

Field comments for AC 20-172a

#	Name	Comment	High, medium, or low priority
1	Frank VanLeynseele and Frank Carreras, ANM-100S	Write a clear introduction explaining ADS-B's implementation is an AIR Traffic Tool. From a flight crew point of view, ADS-B Out provides modest improvement relative to the existing Radar with Voice Radio pilot controller communication. ADS-B In provides considerable improvements to flight crew situational awareness (See Tests Suggestions).	Medium
2	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 1-1 Purpose-b -Explain the function of ADS-B out and ADS-B In (see page 2 (b)).	Medium
3	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 1-1(c) Explain and Provide and Example of following the Advisory Circular in its entirety.	Medium
4	Frank Carreras, ANM-100S	Section 1-1(c) -Add Sentence between sentence 2 and 3 to highlight Airworthiness Compliance to Intended Function Rule.14 CFR §§ 25.1301.	Medium
5	ANM-130L	Page 1, Paragraph 1-2: Please include amended STC (ASTC) in the paragraph.	medium
6	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 1-3 Scope Explain actual results provided by Latency Analysis.	Medium

7	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 1-4 Background. Page 2 Figure 1 "GS" is not defined	Medium
8	Frank Carreras, ANM-100S	Section 1-4 Background. Page 2 Figure 1 "does not explicitly identify ADS-B In and ADS-B Out	Medium
9	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-1 Systems Overview- UAT frequency not indicated	Medium
10	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-2 Equipment Classes 4th sentence "In Air"	Medium
11	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-2 Equipment Classes 5th sentence "Without Restriction"	Medium
12	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-2 Equipment Classes 6th sentence "CDTI"	Medium
13	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-2 Equipment Classes Table 1 , No Narrative explanation for Each Class.	Medium
14	ANM-130L	Page 4, Table 1: For applicants that have obtained ITP approval in accordance with the interim policy memo, for follow on installation is compliance with AC 20-172a and TSO-195a required? If so please state this explicitly if not revise to explicitly state that they are not required.	medium

15	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-2 Equipment Classes	Medium
16	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-2 Equipment Classes	Medium
17	Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (b) EVAcq "Enhanced Visual Acquisition" missing from Acronyms List	Medium
18	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (b) VSA missing from Acronyms List	Medium
19	Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (b) "such as VSA or ITP."	Medium
20	ANM-130L	Page 5, Paragraph 2-3(b): The paragraph states that AIRB is required to install ITP and VSA, is this correct? if so please provide rational in AC for requirement, if not please revise language.	medium
21	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (c) AIRB missing from Acronyms List	Medium
22	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (c) "EVAcq does not relieve the pilot of see and avoid responsibilities"-Statement is weak and not unique to EVAcq	Medium

23	Greene, Kevin F, ANM-160S	Page 5, para 2-3d. Add the letters 'VSA' after the sixth word (application) in the first sentence to keep consistent with the rest of the document	Low
24	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (e) Insert between 2nd and 3rd sentences	Medium
25	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-4 b Statement indicates "may not be intuitive and flight crews might question the ITP ahead of or behind indication" is unclear	Medium
26	Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (f) add a sentence	Medium
27	Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (f) Suggest Reference Flight Standards Guidance and Contact information	Medium
28	Frank Carreras, ANM-100S	Section 2-3 ADS-B Applications (f) AIRB missing from Acronyms List	Medium
29	Frank Carreras, ANM-100S	Section 2-4 CDTI -Change Title	Medium
30	Greene, Kevin F, ANM-160S	Page 6, para 2-4a. Second to last sentence. Consider modifying to state that the display must be visible by "both" crew in a multi-piloted aircraft.	Medium

31	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-4 CDTI (b) ITP Installations Last sentence contains the Statement "may not be intuitive and flight crews might question the ITP ahead of or behind indication" is unclear.	Medium
32	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-5 Airborne Surveillance and Separation Assurance Processing (ASSAP)	Medium
33	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-5 Airborne Surveillance and Separation Assurance Processing (ASSAP) narrative Multiple Acronyms in each sentence can be confusing	Medium
34	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (b) Equipment Compatibility Requirements-- Position Sensor function not defined explicitly	Medium
35	Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (c) Equipment Compatibility Requirements-- Add ending sentence referencing Equipment Limitations.	Medium
36	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (c) Aircraft Integration with ADS-B System (2) Replace "Ensure"	Medium
37	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (c) Aircraft Integration with ADS-B System (2) Replace 2nd sentence "Ensure"	Medium
38	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (c) Aircraft Integration with ADS-B System (2) Replace 3rd sentence "Ensure"	Medium

39	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (c) Aircraft Integration with ADS-B System (2) Delete in the 4th sentence "Ensure"	Medium
40	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (c) Aircraft Integration with ADS-B System (3) Replace "The same position source.."	Medium
41	Frank Carreras, ANM-100S	Section 2-7 Integration Considerations (c) Aircraft Integration with ADS-B System (5) .	Medium
42	Frank Carreras, ANM-100S	Section 2-7 c (1)	Medium
43	Frank Carreras, ANM-100S	Section 2-7 c (2) (e)	Medium
44	Frank Carreras, ANM-100S	Section 2-7 Integration Considerations c (7) d- Include reference to latest guidance	Medium
45	Carlson, Michael, ANM-100D	AC 20-172a, Page 10, d. System Safety Analysis. It is not clear without looking at TSO-C195 what Class A, B, and C equipment are. Provide a statement that links the class of equipment to TSO-C195a.	Low

46	Carlson, Michael, ANM-100D	AC 20-172a, Page 10, d. System Safety Analysis. The worst failure condition defined by TSO-C195 was major for hazardously misleading data, but the term “improbable/remote” is used, which does not correlate in Parts 23 and Part 25 to be a major failure. Improbable and remote link back to probability terms and improbable is only used as “extremely improbable” and would suggest a catastrophic failure. For a hazardous failure the probability term used is “extremely remote”. The term “remote” would be linked to a major failure. The term “improbable” should be removed from this section.	Medium
47	Frank Carreras, ANM-100S	Section 2-7 Integration Considerations c(8) Type Certification (TC, STC/ATC) of Systems related to installation of TSO Articles require Airplane and System Level installation requirements and must be determined valid in the context of the TSO articles selected by the TC/STC/ATC applicant.	Medium
48	Frank Carreras, ANM-100S	Section 3-1 Flight Tests Make a reference to Airplane Flight Manual.	Medium
49	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 3-2 Ground Tests a (1) Relative horizontal position is not defined.	Medium
50	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 3-2 Ground Tests a (3) Directionality (Heading or Track Angle) is With Respect To ____?	Medium

51	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 3-2 Ground Tests a (6) Air/Ground status of other Aircraft	Medium
52	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 3-2 Ground Tests c Accuracy Criteria unclear	Medium
53	Greene, Kevin F, ANM-160S	Page 12, para 3-2d. Expand this paragraph to state that there needs to be a clear, unambiguous indication to aircrew regarding any failure mode of a the system or subsystem and its effect on overall system performance and/or functionality.	High
54	Frank VanLeynseele and Frank Carreras, ANM-100S	Section 3-2 Ground Tests g What is expected from the self test?	Medium
55	Greene, Kevin F, ANM-160S	Page 13, para 3-3a(7). Change sentence to read, "The direction of travel (ground track) of the other aircraft."	Medium
56	Meyers & Siegmund, ANM-111	Page 14, paragraph 3-3.c about In-Trail-Procedure flight testing: Applicants will need more guidance for ITP flight tests. We provided text from the ITP Issue Paper under separate cover.	Medium
57	Frank VanLeynseele and Frank Carreras, ANM-100S	Appendix 1 page A1-2 Figure 2. Shouldn't the G reference mark be at the CDTI and measurable at the Display?	Medium

58	Frank Carreras, ANM-100S	Appendix 1 page A1-2 Figure 2. Shouldn't the G reference mark be at the CDTI and measurable at the Display?	Medium
59	Frank VanLeynseele and Frank Carreras, ANM-100S	Appendix 1 Title Replace "Latency Analysis" with "Time Latency Analysis"	Medium
60	Frank VanLeynseele and Frank Carreras, ANM-100S	Appendix 1 Section 1 Purpose end to end budget is not defined.	Medium
61	Frank VanLeynseele and Frank Carreras, ANM-100S	Appendix 1 Section 2 Modify Note to clarify time latency:	Medium
62	Frank VanLeynseele and Frank Carreras, ANM-100S	Appendix 1 Section 3 add time to latency analysis	Medium
63	Frank Carreras, ANM-100S	Appendix 1 Section 3 Traffic Latency Analysis-Worst Case Latency under assumption of Simultaneous Processing of Max # of traffic symbols"	Medium
64	Frank Carreras, ANM-100S	Appendix 1 Section 3 Traffic Latency Analysis-Worst Case Latency under assumption of Simultaneous Processing of Max # of traffic symbols," I assume TCAS could be part of Simultaneous Processing of Max # of Traffic Symbols.	Medium
65	Frank Carreras, ANM-100S	Appendix 1 Section 4 Traffic Time latency Analysis and Section 6 Own-Ship Position Time of Applicability - Estimated Forward is unclear.	Medium

66	Frank Carreras, ANM-100S	Appendix 1 Section 6 Own-Ship time of Applicability Compensation error in System.	Medium
67	Frank Carreras, ANM-100S	Appendix 1 Section 3,4,5 and 6. Provide note in each section indicating verification methods indicated in revised Section 2-7 c (2).	Medium
68	Frank Carreras, ANM-100S	Appendix 1 Should Latency Analysis include a TCAS Path?	Medium
69	Walt Cameron,	On page A2-5, near the top in Note 2. It refers one to figure 9, but that should be figure 10, for designated traffic.	Medium
70	Frank Carreras, ANM-100S	Appendix 3 Definitions and Acronyms No Definition of ADS-B In	Medium
71	Frank Carreras, ANM-100S	Appendix 3 Definitions and Acronyms Include AML in acronyms table.	Medium
72	Gregg Nesemeier, ANM-100S	Appendix 3 Definitions and Acronyms Definition of "differential ground speed" is unclear. That is, it's hard to understand whether this definition is intended to be applied strictly to in-trail aircraft following another aircraft on an approach path, or if it is intended to be applied to all traffic situations throughout 360 degrees of possible convergence aspect.	High

73	Gregg Nesemeier, ANM-100S	Appendix 3 Definitions and Acronyms "Horizontal Velocity" definition states: "For inertial navigation system (INS) equipment, the local plane is tangent to the local gravity vector." Believe the proper technical terminology here (with respect to INS systems) is that the local plane is perpendicular or orthogonal to the local gravity vector, not tangent. Horizontal velocity would be in the plane tangent to the local surface of the ellipsoid as is stated for GPS, but when referenced to local gravity as necessary for an INS, that plane is perpendicular.	Medium
74	Gregg Nesemeier, ANM-100S	Appendix 3 Definitions and Acronyms "Direct Controller Pilot Communication"	Low
75	Gregg Nesemeier, ANM-100S	Appendix 3 Definitions and Acronyms Definition of "Separation" states that separation may vary by factors including "flight regime (terminal, en route, oceanic)" -- a factor defined elsewhere in this appendix as "domain."	Low

	76 Gregg Nesemeier, ANM-100S	Appendix 4 Related Documents Some potentially relevant FAA advisory material not listed.	High
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77 Von Hoene, AFS-400	I find line numbers in a draft document make reviewing easier. low	1-1a: Sentence says that ADS-B	In does not include FIS-B. I	believe it does. The AC does not	address FIS-B so rewording the	paragraph may make it more	accurate.		low
78 Young		1-2: Recommed spell the AML	acronym out and inserting into	the "Acronym" section as well.					Low
79 Hinz		1-4b.: "On ground" needs a	hyphen						Low
80 Hinz		2-3b: Recommend "AIRB" be	included in "Acronyms"						Low
81 Hinz		2-3b: Recommend "VSA" be	included in "Definitions."						Low
82 Hinz		2-3g.: " not intended for	maneuvering based solely on	presence or absence of traffic on	the display" -- ITP initiation	decision is prediated on the	presence or absence of traffic"		low
83 Von Hoene									low

84	Hinz	<p>2-4a.: The “MFD” is a display unit within the EFIS system....same as the ND, PFD, & EICAS. I would recommend the sentence is changed to read, “The CDTI display may be presented on a dedicated display or integrated into and presented within the applicable electronic flight information system (EFIS) display units.”</p>	Low
85	Von Hoene	<p>2-4b: "the angle can be as great as 45 degrees .." is not correct. The max is 44 degrees.</p>	low
86	Von Hoene	<p>2-4b. for clarity on the purpose of the vertical display consider revising sentence beginning "It is recommended.."</p>	low
87	Hinz	<p>2-4c.: Recommend including “TAS” in the acronym section.</p>	Low
88	Hinz	<p>2-4d.: Recommend add after MCDU, “or Flight Management Computer (FMC) control display unit (CDU).”</p>	Low
89	Von Hoene	<p>2-4 e. (6).Is it appropriate to specify that to designate traffic for an application should either be direct (as in a touch screen) or be in a predictable order, such as nearest target to furthest target? Existing product in the sim seems to sequence in unpredictable (to the pilot) order leading to multiple keystrokes.</p>	low
90	Young	<p>3.b (4) and other locations: Saliency may not be a term widely used by readers of the AC. Recommend a more common term.</p>	low

91 Von Hoene	<p>3-3 c.Should this section give more detail on which functionality can be evaluated in a flight test? For example, "(1) Verify that targets greater than 2000 feet in altitude cannot be selected as reference aircraft.", "(2) Verify than no more than 2 reference aircraft can be selected at one time.",</p>	low
92 Young	<p>A3-3: FIS-B is not included in the definitions though it is mentioned in the text</p>	low
93 Von Hoene	<p>Definitions 1. a.: 24 bit address is actually assigned to the airframe and correlates to the registration (N) number of the aircraft. This is an important distinction, because the correct 24-bit address must be verified when the transponder is changed. see AC 20-165</p>	medium
94 Von Hoene	<p>Coupled Traffic. I believe ITP qualifies as a coupled application.</p>	low
95 Von Hoene	<p>Related Documents. Should AC 20-165 be included in this list?</p>	low
96 Brys, Jason, ACE-100	<p>Consider adding the regulatory requirements necessary to show compliance, i.e when talking about the controls and the locations of the controls, I would recommend putting reference to 2X.777, so that an applicant would know that they would need to show compliance to that regulation. This seems to be done in some locations but not all.</p>	Medium
97 Craig Henrichsen	<p>Section 1-1 c. Page 1 -This paragraph implies part 91 sets the requirements for installation. The installation requirements would be 14 CFR part 25 or 23, for example.</p>	
98 Craig Henrichsen	<p>Section 2-2 EVAcq & SURF & AIRB are not in the acronym list in appendix 3.</p>	

- 99 Craig Henrichsen
Section 2-3 a. This section refers to Table 1 to see which application are supported. Does this mean table 1 in the AC 20-172a or table 1 of the TSO-C195?
Section 2-3 a. Unable to verify or review because TSO-C195a is not released.
- 100 Craig Henrichsen
Paragraph 1-1.c states "ADS-B In equipment that is compliant with applicable 14 CFR part 91 requirements." Currently there are no requirements for ADS-B In
- 101 ACE-111
- 102 ACE-111
Table 1 page 4 may be a little confusing to a novice reader.
- 103 ACE-111
Table 1 page 4 the criticality Level seems to be in conflict with paragraph 2.7.d.
- 104 Craig Henrichsen
Section 2-4 a. Unable to verify or review Class requirements statements because TSO-C195a is not released.
- 105 Craig Henrichsen
Section 2-4 a. It is stated the CDTI equipment be installed in accordance with manufacturer instructions. The CDTI manufacturer may not have the ability to write instructions for a cockpit instalation. This should be the installers responsibility and they may use any applicable data to aid in the installation of the CDTI. This statement implies the manufacturer has responsibility for the installation.
- 106 ACE-111
paragraph 2-4.a in this paragraph and other places in the document part 23 and 25 are referenced but not 27 and 29. Is this an airplane document or an aircraft document? Does it apply to 27 & 29?

- Section 2-7 c.3 This section states Aircraft manufactures should plan accordingly to prevent extensive redesign. Where is the source of information the OEM can refer in order to avoid extensive redesign. What advice is the FAA trying to provide here?
- 107 Craig Henrichsen
- Section 2-7 c.7 This section refers to operators using CPDLC. I don't believe there are any airspace in the U.S. using CPDLC at this time.
- 108 Craig Henrichsen
- Appendix 2 paragraph 2.a.6 Note 1 - Why was the alternate removed?
- 109 ACE-111
- Appendix 3 check formatting. Numerous places with different spacing. Example "m.Caution" missing reference in Appendix 4 for TSO C118;
- 110 ACE-111
- missing reference in Appendix 4 for TSO C147;
- 111 ACE-111
- the AC refers to TSO C119 instead of the latest version "C119c" (this may have been intentional);
- 112 ACE-111
- 113 ACE-111
- Paragraph 1-1(a): The statement "but does not include FIS-B messages" is misleading since UAT does include FIS-B. The intent is clarified in 1-3 which states that FIS-B will be covered in a future AC
- 114 R. Joslin
- Paragraph 2-2: The threshold of 80 knots is incompatible with rotorcraft which routinely fly at <80 kts.
- 115 R. Joslin
- Throughout the document it is unclear whether or not the intent is to include rotorcraft (Part 27, Part 29) and in fact all of the references are for just Part 23 and Part 25
- 116 R. Joslin

117 R. Joslin	Paragraph 2-3(e): Reword the senetence to read "Aircraft on-ground and in-air <u>as well as properly equipped surface vehicles</u> are differentiated by symbols..."	
118 R.Joslin	Paragraph 2-4(a): Missing reference to 27.1321 and 29.1321 Paragraph 2-7(d): Missing reference to rotorcraft standards such as AC 29.1309-1 through -5	
119 R. Joslin AIR-500 Global Change	Incorrect date. The date needs to be updated.	
120 Global Change	Incorrect format.	
121 Global Change	Incorrect formatting for citing reference and using section symbol (§).	Non-compliance to the Federal Register Document Drafting Handbook.
122		
Global Change, Header Area	Missing capitalization.	Use a capital "A" when indicating the revision in the AC number.
123		

124 Doug Arbuckle	<p>2-3.d states, "The visual separation on approach application builds upon the airborne application." This reference to the "airborne application" is ambiguous. Recommend changing to "The visual separation on approach application builds upon AIRB." or "The visual separation on approach application builds upon the basic airborne application (AIRB)." to match prior text in 2-3.b.</p>	Medium
125 Doug Arbuckle	<p>2-3.d states, "The enhanced visual approach application should not be confused with creating a new approach operation." The reference to "enhanced visual approach" is a dated reference and the wording of this sentence is awkward. Suggest "The visual separation on approach application does not create a new approach operation." Also, it is unclear how this relates to "installation guidance" (the purpose of this AC), so it may even be more prudent to strike this sentence and refer the reader to AC 90-114 for information on ADS-B operations.</p>	High

126 Doug Arbuckle	<p>2-3.d states, "No operational responsibility is changed when using the enhanced visual approach application." Again, this is a dated reference to the application. Recommend "No operational responsibility is changed when using the visual separation on approach application." HOWEVER, this does not see related to "installation guidance" (the purpose of this AC), so I recommend striking this sentence and referring the reader to AC 90-114 for information on ADS-B operations.</p>	High
127 Doug Arbuckle	<p>2-3.e states, "The basic surface application with runways and taxiways displays..." Suggest adding SURF in here as a reference, as "The basic surface application (SURF) with runways and taxiways displays..."</p>	Medium
128 Doug Arbuckle	<p>2-3.e refers to TSO-C165 without naming its title...which seems inconsistent with the other TSO references in this AC. Recommend adding the official title as is done in referencing other TSOs in this AC.</p>	Low
129 Doug Arbuckle	<p>2-3.e refers to TSO-C165 twice and the second reference (last sentence) appears redundant to the first. Recommend deleting "These installations should also comply with TSO-C165 for airport moving map displays as applied to display of runways." (first sentence states, "These installations should also comply with TSO-C165 for airport moving map displays." which seems to cover the topic fully)</p>	Medium

130 Doug Arbuckle	<p>2-3.e states, "The surface application with runways only does not display taxiways." For clarity, recommend writing this as either "The basic surface application with runways only does not display taxiways." OR "The SURF application with runways only does not display taxiways."</p>	Medium
131 Doug Arbuckle	<p>2-3.f states, "The initiation criteria are designed such that the spacing between the estimated positions of ownship and surrounding aircraft is no closer than an approved distance throughout the maneuver." Since multiple aircraft can be involved in an ITP clearance and since "approved" raises questions about whether or not the flight crew or the controller is doing the "approving" (and neither are), recommend writing this as "The initiation criteria are designed such that the spacing between the estimated positions of ownship and surrounding aircraft exceed the separation minima with acceptable probability throughout the maneuver."</p>	Medium
132 Doug Arbuckle	<p>I do not understand the purpose of 2-3.g -- this is not installation guidance, and some of the text is arguable. What is the purpose? Why is this here? Recommend deleting this paragraph.</p>	Medium

133 Doug Arbuckle

2-4.b includes the statement "the angle can be as great as 45 degrees ..." This is incorrect. The ICAO definition of "same track" is less than 45 degrees or more than 315 degrees (per ICAO Doc 4444 PANS-ATM). Please change statement to read either "the angle can be as great as +/- 44 degrees ..." OR "the angle must be less than +/- 45 degrees ..."

High

134 Doug Arbuckle

2-4.b includes the statement "In these cases, relative geometry (ahead of and behind) may not be intuitive and flight crews might question the ITP ahead of or behind indication." It is unclear how a vertical/profile view will prevent flight crews from questioning the ITP ahead of or behind indication if they also look at the Plan View (which they are required to do I think). In an installation guidance AC, why are we trying to motivate vendors to include a vertical/profile display in their design? By the time they read this, they will likely have already made the decision. Recommend deleting this last sentence of this paragraph.

Medium

135 Doug Arbuckle

2-4.c includes the statement "It is acceptable to pair a TSO-C195a Class C ASSAP unit with an existing certified traffic display using legacy symbols (e.g. TCAS, TAS) when either the AIRB or EVAcq application are installed" This seems potentially open-ended. Did the authors mean to say "It is acceptable to pair a TSO-C195a Class C ASSAP unit with an existing certified traffic display using legacy symbols (e.g. TCAS, TAS) **only** when either the AIRB or EVAcq application are installed"?

Low

136 Doug Arbuckle

2-7.c(7) is now out of date. Although DO-312 allows for DCPC implementations, VHF voice communications are not planned anywhere and ICAO will not endorse any until after a successful trial by some "State with resources." (US, Europe, Australia, etc). The ICAO PANS-ATM amendment for ITP only allow CPDLC implementations, though I believe that a SatVoice implementation may soon come along. It is unclear how much detail needs to be included here in this AC on ADS-B-In installation guidance. However, I suggest adding a sentence to the effect that "ITP requests via CPDLC must adhere to a standardized free text format." I note that at present, no manufacturer has any definite plan to "integrate the CDTI and data link systems in order to populate ITP requests automatically." In ICAO-speak this is referred to as a "pre-formatted free text message." I can send you a paper with these ICAO definitions if desired.

High

137 Doug Arbuckle

3-2.f(3) and other sections below it refer to "DO-317a" -- this is not in keeping with RTCA document numbering, which uses capital letters. Change all references to "DO-317a" to "DO-317A"

Low

138 Doug Arbuckle

3-3.c includes the sentences, "Enter CPDLC commands for an ITP request using either automatically generated messages or manually through free-text input by the pilot. If automatically generated, verify that the CPDLC text accurately represents the ITP reference aircraft information." I feel strongly that this should NOT be required unless the installed ITP system automatically generates the ITP downlink request (which is a vertical request message element with a free text message appended). Recommendation #1 is to ONLY require the described test(s) regarding CPDLC if the ITP system being installed is connected to the CPDLC system. Recommendation #2 is to change the sentences above to read: "Verify that the CPDLC ITP request (consisting of a vertical request message element appended with a pre-formatted free text message) accurately represents the ITP reference aircraft information."

High

139 Doug Arbuckle

3-3.c(1) includes "If TCAS validation is implemented, ..."
And yet, TCAS validation is required for ITP if any Version 0 or Version 1 targets are to be used as Reference Aircraft... I suppose that this is worded this way to allow for the future reality that TCAS validation is not required for Version 2 targets, but to me, this is many years away...so I recommend that the author consider some different wording...since I am not sure what the author is trying to convey, I don't feel comfortable recommending specific text.

High

140 Doug Arbuckle

3-3.c(2) includes "If TCAS validation is implemented, ..."
And yet, TCAS validation is required for ITP if any Version 0 or Version 1 targets are to be used as Reference Aircraft... I suppose that this is worded this way to allow for the future reality that TCAS validation is not required for Version 2 targets, but to me, this is many years away...so I recommend that the author consider some different wording...since I am not sure what the author is trying to convey, I don't feel comfortable recommending specific text.

High

141 Doug Arbuckle

3-3.c(3) includes "(within 45 degrees)" This could mislead the reader into thinking that 45 degrees is included. The ICAO definition of "same track" is less than 45 degrees or more than 315 degrees (per ICAO Doc 4444 PANS-ATM). Please change to read "(less than +/- 45 degrees)"

High

142 Doug Arbuckle	<p>Table 3, last row, includes a row on the Closing Mach Differential -- this is not checked on the aircraft, so it is not a "crosscheck" by ATC, it is only checked by ATC. Since this has no bearing on the ITP system installation, or any aircraft installation covered by this AC, RECOMMEND deleting this last row.</p>	High
143 Doug Arbuckle	<p>Appendix 2, 2 on Alerts -- why does this section refer to ASAS alerts? Do some of the applications in DO-317A perform alerting functions?</p>	Low
144 Doug Arbuckle	<p>Appendix 2, 2.b on Proximate Traffic -- is this specific to TCAS or generic for both TCAS and ASAS? Appendix 3, p A3-7 includes a definition for "TCAS Proximate Traffic" -- is this the same thing? Suggest providing a reference either to Appendix 3, DO-317A, or whatever the appropriate source is for "Proximate Traffic" as defined in this section.</p>	Medium
145 Doug Arbuckle	<p>Appendix 2, 2.c(2)(b) Note 2 refers to Figure 9, but this is clearly incorrect. I think that the correct reference is to Figure 10, but this should be verified.</p>	Medium

- 146 Doug Arbuckle Appendix 3, 1.c defines ASAS as "An aircraft system based on airborne surveillance that provides assistance to the flight crew supporting the separation of their aircraft from other aircraft." Yet, currently we have no "separation" applications included...so perhaps we could avoid using "separation" in the definition? Suggested rewording: "An aircraft system based on airborne surveillance that provides assistance to the flight crew in operating their aircraft relative to other aircraft." Low
- 147 Doug Arbuckle Appendix 3, 1.d defines Airborne Separation Assistance Application -- why are we doing this? Is it in DO-317A? What does it really describe? I'd like to leave this definition behind, not encode it in this AC. Recommend removal. Low
- 148 Doug Arbuckle Appendix 3, 1.c defines ASAS, 1.f defines Application, and 1.g defines ASA... Why do we need all three of these definitions? Couldn't we live with just one or two of them? Appendix 3, 1.h states "For large aircraft, this offset can be significant when placing the aircraft symbol on the airport map properly." Suggest rewording as Low
- 149 Doug Arbuckle "For large aircraft, this offset is important in accurately placing the aircraft symbol on the airport map." Low

150 Doug Arbuckle	Appendix 3, 1.j states "A service of the ground system that rebroadcasts ADS-B messages from one link technology onto another." For accuracy and to preserve parallel construction with the rest of this definition, suggest rewording as "A service of the SBS ground system that rebroadcasts ADS-B messages from one link technology onto another"	Low
151 Doug Arbuckle	Appendix 3, 1.l ends with a listing of background applications. Do these names match DO-317A or TSO-C195a? Consider rewording as "basic airborne, surface (runways and taxiways OR runways only)"	Low
152 Doug Arbuckle	Appendix 3, 1.m defines Caution - is this from an existing FAA AC? I have thought that a Caution "may require subsequent flight crew response" versus "require ... subsequent flight crew response" as it is currently worded.	Low
153 Doug Arbuckle	Appendix 3, 1.s and 1.t definitions for "Coupled" Application and Traffic are (I think) now obsolete references/definitions. If true, please remove them or replace them with the proper DO-317A wording.	Medium
154 Doug Arbuckle	Appendix 3, 1.s refers to "enhanced visual approach" -- this is an obsolete reference. If appropriate to leave here, it should be "visual separation on approach"	Medium
155 Doug Arbuckle	Appendix 3, 1.bb defines "Domain" -- why is this needed? If kept, it should be referenced to an ICAO or FAA document from which this definition was derived or copied.	Low

156	Doug Arbuckle	Appendix 3, 1.dd defines "EVApp" -- there is no reference to this legacy application in the AC, so this definition seems obsolete and potentially confusing. Recommend deleting it.	Medium
157	Doug Arbuckle	Appendix 3, 1.rr defines "ICR" -- there is no reference to this in the AC, so why are we defining it? Recommend deleting it.	Low
158	Doug Arbuckle	Appendix 3, 1.rr defines "Navigation Sensor Continuity Risk" -- there is no reference to this in the AC, so why are we defining it? Recommend deleting it.	Low
159	Doug Arbuckle	Appendix 3, 1.ooo defines "Separation" -- why is this needed? If kept, it should be referenced to an ICAO or FAA document from which this definition was derived or copied.	Low
160	Doug Arbuckle	Appendix 3, 1.sss defines "Subsystem Availability Risk" -- there is no reference to this in the AC, so why are we defining it? Recommend deleting it.	Low
161	Doug Arbuckle	Appendix 3, 1.dddd defines "Traffic Conflict" -- I do not think that this is referenced in the AC, so why are we defining it? Recommend deleting it. If kept, it should be referenced to an ICAO or FAA document from which this definition was derived or copied. Not also that the definition as written refers to "separation minima" which are not defined in this Appendix (another reason to delete it!)	Low
162	Doug Arbuckle	Appendix 3 contains no definition for System Design Assurance (SDA). Is this intentional or an omission?	Low

163 Doug Arbuckle	Appendix 3 includes the following Acronyms which I do not believe are used in the document and which I believe do not need to be defined here for any understanding of ADS-B In system installation: ACL, ANSD, CPA, ICR, NUC, PSCP, RFG, STP, TDC, TMC, TSE . Recommend removal.	Low
164 Doug Arbuckle	Appendix 3 includes the Acronyms "ASSA" and "FAROA", yet they are not used in the document (they are "legacy" acronyms). Recommend removal.	Low
165 Doug Arbuckle	Appendix 3 contains no mention of "EVAcq", "AIRB", "SURF", "VSA" but yet "ITP" is listed. Recommend also listing the other applications in this document (EVAcq, AIRB, SURF, VSA)	Low

From:
Paul Siegmund/ANM/FAA
ANM-111, Airplane & Flight Crew Interface

To:
Usmaan Javed/AWA/FAA@FAA

Date:
#####

Subject:
Re: Draft AC 20-172a, Airworthiness Approval for ADS-B In Systems and Applications
Hi, Usmaan. ANM asked me to review this, which I did with Jeff Meyers.
It looks good. The only point we found to comment on, both of us saw it., was the ITP
The one sentence that 's in the draft now is too thin. It's correct, they should evaluate,
We'll comment formally too. But this is the real work!

Thanks,
Paul
Paul Siegmund FAA ANM-111 Airplane and Flight Crew Interface, Transport Standard

From:
Jeffrey Meyers/ANM/FAA
ANM-111, Airplane & Flight Crew Interface

To:
Paul Siegmund/ANM/FAA@FAA

Date:
#####

Subject:
Fw: Suspense 100-12-0058. AC 20-172a, Airworthiness Approval for ADS-B In System

Paul, My only comment is in para 3-3.c: where they should include more guidance for Flight tests should include realistic scenarios in which the test pilot can make assessn Separation from the referenced aircraft should never be less than the ITP separation Testing should also show that the CDTI flight instrument presentation does not compr Rgds,
Jeff Meyers FAA Airplane and Flight Crew Interface Branch (ANM-111) Aircraft Certifi

Reviewing Office: ANM-100

Resolution	AIR Disposition
Include in the introduction explanation of ADS-B's implementation as an Air Traffic Tool. Include assertions 1) "From a flight crew point of view, ADS-B Out provides modest improvement relative to the existing Radar with Voice Radio pilot controller communication." 2) "ADS-B In provides considerable improvements to flight crew situational awareness (See Tests Suggestions)."	No Action. Existing text covers this comment.
Cite and explain a salient example related to following the AC in its entirety.	No Action. Existing text in section 1-4 covers this comment.
Cite and explain a salient example related to following the AC in its entirety.	No Action. Existing text in section 1-4 covers this comment.
Add language such as, "Airworthiness compliance will be evaluated based on the applicable intended function rule (e.g., 14 CFR §§ 23.1301, 25.1301, 27.1301, 29.1301)."	No Action. Existing text was previously approved.
	Agreed. (ASTC was also added to the acronym list).
Cite Appendix 1 or provide a short narrative summary.	No Action. The referenced text is an example in this context. See Appendix 1.

Replace "GS" with "Ground Station"	Figure was changed.
Identify ADS-B In and ADS-B Out explicitly in Figure 1 e.g. identify Aircraft to Aircraft application if intended	No Action. This is described in the paragraph following the figure.
Identify 978 MHz in association with UAT e.g., "UAT (978 Mhz)"	Agreed.
Replace "In Air" with "airborne"	Agreed.
Replace "Without Restriction" with "when airborne as well as on the ground"	Agreed.
Replace "CDTI" with "CDTI Display " or "CDTI Display System" whichever is deemed intended or more accurate.	CDTI is an abbreviation for Cockpit Display of Traffic Information. Writing CDTI Display is redundant.
Provide a narrative explanation for each Equipment Class A1, A2, A3, B1, B2, B3, B4, B5, B6, C1, C2, C3, C4, C5, C6 and reference to source material.	No action. Paragraph 2-2 describes the equipment classes (columns). Paragraph 2-3 describes the application classes (rows).
	DO-317A and TSO-C195a incorporated the equipment requirements from the ITP policy memo. There is no difference. The AC installation guidance does not modify any existing installation.

<p>Provide a full page color diagram of each display discussed including symbol location and signal acronym identification. At a minimum, one diagram for ADS-B Out, one diagram for ADS-B In. Provide identification of both ground mode and airborne mode.</p>	<p>No Action.</p>
<p>To avoid confusion and display clutter a switch for airborne traffic and ground traffic modes.</p>	<p>No Action. This is a design requirement and is not appropriate for AC material.</p>
<p>Add EVAcq "Enhanced Visual Acquisition" to Acronym List in Appendix 3 Section 2.</p>	<p>Agreed.</p>
<p>Add VSA to Acronym List in Appendix 3 Section 2 and Appendix 3 Definitions.</p>	<p>Agreed.</p>
<p>Consider identifying all applications which require AIRB to meet minimum installation.</p>	<p>No Action. In DO-317a, you will find that AIRB is the minimum basis for all other applications.</p>
	<p>No Action. In DO-317a, you will find that AIRB is the minimum basis for all other applications.</p>
<p>Add AIRB Acronym and add to Acronym List in Appendix 3 Section 2</p>	<p>Agreed.</p>
<p>Statement is weak, Provide narrative describing EVAcq in context of intended function, Equipment, Systems and Installations requirements along with pilots' see and avoid responsibilities (e.g., Situational Awareness Tools).</p>	<p>No Action. There is significant public material suggesting that ADS-B could be used to replace see and avoid responsibility. This statement explicitly states FAA policy regarding ADS-B and 14 CFR 91.113b.</p>

	Agreed.
Insert between 2nd and 3rd sentences add a clarification of different colors to ease identification of groups and symbols	No Action.
Add indication "Must obtain authorization from Air Traffic Control (ATC)"	Delete end of sentence ... "and flight crews might question the ITP ahead of or behind indication."
Add "Additional operational guidance will be published by FAA flight standards organization."	Add sentence to 2-3 (f) referencing AC 90-114 revision.
Suggest Reference Flight Standards Guidance and Contact information. Consider list all anticipated FAA Offices and FAA contacts for interoperability requirements and demonstrations.	Add sentence to 2-3 (f) referencing AC 90-114 revision.
Add Acronym ATC "Air Traffic Control" to Acronym List in Appendix 3 Section 2.	Agreed.
Change Title to "CDTI Display System"	CDTI is an abbreviation for Cockpit Display of Traffic Information. Writing CDTI Display is redundant.
	No Action. This is implied by the existing text. TAD can impose this at installation approval.

f or g?



<p>State what is required and intended.</p>	<p>Delete end of sentence ... "and flight crews might question the ITP ahead of or behind indication."</p>
<p>Add an Architectural Diagram depicting the system components and functions.</p>	<p>No Action. Refer to figure 1.</p>
<p>Multiple Acronyms in each sentence can be confusing, Revise for clarity.</p>	<p>No Action.</p>
<p>Define the function of position sensor explicitly.</p>	<p>No Action.</p>
<p>Equipment limitations must be clearly stated in the installation manual.</p>	<p>No Action. AC covers AFM limitations. TSO covers installation manual limitations.</p>
<p>Replace "Ensure" with "Conduct testing to Verify (a) that the total time latency.....".</p>	<p>No Action. Analysis is required, not testing.</p>
<p>Replace "Ensure" with " (b) traffic time of applicability.....".</p>	<p>No Action. Analysis is required, not testing.</p>
<p>Replace "Ensure" with " (c) the total time latency.....".</p>	<p>No Action. Analysis is required, not testing.</p>

Delete in the 4th sentence "Ensure" and replace with "(d)."	No Action. Analysis is required, not testing.
Replace "The same position source with "The same position velocity time source..."	No Action.
Replace reference to DO-160 with reference to the current Environmental Conditions and Test Conditions for Airborne Equipment DO-160G, or with generic reference to DO-160() as in the rest of this document.	Agreed. DO-160 ()
Consider making distinction between manufacturer's installation manual and aircraft installation unique requirements governed uniquely by installation of the entire system on the airplane in context.	No Action.
Consider adding display requirement for dropped, missing or incorrect position reports e).	No Action. This is covered in the flight test section.
Include latest guidance references revision and dates for each Advisory Circular.	Agreed.
	No Action. TSO C195a is referenced in the first sentence of Section 2-2. Table 1 in Section 2-2 is identical to TSO-C195a.

	No Action. Pg 15, AC 25-1309-1A
<p>In Context Add c (8) "Installation of articles and equipment requires separate approvals for each make and model airplane in which the TSO Article may be installed."</p> <p>Add "Refer to Advisory Circular XXXX"</p>	No Action. This comment looks like it addresses AML issues and is out of scope.
Add "Flight manuals must clearly state inherent limitations associated with specific applications."	No Action. Flight Manual Limitations are addressed in section 2-7 (c) (6)
Provide a definition of Relative horizontal position.	No Action.
Clarify "Section 3-2 Ground Tests a (3) Directionality (Heading or Track Angle)" is With Respect To_____.	No Action.

Do you mean "in air/on ground" position status of other aircraft?	Replace "other aircraft" with "traffic"
What are the criteria for your determination of Accuracy?	No Action. This is not a design verification. It is a check to see if the application is working properly in the installation.
	Add sentence to end of section: "All system failures should be indicated clearly. The effects of system failures should be described in the Flight Manual."
e.g., Self Tests indication should be Equipment Valid (Pass) and System Valid (Pass) at detection fraction indicated in the Installation Manual.	No Action.
	Agreed.
	Agreed. Text added to public comment version addressed this issue.
If so, alter Figure 2 moving G to rightmost edge of CDTI consistent with MOPS DO-317 Appendix J Figure J-1 or provide clarifying remark to commenter(s).	No Action. AC is consistent with MOPS.

Provide note indicating the flight crew recognition time is not currently specified as part of the latency analysis if this is what's intended.	No Action. AC is consistent with MOPS.
Appendix 1 Title Replace "Latency Analysis" with "Time Latency Analysis"	No Action.
Indicate if end to end budget is "Transport Time,""Execution Time or other?"	No Action. It is defined in DO-317A Appendix J which is referenced in this AC.
Replace "address latency to assist the installer" to "address time latency determination to assist the installer"	No Action.
Replace "Traffic Latency Analysis" to "Traffic Time Latency Analysis"	No Action.
Identify Rule and Guidance source of Maximum simultaneous traffic symbols (maximum simultaneous processing)	No Action. Maximum # of symbols is determined by the manufacturer. The minimum # of symbols you need to process are defined by DO-317a.
Explicitly identify TCAS as part of the Maximum Traffic Load if this is intended. If so, identify rule and guidance source of maximum simultaneous traffic symbols (maximum simultaneous processing).	No Action. Maximum # of symbols is determined by the manufacturer. The minimum # of symbols you need to process are defined by DO-317a.
Provide a formal Definition of Estimated Forward.	No Action. See DO-317a.

Define Compensation Error in System formally.	No Action. See DO-317a.
Note : At a minimum verify as indicated in Section 2-7 c (2).	No Action.
Should Latency Analysis include a TCAS Path?	No Action. Perhaps, but this was not evaluated explicitly during the standard development. It is expected that installations including TCAS will be integrated TCAS/ADS-B In equipment. The internal latency of this equipment will be fairly negligible.
On page A2-5, near the top in Note 2. It refers one to figure 9, but that should be figure 10, for designated traffic.	No Action.
Provide Definition of "ADS-B In" similar to AC 20-165.	Agreed. Add to definitions. "ADS-B In. Receipt, processing, and display of other aircraft's ADS-B transmissions. ADS-B In is necessary to utilize airborne applications."
Include AML in acronyms table.	Agreed. Approved Model List (AML).
Clarify applicability of definition, and/or replace the term with a more operationally meaningful term such as "overtake" (for in-trail situations) or "relative closure rate" (applicable to any converging traffic situation throughout 360 degrees of convergence aspect).	No Action. It is doubtful that any words will make this definition more clear.

<p>Correct technical terminology accordingly.</p>	<p>Agreed. Use perpendicular.</p>
<p>Suggest adding language clearly stating that this may typically be accomplished either by conventional voice radio, or by CPDLC.</p>	<p>Agreed.</p>
<p>Suggest standardizing terminology within this appendix by replacing "flight regime" here with "domain."</p>	<p>Agreed.</p>

Add the following ACs to Section 1, FAA Documents: 1) AC 20-165(), Airworthiness Approval of Automatic Dependent Surveillance - Broadcast (ADS-B) Out Systems; 2) AC 25.1322-1(), Flight Crew Alerting; AC 25-11(), Electronic Flight Deck Displays; 4) AC 23.1311-1(), Installation of Electronic Display in Part 23 Airplanes; 5) AC 20-140(), Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS).

Agreed.

Recommend line numbers in the draft document.

Done.

Consider: adding the following sentence. "This AC does not address systems which use FIS-B information."

No Action.

Agreed.

No Action. "on ground" in this context does not mean aircraft on-ground

Agreed.

Agreed.

No Action. Even ITP cannot be used "solely" for maneuvering. ATC may have knowledge of traffic not depicted that would prevent a vertical maneuver.

Consider: include language that makes an exception for ITP.

No Action. MFD's can exist in aircraft without EFIS.

Change 45 degrees to 44 degrees.

Consider changing "It is recommended but not required that a graphical vertical/profile view of the traffic be available for flight crews desiring to perform an ITP. " to "...be available for flight crews to aid in assessing initiation criteria."

Replace "as great as" with "any value less than"

Replace "desiring to perform an ITP" with "to aid in assessing initiation criteria."

Agreed.

Agreed.

Consider including recommendation on how selection of targets should sequence - (e.g., nearest to furthest or nearest within 45 degrees of same track) Such a predictable order could be important in high workload flight environment to minimize keystrokes.

No Action. Suggest bringing this into the revision to DO-317 as a design recommendation.

No Action. This appendix is copied from DO-317. Text cannot be changed independantly of the MOPS.

Consider: prominence, or other more common term.

No Action. The intent of the flight test is to evaluate cockpit controls and RF performance that cannot be evaluated on the bench or ground. Flight test cards can go beyond the guidance in the AC but is not required.

Consider adding a definition for FIS-B

Agreed.

Agreed. Replace definition with text: Unique address assigned to an aircraft during the registration process.

Added defini

Change "..aircraft transponder or ADS-B transmitter" to "airframe". Consider: adding In Trail Procedure to "Coupled applications include:"

No Action. Several ITP implementations do not couple the reference traffic.

Agreed.

Agree, but we need specific comments to resolve. Global is a difficult task.

Agreed. Delete text: " that is compliant with applicable 14 CFR part 91 requirements. "

Agreed. Add to appendix.

Delete text: "found in TSO C195a."

No Action.

Agreed. Delete text: " that is compliant with applicable 14 CFR part 91 requirements. "

Delete " that is compliant with applicable 14 CFR part 91 requirements"

No Action. Para 2-2 and 2-3 adequately explain table 1.

On the header for "Equipment Classes" put in where the classes are defined "TSO-C195a Equipment Classes"

It is consistent.

Check and make consistent.

No Action.

No Action. Manufacturer instructions are necessary but not sufficient to perform the installation. Agree but does not invalidate text.

No Action. Rotorcraft Directorate should recommend the appropriate references and they can be added.

State if this is for 27 & 29 as well. If so add throughout AC. If not remove those documents from Appendix 4.

No Action.

No Action. Oakland Center uses CPDLC to approve ITP climbs for United today.

No Action. This appendix is copied from DO-317. Text cannot be changed independantly of the MOPS.

Add alternate back in.

Agreed.

Add reference

Agreed

Add reference

Agreed

Update reference

Need to verify. Should apply to all versions of TSO C119.

No Action. Statement is true. This AC does not cover FIS-B....

No Action. Rotorcraft Directorate probably should prohibit Class A equipment. It is not recommended for any aircraft. However, I was forced to include Class A equipment to cover existing approvals.

Agreed. This is the second time it has come up as a comment and should be addressed. Contact Mark Wiley and see if he can help with rotorcraft AC references.

Agreed.

Agreed.

Agreed.
accept

Place the correct date on the document once it is signed by management.

Adjust the alignment with the labeling of the subparagraphs and subsections to begin directly under the title of the previous main paragraph.

Accept

Do not use the section (§) symbol or the word “section” when the reference follows “XX CFR”. Only use the section symbol (§) when referring to different paragraphs/subparagraphs within the same section. For example:

Agreed

Correct way to cite: 14 CFR 91.113(b)

Agreed.

Incorrect: 14 CFR § 91.113(b)

Agreed.

For examples refer to paragraph 1-1b, 2-4a, etc.

Agreed.

Rewrite to read: AC No: 20-172A

accept

Agreed.

Agree to change application name to VSA.

Agree to change application name to VSA.

Agreed.

Agreed.

Agree. Delete last sentence.

Agreed.

Agreed.

No Action. There is significant public material suggesting that ADS-B could be used to replace see and avoid responsibility. This statement explicitly states FAA policy regarding ADS-B and 14 CFR 91.113b.

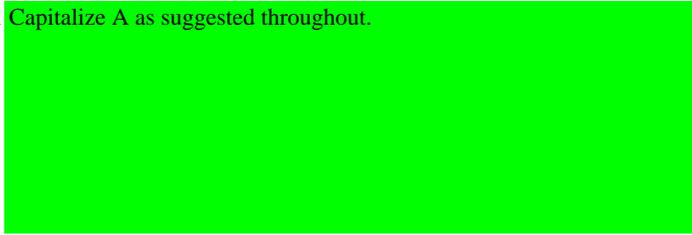
Replace "as great as" with "any value less than"

Delete end of sentence ... "and flight crews might question the ITP ahead of or behind indication."

No Action. The last sentence clarifies this sentence.

Replace text: "There are a few areas in the world where this can be done by direct voice communication. However, " with "Although it may be possible to perform ITP requests and clearances via voice communications, "

AC's use lowercase lettering to refer to an RTCA document with a letter to at the end of the title to represent a versio number.



No Action.

No Action

No Action

No Action

No Action

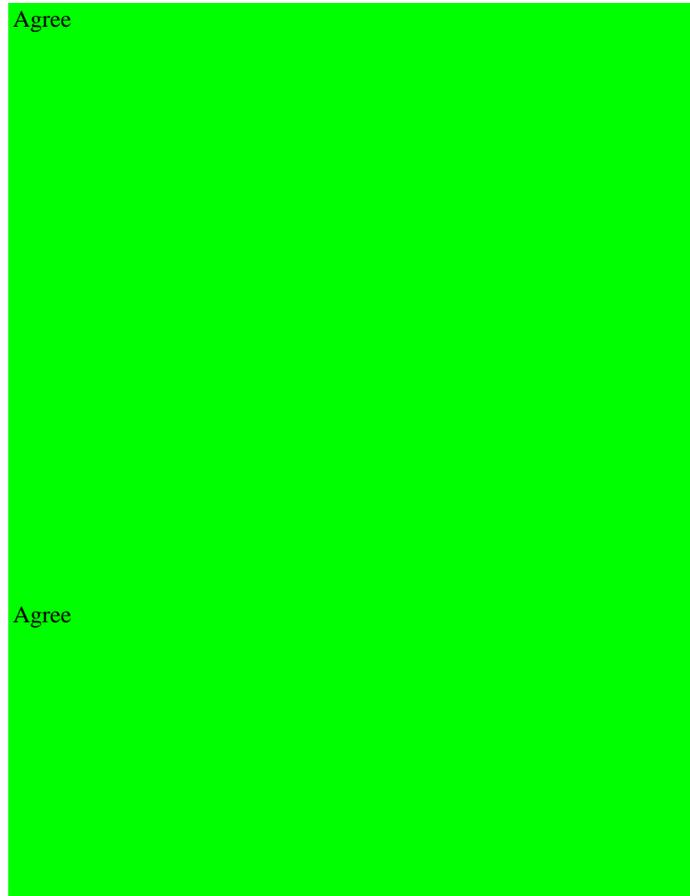
No Action. This appendix is copied from DO-317. Text cannot be changed independantly of the MOPS.

No Action. This appendix is copied from DO-317. Text cannot be changed independantly of the MOPS.

Agree



Agreed.



No Action



No Action

Agree change names to new ones to make consistent.

No Action

Move Coupled defintions to Designated defintions per DO-317a change.

Delete example application sentence

delete domain defintion

Agree Delete

Agree Delete

Agree Delete

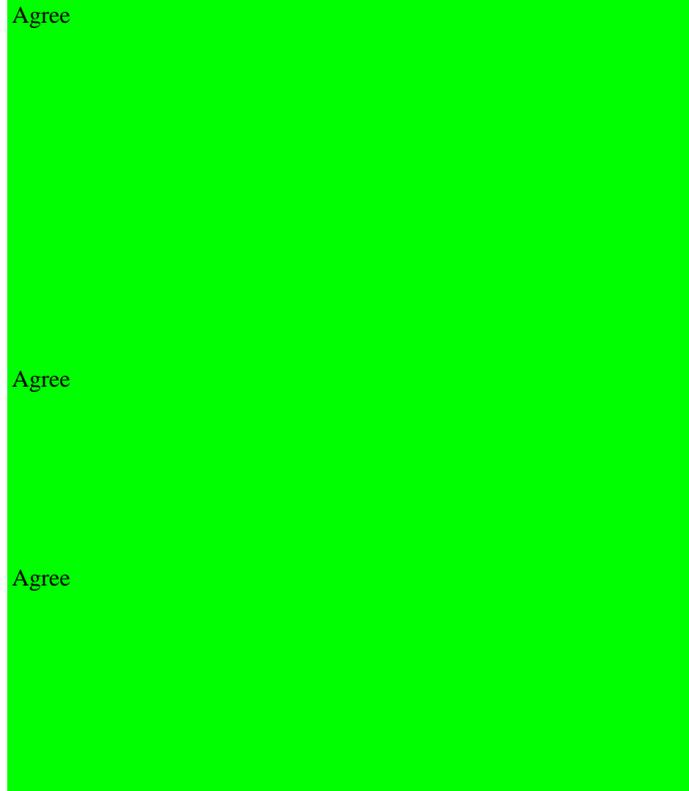
"Deleted N:

No Action.

Agree Delete

Agree Delete

Add SDA to acronym list



Agreed.

Added AIRI

s.

flight testing paragraph (pg 14, para 3-3.c). Jeff gets points for finding the best text we could suggest to i
but in the IP we had given some more specific reqs.

ds Staff d) 425-227-1365 m) 425-329-5195

ms and Applications. Due to

· ITP flight tests. Here is what we said in the ITP IP:
nents of the flight crew using the ITP function and CDTI to perform an ITP maneuver. The test plan should
minimum of 10 NM. Flight deck displays and alerts presented to the flight crew to monitor the traffic situat
romise the intended function of any of the other previously certificated features or obstruct the aircrew visi

ication Service Transport Airplane Directorate Desk:425-227-1275 Cell: 425-830-1600

inition and acronym

avigation Sensor Continuity" as well as Deleted "Navigation Sensor Continuity Risk"

B, EVAcq, SURF, VSA.

insert, straight from the issue paper that applicants have already been using.

d include each of the six potential ITP climb or descent maneuver trajectories as described in Annex A, §
ion during the ITP maneuver to include ITP specific parameters should be evaluated.
bility of required flight (§ 25.1303), navigation, and powerplant displays (§ 25.1321).

Section A.2.1 of DO-312.