

Annex B – Tabular comparison between the current Mode S transponder and ADS-B requirements and proposed changes within CAO 20.18

Note: Text in **black** is existing and unchanged wording. Text in **blue** shows new wording. Red struck-through ~~text~~ shows omissions. A blank table cell means no equivalent provision exists or will exist.

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
9B Directions relating to carriage and use of automatic dependent surveillance – broadcast equipment	9B Directions relating to carriage and use of automatic dependent surveillance – broadcast equipment	
9B.1 This subsection applies to aircraft engaged in private, aerial work, charter or RPT operations in Australian territory.	9B.1 This subsection applies to aircraft engaged in private, aerial work, charter or RPT operations in Australian territory.	NC.
9B.2 In subsections 9B and 9C, and Appendix XI:	9B.2 In subsections 9B, 9BA , 9C and 9E , and in Appendices XI, XII, XIII, and XIV :	Definitions apply more widely including new appendices.
<p>ADS-B means automatic dependent surveillance – broadcast.</p> <p>ADS-B test flight means a flight to prove ADS-B transmitting equipment that is newly installed on the aircraft undertaking the flight.</p> <p>aircraft address means a unique code of 24 binary bits assigned to an aircraft by:</p> <p>(a) CASA when the aircraft is registered on the Australian Civil Aircraft Register; or</p> <p>(b) the relevant RAAO for the aircraft when the aircraft is placed on its aircraft register.</p>	<p>ADS-B means automatic dependent surveillance – broadcast.</p> <p>ADS-B test flight means a flight to prove ADS-B transmitting equipment that is newly installed on the aircraft undertaking the flight.</p> <p>aircraft address means a unique code of 24 binary bits assigned to an aircraft by:</p> <p>(a) CASA when the aircraft is registered on the Australian Civil Aircraft Register; or</p> <p>(b) the relevant RAAO for the aircraft when the aircraft is placed on its aircraft register.</p>	NC.
<p>approved equipment configuration means an equipment configuration that:</p> <p>(a) meets the conditions for approval set out in Appendix XI; or</p> <p>(b) is approved in writing by CASA.</p> <p><i>Note</i> Equipment configurations approved by CASA are published in Appendix D of Advisory Circular 21-45.</p>	<p>approved equipment configuration for ADS-B transmitting equipment means an equipment configuration that:</p> <p>(a) meets the conditions for approval set out in Appendix XI, XII, XIII or XIV, as applicable under the Application provisions of the Appendix;</p> <p>or</p> <p>(b) is approved in writing by CASA.</p> <p><i>Note</i> Equipment configurations approved by CASA are published in Appendix D of Advisory Circular 21-45.</p>	<p>Includes the new set of appendices listing VFR ADS-B equipment configuration and application standards.</p> <p><i>Note:</i> Reference to AC 21-45 is omitted as irrelevant and inaccurate because to date CASA has not approved and generally will not approve ADS-B equipment especially if manufactured overseas. Therefore, the assertion in the note about 'equipment configurations approved by CASA' is inaccurate. The AC instead was a list compiled from data obtained from individual applications to Airservices Australia by operators wanting to be included in the ADS-B separation services. The list was not exhaustive and not intended to be subject to further update.</p>

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ATC means air traffic control.	ATC means air traffic control.	NC.
	AMSL means above mean sea level. CAP means a CAA Advisory Publication, published by the Civil Aviation Authority of the United Kingdom. CASR means the <i>Civil Aviation Safety Regulations 1998</i> .	New.
	certain light sport, experimental and exempted aircraft means any of the following: <ul style="list-style-type: none"> (a) a light sport aircraft for which a special certificate of airworthiness has been issued and is in force under regulation 21.186 of CASR; (b) a light sport aircraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (j) or (k) of CASR; (c) any other aircraft for which an experimental certificate has been issued and is in force under paragraph 21.191 (g) or (h) of CASR; (d) an aircraft for which an experimental certificate has been issued and is in force under subregulation 21.190 (1) of CASR; (e) an aircraft that is: <ul style="list-style-type: none"> (i) a power-assisted sailplane, or a powered sailplane, or a sailplane, to which Civil Aviation Order (CAO) 95.4 applies; (ii) a glider engaged in charter operations, to which CAO 95.4.1 applies; (iii) a hang-glider to which CAO 95.8 applies; (iv) a low-momentum ultralight aeroplane to which CAO 95.10 applies; (v) a gyroplane having an empty weight not in excess of 250 kg to which CAO 95.12 applies; (vi) a 2 place gyroplane, or a single-place gyroplane, certificated as a light sport aircraft to which CAO 95.12.1 applies; (vii) a weight shift controlled aeroplane, or a powered parachute, to which CAO 95.32 applies; (viii) a manned balloon, or a hot air airship, engaged in private operations, to which CAO 95.54 applies; (ix) an ultralight aeroplane to which CAO 95.55 applies. 	New. This definition identifies the types of aircraft or aircraft operation able to utilise transponder or ADS-B transmitted equipment that is not specifically 'authorised' in accordance with a TSO or ETSA. Specific requirements in this regard are detailed in paragraph 9B.12, 9C.11 and clause 4 of Appendix XIII, Part B.
	Class A TABS means TABS functionality relating to transponder function, altitude source function, and ADS-B OUT function, in accordance with TSO-C199, or a later version as in force from time to time. Class B TABS means TABS functionality relating to position source function, in accordance with TSO-C199, or a later version as in force from time to time. Class B TABS position source device means a device with a Class B TABS functionality.	New definitions that underpin the proposed alternate ADS-B standards.
EASA means the European Aviation Safety Agency.	EASA means the European Aviation Safety Agency.	NC

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<p>EASA AMC 20-24 means EASA document AMC 20-24 titled <i>Certification Considerations for Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) via 1090 MHz Extended Squitter</i>, dated 2 May 2008.</p>	<p>EASA AMC 20-24 means Annex II to ED Decision 2008/004/R EASA document AMC 20-24 titled <i>Certification Considerations for Enhanced ATS in Non-Radar Areas using ADS-B Surveillance (ADS-B-NRA) Application via 1090 MHz Extended Squitter</i>, dated 2 May 2008, as in force on that date.</p>	<p>Editorial amendment to more accurately reflect the title of the CAO.</p>
	<p>EASA CS-ACNS means Annex I to ED Decision 2013/031/R titled Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance CS-ACNS, dated 17 December 2013, or a later version as in force from time to time.</p>	<p>New.</p>
<p>EHS DAPs means enhanced surveillance downlink of aircraft parameters. (E)TSO means FAA Technical Standard Order and/or European Technical Standard Order. ETSO means European Technical Standard Order of the EASA.</p>	<p>EHS DAPs means enhanced surveillance downlink of aircraft parameters. (E)TSO means FAA Technical Standard Order and/or European Technical Standard Order. ETSO means European Technical Standard Order of the EASA.</p>	<p>NC.</p>
<p>FAA means the Federal Aviation Administration of the United States. FDE means Fault Detection and Exclusion, a feature of a GNSS receiver that excludes faulty satellites from position computation. FL 290 means flight level 290. <i>Note</i> Flight level 290 is defined in subregulation 2 (1) of CAR 1988. GNSS means the Global Navigation Satellite System installed in an aircraft to continually compute the position of the aircraft by use of the GPS. GPS means the Global Positioning System. HPL means the Horizontal Protection Level of the GNSS position of an aircraft as an output of the GNSS receiver or system.</p>	<p>FAA means the Federal Aviation Administration of the United States. FDE means Fault Detection and Exclusion, a feature of a GNSS receiver that excludes faulty satellites from position computation. FL 290 means flight level 290. <i>Note</i> Flight level 290 is defined in subregulation 2 (1) of CAR 1988. GNSS means the Global Navigation Satellite System installed in an aircraft to continually compute the position of the aircraft by use of the GPS. GPS means the Global Positioning System. HPL means the Horizontal Protection Level of the GNSS position of an aircraft as an output of the GNSS receiver or system.</p>	<p>NC.</p>
	<p>IFR has the same meaning as I.F.R. and stands for instrument flight rules.</p>	<p>New. Editorial amendment.</p>
	<p>integrated TABS device means a device with integrated Class A TABS and Class B TABS functionality.</p>	<p>New. Definition that underpins the proposed alternate ADS-B standards.</p>
<p>Mode A is a transponder function that transmits a 4-digit octal identification code for an aircraft when interrogated by an SSR, the code having been assigned to the aircraft by ATC for the relevant flight sector. Mode A code is the 4-digit octal identification code transmitted by a Mode A transponder function. Mode C is a transponder function that transmits a 4-digit octal code for an aircraft's pressure altitude when interrogated by an SSR. Mode C code is the 4-digit octal identification code transmitted by a Mode C transponder function. Mode S is a monopulse radar interrogation technique that improves the accuracy of the azimuth and range information of an aircraft, and uses a unique aircraft address to selectively call individual aircraft.</p>	<p>Mode A is a transponder function that transmits a 4-digit octal identification code for an aircraft when interrogated by an SSR, the code having been assigned to the aircraft by ATC for the relevant flight sector. Mode A code is the 4-digit octal identification code transmitted by a Mode A transponder function. Mode C is a transponder function that transmits a 4-digit octal code for an aircraft's pressure altitude when interrogated by an SSR. Mode C code is the 4-digit octal identification code transmitted by a Mode C transponder function. Mode S is a monopulse radar interrogation technique that improves the accuracy of the azimuth and range information of an aircraft, and uses a unique aircraft address to selectively call individual aircraft.</p>	<p>NC.</p>

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	MTOW means maximum take-off weight.	New. MTOW is referenced for some equipment configurations.
NAA has the same meaning as in regulation 1.4 of CASR 1998. <i>Note</i> “ NAA , for a country other than Australia, means: (a) the national airworthiness authority of the country; or (b) EASA, in relation to any function or task that EASA carries out on behalf of the country.”.	NAA has the same meaning as in regulation 1.4 of CASR 1998. <i>Note</i> “ NAA , for a country other than Australia, means: (a) the national airworthiness authority of the country; or (b) EASA, in relation to any function or task that EASA carries out on behalf of the country.”.	NC.
	NACp means Navigation Accuracy Category for Position as specified in paragraph 2.2.3.2.7.1.3.8 of RTCA/DO-260B, as in force from time to time.	New. NACp will be referenced for some equipment configurations.
NIC means Navigation Integrity Category as specified in paragraph 2.2.3.2.7.2.6 of RTCA/DO-260A.	NIC means Navigation Integrity Category as specified in paragraph 2.2.3.2.3.3 2.2.3.2.7.2.6 of RTCA/DO- 260A 260B, as in force from time to time.	Standardises the definitions for ADS-B quality indicators, wherever possible, to RTCA/DO-260B.
NUCp means Navigation Uncertainty Category – Position as specified in paragraph 2.2.8.1.5 of RTCA/DO-260. RAAO means a recreational aviation administration organisation that is recognised by CASA. RTCA/DO-229D means document RTCA/DO-229D titled <i>Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment</i> , dated 13 December 2006, of the RTCA Inc. of Washington D.C. USA (RTCA Inc.). RTCA/DO-260 means RTCA Inc. document RTCA/DO-260 titled <i>Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance – Broadcast</i> , dated 13 September 2000.	NUCp means Navigation Uncertainty Category – Position as specified in paragraph 2.2.8.1.5 of RTCA/DO-260. RAAO means a recreational aviation administration organisation that is recognised by CASA. RTCA/DO-229D means document RTCA/DO-229D titled <i>Minimum Operational Performance Standards for Global Positioning System/Wide Area Augmentation System Airborne Equipment</i> , dated 13 December 2006, of the RTCA Inc. of Washington D.C. USA (RTCA Inc.). RTCA/DO-260 means RTCA Inc. document RTCA/DO-260 titled <i>Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance – Broadcast</i> , dated 13 September 2000.	NC.
RTCA/DO-260A means RTCA Inc. document RTCA/DO-260A titled <i>Minimum Operational Performance Standards for 1090 MHz Automatic Dependent Surveillance – Broadcast (ADS-B) and Traffic Information Services – Broadcast (TIS-B)</i> , dated 10 April 2003.	RTCA/DO-260B means RTCA Inc. document RTCA DO-260B titled <i>Minimum Operational Performance Standards for 1090 MHz Extended Squitter Automatic Dependent Surveillance – Broadcast (ADS-B) and Traffic Information Services – Broadcast (TIS-B)</i> , dated 2 December 2009.	RTCA/DO-260B replaces RTCA/DO-260A as the reference for ADS-B quality indicators and will be the standard for equipment configurations for VFR aircraft.
SA means Selective Availability, and is a function of the GPS that has the effect of degrading the accuracy of the computed GPS position of a GNSS-equipped aircraft.	SA means Selective Availability, and is a function of the GPS that has the effect of degrading the accuracy of the computed GPS position of a GNSS-equipped aircraft.	NC.
	SDA means System Design Assurance as specified in section 2.2.3.2.7.2.4.6 of RTCA/DO-260B. SIL means Source Integrity Level as specified in paragraph 2.2.3.2.7.1.3.10 of RTCA/DO-260B.	New. SDA and SIL will be referenced for some equipment configurations.
SSR means a secondary surveillance radar system that is used by ATC to detect an aircraft equipped with a radar transponder. TSO means Technical Standard Order of the FAA.	SSR means a secondary surveillance radar system that is used by ATC to detect an aircraft equipped with a radar transponder. TSO means Technical Standard Order of the FAA.	NC.

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	<i>VFR</i> has the same meaning as V.F.R. and stands for visual flight rules.	Editorial amendment.
9B.3 If an aircraft carries ADS-B transmitting equipment for operational use in Australian territory, the equipment must comply with an approved equipment configuration.	9B.3 Subject to paragraph 9B.12, if an aircraft carries ADS-B transmitting equipment for operational use in Australian territory, the equipment must comply with an approved equipment configuration under Appendix XI, XII, XIII or XIV in accordance with the Application provisions of the Appendix.	1. Enables multiple equipment configurations – depending on flight category and application. 2. Enables the 'non-TSO' carve-out arrangements.
9B.4 If an aircraft carries serviceable ADS-B transmitting equipment for operational use in Australian territory, the equipment must transmit: (a) a flight identification that corresponds exactly to the aircraft identification mentioned on the flight notification filed with ATC for the flight; or (b) if no flight notification is filed for the flight — a flight identification that is: (i) for an aircraft registered on the Australian Civil Aircraft Register and operating wholly within Australian territory — the aircraft's registration mark; or (ii) for an Australian aircraft registered by a RAO — in accordance with the organisation's operations manual; or another flight identification directed or approved by ATC.	9B.4 When serviceable ADS-B transmitting equipment is operated in Australian territory, the equipment must transmit: (a) the current aircraft address; and (b) a flight identification that: (i) corresponds exactly to the aircraft identification mentioned on the flight notification filed with ATC for the flight; or (ii) if a flight notification is not filed for the flight — is: (A) for an aircraft registered on the Australian Civil Aircraft Register and operating wholly within Australian territory — the aircraft's registration mark; or (B) for an Australian aircraft registered by a RAO — in accordance with the organisation's operations manual; or (iii) is directed or approved by ATC.	Incorporates the current aircraft address requirement from original Appendix XI Clause 6 (highlighted) otherwise no changes to original requirements.
9B.5 If an aircraft carries serviceable ADS-B transmitting equipment that complies with an approved equipment configuration, the equipment must be operated continuously during the flight in all airspace at all altitudes unless the pilot is directed or approved otherwise by ATC.	9B.5 If an aircraft in flight carries serviceable ADS-B transmitting equipment, the equipment must be operated: (a) for equipment that complies with an approved equipment configuration set out in Appendix XI — continuously during the flight in all airspace and at all altitudes, unless the pilot is directed or approved otherwise by ATC; and (b) for equipment that complies with the approved equipment configuration set out in Appendix XII, XIII, or XIV — continuously during the flight, within the airspace and within the altitude limits specified for the flight in the applicable Appendix, unless the pilot is directed or approved otherwise by ATC.	Provides for different operating requirements (when equipment is to be switched on) for the different equipment configurations. The requirement in relation to original Appendix XI (IFR standard) remains unchanged.
9B.6 If an aircraft carries ADS-B transmitting equipment which does not comply with an approved equipment configuration, the aircraft must not fly in Australian territory unless the equipment is: (a) deactivated; or (b) set to transmit only a value of zero for the NUCp or NIC. <i>Note</i> It is considered equivalent to deactivation if NUCp or NIC is set to continually transmit only a value of zero.	9B.6 Subject to paragraph 9B.7, if if an aircraft carries ADS-B transmitting equipment which does not comply with an approved equipment configuration, the aircraft must not fly in Australian territory unless the equipment is: (a) deactivated; or (b) set to transmit only a value of zero for the NUCp, NACp, or NIC or SIL. <i>Note</i> It is considered equivalent to deactivation if NUCp, NACp, or NIC or SIL is set to continually transmit only a value of zero.	Enables other quality indicators being used to indicate that particular ADS-B equipment is not of an approved equipment configuration. This change aligns with international practice as specified in ICAO Regional Supplementary Procedures (Doc 7030).
9B.7 However, the equipment need not be deactivated as mentioned in paragraph 9B.6 if the aircraft is undertaking an ADS-B test flight in V.M.C. in airspace below FL 290.	9B.7 However, the equipment need not be deactivated as mentioned in for paragraph 9B.6 if the aircraft is undertaking an ADS-B test flight in V.M.C. in airspace below FL 290.	Editorial amendment. No change to the standard.

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9B.8 On and after 12 December 2013 , any aircraft that is operated at or above FL 290 must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration by meeting the conditions for approval set out in Appendix XI.	9B.8 Subject to paragraph 9B.9, an aircraft that is operated: (a) in an IFR operation; or (b) in any operation at or above FL290; must carry serviceable ADS-B transmitting equipment that complies with the approved equipment configuration set out in Appendix XI.	With the relevant effective dates in the original 9B.8 thru 9B.11 now in the past or expired, 9B.8 replaces these clauses with a single ongoing requirement for certain aircraft or flight operations to operate fit ADS-B equipment.
9B.9 An aircraft: (a) that is manufactured on or after 6 February 2014 ; and (b) that is operated under the I.F.R.; must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration by meeting the conditions for approval set out in Appendix XI.	9B.9 An aircraft: (a) that is manufactured on or after 6 February 2014; and (b) that is operated under the I.F.R.; must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration by meeting the conditions for approval set out in Appendix XI.	Replaced by new 9B.8
9B.10 On and after 2 February 2017 , an aircraft: (a) that is manufactured before 6 February 2014 ; and (b) that is operated under the I.F.R.; must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration by meeting the conditions for approval set out in Appendix XI.	9B.10 On and after 2 February 2017, an aircraft: (a) that is manufactured before 6 February 2014; and (b) that is operated under the I.F.R.; must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration by meeting the conditions for approval set out in Appendix XI.	Replaced by new 9B.8
9B.11 On and after 4 February 2016 , an aircraft that is operated under the I.F.R. in airspace: (a) that is Class A, B, C or E; and (b) that is within the arc of a circle that starts 500 NM true north from Perth aerodrome and finishes 500 NM true east from Perth aerodrome; must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration by meeting the conditions for approval set out in Appendix XI.	9B.11 On and after 4 February 2016, an aircraft that is operated under the I.F.R. in airspace: (a) that is Class A, B, C or E; and (b) that is within the arc of a circle that starts 500 NM true north from Perth aerodrome and finishes 500 NM true east from Perth aerodrome; must carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration by meeting the conditions for approval set out in Appendix XI.	Replaced by new 9B.8
	9B.9 If an aircraft is operated in a VFR operation below FL290: (a) it may carry serviceable ADS-B transmitting equipment (the equipment); and (b) if it carries the equipment — the equipment must comply with the approved equipment configuration set out in Appendix XI, XII, XIII or XIV.	New. Sets Appendices XI thru XIV as the equipment configuration standards for VFR aircraft operating below FL290, if the owner/operator <i>voluntarily chooses</i> to install ADS-B transmitting equipment.
9B.12 Paragraphs 9B.8 to 9B.11 do not apply to an aircraft if: (a) the aircraft owner, operator or pilot has written authorisation from CASA, based on a safety case, for the operation of the aircraft without the ADS-B transmitting equipment; or (b) the equipment is unserviceable for a flight, and each of the following applies:	9B.1210 Paragraphs 9B.8 to 9B.11 does not apply to an aircraft if: (a) the aircraft owner, operator or pilot has written authorisation from CASA, based on a safety case , for the operation of the aircraft without the ADS-B transmitting equipment; or (b) the equipment is unserviceable for a flight, and each of the following applies:	1. Consequential changes due to original 9B.9 thru 9B.11 being omitted. 2. Omits the somewhat imprecise requirement for a safety case in order for CASA to consider a request to operate without ADS-B. As the safety authority, CASA always assesses

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<ul style="list-style-type: none"> (i) the flight takes place within 3 days of the discovery of the unserviceability; (ii) at least 1 of the following applies for the flight: <ul style="list-style-type: none"> (A) flight with unserviceable equipment has been approved by CASA, in writing, subject to such conditions as CASA specifies; (B) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft and any applicable conditions under subregulation 37 (2) of CAR 1988 have been complied with; (iii) ATC clears the flight before it commences despite the unserviceability. 	<ul style="list-style-type: none"> (i) the flight takes place within 3 days of the discovery of the unserviceability; (ii) at least 1 of the following applies for the flight: <ul style="list-style-type: none"> (A) flight with unserviceable equipment has been approved by CASA, in writing, subject to such conditions as CASA specifies; (B) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft and any applicable conditions under subregulation 37 (2) of CAR 1988 have been complied with; (iii) before it commences, ATC clears the flight before it commences despite the unserviceability. 	<p>matters for impact on safety. If a case is unclear, CASA would expect an application for any matter to provide safety justification.</p>
	<p>9B.11 Unless otherwise approved in writing by CASA, ADS-B transmitting equipment carried on an aircraft must allow the pilot to activate and deactivate transmission during flight.</p> <p><i>Note</i> This requirement is met if the ADS-B transmitting equipment has a cockpit control that enables the pilot to turn ADS-B transmissions on and off.</p>	<p>Sets this requirement as broadly covering all ADS-B approved equipment configurations. The original only applied to Appendix XI configurations (see Appendix XI clause 6).</p>
	<p>9B.12 A requirement under Appendix XI, XIII, or XIV that an approved equipment configuration for ADS-B transmitting equipment be authorised in accordance with a specific TSO or ETSO does not apply to the ADS-B transmitting equipment carried on a certain light sport, experimental and exempted aircraft provided that:</p> <ul style="list-style-type: none"> (a) the equipment configuration that is carried provides the pilot, other aircraft and ATC with the same transponder and surveillance capability as would be provided if the equipment were expressly authorised in accordance with the specific TSO or ETSO; and (b) the pilot or the operator has a statement of conformance (however described) from the equipment manufacturer stating the particular standard or standards of the TSO or ETSO with which the equipment conforms. 	<p>Establishes in CAO 20.18 the ability for certain light sport, experimental and exempted aircraft (see new definition) to install non-TSOed, but otherwise equivalent ADS-B equipment.</p> <p>This clause reflects a provision already provided in the future Part 91 Manual of Standards (Section 30.88).</p>
<p>INSTRUMENT NUMBER: CASA 316/98</p> <p>CIVIL AVIATION ACT 1988</p> <p>CIVIL AVIATION REGULATIONS</p> <p>INSTRUCTION UNDER REGULATION 174A RELATING TO THE CARRIAGE OF TRANSPONDERS BY AIRCRAFT OPERATING IN CONTROLLED AIRSPACE</p> <p>I, MICHAEL ROBERT TOLLER, Director of Aviation Safety:</p>	<p>9BA Instructions — SSR transponder equipment</p> <p>9BA.1 For subregulation 174A of CAR, this subsection specifies the SSR transponder equipment that must be carried on certain aircraft before they undertake a VFR flight.</p>	<p>New.</p> <p>Section 9BA incorporates instrument no. CASA 316/98 into CAO 20.18. This instrument originally set the requirements for the carriage of Mode A/C transponders in VFR aircraft.</p> <p>The reason for doing this is to:</p> <ul style="list-style-type: none"> a. enable the proposed provision allowing an integrated Traffic Awareness Beacon System (TABS) device to be carried instead of a transponder in Class E airspace or

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<p>(1) revoke instrument number CASA 207/98; and</p> <p>(2) under regulation 174A of the Civil Aviation Regulations, on behalf of CASA, specify:</p>		<p>above 10 000 ft AMSL in Class G airspace; and</p> <p>b. update the provision to recognise that CAO 20.18 already requires or allows a Mode S transponder to be installed in an aircraft for VFR operations in Classes A, B, C or E airspace, or above 10 000 ft AMSL in Class G airspace.</p> <p>Apart from allowing a TABS device to substitute for a transponder, there is no change to the existing transponder carriage requirements as currently specified in the AIP.</p>
	<p>9BA.2 Unless this subsection provides otherwise, an aircraft must carry serviceable SSR transponder equipment in accordance with subsection 9E.</p>	<p>Cross references the existing Mode S carriage requirements in subsection 9E of CAO 20.18.</p>
<p>(a) that an aircraft must be fitted with a serviceable Mode A and Mode C secondary surveillance radar transponder before the aircraft undertakes a V.F.R flight within radar coverage in airspace that has been determined under subregulation 2.04 (1) of the Airservices Regulations to be Class A airspace, Class B airspace or Class C airspace; and</p>	<p>9BA.3 A serviceable Mode A and Mode C SSR transponder must be carried on an aircraft that:</p> <p>(a) was manufactured before 6 February 2014; and</p> <p>(b) has not been modified by having its transponder installation replaced on or after that date; and</p> <p>(c) operates under the VFR and within ATC radar coverage, in Class A airspace below FL290, in Class B airspace, or in Class C airspace.</p> <p><i>Note</i> Carriage of a Mode A and Mode C transponder does not remove the requirement to obtain CASA approval to operate in Class A airspace: see subregulation 99AA (3) of CAR.</p>	<p>New – 9BA-3 reflects the original CASA 316/98 and AIP requirements for a Mode A/C transponder to be carried in an aircraft for VFR operations in Classes A, B, or C airspace, but with the provision accounting for:</p> <p>a. Existing subsection 9B.8 of CAO 20.18, which requires carriage of ADS-B transmitting equipment for all aircraft operating at or above FL290; and</p> <p>b. subsection 9E of the CAO, which requires carriage of a Mode S transponder in an aircraft that:</p> <p>(1) was manufactured on or after 6 February 2014; and</p> <p>(2) has been modified by having its transponder installation replaced on or after that date.</p>
	<p>9BA.4 Paragraph 9BA.3 does not apply if the aircraft carries serviceable Mode S transponder that meets the standards set out in subparagraph 9E.2 (c)</p>	<p>New.</p> <p>9BA.4 is an enabling mechanism for the existing arrangements for a Mode S transponder, in the specified circumstances to replace a Mode A/C transponder.</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
<p>(b) that an aircraft with an engine driven electrical system capable of continuously powering a transponder must be fitted with a serviceable Mode A and Mode C secondary surveillance radar transponder before the aircraft undertakes a V.F.R flight in airspace that has been determined under subregulation 2.04 (1) of the Airservices Regulations to be Class E airspace.</p>	<p>9BA.5 A serviceable Mode A and Mode C SSR transponder must be carried an aircraft that:</p> <ul style="list-style-type: none"> (a) was manufactured before 6 February 2014; and (b) has not been modified by having its transponder installation replaced on or after that date; and (c) has an engine-driven electrical system capable of continuously powering a transponder; and (d) operates under the VFR in Class E airspace, or above 10 000 ft AMSL in Class G airspace. 	<p>New.</p> <p>9BA-5 reflects the original CASA 316/98 and AIP requirements for a Mode A/C transponder to be carried in an aircraft for VFR operations in Class E airspace, or above 10 000 ft AMSL in Class G airspace, but only if the aircraft has an engine-driven electrical system capable of continuously powering a transponder.</p> <p>It also accounts for subsection 9E of the CAO, which requires carriage of a Mode S transponder in an aircraft that:</p> <ul style="list-style-type: none"> (1) was manufactured on or after 6 February 2014; and (2) has been modified by having its transponder installation replaced on or after that date.
	<p>9BA.6 Paragraph 9BA.5 does not apply if the aircraft carries:</p> <ul style="list-style-type: none"> (a) a serviceable Mode S transponder that meets the standards set out in subparagraph 9E.2 (c); or (b) a serviceable integrated TABS device that meets the standards set out in Appendix XIII. 	<p>New.</p> <p>9BA.6 is an enabling mechanism for a Mode S transponder or integrated TABS device being fitted in place of a Mode A/C transponder.</p>
<p>This instruction does not apply to aircraft operating in general aviation aerodrome procedures control zones.</p>		<p>No direct equivalent in the proposed CAO 20.18 amendment, however the original provision is accounted for because the original GAAP aerodromes have been reclassified Class D airspace. Within Class D airspace, there is no requirement for VFR aircraft to have a transponder or ADS-B transmitting equipment.</p>
	<p>9BA.7 This subsection repeals instrument CASA 316/98.</p>	<p>New.</p> <p>9BA.7 is part of the mechanism for repealing instrument CASA 316/98.</p>
<p>9C Standards for Mode S transponder equipment 9C.1 This subsection applies to an aircraft engaged in private, aerial work, charter or RPT operations.</p>	<p>9C Standards for Mode S transponder equipment 9C.1 This subsection applies to an aircraft engaged in private, aerial work, charter or RPT operations.</p>	<p>NC.</p>
<p>9C.2 If the aircraft carries Mode S transponder equipment (the equipment), the equipment must meet the standards set out in this subsection.</p>	<p>9C.2 If the aircraft carries Mode S transponder equipment (the equipment), the equipment must meet the standards set out in this subsection.</p>	<p>NC.</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
<p>9C.3 The equipment must be of a type that is authorised by:</p> <ul style="list-style-type: none"> (a) the FAA, in accordance with TSO-C112() as in force on 5 February 1986, or a later version as in force from time to time; or (b) EASA, in accordance with ETSO-C112a as in force on 24 October 2003, or a later version as in force from time to time; or (c) CASA, in accordance with an instrument of approval of the type. <p><i>Note 1</i> CASA Advisory Circular 21-46 provides guidelines on Mode S transponder equipment.</p> <p><i>Note 2</i> If Mode S transponder equipment incorporates ADS-B functionality, the standards set out in subsection 9B for ADS-B transmitting equipment will also apply to the Mode S transponder equipment.</p>	<p>9C.3 The equipment must be of a type that is authorised by:</p> <ul style="list-style-type: none"> (a) the FAA, in accordance with TSO-C112() as in force on 5 February 1986, or a later version as in force from time to time; or (b) EASA, in accordance with ETSO-C112a as in force on 24 October 2003, or a later version as in force from time to time; or (c) CASA, in accordance with an instrument of approval of the type. <p><i>Note 1</i>—CASA Advisory Circular 21-46 provides guidelines on Mode S transponder equipment.</p> <p><i>Note 2</i>—If Mode S transponder equipment incorporates ADS-B functionality, the standards set out in subsection 9B for ADS-B transmitting equipment will also apply to the Mode S transponder equipment.</p>	<p>Note 2 was omitted as this will be dealt with as a specific requirement in new 9C.10.</p>
<p>9C.4 The aircraft address entered into the equipment must exactly correspond to the aircraft address assigned to the aircraft by CASA or the relevant RAAO.</p>	<p>9C.4 The aircraft address entered into the equipment must exactly correspond to the aircraft address assigned to the aircraft by CASA or the relevant RAAO.</p>	<p>NC.</p>
<p>9C.5 The equipment must transmit each of the following when interrogated on the manoeuvring area of an aerodrome or in flight:</p> <ul style="list-style-type: none"> (a) the aircraft address; (b) the Mode A code; (c) the Mode C code; (d) subject to paragraph 9C.7, the aircraft flight identification in accordance with paragraph 9C.6. 	<p>9C.5 The equipment must transmit each of the following when interrogated on the manoeuvring area of an aerodrome or in flight:</p> <ul style="list-style-type: none"> (a) the aircraft address; (b) the Mode A code; (c) the Mode C code; (d) subject to paragraph 9C.7, the aircraft flight identification in accordance with paragraph 9C.6. 	<p>NC.</p>
<p>9C.6 The aircraft flight identification must:</p> <ul style="list-style-type: none"> (a) if a flight notification is filed with ATC for the flight — correspond exactly with the aircraft identification mentioned on the flight notification; or (b) if no flight notification is filed with ATC for the flight: <ul style="list-style-type: none"> (i) for an aircraft registered on the Australian Civil Aircraft Register — be the aircraft registration mark; or (ii) for an Australian aircraft registered by a RAAO — be in accordance with the RAAO's operations manual; or (c) be another flight identification directed or approved for use by ATC. 	<p>9C.6 The aircraft flight identification must:</p> <ul style="list-style-type: none"> (a) if a flight notification is filed with ATC for the flight — correspond exactly with the aircraft identification mentioned on the flight notification; or (b) if no flight notification is filed with ATC for the flight: <ul style="list-style-type: none"> (i) for an aircraft registered on the Australian Civil Aircraft Register — be the aircraft registration mark; or (ii) for an Australian aircraft registered by a RAAO — be in accordance with the RAAO's operations manual; or (d) be another flight identification directed or approved for use by ATC. 	<p>NC.</p>
<p>9C.7 Mode S transponder transmission of the aircraft flight identification is optional for any aircraft that was manufactured before 9 February 2012 (an older aircraft). However, if an older aircraft is equipped to transmit, and transmits, an aircraft flight identification then that aircraft flight identification must be in accordance with paragraph 9C.6.</p>	<p>9C.7 Mode S transponder transmission of the aircraft flight identification is optional for any aircraft that was manufactured before 9 February 2012 (an older aircraft). However, if an older aircraft is equipped to transmit, and transmits, an aircraft flight identification then that aircraft flight identification must be in accordance with paragraph 9C.6.</p>	<p>NC.</p>
<p>9C.8 If the equipment transmits any Mode S EHS DAPs, the transmitted DAPs must comply with the standards set out in paragraph 3.1.2.10.5.2.3 and Table 3-10 of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.</p>	<p>9C.8 If the equipment transmits any Mode S EHS DAPs, the transmitted DAPs must comply with the standards set out in paragraph 3.1.2.10.5.2.3 and Table 3-10 of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.</p>	<p>NC.</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
<p><i>Note 1</i> Paragraph 3.1.2.10.5.2.3 includes 3.1.2.10.5.2.3.1, 3.1.2.10.5.2.3.2 and 3.1.2.10.5.2.3.3.</p> <p><i>Note 2</i> Australian Mode S SSR are EHS DAPs-capable, and operational use of EHS DAPs is to be introduced in Australia. Implementation of Mode S EHS DAPs transmissions that are not in accordance with the ICAO standards may be misleading to ATC. Operators need to ensure that correct parameters are being transmitted.</p>	<p><i>Note 1</i> Paragraph 3.1.2.10.5.2.3 includes 3.1.2.10.5.2.3.1, 3.1.2.10.5.2.3.2 and 3.1.2.10.5.2.3.3.</p> <p><i>Note 2</i> Australian Mode S SSR are EHS DAPs-capable, and operational use of EHS DAPs is to be introduced in Australia. Implementation of Mode S EHS DAPs transmissions that are not in accordance with the ICAO standards may be misleading to ATC. Operators need to ensure that correct parameters are being transmitted.</p>	
<p>9C.9 If the equipment is carried in an aircraft manufactured on or after 9 February 2012:</p> <p>(a) having a certificated maximum take-off weight above 5 700 kg; or</p> <p>(b) that is capable of normal operation at a maximum cruising true air speed above 250 knots;</p> <p>the equipment's receiving and transmitting antennae must:</p> <p>(c) be located in the upper and lower fuselage; and</p> <p>(d) operate in diversity, as specified in paragraphs 3.1.2.10.4 to 3.1.2.10.4.5 (inclusive) of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.</p> <p><i>Note</i> Paragraph 3.1.2.10.4.2.1 is recommendatory only.</p>	<p>9C.9 If the equipment is carried in an aircraft manufactured on or after 9 February 2012:</p> <p>(a) having a certificated maximum take-off weight above 5 700 kg; or</p> <p>(b) that is capable of normal operation at a maximum cruising true air speed above 250 knots;</p> <p>the equipment's receiving and transmitting antennae must:</p> <p>(c) be located in the upper and lower fuselage; and</p> <p>(d) operate in diversity, as specified in paragraphs 3.1.2.10.4 to 3.1.2.10.4.5 (inclusive) of Volume IV, Surveillance and Collision Avoidance Systems, of Annex 10 of the Chicago Convention.</p> <p><i>Note</i> Paragraph 3.1.2.10.4.2.1 is recommendatory only.</p>	NC.
	<p>9C.10 Subject to paragraph 9C.11, if Mode S transponder equipment incorporates ADS-B functionality, the equipment must comply with the applicable approved equipment configuration required under subsection 9B for ADS-B transmitting equipment.</p>	<p>New.</p> <p>Sets as a specific requirement, the expectation originally specified as note 2 to 9C.3. The clause does not impose any new requirement.</p>
	<p>9C.11 For paragraphs 9C.3 and 9C.10, a requirement, under Appendix XI or XII, that an approved equipment configuration for ADS-B transmitting equipment be authorised in accordance with a specific TSO or ETSO does not apply to the ADS-B transmitting equipment carried on certain light sport, experimental and exempted aircraft provided that:</p> <p>(a) the equipment configuration that is carried provides the pilot, other aircraft and ATC with the same transponder and surveillance capability as would be provided if the equipment were expressly authorised in accordance with the specific TSO or ETSO; and</p> <p>(b) the pilot or the operator has a statement of conformance (however described) from the equipment manufacturer stating the particular standard or standards of the TSO or ETSO with which the equipment conforms.</p>	<p>New.</p> <p>Establishes in CAO 20.18 the ability for certain light sport, experimental and exempted aircraft (see new definition) to install non-TSOed, but otherwise equivalent Mode S transponders.</p> <p>This clause reflects a provision already provided in the future Part 91 Manual of Standards (Section 30.88).</p>
<p>9E Carriage of Mode S transponder equipment</p> <p>9E.1 This subsection applies to an aircraft engaged in private, aerial work, charter or RPT operations.</p>	<p>9E Carriage of Mode S transponder equipment</p> <p>9E.1 This subsection applies to an aircraft engaged in private, aerial work, charter or RPT operations.</p>	NC.
<p>9E.2 Subject to paragraph 9E.3, an aircraft:</p> <p>(a) that is:</p>	<p>9E.2 Subject to paragraph 9E.3, an aircraft:</p> <p>(a) that is:</p>	The changes to the original requirements (wording changes only)

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
<p>(i) manufactured on or after 6 February 2014; or (ii) modified by having its transponder installation replaced on or after 6 February 2014; and (b) that is operated: (i) in Class A, B, C or E airspace; or (ii) above 10 000 feet above mean sea level in Class G airspace; must carry a serviceable Mode S transponder that meets the standards: (c) for Mode S transponder equipment — in subsection 9C; and (d) for ADS-B transmission — in a clause or clauses of Appendix XI as follows: (i) clauses 2 and 5 of Part B; or (ii) clause 7 of Part C; or (iii) clause 8 of Part C.</p> <p><i>Note</i> The requirement is for aircraft to be fitted with a Mode S transponder with ADS-B OUT capability. That does not mean that ADS-B OUT transmission is also required under this paragraph. It means that, with the later connection of compatible GNSS position source equipment, ADS-B OUT can be transmitted as well as Mode S SSR responses</p>	<p>(i) manufactured on or after 6 February 2014; or (ii) modified by having its transponder installation replaced on or after 6 February 2014; and (b) that is operated: (i) in Class A, B, C or E airspace; or (ii) above 10 000 feet above mean sea level in Class G airspace; must carry: (c) a serviceable Mode S transponder that meets the standards: (i) for Mode S transponder equipment — in subsection 9C; and (ii) for ADS-B transmission using an approved equipment configuration set out in Appendix XI — in a clause or clauses of Appendix XI as follows: (A) clauses 2 and 5 of Part B; or (B) clause 7 of Part C; or (C) clause 8 of Part C; and (iii) for ADS-B transmission using an approved equipment configuration set out in Appendix XII — in clauses 1 and 4 in Part B of Appendix XII; or</p> <p><i>Note</i> The requirement is for aircraft to be fitted with a Mode S transponder with ADS-B OUT capability. That does not mean that ADS-B OUT transmission is also required under this paragraph. It means that, with the later connection of compatible GNSS position source equipment, ADS-B OUT can be transmitted as well as Mode S SSR responses.</p> <p>(d) for an aircraft that is operated under the VFR: (i) in Class E airspace; or (ii) above 10 000 feet AMSL in Class G airspace; a serviceable integrated TABS device that meets the standards in Appendix XIII.</p> <p><i>Note</i> An aircraft operated under the VFR in Class E airspace or above 10 000 ft AMSL in Class G airspace has the option of complying with either subparagraph (c) or (d).</p> <p>An aircraft operated under the VFR or the IFR in Class A, B, or C airspace has no option but to comply with subparagraph (c).</p> <p>An aircraft operated under the IFR in Class E airspace or above 10 000 ft AMSL in Class G airspace has no option but to comply with subparagraph (c).</p>	<p>are highlighted in blue – revised formatting not highlighted):</p> <p>a. adopt the new Appendix XII standards for ADS-B transmitting equipment as an additional means for satisfying the ADS-B capability requirement for Mode S transponder installed after a certain date.</p> <p>b. identify that an integrated TABS device can substitute for a Mode S transponder for an aircraft that is operated under the VFR:</p> <p>(i) in Class E airspace; or (ii) above 10 000 feet AMSL in Class G airspace.</p>
<p>9E.3 Paragraph 9E.2 does not apply to an aircraft: (a) operating in Class E airspace; or (b) operating above 10 000 feet above mean sea level in Class G airspace;</p>	<p>9E.3 Paragraph 9E.2 does not apply to an aircraft: (a) operating in Class E airspace; or (b) operating above 10 000 feet above mean sea level in Class G airspace;</p>	<p>NC.</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
<p>if the aircraft does not have:</p> <ul style="list-style-type: none"> (c) an engine; or (d) sufficient engine-driven electrical power generation capacity to power a Mode S transponder. 	<p>if the aircraft does not have:</p> <ul style="list-style-type: none"> (c) an engine; or (d) sufficient engine-driven electrical power generation capacity to power a Mode S transponder. 	
<p>9E.4 On and after 4 February 2016, an aircraft operating at Brisbane, Sydney, Melbourne or Perth aerodrome must carry a serviceable Mode S transponder that meets the standards of:</p> <ul style="list-style-type: none"> (a) subsection 9C; and (b) the following clause or clauses of Appendix XI: <ul style="list-style-type: none"> (i) clauses 2 and 5 of Part B; or (ii) clause 7 of Part C; or (iii) clause 8 of Part C. <p><i>Note 1</i> A Mode A/C transponder does not meet this requirement. <i>Note 2</i> ADS-B OUT transmission is not mandatory but the Mode S transponder must be ADS-B capable.</p>	<p>9E.4 On and after 4 February 2016, an aircraft operating at Brisbane, Sydney, Melbourne or Perth aerodrome must carry a serviceable Mode S transponder that meets the standards of:</p> <ul style="list-style-type: none"> (a) subsection 9C; and (b) the following clause or clauses of Appendix XI: <ul style="list-style-type: none"> (i) clauses 2 and 5 of Part B; or (ii) clause 7 of Part C; or (iii) clause 8 of Part C. <p><i>Note 1</i> A Mode A/C transponder does not meet this requirement. <i>Note 2</i> ADS-B OUT transmission is not mandatory but the Mode S transponder must be ADS-B capable.</p>	<p>Simply omits a target date that has now passed.</p>
<p>9E.5 Paragraphs 9E.2 and 9E.4 do not apply to an aircraft for a flight if the Mode S transponder equipment is unserviceable for the flight, and each of the following applies:</p> <ul style="list-style-type: none"> (a) the flight takes place within 3 days of the discovery of the unserviceability; (b) at least 1 of the following applies for the flight: <ul style="list-style-type: none"> (i) flight with unserviceable equipment has been approved by CASA, in writing, subject to such conditions as CASA specifies; (ii) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft, and any applicable conditions under subregulation 37 (2) of CAR 1988 have been complied with; (c) ATC clears the flight despite the unserviceability. 	<p>9E.5 Paragraphs 9E.2 and 9E.4 do not apply to an aircraft for a flight if the Mode S transponder equipment is unserviceable for the flight, and each of the following applies:</p> <ul style="list-style-type: none"> (a) the flight takes place within 3 days of the discovery of the unserviceability; (b) at least 1 of the following applies for the flight: <ul style="list-style-type: none"> (i) flight with unserviceable equipment has been approved by CASA, in writing, subject to such conditions as CASA specifies; (ii) the unserviceability is a permissible unserviceability set out in the minimum equipment list for the aircraft, and any applicable conditions under subregulation 37 (2) of CAR 1988 have been complied with; (c) ATC clears the flight despite the unserviceability. 	<p>NC.</p>
<p>Appendix XI</p> <p>Part A</p> <p>Approved equipment configuration</p> <p>1 An equipment configuration is approved if it complies with the standards specified in Part B or Part C of this Appendix.</p>	<p>Appendix XI</p> <p>Part A — ADS-B transmitting equipment — approval and application</p> <p>Approved equipment configuration — IFR and VFR flight</p> <p>1 Subject to this Part, an equipment configuration for ADS-B transmitting equipment is approved if it complies with the standards specified in Part B or Part C of this Appendix.</p> <p>Application</p> <p>2 ADS-B transmitting equipment carried on an aircraft in an IFR flight has an approved equipment configuration if, and only if, it complies with the standards in Part B or Part C of this Appendix.</p> <p><i>Note</i> No other Appendix applies to the equipment in an IFR flight.</p>	<p>CAO 20.18 will have three new appendices covering different forms of ADS-B approved equipment configurations useable for VFR aircraft. These new appendices, in addition to technical specifications, will detail when and where a particular equipment configuration may be used.</p> <p>For consistency with these new appendices, a new 'Application' section is added here detailing when and where Appendix XI applies and what equipment is useable.</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
	<p>3 ADS-B transmitting equipment carried on an aircraft in any operation at or above FL290 has an approved equipment configuration if, and only if, it complies with the standards in Part B or Part C of this Appendix.</p> <p><i>Note</i> No other Appendix applies to the equipment in an operation above FL290.</p> <p>4 ADS-B transmitting equipment carried on an aircraft, in a flight that is not an IFR flight or any flight at or above FL290, has an approved equipment configuration if it complies with the standards in Part B or Part C of this Appendix.</p> <p><i>Note</i> For example, ADS-B transmitting equipment carried on an aircraft in a VFR flight below FL290 would have an approved equipment configuration if it complied with the standards in Part B or Part C of this Appendix. However, another Appendix may apply to the equipment in the VFR flight.</p>	The new wording imposes no new requirements.
<p>Part B</p> <p>ADS-B transmitting equipment — standard for approval</p> <p>2 ADS-B transmitting equipment must be of a type that:</p> <p>(a) is authorised in accordance with (E)TSO-C166, or a later version as in force from time to time; or</p> <p>(b) meets the following requirements:</p> <p>(i) the type must be accepted by CASA as meeting the specifications in RTCA/DO-260 dated 13 September 2000, or a later version as in force from time to time; and</p> <p>(ii) the type must utilise HPL at all times HPL is available; or</p> <p>(c) is otherwise authorised, in writing, by CASA for the purposes of subsection 9B of this Civil Aviation Order as being equivalent to one of the foregoing types.</p>	<p>Part B</p> <p>ADS-B transmitting equipment — standard for approval</p> <p>2 ADS-B transmitting equipment must be of a type that:</p> <p>(a) is authorised in accordance with (E)TSO-C166, or a later version as in force from time to time; or</p> <p>(b) meets the following requirements:</p> <p>(i) the type must be accepted by CASA as meeting the specifications in RTCA/DO-260 dated 13 September 2000, or a later version as in force from time to time; and</p> <p>(ii) the type must utilise HPL at all times HPL is available; or</p> <p>(c) is otherwise authorised, in writing, by CASA for the purposes of subsection 9B of this Civil Aviation Order as being equivalent to one of the foregoing types.</p>	NC.
<p>GNSS position source equipment — standard for aircraft manufactured on or after 8 December 2016</p> <p>3 For an aircraft manufactured on or after 8 December 2016, the geographical position transmitted by the ADS-B transmitting equipment must be determined by:</p> <p>(a) a GNSS receiver of a type that is authorised in accordance with (E)TSO-C145a or (E)TSO-C146a, or a later version as in force from time to time; or</p> <p>(b) a GNSS receiver of a type that is authorised in accordance with (E)TSO-C196a, or a later version as in force from time to time; or</p> <p>(c) a GNSS receiver or system which meets the following requirements:</p> <p>(i) is certified by an NAA for use in flight under the I.F.R.;</p> <p>(ii) has included in its specification and operation the following:</p> <p>(A) FDE, computed in accordance with the definition at paragraph 1.7.3 of RTCA/DO-229D;</p>	<p>GNSS position source equipment — standard for aircraft manufactured on or after 8 December 2016</p> <p>3 For an aircraft manufactured on or after 8 December 2016, the geographical position transmitted by the ADS-B transmitting equipment must be determined by:</p> <p>(a) a GNSS receiver of a type that is authorised in accordance with (E)TSO-C145a or (E)TSO-C146a, or a later version as in force from time to time; or</p> <p>(b) a GNSS receiver of a type that is authorised in accordance with (E)TSO-C196a, or a later version as in force from time to time; or</p> <p>(c) a GNSS receiver or system which meets the following requirements:</p> <p>(i) is certified by an NAA for use in flight under the I.F.R.;</p> <p>(ii) has included in its specification and operation the following:</p> <p>(A) FDE, computed in accordance with the definition at paragraph 1.7.3 of RTCA/DO-229D;</p>	NC.

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
<p>(B) the output function HPL, computed in accordance with the definition at paragraph 1.7.2 of RTCA/DO-229D;</p> <p>(C) functionality that, for the purpose of HPL computation, accounts for the absence of the SA of the GPS in accordance with paragraph 1.8.1.1 of RTCA/DO-229D; or</p> <p>(d) another equivalent system authorised in writing by CASA.</p> <p><i>Note</i> The following GNSS receivers meet the requirements of clause 3, namely, those certified to (E)TSO-C145a or (E)TSO-C146a, or later versions, or those manufactured to comply with (E)TSO-C196a.</p>	<p>(B) the output function HPL, computed in accordance with the definition at paragraph 1.7.2 of RTCA/DO-229D;</p> <p>(C) functionality that, for the purpose of HPL computation, accounts for the absence of the SA of the GPS in accordance with paragraph 1.8.1.1 of RTCA/DO-229D; or</p> <p>(d) another equivalent system authorised in writing by CASA.</p> <p><i>Note</i> The following GNSS receivers meet the requirements of clause 3, namely, those certified to (E)TSO-C145a or (E)TSO-C146a, or later versions, or those manufactured to comply with (E)TSO-C196a.</p>	
<p>GNSS position source equipment — standard for aircraft manufactured before 8 December 2016</p> <p>4 For an aircraft manufactured before 8 December 2016, the geographical position transmitted by the ADS-B transmitting equipment must be determined by:</p> <p>(a) a GNSS receiver or system that complies with the requirements of clause 3, other than sub-subparagraph 3 (c) (ii) (C) which is optional; or</p> <p>(b) an equivalent GNSS receiver or system that has been approved in writing by CASA.</p> <p><i>Note</i> The following GNSS receivers meet the requirements of clause 4, namely, those certified to (E)TSO-C145a or (E)TSO-C146a, or later versions, or those manufactured to comply with (E)TSO-C196a. Some later versions of GNSS receivers certified to (E)TSO-C129 may also meet the requirements, i.e. those having FDE and HPL features incorporated.</p>	<p>GNSS position source equipment — standard for aircraft manufactured before 8 December 2016</p> <p>4 For an aircraft manufactured before 8 December 2016, the geographical position transmitted by the ADS-B transmitting equipment must be determined by:</p> <p>(a) a GNSS receiver or system that complies with the requirements of clause 3, other than sub-subparagraph 3 (c) (ii) (C) which is optional; or</p> <p>(b) an equivalent GNSS receiver or system that has been approved in writing by CASA.</p> <p><i>Note</i> The following GNSS receivers meet the requirements of clause 4, namely, those certified to (E)TSO-C145a or (E)TSO-C146a, or later versions, or those manufactured to comply with (E)TSO-C196a. Some later versions of GNSS receivers certified to (E)TSO-C129 may also meet the requirements, i.e. those having FDE and HPL features incorporated.</p>	NC.
<p>Altitude source equipment — standard</p> <p>5 The pressure altitude transmitted by the ADS-B transmitting equipment must be determined by:</p> <p>(a) a barometric encoder of a type that is authorised in accordance with (E)TSO-C88a, or a later version as in force from time to time; or</p> <p>(b) another equivalent system authorised in writing by CASA.</p>	<p>Altitude source equipment — standard</p> <p>5 The pressure altitude transmitted by the ADS-B transmitting equipment must be determined by:</p> <p>(a) a barometric encoder of a type that is authorised in accordance with (E)TSO-C88a, or a later version as in force from time to time; or</p> <p>(b) another equivalent system authorised in writing by CASA.</p>	NC.
<p>Aircraft address — standard</p> <p>6 Unless otherwise approved, in writing, by CASA, the ADS-B transmitting equipment must:</p> <p>(a) transmit the current aircraft address; and</p> <p>(b) allow the pilot to activate and deactivate transmission during flight.</p> <p><i>Note</i> The requirement in paragraph 6 (b) is met if the ADS-B transmitting equipment has a cockpit control that enables the pilot to turn the ADS-B transmissions on and off.</p>	<p>Aircraft address — standard</p> <p>6 Unless otherwise approved, in writing, by CASA, the ADS-B transmitting equipment must:</p> <p>(a) transmit the current aircraft address; and</p> <p>(b) allow the pilot to activate and deactivate transmission during flight.</p> <p><i>Note</i> The requirement in paragraph 6 (b) is met if the ADS-B transmitting equipment has a cockpit control that enables the pilot to turn the ADS-B transmissions on and off.</p>	<p>Clause 6 is moved to the main body of the CAO; becoming 9B.11. This has been done to set a common requirement for all ADS-B configurations in terms of setting a current aircraft address and having the capability to activate and deactivate transmission during flight.</p> <p>Moving the clause does not change any obligation originally applied to Appendix XI equipment configurations.</p>
Part C	Part C	Expands the list of alternate approved equipment configurations to include

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
<p>Alternative approved equipment configuration — standard for aircraft manufactured on or after 8 December 2016</p> <p>7 For an aircraft manufactured on or after 8 December 2016, an equipment configuration is approved if:</p> <ul style="list-style-type: none"> (a) it has been certified by EASA as meeting the standards of EASA AMC 20-24; and (b) the aircraft flight manual attests to the certification; and (c) the GNSS receiver or system complies with the requirements of clause 3 in Part B. 	<p>Alternative approved equipment configuration — standard for aircraft manufactured on or after 8 December 2016</p> <p>7 For an aircraft manufactured on or after 8 December 2016, an equipment configuration is approved if:</p> <ul style="list-style-type: none"> (a) it has been approved or accepted by certified by EASA: <ul style="list-style-type: none"> (i) the NAA of a recognised country as meeting the standards of EASA AMC 20-24 or EASA CS-ACNS, as in force from time to time; or (ii) the FAA, as meeting the standards of 14 CFR 91.225 for 1090 Megahertz (MHz) Extended Squitter ADS-B, as in force from time to time; and (b) the aircraft flight manual attests to the certification; and (c) the GNSS receiver or system complies with the requirements of clause 3 in Part B. 	<p>EASA CS-ACNS equipment and equipment meeting the standards of the USA 14 CFR 91.227 standards (FAA 2020 mandate standards) for 1090 Megahertz (MHz) Extended Squitter ADS-B.</p>
<p>Alternative approved equipment configuration — standard for aircraft manufactured before 8 December 2016</p> <p>8 For an aircraft manufactured before 8 December 2016, an equipment configuration is approved if:</p> <ul style="list-style-type: none"> (a) it has been certified by EASA as meeting the standards of EASA AMC 20-24; and (b) the aircraft flight manual attests to the certification; and (c) the GNSS receiver or system complies with the requirements of clause 4 in Part B. 	<p>Alternative approved equipment configuration — standard for aircraft manufactured before 8 December 2016</p> <p>8 For an aircraft manufactured before 8 December 2016, an equipment configuration is approved if:</p> <ul style="list-style-type: none"> (a) it has been approved or accepted certified by: <ul style="list-style-type: none"> (i) EASA as meeting the standards of EASA AMC 20-24, as in force from time to time; or (ii) the FAA as meeting the standards of 14 CFR 91.225 for 1090 Megahertz (MHz) Extended Squitter ADS-B, as in force from time to time; and (b) the aircraft flight manual attests to the certification; and (c) the GNSS receiver or system complies with the requirements of clause 4 in Part B. 	<p>Expands the list of alternate approved equipment configurations to include EASA CS-ACNS equipment and equipment meeting the standards of the USA 14 CFR 91.227 standards (FAA 2020 mandate standards) for 1090 Megahertz (MHz) Extended Squitter ADS-B.</p>
	<p>Appendix XII — Approved equipment configuration — Mode S transponder with Class B TABS position source device — VFR flight below FL290 only</p> <p>Part A — ADS-B transmitting equipment — approval and application</p> <p>Approved equipment configuration — Mode S transponder with Class B TABS position source device</p> <p>1 Subject to this Part, an equipment configuration for ADS-B transmitting equipment is approved if it is a Mode S transponder with Class B TABS position source device that complies with the standards specified in Part B of this Appendix.</p>	<p>Part A establishes a Mode S transponder with Class B TABS position source device as an Approved equipment configuration within limits set in clauses 1 – 4.</p>
	<p>Application</p>	<p>Clause 2 references Part B of Appendix XII as setting the equipment</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
	<p>2 A Mode S transponder with Class B TABS position source device carried on an aircraft has an approved equipment configuration if it complies with:</p> <p>(a) the standards in Part B of this Appendix; and</p> <p>(b) the conditions set out in clauses 3 and 4.</p> <p>Note Another Appendix may apply to the equipment in a VFR flight.</p>	standards for a Class B TABS position source device.
	<p>3 For paragraph 2 (b), a Mode S transponder with Class B TABS position source device may only be operated:</p> <p>(a) in VFR flight below FL290; and</p> <p>(b) in an aircraft that:</p> <p>(i) has a MTOW of no more than 5 700kg; and</p> <p>(ii) has a maximum cruising speed not exceeding 250 kt; and</p> <p>(iii) is not used for RPT operations or charter operations.</p>	<p>Clause 3 sets specific limits on the use of a Mode S transponder with Class B TABS position source.</p> <p>The speed and MTOW limits are proposed for consistency with overseas practice (EASA) for the same equipment.</p>
	<p>4 For paragraph 2 (b), if a Mode S transponder with Class B TABS position source device transmits a SIL value of less than 2, the aircraft must not enter controlled airspace in which:</p> <p>(a) aircraft are required to carry serviceable ADS-B transmitting equipment that complies with an approved equipment configuration in accordance with Appendix XI; or</p> <p>(b) VFR aircraft are required to carry ADS-B transmitting equipment.</p> <p>Note Carriage of a Mode S transponder with Class B TABS position source device does not remove the requirement to obtain ATC clearance to operate in Class B or C airspace. Nor does it remove the requirement to obtain CASA approval to operate in Class A airspace – see subregulation 99AA (3) of CAR.</p>	<p>The proposal is for higher end configurations (those capable of outputting SIL=2) within airspace where Appendix XI equipment (IFR standard) might otherwise be required. In other words, in airspace where ADS-B alone is used for ATC separation.</p> <p>For VFR aircraft there is no ADS-B mandatory airspace (other than at or above FL 290).</p> <p>However, higher end capabilities are useful particularly in controlled airspace where there is ADS-B ground station coverage, but limited or no conventional radar coverage. For example, the Class C & D airspace in the vicinity of airports like Alice Springs. The higher end capability potentially enables the efficiency benefits of surveillance control services.</p>
	<p>Part B — Standards for a Mode S transponder with Class B TABS position source device</p> <p>Mode S transponder —standard</p> <p>1 The Mode S transponder must be of a type that:</p> <p>(a) is authorised in accordance with (E)TSO-C166B, or a later version as in force from time to time; or</p> <p>(b) approved in writing by CASA as meeting the specifications in RTCA/DO-260B dated 2 December 2009, or a later version as in force from time to time; or</p>	<p>Standards more recent than those in Appendix XI are proposed specifically to ensure that the transponder has the capability to output SIL and SDA. Equipment to an earlier standard will not output both SIL and SDA.</p> <p>The purpose of this more specific requirement is to ensure that an aircraft accurately reports to the</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
	(c) is authorised in writing by CASA as being equivalent to a device mentioned in paragraph (a) or (b).	capability of its variable quality GNSS position source.
	2 When required to be operated, the Mode S transponder must transmit NACp, NIC, SIL and SDA values in accordance with the authorised capability of the GNSS position source.	<p>The purpose of this is to allow equipment to set to output SIL and SDA that reflect the <u>actual performance</u> and design capability of higher end TSO-C199 TABS B position sources. This contrasts with requirements in some countries whereby TABS-based equipment is constrained to output SIL=1 in type certified aircraft, but the same equipment in an LSA/experimental aircraft may output SIL=3.</p> <p>The proposed position is that the capability of an GNSS position source (in this case the SIL value — being the probability of exceeding the NIC containment radius) does not change between two aircraft simply because one is type certified and the other is not.</p>
q	<p>GNSS position source equipment</p> <p>3 The geographical position transmitted by a Class B TABS position source device must be determined by:</p> <p>(a) a Class B TABS position source that is authorised in accordance with (E)TSO-C199, or a later version as in force from time to time; or</p> <p>(b) another source that is authorised in writing by CASA as being equivalent to a source mentioned in paragraph (a).</p>	This is the foundational basis of this equipment configuration. A Class B TABS position source may be considerably cheaper than an IFR-quality ADS-B position source.
	<p>Altitude source equipment — standard</p> <p>4 The pressure altitude transmitted by the Mode S transponder must be determined by:</p> <p>(a) a barometric encoder of a type that is authorised in accordance with (E)TSO-C88a, or a later version as in force from time to time; or</p> <p>(b) another system that is authorised in writing by CASA as being equivalent to a barometric encoder mentioned in paragraph (a).</p>	This requirement ensures the integrity and quality of the altitude information that would be transmitted by the associated Mode S transponder. The standard is the same as required for IFR ADS-B transmitting equipment.

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
	<p>Appendix XIII — Approved equipment configuration — Integrated TABS device — VFR flight below FL290 only</p> <p>Part A — ADS-B transmitting equipment — approval and application</p> <p>Approved equipment configuration — integrated TABS device</p> <p>1 Subject to this Part, an equipment configuration for ADS-B transmitting equipment is approved if it is an integrated traffic awareness beacon system (an <i>integrated TABS device</i>) that complies with the standards specified in Part B of this Appendix.</p>	<p>New</p> <p>Clause 1 is a general statement establishing an integrated TABS device (in other words a TABS with combined Class A and Class B functionality per ETSO C-199) as an approved equipment configuration.</p>
	<p>Application</p> <p>2 An integrated TABS device carried on an aircraft has an approved equipment configuration if it complies with:</p> <p>(a) the standards in Part B of this Appendix; and</p> <p>(b) the conditions set out in clause 3.</p> <p><i>Note</i> Another Appendix may apply to the equipment in a VFR flight.</p>	<p>Clause 2 sets Part B and Clause 3 of this appendix as the standards/conditions for an EC device.</p>
	<p>3 For paragraph 2 (b) an integrated TABS device may only be operated in transmitting mode:</p> <p>(a) in VFR flight below FL290; and</p> <p>(b) in an aircraft that:</p> <p>(i) has a MTOW of no more than 5 700kg; and</p> <p>(ii) has a maximum cruising speed not exceeding 250 kt; and</p> <p>(iii) is not used for RPT operations or charter operations; and</p> <p>(c) in Class D, Class E or Class G airspace.</p> <p><i>Note</i> An integrated TABS device is not a substitute for mandatory carriage of a transponder in relevant airspace, except in Class E airspace, or in Class G airspace above 10 000 ft: see subparagraph 9E.2 (d); see also subparagraph 9BA.6 (b).</p>	<p>Clause 3 sets specific limits on the use of an integrated TABS device.</p> <p>The proposal is to allow an integrated TABS device to substitute for a transponder in Class E airspace, or above 10 000 ft AMSL in Class G airspace.</p> <p>The speed and MTOW limits are proposed for consistency with overseas practice (EASA) for the same equipment. Further, the speed limit is to account for a lower peak output power being permissible in a TABS compared to a standard transponder (70W vs 125W).</p>
	<p>Part B — Standards for an integrated TABS device</p> <p>1 An integrated TABS device must meet the technical specifications in (E)TSO-C199, or a later version as in force from time to time, that are for a device with integrated Class A TABS and Class B TABS functionality.</p>	<p>Specifically specifies that an integrated TABS device must have combined Class A and Class B functionality per ETSO-C199.</p>
	<p>2 An integrated TABS device must transmit a SIL value of 1.</p>	<p>An integrated TABS device cannot be used for ATC separation. It is important for ATC to be able to distinguish between an aircraft with an integrated TABS device and an aircraft fitted with ADS-B transmitting equipment suitable</p>

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
		for ATC separation. Setting SIL=1 enables this to occur.
	3 Subject to clause 4, an integrated TABS device must be authorised by the relevant National Aviation Authority (NAA) of the equipment manufacturer as meeting the standards mentioned in clauses 1 and 2.	Consistent with general requirements for equipment fitted to aircraft.
	4 Clause 3 does not apply to an an integrated TABS device carried on certain light sport, experimental and exempted aircraft provided that the TABS device that is carried: (a) provides the pilot, other aircraft and ATC with the same transponder and surveillance capability as would be provided if an integrated TABS device were expressly authorised by the relevant NAA; and (b) the pilot has a statement of compliance (or however described) from the equipment manufacturer certifying that the equipment otherwise meets the standards mentioned in clauses 1 and 2.	Applies the proposed policy for certain light sport, experimental and exempted aircraft to integrated TABS devices.
	<p>Appendix XIV — Approved equipment configuration — EC device — VFR flight below FL290 only</p> <p>Part A — ADS-B transmitting equipment — approval and application</p> <p>Approved equipment configuration — EC device</p> <p>1 Subject to this Part, an equipment configuration for ADS-B transmitting equipment is approved if it is an electronic conspicuity device (an EC device) that complies with the standards specified in Part B of this Appendix</p> <p><i>Note</i> Only EC devices that meet all of the requirements of this Appendix are EC devices for the purposes of this Appendix.</p>	<p>Completely new Appendix</p> <p>Clause 1 is a general statement setting an EC device as an approved equipment configuration.</p>
	<p>Application</p> <p>2 An EC device carried on an aircraft has an approved equipment configuration if it complies with: (a) the standards in Part B of this Appendix; and (b) the conditions set out in clause 3.</p> <p><i>Note</i> Another Appendix may apply to the equipment in a VFR flight.</p>	Clause 2 sets Part B and Clause 3 of this appendix as the standards/ conditions for an EC device.
	3 For paragraph 2 (b), an EC device, must not be operated in transmitting mode: (a) in VFR flight at or above FL290; or (b) concurrently with a Mode S transponder that is also transmitting ADS-B.	Effectively excludes the use of an EC device in the airspace in the airspace at or above FL 290 where carriage of IFR quality ADS-B will be mandatory. Also, to avoid interference, the proposal is to prohibit the concurrent

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
	<p><i>Note</i> An EC device may be operated concurrently with a Mode A/C, or a Mode S transponder (other than one that is transmitting ADS-B) but it is not a substitute for mandatory carriage of a transponder in relevant airspace.</p>	operation of an EC device in transmit mode with a Mode S transponder that is also transmitting ADS-B.
	<p>Part B — Standards for an EC device</p> <p>1 Subject to clauses 3 and 4, an EC device must meet the technical specifications in the 2nd edition of UK CAA Advisory Publication 1391 dated April 2018, or later version as in force from time to time (UK CAP 1391).</p>	Sets this UK CAP as the broad technical standard for an EC device.
	<p>2 An EC device must use a traffic awareness beacon system Class B position source that complies with the performance standards specified in (E)TSO-C199, as in force from time to time (a TABS Class B position source).</p>	CAP 1391 allows two types of GNSS source. The proposal is to allow only the higher end GNSS option (TABS Class B) because this enable SIL=1 vs SIL=0. SIL=1 ensures an EC device is visible on an aircraft equipped with ADS-B IN.
	<p>3 An EC device must be capable of transmitting a SIL value of 1, in accordance with the standards in UK CAP 1391 for an EC device that uses a TABS Class B position source.</p>	Clause 3 extends from Clause 2 for the same reason and purpose.
	<p>4 Despite the standards in UK CAP 1391, an EC device must:</p> <p>(a) meet the requirements described in paragraph 2.2.3.2.7.2.4.6 of RTCA/DO-260B for transmitting an SDA of 1; and</p> <p>(b) transmit an SDA value of 1.</p>	CAP 1391 normally requires SDA=0. This would prevent an EC device being visible on ADS-B IN. The proposal is to allow only a higher-end EC device that is capable of and thereby outputs SDA=1. SDA=1 makes the device visible on ADS-B IN.
	<p>5 An EC device must use a barometric encoder for altitude information.</p>	This ensures altitude information from an EC device is derived from the same type of encoder and reference datum as other vertical position information from the aircraft and other aircraft.
	<p>6 An EC device must have a statement of compliance (however described) (a statement) from the EC device manufacturer certifying that the device meets the requirements mentioned in clauses 1 to 5.</p>	To ensure there is presentable evidence that the EC device in an aircraft meets the required standard.
	<p>7 The pilot in command of an aircraft that uses an EC device must carry the statement or a copy of it on board the aircraft.</p>	To ensure there is presentable evidence that the EC device in an aircraft meets the required standard.
	<p>8 An EC device must not be operated in a transmit mode anywhere in Australia unless CASA or an NAA considers that a manufacturer has made a valid declaration of capability and conformance to clauses 1 to 5.</p>	To ensure EC equipment used in Australia is of an acceptable quality.

Existing CAO 2018 (or instrument CASA 316/98 where identified)	Proposed CAO 2018	Explanation/Notes. NC means 'No change from existing CAO provision'
	<p><i>Note:</i> CASA lists on its website some EC devices whose manufacturers are considered to have made valid declarations of capability and conformance to clauses 1 to 5.</p>	
	<p>9 An EC device must be mounted in accordance with the manufacturer's instructions.</p>	<p>For safety.</p>
	<p>10 An EC device, when mounted in accordance with the manufacturer's instructions, must not:</p> <ul style="list-style-type: none"> (a) interfere with aircraft controls; or (b) otherwise affect the safe operation of the aircraft. 	<p>For safety.</p>