

EASA	COMMENT RESPONSE DOCUMENT
	SC on ATN B1 Data Link installation Applicable to Aircraft operating in the Single European Sky above FL285, for ATC communications Issue 2

Commenter 1 : Dassault Aviation

Comment # 1 –

The CPDLC SC (appendix 1) indicates the ED120 paragraph that are applicable to each services.
But it does not indicate what is related to the a/c in term of :

- intended function linked to CPDLC
- safety aspects (criticity level)

Comment:

These types of elements were part of the AMC20-11.

As the SC does not include any element regarding AMC, all these types of elements have been removed from the requirements.

EASA response:

ED-120 refers to safety aspects. The intended function is defined in ED-110B. Additionally, the SC has associated interpretative material.

Comment # 2 –

The SC contains the applicability information related to the mandate.

Comment:

Usually, applicability date and concerned a/c of a mandate are not in the SC requirements?

EASA response:

The introduction of the SC contains clarifications concerning the applicability, however the SC does not contain any applicability or dates.

Comment # 3 –

Some requirements indicated in ED120 (ex : 4.2.2, 4.1) are applicable to ground station / ATC and not to airborne systems. So a/c designer does not clearly see how to be able to answer these requirements in the scope of the Part25.

Comment:

A generic sentence should be added in the SC to limit the requirements in ED120 that are applicable to airborne systems.

EASA response:

SC already mentions "as applicable to airborne systems" to clarify it. The SC is applicable to aircraft installations.

Comment # 4 –

Datalink services : Appendix §1

ED110B interoperability requirements relays on a/c and ground station behaviors.

Comment:

Dassault Aviation can not guarantee the ground station behavior in order to fulfill these requirements. Thus, interoperability aspects should not be included in the scope of airworthiness certification.

EASA response:

The guidance material associated with this SC will require the Applicant to provide the following: "A certification test plan for interoperability demonstration should be provided to EASA for acceptance". Compliance with interoperability requirements must be ensured for the airborne part of the system.

Comment # 5 –

"Multi frequency Operation" : Appendix §2

Comment:

"Multi-frequency operation" is linked to a technical standard in the SC that does not indicate how to use the CPDLC in a multi-frequency mode and what are the related criteria to guarantee that the use of CPDLC in a multi frequency mode is safe.

EASA response:

For the use of multifrequency please refer to section 9.8.1 of ARINC specification 631-5. With respect to safety cases, the current implementation assumes non critical DLS messages. Furthermore, the status of the system should be indicated to the crew.

Commenter 2 : Garmin

Comment # 1 –

ATC Clearances and Information service (ACL): Appendix 1-3 d)

Comment:

Although ED-120 contains the message elements requirements, Garmin believes there should also be a direct reference to EUROCONTROL-SPEC-0116 since it contains the actual messages that must be supported.

EASA response:

The Interpretative Material included in the Certification Review Item (associated to the Special Condition) refers to the EUROCONTROL-SPEC-0116.

Comment # 2 –

Multi-frequency operation: 'ARINC specification 631-5'

Comment:

Garmin believes the system can be certified against 631-5 or 631-6 (as per per the Eurocontrol Link Integration Team meeting in Oct 2010).

EASA response:

Multifrequency requirement has been moved to the interpretative material. Compliance will be negotiated on a case by case basis. The IM includes "or later issue acceptable to EASA " is intended to take into account future updates.

Commenter 3 : Transport Canada

Comment # 1 –

The proposed special condition says that AMC 20-11 is superseded by the special condition; however the special condition does not address controls, displays, printers, annunciation, the flight manual, recording of CPDLC messages, and the MEL.

Comment:

Will advisory material be prepared to replace AMC 20-11 for certification to the special condition?

EASA response:

The SC provides only the requirements to comply with Commission Regulation (EC) No. 29/2009. Additionally, a CRI which will be applied for each of the Data-Link installations includes the advisory material, which has been mainly taken from AMC 20-11.

Comment # 2 –

FAA AC 20-140A is acceptable guidance material for TCCA approval of a data link installation.

Comment:

Is there a pair of designations defined in AC 20-140A (for safety, performance and interoperability) that achieves the same operational objective as the special condition?

EASA response:

EASA believes that FAA AC 20-140A meets the intentions of Commission Regulation 29/2009, when installation includes the Data Link Services mandated (DLIC, ACM, ACL, AMC), and these services comply with the applicable interoperability requirements of ED-110B. The SC has not a pair of designators as the FAA AC 20-140A.

Commenter 4 : Bombardier Aerospace

Comment # 1 – General

In the absence of an existing Certification Specification (CS), or even IR-OPS, Bombardier understands that EASA is forced to use a Special Condition (SC) to contain the technical requirements for operations in the European upper airspace.

Comment:

We (Bombardier Aerospace) would like some assurance from EASA that this is being done under extraordinary circumstances and is not establishing a precedent for future operational requirements.

EASA response:

EASA understands Bombardier Aerospace concerns. EASA will make every endeavour in the future to ensure the proper coordination.

Comment # 2 – General

Bombardier has been working on aircraft modifications to comply with the datalink standard specified in AMC 20-11 and ES-0116.

In collaboration with its avionics supplier (Rockwell Collins), Bombardier has compared the detailed requirements of the SC against the requirement of the previously released AMC 20-11 and ES-0116, and notes some ambiguity/inconsistency as to the specific requirements one must demonstrate compliance to. At this late date, given the requirement for datalink equipage on new aircraft built after 1-January-2011, Bombardier is unable to offer a configuration that complies with the detailed functional standards specified in the proposed SC in the short term.

Comment:

According to the DLS Exemption Cell Initial report, it appears infeasible for any business jet manufacturer to meet the forward fit implementation date. EASA should work with the EC to reschedule a realistic implementation date, with sufficient time to allow aircraft and equipment manufacturers to develop, certify and verify interoperability for a compliant modification package, after the requirements are formally published and the infrastructure to certify is operational.

EASA response:

EASA will make every endeavour in the future to ensure the proper coordination. Reschedule of implementation dates is not under responsibility of EASA.

Comment # 3 – General

The special condition does not address what EASA will accept in terms of demonstration of interoperability in order to issue the required Certificate of Conformity.

EASA response:

EASA will not issue Certificate of conformity. The applicant is responsible to propose the tests to demonstrate interoperability. Further guidance, although not mandated, will be provided in the CRI.

Comment # 4 –

Multi-Frequency operation : Appendix, paragraph 2

Comment :

Bombardier would be able to provide, for its Challenger and Regional Jet families, aircraft that would comply with AMC 20-11 and ES-0116 with single-frequency capability only. As it is publicly known that European ground systems will be incapable of handling multi-frequency operations any earlier than 2013, it makes little sense to mandate multi-frequency equipage in aircraft before this time.

Justification :

Two alternative routes that can be pursued:

Position 1:

- A white paper or SC should be written such that EASA endorses the AMC 20-11 and Eurocontrol Specifications EC-0116. This would allow Bombardier to take credit for the work achieved up to this point and would enable the issuance of the statement of conformity to the EC requirements based on previously demonstrated functionality.¹
- In the short term, single frequency could be used to allow equipped aircraft to operate in the European airspace. Aircraft equipped with single frequency capability could support the mandated services (i.e. DLIC, ACL, ACM, and AMC).
- In the longer term, when equipment supporting multi-frequency will be available for integration, new aircraft could be so equipped. Aircraft with single-frequency capability could then be upgraded.
- In the mean time, mixed equipage would have to be accommodated by the ground infrastructure. It would avoid excluding aircraft not compliant with the SC and take credit for early adoption.
- Drawbacks: It would impose retrofits for customers already equipped with single-frequency.

Position 2:

- Put all aircraft modifications for LINK 2000+ on hold and wait for the relevant CS-xxx final regulations, expected by autumn 2011
- This would require partial repeating of the compliance exercise done up to this point
- If any equipment modifications are then required to comply, it would delay the entry into service LINK 2000+ equipped aircraft
- Additional costs would be incurred to comply with new requirements.

¹ EEC evaluation RC CMU-900 supporting PM-CPDLC/VDL-M2 Multi-Freq. First step of validation was conducted in summer 2010 (June, July, August) after an initial and Lab-to-Lab Interop test phase had been successfully achieved in spring 2010 between Cedar Rapids Facilities and EEC Test Facility. Second step was achieved in September/October 2010 with delivery of Build 10 and 11 which were intended to fix robustness issues as well as a MF issue discovered at SITA during VDLM2 MF validation. Refer to Eurocontrol Doc. Ref. /LINK2000/EEC/DOC/IH1010 issue 1.1 dated 22 Oct 2010.

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EASA response:

Multifrequency requirement has been moved to the interpretative material. Compliance will be negotiated on a case by case basis.

Commenter 5 : Airbus

Comment # 1 – General

As stated in the draft SC, "AMC 20-11 (Acceptable Means of Compliance for the Approval of use of Initial Services for Air-Ground Data Link in Continental Airspace) is **superseded** by this Special Condition".

Comment:

The development of Special Conditions applicable to several products and substituting to existing regulatory or advisory material is perceived as an alternative to the usual rulemaking process. The reduced period of consultation can lead to a lack of involvement of stakeholders for an important subject.

EASA response:

This is an exceptional case where EASA had to issue a Special Condition quickly. We understand Airbus concerns. Issuing a SC is not an alternative but a tool. EASA will make every endeavour in the future to ensure that use of this tool is not needed again.

Comment # 2 – General

The future of AMC 20-11 is not clear.

Comment:

Information about coordination with the Rulemaking Directorate should be provided as regards to the official withdrawal of the AMC, so that the two documents do not coexist.

EASA response:

AMC 20-11 is not applicable for the SES.

Comment # 3 – General

The link with the rulemaking task 20.016 should be clarified.
In particular, information should be provided about the future of the proposed SC in the context of this rulemaking activity.

EASA response:

The intent is that this Special Condition is implemented as a Certification Specification.

Comment # 4 – General

The Special condition is supposed to replace an AMC and past Interpretative Materials used to certify Data Link installations. These materials provided the necessary possibility for flexibility that will not exist anymore with the Special Condition that will become mandatory.

Comment:

These materials provided the necessary possibility for flexibility that will not exist anymore with the Special Condition that will become mandatory.

EASA response:

The Special Condition (SC) is not replacing the AMC. This SC links with the interoperability standards. The SC avoids such flexibility to ensure the required interoperability.

Comment # 5 – General

As stated in the proposed SC, "**A system** capable of providing Data Link Services that complies with the safety, performance and interoperability standards as detailed in the Appendix 1 **must be installed if** operations are to be conducted within the airspace as defined by the Commission Regulation (EC) No 29/2009. 1. The following Data link services must be provided: [...]".

Comment:

The Special Condition should only include requirements dealing with the safety, performance & interoperability of the installation of the equipment and not explicitly require its installation. The installation requirements are addressed in the European Commission Regulation (EC) No 29/2009.

EASA response:

EASA takes into account Airbus comment.

Comment # 6 – General

EASA should clarify if a Special Condition will be also developed for the ground component in order to prevent deviations/wrong interpretations.

EASA response:

A Community Specification has been issued covering the Interoperability, safety and performance requirements for the ground equipment.

Comment # 7 –

The requirements being included in a special Condition, they will become mandatory. The proposed SC cross-referencing the EUROCAE documents ED 110B and ED 120, there will be no possibility to deviate from their content.

Comment:

Past experiences show that some parts of these standards require interpretation. Deviation matrixes have been provided in the context of past certification justifications. This flexibility was necessary to complete certification activity and to give proper consideration to in-service experience.

This flexibility will not be possible anymore and will lead to showing of compliance difficulties.

The use of a SC mandating EDs cancels any possibility for flexibility if future in-service experience shows a need for ED evolutions.

EASA response:

EASA accepts that documents referred in the SC are mandatory, however some requirements could be subject to interpretations.

Comment # 8 –

The compliance of existing installations is not covered by the proposed SC.

Comment:

This point was addressed in the AMC and is very important to ensure air-ground interoperability.
Please refer to above comment on the possible development of a dedicated SC for the ground component.

EASA response:

Data Link installations on aircraft with an individual Certificate of Airworthiness first issued on or after 1 January 2011 must be compliant with the requirements of the Special Condition. Data Link installations on aircraft with an individual Certificate of Airworthiness first issued before 1 January 2011 must be compliant with the requirements of the Special Condition after 5 February 2015.

Comment # 9 –

The assumptions of AMC 20-11 chapter 5 are not covered by the proposed SC.

Comment:

The way the ground component will be addressed needs to be clarified.
The end-to-end responsibility cannot be endorsed by the aircraft manufacturer.

EASA response:

The guidance material associated with this SC will require the Applicant to provide the following: "A certification test plan for interoperability demonstration should be provided to EASA for acceptance". Compliance with interoperability requirements must be ensured for the airborne part of the system.

Comment # 10 –

Should this SC be adopted, it should clearly state that compliance entails compliance with Commission Regulation (EC) No 29/2009 in accordance with Article 11 of this regulation

EASA response:

EASA kindly refers Airbus to the last paragraph of the introductory note of the SC.

Commenter 6 : Boeing

Comment # 1 –

Multi-Frequency operation : Appendix, paragraph 2

Comment:

Boeing suggests that Appendix 1, paragraph 2 (on page 5), be revised to indicate compliance with the latest version of the ARINC Specification 631. The requirement be changed to reference ARINC Specification 631-6, which we understand will be released in the very near future.

Justification:

EUROCONTROL has indicated that it intends to mandate this later version of the specification for multi-frequency operations. Additionally, Specification 631-6 contains clarifications and points out errata found in Specification 631-5.

EASA response:

Multifrequency requirement has been moved to the interpretative material. Compliance will be negotiated on a case by case basis. The IM includes "or later issue acceptable to EASA " is intended to take into account future updates.

Commenter 7 : General Aviation Manufacturers Association

Comment # 1 –

To clarify the role of the draft CRI F-XX Data Link Services for Single European Sky during the transition of EASA's Data Link requirements documents from AMC 20-11 to the instant Special Conditions and ultimately to the new Certification Specification in 2011, and to include this in the front matter of the Certification Review Item as it will help better understanding within the community on how to develop certification plans and compliance matrices for data link installations over the next year.

EASA response:

AMC 20-11 is not applicable in the scope of Single European Sky. Requirements are not normally applied retrospectively (except if there is an unsafe condition). The intent is that this Special Condition is converted in Certification Specification requirements.

Comment # 2 –

Multi-Frequency operation : Appendix, paragraph 2

Comment:

The system can be certified against 631-5 and 631-6 (as per the Eurocontrol Link Integration Team meeting held in October 2010). The draft special condition only lists ARINC Specification 631-5.

EASA response:

Multifrequency requirement has been moved to the interpretative material. Compliance will be negotiated on a case by case basis. The IM includes "or later issue acceptable to EASA " is intended to take into account future updates.

Comment # 3 –

Under "Safety, performance and interoperability standards" under "3-ATC Clearance and Information Services (ACL)" under "d) a common subset of the message elements specified in Section 5.2.1.1.5 of the EUROCAE Document ED 120 incl. change 1 & 2, as appropriate to the en route operational environment," we believe that while ED-120 contains the message element requirements, there should also be a direct reference to EUROCONTROL-SPEC-0116 since it contains the actual messages that must be supported. If yes, we believe this would also apply to the "ATC Microphone Check service (AMC)" and "ATC Data Communications management service (ACM)".

EASA response:

Comment rejected. This paragraph of the SC traces exactly the Commission Regulation (EC) No 29/2009 requirements. The Interpretative Material included in the Certification Review Item (associated to the Special Condition) refers to the EUROCONTROL-SPEC-0116.

Comment # 4 –

The content of Appendix 1 of the proposed Special Condition, as written with its specific references to ED-110B and ED-120, conflicts with the lower level detailed requirements specified in Eurocontrol Specification-0116 (ES-0116). The proposed Special Condition represents an additional layer of abstraction leading to redundancy and inconsistency with respect to ES-0116, and potentially creating confusion as to the specific compliance requirements.

EASA response:

The Special Condition (SC) has been written extracting from the Commission Regulation (EC) No 29/2009 the applicable requirements to airborne systems. Moreover, this SC is included in a Certification Review Item (CRI) for all new projects intending to install a Data Link compliant with the mentioned Regulation. The CRI includes an additional appendix where the Interpretative Material is contained, which refers to the Eurocontrol Specification-0116 as an additional guidance to propose the means of compliance with this SC.

Comment # 5 –

The Eurocontrol Specification-0116 provides the explicit requirements for interoperability, safety, and performance for successful Link 2000+ operation and is intended to trace directly to the EU Commission (EC) Regulation No 29/2009 (the "Implementing Rule"), based upon Eurocontrol's operational experience with this program. As such, It contains numerous specifics and deviations from ED-110B and

ED-120 that are not reflected in the proposed Special Condition.

We (GAMA) believe it logically follows that the subject proposed Special Condition and any associated Acceptable Means of Compliance should directly reference ES-0116.

EASA response:

The Special Condition (SC) has been written extracting from the Commission Regulation (EC) No 29/2009 the applicable requirements to airborne systems. Moreover, this SC is included in a Certification Review Item (CRI) for all new projects intending to install a Data Link compliant with the mentioned Regulation. The CRI includes an additional appendix where the Interpretative Material is contained, which refers to the Eurocontrol Specification-0116 as an additional guidance to propose the means of compliance with this SC.

Comment # 6 –

The Appendix of the proposed Special Condition to be replaced by a single requirement that the avionics meet the requirements listed in Annexes A-D of the Eurocontrol Specification-0116.

This single reference will satisfy the objective to comply with the appropriate requirements in ED-110B, ED-120 and ARINC 631-5/-6.

Alternatively, Appendix 1 of the proposed Special Condition may be revised to incorporate the appropriate requirements of ED-110B, ED-120 and ARINC 631-5/-6, either directly or by reference to the relevant sections of those Standards Documents, if this is accomplished in a manner to preserve consistency with ES-0116.

EASA response:

Comment rejected. This Special Condition (SC) is included in a Certification Review Item (CRI) which includes additional Interpretative Material, where the Eurocontrol Specification-0116 is referred as an additional guidance to propose the means of compliance with this SC.

Commenter 8 : Embraer

Comment # 1 – General

Embraer believes that an operational context of ATN-CPDLC should be included.
We suggest the following text :

“Controller-Pilot Data Link Communications (CPDLC) enables the flight crew and controllers to exchange routine, non-time critical instructions, clearances and requests via data link text messages.

Note: CPDLC is not intended to be used in situations, where speed of delivery and assurance of receipt of an instruction, are of a time-critical nature in order to ensure the immediate safety of an aircraft.

*Voice and data link will co-exist as a means of ATS communication.
Implementation of CPDLC in continental airspace is intended as a supplementary means of communication to the use of voice communication.”*

EASA response:

EASA will consider this comment for the CRI.

Comment # 2 –

ATC Microphone Check service (AMC): Special Condition Item 1.4

Comment:

As the AMC is an obligation for ATC and not for the aircraft system; thus, Embraer believes that the text should be revised as following:

“ATC Microphone Check (AMC), to provide the flight crews with the capability to receive an instruction to verify that their voice communication equipment is not blocking a given voice channel.”

EASA response:

Definition is extracted from Commission Regulation.

Comment # 3 –

ATC Microphone Check service (AMC): Appendix, paragraph 1.4

Comment:

As the AMC is an obligation for ATC and not for the aircraft system; thus, Embraer believes that the text should be revised as following:

"The AMC service shall provide flight crew with the capability to receive an instruction in order to instruct to verify that their voice communication equipment is not blocking a given voice channel."

EASA response:

Definition is extracted from Commission Regulation.

Comment # 4 –

Multi-Frequency operation : Appendix, paragraph 2

Comment:

According to the VDL-2 capacity analysis through simulations performed by Eurocontrol, multi-frequency functionality is expected to be available on the ground (operational) only sometime in 2013-2014. Requiring VDL-2 multi-frequency for initial CPDLC implementation does not add any value to the system. Thus, we believe until that date deviations for these requirements shall be acceptable.

EASA response:

Multifrequency requirement has been moved to the interpretative material. Compliance will be negotiated on a case by case basis.

Commenter 9 : Robert Bernstein, Spectralux Corp

Comment # 1 –

We are developing a data only avionic designed to meet the needs of PM-CPDLC for Link 2000+. When I read the referenced CRI on CPDLC, PP 1.2 and subparagraph "b", I read the functions of voice and data together as mandatory. This could be interpreted to mean that a "data only" product could not meet the standard. I think it would present fewer questions, if the certification considerations of a Data only implementation were clear.

EASA response:

The SC is applicable at aircraft level, not at equipment level. Aircraft shall be equipped with radio (voice) communications independently of this SC. The functions voice and data are not required to be designed in the same unit.

Commenter 10 : Eurocontrol

Comment # 1 – General

The SC does not include anything about how the compliance to the IR is to be demonstrated.

A paragraph on Verification of Compliance should be added – text from the Proposed Annex for AMC20-11 can be used.

EASA response:

This SC contains only requirements. For new Data Link applications, EASA will provide interpretative material associated with this SC,

containing how compliance verification may be achieved. Additionally, applicants may propose different means of compliance, although it shall be reviewed and accepted by EASA.

Comment # 2 – Statement of Issue

Statement of Issue, para 5 "In accordance with the Regulation ... , are considered acceptable procedures for the conformity assessment."

The text does not cover the essence of the quoted para of the Regulation. Propose to extend the para as follows: "... procedures for the conformity assessment when it includes the demonstration of compliance with the interoperability performance and safety requirements of the said Regulation."

EASA response:

The SC has been drafted in accordance with EASA principles such that automatically ensures compliance with essential and implementing requirements.

Commenter 11 : Hawker Beechcraft / Rockwell Collins

Comment # 1 –

RCI believes the content of Appendix 1 of the SC, as written with its specific references to ED-110B and ED-120, conflicts with the lower level detailed requirements as specified in the EUROCONTROL SPECIFICATION-0116 (the ES-0116). The SC adds an additional layer of abstraction which yields inconsistency and redundancy, leading to confusion as to the specific requirements one must demonstrate compliance to.

It is our understanding that the ES-0116 provides the explicit requirements for interoperability, safety, and performance, for successful operation in the LINK 2000+ program. The ES-0116 was designed by EUROCONTROL to specifically trace directly to the EU's Commission Regulation (EC) No 29/2009 (the "Implementing Rule"), and was based upon EUROCONTROL's extensive knowledge and operational experience

with this program. As such, it contains numerous specifics and deviations from ED-110B and ED-120 that are not reflected in the SC. We believe it logically follows that a Means of Compliance should mandate direct compliance to the ES-0116. Rockwell Collins intends to show compliance directly to ES-0116.

We believe that the entire content of Appendix 1 of the SC should be replaced by a single requirement that the avionics meet the requirements listed in Annexes A - D of the EUROCONTROL SPECIFICATION-0116. This single reference will satisfy the objective to comply with the appropriate requirements in ED-110B, ED-120, and ARINC 631-5.

EASA response:

The Special Condition (SC) has been written extracting from the Commission Regulation (EC) No 29/2009 the applicable requirements to airborne systems. Moreover, this SC is included in a Certification Review Item (CRI) for all new projects intending to install a Data Link compliant with the mentioned Regulation. The CRI includes an additional appendix where the Interpretative Material is contained, which refers to the Eurocontrol Specification-0116 as an additional guidance to propose the means of compliance with this SC.