Explanatory Statement

Civil Aviation Safety Regulations 1998

Manual of Standards Part 139 Amendment Instrument 2012 (No. 1)

Purpose
The purpose of the *Manual of Standards Part 139 Amendment Instrument 2012 (No. 1)* (the ***MOS Amendment***) is to provide technical standards for the electronic surveillance equipment that is to be fitted to vehicles that enter or move on the manoeuvring area of a designated certified aerodrome.

Legislation — the Act
Under subsection 98 (1) of the *Civil Aviation Act 1988* (the ***Act***), the Governor-General may, among other things, make regulations prescribing matters required, permitted, necessary or convenient for the Act and in the interests of the safety of air navigation.

Under paragraph 98 (3) (d) of the Act, those regulation-making powers are taken to include the power to make regulations for, or in relation to, the operation and use of aerodromes.

Under paragraph 98 (5A) (a) of the Act, the regulations may empower CASA to issue instruments in relation to matters affecting the safe operation of aircraft.

Legislation — CASR Part 139
Some of these regulations are contained in the *Civil Aviation Safety Regulations 1998* (***CASR 1998***). In particular, Part 139 of CASR 1998, Aerodromes (***CASR Part 139***), deals with the operation of aerodromes and includes rules about the certification of aerodromes, the requirements that apply to such aerodromes, hazards at aerodromes, and aerodrome operators' obligations in relation to radio communication services.

Under regulation 139.010 of CASR 1998, Manual of Standards (the ***MOS***) means the document called *Manual of Standards Part 139 — Aerodromes* published by CASA, as in force from time to time.

Under regulation 139.015 of CASR 1998, the standards for aerodromes are those set out in the MOS.

A-SMGCS
CASR Part 139 was amended by *Civil Aviation Safety Amendment Regulations 2011 (No. 2)* (the ***CASR Amendment Regulations***) which was made on 7 December 2011 and relevantly took effect on 13 December 2011. The CASR Amendment Regulations define ***A-SMGCS*** as Advanced Surface Movement Guidance and Control System, as defined in ICAO Document 9830 (*Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual*) approved and published by the Council of ICAO, as in force from time to time.

This aerodrome surface surveillance equipment has already been commissioned at Sydney and Melbourne aerodromes, and is presently being installed at Brisbane and Perth aerodromes by Airservices Australia (***AA***). The Brisbane and Perth systems are scheduled to be commissioned by mid-2012. The equipment is designed to mitigate the risk of runway and taxiway incursions by vehicles by providing air traffic control

(***ATC***) with situational awareness of the location and identification of vehicles on the aerodrome manoeuvring area, particularly in low visibility conditions and darkness.

A-SMGCS involves a multi-sensor system that employs compatible surveillance technologies, including Automatic Dependent Surveillance – Broadcast (***ADS-B***), Surface Movement Primary Radar and Multilateration. This gives reliable and accurate detection and identification of all runway surface movements by aircraft and surface vehicles that are reciprocally fitted with electronic devices that transmit the identity and GPS-derived location of the vehicle.

Amendment regulations for A-SMGCS

Under subregulations 139.252 (1) and (2) of CASR 1998 (as inserted by the CASR Amendment Regulations), CASA may, in writing, designate a certified aerodrome as an aerodrome to which ***A-SMGCS*** applies if the air traffic service provider requests this, submits a safety assessment justifying the request, and CASA is satisfied that use of A-SMGCS is required to ensure the safe control of aircraft and vehicles operating on the manoeuvring area of the aerodrome.

In order to ensure appropriate notice and preparation time for affected aerodrome operators, under subregulation 139.252 (3), a designation may not take effect sooner than 6 months after the date of the designation.

Under subregulations 139.254 (2) and (3), before the designation takes effect, the operator of a designated aerodrome must establish, and publish in its aerodrome manual, procedures requiring that any vehicle that enters, or moves on, the manoeuvring area of the aerodrome is to be fitted with serviceable radiocommunications equipment, and also with serviceable electronic surveillance equipment that meets technical standards published in the MOS (subparagraph 139.254 (3) (a) (i) of CASR 1998 specifically refers).

Alternatively, a vehicle that enters, or moves on, the manoeuvring area of the aerodrome is to be accompanied by another vehicle fitted with serviceable equipment that meets these standards.

Under subregulation 139.254 (4), drivers of the vehicles must monitor the ATC radio frequency for surface traffic at all times that the vehicle is on the aerodrome's manoeuvring area and communicate with ATC as necessary to ensure the safety of persons, vehicles and aircraft on the manoeuvring area.

Under subregulation 139.254 (5), on and from the date of effect of the aerodrome designation, the operator must comply with the procedures described above. It is for the aerodrome operator also to ensure that other persons who operate vehicles on the manoeuvring areas comply with the procedures and that vehicle drivers comply with the procedures. Failure to ensure these safety outcomes is a strict liability offence.

The MOS Amendment

The MOS Amendment sets out the technical standards for the equipment as required under subparagraph 139.254 (3) (a) (i) of CASR 1998. Details of the standards are contained in Attachment 1.

Legislative Instruments Act

Under subsections 98 (5AA) and (5AB) of the Act, an instrument issued under a regulation made under paragraph 98 (5A) (a) of the Act, is a legislative instrument for

the *Legislative Instruments Act 2003* (the ***LIA***) if it relates to the safe operation of aircraft and applies more broadly than to a particular aircraft or person. The MOS Amendment relates to the safe operation of aircraft at designated certified aerodromes in so far as it is necessary to minimise the risk of interference by, or collision with, vehicles entering, or moving on, the manoeuvring area. The MOS Amendment is of general application and is, therefore, a legislative instrument subject to registration, and tabling and disallowance in the Parliament, under sections 24, and 38 and 42, of the LIA.

Consultation for section 17 of the LIA

Consultation on the MOS Amendment has been conducted as part of the consultation that occurred for the CASR Amendment Regulations. This is set out in the Explanatory Statement for those Regulations. Consultation generally took the form of a Notice of Proposed Rule Making (***NPRM***) published for comment. Responses to the NPRM were taken into account in finalising the Amendment Regulations and the MOS Amendment.

Office of Best Practice Regulation (*OBPR*)

OBPR assessed that the CASR Amendment Regulations were likely to have a low impact on business and impose no or low compliance costs. Therefore, no further analysis (in the form of a Business Cost Calculator Report or Regulation Impact Statement) was required for the CASR Amendment Regulations. The same OBPR outcome extends to the MOS Amendment.

Statement of Compatibility with Human Rights

The following Statement is prepared in accordance with Part 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

The MOS Amendment, in its nature and contents, is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*. It would provide technical standards for the electronic surveillance equipment fitted to vehicles on the manoeuvring area of designated certified aerodromes. The equipment is designed to mitigate the risk of runway and taxiway incursions by vehicles by providing ATC with situational awareness of the location and identification of vehicles on the aerodrome manoeuvring area, particularly in low visibility conditions and darkness.

Therefore, the MOS Amendment does not engage any of the applicable human rights or freedoms and it is compatible with human rights as it does not raise any human rights issues.

Making and commencement

The MOS Amendment was made after the CASR Amendment Regulations commenced, and is expressed to commence on the day after registration.

The instrument has been made by the Director of Aviation Safety, on behalf of CASA, in accordance with subsection 73 (2) of the Act.

[Manual of Standards Part 139 Amendment Instrument 2012 (No. 1)]

Attachment 1

Manual of Standards Part 139 Amendment Instrument 2012 (No. 1)

1 Name of instrument

This section names the instrument as the *Manual of Standards Part 139 Amendment Instrument 2012 (No. 1).*

2 Commencement

Under this section, the instrument commences on the day after registration.

3 Amendment of the MOS

Under this section, Schedule 1 amends the MOS.

Schedule 1 Amendments

Under this Schedule, the specific amendments to the MOS are made in order to establish the standards for relevant electronic surveillance equipment.

[1] After subsection 10.9.3

This amendment inserts a new subsection 10.9.4 into Chapter 10 of the MOS (**Operating Standards for Certified Aerodromes**), dealing with technical standards for electronic surveillance equipment fitted to vehicles.

New subsection 10.9.4.1 provides that for subparagraph 139.254 (3) (a) (i) of CASR 1998, the technical standards for electronic surveillance equipment fitted to a vehicle that enters, or moves on, the manoeuvring area of a certificate aerodrome that is designated as an aerodrome to which A-SMGCS applies, are set out in Table 10.9-1.

The Table sets out the relevant standards as follows:

Table 10.9-1: Technical Standards for Electronic Surveillance Equipment Fitted to Vehicles

Item	Subject	Technical Standard
1	**Transmit Message Type**	Mode S Extended Squitter Downlink Format DF18 identification, surface position, and Navigation Integrity Category (NIC). Message protocol as per RTCA Inc (***RTCA***) DO-260A or RTCA DO-260B, or later versions as in force from time to time.
2	**Navigation Integrity Category (*NIC*)**	NIC is to be encoded and transmitted in accordance with RTCA DO-260A or RTCA DO-260B, or later versions as in force from time to time, using the Horizontal Protection Level (***HPL***) (the position containment radius) as determined by the GPS function in accordance with RTCA DO-229D or RTCA DO-316. The HPL calculation is not to assume that Selective Availability (SA) is ON.
3	**Navigation Accuracy**	NAC is to be encoded and transmitted in accordance with RTCA DO-260A or RTCA DO-260B, or later versions as in force from time

Item	Subject	Technical Standard
	Category (*NAC*)	to time, using the Horizontal Figure of Merit (HFOM 95% horizontal accuracy) as determined by the GPS function in accordance with RTCA DO-229D or RTCA DO-316.
4	**Surveillance Integrity Level (*SIL*)**	SIL is to be encoded in accordance with RTCA DO-260A or RTCA DO 260B, or later versions as in force from time to time.
5	**ADS-B Transmit Periods**	*Surface position*: (a) if vehicle in motion — at least every 0.5 seconds; and (b) if vehicle not in motion — at least every 5 seconds. *Identification and type*: (a) if vehicle in motion — at least every 5 seconds; and (b) if vehicle not in motion — at least every 10 seconds. *NIC status:* whether vehicle in motion or not — at least every 0.5 seconds.
6	**Transmit Power**	20 watts peak power.
7	**Transmit Frequency**	1090 (+/-1) MHz.
8	**Pulse and Spectral Conformance**	In accordance with: (a) RTCA DO-260A or RTCA DO-260B, or later versions as in force from time to time; and (b) RTCA DO-181C.
9	**Vehicle Identification**	Field configurable by user.
10	**24-bit ICAO Address**	User configurable.
11	**Operating Temperature**	From -30^{o}C to +55^{o}C.
12	**Input Power**	From 9 to 32 volts DC, approximately 4 watts maximum.
13	**Transmit Antenna**	To be contained within the unit.
14	**Physical**	To be attachable to external roof surface of vehicle by magnetic attraction.
15	**GPS Receiver**	To be 12 channels or more.