



NOV 27 2019

RA-19-03531

Mr. John Piccola
Manager, AIR-860
BASOO Branch
Department of Transportation
Federal Aviation Administration
2200 S. 216 Street
Des Moines, WA 98198-6547

Dear Mr. Piccola,

Subject: Submittal of Preliminary "737MAX Speed Trim System (STS) Integrated System Safety Analysis (ISSA)" in Support of P12.1.2 TIA

Model: 737-8, 737-9

RA Project No.: PS18-0837

EASA Project No.: 0010059715

EASA Level: Non-Basic

Response Requested: December 9, 2019

Expedited Flow: Yes

In Reply to: 860-19-0820

References:

- (a) Boeing Document D241A018-25 Rev New – Preliminary; "737MAX Integrated Speed Trim Safety Analysis"
- (b) Re-Submittal of Incremental Update to CP 23168 Revision N "737-8 / 737-9 Flight Control Computer Software Replacement (Version) P12.1.2)", dated October 19, 2019
- (c) Boeing Letter RA-19-02768, Submittal of Preliminary "737MAX Integrated Speed Trim Safety Analysis" in Support of Alignment to Proceed with 25.1302 Evaluations, dated September 10, 2019
- (d) FAA Letter 860-19-0280, dated October 1, 2019
- (e) Boeing Letter RA-19-03046, Submittal of Preliminary "737MAX Integrated Speed Trim Safety Analysis" in Support of 25.1301/25.1309 Certification e-Cab Testing, dated October 7, 2019
- (f) 10/31/19 email correspondence from FAA Jason Takisaki, subject "RE: iSSA Follow Up"
- (g) 11/14/19 Boeing/FAA/EASA meeting on EASA's (7) high-level comments (iSSA, S&MF)

Special Instructions: Please forward the enclosed document to Mr. Ken Paoletti and Mr. Jason Takisaki, Mechanical/Flight Controls, Mr. Tom Phan, Avionics/Software and Mr. Shaun Ripple Flight Test.

An expedited reply is requested to support the P12.1.2 Type Inspection Authorization.

This letter is to submit:

Preliminary Compliance Data Deliverable:



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Please find enclosed the reference (a) document which is the final submittal of the preliminary ISSA identified as deliverable 30 in the reference (b) certification plan. The enclosed document contains updates to the document previously submitted to your office via the reference (c) and (e) letters and incorporates comments received via the reference (d) letter. This document is being submitted in support of P12.1.2 TIA.

The following provides Boeing's summary of known changes still required ahead of release of the final ISSA Deliverable #28. (b) (4)

(b) (4)

(b) (4)

Updates will be included, as described below.

Section 1: Introduction

No further updates required. Section is in final form.

Section 2: System Description

No further updates required. Section is in final form.

Section 3: Logical Architecture

(b) (4)

Section 4: Functional Hazard Assessment

No further updates required. Section is in final form.

Section 5: Failure Modes and Effects Analysis

(b) (4)

Section 6: Fault Tree Analysis

(b) (4)

Section 7: Common Mode Analysis

(b) (4)

(b) (4)

Section 8: Single and Multiple Failure Analysis

No further updates required. Section is in final form.

Section 9: Development Assurance Summary

No further updates required. Section is in final form.

Section 10: Compliance Summary

No further updates required. Section is in final form.



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Appendix A: Use of Operational Probability
No further updates required. Section is in final form.

Enclosures A) and B) are copies of the current Preliminary ISSA and redline comparison against the prior reference (e) 10/7/2019 submittal. Enclosure C) is a copy of the current all-regulator ISSA comments and response spreadsheet. Enclosures D) and E) provide the qualitative AND gate analysis and supporting schematics requested via reference (f), and presents supplemental data to Section 7 of this preliminary document submittal. Enclosure F) presents a brief summary of the disposition of EASA's high level ISSA comments which were discussed in the reference (g) Boeing/FAA/EASA meeting. Enclosure F is being provided for FAA awareness.

(b) (4)

Cognizant E-UMs for the following System-Subsystem(s) have reviewed the P-ISSA and Enclosures A), D), E) and F) as SMEs, for accuracy and completeness in order to support the upcoming P12.1.2 certification flight testing:

- Avionics-ADIRU
- ETOPS-General
- Flight Controls-Autoflight
- Flight Controls-Electronics
- Flight Controls-F/C Primary & Secondary

This letter is being sent for:

Boeing requests FAA acknowledge this submittal by the requested response date in support of P12.1.2 TIA

Please contact this office or the following individuals if you have further questions:

Project Administrator (PA): (b) (6) at (b) (6)
Program Manager: (b) (6) at (b) (6)

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ECCN: 7E994

The data provided should be returned to Boeing immediately following use by the FAA, including any copies thereof which the FAA may be required to make in the course of its review. Boeing does not authorize the FAA to retain any portion of the materials being supplied.

Sincerely,

(b) (6)

(for) Elizabeth A. Pasztor
The Boeing Company ODA Lead Administrator
MC 081-53



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Enclosures: A) Boeing Document D241A018-25, Rev. New – Preliminary 11/4/2019
B) Red Line Comparison File against 10/7/19 draft
C) Consolidated Integrated Speed Trim System Safety Analysis Comments List
D) Qualitative AND Gate Analysis (FAA Action 555)
E) Qualitative AND Gate Analysis Supporting Schematics (FAA Action 555)
F) EASA's High Level Comments on the ISSA

cc

Name	SP	Encl	MC	Title
Mr. P. Adjibly	X	X		FAA Program Mgr., 0600-1222
Mr. J. Sutherland	X	X		FAA Program Mgr., 0600-1222
Mr. J. Voytilla	X	X		FAA Program Mgr., 0600-1222