

Annex A

Consolidated Summary of Comments / Responses received, CASA's Response and Disposition Actions to NPC 139/04

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Comments relating to the proposed Manual of Standards (MOS) Part 139 – Aerodromes

(Issued under NPC 139/04)

General

Where comments are the same or substantially similar, they have been amalgamated into a single response. Where comments have an obvious action that can be applied to them, the actions have been documented in the response and disposition. Some comments state an opinion which by its nature is difficult to incorporate into meaningful change to the proposed amendment. Where this is the case, CASA has noted the comments. Some comments have been edited for readability and presentation purposes.

The following comments reflect the results of the consultation process. Where supportive comments such as ‘no comment’, or ‘acceptable without any change’, were made, these have not been included in the following analysis. It was not uncommon for a respondent to provide a ‘not acceptable’ or ‘acceptable but could be improved’ comment to one or two Sections of the proposed amendment, and supportive comments to the other Sections of the amendment.

COMMENT 1 – Chapter 1, Section 1.2 – Definitions

A respondent took the opportunity to question an item that was not proposed for amendment, noting that the list of definitions does not include a definition for ‘System’, and suggests that it should be added.

CASA Response

The intent is that the word ‘system’ in the context of the various airport lighting systems, is the dictionary usage: ‘complex whole set of connected things or parts’. To attempt to specify a narrower meaning could add unwarranted complexity. The context in which the word is used throughout Chapter 9 is not misleading.

Disposition

No change to be made to the amendment.

COMMENT 2 – Chapter 9, Section 9.1 – General

1. 9.1.1.2(c)(i) – A comment that the definition for apron upgrade is too broad.
2. 9.1.1.2(c)(iii) – A suggestion that CASA change the amendment to:- ‘to accommodate take-off, and aerodrome surface movement, in visibility of less than 800 m if RVR is not available; below 550 m if RVR is available.’
3. A suggestion that Note 1 following 9.1.1.2(c), would be improved if a time constraint was added.
4. 9.1.2.3 –A comment that the words ‘as far as possible’ is subjective and does not provide a definitive meaning, and contradicts the word ‘must’ in the same paragraph.
5. 9.1.6.1 – A comment that the reference to AIP ENR gives incorrect page and para number.
6. 9.1.8.1(c) – A suggestion that this section should reference all the other requirements for Cat I, Cat II, and Cat III operations, such as taxiway centreline spacing, runway guard lights, stop bars, runway edge light spacing, runway centreline lighting, etc. Also, there is no mention of runway guard lights, which are required for Cat I, II, and III operations according to 9.13.16.
7. 9.1.8.1(c) –A verbal comment was received that noted that while 9.1.8.1(c) contains secondary power switchover times for various visual aids supporting runways meant for take-off in RVR conditions of less than a value of 800 m, there is no preceding paragraph that actually states that secondary power must be provided to such a runway.
8. 9.1.8.2 – A suggestion that an acceptable method of meeting the change-over time would be for a version of alerting where the generator is started, but NOT connected to load.
9. 9.1.8.3 – An observation that this addition reintroduces ATC control, (or at least notification and monitoring) of aerodrome power on alert. Therefore, where control and monitoring has been removed, this requirement would mean control and monitoring would need to be re-introduced.
10. 9.1.10.1 & 9.1.10.2 – A suggestion that some re-arranging be done to improve clarity.
11. 9.1.10.4 – A suggestion that the proposed paragraph be changed to include specific photometric characteristics for non liquid fuel-burning flares: suggesting they must be omni-directional, with an average luminous intensity not less than 20 cd between the horizontal plane and vertical elevation of 7 degrees; that colour should be specified as conforming to that of permanent lights, except where not practicable; and that portable lights for use on taxiways should be omni-directional lights with a peak luminous intensity not less than 5 cd between the horizontal plane and vertical elevation of 7 degrees .
12. 9.1.11.1 – A comment that the phrase ‘a wealth of’ is not liked.
13. 9.1.15. 1 – A suggestion that CASA limits who they consider as a ‘qualified person’ for the Ground Check component of a Commissioning, and went on to mentioned past experience with licensed electricians with insufficient experience.

14. 9.1.15.2 – A comment that they were worried about the cost of testing light fittings, and suggested wording to remove reference to Accredited Testing Authorities being part of the NATA Mutual Recognition Arrangements.

A second suggestion that requirement for overseas labs to be accredited by an accrediting authority with a MRA with NATA be removed, and that FAA sponsored testing should be acceptable.

15. 9.1.15.10 – Three comments that copies of all ground check reports, flight check reports, and light fitting laboratory reports to be stored in a filing system, not in the Aerodrome Manual.

16. 9.1.15.10 – There was a request for confirmation that this new standard would not be applied retrospectively.

CASA Response

1. *The definition of upgrade of an apron is appropriate. If an apron is changed to enable it to accommodate more and /or larger aircraft, the apron floodlighting requirements will differ from before the upgrade. Accommodating more aircraft requires more aircraft parking positions, and accommodating larger aircraft requires larger aircraft parking positions. Apron floodlighting would have to be re-designed to accommodate either change.*

2. *The suggestion is not accepted. Visual range conditions of less than a value of 550 m is the trigger for the commencement of low visibility operations.*

3. *As stated in the Note, CASA has chosen not to have a general time constraint, to enable the Aerodrome Operator to choose when works will be done, and so retain control of their budgeting and timing of expenditure. For some more critical instances, CASA may set a time limit, for example some requirement to support low visibility operations will most likely have time limits by which non-compliances must be brought into compliance. If CASA were to mandate a standard time limit of correcting all non-compliances, it would have to be a relatively short time to ensure capturing the worst cases, and that in turn could be unduly onerous on smaller aerodromes with less significant non-compliances.*

4. *The use of the words ‘as far as possible’ is simply CASA acknowledging reality, that in some circumstances, some difference in photometric performance is unavoidable. An example is a runway with elevated edge lights, but with an inset light required at a pavement crossing. CASA knows that any commercially available inset light will have different photometric characteristics to the elevated lights, and accepts the inevitable difference. On the other had, mixing one brand of elevated lights with another brand of elevated lights, with different photometric characteristics, on that runway can quite easily be avoided, and would not be acceptable under this paragraph.*

5. *The AIP ENR page and paragraph numbers were as per the AIP dated 16 Mar 06. In the 13 Mar 08 AIP the page and paragraph number had changed to Page ENR 1.1-97, paragraph 73.4.8. The frequent amendment to the AIP document highlights the futility of providing detailed cross referencing to it in other documents. Therefore, a more general reference will be made in the MOS amendment.*

6. 9.1.8.1(c) deals specifically with switch-over time for take-off operations. Cat I / II / III are landing operations, and the switch-over times for facilities supporting these operations are specifically detailed in 9.1.8.1(a) and (b). Sub-section 9.1.8 deals with 'Switch-over Time'; other requirements such as taxiway centreline spacing, requirements for runway guard lights, etc., are detailed in the appropriate Sections of Chapter 9. It would be in-appropriate to include requirements that were not about switch-over time in the sub-section specifically about switch-over time.

7. The content of 9.1.8.1(c) clearly shows that the intent is to require secondary power for the critical visual aids intended to support take-off in visibilities of less than 800 m. CASA can not explain how the oversight to include a paragraph specifically stating such a requirement has remained un-noticed for so long.

8. If the generator is operating but not on load, and a mains power failure occurs, several things have to occur to restore power; the loss of mains power has to be sensed, and change-over initiated; load transfer switches or contactors have to operate; when full load is suddenly dumped onto the rotating but unloaded generator, the generator speed will sag, voltage and frequency will drop out of tolerance, the generator will have to come up to speed and stabilise. The possibility of all this occurring within the specified 1 second changeover is so unlikely as to be unacceptable.

Additionally, expert opinion is that to run diesel engines on no-load is deleterious to the engine. Engine manufacturers do not like their engines to run for any long periods on no load, because it causes glazing of the engine. If the no-load period was kept to a minimum, no longer than approximately 15 minutes at any one time, this would have little impact on any cylinder bore polishing, but the generator set would need to be placed on load after the no-load period to allow the removal of any unburnt fuel, etc.

The suggestion that 'alerting' of generators should allow the starting of the generator, but then let it run not connected to the load, is not acceptable to CASA.

9. CASA agrees with the observation.

10. The respondent appears to be interpreting the 'temporary' use, and the 'emergency' use, as being separate applicabilities. The intent is that the lights are suitable for emergency use and then only on a temporary basis. Para 9.1.10.1 will be slightly modified to reinforce this intent.

11. There are no internationally accepted photometric standards for portable lights; ICAO has no standard in Annex 14, only recommending that the colour of lights should conform to the colour requirements for runway lights, except where it is not practicable, when all lights may be variable white or as close to variable white as practicable. This ICAO recommendation on the colour of lights has been included in this CASA amendment.

CASA has no study results, or practical evidence, on which to base more prescriptive photometric characteristics.

If liquid fuel-burning flares are deemed acceptable, it is not logical to demand specific performance standards from other technologies used, which are deemed to be equally acceptable.

The failure to specify that the lights be omni-directional, was an oversight in the amendment, and will be included.

12. *No preferable words were suggested.*

13. *CASA has not heard of unsatisfactory performance by people CASA deems to be ‘qualified persons’. Most people involved in commissioning are conscientious in carrying out their activities. CASA will add a requirement for aerodrome lighting knowledge and experience, but it will still be up to aerodrome operators to decide if they are satisfied with the ability of the person they choose to conduct the commissioning ground check.*

14. *The cost of testing is not onerous. Each individual light does not have to be tested. A one-off laboratory test of each light type, and each distinct variation, is what is required. A further laboratory test is not required until a change is made to the originally tested light.*

The overseas laboratory does not have to be accredited by Australian NATA; it has to be accredited by its appropriate national accrediting authority, and that authority has to be in a mutual recognition agreement with NATA.

Testing sponsored and/or supervised by the USA FAA is not generally acceptable, because FAA standards are not necessarily the same as Australian standards. Where the standards are the same, if the FAA sponsored tests are carried out at a laboratory that is accredited by a national accrediting authority that is in a mutual recognition agreement with NATA, then those tests would be acceptable to CASA.

Such international testing requirements are commonplace in virtually all technology dependant industries, and are not unique to aerodrome lighting equipment.

The paragraph will be changed to make the intent clearer.

15. *From the comments received, it appears that some respondents thought that ALL ground checks, flight checks, and light fitting laboratory reports, had to be filed in the Aerodrome Manual. That is not the intent.*

It is only those reports that support Commissioning that have to be included in the Aerodrome Manual. These documents supporting Commissioning are the foundation that supports the veracity of the aerodrome lighting systems at an aerodrome, and are of fundamental significance. Commissionings are infrequent occurrences, and as such, frequent changes to the Aerodrome Manual will not be caused. Ongoing and routine test reports do not have the same fundamental significance, and do not have to be included in the Aerodrome Manual.

Attention is also drawn to CASR 1998, 139.100(3), which states ‘If CASA approves, the manual may consist of more than 1 document.’ It could therefore be possible for an aerodrome to keep all reports supporting commissioning in a separate document, provided that document was subject to the document control requirements applicable to the Aerodrome Manual.

The paragraph will be changed to make the intent clearer.

16. The general rule is that no MOS Part 139 standard is applied retrospectively. See existing paragraph 9.1.1.1. However, CASA does have the authority to issue a direction where it is considered necessary.

Disposition

1. No change to be made to the amendment.
2. No change to be made to the amendment.
3. No change to be made to the amendment.
4. No change to be made to the amendment.
5. Change the amendment to the following:

9.1.6.1 – Where they are series current system.

Note 1: Inter-leaf circuitry is recommended for aerodromes intended for precision approach operations. Guidance on this may be found in ICAO Aerodrome Design Manual Part 5.

2: Some operational credit is available to runways with inter-leaf circuits. See Aeronautical Information Publication AIP Australia, Part 2 - En Route, paragraph titled ‘Partial Runway Lighting Failure’ in ENR 1.1.

6. No change to be made to the amendment.
7. Add a new paragraph as follows:

9.1.7.4 Secondary power must be provided to every runway intended for take-off in RVR conditions less than a value of 800 m, to allow the operation of the following lighting systems:

- (a) runway edge lights;
- (b) runway end lights;
- (c) runway centre lights, where provided;
- (d) all stop bars when they are being used;
- (e) runway guard lights when stop bars are not being used;

- (f) essential taxiway lights; and
 - (g) essential obstacle lights
8. No change to be made to the amendment.
9. No change to be made to the amendment.
10. Change the amendment to the following:
- 9.1.10.1 Portable lights are intended for emergency use and then only on a temporary basis and are not suitable for permanent use. They are primarily for visual flight rules (VFR) operations.
11. Change the amendment to the following:
- 9.1.10.3 Portable lights may comprise liquid fuel-burning flares or lamps, ~~or~~ battery powered electric lights, or other similar devices. The lights must have a substantially omni-directional light output.
12. No change to be made to the amendment.
13. Change the amendment to the following:
- 9.1.15.1 Commissioning means the
 - (a) **For ground check of compliance with electrical specifications and CASA standards** – electrical engineer or licensed electrician, with aerodrome lighting knowledge and experience.
14. Change the amendment to the following:
- 9.1.15.2 Evidence that the light fitting or by a laboratory of another country that is accredited by an accrediting authority which is in a mutual recognition agreement with NATA.
15. Change the amendment to the following:
- 9.1.15.10 Copies of all ground check reports, flight check reports, and light fitting laboratory test reports that were used to support the commissioning of lighting systems, must be filed in the Aerodrome Manual. These reports must be retained for as long as the relevant lighting systems remain in service.
16. No change to be made to the amendment.

COMMENT 3 – Chapter 9, Section 9.3 – Pilot Activated Lighting Systems

Not referring to any proposed changes to this section, one respondent suggested that the activation standards for the PAL plus AFRU be included in this section about PAL.

CASA's response

The characteristics of 'PAL' and 'AFRU with PAL' are different in some respects. These differences occurred when the two systems were being developed independently, and to bring them into harmony would be technically quite difficult, and would render significant numbers of installed equipment no longer compliant with the MOS standard.

CASA believes that the best overall result would be obtained if 'PAL' and 'AFRU with PAL' remain separate devices, with separate performance specification in MOS Part 139. 'AFRU with PAL' is not primarily an aerodrome lighting system; it is primarily a frequency confirmation system, with an optional addition of a pilot activated lighting control function.

CASA is prepared to put a note at the start of Section 9.3 mentioning that 'AFRU with PAL' can be found in Sub-section 14.3.6. Similarly, a note will be placed at the start of Sub-section 14.3.6 mentioning that 'PAL' can be found at Section 9.3.

Disposition

Add the Notes shown below:

9.3.1 General

Note: See Sub-section 14.3.6 for standards for 'AFRU with PAL Features'.

14.3.6 AFRU with PAL Features

Note: See Section 9.3 for standards for 'PAL'.

COMMENT 4 – Chapter 9, Section 9.4 – Obstacle Lighting

1. 9.4.3.5 (d) – A suggestion that the requirement for all obstacle lights on a wind farm to be synchronised so that they all flash simultaneously, be deleted.
2. 9.4.10.3 – A verbal comment was received, not referring to any proposed changes to this section, suggesting that some re-wording of the existing standards would be beneficial in making it clearer that the aerodrome operator must initiate the appropriate NOTAM action, in the first instance.

CASA's response

1. *CASA believes that the requirement for all obstacle lights in a wind farm to be synchronised so that they flash simultaneously came from evaluation flight trials of wind farm lighting conducted in the USA. The advantage of synchronised flashing was very significant.*

Since then, proposed amendments to ICAO Annex 14 have included standards and recommended practices specifically for the obstacle marking and lighting of wind turbines and wind farms. The proposed Annex 14 material contains the following provision: 'so that, where flashing lights are used, they flash simultaneously; and'.

2. *CASA accepts this suggestion.*

Disposition

1. No change to be made to the amendment.

2. Amend the existing standards as follows:

9.4.10.3 For obstacles located within the obstacle limitation surface area of the aerodrome; ~~in the event of an obstacle light outage, the aerodrome operator is to:~~

- ~~(a) notify the relevant CASA office immediately if the obstacle light has been determined by CASA as being a requirement for aircraft operations;~~
- ~~(b) in any case, initiate NOTAM action to advise pilots of such light outage;~~
- ~~(c) liaise with the owner of the obstacle light to effect a speedy repair.~~

- (a) in the event of an obstacle light outage, the aerodrome operator must initiate NOTAM action to advise pilots of such light outage;
- (b) if the aerodrome has been officially advised by CASA that specific obstacle lights are essential for the safe operation of the aerodrome, and if the specified lights failed then the aerodrome may have to close, on becoming aware of such an outage, in addition to initiating NOTAM action in accordance with (a) above, the aerodrome operator must immediately notify the relevant CASA office of the outage;
- (c) in the case of all obstacle light outages, the aerodrome operator must liaise with the owner of the obstacle light to affect a speedy repair.

Note: Details on initiating a NOTAM are given in Chapter 10, Section 10.3.

9.4.10.4 Details of procedures to be followed when obstacle light outages occur must be included in the Aerodrome Manual. If CASA has officially advised the aerodrome that specific obstacle lights are essential for the safe operation of the aerodrome, this must be documented in the Aerodrome Manual.

9.4.10.4

9.4.10.5 For obstacles located outside the obstacle limitation surface area of an aerodrome, etc ...

COMMENT 5 – Chapter 9, Section 9.6 – Illuminated Wind Direction Indicator

9.6.1.4 – Four respondents opposed the performance specification proposed to be included, because the light levels are too onerous, and are practically impossible to achieve. One thought that the Australian market was small, and manufacturers would not be prepared to manufacture compliant products. Another suggested a much lower level of illumination, of not less than 20 lux, should be adopted instead.

CASA's response

The aerodrome community has long been requesting CASA to provide a performance based standard for the illumination of wind direction indicators. CASA agreed that this was a highly desirable advance, and undertook to include a performance based specification as soon as one could be developed.

ICAO Annex 14 does not have a quantitative specification for the illumination of wind direction indicators, so CASA was forced to look elsewhere.

Noting that the existing equipment based standard IWDIs proved to be acceptable in use, CASA arranged for laboratory measurement of one of these devices to ascertain what illumination would be appropriate for the new specification. These measurements resulted in values from approximately 19 lux to 840 lux, with most values falling between about 100 and 700 lux.

CASA was aware that the British CAA had a published standard for IWDIs, which required illumination of between 200 and 500 lux. When comparing our measured values, it appeared that the British CAA standard was of the same general order of magnitude as our experience had shown to be appropriate. CASA therefore decided to adopt the CAA illumination values, and submitted them for public comment in the proposed amendment.

Since receiving comments that the proposed light levels were too onerous, CASA has reviewed the proposed standard. The proposed standard, with lower and upper limits of 200 and 500 lux, suggests the notional average is approximately 350 lux, and a resultant uniformity ratio, average to minimum, of 350 to 200, i.e. 1.75 to 1. This is a quite onerous uniformity ratio, and so CASA decided that it would be reasonable to let out the lower and upper limits by 100 lux. The notional average remains at approximately 350 lux, but the lower and upper limits would be 100 and 600 lux, and the required uniformity ratio would be 350 to 100, i.e. 3.5 to 1. A uniformity ratio of 3.5 to 1 is a much more reasonable value, and should significantly increase the practicability of building an IWDI that conforms with the standard, while retaining an average illumination comparable to existing IWDIs.

Because of the longer than expected time elapsed since the proposed amendment was written, CASA proposes to defer the original applicability date of 1 January 2009.

Disposition

Broaden the range of acceptable illumination from between 200 and 500 lux, to between 100 and 600 lux.

Extend the applicability date to 1 July 2011.

- 9.6.1.4 Illuminated wind direction indicators (IWDIs) installed after 1 July 2011, must be illuminated by at least four lamp units, providing between 100 and 600 lux illumination on any point of the horizontal etc.

Note: An acceptable method of testing for compliance is to measure Each reading should be in the range 100 to 600 lux.

- 9.6.1.5 IWDIs installed before 1 July 2011 may be

COMMENT 6 – Chapter 9, Section 9.9 – Visual Approach Slope Indicator Systems

The only comments received indicated that the proposed amendments were acceptable.

COMMENT 7 – Chapter 9, Section 9.10 – Runway Lighting

1. 9.10.24.1 Two respondents commented that the phrase ‘of the order of 400 m’ was vague, and that a more exact standard be adopted. One went on to explain that being vague, it was un-helpful for planning airport operations, and even though it was an ICAO ‘Standard’, 400 m is an odd-man-out with respect to RVR values used to determine take-off and landing minima. This respondent suggested changing to ‘less than 350 m’, which is a standard RVR value used for flight operation requirements.
2. The boxed note following 9.10.24.1. A similar suggestion, that a more exact statement be used instead of ‘... an RVR of the order of 400 m or higher ...’

CASA’s response

1. *The CASA proposed standard is in fact the ICAO Annex 14 standard. However, CASA agrees that in this case, ICAO has adopted a less than ideal method for specifying this RVR value.*

The ICAO expression ‘of the order of 400 m’ can clearly be interpreted as somewhat above 400 m or somewhat below 400 m. Bearing in mind the precision with which RVR is measured and reported, and also noting other RVR set points used for other operations, CASA considers that an RVR of ‘350 m or higher’ is not inconsistent with the less precise ‘of the order of 400 m or higher’.

2. *The same logic as applied above, applies to the note following 9.10.24.1.*

Disposition

1. Change the amendment to the following:

9.10.24.1 Runway centreline lights must be provided on a precision approach runway Category II or III, and a runway intended to be used for take-off with an operating minimum below an RVR of 350 m.

Note: Provision of runway centreline lights on a precision approach runway Category I, and a runway intended to be used for take-off with an operation minimum of an RVR of 350 m or higher, where the width between the runway edge lights is greater than 50 m is recommended.
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COMMENT 8 – Chapter 9, Section 9.13 – Taxiway Lighting

1. 9.13.1.1 and 9.13.1.2. – One respondent commented that the RVR figures for Cat I, II, and III are incorrect. Definitions at Section 1.2 list Cat I – not less than 550 m, Cat II – not less than 350 m, and Cat III – from 0 to 200 m.
2. 9.13.1.2 – A suggestion that this paragraph be expanded to define what is meant by ‘layout is simple’ and ‘traffic density is light’.
3. 9.13.11.5 – A suggestion that the standard specified in this paragraph be illustrated by a diagram to ensure the intent is understood.
4. 9.13.12.3, 9.13.12.4, Table 9.13-1, and Table 9.13-2 – A suggestion that all RVR values should be consistent with each other, and 9.10.24.1, and more closely aligned with ICAO Annex 14.
5. 9.13.16.1 – A suggestion that this paragraph be expanded to define what is meant by ‘traffic density is Heavy’.
6. 9.13.16.4 – Two respondents disagreed with this proposal. One respondent went on to say that this proposal does not protect runways against errant vehicles. They wanted Runway Guard Lights to be provided on all taxiway entry and exit points, and they wanted paragraph 9.13.16.4 not be included. They agreed that the boxed note after 9.13.16.3 should be deleted.
7. 9.13.23.1 – One respondent objected to the use of the words ‘appropriate aids and procedures’, claiming that this phrase is too loose as it may allow aerodromes to have ATC protect runways through procedures only, thus removing their need to supply appropriate aids. They went on to suggest that CASA should review this clause and consider appropriate linkage to ICAO Doc 9476 Section 2.4.1, because ICAO Doc 9476 makes clear the requirement for aids, with appropriate reference to Annex 14.

CASA’s response

1. *The point of this amendment was to remove the nexus between taxiway light facilities and Category of Approach (CAT I, II, and III), and replace it with RVR values to trigger the provision of certain taxiway lighting systems. The new sub paragraphs do not mention CAT I, II, or III RVR values.*
2. *The definition of ‘simple layout’, for aerodrome lighting purposes, is given in sub paragraph 9.1.1.2(a)(ii). The definition for ‘light traffic density’, for aerodrome lighting purposes, is given in sub paragraph 9.1.1.2(b)(i).*
3. *The standard expressed by 9.13.11.5 is not complex, and should not need a diagram to illustrate what is intended. Never the less, CASA will consider providing such a diagram.*
4. *CASA could find no inconsistencies between 9.13.12.3, 9.13.12.4, Table 9.13-1, and Table 9.13-2. CASA believes that the amended paragraphs are aligned with ICAO Annex 14.*

5. *The definition for ‘heavy traffic density’, for aerodrome lighting purposes, is given in sub paragraph 9.1.1.2(b)(iii).*

6. *This proposed amendment does not materially change the actual situation at aerodromes. The intention was previously expressed in a Note; this amendment converts that Note to a Standard. The standard states that runway guard lights ‘do not have to be provided’, it does not say that runway guard lights ‘must not be provided’.*

Runway guard lights are located at the runway holding position, as specified in 9.13.17.3. If the taxiway is used for exit only and can not be used for entry to the runway, there will not be a runway holding position established, and therefore no standard compliant location for runway guard lights to be located.

If the intention is to prevent errant vehicles from entering the runway, other vehicle-specific visual aids could be provided to accomplish that aim, such as Vehicle STOP Signs.

The use of ‘Road-holding Position Lights’, as specified in ICAO Annex 14, Section 5.3.26, could be appropriate. ‘Road-holding Position Lights’ are not included in MOS Part 139 at this time, but if there is a perceived need, CASA will add the standard to MOS. If there is an urgent need, CASA would consider granting an exemption for the installation of ICAO compliant ‘Road-holding Position Lights’, until such time as the standard was added to MOS Part 139.

The control of errant vehicles should be addressed by effective airside vehicle control, airside vehicle permits, and airside driver training and testing.

7. *The expression ‘appropriate aids and procedures’ is a direct quote from ICAO Annex 14, sub-paragraph 5.3.19.1a) and 5.3.19.2a).*

The assertion that the proposed words ‘may allow aerodromes to have ATC protect runways through procedures only, thus removing their need to supply appropriate aids’ is not valid. For that to happen, the standard would have to be worded ‘appropriate aids or procedures’.

CASA has added to the ICAO standard, the requirement that aids and procedures, as proposed by the aerodrome operator, has to be ‘agreed to by CASA’. CASA would not agree to a proposal that was deficient, or provided inadequate safety.

Disposition

1. No change to be made to the amendment.
2. No change to be made to the amendment.
3. Add a diagram to Figure 9.15-1, to illustrate sub paragraph 9.13.11.5.
4. No change to be made to the amendment.

5. No change to be made to the amendment.
6. No change to be made to the amendment, at this time. If the need is demonstrated to CASA, a future amendment to MOS Part 139 will be made to introduce standards for ‘Road-holding position lights’.
7. No change to be made to the amendment.

COMMENT 9 – Chapter 9, Section 9.14 – Isocandela Diagrams for Taxiway Lights

The only comments received indicated that the proposed amendments were acceptable.

COMMENT 10 – Chapter 9, Section 9.15 – Illustrations of Taxiway Lighting

The only comments received indicated that the proposed amendments were acceptable.

COMMENT 11 – Chapter 9, Section 9.16 – Apron Floodlighting

1. 9.16.3.3 – Although this paragraph is not part of the proposed amendment, one respondent suggested it should be changed to read ‘Apron floodlights must be located and shielded so that pilots of aircraft in flight and on the ground, air traffic controllers, and personnel on the apron are protected from direct or reflected glare’. The existing paragraph states ‘Apron floodlights must be located and shielded so that there is a minimum of direct or reflected glare to pilots of aircraft in flight and on the ground, air traffic controllers, and personnel on the apron’.
2. 9.16.3.5 – Although this paragraph is not part of the proposed amendment, one respondent suggested it should be changed by adding a requirement that apron floodlight poles do not obstruct the view from an existing control tower cab. This is to harmonise with a requirement in CASR Part 172.

CASA’s response

1. *The existing wording of 9.16.3.3 is an accurate reflection of the equivalent ICAO Annex 14 Recommendation, which is as follows:*

5.3.23.2 Recommendation. – Apron floodlighting should be located so as , with a minimum of glare to pilots of aircraft in flight and on the ground, aerodrome and apron controllers, and persons on the apron. The arrangement.....

The suggested difference changes the requirement from ‘a minimum of direct or reflected glare’ to ‘protected from direct or reflected glare’. CASA interprets the proposed change to permit the quoting of this MOS standard to have removed any apron flood light that causes any glare, even if it is minimal, or not significant. The word ‘protected’ infers an absolute absence of glare.

CASA considers such a standard could be onerous in practice, and goes well beyond the ICAO recommendation.

2. *CASA appreciates what has lead to this suggestion, but believes it is too sweeping in its intent, and too limiting in its application.*

It is too sweeping in its intent, by imposing a blanket ban on any apron floodlight pole that obstructs the view from an existing control tower. In practice, probably every apron floodlight pole obstructs some of the view from a control tower, but in practice the amount of view obstructed is sufficiently small as to be insignificant, or it may be in a direction of view that is not operationally significant, or it may be the view to a part of the aerodrome that is not of significance to ATC.

It is too limiting in its application, in that it only would apply to apron floodlighting poles. The proposed change would not stop, for example, a terminal building being built that would obstruct a very large and operationally significant amount of the view from an existing control tower.

CASA intends to look into the aspect of maintaining an operationally acceptable view from control towers, and include such a standard in future amendments to MOS Part 139, which would be applicable to all impediments to visibility, not just apron floodlighting poles.

Disposition

1. No change to be made to the amendment.
2. No change to be made to the amendment.

COMMENT 12 – Chapter 9, Section 9.17 – Visual Docking Guidance Systems

The only comments received indicated that the proposed amendments were acceptable.

COMMENT 13 – Chapter 9, Section 9.19 – Other Lights on an Aerodrome

The only comments received indicated that the proposed amendments were acceptable.

COMMENT 14 – Chapter 9, Section 9.20 – Monitoring, Maintenance and Serviceability of Aerodrome Lighting

The only comments received indicated that the proposed amendments were acceptable.

COMMENT 15 – Chapter 9, Section 9.21 – Lighting in the Vicinity of Aerodromes

One respondent advised that the proposed changes are acceptable, but suggested that sub-section 9.1.3 should be incorporated into Section 9.21.

CASA's response

Sub section 9.1.3 is the general requirement for minimising the effect of non-aeronautical lights in the vicinity of an aerodrome. Section 9.21 is not a standard; it is advice to lighting designers to help them in satisfying the general requirements of 9.1.3. To assist in satisfying the requirements of 9.1.3, there is a reference to Section 9.21 in the Notes at the end of 9.1.3.

As they are different things, and particularly as Section 9.21 is advice, CASA considers that it would be inappropriate to incorporate sub-section 9.1.3 into Section 9.21.

Disposition

No change to be made to the amendment.

COMMENT 16 – General

1. One respondent suggested that boxed notes should be removed to a separate commentary document.
2. One respondent suggested that MOS Part 139 should be more harmonious and aligned with ICAO Annex 14.
3. Although Figure 9.11-8 was not included in the proposed amendment, one respondent commented that there appears to be a typographical error in the formula; the 'a' and 'b' values should be corrected.

CASA's response

1. CASA has addressed this opinion previously. The boxed notes are intended to explain the intent of the associated standards, or provided relevant and useful information in support of the standards. For it to be useful, it has to be read in conjunction with the related standards. If it was in a separate document, readers of the MOS would not necessarily know that there was some additional useful material to be read, and so the usefulness of the notes would be lost. To achieve the full benefit of the notes, it would be necessary to read the two separate documents at the same time, and CASA believes that in practice, busy aerodrome staff would be unlikely to routinely follow this inconvenient procedure.

2. *CASA hears this comment on a regular basis, but specific examples are rarely given. CASA believes that the MOS is in close harmony with ICAO Annex 14. Some differences are necessary due to the legal framework that the MOS has to follow; ICAO recommendations that are to be adopted in Australia usually have to be upgraded to a standard for inclusion in MOS Part 139; some ICAO standards are insufficiently detailed, in which case CASA adds additional clauses, but without departing from the intent of Annex14; some Annex 14 standards are considered to have little or no applicability to Australia, and hence are not included in MOS Part 139.*

3. *CASA welcomes this observation of another typographical error that has escaped our notice.*

Disposition

1. No change to be made to the amendment.
2. No change to be made to the amendment.
3. Figure 9.11-8 will be corrected.