

DOCUMENT REVIEW LOG

1. Document No.: AC 20-150A: Airworthiness Approval For Satellite Voice Equipment		2. Project Lead: David Robinson, AIR-130		3. Reviewing Office: AIR-500 (1-33) ANM-111 (34-36) ANE-150 (37) CSTA Comm `(38-45) AFS-1 (46) ASW-100 (47) ACE-114 (48-78)		4. Date of Review: 5/16/11		5. ACO FIELD Baseline	
6. #	7. Page and Paragraph No.:	8. Comment:	9. Reason For Comment:	10. Suggested Change:	11. Resolution				
1.	Header Para1, Page 1	Incorrect logo.	Non-compliance to Order 1320.46C.	Use the DOT logo for Advisory Circulars.	Accepted, change made.				
2.	Para 1, 1 st sentence, Page 1	Add wording.		Rewrite to read: This advisory circular (AC) provides guidance on airworthiness approval for designers, manufacture, and installers...	Accepted, change made.				
3.	Para 1, 2 nd sentence, Page 1	Change wording.		Rewrite to read: In this AC, the Federal Aviation Administration (FAA) recommends one way to gain airworthiness...	Not accepted, sentence is per plain language guidance.				
4.	Para 2, Page 1	Missing mandatory paragraph "Applicability".	Non-compliance to Order 1320.46C.	There are two mandatory paragraphs within ACs.	Accepted, change made to add section 2 Applicability.				

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5.	Para 3a, Page 2	Missing italic.	Inconsistent with the rest of the document.	Place titles for TSO-C159A and TSO-C132 in italics.	Accepted, change made.				
6.	Para 3a, Page 2	Typo/unnecessary bold.		Remove the bold from the comma found after the title for TSO-C159A.	Accepted, change made.				
7.	Para 3c, Page 2	Missing space.		There should be two spaces between the title of the paragraph and the beginning of the sentence.	Accepted, change made.				
8.	Para 4c(2)(b), Page 3	Add wording.		Rewrite to read: The satellite voice electrical power and amplified cooling source...	Not accepted, technical content would be impacted.				

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9.	Para 5, 5 th sentence, Page 3	Clarity.			Should it be “requirements” or “standards” of International Civil Aviation Organization’s Annex 10, Vol. III, Aeronautical Telecommunications?			Acknowledged, reference to ICAO was removed.	
10.	Para 6e, Page 5	Missing period and capitalization.			Rewrite to read: The satellite voice equipment must ensure contention for shared channel resources for safety services not experienced. Figure 1 describes the priorities for satellite voice calls.			Accepted, change made.	
11.	Para 9a – c, Page 5	Missing space.			There should be two spaces between the labeling of the subparagraph and the beginning of the sentence.			Accepted, change made.	
12.	Para 9c, 1 st sentence, Page 5	Change wording.			Rewrite to read: A means should be provided for aural annunciation indicating the receipt...			Acknowledged, modified sentence to include “A means”	

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13.	Para 9c, last sentence, Page 6	Define the term "Title 14 of the Code of Federal Regulations" first.			Use the acronym "14 CFR" after the first usage.			Not accepted, term defined in section 10a, previous 9a. which is the first usage.	
14.	Para 9k, Page 6	Define the term for the acronym "ID" first.			Use the acronym "ID" after the first usage.			Accepted, change made.	
15.	Para 10e, Page 7	Incorrect formatting.			Remove parenthesis from the term "string" or insert missing "number" word before the term "string".			Accepted, change made.	
16.	Para 10h, 2 nd sentence, Page 7	Add wording.			Rewrite to read: A means to allow call hold function capability should be provided via the audio control panel or use of a MCDU.			Accepted, change made.	

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17.	Para 10i, Page 7	Add wording.			Rewrite to read: A means for the flight crew to display the satellite voice system configuration (i.e., operational software version/part number, database version/part number) should be provided as applicable.	Accepted, change made.			
18.	Para 11a, Note Section, Page 8	Define the terms for the acronyms "LEGS AND SATCOM".			Use the acronyms "LEGS AND SATCOM" after the first usage..	Changed LEGS page to MENU page. SATCOM is covered in the acronym section. Legs is not an acronym, it represents a MENU page in the MDCU that displays the part of the route being flown.			
19.	Para 11a(2), 2 nd sentence, Page 8	Improper usage of section symbol.			Remove section symbol and rewrite reference to read: (e.g. 14 CFR 25.1322).	Accepted, removed symbol.1.			
20.	Para 11b(2), 3 rd sentence, Page 9	Missing space.			There should be two spaces between sentences.	Accepted, change made.			

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21.	Para 11b(4), 2 nd sentence, Page 9	Add wording.			Rewrite to read: Determine whether the proposed procedures can be executed...			Accepted, change made.	
22.	Para 12, Page 9	Delete "A/RFM" from the title.			Rewrite title to read: Airplane/Rotorcraft Flight Manual (Supplement) Wording.			Accepted, change made.	
23.	Signature Block, Page 9	Incorrect spacing.			There should be five spaces between the last paragraph and the signature block.			Accepted, change made.	
24.	App A & B	Unnecessary bold.			Remove the bold from the labeling of the page numbers.			Accepted, change made.	

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25.	App B, Para 1, Page C-1	Incorrect spacing.			There should be only two spaces between the number and title of the paragraph.	Accepted, change made.			
26.	App B, Para 1, Page C-1	The term "Title of the Code of Federal Regulations should be defined in paragraph 9c of this document.			Use the acronym "14 CFR".	Not accepted, term is defined in 10a previously 9a which is the first usage, see #13.			
27.	App B, Para 2, Page C-1	The term "Advisory Circulars" has already been defined.			Use the acronym "ACs".	Not accepted, this sentence is describing a web link.			
28.	App B, Para 2a, 2 nd sentence, Page C-1	Change wording.	AVSIMS is not operational yet.		Rewrite to read: You may access all ACs on the FAA website at www.faa.gov/regulations_policies/advisory_circulars/ .	Accepted, change made.			

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29.	App B, Para 2a, last sentence, Page C-1	Updated mailing information.			Remove the information referencing where a person can order hard copies of the AC from DOT. We do not print or stock ACs anymore. ACs can only be retrieve electronically.	Accepted, change made.			
30.	App B, Para 2a & b, Page C-1	Incorrect formatting.			Combine both paragraphs 2a &b as one.	Accepted, change made.			
31.	App B, Para 2b, last sentence, Page C-1	Updated mailing information.			Remove the information referencing where a person can order hard copies of the AC from DOT. We do not print or stock ACs anymore. ACs can only be retrieve electronically.	Accepted, removed wording from section, see #29.			
32.	App B, Footer Para, Pages C-1 & C-2	Incorrect numbering.	Delete page numbers C-1 and C-2 from the footer since this information is found in Appendix B.		Replace with page numbers “ B-1 and B-2”.	Accepted, change made.			

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33.	App B, Header Para, Page C-2	Unnecessary bold.		Remove the bold from both sides of the header.	Accepted, change made.
34.	para.9, pg. 5,	Opening sentence should reference 14 CFR 25.1322 and associated ACs.	New rule on flight crew alerting should apply as well as display AC.	Change opening sentence to the following: “Flight Deck Annunciation. Alerting associated with non-normal conditions (e.g., failures) of the airborne satellite voice systems must comply with 14 CFR 25.1322. You are encouraged to review AC 25.1322-1, Flightcrew Alerting, and AC 25-11A, Electronic Flight Deck Displays, for detailed guidance.”	Accepted, change made.
35.	para.9.b. pg. 5,	Should reference 25.1322.	New rule on flightcrew alerting should apply.	Change opening sentence of 9.a. to the following: “Consistent with 14 CFR 1322, alerts should be provided for each airborne system failure requiring flight crew awareness.”	Accepted, change modified.

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36.	para.9.h. pg. 6,	If loss of signal requires immediate flight crew awareness, and alert may be required.	Consistent with 14 CFR 1322.	If immediate crew awareness is desired, include alerting requirement.	Not accepted, redundant requirement, explained in section 9, no change required.				
37.	Para. 11	For satellite voice systems that also support data transfer, the ground and/or flight evaluations should evaluate system performance under mass data throughput conditions	Need to ensure that voice com and call handling is acceptable when bandwidth is shared with data.	Not accepted, no change required, separate voice and data channel design available.					
38.	para 3b Page 1,	DO-178B is a general system certification practice recognized by AC 20-115B.	DO-178B is not specific to SATCOM Voice. Most applicants installing these systems will also be installing data link systems using SATCOM. We should use a consistent approach as we did for AC 20-140A and remove general system certification practices in specific system ACs and include in list of references.	We should include AC 20-115B in list of references and delete here.	Accepted, change made.				

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39.	para 3c Page 2,	DO-254 is a general system certification practice recognized by AC 20-152.	DO-254 is not specific to SATCOM. Same rationale as for DO-178B reference.	We should include AC 20-152 in list of references and delete here.	Accepted, change made.				
40.	para 4c2a) and b), Page 3,	I do not understand the wording related to Power. HF radio power is one of the first things you lose if you load shed.	Consider also with low power Iridium, unlike HF and Inmarsat, power could be drawn from battery enabling greater availability of communications during load shedding scenarios.	Clarify the intent. Can this be better addressed by an AC on general electrical requirements for avionics? Do we have one? I'm not aware of such electrical requirements in data link AC. Data link can be just as significant in operations as voice communications.	Acknowledged comment, No Change: Several modifications were made to this section to accommodate for the difference in power requirements between Inmarsat and Iridium. "The electrical power and amplifier cooling source must be equivalent" was added to provide clarity and non bias between systems. See MMEL Policy Letter 63, Rev 3, Equipment Required For Emergency Procedures,				
41.	Para 8, Page 5,	This is specific to Inmarsat	FAA guidance should not dictate specific technology.	Suggest that criteria be performance-based to allow Iridium as viable SATCOM or AMS(R)S system.	Not accepted This requirement is directed to new and diverse satellite voice technical configuration /capabilities for multiple channel				

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									systems. The section provides guidance to configure the cockpit call routing to be dedicated for Safety Services in the cockpit.
42.	para 11a1) Note Page 8,	The note seems overly restrictive and implementation specific.	Pilots today use MCDU for ACARS and back out to access more critical flight operations.	Make more general and performance-based. Suggest language that Pilots should be able to answer calls in a timely manner. Timely will vary depending on situation.					Not accepted This is a necessary note for the manufacture to consider in the design of the computer human interface display feature for ease of screen manipulation and for flexibility of system use.
43.	General	I did a quick and limited review of the AC.	It would provide more comprehensive review with timely industry input and avoid potentially significant comments during FR review.	I would welcome bringing the draft AC to PARC CWG at its June meeting to review and comment further with industry input.					Acknowledged comment.
44.	General	ICAO has initiated a task force to complete globally applicable guidance material for the use of SATCOM voice for ATS. They plan to complete the task in early 2012. PARC CWG is in	SATCOM systems are currently being installed per AC 20-150. Iridium expects to get their safety switch operational by 4 th quarter this year. Lessons learned can ensure appropriate	Suggest AC 20-150A take account of global SATCOM voice guidance material and issue AC early in 2012 after first edition issue of ICAO guidance material.					Acknowledged, no change.

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		process of developing a plan to evaluate operational use of SATCOM voice. Also, to determine criteria for MEL relief of one HF radio given a suitable SATCOM voice installation. We do not know yet what those criteria are for MEL relief.	guidance to support MEL relief, expected by early next year.						
45.	para 5. Page 3 & 4,	This needs to be written more generically. Something like " the pilots shall always be able to place a call to ATC with sufficient priority so they are not blocked by any other use of the SATCOM system when it is functioning, except pilot initiated calls to AOC/company in emergency situations. Such calls to AOC should not be blocked or pre-empted by a controller offering, for example, an unsolicited "direct to."	FAA guidance should not dictate specific technology.	Confirm that these guidelines are not specific to Inmarsat. Clarify intent of guideline.				Acknowledged, no change: The cockpit /pilot system default priority setting is level 2, Flight Safety. The system allows multiple handsets, two in the cockpit and up to four in the cabin. The cabin priority level default is set to level four. These settings prevent an inadvertent over-ride from the cabin over the cockpit higher priority call.	
46.	A-I :RCS	Long Range Communication System		Change to System				Not accepted, no change: In 1996, the FAA recognized technological advances in communications by a rule change that included use of a new term: Long Range	

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				<p>Communication System (LRCS). Long Range Communication System (LRCS) is the description used to differentiate between domestic and Oceanic communication systems. See PL 106, Rev 3, High Frequency (HF) Communications MMEL Requirements.</p>
47.	Para 3.b	This AC mentions in 3.b that the equipment should comply with RTCA DO-178B	Clarification	<p>This section also needs to reference 4.b for the safety classification and the corresponding software level.</p> <p>Acknowledged comment, No Change. Classification is addressed as follows:</p> <p>4.b States “Likelihood of failure or malfunction that results in the loss of satellite voice equipment used in domestic/continental operations for ATS voice communication is shown to be no more likely than remote (i.e., major hazard classification), unless otherwise substantiated by the system safety assessment.”</p>

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48.	Paragraph 3.c. Page 2	Need to correct the title of RTCA/DO-254.	The title is incorrectly given as: <i>“Design Assurance Guidance for Airborne Electronic Hardware guidelines for design assurance requirements in developing electronic hardware, dated April 19, 2000.”</i>	Change the title, by deleting the extra text, to: <i>“Design Assurance Guidance for Airborne Electronic Hardware, dated April 19, 2000.”</i>	Accepted, change was made to reference AC 20-152 in this section see #39.				
49.	Paragraph 4.a. Page 2	Add a reference to SAE ARP 4754 and SAE ARP 4761.	FAA guidance on the System Safety Assessment process, as referenced in AC 23.1309-1D which is referenced in the “Related Documents” section of this AC, is contained in SAE ARP 4754 and 4761.	Change the first sentence of this paragraph to: (all additions/changes from here on are bolded) “The applicant should conduct a safety assessment, as described in SAE ARP 4754 and ARP 4761 , which considers the effects of failures on the aircraft.”	Not accepted, no change, we are using FAA AC references in this AC when additional guidance is required.				
50.	Para 4(b) Page 2	ATS	Means what?	Spell out “Air Traffic Service”	Not accepted, no change, ATS is defined in section 1.				

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51.	Paragraph 4.b. Page 2	This paragraph is misleading and needs to be rewritten.	As written, the logic appears to be backwards and conflicts with the process in paragraph 4.a. That is, it seems to imply knowing how probable certain failures will be, and then uses that as the rationale for what the hazard classification should be, rather than first determining what the hazard classification should be, and then developing to the reliability/assurance requirements commensurate with those classifications.	<p>Change the paragraph to:</p> <p>“Likelihood of failure or malfunction of the supplemental satellite voice communication system intended for LRCS use in the oceanic/remote area environment supporting ATS communication should be no more likely than probable (i.e., developed commensurate to a minor hazard classification). Likelihood of failure or malfunction that results in the loss of satellite voice equipment used in domestic/continental operations for ATS voice communication should be no more likely than remote (i.e., developed commensurate to a major hazard classification), unless otherwise substantiated by the system safety assessment.”</p> <p>(remainder is unchanged)</p>	Not accepted, no change, the sentence is structured to support the existing hazard class for LRCS, HF voice as primary. This AC is for the supplemental use of SATCOM voice while HF remains primary. The hazard class is based on the function, environment and mission criticality.

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52.	Section 4.c.(2) Page 3,	What is meant by “potential load-shed environment”	Misunderstanding of meaning	Change to: potential loss of system power through load-shedding.	Acknowledged comment, Making change per ANM-111, see #40.				
53.	Paragraph 4.c.(3) Page 3	This paragraph has some non-standard terminology and some inconsistencies with other sections within the AC.	Need to make some minor changes for correctness of content/terminology and for consistency of format within the AC.	Change the first two sentences to: “ User-Modifiable and Option-Selectable Software. If the system contains software enabled options that the user can select...”	Accepted, change made.				
54.	Para 6(c) Page 4	“camp-on”	Means what?”	Define “camp-on”	Not accepted, “camp-on” is explained in section 6.c camp-on- “to place a call attempt at the top of a queue while waiting for free resources.				
55.	Para 9. Flight Deck Annunciation Page 5 – 6	Aural and visual alert	Use visual failure codes.	Failure code will tell the pilot what went wrong. Failure code will tell maintenance what part of the system failed.	Accepted, change made to reflect:” 14 CFR 25.1322. and AC 25.1322-1, Flightcrew Alerting, and AC 25-11A, Electronic Flight Deck Displays, for detailed guidance.				

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56.	Para 6.e. Page 5,	The sentence “The satellite voice equipment must ensure contention for shared channel resources for safety services are not experienced,” is somewhat confusing.	Improve readability	Change to: The satellite voice equipment must ensure contention for shared channel resources are not experienced for safety services,	Not accepted, the wording was written to consider Safety Vs. Non Safety service resource capability.				
57.	Para 9.g. Page 6	The spelling of the word “Multipurpose” needs to be corrected.	All other correct spellings of the word in this AC do not include a hyphen; need to correctly spell it here for consistency.	Change the spelling of the word to: “ Multipurpose ”	Not accepted, the spelling is consistent with the use of the term through-out industry.				
58.	Para 10.i. Page 7,	The sentence “A means for the flight crew to display the satellite voice system configuration (i.e., operational software version/part number, database version/part number) as applicable.” is incomplete.	Improve readability	Change to: A means should be provided for the flight crew to display the satellite voice system configuration (i.e., operational software version/part number, database version/part number) as applicable.	Accepted, changed to match comment #17.				
59.	Para 11.a.(4) Page 8	This paragraph refers to “interference” which could be interpreted to mean “physical interference”.	This paragraph is intended to address “electromagnetic interference” only. Therefore, need to make minor word additions for accuracy of terminology.	Change this paragraph to: “Evaluate the system for objectionable conducted or radiated electromagnetic interference or if adversely	Accepted, added electromagnetic to sentence..				

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					affected by conducted or radiated electromagnetic interference from other equipment or systems installed on the aircraft.”				
60.	Para 11(a) Note Page 8	MCDU LEGS	Means what?	MCDU (Multipurpose Control and Display Unit) Spell out “LEGS”		Accepted, change made , LEGS was replaced with Legs.			
61.	Para 11.b.(1) Note Page 9	The last sentence of this Note is not clear and should be changed to be more specific.	Per the current wording, it is not clear which system’s (i.e., SATCOM or GPS) performance is being adversely affected by the other system.	I cannot recommend the needed change because I am not sure what the author’s intent was. Depending upon that intent, either the acronym “ SATCOM ” or “ GPS ” should be inserted before the last word (i.e., “system”) of this paragraph.		Accepted, SATCOM was added.			
62.	Para 11.b.(4) Page 9	Need to add the word “if” to the second sentence of this paragraph.	Correctness of grammar.	Change beginning of the sentence to: “Determine if the proposed procedures...”		Not accepted, the concern here is for interfering with GPS system not the SATCOM. System.			

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63.	Para 11.b.(5) Page 9	Need to add the words “transmission and reception” to the sentence.	For clarity of intent; it is not continuity of the voice that is of concern, but the continuity of the transmission and reception of that voice.	Change the sentence to: “Evaluate acceptable voice transmission and reception continuity in normal turns and pitch maneuvers.”	Accepted, change made.				
64.	Para 12(b) Pg 9	The example Flight Manual Supplement statement that “The FAA has approved the SATCOM voice equipment in accordance with AC 20-150A...” should be reworded.	An Advisory Circular is a means of showing compliance to the Airworthiness Standards. An AC is not in itself a codified standard. It is incorrect to state “The FAA has approved the SATCOM voice equipment in accordance with AC 20-150A...”.	Change the sample wording to “evaluated” instead of “approved” to read “The FAA has evaluated the SATCOM voice equipment in accordance with AC 20-150A...”	Accepted, change text to “Compliance with AC 20-150A does not constitute operational approval.”				
65.	Para 12(b) Pg 9	Reword the example Flight Manual Supplement statement “This AC does not constitute operation approval.”	The basis of an FAA approval is not an Advisory Circular.	Change the last sentence in the paragraph to read “This Supplemental Type Certificate (STC) does not constitute operational approval.”	Accepted, change made.				

DOCUMENT REVIEW LOG

1. Document No.: AC 20-150A: Airworthiness Approval For Satellite Voice Equipment		2. Project Lead: David Robinson, AIR-130		3. Reviewing Office: AIR-500 (1-33) ANM-111 (34-36) ANE-150 (37) CSTA Comm `(38-45) AFS-1 (46) ASW-100 (47) ACE-114 (48-78)		4. Date of Review: 5/16/11		5. ACO FIELD Baseline	
66.	App Pages A-1, A-2	Need to add several Acronyms and their Definitions to the Appendix list.	Several acronyms were used in the AC but were not defined in the Appendix.	Add the following used Acronyms and their Definitions to Appendix A: AVSIMS, CFR, DO, ICAO, NGSS, RGL, RTCA, TSO	Accepted, NGSS, TSO were added. The other items are either not acronyms or are spelled out in text.				
67.	Para Pages C-1, C-2	Page numbering for this Appendix B needs to be corrected.	Although this is Appendix B, the page numbering implies that it is Appendix C which does not exist.	Change page numbers from: “C-1, C-2” to “ B-1, B-2 ”	Accepted, change made.				
68.	Para 2.b. {between item (1) and (2)}	The AC which invokes RTCA/DO-254 should be added.	This AC refers to RTCA/DO-254 but does not include its invoking AC in the “FAA Advisory Circulars” list.	Add to the FAA AC list: “ AC 20-152, RTCA, Inc., Document RTCA/DO-254, Design Assurance Guidance for Airborne Electronic Hardware ”	Accepted, change made.				
69.	Para 2.b.(3) Page C-1	Some ACs listed in this section include version letters and some do not; should be added where missing.	For consistency.	Add version letters to any ACs as applicable, for example: “AC 23.1309-1 D ”	Acknowledged, modified where necessary.				

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AC 20-150A: Airworthiness Approval For Satellite Voice Equipment		David Robinson, AIR-130		AIR-500 (1-33) ANM-111 (34-36) ANE-150 (37) CSTA Comm `(38-45) AFS-1 (46) ASW-100 (47) ACE-114 (48-78)		5/16/11		ACO FIELD Baseline	
70.	Para 2.b.(5) Page C-1	Remove reference to AC 25-10.	AC 25-10 was superseded and cancelled by AC 20-168.	Remove item (5) and replace with both/either of AC 20-168 and/or AC 20-169 , whichever is more applicable.	Accepted, change to AC 20-168.				
71.	Para TBD (between 4.c. and 4.d.) Page C-2	The AC is missing a reference for an RTCA document.	This AC refers to RTCA/DO-254 but does include it in the "RTCA Documents" list.	Add to the RTCA Documents list: "RTCA/DO-254, Design Assurance Guidance for Airborne Electronic Hardware, dated April 19, 2000."	Acknowledge, no change, reference to 254 was replaced with AC 20-152 see #39.				
72.	Para TBD Page C-2	If the second comment of this matrix is adopted, then a section for "SAE Documents" will be needed for including listings for SAE ARP 4754 and 4761. If not adopted, then this comment can be ignored.	Completeness and consistency within the AC.	Pending the second comment resolution - may need to add a section for " SAE Documents " and listings for " SAE ARP 4754 " and " SAE ARP 4761 ".	Acknowledged, no change, reference not added.				

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73.	Para 3.c. Page 2	Need to correct the title of RTCA/DO-254.	The title is incorrectly given as: <i>“Design Assurance Guidance for Airborne Electronic Hardware guidelines for design assurance requirements in developing electronic hardware, dated April 19, 2000.”</i>	Change the title, by deleting the extra text, to: <i>“Design Assurance Guidance for Airborne Electronic Hardware, dated April 19, 2000.”</i>	Accepted, change made to reference AC 20-152 in this section see #39.				
74.	Para 4.a. Page 2	Add a reference to SAE ARP 4754 and SAE ARP 4761.	FAA guidance on the System Safety Assessment process, as referenced in AC 23.1309-1D which is referenced in the “Related Documents” section of this AC, is contained in SAE ARP 4754 and 4761.	Change the first sentence of this paragraph to: (all additions/changes from here on are bolded) “The applicant should conduct a safety assessment, as described in SAE ARP 4754 and ARP 4761 , which considers the effects of failures on the aircraft.”	Not accepted, we are using FAA AC references in this AC when additional guidance is required.				
75.	Para 4(b) Page 2	ATS	Means what?	Spell out “Air Traffic Service”	Not accepted, ATS is defined in section 1.				

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76.	Para 4.b Page 2	This paragraph is misleading and needs to be rewritten.	As written, the logic appears to be backwards and conflicts with the process in paragraph 4.a. That is, it seems to imply knowing how probable certain failures will be, and then uses that as the rationale for what the hazard classification should be, rather than first determining what the hazard classification should be, and then developing to the reliability/assurance requirements commensurate with those classifications.	Change the paragraph to: “Likelihood of failure or malfunction of the supplemental satellite voice communication system intended for LRCS use in the oceanic/remote area environment supporting ATS communication should be no more likely than probable (i.e., developed commensurate to a minor hazard classification). Likelihood of failure or malfunction that results in the loss of satellite voice equipment used in domestic/continental operations for ATS voice communication should be no more likely than remote (i.e., developed commensurate to a major hazard classification), unless otherwise substantiated by the system safety assessment.” (remainder is unchanged)	Not accepted, the sentence is structured to support the existing hazard class for LRCS, HF voice as primary. This AC is for the supplemental use of SATCOM voice while HF remains primary.

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77.	Para 4.c.(2) Page 3,	What is meant by “potential load-shed environment”	Misunderstanding of meaning	Change to: potential lost of system power through load-shedding.	Accepted, made change per ANM-111, see #40 and #52.				
78.	Para 4.c.(3) Page 3	This paragraph has some non-standard terminology and some inconsistencies with other sections within the AC.	Need to make some minor changes for correctness of content/terminology and for consistency of format within the AC.	Change the first two sentences to: “ User-Modifiable and Option-Selectable Software. If the system contains software enabled options that the user can select...”	Accepted, change made.				