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#	Commenter	Page & Para. No.	Comment	Reason for Comment	Suggested Change	Comment Resolution
1.	ACE-110 (James Brady, ACE-111)	General	TSO references RTCA DO-XXX which is not ready to publish. There are sections that have not been written yet called out by the TSO. Difficult to know what we are agreeing to.	Referencing a “draft” document is an issue. Will there be a point where the MOPS is complete and comments can still be made to the TSO?	Allow for final comments on TSO after MOPS has been published.	Acknowledge – We do not intend on making a change to this TSO other than adding the actual DO number and date once the MOPS is published by RTCA. The TSO will be updated with the number prior to the public comment period. We will provide a published version of the MOPS once available
2.	ACE-110 (Robin Sova ACE-114)	Page 1, Sec. 3.a	The ground based “Functionality” of this system is ambiguous; i.e., it is not clear whether or not it is limited to ground use only.	This section states that the system “...is...intended to provide...control...communication...while on the airport surface...is not intended to provide...(ATS) communications...” The MOPS also mentions several times that a “Ground Based base station” is part of the system. Ground based Airborne Electronic Hardware (AEH) and Software (SW)	Make clearer whether or not the system has ground based functionality and AEH/SW. If so, consider requiring “RTCA DO-254” for its AEH and “RTCA DO-278A” for its SW (these	Partially Accepted – Clarified 3.a stating that AeroMACS can only operate on the airport surface. With regard to

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				should be developed using an assurance standard.	are both called out in “RTCA DO-313” which is mentioned below).	DO-254 AeroMACS can only be implemented on the airport surface. In addition, the failure condition is Minor and therefore Airborne Electronic Hardware requirements per DO-254 are not required
3.	ACE-110 (Robin Sova ACE-114)	Page 1, Sec. 3.a	The required equipment status of this system is ambiguous; i.e., it is not clear whether or not it is required.	This section states that the system “...is not intended to provide...(ATS) communications...is considered supplemental...to...equipment required by the operating rules.”	Make clearer whether the system is “required equipment” or not. If not, then consider the applicability of “RTCA DO-313” for non-essential equipment.	Accepted – Added clarification for the use of aeronautical spectrum (AMRS) for safety of flight and ground use only.
4.	ACE-110 (Robin Sova ACE-114)	Page 2, Sec. 3.e	The “RTCA DO-178B” reference should match the MOPS.	It currently references the older version and date which does not match the MOPS’ reference to the latest version.	Change: “DO-178B...dated December 1, 1992” to “DO-178C...dated December 13, 2011”	Not Accepted – We will encourage the use of DO-178C but not invoke at this time

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5.	ACE-110 (Robin Sova ACE-114)	Page 2, Sec. 3.e	The “RTCA DO-178B” reference does not apply to ground based base station software.	If there is a ground based software component that needs to be qualified, then it should be to RTCA DO-278A and not to DO-178B/C.	Add a similar sentence to 3.e for requiring DO-278A for Ground Based Software.	Not Accepted – Agree that the ground Base Stations should meet the software requirements of DO-278A if applicable, however, that is out of scope for the TSO.
6.	ACE-110 (Robin Sova ACE-114)	Page 2, Sec. 3.e	The “RTCA DO-178B” reference does not apply to Airborne Electronic Hardware.	Airborne Electronic Hardware (AEH) should be qualified to RTCA DO-254. This TSO mentions AEH several times in other parts of the document.	Add a new section “3.f. Airborne Electronic Hardware”, similar in content to 3.e, but for requiring DO-254 for AEH.	Not Accepted - AeroMACS can only be implemented on the airport surface. In addition, the failure condition is Minor and therefore Airborne Electronic Hardware requirements per DO-254 are not required
7.	ACE-110 (Robin Sova ACE-114)	Page 5, Sec. 6.g	The “RTCA DO-178B” reference needs to be consistent within the TSO and should match the MOPS.	It currently references the older version which does not match the MOPS’ reference to the latest version.	Change all occurrences of: “DO-178B” to “DO-178C”.	Not Accepted – We will encourage the use of DO-178C but not

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						invoke at this time
8.	ACE-110 (Robin Sova ACE-114)	Page 5, Sec. 6.g	The “RTCA DO-178B” reference does not apply to ground based base station software.	If there is a ground based software component that needs to be qualified, then it should be to RTCA DO-278A and not to DO-178B/C.	Add a similar sentence to 6.g. or else a new 6.h. for requiring DO-278A for Ground Based Software.	Not Accepted – Agree that the ground Base Stations should meet the software requirements of DO-278A if applicable, however, that is out of scope for the TSO.
9.	ACE-110 (Robin Sova ACE-114)	Page 5, Sec. 6.g	The “RTCA DO-178B” reference does not apply to Airborne Electronic Hardware.	Airborne Electronic Hardware (AEH) should be qualified to RTCA DO-254. This TSO mentions AEH several times in other parts of the document.	Add a new section 6.h, similar to 6.g, but for requiring DO-254 for AEH.	Not Accepted - AeroMACS can only be implemented on the airport surface. In addition, the failure condition is Minor and therefore Airborne Electronic Hardware requirements per DO-254 are not required
10.	Marc Ronell	Para 3.e page 2	Only software is mentioned?	What about complex or programmable hardware?	Add equivalent statements regarding DO-254	Not Accepted - AeroMACS can only be

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						implemented on the airport surface. In addition, the failure condition is Minor and therefore Airborne Electronic Hardware requirements per DO-254 are not required
11.	Marc Ronell	Page 1	Why is there no Related FAA regulations section? What about related guidance?	It can be helpful to have an AC point to other documentation and ACs	Add a section pointing to related ACs and guidance for example AC 20-115B, DO-178b, DO-254, etc.	Acknowledge – Agree that we reference documents such as DO-178B without also referencing the associated AC. I will forward this item to the TSO Core Process team for future consideration in order 8150.1C
12.	Marc Ronell	Para 4.c. page 3	Para 4.c. is written as follows: “If the article includes <u>software and/or</u>	Why not explicitly call out the potential need for DO-254 compliance?	Either add DO-254 requirements or deleted the references to	Not Accepted - AeroMACS can only be

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			<p><u><i>airborne electronic hardware</i></u>, then the article part numbering scheme must identify the software and <u><i>airborne electronic hardware</i></u> configuration. The part numbering scheme can use separate, unique part numbers for software, hardware, and <u><i>airborne electronic hardware</i></u>.” Is the phrase <u><i>airborne electronic hardware</i></u> meant as a synonym for complex programmable hardware? Is this a reference to DO-254?</p>		<p><u><i>airborne electronic hardware</i></u>. In its present state, the document seems to contradict itself.</p>	<p>implemented on the airport surface. In addition, the failure condition is Minor and therefore Airborne Electronic Hardware requirements per DO-254 are not required</p>
13.	Marc Ronell	Para 5.c	<p>The requirement is current written, “If the article includes software: a plan for software aspects of certification (PSAC), software configuration index, and software accomplishment summary. “ What if the document contains complex programmable hardware? Then are the PHAC, HCI, and HAS needed as submissions?</p>	<p>The document does not seem to have references to DO-254 or the typical required documents for submission.</p>	<p>Consider adding requirements for DO-254 and have requirements to submit at minimum the PHAC, HCI, and HAS.</p>	<p>Not Accepted - AeroMACS can only be implemented on the airport surface. In addition, the failure condition is Minor and therefore Airborne Electronic Hardware requirements per DO-254 are</p>

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						not required
14.	Marc Ronell	Para 5.c Pg 4	DO-178b Annex table objective listing with a description and justification of how each DO-178b Annex A objective was found compliant.	What the agency really wants to know at the end of the certification process is whether or not the software has met the objectives of DO-178b Annex A tables. So why not just ask the applicant to submit these? Seems obvious?	Require the applicant to submit the DO-178b Annex table objective listing with a description and justification of how each DO-178b Annex A objective was found compliant.	Acknowledge – Will send this item to the TSO Core team for consideration in order 8150.1C
15.	Marc Ronell	Para 5.e Pg 4	For the non-TSO functions, it might be good to include material from 8110.4c Change 4-5. The non-TSO function requirement submissions are in the Order but need to be submitted by applicants for us to comply. These requirements need to be incorporated in ACs so that the applicants submit the data.	Applicants are not required to follow the orders, so to have the non-TSO function requirements of 8110.4c Change 4 and 5 be possible for us to follow, the needed evidence needs to be submitted.	Make sure and needed requirements from Order 8110.4c Change 4 & change 5 are mentioned in this AC.	Acknowledge – Agree that the additional non TSO functions data requirements from 8110.4C changes 4 & 5 should be incorporated in AC guidance material and will consider during the creation of an AC for AeroMACS equipment installations
16.	Marc Ronell	Para 6 pg 5	Might need the PHAC, HCI, and HAS included here.	They are not listed.	Add a requirement for the PHAC, HCI, and HAS if DO-254 compliance is required.	Not Accepted - AeroMACS can only be implemented on the airport

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						surface. In addition, the failure condition can be no more than minor and therefore Airborne Electronic Hardware requirements per DO-254 are not required
17.	N. Khaouly, ANM-111	1, 2	TSO should be clear that this is applicable to an aircraft system and must define the system limitations.	Note to Reviewers: The draft MOPS is available for comment and this draft TSO will be updated with the published MOPS RTCA DO-number prior to this TSO going out for public comment.		Agree – Clarified paragraph 3 to state that this is for the mobile equipment. In addition, a matrix was added to the MOPS that clearly identifies requirements for specific to the mobile station (aircraft) and/or the base station (ground system).
18.	N. Khaouly,	1, 2 and 3	TSO is referring to	The TSO must refer to a released and	We would like to	Agree – We do

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	ANM-111		MOPS that is not mature. While the TSO is written to meet the release of an anticipated MOPS, and it meets that purpose, it is difficult to assess the suitability of the MOPS itself.	approved standard. Please see comment 3 below.	review the MOPS when it is more mature. Otherwise we may end up with a standard we do not agree with, that is incorporated by ref into the TSO.	not plan any further changes to the TSO prior to public comment period other than adding the published document number and date. The only changes to the MOPS were editorial and a matrix was added to clearly indicate which requirements are for the aircraft and the ground equipment.
19.	N. Khaouly, ANM-111	2.3.1 (MOPS)	The RF and lightning environmental categories in this draft are much too severe. Table 5 with environmental conditions in section 2.3.1 should be modified as follows:	Important topics are omitted.	As noted in the comment section.	Accepted – These comments were included in the MOPS FRAC for consideration by SC-223

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			<p>Section 20 RF Susceptibility - use Categories RR for aircraft installations, both in pressurized and unpressurized areas</p> <p>Section 21 RF Emissions - use Category M, both in pressurized and unpressurized areas. Remove the note that says "Test for H, claim M or L." Since this section measures RF emissions and the categories describe the limits for the emissions, there is no test for Category H. It is just a more stringent limit, so this note does not make sense.</p> <p>Section 22 Lightning Induced Transient Susceptibility - use Category A3E3XX, both in pressurized and unpressurized areas for</p>			

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			<p>metal aircraft. Use Category A3F3XX, both in pressurized and unpressurized areas for non-metal aircraft.</p> <p>Section 23 Lightning Direct Effects - apply to the antenna only (in the column 'External to Aircraft'), and use Category XX2A. Mark the other two columns XX.</p> <p>In this table, the fifth column reads 'External to Aircraft'. This is an ambiguous title. When I first read it, I thought it meant a non-aircraft installation, until I saw the table caption. To me it would be cleaner to say 'Outside the Fuselage', or more simply say 'Antennas'.</p>			
20.	R. Derby, ANM-100D	Draft TSO P. 2	Reference to DO-178B should be changed to DO-178C if AC 20-	AC 20-115 is being revised to recognize DO-178C.	Reference DO-178C, dated December 13, 2011	Not Accepted – While we encourage the

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		¶ 3.e.	115C is released/published before this TSO.			use of DO-178C we will not invoke at this time provided DO-178B is still applicable.
21.	R. Derby, ANM-100D	Draft TSO P. 6 ¶ 8.b.	www.access.gpo.gov is no longer used.	www.access.gpo.gov currently redirects visitors to www.gpo.gov ,	Replace “You can also order copies online at www.access.gpo.gov . Select “Access,” then “Online Bookstore.” Select “Aviation,” then “Code of Federal Regulations.” with “You can also order copies online at www.gpo.gov .”	Accepted – As suggested. Also forwarded to TSO Core team to update the template
22.	R. Derby, ANM-100D	Draft MPS Multiple	Document does not appear complete.	Document contains completion instructions and lots of comments.	Take the suggested actions then remove the comments and highlights.	Agree – MOPS will be completed and published prior to this draft TSO being sent for public comment
23.	R. Derby, ANM-100D	Draft MPS P. 10 ¶ 1.2.1	Add punctuations (commas).	Missing punctuation.	Change 2 nd sentence to “If, however, ...”	Accepted – Included in FRAC comments for the MOPS
24.	R. Derby,	Draft	Incorrect publication	Date on DO-178C cover sheet does not	Change date to	Accepted –

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	ANM-100D	MPS P. 14 ¶ 1.10	date on Do-178C.	match date in this document.	December 13, 2011.	Will correct the date and will revert to DO-178B as we will not invoke DO-178C at this time.
25.	R. Derby, ANM-100D	Draft MPS Appendix A	Resolve cross-reference for every instance of "Error! Reference source not found."	Table contains multiple unresolved reference.	Resolve cross-reference error.	Accepted – Included in FRAC comments for the MOPS
26.	R. Derby, ANM-100D	Draft MPS Appendix A	Column header only displayed on p.88.	Table spans multiple pages but only the first page contains column headers.	Set table properties to allow the first row repeat as header row at the top of each page.	Accepted – Included in the FRAC comments for the MOPS
27.	N. Khaouly, ANM-111	General - add an appendix to the TSO	Develop a traceability of requirements to what affect the airplane.			Partially Accepted – SC-223 added a requirements matrix to the MOPS for each requirement that is applicable to the mobile station (aircraft). No need to duplicate in the TSO
28.	N. Khaouly,	General -	Develop a traceability			Partially

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	ANM-111	add an appendix to the TSO	of requirements of interface between the airplane and base station.			Accepted – SC-223 added a requirements matrix to the MOPS for each requirement that is applicable to the mobile station (aircraft) and the base station (ground system). No need to duplicate in the TSO
29.	N. Khaouly, ANM-111	General – add.	System Security needs to be addressed including prevention of the impact on aircraft systems of inadvertent access/malicious access to assure that failure classifications are minor as claimed in para 3.	MOPS not mature to allow evaluation of the TSO.		Accepted – Section 2.2.7 of the MOPS will address system security. In addition, the MOPS appendix B matrix will clearly identify each security requirement applicable to the mobile station (aircraft) found

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						in section 2.7
30.						