

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
AIRBUS – Galley Module Design Office #1	General	A lot of req. where changed from “shall” to “must”. General understanding is that this was done in case a req. is directly connected with a 14CFR25 req.. However our question is if this is really necessary and in case of YES this is consistently applied	Consistency of the TSO / AS should be kept as much as possible	Check if this changed are really necessary. Provide consistency. Provide a definition for “must” if you decide to stick to this changes	Adopted, use of the verb “shall” is consistent with the definition in AS8057.
Cessna Aircraft Company	General	To comply with this TSO, industry must meet the minimum performance standards (MPS) qualification and documentation requirements in Society of Automotive Engineers (SAE) Aerospace Standard (AS) 8057, Minimum Design and Performance of Airplane Galley Insert Equipment Electrical/Pressurized, issued July, 2008 with 68 deviations.	Cessna is concerned that, with the large number of deviations, this TSO will be very cumbersome for industry and hard for the FAA to properly administer and oversee in a standardized and consistent way.	Cessna suggests that it would be more beneficial to the FAA and industry to reconvene the group responsible for the MPS and revise them rather than to have so many deviations required by the TSO.	Partially concur, it is agreed that fewer exceptions from the AS is better. However, when one TSO offers authorization for multiple devices it is understandable why there might be numerous variations to the AS. Additionally, many of the modifications to the AS are based on production or installation issues that are not part of the TSOA. Feedback will be provided to SAE for consideration in their review process.

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Sell GmbH #1	General	Due to respective multiple modifications to SAE AS 8057 the TSO should contain the complete set of applicable MPS.	This would improve clarity to ensure standardization and uniform implementation even in case of future revisions of SAE AS 8057.	Include in TSO applicable requirements from SAE AS 8057.	Not adopted, the TSO clearly establishes the reliance on AS8057 and any necessary modifications in Appendix 1. Including all of the applicable MPS requirements for the various pieces of galley insert equipment in the TSO would make this a lengthy and awkward document.
B/E Aerospace, Inc. Interior Systems #1	Para 3 REQUIREMENT S page 1	New models of airplane galley insert equipment identified and manufactured ON or AFTER the effective date of this TSO...	There are plenty of galley insert equipment identified and manufactured PRIOR to the effective date of this TSO fully capable of meeting the MPS qualification and documentation requirements in AS8057	Revise to include all equipment that can meet the MPS qualification and documentation requirements in AS8057 regardless of when the equipment was identified and manufactured	Not adopted, the purpose of this TSO is to offer an alternate means of approval (TSOA) for galley insert equipment from the published date.
Boeing Commercial Airplanes Comment #1	Page 1 Para. 3.b.	The text states: “b. Failure Condition Classifications. Loss of the function ... is a minor failure condition.....”	Identify this equipment as non-essential, non-required equipment. The failure of this equipment to perform its intended function must not adversely affect the safety of the aircraft or its occupants, or the proper functioning of other equipment and systems that are required by the design and operating rules. The TSO applicant should coordinate with equipment installer to determine the hazard classifications for the modes of failure, and then ensure they are mitigated commensurate with the classifications in the FMEA	AC20-168/D0-313 already defines galley equipment as non-essential, non-required equipment, and prescribes that a safety analysis be performed per ARP 4761 to ensure the modes of failure (which could be classified as <i>No safety affect, minor, major, hazardous, etc</i>) are mitigated commensurate with their hazard classification. This TSO's required FMEA should be used to support the installer's (applicants)	Partially concur, to get the TSO it is expected that the appliance will meet the designated failure condition classification. We also agree that this needs to be re-visited at installation in an aircraft.

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			required by this TSO.		
B/E Aerospace, Inc. Interior Systems #2	Para 3c SOFTWARE QUALIFICATION , page 2	If the article includes software, develop the software according to RTCA, Inc. RTCA/DO-178B.....	There are equipment/article includes software that does NOT control safety devices (e.g. thermal and/or over-current protection) that really do NOT need to develop per DO-178B...	Revise to be applicable to only software that controls safety devices need to develop per DO-178B...	Not adopted, though potentially less probable, software that doesn't control safety devices could malfunction and still create a hazard. The applicant would have the option to substantiate their situation and request a deviation.
Boeing Commercial Airplanes Comment #2	Page 2 Para. 3.c.	The proposed text states: "c. Software Qualification. <i>If the article includes software, develop the software according to RTCA, Inc. document RTCA/DO-178B, Software Considerations in Airborne Systems and Equipment Certification, dated December 1, 1992 to the design assurance level consistent with the failure condition classification defined in paragraph 3.b of this TSO."</i>	We suggest revising the text as follows: "c. Software Qualification. <i>If the article includes software <u>that controls safety devices (e.g. circuit protection, thermal protection)</u>, develop the software according to RTCA, Inc. document RTCA/DO-178B, Software Considerations in Airborne Systems and Equipment Certification, dated December 1, 1992 to the design assurance level consistent with the failure condition classification(s) defined in paragraph 3.b of this TSO</i>	Our suggested change clarifies that only software that controls safety devices needs to meet D0-178B. Also note: AS8057, paragraph 3.15.a., states: <i>"a. Software for equipment with a microprocessor(s) shall be designed, developed, and documented according RTCADO-178B, Cat. D, or higher, using RTCA-DO-248 for clarification, where applicable."</i> We suggest that this paragraph be deleted. If the body of the TSO (para. 3.c.) covers software, then AS8057 should not.	Partially adopted, though potentially less probable, software that doesn't control safety devices could malfunction and still create a hazard. The applicant would have the option to substantiate their situation and request a deviation. Revised Appendix 1 to disregard AS8057 section 4.2.9.a (software).

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B/E Aerospace, Inc. Interior Systems #3	Para 3d ELECTRONIC HARDWARE QUALIFICATION , page 2	If the article includes a complex custom micro-coded component, develop the component according to RTCA, Inc. RTCA/DO-254.....	There are equipment/article includes complex custom micro-coded component that does NOT control safety devices (e.g. thermal and/or over-current protection) that really do NOT need to develop per DO-254...	Revise to be applicable to only complex custom micro-coded component that controls safety devices need to develop per DO-254...	Not adopted, though potentially less probable, complex custom micro-coded components that don't control safety devices could malfunction and still create a hazard. The applicant would have the option to substantiate their situation and request a deviation
Boeing Commercial Airplanes Comment #3	Page 2 Para. 3.d.	The proposed text states: "d. Electronic Hardware Qualification. If the article includes a complex custom microcoded component, develop the component according to RTCA, Inc. document RTCA/DO-254, Design Assurance Guidance for Airborne Electronic Hardware to the design assurance level consistent with the failure condition classification defined in paragraph 3.b of this TSO."	We suggest revising the text as follows: "d. Electronic Hardware Qualification. If the article includes a complex custom microcoded component <u>that controls safety devices (e.g., circuit protection, thermal protection)</u>, develop the component according to RTCA, Inc. document RTCA/DO-254, Design Assurance Guidance for Airborne Electronic Hardware to the design assurance level consistent with the failure condition classification(s) defined in paragraph 3.b of this TSO."	Our suggested change clarifies that only complex custom microcoded components that control safety devices need to meet D0-254. Also Note: AS8057, paragraph 3.16. states: <i>"Electronic hardware of equipment with microprocessor(s) shall be designed, developed, and documented according RTCA-DO- 254 Cat. D, or higher."</i> We suggest that this paragraph. be deleted. If the body of the TSO (para. 3.d.) covers electronic hardware qualification, then AS8057 should not.	Partially adopted, though potentially less probable, complex custom micro-coded components that don't control safety devices could malfunction and still create a hazard. The applicant would have the option to substantiate their situation and request a deviation. Revised Appendix 1 to disregard AS8057 section 4.2.9.b (electronic hardware).
B/E Aerospace, Inc. Interior Systems #4	Para. 4c, Page 2	If the article includes a deviation per paragraph 3.c of this TSO...	Typo	If the article includes a deviation per paragraph 3.e of this TSO...	Adopted, corrected typographical error.

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Boeing Commercial Airplanes Comment #4	Page 2 Para. 4.c.	The proposed text states: <i>“c. If the article includes a deviation per paragraph 3.c of this TSO, ...”</i>	EDITORIAL COMMENT: The text should be corrected to read as follows: <i>“c. If the article includes a deviation per paragraph 3.c. 3.e. of this TSO, ...”</i>	Our suggested change corrects an apparent typographical error.	Adopted, corrected typographical error.
AIRBUS – Galley Module Design Office #12	Page 2, para 5. Application Data requirements	FMEA missing	Request for an FMEA missing / however to be conducted and prepared acc. §4.2.15 of the AS	Include FMEA in paragraph 5	Not adopted, the FMEA is prescribed in SAE AS8057. It is not part of the TSO template. Please refer to Appendix 1 item #67 regarding FMEA conduct.
B/E Aerospace, Inc. Interior Systems #5	Para. 5.a.(2), page 3	Describe in details any deviation....	It is not made specific what the reference source for the deviation is.	Add reference to para. 3e OR 14CFR part 21 Subpart O	Not adopted, the appropriate deviation reference is previously covered in paragraph 3.e.
B/E Aerospace, Inc. Interior Systems #6	Para. 6a, page 4	Functional qualification specification for qualifying...	What is a “Functional qualification specification”? Is it equivalent or referred to an “Acceptance Test”?	Clarify the definition of “Functional qualification specification”	Functional qualification specifications are to be used to test each production article to ensure compliance with this TSO. Yes, it could also be referred to as an “acceptance test”.
Boeing Commercial Airplanes Comment #5	Page 4 Para 6.a.	The proposed TSO uses the term “functional qualification specifications.” AS8057 uses the term “acceptance tests”	We request the terms be consistent throughout both the TSO and AS8057.	Consistency would ensure better understanding and compliance.	Partially concur, the TSO template prescribes the wording and format of our TSO’s. This proposed TSO follows the template. It is also agreed that consistency of language would be useful for all parties. This will be brought to SAE’s attention for possible revision.

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B/E Aerospace, Inc. Interior Systems #7	Para. 6.b, EQUIPMENT CALIBRATION PROCEDURES, page 4	It is not made specific which equipment	Does this refer to production test tools or the GAIN it self	Clarify and be more specific	Concur, the equipment calibration procedures would pertain to the galley insert equipment if applicable.
B/E Aerospace, Inc. Interior Systems #8	Para. 7a, page 4	If furnished one or more articles manufactured under this TSO to one entity (such as an operator or repair station), provide one copy or on-line access to the data in paragraphs 5.a. through 5.c. of this TSO. Add any other data needed for the proper installation, certification, use, or for continued compliance with the TSO, of the airplane galley insert equipment	Since GIE manufacturers must submit data in para. 5a thru 5c to the FAA as TSO application data and must part mark TSO on the equipment upon approval, why submit the same data to Repair Stations?	Clarify the intent of submitting data to the Repair Station	The intent of sharing this data with the purchaser is to aid in the airworthy installation of the galley insert equipment and its maintenance.
Boeing Commercial Airplanes Comment #6	Appendix 1 (general comment)	We note that many sentences in Appendix 1 have been rewritten (which is an improvement); however, as part of this rewrite, the verb "shall" in many instances has been replaced with the verb "must," leaving a mix of "shall" and "must" throughout the document.	We recommend consistently using either the word "shall" or "must." If the verb "must" is to be used, please define its meaning in AS8057, Section 1.3	AS8057 consistently uses either "should" or "shall" and provides definitions of these verbs in Section 1.3. Replacing the verb "shall" with "must" in select places in this TSO only introduces an unnecessary inconsistency. "Shall" is already defined as a mandatory criterion in AS8057 and there is no definition provided for "must."	Adopted, use of the verb "shall" is consistent with the definition in AS8057.

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AIRBUS – Galley Module Design Office #2	Page 6, disregard paragraph 2.2 Definitions: “FAILURE”, and “FAIL-SAFE”.	Keep this definitions	FAILURE and FAIL-SAFE is still used in the TSO; proper definition necessary	Keep this definitions or provide alternative ones	Partially adopted, alternative definition of “FAILURE” is a failure to meet the Minimum Performance Standard of the TSO. The standard ensures a level of safety that is acceptable. “FAIL-SAFE” is properly determined at the aircraft level and needs to be evaluated & assured at time of installation.
B/E Aerospace, Inc. Interior Systems #9	Appendix 1, item 2, page 6	Disregard para. 2.2 Definitions “ACCEPTANCE TEST”...and “FAIL-SAFE”	These are common definitions used in our industry. What are the reasons for deleting them? What are the FAA's definitions to replace them?	Clarify FAA's definitions or references against these 5 items.	Not adopted, “ACCEPTANCE TEST” refers to a test at the end of the production process. We consider this to be a production process and the applicant's responsibility. “FAIL-SAFE” is properly determined at the aircraft level and needs to be evaluated & assured at time of installation.
Boeing Commercial Airplanes Comment #7	Page 6 Appendix 1 Item 2	The proposed text states: 2. Page 8, disregard paragraph 2.2 Definitions: “ACCEPTANCE TEST”, “ASSOCIATED COMPONENTS, item 2.”, “DETRIMENTAL PERMANENT DEFORMATION”, “FAILURE”, and “FAIL-SAFE”.	Delete this proposed change to AS8057 and retain the definitions provided in current AS8057. The deletion of the term <i>DETRIMENTAL PERMANENT DEFORMATION</i> is acceptable, however, as the corresponding AS8057 section was re-written.	These terms are used throughout AS8057 and we consider it appropriate and necessary to provide definitions for these terms that level set all users. We request that either the definitions be restored, or alternatives provided.	Partially adopted, alternative definition of “FAILURE” is a failure to meet the Minimum Performance Standard of the TSO. The standard ensures a level of safety that is acceptable. The other terms will continue to be disregarded for the following reasons. “ACCEPTANCE TEST” refers to a test at the end of the production process. We consider this to be a production process and the applicant's

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					responsibility. "ASSOCIATED COMPONENTS" is defined in part by 14 CFR 25. This contradicts the intent of the TSOA and that is why it is deleted. "DETRIMENTAL PERMANENT DEFORMATION" remains excluded. "FAIL-SAFE" is properly determined at the aircraft level and needs to be evaluated & assured at time of installation.
Boeing Commercial Airplanes Comment #8	Page 6 Appendix 1 Item 4	The proposed text states: <i>'4. Page 9, replace paragraph 2.2 Definitions: MAXIMUM NORMAL OPERATING PRESSURE (MNOP) with: "MAXIMUM NORMAL OPERATING PRESSURE (MNOP): The maximum attainable pressure of the equipment's pressure system when all the equipment's components are functioning normally.'</i>	We request that this change to AS8057 be withdrawn and the current definition provided in AS8057 be retained.	We consider the sentence below (which is currently provided in AS8057 and would be deleted by the proposed TSO via Appendix 1, Item 4) adds more clarity and understanding; deleting it would be inappropriate: <i>"For wet equipment connected and open to the airplane potable water system, the maximum airplane water system pressure determines the MNOP."</i>	Not adopted, outside of scope, the function of the TSO authorization is to evaluate an article to its standard. It must still comply with the TSO after installation in the aircraft but that is part of the installation process.
B/E Aerospace, Inc. Interior Systems #10	Appendix 1, items 6 & 7, page 6	Disregard para. 2.2 Definitions "PERIODIC TESTING and "PROCESS SPECIFICATION"	These are common definitions used in our industry. What are the reasons for deleting them? What are the FAA's definitions to replace them?	Clarify FAA's definitions or references against these 2 items.	The definition of PERIODIC TESTING was removed because it refers to a sampling plan and this is not acceptable as each TSOA article must be tested. PROCESS SPECIFICATION was removed

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
					because it amounted to a production control process which is beyond the TSO scope. Production control should be maintained by applicant and is not appropriate to be defined here.
B/E Aerospace, Inc. Interior Systems #11	Appendix 1, item12	Disregard para. 3.2.1.4 through 3.2.1.6	Are there any FAA's references to replace the requirements on "Castings", "Forgings/Extrusions", and "Storage and Shelf Life"?	Clarify FAA's intention to delete these requirements.	These terms were deleted as they refer to materials that relate to the design and/or quality of the article. The TSOA applicant is responsible for the design and quality of the article. Applicants may follow these definitions but it is beyond the scope of a TSO to require them.
B/E Aerospace, Inc. Interior Systems #12	Appendix 1, item14	Disregard para. 3.2.1.9 through 3.2.2.3	Are there any FAA's references to replace the requirements on "Finishes", "Fastener Installation", "Sealing", and "Potting"?	Clarify FAA's intention to delete these requirements.	These terms were deleted as they refer to materials that relate to the design and/or quality of the article. The TSOA applicant is responsible for the design and quality of the article. Applicants may follow these definitions but it is beyond the scope of a TSO to require them.
B/E Aerospace, Inc. Interior Systems #13	Appendix 1, item16, page 7	Disregard para. 3.2.2.5	Are there any FAA's references to replace the requirement on "Welding"?	Clarify FAA's intention to delete this requirement.	This process was deleted as it refers to a process or quality control. The TSOA applicant is responsible for the design and quality of the article. Applicants may follow this process but it is beyond the scope of a TSO to require them.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
B/E Aerospace, Inc. Interior Systems #14	Appendix 1, item 22, page 8	Disregard para. 3.2.8 CONTINUED AIRWORTHINESS	Maintenance Instructions (such as a CMM) is critical to the airworthiness of the GIE.	Clarify FAA's intention to delete this requirement.	The TSO requires instructions for continued airworthiness be delivered as part of the Application Data Requirements, see paragraph 5(b).
B/E Aerospace, Inc. Interior Systems #15	Appendix 1, item 26, page 8	Disregard para. 3.3.2.c. Equipment and associated retaining devices shall comply....., and 25.789(a).	Are there any other FAA's references to replace the requirements	Clarify FAA's intention to delete these requirement.	A TSO article is manufactured as a stand-alone article. Though the intent is for it to be installed in an aircraft, meeting aircraft specific requirements is beyond the scope of a TSOA. While it behooves the TSOA holder to make an article that would meet the loads typically seen in the FAR parts mentioned in AS8057 paragraph 3.3.2.c, we can't require it in the TSO.
Boeing Commercial Airplanes Comment #9	Page 8 Appendix 1 Item 29 AS8057 para. 3.3.4	The last portion of proposed Item 29 states: "29. ... Strength substantiation shown by full scale testing must account for the variability of the materials and processes used to fabricate the parts by applying an appropriate overload factor. See chapter 2 in General Aviation Manufacturer's Association (GAMA) document Publication 13 for guidance in	We recommend deleting this text.	FAA letter 150S-09-228, dated January 22, 2010, provides that overload test factors to account for material variability of interior components should be addressed through the issuance of an FAA policy memo. A TSO should not implement overload test factors for this issue in advance of an FAA policy memo. Implementing through a TSO could create a burden on certification of TSO galley equipment that may not exist if the equipment were certified without a TSO, or that may not	Not adopted, this TSO defines the minimum requirements needed to qualify for the TSO. The TSO applicant must understand the variability in their design and address the variability in order to ensure that all articles produced meet the TSO standard. The TSO refers to an industry consensus based GAMA Publication 13 for guidance in determining the appropriate overload factor, that is one method to account for the variability of materials.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
		<i>determining the appropriate overload factor."</i>		exist on non-galley equipment of the same construction. We note that neither AC20-168 nor RTCA D0-313 address overload test factors.	
AIRBUS – Galley Module Design Office #3	Page 9, Item 33 replace AS8057 paragraph 3.3.8. with: "Equipment (e.g., trash compactors) integrated in a cart or container must meet the strength requirements of AS 8056, 3.3.3."	The intention of AS8067 paragraph 3.3.8 is to make sure equipment stowed in a cart compartment is substantiated for the loads imposed by adjacent carts when T- guides not galley walls are used to separate the carts/equipment which accounts for an very common/often used galley design. This intent was lost in the rewrite of this paragraph. Additionally, AS8057 did not make this applicable to container compartments because the likelihood that the galley design would allow adjacent containers to load other galley equipment (e.g. oven, beverage maker, etc) was considered extremely remote. It is suggested that container compartments be eliminated from this paragraph to preclude the potential misunderstanding that for example an oven needs to account for loads imposed by standard containers in order to obtain a TSOA. The extremely	See comment	Use original AS8057 req.	Not adopted, the consideration of a piece of galley insert equipment being integrated in a cart or galley is part of the installation process. Amended Appendix 1 Item #34 to disregard AS8057 paragraph 3.3.8.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
		remote cases should be accounted for by installer/certifier at time of installation (TC, ATC, STC)			
Boeing Commercial Airplanes Comment #10	Page 9 Appendix 1 Item 33	The proposed text states: “33. ... Equipment (e.g., trash compactors) integrated in a cart or container must meet the strength requirements of AS 8056, 3.3.3.”	We recommend revising the text as follows: “33. ... Equipment (e.g., trash compactors) <u>intended for installation</u> in a cart or container <u>compartment</u> must meet the strength requirements of AS 8056, 3.3.3.”	The intent of AS8067, para 3.3.8 (original wording), is to ensure that equipment stowed in a cart compartment is substantiated for the loads imposed by adjacent carts when T- guides, not galley walls, are used to separate the carts / equipment -- which accounts for an very common/often used galley design. This intent was lost in the proposed rewrite of this paragraph in the TSO. Additionally, AS8057 did not make this applicable to container compartments because the likelihood that the galley design would allow adjacent containers to load other galley equipment (e.g. oven, beverage maker, etc.) was considered extremely remote. We suggest that container compartments be eliminated from this paragraph to preclude the potential misunderstanding that, for example, an oven needs to account for loads imposed by standard containers in order to obtain a TSOA. The extremely remote cases should be accounted for by the installer/certifier at the time of installation (TC, ATC, STC).	Not adopted, the consideration of a piece of galley insert equipment being integrated in a cart or galley is part of the installation process. Amended Appendix 1 Item #34 to disregard AS8057 paragraph 3.3.8.

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<p>AIRBUS – Galley Module Design Office #4</p>	<p>Page 9, item 36 replace AS8057 paragraph 3.4.4 with: “Equipment must be designed to be capable of withstanding over-voltage events without arcing, sparking, smoke or fire. Equipment must be designed to pass the following dielectric tests: (Note: Components (filters, protection diodes) normally not capable of withstanding the dielectric withstanding voltage test without damage may be disconnected or individually disabled (e.g., short circuited) for these tests. The dielectric withstanding voltage test must</p>	<p>In general ok. However remove following note: Note: Components (filters, protection diodes) normally not capable of withstanding the dielectric withstanding voltage test without damage may be disconnected or individually disabled (e.g., short circuited) for these tests.</p>	<p>It is essential to figure out if unsafe conditions occur with such components installed. This has to be done at least once (during qualification of the unit). For serial production a removal is ok. The original AS wording is in line with this needs.</p>	<p>Remove Note</p>	<p>Partially acknowledged, but over-voltage testing of components in their assembled state is required by AS8057 paragraph 3.17 Table 2 (Power Input & Voltage Spike Sections of DO-160F).</p>

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
	be run prior to the insulation resistance test.)”				
Boeing Commercial Airplanes Comment #11	Page 9 Appendix 1 Item 36	The proposed text states: “36. Page 20, replace paragraph 3.4.4 with: Equipment must be designed to be capable of withstanding over-voltage events without arcing, sparking, smoke or fire. Equipment must be designed to pass the following dielectric tests: (Note: Components (filters, protection diodes) normally not capable of withstanding the dielectric withstanding voltage test without damage may be disconnected or individually disabled (e.g., short circuited) for these tests. The dielectric withstanding voltage test must be run prior to the insulation resistance test.)”	We suggest the text be revised as follows: “36. Page 20, replace paragraph 3.4.4 with: “Equipment must be designed to be capable of withstanding over-voltage events without arcing, sparking, smoke or fire. Equipment must be designed to pass the following dielectric tests: (Note: Components (filters, protection diodes) normally not capable of withstanding the dielectric withstanding voltage test without damage may be disconnected or individually disabled (e.g., short circuited) for these tests. The dielectric withstanding voltage test must be run prior to the insulation resistance test.)”	The proposed TSO’s rewrite of AS8057, paragraph 3.4.4 is acceptable; however, <u>all</u> components need to be included in the one-time qualification test to ensure they do not cause a hazard or unsafe condition if they fail during this test. We suggest adding the following note: “For the acceptance or functional test of production units it is acceptable to remove these components from the test. It is essential to determine if unsafe conditions occur with such components installed.	Partially acknowledged, but over-voltage testing of components in their assembled state is required by AS8057 paragraph 3.17 Table 2 (Power Input & Voltage Spike Sections of DO-160F).
EASA Parts and Appliances Section Comment #1 Friedhelm	Page 9 Appendix 1, 36. AS8057 page 20 3.4.4	Dielectric test shall be applicable only to devices having internal voltages higher or equal than 1 kV.	Extra Dielectric tests have been requested in the past only for equipment known to have high voltages inside like CRT devices. There is no rationale to request such dielectric test for each	Limit the applicability of the dielectric test to cases having internal high voltage generation to allow easy determination of applicability of the test and so avoid several requests for	Not adopted, we still want to accomplish the dielectric withstanding voltage test to provide assurance that no arcing, sparking, smoke or fire will occur under this condition.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
Runge			device and most of the applicants will ask for a deviation, which has been granted in the past quite often. Typical over voltage events are addressed through DO-160 section 16 power input and section 17 Voltage Spike testing.	deviation.	
AIRBUS – Galley Module Design Office #5	Page 10, item 46 replace AS8057 para. 3.6.6.a. with: “Demonstrate equipment proof and burst pressure values by test and list results in the CMM or other documentation required to be furnished with each article.”	CMM will be issued for the Part Number not for each article. Thus given the CMM is not an appropriate place to list test results for each article.	Proof an burst pressure values the equipment is designed for shall be indicated in the ICD, qualification test results regarding this value should be provided in the Application Data Req. for the TSO (paragraph 5.), proof pressure test results for each production unit to be provided in the functional qualification specification test record	Delete CMM and consider other comments	Adopted, revised item 47 to provide design pressure values in TSO, Application Data Requirements, paragraph 5., as required. Deleted CMM reference.
Boeing Commercial Airplanes Comment #12	Page 10 Appendix 1 Item 46	The proposed text states: <i>“46 ...Demonstrate equipment proof and burst pressure values by test and list results in the CMM or other documentation required to be furnished with each article.”</i>	We suggest revising the text as follows: <i>“46 ...Demonstrate equipment proof and burst pressure values by test and list results in the CMM or other documentation required to be furnished with each article <u>identify the values used in the tests on the interface control document.</u> It is suggested that the equipment be qualified at the</i>	AS8057, Section 5, Item 17 already requires this information to be provided on the interface control document. This is where installers want the information. The proposed TSO change introduces the acronym “CMM” and this acronym is not defined anywhere in the TSO. Additionally, we request the last sentence with the suggestion be added back in, as this provides	Partially adopted, revised item 47 to provide design pressure values in TSO, Application Data Requirements, paragraph 5., as required. Deleted CMM reference. Agreed that it behooves the TSOA holders to qualify their products with the broadest appeal possible, but that is beyond the scope of the TSO.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
			<u>maximum proof and burst pressures required by aircraft manufacturers to facilitate usage on more than one airplane type.</u>	TSO applicants with the logic for testing to worst case pressures.	
AIRBUS – Galley Module Design Office #6	Page 11, item 55 disregard AS8057 para. 3.14.c.	disagree	Correct installation and proper engagement of restraint devices are mandatory to avoid safety issues, this req. in part of the AS due to lessons learned from real issues	Keep this requirement or provide an alternative one	Not adopted, these items were deleted as they pertain to installation. The applicant can follow the AS in this regards but installation is the proper time & place to assess this.
Boeing Commercial Airplanes Comment #13	Page 11 Appendix 1 Item 55	The proposed text states “55. Page 27, disregard paragraphs 3.14.a, 3.14.b, and 3.14.c.”	We request that this proposal be deleted and that paragraph 3.14 be retained in AS8057.	Paragraph 3.14 describes a valid design requirement. (We believe this paragraph may have been inadvertently deleted when deleting the part numbering requirements.)	Not adopted, these items were deleted as they pertain to installation. The applicant can follow the AS in this regards but installation is the proper time & place to assess this.
AIRBUS – Galley Module Design Office #7	Page 11, item 56 replace AS8057 para. 3.17 Notes on Pass/Fail criteria at bottom of Table 2 with: “(1) Equipment must comply with the performance requirements of this TSO in each instance RTCA DO-160 reads ‘DETERMINE COMPLIANCE WITH APPLICABLE EQUIPMENT	Disagree, intention of SAE was to provide pass/fail criteria that are not given via DO-160	The proposed changed to AS8057 eliminates the pass/fail criteria provided in AS8057 and replaces it with no specific performance criteria.	Delete the item 56 text and restore the original text from AS8057	Partially adopted, the suggested change to Note #1 opens the door to a subjective evaluation of the tests and is not appropriate. The TSO requires a definitive pass/fail criteria by following DO-160 environmental testing. We will modify Note #2 of Table 2 as follows: (2) Equipment shall comply with the performance requirements of this TSO in each instance RTCA/DO-160 reads ‘DETERMINE COMPLIANCE WITH APPLICABLE EQUIPMENT PERFORMANCE

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
	PERFORMANCE STANDARDS'. (2) See note 1."				STANDARDS'. The equipment shall also comply with the performance standards of this TSO after DO-160 testing.
Boeing Commercial Airplanes Comment #14	Page 11 Appendix 1 item 56	The proposed text states: "56. Page 27, replace paragraph 3.17 Notes on Pass/Fail criteria at bottom of Table 2 with: <i>(1) Equipment must comply with the performance requirements of this TSO in each instance RTCA/DO-160 reads 'DETERMINE COMPLIANCE WITH APPLICABLE EQUIPMENT PERFORMANCE STANDARDS'. (2) See note (1)."</i>	We request that Item 56 be deleted and the original text in AS8057 be retained: "Pass/Fail criteria: <i>(1) Equipment shall be operated and shall not present an unsafe condition, during and after the test. (2) Equipment shall pass the ATP after the test (refer to 4.3)."</i>	The proposed changed to AS8057 eliminates the pass/fail criteria currently provided in AS8057 and replaces it with no specific performance criteria.	Partially adopted, the suggested change to Note #1 opens the door to a subjective evaluation of the tests and is not appropriate. The TSO requires a definitive pass/fail criteria by following DO-160 environmental testing. We will modify Note #2 of Table 2 as follows: (2) Equipment shall comply with the performance requirements of this TSO in each instance RTCA/DO-160 reads 'DETERMINE COMPLIANCE WITH APPLICABLE EQUIPMENT PERFORMANCE STANDARDS'. The equipment shall also comply with the performance standards of this TSO after DO-160 testing.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
AIRBUS – Galley Module Design Office #8	Page 11, item 57 AS8057 replace para. 3.18.1 with: “The power consumption of the equipment must be defined in the Interface Control Document.”	Disagree with the change	Original intention of paragraph 3.18.1 is that the calculated / designed power consumption of the equipment shall be verified by test and shall be within the limits already defined on the equipment ICD (according paragraph 5.1.b.10) The need for this verification by test is lessons learned → several cases that actual power consumption is not in line with the consumption considered (acc. ICD) for integration .	Keep the AS wording	Not adopted, the data is to be provided in TSO, Application Data Requirements, paragraph 5. The limits must be defined in document prior to testing.
AIRBUS – Galley Module Design Office #9	Page 11, item 59 replace AS8057 Table 3 Note (2) with: “(2) Load factors may be increased to meet aircraft flight and ground cases. If increased factors are used, they must be listed in CMM or other appropriate document.”	CMM is not the right place for this information	To be indicated in the ICD, as this is the document used for integration / installation purposes	Rephrase : “If increased factors are used, they must be listed in the Interface Control Document.”	Partially adopted, changed to “(2) Load factors may be increased to meet aircraft flight and ground cases. If increased factors are used, they must be provided in TSO, Application Data Requirements, paragraph 5.a.(1) as required.
Boeing Commercial Airplanes Comment #15	Page 11 Appendix 1 Item 59	The proposed text states: “59. Page 33, replace paragraph Table 3 Note (2) with: (2) Load factors may be increased to meet aircraft	We suggest revising the proposed text for Note (2) as follows: “59. Page 33, replace paragraph Table 3 Note (2) with: (2) Load factors may be	AS8057, Section 5, Item 17 already requires this information to be provided on the interface control document. This is where installers want the information. The proposed change	Partially adopted, changed to “(2) Load factors may be increased to meet aircraft flight and ground cases. If increased factors are used, they must be provided in TSO, Application

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
		<i>flight and ground cases. If increased factors are used, they must be listed in CMM or other appropriate document."</i>	<i>increased to meet aircraft flight and ground cases. If increased factors are used, they must be listed in CMM or other appropriate document."</i>	introduces the acronym CMM and this acronym is not defined anywhere in the TSO.	Data Requirements, paragraph 5.a.(1) as required.
AIRBUS – Galley Module Design Office #10	Page 12, item 65 disregard AS8057 section 4.3	Replacement of AS 4.3 by TSO 6.a → Functional qualification specification in general ok, however minimum content should be specified	Acc. AIRBUS experience the level of inspections / test done to qualify each production article is sometimes quite low. It seems to be not clear enough for some suppliers what shall be the minimum content to ensure compliance to minimum req.	Specify the minimum content of the Functional qualification specification	Not adopted, the functional qualification specification is required of the TSO applicant to be available to the FAA if needed. It is up to the applicant if it is to be shared with an installer
Boeing Commercial Airplanes Comment #16	Page 12 Appendix 1 Item 65	The proposed text states: "65. Page 38, disregard section 4.3."	We request that this proposal be deleted and that Section 4.3 be retained in AS8057.	We recommend that a minimum performance standard for acceptance tests remain. This makes it clear to TSO applicants what the minimum standard is and, from our experience, this is both helpful and provides consistency.	Not adopted, the functional qualification specification is required of the TSO applicant to be available to the FAA if needed. It is up to the applicant if it is to be shared with an installer.
AIRBUS – Galley Module Design Office #11	Page 12, item 67 disregard AS8057 section 5.2.	Replacement of AS 5.2 by TSO 5 (especially 5.a (4)) ok → however more detailed requirements necessary	RTCA/DO-160F, Appendix A covers not every qualifications test necessary. In addition acc. AIRBUS experience it seems to be not clear enough for some suppliers what shall be the minimum content for the qualification documentation .	Specify the minimum content of the qualification documentation	Not adopted, the data associated with an article's qualification is to remain available for review by the ACO if needed. It is up to the applicant's discretion if they want to provide this data to a customer or installer.
Boeing Commercial Airplanes Comment #17	N/A Suggestion for new text	We suggest the following be added to Appendix 1 and AS8057: RE: AS8057 paragraph 3.11.4 - Placards for Loose Equipment/Loose Components/Associated	Re-write paragraphs 3.11.4 b & c. as follows: <i>"b. Equipment that uses retention devices to hold loose and/or associated components (e.g., beverage server, brew cup) in place during flight and crash</i>	The equipment may not have the physical space available to include these instructions in a location that is readable when the equipment is installed. Most, if not all, galleys already have instructions to stow all loose	Not adopted, the FAA thinks this is something that should be considered by the appropriate SAE Committee.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
		<p><i>Components:</i> Delete paragraph 3.11.4.a. Paragraphs 3.11.4 b & c should be rewritten.</p>	<p>conditions <i>shall</i> should be placarded with special stowage instructions (e.g.: "Brew handle must be down for taxi, take off, turbulence and landing"). <u>When these instructions are not provided on the equipment, the interface control document shall specify the instructions that the installer needs to provide.</u></p> <p>c. Equipment without provisions to hold loose and/or associated components in place during flight and crash conditions <i>shall</i> should be placarded with instructions to stow these components in the galley monument (e.g., "Beverage server must be stowed in the galley for taxi, take off, turbulence, and landing"). <u>When these instructions are not provided on the equipment, the interface control document shall specify the instructions that the installer needs to provide.</u>"</p>	<p>items and this covers equipment not intended to leave the galley work area. Only equipment (carts, etc. intended to leave the galley work area during in-light service needs this type of placard</p>	
Boeing Commercial Airplanes Comment #18	N/A Suggestion for new text	<p>We suggest the following be added to Appendix 1 and AS8057: RE: AS8057, Section 5, Item 16, which states: "16. MNOP for wet equipment connected to the airplane potable</p>	<p>Modify Item 16 as follows: "16. MNOP for wet equipment connected to the airplane potable water system. Proof and burst test pressure values. Additionally, the normal operating pressure range should be given."</p>	<p>Adding this information to the interface control document will aid installers of the equipment.</p>	<p>Not adopted, this information should be included in TSO, Application Data Requirements, paragraph 5.a.(1). as required.</p>

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
		<p><i>water system. Additionally, the normal operating pressure range should be given."</i></p>			
<p>B/E Aerospace, Inc. Interior Systems #16</p>	<p>SAE AS8057, para. 3.2.3.2 UNACCEPTABLE FEATURES, page 14</p>	<p>TAPE is not reliable and shall not be used</p>	<p>Experience has shown reliability for VHB (Very High Bonding) tape for certain applications in Galley Insert Equipment</p>	<p>Remove TAPE from UNACCEPTABLE FEATURES in AS8057ok</p>	<p>Not adopted, the vast majority of tapes are not acceptable. If your TSO article has a bona fide need for tape and it meets an equivalent level of safety, a deviation would be needed.</p>
<p>EASA Parts and Appliances Section Comment #2 Friedhelm Runge</p>	<p>AS 8057 Page 28 Table 2</p>	<p>Do not specify specific environmental test categories but identify which test has to be performed as a minimum</p>	<p>It is general praxis to specify only which test have to be performed and not a specific category during the TSO process. It is up to the applicant to select a category which he considers will meet the requirements of his customers during installation and installation into all environments will not be possible. During installation it needs to be checked that the demonstrated categories are adequate for the intended installation. The defined categories will not allow installation into rotorcraft or un-pressurised aircraft. Not all tests are needed for all type of equipment. Similar case: After granting deviation for TSO-C155 for a similar approach in TSO-C155a the more generic approach had been introduced as well. The waterproofness addresses dropping of water onto the equipment which may not be the case for something installed into a</p>	<p>Identify those sections where testing has to be performed and those where testing is optional without defining a dedicated category.</p> <p>Requiring Waterproofness, Fluids Susceptibility, at least for some of the equipment.</p>	<p>Not adopted, with a variety of galley insert equipments this was left to be determined by applicant and approved by the Aircraft Certification Office.</p>

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
			cabinet. The Fluids Susceptibility addresses a lot of material not to be found in a galley environment but mainly no fluids to be used in the galley. Either specify specific fluids or do not request the test. Operation of this kind of equipment is not needed for safe continuation of the flight.		
EASA Electrical Specialist Section C2/3 Comment #3 Joerg R. Wolfesperger	AS 8057 Page 28 Table 2		Even though operation of this kind of equipment is not needed for safe continuation of the flight, a lightning transient susceptibility test should be done for electronically controlled equipment. Loss of the switch-off function combined with overheating e.g. could generate smoke.	Regarding lightning transient susceptibility, a test should show that e.g. switch-off function of electronically controlled equipment will not be affected due to lightning strike.	Concur, in AS8057 Table 2 there is a requirement listed to test articles for Lightning Induced Transient Susceptibility. Further testing, if needed, would be determined at time of installation.
EASA Parts and Appliances Section Comment #4 Antonio Foti	AS 8057 Page 33 Table 3	Note (5) is not called in the table and the wording "... maximum door deflections shall meet 3.3.5 o" s/b "... maximum door deflections shall meet 3.3.5 n".	Editorial mistake in SAE AS 8057	Amend editorial mistake	Adopted, revised Appendix 1 by adding item #62 to call attention to corrected text.
Sell GmbH #2	Appendix 1	SAE AS 8057 paragraph 3.4.5 (d) requires the bonding path resistance not exceeding 5 mOhms, which is not feasible for all applications, e.g. ATLAS Rails have AWG 16 contacts only. Thus additional ground wire may be required on	This requirement is outside the scope of the TSO and may prevent TSO approval of existing galley insert equipment.	Adapt required value accordingly or add new Item to disregard this requirement.	This TSO requires the article to meet the Minimum Performance Standard or in this specific case Appendix 1. This requirement only applies to the TSO article. Evaluation of the articles' airworthiness after installation on an aircraft is appropriate at time of installation.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
		aircraft side to meet this requirement.			
Sell GmbH #3	Appendix 1	SAE AS 8057 paragraph 3.8 (a) refers to normal operation, but an appropriate specification of normal operation is missing. E.g. normal operation could be specified by max. 30 min operating time and max. 150°C temperature for ovens.	Improvement for clarity and ensuring a common understanding.	Normal operation should be appropriately specified by: normal operation as defined in respective equipment operating instructions.	Not adopted, the TSO applicant is required to provide operating instructions and equipment limitations describing the operational capability in the Application Data Requirements, paragraph 5.a.(1).
Sell GmbH #4	Appendix 1	SAE AS 8057 paragraph 3.8 (a) refers to a maximum external surface temperature not in line with the applicable standard. MIL-STD-1472F paragraph 5.13.4.6 specifies different temperature exposure limits depending on exposure duration and surface material.	Improvement for clarity and ensuring a common understanding.	Replace temperature with reference to MIL-STD-1472F paragraph 5.13.4.6	Not adopted, AS8057 3.8 (a) cites 120 degrees as the maximum allowed temperature for prolonged contact or handling. This is the lowest temperature mentioned in any category and is consistent with MIL-STD-1472F.

Commenter	Page & Paragraph	Comment	Reason for Comment	Suggested Change	Comment Resolution
Sell GmbH #5	Appendix 1	SAE AS 8057 paragraph 3.8 (b) refers to normal operation, but an appropriate specification of normal operation is missing. E.g. normal operation could be specified by max. 30 min operating time and max. 150°C temperature for ovens.	Improvement for clarity and ensuring a common understanding.	Normal operation should be appropriately specified by: normal operation as defined in respective equipment operating instructions.	Not adopted, the TSO applicant is required to provide operating instructions and equipment limitations describing the operational capability in the Application Data Requirements, paragraph 5.a.(1).
Sell GmbH #6	Appendix 1	SAE AS 8057 paragraph 3.8 (b) refers to a maximum external surface temperature not in line with the applicable standard. MIL-STD-1472F paragraph 5.13.4.6 specifies different temperature exposure limits depending on exposure duration and surface material.	Improvement for clarity and ensuring a common understanding.	Replace temperature with reference to MIL-STD-1472F paragraph 5.13.4.6	Not adopted, AS8057 3.8 (b) cites 140 degrees as the maximum allowed temperature for possible momentary contact. This is the lowest temperature mentioned in any category and is consistent with MIL-STD-1472F.
Sell GmbH #7	Appendix 1	SAE AS 8057 paragraph 3.8 (c) refers to wrong paragraphs 3.9 a) and 3.9 b).	Correct wrong references to be 3.8 a) and 3.8 b).	Use correct references 3.8 a) and 3.8 b) instead of 3.9 a) and 3.9 b).	Adopted, inserted item #49 in Appendix 1 to point to correct reference. This comment will be submitted to SAE for consideration

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Sell GmbH #8	Appendix 1	SAE AS 8057 Appendix A, Page 50 paragraph i. require steady state or maximum temperature, but this does not meet the requirement as specified in paragraphs 3.8 a) and 3.8 b) which require normal operation. Under normal operation (e.g. max. 30 minutes heating in high temp mode) exchange of meals has to be considered during respective test, thus no oven will reach a steady state due to removing hot meals and reloading cold meals.	Improvement for clarity and ensuring a correct understanding of the pass/fail criteria stipulated.	Replace steady state and maximum temperature with normal operation as defined in respective equipment operating instructions.	Not adopted, AS8057 Page 50 item (i.) takes into account that if a steady state temperature can not be attained after multiple cycles then a determination of maximum temperature is the appropriate result of this test.