been revisited to include text that exclusively defines the minimum information to be included in the project documentation. In addition to that, EASA has decided to create a new subparagraph 4.2 (Evaluation of the proposed technology and schedule) that includes the two sentences highlighted in the comment together with further guidance on the need to arrange preliminary trials in order to allow EASA to evaluate and accept the proposed technology before the certification test or inspection takes place. In the same subparagraph EASA clarifies that any deviation from the accepted schedule of the remote participation sessions will have to be agreed by EASA.

Comment # 48

With reference to section 4.1 Information to be provided

“EASA tasks”, second bullet:

- “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.”

Due to the technology (e.g. mobile data transmission), there may be interrupts be unavoidable. This should not put the outcome of the remote activity at risk, if the interrupts are at an acceptable level and do not compromise the EASA capability to witness the activity.

Airbus proposed wording:

[...] “... (e.g. ~~no interruption of live streaming~~, *adequate quality and continuity of the live streaming*, sufficiently high resolution, etc.). [...]

EASA response: PARTIALLY AGREED

See comments #35 and #44.



Comment # 49

With reference to section 4.3 Limitations to the use of remote technologies

The examples are very Cabin Safety related. Does EASA have examples from other domains as well?

The word “hardly” in above quoted text is very stringent. Admittedly there are many cases, for which the remote witnessing may be very difficult, but it still may be feasible to do it, when it is thoroughly prepared and the EASA and the applicant have agreed upfront that it is worth trying it for the given case.

A more general wording may be appropriate.

NOTE:

IF EASA insist to keep a list of examples, that list should also include examples for other tests than >large aeroplane cabin<.

Airbus proposed modified wording:

There are many examples of design features that are ~~hardly subject~~ very difficult to ~~an~~ be adequately ~~evaluation~~ evaluated 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.~~

In case of doubt, the applicant must clarify the suitability of the real-time remote witnessing activity for such design features upfront with EASA.

EASA response: PARTIALLY AGREED

The list of limitations in subparagraph 4.3 is now complemented with examples from other domains. The wording of this subparagraph has been revisited (not as proposed by Airbus).

Comment # 50

With reference to section 4.4 Update of design organisation manuals

Second section, 2nd sentence:

The use of real-time remote technologies for witness inspections or tests is not a part of the showing of compliance.

The showing of compliance is the test or inspection where the objective, conditions, procedure are not changed.



Thus, no change to the showing of compliance implies no significant change to the Design Assurance System as per 21.A.247.

Wording of this section should be changed to read as follows:

“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 (*as specified in point 21.A.243*) to include this feature *in case of repeated use of such technologies.*”

~~“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.”~~

EASA response: NOT AGREED

The method of working of an organisation, which would include real time remote participation for certain key activities, should be documented in the handbook/procedure to comply with Part 21.A.14(b) or 21.A.243. The change to the procedure/handbook may be significant, and it will depend from the type of test, the technology proposed for remote participation and current approved procedures which may already document such method of working. APDOA/DOA holders should contact the assigned DOATL to evaluate the significance of the change. See revisited subparagraph 4.6 and paragraph 5.

Comment # 51

With reference to section 4.5 DOA holder’s performance credit

The adequacy of real-time remote technologies for witness inspections or tests and capability of the DOA holder to use them have no link with the performance of the DOA holder which focuses on communication with EASA, Certification programme and compliance documents.

Airbus request:

Section 4.5 shall be removed.

EASA response: AGREED

The paragraph (DOA holder’s performance credit) was deleted.



Comment # 52

With reference to section 5 Remote witnessing of tests and inspections by applicant – guidelines

The abbreviation APDOA is not explained.

Please add “APDOA” in section: 1.4. Abbreviations

EASA response: AGREED

The abbreviation is added to subparagraph 1.4.

Comment # 53

With reference to section 5 Remote witnessing of tests and inspections by applicant – guidelines

Same comment than raised against sub-section 4.4.:

The use of real-time remote technologies for witness inspections or tests is not a part of the showing of compliance.

The showing of compliance is the test or inspection where the objective, conditions, procedure are not changed.

Thus, no change to the showing of compliance implies no significant change to the Design Assurance System as per 21.A.247.

Wording & structure of this section should be changed as follows:

“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.

Despite the fact that the use of real-time remote technologies can be proposed at certification project level to allow the APDOA or DOA holder to witness or carry out inspections or tests, EASA supports and encourages the update of the design organisation manual (as specified in point 21.A.243) to include this feature in case of repeated use of such technologies.”

All following paragraphs of this section should be removed as verification of capabilities of third party test organisations is already covered by 21.A.239(c):

“The use of real-time remote technologies [...] execution of test and inspection.”

EASA response: PARTIALLY AGREED

The method of working of an organisation, which would include real time remote participation for certain key activities, should be documented in the handbook/procedure to comply with Part 21.A.14(b) or 21.A.243. The change to the procedure/handbook may be significant, and it will depend from the type of test,



the technology proposed for remote participation and current approved procedures which may already document such method of working. APDOA/DOA holders should contact the assigned DOATL to evaluate the significance of the change. See revisited subparagraph 4.6 and paragraph 5.

Paragraph 5 was revisited only to consider aspects related to the introduction of the technology for real-time remote participation.

Comment # 54

With reference to section 6 Validation projects

It is to be noted that there are no equivalent provisions within the FAA policy statement PS-AIR-21-1901.

The need for this section is questionable as the validation principles rely on the applicable bilateral agreements, working arrangements and applicable regulations in force, including for witnessing of tests/inspections.

Section 6 shall be

- removed or
- limited to recall that EASA witnessing using real time remote technologies will rely on the applicable bilateral agreements, working arrangements and applicable regulations in force.

EASA response: PARTIALLY AGREED

Considering that the assessment will be on a case by case basis, there is no specific need to exclude a priori validation projects. The sentence “EASA involvement in such projects will be determined in accordance with the applicable bilateral agreements, working arrangements and applicable regulations in force” addresses already the second proposal of the comment.

