

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
F1	AC 20-165B	General		All changes were not identified	identify all document changes	ease of review	Editorial	ASW-109	1	major substantive changes were highlighted. Minor and typographical changes were not to save reviewer time.
F2	AC 20-165B	UNIVERSAL (All document pages)	0 page header and TOC	All text	There is highlighted text in various places throughout the document. Highlights should be removed from any highlighted text.	Remove highlight from any highlighted text throughout the document.	Format	AIR-500		Concur - Text changed
F3	AC 20-165B	multiple	multiple	There is extensive use of the word "should" for sentences that read like requirements. For example, "If the system contains different design assurance levels for hardware and software, then the worst case design assurance level should be used." (page 9)	Per plain language guidelines, the word "should" is used for recommendations; "must" is used for requirements. Did we really intend SDA setting to be a recommendation?	Review the use of the word "should" in the AC. If we intended to establish a requirement, change the word to "must"	Conceptual	ANE-150	3	Accepted. Changed should in paragraph 3.1.2.2.2 to a "must"
F4	AC 20-165B	various	various	The document seems repetitive.	Could this document be shortened or condensed to make it more concise?	Refer to similar or identical sections without repeating them.	Editorial	ANE-150	7	Sections that appear to be repeated may have differences, i.e. Appendix B. more specific information needed to address comment further
F5	AC 20-165B	ii	0 page header	MM/DD/15 and DRAFT	The date format ("MM/DD/15") and the word "DRAFT" in the page header should be removed before release of final draft.	Remove prior to document release.	Format	AIR-500		Concur - Text changed
F6	AC 20-165B	ii-iv	0 TOC	Lines 1.2, 1.3, 1.5, 2.1, 2.2, 3.2, 3.3, 3.4, 3.6, 3.9, 4.1, 4.3, 4.4, 4.5, B.3, B.4, B.5, B.6, B.7, C.4, C.5, D.1, E.1, E.2, and E.3 in the table of contents	Incorrect spacing following section titles in the lines cited in cell E9.	Remove extra spaces from the lines cited in E9.	Format	AIR-500		Spacing fixed for TOC
F7	AC 20-165B	ii and UNIVERSAL	TOC: Line 3.6	"TCAS Source"	"TCAS" should be defined upon first usage. There are many previously undefined acronyms throughout the table of contents and the rest of the document.	Please define "TCAS" in TOC line 3.6, as follows: "Traffic Alert and Collision Avoidance System (TCAS) Source" Please define all acronyms on first usage, throughout the document. Also, ensure that all acronyms used in this document are included in D.1.2 Acronyms.	Editorial	AIR-500		"TCAS" spelled out the first time it is used in the document, in section 2.1.2. The TOC is based on and linked to the title and text in 3.6. Definitions of TCAS TCAS I and TCAS II added to Appendix D
F8	AC 20-165B	iii	TOC: Line 4.2	If you have flight test data from a previous STC or TC which established this compatibility, you do not need to re-accomplish the flight test."	Including this text in the table of contents does not seem necessary since it is included in section 4.2.	Consider deleting the following text: "If you have flight test data from a previous STC or TC which established this compatibility, you do not need to re-accomplish the flight test."	Format	AIR-500		Concur - Text changed
F9	AC 20-165B	iii	4.2	Flight Test: If you have flight test data from previous...	The word flight in the first part of the sentence is redundant and is not needed	suggest removing the word flight	Editorial	ANE MIDO-41		"Flight" adds clarification
F10	AC 20-165B	iii	Contents	Section 4.2	Formatting error -	Should state "Flight Test" only. Remove sentence after flight test	Format	ACE-119W		Concur - Text changed
F11	AC20-165B	iii	Contents 4.2	Flight Test. If you have flight test data from a previous STC or TC which established this compatibility, you do not need to re-accomplish the flight test...45	This is a table of contents...but this entry has the first sentence from the section as well.	Delete all the words starting with "If you have..."	Editorial	ANM-100S	1	Concur - Text changed
F12	AC 20-165B	iii and UNIVERSAL	TOC: Line B.r	Tightly-coupled GNSS/IRS position sources	"Tightly-coupled" should not be hyphenated.	Please remove hyphen from between "tightly" and "coupled" here and throughout the document. See below: "Tightly coupled GNSS/IRS position sources"	Editorial	AIR-500		Concur - Text changed
F13	AC 20-165B	iv	TOC: D.1	D.1 Definitions and acronyms	This subsection is not necessary because appendix D already covers the topic. In addition, there should always be more than one subsection under a heading.	Remove subsection D.1	Format	AIR-500		D1 removed, D.1 now Definitions, D.2 is Acronyms
F14	AC 20-165B	iv	TOC: E.2, E.3, and E.4	E.2 RTCA, Inc. Documents (RTCA DO) documents; E.3 ARINC, Inc.; E.4 SAE International	"RTCA," "ARINC," and "SAE" should be defined (spelled out) on first mention so there is no confusion about what each one means.	Spell out "RTCA," "ARINC," and "SAE" using the following formatting: "Radio Technical Commission for Aeronautics (RTCA) documents (RTCA DO)"	Format	AIR-500		RTCA is not an Acronym. RTCA changed it's name from "Radio Technical Commission for Aeronautics" to RTCA some years ago. Aeronautical Radio Inc. was bought out by Rockwell Collins, however a portion of the company was divested and purchased by SAE. The word ARINC was kept and is being used by the new company ARINC Industry Activates.
F15	AC 20-165B	iv	TOC E.2	E.2 RTCA, Inc. Documents (RTCA DO) documents	Is the second occurrence of "documents" intentional?	If the second occurrence of "documents" is not intentional, please strike.	Editorial	AIR-500		Text changed, section reformatted
F16	AC 20-165B	v	Figures section: Figure 1, Figure 2, Figure 3, and Figure 4	Figure 1 Functional Overview of ADS-B OUT System Figure 2. Example of Aircraft Length and Width Code Determination Figure 3 Position Offset Figure 4 Sample Aircraft Flight Path	This section is in boldface.	Please consider changing the text style of this section from boldface to normal typeface.	Format	AIR-500		Figure heading per AC format
F17	AC 20-165B	v and UNIVERSAL	TOC Figures section: Figure 1, Figure 3, and Figure 4	Figure 1 Functional Overview of ADS-B OUT System Figure 3 Position Offset Figure 4 Sample Aircraft Flight Path	There are no punctuation marks separating figure numbers and titles. This is the case for many figure and table descriptions in many other places throughout the document. I would suggest placing a period after the figure/table number; however, whichever format you chose, it should be consistent throughout the document.	Consider adding a period after figure and table numbers when listed with figure/table titles, throughout the document, as below: "Figure 1. Functional Overview of ADS-B OUT System" "Table 1. Emitter Category"	Format	AIR-500		Concur - Text changed
F18	AC 20-165B	1	1.1.2	As stated.	No mention of EASA harmonization.	Provide statement that this AC is completely harmonized with EASA CS ACNS.D.ADSB Appendix J.	Conceptual	ANE-150	2	This AC is for the use in the US. While references to European standards are provided, it is beyond the scope of this AC to provide certification advice for aircraft in Europe.
F19	AC 20-165B	1	1.1.2	Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHz Extended Squitter	Although "MHZ" is written in all caps in the title of this document, it looks incorrect because all other uses in the document are written as "MHz".	Consider changing "MHZ" to "MHz" in the title of AMC 20-24.	Format	AIR-500		Text correct. MHZ is how it is written in the title of AMC 20-24
F20	AC 20-165B	1 and UNIVERSAL	1.1.2	14 CFR references in paragraph 1.1.2 (and throughout the document)	According to Section 10 of ORDER 1320.460, FAA Advisory Circular System— When you first cite the CFR, you must use the full citation, which includes the title and part, or section, numbers (for example, "14 CFR part 27" or "14 CFR 153.1"). Do not insert a section symbol (§) between the CFR acronym and section number. After you have used the full citation in your AC, any subsequent citation of that same part/section, or other sections of that same part, does not need to include the CFR acronym. For subsequent citations to a section, you should only use the section symbol (§), except as discussed in paragraphs (1) and (2) below. For example, your first reference is written as "14 CFR 25.571," and thereafter you may write "§ 25.571," "§ 25.1529," and "part 25." Please see Section 10 of ORDER 1320.460, FAA Advisory Circular System, for complete rules on citing 14 CFR.	Please see changes below in red: "This AC is primarily intended for installations compliant with the aircraft requirements of 14 CFR 91.225 and 14-CFR §91.227." "Airworthiness...function rule (e.g., 14-CFR §§23.1301, 25.1301, 27.1301, and 29.1301) recognizing that the intended function is to meet the equipment requirements in 14-CFR §§91.225 and 14-CFR §91.227." "Applicants using this AC to install ADS-B systems that are not compliant with 14-CFR 14-CFR §§91.225 and 14-CFR 91.227 must follow...." Please correct all similar occurrences throughout the document.	Format	AIR-500		Multiple changes made throughout

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F21	AC 20-165B	1	1.1.2	It is possible to receive airworthiness approval for your ADS-B OUT system with a different intended function; however, we strongly discourage this type of installation unless the installation is in accordance with the criteria for ADS-B OUT in foreign non-radar airspace (e.g., Approved Means of Compliance (AMC) 20-24, Certification Considerations for the Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHz Extended Squitter).	In the third sentence, replacing the second occurrence of "installation" and the preceding "the" with "it" would make it easier to read.	Please consider replacing the second occurrence of "installation" and the preceding "the" with "it", as below: "...however, we strongly discourage this type of installation unless the installation it is in accordance with the criteria for ADS-B OUT in foreign non-radar airspace...."	Editorial	AIR-500		Concur - Text changed
F22	AC 20-165B	1	1.1.2	Applicants using this AC to install ADS-B systems that are not compliant with 14 CFR 14 CFR 91.225 and 14 CFR 91.227 must follow all aspects of this AC or propose alternate means as appropriate to the Federal Aviation Administration (FAA).	In the last sentence of this paragraph, adding a comma after "means" and after "appropriate" would make it easier to read.	Please consider surrounding "as appropriate" with commas, as below: "...must follow all aspects of this AC or propose alternate means, as appropriate , to the Federal Aviation Administration (FAA)."	Editorial	AIR-500		Concur - Text changed
F23	AC20-165B	1	1.1.2	"...14 CFR 14 CFR 91.225 and 14 CFR 91.227 must follow all aspects of this AC..."	Repeat of "14 CFR"	Delete extra "14 CFR"		ANM-111	3	Concur - Text changed
F24	AC 20-165B	2 and UNIVERSAL	1.4	References to appendices in paragraph 1.4 (and to appendices, figures, tables, sections, etc. throughout the document)	Appendices, figures, tables, etc. are capitalized throughout the document. Unless they occur at the beginning of a sentence, these types of references should not be capitalized.	Please change appendix, figure, table, etc. references throughout the document to lower case, unless made at the beginning of a sentence.	Editorial	AIR-500		Concur - Text changed
F25	AC 20-165B	1	1.4	Appendix D provides a list of definitions and acronyms that are used in the AC.	For clarity, replace "the" with "this" in the seventh sentence.	Consider replacing "the" with "this", as below: "Appendix D provides a list of definitions and acronyms that are used in the this AC ."	Editorial	AIR-500		Concur - Text changed
F26	AC 20-165B	2	1.4	The latest version of a document should be used where () follows its name.	To avoid confusion, place the parentheses in quotation marks.	Consider surrounding parentheses with quotation marks, as below: The latest version of a document should be used where "() follows its name.	Editorial	AIR-500		Concur - Text changed
F27	AC20-165B	2	1.4	"The latest version of a document should be used where () follows its name."	Relates more to Appendix E (and entire document) than Appendix D.	Suggest moving this sentence to the end of the paragraph (section 1.4).		ANM-111	4	Agree. Text does not seem to fit in this section. Text moved to section 1.1.1
F28	AC 20-165B	2	1.5	ADS-B is a next generation surveillance technology incorporating both air and ground aspects that provide Air Traffic Control (ATC) with a more accurate picture of the aircraft's three-dimensional position in the en route, terminal, approach and surface environments.	Per GPO Style Manual, section 8.42, there should be a comma after "approach" in the first sentence. GPO Style Manual, section 8.42: [A comma should be used "after each member within a series of three or more words, phrases, letters, or figures used with and, or, or nor."	Insert a comma after "approach", as below: "...in the en route, terminal, approach , and surface environments." Please correct all similar occurrences throughout the document.	Editorial	AIR-500		Concur - Text changed
F29	AC 20-165B	2	1.5	The ground portion is comprised of ADS-B ground stations which receive these broadcasts and direct them to ATC automation systems for presentation on a controller's display.	There should be a comma after "ground stations" in the third sentence.	Consider adding a comma after "ground stations", as below: The ground portion is comprised of ADS-B ground stations , which receive these broadcasts and direct them to ATC automation systems for presentation on a controller's display.		AIR-500		Concur - Text changed
F30	AC20-165B	2	1.5 Background	Background paragraph	Is there an intent, ever, for what I'll call "autonomous use of ADS-B"? I'd further define this as PILOTS using ADS-B information for "self clearance" or "self control". The reason I ask is, on a recent program conducted with Boeing, the Boeing engineers had the perception that such autonomous use WAS intended. It came up in the context of "how good does the alert for ADS-B failure have to be?"...In the case of the 737 the alert is (because this is NOT an EICAS airplane) not very good...it's a small light on the lower console. It's NOT good enough for autonomous use because failure of the ADS-B out could easily go unnoticed.	IF autonomous use is intended, it should be described in the background. Additionally, the alerting requirements should be clarified. Please contact me if this doesn't make sense. --Bob Stoney robert.stoney@faa.gov	Conceptual	ANM-100S	3	Autonomous self separation is not currently a use case for ADS-B. Some researchers have proposed this and studied it, but currently there are only a few use cases where ADS-B is used for separation and each of those has individual safety cases that look at failures. Pilot monitoring of the fail light is not used as a mitigation for any of these existing safety cases. We do not expect it to ever be a mitigating factor in a safety case. If necessary autonomous self separation will be addressed in a future revision of this document
F31	AC 20-165B	2	1.5.1	"ADS-B is automatic because no external interrogation is required. It is dependent because it relies on onboard position sources and broadcast transmission systems to provide surveillance information to ATC, and other users."	clarification	Add following after last sentence. "The aircraft surveillance information is automatically broadcast once every second."	editorial	John Raspanti Chicago ACO		Inaccurate statement. no change. Each message type, "type code" has a different broadcast rate. i.e. position messages are broadcast every 0.4-0.6 seconds in flight, while flight ID information is broadcast every 4.8-5.2 seconds.
F32	AC20-165B	2	1.5.1 ADS-B Description	Figure 1 shows a functional overview of an ADS-B system. One important aspect is missing, however, and that is ALERTS. As I understand it (from recent programs) there are cockpit alerts that are REQUIRED for ADS-B OUT function failure and another for loss of data (position?--to be honest, it's not that clear to me). This figure shows just stuff coming INTO the ADS-B but only transmissions going OUT.	Please verify the ALERTS that are required for ADS-B OUT systems (I believe para 3.7.2.1 specifies this) and, assuming there ARE alerts required, shouldn't they be depicted on Figure 1 AND described in this document?	To figure 1, add a box or bubble in the area of the cockpit that says "ALERTS" and show an arrow going FROM the ADS-B box to the ALERTS.	Conceptual	ANM-100S	2	Diagram provided as a high level functional overview of a typical ADS-B system. Alerts are discussed in detail elsewhere in the document
F33	AC 20-165B			general comment: ADS-B is used in some parts of the document and ADS-B OUT is used in other parts of the document.	clarification	suggest stating these are the same of replacing	editorial	John Raspanti Chicago ACO		Agree. Review of "ADS-B made throughout document, 8 changes made where appropriate
F34	AC 20-165B	2 and UNIVERSAL	1.5.1	It is dependent because it relies on onboard position sources and broadcast transmission systems to provide surveillance information to ATC, and other users.	The comma after "ATC" is unnecessary and could confuse the reader. Normally, a comma is not used before a conjunction unless it is introducing an independent clause. Examples: Correct: The situation is perilous, but there is still one chance of escape. Incorrect: We could go to the dance, or out to dinner.	Please remove comma after "ACT", as follows: "...to provide surveillance information to ATC and other users." Commas are used in this way in many sentences throughout the document. Please remove commas before conjunctions that introduce dependent clauses.	Editorial	AIR-500		Concur - Text changed
F35	AC20-165B	3	1.5.3	"ADS-B OUT"	Although heading is "ADS-B OUT", this section mainly discusses ADS-B IN.	Suggest combining with previous section under "ADS-B description". Note that throughout the document "ADS-B" is sometimes used when referring to "ADS-B OUT".		ANM-111	6	Title changed to <u>ADS-B OUT, ADS-B IN, TIS-B and ADS-R</u>
F36	AC 20-165B	3	1.5.4	There are two ADS-B link options, 1090 extended squitter (1090ES) and universal access transceiver (UAT).	In the first sentence, the comma after "options" should be replaced by a colon.	Please replace the comma after "options" with a colon, as below: There are two ADS-B link options : 1090 extended squitter (1090ES) and universal access transceiver (UAT).	Editorial	AIR-500		Concur - Text changed

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F37	AC20-165B	4	2.1	ADS-B System Approval Process	This AC refers to ADS-B OUT systems, only. Big difference from ADS-B OUT/IN systems, right? Lots of people are confused by the distinction. I think it should be clarified at each opportunity.	Add the word "OUT" to "ADS-B" at key locations. For example the title on paragraph 2.1 currently says "ADS-B System Approval Process" ...add "OUT" to ADS-B. This is just one example.	Conceptual	ANM-100S	4	Text added to refer readers to AC 20-172() for information on ADS-B IN installations.
F38	AC 20-165B	4	2.1.2	Specifically list the components that make up the ADS-B system on the master drawing list.	This sentence is confusing and seems out of place.	I'm not exactly sure what makes sense here. If it makes sense you could add "You should" at the beginning of the sentence. See below: "You should specifically list the components that make up the ADS-B system on the master drawing list."	Editorial	AIR-500		Concur - Text changed
F39	AC 20-165B	4	2.1.2	Specifically list the components that make up the ADS-B system on the master drawing list.	clarification	"Applicants should Specifically list the components that make up the ADS-B system in on their master drawing list."	editorial	John Raspanti Chicago ACO		Concur - Text changed
F40	AC 20-165B	4	2.2	Statement for inclusion in the flight manual regarding meeting operational requirements, "The flight manual must also state that the installation meets the requirements of 14 CFR 91.227. This can be accomplished by adding the following statement to the General or Normal Procedures section of the flight manual: The installed ADS-B OUT system has been shown to meet the equipment requirements of 14 CFR 91.227."	Although it appears this statement has been included in the AC since initial publication, the reference to a specific operating rule is not recommended for an airplane flight manual or supplement. Specific operating rules can change over time and are often different between other countries. A better approach is to make a more general reference to operational requirements. (Jeff Borton - 316-946-4166)	Recommend a more general reference is made to CFR Part 91, such as "This installation meets the ADS-B Out operational requirements of CFR Part 91."	Conceptual	ACE-119W		This statement was carefully coordinated between AFS and AVS. Editorial modifications will risk losing consensus of text as written. No change to text.
F41	AC20-165B	4	2.2.1	Operating Limitations	There is a GREAT DEAL of confusion in my experience about what constitutes an Operating Limitation. Some people think it's a "limitation of the system" (as in "something the systems can't do"), very different from what is intended by the regulations. The reg (XX.1581) is pretty clear.	To reduce the potential for confusion, delete the current, slightly misleading words "... as specified by the equipment manufacturer or as a result of installation considerations." specified by the equipment manufacturer or as a result of installation considerations." and replace with the regulatory words "...necessary for safe operation because of design or operating characteristics."	Conceptual	ANM-100S	5	Agree. Text changed and words added
F42	AC 20-165B	4	2.2.2			suggest adding subsection to address selection of alternate position sources- either pilot manual or automatic selection, as well as annunciation.	conceptual	John Raspanti Chicago ACO		Text added
F43	AC 20-165B	5	2.2.2.5	ADS-B IN surface applications and ATC surface surveillance will use ADS-B broadcasts; thus it is important for aircraft ADS-B OUT systems to continue to transmit on the airport surface.	There should be a comma after "thus."	Please insert a comma after "thus", as below: "ADS-B IN surface applications and ATC surface surveillance will use ADS-B broadcasts; thus , it is important for aircraft ADS-B OUT systems to continue to transmit on the airport surface."	Editorial	AIR-500		Concur - Text changed
F44	AC 20-165B	6	2.3.4.2	Modify the R&R ICA instructions in your GPS maintenance manual to include the following statement: "Removal and replacement of the GPS receiver also requires a full functional check of the ADS-B system per MM XX-XX-XX, Pg xxx. Make a log book entry for accomplishment of this test."	It's probably not necessary to print this paragraph in boldface. However, I think it would be easier to read if it were block formatted.	Consider formatting the example text as a block in normal typeface.	Editorial	AIR-500		Text unbolded. Text left justified.
F45	AC 20-165B	4	2.2.2	"Normal Operating Procedures"	Sub section title is not totally descriptive of content since there is also discussion of "non normal" operating procedures. (Jeff Borton - 316-946-4166)	Change subsection title to read "Operating Procedures."	Conceptual	ACE-119W		Concur - Text changed
F46	AC 20-165B	8	3.1.1	AC 21-16G, RTCA/DO-160 Versions D, E, F, and G "Environmental Conditions and Test Procedures for Airborne Equipment"	"RTCA/DO-160" in the title of AC 21-16G does not appear to be in italics. It should be in the same format as the rest of the title.	Please format "RTCA/DO-160" in italics.		AIR-500		Concur - Text changed
F47	AC 20-165B	8	3.1.2.1	ADS-B equipment meeting the minimum performance requirements of TSO-C166b or TSO-C154c that is directly connected to a position source meeting the minimum performance requirements of any revision of TSO-C129, Airborne Supplemental Navigation Equipment Using the Global Positioning System (GPS), TSO-C145, Airborne Navigation Sensors Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS), TSO-C146, Stand-Alone Airborne Navigation Equipment Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS), or TSO-C196, Airborne Supplemental Navigation Sensors for Global Positioning System Equipment Using Aircraft-Based Augmentation, may set the SDA = 2 without further analysis.	This sentence would be easier to read if the document titles were separated by semicolons.	Consider using semicolons in between document titles, as below: "...performance requirements of any revision of TSO-C129, Airborne Supplemental Navigation Equipment Using the Global Positioning System (GPS); TSO-C145, Airborne Navigation Sensors Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS); TSO-C146, Stand-Alone Airborne Navigation Equipment Using the Global Positioning System (GPS) Augmented by the Wide Area Augmentation System (WAAS); or TSO-C196, Airborne Supplemental Navigation Sensors for Global Positioning System Equipment Using Aircraft-Based Augmentation, may set the SDA = 2 without further analysis."	Editorial	AIR-500		Concur - Text changed
F48	AC 20-165B	8	3.1.2.1	Installations with uncertified equipment must set SDA = 0.	We do not certify equipment. There is no certified or uncertified equipment.	Installations with non-TSOed equipment must set SDA = 0	Editorial	ACE-114	1	A TSO provides design and production approval. TSO'd equipment is certified. Please call AIR-132 for more in-depth explanation.
F49	AC 20-165B	8	3.1.2.1	"...provided the equipment has received a statement of compliance with the rule requirements from the equipment manufacturer(s)."	Recommend to include guidance regarding the signatory authority for a statement of compliance. Is it self-declared, or, sanctioned by the certification authority ?	Clarify the signatory authority of issuing a statement of compliance.	Conceptual	ACE-114	2	This text has been vetted with the Equip 2020 Forum and will be in line with AC 90-114A when published. For experimental and ELSA aircraft, per AC 90-114A, the manufacturer will be responsible for showing compliance to §91.227 and making the statement of compliance. The intent of this text is to ensure you properly broadcast usage of COTS equipment.
F50			8.3.1.2.1	last sentence... "the equipment has received a statement of compliance with the rule requirements..."	The equipment and installation must show compliance to all applicable rules. Is this a statement of compliance for a specific rule, i.e.91.225?	For clarity list he rule for which the compliance statement is addressing	Editorial	ASW-110	2	Concur - Text changed
F51	AC 20-165B	9	3.1.2.2	This can be accomplished using the methods, for example, as described in AC 25.1309-1(), Systems Design and Analysis, AC 23.1309-1(), System Safety Analysis and Assessment for Part 23 Airplanes, SAE ARP 4761, Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment, or SAE ARP 4754A, Certification Considerations for Highly-Integrated or Complex Aircraft Systems.	(Same as above.) This sentence would be easier to read if the document titles were separated by semicolons.	Consider using semicolons in between document titles, as below: "... described in AC 25.1309-1(), Systems Design and Analysis; AC 23.1309-1(), System Safety Analysis and Assessment for Part 23 Airplanes, SAE ARP 4761, Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment, or SAE ARP 4754A, Certification Considerations for Highly-Integrated or Complex Aircraft Systems."	Editorial	AIR-500		Concur - Text changed

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F52	AC 20-165B	9	3.1.2.3	In contrast, the position source installation must be compliant with the guidance in this AC including design assurance considerations.	There should be a comma after "this AC."	Please insert a comma after "this AC", as below: "In contrast, the position source installation must be compliant with the guidance in this AC , including design assurance considerations."	Editorial	AIR-500		Concur - Text changed
F53	AC 20-165B	9	3.1.3	This can be done by equipping with a compliant architecture listed in section 3.1.3.2 or performing an analysis detailed in section 3.1.3.3. Latency terms are further defined in Appendix C of this AC.	This sentence seems confusing. I think it would be clearer if "such as the one" were added after "compliant architecture" and "analysis."	Consider adding "such as the one" after "compliant architecture" and "analysis", as below: "This can be done by equipping with a compliant architecture such as the one listed in section 3.1.3.2 or performing an analysis such as the one detailed in section 3.1.3.3."	Editorial	AIR-500		Concur - Text changed
F54	AC 20-165B	9	3.1.3.1	"There are two position latency requirements associated with ADS-B OUT."	clarification	"There are two position latency requirements associated with ADS-B OUT, Total and uncompensated ".	editorial	John Raspanti Chicago ACO		Concur - Text changed
F55	AC 20-165B	10	3.1.3.2	"C154c meet the total latency and uncompensated latency requirements ... "	clarification	"... TSO-C154c meet satisfies the total latency and uncompensated latency requirements	editorial	John Raspanti Chicago ACO		Concur - Text changed
F56	AC 20-165B	15	Table 1 Emitter Category, Value 17, 18, 19, 20, 21		there is no information entered in the Description column	A value should be entered in the description column - NA, TBD, to be defined at a later date, future capability or ???.	conceptual	John Raspanti Chicago ACO		Concur - Text changed
F57	AC 20-165B	9 and A8 and UNIVERSAL	3.1.3 and A.2.34	Page 9, 3.1.3: Do not calculate latency from the position source time of applicability, as defined in DO-260B, Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance-Broadcast (ADS-B), with Corrigendum 1 and DO-282B with corrigendum 1. Page A8, A.2.34: Version 2 applies to ADS-B equipment that meets MOPS documents RTCA/DO-260B with Corrigendum 1 or RTCA/DO-282B with corrigendum 1.	The first occurrence of "corrigendum" should be lowercase.	Change the first occurrence of "corrigendum" to lowercase, as below: 3.1.3: "...as defined in DO-260B, Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance-Broadcast (ADS-B), with corrigendum 1 and DO-282B with corrigendum 1." A.2.34: "... MOPS documents RTCA/DO-260B with corrigendum 1 or RTCA/DO-282B with corrigendum 1." Please ensure consistency of formatting with respect to references throughout the document. Titles are generally printed in italics. Also please ensure that subsections are printed with consistency in case (appendix H, corrigendum 1, section 6.1, etc.).	Editorial	AIR-500		Concur - Text changed
F58	AC 20-165B	10 and UNIVERSAL	3.1.4	This 12 second allowance is available for any position source, not just GNSS position sources.	Because it is being used as a modifier, "12 second" should be hyphenated.	Please insert a hyphen between "12" and "second", as below: "This 12-second allowance is available for any position source, not just GNSS position sources." This happens many times throughout the document. Some other examples are "24-bit", "fixed-wing", "lighter-than-air", "per-hour", "(RAIM)-based", "25-foot", "FMS-selected", "MCP-/FMS-selected", "ADS-B IN-equipped", "geometric-based", "four-digit", "ADS-B-equipped", "TCAS II-equipped", "GNSS-specific", "non-GNSS", "two-second", "two-degree", "8-second", "10-second", "12-second", "500-millisecond", "TOM-to-time-of-applicability", "2.0-second", "fault-free", "ADS-B OUT-equipped", "ground-based". Please correct all instances of missing hyphens in compound modifiers throughout the document.	Editorial	AIR-500		Document reviewed for - words, several changes made throughout
F59	AC 20-165B	11	3.1.4.1	Note: GNSS Sensor ARINC Characteristic 743A-5, allows flexibility in how information is transferred during a GNSS satellite fault; thus it is necessary to ensure a non-isolated satellite failure results in the ADS-B indicating an invalid position.	There should be a comma after "thus."	Please insert a comma after "thus", as below: "...during a GNSS satellite fault; thus , it is necessary to ensure a non-isolated satellite failure results in the ADS-B indicating an invalid position."	Editorial	AIR-500		Concur - Text changed
F60	AC 20-165B	11	3.1.4.2	If you are installing an ADS-B system without a compliant architecture described above, you must accomplish a latency analysis to demonstrate the ADS-B system meets the integrity metric latency requirements.	This sentence is confusing. It would make sense if the "a" after "without" was replaced with "the".	Consider replacing the "a" after "without" with "the", as below, or recasting for clarity. "If you are installing an ADS-B system without a the compliant architecture described above..."	Editorial	AIR-500		Text changed. "Like the one"
F61	AC 20-165B	12	3.2.1	"To deviate from any rule requirements, you must obtain a deviation approval from the FAA, in accordance with 14 CFR 91.225(c) and 14 CFR 91.227(f). Under those provisions, as specified in 14 CFR 21.618, this requires showing that factors or design features provide an equivalent level of safety that compensates for the standards from which a deviation is requested."	21.618 addresses TSO deviations. An applicant cannot apply for a deviation to a rule. They can apply for an exemption to a rule which is a different process. 91.225(c) & 91.227(f) relate to the installation of TSO'd equipment that have an approved deviation under 14 CFR 21.618 to the applicable TSO.	"Installed TSO'd equipment with an approved deviation under 14 CFR 21.618 are in compliance with 14 CFR 91.225 and 14 CFR 91.227." 14 CFR 91.225 or 91.227 are operational rules and a petition for exemption to these rules must be submitted to the Administrator.	conceptual	John Raspanti Chicago ACO		This paragraph is referring to TSO deviations not operating rule deviations. The operating rule has subparagraphs that mention deviations to the TSOs and those are listed. Text modified to clarify this is referring to 91.225 and 91.227
F62	AC 20-165B	12	3.2.2.4	Also, dual systems must be the same version level; i.e. if the 1090ES system meets the requirements of DO-260B (version 2), the UAT system must meet the requirements of DO-282B (version 2).	This sentence would be clearer if "i.e., if the 1090ES system meets the requirements of DO-260B (version 2)" was in parentheses.	Consider enclosing "i.e. if the 1090ES system meets the requirements of DO-260B (version 2)" in parentheses. Also, add a comma after "i.e." and change the parentheses around "version 2" to brackets. See below: "Also, dual systems must be the same version level (i.e., if the 1090ES system meets the requirements of DO-260B [version 2]), the UAT system must meet the requirements of DO-282B (version 2)."	Editorial	AIR-500		Concur - Text changed

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F63	AC20-165B	12	3.2.2.4	"See AC 20-172B for ADS-B IN installation guidance."	This AC will likely be updated for future ADS-B In capabilities.	Suggest adding "latest version" or change to AC 20-172(). Note that there are other locations in the AC where () or latest version may be more appropriate the revision level listed.		ANM-111	7	References to 20-172B changed to 20-172()
F64	AC 20-165B	12	3.2.2.4	Multiple ADS-B OUT systems.	This section does not fully cover cases wherein operators may equip with other ADS-B out systems that transmit DF 18 or DF 19 ADS-B messages while also sending DF 17 messages from a rule compliant transponder.	The AC should prohibit installation and simultaneous operation of multiple ADS-B transmitters on the same link using one or more DFs to squitter the ADS-B Messages. (Note that these types of implementations have been seen in some aircraft and they can cause dual tracks on ATC displays particularly when inconsistent information is presented in the different ADS-B message squitters.)		Arbuckle	3	No change. The existing text is clear and applies to this case. "If dual ADS-B OUT systems of the same link are installed (for example, to increase dispatch reliability), the installation must preclude operation of both systems simultaneously."
F65	AC 20-165B	13	3.2.3.1	Note 3: Installation instructions may require the 24 bit address be input as an Octal, Decimal or Hexadecimal number, (i.e. 50604331Octal = 10684633Decimal = A308D9Hex).	This sentence would be clearer if a "to" was inserted after "address". A hyphen should be inserted between "24" and "bit". Also, there should be commas after "Decimal" and "i.e.".	Please insert a hyphen between "24" and "bit". Insert a "to" after "address", a comma after "Decimal" and "i.e.". " Note 3: Installation instructions may require the 24-bit address to be input as an Octal, Decimal, or Hexadecimal number, (i.e., 50604331Octal = 10684633Decimal = A308D9Hex)."	Editorial	AIR-500		Concur - Text changed
F66	AC 20-165B	13	3.2.3.2	For rotorcraft, this may be the most forward point the rotor blades sweep or some other fixed object such as a refueling boom, see Figure 2.	"See figure 2" should be a separate sentence.	Consider replacing the comma after "boom" with a period and capitalizing "see", as below: For rotorcraft, this may be the most forward point the rotor blades sweep or some other fixed object such as a refueling boom. See figure 2.	Editorial	AIR-500		Concur - Text changed
F67	AC 20-165B	13	3.2.3.2	Aircraft Length and Width (for rotorcraft).For rotorcraft this may be the most forward point the rotor blades sweep or some other fixed object such as a refueling boom.	The current phraseology is inconsistent with the depiction provided in Figure 2. The rotor blades of a rotorcraft may sweep beyond the longitudinal fore-aft and lateral footprint of the fuselage, however the current definition only considers the forward sweep of the rotor blades when defining "aircraft length and width"	Reword as follows: For rotorcraft this may be the most forward, aft and lateral point the rotor blades sweep or some other fixed object such as a refueling boom.	Conceptual	Joslin	1	Concur - Text changed
F68	AC 20-165B	15	3.2.3.4	Table 1, rows 7, 9, 10, and 15	There should be a comma after "rotorcraft" in row 7, after "sailplane" in row 9, and after "balloon" in row 10. "Lighter than air" should be hyphenated. There should be a period after "above" in row 15.	Please insert a comma after "rotorcraft" in row 7, after "sailplane" in row 9, and after "balloon" in row 10. Hyphenate "lighter than air". Insert a period after "above" in row 15. Row 7: "Any rotorcraft, regardless of weight." Row 9: "Any glider or sailplane, regardless of weight." Row 10: "Any lighter-than-air (airship or balloon), regardless of weight." Row 15: "See Emit Cat 0 above."		AIR-500		Concur - Text changed
F69	AC 20-165B	15, 16	3.3.1	"The position source must also comply with the Appendix B minimum performance requirements."		"The position source must also comply with the Appendix B minimum ADS-B position source performance requirements."	conceptual	John Raspanti Chicago ACO		The Word "minimum" deleted
F70	AC20-165B	18	3.3.3.5	"See Appendix B, section 4.f for additional information on HPL considerations."	"4.f" should be "B.4.6"	Change "section 4.f" to "section B.4.6"		ANM-111	1	New AC format per FAA Order 1320.46D. Reference for "4.n" changed to section 4.5.6
F71	AC 20-165B	19 and UNIVERSAL	3.3.3.9	If the position source does not output a qualified vertical accuracy metric, the GVA parameter should be set to "0."	To maintain consistency with similar occurrences in the document, the period should come after the close quotation mark at the end of the sentence.	Please move the period after the close quotation mark at the end of the sentence, as below: If the position source does not output a qualified vertical accuracy metric, the GVA parameter should be set to "0". Similar situations occur throughout the document. To maintain a consistent format, please enclose in quotation marks all parameters that are used in electronic devices.	Editorial	AIR-500		Concur - Text changed
F72	AC 20-165B	20	3.4.1.1	Utilize barometric altitude from a barometric altimeter meeting the minimum performance requirements of 14 CFR 91.217:	To avoid using the passive voice, "meeting" should be changed to "that meets".	Please strike "meeting" and insert "that meets" in its place, as below: Utilize barometric altitude from a barometric altimeter meeting that meets the minimum performance requirements of 14 CFR 91.217:	Editorial	AIR-500		Concur - Text changed
F73	AC 20-165B	20	3.4.3	Definitions for each of the following associated parameters are included in Appendix A.	Because it introduces a list of items, there should be a colon at the end of this sentence instead of a period.	Please replace the period at the end of the sentence with a colon, as below: "Definitions for each of the following associated parameters are included in Appendix A: "	Editorial	AIR-500		Concur - Text changed
F74	AC 20-165B	21	3.6.1	TCAS II systems should comply with TSO-C119a, Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, or subsequent, and be installed in accordance with AC 20-131A, Airworthiness Approval of Traffic Alert and Collision Avoidance Systems (TCAS II) and Mode S Transponders, or any revision of AC 20-151, Airworthiness Approval of Traffic Alert and Collision Avoidance Systems (TCAS II) Versions 7.0 and 7.1 and Associated Mode S Transponders, as applicable.	This sentence would be clearer if "version" was inserted after "subsequent".	Consider inserting "version" after "subsequent", as below: TCAS II systems should comply with TSO-C119a, Traffic Alert and Collision Avoidance System (TCAS) Airborne Equipment, or subsequent version , and be installed in accordance with...."		AIR-500		Concur - Text changed
F75	AC20-165B	22	3.6.2.2	"DO-300" & "AC 20-151A"	Information applies to both latest version of the MOPS and AC as well. Also, AC 20-151 will be updated in the future.	Change to "DO-300 or later revision" & "AC 20-151()"		ANM-111	8	Concur - Text changed
F76	AC 20-165B	23	3.7		general comment: there are several ADS-B OUT related items that need to be included in the AFMS. It might be helpful to include a description of these in section 2.2 so there is one place for AFMS content or reference the other sections for a complete description.		editorial	John Raspanti Chicago ACO		This is a good comment but one that will take time to coordinate with AFS-360. This comment will be addressed in some manner in the next revision of this document.

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F77	AC 20-165B	20	3.7.2		As observed in some TSO-C166b avionics installations, setting the ALT OFF mode zeros the Baro altitude from ADS-B and changes the ADS-B message reporting to Geo Type codes which are limited and require high NIC values to performance a NIC other than unknown.	Add text to 3.4.2 (barometric altitude source installation guidance and / or 3.7.2 (pilot interface - installation guidance), that states that ADS-B messages may not be received by ATC when ALT is OFF or barometric altitude is unavailable to the ADS-B avionics due to use of Geometric type codes when baro is not available.		Arbuckle	2	We are handling this in the TSO. There is nothing that can be done at the aircraft level. Prefer to not add text to AC.
F78	AC 20-165B	23	3.7.2.1	System Status: "The following two failure annunciations must be included in the initial airworthiness certification (i.e. STC or TC) type design data for the ADS-B OUT equipment, and should be consistent with the overall flight deck design philosophy for surveillance equipment. These failure conditions are advisory only and do not constitute a caution or warning condition."	During discussion with HQ policy folks on clarifications of this section for annunciations requirements in AC 20-165A late in 2014, it was mentioned to us that on future new TC programs, the FAA would require applicants to design the "transponder" failure annunciations to caution (amber) and that either the AC would be revised or new policy would be generated. The rationale behind, we were told, was the NTSB recommendation after the Brazilian Boeing 737 in air accident with Embraer. When an applicant has the transponder function and ADS-B Out function built in the same box (which is the case for most applicants), how does stating that the failure conditions need only be "advisory" help them? Is the intention of the FAA to have the applicant split the two functions into two separate boxes for future programs?	Remove line: These failure conditions are advisory only and do not constitute a caution or warning condition.	Conceptual	ACE-119W		No change to text. Transponder failure is distinct from ADS-B Out failure in that Mode S failure inhibits TCAS functionality. Transponder policy including guidance for Transponder failures is addressed in AC 20-151. The comment addresses a planned revision of AC 20-151 that is currently not in force. Manufacturers have the option to declare ADS-B Failure as a caution level alert if so desired.
F79	AC 20-165B	23	3.7.2.1	"These failure conditions are advisory only and do not constitute a caution or warning condition."	Current part 23 rules (CFR 23.1322) does not define the word "advisory".	Remove this line.	Conceptual	ACE-119W		No change. This section states "The installation must have a method to display system operational status to the flight crew, and should be consistent with the overall flight deck design philosophy." further on it states, "These failure conditions are advisory only and do not constitute a caution or warning condition." In essence, the system needs to indicate the status or failure condition of the ADS-B system and these indications do not have to be a warning or caution; they are advisory only. The color of the indicator must fit the design philosophy of the flight deck and should be determined by the system designer. 23.1322 provided here for reference § 23.1322 Warning, caution, and advisory lights. If warning, caution, or advisory lights are installed in the cockpit, they must, unless otherwise approved by the Administrator, be— (a) Red, for warning lights (lights indicating a hazard which may require immediate corrective action); (b) Amber, for caution lights (lights indicating the possible need for future corrective action); (c) Green, for safe operation lights; and (d) Any other color, including white, for lights not described in paragraphs (a) through (c) of this
F80	AC 20-165B	23	3.7.2.1	3.7.2.1. System Status states in part, "The following two failure annunciations must be included in the initial airworthiness certification (i.e. STC or TC) type design data for the ADS-B OUT equipment, and should be consistent with the overall flight deck design philosophy for surveillance equipment. These failure conditions are advisory only and do not constitute a caution or warning condition. For legacy Mode C installations that are adding a UAT device, the following two failure annunciations are optional."	1) <u>Messaging considerations:</u> These requirements should take into consideration that the crew action for loss of ADS-B Out in many cases will be the same, whether due to loss of transponder (device failure) or loss of function (loss of position source such as GPS). In dual transponder equipped aircraft, the typical crew action will be to change transponders. 2) <u>Use of color:</u> Since most ADS-B Out failures require crew action at some point (assuming ADS-B Out capability is required), any annunciation or message should be considered "cautionary" (i.e., amber for immediate crew awareness) and not "advisory." This use of color is consistent with both CFR 14 Part 23.1322 and Part 25.1322. 3) <u>Legacy considerations:</u> Although specific indications for loss of ADS-B Out "device" or "function" may not be required, it is reasonable for any installation to provide clear and unambiguous indications of loss of ADS-B Out capability. Crew awareness for ADS-B Out using legacy alerting (for instance, loss of transponder or loss of GPS) must take into account the location of existing messages and ability of crew or pilot to see the alert. (Jeff Borton - 316-946-4166)	Suggested rewrite for this part of paragraph 3.7.2.1 should include something like the following "The following two failure annunciations should be considered in the initial airworthiness certification (i.e. STC or TC) type design data for the ADS-B OUT equipment, and any alerting should consider associated crew procedures and the overall flight deck design philosophy for surveillance equipment. The use of color should be consistent with certification rules and advisory material. In many cases, the loss of ADS-B Out capability will require immediate crew awareness and possible future action. For legacy Mode C installations that are adding a UAT device, any failure annunciations used to identify loss of ADS-B Out capability must take into account the location of the annunciation/s and the impact on crew awareness."		ACE-119W		The suggested change is not consistent with the Equip 2020 agreements and ADS-B separation Standard Safety Case. The ADS-B Sep case does not rely on pilot detection of failure as a mitigation.
F81	AC 20-165B	23, & throughout the docume	3.7.2.1.1, 3.11.2.9, 3.11.2.9.4, 3.11.2.9.6, 3.11.3, etc.	"If the ADS-B equipment is unable to transmit ADS-B messages, the system may provide an appropriate annunciation to the flight crew."	"If the ADS-B equipment is unable to transmit ADS-B messages, the system must provide an appropriate annunciation to the flight crew."	Please change may, should and any other not definitive word to must to make the statements definitive per the Plain Language Initiative. Please contact Bruce Corisino if questions arise.	Conceptual	ANE-150	6	Text changed. "may" changed to "should"
F82	AC 20-165B	23	3.7.2.1.2	"The installer must provide documentation, in either an AFM or Pilot's Guide, which explains how to differentiate between annunciation of an equipment failure and a function failure if the failure annunciations are not independent."	Validation has resulted in CRIs due to the human factors surrounding this requirement.	Change requirement from "provide documentation" to "display" annunciation of ADS-B Out equipment failure and "display" annunciation of ADS-B Out function failure. This will harmonize the requirement with FCAA's expectations.	Conceptual	ANE-150	1	This AC guidance is in accordance with Equip 2020 discussions and resolutions. It is acknowledged that this is not harmonized with EASA. This section states the AFM or similar document needs to describe how to differentiate between annunciation of an equipment failure and a function failure. This not describing how the failure will be annunciated to the pilot in the aircraft
F83	AC 20-165B	23	3.7.2.1.2	The installer must provide documentation in either an AFM or Pilot's Guide...	The use of the term AFM does not encompass RFM, AFMS, or RFMS, which would also be applicable. Furthermore §D.1.1.8 defines the term Flight Manual as encompassing all of the aforementioned terms.	Replace AFM with "Flight Manual"	Editorial	Joslin	2	Concur - Text changed
F84	AC 20-165B	23	3.7.2.1.2	3.7.2.1.2. ADS-B function failure, states in part, "The ADS-B system should distinguish between a position source or interface failure and an ADS-B equipment failure. The installer must provide documentation, in either an AFM or Pilot's Guide, which explains how to differentiate between annunciation of an equipment failure and a function failure if the failure annunciations are not independent."	The crew action for loss of ADS-B Out in many cases will be the same, whether due to loss of transponder (device failure) or loss of function (loss of position source such as GPS). In dual transponder equipped aircraft, the typical crew action will be to change transponders. There may be a design reason to differentiate between the various causes for loss of ADS-B Out capability, but it does not make sense to mandate that this is always documented in the flight manual, supplement or pilot's guide, since it may depend on the design of the system and associated crew procedures. (Jeff Borton - 316-946-4166)	Suggested rewrite for this part of paragraph 3.7.2.1.2 should include something like the following (suggested changes in blue text): "Depending on the installation, the ADS-B system may need to distinguish between a position source or interface failure and an ADS-B equipment failure. The associated crew procedures for loss of ADS-B Out should also be considered. The installer may need to provide procedures, in either an AFM or Pilot's Guide, which explain how to differentiate between annunciation of an equipment failure and a function failure if the failure annunciations are not independent."	Conceptual	ACE-119W		Non concur. We have determined that pilots need to be informed on how to differentiate between an ADS-B failure and an ADS-B function failure, so the pilot is aware of whether or not secondary surveillance capability remains available. Text changed to say Flight manual or flight manual supplement

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F85	AC 20-165B	23	3.7.2.1.2	"The installer must provide documentation, in either an AFM or Pilot's Guide, which explains how to differentiate between annunciation of an equipment failure and a function failure if the failure annunciations are not independent."	Validation has resulted in CRIs due to the human factors surrounding this requirement.	Change requirement from "provide documentation" to "display" annunciation of ADS-B Out equipment failure and "display" annunciation of ADS-B Out function failure. This will harmonize the requirement with FCAA's expectations.	Conceptual	ANE-150	1	This AC guidance is accordance with Equip 2020 discussions and resolutions. It is acknowledged that this is not harmonized with EASA. This section states the AFM or similar document needs to describe how to differentiate between annunciation of an equipment failure and a function failure. This not describing how the failure will be annunciated to the pilot in the aircraft
F86	AC 20-165B	24	3.7.2.3	14 CFR 91.227 contains specific provisions allowing operators with TSO-C154c equipment to transmit a self-assigned (randomized) temporary 24-bit address and no call sign.	Per section 10 of ORDER 1320.460, "14 CFR" should be replaced by "Section" at the beginning of this sentence. Also, this sentence would be clearer if "no call" was in quotation marks.	Please replace "14 CFR" with "Section", as below: " 14 CFR Section 91.227 contains specific provisions allowing operators with TSO-C154c equipment to transmit a self-assigned (randomized) temporary 24-bit address and "no call" sign."	Editorial	AIR-500		14 CFR changed. "no call" should not have " " marks
F87	AC 20-165B	24	3.7.2.3.2 and 3.7.2.3.4	When the ADS-B equipment is initially powered-on, the call sign may not be blank (Not Available per DO-282()). The ADS-B OUT equipment may not automatically set an anonymous 24-bit address or set a blank (Not Available per DO-282()) call sign based solely on pilot selection of the 1200 Mode 3/A code.	These two sentences are confusing. Does "(Not Available per DO-282())" belong in this sentence? Is that the call sign?	If "(Not Available per DO-282())" belongs in this sentence, consider the edits below: "When the ADS-B equipment is initially powered-on, the call sign may not be blank (not available per DO-282())." If "(Not Available per DO-282())" is the call sign, please consider placing it in quotation marks. See below: "When the ADS-B equipment is initially powered-on, the call sign may not be blank "(Not Available per DO-282())"."	Editorial	AIR-500		Parentheses within parentheses ok per GPO style manual
F88	AC 20-165B	26	3.7.3.5.2	"Transmission of false or misleading information is considered to be a major failure effect and may not occur at a rate greater than 1x10 ⁵ per flight hour for ADS-B systems."	should be 10 to minus 5 power	"Transmission of false or misleading information is considered to be a major failure effect and may not occur at a rate greater than 1x10 ⁵ per flight hour for ADS-B systems."	conceptual	John Raspanti Chicago ACO		Concur - Text changed
F89	AC 20-165B	27	3.8.3.3.2	The spacing between the UAT antenna and any transponder (Mode S or Air Traffic Control Radar Beacon System (ATCRBS)) antenna must provide a minimum of 20dB of isolation between the two antennas.	Because it is enclosed in parentheses, "ATCRB" should be in brackets.	Please change the parentheses around "ATCRB" with brackets, as below: The spacing between the UAT antenna and any transponder (Mode S or Air Traffic Control Radar Beacon System [ATCRB]) antenna must provide a minimum of 20dB of isolation between the two antennas.	Editorial	AIR-500		Parentheses within parentheses ok per GPO style manual
F90	AC 20-165B	27	3.8.3.3.4	You must submit a structural analysis of new antenna installations to show compliance with the applicable regulations.	This is not true in all cases. AC 43.13-2B outlines the guidance on installations of antennas. This guidance should be followed.	AC 43.13-2B provides guidance on the installation of antennas. On pressurized aircraft, you may have to submit a structural analysis of new antenna installations to show compliance with the applicable regulations.	Conceptual	ACE-114	3	Text changed to say you MAY need to submit an analysis.
F91	AC 20-165B	28	3.8.4.3	The ADS-B position reference point is the center of the rectangle used to describe the Length and Width of the aircraft in the length width code. See section 3.2.3.2 and Figure 3 of this AC.	Is capitalizing "Length" and "Width" a common practice in FAA documents? If so, leave as is. If not, then they should be changed to lower case. Also, should there be a hyphen or a slash between "length" and "width" before "code" at the end of the sentence. This wording seems awkward.	If not common practice, change "Length" and "Width" to lower case. Also, if it makes sense, insert a hyphen or a slash between "length" and "width" before "code" at the end of the sentence. See below: "The ADS-B position reference point is the center of the rectangle used to describe the length and width of the aircraft in the length-width code."	Editorial	AIR-500		Concur - Text changed
F92	AC 20-165B	28	3.8.4.3	For a more detailed description of POA, refer to RTCA/DO-338, Minimum Aviation Performance Standards for ADS-B Traffic Surveillance Systems and Applications, section 3.2.4.1	There should be a period at the end of this sentence.	Please insert a period at the end of the sentence, as below: "For a more detailed description of POA, refer to RTCA/DO-338, Minimum Aviation Performance Standards for ADS-B Traffic Surveillance Systems and Applications, section 3.2.4.1."	Editorial	AIR-500		Concur - Text changed
F93	AC20-165B	28 & A2	3.8.4.3	"RTCA/DO-338, Minimum Aviation Performance Standards for ADS-B Traffic Surveillance Systems and Applications"	Missing "System"	Change to: "RTCA/DO-338, Minimum Aviation System Performance Standards for ADS-B Traffic Surveillance Systems and Applications"		ANM-111	9	Concur - Text changed
F94	AC 20-165B	29	3.8.4.4	"Single antenna bit. For aircraft using a single antenna, this parameter should be set to True."	is it assumed that TRUE = 1?		conceptual	John Raspanti Chicago ACO		Text changed to say "one, TRUE"
F95	AC 20-165B	29	3.8.4.4	For aircraft using a single antenna, this parameter should be set to True.	(See row 46 above.) To maintain consistency with similar occurrences in the document, the word "True" should be in quotation marks.	Consider enclosing "True" in quotation marks, as below: "For aircraft using a single antenna, this parameter should be set to "True"."		AIR-500		Text changed to say "one, TRUE"
F96	AC 20-165B	31	3.9.3	The following sections provide additional guidance on setting key ADS-B OUT parameters.	Because it introduces a list of items, there should be a colon at the end of this sentence instead of a period.	Please change the period at the end of this sentence to a colon, as below: "The following sections provide additional guidance on setting key ADS-B OUT parameters:"	Editorial	AIR-500		Concur - Text changed
F97	AC 20-165B	31	3.9.3.1	Interface vertical rate from one or more of the sources listed above.	"Above", as it is used in this sentence, is non-specific. Please refer to specific sources	Please replace "above" with specific sources. For example-- "Interface vertical rate from one or more of the sources listed in sections 3.8.5 through 3.9.1.6 in this AC." You could also list each source section (i.e., 3.8.5, 3.9...3.9.1.6).	Editorial	AIR-500		text added to reference 3.9.1 "Equipment Eligibility" under section 3.9 vertical rate source

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
F98	AC 20-165B	31	3.10.2	For example, air-ground status may be derived from Weight-on-Wheels (WOW) switch and GPS velocity, OR GPS velocity, an airport database and geometric altitude, OR GPS velocity and airspeed.	It is unclear why "OR" is capitalized before "GPS" in this sentence. Is it being used as a contraction or is it a type of GPS. It seems like the capitalization is being used for emphasis. If that is the case, I think it's likely to be confusing to the reader.	Consider separating the ways air-ground status may be derived with semicolons. Also, add a comma after database. See below: For example, air-ground status may be derived from Weight-on-Wheels (WOW) switch and GPS velocity; or GPS velocity, an airport database, and geometric altitude; or GPS velocity and airspeed.	Editorial	AIR-500		Concur - Text changed
F99			31 3.10.2	all	provide considerations for unique rotorcraft requirements	consider adding note 3. rotorcraft may exhibit unique challenge for providing an accurate air-ground state. A reliable method to determine the air-ground state must consider automation training and routine maintenance requirements	Conceptual	ASW-111	3	Text changed. Note added "Note 3: Rotorcraft may require unique logic for providing an accurate air-ground state. A reliable method to determine the air-ground state should consider training requirements. Rotorcraft may consider hover taxi as in the air."
F100	AC20-165B	31	3.10.3	TSO-C112d, Air Traffic Control Radar Beacon System/Mode Select (ATCRBS/Mode S) Airborne Equipment	Information applies to latest version of the TSO as well.	Change to "TSO-C112d (or later revision)"		ANM-111	10	Text changed to reference 112d and e
F101			3.11.1	The FAA will cooperate with foreign regulators to ensure compliance with their requirements	Delete this sentence	delete sentence		AIR-132 John Fisher	2	Concur - Text changed
F102	AC 20-165B	32 and UNIVERSAL	3.11.2	Implementing Target State and Status, Type Code 29, (Register 6.2).	There should be a space between "Type" and "Code". Also, is the punctuation of "6,2" correct?	Insert a space between "Type" and "Code". If "6,2" is incorrect, please insert correct punctuation. See below: "Implementing Target State and Status, Type Code 29, (Register 6.2)." "6,2" occurs several times throughout the document, please correct if it is incorrect.	Editorial	AIR-500		Global search for Type code. All read Type Code. 6,2 is the correct description.
F103	AC 20-165B	32 and UNIVERSAL	3.11.2.1	SILSUPP configuration. SIL _{SUPP} is based on whether the position source probability of exceeding the reported integrity value is calculated on a per-hour or per-sample basis and should be set based on design data from the position source equipment manufacturer. ADS-B systems interfaced with a GNSS position source compliant with any revision of TSO-C129, TSO-C145, TSO-C146, or TSO-C196 may preset SILSUPP to ZERO, as GNSS position sources use a per hour basis for integrity.	The formatting of SIL _{SUPP} is inconsistent here and throughout the document.	Please ensure that the formatting of "SIL _{SUPP} " is consistent here and throughout the document. Also, as was mentioned in row XX, please enclose "ZERO" in quotation marks. See below: "SIL _{SUPP} configuration. SIL _{SUPP} is based on whether the position source probability of exceeding the reported integrity value is calculated on a per-hour or per-sample basis and should be set based on design data from the position source equipment manufacturer. ADS-B systems interfaced with a GNSS position source compliant with any revision of TSO-C129, TSO-C145, TSO-C146, or TSO-C196 may preset SIL _{SUPP} to "ZERO", as GNSS position sources use a per hour basis for integrity."		AIR-500		Section 3.11.2 removed, out of scope of this document.
F104	AC 20-165B	32	3.11.2.2	Installations with both an MCP/FCU and an FMS system, should ensure the selected altitude information transmitted is the MCP/FCU selected altitude.	The comma after "system" is not necessary and could confuse the reader.	Please remove the comma after "system", as below: "Installations with both an MCP/FCU and an FMS system should ensure the selected altitude information transmitted is the MCP/FCU selected altitude."	Editorial	AIR-500		Section 3.11.2 removed, out of scope of this document.
F105	AC 20-165B	32	3.11.2.2	"...MCP/FCU..."	Acronym should be spelled out when first used.	Please spell out the acronym	Editorial	ACE-114	4	Section 3.11.2 removed, out of scope of this document.
F106	AC 20-165B	32	3.11.2.2.2	If MCP/FCU selected altitude is not valid, and the FMS selected altitude is valid, then the FMS selected altitude should be encoded.	Although the comma after "valid" is grammatically correct, I think the sentence would be easier to understand if it was removed.	Consider removing the comma after "valid", as below: "If MCP/FCU selected altitude is not valid and the FMS selected altitude is valid, then the FMS selected altitude should be encoded."	Editorial	AIR-500		Section 3.11.2 removed, out of scope of this document.
F107	AC 20-165B	32-33	3.11.2.3	When the aircraft vertical intent is to fly the current altitude (e.g., altitude hold) or manually flown, the system should ensure that the MCP/FCU selected altitude is encoded in the Target State and Status ADS-B message.	This sentence is a little confusing. The addition of "is" after "or" could help make it clearer. Also, there should be hyphens after "MCP" and "FCU".	Consider adding "is" after "or" and adding hyphens after "MCP" and "FCU", as below: "When the aircraft vertical intent is to fly the current altitude (e.g., altitude hold) or is manually flown, the system should ensure that the MCP-/FCU-selected altitude is encoded in the Target State and Status ADS-B message."	Editorial	AIR-500		Section 3.11.2 removed, out of scope of this document.
F108	AC 20-165B	33	3.11.2.4	If the barometric pressure setting is not available or invalid, the installer should verify that the data status is marked invalid and the bits for this subfield are set to ZERO.	"Verity" should be changed to "verify". "Zero" should be put in quotes.	If the barometric pressure setting is not available or invalid, the installer should verity -verify that the data status is marked invalid and the bits for this subfield are set to "ZERO".	Editorial	AIR-500		Section 3.11.2 removed, out of scope of this document.
F109	AC 20-165B		3.11.2.4		Barometric Setting. The system should ensure that the barometric pressure setting in use is provided to the transponder. In some installations, the barometric pressure setting can be overridden and the aircraft flown to the uncorrected pressure altitude. In this case the reported correction should be zero. If the barometric pressure setting is not available or invalid, the installer should verity that the data status is marked invalid and the bits for this subfield are set to ZERO.					Section 3.11.2 removed, out of scope of this document.
F110	AC20-165B	33	3.11.2.4	"verity"	Should be "verify"	Change to "verify"		ANM-111	11	Section 3.11.2 removed, out of scope of this document.
F111			3.11.2.4		Barometric Setting. The system should ensure that the barometric pressure setting in use is provided to the transponder. In some installations, the barometric pressure setting can be overridden and the aircraft flown to the uncorrected pressure altitude. In this case the reported correction should be zero. If the barometric pressure setting is not available or invalid, the installer should verity that the data status is marked invalid and the bits for this subfield are set to ZERO.	change to verify		Jim Marks	1	Section 3.11.2 removed, out of scope of this document.
F112	AC 20-165B	33	3.11.2.7	"Navigation Integrity Containment - Baro (NICb)..."	Not clear if it's "Containment" or "Code", nor the notation of "Bara (NICb)" since NIC baro is used later. D.1.1.6 defines NICbaro as barometric altitude integrity <u>code</u> .	Clarify proper use of notation.	Editorial	ACE-114	5	Section 3.11.2 removed, out of scope of this document.

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
F113	AC 20-165B	23, & throughout	3.11.2.9	"If the ADS-B equipment is unable to transmit ADS-B messages, the system may provide an appropriate annunciation to the flight crew."	"If the ADS-B equipment is unable to transmit ADS-B messages, the system must provide an appropriate annunciation to the flight crew."	Please change may, should and any other not definitive word to must to make the statements definitive per the Plain Language Initiative. Please contact Bruce Corisino if questions arise.	Conceptual	ANE-150	6	Section 3.11.2 removed, out of scope of this document.
F114	AC 20-165B	23, & throughout	3.11.2.9.4	"If the ADS-B equipment is unable to transmit ADS-B messages, the system may provide an appropriate annunciation to the flight crew."	"If the ADS-B equipment is unable to transmit ADS-B messages, the system must provide an appropriate annunciation to the flight crew."	Please change may, should and any other not definitive word to must to make the statements definitive per the Plain Language Initiative. Please contact Bruce Corisino if questions arise.	Conceptual	ANE-150	6	Section 3.11.2 removed, out of scope of this document.
F115	AC 20-165B	23, & throughout	3.11.2.9.6	"If the ADS-B equipment is unable to transmit ADS-B messages, the system may provide an appropriate annunciation to the flight crew."	"If the ADS-B equipment is unable to transmit ADS-B messages, the system must provide an appropriate annunciation to the flight crew."	Please change may, should and any other not definitive word to must to make the statements definitive per the Plain Language Initiative. Please contact Bruce Corisino if questions arise.	Conceptual	ANE-150	6	Section 3.11.2 removed, out of scope of this document.
F116	AC 20-165B	35-40	3.11.3.1, 3.11.3.2, 3.11.3.3	These three sections would benefit from appropriate typesetting by the use of indentation.	Can the X, Y and Z subsection levels of the 3.11.3.A.X.Y.Z documentation be each indented at new levels to make those subsections stand out clearly?	Proper indentation (typesetting) will help to make the documentation clearer for any reader.	Editorial	ANE-150	8	Section 3.11.3 removed, out of scope of this document.
F117	AC 20-165B	23, & throughout	3.11.3, etc.	"If the ADS-B equipment is unable to transmit ADS-B messages, the system may provide an appropriate annunciation to the flight crew."	"If the ADS-B equipment is unable to transmit ADS-B messages, the system must provide an appropriate annunciation to the flight crew."	Please change may, should and any other not definitive word to must to make the statements definitive per the Plain Language Initiative. Please contact Bruce Corisino if questions arise.	Conceptual	ANE-150	6	Section 3.11.3 removed, out of scope of this document.
F118	AC 20-165B	35	3.11.3	Figure 4 Sample Aircraft Flight Path Step	The title for figure 4 is too far away from the graphic.	Please move the title for figure 4 closer to the graphic (being consistent with other graphic, table, etc. titles).	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F119	AC 20-165B	35-40	3.11.3.1	These three sections would benefit from appropriate typesetting by the use of indentation.	Can the X, Y and Z subsection levels of the 3.11.3.A.X.Y.Z documentation be each indented at new levels to make those subsections stand out clearly?	Proper indentation (typesetting) will help to make the documentation clearer for any reader.	Editorial	ANE-150	8	Section 3.11.3 removed, out of scope of this document.
F120	AC 20-165B	35-40	3.11.3.2	These three sections would benefit from appropriate typesetting by the use of indentation.	Can the X, Y and Z subsection levels of the 3.11.3.A.X.Y.Z documentation be each indented at new levels to make those subsections stand out clearly?	Proper indentation (typesetting) will help to make the documentation clearer for any reader.	Editorial	ANE-150	8	Section 3.11.3 removed, out of scope of this document.
F121	AC 20-165B	36	3.11.3.1.2	The pilot has engaged the Autopilot System	There should be a period at the end of this sentence.	Please insert a period at the end of this sentence, as below: "The pilot has engaged the Autopilot System ."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F122	AC 20-165B	36	3.11.3.2.1	Note: Note: The altitude in the MCP/FCU must be higher or lower than the achieve altitude desired by the FMS. If not the MCP/FCU will act as an upper or lower altitude restriction.	There is a duplicate occurrence of "Note:" before the first sentence. There should be a comma after "If not" in the second sentence.	Please delete the second occurrence of "Note:" in the first sentence and insert a comma after "If not" in the second sentence, as below: "Note: The altitude in the MCP/FCU must be higher or lower than the achieve altitude desired by the FMS. If not , the MCP/FCU will act as an upper or lower altitude restriction."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F123	AC20-165B	36	3.11.3.2.1	"Note: Note:"	Repeat of "Note"	Delete extra "Note"		ANM-111	12	Section 3.11.3 removed, out of scope of this document.
F124	AC 20-165B	35-40	3.11.3.3	These three sections would benefit from appropriate typesetting by the use of indentation.	Can the X, Y and Z subsection levels of the 3.11.3.A.X.Y.Z documentation be each indented at new levels to make those subsections stand out clearly?	Proper indentation (typesetting) will help to make the documentation clearer for any reader.	Editorial	ANE-150	8	Section 3.11.3 removed, out of scope of this document.
F125	AC 20-165B	37	3.11.3.4.2	As the aircraft approaches waypoint 3, the pilot received a new heading from ATC deviating from the heading information being provided by the FMS system (i.e., HDG: 023).	To maintain consistency, the "waypoint 3" should be capitalized.	Please capitalize "waypoint 3", as below: "As the aircraft approaches Waypoint 3 , the pilot received..."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F126	AC 20-165B	38	3.11.3.4.2	The autopilot remains engaged, and begins the maneuver to achieve the selected heading received from the MCP/FCU for waypoint 4.	To maintain consistency, the "waypoint 4" should be capitalized.	Please capitalize "waypoint 4", as below: "The autopilot remains engaged, and begins the maneuver to achieve the selected heading received from the MCP/FCU for Waypoint 4 ."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F127	AC 20-165B	38	3.11.3.4.2.3	Altitude hold remains to "ONE".	The word "set" is missing after "remains".	Please insert the word "set" after "remains", as below: "Altitude hold remains set to "ONE"."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F128	AC 20-165B	38	3.11.3.5.3	Maneuver: ATC Directed Climb form Waypoint 5 to Waypoint 6. As the aircraft approaches waypoint 5, the pilot received a new altitude from ATC deviating from the altitude information being provided by the FMS system. The pilot enters the cleared altitude into the MCP/FCU (i.e., FL245), and disengages the altitude hold functionality. The autopilot remains engaged, and begins the maneuver to achieve the selected altitude received from the MCP/FCU for waypoint 6. The transponder will set the parameters as follows:	In the first sentence, the word "form" should be "from". In the second sentence, "waypoint 5" should be capitalized. In the last sentence, "waypoint 6" should be capitalized. The comma after "(i.e., FL245)" should be removed.	Change the word "form" to "from" in the first sentence. Capitalize "waypoint 5" in the second sentence and "waypoint 6" in the last sentence. Remove the comma after "(i.e., FL245)". See below: "Maneuver: ATC Directed Climb from Waypoint 5 to Waypoint 6 . As the aircraft approaches Waypoint 5 , the pilot received a new altitude from ATC deviating from the altitude information being provided by the FMS system. The pilot enters the cleared altitude into the MCP/FCU (i.e., FL245) and disengages the altitude hold functionality. The autopilot remains engaged, and begins the maneuver to achieve the selected altitude received from the MCP/FCU for Waypoint 6 . The transponder will set the parameters as follows:"	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F129	AC20-165B	38	3.11.3.5.3	"form"	Should be "from"	Change to "from"		ANM-111	13	Section 3.11.3 removed, out of scope of this document.
F130	AC 20-165B	39	3.11.3.6.5.2	VNAV remains set to "ZERO"	There should be a period at the end of this sentence.	Insert a period at the end of the sentence: "VNAV remains set to "ZERO" ."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F131	AC 20-165B	39	3.11.3.6.5.3	Altitude Hold remains set to "ZERO"	There should be a period at the end of this sentence.	Insert a period at the end of the sentence: "Altitude Hold remains set to "ZERO" ."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F132	AC 20-165B	40	3.11.3.7.4.3	Altitude Hold remains set to "ZERO"	There should be a period at the end of this sentence.	Insert a period at the end of the sentence: "Altitude Hold remains set to "ZERO" ."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F133	AC 20-165B	40	3.11.3.8.3.3	Altitude Hold remains set to "ZERO"	There should be a period at the end of this sentence.	Insert a period at the end of the sentence: "Altitude Hold remains set to "ZERO" ."	Editorial	AIR-500		Section 3.11.3 removed, out of scope of this document.
F134	AC 20-165B	42	4.1.5	The ADS-B(Out) system must be compatible with the overall flight deck design characteristics, as well as the airplane environment such as vibrations	The guidance does not just apply to airplanes, hence the 14CFR 1.1 definition of aircraft, which encompasses airplanes, rotorcraft etc... is appropriate	Replace "airplane" with "aircraft"	Editorial	Joslin	3	Concur - Text changed

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F135	AC 20-165B	42	4.1.5.1	Ensure information elements are distinct and permit the pilots to determine the source of the information elements if necessary, when there are multiple sources of the same kind of information.	"If necessary" should be enclosed by commas.	Please insert a comma after "elements" before "if", as below: Ensure information elements are distinct and permit the pilots to determine the source of the information elements , if necessary, when there are multiple sources of the same kind of information.	Editorial	AIR-500		Concur - Text changed
F136	AC 20-165B	43	4.1.5.4	"...does not introduce additional workload particularly when communicating an aircraft emergency."	Incomplete information that appears to have been derived from AC 20-175 Flight Deck Controls, §2-11(a), which states the following: Show that the controls are acceptable for data entry speed, accuracy, error rates, and workload.	Reword by adding an additional phrase as follows: "...does not introduce additional workload and that the controls are acceptable for data entry speed, accuracy, and error rates particularly when communicating an aircraft emergency."	Conceptual	Joslin	4	Concur - Text changed
F137	AC 20-165B	45	4.2	Flight Test. If you have flight test data from a previous STC or TC which established this compatibility, you do not need to re-accomplish the flight test.	This statement is very vague and does not provide clear guidance as to what is meant by having flight test data and established compatibility. Section 4.5 clearly states how flight test data from previous STC or TC can be reused.	Remove this section.	Conceptual	ACE-119W		Relocated this information to section 4.5 .
F138	AC 20-165B	45	4.2	Initial statement that is attached to this section. "If you have flight test data from a previous STC or TC which established this compatibility, you do not need to re-accomplish the flight test."	This statement seems out of place within the context of this section. (Jeff Borton - 316-946-4166)	Move this statement to either Section 4.5 (Subsequent Flight Test Data Reuse) or if needed to remain in this section, create new subparagraph under 4.2.	Conceptual	ACE-119W		Relocated this information to section 4.5 .
F139	AC 20-165B	45	4.2	Flight Test. If you have flight test data from a previous STC or TC which established this compatibility, you do not need to re-accomplish the flight test.	This paragraph needs more detail, and that detail appears in paragraph 4.5.	Add, "see 4.5 for details on..."	Editorial	ANE-150	4	Relocated this information to section 4.5 .
F140	AC20-165B	45	4.2	"Flight Test. If you have flight test data from a previous STC or TC which established this compatibility, you do not need to re-accomplish the flight test."	"this compatibility" is not explained until later in this section. Also, only STC and TC are used throughout the document, is the assumption that ATCs are covered under TC?	Suggest: "If you have flight test data from a previous STC or TC which establishes the ADS-B equipment and position source compatibility..." Or may want to reference section 4.5 for data reuse?		ANM-111	14	Relocated this information to section 4.5 .
F141		45	4.2	all	this paragraph can be interpreted such that flight test data from previous STC or TC may be reused and approved without further showing. Does paragraph 4.2 negate requirements in paragraph 4.5, order 8110.4C paragraph 2.6k(3), and order 8300.16 paragraph 4.2.e?	data should be shown to be appropriate for re-use by similarity analysis. Paragraph 4.2 should reference paragraph 4.5	consistency	ASW-112		Relocated this information to section 4.5 .
F142	AC 20-165B	45	4.2.1	During all phases of flight, determine if there is any mutual interference with any other aircraft system. Have all installed systems operating during the flight test	It appears that the current phrase was adapted directly from AC 20-151B Airworthiness Approval of Traffic Alert and Collision Avoidance Systems (TCAS II), Versions 7.0 & 7.1 and Associated Mode S Transponders §3.4(a) However the issue may be more appropriately defined using the AC 20-151B §3.3(c) definition for Electromagnetic Interference by replacing TCAS II with ADS-B(Out) , as follows :Electromagnetic interference (EMI). Survey the flight deck EMI to determine that the TCAS II-ADS-B(Out) equipment is not a source of objectionable conducted or radiated interference to previously installed systems or equipment, and that operation of the TCAS II-ADS-B(Out) equipment is not adversely affected by conducted or radiated interference from previously installed systems and equipment.	Rename Mutual Interference as Electromagnetic Interference with the following definition directly adapted from AC 20-151B §3.3(c): During all phases of flight survey the flight deck EMI to determine that the ADS-B(Out) equipment is not a source of objectionable conducted or radiated interference to previously installed systems or equipment, and that operation of the ADS-B(Out) equipment is not adversely affected by conducted or radiated interference from previously installed systems and equipment.	Conceptual	Joslin	5	Concur - Text changed
F143	AC 20-165B				I would like to formally request that the Advisory Circular for flight checks (flight data requests), show your email address (9-avs-air-130fltest@FAA.gov) instead of ours, (amcawbsm@faa.gov) in BOTH locations, not just one. This is needed for a variety of reasons; clarity to the end user and not showing the FAA as inconsistent and unclear and imprecise for starters. But beyond that, a customer could hit our email and not get forwarded to you in a timely manner. We can not auto forward all emails to our address as we receive other valid types of service requests to that email address also. And, manually forwarding emails could come at great delays if the right people are on vacation here, sick, traveling, etc. As it currently stands, it could easily be beyond the 48 hour period if an email were to arrive simply on the day of an RDO and someone simply doesn't check their email the day they return. Furthermore any time spent in our email inbox is time you don't have the request in yours, thus potentially delaying the service to the customer. It goes without saying that the FAA always wants to put its best foot forward, and having unnecessary delays in a process is not the best we can do. Furthermore, the SBS Monitor does not want the liability of the possibility of any unhappy customers due to any potential service related issues where they could potentially think we were involved in any unsatisfactory performance in the service they may have received from the FAA. But, all of this is easily fixable by correcting one simple address in the circular. And, you need to get that done as soon as possible please. In plain English, it is simply time to update the circular to be correct. It needs corrected regardless of these reasons as it currently lists the wrong email address (ours) in at least the one location where it should list Air-130. That should be reason enough in itself. Its incorrect. Enough said. Thus it needs fixed. And, the sooner this gets resolved the better. I will of course continue forwarding the requests we do receive, but regardless the issue needs rectified as soon as possible.			Matt Wade		Agree. Text changed
F144	AC 20-165B		4.3.1.1.1	This section define what a "Previously Approved System" is				AIR-132 John Fisher		Text added to better define a Previously Certified System.
F145	AC 20-165B	46-47	4.3.1.1.2	When contacting the FAA for flight test data, it is recommended you CC any certifying officials you may be working with within the ACO, MCO, FSDO, or FIDO offices.	To avoid any confusion on the part of the reader, "CC" should be spelled out as "carbon copy". Also, this sentence would be clearer if "within the ACO, MCO, FSDO, or FIDO offices" was moved to follow "certifying officials" and "with" was replaced with "with whom".	Please consider spelling out "CC" as "carbon copy", moving "within the ACO, MCO, FSDO, or FIDO offices" to follow "certifying officials", and replacing "with" with "with whom". See below: "When contacting the FAA for flight test data, it is recommended you carbon copy CC any certifying officials within the ACO, MCO, FSDO, or FIDO offices with whom you may be working with ."	Editorial	AIR-500		Concur - Text changed
F146	AC 20-165B	47	4.3.2.1	http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/	This URL does not work.	Please update URL so that it goes to intended webpage.	Editorial	AIR-500		Concur - Text changed
F147	AC 20-165B	47	4.3.2.1	See the following web site for information on existing ADS-B coverage in the National Air Space (NAS): http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/	The URL links to a dead page. Says, "page not found"	Eliminate the bad link. Since URLs change frequently, maybe there is a better way to communicate coverage areas.	Editorial	ANE-150	5	Concur - Text changed
F148	AC 20-165B	47	4.3.2.1	http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/	This link is no longer valid	Replace the link in the referenced text with the following link: http://www.faa.gov/nextgen/equipadsb/airspace/media/2020ADS-BairspaceMap.kmz This Google Maps file contains ADS-B coverage information.	Format	Arbuckle	1	Link fixed

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
F149	AC20-165B	47	4.3.2.1	Location of flight.	Has a website address. When this address is selected, you get a "Page Not Found". Hopefully this will be fixed by the time the AC is published.	Ensure the website is current and accurate prior to publishing the AC.	Editorial	ANM-100S	6	Concur - Text changed
F150	AC20-165B	Page 47	4.3.2.1	http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/	Link: Page Not Found	Add Page	Editorial	ANM-106B	1	Concur - Text changed
F151			4.3.2.1		Location of flight. The flight may be accomplished in any airspace that has FAA ADS-B ground station coverage. See the following web site for information on existing ADS-B coverage in the National Air Space (NAS): http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/ (dead link)			Jim Marks	2	Broken link fixed. Text added better describing where ADS-B coverage has been deployed in the US
F152	AC 20-165B		4.3.2.1		Location of flight. The flight may be accomplished in any airspace that has FAA ADS-B ground station coverage. See the following web site for information on existing ADS-B coverage in the National Air Space (NAS): http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/surveillance_broadcast/coverage/ (dead link)					Broken link fixed. Text added better describing where ADS-B coverage has been deployed in the US
F153	AC 20-165B	49 and UNIVERSAL	4.3.2.5	Table 8	The spaces before and after the minus signs and the plus signs should be consistent.	Please ensure that the spacing between minus signs and plus signs is consistent in this table and all other tables throughout the document.	Editorial	AIR-500		Concur - Text changed
F154	AC 20-165B	48	Table 7 (just after 4.3.2.5)	Part 23 Aircraft - Cruise - Vy	I don't think this is Vy	Change Vy to Vh or 1.5 Vs to 1.8Vs	Editorial	ACE-114	6	Concur - Text changed
F155	AC 20-165B	49	4.3.3	The post flight data analysis should also reveal if there were any unexpected data dropouts that might be caused from intermittent wiring interfaces or interface incompatibility.	"By" would be more appropriate preposition than "from" after "caused".	Please consider changing "from" after "caused" to "by", as below: "The post flight data analysis should also reveal if there were any unexpected data dropouts that might be caused from by intermittent wiring interfaces or interface incompatibility."	Editorial	AIR-500		Concur - Text changed
F156	AC 20-165B	49	4.3.3	Post-flight data analysis	Somewhere in this section there should probably be a note that would state some of the parameters that would not be available on ground.	Add note to state which parameters might not be available on ground.	Editorial	ACE-119W		Appendix A lists the message elements. Message elements that are transmitted on the ground are noted.
F157	AC 20-165B	51	4.5	Data Reuse	There is no mention of data re-use for ground test. For applicants wanting to equip/upgrade their fleet of different aircraft models to an identical architecture (identical transponder/GNSS parts and wiring) that has already received FAA approval through TC or STC, provided the applicant own or possess this data should be allowed to re-use ground test data also to some extent. A new ground test would not provide any new insight in these identical type installations, rather a functional check after installation might be adequate.	Add section to clarify cases where acceptable use of ground test data can be used.	Conceptual	ACE-119W		We believe a ground test should be accomplished on each new model that gets STC/TC. Wiring and antenna placement may be different and affect the equipment operation.
F158	AC20-165B	51	4.5	Previous STC approvals.	Is there any reason this section refers mainly to equipment/interfaces previously approved by STC vs. TC/ATC as well?	Update to allow flight test data reuse from previous TCs, STCs, ATCs.		ANM-111	15	Agree. Approved Type Cert and TC added throughout section 4.5
F159	AC 20-165B	A1	A.1	"This Appendix provides a description of the message elements that may be contained in an ADS-B message."		"This Appendix provides a description of the message elements that may be contained in an ADS-B OUT message."	editorial	John Raspanti Chicago ACO		Concur - Text changed
F160	AC20-165B	28 & A2	A.2.9.2	"RTCA/DO-338, Minimum Aviation Performance Standards for ADS-B Traffic Surveillance Systems and Applications"	Missing "System"	Change to: "RTCA/DO-338, Minimum Aviation System Performance Standards for ADS-B Traffic Surveillance Systems and Applications"		ANM-111	15	Concur - Text changed
F161	AC20-165B	A2	A.2.9.1 & A.2.9.2	"See also section 3.8.4.1"	The POA information is in sections 3.8.4.1 - 3.8.4.3.	Suggest: "See also sections 3.8.4.1 - 3.8.4.3..."		ANM-111	16	Concur - Text changed
F162	AC 20-165B	A2	A.2.9.1	See also section 3.8.4.1 of the AC and Figure 3.	This sentence would flow better if the word "also" was removed. Also, to avoid confusion "of this AC" should be added to the end of the sentence.	Consider striking "also" after "See". Consider adding "in this AC" to the end of the sentence. Also, as is the case throughout the document "figure" should not be capitalized. See below: "See also section 3.8.4.1 of the AC and figure 3 of this AC ."	Editorial	AIR-500		Concur - Text changed
F163	AC 20-165B	A2	A.2.9.2	See also section 3.8.4.1 and Figure 3 of this AC.	This sentence would flow better if the word "also" was removed.	Consider striking "also" after "See". Also, as is the case throughout the document "figure" should not be capitalized. See below: as below: "See also section 3.8.4.1 and figure 3 of this AC ."	Editorial	AIR-500		Concur - Text changed
F164	AC 20-165B	A3	A.2.14	The ICAO 24-bit address is required to be transmitted by 14 CFR 91.227 except when using the TSO-C154c anonymity feature.	For clarity, add a comma after "91.227". Also, since it is after first usage, "14 CFR" should be replaced with the section symbol.	Consider adding a comma after "91.227" and, as throughout the document, "14 CFR" should be deleted after first usage and replaced with the section symbol. See below: "The ICAO 24-bit address is required to be transmitted by 14 CFR § 91.227, except when using the TSO-C154c anonymity feature."	Editorial	AIR-500		Concur - Text changed
F165	AC 20-165B	A3	A.2.15	This parameter existed in TSO-C166a and TSO-C154b compliant equipment, however it was removed from TSO-C166b and TSO-C154c equipment.	The comma after "compliant equipment" should be replaced with a semicolon and there should be a comma after "however".	Please replace the comma after "compliant equipment" with a semicolon and add a comma after "however", as below: "This parameter existed in TSO-C166a and TSO-C154b compliant equipment ; however , it was removed from TSO-C166b and TSO-C154c equipment."	Editorial	AIR-500		Concur - Text changed
F166	AC 20-165B	A6 and A7	A.2.27 and A.2.29	Table 12 (A-3) and Table 14 (A-5)	The cell lines are very close to the text in table 12 and table 14. There should be space above and below the table text.	Consider expanding cell size to add more space above and below text.	Editorial	AIR-500		spacing corrected for all tables
F167	AC 20-165B	A6	A.2.28	Table 13, Row 1: Probability of exceeding NIC containment radius is based on per hour Row 2: Probability of exceeding NIC containment radius is based on per sample and 2	There should be periods at the end of both of these sentences.	Add a period at the end of both sentences in table 13, as below: Row 1: "Probability of exceeding NIC containment radius is based on per hour ." 1 Row 2: "Probability of exceeding NIC containment radius is based on per sample ."	Editorial	AIR-500		Concur - Text changed
F168	AC 20-165B	A6 and UNIVERSAL	A.2.29	The definitions and probabilities associated with the supported failure effect are defined in AC 25.1309-1, System Design and Analysis, AC 23.1309-1(), System Safety Analysis and Assessment for Part 23 Airplanes, and AC 29-2, Certification of Transport Category Rotorcraft (Changes 1-3 incorporated).	The AC titles in this sentence should be in italics. All AC titles throughout the document should be in italics.	Change AC titles to italics, as below: "...t are defined in AC 25.1309-1, System Design and Analysis , AC 23.1309-1(), System Safety Analysis and Assessment for Part 23 Airplanes , and AC 29-2, Certification of Transport Category Rotorcraft (Changes 1-3 incorporated) ."	Editorial	AIR-500		AC titles corrected
F169	AC20-165B	A7	A.2.29	Note 1: "RTCA/DO-178B"	Should include latest revision.	Suggest "DO-178C" since "or equivalent" is allowed.		ANM-111	17	Concur - Text changed

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
F170	AC 20-165B	A5		"NIC _{BARO} -NIC _{BARO} indicates if pressure altitude is provided by a single Gillham encoder or another more robust altitude source."	What the possible values or range of values? What is the target value?		conceptual	John Raspanti Chicago ACO		No change to text. NICbaro is a one bit subfield. 0=no cross check. 1=cross checked Gillham or any other altitude source
F171	AC20-165B	B3	B.3.8	A test for GNSS position sources is contained in the latest revision of AC 20-138D, Appendix 4.	Should be either "latest revision of AC 20-138, Appendix 4" or "AC 20-138(), Appendix 4".	Change to either "latest revision of AC 20-138, Appendix 4" or "AC 20-138(), Appendix 4".		ANM-111	18	Concur - Text changed
F172	AC20-165B	B3	B.3.9	"RTCA/DO-178B"	Should reference latest revision.	Suggest "DO-178()		ANM-111	19	Concur - Text changed
F173	AC20-165B	B3	B.3.12	"Note 1: System latency requirements are described in section 3.1.1..."	Position latency is described in section 3.1.3.	Suggest: "Note 1: System latency requirements are described in section 3.1.3..."		ANM-111	20	Concur - Text changed
F174	AC 20-165B	B4	B.4.1.1	The requirements outlined for 2D accuracy in section (a)(3)(xvi) of TSO-C129 does not ensure full compliance for the GNSS unit.	The verb "does" should be "do" because it refers to "requirements".	"The requirements outlined for 2D accuracy in section (a)(3)(xvi) of TSO-C129 does do not ensure full compliance for the GNSS unit."	Editorial	AIR-500		Concur - Text changed
F175	AC 20-165B	B4	B.4.1.2	The requirements outlined for 2D accuracy in section (a)(3)(xvi) of TSO-C129a does not ensure full compliance for the GNSS unit.	The verb "does" should be "do" because it refers to "requirements".	"The requirements outlined for 2D accuracy in section (a)(3)(xvi) of TSO-C129a does do not ensure full compliance for the GNSS unit."	Editorial	AIR-500		Concur - Text changed
F176	AC 20-165B	B4	B.4.1.4	Means of compliance for this TSO are defined in DO-229C sections 2.1.4.8 & 2.1.5.8.	This sentence would be easier to read if the ampersand after "2.1.4.8" was changed to "and".	Consider replacing the ampersand after "2.1.4.8" with "and", as below: "Means of compliance for this TSO are defined in DO-229C sections 2.1.4.8 &and 2.1.5.8."	Editorial	AIR-500		Concur - Text changed
F177	AC 20-165B	B5	B.4.1.6	Means of compliance for this TSO are defined in DO-229D sections 2.1.4.8 & 2.1.5.8.	This sentence would be easier to read if the ampersand after "2.1.4.8" was changed to "and".	Consider replacing the ampersand after "2.1.4.8" with "and", as below: "Means of compliance for this TSO are defined in DO-229D sections 2.1.4.8 &and 2.1.5.8."	Editorial	AIR-500		Concur - Text changed
F178	AC 20-165B	B6 and UNIVERSAL	B.4.3.1	The numbers in columns 2 and 3 in table 15	For ease of reading, the decimal points in this table and all tables throughout the document should be aligned vertically.	Vertically align all decimals in this and all tables throughout the document. See example below: 0.72 0.999 0.4444	Editorial	AIR-500		Concur - Text changed
F179	AC 20-165B		B.4.3.2		The FAA plans to integrate the availability of backup surveillance systems with ADS-B, including SSR and Wide Area Multilateration, to mitigate the impact of loss of GNSS performance due to current limitations of operator GNSS receivers and the health of the constellation. Backup surveillance will not be available in all airspace and operators should select an ADS-B positioning source that provides the necessary availability for their route of flight. The FAA plans to implement a preflight GPS service availability determination system to assist operators in determining ADS-B surveillance availability prior to flight. This tool will consider the operator's GNSS equipages and the GPS constellation that is predicted to be available at the planned flight time. The tool will also consider the status of existing backup surveillance capability along with the required positioning performance for the separation standard ATC is authorized to apply along the operator's defined route of flight.					Text changed to add GPS service and delete the "s" in equipages
F180			B.4.3.2		The FAA plans to integrate the availability of backup surveillance systems with ADS-B, including SSR and Wide Area Multilateration, to mitigate the impact of loss of GNSS performance due to current limitations of operator GNSS receivers and the health of the constellation. Backup surveillance will not be available in all airspace and operators should select an ADS-B positioning source that provides the necessary availability for their route of flight. The FAA plans to implement a preflight GPS service availability determination system to assist operators in determining ADS-B surveillance availability prior to flight. This tool will consider the operator's GNSS equipages and the GPS constellation that is predicted to be available at the planned flight time. The tool will also consider the status of existing backup surveillance capability along with the required positioning performance for the separation standard ATC is authorized to apply along the operator's defined route of flight.			Jim Marks	3	Concur - Text changed
F181	AC 20-165B	B8	B.4.4.7	Means of compliance for this TSO are defined in DO-316 section 2.1.2.6, 2.1.2.2.2, and 2.1.3.2.	"Section" should be plural.	Change "section" from singular to plural, as below: "Means of compliance for this TSO are defined in DO-316 sections 2.1.2.6, 2.1.2.2.2, and 2.1.3.2."	Editorial	AIR-500		Concur - Text changed
F182	AC 20-165B	B9	B.4.6.1 and B.4.6.2	To properly comply with the overall 12 second integrity fault output for ADS-B, additional means of compliance for TSO-C129 requires GNSS manufacturers to provide information in the installation instructions describing the equipment integrity fault latency output with interface instructions and/or limitations for meeting the 12 second allocation set by 14 CFR 91.227. To properly comply with the overall 12 second integrity fault output for ADS-B, additional means of compliance for TSO-C129a requires GNSS manufacturers to provide information in the installation instructions describing the equipment integrity fault latency output with interface instructions and/or limitations for meeting the 12 second allocation set by this Advisory Circular.	I'm not sure if there's anything wrong with these sentences; however, it is not clear whether, in either sentence, "means of compliance" is singular or plural so I thought I would make note of it. If, in either case, "means of compliance" is singular, then the sentence is fine and can be left as is. If, in either case, it is plural, then "requires" should be replaced with "require".	If "means of compliance" is plural, then change "requires" to "require". If "means of compliance" is singular, then leave as is.		AIR-500		Sentence correct as is, a bit long, but correct.
F183	AC 20-165B	B12	B.4.8	TSO-C129, TSO-C145a, and TSO-C146a does not contain a horizontal position accuracy output requirement, however all equipment must provide a HFOM output in order to be considered an ADS-B compliant position source.	"Does" should be changed to "do" because it refers to TSO-C129, TSO-C145a, and TSO-C146a. The comma after "requirement" should be replaced with a semicolon and there should be a comma after "however".	Please change "does" to "do"; change the comma after "requirement" to a semicolon; and add a comma after "however", as below: "TSO-C129, TSO-C145a, and TSO-C146a does do not contain a horizontal position accuracy output requirement ; however , all equipment..."	Editorial	AIR-500		Concur - Text changed
F184	AC 20-165B	B12 and UNIVERSAL	B.4.8.1	AC 20-138() Appendix 4, section A4-11	The case of subsections of AC 20-138() (and other similar titles throughout the document) should be consistent.	Change "Appendix" to lowercase, as below: "AC 20-138() appendix 4, section A4-11" Make changes to similar reference titles throughout the document.	Editorial	AIR-500		Concur - Text changed

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
F185	AC20-165B	B4-B25	B.4.1.5, B.4.1.6, B.4.2.5, B.4.2.6, B.4.4.5, B.4.4.6, B.4.5.5, B.4.5.6, B.4.6.5, B.4.6.6, B.4.7.2.4, B.4.8, B.4.8.5, B.4.8.6, B.4.9.5, B.4.9.6, B.4.10.5, B.4.10.6, B.4.11.5, B.4.11.6, B.4.12.5, B.4.12.6, B.4.13.5, B.4.13.6,	B.4.14.8, B.4.14.9, B.4.15.5, B.4.15.6, B.4.16.5, B.4.16.6, B.4.17.5, B.4.17.6, B.4.18.5, B.4.18.6, B.4.19.5, B.4.19.6, B.4.20.5, and B.4.20.6, "TSO-C145/146 Rev. B/C"	Appendix B should be updated to include TSO-C145/146 Rev. D	"TSO-C145/146 Rev. B/C/D"		ANM-111	5	Concur - Text changed
F186	AC 20-165B	B15	B.4.11.5, B.4.11.6, and B.4.11.7	Satisfying this ADS-B requirement means the GNSS manufacturer must also comply with section 4.n of this Appendix (Horizontal Velocity Accuracy) and the associated velocity accuracy tests.	This sentence and the similar examples in B.4.11.6 and B.4.11.7 are confusing. They reference section 4.n of this appendix, which is listed as (Horizontal Velocity Accuracy); however, the section with that title is paragraph "B.5.2. Horizontal velocity accuracy" and the only information in this section is as follows: "The ADS-B system must address the horizontal velocity accuracy." Is this correct? Also, the repetition of the section title is unnecessary.	Please ensure that the references in these examples are correct. Also, please delete the occurrences of "(Horizontal Velocity Accuracy) in sections B.4.11.6 and B.4.11.7.	Editorial	AIR-500		text changed to reference AC 20-138()
F187	AC 20-165B	B17	B.4.13.1	The equipment must meet a 500 millisecond time of measurement to time of applicability requirement and account for the impulse response of the position solution.	Because it is being used as a modifier, "500 millisecond" should be hyphenated. Since the acronym "TOM" has been defined earlier in the document, it should be used here instead of "time of measurement".	Insert a hyphen between "500" and "millisecond" and replace "time of measurement" with "TOM", as below: "The equipment must meet a 500-millisecond time-of-measurement TOM-to-time-of-applicability requirement and account for the impulse response of the position solution."	Editorial	AIR-500		Concur - Text changed
F188	AC 20-165B	B18	B.4.13.2	The equipment must meet a 500 millisecond time of measurement to time of applicability requirement and account for the impulse response of the position solution.	Because it is being used as a modifier, "500 millisecond" should be hyphenated.	Insert a hyphen between "500" and "millisecond", as below: "The equipment must meet a 500-millisecond TOM-to-time-of-applicability requirement and account for the impulse response of the position solution."	Editorial	AIR-500		Concur - Text changed
F189	AC20-165B	B18	B.4.14.4 & B.4.14.5	"See AC 20-138D Appendix 4, section A4-2.d(3) for additional guidance relative to using the noise environment in DO-235B for the velocity tests."	Should reference latest revisions.	Suggest: See AC 20-138(), Appendix 4, section A4-2.d(3) for additional guidance relative to using the noise environment in DO-235() for the velocity tests.		ANM-111	21	Concur - Text changed
F190	AC 20-165B	B21 and UNIVERSAL	B.4.17	(Reference RTCA DO-229D Appendix J)	"Reference" and "appendix" should not be capitalized.	Please change "reference" and "appendix" to lowercase, as below: (reference RTCA DO-229D appendix J) Please correct any similar occurrences throughout the document.	Editorial	AIR-500		Concur - Text changed
F191	AC 20-165B	B24 and B25	B.4.20.3, B.4.20.4, B.4.20.5, B.4.20.6, and B.4.207	Note: The SBAS Signal in Space (SIS) includes health monitoring/fault information which is why these general signal processing requirements are included.	There should be a comma after "information".	Insert a comma after "information", as below: "Note: The SBAS Signal in Space (SIS) includes health monitoring/fault information, which is why these general signal processing requirements are included." This sentence is repeated in the notes in sections B.4.20.4, B.4.20.5, B.4.20.6, and B.4.207. Please make the same corrections to those sections as well.	Editorial	AIR-500		Concur - Text changed
F192	AC20-165B	B25	B.4.20.5 & B.4.20.6	"Means of compliance for this TSO is defined in DO-229C..."	After updating to include Rev. D of the TSO, should be updated to reference latest revision of the MOPS	Suggest: "Means of compliance for this TSO is defined in DO-229D..."		ANM-111	22	Concur - Text changed
F193	AC 20-165B	B26	B.5.6	The first part of this section states, "GNSS integrity performance in the flight manual. If a tightly coupled GNSS/IRS position source is intended to be used as an ADS-B position source after the loss of GNSS, include integrity coasting performance in the flight manual."	It is unclear in this section what information is really required in the flight manual and why it is relevant to the crew? For instance, can the aircrew control the coasting performance of the GNSS/IRS through any specific actions? If the ADS-B system meets the requirements for 14 CFR 91.227, isn't the associated statement adequate? (Jeff Borton - 316-946-4166)	If this information is deemed appropriate to the flight manual, recommend more details regarding what specifically should be included. Also reference Section 2.2 of this AC (or better yet include this information there) since that is where the other AFM requirements are discussed.	Conceptual	ACE-119W		Pilot needs to know this is because they may need to do a performance prediction. The FAA SAPT does not provide performance predictions for hybrid inertial systems
F194	AC 20-165B	B26	B.5.6.2	This estimate will be helpful to operators in developing a means to assure that the system can meet 14 CFR 91.227 requirements during predicted GNSS degradations.		"This estimate will be helpful to operators in developing a means to assure that the system can meet 14 CFR 91.227 requirements during predicted GNSS degradations."		AIR-500		"that" added to sentence
F195	AC20-165B	B27	B.6.1.5	"Reference AC 90-100A for additional information on reasonableness checks."	May want to use () to allow for later revisions to the AC.	Suggest: "Reference AC 90-100() for additional information on reasonableness checks."		ANM-111	23	Concur - Text changed
F196	AC 20-165B	C1	C.1	The purpose of this Appendix is to provide guidelines on accomplishing a latency analysis on your ADS-B system	I think the preposition "for" would work better than "on" after "guidelines" in this sentence. There should be a period at the end. "Appendix" should be lowercase.	Please consider replacing "on" with "for" after "guidelines". Change "Appendix" to lowercase. Add a period at the end of the sentence. See below: "The purpose of this appendix is to provide guidelines on for accomplishing a latency analysis on your ADS-B system."	Editorial	AIR-500		Concur - Text changed
F197	AC 20-165B	C1	C.2	You must include all sources of position latency, including, but not limited to the position source, intermediary devices between the position source and ADS-B equipment, and the ADS-B equipment.	Adding a comma after "to" would add some clarity to this sentence.	Please consider adding a comma after "to", as below: "You must include all sources of position latency, including, but not limited to, the position source, intermediary devices between the position source and ADS-B equipment, and the ADS-B equipment."	Editorial	AIR-500		text changed. Colon added rather than comma

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F198	AC 20-165B	C1	C.2	Use the following guidelines to determine latency for each component	This sentence should end with a colon.	Please add a colon to the end of this sentence, as below: "Use the following guidelines to determine latency for each component."	Editorial	AIR-500		text changed. Colon added
F199	AC 20-165B	C1	C.2.1	The latency measurement should begin at the Time-Of-Measurement (TOM) and end when the position is output from the position source.	Since the acronym "TOM" was defined earlier in the AC, "Time of Measurement" is unnecessary and should be deleted. Also, the parentheses around "TOM" are unnecessary and should be deleted.	Please delete "Time of Measurement" and parentheses around "TOM", as below: "The latency measurement should begin at the Time-Of-Measurement (TOM) and end when the position is output from the position source."	Editorial	AIR-500		Concur - Text changed
F200	AC 20-165B	C1	C.2.1.1	If the Class 3 standard is implemented across all modes, the tighter latency numbers may be used, however if the tighter latency standards are only met when in approach mode, use the worst-case latency across all modes.	The comma after "latency numbers may be used" should be replaced with a semicolon and a comma should be added after "however".	Please replace the comma after "latency numbers may be used" with a semicolon and add a comma after "however", as below: "...the tighter latency numbers may be used; however, if the tighter latency standards ..."	Editorial	AIR-500		Concur - Text changed
F201	AC 20-165B	C1	C.2.1.3	Base the latency analysis on the update rate of the inertial sensor, as 10 or 20 second GNSS updates to the inertial sensor are not impacting the latency of the position output.	There should be a hyphen after "10" and a hyphen between "20" and "second".	Please insert a hyphen after "10" and between "20" and "second", as below: "Base the latency analysis on the update rate of the inertial sensor, as 10- or 20-second GNSS updates to the...."	Editorial	AIR-500		Concur - Text changed
F202	AC 20-165B	C1	C.2.4	Thus, a 1 hertz position source can introduce 1 second of total latency.	"Hertz" should be abbreviated as "Hz" and there should be a hyphen between "1" and "Hz".	Please replace "hertz" with "Hz" and insert a hyphen between "1" and "Hz", as below: "Thus, a 1-Hz position source can introduce 1 second of total latency."	Editorial	AIR-500		Concur - Text changed
F203	AC 20-165B	C3	C.4.1.4	(Use of the GNSS time mark is required by TSO-C154c).	The period should be after "TSO-C154c" inside the parenthesis.	Please move the period to follow "TSO-C154c" (inside the parenthesis), as below: "(Use of the GNSS time mark is required by TSO-C154c.)"	Editorial	AIR-500		Concur - Text changed
F204	AC 20-165B	C4	C.4.5	This type of system is acceptable as long as the transmitted position is no further ahead than 200ms. (Reference RTCA/DO-260B, Appendix U).	The period after 200ms should be deleted. "Reference" and "appendix" should be lowercase.	Please delete the period after "200ms" and change "reference" and "appendix" to lowercase, as below: "This type of system is acceptable as long as the transmitted position is no further ahead than 200ms (reference RTCA/DO-260B, appendix U)."	Editorial	AIR-500		Concur - Text changed
F205	AC 20-165B	C4	C.4.6	If the position data is lost, several position updates could exceed the latency requirement, but the position would then be invalidated within 2 seconds per TSO-C166b.	If I am understanding this sentence correctly, there should be a comma after "2 seconds".	Consider adding a comma after "2 seconds", as below: "If the position data is lost, several position updates could exceed the latency requirement, but the position would then be invalidated within 2 seconds, per TSO-C166b."	Editorial	AIR-500		Concur - Text changed
F206	AC 20-165B	C5	C.5	Table 17, sec (table C-1)	Is "sec" a standard FAA abbreviation for seconds? If it is, leave as is. If it is not, it should be spelled out.	If "sec" is a standard FAA abbreviation for seconds, leave as is. If it is not, consider spelling out in table 17.	Editorial	AIR-500		Second spelled out
F207	AC 20-165B	D2	D.1.1.11	http://www.pnt.gov/public/docs/2008/spsps2008.pdf	I was not able to access the pdf when I clicked on this URL.	Please check URL to ensure that it links to intended file.	Editorial	AIR-500		Concur - Text changed
F208	AC 20-165B	D2	D.1.1.14	The radius of a circle in the horizontal plane with its center being at the true position, that describes the region assured to contain the indicated horizontal position with at least 95% probability under fault-free conditions at the time of applicability.	Since "that describes the region assured to contain the indicated horizontal position with at least 95% probability under fault-free conditions at the time of applicability" refers to "true position" then the comma after "true position" should be deleted.	Please delete the comma after "true position", as below: "The radius of a circle in the horizontal plane with its center being at the true position that describes the region assured to contain the indicated horizontal position with at least 95% probability under fault-free conditions at the time of applicability."	Editorial	AIR-500		Concur - Text changed
F209	AC 20-165B	D3 and UNIVERSAL	D.1.1.18	Table 19 (table D-1)	The table/cell borders of this table don't look consistent. The borders of the cells containing "Value", 0, 1, and 2 are thicker than the rest of the table. Also, when viewed in PDF format, the borders for the cells containing "< 10 m/s", "< 3 m/s", and "< 1 m/s" are not showing up.	Please ensure that table/cell borders are consistent in table 19 and all other tables throughout the document.	Editorial	AIR-500		All table spacing and borders checked and made the same
F210	AC20-165B	D3	D.1.1.19	"A NACp of 7 or greater is required per 14 CFR 91.227"	"NACp" should be "NIC"	Change "NACp" to "NIC"		ANM-111	2	Concur - Text changed
F211	AC 20-165B	E1	E.1.1	Title 14 of the Code of Federal Regulations (14CFR) can be obtained at www.access.gpo.gov. Select "Access," then "Online bookstore." Then select "Aviation," then "Code of Federal Regulations."	The instructions for finding the Code of Federal Regulations are out of date.	Please update the directions to find the Code of Federal Regulations. The URL for the GPO bookstore is below: https://bookstore.gpo.gov/	Editorial	AIR-500		Concur - Text changed
F212	AC 20-165B	E1	E.1.3	You will also find the TSO Index of Articles at the same site	The period is missing from the end of this sentence.	Please insert a period at the end of this sentence. See below: "You will also find the TSO Index of Articles at the same site."	Editorial	AIR-500		Concur - Text changed
F213	AC 20-165B	E2	E.2	RTCA, Inc. Documents (RTCA DO) documents.	The word "documents" is duplicated. If this was intended, then it can be left as is. If not, then the duplicate should be deleted.	If second occurrence of "documents" is intended, then leave as is. If it was not intended, then please delete the duplicate.	Editorial	AIR-500		Concur - Text changed
F214	AC 20-165B	E3	E.3	ARINC documents can be obtained from ARINC Industry Activities, 16701 Melford Blvd, Suite 120, Bowie, MD 20715, or by calling 240-334-2578, or from the ARINC Standards Store at: http://www.aviation-ia.com/cf/store/	Adding "the following address" after "ARINC Standards Store at" would improve the flow of this sentence.	Consider adding "the following address" after "ARINC Standards Store at", as below: "... or from the ARINC Standards Store at the following address: http://www.aviation-ia.com/cf/store/ "	Editorial	AIR-500		Concur - Text changed

Field Comments

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Commenter	Commenter #	Disposition/Response to Comment
F215	AC 20-165B	113	Advisory Circular Feedback, first paragraph	If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) emailing this form to john.d.fisher@faa.gov or alex.j.Rodriguez@faa.gov .	Since there is only one statement in this sentence and not a list, "(1)" should be deleted. To maintain consistence, the "R" in "Rodriguez" should be lowercase. There is an extra space between "alex.j.Rodriguez@faa.gov" and the period at the end of the sentence.	Please delete "(1)" after "let us know" and the extra space between "alex.j.Rodriguez@faa.gov" and the period at the end of the sentence. Change the "R" in "Rodriguez" lowercase. See below: "...you may let us know by (1) emailing this form to john.d.fisher@faa.gov or alex.j.rodriquez@faa.gov."	Editorial	AIR-500		Concur - Text changed
F216	AC 20-165B	114	Advisory Circular Feedback, first list item	An error (procedural or typographical) has been noted in paragraph Click here to enter text. on page Click here to enter text..	There is a extra period at the end of this sentence.	Please delete the extra period at the end of the sentence.	Editorial	AIR-500		Concur - Text changed