Clearance Record
DOCUMENT MASTER PUBLIC COMMENT LOG
FINAL VERSION AUGUST 1, 2011

For FAA use only:

Originating Office: AIR-120 POC: JK Baker	Document Description: AC 20-SYSTMS, Development of Civil Aircraft and Systems Rev. 9 April 11, 2011	Reviewer: ASAT Team	Reviewing Organization: AIR-120	Date of Review: 7/ 26-28/2011

#	Company	Page & Paragraph	Comment *(What text is of concern?)*	Recommendation *(What change do you suggest?)*	Rationale for Suggested Change	Disposition *(For FAA use only)*
1	*Cessna*	General	Cessna feels that there may be a potential long term impact from this AC to GA manufacturers. Aircraft manufacturers producing full aircraft under the size and cost of a regional airliner may have an undue burden to implement this process.			1. *Purpose of this AC* and 3. *(formerly Sec. 4) Guidance for the use of SAE ARP 4754A* have been revised to address this issue, specifically sections 1. e., 3 a. and b.
2	*Garmin*	General	Add guidance on what processes should be used for specific areas of development and acknowledge that coordination between aircraft manufacturers and equipment manufacturers is normally required to complete the appropriate objectives.	Very few applicants build items (e.g., TSO articles or LRUs), systems, and aircraft which can utilize the entirety of 4754A. The appropriate sections should be used by the appropriate applicants and proper coordination should be established to ensure the intermediate steps are accomplished. Furthermore, the ability of an equipment (item) manufacturer to receive requirements and pass problem reports back and forth across the boundaries between items and aircraft	Add guidance on what processes should be used for specific areas of development and acknowledge that coordination between aircraft manufacturers and equipment manufacturers is normally required to complete the appropriate objectives. Furthermore, this AC should indicate that equipment (item) manufacturer processes do not have to be tailored to interface with the unique aspects of the processes of multiple aircraft manufacturers for TCs and/or multiple installers for STCs.	1. *Purpose of this AC* and 3. *(formerly Sec. 4) Guidance for the use of SAE ARP 4754A* have been revised to address this issue, specifically sections 1. e., 3 a. and b. The ARP is a recommended industry practice and how it is used between industry entities is a business decision that is outside the FAA policy and regulatory responsibility.

				must not impose an expectation that an equipment manufacturer must have tailored processes in order to achieve compatibility with the corresponding boundary processes of multiple aircraft manufacturers for TCs and/or multiple installers for STCs.		
3	*Garmin*	General	FAA guidance and regulation documents such as AC20-SYSTMS and SAE ARP4754A are top-level safety and process documents that should be subject to Problem Reporting that is accessible to the user community. This will allow industry to provide information as problems are encountered, provide a means to review existing problems before attempting to use these documents, and provide a means to record problems that should be corrected in future revisions of these documents (as a reminder).	This advisory circular imposes Problem Reporting on industry for the top-level Planning, Design, and Safety related documents with the use of SAE ARP4754A. Following the analogy that what is good for the goose is good for the gander, FAA should establish a Problem Reporting process that is accessible to the user community.	Establish a Problem Reporting archive for ARP 4754A and all other certification procedure documents (e.g., DO-178B, DO-254, DO-160 and their related ACs and Orders).	The industry sponsored working groups and committees that publish these documents are responsible for documenting problems and addressing them as appropriately.
4	*Garmin*	All instances of 4754a	The revision of the "4754a" should be capitalized.	All references in the SAE document to the revision are capital (SAE ARP 4754A) and a majority of places on the SAE website (except AIR6110) capitalize the revision.	Change "4754a" to "4754A" throughout the AC; including paragraphs 1.a (2 times), 1.b (1 time), 1.c (3 times), 3 (2 times), 4. (3 times), 4.a (1 time), 4.b (1 time), and 4.c (1 time).	Agree. Changed as requested.
5	*AIA*	Page 1 Para 1.a.	The proposed text states: *a. ... This includes validation of requirements and verification of the design implementation*	Revise the text as follows: *a. ... This includes validation of requirements and verification of the design implementation for certification and product*	"Process assurance" is a topic within ARP 4754A, but "product assurance" is not.	Agree. Sentence was revised.

			for certification and product assurance.	*process assurance.*		
6	*AIA*	Page 1 Paragraph 1a	The first sentence includes the phrase "for incorporation into the certification process" which implies that the standard is required for certification to the exclusion of any other alternative process.	The first sentence includes the phrase "for incorporation into the certification process" which implies that the standard is required for certification to the exclusion of any other alternative Process.	This is not in keeping with the stated intent of SAE ARP 4754A to provide a best practice but not the only means to accomplish the tasks outlined in the document.	AC has been revised to address this concern by revision to section 1c and 3 (*formerly Sec 4.).*
7	*Boeing Commercial Airplanes*	Page 1 Para 1.a.	EDITORIAL COMMENT: The ARP title is incorrectly formatted.	Replace "4754a" with "4754A" throughout AC.	Reformat number in title to match the published ARP document.	Agree. Changed as requested.
8	*Boeing Commercial Airplanes*	Page 1 Para 1.a.	The proposed text states: *a. ... This includes validation of requirements and verification of the design implementation for certification and product assurance.*	Revise the text as follows: *a. ... This includes validation of requirements and verification of the design implementation for certification and product process assurance.*	"Process assurance" is a topic within ARP 4754A, but "product assurance" is not.	Agree. Sentence was revised.
9	*Boeing Commercial Airplanes*	Page 1 Para 1a	The proposed text states: *a. This AC recognizes the Society of Automotive Engineers (SAE) Aerospace Recommended Practice (ARP) 4754a, Guidelines for Development of Civil Aircraft and Systems, dated December 21,2010 for incorporation into the certification process.*	Revise the text as follows: *a. This AC recognizes the Society of Automotive Engineers (SAE) Aerospace Recommended Practice (ARP) 4754a, Guidelines for Development of Civil Aircraft and Systems, dated December 21,2010 for incorporation into the certification process.*	The *phrase "for incorporation into the certification process"* implies that the standard is required for certification, to the exclusion of any other alternative process. This is not in keeping with the stated intent of SAE ARP 4754A and all SAE standards -- to provide a best practice, but not the only means to accomplish the tasks outlined in the document.	AC has been revised to address this concern by revision to section 1c and 3 (*formerly Sec 4.).* .
10	*AIA*	Page 1 para 1c	"The FAA issued advisory circulars (see Section 2.b) for the specific 14 CFR sections that outline the relationship between a specific means of compliance andthe system	The FAA issued advisory circulars (see section 2b) that mention SAE ARP 4754	None of the ACs of section 2b refer to ARP 4754A. Some refer to ARP 4754 (original) as background reading. The scope of ARP4754 (Highly Integrated or Complex Aircraft Systems) was	Agree. Sentence was removed.

			development process described in SAE ARP 4754a"		very different from ARP4754a, and so the correct document should be referenced. Also, some of the ACs referenced the document as background reading; they were silent on "the relationship between a specific means of compliance and the system development process described in ARP …"	
11	*Cessna*	1.c	This paragraph states use of ARP4754A is not mandatory. Cessna believes that as the old ACs used to state: "a means but not the only means", was much clearer in indicating the possibility of the applicant proposing a different process. Cessna is not sure that this AC leaves much room for an applicant to propose another process. Any other process (ref. recent AC on using an alternative to RTCA DO-178B) will have to meet the same objectives, i.e. be just as burdensome to the applicant. In addition, the way this is written implies the FAA will require this process for even relatively simple systems or changes to existing systems as there is no discussion about how and when to apply it. Cessna 4.b Cessna is concerned with the intent of this paragraph			1. *Purpose of this AC* and 3. *(formerly Sec. 4) Guidance for the use of SAE ARP 4754A* have been revised to address this issue, specifically sections 1. e., 3 a. and b.
12	*Embraer*	Page 1 1c.	Although the document says that *"this AC is not mandatory and is not a regulation"* and *"the means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP* 4754aH, this proposed AC should better explain and clarify what is the intent and why it has been proposed in that way. The SAE ARP 4754A states there are concerns about the possibility of development errors due to the highly complex and integrated nature of modern aircraft systems. And in order to address these concerns; a methodology to mitigate development errors was required. And it says also that design and analysis techniques traditionally applied to deterministic risks or to conventional, non-complex systems may not provide adequate safety coverage for more complex systems. And in line with it, the AMC 25.1309 states in Section 1 (of Purpose) that: *The extent to which the more structured methods and guidelines contained in this A MC should be applied as a function of systems complexity and systems failure consequence.* *In general, the extent and structure of the analyses required to show compliance with CS 25.1309 will be greater when the system is more complex and the effects of the Failure Conditions are more severe.* *This AMC is not intended to require that the more structured techniques introduced in this revision be applied where traditional techniques have been shown to be acceptable for more traditional systems designs.*			1. *Purpose of this AC* and 3. *(formerly Sec. 4) Guidance for the use of SAE ARP 4754A* have been revised to address this issue, specifically sections 1. e., 3 a. and b.

			Embraer believes it should not recommend use of SAE ARP 4754a for all amended type certificate, supplemental type certificate (STC), and technical standard order authorization (TSOA), since many old approved type certificates *(mostly for those more traditional systems designs)* might have been accepted applying traditional techniques rather than this more structured techniques and processes. Embraer recommends, in paragraph 1 .c., the statement should be the following one: 1 .c. "This AC is not mandatory and is not a regulation. This AC describes acceptable guidance to supplement other ACs specific to § 23.1309, 5 25.1309, § 27.1309, and § 29.1309 (see the ACs listed in Section 2.b). An applicant for a type certificate (TC), amended type certificate, supplemental type certificate (STC), and technical standard order authorization (TSOA), may use SAE ARP 4754a as described herein, and in conjunction with other applicable ACs, to comply with applicable regulations. The FAA issued advisory circulars (see Section 2.b) for the specific 14 CFR sections that outline the relationship between a specific means of compliance and the system development process described in SAE ARP 4754a. The means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP 4754a. *The purpose of this AC is aligned with the concern of the SAE ARP 4754A about the possibility of development errors due to the highly complex and integrated nature of modern aircraft systems. And in order to address these concerns, a more structured methodology to mitigate development errors is recommended following the process described in SAE ARP 4754A. However it is not intended to require that the more structured techniques and processes presented in this AC be applied where traditional techniques have been shown to be acceptable for more traditional systems designs. "*			
13	*Boeing Commercial Airplanes*	Page 1 Para 1.c.	The proposed text states: *c. ... This AC describes acceptable guidance to supplement other ACs...."*	Revise the text as follows: *c. ... This AC describes guidance to supplement other ACs...."*	The AC does not define the compliance aspects that are not covered in the current Acs and are covered by this proposed AC. Further, although this proposed AC is recommended to be used in conjunction with other Acs, the text is not clear as to what aspects of the Acs referenced in paragraph 2.b. are being "supplemented" by this AC.	Agree. Changed as requested.
14	*Boeing Commercial Airplanes*	Page 1 Para 1.c.	The proposed text states: c. … An applicant for a type certificate (TC), amended type certificate,	Revise the text as follows: c. … An applicant for a type certificate (TC), amended type certificate, supplemental	This paragraph states that an applicant may use this AC for TC, ATC, STC, or TSOA projects; however, the applicant	Disagree. The example implies a major change under Type Design, which is done under a TC.

			supplemental type certificate (STC), and technical standard order authorization (TSOA), may use SAE ARP 4754a as described herein, and in conjunction with other applicable ACs, to comply with applicable regulations. …	type certificate (STC), and technical standard order authorization (TSOA), or other certification projects may use SAE ARP 4754a as described herein, and in conjunction with other applicable ACs, to comply with applicable regulations. …	may want to use this guidance for certification projects other than those listed. For example, it is feasible that an applicant could use this guidance for a major change when a new system is introduced onto an airplane (such as the nitrogen generating	
15	*Boeing Commercial Airplanes*	Page 1 Para 1.c.	The last sentence of the proposed paragraph states: *c. … The means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP 4754a.*	Revise the text as follows: *c. … The means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP 4754a. (See paragraph 4.a. of this AC for exception.)*	This paragraph should be changed so that the applicant understands that ARP 4754A covers the establishment of the software level, not AC 20-115B (DO-178B) and AC 20-152 (DO-254). As currently written in the proposed AC, the last sentence of para. 1.c. would imply that those ACs would take precedence over this AC. It should be made clear that that those ACs do not take precedence over this AC for establishing Item Development Assurance Levels (IDAL).	Agree with concern and updated section 3 (*formerly Sec 4.)*. to address the concern.
16	*Garmin*	Page 1, paragraph 1.a	Paragraph 1.a ends with the sentence "It provides practices for showing compliance with the regulations and serves to assist a company in developing and meeting its own internal standards by considering the guidelines herein."	The quoted paragraph 1.a sentence is copied from the last sentence of the first paragraph of SAE ARP 4754A section 1. While the sentence makes sense when read within the context of 4754A, it is inaccurate within the context of AC 20-SYSTMS as the AC itself does not include the "practices for showing compliance with the regulations … by … the guidelines herein".	Suggest revising the quoted paragraph 1.a sentence to "SAE ARP 4754A provides practices for … and meeting its own internal standards."	Agree. Section 1 has been reworded.

17	*GE Aviation*	Page 1 Paragraph1 a	The first sentence includes the phrase "for incorporation into the certification process" which implies that the standard is required for certification to the exclusion of any other alternative process.	Remove "for incorporation into the certification process" from the first sentence.	This is not in keeping with the stated intent of SAE ARP 4754A and all SAE standards to provide a best practice but not the only means to accomplish the tasks outlined in the document.	Agree. Wording was removed.
18	*Dassault Aviation*	1.a.	As stated in this §, this AC purpose is to recognize ARP4754A… for introduction into the certification process	An ARP is not set up for introduction into a certification process. It might be used as a guideline for supporting a certification process,	Delete "for introduction into the certification process"	Agree. Wording was removed.
19	*Garmin*	Page 1, Paragraph 1.b and 1.c	Paragraph 1.b ends with the sentence "It may be applicable to other regulations, such as parts 23, 27, 29, 33, and 35." Paragraph 1.c includes the sentence "This AC describes acceptable guidance to supplement other ACs specific to § 23.1309, § 25.1309, § 27.1309, and § 29.1309 (see the ACs listed in Section 2.b)."	It is unclear how the FAA intends to apply this guidance outside the context of part 25. In particular, the quoted statements from paragraphs 1.b and 1.c appear to contradict one another since 1.b indicates 4754A (with emphasis) "<u>may</u> be applicable" while 1.c appears to indicate 4754A <u>is</u> applicable to parts 23, 27 and 29 in addition to part 25 via the explicit references to the particular 2x.1309 paragraphs. This contradiction is further supported by the 14 CFR references in paragraph 2.a and the AC references in 2.b. However, the question should be whether 4754A should be applicable to any part other than part 25 since it was not developed in the context of the other regulations and if it should be applicable, how	Until such time as sufficient cost/benefit analysis has been made regarding the applicability of SAE ARP 4754A to parts other than part 25, its applicability should be limited to part 25. Consequently, recommend removing the quoted sentence from paragraph 1.b and also revising the quoted sentence in paragraph 1.c to "This AC describes acceptable guidance to supplement other ACs specific to § 25.1309 (see the ACs listed in Section 2.b)." Also recommend revising paragraph 2.a and 2.b to limit the references only to those associated with part 25 and the generic ACs (e.g., AC 20-115B for DO-178B).	Partial agreement. Reference. Removed reference to XX.1309. Added 1.d to address applicability. The ARP itself recommends use for other than Part 25. If the level of complexity is sufficient then the ARP may be applied.

				much, and in what context?		
20	*Garmin*	Page 1, paragraph 1.c	Paragraph 1.c includes the statements "This AC is not mandatory and is not a regulation. This AC describes acceptable guidance to supplement other ACs specific to § 23.1309, § 25.1309, § 27.1309, and § 29.1309 (see the ACs listed in Section 2.b)."	While the AC states it is not mandatory and is not a regulation, the fact remains that once FAA recognizes a document like SAE ARP 4754A, it becomes de facto the only way to comply with FAA expectations as, for example, has occurred with the recognition of RTCA DO-178B and RTCA DO-254 by AC 20-115B and AC 20-152, respectively. Given this reality, recognition of SAE ARP 4754A in conjunction with the 2x.1309 regulations listed in paragraph 1.c, as well as the 2x.1301 regulations listed in paragraph 2.a, is equivalent to defining the only acceptable means to comply with these rules. Furthermore, recognition of SAE ARP 4754A in the context of compliance with these regulations amounts to certification creep in applying a new standard to showing compliance to the rules without the associated cost-benefit analysis.	FAA should not apply SAE ARP 4754A, in whole and in part, as an acceptable means of compliance to any regulation, including part 25, without a cost-benefit analysis that includes its expected cost impact on aircraft and equipment manufacturers and its expected safety benefit. Consequently, FAA should not recognize SAE ARP 4754A via an AC until such time as a cost-benefit analysis has been completed.	Disagree. See Section 1.c. Cost benefit analyses are only applicable to new and changed regulations. This is not a regulation as stated in the revised 1.c
21	*Dassault Aviation*	1.c	This paragraph makes priorities amongst ACs stating AC20-SYSTMS has the lowest priority	It is difficult to understand that a recommended process for an Aircraft design might not be acceptable for specific items of that aircraft.	As this § might induce misunderstanding, please clarify the intent of this paragraph	Agree. Sentence removed.

22	*Garmin*	Page 1, paragraph 1.c	Paragraph 1.c includes the statement "An applicant for a type certificate (TC), amended type certificate, supplemental type certificate (STC), and technical standard order authorization (TSOA), may use SAE ARP 4754a as described herein, and in conjunction with other applicable ACs, to comply with applicable regulations."	The entire 4754A process from aircraft to appliance isn't required for TC/STC/TSOA. For example, 4754A section 3 begins with the statement "The purpose of the development planning process is to define the means of producing an aircraft or system which will satisfy the aircraft/system requirements and provide the level of confidence which is consistent with airworthiness requirements." There appears to be no consideration for items developed under a TSOA process for retrofit installation via STC or for those aircraft manufacturers that might determine they want to utilize those TSOA items for forward fit installation under TC. Consequently, it is unclear how to broadly apply 4754A to TSOAs since TSOA articles ("items" in 4754A terminology) are typically not developed within the entire 4754A Figure 5 "V" development and verification process involving aircraft, systems, and items. Similarly, there are issues with applying the entire 4754A process to STCs and TCs since the 4754A notion	Update the referenced statement to "…and technical standard order authorization (TSOA), may use applicable sections of SAE ARP 4754A as described herein…" Also, add guidance on what specific 4754A processes may be applicable to TC, STC, and TSOA.	1. *Purpose of this AC* and 3. *(formerly Sec. 4) Guidance for the use of SAE ARP 4754A* have been revised to address this issue, specifically sections 1. e., 3 a. and b

				of flowing requirements into the systems and items is not possible when utilizing commercial-off-the-shelf TSOA equipment that will be used in retrofit installations or by aircraft manufacturers that determine they want to utilize TSOA items for forward fit installation under TC.		
23	*Garmin*	Page 1, paragraph 1.c	Paragraph 1.c includes the statements "The FAA issued advisory circulars (see Section 2.b) for the specific 14 CFR sections that outline the relationship between a specific means of compliance and the system development process described in SAE ARP 4754a. The means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP 4754a."	None of the FAA advisory circulars referenced in section 2.b actually reference SAE ARP 4754A. Instead, they reference SAE ARP 4754, which is substantially different from 4754A. 4754A has been completely rewritten and only a shadow of its former content remains (even the document title changed). To gloss over the substantial differences without stating how FAA intends to employ "The means of compliance in those ACs" so that they truly "take precedence over the application of SAE ARP 4754a" leaves a great deal of room for varying interpretations by various directorates and ACOs.	FAA should explicitly state how "The means of compliance in those ACs" differ from SAE ARP 4754A and how those ACs will be applied to ensure they "take precedence over the application of SAE ARP 4754a."	Disagree. See new section 3 (*formerly Sec 4.)*.
24	*Garmin*	Page 1, paragraph 1.c	I t is not clear what the following two sentences mean. "The FAA issued advisory circulars (see Section 2.b) for the specific 14 CFR sections that outline the relationship between a	The quoted text indicates other ACs already uses the 4754A process but apparently the other ACs applies the 4754A process differently from this AC. This new guidance goes on to say that the old guidance controls where there is a difference.	Make the new guidance consistent with the required application of 4754A.	This is a cross part AC and as stated should be used in conjunction with the other ACs. It would be too prescriptive to try and develop specific guidance. See Section 3 (*formerly Sec 4.)*.

			specific means of compliance and the system development process described in SAE ARP 4754a. The means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP 4754a."	Why doesn't this guidance properly reflect the expected use of 4754A?		
25	*GE Aviation*	Page 1 para 1c	"The FAA issued advisory circulars (see Section 2.b) for the specific 14 CFR sections that outline the relationship between a specific means of compliance and the system development process described in SAE ARP 4754a"	The FAA issued advisory circulars (see section 2b) that mention SAE ARP 4754	None of the ACs of section 2b refer to ARP 4754A. Some refer to ARP 4754 (original) as background reading. The scope of ARP4754 (Highly Integrated or Complex Aircraft Systems) was very different from ARP4754a, and so the correct document should be referenced. Also, some of the ACs referenced the document as background reading; they were silent on "the relationship between a specific means of compliance and the system development process described in ARP …"	Intent between the two versions of the ARP is the same and unchanged. Furthermore, they are only reference. See 3 (*formerly Sec 4.)*.
26	*Embraer*	2.b	Embraer recommends section 2.b should include reference to AMC 25.1 309 since SAEARP 4754A does make reference severa1 times as an important guideline material.			Disagree. It is not our intent to reference all international guidance, when the FAA equivalent is referenced.
27	*AIA*	Page 2 para 2b	(10) AC 33.75-1, *Guidance Material for 14 CFR §33.75, Safety Analysis.*	Delete	Reference 2b 10 had no intent to specify any particular process for safety analysis. It listed a number of different approaches which could be used, as did reference	The ARP is referenced, but not called out in any other parts of the Ac.

					2b (6). Stating that ARP 4761 should be used as "the methodology for safety assessment processes" is in direct conflict with reference 2b (10).	
28	*GE Aviation*	Page 2 para 2b	(10) AC 33.75-1, *Guidance Material for 14 CFR §33.75, Safety Analysis.*	Delete	Reference 2b 10 had no intent to specify any particular process for safety analysis. It listed a number of different approaches which could be used, as did reference 2b(6). Stating that ARP 4761 should be used as "the methodology for safety assessment processes" is in direct conflict with reference 2b(10).	The ARP is referenced, but not called out in any other parts of the Ac.
29	*Garmin*	Page 2, paragraph 2.b	The indentation of the text after the item numbers for items (8) through (10) is inconsistent with the indentation of the text after the preceding item numbers.	Paragraph formatting should be consistent.	Adjust the formatting so there is consistent indentation.	Agree. Revised as requested.
30	*Garmin*	Page 2, paragraph 2.c.	Include the document SAE ARP 4754A.	This is the key document related to the AC.	Include the document SAE ARP 4754A.	Disagree. This is the subject of the AC.

31	*Eurocopter Deutschland*	Page 2 Paragraph 2.c.	RTCA/DO-297 not listed.	Like RTCA/DO-254 and DO-178 listed in the Industry Standards section, RTCA/DO-297 includes several references to SAE ARP 4754.	RTCA/DO-297 should be added in the Industry Standards section, unless it is considered that listing AC 20-170 in the Applicable Acs section is sufficient.	Agree. Added to applicable industry standards
32	*Garmin*	Page 2, paragraph 3	Clarify that the entirety of 4754A isn't required to be used by every applicant.	As noted elsewhere in our comments, not every applicant will use the entirety of 4754A.	Update paragraph 3 to "The FAA recommends the use of the applicable aircraft and/or system development assurance processes described in SAE ARP 4754A…" Also, add guidance on what specific 4754A processes may be applicable to TC, STC, and TSOA.	Agree. See Section 3 (*formerly Sec 4.)*.
33	*EASA*	Page 2 Section 3.	It may be worthwhile and useful to indicate via a note for example that ARP4761 is under revision and version A will be published soon.	There may be some inconsistency between ARP4754A and ARP4761.	At the end of section 3, you may add a note "Note: SAE ARP4761 is under revision and version A will be published soon"	Agree. Sentence has been removed.
34	*GE Aviation*	Page 2 para 3	SAE ARP 4754a should be used in conjunction with SAE ARP 4761 as the methodology for safety assessment processes.	Delete paragraph	There is no industry consensus on the introduction of ARP4761 into the certification process by mandate. ARP 4761 should be the	Agree. Sentence has been removed.

					topic of a separate discussion. The SYSTMS AC stated topic is recognition of ARP4754 – validation and verification – it should not be used to identify a particular methodology approved for safety assessment processes.	

35	*Dassault Aviation*	3	Reference is made between ARP4754a and ARP 4761.	All activities referenced in ARP 4754a should be completely described in either ARP4754a itself or forthcoming ARP 4761	FAA to verify that each activity is completely described	Agree. Sentence has been removed.
36	*Garmin*	Page 2, paragraph 4	The indentation of the paragraph text is inconsistent with paragraph 3. Background.	Paragraph formatting should be consistent.	Adjust the formatting so there is consistent indentation.	Agree. Change as suggested.
37	*Garmin*	Page 2, paragraph 4	Paragraph 4 includes the statement "The FAA may publish ACs for specific 14 CFR sections that outline the relationship between a specific means of compliance and the system development process described in SAE ARP 4754a." This statement is inconsistent with the paragraph 1.c statement that "The FAA issued advisory circulars (see Section 2.b) for the specific 14 CFR sections that outline the	The statements should be consistent in verb tense.	Adjust paragraph 4 to use the same verb tense as in paragraph 1.c.	Agree. Change as suggested.

			relationship between a specific means of compliance and the system development process described in SAE ARP 4754a. " Paragraph 1.c indicates the FAA has already issued ACs that "outline the relationship between a specific means of compliance and the system development process described in SAE ARP 4754a" while paragraph 4 indicates that the FAA may publish such ACs at a future date.			
38	*Garmin*	Page 2, paragraph 4	Paragraph 4 includes the statement "The means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP 4754a."	As noted in our comment on paragraph 1.c, none of the FAA advisory circulars referenced in section 2.b actually reference SAE ARP 4754A. Instead, they reference SAE ARP 4754, which is substantially different from 4754A. 4754A has been completely rewritten and only a shadow of its former content remains (even the document title changed). To gloss over the substantial differences without stating how FAA intends to employ "The means of compliance in those ACs" so that they truly "take precedence over the application of SAE ARP 4754a" leaves a great deal of room for varying interpretations by various directorates and ACOs.	FAA should explicitly state how "The means of compliance in those ACs" differ from SAE ARP 4754A and how those ACs will be applied to ensure they "take precedence over the application of SAE ARP 4754a."	See change to section 3 (*formerly Sec 4.)*.
39	*Garmin*	Page 2, paragraph 4	I t is not clear what the following two sentences mean. "The FAA may publish ACs for the specific 14 CFR	The quoted text indicates other ACs may in the future use or already use the 4754A process but apparently the other ACs apply the 4754A process differently from this AC. This new guidance goes on to say that the old guidance controls where there is a	Make the new guidance consistent with the required application of 4754A.	Agree. See text update to section 1.

			sections that outline the relationship between a specific means of compliance and the system development process described in SAE ARP 4754a. The means of compliance in those ACs may differ from and will take precedence over the application of SAE ARP 4754a."	difference. Why doesn't this guidance properly reflect the expected use of 4754A?		
40	*Dassault Aviation*	4-General	This paragraph makes priorities amongst ACs stating AC20-SYSTMS has the lowest priority	It is difficult to understand that a recommended process for an Aircraft design might not be acceptable for specific items of that aircraft.	As this § might induce misunderstanding, please clarify the intent of this paragraph	Agree. See section 1.
41	*EASA*	Page 2 Section 4.a.	It may be relevant to indicate that ARP4754A should be used in its entirety as the sentence in this section may be interpreted that ARP4754 section 5.2 (DAL allocation) may be used alone.	There may be an inconsistent DAL assignment in a safety process if section 5.2 (or equivalent) is not used and contrary, when used the other ARP4754 sections should be used for consistency.	At the end of Section 4.a, you may add a sentence like: Conceptually, SAE ARP4754A should be used in its entirety and section 5.2 guidelines cannot be used alone.	Partial agreement. The AC now allows the applicant to propose how they will use the document. 3 (*formerly Sec 4.)*.
42	*Boeing Commercial Airplanes*	Page 2 Para 4.a.	The proposed text states: *a. If you use Section 5.2 of SAE ARP 4754a to assign development assurance levels, coordinate it with the FAA early in the life cycle process and document it in your certification planning. This will allow us ample time to resolve unexpected issues as they arise and can help prevent costly delays in completing a project.*	Revise the text as follows: *a. If Whether you use Section 5.2 of SAE ARP 4754a or some other means to assign development assurance levels, coordinate it with the FAA early in the life cycle process and document it in your certification planning. This will allow us ample time to resolve unexpected issues as they arise and can help prevent costly delays in completing a project. Section 5.2 provides guidelines for assigning Item Development Assurance Levels (IDAL) to software and complex hardware used*	Paragraph 4.a. should be reworded to clarify that, in the case of development assurance level (DAL) assignment, ARP 4754A should take precedence over DO178B and DO254, because it provides a more up-to-date	Partial agreement. Added suggested text except for last sentence. See 3 (*formerly Sec 4.)*.

				within the system, and these may lead to slightly different assignments compared to the guidelines in DO-178B or DO-254 in some situations. Generally, the information in ARP 4754A Section 5.2, will provide more consistency if used by all 3 life-cycles (systems, software, and hardware); regardless of the assignment guidelines used, the DAL assignments should be coordinated across all 3 life-cycles and the safety analysis process.	guideline. ARP 4754A represents the first time there is consensus between several government agencies and industry, and addresses the inconsistencies that have existed between the three main existing guidance documents that address this (DO-178B, DO-254, and ARP 4754).	
43	*Garmin*	Page 2, paragraph 4.a	Paragraph 4.a includes the statement "If you use Section 5.2 of SAE ARP 4754a to assign development assurance levels, coordinate it with the FAA early in the life cycle process and document it in your certification planning."	The relationship between the 2x.1309 ACs referenced in paragraph 2.b and their method of assigning development assurance levels and the method of assigning development assurance levels via 4754A section 5.2 is not clear.	Clarify the relationship between the 2x.1309 Acs and 4754A section 5.2 with respect to assigning development assurance levels.	Agree. See text update to section 1 and 3 (*formerly Sec 4.)*.
44	*Garmin*	Page 2, paragraph 4.a	The sentence below may communicate if Section 5.2 is not used there is no need to coordinate with the FAA. "If you use Section 5.2 of SAE ARP 4754a to assign development assurance levels, coordinate it with the FAA early in the life cycle process and document it in your certification planning."	This sentence appears to imply that the FAA does not need to be involved with review of development assurance levels unless ARP 4754A section 5.2 is used. This seems to inappropriately increase FAA involvement based solely on the use of ARP 4754A.	Adjust sentence to something like the following: "Reference Section 5.2 of ARP 4754A for an acceptable process to assign development assurance levels. Coordinate development assurance levels with the FAA early in the life cycle to	Agree. See text update to section 1 and 3 (*formerly Sec 4.)*.

					allow adequate time to address any issues."	
45	*AIA*	Page 3 Paragraph 4b	b. We may review the development life cycle processes and associated data at our discretion to assure that the objectives of SAE ARP 4754a are met. The review process assists both the certification authority and the applicant with determine if a particular project will meet the certification basis.	Delete paragraph	Paragraph 4b of the AC appears to introduce "compliance" with the AC as a regulatory requirement, by introducing FAA review of the applicant's ARP data and processes "to assure the objectives are met". The AC wording does not reflect the context of the ARP as written, that it is intended to be optional. Stating that the applicant should achieve compliance with 4754 without stating that there are other means possible is in violation of the scope of ARP4754A, is too restrictive and amounts to rulemaking by AC.	Disagree. See text update to section 1 and 3 (*formerly Sec 4.)*.
46	*Cessna*	4.b	Cessna is concerned with the intent of this paragraph. It implies the possibility of heavy FAA oversight for			See new section 1 and 3 (*formerly Sec 4.)*.

			even relatively simple systems or changes to existing systems.			
47	*Boeing Commercial Airplanes*	Page 3 Para 4.b.	The proposed text states: *b. We may review the development life cycle processes and associated data at our discretion to assure that the objectives of SAE ARP 4754a are met. The review process assists both the certification authority and the applicant with determine if a particular project will meet the certification basis.*	Revise the text as follows: *b. We may review the development life cycle processes and associated data at our discretion reached in agreement with the applicant to assure that the objectives of SAE ARP 4754a are met. The review process assists both the certification authority and the applicant with determine if a particular project will meet the certification basis. An applicant may use ARP 4754A as a recommended process, but alternative processes may be used if available. ARP 4754A is a means, but not the only means, to accomplish the development process.*	Proposed paragraph 4.b. implies that the FAA can conduct audits of compliance with ARP 4754A at their discretion; and paragraph 4.c. indicates that applicants should *"satisfy the recommended objectives."* Boeing's recent experience on one certification program revealed that this is inadequate criteria, and any audit will likely be based on a subjective interpretation of whether the objectives were met. The performance of audits without objective criteria is apt to leave both the regulator and applicant in a state of disagreement that is unlikely to be resolved until late in the program. Stating that the applicant should achieve compliance	Disagree with you concern regarding audits. Partially agreed with some comments, see changes to text. See new section 1 and 3 (*formerly Sec 4.)*.

					with SAE 4754A without stating that there are other means possible is not in accord with the scope of ARP 4754A, is too restrictive, and appears to be mandating compliance without associated rulemaking. (We are disappointed that this proposed AC was released without prior industry coordination that should be commensurate with a significant expansion of guidance.)	
48	*Garmin*	Page 3, paragraph 4.b	Paragraph 4.b includes the statement "We may review the development life cycle processes and associated data at our discretion to assure that the objectives of SAE ARP 4754a are met." Clarify that the entirety of 4754A isn't required.	As noted elsewhere in our comments, not every applicant will use the entirety of 4754A. The entire 4754A Figure 5 "V" development and verification process involving aircraft, systems, and items isn't required for certification authority signoff of TC/STC/TSOA. These are done in stages and not all stages are completed at the point of obtaining certification authority approval. For example, TSOA doesn't require testing to be completed in the aircraft which would normally take place prior to TC/STC approval.	Update the referenced statement to "…to assure that the applicable objectives of SAE ARP 4754A are met." Also, add guidance on what specific 4754A processes and objectives may be applicable to TC, STC, and TSOA.	Agree. See new section 1 and 3 (*formerly Sec 4.)*.

49	*Garmin*	Page 3, paragraph 4.b	Reword second sentence.	Grammatical error "…and the applicant with determine if a particular…"	Change "determine" to "determining" in the quoted phrase.	Agree. Changed as requested.
50	*Garmin*	Page 3, paragraph 4.b	Paragraph 4.b includes the statements "We may review the development life cycle processes and associated data at our discretion to assure that the objectives of SAE ARP 4754a are met. The review process assists both the certification authority and the applicant with determine if a particular project will meet the certification basis."	There is no indication as to what guidance FAA will use to review the processes and data. For example, FAA Order 8110.49 Chapter 2 describes the Software Review Process (11 pages) and FAA Order 8110.105 Chapter 2 describes the SEH/CEH Review Process (10 pages). The 8110.49 and 8110.105 guidance was developed because there was a great deal of variability in how FAA performed their reviews and consequently great variation in what was expected from applicants. The variability in reviews and what will be expected of applicants has the potential to be an even bigger issue with 4754A because the entire 4754A process from aircraft to appliance isn't required for TC/STC/TSOA.	Add guidance on what specific 4754A processes and objectives may be applicable to TC, STC, and TSOA. FAA also should document criteria for how to conduct reviews so that both FAA and applicants have a clear understanding about what to expect from a review. A separate document may be necessary to accomplish this.	Agree. Future action.
51	*Dassault Aviation*	4-b	Clarity of the audit process to apply is questionable	This paragraph is too vague and unclear	Remove the text or clarify it	Agree. Clarified See new section 1 and 3 (*formerly Sec 4.)*.
52	*GE Aviation*	Page 3 Paragraph 4b	b. We may review the development life cycle processes and associated data at our discretion to assure that the objectives of SAE ARP 4754a are met. The review process assists both the certification authority and the applicant with determine if a particular project will meet the certification basis.	Delete the paragraph entirely (see below).	The AC implies that the FAA can conduct audits to ARP4754A at their discretion, and paragraph 4c describes that we should "satisfy the recommended objectives". Experience indicates closely defined criteria are needed for a	Paragraph has been removed.

					successful audit process, to avoid subjective interpretation of whether the objectives were met. .	
53	*GE Aviation*	Page 3 Paragraph 4b	b. We may review the development life cycle processes and associated data at our discretion to assure that the objectives of SAE ARP 4754a are met. The review process assists both the certification authority and the applicant with determine if a particular project will meet the certification basis.	Delete paragraph	Paragraph 4b of the AC appears to introduce "compliance" with the AC as a regulatory requirement, by introducing FAA review of the applicant's ARP data and processes "to assure the objectives are met". The AC wording does not reflect the context of the ARP as written, that it is intended to be optional. Stating that the applicant should achieve compliance with 4754 without stating that there are other means possible is in violation of the scope of ARP4754A, is too restrictive and amounts to rulemaking by AC. This AC was	Paragraph has been removed.

					released without the industry coordination that should be commensurate with a significant expansion of guidance	
54	*AIA*	Page 3 Paragraph 4c	You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated planned activities and capturing the related data.	Delete paragraph	Paragraph 4c of the AC appears to introduce "compliance" with the AC as a regulatory requirement, by introducing checklists of ARP objective completion. The AC wording does not reflect the context of the ARP as written, that it is intended to be optional. Stating that the applicant should achieve compliance with 4754 without stating that there are other means possible is in violation of the scope of ARP4754A, is too restrictive and amounts to rulemaking by AC.	Paragraph has been removed. See paragraph 3 (*formerly Sec 4.)*.

55	*Cessna*	4.c	Cessna suggests the "should" in the 1st sentence, as in "You should satisfy the recommended…." needs to be reduced. Paragraph 1.c. and 4.a. imply that use of ARP4754A is not required, but the use of "should" here implies that an applicant 'should' use this portion of the process.			See revised text in sections 1 and 3 (*formerly Sec 4.)*.
56	*Boeing Commercial Airplanes Comment # 9*	Page 3 Para 4.c.	The proposed text states: *c. You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated planned activities and capturing the related data.*	Revise the text as follows: *c. You <u>The applicant</u> should <u>plan to</u> satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated planned activities and capturing the related data. <u>The data output and the process activities should be coordinated with the FAA and documented in the planning documents."</u>*	The intent of the committee that developed the SAE ARP was that it <u>NOT</u> be prescriptive. This proposed AC, as worded, implies a prescriptive approach to do the activities in the ARP, which was not intended by the committee. While activities, process steps, and instructions are needed, the AC implies that the specific activities as described in the ARP must be followed. While it is acceptable to tell the applicant to meet the objectives and point to the use of "R" in the tables, we consider it inappropriate for	Paragraph has been removed. See new paragraph 3 (*formerly Sec 4.)*.

					the AC to direct applicants to perform the specified activities because applicants should be free to determine their own activities to fit their technology, resources, and business practices.	
57	*Garmin*	Page 3, paragraph 4.c	Paragraph 4.c includes the statement "You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated planned activities and capturing the related data."	It is not clear what the phrase "all associated planned activities" means. For example, does "associated planned activities" mean that the activities associated with the 4754A Appendix A, Table A-1 planning process objectives should be performed? Or, as we have noted elsewhere in our comments that not every applicant will use the entirety of 4754A, does "associated planned activities" mean that an applicant's plans can indicate to the cert authority that it only intends to meet specific 4754A Appendix A, Table A-1 objectives and that only the activities associated with those planned objectives have to be met? Additionally, the TSO process documented in the 14 CFR 21.6xx does not require aircraft installation data in order to obtain TSOA. Consequently, several of the 4754A Appendixes A objectives may not be achieved prior to obtaining a TSOA.	Clarify the intent of this statement by changing "all associated planned activities" to "all applicable activities". Also, add guidance on what specific 4754A processes and objectives may be applicable to TC, STC, and TSOA.	Paragraph has been removed. See new paragraph 3 (*formerly Sec 4.)*.
58	*Garmin*	Page 3, paragraph 4.c	Paragraph 4.c includes the statement "You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated	While applicants may have existing processes that cover some aspects of the applicable 4754A Figure 5 "V" development and verification processes, it is unlikely that the majority of applicants have processes that cover the entire set of applicable processes in accordance with	FAA should define a phased approach to applying 4754A. e.g., apply first to Part 25 aircraft manufacturers with compliance	Paragraph has been removed. See new paragraph 3 (*formerly Sec 4.)*.

			planned activities and capturing the related data."	the 4754A Appendix A objectives. It is unclear from the draft AC as to when the FAA expects applicants to comply with the entire set of applicable 4754A processes in accordance with the 4754A Appendix A objectives.	expected for projects submitted 1 year after the AC is signed in order to allow time for applicants to put the processes in place that will meet the 4754A Appendix A objectives. Then FAA should gain experience (e.g., 5 years) to ensure sufficient data is available that a cost-benefit analysis can be performed as to whether 4754A should be applied to other Parts. For example, FAA Small Aircraft Directorate developed AC 23.1309-1C/1D to reduce development assurance levels from those required by DO-178B and DO-254. Recognition of 4754A in its entirety could dampen the current momentum to equip Part 23 aircraft with advanced safety-	

					enhancing capabilities. In particular, the need for both aircraft manufacturers and equipment manufacturers to define processes to cross the boundaries between aircraft, systems and items could be problematic for smaller aircraft manufacturers and TSOA equipment manufacturers.	
59	*Garmin*	Page 3, paragraph 4.c	Paragraph 4.c includes the statement "You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated planned activities and capturing the related data."	SAE ARP 4754A, Appendix A, Table A-1 also includes objectives marked as "A", which indicates "A - As negotiated for certification". The paragraph 4.c statement appears to imply that FAA will not expect applicants to negotiate with FAA on complying with these objectives and thus applicants can ignore these objectives. However, since SAE ARP 4754A also may be recognized by other certification authorities, it is unclear whether other certification authorities will take the same position, which will result in expectations between cert authorities that are not harmonized.	FAA should explicitly document that there is no expectation for applicants to negotiate and thus no expectation for applicants to comply with objectives marked as "A". Furthermore, FAA should ensure this expectation is harmonized with the other cert authorities.	Paragraph has been removed. See new paragraph 3 (*formerly Sec 4.)*.
60	*Garmin*	Page 3, Paragraph 4.c	Paragraph 4.c includes the statement "You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated planned activities and	4754A includes ambiguous information that should be waived by the advisory circular.	The AC should waive the requirement to have a Configuration Index to satisfy SC1 and SC2 requirements.	The intent of this AC is not to change ARP4754A. Garmin should contact SAE with their concerns and consider participating in the committee.

			capturing the related data." "R*" and "R" Process Assurance objectives cannot be achieved until the final baseline is created. Part of the 4754A 7.x Process Assurance objective is to provide assurance that items are properly controlled. Proper controls include SC1 or SC2 aspects per 4754A 5.6.2.6. One aspect that is common to both SC1 and SC2 is Configuration Index Establishment. The data for a Configuration Index is not available until the end of a life cycle; therefore data will not be considered properly controlled until the final Configuration Index is created.			
61	*Dassault Aviation*	4-c	This paragraph seems to be too prescriptive for an AC	As per AC rule, prescription should not be included in an AC	Remove the text	Paragraph has been removed.
62	*GE Aviation*	Page 3 Paragraph 4c	You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a, Appendix A, Table A-1, by performing all associated planned activities and capturing the related data.	Delete paragraph	Paragraph 4c of the AC appears to introduce "compliance" with the AC as a regulatory requirement, by introducing checklists of ARP objective completion. The AC wording does not reflect the context of the ARP as written, that it is intended to be	Paragraph has been removed.

					optional . Stating that the applicant should achieve compliance with 4754 without stating that there are other means possible is in violation of the scope of ARP4754A, is too restrictive and amounts to rulemaking by AC. The significant expansion of guidance in this AC would have benefited from broad industry coordination.	
63	*Boeing Commercial Airplanes*	Page 3 Para 4.c.	Table A-1 of ARP 4754A recommends independent reviews for several process steps. This independence is defined on page 12 of the ARP. Strict adherence to this recommended practice may become impractical to implement in some situations.	See our comment #9, above.	The ARP is not prescriptive; it allows alternative methods so long as the applicant and regulator agree. Where considered necessary, they should agree on what level of independence is necessary.	Agree. See new text in section 1 and 3 (*formerly Sec 4.)*.
64	*Embraer*	4.c.	The AC states in paragraph 4.c. that: "You should satisfy the recommended objectives marked as "R*" or "R" in SAE ARP 4754a1 Appendix A, Table A-1, by performing all associated planned activities and capturing the related data". Embraer recommends, in paragraph 4.c., the statement should be revised to say: *"You should make a proposal for compliance with the objectives established on table A-1, Appendix A and describe how the associated planned activities are implemented in your design development process I'.*			Paragraph has been removed.

			Embraer	
65	*Cessna*	Section 4.1 in ARP4754A	This AC specifies the guidance of ARP4754A. The impact of this section on complying with the aircraft development process is not fully understood. While the new guidance may be desirable for new, more highly integrated systems, it appears excessive for more conventional systems or designs. A conventional design imbedded in a highly integrated system would now be subject to the same guidance as the more complex parts of the system. The AC is expanding the safety process beyond the stated requirements of ARP4761 adding additional burden without a commensurate benefit for conventional systems. The FAA should provide additional clarification and guidance in this AC or in ARP4754A prior to issuing this document.	The intent of this AC is not to change ARP4754A. Cessna should contact SAE with their concerns
66	*Cessna*	5.2.1 of the ARP	This AC specifies the guidance of ARP4754A. ARP4754 specifies the assignment principles for Catastrophic and Hazardous stated in this section can be interpreted as follow: For any Catastrophic failure conditions, the Design Assurance Level (DAL) assignments of any system functions or items cannot be less than Level C. Cessna suggests that by this logic, a system with multiple Level A and multiple level C paths can become invalid if one Level D exists. This also precludes the use of a Level D even though there may be multiple mechanical paths which do not contain software or Airborne Electronic Hardware (AEH). While the new requirement may be desirable in some applications (like fly by wire), it penalizes the applicant in most rational designs. The new requirement seems overly conservative, and to add cost without any added benefit. Therefore Cessna respectfully recommends its removal.	The intent of this AC is not to change ARP4754A. Garmin should contact SAE with their concerns
67	*Cessna*	5.2.1 (second bullet) of the ARP	This AC specifies the guidance of ARP4754A. ARP4754 allows two level B systems of different design to satisfy the level A requirement for a catastrophic failure condition. The FAA interpretation of ARP4754A seems to add new criteria requiring the level B systems to be functionally different. ARP4754 does not have this requirement. Clarification of this requirement is needed. The new requirement is overly conservative for conventional systems and adds cost without any added benefit and therefore should be removed. Note: the Transport Airplane Directorate has prevented Cessna from using two level B dimming designs (totally different designs, one in the EFIS and one in the standby) from equaling a level A.	The intent of this AC is not to change ARP4754A. Garmin should contact SAE with their concerns
68	*Cessna*	Appendix A of the ARP	This AC specifies the guidance of ARP4754A. The impact of this section on complying with the aircraft development process is not fully understood. It seems to be expanding the safety process beyond the stated requirements of ARP4761. The FAA should provide additional clarification and guidance in this AC or in ARP4754A prior to issuing this document.	The intent of this AC is not to change ARP4754A. Garmin should contact SAE with their concerns
69	*Cessna*	Appendix B of the ARP	This AC specifies the guidance of ARP4754A. The impact of this section on complying with the aircraft development process is not fully understood. It seems to be expanding the safety process beyond the stated requirements of ARP4761. The FAA should provide additional clarification and guidance in this AC or in ARP4754A prior to issuing this document.	The intent of this AC is not to change ARP4754A. Garmin should contact SAE with their concerns