



DELTA

PRIVATE JETS

Mr. Roy Henry
Principal Operations Inspector
Delta AirElite

9 February, 2012

Mr. Henry,

The contents of this package are the final evaluation reports of Delta Private Jets electronic flight bag evaluation of the period from August 9, 2011 to February 8, 2012. The following aircraft types are included:

BE-400
CE560 (XL, XLS, and XSL+)
LR-60
CE-750
HS-125
CL-604

Additionally, as a precaution against my failure to have already provided you with electromagnetic interference testing reports for each type, I have enclosed a copy of each of them as well.

Each report found the iPad to be a suitable method of presenting electronic data, and we request that you sign and issue operations specification A061. Thank you for your help.

Sincerely,

Anthony T. Roberts
Director of Operations
Delta Private Jets



To: Tony Roberts,
Cc:
Bcc:
Subject:

Tony,

I looked at Ops Specs A061 and noticed the following

A061 lists CE-560xl/xls/xls+, but does not list the CE-560 (w/o xl/xls/xls+). The reports do not state which of the CE-560 models it covers

The ops spec lists a BEA-125-800 which is not included in the reports nor are any on the ops specs.
The BD-100-1A100 is listed on the ops spec, is not included in the reports.
The HS-125 -800XP is listed on the Ops Specs, but there is not report for it.

It appears this Ops Spec needs to be redone to reflect the current fleet. Also will we be receiving the final reports on the other aircraft. The CE-525B is not listed anywhere except in Ops Spec D085.

Roy W. Henry
Principal Operations Inspector
Greensboro FSDO, EA-39

EFB
Roberts, Tony

to:

Roy W Henry

02/14/2012 03:19 PM

Show Details

Mr. Henry,

In response to our phone conversation, please consider the following clarifications of the EFB evaluation checklists.

- 6 These checklists are contained on page 14-5 of the GOM.
- 7 The mount is the kneeboard, approved in the GOM (paragraph 14.5, top of page 14-5.)
- 8 See above.
- 28 The EFB does not produce any messages.
- 49 These procedures are contained on page 14-4 of the GOM.
- 50 These procedures are contained on page 14-5 of the GOM (paragraph 14.7.)
- 83 This should have been checked "No." The EFB does not present any electronic checklists.
- 107 This should have been checked "No." It doesn't apply, as the EFB is not installed equipment.

Please let me know if you have any further questions.

Tony Roberts
Director of Operations
Delta Private Jets
[REDACTED]

CLARIFICATIONS ADEQUATE FOR CHECKLIST ~~ADEQUATE~~
WOS



PRIVATE JETS

CE-560 EFB EVALUATION

Report to Director of Operations:

Sir, per your request, the following is a report on the final evaluation on use of iPad for use of an EFB.

Summary: We found utilizing the iPad as a flight deck EFB exceeded all expectations and requirements. We did not find any issues with flight crews' performance in all flight situations experienced during the testing period. The training was appropriate and GOM procedures were found to be adequate. Please see EFB Operational Evaluation Checklist below.

John Villano
Captain, Delta Private Jets

EFB Operational Evaluation Checklist

General EFB Hardware

1. Is there a backup source in the flight deck for EFB information?	☐ No	☒ Yes
2. Is the EFB display readable under all typical flight-deck lighting conditions?	☐ No	☒ Yes
3. Does each type of EFB failure have minimum impact to crew tasks and workload?	☐ No	☒ Yes
4. Is the EFB installation appropriate for use in high workload phases of flight?	☐ No	☒ Yes
5. Are there appropriate MMEL/MEL items to handle EFB failures?	☒ No	☐ Yes
6. Have EFB failure items been incorporated into FAA-approved checklists?	☐ No	☒ Yes
7. Does the EFB mount allow appropriate access to flight controls and displays?	☐ No	☒ Yes
8. Does the EFB mount allow appropriate access to the emergency egress path?	☐ No	☒ Yes
9. Are crews able to adjust and lock the EFB for optimal viewing?	☐ No	☒ Yes
10. Is there appropriate access to all flight controls during both ground and in-flight operations when the EFB is positioned for optimal viewing?	☐ No	☒ Yes
11. Is there appropriate room to manipulate the EFB controls and to view its display?	☐ No	☒ Yes
12. Are all EFB hardware components that are routinely used easy to access?	☐ No	☒ Yes
13. Are the EFB hardware components usable and suitably durable for the flight deck?	☐ No	☒ Yes

Provide the Number and a Comment for each General EFB Hardware Question checked as "No."

*5 Not installed equipment _____



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CE-560 EFB EVALUATION

Stowage

14. Is there a stowage area for the EFB?	☐ No	☒ Yes
15. Is the stowage securing mechanism simple to operate?	☐ No	☒ Yes
16. Is the stowage securing mechanism unobtrusive when not in use?	☐ No	☒ Yes
17. Does the stowage system allow appropriate access to flight controls/displays and egress routes?	☐ No	☒ Yes
18. Is the design of the stowage area acceptable?	☐ No	☒ Yes
19. Can the EFB be moved easily to and from the stowage area without blocking access to flight displays/controls?	☐ No	☒ Yes
20. Are the device and/or the stowage area unlikely to be damaged under normal use?	☐ No	☒ Yes

Unsecured EFB

21. Is there appropriate access to flight controls/displays when the unsecured EFB is in use?	☐ No	☒ Yes
22. Is there an acceptable place to put an unsecured EFB when in use?	☐ No	☒ Yes
23. Is there an acceptable place to put an unsecured EFB when not in use?	☐ No	☒ Yes
24. Can the kneeboard EFB be positioned such that the pilot has full control authority?	☐ No	☒ Yes
25. Is the kneeboard EFB comfortable for the pilot to wear under normal conditions?	☐ No	☒ Yes

Provide the Number and a Comment for each Stowage and Unsecured EFB Question checked as "No."

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General User Interface

26. Is the workload using the EFB the same or less than the current process?	☐ No	☒ Yes
27. Is the workload acceptable when there is an EFB failure?	☐ No	☒ Yes
28. Are other than critical EFB messages inhibited during high workload phases of flight?	☐ No	☒ Yes
29. Is the EFB user interface consistent with other flight deck systems?	☐ No	☒ Yes
30. Does the EFB use terms, icons, colors and symbols consistent with other flight deck systems?	☐ No	☒ Yes

Software Applications

31. Is the workload acceptable when configuring electronic charts while flying a procedure?	☐ No	☒ Yes
32. Does using the electronic checklist produce the same crew actions that using the paper equivalent would?	☐ No	☒ Yes

Provide the Number and a Comment for each User Interface and Application Question checked as "No."

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CE-560/EFB EVALUATION

EFB Procedures

33. Are there procedures for starting up and shutting down the EFB?	☐ No	☒ Yes
34. Are there appropriate procedures for all the EFB failure modes?	☐ No	☒ Yes
35. Are there EFB procedures for when other aircraft system failures could render the EFB unusable?	☒ No	☐ Yes
36. Are there procedures for using EFB backup information?	☐ No	☒ Yes
37. Are there procedures to mitigate EFB workload?	☐ No	☒ Yes
38. Are there procedures for establishing which source of information is primary?	☐ No	☒ Yes
39. Are there appropriate procedures for using EFB in high workload phases of flight?	☐ No	☒ Yes
40. Are there procedures that specify what data to use when data is redundant or different from the EFB?	☐ No	☒ Yes
41. Are there procedures for removal of a kneeboard EFB during emergency landing or egress (If Applicable)?	☐ No	☒ Yes

Provide the Number and a Comment for each EFB Procedures Question checked as "No."

*35 Not Applicable. The iPad is completely independent from all aircraft systems.

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Procedures for Keeping EFB Content/Data Current

42. Are there procedures to ensure data is accurate and current for each software application?	☐ No	☒ Yes
43. Are changes to content/data appropriately documented?	☐ No	☒ Yes
44. Are there procedures to notify crews of EFB updates?	☐ No	☒ Yes
45. Are there procedures to ensure that the correct information is installed when EFBs use information that is specific to the aircraft type or tail number?	☐ No	☒ Yes
46. Are operational control procedures consistent with regulations concerning preventative maintenance?	☐ No	☒ Yes
47. Is there a procedure to avoid corruption/errors during changes to the EFB device?	☐ No	☒ Yes
48. Is there a procedure to ensure that all EFBs have the appropriate content/data installed when there are multiple EFBs on the flight deck?	☐ No	☒ Yes
49. Is there a procedure to ensure that EFB data in use is approved for use in flight?	☐ No	☒ Yes
50. Is there a procedure for when the database is not approved for use in flight?	☐ No	☒ Yes
51. Is there a procedure to ensure that all customized values are cleared from the EFB?	☒ No	☐ Yes

Procedures for User Feedback

52. Is there a procedure for EFB users to provide feedback?	☐ No	☒ Yes
53. Is there a procedure for the operator to monitor feedback, correct EFB deficiencies, and/or notify the EFB manufacturer?	☐ No	☒ Yes
54. Are there procedures or built-in limits that prevent defining customized color schemes that conflict with flight deck color conventions?	☐ No	☒ Yes
55. Is there a policy regarding the use of supplemental audio and/or video in flight?	☐ No	☒ Yes
56. Is the EFB audio set to minimize any interference with higher priority communications?	☒ No	☐ Yes



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CE-560 EFB EVALUATION

Procedures for Specific Applications (If Applicable)

57. Are there specific policy/procedures for using the electronic charts application?	☐ No	☒ Yes
58. Does the policy specify what other EFB applications can be used while a procedure using the electronic charts is actively being flown?	☐ No	☒ Yes
59. Are there procedures on how to use the electronic charts when the EFB uses aircraft status data to configure chart elements?	☒ No	☐ Yes
60. Are there procedures to ensure that navigation/approach charts required for the flight are installed and available?	☐ No	☒ Yes
61. Is there a procedure to identify the controlling copy of weight and balance?	☒ No	☐ Yes
62. Is there a procedure to establish responsibility for completion of weight and balance software?	☒ No	☐ Yes
63. Are there procedures to maintain required weight and balance records?	☒ No	☐ Yes
64. Is there a procedure to ensure that EFB performance data can be stored outside the EFB?	☒ No	☐ Yes

Provide the Number and a Comment for each of the above EFB Procedure Question checked as "No."

*51 Not Applicable _____
*56 Not Applicable _____
*59 Not Applicable _____
*61 Not Applicable _____
*62 Not Applicable _____
*63 Not Applicable _____
*64 Not Applicable _____

EFB Training

65. Are there appropriate EFB training, checking and currency requirements?	☐ No	☒ Yes
66. Does the EFB training program address all EFB intended functions and applications?	☐ No	☒ Yes
67. Is there training on how to use unique features of the software applications?	☐ No	☒ Yes
68. Are crews proficient on the EFB at the completion of EFB training?	☐ No	☒ Yes
69. Is EFB training customized for new users?	☐ No	☒ Yes
70. Is the manufacturer's EFB documentation sufficient?	☐ No	☒ Yes
71. Does the EFB training device provide an appropriate degree of fidelity when the actual EFB is not used?	☒ No	☐ Yes
72. Does the EFB training device simulate the key aspects of the task?	☐ No	☒ Yes
73. Does the EFB training appropriately address the meaning of icons and symbols?	☐ No	☒ Yes

Training for Charts (If Applicable)

74. Is training on the use of electronic charts appropriate?	☐ No	☒ Yes
75. Is there training on unique features of the electronic charts?	☐ No	☒ Yes
76. Is there training on differences in map scale, orientation, and data quality between the electronic charts and other flight deck displays?	☐ No	☒ Yes
77. Is there training on the limitations of own aircraft position when it is displayed?	☒ No	☐ Yes
78. Is there training on policies pertaining to use of the electronic charts?	☐ No	☒ Yes
79. Can crews use the electronic charts as well as they can use paper charts?	☐ No	☒ Yes
80. Can crews use the electronic charts to orient themselves and track their progress as they fly required procedures?	☐ No	☒ Yes



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CE-560 EFB EVALUATION

Training for Electronic Checklist Systems

81. Is there appropriate training on how to use electronic checklists?	☐ No	☒ Yes
82. Is there training on how to use unique features of the electronic checklists (e.g., how the EFB indicates that a checklist item has been deferred)?	☐ No	☒ Yes
83. Is there training on which checklists are supported electronically and which are not?	☐ No	☐ Yes
84. Is there training on the limitations of ECL automation when it uses aircraft status data?	☒ No	☐ Yes

Training for Flight Performance Calculations (Not Applicable)

85. Is there appropriate training on how and when to use the flight performance application?	☒ No	☐ Yes
86. Is there training on critical performance calculation assumptions (e.g., runway length, W & B)?	☒ No	☐ Yes
87. Is there training to review default values for aircraft status and environmental conditions?	☒ No	☐ Yes
88. Is there training on how to enter information required by the performance software?	☒ No	☐ Yes
89. Is there training on how to interpret and use results of the flight performance calculations?	☒ No	☐ Yes
90. Is there training on where to obtain values when their normal sources are not available?	☒ No	☐ Yes
91. Is there training on coordinating the roles of dispatchers and flightcrews?	☒ No	☐ Yes

Provide the Number and a Comment for each Training Question checked as "No."

*71 Not Applicable. Actual ipads used for all EFB training

*77 Not Applicable. Aircraft position is not displayed

*77 Not Applicable.

*84-91: Not Applicable.

Crew Performance: Preflight Planning

Do crews with EFB perform as well or better than crews with paper documents when...

92.calculating aircraft weight and balance, takeoff, climb, and maneuvering speeds?	☒ No	☐ Yes
93.crews maintain critical data for immediate reference?	☐ No	☒ Yes
94. ...there is a runway change and a need to reference deicing fluid requirements or an MEL item?	☐ No	☒ Yes
95.there are time critical adjustments prior to block out/taxi and takeoff?	☐ No	☒ Yes

Crew Performance: Takeoff

Do crews with EFB perform as well or better than crews with paper documents when...

96.there is a take-off on a runway that requires briefing a special operator engine-out procedure?	☐ No	☒ Yes
97. ...there is complex SID with an abnormal or an emergency during the departure climb-out?	☐ No	☒ Yes
98. ...there is an emergency that requires a return to the departure or alternate departure airport?	☐ No	☒ Yes
99. ...one EFB fails requiring one pilot to rely on the EFB of the other pilot immediately after takeoff?	☐ No	☒ Yes

Provide the Number and a Comment for each Preflight and Takeoff Question checked as "No."

*92 Not Applicable



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CE-560 EFB EVALUATION

Crew Performance: Cruise

Do crews with EFB perform as well or better than crews with paper documents when...

100. ...there is an engine-failure/fire with possible condition of destination below weather minimums? ☐ No ☒ Yes

101. ...there is electrical smoke in the cockpit requiring use of smoke mask/goggles while completing checklists or using EFB for approach briefing? ☐ No ☒ Yes

Crew Performance: Descent

Do crews with EFB perform as well or better than crews with paper documents when...

102. ...there are conditions that require reference to SMGCS taxi routing or a complex clearance? ☐ No ☒ Yes

103. ...reported runway conditions require reference to operational limitations? ☐ No ☒ Yes

Crew Performance: Approach/Landing

Do crews with EFB perform as well or better than crews with paper documents when...

104. ...there is runway change or the need to re-compute landing weight and V speeds during approach? ☐ No ☒ Yes

105. ...there are poor weather conditions or airports with complex taxi routes? ☐ No ☒ Yes

106. ...there is a request for a specific taxiway turn during rollout after landing? ☐ No ☒ Yes

Crew Performance: Destination Ground Operations

Do crews with EFB perform as well or better than crews with paper documents when...

107. ...there is an EFB partial failure or erroneous output requiring maintenance discrepancy to be entered? ☐ No ☒ Yes

Provide the Number and a Comment for each Crew Performance Question checked as "No."

—	_____
—	_____
—	_____
—	_____
—	_____

DPJ EFB Electromagnetic Interference Testing Checklist

Aircraft Type: Citation Excel Tail Number: N 754U Date: 7/31/11
 Unit tested: iPad Serial Number: 5119

1. Preflight

Anomaly

WiFi on

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

WiFi off

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

2. Taxi

WiFi off

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

3. Takeoff/climb

WiFi off

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

4. Level-off/Enroute

WiFi off

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

5. Descent

WiFi off

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

6. Approach Environment

WiFi off

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

7. Landing

WiFi off

Communications interference:

Yes ☐ No ☒

Navigation interference:

Yes ☐ No ☒

HSI/mag compass interference:

Yes ☐ No ☒

Continued on reverse

Anomaly noted: (Note item number and describe anomaly)

NONE.

Pilot Conducting Test: CHRIS LACLAIR

Signature: _____

